

Masoneilan™ 84003 Series SteamForm™

Steam Conditioning Valves

Excellent noise control, temperature control, and fast operation while maintaining smooth flow control and reliable shut-off.



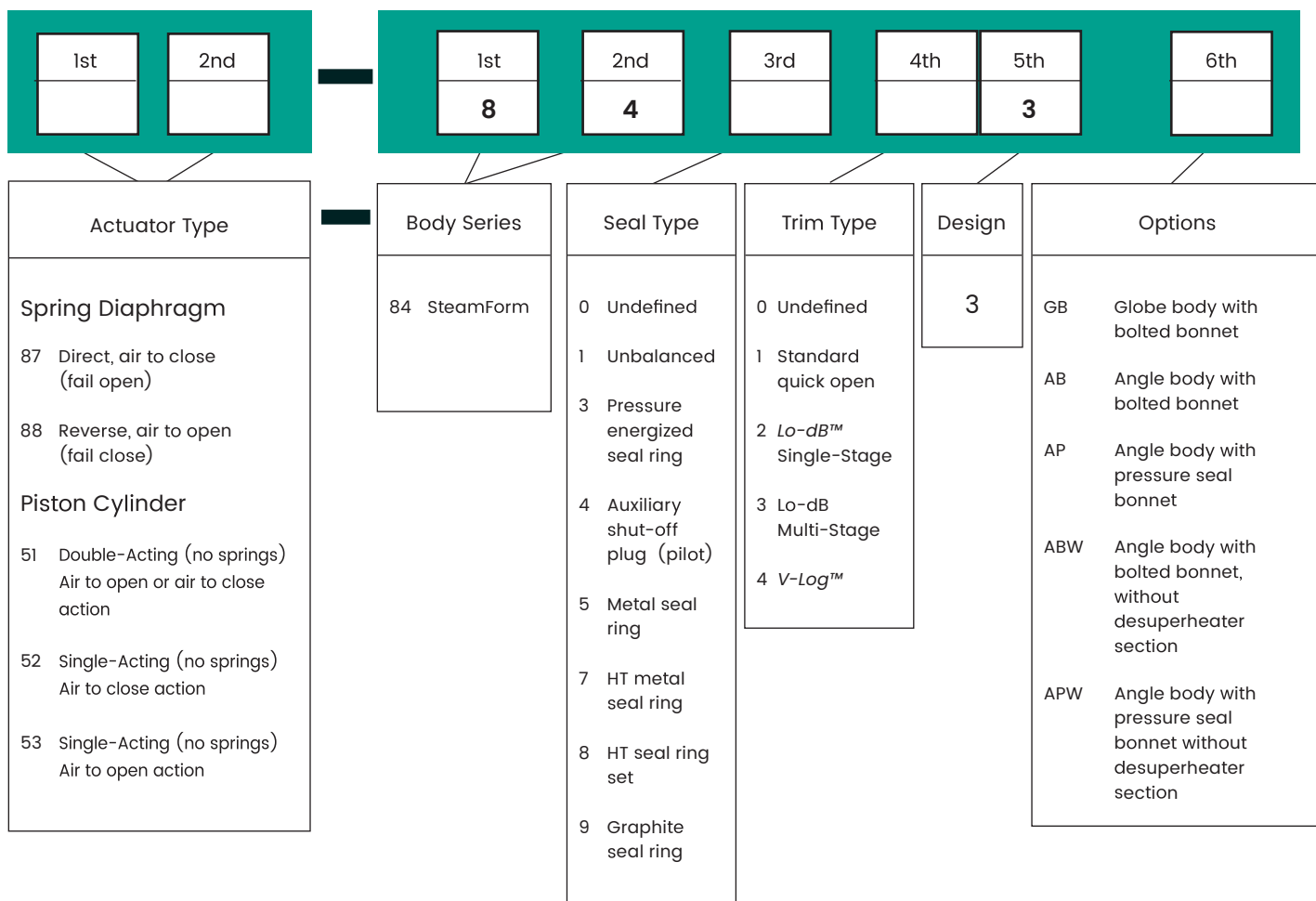
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General Data

