

**Masoneilan®
33 Series
Reducing and Back Pressure
Pressure Regulators**

Specification Data

CY3300

REV. A 06/88



**Steam, Gas and
Liquid Service**



Table of Contents

Product Selection Information	2
Body Material, End Connections and F _L	3
Pressure/Temperature Limits	3
Regulator Sizing	3-5
Materials	6-7
Models 33-1 and 33-32	6
Models 33-17 and 33-29	7
Dimensions and Weights	7

Foreword

The Masoneilan 33 Series bronze regulating valves provide accurate pressure control in low capacity systems. These valves are built for long-term continuous service with all bronze and stainless steel construction, extra long plug stem support and simple design.

Product Selection Information

Model	Function	Service	Size (in.)	CV	Range (psi)	Unit Number
33-1	Reducing	Steam	.5	0.48	2-20	804033-001-020
					20-60	804033-001-060
					60-100	804033-001-100
			.75	1.1	2-20	805033-001-020
					20-60	805033-001-060
					60-100	805033-001-100
33-22	Reducing	Air or Gas	.5	0.48	2-20	804033-022-020
					20-60	804033-022-060
					60-100	804033-022-100
			.75	1.1	2-20	805033-022-020
					20-60	805033-022-060
					60-100	805033-022-100
33-17	Back Pressure	Air or Gas	.5	0.7	2-20	804033-017-020
					20-60	804033-017-060
					60-100	804033-017-100
			.75	1.1	2-20	805033-017-020
					20-60	805033-017-060
					60-100	805033-017-100
			1	2.0	2-20	806033-017-020
					20-60	806033-017-060
					60-100	806033-017-100
33-29	Back Pressure	Steam	.5	0.7	2-20	804033-029-020
					20-60	804033-029-060
					60-100	804033-029-100
			.75	1.1	2-20	805033-029-020
					20-60	805033-029-060
					60-100	805033-029-100
			1	2.0	2-20	806033-029-020
					20-60	806033-029-060
					60-100	806033-029-100

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Body Material, End Connections and F_L

Body Material: Cast Bronze

End Connections: Threaded NPT

Critical Flow Factor: $F_L = 0.9$

Pressure/Temperature Limits

Model	Temperature Limits	Pressure Limits
33-1	-20°F to 400°F	200 psi max.
33-22	-20°F to 150°F	
33-17	-20°F to 150°F	125 psi max.
33-29	-20°F to 400°F	

Regulator Sizing

These tables are for selecting the proper regulator size for common applications. They do not apply to all Model 33 applications. To size a regulator for an application not listed, use

standard valve sizing equations. (Refer to Masoneilan Bulletin OZ1000 for valve sizing equations.)

Models 33-1 and 33-22 Regulators Capacity – Saturated Steam (lb/hr) and Air (scfm)

Inlet Pressure (psig)	Outlet Pressure (psig)	Saturated Steam (lb/hr) Model 33-1		Air (scfm) Model 33-22	
		Valve Size (in.)		Valve Size (in.)	
		.5	.75	.5	.75
30	2-10	55	120	13	31
	20	28	64	6.7	16
50	2-20	56	135	19	45
	30	47	112	16	38
	40	35	83	12	28
60	2-25	67	155	22	51
	40	51	116	18	41
	50	38	88	13	29
75	2-30	79	185	27	61
	50	62	146	21	49
	60	50	120	17	40
100	2-50	100	235	34	79
	60	89	206	30	69
	80	66	150	22	51
125	2-60	125	293	42	97
	80	105	240	35	81
	100	78	185	26	61
150	2-70	150	342	50	114
	100	125	285	41	95
175	2-90	170	395	57	132
	100	155	365	51	122
200	2-100	190	445	64	149

Regulator Sizing

Models 33-17 and 33-29 Regulators Capacity – Saturated Steam (lb/hr) and Air (scfm)

