



Darling Muesco (India) Pvt. Ltd.

Plot No.97 A, Phase - 1, G.I.D.C. Vatva, Ahmedabad-382 445.

Phone : (079) 583-2578 / 583-4392 Fax : (079) 583-4392

Cable : MUESCO, Vatva.

Mumbai Regd.Office : "Raghuvansh", Plot No 481, Sai Section, Ambarnath, Dist. Thane - 421501

Phone : (0251) 2603433 / 2606377

AUTO RECIRCULATING VALVE – F116



Model No. F 116 of the DARLING MUESCO Make, is a Self Regulating Auto Re-Circulation Valve, which is also known as Pump By-Pass Valve. It maintains constant upstream pressure at preset pressure, hence preventing the upstream equipment from high pressure. The valve handles air, water, gas oil and other clean process fluids in processes having wide pressure range requirements. The Valve is available in sizes 25 mm through 400 mm in body rating from ANSI 150# upto ANSI 900#. The Valve automatically releases higher inlet pressure in order to control main line pressure by relieving excess pressure in the by-pass / sump. The Valve is widely used in Auto Re-Sirculation in loading Terminals of Tankers & Wagons when more than one Bay are loaded from a single pump.



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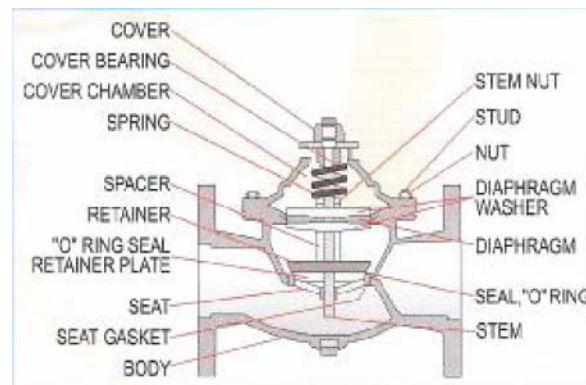
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CONSTRUCTION FEATURES –

Refer to G. A. Drawing, the main parts of the Valve F 115 consists of the following –

1. Main Valve
2. Relief Control
3. Strainer
4. Needle Valve

Main Valve (1): The Main Valve is a Globe Type Valve. The *Body* of the Valve is either Standard Globe Type or Y-Angle Pattern. The self actuation is done by the diaphragm. The imported *Diaphragm* is made up of Buna-N and is of best quality in the world.



Relief Control (2): The Relief Control pilot is a Normally Closed *spring* valve that takes the signal from the inlet of the main valve. When this signal pressure is more than the set pressure, the Relief Control opens, subsequently opening the Main Valve. The inlet of the Relief Control is from the upper part of the Main Valve. The outlet of the Relief Control is at the outlet of the Main Valve. The spring range of the pilot is from 20 to 175 psi G.

Operation –

a) When the signal line, which comes from inlet of the Main Valve, is more than the set pressure of the Relief Control spring, the Relief Control opens. Subsequently the upper part of the Main Valve above the diaphragm, is flushed at the outlet of the Main Valve. Hence the pressure above the diaphragm of the Main Valve reduces and the Main Valve opens.



