

ZIMMERLI MESSTECHNIK AG

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ZM-R25

Niederdruck- Reduzierventil, DN 25

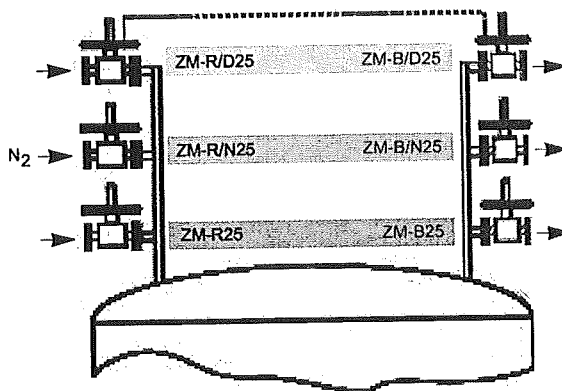
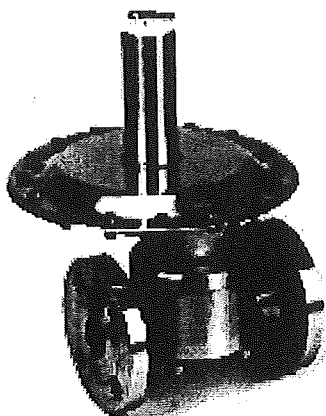
Rostfrei oder Hastelloy, PTFE oder Viton®

Détendeur Basse pression DN 25

Inoxydable ou Hastelloy, PTFE ou Viton®

Low pressure reducing valve, DN 25

Stainless-steel or Hastelloy, PTFE or Viton®



Beschreibung

Druckreduzierventile regeln den Druck hinter dem Ventil.

Der Druckminderer Typ ZM-R25 F ist ein membrangesteuerter, federbelasteter Proportionalregler. Alle produktberührten Teile bestehen aus Edelstahl 1.4571/1.4404 oder Hastelloy C, mit glatten Oberflächen. Der Ventilkegel ist weichdichtend, Ventildichtung aus Perfluorelastomer (Kalrez/Chemraz/J-6000) oder Fluorelastomer (Viton) (-10 bis 180 °C). Die Dichtheit des Ventilabschlusses entspricht mindestens der VDI/VDE-Richtlinie 2174. Das Druckreduzierventil ist vakuumfest.

Bei druckloser Rohrleitung hält die Einstellfeder den Ventilkegel in Offenstellung. Unter Druck strömt das Fluid von der Eingangsseite (P1) durch den Ventilsitz in das Gehäuse und wirkt von der Ausgangsseite her (Hinterdruck P2) auf das Membranfedersystem.

An der Membrane aus PTFE oder Viton steht der zu regelnde Hinterdruck im Gleichgewicht mit der Kraft der Einstellfeder (Sollwert). Steigt der Hinterdruck über den an der Verstellerschraube eingestellten Sollwert an, so wird der Ventilkegel zum Sitz hin bewegt und der Durchsatz gedrosselt. Bei sinkendem Hinterdruck vergrößert sich der Drosselquerschnitt. Drehen der Verstellerschraube gegen den Uhrzeigersinn erhöht den Hinterdruck.

Typ ZM-R25 F ist in öl- und fettfreier Ausführung gefertigt, ist selbsttätig und wird ohne Steuerleitung betrieben.

Description

Les détendeurs servent à stabiliser la pression aval.

Le détendeur type ZM-R25 F est commandé par une membrane chargée par un ressort. Toutes les pièces en contact avec le fluide sont en acier Cr-Ni-Mo ou en Hastelloy C, avec surfaces lisses. L'étanchéité interne est assurée par un clapet à portée Perfluorélastomère (Kalrez, Chemraz, J-6000) ou Fluorélastomère (Viton) (-10 à 180 °C). Cette étanchéité correspond au moins à la directive VDI/VDE 2174. Le détendeur résiste au vide.

En l'absence de pression dans la canalisation, le tarage du ressort maintient le clapet en position d'ouverture. L'amont est alors en communication avec l'aval. La pression s'établissant à l'aval vient en équilibre direct avec l'ensemble ressort/membrane.

