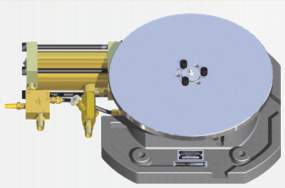
ALLENAIR®

FLUID POWER PRODUCTS

ESTABLISHED 1947

255 EAST SECOND STREET • MINEOLA, NEW YORK 11501-3502 USA
TELEPHONE: 516-747-5450
FAX # 516-747-5481
www.allenair.com

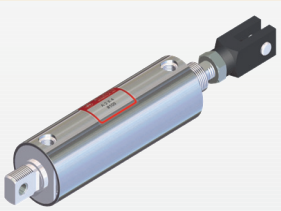
Manufacturers of



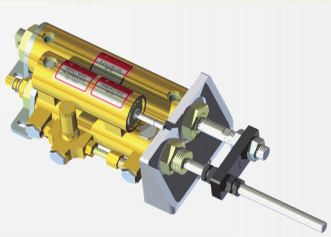
ROTARY INDEX TABLES
7" THRU 20" TOP PLATES
ACCURACY WITHIN ±.001

ALL STAINLESS STEEL CYLINDERS

VALVES
2, 3 & 4-WAY

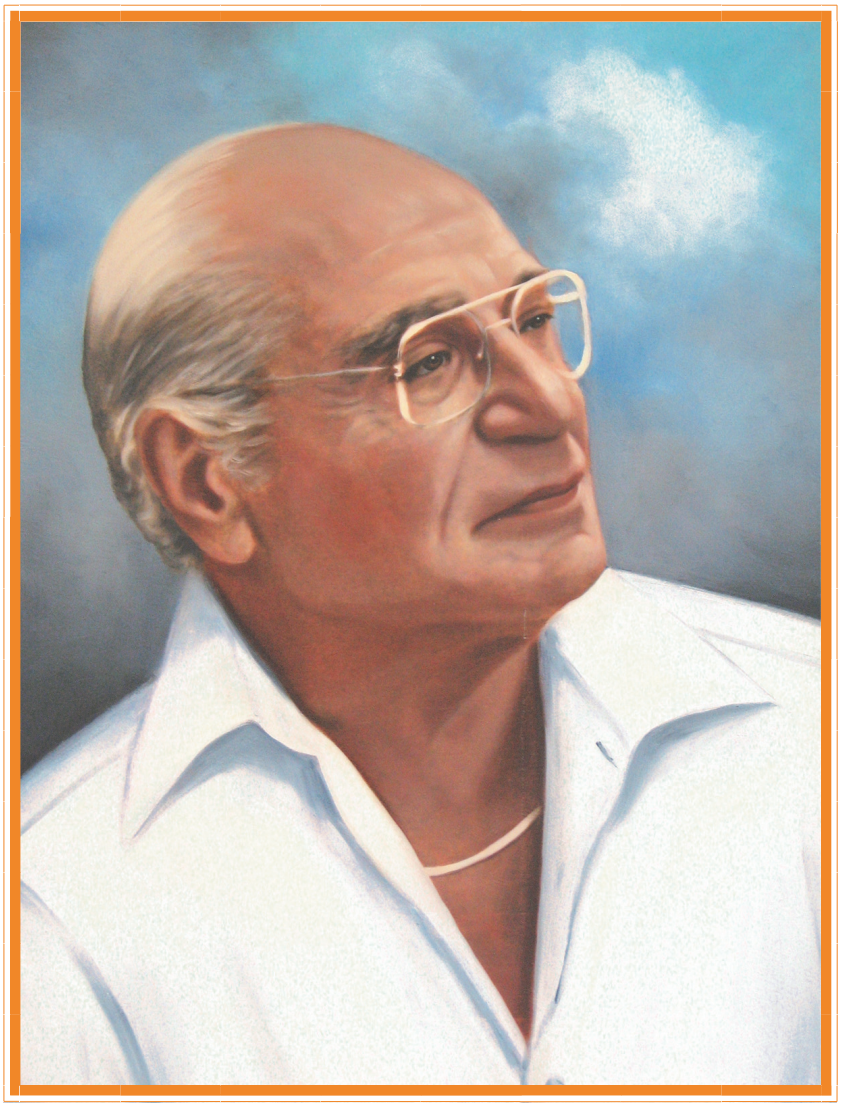


AIR & HYDRAULIC CYLINDERS
1/2" THRU 5"



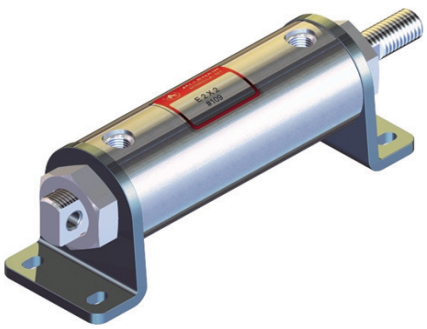
CYL-CHECKS ®
Creates Smooth, Uniform & Precise Control of Linear Motion

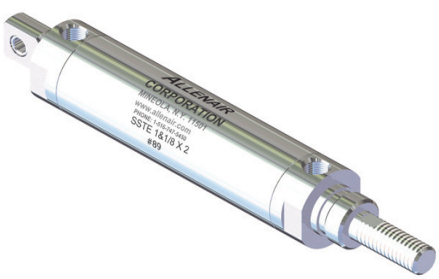
Allenair’s 200,000 square foot Mineola, N.Y. facility.

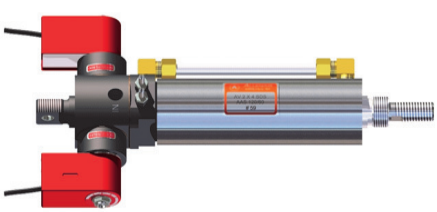


Working out of a rented basement in Brooklyn, NY, Alton K. Allen founded the A. K. Allen Co. in 1945. Starting with an old worn out lathe someone gave him and a used drill press, Alton began making parts for various companies. After acquiring an engineering degree from Columbia University, Alton used that knowledge to design a rotary index table powered pneumatically with an old hydraulic cylinder. This was the start of the Allenair Corp. He soon outgrew the basement and moved into a storefront on Ft. Hamilton Parkway, still in Brooklyn. Alton started to make air cylinders to power his rotary index tables and the rest is history. Within two years, the company needed more room and moved into a vacant factory on Meserole Ave. in Brooklyn, NY. In 1958, Alton made his final move to 255 East Second St. In Mineola, NY. Over the years, the company kept expanding to its present size of five acres under one roof. The name Allenair became synonymous with quality.

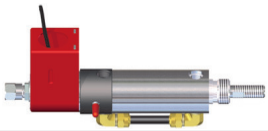
CATALOG INDEX



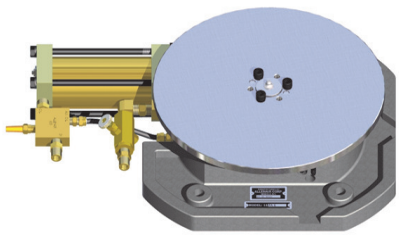




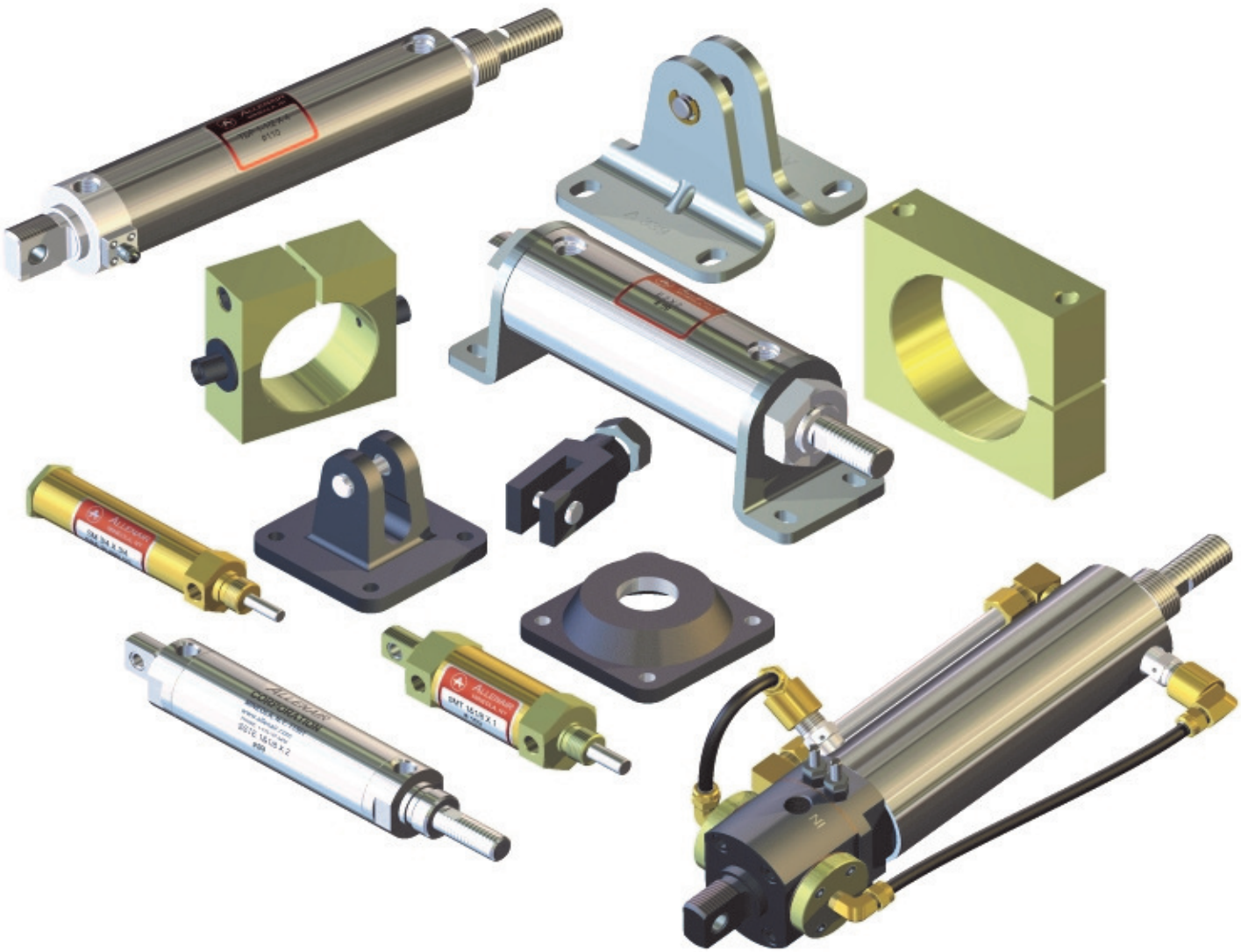
CATALOG INDEX (CONT'D)



CATALOG INDEX (CONT'D)

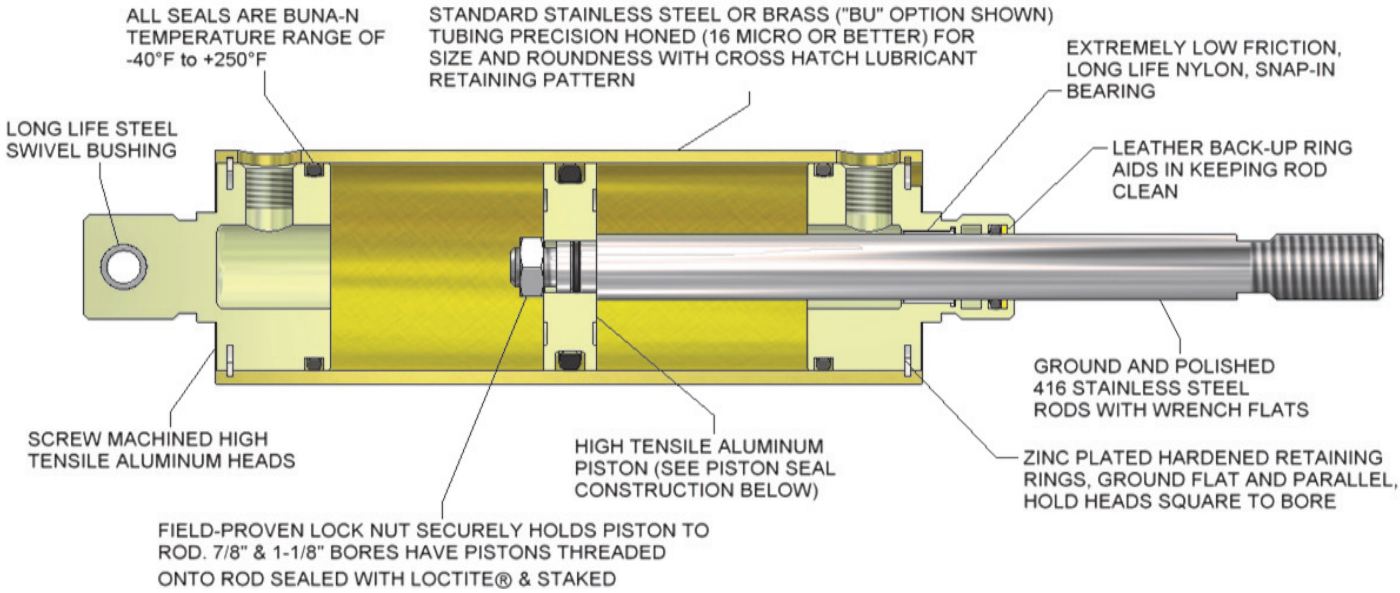


CYLINDERS



ALLENAIR Cylinders may be used in place of other Manufactures cylinders.
Please consult factory for “Drop In” or “Cross Over information”

DESIGN FEATURES & MATERIALS

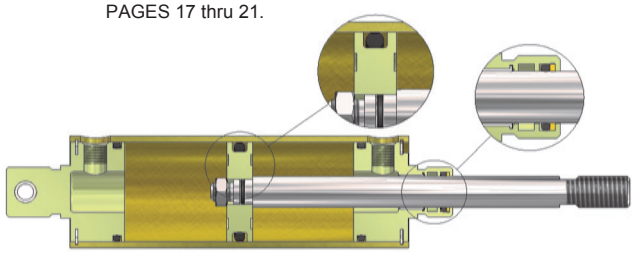


STANDARD STROKE LENGTHS: WHOLE-INCH INCREMENTS FROM 1" THROUGH 20" AND 1/2", 1-1/2", 2-1/2" & 3-1/2" SPECIAL STROKES AVAILABLE FROM 1/8" TO 130".

BASIC CONSTRUCTION (DOUBLE ACTING)

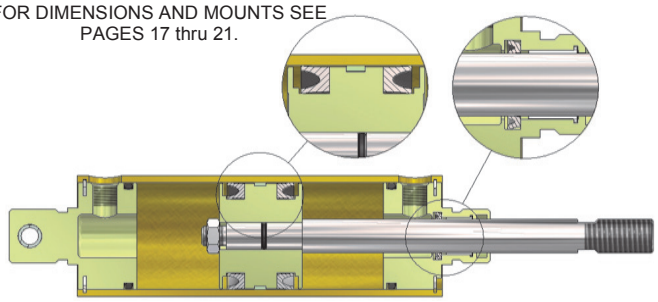
TYPE A SINGLE ENDED : All Type "A" Cylinders, with the exception of the 4" bore, are constructed using **"O"- Ring Seals.** The 4" bore uses "O"- Ring Rod Seals and "U"- Cup Piston seals. These all-purpose units are used for most pneumatic applications. Optional Double Rod Packings are recommended for heavy-duty and hydraulic applications, not available on 7/8" & 1-1/8" Bores.
Pressure Rating: 150 P.S.I. Pneumatic, 350 P.S.I. Hydraulic.
Breakaway: Approximately 5 to 8 P.S.I.
Bore Sizes Available: 7/8", 1-1/8", 1-1/2", 2", 2-1/2", 3 & 4".

FOR DIMENSIONS AND MOUNTS SEE PAGES 17 thru 21.



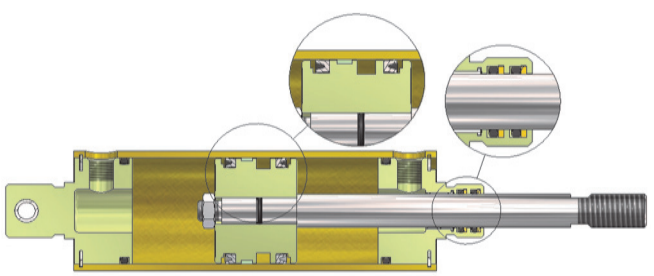
TYPE C SINGLE ENDED : Type "C" Cylinders are constructed using low friction **"U"- Cup Seals** and include a wear strip on the piston with the exception of the 4" bore (it has no wear strip). These Cylinders are primarily used for low pressure applications and where low minimum breakaway is required.
Pressure Rating: 150 P.S.I. Pneumatic only.
Breakaway: Approximately 2 to 3 P.S.I.
Bore Sizes Available: 7/8", 1-1/8", 1-1/2", 2", 2-1/2" & 3".

FOR DIMENSIONS AND MOUNTS SEE PAGES 17 thru 21.



TYPE E SINGLE ENDED : Type "E" Cylinders are constructed using **Block-Vee Seals** and include double rod seals in the front head except on the 7/8" & 1-1/8" Bores. A heavy-duty wear strip (bearing) on the piston minimizes friction and piston seal wear, and side load conditions prevents metal-to-metal contact. These Cylinders are generally used on low pressure hydraulics and where side load conditions are present.
Pressure Rating: 200 P.S.I. Pneumatic, 500 P.S.I. Hydraulic.
Breakaway: Approximately 10 to 15 P.S.I.
Bore Sizes Available: 7/8", 1-1/8", 1-1/2", 2", 2-1/2", 3", 4" & 5*.
*** 5" BORE AVAILABLE-Consult Factory for Details.**

FOR DIMENSIONS AND MOUNTS SEE PAGES 17 thru 21.



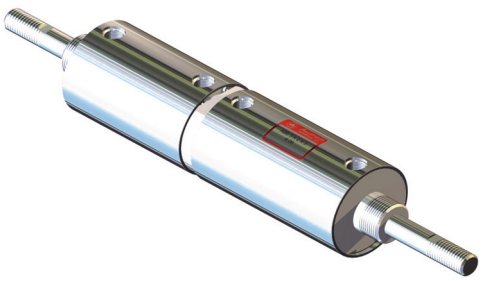
STANDARD VARIATIONS OF TYPES A, C & E

The basic construction of these cylinder variations are identical to Types “A”, “C” or “E”, except where noted.

DOUBLE ENDED: TYPES AD, CD & ED Cylinders are constructed with a common single rod, which protrudes from both ends. As one end retracts, the other extends.
Bore Sizes Available: 7/8”, 1-1/8”, 1-1/2”, 2”, 2-1/2”, 3” & 4”.
Maximum Stroke Available: 65”.
NOTE: Due to piston construction, 3/32” of stroke is lost on Type AD 1-1/2”, 2”, 2-1/2” and 3” bore sizes.

FOR DIMENSIONS AND MOUNTS SEE PAGES 17 thru 21.

BACK-TO-BACK: TYPES ABB, CBB & EBB Units consist of two separate single ended Cylinders, joined together by a common rear head. Their strokes can be either identical or different. By fastening one rod end to a fixed object, these units can perform as 3 and 4 position Cylinders.
Bore Sizes Available: 7/8”, 1-1/8”, 1-1/2”, 2”, 2-1/2”, 3” & 4”.
NOTE: Options must be indicated for each stroke.

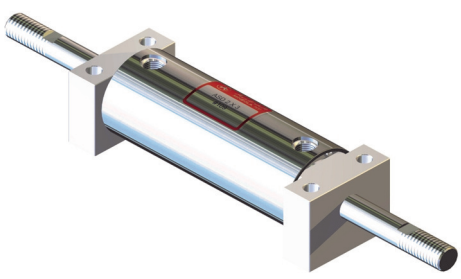


FOR DIMENSIONS AND MOUNTS SEE PAGES 17 thru 21.

INTEGRAL REAR SWIVEL: TYPES AN, CN & EN Cylinders are constructed with a female clevis end, including clevis pin.
Bore Sizes Available: 7/8”, 1-1/8”, 1-1/2”, 2”, 2-1/2”, 3” & 4”.

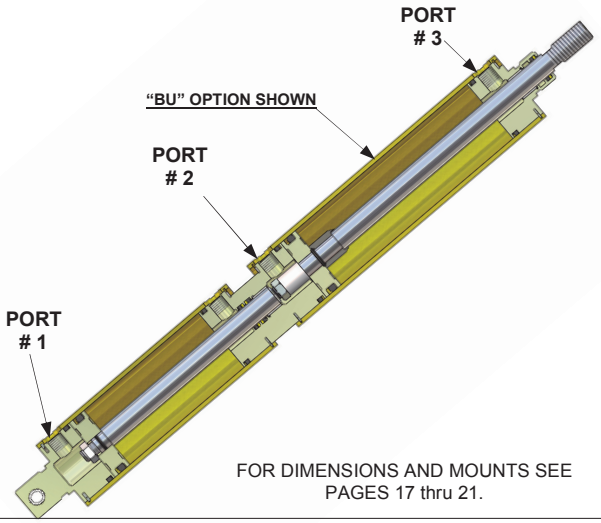
FOR DIMENSIONS AND MOUNTS SEE PAGES 17 thru 21.

INTEGRAL SQUARE HEAD:
TYPES AS, CS & ES
TYPES ASD, CSD & ESD
Units incorporate the use of square heads, thus eliminating the need for separate Foot Mounts.
Bore Sizes Available: 7/8”, 1-1/8”, 1-1/2” & 2”.
NOTE: Due to piston construction, 3/32” of stroke is lost on Type ASD 1-1/2” and 2” bore sizes.



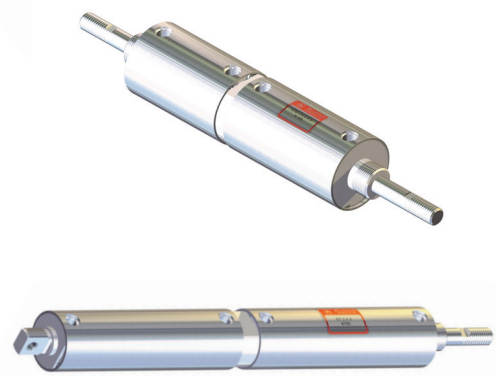
FOR DIMENSIONS AND MOUNTS SEE PAGES 17 thru 21.

THREE POSITION:
TYPES: AP, CP & EP SINGLE ENDED
TYPES: APD, CPD & EPD DOUBLE ENDED
Cylinders feature two separate piston rod assemblies which provide three definite and positive positions. Any combination of first stroke and total stroke is available. **Both rods fully retracted are first position.**
Port #1 Extends rod first stroke to second position.
Port #2 Extends rod full stroke to third position.
Port #3 Retracts both rods to first position.
When ordering, second stroke must be specified as total stroke, as second Cylinder rod moves through both strokes. For example, if first stroke required is 4" and second stroke is 2", order should read: **AP- 3 X 4 X 6.** 6" being the total stroke (4+2).
Bore Sizes Available: 1-1/2", 2", 2-1/2", 3" & 4".
NOTE: Options must be indicated for each stroke.



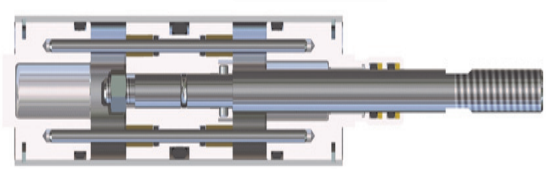
FOR DIMENSIONS AND MOUNTS SEE PAGES 17 thru 21.

TANDEM:
TYPE: ET SINGLE ENDED
TYPE: ETD DOUBLE ENDED
The basic construction of these Cylinders is identical to Type "E" and feature two Cylinders in tandem having two pistons mounted on one common rod. Pneumatic operation with hydraulic control can be obtained by operating the rear Cylinder pneumatically and filling the front Cylinder with oil and piping its ports in series using a flow control valve. The output force of a single Cylinder can be almost doubled using a Tandem Cylinder and piping both rear ports together and both front ports together, which will apply the working pressure to both Cylinders at the same time. This is particularly useful when space limitations preclude the use of large bore Cylinders, and the force required is greater than that supplied by smaller bore units.
Bore Sizes Available: 1-1/2", 2", 2-1/2", 3" & 4".
Maximum Stroke Available:
Type "ET" : 60".
Type "ETD": 40".



FOR DIMENSIONS AND MOUNTS SEE PAGES 17 thru 21.

NON-ROTATING:
TYPE: AR, ARD
The Piston Rod Assembly of conventional double acting air and hydraulic cylinder will rotate a few degrees with each operation of the cylinder. Where this is objectionable and where the piston rod cannot be guided externally, A NON-ROTATING CYLINDER should be used.
ALLENAIR TYPES "**AR**" and "**ARD**" CYLINDERS are built with two (2) guide rods extending between cylinder heads and thru piston guide rod bearings. This prevents piston rod rotation completely. Service life of these cylinders is excellent, in no way different from our conventional construction. All other construction features are the same as our standard cylinders.
BORE SIZES: 2", 3" & 4" STROKES: Same as for other Allenair Cylinders up to 20" Maximum.



FOR DIMENSIONS AND MOUNTS SEE PAGES 17 thru 21.

ORDERING PROCEDURE

TYPE	BORE SIZE	STROKE	OPTIONS
SEE PAGES 9, 10, 11 & 12	SPECIFY	SPECIFY	SEE PAGES 13 thru 16

EXAMPLE: **E 3 x 4 BC BU HTP IB OS RG**

BC..... Cushion Both Ends
BU..... Brass Tube
HTP..... High Temperature (Viton) Seals
IB ..... AB Accessory Pin installed in both ends
OS ..... Oversized Rod
RG ..... Outboard Rod Guide installed

NOTE: When ordering back-to-back and three position cylinders, options must be specified for each cylinder. All mounts are ordered separately. See pages 20 & 21.

THREE POSITION:
TYPES: AP, CP & EP SINGLE ENDED
TYPES: APD, CPD & EPD DOUBLE ENDED
Cylinders feature two separate piston rod assemblies which provide three definite and positive positions. Any combination of first stroke and total stroke is available. **Both rods fully retracted are first position.**
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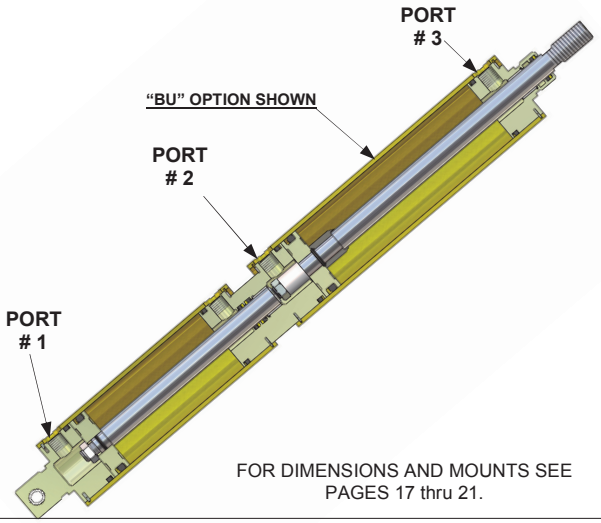
Bore Sizes Available: 1-1/2", 2", 2-1/2", 3" & 4".
NOTE: Options must be indicated for each stroke.



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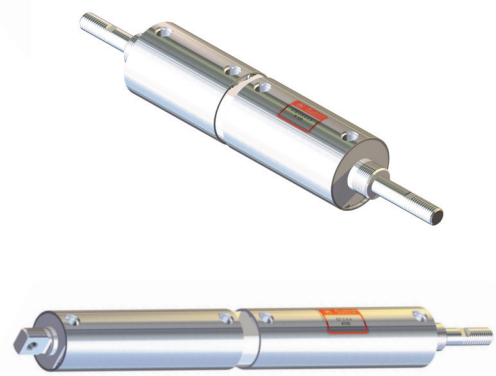
Type "ETD": 40".



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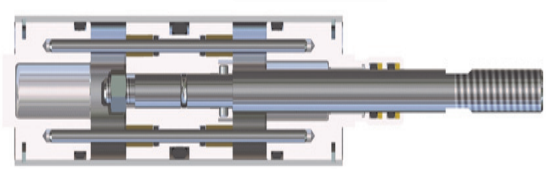

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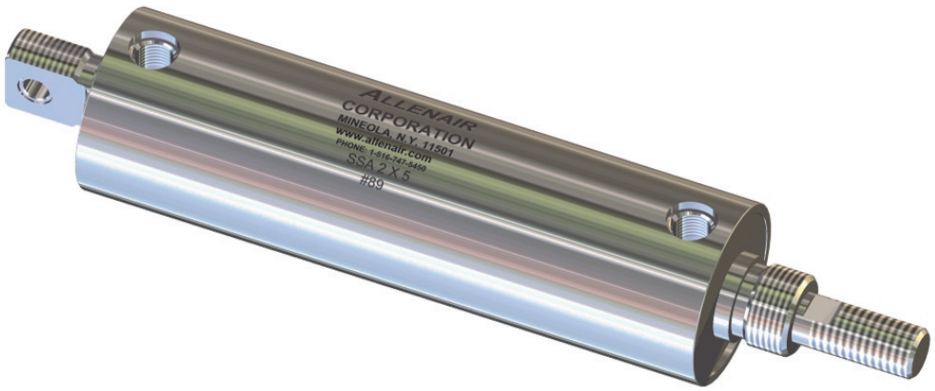
TYPE	BORE SIZE	STROKE	OPTIONS
SEE PAGES 9, 10, 11 & 12	SPECIFY	SPECIFY	SEE PAGES 13 thru 16

EXAMPLE: **E 3 x 4 BC BU HTP IB OS RG**

BC..... Cushion Both Ends
BU..... Brass Tube
HTP..... High Temperature (Viton) Seals
IB ..... AB Accessory Pin installed in both ends
OS ..... Oversized Rod
RG ..... Outboard Rod Guide installed

NOTE: When ordering back-to-back and three position cylinders, options must be specified for each cylinder. All mounts are ordered separately. See pages 20 & 21.

ALL STAINLESS STEEL CYLINDERS



DESIGNED TO SOLVE CORROSION & ENVIRONMENTAL PROBLEMS
BY MANUFACTURING ALL METAL PARTS FROM 300 SERIES STAINLESS STEEL
TYPES : SSA, SSE, SSAN, SSEN, SSAP, SSEP, SSABB, SSEBB, SSET SINGLE ENDED
TYPES : SSAD, SSED, SSAPD, SSEPD, SSETD DOUBLE ENDED

ALL Cylinder parts are manufactured from 300 series stainless steel. Otherwise, the dimensions are identical in construction to our standard Types "A", "AD", "E" & "ED" Cylinders. Units are particularly recommended for use in the food and dairy industries and in highly corrosive atmospheres, as found in the marine and chemical field.

Maximum Stroke Available: 130"
Bore Sizes Available: 7/8", 1-1/8", 1-1/2", 2", 2-1/2", 3" & 4".
For Stainless Steel Cylinders, Mounts and Nuts Use Prefix **SS**.
FOR DIMENSIONS AND MOUNTS SEE PAGES 17 thru 21.

REQUEST A COPY OF CATALOG NUMBER SS200 COVERING OUR COMPLETE LINE OF 300 SERIES STAINLESS STEEL CYLINDERS.

CUSHIONS
SPECIFY:
FC FRONT CUSHION
RC REAR CUSHION
BC CUSHION BOTH ENDS

SPRING RETURN
SPECIFY:
SRF INDICATES SPRING IN FRONT END (AIR PUSH)
ROD NORMALLY RETRACTED

SRR INDICATES SPRING IN REAR END (AIR PULL)
ROD NORMALLY EXTENDED

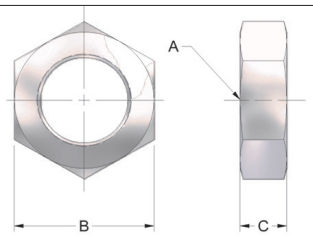
HTP HIGH TEMPERATURE SEALS

MOUNTING BRACKETS & DIMENSIONS

CYL. BORE SIZES	FOOT MOUNT		FLANGE MOUNT		ROD CLEVIS, NUT & PIN		ROD NUT ONLY		SWIVEL BRACKET & PIN	TRUNNION (BU OPTION)	BLOCK MOUNT (BU OPTION)	MOUNTING NUTS	
	STD	OS** (Front Only)	STD	OS** (Front Only)	STD	OS	STD	OS				STD	OS** (Front Only)
7/8"	A-132	X	A-129	X	A-145	X	A-126	X	A-139	T-7/8	BM-7/8	A-114	A-114
1-1/8"	A-132 *	A-132-OS	A-129 *	A-129-OS	A-145	A-1545	A-126	A-1526	A-139	T-1	BM-1	A-114*	A-114-OS*
1-1/2"	A-232	A-232	A-229	A-229	A-1545	A-245	A-1526	A-226	A-239	T-1.5	BM-1-1/2	A-214	A-214
2"	A-232	A-232-OS	A-229	A-229-OS	A-245	A-345	A-226	A-326	A-239	T-2	BM-2	A-214	A-314
2-1/2"	A-332	A-332-OS	A-329	A-329-OS	A-345	A-445	A-326	A-426	A-339	T-2.5	X	A-314	A-314-OS
3"	A-332	A-332-OS	A-329	A-329-OS	A-345	A-445	A-326	A-426	A-339	T-3	X	A-314	A-314-OS
4"	A-432	A-432-OS	A-429	A-429-OS	A-445	A-445-OS	A-426	A-526	A-439	T-4	X	A-414	A-414-OS

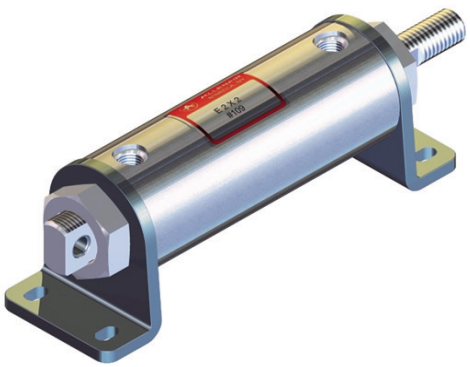
*1-1/8" bore Type "C" Cylinders require OS Mount or Mounting Nut on front and standard on rear.
**All Single Ended OS Cylinders take standard Mounts or Mounting Nuts on rear end.

MOUNTING NUTS
Mounting Nuts are supplied only with Flange or Foot Mounts and are included in the price of those Mounts.
However, they may be purchased as a separate item.

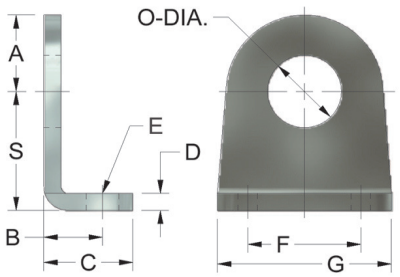


PART No.	A	B	C
A-114	3/4-16	1-1/16	3/8
A-114-OS	7/8-14	1-1/4	25/64
A-214	1"-14	1-1/2	1/2
A-314	1-3/8-12	1-3/4	5/8
A-314-OS	1-1/2-12	1-13/16	5/8
A-414	1-3/4-12	2-1/4	3/4
A-414-OS	2-1/4-12	3"	1"

FOOT MOUNT

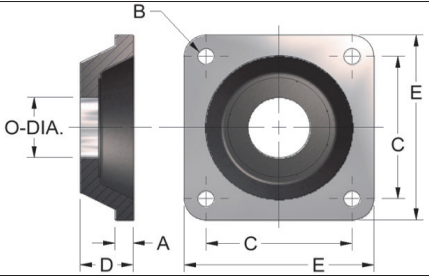


MOUNTING BRACKET DIMENSIONS



DIM.	PART NUMBERS							
	A-132		A-232		A-332		A-432	
	STD	OS	STD	OS	STD	OS	STD	OS
A	11/16	11/16	1-1/8	1-1/8	1-3/8	1-3/8	1-7/8	1-7/8
B	7/8	7/8	7/8	7/8	1-1/4	1-1/4	1-3/4	1-3/4
C	1-3/8	1-3/8	1-9/32	1-9/32	1-29/32	1-29/32	2-17/32	2-17/32
D	3/16	3/16	1/4	1/4	5/16	5/16	1/2	1/2
E	9/32	9/32	9/32	9/32	13/32	13/32	15/32	15/32
F	1-11/16	1-11/16	1-5/8	1-5/8	2-1/4	2-1/4	3-1/4	3-1/4
G	2-1/2	2-1/2	2-1/2	2-1/2	3-1/2	3-1/2	5"	5"
O	3/4	7/8	1-1/16	1-3/8	1-3/8	1-1/2	1-3/4	2-1/4
S	1-9/32	1-9/32	1-3/4	1-3/4	2-3/8	2-3/8	3-3/16	3-3/16

FLANGE MOUNT
Front or Rear



- **NT** Option suggested
- **J2** Option suggested provides Tang flush with flange mounting surface.

DIM.	PART NUMBERS							
	A-129		A-229		A-329		A-429	
	STD	OS	STD	OS	STD	OS	STD	OS
A	9/32	9/32	11/32	11/32	13/32	13/32	7/16	1 29/32
B	9/32	9/32	9/32	9/32	13/32	13/32	15/32	15/32
C	2"	2"	2-1/2	2-1/2	3-3/8	3-3/8	4"	4"
D	5/8	5/8	7/8	7/8	1"	1"	1 1/8	1-29/32
E	2-1/2	2-1/2	3-1/4	3-1/4	4-1/2	4-1/2	5-1/4	5-1/4
O	3/4	7/8	1-1/16	1-3/8	1-3/8	1-1/2	1-3/4	2-1/4

FAIL SAFE • SPRING RETURN - SINGLE ACTING
Available in all models except Types "ET" & "ETD". MAXIMUM STROKE AVAILABLE IS 10". Cylinders can be supplied with the rods either normally retracted or extended by the spring. On SRF models, Front Head Rod Seals are normally not provided, but can be if requested.

SPECIFY:
SRF INDICATES SPRING IN FRONT END (AIR PUSH) ROD NORMALLY RETRACTED
SRR INDICATES SPRING IN REAR END (AIR PULL) ROD NORMALLY EXTENDED
SRFW INDICATES OPTIONAL STRONGER SPRING (For heavy-duty applications only.)
SRRW INDICATES OPTIONAL STRONGER SPRING (For heavy-duty applications only.)

APPROXIMATE SPRING FORCES IN POUNDS

Bore Sizes	Piston Rod	AT REST		FULL STROKE	
		Std. Spring	Stronger Spring	Std. Spring	Stronger Spring
7/8"	STD	9	X	24	X
1-1/8"	STD	17	29	40	58
	*OS	19	30	45	60
1-1/2"	STD	17	30	41	58
	*OS	18	52	45	100
2"	STD	17	52	42	100
	*OS	21	77	47	125
2-1/2"	STD	25	77	55	125
	*OS	30	X	75	X
3"	STD	23	77	50	125
	*OS	31	X	73	X
4"	STD	57	X	123	X
	*OS	75	X	175	X

***NOTE Applies to SRF and SRFW models only**

LAST 1/2 INCH OF STROKE IS EFFECTIVELY CUSHIONED TO REDUCE SHOCK & NOISE.
FULL REVERSE FLOW PROVIDED. CYLINDER LENGTH NOT AFFECTED.

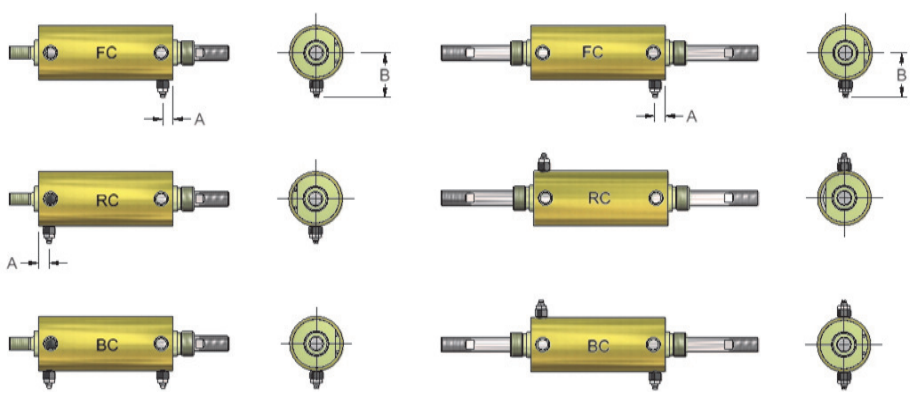
CUSHIONS
SPECIFY:
FC (FRONT CUSHION)
RC (REAR CUSHION)
BC (CUSHION BOTH ENDS)

DIM.	BORE SIZES				
	1-1/2"	2"	2-1/2"	3"	4"
A	1/2	7/16	1/2	1/2	13/16
B	1-3/4	2"	2-5/16	2-5/8	3-1/16

NOTES:
1) Dim. B cushion screw shown fully closed.
2) Available on Spring Return Cylinders Opposite the spring side only.
3) Non-Standard Cushion Adjusting Screw locations available at slight additional cost.

CUSHION ADJUSTING SCREW LOCATIONS

SINGLE ENDED **DOUBLE ENDED**



AVAILABILITY AND TYPES

CUSHION LOCATION	CYLINDER TYPES	BORE SIZES									
		7/8"	1-1/8"	1-1/8" OS	1-1/2"	1-1/2" OS	2"	2" OS	2-1/2"	2-1/2" OS	3" thru 4"-OS
FRONT	ALL TYPES (Except those below)	NA	FX	NA	ADJ	FX	ADJ	FX	ADJ	ADJ	ADJ
	TYPES AN, CN, & EN ONLY	NA	FX	NA	FX	NA	ADJ	FX	ADJ	ADJ	ADJ
REAR	ALL TYPES (Except those below)	NA	FX	FX	ADJ	FX	ADJ	ADJ	ADJ	ADJ	ADJ
	TYPES AN, CN, & EN ONLY	NA	FX	FX	FX	NA	ADJ	ADJ	ADJ	ADJ	ADJ
	TYPE CD ONLY	NA	FX	NA	ADJ	NA	NA	NA	NA	NA	ADJ

NOTES:
1) Fixed Cushions are INTERNALLY CONSTRUCTED.
2) Tandem Cylinders - Cushions installed on Rear Cylinder Only.
3) Three Position Cylinders - Rear Cushion of Front Cylinder not available.

ADJ = ADJUSTABLE CUSHION AVAILABLE
FX = FIXED CUSHION ONLY AVAILABLE
NA = CUSHION NOT AVAILABLE

CYLINDER OPTIONS

DOUBLE ROD PACKING
SPECIFY: **DRP** Two sets of rod seals in "A" Type cylinders - except 7/8" and 1-1/8" bore sizes.

FAIL SAFE
SPECIFY: **FS** Spring installed in front of cylinder to retract rod should there be an air failure.
Dimensions are those of a Single Acting Cylinder.

HIGH TEMPERATURE SEALS
SPECIFY: **HTP** Fluorocarbon compound (Viton) seals, temperature range of +10°F to +350°F .

HOLLOW RODS
SPECIFY: **M** Hole thru rod available up to 12" stroke.

ROD DIA.	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"
HOLE SIZE	3/16"	1/4"	5/16"	7/16"	9/16"	5/8"

NO TANG
SPECIFY: **NT** Cylinders available without Tang section (covered by dimension "E" minus "N" Page 17).

OVERSIZED ROD
SPECIFY: **OS** Larger diameter rod for column loading. Not available on Type ETD 1-1/2" bore.

BORE SIZE	7/8"	1-1/8"	1-1/2"	2"	2-1/2"	3"	4"
ROD DIA.	N/A	1/2"	5/8"	3/4"	1"	1"	1-1/4"

LOW FRICTION CYLINDER
SPECIFY: **LF** Available in "A" Type cylinders only. For extremely low friction at medium to high pressure.

MAGNETIC PISTON
SPECIFY: **RM** To signal Hall Effect or Reed switches. Available on Types "A", "E" & "SM" 1-1/8" cylinders.

ROD WIPER
SPECIFY: **WR** Teflon wiper replaces the standard leather back-up ring in Types "A" "E" cylinders only.

POLYURETHANE BUMPERS
SPECIFY: **PUBF**
PUBR
PUBB

For use on high speed Cylinder applications to reduce shock and noise where standard cushions cannot be used. Made of 1/2" thick Polyurethane and press fit between the head and piston

PUBF BUMPER INSTALLED IN FRONT • PUBR BUMPER INSTALLED IN REAR
PUBB BUMPER INSTALLED BOTH ENDS
Available on all Cylinders and Bore sizes except Spring Return Cylinders and Cylinders having Accessory Pins, Bleeder Valves or Cushions. Adds 1/2" of length for each bumper.

ACCESSORIES: For accessories used with Allenair Cylinders see pages 49 - 52.

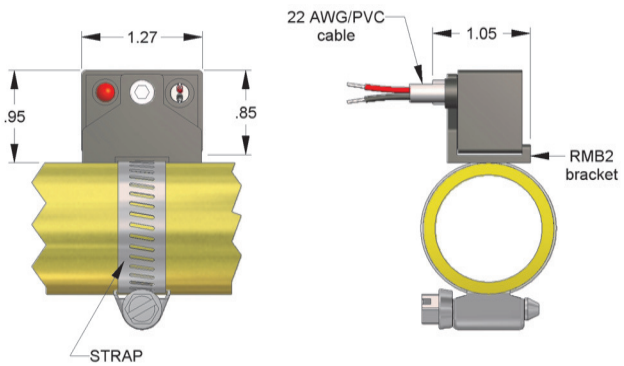
HALL EFFECT SWITCHES (CSA "NRTL/C" Listed):

ALLENAIR Hall Effect switches are designed to be used with our type "A" & "E" 1-1/8" thru 4" bore cylinders. The cylinders must be ordered with the "RM" option (adds 1" O.A.L. to "A" type). All switches have an LED indicator light, nine (9) foot leads, a mounting bracket P/N RMB2 and an operating temperature range of - 22°F to +176°F.

TECHNICAL DATA						
MODEL	FUNCTION	SWITCHING VOLTAGE	SWITCHING CURRENT	SWITCHING POWER	SWITCHING SPEED	VOLTAGE DROP
HO1	NORMALLY OPEN PNP Output	6-24/DC	1 Amp max.	24 watts max.	1.5 µs operate 0.5 µs release	0.5 Volts
HO2	NORMALLY OPEN NPN Output	6-24/DC	1 Amp max.	24 watts max.	1.5 µs operate 0.5 µs release	0.5 Volts
HO3	NORMALLY OPEN TRIAC output	12-24-50/60	0.6 Amp max. 5 Amp inrush	15 watts max.	1.5 µs operate 0.5 µs release	1 Volt
HO4	NORMALLY OPEN TRIAC output	120-50/60	0.6 Amp max. 5 Amp inrush	72 watts max.	1.5 µs operate 0.5 µs release	1 Volt

NOTES:
1) **PNP** output is Sourcing
2) **NPN** output is Sinking
All models require a mounting strap purchased as a separate item based on the cylinder bore size.

CYLINDER BORE SIZE	STRAP PART NO.
1-1/8" & 1-1/2"	RMS1
2" & 2-1/2"	RMS2
3"	RMS3
4"	RMS4



REED SWITCHES (CSA "NRTL/C" Listed)

ALLENAIR Reed switches are designed to be used with our "A" & "E" type 1-1/8" thru 4" bore cylinders. Cylinders must be ordered with the "RM" option (adds 1" O.A.L. to "A" type). All switches have nine (9) foot hook up cable. Operating temperature range is -22°F to +176°F. Models R02, R04 and R05 have an LED indicator light. Models R02, R03, R04 and R05 have MOV surge suppression

TECHNICAL DATA						
MODEL	FUNCTION	SWITCHING VOLTAGE	SWITCHING CURRENT	SWITCHING POWER	SWITCHING SPEED	VOLTAGE DROP
RO1	NORMALLY OPEN SPST	0-240/DC 0-240-50/60	1 Amp max.	30 watts max.	0.6 ms operate 0.05 ms release	0 Volts
RO2	NORMALLY OPEN SPST	5-240/DC 5-240-50/60	1 Amp max. .005 Amp min.	30 watts max.	0.6 ms operate 0.05 ms release	3 Volts
RO3	NORMALLY OPEN TRIAC output	10-240-50/60	4 Amp max. 50 Amp Inrush	100 watts max.	0.6 ms operate 0.05 ms release	1 Volt
RO4	NORMALLY OPEN TRIAC output	24-240-50/60	4 Amp max. 50 Amp Inrush 0.005 Amp min.	100 watts max.	0.6 ms operate 0.05 ms release	1 Volt
RO5	NORMALLY OPEN SPST	5-120/DC 5-120-50/60	0.5 Amp max. 0.005 Amp min.	10 watts max.	0.5 ms operate 0.1 ms release	3.5 Volts

Models R01 - R04 include mounting bracket P/N RMB2.
Order mounting strap based on cylinder bore size as shown below.

CYLINDER BORE SIZE	1-1/8" & 1-1/2"	2" & 2-1/2"	3"	4"
STRAP PART NO.	RMS1	RMS2	RMS3	RMS4

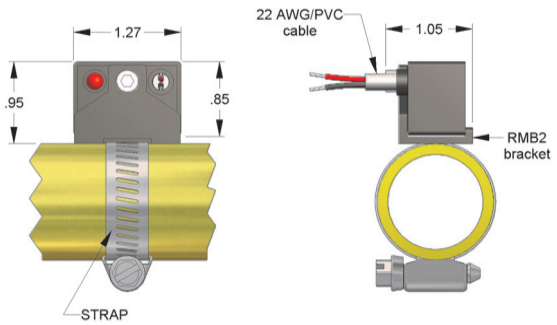
Model R05 is supplied with a universal mounting bracket and strap covering all bore sizes (1-1/8" thru 4") P/N RMB1

STANDARD OPTIONS FOR ALL BORE SIZES EXCEPT WHERE NOTED, AVAILABLE AT EXTRA COST.

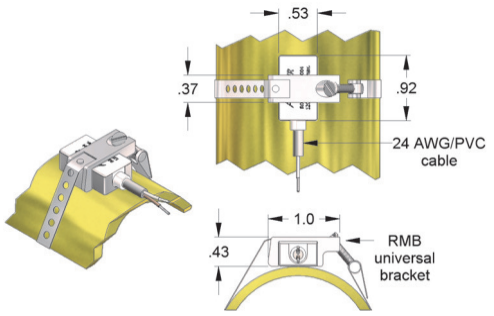
CYLINDER OPTIONS

REED SWITCHES

Models R01 - R04



Model R05



MODIFICATIONS

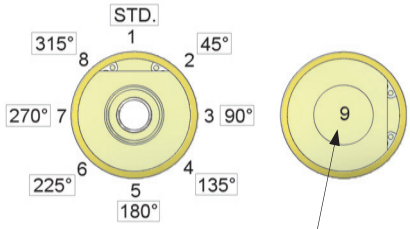
RODS:	SPECIFY
Non-Standard Rod Extensions (“H” Dim.)	Length Required
Non-Standard Rod Threads (“CC” Dim.)	Size Required
Non-Standard Rod Thread Length (“J” Dim.)	Length Required
Female Threads In Rod	Size & Depth Required
No Threads on Rod	No Threads
Complete Special Rod End	Print Required
Non-Standard Wrench Flats	Location & Size
Special Rod Material	Material Required

HEADS:

- Non-Standard Port Location (s)
- Non-Standard Cushion Screw Location (s)
- Extra Ports
- Non-Standard Hole In Tang

NOTE: The Port Sizes shown in the dimension drawings are the largest available.

STANDARD & OPTIONAL PORT LOCATIONS



ROD SIDE **REAR**

“NT” SHOWN

STANDARD & OPTIONAL PORT LOCATIONS

To determine port and option locations, we will always look at the front of the cylinder (Rod Side) with the tail section in the vertical plane, Square head units will be sitting on the base of the heads, and No Tail units will have the ports on the top at position #1. (Position #1 is standard) Position #9 is in the center of the rear head.

There are eight possible positions for ports and options, all others are special and will be treated as special units.

EXAMPLE: A 1-1/2 X 6 **BC3 FP7**

BC3 = Cushions Front & Rear at Position 3
FP7 = Front Port at Position 7
Rear Port remains at standard position.

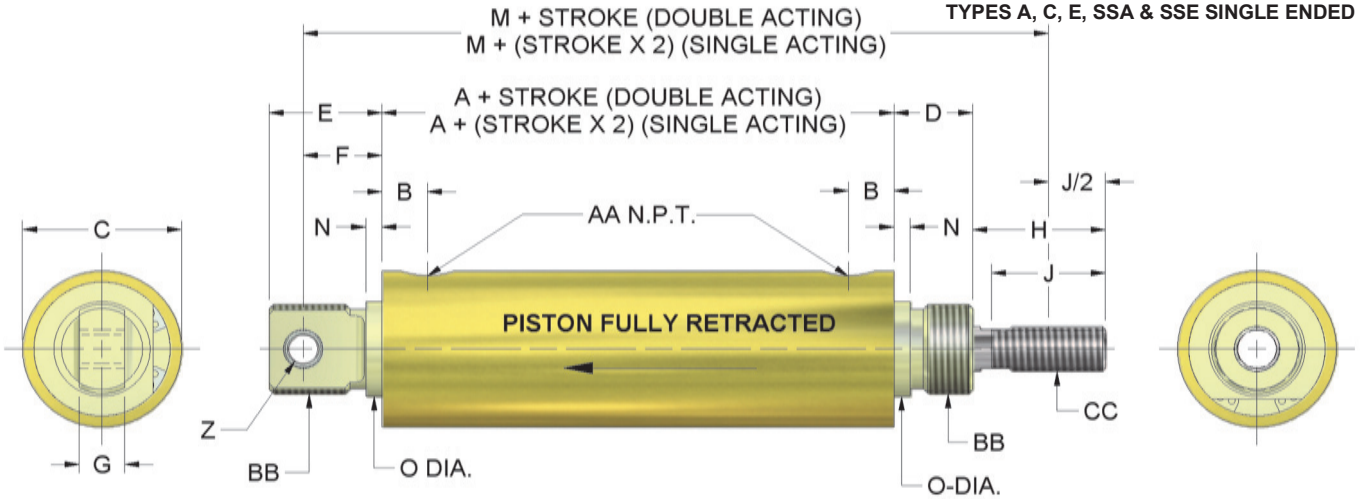
LISTED BELOW ARE SPECIAL CODES WE USE WHENEVER A SPECIAL CYLINDER IS ORDERED.
NOT ALL CODES ARE LISTED - ONLY THE MOST COMMON

CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
B	Sp. “H” Dimension	G	No Rod Threads	L	303 Stainless Steel Rod
BU	Brass Tube	GB	No Rod Threads Both Ends	LF	Low Friction Cylinder
C	Sp. “J” Dimension	GF	No Rod Threads Front End	M	Hollow Rod
CB	Sp. “H” & “J” Dimensions	GR	No Rod Threads Rear End	NT	NoTang
CH	Sp. “H” & “J” For Cyl-Check	H	Sp. Per Customers Drawing	Q	Stainless Steel Snap Ring
CS	Sp. Per Customers Specs.	HTP	Hi-Temp. Packings	RB	Bleeder Valve Both Ends
D	Sp. “CC” Dimension	IB	“AB” Pin Both Ends	RF	Bleeder Valve Front End
DRP	Double Rod Packing	IF	“AB” Pin Front End	RM	Magnet On Piston
EPF	Extra port in Front	IR	“AB” Pin Rear End	RR	Bleeder Valve Rear End
EPR	Extra port in Rear	J	Special Tail	RG	Sp. “H” For Rod Guide
EPB	Extra port Both Ends	J2	Flange Mount Tail	U	Steel Tube
F	Non-standard Port Location	K	Female Thread In Rod	W	Stronger Spring
FS	Fail Safe W/Spring In Front	KR	Sp. “H” & “J” For K & KR Kits	WR	Rod Wiper

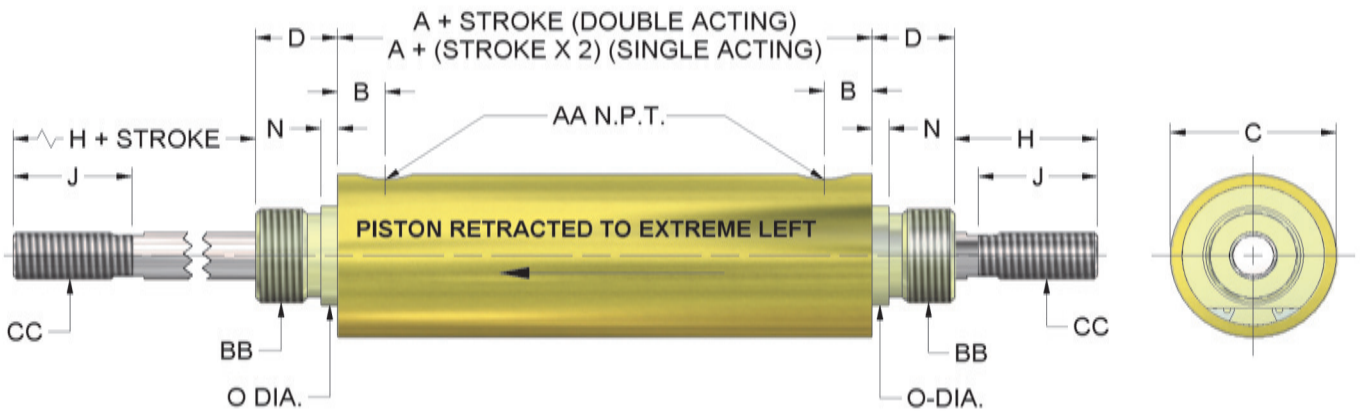
MATERIALS: Special seal compounds are available for a wide range of fluid media and environments. Tubes, Heads, Pistons and Rods can be supplied plated, hardcoated or in other materials. Please consult the factory for special requirements, stating quantity required.

SPECIAL DESIGNS: Many times Allenair is able to change the standard configuration of our Cylinders to meet Customer’s special requirements. A print from the Customer is needed so we can evaluate and properly quote such specials.
PLEASE CONSULT FACTORY ON THE ABOVE SPECIALS STATING QUANTITIES REQUIRED.

TYPES A, C, E, SSA & SSE SINGLE ENDED



TYPES AD, CD, ED, SSAD & SSED DOUBLE ENDED

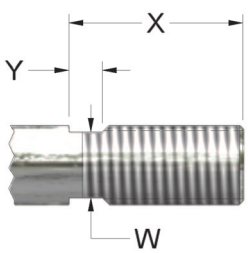


CYL. BORE SIZES	A		B	C	D		E	F	G	H	J	M				N	O		Z
	TYPE A	TYPE C & E			Std	OS (Front Only)						TYPE A		TYPE C & E			Std	OS (Front only)	
												Std	OS	Std	OS				
7/8"	2-1/16	3-1/16	3/8	♦1-1/16	5/8	X	1"	11/16	3/8	1"	7/8	3-15/16	X	4-15/16	X	1/8	3/4	X	1/4
1-1/8"	2-1/16	3-1/16	3/8	♦1-5/16	5/8	5/8	1"	11/16	3/8	1"**	7/8**	3-15/16	4-1/8	4-15/16	5-1/8	1/8	3/4***	7/8	1/4
1-1/2"	2-5/8	3-5/8	1/2	♦1-11/16	7/8	7/8	1-1/4	7/8	1/2	1-7/16	1-1/4	5-3/16	5-3/16	6-3/16	6-3/16	3/16	1-1/16	1-1/16	5/16
2"	2-5/8	3-5/8	1/2	♦2-3/16	7/8	7/8	1-1/4	7/8	1/2	1-7/16	1-1/4	5-3/16	5-3/16	6-3/16	6-3/16	3/16	1-1/16	1-3/8	5/16
2-1/2"	2-7/8	3-7/8	9/16	♦2-11/16	1"	1"	2"	1-3/8	5/8	1-11/16	1-1/2	6-3/16	6-3/16	7-3/16	7-3/16	1/4	1-3/8	1-1/2	7/16
3"	2-7/8	3-7/8	9/16	♦3-3/16	1"	1"	2"	1-3/8	5/8	1-11/16	1-1/2	6-3/16	6-3/16	7-3/16	7-3/16	1/4	1-3/8	1-1/2	7/16
4"	*4-7/8	*4-7/8	13/16	4-3/8	1-1/8	1-7/8	2-3/16	1-7/16	3/4	2-1/4	1-7/8	9-1/4	10"	9-1/4	10"	3/16	1-3/4	2-1/4	1/2
5"	4-7/8	4-7/8	13/16	5-3/8	1-7/8	N/A	1-7/8	N/A	N/A	2-1/4	1-7/8	N/A	N/A	N/A	N/A	3/16	2-1/4	N/A	N/A

CYL. BORE SIZES	AA	BB		CC		ROD DIA.	
		Std	OS (Front Only)	Std	OS	Std	OS
7/8"	1/8	3/4-16	X	3/8-16	X	3/8	X
1-1/8"	1/8	3/4-16***	7/8-14	3/8-16	1/2-13	3/8	1/2
1-1/2"	1/4	1"-14	1"-14	1/2-13	5/8-11	1/2	5/8
2"	1/4	1"-14	1-3/8-12	5/8-11	3/4-10	5/8	3/4
2-1/2"	3/8	1-3/8-12	1-1/2-12	3/4-10	1"-14	3/4	1"
3"	3/8	1-3/8-12	1-1/2-12	3/4-10	1"-14	3/4	1"
4"	1/2	1-3/4-12	2-1/4-12	1"-14	1-1/4-12	1"	1-1/4
5"	1/2	2-1/4-12	N/A	1-1/4-12	N/A	1-1/4	N/A

STANDARD WRENCH FLATS

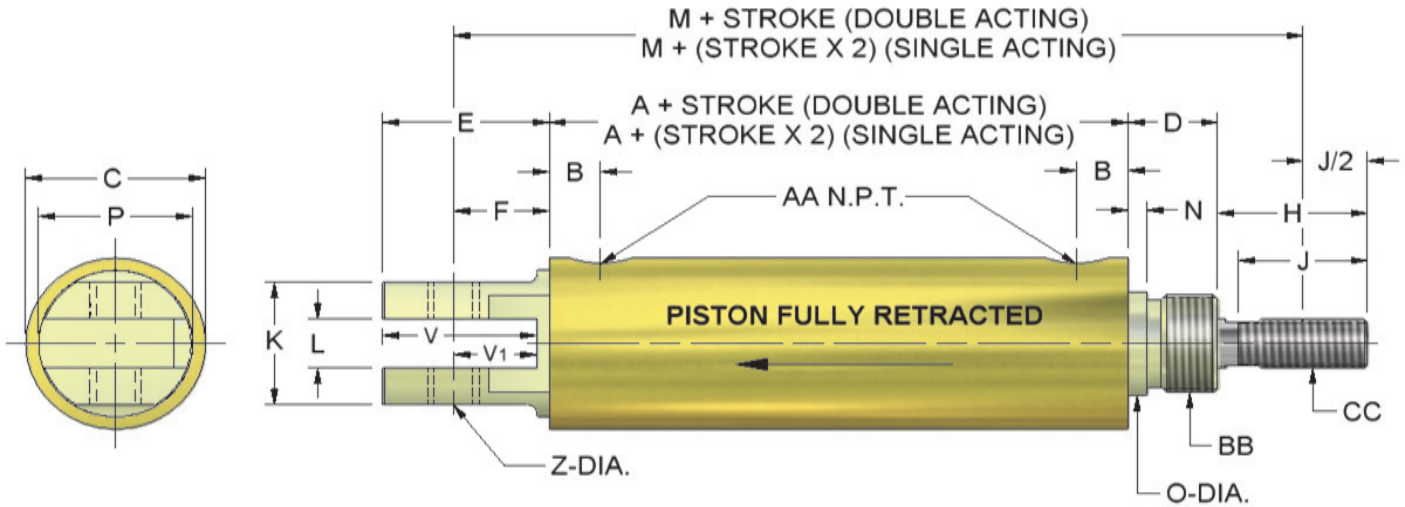
ROD DIA.	W	X	Y
3/8"	5/16	15/16	5/16
1/2"	7/16	1-3/8	5/16
5/8"	1/2	1-3/8	5/16
3/4"	5/8	1-5/8	5/16
1"	7/8	2-1/8	3/8
1-1/4"	1-1/8	2-1/8	3/8



*5-3/8" on Single Ended Cylinders having Tang section, except types "AN", "CN" & "EN".
**On Oversize Models, H=1-3/8" & J=1-1/4"
***3/4"-16 both ends on Types "A" & "E"
3/4"-16 Rear and 7/8"-14 Front on Type "C". Omit dimension E when laying out Cylinder with Tang section omitted.
N dimension remains except on 7/8", 1-1/8" and 4" bores.
♦ Add 1/16" to the C dimension for "BU" option. "BU" option = Brass Tube.

CYLINDER DIMENSIONS

TYPES AN, CN, EN, SSAN & SSEN INTEGRAL REAR SWIVEL

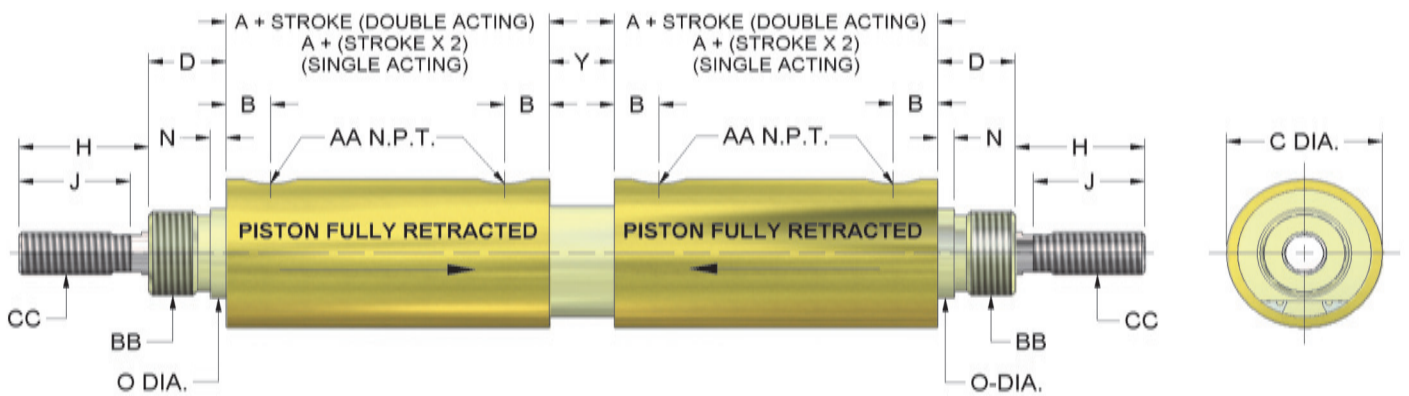


CYL. BORE SIZES	E	F	H		K	L	M				P	V	V-1	Z	CC	
			TYPE AN	TYPES CN & EN			TYP AN		TYPES CN &EN						STD	OS
							STD	OS	STD	OS						
7/8"	13/16	7/16	1"	1"	7/8	1/4	3-11/16	X	4-11/16	X	7/8	13/16	7/16	1/4	3/8-16	X
1-1/8"	1"	11/16	1"*	1"*	15/16	3/8	3-15/16	4-1/8	4-15-16	5-1/8	1-1/8	7/8	9/16	3/8	3/8-16	1/2-13
1-1/2"	1-5/8	15/16	2-7/16	1-7/16	1-1/4	1/2	6-1/4	X	6-1/4	X	1-1/2	1-1/2	13/16	3/8	5/8-11	X
2"	2-1/4	1-9/16	2-7/16	1-7/16	1-1/2	1/2	6-7/8	6-7/8	6-7/8	6-7/8	2"	1-7/8	1-3/16	1/2	5/8-11	3/4-10
2-1/2"	1-13/16	1-1/8	3-11/16	2-11/16	1-1/2	1/2	7-15/16	7-15/16	7-15/16	7-15/16	2-1/4	1-11/16	1"	1/2	3/4-10	1"-14
3"	2-5/16	1-5/8	3-11/16	2-11/16	1-1/2	1/2	8-7/16	8-7/16	8-7/16	8-7/16	2-1/4	1-3/4	1-1/16	1/2	3/4-10	1"-14
4"	3-3/8	2-3/8	2-1/4	2-1/4	2-1/4	3/4	9-11/16	10-7/16	9-11/16	10-7/16	3"	2-1/2	1-1/2	3/4	1"-14	1-1/4-12

* 1-3/8 OVERSIZED MODELS

FOR ALL DIMENSIONS NOT LISTED, SEE TABULATIONS ON PAGE 17

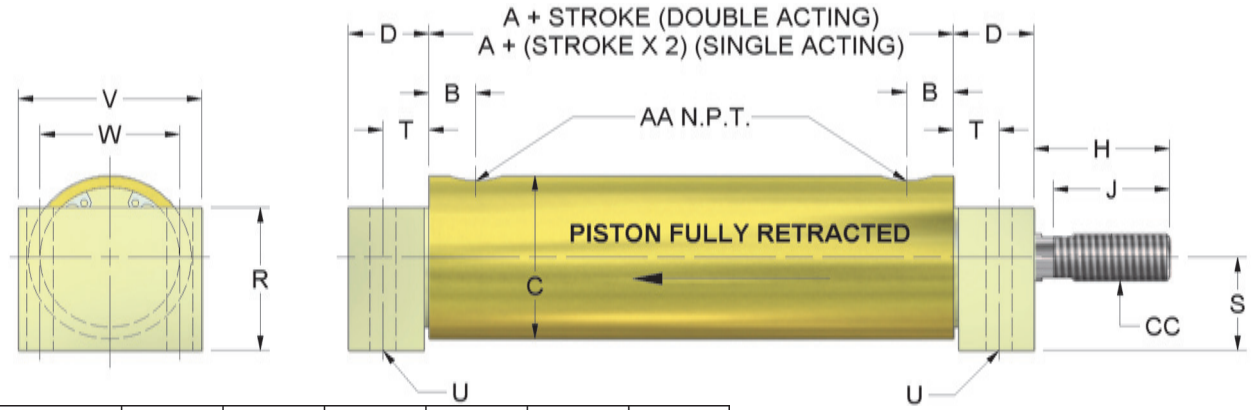
TYPES ABB, CBB, EBB, SSABB & SSEBB BACK-TO-BACK



CYL.BORE SIZES	Y
7/8"	1/2
1-1/8"	1/2
1-1/2"	1/2
2"	1/2
2-1/2"	1/2
3"	1/2
4"	1-1/8

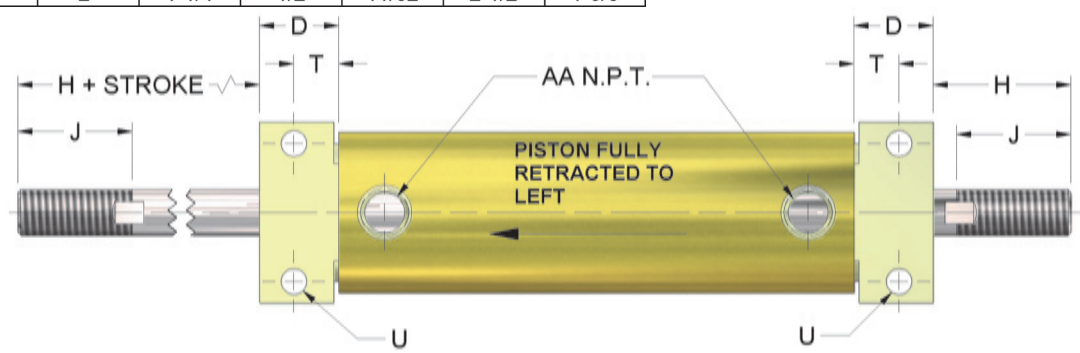
FOR ALL DIMENSIONS NOT LISTED, SEE TABULATIONS ON PAGE 17

TYPES AS, CS & ES SINGLE ENDED



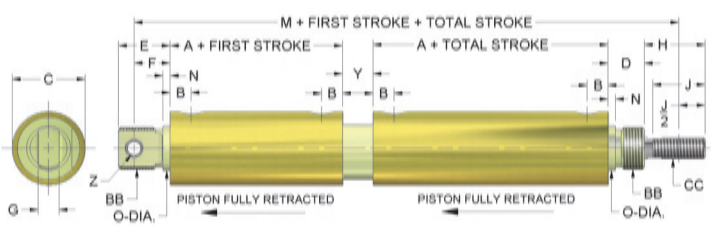
CYL.BORE SIZES	R	S	T	U	V	W
7/8"	1-1/32	3/4	11/32	7/32	1-1/2	1-1/8
1-1/8"	1-1/8	3/4	11/32	7/32	1-1/2	1-1/8
1-1/2"	1-17/32	1"	1/2	9/32	2"	1-1/2
2"	2"	1-1/4	1/2	11/32	2-1/2	1-5/8

TYPES ASD, CSD & ESD DOUBLE ENDED

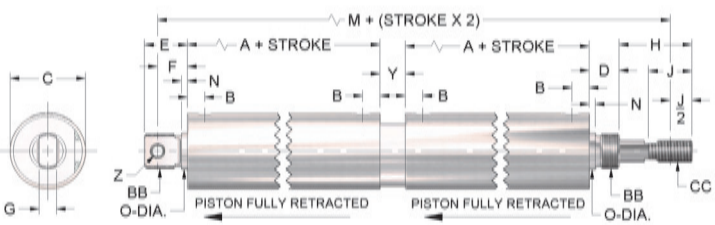


FOR ALL DIMENSIONS NOT LISTED, SEE TABULATIONS ON PAGE 17

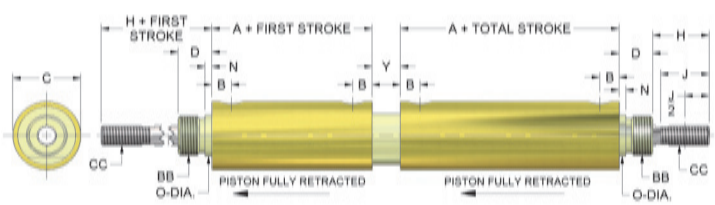
TYPES AP, CP, EP, SSAP & SSEP



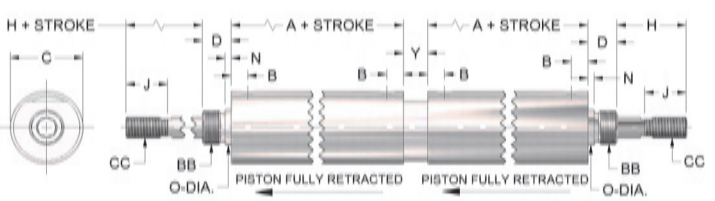
TYPES ET & SSET



TYPES APD, CPD, EPD, SSAPD & SSEPD



TYPES ETD & SSETD

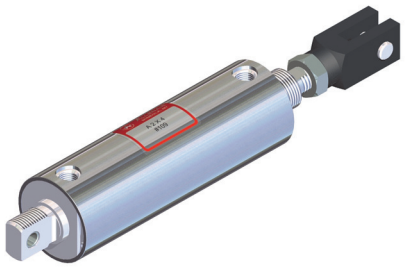


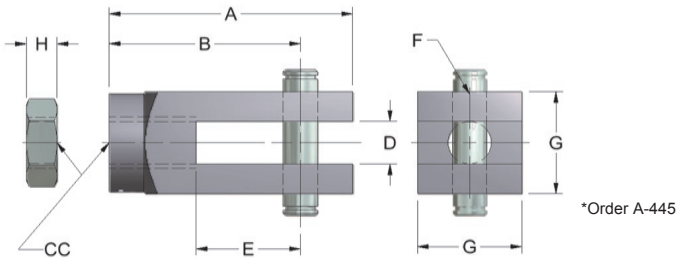
CYL. BORE SIZES	M				Y
	TYPE AP		TYPES CP & EP		
	STD	OS	STD	OS	
1-1/2"	8-9/16	8-9/16	10-9/16	10-9/16	3/4
2"	8-9/16	8-9/16	10-9/16	10-9/16	3/4
2-1/2"	10-3/16	10-3/16	12-3/16	12-3/16	1-1/8
3"	10-3/16	10-3/16	12-3/16	12-3/16	1-1/8
4"	15-1/4	16"	15-1/4	16"	1-1/8

CYL. BORE SIZES	H	M		Y
		STD	OS	
1-1/2"	2-1/16	11-3/16	11-3/16	3/4
2"	2-1/16	11-3/16	11-3/16	3/4
2-1/2"	1-11/16	12-3/16	12-3/16	1-1/8
3"	1-11/16	12-3/16	12-3/16	1-1/8
4"	2-1/4	15-1/4	16"	1-1/8

FOR ALL DIMENSIONS NOT LISTED, SEE TABULATIONS ON PAGE 17

ROD CLEVIS, NUT & PIN

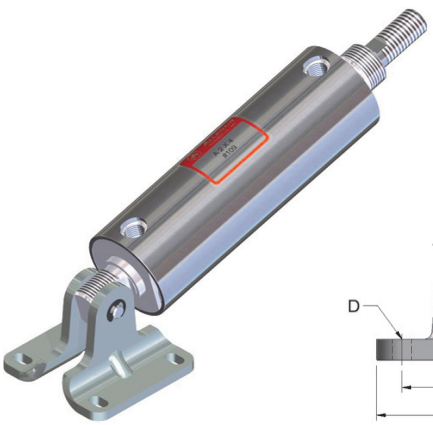


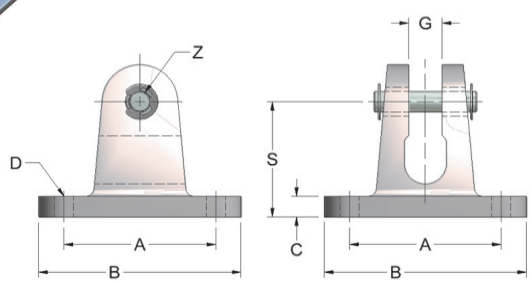


*Order A-445

DIM.	PART NUMBERS									
	A-145		A-1545		A-245		A-345		A-445	
	STD	OS	STD	OS	STD	OS	STD	*OS	STD	OS
A	1-3/4	2-1/4	2-1/4	2-1/4	2-1/4	2-3/8	2-3/8	3-3/8	3-3/8	3-1/2
B	1-3/8	1-3/4	1-3/4	1-3/4	1-3/4	1 13/16	1-13/16	2-5/8	2-5/8	2-5/8
CC	3/8-16	1/2-13	1/2-13	5/8-11	5/8-11	3/4-10	3/4-10	1"-14	1"-14	1-1/4-12
D	5/16	3/8	3/8	3/8	3/8	1/2	1/2	5/8	5/8	3/4
E	3/4	13/16	13/16	13/16	13/16	3/4	3/4	1-1/16	1-1/16	1-1/8
F	1/4	5/16	5/16	5/16	5/16	7/16	7/16	1/2	1/2	3/4
G	3/4	1"	1"	1"	1"	1-1/4	1-1/4	1-1/2	1-1/2	1-3/4
H	7/32	5/16	5/16	3/8	3/8	27/64	27/64	1/2	1/2	23/32

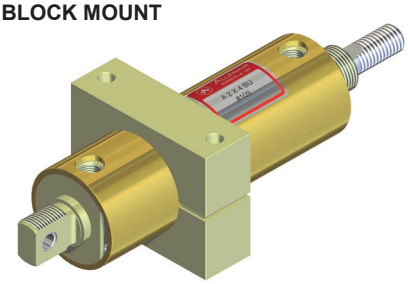
SWIVEL BRACKET & PIN



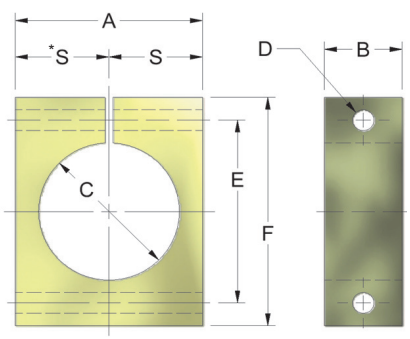


DIM.	PART NUMBERS			
	A-139	A-239	A-339	A-439
A	1-3/4	2-1/4	3"	3-3/4
B	2-1/4	3"	4"	5"
C	1/4	5/16	5/16	1/2
D	9/32	9/32	13/32	15/32
G	3/8	1/2	5/8	3/4
S	1-9/32	1-3/4	2-3/8	3-3/16
Z	1/4	5/16	7/16	1/2

BLOCK MOUNT



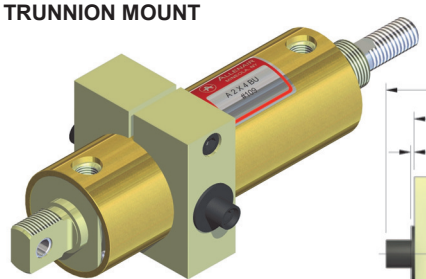
BU OPTION REQUIRED
NT OPTION SUGGESTED



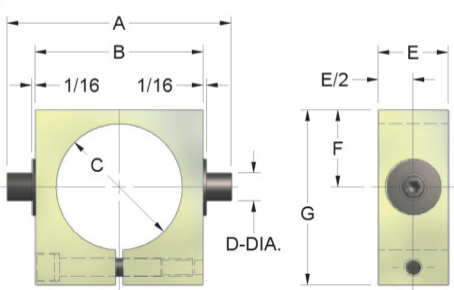
DIM.	PART NUMBERS			
	BM-7/8	BM-1 1/8	BM-1 1/2	BM-2
A	1-1/2	1-3/4	2-1/4	3"
B	1"	1"	1-1/4	1-1/4
C	1-1/8	1-3/8	1-3/4	2-1/4
D	9/32	9/32	9/32	11/32
E	1-5/8	1-7/8	2-3/8	3"
F	2-1/4	2-1/2	3"	3-3/4
S	3/4	7/8	1-1/8	1-3/8*

* This dimension applies to one side only.

