



Operating manual For low pressure reducing valve Type LPR... and ZM-R...

LPR25



LPRK25



**ZM-R15
ZM-R25**



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1 General information

This operating manual is for handling pressure regulators. Operating errors can be prevented only with knowledge of this operating manual.

Operating personnel must be informed about the contents of this operating manual.

Improper use may result in hazard to life for the user or other third parties and/or damage to other material assets.

We reserve the right to make technical modifications for improvement purposes to the comparisons and information in this operating manual.

2 Warranty provisions

There shall be no liability, or the warranty shall be void under the following conditions:

- The information and instructions of the operating manual are not followed.
- The devices are improperly used.
- The devices are used for purposes other than their intended one.
- Any type of functional changes conducted without the written permission of ZIMMERLI MESSTECHNIK AG.
- Disregard of the applicable safety regulations when operating the device.
- Guards were not used or functionality was disabled.

Only approved, original spare parts must be used when replacing parts and/or for procuring spare parts.

3 Purpose

These type of pressure regulators are suitable for various tasks (e.g. inerting containers with inactive gases or pressure regulation of pure liquids).

The exact design is customized and must therefore be taken from the device's technical information.

3.1 Intended use

Ambient pressure:	0.8 to 1.1 bar
Inlet pressure:	ZM-R \leq 16 bar LPR \leq 10 bar LPRK: \leq 6 bar
Max outlet pressure / counter pressure:	Depending on design, according to data sheet
Ambient temperature:	Within the temperature limits specified in the data sheet With option /Ex: -20 °C to +40 °C
Medium temperature:	According to sealing material, see data sheet PTFE with option /Ex: -20 bis 180 °C (T6...T4) Viton with option /Ex: -20 bis 130 °C (T6...T5)
Degree of protection:	Standard version IP40, with weather protection IP54, other versions according to the data sheet

Limitations of the medium: No combustible gases in an explosive concentration. Exception, ATEX-certified devices according to:

- II 2 G Ex h IIB T6 Gb
- II 3 G Ex h IIC T6 Gc
- II 2 D Ex h IIIC T6 Db
- II 3 D Ex h IIIC T6 Dc

Environmental influences (e.g. direct sunlight) that cause the housing temperature to rise to unacceptable levels must be avoided.

Other external radiation (electromagnetic, ionizing radiation, ultrasound): none (if such radiation is present in the area used, the hazard must be taken into account and assessed by the user.) Keep the devices free of dust (dust thickness less than 1 mm).

3.2 Assembly work on the pressure regulator

The user and operator must take measures for mounting, disassembly, and maintenance work of and on the pressure regulator in areas with explosive atmospheres to prevent these operations from creating sources of ignition.

4 Safety provisions

Any work on or with the device may be performed only by qualified personnel who are familiar with the applicable regulations on operating pressure regulators and/or pressure containers.

If disassembling safety equipment is required for installation, it must be assembled and inspected immediately once the work has concluded.

Do not exceed the operating pressure. It is specified on the nameplate of each device.

When using the device, the provisions regarding the filling material must be followed.

Natural regulations regarding usage and test intervals must be followed.

5 Material resistance

Since the operator chose the material, the supplier cannot provide any guarantees regarding material resistance. It is the operator's responsibility to ensure that the material of the devices, including seals and add-on components (e.g., pressure gauges, pilot regulator, etc.) are adequately resistant against the medium.

6 Startup

6.1 Before installation

Before installation, perform a visual inspection on the device to determine any transport damage. The device's performance data must be reviewed (max. inlet pressure, secondary pressure, etc.).

The values noted on the nameplate are the values measured in our functional test.

The resistance of the materials has to be checked (see the corresponding chapter of this operating manual).

Newly installed pipelines must be fully rinsed clean to eliminate mechanical residues. It must be ensured that the pressure regulator is connected at the local equipotential bonding, either through an adequate and permanent connection to metallic pipes or via a direct connection to local equipotential bonding.

6.2 Installation

Always install the low pressure regulator as close as possible to the process tank or consumer within non-turbulent flow.

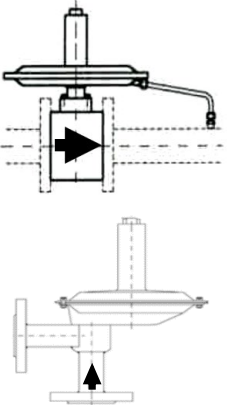
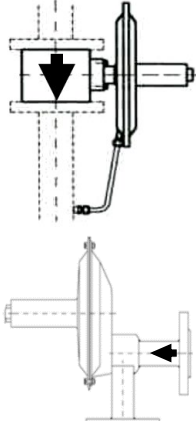
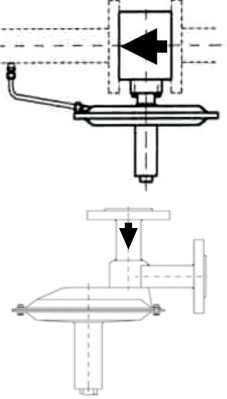
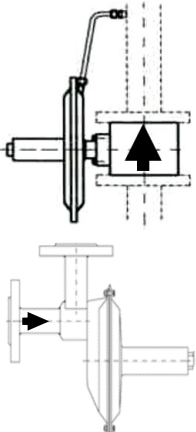
Be mindful of the flow direction! (Marked on the housing with an arrow). Otherwise, there is the risk of damaging the pressure regulator.

