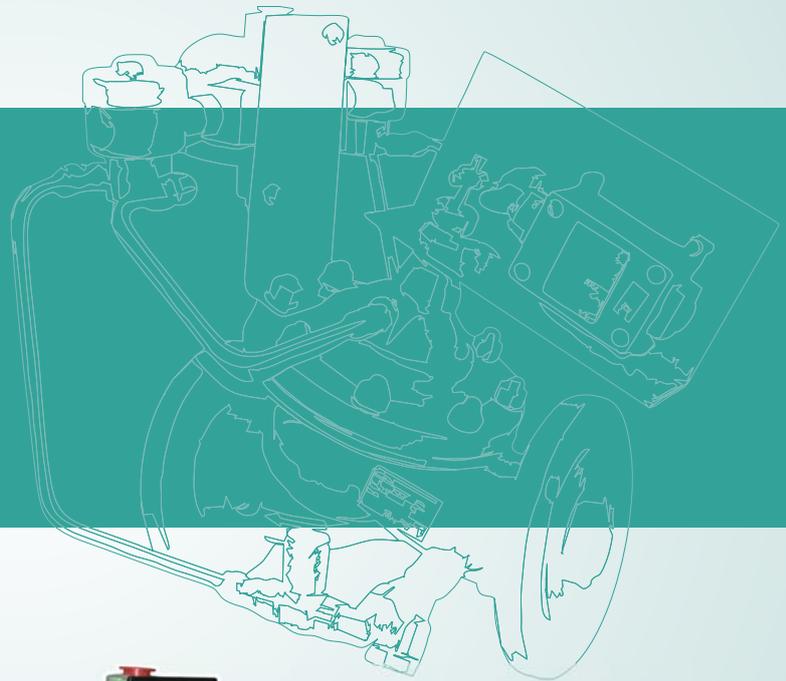




An ISO 9001 : 2008 Certified Compan

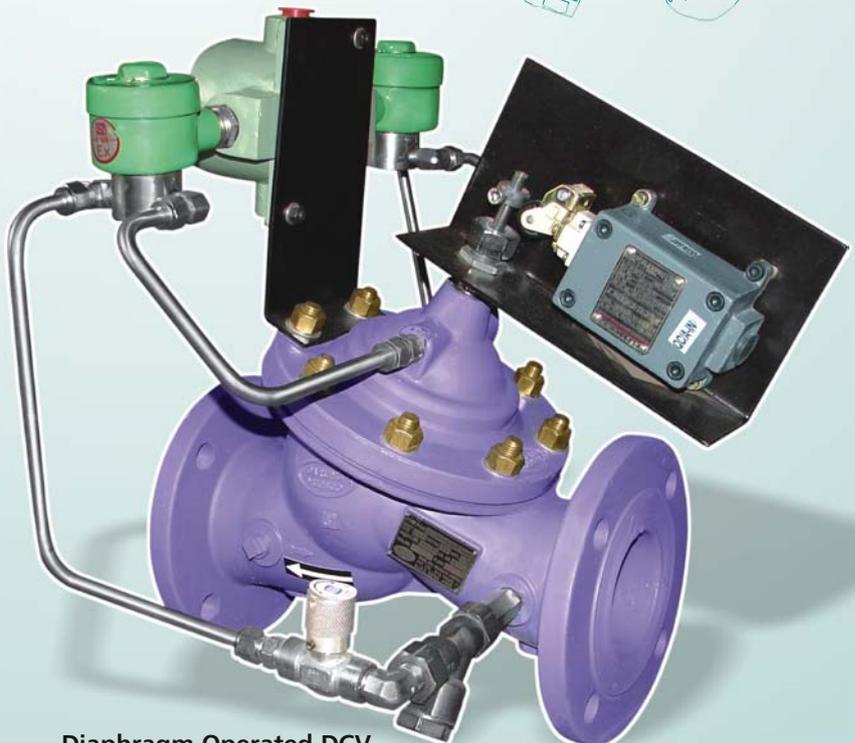
Digital Control Valve



Piston Type Pneumatically Operated DCV

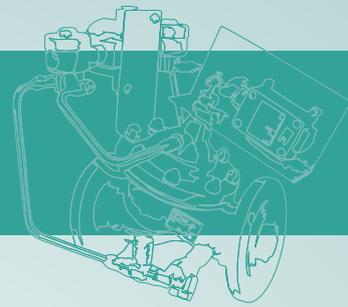


Steam Jacketed Ball type DCV



Diaphragm Operated DCV

Diaphragm Actuated Hydraulically Operated - Digital Control Valve



BASIC CONSTRUCTION

These are Diaphragm Actuated Hydraulically Operated Valves used for many functions for the control of clean liquid: set-stop valve is one of the function.

