

HUMPHREY STAINLESS STEEL CYLINDER

INTRODUCTION

CONSTRUCTION OF THE HUMPHREY STAINLESS STEEL CYLINDER

1. BARREL Stainless steel (Type 304). Drawn and polished inside diameter provides ideal lube-holding, low friction surface. Matte finish on outside diameter barrel attached to heads by the Humphrey roll-forming process.

2. HEADS Aluminum. Internal face grooved for positive air flow to piston seals.

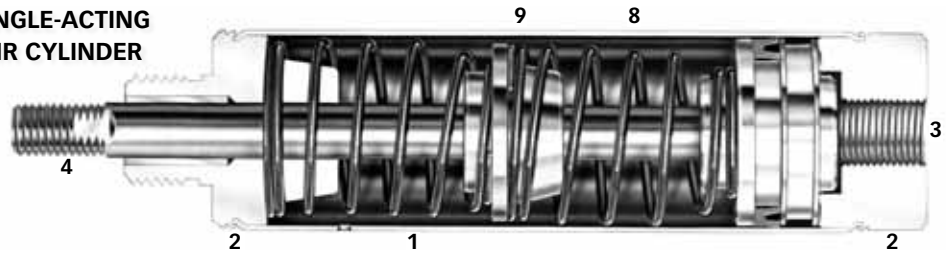
3. PRESSURE PORTS Full, unrestricted porting for maximum air flow; combines with grooved heads to provide fast cylinder response and smooth rod movement.

4. PISTON ROD Accuracy stock, centerless ground and polished Type 303 stainless steel, standard on all models. Wrench flats are standard on most models, chamfered for easy wrench contact without rod damage. Threads are roll formed for strength and durability.

5. PISTON Unique Humphrey piston may be factory assembled in two different ways – same overall dimensions with or without bumpers. Piston threads are roll formed for greater strength and durability.

6. SEALS Buna-N standard on all models. Fluorocarbon (fluoroelastomer Option F) available for high ambient temperatures; for extremely high cycling conditions with limited lubrication; or mild chemical resistance (air supply contaminants and/or lubricants). Seal design ensures constant contact with cylinder barrel, eliminating seal collapse and blow-by.

SINGLE-ACTING AIR CYLINDER



DOUBLE-ACTING AIR CYLINDER



7. ROD BUSHING Oil permeated bronze, ball-sized to close tolerance, provides rod support and smooth, low friction rod movement for longer cylinder life.

8. RETURN SPRINGS High tensile strength music wire, shot peened to relieve stresses for longer life.

9. SPACERS Spacers ensure a uniform spring rate and prohibit collapse of springs, providing maximum life.

ACCESSORIES Steel mounting nuts, mounting brackets, rod clevises, etc., are burnished and are bright zinc-plated (see page 14).

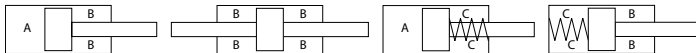
CYLINDER SPECIFICATIONS

- For Compressed Air to 200 PSIG, Hydraulic to 100 PSI (expect rod weep)
- Ambient temperature: -40°F to 160°F as standard
-20°F to 400°F with Viton seals
-10°F to 250°F with ELF seals

Force (F) – Determined by square inches of piston area (A), and pressure (P) in PSIG, $F = A \times P$

Volume (V) in cubic inches – Determined by square inches of piston area (A), and length of stroke (L), $V = A \times L$

Speed – Affected by many variables, including force to move load, cylinder volume, control valve flow capacity, length of supply lines, etc.



Basic Model No.	Bore Size I.D. (inch)	Port Size	Rod Diameter or (Hex)	Piston Area Inch ² and Cylinder Volume (Cubic Inch) per 1" of stroke		Spring Force in Pounds if Cylinder is:	
				A	B - Less Rod	C - Normal	C - Actuated
8	1/2	10-32 UNF	.187 (.187)	.20	.17	1	2
7	3/4	1/8 PIPE	.250 (.250)	.44	.39	1 1/2	5
6	1-1/16		.312 (.375)	.89	.81	4	8
25	1-1/4		.437 (N.A.)	1.23	1.08	7	14
5	1-1/2		.437 (N.A.)	1.77	1.62	6	12
75	1-3/4	1/4 PIPE	.500 (N.A.)	2.41	2.21	12	24
4	2		.625 (N.A.)	3.14	2.84	15	30
3	2-1/2		.625 (N.A.)	4.91	4.60	N.A.	N.A.

* For Volume Chambers, see page 15; For Special Rod Ends, see Deluxe Rod Ends on page 13.

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SECTION AND MODEL INDEX

DOUBLE ACTING		Bore Size – inch	(Push Force @100psi-lb)	Std. Stroke Range (inch)	Max. Poss. Stroke (inch)	Page
		1/2	(20)			
		3/4	(44)			
D	Nose Mount	1-1/16	(89)			6
DP	Nose, Pivot or Double-End Mount	1-1/4	(123)	1/2 – 12	44	6
		1-1/2	(177)			
BFD	Block Front Head Mount *	1-3/4	(241)			11
		2	(314)			
		2-1/2	(491)			
DOUBLE ACTING, DOUBLE-END ROD		Bore Size – inch	(Push Force @100psi-lb)	Std. Stroke Range (inch)	Max. Poss. Stroke (inch)	Page
		1/2	(20)			
		3/4	(44)			
		1-1/16	(89)			
D2EY	Nose or Double-End Mount	1-1/4	(123)	1/2 – 12	44	7
		1-1/2	(177)			
		1-3/4	(241)			
		2	(314)			
		2-1/2	(491)			
SINGLE ACTING – PUSH		Bore Size – inch	(Push Force @100psi-lb)	Std. Stroke Range	Max. Poss. Stroke (inch)	Page
		1/2	(18)			
		3/4	(39)			
S	Nose Mount	1-1/16	(81)			8
SP	Nose, Pivot or Double-End Mount	1-1/4	(109)	1/2 - 6	18	8
		1-1/2	(165)			
BFS	Block Front Head Mount *	1-3/4	(201)			11
		2	(284)			
SINGLE ACTING, NON ROTATING – PUSH		Bore Size – inch	(Push Force @100psi-lb)	Std. Stroke Range (inch)	Max. Poss. Stroke (inch)	Page
		1/2	18			
		3/4	39			
SH	Nose Mount	1-1/16	81	1/2 – 6	18	10
SHP	Nose, Pivot or Double-End Mount	1-1/2	165			10
SINGLE ACTING – PULL		Bore Size – inch	(Push Force @100psi-lb)	Std. Stroke Range (inch)	Max. Poss. Stroke (inch)	Page
		1/2	(13)			
		3/4	(31)			
SR	Nose Mount	1-1/16	(69)			9
SRP	Nose, Pivot or Double-End Mount	1-1/4	(87)	1/2 – 4	18	9
		1-1/2	(144)			
BFSR	Block Front Head Mount *	1-3/4	(185)			11
		2	(242)			
ACCESSORIES		Bore Size – inch	N/A	N/A	N/A	Page
BP – ___	Pivot Bracket	1/2				
		3/4				
CT – ___	Rod Clevis	1-1/16				14
		1-1/4				
F – ___	Foot Mount	1-1/2				
		1-3/4				
JN – ___	Jam Nut	2				
VOLUME CHAMBERS		Bore Size – inch	N/A	Std. Stroke Range (inch)	Max. Poss. Stroke (inch)	Page
		1/2				
		3/4				
C	Standard	1-1/16				
CP	End Mount	1-1/4		1 – 12	44	15
		1-1/2				
CPP	Double-End Mount	1-3/4				
		2				

