

ISO 9001:2008  
CERTIFIED



# ACTEK®

VOL . 08

## MANUFACTURING AND ENGINEERING, INC.



1110 Fullerton Road, City of Industry, CA 91748  
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**ACTEK<sup>®</sup>**  
**MFG. & ENG. INC.**



---

**YOUR SOURCE FOR  
SAFE AND EASY LIFTING SOLUTIONS**

**TOP QUALITY, FAST DELIVERY &  
UNBEATABLE PRICES**

Since our inception in 1989, Actek<sup>®</sup> Mfg. & Eng. Inc. has established a reputation for providing top-quality products as well as excellent service. Our friendly and knowledgeable personnel are here to assist you with your various needs. Whether you need a quotation, order, technical assistance, or special product designs we will find a solution. Furthermore, by maintaining the largest inventory of hoist rings anywhere, same-day shipment has become our trademark. The relationships we have built have helped us grow to where we are today. And as we continue to grow, so does our commitment to you.

A couple of key points we would like to point out include:

- 1) ISO 9001:2008 Certified
- 2) Large Inventory to facilitate same day shipping
- 3) 200% Proof-load Test all hoist rings with certificate.
- 4) Each hoist ring is individually serial numbered for better traceability.
- 5) \$2,000,000 Product Liability Insurance

We invite you to visit our facility anytime; seeing is believing.



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**MFG. & ENG. INC.**

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**SAME DAY SHIPMENTS**  
**LARGE INVENTORY**



**OUR NEW 120,000 SQ. FT. FACILITY**

**WE WELCOME YOU TO VISIT US ANYTIME.**  
**SEEING IS BELIEVING.**



# ACTEK®

## SAFE AND EASY LIFTING SOLUTIONS FOR

# STREET/TRENCH PLATES



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# ACTEK®

## SAFE AND EASY LIFTING SOLUTIONS FOR WINDMILL



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## SAFETY SWIVEL HOIST RING



- 200% PROOF-LOAD TESTED WITH SERIAL NUMBER FOR TRACEABILITY
- SWIVELS 360° - PIVOTS 180°
- MATERIAL: AIRCRAFT QUALITY ALLOY (180 KSI TENSILE STRENGTH, MINIMUM)
- FINISH: BLACK OXIDE PER MIL SPEC  
ALSO AVAILABLE: CADMIUM PLATED, ELECTROLESS NICKEL PLATED, ZINC PLATED
- SAFETY FACTOR: 5:1
- MAGNETIC PARTICLE INSPECTED
- CERTIFIED HEAT TREATMENT
- RATED AT 100% FROM 0°~90°
- FATIGUE TESTED TO 20,000 CYCLE AT 1-1/2X THE RATED LOAD
- MEETS OR EXCEEDS THE REQUIREMENTS OF ASME B30.26
- THREAD: LONGER THREAD PROJECTION AND FINE THREAD AVAILABLE

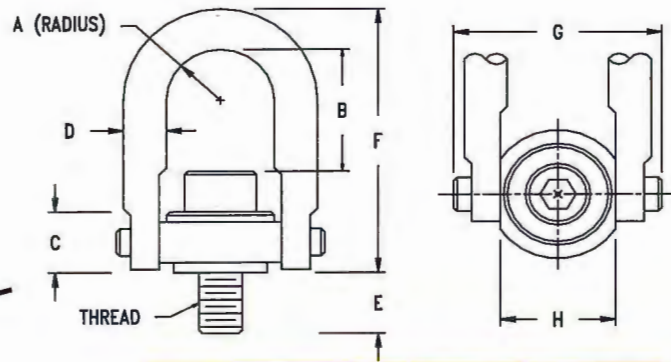
| Rated Loads (Lbs) | Thread Size | A    | C    | D   | E    | Standard U-Bar |      |      | Long U-Bar |      |      | G    | H    | Torque Ft/# | Wt. (Lbs) |
|-------------------|-------------|------|------|-----|------|----------------|------|------|------------|------|------|------|------|-------------|-----------|
|                   |             |      |      |     |      | Part No.       | B    | F    | Part No.   | B    | F    |      |      |             |           |
| 600               | 1/4-20      | 0.43 | 0.71 | 3/8 | 0.54 | 46100          | 1.27 | 2.67 |            |      |      | 1.84 | 1.00 | 6           | 0.3       |
| 800               | 5/16-18     | 0.43 | 0.71 | 3/8 | 0.29 | 46102          | 1.27 | 2.67 |            |      |      | 1.84 | 1.00 | 7           | 0.3       |
| 800               | 5/16-18     | 0.43 | 0.71 | 3/8 | 0.54 | 46104          | 1.27 | 2.67 |            |      |      | 1.84 | 1.00 | 7           | 0.3       |
| 1,000             | 3/8-16      | 0.43 | 0.71 | 3/8 | 0.54 | 46106          | 1.27 | 2.67 |            |      |      | 1.84 | 1.00 | 12          | 0.3       |
| 1,250             | 7/16-14     | 0.43 | 0.71 | 3/8 | 0.79 | 46351          | 1.20 | 2.67 |            |      |      | 1.84 | 1.00 | 22          | 0.4       |
| 1,500             | 1/2-13      | 0.43 | 0.71 | 3/8 | 0.79 | 46352          | 1.15 | 2.67 |            |      |      | 1.84 | 1.00 | 28          | 0.4       |
| 2,000             | 7/16-14     | 0.70 | 0.93 | 1/2 | 1.07 | 46606          | 1.90 | 3.77 |            |      |      | 2.58 | 1.49 | 22          | 1.0       |
| 2,500             | 1/2-13      | 0.70 | 0.93 | 1/2 | 1.07 | 46602          | 1.84 | 3.77 |            |      |      | 2.58 | 1.49 | 28          | 1.0       |
| 2,000             | 7/16-14     | 0.88 | 1.22 | 3/4 | 0.78 | 46000          | 2.37 | 4.78 | 46638      | 4.34 | 6.72 | 3.52 | 1.99 | 22          | 2.6       |
| 2,500             | 1/2-13      | 0.88 | 1.22 | 3/4 | 0.78 | 46008          | 2.31 | 4.78 | 46644      | 4.25 | 6.72 | 3.52 | 1.99 | 28          | 2.6       |
| 2,500             | 1/2-13      | 0.88 | 1.22 | 3/4 | 1.03 | 46010          | 2.31 | 4.78 | 46646      | 4.25 | 6.72 | 3.52 | 1.99 | 28          | 2.6       |
| 2,500             | 1/2-13      | 0.88 | 1.22 | 3/4 | 1.28 | 46012          | 2.31 | 4.78 | 46648      | 4.25 | 6.72 | 3.52 | 1.99 | 28          | 2.6       |
| 2,500             | 9/16-12     | 0.88 | 1.22 | 3/4 | 0.78 | 46007          | 2.25 | 4.78 | 46651      | 4.19 | 6.72 | 3.52 | 1.99 | 30          | 2.6       |
| 4,000             | 5/8-11      | 0.88 | 1.22 | 3/4 | 0.78 | 46002          | 2.18 | 4.78 | 46641      | 4.12 | 6.72 | 3.52 | 1.99 | 60          | 2.6       |
| 4,000             | 5/8-11      | 0.88 | 1.22 | 3/4 | 1.03 | 46004          | 2.18 | 4.78 | 46640      | 4.12 | 6.72 | 3.52 | 1.99 | 60          | 2.6       |
| 4,000             | 5/8-11      | 0.88 | 1.22 | 3/4 | 1.28 | 46006          | 2.18 | 4.78 | 46642      | 4.12 | 6.72 | 3.52 | 1.99 | 60          | 2.6       |
| 4,000             | 5/8-11      | 0.88 | 1.22 | 3/4 | 1.53 | 46005          | 2.18 | 4.78 | 46643      | 4.12 | 6.72 | 3.52 | 1.99 | 60          | 2.6       |
| 5,000             | 3/4-10      | 0.88 | 1.22 | 3/4 | 1.03 | 46014          | 2.06 | 4.78 | 46650      | 4.00 | 6.72 | 3.52 | 1.99 | 100         | 3.0       |
| 5,000             | 3/4-10      | 0.88 | 1.22 | 3/4 | 1.53 | 46018          | 2.06 | 4.78 | 46654      | 4.00 | 6.72 | 3.52 | 1.99 | 100         | 3.0       |
| 6,000             | 7/8-9       | 0.88 | 1.22 | 3/4 | 1.53 | 46353          | 1.94 | 4.78 | 41604      | 3.88 | 6.72 | 3.52 | 1.99 | 160         | 3.0       |
| 6,500             | 1-8         | 0.88 | 1.22 | 3/4 | 1.53 | 46354          | 1.71 | 4.78 | 41606      | 3.75 | 6.72 | 3.52 | 1.99 | 230         | 3.0       |





## SAFETY SWIVEL HOIST RING

**Each Hoist Ring will be  
200% Proof-Load Tested  
with serial number for traceability  
and Certificate of Conformance**



**READ SAFETY PRECAUTION  
PRIOR TO USE  
(SAFETY 5)**

| Rated Loads (Lbs) | Thread Size | A    | C     | D     | E    | Standard U-Bar |       |       | Long U-Bar |      |      | G     | H     | Torque Ft/# | Wt. (Lbs) |
|-------------------|-------------|------|-------|-------|------|----------------|-------|-------|------------|------|------|-------|-------|-------------|-----------|
|                   |             |      |       |       |      | Part No.       | B     | F     | Part No.   | B    | F    |       |       |             |           |
| 7,000             | 3/4-10      | 1.40 | 1.71  | 1     | 1.04 | 46204          | 3.06  | 6.52  | 46658      | 4.65 | 8.11 | 5.14  | 3.00  | 100         | 7.0       |
| 7,000             | 3/4-10      | 1.40 | 1.71  | 1     | 1.54 | 46206          | 3.06  | 6.52  | 46660      | 4.65 | 8.11 | 5.14  | 3.00  | 100         | 7.0       |
| 8,000             | 7/8-9       | 1.40 | 1.71  | 1     | 1.04 | 46202          | 2.93  | 6.52  | 46656      | 4.52 | 8.11 | 5.14  | 3.00  | 160         | 7.0       |
| 8,000             | 7/8-9       | 1.40 | 1.71  | 1     | 1.29 | 46203          | 2.93  | 6.52  | 46657      | 4.52 | 8.11 | 5.14  | 3.00  | 160         | 7.0       |
| 8,000             | 7/8-9       | 1.40 | 1.71  | 1     | 1.54 | 46205          | 2.93  | 6.52  | 46655      | 4.52 | 8.11 | 5.14  | 3.00  | 160         | 7.0       |
| 10,000            | 1-8         | 1.40 | 1.71  | 1     | 1.29 | 46210          | 2.81  | 6.52  | 46662      | 4.40 | 8.11 | 5.14  | 3.00  | 230         | 7.5       |
| 10,000            | 1-8         | 1.40 | 1.71  | 1     | 1.54 | 46212          | 2.81  | 6.52  | 46664      | 4.40 | 8.11 | 5.14  | 3.00  | 230         | 7.5       |
| 10,000            | 1-8         | 1.40 | 1.71  | 1     | 2.29 | 46214          | 2.81  | 6.52  | 46666      | 4.40 | 8.11 | 5.14  | 3.00  | 230         | 7.5       |
| 10,000            | 1 1/8-7     | 1.40 | 1.71  | 1     | 2.29 | 46216          | 2.69  | 6.52  | 46668      | 4.28 | 8.11 | 5.14  | 3.00  | 230         | 7.5       |
| 10,000            | 1 1/8-8     | 1.40 | 1.71  | 1     | 2.29 | 46217          | 2.69  | 6.52  | 46669      | 4.28 | 8.11 | 5.14  | 3.00  | 230         | 7.5       |
| 11,500            | 1 1/4-7     | 1.40 | 1.71  | 1     | 2.10 | 46355          | 2.44  | 6.52  | 41612      | 4.24 | 8.11 | 5.14  | 3.00  | 470         | 8.0       |
| 12,000            | 1 3/8-6     | 1.40 | 1.71  | 1     | 2.10 | 46356          | 2.31  | 6.52  | 41614      | 4.13 | 8.11 | 5.14  | 3.00  | 470         | 8.0       |
| 12,500            | 1 1/2-6     | 1.40 | 1.71  | 1     | 2.00 | 46357          | 2.19  | 6.52  | 41616      | 4.00 | 8.11 | 5.14  | 3.00  | 800         | 8.0       |
| 15,000            | 1 1/4-7     | 1.75 | 2.11  | 1-1/4 | 1.89 | 46802          | 4.12  | 8.73  |            |      |      | 6.50  | 3.76  | 470         | 14.0      |
| 15,000            | 1 1/4-8     | 1.75 | 2.11  | 1-1/4 | 1.89 | 46805          | 4.12  | 8.73  |            |      |      | 6.50  | 3.76  | 470         | 14.0      |
| 15,000            | 1 3/8-6     | 1.75 | 2.11  | 1-1/4 | 1.89 | 46806          | 4.06  | 8.73  |            |      |      | 6.50  | 3.76  | 470         | 14.5      |
| 15,000            | 1 3/8-8     | 1.75 | 2.11  | 1-1/4 | 1.89 | 46807          | 4.06  | 8.73  |            |      |      | 6.50  | 3.76  | 470         | 14.5      |
| 16,500            | 1 1/2-6     | 1.75 | 2.11  | 1-1/4 | 2.80 | 46359          | 4.02  | 8.73  |            |      |      | 6.50  | 3.76  | 800         | 16.0      |
| 17,000            | 1 5/8-5 1/2 | 1.75 | 2.11  | 1-1/4 | 2.80 | 46360          | 3.90  | 8.73  |            |      |      | 6.50  | 3.76  | 800         | 16.0      |
| 17,500            | 1 3/4-5     | 1.75 | 2.11  | 1-1/4 | 2.80 | 46361          | 3.77  | 8.73  |            |      |      | 6.50  | 3.76  | 800         | 16.0      |
| 18,000            | 1 7/8-5     | 1.75 | 2.11  | 1-1/4 | 2.80 | 46362          | 3.65  | 8.73  |            |      |      | 6.50  | 3.76  | 800         | 16.0      |
| 18,500            | 2-4 1/2     | 1.75 | 2.11  | 1-1/4 | 2.80 | 46363          | 3.52  | 8.73  |            |      |      | 6.50  | 3.76  | 800         | 16.0      |
| 20,000            | 1 3/8-6     | 2.00 | 2.40  | 1-1/2 | 2.50 | 46702          | 5.50  | 10.20 |            |      |      | 7.46  | 4.31  | 540         | 23.0      |
| 24,000            | 1 1/2-6     | 2.25 | 2.81  | 1-3/4 | 2.70 | 46404          | 6.41  | 12.47 |            |      |      | 8.55  | 4.87  | 800         | 34.0      |
| 24,000            | 1 1/2-8     | 2.25 | 2.81  | 1-3/4 | 2.70 | 46405          | 6.41  | 12.47 |            |      |      | 8.55  | 4.87  | 800         | 34.0      |
| 24,000            | 1 3/4-5     | 2.25 | 2.81  | 1-3/4 | 3.20 | 46408          | 6.16  | 12.47 |            |      |      | 8.55  | 4.87  | 800         | 34.0      |
| 24,000            | 1 3/4-8     | 2.25 | 2.81  | 1-3/4 | 3.20 | 46406          | 6.16  | 12.47 |            |      |      | 8.55  | 4.87  | 800         | 34.0      |
| 30,000            | 2-4 1/2     | 2.25 | 2.81  | 1-3/4 | 3.20 | 46400          | 5.91  | 12.47 |            |      |      | 8.55  | 4.87  | 800         | 36.0      |
| 30,000            | 2-8         | 2.25 | 2.81  | 1-3/4 | 3.20 | 46440          | 5.91  | 12.47 |            |      |      | 8.55  | 4.87  | 800         | 36.0      |
| 30,000            | 2 1/4-4 1/2 | 2.25 | 2.81  | 1-3/4 | 3.20 | 46431          | 5.66  | 12.47 |            |      |      | 8.55  | 4.87  | 800         | 40.0      |
| 30,000            | 2 1/4-8     | 2.25 | 2.81  | 1-3/4 | 3.20 | 46435          | 5.66  | 12.47 |            |      |      | 8.55  | 4.87  | 800         | 40.0      |
| 32,500            | 2 1/4-4 1/2 | 2.25 | 2.81  | 1-3/4 | 2.90 | 46364          | 5.86  | 12.47 |            |      |      | 8.55  | 4.87  | 800         | 40.0      |
| 35,000            | 2 1/2-4     | 2.25 | 2.81  | 1-3/4 | 3.90 | 46365          | 5.63  | 12.47 |            |      |      | 8.55  | 4.87  | 2100        | 40.0      |
| 35,000            | 2 1/2-8     | 2.25 | 2.81  | 1-3/4 | 3.90 | 46368          | 5.63  | 12.47 |            |      |      | 8.55  | 4.87  | 2100        | 40.0      |
| 50,000            | 2 1/2-8     | 3.00 | 4.09  | 2-1/4 | 4.00 | 47002          | 8.03  | 16.87 |            |      |      | 10.67 | 6.52  | 2100        | 88.0      |
| 50,000            | 2 1/2-4     | 3.00 | 4.09  | 2-1/4 | 4.00 | 47006          | 8.03  | 16.87 |            |      |      | 10.67 | 6.52  | 2100        | 88.0      |
| 50,000            | 2 3/4-4     | 3.00 | 4.09  | 2-1/4 | 4.00 | 47008          | 7.75  | 16.87 |            |      |      | 10.67 | 6.52  | 2100        | 90.0      |
| 50,000            | 2 3/4-8     | 3.00 | 4.09  | 2-1/4 | 4.00 | 47010          | 7.75  | 16.87 |            |      |      | 10.67 | 6.52  | 2100        | 90.0      |
| 55,000            | 2 3/4-4     | 3.00 | 4.09  | 2-1/4 | 4.00 | 46366          | 6.16  | 16.87 |            |      |      | 11.67 | 6.52  | 2100        | 92.0      |
| 60,000            | 3-4         | 3.00 | 4.09  | 2-1/4 | 5.00 | 46367          | 6.16  | 16.87 |            |      |      | 11.67 | 6.52  | 4300        | 92.0      |
| 75,000            | 3-4         | 3.75 | 5.27  | 2-3/4 | 5.25 | 47200          | 8.48  | 19.50 |            |      |      | 14.15 | 8.10  | 4300        | 166.0     |
| 75,000            | 3-8         | 3.75 | 5.27  | 2-3/4 | 5.25 | 47202          | 8.48  | 19.50 |            |      |      | 14.15 | 8.10  | 4300        | 166.0     |
| 80,000            | 3 1/2-4     | 3.75 | 5.27  | 2-3/4 | 5.00 | 46332          | 7.98  | 19.50 |            |      |      | 14.15 | 8.10  | 5100        | 172.0     |
| 80,000            | 3 1/2-8     | 3.75 | 5.27  | 2-3/4 | 5.00 | 46334          | 7.98  | 19.50 |            |      |      | 14.15 | 8.10  | 5100        | 172.0     |
| 100,000           | 3 1/2-4     | 4.00 | 6.06  | 3-1/4 | 7.00 | 47402          | 9.28  | 22.09 |            |      |      | 15.90 | 8.60  | 5100        | 265.0     |
| 100,000           | 3 1/2-8     | 4.00 | 6.06  | 3-1/4 | 7.00 | 47406          | 9.28  | 22.09 |            |      |      | 15.90 | 8.60  | 5100        | 265.0     |
| 250,000           | 6-4         | 6.00 | 14.00 | 5     | 9.00 | 47602          | 14.00 | 33.00 |            |      |      | 25.00 | 13.00 | 9900        | 790.0     |





## METRIC SAFETY SWIVEL HOIST RING



- 200% PROOF-LOAD TESTED WITH SERIAL NUMBER FOR TRACEABILITY
- SWIVELS 360° - PIVOTS 180°
- MATERIAL: AIRCRAFT QUALITY ALLOY (180 KSI TENSILE STRENGTH, MINIMUM)
- FINISH: BLACK OXIDE PER MIL SPEC  
ALSO AVAILABLE: CADMIUM PLATED, ELECTROLESS NICKEL PLATED, ZINC PLATED
- SAFETY FACTOR: 5:1
- MAGNETIC PARTICLE INSPECTED
- CERTIFIED HEAT TREATMENT
- RATED AT 100% FROM 0°~90°
- FATIGUE TESTED TO 20,000 CYCLE AT 1-1/2X THE RATED LOAD
- MEETS OR EXCEEDS THE REQUIREMENTS OF ASME B30.26
- THREAD: LONGER THREAD PROJECTION AND FINE THREAD AVAILABLE

| Rated Loads (kg) | Thread Size | A  | C  | D  | Standard U-Bar |          |    |     | Long U-Bar |     |     |     | Torque N-m | Wt. (Lbs) |     |     |
|------------------|-------------|----|----|----|----------------|----------|----|-----|------------|-----|-----|-----|------------|-----------|-----|-----|
|                  |             |    |    |    | E              | Part No. | B  | F   | Part No.   | B   | F   | G   |            |           | H   |     |
| 400              | M8x1.25     | 11 | 18 | 10 | 13             | 46912    | 32 | 68  |            |     |     |     | 47         | 25        | 9   | 0.4 |
| 400              | M8x1.25     | 11 | 18 | 10 | 18             | 46913    | 32 | 68  |            |     |     |     | 47         | 25        | 9   | 0.4 |
| 500              | M10x1.50    | 11 | 18 | 10 | 18             | 46916    | 30 | 68  |            |     |     |     | 47         | 25        | 16  | 0.4 |
| 625              | M12x1.75    | 11 | 18 | 10 | 23             | 49301    | 28 | 68  |            |     |     |     | 47         | 25        | 37  | 0.4 |
| 1,050            | M12x1.75    | 18 | 24 | 13 | 27             | 46608    | 48 | 96  |            |     |     |     | 66         | 38        | 37  | 1.0 |
| 1,050            | M12x1.75    | 22 | 30 | 19 | 19             | 46924    | 60 | 121 | 47124      | 110 | 171 | 89  | 51         | 37        | 2.5 |     |
| 1,050            | M14x2.00    | 22 | 30 | 19 | 29             | 46928    | 58 | 121 | 47128      | 108 | 171 | 89  | 51         | 40        | 2.5 |     |
| 1,900            | M16x2.00    | 22 | 30 | 19 | 24             | 46933    | 56 | 121 | 47126      | 106 | 171 | 89  | 51         | 80        | 2.5 |     |
| 1,900            | M16x2.00    | 22 | 30 | 19 | 29             | 46930    | 56 | 121 | 47130      | 106 | 171 | 89  | 51         | 80        | 2.5 |     |
| 1,900            | M18x2.50    | 22 | 30 | 19 | 29             | 46934    | 54 | 121 | 47134      | 104 | 171 | 89  | 51         | 90        | 2.5 |     |
| 2,150            | M20x2.50    | 22 | 30 | 19 | 29             | 46938    | 52 | 121 | 47132      | 102 | 171 | 89  | 51         | 135       | 2.7 |     |
| 2,150            | M20x2.50    | 22 | 30 | 19 | 34             | 46936    | 52 | 121 | 47136      | 102 | 171 | 89  | 51         | 135       | 2.7 |     |
| 2,650            | M22x2.50    | 22 | 30 | 19 | 39             | 49302    | 50 | 121 | 49351      | 100 | 171 | 89  | 51         | 311       | 3.0 |     |
| 2,850            | M24x3.00    | 22 | 30 | 19 | 39             | 49303    | 48 | 121 | 49353      | 98  | 171 | 89  | 51         | 311       | 3.0 |     |
| 3,000            | M20x2.50    | 36 | 43 | 25 | 27             | 46941    | 78 | 166 | 47140      | 118 | 206 | 131 | 76         | 135       | 6.7 |     |
| 3,000            | M20x2.50    | 36 | 43 | 25 | 32             | 46942    | 78 | 166 | 47142      | 118 | 206 | 131 | 76         | 135       | 6.7 |     |
| 3,000            | M22x2.50    | 36 | 43 | 25 | 37             | 46944    | 76 | 166 | 47144      | 116 | 206 | 131 | 76         | 135       | 7.0 |     |
| 4,200            | M24x3.00    | 36 | 43 | 25 | 32             | 46947    | 74 | 166 | 47146      | 114 | 206 | 131 | 76         | 311       | 7.0 |     |
| 4,200            | M24x3.00    | 36 | 43 | 25 | 37             | 46948    | 74 | 166 | 47148      | 114 | 206 | 131 | 76         | 311       | 7.0 |     |
| 4,200            | M30x3.50    | 36 | 43 | 25 | 58             |          |    |     | 46950      | 108 | 206 | 131 | 76         | 637       | 7.0 |     |
| 5,000            | M33x3.50    | 36 | 43 | 25 | 42             | 49304    | 65 | 166 | 49355      | 105 | 206 | 131 | 76         | 637       | 8.5 |     |
| 5,500            | M36x4.00    | 36 | 43 | 25 | 52             | 49305    | 62 | 166 | 49357      | 102 | 206 | 131 | 76         | 1085      | 8.5 |     |

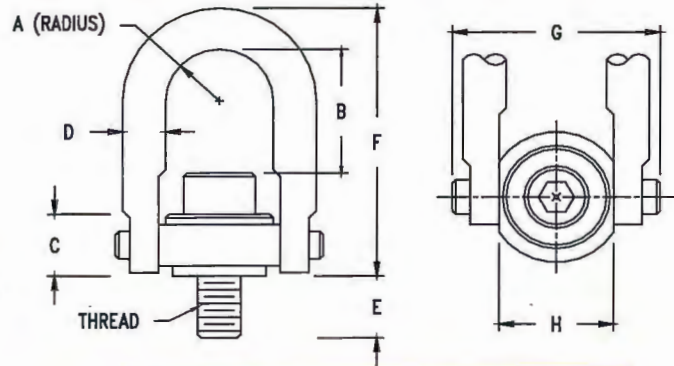




# ACTEK® MFG. & ENG. INC.

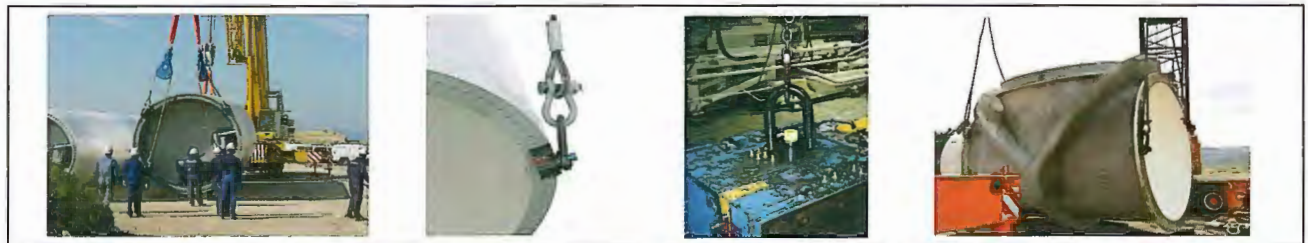
## METRIC SAFETY SWIVEL HOIST RING

**Each Hoist Ring will be  
200% Proof-Load Tested  
with serial number for traceability  
and Certificate of Conformance**



**READ SAFETY PRECAUTION  
PRIOR TO USE  
(SAFETY 5)**

| Rated Loads (kg) | Thread Size | Standard U-Bar |     |    |     |          | Long U-Bar |     |          | Torque N-m | Wt. (Lbs) |     |     |      |       |
|------------------|-------------|----------------|-----|----|-----|----------|------------|-----|----------|------------|-----------|-----|-----|------|-------|
|                  |             | A              | C   | D  | E   | Part No. | B          | F   | Part No. |            |           | B   | F   | G    | H     |
| 7,000            | M30x3.50    | 45             | 54  | 32 | 42  | 46956    | 106        | 222 |          |            |           | 165 | 95  | 637  | 15.0  |
| 7,000            | M30x3.50    | 45             | 54  | 32 | 46  | 46955    | 106        | 222 |          |            |           | 165 | 95  | 637  | 15.0  |
| 7,000            | M30x3.50    | 45             | 54  | 32 | 62  | 46958    | 106        | 222 |          |            |           | 165 | 95  | 637  | 15.0  |
| 7,000            | M30x3.50    | 45             | 54  | 32 | 67  | 46957    | 106        | 222 |          |            |           | 165 | 95  | 637  | 15.0  |
| 7,000            | M33x3.50    | 45             | 54  | 32 | 67  | 46960    | 103        | 222 |          |            |           | 165 | 95  | 637  | 15.0  |
| 8,500            | M36x4.00    | 45             | 54  | 32 | 56  | 49306    | 100        | 222 |          |            |           | 165 | 95  | 1085 | 16.0  |
| 9,000            | M39x4.00    | 45             | 54  | 32 | 56  | 49307    | 97         | 222 |          |            |           | 165 | 95  | 1085 | 17.0  |
| 9,250            | M42x4.50    | 45             | 54  | 32 | 66  | 49308    | 94         | 222 |          |            |           | 165 | 95  | 1085 | 18.0  |
| 9,500            | M45x4.50    | 45             | 54  | 32 | 66  | 49309    | 91         | 222 |          |            |           | 165 | 95  | 1085 | 18.0  |
| 9,500            | M46x5.00    | 45             | 54  | 32 | 66  | 49310    | 90         | 222 |          |            |           | 165 | 95  | 1085 | 18.0  |
| 10,000           | M48x5.00    | 45             | 54  | 32 | 66  | 49311    | 88         | 222 |          |            |           | 165 | 95  | 1085 | 18.0  |
| 10,000           | M33x3.50    | 50             | 62  | 38 | 58  | 46961    | 140        | 259 |          |            |           | 189 | 109 | 637  | 23.0  |
| 10,000           | M33x3.50    | 50             | 62  | 38 | 68  | 46962    | 140        | 259 |          |            |           | 189 | 109 | 637  | 23.0  |
| 11,000           | M36x4.00    | 57             | 71  | 44 | 58  | 46963    | 166        | 317 |          |            |           | 217 | 124 | 1085 | 35.0  |
| 11,000           | M36x4.00    | 57             | 71  | 44 | 63  | 46966    | 166        | 317 |          |            |           | 217 | 124 | 1085 | 35.0  |
| 11,000           | M36x4.00    | 57             | 71  | 44 | 68  | 46964    | 166        | 317 |          |            |           | 217 | 124 | 1085 | 35.0  |
| 12,500           | M42x4.50    | 57             | 71  | 44 | 68  | 46965    | 160        | 317 |          |            |           | 217 | 124 | 1085 | 36.0  |
| 12,500           | M42x4.50    | 57             | 71  | 44 | 83  | 46968    | 160        | 317 |          |            |           | 217 | 124 | 1085 | 36.0  |
| 13,500           | M48x5.00    | 57             | 71  | 44 | 68  | 46980    | 154        | 317 |          |            |           | 217 | 124 | 1085 | 38.0  |
| 13,500           | M48x5.00    | 57             | 71  | 44 | 83  | 46970    | 154        | 317 |          |            |           | 217 | 124 | 1085 | 38.0  |
| 13,500           | M48x5.00    | 57             | 71  | 44 | 88  | 46979    | 154        | 317 |          |            |           | 217 | 124 | 1085 | 38.0  |
| 13,500           | M56x5.50    | 57             | 71  | 44 | 88  | 46973    | 154        | 317 |          |            |           | 217 | 124 | 1085 | 38.0  |
| 14,500           | M52x5.00    | 57             | 71  | 44 | 83  | 49312    | 150        | 317 |          |            |           | 217 | 124 | 1085 | 42.0  |
| 15,500           | M56x5.50    | 57             | 71  | 44 | 83  | 49313    | 146        | 317 |          |            |           | 217 | 124 | 1085 | 42.0  |
| 16,500           | M64x6.00    | 57             | 71  | 44 | 93  | 49314    | 138        | 317 |          |            |           | 217 | 124 | 2847 | 42.0  |
| 22,300           | M64x6.00    | 76             | 103 | 57 | 101 | 46972    | 204        | 428 |          |            |           | 271 | 165 | 2847 | 86.0  |
| 24,500           | M72x6.00    | 76             | 103 | 57 | 100 | 49315    | 196        | 428 |          |            |           | 296 | 165 | 5830 | 92.0  |
| 26,500           | M80x6.00    | 76             | 103 | 57 | 110 | 49316    | 188        | 428 |          |            |           | 296 | 165 | 5830 | 92.0  |
| 31,500           | M72x6.00    | 95             | 133 | 70 | 132 | 46988    | 220        | 495 |          |            |           | 359 | 206 | 5830 | 165.0 |
| 31,500           | M80x6.00    | 95             | 133 | 70 | 132 | 46989    | 200        | 495 |          |            |           | 359 | 206 | 5830 | 165.0 |
| 33,000           | M90x6.00    | 95             | 133 | 70 | 140 | 49317    | 200        | 495 |          |            |           | 359 | 206 | 6914 | 280.0 |
| 33,000           | M100x6.00   | 95             | 133 | 70 | 150 | 49318    | 200        | 495 |          |            |           | 359 | 206 | 6914 | 280.0 |
| 44,600           | M90x6.00    | 102            | 153 | 83 | 177 | 46990    | 235        | 561 |          |            |           | 404 | 218 | 6914 | 260.0 |
| 44,600           | M100x6.00   | 102            | 153 | 83 | 200 | 46994    | 235        | 561 |          |            |           | 404 | 218 | 6914 | 260.0 |

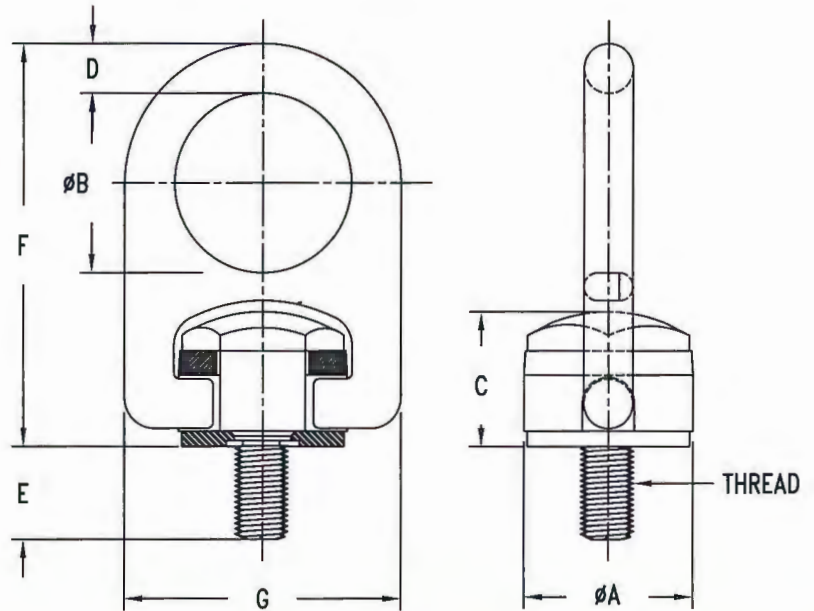






## FORGED SWIVEL HOIST RING

**IDEALLY DESIGNED FOR  
OUTDOOR USE**



| STANDARD    |                  |             |      |      |      |      |      |      |      |                 |               |
|-------------|------------------|-------------|------|------|------|------|------|------|------|-----------------|---------------|
| Part Number | Rated Load (Lbs) | Thread Size | A    | B    | C    | D    | E    | F    | G    | Torque (Ft/Lbs) | Weight (Lbs.) |
| 56100       | 600              | 1/4"-20     | 1.32 | 1.40 | 1.16 | 0.44 | 0.50 | 3.29 | 2.38 | 5               | 1.0           |
| 56102       | 800              | 5/16"-18    | "    | "    | "    | "    | 0.50 | "    | "    | 7               | 1.0           |
| 56104       | 800              | 5/16"-18    | "    | "    | "    | "    | 1.00 | "    | "    | 7               | 1.0           |
| 56106       | 1,000            | 3/8"-16     | "    | "    | "    | "    | 0.50 | "    | "    | 12              | 1.0           |
| 56107       | 1,000            | 3/8"-16     | "    | "    | "    | "    | 1.00 | "    | "    | 12              | 1.0           |
| 56008       | 2,500            | 1/2"-13     | 2.23 | 2.40 | 1.97 | 0.75 | 0.75 | 5.60 | 4.05 | 28              | 4.0           |
| 56010       | 2,500            | 1/2"-13     | "    | "    | "    | "    | 1.00 | "    | "    | 28              | 4.0           |
| 56012       | 2,500            | 1/2"-13     | "    | "    | "    | "    | 1.25 | "    | "    | 28              | 4.0           |
| 56002       | 4,000            | 5/8"-11     | "    | "    | "    | "    | 0.75 | "    | "    | 60              | 4.0           |
| 56004       | 4,000            | 5/8"-11     | "    | "    | "    | "    | 1.00 | "    | "    | 60              | 4.0           |
| 56006       | 4,000            | 5/8"-11     | "    | "    | "    | "    | 1.25 | "    | "    | 60              | 4.0           |
| 56014       | 5,000            | 3/4"-10     | "    | "    | "    | "    | 1.00 | "    | "    | 100             | 4.0           |
| 56018       | 5,000            | 3/4"-10     | "    | "    | "    | "    | 1.50 | "    | "    | 100             | 4.0           |
| 56204       | 7,000            | 3/4"-10     | 2.95 | 3.20 | 2.62 | 1.00 | 1.00 | 7.48 | 5.40 | 100             | 9.0           |
| 56203       | 7,000            | 3/4"-10     | "    | "    | "    | "    | 1.25 | "    | "    | 100             | 9.0           |
| 56206       | 7,000            | 3/4"-10     | "    | "    | "    | "    | 1.50 | "    | "    | 100             | 9.0           |
| 56202       | 8,000            | 7/8"-9      | "    | "    | "    | "    | 1.00 | "    | "    | 160             | 9.0           |
| 56205       | 8,000            | 7/8"-9      | "    | "    | "    | "    | 1.25 | "    | "    | 160             | 9.0           |
| 56210       | 10,000           | 1"-8        | "    | "    | "    | "    | 1.25 | "    | "    | 230             | 9.0           |
| 56212       | 10,000           | 1"-8        | "    | "    | "    | "    | 1.50 | "    | "    | 230             | 9.0           |
| 56214       | 10,000           | 1"-8        | "    | "    | "    | "    | 2.25 | "    | "    | 230             | 9.0           |
| 56802       | 15,000           | 1 1/4"-7    | 3.73 | 4.00 | 3.28 | 1.25 | 2.00 | 9.35 | 6.75 | 470             | 18.0          |
| 56804       | 15,000           | 1 1/4"-7    | "    | "    | "    | "    | 2.75 | "    | "    | 470             | 18.0          |
| 56702       | 20,000           | 1 3/8"-6    | "    | "    | "    | "    | 2.75 | "    | "    | 540             | 19.0          |
| 56404       | 24,000           | 1 1/2"-6    | "    | "    | "    | "    | 2.75 | "    | "    | 800             | 19.0          |





## METRIC FORGED SWIVEL HOIST RING

**Each Hoist Ring will be  
200% Proof-Load Tested  
with serial number for traceability  
and Certificate of Conformance**



- SWIVELS 360° - PIVOTS 180°
- MATERIAL: AIRCRAFT QUALITY ALLOY (180 KSI TENSILE STRENGTH, MINIMUM)
- FINISH: PHOSPHATE PER DOD-P-16232F  
(CADMIUM PLATED, ELECTROLESS NICKEL,  
& GALVANIZED AVAILABLE)
- SAFETY FACTOR: 5:1
- MAGNETIC PARTICLE INSPECTED
- CERTIFIED HEAT TREATMENT

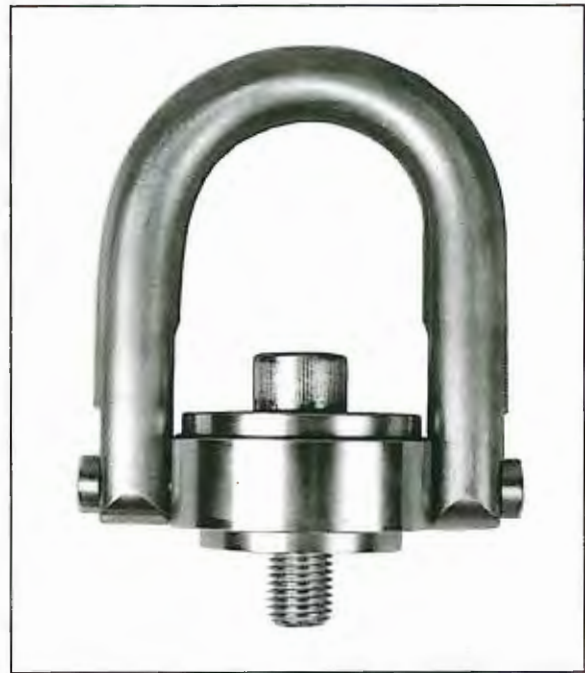
**READ SAFETY PRECAUTION  
PRIOR TO USE  
(SAFETY 6)**

| METRIC      |                 |             |      |      |      |      |        |      |      |              |               |
|-------------|-----------------|-------------|------|------|------|------|--------|------|------|--------------|---------------|
| Part Number | Rated Load (kg) | Thread Size | A    | B    | C    | D    | E (mm) | F    | G    | Torque (N-m) | Weight (Lbs.) |
| 56912       | 400             | M8X1.25     | 1.32 | 1.40 | 1.16 | 0.44 | 15     | 3.29 | 2.38 | 9            | 1.0           |
| 56914       | 400             | M8X1.25     | "    | "    | "    | "    | 20     | "    | "    | 9            | 1.0           |
| 56916       | 500             | M10X1.50    | "    | "    | "    | "    | 15     | "    | "    | 16           | 1.0           |
| 56918       | 500             | M10X1.50    | "    | "    | "    | "    | 25     | "    | "    | 16           | 1.0           |
| 56923       | 1,050           | M12X1.75    | 2.23 | 2.40 | 1.97 | 0.75 | 20     | 5.60 | 4.05 | 37           | 4.0           |
| 56924       | 1,050           | M12X1.75    | "    | "    | "    | "    | 25     | "    | "    | 37           | 4.0           |
| 56926       | 1,050           | M12X1.75    | "    | "    | "    | "    | 35     | "    | "    | 37           | 4.0           |
| 56928       | 1,050           | M14x2.00    | "    | "    | "    | "    | 30     | "    | "    | 40           | 4.0           |
| 56930       | 1,900           | M16x2.00    | "    | "    | "    | "    | 25     | "    | "    | 80           | 4.0           |
| 56932       | 1,900           | M16x2.00    | "    | "    | "    | "    | 35     | "    | "    | 80           | 4.0           |
| 56936       | 2,150           | M20X2.50    | "    | "    | "    | "    | 25     | "    | "    | 135          | 4.0           |
| 56937       | 2,150           | M20X2.50    | "    | "    | "    | "    | 35     | "    | "    | 135          | 4.0           |
| 56938       | 2,150           | M20X2.50    | "    | "    | "    | "    | 40     | "    | "    | 135          | 4.0           |
| 56942       | 3,000           | M20X2.50    | 2.95 | 3.20 | 2.62 | 1.00 | 30     | 7.48 | 5.40 | 135          | 9.0           |
| 56946       | 4,200           | M24X3.00    | "    | "    | "    | "    | 30     | "    | "    | 311          | 9.0           |
| 56948       | 4,200           | M24X3.00    | "    | "    | "    | "    | 40     | "    | "    | 311          | 9.0           |
| 56949       | 4,500           | M30X3.50    | "    | "    | "    | "    | 40     | "    | "    | 637          | 9.0           |
| 56950       | 4,500           | M30X3.50    | "    | "    | "    | "    | 50     | "    | "    | 637          | 9.0           |
| 56956       | 7,000           | M30X3.50    | 3.73 | 4.00 | 3.28 | 1.25 | 50     | 9.35 | 6.75 | 637          | 19.0          |
| 56958       | 7,000           | M30X3.50    | "    | "    | "    | "    | 65     | "    | "    | 637          | 19.0          |
| 56960       | 7,000           | M33X3.50    | "    | "    | "    | "    | 55     | "    | "    | 637          | 19.0          |
| 56966       | 11,000          | M36X4.00    | "    | "    | "    | "    | 65     | "    | "    | 1085         | 20.0          |
| 56968       | 12,500          | M42X4.50    | "    | "    | "    | "    | 80     | "    | "    | 1085         | 21.0          |



## STAINLESS STEEL SAFETY HOIST RINGS

**Each Hoist Ring will be  
200% Proof-Load Tested  
with serial number for traceability  
and Certificate of Conformance**

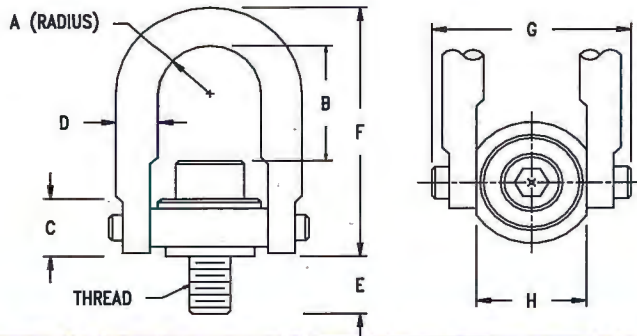


- Actek swivel hoist rings are designed for lifting. They rotate and pivot to absorb any pitch, roll or sway of unbalanced loads. Will not yield to heavy side loads. Help prevent the lifting hook from disengaging.
- Safety Engineered. All loads lifted are especially important from a safety standpoint. Actek swivel hoist rings provide the kind of safety that protects men and material against accidents before they occur.
- For use in outdoor weather and certain chemical and corrosive environments.
- Material: 316 series stainless steel.
- Safety factor: 5:1.
- Liquid penetrant Mil 6866.





## STAINLESS STEEL SWIVEL HOIST RING



- SWIVELS 360° - PIVOTS 180°
- MATERIAL: 316 SERIES STAINLESS STEEL
- SAFETY FACTOR: 5:1
- LIQUID PENETRANT MIL 6866

**READ SAFETY PRECAUTION  
PRIOR TO USE  
(SAFETY 7)**

| Rated Loads (Lbs) | Thread Size | A    | C    | D     | E    | Standard U-Bar |      |       | Long U-Bar |      |      | G     | H    | Torque Ft/# | Wt. (Lbs) |
|-------------------|-------------|------|------|-------|------|----------------|------|-------|------------|------|------|-------|------|-------------|-----------|
|                   |             |      |      |       |      | Part No.       | B    | F     | Part No.   | B    | F    |       |      |             |           |
| 400               | 5/16-18     | 0.43 | 0.71 | 3/8   | 0.29 | 58102          | 1.27 | 2.67  |            |      |      | 1.84  | 1.00 | 3.5         | 0.3       |
| 400               | 5/16-18     | 0.43 | 0.71 | 3/8   | 0.54 | 58104          | 1.27 | 2.67  |            |      |      | 1.84  | 1.00 | 3.5         | 0.3       |
| 500               | 3/8-16      | 0.43 | 0.71 | 3/8   | 0.54 | 58106          | 1.27 | 2.67  |            |      |      | 1.84  | 1.00 | 6           | 0.3       |
| 1,250             | 1/2-13      | 0.70 | 0.93 | 1/2   | 1.07 | 58602          | 1.84 | 3.77  |            |      |      | 2.58  | 1.49 | 14          | 1.0       |
| 1,250             | 1/2-13      | 0.88 | 1.22 | 3/4   | 0.78 | 58008          | 2.31 | 4.78  | 58644      | 4.25 | 6.72 | 3.52  | 1.99 | 14          | 2.6       |
| 1,250             | 1/2-13      | 0.88 | 1.22 | 3/4   | 1.03 | 58010          | 2.31 | 4.78  | 58646      | 4.25 | 6.72 | 3.52  | 1.99 | 14          | 2.6       |
| 1,250             | 1/2-13      | 0.88 | 1.22 | 3/4   | 1.28 | 58012          | 2.31 | 4.78  | 58648      | 4.25 | 6.72 | 3.52  | 1.99 | 14          | 2.6       |
| 2,000             | 5/8-11      | 0.88 | 1.22 | 3/4   | 0.78 | 58002          | 2.18 | 4.78  | 58641      | 4.12 | 6.72 | 3.52  | 1.99 | 30          | 2.6       |
| 2,000             | 5/8-11      | 0.88 | 1.22 | 3/4   | 1.03 | 58004          | 2.18 | 4.78  | 58640      | 4.12 | 6.72 | 3.52  | 1.99 | 30          | 2.6       |
| 2,000             | 5/8-11      | 0.88 | 1.22 | 3/4   | 1.28 | 58006          | 2.18 | 4.78  | 58642      | 4.12 | 6.72 | 3.52  | 1.99 | 30          | 2.6       |
| 2,500             | 3/4-10      | 0.88 | 1.22 | 3/4   | 1.03 | 58014          | 2.06 | 4.78  | 58650      | 4.00 | 6.72 | 3.52  | 1.99 | 50          | 3.0       |
| 2,500             | 3/4-10      | 0.88 | 1.22 | 3/4   | 1.53 | 58018          | 2.06 | 4.78  | 58654      | 4.00 | 6.72 | 3.52  | 1.99 | 50          | 3.0       |
| 3,500             | 3/4-10      | 1.40 | 1.71 | 1     | 1.04 | 58204          | 3.06 | 6.52  | 58658      | 4.65 | 8.11 | 5.14  | 3.00 | 50          | 7.0       |
| 3,500             | 3/4-10      | 1.40 | 1.71 | 1     | 1.54 | 58206          | 3.06 | 6.52  | 58660      | 4.65 | 8.11 | 5.14  | 3.00 | 50          | 7.0       |
| 4,000             | 7/8-9       | 1.40 | 1.71 | 1     | 1.04 | 58202          | 2.93 | 6.52  | 58656      | 4.52 | 8.11 | 5.14  | 3.00 | 80          | 7.0       |
| 4,000             | 7/8-9       | 1.40 | 1.71 | 1     | 1.29 | 58203          | 2.93 | 6.52  | 58652      | 4.52 | 8.11 | 5.14  | 3.00 | 80          | 7.0       |
| 5,000             | 1-8         | 1.40 | 1.71 | 1     | 1.29 | 58210          | 2.81 | 6.52  | 58662      | 4.40 | 8.11 | 5.14  | 3.00 | 115         | 7.5       |
| 5,000             | 1-8         | 1.40 | 1.71 | 1     | 1.54 | 58212          | 2.81 | 6.52  | 58664      | 4.40 | 8.11 | 5.14  | 3.00 | 115         | 7.5       |
| 5,000             | 1-8         | 1.40 | 1.71 | 1     | 2.29 | 58214          | 2.81 | 6.52  | 58666      | 4.40 | 8.11 | 5.14  | 3.00 | 115         | 7.5       |
| 7,500             | 1 1/4-7     | 1.75 | 2.11 | 1-1/4 | 1.89 | 58802          | 4.12 | 8.73  |            |      |      | 6.50  | 3.76 | 235         | 14.0      |
|                   | 1 1/2-6     | 2.25 | 2.81 | 1-3/4 | 2.70 | 58404          | 6.41 | 12.47 |            |      |      | 8.55  | 4.87 | 400         | 34.0      |
| 15,000            | 2-4 1/2     | 2.25 | 2.81 | 1-3/4 | 2.96 | 58400          | 5.91 | 12.47 |            |      |      | 8.55  | 4.87 | 400         | 36.0      |
| 25,000            | 2 1/2-8     | 3.00 | 4.09 | 2-1/4 | 4.00 | 59002          | 8.03 | 16.87 |            |      |      | 11.67 | 6.52 | 1050        | 88.0      |
| 25,000            | 2 1/2-4     | 3.00 | 4.09 | 2-1/4 | 4.00 | 59006          | 8.03 | 16.87 |            |      |      | 11.67 | 6.52 | 1050        | 88.0      |
| 37,500            | 3-4         | 3.75 | 5.27 | 2-3/4 | 5.00 | 59200          | 8.48 | 19.50 |            |      |      | 14.15 | 8.10 | 2150        | 166.0     |
| 50,000            | 3 1/2-4     | 4.00 | 6.06 | 3-1/4 | 7.00 | 59402          | 9.28 | 22.09 |            |      |      | 15.90 | 8.60 | 2550        | 265.0     |

| METRIC           |             |     |     |    |     |                |     |     |            |     |     |     |     |       |           |
|------------------|-------------|-----|-----|----|-----|----------------|-----|-----|------------|-----|-----|-----|-----|-------|-----------|
| Rated Loads (kg) | Thread Size | A   | C   | D  | E   | Standard U-Bar |     |     | Long U-Bar |     |     | G   | H   | T N-m | Wt. (Lbs) |
|                  |             |     |     |    |     | Part No.       | B   | F   | Part No.   | B   | F   |     |     |       |           |
| 200              | M8x1.25     | 11  | 18  | 10 | 13  | 58912          | 32  | 68  |            |     |     | 47  | 25  | 4     | 0.4       |
| 250              | M10x1.50    | 11  | 18  | 10 | 18  | 58916          | 30  | 68  |            |     |     | 47  | 25  | 8     | 0.4       |
| 525              | M12x1.75    | 22  | 30  | 19 | 19  | 58924          | 60  | 121 | 59124      | 110 | 171 | 89  | 51  | 18    | 2.5       |
| 950              | M16x2.00    | 22  | 30  | 19 | 29  | 58930          | 56  | 121 | 59130      | 106 | 171 | 89  | 51  | 40    | 2.5       |
| 1,075            | M20x2.50    | 22  | 30  | 19 | 34  | 58936          | 52  | 121 | 59136      | 102 | 171 | 89  | 51  | 68    | 2.5       |
| 1,500            | M20x2.50    | 36  | 43  | 25 | 32  | 58942          | 78  | 166 | 59142      | 118 | 206 | 131 | 76  | 68    | 7.0       |
| 2,100            | M24x3.00    | 36  | 43  | 25 | 37  | 58948          | 74  | 166 | 59148      | 114 | 206 | 131 | 76  | 108   | 7.0       |
| 2,100            | M30x3.50    | 36  | 43  | 25 | 58  |                |     |     | 58950      | 108 | 206 | 131 | 76  | 108   | 7.0       |
| 3,500            | M30x3.50    | 45  | 54  | 32 | 42  | 58956          | 106 | 222 |            |     |     | 165 | 95  | 318   | 15.0      |
| 3,500            | M30x3.50    | 45  | 54  | 32 | 62  | 58958          | 106 | 222 |            |     |     | 165 | 95  | 318   | 15.0      |
| 5,500            | M36x4.00    | 57  | 71  | 44 | 64  | 58966          | 166 | 317 |            |     |     | 217 | 124 | 542   | 35.0      |
| 6,250            | M42x4.50    | 57  | 71  | 44 | 82  | 58968          | 160 | 317 |            |     |     | 217 | 124 | 542   | 36.0      |
| 6,750            | M48x5.00    | 57  | 71  | 44 | 82  | 58970          | 154 | 317 |            |     |     | 217 | 124 | 542   | 38.0      |
| 11,150           | M64x6.00    | 76  | 103 | 57 | 101 | 58972          | 204 | 428 |            |     |     | 296 | 165 | 1423  | 86.0      |
| 15,750           | M72x6.00    | 95  | 133 | 70 | 132 | 58988          | 220 | 495 |            |     |     | 359 | 206 | 2915  | 165.0     |
| 22,300           | M90x6.00    | 102 | 153 | 83 | 177 | 58990          | 235 | 561 |            |     |     | 404 | 218 | 3459  | 260.0     |





## SAFETY ENGINEERED HOIST RING KITS



Actek Hoist Rings Kits enable you to custom assemble just the right swivel hoist ring for the job. Kits are available in standard and metric sizes; and come complete with U-Bar (body and sub-assembly), screws, bushings, washers and E-rings – enough to configure over 24 different hoist ring sizes and capacities. A handy accessory kit for lifting and moving heavy loads, and a must for your tool crib.





## HOIST RING KIT

### AK46306 HOIST RING KIT

(KIT INCLUDES 4 OF EACH ITEM, TOTAL WEIGHT 31 LBS)

| Sub. Assembly    | Rated Load (Lbs) | Screw | Screw Size        | Thread Length | Bushing | Washer | E-Ring |
|------------------|------------------|-------|-------------------|---------------|---------|--------|--------|
| 46108 3/8" U-BAR | 600              | 46139 | 1/4"-20 X 1-1/4"  | 1/2"          | 46112   | 46120  | 46133  |
|                  | 800              | 46144 | 5/16"-18 X 1-1/4" | 1/2"          | 46128   | 46126  | 46134  |
|                  | 1000             | 46146 | 3/8"-16 X 1-1/4"  | 1/2"          | 46152   | 46148  | 46136  |
| 46600 1/2" U-BAR | 2,000            | 46614 | 7/16"-14 X 2"     | 1"            | 46618   | 46616  | 46612  |
|                  | 2,500            | 46636 | 1/2"-13 X 2"      | 1"            | 46628   | 46626  | 46036  |
| 46020 3/4" U-BAR | 4,000            | 46044 | 5/8"-11 X 2-1/4"  | 1"            | 46028   | 46026  | 46034  |
|                  | 5,000            | 46054 | 3/4"-10 X 2-1/4"  | 1"            | 46074   | 46068  | 46038  |

### AK46304 HOIST RING KIT

(KIT INCLUDES 4 OF EACH ITEM, TOTAL WEIGHT 71.5 LBS)

| Sub. Assembly    | Rated Load (Lbs) | Screw | Screw Size         | Thread Length | Bushing | Washer | E-Ring |
|------------------|------------------|-------|--------------------|---------------|---------|--------|--------|
| 46020 3/4" U-BAR | 2,500            | 46050 | 1/2" - 13 X 2-1/4" | 1"            | 46072   | 46066  | 46036  |
|                  | 4,000            | 46044 | 5/8" - 11 X 2-1/4" | 1"            | 46028   | 46026  | 46034  |
|                  | 5,000            | 46054 | 3/4" - 10 X 2-1/4" | 1"            | 46074   | 46068  | 46038  |
| 46220 1" U-BAR   | 7,000            | 46246 | 3/4" - 10 X 3-1/4" | 1-1/2"        | 46272   | 46266  | 46038  |
|                  | 8,000            | 46270 | 7/8" - 9 X 3-1/4"  | 1-1/2"        | 46228   | 46226  | 46234  |
|                  | 10,000           | 46252 | 1" - 8 X 3-1/4"    | 1-1/2"        | 46274   | 46268  | 46238  |

### AK46904 METRIC HOIST RING KIT

(KIT INCLUDES 4 OF EACH ITEM, TOTAL WEIGHT 71.5 LBS)

| Sub. Assembly  | Rated Load (kg) | Screw | Screw Size       | Thread Length | Bushing | Washer | E-Ring |
|----------------|-----------------|-------|------------------|---------------|---------|--------|--------|
| 3/4" U-BAR     | 1,050           | 49048 | M12 X 1.75 X 50  | 19            | 49072   | 49066  | 49122  |
|                | 1,900           | 49056 | M16 X 2.00 X 60  | 29            | 49028   | 49026  | 46034  |
|                | 2,150           | 49054 | M20 X 2.50 X 65  | 34            | 49074   | 49068  | 46038  |
| 46220 1" U-BAR | 3,000           | 49244 | M20 X 2.50 X 75  | 32            | 49272   | 49266  | 46038  |
|                | 4,200           | 49250 | M24 X 3.00 X 80  | 37            | 49274   | 49268  | 46238  |
|                | 4,200           | 49242 | M30 X 3.50 X 100 | 38            | 49228   | 49226  | 46834  |



## FORGED SWIVEL HOIST RING KITS



Actek Forged Swivel Hoist Rings Kits enable you to custom assemble just the right swivel hoist ring for the job. Kits are available in standard and metric sizes; and come complete with U-Bar (body and sub-assembly), screws, bushings, washers and E-rings – enough to configure 20-24 different hoist ring sizes and capacities. A handy accessory kit for lifting and moving heavy loads, and a must for your tool crib.





## FORGED SWIVEL HOIST RING KIT

### AK56306

#### HOIST RING KIT

(KIT INCLUDES 4 OF EACH ITEM, TOTAL WEIGHT 40 LBS)

| Sub. Assembly     | Rated Load |  | Screw | Screw Size | Thread Length | Body  | Washer Base | E-Ring |
|-------------------|------------|--|-------|------------|---------------|-------|-------------|--------|
|                   | (Lbs)      |  |       |            |               |       |             |        |
| 56108 7/16" U-BAR | 800        |  | 56142 | 5/16"-18   | 1/2"          | 56130 | 56120       | 46134  |
|                   | 1000       |  | 56146 | 3/8"-16    | 1/2"          | "     | "           | 46136  |
| 56020 3/4" U-BAR  | 2,500      |  | 56050 | 1/2"-13    | 1"            | 56030 | 56068       | 46036  |
|                   | 4,000      |  | 56044 | 5/8"-11    | 1"            | "     | "           | 46034  |
|                   | 5,000      |  | 56054 | 3/4"-10    | 1"            | "     | "           | 46038  |

### AK56304

#### HOIST RING KIT

(KIT INCLUDES 4 OF EACH ITEM, TOTAL WEIGHT 85 LBS)

| Sub. Assembly    | Rated Load |  | Screw | Screw Size | Thread Length | Body  | Washer Base | E-Ring |
|------------------|------------|--|-------|------------|---------------|-------|-------------|--------|
|                  | (Lbs)      |  |       |            |               |       |             |        |
| 56020 3/4" U-BAR | 2,500      |  | 56050 | 1/2"-13    | 1"            | 56030 | 56068       | 46036  |
|                  | 4,000      |  | 56044 | 5/8"-11    | 1"            | "     | "           | 46034  |
|                  | 5,000      |  | 56054 | 3/4"-10    | 1"            | "     | "           | 46038  |
| 56220 1" U-BAR   | 7,000      |  | 56245 | 3/4"-10    | 1-1/4"        | 56230 | 56268       | 46038  |
|                  | 8,000      |  | 56243 | 7/8"-9     | 1-1/4"        | "     | "           | 46234  |
|                  | 10,000     |  | 56250 | 1"-8       | 1-1/4"        | "     | "           | 46238  |

### AK56904

#### METRIC HOIST RING KIT

(KIT INCLUDES 4 OF EACH ITEM, TOTAL WEIGHT 85 LBS)

| Sub. Assembly    | Rated Load |  | Screw | Screw Size | Thread Length | Body  | Washer Base | E-Ring |
|------------------|------------|--|-------|------------|---------------|-------|-------------|--------|
|                  | (kg)       |  |       |            |               |       |             |        |
| 56020 3/4" U-BAR | 1,050      |  | 54048 | M12 X 1.75 | 25            | 56030 | 56068       | 49122  |
|                  | 1,900      |  | 54056 | M16 X 2.00 | 25            | "     | "           | 46034  |
|                  | 2,150      |  | 54054 | M20 X 2.50 | 25            | "     | "           | 46038  |
| 56220 1" U-BAR   | 3,000      |  | 54244 | M20 X 2.50 | 30            | 56230 | 56268       | 46038  |
|                  | 4,200      |  | 54252 | M24 X 3.00 | 30            | "     | "           | 46238  |
|                  | 4,200      |  | 54243 | M30 X 3.50 | 40            | "     | "           | 46834  |



## SIDE LOAD HOIST RINGS

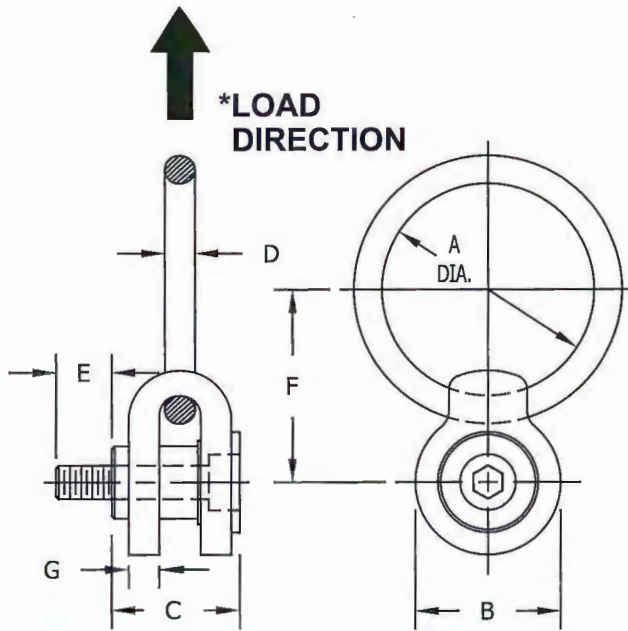


- Designed for side-mounted applications.
- Smooth swiveling and pivoting action.
- Aircraft quality "chrome moly", strong & tough!
- Extra large ring accepts many styles and sizes of hoist hooks.
- Ideal for stamping and injection mold industries.
- Magnetic particle inspected.
- Rated loads from 650 lbs. to 29,000 lbs.
- Thread size from 5/16" to 2"
- Safety factor: 5:1





## SIDE LOAD HOIST RINGS



- SWIVELS 360° - PIVOTS 180°
- MATERIAL: AIRCRAFT QUALITY ALLOY
- FINISH: BLACK OXIDE PER MIL SPEC.  
(CADMIUM & ELECTROLESS NICKLE PLATED AVAILABLE)
- SAFETY FACTOR: 5:1
- MAGNETIC PARTICLE INSPECTED
- CERTIFIED HEAT TREATMENT
- ALSO AVAILABLE WITH MASTER LINKS
- LONGER THREAD LENGTH AND FINE THREAD AVAILABLE

**READ SAFETY  
PRECAUTION PRIOR TO USE  
(SAFETY 8)**

| STANDARD |                  |             |                |       |        |       |       |         |     |               |            |
|----------|------------------|-------------|----------------|-------|--------|-------|-------|---------|-----|---------------|------------|
| Part No. | Rated Load (Lbs) | Thread Size | A              | B     | C      | D     | E     | F       | G   | Torque Ft/Lbs | Wt. (Lbs.) |
| 43510    | 650              | 5/16-18     | 2              | 1-1/2 | 1-7/16 | 3/8   | 9/16  | 1-15/16 | 3/8 | 3.5           | 0.5        |
| 43515    | 800              | 3/8-16      | 2              | 1-1/2 | 1-7/16 | 3/8   | 5/8   | 1-15/16 | 3/8 | 4.5           | 0.5        |
| 43520    | 1,800            | 1/2-13      | 3              | 2-3/8 | 2-1/4  | 5/8   | 1     | 3       | 1/2 | 15            | 3.5        |
| 43525    | 2,500            | 5/8-11      | 3              | 2-3/8 | 2-1/4  | 5/8   | 1-1/4 | 3       | 1/2 | 25            | 3.5        |
| 43530    | 4,000            | 3/4-10      | 4              | 3-3/4 | 3-3/8  | 1     | 1-1/2 | 4-1/2   | 3/4 | 50            | 11.5       |
| 43535    | 5,500            | 7/8-9       | 4              | 3-3/4 | 3-3/8  | 1     | 1-7/8 | 4-1/2   | 3/4 | 80            | 11.5       |
| 43540    | 7,000            | 1-8         | 4              | 3-3/4 | 3-3/8  | 1     | 2     | 4-1/2   | 3/4 | 90            | 11.5       |
| 43545    | 14,000           | 1-1/4-7     | 6              | 4-5/8 | 4-5/8  | 1-3/8 | 2-1/8 | 6-1/4   | 1   | 150           | 28.0       |
| 43547    | 14,000           | 1-1/4-8     | 6              | 4-5/8 | 4-5/8  | 1-3/8 | 2-1/2 | 6-1/4   | 1   | 150           | 28.0       |
| 43550    | 17,000           | 1-1/2-6     | 6              | 4-5/8 | 4-5/8  | 1-3/8 | 2-1/2 | 6-1/4   | 1   | 250           | 31.5       |
| 43552    | 17,000           | 1-1/2-8     | 6              | 4-5/8 | 4-5/8  | 1-3/8 | 2-1/2 | 6-1/4   | 1   | 250           | 31.5       |
| 43555    | 29,000           | 2-4-1/2     | 5-1/4 x 10-1/2 | 4-5/8 | 6-5/8  | 1-1/2 | 3-1/8 | 11-1/8  | 1   | 300           | 42.0       |
| 43557    | 29,000           | 2-8         | 5-1/4 x 10-1/2 | 4-5/8 | 6-5/8  | 1-1/2 | 3-1/8 | 11-1/8  | 1   | 300           | 42.0       |

| METRIC   |                  |             |   |       |        |       |    |         |     |               |            |
|----------|------------------|-------------|---|-------|--------|-------|----|---------|-----|---------------|------------|
| Part No. | Rated Load (kgs) | Thread Size | A | B     | C      | D     | E  | F       | G   | Torque Ft/Lbs | Wt. (Lbs.) |
| 43560    | 325              | M8x1.25     | 2 | 1-1/2 | 1-7/16 | 3/8   | 16 | 1-15/16 | 3/8 | 3.5           | 0.5        |
| 43565    | 500              | M10x1.50    | 2 | 1-1/2 | 1-7/16 | 3/8   | 20 | 1-15/16 | 3/8 | 4.5           | 0.5        |
| 43570    | 725              | M12x1.75    | 3 | 2-3/8 | 2-1/4  | 5/8   | 27 | 3       | 1/2 | 15            | 3.5        |
| 43575    | 1,400            | M16x2.00    | 3 | 2-3/8 | 2-1/4  | 5/8   | 31 | 3       | 1/2 | 25            | 3.5        |
| 43580    | 2,290            | M20x2.50    | 4 | 3-3/4 | 3-3/8  | 1     | 40 | 4-1/2   | 3/4 | 50            | 11.5       |
| 43585    | 3,050            | M24x3.00    | 4 | 3-3/4 | 3-3/8  | 1     | 47 | 4-1/2   | 3/4 | 80            | 11.5       |
| 43590    | 4,850            | M30x3.50    | 6 | 4-5/8 | 4-5/8  | 1-3/8 | 50 | 6-1/4   | 1   | 150           | 28.0       |
| 43595    | 7,700            | M36x4.00    | 6 | 4-5/8 | 4-5/8  | 1-3/8 | 63 | 6-1/4   | 1   | 250           | 29.0       |
| 43600    | 8,200            | M42x4.50    | 6 | 4-5/8 | 4-5/8  | 1-3/8 | 84 | 6-1/4   | 1   | 250           | 29.5       |
| 43605    | 11,300           | M48x5.00    | 6 | 4-5/8 | 4-5/8  | 1-3/8 | 95 | 6-1/4   | 1   | 300           | 32.0       |



## LIFTING RINGS

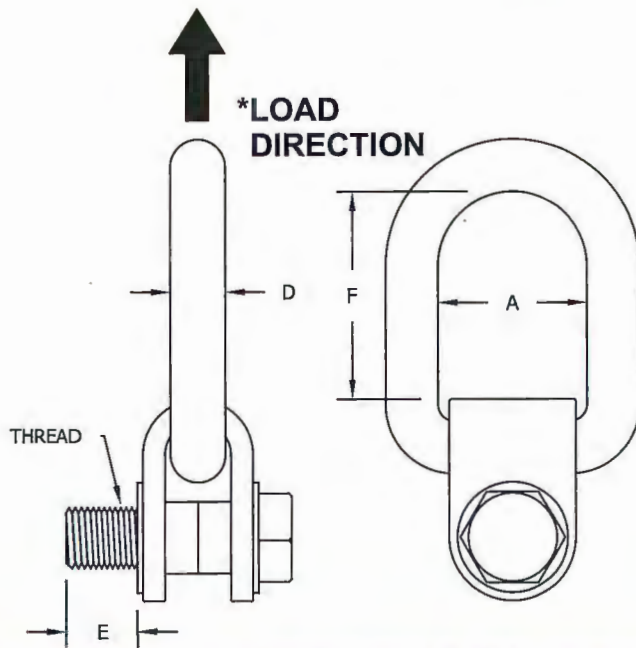


- Designed for side mounting application
- Great for dies & molds
- Swivels 360° and pivots 180°
- Rated loads from 650 – 15,000 lbs.
- Factor of safety: 4:1
- Material AISI 4140 aircraft quality “chrome moly”





## LIFTING RINGS



- SWIVELS 360° - PIVOTS 180°
- MATERIAL: AIRCRAFT QUALITY ALLOY
- FINISH: BLACK OXIDE PER MIL SPEC. (CADMIUM PLATED AVAILABLE)
- SAFETY FACTOR: 4:1
- MAGNETIC PARTICLE INSPECTED
- CERTIFIED HEAT TREATMENT

**READ SAFETY PRECAUTION  
PRIOR TO USE  
(SAFETY 9)**

### STANDARD (color coded yellow)

| Part Number |             | Rated Load (Lbs.) | Thread Size | A     | C     | D     | E    | F      |             | Torque Ft/Lbs | Wt. (Lbs) |
|-------------|-------------|-------------------|-------------|-------|-------|-------|------|--------|-------------|---------------|-----------|
| D-Ring      | Long D-Ring |                   |             |       |       |       |      | D-Ring | Long D-Ring |               |           |
| 43700       | -           | 650               | 5/16-18     | 1-7/8 | 1-1/2 | 5/8   | 0.75 | 2      | -           | 7             | 1.7       |
| 43705       | -           | 800               | 3/8-16      | 1-7/8 | 1-1/2 | 5/8   | 0.75 | 2      | -           | 12            | 1.8       |
| 43710       | 43711       | 2,000             | 1/2-13      | 1-7/8 | 1-1/2 | 5/8   | 1.25 | 2.5    | 3.5         | 28            | 2.0       |
| 43720       | 43721       | 2,500             | 5/8-11      | 1-7/8 | 1-1/2 | 5/8   | 1.25 | 2.5    | 3.5         | 60            | 2.0       |
| 43730       | 43731       | 5,000             | 3/4-10      | 2-1/4 | 2     | 3/4   | 2    | 3      | 4           | 100           | 3.5       |
| 43740       | 43741       | 6,500             | 7/8-9       | 2-1/4 | 2     | 3/4   | 2    | 3      | 4           | 160           | 4.0       |
| 43750       | 43751       | 7,000             | 1-8         | 2-1/4 | 2     | 3/4   | 2    | 3      | 4           | 230           | 4.0       |
| 43760       | 43761       | 12,000            | 1-1/4-7     | 3-1/4 | 3     | 1-1/8 | 2.5  | 4      | 5.5         | 470           | 11.0      |
| 43770       | 43771       | 15,000            | 1-1/2-6     | 3-1/4 | 3     | 1-1/8 | 3    | 4      | 5.5         | 800           | 13.0      |

### METRIC (color coded blue)

| Part Number |             | Rated Load (kg.) | Thread Size | A     | C     | D     | E  | F      |             | Torque Kgm | Wt. (Lbs) |
|-------------|-------------|------------------|-------------|-------|-------|-------|----|--------|-------------|------------|-----------|
| D-Ring      | Long D-Ring |                  |             |       |       |       |    | D-Ring | Long D-Ring |            |           |
| 43900       | -           | 300              | M8x1.25     | 1-7/8 | 1-1/2 | 5/8   | 25 | 2      | -           | 0.86       | 1.7       |
|             | -           | 400              | M10x1.50    | 1-7/8 | 1-1/2 | 5/8   | 25 | 2      | -           | 1.5        | 1.8       |
| 43910       | 43911       | 1,000            | M12x1.75    | 1-7/8 | 1-1/2 | 5/8   | 35 | 2.5    | 3.5         | 3.7        | 2.0       |
| 43920       | 43921       | 1,050            | M16x2.00    | 1-7/8 | 1-1/2 | 5/8   | 35 | 2.5    | 3.5         | 8.4        | 2.0       |
| 43930       | 43931       | 2,150            | M20x2.50    | 2-1/4 | 2     | 3/4   | 45 | 3      | 4           | 14         | 3.5       |
| 43940       | 43941       | 3,000            | M24x3.00    | 2-1/4 | 2     | 3/4   | 50 | 3      | 4           | 31         | 3.7       |
| 43950       | 43951       | 5,000            | M30x3.50    | 3-1/4 | 3     | 1-1/8 | 70 | 4      | 5.5         | 60         | 11.0      |
| 43960       | 43961       | 7,000            | M36x4.00    | 3-1/4 | 3     | 1-1/8 | 70 | 4      | 5.5         | 100        | 13.0      |



# **FORGED SIDE PULL HOIST RINGS**



- **Swivels 360°**
- **Moderately priced for economy**
- **This design is ideal for side mounting application**
- **Made of “chrome moly” and heat treated to give them strength and toughness**

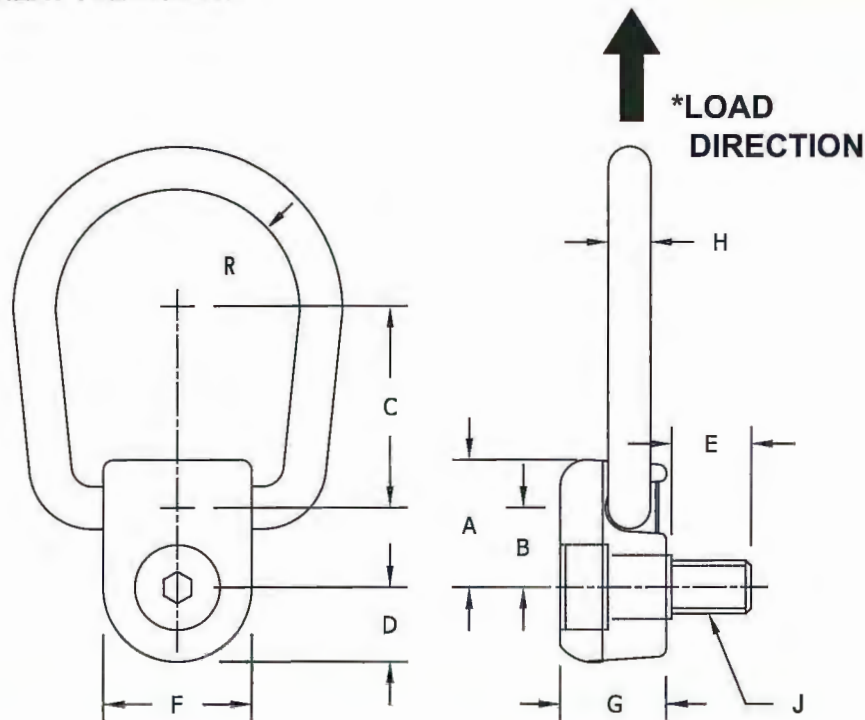




## FORGED SIDE PULL HOIST RINGS

- SWIVELS 360°
- MATERIAL: AIRCRAFT QUALITY ALLOY
- FINISH: PHOSPHATE PER DOD-P-16232F
- SAFETY FACTOR: 5:1 (\*SIDE PULL DIRECTION ONLY)
- MAGNETIC PARTICLE INSPECTED
- CERTIFIED HEAT TREATMENT

**READ SAFETY PRECAUTION  
PRIOR TO USE  
(SAFETY 10)**



| STANDARD |                  |             |        |       |       |     |     |       |         |      |        |       |               |           |
|----------|------------------|-------------|--------|-------|-------|-----|-----|-------|---------|------|--------|-------|---------------|-----------|
| Part No. | Rated Load (Lbs) | Thread Size | A      | B     | C     | D   | E   | F     | G       | H    | J      | R     | Torque Ft/Lbs | Wt. (Lbs) |
| 68210    | 1,000            | 3/8-16      | 1-1/8  | 5/8   | 1-1/2 | 5/8 | 5/8 | 1-1/4 | 7/8     | 5/16 | 3/8-16 | 13/16 | 7-10          | 0.7       |
| 68220    | 2,000            | 1/2-13      | 1-5/8  | 7/8   | 1-7/8 | 7/8 | 3/4 | 1-3/4 | 1-5/16  | 7/16 | 1/2-13 | 1-1/8 | 20-25         | 1.7       |
| 68225    | 2,500            | 5/8-11      | 1-5/8  | 7/8   | 1-7/8 | 7/8 | 7/8 | 1-3/4 | 1-5/16  | 7/16 | 5/8-11 | 1-1/8 | 42-50         | 1.7       |
| 68250    | 5,000            | 3/4-10      | 2-3/16 | 1-1/8 | 2-3/4 | 1   | 1   | 2     | 1-11/16 | 5/8  | 3/4-10 | 1-3/8 | 70-80         | 3.5       |

| METRIC   |                  |             |        |       |       |     |     |       |         |      |          |       |               |           |
|----------|------------------|-------------|--------|-------|-------|-----|-----|-------|---------|------|----------|-------|---------------|-----------|
| Part No. | Rated Load (Lbs) | Thread Size | A      | B     | C     | D   | E   | F     | G       | H    | J        | R     | Torque Ft/Lbs | Wt. (Lbs) |
| 68310    | 1,000            | M10x1.50    | 1-1/8  | 5/8   | 1-1/2 | 5/8 | 5/8 | 1-1/4 | 7/8     | 5/16 | M10x1.50 | 13/16 | 7-10          | 0.7       |
| 68320    | 2,000            | M12x1.75    | 1-5/8  | 7/8   | 1-7/8 | 7/8 | 3/4 | 1-3/4 | 1-5/16  | 7/16 | M12x1.75 | 1-1/8 | 20-25         | 1.7       |
| 68325    | 2,500            | M16x2.00    | 1-5/8  | 7/8   | 1-7/8 | 7/8 | 7/8 | 1-3/4 | 1-5/16  | 7/16 | M16x2.00 | 1-1/8 | 42-50         | 1.7       |
| 68350    | 5,000            | M20x2.50    | 2-3/16 | 1-1/8 | 2-3/4 | 1   | 1   | 2     | 1-11/16 | 5/8  | M20x2.50 | 1-3/8 | 70-80         | 3.5       |



## FORGED HOIST RINGS



- Forged ring pivots 180°, but does not rotate.
- Fixed mounting plate holds ring secure to prevent rotation.
- Aircraft quality "chrome moly".
- Strong and tough!
- Magnetic particle inspected.
- Rated loads from 2,000 lbs. to 20,000 lbs.
- Super for anchor or tiedown applications.
- Great for lifting boxes or containers.



