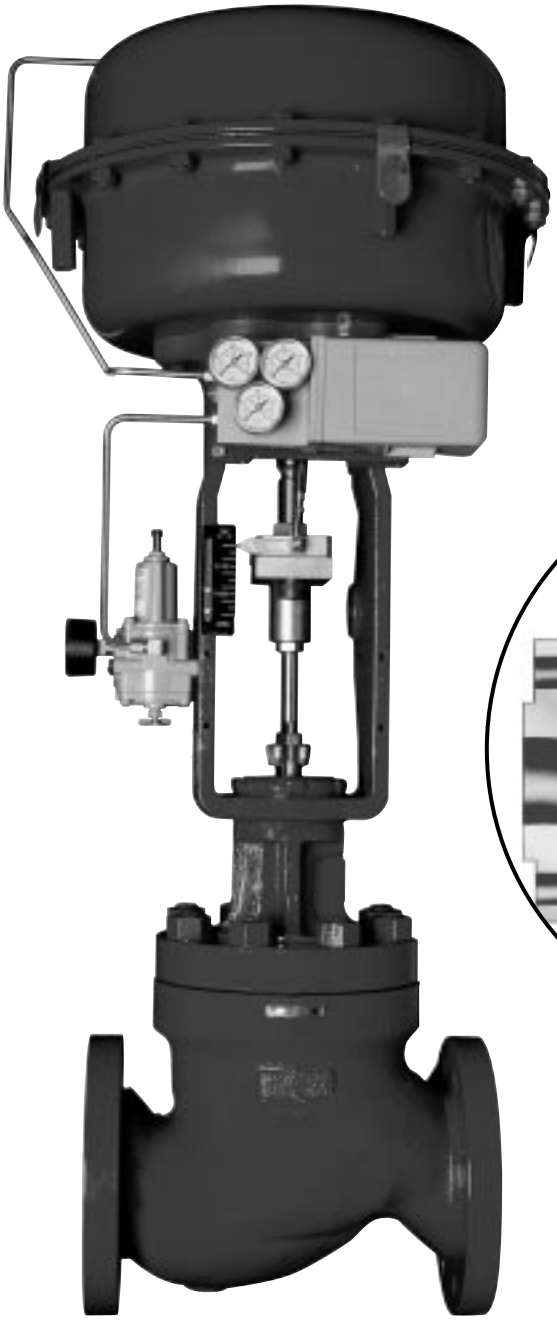
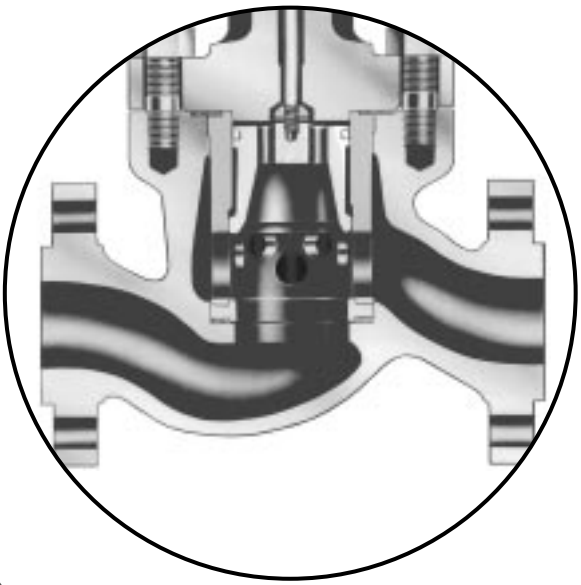
Specification Data CH3000
5/97

41000 Series Control Valves

A Complete Line of Heavy Duty, Balanced, Cage Guided, Globe Valves with VRT® Anti-Cavitation and Noise Control Lo-dB® Trim





Masoneilan
Valve & Controls DRESSER

Table of Contents

Foreword

Masoneilan's 41000 Series heavy-duty control valve line, engineered to handle the most demanding process conditions, exceeds the capabilities of regular valves.

Broad Temperature Ranges

Size for size, the 41000 Series provides effective control throughout a broad range of process temperatures from **-320°F to +1050°F**.

Higher Allowable Pressure Drops

41000 Series control valves provide exceptional and dependable performance over a wide range of pressure drops typical of severe services.

Greater Capacity with Low Recovery

Masoneilan's 41000 Series control valves have the highest capacities of contemporary cage-type globe valves. These unusually high capacities are attained with minimum pressure recovery, as indicated by high critical flow (F_L) factors.

High-Performance Materials are Standard

Without exception, the materials we specify as standard on the 41000 Series have been tested and selected to provide trouble-free operation in services with high pressures and extreme temperatures. Therefore, specification is simplified and longevity on any application is assured.

Variety of High Performance Engineered Trim Packages

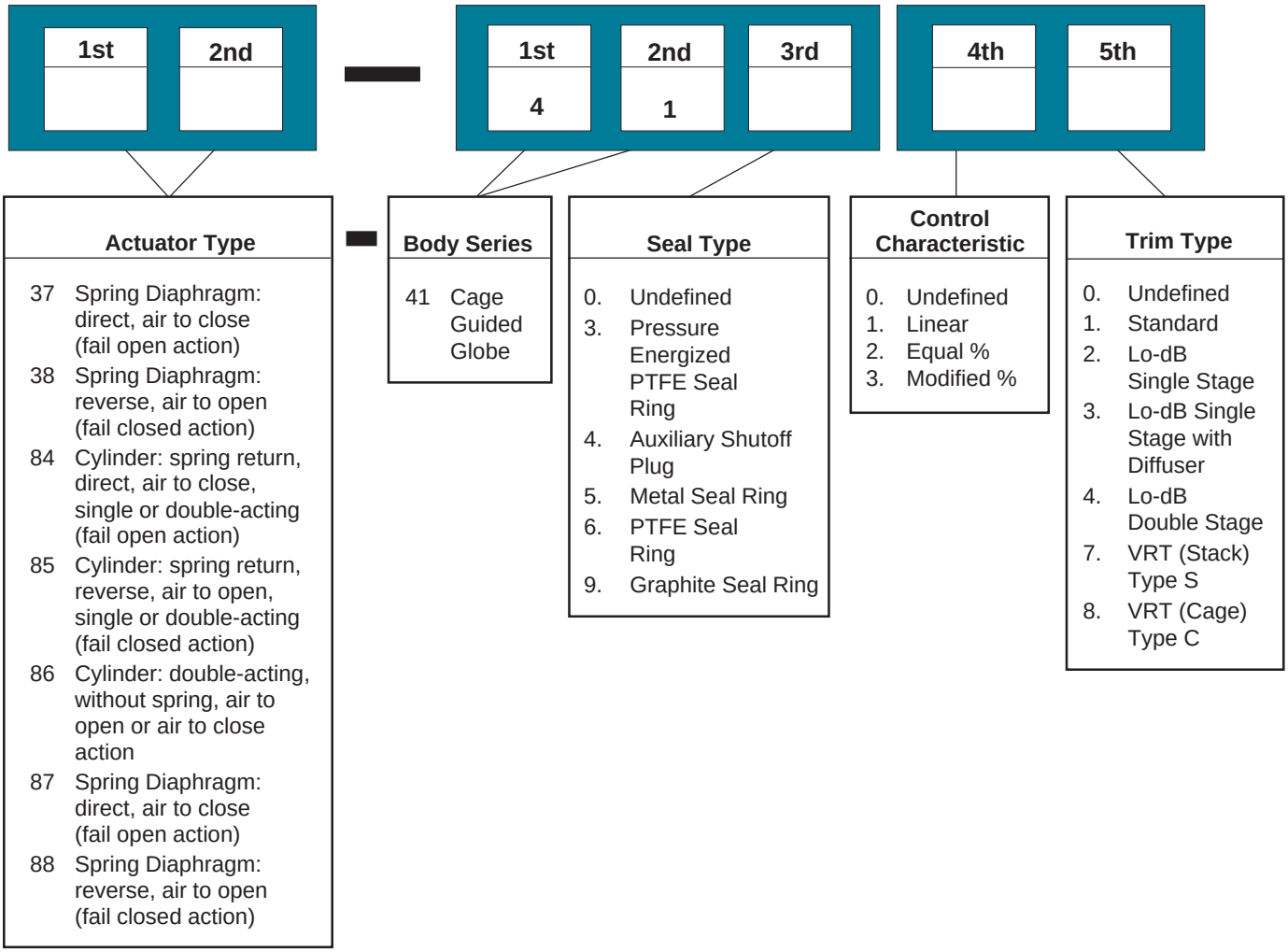
Available with full area as well as reduced C_V capacities, 41000 Series trim options include:

- **Lo-dB** Single Stage trim - provides excellent noise attenuation and cavitation protection on liquid services.
- **Lo-dB** Double Stage trim - designed for noise control on gas or steam at high pressure drop ratios.
- **VRT Type C Cage Trim** - designed to handle high pressure drops in severe service applications for non-compressible fluids. Complete cavitation protection is available for pressure drops up to 3000 psi.
- **VRT Type S Stack Trim** - well-suited for non-compressible fluids, such as feed-pump recirculation, injection valve bypass, and boiler feed water. Engineered to handle extremely high pressure drops of up to 6000 psi.

For more information regarding NACE conformance, cavitation, critical pressure drop, and VRT trim, consult your Masoneilan representative or refer to the following publications:

1. Masoneilan Handbook for Control Valve Sizing (Bulletin OZ1000)
2. Masoneilan Noise Control Manual (Bulletin OZ3000)

Model Numbering System



Ratings/Connections

○ Threaded • Socket Weld ■ Butt Weld □ RF & RTJ

Valve Type	Size (inches)	ANSI Class 150	300	600	900	1500	2500
Standard and Lo-dB Single Stage	2		○● ■ □	○● ■ □	● ■ □	● ■ □	● ■ □
	3		■ □	■ □	■ □	■ □	■ □
	4		■ □	■ □	■ □	■ □	■ □
	6	■ □	■ □	■ □	■ □	■ □	■ □
	8	■ □	■ □	■ □	■ □	■ □	■ □
	10	■ □	■ □	■ □	■ □	■ □	
	12	■ □	■ □	■ □	■ □	■ □	
	16	■ □	■ □	■ □	■ □	■ □	
	6x3x6	■ □	■ □	■ □	■ □	■ □	
	8x4x8	■ □	■ □	■ □	■ □	■ □	
	10x6x10	■ □	■ □	■ □	■ □	■ □	
	12x8x12	■ □	■ □	■ □			
	16x10x16	■ □	■ □	■ □			

- 14", 18", 20", and 24" sizes are available. Please consult factory.
- A Hung Cage design for high temperature (1050°F) and high pressure (ANSI 2500# and 4500#) is available. Please consult factory.

Valve Type	Size (inches)	ANSI Class 150	300	600	900	1500	2500
Lo-dB Double Stage	4		■ □	■ □	■ □	■ □	
	6	■ □	■ □	■ □	■ □	■ □	
	8	■ □	■ □	■ □	■ □	■ □	
	10	■ □	■ □	■ □	■ □	■ □	
	12	■ □	■ □	■ □	■ □	■ □	
	16	■ □	■ □	■ □			
VRT Type C Anti-Cav. Cage	2		○● ■ □	○● ■ □	● ■ □	● ■ □	
	3		■ □	■ □	■ □	■ □	
	4		■ □	■ □	■ □	■ □	
	6	■ □	■ □	■ □	■ □	■ □	
VRT Type S Anti-Cav. Stack	4		■ □	■ □	■ □	■ □	■ □
	6		■ □	■ □	■ □	■ □	■ □
	8		■ □	■ □	■ □	■ □	■ □
	10		■ □	■ □	■ □	■ □	
	12		■ □	■ □	■ □	■ □	
	16		■ □	■ □	■ □	■ □	

General Data

Standard Valve (41300, 41400, 41500, 41600 and 41900)

- **Body**
  - type: high-capacity globe
  - flow direction: see Allowable Pressure Drop Table
  - Lo-dB trim: flow to open for gas or steam
  - Lo-dB trim with diffuser: flow to close for gas or steam
  - cavitation service: flow to close
  - C_V ratio: 100:1 standard capacity trim
    50:1 Lo-dB and reduced capacity trim
- **Bonnet**
  - type: stud bolted, extended
- **Trim**
  - cage: cylindrical ported or Lo-dB
  - plug: pressure balanced cage guided with metal, PTFE, or graphite seal ring; pressure balanced cage guided, with spring loaded internal auxiliary tight shutoff plug
- **Flow Characteristic**
  - standard trim: linear, equal percentage
  - Lo-dB trim: linear

VRT Type C Cage Valve (41318 and 41618)

- flow direction: flow to open
- C_V ratio: up to 50:1
- **Trim**
  - type: multiple cage, axial-radial flow, Variable Resistance Trim (VRT)Type C Cage
- **Flow Characteristic**
  - standard trim: linear

Lo-dB Double Stage Valve (41514, 41614 and 41914)

- flow direction: flow to open
  gas or steam only
- C_V ratio: 50:1
- **Trim**
  - cage: two-stage Lo-dB
  - plug: pressure balanced cage guided with metal, PTFE, or graphite seal ring
- **Flow Characteristic**
  - standard trim: linear

VRT Type S Stack Valve (41317 and 41337)

- flow direction: flow to open
- C_V ratio: see Page 9
- **Trim**
  - type: multistage, axial flow, Variable Resistance Trim (VRT) Type S Stack
- **Flow Characteristic**
  - 41317: linear
  - 41337: modified percentage

Actuator

- type: spring diaphragm, cylinder (double-acting with or without spring or spring return)
- handwheel: optional

Allowable Pressure Drop Page Index

Model	F.T.C./Page	F.T.O./Page
41311	------	20
41312	------	21
41317	------	30
41318	------	28
41321	------	20
41337	------	31
41411	14, 15	------
41421	14, 15	------
41412	16	------
41413	16	------
41511	17, 18	22, 23, 24
41521	17, 18	22, 23, 24
41512	19	25, 26
41513	19	------
41514	------	27

Model	F.T.C./Page	F.T.O./Page
41611	17, 18	22, 23, 24
41621	17, 18	22, 23, 24
41612	19	25, 26
41613	19	------
41614	------	27
41618	------	29
41911	18	23, 24
41921	18	23, 24
41912	19	26
41913	19	------
41914	------	27