6.3 Assembly position and installation

Take note of the diaphragm installation position! (Horizontal diaphragm or vertical diaphragm). Sealed devices are set to the desired pressure according to the ordered position. If the devices are configured by the user, then this also must take place in the subsequent installation position.

The preferred mounting position and/or position of the diaphragm is as follows according to device type:

- ZM-R15, 25: Horizontal diaphragm housing (vertical: alternatively permissible).
 Assembly with the spring dome facing down is permissible only upon consultation.
- LPR25: Vertical diaphragm housing (horizontal: alternatively permissible).
 Assembly with the spring dome facing down is permissible only upon consultation

Horizontal		Mounting position (diaphragm)		Vertical	
	Recommended mounting position		Recommended mounting position		
	Spring dome on bottom side, only on request / dry gases		Only with option /E, (depending on the medium)		

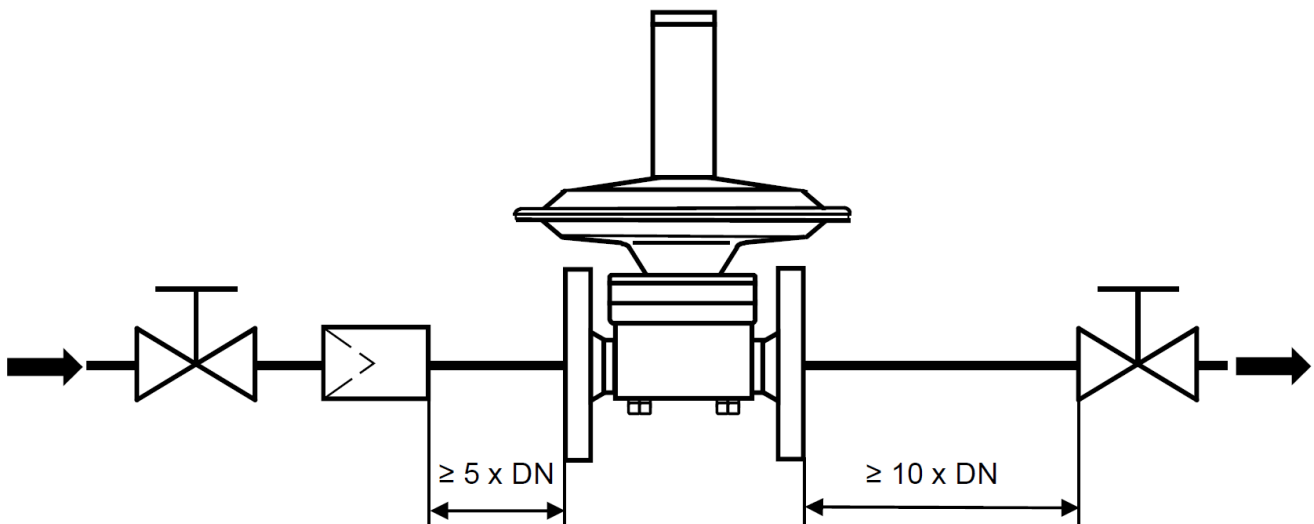
Important: The setpoint depends on the diaphragm position and must be adjusted according to the assembly position.

The configuration can be sealed using the lateral hole in the setting screw. Factory-sealed devices are set to the specified pressure.

Assembly must be performed on both sides (p_1 , primary side and p_2 , secondary side) within non-turbulent flow. To that end:

- Straight inlet piping of 5 x DN on the primary side and
- Straight outlet piping of 10 x DN on the secondary side is recommended

Furthermore, it is recommended that you install one shut-off valve each before and after the pressure regulator to simplify any maintenance work. Furthermore, a suitable filter must be installed before the pressure regulator in case of dirty gases or if there is a hazard of solid particles.



Avoid pressure shocks after assembly and always open shut-off valves slowly!

6.4 Configuring the setpoint

Always open the valves in lines before or after the pressure regulator slowly and avoid pressure shocks!

Spring-loaded model ZM-R und LPR:

Slowly open the valve or ball valve before or after the pressure regulator and set it to a small flow of approx. 1 to 2 Nm³/h.

Set the desired pressure by turning the setting screw (6 mm hexagon socket).

Warning! Observe the maximum values on the nameplate.

Clockwise rotation = Decreasing secondary pressure p_2

Counterclockwise rotation = Increasing secondary pressure p_2

Dome-loaded model (ZM-R/D and LPR/D):

With an additional pilot controller, the dome pressure can be set to the desired value. Up to 1000 mbar and/or 2000 mbar of dome pressure is permissible depending on the device type. Precise adjustments can also be made via the setting screw on the spring dome.

7 Impulse line (C-connection)

An impulse line must be able to communicate with the p_1 side of the valve under any circumstances. Accordingly, no valves or other flow resistances may be present in the secondary, non-turbulent flow area between the device and impulse line pickup. Otherwise, the device is not functional and may even be destroyed.

If the impulse line is not connected, there is also a risk of damaging or destroying the devices, depending on the inlet pressure.