Inlet Pressure (psig)	Outlet Pressure (psig)	Saturated Steam (lb/hr) Model 33-29			Air (scfm) Model 33-17		
		Valve Size (in.)			Valve Size (in.)		
		.5	.75	1	.5	.75	1
30	2-12	52	82	149	17	27	49
	20	42	65	119	14	22	39
	25	30	48	87	10	16	29
40	2-18	64	100	182	21	33	59
	25	56	87	159	18	29	53
	30	47	73	133	15	24	44
	35	34	53	96	11	18	32
50	2-24	75	118	215	25	39	70
	30	69	108	197	23	36	65
	40	51	80	145	17	27	48
	45	37	58	105	12	19	35
60	2-30	87	136	248	28	48	81
	35	82	129	235	27	43	78
	40	75	118	214	25	39	71
	50	55	86	157	18	29	52
70	2-36	98	154	281	32	51	92
	40	95	150	272	31	50	90
	50	81	127	230	27	42	76
	60	59	92	168	20	31	56
80	2-42	110	172	314	36	56	103
	50	102	160	291	34	53	97
	60	86	135	245	29	45	81
	70	62	98	178	21	33	59
90	2-47	121	191	347	40	62	113
	60	108	170	309	36	56	102
	70	91	142	259	30	47	86
	80	66	103	188	22	34	62
100	2-53	133	209	380	44	68	124
	60	128	201	366	43	67	122
	70	114	179	325	38	59	108
	80	95	150	272	32	50	90

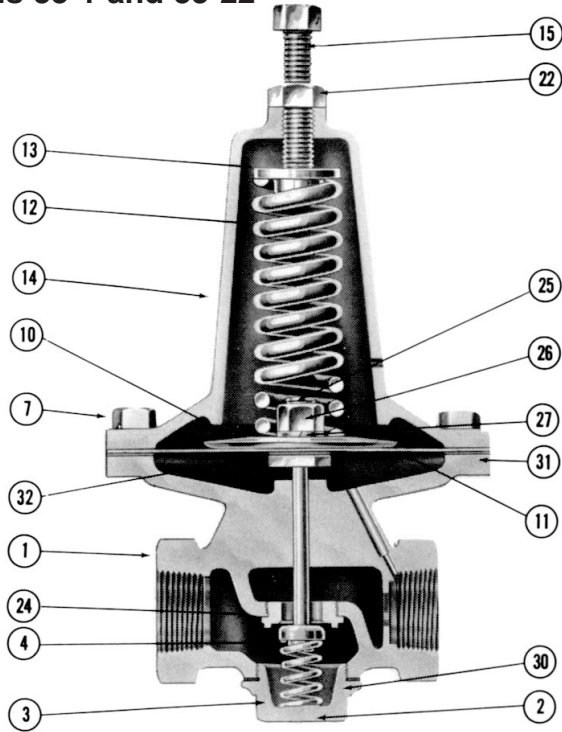
Regulator Sizing

All Model Regulators Capacity – Water (GPM)

