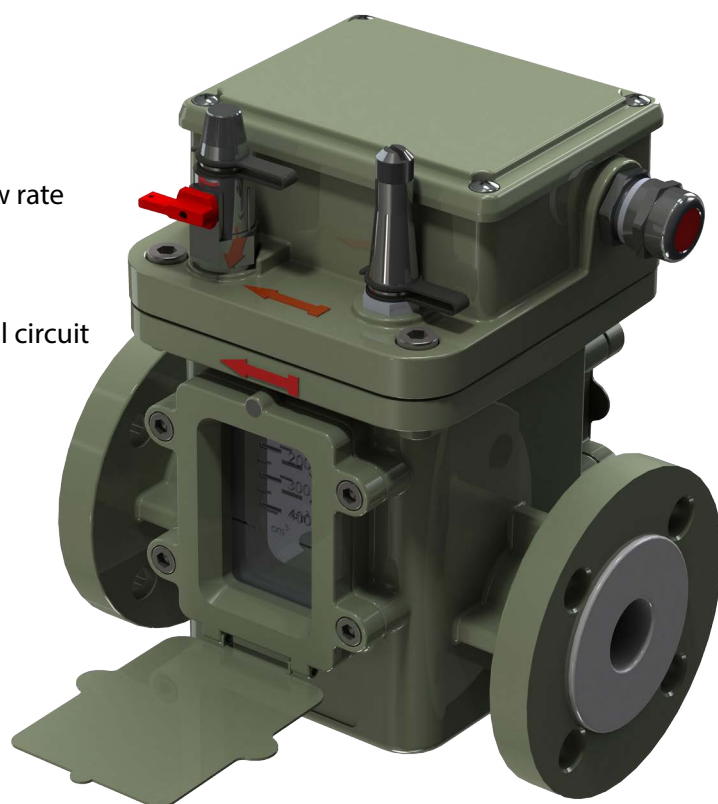


Buchholzrelay MBR for Liquid Immersed Transformers and Reactors With Conservator in Accordance with EN 50216-2

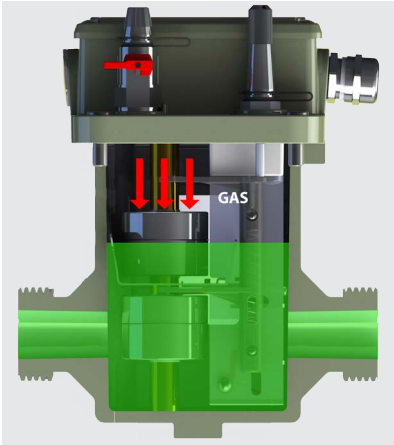
Functions and Types

- Reed switch for gas formation and oil level detection
- Flap valve to protect in case of excessively high oil flow rate
- Separated oil and switching systems
- Changing reed switches without intervention in the oil circuit
- C5-M coating (SOLIDLINE)
- 1/8" sampling valve
- Control and test button for switches



Buchholzrelay MBR in Accordance with EN 50216-2

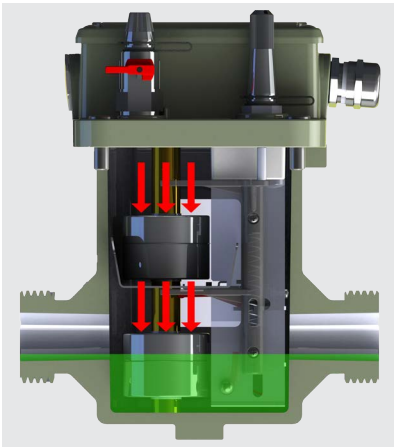
Functions at a Glance



In case of gas accumulation

Reason: gas arises in the insulating liquid

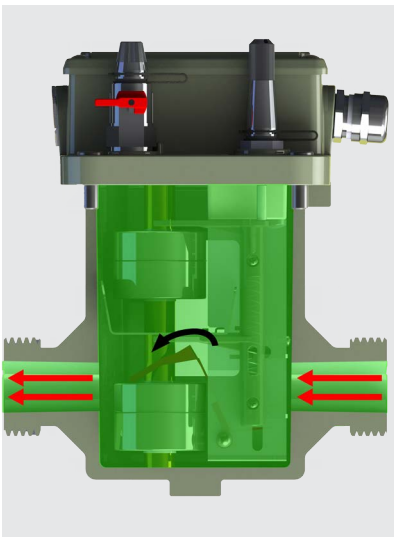
- Gas moves upwards, accumulates in the Buchholz relay and displaces the insulating liquid
- Upper float moves downwards and activate the upper reed switch
- Lower float remains unaffected due to growing gas accumulation moves upwards to expansion tank



In case of loss of insulating liquid

Reason: insulating liquid loss on the basis of leakage

- If the insulating liquid level drops the upper float moves downwards and switches the upper reed contact
- If further insulating liquid level decrease occurs the pipeline and expansion tank getting empty
- Lower float moves downwards and actuate lower reed switch which can be used to deactivate the transformer immediately
- Visual oil level indication from two sides



