Zertifiziertes QM-System
DIN EN ISO 9001
Zertifikat-Nr. 01017

All Stainless Steel Bourdon Tube Pressure Gauges

acc. to EN 837-1 · for Industrial Applications

KOBOLD

measuring
•
monitoring
•
analysing

- Housing:
  63 mm, 100 mm, 160 mm
  (option: 80 mm)
- Connection:
  G ¼ (63 mm housing)
  G ½ (100, 160 mm housing)
- Material
  Housing: stainless steel
  Connection: stainless steel
- Measuring ranges:
  -1...0 bar to 0...+1000 bar
- Accuracy class:
  1.0 (1.6 with 63 mm)
- Option: damping liquid, contacts, transmitter

KOBOLD companies worldwide:
ALGERIA, ARGENTINA, AUSTRALIA, AUSTRIA, BELGIUM, BULGARIA, CANADA, CHILE, CHINA, COLOMBIA, CZECH REPUBLIC, DOM. REPUBLIC, EGYPT, FRANCE, GERMANY, INDIA, INDONESIA, IRAN, ITALY, MALAYSIA, MEXICO, MOROCCO, NETHERLANDS, PERU, POLAND, SINGAPORE, SLOVAKIA, SPAIN, SWITZERLAND, THAILAND, TUNESIA, UNITED KINGDOM, USA, VENEZUELA, VIETNAM

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Model:
MAN-R

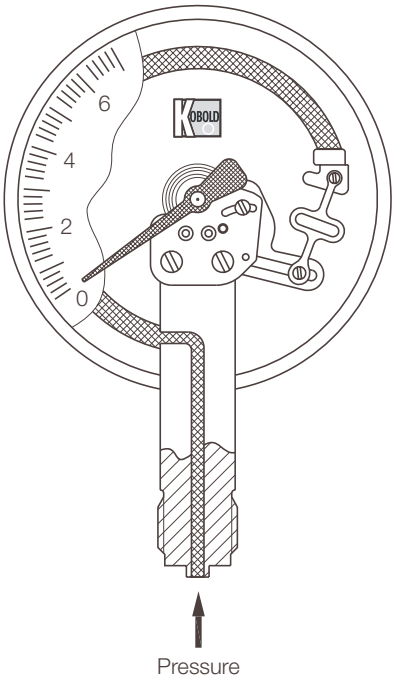
Application

The KOBOLD all stainless steel pressure gauges for increased safety according to EN 837-1 are ideal for the hard conditions and the resulting high demands on pressure measurement in production facilities in chemical industry and other comparable area's. Resistance to aggressive medias and environments is achieved by using high-graded materials such as stainless steel both for the movement and the housing. They can be used for liquid or gaseous substances which do not crystallize and are not highly viscous. The extensive range of options allows the user to adapt the instruments to his own special requirements. All the pressure gauges comply with general international guidelines and take account of standard as well as application-specific requirements. They are the result of the over 70 years experience we have in building pressure gauges.

Measuring principle

Mechanical pressure measurement uses the principle of an elastic measuring element, which generates a precisely defined, reproducible deflection when subjected to pressure. The motion works convert this into a rotary motion of the pointer. The pressure at the measuring element can be read on the scale of the dial.

Unifilar drawing



Housing

The following housing diameters are available:
63 mm, 100 mm and 160 mm. The housing material is stainless steel. The gauges can also be produced in nominal size 80 mm.

Installation

The gauges are most often installed straight into the customer's screw necks. Depending on the required installation the instruments can be supplied with a panel clamp, triangular front ring or mounting flange.

Connection

The gauges with 63 and 80 mm housing diameter are supplied with a G¼ connecting thread as standard, gauges with housing diameter of 100 mm and above with G ½ connecting thread. The connection is made of stainless steel. Diaphragm seals can be mounted for viscous, crystallising, aggressive materials or higher temperature materials to prevent the material being measured from penetrating into the measuring system. Other connection types are available on request.

Measuring ranges

The measuring ranges are graduated according to DIN recommendations and lie between -1...0 bar and 0...1000 bar. Other scales with measuring ranges up to 4000 bar or scales in PSI, Pa or with your company logo are available on request.

Damping liquid

Pressure gauges with liquid filling are used in locations with high alternating dynamic loads, strong vibrations and pulses. The filling ensures easy readability through steady pointer movement even when subjected to extreme loading and heavy vibration. The lubricating effect of the glycerine also keeps wear to a minimum. Glycerine is always used as a matter of principle. In gauges with a contact or an electrical measuring transducer, liquid paraffin is used as a non-conductive alternative. Silicon fillings of various viscosities are also optionally available.

