



*Quality Manufacturers of
Air and Hydraulic Products*

SERIES BL AIR & HYDRAULIC TIE ROD CYLINDERS

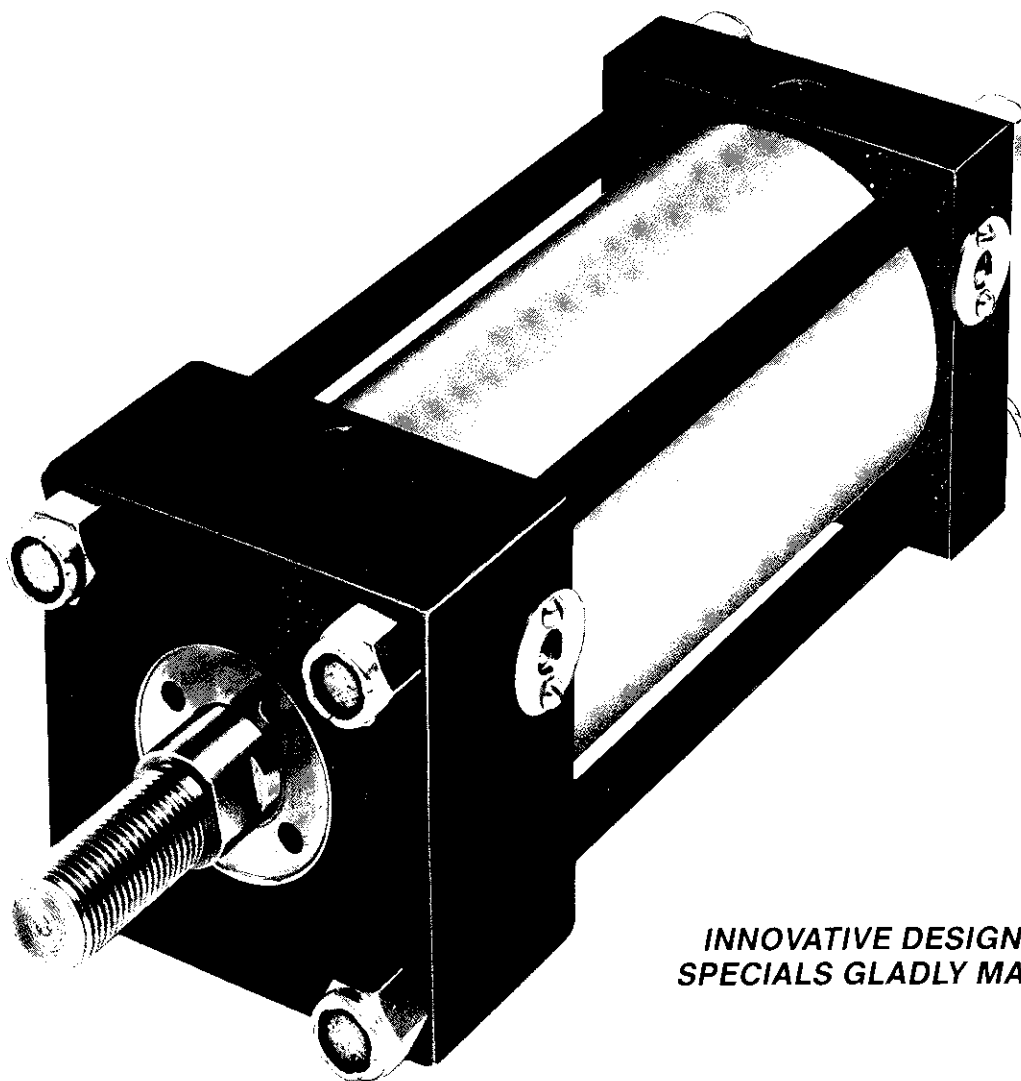
SIZES: 2" TO 6" BORE — STROKES TO SUIT

MODELS ABL-AIR: 250PSI OPERATING PRESSURE

MODELS HBL-HYDRAULIC: 750 TO 1500PSI OPERATING PRESSURE

ALL DOUBLE ACTING

**HIGH QUALITY CYLINDERS MANUFACTURED BY AHP
BAKELAAR DESIGNED**



**INNOVATIVE DESIGNS
SPECIALS GLADLY MADE**

**We have an excellent
rebuild and service department
for our air and hydraulic products.**



Our new, modern, efficient plant in Wyckoff, NJ

**We have high tech, high production
rate machinery. What parts
can we manufacture for you?**

COPYRIGHT 1989 AIR & HYDRAULIC PRODUCTS, INC.

AHP AIR & HYDRAULIC POWER, INC.

Manufacturers of • Air Cylinders • Hydraulic Cylinders • Telescopic Cylinders • Mini-Space • Pancake Style Air & Hydraulic Short Stroke Cylinders • Hydraulic Hand Pumps • Accumulators • Filters, Regulators, Lubricators
• Positioners, Controls, etc. • Swivels • Air & Hydraulic Tooling Clamps • Air Valves • Mill Type Hydraulic Cylinders • Hydraulic Valves • Shock Absorbers • Accessories • Specials