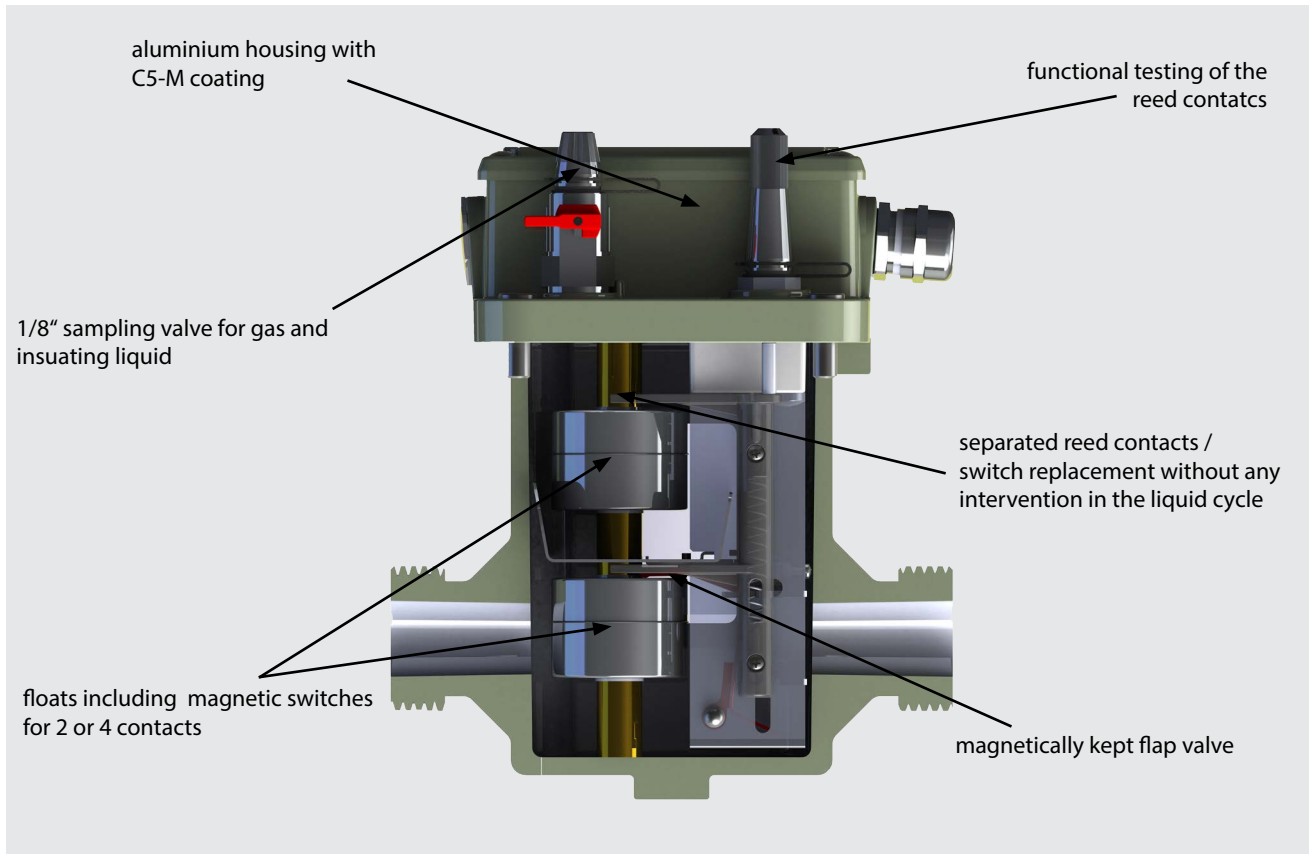
In case of increased insulating liquid flow

Reason: because of a sudden occurring event a pressure wave moves in the direction of the expansion tank

- A sudden pressure waves occurs
- Insulating liquid moves faster than response value of the flap valve
- Flap valve moves with the direction of the pressure wave and actuate the lower reed contact which can deactivate the transformer
- After decrease of the pressure wave the flap valve moves back to its original position

Buchholzrelay MBR in Accordance With EN 50216-2

Benefits at a Glance



Connection Scheme

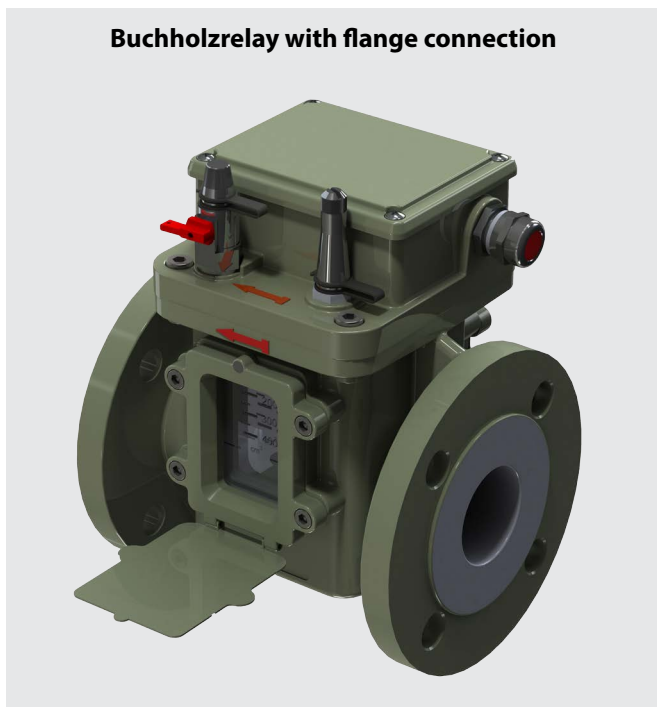
When ordering please select (ordering options on page 13)