Contacts

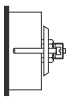
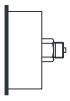
For monitoring the system pressure, gauges with 100 mm or 160 mm diameter can be fitted with up to four limit contacts. Slow action, magnetic spring, inductive and pneumatic contacts are also available (see Chapter »Contact Fittings for Pressure Gauges«).

Fields of application

- Chemical and petrochemical industries
- Plastics and paper-manufacturing industries
- Food and beverage industries
- Machine and plant construction

Technical Data

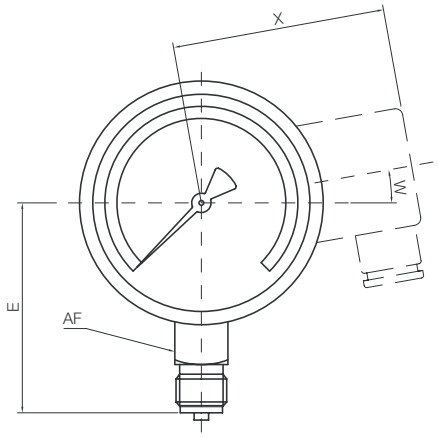
*Special filling: Paraffin oil for higher temperatures (on request) or with contacts.

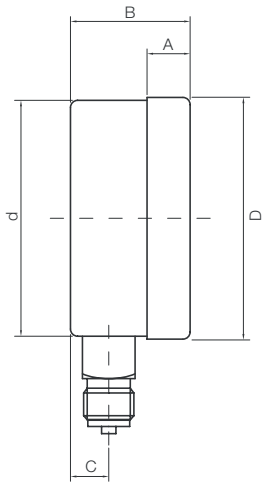
Connection/Housing		NG 63		NG 100		NG 160	
		Model					
Bottom connection 	MAN-...	...RD25...	...RD75...	...RF26...	...RF76...	...RG26...	...RG76...
Back connection 	MAN-...	...RD27... centrical	...RD77... centrical	...RF28... eccentrical	...RF78... eccentrical	...RG28... eccentrical	...RG78... eccentrical
Triangular front ring Back connection 	MAN-...	...RD27B... centrical	...RD77B... centrical	...RF28K... eccentrical	-	...RG28K... eccentrical	...RG78K... eccentrical
Front flange Back connection 	MAN-...	...RD27V... centrical	...RD77V... centrical	...RF28V... eccentrical	...RF78V... eccentrical	...RG28V... eccentrical	...RG78V... eccentrical
Accuracy class		1.6		1.0			
Housing material		stainless steel 1.4301					
Filling		-	glycerine*	-	glycerine*	-	glycerine*
Bezel		stainless steel 1.4301					
Pointer		aluminium, black anodized					
Movement		stainless steel					
Throttle D=		from 60 bar D = 0.5 mm					
Glass		Polyamide		safety glass			
Measuring element		stainless steel 1.4571					
Protection		IP 65	IP 67	IP 65	IP 67	IP 65	IP 67
Overrange protection		none		short time 1.3times (from 1000 bar 1.1x) of F.S.			
Weight		see table					
Ambient temperature		-20...+80 °C	-20...+60 °C	-20...+80 °C	-20...+60 °C	-20...+80 °C	-20...+60 °C
Connection		stainless steel 1.4571					
Thread connection		G ¼ male		G ½ male			
Max. medium temperature		80 °C					
Contacts		none		max. 4 cont.	max. 3 cont.	max. 4 cont.	max. 3 cont.
Indicating range		**Code of indicating range**					
-0.6...0 bar		-	-	..AC	..AC	..AC	..AC
-1...0 bar		..AD	..AD	..AD	..AD	..AD	..AD
-1...+0.6 bar		..A0	..A0	..A0	..A0	..A0	..A0
-1...+1.5 bar		..A1	..A1	..A1	..A1	..A1	..A1
-1...+3 bar		..A2	..A2	..A2	..A2	..A2	..A2
-1...+5 bar		..A3	..A3	..A3	..A3	..A3	..A3
-1...+9 bar		..A4	..A4	..A4	..A4	..A4	..A4
-1...+15 bar		..A5	..A5	..A5	..A5	..A5	..A5
0...0.6 bar		-	-	-	..B1	..B1	..B1
0...1 bar		..B2	..B2	..B2	..B2	..B2	..B2
0...1.6 bar		..B3	..B3	..B3	..B3	..B3	..B3
0...2.5 bar		..B4	..B4	..B4	..B4	..B4	..B4
0...4 bar		..B5	..B5	..B5	..B5	..B5	..B5
0...6 bar		..B6	..B6	..B6	..B6	..B6	..B6
0...10 bar		..B7	..B7	..B7	..B7	..B7	..B7
0...16 bar		..B8	..B8	..B8	..B8	..B8	..B8
0...25 bar		..B9	..B9	..B9	..B9	..B9	..B9
0...40 bar		..B0	..B0	..B0	..B0	..B0	..B0
0...60 bar		..C1	..C1	..C1	..C1	..C1	..C1
0...100 bar		..C2	..C2	..C2	..C2	..C2	..C2
0...160 bar		..C3	..C3	..C3	..C3	..C3	..C3
0...250 bar		..C4	..C4	..C4	..C4	..C4	..C4
0...400 bar		..C5	..C5	..C5	..C5	..C5	..C5
0...600 bar		..C6	..C6	..C6	..C6	..C6	..C6
0...1000 bar		..D7	..D7	..D7	..D7	..D7	..D7

