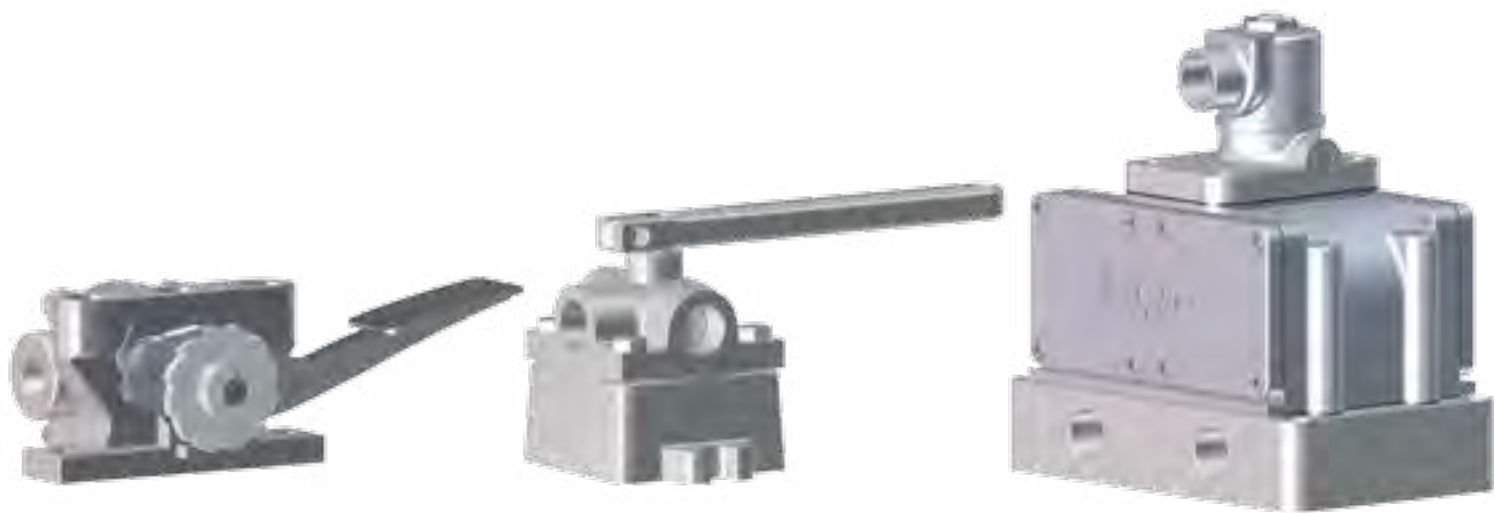


Directional Control Valves

Hand, Foot and Solenoid



NOPAK
First in Manufacturing. Engineered to Last.

FEATURES AND BENEFITS ORDERING INFORMATION

FEATURES AND BENEFITS

NOPAK Disc-Type Valves have a well-earned reputation of being “practically indestructible.” They have established an enviable record for efficient, trouble-free operation, freedom from leakage and pressure loss, and long service life under extremely rugged operating conditions. These benefits are a direct result of the simplicity and ruggedness of the basic NOPAK Rotating Disc design. The flat, lapped disc, rotating at right angles to the stream flow, results in the following advantages:

PRECISION CONTROL

Positive precision control through the complete cycle of valve operation, from slow gradual throttling action to instant full opening, without damaging shock, impact or pressure cutting.

SEALING SURFACES IMPROVE WITH USE

The precision-lapped sealing surfaces of disc and seat actually improve with use because the “lapping-in” process continues while the valve is operated. The flat disc and seat have no interlocking contours; therefore, they cannot stick and always remain free for easy operation.

PROTECTED AGAINST GRIT, ABRASION OR WIRE DRAWING

The valve seat is always covered by the rotating disc so that both sealing surfaces are always shielded from direct pressure flow and possible abrasion caused by grit, scale or other foreign matter usually present in air or hydraulic lines. An internal channel in the disc carries off such abrasive materials without damage to the sealing surfaces.