Temperature Range/Seat Leakage

Valve Type	Model	Size (inches)	Temperature Range		Seat Leakage per ANSI / FCI 70.2 Class
			Minimum	Maximum	
Standard Single Stage Lo-dB Anti-Cavitation	41300	2 - 16	-50°F	+ 450°F	V
	41400	2 -16	-320°F	+1050°F	IV V (optional)
	41500	2 - 4	-320°F	+1050°F	II
		6 - 16	-320°F	+1050°F	III
	41600	2 - 16	-20°F	+ 300°F	IV
	41900	6 - 16	-320°F	+1050°F	IV
Lo-dB Double Stage	41514	4 - 6	-320°F	+1050°F	II
		8 - 16	-320°F	+1050°F	III
	41614	4 - 16	-20°F	+ 300°F	IV
	41914	8 - 16	-320°F	+1050°F	IV
VRT Type C	41318	2 - 6	-20°F	+ 450°F	V
	41618	2 - 6	-20°F	+ 300°F	IV
VRT Type S	41317	8 - 12	-20°F	+ 450°F	V
	41337	4 - 16	-20°F	+ 450°F	V

C_V and F_L versus Travel

Standard Trim (Single Stage) Models 41411, 41511, 41611 and 41911

Flow Characteristic: **LINEAR**

Percent of Travel				10	20	30	40	50	60	70	80	90	100
F_L				0.94	0.94	0.93	0.93	0.92	0.92	0.91	0.91	0.90	0.90
Valve Size (inches)	ANSI Class	Orifice Diameter (inches)	Travel (inches)	Rated C_V									
2	900-2500	1.84	0.8	1.4	2.7	4.2	6	8	10	12.5	14	15.5	16
				2	4.9	8.3	13	19	25	30	35	38	40
2	300,600	2.50	1.5	2.7	5.1	7.9	11	15	19	23	26	29	30
3	2500			4	8	14	22	34	46	56	65	72	75
3	300-1500	3.50	2.0	5.4	10	16	23	30	38	45	51	59	60
4	2500			8	17	28	46	70	95	115	134	148	155
4	300-1500	4.38	2.0	9	16	25	36	47	60	71	81	93	95
6	2500			12	32	55	86	122	156	184	208	226	240
6	150-1500	5.12	0.8	6	16	26	42	58	74	93	119	142	165
8	2500		2.0	20	54	90	145	205	260	305	345	375	400
8	150-1500	6.50	1.5	15	40	75	110	145	190	250	310	365	415
			2.5	30	85	145	235	330	415	495	550	600	640
10	150-1500	8.00	1.5	20	50	80	130	180	230	290	370	440	510
			3.0	50	130	230	370	510	650	770	860	940	1000
12	150-1500	9.75	2.0	30	70	140	200	270	350	450	570	680	770
			3.8	70	180	320	520	710	910	1080	1200	1320	1400
16	150-1500	13.00	2.5	30	130	230	298	410	548	730	900	1050	1280
			5.0	130	335	580	930	1280	1630	1930	2150	2350	2500

C_V and F_L versus Travel

Standard Trim (Single Stage) Models 41421, 41521, 41621 and 41921

Flow Characteristic: **EQUAL PERCENTAGE**

Percent of Travel				10	20	30	40	50	60	70	80	90	100
F_L				0.94	0.94	0.94	0.94	0.94	0.94	0.93	0.92	0.92	0.90
Valve Size (inches)	ANSI Class	Orifice Diameter (inches)	Travel (inches)	Rated C_V									
2	900-2500	1.84	0.8	0.5	0.7	1	1.5	2.7	5	7.9	10.5	12.6	14
				0.7	1.3	2.2	3.6	6.6	12.6	19.8	26.4	31.5	35
2	300,600	2.50	1.5	0.9	1.3	1.8	2.9	4.9	9.4	14.7	19.6	23.4	26
3	2500			1.2	2.3	4.2	6.8	12.3	23.4	36.7	49	58.5	65
3	300-1500	3.50	2.0	2	2.8	3.9	6.2	10.6	20.1	31.2	42.2	50.4	56
4	2500			3	5	9	15	26	50	79	105	126	140
4	300-1500	4.38	2.0	3	5	6	10	17	32	51	68	81	90
6	2500			4	8	14	23	43	81	127	170	203	225
6	150-1500	5.12	2.0	5	7	10	16	27	52	81	108	130	144
8	2500			7	13	23	37	68	130	203	271	324	360
8	150-1500	6.50	2.5	8	12	16	25	43	83	130	174	207	230
				11	21	37	60	109	207	324	433	518	575
10	150-1500	8.00	3.0	13	18	25	40	68	130	203	271	324	360
				17	32	58	94	170	324	508	678	810	900
12	150-1500	9.75	3.8	18	25	35	55	95	180	282	377	450	500
				24	45	81	131	238	454	711	949	1134	1260
16	150-1500	13.00	5.0	32	45	63	99	170	324	508	678	810	900
				43	81	144	234	426	810	1269	1695	2025	2250

41300 Series (Single Stage) Model 41311

Flow Characteristic: **LINEAR**

Percent of Travel				10	20	30	40	50	60	70	80	90	100
F_L				0.94	0.94	0.93	0.93	0.92	0.92	0.91	0.91	0.90	0.90
Valve Size (inches)	ANSI Class	Orifice Diameter (inches)	Travel (inches)	Rated C_V									
2	900-2500	1.84	0.8	1.4	2.7	4.2	6	8	10	12.5	14	15.5	16
				2	4.9	8.3	13	19	25	30	35	38	40
2	300, 600	2.50	1.5	2.7	5.1	7.9	11	15	19	23	26	29	30
3	2500			4	8	14	22	34	46	56	65	72	75
3	300-1500	3.50	2.0	5.4	10	16	23	30	38	45	51	59	60
				8	17	28	46	70	95	115	134	148	155
4	150-1500	4.38	2.0	9	16	25	36	47	60	71	81	93	95
				12	32	55	86	122	156	184	208	226	240
4	300-2500	3.12	2.25	8	21	37	59	82	104	123	138	150	160
6	150-2500	4.12	3.00	15	39	69	111	153	195	231	258	282	300
8	150-2500	5.50	4.00	27	70	124	200	275	351	416	464	508	540
10	150-1500	6.60	4.00	45	117	207	333	459	585	693	728	846	900
12	150-1500	9.30	5.00	68	175	310	500	688	878	1040	116	127	1350
16	150-1500	11.50	6.00	100	260	460	740	1020	1300	1540	1720	1880	2000

C_V and F_L versus Travel

41300 Series (Single Stage) Model 41321

Flow Characteristic: **EQUAL PERCENTAGE**

Percent of Travel				10	20	30	40	50	60	70	80	90	100
F_L				0.94	0.94	0.94	0.94	0.94	0.94	0.93	0.92	0.92	0.90
Valve Size (inches)	ANSI Class	Orifice Diameter (inches)	Travel (inches)	Rated C_V									
2	900-2500	1.84	0.8	0.5	0.7	1	1.5	2.7	5	7.9	10.5	12.6	14
				0.7	1.3	2.2	3.6	6.6	12.6	19.8	26.4	31.5	35
2	300, 600	2.50	1.5	0.9	1.3	1.8	2.9	4.9	9.4	14.7	19.6	23.4	26
3	2500			1.2	2.3	4.2	6.8	12.3	23.4	36.7	49	58.5	65
3	300-1500	3.50	2.0	2	2.8	3.9	6.2	10.6	20.1	31.2	42.2	50.4	56
			3.0	3	5	9	15	26	50	79	105	126	140
4	150-1500	4.38	2.0	3	5	6	10	17	32	51	68	81	90
				4	8	14	23	43	81	127	170	203	225
4	2500	3.12	2.25	2.9	5.4	9.6	15.6	28	54	85	113	135	150
6	150-2500	4.12	3.0	5	10	17	28	50	95	150	200	239	265
8	150-2500	5.50	4.0	9	16	29	47	86	164	257	343	409	455
10	150-1500	6.60	4.0	15	28	49	80	145	275	431	576	689	765
12	150-1500	9.30	5.0	19	37	65	106	193	367	575	768	918	1020
16	150-1500	11.50	6.0	32	61	109	177	321	612	959	1280	1530	1700

Lo-dB /Anti-cavitation (Single Stage) Model 41312

Flow Characteristic: **LINEAR**

Percent of Travel				10	20	30	40	50	60	70	80	90	100
F_L				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Valve Size (inches)	ANSI Class	Orifice Diameter (inches)	Travel (inches)	Rated C_V									
2	900-2500	1.84	.08	1.2	2.4	3.6	4.8	6.0	7.2	8.4	9.6	10.8	12
				2.5	5	7.5	10	12.5	15	17.5	20	22.5	25
				3	6	9	12	15	18	21	24	27	30
2	300,600	2.50	1.5	2.5	5	7.5	10	12.5	15	17.5	20	22.5	25
3	2500			5	10	15	20	25	30	35	40	45	50
				7	13	20	26	33	39	46	52	59	65
3	300-1500	3.50	2.0	5	9	14	18	23	27	32	36	41	45
				10	19	29	38	48	57	67	76	86	95
				12	24	36	48	60	72	84	96	108	120
4	300-1500	4.38	2.0	7	14	21	28	35	42	49	56	63	70
				15	29	44	58	73	87	102	116	131	145
				20	40	60	80	100	115	135	155	175	195
4	2500	3.12	2.25	10	20	30	40	50	60	70	80	90	100
				14	28	42	56	70	84	98	112	126	140
6	150-2500	4.12	3.0	19	38	57	76	95	114	133	152	171	190
				27	54	81	108	135	162	189	216	243	270
8	150-2500	5.50	4.0	32	63	95	126	156	189	221	252	284	315
				50	100	150	200	250	300	350	400	450	500
10	150-1500	6.60	4.0	48	96	144	192	240	288	336	384	432	480
				63	126	189	252	315	378	441	504	567	625
12	150-1500	9.30	5.0	73	146	219	292	365	438	511	584	657	730
				110	220	330	440	550	660	770	880	990	1100
16	150-1500	11.50	6.0	108	216	324	432	540	648	756	864	972	1080
				162	324	486	648	810	972	1134	1296	1458	1620

C_V and F_L versus Travel

Lo-dB/Anti-cavitation (Single Stage) Models ① 41412 41512 41612 41912 41413 41513 41613 41913

Flow Characteristic: **LINEAR**

Percent of Travel				10	20	30	40	50	60	70	80	90	100
F_L				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Valve Size (inches)	ANSI Class	Orifice Diameter (inches)	Travel (inches)	Rated C_V									
2	900-2500	1.84	.08	1.2	2.4	3.6	4.8	6.0	7.2	8.4	9.6	10.8	12
				2.5	5	7.5	10	12.5	15	17.5	20	22.5	25
				3	6	9	12	15	18	21	24	27	30
2	300,600	2.50	1.5	2.5	5	7.5	10	12.5	15	17.5	20	22.5	25
3	2500			5	10	15	20	25	30	35	40	45	50
				7	13	20	26	33	39	46	52	59	65
3	300-1500	3.50	2.0	5	9	14	18	23	27	32	36	41	45
4	2500			10	19	29	38	48	57	67	76	86	95
				12	24	36	48	60	72	84	96	108	120
4	300-1500	4.38	2.0	7	14	21	28	35	42	49	56	63	70
6	2500			15	29	44	58	73	87	102	116	131	145
				20	40	60	80	100	115	135	155	175	195
6	150-1500	5.12	2.5	11	21	32	42	53	63	74	84	95	105
8	2500			21	42	63	84	105	126	147	168	189	210
				30	60	90	120	150	180	210	240	270	300
8	150-1500	6.50	3.0	16	31	47	62	78	93	109	124	140	155
				32	63	95	126	156	189	221	252	284	315
				50	100	150	200	250	300	350	400	450	500
10	150-1500	8.00	3.5	25	50	75	100	125	150	175	200	225	250
				50	100	150	200	250	300	350	400	450	500
				65	130	195	260	325	390	455	520	585	650
12	150-1500	9.75	5.0	35	70	110	145	180	215	250	290	325	360
				70	145	215	290	360	435	505	580	650	725
				110	220	330	440	550	660	770	880	990	1100
16	150-1500	13.00	6.0	60	120	180	240	300	360	420	480	540	600
				120	240	360	480	600	720	840	960	1080	1200
				180	360	540	720	900	1080	1260	1440	1620	1800

① Where diffuser is added on high capacity trim, overall C_V is reduced as much as 15%.

Lo-dB (Double Stage) Models 41514, 41614 and 41914

Flow Direction: **FLOW TO OPEN**

Flow Characteristic: **LINEAR**

Percent of Travel				10	20	30	40	50	60	70	80	90	100
F_L				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Valve Size (inches)	ANSI Class	Nominal Orifice Diameter (inches)	Travel (inches)	Rated C_V									
4	300-1500	3.50	2.0	10	20	30	40	50	60	70	80	90	100
6	150-1500	4.38	2.5	15	30	45	60	75	90	105	120	135	150
8	150-1500	5.12	3.0	21	42	63	84	105	126	147	168	189	210
10	150-1500	6.50	3.5	35	70	105	140	175	210	245	280	315	350
12	150-1500	8.00	5.0	51	102	153	204	255	306	357	408	459	510
16	150-600	9.75	6.0	89	179	268	358	447	537	626	716	805	895

C_V and F_L versus Travel

VRT Type C Multistage Anti-cavitation Cage Models 41318 and 41618

Flow Direction: **FLOW TO OPEN** Flow Characteristic: **LINEAR**

Percent of Travel					5	10	20	30	40	50	60	70	80	90	100
F_L					.984	.983	.982	.982	.979	.977	.976	.974	.973	.971	.970
Valve Size (inches)	ANSI Class	Orifice Diameter (inches)	Min① Operable C_V	Travel (inches)	Rated C_V										
2	300,600	1.75	0.5	2.0	1.2	2.5	5	7.5	10	12.5	15	17	20	22.5	25
	900,1500	1.50	0.6	1.5	0.5	1	2	3	4	5	6	7	8	9	10
3	300-1500	2.40	1.0	2.5	2.5	5	10	15	20	25	30	35	40	45	50
4	300-1500	3.40	1.4	2.5	3.5	7	14	21	28	35	42	49	56	63	70
6	150-1500	4.30	2.4	3.5	6	12	24	36	48	60	72	84	96	108	120

VRT Type S Anti-cavitation Stack Model 41317

Full Stack

Flow Direction: **FLOW TO OPEN** Flow Characteristic: **LINEAR**

Percent of Travel					10	20	30	40	50	60	70	80	90	100
F_L					.999	.999	.999	.998	.997	.996	.994	.992	.990	.988
Valve Size (inches)	ANSI Class	Orifice Diameter (inches)	Min① Operable C_V	Travel (inches)	Rated C_V									
8	300-1500	3.12	3.0	4.0	12	24	36	48	60	72	84	96	100	120
10	300-1500	4.25	4.5	4.0	19	38	57	76	95	114	133	152	171	190
12	300-1500	5.00	4.5	4.0	27	54	81	108	135	162	189	216	243	270

