CLA CONSTRUCTION FEATURES
150 PSI PNEUMATIC
COMPACT

CLH CONSTRUCTION FEATURES
250 PSI PNEUMATIC
1500 PSI HYDRAULIC

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
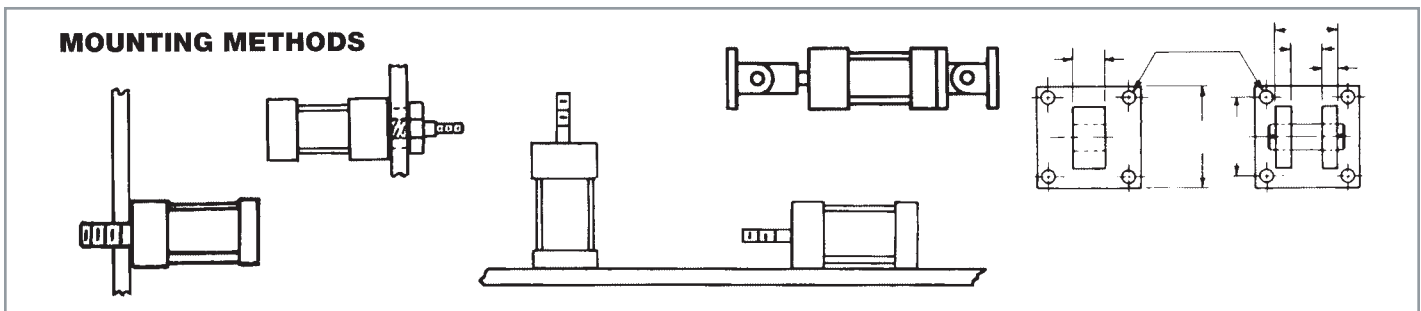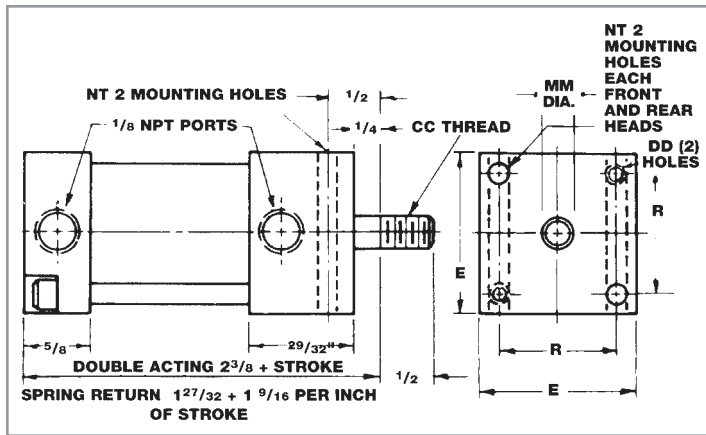
CLA SERIES Dimensions

CLA SERIES cylinders are available in ³/₄" and 1¹/₈" 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 CylindersNow 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. CylindersNow 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.
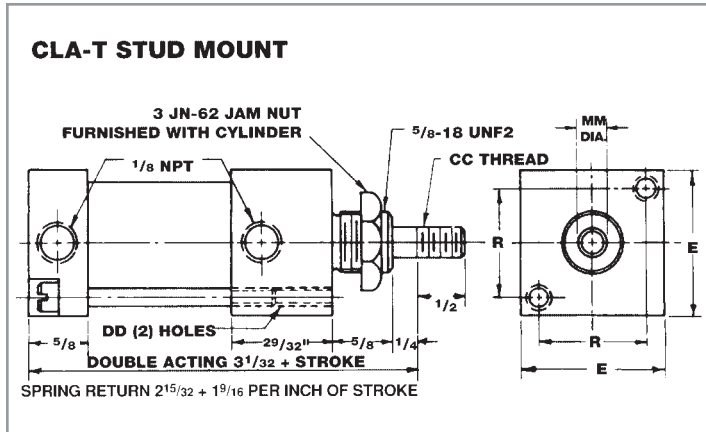
CLA Cylinder Dimensions

| DESCRIPTION	CC	DD	E	MM	NT	R
³/₄ CLA UNIVERSAL MOUNT	¹/₄-28	#8-32	1¹/₈	¹/₄	#8	¹³/₁₆
1¹/₈" - CLA UNIVERSAL MOUNT	⁵/₁₆-24	#10-32	1¹/₂	⁵/₁₆	#10	1¹/₈
³/₄ CLA STUD MOUNT	¹/₄-28	#8-32	1¹/₈	¹/₄	—	¹³/₁₆
1¹/₈" - CLA STUD MOUNT	⁵/₁₆-24	#10-32	1¹/₂	⁵/₁₆	—	1¹/₈

