# SHEFFER™
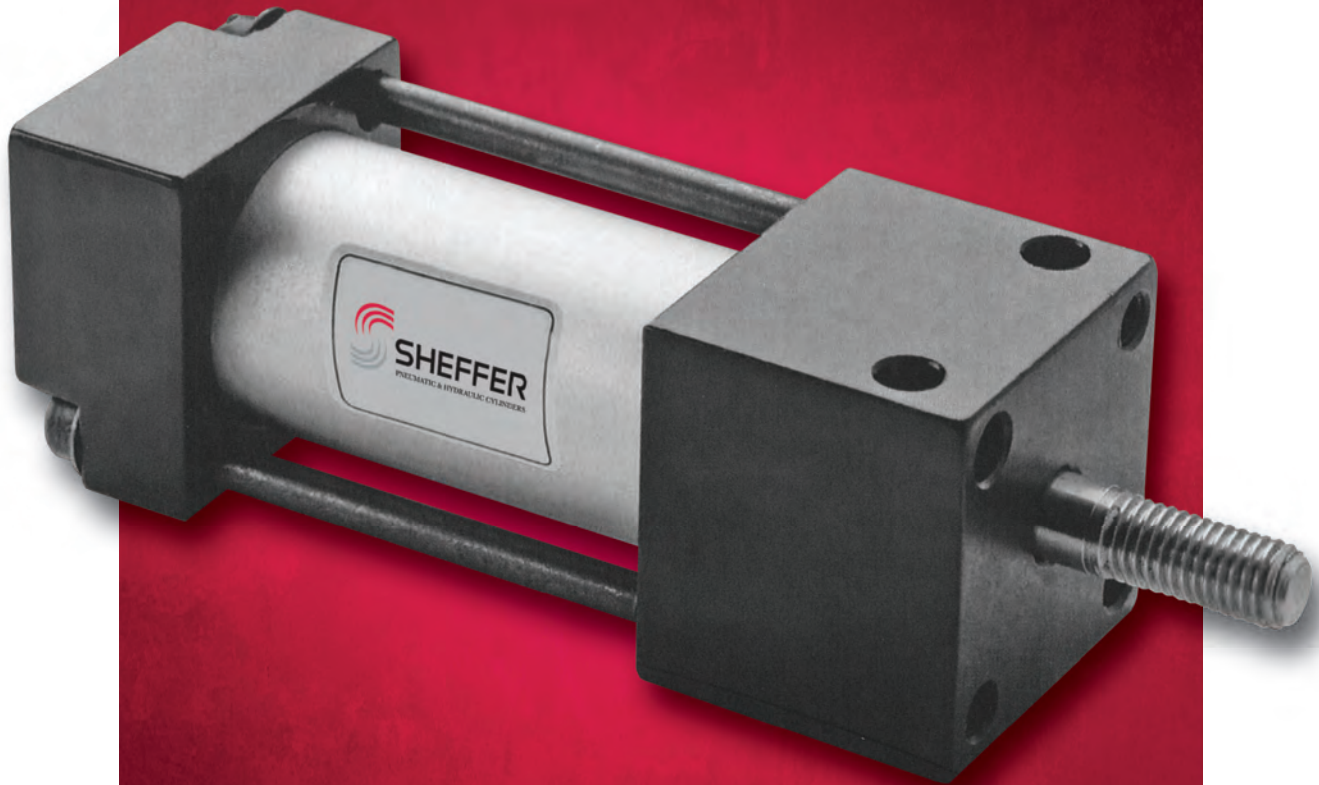
PNEUMATIC & HYDRAULIC CYLINDERS

# CL SERIES

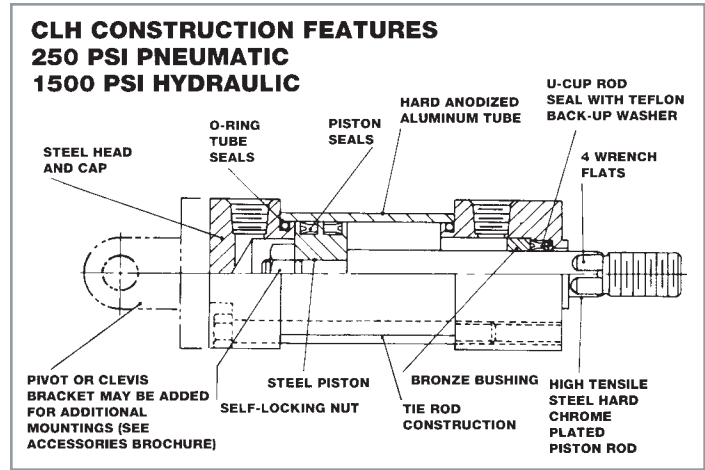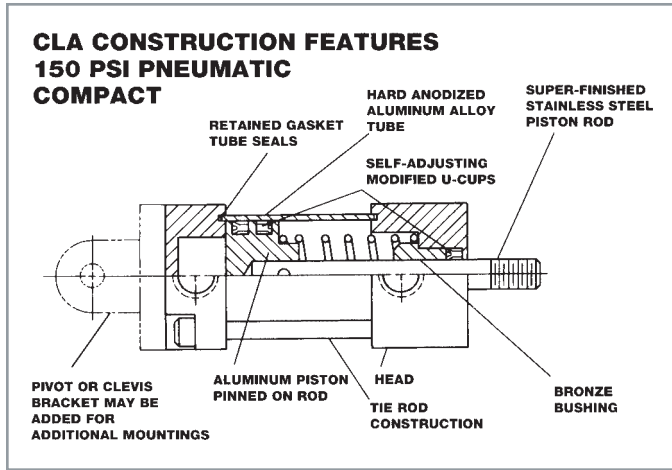## Heavy-Duty Clamp Pneumatic & Hydraulic Cylinders

