PNEUMATIC DIRECT-ACTING PRESSURE REDUCING VALVE FOR STEAM AND AIR

MODEL PN-DR STAINLESS STEEL

COMPACT STAINLESS STEEL REMOTELY ADJUSTABLE PNEUMATIC DIRECT-ACTING PRV

Features

Extremely compact pressure reducing valve for use on small process equipment requiring multiple secondary pressures.

1. Exceptionally light and compact PRV.
2. Wetted parts are of all stainless steel construction with high durability and corrosion resistance for long service life.
3. Secondary pressure can be set remotely using compressed air, and manually with adjustment handle.
4. Stable secondary pressure.
5. High flow rate for its class.
6. Capable of a 30:1 pressure reduction.
7. Built-in screen ensures extended trouble-free operation.

For installation in horizontal piping (with adjustment handle facing up).

Pressure Equipment Directive (PED)

Classification according to PED 2014/68/EU, fluid group 2

Size	Category	CE marking
DN 15 to 25	—*	Art. 4, Sec. 3 (sound engineering practice), CE marking not allowed

* Manufactured in accordance with sound engineering practice

Specifications

Model		PN-DR-2		PN-DR-6	
Connection		Screwed	Flanged	Screwed	Flanged
Size		½", ¾", 1"	DN 15, 20, 25	½", ¾", 1"	DN 15, 20, 25
Maximum Operating Pressure (barg)	PMO	16			
Maximum Operating Temperature (°C)	TMO	220			
Primary Pressure Range (barg)		2 to 16			
Adjustable Pressure Range (barg)		0.14 to 2, but not less than 1/30 of primary pressure		1.8 to 6	
		Secondary pressure must not exceed 90% of primary pressure			
Motive Medium		Oil-free air, filtered to 5 µm			
Air Supply Pressure Range (barg)		0 to 10			
Applicable Fluids*		Steam, Air			

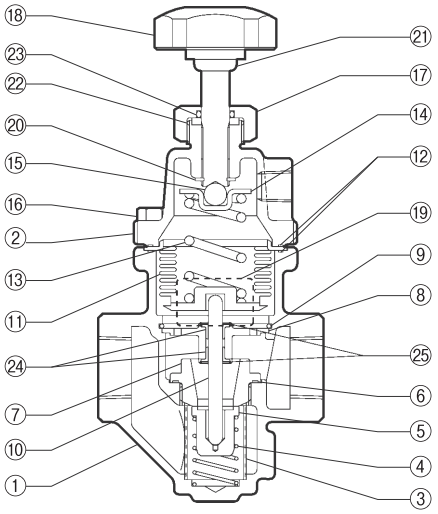
* Do not use for toxic, flammable or otherwise hazardous fluids.

1 bar = 0.1 MPa

PRESSURE SHELL DESIGN CONDITIONS (**NOT** OPERATING CONDITIONS): Maximum Allowable Pressure (barg) PMA: 20
Maximum Allowable Temperature (°C) TMA: 220
Minimum Allowable Temperature (°C): -40

CAUTION To avoid abnormal operation, accidents or serious injury, DO NOT use this product outside of the specification range.
Local regulations may restrict the use of this product to below the conditions quoted.

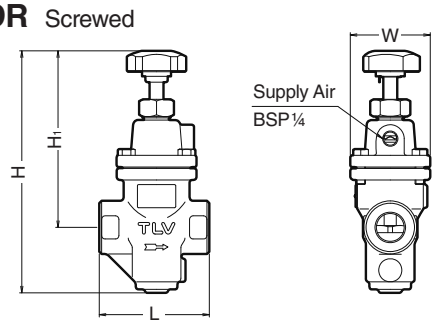
No.	Description	Material	DIN*	ASTM/AISI*
①	Body	Cast Stainless Steel A351/A351M Gr.CF8	1.4312	—
②	Cover	Cast Stainless Steel A351/A351M Gr.CF8	1.4312	—
③V	Screen	Stainless Steel SUS430	1.4016	AISI430
④V	Coil Spring	Stainless Steel SUS304	1.4301	AISI304
⑤V	Main Valve	Stainless Steel SUS420F	1.4028	AISI420F
⑥MV	Valve Seat Gasket	Fluorine Resin PTFE	—	—
⑦V	Valve Seat	Stainless Steel SUS420F	1.4028	AISI420F
⑧S	Spacer	Cast Stainless Steel A351/A351M Gr.CF8	1.4312	—
⑨	Snap Ring	Stainless Steel SUS304	1.4301	AISI304
⑩S	Valve Stem	Stainless Steel SUS303	1.4305	AISI303
⑪B	Bellows	Stainless Steel SUS316L	1.4404	AISI316L
⑫MSVBH	Cover Gasket	Fluorine Resin PTFE	—	—
⑬	Coil Spring	Stainless Steel SUS304	1.4301	AISI304
⑭	Spring Guide	Carbon Tool Steel SPCC	1.0330	A109
⑮	Steel Ball	High-Cr Bearing Steel SUJ2	1.2067	A485
⑯	Cover Bolt	Stainless Steel	—	—
⑰	Holder Nut	Stainless Steel SUS303	1.4305	AISI303
⑱H	Adjustment Handle	Nylon/Stainless Steel	—	—
⑲	Nameplate	Stainless Steel SUS304	1.4301	AISI304
⑳H	Retaining Ring	Stainless Steel SUS304	1.4301	AISI304
㉑H	Retainer	Carbon Tool Steel SPCC	1.0330	A109
㉒MH	Seal Ring	Fluorine Rubber FPM	—	D2000HK
㉓MH	Packing	Fluorine Resin PTFE	—	—
㉔S	Slide Bearing**	Polymer Resin	—	—
㉕S	Snap Ring**	Stainless Steel SUS316	1.4401	AISI316
㉖	Flange***	Cast Stainless Steel A351/A351M Gr.CF8 or CF3M	1.4312 or 1.4435	—