For **ZM-R15**, **ZM-R25** device types, an impulse line (G1/4 connection) is recommended if:

- $P_1 \geq 8$ bar at Kv 0.65
- $P_1 \geq 4$ bar at Kv 1.25
- Generally for Kv 2 and 2.5

Connection ≥ 300 mm from the center of the device (or directly at the process for longer lines)
An impulse line must not be tapped in a turbulent zone.

For **LPR**, the impulse line is optional and is not required for standard applications.

8 Maintenance and repairs

The previously mentioned pressure regulators work without auxiliary energy and are maintenance-free. Additional queries may be processed only by specifying the serial number.

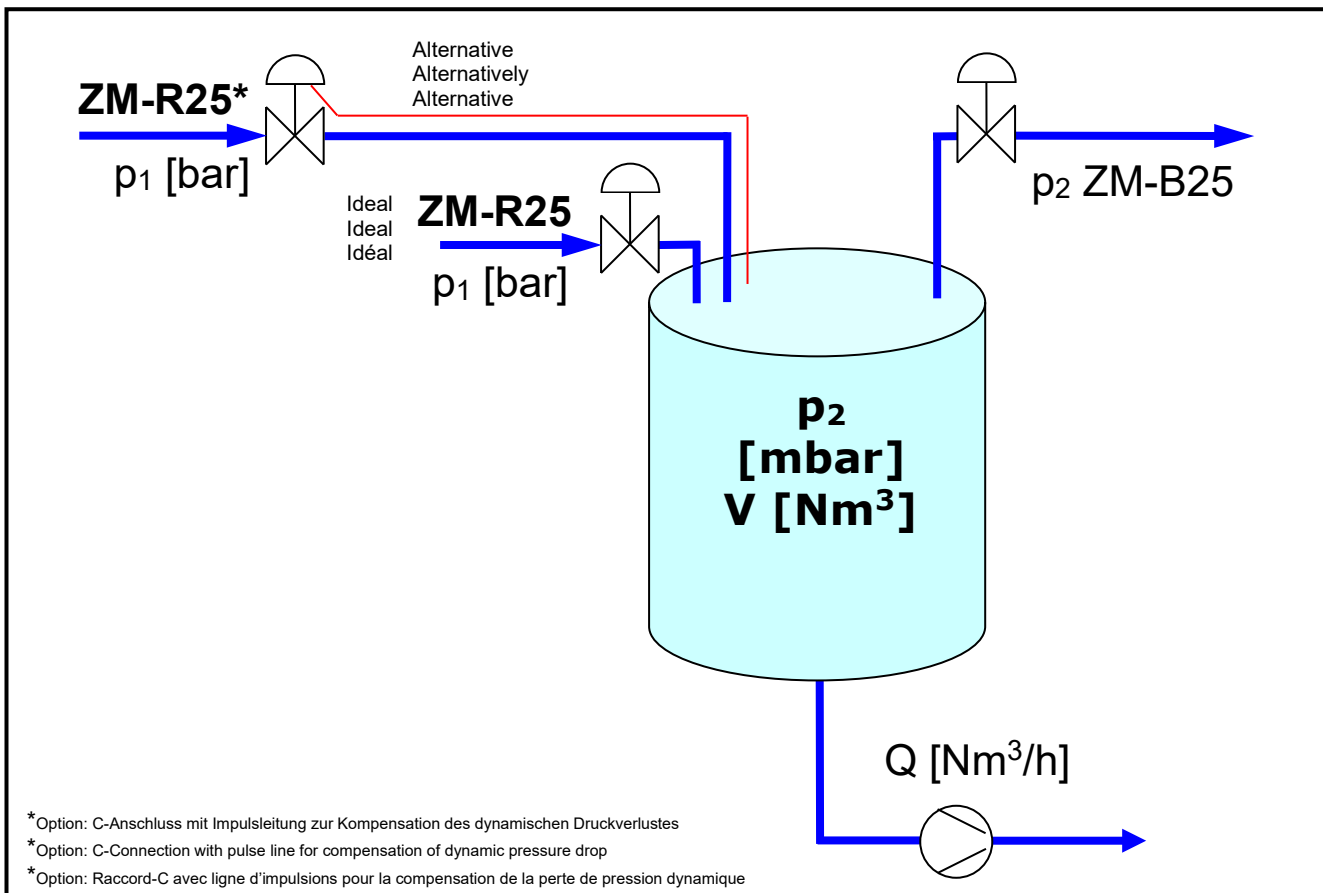
The serial number must be specified for spare part orders.

Device returns for repair or modification can be accepted only if they have been cleaned and have a completed RMA according to the applicable regulations. In the case of hazardous media, we recommend returning the device disassembled and cleaned.

8.1 Inspection intervals

An annual review of the function or maintenance is recommended depending on the characteristics of the medium and the respective operating states. Depending on these results, the testing/maintenance interval can be shortened or extended by the operator/user.

9 Model selection



Anwendungsdaten

Zur optimalen Auslegung eines Niederdruck Reduzierventil ZM-R25 sind mindestens folgende Angaben wichtig:

Behälter Entleergradient

Entleerungsgradient, bzw. Pumpenleistung wie folgt:

$$Q = \quad \text{Nm}^3/\text{h}$$

$$V = \quad \text{Nm}^3$$

Inertgas

Der optimale Vordruck liegt bei 2 bar g (max. 10 bar g).

$$p_1 = \quad \text{bar g}$$

$$p_2 = \quad \text{mbar g}$$

Werkstoff

Welcher Werkstoff ist ausreichend chemisch beständig?