Body Configurations:	Globe / Angle / Custom Offset (Z Body)
Seat Diameter:	50 mm (2 in.) to 600 mm (24 in.)
Rated Cv:	Up to 5800
Connections:	Butt Weld, RFF, RTJ, Socket Weld
Pressure Class Ratings:	Up to ASME Class 4500, Special and Intermediate (job rated)
Temperature:	Up to 650°C (1200°F)
Applicable Codes / Standards:	ASME B16.34 / B31.1 / B31.3, PED, GOST, SIL3, CRN, IBR, ISO9001
Actuator Types:	Pneumatic or Hydraulic

Numbering System



84003 Series Seal Types

Seal Type (3rd Designation In Numbering System)

Designation	Seal Type	Description	Rated Leakage	Flow Direction	Design Temperature Range	Design Pressure Range	Pressure Class Range
0	Undefined	Custom Engineered / Non-Standard	As Engineered	As Engineered	As Engineered	Up to 776 Bar (1125 psig)	As Engineered
1	Unbalanced	Solid Plug, Relies Only on Main Seat For Valve Closure. Radial Seal Ring May Be Used For Plug Stability	Class V	FTO or FTC	38°C (100°F) - 648°C (1200°F)	Up to 776 Bar (1125 psig)	150-4500
3	Pressure Energized Seal Ring	Balanced Plug With High Temperature Radial Polymer Seal	Class V	FTO or FTC	38°C (100°F) - 316°C (600°F)	Up to 776 Bar (1125 psig)	150-2500
4	Auxiliary Shut-Off Plug (Pilot)	Balanced Plug With Pilot	Class V	FTC	38°C (100°F) - 607°C (1125°F)	Up to 431 Bar (6250 psig)	150-4500
5	Metal Seal Ring	Balanced Plug With Metal Seal	Class III	FTO or FTC	38°C (100°F) - 566°C (1050°F)	Up to 431 Bar (6250 psig)	150-2500
7	HT Metal Seal Ring	Balanced Plug With Metal Compression Radial Seal	Class V	FTO or FTC	38°C (100°F) - 427°C (800°F)	Up to 431 Bar (6250 psig)	150-2500
8	HT Seal Ring Set	Balanced Plug With Precision Metal & Graphite Radial Seal	Class IV	FTO or FTC	38°C (100°F) - 573°C (1065°F)	Up to 431 Bar (6250 psig)	150-2500
9	Graphite Seal Ring	Balanced Plug With Graphite Radial Seal	Class IV	FTO or FTC	38°C (100°F) - 427°C (800°F)	Up to 431 Bar (6250 psig)	150-2500

84003 Series Seal Types



Seal Type 1

Seal Type: Unbalanced
Leakage: Class V
Flow Action: FTO or FTC
Temperature: 648°C (1200°F)



Seal Type 3

Seal Type: Pressure Energized
Leakage: Class V
Flow Action: FTO or FTC
Temperature: 316°C (600°F)



Seal Type 4

Seal Type: Auxiliary Shut-Off (Pilot)
Leakage: Class V
Flow Action: FTC
Temperature: 607°C (1125°F)



Seal Type 5

Seal Type: Metal Seal
Leakage: Class III
Flow Action: FTO or FTC
Temperature: 566°C (1050°F)



Seal Type 7

Seal Type: High Temperature Metal Seal
Leakage: Class V
Flow Action: FTO or FTC
Temperature: 427°C (800°F)



Seal Type 8

Seal Type: Precision Ring Set
Leakage: Class IV
Flow Action: FTO or FTC
Temperature: 573°C (1065°F)



Seal Type 9

Seal Type: Graphite Seal
Leakage: Class IV
Flow Action: FTO or FTC
Temperature: 427°C (800°F)

84003 Series Trim Types

Trim Type (4th designation in numbering system)

