



MODEL 633-01 Metering Valve



- Automatically Measures and Controls Flow Rate Without a Separate Metering Device
- Completely Self Contained
- Reliable Analog Communications
- Retransmission Capabilities
- Ideal for Retrofitting Existing Valves
- Security System to Prevents Unauthorized Changes
- Optional Totalizing Capabilities

The Cla-Val Model 633-01 Metering Valve is a completely self contained valve and control system that accurately meters and/or controls flow rate when used on valves with pressure differentials of less than 100 psid.

Using a VC-22D Electronic Controller, data from valve mounted differential pressure and position transmitters are assimilated into a proprietary algorithm program that is based on valve size and configuration to arrive at a flow measurement. This information is used for retransmission and/or compared with a local or remote set-point for valve flow control.

The 633-01 Control System can also be installed on new or existing hydraulic pilot control valves such as: pressure reducing, pressure sustaining, flow limiting and level control to transmit flow rate without disturbing the valve's primary hydraulic function(s). Specify Kit 633-01 for these applications. Consult factory.

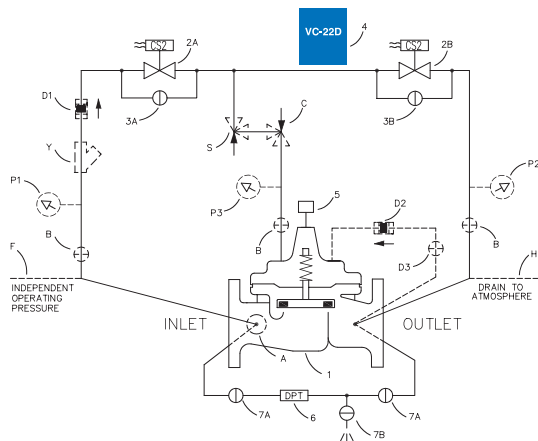
For all applications, specify voltage, minimum/maximum pressures and flow rates, valve size, pressure class and optional features. Consult your local representative or the Factory for engineering assistance and valve selection.

Schematic Diagram

Item	Description
1	100-20 Hytrol Main Valve
2	CS2S Solenoid Control
3	CK2 Solenoid By-Pass
4	VC-22D Electronic Controller
5	X117 Series Position Transmitter
6	DPT Differential Pressure Transmitter
7	CK2 Isolation Valve

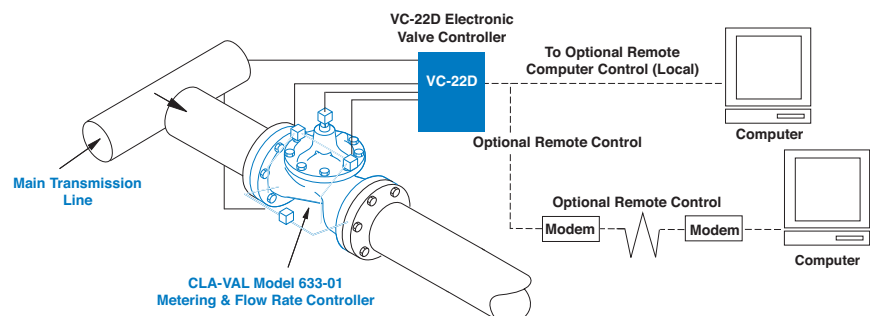
Optional Features

Item	Description
A	X46A Flow Clean Strainer
B	CK2 Isolation Valve
C	CV Flow Control (Closing)
D	Check Feature
F	Independent Operation Pressure
H	Atmospheric Drain
P	X141 Pressure Gauge
S	CV Flow Control (Opening)
Y	X43 "Y" Strainer



Typical Applications

The Model 633-01 Metering and Flow Rate Controller is typically installed in a fluid delivery system where the flow rate is measured and changed from a remote location such as a SCADA system.