Dimensions

Bottom connection

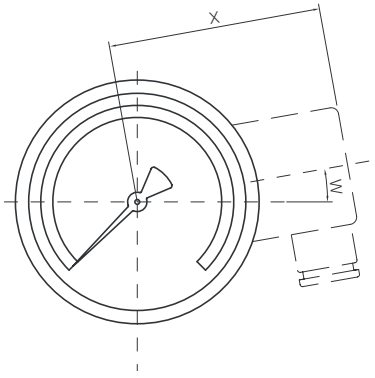
Code	NG	A	B without contact	B 1 or 2 contacts	B 3 contacts	B 4 contacts	C	d	D	E	H	AF	W	X
MAN-RD 25/75	63 mm	6	31	-	-	-	13	62	68	55	-	14	-	-
MAN-RF 26/76	100 mm	17	48	82	97	110	15	100	101	86,5	54	22	0	88
MAN-RG 26/76	160 mm	21	50	101	120	120	15	159	162	117	56	22	0	118

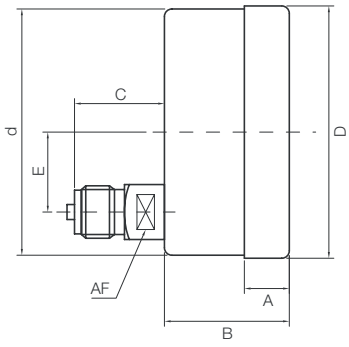




Back connection

Code	NG	A	B without contact	B 1 or 2 contacts	B 3 contacts	B 4 contacts	C	d	D	E	H	AF	W	X
MAN-RD 27/77	63 mm	6	28	-	-	-	26	63	68	0	-	14	-	-
MAN-RF 28/78	100 mm	17	49	82	97	110	34	100	101	32.5	54	22	0	88
MAN-RG 28/78	160 mm	21	50	101	120	120	34	159	162	32.5	56	22	0	118

