

Masoneilan® 37002 Series MiniTork® II Control Valves

Specification Data

CM37002

09/05



**Heavy Duty Automatic
Throttling Control
Butterfly Valves**



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Foreword

The MiniTork® II is a heavy duty automatic throttling control butterfly valve that provides superior performance by incorporating the following features:

Low Dynamic Torque – the unique cupped shape disc results in a dynamic torque considerably lower than conventional butterfly valves.

Triple Bearing System – provides exceptional support and guiding for the shaft.

Valve Position Indicator – highly visible, which allows quick visual inspection of disc position.

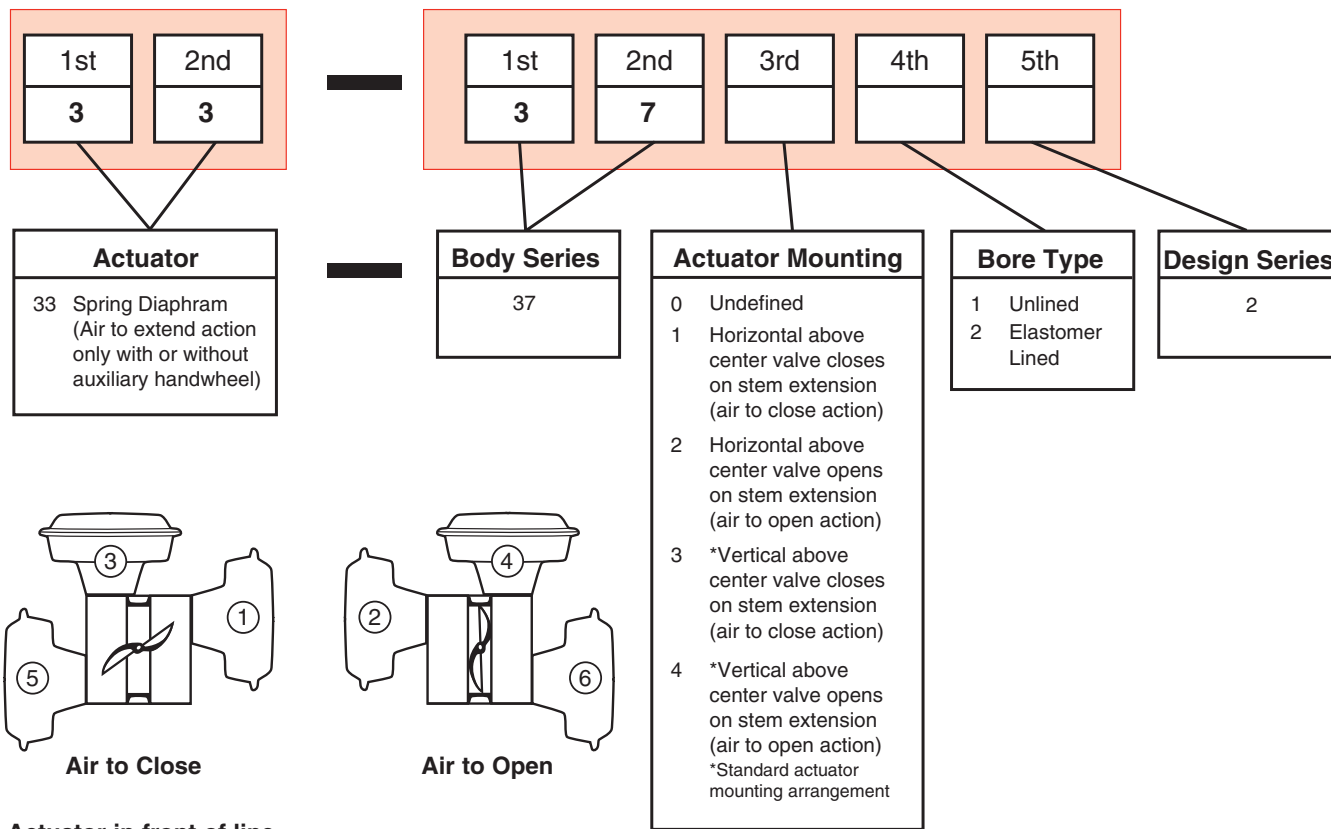
Integrally Cast Extension Bonnet – provides ability to handle wide range of process temperatures.

Spring Diaphragm Actuator – with total enclosure of all moving parts provides increased resistance to environmental corrosion.



Handwheel and positioner are optional.

Numbering System



Actuator in front of line.

Unnumbered actuator positions above same as numbered positions when valve is rotated 180° in line.