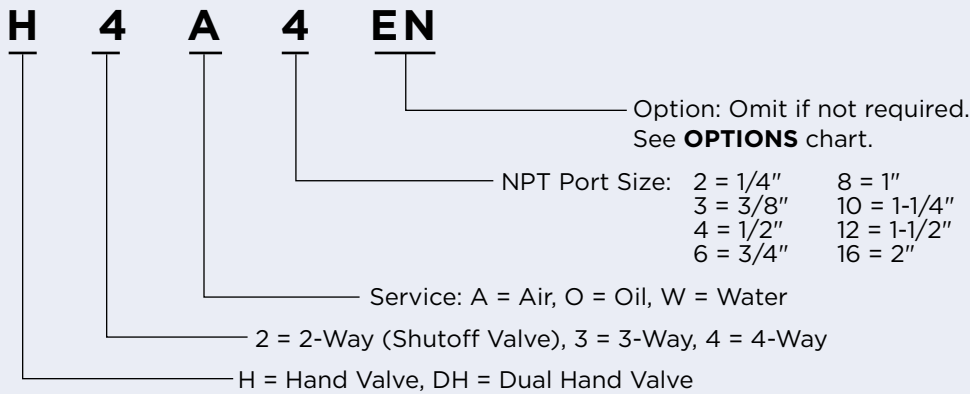
PRESSURE SEALING

Line pressure is exerted against the valve disc at all times to keep the lapped surfaces of disc and seat positively sealed.

PACKLESS CONSTRUCTION

NOPAK Valves depend entirely upon metal-to-metal, precision-lapped sealing surfaces for their leakproof construction. When used for hydraulic service (oil or water), additional protection against leakage past the valve stem has been provided by the use of an O-ring in the valve body and around the stem, just below the operating handle.

ORDERING CODE EXAMPLE - HAND VALVES

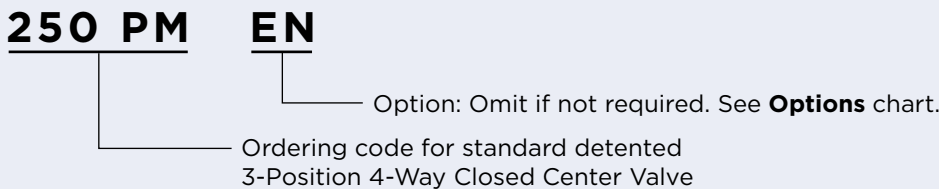


OPTIONS

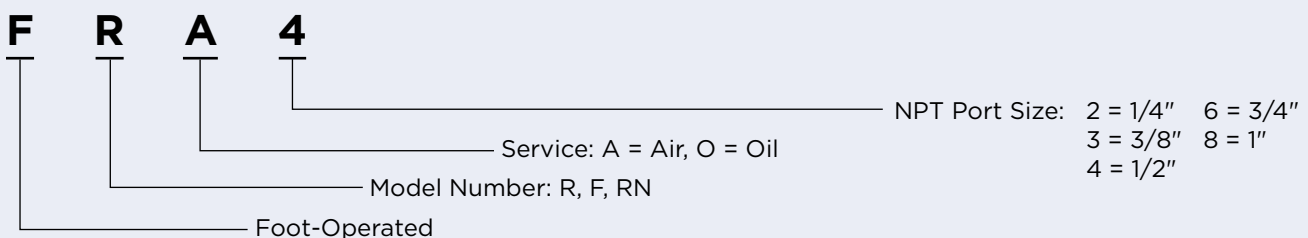
CODE	DESCRIPTION
EN	Exhaust In Neutral
SRN	Spring Return To Neutral
ST	Short Throw
STR	Short Throw & Spring Return
STNS	Short Throw No Spring
ENR	Exhaust In Neutral & Spring Return Neutral
B	Bleeder/Bleed Off
OC	Open Center
CC	Closed Center

ORDERING CODE EXAMPLE - HAND VALVES, PANEL MOUNT

One size available: 1/4" NPT. See page 148.



ORDERING CODE EXAMPLE - FOOT VALVES



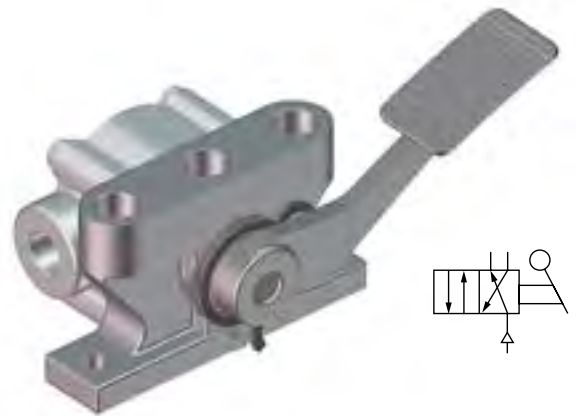
NPAK Foot-Operated Valves incorporate all the features found in the NPAK Hand-Operated models, including the lapped disc type design with the packless spindle construction.