Si la pression aval dépasse la valeur réglée (tarage du ressort), le clapet est poussé sur le siège et le débit est réduit. Dans le cas contraire, le clapet est écarté du siège et la section de passage, donc le débit, augmente.

L'ajustement de la pression aval s'effectue en tournant la vis de réglage dans le sens horaire pour diminuer et anti-horaire pour augmenter.

Le détendeur ZM-R25 F est spécifié sans huile ni graisse, agit automatiquement et est actionné sans conduite de commande.

Description

Pressure-reducing valves regulate the pressure after the valve.

The type ZM-R25 F pressure-reducing valve is a diaphragm-controlled, spring-loaded proportional regulator. All parts which come into contact with the product consist of Cr-Ni-Mo stainless-steel 1.4571/1.4404 or Hastelloy C, with smooth surfaces. The valve face is provided with soft packing, the valve seal made of Perfluoroelastomer (Kalrez/Chemraz/J-6000) or Fluoroelastomer (Viton) (-10 to 180 °C). The tightness of the valve closure conforms to at least the VDI/VDE guideline 2174.

The valve is leakproof under vacuum. With unpressurized pipework, the setting spring retains the valve face in the open position. Under pressure, the fluid flows from the entry side (P1) through the valve seat into the housing and acts on the diaphragm spring system from the output side (back-pressure P2).

At the diaphragm of PTFE or Viton, the back pressure to be regulated is in balance with the strength of the setting spring (desired value). If the back pressure exceeds the desired value set on the adjusting screw, the valve face is moved towards the seat and the output reduced. With falling back pressure the flow cross-section increases. The back pressure is increased by turning the adjusting screw counterclockwise.

The type ZM-R25 F is manufactured in an oil- and grease-free design and is self-actuating and is operated using no control line.

Ein Druckregler für 3 Anwendungen

Ihr Nutzen:

- ✓ Reduzierter Gasverbrauch
- ✓ Reduzierte Abgase
- ✓ Keine externe Hilfsenergie
- ✓ Hohe Genauigkeit
- ✓ Geringe Unterhaltskosten
- ✓ Tiefe Investitionskosten
- ✓ Keine zusätzlichen Steuerungsleitungen

Un seul régulateur de pression pour 3 applications

Vos Avantages:

- ✓ Consommation de gaz réduite
- ✓ Sortie de gaz réduite
- ✓ Sans énergie externe
- ✓ Haute précision
- ✓ Faible coût d'entretien
- ✓ Faible coût d'investissement
- ✓ Sans apport d'arrivée externe

Just one pressure regulator for 3 applications

Your benefits:

- ✓ Reduce consumption of gas
- ✓ Reduce quantity of waste gas
- ✓ Needs no auxiliary power
- ✓ High accuracy
- ✓ Low maintenance costs
- ✓ Low investment cost
- ✓ No additional pilot-lines

ZM-R 25

Niederdruck- Reduzierventil

Anwendungen

Dieser Druckminderer dient der Druckreduzierung von Luft und Gasen im chemischen Anlagenbau. Der Regler ist speziell für die Inertisierung und Drucküberlagerung von Rührkesseln, Lagertanks und Behältern mit inaktivem Gas, wie Stickstoff ausgelegt.

Der Arbeitsdruck liegt im positiven Druckbereich.

Détendeur basse pression

Utilisations

Ce type de détendeur sert à abaisser les pressions de gaz dans les installations chimiques. Il est spécialement dimensionné pour la pressurisation et l'inertisation des cuves à agitateur, des citernes de stockage et des réservoirs de gaz inertes tels que l'air et l'azote.

Ce détendeur travaille en pressions relatives positives.

Low pressure reducing valve

Applications

This pressure reducer is used to reduce the pressure of air and gases in chemical engineering plants. The regulator is specially designed for pressure inertizing and blanketing in mixing vessels, storage tanks and containers using an inert gas, such as nitrogen.

The operating pressure is in the positive pressure range.