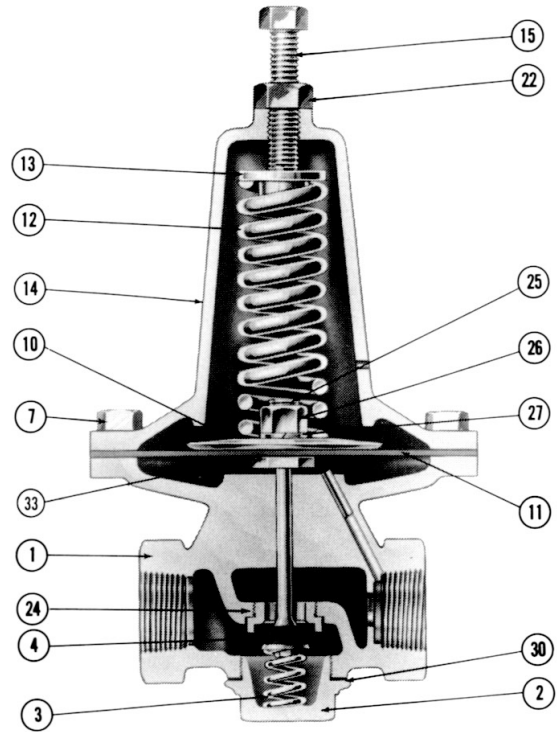
Pressure Drop Inlet Pressure minus Outlet Pressure	Water (GPM)				
	Models 33-1 and 33-22		Models 33-17 and 33-29		
	Valve Size (in.)		Valve Size (in.)		
	.5	.75	.5	.75	1
10	1.5	3.5	2.2	3.5	6.3
15	1.9	4.3	2.7	4.3	7.8
20	2.1	4.9	3.1	4.9	8.9
25	2.4	5.5	3.5	5.5	10
30	2.6	6	3.8	6	10.9
35	2.8	6.5	4.1	6.5	11.8
40	3	7	4.4	7	12.6
45	3.2	7.4	4.7	7.4	13.4
50	3.4	7.8	5	7.8	14.1
60	3.7	8.5	5.4	8.5	15.5
70	4	9.2	5.9	9.2	16.7
80	4.3	9.8	6.3	9.8	17.9
90	4.6	10.4	6.6	10	19
100	4.8	11	7	11	20
110	5	11.5	7.3	11.5	21
120	5.3	12	7.7	12	21.9

Materials

Models 33-1 and 33-22



Model 33-1

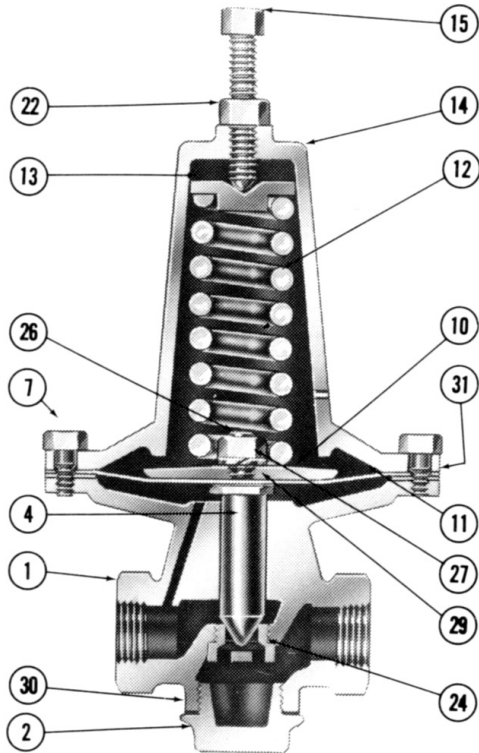


Model 33-22

Ref. No.	Description		Materials	
1	Body		Bronze Alloy ASTM B43	
2	Body Plug		Bronze Alloy ASTM B43	
3	Valve Spring		302 Stainless Steel	
4	Valve S/A	33-1	304 Stainless Steel	
		33-22	Plug Shank and Retainer	316 Stainless Steel
			Seat Insert	Buna-N Rubber
		Nut	300 Series Stainless Steel	
7	Cap Screws		Carbon Steel	
10	Diaphragm Button		Carbon Steel	
11	Diaphragm	33-1	Phosphor Bronze	
		33-22	Neoprene Rubber with Nylon Insert	
12	Range Spring		Carbon and Alloy Spring Steel	
13	Spring Button		Free Cutting Steel	
14	Spring Case		Bronze Alloy ASTM B43	
15	Adjusting Screw		Carbon Steel	
22	Adjusting Screw Locknut		Carbon Steel	
24	Seat Ring		303 Stainless Steel	
25	Diaphragm Bolt		Free Cutting Brass	
26	Diaphragm Bolt Locknut		Carbon Steel	
27	Lockwasher		Carbon Steel	
30	Body Plug Gasket		Copper	
31	Diaphragm Gasket		Nitrile Bound Acrylic	
32	Diaphragm Bolt Gasket		Nitrile Bound Acrylic	
33	O-Ring		Buna-N	

Materials

Models 33-17 and 33-29



Model 33-17
(Elastomer Diaphragm)

Model 33-29
(Metal Diaphragm)

