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## MIL 25000 - Compact Globe Control Valves

[www.controlssupplychain.com](http://www.controlssupplychain.com) | [info@controlssupplychain.com](mailto:info@controlssupplychain.com)





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## Introduction

MIL 25000 series self draining compact globe valves are specially designed for burner trip applications in fossil fired boilers. The burner trip applications are quite demanding due to very fast closing time (less than 1 sec), slower and adjustable opening times and tight shut-off capability.



## Features

MIL 25000 series single ported, self-draining, shank guided valve is designed with built-in versatility that makes it well suited to handle burner trip applications.

### Stream Lined Design

The streamlined design without cavities allows higher flow capacity with low pressure drop.

### Compact and Lightweight Construction

Unique compact design, makes the mounting of the valves possible in cramped locations like burner station areas where mounting space is a constraint.

### Shank Guiding

Rugged, shank guiding provides support to ensure plug stability.

### Self Draining

Elimination of cavities provides self-draining feature which prevents sedimentation.

### Reduced Capacity

In addition to full area trim, reduced trim options are also available to provide a wider flow range capability.





## Trim Type

Standard construction offers a threaded seat ring. Contoured plugs are available with equal percentage or linear characteristics.

## High Shut-off Pressure Capability

High allowable shut-off pressure shown in the actuator selection tables reflect actuator capability for the leakage class.

## Tight Shut-off

Class IV leakage as per FCI 70.2 is standard. Optional construction meets Class V & VI seat leakage rates as per FCI 70.2.

# Typical Applications

Self draining control valves are used in burner trip applications and scavenging process.

Pneumatically actuated burner trip valves are used to control the atomizing medium (air & steam) and fuel (light fuel oil & heavy fuel oil) flow to the oil guns which are used to initiate the boiler furnace firing during startup and low loads. Valve's instantaneous closing and tight shut-off capability will reduce the wastage of fuel and atomizing medium during the change over and normal loads. The slow opening will assure a reduced pressure dip of fuel oil and atomizing medium during opening and ensures gradual fine control of temperature during startups.

The burner station is located near each oil gun outside the furnace area. It consists of separate lines for air, LFO, HFO and steam. Air and steam are used as atomizing (process of increasing the velocity and surface area of the fuel medium for effective combustion) medium for LFO and HFO burners respectively. Separate burner trip valves are provided in each line.

Scavenging is a process of purging out the oil or any other impurity that is locked up in the oil gun tips when they are taken out of service, for which scavenging trip valves are used. During normal firing and no scavenging conditions, the scavenging trip valves shall be in closed position.