<p>Yellow 13 14</p> <p>Lower (Trip)</p>	<p>(Lower Float)</p> <p>Single Contact 1 Normally Open Contact</p>	<p>01</p>	<p>Yellow 11 12</p> <p>Upper (Alarm)</p>	<p>Red 21 22</p> <p>Lower (Trip)</p>	<p>2 Normally Open Contact</p> <p>1 Normally Open Contact Lower 1 Normally Open Contact Upper</p>	<p>03</p>
<p>Yellow 14 11 12</p> <p>Lower (Trip)</p>	<p>(Lower float)</p> <p>Single Contact 1 Changeover Contact</p>	<p>02</p>	<p>Yellow 14 11 12</p> <p>Upper (Alarm)</p>	<p>Red 24 21 22</p> <p>Lower (Trip)</p>	<p>2 Changeover Open Contact</p> <p>1 Changeover Open Contact Lower 1 Changeover Open Contact Upper</p>	<p>04</p>

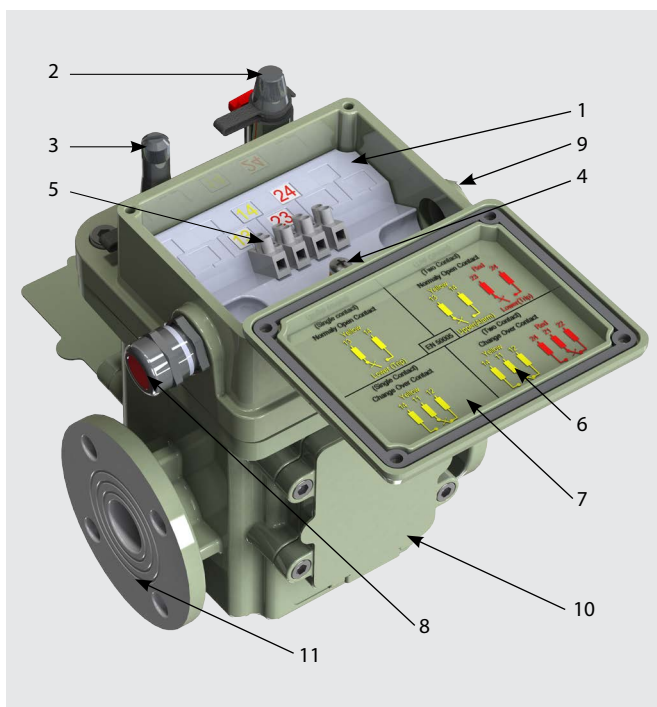
Buchholzrelay MBR in Accordance With EN 50216-2

Description, Flange- and Threaded Connection

Buchholzrelay with flange connection



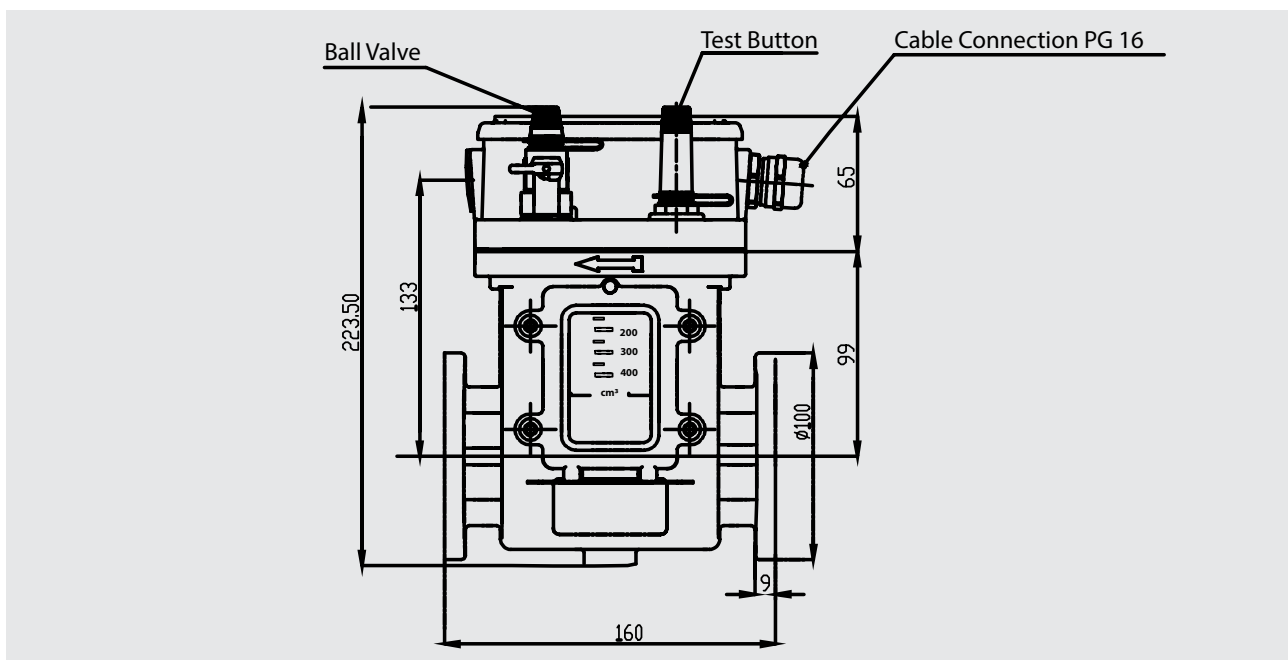
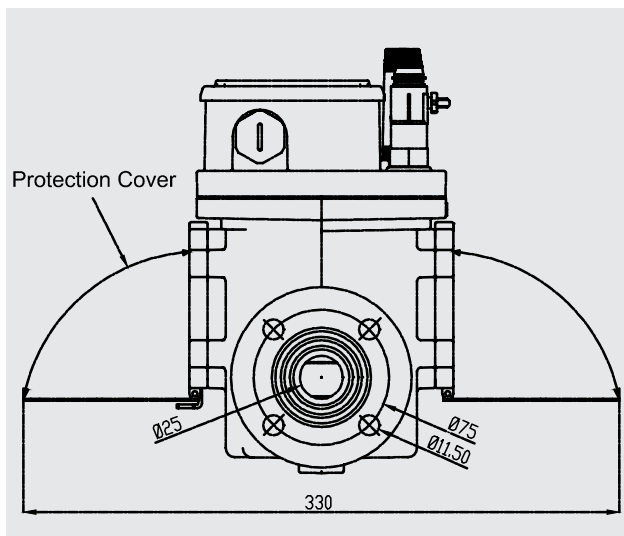
Buchholzrelay with threaded connection