SPECIFICATIONS

- › Diaphragm type Digital Control Valves, electro hydraulically operated by diaphragm – self fluid actuated type having resilient (soft) seating for zero leakage to leakage class VI as per ANSI FCI-70-2 (ANSI B16.104).
- › They use F100 (Globe Straight) or F2100 (Globe - Y) Basic valve, which is a packless design, Top and bottom guided for vibration-free movement. The valve can be serviced without removing from the line. All Internal Parts are of complete stainless steel for very long life and corrosion-free. The body and cover are epoxy coated, inside and outside for smooth flow surface and longer life. These DCV can be used very commonly for white Oil having max. Viscosity up to 30 CST.

ADVANTAGES

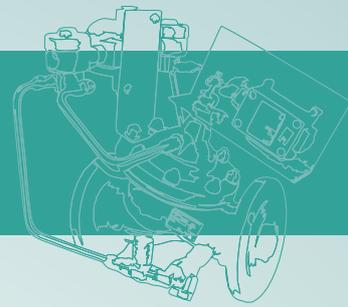
- › Low pressure drop in F2113-40R due to Y-pattern design compared to Straight Globe type F113-40R
- › Contains 1 NO +1 NC Ex-proof Solenoid Valves connected to the Junction box with cable gland - All Electricals are CCOE / CMRI / PESO Certified
- › Y-strainer in inlet tubing to any dirt particles coming with the fluid
- › Opening speed control and closing speed control (Needle Valves) in the tubing circuit
- › All stainless steel tubings and fittings
- › Optional: - limit switches as required (1 NO. or 2NO.) CCOE / PESO certified

OPTIONS

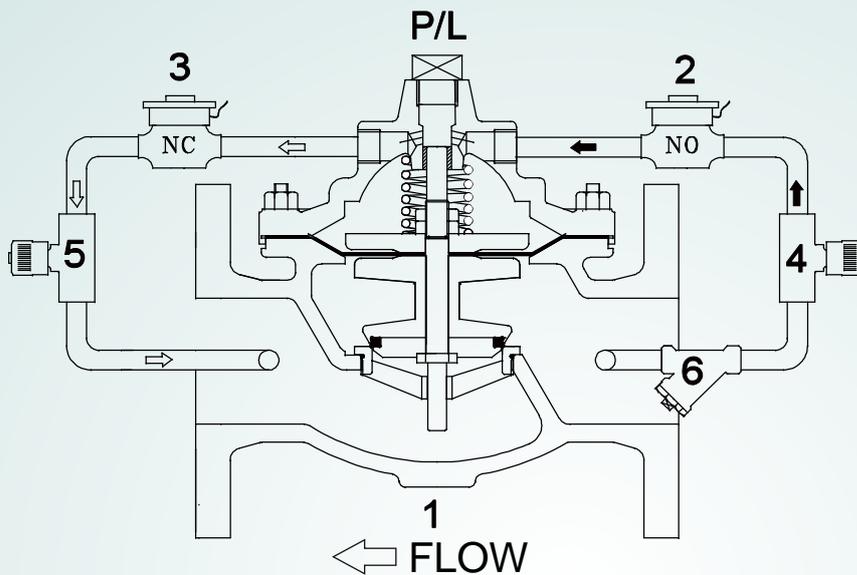
- › Diaphragm and other elastomers are available in Buna-N (Nitrile – 70 Shore-A) and Viton.
- › Solenoid Valves with 'F' type coil is standard. Coil type 'H' available for high temp. Service optionally.
- › Solenoid Valve coil Voltage available in 240VAC/ 120VAC/ 24VDC/ 48VDC. Asco Make as Standard.
- › Limit Switch assembly for taking signal into control room.