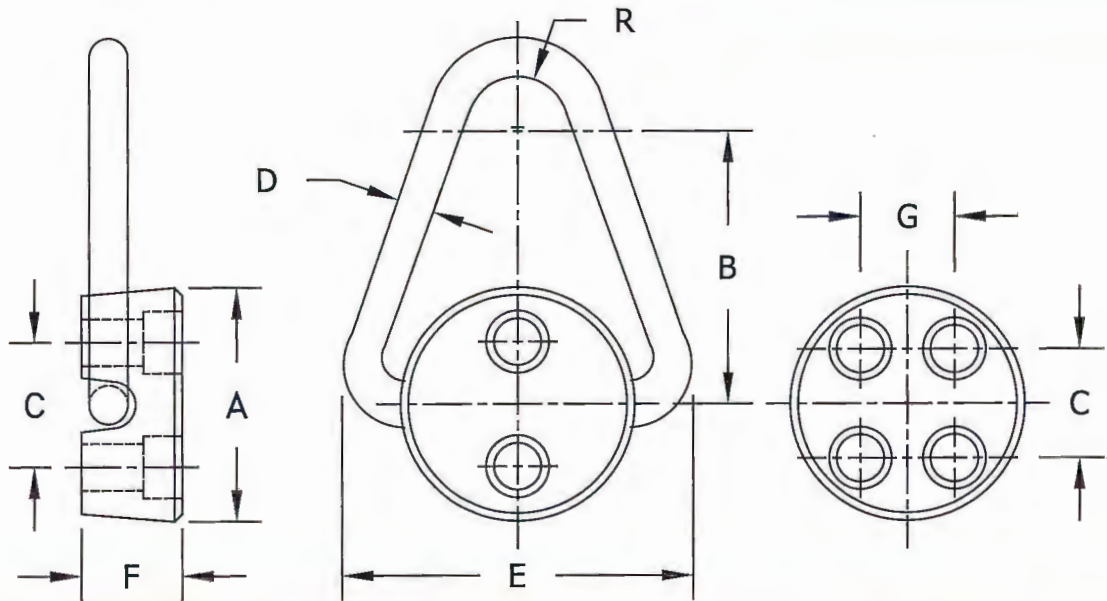


## FORGED HOIST RINGS

(HIGH STRENGTH ALLOY SCREWS MUST BE USED)

- PIVOTS 180°
- MATERIAL: AIRCRAFT QUALITY ALLOY
- FINISH: BLACK OXIDE PER MIL SPEC.
- SAFETY FACTOR: 6:1
- MAGNETIC PARTICLE INSPECTED
- CERTIFIED HEAT TREATMENT

**READ SAFETY PRECAUTION  
PRIOR TO USE  
(SAFETY 11)**

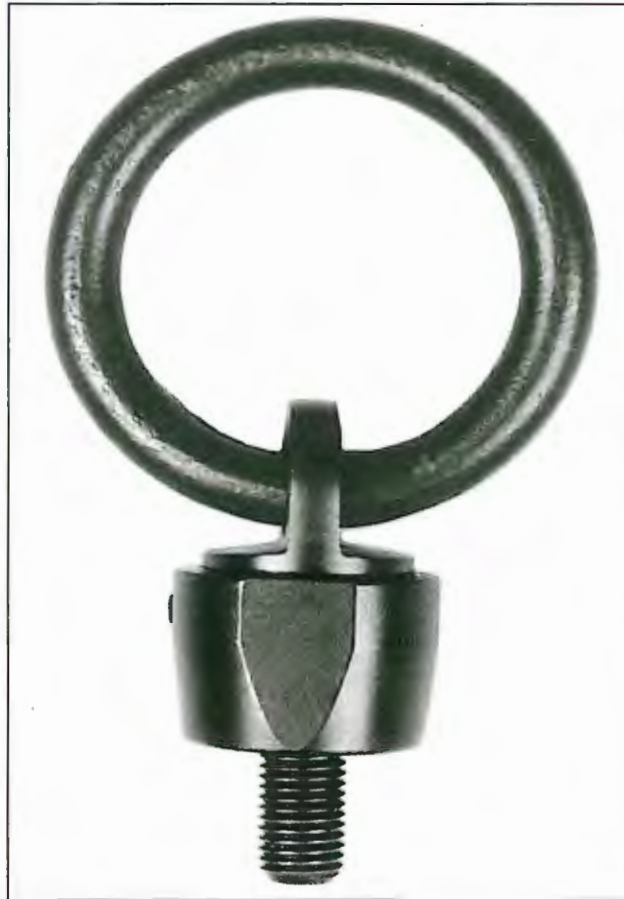


| Hoist Ring Part Number | Rated Load (Lbs.) | A (Dia.) | B     | C      | D    | E       | F     | G     | R   | Install Torque (Ft-Lbs) | Wt. (Lbs) |
|------------------------|-------------------|----------|-------|--------|------|---------|-------|-------|-----|-------------------------|-----------|
| 68060                  | 2,000             | 1-3/4    | 2     | 1      | 5/16 | 2-1/2   | 3/4   | ---   | 1/2 | 4-7                     | 0.75      |
| 68070                  | 2,500             | 2-1/4    | 2-1/2 | 1-1/8  | 3/8  | 3-3/16  | 7/8   | ---   | 5/8 | 7-10                    | 1.25      |
| 68080                  | 5,000             | 2-5/8    | 3     | 1-1/2  | 1/2  | 3-7/8   | 1-1/8 | ---   | 3/4 | 20-25                   | 2.00      |
| 68090                  | 12,000            | 3-1/8    | 4     | 1-5/8  | 3/4  | 5       | 1-3/8 | 1-1/4 | 7/8 | 20-25                   | 4.00      |
| 68100                  | 20,000            | 3-5/8    | 5     | 2-1/16 | 1    | 6-13/16 | 1-7/8 | 1-1/4 | 1   | 30-35                   | 7.50      |

| Hoist Ring Part Number | Standard Screw |             |              | Metric Screw |             |              | Wt. (Lbs) |
|------------------------|----------------|-------------|--------------|--------------|-------------|--------------|-----------|
|                        | Part Number    | Thread Size | Screw Length | Part Number  | Thread Size | Screw Length |           |
| 68060                  | 46144          | 5/16-18     | 1-1/4        | 49142        | M8x1.25     | 30           | 0.10      |
| 68070                  | 46146          | 3/8-16      | 1-1/4        | 49146        | M10x1.50    | 35           | 0.10      |
| 68080                  | 46048          | 1/2-13      | 2            | 49048        | M12x1.75    | 50           | 0.20      |
| 68090                  | 46052          | 1/2-13      | 2-1/2        | 49048        | M12x1.75    | 50           | 0.20      |
| 68100                  | 46043          | 5/8-11      | 3            | 49056        | M16x2.00    | 60           | 0.30      |



## “THE MOLD HANDLER™” DOUBLE SWIVEL EYE BOLTS



- The extra large inside diameter of this lift ring allows the user to utilize many styles and larger size hoist hooks.
- Die and mold makers will like the way this ring reacts to laying down and rolling the dies and molds over to work on them.
- Ball bearings give smooth swiveling and pivoting action.
- Magnetic particle inspected.
- Rated loads from 800 lbs. to 10,000 lbs.
- Aircraft quality “chrome moly”. Strong & tough!

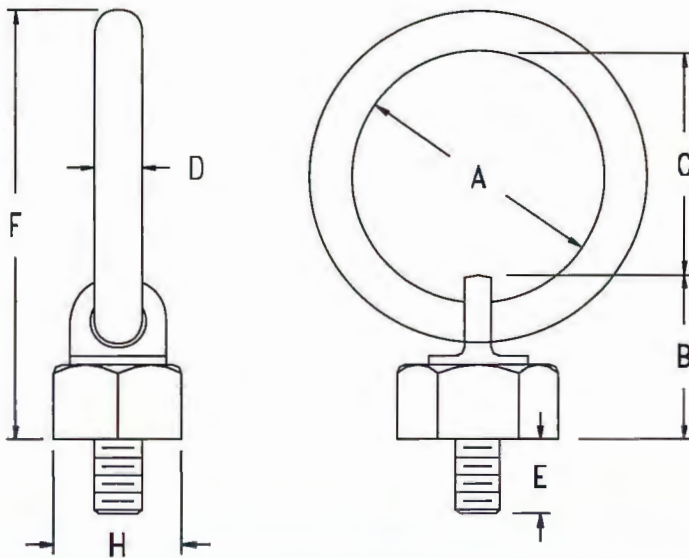




## “THE MOLD HANDLER™” DOUBLE SWIVEL EYE BOLTS

*Each Hoist Ring will be  
200% Proof-Load Tested  
with serial number for traceability  
and Certificate of Conformance*

- SWIVELS 360° - PIVOTS 180°
- MATERIAL: AIRCRAFT QUALITY ALLOY
- FINISH: BLACK OXIDE PER MIL SPEC. (CADMIUM PLATED AVAILABLE)
- SAFETY FACTOR: 4:1
- MAGNETIC PARTICLE INSPECTED
- CERTIFIED HEAT TREATMENT



**READ SAFETY PRECAUTION  
PRIOR TO USE  
(SAFETY 12)**

### STANDARD

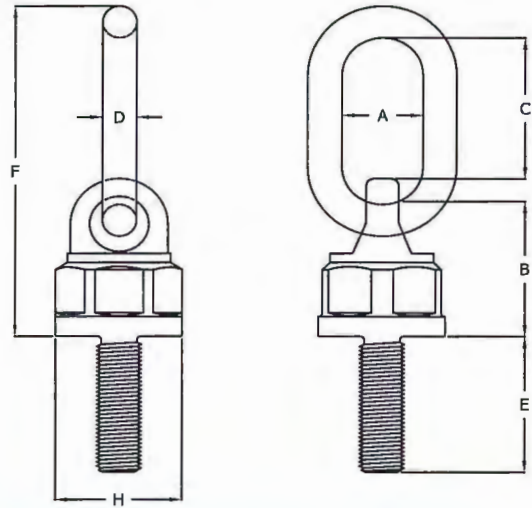
| Part No. | Rated Load (Lbs.) | A | B    | C    | D   | E     | F    | H | Thread Size | Wt. (Lbs) |
|----------|-------------------|---|------|------|-----|-------|------|---|-------------|-----------|
| 42620    | 800               | 2 | 1.48 | 1.75 | 3/8 | 1/2   | 3.60 | 1 | 5/16-18     | 0.7       |
| 42630    | 1,000             | 2 | 1.48 | 1.75 | 3/8 | 5/8   | 3.60 | 1 | 3/8-16      | 0.7       |
| 42640    | 2,500             | 3 | 2.68 | 2.57 | 5/8 | 3/4   | 5.87 | 2 | 1/2-13      | 3.0       |
| 42650    | 4,000             | 3 | 2.68 | 2.57 | 5/8 | 1     | 5.87 | 2 | 5/8-11      | 3.0       |
| 42660    | 7,000             | 4 | 4.25 | 3.31 | 1   | 1-1/4 | 8.56 | 3 | 3/4-10      | 9.5       |
| 42670    | 10,000            | 4 | 4.25 | 3.31 | 1   | 1-1/2 | 8.56 | 3 | 1-8         | 9.5       |

### METRIC

| Part No. | Rated Load (kg.) | A | B    | C    | D   | E     | F    | H | Thread Size | Wt. (Lbs) |
|----------|------------------|---|------|------|-----|-------|------|---|-------------|-----------|
| 42920    | 400              | 2 | 1.48 | 1.75 | 3/8 | 1/2   | 3.60 | 1 | M8x1.25     | 0.7       |
| 42930    | 500              | 2 | 1.48 | 1.75 | 3/8 | 5/8   | 3.60 | 1 | M10x1.50    | 0.7       |
| 42940    | 1,050            | 3 | 2.68 | 2.57 | 5/8 | 3/4   | 5.87 | 2 | M12x1.75    | 3.0       |
| 42950    | 1,900            | 3 | 2.68 | 2.57 | 5/8 | 1     | 5.87 | 2 | M16x2.00    | 3.0       |
| 42960    | 2,150            | 4 | 4.25 | 3.31 | 1   | 1-1/4 | 8.56 | 3 | M20x2.50    | 9.5       |
| 42970    | 4,200            | 4 | 4.25 | 3.31 | 1   | 1-1/2 | 8.56 | 3 | M24x3.00    | 9.5       |



## ULTRA LIFTING RING



- SWIVELS 360° - PIVOTS 180°
- MATERIAL: AIRCRAFT QUALITY ALLOY
- SAFETY FACTOR: 4:1
- MAGNETIC PARTICLE INSPECTED
- CERTIFIED HEAT TREATMENT

**READ SAFETY PRECAUTION  
PRIOR TO USE  
(SAFETY 12)**

| STANDARD |                   |       |        |       |       |       |       |      |             |           |
|----------|-------------------|-------|--------|-------|-------|-------|-------|------|-------------|-----------|
| Part No. | Rated Load (Lbs.) | A     | B      | C     | D     | E     | F     | H    | Thread Size | Wt. (Lbs) |
| 44104    | 800               | 1-1/8 | 1-1/2  | 1-1/4 | 5/16  | 1/2   | 3.45  | 1.42 | 5/16"-18    | 0.6       |
| 44106    | 1,000             | 1-1/8 | 1-1/2  | 1-1/4 | 5/16  | 1/2   | 3.45  | 1.42 | 3/8"-16     | 0.6       |
| 44110    | 2,000             | 1-3/8 | 2-1/2  | 2-1/4 | 1/2   | 3/4   | 5.83  | 2.36 | 7/16"-14    | 2.6       |
| 44112    | 2,500             | 1-3/8 | 2-1/2  | 2-1/4 | 1/2   | 3/4   | 5.83  | 2.36 | 1/2"-13     | 2.6       |
| 44114    | 3,000             | 1-3/8 | 2-1/2  | 2-1/4 | 1/2   | 7/8   | 5.83  | 2.36 | 9/16"-12    | 2.6       |
| 44116    | 4,000             | 1-3/8 | 2-1/2  | 2-1/4 | 1/2   | 1     | 5.83  | 2.36 | 5/8"-11     | 2.6       |
| 44120    | 5,000             | 1-1/2 | 3      | 2-3/4 | 3/4   | 1-1/4 | 7.05  | 2.76 | 3/4"-10     | 5.0       |
| 44122    | 8,000             | 1-1/2 | 3      | 2-3/4 | 3/4   | 1-1/2 | 7.05  | 2.76 | 7/8"-9      | 5.0       |
| 44124    | 10,000            | 1-1/2 | 3      | 2-3/4 | 3/4   | 1-1/2 | 7.05  | 2.76 | 1"-8        | 5.0       |
| 44146    | 11,000            | 2     | 3-1/2  | 3-1/2 | 7/8   | 2     | 8.90  | 2.90 | 1-1/4"-7    | 9.0       |
| 44150    | 17,600            | 2     | 3-1/2  | 3-1/2 | 7/8   | 2-1/8 | 8.90  | 2.90 | 1-1/2"-6    | 9.0       |
| 44160    | 22,000            | 2-1/2 | 4      | 4-1/2 | 1     | 3     | 9.45  | 3.67 | 2"-4-1/2    | 14.0      |
| 44163    | 22,000            | 2-1/2 | 4      | 4-1/2 | 1     | 6     | 9.45  | 3.67 | 2"-4-1/2    | 17.0      |
| 44166    | 22,000            | 2-1/2 | 4      | 4-1/2 | 1     | 12    | 9.45  | 3.67 | 2"-4-1/2    | 22.0      |
| 44162    | 22,000            | 2-1/2 | 4      | 4-1/2 | 1     | 3     | 9.45  | 3.67 | 2"-8        | 14.0      |
| 44164    | 22,000            | 2-1/2 | 4      | 4-1/2 | 1     | 6     | 9.45  | 3.67 | 2"-8        | 17.0      |
| 44168    | 22,000            | 2-1/2 | 4      | 4-1/2 | 1     | 12    | 9.45  | 3.67 | 2"-8        | 22.0      |
| 44170    | 33,000            | 2-3/4 | 5-3/16 | 5     | 1-1/4 | 4     | 11.18 | 4.13 | 2-1/2"-4    | 24.0      |
| 44176    | 33,000            | 2-3/4 | 5-3/16 | 5     | 1-1/4 | 8     | 11.18 | 4.13 | 2-1/2"-4    | 30.0      |
| 44178    | 33,000            | 2-3/4 | 5-3/16 | 5     | 1-1/4 | 12    | 11.18 | 4.13 | 2-1/2"-4    | 35.0      |
| 44172    | 33,000            | 2-3/4 | 5-3/16 | 5     | 1-1/4 | 4     | 11.18 | 4.13 | 2-1/2"-8    | 24.0      |
| 44177    | 33,000            | 2-3/4 | 5-3/16 | 5     | 1-1/4 | 8     | 11.18 | 4.13 | 2-1/2"-8    | 30.0      |
| 44179    | 33,000            | 2-3/4 | 5-3/16 | 5     | 1-1/4 | 12    | 11.18 | 4.13 | 2-1/2"-8    | 35.0      |

\* ADDITIONAL SIZES AVAILABLE UPON REQUEST

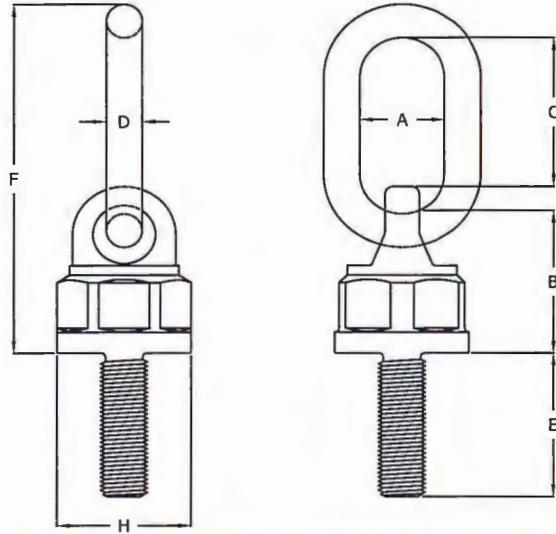




## METRIC ULTRA LIFTING RING

**Each Hoist Ring will be  
200% Proof-Load Tested  
with serial number for traceability  
and Certificate of Conformance**

- SWIVELS 360° - PIVOTS 180°
- MATERIAL: AIRCRAFT QUALITY ALLOY
- SAFETY FACTOR: 4:1
- MAGNETIC PARTICLE INSPECTED
- CERTIFIED HEAT TREATMENT



**READ SAFETY PRECAUTION  
PRIOR TO USE  
(SAFETY 12)**

| METRIC |                  |       |        |       |       |     |       |      |             |           |
|--------|------------------|-------|--------|-------|-------|-----|-------|------|-------------|-----------|
| No.    | Rated Load (kg.) | A     | B      | C     | D     | E   | F     | H    | Thread Size | Wt. (Lbs) |
| 44302  | 400              | 1-1/8 | 1-1/2  | 1-1/4 | 5/16  | 12  | 3.45  | 1.42 | M8x1.25     | 0.6       |
| 44304  | 500              | 1-1/8 | 1-1/2  | 1-1/4 | 5/16  | 19  | 3.45  | 1.42 | M10x1.50    | 0.6       |
| 44310  | 1,050            | 1-3/8 | 2-1/2  | 2-1/4 | 1/2   | 20  | 5.83  | 2.36 | M12x1.75    | 2.6       |
| 44312  | 1,150            | 1-3/8 | 2-1/2  | 2-1/4 | 1/2   | 31  | 5.83  | 2.36 | M14x2.00    | 2.6       |
| 44314  | 1,900            | 1-3/8 | 2-1/2  | 2-1/4 | 1/2   | 31  | 5.83  | 2.36 | M16x2.00    | 2.6       |
| 44320  | 2,150            | 1-1/2 | 3      | 2-3/4 | 3/4   | 38  | 7.05  | 2.76 | M20x2.50    | 5.0       |
| 44322  | 2,250            | 1-1/2 | 3      | 2-3/4 | 3/4   | 38  | 7.05  | 2.76 | M22x2.50    | 5.0       |
| 44324  | 4,200            | 1-1/2 | 3      | 2-3/4 | 3/4   | 38  | 7.05  | 2.76 | M24x3.00    | 5.0       |
| 44346  | 5,000            | 2     | 3-1/2  | 3-1/2 | 7/8   | 50  | 8.90  | 2.90 | M30x3.50    | 9.0       |
| 44348  | 7,000            | 2     | 3-1/2  | 3-1/2 | 7/8   | 50  | 8.90  | 2.90 | M33x3.50    | 9.0       |
| 44350  | 8,000            | 2     | 3-1/2  | 3-1/2 | 7/8   | 54  | 8.90  | 2.90 | M36x4.00    | 9.0       |
| 44355  | 8,000            | 2     | 3-1/2  | 3-1/2 | 7/8   | 58  | 8.90  | 2.90 | M39x4.00    | 9.0       |
| 44360  | 10,000           | 2-1/2 | 4      | 4-1/2 | 1     | 63  | 9.45  | 3.67 | M42X4.50    | 13.0      |
| 44362  | 10,000           | 2-1/2 | 4      | 4-1/2 | 1     | 152 | 9.45  | 3.67 | M42X4.50    | 15.0      |
| 44363  | 10,000           | 2-1/2 | 4      | 4-1/2 | 1     | 304 | 9.45  | 3.67 | M42X4.50    | 19.0      |
| 44367  | 10,000           | 2-1/2 | 4      | 4-1/2 | 1     | 68  | 9.45  | 3.67 | M45X4.50    | 14.0      |
| 44365  | 10,000           | 2-1/2 | 4      | 4-1/2 | 1     | 68  | 9.45  | 3.67 | M48X5.00    | 14.0      |
| 44366  | 10,000           | 2-1/2 | 4      | 4-1/2 | 1     | 152 | 9.45  | 3.67 | M48X5.00    | 17.0      |
| 44364  | 10,000           | 2-1/2 | 4      | 4-1/2 | 1     | 304 | 9.45  | 3.67 | M48X5.00    | 21.0      |
| 44370  | 15,000           | 2-3/4 | 5-3/16 | 5     | 1-1/4 | 84  | 11.18 | 4.13 | M56X5.50    | 22.0      |
| 44376  | 15,000           | 2-3/4 | 5-3/16 | 5     | 1-1/4 | 203 | 11.18 | 4.13 | M56X5.50    | 27.0      |
| 44384  | 15,000           | 2-3/4 | 5-3/16 | 5     | 1-1/4 | 304 | 11.18 | 4.13 | M56X5.50    | 31.0      |
| 44372  | 15,000           | 2-3/4 | 5-3/16 | 5     | 1-1/4 | 90  | 11.18 | 4.13 | M60X5.50    | 23.0      |
| 44378  | 15,000           | 2-3/4 | 5-3/16 | 5     | 1-1/4 | 203 | 11.18 | 4.13 | M60X5.50    | 28.0      |
| 44386  | 15,000           | 2-3/4 | 5-3/16 | 5     | 1-1/4 | 304 | 11.18 | 4.13 | M60X5.50    | 33.0      |
| 44375  | 15,000           | 2-3/4 | 5-3/16 | 5     | 1-1/4 | 95  | 11.18 | 4.13 | M64X6.00    | 24.0      |
| 44380  | 15,000           | 2-3/4 | 5-3/16 | 5     | 1-1/4 | 203 | 11.18 | 4.13 | M64X6.00    | 30.0      |
| 44388  | 15,000           | 2-3/4 | 5-3/16 | 5     | 1-1/4 | 304 | 11.18 | 4.13 | M64X6.00    | 35.0      |

\*ADDITIONAL SIZES AVAILABLE UPON REQUEST



## SPEED BASE HOIST RINGS

### “Fastest Hoist Ring in the West!”

**Each Hoist Ring will be  
200% Proof-Load Tested  
with serial number for traceability  
and Certificate of Conformance**



This hoist ring is for users that install and remove lift rings repeatedly.

Tap the lugs with a small hammer or “tapper” to make sure base is tight on the surface of the object being lifted.

**READ SAFETY PRECAUTION  
PRIOR TO USE  
(SAFETY 13)**

- **NO TORQUE WRENCHES REQUIRED!** Just spin the base down flush and tap one of the lugs to tighten.
- **Simple and fast!**





## SPEED BASE HOIST RINGS

*"Fastest Hoist Ring in the West!"*



### NO TORQUE WRENCHES REQUIRED!

Just spin the base down flush and tap one of the lugs to tighten.

### SIMPLE AND FAST!

| Part Number | Rated Load (Lbs.) | Thread Size | Thread Proj. | U-Bar Dia. | Plate Dia. |
|-------------|-------------------|-------------|--------------|------------|------------|
| AK42002     | 2,500             | 1/2"-13     | 3/4"         | 3/4"       | 3-1/2"     |
| AK42004     | 4,000             | 5/8"-11     | 1"           | 3/4"       | 3-1/2"     |
| AK42006     | 5,000             | 3/4"-10     | 1"           | 3/4"       | 3-1/2"     |
| AK42202     | 7,000             | 3/4"-10     | 1-1/2"       | 1"         | 5-1/2"     |
| AK42204     | 8,000             | 7/8"-9      | 1-1/2"       | 1"         | 5-1/2"     |
| AK42206     | 10,000            | 1"-8        | 1-1/2"       | 1"         | 5-1/2"     |
| AK42802     | 15,000            | 1-1/4"-7    | 2"           | 1-1/4"     | 7"         |
| AK42704     | 20,000            | 1-3/8"-6    | 2"           | 1-1/4"     | 7"         |
| AK42404     | 20,000            | 1-1/2"-6    | 3-1/4"       | 1-1/4"     | 7"         |
| AK42400     | 20,000            | 2"-4-1/2    | 3-1/4"       | 1-1/4"     | 7"         |



## ROUND BASE SWIVEL & PIVOT HOIST RINGS

**Each Hoist Ring will be  
200% Proof-Load Tested  
with serial number for traceability  
and Certificate of Conformance**



- Swivel 360° and pivots 180°.
- Direct mounting.
- Wide round base helps distribute shear loads.
- Aircraft quality “chrome moly” and heat-treated.
- Magnetic particle inspected.
- Rated load capacities from 2,500 lbs. to 20,000 lbs.

- Many OEM applications.
- Perfect for pre-cast concrete products: simply cast a threaded anchor or stud into the concrete part. Mount the hoist ring and you have an easy, safe lifting/handling application.
- Safety factor: 5:1.

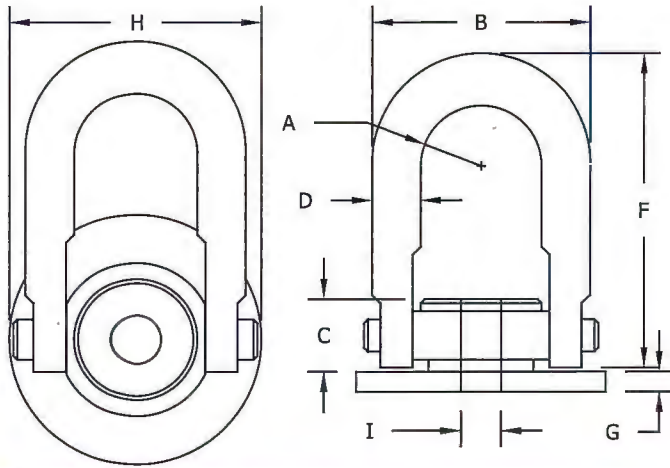
*Note: Thread engagement should be 1-1/2 times the diameter of the equivalent of Grade 8 alloy screw*





## ROUND BASE SWIVEL & PIVOT HOIST RING

(HIGH STRENGTH ALLOY SCREWS MUST BE USED)  
(BOTH UNC AND COIL AVAILABLE)



- SWIVELS 360° - PIVOTS 180°
- MATERIAL: AIRCRAFT QUALITY ALLOY
- FINISH: BLACK OXIDE PER MIL SPEC.  
(CADMIUM PLATED AVAILABLE)
- SAFETY FACTOR: 5:1
- MAGNETIC PARTICLE INSPECTED
- CERTIFIED HEAT TREATMENT

**READ SAFETY PRECAUTION  
PRIOR TO USE  
(SAFETY 14)**

| STANDARD |                  |      |         |        |       |       |         |       |       |               |           |
|----------|------------------|------|---------|--------|-------|-------|---------|-------|-------|---------------|-----------|
| Part No. | Rated Load (lbs) | A    | B       | C      | D     | H     | F       | G     | I     | Torque Ft/Lbs | Wt. (Lbs) |
| 44646    | 2,500            | 0.88 | 3-1/4   | 1-7/64 | 3/4   | 3-1/2 | 6-3/4   | 1/4   | 1/2   | 28            | 3.5       |
| 44642    | 4,000            | 0.88 | 3-1/4   | 1-7/64 | 3/4   | 3-1/2 | 6-3/4   | 1/4   | 5/8   | 60            | 3.5       |
| 44654    | 5,000            | 0.88 | 3-1/4   | 1-7/64 | 3/4   | 3-1/2 | 6-3/4   | 1/4   | 3/4   | 100           | 3.5       |
| 44660    | 7,000            | 1.40 | 4-13/16 | 1-1/2  | 1     | 5     | 8-7/64  | 13/32 | 3/4   | 100           | 9.0       |
| 44656    | 8,000            | 1.40 | 4-13/16 | 1-1/2  | 1     | 5     | 8-7/64  | 13/32 | 7/8   | 160           | 9.0       |
| 44666    | 10,000           | 1.40 | 4-13/16 | 1-1/2  | 1     | 5     | 8-7/64  | 13/32 | 1     | 230           | 9.0       |
| 44802    | 15,000           | 1.75 | 6       | 1-7/8  | 1-1/4 | 7     | 8-3/4   | 1/2   | 1-1/4 | 470           | 17.0      |
| 44803    | 15,000           | 1.75 | 6       | 1-7/8  | 1-1/4 | 7     | 8-3/4   | 1/2   | 1-1/2 | 800           | 17.0      |
| 44704    | 20,000           | 2.00 | 7-11/32 | 2      | 1-1/2 | 7     | 10-3/16 | 1/2   | 1-1/2 | 800           | 24.0      |
| 44404    | 24,000           | 2.25 | 8       | 2-3/8  | 1-3/4 | 8-1/2 | 12-1/2  | 1/2   | 1-1/2 | 800           | 40.0      |
| 44406    | 24,000           | 2.25 | 8       | 2-3/8  | 1-3/4 | 8-1/2 | 12-1/2  | 1/2   | 1-3/4 | 800           | 40.0      |
| 44408    | 30,000           | 2.25 | 8       | 2-3/8  | 1-3/4 | 8-1/2 | 12-1/2  | 1/2   | 2     | 800           | 40.0      |

| METRIC   |                 |      |         |        |       |       |         |       |     |            |           |
|----------|-----------------|------|---------|--------|-------|-------|---------|-------|-----|------------|-----------|
| Part No. | Rated Load (kg) | A    | B       | C      | D     | H     | F       | G     | I   | Torque N-m | Wt. (Lbs) |
| 44924    | 1,050           | 0.88 | 3-1/4   | 1-7/64 | 3/4   | 3-1/2 | 6-3/4   | 1/4   | M12 | 37         | 3.5       |
| 44930    | 1,900           | 0.88 | 3-1/4   | 1-7/64 | 3/4   | 3-1/2 | 6-3/4   | 1/4   | M16 | 80         | 3.5       |
| 44936    | 2,150           | 0.88 | 3-1/4   | 1-7/64 | 3/4   | 3-1/2 | 6-3/4   | 1/4   | M20 | 135        | 3.5       |
| 44942    | 3,000           | 1.40 | 4-13/16 | 1-1/2  | 1     | 5     | 8-7/64  | 13/32 | M20 | 135        | 9.0       |
| 44944    | 4,200           | 1.40 | 4-13/16 | 1-1/2  | 1     | 5     | 8-7/64  | 13/32 | M24 | 311        | 9.0       |
| 44956    | 7,000           | 1.75 | 6       | 1-7/8  | 1-1/4 | 7     | 8-3/4   | 1/2   | M30 | 637        | 17.0      |
| 44960    | 7,000           | 1.75 | 6       | 1-7/8  | 1-1/4 | 7     | 8-3/4   | 1/2   | M33 | 937        | 17.0      |
| 44961    | 7,000           | 1.75 | 6       | 1-7/8  | 1-1/4 | 7     | 8-3/4   | 1/2   | M36 | 1085       | 17.0      |
| 44962    | 10,000          | 2.00 | 7-11/32 | 2      | 1-1/2 | 7     | 10-3/16 | 1/2   | M36 | 1085       | 24.0      |
| 44966    | 11,000          | 2.25 | 8       | 2-3/8  | 1-3/4 | 8-1/2 | 12-1/2  | 1/2   | M36 | 1085       | 40.0      |
| 44968    | 12,500          | 2.25 | 8       | 2-3/8  | 1-3/4 | 8-1/2 | 12-1/2  | 1/2   | M42 | 1085       | 40.0      |
| 44980    | 13,500          | 2.25 | 8       | 2-3/8  | 1-3/4 | 8-1/2 | 12-1/2  | 1/2   | M48 | 1085       | 40.0      |

(TO ORDER SPECIAL PLATE FOR WELD-ON APPLICATIONS, ADD "-W" TO PART NUMBER)



## PIVOT LIFTING PLATES



- Large bail pivots 180°.
- Rugged tapered plate minimizes shear force on high strength alloy screw.
- Base plate can be welded into position thus eliminating use of screws.
- Aircraft quality “chrome moly” and heat treated.
- Ideal for some OEM applications.
- Rated lifting capacity from 7,000 lbs. to 10,000 lbs.
- Safety factor: 5:1.
- Thread engagement 1-1/2 times screw diameter.
- Use high tensile alloy screw equivalent to Grade 8.





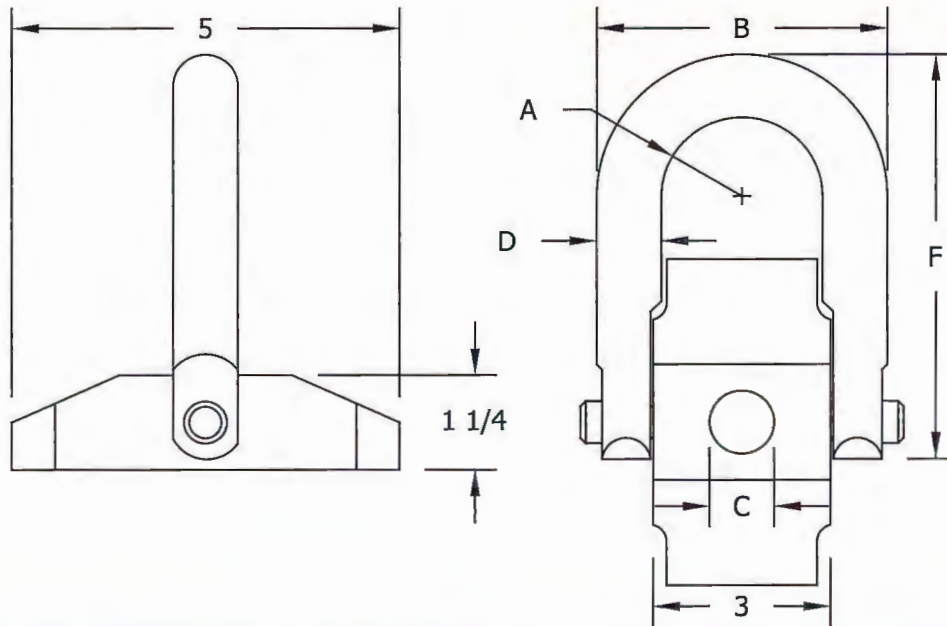
## PIVOT LIFTING PLATES

(HIGH STRENGTH ALLOY SCREWS MUST BE USED)  
(BOTH UNC AND COIL AVAILABLE)

*Each Hoist Ring will be  
200% Proof-Load Tested  
with serial number for traceability  
and Certificate of Conformance*

- PIVOTS 180°
- MATERIAL: AIRCRAFT QUALITY ALLOY
- FINISH: BLACK OXIDE PER MIL SPEC.  
(CADMIUM PLATED AVAILABLE)
- SAFETY FACTOR: 5:1
- MAGNETIC PARTICLE INSPECTED
- CERTIFIED HEAT TREATMENT

**READ SAFETY PRECAUTION  
PRIOR TO USE  
(SAFETY 15)**



| Part No. | Rated Load (lbs) | A    | B       | C     | D | F      | Thread Size | Torque Ft/Lbs | Wt (Lbs) |
|----------|------------------|------|---------|-------|---|--------|-------------|---------------|----------|
| 44410    | 7,000            | 1.40 | 4-13/16 | 3/4   | 1 | 6-1/2  | 3/4-10      | 100           | 6.8      |
| * 44610  | 7,000            | 1.40 | 4-13/16 | 3/4   | 1 | 8-7/64 | 3/4-10      | 100           | 7.5      |
| 44415    | 8,000            | 1.40 | 4-13/16 | 7/8   | 1 | 6-1/2  | 7/8-9       | 160           | 6.7      |
| * 44615  | 8,000            | 1.40 | 4-13/16 | 7/8   | 1 | 8-7/64 | 7/8-9       | 160           | 7.4      |
| 44420    | 10,000           | 1.40 | 4-13/16 | 1     | 1 | 6-1/2  | 1-8         | 230           | 6.7      |
| * 44620  | 10,000           | 1.40 | 4-13/16 | 1     | 1 | 8-7/64 | 1-8         | 230           | 7.3      |
| 44423    | 10,000           | 1.40 | 4-13/16 | 1-1/8 | 1 | 6-1/2  | 1-1/8-7     | 230           | 6.7      |
| * 44625  | 10,000           | 1.40 | 4-13/16 | 1-1/8 | 1 | 8-7/64 | 1-1/8-7     | 230           | 7.3      |
| 44421    | 10,000           | 1.40 | 4-13/16 | 1-1/4 | 1 | 6-1/2  | 1-1/4-7     | 230           | 6.7      |
| * 44630  | 10,000           | 1.40 | 4-13/16 | 1-1/4 | 1 | 8-7/64 | 1-1/4-7     | 230           | 7.3      |

\* Long Bar



## REPLACEMENT SCREWS



HOIST RING

HOIST RING (CONT.)

METRIC

METRIC (CONT.)

| Part No. | Screw |
|----------|-------|
| 46100    | 46139 |
| 46102    | 46142 |
| 46104    | 46144 |
| 46106    | 46146 |
| 46606    | 46614 |
| 46602    | 46636 |
| 46000    | 46076 |
| 46638    | "     |
| 46008    | 46048 |
| 46644    | "     |
| 46010    | 46050 |
| 46646    | "     |
| 46012    | 46052 |
| 46648    | "     |
| 46007    | 46039 |
| 46651    | 46039 |
| 46002    | 46056 |
| 46641    | "     |
| 46004    | 46044 |
| 46640    | "     |
| 46006    | 46046 |
| 46642    | "     |
| 46005    | 46045 |
| 46643    | "     |
| 46014    | 46054 |
| 46650    | "     |
| 46018    | 46058 |
| 46654    | "     |
| 46204    | 46244 |
| 46658    | "     |
| 46206    | 46246 |
| 46660    | "     |
| 46202    | 46242 |
| 46656    | "     |
| 46203    | 46243 |
| 46657    | "     |
| 46205    | 46270 |
| 46655    | "     |

| Part No. | Screw |
|----------|-------|
| 46210    | 46250 |
| 46662    | "     |
| 46212    | 46252 |
| 46664    | "     |
| 46214    | 46254 |
| 46666    | "     |
| 46216    | 46280 |
| 46668    | "     |
| 46217    | 46260 |
| 46669    | "     |
| 46802    | 46842 |
| 46805    | 46845 |
| 46806    | 46871 |
| 46807    | 46865 |
| 46702    | 46752 |
| 46404    | 46444 |
| 46405    | 46415 |
| 46408    | 46449 |
| 46406    | 46447 |
| 46400    | 46450 |
| 46440    | 46412 |
| 46431    | 46471 |
| 46435    | 46451 |
| 47002    | 47052 |
| 47006    | 47056 |
| 47008    | 47059 |
| 47010    | 47049 |
| 47200    | 47252 |
| 47202    | 47251 |
| 47402    | 47452 |
| 47406    | 47456 |
| 47602    | 47652 |

| Part No. | Screw |
|----------|-------|
| 46912    | 49142 |
| 46913    | 49150 |
| 46916    | 49146 |
| 46608    | 49668 |
| 46609    | 49672 |
| 46924    | 49048 |
| 47124    | "     |
| 46928    | 49050 |
| 47128    | "     |
| 46933    | 49073 |
| 46930    | 49056 |
| 47130    | "     |
| 46934    | 49057 |
| 47134    | "     |
| 46938    | 49079 |
| 47132    | "     |
| 46936    | 49054 |
| 47136    | "     |
| 46941    | 49241 |
| 47140    | "     |
| 46942    | 49244 |
| 47142    | "     |
| 46944    | 49245 |
| 47144    | "     |
| 46947    | 49267 |
| 47146    | "     |
| 46948    | 49250 |
| 47148    | "     |
| 46950    | 49242 |
| 46956    | 49842 |
| 46955    | 49841 |
| 46958    | 49846 |
| 46957    | 49849 |

| Part No. | Screw |
|----------|-------|
| 46960    | 49848 |
| 46961    | 49751 |
| 46962    | 49752 |
| 46963    | 49343 |
| 46966    | 49344 |
| 46964    | 49342 |
| 46965    | 49442 |
| 46968    | 49444 |
| 46980    | 49447 |
| 46970    | 49450 |
| 46979    | 49430 |
| 46973    | 49456 |
| 46972    | 49644 |
| 46988    | 49744 |
| 46989    | 49750 |
| 46990    | 49844 |
| 46994    | 49854 |





## REPLACEMENT SCREWS



### FORGED SWIVEL

| Part No. | Screw |
|----------|-------|
| 56100    | 56138 |
| 56102    | 56142 |
| 56104    | 56144 |
| 56106    | 56146 |
| 56107    | 56147 |
| 56008    | 56048 |
| 56010    | 56050 |
| 56012    | 56052 |
| 56002    | 56056 |
| 56004    | 56044 |
| 56006    | 56046 |
| 56014    | 56054 |
| 56018    | 56058 |
| 56204    | 56244 |
| 56203    | 56245 |
| 56206    | 56246 |
| 56202    | 56242 |
| 56205    | 56243 |
| 56210    | 56250 |
| 56212    | 56252 |
| 56214    | 56254 |
| 56802    | 56842 |
| 56804    | 56846 |
| 56702    | 56752 |
| 56404    | 56444 |

### FORGED (METRIC)

| Part Number | Screw |
|-------------|-------|
| 56912       | 54142 |
| 56914       | 54144 |
| 56916       | 54146 |
| 56918       | 54147 |
| 56924       | 54048 |
| 56926       | 54052 |
| 56930       | 54056 |
| 56932       | 54058 |
| 56936       | 54054 |
| 56938       | 54055 |
| 56942       | 54244 |
| 56946       | 54252 |
| 56948       | 54250 |
| 56949       | 54243 |
| 56950       | 54242 |
| 56956       | 54842 |
| 56960       | 54848 |
| 56966       | 54344 |
| 56968       | 54444 |
| 56970       | 54450 |

### STAINLESS STEEL

| Part No. | Screw |
|----------|-------|
| 58100    | 58139 |
| 58102    | 58142 |
| 58104    | 58144 |
| 58106    | 58146 |
| 58606    | 58614 |
| 58602    | 58636 |
| 58000    | 58076 |
| 58638    | "     |
| 58008    | 58048 |
| 58644    | "     |
| 58010    | 58050 |
| 58646    | "     |
| 58012    | 58052 |
| 58648    | "     |
| 58002    | 58056 |
| 58004    | 58044 |
| 58640    | "     |
| 58006    | 58046 |
| 58642    | "     |
| 58014    | 58054 |
| 58650    | "     |
| 58018    | 58058 |
| 58654    | "     |
| 58204    | 58244 |
| 58658    | "     |
| 58206    | 58246 |
| 58660    | "     |
| 58202    | 58242 |
| 58656    | "     |
| 58205    | 58270 |
| 58208    | 58241 |
| 58210    | 58250 |
| 58662    | "     |
| 58212    | 58252 |
| 58664    | "     |
| 58214    | 58254 |
| 58666    | "     |
| 58802    | 58842 |

### STAINLESS (CONT.)

| Part No. | Screw |
|----------|-------|
| 58702    | 58752 |
| 58704    | 58754 |
| 58706    | 58756 |
| 58708    | 58758 |
| 58404    | 58444 |
| 58400    | 58450 |
| 59002    | 59052 |
| 59006    | 59056 |
| 59200    | 59252 |
| 59402    | 59452 |
| 59602    | 59652 |

### STAINLESS (METRIC)

| Part No. | Screw |
|----------|-------|
| 58912    | 59143 |
| 58916    | 59146 |
| 58924    | 59048 |
| 59124    | "     |
| 58930    | 59057 |
| 59130    | "     |
| 58936    | 59054 |
| 59136    | "     |
| 58942    | 59244 |
| 59142    | "     |
| 58948    | 59250 |
| 59148    | "     |
| 58950    | 59242 |
| 58956    | 59842 |
| 58958    | 59846 |
| 58966    | 59344 |
| 58968    | 59444 |
| 58970    | 59450 |
| 58972    | 59644 |
| 58988    | 59744 |
| 58990    | 59844 |



## REPLACEMENT SCREWS



### SIDE LOAD

| Part No. | Screw    |
|----------|----------|
| 43510    | 46143-SL |
| 43515    | 46155-SL |
| 43520    | 46052-SL |
| 43525    | 46045-SL |
| 43530    | 46262-SL |
| 43535    | 46277-SL |
| 43540    | 46254-SL |
| 43545    | 46846-SL |
| 43547    | 46875-SL |
| 43550    | 46444-SL |
| 43552    | 46489-SL |
| 43555    | 46463-SL |
| 43557    | 46491-SL |

### SIDE PULL

| Part No. | Screw |
|----------|-------|
| 68210    | 68218 |
| 68220    | 68222 |
| 68225    | 68227 |
| 68250    | 68258 |

### SIDE PULL (METRIC)

| Part No. | Screw |
|----------|-------|
| 68310    | 68318 |
| 68320    | 68322 |
| 68325    | 68327 |
| 68350    | 68358 |

### SIDE LOAD (METRIC)

| Part No. | Screw    |
|----------|----------|
| 43560    | 49151-SL |
| 43565    | 49153-SL |
| 43570    | 49041-SL |
| 43575    | 49058-SL |
| 43580    | 49248-SL |
| 43582    | 49247-SL |
| 43585    | 49255-SL |
| 43590    | 49849-SL |
| 43595    | 49342-SL |
| 43600    | 49444-SL |
| 43605    | 49451-SL |



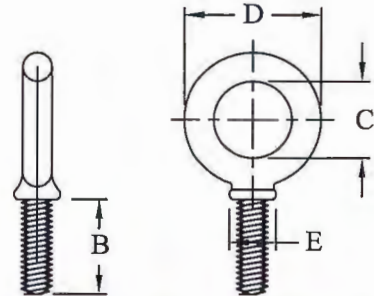


## SHOULDER EYE BOLT

MATERIAL: C1030, HEAT TREAT: QUENCH & DRAW, PLAIN & BLACK OXIDE FINISH

MATERIAL: 304 STAINLESS STEEL

FINISH: PLAIN & BLACK OXIDE FINISH



| INCH     |             |                      |                | METRIC   |             |                     |                     | C        | D        | E           |
|----------|-------------|----------------------|----------------|----------|-------------|---------------------|---------------------|----------|----------|-------------|
| PART NO. | THREAD SIZE | W.L.L. VERT. 0 (LBS) | B SHANK LENGTH | PART NO. | THREAD SIZE | W.L.L. VERT. 0 (KG) | B SHANK LENGTH (mm) | I.D. EYE | O.D. EYE | COLLAR DIA. |
| 41401    | 1/4-20      | 500                  | 1              | 41301    | M6X1.0      | 210                 | 25.4                | 3/4      | 1-3/16   | 17/32       |
| 41403    | 5/16-18     | 900                  | 1-1/8          | 41303    | M7X1.0      | 370                 | 28.5                | 7/8      | 1-7/16   | 19/32       |
| 41405    | 3/8-16      | 1,300                | 1-1/4          | 41300    | M8X1.25     | 500                 | 31.7                | 1        | 1-21/32  | 11/16       |
| 41407    | 7/16-14     | 1,800                | 1-3/8          | 41302    | M10X1.5     | 740                 | 35.0                | 1-3/32   | 1-27/32  | 25/32       |
| 41409    | 1/2-13      | 2,400                | 1-1/2          | 41304    | M12X1.75    | 1,030               | 38.0                | 1-3/16   | 2-1/16   | 7/8         |
| 41411    | 9/16-12     | 3,000                | 1-5/8          | 41306    | M14X2.0     | 1,600               | 41.1                | 1-9/32   | 2-9/32   | 31/32       |
| 41413    | 5/8-11      | 4,000                | 1-3/4          | 41308    | M16X2.0     | 1,600               | 44.5                | 1-3/8    | 2-1/2    | 1-1/16      |
| 41415    | 3/4-10      | 5,000                | 2              | 41310    | M18X2.5     | 2,140               | 51.0                | 1-1/2    | 2-13/16  | 1-1/4       |
| 41417    | 7/8-9       | 7,000                | 2-1/4          | 41312    | M20X2.5     | 2,860               | 57.0                | 1-11/16  | 3-1/4    | 1-7/16      |
|          |             |                      | 2-1/2          | 41314    | M22X2.5     | 2,860               | 63.5                | 1-11/16  | 3-1/4    | 1-7/16      |
| 41419    | 1-8         | 9,000                | 2-1/2          | 41316    | M24X3.0     | 3,850               | 63.5                | 1-13/16  | 3-9/16   | 1-9/16      |
| 41421    | 1-1/8-7     | 12,000               | 2-3/4          | 41318    | M27X3.0     | 5,200               | 70.0                | 2        | 4        | 1-11/16     |
| 41423    | 1-1/4-7     | 15,000               | 3              | 41320    | M30X3.5     | 6,400               | 76.0                | 2-3/16   | 4-7/16   | 1-7/8       |
| 41425    | 1-3/8-6     | 15,000               | 3-1/2          | 41321    | M33X3.5     | 6,400               | 89.0                | 2-1/2    | 5-3/16   | 2-3/16      |
| 41430    | 1-1/2-6     | 21,000               | 3-1/2          | 41322    | M36X4.0     | 8,970               | 89.0                | 2-1/2    | 5-3/16   | 2-3/16      |
|          |             |                      | 3-3/4          | 41324    | M42X4.5     | 11,960              | 95.0                | 2-7/8    | 6-1/16   | 2-1/2       |
| 41431    | 1-3/4-5     | 28,000               | 3-3/4          | 41326    | M45X4.5     | 12,720              | 95.0                | 2-7/8    | 6-1/16   | 2-1/2       |
|          |             |                      | 4              | 41328    | M48X5.0     | 16,400              | 101.6               | 3-1/4    | 6-7/8    | 2-7/8       |
| 41433    | 2-4-1/2     | 38,000               | 4              | 41330    | M52X5.0     | 17,300              | 101.6               | 3-1/4    | 6-7/8    | 2-7/8       |
|          |             |                      | 5              | 41332    | M56X5.50    | 17,300              | 127.0               | 4        | 8-9/16   | 3-3/4       |
| 41434    | 2-1/2-4     | 56,000               | 5              | 41335    | M64X6.0     | 24,458              | 127.0               | 4        | 8-9/16   | 3-3/4       |

- \* LONGER SHANK EYE BOLTS AVAILABLE UPON REQUEST
- \* STAINLESS STEEL EYE BOLTS AVAILABLE UPON REQUEST ADD "-SS" TO THE PART NO.
- \* FINE THREAD EYE BOLTS AVAILABLE UPON REQUEST ADD "-F" TO THE PART NO.
- \* 8 THREAD SHOULDER EYE BOLT AVAILABLE UPON REQUEST ADD "-8" TO THE PART NO.

**CAUTION: RATED CAPACITY IS FOR STRAIGHT LIFTS. ANGLE LIFTS SHOULD BE AVOIDED.  
LOAD LIMITS ARE REDUCED BY 75% ON ANGLE LIFTS.  
THE SHOULDER MUST BE MOUNTED FLUSH TO LIFTING SURFACE**

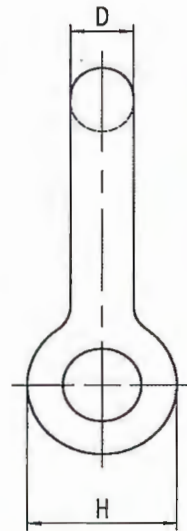
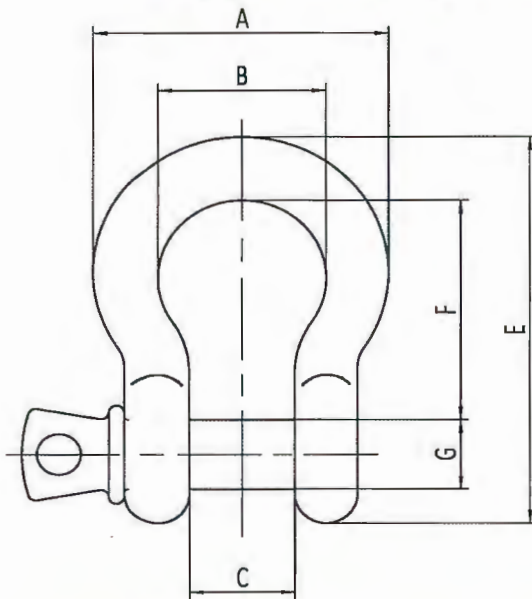
**READ SAFETY PRECAUTION  
PRIOR TO USE  
(SAFETY 19)**



## ALLOY SHACKLE SCREW PIN TYPE



- MATERIAL: AIRCRAFT QUALITY ALLOY
- FINISH: HOT-DIPPED GALVANIZED OR SELF-COLORED
- SAFETY FACTOR: 5:1
- 100% MAGNETIC PARTICLE INSPECTED
- CERTIFIED HEAT TREATMENT
- MEETS OR EXCEEDS THE REQUIREMENTS OF ASME B30.26
- 200% PROOF-LOAD TESTED
- FATIGUE TESTED TO 20,000 CYCLE AT 1-1/2X THE RATED LOAD



**READ SAFETY  
PRECAUTION PRIOR TO  
USE**

| Size (Inch) | Part No. | Working Load Limit (tons) | A       | B       | C       | D     | E       | F       | G     | H       | Wt. (lbs) |
|-------------|----------|---------------------------|---------|---------|---------|-------|---------|---------|-------|---------|-----------|
| 5/8         | 60006    | 5                         | 2-15/16 | 1-11/16 | 1-1/16  | 5/8   | 4-3/16  | 2-3/8   | 3/4   | 1-1/2   | 1.40      |
| 3/4         | 60008    | 7                         | 3-1/2   | 2       | 1-1/4   | 3/4   | 5       | 2-13/16 | 7/8   | 1-13/16 | 2.30      |
| 7/8         | 60010    | 9-1/2                     | 4       | 2-1/4   | 1-7/16  | 7/8   | 5-13/16 | 3-5/16  | 1     | 2-1/8   | 3.50      |
| 1           | 60012    | 12-1/2                    | 4-11/16 | 2-11/16 | 1-11/16 | 1     | 6-1/2   | 3-3/4   | 1-1/8 | 2-3/8   | 5.15      |
| 1-1/4       | 60016    | 18                        | 5-3/4   | 3-1/4   | 2-1/32  | 1-1/4 | 8-1/4   | 4-11/16 | 1-3/8 | 3       | 10.50     |
| 1-1/2       | 60020    | 25                        | 6-7/8   | 3-7/8   | 2-3/8   | 1-1/2 | 10      | 5-3/4   | 1-5/8 | 3-5/8   | 17.95     |

**CAUTION: WORKING LOAD LIMIT IS FOR STRAIGHT LIFTS. SIDE LOAD LIFTS SHOULD BE AVOIDED.**

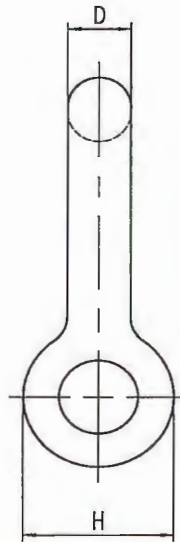
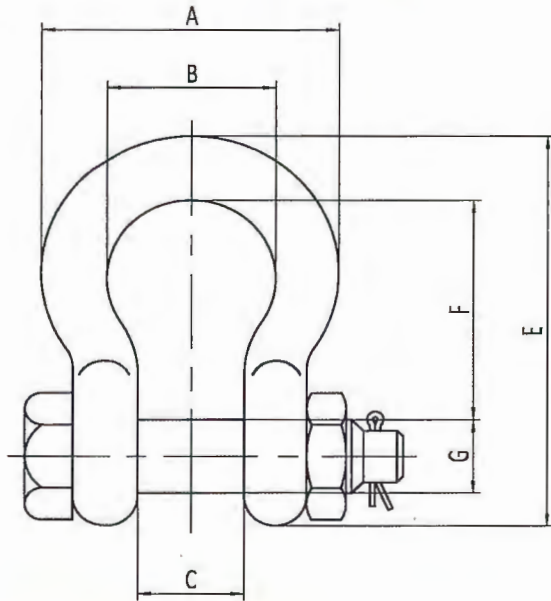




## ALLOY SHACKLE BOLT AND NUT TYPE



- MATERIAL: AIRCRAFT QUALITY ALLOY
- FINISH: HOT-DIPPED GALVANIZED OR SELF-COLORED
- SAFETY FACTOR: 5:1
- 100% MAGNETIC PARTICLE INSPECTED
- CERTIFIED HEAT TREATMENT
- MEETS OR EXCEEDS THE REQUIREMENTS OF ASME B30.26
- 200% PROOF-LOAD TESTED
- FATIGUE TESTED TO 20,000 CYCLE AT 1-1/2X THE RATED LOAD



**READ SAFETY  
PRECAUTION PRIOR TO  
USE**

| Size (Inch) | Part No. | Working Load Limit (tons) | A       | B       | C       | D     | E       | F       | G     | H       | Wt. (lbs) |
|-------------|----------|---------------------------|---------|---------|---------|-------|---------|---------|-------|---------|-----------|
| 5/8         | 60034    | 5                         | 2-15/16 | 1-11/16 | 1-1/16  | 5/8   | 4-3/16  | 2-3/8   | 3/4   | 1-1/2   | 1.55      |
| 3/4         | 60036    | 7                         | 3-1/2   | 2       | 1-1/4   | 3/4   | 5       | 2-13/16 | 7/8   | 1-13/16 | 2.50      |
| 7/8         | 60038    | 9-1/2                     | 4       | 2-1/4   | 1-7/16  | 7/8   | 5-13/16 | 3-5/16  | 1     | 2-1/8   | 4.05      |
| 1           | 60040    | 12-1/2                    | 4-11/16 | 2-11/16 | 1-11/16 | 1     | 6-1/2   | 3-3/4   | 1-1/8 | 2-3/8   | 5.75      |
| 1-1/4       | 60044    | 18                        | 5-3/4   | 3-1/4   | 2-1/32  | 1-1/4 | 8-1/4   | 4-11/16 | 1-3/8 | 3       | 11.40     |
| 1-1/2       | 60048    | 25                        | 6-7/8   | 3-7/8   | 2-3/8   | 1-1/2 | 10      | 5-3/4   | 1-5/8 | 3-5/8   | 18.55     |

**CAUTION: WORKING LOAD LIMIT IS FOR STRAIGHT LIFTS. SIDE LOAD LIFTS SHOULD BE AVOIDED.**



# ACTEK®

## SAFE AND EASY LIFTING SOLUTIONS



**ACTEK®**  
MFG. & ENG. INC.  
1110 Fullerton Road, City of Industry, CA 91748  
(800) 752-7229 (626) 581-3424 (626) 581-3423  
[www.actekmfg.com](http://www.actekmfg.com) [sales@actekmfg.com](mailto:sales@actekmfg.com)







# ACTEK®

MANUFACTURING AND ENGINEERING, INC.

## STREET PLATE & CONSTRUCTION LIFTING SYSTEM



1110 Fullerton Road, City of Industry, CA 91748  
Toll Free: (800)752-7229 Tel: (626)581-3424 Fax: (626)581-3423 Web: ActekMfg.com Email: sales@actekmfg.com



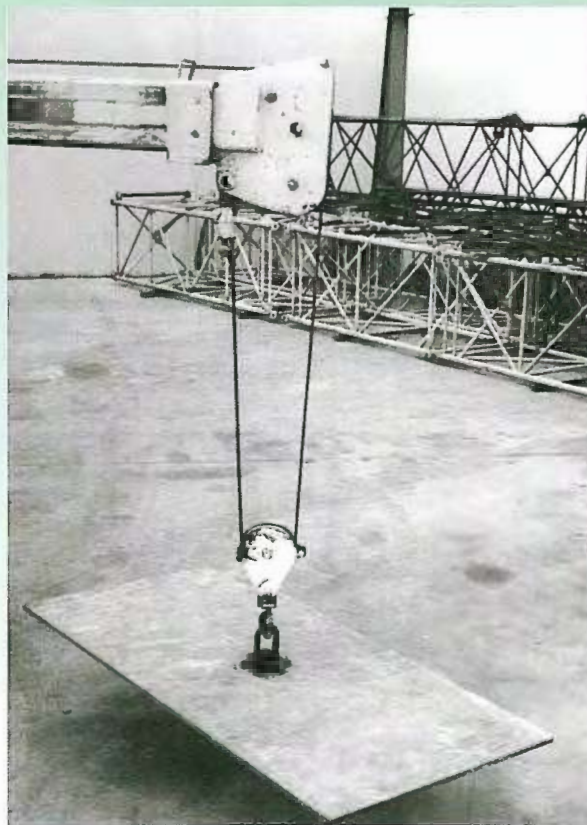
## STREET PLATE LIFTING SYSTEM™ OFFERS THE FASTEST AND SAFEST METHOD OF HANDLING TRENCH PLATES.

Actek® Mfg. & Eng. Inc. introduced a Street Plate Lifting Ring working in conjunction with the safety engineers of a large public utility company. These patented Street Plate Lifting Rings enable faster and safer handling of heavy steel plates commonly used to cover trenches and excavations in streets and roadways during construction or repair.

Because these rings can swivel 360° and pivot 180°, the rigger can leave the ring on the hook while attaching it into the steel plate, and the operator can pull at any angle without compromising the strength.

Fabricated of heat treated, magnetic particle inspected and certified 4140 aircraft quality, chrome-moly steel, the street plate lifting rings provide a 5:1 safety factor at maximum rated load. Models are available in 5,000, 10,000 and 15,000 pound ranges. They are designed for quick, simple attachment with the star-shaped drive lugs for easy tightening and removal; no tools are required. There are no loose pins or clips to break or fall out.

Furthermore, the Street Plate Lifting System was designed specifically with safety in mind. The Lifting Rings and Nuts are manufactured to work in conjunction with each other to ensure proper usage. Matching the nuts or studs with those from other suppliers is **not recommended**. Commercially available nuts may not meet the specific tolerances required for lifting heavy load.





# **STEEL STREET/TRENCH PLATE SAFETY INFORMATION**

## **STEEL STREET/TRENCH PLATES:**

Street plates have limits like any other equipment or tool used in the work place. The recommended steel to use for street plates should be A36, mill certified, structural steel or better and accompanied by a tabulated data, signed and approved by a registered engineer. There are several theories and calculations on steel plates and tabulated data may vary from agencies or companies.

## **LIFTING CHAINS:**

Grade 80, Spectrum 8 is the recommended chain for overhead lifting applications. The chain size should be 3/8" for lifting 1" thick plates or 1/2" for 1-1/2" thick plates. Make sure the chain is not twisted, knotted or kinked before lifting the load. Slings should not be shortened with knots, bolts or other makeshift devices. Visually examine chains for stretched, gouged, bent or damaged links and components, including, hooks with opened throats, cracks or distortion. If any equipment is damaged, remove from service immediately.

## **HANDLING STEEL PLATES:**

Hands or fingers should not be placed on or around the steel plate, and should not be pushed or guided by employee's hands while loading, unloading or placing the steel plates. The proper way of guiding the steel plate in place is with a device that has a magnet attached to a metal rod and used a like a tag line. The steel plates should be straight and true with very little deformity and should be shimmed so the plate will not rock or injure anyone. Placing a cold patch around the edges can eliminate tripping hazards, protect tires from bursting and also aid in keeping the plate in position.

## **NON-SKID STEEL PLATES:**

According to Underwriters Laboratories and OSHA, a walking surface should have a Coefficient of Friction (COF) greater than 0.5. Steel plates have a Coefficient of Friction of 0.55 when dry. However, these plates become very slippery when wet, and the COF can drop to less than 0.25. Several California cities and municipalities are requiring some form of friction enhancement on the steel plates as a condition for encroachment permits. The typical requirement is a non-skid surface having a minimum COF equivalent to 0.35. The non-skid plates required by various California cities and municipalities are readily available by most plate rental companies. When ordering them, be sure to ask for a Certificate of Conformity.





## FORGED STREET PLATE LIFTING RING

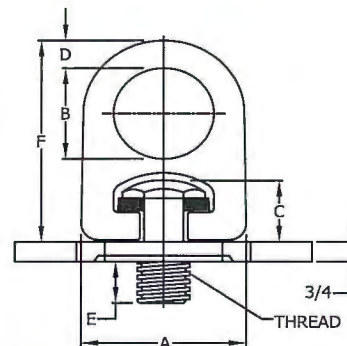
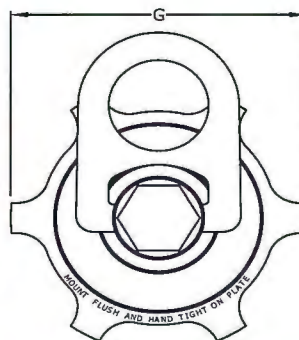
PATENT #6,161,883 & 6,161,884

**Each Hoist Ring will be  
200% Proof-Load Tested  
with serial number for traceability  
and Certificate of Conformance**



- SWIVELS 360° - PIVOTS 180°
- MATERIAL: AIRCRAFT QUALITY ALLOY
- SAFETY FACTOR: 5:1
- FINISH: PHOSPHATE PER DOD-P-16232F
- MAGNETIC PARTICLE INSPECTED
- CERTIFIED HEAT TREATMENT

**READ SAFETY PRECAUTION  
PRIOR TO USE  
(SAFETY 16)**



| Part No. | Rated Load (Lbs) | A    | B    | C    | D     | E     | F    | G     | Thread Type | Thread Size | Wt. (Lbs) |
|----------|------------------|------|------|------|-------|-------|------|-------|-------------|-------------|-----------|
| 38005    | 5,000            | 4.05 | 2.40 | 1.97 | 3/4   | 3/4   | 5.60 | 5-1/2 | Coil        | 3/4         | 8.0       |
| 38015    | 5,000            | 4.05 | 2.40 | 1.97 | 3/4   | 1     | 5.60 | 5-1/2 | Coil        | 1           | 8.0       |
| 38045    | 5,000            | 4.05 | 2.40 | 1.97 | 3/4   | 3/4   | 5.60 | 5-1/2 | Acme        | 3/4         | 8.0       |
| 38055    | 5,000            | 4.05 | 2.40 | 1.97 | 3/4   | 1     | 5.60 | 5-1/2 | Acme        | 1           | 8.0       |
| 38025    | 5,000            | 4.05 | 2.40 | 1.97 | 3/4   | 3/4   | 5.60 | 5-1/2 | UNC         | 3/4         | 8.0       |
| 38035    | 5,000            | 4.05 | 2.40 | 1.97 | 3/4   | 1     | 5.60 | 5-1/2 | UNC         | 1           | 8.0       |
| 38215    | 10,000           | 5.40 | 3.20 | 2.62 | 1     | 1     | 7.48 | 7     | Coil        | 1-1/4       | 16.0      |
| 38225    | 10,000           | 5.40 | 3.20 | 2.62 | 1     | 1-1/2 | 7.48 | 7     | Coil        | 1-1/2       | 16.0      |
| 38235    | 10,000           | 5.40 | 3.20 | 2.62 | 1     | 1     | 7.48 | 7     | Acme        | 1-1/4       | 16.0      |
| 38245    | 10,000           | 5.40 | 3.20 | 2.62 | 1     | 1-1/2 | 7.48 | 7     | Acme        | 1-1/2       | 16.0      |
| 38255    | 10,000           | 5.40 | 3.20 | 2.62 | 1     | 1     | 7.48 | 7     | UNC         | 1-1/4       | 16.0      |
| 38915    | 10,000           | 5.40 | 3.20 | 2.62 | 1     | 1-1/2 | 7.48 | 7     | UNC         | 1-1/2       | 16.0      |
| 38865    | 15,000           | 6.75 | 4    | 3.28 | 1-1/4 | 1     | 9.35 | 9     | Coil        | 1-1/4       | 28.0      |
| 38875    | 15,000           | 6.75 | 4    | 3.28 | 1-1/4 | 1-1/2 | 9.35 | 9     | Coil        | 1-1/2       | 28.0      |
| 38885    | 15,000           | 6.75 | 4    | 3.28 | 1-1/4 | 1     | 9.35 | 9     | Acme        | 1-1/4       | 28.0      |
| 38895    | 15,000           | 6.75 | 4    | 3.28 | 1-1/4 | 1-1/2 | 9.35 | 9     | Acme        | 1-1/2       | 28.0      |
| 38870    | 15,000           | 6.75 | 4    | 3.28 | 1-1/4 | 1     | 9.35 | 9     | UNC         | 1-1/4       | 28.0      |
| 38890    | 15,000           | 6.75 | 4    | 3.28 | 1-1/4 | 1-1/2 | 9.35 | 9     | UNC         | 1-1/2       | 28.0      |

(VARIOUS THREAD LENGTHS & DIAMETERS AVAILABLE)



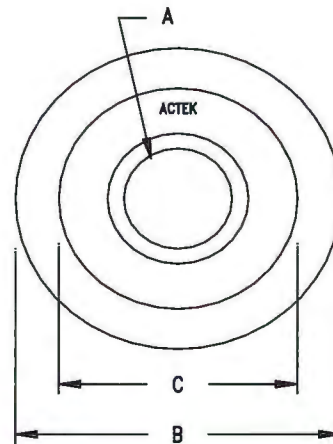
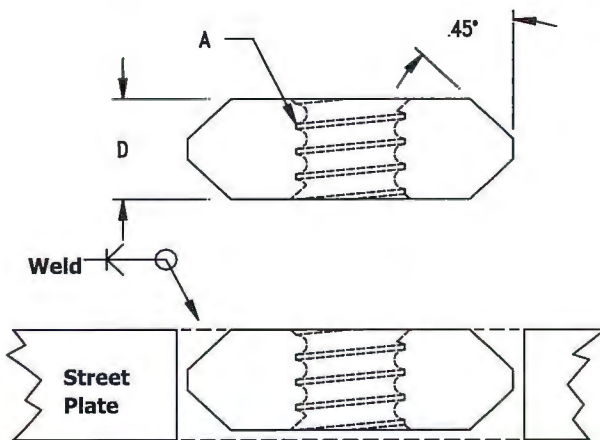


## STREET PLATE NUT

PATENT #6,231,267



- MATERIAL: AIRCRAFT QUALITY ALLOY
- FINISH: PHOSPHATE PER DOD-P-16232F
- MAGNETIC PARTICLE INSPECTED
- CERTIFIED HEAT TREATMENT
- WELDING ROD-ALLOY #7018



| Part No. | Thread Type | Thread Size (A) | B     | C     | D     | Part No. | Thread Type | Thread Size (A) | B     | C     | D     |
|----------|-------------|-----------------|-------|-------|-------|----------|-------------|-----------------|-------|-------|-------|
| 48801    | Coil        | 1"-3.5          | 3     | 2-1/8 | 3/4   | 48819    | Acme        | 1-1/4"-5        | 3     | 2-1/8 | 7/8   |
| 48802    | Coil        | 1"-3.5          | "     | "     | 7/8   | 48820    | Acme        | 1-1/4"-5        | "     | "     | 1     |
| 48803    | Coil        | 1"-3.5          | "     | "     | 1     | 48828    | Acme        | 1-1/2"-5        | 3-1/2 | 2-3/8 | 1     |
| 48812    | Coil        | 1-1/4"-3.5      | "     | "     | 3/4   | 48824    | Acme        | 1-1/2"-5        | "     | "     | 1-1/2 |
| 48815    | Coil        | 1-1/4"-3.5      | "     | "     | 7/8   | 48821    | UNC         | 3/4"-10         | 3     | 2-1/8 | 3/4   |
| 48822    | Coil        | 1-1/4"-3.5      | "     | "     | 1     | 48823    | UNC         | 1"-8            | "     | "     | 1     |
| 48816    | Coil        | 1-1/4"-3.5      | "     | "     | 1-1/4 | 48825    | UNC         | 1-1/4"-7        | "     | "     | 1     |
| 48817    | Coil        | 1-1/4"-3.5      | "     | "     | 1-1/2 | 48805    | UNC         | 1-1/4"-7        | "     | "     | 1-1/2 |
| 48804    | Coil        | 1-1/2"-3.5      | 3-1/2 | 2-3/8 | 1     | 48831    | UNC         | 1-1/2"-6        | "     | "     | 1     |
| 48806    | Coil        | 1-1/2"-3.5      | "     | "     | 1-1/4 | 48826    | UNC         | 1-1/2"-6        | 3-1/2 | 2-3/8 | 1     |
| 48856    | Coil        | 1-1/2"-3.5      | "     | "     | 1-1/2 | 48827    | UNC         | 1-1/2"-6        | "     | "     | 1-1/2 |
|          |             |                 |       |       |       | 48829    | UNC         | 2"-4-1/2        | "     | "     | 1-1/2 |



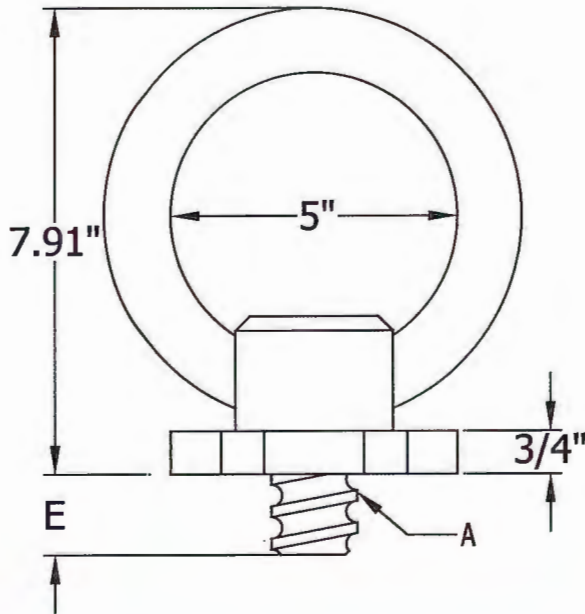
**SEE WELDING INSTRUCTIONS  
(SAFETY 18 )**



## SUPER EYEBOLT

PATENT #6,398,447

- This is a “rugged” eyebolt that for lifting.
- Aircraft quality “chrome moly”.
- Magnetic particle inspected.
- Certified heat treated.