ZM-R/N 25

Unterdruck- Reduzierventil

Anwendungen

Dieser Druckminderer arbeitet im leichten Vakuum. D.h.: Der Nachdruck (P2) liegt unter dem Atmosphärendruck. Die Druckbereiche gehen von 0 mbar rel. bis -200 mbar relativ. Anlagen im leichten Unterdruck lassen sich mit dieser Ausführung perfekt inertisieren.

Régulateur de dépression

Utilisations

Ce type de régulateur fonctionne avec une gamme de pressions aval relatives comprises entre 0 et -200 mbar.

Il réalise parfaitement l'inertisation des installations fonctionnant en dépression.

Vacuum reducing valve

Applications

This vacuum reducer works at low levels of vacuum, i.e. the back pressure (P2) is less than atmospheric pressure. The pressure areas vary from 0 mbar to -200 mbar relative pressure. Systems operating at a low vacuum can be rendered completely inert using this version.

ZM-R/D 25

Niederdruck- Reduzierventil/Dom

Anwendungen

Dieser Druckminderer arbeitet wie der Typ ZM-R 25. Zusätzlich kann auf die Membranoberseite (Anschluss 1/4" f) ein Steuerdruck von bis 2.0 bar rel. gegeben werden. So kann der Regler einfach für die Hilfestellung von z.B.: "Abdrücken" verwendet werden.

Détendeur basse pression piloté

Utilisations

Ce type de détendeur fonctionne comme le ZM-R25 F, mais il est en outre possible de piloter le cache-ressort (donc la face supérieure de la membrane, 1/4" f) à une pression maximum de 2.0 bar. La pression aval est alors en équilibre avec la pression réglée par le tarage du ressort plus la pression de pilotage. Il est ainsi possible de réguler une pression aval relative "négative" en tirant le cache-ressort au vide.

Low pressure reducing valve / Dome

Applications

This pressure reducer operates in a similar way to the Type ZM-R25. In addition, a control pressure of up to 2.0 bar relative can be applied to the upper side of the diaphragm (1/4" f connection). The regulator can thus be easily used as an aid in "pumping out" for example.

Installation

Montage und Inbetriebnahme

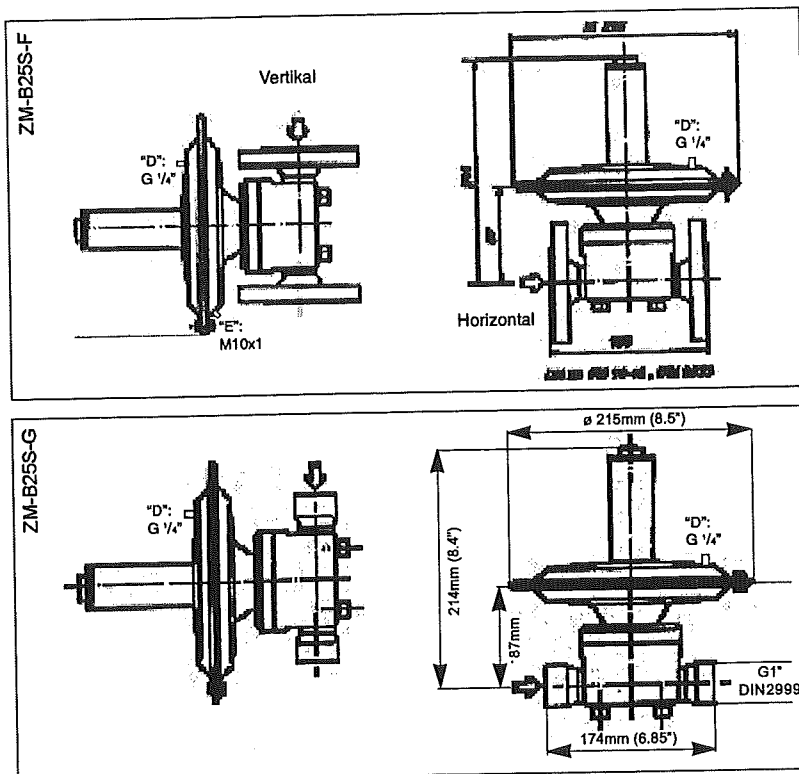
Die Einbaulage kann mit horizontalem oder vertikalem Membrangehäuse erfolgen. Die horizontale Lage ist zu bevorzugen. Plombierte Geräte werden mit vertikalem Membrangehäuse eingestellt. Beim Einbau mit horizontalem Membrangehäuse erhöht sich der Ausgangsdruck um ca. 2 mbar. Das Drehen der Einstellschraube gegen den Uhrzeigersinn erhöht den Sekundärdruck.