- Edelstahl
- Hastelloy C
- Kunststoff (auf Anfrage)

Betriebsart

- Standard / Überdruck
- Negativdruck / Unterdruck
- Domgesteuert

Montage*

- Direkt auf Tank, vertikal
- Direkt an Tank, horizontal
- Innerhalb von Gebäuden
- Im Freien mit Schutzhaube
- In Rohrleitung mit C-Anschluss* und separater Impulsleitung zum Prozess

Application data

For correct model selection of ZM-R25 low pressure reducing valve, the following specifications are essential:

Tank empty rate

Tank empty rate or pump volume as follows:

$$Q = \quad \text{Nm}^3/\text{h}$$

$$V = \quad \text{Nm}^3$$

Inert gas

Ideal primary pressure is about 2 bar g (max. 10 bar g).

$$p_1 = \quad \text{bar g}$$

$$p_2 = \quad \text{mbar g}$$

Material of construction

What material of construction is durable enough?

- SST
- Hastelloy C
- plastic (on request)

Mode

- Gauge Pressure Blanketing, Standard
- Negative pressure service
- Dome loaded service

Installation*

- Top mounted on tank, vertical
- Side mounted at tank, horizontal
- In door
- Out door with weather protection
- In pipe with C-Connection* and pulse line to process

Données de l'application

Les renseignements suivants représentent un minimum nécessaire pour effectuer le dimensionnement optimal d'un ZM-R25.

Gradient de vidange du réservoir

Gradient de vidange, resp. puissance de la pompe comme suit:

$$Q = \quad \text{Nm}^3/\text{h}$$

$$V = \quad \text{Nm}^3$$

Gaz inerte

La pression primaire se situe à 2 bar g (max. 10 bar g).

$$p_1 = \quad \text{bar g}$$

$$p_2 = \quad \text{mbar g}$$

Matériaux de construction

Quel matériaux est suffisamment chimico-résistant ?

- Acier inoxydable
- Hastelloy C
- Matière plastique (nous consulter)

Mode de fonctionnement

- Pression relative, Standard
- Conditions en dépression
- Piloté par le dôme

Montage*

- Direct sur cuve, vertical
- Direct sur cuve, horizontal
- Locaux dans un bâtiment
- En extérieur avec protection
- Conduite avec raccord-C* et prise d'impulsion par rapport au procédé