TRUNNION MOUNT



BU OPTION REQUIRED
NT OPTION SUGGESTED



DIM.	PART NUMBERS						
	T- 7/8	T- 1	T- 1.5	T- 2	T- 2.5	T- 3	T- 4
A	3-1/2	3-1/2	4"	4"	5-1/2	5-3/4	7"
B	2-1/4	2-1/4	3"	3"	4"	4-1/4	5-1/2
C	1-1/8	1-3/8	1-3/4	2-1/4	2-3/4	3-1/4	4-3/8
D	3/8	3/8	1/2	1/2	3/4	3/4	3/4
E	3/4	3/4	1-1/4	1-1/4	1-1/2	1-1/2	1-1/2
F	7/8	7/8	1-1/8	1-3/8	1-7/8	2-1/8	2-11/16
G	2"	2"	2-5/8	3-1/8	4"	4-1/2	5-3/4

SMALL BORE CYLINDERS

1/2", 3/4" & 1-1/8" BORES

DESIGN FEATURES
Cylinders are not throw away type. Seals can easily be replaced when required after a long trouble-free life. They have corrosion resistant brass tubing, precision honed (16 Micro or better) with cross hatch lubricant retaining pattern. Front and Rear Heads are precision machined and threaded into the tube.

Pressure Rating: 150 P.S.I. Pneumatic or Hydraulic.
Breakaway: Approximately 5-10 P.S.I.

BASIC CONSTRUCTION
1/2" & 3/4" BORES: Feature low friction U-Cups on the Duronze Piston, coupled with a 416 Stainless Rod. These Cylinders are available as standard in half-inch increments.
to 6" stroke.

1-1/8" BORE: Features an all-O-Ring construction. Aluminum Piston ground and polished 416 stainless steel rod. Cylinders are available as standard in half-inch increments to 6" and inch increments to 12" stroke.
Special strokes available in all bore sizes. Up to 14" maximum on 1-1/8" bore and 10" maximum on 1/2" & 3/4" bores.

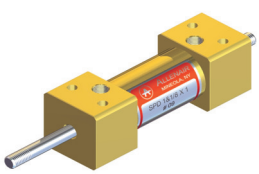
TYPE SM SINGLE ENDED
An all purpose light duty pneumatic Cylinder designed for nose mounting with rear face porting. 1-1/8" Bore is also available in 300 Series Stainless Steel, TYPE SSSM. See catalog SS200.

TYPE SMD DOUBLE ENDED
Similar to above except there is a single rod which protrudes from both ends and as one end retracts the other extends. 1-1/8" Bore is also available in 300 Series Stainless Steel, TYPE SSSMD. See catalog SS200.

TYPE SMT SINGLE ENDED
Cylinder is designed for Clevis and various other universal mountings.

TYPE SP SINGLE ENDED
Similar to Type "SM" except a square front head is used, thereby eliminating the need for a separate Foot Mount.

TYPE SPD DOUBLE ENDED
Similar to Type "SMD" except square heads have been incorporated, eliminating the need for separate Foot Mounts.



ALL DIMENSIONS WILL BE FOUND ON THE FOLLOWING PAGE

STANDARD OPTIONS (FOR ALL BORE SIZES)

SPECIFY: HTP FOR HIGH TEMPERATURE SEALS
Seals are a fluorocarbon compound (viton) and have an operating temperature range of +10°F to +350°F. They will function at temperatures up to +400°F with reduced life.

SPECIFY: DRP FOR FRONT HEAD DOUBLE ROD SEALS:
A second set of rod seals are available for heavy-duty and hydraulic applications.

SPECIFY: OS FOR OVERSIZED ROD, Larger diameter rod for column loading. Available on 1-1/8" Bore only.

SPECIFY: SRF FOR SPRING RETURN, SPRING IN FRONT END (AIR PUSH)
SPECIFY: SRR FOR SPRING RETURN, SPRING IN REAR END (AIR PULL)

ORDERING PROCEDURE

TYPE	BORE SIZE	STROKE	OPTIONS (List Alphabetically)

EXAMPLE: SM 3/4 X 3 HTP SRR

APPROXIMATE SPRING FORCES IN POUNDS

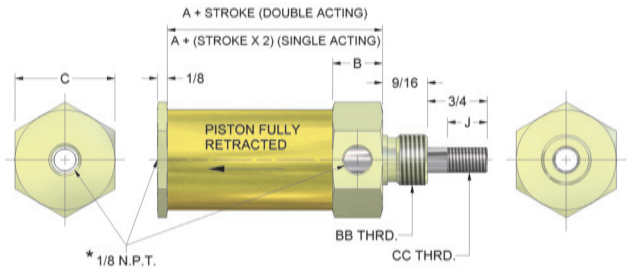
BORE SIZE	1/2"		3/4"		1-1/8"	
	SRF	SRR	SRF	SRR	SRF	SRR
AT REST	2	5	3	5	10	10
FULL STROKE	3	7	4	12	20	25

Maximum stroke available on Spring Return Cylinders is 3" on 1/2" and 3/4" Bores and 6" on 1-1/8" Bore.

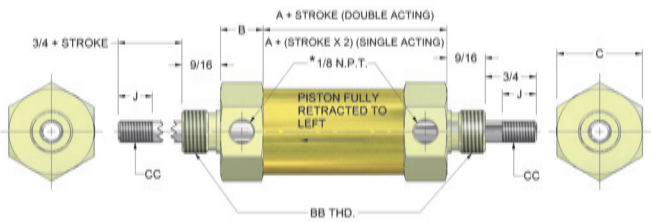
Polyurethane Bumpers see Page 14

ALL MOUNTS ORDERED SEPARATELY FROM THE FOLLOWING PAGE.

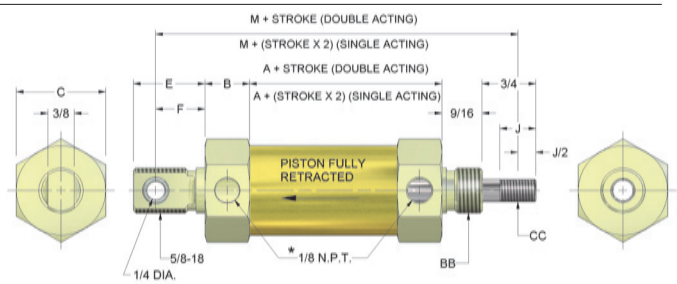
TYPE SM



TYPE SMD



TYPE SMT

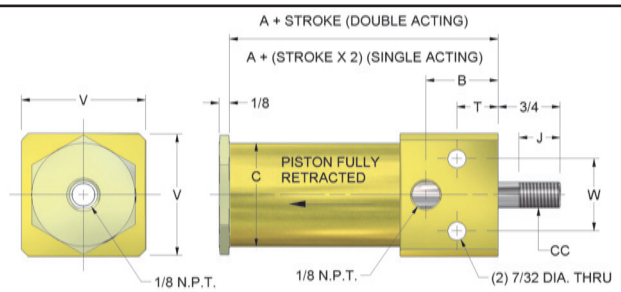


DIMENSION	BORE SIZE			
	1/2"	3/4"	1-1/8"	
			STD	OS
A	2-1/8	2-1/8	1-11/16	1-11/16
B	1/2	1/2	5/8	5/8
C	3/4	1"	1-1/4	1-1/4
E	13/16	13/16	1"	1"
F	9/16	9/16	11/16	11/16
H	3/4	3/4	3/4	15/16
J	5/8	5/8	1/2	7/8
M	4-3/16	4-3/16	4"	4"
BB	5/8-18	5/8-18	5/8-18	3/4-16
CC	1/4-20	1/4-20	5/16-24	3/8-16
ROD DIA.	1/4	1/4	5/16	3/8

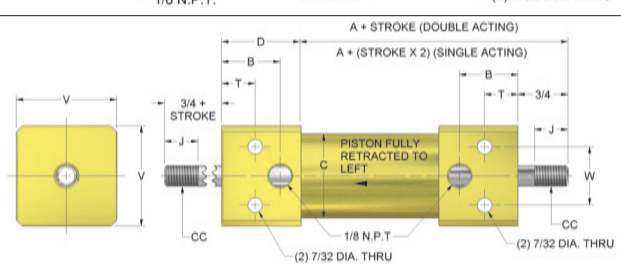
NOTE: *1/2" Bore Front Heads have a 1/16 N.P.T., supplied with a 1/8 N.P.T. adapter.

MOUNTING NUTS ARE SUPPLIED EXCEPT WHEN SWIVEL BRACKETS ARE ORDERED.

TYPE SP



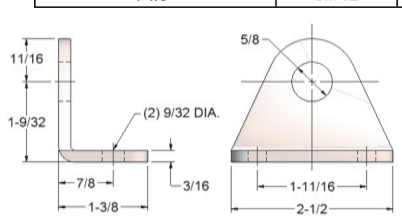
TYPE SPD



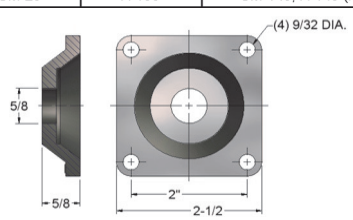
DIMENSION	BORE SIZES			
	1/2"	3/4"	1-1/8"	
			STD	OS
A	2-11/16	2-11/16	2-1/4	2-1/4
B	13/16	13/16	7/8	7/8
C	11/16	15/16	1-1/4	1-1/4
D	1-1/16	1-1/16	1-3/16	1-3/16
H	3/4	3/4	3/4	15/16
J	5/8	5/8	1/2	7/8
T	3/8	3/8	1/2	1/2
V	1"	1"	1-1/2	1-1/2
W	11/16	11/16	7/8	7/8
CC	1/4-20	1/4-20	5/16-24	3/8-16
ROD DIA.	1/4	1/4	5/16	3/8

SMALL BORE CYLINDER MOUNTING BRACKETS

CYLINDER BORE SIZES	PART NUMBERS			
	FOOT MOUNT	FLANGE MOUNT	SWIVEL BRACKET	ROD CLEVIS, NUT & PIN
1/2"	SM-32	SM-29	A-139	SM-545
3/4"	SM-32	SM-29	A-139	SM-545
1-1/8"	SM-32	SM-29	A-139	SM-145, A-145 (FOR OS)

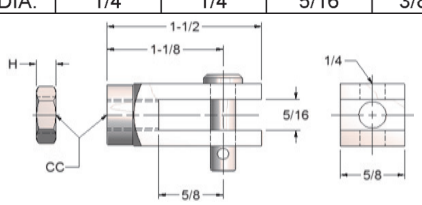


SM-32 FOOT MOUNT



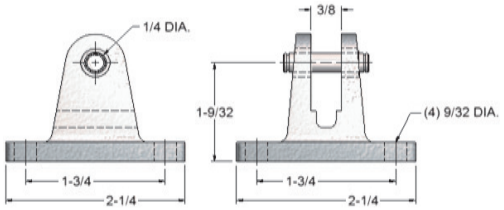
SM-29 FLANGE MOUNT

When mounting on rear of Cylinder, Tang will extend beyond flange. Tang can be provided flush when required at slight extra charge.



SM-45 ROD CLEVIS, NUT & PIN

Bore Sizes	H	CC
1/2" & 3/4" (SM-545)	5/32	1/4-20
1-1/8" (SM-145)	3/16	5/16-24



A-139 SWIVEL BRACET

MODEL
REAR PORTED - NO TANG

Model **SSSM** (All Stainless Steel). Available in 1-1/8" (28mm) bore only.
Pressure Rating: 150 PSI, 10 Bar Pneumatic or Hydraulic. **Breakaway:** Approximately 5-8 PSI.
Strokes available: 1/8" to 14", 4 to 355mm
Standard Stroke Lengths: 1/2" through 6" in 1/2" increments and 6" through 12" in 1" increments,
(non-standard strokes 1/8" to 14"). 25, 40, 50, 80, 100, 125, 160, 200, 250, 300 and 320mm, (non- standard strokes 4 to 355mm).

OPTIONS:

ETHYLENE PROPYLENE SEALS: Ethylene Propylene Rubber compound, temperature range of -65° to +300°F (-54° to +149°C). Specify **EPS.**

FAIL SAFE: MAXIMUM STROKE IS 6" (150mm). Spring installed in a double acting cylinder to retract or extend the rod should there be an air failure. Specify **FS** to retract rod or **SRR** to extend rod. Spring force is approximately 10 pounds (44.5N) at rest and 20 pounds (89N) at full stroke.

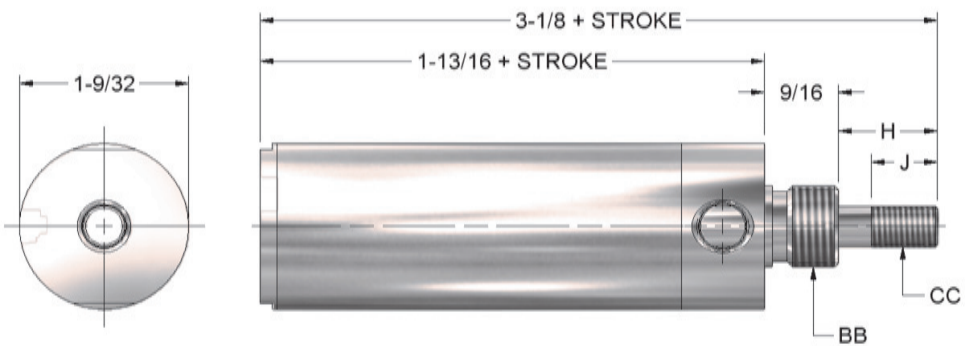
HIGH TEMPERATURE SEALS: Florocarbon compound (Viton) seals, temperature range of +10° to +350°F. Specify **HTP**.

OVERSIZED ROD: Larger diameter rod for column loading. Specify **OS**.

POLYURETHANE BUMPERS: For use on high-speed cylinder applications to reduce shock and noise. Bumpers are positioned between heads and the piston, increasing the cylinder length by 1/2" for each bumper installed. Specify **PUBF** for front, **PUBR** for rear and **PUBB** for both ends.

SINGLE ACTING - SPRING RETURN: **MAXIMUM STROKE IS 6" (150mm).** Spring installed in cylinder to retract or extend the rod. Specify **SRF** to retract rod or **SRR** to extend rod. Spring force is approximately 10 at rest and 20 at full stroke pounds.
200 P.S.I. Pneumatic, 500 P.S.I. Hydraulic.

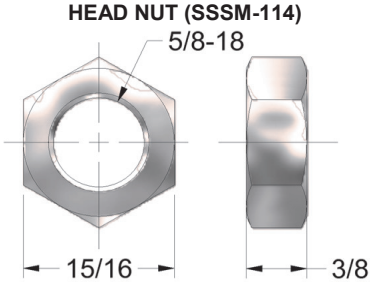
DIMENSIONS & MOUNTS



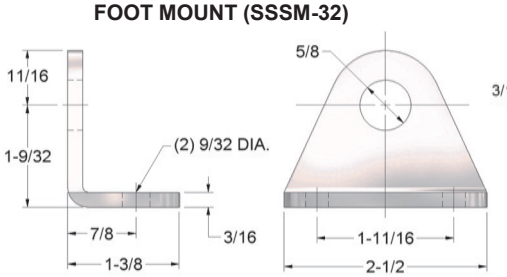
TYPE	ROD DIA.	H	J	BB	CC	PORTS	ROD NUT	HEAD NUT	FOOT MOUNT	ROD CLEVIS
SSSM	5/16	3/4	1/2	5/8-18	5/16-24	1/8 N.P.T.	SSSM-26	SSSM-114	SSSM-32	SSSM-145
SSSM-OS	3/8	15/16	7/8	3/4-16	3/8-16	1/8 N.P.T.	SSA-126	SSA-114	SSA-132	SSA-145

NOTE: For Spring Return and Fail safe options, double the stroke when calculating overall dimensions

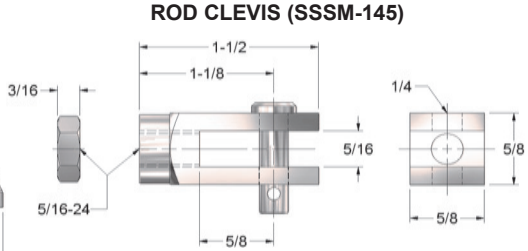
HEAD NUT (SSSM-114)



FOOT MOUNT (SSSM-32)



ROD CLEVIS (SSSM-145)



For dimensions on mounts SSA-114, SSA-126, SSA-132 and SSA-145 see pages 20 and 21.

THREADED ALL STAINLESS STEEL CYLINDERS

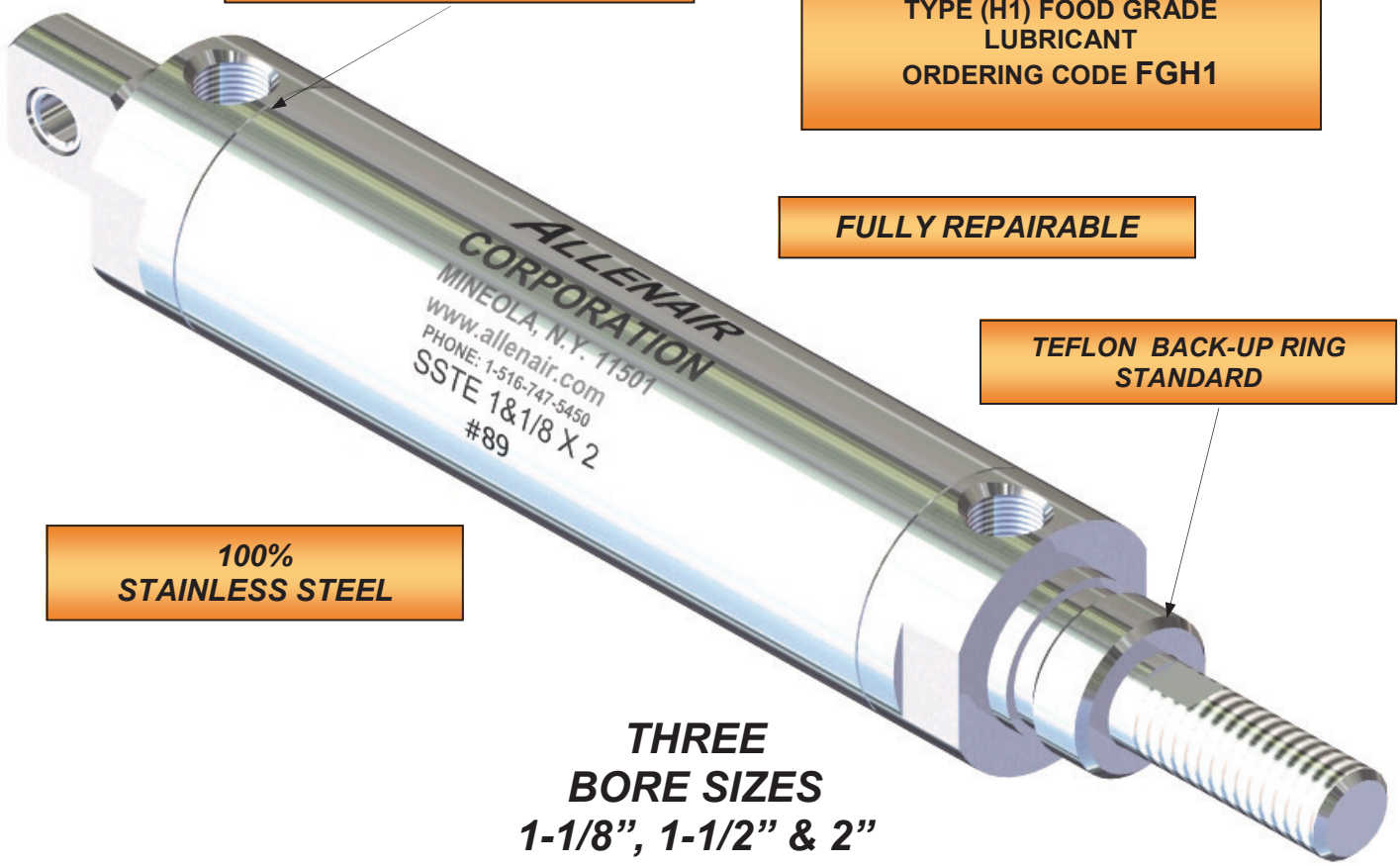
ALLENAIR'S FOOD SERVICE CYLINDERS ARE CONSTRUCTED WITH 300 SERIES STAINLESS STEEL THREADED CONSTRUCTION CYLINDERS ARE DESIGNED TO STAND UP TO REPETITIVE POWER AND CHEMICAL WASH DOWNS. THE UNIQUE NON-CREVICE FOOD SERVICE CYLINDERS FEATURE ZERO CLEARANCE THREADED CONSTRUCTION WHICH ELIMINATES CATCH POINTS FOR CONTAMINATION AND ALLOWS FOR EASY CLEANING IN YOUR WASH DOWN ENVIRONMENT

CLEAN CREVICE FREE DESIGN

**OPTIONAL
TYPE (H1) FOOD GRADE
LUBRICANT
ORDERING CODE FGH1**

FULLY REPAIRABLE

***TEFLON BACK-UP RING
STANDARD***



***100%
STAINLESS STEEL***

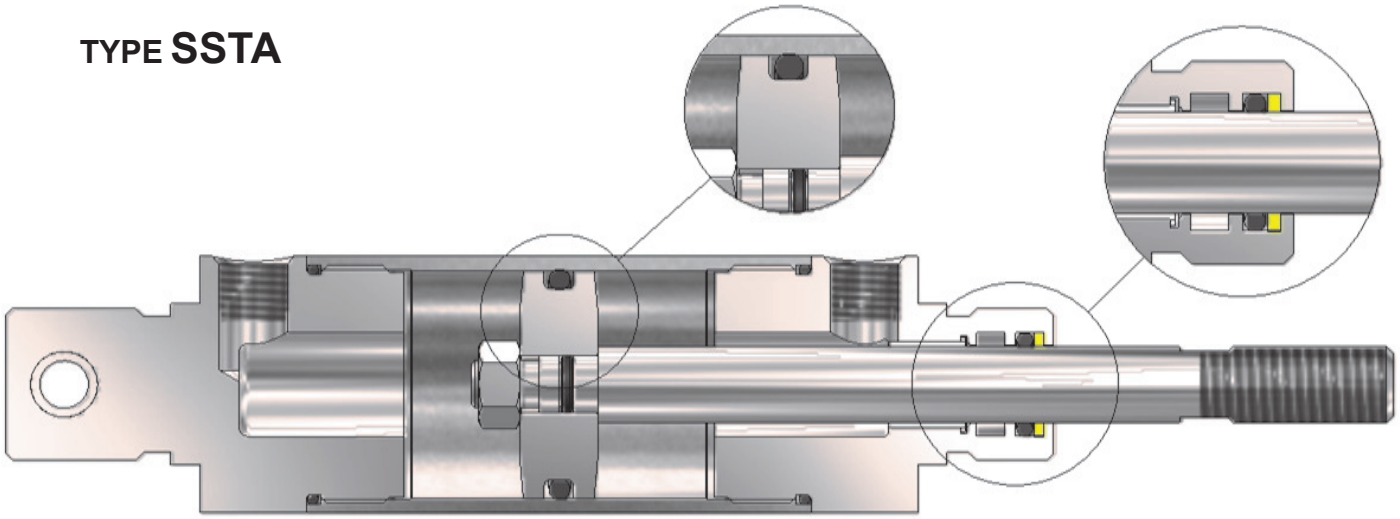
***THREE
BORE SIZES
1-1/8", 1-1/2" & 2"***

**LISTED BELOW ARE SPECIAL CODES WE USE WHENEVER A SPECIAL CYLINDER IS ORDERED.
NOT ALL CODES ARE LISTED - ONLY THE MOST COMMON**

AVAILABLE OPTIONS

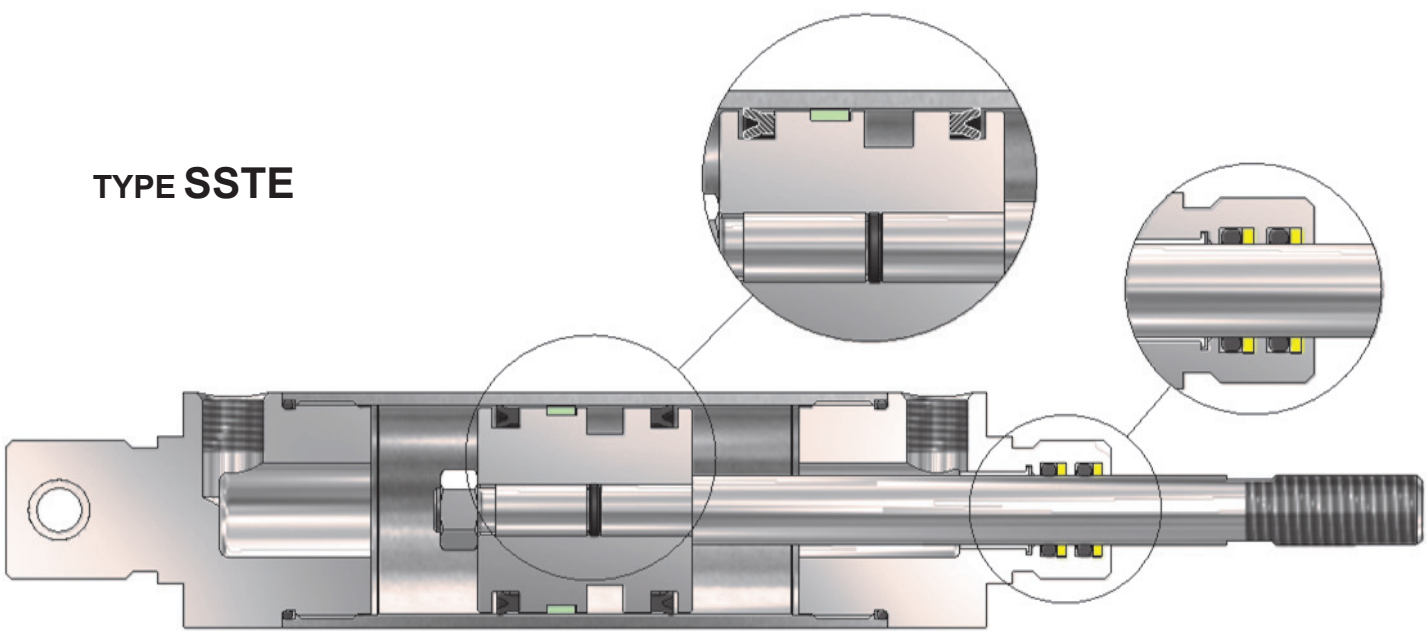
CODE	DESCRIPTION	CODE	DESCRIPTION
B	Sp. "H" Dimension	HTP	Fluorocarbon Seals
C	Sp. "J" Dimension	J2	Short Fully Threaded Tail
CB	Sp. "H" & "J" Dimension	K	Female Thread In Rod
CS	Sp. Per Customer Specs.	LF	Low Friction
D	Sp. "CC" Dimension	NT	No Tang
DRP	Double Rod Packing	OS	Over Sized Rod
BC, FC, RC	Cushions (All Cushions Fixed)	PUBB, PUBF, or PUBR	Polyurethane Bumpers
FGH1	H1 (Food Grade Lubricant)	RG	Sp. "H" For Rod Guide
FS	Fail Safe W / Spring In Front	RM	Magnet On Piston
FT	Fully Threaded Rear Tail	WR	Rod Wiper
G	No Rod Threads	SRF or SRR	Spring Return

TYPE SSTA



TYPE SSTA SINGLE ENDED : All Type "A" Cylinders are constructed using **"O"- Ring Seals.** These all-purpose units are used for most pneumatic applications. Optional Double Rod Packings are recommended for heavy-duty and hydraulic applications.
Pressure Rating: 150 P.S.I. Pneumatic, 350 P.S.I. Hydraulic.
Breakaway: Approximately 5 to 8 P.S.I.
Bore Sizes Available: 1-1/8", 1-1/2" & 2"

TYPE SSTE

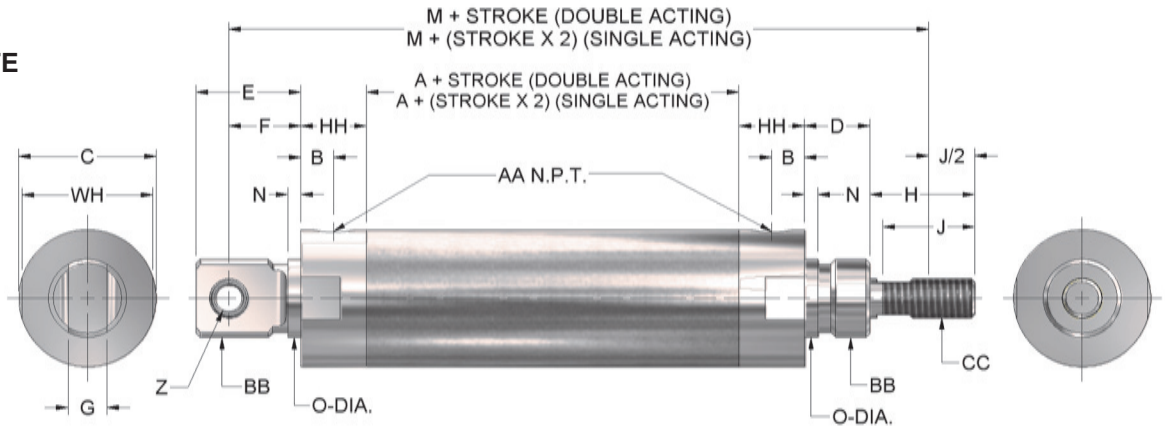


TYPE SSTE SINGLE ENDED : Type "E" Cylinders are constructed using **Block-Vee Seals** and include double rod seals in the front head except on the 1-1/8" Bore. A heavy-duty wear strip (bearing) on the piston minimizes friction, piston seal wear and side load conditions preventing metal-to-metal contact. These Cylinders are generally used on low pressure hydraulics and where side load conditions are present.
Pressure Rating: 200 P.S.I. Pneumatic, 500 P.S.I. Hydraulic.
Breakaway: Approximately 10 to 15 P.S.I.
Bore Sizes Available: 1-1/8", 1-1/2" & 2"

TYPES **SSTA** & **SSTE**

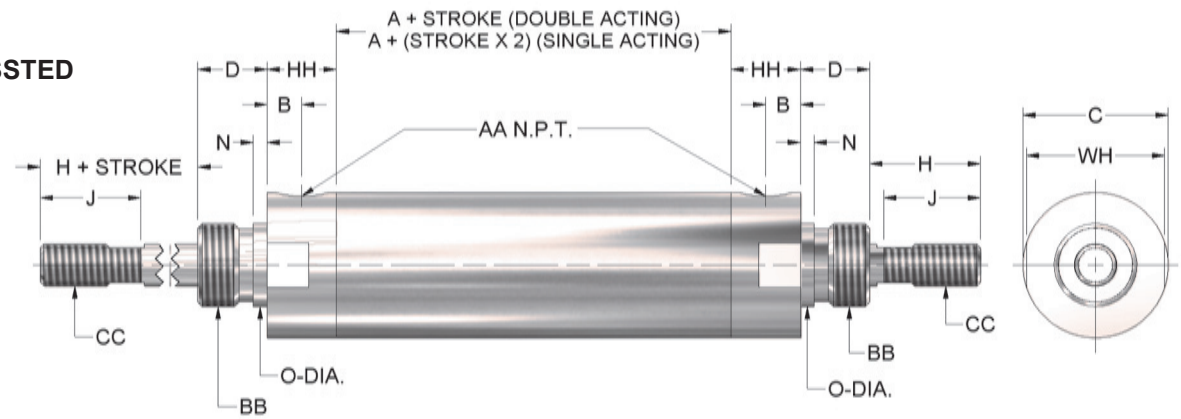
SINGLE ENDED

Add **TB** to the SUFFIX for thread on both ends. See BB♦ dimension.



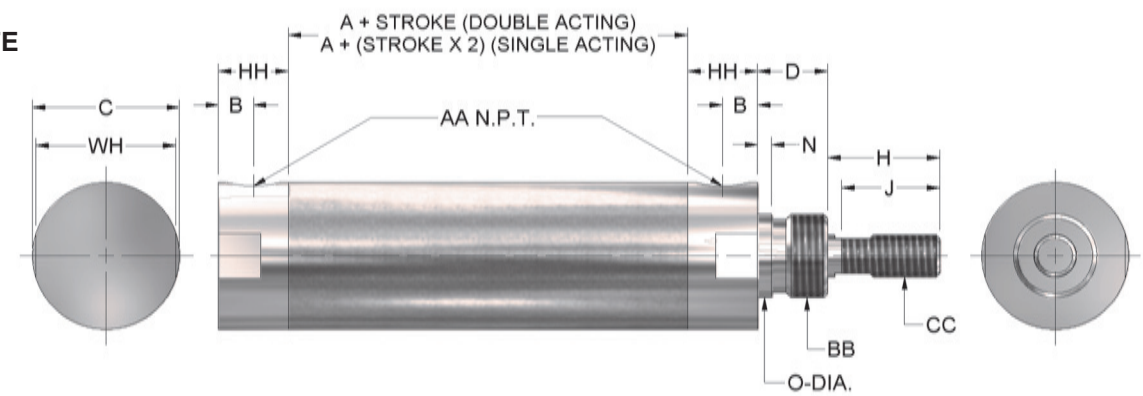
TYPES **SSTAD** & **SSTED**

DOUBLE ENDED



TYPES **SSTA** & **SSTE**

SINGLE ENDED (OPTION "NT")



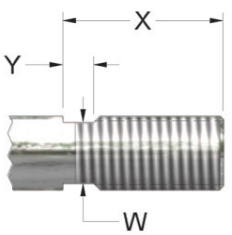
CYL. BORE SIZE	A		B	C	D		E	F	G	H	J	M				N	O		Z
	TYPE SSTA	TYPE SSTE			STD.	OS (Front Only)						TYPE SSTA		TYPE SSTE			STD.	OS (Front Only)	
												Std	OS	Std	OS				
1-1/8"	1-9/16	2-9/16	5/16	1-5/16	5/8	5/8	1"	11/16	3/8	1"*	7/8*	4-11/16	4-7/8	5-11/16	5-7/8	1/8	3/4**	7/8	1/4
1-1/2"	1-3/4	2-3/4	11/32	1-11/16	7/8	7/8	1-1/4	7/8	1/2	1-7/16	1-1/4	5-11/16	5-11/16	6-11/16	6-11/16	3/16	1-1/16	1-1/16	5/16
2"	1-3/4	2-3/4	11/32	2-3/16	7/8	7/8	1-1/4	7/8	1/2	1-7/16	1-1/4	5-11/16	5-11/16	6-11/16	6-11/16	3/16	1-1/16	1-3/8	5/16

CYL. BORE SIZE	AA	BB		CC		ROD DIA.		WH	HH
		STD.	OS (Front Only)	STD.	OS	STD.	OS		
1-1/8"	1/8	3/4-16♦	7/8-14	3/8-16	1/2-13	3/8	1/2	1-1/4	5/8
1-1/2"	1/4	1"-14♦	1"-14	1/2-13	5/8-11	1/2	5/8	1-5/8	11/16
2"	1/4	1"-14♦	1-3/8-12	5/8-11	3/4-10	5/8	3/4	2-1/8	11/16

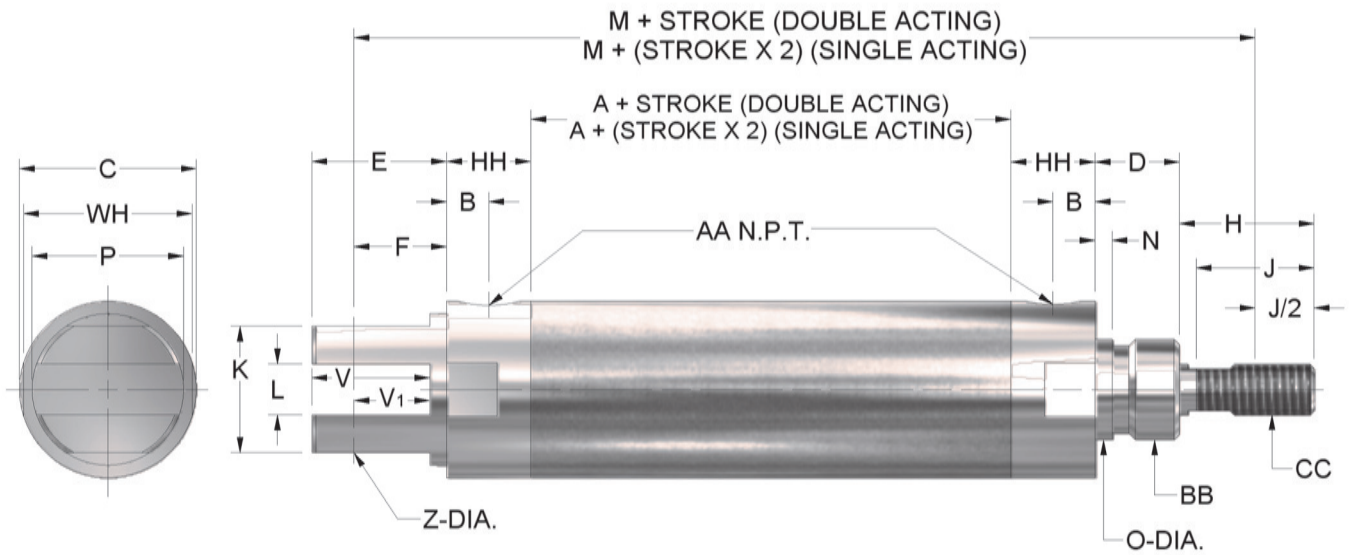
*On Oversize Models, H = 1-3/8 & J = 1-1/4.
**3/4-16 Both ends on Types "A" & "E"
Omit dimension E and N when laying out Cylinder with Tang section omitted.

STANDARD WRENCH FLATS

ROD DIA.	W	X	Y
3/8"	5/16	15/16	5/16
1/2"	7/16	1-3/8	5/16
5/8"	1/2	1-3/8	5/16
3/4"	5/8	1-5/8	5/16



TYPES **SSTAN** & **SSTEN** INTEGRAL REAR SWIVEL

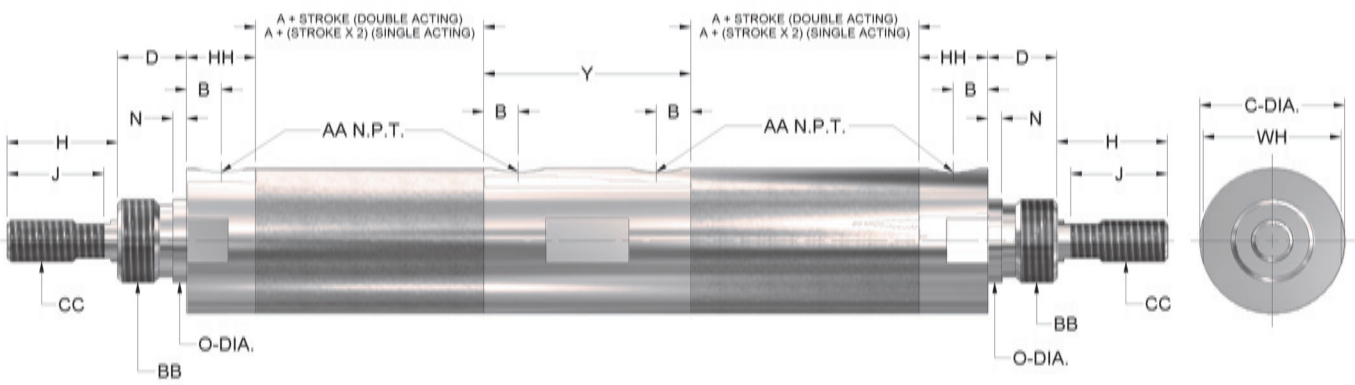


CYL. BORE SIZE	E	F	H		K	L	M				P	V	V_1	Z	CC	
			TYPE SSTAN	TYPE SSTEN			TYPE SSTAN		TYPE SSTEN						STD	OS
							Std	OS	Std	OS						
1-1/8"	1"	11/16	1"*	1"*	15/16	3/8	4-11/16	4-7/8	5-11/16	5-7/8	1-1/8	7/8	9/16	3/8	3/8-16	1/2-13
1-1/2"	1-5/8	15/16	2-7/16	1-7/16	1-1/4	1/2	6-3/4	X	6-3/4	X	1-1/2	1-1/2	13/16	3/8	5/8-11	X
2"	2-1/4	1-9/16	2-7/16	1-7/16	1-1/2	1/2	7-3/8	7-3/8	7-3/8	7-3/8	2"	1-7/8	1-3/16	1/2	5/8-11	3/4-10

*1-3/8 ON OVERSIZED MODELS

FOR ALL DIMENSIONS NOT LISTED, SEE TABULATIONS ON PAGE 27.

TYPES **SSTABB** & **SSTEBB** BACK-TO-BACK



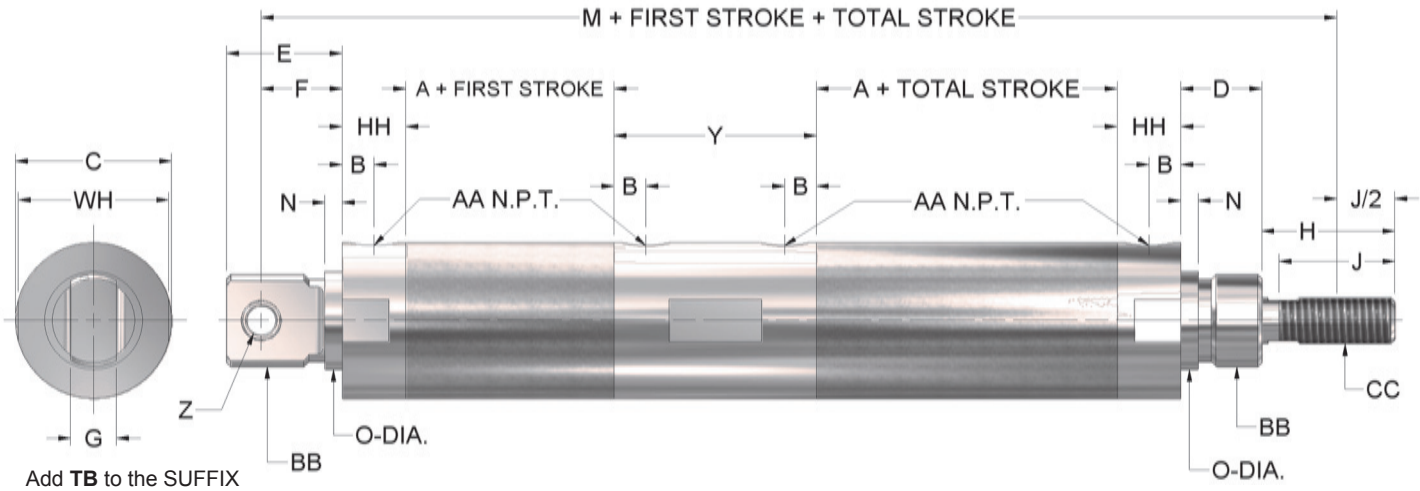
BACK-TO-BACK: TYPES SSTABB & SSTEBB Units consist of two separate single ended Cylinders, joined together by a common rear head. Their strokes can be either identical or different. By fastening one rod end to a fixed object, these units can perform as 3 and 4 position Cylinders.
Bore Sizes Available: 1-1/8", 1-1/2" & 2"
NOTE: Options must be indicated for each stroke.

CYL. BORE SIZE	Y
1-1/8"	1-7/8
1-1/2"	2-3/16
2"	2-3/16

FOR ALL DIMENSIONS NOT LISTED, SEE TABULATIONS ON PAGE 27.

TYPES **SSTAP** & **SSTEP** THREE POSITION

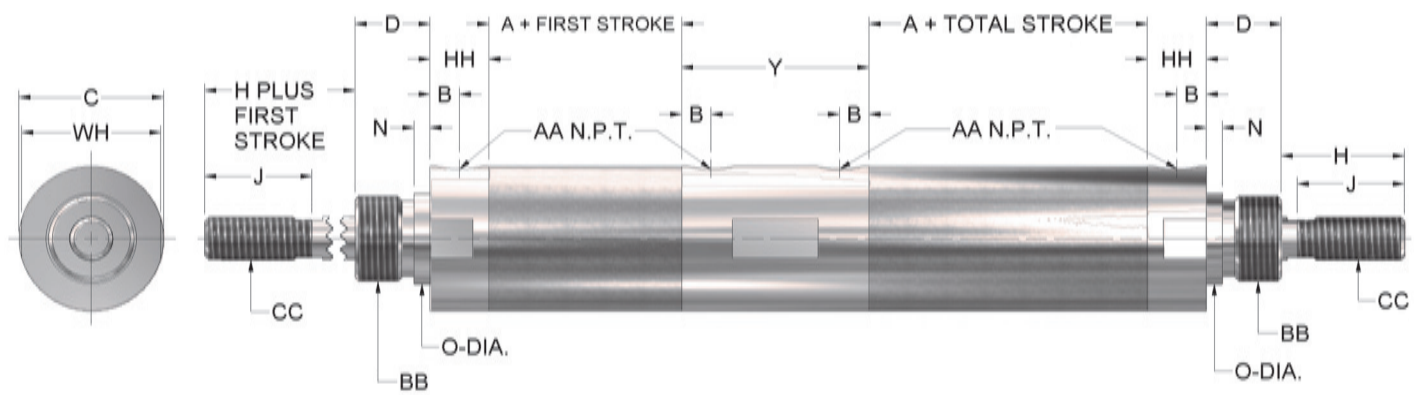
THREE POSITION:
TYPES: SSTAP & SSTEP SINGLE ENDED
TYPES: SSTAPD & SSTEP DOUBLE ENDED
Cylinders feature two separate piston rod assemblies which provide three definite and positive positions. Any combination of first stroke and total stroke is available. When ordering, second stroke must be specified as total stroke. The second Cylinder rod moves through both strokes.
For example, if first stroke required is 4" and second stroke is 2", order should read: **SSTAP- 2 X 4 X 6.** 6" being the total stroke (4+2).
Bore Sizes Available: 1-1/2" & 2", NOTE: Options must be indicated for each stroke.
NOTE: For a complete operational description see page 11.



Add **TB** to the SUFFIX
for thread on both ends.
See BB♦ dimension.

FOR ALL DIMENSIONS NOT LISTED, SEE TABULATIONS ON PAGE 27.

TYPES **SSTAPD** & **SSTEPD** THREE POSITION

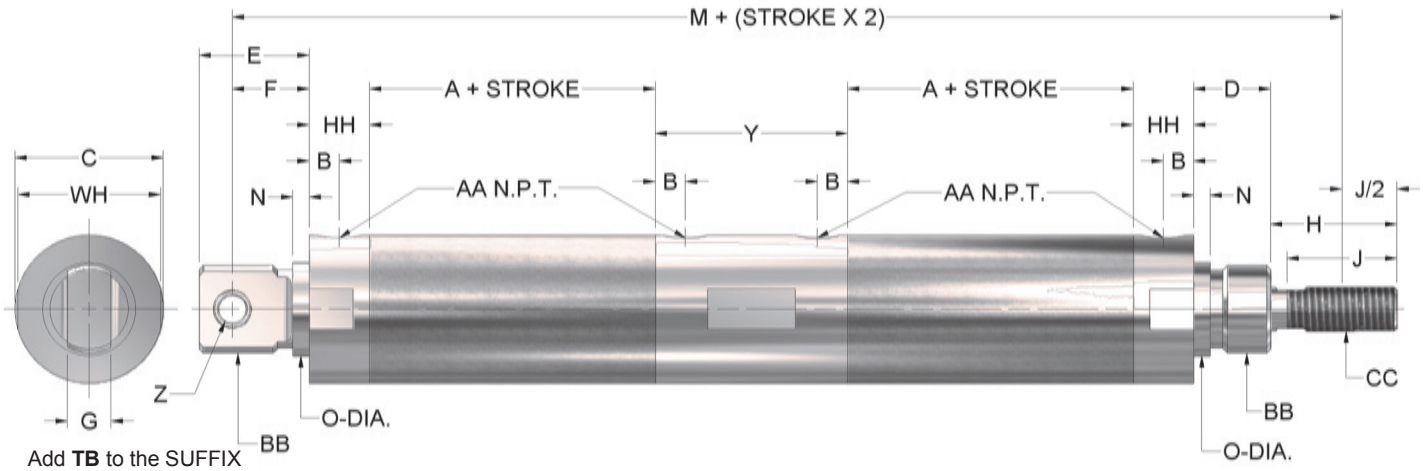


CYL. BORE SIZE	M				Y
	TYPE SSTAP		TYPE SSTEP		
	Std	OS	Std	OS	
1-1/2"	9-5/8	9-5/8	11-5/8	11-5/8	2-3/16
2"	9-5/8	9-5/8	11-5/8	11-5/8	2-3/16

FOR ALL DIMENSIONS NOT LISTED, SEE TABULATIONS ON PAGE 27.

TANDEM:
TYPE: ET SINGLE ENDED
TYPE: ETD DOUBLE ENDED
The basic construction of these Cylinders is identical to Type "E" and feature two Cylinders in tandem having two pistons mounted on one common rod. Pneumatic operation with hydraulic control can be obtained by operating the rear Cylinder pneumatically and filling the front Cylinder with oil and piping its ports in series using a flow control valve. The output force of a single Cylinder can be almost doubled using a Tandem Cylinder and piping both rear ports together and both front ports together, which will apply the working pressure to both Cylinders at the same time. This is particularly useful when space limitations preclude the use of large bore Cylinders, and the force required is greater than that supplied by smaller bore units.
Bore Sizes Available: 1-1/2" & 2"
Maximum Stroke Available:
Type "SSET" : 12".
Type "SSETD" : 12".

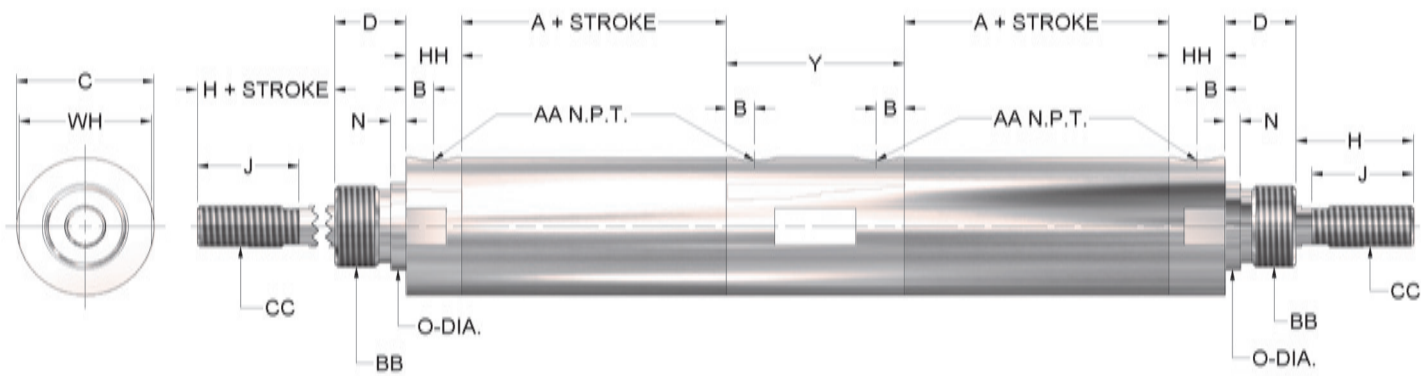
TYPE **SSTET** TANDEM



Add **TB** to the SUFFIX for thread on both ends.
See BB♦ dimension.

FOR ALL DIMENSIONS NOT LISTED, SEE TABULATIONS ON PAGE 27.

TYPE **SSTETD** TANDEM DOUBLE ENDED



ORDERING PROCEDURE

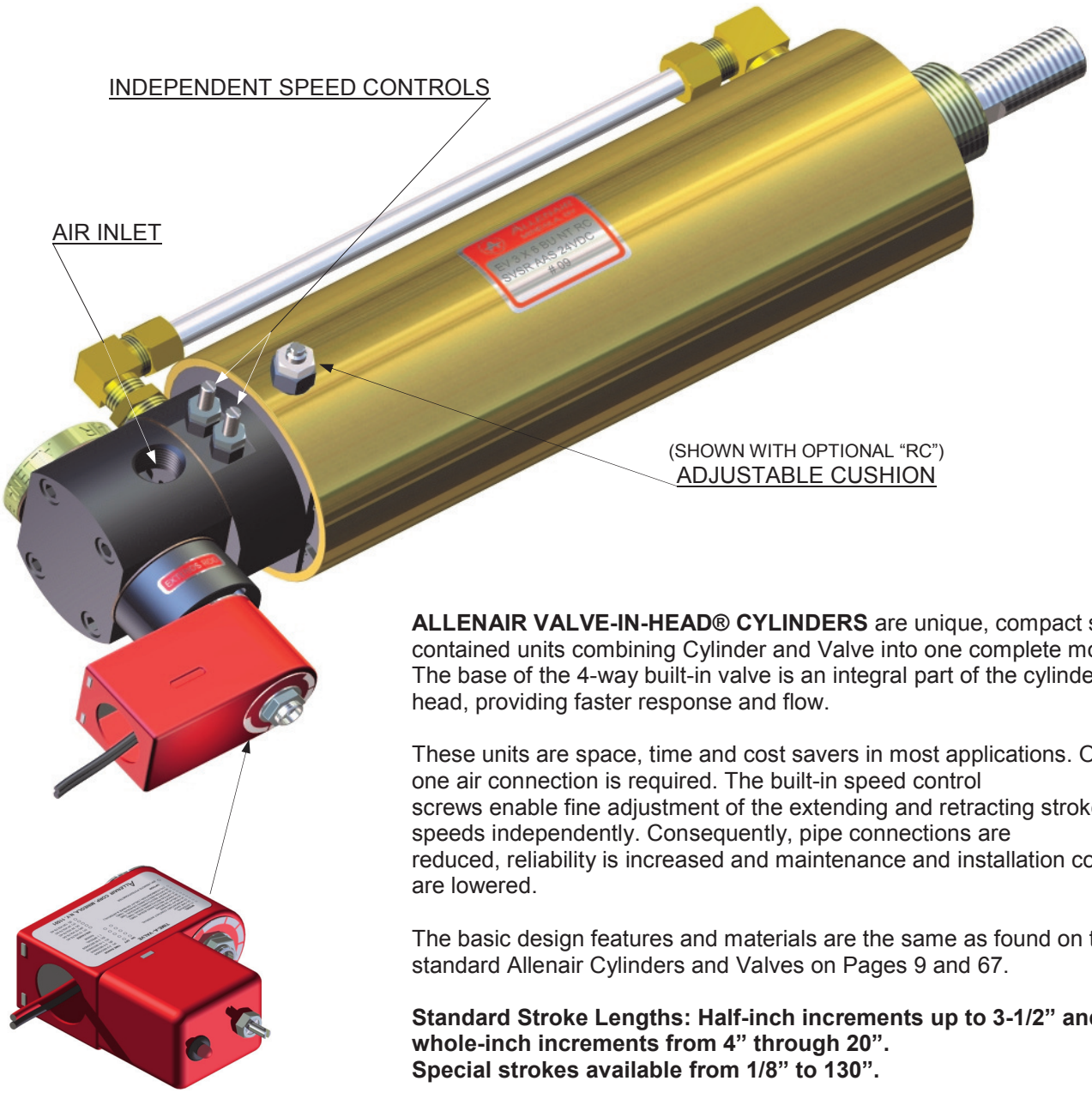
TYPE	BORE SIZE	STROKE	OPTIONS (List Alphabetically)

EXAMPLE: SSTE 1-1/2 X 6 HTP SRR

CYL. BORE SIZE	M		Y
	Std	OS	
1-1/2"	11-5/8	11-5/8	2-3/16
2"	11-5/8	11-5/8	2-3/16

FOR ALL DIMENSIONS NOT LISTED, SEE TABULATIONS ON PAGE 27.

THE COMPLETE POWER MODULE



ALLENAIR VALVE-IN-HEAD® CYLINDERS are unique, compact self-contained units combining Cylinder and Valve into one complete module. The base of the 4-way built-in valve is an integral part of the cylinder rear head, providing faster response and flow.

These units are space, time and cost savers in most applications. Only one air connection is required. The built-in speed control screws enable fine adjustment of the extending and retracting stroke speeds independently. Consequently, pipe connections are reduced, reliability is increased and maintenance and installation costs are lowered.

The basic design features and materials are the same as found on the standard Allenair Cylinders and Valves on Pages 9 and 67.

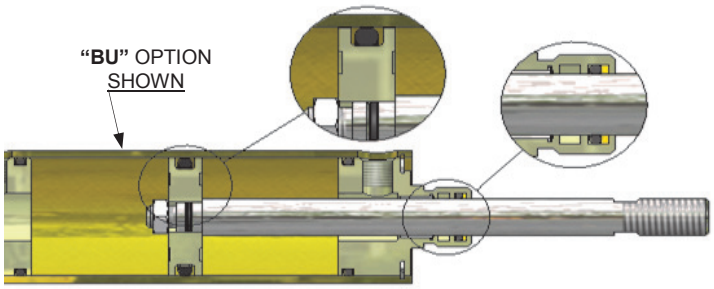
Standard Stroke Lengths: Half-inch increments up to 3-1/2" and whole-inch increments from 4" through 20".
Special strokes available from 1/8" to 130".

ALLENAIR "TIME-A-VALVE"
See page 80. A solid state Electronic Timer, integral with Allenair Solenoid Operators.

TYPE AV

All Type "AV" Cylinders, with the exception of the 4" bore are constructed using **"O"-Ring Seals**. The 4" bore uses "O"- Ring Rod Seals and "U"-Cup Piston Seals. Coupled with one of a wide variety of 4-way valves, these all purpose units are used for most pneumatic applications. Optional Double Rod Packing is recommended for heavy-duty applications.

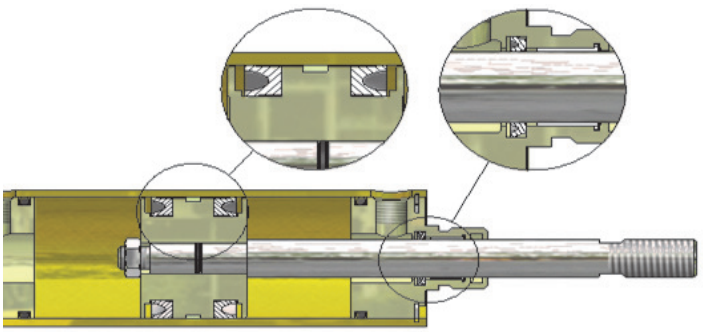
Pressure Rating: 20 P.S.I. Minimum
150 P.S.I. Maximum



TYPE CV

Type "CV" Cylinders are constructed using low friction **"U"- Cup Seals.** A heavy-duty wear strip (bearing) on the piston minimizes friction and piston cup wear, and on side load conditions prevents metal-to-metal contact. Coupled with one of a wide variety of 4-way valves, these units are primarily used on low friction applications and where low minimum breakaway is required.

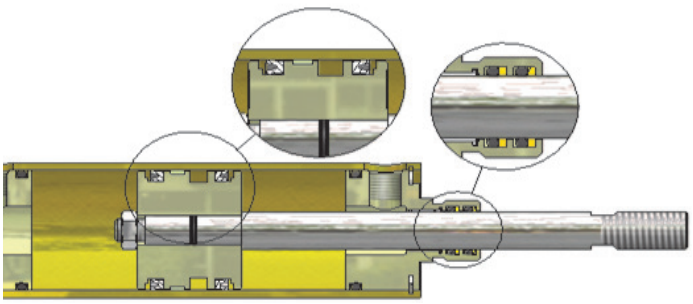
Pressure Rating: 10 P.S.I. Minimum
150 P.S.I. Maximum



TYPE EV

Type "EV" Cylinders are constructed using **Block-Vee Seals** and include a heavy-duty wear strip on the piston and double rod seals in the front head. Coupled with one of a wide variety of 4-way Valves, these Cylinders are recommended for heavy-duty applications and where side load conditions are present.

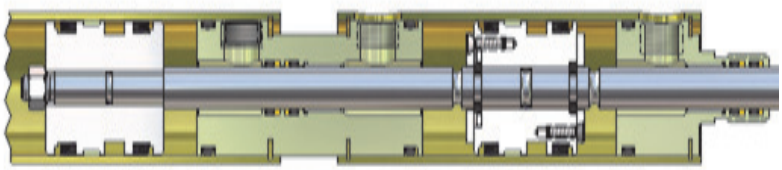
Pressure Rating: 20 P.S.I. Minimum
150 P.S.I. Maximum



TYPE EVT

Type "EVT" Cylinders feature two Cylinders in tandem having two pistons mounted on one common rod (as Type "ET" on Page 11). Block-Vee Seals are used and include a wear strip on both pistons and double rod seals in the front head. The rear Cylinder has the advantages of an air operated Valve-in-Head® Cylinder, yet hydraulic control can be obtained by filling the front Cylinder with oil and piping its ports in series using a flow control valve.

Pressure Rating: 20 P.S.I. Minimum
150 P.S.I. Maximum



BASIC CONSTRUCTION (VALVES)

The valve portion of the Valve-in-Head® Cylinder is a corrosion resistant slider type 4-way 2-position valves. The valve base is hard coated aluminum, lapped within one light band, and electro filmed. This provides minimum slider wear, positive seal and millions of trouble-free cycles.

A durable delrin spool rapidly pilots the high-tensile manganese bronze slider across the enlarged internal ports changing direction of flow. The built-in side tubing provides air passage to the front end of the Cylinder.
Valves are available as Solenoid, Pressure Pilot, Bleed Pilot, or Manual Models.

FOR DIMENSIONS AND MOUNTS SEE PAGES 40 - 44

SINGLE SOLENOID

MODEL SVS

These models incorporate a 4-way Single Solenoid Pilot Valve, air return. A maintained electrical contact is required to move the rods its full stroke. Breaking the electrical contact returns the rod to its original position.

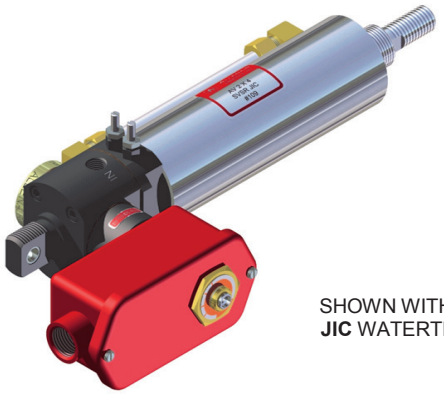
Models can be supplied with the rod normally retracted (electrical contact will extend rod) or normally extended (electrical contact will retract rod).

The standard solenoid operator, is the **AAS** Splice box housing.

Bore Sizes Available: 1-1/8", 1-1/2", 2", 2-1/2", 3", 4" & *5. Voltages: 12, 24,120 & 240/60 AC and 6, 12 & 24VDC are standard.

*** 5" BORE AVAILABLE-Consult Factory for Details.**

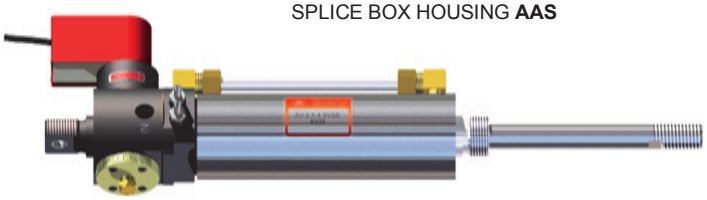
ROD NORMALLY RETRACTED MODEL SVSR
Energize solenoid to extend rod, de-energize solenoid to retract rod.



SHOWN WITH NEMA 4 / IP56
JIC WATERTIGHT HOUSING

ROD NORMALLY EXTENDED MODEL SVSE
Energize solenoid to retract rod, de-energize solenoid to extend rod.

SHOWN WITH
SPLICE BOX HOUSING **AAS**



SINGLE SOLENOID

MODEL SVEVA

These models incorporate a 4-way Single Solenoid Double Bleed Pilot Valve. A momentary (NOT continuous) electrical contact is required to move the rod its full stroke. A Bleeder Valve, such as the Allenair BV100 or BV-1/8 (to be ordered separately), must be connected to the spool cap opposite the solenoid.
Depressing this Bleeder Valve momentarily will return the rod to its original position.

Models can be supplied with the rod normally retracted (electrical contact will extend rod) or normally extended (electrical contact will retract rod). The standard solenoid operator, as shown is the **AAS** splice box housing.

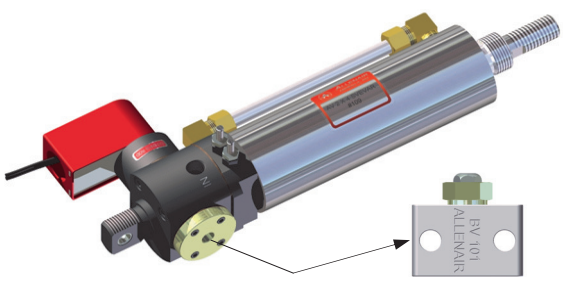
Bore Sizes Available: 1-1/8", 1-1/2", 2", 2-1/2", 3", 4" & *5".
Voltages: 12, 24, 120 & 240/60 AC and 6, 12 & 24VDC
Are standard.

*** 5" BORE AVAILABLE-Consult Factory for Details.**

FOR DIMENSIONS AND MOUNTS SEE PAGES 40 - 44

AVAILABLE IN TYPES "AV", "CV", "EV" & "EVT"

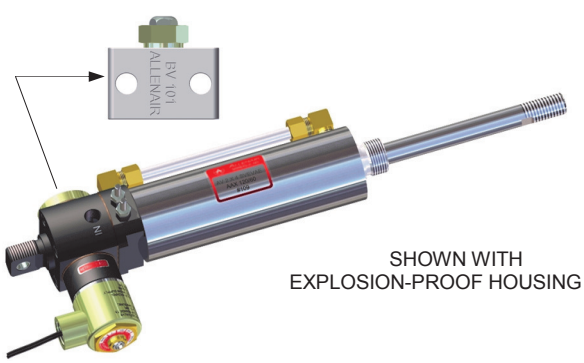
ROD NORMALLY RETRACTED MODEL SVEVAR
Energize solenoid to extend rod, manual bleed signal to retract rod.



OPTIONAL BLEEDER VALVE RETRACTS ROD

ROD NORMALLY EXTENDED MODEL SVEVAE
Energize solenoid to retract rod, manual bleed signal to extend rod.

OPTIONAL BLEEDER VALVE EXTENDS ROD



SHOWN WITH
EXPLOSION-PROOF HOUSING **AAX**

SINGLE SOLENOID

MODEL VER AUTOMATIC RETURN

Models incorporate a 4-way Single Solenoid Double Bleed Pilot Valve. A momentary (NOT continuous) electrical contact is required to move the rod its full stroke. Upon reaching its FULL stroke, the rod will automatically return to its original position.

Models can be supplied with the rod normally retracted (electrical contact will extend rod) or normally extended (electrical contact will retract rod). The standard solenoid operator is the **AAS** splice box housing.

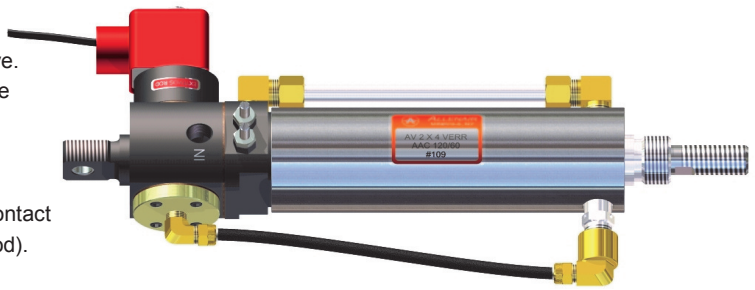
Due to internal construction and application requirements, there can be a loss of approximately 1/8" to 1/4" of stroke.

Bore Sizes Available: 1-1/2", 2", 2-1/2", 3", 4"& *5".
Voltages: 12, 24, 120 & 240/60 and 6, 12 & 24VDC are standard.

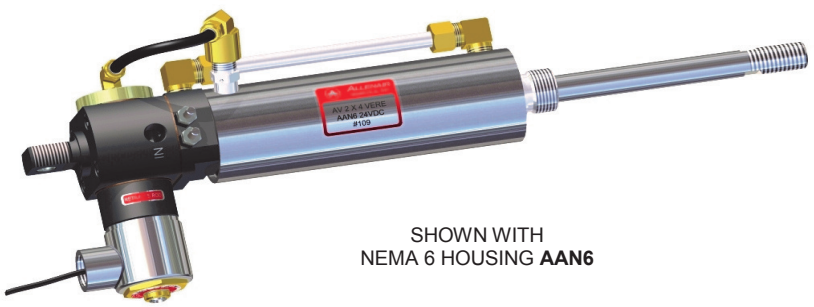
*** 5" BORE AVAILABLE-Consult Factory for Details.**

ROD NORMALLY RETRACTED
MODEL VERR
Energize solenoid to extend rod and retract automatically.

SHOWN WITH
CONDUIT HOUSING **AAC**



ROD NORMALLY EXTENDED
MODEL VERE
Energize solenoid to retract rod and extend automatically.



SHOWN WITH
NEMA 6 HOUSING **AAN6**

DOUBLE SOLENOID

MODEL SDS

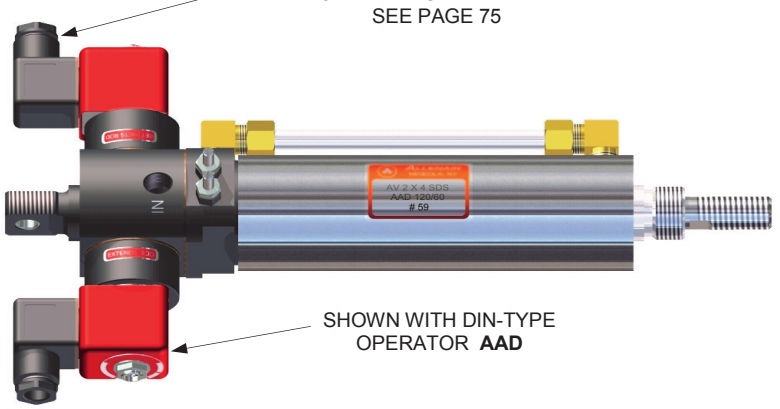
Models incorporate a 4-way Double Solenoid Pressure Pilot Valve. A momentary or maintained electrical contact applied to one solenoid will move the rod its full stroke. The rod will remain there under pressure until the other solenoid is energized, which will cause the rod to return to its original position. If a maintained contact is employed, the first solenoid must be de-energized before the other is energized. The standard solenoid operator is the **AAS** splice box housing.