Montage et mise en service

Le montage peut avoir lieu avec le boîtier de la membrane en position horizontale ou verticale. La position horizontale est préférable. Les appareils plombés sont placés en position verticale. Dans le cas du montage avec le boîtier de la membrane en position horizontale, la pression de sortie est plus élevée de 2 mbar environ. En tournant la vis de réglage en sens antihoraire, on augmente la pression en aval.

Fitting and setting to work

The regulator may be fitted with the diaphragm casing in either a horizontal or vertical position. The horizontal position is preferable. Sealed regulators are adjusted in a vertical position. When the regulator is fitted with the diaphragm casing horizontally the output pressure is increased by about 2 mbar. Turning the adjusting screw counter-clockwise increases the back pressure.



Ausgang, Sortie, Output (p2)

Bereich, Plage, range (mbar)	
Type 10	2-12 mbar
Type 20	3-22 mbar
Type 50	5-60 mbar
Type 100	10-120 mbar
Type 200	15-220 mbar
Type 500	20-520 mbar

max. 2000 mbar

Sitz, Siège, Seat

ø4.5mm	Kv: 0.65
ø7.5mm	Kv: 1.25
ø10 mm	Kv: 1.75
ø14 mm	Kv: 2.50

Gewicht, Poids, Weight

7.4 kg

Temperatur, Température, Temperature
-10°/+180°C PTFE/Viton®

Druck, Pression, Pressure (p1)

Eingang, Entrée, Input: max. 16 bar

Durchfluss, Débit, Flow (Luft, Air)

P1 (bar) rel.		0.15	0.25	0.4	0.65	1.0	1.5	2.5	4.0	6.0	10
P2 mbar	seat	Nm3/h	Nm3/h	Nm3/h	Nm3/h	Nm3/h	Nm3/h	Nm3/h	Nm3/h	Nm3/h	Nm3/h
10 (ZM-R/N) (-10)	ø4.5 mm	6.6	8.6	11.0	14.0	17.5	21.8	30.6	43.7	61.0	96.0
	ø7.5 mm	12.6	16.5	20.1	27.0	33.6	42.0	58.8	84.0	118.0	185.0
	ø10 mm	18.0	24.0	32.0	42.0	56.0	72.0	105.0	155.0	210.0	250.0
	ø14 mm	22.0	28.0	38.0	48.0	63.0	83.0	120.0	175.0	245.0	360.0
20 (ZM-R/N) (-20)	ø4.5 mm	6.4	8.5	10.9	14.0	17.5	21.8	30.6	43.7	61.0	96.0
	ø7.5 mm	12.7	16.8	21.7	26.9	33.6	42.0	58.8	84.0	118.0	185.0
	ø10 mm	19.0	24.0	32.0	42.0	55.0	75.0	105.0	155.0	210.0	250.0
	ø14 mm	22.0	29.0	37.0	48.0	63.0	82.0	120.0	174.0	245.0	360.0
100 (ZM-R/N) (-100)	ø4.5 mm	4.1	7.1	10.0	13.6	17.5	21.8	30.6	43.7	61.0	96.0
	ø7.5 mm	7.7	13.6	19.3	21.0	33.6	42.0	58.8	84.0	118.0	185.0
	ø10 mm	18.0	24.0	32.0	42.0	55.0	75.0	108.0	157.0	210.0	250.0
	ø14 mm	22.0	29.0	37.0	48.0	64.0	83.0	122.0	176.0	245.0	360.0
200 (ZM-R/N) (-200)	ø4.5 mm	-	4.3	8.6	12.8	17.1	21.8	30.6	43.7	61.0	96.0
	ø7.5 mm	-	8.2	16.5	24.7	32.9	42.0	58.8	84.0	118.0	185.0
	ø10 mm	-	23.0	30.0	42.0	56.0	75.0	108.0	156.0	210.0	250.0
	ø14 mm	-	28.0	34.0	48.0	64.0	84.0	120.0	175.0	245.0	360.0
500	ø4.5 mm	-	-	-	-	15.1	21.4	30.6	43.7	61.0	96.0
	ø7.5 mm	-	-	-	-	29.1	41.1	58.8	84.0	118.0	185.0
	ø10 mm	-	-	-	-	54.0	72.0	108.0	156.0	210.0	250.0
	ø14 mm	-	-	-	-	61.0	83.0	120.0	175.0	245.0	360.0