VRT Type S Anti-cavitation Stack Model 41337

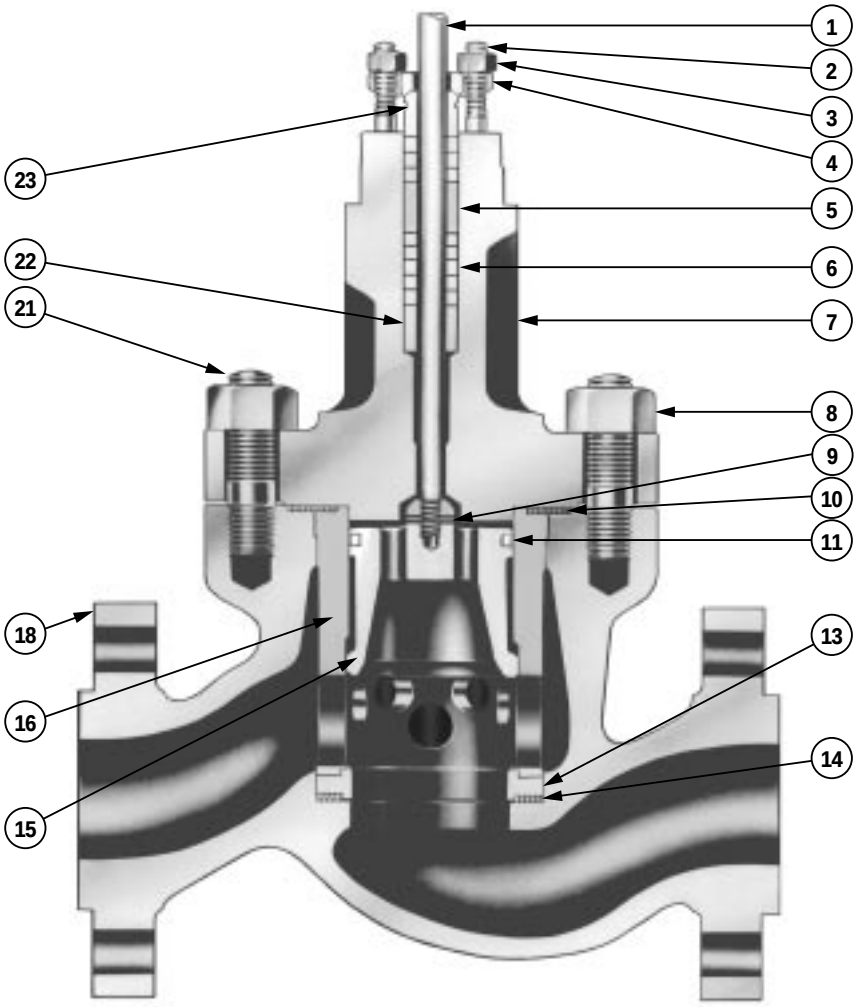
Partial Stack

Flow Direction: **FLOW TO OPEN** Flow Characteristic: **MODIFIED PERCENTAGE**

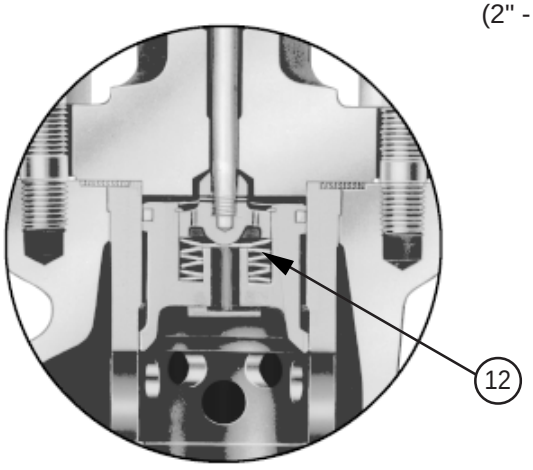
Percent of Travel					10	20	30	40	50	60	70	80	90	100
F_L					0.99	0.99	0.98	0.96	0.93	0.92	0.92	0.92	0.92	0.92
Valve Size (inches)	ANSI Class	Orifice Diameter (inches)	Min① Operable C_V	Travel (inches)	Rated C_V									
4	300-2500	3.12	2.7	2.25	3	8	13	22	35	54	70	88	105	120
6	300-2500	4.12	3.0	3.0	6	13	21	35	54	82	120	160	200	240
8	300-2500	5.50	7.5	4.0	10	25	50	75	135	210	270	330	400	460
10	300-1500	7.62	9.5	4.0	20	45	75	120	200	280	375	475	590	700
12	300-1500	9.25	12.0	5.0	22	44	75	138	248	412	583	748	924	1100
16	300-1500	11.50	18.0	6.0	40	100	200	350	600	900	1150	1350	1600	1800

① Throttling at less than minimum operable C_V levels for extended period of time can result in trim damage.

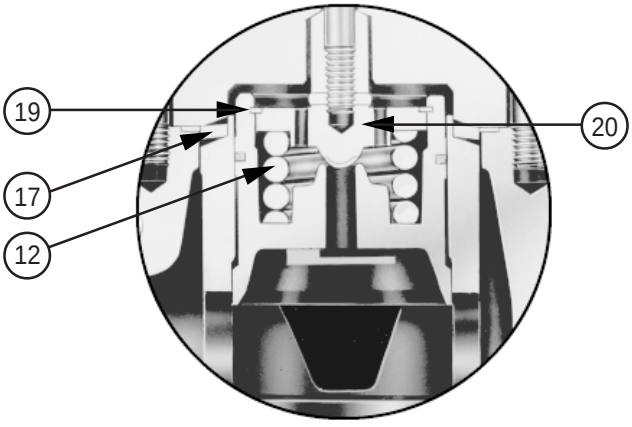
Body S/A Construction



Balanced Plug Construction
41500, 41600, 41900 Series
2" through 16" sizes
(2" - 4" Shown)



Pilot Balanced Construction
41400 Series
2" through 4" sizes



Pilot Balanced Construction
41400 Series
6" through 16" sizes

Standard Materials of Construction

Temperature Range	-320°F ▽	-50°F ▽	-20°F ▽	+650°F ▽	+800°F ▽	+1050°F ▽

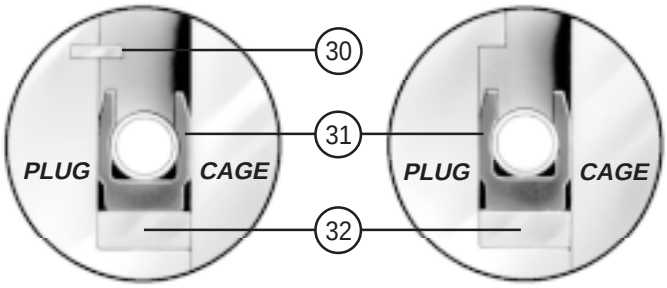
Ref. No.	Description	Materials				
1	Valve Plug Stem	Inconel X-750 ASTM B637 Gr 688	17-4PH St. St. ASTM A564 Gr 630 Condition H1075		Inconel X-750 ASTM B637 Gr 688	
2	Packing Flange Stud	304 St. St. ASTM A193 Gr B8				
3	Packing Flange Nut	304 St. St. ASTM A194 Gr 8				
4	Packing Flange	Carbon Steel ASTM A668 CL B or ASTM A108 Gr 1213, zinc-plated				
5	Packing Spacer	303 St. St. ASTM A582 Type 303				
6	Packing	TFE Aramid Fiber - Crane 285K				
		Braided TFE - Chesterton 324				
		Flexible Graphite				
7 18	Bonnet ① Body		Carbon Steel ASTM A216			
			Chrome-Molybdenum Steel ASTM A217			
		316 St. St. ASTM A351 Gr CF8M				
8	Valve Body Nut	304 St. St. ASTM A194 Gr 8	Carbon Steel ASTM A194 Gr 2H			Alloy Steel Gr 4
9	Plug Pin	316 St. St. ASTM A479 TY 316				
10	Valve Body Gasket	Spiral Wound 304 St. St. with Flexible Graphite				
11	Seal Ring	See page 12.				
12	Plug Spring	AMS 5598	2" - 4" 17-7 PH ASTM A693 Gr 631		Inconel X-750 AMS 5598	
		ASTM B637 Gr 688	6" - 16" ASTM A564 Gr 630		Inconel X-750 ASTM B 637 Gr 688	
13	Seat Ring	316 St. St. with Hardfaced Seat ASTM A479 TY 316 with hardfacing or A351 CF8M with hardfacing				
14	Seat Ring Gasket	Spiral Wound 304 St. St. with Flexible Graphite				
15	Valve Plug	17-4PH ACI CB-7CU-1 Condition H1075			Martensitic St. St. ASTM A487 Gr CA6NM Nitrided	
			Model 41317 and 41337 (4" and 6" size only) 440C St. St. ASTM A276 Type 440C heat-treated			
16	Cage	Martensitic St. St. ASTM A487 Gr CA6NM heat-treated/chrome-plated			Martensitic St. St. ASTM A487 Gr CA6NM Nitrided	
17	Flat Spring ②	17-4PH St. St. ASTM A705 Gr 630 Condition H1075			Inconel X-750 ASTM B637 Gr 688	
19	Retaining Ring	Inconel X-750 AMS 5598				
20	Auxiliary Plug		2" - 4" 416 St. St. ASTM A582 Type 416 Condition H			
		Martensitic St. St. ASTM A487 Gr CA6NM heat-treated with hardfaced seat and chrome-plated guide				
21	Valve Body Stud	304 St. St. ASTM A320 Gr B8 Cl II	Alloy Steel ASTM A193 Gr B7			Gr B16
22	Guide Bushing	440C St. St. ASTM A276 Type 440C heat-treated				
23	Packing Follower	303 St. St. ASTM A582 Type 303				
24	Diffuser ③	316 St. St. Seat Ring with hardfaced seat (not shown). See page 13.				
25	VRT Disc Assembly ④		410 St. St. ASTM A176 Type 410			

Temperature Range	Δ -320°F	Δ -50°F	Δ -20°F	Δ +650°F	Δ +800°F	Δ +1050°F

① Extension Bonnet below -100°F
② Sizes 6" through 16"
③ Used with Lo-dB Cage replaces seat ring, part reference No. 13
④ Used with VRT Type S (not shown). See page 13.

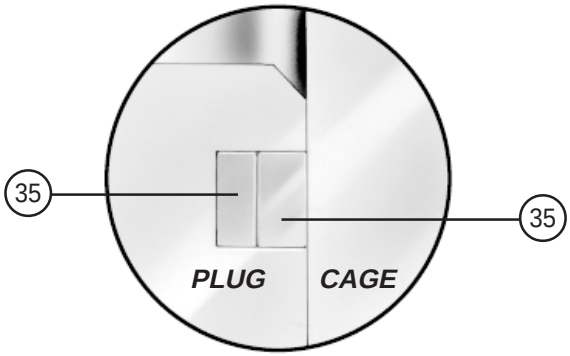
Seal Ring Construction

41300 Series has a Pressure Energized Polymeric Seal Ring. Leakage Class V is standard with temperatures ranging from -50°F to +450°F.

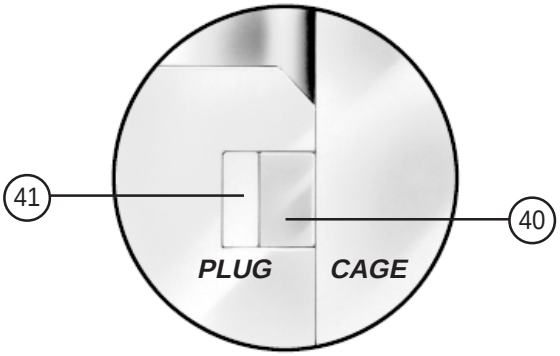


6" - 16" **2" - 4"**

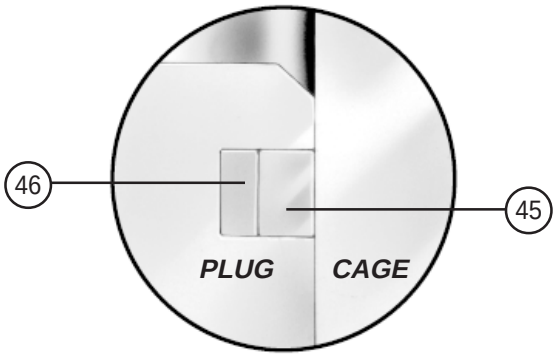
41400 and 41500 Series has a Metal Seal Ring. Leakage Class Ranging from Class II to Class V are obtainable with temperatures ranging from -320°F to +1050°F.



41600 Series has a TFE Seal Ring and a Resilient Inner Ring. Leakage Class IV is standard with temperatures ranging from -20°F to +300°F.



41900 has a Graphite Seal Ring and Metal Inner Ring. Leakage Class IV is standard with temperatures ranging from -320°F to +1050°F.