10 Code: ZM-R15, reducing-valve

ZM-R	IP40 / IP54 (Option /Ws)	Funktion	Überdruck	Gauge Pressure	Pression relative	1020 mbar		
ZM-R/D	IP68	Function	Domgesteuert	Dome loaded	Dôme	2000 mbar (2524 mbar)		
ZM-R/De	IP40	Fonction	Eigen/Pilot	Integral/Pilot	Pilotage/direct	2000 mbar (2524 mbar)		
ZM-R/Ds	IP40		Fremd/Pilot	Remote/Pilot	Pilotage/indirect	2000 mbar (2524 mbar)		
ZM-R/N	IP40 / IP54 (Option /Ws)		Negativdruck	Negative pressure	Pression négative	-220 mbar		
ZM-R/NDs	IP40		Negativ/Dom	Negative/Dome	Négative/ Dôme	-1000mbar		
	15 DN15, PN40, B1 15 DN15, PN40, D 15 ½", 150 lbs 15 ½", 300 lbs 15 G½ (½" BSP) 15 ½" NPT 15 TriClamp	Grösse Size Dimension	Einbaulänge Einbaulänge Einbaulänge Einbaulänge Einbaulänge Einbaulänge	Lay length Lay length Lay length Lay length Lay length Lay length	Encombremment Encombremment Encombremment Encombremment Encombremment Encombremment	150 mm / ~6.7 kg 150 mm / ~6.7 kg 180 mm / ~6.4 kg 189 mm / ~7.7 kg 152 mm / ~5.5 kg 152 mm / ~5.5 kg 141 mm / ~5.6 kg		
	S H X	Material Material Matériaux	Edelstahl Hastelloy C Sonder auf Anfrage	SST Hastelloy C Special on request	INOX Hastelloy C Nous consulter	1.4404 C276		
	-FD -FDN -FA1 -FA3 -GD1 -GN1 -TCB -XX	DN15, PN40 DN15, PN40 ½", 150 lbs ½", 300 lbs G½ (½" BSP) ½" NPT TriClamp	Anschluss/Typ Connection/Typ Raccord/Type	Flansch Flansch / Nut Flansch Flansch Gewinde Gewinde TriClamp Sonder auf Anfrage	Flange Flange / Groove Flange Flange Thread Thread Ø 50.5 mm Special on request	Brides Brides / à gorge Brides Brides Fileté Fileté DIN 32 676 DIN / EN Spécial nous consulter		
	-P -V	Membrane Diaphragm Membrane	PTFE Viton®	-20/+180 °C -20/+130 °C	Ø 200 mm Ø 200 mm			
	Ventilschliessdruck [mbar] Valve locking pressure Pression de fermeture		Federbereich ¹⁾ p ₂ , sekundär p ₂ = f (p ₁ +K _v) Spring range ¹⁾ p ₂ , secondary p ₂ = f (p ₁ +K _v) Plage de réglage ¹⁾ p ₂ , pression aval p ₂ = f (p ₁ +K _v)	Horizontal @p ₁ =2 bar ²⁾ 4 – 9 mbar 6 – 16 mbar 7 – 26 mbar 9 – 64 mbar 14 – 124 mbar 19 – 224 mbar 24 – 524 mbar 24 – 1024 mbar	Vertical @p ₁ =2 bar ³⁾ 0 – 5 mbar 2 – 12 mbar 3 – 22 mbar 5 – 60 mbar 10 – 120 mbar 15 – 220 mbar 20 – 520 mbar 20 – 1020 mbar	Typ, Type, Type ZM-R, ZM-R/D ZM-R, ZM-R/D ZM-R, ZM-R/D ZM-R, ZM-R/D ZM-R, ZM-R/D ZM-R, ZM-R/D ZM-R, ZM-R/D ZM-R, ZM-R/D ZM-R/N/ ND/NDs ZM-R/N/ ND/NDs ZM-R/N/ ND/NDs ZM-R/N/ ND/NDs ZM-R/N/ ND/NDs	Dom, Dome, Dôme (max 2009 mbar) (max 2016 mbar) (max 2026 mbar) (max 2064 mbar) (max 2124 mbar) (max 2224 mbar) (max 2524 mbar) (max 2524 mbar) (min -1000 mbar) (min -1000 mbar) (min -1000 mbar) (min -1000 mbar) (min -1000 mbar)	
	≤ 2.5 ≤ 1.5 ≤ 2.5 ≤ 1.5 ≤ 2.5 ≤ 1.5 ≤ 2.5 ≤ 1.5 ≤ 2.5 ≤ 1.5 ≤ 2.5 ≤ 1.5 ≤ 2.5 ≤ 1.5 ≤ 2.5 ≤ 1.5 ≤ 2.5 ≤ 1.5 ≤ 2.5 ≤ 1.5 ≤ 2.5 ≤ 1.5 ≤ 2.5 ≤ 1.5 ≤ 2.5 ≤ 1.5 ≤ 2.5 ≤ 1.5 ≤ 2.5 ≤ 1.5	0 10 20 50 100 200 500 1000	10 20 45 ⁴⁾ 75 ⁵⁾ 100/C 140/C	Sitz Seat Siège	K _v =0.04 / 1.0 mm K _v =0.15 / 2.0 mm K _v =0.60 / 4.5 mm K _v =1.00 / 7.5 mm K _v =1.40 / 10.0 mm K _v =2.00 / 14.0 mm	[p₂ = f (p₁ + K_v)] ¹⁾ [p ₂ =+0mbar+(0.0mbar/1bar für, for, pour: 2 bar<p ₁ <16bar)] [p ₂ =+0mbar+(0.1mbar/1bar für, for, pour: 2 bar<p ₁ <16bar)] [p ₂ =+0mbar+(0.3mbar/1bar für, for, pour: 2 bar<p ₁ <16bar)] [p ₂ =+0mbar+(0.5mbar/1bar für, for, pour: 2 bar<p ₁ <16bar)] [p ₂ =+2mbar+(1.2mbar/1bar für, for, pour: 2 bar<p ₁ <16bar)] [p ₂ =+4mbar+(2.2mbar/1bar für, for, pour: 2 bar<p ₁ <16bar)]		
			Optionen, Options, Options	/IC ^{4, 5)} Impulsleitung extern /E Drainage /DT Dom-T-Stück /De / Ds /S1 ⁶⁾ Manometerstutzen /S2 ⁶⁾ Manometerstutzen /Sp Eingestellt/plombiert /Ws Wetterschutz /XPZ Poliert mit Zertifikat	external pulse line Drain Dome T-piece /De / Ds Gauge nozzle Gauge nozzle Adjusted and sealed Weather protection Polished w/certified	ligne d'impulsion ext. Vidage Raccord Dome-T /De / Ds Raccord manomètre Raccord manomètre Ajusté et plombé Avec protection Poli, avec Certificat	G½ (½" BSP) G½ (½" BSP) 6 mm Serto G½ (½" BSP, p ₁) G½ (½" BSP, p ₂) IP54 PP / Polypropylen	
			/C2.2 EN 10204-2.2 /C3.1 EN 10204-3.1 /Cp Einstellprotokoll /Ex ATEX Zulassung /FDA FDA-Bescheinigung /Ff Öl- Fettfrei /HT Hydrotest /LT Lecktest	EN 10204-2.2 EN 10204-3.1 Test protocol ATEX approval FDA approval Certificate degreasing Hydro test Leakage test	EN 10204-2.2 EN 10204-3.1 Protocole de réglage Certificat ATEX Certificat FDA Sans Huile ni Graisse Hydro test Essai de fuite	II 2 G Ex h IIB T6 Gb II 3 G Ex h IIC T6 Gc II 2 D Ex h IIIC T6 Db II 3 D Ex h IIIC T6 Dc		
Beispiel, Example, Exemple	ZM-R	15	S	-FD	-P	100	100/C	/Sp/C3.1/Cp/Ex/