Item	Descriptions
1	Terminal box
2	1/8" sampling valve
3	Control & test button
4	Earthing screw
5	Luster terminal
6	Connection scheme
7	Terminal box cover
8	Cable gland
9	Blind plug
10	Protection cover
11	Flange or Threaded Connection

Buchholzrelais MBR MF-16

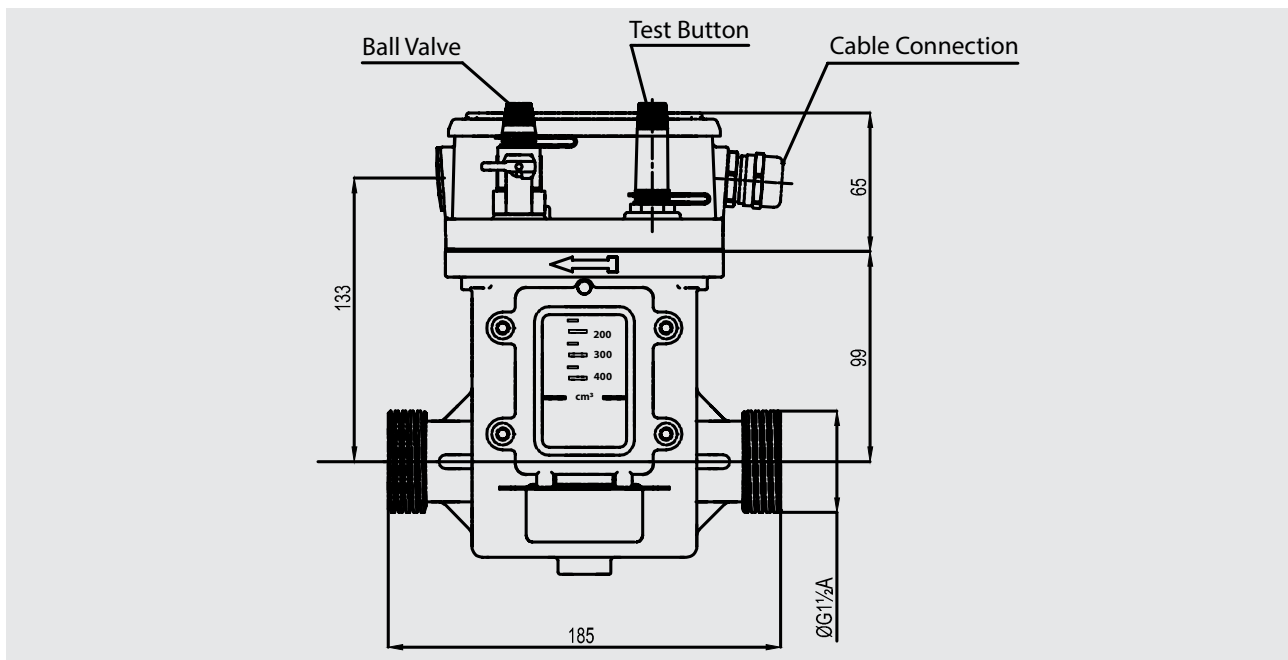
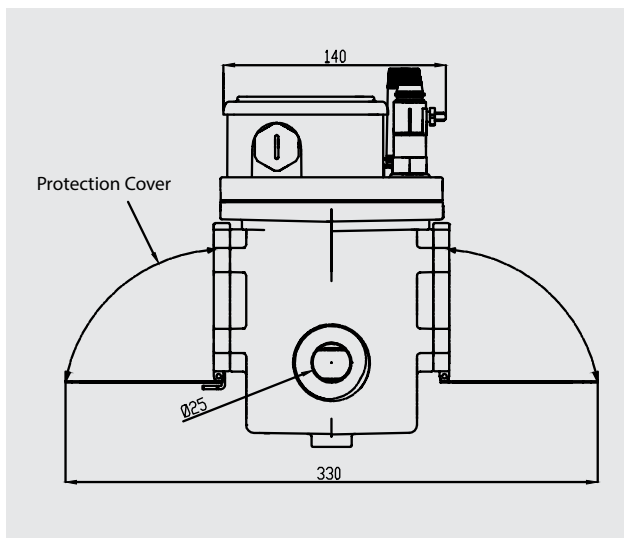
Drawings and Dimensions



Type	Typ Number	Connection	Nominal Pipesize D1 (mm)	Weight (kg)	Transformer Power Class
MBR 1	MF-16 (DR 25)	Flange Connection	25	4,2	≤ 5000 KVA