Note: In the case of High pressure differential and low flow, we recommend our model F113-40ACT-R with Anti Cavitation TRIM.(Refer Page-4)

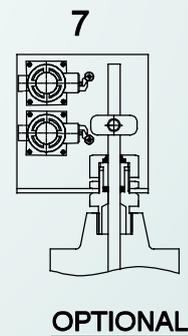
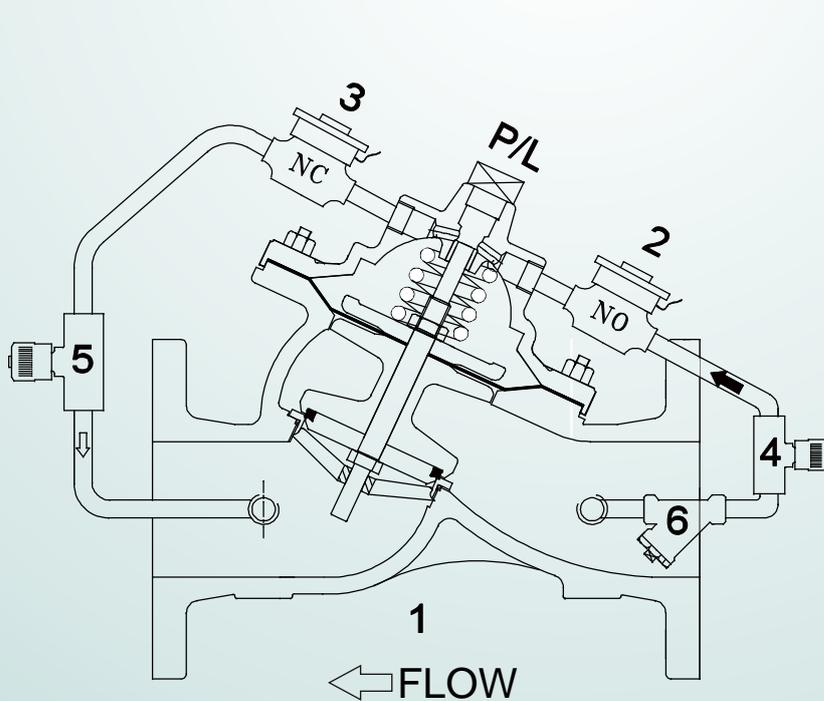
Diaphragm Actuated Hydraulically Operated - Digital Control Valve



F113-40R & F2113-40R



Globe Type DCV - Fig. 113-40R



- 1. BASIC VALVE-F100/F2100
- 2. SOLENOID VALVE (NO)
- 3. SOLENOID VALVE (NC)
- 4. NEDDLE VALVE - CLOSING SPEED
- 5. NEDDLE VALVE - OPENING SPEED
- 6. Y-STRAINER
- 7. LIMIT SWITCH ASS'L'Y

Globe 'Y' - Type DCV - Fig. 2113-40R

Diaphragm Actuated Hydraulically Operated - Digital Control Valve

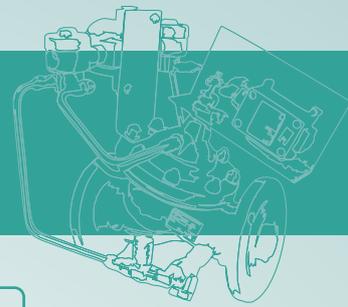
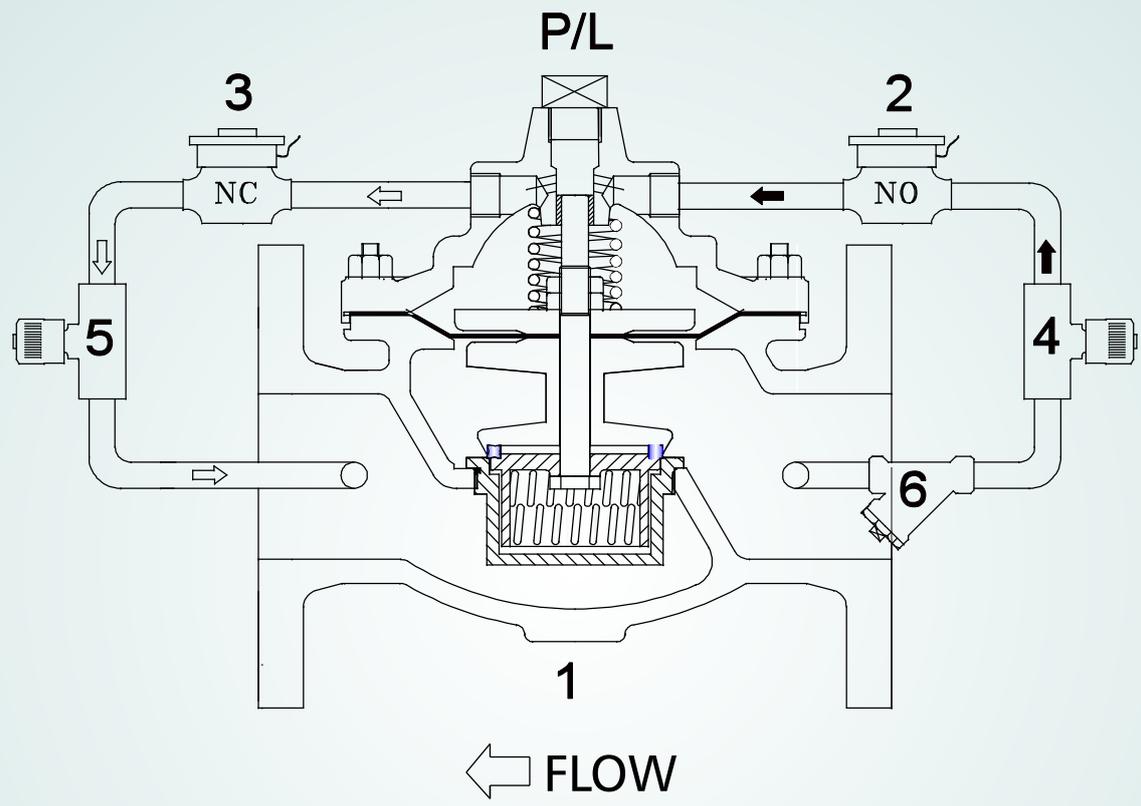