**READ SAFETY PRECAUTION  
PRIOR TO USE  
(SAFETY 17)**

| Thread Diameter | Working Load Limit (Lbs.) | Part No. Coil | Part No. UNC | Part No. Acme | Thread Protrusion |
|-----------------|---------------------------|---------------|--------------|---------------|-------------------|
| 3/4             | 4,000                     | 48630         | 48631        | 48633         | 3/4"              |
| 1               | 5,000                     | 48640         | 48641        | 48643         | 1"                |
| 1-1/4           | 8,000                     | 48650         | 48651        | 48653         | 1"                |
| 1-1/2           | 10,000                    | 48660         | 48661        | 48663         | 1-1/2"            |

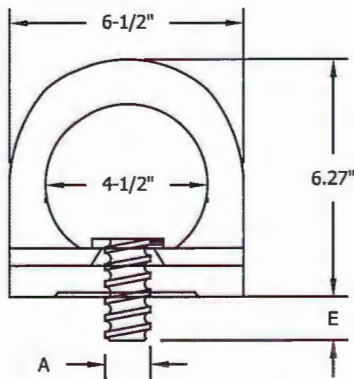




## LOW-PROFILE SUPER EYEBOLT

PATENT #6,398,447

- This is a "rugged" eyebolt this is designed for lifting.
- Aircraft quality "chrome moly."
- Certified Heat Treated
- Magnetic particle inspected.
- Available in either Hot-Dipped Galvanized or Black Oxide finish.



**READ SAFETY PRECAUTION  
PRIOR TO USE  
(SAFETY 17)**

| (A) Thread Diameter | Working Load Limit (Lbs.) | Part No. Coil | Part No. UNC | Part No. Acme | (E) Thread Protrusion |
|---------------------|---------------------------|---------------|--------------|---------------|-----------------------|
| 1                   | 5,000                     | 48612         | 48712        | 48722         | 1"                    |
| 1-1/4               | 8,000                     | 48680         | 48714        | 48724         | 1"                    |
| 1-1/2               | 10,000                    | 48685         | 48716        | 48726         | 1-1/2"                |



## FORGED STREET PLATE HOIST RING KIT



**AK38412**

**1-1/4" THREAD - COIL STREET PLATE KIT**

| Part No. | QTY | Description                       | Rated Load (Lbs) | Thread Size |
|----------|-----|-----------------------------------|------------------|-------------|
| 38215    | 1   | STREET PLATE HOIST RING           | 10,000           | 1 1/4-3.5   |
| 48842    | 1   | 1-1/4" COIL THREAD CLEAN-OUT TOOL |                  |             |
| 48936    | 1   | 1-1/4" COIL THREAD GO/NO GO GAGE  |                  |             |

**KIT AVAILABLE IN THE FOLLOWING SIZES**

| Part No. | THREAD | Description                         | Rated Load (Lbs) | Thread Size |
|----------|--------|-------------------------------------|------------------|-------------|
| 38411    | COIL   | 1" THREAD COIL STREET PLATE KIT     | 5,000            | 1-3.5       |
| 38412    |        | 1-1/4" THREAD COIL STREET PLATE KIT | 10,000           | 1 1/4-3.5   |
| 38413    |        | 1-1/2" THREAD COIL STREET PLATE KIT | 15,000           | 1 1/2-3.5   |
| 38421    | ACME   | 1" THREAD ACME STREET PLATE KIT     | 5,000            | 1-5         |
| 38422    |        | 1-1/4" THREAD ACME STREET PLATE KIT | 10,000           | 1 1/4-5     |
| 38423    |        | 1-1/2" THREAD ACME STREET PLATE KIT | 15,000           | 1 1/2-5     |
| 38433    | UNC    | 1" THREAD UNC STREET PLATE KIT      | 5,000            | 1-8         |
| 38434    |        | 1-1/4" THREAD UNC STREET PLATE KIT  | 10,000           | 1 1/4-7     |
| 38435    |        | 1-1/2" THREAD UNC STREET PLATE KIT  | 15,000           | 1 1/2-6     |





## STREET PLATE ACCESSORIES

(PATENT PENDING ON ALL ITEMS)

### THREAD CLEAN-OUT TOOL

Used to clean out dirt or other foreign matter from the thread of nuts.

| Diameter | Part No.<br>Coil | Part No.<br>Acme | Part No.<br>UNC |
|----------|------------------|------------------|-----------------|
| 1-1/4    | 48842            | 48840            | 48844           |
| 1-1/2    | 48843            | 48841            | 48845           |

(Available in other thread sizes)



### GO/NO GO GAGE

Used to determine when street plate nuts and studs need to be replaced.

| Diameter | Part No.<br>Coil | Part No.<br>UNC |
|----------|------------------|-----------------|
| 1-1/4    | 48956            | 48957           |
| 1-1/2    | 48954            | 48952           |



Gages have a "Go" and "No Go" for street plate nuts and a "No Go" for street plate studs; used to determine when these items need to be replaced.

Other coil hex nuts that are commercially available do not meet the requirements specified for lifting heavy street or trench plates. The thread on these nuts are out of tolerance, and the material used is not suitable for the critical lifting application required for handling street or trench plates.

| Diameter | Part No.<br>Coil |
|----------|------------------|
| 1        | 48935            |
| 1-1/4    | 48936            |
| 1-1/2    | 48937            |



### WELDING FIXTURE

Used to hold the nut in place (flush and perpendicular to the street plate surface) to ease in the tacking of the nut.  
(Please refer to the Welding Instructions in how to properly weld the nut into place)

| Diameter   | Part No.<br>Coil | Part No.<br>Acme | Part No.<br>UNC |
|------------|------------------|------------------|-----------------|
| 1-1/4      | 48960            | 48961            | 48962           |
| 1-1/4 LONG | 48960-L          | 48961-L          | 48962-L         |
| 1-1/2      | 48963            | 48964            | 48965           |
| 1-1/2 LONG | 48963-L          | 48964-L          | 48965-L         |



Available with either 4-1/2" or 13" legs.  
(13" referred to as "Long")



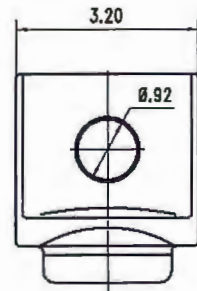
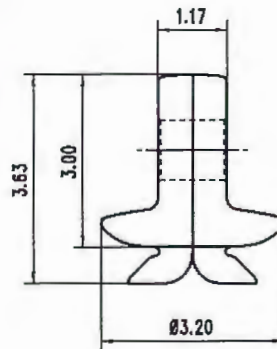
## FORGED ALLOY FAST LIFT SYSTEM



- MATERIAL: AIRCRAFT QUALITY ALLOY
- SAFETY FACTOR: 5:1
- 100% MAGNETIC PARTICLE INSPECTED
- CERTIFIED HEAT TREATMENT
- 200% PROOF-LOAD TESTED

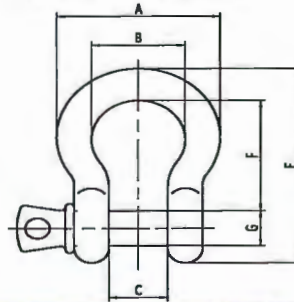
| Part No. | W.L.L.    |
|----------|-----------|
| 37930    | 8,000 lbs |

## FORGED FAST LIFT CLEVIS



| Part No. | W.L.L.    |
|----------|-----------|
| 37940    | 8,000 lbs |

## FORGED ALLOY SHACKLE



| Size (Inch) | Part No. | Working Load Limit (tons) | A     | B | C     | D   | E | F       | G   | H       | Wt. (lbs) |
|-------------|----------|---------------------------|-------|---|-------|-----|---|---------|-----|---------|-----------|
| 3/4         | 60008    | 7                         | 3-1/2 | 2 | 1-1/4 | 3/4 | 5 | 2-13/16 | 7/8 | 1-13/16 | 2.30      |

CAUTION: WORKING LOAD LIMIT IS FOR STRAIGHT LIFTS. SIDE LOAD LIFTS SHOULD BE AVOIDED.





## FORGED ALLOY FAST LIFT SYSTEM

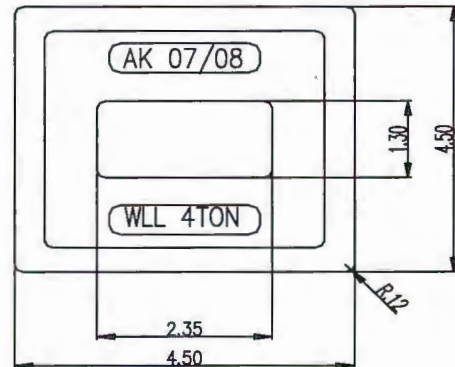
### FORGED ALLOY WELD-IN PLATE

- MATERIAL: AIRCRAFT QUALITY ALLOY
- SAFETY FACTOR: 5:1

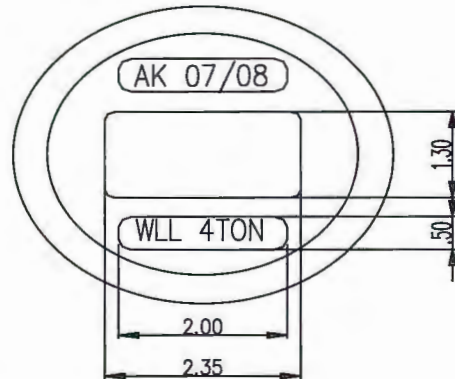
- 100% MAGNETIC PARTICLE INSPECTED
- CERTIFIED HEAT TREATMENT



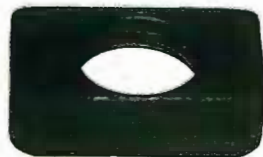
| Part No. | W.L.L.    |
|----------|-----------|
| 37960    | 8,000 lbs |



| Part No. | W.L.L.    |
|----------|-----------|
| 34962    | 8,000 lbs |



### WELD-IN CONVERSION NUT



WELD INTO EXISTING PLATE AND  
CONVERT TO THE SCREW-ON ACTEK  
STREET PLATE LIFTING SYSTEM



| Part No. |
|----------|
| 48790    |

| Part No. |
|----------|
| 48790    |



## CONTINUOUS THREADED ROD AVAILABLE IN COIL, ACME OR UNC THREAD

### MECHANICAL PROPERTIES (ROD, BOLT, NUT)

MATERIAL : HEAT TREATED ALLOY STEEL  
FINISH : PHOSPHATE PER DOD-P-16232F  
HARDNESS : RC 38-42  
TENSILE STRENGTH : 170,000 PSI  
YIELD STRENGTH : 150,000 PSI



| Diameter |      | Part No.<br>Coil | Part No.<br>Acme | Part No.<br>UNC |
|----------|------|------------------|------------------|-----------------|
| 1/2"     | 13mm | 48330            | 48331            | 48332           |
| 3/4"     | 19mm | 48340            | 48341            | 48342           |
| 1"       | 25mm | 48350            | 48351            | 48352           |
| 1-1/4"   | 32mm | 48360            | 48361            | 48362           |
| 1-1/2"   | 38mm | 48370            | 48371            | 48372           |

(AVAILABLE IN ANY LENGTH UP TO 36")

(SPECIFY PART NUMBER AND LENGTH IN INCHES)

(EXAMPLE: 1/2" COIL W/ 12" LENGTH = AK48330-12)

## HEAVY-DUTY HEX BOLT



IN SOME CASES, WHEN LIFTING PRE-CAST CONCRETE STRUCTURES (I.E. LARGE DRAIN PIPES, MAN HOLE ENCLOSURES AND LARGE STRUCTURAL STEEL BEAMS) LONG OR EXTRA LONG BOLTS ARE REQUIRED TO FASTEN LIFTING DEVICES SUCH AS HOIST RINGS

TO ORDER, USE THREADED ROD PART NUMBER "-HB-(LENGTH)"

(EXAMPLE: 1/2" COIL BOLT W/ 12" LENGTH = AK48330-HB-12)

## HEAVY-DUTY HEX NUT



| Diameter | Part No.<br>Coil | Part No.<br>Acme | Part No.<br>UNC |
|----------|------------------|------------------|-----------------|
| 1/2"     | 48849            | 48857            | 46069           |
| 3/4"     | 48847            | 48858            | 46067           |
| 1"       | 48833            | 48859            | 46261           |
| 1-1/4"   | 48832            | 48830            | 46863           |
| 1-1/2"   | 48836            | 48834            | 46460           |
| 2"       | 48846            |                  | 46456           |





## WELDABLE PLATE

Used to replace the center section of street plates from prior usage (i.e. holes, slots, etc.).

Eliminates the need to change the entire plate.



| 6" x 12" Rectangular Plate Assembly | Rectangular Plate Only | Nut Only Part No. | Thread Type | Thread Size |
|-------------------------------------|------------------------|-------------------|-------------|-------------|
| 48982A                              | 48982                  | 48822             | Coil        | 1-1/4"-3.5  |
| 48982B                              | "                      | 48803             | Coil        | 1"-3.5      |
| 48982C                              | "                      | 48804             | Coil        | 1-1/2"-3.5  |
| 48982D                              | "                      | 48820             | Acme        | 1-1/4"-5    |
| 48982E                              | "                      | 48821             | UNC         | 3/4"-10     |
| 48982F                              | "                      | 48823             | UNC         | 1"-8        |
| 48982G                              | "                      | 48825             | UNC         | 1-1/4"-7    |



| 6-1/2" Round Plate Assembly | 6-1/2" Round Plate Only | Nut Only Part No. | Thread Type | Thread Size |
|-----------------------------|-------------------------|-------------------|-------------|-------------|
| 48980A                      | 48980                   | 48822             | Coil        | 1-1/4"-3.5  |
| 48980B                      | "                       | 48803             | Coil        | 1"-3.5      |
| 48980C                      | "                       | 48804             | Coil        | 1-1/2"-3.5  |
| 48980D                      | "                       | 48820             | Acme        | 1-1/4"-5    |
| 48980E                      | "                       | 48821             | UNC         | 3/4"-10     |
| 48980F                      | "                       | 48823             | UNC         | 1"-8        |
| 48980G                      | "                       | 48825             | UNC         | 1-1/4"-7    |

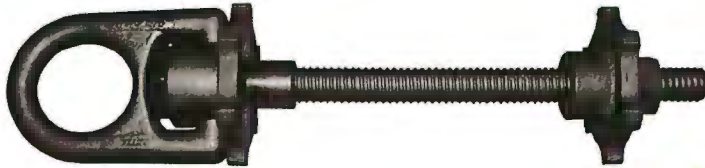
| 11" Round Plate Assembly | 11" Round Plate Only | Nut Only Part No. | Thread Type | Thread Size |
|--------------------------|----------------------|-------------------|-------------|-------------|
| 48985A                   | 48985                | 48822             | Coil        | 1-1/4"-3.5  |
| 48985B                   | "                    | 48803             | Coil        | 1"-3.5      |
| 48985C                   | "                    | 48804             | Coil        | 1-1/2"-3.5  |
| 48985D                   | "                    | 48820             | Acme        | 1-1/4"-5    |
| 48985E                   | "                    | 48821             | UNC         | 3/4"-10     |
| 48985F                   | "                    | 48823             | UNC         | 1"-8        |
| 48985G                   | "                    | 48825             | UNC         | 1-1/4"-7    |



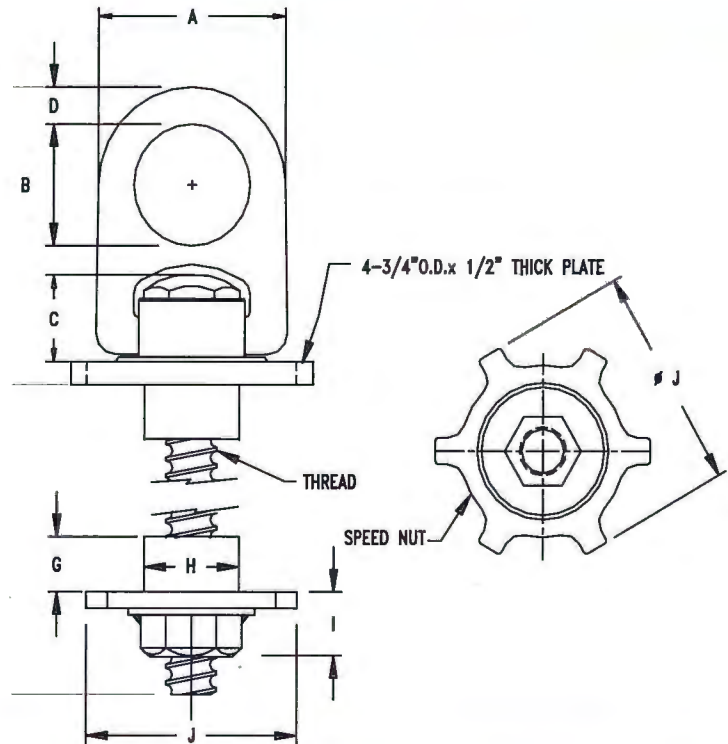
## PRE-CAST CONCRETE FORGED SWIVEL HOIST RING

PATENT #6,161,883 & 6,161,884

- SWIVELS 360° - PIVOTS 180°
- MATERIAL: AIRCRAFT QUALITY ALLOY
- SAFETY FACTOR: 5:1
- FINISH: PHOSPHATE PER DOD-P-16232F
- MAGNETIC PARTICLE INSPECTED
- CERTIFIED HEAT TREATMENT



**READ SAFETY PRECAUTION  
PRIOR TO USE  
(SAFETY 6)**



| Part No. | Rated Load (Lbs) | Thread Size | A    | B    | C    | D     | F    | J     | Thread Type | Wt. (Lbs) |
|----------|------------------|-------------|------|------|------|-------|------|-------|-------------|-----------|
| 57440    | 10,000           | 1" COIL     | 5.40 | 3.20 | 2.62 | 1     | 7.48 | 5-1/2 | Coil        | 16.0      |
| 57445    | 10,000           | 1-1/4" COIL | 5.40 | 3.20 | 2.62 | 1     | 7.48 | 5-1/2 | Coil        | 16.0      |
| 57450    | 15,000           | 1-1/4" COIL | 6.75 | 4    | 3.28 | 1-1/4 | 9.35 | 7     | Coil        | 28.0      |
| 57460    | 24,000           | 1-1/2" COIL | 6.75 | 4    | 3.28 | 1-1/4 | 9.35 | 7     | Coil        | 28.0      |
| 57470    | 24,000           | 2" COIL     | 6.75 | 4    | 3.28 | 1-1/4 | 9.35 | 7     | Coil        | 28.0      |

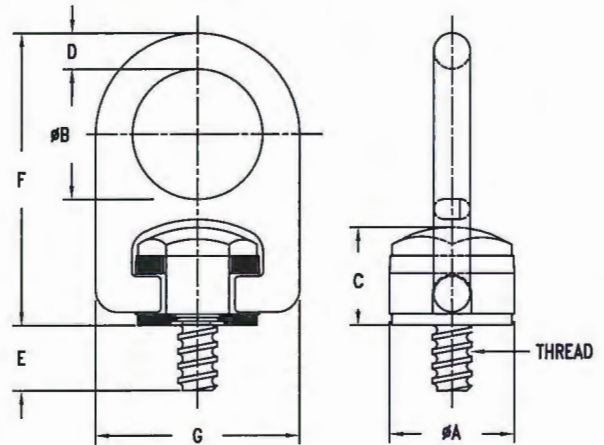
(VARIOUS THREAD LENGTHS AVAILABLE, "E" DIMENSION)  
(VARIOUS LENGTHS "G", "I", AND DIAMETERS "H" AVAILABLE)





## FORGED SWIVEL HOIST RING COIL THREAD

**Each Hoist Ring will be  
200% Proof-Load Tested  
with serial number for traceability  
and Certificate of Conformance**



- SWIVELS 360° - PIVOTS 180°
- MATERIAL: AIRCRAFT QUALITY ALLOY
- FINISH: PHOSPHATE PER DOD-P-16232F (CADMIUM, ELECTROLESS NICKEL, & GALVANIZED AVAILABLE)
- SAFETY FACTOR: 5:1
- MAGNETIC PARTICLE INSPECTED
- CERTIFIED HEAT TREATMENT

**READ SAFETY PRECAUTION  
PRIOR TO USE  
(SAFETY 6)**

| STANDARD    |                  |              |      |      |      |      |       |      |      |                 |               |
|-------------|------------------|--------------|------|------|------|------|-------|------|------|-----------------|---------------|
| Part Number | Rated Load (Lbs) | Thread Size  | A    | B    | C    | D    | E     | F    | G    | Torque (Ft/Lbs) | Weight (Lbs.) |
| 57102       | 2,500            | 1/2"-6       | 2.10 | 2.40 | 1.97 | 0.75 | 3.00  | 5.60 | 4.05 | 28              | 3.75          |
| 57104       | 2,500            | 1/2"-6       | "    | "    | "    | "    | 6.00  | "    | "    | 28              | 3.90          |
| 57106       | 2,500            | 1/2"-6       | "    | "    | "    | "    | 10.00 | "    | "    | 28              | 4.10          |
| 57112       | 5,000            | 3/4"-4 1/2   | "    | "    | "    | "    | 3.00  | "    | "    | 100             | 3.95          |
| 57114       | 5,000            | 3/4"-4 1/2   | "    | "    | "    | "    | 6.00  | "    | "    | 100             | 4.15          |
| 57116       | 5,000            | 3/4"-4 1/2   | "    | "    | "    | "    | 10.00 | "    | "    | 100             | 4.65          |
| 57122       | 7,000            | 3/4"-4 1/2   | 2.80 | 3.20 | 2.62 | 1.00 | 3.00  | 7.48 | 5.40 | 100             | 9.20          |
| 57124       | 7,000            | 3/4"-4 1/2   | "    | "    | "    | "    | 6.00  | "    | "    | 100             | 9.25          |
| 57126       | 7,000            | 3/4"-4 1/2   | "    | "    | "    | "    | 10.00 | "    | "    | 100             | 9.80          |
| 57132       | 10,000           | 1"-3 1/2     | "    | "    | "    | "    | 3.00  | "    | "    | 230             | 9.30          |
| 57134       | 10,000           | 1"-3 1/2     | "    | "    | "    | "    | 10.00 | "    | "    | 230             | 10.60         |
| 57136       | 10,000           | 1"-3 1/2     | "    | "    | "    | "    | 24.00 | "    | "    | 230             | 13.20         |
| 57142       | 15,000           | 1 1/4"-3 1/2 | 3.50 | 4.00 | 3.28 | 1.25 | 3.00  | 9.35 | 6.75 | 470             | 17.90         |
| 57144       | 15,000           | 1 1/4"-3 1/2 | "    | "    | "    | "    | 10.00 | "    | "    | 470             | 19.90         |
| 57146       | 15,000           | 1 1/4"-3 1/2 | "    | "    | "    | "    | 24.00 | "    | "    | 470             | 23.95         |
| 57152       | 24,000           | 1 1/2"-3 1/2 | "    | "    | "    | "    | 3.00  | "    | "    | 800             | 18.35         |
| 57154       | 24,000           | 1 1/2"-3 1/2 | "    | "    | "    | "    | 10.00 | "    | "    | 800             | 21.30         |
| 57156       | 24,000           | 1 1/2"-3 1/2 | "    | "    | "    | "    | 24.00 | "    | "    | 800             | 27.25         |

(All lengths available upon request)

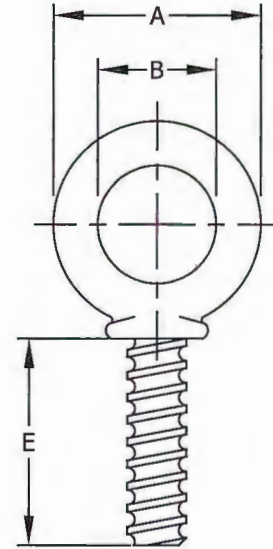
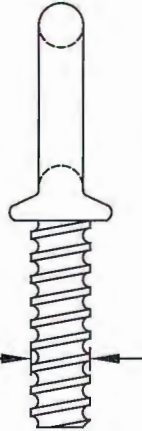


## FORGED ALLOY COIL SHOULDER EYE BOLT

*Each eyebolt will be  
200% Proof-Load Tested*



THREAD  
DIAMETER



- MATERIAL: FORGED ALLOY
- HEAT TREATED
- FINISH: HOT DIP GALVANIZED & BLACK OXIDE
- FULL THREAD

**READ SAFETY PRECAUTION  
PRIOR TO USE  
(SAFETY 19)**

| THREAD<br>DIAMETER | TYPE<br>THREAD | PART NO. | WORKING LOAD<br>LIMIT (LBS) | A     | B     | E     |
|--------------------|----------------|----------|-----------------------------|-------|-------|-------|
| 3/4                | COIL           | 48672    | 5,000                       | 2-7/8 | 1-1/2 | 3-1/2 |
| 3/4                | COIL           | 48672-6  | 5,000                       | 2-7/8 | 1-1/2 | 6     |
| 1                  | COIL           | 48674    | 10,000                      | 3-3/4 | 2     | 3-1/2 |
| 1                  | COIL           | 48674-6  | 10,000                      | 3-3/4 | 2     | 6     |

\* ULTIMATE LOAD IS 5 TIMES THE WORKING LOAD LIMIT.

**CAUTION: WORKING LOAD LIMIT IS FOR STRAIGHT LIFTS. ANGLE LIFTS SHOULD BE AVOIDED.  
LOAD LIMITS ARE REDUCED BY 75% ON ANGLE LIFTS.  
THE SHOULDER MUST BE MOUNTED FLUSH TO LIFTING SURFACE**

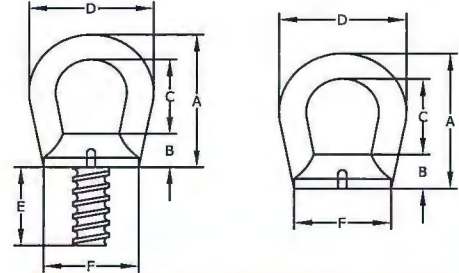




## FORGED ALLOY EYE NUT

MATERIAL: ALLOY, HEAT TREATED, FINISH: HOT DIP GALVANIZED & BLACK OXIDE

*Each eye nut will be  
200% Proof-Load Tested*



**READ SAFETY PRECAUTION  
PRIOR TO USE  
(SAFETY 19)**

### EYENUT WITH THREADED ROD

| THREAD DIAMETER | THREAD TYPE | PART NO. | WORKING LOAD LIMIT (LBS) | A    | B    | C    | D     | F     | E     |
|-----------------|-------------|----------|--------------------------|------|------|------|-------|-------|-------|
| 1/2-6           | COIL        | 48560    | 2,500                    | 3.10 | 0.82 | 1.80 | 2-1/2 | 1-1/2 | 2-1/2 |
| 3/4-4-1/2       | COIL        | 48562    | 5,000                    | 3.50 | 1.00 | 1.85 | 3     | 2     | 3     |
| 1-3-1/2         | COIL        | 48564    | 10,000                   | 4.30 | 1.33 | 2.10 | 3-3/4 | 2-3/4 | 3-1/2 |
| 1-1/4-3-1/2     | COIL        | 48566    | 15,000                   | 5.30 | 1.50 | 2.80 | 4-1/2 | 3-1/8 | 4     |
| 1-1/2-3-1/2     | COIL        | 48568    | 24,000                   | 6.50 | 1.90 | 3.30 | 5-5/8 | 3-3/4 | 6     |
| 1/2-13          | UNC         | 48561    | 2,500                    | 3.10 | 0.82 | 1.80 | 2-1/2 | 1-1/2 | 2-1/2 |
| 3/4-10          | UNC         | 48563    | 5,000                    | 3.50 | 1.00 | 1.85 | 3     | 2     | 3     |
| 1-8             | UNC         | 48565    | 10,000                   | 4.30 | 1.33 | 2.10 | 3-3/4 | 2-3/4 | 3-1/2 |
| 1-1/4-7         | UNC         | 48567    | 15,000                   | 5.30 | 1.50 | 2.80 | 4-1/2 | 3-1/8 | 4     |
| 1-1/2-6         | UNC         | 48569    | 24,000                   | 6.50 | 1.90 | 3.30 | 5-5/8 | 3-3/4 | 6     |

\*LONGER SHANK AVAILABLE UPON REQUEST

### EYE NUT

| THREAD DIAMETER | THREAD TYPE | PART NO. | WORKING LOAD LIMIT (LBS) | A    | B    | C    | D     | F     |
|-----------------|-------------|----------|--------------------------|------|------|------|-------|-------|
| 1/2-6           | COIL        | 48570    | 2,500                    | 3.10 | 0.82 | 1.80 | 2-1/2 | 1-1/2 |
| 3/4-4-1/2       | COIL        | 48572    | 5,000                    | 3.50 | 1.00 | 1.85 | 3     | 2     |
| 1-3-1/2         | COIL        | 48574    | 10,000                   | 4.30 | 1.33 | 2.10 | 3-3/4 | 2-3/4 |
| 1-1/4-3-1/2     | COIL        | 48576    | 15,000                   | 5.30 | 1.50 | 2.80 | 4-1/2 | 3-1/8 |
| 1-1/2-3-1/2     | COIL        | 48578    | 24,000                   | 6.50 | 1.90 | 3.30 | 5-5/8 | 3-3/4 |
| 1/2-13          | UNC         | 48580    | 2,500                    | 3.10 | 0.82 | 1.80 | 2-1/2 | 1-1/2 |
| 3/4-10          | UNC         | 48582    | 5,000                    | 3.50 | 1.00 | 1.85 | 3     | 2     |
| 1-8             | UNC         | 48584    | 10,000                   | 4.30 | 1.33 | 2.10 | 3-3/4 | 2-3/4 |
| 1-1/4-7         | UNC         | 48586    | 15,000                   | 5.30 | 1.50 | 2.80 | 4-1/2 | 3-1/8 |
| 1-1/2-6         | UNC         | 48588    | 24,000                   | 6.50 | 1.90 | 3.30 | 5-5/8 | 3-3/4 |

\*ONLY USE GRADE 8 THREADED ROD OR BETTER

**CAUTION: WORKING LOAD LIMIT IS FOR STRAIGHT LIFTS. ANGLE LIFTS SHOULD BE AVOIDED.  
LOAD LIMITS ARE REDUCED BY 75% ON ANGLE LIFTS.  
THE SHOULDER MUST BE MOUNTED FLUSH TO LIFTING SURFACE**



## FORGED ALLOY SHIELD SPREADER PIN



### MECHANICAL PROPERTIES

MATERIAL : HEAT TREATED ALLOY STEEL

FINISH : POWDERCOAT

HARDNESS : RC 38-42

TENSILE STRENGTH : 170,000 PSI

YIELD STRENGTH : 150,000 PSI



| Dia. x Length    | Part No. |
|------------------|----------|
| 1-1/2" x 10-1/2" | 80463    |
| 1-3/4" x 10-1/2" | 80465    |
| 2" x 10-1/2"     | 80469    |



### MARKINGS



DIAMETER

TENSILE STRENGTH

## WIRE LOCK PIN



| Part No.   | Part No.    |
|------------|-------------|
| 38120      | 38121       |
| ROUND LOOP | SQUARE LOOP |





# ACTEK® MFG. & ENG. INC.

## HYDRAULIC SHORE ACCESSORIES

### MECHANICAL PROPERTIES

MATERIAL : HEAT TREATED ALLOY STEEL  
 FINISH : ZINC PLATED  
 HARDNESS : RC 28-32  
 TENSILE STRENGTH : 140,000 PSI  
 YIELD STRENGTH : 120,000 PSI



### FORGED RAIL PIN & WIRE CLIP



3/8" DIAMETER

| Part No. |
|----------|
| 38105    |



| Part No. |
|----------|
| 38106    |

INSIDE LOOP



| Part No. |
|----------|
| 38108    |

OUTSIDE LOOP

### FORGED OVER-SLEEVE PIN & WIRE CLIP



1/4" DIAMETER

| Part No. |
|----------|
| 38103    |



| Part No. |
|----------|
| 38107    |

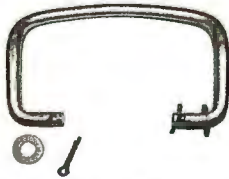
INSIDE LOOP



| Part No. |
|----------|
| 38109    |

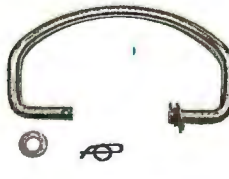
OUTSIDE LOOP

### FORGED RAIL HANDLES



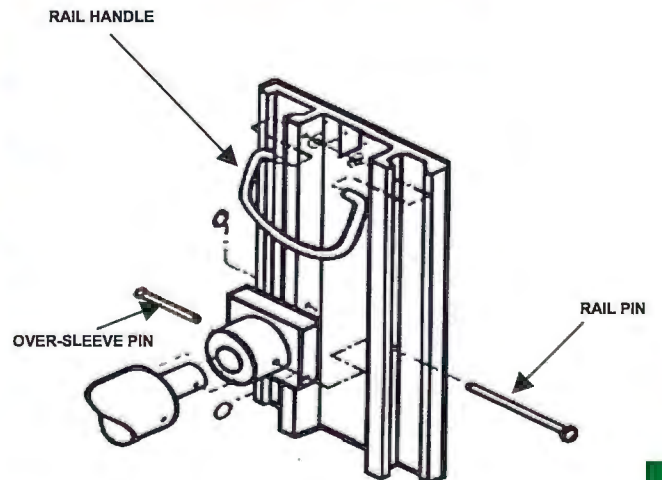
| Part No. |
|----------|
| 38110    |

TIGHT FIT



| Part No. |
|----------|
| 38112    |

LOOSE FIT





## MODULAR ALUMINUM TRENCH BOX ACCESSORIES



### FORGED HANDLE PIN



#### MECHANICAL PROPERTIES

MATERIAL : HEAT TREATED CARBON STEEL  
 FINISH : ZINC PLATED  
 HARDNESS : RC 28-32  
 TENSILE STRENGTH : 140,000 PSI  
 YIELD STRENGTH : 120,000 PSI



|          |
|----------|
| Part No. |
| 38119    |

### LYNCH PIN



|          |
|----------|
| Part No. |
| 38116    |



Your source for  
safe and easy  
 lifting solutions.



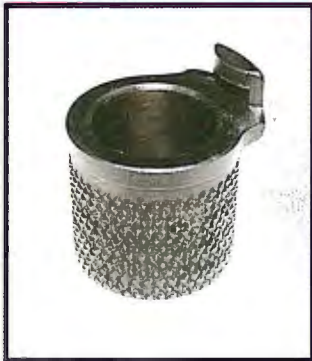




# ACTEK<sup>®</sup>

MANUFACTURING AND ENGINEERING, INC.

## DRILL BUSHING AND ACCESSORIES



1110 Fullerton Road, City of Industry, CA 91748

Toll Free:(800)752-7229 Tel:(626)581-3424 Fax:(626)581-3423 Web:ActekMfg.com Email:sales@actekmfg.com



# ACTEK® MFG. & ENG. INC.



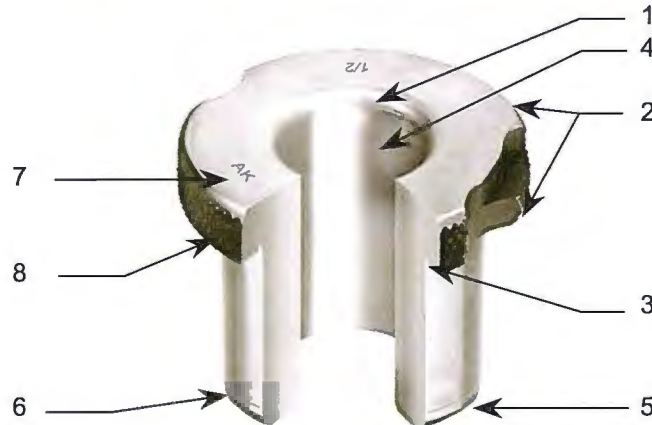
WE HAVE EXTENSIVE CAPABILITITES TO MEET YOUR MACHINING,  
PRECISION FORGING, AND INVESTMENT CASTING NEEDS.







## BUSHING SPECIFICATIONS



### FEATURES:

1. FULL RADIUS ON I.D. FOR PROPER ENTRY ALIGNMENT, PREVENTING WEAR AND BREAKAGE OF TOOL.
2. DOUBLE CHAMFERED HEAD.
3. TWO WAY UNDERCUT ALLOWS BUSHING TO SIT FLUSH ON TOP OF JIG.
4. INTERNALLY GROUND DIAMETERS INSURE STRAIGHTNESS.
5. 45° LEAD FOR EASY ENTRY INTO JIG.
6. ADDITIONAL CONCENTRIC GROUND LEAD FOR PROPER INITIAL ALIGNMENT AND EASY ENTRY.
7. STAMPED WITH SIZE AND TRADEMARK FOR YOUR PROTECTION.
8. SLIP RENEWABLE BUSHING HEADS KNURLED FOR SPEED IN REMOVAL AND REPLACEMENT.

### SUGGESTIONS FOR INSTALLATION:

1. AVOID EXCESSIVE INTERFERENCE FIT.
2. BEFORE INSTALLING LUBRICATE MOUNTING HOLE AND O.D. OF THE BUSHING.
3. INSTALL BUSHINGS WITH AN ARBOR PRESS WHENEVER POSSIBLE.
4. PREPARE MOUNTING HOLES CAREFULLY.

### TECHNICAL INFORMATION:

MATERIAL: C1144  
HEAT TREAT: CASE HARDENED  
HARDNESS: ROCKWELL C61-65 IN THE HOLE

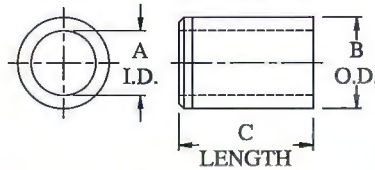
CONCENTRICITY:  
I.D. RANGE OF 1/8" TO 1/2" TIR. IS HOLD TO .0003  
I.D. SMALLER THAN 1/8" TIR. IS HOLD TO .0005  
I.D. LARGER THAN 1/2" TIR. IS HOLD TO .0005

REAMER BUSHINGS TOLERANCE:  
I.D. UP TO 1/4" IS +.0005 TO +.0008  
I.D. 1/4" TO 1" IS +.0006 TO +.0010  
I.D. OVER 1" IS +.0008 TO +.0012



# ACTEK® MFG. & ENG. INC.

## DRILL JIG BUSHING - PRESS FIT (P TYPE)



ORDER: TYPE I.D. X O.D. X L  
 P/PU 1/4 X 1/2 X 1/2  
 or  
TYPE ANSI NO. X I.D.  
 P/PU 32-8 X 1/4

| A I.D. RANGE                | B O.D. BODY                            | C LENGTH | ANSI SYMBOL NO. | PRICE CODE NO. |
|-----------------------------|--|----------|-----------------|----------------|
| #80 (.0135) TO #70 (.0280)  | 5/32<br>P=.1578/.1575<br>PU=.171/.169  | 1/4      | P10-4           | 1303           |
|                             |  | 5/16     | P10-5           | 1309           |
|                             |  | 3/8      | P10-6           | 1311           |
|                             |  | x 1/2    | P10-8           | 1314           |
| #69 (.0292) TO 3/64 (.0469) | 5/32<br>P=.1578/.1575<br>PU=.171/.169  | 1/4      | P10-4           | 1290           |
|                             |  | 5/16     | P10-5           | 1293           |
|                             |  | 3/8      | P10-6           | 1295           |
|                             |  | x 1/2    | P10-8           | 1299           |
| #55 (.0520) TO 1/16 (.0625) | 5/32<br>P=.1578/.1575<br>PU=.171/.169  | x 3/4    | P10-12          | 1309           |
|                             |  | 1/4      | P10-4           | 1266           |
|                             |  | 5/16     | P10-5           | 1270           |
|                             |  | 3/8      | P10-6           | 1273           |
| #55 (.0520) TO 1/16 (.0625) | 3/16<br>P=.1891/.1888<br>PU=.203/.198  | 1/2      | P10-8           | 1274           |
|                             |  | x 3/4    | P10-12          | 1282           |
|                             |  | 1/4      | P12-4           | 1266           |
|                             |  | 5/16     | P12-5           | 1270           |
| #52 (.0635) TO #39 (.0995)  | 3/16<br>P=.1891/.1888<br>PU=.203/.198  | 3/8      | P12-6           | 1273           |
|                             |  | 1/2      | P12-8           | 1274           |
|                             |  | x 5/8    | P12-10          | 1279           |
|                             |  | x 3/4    | P12-12          | 1282           |
| #80 (.0135) TO #70 (.0280)  | 13/64<br>P=.2046/.2043<br>PU=.219/.216 | 1/4      | P12-4           | 1219           |
|                             |  | 5/16     | P12-5           | 1225           |
|                             |  | 3/8      | P12-6           | 1227           |
|                             |  | 1/2      | P12-8           | 1230           |
| #69 (.0292) TO 3/64 (.0469) | 13/64<br>P=.2046/.2043<br>PU=.219/.216 | 5/8      | P12-10          | 1232           |
|                             |  | x 3/4    | P12-12          | 1235           |
|                             |  | 1/4      | P13-4           | 1303           |
|                             |  | 5/16     | P13-5           | 1309           |
| #55 (.0520) TO 1/16 (.0625) | 13/64<br>P=.2046/.2043<br>PU=.219/.216 | 3/8      | P13-6           | 1311           |
|                             |  | x 1/2    | P13-8           | 1314           |
|                             |  | 1/4      | P13-4           | 1290           |
|                             |  | 5/16     | P13-5           | 1293           |
| #52 (.0635) TO #39 (.0995)  | 13/64<br>P=.2046/.2043<br>PU=.219/.216 | 3/8      | P13-6           | 1295           |
|                             |  | x 1/2    | P13-8           | 1299           |
|                             |  | x 3/4    | P13-12          | 1309           |
|                             |  | 1/4      | P13-4           | 1266           |
| #55 (.0520) TO 1/16 (.0625) | 13/64<br>P=.2046/.2043<br>PU=.219/.216 | 5/16     | P13-5           | 1270           |
|                             |  | 3/8      | P13-6           | 1273           |
|                             |  | 1/2      | P13-8           | 1274           |
|                             |  | x 3/4    | P13-12          | 1282           |
| #52 (.0635) TO #39 (.0995)  | 13/64<br>P=.2046/.2043<br>PU=.219/.216 | x 1      | P13-16          | 1295           |
|                             |  | 1/4      | P13-4           | 1219           |
|                             |  | 5/16     | P13-5           | 1225           |
|                             |  | 3/8      | P13-6           | 1228           |
| #52 (.0635) TO #39 (.0995)  | 13/64<br>P=.2046/.2043<br>PU=.219/.216 | 1/2      | P13-8           | 1230           |
|                             |  | x 3/4    | P13-12          | 1235           |
|                             |  | x 1      | P13-16          | 1240           |
|                             |  | x 1-3/8  | P13-22          | 1271           |

| A I.D. RANGE                 | B O.D. BODY                            | C LENGTH | ANSI SYMBOL NO. | PRICE CODE NO. |
|------------------------------|--|----------|-----------------|----------------|
| #40 (.0980) TO 9/64 (.1406)  | 1/4<br>P=.2516/.2513<br>PU=.265/.260   | 1/4      | P16-4           | 1215           |
|                              |  | 5/16     | P16-5           | 1218           |
|                              |  | 3/8      | P16-6           | 1222           |
|                              |  | 1/2      | P16-8           | 1225           |
|                              |  | 5/8      | P16-10          | 1228           |
|                              |  | x 3/4    | P16-12          | 1231           |
|                              |  | x 1      | P16-16          | 1236           |
|                              |  | x 1-3/8  | P16-22          | 1269           |
|                              |  | x 1-1/2  | P16-24          | 1274           |
| 1/8 (.1250) TO #10 (.1935)   | 5/16<br>P=.3141/.3138<br>PU=.327/.322  | x 1-3/4  | P16-28          | 1279           |
|                              |  | 1/4      | P20-4           | 1210           |
|                              |  | 5/16     | P20-5           | 1212           |
|                              |  | 3/8      | P20-6           | 1213           |
|                              |  | 1/2      | P20-8           | 1214           |
|                              |  | 5/8      | P20-10          | 1215           |
|                              |  | 3/4      | P20-12          | 1217           |
|                              |  | x 1      | P20-16          | 1219           |
|                              |  | x 1-3/8  | P20-22          | 1240           |
| #10 (.1935) TO #1 (.2280)    | 3/8<br>P=.3766/.3763<br>PU=.390/.385   | x 1-1/2  | P20-24          | 1250           |
|                              |  | x 1-3/4  | P20-28          | 1259           |
|                              |  | 1/4      | P24-4           | 1205           |
|                              |  | 5/16     | P24-5           | 1206           |
|                              |  | 3/8      | P24-6           | 1209           |
|                              |  | 1/2      | P24-8           | 1210           |
|                              |  | 5/8      | P24-10          | 1212           |
|                              |  | 3/4      | P24-12          | 1213           |
|                              |  | x 1      | P24-16          | 1218           |
| 3/16 (.1875) TO F (.2570)    | 13/32<br>P=.4078/.4075<br>PU=.421/.416 | 1/4      | P24-4           | 1205           |
|                              |  | 5/16     | P24-5           | 1206           |
|                              |  | 3/8      | P24-6           | 1209           |
|                              |  | 1/2      | P24-8           | 1210           |
|                              |  | 5/8      | P24-10          | 1212           |
|                              |  | 3/4      | P24-12          | 1213           |
|                              |  | x 1      | P24-16          | 1218           |
|                              |  | 1/4      | P26-4           | 1205           |
|                              |  | 5/16     | P26-5           | 1206           |
| A (.2340) TO L (.2900)       | 7/16<br>P=.4392/.4389<br>PU=.453/.448  | 3/8      | P26-6           | 1209           |
|                              |  | 1/2      | P26-8           | 1210           |
|                              |  | 3/4      | P26-12          | 1213           |
|                              |  | x 1      | P26-16          | 1218           |
|                              |  | x 1-3/8  | P26-22          | 1225           |
|                              |  | x 1-1/2  | P26-24          | 1231           |
|                              |  | x 1-3/4  | P26-28          | 1236           |
|                              |  | 1/4      | P28-4           | 1205           |
|                              |  | 5/16     | P28-5           | 1206           |
| 3/16 (.1875) TO 5/16 (.3125) | 1/2<br>P=.5017/.5014<br>PU=.515/.511   | 3/8      | P28-6           | 1209           |
|                              |  | 1/2      | P28-8           | 1210           |
|                              |  | 5/8      | P28-10          | 1212           |
|                              |  | 3/4      | P28-12          | 1213           |
|                              |  | x 1      | P28-16          | 1218           |
|                              |  | 1/4      | P32-4           | 1205           |
|                              |  | 5/16     | P32-5           | 1206           |
|                              |  | 3/8      | P32-6           | 1209           |
|                              |  | 1/2      | P32-8           | 1210           |
| 3/16 (.1875) TO 5/16 (.3125) | 1/2<br>P=.5017/.5014<br>PU=.515/.511   | 3/4      | P32-12          | 1213           |
|                              |  | x 1      | P32-16          | 1218           |
|                              |  | x 1-3/8  | P32-22          | 1225           |
|                              |  | x 1-1/2  | P32-24          | 1231           |
|                              |  | x 1-3/4  | P32-28          | 1236           |
|                              |  | x 2-1/8  | P32-34          | 1293           |

x COUNTERBORED AS STANDARD WITH CORRECT DRILL BEARING LENGTH AND CHIP CLEARANCE





## DRILL JIG BUSHING - PRESS FIT (P TYPE)

| A I.D. RANGE                  | B O.D. BODY                            | C LENGTH | ANSI SYMBOL NO. | PRICE CODE NO. |
|-------------------------------|--|----------|-----------------|----------------|
| M (.2950) TO 11/32 (.3437)    | 9/16<br>P=.5642/.5639<br>PU=.578/.574  | 1/4      | P36-4           | 1210           |
|                               |  | 5/16     | P36-5           | 1205           |
|                               |  | 3/8      | P36-6           | 1207           |
|                               |  | 1/2      | P36-8           | 1207           |
|                               |  | 5/8      | P36-10          | 1209           |
|                               |  | 3/4      | P36-12          | 1210           |
|                               |  | 1        | P36-16          | 1212           |
| 5/16 (.3125) TO 7/16 (.4375)  | 5/8<br>P=.6267/.6264<br>PU=.640/.637   | 1/4      | P40-4           | 1210           |
|                               |  | 5/16     | P40-5           | 1205           |
|                               |  | 3/8      | P40-6           | 1207           |
|                               |  | 1/2      | P40-8           | 1207           |
|                               |  | 5/8      | P40-10          | 1209           |
|                               |  | 3/4      | P40-12          | 1210           |
|                               |  | 1        | P40-16          | 1212           |
|                               |  | 1-1/4    | P40-20          | 1224           |
|                               |  | 1-3/8    | P40-22          | 1224           |
|                               |  | 1-1/2    | P40-24          | 1226           |
|                               |  | 1-3/4    | P40-28          | 1231           |
|                               |  | x 2-1/8  | P40-34          | 1241           |
| 5/16 (.3125) TO 17/32 (.5312) | 3/4<br>P=.7518/.7515<br>PU=.765/.761   | 1/4      | P48-4           | 1212           |
|                               |  | 5/16     | P48-5           | 1206           |
|                               |  | 3/8      | P48-6           | 1210           |
|                               |  | 1/2      | P48-8           | 1210           |
|                               |  | 5/8      | P48-10          | 1212           |
|                               |  | 3/4      | P48-12          | 1212           |
|                               |  | 1        | P48-16          | 1214           |
|                               |  | 1-1/4    | P48-20          | 1225           |
|                               |  | 1-3/8    | P48-22          | 1225           |
|                               |  | 1-1/2    | P48-24          | 1228           |
|                               |  | 1-3/4    | P48-28          | 1232           |
|                               |  | 2-1/8    | P48-34          | 1242           |
|                               |  | x 2-1/2  | P48-40          | 1293           |
| 1/2 (.5000) TO 21/32 (.6562)  | 7/8<br>P=.8768/.8765<br>PU=.890/.886   | 1/4      | P56-4           | 1221           |
|                               |  | 5/16     | P56-5           | 1219           |
|                               |  | 3/8      | P56-6           | 1221           |
|                               |  | 1/2      | P56-8           | 1215           |
|                               |  | 5/8      | P56-10          | 1217           |
|                               |  | 3/4      | P56-12          | 1217           |
|                               |  | 1        | P56-16          | 1219           |
|                               |  | 1-1/4    | P56-20          | 1224           |
|                               |  | 1-3/8    | P56-22          | 1224           |
|                               |  | 1-1/2    | P56-24          | 1228           |
|                               |  | 1-3/4    | P56-28          | 1233           |
|                               |  | 2-1/8    | P56-34          | 1241           |
|                               |  | 2-1/2    | P56-40          | 1251           |
| 1/2 (.5000) TO 49/64 (.7656)  | 1<br>P=1.0018/1.0015<br>PU=1.015/1.011 | 1/2      | P64-8           | 1217           |
|                               |  | 5/8      | P64-10          | 1217           |
|                               |  | 3/4      | P64-12          | 1217           |
|                               |  | 1        | P64-16          | 1220           |
|                               |  | 1-1/4    | P64-20          | 1224           |
|                               |  | 1-3/8    | P64-22          | 1224           |
|                               |  | 1-1/2    | P64-24          | 1230           |
|                               |  | 1-3/4    | P64-28          | 1235           |
|                               |  | 2-1/8    | P64-34          | 1241           |
|                               |  | 2-1/2    | P64-40          | 1251           |
|                               |  | 3        | P64-48          | 1299           |

x COUNTERBORED AS STANDARD WITH CORRECT DRILL BEARING LENGTH AND CHIP CLEARANCE

| A I.D. RANGE                       | B O.D. BODY                                | C LENGTH | ANSI SYMBOL NO. | PRICE CODE NO. |
|------------------------------------|--|----------|-----------------|----------------|
| 49/64 (.7656) TO 27/32 (.8437)     | 1-1/8<br>P=1.1270/1.1267<br>PU=1.140/1.137 | 1/2      | P72-8           | 1240           |
|                                    |  | 5/8      | P72-10          | 1236           |
|                                    |  | 3/4      | P72-12          | 1231           |
|                                    |  | 1        | P72-16          | 1240           |
|                                    |  | 1-1/4    | P72-20          | 1248           |
|                                    |  | 1-3/8    | P72-22          | 1252           |
|                                    |  | 1-1/2    | P72-24          | 1252           |
|                                    |  | 1-3/4    | P72-28          | 1259           |
| 55/64 (.8594) TO 15/16 (.9375)     | 1-1/4<br>P=1.2520/1.2517<br>PU=1.270/1.265 | 5/8      | P80-10          | 1236           |
|                                    |  | 3/4      | P80-12          | 1231           |
|                                    |  | 1        | P80-16          | 1240           |
|                                    |  | 1-1/4    | P80-20          | 1248           |
|                                    |  | 1-3/8    | P80-22          | 1248           |
|                                    |  | 1-1/2    | P80-24          | 1252           |
|                                    |  | 1-3/4    | P80-28          | 1259           |
|                                    |  | 2        | P80-32          | 1271           |
| 5/8 (.6250) TO 1-1/32 (1.0312)     | 1-3/8<br>P=1.3772/1.3768<br>PU=1.395/1.390 | 1/2      | P88-8           | 1241           |
|                                    |  | 5/8      | P88-10          | 1238           |
|                                    |  | 3/4      | P88-12          | 1231           |
|                                    |  | 1        | P88-16          | 1241           |
|                                    |  | 1-1/4    | P88-20          | 1249           |
|                                    |  | 1-3/8    | P88-22          | 1249           |
|                                    |  | 1-1/2    | P88-24          | 1253           |
|                                    |  | 1-3/4    | P88-28          | 1261           |
|                                    |  | 2        | P88-32          | 1273           |
|                                    |  | 2-1/8    | P88-34          | 1274           |
|                                    |  | 2-1/2    | P88-40          | 1285           |
| 1-1/64 (1.0156) TO 1-1/8 (1.1250)  | 1-1/2<br>P=1.5022/1.5018<br>PU=1.524/1.519 | 3        | P88-48          | 1322           |
|                                    |  | 3/4      | P96-12          | 1256           |
|                                    |  | 1        | P96-16          | 1249           |
|                                    |  | 1-1/4    | P96-20          | 1256           |
|                                    |  | 1-1/2    | P96-24          | 1263           |
|                                    |  | 1-3/4    | P96-28          | 1266           |
| 1 (1.0000) TO 1-25/64 (1.3906)     | 1-3/4<br>P=1.7523/1.7519<br>PU=1.770/1.765 | 2        | P96-32          | 1282           |
|                                    |  | 2-1/4    | P96-36          | 1288           |
|                                    |  | 3/4      | P112-12         | 1256           |
|                                    |  | 1        | P112-16         | 1249           |
|                                    |  | 1-3/8    | P112-22         | 1256           |
|                                    |  | 1-1/2    | P112-24         | 1263           |
|                                    |  | 1-3/4    | P112-28         | 1266           |
| 1-3/8 (1.3750) TO 1-49/64 (1.7656) | 2-1/4<br>P=2.2525/2.2521<br>PU=2.270/2.265 | 2        | P112-32         | 1282           |
|                                    |  | 2-1/8    | P112-34         | 1282           |
|                                    |  | 2-1/2    | P112-40         | 1293           |
|                                    |  | 3        | P112-48         | 1340           |
|                                    |  | 1        | P144-16         | 1267           |
|                                    |  | 1-3/8    | P144-22         | 1278           |
|                                    |  | 1-1/2    | P144-24         | 1283           |
|                                    |  | 1-3/4    | P144-28         | 1287           |
|                                    |  | 2        | P144-32         | 1304           |
|                                    |  | 2-1/8    | P144-34         | 1304           |
|                                    |  | 2-1/2    | P144-40         | 1316           |
|                                    |  | 3        | P144-48         | 1353           |

\*EXTENDED RANGE SIZES AVAILABLE UPON REQUEST.

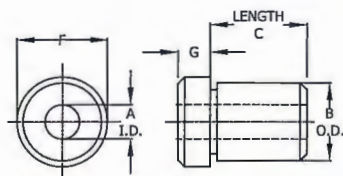
### TECHNICAL INFORMATION:

| DRILL BUSHING I.D. TOLERANCE |  |
|------------------------------|--|
| I.D. RANGE (DRILL SIZE)      | STANDARD TOLERANCE (ADD TO NOMINAL I.D.) |
| #80 to 1/4                   | +0.001 to .0004                          |
| OVER 1/4 to 3/4              | +0.001 to .0005                          |
| OVER 3/4 to 1-1/2            | +0.002 to .0006                          |
| OVER 1-1/2 to 2-3/4          | +0.003 to .0007                          |





## DRILL JIG BUSHING - HEAD PRESS FIT (H TYPE)



ORDER: TYPE I.D. X O.D. X L  
 H/HU 1/4 X 1/2 X 1/2  
 or  
TYPE ANSI NO. X I.D.  
 H/HU 32-8 X 1/4

| A I.D. RANGE                | B O.D. BODY                            | C LENGTH | ANSI SYMBOL NO. | PRICE CODE NO. |
|-----------------------------|--|----------|-----------------|----------------|
| #80 (.0135) TO #70 (.0280)  | 5/32<br>H=.1578/.1575<br>HU=.171/.169  | 1/4      | H10-4           | 1309           |
|                             |  | 5/16     | H10-5           | 1311           |
|                             |  | x 3/8    | H10-6           | 1315           |
|                             |  | x 1/2    | H10-8           | 1317           |
| #69 (.0292) TO 3/64 (.0469) | 5/32<br>H=.1578/.1575<br>HU=.171/.169  | 1/4      | H10-4           | 1293           |
|                             |  | 5/16     | H10-5           | 1295           |
|                             |  | x 3/8    | H10-6           | 1299           |
|                             |  | x 1/2    | H10-8           | 1302           |
| #55 (.0520) TO 1/16 (.0625) | 5/32<br>H=.1578/.1575<br>HU=.171/.169  | x 3/4    | H10-12          | 1314           |
|                             |  | 1/4      | H10-4           | 1271           |
|                             |  | 5/16     | H10-5           | 1273           |
|                             |  | 3/8      | H10-6           | 1274           |
| #80 (.0135) TO #70 (.0280)  | 13/64<br>H=.2046/.2043<br>HU=.219/.216 | x 1/2    | H10-8           | 1275           |
|                             |  | x 3/4    | H10-12          | 1286           |
|                             |  | 1/4      | H13-4           | 1309           |
|                             |  | 5/16     | H13-5           | 1311           |
| #69 (.0292) TO 3/64 (.0469) | 13/64<br>H=.2046/.2043<br>HU=.219/.216 | x 3/8    | H13-6           | 1315           |
|                             |  | x 1/2    | H13-8           | 1317           |
|                             |  | 1/4      | H13-4           | 1293           |
|                             |  | 5/16     | H13-5           | 1295           |
| #55 (.0520) TO 1/16 (.0625) | 13/64<br>H=.2046/.2043<br>HU=.219/.216 | x 3/8    | H13-6           | 1299           |
|                             |  | x 1/2    | H13-8           | 1302           |
|                             |  | x 3/4    | H13-12          | 1314           |
|                             |  | 1/4      | H13-4           | 1271           |
| #52 (.0635) TO #39 (.0995)  | 13/64<br>H=.2046/.2043<br>HU=.219/.216 | 5/16     | H13-5           | 1273           |
|                             |  | 3/8      | H13-6           | 1274           |
|                             |  | x 1/2    | H13-8           | 1275           |
|                             |  | x 3/4    | H13-12          | 1286           |
| #40 (.0980) TO 9/64 (.1406) | 1/4<br>H=.2516/.2513<br>HU=.265/.260   | x 1      | H13-16          | 1300           |
|                             |  | 1/4      | H13-4           | 1232           |
|                             |  | 5/16     | H13-5           | 1233           |
|                             |  | 3/8      | H13-6           | 1236           |
| 1/8 (.1250) TO #10 (.1935)  | 5/16<br>H=.3141/.3138<br>HU=.327/.322  | x 1/2    | H13-8           | 1238           |
|                             |  | x 3/4    | H13-12          | 1247           |
|                             |  | x 1      | H13-16          | 1265           |
|                             |  | 1/4      | H16-4           | 1225           |
|                             |  | 5/16     | H16-5           | 1228           |
|                             |  | 3/8      | H16-6           | 1231           |
|                             |  | x 1/2    | H16-8           | 1232           |
|                             |  | x 5/8    | H16-10          | 1238           |
|                             |  | x 3/4    | H16-12          | 1245           |
|                             |  | x 1      | H16-16          | 1263           |
|                             |  | x 1-3/8  | H16-22          | 1299           |
|                             |  | x 1-1/2  | H16-24          | 1308           |
|                             |  | 1/4      | H20-4           | 1215           |
|                             |  | 5/16     | H20-5           | 1218           |
|                             |  | 3/8      | H20-6           | 1221           |
|                             |  | 1/2      | H20-8           | 1222           |
|                             |  | 5/8      | H20-10          | 1223           |
|                             |  | 3/4      | H20-12          | 1224           |
|                             |  | x 1      | H20-16          | 1233           |
|                             |  | x 1-3/8  | H20-22          | 1270           |
|                             |  | x 1-1/2  | H20-24          | 1283           |

| A I.D. RANGE                 | B O.D. BODY                            | C LENGTH | ANSI SYMBOL NO. | PRICE CODE NO. |
|------------------------------|--|----------|-----------------|----------------|
| #10 (.1935) TO #1 (.2280)    | 3/8<br>H=.3766/.3763<br>HU=.390/.385   | 1/4      | H24-4           | 1213           |
|                              |  | 5/16     | H24-5           | 1215           |
|                              |  | 3/8      | H24-6           | 1217           |
|                              |  | 1/2      | H24-8           | 1218           |
|                              |  | 5/8      | H24-10          | 1220           |
| 3/16 (.1875) TO F (.2570)    | 13/32<br>H=.4078/.4075<br>HU=.421/.416 | 3/4      | H24-12          | 1221           |
|                              |  | x 1      | H24-16          | 1230           |
|                              |  | 1/4      | H26-4           | 1213           |
|                              |  | 5/16     | H26-5           | 1214           |
|                              |  | 3/8      | H26-6           | 1217           |
| A (.2340) TO L (.2900)       | 7/16<br>H=.4392/.4389<br>HU=.453/.448  | 1/2      | H26-8           | 1218           |
|                              |  | 3/4      | H26-12          | 1221           |
|                              |  | x 1      | H26-16          | 1230           |
|                              |  | x 1-3/8  | H26-22          | 1236           |
|                              |  | x 1-1/2  | H26-24          | 1243           |
| 3/16 (.1875) TO O (.3160)    | 1/2<br>H=.5017/.5014<br>HU=.518/.513   | x 1-3/4  | H26-28          | 1250           |
|                              |  | 1/4      | H28-4           | 1213           |
|                              |  | 5/16     | H28-5           | 1215           |
|                              |  | 3/8      | H28-6           | 1217           |
|                              |  | 1/2      | H28-8           | 1218           |
| M (.2950) TO 11/32 (.3437)   | 9/16<br>H=.5642/.5639<br>HU=.580/.575  | 5/8      | H28-10          | 1220           |
|                              |  | 3/4      | H28-12          | 1221           |
|                              |  | x 1      | H28-16          | 1230           |
|                              |  | 1/4      | H32-4           | 1213           |
|                              |  | 5/16     | H32-5           | 1214           |
| 5/16 (.3125) TO 7/16 (.4375) | 5/8<br>H=.6267/.6264<br>HU=.643/.638   | 3/8      | H32-6           | 1217           |
|                              |  | 1/2      | H32-8           | 1218           |
|                              |  | 3/4      | H32-12          | 1221           |
|                              |  | x 1      | H32-16          | 1230           |
|                              |  | x 1-3/8  | H32-22          | 1236           |
|                              |  | x 1-1/2  | H32-24          | 1243           |
|                              |  | x 1-3/4  | H32-28          | 1250           |
|                              |  | 1/4      | H36-4           | 1217           |
|                              |  | 5/16     | H36-5           | 1213           |
|                              |  | 3/8      | H36-6           | 1215           |
|                              |  | 1/2      | H36-8           | 1215           |
|                              |  | 5/8      | H36-10          | 1217           |
|                              |  | 3/4      | H36-12          | 1217           |
|                              |  | 1        | H36-16          | 1221           |
|                              |  | 1/4      | H40-4           | 1217           |
|                              |  | 5/16     | H40-5           | 1213           |
|                              |  | 3/8      | H40-6           | 1214           |
|                              |  | 1/2      | H40-8           | 1214           |
|                              |  | 5/8      | H40-10          | 1217           |
|                              |  | 3/4      | H40-12          | 1217           |
|                              |  | 1        | H40-16          | 1221           |
|                              |  | 1-3/8    | H40-22          | 1236           |
|                              |  | 1-1/2    | H40-24          | 1240           |
|                              |  | 1-3/4    | H40-28          | 1245           |
|                              |  | 2-1/8    | H40-34          | 1254           |

x COUNTERBORED AS STANDARD WITH CORRECT DRILL BEARING LENGTH AND CHIP CLEARANCE





## DRILL JIG BUSHING - HEAD PRESS FIT (H TYPE)

| A<br>I.D.<br>RANGE                   | B<br>O.D.<br>BODY                          | C<br>LENGTH                          | ANSI<br>SYMBOL<br>NO.                      | PRICE<br>CODE<br>NO. |        |      |
|--------------------------------------|--|--------------------------------------|--|----------------------|--------|------|
| 5/16 (.3125)<br>TO<br>17/32 (.5312)  | 3/4<br>H=.7518/.7515<br>HU=.768/.763       | 1/4                                  | H48-4                                      | 1221                 |        |      |
|                                      |  | 5/16                                 | H48-5                                      | 1215                 |        |      |
|                                      |  | 3/8                                  | H48-6                                      | 1217                 |        |      |
|                                      |  | 1/2                                  | H48-8                                      | 1217                 |        |      |
|                                      |  | 5/8                                  | H48-10                                     | 1219                 |        |      |
|                                      |  | 3/4                                  | H48-12                                     | 1221                 |        |      |
|                                      |  | 1                                    | H48-16                                     | 1225                 |        |      |
|                                      |  | 1-1/4                                | H48-20                                     | 1238                 |        |      |
|                                      |  | 1-3/8                                | H48-22                                     | 1238                 |        |      |
|                                      |  | 1-1/2                                | H48-24                                     | 1241                 |        |      |
|                                      |  | 1-3/4                                | H48-28                                     | 1246                 |        |      |
|                                      |  | 2-1/8                                | H48-34                                     | 1256                 |        |      |
|                                      |  | 1/2 (.5000)<br>TO<br>21/32 (.6562)   | 7/8<br>H=.8768/.8765<br>HU=.893/.888       | 1/2                  | H56-8  | 1226 |
|                                      |  |                                      |  | 5/8                  | H56-10 | 1226 |
| 3/4                                  | H56-12                                     |                                      |  | 1227                 |        |      |
| 1                                    | H56-16                                     |                                      |  | 1230                 |        |      |
| 1-1/4                                | H56-20                                     |                                      |  | 1235                 |        |      |
| 1-3/8                                | H56-22                                     |                                      |  | 1235                 |        |      |
| 1-1/2                                | H56-24                                     |                                      |  | 1241                 |        |      |
| 1-3/4                                | H56-28                                     |                                      |  | 1249                 |        |      |
| 2-1/8                                | H56-34                                     |                                      |  | 1256                 |        |      |
| 2-1/2                                | H56-40                                     |                                      |  | 1272                 |        |      |
| 1/2 (.5000)<br>TO<br>49/64 (.7656)   | 1<br>H=1.0018/1.0015<br>HU=1.018/1.013     |                                      |  | 1/2                  | H64-8  | 1228 |
|                                      |  | 3/4                                  | H64-12                                     | 1228                 |        |      |
|                                      |  | 1                                    | H64-16                                     | 1232                 |        |      |
|                                      |  | 1-3/8                                | H64-22                                     | 1236                 |        |      |
|                                      |  | 1-1/2                                | H64-24                                     | 1247                 |        |      |
|                                      |  | 1-3/4                                | H64-28                                     | 1253                 |        |      |
|                                      |  | 2-1/8                                | H64-34                                     | 1266                 |        |      |
|                                      |  | 2-1/2                                | H64-40                                     | 1281                 |        |      |
|                                      |  | 3                                    | H64-48                                     | 1330                 |        |      |
|                                      |  | 55/64 (.8594)<br>TO<br>15/16 (.9375) | 1-1/4<br>H=1.2520/1.2517<br>HU=1.270/1.265 | 5/8                  | H80-10 | 1253 |
| 3/4                                  | H80-12                                     |                                      |  | 1251                 |        |      |
| 1                                    | H80-16                                     |                                      |  | 1258                 |        |      |
| 1-1/4                                | H80-20                                     |                                      |  | 1266                 |        |      |
| 1-1/2                                | H80-24                                     |                                      |  | 1274                 |        |      |
| 1-3/4                                | H80-28                                     |                                      |  | 1281                 |        |      |
| 5/8 (.6250)<br>TO<br>1-1/32 (1.0312) | 1-3/8<br>H=1.3772/1.3768<br>HU=1.395/1.390 | 2                                    | H80-32                                     | 1292                 |        |      |
|                                      |  | 1/2                                  | H88-8                                      | 1259                 |        |      |
|                                      |  | 3/4                                  | H88-12                                     | 1252                 |        |      |
|                                      |  | 1                                    | H88-16                                     | 1260                 |        |      |
|                                      |  | 1-3/8                                | H88-22                                     | 1268                 |        |      |
|                                      |  | 1-1/2                                | H88-24                                     | 1275                 |        |      |
|                                      |  | 1-3/4                                | H88-28                                     | 1282                 |        |      |
|                                      |  | 2-1/8                                | H88-34                                     | 1295                 |        |      |
|                                      |  | 2-1/2                                | H88-40                                     | 1310                 |        |      |
|                                      |  | 3                                    | H88-48                                     | 1346                 |        |      |

| A<br>I.D.<br>RANGE                       | B<br>O.D.<br>BODY                          | C<br>LENGTH | ANSI<br>SYMBOL<br>NO. | PRICE<br>CODE<br>NO. |
|--|--|-------------|-----------------------|----------------------|
| 1 (1.0000)<br>TO<br>1-25/64 (1.3906)     | 1-3/4<br>H=1.7523/1.7519<br>HU=1.770/1.765 | 3/4         | H112-12               | 1287                 |
|  |  | 1           | H112-16               | 1277                 |
|  |  | 1-3/8       | H112-22               | 1287                 |
|  |  | 1-1/2       | H112-24               | 1291                 |
|  |  | 1-3/4       | H112-28               | 1296                 |
|  |  | 2-1/8       | H112-34               | 1312                 |
|  |  | 2-1/2       | H112-40               | 1324                 |
|  |  | 3           | H112-48               | 1358                 |
| 1-3/8 (1.3750)<br>TO<br>1-49/64 (1.7656) | 2-1/4<br>H=2.2525/2.2521<br>HU=2.270/2.265 | 1           | H144-16               | 1305                 |
|  |  | 1-3/8       | H144-22               | 1319                 |
|  |  | 1-1/2       | H144-24               | 1323                 |
|  |  | 1-3/4       | H144-28               | 1333                 |
|  |  | 2-1/8       | H144-34               | 1343                 |
|  |  | 2-1/2       | H144-40               | 1350                 |
| 3  | H144-48                                    | 1368        |                       |                      |

\*EXTENDED RANGE SIZES AVAILABLE UPON REQUEST.