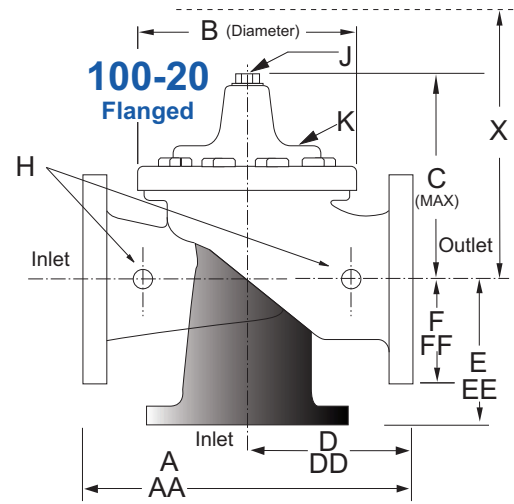
Model 633-01 (Uses Basic Valve Model 100-20)

Dimensions
(Inches)

Pressure Ratings (Recommended Maximum Pressure - psi)

Valve Body & Cover		Pressure Class		
		Flanged		
Grade	Material	ANSI Standards*	150 Class	300 Class
ASTM A536	Ductile Iron	B16.42	250	400
ASTM A216-WCB	Cast Steel	B16.5	285	400
UNS 87850	Bronze	B16.24	225	400

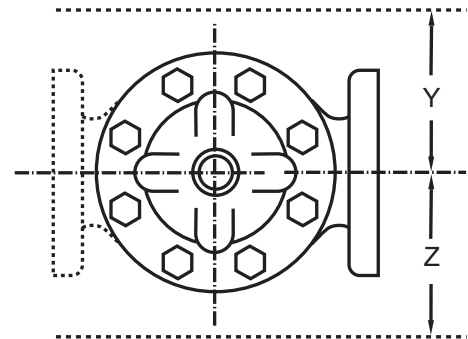
Note: * ANSI standards are for flange dimensions only.
Flanged valves are available faced but not drilled.
Valves for higher pressure are available; consult factory for details



Materials

Component	Standard Material Combinations		
Body & Cover	Ductile Iron	Cast Steel	Bronze
Available Sizes	3" - 48" 80 - 1200mm	3" - 16" 80 - 400mm	3" - 16" 80 - 400mm
Disc Retainer & Diaphragm Washer	Cast Iron	Cast Steel	Bronze
Trim: Disc Guide, Seat & Cover Bearing	Bronze is Standard Stainless Steel is Optional		
Disc	Buna-N® Rubber		
Diaphragm	Nylon Reinforced Buna-N® Rubber		
Stem, Nut & Spring	Stainless Steel		

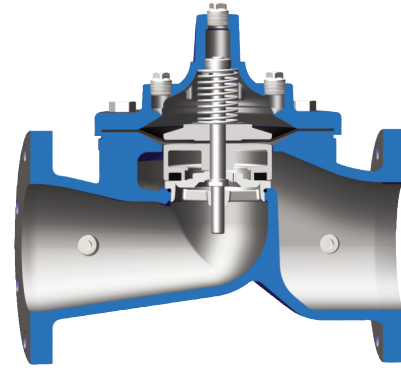
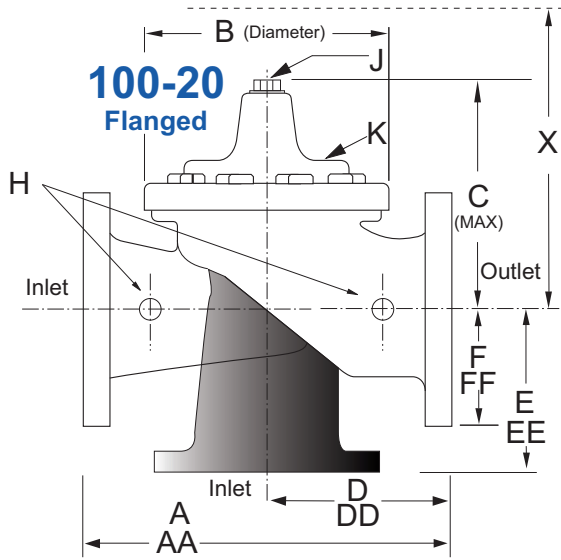
For material options not listed, consult factory.
Cla-Val manufactures valves in more than 50 different alloys.