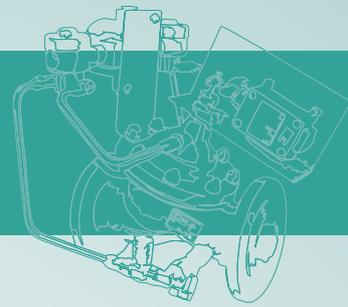
Fig. 113-40ACT-R Anti Cavitation Trim



Anti Cavitation Trim Type DCV-Fig.113-40ACT-R

Use our anti cavitation trim - ACT-R for LPG service or for application with high pressure differential and low flow

Diaphragm Actuated Hydraulically Operated - Digital Control Valve



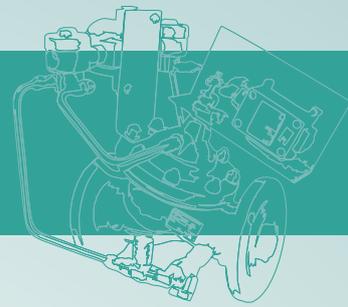
DCV- ASSEMBLY CONTENTS.

Darling muesco F113-40R / F2113-40R basically consists of a F100 / F2100 basic valve, 1 no. Normally open solenoid valve, Located on the inlet tubing, 1 no. Normally closed sol. Valve, in the outlet tubing. These two sol. Valves basically controls the operation of DCV in conjunction with the batch controller. Inlet control tubing contains a Y-Strainer, and closing speed control-needle valve. Outlet control tubing contain opening speed control – needle valve. The junction box is fixed on the valve cover and both sol. Valves are connected to the junction box thru electro plated brass cable glands. Limit switches are optional. All electrical are CCOE / PESO / CMRI certified.