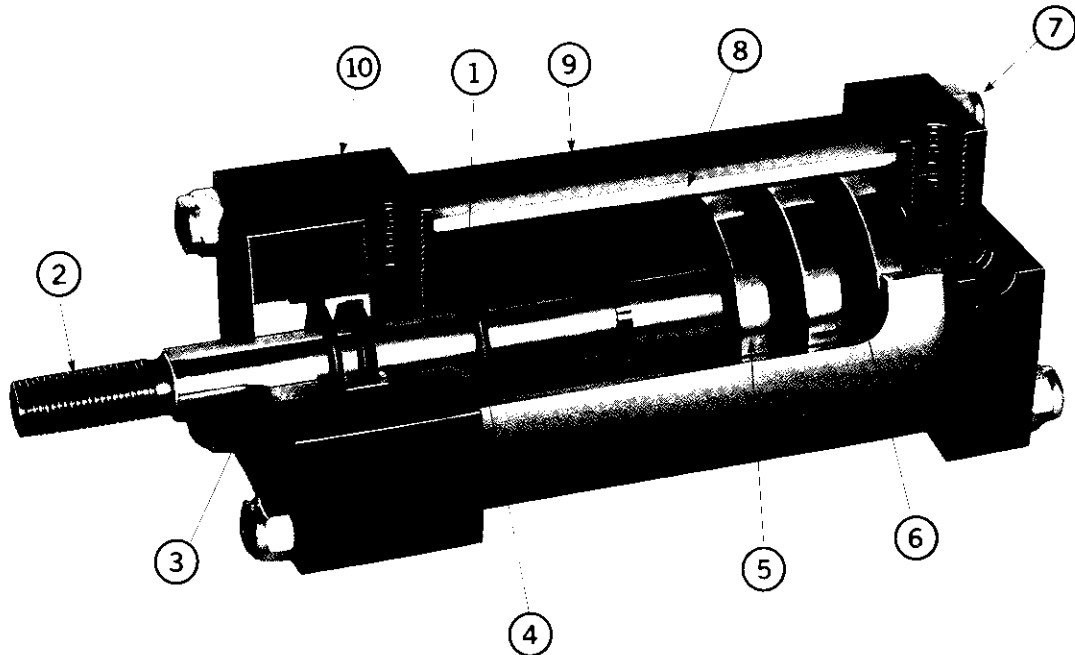
Box 159, 555 Goffle Road, Wyckoff, N.J. 07481-0159 (201) 447-1589 FAX 201-447-0302



Series BL Air & Hydraulic Tie Rod Cylinders

250PSI Air, 1500 PSI Hydraulic (Operating Pressure), Double Acting

General Features of our Series BL Double Acting, high quality air and hydraulic cylinders showing the quality construction of our products.



Piloted tube in-End Cap is designed for excellent alignment.

Rods are high tensile steel, polished and hard chrome plated.

Replaceable cartridge type rod bearing with U cup rod seal for maximum sealing efficiency and life. Replace without disassembly of the cylinder.

O Ring tube seals assure positive seal.

Pistons are special cast iron alloy containing free graphite evenly dispersed to assure superior wear properties.

Piston seals are pre-flared U cups for air service for low friction and excellent seal. O ring with Teflon back up rings for hydraulic service.

Self-locking tie rod nuts to eliminate loose tie rods.

Smooth I.D. brass tube for air cylinders—special smooth I.D. steel for hydraulic service—low friction long packing life.

High tensile steel tie rods.

High tensile aluminum heads—black anodized—corrosion resistant.

DESIGN FEATURES

Each cylinder is carefully engineered and constructed from the finest selected quality materials. Each cylinder meets Air & Hydraulic Products' strict quality control standards with regard to workmanship and materials. AHP Cylinders are designed for easy installation and minimal maintenance. When maintenance does become necessary the simple design of AHP Cylinders allows ease of service. The compact design allows minimum over-all installation dimensions.

All standard BL cylinders in this brochure can be modified to suit your particular requirements. Optional rod sizes, mountings, port styles, and port sizes are offered. Contact factory for further information. Drawings, sketches and dimensions herein are presented for sales purposes only, and not to be used as precise measurements.

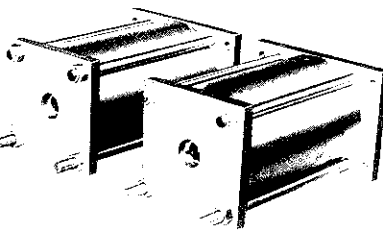


Series BL Air & Hydraulic Tie Rod Cylinders

250PSI Air, 1500 PSI Hydraulic (Operating Pressure), Double Acting

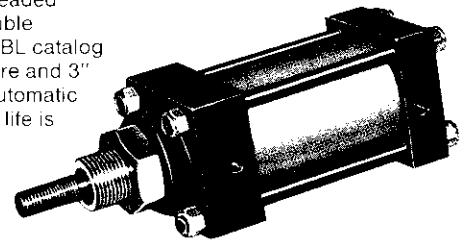
Series BL Special Tie Rod

Single acting air cylinder with front flange mount. This cylinder has a 6" bore and 5" stroke and is made to resist corrosion. The rod and tube are made of stainless steel while the balance of the cylinder is chrome plated. Made to activate a valve where reliability is a must.



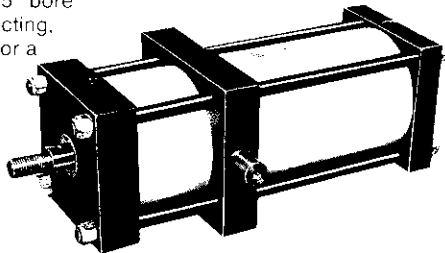
ABLS Tie Rod Air Cylinder — Series BL

This cylinder has a threaded nose mount and is double acting. It is a standard BL catalog cylinder with a 2½" bore and 3" stroke. It is made for automatic machinery where long life is desired.