Bore Sizes Available: 1-1/8", 1-1/2", 2", 2-1/2", 3" , 4" & *5".
Voltages: 12, 24, 120 & 240/60 AC and 6, 12 & 24VDC are standard.

*** 5" BORE AVAILABLE-Consult Factory for Details.**

MODEL SDS
Energize one solenoid to extend rod, other solenoid to retract rod.

DIN FEMALE CONNECTOR
ORDERED SEPARATELY
SEE PAGE 75



SHOWN WITH DIN-TYPE
OPERATOR **AAD**

**FOR DIMENSIONS AND MOUNTS
SEE PAGES 40 - 44**

SINGLE PILOT

MODEL APSR

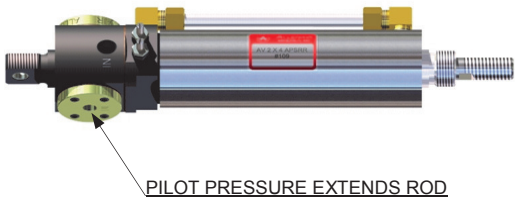
Models incorporate a 4-way Single Pressure Pilot Valve. A continuous pilot pressure applied to "IN" side of valve will move rod its full stroke. When the pilot pressure is released, the rod will return to its original position. Pilot pressure is normally supplied through an optional 3-way N.C. Valve.

Models can be supplied with the rod normally retracted (pilot pressure to extend rod) or normally extended (pilot pressure to retract rod). The pilot pressure must be at least 75% of the operating pressure.

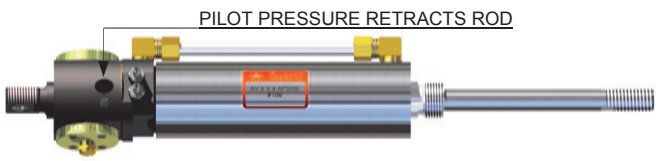
Bore Sizes Available: 1-1/8", 1-1/2", 2", 2-1/2", 3" , 4" & *5".

*** 5" BORE AVAILABLE-Consult Factory for Details.**

MODEL APSRR
ROD NORMALLY RETRACTED



MODEL APSRE
ROD NORMALLY EXTENDED



SINGLE PILOT

MODEL VAR AUTOMATIC RETURN

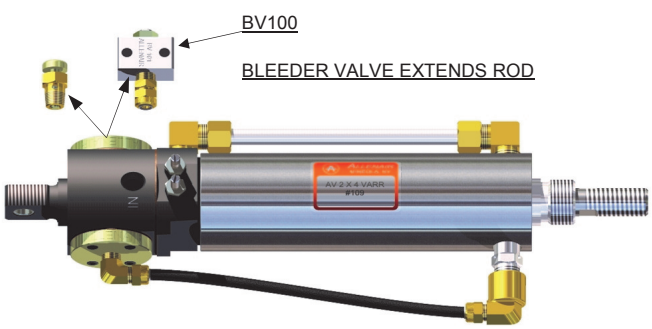
Models incorporate a 4-way Double Bleed Pilot Valve. A momentary (**NOT** continuous) actuation of Bleeder Valve is required to move the rod its full stroke. Upon reaching its **FULL** stroke, the rod will automatically return to its original position.

Models can be supplied with the rod normally retracted (manual bleed to extend rod) or normally extended (manual bleed to retract rod). Due to internal construction and application requirements, there can be a loss of approximately 1/8" to 1/4" of stroke.

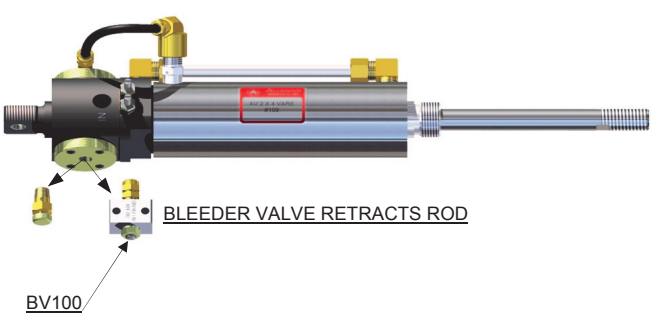
Bleeder Valve Model BV100 is supplied on these models.

Bore Sizes Available: 1-1/2", 2", 2-1/2", 3" & 4".

MODEL VARR
ROD NORMALLY RETRACTED



MODEL VARE
ROD NORMALLY EXTENDED



**FOR DIMENSIONS AND MOUNTS
SEE PAGES 40 - 44**

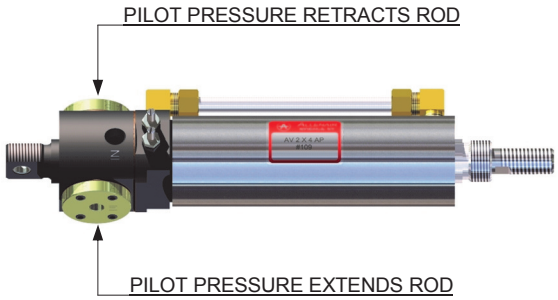
DOUBLE PILOT

MODEL AP

This model incorporates a 4-way Double Pressure Pilot Valve. A momentary or maintained pilot pressure applied to one side of the valve will move the rod its full stroke. The rod will remain in that position under pressure until a pilot pressure is applied to the other side, which will cause the rod to return to its original position. If a maintained pilot pressure is applied, it must be released before the other pilot pressure is applied. Pilot pressure must be at least 25% of the operating pressure.

Bore Sizes Available: 1-1/8", 1-1/2", 2", 2-1/2", 3", 4" & *5".

*** 5" BORE AVAILABLE-Consult Factory for Details.**



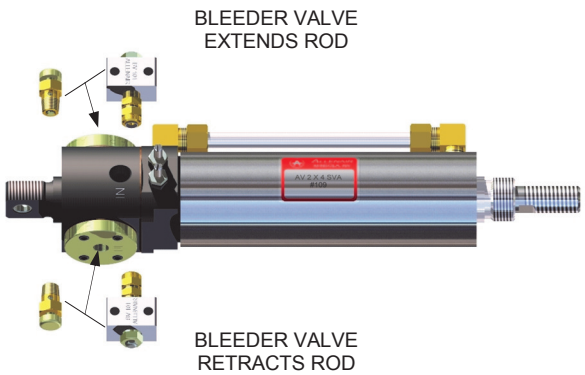
DOUBLE PILOT

MODEL SVA

This model incorporates a 4-way Double Bleed Pilot Valve. A Bleeder Valve, such as the Allenair BV100 or BV-1/8 (to be ordered separately) must be connected to each spool cap. Depressing one Bleeder Valve momentarily will move the rod its full stroke. Depressing the other Bleeder Valve momentarily will return the rod to its original position.

Bore Sizes Available: 1-1/8", 1-1/2", 2", 2-1/2", 3", 4" & *5".

*** 5" BORE AVAILABLE-Consult Factory for Details.**



MANUALLY OPERATED

The following 3 models incorporate a 4-way Manual Valve.
Bore Sizes Available: 1-1/8", 1-1/2", 2", 2-1/2", 3", 4" & *5".

*** 5" BORE AVAILABLE-Consult Factory for Details.**

MODEL VH:

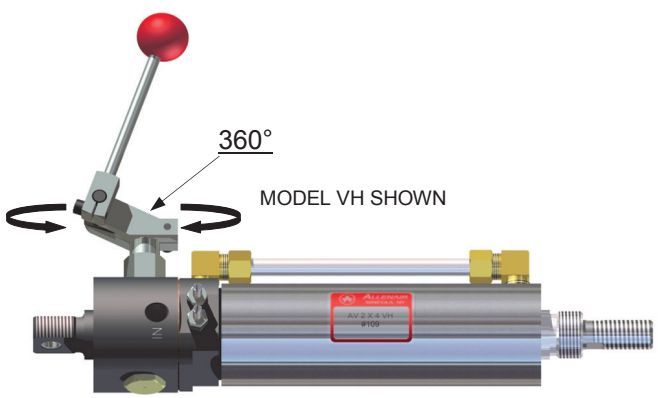
This model requires manual operation of the lever to both extend and retract the rod.

MODEL VHSRR:

This model is lever operated to extend the normally retracted rod. The valve is equipped with a built-in air return which automatically retracts the rod when lever is released.

MODEL VHSRE:

This model is lever operated to retract the normally extended rod. The valve is equipped with a built-in air return which automatically extends the rod when lever is released.



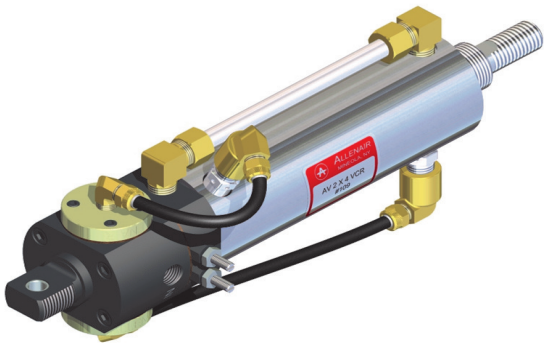
NOTE:
The Lever Assembly is fully adjustable in both the vertical and horizontal planes.

**FOR DIMENSIONS AND MOUNTS
SEE PAGES 40 - 44**

AUTOMATIC RECIPROCATING

MODEL VCR This model incorporates a 4-way Double Bleed Pilot Valve. By means of Built-in Bleeder Valves and internal Cam Bosses, this unit will automatically reciprocate as soon as air pressure is applied. Because of this, it is recommended that a shut-off valve be mounted in the inlet line. Due to internal construction and application requirements, there can be a loss of approximately 1/4" to 1/2" of stroke. Minimum stroke available is 1/2".

Bore Sizes Available: 1-1/2", 2", 2-1/2", 3" & 4".



STANDARD OPTIONS (CYLINDERS)
(AVAILABLE AT EXTRA COST)

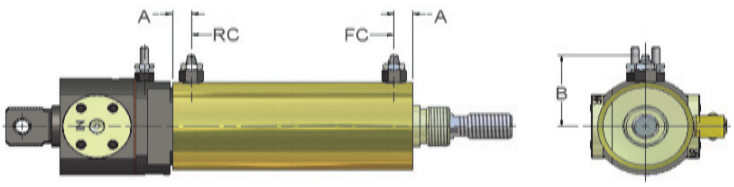
CUSHIONS LAST 1/2 INCH OF STROKE IS EFFECTIVELY CUSHIONED. FULL REVERSE FLOW PROVIDED. CYLINDER LENGTH NOT AFFECTED.

SPECIFY

FC (FRONT CUSHION)

RC (REAR CUSHION)

BC (CUSHION BOTH ENDS)



NOTES:
1) Dim. B cushion screw shown fully closed.
2) Non-Standard Cushion Adjusting Screw locations available at slight additional cost.

DIM.	BORE SIZE				
	1-1/2"	2"	2-1/2"	3"	4"
A	1/2	7/16	1/2	1/2	13/16
B	1-3/4	1-7/64	2-5/16	2-5/8	3-1/16

AVAILABILITY AND TYPES

	BORES SIZES								
	1 1/8"	1 1/8"-OS	1 1/2"	1 1/2"-OS	2"	2"-OS	2 1/2"	2 1/2"-OS	3" thru 4"-OS
FRONT CUSHION (ALL TYPES)	FX	NA	ADJ	FX	ADJ	FX	ADJ	ADJ	ADJ
REAR CUSHION (ALL TYPES)	FX	FX	ADJ	FX	ADJ	ADJ	ADJ	ADJ	ADJ

ADJ = ADJUSTABLE CUSHION AVAILABLE
FX = FIXED CUSHION ONLY AVAILABLE
NA = NO CUSHION AVAILABLE

NOTES: 1) Fixed Cushions are INTERNALLY constructed.
2) When required Cushions are installed on rear section of Type "EVT" Cylinders.

OVERSIZED RODS
SPECIFY OS

BORE SIZES	1-1/8"	1-1/2"	2"	2-1/2"	3"	4"
ROD DIA.	1/2"	5/8"	3/4"	1"	1"	1-1/4"

ROD WIPER
SPECIFY WR Rod Wiper removes dust, dirt and chips from the piston rod on the retracting stroke.

HIGH TEMPERATURE SEALS (CYLINDER & VALVE)
SPECIFY HTP Seals are a fluorocarbon compound (viton) and have an operating temperature range of +10°F to +350°F. They will function at temperatures up to +400°F with reduced life but not recommended. On solenoid operated units the core plunger is also supplied with viton seats.

NO TANG

SPECIFY NT
These Cylinders are available without the Tang section (covered by dimension "E") at no extra charge.
Suggested when Nose or Trunnion Mounting.

DOUBLE ROD PACKINGS

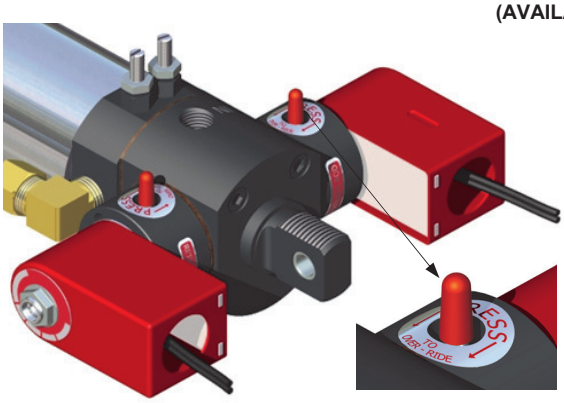
SPECIFY DRP
For all Type "AV" Cylinders, a second set of rod seals is available for Heavy-duty applications. Note: Not available on 1-1/8" bore size.

STAINLESS STEEL RETAINING RINGS

SPECIFY Q
Recommended for extremely damp or corrosive environments.

STANDARD OPTIONS (VALVES)

(AVAILABLE AT EXTRA COST)



MANUAL OVER-RIDE LEVER

SPECIFY OR
Non-locking Manual Over-Ride Levers are available on solenoid operated units. They are particularly useful for set-up or electrical failure.

SOLENOID OPERATORS

AAC **CONDUIT HOUSING,** UL & CSA Listed.

AAD **DIN-type HOUSING** with a male connector configuration of DIN 43650/ISO 4400. See page 75 for female connectors.

AAG **GROMMET HOUSING,** UL & CSA Listed.

AAS **SPLICE BOX HOUSING** (STANDARD), UL & CSA Listed.

AAX **EXPLOSION PROOF,** UL Listed covering Class I Groups C & D (NEMA 7) and Class II Groups E, F & G (NEMA 9).

AAY **SPADE TERMINALS,** UL & CSA Listed.

JIC **NEMA 4/IP-56**

AAN6 **NEMA 6**

SPECIAL VOLTAGES

A wide range of non-standard voltages are available. Specify voltage required.

PIPED EXHAUST ADAPTERS

SPECIFY PE Adapters are available which screw into the solenoid plunger housing, enabling the solenoid exhaust to be piped from the actuator.

MATERIALS

Special seal compounds are available for a wide range of fluid media and environments. Tubes, Front Heads, Pistons and Rods can be supplied plated, hard coated or in other materials.

Please consult the factory for these special requirements, stating quantity required.

MODIFICATIONS

Listed below are some of the many modifications Allenair makes daily.

RODS:

		SPECIFY
Non-Standard Rod Extensions.....	("H" Dim.)……..	Length Required
Non-Standard Rod Threads.....	("CC" Dim.)……	Size Required
Non-Standard Rod Thread Length.....	("J" Dim.)……	Length Required
Female Threads on Rod……..		Size & Depth Required
No Threads on Rod……..		No Threads
Complete Special Rod End Configuration……..		Print from Customer Required
Non-Standard Wrench Flats……..		Location and Size
Special Rod Material……..		Material Required

FRONT HEAD:

Non-Standard Cushion Adj. Screw Location & Extra Ports } Print from Customer required showing full details.

REAR HEAD:

Non-Standard Cushion Adj. Screw Location & Extra Ports } Print from Customer required showing full details.
Non-Standard Swivel Hole in Tang.....("Z" Dim.)…..Size Required
Tang 90° from Standard……90° Tang

SPECIAL DESIGNS

Many times Allenair is able to change the standard configuration of our Cylinders to meet Customer's special requirements. A print from the Customer is needed so we can evaluate and properly quote on such specials.

PLEASE CONSULT FACTORY ON THE ABOVE SPECIALS STATING QUANTITIES REQUIRED.

ORDERING PROCEDURE

TYPE	BORE SIZE	STROKE	CYLINDER OPTIONS	MODEL	VALVE OPTIONS	VOLTAGE	CUSTOMER SPECIAL
SEE PAGE 32	SPECIFY	SPECIFY	SEE PAGES 37,38,39,49,50,51 & 52	SEE PAGES 33,34,35,36 & 37	SEE PAGE 38	SPECIFY	WHEN REQ'D

EXAMPLE: EV 3 X 8 BC IB OS RG SDS AAX OR 120/60 CS

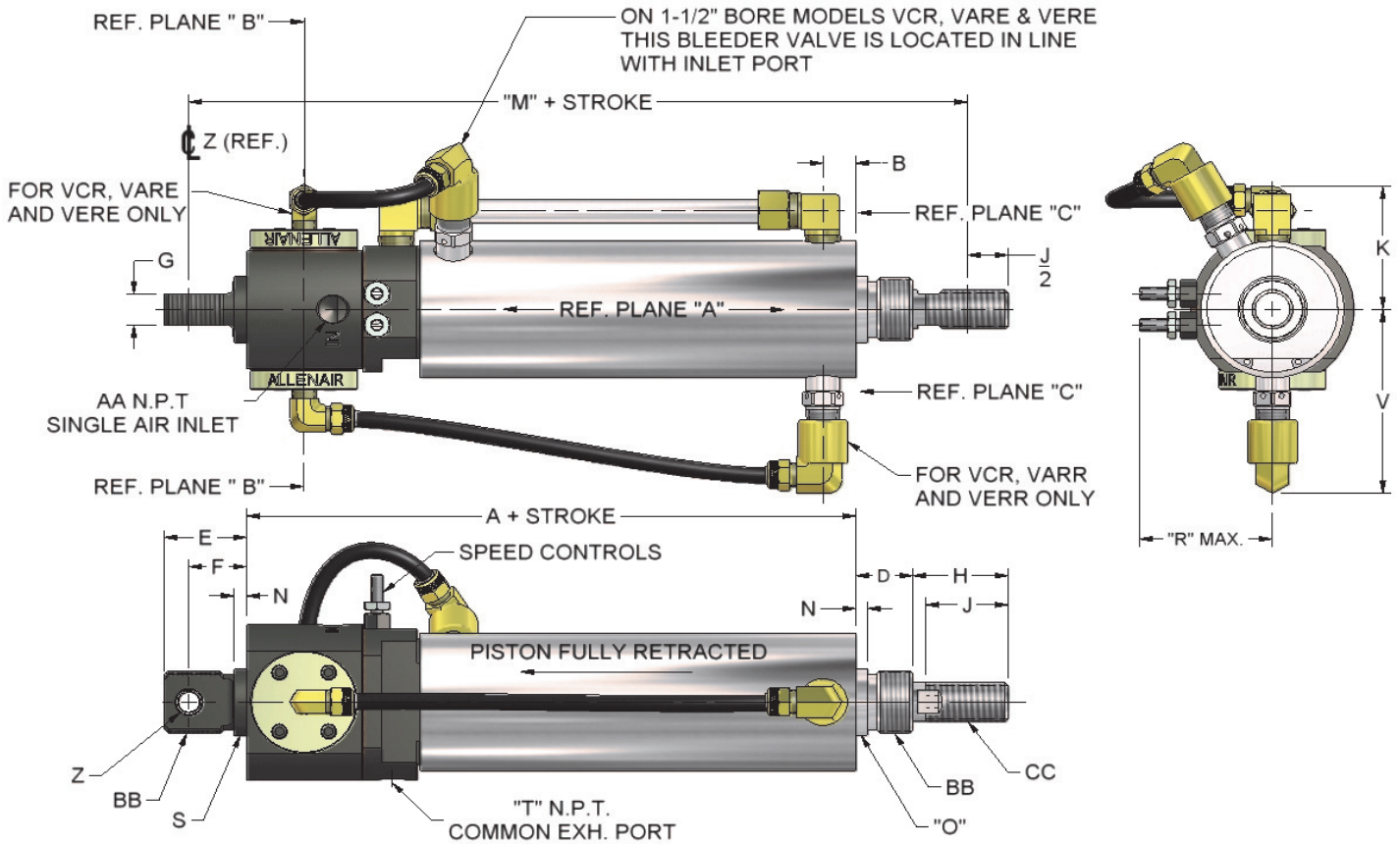
List all Cylinder and Valve Options alphabetically

CODE LETTERS	DESIGNATION
BC……..	Cushions Both Ends
IB……..	AB Accessory Pin Installed in Both Ends
OS……..	Oversized Rod
RG……..	Outboard Rod Guide Installed
AAX……..	Explosion Proof Solenoid Operator
OR……..	Manual Over-Ride Leaver
CS……..	Special per Customers Specifications

VALVE-IN-HEAD ®
DIMENSIONS

DOUBLE ACTING: 1-1/8" - 5" BORES

FOR MODELS:
AP, APSRE, APSRR, SVA, VARE, VARR &VCR



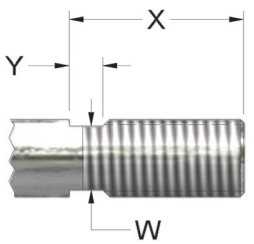
CYL. BORE SIZE	A		B	C	D		E	F	G	H	J	K	L	M				N	O		P	R	S	T
	TYPE AV	TYPES CV, EV EVT			STD.	OS (Front Only)								TYPE AV Std	TYPE AV OS	TYPE CV & EV Std	TYPE CV & EV OS		STD.	OS (Front Only)				
1-1/8"	4-1/2	5-1/2	3/8	♦1-5/16	5/8	5/8	1-1/4	7/8	1/2	1" *	7/8*	2"	1-1/4	6-9/16	6-15/16	7-9/16	7-15/16	3/16	3/4**	7/8	7/8	2-1/32	1-1/16	1/4
1-1/2"	5-1/4	6-1/4	1/2	♦1-11/16	7/8	7/8	1-1/4	7/8	1/2	1-7/16	1-1/4	1-15/16	1-1/4	7-13/16	7-13/16	8-13/16	8-13/16	3/16	1-1/16	1-1/16	7/8	2-1/32	1-1/16	1/4
2"	5-1/4	6-1/4	1/2	♦2-3/16	7/8	7/8	1-1/4	7/8	1/2	1-7/16	1-1/4	2"	1-1/4	7-13/16	7-13/16	8-13/16	8-13/16	3/16	1-1/16	1-3/8	7/8	2-1/32	1-1/16	1/4
2-1/2"	5-5/8	6-5/8	9/16	♦2-11/16	1"	1"	2"	1-3/8	5/8	1-11/16	1-1/2	2-1/4	1-1/4	8-15/16	8-15/16	9-15/16	9-15/16	1/4	1-3/8	1-1/2	7/8	2-1/32	1-3/8	1/4
3"	5-5/8	6-5/8	9/16	♦3-3/16	1"	1"	2"	1-3/8	5/8	1-11/16	1-1/2	2-5/8	1-1/4	8-15/16	8-15/16	9-15/16	9-15/16	1/4	1-3/8	1-1/2	7/8	2-1/32	1-3/8	1/4
4"	8-1/2	8-1/2	13/16	4-3/8	1-1/8	1-7/8	2-3/16	1-7/16	3/4	2-1/4	1-7/8	3-7/16	1-19/32	12-3/8	13-1/8	12-3/8	13-1/8	3/16	1-3/4	2-1/4	13/16	2-7/16	1-3/4	1/2
5"	N/A	8-1/2	13/16	5-3/8	1-7/8	N/A	N/A	N/A	N/A	2-1/4	1-7/8	4-7/16	1-19/32	N/A	N/A	N/A	N/A	3/16	2-1/4	N/A	13/16	2-7/16	N/A	1/2

CYL. BORE SIZE	V	Z	AA	BB		CC		ROD DIA.	
				STD	OS (Front Only)	STD	OS	STD	OS
1-1/8"	—	5/16	1/4	1"-14***	7/8-12	3/8-16	1/2-13	3/8	1/2
1-1/2"	2-5/8	5/16	1/4	1"-14	1"-14	1/2-13	5/8-11	1/2	5/8
2"	2-7/8	5/16	1/4	1"-14	1-3/8-12	5/8-11	3/4-10	5/8	3/4
2-1/2"	3-1/8	7/16	3/8	1-3/8-12	1-1/2-12	3/4-10	1"-14	3/4	1"
3"	3-3/8	7/16	3/8	1-3/8-12	1-1/2-12	3/4-10	1"-14	3/4	1"
4"	3-15/16	1/2	1/2	1-3/4-12	2-1/4-12	1"-14	1-1/4-12	1"	1-1/4
5"	N/A	N/A	1/2	2-1/4-12	N/A	1-1/4-12	N/A	1-1/4	N/A

*On Oversize Models, H=1-3/8" & J=1-1/4"
**7/8 On Type "CV" only.
***1"-14 Rear and 3/4-16 Front on types "AV & "EV"
1"-14 Rear and 7/8-14 Front on types "CV"
♦ Add 1/16" to the "C" dimension for "BU" option.
Omit dimensions E, F, and N when laying out Cylinder with tang section omitted.
Dimension "A" on "4" Bore No Tang is 8"

STANDARD WRENCH FLATS

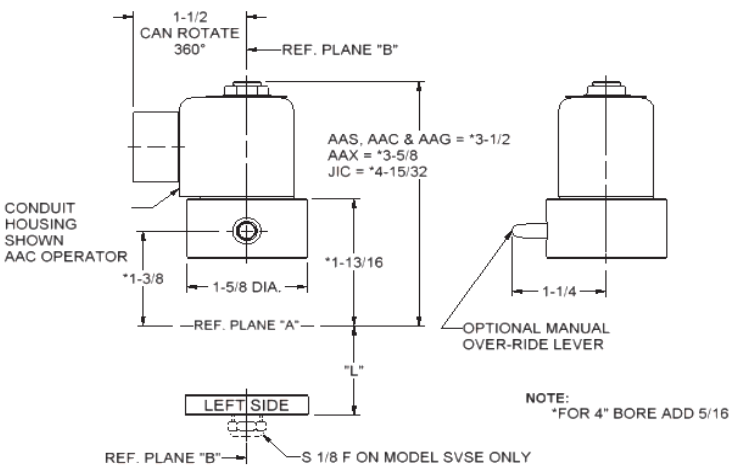
ROD DIA.	W	X	Y
3/8"	5/16	15/16	5/16
1/2"	7/16	1-3/8	5/16
5/8"	1/2	1-3/8	5/16
3/4"	5/8	1-5/8	5/16
1"	7/8	2-1/8	3/8
1-1/4"	1-1/8	2-1/8	3/8



FOR MODELS:
SVSE
SVEVAR
VERR
ALL OPERATORS

To complete drawings of above models, simply match reference planes "A" and "B" with those on the top view of the master drawing on page 40

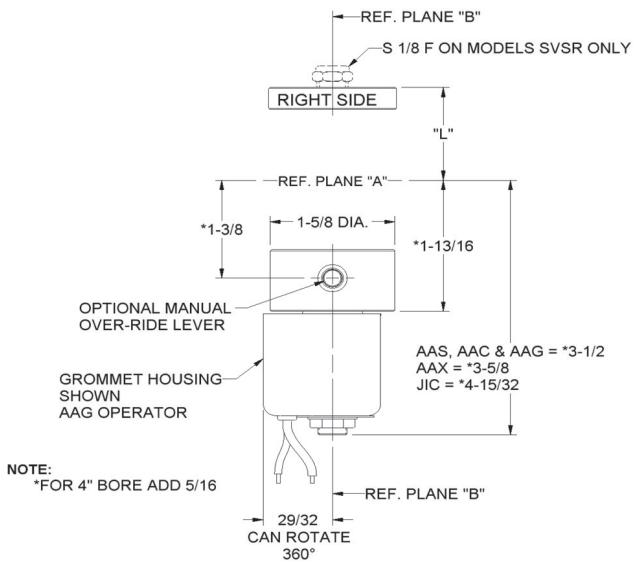
For AAS, AAX and JIC housing dimensions see below and for AAG dimensions see Right side.



FOR MODELS:
SVSR
SVEVAE
VERE
ALL OPERATORS

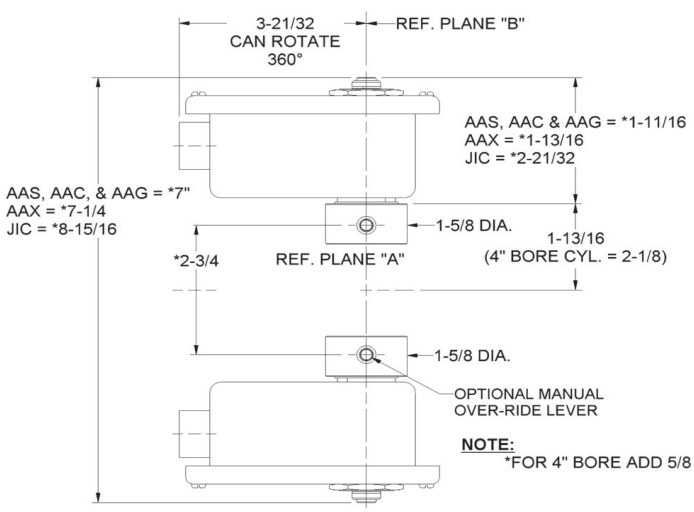
To complete drawings of above models, simply match reference planes "A" and "B" with those on the top view of the master drawing on page 40

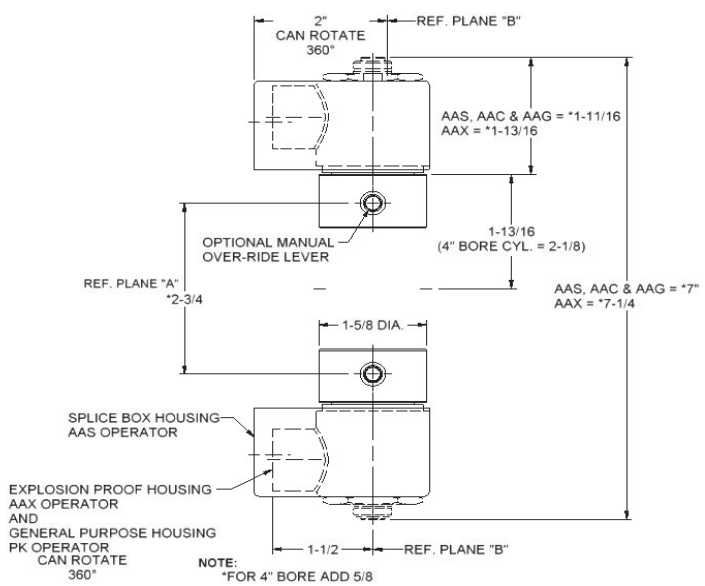
For AAC housing dimensions see left side of page. for JIC and AAX dimensions see below.



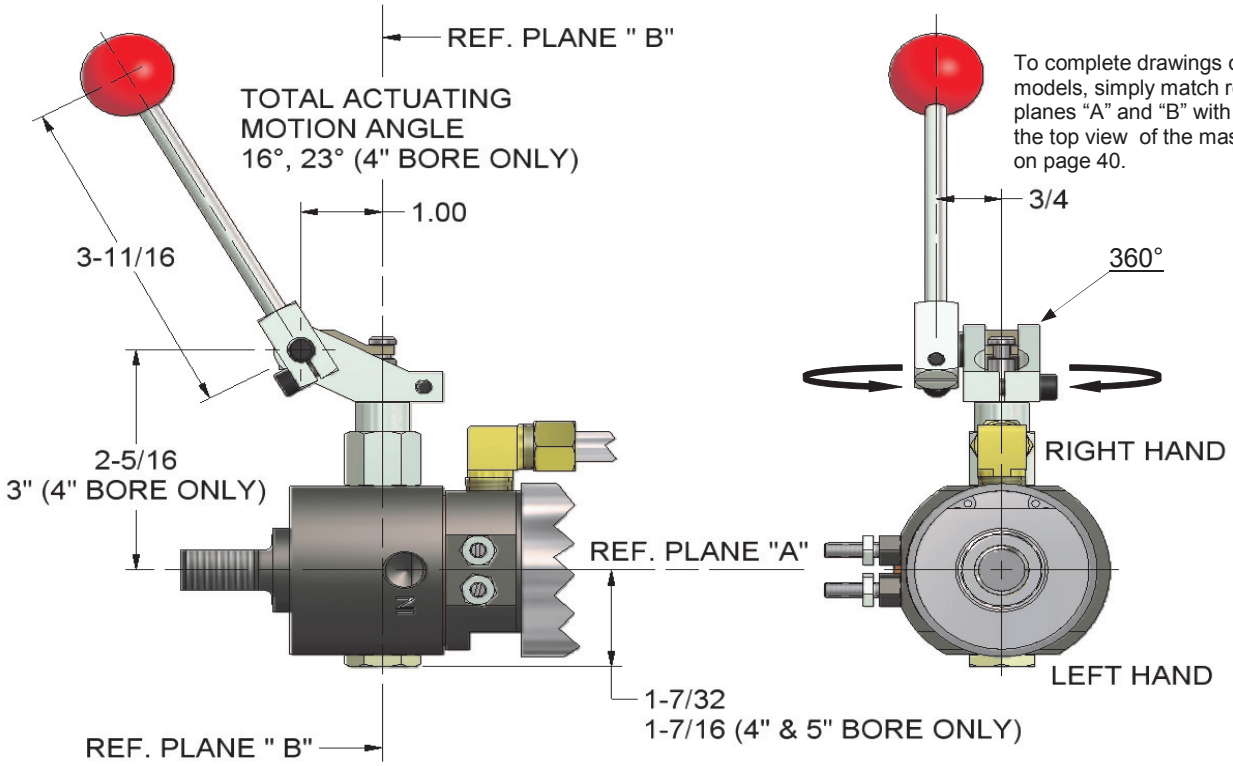
FOR MODELS:
SDS
ALL OPERATORS

To complete drawings of above models, simply match reference planes "A" and "B" with those on the top view of the master drawing on page 40
For AAC and AAG housing dimensions see above and for JIC dimensions look to the left.





FOR MODELS: VH , VHSRE & VHSRR

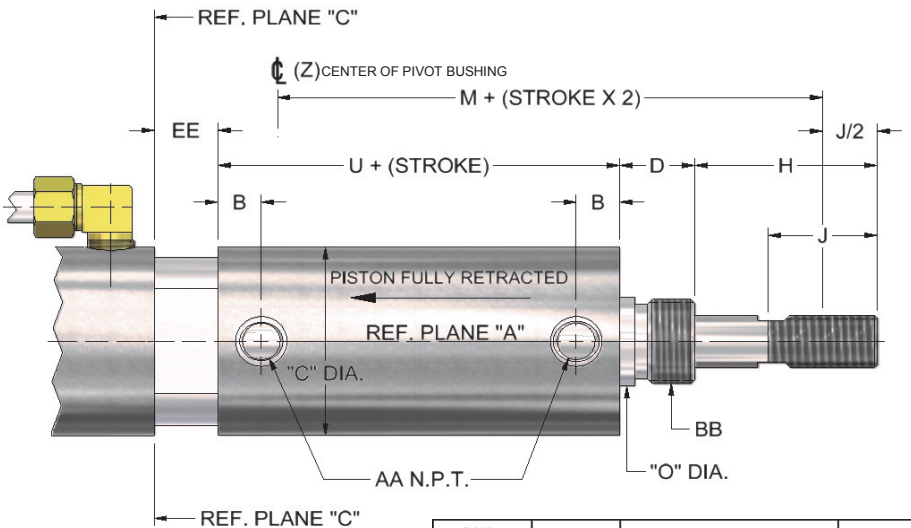


To complete drawings of above models, simply match reference planes "A" and "B" with those on the top view of the master drawing on page 40.

NOTES:

1) FOR MODEL VHSRR THE HANDLE ASSEMBLY IS LOCATED ON THE LEFT SIDE
2) THE HANDLE HAS A 180° ADJUSTMENT AND MAY BE ROTATED TO ANY POSITION ABOUT REF. PLANE "B"
3) FOR ALL MODELS WHEN USED WITH 4" & 5" BORE CYLINDERS, DIMENSION "A" & "M" ARE 9/16 LESS THAN THOSE ILLUSTRATED ON PAGE 40.

FOR TYPE EVT



To complete drawings of Tandem unit, simply match reference planes "A" and "C" with those on the top view of the master drawing on page 40.

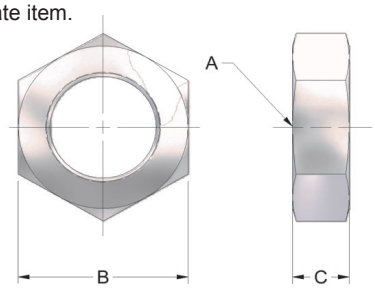
CYL. BORE SIZE	H	M		U	EE
		Std	OS		
1-1/2"	2-1/16	13-13/16	13-13/16	3-5/8	3/4
2"	2-1/16	13-13/16	13-13/16	3-5/8	3/4
2-1/2"	1-11/16	14-15/16	14-15/16	3-7/8	1-1/8
3"	1-11/16	14-15/16	14-15/16	3-7/8	1-1/8
4"	2-1/4	13-1/2	14-1/4	4-7/8	1-1/8

CYL. BORE SIZES	FOOT MOUNT			FLANGE MOUNT			ROD CLEVIS, NUT & PIN		ROD NUT ONLY		SWIVEL BRACKET & PIN	TRUNNION (BU OPTION)	MOUNTING NUTS	
	FRONT		REAR	FRONT		REAR								
	STD	OS		STD	OS		STD	OS	STD	OS			STD	OS (Front Only)
1-1/8"	AV-232 ♦	AV-232-OS	A-232	A-129 ♦	A-129-OS	A-229	A-145	A-1545	A-126	A-1526	A-239	T-1	A-114*♦	A-114-OS*
1-1/2"	A-232	A-232	A-232	A-229	A-229	A-229	A-1545	A-245	A-1526	A-226	A-239	T-1.5	A-214	A-214
2"	A-232	A-232-OS	A-232	A-229	A-229-OS	A-229	A-245	A-345	A-226	A-326	A-239	T-2	A-214	A-314
2-1/2"	A-332	A-332-OS	A-332	A-329	A-329-OS	A-329	A-345	A-445	A-326	A-426	A-339	T-2.5	A-314	A-314-OS
3"	A-332	A-332-OS	A-332	A-329	A-329-OS	A-329	A-345	A-445	A-326	A-426	A-339	T-3	A-314	A-314-OS
4"	A-432	A-432-OS	A-432	A-429	A-429-OS	A-429	A-445	A-445-OS	A-426	A-526	A-439	T-4	A-414	A-414-OS

♦Type "CV" Standard Cylinders use OS Mount or Mounting Nut for front.
*For Front Head Only. Rear takes A-214.

MOUNTING NUTS

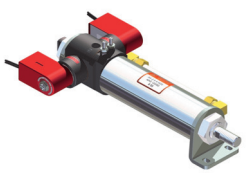
Mounting Nuts are supplied only with Flange or Foot Mounts and are included in the price of those Mounts. However, they may be purchased as a separate item.

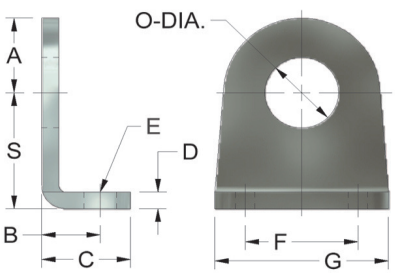


PART No.	A	B	C
A-114	3/4-16	1-1/16	3/8
A-114-OS	7/8-14	1-1/4	25/64
A-214	1"-14	1-1/2	1/2
A-314	1-3/8-12	1-3/4	5/8
A-314-OS	1-1/2-12	1-13/16	5/8
A-414	1-3/4-12	2-1/4	3/4
A-414-OS	2-1/4-12	3"	1"

MOUNTING BRACKET DIMENSIONS

FOOT MOUNT

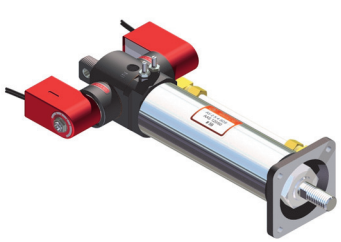


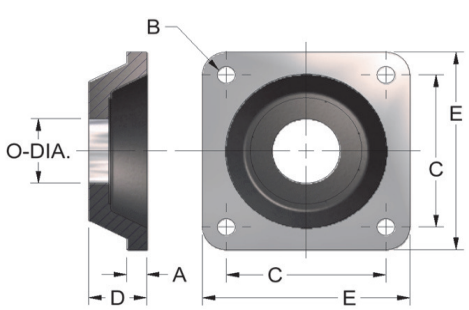


DIM.	PART NUMBERS									
	A-132		AV-232		A-232		A-332		A-432	
	STD	OS	STD	OS	STD	OS	STD	OS	STD	OS
A	11/16	11/16	1-1/8	1-1/8	1-1/8	1-1/8	1-3/8	1-3/8	1-7/8	1-7/8
B	7/8	7/8	7/8	7/8	7/8	7/8	1-1/4	1-1/4	1-3/4	1-3/4
C	1-3/8	1-3/8	1-9/32	1-9/32	1-9/32	1-9/32	1-29/32	1-29/32	2-17/32	2-17/32
D	3/16	3/16	1/4	1/4	1/4	1/4	5/16	5/16	1/2	1/2
E	9/32	9/32	9/32	9/32	9/32	9/32	13/32	13/32	15/32	15/32
F	1-11/16	1-11/16	1-5/8	1-5/8	1-5/8	1-5/8	2-1/4	2-1/4	3-1/4	3-1/4
G	2-1/2	2-1/2	2-1/2	2-1/2	2-1/2	2-1/2	3-1/2	3-1/2	5"	5"
O	3/4	7/8	3/4	7/8	1-1/16	1-3/8	1-3/8	1-1/2	1-3/4	2-1/4
S	1-9/32	1-9/32	1-3/4	1-3/4	1-3/4	1-3/4	2-3/8	2-3/8	3-3/16	3-3/16

FLANGE MOUNT

FRONT OR REAR



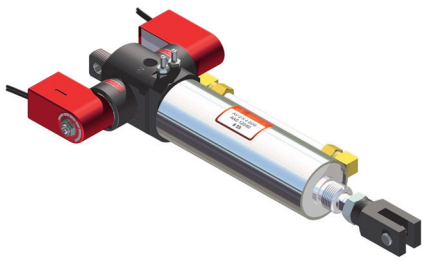


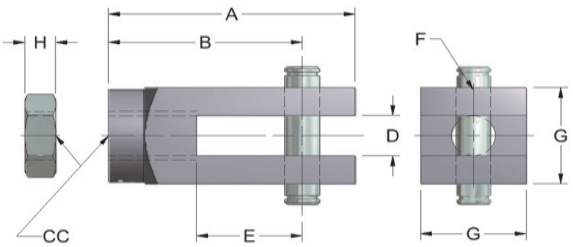
DIM.	PART NUMBERS							
	A-129		A-229		A-329		A-429	
	STD	OS	STD	OS	STD	OS	STD	OS
A	9/32	9/32	11/32	11/32	13/32	13/32	7/16	1 29/32
B	9/32	9/32	9/32	9/32	13/32	13/32	15/32	15/32
C	2"	2"	2-1/2	2-1/2	3-3/8	3-3/8	4"	4"
D	5/8	5/8	7/8	7/8	1"	1"	1 1/8	1-29/32
E	2-1/2	2-1/2	3-1/4	3-1/4	4-1/2	4-1/2	5-1/4	5-1/4
O	3/4	7/8	1-1/16	1-3/8	1-3/8	1-1/2	1-3/4	2-1/4

Front Flange Mounting **NT** Option suggested
Rear Flange Mounting **J2** Option suggested
provides Tang flush with flange mounting surface.

VALVE-IN-HEAD ® MOUNTS

ROD CLEVIS, NUT & PIN

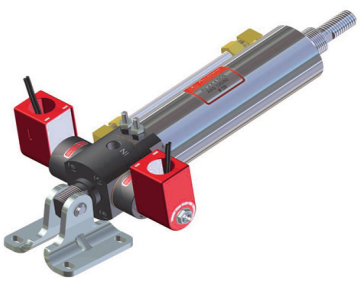


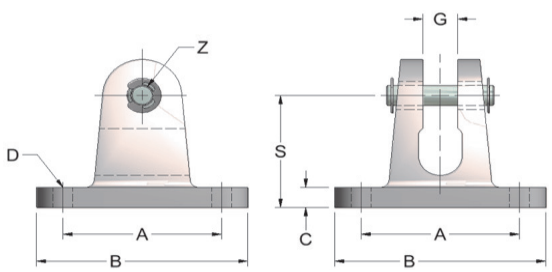


*Order A-445

DIM.	PART NUMBERS									
	A-145		A-1545		A-245		A-345		A-445	
	STD	OS	STD	OS	STD	OS	STD	*OS	STD	OS
A	1-3/4	2-1/4	2-1/4	2-1/4	2-1/4	2-3/8	2-3/8	3-3/8	3-3/8	3-1/2
B	1-3/8	1-3/4	1-3/4	1-3/4	1-3/4	1 13/16	1-13/16	2-5/8	2-5/8	2-5/8
CC	3/8-16	1/2-13	1/2-13	5/8-11	5/8-11	3/4-10	3/4-10	1"-14	1"-14	1-1/4-12
D	5/16	3/8	3/8	3/8	3/8	1/2	1/2	5/8	5/8	3/4
E	3/4	13/16	13/16	13/16	13/16	3/4	3/4	1-1/16	1-1/16	1-1/8
F	1/4	5/16	5/16	5/16	5/16	7/16	7/16	1/2	1/2	3/4
G	3/4	1"	1"	1"	1"	1-1/4	1-1/4	1-1/2	1-1/2	1-3/4
H	7/32	5/16	5/16	3/8	3/8	27/64	27/64	1/2	1/2	23/32

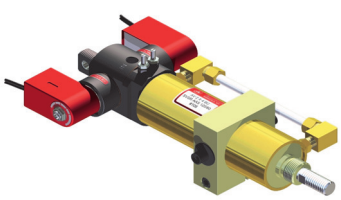
SWIVEL BRACKET



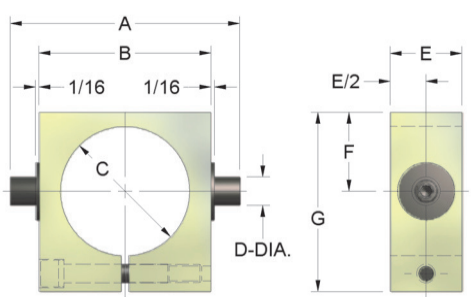


DIM.	PART NUMBERS			
	A-139	A-239	A-339	A-439
A	1-3/4	2-1/4	3"	3-3/4
B	2-1/4	3"	4"	5"
C	1/4	5/16	5/16	1/2
D	9/32	9/32	13/32	15/32
G	3/8	1/2	5/8	3/4
S	1-9/32	1-3/4	2-3/8	3-3/16
Z	1/4	5/16	7/16	1/2

TRUNNION MOUNT

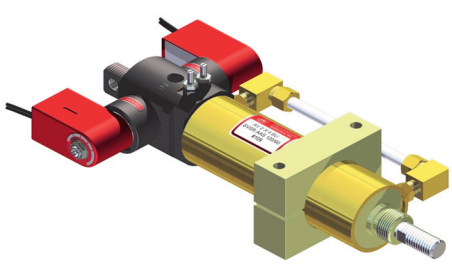


BU OPTION REQUIRED
NT OPTION SUGGESTED

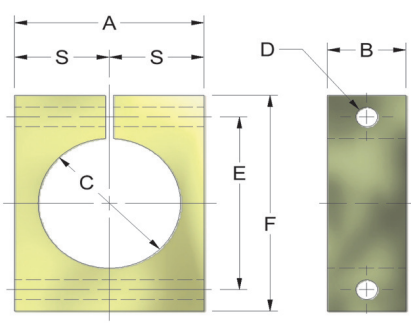


DIM.	PART NUMBERS					
	T- 1	T- 1.5	T- 2	T- 2.5	T- 3	T- 4
A	3-1/2	4"	4"	5-1/2	5-3/4	7"
B	2-1/4	3"	3"	4"	4-1/4	5-1/2
C	1-3/8	1-3/4	2-1/4	2-3/4	3-1/4	4-3/8
D	3/8	1/2	1/2	3/4	3/4	3/4
E	3/4	1-1/4	1-1/4	1-1/2	1-1/2	1-1/2
F	7/8	1-1/8	1-3/8	1-7/8	2-1/8	2-11/16
G	2"	2-5/8	3-1/8	4"	4-1/2	5-3/4

BLOCK MOUNT



BU OPTION REQUIRED
NT OPTION SUGGESTED



DIM.	PART NUMBERS			
	BM-7/8	BM-1 1/8	BM-1 1/2	BM-2
A	1-1/2	1-3/4	2-1/4	3"
B	1"	1"	1-1/4	1-1/4
C	1-1/8	1-3/8	1-3/4	2-1/4
D	9/32	9/32	9/32	11/32
E	1-5/8	1-7/8	2-3/8	3"
F	2-1/4	2-1/2	3"	3-3/4
S	3/4	7/8	1-1/8	1-3/8

ALLENAIR "TIME-A-VALVE"®
See page 80.

Cylinders are available with 1-1/8" bore only. They are Single Acting Cylinders controlled by a 3-way Single Solenoid Valve mounted to the rear head of the units. The standard solenoid operator (as shown) is the **AAS** splice box housing. A general purpose conduit housing **(AAC)** is also available. Most common AC & DC voltages are available. 12, 24, 120 & 240/60 and 6, 12 & 24/DC are standard. The basic construction is the same as our 1-1/8" bore Type "A" Cylinders.

TYPE AVSA

A continuous electrical contact is required to fully extend the rod, which will remain extended until the electrical contact is broken. An external force is required to return the rod to its original position. A 1/8" N.P.T. port is provided in the front head to permit the return of the rod by means of a separate air supply when required. This port can also be used to install a Flow Control Valve to control forward speed.
Standard stroke lengths are whole inch increments from 1" through 20" and 1/2", 1-1/2", 2-1/2" and 3-1/2" . Special strokes available from 1/8" to 80" maximum.

TYPE AVSR

ROD NORMALLY RETRACTED
A continuous electrical contact is required to fully extend the rod, which will remain extended until the electrical contact is broken. An internal spring will return the rod to its fully retracted position.
SPRING FORCE: 17 LBS. AT REST, 40 LBS. FULL STROKE.
Standard stroke lengths are whole inch increments from 1" through 10" and 1/2", 1-1/2", 2-1/2" & 3-1/2"
Special strokes available from 1/4" to 10" maximum.

TYPE AVSRR

ROD NORMALLY EXTENDED
A continuous electrical contact is required to fully retract the rod, which will remain retracted until the electrical contact is broken. An internal spring will return the rod to its fully extended position.
SPRING FORCE: 17 LBS. AT REST, 40 LBS. FULL STROKE.
Standard stroke lengths are whole inch increments from 1" through 10" and 1/2", 1-1/2", 2-1/2" and 3-1/2" . Special strokes available from 1/4" to 10" maximum.

NOTE: On above types the normal actuation may be reversed by using the optional **PE** adaptor as the air inlet.

OPTIONS

For available options, please see Pages 37, 38, and 39. Cushions not available on these cylinders.

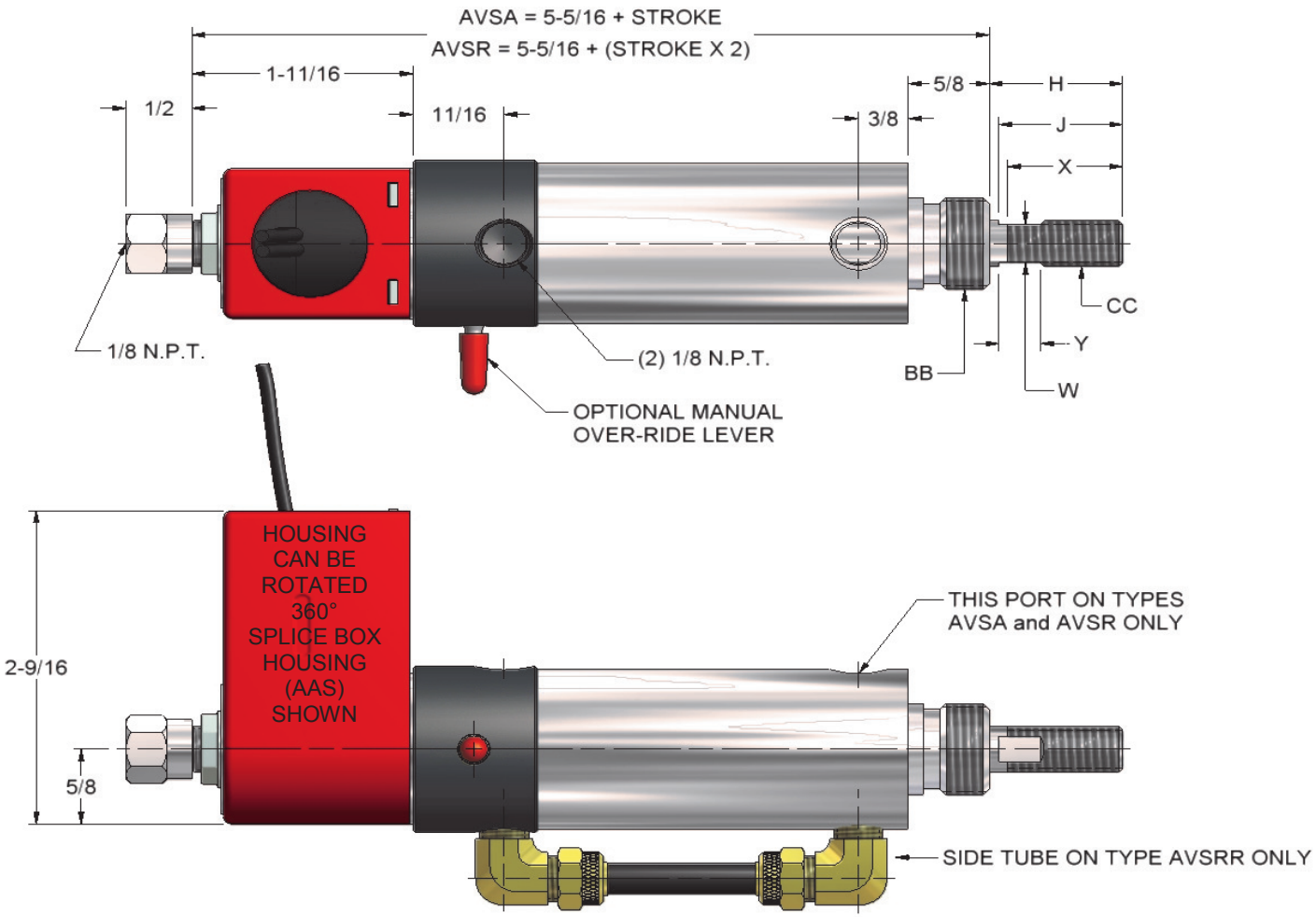
ORDERING PROCEDURE

TYPE SEE ABOVE	**BORE** 1-1/8" ONLY	**STROKE** SPECIFY	**CYLINDER OPTIONS** SEE PAGES 37, 38,39	**VALVE OPTIONS** SEE PAGE 38	**VOLTAGE** SPECIFY	**CUSTOMER SPECIAL** WHEN REQ'D

EXAMPLE: AVSR 1-1/8 X 4 OS RG AAS OR 120/60 CS

CODE LETTERS	DESIGNATION
OS	Oversized Rod
RG	Outboard Rod Guide Installed
AAS	Standard Splice Box Housing
OR	Manual Over-Ride Leaver

NOTE: List all Cylinder and Valve Options alphabetically.



NOTE: MOUNTING NUT IS SUPPLIED

	H	J	W	X	Y	BB	CC
STANDARD	1	7/8	5/16	15/16	5/16	3/4-16	3/8-16
OVERSIZE	1-3/8	1-1/4	7/16	1-3/8	5/16	7/8-14	1/2-13

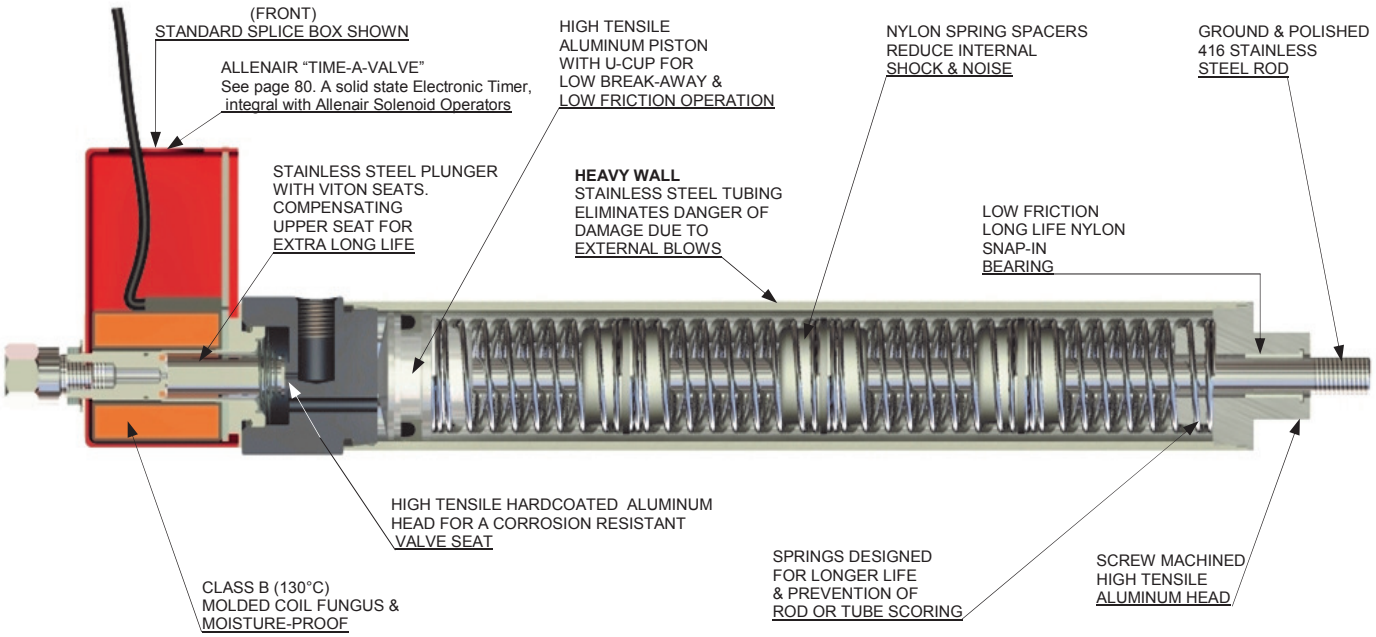
MOUNTING BRACKET PART NUMBERS

	FOOT MOUNT	FLANGE MOUNT	ROD CLEVIS NUT & PIN	ROD NUT	TRUNNION MOUNT	BLOCK MOUNT	MOUNTING NUT
STANDARD	A-132	A-129	A-145	A-126	T-1*	BM-1*	A-114
OVERSIZE	A-132-OS	A-129-OS	A-1545	A-1526	T-1*	BM-1*	A-114-OS

* BU OPTION REQUIRED

FOR MOUNTING BRACKET DIMENSION SEE PAGES 20 & 21

Stainless Steel Tube Completely Repairable Unit
DESIGN FEATURES & MATERIALS



Most common AC & DC Voltages are available. 12, 24,120 & 240/60 and 6, 12 & 24VDC are standard. Maximum operating pressure - 150 P.S.I.

A continuous electrical contact is required to fully extend the rod, which will remain extended until the electrical contact is broken, at which time the spring will return the rod to its fully retracted position. This action can be reversed by using the optional PE adapter as the air inlet.

TYPE AVSM - 1/2"

Standard stroke lengths in 1/2"increments to 4".

Spring Force:

20 oz. retracted.

40 oz. extended.

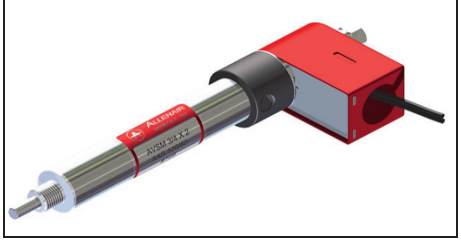
TYPE AVSM - 3/4"

Standard stroke lengths in 1" increments to 4".

Spring Force:

2 lbs. retracted.

7 lbs. extended.

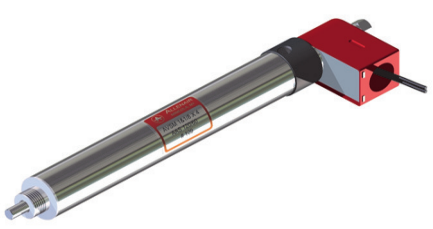


TYPES AVSM- 1-1/8" AVSMS- 1-1/8"

Standard stroke lengths in 1" increments to 4".

Spring Force:

AVSM	AVSMS
3	6– 1/2 lbs. retracted
6	13 lbs. extended.



OPTIONS

SPECIFY HTP FOR HIGH TEMPERATURE CYLINDER SEALS

These seals are a fluorocarbon compound (viton) and have an operating temperature range of 10° F to 350° F. They will function at temperatures up to 400° F with reduced life.

SPECIFY OR FOR MANUAL OVER-RIDE LEVER

Non-locking manual over-ride lever is available. It is particularly useful for set-up or when an electrical failure occurs.

SPECIFY IL AFTER VOLTAGE FOR INDICATOR LIGHT

Light indicates when solenoid is energized.

ACCESSORIES

SPECIFY AE FOR ADJUSTABLE EXHAUST

The exhaust screw threads into the solenoid plunger housing, enabling speed adjustment of retracting stroke. (Cannot be used with piped exhaust or silencer.)

SPECIFY PE FOR PIPED EXHAUST

Adapters are available which screw into the solenoid plunger housing, enabling the exhaust to be piped from the unit. (Cannot be used with adjustable exhaust or silencer.)

SPECIFY EA-27 FOR SINTERED SILENCER

Silencers are available which screw into the solenoid plunger housing reducing exhaust noise to an acceptable level. (Cannot be used with adjustable exhaust or piped exhaust.)

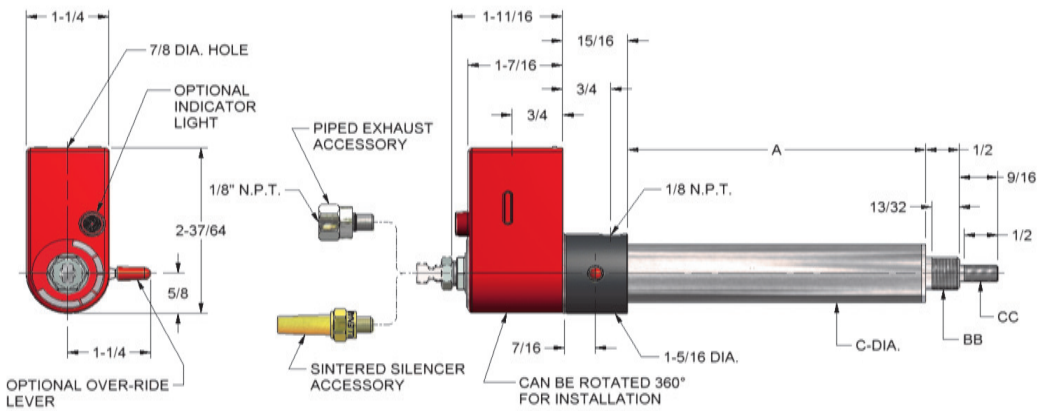
ORDERING PROCEDURE

TYPE	BORE	STROKE	OPTIONS (list alphabetically)	VOLTAGE

EXAMPLE: AVSM 3/4 X 4 - AE - OR - 24/VDC

ORDER MOUNTS SEPARATELY- SHOWN BELOW

DIMENSIONS



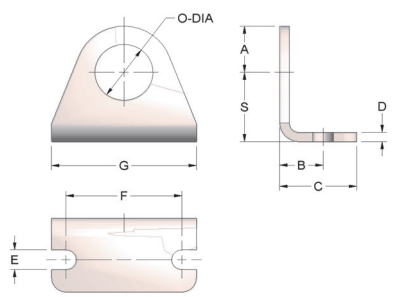
CYL. BORE SIZES	A STROKE 1/2"	1"	1-1/2"	2"	2-1/2"	3"	3-1/2'	4"	C	BB	CC
1/2"	2-3/16	3-1/4	4-5/16	5-3/8	6-7/16	7-1/2	8-9/16	9-5/8	21/32	1/2-20	1/4-28
3/4"	-	2-3/4	-	4-7/16	-	6-1/8	-	7-13/16	29/32	1/2-20	1/4-28
1-1/8"	-	2-15/16	-	4-3/4	-	6-9/16	-	8-3/8	1-9/32	3/4-16	5/16-24

MOUNTING BRACKETS

CYLINDER BORE SIZES	PART NUMBERS * FOOT MOUNTS FRONT	REAR	FLANGE MOUNT	ROD CLEVIS, NUT & PIN
1/2"	AVSM-532	AVSM-532-R	AVSM-529	AVSM-545
3/4"	AVSM-532	AVSM-732-R	AVSM-529	AVSM-545
1-1/8"	AVSM-132	AVSM-132-R	AVSM-129	AVSM-145

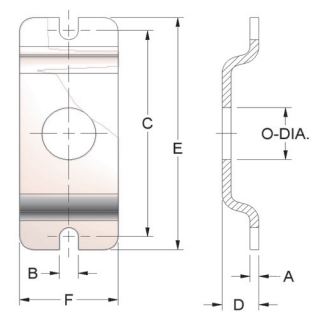
NOTES: FRONT NOSE MOUNTING NUT IS PROVIDED WITH EACH CYLINDER

NOTE: * Foot Mounts will be sold only in pairs, (Front & Rear). Rear Foot Mount slips over tube, ("C" Dia.).



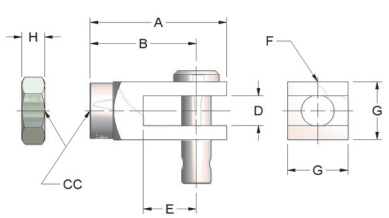
FOOT MOUNT

PART NOS.	A	B	C	D	E	F	G	O	S
AVSM-132	5/8	9/16	1"	1/8	17/64	1-1/2	1-7/8	3/4	15/16
AVSMM-132-R	25/32	9/16	1"	3/32	17/64	1-1/2	1-7/8	1-19/64	15/16
AVSM-532	7/16	7/16	3/4	1/8	13/64	1-1/4	1-5/8	1/2	3/4
AVSM-532-R	19/32	7/16	3/4	3/32	13/64	1-1/4	1-5/8	43/64	3/4
AVSM-732-R	19/32	7/16	3/4	3/32	13/64	1-1/4	1-5/8	59/64	3/4



FLANGE MOUNT

PART NOS.	A	B	C	D	E	F	O
AVSM-529	1/8	13/64	2-1/4	33/64	2-5/8	1"	1/2
AVSM-129	1/8	17/64	3"	33/64	3-3/8	1-3/8	3/4

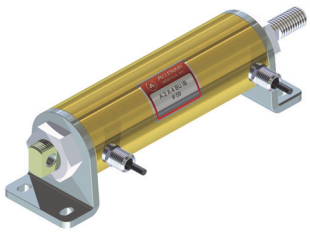


ROD CLEVIS, NUT & PIN

PART NOS.	A	B	CC	D	E	F	G	H
AVSM-545	1-1/8	7/8	1/4-28	1/4	5/8	1/4	1/2	5/32
AVSM-145	1-1/8	7/8	5/16-24	1/4	5/8	1/4	1/2	3/16

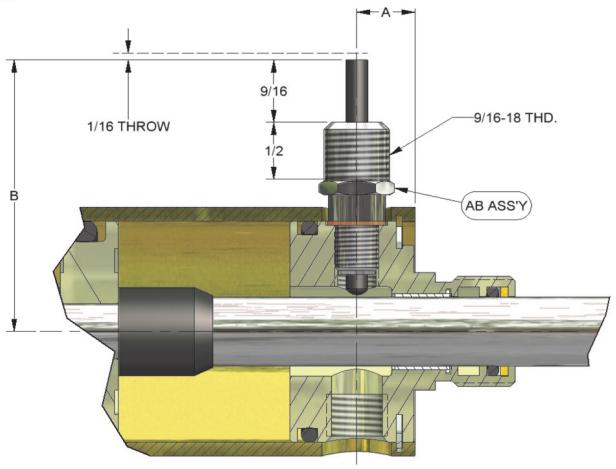
AB ACCESSORY PIN

The 1/16" throw of these pins can be used to actuate an electrical switch or small valve to control another piece of equipment. Actuation begins approximately 1/8" before full stroke of cylinder is completed, pins can be installed in one or both ends.



PIN LOCATIONS

Standard Cylinders:
Pins are located in the same plane as the tail pivot hole centerline and the ports are 180° from the pins.
Square Head Cylinders:
Pins are located 90° clockwise from ports, looking from rod end.
Valve-in-Head Cylinders:
Pins are located 90° counterclockwise from inlet port, looking from rod end.
Special locations available upon request at additional cost.



ORDERING PROCEDURE

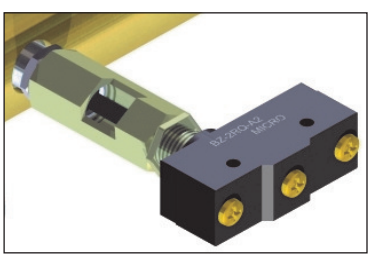
After cylinder nomenclature specify:
IF for pin installed in front end.
IR for rear end.
IB for both ends.
Available on All Types of 1-1/2", 2", 2-1/2", 3" & 4" bore sizes.
Maximum operating pressure is 150 P.S.I.

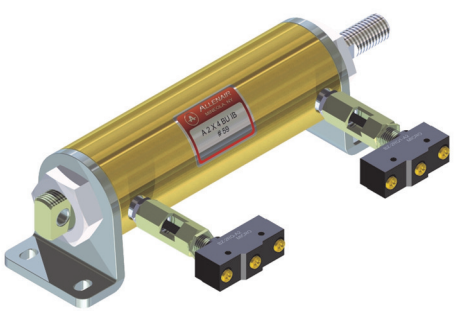
BORE SIZE	A	B	PART NUMBERS	
			STD	OS
1-1/2"	1/2	2-5/32	AB-1580	AB-1580-OS
2"	1/2	2-7/16	AB-280	*AB-280 OS
2-1/2"	9/16	2-11/16	AB-2580	AB-2580
3"	9/16	2-31/32	AB-380	AB-380
4"	1"	3-21/64	AB-480	AB-480

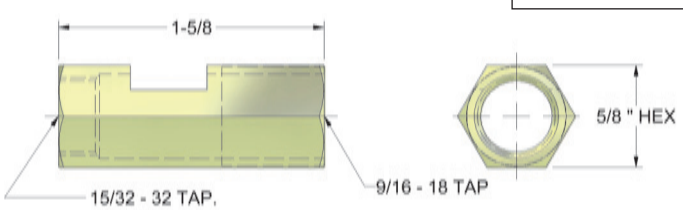
* For rod end only, rear end is standard.

AB-90 SWITCH COUPLER

This aluminum coupler fits all the accessory pins and simplifies the mounting of a micro® type switch. A window in coupler provides for easy visual adjustment.



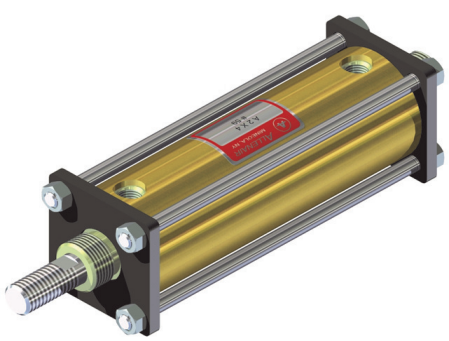




TIE-ROD KIT

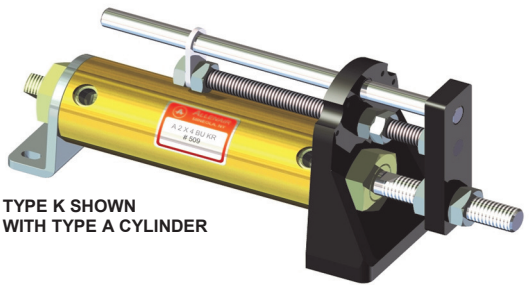
The Tie-Rod kit gives our field proven cylinders additional strength for your most demanding applications.
Available in all bore sizes up to 4"

CYL. BORE SIZES	TIE ROD KITS PART NUMBER	
	STD.	OS
1-1/2"	TR 1.5	TR 1.5
2"	TR 2.0	TR 2.0 OS
2-1/2"	TR 2.5	TR 2.5 OS
3"	TR 3.0	TR 3.0 OS
4"	TR 4.0	TR 4.0 OS
5"	TR 5.0	TR 5.0



ADJUSTABLE STROKE KITS

Adjustable Stroke Kits enable an infinite range of zero to full stroke adjustments from either end, and can also be used to prevent a cylinder rod from rotating. They are designed to be used with most Allenair Cylinders of 1-1/2"', 2", 2-1/2", 3" & 4" bore sizes, except where noted.

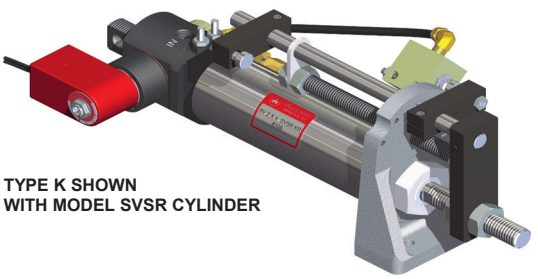


TYPE K SHOWN
WITH TYPE A CYLINDER

TYPE: K ADJUSTABLE STROKE KIT

Adjustable Stroke Kits for all Cylinders, except Integral Square Head Types and Valve-in-Head Models VAR, VER and VCR.

This Kit consists of Front Foot Mount, Rod Tie Bar, Threaded Adjustment Rod and Guide Rod.



TYPE K SHOWN
WITH MODEL SVSR CYLINDER

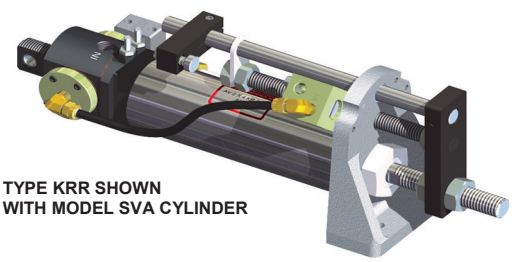
TYPES: KRE AND KRR AUTOMATIC RETURN

KRE and KRR automatic return Adjustable Stroke Kits are designed to be used with Valve-in-Head Cylinders Models **SVA** or **SVEVA** only.

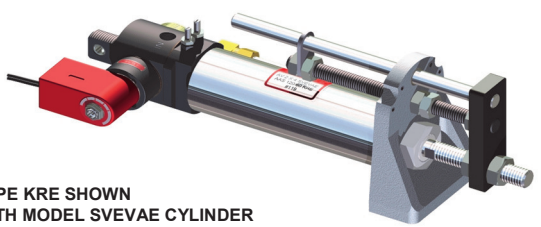
Upon a momentary air bleed (Model SVA) or momentary electrical signal (Model SVEVA), the unit will make one complete cycle. The cylinder rod is normally extended on Types KRE and normally retracted on Types KRR.

These Kits are identical to Type K with the additions of one V2 Valve, Actuating Arm, and all necessary hardware.

For complete description of Cylinders mentioned above, please refer to Pages 33 to 37.