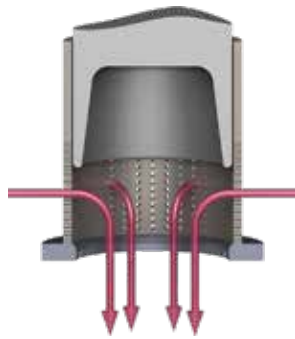
Designation	Trim Type	Description	Available Flow Directions
0	Undefined	Custom Engineered / Non-Standard	FTO or FTC
1	Standard Quick Open	Basic ON/OFF Function With No Control Element	FTC only
2	Lo-dB Single-Stage	Drilled Hole Cage With No Diffusers	FTO or FTC
3	Lo-dB Multi-Stage	Drilled Hole Cage With Diffuser(s)	FTO or FTC
4	V-Log	Disk Stack Cage With Tortuous Flow Channels	FTO only

FLOW TO CLOSE



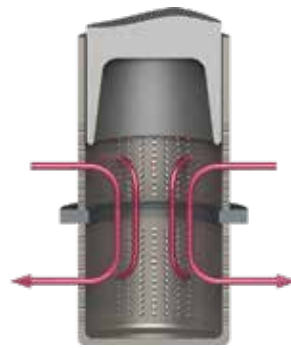
Trim Type 1

Trim Type: Standard Quick Open
Description: No Controlling Element, On/ Off Function.



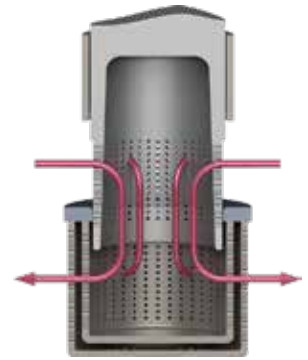
Trim Type 2

Trim Type: Lo-dB Single-Stage
Description: Control and noise reduction is achieved through a single drilled hole cage.



Trim Type 3 (AB)

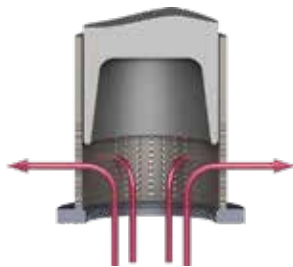
Trim Type: Lo-dB Multi-Stage
Description: Control and noise is achieved through a single drilled hole cage, and additional diffusers are added downstream of the seat to further reduce noise.



Trim Type 3 (AP)

Trim Type: Lo-dB Multi-Stage
Description: Control and noise is achieved through a drilled hole plug skirt, and additional diffusers are added downstream of the seat to further reduce noise.

FLOW TO OPEN



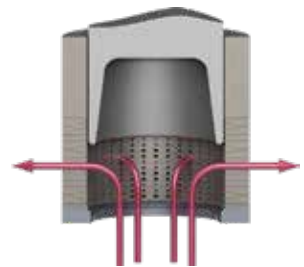
Trim Type 2

Trim Type: Lo-dB Single-Stage
Description: Control and noise reduction is achieved through a single removable cage.



Trim Type 3

Trim Type: Lo-dB Multi-Stage
Description: Control and noise reduction is achieved through a Multi-Stage cage.