### TECHNICAL INFORMATION:

| DRILL BUSHING I.D. TOLERANCE |   |
|------------------------------|---|
| I.D. RANGE<br>(Drill Size)   | STANDARD TOLERANCE<br>(ADD TO NOMINAL I.D.) |
| #80 to 1/4                   | + .0001 to + .0004                          |
| OVER 1/4 to 3/4              | + .0001 to + .0005                          |
| OVER 3/4 to 1-1/2            | + .0002 to + .0006                          |
| OVER 1-1/2 to 2-3/4          | + .0003 to + .0007                          |

COUNTERBORE: SMALL HOLE, LONG LENGTH AND SPECIAL BUSHINGS ARE COUNTERBORED AS NECESSARY, LEAVING CORRECT DRILL BEARING LENGTH AND CHIP CLEARANCE.

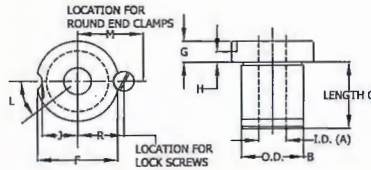
### ANSI HEAD DIMENSIONS

| BODY O.D. | F     | G    | BODY O.D. | F       | G    |
|-----------|-------|------|-----------|---------|------|
| 5/32      | 1/4   | 3/32 | 9/16      | 11/16   | 3/32 |
| 13/64     | 19/64 | 3/32 | 5/8       | 51/64   | 7/32 |
| 1/4       | 23/64 | 3/32 | 3/4       | 59/64   | 7/32 |
| 5/16      | 27/64 | 1/8  | 7/8       | 1-7/64  | 1/4  |
| 3/8       | 1/2   | 3/32 | 1         | 1-15/64 | 5/16 |
| 13/32     | 1/2   | 5/32 | 1-1/4     | 1-1/2   | 1/4  |
| 7/16      | 9/16  | 3/32 | 1-3/8     | 1-39/64 | 3/8  |
| 1/2       | 39/64 | 7/32 | 1-3/4     | 1-63/64 | 3/8  |
|           |       |      | 2-1/4     | 2-31/64 | 3/8  |





## DRILL JIG BUSHING - SLIP-FIXED RENEWABLE (SF TYPE)



ORDER: TYPE I.D. X O.D. X L  
 SF 1/4 X 1/2 X 1/2  
 or  
TYPE ANSI NO. X I.D.  
 SF 32-8 X 1/4

| A I.D. RANGE                | B O.D. BODY            | C LENGTH | ANSI SYMBOL NO. | PRICE CODE NO. |
|-----------------------------|------------------------|----------|-----------------|----------------|
| #80 (.0135) TO #70 (.0280)  | 3/16<br>SF=.1875/.1873 | x 1/4    | SF12-4          | 1333           |
|                             |                        | x 5/16   | SF12-5          | 1335           |
|                             |                        | x 3/8    | SF12-6          | 1337           |
|                             |                        | x 1/2    | SF12-8          | 1338           |
|                             |                        | x 5/8    | SF12-10         | 1348           |
|                             |                        | x 3/4    | SF12-12         | 1360           |
| #69 (.0292) TO 3/64 (.0469) | 3/16<br>SF=.1875/.1873 | 1/4      | SF12-4          | 1314           |
|                             |                        | x 5/16   | SF12-5          | 1316           |
|                             |                        | x 3/8    | SF12-6          | 1319           |
|                             |                        | x 1/2    | SF12-8          | 1321           |
|                             |                        | x 5/8    | SF12-10         | 1325           |
|                             |                        | x 3/4    | SF12-12         | 1330           |
| #55 (.0520) TO 1/16 (.0625) | 3/16<br>SF=.1875/.1873 | 1/4      | SF12-4          | 1282           |
|                             |                        | x 5/16   | SF12-5          | 1284           |
|                             |                        | x 3/8    | SF12-6          | 1286           |
|                             |                        | x 1/2    | SF12-8          | 1287           |
|                             |                        | x 5/8    | SF12-10         | 1291           |
|                             |                        | x 3/4    | SF12-12         | 1297           |
| #52 (.0635) TO #40 (.0980)  | 3/16<br>SF=.1875/.1873 | 1/4      | SF12-4          | 1241           |
|                             |                        | x 5/16   | SF12-5          | 1243           |
|                             |                        | x 3/8    | SF12-6          | 1244           |
|                             |                        | x 1/2    | SF12-8          | 1247           |
|                             |                        | x 5/8    | SF12-10         | 1251           |
|                             |                        | x 3/4    | SF12-12         | 1254           |
| #39 (.0995) TO 9/64 (.1406) | 1/4<br>SF=.2500/.2498  | 1/4      | SF16-4          | 1236           |
|                             |                        | 5/16     | SF16-5          | 1236           |
|                             |                        | x 3/8    | SF16-6          | 1238           |
|                             |                        | x 1/2    | SF16-8          | 1241           |
|                             |                        | x 5/8    | SF16-10         | 1246           |
|                             |                        | x 3/4    | SF16-12         | 1250           |
|                             |                        | x 1      | SF16-16         | 1300           |
|                             |                        | x 1/4    | SF20-4          | 1333           |
| #80 (.0135) TO #70 (.0280)  | 5/16<br>SF=.3125/.3123 | x 5/16   | SF20-5          | 1335           |
|                             |                        | x 3/8    | SF20-6          | 1337           |
|                             |                        | x 1/2    | SF20-8          | 1338           |
|                             |                        | x 3/4    | SF20-12         | 1360           |
|                             |                        | x 5/16   | SF20-5          | 1316           |
|                             |                        | x 3/8    | SF20-6          | 1319           |
| #69 (.0292) TO 3/64 (.0469) | 5/16<br>SF=.3125/.3123 | x 1/2    | SF20-8          | 1321           |
|                             |                        | x 3/4    | SF20-12         | 1330           |
|                             |                        | x 5/16   | SF20-5          | 1284           |
|                             |                        | x 3/8    | SF20-6          | 1286           |
| #55 (.0520) TO 1/16 (.0625) | 5/16<br>SF=.3125/.3123 | x 1/2    | SF20-8          | 1287           |
|                             |                        | x 3/4    | SF20-12         | 1297           |
|                             |                        | 5/16     | SF20-5          | 1242           |
| #52 (.0635) TO #43 (.0890)  | 5/16<br>SF=.3125/.3123 | x 3/8    | SF20-6          | 1244           |
|                             |                        | x 1/2    | SF20-8          | 1247           |
|                             |                        | x 3/4    | SF20-12         | 1254           |
|                             |                        | x 1      | SF20-16         | 1272           |
|                             |                        | 5/16     | SF20-5          | 1236           |
| #42 (.0935) TO #31 (.1200)  | 5/16<br>SF=.3125/.3123 | 3/8      | SF20-6          | 1238           |
|                             |                        | x 1/2    | SF20-8          | 1241           |
|                             |                        | x 3/4    | SF20-12         | 1250           |
|                             |                        | x 1      | SF20-16         | 1263           |
|                             |                        | x 1-3/8  | SF20-22         | 1285           |

| A I.D. RANGE                 | B O.D. BODY            | C LENGTH | ANSI SYMBOL NO. | PRICE CODE NO. |
|------------------------------|------------------------|----------|-----------------|----------------|
| 1/8 (.1250) TO #10 (.1935)   | 5/16<br>SF=.3125/.3123 | 1/4      | SF20-4          | 1235           |
|                              |                        | 5/16     | SF20-5          | 1235           |
|                              |                        | 3/8      | SF20-6          | 1236           |
|                              |                        | 1/2      | SF20-8          | 1239           |
|                              |                        | 5/8      | SF20-10         | 1243           |
|                              |                        | x 3/4    | SF20-12         | 1248           |
|                              |                        | x 1      | SF20-16         | 1261           |
| #10 (.1935) TO #1 (.2280)    | 3/8<br>SF=.3750/.3748  | x 1-3/8  | SF20-22         | 1284           |
|                              |                        | 1/4      | SF24-4          | 1217           |
|                              |                        | 5/16     | SF24-5          | 1220           |
|                              |                        | 3/8      | SF24-6          | 1222           |
|                              |                        | 1/2      | SF24-8          | 1225           |
|                              |                        | 5/8      | SF24-10         | 1226           |
| A (.2340) TO L (.2900)       | 7/16<br>SF=.4375/.4373 | 3/4      | SF24-12         | 1228           |
|                              |                        | x 1      | SF24-16         | 1235           |
|                              |                        | 1/4      | SF28-4          | 1217           |
|                              |                        | 5/16     | SF28-5          | 1220           |
|                              |                        | 3/8      | SF28-6          | 1222           |
| #28 (.1405) TO 3/16 (.1875)  | 1/2<br>SF=.5000/.4998  | 1/2      | SF28-8          | 1225           |
|                              |                        | 5/8      | SF28-10         | 1226           |
|                              |                        | 3/4      | SF28-12         | 1228           |
|                              |                        | x 1      | SF28-16         | 1235           |
|                              |                        | 1/4      | SF32-4          | 1226           |
|                              |                        | 5/16     | SF32-5          | 1226           |
|                              |                        | 3/8      | SF32-6          | 1228           |
|                              |                        | 1/2      | SF32-8          | 1230           |
| #12 (.1890) TO 11/32 (.3437) | 1/2<br>SF=.5000/.4998  | x 3/4    | SF32-12         | 1235           |
|                              |                        | x 1      | SF32-16         | 1243           |
|                              |                        | x 1-3/8  | SF32-22         | 1252           |
|                              |                        | x 1-1/2  | SF32-24         | 1257           |
|                              |                        | x 1-3/4  | SF32-28         | 1264           |
|                              |                        | x 1-1/2  | SF32-24         | 1250           |
|                              |                        | x 1-3/4  | SF32-28         | 1255           |
|                              |                        | x 2-1/8  | SF32-34         | 1321           |
|                              |                        | 1/4      | SF32-4          | 1220           |
|                              |                        | 5/16     | SF32-5          | 1220           |
| M (.2950) TO 11/32 (.3437)   | 9/16<br>SF=.5625/.5623 | 3/8      | SF32-6          | 1222           |
|                              |                        | 1/2      | SF32-8          | 1224           |
|                              |                        | 3/4      | SF32-12         | 1228           |
|                              |                        | x 1      | SF32-16         | 1235           |
|                              |                        | x 1-3/8  | SF32-22         | 1247           |
| M (.2950) TO 11/32 (.3437)   | 9/16<br>SF=.5625/.5623 | x 1-1/2  | SF32-24         | 1250           |
|                              |                        | x 1-3/4  | SF32-28         | 1255           |
|                              |                        | x 2-1/8  | SF32-34         | 1321           |
|                              |                        | 1/4      | SF36-4          | 1217           |
|                              |                        | 5/16     | SF36-5          | 1220           |
|                              |                        | 3/8      | SF36-6          | 1222           |
| M (.2950) TO 11/32 (.3437)   | 9/16<br>SF=.5625/.5623 | 1/2      | SF36-8          | 1225           |
|                              |                        | 5/8      | SF36-10         | 1226           |
|                              |                        | 3/4      | SF36-12         | 1228           |
|                              |                        | 1        | SF36-16         | 1235           |

x COUNTERBORED AS STANDARD WITH CORRECT DRILL BEARING LENGTH AND CHIP CLEARANCE





## DRILL JIG BUSHING - SLIP-FIXED RENEWABLE (SF TYPE)

| A I.D. RANGE                            | B O.D. BODY               | C LENGTH                           | ANSI SYMBOL NO.       | PRICE CODE NO. |
|---|---------------------------|------------------------------------|-----------------------|----------------|
| S (.3480)<br>TO<br>7/16 (.4375)         | 5/8<br>SF=.6250/.6248     | 5/16                               | SF40-5                | 1223           |
|   |                           | 3/8                                | SF40-6                | 1223           |
|   |                           | 1/2                                | SF40-8                | 1223           |
|   |                           | 5/8                                | SF40-10               | 1225           |
|   |                           | 3/4                                | SF40-12               | 1226           |
|   |                           | 1                                  | SF40-16               | 1229           |
|   |                           | 1-1/4                              | SF40-20               | 1247           |
|   |                           | 9/32 (.2813)<br>TO<br>9/16 (.5625) | 3/4<br>SF=.7500/.7498 | 3/8            |
| 1/2                                     | SF48-8                    |                                    |                       | 1223           |
| 3/4                                     | SF48-12                   |                                    |                       | 1226           |
| 1                                       | SF48-16                   |                                    |                       | 1230           |
| 1-3/8                                   | SF48-22                   |                                    |                       | 1247           |
| 1-1/2                                   | SF48-24                   |                                    |                       | 1251           |
| 1-3/4                                   | SF48-28                   |                                    |                       | 1256           |
| 2-1/8                                   | SF48-34                   |                                    |                       | 1266           |
| x 2-1/2                                 | SF48-40                   |                                    |                       | 1326           |
| x 3                                     | SF48-48                   |                                    |                       | 1357           |
| 35/64 (.5469)<br>TO<br>21/32 (.6562)    | 7/8<br>SF=.8750/.8748     | 1/2                                | SF56-8                | 1235           |
|   |                           | 5/8                                | SF56-10               | 1236           |
|   |                           | 3/4                                | SF56-12               | 1237           |
|   |                           | 1                                  | SF56-16               | 1241           |
|   |                           | 1-1/4                              | SF56-20               | 1248           |
| 15/32 (.4687)<br>TO<br>25/32 (.7812)    | 1<br>SF=1.0000/.9998      | 1-1/2                              | SF56-24               | 1253           |
|   |                           | 1/2                                | SF64-8                | 1235           |
|   |                           | 3/4                                | SF64-12               | 1236           |
|   |                           | 1                                  | SF64-16               | 1241           |
|   |                           | 1-3/8                              | SF64-22               | 1248           |
|   |                           | 1-1/2                              | SF64-24               | 1252           |
|   |                           | 1-3/4                              | SF64-28               | 1261           |
|   |                           | 2-1/8                              | SF64-34               | 1277           |
|   |                           | 2-1/2                              | SF64-40               | 1334           |
|   |                           | 3                                  | SF64-48               | 1359           |
| 23/32 (.7187)<br>TO<br>1-1/16 (1.0625)  | 1-3/8<br>SF=1.3750/1.3747 | 1/2                                | SF88-8                | 1264           |
|   |                           | 5/8                                | SF88-10               | 1264           |
|   |                           | 3/4                                | SF88-12               | 1264           |
|   |                           | 1                                  | SF88-16               | 1275           |
|   |                           | 1-3/8                              | SF88-22               | 1284           |
|   |                           | 1-1/2                              | SF88-24               | 1290           |
|   |                           | 1-3/4                              | SF88-28               | 1298           |
|   |                           | 2-1/8                              | SF88-34               | 1312           |
|   |                           | 2-1/2                              | SF88-40               | 1344           |
|   |                           | 3                                  | SF88-48               | 1366           |
| 31/32 (.9687)<br>TO<br>1-13/32 (1.4062) | 1-3/4<br>SF=1.7500/1.7497 | 3/4                                | SF112-12              | 1302           |
|   |                           | 1                                  | SF112-16              | 1291           |
|   |                           | 1-3/8                              | SF112-22              | 1302           |
|   |                           | 1-1/2                              | SF112-24              | 1310           |
|   |                           | 1-3/4                              | SF112-28              | 1320           |
|   |                           | 2-1/8                              | SF112-34              | 1333           |
|   |                           | 2-1/2                              | SF112-40              | 1352           |
|   |                           | 3                                  | SF112-48              | 1367           |

x COUNTERBORED AS STANDARD WITH CORRECT DRILL BEARING LENGTH AND CHIP CLEARANCE

| A I.D. RANGE                             | B O.D. BODY               | C LENGTH | ANSI SYMBOL NO. | PRICE CODE NO. |
|--|---------------------------|----------|-----------------|----------------|
| 1-11/32 (1.3437)<br>TO<br>1-7/8 (1.8750) | 2-1/4<br>SF=2.2500/2.2496 | 3/4      | SF144-12        | 1339           |
|  |                           | 1        | SF144-16        | 1328           |
|  |                           | 1-3/8    | SF144-22        | 1339           |
|  |                           | 1-1/2    | SF144-24        | 1343           |
|  |                           | 1-3/4    | SF144-28        | 1345           |
|  |                           | 2-1/8    | SF144-34        | 1356           |
|  |                           | 2-1/2    | SF144-40        | 1363           |
|  |                           | 3        | SF144-48        | 1371           |

\*EXTENDED RANGE SIZES AVAILABLE UPON REQUEST.

### TECHNICAL INFORMATION:

| DRILL BUSHING I.D. TOLERANCE |  |
|------------------------------|--|
| I.D. RANGE (DRILL SIZE)      | STANDARD TOLERANCE (ADD TO NOMINAL I.D.) |
| #80 to 1/4                   | + .0001 to + .0004                       |
| OVER 1/4 to 3/4              | + .0001 to + .0005                       |
| OVER 3/4 to 1-1/2            | + .0002 to + .0006                       |
| OVER 1-1/2 to 2-3/4          | + .0003 to + .0007                       |

COUNTERBORE: SMALL HOLE, LONG LENGTH AND SPECIAL BUSHINGS ARE COUNTERBORED AS NECESSARY, LEAVING CORRECT DRILL BEARING LENGTH AND CHIP CLEARANCE.

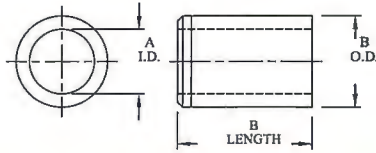
### ANSI HEAD DIMENSIONS

| BODY O.D. | F       | G    | H    | J     | L   | M       | R       | LOCK SCR. |
|-----------|---------|------|------|-------|-----|---------|---------|-----------|
| 3/16      | 5/16    | 3/16 | 3/32 | 3/32  | 55° |         | 17/64   | LS-0      |
| 1/4       | 7/16    | 1/4  | 1/8  | 9/64  | 30° |         | 23/64   | TW-2      |
| 5/16      | 35/64   | 1/4  | 1/8  | 11/64 | 65° | 5/8     | 1/2     | LS-1      |
| 3/8       | 5/8     | 1/4  | 1/8  | 15/64 | 30° |         | 29/64   | TW-2      |
| 7/16      | 5/8     | 1/4  | 1/8  | 15/64 | 30° |         | 29/64   | TW-2      |
| 1/2       | 51/64   | 1/4  | 1/8  | 19/64 | 65° | 3/4     | 5/8     | LS-1      |
| 9/16      | 7/8     | 1/4  | 1/8  | 21/64 | 30° |         | 37/64   | TW-2      |
| 5/8       | 7/8     | 1/4  | 1/8  | 21/64 | 30° |         | 37/64   | TW-2      |
| 3/4       | 1-3/64  | 1/4  | 1/8  | 27/64 | 50° | 7/8     | 3/4     | LS-1      |
| 7/8       | 1-1/4   | 3/8  | 3/16 | 33/64 | 30° |         | 53/64   | TW-7      |
| 1         | 1-27/64 | 3/8  | 3/16 | 19/32 | 35° | 1-7/64  | 59/64   | LS-2      |
| 1-3/8     | 1-51/64 | 3/8  | 3/16 | 25/32 | 30° | 1-19/64 | 1-7/64  | LS-2      |
| 1-3/4     | 2-19/64 | 3/8  | 3/16 | 1     | 30° | 1-41/64 | 1-25/64 | LS-3      |
| 2-1/4     | 2-51/64 | 3/8  | 3/16 | 1-1/4 | 25° | 1-57/64 | 1-41/64 | LS-3      |





## DRILL JIG BUSHING - LINER (L TYPE)



ORDER: TYPE I.D. X O.D. X L  
 L/LU 1/4 X 1/2 X 1/2  
 or  
 TYPE ANSINO. X I.D.  
 L/LU 32-8 X 1/4

| A I.D. RANGE           | B O.D. BODY                           | C LENGTH | ANSI SYMBOL NO. | PRICE CODE NO. |
|------------------------|---------------------------------------|----------|-----------------|----------------|
| 3/16<br>.1876<br>.1879 | 5/16<br>L=.3141/.3138<br>LU=.327/.322 | 1/4      | L20-4           | 1210           |
|                        |                                       | 5/16     | L20-5           | 1212           |
|                        |                                       | 3/8      | L20-6           | 1213           |
|                        |                                       | 1/2      | L20-8           | 1214           |
|                        |                                       | 5/8      | L20-10          | 1215           |
|                        |                                       | 3/4      | L20-12          | 1217           |
|                        |                                       | 1/4      | L28-4           | 1205           |
| 1/4<br>.2501<br>.2504  | 7/16<br>L=.4392/.4389<br>LU=.453/.448 | 5/16     | L28-5           | 1206           |
|                        |                                       | 3/8      | L28-6           | 1209           |
|                        |                                       | 1/2      | L28-8           | 1210           |
|                        |                                       | 5/8      | L28-10          | 1212           |
|                        |                                       | 3/4      | L28-12          | 1213           |
|                        |                                       | 1/4      | L32-4           | 1205           |
|                        |                                       | 5/16     | L32-5           | 1206           |
| 5/16<br>.3126<br>.3129 | 1/2<br>L=.5017/.5014<br>LU=.518/.513  | 3/8      | L32-6           | 1209           |
|                        |                                       | 1/2      | L32-8           | 1210           |
|                        |                                       | 5/8      | L32-10          | 1212           |
|                        |                                       | 3/4      | L32-12          | 1213           |
|                        |                                       | 1        | L32-16          | 1218           |
|                        |                                       | 1-3/8    | L32-22          | 1225           |
|                        |                                       | 1/4      | L36-4           | 1210           |
| 5/16<br>.3126<br>.3129 | 9/16<br>L=.5642/.5639<br>LU=.580/.575 | 5/16     | L36-5           | 1205           |
|                        |                                       | 3/8      | L36-6           | 1207           |
|                        |                                       | 1/2      | L36-8           | 1207           |
|                        |                                       | 5/8      | L36-10          | 1209           |
|                        |                                       | 3/4      | L36-12          | 1210           |
|                        |                                       | 1        | L36-16          | 1212           |
|                        |                                       | 1/4      | L40-4           | 1210           |
| 3/8<br>.3751<br>.3754  | 5/8<br>L=.6267/.6264<br>LU=.643/.638  | 5/16     | L40-5           | 1205           |
|                        |                                       | 3/8      | L40-6           | 1207           |
|                        |                                       | 1/2      | L40-8           | 1207           |
|                        |                                       | 5/8      | L40-10          | 1209           |
|                        |                                       | 3/4      | L40-12          | 1210           |
|                        |                                       | 1        | L40-16          | 1212           |
|                        |                                       | 1/4      | L40-4           | 1210           |
| 7/16<br>.4377<br>.4380 | 5/8<br>L=.6267/.6264<br>LU=.643/.638  | 5/16     | L40-5           | 1205           |
|                        |                                       | 3/8      | L40-6           | 1207           |
|                        |                                       | 1/2      | L40-8           | 1207           |
|                        |                                       | 5/8      | L40-10          | 1209           |
|                        |                                       | 3/4      | L40-12          | 1210           |
|                        |                                       | 1        | L40-16          | 1212           |
|                        |                                       | 1/4      | L48-4           | 1210           |
| 1/2<br>.5002<br>.5005  | 3/4<br>L=.7518/.7515<br>LU=.768/.763  | 5/16     | L48-5           | 1206           |
|                        |                                       | 3/8      | L48-6           | 1210           |
|                        |                                       | 1/2      | L48-8           | 1210           |
|                        |                                       | 3/4      | L48-12          | 1212           |
|                        |                                       | 1        | L48-16          | 1214           |
|                        |                                       | 1-3/8    | L48-22          | 1225           |
|                        |                                       | 1-1/2    | L48-24          | 1228           |
| 1-3/4                  | L48-28                                | 1232     |                 |                |
| 9/16<br>.5627<br>.5630 | 7/8<br>L=.8768/.8765<br>LU=.893/.888  | 2-1/8    | L48-34          | 1242           |
|                        |                                       | 5/16     | L56-5           | 1219           |
|                        |                                       | 3/8      | L56-6           | 1221           |
|                        |                                       | 1/2      | L56-8           | 1215           |
|                        |                                       | 5/8      | L56-10          | 1217           |
|                        |                                       | 3/4      | L56-12          | 1217           |
|                        |                                       | 1        | L56-16          | 1219           |
| 1-1/4                  | L56-20                                | 1224     |                 |                |

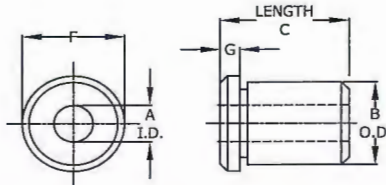
| A I.D. RANGE              | B O.D. BODY                                | C LENGTH | ANSI SYMBOL NO. | PRICE CODE NO. |
|---------------------------|--|----------|-----------------|----------------|
| 5/8<br>.6252<br>.6255     | 7/8<br>L=.8768/.8765<br>LU=.893/.888       | 5/16     | L56-5           | 1219           |
|                           |  | 3/8      | L56-6           | 1221           |
|                           |  | 1/2      | L56-8           | 1215           |
|                           |  | 5/8      | L56-10          | 1217           |
|                           |  | 3/4      | L56-12          | 1217           |
|                           |  | 1        | L56-16          | 1219           |
|                           |  | 1-1/4    | L56-20          | 1224           |
| 3/4<br>.7503<br>.7506     | 1<br>L=1.0018/1.0015<br>LU=1.018/1.013     | 1/2      | L64-8           | 1217           |
|                           |  | 3/4      | L64-12          | 1217           |
|                           |  | 1        | L64-16          | 1220           |
|                           |  | 1-3/8    | L64-22          | 1224           |
|                           |  | 1-1/2    | L64-24          | 1230           |
|                           |  | 1-3/4    | L64-28          | 1235           |
|                           |  | 2-1/8    | L64-34          | 1241           |
| 7/8<br>.8754<br>.8757     | 1-1/4<br>L=1.2520/1.2517<br>LU=1.268/1.263 | 2-1/2    | L64-40          | 1251           |
|                           |  | 3        | L64-48          | 1299           |
|                           |  | 1/2      | L80-8           | 1240           |
|                           |  | 5/8      | L80-10          | 1236           |
|                           |  | 3/4      | L80-12          | 1231           |
|                           |  | 1        | L80-16          | 1240           |
|                           |  | 1-1/4    | L80-20          | 1248           |
| 1<br>1.0004<br>1.0007     | 1-3/8<br>L=1.3772/1.3768<br>LU=1.395/1.388 | 1-1/2    | L80-24          | 1252           |
|                           |  | 1/2      | L88-8           | 1241           |
|                           |  | 3/4      | L88-12          | 1231           |
|                           |  | 1        | L88-16          | 1241           |
|                           |  | 1-3/8    | L88-22          | 1249           |
|                           |  | 1-1/2    | L88-24          | 1253           |
|                           |  | 1-3/4    | L88-28          | 1261           |
| 1-3/8<br>1.3756<br>1.3760 | 1-3/4<br>L=1.7523/1.7519<br>LU=1.770/1.765 | 2-1/8    | L88-34          | 1274           |
|                           |  | 2-1/2    | L88-40          | 1285           |
|                           |  | 3        | L88-48          | 1322           |
|                           |  | 3/4      | L112-12         | 1256           |
|                           |  | 1        | L112-16         | 1249           |
|                           |  | 1-3/8    | L112-22         | 1256           |
|                           |  | 1-1/2    | L112-24         | 1263           |
| 1-3/4<br>1.7508<br>1.7512 | 2-1/4<br>L=2.2525/2.2521<br>LU=2.270/2.265 | 1-3/4    | L112-28         | 1266           |
|                           |  | 2-1/8    | L112-34         | 1282           |
|                           |  | 2-1/2    | L112-40         | 1293           |
|                           |  | 3        | L112-48         | 1340           |
|                           |  | 3/4      | L144-12         | 1278           |
|                           |  | 1        | L144-16         | 1267           |
|                           |  | 1-3/8    | L144-22         | 1278           |
| 2-1/4<br>2.2510<br>2.2515 | 2-3/4<br>L=2.7526/2.7522<br>LU=2.770/2.765 | 1-1/2    | L144-24         | 1283           |
|                           |  | 1-3/4    | L144-28         | 1287           |
|                           |  | 2-1/8    | L144-34         | 1304           |
|                           |  | 2-1/2    | L144-40         | 1316           |
|                           |  | 3        | L144-48         | 1353           |
|                           |  | 3/4      | L176-12         | 1288           |
|                           |  | 1        | L176-16         | 1278           |
| 2-1/4<br>2.2510<br>2.2515 | 2-3/4<br>L=2.7526/2.7522<br>LU=2.770/2.765 | 1-3/8    | L176-22         | 1289           |
|                           |  | 1-1/2    | L176-24         | 1294           |
|                           |  | 1-3/4    | L176-28         | 1301           |
|                           |  | 2-1/8    | L176-34         | 1312           |
|                           |  | 2-1/2    | L176-40         | 1325           |
|                           |  | 3        | L176-48         | 1355           |

\*EXTENDED RANGE SIZES AVAILABLE UPON REQUEST.





## DRILL JIG BUSHING - HEAD LINER (HL TYPE)



ORDER: TYPE I.D. X O.D. X L  
 HL 1/4 X 1/2 X 1/2  
 or  
 TYPE ANSI NO. X I.D.  
 HL 32-8 X 1/4

| A ID ID RANGE             | B O.D. BODY                                  | C LENGTH | ANSI SYMBOL NO. | PRICE CODE NO. |
|---------------------------|--|----------|-----------------|----------------|
| 5/16<br>.3126<br>.3129    | 1/2<br>HL=.5017/.5014<br>HLU=.518/.513       | 5/16     | HL32-5          | 1214           |
|                           |  | 3/8      | HL32-6          | 1217           |
|                           |  | 1/2      | HL-32-8         | 1217           |
|                           |  | 3/4      | HL32-12         | 1221           |
|                           |  | 1        | HL32-16         | 1235           |
|                           |  | 1-3/8    | HL32-22         | 1249           |
| 1/2<br>.5002<br>.5005     | 3/4<br>HL=.7518/.7515<br>HLU=.768/.763       | 5/16     | HL48-5          | 1215           |
|                           |  | 3/8      | HL48-6          | 1217           |
|                           |  | 1/2      | HL48-8          | 1217           |
|                           |  | 3/4      | HL48-12         | 1221           |
|                           |  | 1        | HL48-16         | 1228           |
|                           |  | 1-3/8    | HL48-22         | 1236           |
|                           |  | 1-1/2    | HL48-24         | 1241           |
|                           |  | 1-3/4    | HL48-28         | 1247           |
| 3/4<br>.7503<br>.7506     | 1<br>HL=1.0018/1.0015<br>HLU=1.018/1.015     | 1/2      | HL64-8          | 1226           |
|                           |  | 3/4      | HL64-12         | 1230           |
|                           |  | 1        | HL64-16         | 1233           |
|                           |  | 1-3/8    | HL64-22         | 1236           |
|                           |  | 1-1/2    | HL64-24         | 1243           |
|                           |  | 1-3/4    | HL64-28         | 1251           |
|                           |  | 2-1/8    | HL64-34         | 1261           |
|                           |  | 2-1/2    | HL64-40         | 1277           |
| 1<br>1.0004<br>1.0007     | 1-3/8<br>HL=1.3772/1.3768<br>HLU=1.395/1.390 | 3        | HL64-48         | 1328           |
|                           |  | 1/2      | HL88-8          | 1244           |
|                           |  | 3/4      | HL88-12         | 1236           |
|                           |  | 1        | HL88-16         | 1244           |
|                           |  | 1-3/8    | HL88-22         | 1250           |
|                           |  | 1-1/2    | HL88-24         | 1253           |
|                           |  | 1-3/4    | HL88-28         | 1261           |
|                           |  | 2-1/8    | HL88-34         | 1271           |
|                           |  | 2-1/2    | HL88-40         | 1285           |
| 1-3/8<br>1.3756<br>1.3760 | 1-3/4<br>HL=1.7523/1.7519<br>HLU=1.770/1.765 | 3        | HL88-48         | 1346           |
|                           |  | 3/4      | HL112-12        | 1258           |
|                           |  | 1        | HL112-16        | 1263           |
|                           |  | 1-3/8    | HL112-22        | 1270           |
|                           |  | 1-1/2    | HL112-24        | 1276           |
|                           |  | 1-3/4    | HL112-28        | 1282           |
|                           |  | 2-1/8    | HL112-34        | 1295           |
|                           |  | 2-1/2    | HL112-40        | 1310           |
|                           | 3  | HL112-48 | 1361            |                |

| A ID ID RANGE             | B O.D. BODY                                  | C LENGTH | ANSI SYMBOL NO. | PRICE CODE NO. |
|---------------------------|--|----------|-----------------|----------------|
| 1-3/4<br>1.7508<br>1.7512 | 2-1/4<br>HL=2.2525/2.2521<br>HLU=2.270/2.265 | 3/4      | HL144-12        | 1291           |
|                           |  | 1        | HL144-16        | 1284           |
|                           |  | 1-3/8    | HL144-22        | 1292           |
|                           |  | 1-1/2    | HL144-24        | 1298           |
|                           |  | 1-3/4    | HL144-28        | 1305           |
|                           |  | 2-1/8    | HL144-34        | 1318           |
| 2-1/4<br>2.2510<br>2.2515 | 2-3/4<br>HL=2.7526/2.7522<br>HLU=2.770/2.765 | 2-1/2    | HL144-40        | 1331           |
|                           |  | 3        | HL144-48        | 1364           |
|                           |  | 3/4      | HL176-12        | 1316           |
|                           |  | 1        | HL176-16        | 1303           |
|                           |  | 1-3/8    | HL176-22        | 1318           |
|                           |  | 1-1/2    | HL176-24        | 1322           |
|                           |  | 1-3/4    | HL176-28        | 1329           |
| 2-1/8                     | HL176-34                                     | 1341     |                 |                |
| 2-1/2                     | HL176-40                                     | 1349     |                 |                |
|                           | 3  | HL176-48 | 1370            |                |

\*EXTENDED RANGE SIZES AVAILABLE UPON REQUEST.

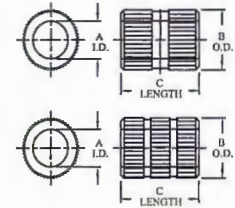
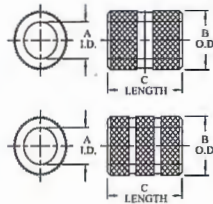
### ANSI HEAD DIMENSIONS

| BODY O.D. | F     | G    |
|-----------|-------|------|
| 1/2       | 5/8   | 3/32 |
| 3/4       | 7/8   | 3/32 |
| 1         | 1-1/8 | 1/8  |
| 1-3/8     | 1-1/2 | 1/8  |
| 1-3/4     | 1-7/8 | 3/16 |
| 2-1/4     | 2-3/8 | 3/16 |
| 2-3/4     | 2-7/8 | 3/16 |





## DRILL JIG BUSHING



### DIAMOND GROOVE (DGV TYPE)

### SERRATED GROOVE (SG TYPE)

| ALL GROOVES ARE 1/8" WIDE     |                 |          |                 |                |
|-------------------------------|-----------------|----------|-----------------|----------------|
| A I.D. RANGE                  | B O.D. BODY     | C LENGTH | ANSI SYMBOL NO. | PRICE CODE NO. |
| #55 (.0520) TO #39 (.0995)    | 13/64 .223/.213 | 1/4      | DGV13-4         | 1218           |
|                               |                 | 5/16     | DGV13-5         | 1221           |
|                               |                 | 3/8      | DGV13-6         | 1224           |
|                               |                 | 1/2      | DGV13-8         | 1225           |
| #40 (.0980) TO 9/64 (.1406)   | 1/4 .275/.260   | 1/4      | DGV16-4         | 1207           |
|                               |                 | 5/16     | DGV16-5         | 1208           |
|                               |                 | 3/8      | DGV16-6         | 1210           |
|                               |                 | 1/2      | DGV16-8         | 1212           |
|                               |                 | x 3/4    | DGV16-12        | 1219           |
| 1/8 (.1250) TO #10 (.1935)    | 5/16 .337/.322  | 1/4      | DGV20-4         | 1201           |
|                               |                 | 5/16     | DGV20-5         | 1203           |
|                               |                 | 3/8      | DGV20-6         | 1204           |
|                               |                 | 1/2      | DGV20-8         | 1205           |
|                               |                 | x 3/4    | DGV20-12        | 1210           |
| 5/32 (.1562) TO F (.2570)     | 13/32 .431/.416 | 1/4      | DGV26-4         | 1201           |
|                               |                 | 5/16     | DGV26-5         | 1201           |
|                               |                 | 3/8      | DGV26-6         | 1202           |
|                               |                 | 1/2      | DGV26-8         | 1203           |
|                               |                 | x 3/4    | DGV26-12        | 1205           |
| 5/32 (.1562) TO O (.3160)     | 1/2 .525/.510   | 5/16     | DGV32-5         | 1201           |
|                               |                 | 3/8      | DGV32-6         | 1202           |
|                               |                 | 1/2      | DGV32-8         | 1203           |
|                               |                 | 3/4      | DGV32-12        | 1205           |
|                               |                 | x 1      | DGV32-16        | 1210           |
| 5/16 (.3125) TO 7/16 (.4375)  | 5/8 .650/.635   | 3/8      | DGV40-6         | 1201           |
|                               |                 | 1/2      | DGV40-8         | 1201           |
|                               |                 | 3/4      | DGV40-12        | 1203           |
|                               |                 | 1        | DGV40-16        | 1204           |
|                               |                 | 1-3/8    | DGV40-22        | 1210           |
| 5/16 (.3125) TO 17/32 (.5312) | 3/4 .775/.760   | 3/8      | DGV48-6         | 1201           |
|                               |                 | 1/2      | DGV48-8         | 1201           |
|                               |                 | 3/4      | DGV48-12        | 1203           |
|                               |                 | 1        | DGV48-16        | 1204           |
|                               |                 | 1-3/8    | DGV48-22        | 1214           |
| 1/2 (.5000) TO 21/32 (.6562)  | 7/8 .900/.885   | 3/8      | DGV56-6         | 1213           |
|                               |                 | 1/2      | DGV56-8         | 1209           |
|                               |                 | 3/4      | DGV56-12        | 1210           |
|                               |                 | 1        | DGV56-16        | 1212           |
|                               |                 | 1-3/8    | DGV56-22        | 1214           |
| 1/2 (.5000) TO 49/64 (.7656)  | 1 1.035/1.010   | 1/2      | DGV64-8         | 1210           |
|                               |                 | 3/4      | DGV64-12        | 1210           |
|                               |                 | 1        | DGV64-16        | 1213           |
|                               |                 | 1-3/8    | DGV64-22        | 1215           |
|                               |                 | 1-1/2    | DGV64-24        | 1219           |

| ALL GROOVES ARE 1/8" WIDE     |                 |          |                 |                |
|-------------------------------|-----------------|----------|-----------------|----------------|
| A I.D. RANGE                  | B O.D. BODY     | C LENGTH | ANSI SYMBOL NO. | PRICE CODE NO. |
| #55 (.0520) TO #39 (.0995)    | 13/64 .223/.213 | 1/4      | SG13-4          | 1218           |
|                               |                 | 5/16     | SG13-5          | 1221           |
|                               |                 | 3/8      | SG13-6          | 1224           |
|                               |                 | 1/2      | SG13-8          | 1225           |
| #40 (.0980) TO 9/64 (.1406)   | 1/4 .275/.260   | 1/4      | SG16-4          | 1207           |
|                               |                 | 5/16     | SG16-5          | 1208           |
|                               |                 | 3/8      | SG16-6          | 1210           |
|                               |                 | 1/2      | SG16-8          | 1212           |
|                               |                 | x 3/4    | SG16-12         | 1219           |
| 1/8 (.1250) TO #10 (.1935)    | 5/16 .337/.322  | 1/4      | SG20-4          | 1201           |
|                               |                 | 5/16     | SG20-5          | 1203           |
|                               |                 | 3/8      | SG20-6          | 1204           |
|                               |                 | 1/2      | SG20-8          | 1205           |
|                               |                 | x 3/4    | SG20-12         | 1210           |
| 5/32 (.1562) TO F (.2570)     | 13/32 .431/.416 | 1/4      | SG26-4          | 1201           |
|                               |                 | 5/16     | SG26-5          | 1201           |
|                               |                 | 3/8      | SG26-6          | 1202           |
|                               |                 | 1/2      | SG26-8          | 1203           |
|                               |                 | x 1      | SG26-16         | 1210           |
| 5/32 (.1562) TO O (.3160)     | 1/2 .525/.510   | 5/16     | SG32-5          | 1201           |
|                               |                 | 3/8      | SG32-6          | 1202           |
|                               |                 | 1/2      | SG32-8          | 1203           |
|                               |                 | 3/4      | SG32-12         | 1205           |
|                               |                 | x 1      | SG32-16         | 1210           |
| 5/16 (.3125) TO 7/16 (.4375)  | 5/8 .650/.635   | 3/8      | SG40-6          | 1201           |
|                               |                 | 1/2      | SG40-8          | 1201           |
|                               |                 | 3/4      | SG40-12         | 1203           |
|                               |                 | 1        | SG40-16         | 1204           |
|                               |                 | 1-3/8    | SG40-22         | 1210           |
| 5/16 (.3125) TO 17/32 (.5312) | 3/4 .775/.760   | 3/8      | SG48-6          | 1201           |
|                               |                 | 1/2      | SG48-8          | 1201           |
|                               |                 | 3/4      | SG48-12         | 1203           |
|                               |                 | 1        | SG48-16         | 1204           |
|                               |                 | 1-3/8    | SG48-22         | 1214           |
| 1/2 (.5000) TO 21/32 (.6562)  | 7/8 .900/.885   | 3/8      | SG56-6          | 1213           |
|                               |                 | 1/2      | SG56-8          | 1209           |
|                               |                 | 3/4      | SG56-12         | 1210           |
|                               |                 | 1        | SG56-16         | 1212           |
|                               |                 | 1-3/8    | SG56-22         | 1214           |
| 1/2 (.5000) TO 49/64 (.7656)  | 1 1.035/1.010   | 1/2      | SG64-8          | 1210           |
|                               |                 | 3/4      | SG64-12         | 1210           |
|                               |                 | 1        | SG64-16         | 1213           |
|                               |                 | 1-3/8    | SG64-22         | 1215           |
|                               |                 | 1-1/2    | SG64-24         | 1219           |

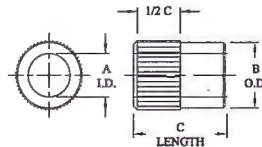
x COUNTERBORED AS STANDARD WITH CORRECT DRILL BEARING LENGTH CHIP CLEARANCE





## DRILL JIG BUSHING

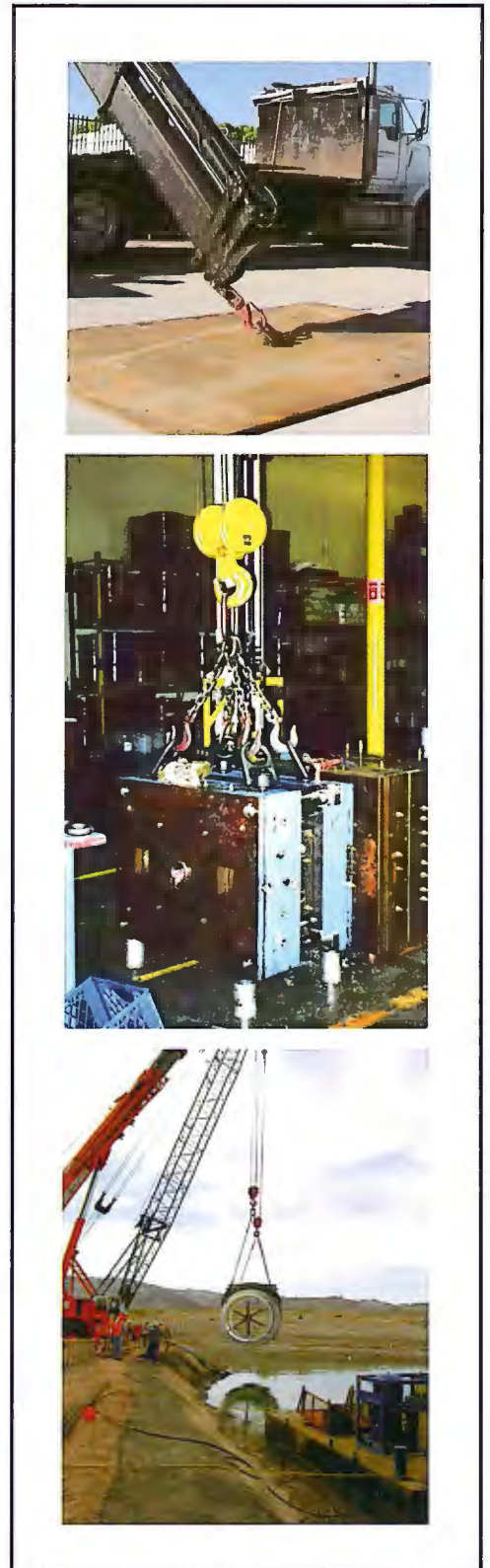
ORDER: TYPE I.D. X O.D. X L  
 SG/SP/DGV 1/4 X 1/2 X 1/2  
 or  
TYPE ANSI NO. X I.D.  
 SG/SP/DGV 32-8 X 1/4



### SERRATED PRESS (SP TYPE)

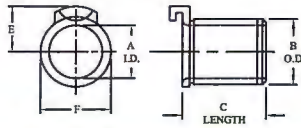
| A<br>I.D.<br>RANGE                  | B<br>O.D.<br>BODY           | C<br>LENGTH | ANSI<br>SYMBOL<br>NO. | PRICE<br>CODE<br>NO. |
|-------------------------------------|-----------------------------|-------------|-----------------------|----------------------|
| #55 (.0520)<br>TO<br>#39 (.0995)    | <b>13/64</b><br>.2031/.2029 | 1/4         | SP13-4                | 1227                 |
|                                     |                             | 5/16        | SP13-5                | 1234                 |
|                                     |                             | 3/8         | SP13-6                | 1236                 |
|                                     |                             | 1/2         | SP13-8                | 1239                 |
| #40 (.0980)<br>TO<br>9/64 (.1406)   | <b>1/4</b><br>.2500/.2498   | 1/4         | SP16-4                | 1215                 |
|                                     |                             | 5/16        | SP16-5                | 1218                 |
|                                     |                             | 3/8         | SP16-6                | 1222                 |
|                                     |                             | 1/2         | SP16-8                | 1225                 |
| 1/8 (.1250)<br>TO<br>#10 (.1935)    | <b>5/16</b><br>.3125/.3123  | 5/16        | SP20-5                | 1212                 |
|                                     |                             | 3/8         | SP20-6                | 1213                 |
|                                     |                             | 1/2         | SP20-8                | 1214                 |
|                                     |                             | 3/4         | SP20-12               | 1217                 |
| 5/32 (.1562)<br>TO<br>F (.2570)     | <b>13/32</b><br>.4062/.4060 | 1/4         | SP26-4                | 1205                 |
|                                     |                             | 5/16        | SP26-5                | 1206                 |
|                                     |                             | 3/8         | SP26-6                | 1209                 |
|                                     |                             | 1/2         | SP26-8                | 1210                 |
|                                     |                             | 3/4         | SP26-12               | 1213                 |
| 5/32 (.1562)<br>TO<br>O (.3160)     | <b>1/2</b><br>.5000/.4998   | x 1         | SP26-16               | 1218                 |
|                                     |                             | 5/16        | SP32-5                | 1206                 |
|                                     |                             | 3/8         | SP32-6                | 1209                 |
|                                     |                             | 1/2         | SP32-8                | 1210                 |
|                                     |                             | 3/4         | SP32-12               | 1213                 |
| 5/16 (.3125)<br>TO<br>7/16 (.4375)  | <b>5/8</b><br>.6250/.6248   | x 1         | SP32-16               | 1218                 |
|                                     |                             | 3/8         | SP40-6                | 1207                 |
|                                     |                             | 1/2         | SP40-8                | 1207                 |
|                                     |                             | 3/4         | SP40-12               | 1210                 |
| 5/16 (.3125)<br>TO<br>17/32 (.5312) | <b>3/4</b><br>.7500/.7498   | 1           | SP40-16               | 1212                 |
|                                     |                             | 3/8         | SP48-6                | 1210                 |
|                                     |                             | 1/2         | SP48-8                | 1210                 |
|                                     |                             | 3/4         | SP48-12               | 1212                 |
| 1/2 (.5000)<br>TO<br>21/32 (.6562)  | <b>7/8</b><br>.8750/.8748   | 1           | SP48-16               | 1214                 |
|                                     |                             | 3/8         | SP56-6                | 1221                 |
|                                     |                             | 1/2         | SP56-8                | 1215                 |
|                                     |                             | 3/4         | SP56-12               | 1217                 |
| 1/2 (.5000)<br>TO<br>49/64 (.7656)  | <b>1</b><br>1.0000/.9998    | 1           | SP56-16               | 1219                 |
|                                     |                             | 1/2         | SP64-8                | 1217                 |
|                                     |                             | 3/4         | SP64-12               | 1217                 |
|                                     |                             | 1           | SP64-16               | 1220                 |
|                                     |                             | 1-3/8       | SP64-22               | 1223                 |

x COUNTERBORED AS STANDARD WITH CORRECT DRILL BEARING LENGTH CHIP CLEARANCE





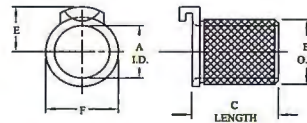
## UN-A-LOCK BUSHING (UL TYPE)



ORDER: TYPE I.D. X O.D. X L  
 UL/ULD 1/4 X 1/2 X 1/2  
 OR  
TYPE ANSI NO. X I.D.  
 UL/ULD 32-8 X 1/4

| A<br>I.D.<br>NOMINAL<br>ACTUAL | B<br>O.D.<br>NOMINAL<br>ACTUAL | C<br>LENGTH | ANSI<br>SYMBOL<br>NO. | E     | F      | PRICE<br>CODE<br>NO. |
|--------------------------------|--------------------------------|-------------|-----------------------|-------|--------|----------------------|
| 3/16<br>.1876<br>.1879         | 5/16<br>.3141/.3138            | 5/16        | UL20-5                | 1/4   | 3/8    | 1268                 |
|                                |                                | 3/8         | UL20-6                |       |        | 1272                 |
|                                |                                | 1/2         | UL20-8                |       |        | 1274                 |
|                                |                                | 3/4         | UL20-12               |       |        | 1278                 |
| 5/16<br>.3126<br>.3129         | 1/2<br>.5017/.5014             | 3/8         | UL32-6                | 3/8   | 9/16   | 1245                 |
|                                |                                | 1/2         | UL32-8                |       |        | 1248                 |
|                                |                                | 3/4         | UL32-12               |       |        | 1254                 |
| 1/2<br>.5002<br>.5005          | 3/4<br>.7518/.7515             | 1/2         | UL48-8                | 1/2   | 13/16  | 1251                 |
|                                |                                | 3/4         | UL48-12               |       |        | 1262                 |
|                                |                                | 1           | UL48-16               |       |        | 1268                 |
| 3/4<br>.7503<br>.7506          | 1<br>1.0018/1.0015             | 1/2         | UL64-8                | 21/32 | 1-1/16 | 1292                 |
|                                |                                | 3/4         | UL64-12               |       |        | 1301                 |
|                                |                                | 1           | UL64-16               |       |        | 1331                 |
| 1<br>1.0004<br>1.0007          | 1-3/8<br>1.3772/1.3768         | 1/2         | UL88-8                | 7/8   | 1-7/16 | 1319                 |
|                                |                                | 3/4         | UL88-12               |       |        | 1335                 |
|                                |                                | 1           | UL88-16               |       |        | 1352                 |
|                                |                                | 1-3/8       | UL88-22               |       |        | 1360                 |

## UN-A-LOCK BUSHING (ULD TYPE)



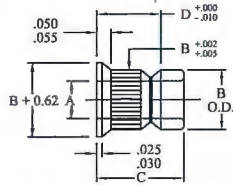
| A<br>I.D.<br>NOMINAL<br>ACTUAL | B<br>O.D.<br>NOMINAL<br>ACTUAL | C<br>LENGTH | ANSI<br>SYMBOL<br>NO. | E     | F      | PRICE<br>CODE<br>NO. |
|--------------------------------|--------------------------------|-------------|-----------------------|-------|--------|----------------------|
| 3/16<br>.1876<br>.1879         | 5/16<br>.342/.332              | 5/16        | ULD20-5               | 1/4   | 3/8    | 1240                 |
|                                |                                | 3/8         | ULD20-6               |       |        | 1249                 |
|                                |                                | 1/2         | ULD20-8               |       |        | 1251                 |
|                                |                                | 3/4         | ULD20-12              |       |        | 1256                 |
| 5/16<br>.3126<br>.3129         | 1/2<br>.533/.523               | 3/8         | ULD32-6               | 3/8   | 9/16   | 1236                 |
|                                |                                | 1/2         | ULD32-8               |       |        | 1237                 |
|                                |                                | 3/4         | ULD32-12              |       |        | 1241                 |
| 1/2<br>.5002<br>.5005          | 3/4<br>.785/.775               | 1/2         | ULD48-8               | 1/2   | 13/16  | 1259                 |
|                                |                                | 3/4         | ULD48-12              |       |        | 1270                 |
|                                |                                | 1           | ULD48-16              |       |        | 1283                 |
| 3/4<br>.7503<br>.7506          | 1<br>1.035/1.025               | 1/2         | ULD64-8               | 21/32 | 1-1/16 | 1262                 |
|                                |                                | 3/4         | ULD64-12              |       |        | 1273                 |
|                                |                                | 1           | ULD64-16              |       |        | 1285                 |
| 1<br>1.0004<br>1.0007          | 1-3/8<br>1.415/1.405           | 1/2         | ULD88-8               | 7/8   | 1-7/16 | 1275                 |
|                                |                                | 3/4         | ULD88-12              |       |        | 1290                 |
|                                |                                | 1           | ULD88-16              |       |        | 1304                 |
|                                |                                | 1-3/8       | ULD88-22              |       |        | 1309                 |





## TEMPLATE BUSHING (TB TYPE)

MATERIAL: BUSHING C-1144, CASE HARDENED, BLACK OXIDE FINISH  
LOCK RING ALUMINUM



MED.SERRATION

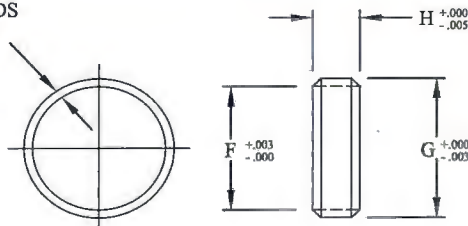
ORDER: TEMPLATE BUSHING

TYPE ANSI NO. X I.D. X LOCK RING NO.  
TB-24-6-4 X #55 X TR-10

LOCK RING  
TB-24-6-4XTR-10

| A<br>I.D.<br>RANGE                | B<br>O.D.<br>BODY | C<br>LENGTH      | D<br>GRIP | ANSI<br>SYMBOL<br>NO. | LOCK RING |                       | PRICE<br>CODE<br>NO. |
|-----------------------------------|-------------------|------------------|-----------|-----------------------|-----------|-----------------------|----------------------|
|                                   |                   |                  |           |                       | PART NO.  | TEMPLATE<br>THICKNESS |                      |
| #55 (.0520)<br>TO<br>#9 (.1960)   | 3/8<br>.374/.373  | 3/8<br>.385/.375 | 1/4       | TB-24-6-4             | TR-10     | 1/16                  | 1111                 |
|                                   |                   |                  |           |                       | TR-20     | 3/32                  | 1111                 |
|                                   |                   |                  | 5/16      | TB-24-6-5             | TR-30     | 1/8                   | z                    |
|                                   |                   |                  |           |                       | TR-10     | 1/8                   | 1111                 |
| #55 (.0520)<br>TO<br>#9 (.1960)   | 3/8<br>.374/.373  | 1/2<br>.510/.500 | 5/16      | TB-24-8-5             | TR-30     | 3/16                  | 1111                 |
|                                   |                   |                  |           |                       | TR-10     | 3/16                  | 1112                 |
|                                   |                   |                  | 3/8       | TB-24-8-6             | TR-30     | 1/4                   | 1112                 |
|                                   |                   |                  |           |                       | TR-10     | 1/4                   | 1112                 |
|                                   |                   |                  | 7/16      | TB-24-8-7             | TR-30     | 5/16                  | 1112                 |
|                                   |                   |                  |           |                       | TR-10     | 1/16                  | 1113                 |
| #9 (.1960)<br>TO<br>O (.3160)     | 1/2<br>.499/.498  | 3/8<br>.385/.375 | 1/4       | TB-32-6-4             | TR-50     | 3/32                  | 1113                 |
|                                   |                   |                  |           |                       | TR-60     | 1/8                   | 1113                 |
|                                   |                   |                  | 5/16      | TB-32-6-5             | TR-40     | 1/8                   | 1113                 |
|                                   |                   |                  |           |                       | TR-60     | 3/16                  | 1113                 |
| #9 (.1960)<br>TO<br>O (.3160)     | 1/2<br>.499/.498  | 1/2<br>.510/.500 | 5/16      | TB-32-8-5             | TR-40     | 1/8                   | 1114                 |
|                                   |                   |                  |           |                       | TR-60     | 3/16                  | 1114                 |
|                                   |                   |                  | 3/8       | TB-32-8-6             | TR-40     | 3/16                  | 1114                 |
|                                   |                   |                  |           |                       | TR-60     | 1/4                   | 1114                 |
|                                   |                   |                  | 7/16      | TB-32-8-7             | TR-40     | 1/4                   | 1114                 |
|                                   |                   |                  |           |                       | TR-60     | 5/16                  | 1114                 |
| #9 (.1960)<br>TO<br>O (.3160)     | 1/2<br>.499/.498  | 5/8<br>.635/.625 | 1/2       | TB-32-10-8            | TR-40     | 5/16                  | 1115                 |
|                                   |                   |                  |           |                       | TR-60     | 3/8                   | 1115                 |
| 5/16 (.3125)<br>TO<br>1/2 (.5000) | 3/4<br>.749/.748  | 3/8<br>.385/.375 | 1/4       | TB48-6-4              | TR-70     | 1/16                  | 1116                 |
|                                   |                   |                  |           |                       | TR-80     | 3/32                  | 1116                 |
|                                   |                   |                  | 5/16      | TB-48-6-5             | TR-90     | 1/8                   | 1116                 |
|                                   |                   |                  |           |                       | TR-70     | 1/8                   | 1116                 |
| 5/16 (.3125)<br>TO<br>1/2 (.5000) | 3/4<br>.749/.748  | 1/2<br>.510/.500 | 5/16      | TB-48-8-5             | TR-90     | 3/16                  | 1117                 |
|                                   |                   |                  |           |                       | TR-70     | 3/16                  | 1117                 |
|                                   |                   |                  | 3/8       | TB-48-8-6             | TR-90     | 1/4                   | 1117                 |
|                                   |                   |                  |           |                       | TR-70     | 1/4                   | 1117                 |
|                                   |                   |                  | 7/16      | TB-48-8-7             | TR-70     | 1/4                   | 1117                 |
|                                   |                   |                  |           |                       | TR-90     | 5/16                  | 1117                 |
| 5/16 (.3125)<br>TO<br>1/2 (.5000) | 3/4<br>.749/.748  | 5/8<br>.635/.625 | 1/2       | TB-48-10-8            | TR-70     | 5/16                  | 1117                 |
|                                   |                   |                  |           |                       | TR-90     | 3/8                   | 1117                 |

CHAMFER  $\frac{.005}{.010}$   
BOTH ENDS  
ID&OD

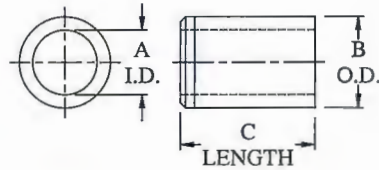


| PART NO. | F<br>I.D. | G<br>O.D. | H<br>HEIGHT |
|----------|-----------|-----------|-------------|
| TR-10    | 3/8       | .468      | .205        |
| TR-20    |           |           | .173        |
| TR-30    |           |           | .142        |
| TR-40    | 1/2       | .593      | .205        |
| TR-50    |           |           | .173        |
| TR-60    |           |           | .142        |
| TR-70    | 3/4       | .843      | .205        |
| TR-80    |           |           | .173        |
| TR-90    |           |           | .142        |





## METRIC DRILL JIG BUSHING - PRESS FIT (PM TYPE)



ORDER: TYPE I.D. X O.D. X L.  
 PM 22.05 X 35 X 20  
 or  
TYPE ANSI NO. X I.D.  
 PM 35-20 X 22.05

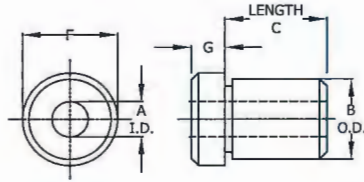
| A I.D. RANGE   | B O.D. BODY | C LENGTH (mm) | ANSI SYMBOL NO. | PRICE CODE NO. |
|----------------|-------------|---------------|-----------------|----------------|
| .35 TO 1.00    | 4mm         | 6             | PM4-6           | 1321           |
|                | 4.027       | 9             | PM4-9           | 1330           |
|                | 4.019       |               |                 |                |
| 1.01 TO 1.80   | 4mm         | 6             | PM4-6           | 1308           |
|                | 4.027       | 9             | PM4-9           | 1312           |
|                | 4.019       |               |                 |                |
| 1.81 TO 2.60   | 5mm         | 6             | PM5-6           | 1226           |
|                | 5.027       | 9             | PM5-9           | 1236           |
|                | 5.019       |               |                 |                |
| 2.61 TO 3.30   | 6mm         | 8             | PM6-8           | 1226           |
|                | 6.027       | 12            | PM6-12          | 1232           |
|                | 6.019       | 16            | PM6-16          | 1239           |
| 3.31 TO 4.00   | 7mm         | 8             | PM7-8           | 1216           |
|                | 7.032       | 12            | PM7-12          | 1221           |
|                | 7.023       | 16            | PM7-16          | 1226           |
| 4.01 TO 5.00   | 8mm         | 8             | PM8-8           | 1216           |
|                | 8.032       | 12            | PM8-12          | 1221           |
|                | 8.023       | 16            | PM8-16          | 1226           |
| 5.01 TO 6.00   | 10mm        | 10            | PM10-10         | 1213           |
|                | 10.032      | 16            | PM10-16         | 1214           |
|                | 10.023      | 20            | PM10-20         | 1218           |
| 6.01 TO 8.00   | 12mm        | 10            | PM12-10         | 1213           |
|                | 12.039      | 16            | PM12-16         | 1214           |
|                | 12.028      | 20            | PM12-20         | 1218           |
| 8.01 TO 10.00  | 15mm        | 12            | PM15-12         | 1212           |
|                | 15.039      | 20            | PM15-20         | 1214           |
|                | 15.028      | 25            | PM15-25         | 1216           |
| 10.01 TO 12.00 | 18mm        | 12            | PM18-12         | 1214           |
|                | 18.039      | 20            | PM18-20         | 1216           |
|                | 18.028      | 25            | PM18-25         | 1221           |
| 12.01 TO 15.00 | 22mm        | 16            | PM22-16         | 1225           |
|                | 22.048      | 28            | PM22-28         | 1227           |
|                | 22.035      | 36            | PM22-36         | 1236           |
| 15.01 TO 18.00 | 26mm        | 16            | PM26-16         | 1225           |
|                | 26.048      | 28            | PM26-28         | 1228           |
|                | 26.035      | 36            | PM26-36         | 1239           |

| A I.D. RANGE    | B O.D. BODY | C LENGTH (mm) | ANSI SYMBOL NO. | PRICE CODE NO. |
|-----------------|-------------|---------------|-----------------|----------------|
| 18.01 TO 22.00  | 30mm        | 20            | PM30-20         | 1225           |
|                 | 30.048      | 36            | PM30-36         | 1239           |
|                 | 30.035      | 45            | PM30-45         | 1245           |
| 22.01 TO 26.00  | 35mm        | 20            | PM35-20         | 1240           |
|                 | 35.059      | 36            | PM35-36         | 1266           |
|                 | 35.043      | 45            | PM35-45         | 1274           |
| 26.01 TO 30.00  | 42mm        | 25            | PM42-25         | 1259           |
|                 | 42.059      | 45            | PM42-45         | 1282           |
|                 | 42.043      | 56            | PM42-56         | 1307           |
| 30.01 TO 35.00  | 48mm        | 25            | PM48-25         | 1259           |
|                 | 48.059      | 45            | PM48-45         | 1282           |
|                 | 48.043      | 56            | PM48-56         | 1307           |
| 35.01 TO 42.00  | 55mm        | 30            | PM55-30         | 1292           |
|                 | 55.072      | 56            | PM55-56         | 1334           |
|                 | 55.053      | 67            | PM55-67         | 1363           |
| 42.01 TO 48.00  | 62mm        | 30            | PM62-30         | 1344           |
|                 | 62.072      | 56            | PM62-56         | 1366           |
|                 | 62.053      | 67            | PM62-67         | 1371           |
| 48.01 TO 55.00  | 70mm        | 30            | PM70-30         | 1363           |
|                 | 70.078      | 56            | PM70-56         | 1371           |
|                 | 70.059      | 67            | PM70-67         | 1474           |
| 55.01 TO 63.00  | 78mm        | 35            | PM78-35         | 1457           |
|                 | 78.078      | 67            | PM78-67         | 1490           |
|                 | 78.059      | 78            | PM78-78         | 1499           |
| 63.01 TO 70.00  | 85mm        | 35            | PM85-35         | 1485           |
|                 | 85.093      | 67            | PM85-67         | 1509           |
|                 | 85.071      | 78            | PM85-78         | 1513           |
| 70.01 TO 78.00  | 95mm        | 40            | PM95-40         | 1498           |
|                 | 95.093      | 78            | PM95-78         | 1533           |
|                 | 95.071      | 105           | PM95-105        | 1574           |
| 78.01 TO 85.00  | 105mm       | 40            | PM105-40        | 1505           |
|                 | 105.101     | 78            | PM105-78        | 1542           |
|                 | 105.079     | 105           | PM105-105       | 1584           |
| 85.01 TO 95.00  | 115mm       | 45            | PM115-45        | 1521           |
|                 | 115.101     | 89            | PM115-89        | 1571           |
|                 | 115.079     | 112           | PM115-112       | 1607           |
| 95.01 TO 105.00 | 125mm       | 45            | PM125-45        | 1543           |
|                 | 125.117     | 89            | PM125-89        | 1545           |
|                 | 125.092     | 112           | PM125-112       | 1635           |





## METRIC DRILL JIG BUSHING - HEAD PRESS FIT (HM TYPE)



ORDER: TYPE I.D. X O.D. X L  
 HM 22.05 X 35 X 20  
 or  
 TYPE ANSI NO. X I.D.  
 HM 35-20 X 22.05

| A I.D. RANGE   | B O.D. BODY             | C LENGTH (mm) | ANSI SYMBOL NO.           | PRICE CODE NO.   |
|----------------|-------------------------|---------------|---------------------------|------------------|
| .35 TO 1.00    | 4mm (4.027 to 4.019)    | 6, 9          | HM4-6, HM4-9              | 1328, 1333       |
| 1.01 TO 1.80   | 4mm (4.027 to 4.019)    | 6, 9          | HM4-6, HM4-9              | 1313, 1320       |
| 1.81 TO 2.60   | 5mm (5.027 to 5.019)    | 6, 9          | HM5-6, HM5-9              | 1241, 1247       |
| 2.61 TO 3.30   | 6mm (6.027 to 6.019)    | 8, 12, 16     | HM6-8, HM6-12, HM6-16     | 1236, 1241, 1254 |
| 3.31 TO 4.00   | 7mm (7.032 to 7.023)    | 8, 12, 16     | HM7-8, HM7-12, HM7-16     | 1225, 1230, 1232 |
| 4.01 TO 5.00   | 8mm (8.032 to 8.023)    | 8, 12, 16     | HM8-8, HM8-12, HM8-16     | 1225, 1230, 1232 |
| 5.01 TO 6.00   | 10mm (10.032 to 10.023) | 10, 16, 20    | HM10-10, HM10-16, HM10-20 | 1225, 1229, 1252 |
| 6.01 TO 8.00   | 12mm (12.039 to 12.028) | 10, 16, 20    | HM12-10, HM12-16, HM12-20 | 1225, 1229, 1239 |
| 8.01 TO 10.00  | 15mm (15.039 to 15.028) | 12, 20, 25    | HM15-12, HM15-20, HM15-25 | 1221, 1229, 1230 |
| 10.01 TO 12.00 | 18mm (18.039 to 18.028) | 12, 20, 25    | HM18-12, HM18-20, HM18-25 | 1225, 1229, 1233 |
| 12.01 TO 15.00 | 22mm (22.048 to 22.035) | 16, 28, 36    | HM22-16, HM22-28, HM22-36 | 1236, 1245, 1251 |
| 15.01 TO 18.00 | 26mm (26.048 to 26.035) | 16, 28, 36    | HM26-16, HM26-28, HM26-36 | 1236, 1241, 1256 |
| 18.01 TO 22.00 | 30mm (30.048 to 30.035) | 20, 36, 45    | HM30-20, HM30-36, HM30-45 | 1263, 1289, 1296 |
| 22.01 TO 26.00 | 35mm (35.059 to 35.043) | 20, 36, 45    | HM35-20, HM35-36, HM35-45 | 1264, 1290, 1298 |
| 26.01 TO 30.00 | 42mm (42.059 to 42.043) | 25, 45, 56    | HM42-25, HM42-45, HM42-56 | 1291, 1298, 1343 |

| A I.D. RANGE    | B O.D. BODY                | C LENGTH (mm) | ANSI SYMBOL NO.               | PRICE CODE NO.   |
|-----------------|----------------------------|---------------|-------------------------------|------------------|
| 30.01 TO 35.00  | 48mm (48.059 to 48.043)    | 25, 45, 56    | HM48-25, HM48-45, HM48-56     | 1297, 1316, 1342 |
| 35.01 TO 42.00  | 55mm (55.072 to 55.053)    | 30, 56, 67    | HM55-30, HM55-56, HM55-67     | 1336, 1362, 1459 |
| 42.01 TO 48.00  | 62mm (62.072 to 62.053)    | 30, 56, 67    | HM62-30, HM62-56, HM62-67     | 1349, 1367, 1458 |
| 48.01 TO 55.00  | 70mm (70.078 to 70.059)    | 30, 56, 67    | HM70-30, HM70-56, HM70-67     | 1453, 1469, 1473 |
| 55.01 TO 63.00  | 78mm (78.078 to 78.059)    | 35, 67, 78    | HM78-35, HM78-67, HM78-78     | 1465, 1486, 1492 |
| 63.01 TO 70.00  | 85mm (85.093 to 85.071)    | 35, 67, 78    | HM85-35, HM85-67, HM85-78     | 1503, 1543, 1553 |
| 70.01 TO 78.00  | 95mm (95.093 to 95.071)    | 40, 78, 105   | HM95-40, HM95-78, HM95-105    | 1515, 1561, 1607 |
| 78.01 TO 85.00  | 105mm (105.101 to 105.079) | 40, 78, 105   | HM105-40, HM105-78, HM105-105 | 1529, 1573, 1617 |
| 85.01 TO 95.00  | 115mm (115.101 to 115.079) | 45, 89, 112   | HM115-45, HM115-89, HM115-112 | 1549, 1603, 1643 |
| 95.01 TO 105.00 | 125mm (125.117 to 125.092) | 45, 89, 112   | HM125-45, HM125-89, HM125-112 | 1573, 1630, 1666 |

### ANSI HEAD DIMENSIONS

| BODY O.D. mm | F mm | G mm |
|--------------|------|------|
| 4            | 7    | 2.0  |
| 5            | 8    |      |
| 6            | 9    |      |
| 7            | 10   | 2.5  |
| 8            | 11   |      |
| 10           | 13   | 3.0  |
| 12           | 15   |      |
| 15           | 18   |      |
| 18           | 22   |      |
| 22           | 26   | 4.0  |
| 26           | 30   |      |
| 30           | 34   |      |
|              |      | 5.0  |

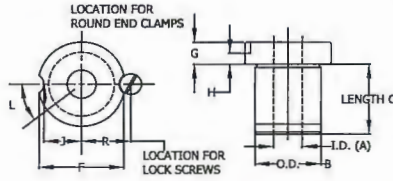
| BODY O.D. mm | F mm | G mm |
|--------------|------|------|
| 35           | 39   | 5    |
| 42           | 46   |      |
| 48           | 52   |      |
| 55           | 59   |      |
| 62           | 66   | 6    |
| 70           | 74   |      |
| 78           | 82   |      |
| 85           | 90   |      |
| 95           | 100  |      |
| 105          | 110  |      |
| 115          | 120  |      |
| 125          | 130  |      |





# ACTEK® MFG. & ENG. INC.

## METRIC DRILL JIG BUSHING - SLIP FIXED (SFM TYPE)



ORDER: TYPE I.D. X O.D. X L  
 SFM 22.05 X 35 X 25  
 or  
TYPE ANSI NO. X I.D.  
 SFM 35-25 X 22.05

| A<br>I.D.<br>RANGE | B<br>O.D.<br>BODY | C<br>LENGTH<br>(mm) | ANSI<br>SYMBOL<br>NO. | PRICE<br>CODE<br>NO. |
|--------------------|-------------------|---------------------|-----------------------|----------------------|
| .35                | 8mm               | 10                  | SFM8-10               | 1351                 |
| TO                 | 8.000             | 16                  | SFM8-16               | 1368                 |
| 1.00               | 7.994             |                     |                       |                      |
| 1.01               | 8mm               | 10                  | SFM8-10               | 1342                 |
| TO                 | 8.000             | 16                  | SFM8-16               | 1362                 |
| 1.80               | 7.994             |                     |                       |                      |
| 1.81               | 8mm               | 10                  | SFM8-10               | 1243                 |
| TO                 | 8.000             | 16                  | SFM8-16               | 1269                 |
| 4.00               | 7.994             |                     |                       |                      |
| 4.01               | 10mm              | 12                  | SFM10-12              | 1233                 |
| TO                 | 10.000            | 20                  | SFM10-20              | 1236                 |
| 6.00               | 9.994             | 25                  | SFM10-25              | 1244                 |
| 6.01               | 12mm              | 12                  | SFM12-12              | 1231                 |
| TO                 | 12.000            | 20                  | SFM12-20              | 1236                 |
| 8.00               | 11.992            | 25                  | SFM12-25              | 1244                 |
| 8.01               | 15mm              | 16                  | SFM15-16              | 1236                 |
| TO                 | 15.000            | 28                  | SFM15-28              | 1244                 |
| 10.00              | 14.992            | 36                  | SFM15-36              | 1261                 |
| 10.01              | 18mm              | 16                  | SFM18-16              | 1235                 |
| TO                 | 18.000            | 28                  | SFM18-28              | 1239                 |
| 12.00              | 17.992            | 36                  | SFM18-36              | 1263                 |
| 12.01              | 22mm              | 20                  | SFM22-20              | 1251                 |
| TO                 | 22.000            | 36                  | SFM22-36              | 1266                 |
| 15.00              | 21.991            | 45                  | SFM22-45              | 1276                 |
| 15.01              | 26mm              | 20                  | SFM26-20              | 1251                 |
| TO                 | 26.000            | 36                  | SFM26-36              | 1265                 |
| 18.00              | 25.991            | 45                  | SFM26-45              | 1276                 |
| 18.01              | 30mm              | 25                  | SFM30-25              | 1290                 |
| TO                 | 30.000            | 45                  | SFM30-45              | 1319                 |
| 22.00              | 29.991            | 56                  | SFM30-56              | 1359                 |
| 22.01              | 35mm              | 25                  | SFM35-25              | 1290                 |
| TO                 | 35.000            | 45                  | SFM35-45              | 1319                 |
| 26.00              | 34.989            | 56                  | SFM35-56              | 1359                 |
| 26.01              | 42mm              | 30                  | SFM42-30              | 1321                 |
| TO                 | 42.000            | 56                  | SFM42-56              | 1363                 |
| 30.00              | 41.989            | 67                  | SFM42-67              | 1456                 |
| 30.01              | 48mm              | 30                  | SFM48-30              | 1361                 |
| TO                 | 48.000            | 56                  | SFM48-56              | 1460                 |
| 35.00              | 47.989            | 67                  | SFM48-67              | 1470                 |
| 35.01              | 55mm              | 30                  | SFM55-30              | 1354                 |
| TO                 | 55.000            | 56                  | SFM55-56              | 1370                 |
| 42.00              | 54.987            | 67                  | SFM55-67              | 1472                 |

| A<br>I.D.<br>RANGE | B<br>O.D.<br>BODY | C<br>LENGTH<br>(mm) | ANSI<br>SYMBOL<br>NO. | PRICE<br>CODE<br>NO. |
|--------------------|-------------------|---------------------|-----------------------|----------------------|
| 42.01              | 62mm              | 35                  | SFM62-35              | 1483                 |
| TO                 | 62.000            | 67                  | SFM62-67              | 1517                 |
| 48.00              | 61.987            | 78                  | SFM62-78              | 1521                 |
| 48.01              | 70mm              | 35                  | SFM70-35              | 1511                 |
| TO                 | 70.000            | 67                  | SFM70-67              | 1539                 |
| 55.00              | 69.987            | 78                  | SFM70-78              | 1544                 |
| 55.01              | 78mm              | 40                  | SFM78-40              | 1526                 |
| TO                 | 78.000            | 78                  | SFM78-78              | 1566                 |
| 62.00              | 77.987            | 105                 | SFM78-105             | 1608                 |
| 62.01              | 85mm              | 40                  | SFM85-40              | 1541                 |
| TO                 | 85.000            | 78                  | SFM85-78              | 1592                 |
| 70.00              | 84.985            | 105                 | SFM85-105             | 1635                 |
| 70.01              | 95mm              | 45                  | SFM95-45              | 1558                 |
| TO                 | 95.000            | 89                  | SFM95-89              | 1621                 |
| 78.00              | 94.985            | 112                 | SFM95-112             | 1657                 |
| 78.01              | 105mm             | 45                  | SFM105-45             | 1579                 |
| TO                 | 105.000           | 89                  | SFM105-89             | 1633                 |
| 85.00              | 104.985           | 112                 | SFM105-112            | 1666                 |