6" - 16"

Materials of Construction

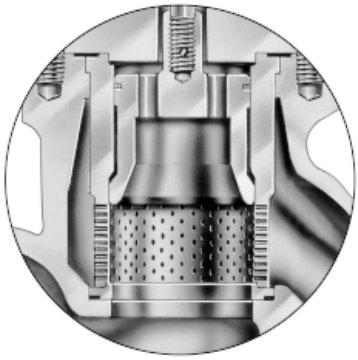
Temperature Range	-320°F ∇	-50°F ∇	-20°F ∇	+300°F ∇	450°F ∇	+1050°F ∇

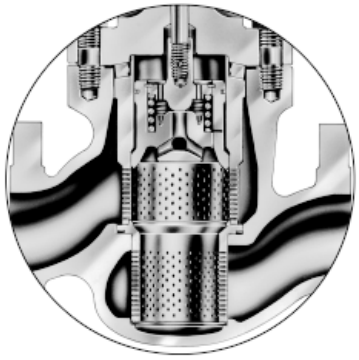
Ref. No.	Description	Materials
30	Retaining Ring	302 St. St. ASTM A313 Type 302
31	Seal	Graphite filled TFE, spring-energized
32	Back-up Ring	Virgin TFE
35	Seal	Ni-Resist ASTM A439 Type D3
40	Seal	TFE
41	Back-up Ring	Nordel
45	Seal	Graphite
46	Back-up Ring	Ni-Resist Cast Iron ASTM A439 Type D3

Temperature Range	-320°F Δ	-50°F Δ	-20°F Δ	+300°F Δ	450°F Δ	+1050°F Δ

Optional Trim Types

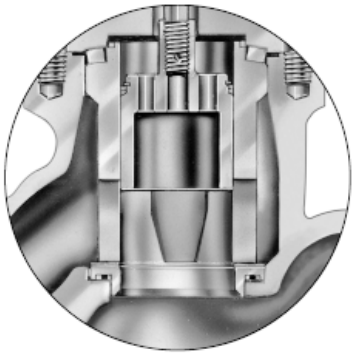
41012
Single Stage
Multi-hole
Low Noise and
Cavitation Protection
2" - 4" Shown

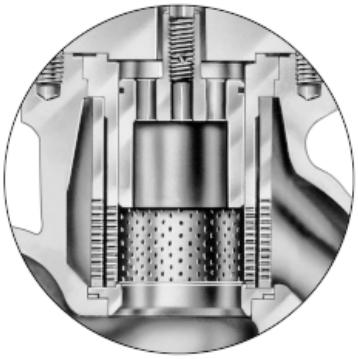




41413
Multi-hole, Low Noise
and Cavitation
Protection
Trim with
Internal Diffuser
6" - 16"

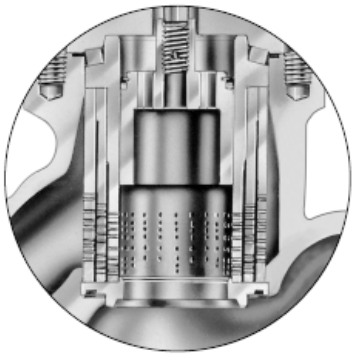
41300
Class V Shut Off,
Pressure Energized
Seal
4" - 16" Shown

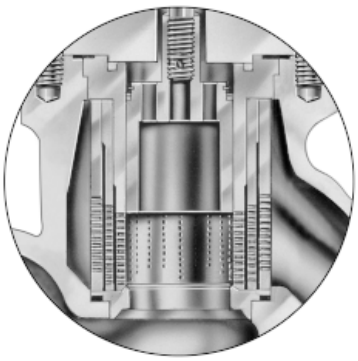




41014
Double Stage
High Attenuation,
Low Noise Trim
4" Shown

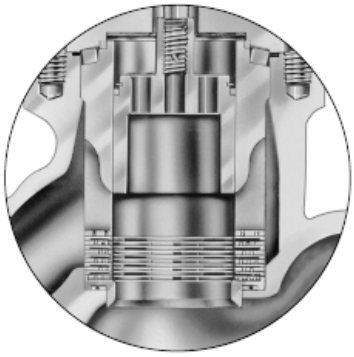
41618 Type C
Multi-cage
Intermediate
Anti-cavitation Trim
6" Shown

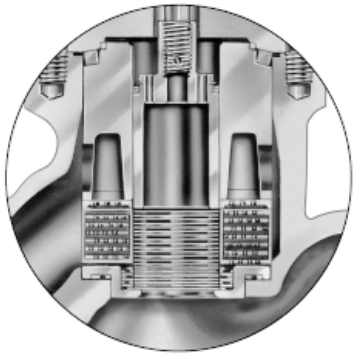




41318 Type C
Multi-cage,
Intermediate
Anti-cavitation Trim
2" - 4" Shown

41337 Type S
Multi-stage
Partial Anti-cavitation
and High Capacity
VRT Trim
4" - 16"





41317 Type S
Multi-stage
Anti-cavitation
High Pressure
Drop VRT Trim
8" - 12"

Allowable Pressure Drops for 41400 Series

Flow to Close

Models 41411 and 41421
Leakage: ANSI/FCI 70.2, Class IV and V

Temperature: -320°F to +850°F‡‡‡

Valve Size (inches)				Travel	Rated C_V				Actu-ator	AIR TO OPEN				AIR TO CLOSE			
ANSI Class					Linear		Equal %			bench‡	net‡‡	supply	ΔP	bench‡	net‡‡	supply	ΔP
150	300,600	900,1500	2500	(inches)	full	reduced	full	reduced	Size	range	range	(psi)	(psi)	range	range	(psi)	(psi)
---	---	2	2	0.8	40	---	35	14	6	11-23	3-23	28	600	3-15	3-22	27	600
										21-45	14-45	57	1200	6-30	6-37	44	1200
									10	11-23	6-23	28	1000	3-15	3-20	27	1000
										21-45	17-45	57	2000	6-30	6-34	44	2000
									16	6-30	3-30	40	3200	3-15	3-18	22	1600
										11-23	8-23	28	1600	6-30	6-34	38	3400
									23	6-30	4-30	40	3400	------	------	------	------
										11-23	9-23	28	2300	------	------	------	------
					---	16	---	---	6	11-23	3-23	28	690	3-15	3-22	27	690
										21-45	14-45	55	1380	6-30	6-37	44	1380
									10	11-23	6-23	28	1150	3-15	3-19	24	1150
										21-45	17-45	55	2310	6-30	6-34	40	2310
									16	6-30	3-30	40	3400	3-15	3-18	22	1850
										11-23	8-23	28	1840	6-30	6-33	40	3100
---	2	---	3	1.5	75	---	65	26	10	11-23	5-23	30	570	3-15	3-21	26	570
										21-45	15-45	57	1140	6-30	6-36	42	1140
									16	11-23	7-23	29	910	3-15	3-19	23	910
										21-45	17-45	57	1830	6-30	6-34	40	1830
									23	6-30	3-30	41	2630	3-15	3-18	22	1310
										11-23	8-23	29	1310	6-30	6-33	39	2630
					---	30	---	---	10	11-23	5-23	30	660	3-15	3-21	26	600
										21-45	15-45	57	1330	6-30	6-36	42	1200
									16	11-23	7-23	29	1060	3-15	3-19	23	960
										21-45	17-45	57	2130	6-30	6-34	40	1920
									23	6-30	3-30	41	3000	3-15	3-18	22	1380
										11-23	8-23	29	1530	6-30	6-33	39	2760
										------	------	------	------	21-45	21-48	55	3000
---	3	3	4	2.0	155	---	140	56	16	21-45	13-45	55	1060	3-15	3-23	28	530
										-----	------	------	------	6-30	6-38	45	1060
									23	11-23	5-23	28	760	3-15	3-21	25	760
										21-45	15-45	56	1530	6-30	6-36	42	1530
					---	60	---	---	16	21-45	13-45	56	1470	3-15	3-23	28	740
										------	------	------	------	6-30	6-38	45	1470
									23	11-23	5-23	28	1060	3-15	3-21	25	1060
										21-45	15-45	56	2120	6-30	6-36	42	2120
---	4	4	6	2.0	240	---	225	90	16	21-45	13-45	55	740	3-15	3-23	28	370
										------	------	------	------	6-30	6-38	45	740
									23	11-23	5-23	27	530	3-15	3-21	25	530
										21-45	15-45	55	1060	6-30	6-36	42	1060
					---	95	---	---	16	11-23	5-23	30	860	3-15	3-23	28	530
										21-45	13-45	58	1200	6-30	6-38	45	1050
									23	21-45	15-45	58	1720	3-15	3-21	25	700
										------	------	------	------	6-30	6-36	42	1500
										------	------	------	------	21-45	21-51	58	1720

‡ Nominal bench range of actuator used for specifying actuator on valve data sheet
‡‡ Actual bench range of valve/actuator assembly, resulting from combined pilot plug load force and actuator nominal bench range
‡‡‡ For temperatures above 850°F, consult factory.

NOTE: INLET PRESSURE MUST NOT EXCEED ANSI RATING FOR THE SELECTED PRESSURE CLASS.

All pressure drops (ΔP) shown within this publication reflect actuator capability and shutoff class shown for a particular trim type. It does not imply proper application with regards to cavitation, noise, critical pressure drop, etc. Consult Masoneilan Handbook for Control Valve Sizing OZ1000 for more information.

Allowable Pressure Drops for 41400 Series

Flow to Close

Models 41411 and 41421
Leakage: ANSI/FCI 70.2, Class IV and V

Temperature: -320°F to +850°F‡‡‡

Valve Size (inches)				Travel	Rated C_V				Actu-	AIR TO OPEN				AIR TO CLOSE			
ANSI Class					Linear		Equal %										
150	300,600	900,1500	2500	(inches)	full	reduced	full	reduced	ator Size	bench‡ range	net‡‡ range	supply (psi)	ΔP (psi)	bench‡ range	net‡‡ range	supply (psi)	ΔP (psi)
6	6	6	8	2.0	400	--	360	144	16	21-45	12-45	54	410	3-15	3-24	29	200
										------	------	------	------	6-30	6-40	45	410
									23	11-23	5-23	27	290	------	------	------	------
										21-45	15-45	54	580	6-30	6-36	42	580
				0.8	---	165	---	---	10	21-45	7-45	60	265	------	------	------	------
										------	------	------	------	11-23	11-37	43	310
									16	21-45	12-45	60	420	3-15	3-24	29	140
										------	------	------	------	11-23	11-31	37	490
									23	11-23	4-23	39	820	3-15	3-21	26	200
										------	------	------	------	11-23	11-29	34	710
8	8	8	---	2.5	640	---	575	230	16	21-45	9-45	54	260	3-15	3-28	33	130
										------	------	------	------	6-30	6-43	49	260
									23	21-45	12-45	54	380	3-15	3-24	29	190
										------	------	------	------	6-30	6-39	45	380
				1.5	---	415	---	---	16	21-45	9-45	60	280	3-15	3-28	33	90
										------	------	------	------	11-23	11-35	41	230
									23	21-45	12-45	60	405	3-15	3-24	30	130
										------	------	------	------	11-23	11-31	37	330
10	10	10	---	3.0	1000	---	900	360	18 (16)	10-50	3-50	60	350	4-45	4-55	60	350
									24	7-40	3-40	50	440	4-50	4-56	60	600
									154 ①	25-38	12-38	50	260	25-38	25-50	58	260
									154 ②	25-38	12-38	50	400	25-38	25-50	58	400
									314 ②	12-18	6-18	30	680	12-18	12-25	30	680
				1.5	---	510	---	---	16	21-45	8-45	60	185	3-15	3-28	33	60
										------	------	------	------	6-30	6-43	50	120
										------	------	------	------	11-23	11-35	41	190
									23	21-45	12-45	60	265	3-15	3-24	30	90
										------	------	------	------	6-30	6-39	45	180
										------	------	------	------	11-23	11-31	37	280
12	12	12	---	3.75	1400	---	1260	500	18 (16)	9-28	2-28	35	100	3-45	3-55	60	150
									24	7-28	3-28	35	170	3-25	3-31	40	170
									154 ②	25-40	12-40	55	310	25-40	25-53	60	310
									314 ②	25-40	12-40	55	370	25-40	12-40	60	660
				2.0	---	770	---	---	154 ②	25-33	12-33	78	490	25-33	25-46	55	330
									314 ②	------	------	------	------	25-33	25-39	45	675
									16	21-45	9-45	60	120	6-30	6-43	49	80
										------	------	------	------	11-23	11-35	41	130
									23	21-45	12-45	60	175	6-30	6-39	45	120
										------	------	------	------	11-23	11-32	37	190
16	16	16	---	5.0	2500	---	2250	900	154 ②	25-46	12-46	55	200	25-46	25-58	68	200
									314 ②	25-46	12-46	70	330	25-46	12-46	70	280
				2.5	---	1280	---	---	154 ②	25-35	12-35	60	140	25-35	25-48	56	190
									23	21-45	12-45	60	100	6-30	6-39	45	70
										------	------	------	------	11-23	11-31	37	120

‡ Nominal bench range of actuator used for specifying actuator on valve data sheet
‡‡ Actual bench range of valve/actuator assembly, resulting from combined pilot plug load force and actuator nominal bench range
‡‡‡ For temperatures above 850°F, consult factory.
① Single-acting spring return cylinder – Actuator Model 84 or 85
② Double-acting spring return cylinder – Actuator Model 84 or 85

NOTE: INLET PRESSURE MUST NOT EXCEED ANSI RATING FOR THE SELECTED PRESSURE CLASS.

All pressure drops (ΔP) shown within this publication reflect actuator capability and shutoff class shown for a particular trim type. It does not imply proper application with regards to cavitation, noise, critical pressure drop, etc. Consult Masoneilan Handbook for Control Valve Sizing OZ1000 for more information.