Trim Type 3

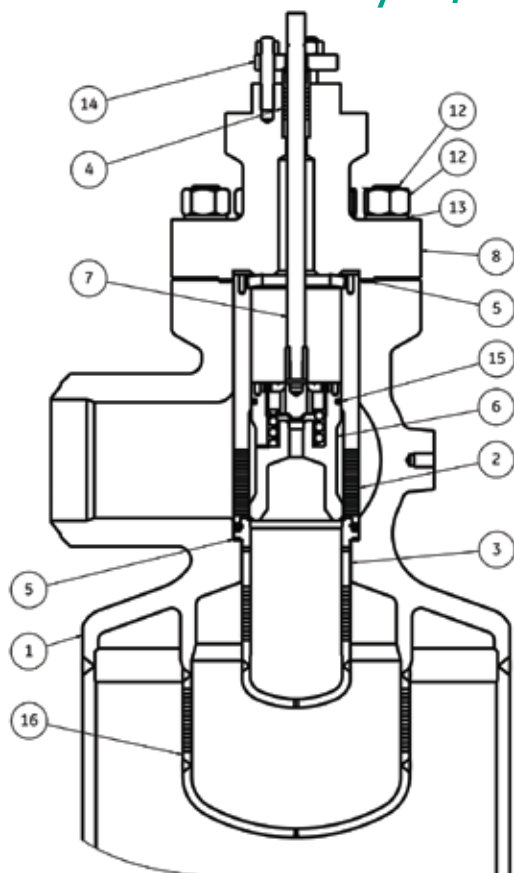
Trim Type: V-Log
Description: Control and noise reduction is achieved through a stack of precision machined plates, which create a tortuous flow path.

84003 Series Optional Configuration

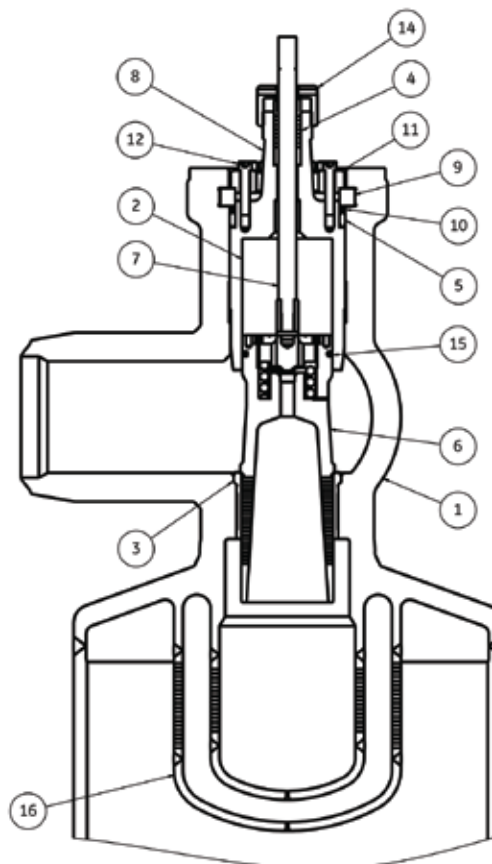
Optional Configuration (6th designation in numbering system)

Designation	Optional Configuration	Available Flow Direction	Temperature Range	Pressure Class Range	Design Pressure Range
GB	Globe Body with Bolted Bonnet	FTC or FTO	38°C (100°F) - 566°C (1050°F)	150-2500	0 - 430 barg / (0 - 6250 psig)
AB	Angle Body with Bolted Bonnet	FTC or FTO	38°C (100°F) - 648°C (1200°F)	150-4500	0 - 775 barg / (0 - 11250 psig)
AP	Angle Body with Pressure Seal Bonnet	FTC only	38°C (100°F) - 607°C (1125°F)	600-2500	69 - 430 barg / (1000 - 6250 psig)
ABW	Angle Body with Bolted Bonnet, without Desuperheater Section	FTC only	38°C (100°F) - 648°C (1200°F)	150-4500	0 - 775 barg / (0 - 11250 psig)
APW	Angle Body with Pressure Seal Bonnet, without Desuperheater Section	FTC only	38°C (100°F) - 607°C (1125°F)	600-2500	69 - 430 barg / (1000 - 6250 psig)

84003 Series Body S/A Construction



Bolted Bonnet Design (-84433AB)



Pressure Seal Bonnet Design (-84433AP)