Hinweise,

- N/A Nicht anwendbar
- ¹⁾ Vordruckabhängigkeit
- ²⁾ Für Flüssigkeiten & Gase
- ³⁾ Nur für Gasanwendungen
- ⁴⁾ /C: wenn p₁ > 8 bar g
- ⁵⁾ /C: wenn p₁ > 4 bar g
- ⁶⁾ Manometer optional verfügbar

Hints,

- Not applicable
- Primary pressure effect
- For liquids and gas
- Gas applications only
- /C: if p₁ > 8 bar g
- /C: if p₁ > 4 bar g
- Pressure gauge optionally available

Remarque

- Non applicable
- Dépendance de la pression primaire
- Pour liquides et gaz
- Pour les applications de gaz
- /C: si p₁ > 8 bar g
- /C: si p₁ > 4 bar g
- Manomètre disponible en option

11 Code: ZM-R25, reducing-valve

ZM-R	IP40 / IP54 (Option /Ws)	Funktion	Überdruck	Gauge Pressure	Pression relative	1020 mbar	
ZM-R/D	IP68	Function	Domgesteuert	Dome loaded	Dôme	2000 mbar (2524 mbar)	
ZM-R/De	IP40	Fonction	Eigen/Pilot	Integral/Pilot	Pilotage/direct	2000 mbar (2524 mbar)	
ZM-R/Ds	IP40		Fremd/Pilot	Remote/Pilot	Pilotage/indirect	2000 mbar (2524 mbar)	
ZM-R/N	IP40 / IP54 (Option /Ws)		Negativdruck	Negative pressure	Pression négative	-220 mbar	
ZM-R/NDs	IP40		Negativ/Dom	Negative/Dome	Négative/ Dôme	-1000mbar	
	25 DN25, PN40, B1	Grösse	Einbaulänge	Lay length	Encombremment	160 mm / ~7.7 kg	
	25 DN25, PN40, D	Size	Einbaulänge	Lay length	Encombremment	160 mm / ~7.7 kg	
	25 1", 150 lbs	Dimension	Einbaulänge	Lay length	Encombremment	195 mm / ~7.3 kg	
	25 1", 300 lbs		Einbaulänge	Lay length	Encombremment	208 mm / ~8.2 kg	
	25 G¾ (¾" BSP)		Einbaulänge	Lay length	Encombremment	156 mm / ~5.7 kg	
	25 G1 (1" BSP)		Einbaulänge	Lay length	Encombremment	170 mm / ~5.4 kg	
	25 ¾" NPT		Einbaulänge	Lay length	Encombremment	156 mm / ~5.7 kg	
	25 1" NPT		Einbaulänge	Lay length	Encombremment	170 mm / ~5.5 kg	
	25 TriClamp		Einbaulänge	Lay length	Encombremment	141 mm / ~5.9 kg	
	S	Material	Edelstahl	SST	INOX	1.4404	
	H	Material	Hastelloy C	Hastelloy C	Hastelloy C	C276	
	X	Matériaux	Sonder auf Anfrage	Special on request	Nous consulter	(PP, PVDF) ²⁾	
	-FD	DN25, PN40	Anschluss/Typ	Flansch	Flange	Brides	DIN / EN 1092-1, B1
	-FDN	DN25, PN40	Connection/Typ	Flansch / Nut	Flange / Groove	Brides / à gorge	DIN / EN 1092-1, D
	-FA1	1", 150 lbs	Raccord/Type	Flansch	Flange	Brides	ANSI
	-FA3	1", 300 lbs		Flansch	Flange	Brides	ANSI
	-GD2	G¾ (¾" BSP)		Gewinde	Thread	Fileté	DIN / EN
	-GD3	G1 (1" BSP)		Gewinde	Thread	Fileté	DIN / EN
	-GN2	¾" NPT		Gewinde	Thread	Fileté	ANSI
	-GN3	1" NPT		Gewinde	Thread	Fileté	ANSI
	-TCB	TriClamp		TriClamp	Ø 50.5 mm	DIN 32676, B	DIN / EN
	-XX			Sonder auf Anfrage	Special on request	Spécial nous consulter	
		-P	Membrane	PTFE	-20/+180 °C	Ø 200 mm	
		-V	Diaphragm	Viton®	-20/+130 °C	Ø 200 mm	
			Federbereich ¹⁾	Horizontal@p₁=2 bar ³⁾	Vertical@p₁=2 bar ⁴⁾	Typ, Type, Type	Dom, Dome, Dôme
		0	p₂, sekundär	4 – 9 mbar	0 – 5 mbar	ZM-R, ZM-R/D	(max 2009 mbar)
		10	p₂ = f (p₁+K_v)	6 – 16 mbar	2 – 12 mbar	ZM-R, ZM-R/D	(max 2016 mbar)
		20		7 – 26 mbar	3 – 22 mbar	ZM-R, ZM-R/D	(max 2026 mbar)
		50		9 – 64 mbar	5 – 60 mbar	ZM-R, ZM-R/D	(max 2064 mbar)
		100	Spring range ¹⁾	14 – 124 mbar	10 – 120 mbar	ZM-R, ZM-R/D	(max 2124 mbar)