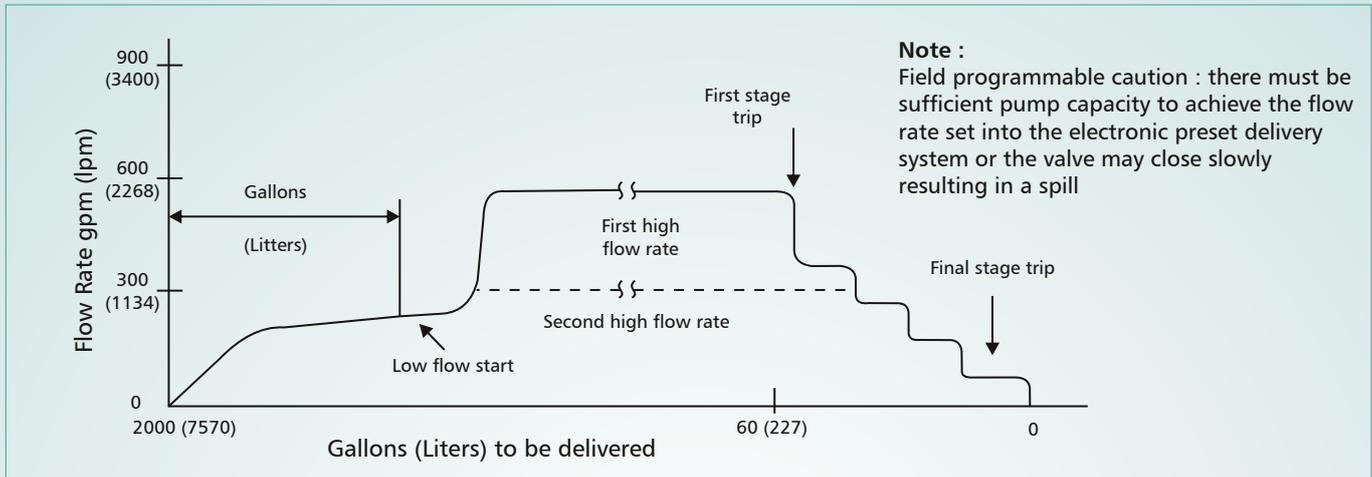
OPERATION

- » When both sol. Valves are de-energised, line fluid is placed inside the cover (above the diaphragm) keeping the valve in fully closed position.
- » Energising NO (2) sol. Valve, keeps the fluid locked inside the cover and keeps the valve in closed condition
- » By energising NC (3), low flow starts and again by de-energising NC (3) – while keeping no – energised, the valve is in hold position and continues to operate at low flow
- » After filling the pre-set volume of low flow, by energizing NC (3), the valve opens fully and starts delivering high set flow
- » Based on set high flow rate setting, it keeps receiving signals from the batch controller to maintain the set high flow rate by continuously energising and de-energising NC sol. valve.
- » Again in the closing cycle, after the desired quantity has been filled, batch controller signals to de-energise NC (3) and keeps on de-energizing and energizing NO (2), until the low flow conditions has been reached. The above sequence is repeated if multi-stage closing is required
- » When the full set quantity has been delivered, it de-energises nc to fully close the valve
- » All the above is achieved with typical loading terminal system as shown on page 8.

Diaphragm Actuated Hydraulically Operated - Digital Control Valve



Typical Load Cycle



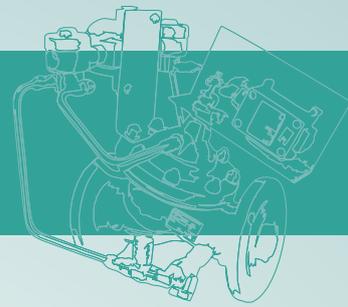
Flow Data Of F113-40R / F2113-40R

Valve Size (inch)	1"	1-1/2"	2"	2-1/2"	3"	4"	6"	8"	10"	12"	14"	16"
Valve Size (mm)	25	40	50	65	80	100	150	200	250	300	350	400
F/F Distance-150#(mm) (Globe)	152	179	238	241	305	381	508	645	756	864	991	1051
F/F Distance-150#(mm) (Y Type)	-	-	238	-	305	345	-	-	-	-	-	-
CV Value - (Globe) F-100 (G.P.M.@1 PSI P)	14	37	55	90	125	220	460	840	1400	1730	2300	2950
CV Value - (Y-Type) F-100 (G.P.M.@1 PSI P)	-	-	60	-	140	240	-	-	-	-	-	-
Maximum Continuous Flow Rate GPM (Water)	60	120	205	300	460	800	1800	3100	4900	7000	8500	11000
Maximum Intermittent Flow Rate GPM (Water)	85	158	260	370	570	1000	2300	3900	6000	8600	10500	14000
Approx Weight (Kgs)	6	14	20	24	28	55	120	175	375	500	728	1025