Code

ZM-R		Funktion Fonction Function	Normaldruck, Pression normale, Normal pressure Negativ Druck, Pression négative, Negative pressure Dom-Druck, Pression dans le dôme, Dome pressure
/N /D	25	Grösse Dimension Size	DN 25/1"
S H		Material Matériaux	Rostfrei, en acier inox, Stainless steel 1.4571/1.4404/1.4408 Hastelloy C
-F -G		Anschluss Raccord Connection	Flansch, Bride, Flange Gewinde 1", Manchon 1", Thread 1"
D A X		Type	DIN ANSI Sonder-Anschlüsse, Raccords spéciaux, Special connections
-P -V		Membrane Membrane Diaphragm	PTFE Viton
10 20 50 100 200 500 0 10 50 200		Bereich Plage de réglage Range	2-12 mbar 3-22 mbar 5-60 mbar 10-120 mbar 15-220 mbar 20-520 mbar +5/-5 mbar -3/-15 mbar -10/-60 mbar -50/-220 mbar
45 75 100 140		Sitzgrösse Siège Seat	4.5 mm 7.5 mm 10 mm 14 mm
S M Pa Pb Ce Vs Sp E		Option	Nur Manometerstutzen, G 1/4" Seulement raccord de manomètre, G 1/4" Manometer connection only, G 1/4" Manometer ø 63mm montiert Manomètre ø 63mm monté Manometer ø 63mm fitted Schaltkolben Standard, Druckluft 4-10 bar Piston de commande, air comprimé 4-10 bar Piston actuator, compressed air 4-10 bar Schaltkolben invertiert Piston de commande inverse Piston actuator invert Werksabnahmezeugnis EN 10204-3.1B Certificat de réception en usine EN 10204-3.1B Works acceptance certificate EN 10204-3.1B Verschluss-Schraube aus rostfreiem Stahl 1.4571 Vis de fermeture en acier inox 1.4571 Closure screw in stainless steel SS316 Eingestellt und plombiert Ajusté et plombé Adjusted and sealed Entleerungs-Anschluss, G 1/4", für vertikalen Einbau empfohlen Raccord de vidage G 1/4", conseillée pour montage verticale Draining connection, G 1/4", vertical installation suggested

Beispiel

ZM-R	25	S	-F	D	-P	200	75	Sp
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August 1999, DB-ZM-R25-a



Technische Aenderung vorbehalten.
Sous réserve de modification technique.
Subject to technical changes.

Vertreten durch, Représenté par, Represented by



ZIMMERLI MESSTECHNIK AG

Assembly and Commissioning Instructions

Low-pressure reducing valve ZM-R15, ZM-R25

Please observe prior to connecting the pressure controller:

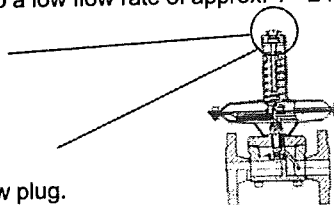
Compare plant pressure with the pressure on the nameplate.
Values indicated on the nameplate are those measured during our performance test.
Check corrosion resistance of materials.
Remove foreign matter from pipes (blow off).
Note direction of flow. This is indicated by an arrow on the housing of the pressure controller.
Remove flange cover caps on inlet and outlet side
The pressure controller is operated without a control line.