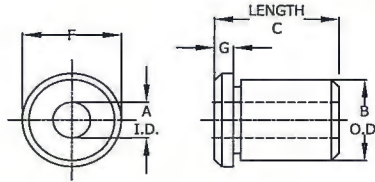
### ANSI HEAD DIMENSIONS

| O.D.<br>mm | F<br>mm | G<br>mm | H<br>mm | J<br>mm | L<br>mm | R<br>mm | LOCK<br>SCR. | ROUND<br>CLAMP |
|------------|---------|---------|---------|---------|---------|---------|--------------|----------------|
| 8          | 15      |         |         | 4.5     | 65°     | 11.5    | LSM-1        | RCM-1          |
| 10         | 18      | 6       | 3.0     | 6.0     | 65°     | 13.0    | LSM-2        | RCM-2          |
| 12         | 22      |         |         | 7.5     | 60°     | 16.0    |              |                |
| 15         | 26      | 8       | 4.0     | 9.5     | 50°     | 18.0    | LSM<br>3&4   | RCM<br>3&4     |
| 18         | 30      |         |         | 11.5    | 50°     | 20.0    |              |                |
| 22         | 34      |         |         | 13.0    | 35°     | 23.5    |              |                |
| 26         | 39      |         |         | 15.5    | 35°     | 26.0    |              |                |
| 30         | 46      | 10      | 5.5     | 19.0    | 30°     | 29.5    | LSM<br>5&6   | RCM<br>5&6     |
| 35         | 52      |         |         | 22.0    | 30°     | 32.5    |              |                |
| 42         | 59      |         |         | 25.5    | 30°     | 36.0    |              |                |
| 48         | 66      |         |         | 28.5    | 30°     | 41.0    |              |                |
| 55         | 74      |         |         | 32.5    | 25°     | 45.0    |              |                |
| 62         | 82      |         |         | 36.5    | 25°     | 49.0    |              |                |
| 70         | 90      | 12      | 7.0     | 40.5    | 25°     | 53.0    | LSM<br>7&8   | RCM<br>7&8     |
| 78         | 100     |         |         | 45.5    | 25°     | 58.0    |              |                |
| 85         | 110     |         |         | 50.5    | 20°     | 63.0    |              |                |
| 95         | 120     |         |         | 55.5    | 20°     | 68.0    |              |                |
| 105        | 130     |         |         | 60.5    | 20°     | 73.0    |              |                |





## METRIC DRILL JIG BUSHING - HEAD LINER (HLM TYPE)



ORDER: TYPE I.D. X O.D. X L  
 HLM 22.50 X 35 X 20  
 or  
 TYPE ANSI NO. X I.D.  
 HLM 35-20 X 22.05

| A I.D. RANGE             | B O.D. BODY              | C LENGTH (mm) | ANSI SYMBOL NO. | PRICE CODE NO. |
|--------------------------|--------------------------|---------------|-----------------|----------------|
| 8mm<br>8.005<br>8.014    | 12mm<br>12.039<br>12.028 | 10            | HLM12-10-8      | 1225           |
|                          |                          | 16            | HLM12-16-8      | 1229           |
|                          |                          |               |                 |                |
| 10mm<br>10.005<br>10.014 | 15mm<br>15.039<br>15.028 | 12            | HLM15-12-10     | 1221           |
|                          |                          | 20            | HLM15-20-10     | 1229           |
|                          |                          | 25            | HLM15-25-10     | 1230           |
| 12mm<br>12.006<br>12.017 | 18mm<br>18.039<br>18.028 | 12            | HLM18-12-12     | 1225           |
|                          |                          | 20            | HLM18-20-12     | 1229           |
|                          |                          | 25            | HLM18-25-12     | 1233           |
| 15mm<br>15.006<br>15.017 | 22mm<br>22.048<br>22.035 | 16            | HLM22-16-15     | 1236           |
|                          |                          | 28            | HLM22-28-15     | 1245           |
|                          |                          | 36            | HLM22-36-15     | 1251           |
| 18mm<br>18.006<br>18.017 | 26mm<br>26.048<br>26.035 | 16            | HLM26-16-18     | 1236           |
|                          |                          | 28            | HLM26-28-18     | 1241           |
|                          |                          | 36            | HLM26-36-18     | 1256           |
| 22mm<br>22.007<br>22.020 | 30mm<br>30.048<br>30.035 | 20            | HIM30-20-22     | 1263           |
|                          |                          | 36            | HIM30-36-22     | 1289           |
|                          |                          | 45            | HIM30-45-22     | 1296           |
| 26mm<br>26.007<br>26.020 | 35mm<br>35.059<br>35.043 | 20            | HLM35-20-26     | 1264           |
|                          |                          | 36            | HLM35-36-26     | 1290           |
|                          |                          | 45            | HLM35-45-26     | 1298           |
| 30mm<br>30.007<br>30.020 | 42mm<br>42.059<br>42.043 | 25            | HLM42-25-30     | 1291           |
|                          |                          | 45            | HLM42-45-30     | 1298           |
|                          |                          | 56            | HLM42-56-30     | 1343           |
| 35mm<br>35.009<br>35.025 | 48mm<br>48.059<br>48.043 | 25            | HLM48-25-35     | 1291           |
|                          |                          | 45            | HLM48-45-35     | 1316           |
|                          |                          | 56            | HLM48-56-35     | 1342           |
| 42mm<br>42.009<br>42.025 | 55mm<br>55.072<br>55.053 | 30            | HLM55-30-42     | 1336           |
|                          |                          | 56            | HLM55-56-42     | 1362           |
|                          |                          | 67            | HLM55-67-42     | 1450           |
| 48mm<br>48.009<br>48.025 | 62mm<br>62.072<br>63.053 | 30            | HLM62-30-48     | 1349           |
|                          |                          | 56            | HLM62-56-48     | 1367           |
|                          |                          | 67            | HLM62-67-48     | 1458           |
| 55mm<br>55.010<br>55.029 | 70mm<br>70.078<br>70.059 | 30            | HLM70-30-55     | 1453           |
|                          |                          | 56            | HLM70-56-55     | 1469           |
|                          |                          | 67            | HLM70-67-55     | 1477           |

| A I.D. RANGE                | B O.D. BODY                 | C LENGTH (mm) | ANSI SYMBOL NO. | PRICE CODE NO. |
|-----------------------------|-----------------------------|---------------|-----------------|----------------|
| 62mm<br>62.010<br>62.029    | 78mm<br>78.078<br>78.059    | 35            | HLM78-35-62     | 1465           |
|                             |                             | 67            | HLM78-67-62     | 1486           |
|                             |                             | 78            | HLM78-78-62     | 1492           |
| 70mm<br>70.010<br>70.029    | 85mm<br>85.093<br>85.071    | 35            | HLM85-35-70     | 1503           |
|                             |                             | 67            | HLM85-67-70     | 1543           |
|                             |                             | 78            | HLM85-78-70     | 1553           |
| 78mm<br>78.010<br>78.029    | 95mm<br>95.093<br>95.071    | 40            | HLM95-40-78     | 1515           |
|                             |                             | 78            | HLM95-78-78     | 1561           |
|                             |                             | 105           | HLM95-105-78    | 1607           |
| 85mm<br>85.010<br>85.029    | 105mm<br>105.101<br>105.079 | 40            | HLM105-40-85    | 1529           |
|                             |                             | 78            | HLM105-78-85    | 1573           |
|                             |                             | 105           | HLM105-105-85   | 1617           |
| 95mm<br>95.010<br>95.029    | 115mm<br>115.101<br>115.079 | 45            | HLM115-45-95    | 1549           |
|                             |                             | 89            | HLM115-89-95    | 1603           |
|                             |                             | 112           | HLM115-112-95   | 1643           |
| 105mm<br>105.010<br>105.029 | 125mm<br>125.117<br>125.092 | 45            | HLM125-45-105   | 1573           |
|                             |                             | 89            | HLM125-89-105   | 1630           |
|                             |                             | 112           | HLM125-112-105  | 1666           |

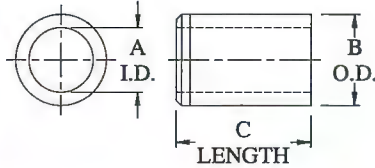
### ANSI HEAD DIMENSIONS

| BODY O.D. mm | F mm | G mm |
|--------------|------|------|
| 12           | 15   | 3    |
| 15           | 18   | 3    |
| 18           | 22   | 4    |
| 22           | 26   | 4    |
| 26           | 30   | 4    |
| 30           | 34   | 5    |
| 35           | 39   | 5    |
| 42           | 46   | 5    |
| 48           | 52   | 5    |

| BODY O.D. mm | F mm | G mm |
|--------------|------|------|
| 55           | 59   | 5    |
| 62           | 66   | 6    |
| 70           | 74   | 6    |
| 78           | 82   | 6    |
| 85           | 90   | 6    |
| 95           | 100  | 6    |
| 105          | 110  | 6    |
| 115          | 120  | 6    |
| 125          | 130  | 6    |



## CARBIDE BUSHING - PRESS FIT (PC TYPE)



ORDER: TYPE I.D. X O.D. X L  
 PC 1/4 X 1/2 X 1/2  
 or  
TYPE ANSI NO. X I.D.  
 PC 32-8 X 1/4

| A<br>I.D.<br>RANGE                  | B<br>O.D.<br>BODY           | C<br>LENGTH | ANSI<br>SYMBOL<br>NO. |
|-------------------------------------|-----------------------------|-------------|-----------------------|
| #70 (.0280)<br>TO<br>#56 (.0465)    | <b>5/32</b><br>.1578/.1575  | 1/4         | PC10-4                |
|                                     |                             | 5/16        | PC10-5                |
|                                     |                             | 3/8         | PC10-6                |
|                                     |                             | 1/2         | PC10-8                |
| 3/64 (.0469)<br>TO<br>1/16 (.0625)  | <b>5/32</b><br>.1578/.1575  | 1/4         | PC10-4                |
|                                     |                             | 5/16        | PC10-5                |
|                                     |                             | 3/8         | PC10-6                |
|                                     |                             | 1/2         | PC10-8                |
| #54 (.0550)<br>TO<br>#39 (.0995)    | <b>13/64</b><br>.2046/.2043 | 1/4         | PC13-4                |
|                                     |                             | 5/16        | PC13-5                |
|                                     |                             | 3/8         | PC13-6                |
| #39 (.0995)<br>TO<br>#29 (.1360)    | <b>1/4</b><br>.2516/.2513   | 1/2         | PC13-8                |
|                                     |                             | 5/16        | PC16-5                |
| #30 (.1285)<br>TO<br>3/16 (.1875)   | <b>5/16</b><br>.3141/.3138  | 3/8         | PC16-6                |
|                                     |                             | 1/2         | PC16-8                |
|                                     |                             | 5/16        | PC20-5                |
| 3/16 (.1875)<br>TO<br>1/4 (.2500)   | <b>13/32</b><br>.4078/.4075 | 1/2         | PC20-8                |
|                                     |                             | 3/4         | PC20-12               |
|                                     |                             | 1           | PC20-16               |
|                                     |                             | 5/16        | PC26-5                |
| 7/32 (.2187)<br>TO<br>5/16 (.3125)  | <b>1/2</b><br>.5017/.5014   | 3/8         | PC26-6                |
|                                     |                             | 1/2         | PC26-8                |
|                                     |                             | 3/4         | PC26-12               |
|                                     |                             | 1           | PC26-16               |
|                                     |                             | 5/16        | PC32-5                |
| 5/16 (.3125)<br>TO<br>27/64 (.4219) | <b>5/8</b><br>.6267/.6264   | 3/8         | PC32-6                |
|                                     |                             | 1/2         | PC32-8                |
|                                     |                             | 3/4         | PC32-12               |
|                                     |                             | 1           | PC32-16               |
|                                     |                             | 1-3/8       | PC32-22               |
| 3/8 (.3750)<br>TO<br>1/2 (.5000)    | <b>3/4</b><br>.7518/.7515   | 1/2         | PC40-8                |
|                                     |                             | 3/4         | PC40-12               |
|                                     |                             | 1           | PC40-16               |
|                                     |                             | 1-3/8       | PC40-22               |
| 3/8 (.3750)<br>TO<br>1/2 (.5000)    | <b>3/4</b><br>.7518/.7515   | 1/2         | PC48-8                |
|                                     |                             | 3/4         | PC48-12               |
|                                     |                             | 1           | PC48-16               |
|                                     |                             | 1-3/8       | PC48-22               |

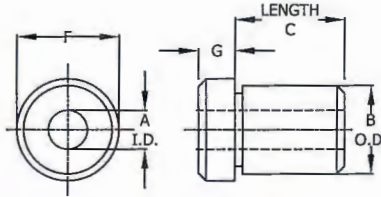
| A<br>I.D.<br>RANGE                     | B<br>O.D.<br>BODY             | C<br>LENGTH | ANSI<br>SYMBOL<br>NO. |
|--|-------------------------------|-------------|-----------------------|
| 1/2 (.5000)<br>TO<br>5/8 (.6250)       | <b>7/8</b><br>.8768/.8765     | 1/2         | PC56-8                |
|  |                               | 3/4         | PC56-12               |
|  |                               | 1           | PC56-16               |
|  |                               | 1-3/8       | PC56-22               |
| 1/2 (.5000)<br>TO<br>3/4 (.7500)       | <b>1</b><br>1.0018/1.0015     | 1-3/4       | PC56-28               |
|  |                               | 1/2         | PC64-8                |
|  |                               | 3/4         | PC64-12               |
| 3/4 (.7500)<br>TO<br>1 (1.0000)        | <b>1</b><br>1.0018/1.0015     | 1           | PC64-16               |
|  |                               | 1-3/8       | PC64-22               |
|  |                               | 1-3/4       | PC64-28               |
|  |                               | 3/4         | PC88-12               |
| 3/4 (.7500)<br>TO<br>1 (1.0000)        | <b>1-3/8</b><br>1.3772/1.3768 | 1           | PC88-16               |
|  |                               | 1-3/8       | PC88-22               |
|  |                               | 1-3/4       | PC88-28               |
|  |                               | 2-1/8       | PC88-34               |
| 1 (1.0000)<br>TO<br>1-3/8 (1.3750)     | <b>1-3/4</b><br>1.7523/1.7519 | 2-1/2       | PC88-40               |
|  |                               | 1           | PC112-16              |
|  |                               | 1-3/8       | PC112-22              |
|  |                               | 1-3/4       | PC112-28              |
|  |                               | 2-1/8       | PC112-34              |
| 1-3/8 (1.3750)<br>TO<br>1-3/4 (1.7500) | <b>2-1/4</b><br>2.2525/2.2521 | 2-1/2       | PC112-40              |
|  |                               | 3           | PC112-48              |
|  |                               | 1           | PC144-16              |
|  |                               | 1-3/8       | PC144-22              |
|  |                               | 1-3/4       | PC144-28              |
| 1-3/8 (1.3750)<br>TO<br>1-3/4 (1.7500) | <b>2-1/4</b><br>2.2525/2.2521 | 2-1/8       | PC144-34              |
|  |                               | 2-1/2       | PC144-40              |
|  |                               | 3           | PC144-48              |

\*ALL BUSHINGS HAVE NO COUNTERBORE.  
 \*PRICE UPON REQUEST.





## CARBIDE BUSHING - HEAD PRESS FIT (HC TYPE)



ORDER: TYPE I.D. X O.D. X L  
 HC 1/4 X 1/2 X 1/2  
 or  
TYPE ANSI NO. X I.D.  
 HC 32-8 X 1/4

| A I.D. RANGE                  | B O.D. BODY          | C LENGTH | ANSI SYMBOL NO. |
|-------------------------------|----------------------|----------|-----------------|
| #70 (.0280) TO #56 (.0465)    | 5/32<br>.1578/.1575  | 5/16     | HC10-5          |
|                               |                      | 3/8      | HC10-6          |
|                               |                      | 1/2      | HC10-8          |
| 3/64 (.0469) TO 1/16 (.0625)  | 5/32<br>.1578/.1575  | 5/16     | HC10-5          |
|                               |                      | 3/8      | HC10-6          |
|                               |                      | 1/2      | HC10-8          |
| #54 (.0550) TO #39 (.0995)    | 13/64<br>.2046/.2043 | 5/16     | HC13-5          |
|                               |                      | 3/8      | HC13-6          |
|                               |                      | 1/2      | HC13-8          |
| #39 (.0995) TO #29 (.1360)    | 1/4<br>.2516/.2513   | 5/16     | HC16-5          |
|                               |                      | 3/8      | HC16-6          |
|                               |                      | 1/2      | HC16-8          |
| #30 (.1285) TO 3/16 (.1875)   | 5/16<br>.3141/.3138  | 5/16     | HC20-5          |
|                               |                      | 3/8      | HC20-6          |
|                               |                      | 1/2      | HC20-8          |
|                               |                      | 3/4      | HC20-12         |
| 3/16 (.1875) TO 1/4 (.2500)   | 13/32<br>.4078/.4075 | 5/16     | HC26-5          |
|                               |                      | 3/8      | HC26-6          |
|                               |                      | 1/2      | HC26-8          |
|                               |                      | 3/4      | HC26-12         |
| 7/32 (.2187) TO 5/16 (.3125)  | 1/2<br>.5017/.5014   | 1        | HC26-16         |
|                               |                      | 5/16     | HC32-5          |
|                               |                      | 3/8      | HC32-6          |
|                               |                      | 1/2      | HC32-8          |
|                               |                      | 3/4      | HC32-12         |
| 5/16 (.3125) TO 27/64 (.4219) | 5/8<br>.6267/.6264   | 1        | HC32-16         |
|                               |                      | 1-3/8    | HC32-22         |
|                               |                      | 1/2      | HC40-8          |
|                               |                      | 3/4      | HC40-12         |
|                               |                      | 1        | HC40-16         |
| 3/8 (.3750) TO 1/2 (.5000)    | 3/4<br>.7518/.7515   | 1-3/8    | HC40-22         |
|                               |                      | 1/2      | HC48-8          |
|                               |                      | 3/4      | HC48-12         |
|                               |                      | 1        | HC48-16         |
|                               |                      | 1-3/8    | HC48-22         |

| A I.D. RANGE                     | B O.D. BODY            | C LENGTH | ANSI SYMBOL NO. |
|----------------------------------|------------------------|----------|-----------------|
| 1/2 (.5000) TO 5/8 (.6250)       | 7/8<br>.8768/.8765     | 1/2      | HC56-8          |
|                                  |                        | 3/4      | HC56-12         |
|                                  |                        | 1        | HC56-16         |
|                                  |                        | 1-3/8    | HC56-22         |
| 1/2 (.5000) TO 3/4 (.7500)       | 1<br>1.0018/1.0015     | 1-3/4    | HC56-28         |
|                                  |                        | 1/2      | HC64-8          |
|                                  |                        | 3/4      | HC64-12         |
|                                  |                        | 1        | HC64-16         |
| 3/4 (.7500) TO 1 (1.0000)        | 1-3/8<br>1.3772/1.3768 | 1-3/8    | HC64-22         |
|                                  |                        | 1-3/4    | HC64-28         |
|                                  |                        | 1-3/4    | HC64-8          |
|                                  |                        | 3/4      | HC88-12         |
| 1 (1.0000) TO 1-3/8 (1.3750)     | 1-3/4<br>1.7523/1.7519 | 1        | HC88-16         |
|                                  |                        | 1-3/8    | HC88-22         |
|                                  |                        | 1-3/4    | HC88-28         |
|                                  |                        | 2-1/8    | HC88-34         |
|                                  |                        | 2-1/2    | HC88-40         |
| 1-3/8 (1.3750) TO 1-3/4 (1.7500) | 2-1/4<br>2.2525/2.2521 | 2-1/2    | HC88-48         |
|                                  |                        | 1        | HC112-16        |
|                                  |                        | 1-3/8    | HC112-22        |
|                                  |                        | 1-3/4    | HC112-28        |
|                                  |                        | 2        | HC112-32        |
|                                  |                        | 2-1/8    | HC112-34        |
| 1-3/8 (1.3750) TO 1-3/4 (1.7500) | 2-1/4<br>2.2525/2.2521 | 2-1/2    | HC112-40        |
|                                  |                        | 3        | HC112-48        |
|                                  |                        | 1        | HC144-16        |
|                                  |                        | 1-3/8    | HC144-22        |
|                                  |                        | 1-3/4    | HC144-28        |
|                                  |                        | 2-1/8    | HC144-34        |
|                                  |                        | 2-1/2    | HC144-40        |
|                                  |                        | 3        | HC144-48        |

\*CARBIDE BUSHINGS WITH STEEL HEAD.

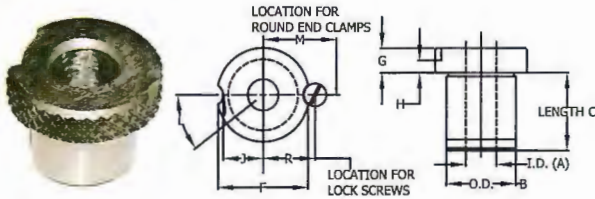
\*HEAD DIMENSIONS MAY BE DIFFERENT FROM ANSI STANDARDS.

\*ALL BUSHINGS HAVE NO COUNTERBORE.

\*PRICE UPON REQUEST.



## CARBIDE BUSHING - SLIP-FIXED RENEWABLE (SFC TYPE)



ORDER: TYPE I.D. X O.D. X L  
 SFC 1/4 X 1/2 X 1/2  
 or  
TYPE ANSI NO. X I.D.  
 SFC 32-8 X 1/4

| A<br>I.D.<br>RANGE                   | B<br>O.D.<br>BODY   | C<br>LENGTH | ANSI<br>SYMBOL<br>NO. |
|--------------------------------------|---------------------|-------------|-----------------------|
| #55 (.0520)<br>TO<br>#43 (.0890)     | 5/16<br>.3125/.3123 | 5/16        | SFC20-5               |
|                                      |                     | 1/2         | SFC20-8               |
|                                      |                     | 3/4         | SFC20-12              |
|                                      |                     | 1           | SFC20-16              |
| #42 (.0935)<br>TO<br>5/32 (.1562)    | 5/16<br>.3125/.3123 | 5/16        | SFC20-5               |
|                                      |                     | 1/2         | SFC20-8               |
|                                      |                     | 3/4         | SFC20-12              |
|                                      |                     | 1           | SFC20-16              |
| 9/64 (.1406)<br>TO<br>3/16 (.1875)   | 1/2<br>.5000/.4998  | 5/16        | SFC32-5               |
|                                      |                     | 1/2         | SFC32-8               |
|                                      |                     | 3/4         | SFC32-12              |
|                                      |                     | 1           | SFC32-16              |
|                                      |                     | 1-3/8       | SFC32-22              |
| #12 (.1890)<br>TO<br>11/32 (.3437)   | 1/2<br>.5000/.4998  | 5/16        | SFC32-5               |
|                                      |                     | 1/2         | SFC32-8               |
|                                      |                     | 3/4         | SFC32-12              |
|                                      |                     | 1           | SFC32-16              |
| 9/32 (.2812)<br>TO<br>17/32 (.5312)  | 3/4<br>.7500/.7498  | 1/2         | SFC48-8               |
|                                      |                     | 3/4         | SFC48-12              |
|                                      |                     | 1           | SFC48-16              |
|                                      |                     | 1-3/8       | SFC48-22              |
| 15/32 (.4687)<br>TO<br>25/32 (.7812) | 1<br>1.0000/.9998   | 1/2         | SFC64-8               |
|                                      |                     | 3/4         | SFC64-12              |
|                                      |                     | 1           | SFC64-16              |
|                                      |                     | 1-3/8       | SFC64-22              |
|                                      |                     | 1-3/4       | SFC64-28              |
|                                      |                     | 2-1/8       | SFC64-34              |
| 2-1/2                                | SFC64-40            |             |                       |

| A<br>I.D.<br>RANGE                         | B<br>O.D.<br>BODY      | C<br>LENGTH | ANSI<br>SYMBOL<br>NO. |
|--|------------------------|-------------|-----------------------|
| 23/32 (.7187)<br>TO<br>1-1/32 (1.0312)     | 1-3/8<br>1.3750/1.3747 | 3/4         | SFC88-12              |
|  |                        | 1           | SFC88-16              |
|  |                        | 1-3/8       | SFC88-22              |
|  |                        | 1-3/4       | SFC88-28              |
|  |                        | 2-1/8       | SFC88-34              |
| 31/32 (.9687)<br>TO<br>1-13/32 (1.4062)    | 1-3/4<br>1.7500/1.7497 | 2-1/2       | SFC88-40              |
|  |                        | 1           | SFC112-16             |
|  |                        | 1-3/8       | SFC112-22             |
| 1-11/32 (1.3438)<br>TO<br>1-25/32 (1.7812) | 2-1/4<br>2.2500/2.2496 | 1-3/4       | SFC112-28             |
|  |                        | 2-1/8       | SFC112-34             |
|  |                        | 2-1/2       | SFC112-40             |
|  |                        | 3           | SFC112-48             |
| 1-11/32 (1.3438)<br>TO<br>1-25/32 (1.7812) | 2-1/4<br>2.2500/2.2496 | 1           | SFC144-16             |
|  |                        | 1-3/8       | SFC144-22             |
|  |                        | 1-3/4       | SFC144-28             |
|  |                        | 2-1/8       | SFC144-34             |
|  |                        | 2-1/2       | SFC144-40             |
| 3  | SFC144-48              |             |                       |

\*CARBIDE BUSHINGS WITH STEEL HEAD.  
 \*HEAD DIMENSIONS MAY BE DIFFERENT FROM ANSI STANDARDS.  
 \*ALL BUSHINGS HAVE NO COUNTERBORE.  
 \*PRICE UPON REQUEST.

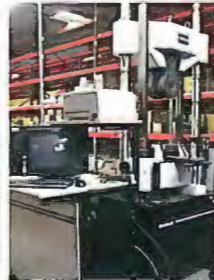
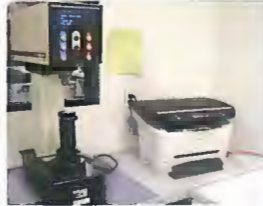
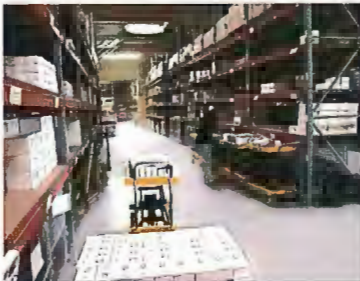




# ACTEK® MFG. & ENG. INC.



**READY TO SHIP!**

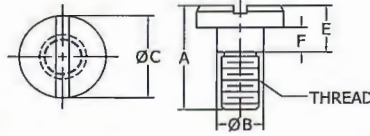






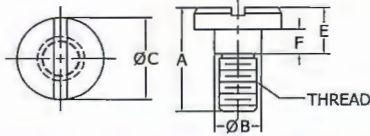
## LOCKING ACCESSORIES FOR RENEWABLE BUSHING

### LOCK SCREW - SLOTTED TYPE



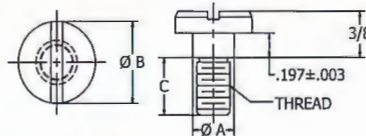
| PART NO. | A      | B    | C    | E    | F         | THREAD  |
|----------|--------|------|------|------|-----------|---------|
| LS-0     | 7/16   | 3/16 | 5/16 | 3/16 | .100-.094 | 8-32    |
| LS-1     | 5/8    | 3/8  | 5/8  | 1/4  | .138-.132 | 5/16-18 |
| LS-2     | 7/8    | 3/8  | 5/8  | 3/8  | .200-.194 | 5/16-18 |
| LS-3     | 1      | 7/16 | 3/4  | 3/8  | .200-.194 | 3/8-16  |
| LS-4     | 1-1/16 | 7/16 | 3/4  | 7/16 | .231-.225 | 3/8-16  |
| LS-5     | 1-1/8  | 7/16 | 3/4  | 1/2  | .263-.257 | 3/8-16  |

### TW SERIES



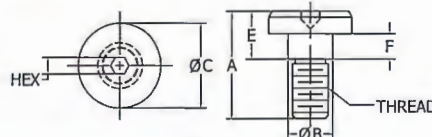
| PART NO. | A     | B    | C    | E    | F    | THREAD  |
|----------|-------|------|------|------|------|---------|
| TW-1     | 7/16  | 3/16 | 5/16 | 3/16 | 3/32 | 8-32    |
| TW-2     | 1/2   | 1/4  | 3/8  | 1/4  | 1/8  | 10-32   |
| TW-3     | 11/16 | 1/4  | 7/16 | 3/8  | 3/16 | 10-32   |
| TW-4     | 7/8   | 3/8  | 9/16 | 1/2  | 1/4  | 5/16-18 |
| TW-5     | 1     | 3/8  | 5/8  | 5/8  | 5/16 | 5/16-18 |
| TW-7     | 3/4   | 3/8  | 5/8  | 3/8  | 3/16 | 5/16-18 |

### LOCK SCREW - AIRFEED SERIES



| PART NO. | A    | B   | C    | THREAD  |
|----------|------|-----|------|---------|
| 16530    | 7/16 | 3/4 | 5/8  | 3/8-16  |
| 16531    | 3/8  | 5/8 | 5/16 | 5/16-18 |
| 16532    | 3/8  | 5/8 | 7/16 | 5/16-18 |

### HEX LOCK SCREWS



| PART NO. | A      | B    | C    | E    | F         | THREAD  | HEX  |
|----------|--------|------|------|------|-----------|---------|------|
| HLS-0    | 7/16   | 3/16 | 5/16 | 3/16 | .100-.094 | 8-32    | 3/32 |
| HLS-1    | 5/8    | 3/8  | 5/8  | 1/4  | .138-.132 | 5/16-18 | 3/16 |
| HLS-2    | 7/8    | 3/8  | 5/8  | 3/8  | .200-.194 | 5/16-18 | 3/16 |
| HLS-3    | 1      | 7/16 | 3/4  | 3/8  | .200-.194 | 3/8-16  | 7/32 |
| HLS-4    | 1-1/16 | 7/16 | 3/4  | 7/16 | .231-.225 | 3/8-16  | 7/32 |
| HLS-5    | 1-1/8  | 7/16 | 3/4  | 1/2  | .263-.257 | 3/8-16  | 7/32 |





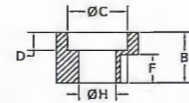
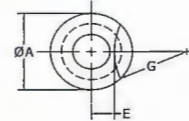
## LOCKING ACCESSORIES FOR RENEWABLE BUSHING

### ROUND CLAMPS

FOR TYPE "S/F/SF" RENEWABLE BUSHINGS IN A.N.S.I., CARBIDE, AND EXTENDED RANGE SERIES

| PART NO. | A   | B     | C        | D    | E    | F     | G       | LOCK SCREW |
|----------|-----|-------|----------|------|------|-------|---------|------------|
| RC-01    | 5/8 | 5/16  | 5/16 SHS | 5/32 | .516 | .1250 | 17/32   | LS-1       |
| RC-02    | 5/8 | 7/16  | 5/16 SHS | 7/32 | .500 | .1875 | 29/32   | LS-2       |
| RC-03    | 3/4 | 1/2   | 3/8 SHS  | 9/32 | .594 | .1875 | 1-13/32 | LS-3       |
| RC-04*   | 3/4 | 17/32 | 3/8 SHS  | 1/4  | .594 | .2187 | 2-1/2   | LS-4       |
| RC-05*   | 3/4 | 9/16  | 3/8 SHS  | 1/4  | .594 | .2500 | 2-1/2   | LS-5       |

\* FOR USE WITH EXTENDED RANGE RENEWABLE BUSHINGS ONLY

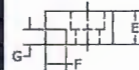
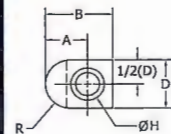
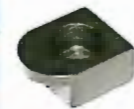


### ROUND END CLAMPS

FOR ALL A.N.S.I., CARBIDE, AND EXTENDED RANGE RENEWABLE BUSHINGS

| FOR FLUSH MOUNTING OF LINERS              |       |       |     |      |      |       |                       |      |
|---|-------|-------|-----|------|------|-------|-----------------------|------|
| PART NO.                                  | A     | B     | D   | E    | F    | G     | H MOUNTING SCREW SIZE | R    |
| RK-01                                     | 7/16  | 3/4   | 5/8 | 5/16 | 3/16 | 1/8   | 1/4 SOC. HD. SCR.     | 5/16 |
| RK-02                                     | 1/2   | 3/4   | 5/8 | 3/8  | 1/4  | 3/16  | 1/4 SOC. HD. SCR.     | 5/16 |
| RK-03                                     | 5/8   | 1     | 3/4 | 3/8  | 5/16 | 3/16  | 5/16 SOC. HD. SCR.    | 3/8  |
| RK-04                                     | 11/16 | 1-1/8 | 3/4 | 3/8  | 5/16 | 7/32  | 3/8 SOC. HD. SCR.     | 3/8  |
| RK-05                                     | 11/16 | 1-1/8 | 3/4 | 1/2  | 5/16 | 1/4   | 3/8 SOC. HD. SCR.     | 3/8  |
| FOR PROJECTED MOUNTING OF SHOULDER LINERS |       |       |     |      |      |       |                       |      |
| PART NO.                                  | A     | B     | D   | E    | F    | G     | H MOUNTING SCREW SIZE | R    |
| RK-10                                     | 7/16  | 3/4   | 5/8 | 3/8  | 3/16 | 7/32  | 1/4 SOC. HD. SCR.     | 5/16 |
| RK-11                                     | 7/16  | 3/4   | 5/8 | 3/8  | 3/16 | 1/4   | 1/4 SOC. HD. SCR.     | 5/16 |
| RK-12                                     | 1/2   | 3/4   | 5/8 | 1/2  | 1/4  | 5/16  | 1/4 SOC. HD. SCR.     | 5/16 |
| RK-13                                     | 1/2   | 3/4   | 5/8 | 1/2  | 1/4  | 3/8   | 1/4 SOC. HD. SCR.     | 5/16 |
| RK-14                                     | 5/8   | 1     | 3/4 | 1/2  | 5/16 | 3/8   | 3/8 SOC. HD. SCR.     | 3/8  |
| RK-15*                                    | 11/16 | 1-1/8 | 3/4 | 5/8  | 5/16 | 13/32 | 3/8 SOC. HD. SCR.     | 3/8  |
| RK-16*                                    | 11/16 | 1-1/8 | 3/4 | 5/8  | 5/16 | 7/16  | 3/8 SOC. HD. SCR.     | 3/8  |
| RK-17*                                    | 11/16 | 1-1/8 | 3/4 | 3/4  | 5/16 | 15/32 | 3/8 SOC. HD. SCR.     | 3/8  |

\* FOR USE WITH EXTENDED RANGE RENEWABLE BUSHINGS ONLY



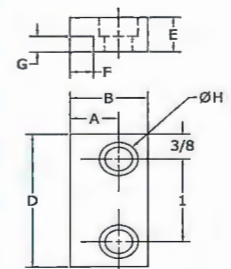
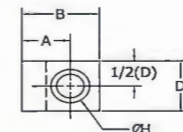
### FLAT CLAMPS

FOR TYPE "FX, FM" RENEWABLE BUSHINGS IN A.N.S.I. AND EXTENDED RANGE SERIES

| FOR FLUSH MOUNTING OF LINERS              |       |         |       |      |       |       |                       |  |
|---|-------|---------|-------|------|-------|-------|-----------------------|--|
| PART NO.                                  | A     | B       | D     | E    | F     | G     | H MOUNTING SCREW SIZE |  |
| FC-01                                     | 1/2   | 7/8     | 5/8   | 5/16 | 3/16  | 1/8   | 1/4 SOC. HD. SCR.     |  |
| FC-02                                     | 5/8   | 1       | 1     | 3/8  | 1/4   | 3/16  | 5/16 SOC. HD. SCR.    |  |
| FC-03                                     | 5/8   | 1-1/8   | 1     | 3/8  | 5/16  | 3/16  | 5/16 SOC. HD. SCR.    |  |
| FC-04*                                    | 51/64 | 1-11/64 | 1-1/4 | 3/8  | 27/64 | 7/32  | 3/8 SOC. HD. SCR.     |  |
| FC-05*                                    | 51/64 | 1-11/64 | 1-3/4 | 3/8  | 27/64 | 7/32  | 3/8 SOC. HD. SCR.     |  |
| FC-06*                                    | 51/64 | 1-11/64 | 1-1/4 | 1/2  | 27/64 | 1/4   | 3/8 SOC. HD. SCR.     |  |
| FC-07*                                    | 51/64 | 1-11/64 | 1-3/4 | 1/2  | 27/64 | 1/4   | 3/8 SOC. HD. SCR.     |  |
| FOR PROJECTED MOUNTING OF SHOULDER LINERS |       |         |       |      |       |       |                       |  |
| PART NO.                                  | A     | B       | D     | E    | F     | G     | H MOUNTING SCREW SIZE |  |
| FC-10                                     | 1/2   | 7/8     | 5/8   | 3/8  | 3/16  | 7/32  | 1/4 SOC. HD. SCR.     |  |
| FC-11                                     | 1/2   | 7/8     | 5/8   | 3/8  | 3/16  | 1/4   | 1/4 SOC. HD. SCR.     |  |
| FC-12                                     | 5/8   | 1       | 1     | 1/2  | 1/4   | 5/16  | 5/16 SOC. HD. SCR.    |  |
| FC-13                                     | 5/8   | 1       | 1     | 1/2  | 1/4   | 3/8   | 5/16 SOC. HD. SCR.    |  |
| FC-14                                     | 5/8   | 1-1/8   | 1-1/4 | 1/2  | 5/16  | 3/8   | 3/8 SOC. HD. SCR.     |  |
| FC-15                                     | 5/8   | 1-1/8   | 1-3/4 | 1/2  | 5/16  | 3/8   | 3/8 SOC. HD. SCR.     |  |
| FC-16*                                    | 51/64 | 1-11/64 | 1-1/4 | 5/8  | 27/64 | 13/32 | 3/8 SOC. HD. SCR.     |  |
| FC-17*                                    | 51/64 | 1-11/64 | 1-3/4 | 5/8  | 27/64 | 13/32 | 3/8 SOC. HD. SCR.     |  |
| FC-18*                                    | 51/64 | 1-11/64 | 1-1/4 | 5/8  | 27/64 | 7/16  | 3/8 SOC. HD. SCR.     |  |
| FC-19*                                    | 51/64 | 1-11/64 | 1-3/4 | 5/8  | 27/64 | 7/16  | 3/8 SOC. HD. SCR.     |  |
| FC-20*                                    | 51/64 | 1-11/64 | 1-1/4 | 3/4  | 27/64 | 15/32 | 3/8 SOC. HD. SCR.     |  |
| FC-21*                                    | 51/64 | 1-11/64 | 1-3/4 | 3/4  | 27/64 | 15/32 | 3/8 SOC. HD. SCR.     |  |

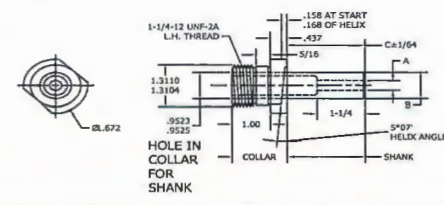
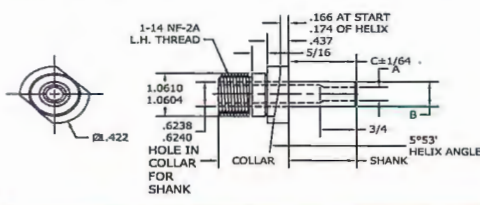
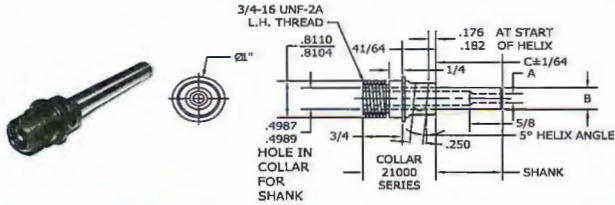
\* FOR USE WITH EXTENDED RANGE RENEWABLE BUSHINGS ONLY

\* IF D=1-3/4, CLAMP HAS 2 HOLES, OTHERWISE CLAMP ONLY HAS ONE HOLE"





# AIR FEED DRILL BUSHING (AF TYPE)



| COLLAR - 21000 SERIES                     |                 | COLLAR - 22000 SERIES         |           |                               |           |            | COLLAR - 23000 SERIES |            |                               |           |           |                               |           |                               |
|---|-----------------|-------------------------------|-----------|-------------------------------|-----------|------------|-----------------------|------------|-------------------------------|-----------|-----------|-------------------------------|-----------|-------------------------------|
| A DRILL SIZE                              | MAXIMUM MINIMUM | 1/4 3/32                      | 5/16 3/32 | 3/8 3/32                      | 9/32 3/16 | 11/32 3/16 | 13/32 3/16            | 15/32 3/16 | 15/32 3/16                    | 17/32 1/4 | 19/32 1/4 | 21/32 1/4                     | 23/32 1/4 | 23/32 1/4                     |
| B SHANK O.D.                              | NOMINAL         | 3/8                           | 7/16      | 1/2                           | 7/16      | 1/2        | 9/16                  | 5/8        | 3/4                           | 3/4       | 13/16     | 7/8                           | 1         | 1-1/8                         |
|   | ACTUAL          | .3748                         | .4373     | .4998                         | .4373     | .4998      | .5623                 | .6248      | .7498                         | .7498     | .8123     | .8748                         | .9998     | 1.1248                        |
| C LENGTH EXTENDS FROM COLLAR - WT/LINCHES |                 | .3745                         | .4370     | .4995                         | .4370     | .4995      | .5620                 | .6245      | .7495                         | .7495     | .8120     | .8745                         | .9995     | 1.1245                        |
|   | 3/8             | A-21101                       | A-21301   | A-22101                       | A-22401   |            |                       |            |                               |           |           |                               |           |                               |
| A-21102                                   |                 | A-21302                       | A-22102   | A-22402                       |           |            |                       |            |                               |           |           |                               |           |                               |
| 1/2                                       | A-21103         | A-21303                       | A-22103   | A-22403                       |           |            |                       |            |                               |           |           |                               |           |                               |
|   | A-21104         | A-21304                       | A-22104   | A-22404                       |           |            |                       |            |                               |           |           |                               |           |                               |
| 5/8                                       | A-21105         | A-21305                       | A-22105   | A-22405                       |           |            |                       |            |                               |           |           |                               |           |                               |
|   | A-21106         | A-21306                       | A-22106   | A-22406                       |           |            |                       |            |                               |           |           |                               |           |                               |
| 3/4                                       | A-21107         | A-21307                       | A-22107   | A-22407                       |           |            |                       |            |                               |           |           |                               |           |                               |
|   | A-21108         | A-21308                       | A-22108   | A-22408                       |           |            |                       |            |                               |           |           |                               |           |                               |
| 7/8                                       | A-21109         | A-21309                       | A-22109   | A-22409                       |           |            |                       |            |                               |           |           |                               |           |                               |
|   | A-21110         | A-21310                       | A-22110   | A-22410                       |           |            |                       |            |                               |           |           |                               |           |                               |
| 1   | A-21111         | A-21311                       | A-22111   | A-22411                       |           |            |                       |            |                               |           |           |                               |           |                               |
|   | A-21112         | A-21312                       | A-22112   | A-22412                       |           |            |                       |            |                               |           |           |                               |           |                               |
| 1-1/8                                     | A-21113         | A-21313                       | A-22113   | A-22413                       |           |            |                       |            |                               |           |           |                               |           |                               |
|   | A-21114         | A-21314                       | A-22114   | A-22414                       |           |            |                       |            |                               |           |           |                               |           |                               |
| 1-1/4                                     | A-21115         | A-21315                       | A-22115   | A-22415                       |           |            |                       |            |                               |           |           |                               |           |                               |
|   | A-21116         | A-21316                       | A-22116   | A-22416                       |           |            |                       |            |                               |           |           |                               |           |                               |
| 1-3/8                                     | A-21117         | A-21317                       | A-22117   | A-22417                       |           |            |                       |            |                               |           |           |                               |           |                               |
|   | A-21118         | A-21318                       | A-22118   | A-22418                       |           |            |                       |            |                               |           |           |                               |           |                               |
| 1-1/2                                     | A-21119         | A-21319                       | A-22119   | A-22419                       |           |            |                       |            |                               |           |           |                               |           |                               |
|   | A-21120         | A-21320                       | A-22120   | A-22420                       |           |            |                       |            |                               |           |           |                               |           |                               |
| 1-5/8                                     | A-21121         | A-21321                       | A-22121   | A-22421                       |           |            |                       |            |                               |           |           |                               |           |                               |
|   | A-21122         | A-21322                       | A-22122   | A-22422                       |           |            |                       |            |                               |           |           |                               |           |                               |
| 1-3/4                                     | A-21123         | A-21323                       | A-22123   | A-22423                       |           |            |                       |            |                               |           |           |                               |           |                               |
|   | A-21124         | A-21324                       | A-22124   | A-22424                       |           |            |                       |            |                               |           |           |                               |           |                               |
| 1-7/8                                     | A-21125         | A-21325                       | A-22125   | A-22425                       |           |            |                       |            |                               |           |           |                               |           |                               |
|   | A-21126         | A-21326                       | A-22126   | A-22426                       |           |            |                       |            |                               |           |           |                               |           |                               |
| 2   | A-21127         | A-21327                       | A-22127   | A-22427                       |           |            |                       |            |                               |           |           |                               |           |                               |
|   | A-21128         | A-21328                       | A-22128   | A-22428                       |           |            |                       |            |                               |           |           |                               |           |                               |
| 2-1/8                                     | A-21129         | A-21329                       | A-22129   | A-22429                       |           |            |                       |            |                               |           |           |                               |           |                               |
|   | A-21130         | A-21330                       | A-22130   | A-22430                       |           |            |                       |            |                               |           |           |                               |           |                               |
| 2-1/4                                     | A-21131         | A-21331                       | A-22131   | A-22431                       |           |            |                       |            |                               |           |           |                               |           |                               |
|   | A-21132         | A-21332                       | A-22132   | A-22432                       |           |            |                       |            |                               |           |           |                               |           |                               |
| 2-3/8                                     | A-21133         | A-21333                       | A-22133   | A-22433                       |           |            |                       |            |                               |           |           |                               |           |                               |
|   | A-21134         | A-21334                       | A-22134   | A-22434                       |           |            |                       |            |                               |           |           |                               |           |                               |
| 2-1/2                                     | A-21135         | A-21335                       | A-22135   | A-22435                       |           |            |                       |            |                               |           |           |                               |           |                               |
|   | A-21136         | A-21336                       | A-22136   | A-22436                       |           |            |                       |            |                               |           |           |                               |           |                               |
| 2-5/8                                     | A-21137         | A-21337                       | A-22137   | A-22437                       |           |            |                       |            |                               |           |           |                               |           |                               |
|   | A-21138         | A-21338                       | A-22138   | A-22438                       |           |            |                       |            |                               |           |           |                               |           |                               |
| 3   | A-21139         | A-21339                       | A-22139   | A-22439                       |           |            |                       |            |                               |           |           |                               |           |                               |
|   | A-21140         | A-21340                       | A-22140   | A-22440                       |           |            |                       |            |                               |           |           |                               |           |                               |
| 3-1/4                                     | A-21141         | A-21341                       | A-22141   | A-22441                       |           |            |                       |            |                               |           |           |                               |           |                               |
|   | A-21142         | A-21342                       | A-22142   | A-22442                       |           |            |                       |            |                               |           |           |                               |           |                               |
| 3-1/2                                     | A-21143         | A-21343                       | A-22143   | A-22443                       |           |            |                       |            |                               |           |           |                               |           |                               |
|   | A-21144         | A-21344                       | A-22144   | A-22444                       |           |            |                       |            |                               |           |           |                               |           |                               |
| 3-3/4                                     | A-21145         | A-21345                       | A-22145   | A-22445                       |           |            |                       |            |                               |           |           |                               |           |                               |
|   | A-21146         | A-21346                       | A-22146   | A-22446                       |           |            |                       |            |                               |           |           |                               |           |                               |
| 4   | A-21147         | A-21347                       | A-22147   | A-22447                       |           |            |                       |            |                               |           |           |                               |           |                               |
|   | A-21148         | A-21348                       | A-22148   | A-22448                       |           |            |                       |            |                               |           |           |                               |           |                               |
| 5   | A-21149         | A-21349                       | A-22149   | A-22449                       |           |            |                       |            |                               |           |           |                               |           |                               |
|   | A-21150         | A-21350                       | A-22150   | A-22450                       |           |            |                       |            |                               |           |           |                               |           |                               |
| 6   | A-21151         | A-21351                       | A-22151   | A-22451                       |           |            |                       |            |                               |           |           |                               |           |                               |
|   | A-21152         | A-21352                       | A-22152   | A-22452                       |           |            |                       |            |                               |           |           |                               |           |                               |
| LOCK LINER BUSHINGS                       |                 | A-16520 (MATCHES A-16500 TIP) |           | A-16521 (MATCHES A-16501 TIP) |           |            |                       |            | A-16522 (MATCHES A-16502 TIP) |           |           | A-16523 (MATCHES A-16503 TIP) |           | A-16524 (MATCHES A-16504 TIP) |
| LOCK NUTS                                 |                 | 14441                         |           | 14442                         |           |            |                       |            | 14443                         |           |           | 14445                         |           | 14446                         |
| LOCK SCREWS                               |                 | 16531                         | 16531     | 16531                         | 16532     | 16532      | 16532                 | 16532      | 16532                         | 16532     | 16532     | 16532                         | 16532     | 16532                         |
| HEADLESS BUSHINGS                         |                 | 19936                         | 19937     | 19938                         | 19937     | 19938      | 19939                 | 19940      | 19941                         | 19942     | 19943     | 19944                         | 19945     | 19946                         |

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ACTEK® MFG. & ENG. INC.



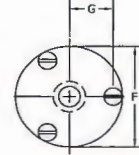
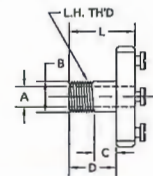
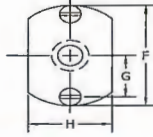
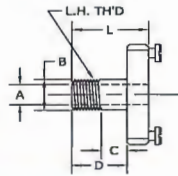






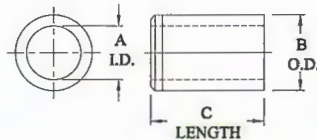
## AIR FEED ACCESSORIES

### AIR FEED LOCK LINERS



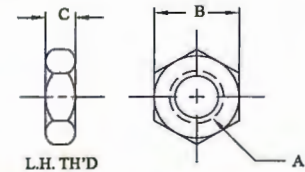
| PART NO. | A                | B                | C     | D     | F       | G       | H     | L       | L.H. THREAD | LOCK NUT NO. | MATCHING TIP |
|----------|------------------|------------------|-------|-------|---------|---------|-------|---------|-------------|--------------|--------------|
| A-16520  | .3750<br>.3756   | .4995<br>.4989   | 7/16  | 3/4   | 1-3/4   | 5/8     | 3/4   | 1-1/16  | 1/2-20      | 14441        | A-16500      |
| A-16521  | .5000<br>.5006   | .7495<br>.7489   | 7/16  | 3/4   | 1-3/4   | 5/8     | 1     | 1-1/16  | 3/4-16      | 14442        | A-16501      |
| A-16522  | .6250<br>.6256   | .8745<br>.9739   | 7/16  | 3/4   | 2-7/16  | 59/64   | 1-1/8 | 1-3/16  | 7/8-14      | 14443        | A-16502      |
| A-16523  | .8750<br>.8756   | 1.2495<br>1.2485 | 9/16  | 1     | 2-11/16 | 1-3/64  | 1-1/2 | 1-7/16  | 1-1/4-12    | 14445        | A-16503      |
| A-16524  | 1.1250<br>1.1260 | 1.4990<br>1.4980 | 27/32 | 1-1/2 | 2-11/16 | 1-3/64  | 1-3/4 | 1-15/16 | 1-1/2-12    | 14446        | A-16504      |
| A-16525  | 1.1250<br>1.1260 | 1.4990<br>1.4980 | 27/32 | 1-1/2 | 3       | 1-11/64 | 1-3/4 | 1-15/16 | 1-1/2-12    | 14446        | A-16505      |
| A-16526  | 1.5000<br>1.5010 | 1.9990<br>1.9980 | 27/32 | 1-1/2 | 3       | 1-11/64 | 2-1/2 | 1-15/16 | 2-16        | 14447        | A-16506      |
| A-16533  | 2.0000<br>2.0015 | 2.4990<br>2.4980 | 1-3/8 | 2     | 3-3/4   | 1-9/16  | -     | 2-5/8   | 2-1/2-16    | 14448        | A-16513      |

### LINER BUSHING



| PART NO | ANSI SYMBOL | A I.D. | B O.D. | C LENGTH |
|---------|-------------|--------|--------|----------|
| 19936   | L40-16      | 3/8    | 5/8    | 1        |
| 19937   | L48-16      | 7/16   | 3/4    | 1        |
| 19938   | L48-16      | 1/2    | 3/4    | 1        |
| 19939   | L56-16      | 9/16   | 7/8    | 1        |
| 19940   | L56-16      | 5/8    | 7/8    | 1        |
| 19941   | L64-16      | 3/4    | 1      | 1        |
| 19942   | L64-22      | 3/4    | 1      | 1-3/8    |
| 19943   | L88-22      | 13/16  | 1-3/8  | 1-3/8    |
| 19944   | L88-22      | 7/8    | 1-3/8  | 1-3/8    |
|         | L88-22      | 1      | 1-3/8  | 1-3/8    |
| 19946   | L112-28     | 1-1/8  | 1-3/4  | 1-3/4    |
| 19947   | L56-28      | 5/8    | 7/8    | 1-3/4    |
| 19949   | L64-28      | 3/4    | 1      | 1-3/4    |
| 19950   | L88-22      | 7/8    | 1-3/8  | 1-3/4    |
| 19951   | L88-22      | 1      | 1-3/8  | 1-3/4    |
| 19952   | L112-28     | 1-1/4  | 1-3/4  | 1-3/4    |
| 19953   | L112-40     | 1-1/4  | 1-3/4  | 2-1/2    |
| 19954   | L112-40     | 1-3/8  | 1-3/4  | 2-1/2    |
| 19955   | L144-40     | 1-1/2  | 2-1/4  | 2-1/2    |
| 19956   | L144-40     | 1-3/4  | 2-1/4  | 2-1/2    |

### LOCK NUT



| PART NO. | A THREAD SIZE | B O.D. | C LENGTH |
|----------|---------------|--------|----------|
| 14441    | 1/2-20        | 3/4    | 1/4      |
| 14442    | 3/4-16        | 1      | 1/4      |
| 14443    | 7/8-14        | 1-1/4  | 1/4      |
| 14445    | 1-1/4-12      | 1-3/4  | 3/8      |
| 14446    | 1-1/2-12      | 2      | 1/2      |
| 14447    | 2-16          | 2-1/2  | 1/2      |
| 14448    | 2-1/2-16      | 3      | 1/2      |

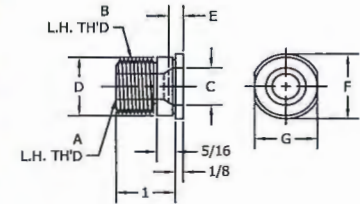




## AIR FEED ACCESSORIES

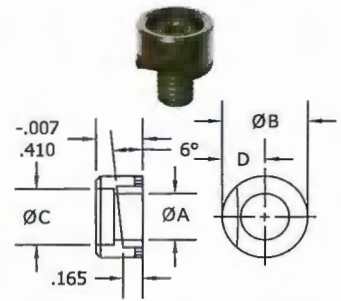
### REDUCER BUSHING

| PART NO | A<br>INSIDE<br>THREAD | B<br>OUTSIDE<br>THREAD | C<br>+.001<br>-.000 | D<br>+.0000<br>-.0006 | E     | F       | G      |
|---------|-----------------------|------------------------|---------------------|-----------------------|-------|---------|--------|
| 17952   | 3/4-16                | 1-14                   | .8125               | 1.0610                | 9/32  | 1-3/8   | 1-1/16 |
| 25018   | 3/4-16                | 1-1/4-12               | .8125               | 1.3110                | 9/32  | 1-5/8   | 1-5/16 |
| 25583   | 1-14                  | 1-1/4-12               | 1.0625              | 1.3110                | 11/32 | 1-5/8   | 1-5/16 |
| 25582   | 3/4-16                | 1-1/2-12               | .8125               | 1.5610                | 9/32  | 1-15/16 | 1-9/16 |
| 20132   | 1-14                  | 1-1/2-12               | 1.0625              | 1.5610                | 11/32 | 1-15/16 | 1-9/16 |
| 20017   | 1-1/4-12              | 1-1/2-12               | 1.3125              | 1.5610                | 11/32 | 1-15/16 | 1-9/16 |
| 27910   | 1-1/2-12              | 2-16                   | 1.5625              | 2.0610                | 11/32 | 2-1/2   | 2-1/16 |

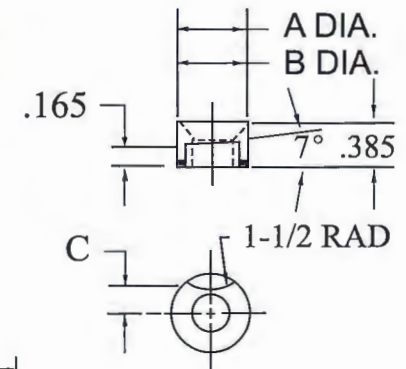


### AIR FEED CLAMPS

| PART NO | TAPER-LOK<br>PART NO. | A<br>I.D. | B<br>O.D. | C     | D    | BUTTON HEAD SOCKET<br>SCREW |
|---------|-----------------------|-----------|-----------|-------|------|-----------------------------|
| AFC-2   | TLC-2                 | 21/64     | 5/8       | 29/64 | .188 | 5/16-18 x 5/8               |
| AFC-3   | TLC-3                 | 25/64     | 3/4       | 33/64 | .219 | 3/8-16 x 3/4                |

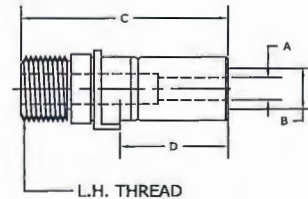


| PART NO | MOUNTING<br>SCREW<br>DIA | A   | B<br>DIA | C    | D       | FLAT HEAD SCREW            |
|---------|--------------------------|-----|----------|------|---------|----------------------------|
| AFL-9   | 5/16                     | 5/8 | 19/32    | 3/16 | -       | NOT FURNISHED              |
| AFL-11  |                          |     |          |      | 19/32   | 5/16-18 X 1                |
| AFL-13  |                          |     |          |      | 1-3/32  | 5/16-18 x 1-1/2 W/ JAM NUT |
| AFL-14  |                          |     |          |      | 1-19/32 | 5/16-18 x 2 W/ JAM NUT     |
| AFL-10  | 3/8                      | 3/4 | 23/32    | 7/32 | -       | NOT FURNISHED              |
| AFL-12  |                          |     |          |      | 19/32   | 3/8-16 x 1                 |



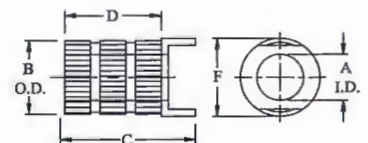
### ADAPTOR TIPS

| PART NO | A<br>I.D.<br>+.0003<br>-.0000 | B<br>O.D.<br>+.0000<br>-.0002 | C<br>LENGTH | D      | L.H.<br>THREAD |
|---------|-------------------------------|-------------------------------|-------------|--------|----------------|
| AT-1    | .191 - .205                   | .3437                         | 2-7/16      | 1-9/16 | 3/4-16         |
| AT-2    | .191 - .285                   | .4375                         | 2-7/16      | 1-9/16 | 3/4-16         |
| AT-3    | .281 - .413                   | .5625                         | 2-7/16      | 1-9/16 | 3/4-16         |
| AT-4    | .281 - .625                   | .7500                         | 2-7/16      | 1-9/16 | 1-1/4          |



### TIP LOCK LINERS

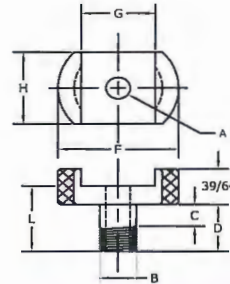
| PART NO | A<br>I.D.<br>+.0003<br>-.0000 | B<br>O.D. | C<br>LENGTH | D   | F     |
|---------|-------------------------------|-----------|-------------|-----|-------|
| LL-1    | .3440                         | 9/16      | 1-3/8       | 7/8 | 11/16 |
| LL-2    | .4377                         | 11/16     | 1-3/8       | 7/8 | 13/16 |
| LL-3    | .5627                         | 13/16     | 1-3/8       | 7/8 | 15/16 |
| LL-4    | .7503                         | 1.0000    | 1-3/8       | 7/8 | 1-1/8 |





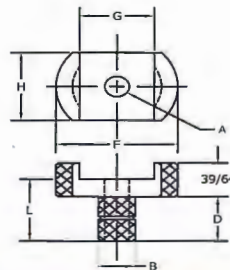
## AIR FEED ACCESSORIES

### AIR FEED LOCK LINERS



| PART NO.  | A                | B                | C     | D     | F       | G     | H     | L     | L.H. THREAD | LOCK NUT NO. | MATCHING TIP |
|-----------|------------------|------------------|-------|-------|---------|-------|-------|-------|-------------|--------------|--------------|
| AFL-16520 | .3750<br>.3755   | .4995<br>.4990   | 7/16  | 3/4   | 1-1/8   | .625  | 3/4   | 1     | 1/2-20      | 14441        | A-21106      |
| AFL-16521 | .5000<br>.5005   | .7495<br>.7490   | 7/16  | 3/4   | 1-3/16  | .625  | 7/8   | 1     | 3/4-16      | 14442        | A-21306      |
| AFL-16522 | .6250<br>.6255   | .8745<br>.8740   | 7/16  | 3/4   | 1-13/16 | 1.218 | 1-1/8 | 1     | 7/8-14      | 14443        | A-22406      |
| AFL-16523 | .8750<br>.8756   | 1.2495<br>1.2490 | 9/16  | 1     | 2-1/8   | 1.468 | 1-3/8 | 1-1/4 | 1-1/4-12    | 14445        | A-23310      |
| AFL-16524 | 1.1252<br>1.1258 | 1.4990<br>1.4985 | 27/32 | 1-1/2 | 2-1/8   | 1.468 | 1-5/8 | 1-3/4 | 1-1/2-12    | 14446        | A-23515      |
| AFL-16525 | 1.1252<br>1.1258 | 1.4990<br>1.4985 | 27/32 | 1-1/2 | 2-7/16  | 1.718 | 1-5/8 | 1-3/4 | 1-1/2-12    | 14446        | A-24615      |
| AFL-16526 | 1.5002<br>1.5008 | 1.9990<br>1.9985 | 27/32 | 1-1/2 | 2-7/16  | 1.718 | 2-1/8 | 1-3/4 | 2-16        | 14447        | A-24815      |

### AIR FEED LOCK LINERS FOR PLASTIC TOOLING



| PART NO. | A              | B     | D   | F       | G'    | H     | L     | MATCHING TIP |
|----------|----------------|-------|-----|---------|-------|-------|-------|--------------|
| AFD-375  | .3750<br>.3755 | 3/4   | 7/8 | 1-3/16  | .625  | 7/8   | 1-1/8 | A-21108      |
| AFD-500  | .5000<br>.5005 | 3/4   | 7/8 | 1-3/16  | .625  | 7/8   | 1-1/8 | A-21308      |
| AFD-750  | .7500<br>.7505 | 1-1/8 | 7/8 | 1-13/16 | 1.218 | 1-1/8 | 1-1/8 | A-22508      |





# ACTEK<sup>®</sup>

MANUFACTURING AND ENGINEERING, INC.

## TOOLING COMPONENTS



1110 Fullerton Road, City of Industry, CA 91748

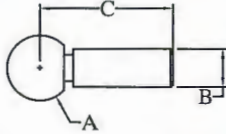
Toll Free:(800)752-7229 Tel:(626)581-3424 Fax:(626)581-3423 Web:ActekMfg.com Email:sales@actekmfg.com



## TOOLING BALL

MATERIAL: C 1144 HEAT TREATED RC 54-56  
 FOR GAGING, INSPECTION AND MEASURING  
 BALL AND SHANK ARE CONCENTRIC WITHIN .0002 T.I.R.

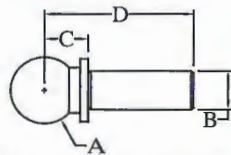
### STANDARD TOOLING BALLS



ONE PIECE CONSTRUCTION

| SLIP FIT PART NO.<br>SHANK<br>+.0000/-0.0004 | PRESS FIT PART NO.<br>SHANK<br>+.0003/-0.0000 | A<br>BALL<br>+.0002/-0.0002 | B     | C     |
|--|---|-----------------------------|-------|-------|
| 83105  | 83106   | .2500                       | .1250 | .563  |
| 83110  | 83111   | .3750                       | .1875 | .750  |
| 83115  | 83116   | .5000                       | .2500 | .940  |
| 83120  | 83121   | .5000                       | .2500 | 1.500 |
| 83122  | 83123   | .5000                       | .3125 | 1.500 |
| 83130  | 83131   | .5000                       | .3750 | 1.500 |

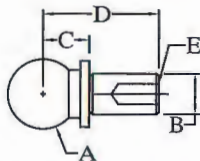
### SHOULDER TOOLING BALLS



ONE PIECE CONSTRUCTION

| SLIP FIT PART NO.<br>SHANK<br>+.0000/-0.0004 | PRESS FIT PART NO.<br>SHANK<br>+.0003/-0.0000 | A<br>BALL<br>+.0002/-0.0002 | B     | C<br>+.0002/-0.0002 | D    |
|--|---|-----------------------------|-------|---------------------|------|
| 83505  | 83506   | .2500                       | .1250 | .2000               | .56  |
| 83510  | 83511   | .3750                       | .1875 | .3000               | .75  |
| 83515  | 83516   | .5000                       | .2500 | .4000               | .94  |
| 83520  | 83521   | .5000                       | .2500 | .5000               | 1.38 |
| 83522  | 83523   | .5000                       | .2500 | .5000               | 1.50 |
| 83524  | 83525   | .5000                       | .3125 | .5000               | 1.50 |
| 83526  | 83527   | .5000                       | .3750 | .5000               | 1.50 |
| 83530  | 83531   | .7500                       | .3750 | .5000               | 1.25 |

### TOOLMAKER'S CONSTRUCTION BALLS

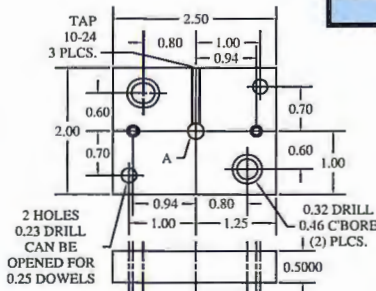


ONE PIECE CONSTRUCTION

| PART NO. | A<br>BALL<br>+.0002/-0.0002 | B<br>SHANK<br>+.0000/-0.0004 | C<br>+.0002/-0.0002 | D   | E<br>TAP<br>SIZE |
|----------|-----------------------------|------------------------------|---------------------|-----|------------------|
| 83575    | .5000                       | .2500                        | .3125               | .63 | #6-32            |
| 83577    | .5000                       | .2500                        | .3125               | .63 |                  |
| 83576    | .5000                       | .2500                        | .5000               | .94 | #6-32            |
| 83579    | .5000                       | .3125                        | .5000               | .94 | #6-32            |

### METRIC SHOULDER TOOLING BALL

| PART NO. | A<br>BALL<br>+.0002/-0.0002 | B<br>SHANK<br>+.0000/-0.0004 | C<br>+.0002/-0.0002 | D    | E<br>TAP<br>SIZE |
|----------|-----------------------------|------------------------------|---------------------|------|------------------|
| 83582    | 6mm                         | 3mm                          | 6mm                 | 12mm |                  |
| 83584    | 12mm                        | 6mm                          | 12mm                | 22mm |                  |
| 83580    | 12mm                        | 6mm                          | 12mm                | 24mm | M3.5             |
| 83583    | 12mm                        | 6mm                          | 12mm                | 24mm | #6-32            |



### CONSTRUCTION TOOLING BALL PAD

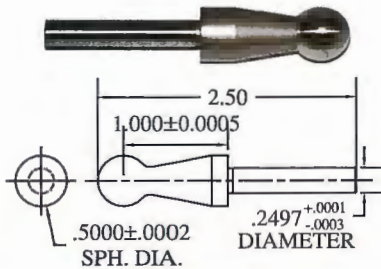
| PART NO | A     |
|---------|-------|
| 85160   | .2500 |



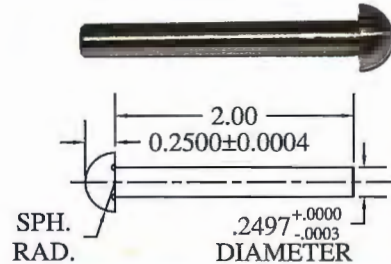


## TOOLING BALL

MATERIAL: C1144, HEAT TREATED RC 62-64, PRECISION GROUND  
FOR GAGING AND INSPECTION  
BALL AND SHANK ARE CONCENTRIC WITHIN .0002 T.I.R.



PART NO. 83590

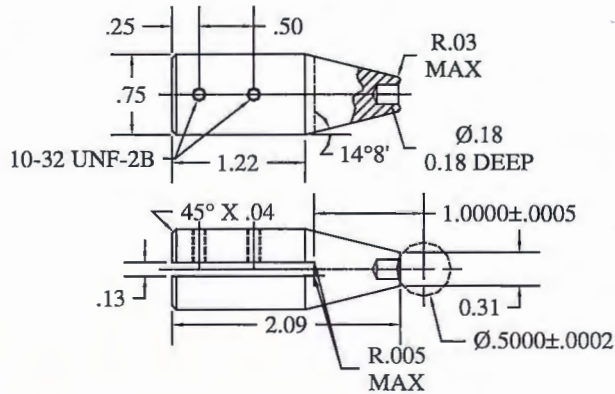


PART NO. 83592

\*STAINLESS STEEL TOOLING BALL AVAILABLE UPON REQUEST.

## TOOLING BALL ADAPTER

MATERIAL: AISI 01, HEAT TREATED RC 45-50



PART NO. 83596

## CONSTRUCTION TOOLING BALL COVER

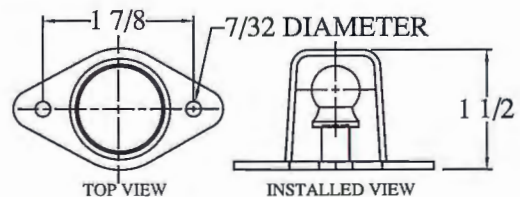
MATERIAL: ZINC DIE CASTING & INDUSTRIAL GRADE P.E.  
PROTECTS A CONSTRUCTION BALL FROM DAMAGE AFTER INSTALLATION.



PART NO. 83597



PART NO. 83598

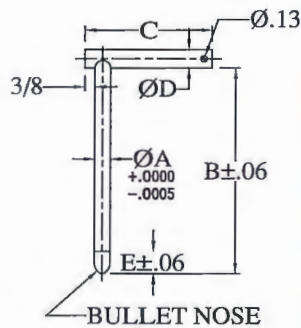




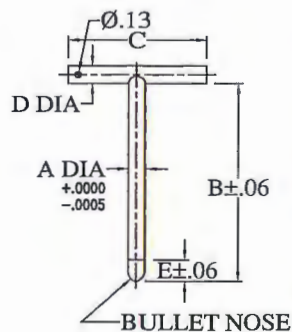
## L PINS & T PINS

PRECISION GROUND, 1144 STEEL, CASE HARDENED, BLACK OXIDE FINISH  
FOR LOCATING & ALIGNING HOLES, EASILY REMOVABLE

### L PIN



### T PIN



| L PIN<br>PART NO. | T PIN<br>PART NO. | A       |        | B     | C     | D    | E     |     |     |
|-------------------|-------------------|---------|--------|-------|-------|------|-------|-----|-----|
|                   |                   | NOMINAL | ACTUAL |       |       |      |       |     |     |
| 84510             | 84710             | 1/8     | .1250  | 2-1/2 | 1-1/2 | 1/4  | 1/4   |     |     |
| 84511             | 84712             | 5/32    | .1562  | 3-1/2 | 2-1/2 | 5/16 | 1/4   |     |     |
| 84512             | 84713             | 3/16    | .1875  | 2     |       |      |       |     |     |
| 84515             | 84715             |         |        | 3     |       |      |       |     |     |
| 84517             | 84716             |         |        | 4     |       |      |       |     |     |
| 84520             | 84720             |         |        | 6     |       |      |       |     |     |
| 84525             | 84725             | #11     | .1910  | 3     |       |      |       |     |     |
| 84527             | 84727             |         |        | 4     |       |      |       |     |     |
| 84530             | 84730             |         |        | 6     |       |      |       |     |     |
| 84535             | 84735             | #9      | .1960  | 3     | 2-1/2 | 3/8  | 3/8   |     |     |
| 84537             | 84737             | #2      | .2210  | 3     |       |      |       |     |     |
| 84538             | 84739             | 1/4     | .2500  | 2     |       |      |       |     |     |
| 84540             | 84740             |         |        | 3     |       |      |       |     |     |
| 84541             | 84742             |         |        | 4     |       |      |       |     |     |
| 84545             | 84745             |         |        | 6     |       |      |       |     |     |
| 84550             | 84750             | F       | .2570  | 3     | 2-1/2 | 7/16 | 1/2   |     |     |
| 84554             | 84751             | 4       |        |       |       |      |       |     |     |
| 84551             | 84752             | 5/16    | .3125  | 2     |       |      |       |     |     |
| 84552             | 84753             |         |        | 3     |       |      |       |     |     |
| 84555             | 84755             |         |        | 3-1/2 |       |      |       |     |     |
| 84556             | 84756             |         |        | 4     |       |      |       |     |     |
| 84560             | 84760             |         |        | 6     |       |      |       |     |     |
| 84562             | 84762             |         |        | 3/8   | .3750 | 3    | 2-1/2 | 1/2 | 1/2 |
| 84565             | 84765             | 4       |        |       |       |      |       |     |     |
| 84567             | 84767             | 5       |        |       |       |      |       |     |     |
| 84570             | 84770             | 6       |        |       |       |      |       |     |     |
| 84575             | 84775             | 7/16    | .4375  | 4     | 3-1/2 | 9/16 | 5/8   |     |     |
| 84580             | 84780             | 1/2     | .5000  | 6     |       |      |       |     |     |
| 84586             | 84782             |         |        | 3     |       |      |       |     |     |
| 84585             | 84785             |         |        | 4     |       |      |       |     |     |
| 84590             | 84790             | 9/16    | .5625  | 6     |       |      |       | 5/8 | 5/8 |
| 84595             | 84795             |         |        | 4     |       |      |       |     |     |
| 84600             | 84800             |         |        | 6     |       |      |       |     |     |
| 84605             | 84805             | 5/8     | .6250  | 6     | 7/8   | 3/4  |       |     |     |
| 84610             | 84810             | 3/4     | .7500  | 6     |       |      |       |     |     |

\* TO ORDER L-PIN OR T-PIN WITH A CABLE ASSEMBLY, ADD "-C" TO PIN PART NO.