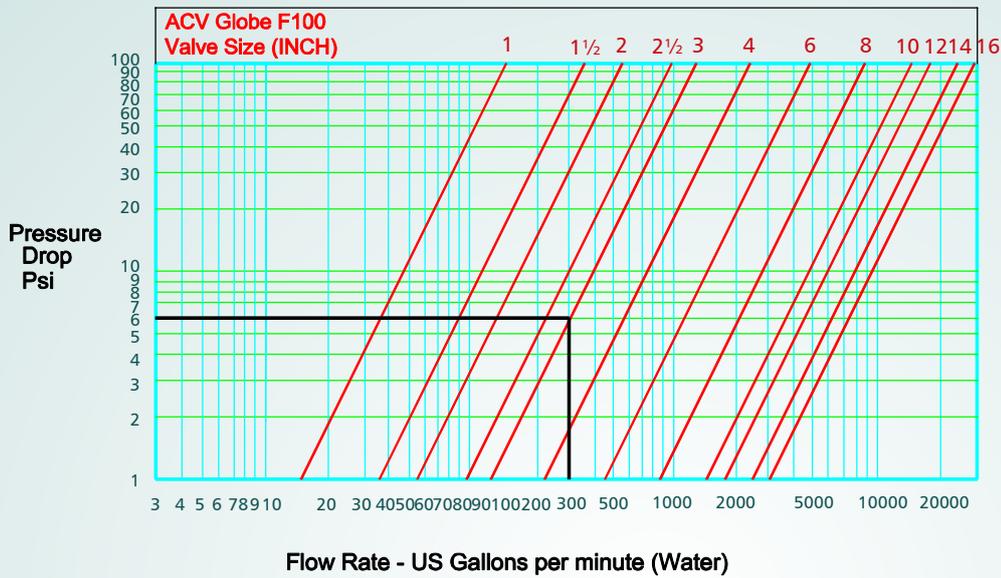
- › Maximum Continuous flow based on pipe line velocity of 20 ft. per Second
- › Maximum Intermittent flow based on pipe line velocity of 25 ft. per Second
- › The Cv factor of a valve is the flow rate in USGPM at 60 degrees F that will cause a one psi drop in pressure
- › The factors stated are based on a fully open valve
- › Cv factor can be used in the following equations:

$$Q(\text{flow}) = C_v \sqrt{\Delta P} \quad \Delta P (\text{Pressure drop}) = (Q/C_v)^2$$

Diaphragm Actuated Hydraulically Operated - Digital Control Valve

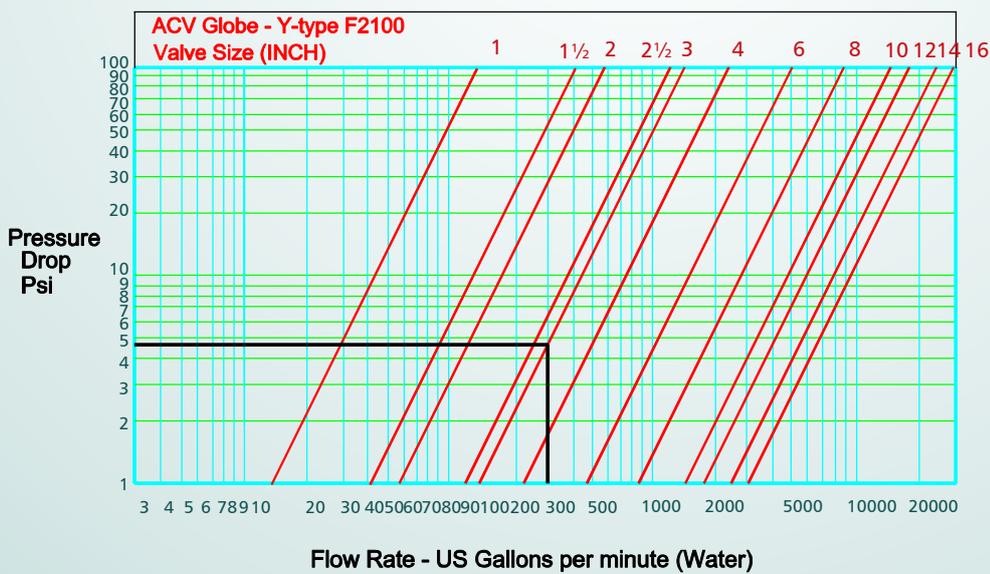


PRESSURE DROP CHART ACV 100 (GLOBE)



Example : 300GPM (1135 LPM) Flow Rate - Valve Size 3" - shall have 6 PSI Pressure Drop across the Valve

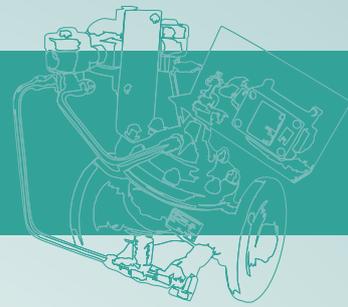
PRESSURE DROP CHART ACV 2100 (Y-Type)