* Block Front Head Bore Sizes Available: 1/2", 3/4", 1-1/16", 1-1/2"

DOUBLE-ACTING CYLINDERS

MODELS D, DP

Low cost and reliable, Humphrey Stainless Steel Double-Acting Air Cylinders are available in eight bore sizes from 1/2" to 2-1/2". Materials include aluminum heads and stainless steel barrel and piston rod. Type Block V piston seal ensures no air blow-by. Rod bearing is oil-permeated bronze, and precision ball sized. Cataloged rod threads are roll formed for strength and durability. Rod-end customization is available with the "Deluxe Rod End" program (see page 13). Sensor switch option also available for stroke position signaling to PLCs.

BORE SIZES (inch):

- 1/2, 3/4, 1-1/16, 1-1/4, 1-1/2, 1-3/4, 2, 2-1/2

TYPES:

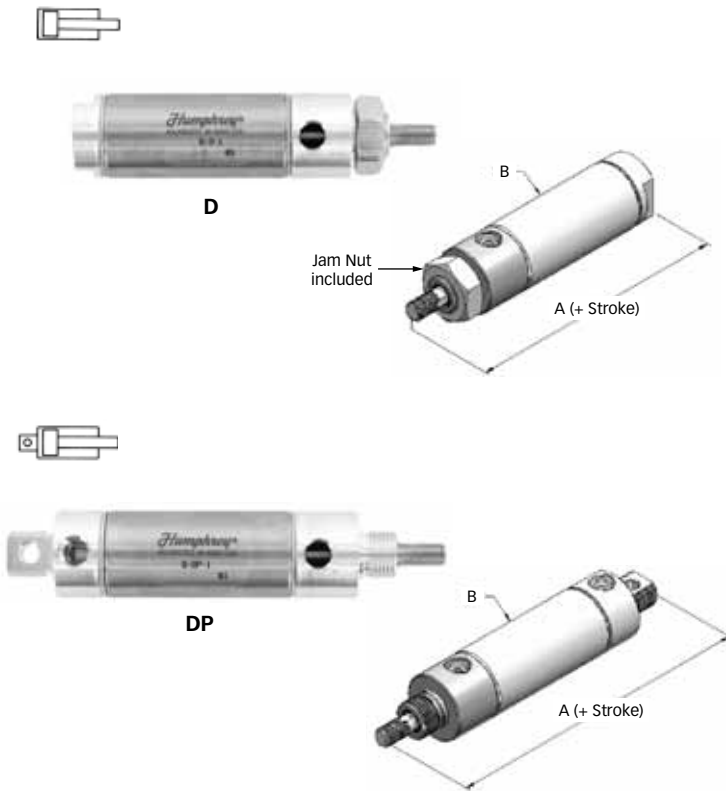
- Nose Mount (model "D")
- Nose, Pivot or Double-End Mount (model "DP")
- Block Front Head Mount (model "BFD", see page 11)

STANDARD STROKES (inch):

- Standard: 1/2 - 12
- Minimum Increment: 1/8
- Maximum Buildable: 44

OPTIONS AND ACCESSORIES (see pages 12-14): Includes rod-end customization, noise reduction and port locations. Provisions offered for alternate media, environment, temperature, or lateral load resistances. Foot or Pivot mounting. For sensor switches, see page 52.

HUMPHREY STAINLESS STEEL CYLINDER



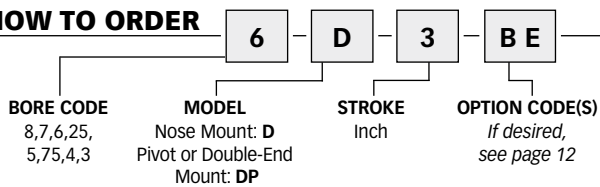
Model	Bore Size – Effective Force		Overall Dimensions		
	Bore Diameter (inch)	Piston Area inch ²	Length A + Stroke (inch)	Diameter – B (inch)	Port Thread
8-D-*	1/2	0.20	2.62	0.62	10-32 UNF
7-D-*	3/4	0.44	3.47	0.88	1/8 PIPE
6-D-*	1-1/16	0.89	3.75	1.12	
25-D-*	1-1/4	1.23	4.75	1.31	
5-D-*	1-1/2	1.77	4.44	1.55	
75-D-*	1-3/4	2.41	5.57	1.81	1/4 PIPE
4-D-*	2	3.14	5.56	2.07	
3-D-*	2-1/2	4.91	5.56	2.62	

* Enter stroke length (inches)

Model	Bore Size – Effective Force		Overall Dimensions		
	Bore Diameter (inch)	Piston Area inch ²	Length A + Stroke (inch)	Diameter – B (inch)	Port Thread
8-DP-*	1/2	0.20	3.31	0.62	10-32 UNF
7-DP-*	3/4	0.44	4.54	0.88	1/8 PIPE
6-DP-*	1-1/16	0.89	4.62	1.12	
25-DP-*	1-1/4	1.23	5.83	1.31	
5-DP-*	1-1/2	1.77	5.50	1.55	
75-DP-*	1-3/4	2.41	7.13	1.81	1/4 PIPE
4-DP-*	2	3.14	6.93	2.07	
3-DP-*	2-1/2	4.91	6.93	2.62	

* Enter stroke length (inches)

HOW TO ORDER



SPECIFICATIONS

Media:	Air
Pressure Range:	0-200 PSIG
Temperature Range:	-40°F to 160°F

HOW TO OBTAIN SPECIFICATIONS FOR CYLINDERS

- Go to www.humphrey-products.com
- Select "Online Product Guide." Follow the steps to get the cylinder you need.
- Once the specifications have been entered, select "Download Spec Sheet" to create a personalized PDF of the cylinder, which you may save to your computer and print at your convenience. These spec sheets are helpful when placing your order(s).