General Data

flow characteristic: equal percentage
 flow direction: universal
 temperature range: unlined valves
 St. St. body
 -250°F to +500°F (-256°C to +260°C)
 carbon steel body
 -20°F to +500°F (-29°C to +260°C)
 lined valves—see liner material page 4
 seat leakage: metal seal: 2" – 4" (DN25-100), 2% of rated C_v
 6" – 12" (DN150-300), 1% of rated C_v
 elastomer seat: per ANSI/ FCI 70.2 Class VI
 C_v ratio: 100:1

Connections

Valve Size		ANSI Class 150 & 300
in.	DN	Carbon & St. St.
2	50	•
3	80	•
4	100	•
6	150	•
8	200	•
10	250	•
12	300	•

Body Assembly Data

body type:	cast wafer with integral bonnet	disc type:	low dynamic torque reverse cupped disc
sizes:	2"-12" (DN 25-300)	materials:	316 stainless steel
materials:	carbon steel ¹ ASTM A216 Gr WCB stainless steel ASTM A351 Gr CF8M	shaft type:	one piece shaft, splined on outboard end
connections:	flangeless – clamped between ANSI Class 125, 150, 250 and 300 line flanges	material:	17-4 PH stainless steel 316 stainless steel (optional)
rating:	ANSI Class 300 – carbon steel and stainless steel	bushings:	Stellite [®] Alloy 6
elastomer liner type:	replaceable metal reinforced flangeless ring with controlled compression	bracket bearing:	a dirt sealed, permanently lubricated ball bearing
materials:	Buna-N [®] +10°F to +180°F (-23°C to +82°C) Nordel [®] -30°F to +250°F (-34°C to +121°C) Viton [®] -10°F to +400°F (-23°C to +204°C) (+180°F (+82°C) max. for liquids and steam)	packet box:	bolted
		packing:	Crane 285K Teflon fiber ring (optional) EF [®] Seal for fugitive emission protection (optional)

1 Carbon steel is the standard body material in elastomer lined valves.

Actuator Data (Model 33)

type:	spring diaphragm, floating stem pneumatic actuator	bracket:	cast iron
action:	increasing air extends stem	handwheel:	push type tilting, rising stem, (optional) permanently lubricated
bench range:	B size 7-14 psig C size 9-15 psig	materials:	17-4 PH and AISI 416 St. St.
connection:	1/4" NPT		
fail safe action:	field reversible		

Valve Size		Shaft Diameter		Actuator					Handwheel Diameter	
				Size	Effective Area		Stroke			
in.	DN	in.	DN		sq. in.	sq. cm	in.	mm	in.	mm
2	50	0.500	12.7	B	70	450	2.25	57	10	254
3	80	0.500	12.7	B	70	450	2.25	57	10	254
4	100	0.625	15.9	B	70	450	2.25	57	10	254
6	150	0.625	15.9	B	70	450	2.25	57	10	254
8	200	1.000	25.4	C	140	900	2.25	57	10	254
10	250	1.000	25.4	C	140	900	2.25	57	10	254
12	300	1.000	25.4	C	140	900	2.25	57	10	254

Maximum Rated Flow Coefficients (C_V) and Pressure Recovery Coefficients (F_L) at Maximum Opening (75°)

Valve Size		C_V ^①	F_L
in.	DN		
2	50	90	0.65 at Max. Opening
3	80	280	
4	100	480	
6	150	1330	
8	200	2370	
10	250	3700	
12	300	5300	

① C_V rating per ISA Test Procedure SP 39.2

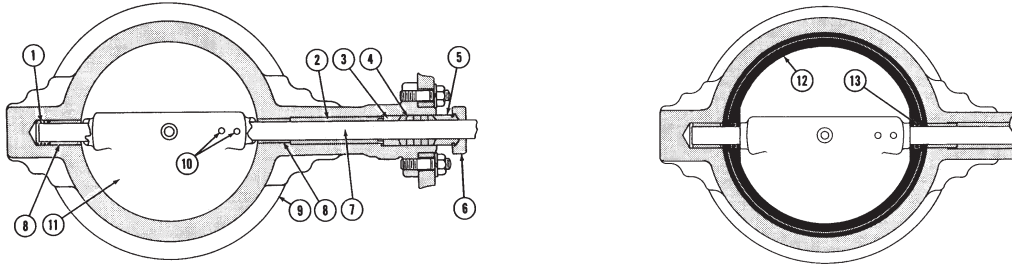
Flow Coefficients (C_V) Versus Valve Travel

% Max. Opening	10	20	30	40	50	60	70	80	90	100
% Max. C_V	1.2	2.5	5	9	14	23	34	51	72	100