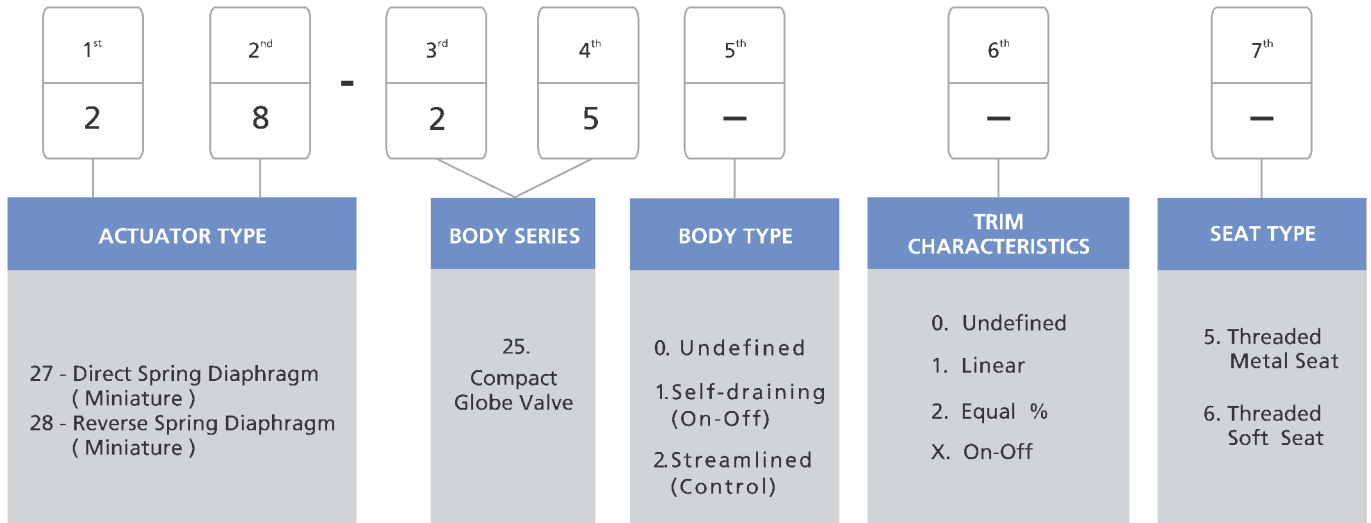
Streamlined control valves are extensively used in Pharmaceutical, chemical and bio-medical industries. The principal requirement in these industries is to accurately monitor and control the position of valves as slightest variation affects the product quality. Most of the valves are used on pure steam generators and primary process plants that produce active ingredients in batches via chemical synthesis, fermentation or extraction. Valve monitoring and control has to be accurate and reliable in order to ensure consistent standards of product purity and quality.





# Technical Information

## Model Decodification



## Standard Size / Ratings / End Connection

VALVE SIZE (inch)	RATING ( ASME CLASS )	END CONNECTION
0.5 - 1	150# & 300#	Flanged

## General Data

BODY	
Type	: Globe
Recommended Flow direction	: Flow to open
GLAND SEAL	
Type	: Adjustable packing box with PTFE or Graphite moulded split rings
Temperature Range	: <ul style="list-style-type: none"> <li>• ≤ 180 °C : PTFE,</li> <li>• &gt; 180 °C : Graphite</li> </ul>

BONNET	
Type	: Stud bolted
Temperature range	: -27 °C to 427 °C
TRIM	
Plug Type	: Unbalanced contoured
Options	: <ul style="list-style-type: none"> <li>• Disc type</li> <li>• Plug with PTFE insert for Class VI leakage (Cv &gt; 6)</li> </ul>
Seat Type	: Threaded metal or Soft seat
Option	: Seat ring with Carbon Filled PTFE insert for Class VI leakage (Cv ≤ 6)
Guiding	: Heavy Shank Guiding
Rangeability	: 1 : 30
Characteristics	: Linear, Equal %, On-Off



## Seat Leakage Class / Temperature Range

VALVE SIZE (inch)	RATING (ASME CLASS)	SEAT TYPE	TEMPERATURE RANGE (°C)		SEAT LEAKAGE CLASS ( FCI 70.2 )
			MIN	MAX	
1	150# & 300#	Metal Seat	-27	427	Class IV / Class V (Optional)
		Soft Seat	-27	232	Class VI (Optional)

## Flow Coefficients - Rated Cv

VALVE SIZE (inch)	RATING (ASME CLASS)	STROKE (inch)	ORIFICE DIA (inch) Vs RATED Cv			
			0.125	0.38	0.50	0.813
0.5 -1	150# & 300#	0.50	1, 1.7	3.8	6	10, 12

( Critical flow factor  $C_f$  or  $F_L = 0.90$  )

## Actuator Selection ( Spring - Diaphragm Actuator )

VALVE SIZE (inch)	STROKE (inch)	Cv	ACTUATOR SIZE	SEAT LEAKAGE CLASS ( FCI 70.2 )		
				CLASS IV	CLASS V	CLASS VI
				SHUT-OFF PRESSURE (kg/cm <sup>2</sup> )*		
1	0.5	1.7	5	52	52	52
		3.8		52	50	52
		6		50	25	40
		12		30	18	25

