

Pressure regulator with integrated gas filter FRI

4.04

DUNGS®



Technical description

The DUNGS pressure regulator, type FRI, combines a pressure regulator and a microfilter in one fitting.

The pressure regulator complies with EN 88. Various combinations are possible using the FRI/DMV modular system:

- Pressure regulator and microfilter with threaded flange, as per ISO 7/1
- FRI pressure regulator with microfilter directly mountable upstream of double solenoid valve, type DMV
- FRI pressure regulator downstream of double solenoid valve, type DMV, microfilter mounted in DMV
- Mounting of pressure switch and pressure limiter, type ...A2, monitoring of output pressure
- High flow rate
- Sturdy, precise and sensitive regulation
- Inlet pressure compensation
- Safety diaphragms

- Internal pulse connection as standard
- Pressure measurement connection on threaded flange
- Easy-to-mount, service-friendly
- Compact
- Light-weight

Application

The DUNGS pressure regulator with microfilter, type FRI, is suitable for gases of families 1, 2, 3 and other neutral gaseous media.

Approvals

EU type test approval as per EU Gas Appliance Directive.

FRI 503/10	CE-0085 AN 0007
FRI 505/10	CE-0085 AN 0016
FRI 507/10	CE-0085 AN 0024
FRI 510/10	CE-0085 AN 0031
FRI 512/10	CE-0085 AN 0038

Approvals in other important gas-consuming countries.

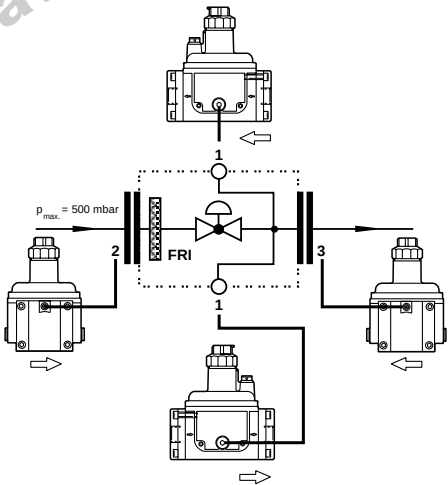
FRI	Spring-loaded pressure regulator with adjustable setpoint spring. Internal tap of regulator output pressure. Integrated microfilter element, mounting of pressure switch possible. Suitable for controlling regulator output pressure.
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Specifications