* Equivalent material ** Incorporated with the spacer and must be replaced as a set with the spacer.
*** Shown on reverse
Replacement kits available: (M) maintenance parts, (S) repair parts for spacer, (V) repair parts for valve, (B) repair parts for bellows, (H) repair parts for adjustment handle

Dimensions

● **PN-DR** Screwed

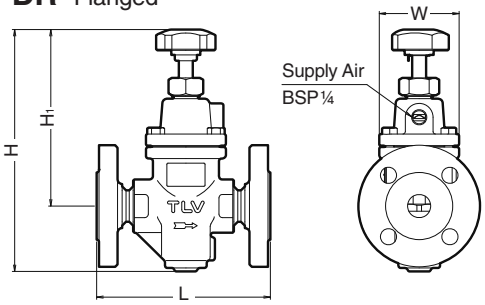


PN-DR Screwed* (mm)

Size	L	H	H1	W	Weight (kg)
½″	95	210	155	69	1.9
¾″					1.8
1″					

* BSP DIN 2999, other standards available

● **PN-DR** Flanged

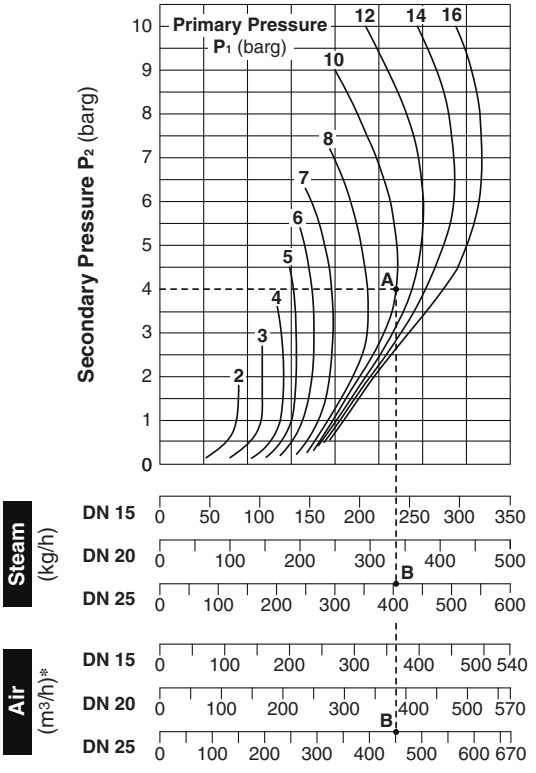


PN-DR Flanged (mm)

DN	L			H	H1	W	Weight* (kg)
	DIN 2501	ASME Class					
	PN25/40	150RF	300RF				
15	150	150	150	210	155	69	3.3
20							3.8
25	160	160	160				4.2

Other standards available, but length and weight may vary
* Weight is for DIN PN 25/40

Sizing Chart and Flow Graph (Maximum Flow Rate)



* Equivalent flow of air at 20 °C under atmospheric pressure

Sizing Example

For a primary pressure of 10 barg, a set pressure of 4 barg, and a maximum saturated steam flow rate of 400 kg/h, or air flow rate of 400 m³/h, select an appropriate size.

Locate point A, where the primary pressure (P_1 = 10 barg) intersects the set pressure (P_2 = 4 barg).
Move straight down from point A until reaching a size with a rated flow rate exceeding the desired flow rate. This first occurs at point B on the DN 25 flow rate line.

- The DN 25 size should be selected.
- For a set pressure of 4 barg, model PN-DR-6 should be selected (see the adjustable pressure range information in the specifications overleaf).

Cv & Kvs Values

Size (DN)	15	20	25
Kvs (DIN)	1.7	2.6	3.1
Cv (UK)	1.7	2.5	3.0
Cv (US)	2.0	3.0	3.6

Cv & Kvs values are for maximum flow

Manufacturer
TLV CO., LTD.
Kakogawa, Japan
is approved by LRQA Ltd, to ISO 9001/14001

ISO 9001
ISO 14001
LRQA CERTIFIED

(M)

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Products for intended use only.
Specifications subject to change without notice.