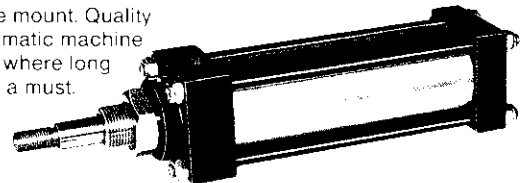
ABL-1 Series BL Tie Rod Cylinder

Double acting air cylinder with trunnion mount. Has a 5" bore and 10" stroke. Long acting, quality cylinder made for a wire manufacturer.



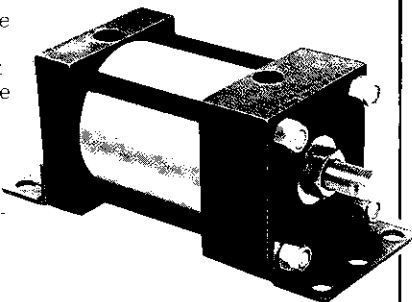
ABLS Series BI Cylinder

Series BL Cylinder, tie rod, double acting air cylinder ABLS-2½" bore with 3" stroke, threaded nose mount. Quality made for automatic machine manufacturer where long cylinder life is a must.



Series ABL Special Air Cylinder

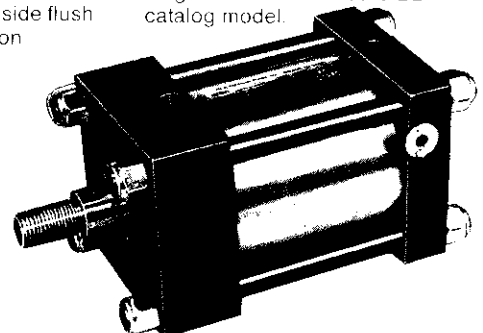
Double acting, tie rod, adjustable metering cylinder with 3" bore. Stroke is variable to suit amount of fluid required with each stroke movement. Cylinder shown will "meter out" from 0 to 4 ounces of fluids (including light grease) with each movement of rod and piston. This cylinder is manufactured by AHP for use in a dispensing system where very accurate, reliable, repeat dispensing is required.



ABLM-CB Series BL Tie Rod Cylinder

Series BL air cylinder tie rod, double acting model ABLM-CB, 3½" bore, 2" stroke, side flush mounting with cushion

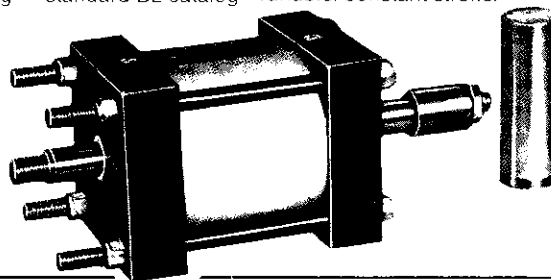
adjustment option - made for long hard wear. Standard BL catalog model.



ABLT-D Series BL Tie Rod Cylinder

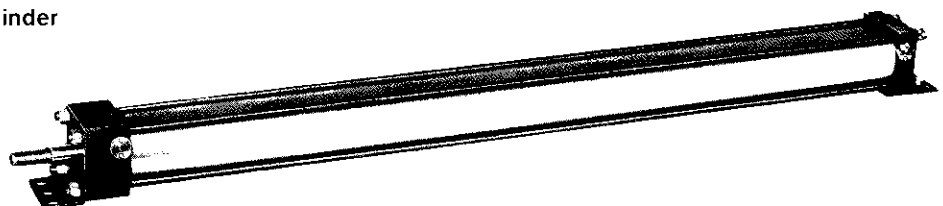
Double acting tie rod model ABLT-D, 5" bore, 2" adjustable stroke. Extended tie rod mounting — standard BL catalog

cylinder. Rod-end cap, brass is a cover for stroke adjustment. Simply turn adjustment for variable, constant stroke.