HOW TO ORDER HUMPHREY CYLINDERS AND ACCESSORIES

- Go to www.humphrey-products.com
- Select "Find A Distributor" and input your information to locate a distributor nearest you.
- Or, call Customer Service at 1-800-477-8707 for the name and phone number of your local distributor.

HUMPHREY PRODUCTS ARE SOLD WORLD-WIDE THROUGH AUTHORIZED DISTRIBUTORS

Low cost and reliable, Humphrey Stainless Steel Double-Acting, Double-End Rod Air Cylinders are available in eight bore sizes from 1/2" to 2-1/2". Materials include aluminum heads and stainless steel barrel and piston rod. Rod threads are roll formed for strength and durability. Type Block V piston seal ensures no air blow-by. Rod bearing is oil-permeated bronze, and precision ball-sized.

BORE SIZES (inch):

- 1/2, 3/4, 1-1/16, 1-1/4, 1-1/2, 1-3/4, 2, 2-1/2

TYPE:

- Nose or Double-End Mount (model "D2EY")

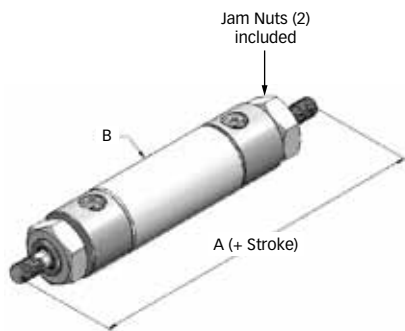
STANDARD STROKES (inch):

- Standard: 1/2 - 12
- Minimum Increment: 1/8
- Maximum Buildable: 44

OPTIONS AND ACCESSORIES (see pages 12-14): Includes port location options. Provisions offered for alternate media, and environment, temperature, or lateral load resistances. Foot or Pivot mounting.



D2EY



Model	Bore Size – Effective Force		Overall Dimensions		
	Bore Diameter (inch)	Piston Area inch ²	Length A + Stroke (inch)	Diameter – B (inch)	Port Thread
8-D2EY-*	1/2	0.20	3.88	0.62	10-32 UNF
7-D2EY-*	3/4	0.44	5.03	0.88	1/8 PIPE
6-D2EY-*	1-1/16	0.89	5.32	1.12	
25-D2EY-*	1-1/4	1.23	6.83	1.31	
5-D2EY-*	1-1/2	1.77	6.63	1.55	
75-D2EY-*	1-3/4	2.41	8.57	1.81	1/4 PIPE
4-D2EY-*	2	3.14	8.31	2.07	
3-D2EY-*	2-1/2	4.91	8.31	2.62	

* Enter stroke length (inches)

HOW TO OBTAIN SPECIFICATIONS FOR CYLINDERS

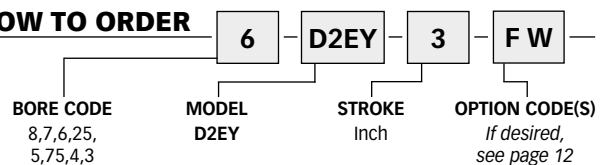
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SPECIFICATIONS

Media:	Air
Pressure Range:	0-200 PSIG
Temperature Range:	-40°F to 160°F

SINGLE-ACTING CYLINDERS – PUSH

MODELS S, SP

Low cost and reliable, Humphrey Stainless Steel, Spring-Return, Single-Acting Air Cylinders are available in seven bore sizes from 1/2" to 2". Materials include aluminum heads and stainless steel barrel and piston rod. Type Block V piston seal ensures no air blow-by. Rod bearing is oil-permeated bronze and precision ball-sized. Cataloged rod threads are roll formed for strength and durability. Rod-end customization is available with the "Deluxe Rod End" program (see page 13).

BORE SIZES (inch):

- 1/2, 3/4, 1-1/16, 1-1/4, 1-1/2, 1-3/4, 2

TYPES:

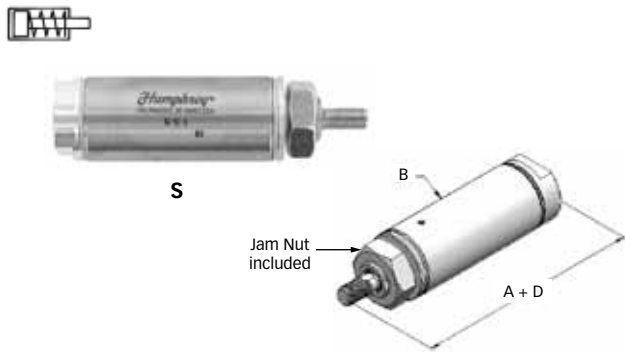
- Nose Mount (model "S")
- Pivot or Double-End Mount (model "SP")
- Block Front Head Mount (model "BFS", see page 11)

STANDARD STROKES (inch):

- Standard: 1/2 – 6
- Minimum Increment: 1/8
- Maximum Buildable: 18

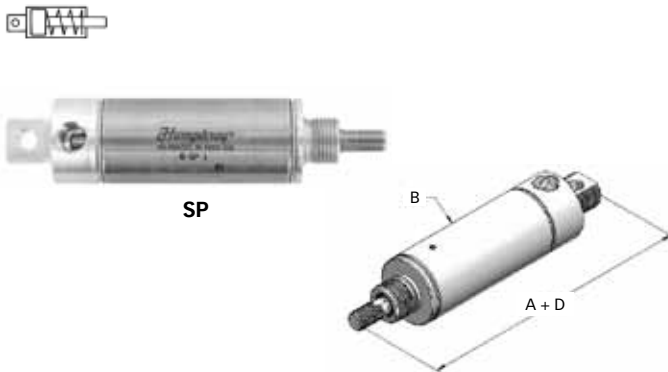
OPTIONS AND ACCESSORIES (see pages 12-14): Includes rod-end customization, noise reduction and port locations. Provisions offered for alternate media, environment, temperature, or lateral load resistances. Foot or pivot mounting.