TYPE KRR SHOWN
WITH MODEL SVA CYLINDER



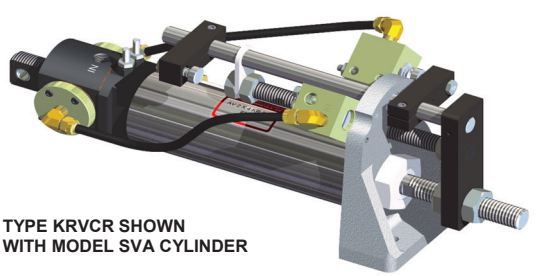
TYPE KRE SHOWN
WITH MODEL SVEVAE CYLINDER

TYPE: KRVCR FULLY AUTOMATIC RECIPROCATING

This fully automatic reciprocating Adjustable Stroke Kit is designed to be used with the Valve-in-Head Cylinder Model **SVA** only.

As soon as air pressure is applied, the unit will automatically reciprocate. Because of this it is recommended that a shut-off valve be mounted in the inlet line.

This Kit is identical to Type K with the addition of two V2 Valves, Actuating Arms, and all necessary hardware. For complete description of Model SVA Cylinder, please refer to Page 36.



TYPE KRVCR SHOWN
WITH MODEL SVA CYLINDER

ORDERING PROCEDURE

1) CYLINDER:
When ordering Cylinders to be used with Adjustable Stroke Kits, specify "KR" after the Cylinder nomenclature to insure that the Cylinders will be supplied with the extra 2" threaded rod extension (H & J dimensions) required for the installation of the rod tie bar.

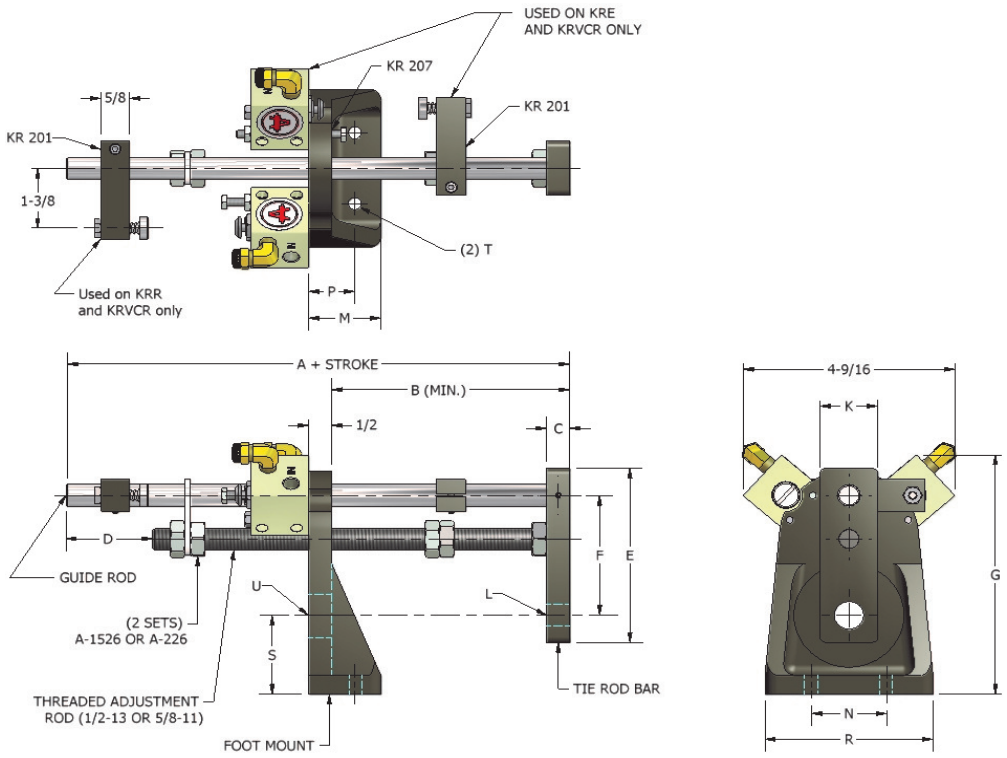
2) KIT: Select type from table and advise stroke.

3) REAR MOUNT: Select from table.

CYLINDER BORE SIZES		KIT TYPES				REAR FOOT MOUNT
		K	KRE	KRR	KRVCR	
1-1/2"	STD	K-1-1/2	KRE-1-1/2	KRR-1-1/2	KRVCR-1-1/2	A-232
	OS	K-OS-1-1/2	KRE-OS-1-1/2	KRR-OS-1-1/2	KRVCR-OS-1-1/2	A-232
2"	STD	K-2	KRE-2	KRR-2	KRVCR-2	A-232
	OS	K-OS-2	KRE-OS-2	KRR-OS-2	KRVCR-OS-2	A-232
2-1/2"	STD	K-2-1/2	KRE-2-1/2	KRR-2-1/2	KRVCR-2-1/2	A-332
	OS	K-OS-2-1/2	KRE-OS-2-1/2	KRR-OS-2-1/2	KRVCR-OS-2-1/2	A-332
3"	STD	K-3	KRE-3	KRR-3	KRVCR-3	A-332
	OS	K-OS-3	KRE-OS-3	KRR-OS-3	KRVCR-OS-3	A-332
4"	STD	K-4	KRE-4	KRR-4	KRVCR-4	A-432
	OS	K-OS-4	KRE-OS-4	KRR-OS-4	KRVCR-OS-4	A-432

WHEN ORDERED WITH CYLINDER, COMPLETE UNIT IS ASSEMBLED AT FACTORY.

DIMENSIONS



CYLINDER BORES		1-1/2"	2"	2-1/2" & 3"	4"
A	STD	4-7/8	4-7/8	5-1/4	5-7/8
	OS	4-7/8	4-7/8	5-1/4	5-7/8
B	STD	2"	2"	2-1/4	2-3/4
	OS	2"	2"	2-1/4	3-3/4
C		1/2"	1/2	5/8	3/4
D		1-7/8	1-7/8	1-3/4	2-3/8
E		4"	4"	4-3/4	5-1/2
F		2-3/4	2-3/4	3-7/16	4
G		5-3/8	5-3/8	6-11/16	8-1/16
K		1-1/4	1-1/4	1-1/2	2"
L	STD	1/2	5/8	3/4	1"
	OS	5/8	3/4	1"	1-1/4
M		1-9/16	1-9/16	1-13/16	2-7/16
N		1-5/8	1-5/8	3"	3-1/4
P		1"	1"	1-1/8	1-3/4
R		3-5/8	3-5/8	5-1/2	6-1/2
S		1-3/4	1-3/4	2-3/8	3-3/16
T		9/32	9/32	13/32	15/32
U	STD	1-1/16	1-1/16	1-3/8	1-3/4
	OS	1-1/16	1/3/8	1-1/2	2-1/4

ADJUSTING INSTRUCTIONS

TYPE K:

This Kit has no V2 Valves, Actuating Arm KR-201 or Safety Screw KR207. Adjustment is made by positioning of Adjusting Lock Nuts A-1516 or A-226.

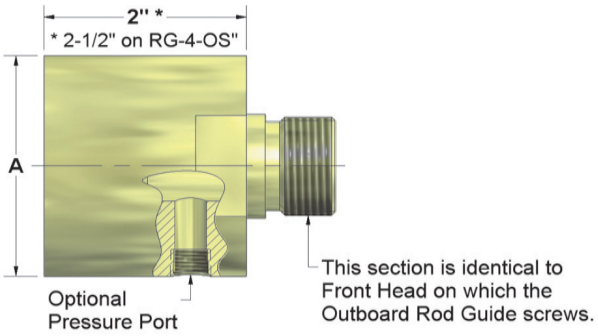
TYPE KRE, KRR & KRVCR:

Stroke adjustment on any automatic return side will depend strictly on the location of Actuating Arm KR-201. It is then recommended to set Adjusting Lock Nuts A-1516 or A-226 on that side after the required stroke has been obtained. This can be done by bringing the Adjusting Lock Nuts towards the Foot Mount until the automatic return feature stops functioning, then backing them off one full turn and locking them.

NOTE: KR-207 is a Safety Screw to prevent damage to the V2 Valve. In operation the maximum safe stroke, should be determined by the location of the Adjusting Lock Nuts A-1516 or A-226 and the Actuating Arm should not come in contact with the Safety Screw.

RG OUTBOARD ROD GUIDE

The Rod Guide screws onto the standard front head and duplicates the nose threads. This provides another rod bearing and seal 2" from the existing front head rod bearing, and will increase the life of cylinders whose rods are subject to side-thrust. This applies particularly to long stroke cylinders (20" & over) and cylinders mounted on a rear pivot. Available on all cylinders except Types SM and Square Head.



NOTE:
NOT AVAILABLE ON "C"
1-1/8" BORE CYLINDERS

CYL. BORE SIZE	A
7/8"	1-1/8
1-1/8"	1-3/8
1-1/2"	1-3/4
2"	2-1/4
2-1/2"	2-3/4
3"	2-3/4
4"	2-15/16

OPTIONAL PRESSURE PORT

This option is helpful in harsh environments.
Positive pressure applied to the Rod Guide
aids in keeping contamination out of the cylinder.
Ordering Example: RG 202 **P**

ORDERING PROCEDURE:

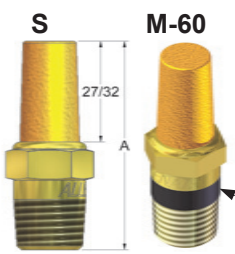
When ordering cylinders using Rod Guides, specify option "RG" in the cylinder nomenclature. This will provide the additional rod Length required and the Rod Guide assembled to the cylinder.

S SINTERED BRONZE FILTER-SILENCER

The 40 micron element effectively reduces air exhaust noises to an acceptable level with minimum flow restrictions. When used in vent ports they prevent foreign particles from entering units.

M-60 NON CLOGGING SINTERED BRONZE FILTER-SILENCER

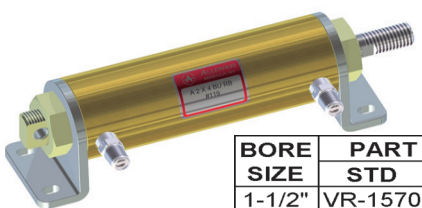
The same 40 micron element as above, but with the added feature of a Pressure Relief Band.
Available only in 1/4" N.P.T.



PART NO.	N.P.T.	A	HEX
S-1/16	1/16	1-15/32	7/16
S-1/8	1/8	1-15/32	7/16
S-1/4	1/4	1-21/32	9/16
S-3/8	3/8	1-21/32	11/16
S-1/2	1/2	1-25/32	7/8

VR BUILT-IN BLEEDER VALVE

The Built-in Bleeder Valves enable other bleed type equipment to be actuated. This is accomplished by installing a line from the Bleeder Pilot to the built-in Bleeder Valve. Actuation occurs approximately 1/8" before full stroke of Cylinder is completed. The Valves can be installed in either or both ends of the Cylinder.



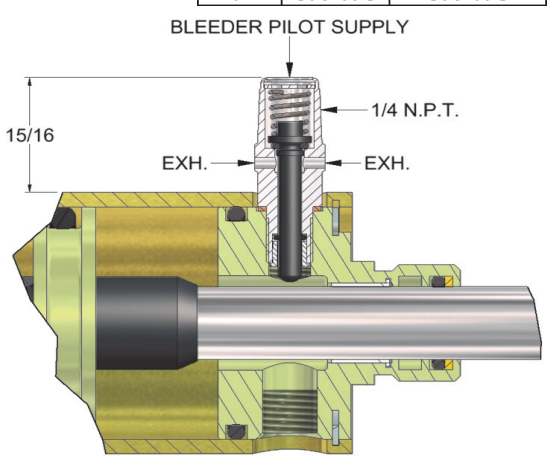
BORE SIZE	PART NUMBERS	
	STD	OS
1-1/2"	VR-1570	VR-OS-1570
2"	VR-270	*VR-OS-270
2-1/2"	VR-2570	VR-2570
3"	VR-370	VR-370
4"	VR-470	VR-470

VALVE LOCATIONS

Standard Cylinders:
Valves are located in the same plane as the tail pivot hole centerline and the ports are 180° from the valves.

Square Head Cylinders:
Valves are located 90° clockwise from ports, looking from rod end.

Valve-in-Head Cylinders:
The front valve is located 90° counterclockwise from the inlet port and the rear valve is 45° clockwise from inlet port, looking from rod end. Special locations available upon request, at additional cost.



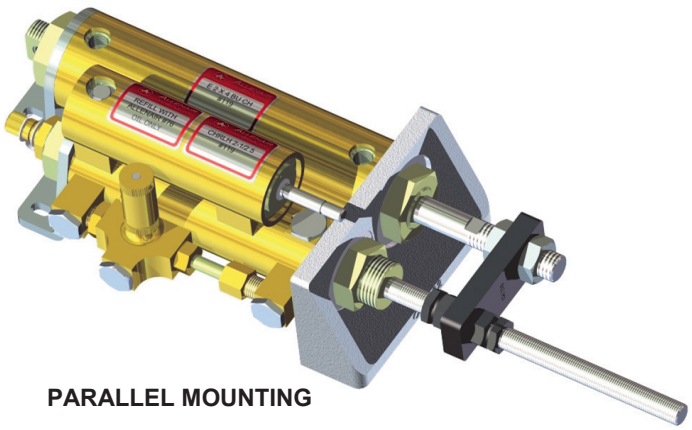
ORDERING PROCEDURE:

After cylinder nomenclature specify:

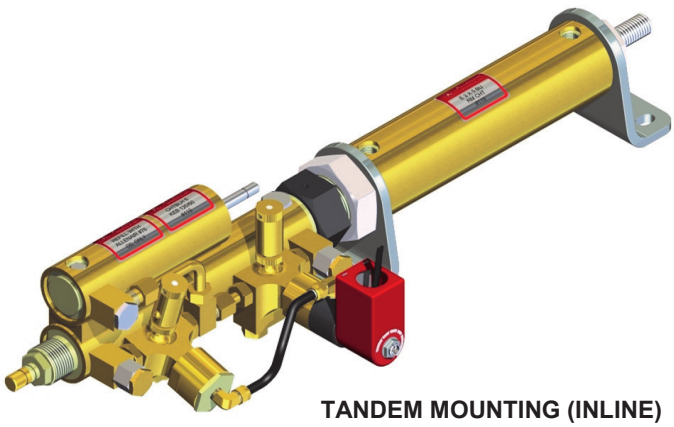
RF For valve installed in front end.
RR For rear end.
RB For both ends.

Available on All Types of 1-1/2", 2", 2-1/2", 3" & 4" bore sizes.
Maximum operating pressure is 150 P.S.I.

FOR SMOOTH, PRECISE, UNIFORM FEED CONTROL



PARALLEL MOUNTING



TANDEM MOUNTING (INLINE)

FEATURES

- 3000 pounds capacity maximum thrust load.
- Feed Control available for Forward, Rearward or Both Directions.
- Feed Rate infinitely variable.
- Optional Stop and Skip Check features.
- Optional Threaded Rod Extensions available for rapid traverse.
- Complete mounting versatility.
- Precision honed brass body, provides longer seal life.
- Wear Strip on piston and extra long bearing in front head for prolonged life.
- Viton Seals to insure long life when heat build-up occurs.

STANDARD STROKES AVAILABLE ARE 2-1/2", 5", 6", 10", 15" & 20". SPECIAL STROKES AVAILABLE.

The Allenair Cyl-Check ® is a self-contained oil filled unit which can be used in any tool or work feeding application, eliminating chatter caused by variations in power thrust and irregular loads, providing smooth, uniform and precise feed control. The unit can be coupled with a Pneumatic Cylinder or other linear motion and provides the flexibility required in many applications, without the costly expense of a completely hydraulic system. The Allenair Cyl-Check ® is a high quality unit carefully designed, produced, assembled, and tested to provide long trouble-free service.

DESCRIPTIONS

PARALLEL MOUNTING

These are individual Cyl-Checks ® which can be mounted parallel with most 1-1/2, 2", 2-1/2", 3" or 4" bore Allenair Cylinders. This is achieved by means of a common front Nose Mount, a Rod Tie Bar and Mounts to secure the back end of each unit.
For Mounting Kits available see Pages 56, 57 and 58.

It must be noted that in parallel mounting, because of the opposing forces, a side-load condition is created on the rods. It is imperative that the rod of the air cylinder be securely fastened and not allowed to deviate from a straight linear motion.

The Cyl-Check ® can also be mounted independently to control other linear motions. **Care should be taken to insure alignment in such cases,** so that the rod of the Cyl-Check ® is not subject to side thrust.

TANDEM MOUNTING:

The Tandem Cyl-Check ® Assembly is an in-line assembly of a Cyl-Check ® and a 2", 2-1/2", 3" or 4" bore Allenair Type "A" or "E" Double Acting Air Cylinder. The major advantage of these units is that the side-load condition between the rods is completely eliminated due to the direct in-line coupling of the Cyl-Check ® and Cylinder Rods.

TYPES

BOTH DIRECTIONS FEED:		
TYPES	**CHB** PARALLEL MOUNTING **CHTB** TANDEM MOUNTING	These units provide fully independent control in both forward and rearward directions. (Note: CHB 2-1/2 **CANNOT** be used with Mounting Kits CHMK-1 or CHMK-2.)
FORWARD DIRECTION FEED:		
TYPES	**CHF** PARALLEL MOUNTING **CHTF** TANDEM MOUNTING	These units provide control in forward direction only, with unrestricted movement when retracting.
REARWARD DIRECTION FEED:		
TYPES	**CHR** PARALLEL MOUNTING **CHTR** TANDEM MOUNTING	These units provide control in rearward direction only, with unrestricted movement when extending.

All of the above types can be supplied with the side tubing and control valve mounted on either the left hand side (specify **LH**) or right hand side (specify **RH**) of the unit, looking from rod end, with the reservoir on top.

OPTIONS

THREADED ROD EXTENSION (RAPID TRAVERSE)

This consists of an increased threaded rod length with stop nuts, which allows the cylinder rod and tie bar to travel unrestricted until the tie bar comes in contact with the stop nuts, where checking action will begin. The correct length of extra threaded rod extension must be identical or longer than the length of unrestricted travel required. Note, however, that the stroke of the Cyl-Check ® need be no longer than the maximum checking length required, but must include the correct threaded rod extension when ordered.

Available on individual and parallel mounted types only. Standard lengths of extra threaded rod extensions are 5", 10", 15", 20" or 30". Select nearest standard extra rod extension and Cyl-Check ® stroke.

SKIP CHECK (RAPID TRAVERSE)

The Skip Check allows by-pass of the control valve permitting rapid traverse and intermittent checking action in the direction of control.

OPERATION:
The Skip Check unit is basically a 2-way Piloted Valve. With either the "Air Operated" or "Solenoid Operated" model, rapid traverse automatically occurs until pilot pressure is applied. On the "Air Operated" model, air is supplied through the use of a separate 3-way valve. On the "Solenoid Operated" model, a 3-way normally open valve is an integral part of the Skip Check unit, and must have a constant pilot pressure supplied to it. With pilot pressure supplied to the top of the solenoid housing, rapid traverse will occur when solenoid is energized. If pilot pressure is supplied to the solenoid adaptor base rapid traverse will occur when solenoid is de-energized. NOTE: Pilot pressure must equal the operating pressure of the air cylinder used. If any other linear force is used, pilot pressure (P.S.I.) must be at least equal to THRUST (LBS.) 20
Please see Page 61 for pilot pressure port locations and dimensions.

FOR ALLENAIR "TIME-A-VALVE" ® - see page 80. A solid state Electronic Timer, integral with Allenair Solenoid Operators.

SKIP CHECK DESIGNATIONS				
TYPES			**Air Operated**	**Solenoid Operated**
CHB & CHTB	FORWARD DIRECTION		KAF	KEF
	REARWARD DIRECTION		KAR	KER
	BOTH DIRECTIONS	SINGLE CONTROL	KAB	KEB
		DUAL CONTROL	KAF-KAR	KEF-KER
CHF, CHTF, CHR & CHTR			KA	KE

NOTE: STANDARD VOLTAGES are 12, 24, 120 & 240/60 and 6,12 & 24VDC

OPTIONS (CONTINUED)

STOP CHECK

The Stop Check unit permits stopping the rod movement for any length of time and at any position throughout the controlled stroke. As many stops as desired may be made.

OPERATION

The Stop Check unit is basically a 2-way Piloted Valve. With either the "Air Operated" or "Solenoid Operated" model, no stopping action occurs until pilot pressure is applied. On the "Air Operated" model, air is supplied through the use of a separate 3-way Valve. On the "Solenoid Operated" model, a 3-way normally closed valve is an integral part of the Stop Check unit, and must have a constant pilot pressure supplied to it. With pilot pressure supplied to the solenoid adaptor base, stopping will occur when solenoid is energized. If pilot pressure is supplied by means of a piped exhaust adaptor, to the top of solenoid housing, stopping will occur when solenoid is de-energized. NOTE: Pilot pressure must equal the operating pressure of the Air Cylinder used. If any other linear force is used, pilot pressure (P.S.I.) must be at least equal to $\frac{\text{THRUST (LBS.)}}{20}$

Accuracy of Stop Check strictly depends on the accuracy and repeatability of the valve or switch actuating it. Please see Page 61 for pilot pressure port locations and dimensions.

SPECIFY

TA AIR OPERATED

TE SOLENOID OPERATED - Standard voltages are 12, 24, 120 & 240/60 and 6, 12 & 24VDC

FOR ALLENAIR "TIME-A-VALVE" ® - see page 80.
A solid state Electronic Timer, integral with Allenair Solenoid Operators.

NOTE: On Types CHB and CHTB the Stop Check will operate in either or both directions using a single control. Dual controls are not available.

SKIP CHECK, STOP CHECK, THREADED ROD EXTENSION:

All these features may be combined on all types of the Allenair Cyl-Check to offer almost unlimited versatility.

MANUAL OVER-RIDE BUTTON

SPECIFY **OR** Non-locking Manual Over-Ride Lever is available on solenoid operated options. Particularly useful for set-up or electrical failure.

EXPLOSION-PROOF SOLENOID OPERATOR

SPECIFY **AAX** The Solenoid Operator is available in an explosion-proof enclosure covering Class I, Groups C & D (NEMA 7) and Class II, Groups E, F & G (NEMA 9). UL listed.

WATERTIGHT SOLENOID OPERATOR

SPECIFY **JIC** Water tightness per NEMA 4/IP-56

SPECIAL VOLTAGES

A wide range of non-standard voltages are available. Specify voltage required.

MISCELLANEOUS

FEED RATES (NO WORK LOAD)			
Thrust (pounds)	Max. Feed Rate (In/Min)	Min. Feed Rate (In/Min)	Unrestricted Reverse Stroke
175	210	1-1/2	Approx. 30% Greater Than Max. Feed Rate
300	330	1-1/2	
500	450	1	
700	510	1	
1200	600	1	

ON "CHT" Tandem Assemblies, Allenair 1/4", 3/8" or 1/2" Valves can be supplied, mounted directly to the Cylinder at a modest extra cost.

OIL GUN OG-76

Oil Gun including Fitting Coupler is available.

FITTING COUPLER CH-80

A separate Fitting Coupler is supplied with each Cyl-Check which will fit any Gun having 1/8 male pipe thread.

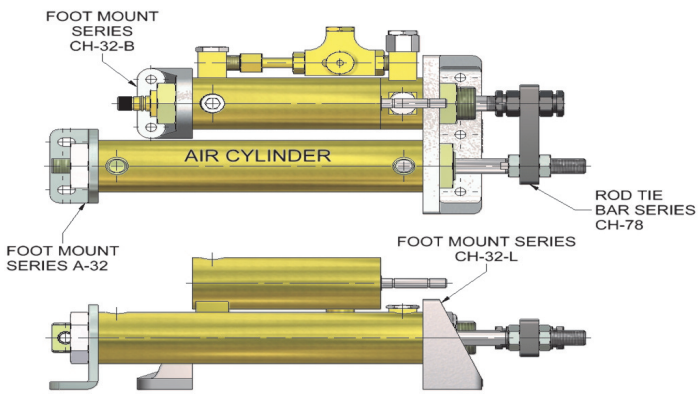
OIL #76

Specially formulated oil is available, in quarts or gallons

WARNING: The Allenair Cyl-Check ® has been designed for use with Allenair Oil #76 only. The manufacturers accepts no responsibility for malfunction occurring as a result of using improper fluids.

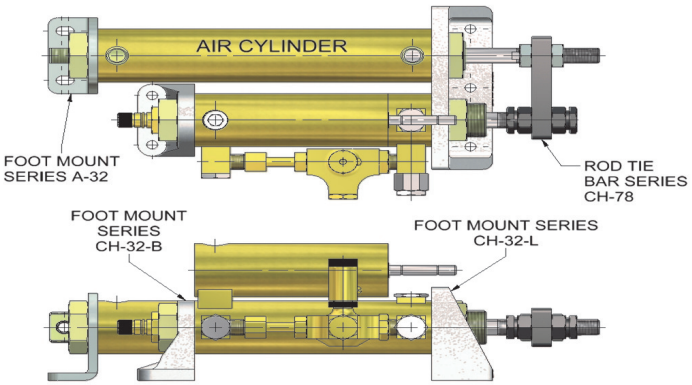
PARALLEL MOUNTING KITS

RIGHT HAND MOUNTING KIT CHMK-1
FOR MODELS CHBRH, CHFRH (Shown) & CHRRH



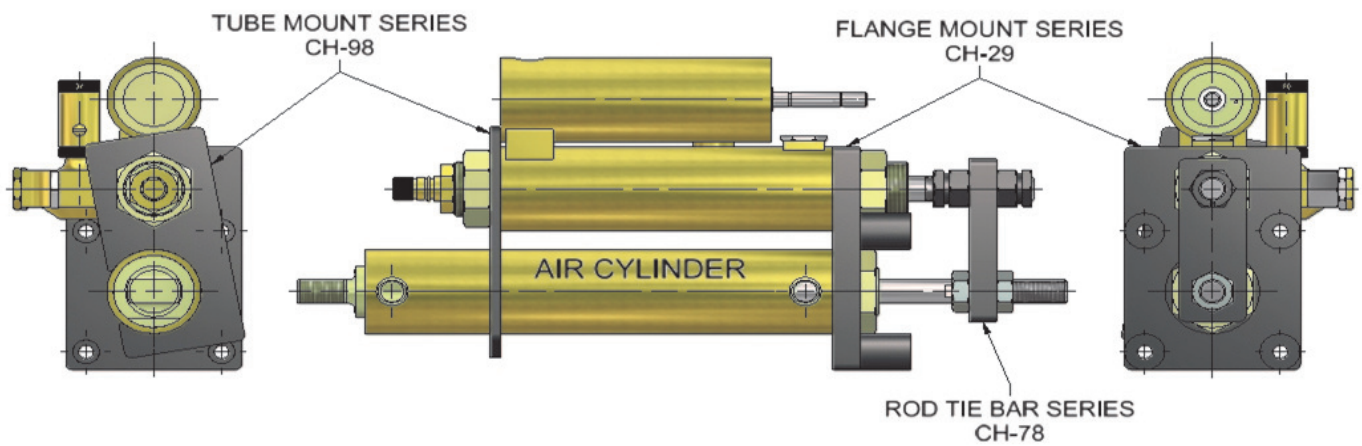
NOTE: CANNOT BE USED WITH CHB-2-1/2'.

LEFT HAND MOUNTING KIT CHMK-2 FOR
MODELS CHBLH, CHFLH (Shown) & CHRLH

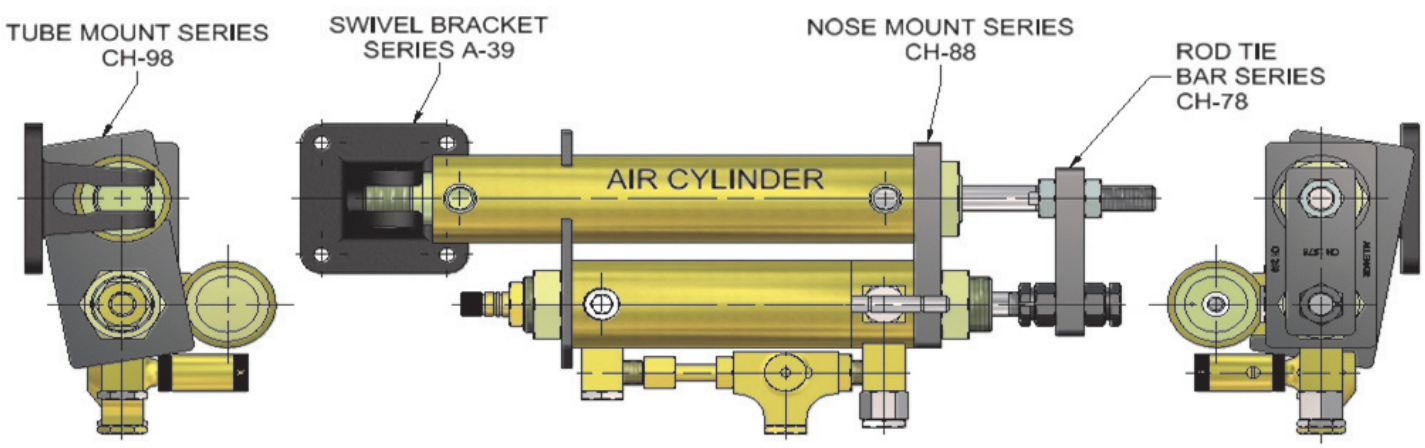


NOTE: CANNOT BE USED WITH CHB-2-1/2'.

FRONT FLANGE MOUNTING KIT CHMK-3 FOR ALL LEFT AND RIGHT HAND TYPES. TYPE CHFRH SHOWN.

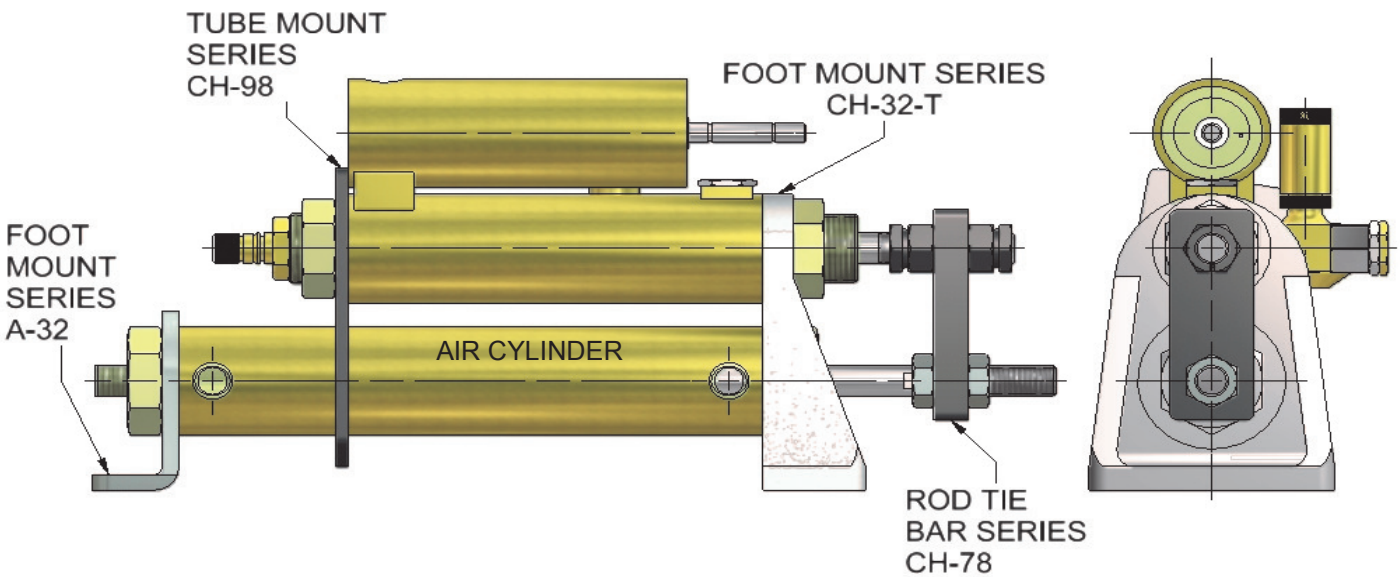


SWIVEL MOUNTING KIT CHMK-4 FOR ALL LEFT AND RIGHT HAND TYPES. TYPE CHFLH SHOWN.

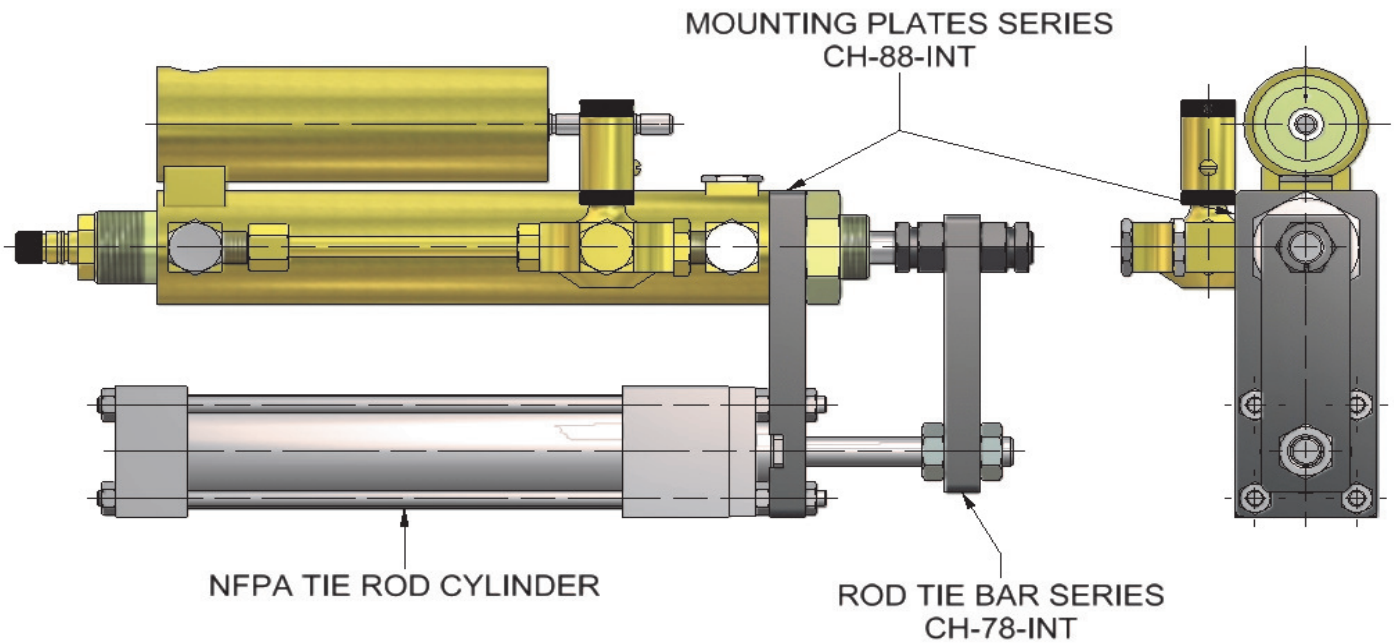


PARALLEL MOUNTING KITS (CONT'D)

TOP MOUNTING KIT CHMK-5
FOR ALL LEFT & RIGHT HAND TYPES. TYPE CHFRH SHOWN.



SQUARE HEAD INTERCHANGEABLE MOUNTING KIT CHMK-6
FOR ALL LEFT & RIGHT HAND TYPES. TYPE CHFRH SHOWN.



MOUNTING KITS FOR CYLINDERS & VALVE-IN-HEAD® CYLINDERS INCLUDE THE FOLLOWING MOUNTS

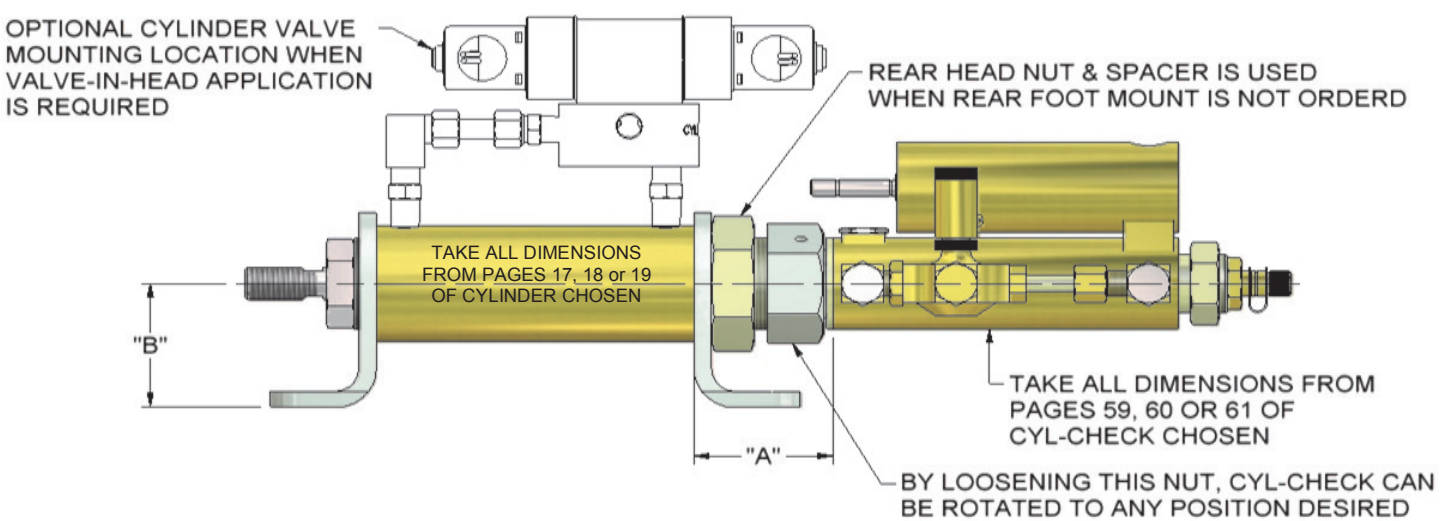
KIT NUMBER	1-1/2" BORE CYL.		2" BORE CYL.		2-1/2" BORE CYL.		3" BORE CYL.		4" BORE CYL.	
	STD. ROD	OS ROD	STD. ROD	OS ROD	STD. ROD	OS ROD	STD. ROD	OS ROD	STD. ROD	OS ROD
CHMK-1	CH-232-R	CH-232-R	CH-232-R	CH-232-R-OS	CH-332-R	CH-332-R-OS	CH-332-R	CH-332-R-OS	CH-432-R	CH-432-R-OS
	CH-232-B	CH-232-B	CH-232-B	CH-232-B	CH-332-B	CH-332-B	CH-332-B	CH-332-B	CH-432-B	CH-432-B
	A-232	**A-232**	**A-232**	**A-232**	**A-332**	**A-332**	**A-332**	**A-332**	**A-432**	**A-432**
	CH-1578	CH-278	CH-278	CH-278-OS	CH-378	CH-378-OS	CH-378	CH-378-OS	CH-478	CH-478-OS
CHMK-2	CH-232-L	CH-232-L	CH-232-L	CH-232-L-OS	CH-332-L	CH-332-L-OS	CH-332-L	CH-332-L-OS	CH-432-L	CH-432-L-OS
	CH-232-B	CH-232-B	CH-232-B	CH-232-B	CH-332-B	CH-332-B	CH-332-B	CH-332-B	CH-432-B	CH-432-B
	A-232	**A-232**	**A-232**	**A-232**	**A-332**	**A-332**	**A-332**	**A-332**	**A-432**	**A-432**
	CH-1578	CH-278	CH-278	CH-278-OS	CH-378	CH-378-OS	CH-378	CH-378-OS	CH-478	CH-478-OS
CHMK-3	CH-229	CH-229	CH-229	CH-229-OS	CH-329	CH-329-OS	CH-329	CH-329-OS	CH-429	CH-429-OS
	CH-1578	CH-278	CH-278	CH-278-OS	CH-378	CH-378-OS	CH-378	CH-378-OS	CH-478	CH-478-OS
	CH-1598	CH-1598	CH-298	CH-298	CH-2598	CH-2598	CH-398	CH-398	CH-498	CH-498
CHMK-4	**A-239**	**A-239**	**A-239**	**A-239**	**A-339**	**A-339**	**A-339**	**A-339**	**A-439**	**A-439**
	CH-1578	CH-278	CH-278	CH-278-OS	CH-378	CH-378-OS	CH-378	CH-378-OS	CH-478	CH-478-OS
	CH-288	CH-288	CH-288	CH-288-OS	CH-388	CH-388-OS	CH-388	CH-388-OS	CH-488	CH-488-OS
	CH-1598	CH-1598	CH-298	CH-298	CH-2598	CH-2598	CH-398	CH-398	CH-498	CH-498
CHMK-5	**A-232**	**A-232**	**A-232**	**A-232**	**A-332**	**A-332**	**A-332**	**A-332**	**CH-432**	**CH-432**
	CH-232-T	CH-232-T	CH-232-T	CH-232-T-OS	CH-332-T	CH-332-T-OS	CH-332-T	CH-332-T-OS	CH-432-T	CH-432-T-OS
	CH-1578	CH-278	CH-278	CH-278-OS	CH-378	CH-378-OS	CH-378	CH-378-OS	CH-478	CH-478-OS
	CH-1598	CH-1598	CH-298	CH-298	CH-2598	CH-2598	CH-398	CH-398	CH-498	CH-498

KIT NO.	1-1/2" BORE CYL	2" BORE CYL.	2-1/2" BORE CYL.	3" BORE CYL.	4" BORE CYL
CHMK-6	CH-1578-INT	CH-278-INT	CH-2578-INT	CH-378-INT	CH-478-INT
	CH-1588-INT	CH-288-INT	CH-2588-INT	CH-388-INT	CH-488-INT

INDEPENDENT MOUNTING

FOOT - CH-232-B **FLANGE** - CH-1529-A

TANDEM MOUNTING & DIMENSIONS

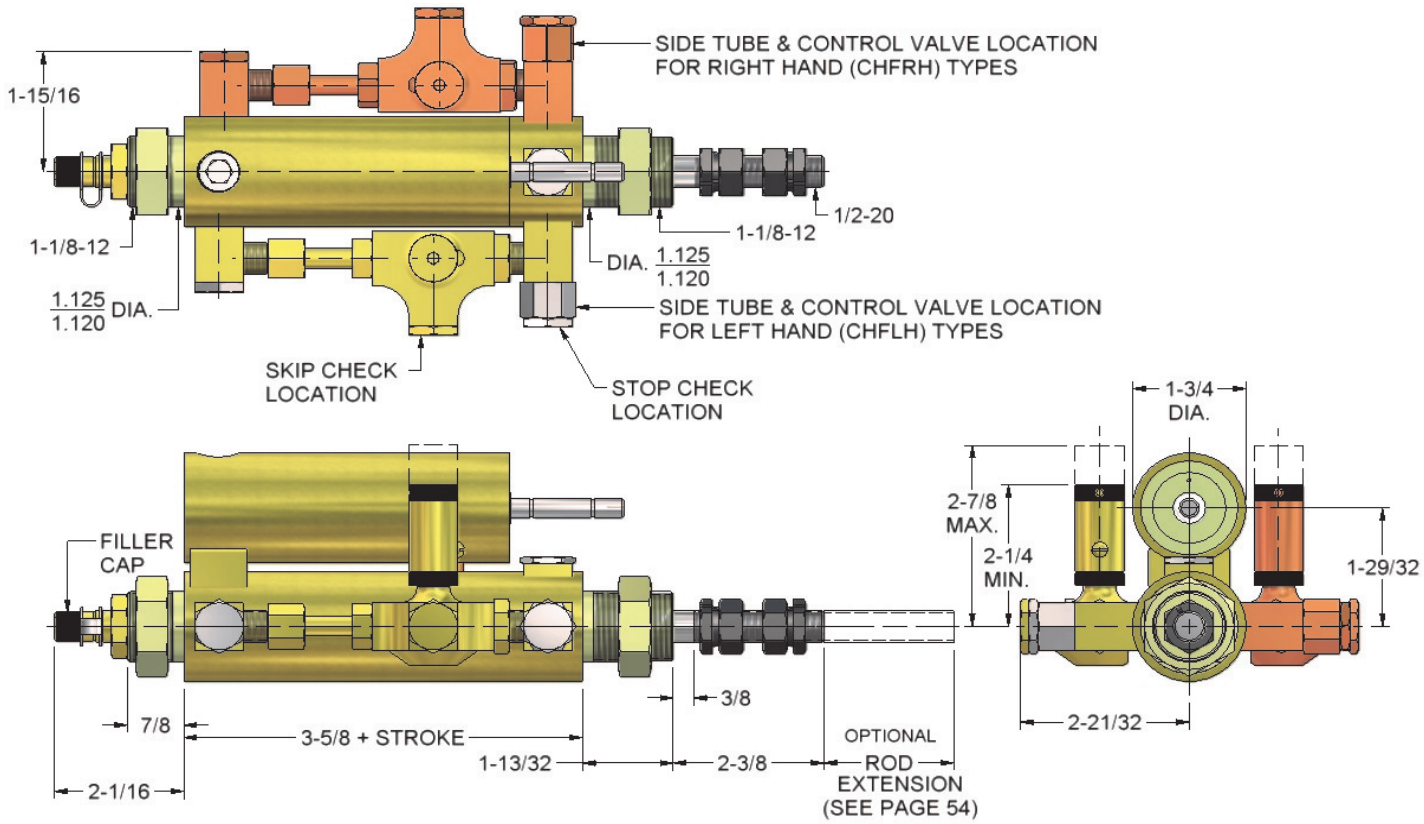


NOTE: For Mount dimensions see page20. For dimensions of CHT-232 & CHT-332 follow A-332 dimensions.

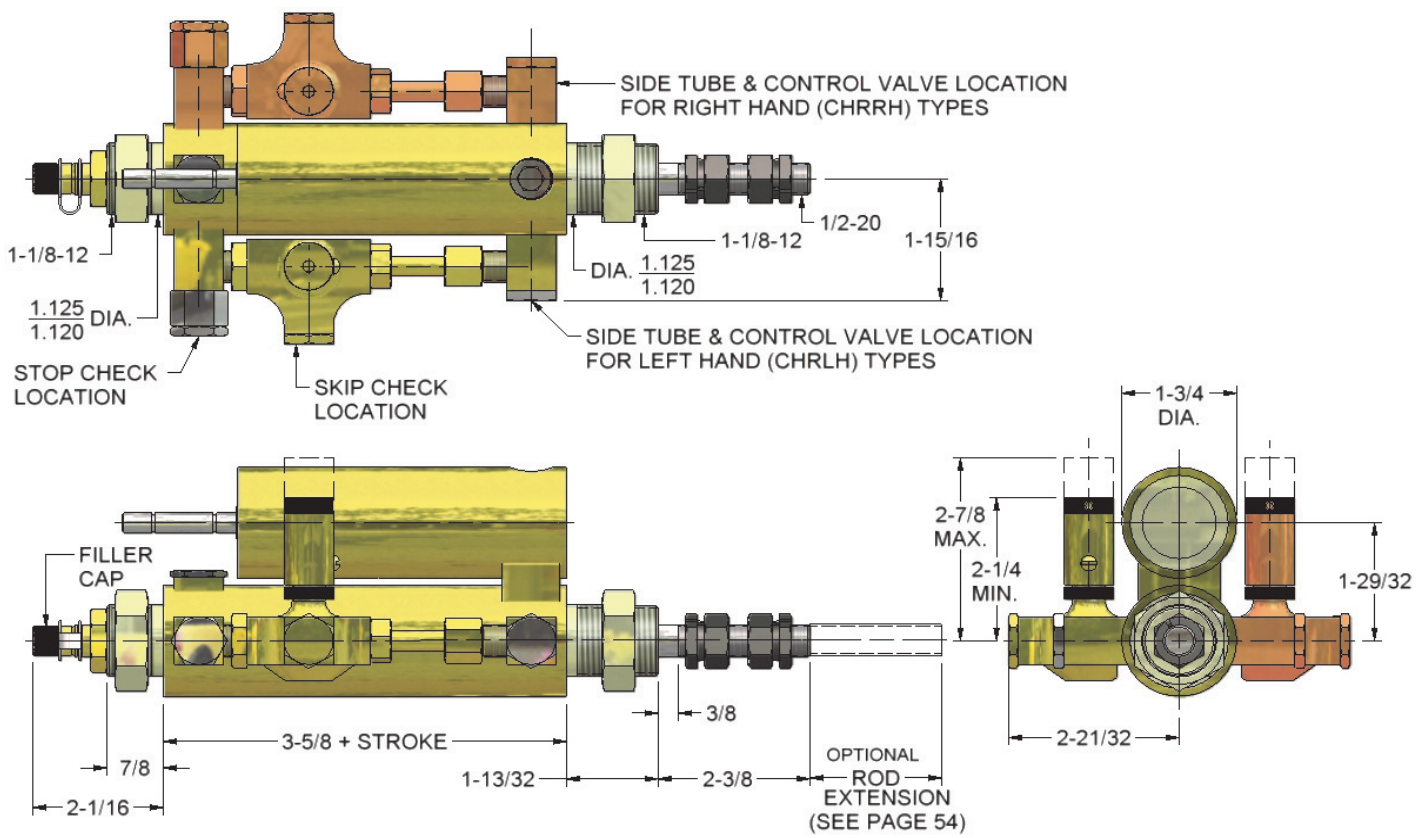
CYL. BORE SIZE	FOOT MOUNT NOS. FRONT STD.	FOOT MOUNT NOS. FRONT O.S.	FOOT MOUNT NOS. REAR OF CYLINDER	FLANGE MOUNT (FOR FRONT END ONLY) STD.	FLANGE MOUNT (FOR FRONT END ONLY) O.S.
2"	CHT-232	A-332	CHT-332	A-229	A-229-OS
2-1/2"	A-332	A-332-OS	CHT-332	A-329	A-329-OS
3"	A-332	A-332-OS	CHT-332	A-329	A-329-OS
4"	A-432	A-432-OS	A-432	A-429	A-429-OS

CYL. BORE SIZE	"A"	"B"
2"	2-15/32	2-3/8
2-1/2"	2-13/32	2-3/8
3"	2-13/32	2-3/8
4"	2-19/32	3-3/16

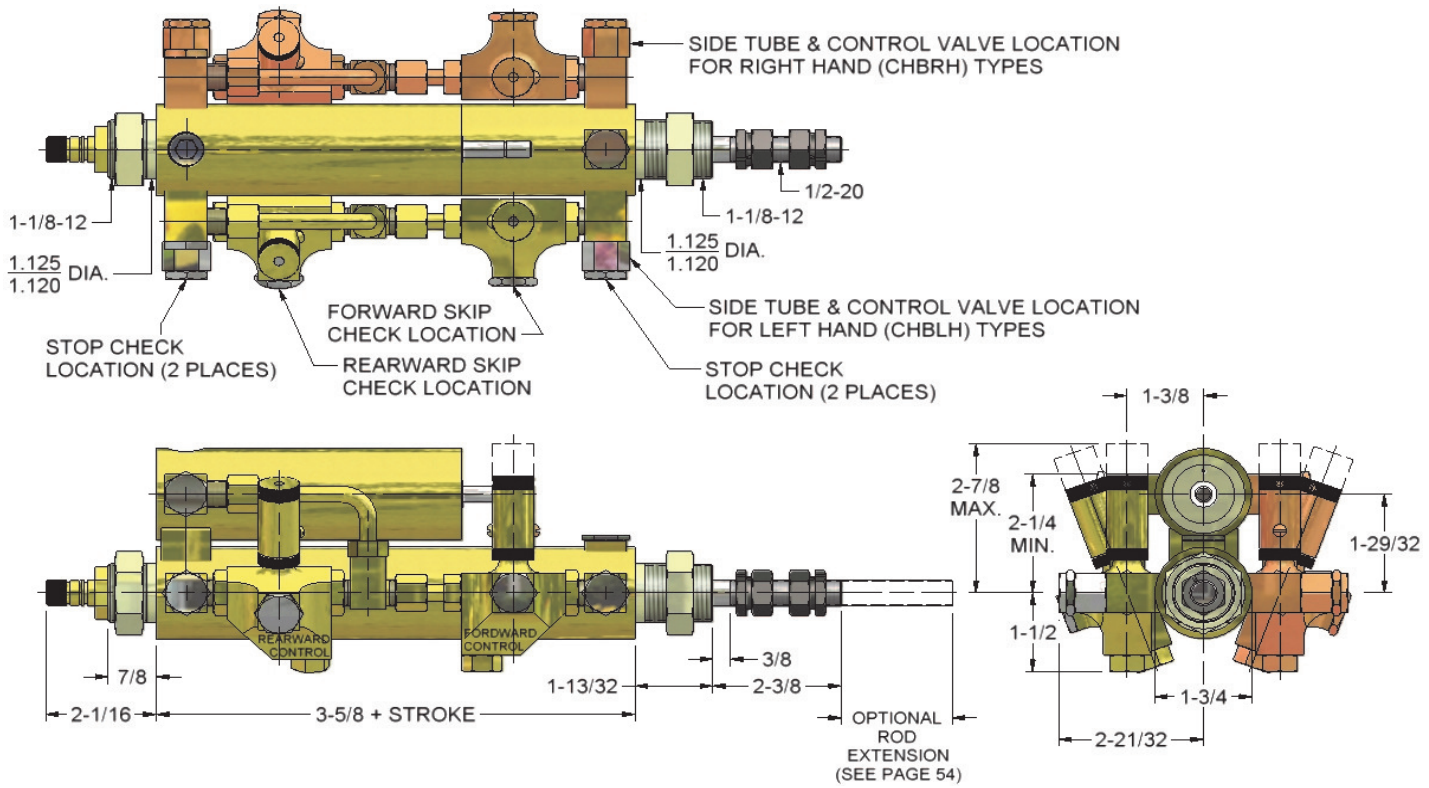
FORWARD DIRECTION TYPE CHF



REARWARD DIRECTION TYPE CHR

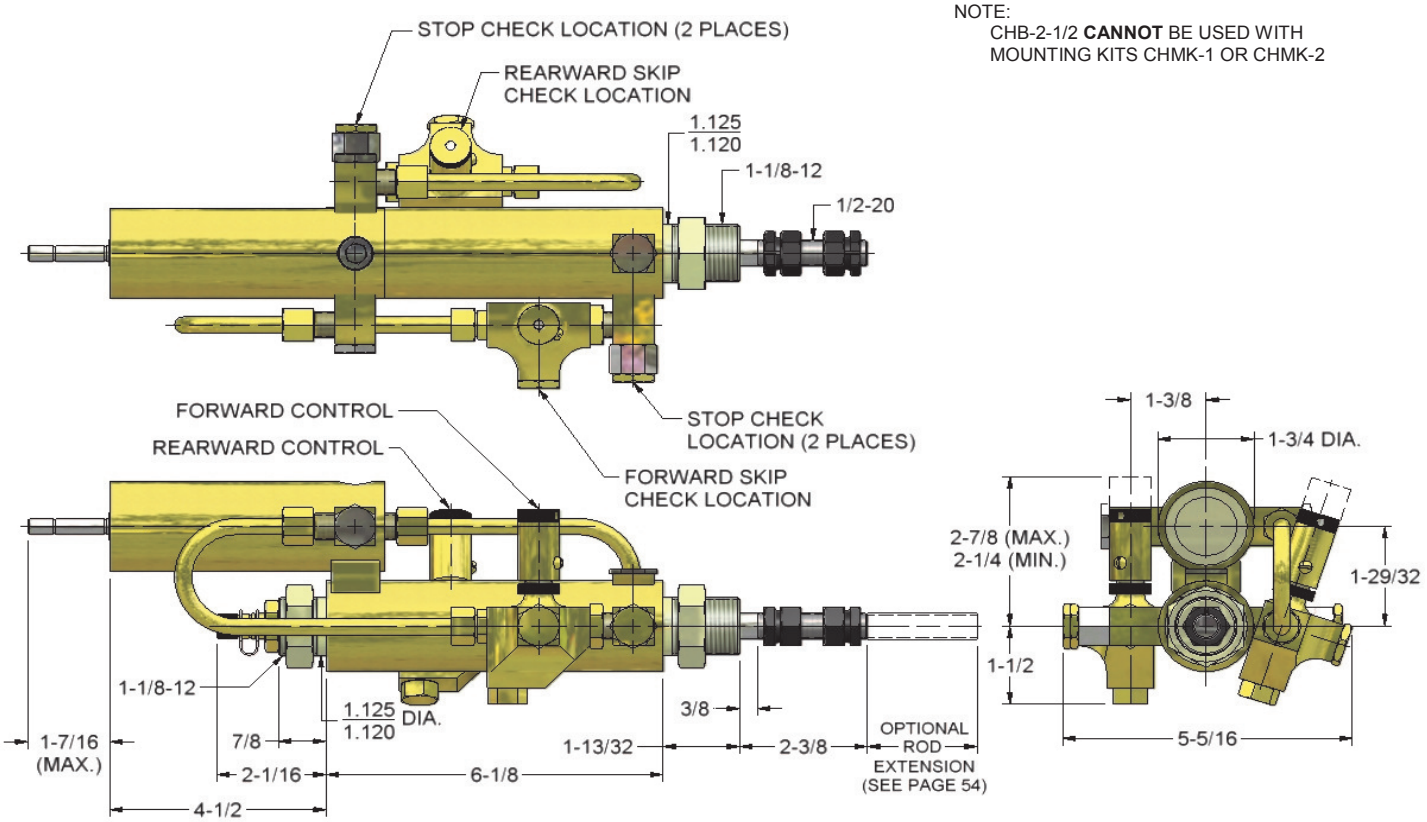


BOTH DIRECTIONS TYPE CHB (5 inch STROKE AND GREATER)

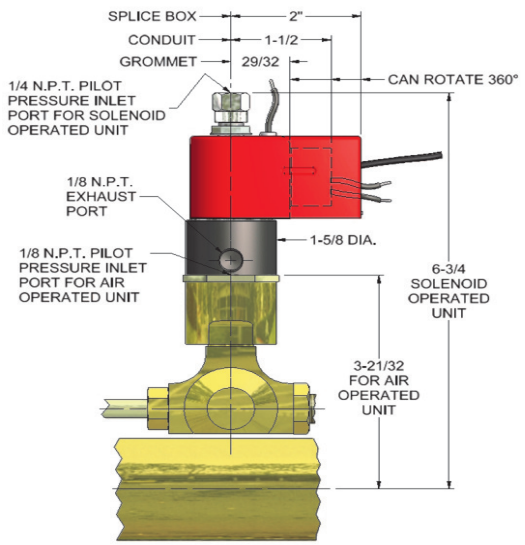


BOTH DIRECTIONS TYPE CHB (2-1/2 inch STROKE ONLY)

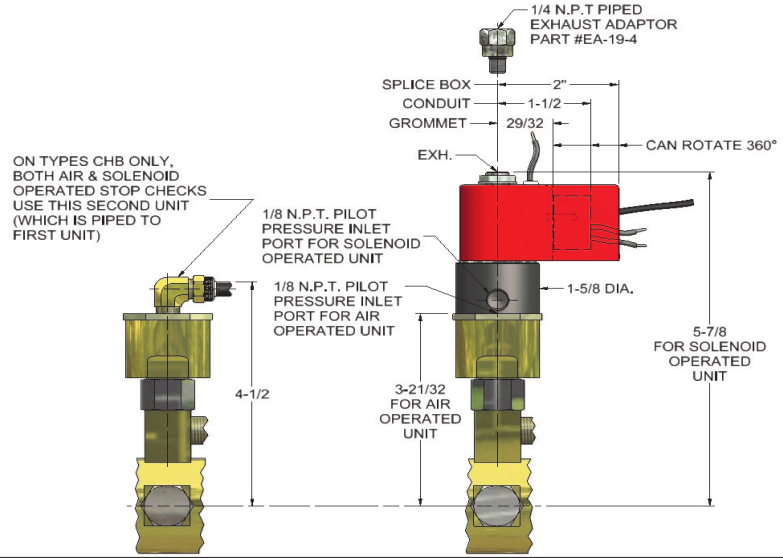
NOTE:
CHB-2-1/2 **CANNOT** BE USED WITH
MOUNTING KITS CHMK-1 OR CHMK-2



SKIP CHECK OPTION

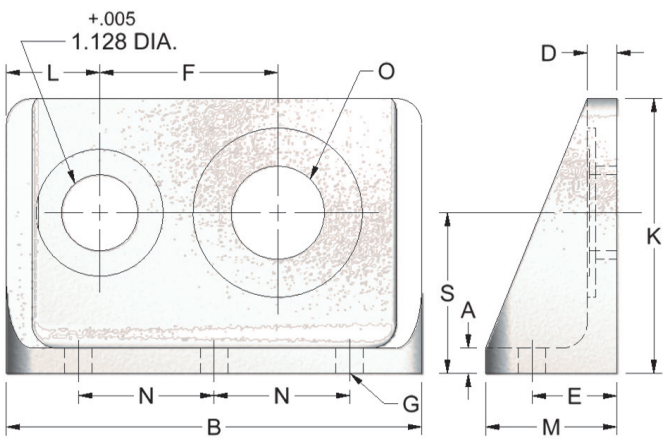


STOP CHECK OPTION

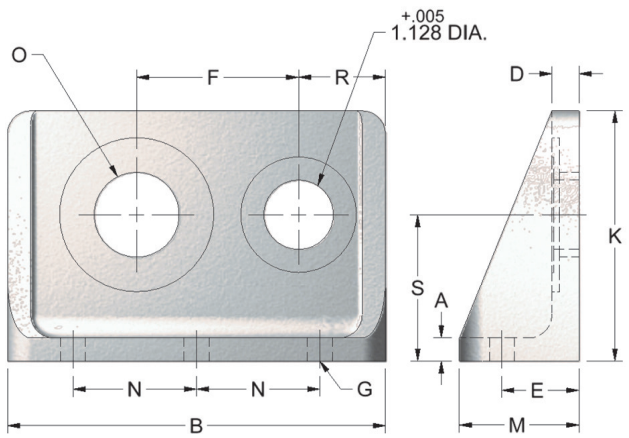


MOUNTING BRACKET DIMENSIONS

FOOT MOUNT SERIES CH-32-L

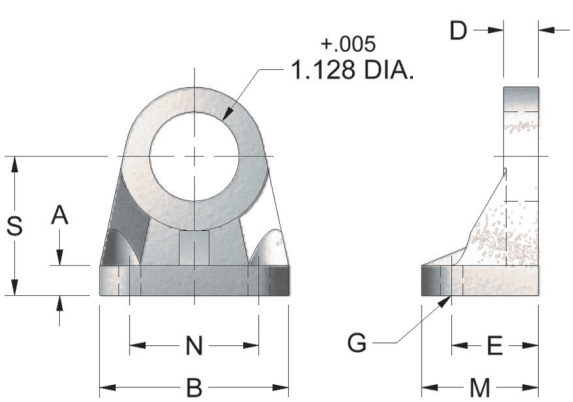


FOOT MOUNT SERIES CH-32-R



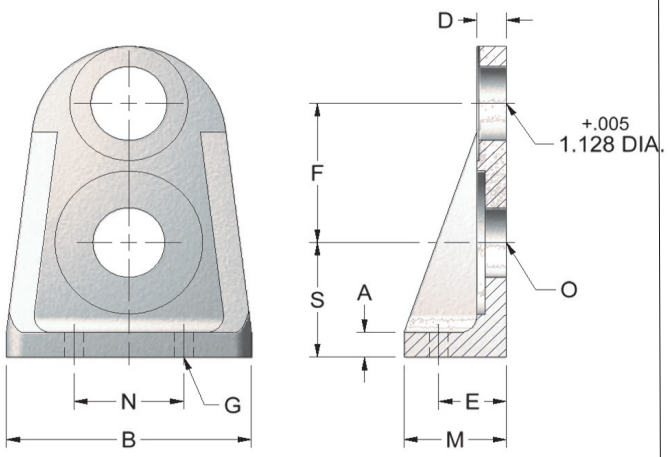
MOUNT NO.	A	B	D	E	F	G	K	L	M	N	O STD.	O OS	R	S
CH-232-L	3/8	5-3/8	7/16	1"	2-1/8	9/32	3"	1-5/8	1-9/16	1-15/16	1-1/16	1-3/8	-	1-3/4
CH-232-R	3/8	5-3/8	7/16	1"	2-1/8	9/32	3"	-	1-9/16	1-15/16	1-1/16	1-3/8	1-5/8	1-3/4
CH-332-L	3/8	6-1/8	7/16	1-1/4	2-5/8	13/32	4-1/8	1-3/8	1-7/8	2"	1-3/8	1-1/2	-	2-3/8
CH-332-R	3/8	6-1/8	7/16	1-1/4	2-5/8	13/32	4-1/8	-	1-7/8	2"	1-3/8	1-1/2	1-3/8	2-3/8
CH-432-L	1/2	7-1/2	9/16	1-3/4	3-3/16	15/32	5-1/2	1-1/2	2-1/2	2-1/2	1-3/4	2-1/4	-	3-3/16
CH-432-R	1/2	7-1/2	9/16	1-3/4	3-3/16	15/32	5-1/2	-	2-1/2	2-1/2	1-3/4	2-1/4	1-1/2	3-3/16

FOOT MOUNT SERIES CH-32-B



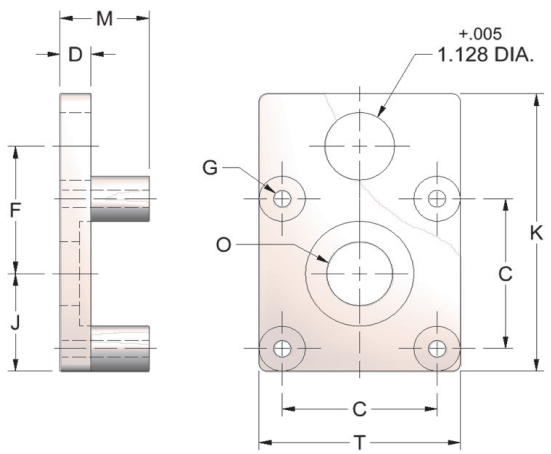
MOUNT NO.	A	B	D	E	G	M	N	S
CH-232-B	3/8	2-3/8	7/16	1-1/8	9/32	1-7/16	1-5/8	1-3/4
CH-332-B	5/16	2-1/2	3/8	7/8	9/32	1-1/4	1-5/8	2-3/8
CH-432-B	5/16	2-1/2	3/8	7/8	9/32	1-1/4	1-5/8	3-3/16

FOOT MOUNT SERIES CH-32-T



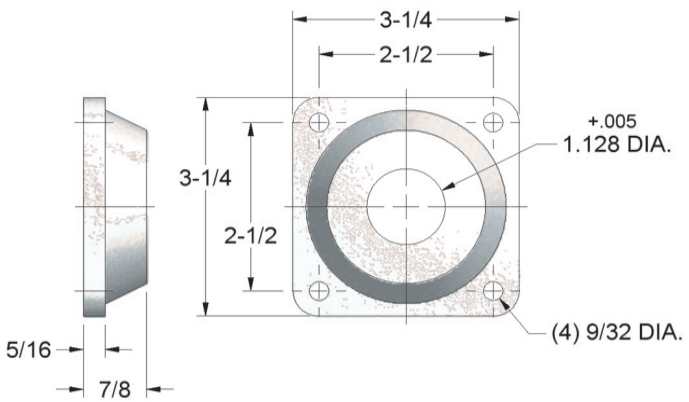
MOUNT NO.	A	B	D	E	F	G	M	N	O		S
									STD.	OS	
CH-232-T	3/8	3-5/8	7/16	1"	2-1/8	9/32	1-1/2	1-5/8	1-1/16	1-3/8	1-3/4
CH-332-T	3/8	5-1/2	7/16	1/1/4	2-5/8	13/32	1-7/8	3"	1-3/8	1-1/2	2-3/8
CH-432-T	1/2	6-1/2	9/16	1-3/4	3-3/16	15/32	2-1/2	3-1/4	1-3/4	2-1/4	3-3/16

FLANGE MOUNT SERIES CH-29

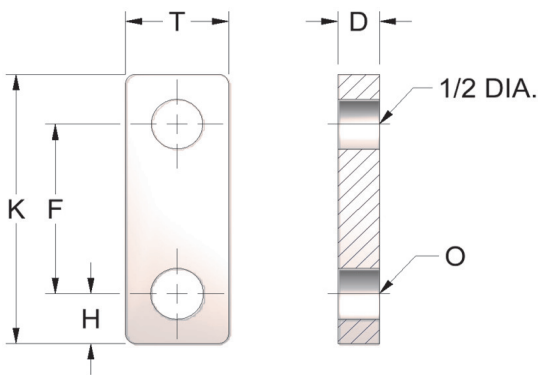


MOUNT NO.	C	D	F	G	J	K	M	O		T
								STD.	OS	
CH-229	2-1/2	1/2	2-1/8	9/32	1-5/8	4-5/8	1-7/16	1-1/16	1-3/8	3-1/4
CH-329	3-1/8	1/2	2-5/8	13/32	2-1/8	5-5/8	1-7/16	1-3/8	1-1/2	4-1/4
CH-429	4"	5/8	3-3/16	15/32	2-5/8	6-3/4	1-5/8	1-3/4	2-1/4	5-1/4

FLANGE MOUNT SERIES CH-1529-A

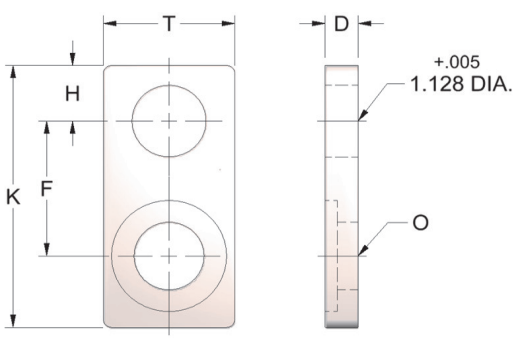


ROD TIE BAR SERIES CH-78



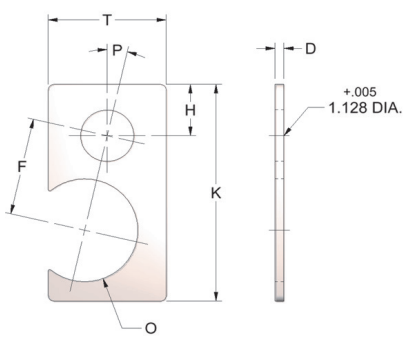
MOUNT NO.	D	F	H	K	O		T	
					STD.	OS	STD.	OS
CH-1578	1/2	2-1/8	5/8	3-3/8	1/2	5/8	1-1/4	1-1/4
CH-278	1/2	2-1/8	5/8	3-3/8	5/8	3/4	1-1/4	1-1/4
CH-378	5/8	2-5/8	3/4	4"	3/4	1"	1-1/2	2"
CH-478	3/4	3-3/16	1"	4-13/16	1"	1-1/4	2"	2"

NOSE MOUNT SERIES CH-88



MOUNT NO.	D	F	H	K	O		T	
					STD.	OS	STD.	OS
CH-288	1/2	2-1/8	7/8	4-1/8	1-1/16	1-3/8	2"	2-1/2
CH-388	1/2	2-5/8	7/8	5-1/8	1-3/8	1-1/2	2-1/2	2-1/2
CH-488	5/8	3-3/16	7/8	6-1/4	1-3/4	2-1/4	3-1/2	3-1/2

TUBE MOUNT SERIES CH-98

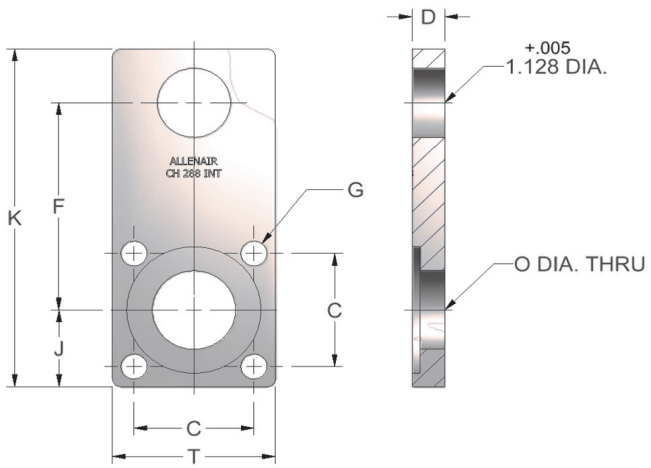


MOUNT NO.	D	F	H	K	O	P	T
CH-1598	3/16	2-1/8	1-1/8	4-1/2	1-3/4	10°	2-1/4
CH-298	3/16	2-1/8	1-1/8	4-3/4	2-1/4	13°	2-1/2
CH-2598	3/16	2-5/8	1-1/8	5-5/8	2-3/4	13°	2-3/4
CH-398	3/16	2-5/8	1-1/8	5-3/4	3-1/4	15°	3-1/2
CH-498	3/16	3-3/16	1-1/8	7-1/8	4-3/8	15°	4"

MOUNTING BRACKET DIMENSIONS FOR INSTALLATION WITH INTERCHANGEABLE SQUARE HEAD CYLINDERS

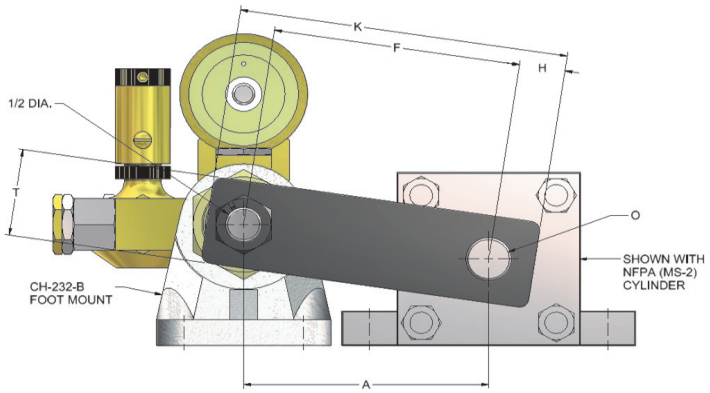
Mounting Plates, Series CH-88-INT, are designed to be fastened to the four Cylinder Tie Rods which extend at the front of the Cylinder. The Rod Tie Bars, Series CH-78-INT, are designed to be used in conjunction with the above Mounting Plates, or when Cyl-Check® is mounted independently as shown below.

MOUNTING PLATE SERIES CH-88-INT



MOUNT NO.	C	D	F	G	J	K	O	T
CH-1588-INT	1.458	1/2"	3-1/8"	11/32"	1"	5"	1-1/4"	2"
CH-288-INT	1.867	1/2"	3-1/8"	13/32"	1-1/4"	5-1/2"	1-1/4"	2-1/2"
CH-2588-INT	2.219	1/2"	3-1/2"	13/32"	1-1/2"	5-7/8"	1-1/2"	3"
CH-338-INT	2.794	5/8"	4-1/8"	15/32"	1-7/8"	6-7/8"	2"	3-3/4"
CH-488-INT	3.339	5/8"	4-1/2"	15/32"	2-1/4"	7-5/8"	2"	4-1/2"

ROD TIE BAR SERIES CH-78-INT



MOUNT NO.	CYL. BORE	A	F	H	K	O	T	THICK-NESS
CH-1578-INT	1-1/2"	3"	3-1/8"	1/2"	4-1/2"	15/32"	1-1/4"	1/2"
CH-278-INT	2"	3-5/16"	3-3/8"	1/2"	4-1/2"	15/32"	1-1/4"	1/2"
CH-2578-INT	2-1/2"	3-1/2"	3-1/2"	1/2"	4-5/8"	15/32"	1-1/4"	5/8"
CH-378-INT	3"	4-1/8"	4-1/8"	3/4"	5-1/2"	25/32"	1-1/2"	5/8"
CH-478-INT	4"	4-1/2"	4-1/2"	3/4"	5-7/8"	25/32"	1-1/2"	5/8"

ORDERING PROCEDURE (PARALLEL MOUNTING)

1) AIR CYLINDER CHOICE

(A) When choosing an Allenair Cylinder, in order to be able to mount the Rod Tie Bar, an additional rod extension and threaded length is required.

By specifying **CH** after the Cylinder nomenclature the Factory will automatically supply the Cylinder with the Dimensions shown in the chart.