ABLF-C Series BL Tie Rod Cylinder

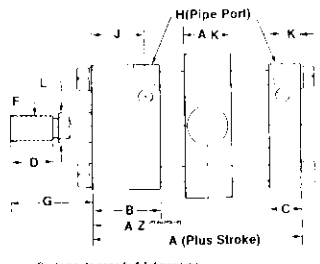
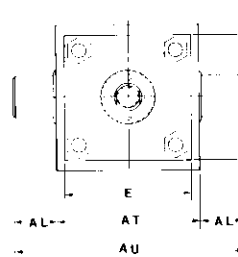
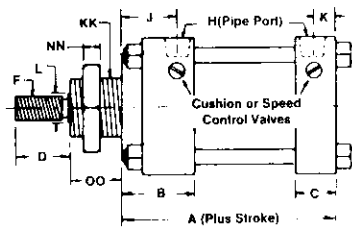
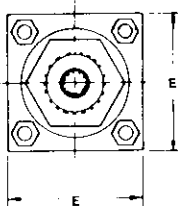
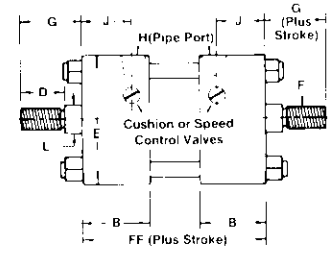
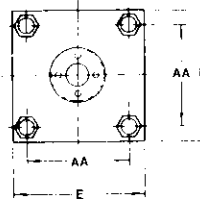
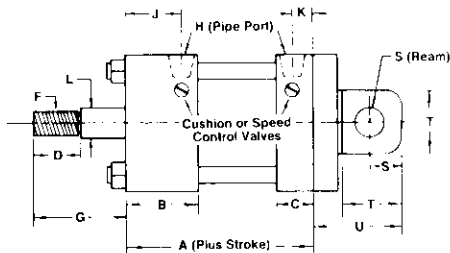
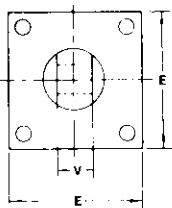
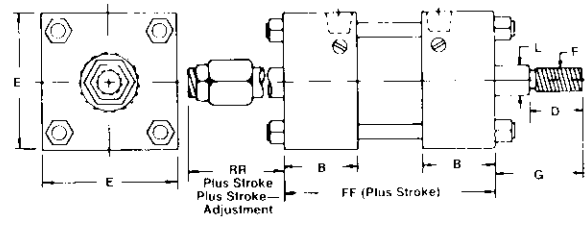
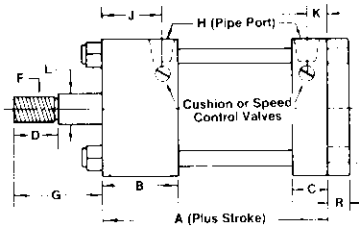
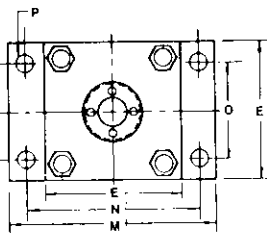
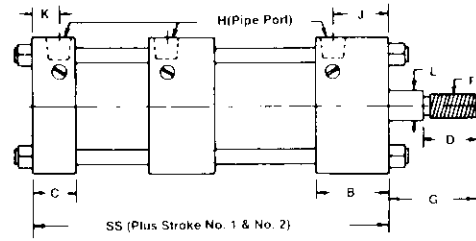
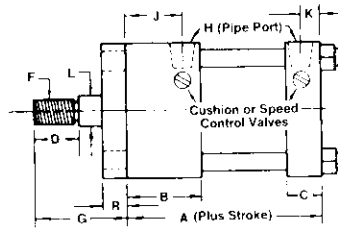
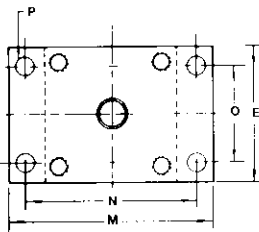
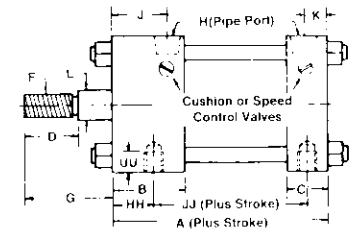
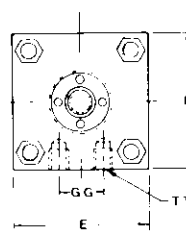
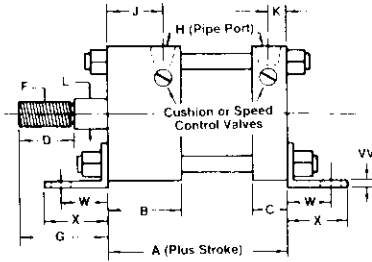
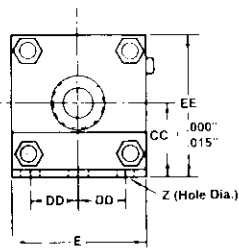
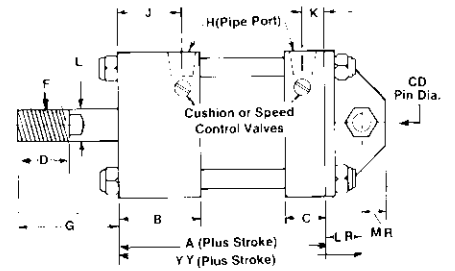
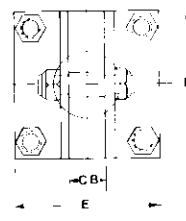
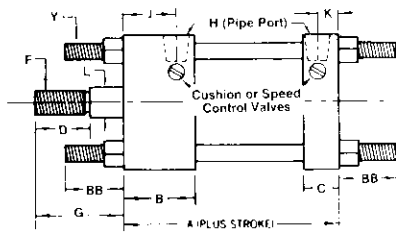
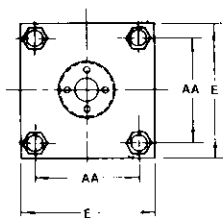
Series BL air cylinder, double acting, tie rod model ABLF-C, 2" bore, 27" stroke, foot mounting standard catalog cylinder used in a bakery production operation. Cylinder has cushion option.