84003 Series Materials of Construction

ITEM	PART DESCRIPTION	TEMPERATURE LIMIT	MATERIALS OF CONSTRUCTION
1	BODY	427°C (800°F)	Carbon Steel
		510°C (950°F)	1-1/4Cr 1/2Mo
		565°C (1050°F)	2-1/4Cr 1Mo
		649°C (1200°F)	9Cr 1Mo V
		649°C (1200°F)	9Cr 1/2Mo 1-3/4W
2	CAGE	510°C (950°F)	ASTM A487 Gr CA6NM + NITRIDING
		565°C (1050°F)	ASTM A182 Gr F22 + NITRIDING
		607°C (1125°F)	ASTM A182 Gr F91 + NITRIDING
		649°C (1200°F)	ASTM A182 Gr F91 + NITRIDING+ HVOF
3	SEAT	343°C (650°F)	17-4 PH STAINLESS STEEL
		510°C (950°F)	ASTM A487 Gr CA6NM + STELLITE HF SEAT
		649°C (1200°F)	ASTM A182 Gr F91 + STELLITE HF SEAT
		427°C (800°F)	CARBON STEEL
		510°C (950°F)	1-1/4Cr 1/2Mo
		565°C (1050°F)	2-1/4Cr 1Mo
		649°C (1200°F)	9Cr 1Mo V
		649°C (1200°F)	9Cr 1/2Mo 1-3/4W
4	PACKING	649°C (1200°F)	STELLITE 6
5	GASKETS / PRESSURE SEAL	649°C (1200°F)	GRAPHITE
		510°C (950°F)	316L + GRAPHITE
		649°C (1200°F)	INCONEL + GRAPHITE
6	MAIN PLUG ¹	649°C (1200°F)	GRAPHITE with STAINLESS CAPS (PSB)
		343°C (650°F)	17-4 PH STAINLESS STEEL
		510°C (950°F)	ASTM A182 Gr F6NM + NITRIDING
		510°C (950°F)	ASTM A182 Gr F6NM + STELLITE HF SEAT + NITRIDING
		565°C (1050°F)	ASTM A182 Gr F22 + NITRIDING
		565°C (1050°F)	ASTM A182 Gr F22 + STELLITE HF SEAT + NITRIDING
		607°C (1125°F)	ASTM A182 Gr F91 + NITRIDING
		607°C (1125°F)	ASTM A182 Gr F91 + STELLITE HF SEAT + NITRIDING
		649°C (1200°F)	ASTM A182 Gr F91 + STELLITE HF SEAT & GUIDES
		7	STEM
8	BONNET	510°C (950°F)	ASTM A38 GR 660
		649°C (1200°F)	ASTM B637 N07718
		427°C (800°F)	ASTM A 216 Gr WCC or ASTM A105
9	SEAL RETAINER	510°C (950°F)	ASTM A 217 Gr WC6 or ASTM A182 Gr F11
		565°C (1050°F)	ASTM A 217 Gr WC9 or ASTM A182 Gr F22
		649°C (1200°F)	ASTM A 217 Gr C12A or ASTM A182 Gr F91
		427°C (800°F)	ASTM A 216 Gr WCC or ASTM A105
10	BACKUP RING	649°C (1200°F)	ASTM A 217 Gr C12A or ASTM A182 Gr F91
11	COMPRESSION FLANGE	649°C (1200°F)	ASTM A 479 TYPE 316
		427°C (800°F)	ASTM A 216 Gr WCC or ASTM A105
12	BODY BOLT / NUT	649°C (1200°F)	ASTM A 217 Gr WC9 or ASTM A182 Gr F22
		427°C (800°F)	ASTM A193 Gr B7 / ASTM A194 2H
		510°C (950°F)	ASTM A193 Gr B16 / ASTM A194 Gr 4 or ASTM A194 Gr 7
13	BODY BOLT WASHER	649°C (1200°F)	ASTM B637 N07718 / ASTM A194 Gr 8
		649°C (1200°F)	HARDENED 440C STAINLESS STEEL
14	GUIDE BUSHING	649°C (1200°F)	STELLITE 6
	PACKING FOLLOWER	649°C (1200°F)	ASTM A 479 TYPE 316
	PACKING FLANGE	649°C (1200°F)	ASTM A 479 TYPE 316
	PACKING BOLT	649°C (1200°F)	ASTM A 193 Gr B8
	PACKING NUT	649°C (1200°F)	ASTM A194 Gr 8
15	PLUG SEAL RING ²	649°C (1200°F)	ASTM A194 Gr 8
		649°C (1200°F)	ASTM A 479 TYPE 316
		316°C (600°F)	FLOUROLOY
		454°C (850°F)	GRAPHITE
16	WELDED DIFFUSER (S)	607°C (1125°F)	ASTM A182 Gr CA6NM + NITRIDING
		649°C (1200°F)	STELLITE 6 or STELLITE 21
		427°C (800°F)	ASTM A 106 Gr B or ASTM A105
		510°C (950°F)	ASTM A335 Gr P11 or ASTM A182 Gr F11
		565°C (1050°F)	ASTM A335 Gr P22 or ASTM A182 Gr F22
649°C (1200°F)	ASTM A335 Gr P91 or ASTM A182 Gr F91		