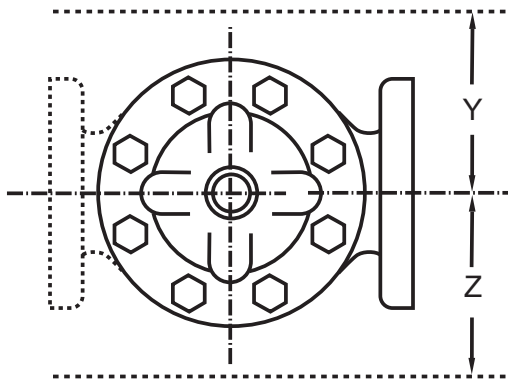
Model 633-01 Dimensions (Inches)

Valve Size (Inches)	3	4	6	8	10	12	14	16	18	20	24	30	36	48
A 150 ANSI	10.25	13.88	17.75	21.38	26.00	30.00	34.25	35.00	42.12	48.00	48.00	63.25	65.00	88.0
AA 300 ANSI	11.00	14.50	18.62	22.38	27.38	31.50	35.75	36.62	43.63	49.62	49.75	63.75	67.00	90.62
B Diameter	6.62	9.12	11.50	15.75	20.00	23.62	27.47	28.00	35.44	35.44	35.44	53.19	56.00	66.00
C Maximum	7.00	8.62	11.62	15.00	17.88	21.00	20.88	25.75	25.00	31.50	31.50	43.94	54.75	59.00
D 150 ANSI	—	6.94	8.88	10.69	12.75	14.94	—	—	20.93	21.06	—	—	—	—
DD 300 ANSI	—	7.25	9.38	11.19	—	—	—	—	—	—	—	—	—	—
E 150 ANSI	—	5.50	6.75	7.25	8.06	8.68	—	—	15.81	15.94	—	—	—	—
EE 300 ANSI	—	5.81	7.25	7.75	—	—	—	—	—	—	—	—	—	—
F 150 ANSI	3.75	4.50	5.50	6.75	8.00	9.50	11.00	11.75	15.88	14.56	17.00	19.88	25.50	34.00
FF 300 ANSI	4.12	5.00	6.25	7.50	8.75	10.25	11.50	12.75	15.88	16.06	19.00	22.00	27.50	38.50
H NPT Body Tapping	0.375	0.50	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
J NPT Cover Center Plug	0.50	0.50	0.75	0.75	1.00	1.00	1.25	1.25	2.00	2.00	2.00	1.00	2.00	2.00
K NPT Cover Tapping	0.375	0.50	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Stem Travel	0.60	0.80	1.10	1.70	2.30	2.80	3.40	4.50	4.50	4.50	6.50	7.50	7.50	8.50
Approx. Ship Weight (lbs)	45	85	195	330	625	900	1250	1380	2365	2551	2733	6500	8545	13100
Approx. X Pilot System	13	15	27	30	33	36	36	41	40	46	55	68	79	86
Approx. Y Pilot System	10	11	18	20	22	24	26	26	30	30	30	39	40	47
Approx. Z Pilot System	10	11	18	20	22	24	26	26	30	30	30	39	42	49

Model 633-01 Metric Dimensions (Uses 100-20 Hytrol Main Valve)



Model 100-20 Reduced Port Hytrol Main Valve



Model 633-01 Dimensions (mm)