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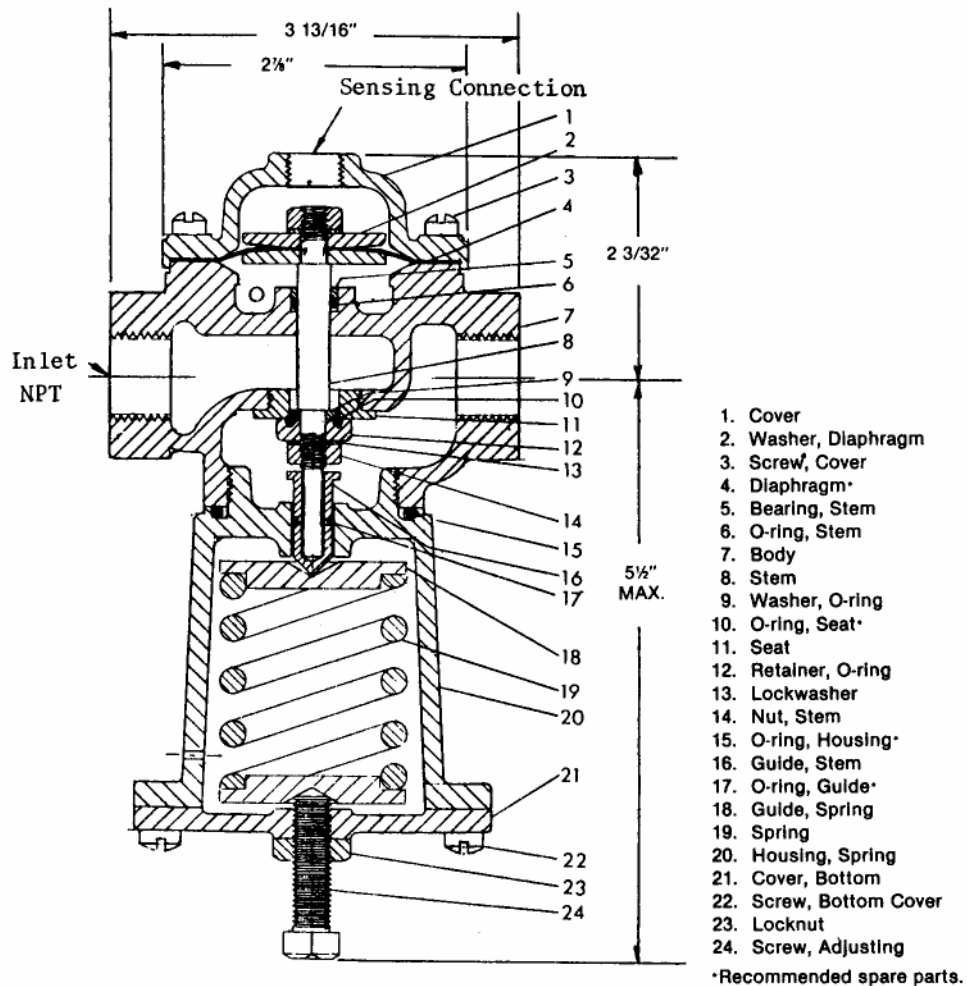
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b) When the pressure at inlet of Main Valve is reduces below the set pressure, the Relief Control closes due to the spring of the Relief Control. Subsequently, the pressure at the upper part, above the diaphragm, of the Main Valve starts increasing. And the Main Valve closes.





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All the components are completely SS-304. Body and Spring Housing are of SS-304 Investment Cast. It is Normally Closed when there is no spring tension. By turning knob(1) clockwise, set pressure increases and vice versa. Three spring ranges are available based on the set pressure required. The following are the spring ranges –

	Spring No.	Spring Range
1)	15-10	5-30 psi G
2)	15-11	25-250 psi G
3)	15-12	100-300 psi G

Strainer (3): The Y-Type strainer attached to the sensing line connected at the inlet of the main valve. It filters out any particles in the process fluid which may choke the small sensing line, which may affect the feedback signal.

Needle Valve (4): The sensing line from the inlet of the main valve also has a Needle Valve, after the strainer. It is used for adjusting the closing speed of the Main Valve. It is set during Final Testing of Main Valve at the factory.

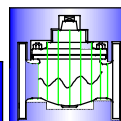
Please find below drawings of Valve indicating the flow when the Valve is in OPEN and CLOSE condition.