Pressure Rating:
CLA-150 PSI Pneumatic
CLH-250 PSI Pneumatic
CLH-1,500 PSI Hydraulic

**CLA CONSTRUCTION FEATURES**
**150 PSI PNEUMATIC**
**COMPACT**

RETAINED GASKET TUBE SEALS

HARD ANODIZED ALUMINUM ALLOY TUBE

SUPER-FINISHED STAINLESS STEEL PISTON ROD

SELF-ADJUSTING MODIFIED U-CUPS

PIVOT OR CLEVIS BRACKET MAY BE ADDED FOR ADDITIONAL MOUNTINGS

ALUMINUM PISTON PINNED ON ROD

HEAD

TIE ROD CONSTRUCTION

BRONZE BUSHING



**CLH CONSTRUCTION FEATURES**
**250 PSI PNEUMATIC**
**1500 PSI HYDRAULIC**

STEEL HEAD AND CAP

O-RING TUBE SEALS

PISTON SEALS

HARD ANODIZED ALUMINUM TUBE

U-CUP ROD SEAL WITH TEFLON BACK-UP WASHER

4 WRENCH FLATS

PIVOT OR CLEVIS BRACKET MAY BE ADDED FOR ADDITIONAL MOUNTINGS (SEE ACCESSORIES BROCHURE)

SELF-LOCKING NUT

STEEL PISTON

BRONZE BUSHING

TIE ROD CONSTRUCTION

HIGH TENSILE STEEL HARD CHROME PLATED PISTON ROD

## CLA CONSTRUCTION

**PISTON RODS** are ¹/₄" or ⁵/₁₆" diameter on all CLA cylinders dependent on bore size. They are super-finished stainless steel for maximum corrosion resistance.

**CYLINDER TUBES** are high-tensile aluminum alloy tubing, hard anodized finish.

**PISTONS** are aluminum, secured by a roll pin.

**HEADS** are accurately machined from aluminum bar stock.

**SPRINGS** employed in the spring return models exert the following forces to return the piston and rod: The ³/₄" bore models have a spring which exerts a 4 lbs. force as installed and a 9.4 lbs. force when compressed by stroke. The 1¹/₈" bore models rate is 5¹/₂ lbs. installed and 9 lbs. compressed. All spring forces are approximate.

**BRONZE BUSHING** oil impregnated, for good lubrication and long life.

**CYLINDER ASSEMBLY** is held together with high-tensile steel tie rods. This is recognized by industry to be the best way to provide pre-stressed construction for rough service.

**ROD SEAL** is a self-adjusting modified U-cup.

**PISTON SEALS** are self-adjusting modified U-cups.

**TUBE SEALS** are flat gaskets, retained type, to prevent any possible extrusion.

**PORTS** are ¹/₈" N.P.T.

**MOUNTING** may be accomplished by attaching the head, the cap, or side mounting by holes provided in the universal mount. Tie rod holes tapped thru 8-32 or 10-32 for face mounting. Pivot or clevis mount may be made by attaching brackets with cap screws provided (See Accessories Brochure). Stud may be threaded into mounting plate, or secured by use of jam nut provided.

## CLH CONSTRUCTION

**PISTON RODS** are of adequate size, of approximately 100,000 psi yield steel. They are ground, polished and hard chrome plated for maximum wear and corrosion resistance. Wrench flats are standard.

**CYLINDER TUBES** are high-tensile aluminum alloy with hard anodized finish.

**PISTONS** are steel for strength and wear resistance, fastened to the rod by a self-locking nut.

**HEADS** are cold rolled steel to provide best strength characteristics and black oxided for corrosion resistance.

**SPRINGS** employed in the spring return models exert the following forces to return the piston and rod: Installed force is 12.8 lbs. Compressed by stroke force is 27.5 lbs. All spring forces are approximate.

**BRONZE BUSHING** oil impregnated, for good lubrication and long life.

**CYLINDER ASSEMBLY** is held together with high yield steel tie rods. This is recognized by industry to be the best way to provide pre-stressed construction for rugged service.