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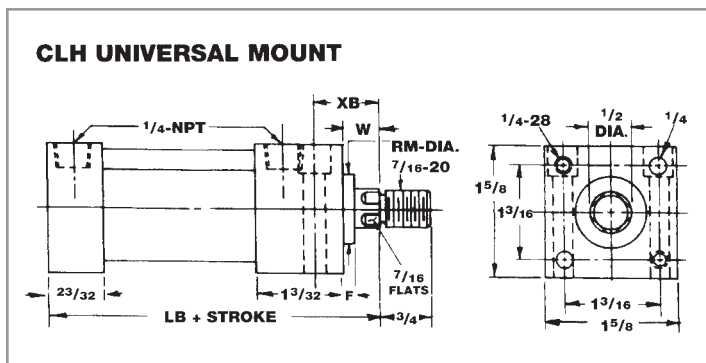
CLH SERIES Dimensions

CLH SERIES cylinders are available in a 1¹/₈" 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.
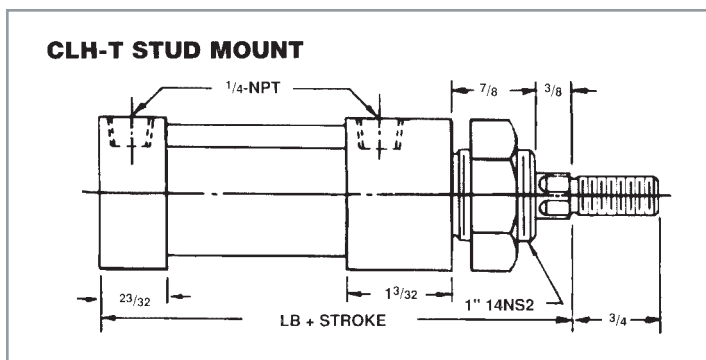
CLH Cylinder Dimensions

DESCRIPTION	F	LB	RM DIA.	W	XB
1¹/₈" BORE - DOUBLE ACTING UNIVERSAL MOUNT	¹/₈	3⁵/₃₂	.998 .988	¹/₂	⁷/₈
1¹/₈" BORE - SPRING RETURN UNIVERSAL MOUNT	¹/₈	2¹³/₃₂*	.998 .988	¹/₂	⁷/₈
1¹/₈" BORE - DOUBLE ACTING STUD MOUNT	—	3²⁹/₃₂	—	—	—
1¹/₈" BORE - SPRING RETURN STUD MOUNT	—	3⁵/₃₂*	—	—	—

*Spring Return – LB Plus 1³/₄" per inch of stroke.

CLA-T STUD MOUNT

CLH UNIVERSAL MOUNT

CLH-T STUD MOUNT

CLA SERIES ³/₄" AND 1¹/₈"

DOUBLE ACTING   **STUD MOUNT**

2 16 18 3A 68 67 5A 4 1A 25 1B 128

SINGLE ACTING

CLH SERIES 1¹/₈"