Series BL Air & Hydraulic Tie Rod Cylinders

250PSI Air, 1500 PSI Hydraulic (Operating Pressure), Double Acting



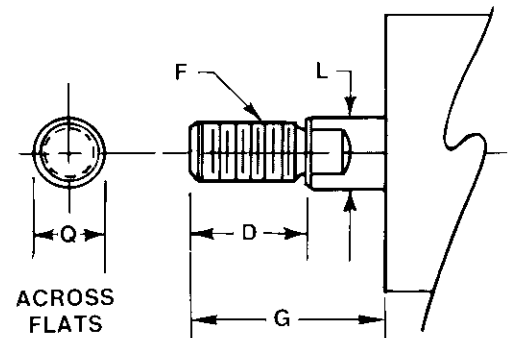


Series BL Air & Hydraulic Tie Rod Cylinders

250PSI Air, 1500 PSI Hydraulic (Operating Pressure), Double Acting

CYL. BORE	2"	2-1/2"	3"	3-1/2"	4"	5"	6"
A	4-1/2	4-1/2	4-13/16	4-13/16	4-13/16	5	5
B	1-9/16	1-9/16	1-11/16	1-11/16	1-11/16	1-5/8	1-5/8
C	13/16	13/16	1	1	1	1-1/8	1-1/8
D	See Piston Rod End Table						
E	2-1/2	3	3-1/2	4	4-1/2	5-1/2	6-1/2
F	See Piston Rod End Table						
G	See Piston Rod End Table						
H	1/4	1/4	3/8	3/8	3/8	1/2	1/2
J	1-7/32	1-7/32	1-1/4	1-1/4	1-1/4	1-1/16	1-1/6
K	15/32	15/32	9/16	9/16	9/16	9/16	9/16
L	See Piston Rod End Table						
M	4-1/8	4-5/8	5-1/8	5-3/4	6-1/4	7-5/8	8-5/8
N	3-3/8	3-7/8	4-5/16	4-15/16	5-7/16	6-5/8	7-5/8
O	1-7/8	2-3/16	2-5/8	2-13/16	3-5/16	4-3/32	4-7/8
P	3/8	3/8	7/16	7/16	7/16	9/16	9/16
R	1/2	1/2	1/2	5/8	5/8	5/8	3/4
S	5/8	5/8	7/8	7/8	7/8	1	1
T	1-3/8	1-3/8	1-7/8	1-7/8	1-7/8	2	2
U	1-15/16	1-15/16	2-7/16	2-9/16	2-9/16	2-7/8	2-7/8
V	3/4	3/4	1	1	1	1	1
W	1	1	1	1-1/4	1-1/4	1-3/8	1-1/2
X	1-3/8	1-3/8	1-3/8	1-3/4	1-3/4	2	2
Y	5-16/24	3/8-24	3/8-24	1/2-20	1/2-20	1/2-20	5/8-18
Z	7/16	7/16	7/16	9/16	9/16	9/16	9/16
AA	1-7/8	2-5/16	2-5/8	3-1/8	3-1/2	4-1/4	5-1/8
BB	1-1/4	1-3/8	1-3/8	1-5/8	1-5/8	2	2
CC	1-3/8	1-5/8	1-7/8	2-1/8	2-3/8	2-7/8	3-3/8
CB	3/4	3/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/2
CD	1/2	1/2	3/4	3/4	3/4	3/4	1
DD	7/8	1-1/8	1-5/16	1-9/16	1-3/4	2-1/8	2-5/8
EE	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-5/8	6-5/8
FF	5-1/4	5-1/4	5-1/2	5-1/2	5-1/2	5-1/2	5-1/2
GG	7/8	1-1/4	1-1/2	1-3/4	2-1/16	2-11/16	3-1/4
HH	1-1/4	1-1/4	1-5/16	1-5/16	1-5/16	1-1/16	1
JJ	2-7/8	2-7/8	3-1/32	3-1/32	3-1/32	3-13/32	3-15/32
KK	1-14	1-14	1-1/2-24	1-3/4-27	1-3/4-27		
LL	1/4	3/8	3/8	1/2	1/2		
LR	3/4	3/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/2
MM	9/16	9/16	1/2	1/2	1/2		
MR	1/2	1/2	3/4	3/4	3/4	3/4	1
NN	9/16	9/16	1/2	1/2	1/2		
OO	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4		
PP	5-16/24	3/8-24	3/8-24	1/2-20	1/2-20		
RR	1	1	1-1/4	1-1/2	1-1/2		
SS	7-7/8	7-7/8	8-5/16	8-5/16	8-5/16		
TT	5-16/18	3/8-16	3/8-16	1/2-13	1/2-13	5/8-11	3/4-10
UU	9/16	5/8	5/8	3/4	3/4	1	1
VV	1/8	1/8	1/8	1/8	1/8	3/16	3/16
YY	5-1/4	5-1/4	6-1/16	6-1/16	6-1/16	6-1/4	6-1/2
AD	1	1	1	1	1	1	1-3/8
AH	3	3-1/2	4-1/4	4-1/4	5	6	7
AK	1-1/2	1-1/2	2	2	2	2	2-1/2
AL	1	1	1	1	1	1	1-3/8
AT	3	3-1/2	4-1/2	4-1/2	5-1/4	6-1/4	7-5/8
AU	5	5-1/2	6-1/2	6-1/2	7-1/4	8-1/4	10-3/8
AZ	2-3/8	2-3/8	2-3/4	2-3/4	2-3/4	2-3/4	3-1/4