**ROD SEAL** is a self-adjusting modified U-cup.

**PISTON SEALS** are self-adjusting modified U-cups.

**TUBE SEALS** are O-rings located to prevent any possible extrusion.

**PORTS** are ¹/₄" N.P.T.

**MOUNTING** may be accomplished by attaching the head, the cap, or side mounting by holes provided in the universal mount. Tie rod holes tapped thru for face mounting. Pivot or Clevis mount may be made by attaching brackets with cap screws provided (See Accessories Brochure).

**PRESSURES** of 250 psi pneumatic and up to 1500 psi hydraulic service.

**MOUNTING METHODS**

**CLA-T STUD MOUNT**
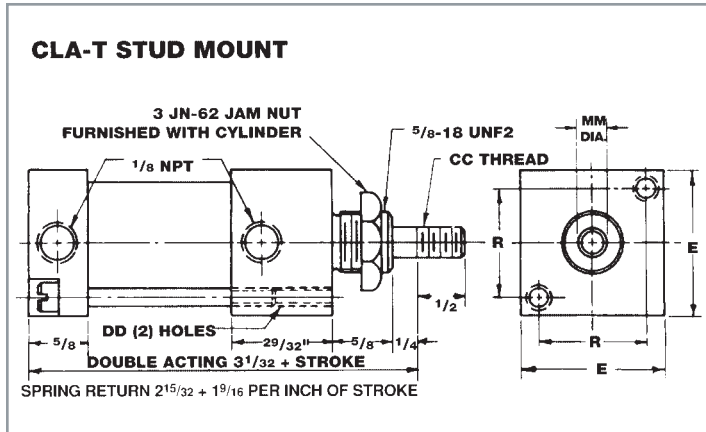


**CLH UNIVERSAL MOUNT**
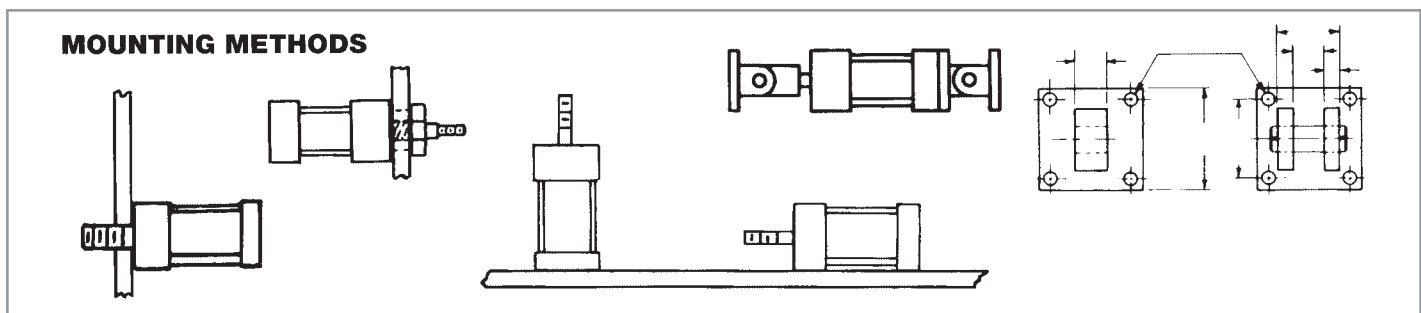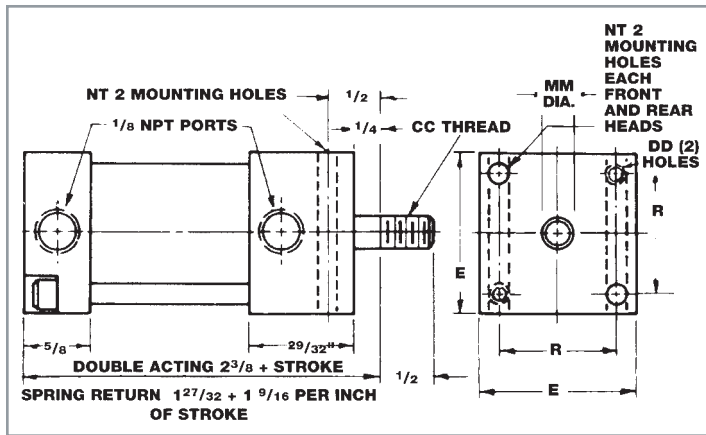


**CLH-T STUD MOUNT**

## CLA SERIES Dimensions

**CLA SERIES** cylinders are available in 3/4" and 1 1/8" bores, double acting and spring return, universal and stud mounts, and in all strokes including fractions of inches. A full line of accessories is offered. (See Page CL-3)

**CLA SERIES** cylinders are rated for pneumatic service up to 150 psi. They are pre-lubed and do not require supplemental lubrication. Like all Sheffer pneumatic cylinders, this offers the unique advantage of continued operation when the lubricator is located too distant from the cylinder, when it has not been refilled, or becomes inoperative. Sheffer pre-lubed cylinders are also ideal for instrument air systems, food handling equipment or other applications where it is not practical or desirable to employ a lubricator or exhaust oil laden air into the environment.