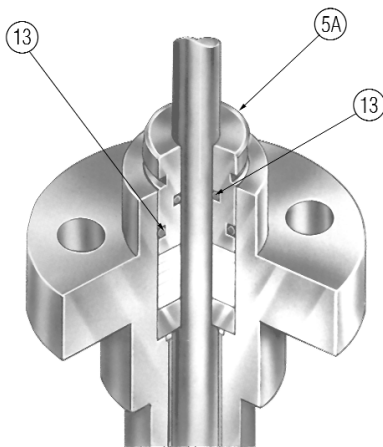
Pressure Recovery Coefficient (F_L) Versus % Maximum C_V

% Max. C_V	10	20	30	40	50	60	70	80	90	100
Pressure Recovery Coefficient F_L	.80	.78	.76	.75	.73	.71	.69	.67	.66	.65

Materials



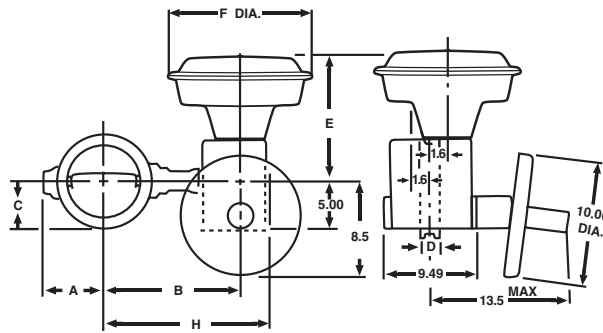
Temperature	-250°F	-30°F	-20°F	-10°F	10°F	180°F	250°F	400°F	450°F	500°F
Ref. No	Description									
	Standard Materials									
1	Spring									
	302 Stainless Steel ASTM A313 Type 302									
2	Spacer Tube									
	316 Stainless Steel ASTM A269 Gr Type 316									
3	Packing Adapter									
	316 Stainless Steel ASTM A479 Type 316									
4	Packing									
	Crane 285K									
	Teflon® Fiber Ring Chesterton 324 (optional)									
5	Packing Follower									
	316 Stainless Steel ASTM A276 Type 316									
5A	EF Seal									
	A582 Type 303 St. St. with 2 Viton Rings									
6	Packing Flange									
	Cadmium Plated Steel ASTM A105 Gr 11									
7	Vane Shaft									
	17-4 Stainless Steel ASTM A564 Gr 630 H1075									
	316 Stainless Steel ASTM A276 Type 316 (optional)									
8	Guide Bushing									
	Stellite Alloy 6									
9	Valve Body									
	316 Stainless Steel ASTM A351 Gr CF8M									
	Carbon Steel ASTM A216 WCB									
10	Shaft Pin									
	316 Stainless Steel ASTM A479 Type 316									
11	Vane									
	316 Stainless Steel ASTM A351 Gr CF8M									
12	Liner and O-ring									
	Buna-N									
	Nordel									
	Viton									
Temperature	-157°C	-34°C	-29°C	-23°C	12°C	82°C	121°C	204°C	232°C	260°C



EF Seal Option
Double O-Ring Seal Packing Follower
 Fugitive Emission Containment Package

Provides long term reliable extremely low emission shaft seal performance. This economical solution to fugitive emissions won't compromise control performance and is suitable for use in environmentally sensitive applications.

Dimensions



Dimensions (inches)

Valve Size		Actuator Size	A	B	C	D	E	F
in.	DN							
2	50	B	2.8	10.3	1.8	1.8	11.5	13.0
3	80	B	3.3	10.8	2.5	1.9	11.5	13.0
4	100	B	3.8	11.3	3.1	2.0	11.5	13.0
6	150	B	5.4	12.5	4.3	2.3	11.5	13.0
8	200	C	7.0	15.4	5.5	2.5	15.2	17.5
10	250	C	8.0	16.4	6.4	2.5	15.2	17.5
12	300	C	9.0	17.4	7.4	3.0	15.2	17.5

Dimensions (millimeters)

Valve Size		Actuator Size	A	B	C	D	E	F
DN	in.							
50	2	B	71	262	46	46	292	330
80	3	B	84	274	64	48	292	330
100	4	B	97	287	79	51	292	330
150	6	B	137	318	109	58	292	330
200	8	C	178	391	140	64	386	445
250	10	C	203	417	163	64	386	445
300	12	C	229	442	188	76	386	445

Weights

Assembly Weights⁽¹⁾

Valve Size		Valve Weight	
in.	DN	lbs	Kg
2	50	59	27
3	80	61	28
4	100	66	30
6	150	72	33
8	200	142	64
10	250	157	71
12	300	186	84

(1) Add 22 lbs. (10 Kgs) for assemblies with handwheels.

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