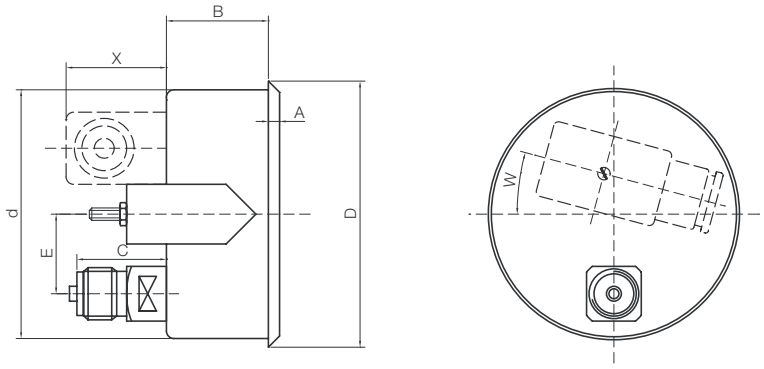




Dimensions

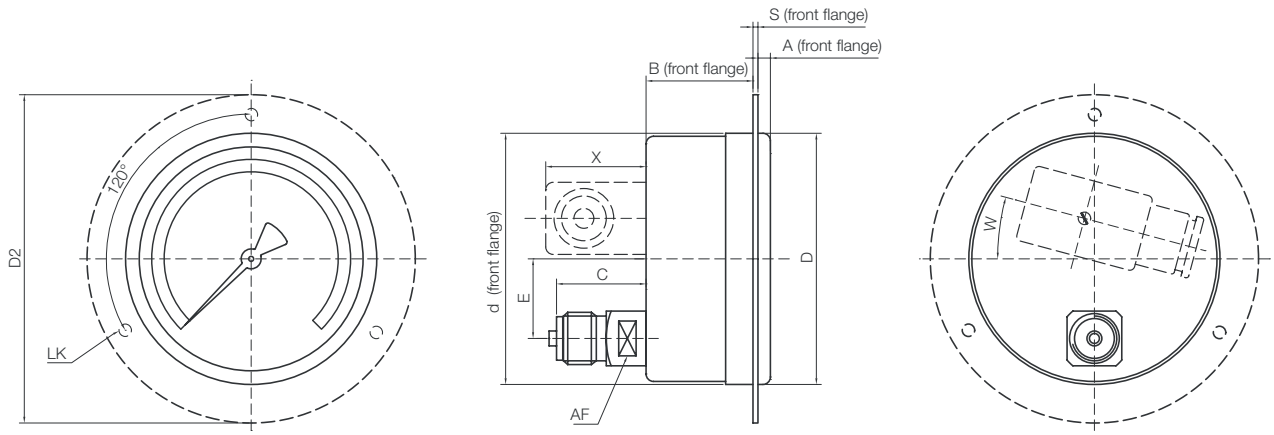
Triangular front ring with clamp

Code	NG	A	B without contact	B 1 or 2 contacts	B 3 contacts	B 4 contacts	C	d	D	E	AF	W	X
MAN-RD 27/77 B	63 mm	6	26	-	-	-	26	62	68	0	14	-	-
MAN-RF 28 K	100 mm	5	41	88	105	105	34	101	107	32.5	22	0	42
MAN-RG 28K/78K	160 mm	5	44	98	145	145	30	160	162	50	22	0	42



Front ring

Code	NG	A	B without contact	B 1 or 2 contacts	B 3 contacts	B 4 contacts	C	d	D	D2	E	LK	S	AF	W	X
MAN-RD 27/77 V	63 mm	7	24	-	-	-	26	62	68	85	0	75	1	14	-	-
MAN-RF 28/78 V	100 mm	6	43	86	92	105	34	104	101	132	32.5	116	2	22	15	42
MAN-RG 28/78 V	160 mm	6	43	95	110	110	34	164	161	196	32.5	178	2	22	15	42



Weights

NG 63		without contact	up to 2 contacts	3 contacts	4 contacts
Code	Housing-filling	Weight [kg]	Weight [kg]	Weight [kg]	Weight [kg]
MAN-RD25	without	0.13	-	-	-
MAN-RD27	without	0.12	-	-	-
MAN-RD27B	without	0.15	-	-	-
MAN-RD27V	without	0.15	-	-	-
MAN-RD75	with	0.21	-	-	-
MAN-RD77	with	0.20	-	-	-
MAN-RD77B	with	0.23	-	-	-
MAN-RD77V	with	0.23	-	-	-

NG 100					
MAN-RF26	without	0.5	0.7	0.75	0.8
MAN-RF28	without	0.5	0.7	0.75	0.8
MAN-RF28K	without	0.6	0.8	0.85	0.9
MAN-RF28V	without	0.6	0.8	0.85	0.9
MAN-RF76	with	0.8	1.2	1.3	-
MAN-RF78	with	0.8	1.2	1.3	-
MAN-RF78V	with	0.9	1.3	1.4	-

NG 160					
MAN-RG26	without	1.0	1.3	1.4	1.5
MAN-RG28	without	1.0	1.3	1.4	1.5
MAN-RG28K	without	1.1	1.4	1.5	1.6
MAN-RG28V	without	1.1	1.5	1.6	1.7
MAN-RG76	with	1.8	2.8	3.2	-
MAN-RG78	with	1.8	2.8	3.2	-
MAN-RG78K	with	1.9	2.9	3.3	-
MAN-RG78V	with	1.9	2.9	3.3	-