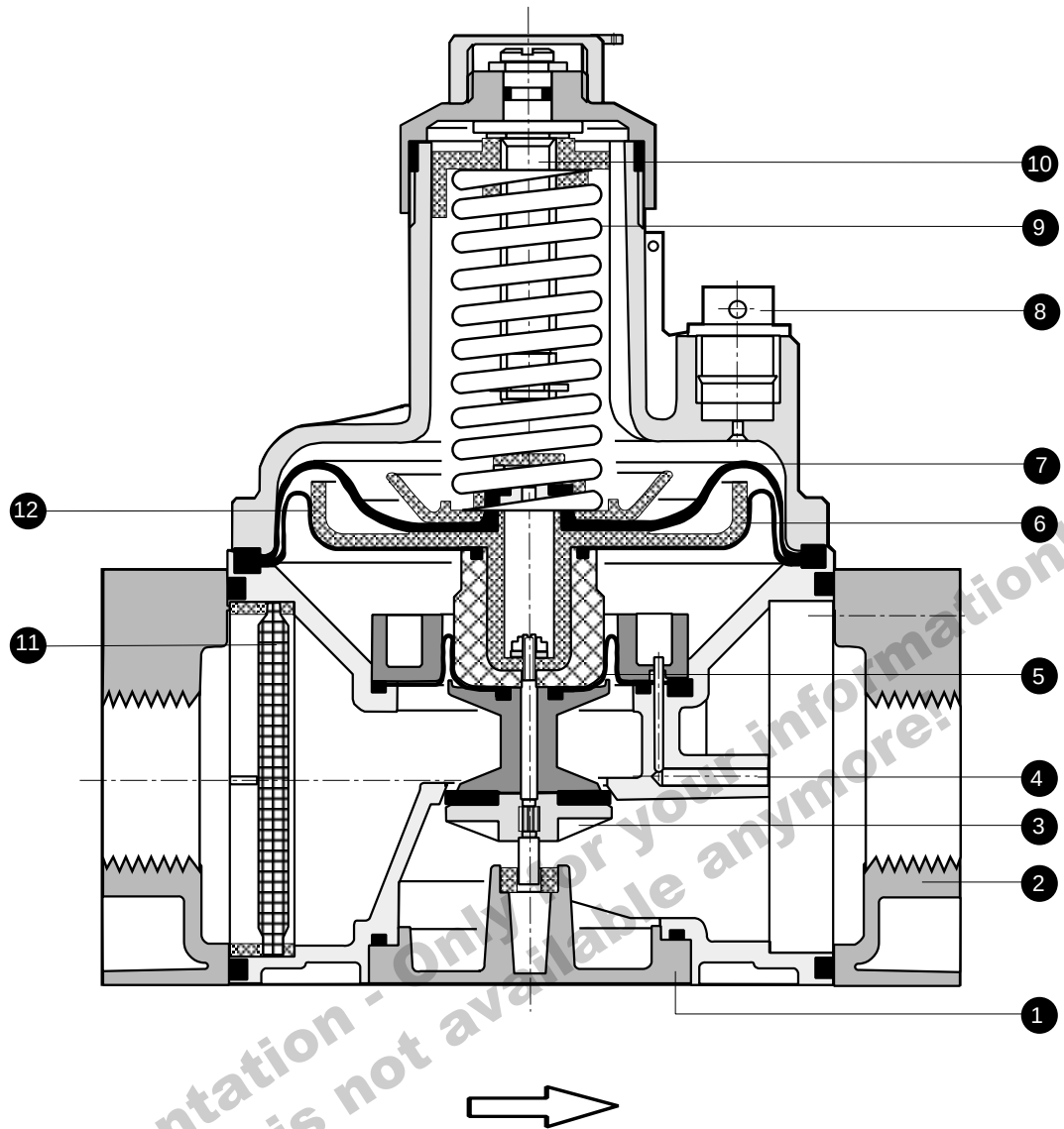
Nominal diameters Flange with pipe thread as per ISO 7/1	FRI 503/10 Rp 3/8, 1/2	FRI 505/10-507/10 Rp 1/2, 3/4 and their combinations	FRI 510/10-512/10 Rp 1, 1 1/4
Max. operating pressure	to 500 mbar (50 kPa)		
Pressure regulator	Pressure regulator as per EN 88, Class A, Group 2		
Input pressure range	5 mbar to 500 mbar		
Pressure stage	PN 1		
Output pressure range	FRI 503: 2.5 mbar to150 mbar FRI 505-512: 2.5 mbar to 200 mbar		
Materials of gas-conveying parts	Housing: aluminium, no non-ferrous metals Seals and diaphragms: NBR		
Ambient temperature	-15 °C to +70 °C		
Installation position	Regulator dome from vertically upright to lying horizontally		
Measuring/ignition gas connection	G 1/8 ISO 228 on both sides in inlet section On input and output flange		
Pulse connection	Internally provided in outlet		
Blow-off line	Blow-off line only required in special cases. Safety diaphragms installed. G 1/4 ISO connection		

FRI pressure taps

1, 2, 3
Screw plug
G 1/8 DIN ISO 228
Mounting possibility for system accessory GW ...A5 pressure switch



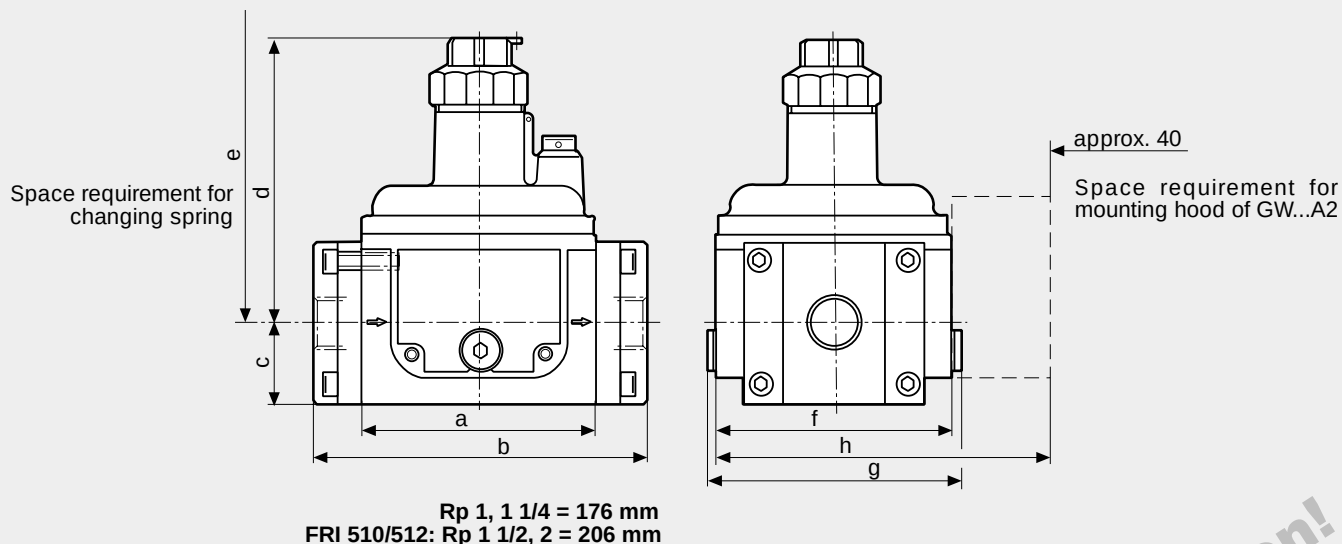
**FRI sectional drawing
Equipment in closed position**