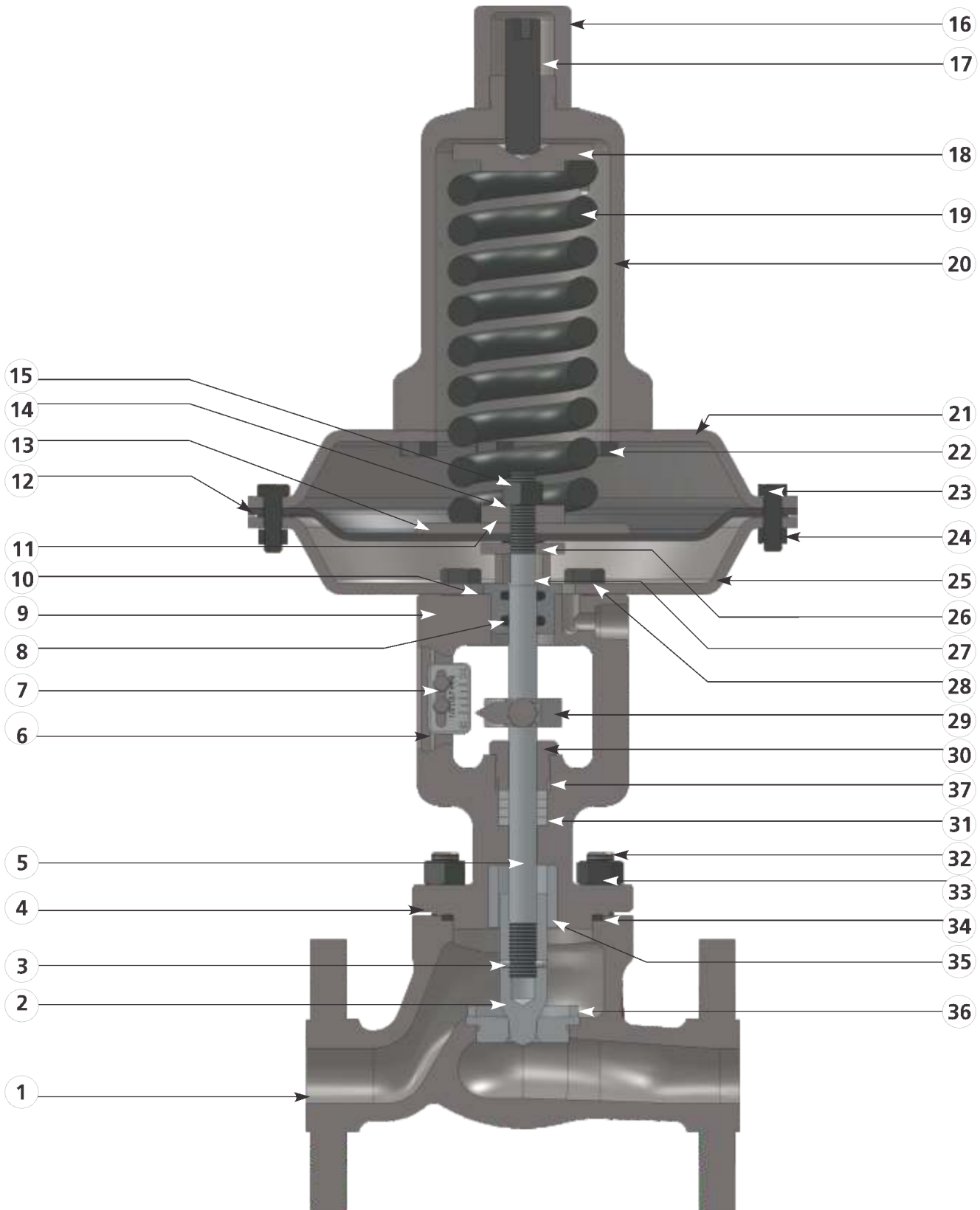
\* Pneumatic supply pressure 35 psig for Class IV & VI and 45 psi for Class V