HUMPHREY STAINLESS STEEL CYLINDER



Model	Bore Size – Effective Force		Overall Dimensions			
	Bore Diameter (inch)	Piston Area inch ²	Length (A + D)		Diameter – B (inch)	Port Thread
			Base - A Length	Add'l Length - D for each 1" stroke increment		
8-S-*	1/2	0.20	1.81	1.88	0.56	1/8 PIPE
7-S-*	3/4	0.44	2.00	1.69	0.81	
6-S-*	1-1/16	0.89	2.56	1.56	1.12	
25-S-*	1-1/4	1.23	3.41	1.81	1.31	
5-S-*	1-1/2	1.77	3.19	1.69	1.55	1/4 PIPE
75-S-*	1-3/4	2.41	3.85	2.00	1.81	
4-S-*	2	3.14	4.17	2.00	2.07	

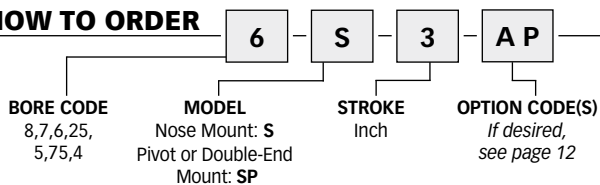
* Enter stroke length (inches)



Model	Bore Size – Effective Force		Overall Dimensions			
	Bore Diameter (inch)	Piston Area inch ²	Length (A + D)		Diameter – B (inch)	Port Thread
			Base - A Length	Add'l Length - D for each 1" stroke increment		
8-SP-*	1/2	0.20	2.50	1.88	0.62	1/8 PIPE
7-SP-*	3/4	0.44	3.06	1.69	0.81	
6-SP-*	1-1/16	0.89	3.44	1.56	1.12	
25-SP-*	1-1/4	1.23	4.50	1.81	1.31	
5-SP-*	1-1/2	1.77	4.25	1.69	1.55	1/4 PIPE
75-SP-*	1-3/4	2.41	5.41	2.00	1.81	
4-SP-*	2	3.14	5.54	2.00	2.07	

* Enter stroke length (inches)

HOW TO ORDER



SPECIFICATIONS

Media:	Air
Pressure Range:	0-200 PSIG
Temperature Range:	-40°F to 160°F

HOW TO OBTAIN SPECIFICATIONS FOR CYLINDERS

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BORE SIZES (inch):

- 1/2, 3/4, 1-1/16, 1-1/4, 1-1/2, 1-3/4, 2

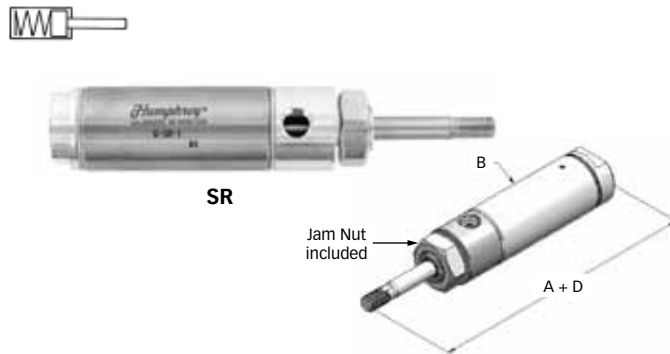
TYPES:

- Nose Mount (model "SR")
- Pivot or Double-End Mount (model "SRP")
- Block Front Head Mount (model "BFSP", see page 11)

STANDARD STROKES (inch):

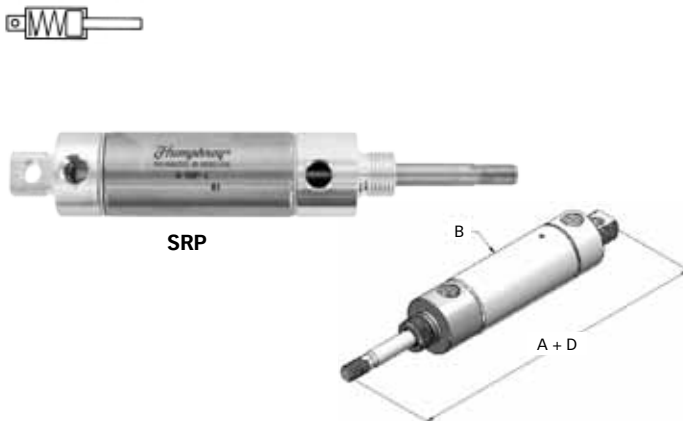
- Standard: 1/2 – 4
- Minimum Increment: 1/8
- Maximum Buildable: 18

OPTIONS AND ACCESSORIES (see pages 12-14): Includes rod-end customization, noise reduction and port locations. Provisions offered for alternate media, environment, temperature, or lateral load resistances. Foot or pivot mounting.



Model	Bore Size – Effective Force		Overall Dimensions			
	Bore Diameter (inch)	Piston Area inch ²	Length (A + D)		Diameter – B (inch)	Port Thread
			Base - A Length	Add'l Length - D for each 1" stroke increment		
8-SR-*	1/2	0.17	2.42	2.88	0.62	10-32 UNF
7-SR-*	3/4	0.39	2.78	2.69	0.81	1/8 PIPE
6-SR-*	1-1/16	0.81	3.28	2.56	1.12	
25-SR-*	1-1/4	1.08	4.25	2.81	1.31	
5-SR-*	1-1/2	1.62	4.00	2.69	1.55	1/4 PIPE
75-SR-*	1-3/4	2.21	5.03	3.00	1.81	
4-SR-*	2	2.84	5.11	3.00	2.07	

* Enter stroke length (inches)



Model	Bore Size – Effective Force		Overall Dimensions			
	Bore Diameter (inch)	Piston Area inch ²	Length (A + D)		Diameter – B (inch)	Port Thread
			Base - A Length	Add'l Length - D for each 1" stroke increment		
8-SRP-*	1/2	0.17	3.12	2.88	0.62	10-32 UNF
7-SRP-*	3/4	0.39	3.84	2.69	0.81	1/8 PIPE
6-SRP-*	1-1/16	0.81	4.15	2.56	1.12	
25-SRP-*	1-1/4	1.08	5.33	2.81	1.31	
5-SRP-*	1-1/2	1.62	5.06	2.69	1.55	1/4 PIPE
75-SRP-*	1-3/4	2.21	6.59	3.00	1.81	
4-SRP-*	2	2.84	6.48	3.00	2.07	

* Enter stroke length (inches)

HOW TO OBTAIN SPECIFICATIONS FOR CYLINDERS

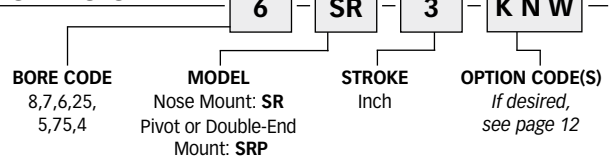
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HOW TO ORDER



SPECIFICATIONS

Media:	Air
Pressure Range:	0-200 PSIG
Temperature Range:	-40°F to 160°F

SINGLE-ACTING CYLINDERS – NON-ROTATING

MODELS SH, SHP

Low cost and reliable, Humphrey Stainless Steel, Non-Rotating, Spring-Return, Single-Acting Air Cylinders are available in four bore sizes from 1/2" to 1-1/2". Materials include aluminum heads and stainless steel barrel and hex piston rod. Type Block V piston seal ensures no air blow-by. Cataloged rod threads are roll formed for strength and durability.