Ref. No.	Description		Materials
1	Body		Bronze Alloy ASTM B43
2	Body Plug		Bronze Alloy ASTM B43
4	Main Valve		316 Stainless Steel
7	Cap Screw		Carbon Steel
10	Diaphragm Button		Carbon Steel
11	Diaphragm	33-17	Neoprene Rubber with Nylon Insert
		33-29	Phosphor Bronze
12	Range Spring		Carbon and Alloy Spring Steel
13	Spring Button		Free Cutting Steel
14	Spring Case		Bronze Alloy ASTM B43
15	Adjusting Screw		Carbon Steel
22 & 26	Locknut		Carbon Steel
24	Seat Ring		316 Stainless Steel
27	Lockwasher		Carbon Steel
29	O-Ring	33-17	Buna-N
	Main Valve Gasket	33-29	Nitrile Bound Acrylic
30	Body Plug Gasket		Copper
31	Diaphragm Gasket	33-29	Nitrile Bound Acrylic

Dimensions (in.) and Weights (lbs.)

Valve Size (in.)	Dimensions		Weight
	A	C	
.5	3.25	8.125	9
.75	3.625		10
1	4.25		12

Do you want a drawing here like in the CY5256/CY1111 Spec Data?

Sales Office Locations

BELGIUM

Dresser Valves Europe
Boulevard du Souverain 207 B2
Vorstlaan,
B-1160 Brussels, Belgium
Phone: +32-2-344-0970
Fax: +32-2-344-1123

BRAZIL

Dresser Industria e Comercio Ltda
Divisao Masoneilan
Rua Funchal, 129 - Conj. 5A
04551-060 - Sao Paulo - SP Brazil
Phone: 55-11-2146-3600
Fax: 55-11-2146-3610

CANADA

Ontario
Dresser - Masoneilan
DI Canada, Inc.
835 Harrington Court, 2nd Floor
Burlington, Ontario L7N 3P3, Canada
Phone: 905-335-3529
Fax: 905-336-7628

CHINA

Dresser Flow Solutions
Beijing Rep. Office
Suite 1703, Capital Mansion
6 Xinyuannan Rd. Chaoyang District
Beijing 100004, China
Phone: +86-10-8486-4515
Fax: +86-10-8486-5305

FRANCE

Masoneilan - Dresser Produits
Industriels
Energy 5
130/190 Boulevard de Verdun
92413 Courbevoie cedex, France
Phone: +33-1-4904-9000
Fax: +33-1-4904-9010

Dresser Produits Industriels S.A.S.,
Masoneilan Customer Service Centre
55 rue de la Mouche, Zone Industrielle
69540 Irigny, France
Phone: +33-4-72-39-06-29
Fax: +33-4-72-39-21-93

GERMANY

Dresser Valves Europe GmbH
Heiligenstrasse 75
Viersen D-41751, Germany
Phone: +49-2162-8170-0
Fax: +49-2162-8170-280

Dresser Valves Europe GmbH
Umlandstrasse 58
60314 Frankfurt, Germany
Phone: +49-69-439350
Fax: +49-69-4970802

INDIA

Dresser Valve India Pvt. Ltd.
305/306, "Midas", Sahar Plaza
Mathurdas Vasanti Road
J.B. Nagar, Andheri East
Mumbai, 400059, India
Phone: +91-22-8354790
Fax: +91-22-8354791

Dresser Valve India Pvt. Ltd.
205, Mohta Building
4 Bhikaji Cama Place
New Delhi, 110 066, India
Phone: +91-11-2-6164175
Fax: +91-11-5-1659635

ITALY

Dresser Italia S.r.l.
Masoneilan Operations
Via Cassano, 77
80020 Casavatore, Napoli Italy
Phone: +39-081-7892-111
Fax: +39-081-7892-208

JAPAN

Niigata Masoneilan Co. Ltd. (NIMCO)
20th Floor, Marive East Tower
WBG 2-6 Nakase, Mihama-ku,
Chiba-shi, Chiba 261-7120 Japan
Phone: +81-43-297-9222
Fax: +81-43-299-1115