		200	p₂, secondary	19 – 224 mbar	15 – 220 mbar	ZM-R, ZM-R/D	(max 2224 mbar)
		500	p₂ = f (p₁+K_v)	24 – 524 mbar	20 – 520 mbar	ZM-R, ZM-R/D	(max 2524 mbar)
		1000		24 – 1024 mbar	20 – 1020 mbar	ZM-R, ZM-R/D	(max 2524 mbar)
		0	Plage de réglage ¹⁾	N/A	-5 – +5 mbar	ZM-R/N/ ND/NDs	(min -1000 mbar)
		10	p₂, pression aval	-11 – +0 mbar	-15 – -3 mbar	ZM-R/N/ ND/NDs	(min -1000 mbar)
		50	p₂ = f (p₁+K_v)	-56 – -6 mbar	-60 – -10 mbar	ZM-R/N/ ND/NDs	(min -1000 mbar)
		100		-116 – -16 mbar	-120 – -20 mbar	ZM-R/N/ ND/NDs	(min -1000 mbar)
		200		-216 – -46 mbar	-220 – -50 mbar	ZM-R/N/ ND/NDs	(min -1000 mbar)
			10 Sitz	[p₂ = f (p₁ + K_v) ¹⁾			
			20 Seat	K _v =0.04 / 1.0 mm	[p ₂ =+0mbar+(0.0mbar/1bar für, for, pour: 2 bar<p ₁ <16bar)]		
			45 ⁵⁾ Siège	K _v =0.15 / 2.0 mm	[p ₂ =+0mbar+(0.1mbar/1bar für, for, pour: 2 bar<p ₁ <16bar)]		
			75 ⁶⁾	K _v =0.60 / 4.5 mm	[p ₂ =+0mbar+(0.3mbar/1bar für, for, pour: 2 bar<p ₁ <16bar)]		
				K _v =1.00 / 7.5 mm	[p ₂ =+0mbar+(0.5mbar/1bar für, for, pour: 2 bar<p ₁ <16bar)]		
			100/C / 100/Ci	K _v =1.40 / 10.0 mm	[p ₂ =+2mbar+(1.2mbar/1bar für, for, pour: 2 bar<p ₁ <16bar)]		
			140/C / 140/Ci	K _v =2.00 / 14.0 mm	[p ₂ =+4mbar+(2.2mbar/1bar für, for, pour: 2 bar<p ₁ <16bar)]		
			Optionen, Options, Options				
			/C ^{5, 6)}	Impulsleitung extern	external pulse line	ligne d'impulsion ext.	G¾ (¾" BSP)
			/Ci ^{5, 6, 7)}	Impulsleitung intern	internal pulse line	ligne d'impulsion interne	
			/E	Drainage	Drain	Vidage	G¾ (¾" BSP, p ₁)
			/DT	Dom-T-Stück /De / Ds	Dome T-piece /De / Ds	Raccord Dome-T /De / Ds	6 mm Serto
			/S1 ⁸⁾	Manometerstutzen	Gauge nozzle	Raccord manomètre	G¾ (¾" BSP, p ₁)
			/S2 ⁸⁾	Manometerstutzen	Gauge nozzle	Raccord manomètre	G¾ (¾" BSP, p ₂)
			/Sp	Eingestellt/plombiert	Adjusted and sealed	Ajusté et plombé	
			/Ws	Wetterschutz	Weather protection	Avec protection	IP54 PP / Polypropylen
			/XPZ	Poliert mit Zertifikat	Polished w/certified	Poli, avec Certificat	
			/C2.2	EN 10204-2.2	EN 10204-2.2	EN 10204-2.2	
			/C3.1	EN 10204-3.1	EN 10204-3.1	EN 10204-3.1	
			/Cp	Einstellprotokoll	Test protocol	Protocole de réglage	II 2 G Ex h IIB T6 Gb II 3 G Ex h IIC T6 Gc II 2 D Ex h IIIC T6 Db II 3 D Ex h IIIC T6 Dc
			/Ex	ATEX Zulassung	ATEX approval	Certificat ATEX	
			/FDA	FDA-Bescheinigung	FDA approval	Certificat FDA	
			/Ff	Öl- Fettfrei	Certificate degreasing	Sans Huile ni Graisse	
			/HT	Hydrotest	Hydro test	Hydro test	
			/LT	Lecktest	Leakage test	Essai de fuite	
Beispiel, Example, Exemple							
ZM-R	25	S	-FD	-P	100	140/Ci	/Sp/C3.1/Cp/Ex

Hinweise,

N/A Nicht anwendbar
¹⁾ Vordruckabhängigkeit
²⁾ Siehe Typ: **LPRK...**
³⁾ Für Flüssigkeiten & Gase
⁴⁾ Nur für Gasanwendungen
⁵⁾ /C, /Ci: wenn p₁ > 8 bar g
⁶⁾ /C, /Ci: wenn p₁ > 4 bar g
⁷⁾ Nicht für Gewindeanschluss
⁸⁾ Manometer optional verfügbar

Hints,
 Not applicable
 Primary pressure effect
 See Type: **LPRK...**
 For liquids and gas
 Gas applications only
 /C, /Ci: if p₁ > 8 bar g
 /C, /Ci: if p₁ > 4 bar g
 Not for threaded devices
 Pressure gauge optionally available