BORE SIZES (inch):

- 1/2, 3/4, 1-1/16, 1-1/2

TYPES:

- Nose Mount (model "SH")
- Nose, Pivot or Double-End Mount (model "SHP")

STANDARD STROKES (inch):

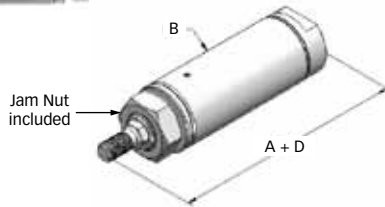
- Standard: 1/2 – 6
- Minimum Increment: 1/8
- Maximum Buildable: 18

OPTIONS AND ACCESSORIES (see pages 12-14): Includes noise reduction and port locations. Provisions offered for alternate media, environment, temperature, or lateral load resistances. Foot or pivot mounting.

HUMPHREY STAINLESS STEEL CYLINDER



SH

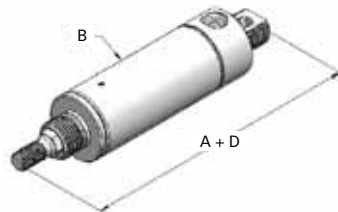


Model	Bore Size – Effective Force		Overall Dimensions			
	Bore Diameter (inch)	Piston Area inch ²	Length (A + D)		Diameter – B (inch)	Port Thread
			Base - A Length	Add'l Length - D for each 1" stroke increment		
8-SH-*	1/2	0.2	2.06	1.88	0.56	10-32 UNF
7-SH-*	3/4	0.44	2.25	1.69	0.81	1/8 PIPE
6-SH-*	1 1/16	0.89	2.68	1.56	1.12	
5-SH-*	1 1/2	1.77	3.44	1.69	1.55	

* Enter stroke length (inches)



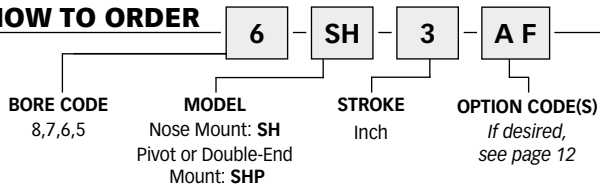
SHP



Model	Bore Size – Effective Force		Overall Dimensions			
	Bore Diameter (inch)	Piston Area inch ²	Length (A + D)		Diameter – B (inch)	Port Thread
			Base - A Length	Add'l Length - D for each 1 stroke increment		
8-SHP-*	1/2	0.2	2.75	1.88	0.56	10-32 UNF
7-SHP-*	3/4	0.44	3.31	1.69	0.81	1/8 PIPE
6-SHP-*	1 1/16	0.89	3.56	1.56	1.12	
5-SHP-*	1 1/2	1.77	4.50	1.69	1.55	

* Enter stroke length (inches)

HOW TO ORDER



SPECIFICATIONS

Media:	Air
Pressure Range:	0-200 PSIG
Temperature Range:	-40°F to 160°F

HOW TO OBTAIN SPECIFICATIONS FOR CYLINDERS

- Go to www.humphrey-products.com
- Select "Online Product Guide." Follow the steps to get the cylinder you need.
- Once the specifications have been entered, select "Download Spec Sheet" to create a personalized PDF of the cylinder, which you may save to your computer and print at your convenience. These spec sheets are helpful when placing your order(s).

HOW TO ORDER HUMPHREY CYLINDERS AND ACCESSORIES

- Go to www.humphrey-products.com
- Select "Find A Distributor" and input your information to locate a distributor nearest you.
- Or, call Customer Service at 1-800-477-8707 for the name and phone number of your local distributor.



HUMPHREY PRODUCTS ARE SOLD WORLD-WIDE THROUGH AUTHORIZED DISTRIBUTORS

Low cost and reliable, Humphrey Block Front Single- and Double-Acting Air Cylinders are available in four bore sizes from 1/2" to 1-1/2". Materials include aluminum heads and stainless steel barrel and piston rod. Type Block V piston seal ensures no air blow-by. Rod bearing is oil-permeated bronze and precision ball-sized. Rod threads are roll formed for strength and durability. Rod-end customization is available with the "Deluxe Rod End" program (see page 13). On BFD Model, Sensor Switch option is available for stroke position signaling to PLCs.

BORE SIZES (inch):

- 1/2, 3/4, 1-1/16, 1-1/2

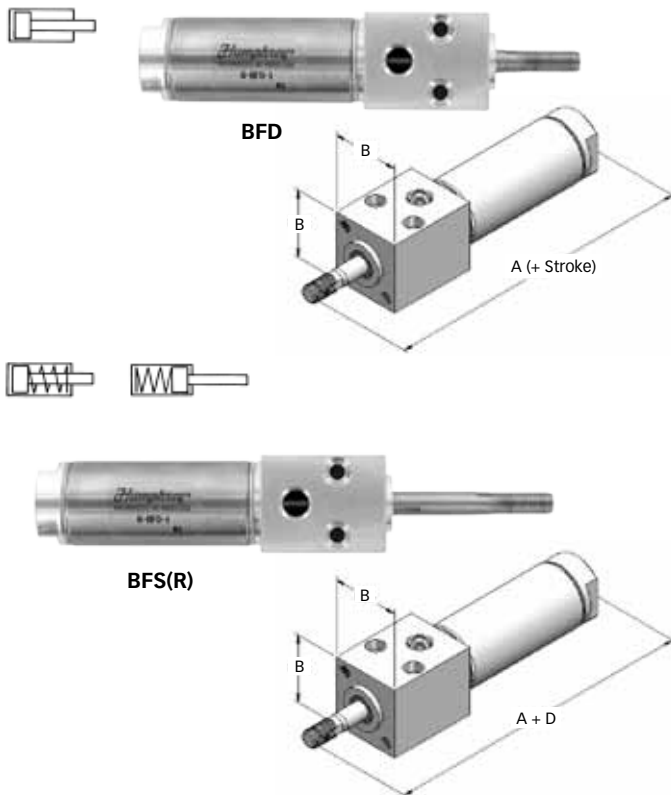
TYPES:

- Double Acting (model "BFD")
- Single Acting – Push (model "BFS")
- Single Acting – Pull (model "BFSR")

STANDARD STROKES (inch):

- Double Acting: 1/2 – 12
- Single Acting – Push: 1/2 – 6
- Single Acting – Pull: 1/2 – 4
- Minimum Increment: 1/8
- Longer strokes: Consult Factory

OPTIONS AND ACCESSORIES (see pages 12-14): Includes rod-end customization and noise-reducing bumpers. Provisions offered for alternate media, environment, temperature, or lateral load resistances. Sensor Switches for BFD model (see page 52).