**CLA SERIES** cylinders have been specified for years on automated conveyor systems, automated tool changing machinery, auto washing equipment, plastic forming presses, stamping machines, toggle locking mechanisms, and all types of clamping operations.

### CLA Cylinder Dimensions

| DESCRIPTION | CC | DD | E | MM | NT | R |
|---|---|---|---|---|---|---|
| 3/4 CLA UNIVERSAL MOUNT | 1/4-28 | #8-32 | 1 1/8 | 1/4 | #8 | 13/16 |
| 1 1/8" - CLA UNIVERSAL MOUNT | 5/16-24 | #10-32 | 1 1/2 | 5/16 | #10 | 1 1/8 |
| 3/4 CLA STUD MOUNT | 1/4-28 | #8-32 | 1 1/8 | 1/4 | — | 13/16 |
| 1 1/8" - CLA STUD MOUNT | 5/16-24 | #10-32 | 1 1/2 | 5/16 | — | 1 1/8 |

Note: Ports are standard position 1 & 5
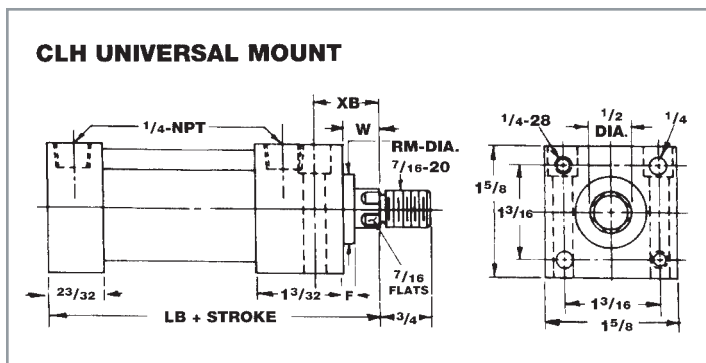
## CLH SERIES Dimensions

**CLH SERIES** cylinders are available in a 1 1/8" bore, double-acting, spring return, universal mount and stud mount. All strokes are offered including fractions of an inch.

**CLH SERIES** cylinders are rated for pneumatic service up to 250 psi. Used as a pneumatic cylinder, this series is constructed to satisfy HEAVY DUTY applications. Slightly higher in cost than the CLA Series, the CLH is an economical answer to severe operating conditions. See separate Accessories Brochure.

**CLH SERIES** cylinders are rated for Hydraulic Service up to 1500 psi providing a low cost solution to small bore, hydraulic cylinder requirements.
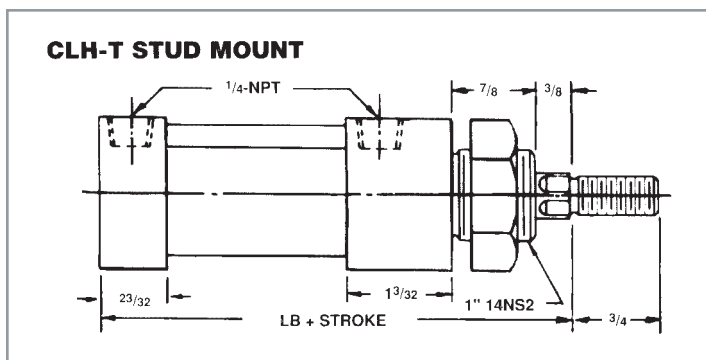
### CLH Cylinder Dimensions

| DESCRIPTION | F | LB | RM DIA. | W | XB |
|---|---|---|---|---|---|
| 1 1/8" BORE - DOUBLE ACTING UNIVERSAL MOUNT | 1/8 | 3 5/32 | .998 .988 | 1/2 | 7/8 |
| 1 1/8" BORE - SPRING RETURN UNIVERSAL MOUNT | 1/8 | 2 13/32* | .998 .988 | 1/2 | 7/8 |
| 1 1/8" BORE - DOUBLE ACTING STUD MOUNT | — | 3 29/32 | — | — | — |
| 1 1/8" BORE - SPRING RETURN STUD MOUNT | — | 3 5/32* | — | — | — |

*Spring Return – LB Plus 1 3/4" per inch of stroke.