Buchholzrelais MBR 25-V50

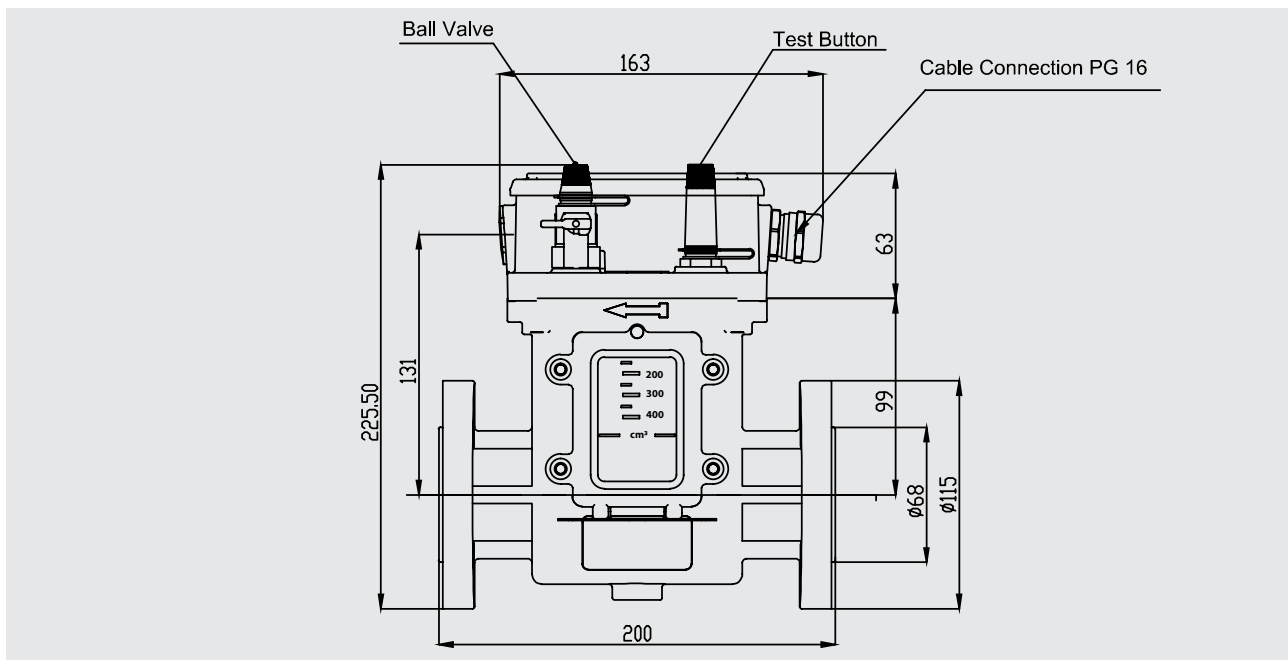
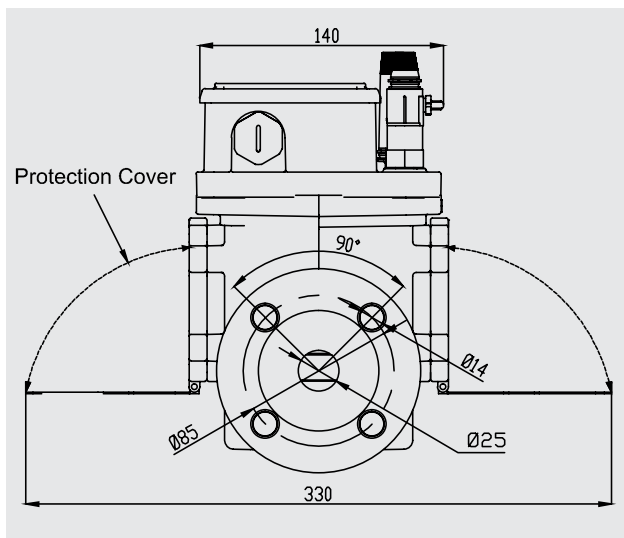
Drawings and Dimensions



Type	Typ Number	Connection	Nominal Pipesize D1 (mm)	Weight (kg)	Transformer Power Class
MBR 2	MBR25-V50 (DR 25)	Threaded Connection G 1½" A	25	3,870	≤ 5000 KVA