PISTON ROD END DIMENSIONS FOR BL TIE ROD— DOUBLE ACTING AIR & HYDRAULIC CYLINDERS



PISTON ROD END DIMENSIONS						
BORE	ROD INFO	"L" ROD DIA.	D	F	G	Q
2"	ST	5/8	1-1/4	1-2-20	2	1/2
	OS	3/4	1-1/4	5/8-18	2	5/8
2-1/2"	ST	5/8	1-1/4	1-2-20	2	1/2
	OS	3/4	1-1/4	5/8-18	2	5/8
3"	ST	3/4	1-1/4	5/8-18	2	5/8
	OS	1	1-1/4	3/4-16	2	7/8
3-1/2"	ST	1	1-1/4	3/4-16	2	7/8
	OS	1-3/8	1-1/2	1-1/4	2-1/4	1-1/4
4"	ST	1	1-1/4	3/4-16	2	7/8
	OS	1-3/8	1-1/2	1-1/4	2-1/4	1-1/4
5"	ST	1	1-1/2	3/4-16	2-1/4	7/8
	OS	1-3/8	1-5/8	1-1/4	2-3/8	1-1/4
6"	ST	1-3/4	2	1-1/4-12	2-3/4	1-1/2
	OS	1-3/4	2	1-1/4-12	2-3/4	1-1/2

Note: Under Rod Information above, "ST" means standard rod size supplied unless ordered otherwise. "OS" means oversize rod. If you wish this oversize rod, so state on your order "oversize" and name the size.

may be specified on any "BL" Series. Double extended rod cylinder and adjusts the limit of rod travel in the extended position. Specify "Stroke Adjustment" on your order with the range of adjustment in "inches."

is a two-position cylinder having two "BL" series cylinders in tandem. ADD mounting style suffix "letter" and specify bore, and each of two strokes desired. Stroke No. 1 will position rod at a point in the travel of Stroke No. 2. Application of medium at center port will position rod at limit of Stroke No. 2. Application of medium at rod end port will return rod to fully retracted position.

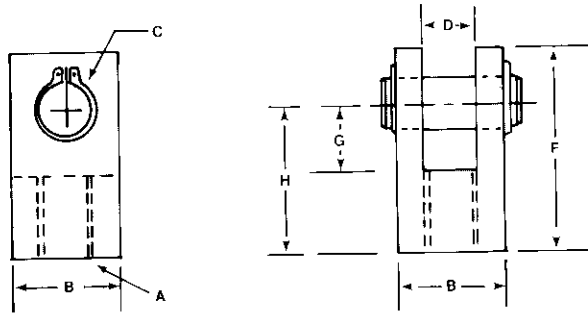
AIR & HYDRAULIC POWER, INC. guarantees its manufactured products to be free from defective material and/or workmanship for a period of 120 days from date of shipment from our factory. Liability under this guarantee is limited to allowance for credit or replacement of defective parts. AIR & HYDRAULIC POWER, INC. make no other guarantees either expressed or implied.



Series BL Air & Hydraulic Tie Rod Cylinders

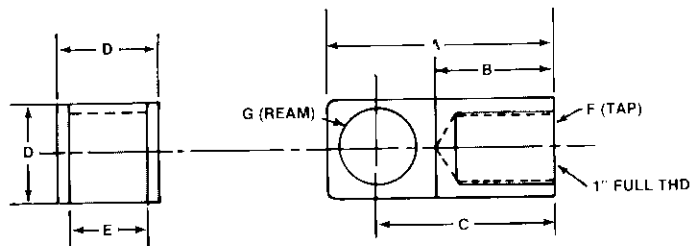
250PSI Air, 1500 PSI Hydraulic (Operating Pressure), Double Acting — Mounting Accessories

ROD CLEVIS AND PIN



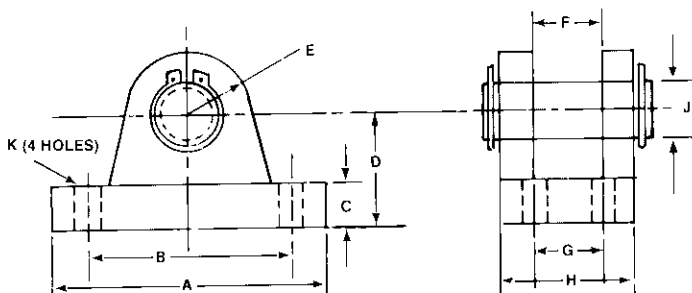
PART NO.	A	B	C	D	F	G	H
C-437	7/16-20	1	1/2	1/2	1-7/8	5/8	1-3/8
C-500	1/2-20	1	1/2	1/2	1-7/8	5/8	1-3/8
C-625	5/8-18	1	1/2	1/2	1-7/8	5/8	1-3/8
C-750	3/4-16	1-1/4	5/8	5/8	2-1/4	7/8	1-5/8
C-1000	1-14	1-1/2	3/4	3/4	2-3/4	1	2
C-1250	1-1/4-12	1-3/4	1	1	3-1/2	1-1/4	2-1/2

ROD EYE



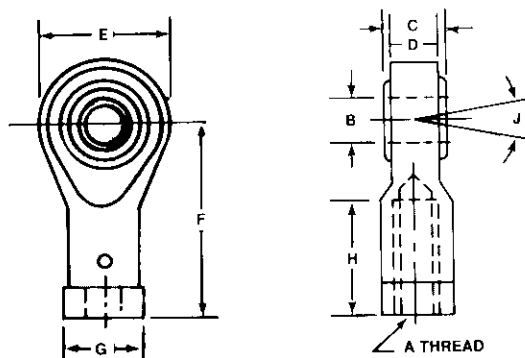
PART NO.	A	B	C	D	E	F	G
M-437	2-3/16	1	1-11/16	7/8	3/4	7/16-20	1/2
M-500	2-3/16	1	1-11/16	7/8	3/4	1/2-20	5/8
M-505	2-3/16	1	1-11/16	7/8	3/4	5/8-18	5/8
M-625	2-1/2	1	1-7/8	1-1/8	1	5/8-18	7/8
M-750	2-1/2	1	1-7/8	1-1/8	1	3/4-16	7/8
M-1000	3-13/16	1-5/8	2-13/16	1-1/2	1-1/2	1-14	1