**CL-2**

# ▶ Parts List

## CLA SERIES ³/₄" AND 1¹/₈"

**DOUBLE ACTING**          **STUD MOUNT**

**SINGLE ACTING**

## CLH SERIES 1¹/₈"

**DOUBLE ACTING**          **STUD MOUNT**

**SINGLE ACTING**
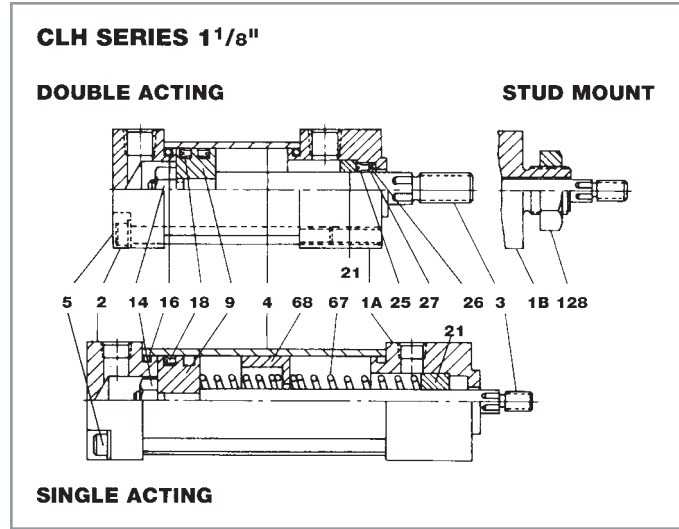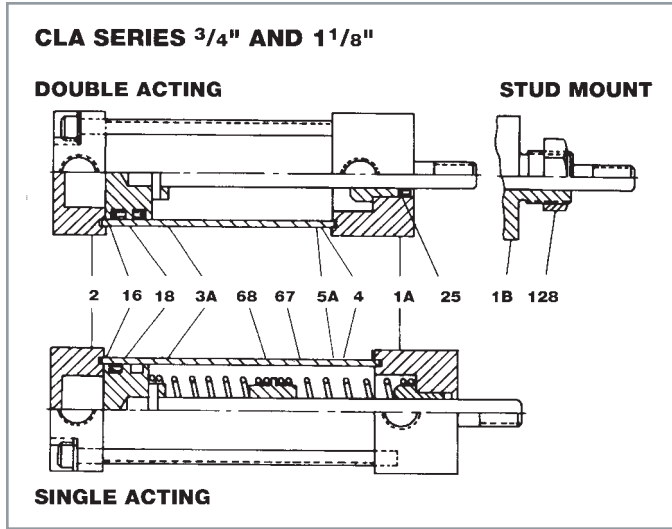
## Parts List

| ITEM NO. | DESCRIPTION | 3/4 CLA PART NUMBER | 1¹/₈ CLA PART NUMBER | 1¹/₈ CLH PART NUMBER | QUANTITY REQUIRED | |
|---|---|---|---|---|---|---|
| | | | | | DOUBLE ACTING | SPRING RETURN |
| KIT | FOR ³/₄ CLA | — | — | — | KIT NUMBER 724-0019 | KIT NUMBER 724-0020 |
| KIT | FOR 1¹/₈ CLA | — | — | — | KIT NUMBER 725-0032 | KIT NUMBER 725-0033 |
| KIT | FOR 1¹/₈ CLH | — | — | — | KIT NUMBER 775-0010 | KIT NUMBER 775-0011 |
| 1A | HEAD AND BUSHING | 624-0015 | 625-0036 | 675-0006 | 1 | 1 |
| 1B | HEAD AND BUSHING - STUD MOUNT | 624-0016 | 625-0037 | 675-0007 | 1* | 1* |
| 2 | CAP | 624-5004 | 625-5446 | 675-5229 | 1 | 1 |
| 3 | PISTON ROD | — | — | † | 1 | 1 |
| 3A | PISTON ROD AND PISTON ASSEMBLY | † | † | — | 1 | 1 |
| 4 | TUBE | † | † | † | 1 | 1 |
| 5 | TIE ROD | — | — | † | 2 | 2 |
| 5A | TIE ROD AND LOCK WASHER | † | † | — | 2 | 2 |
| 9 | PISTON | — | — | 675-5230 | 1 | 1 |
| 13 | TIE ROD NUT | — | | — | 2 | 2 |
| 14 | PISTON ROD NUT | — | — | 410-03124 | 1 | 1 |
| 16 | TUBE SEAL | 192-0087-0075-02 | 625-8001 | 100-022 | 2 | 1 |
| 18 | PISTON SEAL | 150-0075-0050 | 150-0112-0087 | 150-0112-0087 | 2 | 1 |
| 21 | ROD BEARING | — | — | 675-3011 | 1 | 1 |
| 25 | ROD SEAL | 150-0043-0025 | 150-0050-0031 | 150-0075-0050 | 1 | — |
| 26 | ROD SEAL BACKUP WASHER | — | — | 590-075-053-03 | 1 | — |
| 27 | ROD SEAL SPACER | — | — | 675-5315 | 1 | — |
| 67 | SPRING | 500-10015 | 625-3001 | 675-3010 | — | ‡ |
| 68 | SPRING SPACER | 624-5020 | 625-5064 | 675-5111 | — | ‡‡ |
| 128 | JAM NUT | 426-06218 | 426-06218 | 675-3012 | 1* | 1* |

*Used on Stud Mount only.
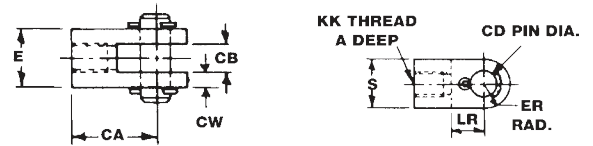‡One spring required per inch of stroke (or each additional fraction thereof).