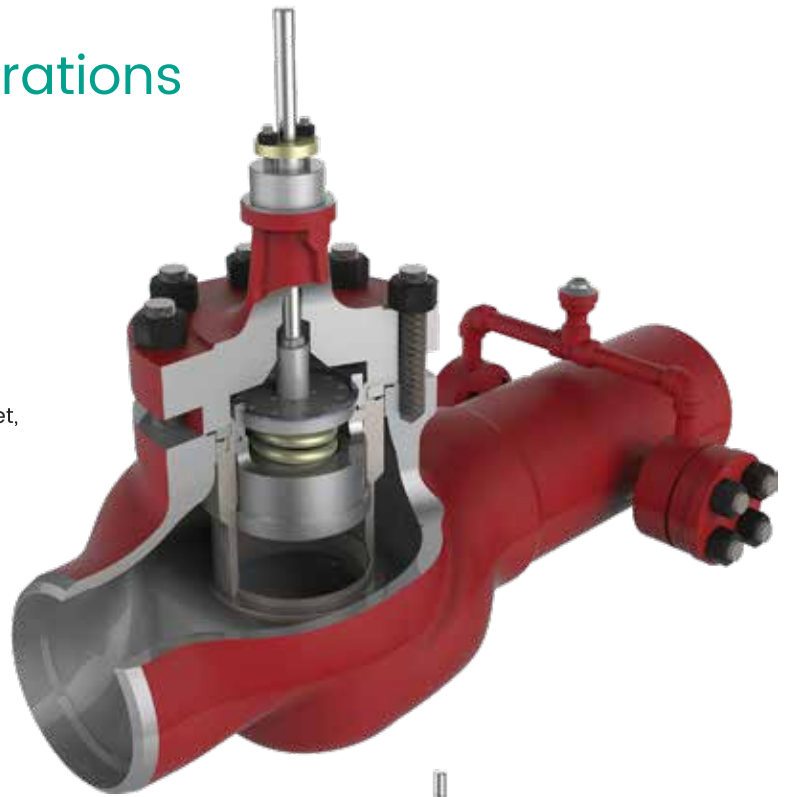
Notes:

1. Main Plug - materials apply for all seal types.

2. Plug Seal Ring - options are dependent on the seal type.

84003 Series Configurations

88-84423GB
Globe Body with Bolted Bonnet,
Pilot Balanced Plug,
Flow To Close.



51-84433AB
Angle Body with Bolted Bonnet,
Pilot Balanced Plug,
Flow To Close.



51-84433AP
Angle Body with Pressure Seal Bonnet,
Pilot Balanced Plug,
Flow To Close.



51-84923AB
 Angle Body with Bolted Bonnet,
 Balanced Plug,
 Flow To Open.



53-84413ABW
 Angle Body with Bolted Bonnet,
 Pilot Balanced Plug,
 Flow To Close.



88-84413APW
 Angle Body with Pressure Seal Bonnet,
 Pilot Balanced Plug,
 Flow To Close.



CONTROLS SUPPLY CHAIN

VALVES ACTUATORS INSTRUMENTATIONS