DOUBLE ACTING   **STUD MOUNT**

21

5 2 14 16 18 9 4 68 67 1A 25 27 26 3 1B 128

21

SINGLE ACTING
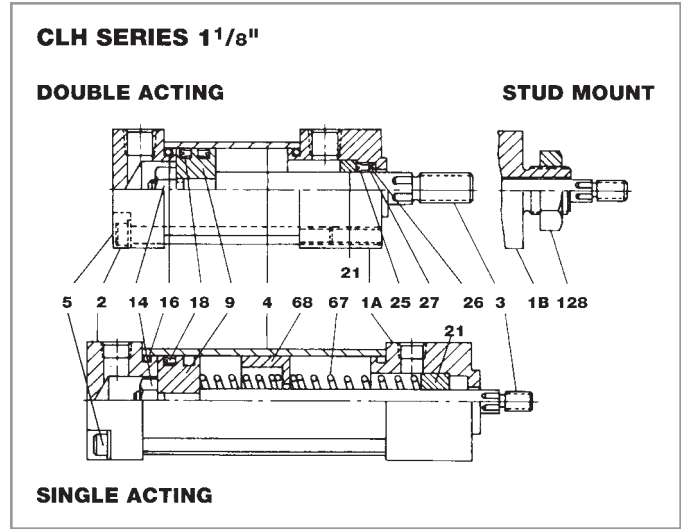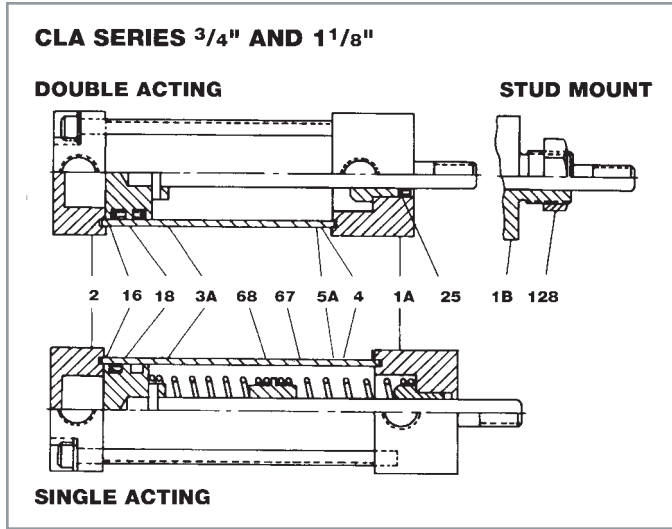
Parts List

| 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.
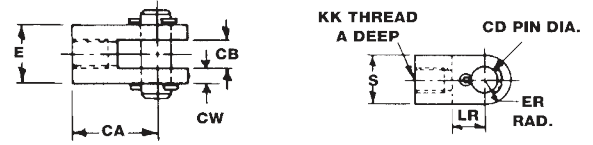‡One spring required per inch of stroke (or each additional fraction thereof).
‡‡Number of spacers required equals number of springs minus one.
†Order by item number and complete cylinder model number.

CLEVIS AND PIVOT MOUNTING BRACKETS

PIVOT BRACKET   CLEVIS BRACKET

MR RADIUS   LR MIN. CLEARANCE
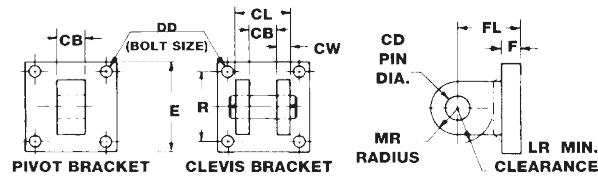
ROD CLEVIS AND PINS CLA AND CLH SERIES

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:

Sheffer warrants its products to be free from defects in material and workmanship for a period of one year from the date of shipment. This warranty does not cover field labor charges for parts removal and replacement, adjustments, repairs or other work, corrosion, electrolysis, mineral deposits or normal deterioration, misapplication, modification, or change in original operating conditions; components supplied by others; defects in parts resulting from abuse, negligence, neglect, accident, fire or explosion, or seals and other components subject to normal wear.

The sole and exclusive remedy against Sheffer shall be for the repair or replacement of parts returned transportation prepaid to Sheffer's factory and found by Sheffer to be defective. Replacement parts provided shall not extend the warranty period for said parts or for the total unit.

IN CONSIDERATION OF THIS EXPRESS WARRANTY NO OTHER REMEDY (INCLUDING BUT NOT LIMITED TO INCIDENTAL OR CONSEQUENTIAL DAMAGES) SHALL BE AVAILABLE. THIS WARRANTY SHALL BE IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND OF ALL OTHER OBLIGATIONS ON THE PART OF SHEFFER.

Sheffer neither assumes, nor authorizes any person to assume for it, any other obligation or 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

$Kg/cm^2 = PSI \times .0703$

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

$PSI = Kg/cm^2 \times 14.22$
$Bars = Kg/cm^2 \times .98$

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

$cm = in. \times 2.54$
$mm = in. \times 25.4$

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

$in. = cm \times .394$