- | | | | | | |
|---|---------------------|---|------------------------|----|-------------------------------|
| 1 | Housing | 5 | Compensation diaphragm | 9 | Setpoint spring |
| 2 | Threaded flange | 6 | Working diaphragm | 10 | Adjusting device |
| 3 | Regulating cup | 7 | Safety diaphragm | 11 | Microfilter element and sieve |
| 4 | Pulse tap, internal | 8 | Breathing plug | 12 | Diaphragm plate |

Setpoint spring range [mbar]	2.5...9	5...13	7...20	10...30	25...55	30...70	60...100	100...150	140...200
Spring colour	Spring 1 brown	Spring 2 white	Spring 3 orange	Spring 4 blue Standard	Spring 5 red	Spring 6 yellow	Spring 7 black	Spring 8 pink	Feder 9 grey
Rp / DN									
FRI 503/10	230 312	230 313	230 314	230 315	230 316	230 317	230 318	230 319	-
FRI 505/10 - 507/10	229 817	229 818	229 820	229 821	229 822	229 823	229 824	229 825	229 826
FRI 510/10 - 512/10	229 842	229 843	229 844	229 845	229 846	229 847	229 848	229 849	229 850

Dimensions [mm]



Type	Rp	Order No.	Dimensions [mm]								Weight
			a	b	c	d	e	f	g	h	
FRI 503/10	Rp 3/8 - 1/2	216 899	76	112	28.5	130	170	74	82	117	0.6
FRI 505/10	Rp 1/2 - 1	216 204	92	141	33	152	195	96	104	139	0.9
FRI 507/10	Rp 1/2 - 1	216 205	92	141	33	152	195	96	104	139	0.9
FRI 510/10	Rp 1 - 2	214 407	124	176/206	45	175	235	126	135	169	1.6
FRI 512/10	Rp 1 - 2	214 452	124	176/206	45	175	235	126	135	169	1.6

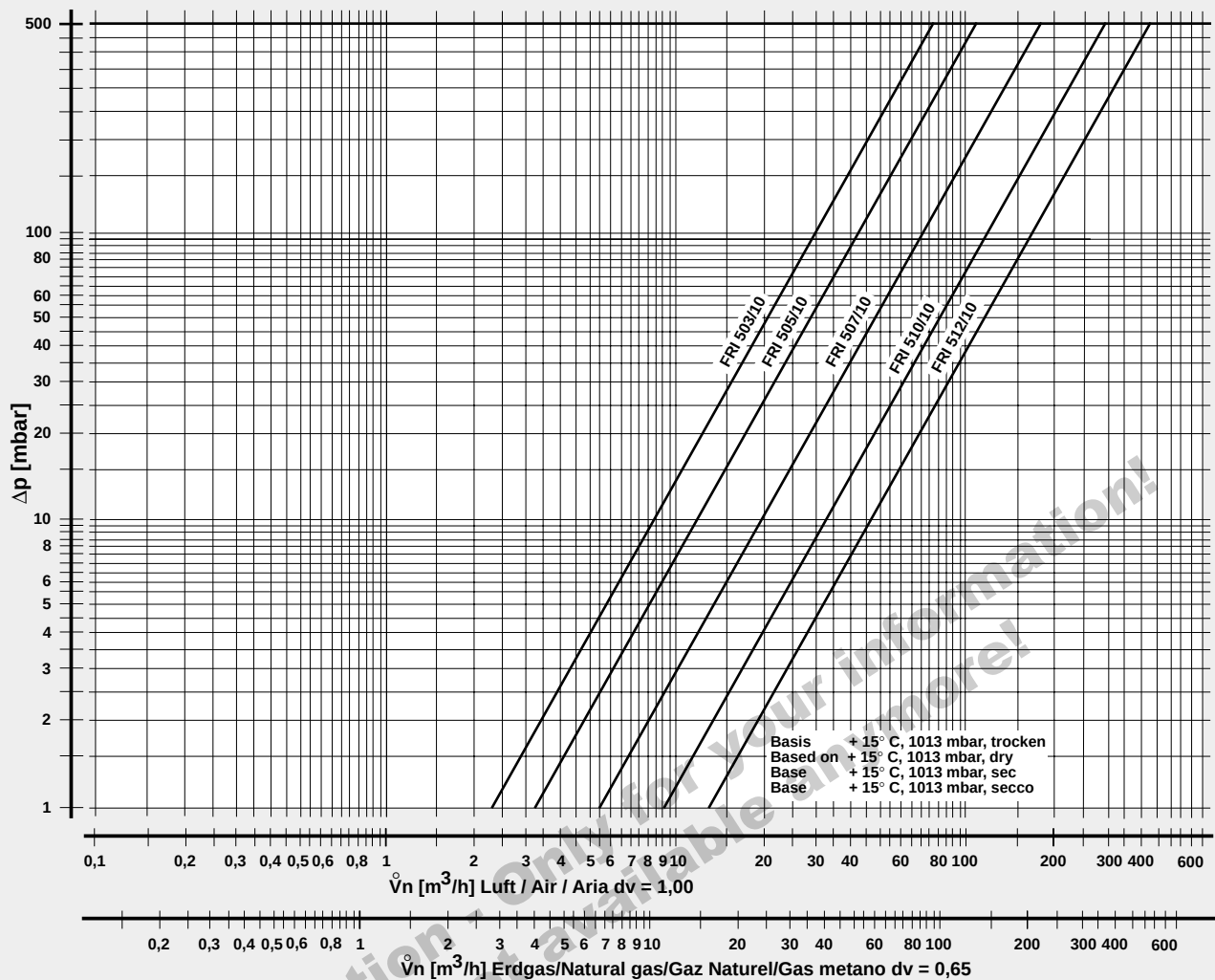
Flange	Order No.	for FRI type
Rp 3/8	217 471	FRI 503/10
Rp 1/2	217 472	FRI 503/10
Rp 1/2	222 341	FRI 505/10 - FRI 507/10
Rp 3/4	222 342	FRI 505/10 - FRI 507/10
Rp 1	222 001	FRI 505/10 - FRI 507/10
Rp 1	222 343	FRI 510/10 - FRI 512/10
Rp 1 1/4	222 344	FRI 510/10 - FRI 512/10
Rp 1 1/2	221 884	FRI 510/10 - FRI 512/10
Rp 2	221 926	FRI 510/10 - FRI 512/10

Please order flange and mounting kit for FRI separately.

FRI mounting kit	Order No.	Scope of supply
FRI 503	224 092	8 x screws: M5 x 30; 2 x O rings: 45 x 3
FRI 505/507	224 093	8 x screws: M6 x 30; 2 x O rings: 57 x 3
FRI 510/512	224 094	8 x screws: M8 x 35 for Rp 1 and Rp 1 1/4 8 x screws: M8 x 40 for Rp 1 1/2 and Rp 2 2 x O rings: 75 x 3.5

FRI + DMV mounting kit	Order No.	Scope of supply
FRI 503	219 966	4 x set screws: M5 x 30; 1 x dia. seal ring Ø 45
on DMV 503/11		
FRI 505/507	219 967	4 x set screws: M6 x 30; 1 x dia. seal ring Ø 57
on DMV 507/11		
FRI 510/512	219 968	4 x set screws: M8 x 45; 1 x dia. seal ring Ø 75
on DMV 512/11+DMV 520/11		

Flow diagram 1
mechanically open / with microfilter / use flow diagram 2 for FRI equipment selection



$\dot{V}_{\text{verwendetes Gas/gas used/ gaz utilisé/gas utilizzato}} = \dot{V}_{\text{Luft/air/aria}} \times f$

f =

spez. Gewicht Luft
Spec. weight air
poids spécifique de l'air
peso specifico aria

spez. Gewicht des verwendeten Gases
Spec. weight of gas used
poids spécifique du gaz utilisé
peso specifico del gas utilizzato

Gasart
Type of gas
Type de gaz
Tipo di gas

Spez. Gewicht
Spec. Wgt.
poids spécifique
Peso specifico
[kg/m³]

dv

f

Erdgas/Nat.Gas/
Gaz naturel/Gas metano

0.81

0.65

1.24

Stadtgas/City gas/
Gaz de ville/Gas città

0.58

0.47

1.46

Flüssiggas/LPG/
Gaz liquide/Gas liquido

2.08

1.67

0.77

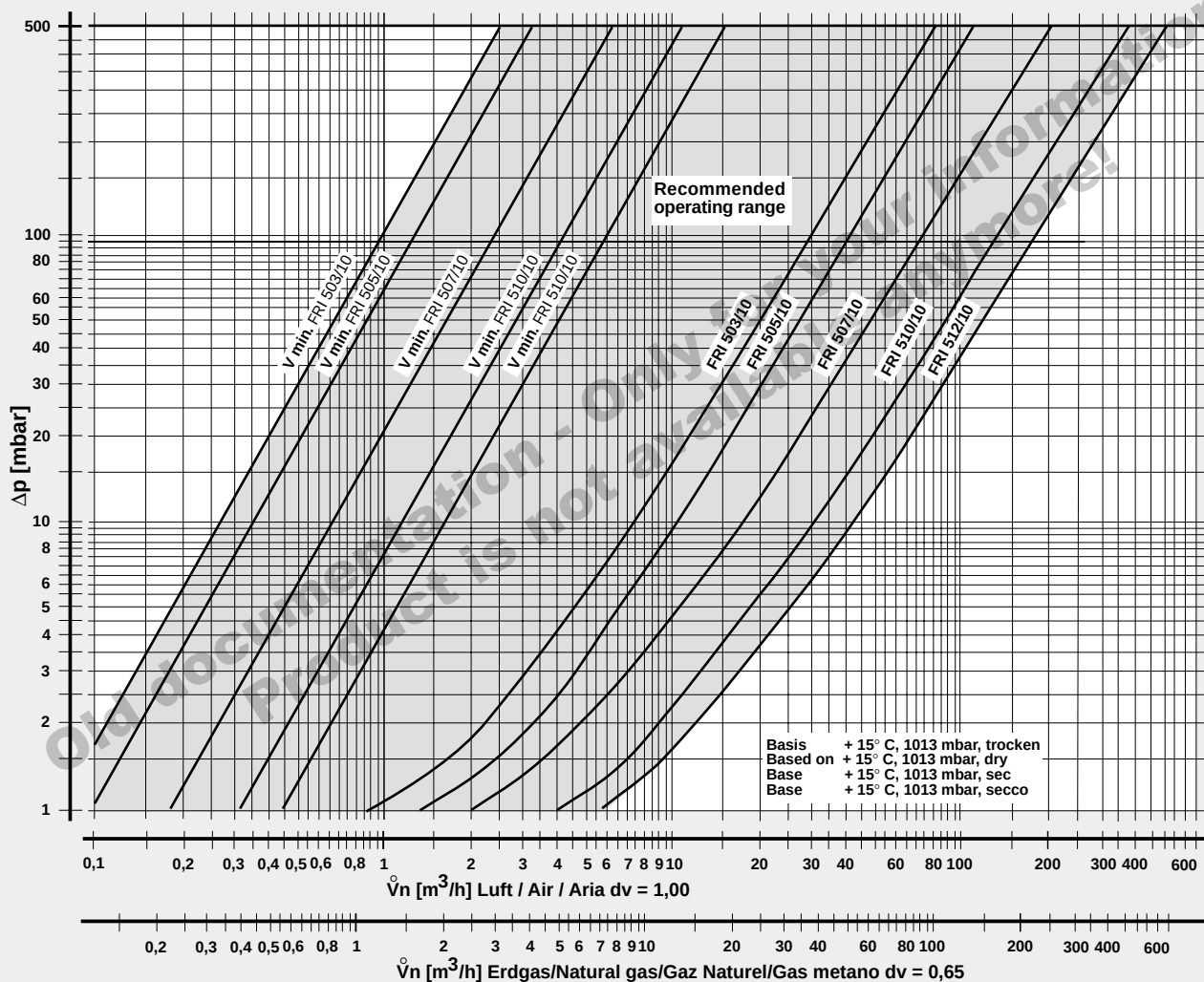
Luft/Air/
Air/Aria

1.24

1.00

1.00

Flow diagram 2
in regulated state, with microfilter, $p_2 = 10$ mbar



We reserve the right to make any changes in the interest of technical progress.



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