Technical Specifications
Rev. B - 06/2021

Masoneilan™ 37002 Series MiniTork™ II Control Valves

Heavy Duty Control Butterfly Valves

Baker Hughes

Table of Contents

Features

The MiniTork II is a heavy duty, 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

1st	2nd	–	1st	2nd	3rd	4th	5th
3	3		3	7			0

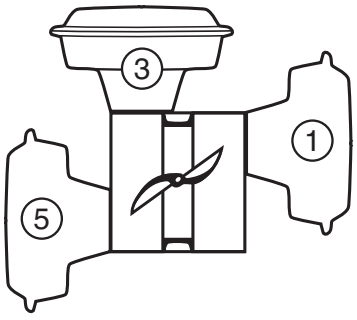
Actuator	
53	Spring Diaphragm (Air to extend action only with, or without auxilary handwheel)

Body Series
37

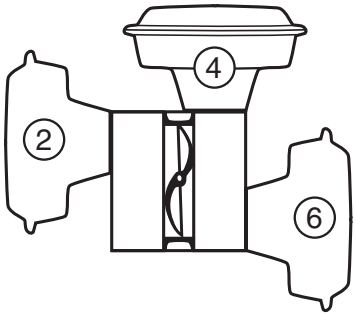
Plug Type	
0	Undefined
1	Horizontal above center valve closes on stem extension (air to close action)
2	Horizontal above center valve opens on stem extension (air to open action)
3	*Vertical above center valve closes on stem extension (air to close action)
4	*Vertical above center valve opens on stem extension (air to open action) *Standard actuator mounting arrangement

Bore Type	
1	Undefined
2	Elastomer Lined

Design Series
2



Air to Close



Air to Open

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 8

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
Inches	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

Sizes: 2"-12" (DN 25-300)

Materials: Carbon steel[(1)] ASTM A216 Gr WCB
Stainless steel ASTM A351 Gr CF8M

Connections: Flangeless – clamped between ANSI Class 125, 150, 250 and 300 line flanges

Rating: ANSI Class 300 – carbon steel and stainless steel

Elastomer Liner Type: Replaceable metal reinforced flangeless ring with controlled compression

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)

Disc Type: Low dynamic torque reverse cupped disc

Materials: 316 stainless steel

Shaft Type: One piece shaft, splined on outboard end

Material: 17-4 PH stainless steel
316 stainless steel (optional)

Bushings: Stellite® Alloy 6

Bracket Bearing: A dirt sealed, permanently lubricated ball bearing

Packet Box: Bolted

Packing: Carbon Core Braided PTFE
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
Action:	Increasing air extends stem
Bench Range:	B size 7-14 psig C size 9-15 psig
Connection:	1/4" NPT
Fail Safe Action:	Field reversible
Bracket:	Cast iron
Handwheel: (optional)	Push type tilting, rising stem, Permanently lubricated

Valve Size		Shaft Diameter		Actuator					Handwheel Diameter	
				Size	Effective Area		Stroke			
Inches	DN	Inches	DN		sq. in.	sq. cm	Inches	mm	Inches	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 (CV) and Pressure Recovery Coefficients (FL) at Maximum Opening (75°)

Valve Size		C_V (1)	F_L
Inches	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

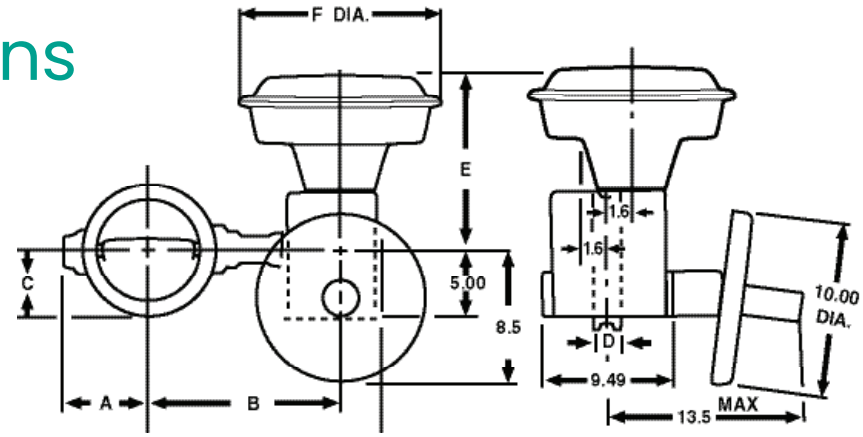
Flow Coefficients (Cv) Versus Valve Travel