‡‡Number of spacers required equals number of springs minus one.
†Order by item number and complete cylinder model number.

**CLEVIS AND PIVOT MOUNTING BRACKETS**



PIVOT BRACKET     CLEVIS BRACKET     LR MIN. CLEARANCE
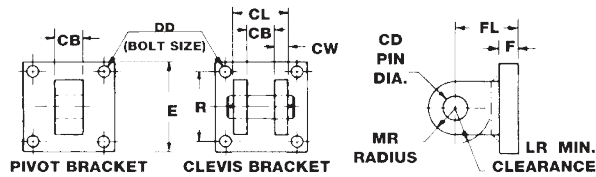
**ROD CLEVIS AND PINS
CLA AND CLH SERIES**



## Parts List

| PART NUMBER | DESCRIPTION | SERIES | | A THD. DEPTH | CA | CB | CD | CL | CW | DD (BOLT SIZE) | E | ER RAD. | F | FL | KK THD. | LR | MR | R | MATCH-ING ROD EYE REF/REM | S | WT IN OZ. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CLA | CLH | | | | | | | | | | | | | | | | | | |
| ³/₄ MBP-CLA | PIVOT MOUNTING BRACKET | • | | — | — | ³/₈ | ¹/₄ | ³/₄ | ³/₁₆ | #8-32 | 1¹/₈ | — | ³/₁₆ | ⁵/₈ | — | — | ⁵/₁₆ | ¹³/₁₆ | — | — | 1 |
| ³/₄ MBC-CLA | CLEVIS MOUNTING BRACKET | • | | — | — | ³/₈ | ¹/₄ | ³/₄ | ³/₁₆ | #8-32 | 1¹/₈ | — | ³/₁₆ | ⁵/₈ | — | — | ⁵/₁₆ | ¹³/₁₆ | — | — | 1¹/₂ |
| MBP-CLA | PIVOT MOUNTING BRACKET | • | | — | — | ¹/₂ | ⁵/₁₆ | 1 | ¹/₄ | #10-32 | 1¹/₂ | — | ¹/₄ | ³/₄ | — | — | ³/₈ | 1¹/₈ | — | — | 3 |
| MBC-CLA | CLEVIS MOUNTING BRACKET | • | | — | — | ¹/₂ | ⁵/₁₆ | 1 | ¹/₄ | #10-32 | 1¹/₂ | — | ¹/₄ | ³/₄ | — | — | ³/₈ | 1¹/₈ | — | — | 4 |
| MBC-A30510 | CLEVIS MOUNTING BRACKET | | • | — | — | ⁵/₈ | ³/₈ | 1¹/₄ | ⁵/₁₆ | ¹/₄-28* | 1⁵/₈ | — | ⁵/₁₆ | ¹⁵/₁₆ | — | ⁹/₁₆ | ³/₈ | 1.19 | -50305 -70305 | — | 6 |
| MBP-A305 | PIVOT MOUNTING BRACKET | | • | — | — | ⁵/₈ | ³/₈ | 1¹/₄ | ⁵/₁₆ | ¹/₄-28* | 1⁵/₈ | — | ⁵/₁₆ | ¹⁵/₁₆ | — | ⁹/₁₆ | ³/₈ | 1.19 | -50305 -70305 | — | 6 |
| CLS-A025 | ROD CLEVIS AND PIN | • | | ⁵/₁₆ | ¹¹/₁₆ | ¹/₄ | ¹/₄ | — | ¹/₈ | — | ¹/₂ | ¹/₄ | — | — | ¹/₄-28 | ⁵/₁₆ | — | — | — | ¹/₂ | 1 |
| CLS-A031 | ROD CLEVIS AND PIN | • | | ³/₈ | ¹³/₁₆ | ¹/₄ | ⁵/₁₆ | — | ³/₁₆ | — | ⁵/₈ | ⁵/₁₆ | — | — | ⁵/₁₆-24 | ³/₈ | — | — | — | ⁵/₈ | 1 |
| CLS-A2043 | ROD CLEVIS AND PIN | | • | ³/₄ | 1³/₈ | ¹¹/₁₆ | ³/₈ | — | ⁹/₃₂ | — | 1¹/₄ | ³/₈ | — | — | ⁷/₁₆-20 | ⁵/₈ | — | — | — | ³/₄ | 6 |

NOTE: Mounting brackets can be cap screwed to rear heads to make pivot or clevis mount cylinders. Two cap screws furnished with each bracket.
*Indcicates tapped holes; other DD Dim. are clearance holes for indicated bolt sizes.

## Policy:

The policy of the Sheffer Corporation is one of continual improvement in design and manufacture to assure still finer products, hence, specifications are subject to change without notice.