MOUNTING BRACKET AND PIN



PART NO.	A	B	C	D	E	F	G	H	J	K*
F-500	2-1/2	1-7/8	3/8	1-1/16	7/16	33/64	5/8	1-1/4	1/2	17/64
F-625	3	2-1/4	7/16	1-1/4	5/8	49/64	3/4	1-1/2	5/8	17/64
F-875	3-3/4	2-7/8	9/16	1-7/8	13/16	1-1/64	1-1/4	2-1/8	7/8	25/64

SPHERICAL ROD EYE



PART NO.	A	B	C	D	E	F	G	H	J
S-437	7/16-20	7/16	9/16	7/16	1-1/8	1-13/16	3/4	1-1/16	14°
S-500	1/2-20	1/2	5/8	1/2	1-5/16	2-1/8	7/8	1-3/16	12°
S-625	5/8-18	5/8	3/4	9/16	1-1/2	2-1/2	1	1-1/2	16°
S-750	3/4-16	3/4	7/8	11/16	1-3/4	2-7/8	1-1/8	1-3/4	13-1/2°



Series BL Air & Hydraulic Tie Rod Cylinders

250PSI Air, 1500 PSI Hydraulic (Operating Pressure), Double Acting

Our BL cylinders are custom made to suit your exact requirements; however, we do manufacture these cylinders to meet JIC-NFPA standards. Basic design criteria and dimensions have been established by AHP and are charted herein for your use. Send us your requirements and we will be glad to quote you on your requirements. We will be happy to make your cylinders with standard mountings or special styles to suit needs.

SPECIALS—We will gladly design special Rod Ends, Heads, Caps, Flanges, Mountings or any other item. Send your details in to our Engineering Department.

SINGLE ACTING CYLINDERS—Our single acting cylinders can be manufactured with spring-returns. Consideration for load conditions and friction factors must be considered in designing the return-spring. Consult our Engineering Department with complete details of your requirements.

HEADS — High tensile Aluminum
— Black Anodized — Corrosion resistant.

TUBES — Brass on air cylinders —
Steel on hydraulic cylinders.
Smooth I.D. assures low friction
and increased packing life — High
factor of safety.

TIE RODS — Steel 100,000 P.S.I.
tensile.

PISTONS — Special cast iron
alloy, containing free graphite
evenly dispersed to assure
superior wearing properties.

PISTON ROD BEARING —
Replaceable Bronze piston-rod
bearing and rod seal in one
cartridge assembly.

PISTON RODS — Ground and
hard chromed high tensile steel —
416 stainless, heat treated on

special order — 303-4 stainless,
chrome plated for water service.
Diameters — $\frac{1}{8}$ " thru $1\frac{1}{4}$ ".

CUSHIONS — Adjustable cushions
are available on either or both
ends of cylinder. Effective cushion
length $\frac{3}{4}$ ". Cushions are
recommended for speeds in
excess of 30 F.P.M.

INDUSTRY STANDARDS — Meets
NFPA requirements.

PRESSURE RATING — See table.

TEMPERATURE RANGE — -40°F
to 200°F ambient for standard
urethane rod seals.

BORE SIZES — 2" thru 6" (BL
Series)

SEALS — **Air Service** — "U" cup
piston — "U" cup rod packing
Hydraulic Service — "U" cup or
"O" ring and teflon on piston,

urethane or chevron rod packing.

SPEED CONTROLS — Adjustable
speed controls or cushions
available on either or both ends of
cylinder. Note: Cylinders can be
furnished with either Cushions or
Speed Controls — NOT BOTH.

CYLINDER FINISH — Black
anodized heads. Brass Tubes —
natural finish. Steel Tubes
lacquered finish.

AIR SUPPLY — To cylinder should
be clean lubricated — free from
water and dirt.

MOUNTINGS — 8 standard. Any
special.

ROD END THREADS — Standard
male and female straight thread;
plus optional male thread sizes.

PORTS — NPTF dryseal tapered
threads.

**HYDRAULIC PRESSURE RATING CHART FOR
SERIES BL CYLINDERS 4:1 FACTOR**

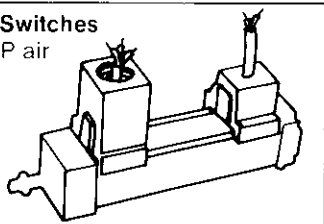
BORE DIAMETER	2"	2½"	3"	3¼"	3½"	4"	5"	6"
PRESSURE RATING	1500 PSI	1500 PSI	1500 PSI	1500 PSI	1500 PSI	1200 PSI	750 PSI	750 PSI

NOTE: Model BLS should not be operated at more than the following PSI's: 2" Bore to 3" Bore — 1000 PSI; 4" Bore — 750 PSI; 5" Bore — 500 PSI; 6" Bore — 400 PSI

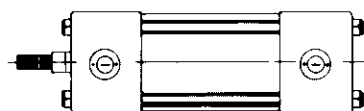
OPTIONS WE CAN OFFER AS EXTRAS ON YOUR CYLINDERS—BL SERIES

Magnetic Reed Limit Switches

Available for most AHP air
and hydraulic
cylinders.