% 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 (FL) Versus % Maximum CV

% 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

Dimensions



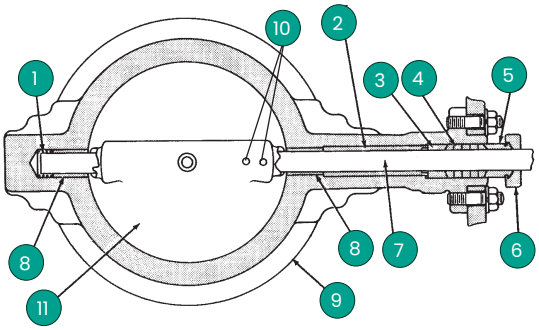
Dimensions (inches)

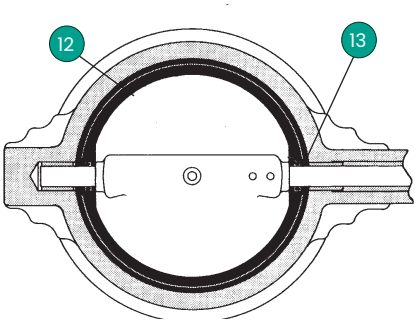
Valve Size		Actuator Size	A	B	C	D	E	F
Inches	DN							
2	50	B	2.8	10.3	1.8	1.8	11.5	13.0
3	80	B	3.3	10.8	2.5	1.9	11.5	13.0
4	100	B	3.8	11.3	3.1	2.0	11.5	13.0
6	150	B	5.4	12.5	4.3	2.3	11.5	13.0
8	200	C	7.0	15.4	5.5	2.5	15.2	17.5
10	250	C	8.0	16.4	6.4	2.5	15.2	17.5
12	300	C	9.0	17.4	7.4	3.0	15.2	17.5

Dimensions (millimeters)

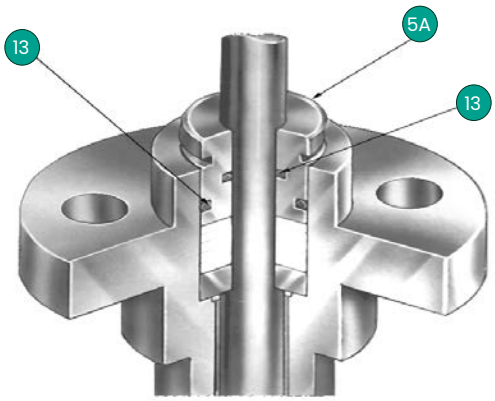
Valve Size		Actuator Size	A	B	C	D	E	F
DN	Inches							
50	2	B	71	262	46	46	292	330
80	3	B	84	274	64	48	292	330
100	4	B	97	287	79	51	292	330
150	6	B	137	318	109	58	292	330
200	8	C	178	391	140	64	386	445
250	10	C	203	417	163	64	386	445
300	12	C	229	442	188	76	386	445

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	Carbon Core Braided PTFE								
		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 Vition 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				
13				Nordel						
					Viton					
Temperature		Δ -157°C	Δ -34°C	Δ -29°C	Δ -23°C	Δ 12°C	Δ 82°C	Δ 121°C	Δ 204°C	Δ 232°C	Δ 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.

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.

Direct Sales Office Locations

Australia
Brisbane
Phone: +61-7-3001-4319

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