In case of seat sizes of 10mm + 14mm and a preliminary pressure of more than 2 bar, the pressure controller must be operated with a control line ("C connection") which is to be provided by customer and to be arranged as close as possible to the consumer.

Set secondary pressure:

Open valve/ball valve slowly after the pressure controller and set to a low flow rate of approx. 1 - 2 Nm³/h.

Set back pressure with a spanner (6mm).
Turning clockwise = decreasing pressure -
Turning anticlockwise = increasing pressure +
+/- are marked on the screw plug.



The set pressure can be leaded through the lateral hole in the screw plug.

The valve/ball valve before or after the pressure controller must be opened slowly during commissioning!

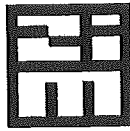
The pressure controller works automatically and does not need any external power.

Important:

The pressure controller is always set and leaded at a preliminary pressure of 2 bar and the diaphragm in the vertical position.

Please state other preliminary pressures and installation position when ordering.

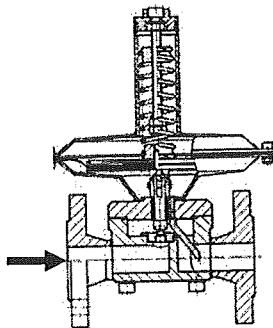
Do not install any filters, check valves, ROTAMETER®, etc. on the outlet side (mbar range). Install pressure controller always as close to the consumer as possible.
Always contact ZIMMERLI MESSTECHNIK AG in case of special applications!



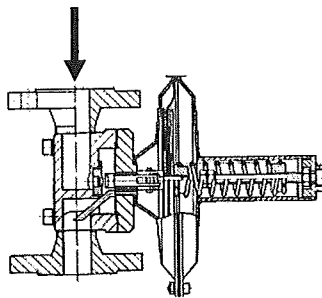
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Installation

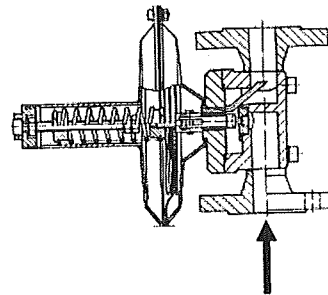
Very good



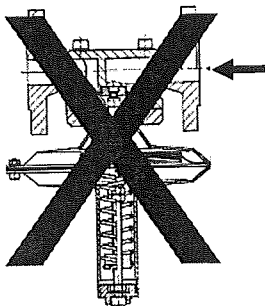
good

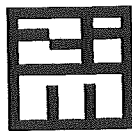


good



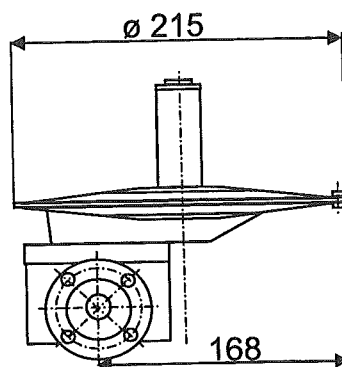
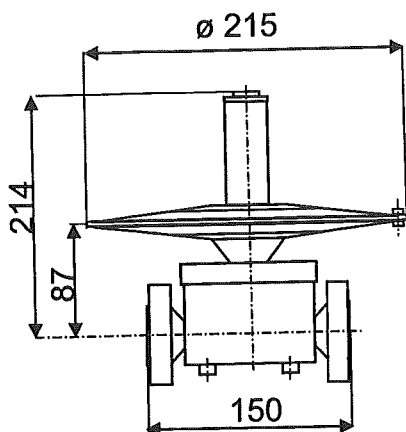
Bad