Buchholzrelais MBR 25-F50

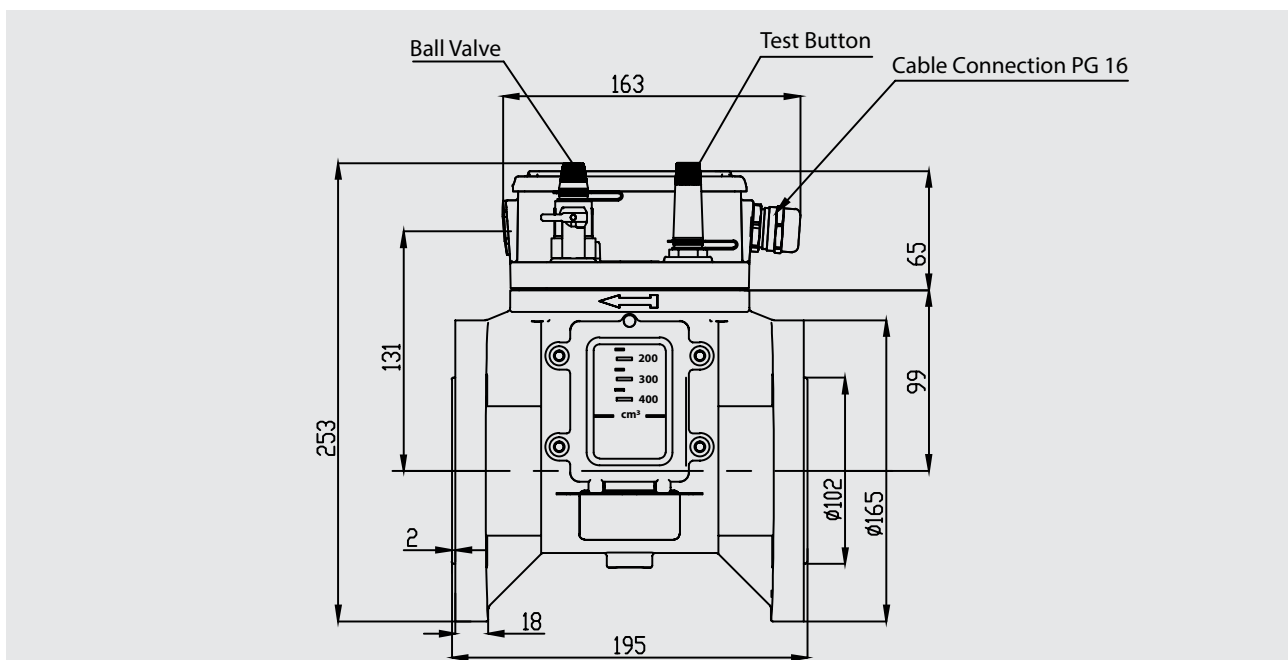
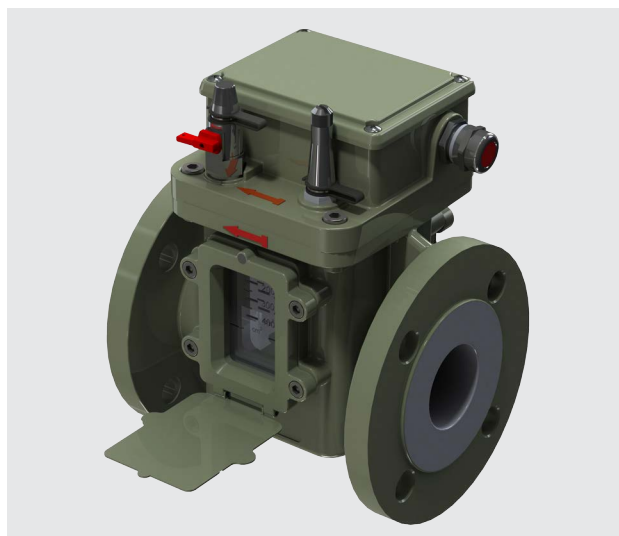
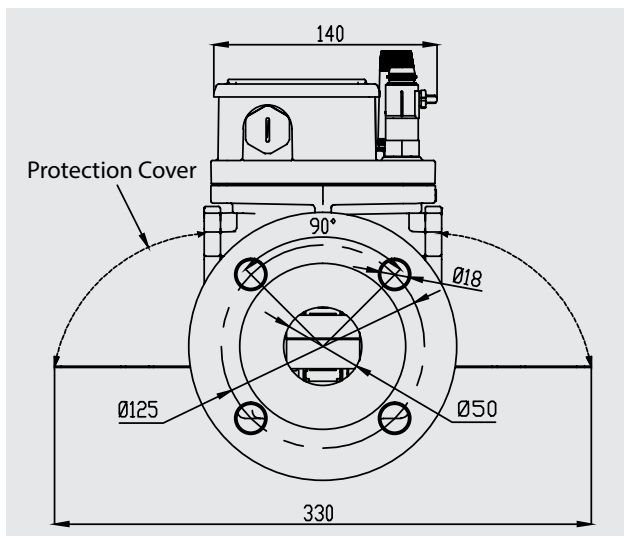
Drawings and Dimensions



Type	Typ Number	Connection	Nominal Pipesize D1 (mm)	Weight (kg)	Transformer Power Class
MBR 3	MBR25-F50 (DR 25)	Flange Connection	25	4,730	≤ 5000 KVA