Allowable Pressure Drops for 41400 Series Lo-dB/Anti-cavitation — Flow to Close

Models 41412 and 41413

Leakage: ANSI/FCI 70.2, Class IV and V **Temperature: -320°F to +850°F‡‡‡**

Valve Size (inches) ANSI Class				Travel (inches)	Rated C_V			Actuator Size	AIR TO OPEN				AIR TO CLOSE			
150	300,600	900,1500	2500		High Capacity	Standard	Reduced		bench‡ range	net‡‡ range	supply (psi)	ΔP (psi)	bench‡ range	net‡‡ range	supply (psi)	ΔP (psi)
---	---	2	2	0.8	30	25	12	6	11-23	3-23	28	690	3-15	3-22	27	690
									21-45	14-45	55	1380	6-30	6-37	44	1380
								10	11-23	6-23	28	1150	3-15	3-19	24	1150
									21-45	17-45	55	2300	6-30	6-34	40	2300
								16	6-30	3-30	40	3400	3-15	3-18	22	1840
									11-23	8-23	28	1840	6-30	6-33	40	3400
---	2	---	3	1.5	65	50	25	10	11-23	5-23	30	660	3-15	3-21	26	600
									21-45	15-45	57	1330	6-30	6-36	42	1200
								16	11-23	7-23	29	1060	3-15	3-19	23	960
									21-45	17-45	57	2130	6-30	6-34	40	1920
								23	6-30	3-30	41	3000	3-15	3-18	22	1380
									11-23	8-23	29	1530	6-30	6-33	39	2750
---	3	3	4	2.0	120	95	45	16	21-45	13-45	56	1470	3-15	3-23	28	730
									------	------	------	------	6-30	6-38	45	1470
								23	11-23	5-23	28	1060	3-15	3-21	25	1060
									21-45	15-45	56	2120	6-30	6-36	42	2120
---	4	4	6	2.0	195	145	70	16	------	------	------	------	3-15	3-23	28	530
									21-45	13-45	58	1200	6-30	6-38	45	1060
								23	11-23	5-23	29	860	3-15	3-21	25	760
									21-45	15-45	58	1720	6-30	6-36	42	1530
6	6	6	8	2.5	300	210	105	16	21-45	12-45	55	760	3-15	3-24	29	380
									------	------	------	------	6-30	6-39	45	760
								23	11-23	4-23	28	550	3-15	3-21	26	550
									21-45	15-45	55	1100	6-30	6-36	42	1100
8	8	8	---	3.0	500	315	155	18 (16)	10-40	3-40	50	650	5-46	5-56	60	920
								24	7-40	3-40	50	1000	4-38	4-44	50	1000
								154 ①	25-38	12-38	50	700	25-38	25-50	58	700
								154 ②	25-37	12-37	55	1000	25-37	25-50	60	1000
								314 ②	12-18	6-18	32	1800	12-18	12-24	30	1800
10	10	10	---	3.5	650	500	250	18 (16)	13-27	3-27	35	240	5-43	5-53	60	530
								24	6-46	2-46	60	800	5-46	5-53	60	800
								154 ①	25-41	12-41	55	530	25-41	25-54	62	530
								154 ②	25-40	12-40	58	790	25-40	25-53	60	790
								314 ②	12-20	6-20	30	1300	12-20	12-26	30	1300
12	12	12	---	5.0	1100	725	360	154 ①	25-46	12-46	65	470	25-46	25-59	68	450
								154 ②	25-46	12-46	60	340	25-46	25-59	68	650
								314 ②	12-23	6-23	40	1000	12-23	12-29	35	1000
16	16	16	---	6.0	1800	1200	600	154 ①	25-50	12-50	70	330	25-50	25-63	75	280
								154 ②	25-50	12-50	70	320	25-50	25-63	72	430
								314 ②	12-25	6-25	45	720	12-25	12-31	37	640

‡ Nominal bench range of actuator used for specifying actuator on valve data sheet
‡‡ Actual bench range of valve/actuator assembly, resulting from combined pilot plug load force and actuator nominal bench range
‡‡‡ For temperatures above 850°F, consult factory.
① Single-acting spring return cylinder – Actuator Model 84 or 85
② Double-acting spring return cylinder – Actuator Model 84 or 85

NOTE: INLET PRESSURE MUST NOT EXCEED ANSI RATING FOR THE SELECTED PRESSURE CLASS.

All pressure drops (ΔP) shown within this publication reflect actuator capability and shutoff class shown for a particular trim type. It does not imply proper application with regards to cavitation, noise, critical pressure drop, etc. Consult Masoneilan Handbook for Control Valve Sizing OZ1000 for more information.

Allowable Pressure Drops for 41500 and 41600 Series

Flow to Close

Models 41511, 41521, 41611, and 41621

41500 Leakage: ANSI/FCI 70.2, Class II (2" - 4") **Temperature: -320°F to +1050°F**
41600 Leakage: ANSI/FCI 70.2, Class IV **Temperature: -20°F to +300°F**

Valve Size (inches)				Travel	Rated C_V				Actu-ator	AIR TO OPEN			AIR TO CLOSE		
ANSI Class					Linear		Equal %			bench	supply	ΔP	bench	supply	ΔP
150	300,600	900,1500	2500	(inches)	full	reduced	full	reduced	Size	range	(psi)	(psi)	range	(psi)	(psi)
---	---	2	2	0.8	40	---	35	14	6	3-15	20	600	3-15	20	600
										6-30	40	1200	6-30	36	1200
									10	3-15	20	1000	3-15	20	1000
										6-30	40	2000	6-30	36	2000
									16	3-15	20	1600	3-15	20	1600
										6-30	40	3000	6-30	36	3000
					---	16	---	---	6	3-15	20	650	3-15	20	650
										6-30	40	1300	6-30	36	1300
									10	3-15	20	1100	3-15	20	1100
										6-30	40	2300	6-30	36	2300
									16	3-15	20	1800	3-15	20	1800
										6-30	40	3650	6-30	36	3650
---	2	---	3	1.5	75	---	65	26	10	3-15	20	550	3-15	20	550
										6-30	40	1100	6-30	36	1100
									16	3-15	20	900	3-15	20	900
										6-30	40	1800	6-30	36	1800
									23	3-15	20	1300	3-15	20	1300
										6-30	40	2600	6-30	36	2600
					---	30	---	---	10	3-15	20	700	3-15	20	700
										6-30	40	1400	6-30	36	1400
									16	3-15	20	1100	3-15	20	1100
										6-30	40	2200	6-30	36	2300
									23	3-15	20	1600	3-15	20	1600
										6-30	40	3300	6-30	36	3300
---	3	3	4	2.0	155	---	140	56	16	3-15	20	700	3-15	19	700
										6-30	40	1400	6-30	36	1400
									23	3-15	20	1050	6-30	19	1050
										6-30	40	2100	6-30	36	2100
					---	60	---	---	16	3-15	20	800	3-15	19	800
										6-30	40	1600	6-30	36	1600
									23	3-15	20	1100	3-15	19	1100
										6-30	40	2200	6-30	36	2200
---	4	4	6	2.0	240	---	225	90	16	3-15	20	600	3-15	19	600
										6-30	40	1200	6-30	36	1200
									23	3-15	20	850	3-15	19	850
										6-30	40	1700	6-30	36	1700
					---	95	---	---	16	3-15	20	650	3-15	19	650
										6-30	40	1300	6-30	36	1300
									23	3-15	20	950	3-15	19	950
										6-30	40	1900	6-30	36	1900

NOTE: INLET PRESSURE MUST NOT EXCEED ANSI RATING FOR THE SELECTED PRESSURE CLASS.
All pressure drops (ΔP) shown within this publication reflect actuator capability and shutoff class shown for a particular trim type. It does not imply proper application with regards to cavitation, noise, critical pressure drop, etc. Consult Masoneilan Handbook for Control Valve Sizing OZ1000 for more information.

Allowable Pressure Drops for 41500, 41600 and 41900 Series — Flow to Close

Models 41511, 41521, 41611, 41621, 41911 and 41921

41500 Leakage: ANSI/FCI 70.2, Class III (6" - 16") — **Temperature: -320°F to +1050°F**
41600 Leakage: ANSI/FCI 70.2, Class IV — **Temperature: -20°F to +300°F**
41900 Leakage: ANSI/FCI 70.2, Class IV (6" - 16") — **Temperature: -320°F to +1050°F**

Valve Size (inches) ANSI Class				Travel	Rated C_V				Actu-ator	AIR TO OPEN			AIR TO CLOSE		
					Linear		Equal %			bench	supply	ΔP	bench	supply	ΔP
150	300,600	900,1500	2500	(inches)	full	reduced	full	reduced	Size	range	(psi)	(psi)	range	(psi)	(psi)
6	6	6	8	2.0	400	---	360	144	16	3-15	20	400	3-15	20	400
										6-30	40	800	6-30	36	800
									23	3-15	20	600	3-15	20	600
										6-30	40	1200	6-30	36	1200
				0.8	---	165	---	---	16	3-15	20	450	3-15	19	450
										6-30	44	900	6-30	36	900
									23	3-15	20	650	3-15	19	650
										6-30	40	1300	6-30	36	1300
8	8	8	---	2.5	640		575	230	16	6-30	40	650	6-30	36	650
									23	3-15	20	450	3-15	19	450
										6-30	40	900	6-30	36	900
				1.5	---	415	---	---	16	3-15	30	550	6-30	36	300
										6-30	55	1100	21-45	52	1100
									23	3-15	30	800	3-15	20	200
										6-30	56	1500	6-30	36	450
										11-23	40	1000	11-23	27	800
										------	------	------	21-45	52	1500
10	10	10	---	3.0	1000	---	900	360	18 (16)	6-48	55	960	6-48	55	960
									24	3-36	50	1200	6-52	60	1400
									314 ①	25-38	51	1400	25-38	45	1400
				1.5	---	510	---	---	16	6-30	60	850	6-30	36	200
										------	------	------	21-45	52	800
									23	3-15	30	700	3-15	20	150
										6-30	50	800	6-30	36	300
										------	------	------	11-23	30	600
										------	------	------	21-45	52	1100
12	12	12	---	3.75	1400	---	1260	500	18 (16)	3-22	30	290	6-27	35	290
									24	3-38	55	890	6-28	35	500
									314 ①	25-41	60	1290	25-41	50	1290
				2.0	---	770	---	---	16	6-30	60	700	6-30	36	175
										------	------	------	21-45	52	600
									23	3-15	30	500	3-15	20	100
										6-30	50	600	6-30	36	250
										------	------	------	11-23	28	320
										------	------	------	21-45	52	850
16	16	16	---	5.0	2500	---	2250	900	154	25-46	55	100	25-46	55	350
									314 ①	25-46	55	250	25-46	55	700
				2.5	---	1280	---	---	23	3-15	30	250	3-15	20	70
										6-30	60	600	6-30	36	150
										------	------	------	11-23	30	250
										------	------	------	21-45	52	500

① Single-acting spring return cylinder – Actuator Model 84 or 85

NOTE: INLET PRESSURE MUST NOT EXCEED ANSI RATING FOR THE SELECTED PRESSURE CLASS.

All pressure drops (ΔP) shown within this publication reflect actuator capability and shutoff class shown for a particular trim type. It does not imply proper application with regards to cavitation, noise, critical pressure drop, etc. Consult Masoneilan Handbook for Control Valve Sizing OZ1000 for more information.

Allowable Pressure Drops for Single Stage Series Anti-cavitation Trim — Flow to Close

Models 41512, 41513, 41612, 41613, 41912 and 41913

41500 Leakage: ANSI/FCI 70.2, Class II (2" - 4") — **Temperature: -320°F to +1050°F**
41500 Leakage: ANSI/FCI 70.2, Class III (6" - 16") — **Temperature: -320°F to +1050°F**
41600 Leakage: ANSI/FCI 70.2, Class IV — **Temperature: -20°F to +300°F**
41900 Leakage: ANSI/FCI 70.2, Class IV (6" - 16") — **Temperature: -320°F to +1050°F**

Valve Size (inches)				Travel (inches)	Rated C_V			Actuator Size	AIR TO OPEN			AIR TO CLOSE		
ANSI Class									bench range	supply (psi)	ΔP (psi)	bench range	supply (psi)	ΔP (psi)
150	300,600	900,1500	2500		High Capacity	Standard	Reduced							
---	---	2	2	0.8	30	25	12	6	3-15	20	650	3-15	20	650
									6-30	38	1300	6-30	36	1300
								10	3-15	20	1100	3-15	20	1100
									6-30	38	2300	6-30	36	2300
								16	3-15	20	1800	3-15	20	1800
									6-30	40	3600	6-30	40	3600
								23	3-15	20	2600	3-15	20	2600
									6-30	40	3600	6-30	36	3600
---	2	---	3	1.5	65	50	25	10	3-15	20	700	3-15	20	700
									6-30	40	1400	6-30	36	1400
								16	3-15	20	1100	3-15	20	1100
									6-30	40	2300	6-30	36	2300
								23	3-15	20	1600	3-15	20	1600
									6-30	40	3300	6-30	36	3300
---	3	3	4	2.0	120	95	45	16	3-15	20	800	3-15	20	800
									6-30	40	1600	6-30	36	1600
								23	3-15	20	1100	3-15	20	1100
									6-30	40	2200	6-30	36	2200
---	4	4	6	2.0	195	145	70	16	3-15	20	700	3-15	20	700
									6-30	40	1400	6-30	40	1400
								23	3-15	20	1000	3-15	20	1000
									6-30	40	2000	6-30	40	2000
6	6	6	8	2.5	300	210	105	16	3-15	20	600	3-15	20	600
									6-30	40	1200	6-30	36	1200
								23	3-15	20	900	3-15	20	900
									6-30	40	1800	6-30	40	1800
8	8	8	---	3.0	500	315	155	18 (16)	6-48	60	1400	6-48	55	1400
								24	3-36	50	1900	6-52	60	1900
								154	25-38	50	600	25-38	45	1300
								314 ①	25-38	50	2200	25-38	45	2200
10	10	10	---	3.5	650	550	250	18 (16)	6-30	40	600	6-30	40	600
								24	3-43	60	1500	5-46	55	1250
								154	25-40	55	500	25-40	50	900
								314 ①	25-40	55	1600	25-40	48	1600
12	12	12	---	5.0	1100	725	360	154	25-46	70	570	25-46	55	600
								314 ①	25-46	70	1500	25-46	55	1500
16	16	16	---	6.0	1800	1200	600	314 ①	25-50	75	1200	25-50	58	1200

① Single-acting spring return cylinder – Actuator Model 84 or 85

NOTE: INLET PRESSURE MUST NOT EXCEED ANSI RATING FOR THE SELECTED PRESSURE CLASS.

All pressure drops (ΔP) shown within this publication reflect actuator capability and shutoff class shown for a particular trim type. It does not imply proper application with regards to cavitation, noise, critical pressure drop, etc. Consult Masoneilan Handbook for Control Valve Sizing OZ1000 for more information.

Masoneilan Valve & Controls DRESSER

Allowable Pressure Drops for 41300 Series

Flow to Open

Models 41311 and 41321

Leakage: ANSI/FCI 70.2, Class V

Temperature: -20°F to +450°F

Valve Size (inches)				Travel	Rated C_V				Actu-ator Size	AIR TO OPEN			AIR TO CLOSE		
ANSI Class					Linear		Equal %			bench range	supply (psi)	ΔP (psi)	bench range	supply (psi)	ΔP (psi)
150	300,600	900,1500	2500	(inches)	full	reduced	full	reduced							
---	---	2	2	0.8	40	16	35	14	10	21-45	50	1500	3-15	30	600
									16	11-23	30	1000	3-15	30	1700
---	2	---	3	1.5	75	30	65	26	10	21-45	55	600	3-15	35	500
									16	21-45	55	1700	3-15	35	1500
									23	11-23	30	1000	3-15	25	1800
---	3	3	---	2.0	155	60	140	56	16	21-45	55	900	3-15	30	300
									23	21-45	55	1800	3-15	30	1000
---	4	4	---	2.0	240	95	225	90	16	21-45	55	450	3-15	35	400
									23	21-45	55	1200	3-15	35	1100
---	---	---	4	2.25	160	---	150	---	23	21-42	50	5000	6-28	45	4420
6	6	6	6	3.0	300	---	265	---	18 (20)	14-30	35	2750			
									18 (16)	------	------	------	8-30	55	4100
									154 ①	25-38	60	3180	25-38	60	2330
										25-38	70	3180	25-38	70	4520
									314 ①	25-38	50	5000	25-38	50	4930
8	8	8	8	4.0	540	---	455	---	18 (16)	------	------	------	6-30	60	2350
									24	9-51	55	900	3-18	40	3500
									154 ①	25-42	60	1100	------	------	------
										------	------	------	10-17	60	4030
										------	------	------	15-25	60	2850
									314 ①	12-21	40	1050	12-21	40	4630
										25-42	60	4840	25-42	60	4420
10	10	10	---	4.0	900	---	765	---	18 (16)	------	------	------	6-30	60	1150
									24	------	------	------	3-18	40	2200
									154 ①	------	------	------	------	------	------
										------	------	------	10-17	60	2900
										------	------	------	15-25	60	1610
									314 ①	25-42	60	3750	12-21	40	3750
12	12	12	---	5.0	1350	---	1020	---	154 ①	------	------	------	15-28	65	1050
									314 ①	25-46	50	2250	12-23	45	2250
16	16	16	---	6.0	2000	---	1700	---	314 ①	25-50	80	1660	12-25	50	2250
										------	------	------	25-50	80	2250

Denotes no product offering

① Single-acting spring return cylinder – Actuator Model 84 or 85

NOTE: INLET PRESSURE MUST NOT EXCEED ANSI RATING FOR THE SELECTED PRESSURE CLASS.