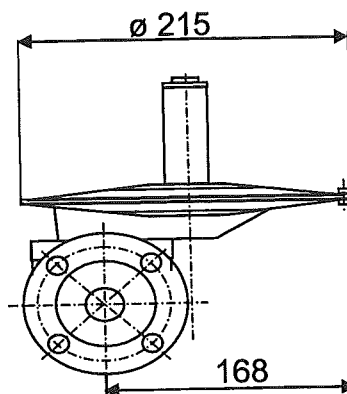
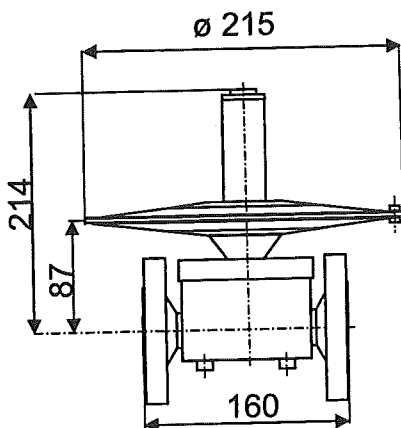


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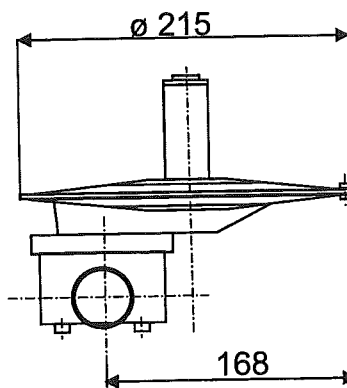
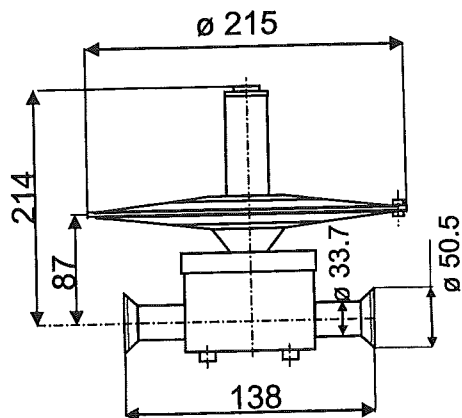
Dimensions DN 15



Dimensions DN 25



Dimensions clamp, DN 25



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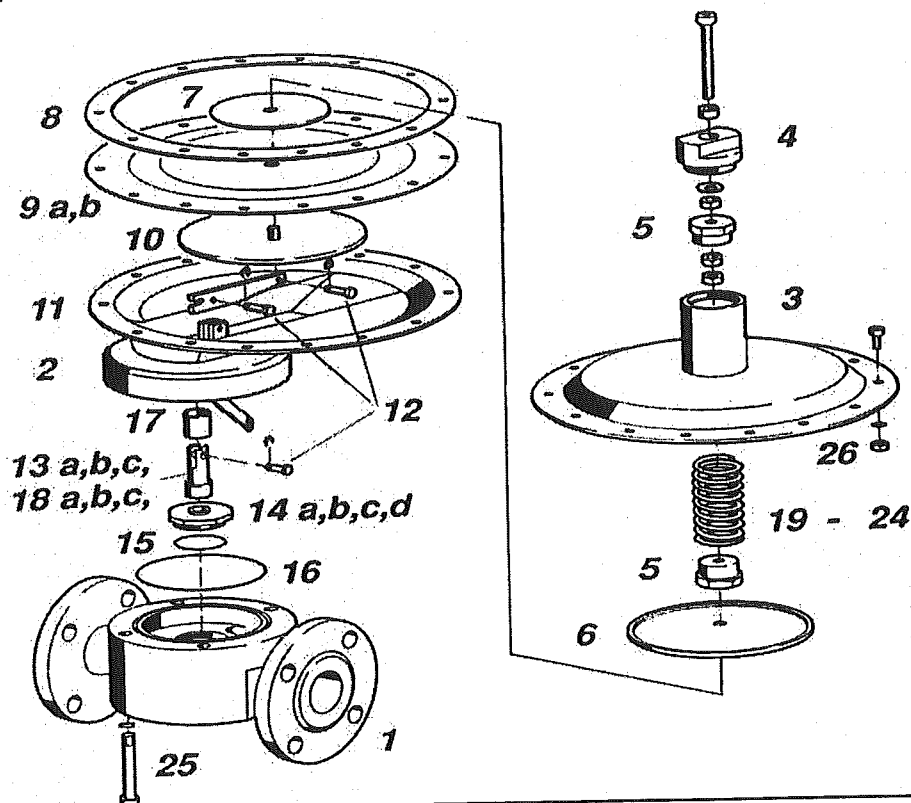
www.zimmerliag.com