CYL BORE SIZE	DIMENSIONS			
	H		J	
	STD	OS	STD	OS
1-1/2"	3-7/16"	3-7/16"	2-1/8"	2-1/8"
2"	3-7/16"	3-7/16"	2-1/8"	2-1/4"
2-1/2"	3-11/16"	3-11/16"	2-11/16"	2-13/16"
3"	3-11/16"	3-11/16"	2-11/16"	2-13/16"
4"	4-1/4"	5-1/4"	3-1/2"	4-7/8"

EXAMPLES: **E-2x4-CH-OS-RG**
EV-3x10-CH-SDS-AAS-120/60

(B) On certain packaged installations involving an Allenair Valve-in-Head ® Cylinder, it will be necessary to increase the stroke of the Cylinder in order for the Inlet Port, Speed Control Screws, and Solenoid Housings to clear the Cyl-Check ®. When such an increase is necessary it will be based on obtaining a minimum difference of 3” between the stroke of the Cylinder and the stroke of the Cyl-Check ® on all bore sizes from 1-1/2” through 3”, and 1” on 4” bore Cylinders. The difference, whenever required, will be taken care of automatically by the factory, unless specifically requested otherwise.

ORDERING PROCEDURE (PARALLEL MOUNTING)
(CONTINUED)

2) CYL-CHECK ® CHOICE

TYPE	SIDE TUBING LOCATION (LH or RH)	STROKE Standards are 2-1/2, 5, 6, 10, 15, & 20	OPTIONS (IF REQUIRED)		
			THREADED ROD EXTENSION See Page 54	SKIP CHECK See Page 54	STOP CHECK See page 55

EXAMPLES: CHF-LH - 5 -10 - KE-OR - TA - 120/60
CHB-RH - 5 - 5 - KAF-KAR - TE-OR -120/60

3) MOUNTS OR MOUNTING KIT CHOICE

(A) Separate Mounts can be ordered If desired. See Pages 61, 62 & 63.

EXAMPLES: 1) CH-278-OS, 1) CH-232-L-OS, 1) A-232.
1) CH-378, 1) CH-332-T, 1) A-332.

(B) Complete Mounting Kits can be ordered as shown on Pages 56, 57 & 58.

EXAMPLES: 1) CHMK - 2- 2" - OS
1) CHMK - 5- 3"
Specify Cylinder Bore Size Selected.

ORDERING PROCEDURE (TANDEM MOUNTING)

1) AIR CYLINDER CHOICE

TYPE	BORE	STROKE	OPTIONS

EXAMPLES: E- 2 X 4-OS-RG

2) CYL-CHECK ® CHOICE

TYPE	SIDE TUBING LOCATION (LH or RH)	STROKE Standards are 2-1/2, 5, 6, 10, 15, & 20	OPTIONS (IF REQUIRED)	
			SKIP CHECK See Page 54	STOP CHECK See page 55

EXAMPLES: CHTB LH - 5 - KAF - KAR - TE OR - 120/60

3) COMPLETE ORDERING NOMENCLATURE BY COMBINING 1) & 2)

EXAMPLE: E-2 X 4-OS-RG-CHTBLH-5-KAF-KAR-TE-OR-120/60

4) MOUNTS

Select from Page 58.

5) VALVE MOUNTED

Specify Valve Required.

EXAMPLE: 1) VDST- AAS -1/4 -120/60 MOUNTED

ALLENAIR CLAMPS are rugged, economical units with versatile mounting for such plant applications as clamping, pressing, staking, stamping, bending and positioning. Available in Double Acting and Single Acting (Spring Return) types.
FEATURES: High Tensile Die Cast or Aluminum Bodies, with ground and polished 416 Stainless Steel Piston Rods. The Precision bored bodies add longer life and dependability to the BUNA-N Seals. All 1-1/8" Bore Clamps have sturdy Bronze Rod Bearings, except the AC-1x1, which utilizes the head itself for its bearing. The 2" bore Clamps have low friction, long life Nylon Rod Bearings. 150 P.S.I, maximum pressure. 250°F maximum temperature.

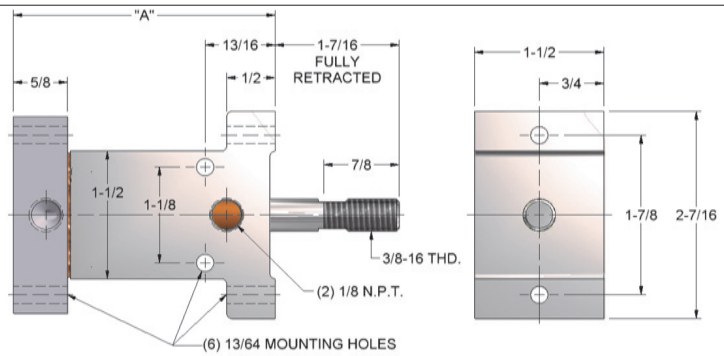
FOR A WIDE RANGE OF ECONOMICAL 3-WAY & 4-WAY 1/8" VALVES SEE PAGES 72, 76 & 86.

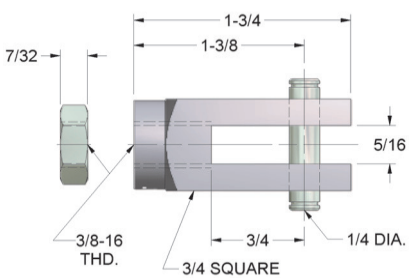
ACD 1-1/8" BORE • DOUBLE ACTING

MODEL	STROKE
ACD-110	1"
ACD-120	2"
ACD-130	3"
ACD-140	4"

ACD - SR 1 1/8" BORE • SPRING RETURN
ACD-SRF: Rod Normally Retracted by Spring.
ACD-SRR: Rod Normally Extended by Spring.
Spring Force: 15 lbs. at rest; 30 lbs. full stroke

MODEL	STROKE
ACD-SRF-105 ACD-SRR-105	1/2"
ACD-SRF-110 ACD-SRR-110	1"
ACD-SRF-115 ACD-SRR-115	1-1/2"
ACD-SRF-120 ACD-SRR-120	2"





A-145
ROD CLEVIS, NUT & PIN

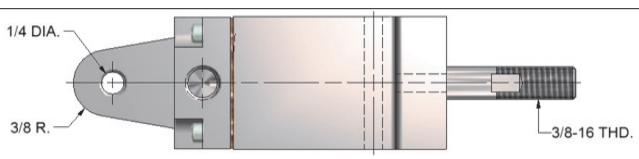
MODEL	STROKE	"A"
ACD-110	1"	3"
ACD-120	2"	4"
ACD-130	3"	5"
ACD-140	4"	6"
ACD-SRF-105 ACD-SRR-105	1/2"	3"
ACD-SRF-110 ACD-SRR-110	1"	4"
ACD-SRF-115 ACD-SRR-115	1-1/2"	5"
ACD-SRF-120 ACD-SRR-120	2"	6"

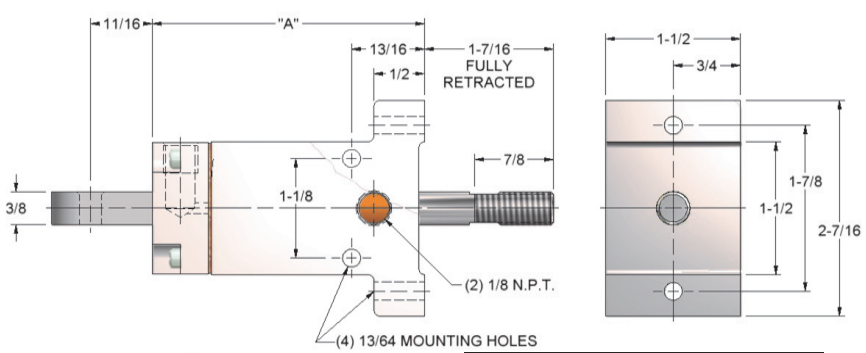
ACDT 1-1/8" BORE • DOUBLE ACTING

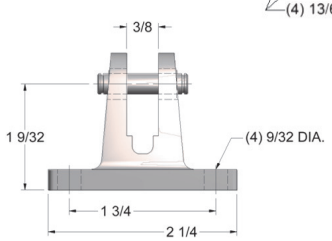
MODEL	STROKE
ACDT-110	1"
ACDT-120	2"
ACDT-130	3"
ACDT-140	4"

ACDT - SR 1 1/8" BORE • SPRING RETURN
ACDT-SRF: Rod Normally Retracted by Spring.
ACDT-SRR: Rod Normally Extended by Spring.
Spring Force: 15 lbs. at rest; 30 lbs. full stroke

MODEL	STROKE
ACDT-SRF-105 ACDT-SRR-105	1/2"
ACDT-SRF-110 ACDT-SRR-110	1"
ACDT-SRF-115 ACDT-SRR-115	1-1/2"
ACDT-SRF-120 ACDT-SRR-120	2"





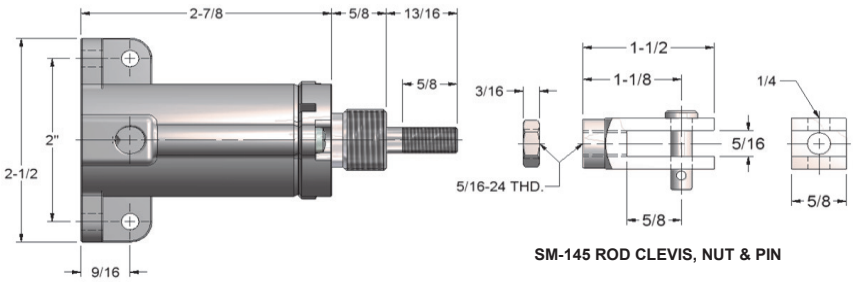


A-139
SWIVEL BRACKET & PIN

MODEL	STROKE	"A"
ACDT-110	1"	3"
ACDT-120	2"	4"
ACDT-130	3"	5"
ACDT-140	4"	6"
ACDT-SRF-105 ACDT-SRR-105	1/2"	3"
ACDT-SRF-110 ACDT-SRR-110	1"	4"
ACDT-SRF-115 ACDT-SRR-115	1-1/2"	5"
ACDT-SRF-120 ACDT-SRR-120	2"	6"

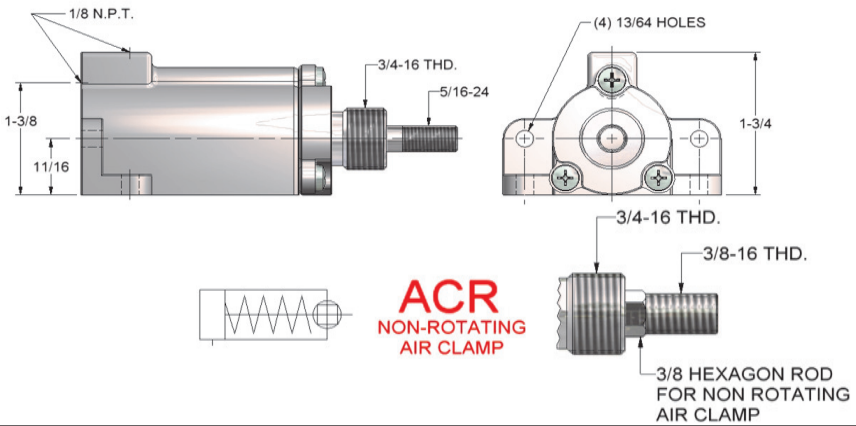
AC-1X1 SPRING RETURN

1-1/8" BORE X 1" STROKE



SM-145 ROD CLEVIS, NUT & PIN

AC-1X1 SPRING RETURN
ACR-1X1 SPRING RETURN NON ROTATING
(AIR PUSH, ROD RETRACTED BY SPRING)
A-129 FLANGE MOUNT
A-132 FOOT MOUNT
SM-145 ROD CLEVIS, NUT & PIN



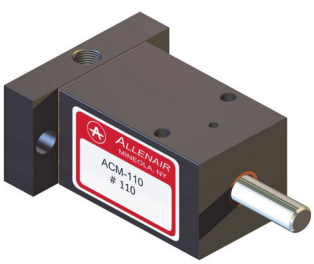
FEATURING:
• 1/8"N.P.T. Porting.
• One Flush Pipe Plug.
Spring Force: 10 lbs. at rest; 20 lbs. full stroke.

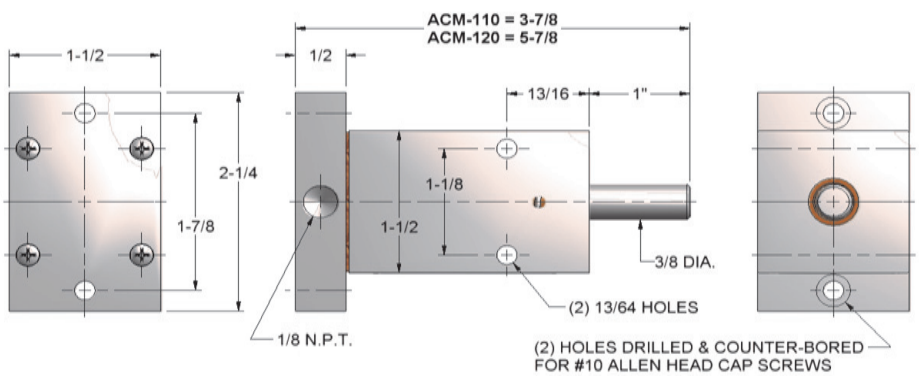
NOTE: Mounting Nut is supplied only with Flange or Foot Mount and is included in the price of those Mounts. If otherwise required, order separately as Part A-114.

ACM 1-1/8" BORE SPRING RETURN

Spring Force:
ACM-110 -10 lbs. at rest; 20 lbs. full stroke.
ACM-120 - 5 lbs. at rest; 10 lbs. full stroke.

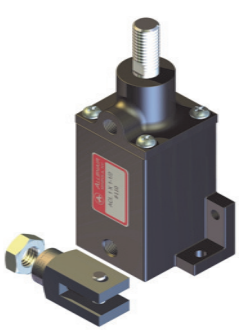
MODEL	STROKE
ACM-110	1"
ACM-120	2"



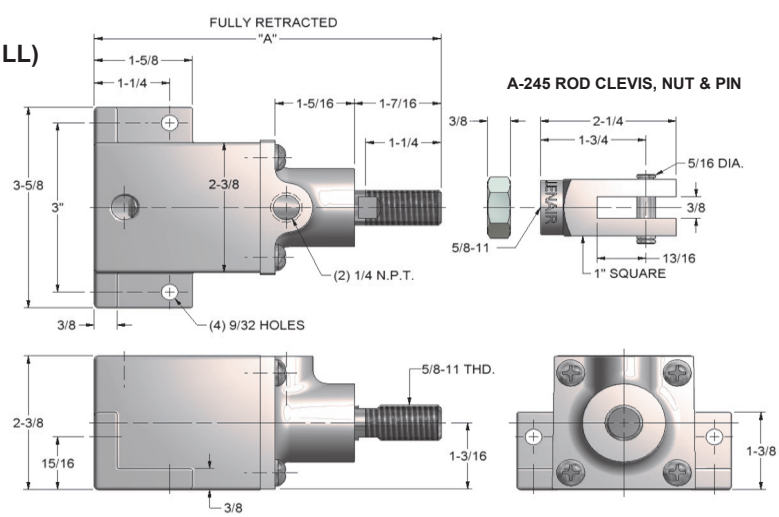


FEATURING:
• Non-threaded Rod.
• 1/8" N.P.T. Porting.
• Sturdy Bronze Rod Bearings.

ACL 2" BORE • DOUBLE ACTING
ACL - SR 2" BORE • SPRING RETURN (AIR PUSH OR PULL)

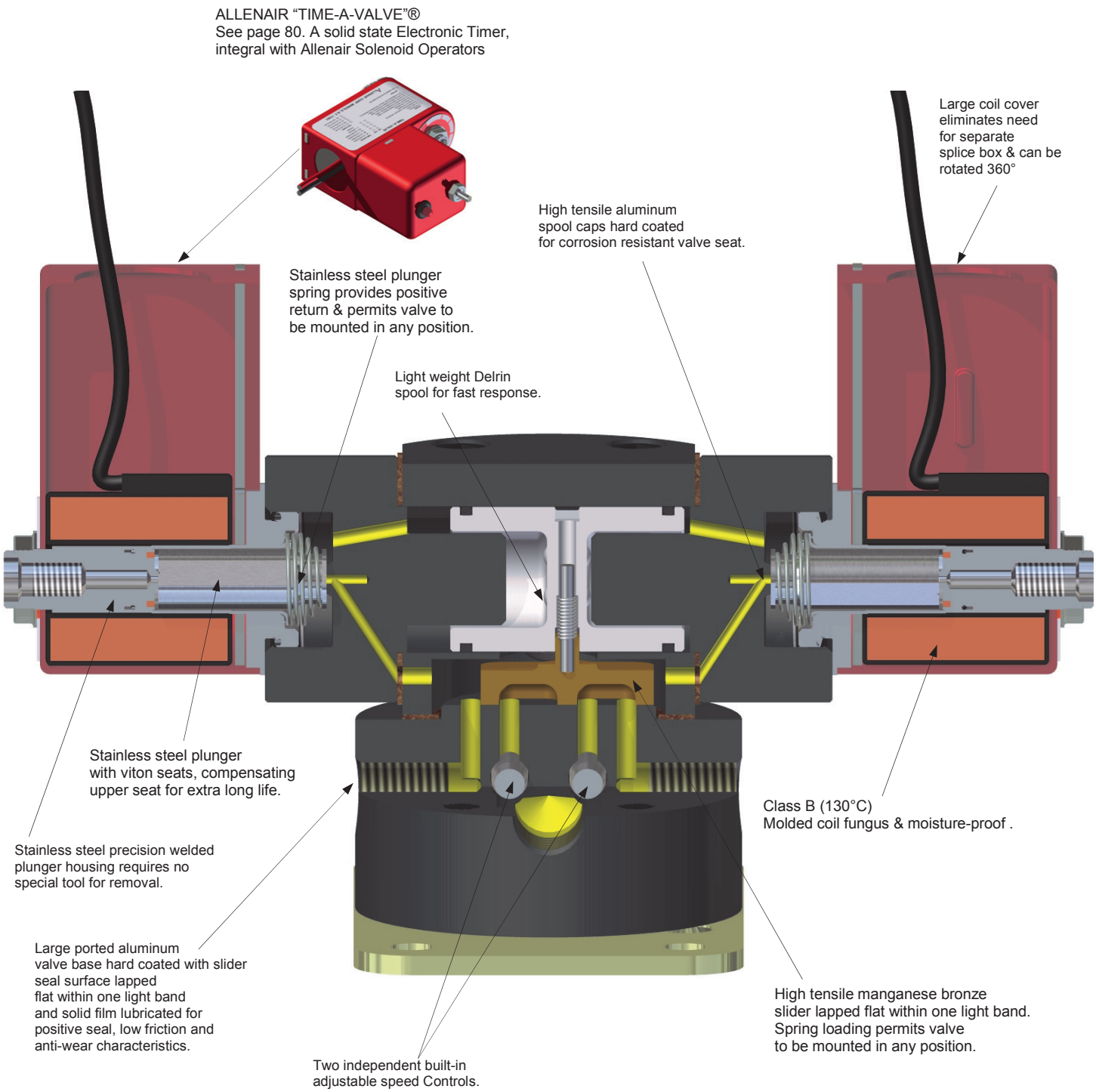


MODEL	STROKE	"A"
ACL-205	1/2"	5-3/4
ACL-210	1"	5-3/4
ACL-215	1-1/2"	6-3/4
ACL-220	2"	6-3/4
ACL-225	2-1/2"	7-3/4
ACL-230	3"	7-3/4
ACL-SRF-205 ACL-SRR-205	1/2"	5-3/4
ACL-SRF-210 ACL-SRR-210	1"	6-3/4
ACL-SRF-215 ACL-SRR-215	1-1/2"	7-3/4
ACL-SRF-220 ACL-SRR-220	2"	7-3/4



ACL-SRF: Rod Normally Retracted by Spring.
ACL-SRR: Rod Normally Extended by Spring.
Spring Force: "SRF" Models - 10 lbs. at rest; 35 lbs. full stroke. "SRR" Models - 20 lbs. at rest; 40 lbs. full stroke.

ALLENAIR Slider-type 4-Way 2-Position Valves are rugged, field proven Valves that can be mounted in any plane. They are available in a wide range of Solenoid, Pressure Pilot, Bleed Pilot and Manual Models. The basic principle of operation is the use of a pilot operated spool which moves the slider across the internal porting.
Operating pressure 10 P.S.I to 150 P.S.I, maximum.



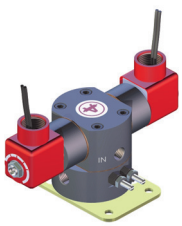
The above Valve shows the combined design features of our basic Valve and standard “AAS” splice box housing solenoid operators.

STANDARD VOLTAGES

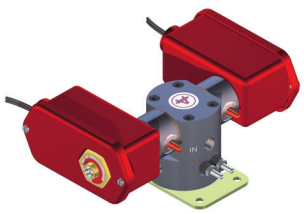
12, 24, 120 & 240/60 AC and 6, 12 & 24VDC. Other voltages are available.

DOUBLE SOLENOID PRESSURE PILOT
MODEL VDS GENERAL PURPOSE

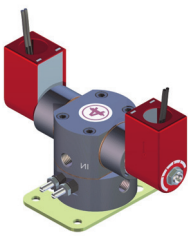
A momentary or maintained electrical contact applied to one solenoid will shift the Valve. It will remain in that position until the other solenoid is energized, which will cause the Valve to shift to its original position. If a maintained contact is employed, the first solenoid must be de-energized before the other is energized.



MODEL VDS-AAC



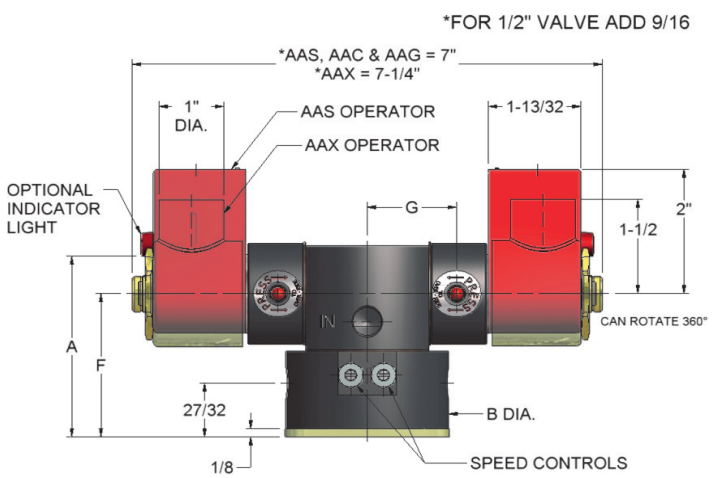
MODEL VDS-JIC
(NEMA 4)

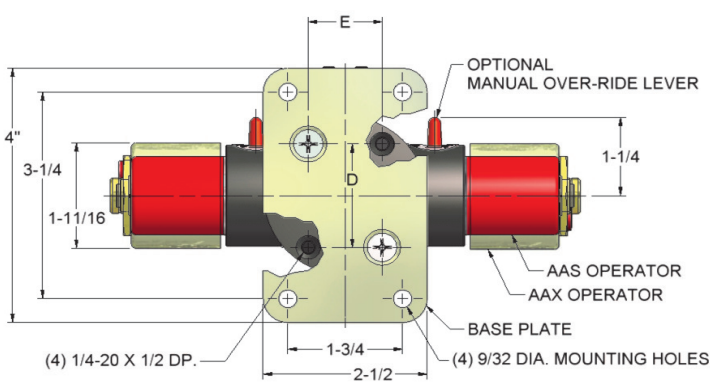


MODEL VDS-AAS

MODEL VDS-AAX

DIM.	PORT SIZES (N.P.T.)		
	1/4"	3/8"	1/2"
A	3-1/4	3-1/4	3-5/8
B	2-1/2	2-1/2	3"
D	1-5/8	1-5/8	1-3/4
E	1-1/8	1-1/8	1-3/4
F	2-1/2	2-1/2	2-13/16
G	1-7/16	1-7/16	1-3/4
EXH PORT N.P.T.	1/4"	1/4"	1/2"
Cv FACTOR	1	1	1.5



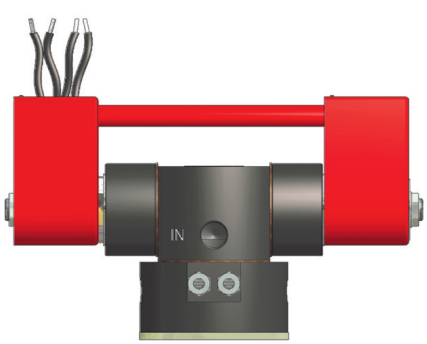


NOTES:
1) ENERGIZING SOLENOID PRESSURIZES CYLINDER PORT DIRECTLY UNDER THAT SOLENOID.
2) EXHAUST PORT IS LOCATED 180° FROM SPEED CONTROLS.

OPTIONAL COMMON LEAD CONNECTOR FOR "AAS" OPERATORS ONLY

SPECIFY **CLC** AFTER THE VALVE NOMENCLATURE

A neat, compact assembly eliminating the need for two separate conduit connections. This consists of a rigid tubing between the solenoid covers, which allows the coil leads of one coil to be passed through the connector and into the other coil housing, so that all coil leads exit through a common outlet.



SINGLE SOLENOID
(GENERAL PURPOSE)

MODEL (PRESSURE PILOT) **VSS**

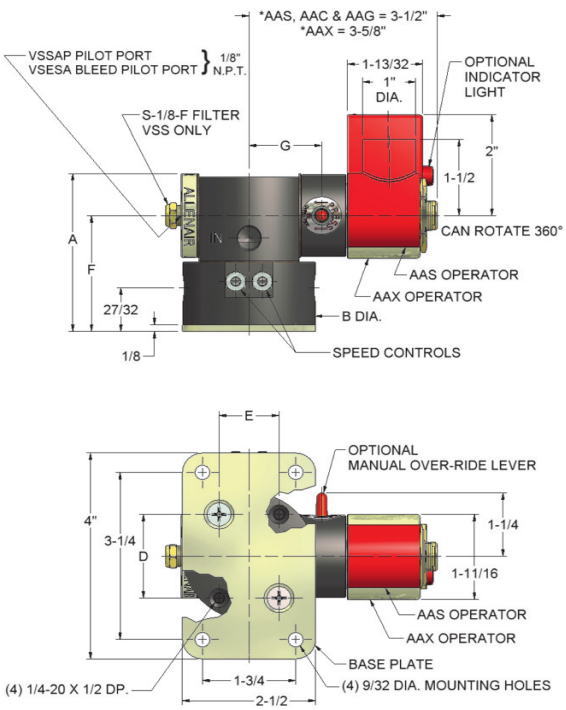
A maintained electrical contact is required to shift the valve. Breaking the electrical contact will return the valve to its original position.

MODEL (PRESSURE PILOT) **VSSAP**

A momentary (NOT continuous) electrical contact is required to shift the valve. It will remain in that position until a separate momentary pilot pressure is applied to the spool cap opposite the solenoid, returning the valve to its original position.
Pilot pressure must be at least 25% of the operating pressure

MODEL (BLEED PILOT) **VSESA**

A momentary (NOT continuous) electrical contact is required to shift the valve. A separate Bleeder Valve, such as the Allenair BV100 or BV-1/8, must be installed in the line to the spool cap opposite the solenoid. Depressing this Bleeder Valve momentarily will return the valve to its original position



DIM.	PORT SIZES (N.P.T.)		
	1/4"	3/8"	1/2"
A	3-1/4	3-1/4	3-5/8
B	2-1/2	2-1/2	3"
D	1-5/8	1-5/8	1-3/4
E	1-1/8	1-1/8	1-3/4
F	2-1/2	2-1/2	2-13/16
G	1-7/16	1-7/16	1-3/4
EXH PORT N.P.T.	1/4"	1/4"	1/2"
Cv FACTOR	1	1	1.5

NOTES:
1) MODELS VSS & VSSAP: ENERGIZING SOLENOID PRESSURIZES CYLINDER PORT DIRECTLY UNDER SOLENOID.
2) MODEL VSESA: ENERGIZING SOLENOID PRESSURIZES CYLINDER PORT OPPOSITE SOLENOID.
3) EXHAUST PORT IS LOCATED 180° FROM SPEED CONTROLS.

OPTIONS (SOLENOID VALVES)

SPECIFY **HTP** FOR HIGH TEMPERATURE SEALS
These seals are a fluorocarbon compound (viton) and have an operating temperature range of +10° F to +350°F. They will function at temperatures up to +400°F with reduced life.

SPECIFY **IL** FOR INDICATOR LIGHT (AAS OPERATOR ONLY)
Light indicates when solenoid is energized.

SPECIFY **OR** FOR MANUAL OVER-RIDE LEVER
These are non-locking and are particularly useful for set-up or electrical failure.

SPECIFY **PE** FOR PIPED EXHAUST ADAPTERS
Enables the solenoid exhaust to be piped from the actuator.

SOLENOID OPERATORS

AAC CONDUIT HOUSING,	UL & CSA Listed.
AAD DIN-type HOUSING	A male connector configuration of DIN 43650/ISO 4400. See page 75 for female connectors.
AAG GROMMET HOUSING,	UL & CSA Listed.
AAS SPLICE BOX HOUSING	(STANDARD), UL & CSA Listed.
AAX EXPLOSION PROOF,	UL Listed covering Class I Groups C & D (NEMA 7) and Class II Groups E, F & G (NEMA 9).
AAY SPADE TERMINALS,	UL & CSA Listed.
JIC NEMA 4/IP-56	Water Tight per NEMA 4/IP-56
AAN6 NEMA 6	Water Tight per NEMA 6

ORDERING PROCEDURE (SOLENOID VALVES)

MODEL	SIZE 1/4, 3/8 or 1/2	OPTIONS	VOLTAGE

EXAMPLES: **VSS 1/2 AAS HTP - OR - PE 24VDC**
VDS 1/4 AAX OR - 120/60

DOUBLE PILOT

MODEL VAP PRESSURE PILOT

A momentary or maintained pilot pressure applied to one side of the valve will cause it to shift. It will remain in that position until a pilot pressure is applied to the other side, which will cause the valve to return to its original position. If a maintained pilot pressure is employed, it must be released before the other pilot pressure is applied. Pilot pressure must be at least 25% of the operating pressure.

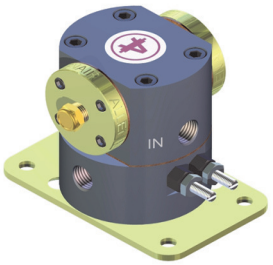
MODEL VSA BLEED PILOT

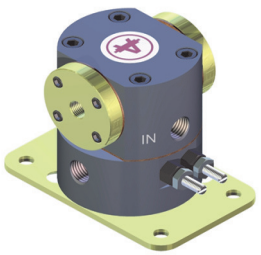
A separate Bleeder Valve, such as the Allenair BV100 or BV-1/8, must be installed in a line to each spool cap. Depressing one Bleeder Valve momentarily will shift the valve. It will remain in that position until the other Bleeder Valve is depressed, which will cause the valve to shift to its original position.

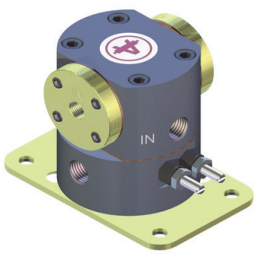
SINGLE PILOT

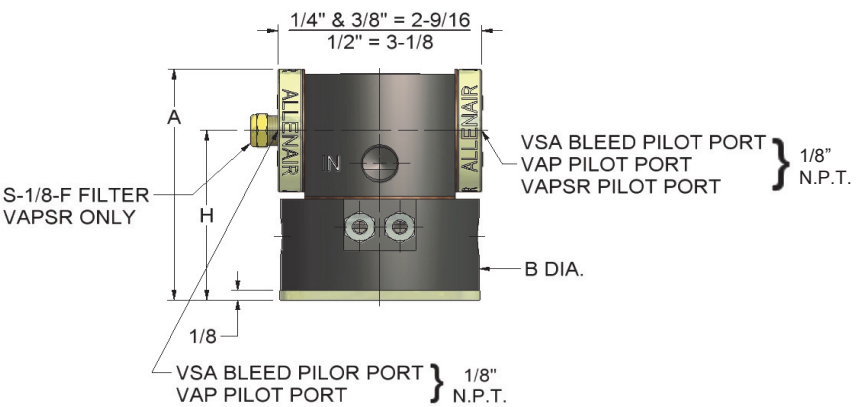
MODEL VAPSR PRESSURE PILOT

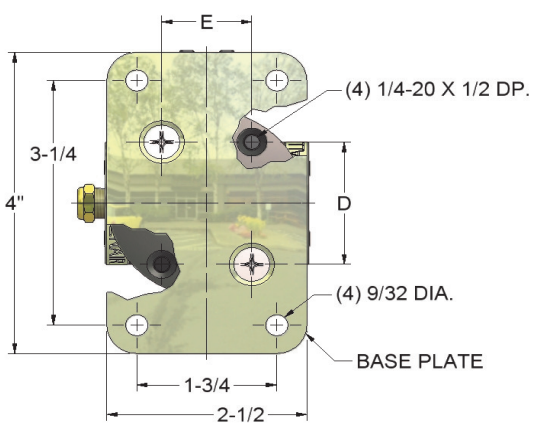
A continuous pilot pressure applied to “IN” side of the valve will shift the valve. When the pilot pressure is released the valve will shift to its original position. The pilot pressure must be at least 75% of the operating pressure.











DIM.	PORT SIZES (N.P.T.)		
	1/4"	3/8"	1/2"
A	3"	3"	3-5/8
B	2-1/2	2-1/2	3"
D	1-5/8	1-5/8	1-3/4
E	1-1/8	1-1/8	1-3/4
H	2-1/4	2-1/2	2-13/16
EXH PORT N.P.T.	1/4"	1/4"	1/2"
Cv FACTOR	1	1	1.5

NOTES:

1) MODELS VAP & VAPSR: PILOT SIGNAL PRESSURIZES CYLINDER PORT DIRECTLY UNDER THAT PILOT PORT.
2) MODEL VSA: BLEED PILOT SIGNAL PRESSURIZES CYLINDER PORT OPPOSITE THAT BLEED PILOT PORT.
3) EXHAUST PORT IS LOCATED 180° FROM SPEED CONTROLS.

OPTION

SPECIFY **HTP** FOR HIGH TEMPERATURE SEALS

These seals are a fluorocarbon compound (viton) and have an operating temperature range of +10° F to +350°F. They will function at temperatures up to +400°F with reduced life.

ORDERING PROCEDURE

MODEL	SIZE	OPTION

VAPSR 1/2 HTP
VSA 1/4

MANUALLY OPERATED

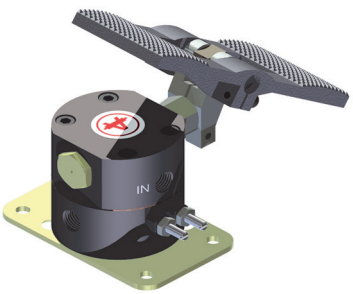
MODEL VH HAND
Manual operation of the lever is required to shift the valve to either position.

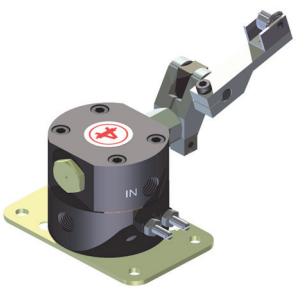
MODEL VHSR HAND
Manual operation of the lever is required to shift the valve. It is equipped with a built-in spring return which automatically shifts the valve when the lever is released.

MODEL VT FOOT TREADLE
Foot operation of the treadle is required to shift the valve to either position.

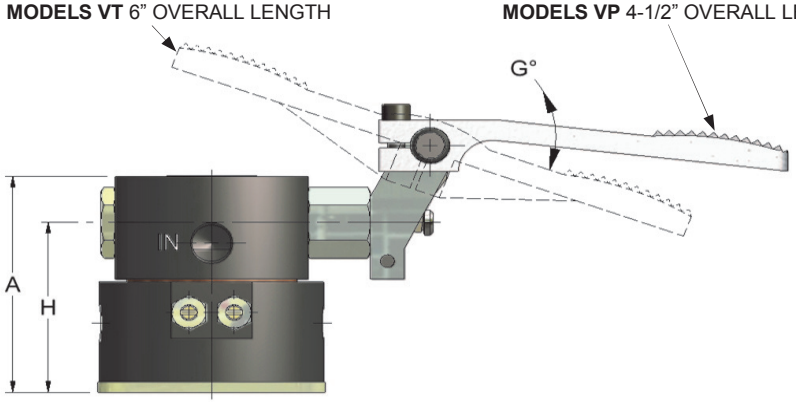
MODEL VP FOOT PEDAL
Foot operation of the pedal is required to shift the valve. Releasing the pedal will shift the valve to its original position.

MODEL VC CAM
Manual operation of the cam is required to shift the valve. It is equipped with a built-in spring return which automatically shifts the valve when the cam is released.

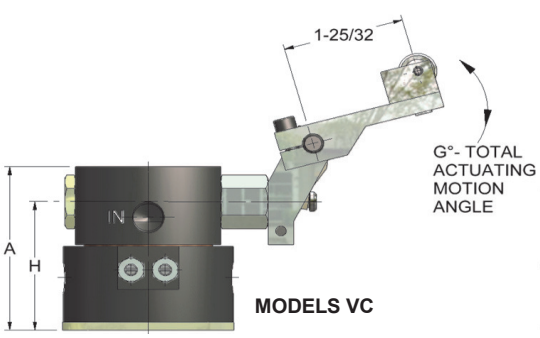




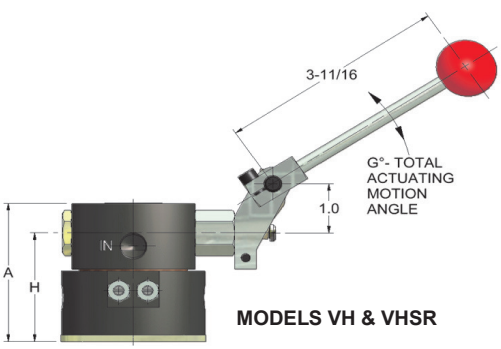
MODELS VT 6" OVERALL LENGTH



MODELS VP 4-1/2" OVERALL LENGTH



MODELS VC



MODELS VH & VHSR

DIM.	PORT SIZES (N.P.T.)		
	1/4"	3/8"	1/2"
A	3"	3-1/4	3-5/8
G°	16°	16°	23°
H	2-1/4	2-1/2	2-13/16
EXH PORT N.P.T.	1/4"	1/4"	1/2"
Cv FACTOR	1	1	1.5

NOTES:
1) FOR BASE PLATE DIMENSIONS SEE DRAWING ON PAGE 70.
2) EXHAUST PORT IS LOCATED 180° FROM SPEED CONTROLS .
3) THE ACTUATORS HAVE A 180° ADJUSTMENT AND MAY BE ROTATED TO ANY POSITION ABOUT THEIR CENTERS.

OPTION

SPECIFY **HTP** FOR HIGH TEMPERATURE SEALS
These seals are a fluorocarbon compound (viton) and have an operating temperature range of +10° F to +350°F. They will function at temperatures up to +400°F with reduced life.

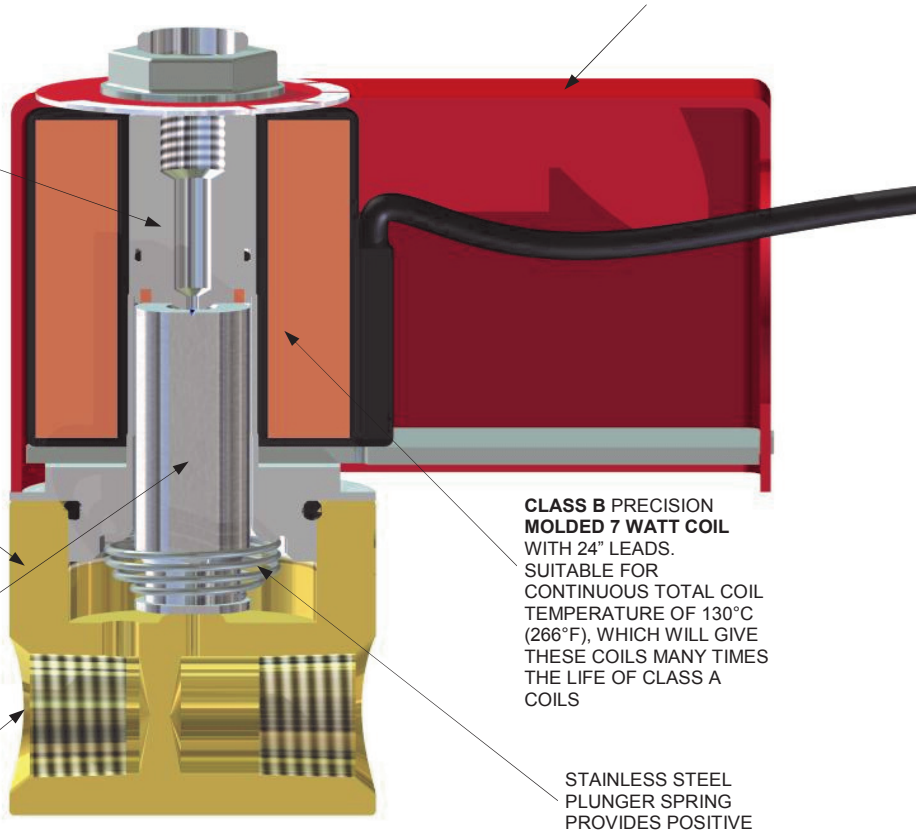
MODEL	SIZE	OPTION
VH	1/2	HTP
VT	1/4	

A LINE OF OUTSTANDING 2-WAY & 3-WAY SOLENOID VALVES

SMALLER IN SIZE • GREATER Cv FACTORS
LESS POWER REQUIRED • SIMPLICITY IN WIRING
ACHIEVED THROUGH
SUPERIOR DESIGN AND DIMENSIONAL QUALITY CONTROL

3-WAY VALVES are available as Normally Closed, Normally Open or Multi-Purpose. **2-WAY VALVES** are available as Normally Closed or Normally Open. All types can be supplied in various operating pressure ranges with 1/8” or 1/4” N.P.T. Ports. To satisfy a wide variety of applications, the valve bodies are offered in Hardcoated Aluminum, Brass or Stainless Steel.

DESIGN FEATURES



SPLICE BOX HOUSING: LARGE COIL COVER OF GENERAL PURPOSE VALVES, ELIMINATES NEED FOR SEPARATE SPLICE BOX.

STAINLESS STEEL PRECISION WELDED PLUNGER HOUSING REQUIRES NO SPECIAL TOOLS FOR REMOVING

3 BODY MATERIALS AVAILABLE:
1) **ALUMINUM HARD COATED** IS FILE HARD, ABRASION & CORROSION RESISTANT.
2) **BRASS.**
3) **STAINLESS STEEL**

CLASS B PRECISION **MOLDED 7 WATT COIL** WITH 24” LEADS. SUITABLE FOR CONTINUOUS TOTAL COIL TEMPERATURE OF 130°C (266°F), WHICH WILL GIVE THESE COILS MANY TIMES THE LIFE OF CLASS A COILS

STAINLESS STEEL PLUNGER WITH **VITON SEATS. COMPENSATING** UPPER SEAT FOR EXTRA LONG LIFE

1/8” OR 1/4” NPT PORT SIZES

STAINLESS STEEL PLUNGER SPRING PROVIDES POSITIVE RETURN PERMITS VALVE TO BE MOUNTED IN ANY POSITION.

Voltages: 12, 24,120 & 240/60 AC and 6, 12 & 24VDC are standard.
Special voltages available upon request.
Temperature Range: - 40°F to + 190°F.
Orifices: From 3/64” to 1/8”.
Pressures: Vacuum To 250 P.S.I.
Media: Pneumatic & Hydraulic.

GENERAL PURPOSE

3-WAY VALVES - AVAILABLE AS NORMALLY CLOSED, NORMALLY OPEN OR MULTI-PURPOSE.
2-WAY VALVES - AVAILABLE AS NORMALLY CLOSED OR NORMALLY OPEN.

3-WAY NORMALLY CLOSED
OPTIONAL (CONDUIT HOUSING SHOWN)

3-WAY NORMALLY CLOSED
OPTIONAL (NEMA 6 HOUSING SHOWN)

3-WAY NORMALLY OPEN, MULTI-PURPOSE OR 2-WAYNORMALLY OPEN
STANDARD (SPLICE BOX HOUSING SHOWN)

	TYPE	Maximum Operating Pressure	Orifice Size Inlet	Orifice Size Exhaust	Inlet Cv Factor	CATALOG NUMBERS-SPECIFY OPTIONS AND VOLTAGE 1/8 N.P.T. Aluminum Hardcoated	1/8 N.P.T. Brass	1/8 N.P.T. Stainless	1/4 N.P.T. Aluminum Hardcoated	1/4 N.P.T. Brass	1/4 N.P.T. Stainless
3•WAY	NORMALLY CLOSED	175	3/64	3/64	.055	3CAX8A	3CAX8B	3CAX8S	3CAX4A	3CAX4B	3CAX4S
		150	1/16	1/16	.095	3CBX8A	3CBX8B	3CBX8S	3CBX4A	3CBX4B	3CBX4S
		75	3/32	1/16	.195	3CCY8A	3CCY8B	3CCY8S	3CCY4A	3CCY4B	3CCY4S
		50	1/8	3/32	.260	3CDY8A	3CDY8B	3CDY8S	3CDY4A	3CDY4B	3CDY4S
	NORMALLY OPEN	160	3/64	1/16	.055	3OAX8A	3OAX8B	3OAX8S	3OAX4A	3OAX4B	3OAX4S
		125	1/16	3/32	.095	3OBY8A	3OBY8B	3OBY8S	3OBY4A	3OBY4B	3OBY4S
		75	3/32	1/8	.195	3OCZ8A	3OCZ8B	3OCZ8S	3OCZ4A	3OCZ4B	3OCZ4S
	MULTI-PURPOSE	150	3/64	3/64	.055	3PAW8A	3PAW8B	3PAW8S	3PAW4A	3PAW4B	3PAW4S
		75	1/16	1/16	.095	3PBX8A	3PBX8B	3PBX8S	3PBX4A	3PBX4B	3PBX4S
		50	3/32	3/32	.195	3PCY8A	3PCY8B	3PCY8S	3PCY4A	3PCY4B	3PCY4S
2•WAY	NORMALLY CLOSED	250	3/64	-	.055	2CA8A	2CA8B	2CA8S	2CA4A	2CA4B	2CA4S
		200	1/16	-	.095	2CB8A	2CB8B	2CB8S	2CB4A	2CB4B	2CB4S
		150	3/32	-	.195	2CC8A	2CC8B	2CC8S	2CC4A	2CC4B	2CC4S
		125	1/8	-	.260	2CD8A	2CD8B	2CD8S	2CD4A	2CD4B	2CD4S
	NORMALLY OPEN	200	3/64	-	.055	2OA8A	2OA8B	2OA8S	2OA4A	2OA4B	2OA4S
		150	1/16	-	.095	2OB8A	2OB8B	2OB8S	2OB4A	2OB4B	2OB4S
		100	3/32	-	.195	2OC8A	2OC8B	2OC8S	2OC4A	2OC4B	2OC4S

ORDERING PROCEDURE

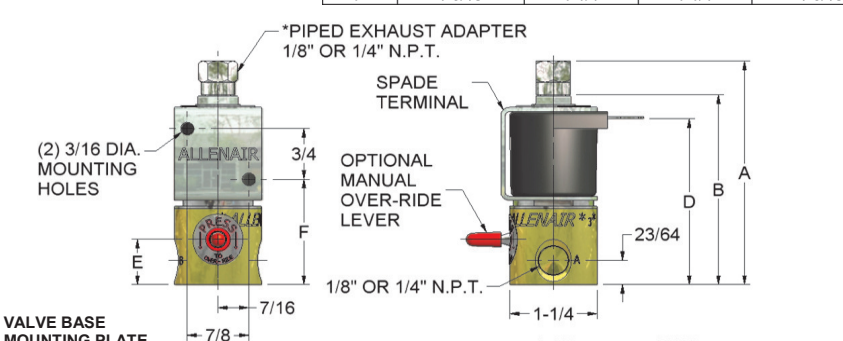
1) STANDARD VALVE
SPECIFY: Catalog Number and Voltage.

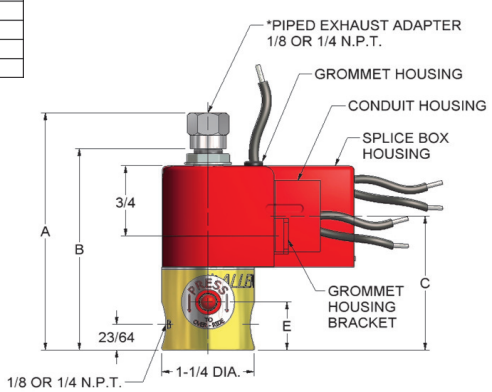
2) STANDARD VALVE with OPTIONS:
SPECIFY: Catalog Number, Option Code and Voltage

DIMENSIONS

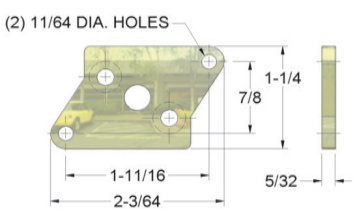
DIM.	3-WAY 1/8 & 1/4 N.P.T.	2-WAY NORMALLY CLOSED 1/8 N.P.T.	2-WAY NORMALLY CLOSED 1/4 N.P.T.	2-WAY NORMALLY OPEN 1/8 & 1/4 N.P.T.
A	3-5/16	-	-	3-5/16
B	2-13/16	2-15/16	2-5/8	2-13/16
C	1-29/32	1-9/16	1-23/32	1-29/32
D	2-21/64	2-9/64	2-9/64	2-21/64
E	43/64	31/64	41/64	43/64
F	1-9/16	1-1/4	1-1/4	1-9/16

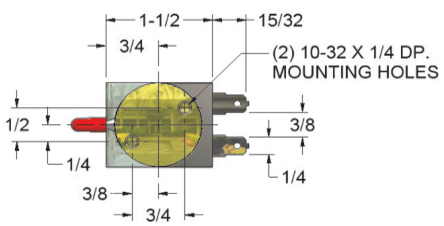
***Standard on 3-Way N.O., M.P. and 2-Way N.O.**

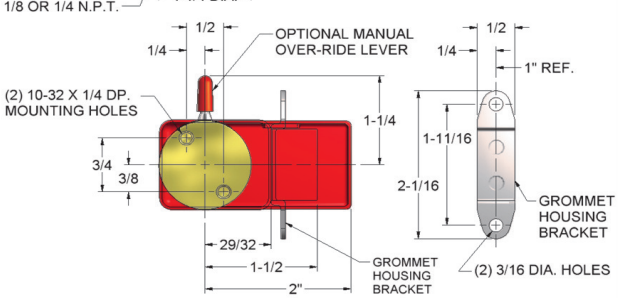




VALVE BASE MOUNTING PLATE Part Number DAV-M7

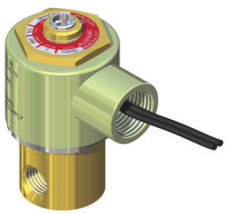




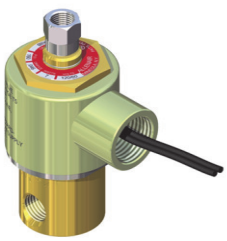


EXPLOSION-PROOF

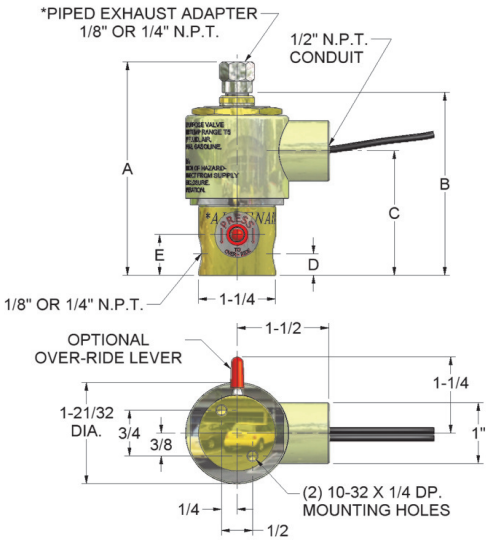
THE SMALLEST 2-WAY 3-WAY EXPLOSION-PROOF SOLENOID VALVES WITH STANDARD FLOW CHARACTERISTICS These valves are UL listed for use in hazardous locations Class I, Groups C D (NEMA 7) and Class II, Groups E, F G (NEMA 9).



3-WAY NORMALLY CLOSED



3-WAY NORMALLY OPEN, MULTI-PURPOSE OR 2-WAY NORMALLY OPEN



DIMENSIONS
EXPLOSION PROOF & NEMA 6

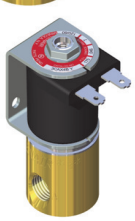
	3-WAY	2-WAY	
		NORMALLY CLOSED	NORMALLY OPEN
DIM.	1/8 & 1/4 N.P.T.	1/8 N.P.T.	1/4 N.P.T.	1/8 & 1/4 N.P.T.
A	3-1/2	-	-	3-1/2
B	3"	2-21/32	2-13/16	3"
C	2-1/32	1-11/16	1-27/32	2-1/32
D	23/64	17/64	21/64	23/64
E	43/64	31/64	41/64	43/64

***Standard on 3-Way N.O., M.P. and 2-Way N.O.**

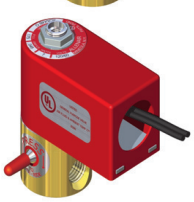
ADD THE PREFIX LETTER "X" TO THE CATALOG NUMBER TO SPECIFY EXPLOSION-PROOF

OPTIONS

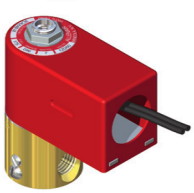
CONDUIT HOUSING: ADD THE SUFFIX LETTER **"C"** TO THE CATALOG NUMBER.



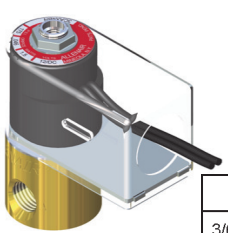
SPADE TERMINALS: ADD THE SUFFIX LETTER **"Y"** TO THE CATALOG NUMBER.



NON-LOCKING MANUAL OVER-RIDE LEVER: Particularly useful for set-up and electrical failure. ADD THE SUFFIX LETTER **"O"** TO THE CATALOG NUMBER.



METER IN: Allows adjusting of the inlet flow. ADD THE SUFFIX LETTER **"M"** TO THE CATALOG NUMBER (Not available with over-ride).



1.5 WATT: Available on normally closed valves with any housing or option. 6, 12 or 24VDC voltage ONLY. ADD THE SUFFIX LETTER **"N"** TO THE CATALOG NUMBER

2-WAY	3-WAY
3/64" orifice 250 PSI (2CA)	3/64" orifice 175 PSI (3CAX)
1/16" orifice 200 PSI (2CB)	1/16" orifice 150 PSI (3CBX)

HOUSING BRACKET: ADD THE SUFFIX LETTERS **"HB"** TO THE CATALOG NUMBER.

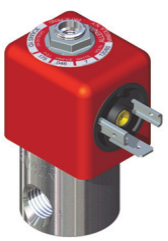
INDICATOR LIGHT: Available on Splice Box housing **ONLY**. Light indicates when solenoid is energized. ADD SUFFIX LETTER **"L"**TO THE CATALOG PART NUMBER Example: 120/60L

GROMMET HOUSING: ADD THE SUFFIX LETTER **"G"** TO THE CATALOG NUMBER.

NEMA 6 HOUSING: ADD THE SUFFIX **"N6"** TO THE CATALOG NUMBER. Coil Housing is nickel plated and epoxy filled to provide a corrosion resistant water tight barrier.

INDUSTRIAL OXGEN SERVICE: ADD THE SUFFIX LETTERS **"IOS"** TO THE CATALOG NUMBER.

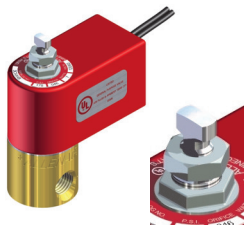
DIN-type HOUSING: DIN 43650/ ISO 4400. ADD THE SUFFIX LETTER **"YD"** TO THE CATALOG NUMBER.



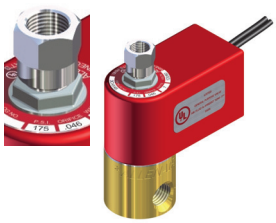
NEMA 4 HOUSING: ADD THE SUFFIX **"JIC"** TO THE CATALOG NUMBER

TIME-A-VALVE ® : A solid state electronic timer, integral with the Allenair Solenoid Operator. See page 80.

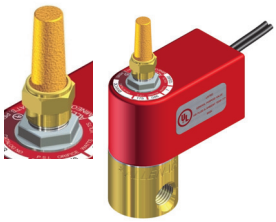
MISCELLANEOUS INFORMATION & ACCESSORIES



ADJUSTABLE EXHAUST
Available for 3-way
normally closed only.
PART NUMBER **EA-21**

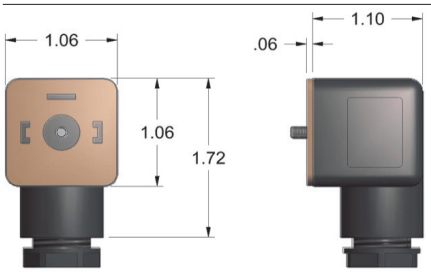


PIPED EXHAUST
Available for 3-way normally closed only.
Only in 1/8 N.P.T. or 1/4 N.P.T.
PART NUMBER
1/8 N.P.T. **EA-19**
1/4 N.P.T. **EA-19-4**



FILTER SILENCER
Available for top exhaust
Port on 3-way valves.
PART NUMBER **EA-27**
Also available for Body Ports
S-1/8 FOR 1/8 N.P.T.
S-1/4 FOR 1/4 N.P.T.

NOTE: ACCESSORIES MUST BE ORDERED AS SEPARATE ITEMS.

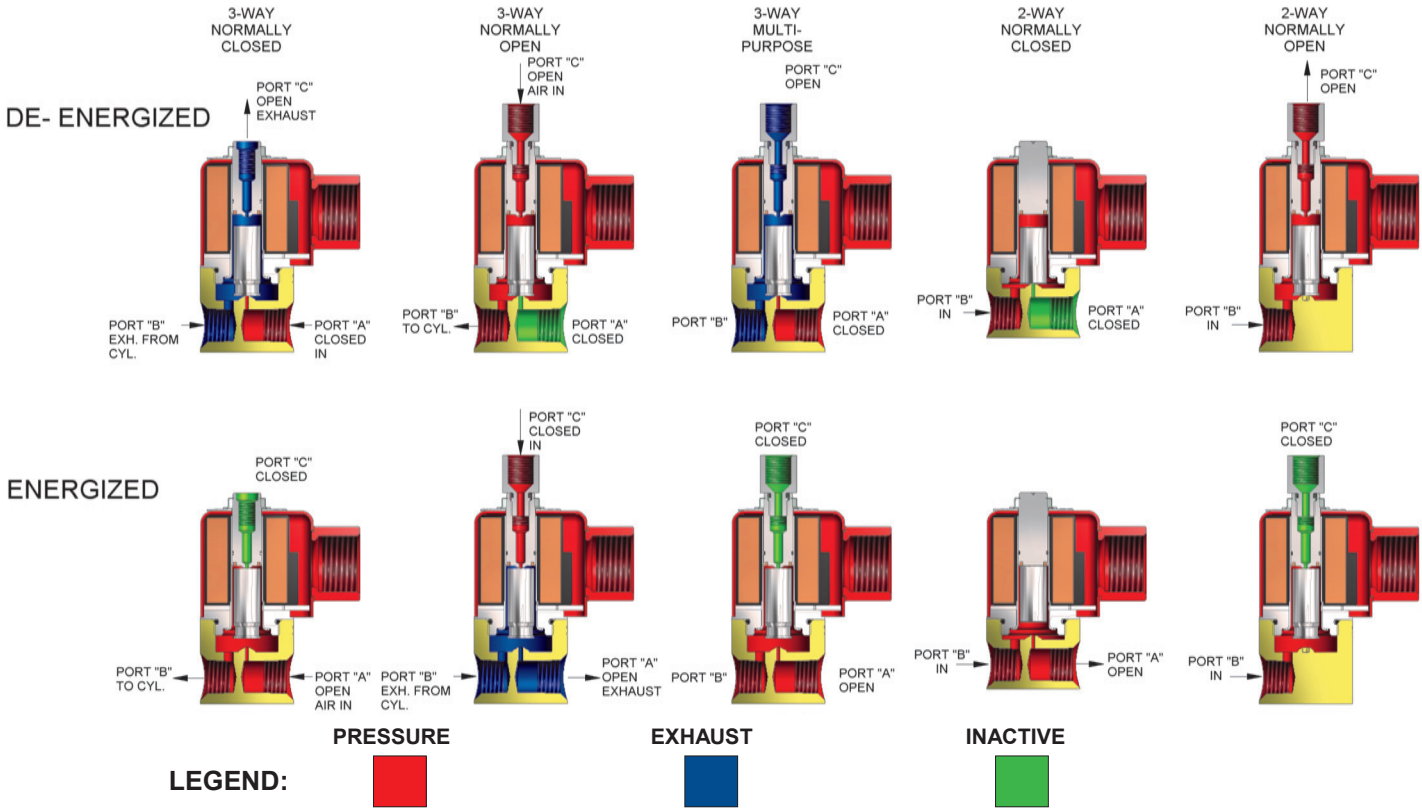


PART NO.	STRAIN RELIEF	CONDUIT	VOLTAGES		LIGHTED
			AC	DC	
EA-310	.24 TO .31	- - -	250-50/60	300	NO
EA-320	.31 TO .41	- - -	250-50/60	300	NO
EA-330	.24 TO .31	- - -	6-48-50/60	6-48	YES
EA-340	.31 TO .41	- - -	6-48-50/60	6-48	YES
EA-350	.24 TO .31	- - -	100-240-50/60	48-120	YES
EA-360	.31 TO .41	- - -	100-240-50/60	48-120	YES
EA-370	- - -	1/2"	250-50/60	300	NO
EA-380	- - -	1/2"	6-48-50/60	6-48	YES
EA-390	- - -	1/2"	100-240-50/60	48-120	YES

All connectors are rated for 10 amp service and are supplied with a silicon gasket (EA-305S) rated at 125°C. The metal encased potted coil housing, when used with the appropriate female connector, is designed to fulfill NEMA requirements 1 - 4, 12 and 13.

ALLENAIR’S FLEXIBILITY ALLOWS FOR A WIDE VARIETY OF SPECIAL VALVES.
CONTACT ALLENAIR WITH YOUR SPECIAL REQUIREMENTS.

FLOW DIRECTION



Note: Multi-purpose valves may be operated with air inlet at Port A, B or C. Follow flow direction according to method used.

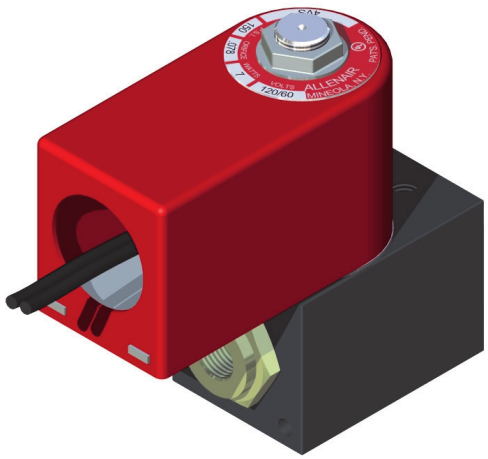
4-WAY DIRECT ACTING VALVES

AVAILABLE IN A VARIETY OF
SOLENOID, PRESSURE PILOT & BLEED PILOT MODELS

ALLENAIR’S Field Proven High Tensile Manganese Bronze Slider against a hardcoated aluminum slider base (both lapped flat within one light band) help make this a rugged, long life, bubble tight, high flow compact valve. This valve in many cases is tested with helium and used as an instrument grade valve.

SINGLE SOLENOID

MODEL **4VS** FOR SINGLE VALVE



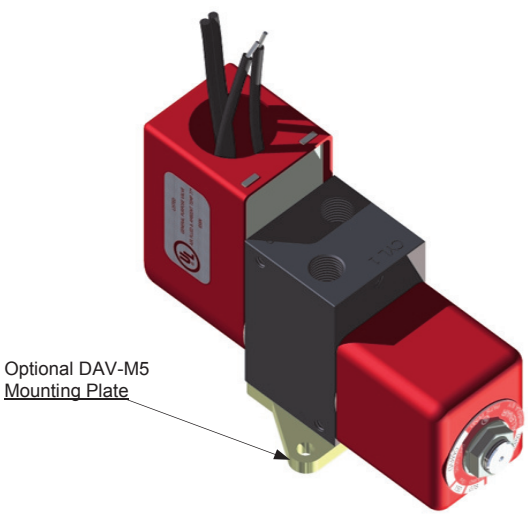
A maintained electrical contact is required to hold the valve in its shifted position. Breaking the electrical contact will return the valve to its original position.

(Standard Splice Box Housing is shown above.)

For DC voltages see note below.

DOUBLE SOLENOID

MODEL **4VD** FOR SINGLE VALVE



A momentary or maintained electrical contact applied to one solenoid will shift the valve. It will remain in that position until the other solenoid is energized, which will cause the valve to shift to its original position. If a maintained contact is employed, the first solenoid must be de-energized before the other is energized.

Voltages: 12, 24,120 & 240/60 and 12 &24VDC are standard.
Watts: 7
Temperature Range: - 10°F to + 190°F.
Pressures: Vacuum to 150 P.S.I.
Orifice: .078 Dia., Cv .12
Ports: 1/8 N.P.T.

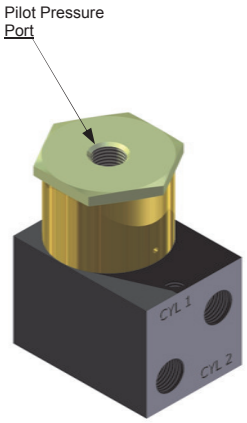
Note for Single Solenoid DC Valves:
For operating pressures of 80-150 P.S.I, a special coil and Splice Box Housing is required. See Price List for additional charges.
For pressures up to 80 P.S.I. maximum, all housings are available. The Prefix “8” must be added to the Model Number.

PILOT OPERATED

SINGLE AIR PILOT

MODEL 4VPS FOR SINGLE VALVE

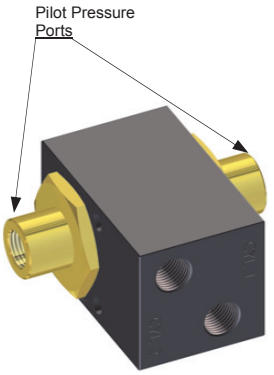
A continuous pilot pressure applied to the valve will hold it in its shifted position. When the pilot pressure is released the valve will shift to its original position. Pilot pressure must be at least 25% of the operating pressure. Minimum operating pressure is 30 P.S.I



DOUBLE AIR PILOT

MODEL 4VPD FOR SINGLE VALVE

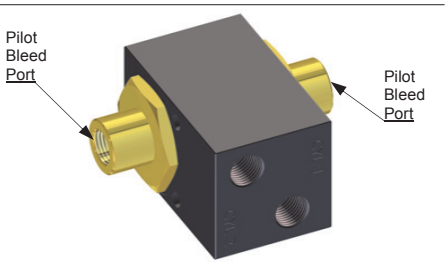
A momentary or maintained pilot pressure applied to one side of the valve will cause it to shift. It will remain in that position until a pilot pressure is applied to the other side, which will cause the valve to return to its original position. If a maintained pilot pressure is employed, it must be released before the other pilot pressure is applied. Pilot pressure must be at least 25% of the operating pressure.



DOUBLE BLEED PILOT

MODEL 4VBL FOR SINGLE VALVE

A separate Bleeder Valve, such as the Allenair **BV100** or **BV-1/8**, must be installed in a line to each bleed port. Depressing one Bleeder Valve Momentarily will shift the valve. It will remain in that position until the other Bleeder Valve is depressed, which will cause the valve to shift to its original position.

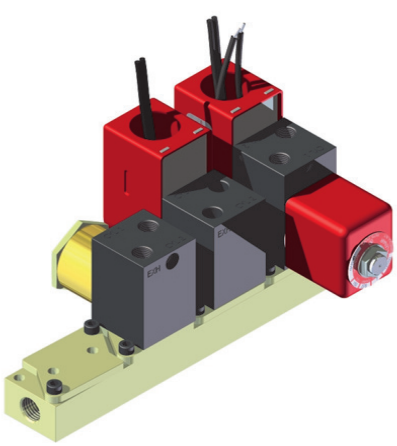


GROUP MOUNTED

MODEL GM

Group mounting is a convenient method of mounting two or more valves using a single common inlet port. One or any combination of valves can be used on this group mounting.

SPECIFY: “GM”__ (No. of Stations) for Mounting Base and add the Prefix “GM” to the valves required.



ORDERING EXAMPLE:

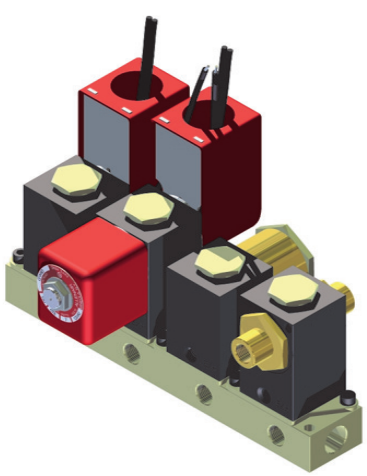
2) GM-4
8) GM4VS-120/60 mounted on all stations. If a combination of valves is used, designate each valve for each station.
BLANK COVERS are available for unused stations.
Part Number DAV- M8.

MANIFOLD MOUNTED

MODEL MM

Manifold mounting reduces cost over individually mounted valves by providing convenient permanent piping of the common inlet and cylinder ports. One or any combination of valves can be used on this manifold mounting.

SPECIFY: “MM”__ (No. of Stations) for Manifold Base and add the Prefix “MM” to the valves required.



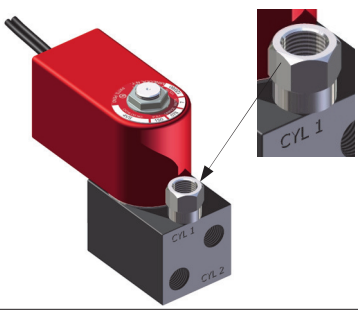
ORDERING EXAMPLE:

2) MM-4
8) MM4VS-120/60 mounted on all stations. If a combination of valves is used, designate each valve for each station.
BLANK COVERS are available for unused stations.
Part Number DAV- 904.

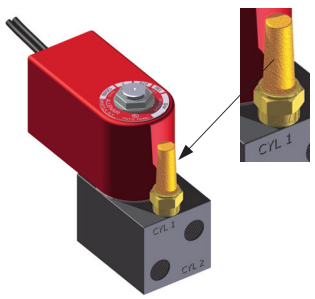
ACCESSORIES & OPTIONS

ACCESSORIES

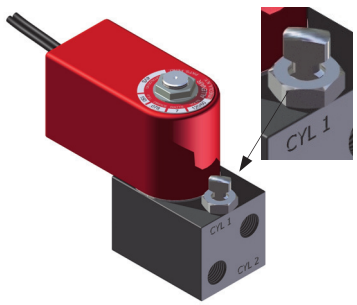
PIPED EXHAUST
PART NUMBER **EA-19**
(1/8-N.P.T.)



FILTER SILENCER
PART NUMBER **EA-27**



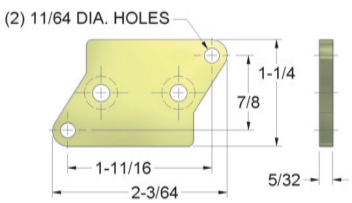
SPEED CONTROL
Single Speed Control for Common Exhaust.
PART NUMBER **QE-104**



MOUNTING PLATES

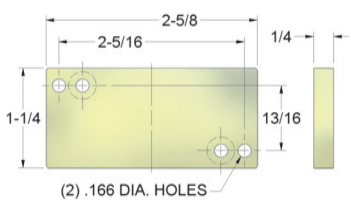
HORIZONTAL MOUNTING

PART NUMBER **DAV-M6**



FOR USE WITH MODELS 4VS, X4VS & 4VPS

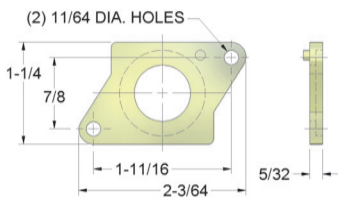
PART NUMBER **DAV-132**



FOR USE WITH MODELS 4VD, X4VD, 4VPD & 4VBL

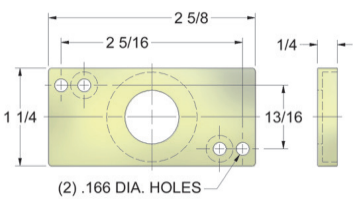
VERTICAL MOUNTING

PART NUMBER **DAV-M5**



FOR USE WITH ALL MODELS EXCEPT EXPLOSION-PROOF

PART NUMBER **DAV-132-1**



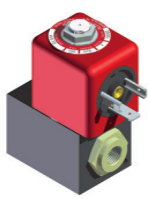
FOR USE WITH EXPLOSION-PROOF MODELS

Note different location for Inlet Ports on dimensional drawings when using vertical mounting.

OPTIONS

LOCKING MANUAL OVER-RIDE LEVER
Particularly useful for set-up and Electrical failure.

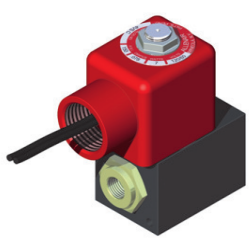
ADD THE SUFFIX LETTER **"O"** TO THE CATALOG NUMBER.
(Not available on "GM" or vertically mounted valves.)

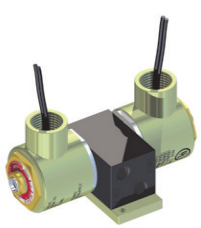


DIN-type HOUSING
DIN 43650/ISO 4400
ADD THE SUFFIX LETTER **"YD"** TO THE CATALOG NUMBER.
See page 75 for female connectors.

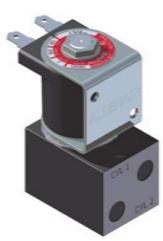
NEMA 6
ADD THE SUFFIX **"N6"** TO THE CATALOG NUMBER.
Coil Housing is nickel plated and epoxy filled to provide a corrosion resistant water tight barrier.

CONDUIT HOUSING
ADD THE SUFFIX LETTER **"C"** TO THE CATALOG NUMBER.

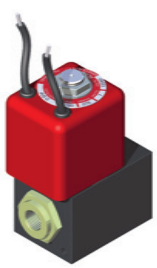




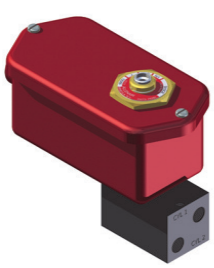
EXPLOSION PROOF
"Not available on 4VS-DC ADD THE PREFIX LETTER **"X"** TO THE CATALOG NUMBER. (Double Solenoid shown)



SPADE TERMINAL
ADD THE SUFFIX LETTER "Y" TO THE CATALOG NUMBER.