## Limited Warranty:

# ▶Conversions

## Fraction Equivalents

| Fraction (inches) | Decimal (inches) | Metric (mm) (x 25.4) | Fraction (inches) | Decimal (inches) | Metric (mm) (x 25.4) |
|---|---|---|---|---|---|
| 1/64 | .016 | .4 | 33/64 | .516 | 13.1 |
| 1/32 | .031 | .8 | 17/32 | .531 | 13.5 |
| 3/64 | .047 | 1.2 | 35/64 | .547 | 13.9 |
| 1/16 | .062 | 1.6 | 9/16 | .562 | 14.3 |
| 5/64 | .078 | 2.0 | 37/64 | .578 | 14.7 |
| 3/32 | .094 | 2.4 | 19/32 | .594 | 15.1 |
| 7/64 | .109 | 2.8 | 39/64 | .609 | 15.5 |
| 1/8 | .125 | 3.2 | 5/8 | .625 | 15.9 |
| 9/64 | .141 | 3.6 | 41/64 | .641 | 16.3 |
| 5/32 | .156 | 4.0 | 21/32 | .656 | 16.7 |
| 11/64 | .172 | 4.4 | 43/64 | .672 | 17.1 |
| 3/16 | .187 | 4.7 | 11/16 | .687 | 17.4 |
| 13/64 | .203 | 5.2 | 45/64 | .703 | 17.9 |
| 7/32 | .219 | 5.6 | 23/32 | .719 | 18.3 |
| 15/64 | .234 | 5.9 | 47/64 | .734 | 18.6 |
| 1/4 | .250 | 6.3 | 3/4 | .750 | 19.0 |
| 17/64 | .266 | 6.8 | 49/64 | .766 | 19.5 |
| 9/32 | .281 | 7.1 | 25/32 | .781 | 19.8 |
| 19/64 | .297 | 7.5 | 51/64 | .797 | 20.2 |
| 5/16 | .312 | 7.9 | 13/16 | .812 | 20.6 |
| 21/64 | .328 | 8.3 | 53/64 | .828 | 21.0 |
| 11/32 | .344 | 8.7 | 27/32 | .844 | 21.4 |
| 23/64 | .359 | 9.1 | 55/64 | .859 | 21.8 |
| 3/8 | .375 | 9.5 | 7/8 | .875 | 22.2 |
| 25/64 | .391 | 9.9 | 57/64 | .891 | 22.6 |
| 13/32 | .406 | 10.3 | 29/32 | .906 | 23.0 |
| 27/64 | .422 | 10.7 | 59/64 | .922 | 23.4 |
| 7/16 | .437 | 11.1 | 15/16 | .937 | 23.8 |
| 29/64 | .453 | 11.5 | 61/64 | .953 | 24.2 |
| 15/32 | .469 | 11.9 | 31/32 | .969 | 24.6 |
| 31/64 | .484 | 12.3 | 63/64 | .984 | 25.0 |
| 1/2 | .500 | 12.7 | 1 | 1.000 | 25.4 |

## Temperature Equivalents

| F° | C° | | C° | F° |
|---|---|---|---|---|
| -30 | -34.4 | | -30 | -22 |
| -20 | -28.9 | | -20 | -4 |
| -10 | -23.3 | | -10 | 14 |
| 0 | -17.8 | | 0 | 32 |
| 10 | -12.2 | | 5 | 41 |
| 20 | -6.7 | | 10 | 50 |
| 30 | -1.1 | | 15 | 59 |
| 40 | 4.4 | | 20 | 68 |
| 50 | 10.0 | | 25 | 77 |
| 60 | 15.6 | | 30 | 86 |
| 70 | 21.1 | | 35 | 95 |
| 80 | 26.7 | | 40 | 104 |
| 90 | 32.2 | | 45 | 113 |
| 100 | 37.8 | | 50 | 122 |
| 110 | 43.3 | | 55 | 131 |
| 120 | 48.9 | | 60 | 140 |
| 130 | 54.4 | | 65 | 149 |
| 140 | 60.0 | | 70 | 158 |
| 150 | 65.6 | | 75 | 167 |
| 160 | 71.1 | | 80 | 176 |
| 170 | 76.7 | | 85 | 185 |
| 180 | 82.2 | | 90 | 194 |
| 190 | 87.8 | | 95 | 203 |
| 200 | 93.3 | | 100 | 212 |
| 210 | 98.9 | | 105 | 221 |
| 220 | 104.4 | | 110 | 230 |
| 230 | 110.0 | | 115 | 239 |
| 240 | 115.6 | | 120 | 248 |
| 250 | 121.1 | | 125 | 257 |
| 260 | 126.7 | | 130 | 266 |