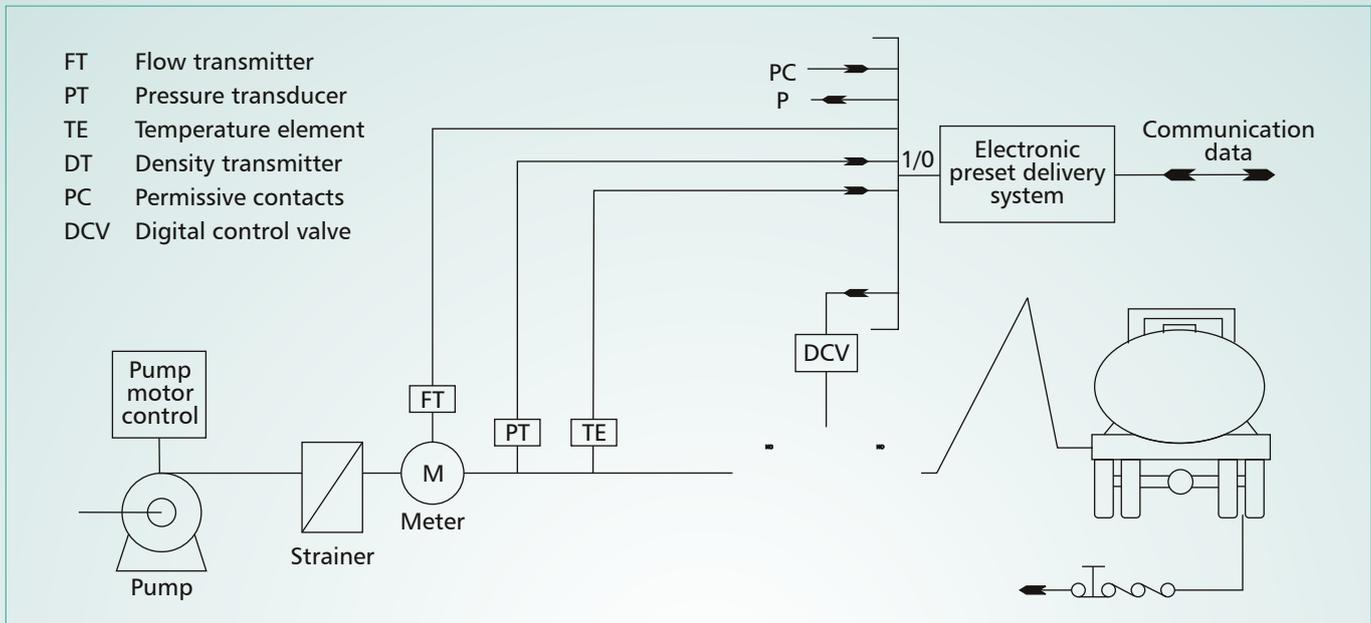
Example : 300GPM (1135 LPM) Flow Rate - Valve Size 3" - shall have 4.75 PSI Pressure Drop across the Valve

In other words for 6 PSI Pressure drop one can achieve flow Rate of 400 GPM (1500LPM)

Diaphragm Actuated Hydraulically Operated - Digital Control Valve



SCHEMATIC DIAGRAM OF TYPICAL LOADING SYSTEM



OUR ESTEEMED CUSTOMERS:



Indian Oil Corp. Ltd.
(more than 40 Locations)



Reliance Ind. Ltd.
(Hazira, Bharuch)



Bharat Petroleum Corp. Ltd.
(more than 50 Locations)



Bina - Bharat Petroleum Corp. Ltd.
(more than 400 Valves)
Under EIL Approved



Hindustan Petroleum Corp. Ltd.
(more than 50 Locations)
PDIL/MECON Approved



Numaligarh Refinery
Under EIL Approved

LPG Terminals, Ship Loading & Unloading

Exports To:



Singapore



Taiwan



UAE



Malaysia



U.K.



Oman



Indonesia



Italy



Syria



Darling Muesco (India) Pvt. Ltd.

Joint Venture with Anchor/Darling Valve Co.-USA
 Plot No. 97 A, Phase-1, G.I.D.C. Vatva, Ahmedabad - 382 445. INDIA.
 Phone: +91 79 2583-2578, 2589-3791 & 92, Fax: +91 79 2583 4392
 E-mail: sales@darlingmuesco.com, Web: www.darlingmuesco.com