PUMP BY PASS / AUTO RECIRCULATION / PRESSURE RELIEF VALVE

F116

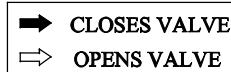
AUTOMATIC CONTROL VALVE SCHEMATIC



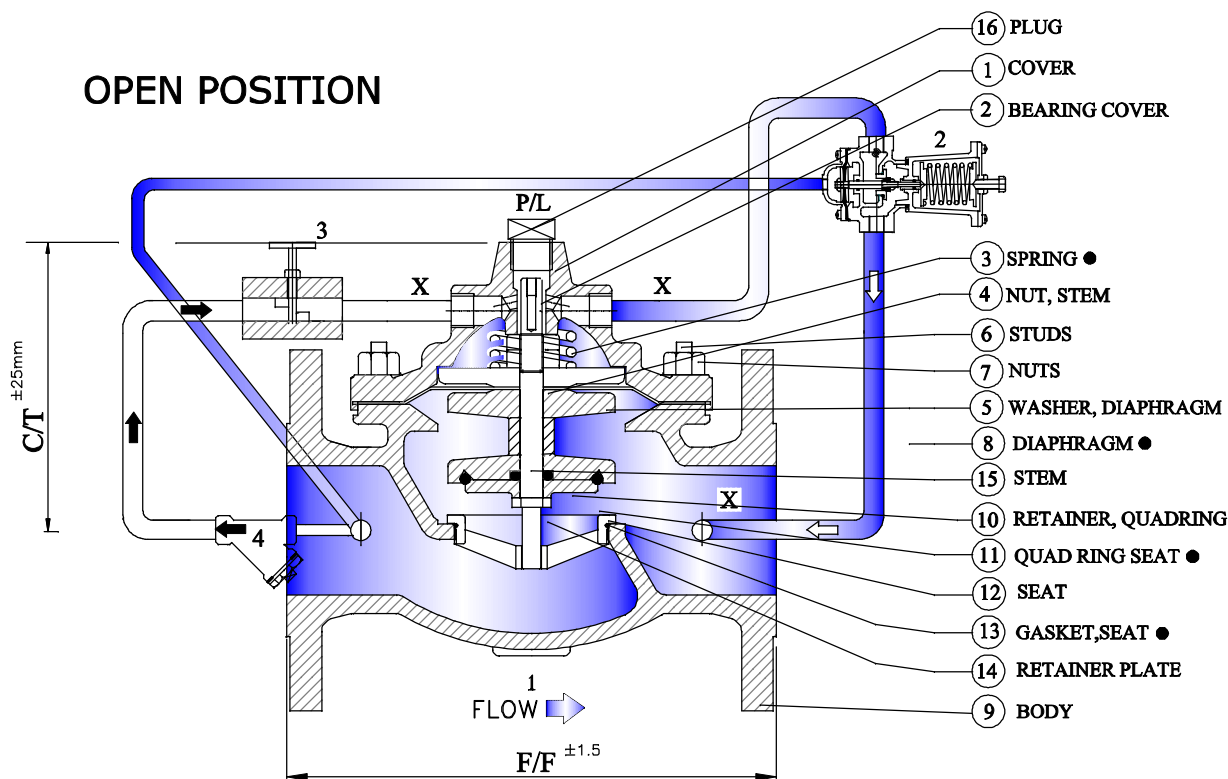
8/2011

VALVE FUNCTION

- MAINTAINS CONSTANT UPSTREAM PRESSURE (INLET TO OUTLET)
BY RELIEVING EXCESS PRESSURE



OPEN POSITION



● RECOMMENDED SPARE

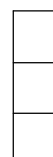
VALVE SIZE - INCH	1"	1-1/2"	2"	3"	4"	6"	8"	10"	12"	14"	16"
VALVE SIZE - mm	25	40	50	80	100	150	200	250	300	350	400
F/F (150 ANSI)	152	179	238	305	381	508	645	756	864	991	1051
C/T Max.-F100	75	115	140	175	220	305	400	480	530	570	665

COMPONENTS

- 1 - BASIC VALVE
- 2 - FIG.16 RELIEF CONTROL
- 3 - NEEDLE VALVE - Adj. closing speed
- 4 - STRAINER-'Y' TYPE

ACCESSORIES

LOCATED AS INDICATED
INCLUDED AS MARKED



X - ISOLATION COCKS

L - LIMIT SWITCH

P - POSITION INDICATOR

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E-MAIL : <sales@darlingmuesco.com>

website : <http://www.darlingmuesco.com>

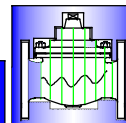
(Joint Ventreure with : ANCHOR/DARLING VALVE CO. U.S.A. & MUESCO Inc., U.S.A.)