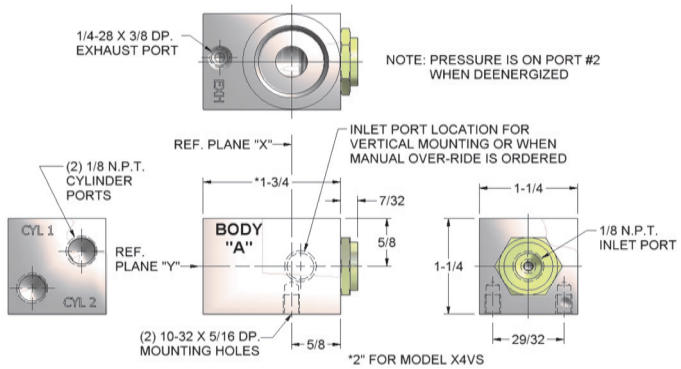


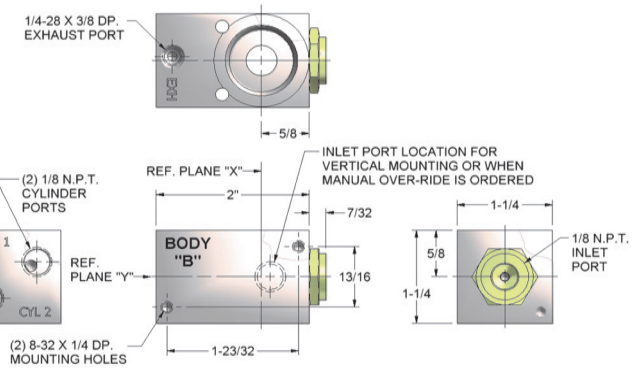
GROMMET HOUSING
ADD THE SUFFIX LETTER **"G"** TO THE CATALOG NUMBER.



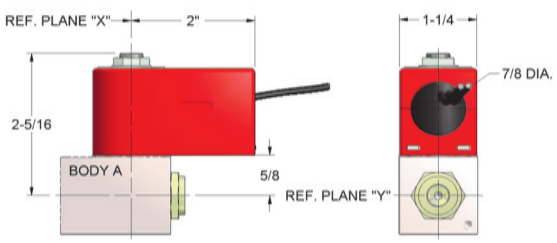
NEMA 4
ADD THE SUFFIX LETTER **"JIC"** TO THE CATALOG NUMBER.

DIMENSIONS

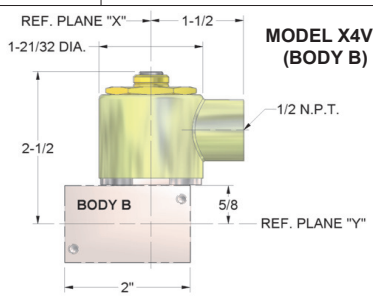




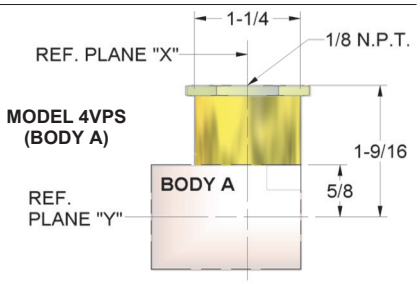
MODEL 4VS (BODY A)



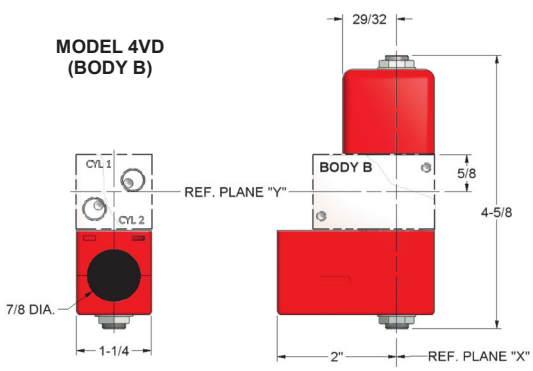
MODEL X4VS (BODY B)

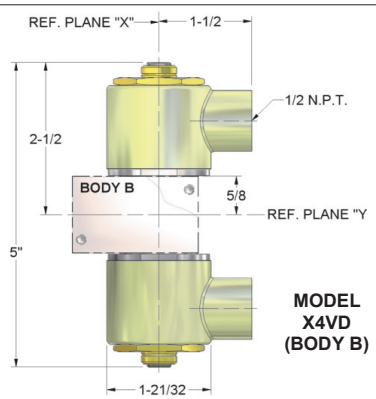


MODEL 4VPS (BODY A)



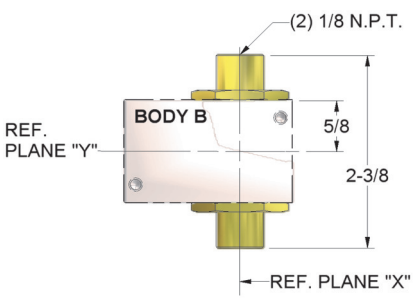
MODEL 4VD (BODY B)



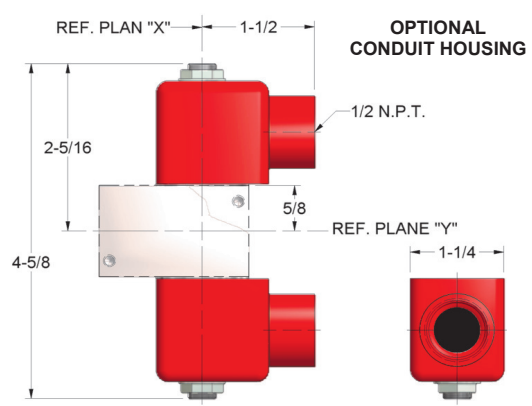


MODEL X4VD (BODY B)

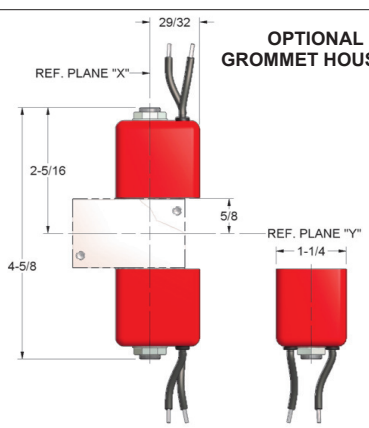
MODEL 4VPD & 4VBL (BODY B)



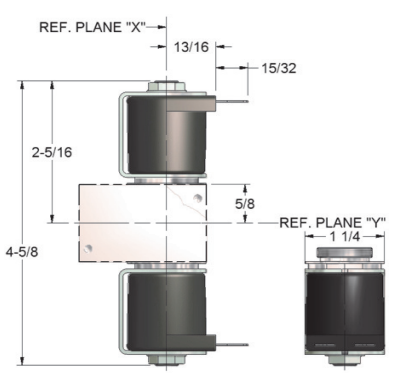
OPTIONAL CONDUIT HOUSING



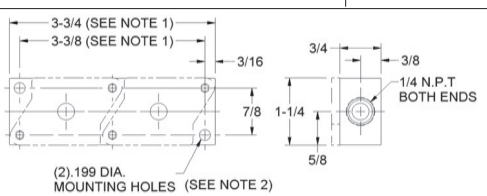
OPTIONAL GROMMET HOUSING



OPTIONAL SPADE HOUSING



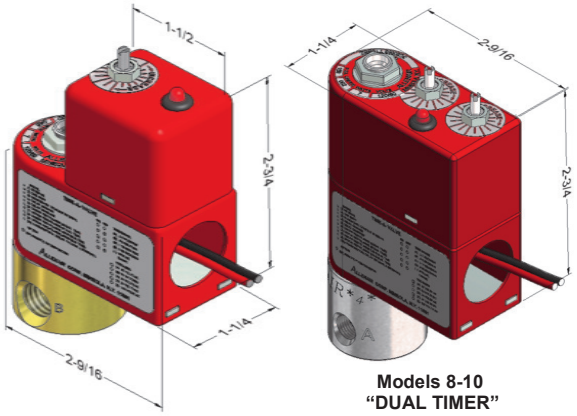
GROUP AND MANIFOLD MOUNTING BASE



1. Dimensions shown are for mounting two valves. For each additional valve, add 1-11/16" to these dimensions.
2. Additional mounting holes are provided when three or more valves are used. Mounting holes will be located under valve bodies .
3. On manifold base all cylinder ports are 1/8 N.P.T.

TIME-A-VALVE®

A high quality, Solid State Electronic Timer available integral with any Allenair Solenoid Valve.
Eliminates the need for complicated wiring to a control panel.
Air circuitry, maintenance and troubleshooting are simplified.
Pre-assembled Time-A-Valves® are simpler to install than separate timing devices and they are less costly.



Models 8-10
"DUAL TIMER"

Models 1-7
"SINGLE TIMER"

FEATURES:

- Sturdy housing and permanent connection make it immune to machine vibrations.
- Long life Light Emitting Diode (LED) gives visual indication of solenoid energization.
- Electrical Override is standard on all timers. Allows direct energization of solenoid coil, bypassing the timer.
- Only one electrical connection operates both timer and solenoid.
- Simple, screw-type time adjustments. Lock nut prevents time setting from changing.
- Time delay and speed control adjustments (on 4-Way Valves) made at the same time and place -- at the valve.
- Compact, space-saving assembly.
- Timer and solenoid replacements can be made without disturbing the valve body or piping.
- Auxiliary output is standard. This allows actuation of an external relay or control device and the Time-A-Valve ®, simultaneously. A load of no more than 1 AMP can be connected to the Auxiliary Output.

Time-A-Valve ® shown with an Allenair 3-Way Solenoid Valve.

The Time-A-Valve® is available with any Allenair Solenoid Valve, Cyl-Check®, Index Table, Valve-in-Head® Cylinder or other Allenair Solenoid Operated Fluid Power Products.

TIME-A-VALVE ® SPECIFICATIONS

Time Ranges	Timer Voltages
(A) .2-2 seconds	(V) 12/60
(B) .5 - 5 seconds	(W) 12VDC
(C) 1 - 10 seconds	(X) 24/60
(D) 3 - 30 seconds	(Y) 24VDC
	(Z) 120/60

All 10 Time-A-Valve Models are designed Only for Allenair Solenoid Operated Valves.

ENGINEERING DATA

1. Repeatability of Timing Period: ±2% @ nominal voltage & 72°F
2. Reset (Recycle) Time: 100 milliseconds (.1 second) minimum.
3. Operating Temperature Range: -20°F to +185°F
4. Operating Voltage Tolerance: AC Models +10% -15%
   DC Models +10% -20%
5. Timing Variation Over Temperature Range: ±10%
6. Transient Protection: Will withstand up to 8 joules of transient energy.
7. Shock Protection: All timer electronic components are solid state and can withstand normal operating vibration and shock. The timers are encapsulated in epoxy to protect them against environmental liquids and gases.

OPTIONAL ACCESSORY

MODEL RP: REMOTE POTENTIOMETER TIME ADJUSTMENT

Instead of mounting the time adjusting control (potentiometer) in the timer case, we will supply a separate potentiometer for remote mounting. Two color coded wires are used to connect the timer to the remote potentiometer. You can supply your own potentiometer for more precise time setting. Consult factory for advice.

Time-A-Valve ® can be added to existing Allenair solenoid valves, consult factory.

ORDERING PROCEDURE

Model T	MODEL No.	TIME RANGE	VOLTAGE	OPTION

MODEL NO.

(1) Interval
(2) One Shot
(3) Momentary Contact Interval or One Shot
(4) Delay On Make
(5) Delay On Break
(6) On/Off Recycling - Equal Time
(7) Off/On Recycling - Equal Time
(8) On/Off Recycling - Un-equal Time
(9) Off/On Recycling - Un-equal Time
(10) Combination (Delay on Make + Interval)

TIME RANGES	VOLTAGES	OPTION
(A) .2-2 seconds	(V) 12/60	RP-
(B) .5-5 seconds	(W) 12VDC	Remote
(C) 1-10 seconds	(X) 24/60	Potentiometer
(D) 3-30 seconds	(Y) 24VDC	
	(Z) 120/60	

The Time-A-Valve® is an option. The Timer Part Number must be added to the end of the Model Number of the Allenair product the Timer is to be assembled to. On Models 8, 9, 10 specify 2 time ranges, the first letter for the first part of the cycle and the second letter for the second part of the cycle.

EXAMPLE: 3 C B X 8 A T 1 C Z RP

VALVE PART NUMBER — TIMER PART NUMBER

MODELS	TIMING PERIODS	APPLICATIONS
Model 1 — Interval Timer. Upon application of maintained input power, the solenoid energizes and time delay interval begins. At end of time delay, the solenoid de-energizes and remains off. To recycle, power is removed and reapplied.	POWER: ON ON ON ON OFF SOLENOID: ON ON OFF OFF OFF	**Use whenever you wish a device to stay on only for the adjustable time even though power is supplied continuously.** • Time-A-Valve will stroke a single solenoid Valve-in-Head Cylinder and hold it for the pre-set time before allowing it to return. This eliminates the need for momentary contact Switches and other timing devices. • Time-A-Valve replaces fixed or adjustable cam setups controlling cylinders and valves in parts feeding applications. • Clamping operations: Energize Time-A-Valve to operate air clamps which will hold for pre-determined time and then release.
Model 2 — One Shot Timer* **(Same as interval but with factory pre-set time.)** When input power is turned on, the solenoid energizes for 400 milliseconds (.4 sec.) and then shuts off. To re-energize, remove power and re-apply. *A modern, solid state device similar in function to Pulsa-Pak.** **Reg. TM Schrader/Bellows Corp.	POWER: OFF ON ON ON ON SOLENOID: OFF ON ON OFF OFF	**Use where you want a device to get a signal for 400 milliseconds and then turn off even though power is supplied continuously (a fixed interval timer).** • Use to operate index tables and automatic return cylinders. Eliminates the need for momentary contact switches. • Use with air cylinder to activate date coding equipment on conveyor lines. • Activate air blow-off valve on punch press to reduce compressed air consumption. • Greatly reduces power consumption on battery operated valves located in remote field positions.
Model 3 — Momentary Contact Interval or One-Shot Timer. Input power is on continuously. A 10 millisecond minimum closure of an external control switch (not supplied) energizes the solenoid and time delay interval begins. At the end of time delay, the solenoid de-energizes and remains off until the control switch is opened.	POWER: ON ON ON ON ON SWITCH: ON ON OFF OFF OFF SOLENOID: ON ON ON OFF OFF	**Use whenever you want a device to stay on only for an adjustable time whether the external control switch is closed continuously or only for a moment.** **(10 milliseconds minimum).** • Use with 3-way solenoid valve for dispensing metered amounts of liquids, such as potting materials, glue, inks, dyes, etc. • Use for automatic operation of index table by actuating switch with V2 operating pin in drive cylinder. • Single solenoid valves and Valve-in-Head Cylinders Momentary contact will stroke unit, hold in position and return unit to original position. • Use on automatic reciprocating (VCR) cylinder for pre-determined number of cycles. Mixing, pumping, shaking of dust collector bags.
Model 4 — Delay On Make Timer. The time delay period begins when the power is turned on. At end of the delay time period, the solenoid is energized and stays on as long as power is supplied. To reset, disconnect and then re-apply input power.	POWER: ON ON ON ON OFF SOLENOID: OFF ON ON ON OFF	**Use whenever you want a device to go on after an adjustable time delay and then stay on as long as power is supplied.** • Two cylinders are to be fed forward, one before the other. Send the same signal to one cylinder directly, the other through a Delay-on-Make, Time-A-Valve. One cylinder advances immediately; the other a preset time later. Many cylinders can be sequenced in this fashion. • You want a cylinder to go forward, dwell and return. Using double solenoid valve, have momentary switch contact energize one side of valve to feed cylinder forward. At end of stroke micro switch operates a delay-on-make timer on other side of valve. Cylinder will dwell for pre-set time period and then return.
Model 5 — Delay On Break Timer. Input power is on continuously. Closure of external control switch (not supplied) energizes solenoid. When the switch is opened, solenoid remains on and the time delay period begins. At the end of "on" time period, solenoid de-energizes.	POWER: ON ON ON ON ON SWITCH: OFF ON ON OFF OFF SOLENOID: OFF ON ON ON OFF	**Use whenever you wish a device to stay on as long as external control switch is closed and to stay on for an adjustable time after control switch is open**. • Uses with chemical processing equipment to operate purge valves when pumping stops. • Use with three way valve operating liquid coolant flow on cutting tools. When control switch is turned off, coolant will continue to flow for a predetermined time, washing away chips and cleaning fixture for insertion of next parts. • Use to delay return stroke of a second cylinder after first unit has returned.
Model 6 — On/Off Recycling (Equal On and Off Time). **Model 7 — Off/On Recycling (Equal Off and On Time).** Depending on which model you choose — on/off or off/on — the solenoid is alternately energized and de-energized repeatedly with equal time on and off. This sequence is repeated until input power is removed. Single control adjusts both ON and OFF times.	POWER: ON ON ON ON ON SOLENOID: OFF ON OFF ON OFF	**Use when you want a device to turn on and off (adjustable equal intervals) as long as power is applied (a flasher).** • Use on double solenoid valve air return and double acting cylinder or 3-way valve on spring return single acting cylinder for automatic reciprocating of cylinder. • Use on single solenoid valve applications for timed parts feeding-conveyor line feed for bulk packaging to control amount of product feed to each packing station.
Model 8 — On/Off Recycling (Un-equal On and Off Time). **Model 9 — Off/On Recycling (Un-equal Off and On Time).** Depending on which model you choose — on/off or off/on — the solenoid is alternately energized and de-energized repeatedly with un-equal time on and off. This sequence is repeated until input power is removed. Two separate controls independently adjust ON and OFF times.	POWER: ON ON ON ON ON SOLENOID: ON OFF ON OFF ON	**Use when you want a device to turn on and off (adjustable unequal intervals) as long as power is applied.** • Use to ratchet feed a rotating disc or a ratchet advanced conveyor continuously. • On air-operated heat sealing equipment you can use a Time-A-Valve to control sealing time and "off" time independently. • Use to control drill feeds for "pecking" operations. • Alternate product flow between two conveyor lines. Independently adjustable delay times will help compensate for different size cartons and conveyor speeds.
Model 10 — Combination Timer **(Delay On Make & Interval).** When input power is turned on, delay (OFF) cycle begins. After delay time is completed, solenoid then energizes for "ON" time interval. When ON cycle is over, solenoid de-energizes until input power is removed and re-applied. Two separate controls independently adjust ON and OFF times.	POWER: ON ON ON ON ON SOLENOID: OFF ON ON OFF OFF	**Used for a device which when power is applied, device remains off for adjust- able time, then on for a different adjustable time and then shuts off.** • Use on punch press blow-off operation to turn the part-eject air on and off at exactly the right points in the stamping cycle. • Signal at start of stroke keeps air off until ram begins return stroke. Time-A-Valve then actuates solenoid valve to start blowing part clear of press and then shuts air off until next cycle begins. Saves valuable compressed air, reduces noise, allows for quicker and safer setups.

AIR SWITCH

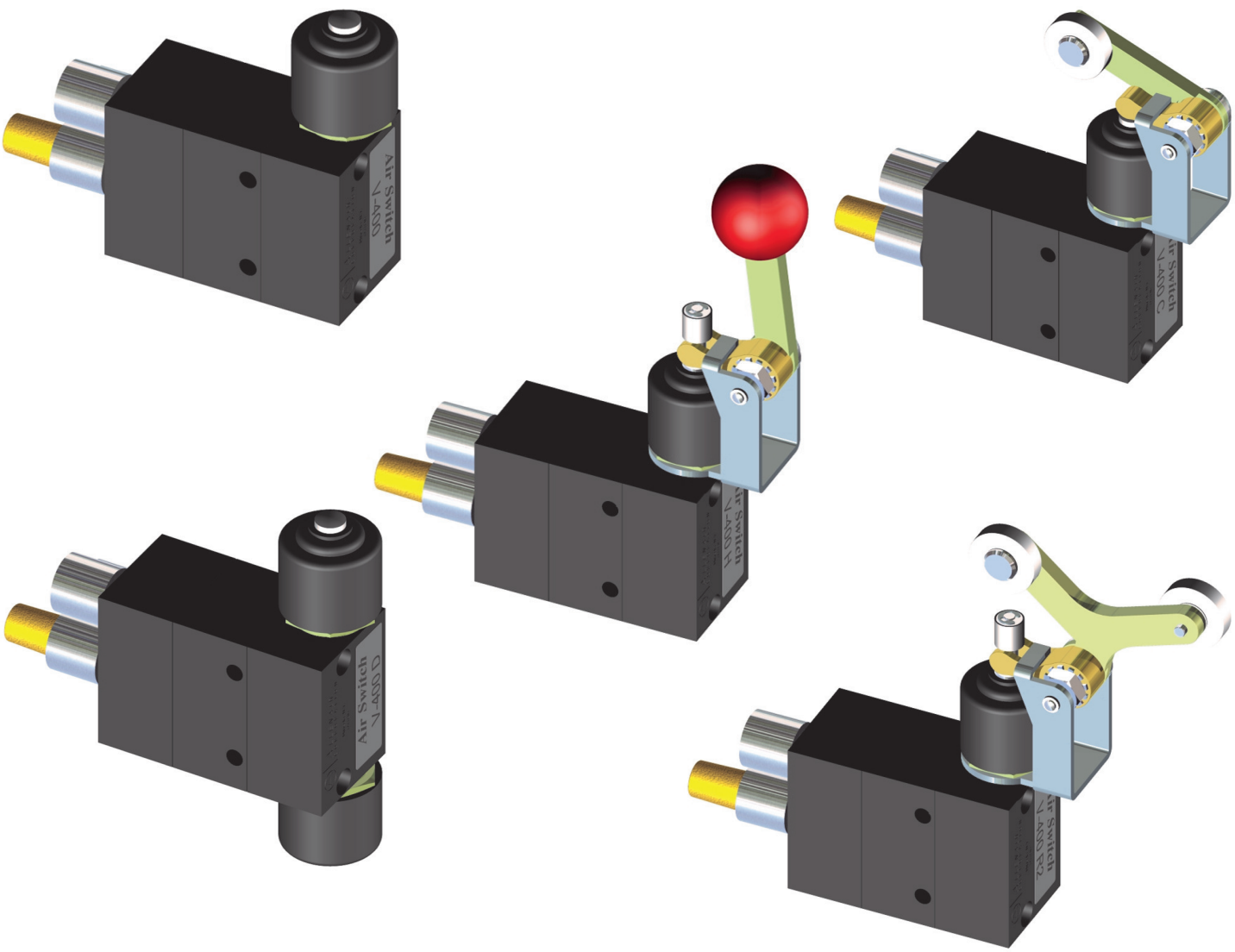
TWO FUNCTIONS IN ONE:

1) A SNAP ACTION SWITCH

For Precise Direct Control of Pneumatic Systems, Increasing Reliability, Simplifying Circuitry and Thriving in Adverse Environments.
(For replacing electrical Micro® type switches with pneumatic switches.)

2) A RUGGED 4-WAY VALVE

With full 1/4" flow (Cv=1) and ultra-high speed response. Shear type, lapped and hardened stainless steel seal surfaces make valve absolutely leak proof and provide long trouble-free life. Pressure range: 0 -150 P.S.I air only. Vacuum: Consult factory.



TYPICAL APPLICATIONS

DIRECT CONTROL OF LARGE CYLINDERS

Valve will stroke a 4" x 6" Cylinder in 1/6 of a second at 100 P.S.I, using a quick exhaust, 1/3 of a second exhausting through valve. No switches, solenoids, electric or pilot circuitry to install and maintain.

PRECISE SENSING

Actuator position has a repeatability of less than ±.001 for superior accuracy in control system.

PROGRAM MODULE

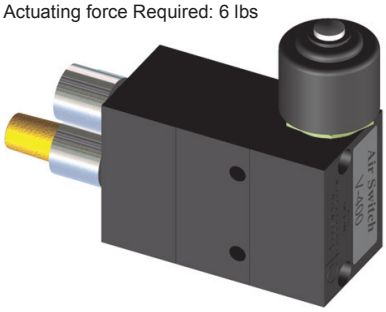
Valves may be easily stacked to centralize controls, save space, simplify piping and engineering, highly suited to automated operations.

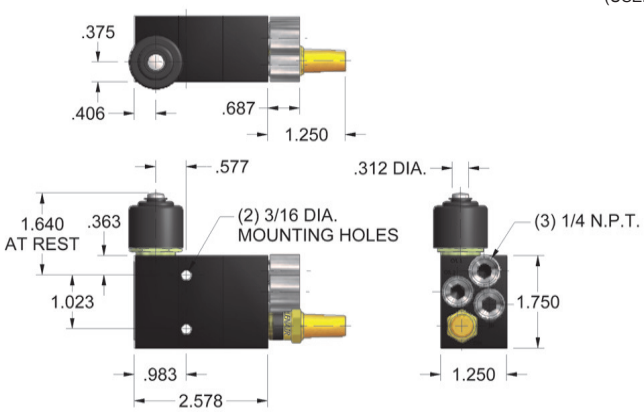
BASIC MODEL

V400

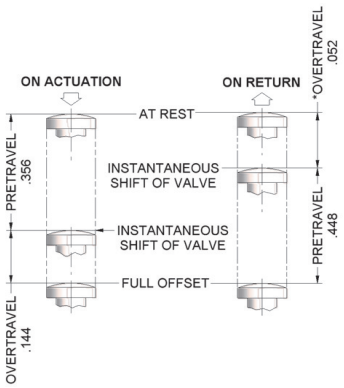
Actuates with direct force on plunger.

Actuating force Required: 6 lbs





PLUNGER STROKE POSITIONS
(USED TO DETERMINE TRAVEL ON ANY ACTUATOR)



ALL VALVES FURNISHED WITH TWO # 8-32 X 1-3/4 MOUNTING SCREWS,1/8 WASHERS & LOCK NUTS

MATERIALS
Hard coated aluminum body, stainless steel or other corrosion resistant internal parts. BUNA-N SEALS

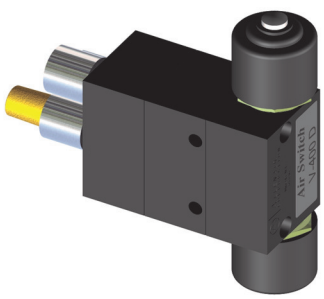
NOTES:
*(1) ON MODELS V-400-2R & V-400-H OVER TRAVEL IS.177
(2) ON V-400-D " ON ACTUATION" APPLIES TO BOTH DIRECTIONS

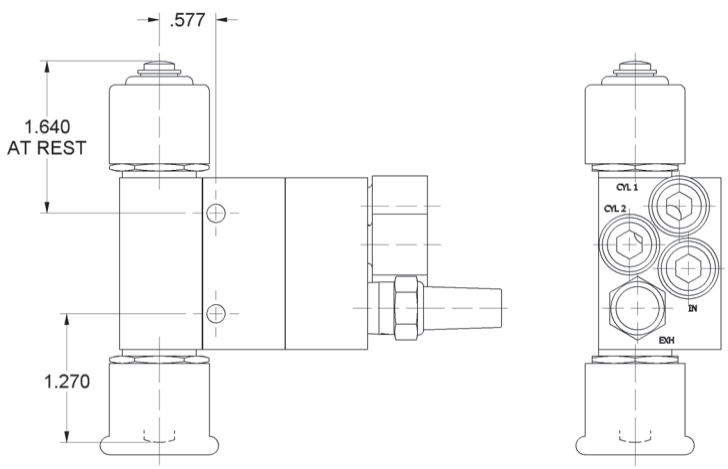
DOUBLE ENDED PLUNGER

V400D

Actuates with force on either end of plunger.
Remains offset once shifted.

Actuating force Required: 3 lbs



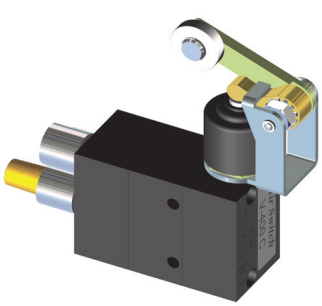


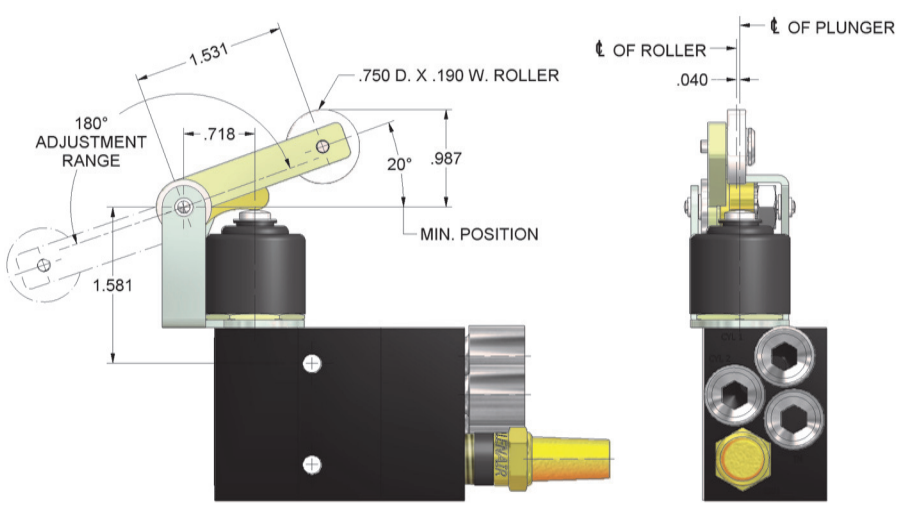
CAM ROLLER ARM

V400C

Actuates by Cam Depressing Roller from Either Direction.

Actuating force Required: 4 lbs





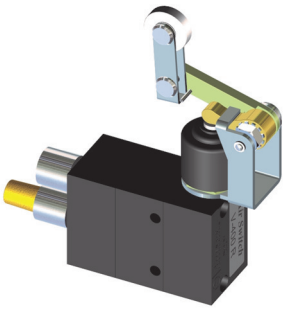
MODEL (CONTINUED)

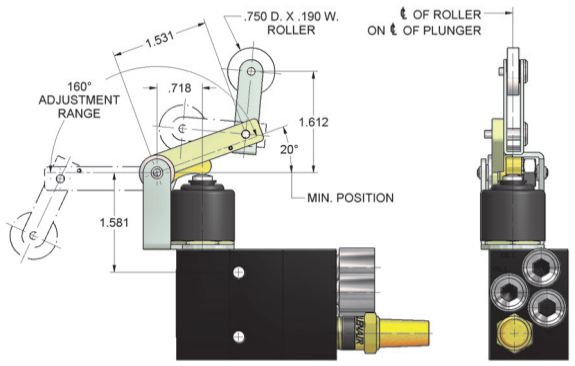
ONE WAY ROLLER

V400R

Actuates by Cam Depressing Roller from one Direction only. Roller Displaces without actuation in other Direction.

Actuating Force Required 4 lbs.



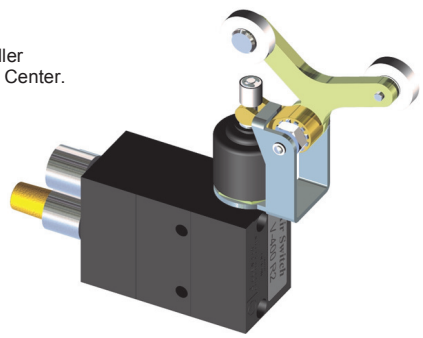


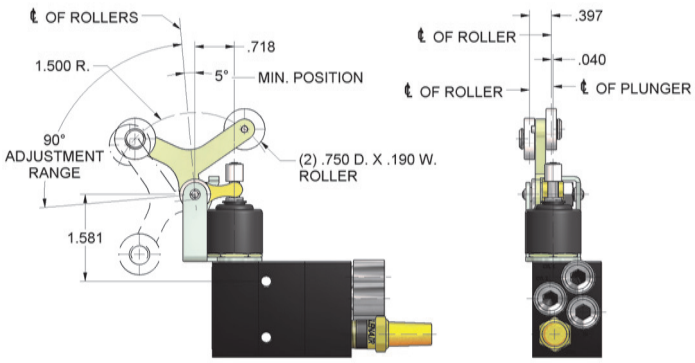
TWO WAY YOKE ROLLER

V4002R

Actuates by Cam Depressing Roller On movement to either side from Center.

Actuating Force Required 2 lbs.



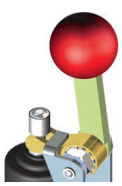


PALM LEVER, SPRING RETURN

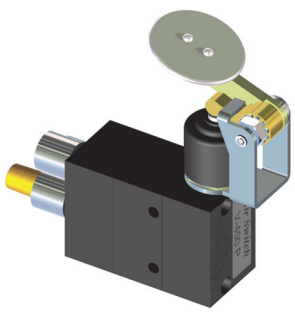
V400P

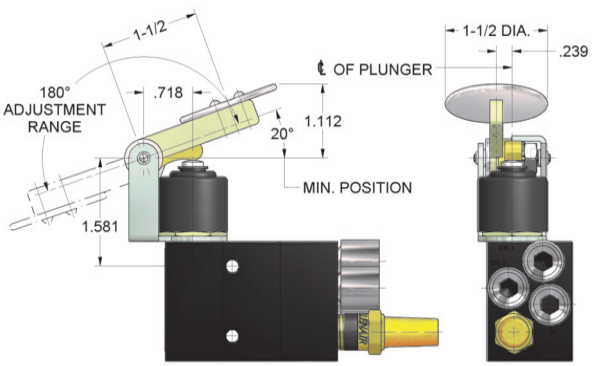
Actuates by Depressing Lever. Returns to normal position by spring.

Actuating Force Required 4lbs.



With knob.
Order as V400PH



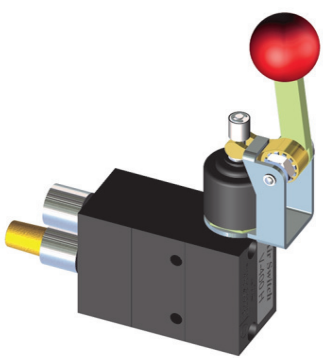


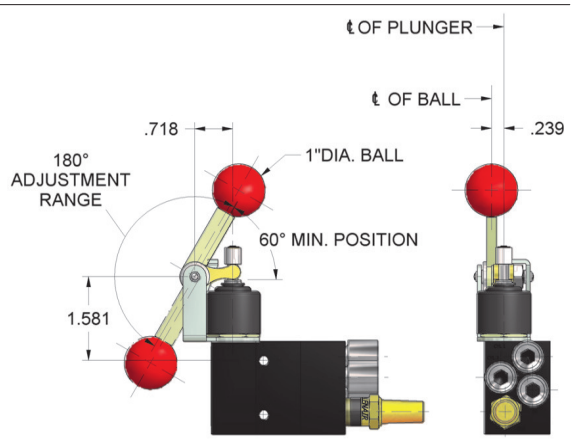
HAND LEVER

V400H

Actuates by Offsetting Lever. Remains in offset once shifted.

Actuating Force Required 2 lbs





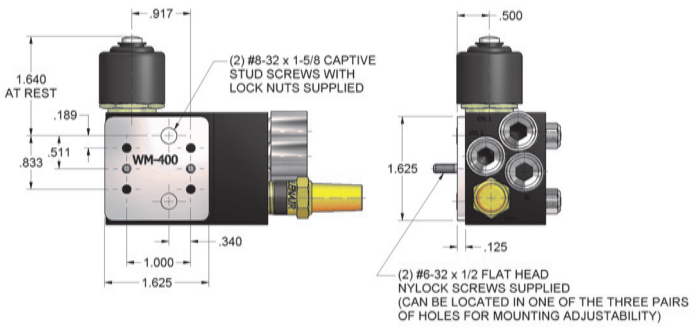
NOTE: ALL ACTUATOR BRACKETS ROTATABLE 360 DEGREES ABOUT ℄ OF PLUNGER

MOUNTING BRACKETS

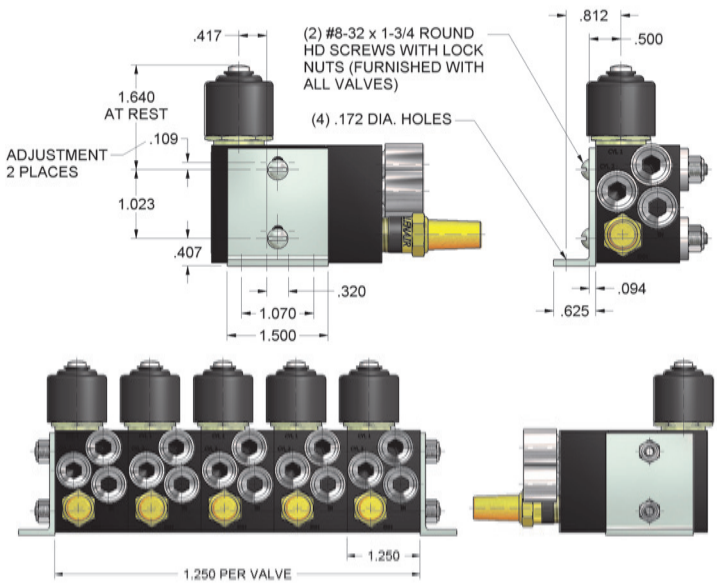
(Order Separately)

These Brackets adapt Valves directly to existing electric (Micro-type®) switch locations

WM-400 WALL MOUNTING

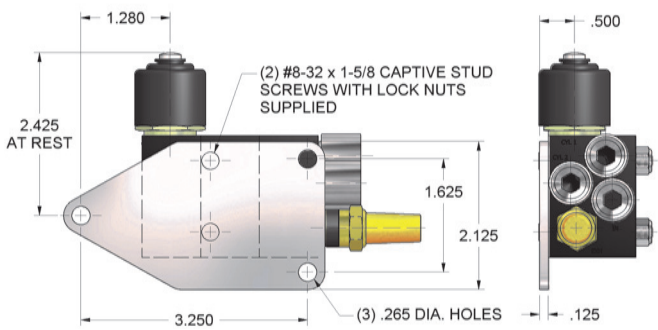


BM-400 BASE MOUNTING



HM-4OO WALL MOUNTING, HEAVY-DUTY

Matches high capacity (Micro®-type F) electric switch dimensions
When using VL400 Series (Left Hand Models) order HML-400 Bracket.



Valve stack

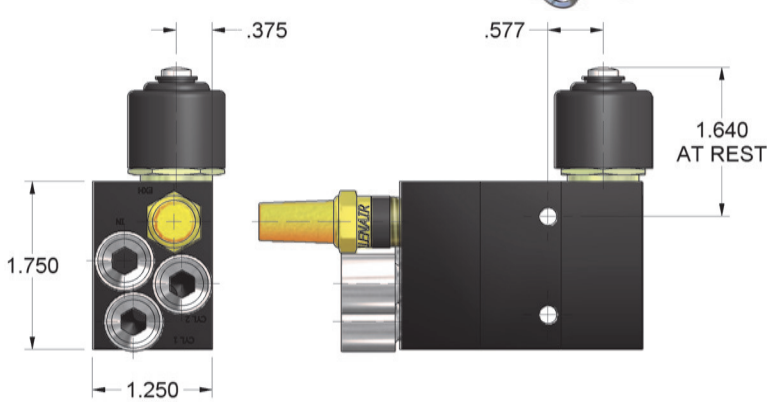
Specify no. Of stations and model for each station.
(2) BM 400 brackets & (2) #8 threaded rods with nuts furnished. Refer to BM-400 drawing for bracket dimensions and V400 drawing for other dimensions.

OPTIONS

VL400 STRAIGHT PLUNGER-LEFT HAND OPTION

Option available
On all models.
Use prefix **"VL"**
To specify. Example:
VL-400-C "Cam Roller".

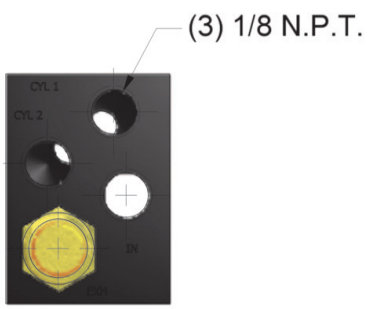
OPTION PROVIDES FLUSH WALL MOUNTING WITH PORTS DIRECTED TO THE LEFT



OPTIONAL PORTING

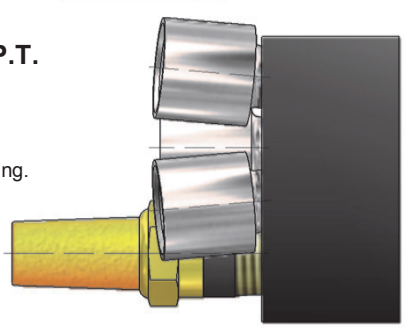
(SPECIFY WHEN ORDERING)

1/8" N.P.T



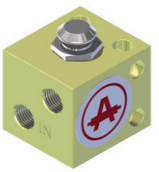
OFFSET 1/4" N.P.T.

Inlet & Cyl Port # 1
have 5° compound
angle for increased
separation on large piping.



1/8” POPPET VALVES

1/8" POPPET TYPE-VALVES provide a complete line of economical, compact, trouble-free units. They are available in a wide variety of manually operated 2-way, 3-way and 4-way models. The valve bodies are corrosion resistant aluminum. All other parts are treated or plated to provide long service and resist corrosion. The poppet seal is Buna-N. Air flow capacity is 25 Cu. Ft. free air per minute at 100 P.S.I. Maximum operating pressure is 150 P.S.I. Maximum temperature range is 250°F.

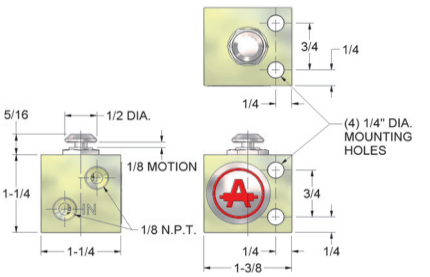


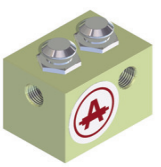
V2 TWO-WAY BUTTON VALVE

Depressing button will permit flow.
May be mounted on any one of three sides.

V23 THREE-WAY BUTTON VALVE

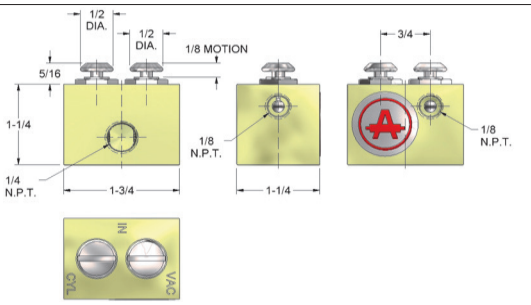
Depressing button will permit flow. Releasing button will permit exhaust flow through button stem.

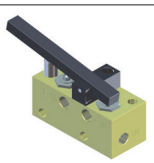


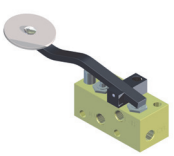


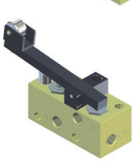
V2H TWO WAY TWO BUTTON VALVE

One common inlet Two separate outlets.





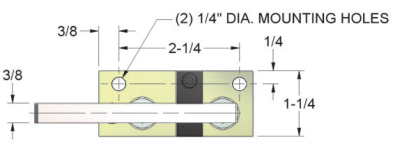


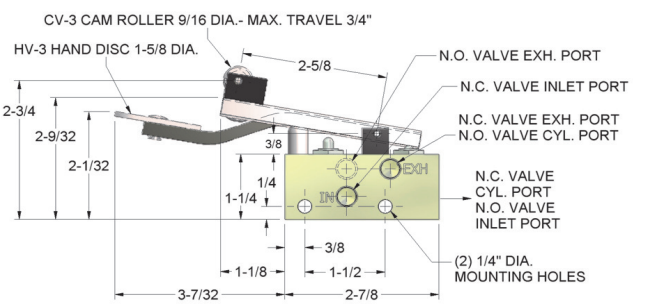


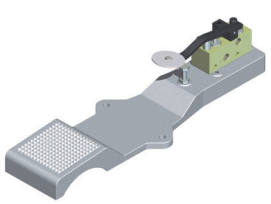
THREE-WAY VALVES

During operation, air will not escape to atmosphere.
Lever bearings are of hardened steel for long service.
The utilizable exhaust port will accept our Bleed Control Valve PTV305 for controlling the exhaust.
Can be mounted on either of two sides.

LEVER OPERATED
V3NC THREE-WAY NORMALLY CLOSED
V3NO THREE-WAY NORMALLY OPEN
HAND OPERATED
HV3NC THREE-WAY NORMALLY CLOSED
HV3NO THREE-WAY NORMALLY OPEN
CAM OPERATED
CV3NC THREE-WAY NORMALLY CLOSED
CV3NO THREE-WAY NORMALLY OPEN

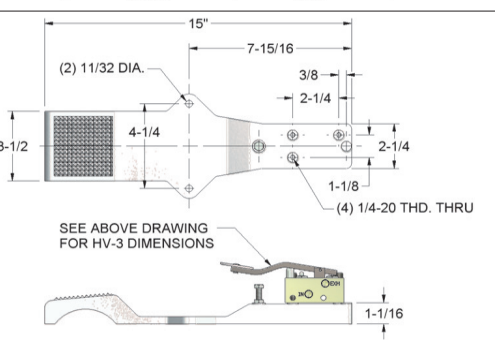


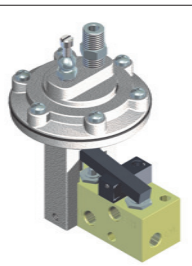




FOOT OPERATED

FT300NC THREE-WAY NORMALLY CLOSED
FT300NO THREE-WAY NORMALLY OPEN

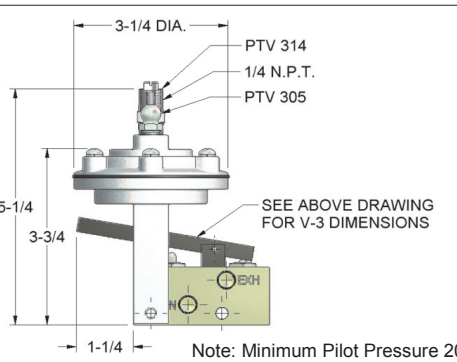




PILOT TIMER VALVE

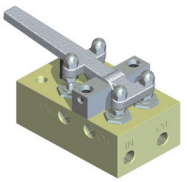
PTV3NC THREE-WAY NORMALLY CLOSED
PTV3NO THREE-WAY NORMALLY OPEN

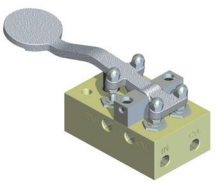
Valve consists of a diaphragm pilot chamber which operates the 3-way valve section. A momentary pilot pressure feeds air into the pilot chamber through Check Valve PTV314 depressing the lever of modified V3 Valve. As air escapes from the pilot chamber through the Adjustable Bleed Control Valve (PTV305) the lever rises to its original position. Max. delay is 60 seconds

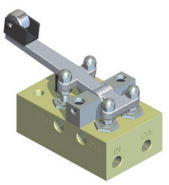


Note: Minimum Pilot Pressure 20 P.S.I.

1/8” VALVES CONTINUED



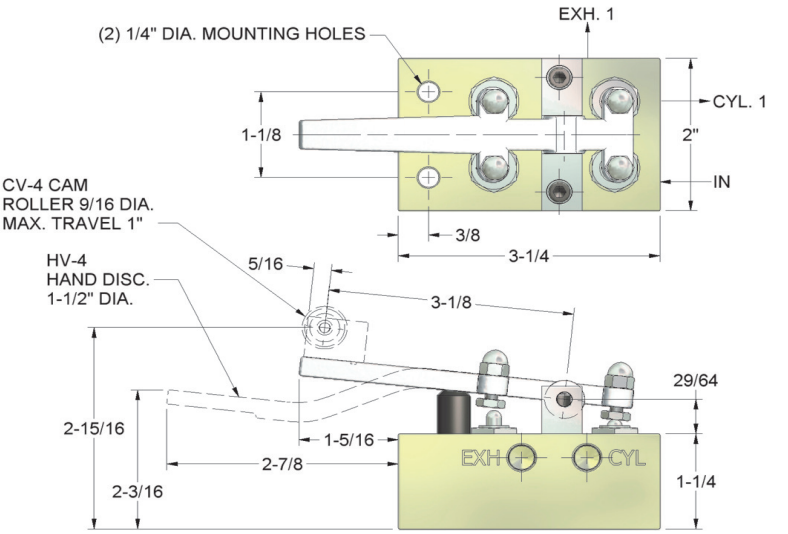


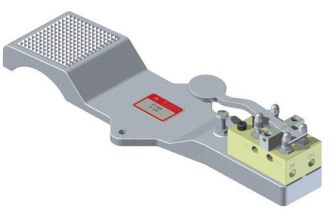


FOUR-WAY VALVES

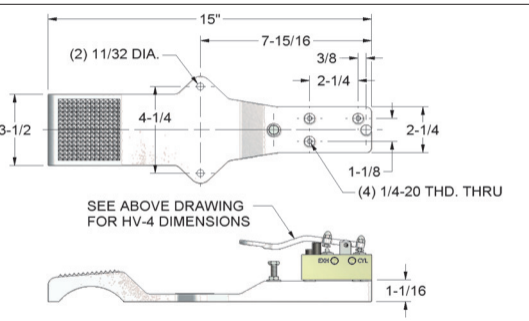
Used for actuating Double Acting Cylinders. The utilizable exhaust ports will accept our Bleed Control Valve (PTV305) for controlling the speed of the forward and return strokes.

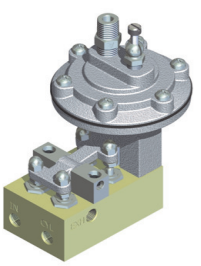
V4 FOUR-WAY LEVER OPERATED
HV4 FOUR-WAY HAND OPERATED
CV4 FOUR-WAY CAM OPERATED





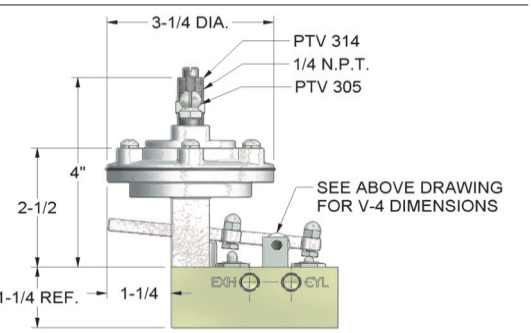
FT400
FOUR-WAY FOOT OPERATED

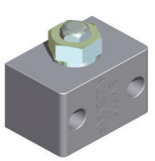




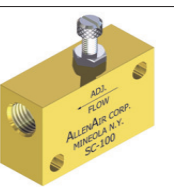
PILOT TIMER VALVE

PTV4 FOUR-WAY
Valve consists of a diaphragm pilot chamber which operates a 4-way valve section. A momentary pilot pressure feeds air into pilot chamber through Check Valve PTV314 depressing valve lever. As air escapes from the pilot chamber through the Adjustable Bleed Control Valve (PTV305) the lever rises, shifting valve to its original position.
Maximum delay is 60 seconds.
Note: Minimum Pilot Pressure 20 P.S.I.

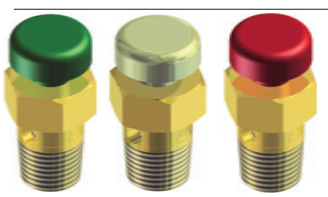




BV100 - BLEEDER VALVE 1/8" N.P.T.
Designed to be used wherever air pressure must be bled off such as the control of “Atmosphere Bleed" 4-way Pilot Valves. 1/8" N.P.T. Port is located on bottom of block.



SC100 - FLOW CONTROL VALVE 1/4" N.P.T.
This brass body valve provides control in one direction and free flow in reverse. Both ports are 1/4" N.P.T.

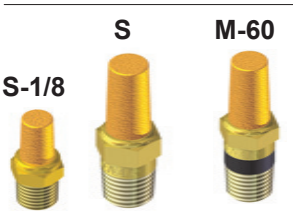


BV -1/8 G BV -1/8 BV -1/8 R

BV - 1/8”
BUTTON BLEEDER VALVE 1/8" N.P.T.
Designed for same purpose as BV-100 above. This valve has a 1/8" male pipe thread. The body is brass, with an aluminum button.
Add **R** for Red / **G** for Green.

PTV305 - BLEED CONTROL VALVE 1/8" N.P.T.
This valve permits control of air flow from any exhaust port to atmosphere.

Body is steel, plated for corrosion resistance with stainless steel adjusting screw.



S - SINTERED BRONZE FILTER SILENCER

M - 60 NON CLOGGING SINTERED BRONZE FILTER-SILENCER

See page 52 for full description.

PTV314 - CHECK VALVE 1/4"-N.P.T.
This zinc plated brass valve allows flow in one direction only.
Maximum Pressure: 150 P.S.I.
Cracking Pressure: 20 P.S.I.

1/8 N.P.T. COMBINATION QUICK EXHAUST AND SPEED CONTROL VALVES

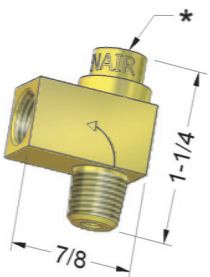
WITH FULL FLOW EXHAUST
AVAILABLE IN THREE DIFFERENT BODY STYLES.
FOR USE WITH UP TO 1-1/2" DIAMETER BORE CYLINDERS

5 P.S.I. Minimum — 250°F. Maximum Temperature.
150 P.S.I. Maximum (Air Only).

QUICK EXHAUST VALVES

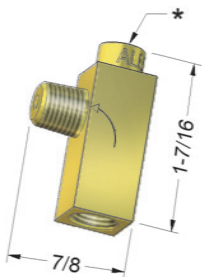
are used with Air Cylinders, Brakes, Clutches, etc. to speed their reaction or travel time by exhausting the air directly to atmosphere rather than back through a restrictive control valve.

MALE TO FEMALE



MODEL QE100MF

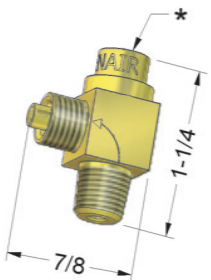
FEMALE TO MALE



MODEL QE100FM

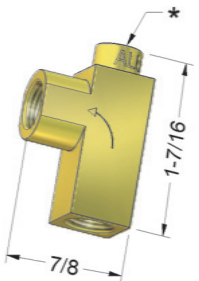
All Bodies are 1/2" Wide.
***1/4-28 Threaded Exhaust Port.**

MALE TO PLASTIC TUBING



MODEL QE100P

FEMALE TO FEMALE



MODEL QE100FF

APPLICATION IDEAS

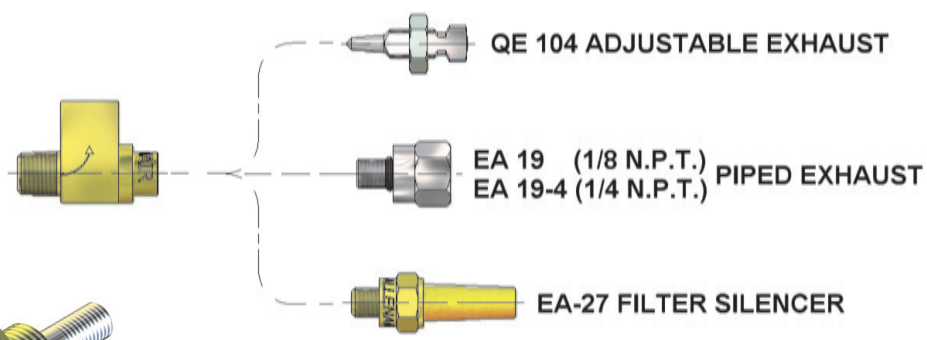
AS A QUICK EXHAUST VALVE: Install Quick Exhaust Valves in the ports of a double acting or single acting Air Cylinder to obtain maximum speed.

AS A FLOW CONTROL VALVE: When using a control valve with without flow control valves, install Quick Exhaust Valves, with adjustable exhaust accessory, in cylinder ports to obtain speed control.

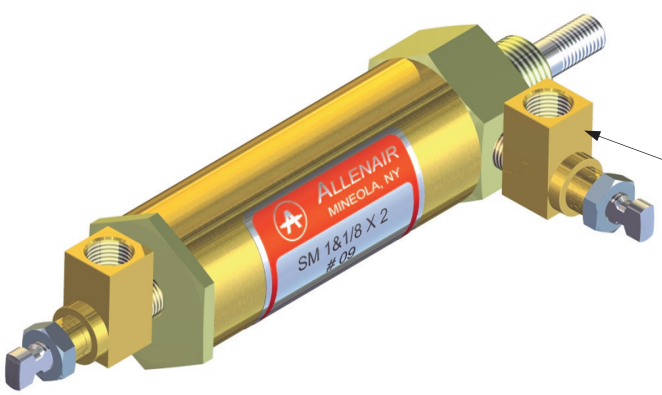
Use on valves with a common adjustable exhaust by installing a Quick Exhaust Valve, with adjustable exhaust accessory, in one cylinder port for speed control in one direction. Other direction is controlled by the common adjustable exhaust at the valve.

AS A SHUTTLE VALVE: By connecting two separate lines to the inlet and exhaust ports respectively and the output port to a single point, you can have two different pressures going to a single destination.

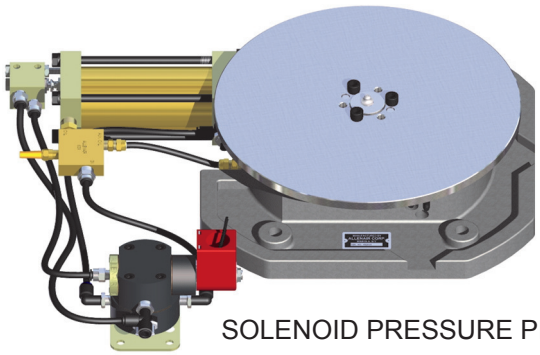
WITH 3 DIFFERENT EXHAUST ACCESSORIES



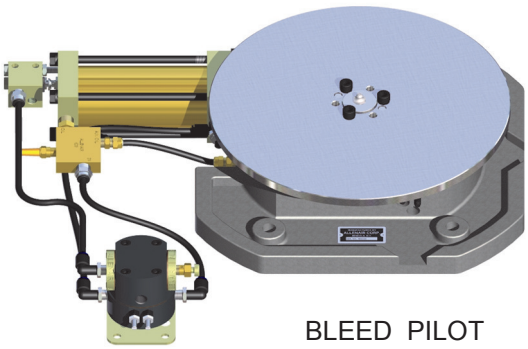
USE WITH OUR DOUBLE ACTING CYLINDERS FOR INDEPENDENT SPEED CONTROL



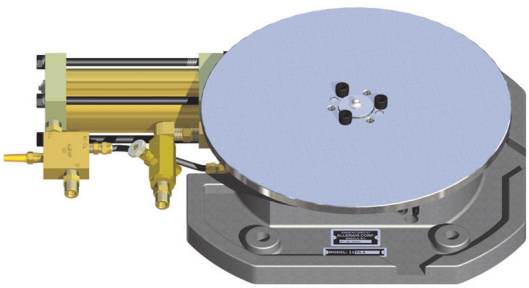
SHOWN WITH
QUICK EXHAUST (QE 100MF) & (QE 104) ADJUSTABLE EXHAUST



SOLENOID PRESSURE PILOT



BLEED PILOT



BASIC TABLE

ALLENAIR ROTARY INDEX TABLES are precision indexing mechanisms . . . unsurpassed in accuracy, performance and dollar value. We know of no other Tables of equal accuracy and quality available at comparable prices.

Every detail of construction is designed to increase durability and efficiency, and provide for long, trouble-free life. All parts susceptible to wear are carefully hardened. Bronze and roller bearings are incorporated. Working parts completely enclosed to protect against dust, dirt, and chips.
The Tables affect substantial savings in time and money in a wide variety of applications. For example, the Tables permit fast, automatic feeding of parts to tools in machine and assembly operations. Parts can be loaded and unloaded while machining operations continue. Other applications include cleaning and positioning operations, as well as use in conjunction with conveyor drive units.

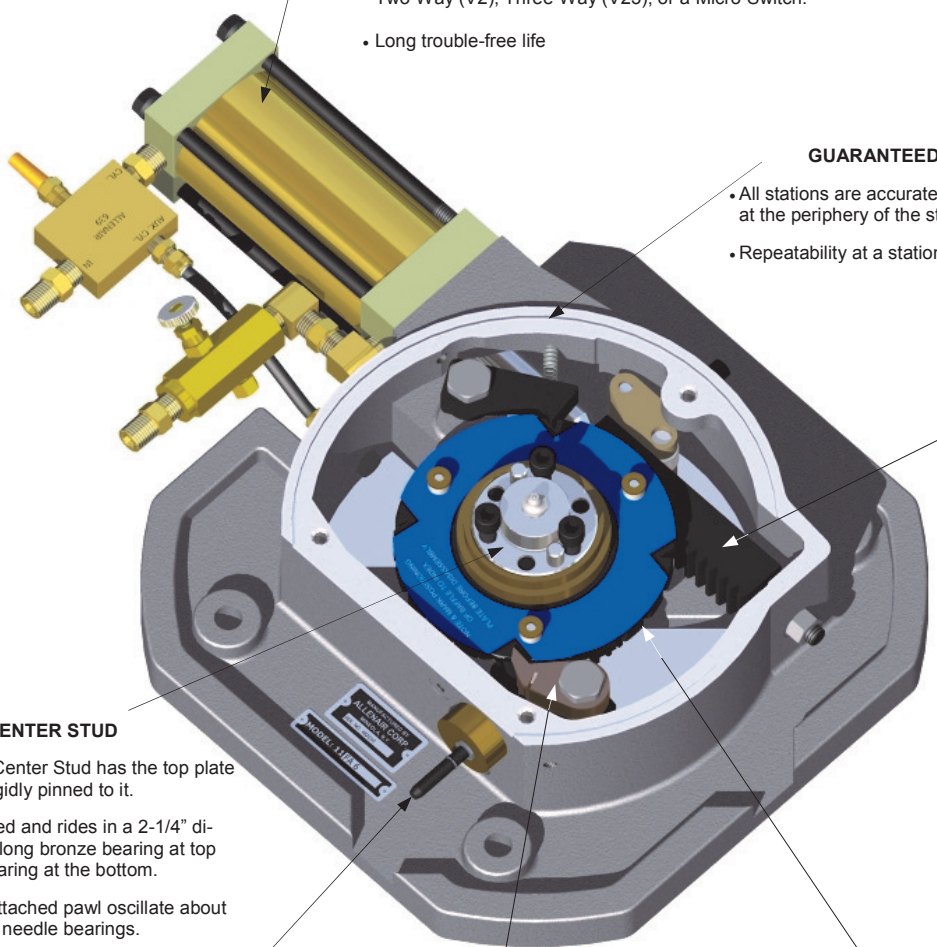
ALLENAIR ROTARY INDEX TABLES are available in a **COMPLETE PRODUCT RANGE** of four basic models, and each model can be supplied with any one of the following operating options.

1) As a basic Table with no operating valves. A 2-way or 3-way valve can be mounted on the rear of the drive cylinder as an option. (See "Basic Table" Illustration, Page 93).
2) As a basic Table with a Pilot Timer Valve (PTV4), a 2-way valve (V2), and piped with flexible air hose ready for continuous automatic indexing. (See “Pilot-Timer Control Circuit” Illustration, Page 93).
3) As a basic Table with a Single Solenoid Bleed Pilot 4-way Valve (VSESA-AAS-1/4), a 2-way valve (V2), and piped with flexible air hose ready for use. (See “Solenoid Bleed Pilot Control Circuit” Illustration, Page 93).
4) As a basic Table with a Single Solenoid Pressure Pilot 4-way Valve (VSSAP-AAS-1/4), a 3-way valve (V23), and piped with flexible air hose ready for use. (See “Solenoid Pressure Pilot Control Circuit” Illustration, Page 93).
5) As a basic Table with a Double Pressure Pilot 4-way Valve (VAP-1/4), a 3-way valve (V23), and piped with flexible air hose ready for use. (See “Double Pressure Pilot Control Circuit” Illustration, Page 93).
6) As a basic Table with a Double Bleed Pilot 4-way Valve (VSA-1/4), a 2-way valve (V2), and piped with a flexible air hose Ready for use. (See “Double Bleed Pilot Control Circuit” Illustration, Page 93).

For Allenair “TIME-A-VALVE”® see Page 80. A solid state Electronic Timer, integral with Allenair Solenoid Operators.
The standard 24 notch index plate can be set by means of baffle plates to allow 4, 6, 8, 12 or 24 indexes. Special indexes from 5 to 100 are available. A Flow Control Valve is also furnished on all models to control indexing speeds. Standard and optional Top Plates, of mild steel, are readily workable, and are precision ground, flat and parallel, to within .002 T.I.R

PNEUMATIC DRIVE

- Double-acting Cylinder with Precision honed brass tubing and self-adjusting Buna-N-piston cups.
- Inlet pressure can be adjusted to provide exact force for moving load (and prevent damage in case of accidental obstructions)
- Adjustable Flow Control to provide Exact indexing speed required.
- Built in Plunger mounted at rear of Cylinder to actuate a Two-Way (V2), Three-Way (V23), or a Micro-Switch.
- Long trouble-free life



GUARANTEED ACCURACY WITHIN ± .001

- All stations are accurate to each other within ± .001 measured at the periphery of the standard size top plate.
- Repeatability at a station is in the low tenths.

GEAR AND RACK CONSTRUCTION

A rack attached to the stainless steel piston rod drives a gear which carries a pawl to actuate the index plate. **Only a rack** and **gear** drive can transmit the straight line motion of the air cylinder to the necessary rotary motion with full power throughout its cycle. The rack is supported against thrust by two roller bearings independently of the piston rod. Rack, gear, pawl and index plate are all carefully hardened.

CENTER STUD

- The hardened Center Stud has the top plate & index plate rigidly pinned to it.
- Stud is supported and rides in a 2-1/4" diameter X 9/16" long bronze bearing at top and an oilite bearing at the bottom.
- The gear and attached pawl oscillate about the stud on two needle bearings.
- A single grease fitting at the center lubricates all internal parts.

ACCESSORY PIN

Since the working parts of the table are completely enclosed, a rod extending thru a bronze bushing moves outward (approximately 1/4") to actuate a valve or micro-switch for **secondary operations** as the table comes into its new indexed position. This pin remains extended while the table is in the indexed position.

FEED PAWL

- Hardened pawl stops against a hardened stop pin and prevents any forward rotary motion.
- Hardened anti-back-up pawl locks table against rearward rotary motion. (Located 180° from feed pawl.)

INDEX PLATE

The standard table can be set to index 90° (4 index), 60° (6 index), 45° (8 index), 30° (12 index), or 15° (24 index). Since the standard index plate has 24 teeth, baffles are used to **prevent "loss of index,"** that is, to prevent the pawl from engaging improper teeth when less than 24 index is required. These baffles are very reasonably priced and always available from stock. The changeover from one index setup to another can be made from the top of the index table, usually in less than 15 minutes.

NOTE: The above illustration is shown without the top plate and rider plate.

DESCRIPTIONS

MODELS 725: These models are designed for rapid indexing under rather light load conditions, the maximum indexing load being 60 lbs. with either the standard 7-1/4" or optional 10" dia. Top Plate. Two styles are available. Model 725-G permits piping of air to the top of the Center Stud, for actuation of small air operated devices such as air chucks, collets or clamps, while Model 725-E does not. Both models have spring tension on the Feed Pawl, which insures constant and proper engagement with the Indexing Plate. A dual purpose Mounting Base enables horizontal or vertical mounting, and both styles are available in clockwise or counterclockwise rotation. A hole through the Center Stud (9/16" dia. only) is available as an option on Model 725-E."HS" option.

MODEL 11-E: This model, being larger and heavier than Model 725, is designed for more rugged operations. The maximum indexing load is 100 lbs. with the standard 11" dia. Top Plate and 80 lbs. with the optional 16" dia. Top Plate. Spring tension on the Feed Pawl insures constant and proper engagement with the Indexing Plate. Both clockwise or counterclockwise models are available. A hole through the Center Stud (9/16" dia. only), is available as an option. "HS" option.

MODEL 11-F: This is the heaviest duty model in the line, the maximum indexing load being 180 lbs. with either the standard 11" or optional 16" dia. Top Plate, and 100 lbs. with the optional 20" dia. Top Plate. One of its outstanding features is the "Positive Locking" Device, which securely locks the Feed Pawl to the Indexing Plate by an internal over-center latching mechanism. This design, together with the optional Hydraulic Check, allows the Table to perform at the high load limits specified. The Hydraulic Check (CODE THC), which is adjustable, cushions approximately the last 5° of rotation and helps to control the shock of heavier loads.
Two additional drive options can be added to this model. One is the Tandem-in-Line Cyl-Check Drive (T-2-1/2 x 4 - CHTFLH-5, CODE CHD) which gives hydraulic control and provides precise, constant, smooth indexing. The second optional drive employs a Tandem Cylinder (ETT-2-1/2 x 4, CODE TCD). This provides higher torque (as differentiated from index load) than the standard drive cylinder. A hole through the Center Stud (9/16" dia. only) is also available as an option. "HS" option.

MODEL 11-EF: This model is almost identical to Model 11-F. The basic difference is that on Model 11-EF, we use the Model 11-E Index Plate, and incorporate the Positive Lock Device of Model 11-F This allows for slightly faster indexing, but the two optional drives and Hydraulic Check (as listed for Model 11-F) are not available. The maximum indexing load is 140 lbs. with the standard 11" dia.
Top Plate and 100 lbs. with the optional 16" dia. Top Plate. A hole through the Center Stud (9/16" dia. only) is available as an option. "HS" option.

NOTES: 1) The figures for "Indexing Load Weights" mentioned above are based on symmetrically placed loads located 1" from the periphery of the specified Top Plates.
2) For further information concerning Principle of Operation and Speeds, see pages **92, 94 and 95**.

STANDARD SPECIFICATION	725	11-E	11-EF	11-F
Std. Top Plate Diameters	7-1/4"	11"	11"	11"
*Optional Top Plate Diameters	10"	16"	16"	16" & 20"
Maximum Indexing Load (Lbs.) (See Indexing Speed Charts.)	60	100	140	180
**Maximum Process Load (Lbs.)	1,000	1,000	1,000	1,000
Minimum Line Pressure (PSI)	20	20	20	20
Maximum Recm'd Line Pressure. (PSI)	80	80	80	80
Torque at 80 PSI (Inch-Lbs.)	210	640	640	640
Maximum Number of Stations (Optional)	60	100	60	30
Nominal Unit Weight (Lbs.)	20	50	50	50

NOTES: 2 position and 3 position can be obtained by indexing twice with a 4 or 6 station table.
*These are maximum recommended diameters.
**Normal machining or operational, non-shock loads applied vertically within table base area (3" radius on 725 Models and 4" radius on 11" Models). Consult factory or distributor for assistance on special cases.

SIMPLE PROCEDURE TO CHANGE NUMBER OF INDEXES (ALL SERIES)***
- Remove Top Plate, Rider Plate and Center Stud Assembly
- Re-engage Gear so that proper No. of Station Marking matches scribed tooth on Rack
- Reassemble unit with new Baffle Plate for indexes required.

***REFER TO MAINTENANCE MANUAL SUPPLIED WITH TABLE, FORM TMM, FOR DETAILS**

HOW TO ORDER:
(DETAILS FOLLOW IN ORDER)

MODEL NUMBER

11-E	B	8	

SELECT SIZE & TYPE
SELECT STANDARD OPTIONS
SELECT NO. OF STATIONS
(4, 6, 12, or 24 ARE STD.)
SPECIFY OPTIONAL EQUIPMENT
OR VOLTAGE WHEN REQUIRED

OPTION	SPECIFY
Large Top Plate	Size
Voltage, When Required	Voltage
Hydraulic Check	THC
Cyl-Check Feed	CHD
Tandem Cylinder	TCD

LAST 3 OPTIONS AVAILABLE ON 11-F ONLY

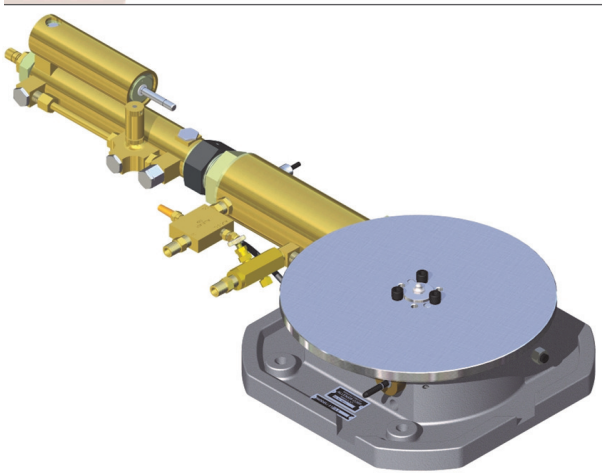
PRINCIPLE OF OPERATION

GENERAL: (ALL SERIES)

SEQUENCE	BASIC TABLE OPERATION	SOLENOID BLEED PILOT CONTROL CIRCUIT OPERATION (OPTIONAL)	SOLENOID PRESSURE PILOT CONTROL CIRCUIT OPERATION (OPTIONAL)
WORKING SEQUENCE	Driving Cylinder is in "Advanced " Position with feed Pawl & Anti-Back-Up Pawl Locking Table in Working Position.		
RETRACTION STROKE	Supply Air Pressure to Front Cylinder Port, Exhaust Rear. Rack will retract Drive Gear and Feed Pawl.	Momentary Electrical Signal to Solenoid Valve will automatically provide functions described under basic operation.	Momentary Electrical Signal to Solenoid Valve will automatically provide functions described under basic operation.
DRIVE STROKE	Supply Air Pressure to Rear Cylinder Port, Exhaust Front. Rack will advance Drive Gear, engaging Feed Pawl. In Indexing Plate to rotate Top Plate Forward. Accessory Pin shifts 3/16"at end of rotation to signal secondary operations. Set Flow Control to desired indexing speed.	When Cylinder completes retraction, Built-in Two-Way is actuated by Piston, shifting Main Valve to provide functions described under basic operation. Solenoid Valve is ready for next signal following dwell period.	When Cylinder completes retraction, built-in Three-Way Valve is actuated by Piston, shifting Main Valve to provide factions described under basic operation. Solenoid Valve is ready for next signal following dwell period.
INDEXED POSITION	At completion of drive stroke, feed Pawl locks Table against forward movement and Anti-Back-Up Paw locks against rearward movement during work at stations.		

GENERAL: (ALL SERIES)

SEQUENCE	DOUBLE PRESSURE PILOT CONTROL CIRCUIT OPERATION (OPTIONAL)	DOUBLE BLEED PILOT CONTROL CIRCUIT OPERATION (OPTIONAL)	PILOT-TIMER CONTROL CIRCUIT OPERATION (OPTIONAL)
WORKING SEQUENCE	Driving Cylinder is in "Advanced " Position with feed Pawl & Anti-Back-Up Pawl Locking Table in Working Position.		
RETRACTION STROKE	Momentary pressure Pilot Signal to Four-Way Valve will automatically provide functions described under basic operation.	Momentary Bleed Pilot Signal to Four-Way Valve will automatically provide functions described under basic operation.	Supply Air to Circuit and Table Will continuously cycle as follows: 1) Upon bleeding of air from Pilot Timer, Valve will shift causing Cylinder to retract. 2) At end of retraction stroke, Cylinder actuates Two-Way Valve, which recharges Timer and shifts main Vale to advance Cylinder and rotate Top Plate forward. 3) Timer provides dwell according to the Leak Control Setting. Upon completion of dwell, cycle then repeats as above
DRIVE STROKE	When Cylinder completes retraction, built-in Three-Way Valve is actuated by Piston, shifting Main Valve to provide functions described under basic operation. Four-Way Valve is ready for next signal following dwell period.	When Cylinder completes retraction, Built-in Two-Way Valve is actuated by Piston, shifting Main Valve to provide functions described under basic operation. Four-Way Valve is ready for next signal following dwell period.	
INDEXED POSITION	At completion of drive stroke, feed Pawl locks Table against forward movement and Anti-Back-Up Pawl locks against rearward movement during work at stations.		