M-Zert
Zertifiziertes QM-System
DIN EN ISO 9001
Zertifikat-Nr. 01017

All Stainless Steel Bourdon Tube Pressure Gauges

S3 acc. to EN 837-1 · for Exceptional Safety

KOBOLD

measuring
•
monitoring
•
analysing

MAN-RF 26 S

MAN-RD 25 S

- Housing:
  63 mm, 100 mm, 160 mm
- Connection:
  G ¼ (63 mm housing)
  G ½ (100 mm, 160 mm housing)
- Material
  Housing: stainless steel
  Connection: stainless steel
- Measuring ranges:
  -1...0 bar to 0...+1000 bar
  (1600 bar with NG 160)
- Accuracy class:
  1.0 (1.6 with 63 mm)
- Options:
  damping liquid,
  contacts, transmitter

KOBOLD companies worldwide:
ALGERIA, ARGENTINA, AUSTRALIA, AUSTRIA, BELGIUM, BULGARIA, CANADA, CHILE, CHINA, COLOMBIA, CZECH REPUBLIC, DOM. REPUBLIC, EGYPT, FRANCE, GERMANY, INDIA, INDONESIA, IRAN, ITALY, MALAYSIA, MEXICO, MOROCCO, NETHERLANDS, PERU, POLAND, SINGAPORE, SLOVAKIA, SPAIN, SWITZERLAND, THAILAND, TUNESIA, UNITED KINGDOM, USA, VENEZUELA, VIETNAM

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Model:
MAN-R...S

Application

The KOBOLD all stainless steel pressure gauges for increased safety according to EN 837-1 are ideal for the hard conditions and the resulting high demands on pressure measurement in production facilities in chemical industry and other comparable area's. Resistance to aggressive medias and environments is achieved by using high-graded materials such as stainless steel both for the movement and the housing. They can be used for liquid or gaseous substances which do not crystallize and are not highly viscous.

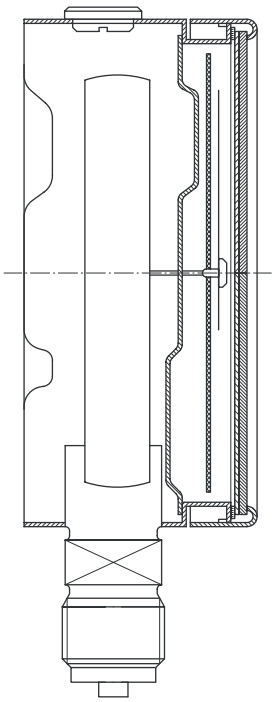
Safety execution

The safety execution of the pressure gauges comprises a burstproof solid front between dial and Bourdon tube, a laminated safety glass as well as a blow-out back (according EN 837-1).
Glycerine-filled pressure gauges are equipped with a pressure compensating diaphragm. This diaphragm prevents a pressure increase inside the housing due to volume expansion caused by the temperature increase of the glycerine filling-fluid, thus avoiding a wrong reading.

Measuring principle

Mechanical pressure measurement uses the principle of an elastic measuring element, which generates a precisely defined, reproducible deflection when subjected to pressure. The motion works convert this into a rotary motion of the pointer. The pressure at the measuring element can be read on the scale of the dial.

Unifilar drawing



Housing

The following housing diameters are available:
63 mm, 100 mm and 160 mm. The housing material is stainless steel.

Installation

The gauges are most often installed straight into the customer's screw necks. Optional gauge models with an installation border on the front are also available for installation into or onto control panels.

Connection

The gauges with 63 housing diameter are supplied with a G¼ connecting thread as standard, gauges with housing diameter of 100 mm and above with G½ connecting thread. The connection is made of stainless steel. Diaphragm seals can be mounted for viscous, crystallising, aggressive materials or higher temperature materials to prevent the material being measured from penetrating into the measuring system. Other connection types are available on request.

Measuring ranges

The measuring ranges are graduated according to DIN recommendations and lie between -1...0 bar and 0...1600 bar. Other scales with measuring ranges in PSI, Pa or with your company logo are available on request.

Damping liquid

Pressure gauges with liquid filling are used in locations with high alternating dynamic loads, strong vibrations and pulses. The filling ensures easy readability through steady pointer movement even when subjected to extreme loading and heavy vibration. The lubricating effect of the glycerine also keeps wear to a minimum. Glycerine is always used as a matter of principle. In gauges with a contact or an electrical measuring transducer, liquid paraffin is used as a non-conductive alternative. Silicon fillings of various viscosities are also optionally available.