PUMP BY PASS / AUTO RECIRCULATION / PRESSURE RELIEF VALVE

F116

AUTOMATIC CONTROL VALVE SCHEMATIC



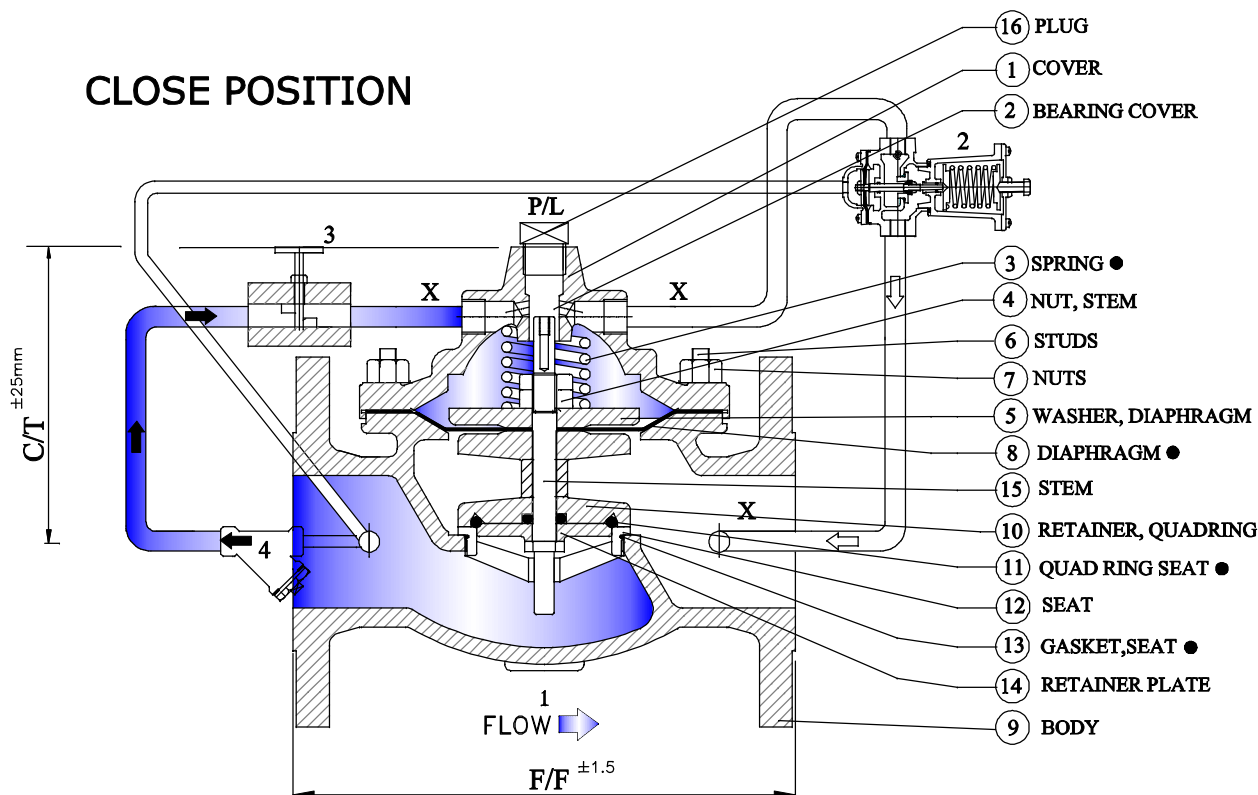
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VALVE FUNCTION

- MAINTAINS CONSTANT UPSTREAM PRESSURE (INLET TO OUTLET)
BY RELIEVING EXCESS PRESSURE



CLOSE POSITION



● RECOMMENDED SPARE

VALVE SIZE - INCH	1"	1-1/2"	2"	3"	4"	6"	8"	10"	12"	14"	16"
VALVE SIZE - mm	25	40	50	80	100	150	200	250	300	350	400
F/F (150 ANSI)	152	179	238	305	381	508	645	756	864	991	1051
C/T Max.-F100	75	115	140	175	220	305	400	480	530	570	665

COMPONENTS

- 1 - BASIC VALVE
- 2 - FIG.16 RELIEF CONTROL
- 3 - NEEDLE VALVE - Adj. closing speed
- 4 - STRAINER-'Y' TYPE

ACCESSORIES

LOCATED AS INDICATED
INCLUDED AS MARKED



- X - ISOLATION COCKS
- L - LIMIT SWITCH
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FLOW DATA –

Below is the flow data details for Self Actuated Auto Re-Circulation Valve F 116.

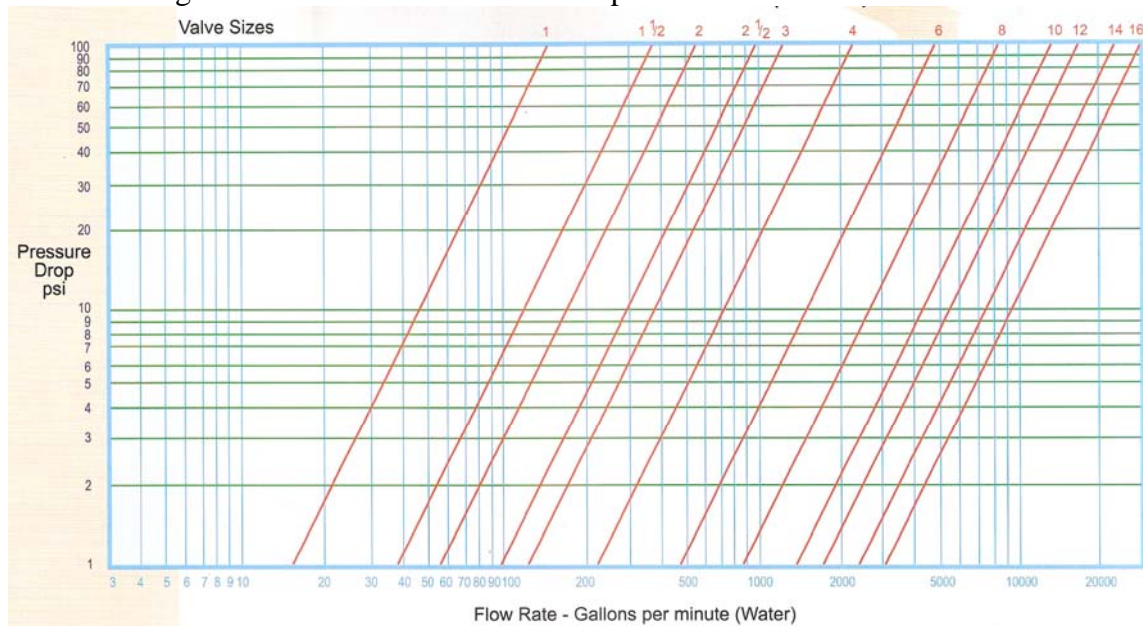
FLOW DATA - ACV 100 (GLOBE) / 1100 (ANGLE)													
Valve Size	Inches mm.	1"	1.1/2"	2"	2. 1/2"	3"	4"	6"	8"	10"	12"	14"	16"
		25	40	50	65	80	100	150	200	250	300	350	400
Maximum continuous Flow Rate GPM (Water)		60	120	205	300	460	800	1800	3100	4900	7000	8500	11000
Maximum Intermittent Flow Rate GPM(Water)		85	158	260	370	570	1000	2300	3900	6000	8600	10500	14000
Cv Value-Globe		14	37	55	90	125	220	460	840	1400	1700	2350	2950
Cv Value-Angle		-	45	65	102	150	260	570	990	1600	2500*	3060*	4210*
F/F Distance-150#(mm)		152	175	203	241	305	343	432	559	757	864	991	1060
Weight (kg.) - approx.		6	14	20	24	28	55	115	182	375	500	728	1025

* ESTIMATED

Specifications are subject to change due to technical modification.

VALVE CHARACTERISTICS –

The following are the Valve Characteristics as per tested data.





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RECOMMENDED SPARES –

Sr. No.	Item
1.	Diaphragm
2.	Quad Ring Seat and Gasket
3.	Auxiliary Spring of Main Valve
4.	Setting Spring of Relief Control

CONTACT DETAILS –

MUMBAI OFFICE –

Address : "Raghuvansh", Plot No. 481, Sai Section, Ambarnath (E)-421501

Dist – Thane, Maharashtra, India

Tel : 0251 – 2603433, Tel/Fax : 0251 - 2606377

Email : samarth98@hotmail.com, mumbai@darlingmuesco.com

Head Office Address : Plot No 97/A, Phase-I, GIDC.Estate, Vatva, Ahmedabad-382 445