OPTIONAL CYL-CHECK FEED SHOWN

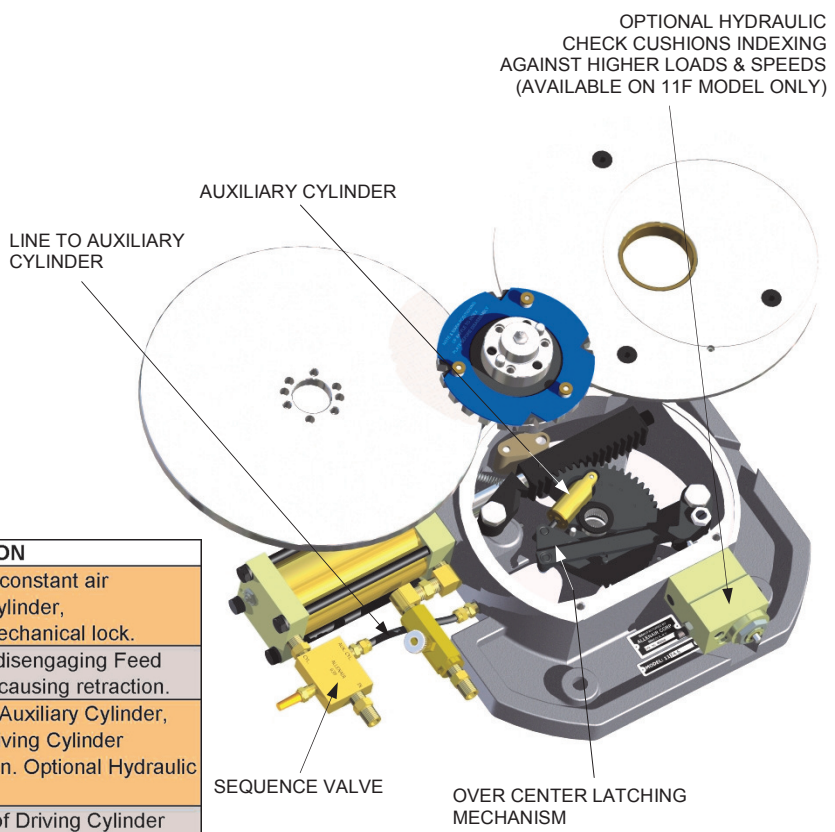
T-2-1/2 X 4 CHT-F-LH-5
PROVIDE HYDRAULIC FEED CONTROL FOR SMOOTH INDEXING
OF EITHER LIGHT OR HEAVY LOADS

OPTIONAL TANDEM CYLINDER FEED

(ETT 2-1/2 X 4) CAN PROVIDE HYDRAULIC CONTROL
OR INCREASED TORQUE

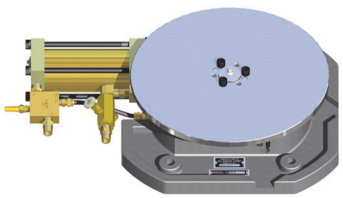
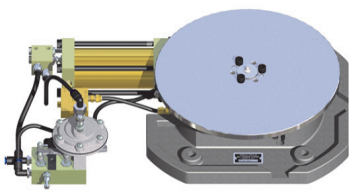
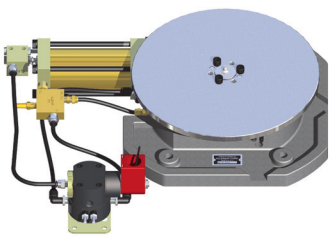
POSITIVE LOCK FEATURE: (11-F & 11EF SERIES ONLY)

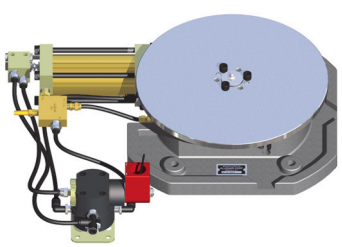
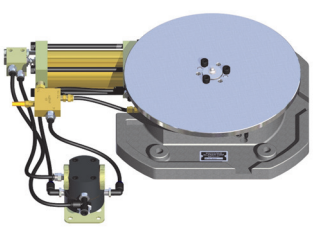
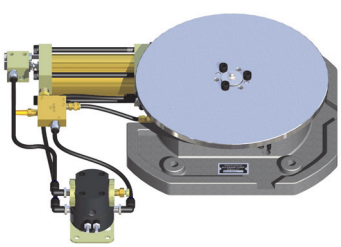
TABLE SHOWN WITH INDEX PLATE & CENTER STUD ASSEMBLY REMOVED



SEQUENCE	POSITIVE LOCK OPERATION
WORKING POSITION	Driving Cylinder is in advanced position with constant air supply though Sequence Valve to Auxiliary Cylinder, latching Pawl over center to provide a rigid mechanical lock.
RETRACTION STROKE	Sequence Valve exhausts Auxiliary Cylinder disengaging Feed Pawl, then exhausts rear of Driving Cylinder causing retraction.
DRIVE STROKE	At end of retraction sequence valve charges Auxiliary Cylinder, engaging Feed Pawl, then charges rear of Driving Cylinder advancing it, rotating the Table to next position. Optional Hydraulic Check cushions last 5° of rotation.
INDEXED POSITION	Sequence Valve maintains pressure on rear of Driving Cylinder and Auxiliary Cylinder latching Pawl linkage over center, providing a rigid mechanical lock in indexed position.

STANDARD INDEX TABLE OPTIONS (11- F SERIES PICTURED)

7-1/4" SIZE TABLES	 BASIC TABLE	 PILOT-TIMER CONTROL CIRCUIT (Continuous, Automatic Indexing)	 *SOLENOID BLEED PILOT CONTROL CIRCUIT (Indexes on Momentary Signal)
Standard Model (Clockwise Rotation)	725-EA	725-EB	725-EC
Counter Clockwise Rotation	725-EAC	725-EBC	725-ECC
Air Supply (1/4 NPT) in Center Stud	725-GA	725-GB	725-GC
With Counter Clockwise Rotation	725-GAC	725-GBC	725-GCC
11" SIZE TABLES			
Standard Model (Clockwise Rotation)	11-EA	11-EB	11-EC
Counter Clockwise Rotation	11-EAC	11-EBC	11-ECC
**Heavy-Duty (Clockwise Rotation)	11-FA	11-FB	11-FC
**Combination Duty (Clockwise Rotation)	11-EFA	11-EFB	11-EFC

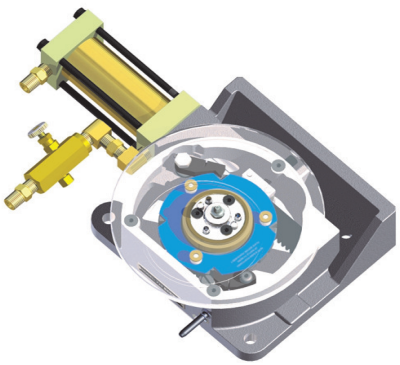
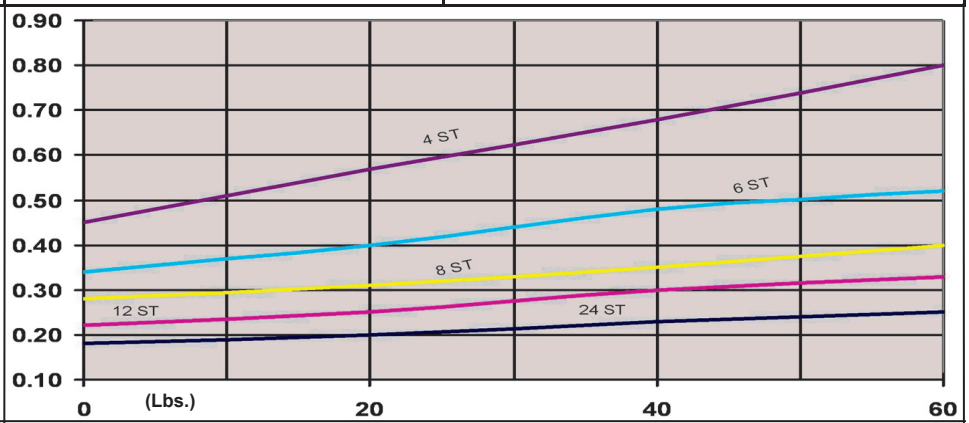
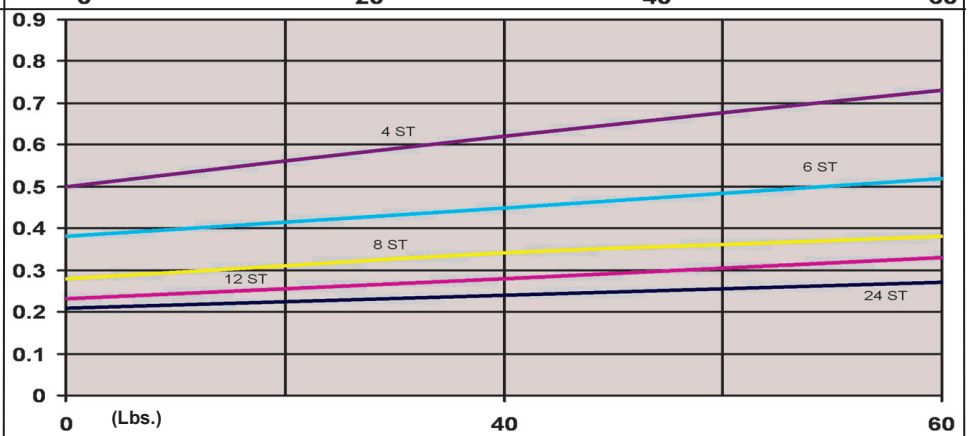
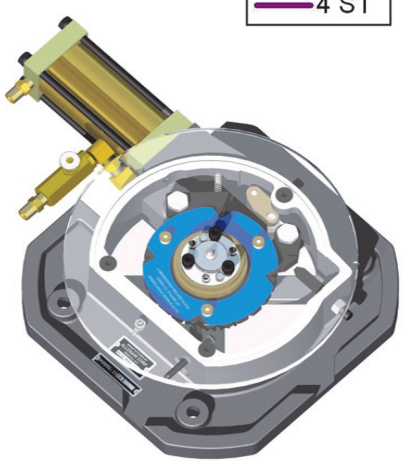
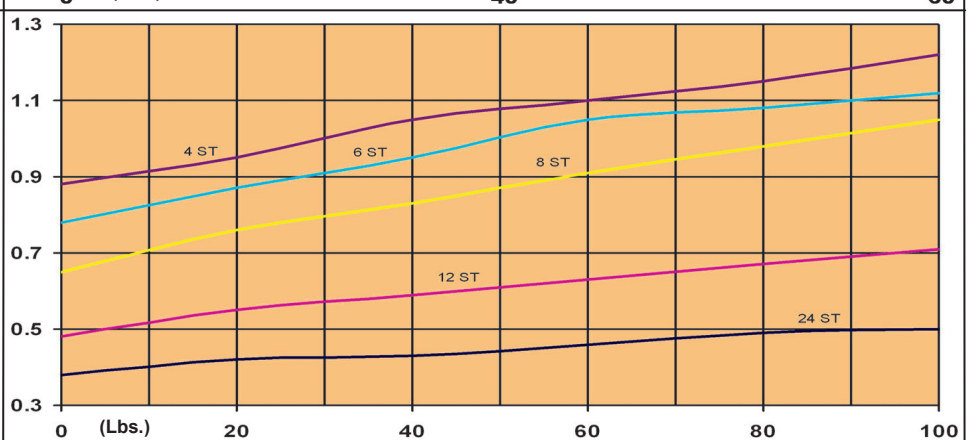
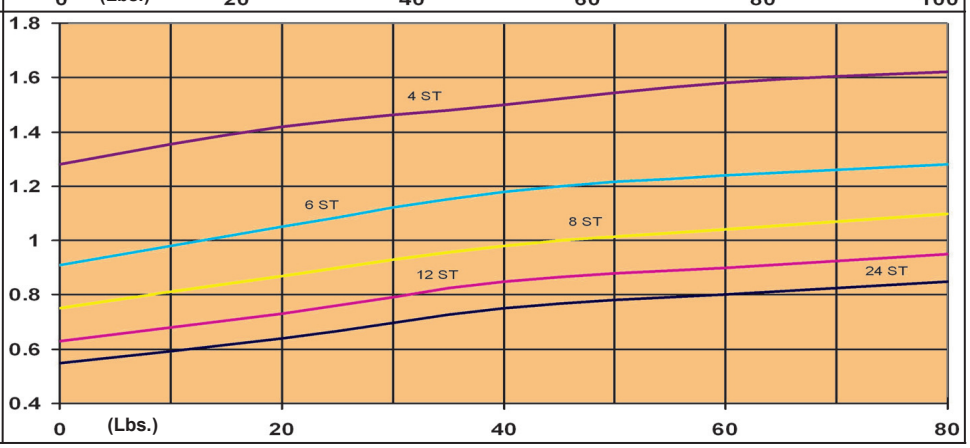
7-1/4" SIZE TABLES	 *SOLENOID PRESSURE PILOT CONTROL CIRCUIT (Indexes on Momentary Signal)	 DOUBLE PRESSURE PILOT CONTROL CIRCUIT (Indexes on Momentary Pressure Signal)	 DOUBLE BLEED PILOT CONTROL CIRCUIT (Indexes on Momentary Bleed Signal)
Standard Model (Clockwise Rotation)	725-ED	725-EE	725-EG
Counter Clockwise Rotation	725-EDC	725-EEC	725-EGC
Air Supply (1/4 NPT) in Center Stud	725-GD	725-GE	725-GG
With Counter Clockwise Rotation	725-GDC	725-GEC	725-GGC
11" SIZE TABLES			
Standard Model (Clockwise Rotation)	11-ED	11-EE	11-EG
Counter Clockwise Rotation	11-EDC	11-EEC	11-EGC
**Heavy-Duty (Clockwise Rotation)	11-FD	11-FE	11-FG
**Combination Duty (Clockwise Rotation)	11-EFD	11-EFE	11-EFG

NOTES:

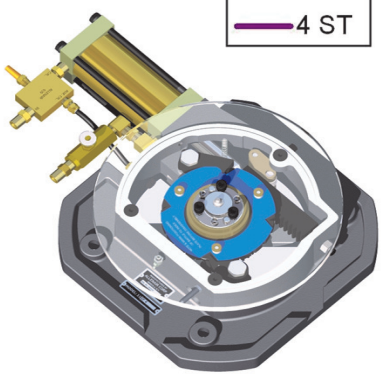
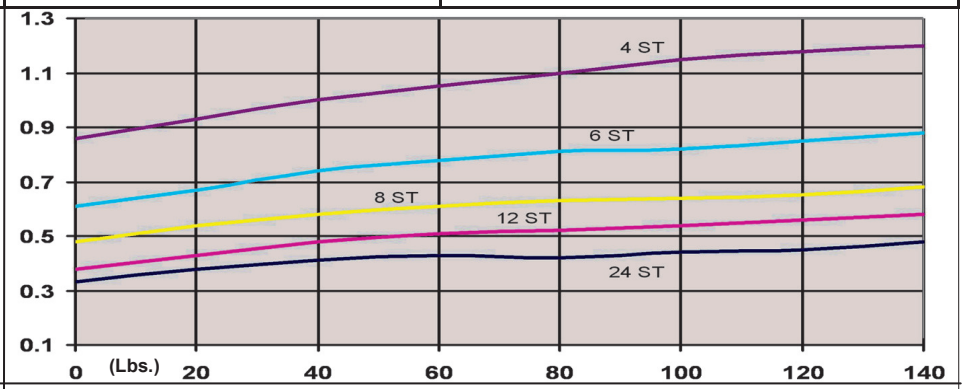
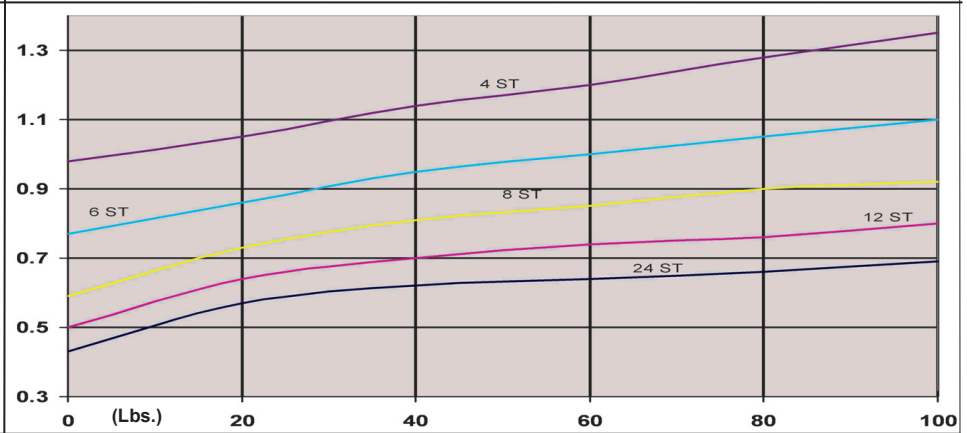
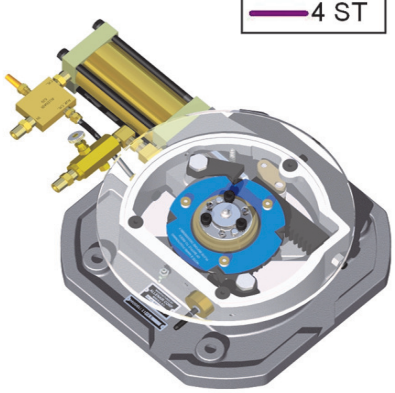
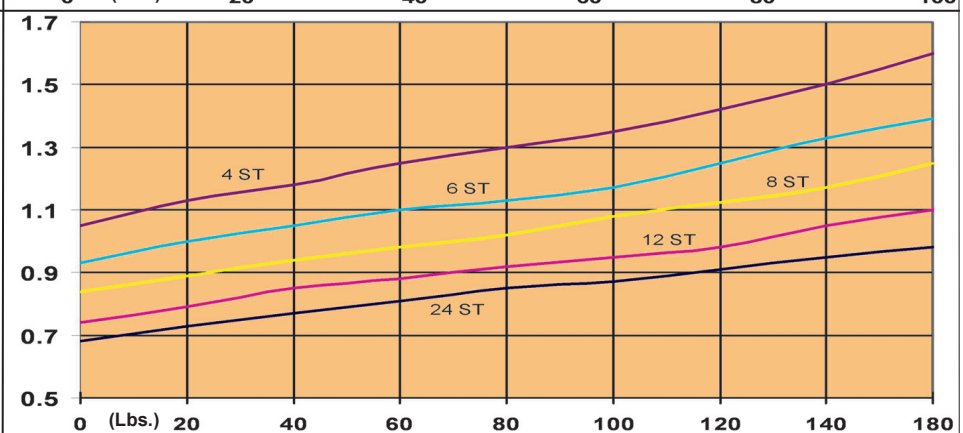
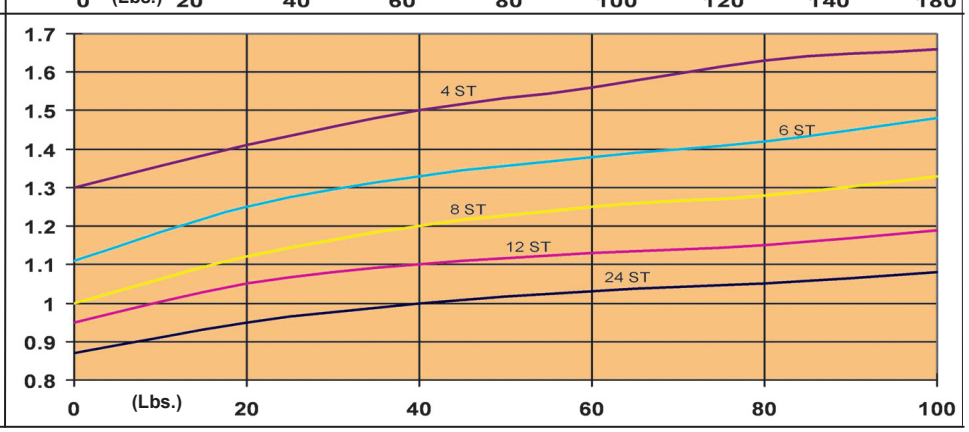
*Standard Voltages on Single Solenoid Valve (Model VSESA-1/4-AAS and VSSAP-1/4) are 12, 24, 120 & 240/60, and 6, 12 & 24VDC. Other popular voltages available at no additional cost.

**Not available in Counterclockwise Rotation

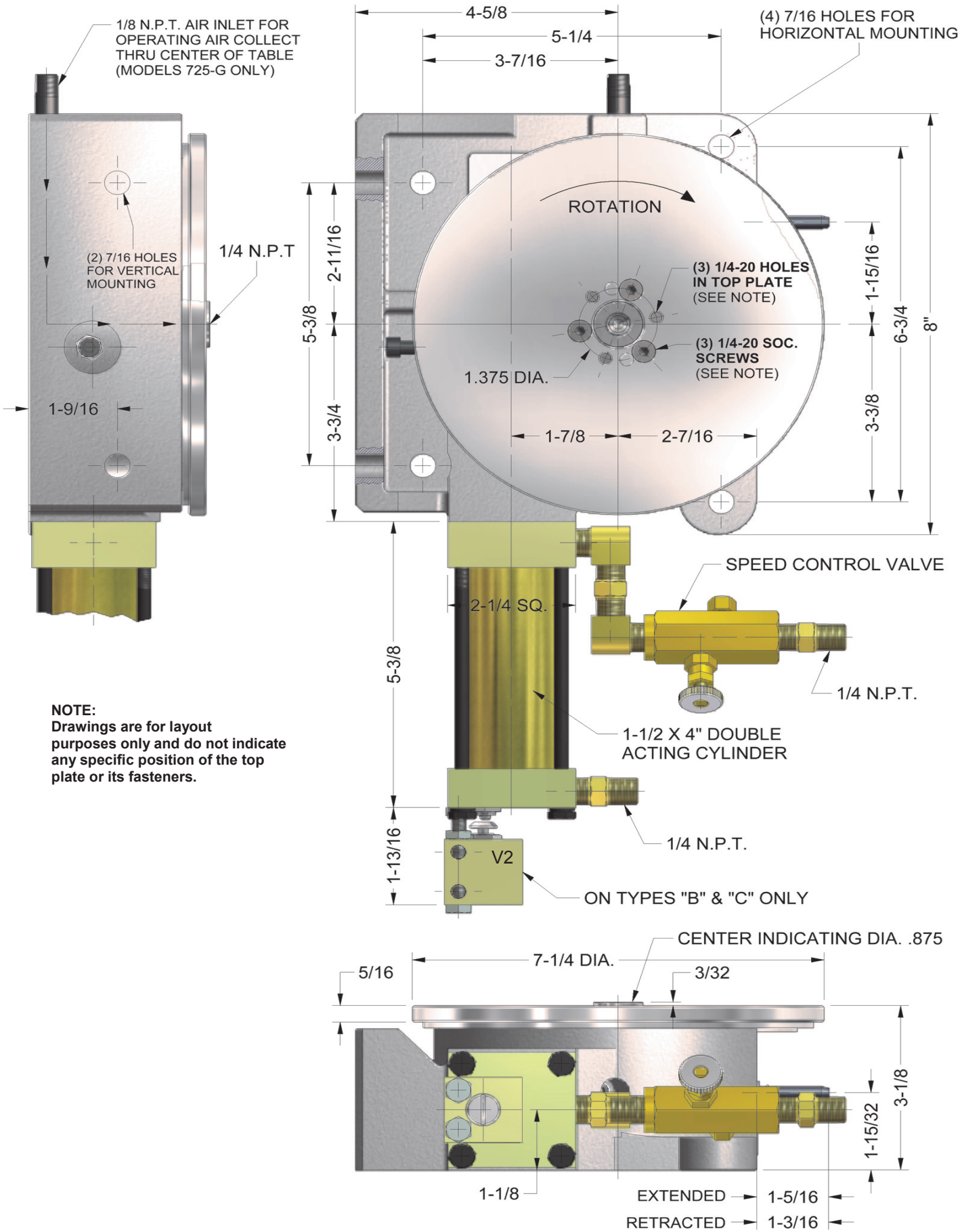
ROTARY INDEX TABLES
SIZE AND CAPACITY

INDEX TABLE SERIES All figures are based on maximum pressure of 80 P.S.I. & Weight placed Symmetrically 1" from periphery of Top plates	TOP PLATE SIZE	FASTEST RECOMMENDED TIME PER INDEX IN SECONDS (ST=STATIONS PER REVOLUTION)	TOTAL POUNDS ROTATED ON TABLE (Lbs.)
LEGEND: 24 ST, 12 ST, 8 ST, 6 ST, 4 ST  725	7-1/4		
	10"		
LEGEND: 24 ST, 12 ST, 8 ST, 6 ST, 4 ST  11-E	11"		
	16"		

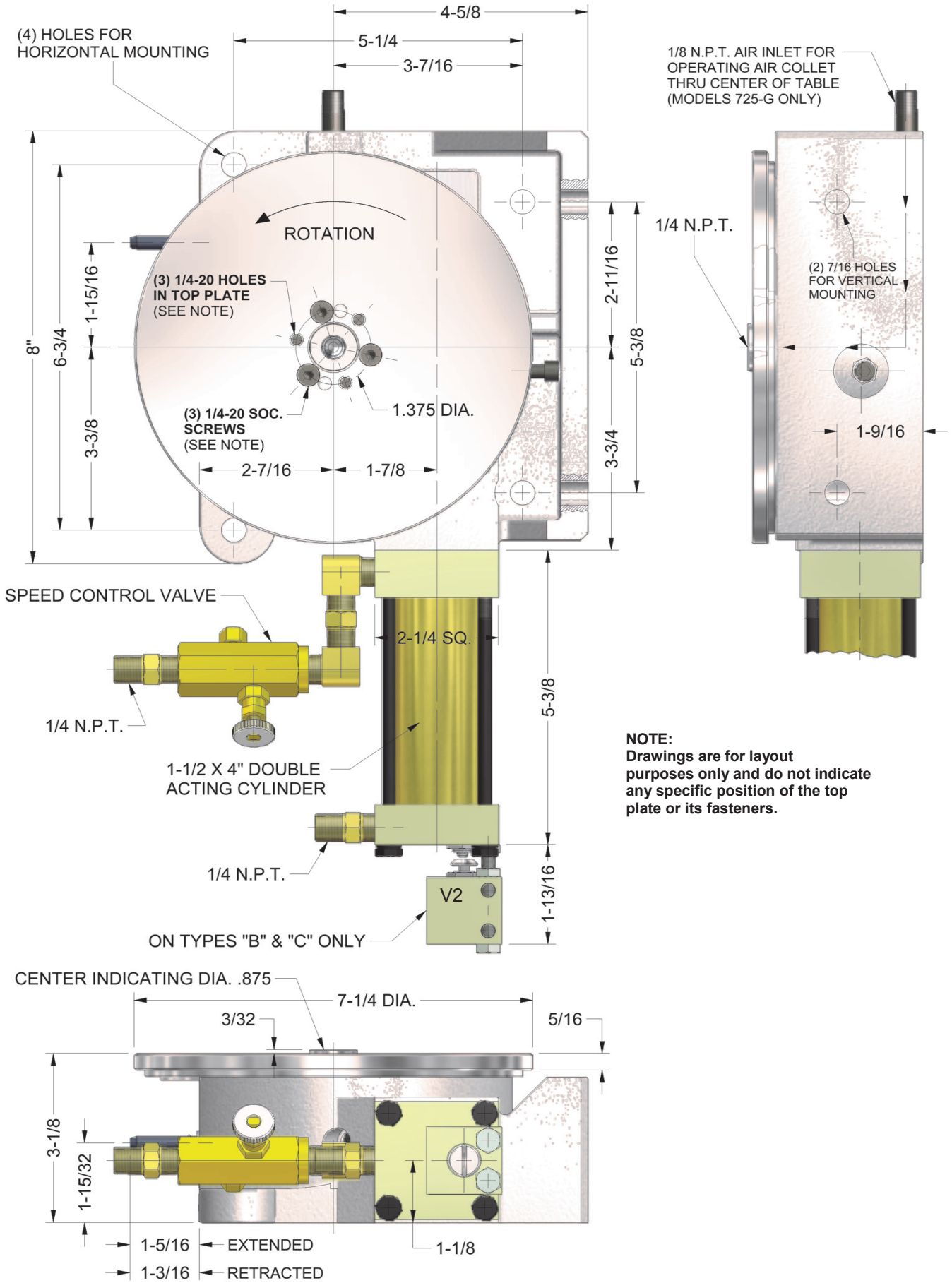
ROTARY INDEX TABLES
SIZE AND CAPACITY

INDEX TABLE SERIES All figures are based on maximum pressure of 80 P.S.I. & Weight placed Symmetrically 1" from periphery of Top plates	TOP PLATE SIZE	FASTEST RECOMMENDED TIME PER INDEX IN SECONDS (ST=STATIONS PER REVOLUTION)	TOTAL POUNDS ROTATED ON TABLE (Lbs.)
LEGEND 24 ST 12 ST 8 ST 6 ST 4 ST  11-EF	11"		
	16"		
LEGEND 24 ST 12 ST 8 ST 6 ST 4 ST  11-F	11" & 16"		
	20"		

ROTARY INDEX TABLES
MODEL 725 CLOCKWISE ROTATION

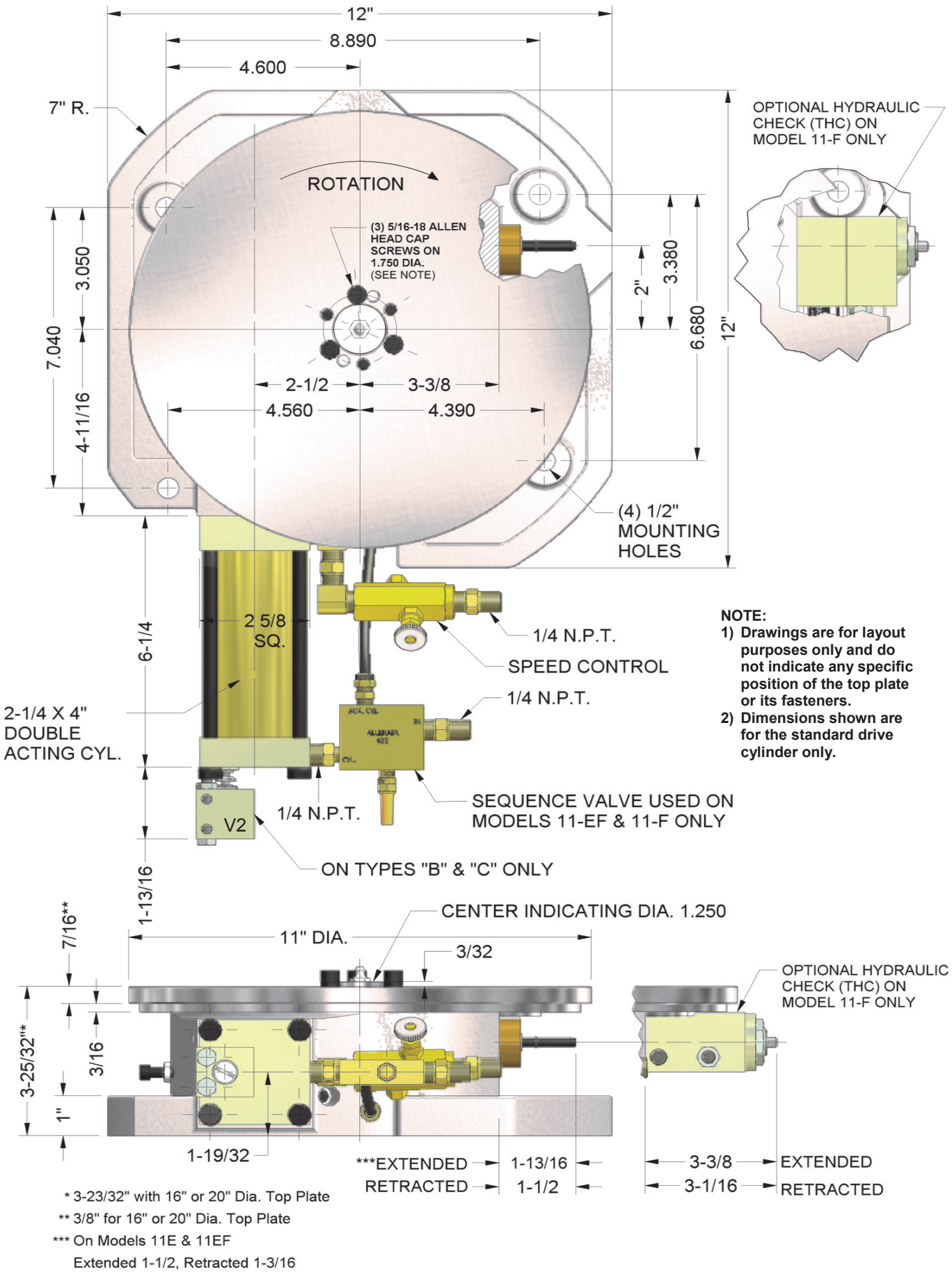


NOTE:
Drawings are for layout purposes only and do not indicate any specific position of the top plate or its fasteners.



NOTE:
Drawings are for layout purposes only and do not indicate any specific position of the top plate or its fasteners.

ROTARY INDEX TABLES
MODELS 11- E, 11- EF &11- F
CLOCKWISE ROTATION



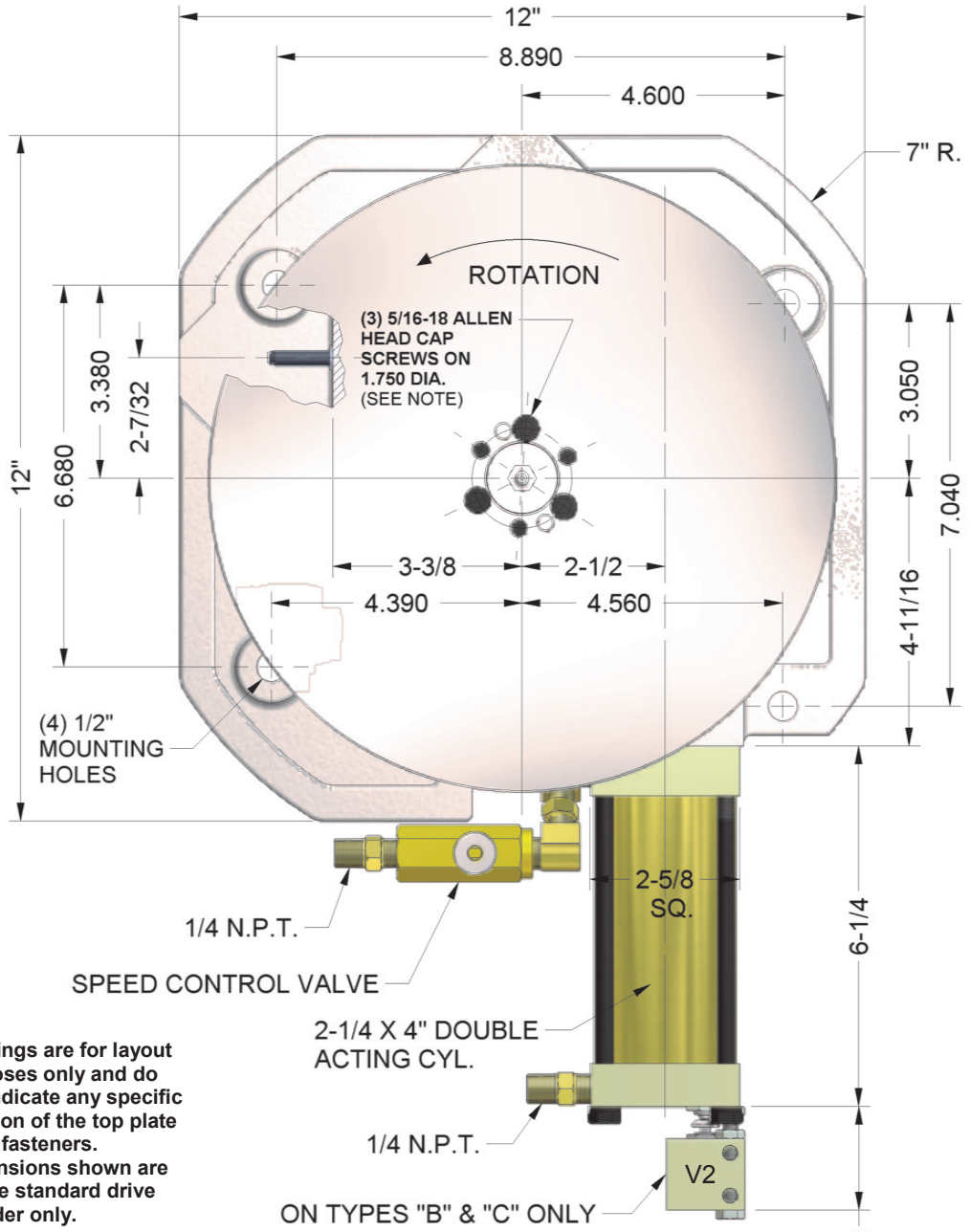
NOTE:

1) **Drawings are for layout purposes only and do not indicate any specific position of the top plate or its fasteners.**
2) **Dimensions shown are for the standard drive cylinder only.**

* 3-23/32" with 16" or 20" Dia. Top Plate

** 3/8" for 16" or 20" Dia. Top Plate

*** On Models 11E & 11EF
Extended 1-1/2, Retracted 1-3/16



NOTE:

1) **Drawings are for layout purposes only and do not indicate any specific position of the top plate or its fasteners.**
2) **Dimensions shown are for the standard drive cylinder only.**

* 3-23/32" with 16" or 20" Dia. Top Plate

** 3/8" for 16" or 20" Dia. Top Plate

MISCELLANEOUS INFORMATION

1) POWER FACTORS:

Developed Force in Pounds Equals Power Factor times Air Pressure (P.S.I)

Bore Sizes	Power Factor	Bore Sizes	Power Factor
1/2"	.20	2"	3
3/4"	.44	2-1/2"	5
7/8"	.60	3"	7
1-1/8"	1	4"	12.5
1-1/2"	1.75	5"	20

2) WEIGHTS:

Cyl-Check:
5 lbs. plus 1/2 lb. per inch of stroke.

Valves:
2 & 3-way: 3/4 lb.
4-way: 1/4" thru 1/2" N.P.T. 3-1/4 lbs.

APPROXIMATE WEIGHT IN POUNDS

Cylinder Bore Sizes	CYLINDER TYPES				Add Per Inch of Stroke
	A	AV	E	EV	
7/8"	1	- -	1-1/4	- -	1/4
1-1/8"	1-1/4	4	1-1/2	4-1/4	1/4
1-1/2"	2	4-1/2	2-1/4	4-3/4	1/4
2"	2-1/2	5	3	5-1/4	1/2
2-1/2"	4	6	4-1/2	6-1/2	1/2
3"	5	7	5-1/2	7-1/2	1/2
4"	13	17	14	18	1

For Rotary Index Table weights see page 91 under Standard Specifications.

3) LUBRICATION:

All Allenair Cylinders are pre-lubricated, at time of assembly, with a specially formulated long lasting lubricant. Any additional lubrication should be used sparingly so as not to over-lubricate the Cylinder and wash out the pre-lubrication. A petroleum based lubricant of 100 to 200 SSU viscosity at 100° F (37.78°C) and an aniline point of 200°F (93.33°C) or greater can be used as a lubricant.

DO NOT USE LUBRICANTS CONTAINING ADHESIVES, SOLVENTS, DETERGENTS, GRAPHITE, PHOSPHATE ESTERS, FIRE RETARDANTS OR SYNTHETIC OILS.

4) SEALS:

Standard seals used in Allenair equipment are Nitrile (BUNA-N) Compound. Buna-N has an operating temperature range of - 40°F to +250°F maximum. A fluorocarbon compound (Viton) having an operating temperature range of +10°F to +350°F is available.

Special seal compounds are also available.

5) STROKE TOLERANCE:

Normal stroke tolerance is ±1/32". On Back-to-Back, 3-Position, and Tandem Types, total stroke tolerance is ±1/16". Closer Tolerances are available at additional cost.

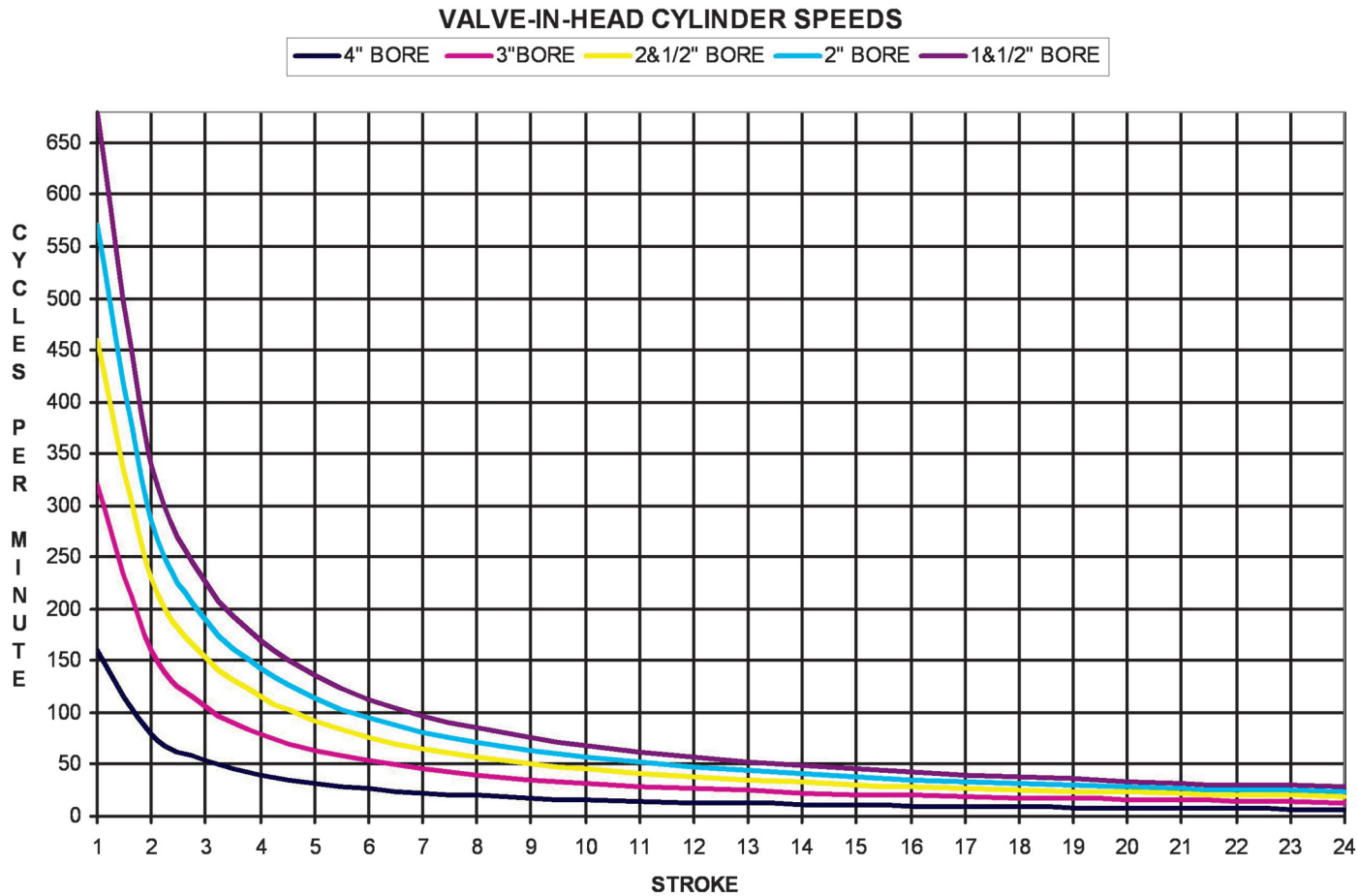
6) WATER SERVICE:

The materials used in Allenair Cylinders are corrosion resistant. (Brass or Stainless Tubes, Stainless Steel Rods, Aluminum Heads and Piston.)

Under the severe demands of water service, however, we recommend Double Rod Packing and hard coating the aluminum parts. These options are available at additional cost.

7) VALVE-IN-HEAD CYLINDER SPEEDS:

These figures are based on a no load Condition operating at 100 P.S.I using an Allenair Cylinder Model VCR.



8) COILS

(a) Solenoid operated units require a minimum Electrical contact of 25 milliseconds.

(b) Our Solenoid Valves will build up to 80% of line pressure at the Cylinder ports within .037 seconds From the time of electrical contact.

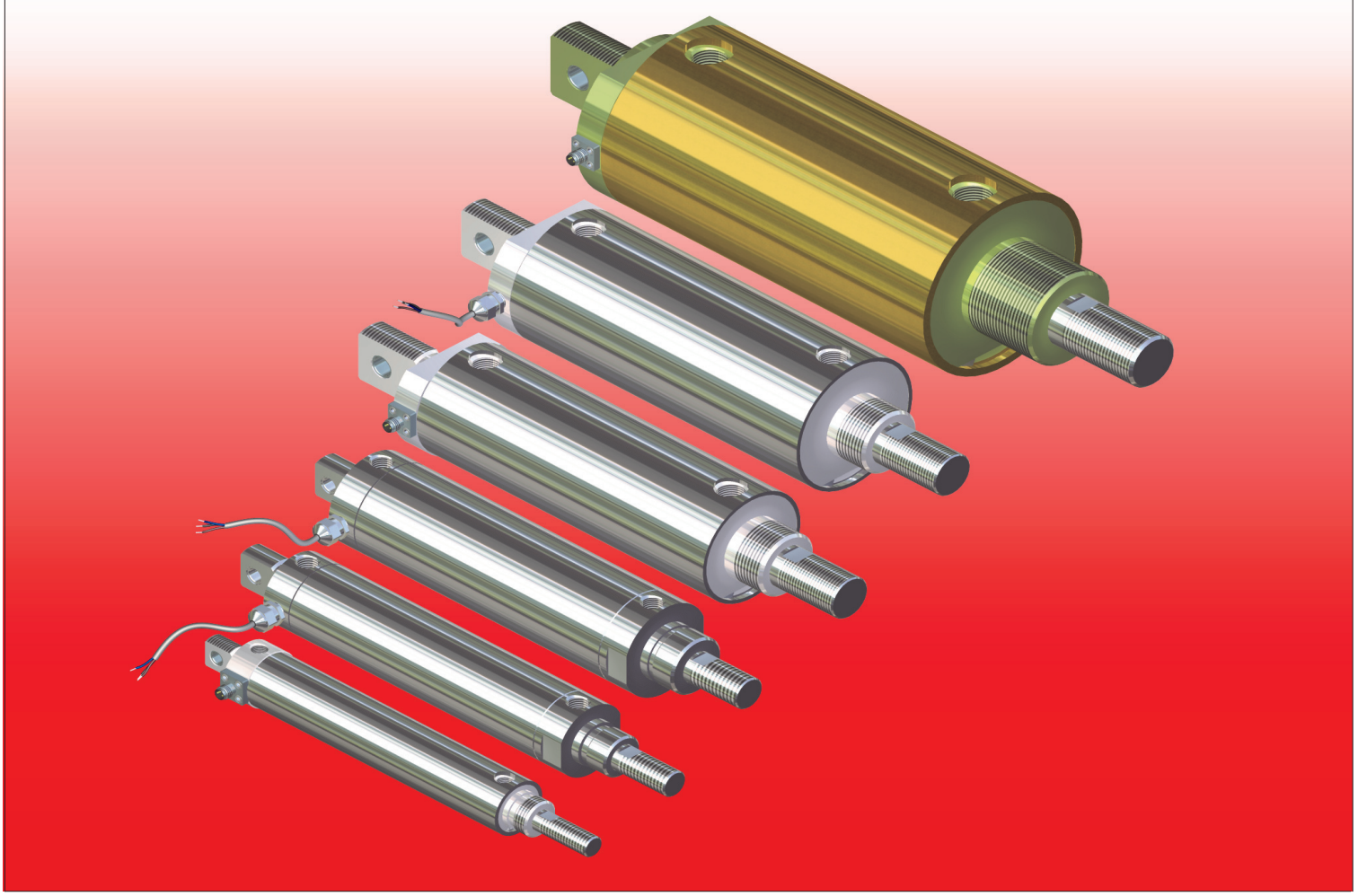
AA	12/60	24/60	120/60	240/60
Watts	7	7	7	7
Holding	1.3 Amps	.7 Amps	.145 Amps	.084 Amps
In-Rush	2.6 Amps	1.4 Amps	.29 Amps	.168 Amps
PK	**12/60**	**24/60**	**120/60**	**240/60**
Watts	10	10	10	10
Holding	20 V.A	20 V.A.	20 V.A.	20 V.A.
In-Rush	40 V.A.	40 V.A.	40 V.A.	40 V.A.

The above figures are average.

ALLENAIR CORP.
POSITION FEEDBACK CYLINDERS

Position Feedback Cylinders

Available for pneumatic (**TDP**) and hydraulic (**TDH**) service. The TD Option gives you an internal Linear Resistive Transducer (**LRT**) for extremely accurate piston position sensing. It is ideal for applications where magnetic Reed and Hall effect switches are not acceptable. The TD Option is the perfect solution for applications where variations in cylinder stroke and speed are required or where an application calls for real time position monitoring. Offered in bore sizes from 1-1/8" to 4" and strokes up to 18". Cylinder comes standard with an IP 67 rated 8mm 3 pin male cable connector.



INDUSTRIES:

- AUTOMOTIVE
- CHEMICAL PROCESSING
- FOOD & BEVERAGE
- INDUSTRIAL AUTOMATION
- MACHINE TOOL
- MARINE
- PETROCHEMICAL
- MEDICAL / PHARMACEUTICAL
- PRINTING & PACKAGING
- SEMICONDUCTOR
- TEXTILE MACHINERY

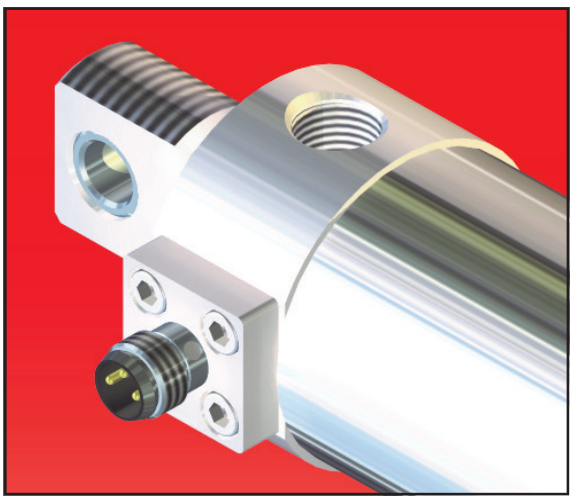
APPLICATIONS:

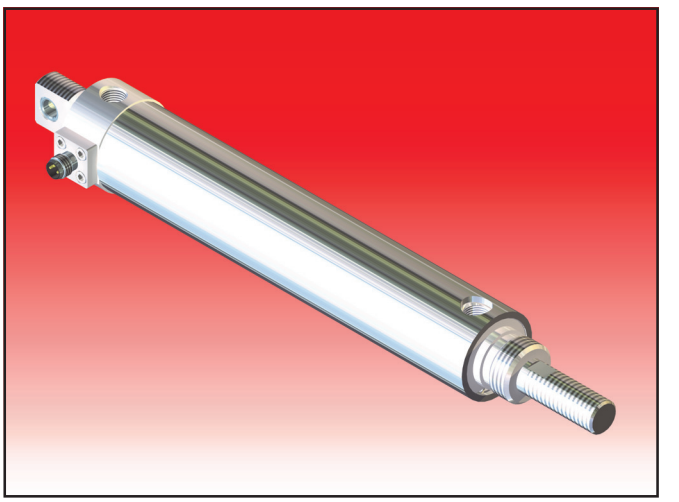
- POSITIONING
- MEASURING
- INSPECTION
- PICK AND PLACE
- WELDING & CUTTING
- PROCESS CONTROL
- ASSEMBLY AUTOMATION
- PACKAGING
- PRINTING
- LABELING
- PART INSERTION
- DISPENSING
- SEALING
- ANALYZERS
- BOTTLING
- ANIMATRONICS
- VERIFICATION
- STACKING
- PROCESS ACCEPTANCE (GO/NO GO)
- MATERIAL TESTING
- ADJUSTABLE ACCELERATION

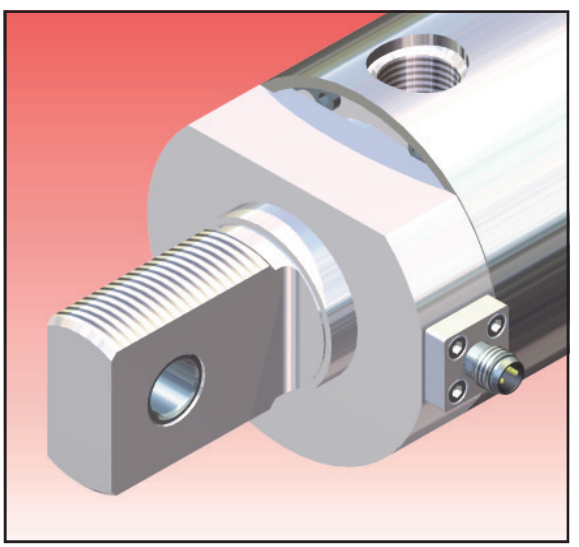
EXTERNAL CONSTRUCTION

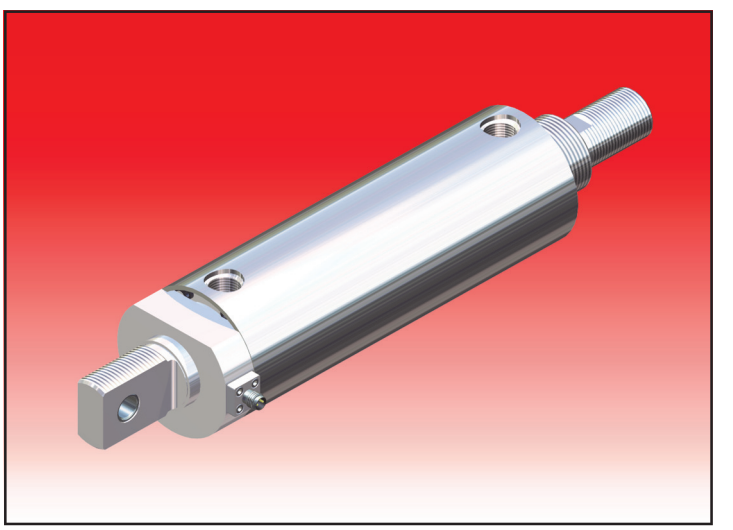
TDH and **TDP** Standard cylinder construction differs depending on bore size, 1-1/8" and 1-1/2" bore sizes have a threaded aluminum rear head and an aluminum front head with snap-ring construction. 2" thru 4" bore have our traditional Snap-Ring construction front and rear. All bore sizes utilize stainless steel cylinder tubing with the exception of the 4" bore which uses heavy wall brass tubing.

SSTDH and **SSTDP** Cylinders are constructed using 300 series stainless steel.









INTERNAL CONSTRUCTION

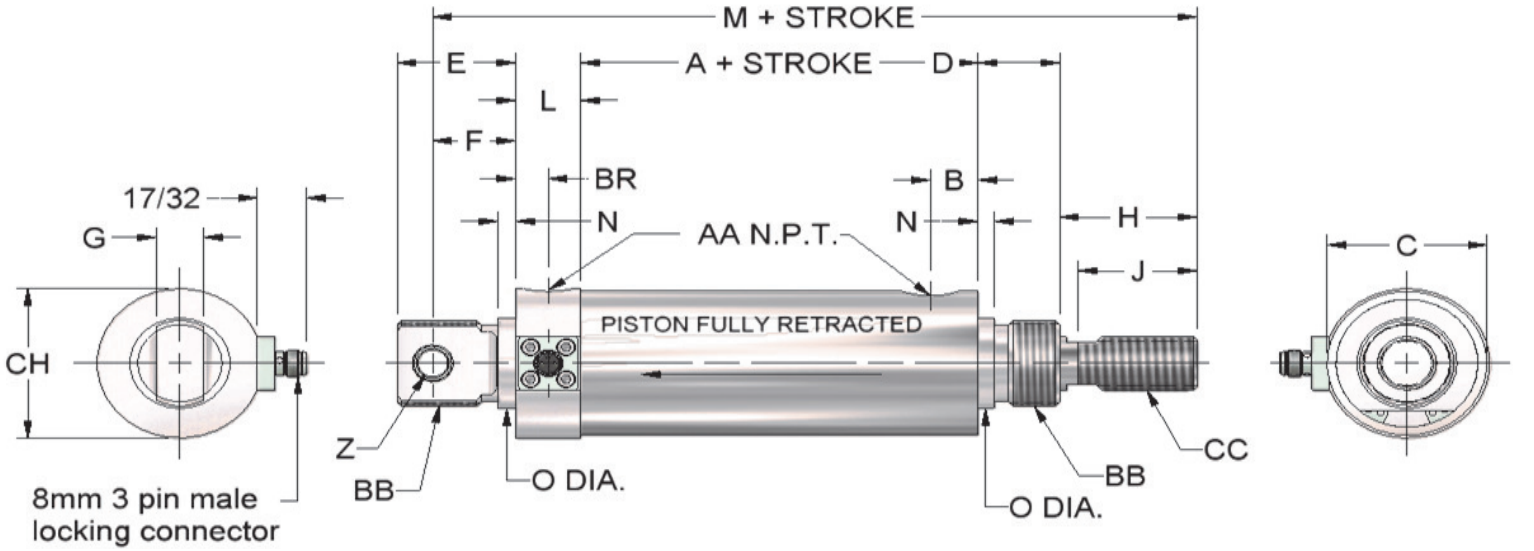
TDP

Type "C" Cylinders are constructed using low friction "U"- Cup Seals and include a wear strip on the piston.
These Cylinders are primarily used on low pressure applications and where low minimum breakaway Is required.
Pressure Rating: 120 PSI. Pneumatic only.
Breakaway: Approximately 2 to 3 PSI.
Bore Sizes Available: 1-1/8", 1-1/2", 2", 2-1/2", 3" & 4".

TDH

Cylinders are constructed using Block-Vee Seals and include double rod seals in the front head except on the 1-1/8" Bore. A heavy-duty wear strip (bearing) on the piston minimizes friction and piston seal wear, and on side load conditions prevents metal-to-metal contact.
Pressure Rating: 200 PSI Pneumatic, 500 PSI. Hydraulic.
Breakaway: Approximately 10 to 15 PSI.
Bore Sizes Available: 1-1/8", 1-1/2", 2", 2-1/2", 3" & 4".
5" BORE AVAILABLE-Consult Factory for Details.

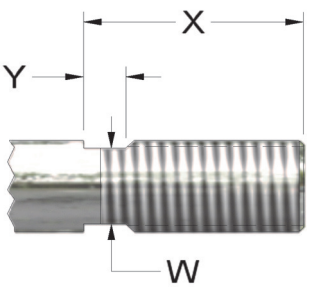
DIMENSIONS



CYL. BORE SIZES	A	B	BR	C	CH	D	E	F	G	H	J	L	M	N	O		Z
															REAR	FRONT	
1-1 / 8"	2 -13 / 16	3 / 8	11 / 32	♦1 -5 / 16	1 -3 / 8	5 / 8	1	11 / 16	3 / 8	1 -3 / 8	1 -1 / 4	11 / 16	6 -3 / 16	1 / 8	3 / 4	7 / 8	1 / 4
1-1 / 2"	3 -3 / 16	1 / 2	11 / 32	♦1 -11 / 16	1 -3 / 4	7 / 8	1 -1 / 4	7 / 8	1 / 2	1 -7 / 16	1 -1 / 4	11 / 16	7 -1 / 16	3 / 16	1 -1 / 16	1 -1 / 16	5 / 16
2"	3 -5 / 8	1 / 2	1-3 / 16	♦2 -3 / 16	2 -3 / 16	7 / 8	1 -1 / 4	7 / 8	1 / 2	1 -7 / 16	1 -1 / 4	11 / 16	7 -1 / 2	3 / 16	1 -1 / 16	1 -3 / 8	5 / 16
2-1 / 2"	3 -7 / 8	9 / 16	1 -1 / 4	♦2 -11 / 16	2 -11 / 16	1	2	1 -3 / 8	5 / 8	1 -11 / 16	1 -1 / 2	11 / 16	8 -5 / 8	1 / 4	1 -3 / 8	1 -1 / 2	7 / 16
3"	3 -7 / 8	9 / 16	1 -1 / 4	♦3 -3 / 16	3 -3 / 16	1	2	1 -3 / 8	5 / 8	1 -11 / 16	1 -1 / 2	11 / 16	8 -5 / 8	1 / 4	1 -3 / 8	1 -1 / 2	7 / 16
4"	4 -7 / 8	13 / 16	1 -13 / 16	4 -3 / 8	4 -3 / 8	1 -7 / 8	2 -3 / 16	1 -7 / 16	3 / 4	2 -1 / 4	1 -7 / 8	11 / 16	11 -7 / 16	3 / 16	1 -3 / 4	2 -1 / 4	1 / 2

♦ Add 1/16" to the "C" dimension for "BU" option.
"BU" option = Brass Tube.

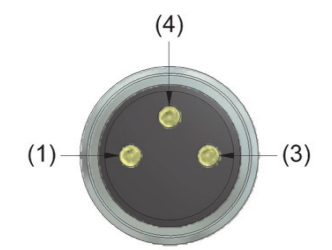
For mounts see pages 20 & 21



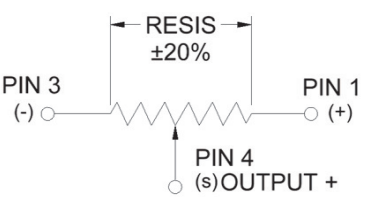
CYL. BORE SIZES	AA	BB		CC	ROD DIA.
		REAR	FRONT		
1 -1/8"	1 / 8	3 / 4 -16	7 / 8 - 14	1 / 2-13	1 / 2
1 -1/2"	1 / 4	1-14	1- 14	5 / 8 - 11	5 / 8
2"	1 / 4	1- 14	1 - 3 / 8 - 12	3 / 4 - 10	3 / 4
2 -1/2"	3 / 8	1 - 3/8 -12	1 - 1 / 2 - 12	1- 14	1"
3"	3 / 8	1 - 3/8 -12	1 - 1 / 2 - 12	1- 14	1"
4"	1 / 2	1 - 3 / 4 - 12	2 - 1 / 4 - 12	1 - 1 / 4 - 12	1 - 1 / 4

ROD DIA.	W	X	Y
1 / 2"	7 / 16	1 - 5 / 16	5 / 16
5 / 8"	1 / 2	1 - 3 / 8	5 / 16
3 / 4"	5 / 8	1 - 3 / 8	5 / 16
1"	7 / 8	1 - 5 / 8	5 / 16
1 - 1 / 4"	1 - 1 / 8	2 - 1 / 8	3 / 8

TRANSDUCER SPECIFICATIONS	
RESISTANCE	1.0k
LINEARITY	± 1.0%, INDEPENDENT
VOLTAGE & CURRENT	2 mA MAX CURRENT, 28 VDC MAX VOLTAGE
RESOLUTION	INFINITE
STANDARD STROKES	1, 2, 3, 4, 6, 8, 9, 12 & 18 INCHES
POWER DISSIPATION	1 WATT / INCH @ 25°C
PRESSURE	TDP 120 P.S.I. PNEUMATIC, TDH 200 P.S.I PNEUMATIC, 500 P.S.I. HYDRAULIC
OPERATING TEMP.	-25°C TO +100°C (FOR HIGHER TEMP. CONSULT FACTORY)
STROKE VELOCITY	**TDH** 20" SEC **TDP** 50" SEC



SCHEMATIC



MODIFICATIONS

Listed below are some of the many modifications Allenair makes daily

RODS:

Non– Standard Rod Extensions (“H” Dim.)	Length Required
Non– Standard Rod Threads (“CC” Dim.)	Size Required
Non– Standard Rod Threads Length (“J” Dim.)	Length Required
Female Threads In Rod	Size & Depth Required
No Threads On Rod	No Threads
Complete Special Rod End	Print Required
Non-Standard Wrench Flats	Location & Size
Special Rod Material	Material Required

LISTED BELOW ARE SPECIAL CODES WE USE WHENEVER A SPECIAL CYLINDER IS ORDERED.
NOT ALL CODES ARE LISTED, ONLY THE MOST COMMON
***CONSULT FACTORY FOR AVAILABILITY**

CODE	DESCRIPTION	CODE	DESCRIPTION
B	Sp. “H” Dimension	K	Female Thread In Rod
C	Sp. “J” Dimension	KR	Sp. “H” & “J” For K & KR Kits
CB	Sp. “H” & “J” Dimension	L	303 Stainless Steel Rod
CH	Sp. “H” & “J” For Cyl-Check	LF	Low Friction
D	Sp. “CC” Dimension	NT	No Tang
*FC	Front Cushion	Q	Stainless Steel Snap Ring
FS	Fail Safe W / Spring In Front	RG	Sp. “H” For Rod Guide
G	No Rod Threads	RM	Magnet On Piston
HTP	Fluorocarbon Seals	WR	Rod Wiper

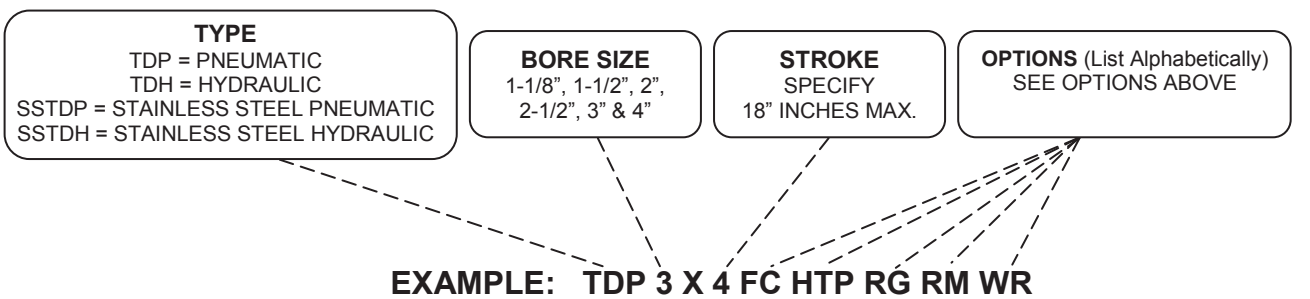
SPECIAL DESIGNS

Many times Allenair is able to change the standard configuration of our cylinders to meet customer’s special requirements.

MATERIALS

Special seal compounds are available for a wide range of fluid media and environments. Tubes, Heads and Rods can be supplied plated, Hardcoated or in other materials. Please consult factory for special requirement.

ORDERING PROCEDURE

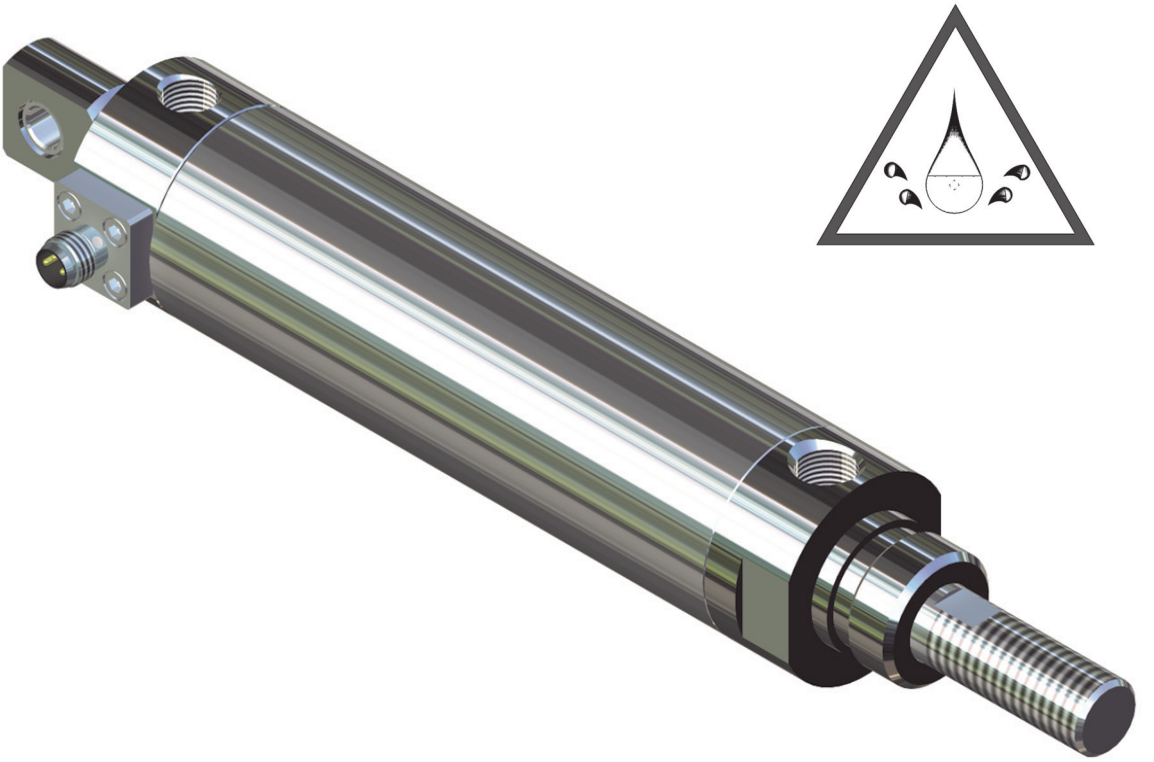


THREADED CONSTRUCTION

ALL STAINLESS STEEL THREADED CONSTRUCTION
Crevice Free Feed Back Cylinders

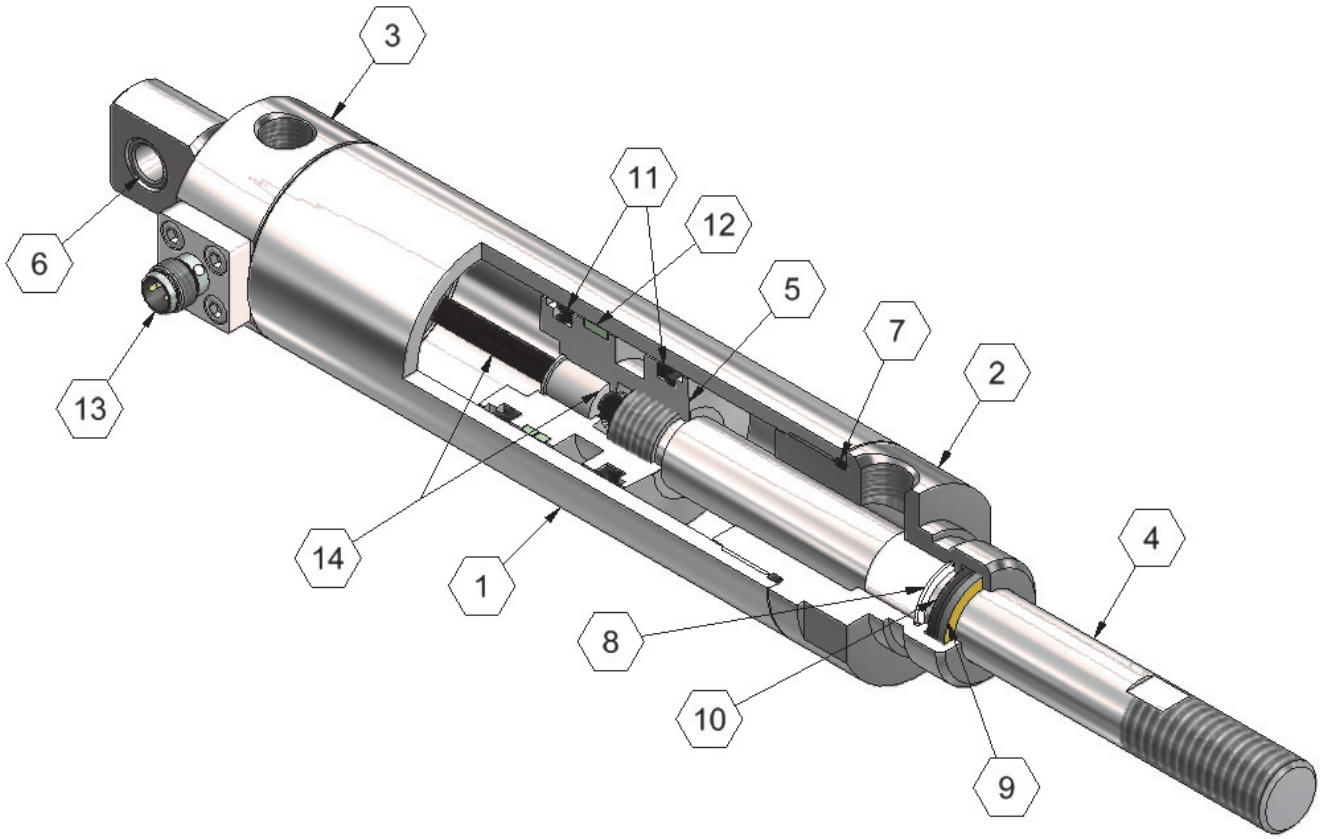
Allenair Corp. has added the **(TDP)** and **(TDH)** Option to their crevice free stainless steel threaded construction pneumatic and hydraulic cylinder line. The TD Option with this cylinder construction gives you the perfect cylinder for those demanding applications in harsh environments. The cylinder has an internal Linear Resistive Transducer (**LRT**) for extremely accurate piston position sensing. It is ideal for applications where traditional magnetic position sensing is not acceptable. Additionally, the TD Option is a solution for applications where variations in cylinder stroke and speed are required or where an application calls for continuous position monitoring. Offered in bore sizes from 1-1/8" to 2" and strokes to 18", the cylinders are designed for 120 P.S.I Pneumatic **(TDP)**. 200 P.S.I Pneumatic and 500 P.S.I Hydraulic **(TDH)**. Cylinder comes standard with an IP 67 rated 8mm 3 pin male cable connector.

WASH DOWN SERVICE



QUALITY FIRST...TODAY

STANDARD FEATURES



1) TUBE: 300 SERIES STAINLESS STEEL TUBING PRECISION HONED "I.D." (16 MICRO OR BETTER) FOR SIZE AND ROUNDNESS WITH CROSS HATCH LUBRICANT RETAINING PATTERN. POLISHED "O.D." TO A 32 MICRO OR BETTER FOR EASE OF CLEANING.

2) FRONT HEAD: 300 SERIES STAINLESS STEEL IS IDEAL FOR WASH-DOWN APPLICATIONS. DESIGNED SPECIFICALLY TO REDUCE POINTS OF CONTAMINATION.

3) REAR HEAD: 300 SERIES STAINLESS STEEL IS IDEAL FOR WASH-DOWN APPLICATIONS. DESIGNED SPECIFICALLY TO REDUCE POINTS OF CONTAMINATION.

4) PISTON ROD: GROUND AND POLISHED 303 OR 316 STAINLESS STEEL RODS WITH WRENCH FLATS FOR MAXIMUM CORROSION RESISTANCE.

5) PISTON: PRECISION MACHINED FROM 303 STAINLESS STEEL FOR INTERNAL CORROSION RESISTANCE, ARE CONSTRUCTED USING "BLOCK-VEE SEALS". A HEAVY-DUTY WEAR STRIP (BEARING) ON THE PISTON MINIMIZES FRICTION AND SEAL WEAR, AND ON SIDE LOAD CONDITIONS PREVENTS METAL-TO-METAL CONTACT.

6) PIVOT BUSHING: LONG LIFE PIVOT BUSHING, REPLACEABLE.

7) HEAD SEALS: NITRILE MATERIAL IS STANDARD HIGH TEMPERATURE AND OTHER MATERIALS ARE AVAILABLE.

8) ROD BEARING: SNAP-IN BEARING CONSTRUCTION MATERIAL IS NYLON FOR EXTREMELY LOW FRICTION AND EXTENDED LIFE.

9) LEATHER BACK-UP RING: AIDS IN KEEPING ROD CLEAN "WR" TEFLON WIPER RING ALSO AVAILABLE.

10) NITRILE ROD SEAL: (HTP) HIGH TEMPERATURE PACKING IS OPTIONAL AND OTHER SEALS ARE AVAILABLE.