\* Maximum shut-off pressure should not exceed maximum body rated pressure

\* Pneumatic connection to actuator is 3/8" NPT



# Construction



MIL 25000 Trip Valve



## Material of Construction

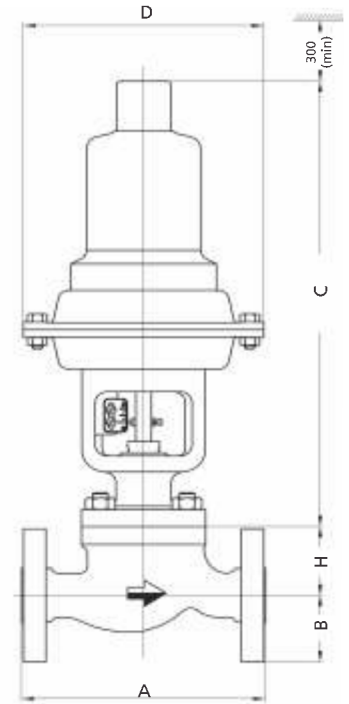
DRAWING REF. NO	PART NAME	STANDARD MATERIAL *
1	Valve Body	Carbon Steel: ASTM A 216 Gr. WCC
2	Valve Plug	410 SST / 316 SST
3	Plug Pin	316 SST
4	Integral Bonnet Yoke	ASTM A 216 Gr.WCC
5	Stem	316 SST
6	Stroke Scale	304 SST
7	Screw ( Stroke Scale )	304 SST
8	O-Ring	Nitrile Rubber
9	Yoke Gasket	HAF - 9020 (Aramid Fibre)
10	Actuator Blind	Brass
11	Lower Spring Seat	EN 8 Zn Passivated
12	Diaphragm	Neoprene + Nylon Insert
13	Diaphragm Plate	IS 2062 Gr. A. Powder Coated
14	Spring Washer	Spring Steel
15	Stem Lock Nut	ISO 898-2 Grade 8
16	Spring Barrel Cap	IS 210 Gr. 260
17	Spring Adjuster	En8 Zn Passivated
18	Upper Spring Seat	En8 Zn Passivated
19	Actuator Spring	Spring Steel
20	Spring Barrel	IS 210 Gr. 260
21	Upper Diaphragm Case	IS 2062 Gr. A. Powder coated
22	Spring Barrel Screw	ISO 898-1 Grade 8.8
23	Case Mounting Screw	ISO 898-1 Grade 8.8
24	Nut	ISO 898-2 Grade 8
25	Lower Diaphragm Case	IS 2062 Gr. A Powder coated
26	Washer	EN 8 Zn Passivated
27	Diaphragm Stop	EN 8 Zn Passivated
28	Actuator Mounting Screw	ISO 898-1 Grade 8.8
29	Stroke Indicator	304 SST
30	Packing Nut	304 SST
31	Packing	≤ 180 °C PTFE / >180 °C Graphite
32	Body Stud	ASTM A 193 Gr. B7
33	Body Nut	ASTM A 193 Gr. 2H
34	Body Gasket	316 L SST + Graphite
35	Guide Bush	440 C SST Heat Treated
36	Seat Ring	410 SST / 316 SST
37	Packing Washer	304 SST

\* Material indicated above are for reference only. MIL reserves the right to supply alternate material due to constant product upgradation. Other specific material are available on request.



## Dimensions and Weight

VALVE SIZE (inch)	RATING (ASME CLASS)	DIMENSIONS (mm)					UNPACKED WEIGHT (kg)
		A	B	C	D	H	
1	150	185.5	55	415	250	71	17
	300	197	62	415	250	71	



- The unique construction of body provides compactness
- Streamlined design provides increased flow capacity
- Elimination of cavities allows efficient flow with low pressure drop
- Different types of characteristics are available
- Value engineered product
- Closing time less than 1 sec (On-Off)



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