Contacts

For monitoring the system pressure, gauges with 100 mm or 160 mm diameter can be fitted with up to four limit contacts. Slow action, magnetic spring, inductive and pneumatic contacts are also available (see Chapter »Contact Fittings for Pressure Gauges«).

Fields of application

- Chemical and petrochemical industries
- Plastics and paper-manufacturing industries
- Food and beverage industries
- Machine and plant construction

Technical Data

*Special filling: Paraffin oil for higher temperatures (on request) or with contacts.

Connection/Housing			**NG 63**		**NG 100**		**NG 160**	
			Model					
Bottom connection		**MAN-...**	**...RD25S...**	**...RD75S...**	**...RF26S...**	**...RF76S...**	**...RG26S...**	**...RG76S...**
Accuracy class			1.6		1.0			
Housing version			stainless steel 1.4301					
Filling			-	glycerine*	-	glycerine*	-	glycerine*
Bezel			stainless steel 1.4301					
Pointer			aluminium, black anodized					
Movement			stainless steel 1.4571					
Throttle D=			from 60 bar D = 0.5 mm					
Window			polyamide		safety glass			
Measuring element			stainless steel 1.4571					
Protection			IP 65	IP 67	IP 65	IP 67	IP 65	IP 67
Overrange protection			none		short time 1.3 times (from 1000 bar 1.1 x) of F.S.			
Weight (without contacts)			0.2 kg	0.28 kg	1.0 kg	1.2 kg	1.6 kg	3.6 kg
Ambient temperature			-20...+80 °C	-20...+60 °C	-20...+80 °C	-20...+60 °C	-20...+80 °C	-20...+60 °C
Connection			stainless steel 1.4571					
Thread connection			G ¼ male		G ½ male			
Max. temperature of medium			80 °C					
Contacts (inductive only)			no		max. 3 contacts (inductive only)			
Indicating range			**Code of indicating range**					
-0.6...0 bar			-	-	..AC	..AC	..AC	..AC
-1...0 bar			..AD	..AD	..AD	..AD	..AD	..AD
-1...+0.6 bar			..A0	..A0	..A0	..A0	..A0	..A0
-1...+1.5 bar			..A1	..A1	..A1	..A1	..A1	..A1
-1...+3 bar			..A2	..A2	..A2	..A2	..A2	..A2
-1...+5 bar			..A3	..A3	..A3	..A3	..A3	..A3
-1...+9 bar			..A4	..A4	..A4	..A4	..A4	..A4
-1...+15 bar			..A5	..A5	..A5	..A5	..A5	..A5
0...0.6 bar			-	-	-	..B1	..B1	..B1
0...1 bar			..B2	..B2	..B2	..B2	..B2	..B2
0...1.6 bar			..B3	..B3	..B3	..B3	..B3	..B3
0...2.5 bar			..B4	..B4	..B4	..B4	..B4	..B4
0...4 bar			..B5	..B5	..B5	..B5	..B5	..B5
0...6 bar			..B6	..B6	..B6	..B6	..B6	..B6
0...10 bar			..B7	..B7	..B7	..B7	..B7	..B7
0...16 bar			..B8	..B8	..B8	..B8	..B8	..B8
0...25 bar			..B9	..B9	..B9	..B9	..B9	..B9
0...40 bar			..B0	..B0	..B0	..B0	..B0	..B0
0...60 bar			..C1	..C1	..C1	..C1	..C1	..C1
0...100 bar			..C2	..C2	..C2	..C2	..C2	..C2
0...160 bar			..C3	..C3	..C3	..C3	..C3	..C3
0...250 bar			..C4	..C4	..C4	..C4	..C4	..C4
0...400 bar			..C5	..C5	..C5	..C5	..C5	..C5
0...600 bar			..C6	..C6	..C6	..C6	..C6	..C6
0...1000 bar			..D7	..D7	..D7	..D7	..D7	..D7
0...1600 bar			-	-	-	-	..D8	..D8

Dimensions

Code	NG	A	B without contact	B 1 or 2 contacts	B 3 contacts	C	d	D	E	AF	W	X
MAN-RD 25/75 S	63 mm	6	31	-	-	13	62	68	55	14	-	-
MAN-RF 26/76 S	100 mm	17	48	82	97	15	100	101	86.5	22	0	88
MAN-RG 26/76 S	160 mm	21	50	101	120	15	159	162	117	22	0	118