All pressure drops (ΔP) shown within this publication reflect actuator capability and shutoff class shown for a particular trim type. It does not imply proper application with regards to cavitation, noise, critical pressure drop, etc. Consult Masoneilan Handbook for Control Valve Sizing OZ1000 for more information.

Allowable Pressure Drops for 41300 Series Lo-dB

Flow to Open

Model 41312

Leakage: ANSI/FCI 70.2, Class V

Temperature: -20°F to +450°F

Valve Size (inches) ANSI Class				Travel (inches)	Rated C_V			Actuator Size	AIR TO OPEN			AIR TO CLOSE		
150	300,600	900,1500	2500		High Capacity	Standard	Reduced		bench range	supply (psi)	ΔP (psi)	bench range	supply (psi)	ΔP (psi)
---	---	2	2	0.8	30	25	12	10	21-45	50	1500	3-15	30	600
								16	11-23	30	1000	3-15	30	1700
---	2	---	3	1.5	65	50	25	10	21-45	55	600	3-15	35	500
								16	21-45	55	1700	3-15	35	1500
								23	11-23	30	1000	3-15	25	1800
---	3	3	---	2.0	120	95	45	16	21-45	55	900	3-15	30	300
								23	21-45	55	1800	3-15	30	1000
---	4	4	---	2.0	195	145	70	16	21-45	55	450	3-15	35	400
								23	21-45	55	1200	3-15	35	1100
---	---	---	4	2.25	140	100	---	23	21-42	50	5000	6-28	45	4420
6	6	6	6	3.0	270	190	---	18 (20)	14-30	35	2750	------	------	------
								18 (16)	------	------	------	8-30	55	4100
								154 ①	25-38	60	3180	25-38	60	2330
									25-38	70	3180	25-38	70	4520
								314 ①	25-38	50	5000	25-38	50	4930
8	8	8	8	4.0	500	315	---	18 (16)	------	------	------	6-30	60	2350
								24	9-51	55	900	3-18	40	3500
								154 ①	25-42	60	1100	------	------	------
									------	------	------	10-17	60	4030
									------	------	------	15-25	60	2850
								314 ①	12-21	40	1050	12-21	40	4630
									25-42	60	4840	25-42	60	4420
10	10	10	---	4.0	625	480	---	18 (16)	------	------	------	6-30	60	1150
								24	------	------	------	3-18	40	2200
								154 ①	------	------	------	------	------	------
									------	------	------	10-17	60	2900
									------	------	------	15-25	60	1610
								314 ①	25-42	60	3750	12-21	40	3750
12	12	12	---	5.0	1100	730	---	154 ①	------	------	------	15-28	65	1050
								314 ①	25-46	50	2250	12-23	45	2250
16	16	16	---	6.0	1620	1080	---	314 ①	25-50	80	1660	12-25	50	2250
									------	------	------	25-50	80	2250

① Single-acting spring return cylinder – Actuator Model 84 or 85

NOTE: INLET PRESSURE MUST NOT EXCEED ANSI RATING FOR THE SELECTED PRESSURE CLASS.

All pressure drops (ΔP) shown within this publication reflect actuator capability and shutoff class shown for a particular trim type. It does not imply proper application with regards to cavitation, noise, critical pressure drop, etc. Consult Masoneilan Handbook for Control Valve Sizing OZ1000 for more information.

Allowable Pressure Drops for 41500 and 41600 Series

Flow to Open

Models 41511, 41521, 41611 and 41621

41500 Leakage: ANSI/FCI 70.2, Class II (2" - 4") **Temperature: -320°F to +1050°F**
41600 Leakage: ANSI/FCI 70.2, Class IV **Temperature: -20°F to +300°F**

Valve Size (inches)				Travel	Rated C_V				Actu-ator Size	AIR TO OPEN			AIR TO CLOSE		
ANSI Class					Linear		Equal %			bench range	supply (psi)	ΔP (psi)	bench range	supply (psi)	ΔP (psi)
150	300,600	900,1500	2500	(inches)	full	reduced	full	reduced							
---	---	2	2	0.8	40	16	35	14	6	3-15	19	80	3-15	25	470
										6-30	36	340	3-15	35	1240
										11-23	27	730	3-15	45	2010
										21-45	52	1630	3-15	60	3170
									10	3-15	19	140	3-15	25	780
										6-30	36	570	3-15	35	2070
										11-23	27	1210	3-15	45	3350
										21-45	52	2710	3-15	55	4640
									16	3-15	19	230	3-15	25	1250
										6-30	36	910	3-15	35	3310
										11-23	27	1940	------	------	------
										21-45	52	3700	------	------	------
---	2	---	3	1.5	75	30	65	26	10	6-30	36	400	3-15	25	550
										11-23	27	850	3-15	35	1450
										21-45	52	1900	3-15	55	3250
									16	6-30	36	640	3-15	25	880
										11-23	27	1360	3-15	35	2320
										21-45	52	3000	------	------	------
									23	21-45	52	3700	3-15	25	1260
---	3	3	4	2.0	155	60	140	56	16	3-15	19	120	3-15	25	670
										6-30	36	490	3-15	35	1780
										11-23	27	1040	3-15	45	2890
										21-45	52	2340	3-15	55	4000
									23	3-15	19	170	3-15	25	970
										6-30	36	700	3-15	35	2560
										11-23	27	1500	------	------	------
										21-45	52	3300	------	------	------
---	4	4	6	2.0	240	95	225	90	16	3-15	19	90	3-15	25	510
										6-30	36	370	3-15	35	1360
										11-23	27	800	3-15	45	2210
										21-45	52	1780	3-15	55	3050
									23	3-15	19	130	3-15	25	740
										6-30	36	540	3-15	35	1960
										11-23	27	1150	------	------	------

NOTE: INLET PRESSURE MUST NOT EXCEED ANSI RATING FOR THE SELECTED PRESSURE CLASS.
All pressure drops (ΔP) shown within this publication reflect actuator capability and shutoff class shown for a particular trim type. It does not imply proper application with regards to cavitation, noise, critical pressure drop, etc. Consult Masoneilan Handbook for Control Valve Sizing OZ1000 for more information.

Allowable Pressure Drops for 41500, 41600 and 41900 Series

Flow to Open

Models 41511, 41521, 41611, 41621, 41911 and 41921

41500 Leakage: ANSI/FCI 70.2, Class III (6" - 16") — **Temperature: -320°F to +1050°F**
41600 Leakage: ANSI/FCI 70.2, Class IV — **Temperature: -20°F to +300°F**
41900 Leakage: ANSI/FCI 70.2, Class IV (6" - 16") — **Temperature: -320°F to +1050°F**

Valve Size (inches)				Travel	Rated C_V				Actu-ator	AIR TO OPEN			AIR TO CLOSE		
ANSI Class					Linear		Equal %		Size	bench range	supply (psi)	ΔP (psi)	bench range	supply (psi)	ΔP (psi)
150	300,600	900,1500	2500	(inches)	full	reduced	full	reduced							
6	6	6	8	2.0	400	---	360	144	16	6-30	36	270	3-15	25	360
										11-23	27	560	3-15	35	960
										21-45	52	1260	3-15	60	2460
									23	6-30	36	380	3-15	25	520
										11-23	27	810	3-15	35	1390
										21-45	52	1820	3-15	55	3110
				0.8	---	165	---	---	10	6-30	36	160	3-15	25	220
										11-23	27	350	3-15	35	600
										21-45	52	790	3-15	60	1540
									16	6-30	36	260	3-15	25	360
										11-23	27	560	3-15	35	960
										21-45	52	1260	3-15	60	2460
									23	6-30	36	380	3-15	35	1350
										11-23	27	810	3-15	55	3110
8	8	8	---	2.5	640	---	575	230	16	6-30	36	180	3-15	35	660
										11-23	27	390	3-15	45	1070
										21-45	52	860	3-15	60	1690
									23	6-30	36	260	3-15	25	360
										11-23	27	560	3-15	35	950
										21-45	52	1250	3-15	55	2130
				1.5	---	415	---	---	16	6-30	36	180	3-15	35	660
										11-23	27	390	3-15	45	1070
										21-45	52	860	3-15	60	1690
									23	6-30	36	260	3-15	25	360
										11-23	27	560	3-15	35	950
										21-45	52	1250	3-15	55	2130

NOTE: INLET PRESSURE MUST NOT EXCEED ANSI RATING FOR THE SELECTED PRESSURE CLASS.
All pressure drops (ΔP) shown within this publication reflect actuator capability and shutoff class shown for a particular trim type. It does not imply proper application with regards to cavitation, noise, critical pressure drop, etc. Consult Masoneilan Handbook for Control Valve Sizing OZ1000 for more information.

Allowable Pressure Drops 41500, 41600 and 41900 Series

Flow to Open

Models 41511, 41521, 41611, 41621, 41911 and 41921

41500 Leakage: ANSI/FCI 70.2, Class III (6" - 16") — **Temperature: -320°F to +1050°F**
41600 Leakage: ANSI/FCI 70.2, Class IV — **Temperature: -20°F to +300°F**
41900 Leakage: ANSI/FCI 70.2, Class IV (6" - 16") — **Temperature: -320°F to +1050°F**

Valve Size (inches)				Travel	Rated C_V				Actu-ator Size	AIR TO OPEN			AIR TO CLOSE		
ANSI Class				(inches)	Linear		Equal %			bench range	supply (psi)	ΔP (psi)	bench range	supply (psi)	ΔP (psi)
150	300,600	900,1500	2500		full	reduced	full	reduced							
10	10	10	---	3.0	1000	---	900	360	18 (16)	6-48	55	220	3-17	60	1350
									24	6-40	45	350	3-18	50	1500
									154 ①	25-38	45	720	25-38	50	150
										------	------	------	25-38	60	440
									314 ①	10-42	48	510	10-42	52	170
										25-38	45	1400	10-42	75	1300
										------	------	------	25-38	60	780
				1.5	---	510	---	---	16	6-30	36	130	3-15	35	470
										11-23	27	270	3-15	45	760
										21-45	52	620	3-15	60	1200
									23	6-30	36	180	3-15	35	680
										11-23	27	400	3-15	45	1100
										21-45	52	890	3-15	60	1600
12	12	12	---	3.75	1400	---	1260	500	18 (16)	6-27	35	110	3-15	60	950
									24	10-48	60	490	3-15	55	1200
									154 ①	21-45	52	890	25-41	60	440
										25-41	48	510	25-41	60	540
									314 ①	25-41	48	1000	10-50	80	900
				2.0	---	770	---	---	16	6-30	36	90	3-15	35	330
										11-23	27	190	3-15	45	540
										21-45	52	440	3-15	60	850
									23	6-30	36	130	3-15	35	480
										11-23	27	280	3-15	45	780
										21-45	52	630	3-15	60	1230
16	16	16	---	5.0	2500	---	2250	900	154 ①	25-46	54	360	25-46	70	220
									314 ①	25-46	54	680	25-46	76	600
				2.5	---	1280	---	---	314 ①	25-35	45	680	25-35	65	640
									16	6-30	36	60	3-15	35	220
										11-23	27	130	3-15	45	350
										21-45	52	290	3-15	60	560
										6-30	36	80	3-15	35	310
									23	11-23	27	180	3-15	45	510
										21-45	52	410	3-15	60	810

① Single-acting spring return cylinder – Actuator Model 84 or 85

NOTE: INLET PRESSURE MUST NOT EXCEED ANSI RATING FOR THE SELECTED PRESSURE CLASS.

All pressure drops (ΔP) shown within this publication reflect actuator capability and shutoff class shown for a particular trim type. It does not imply proper application with regards to cavitation, noise, critical pressure drop, etc. Consult Masoneilan Handbook for Control Valve Sizing OZ1000 for more information.

Allowable Pressure Drops for Single Stage Lo-dB Trim

Flow to Open

Models 41512 and 41612

41500 Leakage: ANSI/FCI 70.2 Class II (2" - 4")
41600 Leakage: ANSI/FCI 70.2 Class IV

Temperature: -320°F to +1050°F
Temperature: -20°F to 300°F

Valve Size (inches)				Travel	Rated C_V			Actu-	AIR TO OPEN			AIR TO CLOSE		
ANSI Class					High			ator	bench	supply	ΔP	bench	supply	ΔP
150	300,600	900,1500	2500	(inches)	Capacity	Standard	Reduced	Size	range	(psi)	(psi)	range	(psi)	(psi)
---	---	2	2	0.8	30	25	12	6	3-15	19	80	3-15	25	470
									6-30	36	340	3-15	35	1240
									11-23	27	730	3-15	45	2010
									21-45	52	1630	3-15	60	3170
								10	3-15	19	140	3-15	25	780
									6-30	36	570	3-15	35	2070
									11-23	27	1210	3-15	45	3350
									21-45	52	2710	3-15	55	4640
								16	3-15	19	230	3-15	25	1250
									6-30	36	910	3-15	35	3310
									11-23	27	1940	------	------	------
								23	3-15	19	330	3-15	25	1800
									6-30	36	1310	------	------	-----
									11-23	27	2790	------	------	-----
---	2	---	3	1.5	65	50	25	10	3-15	20	100	3-15	25	550
									6-30	36	400	3-15	35	1450
									11-23	27	850	3-15	45	2350
									21-45	52	1900	3-15	55	3250
								16	3-15	19	160	3-15	25	880
									6-30	36	640	3-15	35	2320
									11-23	27	1360	------	------	------
								23	3-15	19	230	3-15	25	1260
									6-30	36	920	------	------	------
									11-23	27	1950	------	------	------
---	3	3	4	2.0	120	95	45	16	3-15	19	120	3-15	25	670
									6-30	36	490	3-15	35	1780
									11-23	27	1040	3-15	45	2890
									21-45	52	2340	3-15	55	4000
								23	3-15	19	170	3-15	25	970
									6-30	36	700	3-15	35	2560
									11-23	27	1500	------	------	------
---	4	4	6	2.0	195	145	70	16	3-15	19	90	3-15	25	510
									6-30	36	370	3-15	35	1360
									11-23	27	800	3-15	45	2210
									21-45	52	1780	3-15	55	3050
								23	3-15	19	130	3-15	25	740
									6-30	36	540	3-15	35	1960
									11-23	27	1150	------	------	------

NOTE: INLET PRESSURE MUST NOT EXCEED ANSI RATING FOR THE SELECTED PRESSURE CLASS.
All pressure drops (ΔP) shown within this publication reflect actuator capability and shutoff class shown for a particular trim type. It does not imply proper application with regards to cavitation, noise, critical pressure drop, etc. Consult Masoneilan Handbook for Control Valve Sizing OZ1000 for more information.