\* SPECIAL SIZES QUOTED UPON REQUEST.

STANDARD CABLE ASSEMBLY LENGTH IS 12". ADDITIONAL CABLE LENGTH AVAILABLE.  
AK84505 IS THE PART NO. FOR 12" ADD "LENGTH" FOR SPECIAL ( EX AK84505-20)

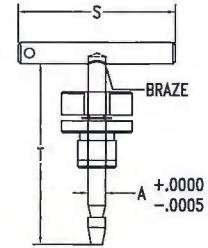
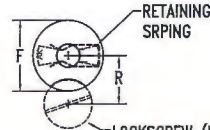
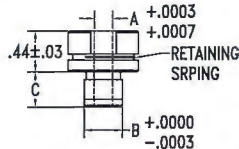
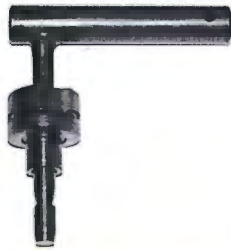






## LOCKING PIN ASSEMBLY

MATERIAL: C1144 STEEL, CASE HARDENED, BLACK OXIDE FINISH  
 A CAPTIVE LOCATING PIN WHICH REPLACES CONVENTIONAL L OR T PINS



LOCKSCREW (NOT INCLUDED)

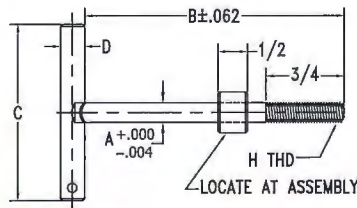
| PART NO.<br>L-PIN<br>ASSY. | PART NO.<br>T-PIN<br>ASSY. | A       |        | T     | PART<br>NO.<br>BUSHING | F      | S     | C    | R   |
|----------------------------|----------------------------|---------|--------|-------|------------------------|--------|-------|------|-----|
|                            |                            | NOMINAL | ACTUAL |       |                        |        |       |      |     |
| 39001                      | 39002                      | 3/16    | .1865  | 1-1/2 | 39001-B                | 13/16  | 2-1/2 | 0.31 | .62 |
| 39003                      | 39004                      |         |        | 2     |                        |        |       | 0.31 |     |
| 39005                      | 39006                      |         |        | 3     |                        |        |       | 0.31 |     |
| 39007                      | 39008                      | 1/4     | .2490  | 2     | 39007-B                |        | 2-1/2 | 0.31 |     |
| 39009                      | 39010                      |         |        | 3     |                        |        |       | 0.31 |     |
| 39011                      | 39012                      |         |        | 4     |                        |        |       | 0.31 |     |
| 39013                      | 39014                      | 5/16    | .3115  | 2     | 39013-B                | 3      | 0.31  | .62  |     |
| 39015                      | 39018                      |         |        | 3-1/2 |                        |        | 0.37  |      |     |
| 39017                      | 39020                      |         |        | 6     |                        |        | 0.37  |      |     |
| 39019                      | 39022                      | 3/8     | .3740  | 2     | 39019-B                | 3-1/2  | 0.31  |      |     |
| 39021                      | 39024                      |         |        | 4     |                        |        | 0.50  |      |     |
| 39023                      | 39026                      |         |        | 6     |                        |        | 0.50  |      |     |
| 39025                      | 39028                      | 1/2     | .4990  | 2     | 39025-B                | 1-1/16 | 0.50  | .75  |     |
| 39029                      | 39030                      |         |        | 4     |                        |        | 0.75  |      |     |
| 39031                      | 39032                      |         |        | 6     |                        |        | 0.75  |      |     |

\* LOCKING PIN ONLY ADD "-P" THE END OF THE ASSY PART NO.

\* LS-1 LOCK SCREW AVAILABLE UPON REQUEST.

## CLAMPING PINS

MATERIAL: C1144 STEEL, CASE HARDENED, BLACK OXIDE FINISH  
 USE TO CLAMP MATERIALS OF VARIOUS THICKNESSES BY ADJUSTING BUSHING  
 OR WELDING BUSHING IN PLACE TO SUIT THE APPLICATION



| PART<br>NO. | A       |        | B     | H       | C     | D   | E   | G    |
|-------------|---------|--------|-------|---------|-------|-----|-----|------|
|             | NOMINAL | ACTUAL |       |         |       |     |     |      |
| 39040       | #10     | .193   | 3     | #10-24  | 1-1/2 | 1/4 | 3/8 | .203 |
| 39042       |         |        |       | #10-32  |       |     |     |      |
| 39044       | 1/4     | .250   | 4     | 1/4-20  | 2-1/2 | 3/8 | 1/2 | .252 |
| 39046       | 5/16    | .312   |       | 5/16-18 |       |     |     |      |
| 39048       | 3/8     | .375   | 4-1/2 | 3/8-16  | 3-1/2 | 1/2 | 5/8 | .378 |
| 39050       | 1/2     | .500   | 5     | 1/2-13  |       |     |     |      |

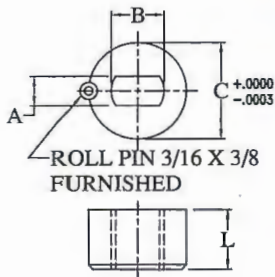
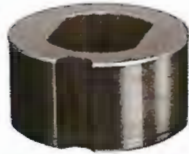
\* CLAMPING PINS ONLY ADD "-P" TO PART NO.



## SLOTTED HOLE LOCATOR BUSHING

MATERIAL: TOOL STEEL, HEAT TREATED RC 58-62, BLACK OXIDE FINISH  
FOR USE WITH DOWELS, L PINS, T PINS, OR ANY KIND OF PINS  
TO ALIGN TWO HOLES WITHOUT BINDING

### PRESS FIT TYPE FOR METAL TOOLING



| PART NO. | PIN DIA. | A             | B     | C      | L     |
|----------|----------|---------------|-------|--------|-------|
| 72942    | 3/16     | .1876/.1882   | .312  | .7504  | .400  |
| 72943    | 1/4      | .2501/.2507   | .375  | .7504  | .400  |
| 72944    | 1/4      | .2501/.2507   | .375  | 1.0004 | .400  |
| 72945    | 5/16     | .3126/.3132   | .437  | 1.0004 | .400  |
| 72946    | 3/8      | .3751/.3757   | .500  | 1.0004 | .400  |
| 72948    | 1/2      | .5001/.5007   | .625  | 1.0004 | .400  |
| 72950    | 1/2      | .5001/.5007   | .625  | 1.0004 | .900  |
| 72954    | 5/8      | .6251/.6257   | .750  | 1.2504 | .900  |
| 72956    | 3/4      | .7501/.7510   | .812  | 1.5004 | 1.000 |
| 72964    | 7/8      | .8751/.8760   | 1.000 | 1.5004 | 1.000 |
| 72968    | 1        | 1.0001/1.0010 | 1.062 | 1.5004 | 1.000 |

\*ROLL PIN 3/16X3/8 FURNISHED

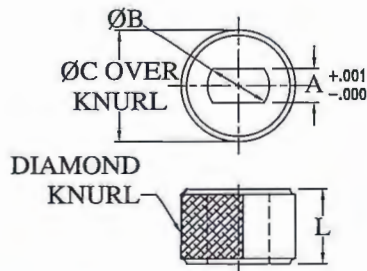
CARBIDE AND STAINLESS STEEL MATERIAL AVAILABE UPON REQUEST

### PRESS FIT TYPE FOR METAL TOOLING (METRIC)

| PART NO. | PIN DIA. | A           | B     | C      | L    |
|----------|----------|-------------|-------|--------|------|
| 72920    | 6mm      | .2363/.2373 | .354  | .7874  | .354 |
| 72922    | 8mm      | .3151/.1361 | .433  | .9449  | .354 |
| 72924    | 10mm     | .3938/.3948 | .512  | .9449  | .354 |
| 72926    | 12mm     | .4725/.2735 | .591  | .9449  | .551 |
| 72928    | 16mm     | .6300/.6310 | .709  | 1.1811 | .472 |
| 72930    | 20mm     | .7875/.7885 | .866  | 1.4173 | .748 |
| 72932    | 25mm     | .9844/.9854 | 1.063 | 1.5748 | .748 |

\*ROLL PIN 3/16X3/8 FURNISHED

CARBIDE AND STAINLESS STEEL MATERIAL AVAILABE UPON REQUEST



### KNURL TYPE FOR PLASTIC TOOLING

| PART NO. | PIN DIA. | A     | B    | C     | L   |
|----------|----------|-------|------|-------|-----|
| 72873    | 3/16     | .1880 | .312 | .565  | 1/2 |
| 72874    | 1/4      | .2501 | .375 | .640  | 1/2 |
| 72875    | 5/16     | .3126 | .437 | .765  | 1/2 |
| 72876    | 3/8      | .3751 | .500 | .890  | 1/2 |
| 72878    | 1/2      | .5001 | .625 | 1.015 | 1/2 |
| 72888    | 1/2      | .5001 | .625 | 1.015 | 1   |

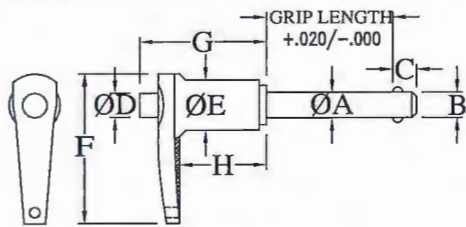




## BALL LOCK PIN

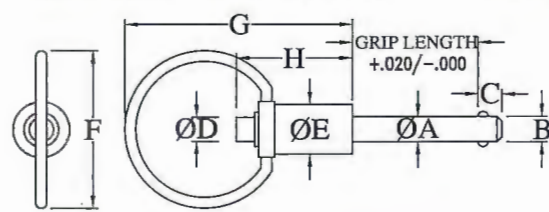
L HANDLE BALL LOCK PIN

TYPE LH



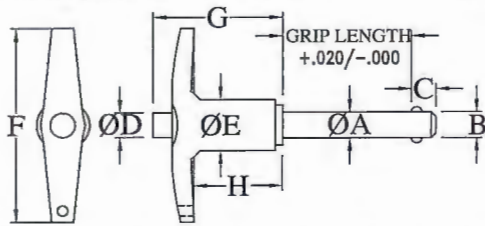
RING HANDLE BALL LOCK PIN

TYPE RH



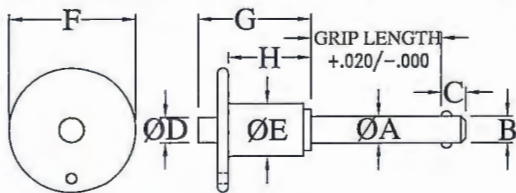
T HANDLE BALL LOCK PIN

TYPE TH



BUTTON HANDLE BALL LOCK PIN

TYPE BH



| PART          | MATERIAL         |
|---------------|------------------|
| BODY          | 4130 ALLOY STEEL |
| BODY          | CRES. 17-4PH     |
| BUTTON        | ALUM ALLOY 2024  |
| T & L HANDLE  | ALUM. CASTING    |
| BUTTON HANDLE | ALUM. 2024       |
| RING HANDLE   | CRES. 17-4PH     |

\*STAINLESS STEEL AVAILABLE UPON REQUEST.

| PART NO. | TO ORDER, SPECIFY IN SEQUENCE | QTY. | DIA. | LENGTH | TYPE      |
|----------|-------------------------------|------|------|--------|-----------|
|          | TYPICAL ORDERING EXAMPLE      | 25   | AK   | -3/16  | 2-1/2 -LH |

### INCHES

| NOM. PIN DIA. | A     |       | B<br>+/- .005 | C<br>+.000/-0.040 | D     | E     | F     | G       | H       |
|---------------|-------|-------|---------------|-------------------|-------|-------|-------|---------|---------|
|               | MIN.  | MAX.  |               |                   |       |       |       |         |         |
| 3/16          | .1870 | .1885 | .220          | .260              | 1/4   | 1/2   | 1-3/4 | 1-1/4   | 3/4     |
| 1/4           | .2470 | .2485 | .289          | .290              | 1/4   | 1/2   | 1-3/4 | 1-1/4   | 3/4     |
| 5/16          | .3095 | .3110 | .375          | .330              | 1/4   | 1/2   | 1-3/4 | 1-1/4   | 3/4     |
| 3/8           | .3720 | .3735 | .440          | .365              | 5/16  | 19/32 | 2     | 1-7/16  | 15/16   |
| 7/16          | .4345 | .4360 | .509          | .380              | 5/16  | 19/32 | 2     | 1-7/16  | 15/16   |
| 1/2           | .4970 | .4985 | .594          | .460              | 15/32 | 3/4   | 2-1/4 | 1-5/8   | 1       |
| 5/8           | .6220 | .6235 | .750          | .580              | 9/16  | 15/16 | 2-1/2 | 1-31/32 | 1-3/16  |
| 3/4           | .7470 | .7485 | .887          | .670              | 5/8   | 15/16 | 2-1/2 | 1-31/32 | 1-3/16  |
| 1             | .9970 | .9985 | 1.209         | .890              | 3/4   | 1-1/4 | 3-1/4 | 2-1/4   | 1-11/32 |

### METRIC

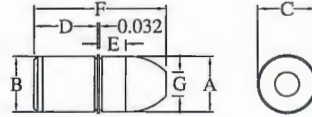
| NOM. PIN DIA. | A     |       | B<br>+/- .25 | C<br>+/- 1.0 | D<br>mm | E<br>mm | F<br>mm | G<br>mm | H<br>mm |
|---------------|-------|-------|--------------|--------------|---------|---------|---------|---------|---------|
|               | MIN.  | MAX.  |              |              |         |         |         |         |         |
| 5             | 4.92  | 4.96  | 5.54         | 6            | 6.5     | 10.8    | 28.0    | 34.1    | 20.8    |
| 6             | 5.92  | 5.96  | 6.99         | 7            | 6.5     | 10.8    | 28.0    | 34.1    | 20.8    |
| 8             | 7.92  | 7.96  | 9.42         | 8            | 6.5     | 10.8    | 28.0    | 34.1    | 21.6    |
| 10            | 9.92  | 9.96  | 11.86        | 9            | 7.7     | 14.2    | 28.0    | 38.0    | 25.2    |
| 12            | 11.92 | 11.96 | 14.45        | 10           | 11.0    | 17.2    | 35.2    | 47.2    | 30.5    |
| 16            | 15.92 | 15.96 | 19.00        | 14           | 12.4    | 23.9    | 41.9    | 61.6    | 42.6    |
| 20            | 19.92 | 19.96 | 24.08        | 17           | 14.6    | 23.9    | 41.9    | 61.6    | 46.4    |
| 25            | 24.92 | 24.96 | 30.94        | 22           | 19.2    | 30      | 45.0    | 72.4    | 54.0    |



## BULLET NOSE DOWELS, PINS AND LINERS

MATERIAL: 1144 STEEL HEAT TREATED RC 50-62, BLACK OXIDE FINISH

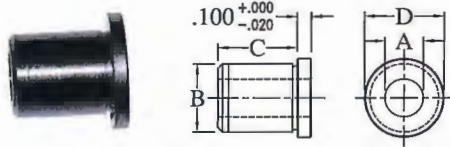
PRECISION LOCATING PIN WITH MATCHING LINER BUSHING ALIGN TWO PIECES OF A FIXTURE



### BULLET NOSE DOWELS

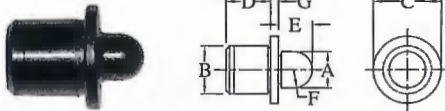
| DOWEL PART NO. | +0.0000<br>-.0005<br>A | +0.0000<br>-.0003<br>B | C    | D   | E    | F     | G    | USE WITH LINER PART NO. |
|----------------|------------------------|------------------------|------|-----|------|-------|------|-------------------------|
| 69130          | .2499                  | .2516                  | .280 | 1/2 | .125 | .907  | 1/8  | 69180                   |
| 69135          | .3124                  | .3141                  | .344 | 1/2 | .157 | .939  | 5/32 | 69185                   |
| 69140          | .3749                  | .3766                  | .407 | 1/2 | .187 | 1.032 | 3/16 | 69190                   |
| 69145          | .4999                  | .5017                  | .532 | 1/2 | .187 | 1.094 | 1/4  | 69195                   |

### LINERS FOR BULLET NOSE DOWELS

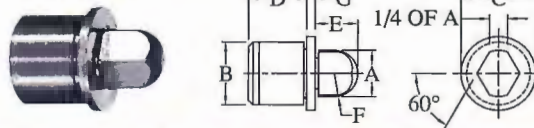


| LINER PART NO. | +0.0004<br>-.0000<br>A | +0.0000<br>-.0003<br>B | C   | D    |
|----------------|------------------------|------------------------|-----|------|
| 69180          | .2501                  | .5017                  | 3/8 | .625 |
| 69185          | .3126                  | .5017                  | 3/8 | .625 |
| 69190          | .3751                  | .6267                  | 1/2 | .750 |
| 69195          | .5001                  | .7518                  | 5/8 | .875 |

### ROUND



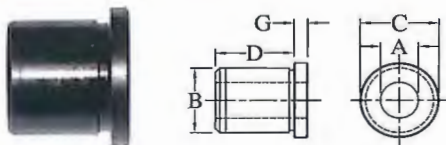
### RELIEVED



### ROUND AND RELIEVED BULLET NOSE PINS

| ROUND PIN PART NO. | RELIEVED PIN PART NO. | +0.0000<br>-.0003<br>A | +0.0000<br>-.0003<br>B | C     | D   | E     | F    | G    | USE WITH LINER PART NO. |
|--------------------|-----------------------|------------------------|------------------------|-------|-----|-------|------|------|-------------------------|
| 69105              | 69106                 | .2499                  | .4078                  | 9/16  | 3/8 | 7/32  | 1/8  | 1/16 | 69155                   |
| 69110              | 69111                 | .3124                  | .5017                  | 5/8   | 3/8 | 9/32  | 5/32 | 1/16 | 69160                   |
| 69115              | 69116                 | .3748                  | .6267                  | 3/4   | 1/2 | 5/16  | 3/16 | 1/16 | 69165                   |
| 69120              | 69121                 | .4998                  | .7518                  | 7/8   | 1/2 | 13/32 | 1/4  | 1/16 | 69170                   |
| 69123              | 69124                 | .7498                  | 1.0018                 | 1-1/8 | 3/4 | 9/16  | 3/8  | 1/8  | 69173                   |
| 69125              | 69126                 | .9998                  | 1.3771                 | 1-1/2 | 3/4 | 3/4   | 1/2  | 1/8  | 69175                   |

### LINERS FOR BULLET NOSE PINS



| LINER PART NO. | +0.0004<br>-.0000<br>A | +0.0000<br>-.0003<br>B | C     | D     | G    |
|----------------|------------------------|------------------------|-------|-------|------|
| 69155          | .2501                  | .4078                  | 9/16  | 7/16  | 1/16 |
| 69160          | .3126                  | .5017                  | 5/8   | 7/16  | 1/16 |
| 69165          | .3751                  | .6267                  | 3/4   | 7/16  | 1/16 |
| 69170          | .5001                  | .7518                  | 7/8   | 1/2   | 1/16 |
| 69173          | .7502                  | 1.0018                 | 1-1/8 | 1/2   | 1/8  |
| 69175          | 1.0002                 | 1.3771                 | 1-1/2 | 11/16 | 1/8  |

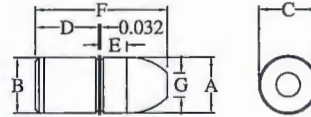
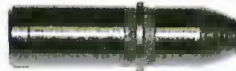




## METRIC BULLET NOSE DOWELS, PINS AND LINERS

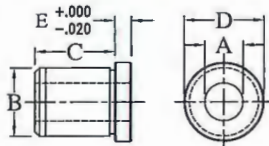
MATERIAL: 1144 STEEL HEAT TREATED RC 50-62, BLACK OXIDE FINISH

PRECISION LOCATING PIN WITH MATCHING LINER BUSHING ALIGN TWO PIECES OF A FIXTURE



### METRIC BULLET NOSE DOWELS

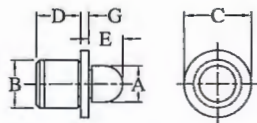
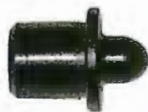
| DOWEL<br>PART NO. | A<br>+.0000 /-.0005<br>HEAD DIA |        | B<br>+.0000 /-.0003<br>SHANK DIA |        | C<br>DIA | D    | E    | F    | G<br>DIA | USE WITH<br>LINER<br>PART NO. |
|-------------------|---------------------------------|--------|----------------------------------|--------|----------|------|------|------|----------|-------------------------------|
|                   | NOMINAL                         | ACTUAL | NOMINAL                          | ACTUAL |          |      |      |      |          |                               |
| 69002             | 6mm                             | 0.2361 | 6mm                              | 0.2378 | 0.276    | 0.47 | .125 | 0.86 | 0.12     | 69010                         |
| 69004             | 8mm                             | 0.3149 | 8mm                              | 0.3166 | 0.354    | 0.47 | .157 | 0.91 | 0.16     | 69012                         |
| 69006             | 10mm                            | 0.3936 | 10mm                             | 0.3953 | 0.433    | 0.47 | .187 | 0.98 | 0.20     | 69014                         |
| 69008             | 12mm                            | 0.4723 | 12mm                             | 0.4740 | 0.512    | 0.47 | .187 | 1.06 | 0.24     | 69016                         |



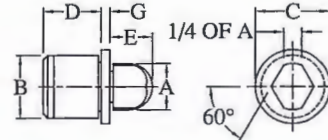
### METRIC LINERS FOR BULLET NOSE DOWELS

| LINER<br>PART NO. | A<br>+.0004 /-.0000<br>DIA |        | B<br>+.0000 /-.0003<br>DIA |        | C     | D<br>DIA | E     |
|-------------------|----------------------------|--------|----------------------------|--------|-------|----------|-------|
|                   | NOMINAL                    | ACTUAL | NOMINAL                    | ACTUAL |       |          |       |
| 69010             | 6mm                        | 0.2363 | 10mm                       | 0.3954 | 0.276 | 0.512    | 0.118 |
| 69012             | 8mm                        | 0.3151 | 12mm                       | 0.4741 | 0.276 | 0.591    | 0.118 |
| 69014             | 10mm                       | 0.3938 | 15mm                       | 0.5924 | 0.354 | 0.709    | 0.118 |
| 69016             | 12mm                       | 0.4725 | 18mm                       | 0.7105 | 0.472 | 0.866    | 0.157 |

### ROUND

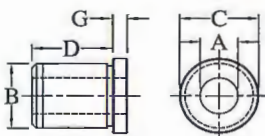


### RELIEVED



### METRIC ROUND AND RELIEVED BULLET NOSE PINS

| ROUND<br>PIN<br>PART NO. | RELIEVED<br>PIN<br>PART NO. | A<br>+.0000 /-.0003 |        | B<br>+.0000 /-.0003 |        | C<br>DIA | D    | E    | G     | USE WITH<br>LINER<br>PART NO. |
|--------------------------|-----------------------------|---------------------|--------|---------------------|--------|----------|------|------|-------|-------------------------------|
|                          |                             | NOMINAL             | ACTUAL | NOMINAL             | ACTUAL |          |      |      |       |                               |
| 69017                    | 69018                       | 6mm                 | 0.2361 | 10mm                | 0.3953 | 0.512    | 0.35 | 0.24 | 0.079 | 69026                         |
| 69019                    | 69020                       | 8mm                 | 0.3149 | 12mm                | 0.4741 | 0.591    | 0.35 | 0.28 | 0.079 | 69028                         |
| 69021                    | 69022                       | 10mm                | 0.3935 | 15mm                | 0.5924 | 0.709    | 0.43 | 0.35 | 0.079 | 69030                         |
| 69023                    | 69024                       | 12mm                | 0.4722 | 18mm                | 0.7105 | 0.866    | 0.43 | 0.39 | 0.079 | 69032                         |



### METRIC LINERS FOR BULLET NOSE PINS

| LINER<br>PART NO. | A<br>+.0004 /-.0000 |        | B<br>+.0000 /-.0003 |        | C<br>DIA | D    | G     |
|-------------------|---------------------|--------|---------------------|--------|----------|------|-------|
|                   | NOMINAL             | ACTUAL | NOMINAL             | ACTUAL |          |      |       |
| 69026             | 6mm                 | 0.2363 | 10mm                | 0.3953 | 0.512    | 0.31 | 0.079 |
| 69028             | 8mm                 | 0.3151 | 12mm                | 0.4741 | 0.591    | 0.31 | 0.079 |
| 69030             | 10mm                | 0.3938 | 15mm                | 0.5924 | 0.709    | 0.39 | 0.079 |
| 69032             | 12mm                | 0.4725 | 18mm                | 0.7105 | 0.866    | 0.39 | 0.079 |

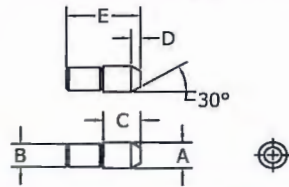




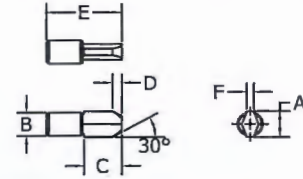
## ROUND & RELIEVED FLANGELESS LOCATING PINS

MATERIAL: C1144 STEEL, HEAT TREAT: CASE HARDENED, FINISH: PRECISION GROUND

ROUND PIN



DIAMOND PIN



| PART NO. |             | A        |             | B         |             | C      | D    | E     | F |  |  |  |  |      |
|----------|-------------|----------|-------------|-----------|-------------|--------|------|-------|---|--|--|--|--|------|
|          |             | HEAD DIA |             | SHANK DIA |             |        |      |       |   |  |  |  |  |      |
|          |             | NOMINAL  | ACTUAL      | NOMINAL   | ACTUAL      |        |      |       |   |  |  |  |  |      |
| 25160    | ROUND PIN   | 1/4      | .2495/.2492 | 3/16      | .1878/.1876 | 11/32  | 3/32 | 3/4   | - |  |  |  |  |      |
| 25160-X  |             |          | .2493/.2490 |           |             |        |      |       |   |  |  |  |  |      |
| 25160-Y  | DIAMOND PIN |          | .2485/.2482 |           |             |        |      |       |   |  |  |  |  | .062 |
| 25160-Z  |             |          | .2470/.2467 |           |             |        |      |       |   |  |  |  |  |      |
| 25162    | ROUND PIN   | 5/16     | .3120/.3117 | 1/4       | .2503/.2501 | 13/32  | 3/32 | 7/8   | - |  |  |  |  |      |
| 25162-X  |             |          | .3118/.3115 |           |             |        |      |       |   |  |  |  |  |      |
| 25162-Y  | DIAMOND PIN |          | .3110/.3107 |           |             |        |      |       |   |  |  |  |  | .078 |
| 25162-Z  |             |          | .3095/.3092 |           |             |        |      |       |   |  |  |  |  |      |
| 25164    | ROUND PIN   | 3/8      | .3745/.3742 | 5/16      | .3128/.3126 | 1/2    | 1/8  | 1     | - |  |  |  |  |      |
| 25164-X  |             |          | .3743/.3740 |           |             |        |      |       |   |  |  |  |  |      |
| 25164-Y  | DIAMOND PIN |          | .3735/.3732 |           |             |        |      |       |   |  |  |  |  | .093 |
| 25164-Z  |             |          | .3720/.3717 |           |             |        |      |       |   |  |  |  |  |      |
| 25166    | ROUND PIN   | 7/16     | .4370/.4367 | 3/8       | .3753/.3751 | 19/32  | 5/32 | 1-1/4 | - |  |  |  |  |      |
| 25166-X  |             |          | .4368/.4365 |           |             |        |      |       |   |  |  |  |  |      |
| 25166-Y  | DIAMOND PIN |          | .4360/.4357 |           |             |        |      |       |   |  |  |  |  | .109 |
| 25166-Z  |             |          | .4345/.4342 |           |             |        |      |       |   |  |  |  |  |      |
| 25168    | ROUND PIN   | 1/2      | .4995/.4992 | 7/16      | .4378/.4376 | 21/32  | 5/32 | 1-3/8 | - |  |  |  |  |      |
| 25168-X  |             |          | .4993/.4990 |           |             |        |      |       |   |  |  |  |  |      |
| 25168-Y  | DIAMOND PIN |          | .4985/.4982 |           |             |        |      |       |   |  |  |  |  | .125 |
| 25168-Z  |             |          | .4970/.4967 |           |             |        |      |       |   |  |  |  |  |      |
| 25170    | ROUND PIN   | 9/16     | .5620/.5617 | 1/2       | .5003/.5001 | 3/4    | 3/16 | 1-1/2 | - |  |  |  |  |      |
| 25170-X  |             |          | .5615/.5610 |           |             |        |      |       |   |  |  |  |  |      |
| 25170-Y  | DIAMOND PIN |          | .5595/.5590 |           |             |        |      |       |   |  |  |  |  | .140 |
| 25170-Z  |             |          | .5575/.5570 |           |             |        |      |       |   |  |  |  |  |      |
| 25172    | ROUND PIN   | 5/8      | .6240/.6237 | 9/16      | .5628/.5626 | 27/32  | 7/32 | 1-3/4 | - |  |  |  |  |      |
| 25172-X  |             |          | .6240/.6235 |           |             |        |      |       |   |  |  |  |  |      |
| 25172-Y  | DIAMOND PIN |          | .6220/.6215 |           |             |        |      |       |   |  |  |  |  | .156 |
| 25172-Z  |             |          | .6200/.6195 |           |             |        |      |       |   |  |  |  |  |      |
| 25174    | ROUND PIN   | 11/16    | .6865/.6862 | 5/8       | .6253/.6251 | 29/32  | 7/32 | 2     | - |  |  |  |  |      |
| 25174-X  |             |          | .6865/.6860 |           |             |        |      |       |   |  |  |  |  |      |
| 25174-Y  | DIAMOND PIN |          | .6845/.6840 |           |             |        |      |       |   |  |  |  |  | .172 |
| 25174-Z  |             |          | .6825/.6820 |           |             |        |      |       |   |  |  |  |  |      |
| 25176    | ROUND PIN   | 3/4      | .7490/.7487 | 11/16     | .6885/.6880 | 1      | 1/4  | 2-1/8 | - |  |  |  |  |      |
| 25176-X  |             |          | .7490/.7485 |           |             |        |      |       |   |  |  |  |  |      |
| 25176-Y  | DIAMOND PIN |          | .7470/.7465 |           |             |        |      |       |   |  |  |  |  | .187 |
| 25176-Z  |             |          | .7450/.7445 |           |             |        |      |       |   |  |  |  |  |      |
| 25178    | ROUND PIN   | 13/16    | .8115/.8112 | 3/4       | .7510/.7505 | 1-3/32 | 9/32 | 2-1/4 | - |  |  |  |  |      |
| 25178-X  |             |          | .8115/.8110 |           |             |        |      |       |   |  |  |  |  |      |
| 25178-Y  | DIAMOND PIN |          | .8095/.8090 |           |             |        |      |       |   |  |  |  |  | .203 |
| 25178-Z  |             |          | .8075/.8070 |           |             |        |      |       |   |  |  |  |  |      |
| 25180    | ROUND PIN   | 7/8      | .8740/.8737 | 13/16     | .8135/.8130 | 1-5/32 | 9/32 | 2-1/2 | - |  |  |  |  |      |
| 25180-X  |             |          | .8740/.8735 |           |             |        |      |       |   |  |  |  |  |      |
| 25180-Y  | DIAMOND PIN |          | .8720/.8715 |           |             |        |      |       |   |  |  |  |  | .219 |
| 25180-Z  |             |          | .8700/.8695 |           |             |        |      |       |   |  |  |  |  |      |
| 25182    | ROUND PIN   | 15/16    | .9365/.9362 | 7/8       | .8760/.8755 | 1-1/4  | 5/16 | 2-3/4 | - |  |  |  |  |      |
| 25182-X  |             |          | .9365/.9360 |           |             |        |      |       |   |  |  |  |  |      |
| 25182-Y  | DIAMOND PIN |          | .9345/.9340 |           |             |        |      |       |   |  |  |  |  | .234 |
| 25182-Z  |             |          | .9325/.9320 |           |             |        |      |       |   |  |  |  |  |      |
| 25184    | ROUND PIN   | 1        | .9985/.9980 | 15/16     | .9385/.9380 | 1-5/16 | 5/16 | 2-7/8 | - |  |  |  |  |      |
| 25184-X  |             |          | .9980/.9972 |           |             |        |      |       |   |  |  |  |  |      |
| 25184-Y  | DIAMOND PIN |          | .9960/.9952 |           |             |        |      |       |   |  |  |  |  | .250 |
| 25184-Z  |             |          | .9920/.9912 |           |             |        |      |       |   |  |  |  |  |      |

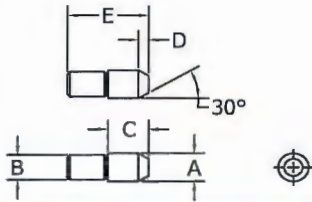




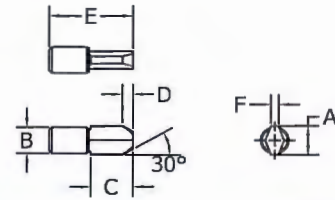
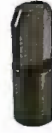
## METRIC ROUND & RELIEVED FLANGELESS LOCATING PINS

MATERIAL: C1144 STEEL, HEAT TREAT: CASE HARDENED, FINISH: PRECISION GROUND

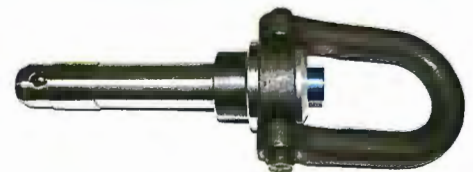
ROUND PIN



DIAMOND PIN



| PART NO. |             | A        |             | B         |             | C      | D    | E     | F |  |  |  |  |      |
|----------|-------------|----------|-------------|-----------|-------------|--------|------|-------|---|--|--|--|--|------|
|          |             | HEAD DIA |             | SHANK DIA |             |        |      |       |   |  |  |  |  |      |
|          |             | NOMINAL  | ACTUAL      | NOMINAL   | ACTUAL      |        |      |       |   |  |  |  |  |      |
| 28203    | ROUND PIN   | 6mm      | .2357/.2354 | 5mm       | .1972/.1970 | 11/32  | 3/32 | 3/4   | - |  |  |  |  |      |
| 28203-X  |             |          | .2355/.2352 |           |             |        |      |       |   |  |  |  |  |      |
| 28203-Y  | DIAMOND PIN |          | .2347/.2344 |           |             |        |      |       |   |  |  |  |  | .062 |
| 28203-Z  |             |          | .2332/.2329 |           |             |        |      |       |   |  |  |  |  |      |
| 28205    | ROUND PIN   | 8mm      | .3145/.3142 | 6mm       | .2365/.2363 | 13/32  | 3/32 | 7/8   | - |  |  |  |  |      |
| 28205-X  |             |          | .3143/.3140 |           |             |        |      |       |   |  |  |  |  |      |
| 28205-Y  | DIAMOND PIN |          | .3135/.3132 |           |             |        |      |       |   |  |  |  |  | .078 |
| 28205-Z  |             |          | .3120/.3117 |           |             |        |      |       |   |  |  |  |  |      |
| 28207    | ROUND PIN   | 10mm     | .3932/.3929 | 8mm       | .3153/.3151 | 1/2    | 1/8  | 1     | - |  |  |  |  |      |
| 28207-X  |             |          | .3930/.3927 |           |             |        |      |       |   |  |  |  |  |      |
| 28207-Y  | DIAMOND PIN |          | .3922/.3919 |           |             |        |      |       |   |  |  |  |  | .093 |
| 28207-Z  |             |          | .3907/.3904 |           |             |        |      |       |   |  |  |  |  |      |
| 28209    | ROUND PIN   | 12mm     | .4719/.4716 | 10mm      | .3940/.3938 | 21/32  | 5/32 | 1-3/8 | - |  |  |  |  |      |
| 28209-X  |             |          | .4717/.4714 |           |             |        |      |       |   |  |  |  |  |      |
| 28209-Y  | DIAMOND PIN |          | .4709/.4706 |           |             |        |      |       |   |  |  |  |  | .125 |
| 28209-Z  |             |          | .4694/.4691 |           |             |        |      |       |   |  |  |  |  |      |
| 28211    | ROUND PIN   | 14mm     | .5507/.5504 | 12mm      | .4727/.4725 | 3/4    | 3/16 | 1-1/2 | - |  |  |  |  |      |
| 28211-X  |             |          | .5502/.5497 |           |             |        |      |       |   |  |  |  |  |      |
| 28211-Y  | DIAMOND PIN |          | .5482/.5477 |           |             |        |      |       |   |  |  |  |  | .140 |
| 28211-Z  |             |          | .5462/.5457 |           |             |        |      |       |   |  |  |  |  |      |
| 28213    | ROUND PIN   | 16mm     | .6289/.6286 | 14mm      | .5515/.5513 | 27/32  | 7/32 | 1-3/4 | - |  |  |  |  |      |
| 28213-X  |             |          | .6289/.6284 |           |             |        |      |       |   |  |  |  |  |      |
| 28213-Y  | DIAMOND PIN |          | .6269/.6264 |           |             |        |      |       |   |  |  |  |  | .156 |
| 28213-Z  |             |          | .6249/.6244 |           |             |        |      |       |   |  |  |  |  |      |
| 28215    | ROUND PIN   | 18mm     | .7077/.7074 | 16mm      | .6302/.6300 | 29/32  | 7/32 | 2     | - |  |  |  |  |      |
| 28215-X  |             |          | .7077/.7072 |           |             |        |      |       |   |  |  |  |  |      |
| 28215-Y  | DIAMOND PIN |          | .7057/.7052 |           |             |        |      |       |   |  |  |  |  | .172 |
| 28215-Z  |             |          | .7037/.7032 |           |             |        |      |       |   |  |  |  |  |      |
| 28217    | ROUND PIN   | 20mm     | .7864/.7861 | 18mm      | .7097/.7092 | 1-3/32 | 9/32 | 2-1/4 | - |  |  |  |  |      |
| 28217-X  |             |          | .7864/.7859 |           |             |        |      |       |   |  |  |  |  |      |
| 28217-Y  | DIAMOND PIN |          | .7844/.7839 |           |             |        |      |       |   |  |  |  |  | .203 |
| 28217-Z  |             |          | .7824/.7819 |           |             |        |      |       |   |  |  |  |  |      |



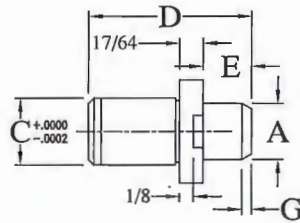
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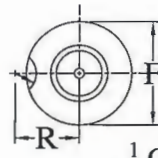
## ROUND & RELIEVED LOCATING PINS

MATERIAL: C1144 STEEL, HEAT TREAT: CASE HARDENED, FINISH: PRECISION GROUND



ROUND

RELIEVED



1/3 OF "A"



| PART NO. |          | A               | C               | D       | E     | F     | R     | G    | LINER PART NO. |
|----------|----------|-----------------|-----------------|---------|-------|-------|-------|------|----------------|
| ROUND    | RELIEVED | +0.0000/-0.0002 | +0.0000/-0.0002 |         |       |       |       |      |                |
| 28101    | 27301    | 0.1245          | 5/16            | 1-3/16  | 7/16  | 5/8   | 33/64 | 1/32 | L32-8          |
| 28102    | 27302    | 0.1401          | 5/16            | 1-3/16  | 7/16  | 5/8   | 33/64 | 1/32 |                |
| 28103    | 27303    | 0.1558          | 5/16            | 1-3/16  | 7/16  | 5/8   | 33/64 | 3/64 |                |
| 28104    | 27304    | 0.1714          | 5/16            | 1-3/16  | 7/16  | 5/8   | 33/64 | 3/64 |                |
| 28105    | 27305    | 0.1870          | 5/16            | 1-3/16  | 7/16  | 5/8   | 33/64 | 1/16 |                |
| 28106    | 27306    | 0.2026          | 5/16            | 1-3/16  | 7/16  | 5/8   | 33/64 | 1/16 |                |
| 28107    | 27307    | 0.2183          | 5/16            | 1-3/16  | 7/16  | 5/8   | 33/64 | 5/64 |                |
| 28108    | 27308    | 0.2339          | 5/16            | 1-3/16  | 7/16  | 5/8   | 33/64 | 3/32 |                |
| 28109    | 27309    | 0.2495          | 5/16            | 1-3/16  | 7/16  | 5/8   | 33/64 | 3/32 |                |
| 28110    | 27310    | 0.2651          | 5/16            | 1-3/16  | 7/16  | 5/8   | 33/64 | 3/32 |                |
| 28111    | 27311    | 0.2808          | 5/16            | 1-3/16  | 7/16  | 5/8   | 33/64 | 3/32 |                |
| 28112    | 27312    | 0.2964          | 5/16            | 1-3/16  | 7/16  | 5/8   | 33/64 | 3/32 |                |
| 28113    | 27313    | 0.3120          | 5/16            | 1-3/16  | 7/16  | 5/8   | 33/64 | 3/32 |                |
| 28114    | 27314    | 0.3115          | 1/2             | 1-1/2   | 1/2   | 7/8   | 41/64 | 1/8  | L48-12         |
| 28115    | 27315    | 0.3271          | 1/2             | 1-1/2   | 1/2   | 7/8   | 41/64 | 1/8  |                |
| 28116    | 27316    | 0.3428          | 1/2             | 1-1/2   | 1/2   | 7/8   | 41/64 | 1/8  |                |
| 28117    | 27317    | 0.3584          | 1/2             | 1-1/2   | 1/2   | 7/8   | 41/64 | 1/8  |                |
| 28118    | 27318    | 0.3740          | 1/2             | 1-1/2   | 1/2   | 7/8   | 41/64 | 1/8  |                |
| 28119    | 27319    | 0.3896          | 1/2             | 1-1/2   | 1/2   | 7/8   | 41/64 | 1/8  |                |
| 28120    | 27320    | 0.4053          | 1/2             | 1-1/2   | 1/2   | 7/8   | 41/64 | 1/8  |                |
| 28121    | 27321    | 0.4209          | 1/2             | 1-1/2   | 1/2   | 7/8   | 41/64 | 1/8  |                |
| 28122    | 27322    | 0.4365          | 1/2             | 1-1/2   | 1/2   | 7/8   | 41/64 | 1/8  |                |
| 28123    | 27323    | 0.4521          | 1/2             | 1-1/2   | 1/2   | 7/8   | 41/64 | 1/8  |                |
| 28124    | 27324    | 0.4678          | 1/2             | 1-1/2   | 1/2   | 7/8   | 41/64 | 1/8  |                |
| 28125    | 27325    | 0.4834          | 1/2             | 1-1/2   | 1/2   | 7/8   | 41/64 | 1/8  |                |
| 28126    | 27326    | 0.4990          | 1/2             | 1-1/2   | 1/2   | 7/8   | 41/64 | 1/8  |                |
| 28127    | 27327    | 0.4980          | 3/4             | 1-15/16 | 11/16 | 1-1/8 | 49/64 | 3/16 | L64-16         |
| 28128    | 27328    | 0.5293          | 3/4             | 1-15/16 | 11/16 | 1-1/8 | 49/64 | 3/16 |                |
| 28129    | 27329    | 0.5605          | 3/4             | 1-15/16 | 11/16 | 1-1/8 | 49/64 | 3/16 |                |
| 28130    | 27330    | 0.5918          | 3/4             | 1-15/16 | 11/16 | 1-1/8 | 49/64 | 3/16 |                |
| 28131    | 27331    | 0.6230          | 3/4             | 1-15/16 | 11/16 | 1-1/8 | 49/64 | 3/16 |                |
| 28132    | 27332    | 0.6543          | 3/4             | 1-15/16 | 11/16 | 1-1/8 | 49/64 | 3/16 |                |
| 28133    | 27333    | 0.6855          | 3/4             | 1-15/16 | 11/16 | 1-1/8 | 49/64 | 3/16 |                |
| 28134    | 27334    | 0.7168          | 3/4             | 1-15/16 | 11/16 | 1-1/8 | 49/64 | 3/16 |                |
| 28135    | 27335    | 0.7480          | 3/4             | 1-15/16 | 11/16 | 1-1/8 | 49/64 | 3/16 |                |
| 28136    | 27336    | 0.8730          | 1               | 2-5/8   | 1     | 1-1/2 | 61/64 | 9/32 |                |
| 28137    | 27337    | 0.9980          | 1               | 2-5/8   | 1     | 1-1/2 | 61/64 | 9/32 |                |

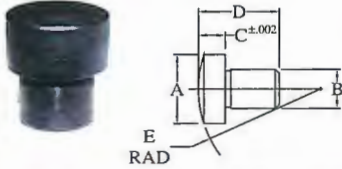
\* LOCK SCREW PART NO." LS-1" AVAILABLE UPON REQUEST.





## SPHERICAL RADIUS LOCATOR BUTTONS

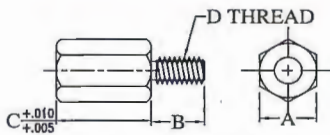
- \*MATERIAL: 1144 STEEL
- \*HEAT TREATED
- \*FINISH: BLACK OXIDE



| PART NO. | B               | A    | C     | D    | E   |
|----------|-----------------|------|-------|------|-----|
|          | +0.0015/+0.0010 |      |       |      |     |
| 50000    | 3/16            | 5/16 | .1250 | 3/8  | 1/2 |
| 50005    | 1/4             | 3/8  | .1875 | 1/2  | 5/8 |
| 50010    | 3/8             | 1/2  | .1875 | 9/16 | 3/4 |
| 50015    |                 |      | .2500 | 5/8  |     |
| 50020    |                 |      | .3750 | 3/4  |     |
| 50025    |                 |      | .5000 | 7/8  |     |

## SCREW REST BUTTONS

- \* MATERIAL: 1144 STEEL
- \* CASE HARDENED
- \* BLACK OXIDE FINISH

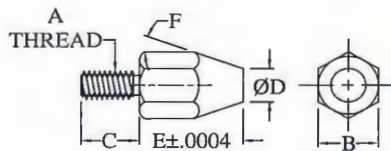
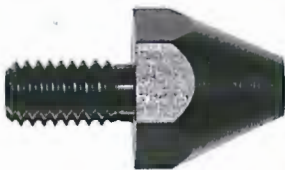


- \* BUTTON LEFT UNGROUND, WITH .005 TO .010 EXTRA STOCK, FOR GRINDING AFTER INSTALLATION.

| PART NO. | A   | B   | C   | D      |
|----------|-----|-----|-----|--------|
| 50500    | 3/8 | 3/8 | 1/4 | 1/4-20 |
| 50505    |     |     | 3/8 |        |
| 50510    |     |     | 1/2 |        |
| 50515    |     |     | 3/4 |        |
| 50520    |     |     | 1   |        |
| 50525    | 1/2 | 1/2 | 1/4 | 3/8-16 |
| 50530    |     |     | 3/8 |        |
| 50535    |     |     | 1/2 |        |
| 50540    |     |     | 3/4 |        |
| 50545    |     |     | 1   |        |
| 50550    | 5/8 | 5/8 | 1/4 | 1/2-13 |
| 50555    |     |     | 3/8 |        |
| 50560    |     |     | 1/2 |        |
| 50565    |     |     | 5/8 |        |
| 50570    |     |     | 3/4 |        |
| 50575    | 1   |     |     |        |

## SCREW REST PADS

- \* MATERIAL: 1144 STEEL
- \* CASE HARDENED
- \* BLACK OXIDE FINISH



- \* SCREW REST PADS IS A PRECISION HEIGHT LOCATOR WITH A SMALL CONTACT AREA. EXCELLENT AS A WORKPIECE SUPPORT AND A JIG FOOT.

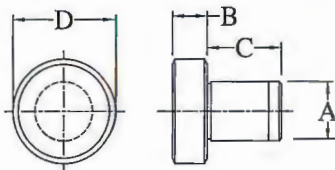
| PART NO. | A       | B   | C     | D    | E      | F  |
|----------|---------|-----|-------|------|--------|----|
| 50302    | 5/16-18 | 3/4 | 5/8   | 5/16 | .2500  | 75 |
| 50304    |         |     |       |      | .3750  | 60 |
| 50306    |         |     |       |      | .5000  | 35 |
| 50308    |         |     |       |      | .7500  | 25 |
| 50310    |         |     |       |      | 1.0000 | 20 |
| 50312    | 1/2-13  | 7/8 | 15/16 | 1/2  | 1.2500 | 15 |
| 50314    |         |     |       |      | 1.5000 |    |
| 50316    |         |     |       |      | .2500  | 75 |
| 50318    |         |     |       |      | .3750  | 60 |
| 50320    |         |     |       |      | .5000  | 35 |
| 50322    |         |     |       |      | .7500  | 25 |
| 50324    |         |     |       |      | 1.0000 | 20 |
| 50326    |         |     |       |      | 1.2500 |    |
| 50328    |         |     |       |      | 1.5000 | 15 |
| 50330    |         |     |       |      | 2.0000 |    |
| 50332    | 5/8-11  | 1   | 1-1/4 | 5/8  | .2500  | 75 |
| 50334    |         |     |       |      | .3750  | 60 |
| 50336    |         |     |       |      | .5000  | 35 |
| 50338    |         |     |       |      | .7500  | 25 |
| 50340    |         |     |       |      | 1.0000 | 20 |
| 50342    |         |     |       |      | 1.2500 |    |
| 50344    |         |     |       |      | 1.5000 | 15 |
| 50346    |         |     |       |      | 2.0000 |    |



## ROUND REST BUTTONS PRESS FIT

USING FOR PRESS FIT INSTALLATION, PRECISION GROUND

MATERIAL: 1144 STEEL  
HEAT TREATED: RC40-45  
FINISH: BLACK OXIDE

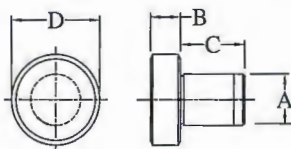


| PART NO. | A DIA.         |        | B     | C   | D     |
|----------|----------------|--------|-------|-----|-------|
|          | NOMINAL        | ACTUAL |       |     |       |
|          | +.0000/-0.0005 |        |       |     |       |
| 50100    |                | .1885  | .250  |     |       |
| 50105    | 3/16           | "      | .375  | 3/8 | 3/8   |
| 50110    |                | "      | .500  |     |       |
| 50115    |                | "      | .2510 |     |       |
| 50120    | 1/4            | "      | .375  | 1/2 | 1/2   |
| 50125    |                | "      | .500  |     |       |
| 50130    |                | "      | .3135 |     |       |
| 50135    | 5/16           | "      | .375  | 1/2 | 9/16  |
| 50140    |                | "      | .500  |     |       |
| 50145    |                | "      | .3760 |     |       |
| 50150    | 3/8            | "      | .375  | 5/8 | 5/8   |
| 50155    |                | "      | .500  |     |       |
| 50160    |                | "      | .625  |     |       |
| 50161    |                | "      | .750  |     |       |
| 50165    | 1/2            | .5010  | .375  | 5/8 | 7/8   |
| 50170    |                | "      | .500  |     |       |
| 50175    |                | "      | .625  |     |       |
| 50180    |                | "      | .750  |     |       |
| 50185    | 5/8            | .6260  | .375  | 3/4 | 1     |
| 50190    |                | "      | .500  |     |       |
| 50195    |                | "      | .625  |     |       |
| 50200    |                | "      | .750  |     |       |
| 50210    | 3/4            | .7515  | .500  | 7/8 | 1-1/4 |
| 50215    |                | "      | .625  |     |       |

## METRIC ROUND REST BUTTONS PRESS FIT

USING FOR PRESS FIT INSTALLATION, PRECISION GROUND

MATERIAL: 1144 STEEL  
HEAT TREATED: RC 40-45  
FINISH: BLACK OXIDE



| PART NO. | A DIA.         |        | B             |        | C    | D    |
|----------|----------------|--------|---------------|--------|------|------|
|          | NOMINAL        | ACTUAL | NOMINAL       | ACTUAL |      |      |
|          | +.0000/-0.0005 |        | +0.001/-0.001 |        |      |      |
| 50102    | 6mm            | 0.2372 | 5mm           | 0.1969 | 0.31 | 0.39 |
| 50104    |                |        | 10mm          | 0.3937 |      |      |
| 50112    | 8mm            | 0.316  | 5mm           | 0.1969 | 0.39 | 0.63 |
| 50114    |                |        | 10mm          | 0.3937 |      |      |
| 50116    |                |        | 15mm          | 0.5906 |      |      |
| 50118    |                |        | 20mm          | 0.7874 |      |      |
| 50122    | 10mm           | 0.3947 | 10mm          | 0.3937 | 0.47 | 0.79 |
| 50124    |                |        | 15mm          | 0.5906 |      |      |
| 50126    |                |        | 20mm          | 0.7874 |      |      |

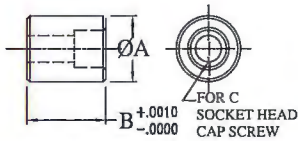




## JIG REST BUTTONS

EXCELLENT AS A WORKPIECE SUPPORT AND A JIG FOOT.

- \* MATERIAL: 1144 STEEL
- \* CASE HARDENED
- \* BLACK OXIDE FINISH



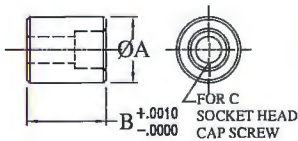
- \* PRECISION REST BUTTON MOUNTED WITH A SOCKET HEAD CAP SCREW.

| PART NUMBER | A     | B       |        | C       |
|-------------|-------|---------|--------|---------|
|             | DIA   | NOMINAL | ACTUAL | SCREW   |
| 51222       | 1/2   | 3/8     | 0.3750 | #10-32  |
| 51223       |       | 1/2     | 0.5000 |         |
| 51225       | 5/8   | 1/4     | 0.2500 | #10-32  |
| 51230       |       | 3/8     | 0.3750 | 1/4 -20 |
| 51235       |       | 1/2     | 0.5000 |         |
| 51240       |       | 5/8     | 0.6250 |         |
| 51245       |       | 3/4     | 0.7500 |         |
| 51255       |       | 1       | 1.0000 |         |
| 51275       |       | 7/8     | 3/8    | 0.3750  |
| 51280       | 1/2   |         | 0.5000 | 5/16-18 |
| 51285       | 5/8   |         | 0.6250 |         |
| 51290       | 3/4   |         | 0.7500 |         |
| 51300       | 1     |         | 1.0000 |         |
| 51340       | 1-1/4 | 1/2     | 0.5000 | 3/8-16  |
| 51335       |       | 3/4     | 0.7500 |         |
| 51345       |       | 1       | 1.0000 |         |
| 51350       |       | 1 1/2   | 1.5000 |         |
| 51355       |       | 2       | 2.0000 |         |

## METRIC JIG REST BUTTONS

EXCELLENT AS A WORKPIECE SUPPORT AND A JIG FOOT.

- \* MATERIAL: 1144 STEEL
- \* CASE HARDENED
- \* BLACK OXIDE FINISH



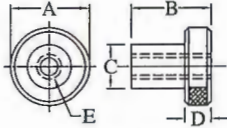
- \* PRECISION REST BUTTON MOUNTED WITH A SOCKET HEAD CAP SCREW.

| PART NUMBER | A    | B       |        | C     |
|-------------|------|---------|--------|-------|
|             | DIA  | NOMINAL | ACTUAL | SCREW |
| 51400       | 0.63 | 10mm    | 0.3937 | M 5   |
| 51405       |      | 15mm    | 0.5906 |       |
| 51410       | 0.79 | 10mm    | 0.3937 | M 6   |
| 51415       |      | 15mm    | 0.5906 |       |
| 51420       |      | 20mm    | 0.7874 |       |
| 51425       |      | 25mm    | 0.9843 |       |
| 51430       | 0.98 | 15mm    | 0.5906 | M 8   |
| 51435       |      | 20mm    | 0.7874 |       |
| 51440       |      | 25mm    | 0.9843 |       |
| 51445       | 1.26 | 20mm    | 0.7874 | M 10  |
| 51450       |      | 25mm    | 0.9843 |       |
| 51455       |      | 30mm    | 1.1811 |       |
| 51460       |      | 50mm    | 1.9685 |       |



## KNURLED HAND KNOBS

MATERIAL: MEDIUM CARBON STEEL, MACHINED FINISH



\* .2 DEEP THREAD RELIEF EACH END

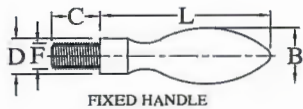
| PART NO. | E      | A     | C     | B     | D   |
|----------|--------|-------|-------|-------|-----|
| 35805    | 10-24  | 3/4   | 7/16  | 5/8   | 1/4 |
| 35810    | 1/4-20 | 1     | 5/8   | 3/4   | 1/4 |
| 35815    | 3/8-16 | 1-1/4 | 3/4   | 1-1/8 | 1/2 |
| 35820    | 1/2-13 | 1-1/2 | 1     | 1-1/4 | 1/2 |
| 35825    | 5/8-11 | 2     | 1-1/4 | 1-3/4 | 5/8 |
| 35830    | 3/4-10 | 2-1/2 | 1-1/2 | 2-1/4 | 5/8 |

## REVOLVING & FIXED HANDLES

MATERIAL: MEDIUM CARBON STEEL, MACHINED FINISH, STEEL HANDLES ARE POLISHED AND BRIGHT CHROME PLATED TO ENHANCE THE APPEARANCE.



REVOLVING HANDLE



FIXED HANDLE

| PART NO. | F       | B     | C     | D   | L       | K    |
|----------|---------|-------|-------|-----|---------|------|
| * 35101  | #10-24  | 1/2   | 3/8   | .32 | 1-11/16 | 1/4  |
| ** 35102 |         |       |       |     | 1-7/8   |      |
| * 35103  | 1/4-20  | 5/8   | 1/2   | .40 | 2       | 5/16 |
| ** 35104 |         |       |       |     | 2-1/4   |      |
| * 35105  | 5/16-18 | 13/16 | 9/16  | .51 | 2-5/8   | 3/8  |
| ** 35106 |         |       |       |     | 2-13/16 |      |
| * 35107  | 3/8-16  | 1     | 11/16 | .63 | 3-3/16  | 7/16 |
| ** 35108 |         |       |       |     | 3-3/8   |      |
| * 35109  | 1/2-13  | 1-1/4 | 13/16 | .75 | 3-3/4   | 5/8  |
| ** 35110 |         |       |       |     | 4       |      |

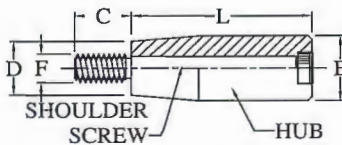
\* FIXED HANDLES \*\* REVOLVING HANDLES

STAINLESS STEEL AVAILABLE UPON REQUEST.

## PHENOLIC REVOLVING HANDLES

HANDLE MATERIAL: PHENOLIC, FINISH: BLACK

SOCKET HEAD SHOULDER SCREW MATERIAL: STEEL, ALUMINUM, STAINLESS STEEL



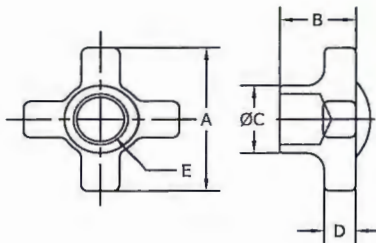
| PART NO. |          |           | L    | B    | C    | D   | F       |
|----------|----------|-----------|------|------|------|-----|---------|
| STEEL    | ALUMINUM | STAINLESS |      |      |      |     |         |
| 35113    | 35114    | 35115     | .93  | .56  | .38  | .41 | #10-24  |
| 35116    | 35117    | 35118     | 1.21 | .70  | .44  | .55 | 1/4-20  |
| 35119    | 35120    | 35121     | 1.96 | .85  | .44  | .67 | 1/4-20  |
| 35122    | 35123    | 35124     | 2.49 | .93  | .50  | .73 | 5/16-18 |
| 35125    | 35126    | 35127     | 3.24 | 1.12 | .50  | .88 | 5/16-18 |
| 35128    | 35129    | 35130     | 3.24 | 1.12 | .625 | .88 | 3/8-16  |





## HAND KNOBS

MATERIAL: CAST IRON  
300 STAINLESS STEEL  
FINISH: ZINC PLATED

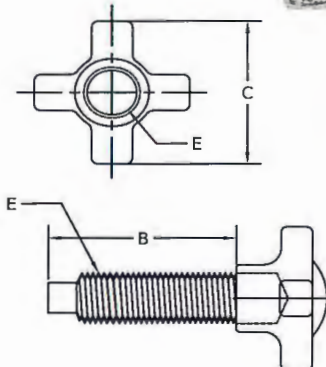
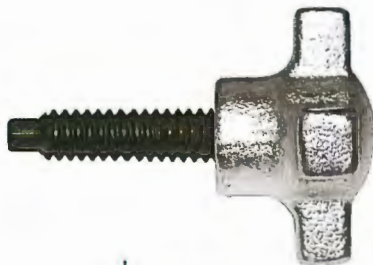


| PART NO. | A     | B      | C     | E            | D    |
|----------|-------|--------|-------|--------------|------|
| 35300    | 1-1/8 | 5/8    | 9/16  | BLANK        | 5/16 |
| 35312    | "     | "      | "     | 3/16-24 TAP  | "    |
| 35305    | "     | "      | "     | 1/4-20 TAP   | "    |
| 35310    | "     | "      | "     | M6X1.0 TAP   | "    |
| 35330    | 1-3/4 | 7/8    | 3/4   | BLANK        | 3/8  |
| 35335    | "     | "      | "     | 5/16-18 TAP  | "    |
| 35338    | "     | "      | "     | 3/8-16 TAP   | "    |
| 35340    | "     | "      | "     | M8X1.25 TAP  | "    |
| 35350    | 2-1/8 | 1-1/16 | 1     | BLANK        | 7/16 |
| 35355    | "     | "      | "     | 3/8-16 TAP   | "    |
| 35360    | "     | "      | "     | 1/2-13 TAP   | "    |
| 35365    | "     | "      | "     | M10X1.50 TAP | "    |
| 35370    | "     | "      | "     | M12X1.75 TAP | "    |
| * 35375  | 2-1/2 | 1-1/2  | 1-1/8 | BLANK        | 1/2  |
| * 35380  | "     | "      | "     | 1/2-13 TAP   | "    |
| * 35385  | "     | "      | "     | 5/8-11 TAP   | "    |
| * 35390  | "     | "      | "     | 3/4-10 TAP   | "    |
| * 35395  | "     | "      | "     | M12X1.75 TAP | "    |
| * 35398  | "     | "      | "     | M16X2.00 TAP | "    |
| * 35475  | 2-3/4 | 1-1/4  | 1-3/8 | BLANK        | 1/2  |
| * 35480  | "     | "      | "     | 5/8-11 TAP   | "    |
| * 35485  | "     | "      | "     | 3/4-10 TAP   | "    |
| * 35490  | "     | "      | "     | M16X2.00 TAP | "    |
| * 35495  | "     | "      | "     | M20X2.50 TAP | "    |

\* STAINLESS STEEL AVAILABLE ADD "-SS" TO PART NO.

## HAND KNOB ASSEM.

MATERIAL: SCREW 12L14  
HEAT TREATED: CASE HARDENED  
FINISH: BLACK OXIDE



| PART NO. | E       | PART NO. | E        | B     | C     |
|----------|---------|----------|----------|-------|-------|
| 35200    | 1/4-20  | 35202    | M6X1.0   | 1     | 1-1/8 |
| 35205    | "       | 35204    | "        | 1-1/2 | "     |
| 35210    | "       | 35208    | "        | 2     | "     |
| 35215    | "       | 35212    | "        | 3     | "     |
| 35220    | 5/16-18 | 35222    | M8X1.25  | 1-3/4 | 1-3/4 |
| 35225    | "       | 35226    | "        | 2-1/2 | "     |
| 35230    | "       | 35228    | "        | 3     | "     |
| 35235    | 3/8-16  | 35236    | M10X1.5  | 1-1/2 | 1-3/4 |
| 35240    | "       | 35242    | "        | 2     | "     |
| 35245    | "       | 35246    | "        | 2-1/2 | "     |
| 35250    | "       | 35252    | "        | 3     | "     |
| 35255    | 1/2-13  | 35256    | M12X1.75 | 1-1/2 | 2-1/8 |
| 35260    | "       | 35262    | "        | 2     | "     |
| 35265    | "       | 35266    | "        | 2-1/2 | "     |
| 35270    | "       | 35272    | "        | 3     | "     |
| * 35275  | 5/8-11  | 35276    | M16X2.0  | 2     | 2-1/2 |
| * 35280  | "       | 35282    | "        | 2-1/2 | "     |
| * 35285  | "       | 35286    | "        | 3     | "     |
| * 35290  | "       | 35291    | "        | 3-1/2 | "     |
| * 35292  | 3/4-10  | 35293    | M20X2.50 | 2-1/2 | 3     |
| * 35294  | "       | 35295    | "        | 3     | "     |
| * 35296  | "       | 35297    | "        | 3-1/2 | "     |
| * 35298  | "       | 35299    | "        | 4     | "     |

\* STAINLESS STEEL AVAILABLE ADD "-SS" TO PART NO.



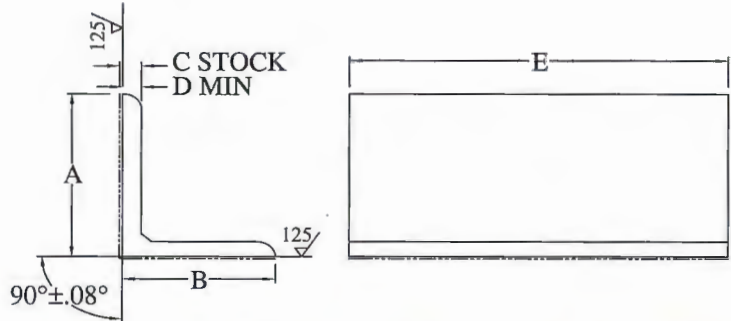


## ANGLE BRACKETS

MATERIAL: STEEL ASTM A36, BLACK OXIDE FINISH

ALUMINUM: 6061 T6

PRECISION SETUP, MACHINED FLAT AND PERPENDICULAR



| PART NO. | A     | B     | D1 MIN. | E     | C STOCK |
|----------|-------|-------|---------|-------|---------|
| 16101    | 1     | 1     | 11/64   | 1     | 3/16    |
| 16102    | 1-1/2 | 1-1/2 |         | 1-1/2 |         |
| 16103    | 1-1/2 | 1-1/2 | 7/32    | 2     | 1/4     |
| 16104    | 1-1/2 | 1-1/2 |         | 3     |         |
| 16105    | 1-1/2 | 1-1/2 |         | 4     |         |
| 16106    | 1-1/2 | 1-1/2 |         | 5     |         |
| 16107    | 1-1/2 | 1-1/2 |         | 6     |         |
| 16108    | 2     | 2     |         | 1-1/2 |         |
| 16109    | 2     | 2     |         | 2     |         |
| 16110    | 2     | 2     | 3       |       |         |
| 16111    | 2     | 2     | 4       |       |         |
| 16112    | 2     | 2     | 5       |       |         |
| 16113    | 2     | 2     | 6       |       |         |
| 16114    | 2-1/2 | 2     | 1-1/2   | 5/16  | 3/8     |
| 16115    | 2     | 2     | 2       |       |         |
| 16116    | 2     | 2     | 3       |       |         |
| 16117    | 2     | 2     | 4       |       |         |
| 16118    | 2     | 2     | 5       |       |         |
| 16119    | 2     | 2     | 6       |       |         |
| 16120    | 3     | 2     | 2       |       |         |
| 16121    | 3     | 2     | 3       |       |         |
| 16122    | 3     | 2     | 4       |       |         |
| 16123    | 3     | 2     | 5       |       |         |
| 16124    | 3     | 2     | 6       |       |         |
| 16125    | 3     | 3     | 2       |       |         |
| 16126    | 3     | 3     | 3       |       |         |
| 16127    | 3     | 3     | 4       |       |         |
| 16128    | 3     | 3     | 5       |       |         |
| 16129    | 3     | 3     | 6       |       |         |
| 16130    | 4     | 4     | 4       |       |         |

| PART NO. | A | B | D1 MIN. | E | C STOCK |
|----------|---|---|---------|---|---------|
| 16131    | 3 | 3 | 7/16    | 2 | 1/2     |
| 16132    | 3 | 3 |         | 3 |         |
| 16133    | 3 | 3 |         | 4 |         |
| 16134    | 4 | 3 |         | 2 |         |
| 16135    | 4 | 3 |         | 3 |         |
| 16136    | 4 | 4 |         | 3 |         |
| 16137    | 4 | 4 |         | 4 |         |
| 16138    | 4 | 4 |         | 5 |         |
| 16139    | 4 | 4 |         | 6 |         |
| 16140    | 6 | 4 |         | 3 |         |
| 16141    | 6 | 4 | 4       |   |         |
| 16142    | 6 | 4 | 5       |   |         |
| 16143    | 6 | 4 | 6       |   |         |
| 16144    | 6 | 6 | 3       |   |         |
| 16145    | 6 | 6 | 4       |   |         |
| 16146    | 6 | 6 | 5       |   |         |
| 16147    | 6 | 6 | 6       |   |         |
| 16148    | 3 | 3 | 1/2     | 3 | 9/16    |
| 16149    | 4 | 4 |         | 3 |         |
| 16150    | 4 | 4 |         | 4 |         |
| 16151    | 6 | 4 |         | 4 |         |
| 16152    | 6 | 6 | 4       |   |         |
| 16153    | 6 | 4 | 5/8     | 6 | 11/16   |
| 16154    | 6 | 6 |         | 6 |         |

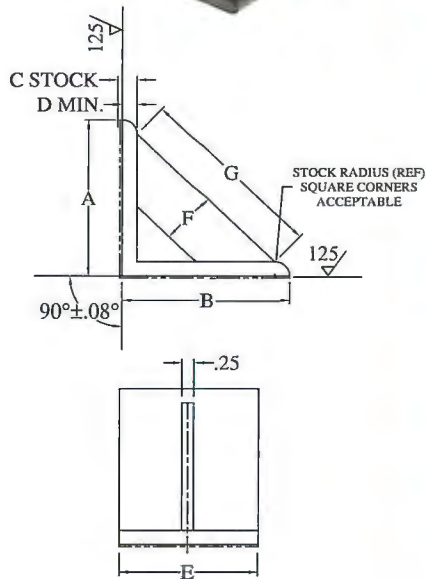
\* ALUMINUM AVAILABLE ADD "- A" TO PART NO.  
SPECIAL SIZES QUOTED UPON REQUEST.





## GUSSETED ANGLE BRACKET

STEEL: ASTM A36, BLACK OXIDE FINISH, ALUMINUM: 6061-T6  
PRECISION SETUP, MACHINED FLAT AND PERPENDICULAR

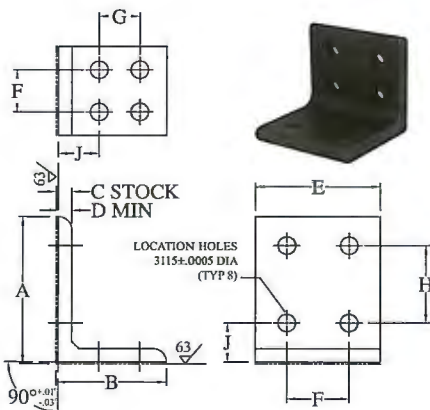


| PART NO. | A | B | C   | D MIN. | E | F    | G       |
|----------|---|---|-----|--------|---|------|---------|
| 15031    | 3 | 2 | 3/8 | 5/16   | 2 | .88  | 2-3/4   |
| 15032    | 3 | 2 |     |        | 3 | .88  |         |
| 15033    | 3 | 3 |     |        | 2 | 1.00 | 3-7/16  |
| 15034    | 3 | 3 |     |        | 3 | 1.00 |         |
| 15035    | 3 | 3 |     |        | 4 | 1.00 |         |
| 15036    | 4 | 4 |     |        | 3 | 1.00 | 4-13/16 |
| 15037    | 4 | 4 |     |        | 4 | 1.00 |         |
| 15038    | 4 | 4 |     |        | 5 | 1.00 |         |
| 15039    | 3 | 3 | 1/2 | 7/16   | 2 | 1.00 | 3-1/4   |
| 15310    | 3 | 3 |     |        | 3 | 1.00 |         |
| 15311    | 3 | 3 |     |        | 4 | 1.00 |         |
| 15312    | 4 | 3 |     |        | 2 | 1.25 | 3-7/8   |
| 15313    | 4 | 3 |     |        | 3 | 1.25 |         |
| 15314    | 4 | 4 |     |        | 3 | 1.00 | 4-5/8   |
| 15315    | 4 | 4 |     |        | 4 | 1.00 |         |
| 15316    | 4 | 4 |     |        | 5 | 1.00 |         |
| 15317    | 6 | 4 |     |        | 4 | 1.50 | 6-1/4   |
| 15318    | 6 | 4 |     |        | 5 | 1.50 |         |
| 15319    | 6 | 4 |     |        | 6 | 1.50 |         |
| 15320    | 6 | 6 |     |        | 4 | 1.50 | 7-7/16  |
| 15321    | 6 | 6 | 5   | 1.50   |   |      |         |
| 15322    | 6 | 6 | 6   | 1.50   |   |      |         |

\* ALUMINUM AVAILABLE ADD "-A" TO PART NO.  
SPECIAL SIZES QUOTED UPON REQUEST.

## ANGLE BRACKET WITH LOCATING HOLES

STEEL: A36 STEEL, BLACK OXIDE FINISH  
PRECISION SETUP, MACHINED FLAT AND PERPENDICULAR



| PART NO. | A | B | D MIN. | E | F<br>+.002/-002 | G<br>+.002/-002 | H/J<br>+.002/-002 |
|----------|---|---|--------|---|-----------------|-----------------|-------------------|
| 15201    | 2 | 2 | 1/4    | 2 | 1.000           | 0.750           | .750/.750         |
| 15202    | 3 | 2 |        | 4 | 3.000           |                 | 1.500/.750        |
| 15203    | 2 | 2 |        | 4 | 3.000           | .750/.750       |                   |
| 15204    | 3 | 3 | 3/8    | 3 | 2.000           | 1.250           | 1.250/1.125       |
| 15205    | 4 | 4 |        |   |                 | 2.000           | 2.000/1.000       |
| 15206    | 4 | 4 |        | 4 | 3.000           | 2.000           | 2.000/1.125       |
| 15207    | 6 | 4 |        |   |                 | 1.500           | 3.500/1.500       |
| 15208    | 6 | 6 |        |   |                 | 3.500           | 3.500/1.500       |
| 15209    | 6 | 4 | 1/2    | 6 | 5.000           | 1.500           | 3.500/1.500       |
| 15210    | 6 | 6 |        |   |                 | 3.500           | 3.500/1.500       |

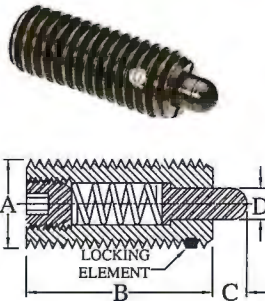
SPECIAL SIZES QUOTED UPON REQUEST.