Buchholzrelais MBR 50-F100

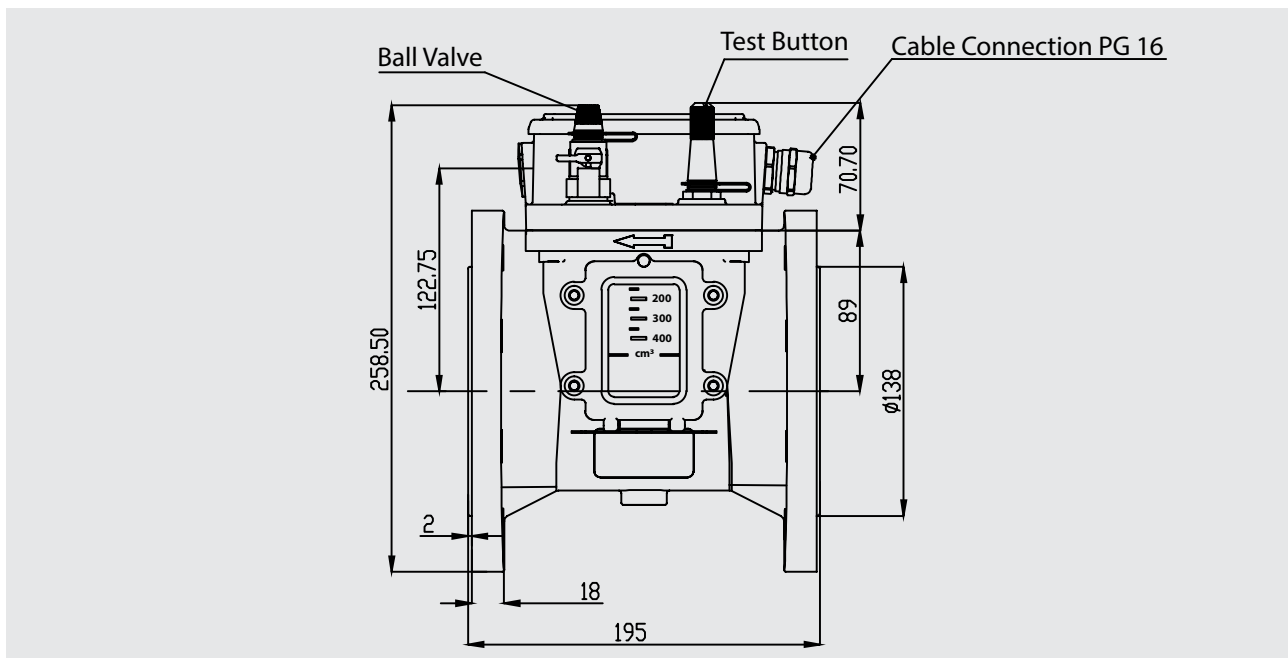
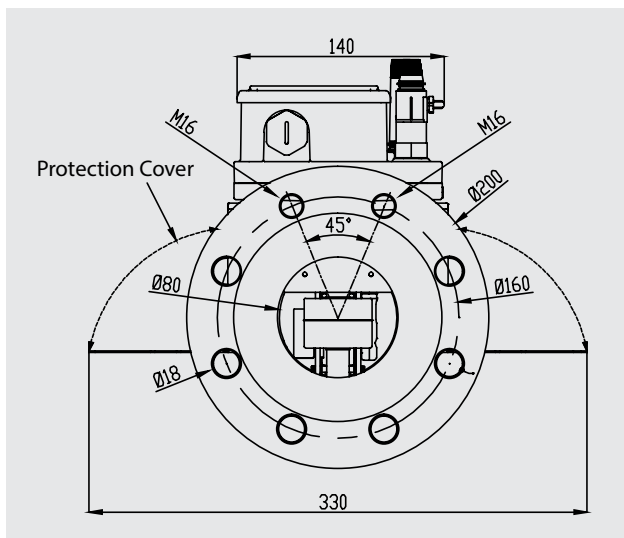
Drawings and Dimensions



Type	Typ Number	Connection	Nominal Pipesize D1 (mm)	Weight (kg)	Transformer Power Class
MBR 4	MBR50-F100 (DR 50)	Flange Connection	50	5,780	≤ 5000 KVA ≥ 10000 KVA

Buchholzrelais MBR 80-F100

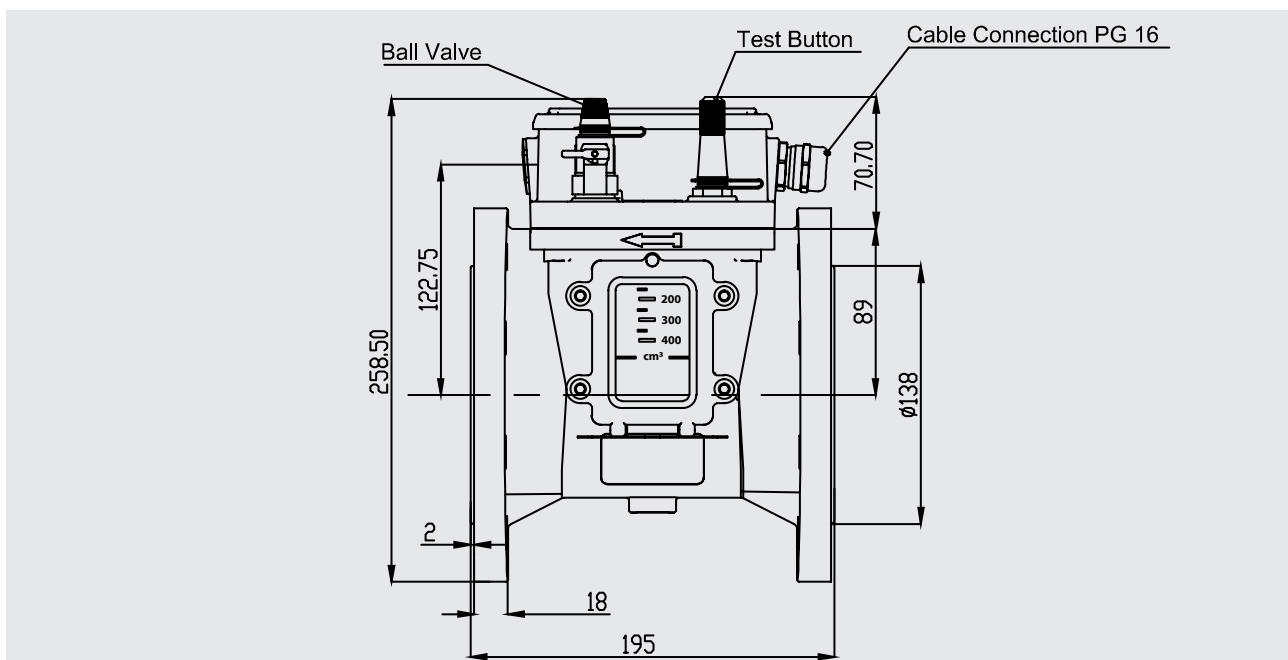
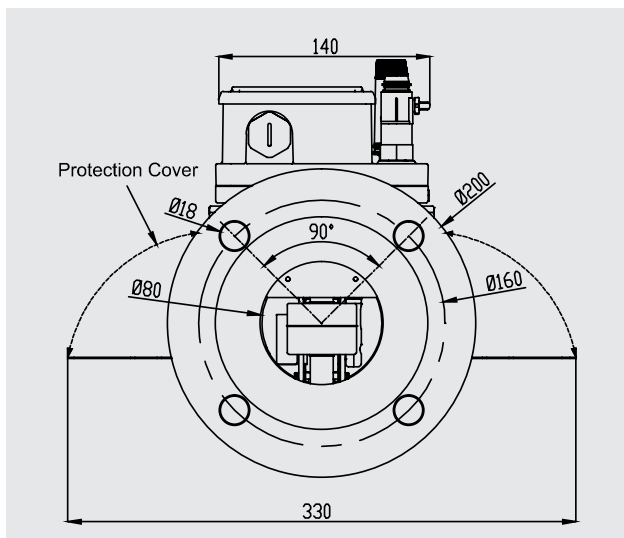
Drawings and Dimensions