KOREA

Dresser Korea Inc.
2109 Kuk Dong Building
60-1, ChoongMoo-ro 3-ka
Joong-gu, Seoul, Korea 100-705
Phone: +82-2-2274-0748
Fax: +82-2-2274-0720

KUWAIT

Dresser Flow Solutions
Middle East Operations
10th Floor, Al Rashed Complex
Fahad Salem Street, P.O. Box 242
Safat, 13003, Kuwait
Phone: +965-9061157
Fax: +965-3987879

MALAYSIA

Dresser Flow Solutions
Business Suite, 19A-9-1, Level 9
UOA Centre, No. 19, Jalan Pinang
50450 Kuala Lumpur, West Malaysia
Phone: +60-3-2161-0322
Fax: +60-3-2163-3612

MEXICO

Dresser Valve de Mexico, S.A. de C.V.
Henry Ford No. 114, Esq. Fulton
Fraccionamiento Industrial San
Nicolas
54030 Tlalnepanitla Estado de Mexico
Phone: 52-5-310-9863
Fax: 52-5-310-5584

THE NETHERLANDS

Dresser Valves Europe
Steenhouwerstraat 11
3194 AG Hoogvliet, The Netherlands
Phone: +31-10-438-4122
Fax: +31-10-438-4443

RUSSIA

DS Controls
Nekhinskaya Street, 61
Veliky Novgorod
Russia, 173021
Phone: +7-8162-15-7898
Fax: +7-8162-15-7921

SAUDI ARABIA

Dresser AL Rushaid
Valve & Instrument Co., Ltd.
(Darvico)
P.O. Box 10145
Jubail Industrial City 31961,
Saudi Arabia
Phone: +966-3-341-0278
Fax: +966-3-341-7624

SINGAPORE

Dresser Singapore Pte Ltd.
16 Tuas Avenue 8
Singapore 639231
Phone: +65-6-6861-6100
Fax: +65-6-6861-7172

SOUTH AFRICA

Dresser Limited
P.O. Box 2234
16 Edendale Road
Eastleigh, Edenvale 1610
Republic of South Africa
Phone: +27-11-452-1550
Fax: +27-11-452-6542

SPAIN

Masoneilan S.A.
C/Murcia 39 C
08830 Sant Boi de Llobregat
Barcelona, Spain
Phone: +34-93-652-6430
Fax: +34-93-652-6444

UNITED ARAB EMIRATES

Dresser Flow Solutions
Middle East Operations
P.O. Box 61302
Roundabout 8
Units JA01 & JA02
Jebel Ali Free Zone
Dubai, U. A. E.
Phone: +971-4-8838-752
Fax: +971-4-8838-038

UNITED KINGDOM

DI U.K. Ltd.
East Gillibrands
Skelmersdale,
Lancashire WN8 9TU, England
Phone: +44-1695-52600
Fax: +44-1695-52601

DI U.K. Ltd.

Unit 4, Suite 1.1, Nobel House
Grand Union Office Park
Packet Boat Lane
Uxbridge, Middlesex UB8 2GH
Phone: +44-1895-454-900
Fax: +44-1895-454-919

UNITED STATES

Dresser - Masoneilan
85 Bodwell Street
Avon, MA 02322-1190
Phone: 508-586-4600
Fax: 508-427-8971

Dresser - Masoneilan
4841 Leopard Street
Corpus Christi, TX 78408-2621
Phone: 361-881-8182
Fax: 361-881-8246

Dresser - Masoneilan
Dresser Direct
1250 Hall Court
Deer Park, TX 77536
Phone: 281-884-1000
Fax: 281-884-1010

Dresser Flow Solutions
(Contractor Sales)
16240 Port Northwest Drive
Houston, TX 77041
Phone: 832-590-2303
Fax: 832-590-2529

Dresser - Masoneilan
12015 Mora Drive, Unit 2
Santa Fe Springs, CA 90670
Phone: 562-941-7610
Fax: 562-941-7810