Masoneilan Valve & Controls DRESSER

Allowable Pressure Drops for Single Stage Lo-dB Trim — Flow to Open

Models 41512, 41612 and 41912

41500 Leakage: ANSI/FCI 70.2 Class III (6" - 16") — **Temperature: -320°F to +1050°F**
41600 Leakage: ANSI/FCI 70.2 Class IV — **Temperature: -20°F to +300°F**
41900 Leakage: ANSI/FCI 70.2 Class IV (6" - 16") — **Temperature: -320°F to +1050°F**

Valve Size (inches) ANSI Class 150	300,600	900,1500	2500	Travel (inches)	Rated C_V High Capacity	Standard	Reduced	Actuator Size	AIR TO OPEN bench range	supply (psi)	ΔP (psi)	AIR TO CLOSE bench range	supply (psi)	ΔP (psi)
6	6	6	8	2.5	300	210	105	16	3-15	20	60	3-15	25	360
									6-30	36	260	3-15	35	960
									11-23	27	560	3-15	45	1560
									21-45	52	1260	3-15	60	2460
								23	3-15	19	90	3-15	25	520
									6-30	36	380	3-15	35	1390
									11-23	27	810	3-15	55	3110
8	8	8	---	3.0	500	315	155	18 (16)	6-48	55	310	3-11	55	1900
								24	6-52	60	480	3-18	50	1900
								154 ①	25-37	45	1000	25-37	65	850
								314 ①	25-38	44	2000	25-38	60	1100
10	10	10	---	3.5	650	500	250	18 (16)	6-30	40	220	3-15	60	1300
								24	12-48	55	850	3-22	55	1500
								154 ①	25-40	48	720	25-40	65	850
								314 ①	25-40	46	1400	25-40	70	1300
12	12	12	---	5.0	1100	725	360	154 ①	25-46	55	510	25-46	70	330
								314 ①	25-46	55	1000	25-46	75	900
16	16	16	---	6.0	1800	1200	600	154 ①	25-50	58	330	25-50	75	220
								314 ①	25-50	60	650	10-50	90	870
									------	------	-----	25-50	80	600

① Single-acting spring return cylinder – Actuator Model 84 or 85

NOTE: INLET PRESSURE MUST NOT EXCEED ANSI RATING FOR THE SELECTED PRESSURE CLASS.

All pressure drops (ΔP) shown within this publication reflect actuator capability and shutoff class shown for a particular trim type. It does not imply proper application with regards to cavitation, noise, critical pressure drop, etc. Consult Masoneilan Handbook for Control Valve Sizing OZ1000 for more information.

Allowable Pressure Drops for Double Stage Lo-dB Trim

Flow to Open

Models 41514, 41614 and 41914

41500 Leakage: ANSI/FCI 70.2 Class II (4" only) — **Temperature: -320°F to +1050°F**
41500 Leakage: ANSI/FCI 70.2 Class III (6" - 16") — **Temperature: -320°F to +1050°F**
41600 Leakage: ANSI/FCI 70.2 Class IV — **Temperature: -20°F to +300°F**
41900 Leakage: ANSI/FCI 70.2 Class IV (6" - 16") — **Temperature: -320°F to +1050°F**

Size (inches) ANSI Class 150	300/600	900/1500	Travel	C_V	Actu-ator Size	AIR TO OPEN bench range	supply (psi)	ΔP (psi)	AIR TO CLOSE bench range	supply (psi)	ΔP (psi)
---	4	4	2.0	100	16	6-30	35	900	3-15	20	600
						10-22	27	1900	3-15	25	1800
						21-45	50	3750	3-15	30	3100
					23	6-30	35	1500	3-15	20	1100
						10-22	27	2700	3-15	25	2900
						21-45	50	3750	3-15	30	3750
6	6	6	2.5	150	16	6-30	35	400	3-15	20	250
						10-22	27	1000	3-15	30	1750
						21-45	50	2650	3-15	35	2500
					23	6-30	35	800	3-15	20	600
						10-22	27	1650	3-15	30	2700
						21-45	50	3750	3-15	40	3750
8	8	8	3.0	210	18 (16)	6-30	35	635	3-15	35	1900
						------	------	------	3-15	55	3750
					18 (20)	9-41	45	1100			
					24	6-30	35	975	3-15	35	2200
						11-47	50	2200	3-15	40	3750
					154 ①	15-22	27	800	15-22	30	300
						25-38	45	1600	15-22	50	1800
					314 ①	13-19	25	1600	13-19	30	1400
						25-38	45	3600	13-19	45	3750
10	10	10	3.5	350	18 (16)	6-30	35	510	3-15	40	1960
						------	------	------	3-15	60	3750
					18 (20)	12-32	35	1300			
					24	7-28	30	1000	3-15	30	1800
						12-48	50	2100	3-15	45	3750
					154 ①	15-24	30	700	15-24	35	400
						25-40	45	1300	15-24	60	2100
					314 ①	12-20	25	1300	12-20	30	1000
						25-40	45	3100	12-20	50	3750
12	12	12	5.0	510	154 ①	15-28	35	500	15-28	40	300
						25-46	50	1100	15-28	60	1500
					314 ①	12-23	30	1100	12-23	40	1700
						25-46	50	------	12-23	60	------
16	16 ②	---	6.0	895	154 ①	15-30	35	300	15-30	40	100
						25-50	55	600	15-30	60	750
					314 ①	12-25	30	600	12-25	35	500
						25-50	55	750	12-25	45	750

Denotes no product offering

① Single-acting spring return cylinder – Actuator Model 84 or 85
② ANSI Class 300 only

NOTE: INLET PRESSURE MUST NOT EXCEED ANSI RATING FOR THE SELECTED PRESSURE CLASS.

All pressure drops (ΔP) shown within this publication reflect actuator capability and shutoff class shown for a particular trim type. It does not imply proper application with regards to cavitation, noise, critical pressure drop, etc. Consult Masoneilan Handbook for Control Valve Sizing OZ1000 for more information.

Masoneilan Valve & Controls DRESSER

Allowable Pressure Drops for VRT Type C Cage Trim — Flow to Open

Model 41318

Leakage: ANSI/FCI 70.2, Class V **Temperature: -20°F to +450°F**

Size (inches) ANSI Class 150	300/600	900/1500	Travel	C_V	Actuator Size	AIR TO OPEN bench range	supply (psi)	ΔP (psi)	AIR TO CLOSE bench range	supply (psi)	ΔP (psi)
---	---	2	1.5	10	10	11-23	27	670	3-15	40	3750
						21-45	50	3750	------	------	------
					16	6-30	35	550	6-30	50	3750
						11-23	27	2600	3-15	35	3750
---	2	---	2.0	25	16	11-23	27	2100	3-15	25	2100
						21-45	50	3750	3-15	30	3750
					23	6-30	35	1400	------	------	------
						11-23	27	3750	------	------	------
---	3	3	2.5	50	16	11-23	27	675	3-15	40	3750
						21-45	50	3750	3-15	30	2150
					23	6-30	35	250	------	------	------
						11-23	27	2000	------	------	------
---	4	4	2.5	70	16	------	------	------	3-15	30	1000
						21-45	50	2600	3-15	40	3600
					23	11-23	27	900	6-30	45	1000
						21-45	50	3750	------	------	------
6	6	6	3.5	120	18 (16)	------	------	------	3-15	35	2290
						------	------	------	3-15	45	3750
					18 (20)	12-34	40	1790			
					24	6-30	35	655	3-15	35	3750
					154 ①	25-40	45	1400	10-16	40	1400
						------	------	------	10-16	65	3750
					314 ①	12-20	25	1300	------	------	------
						25-40	45	3750	------	------	------

Denotes no product offering

① Single-acting spring return cylinder – Actuator Model 84 or 85

NOTE: INLET PRESSURE MUST NOT EXCEED ANSI RATING FOR THE SELECTED PRESSURE CLASS.

All pressure drops (ΔP) shown within this publication reflect actuator capability and shutoff class shown for a particular trim type. It does not imply proper application with regards to cavitation, noise, critical pressure drop, etc. Consult Masoneilan Handbook for Control Valve Sizing OZ1000 for more information.

Allowable Pressure Drops for VRT Type C Cage Trim

Flow to Open

Model 41618

Leakage: ANSI/FCI 70.2, Class IV

Temperature: -20°F to +300°F

Size (inches) ANSI Class 150	300/600	900/1500	Travel	C_V	Actu-ator Size	AIR TO OPEN bench range	supply (psi)	ΔP (psi)	AIR TO CLOSE bench range	supply (psi)	ΔP (psi)
---	---	2	1.5	10	10	6-30	35	1200	3-15	40	3750
						10-22	27	2500	3-15	25	2500
						21-45	50	3750	6-30	40	2500
					16	11-23	27	3750	3-15	25	3750
					23	------	------	------	3-15	18	800
						------	------	------	3-15	25	3740
---	2	---	2.0	25	16	6-30	35	1750	3-15	18	500
						11-23	27	3600	3-15	25	3750
						21-45	50	3750	------	------	------
---	3	3	2.5	50	16	6-30	35	1000	3-15	40	3750
						10-22	27	2300	3-15	25	2400
						21-45	50	3750	------	------	------
					23	11-23	27	3400	------	------	------
---	4	4	2.5	70	16	6-30	35	900	3-15	25	1800
						11-23	27	1900	3-15	40	3750
						21-45	50	3750	6-30	40	1800
					23	11-23	27	2850	------	------	------
6	6	6	3.5	120	18 (16)	3-15	18	400	3-15	18	185
						6-30	35	1500	3-15	25	1500
					24	3-15	18	630	3-15	25	1500
					154 ①	------	------	------	10-16	35	2000
						15-24	30	1500	10-16	50	3750
						25-40	45	2800	15-24	45	2300
					314 ①	13-20	25	2700	13-20	25	900
						25-40	45	3750	13-20	35	3500

① Single-acting spring return cylinder – Actuator Model 84 or 85

NOTE: INLET PRESSURE MUST NOT EXCEED ANSI RATING FOR THE SELECTED PRESSURE CLASS.

All pressure drops (ΔP) shown within this publication reflect actuator capability and shutoff class shown for a particular trim type. It does not imply proper application with regards to cavitation, noise, critical pressure drop, etc. Consult Masoneilan Handbook for Control Valve Sizing OZ1000 for more information.

Allowable Pressure Drops for VRT Type S Stack Trim — Flow to Open

Model 41317

Leakage: ANSI/FCI 70.2, Class V **Temperature: -20°F to +450°F**

Size (inches) ANSI Class 150/1500	Size (inches) ANSI Class 2500	Travel	C_V	Actuator Size	AIR TO OPEN bench range	AIR TO OPEN supply (psi)	AIR TO OPEN ΔP (psi)	AIR TO CLOSE bench range	AIR TO CLOSE supply (psi)	AIR TO CLOSE ΔP (psi)
8	8	4	120	18 (16)	------	------	------	6-30	60	3750
				18 (20)	10-33	40	1000			
				154 ①	15-25	60	1650	15-25	60	4790
				314 ①	12-21	40	3300	12-21	40	5000
					25-42	65	6000	25-43	65	5660
10	---	4	190	18 (16)	------	------	------	6-30	60	3000
				18 (20)	10-33	40	400			
				24	9-51	55	1500	3-18	40	3750
				154 ①	25-42	70	1830	10-17	55	3750
				314 ①	12-21	40	1740	12-21	40	3750
					25-42	65	3750	25-42	65	3750
12	---	4	270	18 (16)	------	------	------	6-30	60	2250
				24	9-51	55	1200	3-18	40	2250
				154 ①	25-42	70	1390	15-25	60	2250
				314 ①	12-21	40	1300	12-21	40	2250
					25-42	65	2250	25-42	65	2250

Denotes no product offering

① Single-acting spring return cylinder – Actuator Model 84 or 85

NOTE: INLET PRESSURE MUST NOT EXCEED ANSI RATING FOR THE SELECTED PRESSURE CLASS.

All pressure drops (ΔP) shown within this publication reflect actuator capability and shutoff class shown for a particular trim type. It does not imply proper application with regards to cavitation, noise, critical pressure drop, etc. Consult Masoneilan Handbook for Control Valve Sizing OZ1000 for more information.