## SPRING LOAD DEVICES

STEEL SPRING PLUNGER: BODY MATERIAL: 12L14 STEEL, CASE HARDENED, BLACK OXIDE FINISH  
 STAINLESS STEEL SPRING PLUNGER: BODY & NOSE MATERIAL 303 STAINLESS STEEL  
 NYLON LOCKING ELEMENT IS STANDARD ON ALL SIZES

STEEL SPRING PLUNGER NOSE:  
 -12L14 STEEL NOSE  
 -BLACK OXIDE FINISH  
 -CASE HARDENED  
 -EXCELLENT WEAR RESISTANCE

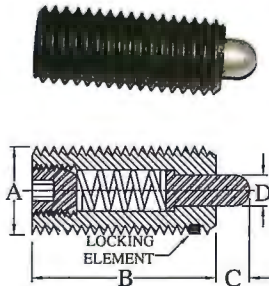


### HEAVY END FORCES SPRING PLUNGERS-CARBON & STAINLESS STEEL

| STEEL PART NO. | END FORCE LBS |       | A THREAD | B       | C     | D<br>+.000/-.001 |
|----------------|---------------|-------|----------|---------|-------|------------------|
|                | INITIAL       | FINAL |          |         |       |                  |
| 71110          | 1.50          | 4.50  | 6-32     | 17/32   | 0.062 | 0.046            |
| 71105          | 1.00          | 1.60  | 6-32     | 3/8     | 0.062 | 0.046            |
| 71150          | 2.70          | 7.30  | 8-32     | 5/8     | 0.093 | 0.070            |
| 71120          | 2.90          | 11.10 | 10-32    | 3/4     | 0.125 | 0.093            |
| 71130          | 3.00          | 13.00 | 1/4-20   | 1       | 0.187 | 0.119            |
| 71135          | 3.00          | 13.00 | 1/4-28   | 1       | 0.187 | 0.119            |
| 71137          | 2.00          | 9.00  | 1/4-20   | 3/4     | 0.125 | 0.119            |
| 71140          | 3.00          | 15.00 | 5/16-18  | 1       | 0.187 | 0.135            |
| 71145          | 5.50          | 14.50 | 3/8-16   | 1-1/8   | 0.187 | 0.186            |
| 71157          | 6.60          | 17.40 | 1/2-13   | 1-1/4   | 0.250 | 0.248            |
| 71155          | 10.50         | 25.50 | 5/8-11   | 1-1/2   | 0.312 | 0.310            |
| 71160          | 6.70          | 37.30 | 3/4-10   | 1-3/4   | 0.312 | 0.374            |
| 71165          | 16.00         | 68.00 | 1-8      | 2-13/32 | 0.500 | 0.499            |

\* STAINLESS STEEL AVAILABLE ADD "-SS" TO PART NO.  
 \* METRIC SIZES AVAILABLE UPON REQUEST  
 \* BLACK DELRIN NOSE & PHENOLIC NOSE AVAILABLE UPON REQUEST.

STEEL SPRING PLUNGER NOSE:  
 -12L14 STEEL NOSE  
 -ZINC PLATED NOSE  
 -CASE HARDENED  
 -EXCELLENT WEAR RESISTANCE

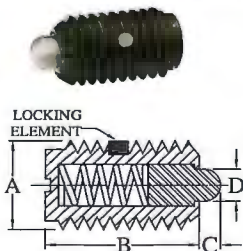


### LIGHT END FORCES SPRINGS PLUNGERS-CARBON & STAINLESS STEEL

| STEEL PART NO. | END FORCE LBS |       | A THREAD | B       | C     | D<br>+.000/-.001 |
|----------------|---------------|-------|----------|---------|-------|------------------|
|                | INITIAL       | FINAL |          |         |       |                  |
| 71205          | 0.50          | 1.50  | 6-32     | 17/32   | 0.062 | 0.046            |
| 71210          | 0.70          | 2.30  | 8-32     | 5/8     | 0.093 | 0.070            |
| 71215          | 1.30          | 2.70  | 10-32    | 3/4     | 0.125 | 0.093            |
| 71220          | 1.25          | 2.00  | 1/4-20   | 3/4     | 0.125 | 0.119            |
| 71225          | 1.00          | 4.00  | 1/4-20   | 1       | 0.187 | 0.119            |
| 71230          | 1.00          | 4.00  | 1/4-28   | 1       | 0.187 | 0.119            |
| 71235          | 1.50          | 4.50  | 5/16-18  | 1       | 0.187 | 0.135            |
| 71240          | 2.80          | 7.20  | 3/8-16   | 1-1/8   | 0.187 | 0.186            |
| 71245          | 2.70          | 9.30  | 1/2-13   | 1-1/4   | 0.250 | 0.248            |
| 71250          | 3.50          | 10.50 | 5/8-11   | 1-1/2   | 0.312 | 0.310            |
| 71255          | 4.00          | 16.00 | 3/4-10   | 1-3/4   | 0.312 | 0.374            |
| 71260          | 4.00          | 31.00 | 1-8      | 2-13/32 | 0.500 | 0.499            |

\* STAINLESS STEEL AVAILABLE ADD "-SS" TO PART NO.  
 \* METRIC SIZES AVAILABLE UPON REQUEST  
 \* WHITE DELRIN NOSE & PHENOLIC NOSE AVAILABLE UPON REQUEST.

STEEL SPRING PLUNGER NOSE:  
 -12L14 STEEL NOSE  
 -ZINC PLATED NOSE  
 -CASE HARDENED  
 -EXCELLENT WEAR RESISTANCE



### HEAVY END FORCES-SHORT SPRING PLUNGERS-CARBON & STAINLESS STEEL

| STEEL PART NO. | END FORCE LBS |       | A THREAD | B      | C     | D<br>+.000/-.001 |
|----------------|---------------|-------|----------|--------|-------|------------------|
|                | INITIAL       | FINAL |          |        |       |                  |
| 71310          | 0.50          | 3.50  | 6-32     | 3/8    | 0.036 | 0.046            |
| 71315          | 1.50          | 4.75  | 8-32     | 7/16   | 0.052 | 0.070            |
| 71320          | 1.50          | 4.75  | 8-36     | 7/16   | 0.052 | 0.069            |
| 71325          | 1.75          | 6.25  | 10-32    | 15/32  | 0.065 | 0.930            |
| 71330          | 3.00          | 10.50 | 1/4-20   | 17/32  | 0.078 | 0.119            |
| 71335          | 3.75          | 15.50 | 5/16-18  | 9/16   | 0.084 | 0.135            |
| 71340          | 4.50          | 18.50 | 3/8-16   | 5/8    | 0.110 | 0.186            |
| 71345          | 5.00          | 28.00 | 1/2-13   | 3/4    | 0.151 | 0.248            |
| 71350          | 7.00          | 50.00 | 5/8-11   | 1-1/16 | 0.215 | 0.310            |

\* STAINLESS STEEL AVAILABLE ADD "-SS" TO PART NO.  
 \* METRIC SIZES AVAILABLE UPON REQUEST  
 \* BLACK DELRIN NOSE & PHENOLIC NOSE AVAILABLE UPON REQUEST.

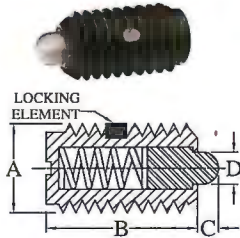




## LIGHT END FORCES-SHORT SPRING PLUNGERS-CARBON & STAINLESS STEEL

### STEEL SPRING PLUNGERS NOSE:

- 12L14 STEEL NOSE
- ZINC PLATED NOSE
- CASE HARDENED

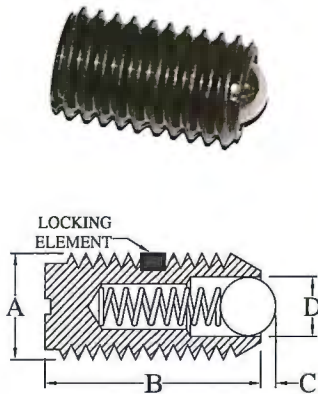


| STEEL PART NO. | END FORCE LBS |       | A THREAD | B      | C     | D<br>+.000/-.001 |
|----------------|---------------|-------|----------|--------|-------|------------------|
|                | INITIAL       | FINAL |          |        |       |                  |
| 71410          | 0.50          | 1.50  | 6-32     | 3/8    | 0.036 | 0.046            |
| 71415          | 0.50          | 1.50  | 8-32     | 7/16   | 0.052 | 0.070            |
| 71420          | 0.50          | 1.50  | 8-36     | 7/16   | 0.052 | 0.069            |
| 71425          | 0.75          | 2.50  | 10-32    | 15/32  | 0.065 | 0.930            |
| 71430          | 1.00          | 3.50  | 1/4-20   | 17/32  | 0.078 | 0.119            |
| 71435          | 1.50          | 4.00  | 5/16-18  | 9/16   | 0.084 | 0.135            |
| 71440          | 1.50          | 5.00  | 3/8-16   | 5/8    | 0.110 | 0.186            |
| 71445          | 1.75          | 5.50  | 1/2-13   | 3/4    | 0.151 | 0.248            |
| 71450          | 2.00          | 8.50  | 5/8-11   | 1-1/16 | 0.215 | 0.310            |

\* STAINLESS STEEL AVAILABLE ADD "-SS" TO PART NO.

### BALL PLUNGER

- BODY MATERIAL: 12L14
- BALL MATERIAL: STAINLESS STEEL
- BODY COLOR ZINC=LIGHT FORCE
- BODY COLOR BLACK=STANDARD FORCE
- BODY COLOR GOLD=HEAVY FORCE
- NYLON LOCKING ELEMENT IS STANDARD ON ALL SIZES.



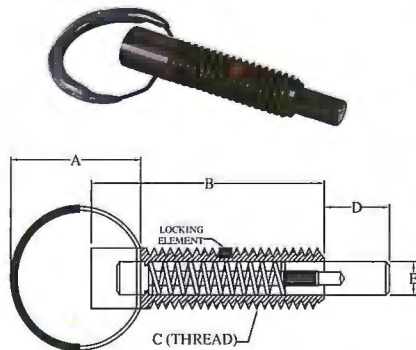
### STEEL BALL PLUNGERS WITH STAINLESS STEEL BALL

| STEEL BALL PLUNGER | BODY COLOR TYPY | END FORCE LBS |       | THREAD  | A     | B    | C    | BALL DIA D |
|--------------------|-----------------|---------------|-------|---------|-------|------|------|------------|
|                    |                 | INITIAL       | FINAL |         |       |      |      |            |
| 71810              | BLACK           | .12           | .50   | 4-48    | 3/16  | .020 | .062 |            |
| 71815              | BLACK           | .25           | .75   | 5-40    | 1/4   | .020 | .062 |            |
| 71820              | BLACK           | .50           | 1.00  | 6-40    | 5/16  | .023 | .078 |            |
| 71825              | BLACK           | .50           | 1.25  | 8-36    | 11/32 | .025 | .093 |            |
| 71822              | BLACK           | .50           | 1.25  | 8-36    | 11/32 | .025 | .093 |            |
| 71835              | ZINC            | .50           | 1.50  | 10-32   | 33/64 | .025 | .093 |            |
| 71830              | BLACK           | 1.50          | 3.00  | 10-32   | 33/64 | .025 | .093 |            |
| 71840              | GOLD            | 2.00          | 5.00  | 10-32   | 33/64 | .025 | .093 |            |
| 71850              | ZINC            | 2.00          | 4.00  | 1/4-20  | 17/32 | .035 | .125 |            |
| 71845              | BLACK           | 3.00          | 7.00  | 1/4-20  | 17/32 | .035 | .125 |            |
| 71855              | GOLD            | 4.00          | 12.00 | 1/4-20  | 17/32 | .035 | .125 |            |
| 71865              | ZINC            | 2.00          | 4.50  | 5/16-18 | 37/64 | .040 | .156 |            |
| 71860              | BLACK           | 4.00          | 9.00  | 5/16-18 | 37/64 | .040 | .156 |            |
| 71870              | GOLD            | 6.00          | 17.00 | 5/16-18 | 37/64 | .040 | .156 |            |
| 71880              | ZINC            | 2.50          | 5.00  | 3/8-16  | 5/8   | .048 | .187 |            |
| 71875              | BLACK           | 5.00          | 10.00 | 3/8-16  | 5/8   | .048 | .187 |            |
| 71885              | GOLD            | 6.00          | 21.00 | 3/8-16  | 5/8   | .048 | .187 |            |
| 71895              | ZINC            | 3.00          | 6.00  | 1/2-13  | 3/4   | .072 | .281 |            |
| 71890              | BLACK           | 6.00          | 12.00 | 1/2-13  | 3/4   | .072 | .281 |            |
| 71900              | GOLD            | 6.00          | 30.00 | 1/2-13  | 3/4   | .072 | .281 |            |
| 71910              | ZINC            | 4.50          | 9.00  | 5/8-11  | 63/64 | .096 | .375 |            |
| 71905              | BLACK           | 9.00          | 18.00 | 5/8-11  | 63/64 | .096 | .375 |            |
| 71915              | GOLD            | 7.00          | 50.00 | 5/8-11  | 63/64 | .096 | .375 |            |

\* STAINLESS STEEL AVAILABLE ADD "-SS" TO PART NO.

## HAND RETRACTABLE SPRING PLUNGER QUICK RELEASE PULL RING

- STEEL & STAINLESS STEEL: LOCKING
- DESIGNED FOR APPLICATIONS WHERE SPACE IS LIMITED.
- CAN BE COMPLETELY WITHDRAWN INTO THE BODY AND LOCKED INTO A RETRACTED POSITION.
- NYLON LOCKING ELEMENT IS STANDARD ON ALL SIZES.



| PART NO.    |             |                 | THREAD C | A    | B    | D     | E    |
|-------------|-------------|-----------------|----------|------|------|-------|------|
| STEEL BLACK | STEEL CLEAR | STAINLESS STEEL |          |      |      |       |      |
| 71920       | 71924       | 71927           | 1/4-20   | .94  | 1.14 | .250  | .155 |
| 71921       | 71925       | 71928           | 3/8-16   | 1.07 | 1.68 | .375  | .233 |
| 71922       | 71926       | 71929           | 1/2-13   | 1.19 | 2    | .5000 | .312 |

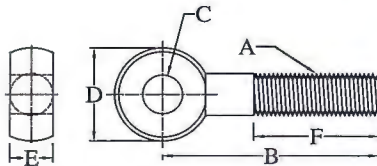
END FORCE(lbs.) THREAD SIZES: INITIAL 1/4-20=1.00,3/8-16=2.00,1/2-13=2.50  
END FORCE(lbs.) THREAD SIZES: FINAL 1/4-20=2.50,3/8-16=4.00,1/2-13=5.00



# ACTEK® MFG. & ENG. INC.

ALL BOLTS: MEDIUM CARBON ALLOY, HEAT TREATED 125,000 p.s.i., BLACK OXIDE FINISH

## EYEBOLT



### INCH

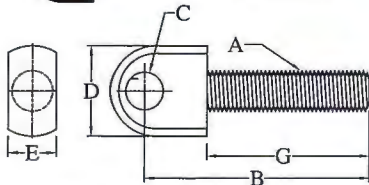
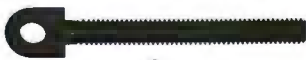
| PART NO. | A       | B     | F     | C    | D     | E    |
|----------|---------|-------|-------|------|-------|------|
| 31600    | 1/4-20  | 2     | 3/4   | 3/16 | 1/2   | 1/4  |
| 31602    |         | 3     | 1-1/4 |      |       |      |
| 31604    | 5/16-18 | 3     | 1-1/2 | 1/4  | 5/8   | 5/16 |
| 31606    |         | 4     | 2     |      |       |      |
| 31612    | 3/8-16  | 3     | 1-1/2 | 5/16 | 3/4   | 3/8  |
| 31616    |         | 3     | 1-1/2 | 3/8  |       |      |
| 31617    |         | 3-3/4 | 2     |      |       |      |
| 31618    |         | 5     | 2-1/2 |      |       |      |
| 31624    | 1/2-13  | 3-3/4 | 1-1/2 | 5/8  | 1     | 1/2  |
| 31626    |         | 5     | 2     |      |       |      |
| 31628    | 5/8-11  | 4-1/2 | 2     | 5/8  | 1-1/4 | 5/8  |
| 31630    |         | 6     | 2-1/2 |      |       |      |
| 31632    | 3/4-10  | 4-1/2 | 2     | 3/4  | 1-1/2 | 3/4  |
| 31634    |         | 6     | 2-1/2 |      |       |      |

### METRIC

| PART NO. | A   | B   | F   | C    | D  | E    |
|----------|-----|-----|-----|------|----|------|
| 31640    | M6  | 50  | 40  | 6mm  | 12 | 6mm  |
| 31642    |     | 75  | 66  |      |    |      |
| * 31644  | M8  | 75  | 65  | 8mm  | 16 | 8mm  |
| * 31646  |     | 100 | 90  |      |    |      |
| * 31648  | M10 | 75  | 60  | 10mm | 20 | 10mm |
| * 31650  |     | 100 | 85  |      |    |      |
| * 31652  |     | 125 | 110 |      |    |      |
| * 31654  | M12 | 100 | 85  | 12mm | 24 | 12mm |
| * 31656  |     | 125 | 110 |      |    |      |
| 31658    | M16 | 115 | 95  | 16mm | 32 | 16mm |
| 31660    |     | 150 | 130 |      |    |      |
| 31662    | M20 | 150 | 125 | 20mm | 40 | 20mm |

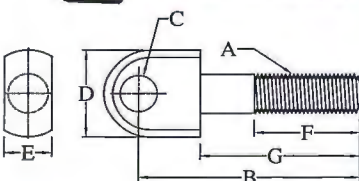
\* STAINLESS STEEL AVAILABLE ADD "-SS" TO PART NO.

## JIG LATCH BOLTS



| PART NO. | A       | B      | G       | C    | D   | E    |
|----------|---------|--------|---------|------|-----|------|
| 31700    | 1/4-20  | 2-5/8  | 2-5/16  | .257 | 1/2 | 1/4  |
| 31720    | 5/16-18 | 3-3/16 | 2-13/16 | .323 | 5/8 | 5/16 |
| 31740    | 3/8-16  | 3-3/4  | 3-5/16  | .386 | 3/4 | 3/8  |
| 31760    | 1/2-13  | 4-7/8  | 4-5/16  | .515 | 1   | 1/2  |

## SWING BOLTS



| PART NO. | A       | B     | G      | F     | C    | D     | E    |
|----------|---------|-------|--------|-------|------|-------|------|
| 31800    | 1/4-20  | 1-1/2 | 1-3/16 | 3/4   | 1/4  | 1/2   | 5/16 |
| 31820    | 5/16-18 | 2     | 1-5/8  | 1     | 5/16 | 5/8   | 3/8  |
| 31840    | 3/8-16  | 2-1/2 | 2      | 1-3/8 | 3/8  | 3/4   | 1/2  |
| 31860    | 1/2-13  | 3-1/8 | 2-1/2  | 1-3/4 | 1/2  | 1     | 5/8  |
| 31870    |         | 4-1/8 | 3-1/2  | 2-1/4 |      |       |      |
| 31880    | 5/8-11  | 3-1/2 | 2-3/4  | 1-3/4 | 5/8  | 1-1/4 | 3/4  |
| 31890    |         | 4-3/4 | 4      | 2-1/2 |      |       |      |
| 31900    | 3/4-10  | 4-1/2 | 3-5/8  | 2     | 3/4  | 1-1/2 | 7/8  |





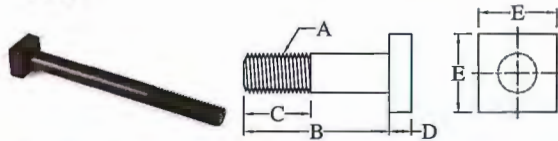
# ACTEK® MFG. & ENG. INC.

## HEAVY DUTY ALLOY STEEL & STAINLESS STEEL BOLT

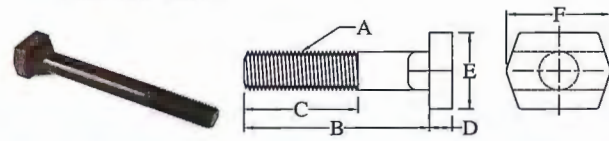
MATERIAL: ALLOY STEEL FINISH: BLACK OXIDE, THREAD CLASS: 2A UNC

MATERIAL: 304 STAINLESS STEEL

T-BOLT



T-SLOT BOLT



| B<br>LENGTH<br>UNDER<br>HEAD | C                  |          | PART NO.         |                 |                    |                     |                  |                      |
|------------------------------|--------------------|----------|------------------|-----------------|--------------------|---------------------|------------------|----------------------|
|                              | THD. LENGTH        |          | A=3/8-16         | A=1/2-13        | A=5/8-11           | A=3/4-10            | A=7/8-9          | A=1-8                |
|                              | 3/8,1/2<br>5/8,3/4 | 7/8<br>1 | D=1/4<br>E=11/16 | D=5/16<br>E=7/8 | D=13/32<br>E=1-1/8 | D=17/32<br>E=1-5/16 | D=5/8<br>E=1-1/2 | D=11/16<br>E=1-11/16 |
| 1-1/2                        | 1                  |          | 33203            | 33402           | 33501              | 33601               |                  |                      |
| 2                            | 1-1/2              |          | 33205            | 33404*          | 33503*             | 33602               |                  |                      |
| 2-1/2                        | 2                  |          | 33207            | 33406*          | 33504*             | 33603*              |                  |                      |
| 3                            | 2                  |          | 33209            | 33408*          | 33506*             | 33604*              |                  |                      |
| 3-1/2                        | 2                  |          | 33210            | 33409           | 33507              | 33605*              |                  |                      |
| 4                            | 2                  | 3,4      | 33211            | 33410*          | 33508*             | 33606*              | 33805            | 33830                |
| 4-1/2                        | 2                  | 4        | 33212            | 33411           | 33509              | 33607               |                  | 33835                |
| 5                            | 2                  | 4        | 33213            | 33412*          | 33510*             | 33608*              |                  | 33840                |
| 5-1/2                        | 2                  |          |                  | 33413           | 33511              | 33609               |                  |                      |
| 6                            | 2                  | 3-1/2,4  | 33214            | 33414*          | 33512*             | 33610*              | 33810            | 33845                |
| 7                            | 2                  | 4        | 33215            | 33415           | 33513              | 33611               |                  | 33850                |
| 8                            | 2                  | 4        |                  | 33416*          | 33514*             | 33612*              | 33815            | 33855                |
| 9                            | 2                  | 4        |                  |                 | 33515              | 33613               |                  | 33860                |
| 10                           | 2                  | 4        |                  | 33418           | 33516              | 33614               |                  | 33870                |
| 12                           | 2                  | 4        |                  | 33419           | 33517              | 33701               |                  | 33880                |

\* STAINLESS STEEL AVAILABLE ADD "-SS" TO PART NO.

## T-SLOT BOLTS

MATERIAL: ALLOY STEEL FINISH: BLACK OXIDE, THREAD CLASS: 2A UNC

| B<br>LENGTH | C<br>THREAD<br>LENGTH<br>3/8,1/2,5/8<br>7/8,3/4,1 | PART NO.                     |                            |                             |                               |                              |                               |
|-------------|---|------------------------------|----------------------------|-----------------------------|-------------------------------|------------------------------|-------------------------------|
|             |   | A=3/8-16                     | A=1/2-13                   | A=5/8-11                    | A=3/4-10                      | A=7/8-9                      | A=1-8                         |
|             |   | D=3/16<br>E=11/16<br>F=13/16 | D=5/16<br>E=7/8<br>F=1-1/4 | D=3/8<br>E=1-1/8<br>F=1-1/2 | D=7/16<br>E=1-5/16<br>F=1-3/4 | D=9/16<br>E=1-1/2<br>F=1-3/4 | D=1/2<br>E=1-11/16<br>F=2-1/4 |
| 1-1/2       | 1   | 33230                        | 33260                      | 33288                       |                               |                              |                               |
| 2           | 1-1/2   | 33232                        | 33262                      | 33290                       | 33316                         |                              |                               |
| 2-1/2       | 2   | 33234                        | 33264                      | 33292                       | 33318                         |                              |                               |
| 3           | 2   | 33236                        | 33266                      | 33294                       | 33320                         | 33340                        | 33364                         |
| 3-1/2       | 2   | 33238                        | 33268                      | 33296                       | 33322                         | 33342                        |                               |
| 4           | 2   | 33240                        | 33270                      | 33298                       |                               | 33344                        | 33366                         |
| 4-1/2       | 2   | 33242                        | 33272                      | 33300                       | 33324                         | 33346                        |                               |
| 5           | 2   | 33244                        | 33274                      | 33302                       | 33326                         | 33348                        | 33368                         |
| 5-1/2       | 2   | 33246                        | 33276                      | 33304                       | 33328                         | 33350                        |                               |
| 6           | 2   | 33248                        | 33278                      | 33306                       | 33330                         | 33352                        | 33372                         |
| 7           | 2   | 33250                        | 33280                      | 33308                       | 33332                         | 33354                        | 33374                         |
| 8           | 2   | 33252                        | 33282                      | 33310                       | 33334                         | 33356                        | 33376                         |
| 9           | 2   |                              | 33284                      | 33312                       | 33336                         | 33357                        | 33378                         |
| 10          | 2   |                              | 33286                      | 33314                       | 33338                         | 33358                        | 33380                         |
| 12          | 2   |                              | 33287                      | 33315                       | 33339                         | 33359                        | 33382                         |
| 14          | 2   |                              |                            |                             |                               | 33360                        | 33384                         |
| 16          | 2   |                              |                            |                             |                               | 33361                        | 33386                         |
| 18          | 2   |                              |                            |                             |                               | 33362                        | 33388                         |

1110 Fullerton Road, City of Industry, CA 91748

Toll Free:(800)752-7229 Tel:(626)581-3424 Fax:(626)581-3423 Web:ActekMfg.com Email:sales@actekmfg.com

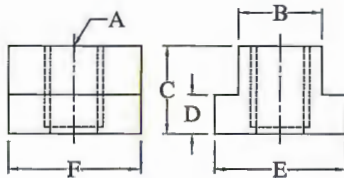
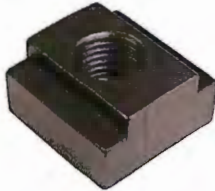




## T-SLOT NUT

MATERIAL: 1018, CASE HARDENED, BLACK OXIDE FINISH

### INCH



THE LAST THREAD IS INCOMPLETE ON T-SLOT NUTS TO PREVENT THE STUD FROM TURNING THROUGH THE BOTTOM OF THE NUT

\*\* STAINLESS STEEL T-SLOT NUT AVAILABLE ADD "-SS" TO THE PART NO.

| PART NO. | A<br>THREAD | B<br>TABLE SLOT |        | C     | D     | E     | F     |
|----------|-------------|-----------------|--------|-------|-------|-------|-------|
|          |             | INCH            | METRIC |       |       |       |       |
|          |             | ** 30902        | 1/4-20 |       |       |       |       |
| 30912    | 1/4-20      | 3/8             | 10MM   | 3/8   | 15/64 | 9/16  | 9/16  |
| ** 30906 | 5/16-18     | 3/8             | 10MM   | 3/8   | 1/4   | 5/8   | 7/8   |
| 30908    | 5/16-18     | 7/16            | 12MM   | 1/2   | 7/32  | 11/16 | 7/8   |
| 30915    | 5/16-18     | 1/2             | 13MM   | 1/2   | 9/32  | 7/8   | 7/8   |
| ** 30903 | 3/8-16      | 7/16            | 12MM   | 1/2   | 7/32  | 11/16 | 7/8   |
| ** 30904 | 3/8-16      | 1/2             | 12MM   | 1/2   | 9/32  | 7/8   | 7/8   |
| 30934    | 3/8-16      | 9/16            | 15MM   | 5/8   | 11/32 | 7/8   | 1-1/8 |
| 30936    | 7/16-14     | 1/2             | 13MM   | 1/2   | 9/32  | 7/8   | 7/8   |
| 30938    | 7/16-14     | 1/2             | 13MM   | 3/8   | 7/32  | 3/4   | 7/8   |
| ** 30907 | 1/2-13      | 9/16            | 15MM   | 5/8   | 11/32 | 7/8   | 1-1/8 |
| ** 30910 | 1/2-13      | 5/8             | 16MM   | 5/8   | 11/32 | 1     | 1-1/8 |
| 30926    | 1/2-13      | 5/8             | 16MM   | 3/4   | 3/8   | 1-1/8 | 1-1/8 |
| ** 30913 | 1/2-13      | 11/16           | 18MM   | 3/4   | 7/16  | 1-1/8 | 1-1/4 |
| 30930    | 1/2-13      | 3/4             | 20MM   | 3/4   | 15/32 | 1-1/4 | 1-1/4 |
| ** 30914 | 5/8-11      | 11/16           | 18MM   | 3/4   | 7/16  | 1-1/8 | 1-1/4 |
| ** 30916 | 5/8-11      | 3/4             | 20MM   | 3/4   | 15/32 | 1-1/4 | 1-1/4 |
| 30918    | 5/8-11      | 13/16           | 21MM   | 1     | 9/16  | 1-1/4 | 1-1/2 |
| 30920    | 3/4-10      | 13/16           | 21MM   | 1     | 9/16  | 1-1/4 | 1-1/2 |
| 30924    | 3/4-10      | 7/8             | 23MM   | 1     | 9/16  | 1-1/2 | 1-1/2 |
| 30927    | 3/4-10      | 1               | 26MM   | 1     | 5/8   | 1-5/8 | 1-3/4 |
| 30940    | 3/4-10      | 1               | 26MM   | 1-1/2 | 3/4   | 1-3/4 | 1-3/4 |
| 30929    | 3/4-10      | 1-1/16          | 27MM   | 1-1/8 | 11/16 | 1-5/8 | 2     |
| 30942    | 7/8-9       | 1               | 26MM   | 1     | 5/8   | 1-5/8 | 1-3/4 |
| 30944    | 7/8-9       | 1-1/16          | 27MM   | 1-1/8 | 11/16 | 1-5/8 | 2     |
| 30946    | 7/8-9       | 1-1/8           | 28MM   | 1-1/2 | 3/4   | 1-3/4 | 2     |
| 30948    | 7/8-9       | 1-5/16          | 34MM   | 1-1/4 | 15/16 | 2     | 2     |
| 30950    | 1-8         | 1-1/16          | 27MM   | 1-1/8 | 11/16 | 1-5/8 | 2     |
| 30952    | 1-8         | 1-1/8           | 32MM   | 1-1/2 | 3/4   | 1-3/4 | 2     |
| 30954    | 1-8         | 1-1/4           | 32MM   | 1-1/4 | 7/8   | 2     | 2     |
| 30956    | 1-8         | 1-5/16          | 34MM   | 1-1/4 | 15/16 | 2     | 2     |
| 30958    | 1-1/4-7     | 1-3/8           | 36MM   | 1-3/4 | 1-1/8 | 2-1/2 | 2-1/2 |

### METRIC

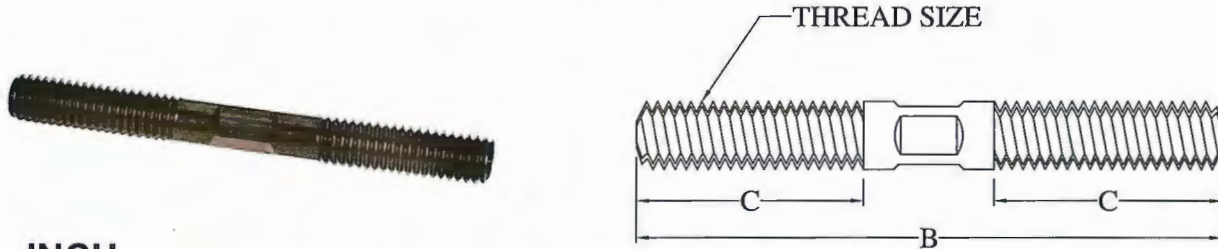
| PART NO. | A<br>THREAD | B<br>TABLE SLOT |        | C  | D  | E  | F  |
|----------|-------------|-----------------|--------|----|----|----|----|
|          |             | METRIC          | INCH   |    |    |    |    |
|          |             | 30970           | M6X1.0 |    |    |    |    |
| 30972    | M6X1.0      | 10              | 7/16   | 11 | 6  | 16 | 22 |
| 30974    | M8X1.25     | 10              | 7/16   | 11 | 6  | 16 | 22 |
| 30976    | M10X1.5     | 12              | 1/2    | 13 | 7  | 19 | 22 |
| 30978    | M10X1.5     | 14              | 9/16   | 16 | 9  | 22 | 29 |
| 30980    | M12X1.75    | 14              | 9/16   | 16 | 9  | 22 | 29 |
| 30982    | M12X1.75    | 16              | 5/8    | 16 | 9  | 25 | 29 |
| 30984    | M12X1.75    | 17              | 11/16  | 19 | 11 | 29 | 32 |
| 30986    | M16X2.0     | 18              | 3/4    | 19 | 11 | 29 | 32 |
| 30988    | M16X2.0     | 21              | 13/16  | 25 | 14 | 32 | 38 |
| 30990    | M20X2.5     | 22              | 7/8    | 25 | 14 | 35 | 38 |
| 30992    | M24X3.0     | 27              | 1-1/16 | 29 | 18 | 41 | 51 |
| 30994    | M24X3.0     | 33              | 1-5/16 | 32 | 24 | 51 | 51 |





## DRIVER STUDS

MATERIAL: MEDIUM CARBON STEEL, BLACK OXIDE FINISH  
 TENSILE STRENGTH: 125,000 p.s.i. Min.  
 MOST STUDS HAVE WRENCH FLATS.



### INCH

| B<br>(LENGTH) | PART NO. |     | PART NO. |       | PART NO. |       | PART NO. |       | PART NO. |       | PART NO. |       |
|---------------|----------|-----|----------|-------|----------|-------|----------|-------|----------|-------|----------|-------|
|               | 1/4-20   | C   | 5/16-18  | C     | 3/8-16   | C     | 1/2-13   | C     | 5/8-11   | C     | 3/4-10   | C     |
| 1-1/2         | 30003    | 1/2 | 30103    | 1/2   | 30203    | 1/2   | 30303    | 1/2   | 30403    | 1/2   |          |       |
| 2             | 30004    | 3/4 | 30104    | 3/4   | 30204    | 3/4   | 30304    | 3/4   | 30404    | 3/4   |          |       |
| 2-1/2         | 30005    | 1   | 30105    | 1     | 30205    | 1     | 30305    | 1     | 30405    | 1     |          |       |
| 3             | 30006    | "   | 30106    | 1-1/8 | 30206    | 1     | 30306    | 1     | 30406    | 1     | 30506    | 1     |
| 3-1/2         | 30007    | "   | 30107    | "     | 30207    | 1-1/4 | 30307    | 1-1/4 | 30407    | 1-1/4 | 30507    | 1-1/4 |
| 4             | 30008    | "   | 30108    | "     | 30208    | "     | 30308    | 1-1/2 | 30408    | 1-1/2 | 30508    | 1-1/2 |
| 4-1/2         | 30009    | "   | 30109    | "     | 30209    | "     | 30309    | "     | 30409    | 1-3/4 | 30509    | 1-3/4 |
| 5             | 30010    | "   | 30110    | "     | 30210    | "     | 30310    | "     | 30410    | "     | 30510    | 2     |
| 5-1/2         | 30011    | "   | 30111    | "     | 30211    | "     | 30311    | "     | 30411    | "     | 30511    | "     |
| 6             | 30012    | "   | 30112    | "     | 30212    | "     | 30312    | "     | 30412    | "     | 30512    | "     |
| 6-1/2         | 30013    | "   | 30113    | "     | 30213    | "     | 30313    | "     | 30413    | "     | 30513    | "     |
| 7             | 30014    | "   | 30114    | "     | 30214    | "     | 30314    | "     | 30414    | "     | 30514    | "     |
| 7-1/2         | 30015    | "   | 30115    | "     | 30215    | "     | 30315    | "     | 30415    | "     | 30515    | "     |
| 8             | 30016    | "   | 30116    | "     | 30216    | "     | 30316    | "     | 30416    | "     | 30516    | "     |
| 9             |          |     |          |       |          |       | 30318    | "     | 30418    | "     | 30518    | "     |
| 10            |          |     |          |       |          |       | 30320    | "     | 30420    | "     | 30520    | "     |
| 12            |          |     |          |       |          |       | 30322    | "     | 30424    | "     | 30524    | "     |

\* OTHER LENGTHS AND SIZES, 303 STAINLESS, AVAILABLE UPON REQUEST.

### METRIC

| B<br>(LENGTH) | PART NO. |    | PART NO. |    | PART NO. |    | PART NO. |    | PART NO. |    | PART NO. |    |
|---------------|----------|----|----------|----|----------|----|----------|----|----------|----|----------|----|
|               | M6X1.0   | C  | M8X1.25  | C  | M10X1.5  | C  | M12X1.75 | C  | M16X2.0  | C  | M20X2.5  | C  |
| 50            | 30030    | 20 | 30130    | 20 | 30230    | 20 | 30330    | 20 |          |    |          |    |
| 65            | 30032    | 20 | 30132    | 20 | 30232    | 20 | 30332    | 20 |          |    |          |    |
| 80            | 30034    | 27 | 30134    | 27 | 30234    | 27 | 30334    | 27 | 30434    | 21 | 30534    | 27 |
| 95            | 30036    | 27 | 30136    | 31 | 30236    | 31 | 30336    | 31 | 30436    | 31 | 30536    | 31 |
| 110           | 30038    | 31 | 30138    | 31 | 30238    | 35 | 30338    | 39 | 30438    | 47 | 30538    | 47 |
| 125           |          |    |          |    | 30239    | "  | 30339    | "  |          |    |          |    |
| 140           | 30040    | 35 | 30140    | 35 | 30240    | "  | 30340    | "  | 30440    | "  | 30540    | 55 |
| 150           | 30042    | "  | 30142    | "  | 30242    | "  | 30342    | "  | 30442    | "  | 30542    | "  |
| 175           | 30044    | "  | 30144    | "  | 30244    | "  | 30344    | "  | 30444    | "  | 30544    | "  |
| 200           | 30046    | "  | 30146    | "  | 30246    | "  | 30346    | "  | 30446    | "  | 30546    | "  |
| 250           |          |    |          |    |          |    |          |    | 30448    | "  | 30548    | "  |
| 300           |          |    |          |    |          |    |          |    | 30450    | "  | 30550    | "  |





## FLANGE NUTS

### UNC & UNF FLANGE NUTS

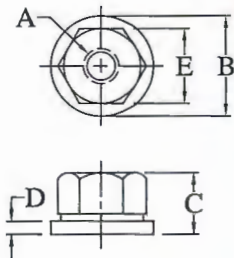
- \* MATERIAL: 12L14 STEEL  
303 STAINLESS STEEL
- \* CASE HARDENED
- \* BLACK OXIDE



| PART NO. | UNC THRD A | PART NO. | UNF THRD A | B     | C     | D    | E       |
|----------|------------|----------|------------|-------|-------|------|---------|
| 37101    | 1/4-20     | 37151    | 1/4-28     | 5/8   | 5/16  | 3/32 | 1/2     |
| 37103    | 5/16-18    | 37153    | 5/16-24    | 3/4   | 3/8   | 1/8  | 9/16    |
| 37105    | 3/8-16     | 37155    | 3/8-24     | 7/8   | 1/2   | 1/8  | 11/16   |
| 37107    | 7/16-14    | 37157    | 7/16-20    | 1     | 9/16  | 5/32 | 3/4     |
| 37109    | 1/2-13     | 37159    | 1/2-20     | 1-1/8 | 11/16 | 3/16 | 7/8     |
| 37111    | 5/8-11     | 37161    | 5/8-18     | 1-3/8 | 13/16 | 3/16 | 1-1/16  |
| 37113    | 3/4-10     | 37163    | 3/4-16     | 1-5/8 | 1     | 1/4  | 1-1/4   |
| 37115    | 7/8-9      | 37165    | 7/8-14     | 1-3/4 | 1-1/8 | 1/4  | 1-7/16  |
| 37117    | 1-8        | 37167    | 1-14       | 2     | 1-1/4 | 1/4  | 1-5/8   |
| 37119    | 1-1/4-7    |          |            | 2-1/2 | 1-1/4 | 1/4  | 1-13/16 |

\* 303 STAINLESS STEEL AVAILABLE ADD "-SS" TO PART NO.

### METRIC FLANGE NUTS

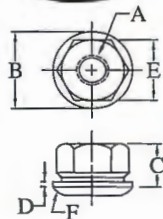


| PART NO. | THREAD A | B  | C  | D   | E  |
|----------|----------|----|----|-----|----|
| 37201    | M6X1.0   | 16 | 8  | 2   | 10 |
| 37203    | M8X1.25  | 19 | 10 | 2.5 | 13 |
| 37205    | M10X1.5  | 22 | 13 | 3   | 17 |
| 37207    | M12X1.75 | 27 | 17 | 4   | 19 |
| 37209    | M16X2.0  | 33 | 21 | 5   | 24 |
| 37211    | M20X2.5  | 40 | 25 | 6   | 30 |
| 37213    | M24X3.0  | 49 | 32 | 7   | 36 |

## SPHERICAL FLANGE NUTS

### UNC SPHERICAL FLANGE NUTS

- \* MATERIAL: 12L14 STEEL
- \* CASE HARDENED
- \* BLACK OXIDE FINISH



| PART NO. | THREAD A | B     | C     | D    | E       | F (RAD) |
|----------|----------|-------|-------|------|---------|---------|
| 37280    | 1/4-20   | 5/8   | 5/16  | 3/32 | 1/2     | 3/4     |
| 37282    | 5/16-18  | 3/4   | 3/8   | 1/8  | 9/16    | 1-1/4   |
| 37284    | 3/8-16   | 7/8   | 1/2   | 1/8  | 11/16   | 1-1/4   |
| 37286    | 7/16-14  | 1     | 9/16  | 5/32 | 3/4     | 1-1/2   |
| 37288    | 1/2-13   | 1-1/4 | 11/16 | 3/16 | 7/8     | 1-1/2   |
| 37290    | 5/8-11   | 1-1/4 | 13/16 | 3/16 | 1-1/16  | 1-3/4   |
| 37292    | 3/4-10   | 1-5/8 | 1     | 1/4  | 1-1/4   | 2-1/4   |
| 37294    | 7/8-9    | 1-7/8 | 1-1/8 | 1/4  | 1-7/16  | 2-1/4   |
| 37296    | 1-8      | 2-1/4 | 1-1/4 | 1/4  | 1-5/8   | 2-3/4   |
| 37298    | 1-1/4-7  | 2-1/2 | 1-1/4 | 1/4  | 1-13/16 | 3       |

\* 416 STAINLESS STEEL AVAILABLE ADD "-SS" TO PART NO.

\*WHEN USED WITH SPHERICAL WASHERS,  
FLANGE NUTS WILL EQUALIZE THREAD LOADS.





# ACTEK® MFG. & ENG. INC.

## SPHERICAL FLANGE NUT ASSEMBLIES

MATERIAL: 12L14 STEEL, CASE HARDENED, BLACK OXIDE FINISH

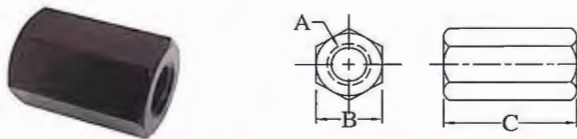


| PART NO. | UNC THRD A | TOTAL DEGREE OF ROTATION |
|----------|------------|--------------------------|
| 37220    | 1/4-20     | 5                        |
| 37222    | 5/16-18    | 5                        |
| 37224    | 3/8-16     | 3                        |
| 37226    | 7/16-14    | 4                        |
| 37228    | 1/2-13     | 2                        |
| 37230    | 5/8-11     | 2                        |
| 37232    | 3/4-10     | 3                        |
| 37234    | 7/8-9      | 3                        |
| 37236    | 1-8        | 3                        |
| 37238    | 1-1/4-7    | 3                        |

\*416 STAINLESS STEEL AVAILABLE ADD "-SS" TO PART NO.

## COUPLING (EXTENSION) NUTS

MATERIAL: 1117 STEEL, CASE HARDENED, BLACK OXIDE FINISH



### UNC COUPLING NUT

### METRIC COUPLING NUT

| PART NO. | THREAD A | B      | C     | PART NO. | THREAD A | B  | C  |
|----------|----------|--------|-------|----------|----------|----|----|
| 47650    | 1/4-20   | 1/2    | 5/8   | 47670    | M6X1.0   | 13 | 16 |
| 47652    | 5/16-18  | 9/16   | 7/8   | 47672    | M8X1.25  | 14 | 19 |
| 47654    | 3/8-16   | 11/16  | 1     | 47674    | M10X1.5  | 16 | 24 |
| 47656    | 7/16-14  | 3/4    | 1-1/4 | 47676    | M12X1.75 | 22 | 32 |
| 47658    | 1/2-13   | 7/8    | 1-1/4 | 47678    | M16X2.0  | 27 | 40 |
| 47660    | 5/8-11   | 1-1/16 | 1-5/8 | 47680    | M20X2.5  | 32 | 51 |
| 47662    | 3/4-10   | 1-1/4  | 1-7/8 | 47682    | M24X3.0  | 38 | 64 |
| 47664    | 7/8-9    | 1-7/16 | 2-1/4 |          |          |    |    |
| 47666    | 1-8      | 1-5/8  | 2-1/2 |          |          |    |    |

\* CAN BE USED TO JOIN TWO OR MORE STUDS FOR A DESIRED LENGTH.

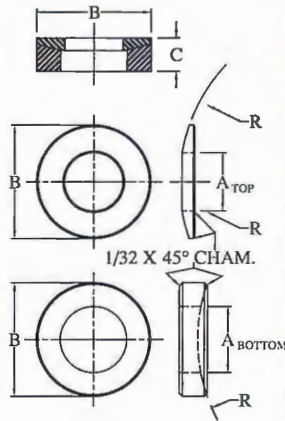


## SPHERICAL WASHERS

MATERIAL: STEEL 12L14, CASE HARDENED, BLACK OXIDE FINISH

STAINLESS STEEL: 303 STAINLESS STEEL

COMPENSATES FOR SLIGHT MISALIGNMENT BETWEEN THE WORK PIECE AND STRAP CLAMP. REDUCES STRESS ON THREADS.



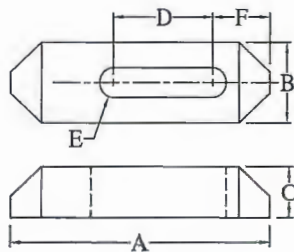
### ASSEMBLIES

| PART NO. |           | STUD SIZE        | A      |        | B     | C    | R     |
|----------|-----------|------------------|--------|--------|-------|------|-------|
| STEEL    | STAINLESS |                  | TOP    | BOTTOM |       |      |       |
| 45150    | 45251     | 3/16 & 1/4 & M6  | 9/32   | 5/16   | 5/8   | 3/16 | 3/4   |
| 45152    | 45253     | 5/16 & M8        | 11/32  | 3/8    | 3/4   | 1/4  | 1     |
| 45154    | 45255     | 3/8 & M10        | 13/32  | 7/16   | 7/8   | 1/4  | 1-1/4 |
| 45156    | 45257     | "                | 13/32  | 7/16   | 1     | 5/16 | 1-1/4 |
| 45158    | 45259     | 7/16 & 1/2 & M12 | 17/32  | 9/16   | 1-1/8 | 5/16 | 1-1/2 |
| 45160    | 45261     | 5/8 & M16        | 21/32  | 11/16  | 1-3/8 | 5/16 | 1-3/4 |
| 45162    | 45263     | 3/4 & M18        | 25/32  | 7/8    | 1-5/8 | 3/8  | 2-1/4 |
| 45164    | 45265     | 7/8 & M22        | 15/16  | 1      | 1-3/4 | 3/8  | 2-1/2 |
| 45166    | 45267     | 1 & M24          | 1-1/16 | 1-1/8  | 2     | 1/2  | 2-3/4 |
| 45168    | 45269     | 1-1/8            | 1-3/16 | 1-1/4  | 2-1/4 | 1/2  | 3     |
| 45170    | 45271     | 1-1/4 & M30      | 1-5/16 | 1-3/8  | 2-5/8 | 1/2  | 3     |
| 45172    | 45273     | 1-1/2 & M36      | 1-9/16 | 1-5/8  | 2-7/8 | 1/2  | 3     |

## PLAIN CLAMPS

MATERIAL: 1018 STEEL, CASE HARDENED, BLACK OXIDE FINISH

TAPERED NOSE ALLOWS CLAMPING IN SMALL AREAS.

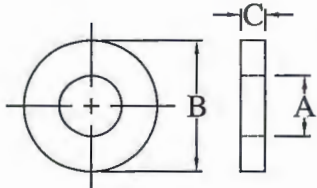


| PART NO. | E (STUD SIZE)    | A     | B     | C     | D       | F       |
|----------|------------------|-------|-------|-------|---------|---------|
| 23530    | 5/16 & 3/8 & M10 | 2-1/2 | 1     | 1/2   | 13/16   | 27/32   |
| 23532    | "                | 4     | "     | 5/8   | 1-7/16  | 1-1/32  |
| 23534    | "                | 6     | 1-1/8 | 3/4   | 2-3/16  | 1-5/32  |
| 23536    | 1/2 & M12        | 2-1/2 | "     | 1/2   | 11/16   | 29/32   |
| 23538    | "                | 4     | 1-1/4 | 3/4   | 1-5/16  | 1-5/32  |
| 23540    | "                | 6     | "     | 7/8   | 2-1/16  | 1-9/32  |
| 23542    | 5/8 & M16        | 2-1/2 | "     | 5/8   | 9/16    | 31/32   |
| 23544    | "                | 4     | 1-1/2 | 3/4   | 1-3/16  | 1-9/32  |
| 23546    | "                | 6     | "     | 7/8   | 1-15/16 | 1-13/32 |
| 23548    | 3/4 & M20        | 4     | "     | 3/4   | 1-1/16  | 1-11/32 |
| 23550    | "                | 6     | "     | 1     | 1-15/16 | 1-15/32 |
| 23552    | "                | 8     | 1-3/4 | 1-1/8 | 2-3/16  | 1-29/32 |
| 23554    | 7/8, 1, M22, M24 | 6     | 2     | 1-1/4 | 1-11/16 | 1-27/32 |
| 23556    | "                | 8     | "     | 1-3/8 | 1-15/16 | 2-1/32  |
| 23558    | "                | 10    | "     | 1-1/2 | 2-15/16 | 2-1/32  |





## HARDENED FLAT WASHERS



- \* BLACK OXIDE FINISH
- \* MATERIAL C1010 STEEL
- \* CASE HARDENED STEEL WASHER
- \* MATERIAL 303 STAINLESS STEEL
- \* STAINLESS STEEL PART NO. ADD "-SS" TO THE PART NO.

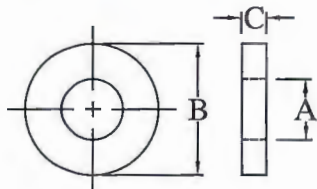
### INCH

| PART NO. | STUD SIZE | A      | B     | C    | WEIGHTS (LBS/100) |
|----------|-----------|--------|-------|------|-------------------|
| 45445    | 3/16      | 13/64  | 1/2   | 3/32 | 0.5               |
| 45450    | 1/4       | 9/32   | 5/8   | 1/8  | 1                 |
| 45455    | 5/16      | 11/32  | 3/4   | 1/8  | 2                 |
| 45465    | 3/8       | 13/32  | 7/8   | 1/8  | 2                 |
| 45472    | 7/16      | 15/32  | 1     | 1/8  | 3                 |
| 45475    | 1/2       | 17/32  | 1-1/8 | 1/8  | 3                 |
| 45485    | 5/8       | 21/32  | 1-3/8 | 1/8  | 4                 |
| 45495    | 3/4       | 25/32  | 1-5/8 | 5/32 | 8                 |
| 45505    | 7/8       | 29/32  | 1-3/4 | 5/32 | 8                 |
| 45515    | 1         | 1-1/32 | 2     | 3/16 | 12                |
| 45525    | 1-1/8     | 1-5/32 | 2-1/4 | 7/32 | 19                |
| 45530    | 1-1/4     | 1-9/32 | 2-1/2 | 9/32 | 28                |
| 45535    | #4        | 1/8    | 5/16  | 5/64 | 0.5               |
| 45540    | #6        | 5/32   | 3/8   | 5/64 | 0.5               |
| 45545    | #8        | 3/16   | 7/16  | 5/64 | 0.5               |

### METRIC

| PART NO. | STUD SIZE | A mm | B mm | C mm | WEIGHTS (LBS/100) |
|----------|-----------|------|------|------|-------------------|
| 45410    | M6        | 7    | 16   | 3    | 1                 |
| 45412    | M8        | 9    | 19   | 3    | 2                 |
| 45414    | M10       | 11   | 25   | 3    | 3                 |
| 45416    | M12       | 13   | 28   | 3    | 3                 |
| 45418    | M16       | 17   | 35   | 3    | 4                 |
| 45420    | M20       | 22   | 44   | 5    | 8                 |
| 45422    | M24       | 26   | 51   | 4    | 12                |

## HEAVY DUTY HARDENED FLAT WASHERS



- \* BLACK OXIDE FINISH
- \* MATERIAL C1010
- \* CASE HARDENED

### INCH

| PART NO. | STUD SIZE | A      | B     | C    | WEIGHTS (LBS/100) |
|----------|-----------|--------|-------|------|-------------------|
| 45452    | 1/4       | 9/32   | 5/8   | 3/16 | 2                 |
| 45460    | 5/16      | 11/32  | 3/4   | 3/16 | 2                 |
| 45470    | 3/8       | 13/32  | 7/8   | 3/16 | 3                 |
| 45477    | 7/16      | 15/32  | 1     | 3/16 | 4                 |
| 45480    | 1/2       | 17/32  | 1-1/8 | 3/16 | 4                 |
| 45490    | 5/8       | 21/32  | 1-3/8 | 3/16 | 6                 |
| 45500    | 3/4       | 25/32  | 1-5/8 | 1/4  | 11                |
| 45510    | 7/8       | 29/32  | 1-3/4 | 1/4  | 11                |
| 45520    | 1         | 1-1/32 | 2     | 9/32 | 18                |

### METRIC

| PART NO. | STUD SIZE | A mm | B mm | C mm | WEIGHTS (LBS/100) |
|----------|-----------|------|------|------|-------------------|
| 45430    | M6        | 7    | 16   | 5    | 2                 |
| 45432    | M8        | 9    | 19   | 5    | 2                 |
| 45434    | M10       | 11   | 22   | 5    | 3                 |
| 45436    | M12       | 13   | 28   | 5    | 4                 |
| 45438    | M16       | 17   | 35   | 5    | 6                 |
| 45440    | M20       | 22   | 44   | 6    | 12                |
| 45442    | M24       | 26   | 51   | 7    | 18                |





## SOCKET HEAD CAP SCREW



MATERIAL: ALLOY HEAT TREAT RC 38-43, BLACK OXIDE FINISH  
USE ALLOY FOR MAXIMUM TENSILES: UP TO 190,000 psi,  
MATERIAL: 304 & 316 STAINLESS STEEL

MFG: UNBRAKO, DYSON, ASTM A574

| PART NO.    | LENGTH    | PART NO.   | LENGTH   | PART NO.     | LENGTH   | PART NO.      | LENGTH     |             |
|-------------|-----------|------------|----------|--------------|----------|---------------|------------|-------------|
| 1/4-20 UNC  | 3/16" KEY | 1/2-13 UNC | 3/8" KEY | 7/8-9 UNC    | 3/4" KEY | 1-3/8-6 UNC   | 1" KEY     |             |
| 1/4-28 UNF  |           | 1/2-20 UNF |          | 7/8-14 UNF   |          | 1-3/8-12 UNF  |            |             |
| AK36200     | 1         | AK36264    | 1        | AK36435      | 2        | AK36501       | 3          |             |
| AK36201     | 1-1/4     | AK36270    | 1-1/4    | AK36436      | 2-1/2    | AK36502       | 4          |             |
| AK36202     | 1-1/2     | AK36271    | 1-1/2    | AK36437      | 3        | AK36503       | 5          |             |
| AK36203     | 1-3/4     | AK36272    | 1-3/4    | AK36438      | 3-1/4    | AK36504       | 6          |             |
| AK36204     | 2         | AK36273    | 2        | AK36439      | 3-1/2    | AK36505       | 8          |             |
| AK36205     | 2-1/4     | AK36274    | 2-1/4    | AK36440      | 4        | AK36506       | 10         |             |
| AK36206     | 2-1/2     | AK36275    | 2-1/2    | AK36441      | 4-1/2    | AK36507       | 12         |             |
| AK36207     | 3         | AK36276    | 2-3/4    | AK36442      | 5        | AK36508       | 14         |             |
| AK36208     | 3-1/2     | AK36277    | 3        | AK36443      | 5-1/2    | AK36509       | 16         |             |
| AK36209     | 4         | AK36278    | 3-1/2    | AK36444      | 6        | 1-1/2-6 UNC   | 1" KEY     |             |
| AK36210     | 5         | AK36279    | 4        | AK36445      | 6-1/2    | 1-1/2-12 UNF  |            |             |
| 5/16-18 UNC | 1/4" KEY  | AK36280    | 4-1/2    | AK36446      | 7        | AK36514       | 5          |             |
| 5/16-24 UNF |           | AK36281    | 5        | AK36447      | 8        | AK36515       | 5-1/2      |             |
| AK36217     | 1         | AK36282    | 5-1/2    | 1-8 UNC      | 3/4" KEY | AK36516       | 6          |             |
| AK36218     | 1-1/4     | AK36283    | 6        | 1-12 UNF     |          | AK36517       | 8          |             |
| AK36219     | 1-1/2     | AK36284    | 6-1/2    | AK36453      | 3        | AK36518       | 10         |             |
| AK36220     | 1-3/4     | AK36285    | 7        | AK36454      | 3-1/4    | AK36519       | 12         |             |
| AK36221     | 2         | AK36286    | 8        | AK36455      | 3-1/2    | AK36520       | 14         |             |
| AK36222     | 2-1/4     | AK36287    | 9        | AK36456      | 3-3/4    | AK36521       | 16         |             |
| AK36223     | 2-1/2     | AK36288    | 10       | AK36457      | 4        | AK36522       | 20         |             |
| AK36224     | 3         | 5/8-11 UNC | 1/2" KEY | AK36458      | 4-1/2    | 1-3/4-5 UNC   | 1-1/4" KEY |             |
| AK36225     | 3-1/2     | 5/8-18 UNF |          | AK36459      | 5        | 1-3/4-12 UNF  |            |             |
| AK36226     | 4         | AK36294    | 2        | AK36460      | 5-1/2    | AK36527       | 6          |             |
| AK36227     | 5         | AK36295    | 2-1/4    | AK36461      | 5-3/4    | AK36528       | 8          |             |
| AK36228     | 6         | AK36296    | 2-1/2    | AK36462      | 6        | AK36529       | 10         |             |
| AK36229     | 8         | AK36297    | 2-3/4    | AK36463      | 6-1/2    | AK36530       | 12         |             |
| 3/8-16 UNC  | 5/16" KEY | AK36298    | 3        | AK36464      | 7        | 2-4-1/2 UNC   | 1-1/2" KEY |             |
| 3/8-24 UNF  |           | AK36299    | 3-1/4    | AK36465      | 8        | 2-12 UNF      |            |             |
| AK36234     | 1         | AK36402    | 3-1/2    | AK36466      | 10       | AK36535       | 5          |             |
| AK36235     | 1-1/4     | AK36403    | 4        | AK36467      | 12       | AK36536       | 6          |             |
| AK36236     | 1-1/2     | AK36404    | 4-1/2    | AK36468      | 16       | AK36537       | 8          |             |
| AK36237     | 1-3/4     | AK36405    | 5        | 1-1/8-7 UNC  | 7/8" KEY | AK36538       | 10         |             |
| AK36238     | 2         | AK36406    | 5-1/2    | 1-1/8-12 UNF |          | AK36539       | 12         |             |
| AK36239     | 2-1/4     | AK36407    | 6        | AK36469      | 3-1/2    | AK36540       | 14         |             |
| AK36240     | 2-1/2     | AK36408    | 6-1/2    | AK36470      | 4        | 2-1/2-4 UNC   | 1-3/4" KEY |             |
| AK36241     | 3         | AK36409    | 7        | AK36471      | 5        | 2-1/2-8 8THD  |            |             |
| AK36242     | 3-1/2     | AK36410    | 8        | AK36472      | 6        | AK36545       | 8          |             |
| AK36243     | 4         | AK36411    | 10       | AK36473      | 8        | AK36546       | 10         |             |
| AK36244     | 5         | AK36412    | 12       | AK36474      | 10       | AK36547       | 12         |             |
| AK36245     | 6         | 3/4-10 UNC | 5/8" KEY | AK36475      | 12       | AK36548       | 16         |             |
| AK36246     | 8         | 3/4-16 UNF |          | 1-1/4-7 UNC  | 7/8" KEY | AK36549       | 20         |             |
| 7/16-14 UNC | 3/8" KEY  | AK36417    | 2        | 1-1/4-12 UNF |          | AK36480       | 4          | 2-3/4-4 UNC |
| 7/16-20 UNF |           | AK36418    | 2-1/2    | AK36481      | 4-1/2    | 2-3/4-8 8 THD |            |             |
| AK36253     | 1         | AK36419    | 3        | AK36482      | 5        | AK36555       | 8          |             |
| AK36254     | 1-1/4     | AK36420    | 3-1/2    | AK36483      | 5-1/2    | AK36556       | 10         |             |
| AK36255     | 1-1/2     | AK36421    | 4        | AK36484      | 6        | AK36557       | 12         |             |
| AK36256     | 2         | AK36422    | 4-1/2    | AK36485      | 8        | AK36558       | 16         |             |
| AK36257     | 2-1/4     | AK36424    | 5        | AK36486      | 10       | AK36559       | 20         |             |
| AK36258     | 2-1/2     | AK36425    | 5-1/2    | AK36487      | 12       | 3-4 UNC       | 2-1/4" KEY |             |
| AK36259     | 3         | AK36426    | 6        | AK36488      | 14       | 3-8 8 THD     |            |             |
| AK36260     | 3-1/2     | AK36427    | 7        | AK36489      | 16       | AK36565       | 10         |             |
| AK36261     | 4         | AK36428    | 8        | AK36490      | 18       | AK36566       | 12         |             |
| AK36262     | 5         | AK36429    | 10       | AK36491      | 20       | AK36567       | 16         |             |
| AK36263     | 6         | AK36430    | 12       |              |          | AK36568       | 20         |             |

\* STAINLESS STEEL AVAILABLE ADD "-SS" TO PART NO.

\*OTHER SIZES & LENGTHS AVAILABLE UPON ON REQUEST.





## METRIC SOCKET HEAD CAP SCREW

MATERIAL:ALLOY, HEAT TREAT RC38-43, BLACK OXIDE FINISH

MATERIAL: STAINLESS STEEL

MFG: UNBRAKO, DYSON, MEG. METRIC. ASTM A574M, CLASS 12.9

| PART NO. | LENGTH  | PART NO. | LENGTH   | PART NO. | LENGTH   | PART NO. | LENGTH   |
|----------|---------|----------|----------|----------|----------|----------|----------|
| M6X1.0   | 5mm key | M12X1.75 | 10mm key | M20X2.50 | 17mm key | M36X4.0  | 27mm key |
| AK36604  | 20      | AK36638  | 20       | AK36675  | 40       | AK36712  | 100      |
| AK36605  | 25      | AK36639  | 25       | AK36676  | 50       | AK36713  | 110      |
| AK36606  | 30      | AK36640  | 30       | AK36677  | 60       | AK36714  | 120      |
| AK36607  | 35      | AK36641  | 35       | AK36678  | 70       | AK36715  | 130      |
| AK36608  | 40      | AK36642  | 40       | AK36679  | 80       | AK36716  | 135      |
| AK36609  | 45      | AK36643  | 45       | AK36680  | 100      | AK36717  | 140      |
| AK36610  | 50      | AK36644  | 50       |          |          | AK36718  | 160      |
|          |         | AK36645  | 55       | M24X3.0  | 19mm key |          |          |
| M8X1.25  | 6mm key | AK36646  | 60       | AK36685  | 40       | M42X4.5  | 32mm key |
| AK36614  | 20      | AK36648  | 80       | AK36686  | 50       | AK36725  | 120      |
| AK36615  | 25      |          |          | AK36687  | 60       | AK36726  | 140      |
| AK36616  | 30      | M14X2.0  | 12mm key | AK36688  | 70       | AK36727  | 160      |
| AK36617  | 35      | AK36654  | 25       | AK36689  | 75       | AK36728  | 180      |
| AK36618  | 40      | AK36655  | 30       | AK36690  | 80       | AK36729  | 200      |
| AK36619  | 45      | AK36656  | 40       | AK36691  | 100      |          |          |
| AK36620  | 50      | AK36657  | 50       |          |          | M48X5.0  | 36mm key |
|          |         | AK36658  | 60       | M30X3.50 | 22mm key | AK36735  | 140      |
| M10X1.5  | 8mm key |          |          | AK36696  | 50       | AK36736  | 150      |
| AK36625  | 20      | M16X2.0  | 14mm key | AK36697  | 60       | AK36737  | 155      |
| AK36626  | 25      | AK36664  | 25       | AK36698  | 70       | AK36738  | 160      |
| AK36627  | 30      | AK36665  | 30       | AK36699  | 80       | AK36739  | 180      |
| AK36628  | 35      | AK36666  | 40       | AK36702  | 90       | AK36740  | 200      |
| AK36629  | 40      | AK36667  | 50       | AK36703  | 95       |          |          |
| AK36630  | 45      | AK36668  | 60       | AK36704  | 100      | M64X6.0  | 46mm key |
| AK36631  | 50      | AK36669  | 70       | AK36705  | 110      | AK36748  | 200      |
| AK36632  | 60      | AK36670  | 80       | AK36706  | 120      | AK36750  | 300      |

\* STAINLESS STEEL AVAILABLE ADD "-SS" TO PART NO.

\*OTHER SIZES & LENGTH AVAILABLE UPON ON REQUEST.

## HEX NUT

MATERIAL: ALLOY, GRADE 8, HARDENED

MATERIAL: STAINLESS STEEL



| INCH     |             |          |             | METRIC   |             |          |             |
|----------|-------------|----------|-------------|----------|-------------|----------|-------------|
| PART NO. | THREAD SIZE | PART NO. | THREAD SIZE | PART NO. | THREAD SIZE | PART NO. | THREAD SIZE |
| AK46137  | 1/4-20      | AK46863  | 1-1/4-7     | AK49130  | 6mmx1.00    | AK46976  | 33mmx3.50   |
| AK46175  | 5/16-18     | AK46864  | 1-3/8-6     | AK49141  | 8mmx1.25    | AK49349  | 36mmx4.00   |
| AK46166  | 3/8-16      | AK46460  | 1-1/2-6     | AK49149  | 10mmx1.50   | AK49340  | 39mmx4.00   |
| AK46615  | 7/16-14     | AK46760  | 1-3/4-5     | AK49046  | 12mmx1.75   | AK49441  | 42mmx4.50   |
| AK46069  | 1/2-13      | AK46456  | 2-4-1/2     | AK49064  | 14mmx2.00   | AK49449  | 45mmx4.50   |
| AK46037  | 9/16-12     | AK47068  | 2-1/4-4-1/2 | AK49065  | 16mmx2.00   | AK49460  | 48mmx5.00   |
| AK46075  | 5/8-11      | AK47051  | 2-1/2-4     | AK49084  | 18mmx2.50   | AK49459  | 56mmx5.50   |
| AK46067  | 3/4-10      | AK47069  | 2-3/4-4     | AK49053  | 20mmx2.50   | AK49922  | 64mmx6.00   |
| AK46290  | 7/8-9       | AK47254  | 3-4         | AK49246  | 22mmx2.50   | AK49924  | 72mmx6.00   |
| AK46261  | 1-8         | AK47258  | 3-1/4-4     | AK49271  | 24mmx3.00   | AK49749  | 80mmx6.00   |
| AK46862  | 1-1/8-7     | AK47453  | 3-1/2-4     | AK49269  | 30mmx3.50   | AK49856  | 90mmx6.00   |

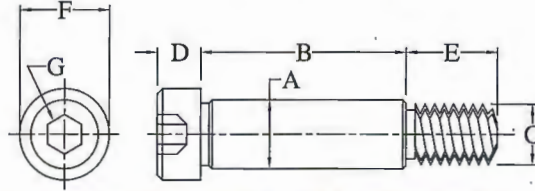
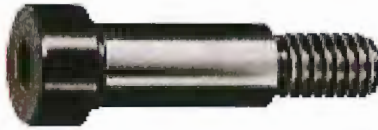
\* STAINLESS STEEL AVAILABLE ADD "-SS" TO PART NO.





## PRECISION SOCKET SHOULDER SCREWS

MATERIAL: ALLOY, CLASS FIT: 3A, HEAT TREATED RC 36-43, BLACK OXIDE FINISH  
FOR USE AS PIVOT PINS IN A VARIETY OF TOOLING APPLICATIONS



| PART NO. | +0.000<br>-0.001<br>A | +0.005<br>-0.000<br>B | C       | D    | E    | F    | G    |
|----------|-----------------------|-----------------------|---------|------|------|------|------|
| 32600    | .250                  | 1/4                   | 10-24   | 3/16 | 3/8  | 3/8  | 1/8  |
| 32602    |                       | 5/16                  |         |      |      |      |      |
| 32605    |                       | 3/8                   |         |      |      |      |      |
| 32610    |                       | 1/2                   |         |      |      |      |      |
| 32615    |                       | 5/8                   |         |      |      |      |      |
| 32620    |                       | 3/4                   |         |      |      |      |      |
| 32625    |                       | 1                     |         |      |      |      |      |
| 32630    | .3125                 | 1/4                   | 1/4-20  | 7/32 | 7/16 | 7/16 | 5/32 |
| 32635    |                       | 5/16                  |         |      |      |      |      |
| 32640    |                       | 3/8                   |         |      |      |      |      |
| 32645    |                       | 1/2                   |         |      |      |      |      |
| 32650    |                       | 5/8                   |         |      |      |      |      |
| 32655    |                       | 3/4                   |         |      |      |      |      |
| 32660    |                       | 1                     |         |      |      |      |      |
| 32699    | .375                  | 1/4                   | 5/16-18 | 1/4  | 1/2  | 9/16 | 3/16 |
| 32667    |                       | 5/16                  |         |      |      |      |      |
| 32670    |                       | 3/8                   |         |      |      |      |      |
| 32675    |                       | 1/2                   |         |      |      |      |      |
| 32680    |                       | 5/8                   |         |      |      |      |      |
| 32685    |                       | 3/4                   |         |      |      |      |      |
| 32690    |                       | 1                     |         |      |      |      |      |
| 32695    | .500                  | 3/8                   | 3/8-16  | 5/16 | 5/8  | 3/4  | 1/4  |
| 32700    |                       | 1/2                   |         |      |      |      |      |
| 32705    |                       | 5/8                   |         |      |      |      |      |
| 32710    |                       | 3/4                   |         |      |      |      |      |
| 32712    |                       | 7/8                   |         |      |      |      |      |
| 32715    |                       | 1                     |         |      |      |      |      |
| 32720    | .625                  | 1/2                   | 1/2-13  | 3/8  | 3/4  | 7/8  | 5/16 |
| 32725    |                       | 5/8                   |         |      |      |      |      |
| 32730    |                       | 3/4                   |         |      |      |      |      |
| 32732    |                       | 7/8                   |         |      |      |      |      |
| 32735    |                       | 1                     |         |      |      |      |      |
| 32740    | .750                  | 1/2                   | 5/8-11  | 1/2  | 7/8  | 1    | 3/8  |
| 32742    |                       | 5/8                   |         |      |      |      |      |
| 32745    |                       | 3/4                   |         |      |      |      |      |
| 32747    |                       | 7/8                   |         |      |      |      |      |
| 32750    |                       | 1                     |         |      |      |      |      |

\* METRIC SOCKET SHOULDER SCREW AVAILABLE UPON REQUEST.