$C° = (F° - 32) \div 1.8$        $F° = C° \times 1.8 + 32$

# Conversions

## Pressure Conversions

| PSI | Kg/cm² | Bars |
|---|---|---|
| 60 | 4.2 | 4.1 |
| 70 | 4.9 | 4.8 |
| 80 | 5.6 | 5.5 |
| 90 | 6.3 | 6.2 |
| 100 | 7.0 | 6.9 |
| 150 | 10.5 | 10.3 |
| 200 | 14.0 | 13.8 |
| 250 | 17.6 | 17.2 |
| 300 | 21.1 | 20.7 |
| 350 | 24.6 | 24.1 |
| 400 | 28.1 | 27.6 |
| 450 | 31.6 | 31.0 |
| 500 | 35.1 | 34.4 |
| 550 | 38.7 | 37.9 |
| 600 | 42.2 | 41.3 |
| 650 | 45.7 | 44.8 |
| 700 | 49.2 | 48.2 |
| 750 | 52.7 | 51.7 |
| 800 | 56.2 | 55.1 |
| 850 | 59.8 | 58.6 |
| 900 | 63.3 | 62.0 |
| 950 | 66.8 | 65.5 |
| 1000 | 70.3 | 68.9 |
| 1500 | 105.5 | 103.4 |
| 2000 | 140.6 | 137.8 |
| 2500 | 175.8 | 172.3 |
| 3000 | 210.9 | 206.7 |
| 3500 | 246.1 | 241.2 |
| 4000 | 281.2 | 275.6 |
| 4500 | 316.4 | 310.1 |
| 5000 | 351.5 | 344.5 |

Kg/cm² = PSI x .0703

| Kg/cm² | PSI | Bars |
|---|---|---|
| 4 | 56.9 | 3.9 |
| 5 | 71.1 | 4.9 |
| 6 | 85.3 | 5.9 |
| 7 | 99.5 | 6.9 |
| 8 | 113.8 | 7.8 |
| 9 | 128.0 | 8.8 |
| 10 | 142.2 | 9.8 |
| 20 | 284.4 | 19.6 |
| 30 | 426.6 | 29.4 |
| 40 | 568.8 | 39.2 |
| 50 | 711.0 | 49.0 |
| 60 | 853.2 | 58.8 |
| 70 | 995.4 | 68.6 |
| 80 | 1137.6 | 78.4 |
| 90 | 1279.8 | 88.2 |
| 100 | 1422.0 | 98.0 |
| 150 | 2133.0 | 147.0 |
| 200 | 2844.0 | 196.0 |
| 250 | 3555.0 | 245.0 |
| 300 | 4266.0 | 294.0 |
| 350 | 4977.0 | 343.0 |
| 400 | 5688.0 | 392.0 |

PSI = Kg/cm² x 14.22
Bars = Kg/cm² x .98

## Distance Conversions

| Inches | cm | mm |
|---|---|---|
| 1 | 2.5 | 25.4 |
| 2 | 5.1 | 50.8 |
| 3 | 7.6 | 76.2 |
| 4 | 10.2 | 101.6 |
| 5 | 12.7 | 127.0 |
| 6 | 15.2 | 152.4 |
| 7 | 17.8 | 177.8 |
| 8 | 20.3 | 203.2 |
| 9 | 22.9 | 228.6 |
| 10 | 25.4 | 254.0 |
| 15 | 38.1 | 381.0 |
| 20 | 50.8 | 508.0 |
| 25 | 63.5 | 635.0 |
| 30 | 76.2 | 762.0 |
| 35 | 88.9 | 889.0 |
| 40 | 101.6 | 1016.0 |
| 45 | 114.3 | 1143.0 |
| 50 | 127.0 | 1270.0 |
| 55 | 139.7 | 1397.0 |
| 60 | 152.4 | 1524.0 |
| 65 | 165.1 | 1651.0 |
| 70 | 177.8 | 1778.0 |
| 75 | 190.5 | 1905.0 |
| 80 | 203.2 | 2032.0 |
| 85 | 215.9 | 2159.0 |
| 90 | 228.6 | 2286.0 |
| 95 | 241.3 | 2413.0 |
| 100 | 254.0 | 2540.0 |

cm = in. x 2.54
mm = in. x 25.4

| cm | Inches |
|---|---|
| 1 | .4 |
| 2 | .8 |
| 3 | 1.2 |
| 4 | 1.6 |
| 5 | 2.0 |
| 6 | 2.4 |
| 7 | 2.8 |
| 8 | 3.1 |
| 9 | 3.5 |
| 10 | 3.9 |
| 20 | 7.9 |
| 30 | 11.8 |
| 40 | 15.8 |
| 50 | 19.7 |
| 60 | 23.6 |
| 70 | 27.6 |
| 80 | 31.5 |
| 90 | 35.5 |
| 100 | 39.4 |
| 110 | 43.3 |
| 120 | 47.3 |
| 130 | 51.2 |
| 140 | 55.2 |
| 150 | 59.1 |
| 160 | 63.0 |
| 170 | 67.0 |
| 180 | 70.9 |
| 190 | 74.9 |
| 200 | 78.8 |
| 210 | 82.7 |
| 220 | 86.7 |
| 230 | 90.6 |
| 240 | 94.6 |
| 250 | 98.5 |
| 260 | 102.4 |

in. = cm x .394

SHEFFER™
PNEUMATIC & HYDRAULIC CYLINDERS