Allowable Pressure Drops for VRT Type S Stack Trim

Flow to Open

Model 41337

Leakage: ANSI/FCI 70.2, Class V

Temperature: -20°F to +450°F

Size (inches) ANSI Class			Travel	C_V	Actu-ator Size	AIR TO OPEN			AIR TO CLOSE		
150	300/1500	2500				bench range	supply (psi)	ΔP (psi)	bench range	supply (psi)	ΔP (psi)
---	4	4	2.25	120	23	21-42	50	5000	6-28	45	4920
6	6	6	3.0	240	18 (16)	------	------	------	8-30	55	4100
					18 (20)	14-30	35	2750			
					24	12-30	40	5000	6-24	45	5000
					154 ①	25-38	60	3180	25-38	70	4520
8	8	8	4.0	460	18 (16)	------	------	------	6-30	60	2350
					24	9-51	55	900	3-18	40	3500
					154 ①	25-42	55	1100	10-17	60	4030
					314 ①	25-42	60	4840	12-21	45	4630
10	10	---	4.0	700	18 (16)	------	------	------	6-30	60	1150
					154 ①	------	------	------	10-17	60	2910
					314 ①	25-42	60	3750	12-21	45	3750
12	12	---	5.0	1200	154 ①	------	------	------	15-28	70	1700
					314 ①	25-46	60	2250	12-23	50	2250
16	16	---	6.0	1800	314 ①	25-50	60	1660	12-25	55	2250

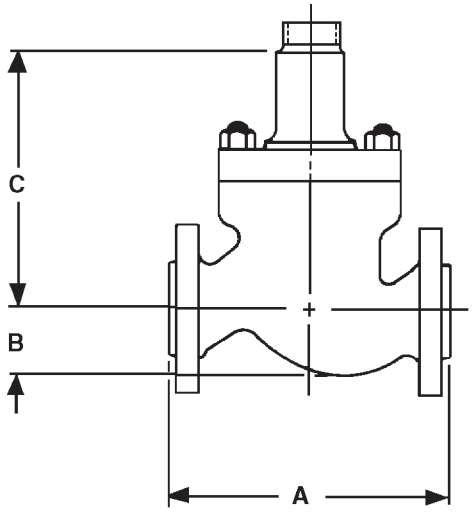
Denotes no product offering

① Single-acting spring return cylinder – Actuator Model 84 or 85

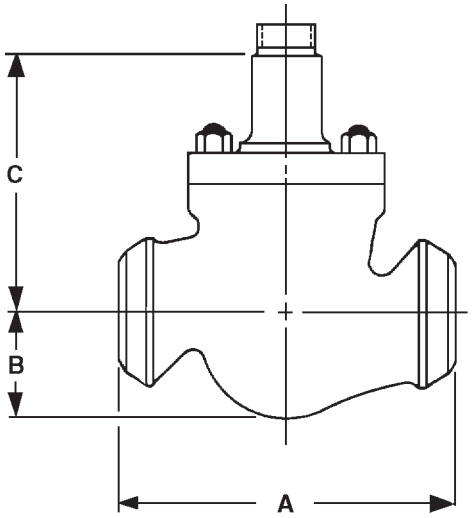
NOTE: INLET PRESSURE MUST NOT EXCEED ANSI RATING FOR THE SELECTED PRESSURE CLASS.

All pressure drops (ΔP) shown within this publication reflect actuator capability and shutoff class shown for a particular trim type. It does not imply proper application with regards to cavitation, noise, critical pressure drop, etc. Consult Masoneilan Handbook for Control Valve Sizing OZ1000 for more information.

Dimensions (inches)



Flanged



Butt, Socket Weld
or Screwed Ends

Body S/A

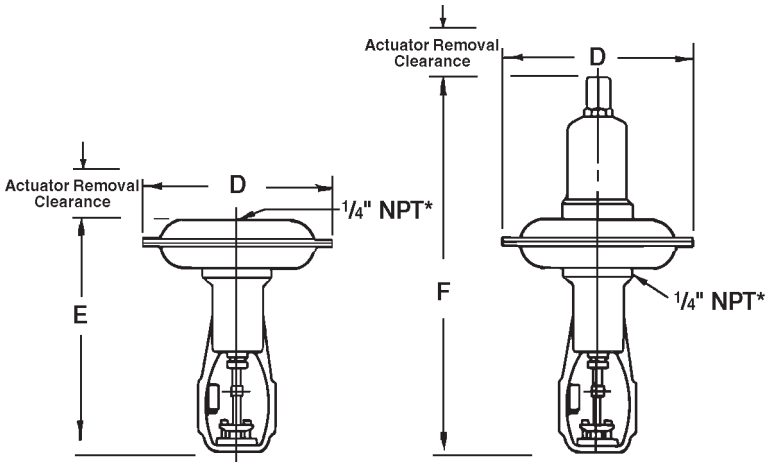
	A							B	C
ANSI Class	150-600	150		300		600		150-600	150-600
Valve Size (inches)	BW & SW	RFF	RTJ	RFF	RTJ	RFF	RTJ		
2	11.24			10.50	11.12	11.24	11.38	2.9	9.8
3	13.24			12.50	13.12	13.24	13.38	4.0	11.8
4	15.50			14.50	15.12	15.50	15.62	4.2	13.0
6	20.00	17.75	18.25	18.64	19.26	20.00	20.12	6.1	15.5
6 x 3 x 6	20.00	17.75	18.25	18.64	19.26	20.00	20.12	7.4	12.5
8	24.00	21.38	21.88	22.36	22.98	24.00	24.12	7.5	19.6
8 x 4 x 8	24.00	21.38	21.88	22.36	22.98	24.00	24.12	8.8	14.4
10	29.62	26.50	27.00	27.88	28.50	29.62	29.74	8.9	22.3
10 x 6 x 10	29.62	26.50	27.00	27.88	28.50	29.62	28.74	10.4	18.6
12	32.24	29.00	29.50	30.50	31.12	32.24	32.36	13.0	24.3
12 x 8 x 12	32.24	29.00	29.50	30.50	31.12	32.24	32.36	9.6	19.6
16	43.62	40.00	40.50	41.62	42.24	43.62	43.74	17.5	27.3
16 x 10 x 16	43.62	42.00	42.50	43.62	44.24	43.62	43.74	11.1	22.2

Denotes no product offering

Dimensions (inches)

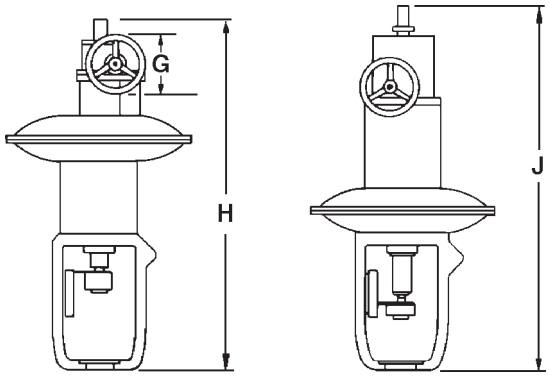
Body S/A

	A								B		C	
ANSI Class	900/ 1500	2500	900		1500		2500					
Valve Size (inches)	BW & SW	BW & SW	RFF	RTJ	RFF	RTJ	RFF	RTJ	900/ 1500	2500	900/ 1500	2500
2	14.76	15.76	14.76	14.88	14.76	14.88	15.76	15.88	2.2	2.4	8.5	8.7
3	18.12	19.62	17.38	17.50	18.12	18.26	19.62	19.87	3.7	3.2	11.8	9.9
4	20.88	22.62	20.12	20.24	20.88	21.00	22.62	23.00	4.5	4.4	13.0	11.9
6	30.24	30.00	28.12	28.24	30.24	30.50	30.00	30.50	6.5	9.9	15.5	20.7
6 x 3 x 6	30.24	30.00	28.12	28.24	30.24	30.50			3.7		13.0	
8	38.24	37.50	36.00	36.12	38.24	38.62	37.62	38.12	8.1	8.9	20.7	25.0
8 x 4 x 8	38.24	37.50	36.00	36.12	38.24	38.62			4.5		13.0	
10	46.00		43.00	43.12	46.00	46.38			9.7		22.5	
10 x 6 x 10	46.00		43.00	43.12	46.00	46.38			7.4		15.5	
12	48.00		44.48	44.60	48.00	48.62			14.2		24.7	



Direct (37) Air to Close

Reverse (38) Air to Open



Direct (37) Air to Close

Reverse (38) Air to Open

Type 8A Handwheel

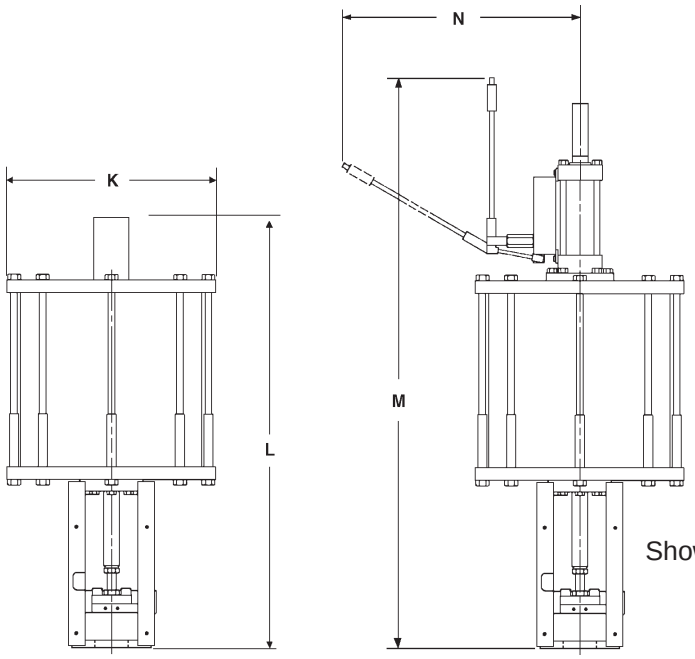
37/38 Spring Diaphragm Actuator

Actuator					Side-Mounted Handwheel			
Size	Actuator Removal Clearance	D	E Dir.	F Rev.	Type	G	H Dir.	J Rev.
18 with 16" Spring	5.6	20.75	33.2	42.1	8A	8	53	53
18 with 20" Spring	5.6	20.75		52.0	8A	8		53
24	5.0	27.50	34.7	45.5	8A	12	53	58

*1/2" NPT for No. 24 Actuator

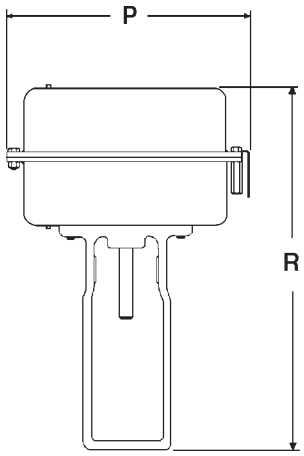
Denotes no product offering

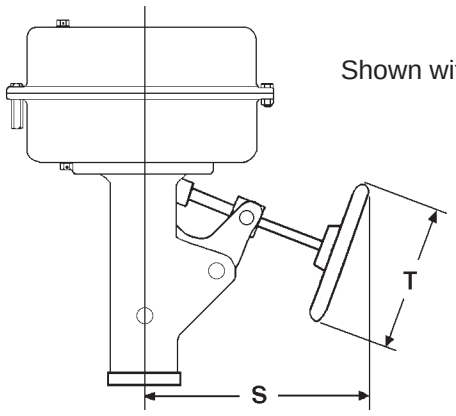
Dimensions (inches)



Shown with optional handjack

Model 84, 85, and 86 Cylinder - Direct, Reverse and Double-Acting				
Actuator Size	**K**	**L**	**M**	**N**
154 sq. in.	14.8	47.8	62.1	26.7
314 sq. in.	23.9	49.8	64.5	27.0





Shown with optional handwheel

Model 87/88 Actuator				
Actuator Size	**P**	**R**	**S**	**T**
6	11.50	15.54	10.00	9.00
10	14.50	19.58	10.90	12.00
16	18.75	28.22	13.00	18.00
23	21.63	30.71	15.00	18.00

Actuator removal clearance = 6 inches

Weights (lbs)

Body S/A Weights

Valve Size (inches)	ANSI Class								
	Flanged Connection					Threaded / Weld Connection			
	150, 300	600	900	1500	2500	600	900	1500	2500
2	100	100	144	144	152	79	86	86	86
3	221	221	325	353	402	185	250	250	260
4	363	372	530	547	660	280	407	407	490
6	540	573	1159	1181	1450	516	869	869	1040
8	921	967	1525	1800	2200	779	1545	1545	1865
10	1388	1492	2350	2800		1206	1575	2145	
12	2160	2238	3300	3900		2103	2670	2910	
16	3206	3320				3112			

Model 37/38 Spring Diaphragm Actuator

Size (inches)	Standard		with Handwheel	
	Direct	Reverse	Direct	Reverse
18 (16)	190	370	230	410
18 (20)		450		490
24	325	540	395	610

Model 87/88 Spring Diaphragm Actuator

Size (inches)	Standard	with Handwheel
6	45	60
10	85	105
16	210	245
23	265	340

Model 84, 85 and 86 Cylinder

Size	Base Weight	Small Spring	Large Spring	Medium Spring	Handjack
154	266	60	82	---	100
314	709	60	142	84	100

Denotes no product offering

Accessories and Options

Accessories

87/88 Actuators
(See Specification Data CR8788)
37/38 Actuators
(See Specification Data CR3000)
84/85/86 Cylinders

4600B/4700B Series Positioner
(See Specification Data CS2004)
Instrument Signals 3-15 and 6-30 psig

8012 Electropneumatic Valve Positioner
(See Specification Data CS5000)
Instrument Signals 10-50 mA, 104 ohms
4-20 mA, 173 ohms

7000 Electropneumatic (I/P) Transducer
TS-Model 7000
Input Range 4-20 mA
Split range
Output 3-15 psi, adjustable to 1-17
6-30 psi, adjustable 0-20, 0-35, 3-27

Smart Valve Interface (SVI™)
Smart Positioner and Smart Valve Process Controller
(See Technical Sheet TS-SVI)

ValVue Software
Calibration, Configuration, Diagnostic, and Operator Interface Tool
(See Technical Sheet TS-ValVue)

2700 Controllers
(See Specification Data CW6000)

496 Rotary Electric Switches
496-1 (1-Switch SPDT)
496-2 (2-Switches SPDT)
496-3 Position Transmitter
496-6 (1-Switch DPDT)
496-7 (2-Switches DPDT)
(See Specification Data CS7000)

80-4 or 80-40 Airset
(See Specification Data CY7800)
77-6 or 77-60 Lockup Valve
(See Specification Data CY7700)
2" Gauge 0-30 psi

ASCO Solenoid Valves

NAMCO Limit Switches

WESTLOCK Limit Switches and Position Transmitters

Options

Body Drain Plug
Other Materials
Other Flange Facings
N.A.C.E. Compliance
Custom Trim Materials
Nondestructive Examination
Electric Actuators
Limit Stops
Extension Bonnets
Lubricator and Isolation Valve
Other Positioners
Oxygen Cleaning
TFE V-ring Packing
Reducer and Nipple Connections

For additional Accessories and Options consult the Masoneilan Factory.

Facilities: **Brazil, Canada, France, Germany, Italy, Japan, Mexico, Netherlands, Singapore, Spain, United Kingdom, United States**

Masoneilan
Valve & Controls DRESSER

Masoneilan North American Operations
Dresser Valve & Controls Division
Dresser Industries, Inc.
Marketing Services
15112 Morales Road
P.O. Box 60078 (77205-0078)
Houston, Texas 77032
(281) 871-6500 • Fax (281) 871-6569