info@zimmerliag.com

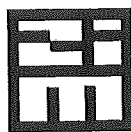


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Spare part list



Pos.	Description	Art. No.	Item	Description	Art. No.
1	Housing complete	BR-250	14a	Valve seat 45	R-239
2	Housing guide	R-251	14b	Valve seat 75	R-240
3	Spring dome, M200	BR-553	14c	Valve seat 100	R-241
4	Screw plug compl.	BR-522	14d	Valve seat 140	R-242
5	Spring guide	BR-520	15	O-ring $\text{AE } 25 \times 1.5^*$	BR-125
6	Diaphragm plate	BR-519	16	O-ring $\text{AE } 60.05 \times 1.78^*$	BR-126
7	Sealing disk*	BR-121	17	Guide sleeve	R-208
8	Sealing ring*	BR-119	18a	Piston compl. 45 / 75 V	R-213
9a	Diaphragm PTFE*	BR-115	18b	Piston compl. 100 V	R-214
9b	Diaphragm Viton*	BR-116	18c	Piston compl. 140 V	R-215
10	Diaphragm plate compl.	R-205	19	Setting spring 10 mbar	BR-527
11	Level	R-206	20	Setting spring 20 mbar	BR-528
12	Articulated pins compl.	R-207	21	Setting spring 50 mbar	BR-529
13a	Piston compl. 45 / 75 P*	R-210	22	Setting spring 100 mbar	BR-530
13b	Piston compl. 100 P*	R-211	23	Setting spring 200 mbar	BR-531
13c	Piston compl. 140 P*	R-212	24	Setting spring 500 mbar	BR-532
			25	Cyl. screw M8x65, spring ring	
			26	Cyl. screw M5x14, spring ring, nut	



ZIMMERLI MESSTECHNIK AG

IMPORTANT

SERVICE POLICY

Owners of ZIMMERLI MESSTECHNIK AG products may request the return of a control; or, any part of a control for complete rebuilding or replacement. They will be rebuilt or replaced promptly. ZIMMERLI MESSTECHNIK AG will repair or replace the control, at no cost to the purchaser, (or owner) **other than transportation cost** if:

- a. Returned within the warranty period; and,
- b. The factory inspection finds the cause of the malfunction to be defective material or workmanship.

If the trouble is the result of conditions beyond our control; or, is **NOT** covered by the warranty, there will be charges for labor and the parts required to rebuild or replace the equipment.

In some cases, it may be expedient to ship replacement parts; or, in extreme cases a complete new control, to replace the original equipment before it is returned. If this is desired, notify the factory of both the model and serial numbers of the control to be replaced. In such cases, credit for the materials returned, will be determined on the basis of the applicability of our warranty.

No claims for misapplication, labor, direct or consequential damage will be allowed.

RETURNED MATERIAL PROCEDURE

So that we may efficiently process any materials that are returned, it is essential that a "Return Material Authorization" (RMA) form will be obtained from the factory. It is mandatory that this form will be attached to each material returned. This form is available through Zimmerli's local representative or by contacting the factory. Please supply the following information:

- | | |
|---------------------------------|----------------------|
| 1. Purchaser Name | 4. Desired Action |
| 2. Description of Material | 5. Reason for Return |
| 3. Serial Number and Ref Number | 6. Process details |

All shipments returned to the factory must be by prepaid transportation. ZIMMERLI MESSTECHNIK AG **will not accept** collect shipments.

All replacements will be shipped FOB factory.