Remarque
 Non applicable
 Dépendance de la pression primaire
 S.V.P. remarque aussi Type: **LPRK...**
 Pour liquides et gaz
 Pour les applications de gaz
 /C, /Ci: si p₁ > 8 bar g
 /C, /Ci: si p₁ > 4 bar g
 Pas pour le raccord fileté
 Manomètre disponible en option

12 Code: LPRK25, reducing-valve

LPRK	IP40 / IP54 ²⁾	Funktion	Überdruck	Gauge Pressure	Pression relative	500 mbar	
LPRK/D	IP68	Function	Domgesteuert	Dome loaded	Piloté par le dôme	1000 mbar (1500 mbar) ^{2,3)}	
LPRK/Ds	IP40 / IP68	Fonction	Fremd/Pilot	Remote/Pilot	Pilotage/indirect	1000 mbar (1500 mbar) ^{2,3)}	
LPRK/N	IP40 / IP54 ²⁾		Negativdruck	Negative pressure	Pression negative	-120 mbar	
LPRK/NDs	IP40		Neg. Fremd/Pilot	Neg. Integral/Pilot	Neg. Pilotage/indirect	1000 mbar ²⁾	
	25 25	DN 25, PN16 1", 150 lbs	Grösse Size Dimension	Einbaulänge Sonder auf Anfrage	Lay length Special on request	Encombrement Spécial nous consulter	140 x 100 mm
	PP PV		Material⁶⁾ Material ⁶⁾ Matériaux ⁶⁾	PP PVDF	PP PVDF	PP PVDF	-20/ +80°C ~3.0 kg -20/+140°C ~4.5 kg
	-FD -FA1		Anschluss / Typ Connection / Type Raccord / Type	Flansch Flansch Sonder auf Anfrage	Flange Flange Special on request	Brides Brides Spécial nous consulter	DIN / EN ANSI
	-P		Membrane Diaphragm Membrane	PTFE PTFE PTFE	Ø 200 mm p ₁ : -120 ... max. + 200 mbar g Ø 200 mm p ₁ : -1000 ... max. + 500 mbar g ^{2,3)} Ø 200 mm p ₁ : -1000 ... max. +1.500 mbar g ^{2,3)}		
			Federbereich¹⁾ p ₂ , sekundär	Horizontal⁴⁾ 8 – 24 mbar 12 – 54 mbar 24 – 104 mbar	Vertical⁵⁾ 4 – 20 mbar 8 – 50 mbar 16 – 100 mbar	Typ, Type, Type LPRK, LPRK/D/Ds LPRK, LPRK/D/Ds LPRK, LPRK/D/Ds	Dom, Dome, Dôme (max 1000 mbar) (max 1000 mbar) (max 1000 mbar)
			Spring range¹⁾ p ₂ , secondary	34 – 200 mbar 34 – 500 mbar ^{2,3)}	30 – 200 mbar 30 – 500 mbar ^{2,3)}	LPRK, LPRK/D/Ds LPRK, LPRK/D/Ds	(max 1000 mbar) (max 1000 mbar)
			Plage de réglage¹⁾ p ₂ , pression aval	-11 – 0 mbar -56 – -6 mbar -116 – -16 mbar	-15 – -3 mbar -60 – -10 mbar -120 – -20 mbar	LPRK/N/NDs LPRK/N/NDs LPRK/N/NDs	(min -1000 mbar) (min -1000 mbar) (min -1000 mbar)
			70 120	Sitz Seat Siège	Kv= 0.8 / 7.0 mm Kv= 3.0 / 12.0 mm	[p ₂ = f (p ₁ + Kv)] ¹⁾ [p ₂ = minus(1.8 mbar/1bar für, for, pour: 2 bar<p ₁ <6bar)] [p ₂ = minus(9.0 mbar/1bar für, for, pour: 2 bar<p ₁ <6bar)]	
				Optionen, Options, Options			
			/Sp /VA /Ws	Eingestellt/plombiert V4A-Federdom Wetterschutz	Adjusted and sealed SST spring dome Weather protection	Ajusté et plombé Avec dôme en INOX Avec protection contre les intempéries	
			/C2.2 /Cp	EN 10204-2.2 Einstellprotokoll	EN 10204-2.2 Test protocol	EN 10204-2.2 Protocole de réglage	
Beispiel, Example, Exemple							
LPRK	25	PV	-FD	-P	50	180	/Sp/C2.2

Hinweise,

- 1) Vordruckabhängigkeit
- 2) Nur mit V4A-Federdom
- 3) Nur mit Feder 500
- 4) Für Flüssigkeiten und Gase
- 5) Für Gasanwendungen
- 6) Nur für benetzte Teile

Hints,

- 1) Primary pressure effect
- 2) With SST spring dome
- 3) With spring 500 only
- 4) For liquids and gas
- 5) For gas applications
- 6) Wetted parts only

Remarque

- 1) Dépendance de la pression primaire
- 2) Uniquement avec dôme INOX
- 3) Uniquement avec ressort de 500
- 4) Pour liquides et gaz
- 5) Pour les applications de gaz
- 6) Uniquement pour pièces en contact