We Can Supply Cylinders With:



- A Cushions**—See Engineering info above.
- B Speed Controls**—See engineering info above.
- C Stroke Adjustment**—Standard adjusting range to 4-inch
available all models, except cylinders with cap end.
See pages 4 and 5.

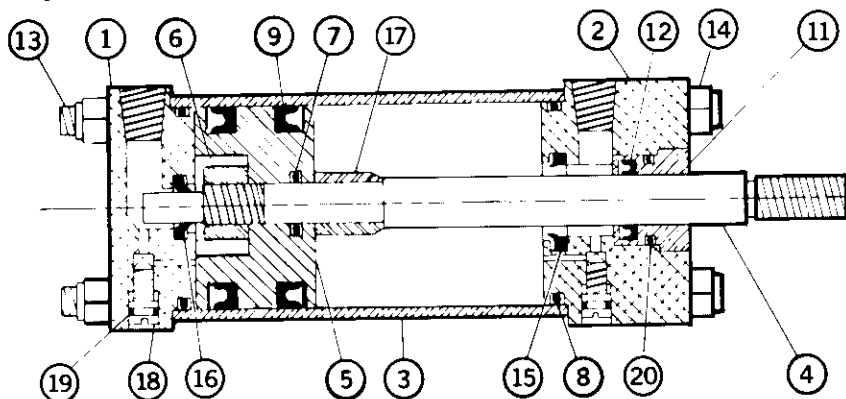
WE MANUFACTURE QUALITY PRODUCTS



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250PSI Air, 1500 PSI Hydraulic (Operating Pressure), Double Acting

Series BL Repair Parts and Ordering Information



PARTS LIST

- 1 Blind End Cover
- 2 Rod End Cover
- 3 Tube
- 4 Rod
- 5 Piston
- 6 Piston Nut
- 7 Piston Seal
- 8 Tube Seal
- 9 Piston Cups
- 11 Bearing
- 12 Rod Seal
- 13 Tie Rod
- 14 Tie Rod Nut
- 15 Rod End Check Valve
- 16 Blind End Check Valve
- 17 Rod End Cushion Nose
- 18 Cushion Control Valve
- 19 Cushion Control Valve Seal
- 20 Bearing Seal

BAKELAAR DESIGNS
Quality & Service Since 1948

When ordering repair parts specify Model, Bore, Stroke, and Serial Number

Nomenclature for Ordering Series BL Air & Hydraulic, Tie Rod Cylinders.

MODEL BLI — Trunnion Mount
MODEL BLS — Stud Mount
MODEL BLT — Tie Rod Extend
MODEL BLG — Clevis Mount
MODEL BLF — Foot Mount
MODEL BLM — Side Flush Mount
MODEL BLR — Rod End Flange
MODEL BLE — Cylinders in Tandem
MODEL BLB — Blind End Flange
MODEL BLP — Pivot Mount
MODEL BL*D — Double Extended Rod
*ADD mounting style LETTER

Add the following to basic model designations
example at right).

C for cushion both ends
CR for cushion rod end
CB for cushion blind end
SC for speed control both ends
SCR for speed control rod end
SCB for speed control blind end
D for double extended rod i.e., BLFD.
 Available with adjustable cushions or
 speed controls, not both.

When ordering specify as follows:

- "A" for air service or "H" for hydraulic service
- Model letters for cylinder type
- Cushion or speed control letters if required
- Bore diameter
- Stroke length
- Rod size if other than standard

Example:

A BLB C 2" bore x 3" stroke

Explanation:

A Air service **C** Cushion both ends **3"** Stroke
BLB Blind end flange **2"** Bore

Reasons why you should use our quality cylinders:

We have nearly 40 years of design and manufacturing experience to aid us in designing and manufacturing your cylinders and products.

We have high tech, high production, machinery to produce your cylinders (and products) at very economical prices.

Our cylinders are designed to last and last many years — no better quality available anywhere.

Our cylinders will save you many dollars by lasting longer, and not breaking down quickly as so many cheap throw-away cylinders do.

Buy our excellent high quality cylinders, and save yourself money, and a lot of trouble.

Contact our engineering department now, and we will be glad to help you!!

SHIP ME THE FOLLOWING:

Quantity _____ Type of Cylinder _____
 Cyl. Bore _____ Stroke _____
 Cyl. used for _____
 Pressure Required _____
 Other info _____
 My company makes (sells) _____
 These cylinders will be used on: _____
 Comments: _____
 My Name _____ Title _____
 Company _____
 Street _____
 City _____ State _____ Zip _____ Telephone _____



Manufacturers of:
 • Air Cylinders • Hydraulic Cylinders • Mini-Space™ Pancake Style Air & Hydraulic
 Short Stroke Cylinders • Air & Hydraulic Tooling Clamps • Air Valves
 • Mill Type Hydraulic Cylinders • Hydraulic Valves • Hydraulic Hand Pumps
 • Accumulators • Filters • Regulators • Lubricators • Positioners • Controls, etc. • Swivels
 • Shock Absorbers • Accessories • Specials

Box 159, 555 Goffle Rd., Wyckoff, NJ 07481-0159
 201-447-1589 FAX 201-447-0302

Represented by: