

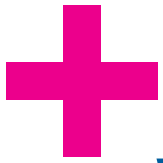


# Medical technology

Regulation  
inspiration  
for you.

---

**KNOCKS Fluid-Technik** – as a technologically leading manufacturer of filter and regulator technology, we offer you competent solutions in the area of **medical technology**.



# Welcome to KNOCKS.

---

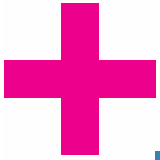
## **WE BUILD THE FUTURE.**

Do you need smart problem solutions? We handle it! As leading manufacturer for pressure control and filter technology, we have been giving impulses to the sector for almost 50 years, 25 years with experience in design solutions development for the medical technology sector. We supply expert answers to your questions for all pressure control and filtration areas - convenient know-how advantage and fair conditions included.



Pressure regulation  
and filtration...

... of **water**  
... of **medical gases**  
... with **stainless steel devices**



# Pressure regulation and filtration Water

## TECHNOLOGY THAT REGULATES IT CLEANLY.

Pressure regulators from KNOCKS have been specially developed for water applications in the medical and food sectors. They provide a clean solution for dialysis units, dental technology and osmosis water systems – anywhere top standards are placed on regulator performance. All the materials we use are physiologically harmless and biocompatible.

	MODEL	APPLICATIONS	FEATURES
PRESSURE REGULATION	 <b>DR.021-01</b> PRESSURE REGULATOR G 1/4	Water circulation systems Dental technology	Natural brass Also available in G 1/8 Drinking water compliant in accordance with UBA certification
	 <b>DR.032</b> PRESSURE REGULATOR WITH HOSE CONNECTORS Ø 6	Water circulation systems Dental technology Dialysis units	PPSU-materials Hot water resistant to 95°C Biocompatible Drinking water compatible
	 <b>DR.021-00 VC</b> PRESSURE REGULATOR G 1/8	Water circulation systems Dental technology	Chrome-plated Also available in G 1/4
	 <b>GRE.01 TW</b> PRESSURE REGULATOR G 1/4	Water circulation systems Dental technology	Drinking water compliant in accordance with UBA certification
	 <b>GCE.01 W</b> FILTER REGULATOR G 1/4	Water circulation systems Dental technology	5µm, 40µm und 100µm filtration
	 <b>DR.050 S</b> PRESSURE REGULATOR WITH HOSE CONNECTORS Ø 6	Water circulation systems Dental technology Dialysis units Osmosis water systems	PPSU-materials Hot water resistant to 95°C Biocompatible Drinking water compatible Gauge connection G 1/8






# Pressure regulation and filtration Medical gases

## TECHNOLOGY FOR LIFE

High performance and reliability: These are qualities which are (vitaly) important in the medical field and qualify KNOCKS pressure regulators for just this purpose.

Our control technologies convince with absolute functional precision in preclinical and clinical areas. Central supply plants in hospitals and treatment centres, mobile and stationary oxygen compressors as well as medical gas supply and ventilation systems only allow for little tolerances. Specifically in anaesthesia, absolute reliability is imperative. Thanks to the conscientiously tested long-term quality of our control devices, we assure the medical staff that they are doing the best for the patient.

		MODEL	APPLICATIONS	FEATURES
MEDICAL OXYGEN		<b>DR.23 O</b> PRESSURE REGULATOR G 1/2	Pressure regulation in: <ul style="list-style-type: none"><li>• Central gas supply units/systems</li><li>• Medical devices</li><li>• Oxygen compressors</li></ul>	Pursuant to DIN EN ISO 10524-4
		<b>DR.33 O</b> PRESSURE REGULATOR G 1/2	Pressure regulation in: <ul style="list-style-type: none"><li>• Central gas supply units/systems</li><li>• Medical devices</li><li>• Oxygen compressors</li></ul>	Pursuant to DIN EN ISO 10524-4
		<b>DR.55 O</b> PRESSURE REGULATOR G 1	Pressure regulation in: <ul style="list-style-type: none"><li>• Central gas supply units/systems</li><li>• Medical devices</li><li>• Oxygen compressors</li></ul>	Pursuant to DIN EN ISO 10524-4
		<b>DR.01 mO</b> PRESSURE REGULATOR G 1/4	Pressure regulation in: <ul style="list-style-type: none"><li>• Central gas supply units/systems</li><li>• Medical devices</li><li>• Oxygen compressors</li></ul>	Also available in G 1/8 and with brass spring cage Nach DIN EN ISO 10524-4
		<b>DR.01 mO</b> PRESSURE REGULATOR G 1/4	Pressure regulation in: <ul style="list-style-type: none"><li>• Central gas supply units/systems</li><li>• Medical devices</li><li>• Oxygen compressors</li></ul>	Also available in G 1/8 Pursuant to DIN EN ISO 10524-4



	MODEL	APPLICATIONS	FEATURES
MEDICAL OXYGEN	 <p><b>DR.036-00 mO</b> CARTRIDGE PRESSURE REGULATOR WITH CONNECTION BLOCK G 1/8</p>	Respiration devices Anaesthesia systems Gas control und monitor units	Biocompatible FDA compatible Compact design
	 <p><b>KDR.00 mO S</b> PRESSURE REGULATOR G 1/8</p>	Respiration devices Anaesthesia systems Gas control und monitor units	Biocompatible Compact design
	 <p><b>KDR.FL mO</b> PRESSURE REGULATOR FLANGE MOUNTING</p>	Respiration devices Anaesthesia systems Gas control und monitor units	Biocompatible High control precision Compact design
	 <p><b>DR.036 mO</b> CARTRIDGE PRESSURE REGULATOR</p>	Respiration devices Anaesthesia systems Gas control und monitor units	Biokompatibel FDA compatible Compact design
	 <p><b>DR.036 mO Plunger Action</b> CARTRIDGE PRESSURE REGULATOR WITH CONNECTION BLOCK G 1/8</p>	Respiration devices Anaesthesia systems Gas control und monitor units	Biokompatibel FDA compatible Suitable for automatic control



# Pressure regulation and filtration

## Filter and filter units

### FILTRATION - FOR PARTICULARLY HIGH DEMANDS

The filter combinations by KNOCKS are necessary to meet and ensure specific requirements and demands with regards to the purity class of the media. Different condensate draining options are available in order to comply with the stipulated specifications. Significant weight reductions are achieved using state-of-the-art materials.





	MODEL	APPLICATIONS	FEATURES
FILTER AND FILTER UNITS	 <b>F.00 MO HA4</b> FILTER G 1/8	Suitable for compressed air and medical gases	Filtration (Particle size until 5µm) Semi automatic drain Zinc diecast body Purity classes (ISO 8573-1)
	 <b>GF.01 HA4</b> FILTER G 1/4	Suitable for compressed air and medical gases	Filtration (Particle size until 5µm) Semi automatic drain Grivory body Purity classes (ISO 8573-1)
	 <b>KFIL-014 m0</b> FILTER G 1/4	Suitable for compressed air and medical gases	Filtration (Particle size until 5µm) Semi automatic drain Grivory body Purity classes (ISO 8573-1)
	 <b>KFIL-014 AMC</b> FILTER G 1/4	Suitable for compressed air and medical gases	Filtration (Particle size until 5µm) Automatic drain Grivory body Purity classes (ISO 8573-1)
	 <b>KSUS-014</b> PRESSURE FILTER UNIT FINE FILTER/ACTIVATED CARBON FILTER G 1/4	Suitable for compressed air and medical gases	Filtration (Fine filter: Particle size until 0,01µm; Activated carbon filter) Grivory body Purity classes (ISO 8573-1)
	 <b>KSUS-014</b> <b>WARTUNGSEINHEIT 4-tlg.</b> MULTISTAGE FILTER UNIT G 1/4	Suitable for compressed air and medical gases	Filtration (Filter 8µm - Prefilter 0,3µm - Finefilter 0,01µm - Activated carbon filter) Purity classes (ISO 8573-1)



## Pressure regulation and filtration Stainless steel devices

### STAINLESS STEEL - PARTICULARLY RESISTANT

KNOCKS' stainless steel products are particularly suitable for use in aggressive atmospheres. They are more resistant than standard devices and allows thus the pressure control of special and aggressive media.

		MODEL	APPLICATIONS	FEATURES
STAINLESS STEEL		<b>XR.M5</b> PRESSURE REGULATOR M5	Suitable for compressed air and medical gases and aggressive media	Also available in M7 and Oil and grease free
		<b>XXFD.01</b> FILTER REGULATOR G 1/4	Suitable for compressed air and medical gases and aggressive media	Oil and grease free FPM seals Manual drain
		<b>XXDR.01</b> PRESSURE REGULATOR G 1/4	Suitable for compressed air and medical gases and aggressive media	Oil and grease free FPM seals
		<b>XXFDR.07</b> PRECISION REGULATOR G 1/4	Suitable for compressed air and medical gases and aggressive media	High exhaust capacity FPM seals Controlled air consumption

Always  
one idea  
ahead.





# Precision pressure regulators

**KNOCKS**

Production expertise

[www.knocks.de](http://www.knocks.de)

**As precise as necessary – anytime, anywhere.**

Our precision pressure regulators offer high performance and absolute flexibility with guaranteed reliability over a range of series with their respective material concepts. They enable various flow volumes, pressure ranges and temperature stability levels.

# Manufacturing competence for precision pressure regulators

## INDUSTRY OVERVIEW

- Industrial pneumatics
- Industrial automation
- Automotive industry
- Textile industry
- Paper industry
- Food and beverage industry
- Railway technology
- Measurement technology
- Medical technology
- Woodworking machines
- Handling

# When you need just the right one

## WHAT DISTINGUISHES A PRECISION PRESSURE REGULATOR?

Precision pressure regulators are used for highly accurate pressure control of the outlet pressure, regardless of the preliminary pressure and the flow rate.

Good regulation and flow characteristics (horizontal progression) are achieved by maintaining a very large ratio of diaphragms to the valve face. In this system, the diaphragm control is often assumed by an integrated pilot step (pilot regulator).

### EXAMPLES OF USE

- Hoists/balancers
- 3-D measuring machines
- Pantographs
- Pneumatic presses
- Cylinder control units
- Roller control units
- Web tension controllers
- Paper web tensioners
- Static applications
- Pressurisation of liquids
- Contact pressure
- Adhesive dispensing
- Laser cutting
- Blast air /purge air

# The decision-maker

## for our precision pressure regulators

Type	Pilot regulator construction	Internal air consumption (P2 = 6 bar)	Regulator accuracy	Nominal width valve face	Nominal width return flow	Material	Features
<b>Futura series</b>							
KPRG-114	no	2,6 l/min	50 mbar (good)	8 mm	2 mm	Grivory GV 6H	Modularly interlocking in the Futura series
KPRG-138				12 mm			
KPRG-238	no	2,6 l/min	50 mbar (good)	8 mm	2 mm	Grivory GV 6H	
KPRG-212				12 mm			
KPRB-114	no	2,6 l/min	50 mbar (good)	8 mm	2 mm	Grivory GV 6H	Modularly interlocking in the Futura series
KPRB-138				12 mm			
KPRB-238	no	2,6 l/min	50 mbar (good)	8 mm	2 mm	Grivory GV 6H	
KPRB-212				12 mm			
<b>Multi-Fix series</b>							
RP.11	no	2,6 l/min	50 mbar (good)	8 mm	2 mm	Zinc die-cast	Modularly interlocking in the Multi-Fix series
RP.33				16 mm			
RPB.11	no	2,6 l/min	50 mbar (good)	8 mm	2 mm	Zinc die-cast	Modularly interlocking in the Multi-Fix series
<b>Standard series</b>							
FDR.02	yes	2,0 l/min	5 mbar (very high)	4 mm	3,5 mm	Zinc die-cast	Moderate return flow/ very versatile
FDR.07 B8 S	yes	0,5 l/min	5 mbar (very high)	8 mm	3 mm	Aluminium	High return flow
FDR.03-31	yes	1,7 l/min	5 mbar (very high)	13 mm	5,5 mm	Zinc die-cast	High return flow/ standard up to -35 °C
FDR.03-32							
FDR.03-33							
FDRI.03-31	yes	1,7 l/min	5 mbar (very high)	13 mm	5,5 mm	Zinc die-cast	High return flow/ standard up to -35 °C
FDRI.03-32							
FDRI.03-33							
FDRZ.03-31 B1	yes	1,7 l/min	5 mbar (very high)	13 mm	5,5 mm	Zinc die-cast	High return flow/ standard up to -35 °C
FDRZ.03-33 B1							
FDRZ.03-32 B6	yes	1,7 l/min	5 mbar (very high)	13 mm	5,5 mm	Zinc die-cast	High return flow/ standard up to -35 °C
FDRZ.03-33 B6							
FDRZ.03-33 B6 HZ							
FDR.04	yes	2,5 l/min	1 mbar (extremely high)	3 mm	6 mm oder 8 mm	Grivory GV 6H	High return flow/ lightweight differential pressure control gauge
FDR.11	no	1,0 l/min	15 mbar (high)	3,5 mm	1,5 mm	Zinc die-cast	Low return flow/ robust design without pilot step/no brass
DRF.31	no	0 l/min	15 mbar (high)	4 mm	1,5 mm	Zinc die-cast	Low return flow/ robust design without pilot step/no internal air
DRF.32							
DRF.33							
FDP.11	no	1,0 l/min	15 mbar (high)	3,5 mm	1,5 mm	Zinc die-cast	Low return flow/ robust design without pilot step/no brass

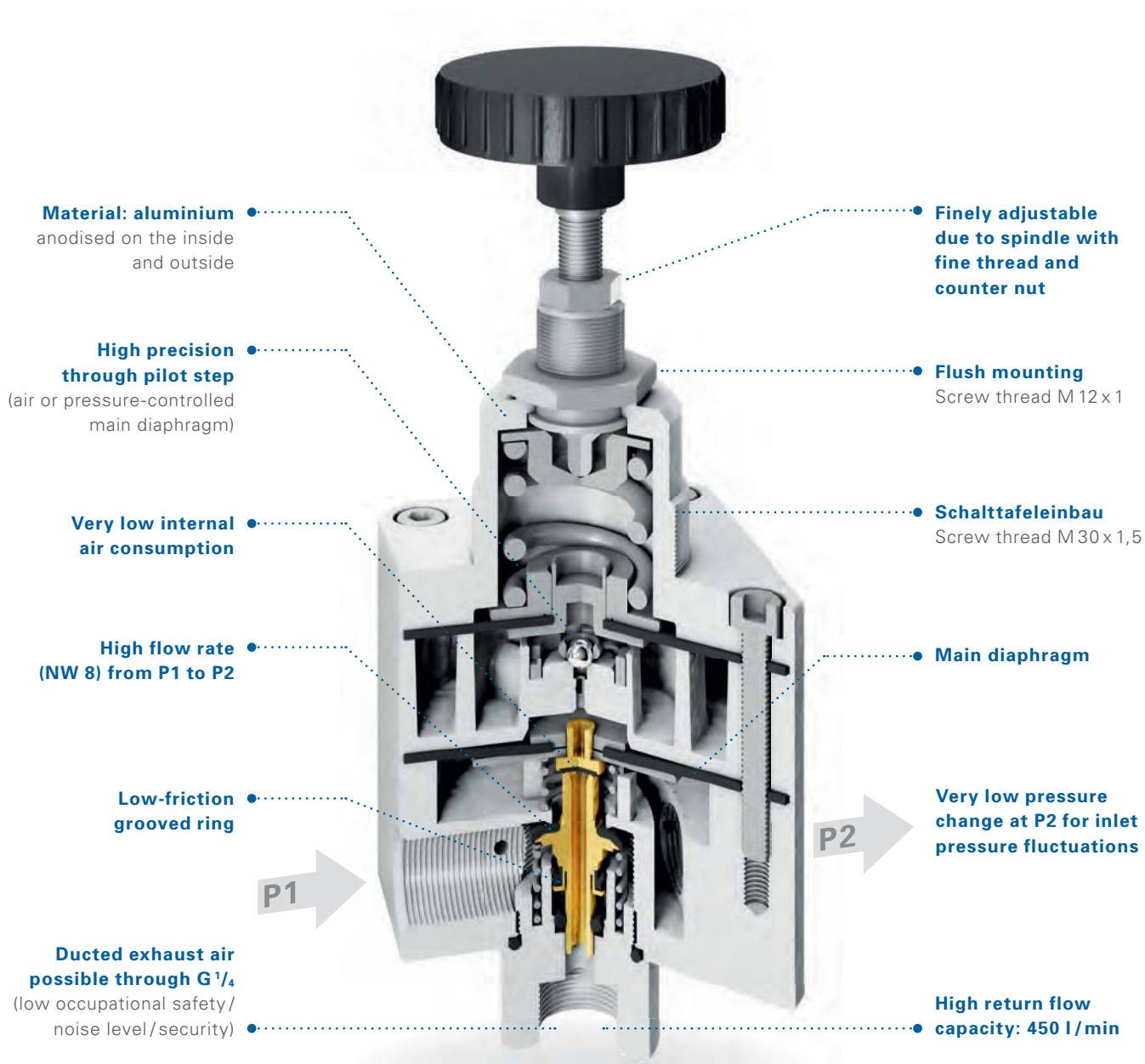
„Cost-effective all-rounder“

„Multi-talent“

„Specialist“

# FDR.07

## The precise all-rounder



**HIGH-LIGHT**

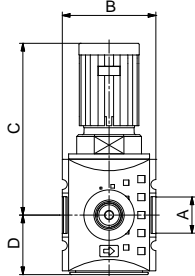
### TECHNOLOGY HIGHLIGHT OF THE KNOCKS FDR.07:

This precision pressure regulator achieves good control characteristics through a pilot pre-control that activates the main regulator. This means:

**Fluctuations in the inlet pressure have virtually no effect on the outlet pressure.**

## Futura series

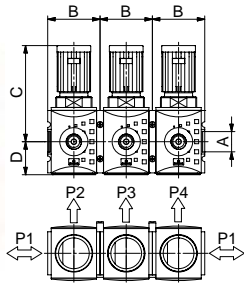
### PRECISION PRESSURE REGULATOR



„Cost-effective all-rounder“

Overall size	Type	Port size A	Dimensions in mm				Flow rate <sup>1)</sup> l/min	Secondary venting <sup>3)</sup> l/min	Internal air l/min
			B	C	D				
1	KPRG-114	G 1/4	52	96	33	2200	120	2,6	
1	KPRG-138	G 3/8	52	96	33	2700	120	2,6	
2	KPRG-238	G 3/8	63	110	40	4300	120	2,6	
2	KPRG-212	G 1/2	63	110	40	5000	120	2,6	

### PRECISION PRESSURE REGULATOR WITH CONTINUOUS PRESSURE SUPPLY

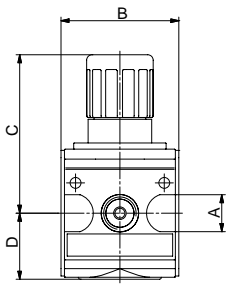


„Cost-effective all-rounder“

1	KPRB-114	G 1/4	52	96	33	2200	120	2,6
1	KPRB-138	G 3/8	52	96	33	2700	120	2,6
2	KPRB-238	G 3/8	63	110	40	4300	120	2,6
2	KPRB-212	G 1/2	63	110	40	5000	120	2,6

## Multi-Fix series

### PRECISION PRESSURE REGULATOR



„Cost-effective all-rounder“

Overall size	Type	Port size A	Dimensions in mm				Flow rate <sup>2)</sup> l/min	Secondary venting <sup>3)</sup> l/min	Internal air l/min
			B	C	D				
1	RP.11	G 1/4	48	64	27	1500	120	2,6	
3	RP.33	G 1/2	69	99	35	6000	120	2,6	

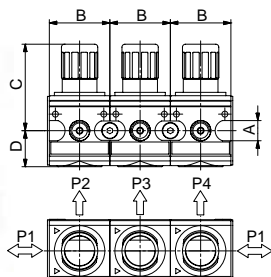
<sup>1)</sup> P1 = 10 bar; P2 = 6 bar; ΔP2 = -1 bar.

<sup>2)</sup> P1 = 8 bar; P2 = 6 bar; ΔP2 = -1 bar.

<sup>3)</sup> P1 = 6 bar; ΔP2 = +1 bar (pressure increase).

## Multi-Fix series

### PRECISION PRESSURE REGULATOR WITH CONTINUOUS PRESSURE SUPPLY

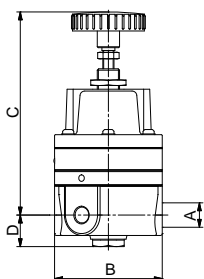


„Cost-effective all-rounder“

Overall size	Type	Port size				Dimensions in mm				Flow rate <sup>2)</sup> l/min	Secondary venting <sup>3)</sup> l/min	Internal air l/min
		A	B	C	D	B	C	D				
1	RPB.11	G 1/4	48	64	27				1500	120	2,6	

## Standard series

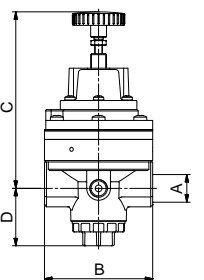
### PRECISION PRESSURE REGULATOR



„Multi-talent“

Overall size	Type	Port size				Dimensions in mm				Flow rate <sup>1)</sup> l/min	Secondary venting <sup>3)</sup> l/min	Internal air l/min
		A	B	C	D	B	C	D				
1	FDR.02	G 1/4	58	109	17				900	200	2	

### PRECISION PRESSURE REGULATOR PNEUMATICALLY REMOTE-CONTROLLED WITH MECHANICAL FINE TUNING



„Multi-talent“

3	FDRZ.03-32 B6	G 3/8	82	134	44	6000	80	1,7
3	FDRZ.03-33 B6	G 1/2	82	134	44	6500	80	1,7
3	FDRZ.03-33 B6 HZ	G 1/2	82	134	44	6500	80	1,7

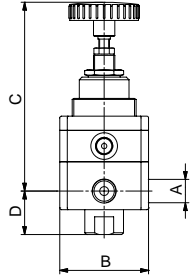
<sup>1)</sup> P1 = 10 bar; P2 = 6 bar; ΔP2 = -1 bar.

<sup>2)</sup> P1 = 8 bar; P2 = 6 bar; ΔP2 = -1 bar.

<sup>3)</sup> P1 = 6 bar; ΔP2 = +1 bar (pressure increase).

## Standard series

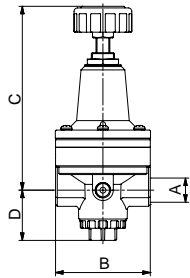
### PRECISION PRESSURE REGULATOR



„Multi-talent“

Overall size	Type	Port size				Dimensions in mm				Flow rate <sup>2)</sup> l/min	Secondary venting <sup>3)</sup> l/min	Internal air l/min
		A	B	C	D							
1	FDR.07 B8 S	G 1/4	50	106	25	1250	450	0,5				

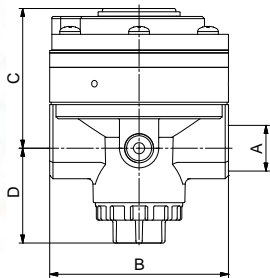
### PRECISION PRESSURE REGULATOR



„Multi-talent“

3	FDR.03-31	G 1/4	82	160	44	3500	800	1,7
3	FDR.03-32	G 3/8	82	160	44	6000	800	1,7
3	FDR.03-33	G 1/2	82	160	44	6500	800	1,7

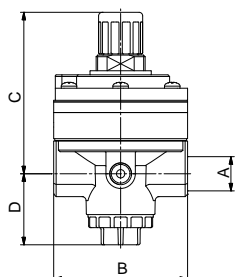
### PRECISION PRESSURE REGULATOR PNEUMATICALLY REMOTE-CONTROLLED



„Multi-talent“

3	FDRI.03-31	G 1/4	82	64	44	2700	800	1,7
3	FDRI.03-32	G 3/8	82	64	44	4300	800	1,7
3	FDRI.03-33	G 1/2	82	64	44	6500	800	1,7

### PRECISION PRESSURE REGULATOR PNEUMATICALLY REMOTE-CONTROLLED WITH MECHANICAL FINE TUNING



„Multi-talent“

3	FDRZ.03-31 B1	G 1/4	82	99	44	2700	800	1,7
3	FDRZ.03-33 B1	G 1/2	82	99	44	6500	800	1,7

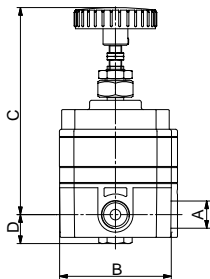
<sup>2)</sup> P1 = 8 bar; P2 = 6 bar; ΔP2 = -1 bar.

<sup>3)</sup> P1 = 6 bar; ΔP2 = +1 bar (pressure increase).



## Standard series

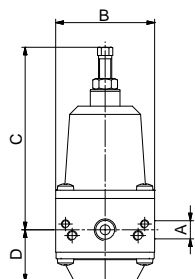
### PRECISION PRESSURE REGULATOR



„Specialist“

Overall size	Type	Port size				Dimensions in mm				Flow rate <sup>2)</sup> l/min	Secondary venting <sup>3)</sup> l/min	Internal air l/min
		A	B	C	D							
1	FDR.04	G 1/4	57	100	14	400	700	2,5				

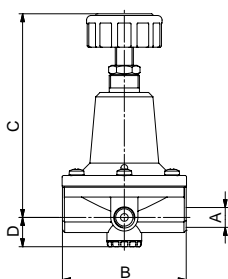
### PRECISION PRESSURE REGULATOR



„Specialist“

1	FDR.11	G 1/4	60	114	32	750	100	1,0		
---	--------	-------	----	-----	----	-----	-----	-----	--	--

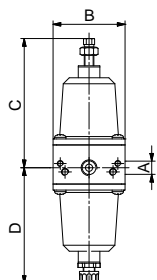
### FINE PRESSURE REGULATOR



„Specialist“

3	DRF.31	G 1/4	82	135	19	550	100	0		
3	DRF.32	G 3/8	82	129	33	550	100	0		
3	DRF.33	G 1/2	82	129	33	550	100	0		

### PRECISION FILTER REGULATOR



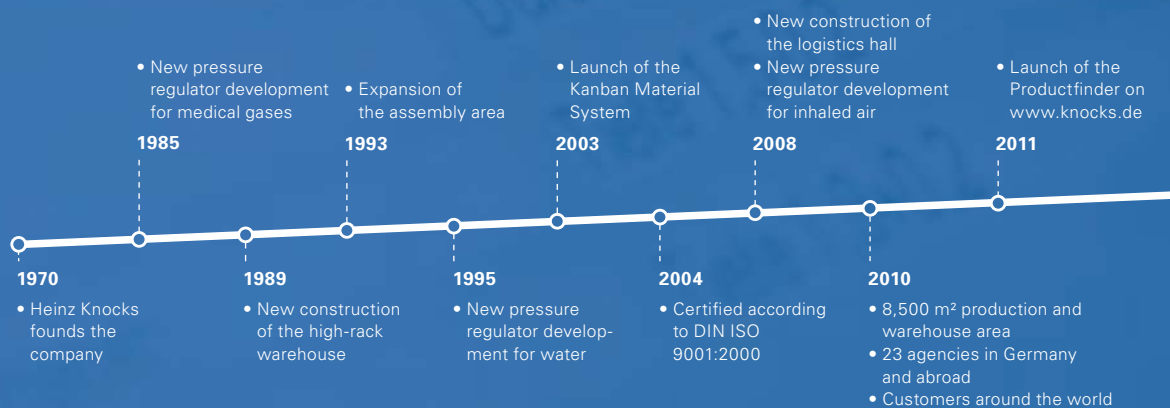
„Specialist“

1	FDP.11	G 1/4	60	108	96	750	100	1,0		
---	--------	-------	----	-----	----	-----	-----	-----	--	--

<sup>2)</sup> P1 = 8 bar; P2 = 6 bar; ΔP2 = -1 bar.

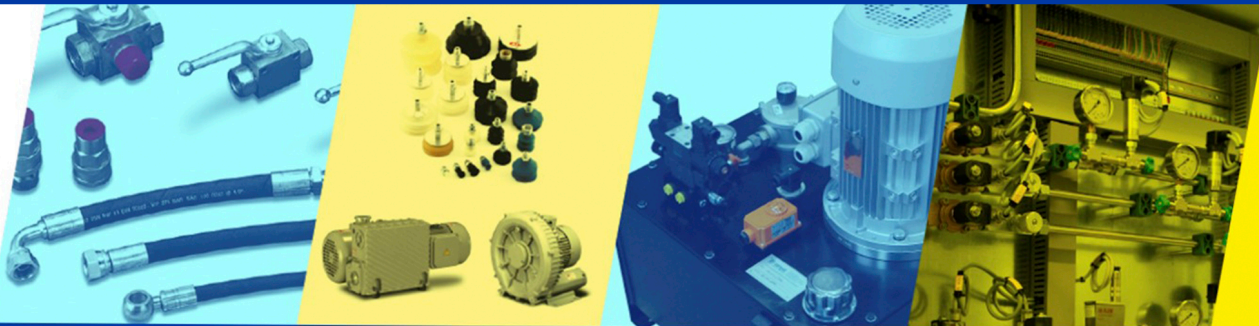
<sup>3)</sup> P1 = 6 bar; ΔP2 = +1 bar (pressure increase).

**A SUCCESS STORY SINCE 1970 – COMMITTED TO TRADITION.**



Company history KNOCKS Fluid-Technik GmbH

**DIPRAX**  
PROYECTOS Y  
AUTOMATISMOS  
GENERALES



+34 943 377 740



info@diprax.es



www.diprax.es

Polígono Industrial Belartza, Gurutzegi Kalea, 17 Pab. D4 y D5, 20018 San Sebastián-Donostia