Valve Size (mm)	80	100	150	200	250	300	350	400	450	500	600	750	900	1200
A 150 ANSI	260	353	451	543	660	762	870	889	1070	1219	1219	1607	1651	2235
AA 300 ANSI	279	368	473	568	695	800	908	930	1108	1260	1263	1619	1702	2302
B Diameter	168	232	292	400	508	600	698	711	900	900	900	1351	1422	1676
C Maximum	178	219	295	381	454	533	530	654	635	800	800	1116	1391	1499
D 150 ANSI	—	176	226	272	324	380	—	—	532	535	—	—	—	—
DD 300 ANSI	—	184	238	284	—	—	—	—	—	—	—	—	—	—
E 150 ANSI	—	140	171	184	205	349	—	—	402	405	—	—	—	—
EE 300 ANSI	—	148	184	197	—	—	—	—	—	—	—	—	—	—
F 150 ANSI	95	114	140	171	203	241	279	289	403	370	432	505	648	864
FF 300 ANSI	105	127	159	191	222	260	292	324	403	408	483	559	699	978
H NPT Body Tapping	0.375	0.50	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
J NPT Cover Center Plug	0.50	0.50	0.75	0.75	1.00	1.00	1.25	1.25	2.00	2.00	2.00	1.00	2.00	2.00
K NPT Cover Tapping	0.375	0.50	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Stem Travel	15	20	28	43	58	71	86	86	114	114	114	165	191	216
Approx. Ship Weight (kgs)	20	39	89	150	284	409	568	627	681	1157	1249	2951	3876	5942
Approx. X Pilot System	331	381	686	762	839	915	915	1042	1016	1169	1397	1728	2007	2185
Approx. Y Pilot System	254	280	458	508	559	610	661	661	762	762	762	991	1016	1194
Approx. Z Pilot System	254	280	458	508	559	610	661	661	762	762	762	991	1067	1245

633-01 Valve Selection	100-20 Pattern: Globe (G), Angle (A), End Connections: Flanged (F) Indicate Available Sizes															
	Inches	3	4	6	8	10	12	14	16	18	20	24	30	36	42	48
	mm	80	100	150	200	250	300	350	400	450	500	600	750	900	1000	1200
Main Valve 100-20	Pattern	G	G, A	G, A	G, A	G	G	G	G	G	G	G	G	G	G	G
	End Detail	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
Suggested Flow (gpm)	Maximum	260	580	1025	2300	4100	6400	9230	9230	16500	16500	16500	28000	42000	57000	57000
Suggested Flow (Liters/Sec)	Maximum	16	37	65	145	258	403	581	581	1040	1040	1040	1764	2115	2115	2115

100-20 Series is the reduced internal port size version of the 100-01 Series.

Pilot System Specifications*

Temperature Range

Water: to 180°F/ 82°C

Rubber Parts:

Buna-N® Rubber Synthetic

Solenoid Control

Body: Brass ASTM B283

Enclosure: NEMA Type 1,2,3,3S,4,4X general purpose watertight
NEMA Type 6,6P,7,9 watertight explosion proof available

Voltage: 24, 120, 240, 480 - 60Hz AC
24 - DC

Max. operating pressure differential:
100 psi

Coil:

Insulation Molded Class	F
Watts AC	6
AC Volt Amps Inrush	30
AC Volt Amps Holding	16
Watts DC	10.6

*For specifications on other 633 Series Valves, please consult factory. The 633-01 is shown.

When Ordering, Specify

1. Catalog No. 633-01
2. Valve Size
3. Pattern - Globe or Angle
4. Pressure Class
5. Threaded or Flanged
6. Trim Material
7. Electrical Specifications
8. Desired Options
9. When Vertically Installed

Valve Options

X141
Pressure
Gauge



X101AR Valve
Position Indicator
with Air Release



X101
Valve Position
Indicator



X144 e-FlowMeter



X43H
Strainer



Stainless
Steel Pilot



E-633-01 with VC-22D Controller
(R-03/2021)

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