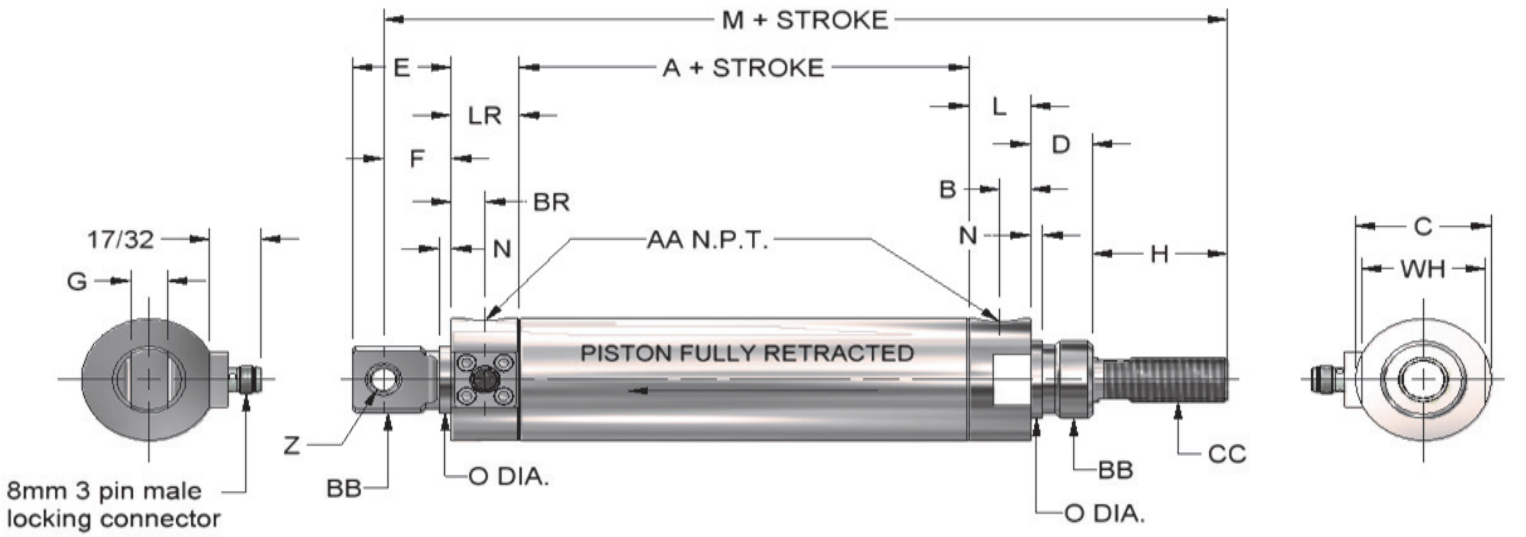
11) PISTON SEAL" BLOCK-VEE" SEALS. NITRILE MATERIAL IS STANDARD, (HTP) HIGH TEMPERATURE PACKING IS OPTIONAL. SEALS ARE PRESSURE ACTIVATED AND WEAR COMPENSATING.

12) WEAR STRIP (BEARING): MINIMIZES FRICTION AND SEAL WEAR AND ON SIDE LOAD CONDITIONS PREVENTS METAL-TO-METAL CONTACT.

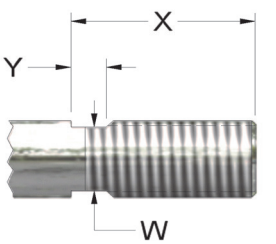
13) 8mm 3 PIN MALE CONNECTOR FOR USE WITH STANDARD CORD-SETS. DEGREE OF PROTECTION (IP67).

14) REPLACEABLE TRANSDUCER PROBE AND WIPER BLOCK ASS'Y.

DIMENSIONS



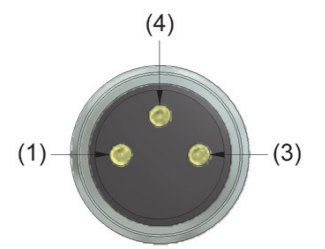
CYL BORE SIZES	A	B	BR	C	D	E	F	G	H	J	L	LR	M	N	O		Z
															REAR	FRONT	
1-1 / 8"	2 -9 / 16	5 / 16	11 / 32	1 -5 / 16	5 / 8	1"	11 / 16	3 / 8	1 -3 / 8	1 -1 / 4	5 / 8	11 / 16	6 -9 / 16	1 / 8	3 / 4	7 / 8	1 / 4
1-1 / 2"	2 -3 / 4	11 / 32	11 / 32	1 -11 / 16	7 / 8	1 -1 / 4	7 / 8	1 / 2	1 -7 / 16	1 -1 / 4	11 / 16	11 / 16	7 -5 / 16	3 / 16	1 -1 / 16	1 -1 / 16	5 / 16
2"	2 -3 / 4	11 / 32	11 / 32	2 -3 / 16	7 / 8	1 -1 / 4	7 / 8	1 / 2	1 -7 / 16	1 -1 / 4	11 / 16	11 / 16	7 -5 / 16	3 / 16	1 -1 / 16	1 -3 / 8	5 / 16



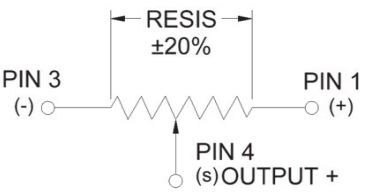
CYL. BORE SIZES	AA	BB		CC	ROD DIA.	WH
		REAR	FRONT			
1 -1/8"	1 / 8	3 / 4 - 16	7 / 8 - 14	1 / 2-13	1 / 2	1 -1 / 4
1 -1/2"	1 / 4	1" - 14	1" - 14	5 / 8 - 11	5 / 8	1 -5 / 8
2"	1 / 4	1" - 14	1 - 3 / 8 - 12	3 / 4 - 10	3 / 4	2 -1 / 8

ROD DIA.	W	X	Y
1 / 2"	7 / 16	1 - 5 / 16	5 / 16
5 / 8"	1 / 2	1 - 3 / 8	5 / 16
3 / 4"	5 / 8	1 - 3 / 8	5 / 16

TRANSDUCER SPECIFICATIONS	
RESISTANCE	1.0k / inch
LINEARITY	± 1.0%, INDEPENDENT
VOLTAGE & CURRENT	2 mA MAX CURRENT, 28 VDC MAX VOLTAGE
RESOLUTION	INFINITE
STANDARD STROKES	1, 2, 3, 4, 6, 8, 9, 12 & 18 INCHES
POWER DISSIPATION	1 WATT / INCH @ 25°C
PRESSURE	TDP 120 P.S.I. PNEUMATIC, TDH 200 P.S.I PNEUMATIC, 500 P.S.I. HYDRAULIC
OPERATING TEMP.	-25°C TO +100°C (FOR HIGHER TEMP. CONSULT FACTORY)
STROKE VELOCITY	**TDH** 20" SEC **TDP** 50" SEC



SCHEMATIC



MODIFICATIONS

Listed below are some of the many modifications Allenair makes daily

RODS:

Non– Standard Rod Extensions (“H” Dim.)	Length Required
Non– Standard Rod Threads (“CC” Dim.)	Size Required
Non– Standard Rod Threads Length (“J” Dim.)	Length Required
Female Threads In Rod	Size & Depth Required
No Threads On Rod	No Threads
Complete Special Rod End	Print Required
Non-Standard Wrench Flats	Location & Size
Special Rod Material	Material Required

LISTED BELOW ARE SPECIAL CODES WE USE WHENEVER A SPECIAL CYLINDER IS ORDERED.
NOT ALL CODES ARE LISTED, ONLY THE MOST COMMON.
***CONSULT FACTORY FOR AVAILABILITY**

CODE	DESCRIPTION	CODE	DESCRIPTION
B	Sp. “H” Dimension	HTP	Fluorocarbon Seals
C	Sp. “J” Dimension	J2	Short Fully Threaded Tail
CB	Sp. “H” & “J” Dimension	K	Female Thread In Rod
CS	Sp. Per Customer Specs.	LF	Low Friction
D	Sp. “CC” Dimension	NT	No Tang
DRP	Double Rod Packing	OS	Over Sized Rod
*FC	Front Cushion Fixed	PUBB, PUBF, or PUBR	Polyurethane Bumpers
FGH1	H1 (Food Grade Lubricant)	RG	Sp. “H” For Rod Guide
FS	Fail Safe W / Spring In Front	RM	Magnet On Piston
FT	Fully Threaded Rear Tail	WR	Rod Wiper
G	No Rod Threads	SRF	Spring Return Front

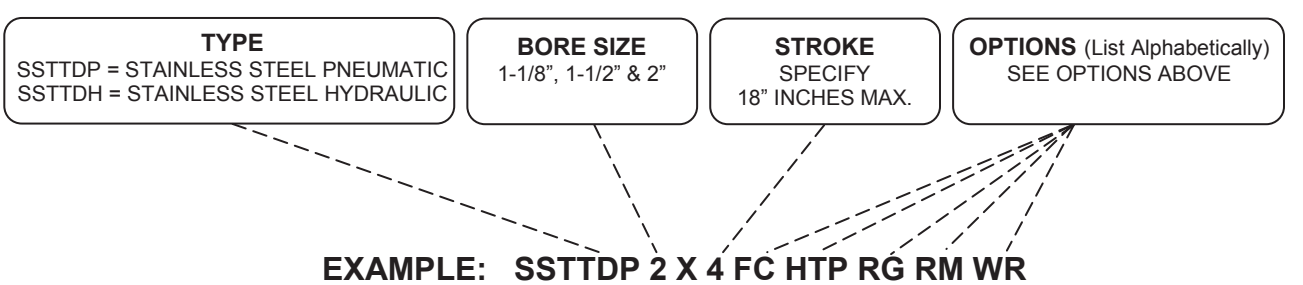
SPECIAL DESIGNS

Many times Allenair is able to change the standard configuration of our cylinders to meet customer’s special requirements.

MATERIALS

Special seal compounds are available for a wide range of fluid media and environments. Tubes, Heads and Rods can be supplied plated, Hardcoated or in other materials. Please consult factory for special requirement.

ORDERING PROCEDURE



ALLENAIR CORP.

DISPENSING & TRANSFER PUMPS

Allenair Manufactures Dispensing & Transfer Pumps

- For the pumping and transfer of most liquids.
- Accurately dispense various food products and chemicals.
- Pumps can be made in a number of variations, which can include different seal and pump materials depending on application requirements.

CALL FOR APPLICATION ASSISTANCE

ALLENAIR CORP. **QUALITY FIRST...TODAY**

ALLENAIR CORP.
DISPENSING & TRANSFER PUMPS APPLICATION IDEAS

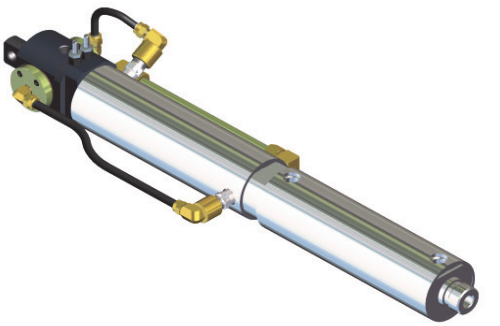
Description:

The Allenair pumps are designed around our tandem cylinder design joining two cylinders together with a common head and rod. The total pump unit is divided into two sections; the drive section and the pump section. By utilizing a four-way valve to operate the drive cylinder, the common rod and pump piston will move in unison, creating suction on the up stroke and pressure on the down stroke. An example of this action is that of a syringe.

PUMPING CORROSIVE LIQUIDS.

Used to pump deionized water, the photograph to the right depicts an **EVTP** model pump with an all stainless steel pump chamber, utilizing a **VCR** automatic reciprocating Valve-in-Head® drive cylinder.

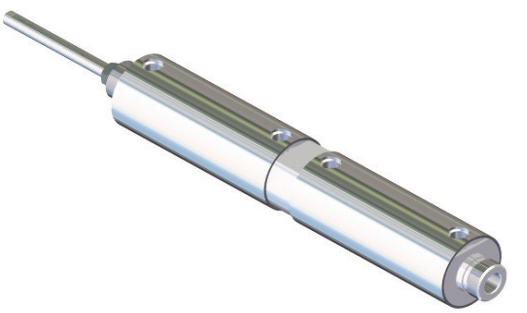
EVTP 2 X 6 VCR CS



DISPENSING FOOD PRODUCTS.

Used to dispense lard or high viscosity liquids the photograph to the right depicts an **ALL** 300 Series Stainless Steel **SSETP** model pump. This pump utilizes an **SA** adjustment rod to produce a variable displacement chamber, with exceptional repeatability.

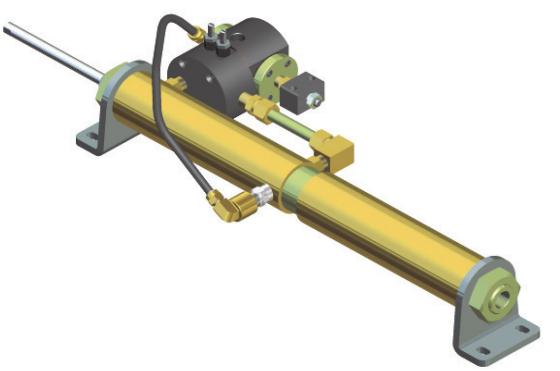
ETP 2-1/2 X 3 J2 SA CS



DISPENSING PETROLEUM BASED PRODUCTS.

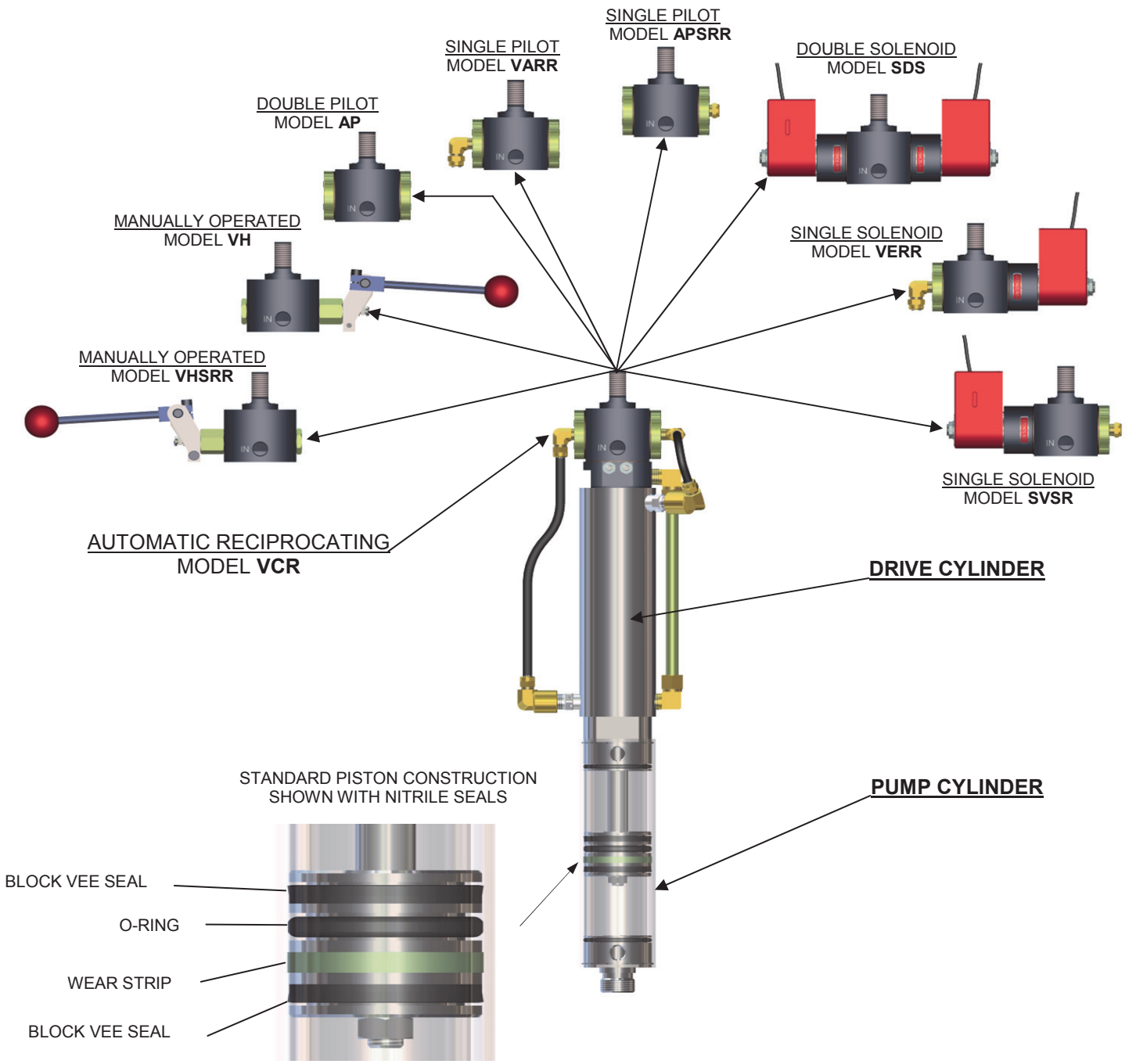
Used to dispense lubricating oil, the photograph to the right depicts an **EVTP** model pump. This pump utilizes a **VSAT** valve option to dispense a fixed volume of oil while maintaining the ability to adjust that volume using the **SA** adjustment rod.

EVTP 1-1/2 X 3 1/4 VSAT J2 CS



DRIVE CYLINDER VALVES

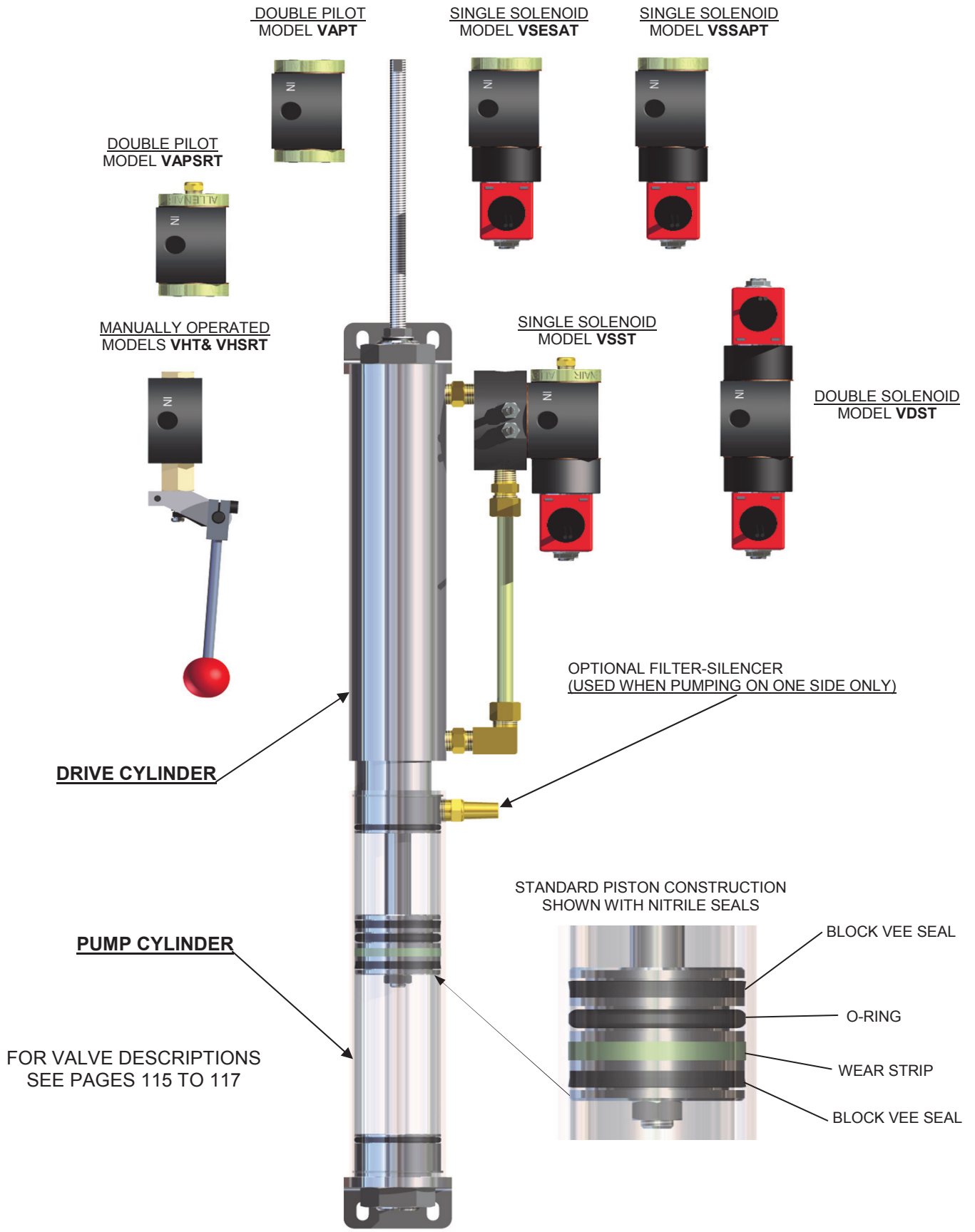
EVTP
VALVE OPTIONS



FOR VALVE DESCRIPTIONS
SEE PAGES 115 TO 117

"SA" ADJUSTABLE STROKE

EVTP VALVE OPTIONS



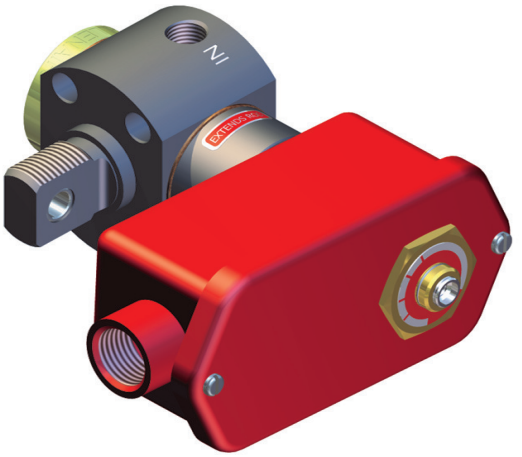
FOR VALVE DESCRIPTIONS
SEE PAGES 115 TO 117

DRIVE CYLINDER VALVES

SINGLE SOLENOID
MODEL SVSR / VSST

This model incorporates a 4-way Single Solenoid Pilot Valve, air return. A maintained electrical contact is required to move the piston its full stroke. Breaking the electrical contact returns the piston to its original position.
This Model is supplied with the piston normally retracted (electrical contact to extend piston)
The standard solenoid operator is the AAS splice box housing.
Voltages: 12, 24,120 & 240/60 AC and 6, 12 & 24VDC are standard.

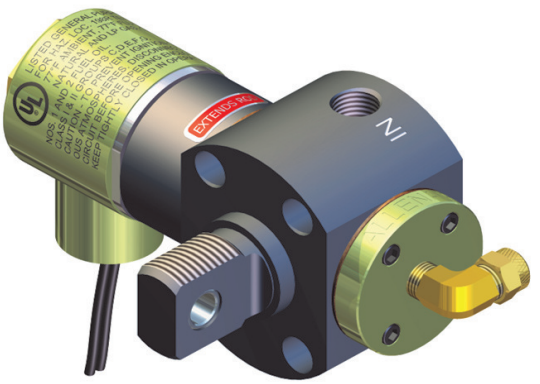
SHOWN WITH NEMA 4 HOUSING
ORDERING CODE (JIC)



SINGLE SOLENOID
MODEL VERR / VSESAT (AUTOMATIC RETURN)

This model incorporates a 4-way Single Solenoid Doubled Bleed Pilot Valve. A momentary (NOT continuous) electrical contact is required to move the piston its full stroke. Upon reaching its FULL stroke, the piston will automatically return to its original position.
This model is supplied with the piston normally retracted (electrical contact will extend the piston)
The standard solenoid operator is the AAS splice box housing.
Due to internal construction and application requirements, there can be a loss of approximately 1/8” to 1/4” of stroke.
Voltages: 12,24,120 & 240/60 and 6,12 & 24VDC are standard.

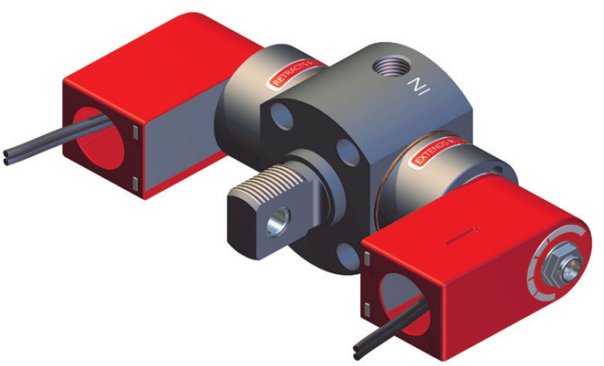
SHOWN WITH EXPLOSION-PROOF HOUSING
ORDERING CODE (AAX)



DOUBLE SOLENOID
MODEL SDS / VDST

This model incorporates a 4-way Double Solenoid Pressure Pilot Valve. A momentary or maintained electrical contact applied to one solenoid will move the piston its full stroke. The piston will remain there under pressure until the other solenoid is energized, which will cause the piston to return to its original position. If a maintained contact is employed, the first solenoid must be de-energized before the other is energized. The standard solenoid operator, as shown is the AAS splice box housing.
Voltages: 12, 24,120 & 240/60 AC and 6, 12 & 24VDC are standard.

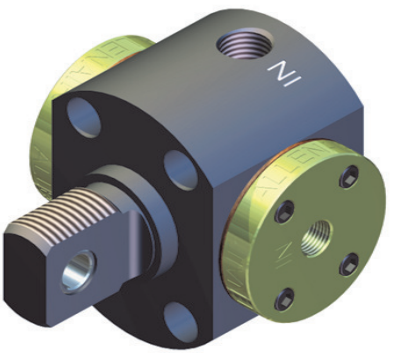
SHOWN WITH SPLICE BOX HOUSING
ORDERING CODE (AAS)



DRIVE CYLINDER VALVES
CONTINUED

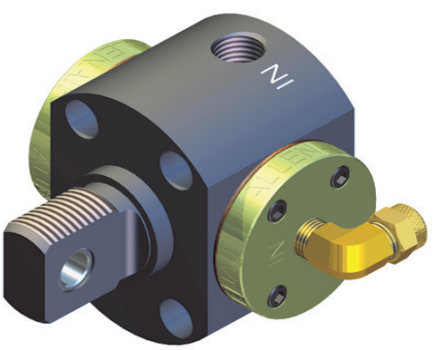
SINGLE PILOT
MODEL APSRR / VAPSRT

This model incorporates a 4-way Single Pressure Pilot Valve. A continuous pilot pressure applied to “IN” side of valve will move the piston its full stroke. When the pilot pressure is released, the piston will return to its original position. Pilot pressure is normally supplied through a 3-way N.C. Valve.
Model is supplied with the rod normally retracted (pilot pressure to extend rod) pilot pressure must be at least 75% of the operating pressure.



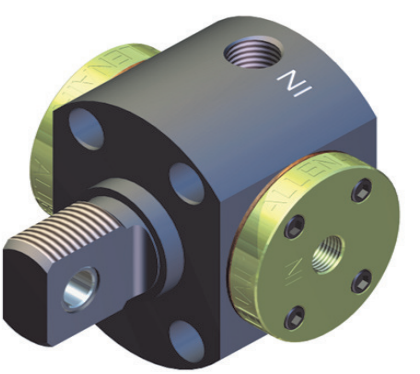
SINGLE PILOT
MODEL VARR / VSAT (AUTOMATIC RETURN)

This model incorporates a 4-way Double Bleed Pilot Valve. A momentary (NOT continuous) actuation of a Bleeder Valve is required to move the piston Its full stroke. Upon reaching its FULL stroke, the piston will automatically return to its original position.
This model is supplied with the rod normally retracted (manual bleed to extend rod)
Due to internal construction and application requirements, there can be a loss of approximately 1/8” to 1/4” of stroke. Bleeder Valve Model BV100 is supplied on these models



DOUBLE PILOT
MODEL AP / VAPT

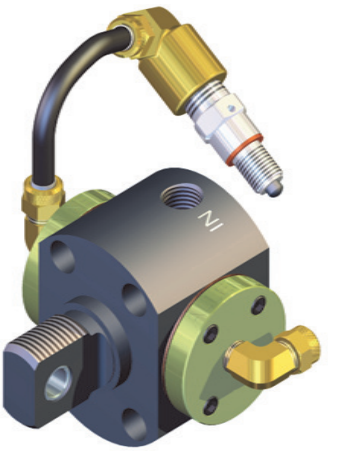
This model incorporates a 4-way Double Pressure Pilot Valve. A momentary or maintained pilot pressure applied to one side of the valve will move the rod its full stroke. The piston will remain in that position under pressure until a pilot pressure is released and applied to the other side, which will cause the piston to return to its original position.
If a maintained pilot pressure is applied, it must be released before the other pilot pressure is applied. Pilot pressure must be at least 25% of the operating pressure.



DRIVE CYLINDER VALVES
CONTINUED

AUTOMATIC RECIPROCATING

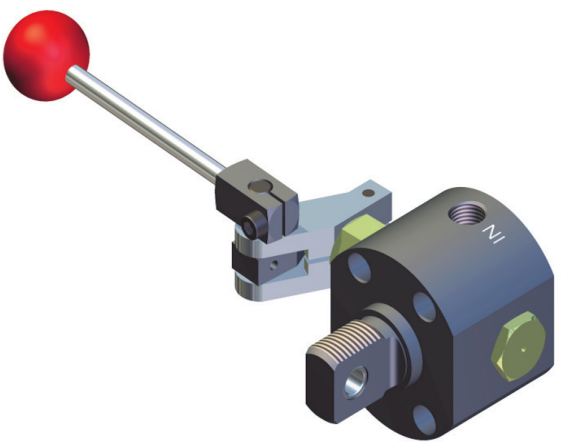
MODEL VCR (NOT AVAILABLE WITH “SA” OPTION**)**
This model incorporates a 4-way Double Bleed Pilot Valve. By means of Built-in Bleeder Valves and internal Cam Bosses.
This unit will automatically reciprocate as soon as air pressure is applied. It is recommended that a shut-off valve be mounted in the inlet line. Due to internal construction and application requirements, there can be a loss of approximately 1/4” to 1/2” of stroke. Minimum stroke available is 1”



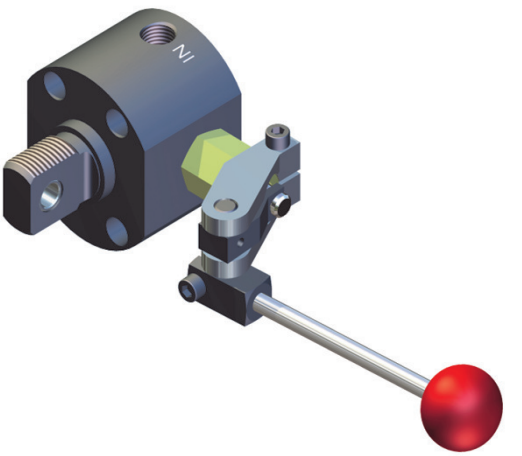
MANUALLY OPERATED

The following 2 models incorporate a 4-way Manual Valve.

MODEL VH / VHT
This model requires manual operation of the lever to both extend and retract the piston.



MODEL VHSRR / VHSRT:
This model is lever operated to extend the normally retracted piston. The valve is equipped with a built-in spring return which automatically returns the rod when lever is released ,



PUMP ACCESSORIES

HALL EFFECT SWITCHES (CSA "NRTL/C" Listed): ALLENAIR Hall Effect switches are designed to be used with our 1-1/2" thru 4" bore Pumps. The Pumps must be ordered with the "RM" option. All switches have an LED indicator light, nine (9) foot leads, a mounting bracket P/N RMB2 and an operating temperature range of - 22°F to +176°F.

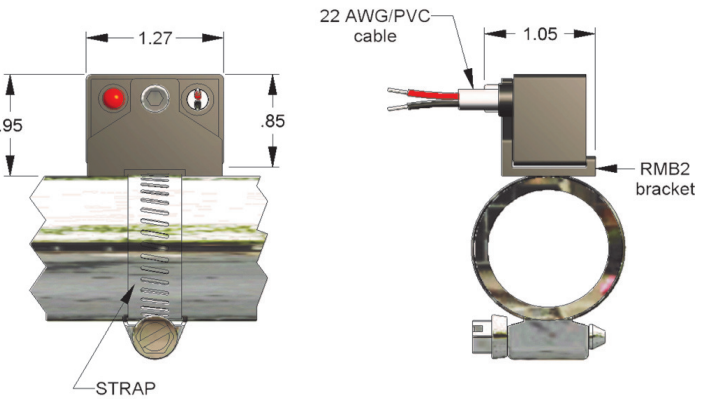
TECHNICAL DATA						
MODEL	**FUNCTION**	**SWITCHING VOLTAGE**	**SWITCHING CURRENT**	**SWITCHING POWER**	**SWITCHING SPEED**	**VOLTAGE DROP**
HO1	NORMALLY OPEN PNP Output	6-24/DC	1 Amp max.	24 watts max.	1.5 µs operate 0.5 µs release	0.5 Volts
HO2	NORMALLY OPEN NPN Output	6-24/DC	1 Amp max.	24 watts max.	1.5 µs operate 0.5 µs release	0.5 Volts
HO3	NORMALLY OPEN TRIAC output	12-24-50/60	0.6 Amp max. 5 Amp inrush	15 watts max.	1.5 µs operate 0.5 µs release	1 Volt
HO4	NORMALLY OPEN TRIAC output	120-50/60	0.6 Amp max. 5 Amp inrush	72 watts max.	1.5 µs operate 0.5 µs release	1 Volt

MODELS H01-H04

NOTES:

1) PNP output is Sourcing

2) NPN output is Sinking
   All models require a mounting strap purchased as a separate item based on the pump bore size.



REED SWITCHES (CSA "NRTL/C" Listed)
ALLENAIR Reed switches are designed to be used with our 1-1/2" thru 4" bore Pumps. The Pumps must be ordered with the "RM" option. All switches have nine (9) foot hook up cable. Operating temperature range is - 22°F to +176°F. Models R02, R04 and R05 have an LED indicator light. Models R02, R03, R04 and R05 have MOV surge suppression.

TECHNICAL DATA						
MODEL	**FUNCTION**	**SWITCHING VOLTAGE**	**SWITCHING CURRENT**	**SWITCHING POWER**	**SWITCHING SPEED**	**VOLTAGE DROP**
RO1	NORMALLY OPEN SPST	0-240/DC 0-240-50/60	1 Amp max.	30 watts max.	0.6 ms operate 0.05 ms release	0 Volts
RO2	NORMALLY OPEN SPST	5-240/DC 5-240-50/60	1 Amp max. .005 Amp min.	30 watts max.	0.6 ms operate 0.05 ms release	3 Volts
RO3	NORMALLY OPEN TRIAC output	10-240-50/60	4 Amp max. 50 Amp Inrush	100 watts max.	0.6 ms operate 0.05 ms release	1 Volt
RO4	NORMALLY OPEN TRIAC output	24-240-50/60	4 Amp max. 50 Amp Inrush 0.005 Amp min.	100 watts max.	0.6 ms operate 0.05 ms release	1 Volt
RO5	NORMALLY OPEN SPST	5-120/DC 5-120-50/60	0.5 Amp max. 0.005 Amp min.	10 watts max.	0.5 ms operate 0.1 ms release	3.5 Volts

Models R01 - R04 include mounting bracket P/N RMB2.
Order mounting strap based on cylinder bore size as shown below.
Model R05 supplied with a universal mounting bracket and strap covering all bore sizes (1-1/2 thru 4") P/N RMB1

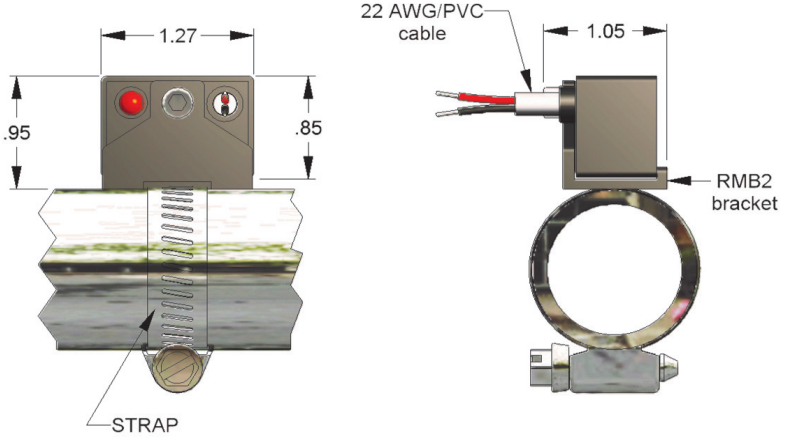
PUMP BORE SIZE	1-1/2"	2" & 2-1/2"	3"	4"
STRAP PART NO.	RMS1	RMS2	RMS3	RMS4

PUMP ACCESSORIES

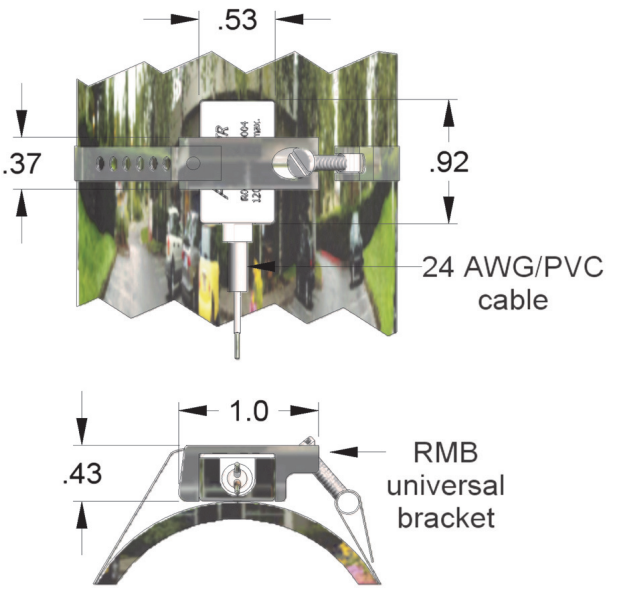
REED SWITCHES (Models R01 Thru R04)

Model R05 supplied with a universal mounting bracket and strap covering all bore sizes (1-1/2 thru 4") P/N RMB1

MODELS R01- R04

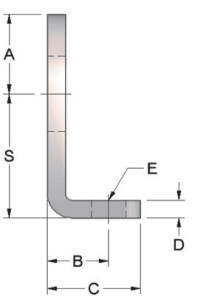


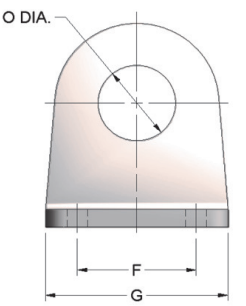
MODEL R05



MOUNTING BRACKET DIMENSIONS

CYL. BORE SIZES	PART NUMBERS	A	B	C	D	E	F	G	O	S
1 -1 / 2"	*A -232	1 -1 / 8	7 / 8	1 -9 / 32	1 / 4	9 / 32	1 -5 / 8	2 -1 / 2	1 -1 / 16	1 -3 / 4
2"	*A -232	1 -1 / 8	7 / 8	1 -9 / 32	1 / 4	9 / 32	1 -5 / 8	2 -1 / 2	1 -1 / 16	1 -3 / 4
2 -1 / 2"	*A -332	1 -3 / 8	1 -1 / 4	1 -29 / 32	5 / 16	13 / 32	2 -1 / 4	3 -1 / 2	1 -3 / 8	2 -3 / 8
3"	*A -332	1 -3 / 8	1 -1 / 4	1 -29 / 32	5 / 16	13 / 32	2 -1 / 4	3 -1 / 2	1 -3 / 8	2 -3 / 8
4"	*A -432	1 -7 / 8	1 -3 / 4	2 -17 / 32	1 / 2	15 / 32	3 -1 / 4	5"	1 -3 / 4	3 -3 / 16

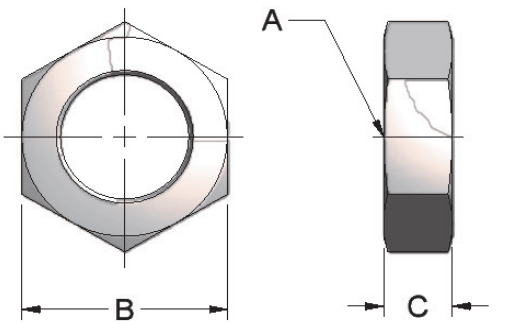




*ADD SS TO THE PART No. FOR STAINLESS STEEL
EXAMPLE: SSA-232

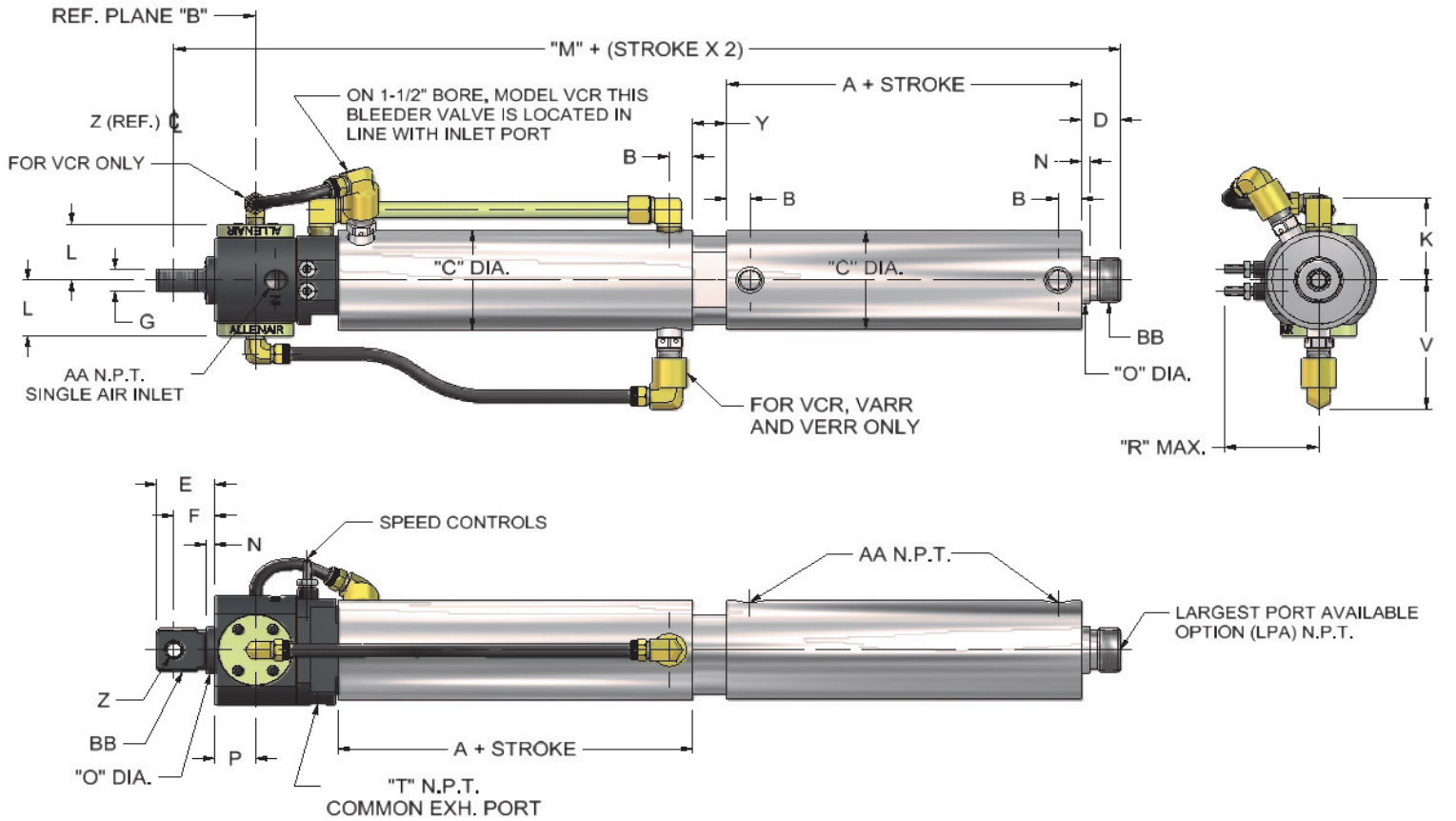
MOUNTING NUTS Mounting Nuts are supplied with the Foot Mounts and are included in the price of the Mounts. However, they may be purchased as a separate item.

CYL. BORE SIZES	PART NUMBERS	A	B	C
1 -1 / 2"	*A -214	1" -14	1 -1 / 2	1 / 2
2"	*A -214	1" -14	1 -1 / 2	1 / 2
2 -1 / 2"	*A -314	1 -3 / 8 -12	1 -3 / 4	5 / 8
3"	*A -314	1 -3 / 8 -12	1 -3 / 4	5 / 8
4"	*A -414	1 -3 / 4 -12	2 -1 / 4	3 / 4



*ADD SS TO THE PART No. FOR STAINLESS STEEL
EXAMPLE: SSA-214

DIMENSIONS
EVTP



CYL. BORE SIZES	A	B	C	D	E	F	G	K	L	M	N	O	P	R	T	V
1 -1 / 2"	3 -5 / 8	1 / 2	1 -11 / 16	7 / 8	1 -1 / 4	7 / 8	1 / 2	1 -15 / 16	1 -1 / 4	12 -3 / 8	3 / 16	1 -1 / 16	7 / 8	2 -1 / 32	1 / 4	2 -5 / 8
2"	3 -5 / 8	1 / 2	2 -3 / 16	7 / 8	1 -1 / 4	7 / 8	1 / 2	2"	1 -1 / 4	12 -3 / 8	3 / 16	1 -1 / 16	7 / 8	2 -1 / 32	1 / 4	2 -7 / 8
2 -1 / 2"	3 -7 / 8	9 / 16	2 -11 / 16	1"	2"	1 -3 / 8	5 / 8	2 -1 / 4	1 -1 / 4	14"	1 / 4	1 -3 / 8	7 / 8	2 -1 / 32	1 / 4	3 -1 / 8
3"	3 -7 / 8	9 / 16	3 -3 / 16	1"	2"	1 -3 / 8	5 / 8	2 -5 / 8	1 -1 / 4	14"	1 / 4	1 -3 / 8	7 / 8	2 -1 / 32	1 / 4	3 -3 / 8
4"	5 -1 / 8	13 / 16	4 -3 / 8	1 -1 / 8	2 -3 / 16	1 -7 / 16	3 / 4	3 -7 / 16	1 -19 / 32	17 -5 / 16	3 / 16	1 -3 / 4	13 / 16	2 -7 / 16	1 / 2	3 -15 / 16

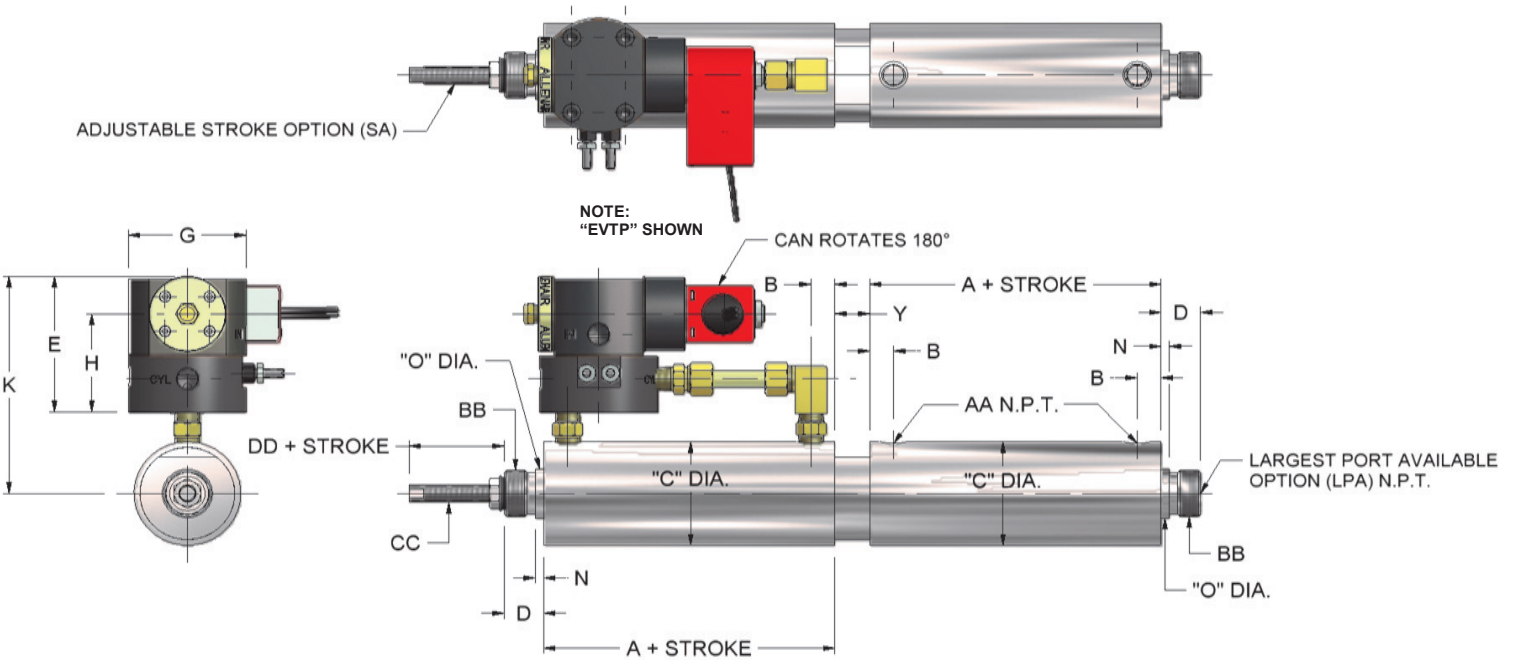
CYL. BORE SIZES	AA	BB	Y	Z	LPA (N.P.T.)
1 -1 / 2"	1 / 4	1" -14	3 / 4	5 / 16	* 3 / 8
2"	1 / 4	1" -14	3 / 4	5 / 16	* 3 / 8
2 -1 / 2"	3 / 8	1 -3 / 8 -12	1 -1 / 8	7 / 16	3 / 4
3"	3 / 8	1 -3 / 8 -12	1 -1 / 8	7 / 16	3 / 4
4"	1 / 2	1 -3 / 4 -12	1 -1 / 8	1 / 2	1"

* LARGEST PORT AVAILABLE (LPA)
1/2 N.P.T. WITH STAINLESS STEEL HEADS
** BRASS "BU" TUBING INCREASE "C" DIM BY 1/16"

DIMENSIONS

ETP & EVTP PUMPS

“SA” ADJUSTABLE STROKE



CYL. BORE SIZES	A	B	C	D	E	G	H	K	N
1 -1 / 2"	3 -5 / 8	1 / 2	1 -11 / 16	7 / 8	3 -1 / 8	2 -1 / 2	2 -3 / 8	4 -1 / 2	3 / 16
2"	3 -5 / 8	1 / 2	2 -3 / 16	7 / 8	3 -1 / 8	2 -1 / 2	2 -3 / 8	4 -3 / 4	3 / 16
2 -1 / 2"	3 -7 / 8	9 / 16	2 -11 / 16	1"	3 -1 / 8	2 -1 / 2	2 -3 / 8	5"	1 / 4
3"	3 -7 / 8	9 / 16	3 -3 / 16	1"	3 -1 / 8	2 -1 / 2	2 -3 / 8	5 -1 / 4	1 / 4
4"	5 -1 / 8	13 / 16	4 -3 / 8	1 -1 / 8	3 -1 / 2	3"	2 -11 / 16	6 -1 / 8	3 / 16

CYL. BORE SIZES	O	Y	AA	BB	CC	DD	LPA (N.P.T.)
1 -1 / 2"	1 -1 / 16	3 / 4	1 / 4	1" -14	3/8-16	1-1/4	* 3 / 8
2"	1 -1 / 16	3 / 4	1 / 4	1" -14	3/8-16	1-1/4	* 3 / 8
2 -1 / 2"	1 -3 / 8	1 -1 / 8	3 / 8	1 -3 / 8 -12	1/2-13	1-1/8	3 / 4
3"	1 -3 / 8	1 -1 / 8	3 / 8	1 -3 / 8 -12	1/2-13	1-1/8	3 / 4
4"	1 -3 / 4	1 -1 / 8	1 / 2	1 -3 / 4 -12	1/2-13	1-5/8	1"

* LARGEST PORT AVAILABLE (LPA)
1/2 N.P.T. WITH STAINLESS STEEL HEADS
** BRASS “BU” TUBING INCREASE “C” DIM BY 1/16”

ORDERING PROCEDURE

FEATURE	DESCRIPTION		CODE
STYLE	STANDARD PUMP		ETP
	VALVE-IN HEAD PUMP		EVTP
BORE	1-1/2"		1-1/2
	2"		2
	2-1/2"		2-1/2
	3"		3
	4"		4
* STROKE	* SPECIFY IN INCHES (1/8" TO 50")		-
DRIVE OPTIONS	STROKE ADJUSTMENT		SA
	MAGNET (ONLY ON DRIVE CYLINDER)		RM
	STAINLESS STEEL MATERIAL FOR PARTS ON DRIVE CYLINDER		SSMD
	STANDARD MATERIAL FOR PARTS ON DRIVE CYLINDER		-
DRIVE SEAL OPTIONS	VITON SEALS		HTPD
	NITRILE SEALS (STD.)		-
	TEFLON SEALS		PTFED
	ETHYLENE PROPYLENE SEALS		EPSD
PUMP SEAL OPTIONS	VITON SEALS		HTPP
	NITRILE SEALS (STD.)		-
	TEFLON SELAS		PTFEP
	ETHYLENE PROPYLENE SEALS		EPSP
PUMP CYLINDER OPTIONS	STAINLESS STEEL MATERIAL FOR PARTS ON PUMP CYLINDER		SSMP
	STANDARD MATERIAL FOR PARTS ON PUMP CYLINDER		-
	LARGEST PORT AVAILABLE (IN FRONT PUMP HEAD)		LPA
MOUNTING	FOOT MOUNT BRACKETS (INSTALLED WITH UNIT)		FMB
DRIVE MODELS VALVE IN HEAD	ENERGIZE SOLENOID TO EXTEND PISTON, DE-ENERGIZE SOLENOID TO RETRACT PISTON		SVSR
	ENERGIZE SOLENOID TO EXTEND PISTON AND RETRACT AUTOMATICALLY		VERR
	ENERGIZE ONE SOLENOID TO EXTEND PISTON, OTHER SOLENOID TO RETRACT PISTON		SDS
	SINGLE PILOT (PISTON NORMALLY RETRACTED)		APSRR
	SINGLE PILOT AUTOMATIC RETURN (PISTON NORMALLY RETRACTED)		VARR
	DOUBLE PRESSURE PILOT VALVE		AP
	MANUALLY OPERATED (FOR BOTH EXTEND AND RETRACT THE PISTON)		VH
	MANUALLY OPERATED (FOR EXTEND THE PISTON) PISTON NORMALLY RETRACTED		VHSRR
	AUTOMATIC RECIPROCATING		VCR
DRIVE MODELS VALVE IN HEAD (WITH "SA" OPTION)	ENERGIZE SOLENOID TO EXTEND PISTON, DE-ENERGIZE SOLENOID TO RETRACT PISTON		VSST
	ENERGIZE SOLENOID TO EXTEND PISTON AND RETRACT AUTOMATICALLY		VSESAT
	ENERGIZE ONE SOLENOID TO EXTEND PISTON, OTHER SOLENOID TO RETRACT PISTON		VDST
	SINGLE PILOT (PISTON NORMALLY RETRACTED)		VAPSRT
	SINGLE PILOT AUTOMATIC RETURN (PISTON NORMALLY RETRACTED)		VSAT
	DOUBLE PRESSURE PILOT VALVE		VAPT
	MANUALLY OPERATED (FOR BOTH EXTEND AND RETRACT THE PISTON)		VHT
	MANUALLY OPERATED (FOR EXTEND THE PISTON) PISTON NORMALLY RETRACTED		VHSRT
DRIVE VALVE OPTIONS (VALVE IN HEAD)	MANUAL OVER-RIDE LEVER		OR
	SOLENOID OPERATORS	CONDUIT HOUSING	AAC
		DIN-type HOUSING	AAD
		GROMMET HOUSING	AAG
		SPLICE BOX HOUSING	AAS
		EXPLOSION PROOF	AAX
		SPADE TERMINALS	AAY
		NEMA 4	JIC
SOLENOID OPERATORS VOLTAGE	SPECIFY VOLTAGE (A wide range of non-standard voltages are available)		12/60 24/60 120/60 240/60 6VDC 12VDC 24VDC

EXAMPLE

EVTP | 2 | X | 10 | OPTIONS | VALVE MODELS | VALVE OPTIONS | VOLTAGE | CS

CUSTOMER SPECIAL

ONLY WITH "EVTP" STYLE PUMPS

ONLY WITH "EVTP" STYLE PUMPS

ONLY WITH "EVTP" STYLE PUMPS

* WHEN ORDERING A VALVE-IN HEAD PUMP WITH STROKE ADJUSTMENT, STROKE MUST BE WITH A MINIMUM OF 2-1/2 STROKE & FOR 4" BORE MINIMUM OF 2" STROKE

MISCELLANEOUS INFORMATION

ALLENAIR PUMP DISPLACEMENT VOLUMES

BORE SIZE		cu in. per inch of stroke	gal. per inch of stroke	cc's. per inch of stroke	liters per 10mm of stroke
INCHES	MM				
1-1/2	(38)	1.77	0.008	28.949	(.011)
2"	(50)	3.14	0.014	51.465	(.020)
2-1/2	(63)	4.91	0.021	80.413	(.032)
3"	(76)	7.07	0.031	115.795	(.046)
4"	(101)	12.56	0.054	205.858	(.081)

Drive Cylinder Air Consumption

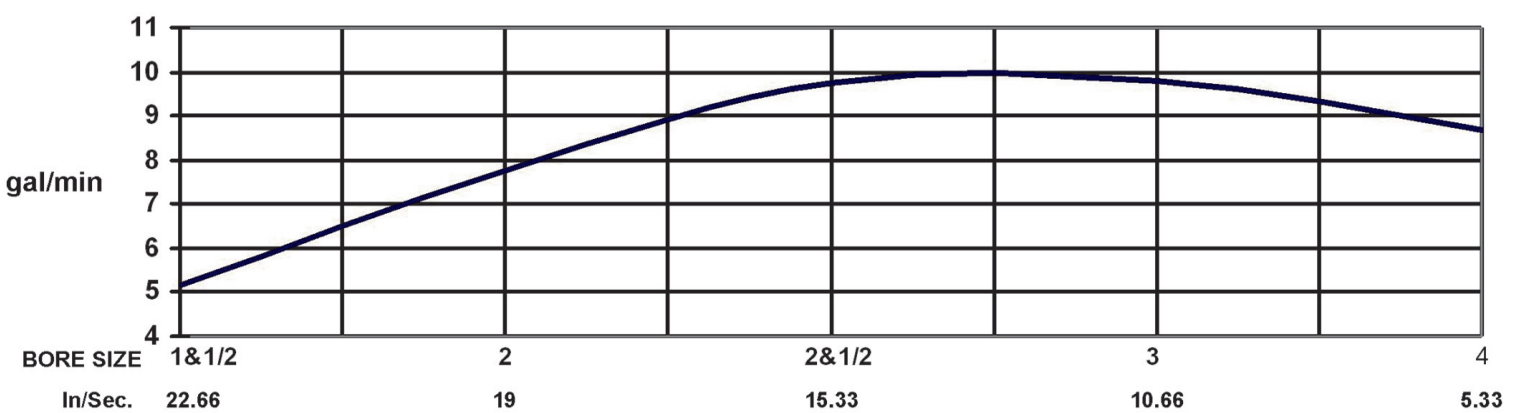
This chart is used for calculating the air consumption of the pump drive cylinder to determine the total volume of air required to meet a given cycle rate. The values shown are for 100 P.S.I.

CYLINDER	AREA OF CYLINDER		SCFM
SIZE (I.D.)	(sq. in)	(sq. cm)	(per 1" stroke at 100 psi)
1 1/2	1.77	20.27	0.008
2	3.14	31.67	0.0142
2 1/2	4.91	45.61	0.0222
3	7.07	81.08	0.0319
4	12.56	182.43	0.0567

Example:

Total air consumption of a 2" bore drive cylinder with a 6" stroke operating at 10 cycles per minute (20 strokes per minute):
6" Stroke x 0. 0142 (SCFM Inch Stroke) = 0.0852 SUM
0.0852 SCFM Stroke x 20 Strokes Per Min. = 1.704 SCFM

PUMP CURVE AT MAXIMUM PISTON VELOCITY



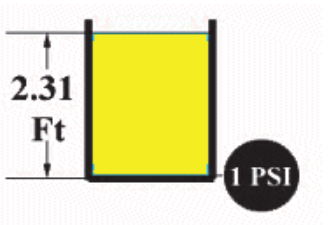
These figures are based on the maximum piston velocity the drive cylinder may achieve pumping on one side only with a no load condition operating at 100 P.S.I for one minute at the Maximum cycle rate for the VCR cylinder model.

General Properties of Allenair's Seal Materials

Temperature ratings and chemical compatibilities shown below are for general comparisons. See specific O-ring presentations for exact specifications. NR=Not recommended.

	Buna-N	Viton	Silicone	EPS	Neoprene	Poly-urethane	PTFE	Kalrez	FEP	Aflas	Fluoro-silicone
Approx. Low Temp.	-20° F	0° F	-60° F	-40° F	-40° F	-20° F	-80° F	+32° F	-15° F	+25° F	-75° F
Approx. High Temp.	+212° F	+392° F	+400° F	+212° F	+212° F	+180° F	+500° F	+600° F	+400° F	+400° F	+400° F
Compression Set*	Good	Good	Good	Good	Good	Poor	Fair	Good	Good	Good	Good
Resistance to:	Buna-N	Viton	Silicone	EPDM	Neoprene	Poly-urethane	PTFE	Kalrez	FEP	Aflas	Fluoro-silicone
Abrasion	Good	Fair	Poor	Good	Good	Excel.	Excel.	Good	Fair	Good	Poor
Acids	Fair	Good	Fair	Poor	Fair	Poor	Excel.	Excel.	Excel.	Excel.	Excel.
Alcohol	NR	Poor	Fair	Fair	Good	Good	Excel.	Excel.	Excel.	Excel.	Excel.
Alkalies	Poor	Fair	Fair	Poor	Good	Poor	Excel.	Excel.	Excel.	Excel.	Excel.
Anilines	Good	Good	Poor	NR	Fair	Poor	Excel.	Excel.	Excel.	Good	Poor
Animal/ Vegeta-ble Oils	Good	Excel.	Fair	Fair	Good	Good	Excel.	Excel.	Excel.	NR	Excel.
Detergents	Good	NR	Excel.	Excel.	Poor	Poor	Excel.	Excel.	Excel.	Good	NR
Gasoline	Good	Excel.	Poor	Poor	Fair	Good	Excel.	Excel.	Excel.	Poor	Excel.
Hydraulic Fluid	Good	Good	Poor	NR	Fair	Poor	Excel.	Excel.	Excel.	Excel.	Poor
Hydrocarbons	Fair	Good	NR	NR	Poor	Fair	Excel.	Excel.	Excel.	Excel.	Excel.
Ketones	NR	Poor	NR	Fair	Poor	Poor	Excel.	Excel.	Excel.	Fair	Excel.
Ozone	NR	Excel.	Excel.	Excel.	Fair	Excel.	Excel.	Excel.	Excel.	Excel.	Excel.
Refrigerants	NR	Poor	NR	NR	Good	Fair	Excel.	NR	Excel.	NR	Poor
Salt Water	Good	Good	Excel.	Excel.	Good	Poor	Excel.	Excel.	Excel.	Good	Good
Steam	Poor	NR	Poor	Good	Fair	Poor	Excel.	Poor	Excel.	Good	Poor
Synthetic Lubri-cants	Good	Excel.	NR	NR	Poor	Poor	Excel.	Excel.	Excel.	Excel.	NR
Tearing	Fair	Fair	Poor	Good	Fair	Excel.	Excel.	Excel.	Good	Excel.	Poor
Water	Good	Fair	Fair	Excel.	Good	Poor	Excel.	Excel.	Excel.	Good	Excel.
Weather	NR	Excel.	Excel.	Excel.	Excel.	Good	Excel.	Excel.	Excel.	Excel.	Excel.

* Refers to a material's ability to return to its original size and shape after it's been compressed.



Pressure to Head Conversion formula

Liquids have specific gravities typically ranging from 0.5 to 1.8. Water is the benchmark with a specific gravity of 1.0. this benchmark and the resultant calculations are considered to be in "feet absolute." Head (ft) = Pressure (PSI) X 2.31/ Specific Gravity (sg) .This formula is based on the fact that one foot of water exerts .4333 lbs of pressure at one foot. This converts to one lb. of pressure at 2.31 ft.

VISCOSITY CHART

Approximate Viscosities of of Common Materials(AT 70°F)	
Material	Viscosity in Centipoise
Water	1 cps
Milk	3 cps
SAE 10 Motor Oil	85-140 cps
SAE 20 Motor Oil	140-420 cps
SAE 30 Motor Oil	420-650 cps
SAE 40 Motor Oil	650-900 cps
Castrol Oil	1,000 cps
Karo Syrup	5,000 cps
Honey	10,000 cps
Chocolate	25,000 cps
Ketchup	50,000 cps
Mustard	70,000 cps
Sour Cream	100,000 cps
Peanut Butter	250,000 cps

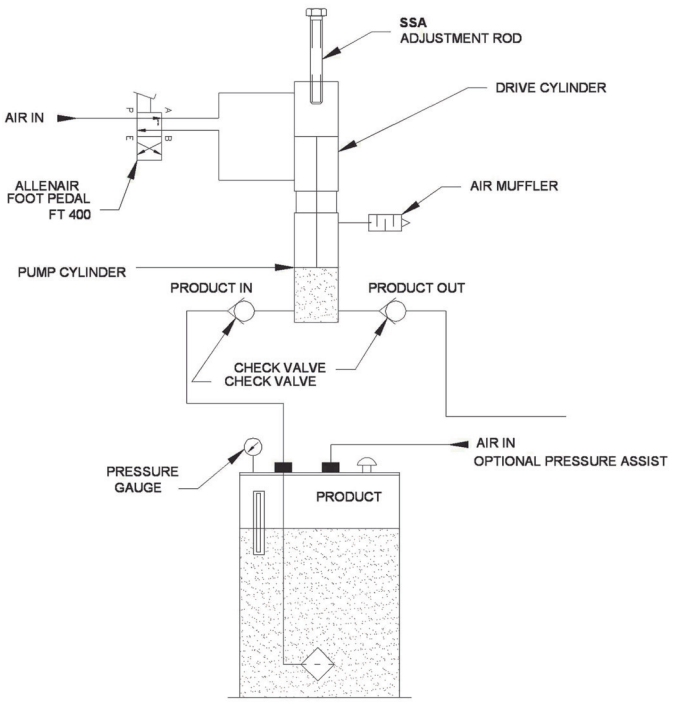
- sg. = specific gravity
- pressure = pounds per square inch
- head = feet

$$\text{Pressure} = \frac{\text{head} \times \text{sg.}}{2.31}$$

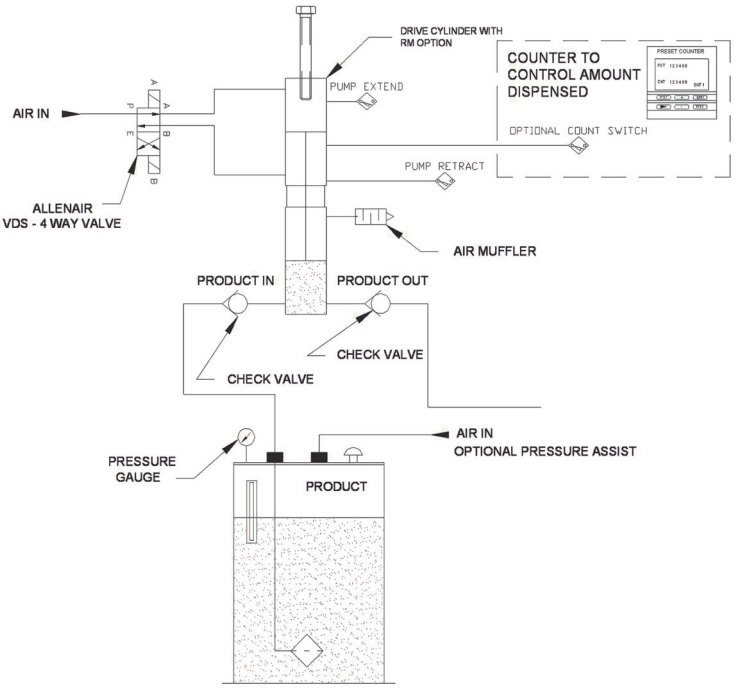
$$\text{Head} = \frac{\text{pressure} \times 2.31}{\text{sg}}$$

TYPICAL PUMP CIRCUITS

MANUAL



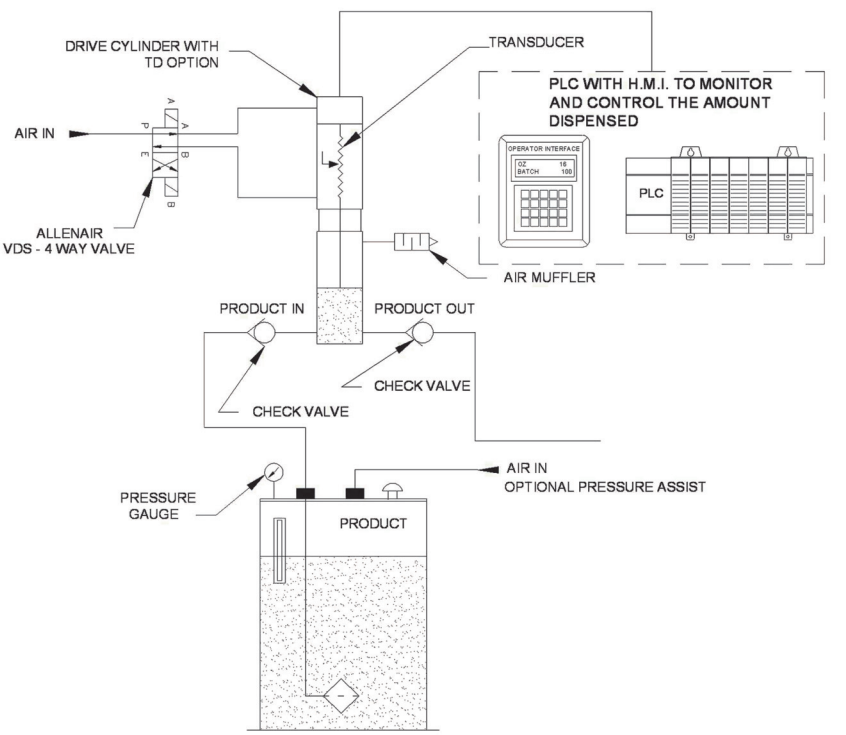
ELECTRICALLY OPERATED



Allenair pumps may be used as an
Alternative For many of these pumps types.

- Air Operated Pumps
- Direct-Acting Pumps
- Dosing Pumps
- Metering Pumps
- Piston Pumps
- Plunger Pumps
- Pneumatic Pumps
- Positive Displacement Pumps
- Reciprocating Pumps
- Simplex Plunger Pumps
- Syringe Pumps
- Viscous Liquid Pumps
- Volume Metric Pumps
- Industrial Dispensing Pumps
- Sanitary Pumps
- Self-Priming Pumps
- Power Pumps
- Precision Dispensing Pumps
- Diaphragm Pumps

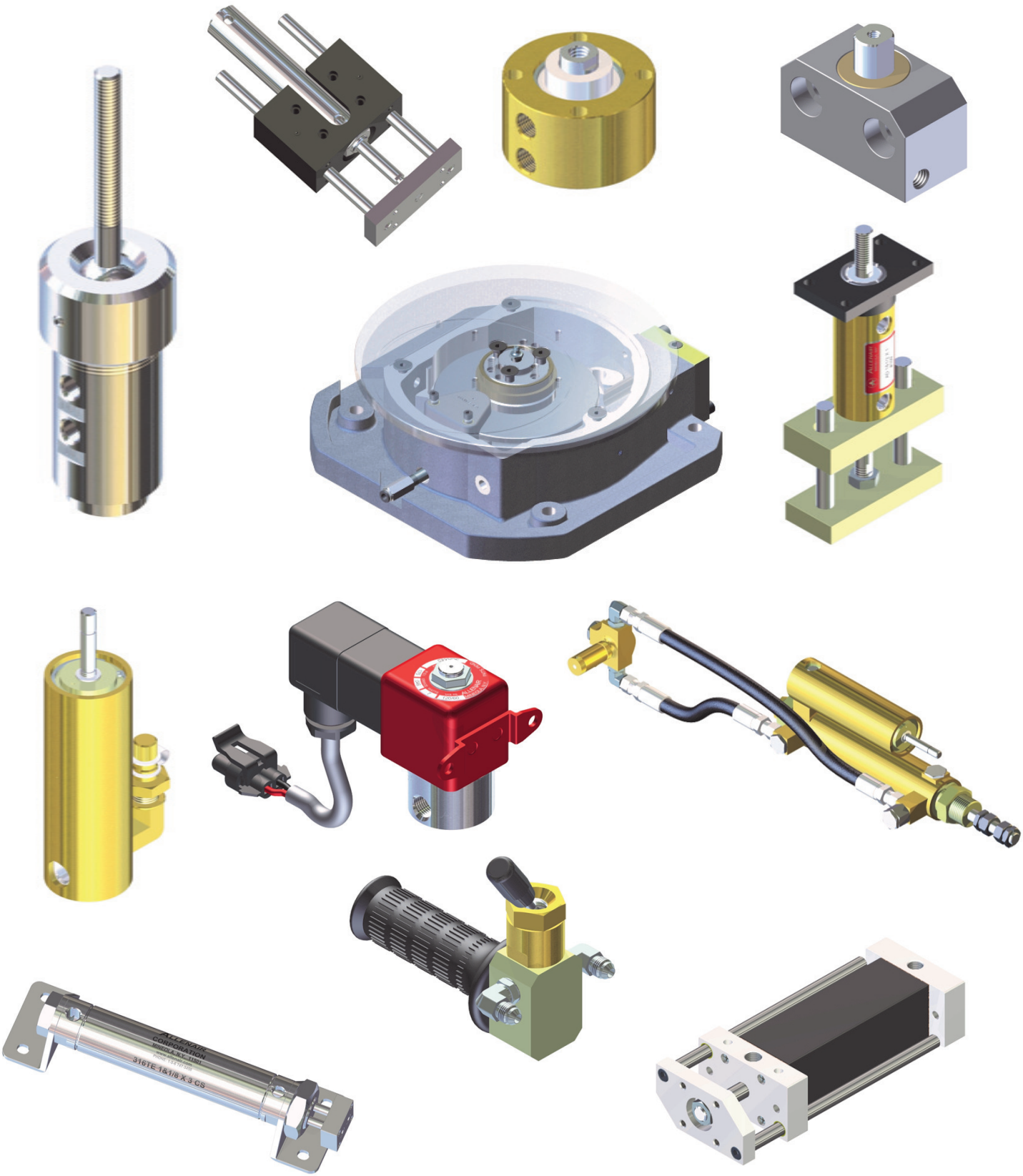
POSITION FEED BACK



CUSTOMER SPECIAL “CS”

Over the years Allenair has been able to help our customer achieve their goals with special designs.

PLEASE CONSULT FACTORY ON SPECIALS DESIGNS.



ALLENAIR'S WARRANTY POLICY

Allenair Corp. warrants it's products to be free of defects in material and workmanship for a period of one year from the date of original shipment. Allenair provides no other warranty or guarantee, expressed or implied.

Allenair Corp. will repair or replace, at it's option, any product determined by our inspection to be defective. The product must be returned to Allenair Corp. prepaid with proof of purchase date, "RGA" number and a completely filled out "Request for warranty repair" form.

Products which have been subject to misuse, negligence, accidents, misapplication or tampering in any way are exempt from this warranty. Allenair Corp. shall in no event be liable for indirect or consequential damages.

Allenair Corp. services all products long after the warranty has expired. All customers are encouraged to contact us for any problems involving performance and or marginal service of any product.

Allenair Corp. monitors, to the best of our ability, repair part usage throughout the product line to determine if any problem areas are developing.

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