Double Acting Model	Bore Size – Effective Force		Overall Dimensions		
	Bore Diameter (inch)	Piston Area inch ²	Length A + Stroke (inch)	Diameter – B (inch)	Port Thread
8-BFD-*	1/2	0.2	2.62	0.75	10-32 UNF
7-BFD-*	3/4	0.44	4.03	1.00	1/8 PIPE
6-BFD-*	1 1/16	0.89	4.75	1.25	
5-BFD-*	1 1/2	1.77	5.44	1.75	1/4 PIPE

* Enter stroke length (inches)

Single Acting – Push Model	Bore Size – Effective Force		Overall Dimensions			
	Bore Diameter (inch)	Piston Area inch ²	Length (A + D)		Diameter – B (inch)	Port Thread
			Base - A Length	Add'l Length - D for each 1" stroke increment		
8-BFS-*	1/2	0.2	2.42	1.88	0.75	10-32 UNF
7-BFS-*	3/4	0.44	3.34	1.69	1.00	1/8 PIPE
6-BFS-*	1 1/16	0.89	4.28	1.56	1.25	
5-BFS-*	1 1/2	1.77	5.00	1.69	1.75	1/4 PIPE

* Enter stroke length (inches)

Single Acting – Pull Model	Bore Size – Effective Force		Overall Dimensions			
	Bore Diameter (inch)	Piston Area inch ²	Length (A + D)		Diameter – B (inch)	Port Thread
			Base - A Length	Add'l Length - D for each 1" stroke increment		
8-BFSR-*	1/2	0.17	2.42	2.88	0.75	10-32 UNF
7-BFSR-*	3/4	0.39	3.34	2.69	1.00	1/8 PIPE
6-BFSR-*	1 1/16	0.81	4.28	2.56	1.25	
5-BFSR-*	1 1/2	1.62	5.18	2.69	1.75	1/4 PIPE

* Enter stroke length (inches)

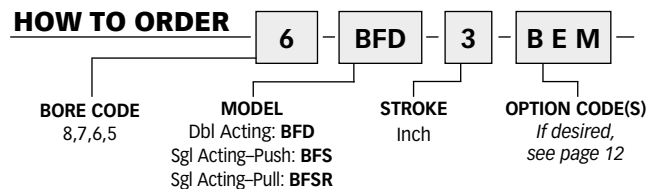
HOW TO OBTAIN SPECIFICATIONS FOR CYLINDERS

- Go to www.humphrey-products.com
- Select "Online Product Guide." Follow the steps to get the cylinder you need.
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HOW TO ORDER HUMPHREY CYLINDERS AND ACCESSORIES

- Go to www.humphrey-products.com
- Select "Find A Distributor" and input your information to locate a distributor nearest you.
- Or, call Customer Service at 1-800-477-8707 for the name and phone number of your local distributor.

HUMPHREY PRODUCTS ARE SOLD WORLD-WIDE THROUGH AUTHORIZED DISTRIBUTORS



SPECIFICATIONS

Media:	Air
Pressure Range:	0-200 PSIG
Temperature Range:	-40°F to 160°F

HUMPHREY STAINLESS STEEL CYLINDER

HUMPHREY STAINLESS STEEL CYLINDER

STANDARD MODELS AND OPTIONS

A wide variety of options are available to address most needs. These include provisions for low pressure hydraulic service, alternate port locations, piston magnets for sensor switch operation, noise reduction, and resistance to minor lateral loads and/or harsh ambient conditions.

Please refer to the MODEL and OPTION CODE portion of the "How to Order" section on the previous pages. Multiple option code selections are possible, per cylinder model. Examples of part numbers utilizing codes below are: 25-D-3BF and 4-DP-1EKM.

MODEL REFERENCE CHART

MODEL	PAGE	MODEL	PAGE
S – Single-Acting Nose Mount.....	8	D – Double-Acting Nose Mount.....	6
SP – Single-Acting Pivot Mount.....	8	DP – Double-Acting Pivot/Double-End Mount.....	6
SH – Single-Acting Nose Mount/Hex Rod.....	9	D2EY – Double-Acting Double-End Rod.....	7
SHP – Single-Acting Pivot Mount/Hex Rod.....	9	BFS – Single-Acting Block Front Mount.....	11
SR – Single-Acting Reverse/Nose Mount.....	10	BFSR – Single-Acting Reverse/Block Front Mount.....	11
SRP – Single-Acting Reverse/Pivot Mount.....	10	BFD – Double-Acting Block Front Mount.....	11

HOW TO ORDER OPTIONS – AVAILABLE BY MODEL

OPTIONS	DESCRIPTION	APPLICABLE MODELS
A	SIDE PORTED REAR HEAD Locates rear port at side of body on single- or double-acting types.	S, SH, SR, D, BFS, BFSR, BFD
B	BUMPER Reduce mechanical noise. Absorb Shock. Standard on Model D2EY.	S, SP, SH, SHP, SR, SRP, D, DP, BFS, BFSR, BFD
E	LOW FRICTION SEALS For low breakaway or low pressure applications.	S, SP, SH, SHP, SR, SRP, D, DP, D2EY, BFS, BFSR, BFD
F	FLUOROCARBON SEALS (Fluoroelastomer) For ambient temperatures of -20°F to 400°F. For mild resistance to air line and ambient contaminants, fumes, etc.	S, SP, SH, SHP, SR, SRP, D, DP, D2EY, BFS, BFSR, BFD
J	ROTATE FRONT HEAD 90° Front head is rotated 90 degrees (CW).	SR, SRP, D, DP, D2EY, BFS, BFSR, BFD
K	ROTATE FRONT HEAD 180° Front head is rotated 180 degrees.	SR, SRP, D, DP, D2EY, BFS, BFSR, BFD
L	ROTATE FRONT HEAD 270° Front head is rotated 270 degrees (CW).	SR, SRP, D, DP, D2EY, BFS, BFSR, BFD
M	INTERNAL MAGNET For use with Humphrey Sensors. Available for models D, DP and BFD as a standard.	D, DP, D2EY, BFD
N	WEARSTRIP Protects piston and barrel from wear due to minor rod deflection. Not available on Bore 8.	SR, SRP, D, DP, BFSR, BFD
P	POLYPAK ROD SEAL Provides excellent rod-sealing capabilities at low pressures.	S, SP, SH, SHP, SR, SRP, D, DP, D2EY, BFS, BFSR, BFD
R	ROTATED REAR PIVOT TANG Rotation of rear pivot tang 90 degrees. Port remains in original position.	SRP, DP
T	PIVOT PIN IN REAR TANG Pivot pin pressed into rear tang. No bracket available. Not available with bores 4 and 3.	SP, SHP, SRP, DP
W	ROD WIPER Provides a wiping action to remove most foreign material from exposed rod while maintaining adequate lubricating film. Protect rod and primary rod seal. Available on all D, DP, SR and D2EY models. Not available on Bore 8.	SR, SRP, D, DP, D2EY
U	REAR PIVOT BUSHING Bushing in rear pivot hole. Hole diameter remains the same. Available on models SP, SHP, SRP, and DP bores 7, 6, 25 and 5. Standard on bores 3 and 4.	SP, SHP, SRP, DP

Exclusive with all Humphrey Stainless Steel Cylinders (except SH, SHP and D2EY models), you may choose from 15 unique, custom rod-end design selections, and have us tailor it to your exact requirements.

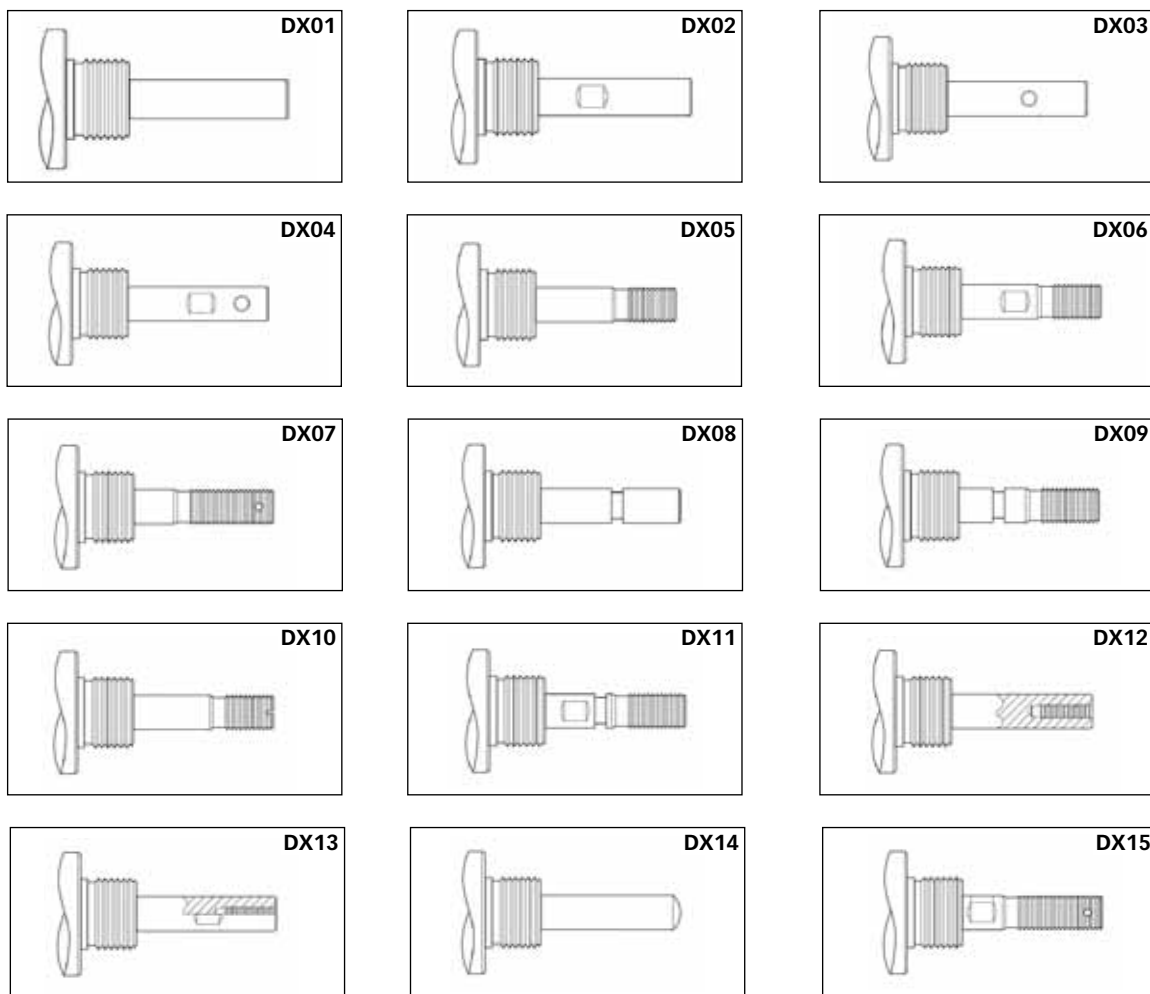
The 15 themes are shown below, and address customizable features such as rod extension length, wrench flat position, male or female rod thread and rod thread length, plain rod end, rounded rod end, ring grooves, rod diameter reductions, and (cotter) pin holes.

Each of the 15 different rod end selections includes

a specific set of user definable dimensions selected from the Deluxe Rod End Workbook.

Expect normal lead times and no minimum order quantities. A unique model number is assigned at the initial build cycle. That part number is permanently available to you for future orders of the same make. Examples of part numbers utilizing codes below are: 7-S-2 DX01-00137 and 5-DP-10N DX12-01098.

Contact your nearest authorized stocking distributor or visit our website for details and to download the Deluxe Rod End Workbook.



HOW TO DESIGN AND SPECIFY A DELUXE ROD END CYLINDER(S)

- Go to www.humphrey-products.com
- Select "List of Cylinders," then "DX Deluxe Rod End Workbook."
- Click on the link to download the workbook pdf, which will assist you in determining what options you will need.
- Or, use this link to take you directly to the workbook pdf: www.humphrey-products.com/?q=content/dx-deluxe-rod-end-workbook

HOW TO ORDER HUMPHREY CYLINDERS AND ACCESSORIES

- Go to www.humphrey-products.com
- Select "Find A Distributor." Input your information to locate a distributor nearest you.
- Or, call Customer Service at 1-800-477-8707 for the name and phone number of your local distributor.



HUMPHREY PRODUCTS ARE SOLD WORLD-WIDE THROUGH AUTHORIZED DISTRIBUTORS

ACCESSORIES

SENSOR SWITCHES, MOUNTING ACCESSORIES

SENSOR SWITCHES

Humphrey Reed Type and Hall Effect Type Sensor Switches are available for models D, DP and BFD Humphrey Stainless Steel Cylinders ordered with option M, internal magnet (consult factory for other types). Standard lead wires are 24 inches in length (144" also available). Reed Type models RS-2 and RS-4 operate with AC or DC voltages, and Hall Effect Type Model GMR1 operates with DC voltages only.

PSMK mount secures sensor switch to the cylinder. Order with switch or as a mounting kit.



5-DP-4M with two RS-2-PSMK switches

For additional details and specifications, see page 52.

MOUNTING ACCESSORIES

Humphrey Stainless Steel Cylinder Accessories are made of carbon steel, burnished for surface smoothness, and bright zinc plated.



Pivot Brackets

Model	Applicable Cylinder Bore	Cylinder Model	Consists Of...
BP-8-C	8	DP, SP, SRP, SHP	Pivot Bracket, Pivot Pin, Retainer
BP-11-C	7, 6		
BP-25-C	25		
BP-15-C	5, 75		
BP-19-C	4, 3		



Rod Clevis

Model	Applicable Cylinder Bore	Cylinder Model	Consists Of...
CT-8	8	All Models	Locknut, Rod Clevis, Clevis Pin, Retainer
CT-7	7		
CT-11	6		
CT-15	25, 5		
CT-19	75, 4, 3		



Foot Mount

Model	Applicable Cylinder Bore	Cylinder Model	Consists Of...
F-8-S	8	S, SP, SHP, SRP	Foot Mount
F-8	8	D, DP, D2EY	
F-7	7	S, SP, SHP, SRP	
F-11	7	D, DP, D2EY	
F-11	6	All Models	
F-15	25, 5		
F-75	75		
F-19	4		
F-21	3		



Jam Nut*

Model	Applicable Cylinder Bore	Cylinder Model	Consists Of...
JN-8-S	8	S, SP, SHP, SRP	Jam Nut
JN-8	8	D, DP, D2EY	
JN-7	7	S, SP, SHP, SRP	
JN-11	7	D, DP, D2EY	
JN-11	6	All Models	
JN-15	25, 5		
JN-75	75		
JN-19	4		
JN-21	3		

*Note: One supplied with all Type S, SH, SR, D. Two supplied with type D2EY.

HOW TO OBTAIN SPECIFICATIONS FOR PARTICULAR CYLINDER SWITCHES AND ACCESSORIES

- Go to www.humphrey-products.com
- Select "Online Product Guide." Follow the steps to get the items you need.
- Once you have finished entering the specifications, select "Download Spec Sheet." Doing this will create a personalized PDF of the cylinder accessory, which you may save to your computer and print at your convenience. These spec sheets are helpful when placing your order(s).

HOW TO ORDER HUMPHREY CYLINDERS AND ACCESSORIES

- Go to www.humphrey-products.com
- Select "Find A Distributor." Input your information to locate a distributor nearest you.
- Or, call Customer Service at 1-800-477-8707 for the name and phone number of your local distributor.



HUMPHREY PRODUCTS ARE SOLD WORLD-WIDE THROUGH AUTHORIZED DISTRIBUTORS

HUMPHREY STAINLESS STEEL CYLINDER

Humphrey Volume Chambers are small, cost-effective air reservoirs used for pneumatic automation applications. Specify Volume Chambers to ensure total upstream air supply is adequate for the maximum consumption of the device or system. Available in many bore sizes and up to 216 total cubic inches of internal volume. Aluminum end caps and stainless steel barrel. Select from standard mount, end mount and double-end mount.

BORE SIZES (inch):

- 1/2, 3/4, 1-1/6, 1-1/4, 1-1/2, 2, 2-1/2

TYPE:

- Standard (model "C")
- End Mount (model "CP")
- Double-End Mount (model "CPP")

BARREL INTERNAL LENGTHS (inch):

- Standard: 1 – 12
- Maximum Buildable: 44

OPTIONS AND ACCESSORIES:

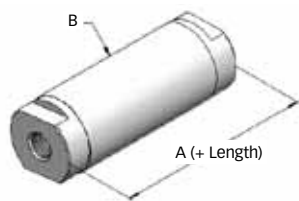
Consult factory for side porting available for CP and CPP models and custom port locations.



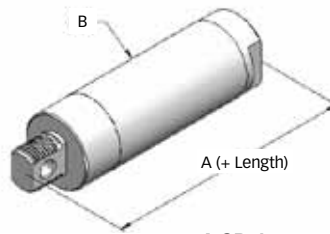
6-C-2

Model	Bore Size - Internal Volume			Overall Dimensions					
	Bore Diameter (inch)	Base Volume inch ³	Add'l Volume per inch	Length A - (inch)			Add'l Length per inch specified	Diameter - B (inch)	Port Thread
				Base Length					
8-C-*	1/2	0.11	0.20	Standard Mount (C)	End Mount (CP)	Double-End Mount (CPP)	1	0.62	10-32 UNF
7-C-*	3/4	0.40	0.44	1.91	3.26	4.61		0.88	
6-C-*	1-1/16	0.88	0.89	2.18	3.06	3.94		1.12	
25-C-*	1-1/4	1.44	1.23	2.67	3.75	4.83		1.31	1/8 PIPE
5-C-*	1-1/2	1.68	1.77	2.26	3.32	4.38		1.55	
75-C-*	1-3/4	3.29	2.41	2.57	4.13	5.69		1.81	1/4 PIPE
4-C-*	2	4.04	3.14	2.81	4.18	5.55		2.07	
3-C-*	2-1/2	6.38	4.91	2.81	4.18	5.55		2.62	

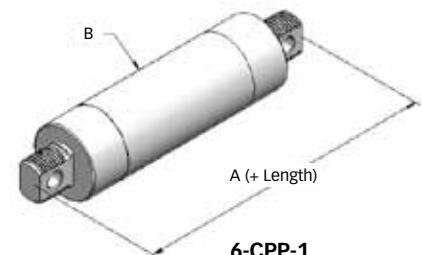
* Enter stroke length (inches)



6-C-1



6-CP-1



6-CPP-1

HOW TO OBTAIN SPECIFICATIONS FOR VOLUME CHAMBERS

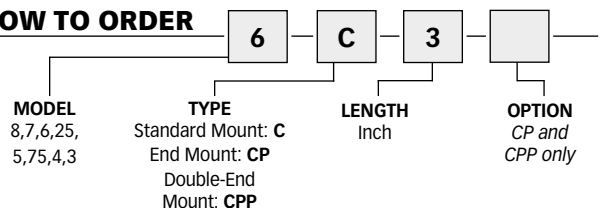
- Go to www.humphrey-products.com
- Select "Online Product Guide." Follow the steps to get the chamber you need.
- Once the specifications have been entered, select "Download Spec Sheet" to create a personalized PDF of the chamber, which you may save to your computer and print at your convenience. These spec sheets are helpful when placing your order(s).

HOW TO ORDER HUMPHREY VOLUME CHAMBERS

- Go to www.humphrey-products.com
- Select "Find A Distributor" and input your information to locate a distributor nearest you.
- Or, call Customer Service at 1-800-477-8707 for the name and phone number of your local distributor.

HUMPHREY PRODUCTS ARE SOLD WORLD-WIDE THROUGH AUTHORIZED DISTRIBUTORS

HOW TO ORDER



SPECIFICATIONS

Media:	Air or Vacuum
Pressure Range:	0-200 PSIG
Temperature Range:	-40°F to 160°F