In addition to the standard valves for air service, NPAK Foot-Operated Valves are available for oil service at additional cost.

MODEL R

MODEL R VALVE has an oscillating disc with no neutral position. The valve spindle is pinned to the foot pedal. When pedal is up, the line pressure is always on Port No. 1 with Port No. 2 open to exhaust. When pedal is depressed 30°, cycle reverses, that is, line pressure is on Port No. 2 and Port No. 1 is open to exhaust. When pedal is released, the torque spring returns pedal to original position with pressure again on Port No. 1.

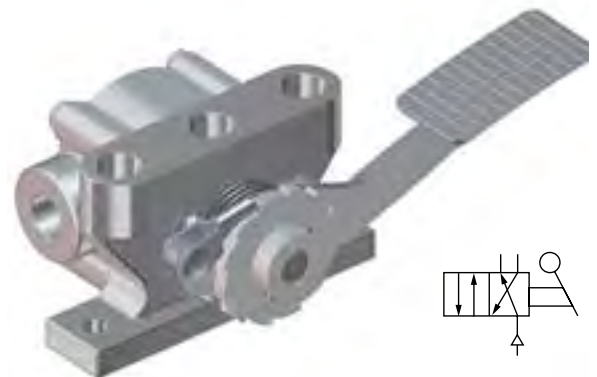
This valve can be used as a 3-way valve, for a single-acting cylinder, by inserting a pipe plug in one cylinder port. It can also be used as a spring-return shut-off valve, as follows: (a) Normally Closed by plugging Port No. 1 and exhaust; (b) Normally Open by plugging Port No. 2 and exhaust; (c) Bleeder arrangement for (a) or (b) is obtained by omitting plug in exhaust port.



MODEL F

MODEL F VALVE utilizes a pawl driven ratchet for rotation of the disc which has no neutral position.

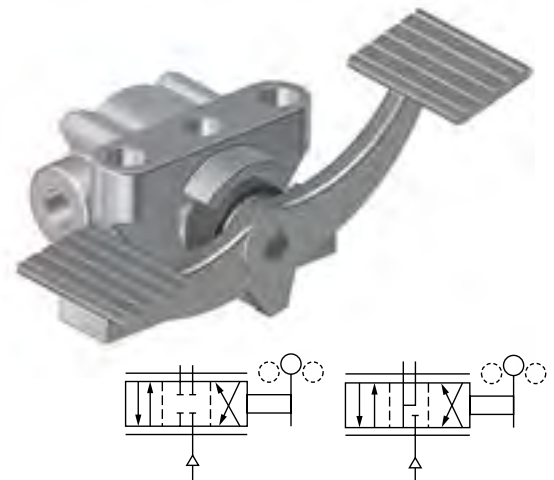
The valve spindle is pinned to the ratchet. Let us assume that line pressure is on Port No. 1. Then, when foot pedal is depressed, the pawl, attached thereto, engages the ratchet and rotates it 30°, thereby reversing the valve cycle. When pedal is released, the torque spring returns pedal, but position of ratchet does not change. A second depression of pedal rotates ratchet a further 30°, again putting line pressure on Port No. 1. This model is particularly suited to applications in which the operator is required to leave the valve after depressing the foot pedal. This valve can also be used as a 3-way or shut-off valve, as described under Model R.



MODEL RN

MODEL RN VALVE Double-Pedal, Foot-Operated, has a "NEUTRAL" or "SHUT-OFF" position in which both cylinder ports and exhaust ports are closed to pressure. It can be employed as an inching valve, its neutral holding position permitting an air cylinder to be positioned and held at any point along the full length of its stroke. This valve can also be furnished with cylinder ports open to exhaust in neutral position.

MODEL RN can also be furnished without spring-return to neutral, for either or both pedals. When spring-return is eliminated, the respective foot pedal rests in the "ON" position, holding the cylinder under pressure until operator steps on opposite pedal.