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## Fractional, Letter & Number Drill Sizes Millimeter & Decimal Equivalent

| STANDARD DRILL SIZES |         |       |         |       |         |
|----------------------|---------|-------|---------|-------|---------|
| Size                 | Decimal | Size  | Decimal | Size  | Decimal |
| #80                  | 0.0135  | 1/8   | 0.1250  | P     | 0.3230  |
| #79                  | 0.0145  | #30   | 0.1285  | 21/64 | 0.3281  |
| 1/64                 | 0.0156  | #29   | 0.1360  | Q     | 0.3320  |
| #78                  | 0.0160  | #28   | 0.1405  | R     | 0.3390  |
| #77                  | 0.0180  | 9/64  | 0.1406  | 11/32 | 0.3437  |
| #76                  | 0.0200  | #27   | 0.1440  | S     | 0.3480  |
| #75                  | 0.0210  | #26   | 0.1470  | T     | 0.3580  |
| #74                  | 0.0225  | #25   | 0.1495  | 23/64 | 0.3594  |
| #73                  | 0.0240  | #24   | 0.1520  | U     | 0.3680  |
| #72                  | 0.0250  | #23   | 0.1540  | 3/8   | 0.3750  |
| #71                  | 0.0260  | 5/32  | 0.1562  | V     | 0.3770  |
| #70                  | 0.0280  | #22   | 0.1570  | W     | 0.3860  |
| #69                  | 0.0292  | #21   | 0.1590  | 25/64 | 0.3906  |
| #68                  | 0.0310  | #20   | 0.1610  | X     | 0.3970  |
| 1/32                 | 0.0312  | #19   | 0.1660  | Y     | 0.4040  |
| #67                  | 0.0320  | #18   | 0.1695  | 13/32 | 0.4062  |
| #66                  | 0.0333  | 11/64 | 0.1719  | Z     | 0.4130  |
| #65                  | 0.0350  | #17   | 0.1730  | 27/64 | 0.4219  |
| #64                  | 0.0360  | #16   | 0.1770  | 7/16  | 0.4375  |
| #63                  | 0.0370  | #15   | 0.1800  | 29/64 | 0.4531  |
| #62                  | 0.0380  | #14   | 0.1820  | 15/32 | 0.4687  |
| #61                  | 0.0390  | #13   | 0.1850  | 31/64 | 0.4844  |
| #60                  | 0.0400  | 3/16  | 0.1875  | 1/2   | 0.5000  |
| #59                  | 0.0410  | #12   | 0.1890  | 33/64 | 0.5156  |
| #58                  | 0.0420  | #11   | 0.1910  | 17/32 | 0.5312  |
| #57                  | 0.0430  | #10   | 0.1935  | 35/64 | 0.5469  |
| #56                  | 0.0465  | #9    | 0.1960  | 9/16  | 0.5625  |
| 3/64                 | 0.0469  | #8    | 0.1990  | 37/64 | 0.5781  |
| #55                  | 0.0520  | #7    | 0.2010  | 19/32 | 0.5937  |
| #54                  | 0.0550  | 13/64 | 0.2031  | 39/64 | 0.6094  |
| #53                  | 0.0595  | #6    | 0.2040  | 5/8   | 0.6250  |
| 1/16                 | 0.0625  | #5    | 0.2055  | 41/64 | 0.6406  |
| #52                  | 0.0635  | #4    | 0.2090  | 21/32 | 0.6562  |
| #51                  | 0.0670  | #3    | 0.2130  | 43/64 | 0.6719  |
| #50                  | 0.0700  | 7/32  | 0.2187  | 11/16 | 0.6875  |
| #49                  | 0.0730  | #2    | 0.2210  | 45/64 | 0.7031  |
| #48                  | 0.0760  | #1    | 0.2280  | 23/32 | 0.7187  |
| 5/64                 | 0.0781  | A     | 0.2340  | 47/64 | 0.7344  |
| #47                  | 0.0785  | 15/64 | 0.2344  | 3/4   | 0.7500  |
| #46                  | 0.0810  | B     | 0.2380  | 49/64 | 0.7656  |
| #45                  | 0.0820  | C     | 0.2420  | 25/32 | 0.7812  |
| #44                  | 0.0860  | D     | 0.2460  | 51/64 | 0.7969  |
| #43                  | 0.0890  | 1/4   | 0.2500  | 13/16 | 0.8125  |
| #42                  | 0.0935  | F     | 0.2570  | 53/64 | 0.8281  |
| 3/32                 | 0.0937  | G     | 0.2610  | 27/32 | 0.8437  |
| #41                  | 0.0960  | 17/64 | 0.2656  | 55/64 | 0.8594  |
| #40                  | 0.0980  | H     | 0.2660  | 7/8   | 0.8750  |
| #39                  | 0.0995  | I     | 0.2716  | 57/64 | 0.8906  |
| #38                  | 0.1015  | J     | 0.2756  | 29/32 | 0.9062  |
| #37                  | 0.1040  | K     | 0.2795  | 59/64 | 0.9219  |
| #36                  | 0.1065  | 9/32  | 0.2810  | 15/16 | 0.9375  |
| 7/64                 | 0.1094  | L     | 0.2900  | 61/64 | 0.9531  |
| #35                  | 0.1100  | M     | 0.2950  | 31/32 | 0.9687  |
| #34                  | 0.1110  | 19/64 | 0.2969  | 63/64 | 0.9844  |
| #33                  | 0.1130  | - N   | 0.3020  | 1     | 1.0000  |
| #32                  | 0.1160  | 5/16  | 0.3125  |       |         |
| #31                  | 0.1200  | O     | 0.3160  |       |         |

| MILLIMETER SIZES |         |      |         |       |         |
|------------------|---------|------|---------|-------|---------|
| Size             | Decimal | Size | Decimal | Size  | Decimal |
| 0.35             | 0.0138  | 3.50 | 0.1378  | 8.25  | 0.3248  |
| 0.40             | 0.0157  | 3.60 | 0.1417  | 8.30  | 0.3268  |
| 0.45             | 0.0177  | 3.70 | 0.1457  | 8.40  | 0.3307  |
| 0.50             | 0.0197  | 3.75 | 0.1477  | 8.50  | 0.3346  |
| 0.55             | 0.0217  | 3.80 | 0.1496  | 8.60  | 0.3386  |
| 0.60             | 0.0236  | 3.90 | 0.1535  | 8.70  | 0.3425  |
| 0.65             | 0.0256  | 4.00 | 0.1575  | 8.75  | 0.3445  |
| 0.70             | 0.0276  | 4.10 | 0.1614  | 8.80  | 0.3465  |
| 0.75             | 0.0295  | 4.20 | 0.1654  | 8.90  | 0.3504  |
| 0.80             | 0.0315  | 4.25 | 0.1674  | 9.00  | 0.3543  |
| 0.85             | 0.0335  | 4.30 | 0.1693  | 9.10  | 0.3583  |
| 0.90             | 0.0354  | 4.40 | 0.1732  | 9.20  | 0.3622  |
| 0.95             | 0.0374  | 4.50 | 0.1771  | 9.25  | 0.3642  |
| 1.00             | 0.0394  | 4.60 | 0.1811  | 9.30  | 0.3661  |
| 1.05             | 0.0413  | 4.70 | 0.1850  | 9.40  | 0.3701  |
| 1.10             | 0.0433  | 4.75 | 0.1870  | 9.50  | 0.3740  |
| 1.15             | 0.0453  | 4.80 | 0.1890  | 9.60  | 0.3780  |
| 1.20             | 0.0472  | 4.90 | 0.1929  | 9.70  | 0.3819  |
| 1.25             | 0.0492  | 5.00 | 0.1968  | 9.75  | 0.3839  |
| 1.30             | 0.0512  | 5.10 | 0.2008  | 9.80  | 0.3858  |
| 1.35             | 0.0531  | 5.20 | 0.2047  | 9.90  | 0.3898  |
| 1.40             | 0.0551  | 5.25 | 0.2067  | 10.00 | 0.3937  |
| 1.45             | 0.0571  | 5.30 | 0.2087  | 10.50 | 0.4134  |
| 1.50             | 0.0591  | 5.40 | 0.2126  | 11.00 | 0.4330  |
| 1.55             | 0.0610  | 5.50 | 0.2165  | 11.50 | 0.4528  |
| 1.60             | 0.0629  | 5.60 | 0.2205  | 12.00 | 0.4724  |
| 1.65             | 0.0650  | 5.70 | 0.2244  | 12.50 | 0.4921  |
| 1.70             | 0.0669  | 5.75 | 0.2264  | 13.00 | 0.5119  |
| 1.75             | 0.0689  | 5.80 | 0.2283  | 13.50 | 0.5315  |
| 1.80             | 0.0709  | 5.90 | 0.2323  | 14.00 | 0.5512  |
| 1.85             | 0.0728  | 6.00 | 0.2362  | 14.50 | 0.5709  |
| 1.90             | 0.0748  | 6.10 | 0.2401  | 15.00 | 0.5906  |
| 1.95             | 0.0768  | 6.20 | 0.2441  | 15.50 | 0.6102  |
| 2.00             | 0.0787  | 6.25 | 0.2461  | 16.00 | 0.6299  |
| 2.05             | 0.0807  | 6.30 | 0.2480  | 16.50 | 0.6496  |
| 2.10             | 0.0827  | 6.40 | 0.2520  | 17.00 | 0.6693  |
| 2.15             | 0.0846  | 6.50 | 0.2559  | 17.50 | 0.6890  |
| 2.20             | 0.0866  | 6.60 | 0.2598  | 18.00 | 0.7087  |
| 2.25             | 0.0886  | 6.70 | 0.2638  | 18.50 | 0.7283  |
| 2.30             | 0.0905  | 6.75 | 0.2658  | 19.00 | 0.7480  |
| 2.35             | 0.0925  | 6.80 | 0.2677  | 19.50 | 0.7677  |
| 2.40             | 0.0945  | 6.90 | 0.2716  | 20.00 | 0.7874  |
| 2.45             | 0.0965  | 7.00 | 0.2756  | 20.50 | 0.8071  |
| 2.50             | 0.0984  | 7.10 | 0.2795  | 21.00 | 0.8268  |
| 2.55             | 0.1004  | 7.20 | 0.2835  | 21.50 | 0.8465  |
| 2.60             | 0.1024  | 7.25 | 0.2855  | 22.00 | 0.8661  |
| 2.65             | 0.1043  | 7.30 | 0.2874  | 22.50 | 0.8858  |
| 2.70             | 0.1063  | 7.40 | 0.2913  | 23.00 | 0.9055  |
| 2.75             | 0.1083  | 7.50 | 0.2953  | 23.50 | 0.9252  |
| 2.80             | 0.1102  | 7.60 | 0.2992  | 24.00 | 0.9449  |
| 2.90             | 0.1142  | 7.70 | 0.3031  | 24.50 | 0.9646  |
| 3.00             | 0.1181  | 7.75 | 0.3051  | 25.00 | 0.9843  |
| 3.10             | 0.1220  | 7.80 | 0.3071  |       |         |
| 3.20             | 0.1260  | 7.90 | 0.3110  |       |         |
| 3.25             | 0.1280  | 8.00 | 0.3150  |       |         |
| 3.30             | 0.1299  | 8.10 | 0.3189  |       |         |
| 3.40             | 0.1339  | 8.20 | 0.3228  |       |         |





**ACTEK<sup>®</sup>**

**MANUFACTURING AND ENGINEERING, INC.**

# **SAFETY INFORMATION**



# ACTEK<sup>®</sup> MFG . & ENG. INC.

## Do's & Don'ts of Installing & Using Hoist Rings

### DO:

- **ALWAYS READ SAFETY PRECAUTION PAGE PRIOR TO USE OR INSTALLATION.** (Safety Precaution included with every hoist ring.)
- **ALWAYS INSPECT THE HOIST RING BEFORE EACH USE.**
- Regularly inspect all hoist ring parts.
- Always tighten the screw to the recommended torque value.
- Always make sure that the hoist ring is free to pivot and swivel in all directions.
- Always choose a hoist ring with the proper load rating. See the "Actual Load" equation on the back page to help you choose the appropriate hoist ring.
- Always make sure that the bushing of the hoist ring sits flush against the object being lifted.
- Install hoist rings in materials that have a tensile strength of at least 80,000 psi.
- Always make sure the thread engagement is at least 1.5 times the diameter of the hoist ring screw.
- When installing a hoist ring in a through-hole with a nut and washer, make sure to use a Grade 8 nut that has full thread engagement.
- Consider periodic load-testing as an extra precaution.

### DON'T:

- **NEVER EXCEED RATED LOAD.**
- **NEVER APPLY SHOCK LOAD.**
- Never use a hoist ring that you believe is damaged.
- Never use a hoist ring that has damaged threads on the screw.
- Never use a hoist ring in an application where it does not pivot and swivel in every direction freely.
- Never use a hoist ring that is not tightened to the recommended torque.
- Never replace the components of the hoist ring with anything other than parts recommended by Actek.
- Never use a hook larger than the diameter of the hoist ring opening.
- Never shim or use washers between the hoist ring and surface of object being lifted.

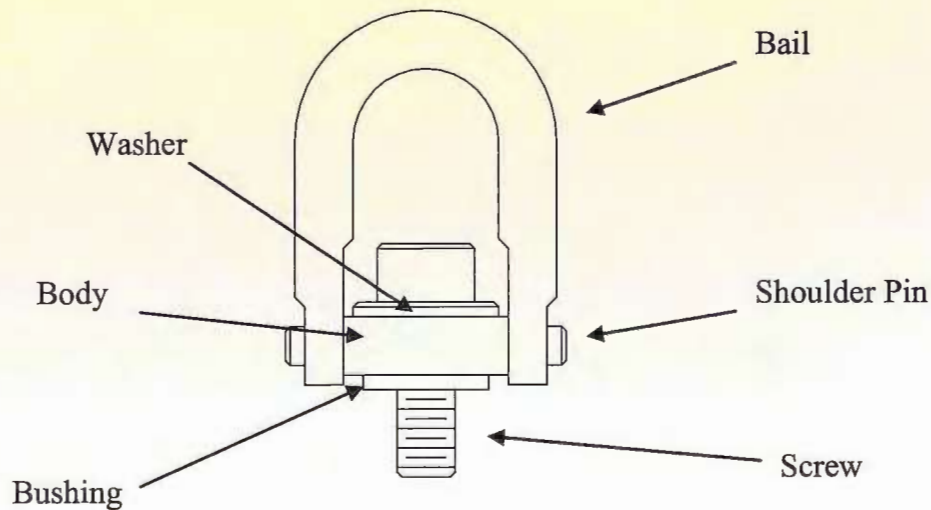




## Hoist Ring Inspection & Maintenance

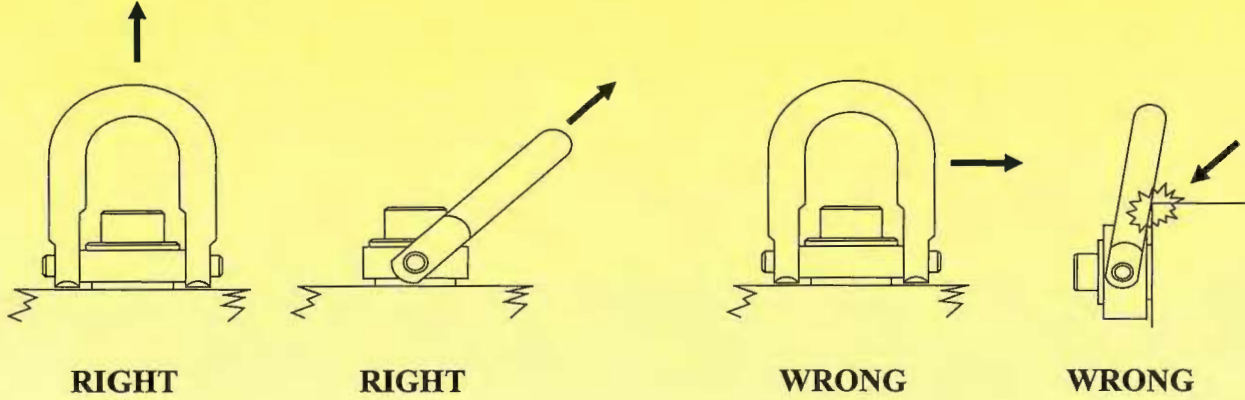
**ALWAYS INSPECT THE HOIST RING BEFORE EACH USE. MAKE SURE:**

- The screw is tightened to the recommended torque.
  - If the screw is not tightened, the threads may be stripped on a vertical lift.
- The bushing of the hoist ring sits flush against the object being lifted.
  - This ensures that the recommended torque puts the proper preload onto the hoist ring allowing the hoist ring to reach its full 5:1 safety factor.
- The hoist ring is free to swivel and pivot in every direction.
  - If the hoist ring binds up in any direction, it should be removed from service.
- There are no signs of corrosion.
  - This can cause deterioration to the hoist ring material allowing for fatigue or cracking to take place. Corrosion can also prevent the hoist ring from pivoting and swiveling freely.
- There are no signs of wear or cracks, especially on the screw, shoulder pins, and bail.
  - Damage or wear on the screw head, shoulder pins, or bail may be an indication that the hoist ring is coming into contact with something during use. This should be avoided as such contact can cause binding and shock loads which exceed the rating of the hoist ring.
- The shoulder pins are secure and do not rotate or come loose.
  - This can be checked by using pliers to rotate the shoulder pins by hand. If the shoulder pin does rotate, it is no longer securely in place and could come loose causing the hoist ring to break.





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**Important:** The load on each hoist ring is not simply total weight divided by the number of hoist rings. The resultant force can be significantly greater at shallow lift angles and with unevenly distributed loads. See the example and chart below.

L = Load experienced by hoist ring  
W = Total weight = 2,000 Lbs.

N = Number of hoist rings = 4  
A = Lifting angle

$$L = \frac{W}{N \sin A}$$

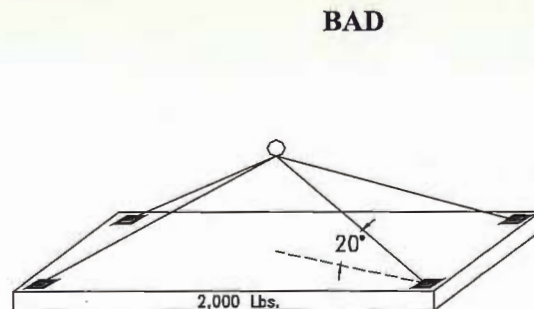
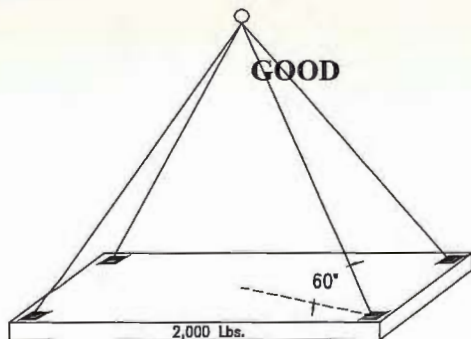
If A = 60:

$$L = \frac{2000}{4 \sin 60} = 577 \text{ Lbs.}$$

If A = 20:

$$L = \frac{2000}{4 \sin 20} = 1,462 \text{ Lbs.}$$

| Lifting Angle (Degrees) | Number of Hoist Rings | Weight of Load (Pounds) | Actual Applied Load on Hoist Ring (Pounds) |
|-------------------------|-----------------------|-------------------------|--|
| 90                      | 4                     | 2,000                   | 500  |
| 80                      | 4                     | 2,000                   | 510  |
| 70                      | 4                     | 2,000                   | 535  |
| 60                      | 4                     | 2,000                   | 580  |
| 50                      | 4                     | 2,000                   | 655  |
| 40                      | 4                     | 2,000                   | 780  |
| 30                      | 4                     | 2,000                   | 1,000                                      |
| 20                      | 4                     | 2,000                   | 1,465                                      |

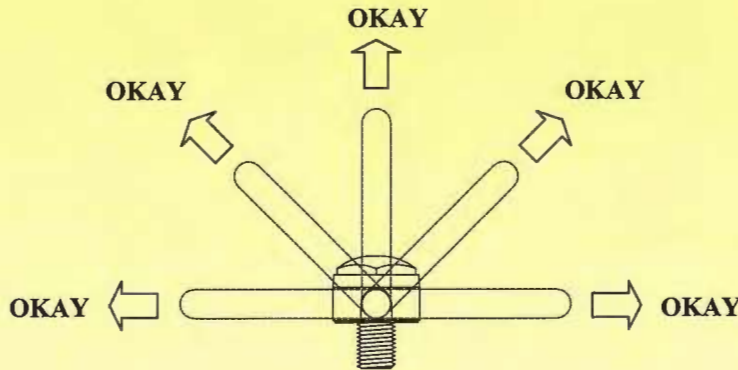




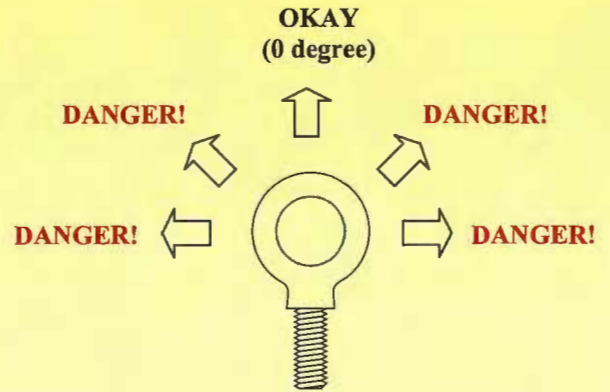


# ACTEK® MFG . & ENG. INC.

## SWIVEL HOIST RINGS VS. SHOULDERED EYEBOLT



**Swivel Hoist Ring**  
- same load rating at any angle



**Shouldered Eyebolt**  
- load rating only good for zero degree

Eyebolts have been around for over 100 years and have been doing a good job when used properly. Properly, meaning the direction of the load must be at zero degree. If the load shifts or the direction of loading on the eyebolt is as much as 10 degrees off the zero line of force, the result is a bent eyebolt. **When you bend the eyebolt, it is broken!**

You can't see the break most of the time. If you examine the bent area using x-ray, you will find the damage. This will lead to **failure if the eyebolt** is used any longer.

Swivel Hoist Rings are designed for lifting at any angle because they can swivel 360° and pivot 180°. Therefore, the rated load remains the same, regardless of the angle of force. As a result, you **increase safety and peace of mind.**



# ACTEK® MFG. & ENG. INC.

## SAFETY ENGINEERED SWIVEL HOIST RING

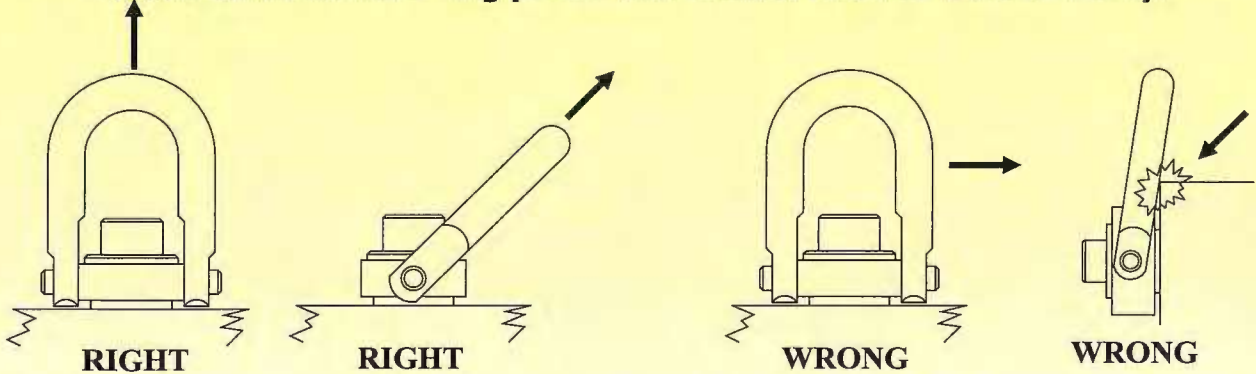
### SAFETY PRECAUTIONS

**WARNING:** PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

As with all mechanical devices, regular inspection for wear and strict adherence to use instruction is necessary to prevent misuse failure.

- Despite the 5:1 safety factor, **NEVER EXCEED THE RATED LOAD CAPACITY.** This safety margin is needed in case of misuse, which could drastically lower load capacity.
- Tighten mounting screws to torque recommended. Periodically check torque because screws could loosen in extended service.
- Tensile strength of parent material should be above 80,000 PSI to achieve full load rating. For weaker material, consider through-hole mounting with a nut and washer on the other side.
- **DO NOT APPLY SHOCK LOADS.** Always lift gradually. Repeat magnaflux testing if shock loading ever occurs.

• **Make sure the hoist ring pivots and rotates in all directions freely.**



**Important:** The load on each hoist ring is not simply total weight divided by the number of hoist rings. The resultant force can be significantly greater at shallow lift angles and with unevenly distributed loads. See the example below.

L = Load  
W = Total weight = 2,000 Lbs.

N = Number of hoist rings = 4  
A = Lifting angle

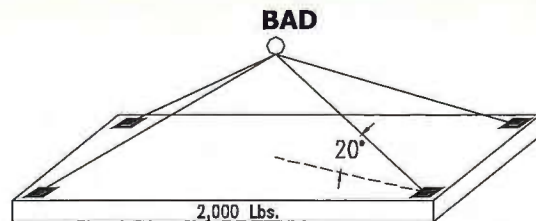
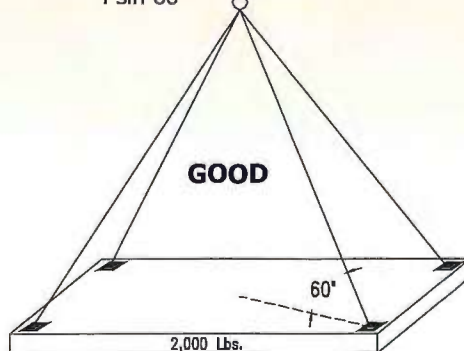
$$L = \frac{W}{N \sin A}$$

If A = 60:

$$L = \frac{2000}{4 \sin 60} = 577 \text{ Lbs.}$$

If A = 20:

$$L = \frac{2000}{4 \sin 20} = 1,462 \text{ Lbs.}$$







# ACTEK® MFG. & ENG. INC.

## FORGED SWIVEL HOIST RING SAFETY PRECAUTIONS

**WARNING:** PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

As with all mechanical devices, regular inspection for wear and strict adherence to use instruction is necessary to prevent misuse failure.

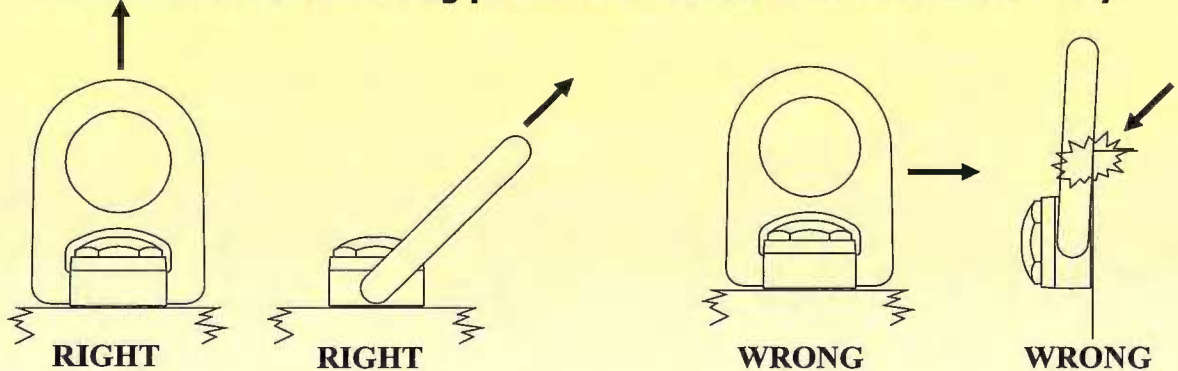
• Despite the 5:1 safety factor, **NEVER EXCEED THE RATED LOAD CAPACITY**. This safety margin is needed in case of misuse, which could drastically lower load capacity.

• Tighten mounting screws to torque recommended. Periodically check torque because screws could loosen in extended service.

• Tensile strength of parent material should be above 80,000 PSI to achieve full load rating. For weaker material, consider through-hole mounting with a nut and washer on the other side.

• **DO NOT APPLY SHOCK LOADS**. Always lift gradually. Repeat magnaflux testing if shock loading ever occurs.

• **Make sure the hoist ring pivots and rotates in all directions freely.**



**Important:** The load on each hoist ring is not simply total weight divided by the number of hoist rings. The resultant force can be significantly greater at shallow lift angles and with unevenly distributed loads. See the example below.

L = Load  
W = Total weight = 2,000 Lbs.

N = Number of hoist rings = 4  
A = Lifting angle

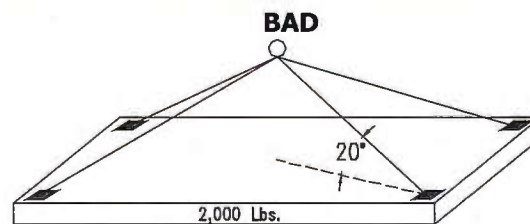
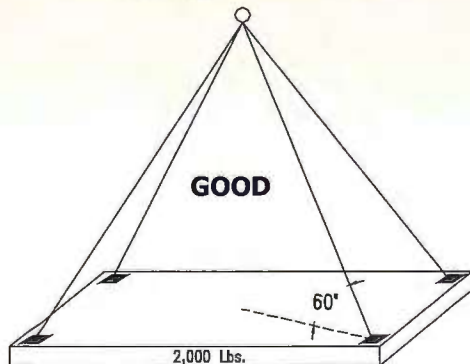
$$L = \frac{W}{N \sin A}$$

If A = 60:

$$L = \frac{2000}{4 \sin 60} = 577 \text{ Lbs.}$$

If A = 20:

$$L = \frac{2000}{4 \sin 20} = 1,462 \text{ Lbs.}$$



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SAFETY

6



# ACTEK® MFG . & ENG. INC.

## STAINLESS STEEL SWIVEL HOIST RING

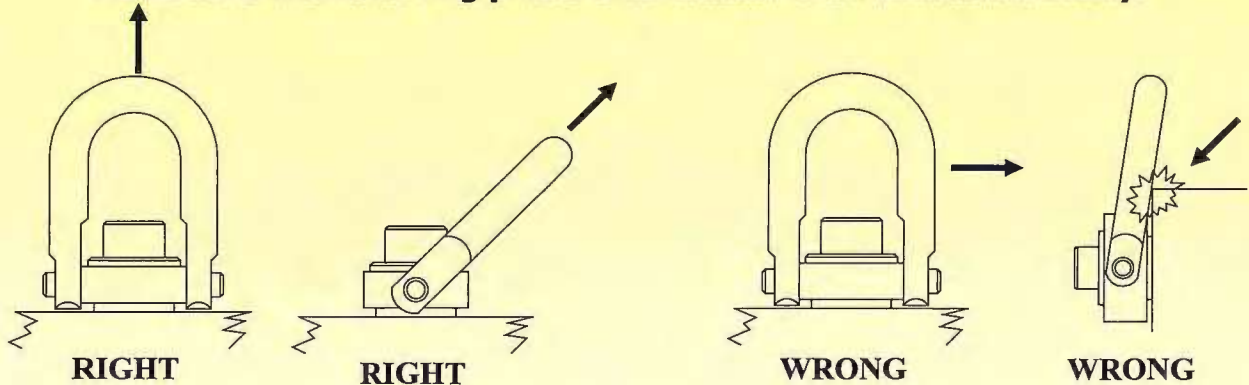
### SAFETY PRECAUTIONS

**WARNING:** PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

As with all mechanical devices, regular inspection for wear and strict adherence to use instruction is necessary to prevent misuse failure.

- Despite the 5:1 safety factor, **NEVER EXCEED THE RATED LOAD CAPACITY.** This safety margin is needed in case of misuse, which could drastically lower load capacity.
- Tighten mounting screws to torque recommended. Periodically check torque because screws could loosen in extended service.
- Tensile strength of parent material should be above 80,000 PSI to achieve full load rating. For weaker material, consider through-hole mounting with a nut and washer on the other side.
- **DO NOT APPLY SHOCK LOADS.** Always lift gradually. Repeat magnaflux testing if shock loading ever occurs.

• **Make sure the hoist ring pivots and rotates in all directions freely.**



**Important:** The load on each hoist ring is not simply total weight divided by the number of hoist rings. The resultant force can be significantly greater at shallow lift angles and with unevenly distributed loads. See the example below.

L = Load  
 W = Total weight = 2,000 Lbs.

N = Number of hoist rings = 4  
 A = Lifting angle

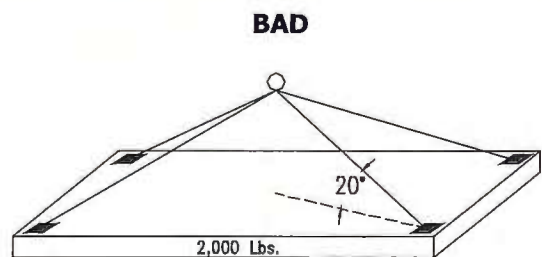
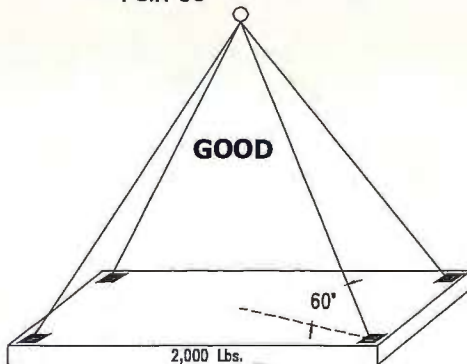
$$L = \frac{W}{N \sin A}$$

If A = 60:

$$L = \frac{2000}{4 \sin 60} = 577 \text{ Lbs.}$$

If A = 20:

$$L = \frac{2000}{4 \sin 20} = 1,462 \text{ Lbs.}$$







# ACTEK® MFG. & ENG. INC.

## SIDE LOAD HOIST RING SAFETY PRECAUTIONS

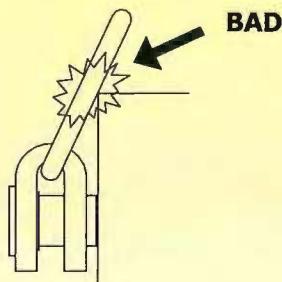
**WARNING:** PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

As with all mechanical devices, regular inspection for wear and strict adherence to use instructions is necessary to prevent misuse failure.

• Despite the 5:1 safety factor, **NEVER EXCEED THE RATED LOAD CAPACITY.** This safety margin is needed in case of misuse, which could drastically lower load capacity.

• Tighten mounting screws to torque recommended. Periodically check torque because screws could loosen in extended service.

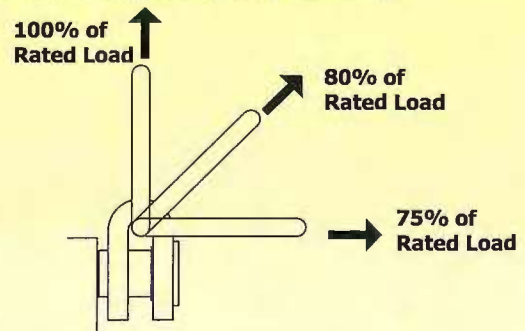
• **Make sure the hoist ring pivots and rotates in all directions freely.**



• Tensile strength of parent material should be above 80,000 PSI to achieve full load rating. For weaker material, consider through-hole mounting with a nut and washer on the other side.

• **DO NOT APPLY SHOCK LOADS.** Always lift gradually. Repeat magnaflux testing if shock loading ever occurs.

• **Rated load will be reduced based on different angles of the loading.**



**Important:** The load on each hoist ring is not simply total weight divided by the number of hoist rings. The resultant force can be significantly greater at shallow lift angles and with unevenly distributed loads. See the example below.

L = Load  
W = Total weight = 2,000 Lbs.

N = Number of hoist rings = 4  
A = Lifting angle

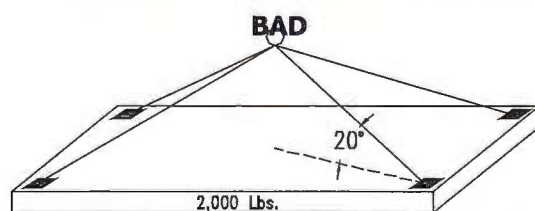
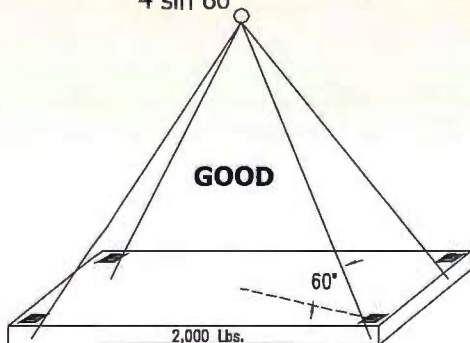
$$L = \frac{W}{N \sin A}$$

If A = 60:

$$L = \frac{2000}{4 \sin 60} = 577 \text{ Lbs.}$$

If A = 20:

$$L = \frac{2000}{4 \sin 20} = 1,462 \text{ Lbs.}$$





# ACTEK® MFG. & ENG. INC.

## LIFTING RING

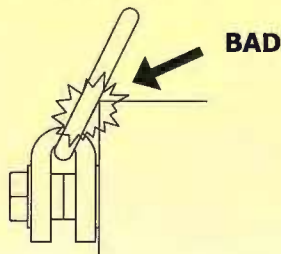
### SAFETY PRECAUTIONS

**WARNING:** PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

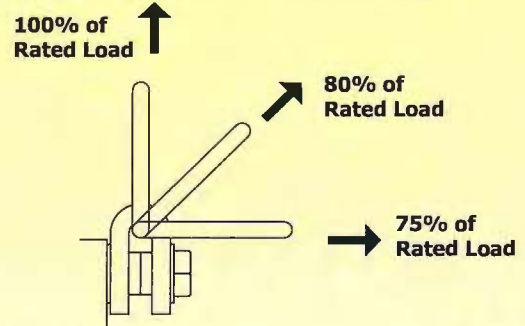
As with all mechanical devices, regular inspection for wear and strict adherence to use instructions is necessary to prevent misuse failure.

- Despite the 5:1 safety factor, **NEVER EXCEED THE RATED LOAD CAPACITY.** This safety margin is needed in case of misuse, which could drastically lower load capacity.
- Tighten mounting screws to torque recommended. Periodically check torque because screws could loosen in extended service.
- Tensile strength of parent material should be above 80,000 PSI to achieve full load rating. For weaker material, consider through-hole mounting with a nut and washer on the other side.
- **DO NOT APPLY SHOCK LOADS.** Always lift gradually. Repeat magnaflux testing if shock loading ever occurs.

• **Make sure the hoist ring pivots and rotates in all directions freely.**



• **Rated load will be reduced based on different angles of the loading.**



**Important:** The load on each hoist ring is not simply total weight divided by the number of hoist rings. The resultant force can be significantly greater at shallow lift angles and with unevenly distributed loads. See the example below.

L = Load  
W = Total weight = 2,000 Lbs.

N = Number of hoist rings = 4  
A = Lifting angle

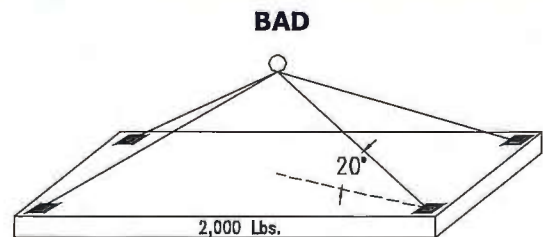
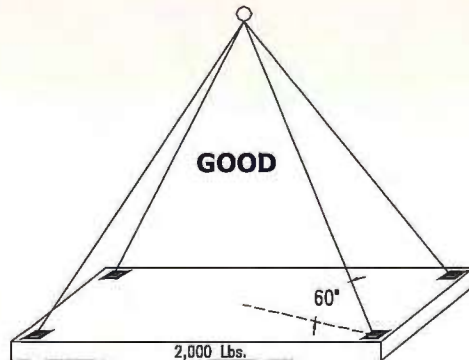
$$L = \frac{W}{N \sin A}$$

If A = 60:

$$L = \frac{2000}{4 \sin 60} = 577 \text{ Lbs.}$$

If A = 20:

$$L = \frac{2000}{4 \sin 20} = 1,462 \text{ Lbs.}$$







# ACTEK® MFG . & ENG. INC.

## SIDE PULL HOIST RING SAFETY PRECAUTIONS

**WARNING:** PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

As with all mechanical devices, regular inspection for wear and strict adherence to use instruction is necessary to prevent misuse failure.

- Despite the 5:1 safety factor, **NEVER EXCEED THE RATED LOAD CAPACITY.** This safety margin is needed in case of misuse, which could drastically lower load capacity.

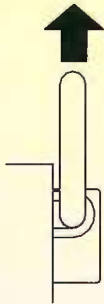
- Tighten mounting screws to torque recommended. Periodically check torque because screws could loosen in extended service.

- Tensile strength of parent material should be above 80,000 PSI to achieve full load rating. For weaker material, consider through-hole mounting with a nut and washer on the other side.

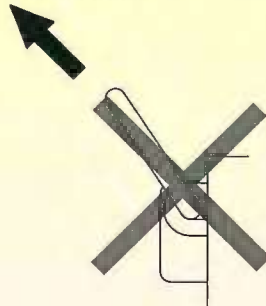
- **DO NOT APPLY SHOCK LOADS.** Always lift gradually. Repeat magnaflux testing if shock loading ever occurs.

**CAUTION:** Rated capacity is for **STRAIGHT LIFTS**. Angle lifts should be avoided. Load limits are reduced by as much as **75% on angle lifts!**

**RIGHT**



**WRONG**



- **Make sure the hoist ring pivots and rotates in all directions freely.**





# ACTEK® MFG . & ENG. INC.

## FORGED HOIST RING SAFETY PRECAUTIONS

**WARNING:** PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

As with all mechanical devices, regular inspection for wear and strict adherence to use instruction is necessary to prevent misuse failure.

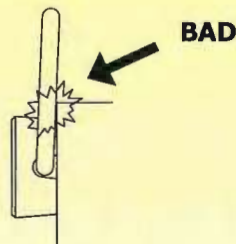
• Despite the 6:1 safety factor, **NEVER EXCEED THE RATED LOAD CAPACITY**. This safety margin is needed in case of misuse, which could drastically lower load capacity.

• Tighten mounting screws to torque recommended. Periodically check torque because screws could loosen in extended service.

• Tensile strength of parent material should be above 80,000 PSI to achieve full load rating. For weaker material, consider through-hole mounting with a nut and washer on the other side.

• **DO NOT APPLY SHOCK LOADS**. Always lift gradually. Repeat magnaflux testing if shock loading ever occurs.

• **Make sure the hoist ring pivots and rotates in all directions freely.**



**Important:** The load on each hoist ring is not simply total weight divided by the number of hoist rings. The resultant force can be significantly greater at shallow lift angles and with unevenly distributed loads. See the example below.

L = Load  
W = Total weight = 2,000 Lbs.

N = Number of hoist rings = 4  
A = Lifting angle

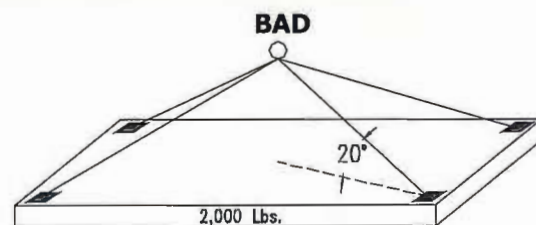
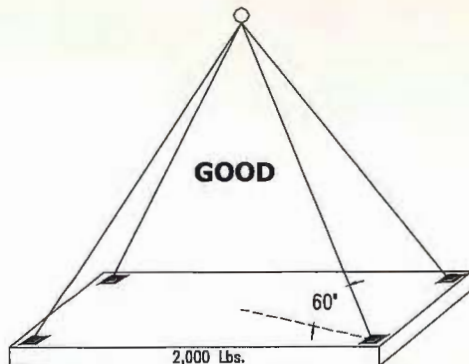
$$L = \frac{W}{N \sin A}$$

If A = 60:

$$L = \frac{2000}{4 \sin 60} = 577 \text{ Lbs.}$$

If A = 20:

$$L = \frac{2000}{4 \sin 20} = 1,462 \text{ Lbs.}$$







# ACTEK® MFG. & ENG. INC.

## MOLD HANDLER / ULTRA LIFTING RING SAFETY PRECAUTIONS

**WARNING:** PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

As with all mechanical devices, regular inspection for wear and strict adherence to use instruction is necessary to prevent misuse failure.

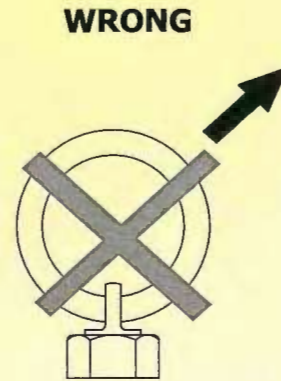
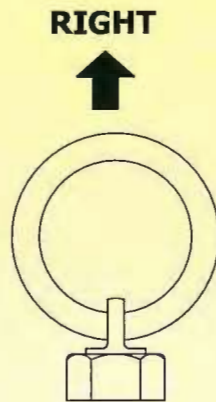
• Despite the 5:1 safety factor, **NEVER EXCEED THE RATED LOAD CAPACITY.** This safety margin is needed in case of misuse, which could drastically lower load capacity.

• Tighten mounting screws to torque recommended. Periodically check torque because screws could loosen in extended service.

• Tensile strength of parent material should be above 80,000 PSI to achieve full load rating. For weaker material, consider through-hole mounting with a nut and washer on the other side.

• **DO NOT APPLY SHOCK LOADS.** Always lift gradually. Repeat magnaflux testing if shock loading ever occurs.

• **Make sure the hoist ring pivots and rotates in all directions freely.**



**Important:** The load on each hoist ring is not simply total weight divided by the number of hoist rings. The resultant force can be significantly greater at shallow lift angles and with unevenly distributed loads. See the example below.

L = Load  
W = Total weight = 2,000 Lbs.

$$L = \frac{W}{N \sin A}$$

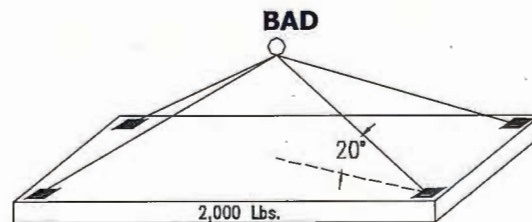
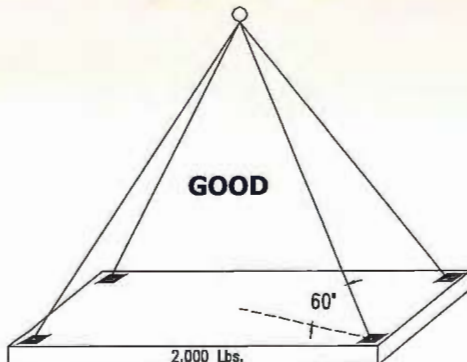
If A = 60:

$$L = \frac{2000}{4 \sin 60} = 577 \text{ Lbs.}$$

N = Number of hoist rings = 4  
A = Lifting angle

If A = 20:

$$L = \frac{2000}{4 \sin 20} = 1,462 \text{ Lbs.}$$



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# ACTEK® MFG . & ENG. INC.

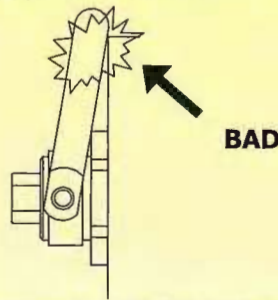
## SPEED BASE HOIST RING SAFETY PRECAUTIONS

**WARNING:** PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

As with all mechanical devices, regular inspection for wear and strict adherence to use instruction is necessary to prevent misuse failure.

- Despite the 5:1 safety factor, **NEVER EXCEED THE RATED LOAD CAPACITY**. This safety margin is needed in case of misuse, which could drastically lower load capacity.
- Tighten mounting screws to torque recommended. Periodically check torque because screws could loosen in extended service.
- Tensile strength of parent material should be above 80,000 PSI to achieve full load rating. For weaker material, consider through-hole mounting with a nut and washer on the other side.
- **DO NOT APPLY SHOCK LOADS**. Always lift gradually. Repeat magnaflux testing if shock loading ever occurs.

• **Make sure the hoist ring pivots and rotates in all directions freely.**



**Important:** The load on each hoist ring is not simply total weight divided by the number of hoist rings. The resultant force can be significantly greater at shallow lift angles and with unevenly distributed loads. See the example below.

L = Load  
W = Total weight = 2,000 Lbs.

N = Number of hoist rings = 4  
A = Lifting angle

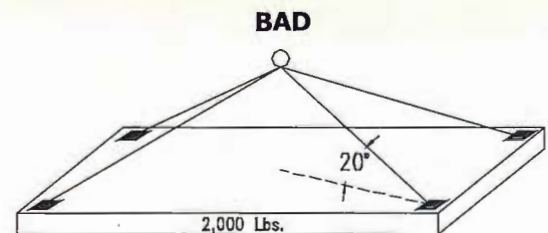
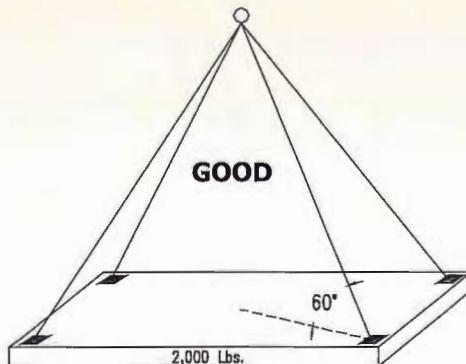
$$L = \frac{W}{N \sin A}$$

If A = 60:

$$L = \frac{2000}{4 \sin 60} = 577 \text{ Lbs.}$$

If A = 20:

$$L = \frac{2000}{4 \sin 20} = 1,462 \text{ Lbs.}$$







# ACTEK® MFG. & ENG. INC.

## ROUND BASE SWIVEL & PIVOT HOIST RING SAFETY PRECAUTIONS

**WARNING:** PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

As with all mechanical devices, regular inspection for wear and strict adherence to use instruction is necessary to prevent misuse failure.

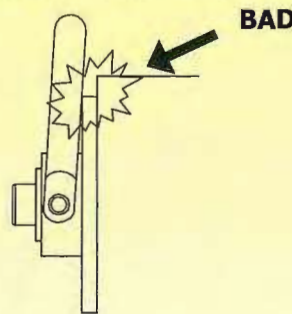
• Despite the 5:1 safety factor, **NEVER EXCEED THE RATED LOAD CAPACITY**. This safety margin is needed in case of misuse, which could drastically lower load capacity.

• Tighten mounting screws to torque recommended. Periodically check torque because screws could loosen in extended service.

• Tensile strength of parent material should be above 80,000 PSI to achieve full load rating. For weaker material, consider through-hole mounting with a nut and washer on the other side.

• **DO NOT APPLY SHOCK LOADS**. Always lift gradually. Repeat magnaflux testing if shock loading ever occurs.

• **Make sure the hoist ring pivots and rotates in all directions freely.**



**Important:** The load on each hoist ring is not simply total weight divided by the number of hoist rings. The resultant force can be significantly greater at shallow lift angles and with unevenly distributed loads. See the example below.

L = Load  
W = Total weight = 2,000 Lbs.

N = Number of hoist rings = 4  
A = Lifting angle

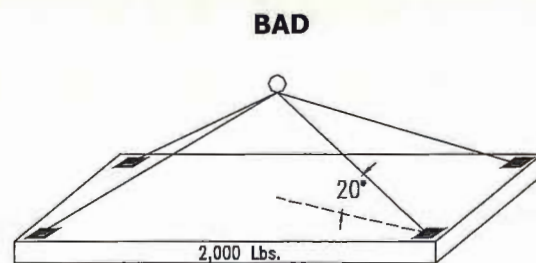
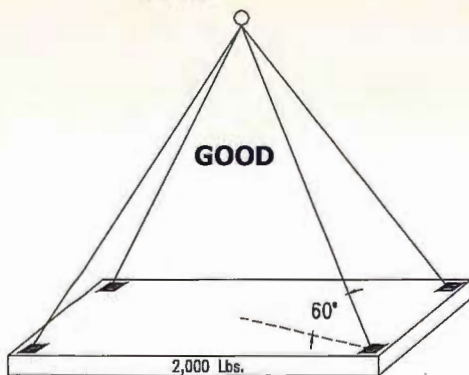
$$L = \frac{W}{N \sin A}$$

If A = 60:

$$L = \frac{2000}{4 \sin 60} = 577 \text{ Lbs.}$$

If A = 20:

$$L = \frac{2000}{4 \sin 20} = 1,462 \text{ Lbs.}$$



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# ACTEK® MFG. & ENG. INC.

## PIVOT LIFTING PLATE SAFETY PRECAUTIONS

**WARNING:** PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

As with all mechanical devices, regular inspection for wear and strict adherence to use instruction is necessary to prevent misuse failure.

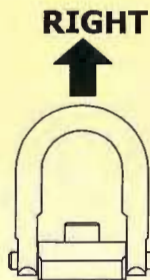
• Despite the 5:1 safety factor, **NEVER EXCEED THE RATED LOAD CAPACITY.** This safety margin is needed in case of misuse, which could drastically lower load capacity.

• Tighten mounting screws to torque recommended. Periodically check torque because screws could loosen in extended service.

• Tensile strength of parent material should be above 80,000 PSI to achieve full load rating. For weaker material, consider through-hole mounting with a nut and washer on the other side.

• **DO NOT APPLY SHOCK LOADS.** Always lift gradually. Repeat magnaflux testing if shock loading ever occurs.

**CAUTION:** Rated capacity is for **STRAIGHT LIFTS.** Angle lifts should be avoided. Load limits are reduced by as much as 75% on angle lifts!



**Important:** The load on each hoist ring is not simply total weight divided by the number of hoist rings. The resultant force can be significantly greater at shallow lift angles and with unevenly distributed loads. See the example below.

L = Load  
W = Total weight = 2,000 Lbs.

N = Number of hoist rings = 4  
A = Lifting angle

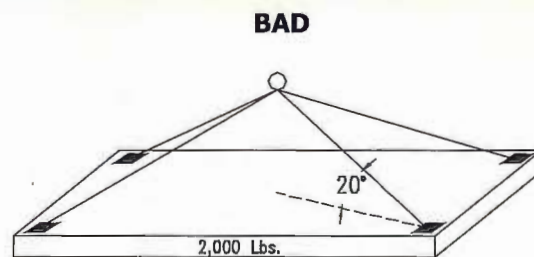
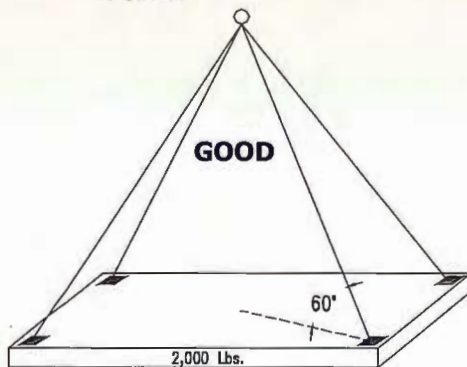
$$L = \frac{W}{N \sin A}$$

If A = 60:

$$L = \frac{2000}{4 \sin 60} = 577 \text{ Lbs.}$$

If A = 20:

$$L = \frac{2000}{4 \sin 20} = 1,462 \text{ Lbs.}$$







# ACTEK® MFG. & ENG. INC.

## STREET PLATE LIFTING RING SAFETY PRECAUTIONS

**WARNING:** PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

As with all mechanical devices, regular inspection for wear and strict adherence to use instruction is necessary to prevent misuse failure.

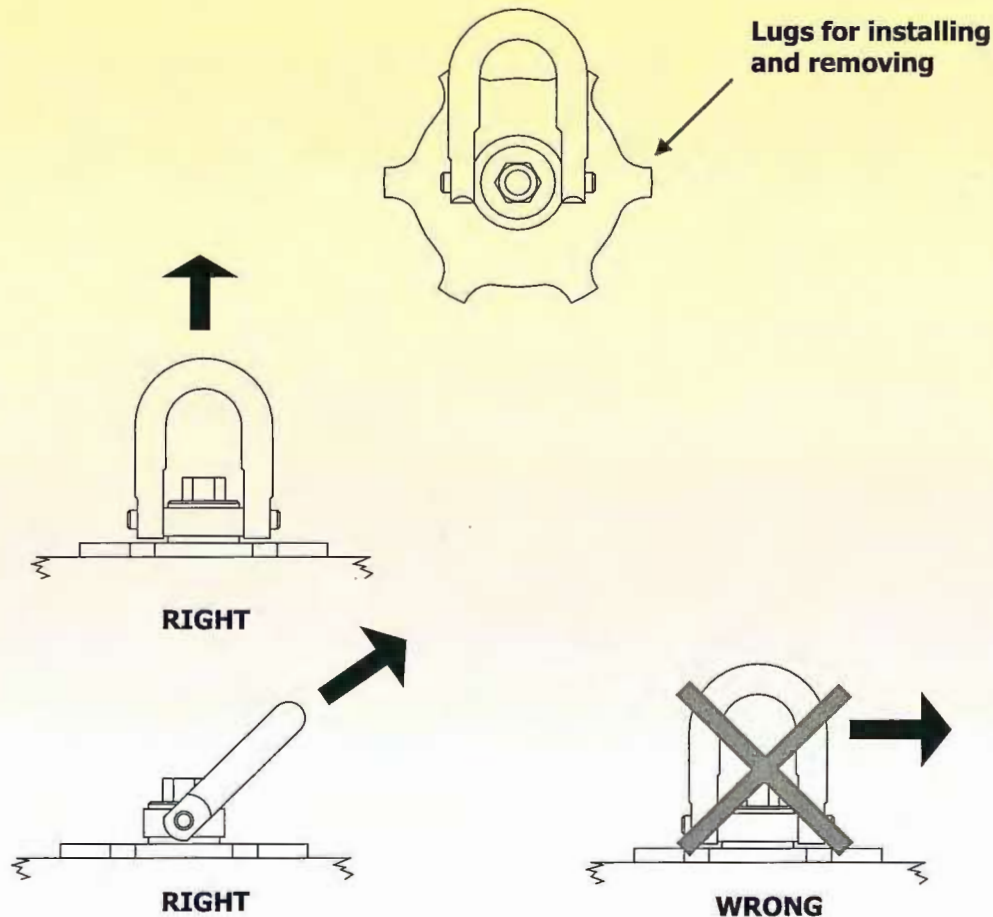
- Despite the 5:1 safety factor, **NEVER EXCEED THE RATED LOAD CAPACITY.** This safety margin is needed in case of misuse, which could drastically lower load capacity.

- Mount flush and tight on plate. **DO NOT LEAVE GAP/SPACE BETWEEN BASE AND MOUNTING SURFACE.**

- Tensile strength of parent material should be above 80,000 PSI to achieve full load rating. For weaker material, consider through-hole mounting with a nut and washer on the other side.

- **DO NOT APPLY SHOCK LOADS.** Always lift gradually. Repeat magnaflux testing if shock loading ever occurs.

**Note:** Actek Street Plate Lifting Ring base must be mounted flush and tight to the lifting surface. Lugs are used for tightening and loosening with hammer or steel bar.



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SAFET

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# ACTEK® MFG . & ENG. INC.

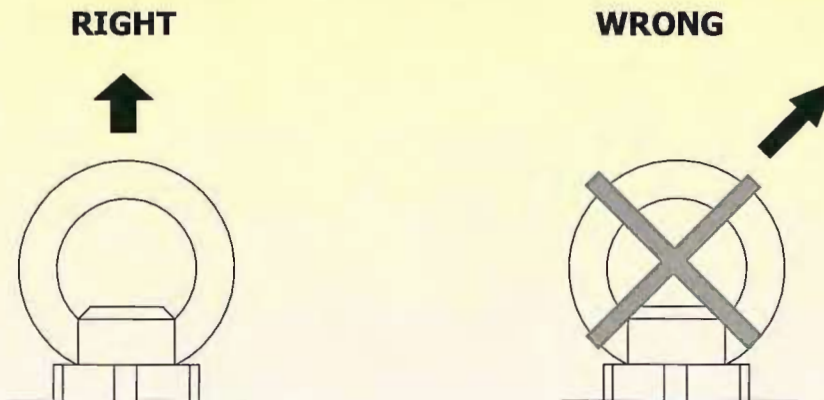
## SUPER EYEBOLT SAFETY PRECAUTIONS

**WARNING:** PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

As with all mechanical devices, regular inspection for wear and strict adherence to use instruction is necessary to prevent misuse failure.

- Despite the 5:1 safety factor, **NEVER EXCEED THE RATED LOAD CAPACITY.** This safety margin is needed in case of misuse, which could drastically lower load capacity.
- Mount flush and tight on plate. **DO NOT LEAVE GAP/SPACE BETWEEN BASE AND MOUNTING SURFACE.**
- Tensile strength of parent material should be above 58,000 PSI to achieve full load rating.
- **AVOID SHOCK LOADS.** Lift gradually.

**CAUTION:** Rated capacity is for **STRAIGHT LIFTS.** Angle lifts should be avoided. Load limits are reduced by as much as 80% on angle lifts!



### **CAUTION**

HOIST RING MUST BE FIRMLY  
SECURED TO OBJECT BEING LIFTED



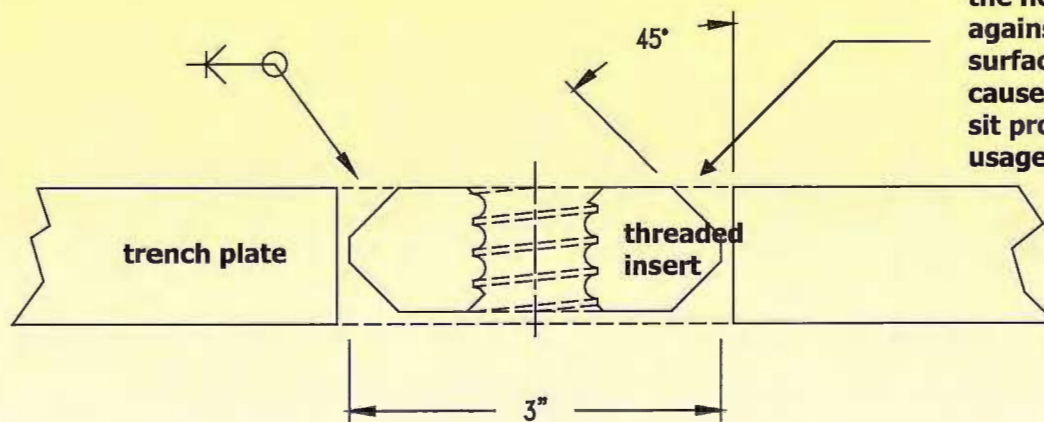


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## WELDING INSTRUCTION

- Nut plate should have 1/8" clearance to trench plate.
- It is allowed to replace an old nut if all previous weld metal is removed.
- Use jig to make sure threaded plate is flush and square with top surface of trench plate.
- Preheat plate to 450°-700°F.
- Weld using Lincoln Jet Weld #ED010558 LH 70 - E7018 or 7024 - 3/16 dia. rod or equivalent
- Back-gouge root to sound metal.
- Weld second side.
- Grind weld on top surface flush.
- Allow slow cooling.

**\*NOTE:** After the nut has been welded to the plate, surfaces of the weld must be ground to the same surface level as the trench plate. This procedure allows the hoist ring to sit flush against the trench plate surface. Not doing so will cause the hoist ring not to sit properly and will lead to usage failure.



## Material

- Threaded insert plate made from AISI 4140 steel, quench and tempered to Hardness Rockwell C 28-34.
- Insert plate shall have minimum 1" thickness.
- Shape can be square or round, 3" diameter.



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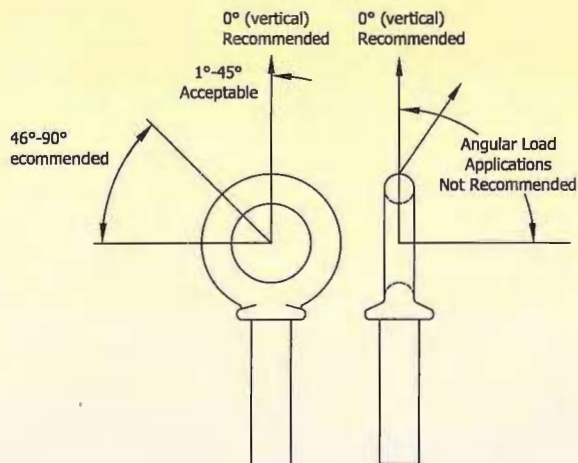
## SHOULDER EYEBOLT SAFETY PRECAUTIONS

**WARNING:** PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

- DO NOT work, stand or crawl around the load of the Eyebolt. Ensure a safe distance from the load.
- DO NOT use wrenches, crowbars, etc. to tighten Eyebolts. Hand tightening is recommended.
- DO NOT use a single Eyebolt to lift a load that can rotate. **Safety Swivel Hoist Rings are recommended for such loads.**
- DO NOT force hooks or any other fittings into the eye; they must fit freely.
- DO NOT exceed the Rated Capacity.
- DO NOT SHOCK LOAD EYEBOLTS. Gradually increase lifting of the load to minimize load-shock.
- DO NOT weld Eyebolts, or perform any weld-repair on Eyebolts.
- DO NOT machine Eyebolts on the shank or shoulder to achieve proper seating.
- DO NOT expose Eyebolts to extreme environmental conditions, as they may adversely affect the Rated Capacity.

### Rated Capacities

### Shoulder Eyebolt Rated Capacities



| Size  | 0° Lbs. | 45° Lbs. | 46° +  |
|-------|---------|----------|--|
| 1/4   | 500     | 125      | <b>SAFETY SWIVEL<br/>HOIST RINGS<br/>RECOMMENDED</b> |
| 5/16  | 900     | 225      |  |
| 3/8   | 1,300   | 325      |  |
| 7/16  | 1,800   | 450      |  |
| 1/2   | 2,400   | 600      |  |
| 7/16  | 3,000   | 800      |  |
| 5/8   | 4,000   | 1,000    |  |
| 3/4   | 5,000   | 1,250    |  |
| 7/8   | 7,000   | 1,750    |  |
| 1     | 9,000   | 2,250    |  |
| 1 1/8 | 12,000  | 3,000    |  |
| 1 1/4 | 15,000  | 3,750    |  |
| 1 1/2 | 21,000  | 5,250    |  |
| 1 3/4 | 28,000  | 7,000    |  |
| 2     | 38,000  | 9,500    |  |
| 2 1/2 | 56,000  | 14,000   |  |

### Rated Capacity Guidelines

- The minimum threaded shank length of Eyebolts must be one thread diameter to attain the rated capacity.
- No greater load should be applied to an Eyebolt than the Rated Capacity listed.
- **Angular lifts significantly reduce Shoulder Eyebolt Rated Capacities.** Shoulder Eyebolts should not be used for angular lifts greater than 45°; **Safety Swivel Hoist Rings are recommended for such applications.**
- **Plain Eyebolts are not recommended for angular load applications.** **Safety Swivel Hoist Rings are recommended for such applications.**





# ACTEK® MFG. & ENG. INC.

## LIFTING DEVICE SAFETY INFORMATION

Actek® Mfg. & Eng., Inc. products are intended for use only by trained, qualified and experienced workmen. Misuse of any Actek® product or lack of supervision and inspection can lead to serious accidents including death. Actek® Mfg. & Eng., Inc. has always stressed that safety is of utmost importance.

Prior to any use of Actek® product, evaluation of the product application, safety precautions, safe working load, and control of all field conditions is mandatory. Prevent applications that exceed the safe working load or any other product misuse. Actek® cautions you that all safety factors shown are approximate. Safe working loads should never be exceeded under any circumstances.

If you have any questions about the proper use or installation of any Actek® product, please contact our office directly.

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### Safety Notes

Actek® Mfg. & Eng. Inc. ensures that all materials used on all our products meets or exceeds the safety requirements for lifting. The safe working loads listed are based upon a new or in "as new" condition product. A safe working load is considered to be the greatest load that should be applied to an item at any time.

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### Inspection & Maintenance

In order to insure the safest lifting, all for safety purposes, Actek® products must be properly used and maintained in the proper manner. Hoist rings may be subject to wear, corrosion, deformation, overloading, and other limiting factors which may will affect the safe working load. Prior to use the user of any Actek® product, the product should be regularly inspected to determine if it may be used or whether it should be removed from service. It is the responsibility of the user to inspect all lifting units for signs of wear and to discard the any parts when showing visible signs of wear. Every user should establish a safety inspection program for routine visual inspection of all products to determine whether signs of wear (e.g. cracks, corrosion, deformation) are present. The product inspection schedule should be established based upon factors such as frequency of use, period of use and environment. In addition to the regular safety inspection, the following safety directives must be followed:

- Prior to use, always inspect hoist rings for possible wear or damage. Never use hoist rings that show any sign of wear or damage.
- Never use hoist rings if bail is bent or elongated.
- Prior to use, threads must be clean, undamaged, and must fit properly.
- Always install hoist rings using the listed torque value. Periodically check torque because screws could loosen during extended service.
- Bent bolts should be discarded or replaced never straightened; failing to do so may lead to serious injuries or death.
- Never use washers or any spacers between bushing and mounting surface.
- Always make sure the hoist ring pivots and rotates in all directions freely.
- Never use hoist ring near or around corrosive material.
- If hoist ring is exposed to extreme temperatures (hot or cold), please contact our engineering department for suggestions/consultation.
- Safe working loads should never be exceeded under any circumstances.

If there are questions regarding the replacement or repair of worn Actek® products, please contact our engineering division.





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# ACTEK<sup>®</sup>

MANUFACTURING AND ENGINEERING, INC.

*We make special hoist rings for your special needs*



**Need a  
SPECIAL  
Hoist Ring?  
CALL US!**





# ACTEK<sup>®</sup> MFG. & ENG. INC.

1110 Fullerton Road  
City of Industry, CA. 91748

Toll Free: (800) 752-7229 Tel: (626) 581-3424 Fax: (626) 581-3423

## SPECIAL HOIST RING SPECIFICATION SHEET

DATE: \_\_\_\_\_

CUSTOMER: \_\_\_\_\_

PHONE #: \_\_\_\_\_

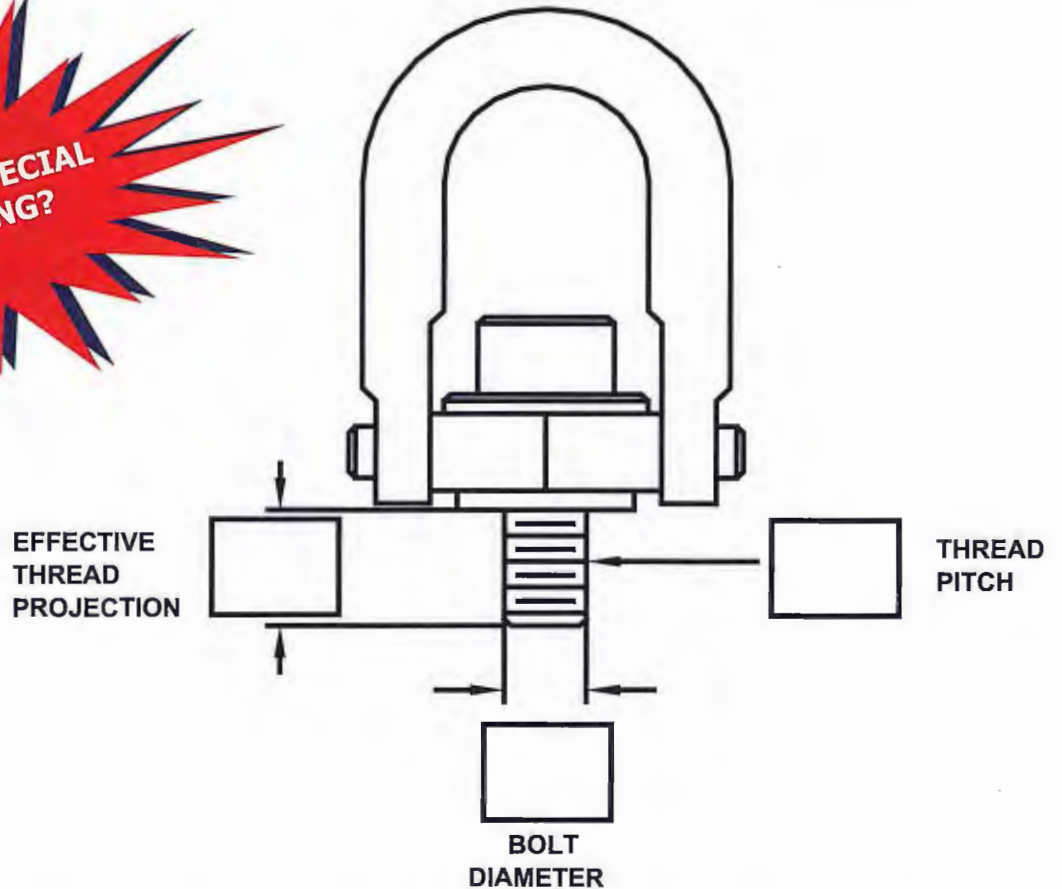
CONTACT: \_\_\_\_\_

FAX #: \_\_\_\_\_

QUANTITY: \_\_\_\_\_

THREAD TYPE:  
UNC METRIC OTHER \_\_\_\_\_

HOIST RING CAPACITY (RATED LOAD) \_\_\_\_\_ LBS.  
\_\_\_\_\_ KGS.



**FAX US THIS FORM IF YOU HAVE A SPECIAL HOIST RING YOU WOULD LIKE FOR US TO QUOTE**



# LIMITED WARRANTY

## A. Warranties and Disclaimers

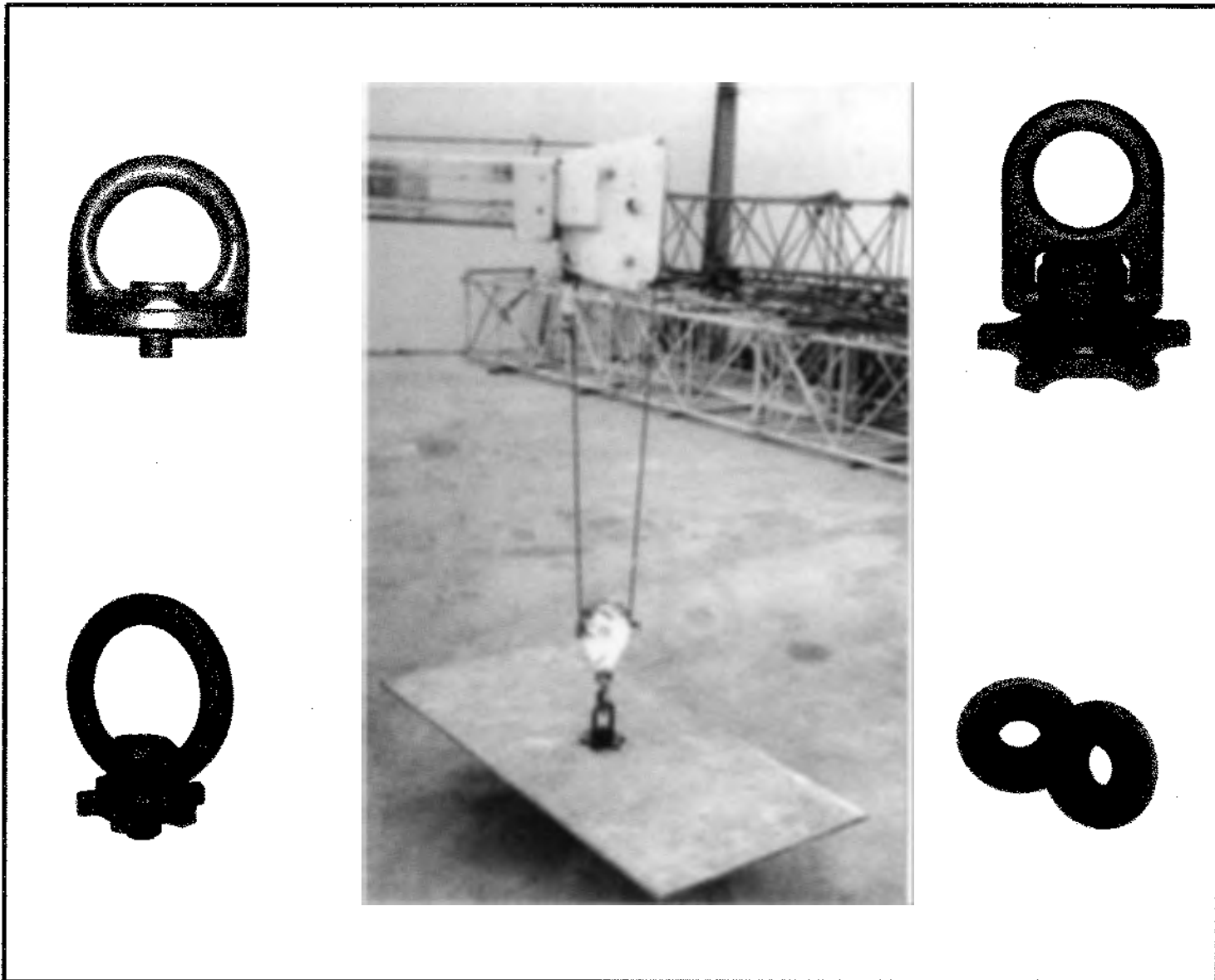
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Any questions regarding the proper use or installation of any Actek® product should be directed to our office located at 1110 Fullerton Road, City of Industry, CA 91748 USA • 800-752-7229.

## B. Limitations of Liability

Actek® Mfg. & Eng. Inc. shall not be liable for any direct, special, indirect, incidental, consequential, punitive or exemplary damages of any kind, irrespective of the form of the action, irrespective of how it arises, and even if Actek® knew or had reason to know of the possibility of such damages, irrespective of whether arising from activities performed with its product, or the negligence or other tort of Actek®. In addition, Actek® shall not be liable for any non-party claim related to the use of its product. Actek® hereby expressly disclaims all such damages. Notwithstanding the foregoing, in the event of any claim for breach of any of Actek's® obligations, whether express or implied, and particularly of any other claim or breach of warranty contained in Paragraph A, or of any other warranties, express or implied, or claim of liability that might, despite Paragraph A, be decided against Actek® by lawful authority, Actek® shall under no circumstances be liable for any consequential damages, losses, or expenses arising in connection with the use of, or inability to use, Actek's® product for any purpose whatsoever. If for any reason any of the foregoing provisions shall be ineffective, any claim against Actek® for damages arising out of its manufacture or sale of equipment, or use thereof, whether such liability is based on warranty, contract, negligence, strict liability in tort, or otherwise, shall not in any event exceed the full purchase price of the product.

The Laws of the State of California shall govern all disputes arising out of or based upon the use of Actek's® products. Any action against Actek® based upon any liability or obligation arising hereunder or under any law applicable to the sale of equipment or use thereof, must be commenced within one year after the cause of action arises or is waived.



**The Actek® Street Plate Lifting System is the safest and fastest way to handle street or trench plates.**

**The Actek® Street Plate Lifting Ring is used by utility companies, contractors and trench plate rental companies.**



**ACTEK®**

**Mfg. & Eng. Inc.**

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\$8.95