



# 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	
	Screwed	Flanged	Screwed	Flanged
Connection				
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 – 16			
Adjustable Pressure Range (barg)	0.14 – 2, but not less than ⅓ of primary pressure		1.8 – 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 – 10			
Applicable Fluids*	Steam, Air			

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

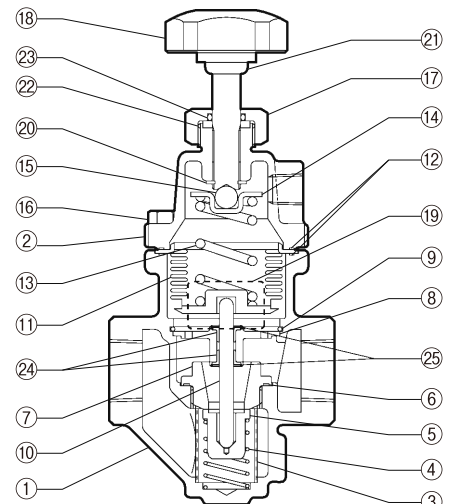
1 bar = 0.1 MPa

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



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 or CF3M	1.4312 or 1.4435	—
②	Cover	Cast Stainless Steel A351/A351M Gr.CF8 or CF3M	1.4312 or 1.4435	—
③ <sup>V</sup>	Screen	Stainless Steel SUS430	1.4016	AISI430
④ <sup>V</sup>	Coil Spring	Stainless Steel SUS304	1.4301	AISI304
⑤ <sup>V</sup>	Main Valve	Stainless Steel SUS420F	1.4028	AISI420F
⑥ <sup>MV</sup>	Valve Seat Gasket	Fluorine Resin PTFE	PTFE	PTFE
⑦ <sup>V</sup>	Valve Seat	Stainless Steel SUS420F	1.4028	AISI420F
⑧ <sup>S</sup>	Spacer	Cast Stainless Steel A351/A351M Gr.CF8	1.4312	—
⑨	Snap Ring	Stainless Steel SUS304	1.4301	AISI304
⑩ <sup>S</sup>	Valve Stem	Stainless Steel SUS303	1.4305	AISI303
⑪ <sup>B</sup>	Bellows	Stainless Steel SUS316L	1.4404	AISI316L
⑫ <sup>M/S/V/B/H</sup>	Cover Gasket	Fluorine Resin PTFE	PTFE	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 SUS304 or A193/A193M Gr.B8M	1.4301 or 1.4401	AISI304 or —
⑰	Holder Nut	Stainless Steel SUS303	1.4305	AISI303
⑱ <sup>H</sup>	Adjustment Handle	Nylon/Stainless Steel SUS304	—/1.4301	—/AISI304
⑲	Nameplate	Stainless Steel SUS304/SUS316L	1.4301/1.4404	AISI304/AISI316L
⑳ <sup>H</sup>	Retaining Ring	Stainless Steel SUS304	1.4301	AISI304
㉑ <sup>H</sup>	Retainer	Carbon Tool Steel SPCC	1.0330	A109
㉒ <sup>MH</sup>	Seal Ring	Fluorine Rubber FPM	FPM	D2000HK
㉓ <sup>MH</sup>	Packing	Fluorine Resin PTFE	PTFE	PTFE
㉔ <sup>S</sup>	Slide Bearing**	Polymer Resin	—	—
㉕ <sup>S</sup>	Snap Ring**	Stainless Steel SUS316	1.4401	AISI316
㉖	Flange***	Cast Stainless Steel A351/A351M Gr.CF8 or CF3M	1.4312 or 1.4435	—



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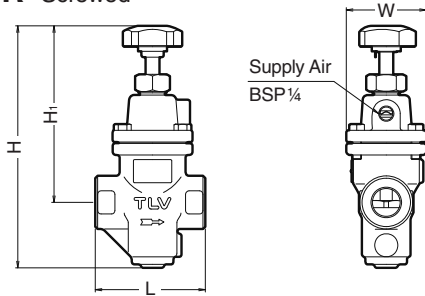
\* Equivalent material \*\* Incorporated with the spacer and must be replaced as a set with the spacer.

\*\*\* 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**

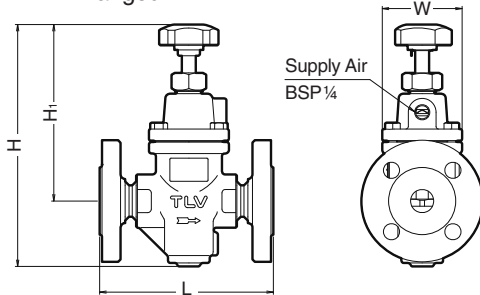


**PN-DR Screwed\***

Size	L	H	H <sub>1</sub>	W	Weight (kg)
1/2"	95	210	155	69	1.9
3/4"					1.8
1"					

\* BSP DIN 2999, other standards available

● **PN-DR Flanged**



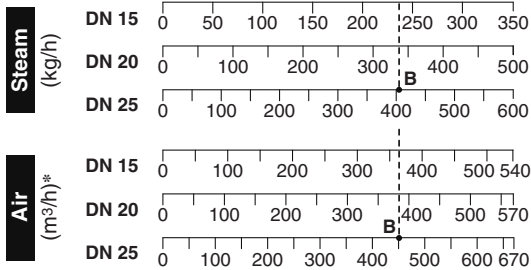
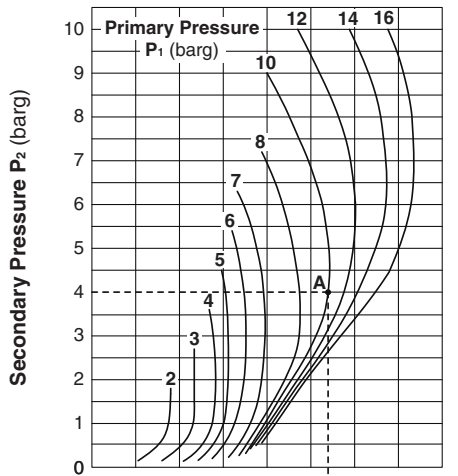
**PN-DR Flanged**

DN	L			H	H <sub>1</sub>	W	Weight* (kg)
	DIN 2501	ASME Class					
	PN25/40	150RF	300RF				
15	150	150	150	210	155	69	3.3
20							3.8
25							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 m<sup>3</sup>/h, select an appropriate size.

Locate point A, where the primary pressure (P<sub>1</sub> = 10 barg) intersects the set pressure (P<sub>2</sub> = 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