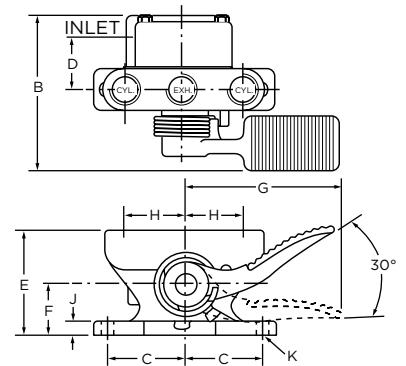


DATA AND DIMENSIONS

MODEL R VALVE, 125* PSI MAX. PRESSURE

MODEL NUMBER	PIPE SIZE	B	C	D	E	F	G	H	J	K	WEIGHT IN POUNDS
FR() 2	1/4	5-1/16	2-9/16	1-11/16	3-9/16	1-13/16	6-1/2	2	1/2	7/16	10
FR() 3	3/8	5-1/16	2-9/16	1-11/16	3-9/16	1-13/16	6-1/2	2	1/2	7/16	10
FR() 4	1/2	5-1/16	2-9/16	1-11/16	3-9/16	1-13/16	6-1/2	2	1/2	7/16	10
FR() 6	3/4	5-7/8	3-1/4	1-15/16	4-5/16	2-5/16	6-1/2	2-1/4	5/8	9/16	14-5/8
FR() 8	1	5-7/8	3-1/4	1-15/16	4-5/16	2-5/16	6-1/2	2-1/4	5/8	9/16	14-5/8

* Model R maximum pressure is limited by the returning power of the foot lever spring.
1/4", 3/8" and 1/2" are available with foot pedal guard. Consult factory for additional information.

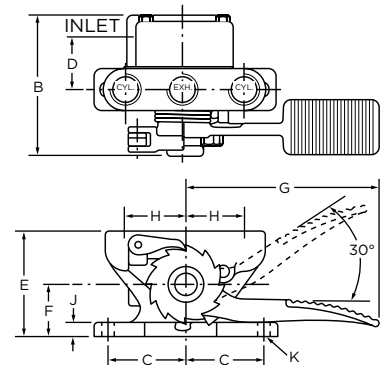


DATA AND DIMENSIONS

MODEL F VALVE, 250 PSI MAX. PRESSURE

MODEL NUMBER	PIPE SIZE	B	C	D	E	F	G	H	J	K	WEIGHT IN POUNDS
FF() 2	1/4	4-9/16	2-9/16	1-11/16	3-9/16	1-13/16	6-7/8	2	1/2	7/16	10
FF() 3	3/8	4-9/16	2-9/16	1-11/16	3-9/16	1-13/16	6-7/8	2	1/2	7/16	10
FF() 4	1/2	4-9/16	2-9/16	1-11/16	3-9/16	1-13/16	6-7/8	2	1/2	7/16	10
FF() 6	3/4	5-7/8	3-1/4	1-15/16	4-5/16	2-5/16	6-7/8	2-1/4	5/8	9/16	14-5/8
FF() 8	1	5-7/8	3-1/4	1-15/16	4-5/16	2-5/16	6-7/8	2-1/4	5/8	9/16	14-5/8

1/4", 3/8" and 1/2" are available with foot pedal guard. Consult factory for additional information.

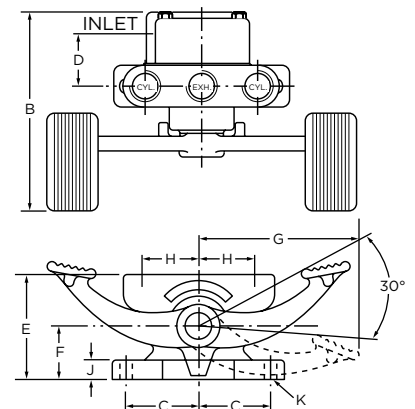


DATA AND DIMENSIONS

MODEL RN VALVE, 125* PSI MAX. PRESSURE

MODEL NUMBER	PIPE SIZE	B	C	D	E	F	G	H	J	K	WEIGHT IN POUNDS
FRN() 2 ()	1/4	6-9/16	2-9/16	1-11/16	3-9/16	1-13/16	5-5/8	2	1/2	7/16	11-3/4
FRN() 3 ()	3/8	6-9/16	2-9/16	1-11/16	3-9/16	1-13/16	5-5/8	2	1/2	7/16	11-3/4
FRN() 4 ()	1/2	6-9/16	2-9/16	1-11/16	3-9/16	1-13/16	5-5/8	2	1/2	7/16	11-3/4
FRN() 6 ()	3/4	7-1/4	3-1/4	1-15/16	4-5/16	2-5/16	5-5/8	2-1/4	5/8	9/16	16-3/4
FRN() 8 ()	3/4	7-1/4	3-1/4	1-15/16	4-5/16	2-5/16	5-5/8	2-1/4	5/8	9/16	16-3/4

* This maximum pressure is limited by the returning power of the foot lever spring. Suitable for 250 PSI if returned by foot, not spring.



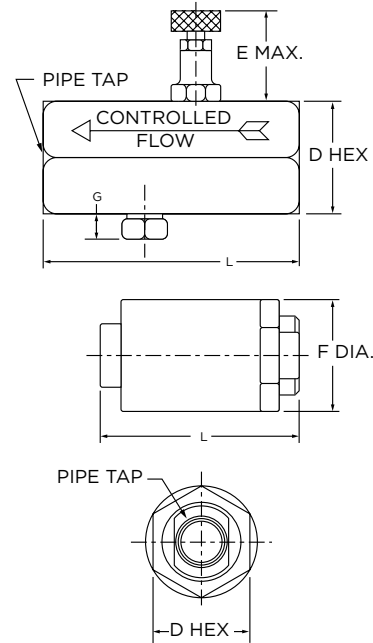
NOPAK FLOTROL VALVES – AVAILABLE IN TWO BODY STYLES, FIVE PIPE SIZES

Features of the NOPAK Flotrol include full pipe area through the valve and a compact design that holds space requirements to a minimum and easy installation in the line. Valves are constructed of rust and corrosion resistant materials throughout and are adaptable to most industrial fluids.

Flotrol valves are available in two body styles that offer a total of five different pipe sizes ranging from 1/4" to 1" NPT. They are designed to handle pressures up to 2000 PSI in the 1/4", 3/8" and 1/2" sizes and to 300 PSI in the 3/4" and 1" sizes.

Bodies of the 1/4", 3/8" and 1/2" pipe sizes are machined from solid hexagon bronze bar stock. An aluminum body and bronze interior construction is used for the 3/4" and 1" models.

Control of the amount of flow going through the 1/4", 3/8" and 1/2" model Flotrols is regulated by a combination stainless steel needle valve and floating piston and spring assemblies. Flow through the 3/4" and 1" valves is adjusted by rotating a center floating sleeve – the sleeve acting as a union in the piping. Only 180° rotation is required from closed to full open.



DIMENSIONS

MODEL NUMBER	PIPE SIZES	D	E	F	G	L
SC-2	1/4	7/8	1-1/4	-	7/32	2-3/8
SC-3	3/8	1-1/16	1-3/8	-	1/4	2-3/4
SC-4	1/2	1-5/16	1-3/8	-	9/32	3-3/16
SC-6	3/4	2-3/16	-	2-1/2	-	4
SC-8	1	2-3/16	-	2-1/2	-	4

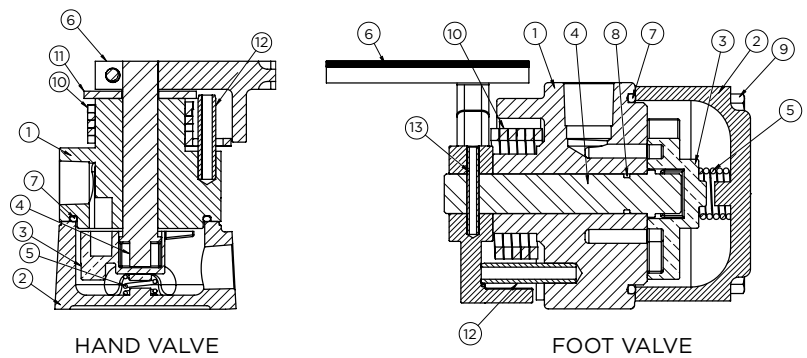
PARTS LIST - NOPAK DISC VALVES

HAND / FOOT / SPECIAL PURPOSE MODELS

1. Valve body
2. Valve cap
3. Valve disc
4. Valve spindle] (one piece on some earlier models)
5. Disc spring
6. Lever (hand, foot, operating) complete
7. Body O-ring (hydraulic use only)
8. Spindle O-ring (hydraulic use only) – 3" size and up
9. Cap screws (not shown)

SPRING RETURN MODELS

10. Return spring
11. Washer
12. Spring stop
13. Pin

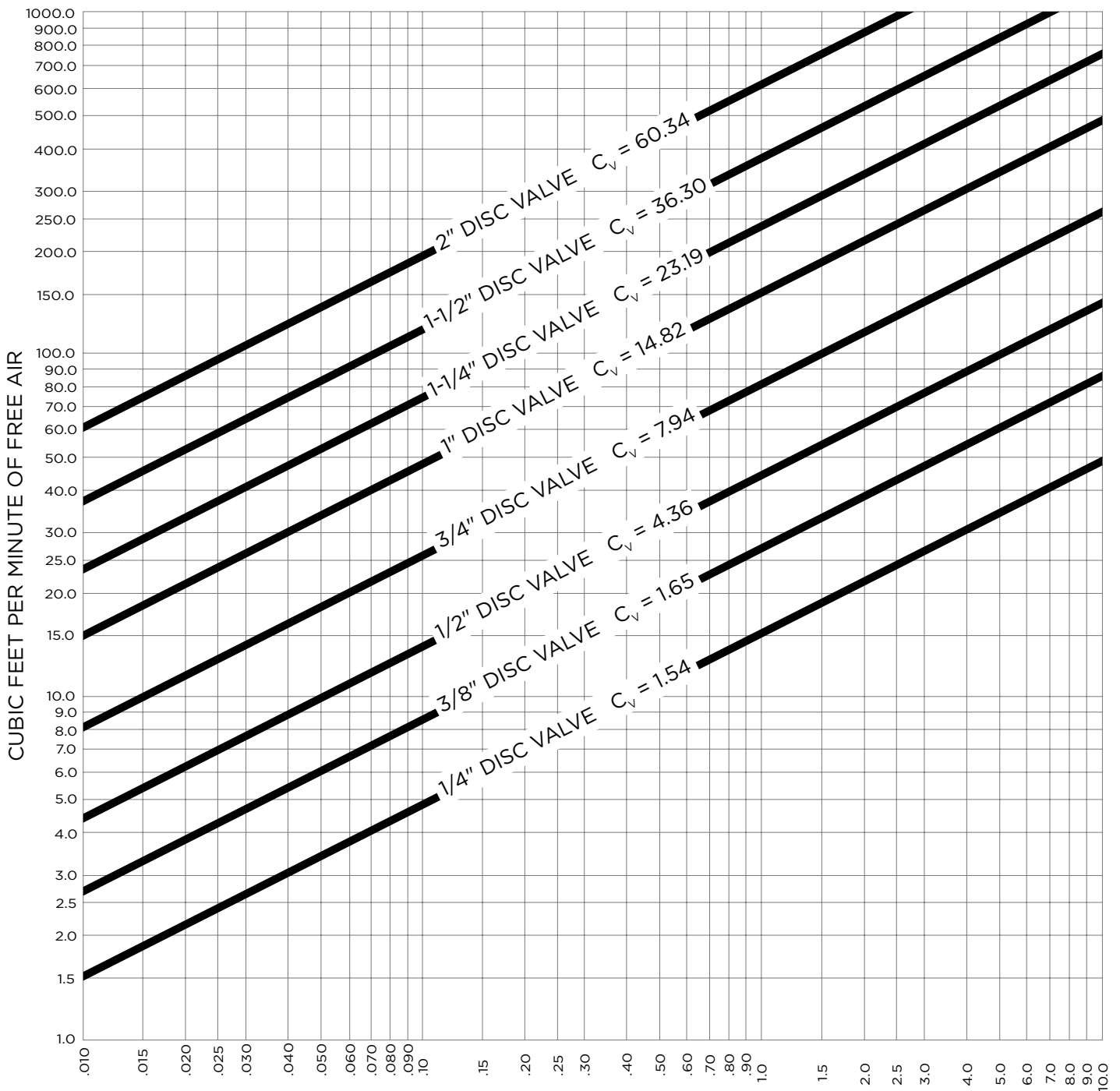


REPLACEMENT PARTS – NOPAK DISC VALVES

When ordering replacement parts, please give the following information: Name of Part, Part Number, Dash No. (Pipe Size of valve), Type of Valve (full description: Manifold Valve, Spring Return Valve), and if possible, the Purchase Order Number on which the original valve was purchased. The valve body and valve disc should be replaced as a unit.



The disassembled components of a typical NOPAK Disc-type Valve. Note especially the simple rugged design, minimum number of parts.



PRESSURE DROP IN PSI (ΔP)

$P_s = 100$ PSIG

For other values of P_s

$$\frac{10Q}{P_s} (\Delta P_{100}) = \Delta P_s$$