Type	Typ Number	Connection	Nominal Pipesize D1 (mm)	Weight (kg)	Transformer Power Class
MBR 5	MBR80-F100 (DR 80)	Flange Connection	80	6,145	≤ 10000 KVA

Buchholzrelais MBR 80-F100 With 4-Hole Flange

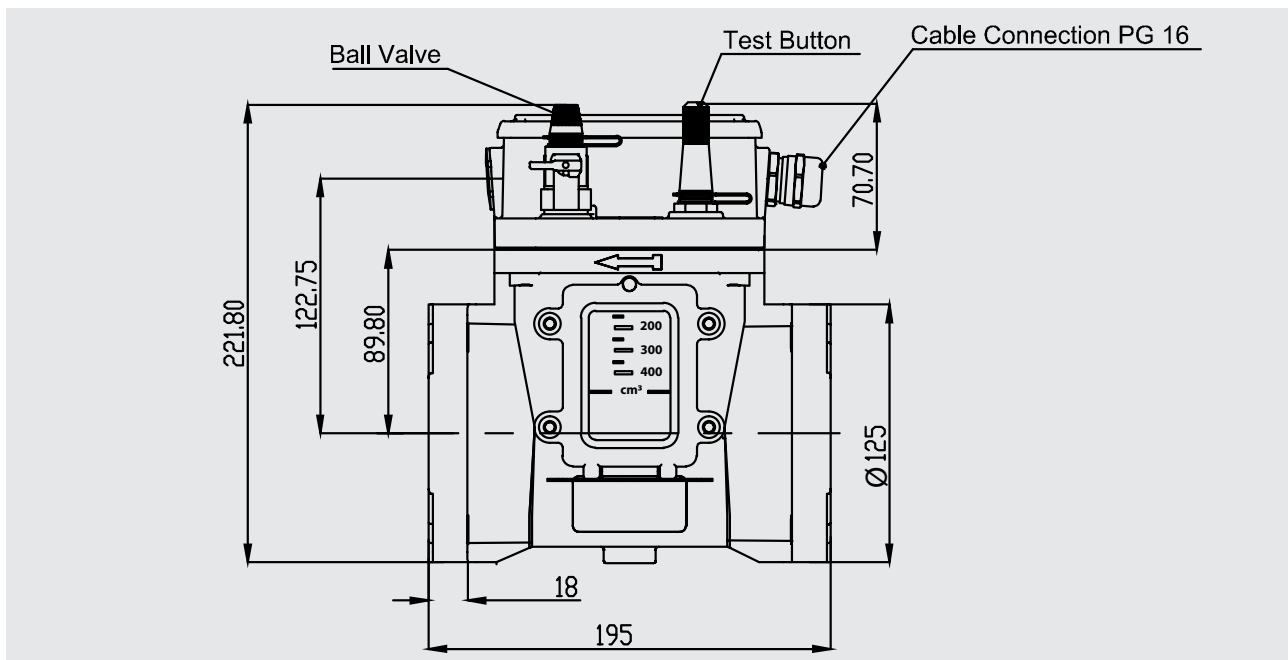
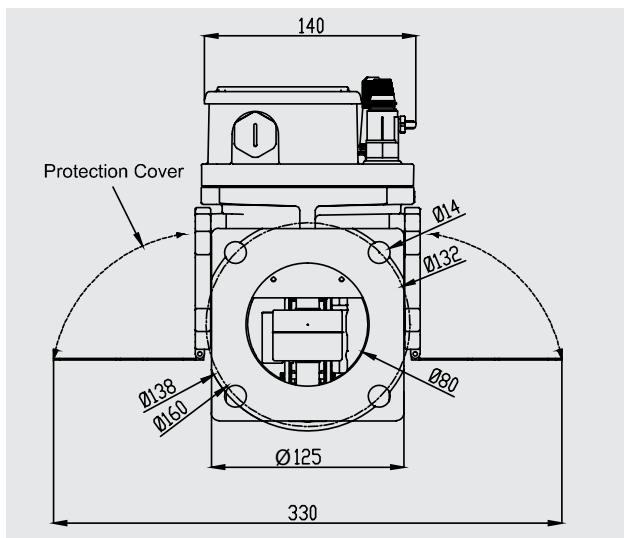
Drawings and Dimensions



Type	Typ Number	Connection	Nominal Pipesize D1 (mm)	Weight (kg)	Transformer Power Class
MBR 6	MBR80-F100 4-Hole (DR 80)	Flange Connection	80	6,500	≤ 10000 KVA

Buchholzrelais MBR 80-F100 With Square Flange

Drawings and Dimensions



Type	Typ Number	Connection	Nominal Pipesize D1 (mm)	Weight (kg)	Transformer Power Class
MBR 7	MBR80-F100 quadratischer Flansch (DR 80)	Flange Connection	80	5,820	≤ 10000 KVA

Buchholzrelay MBR in Accordance With EN 50216-2

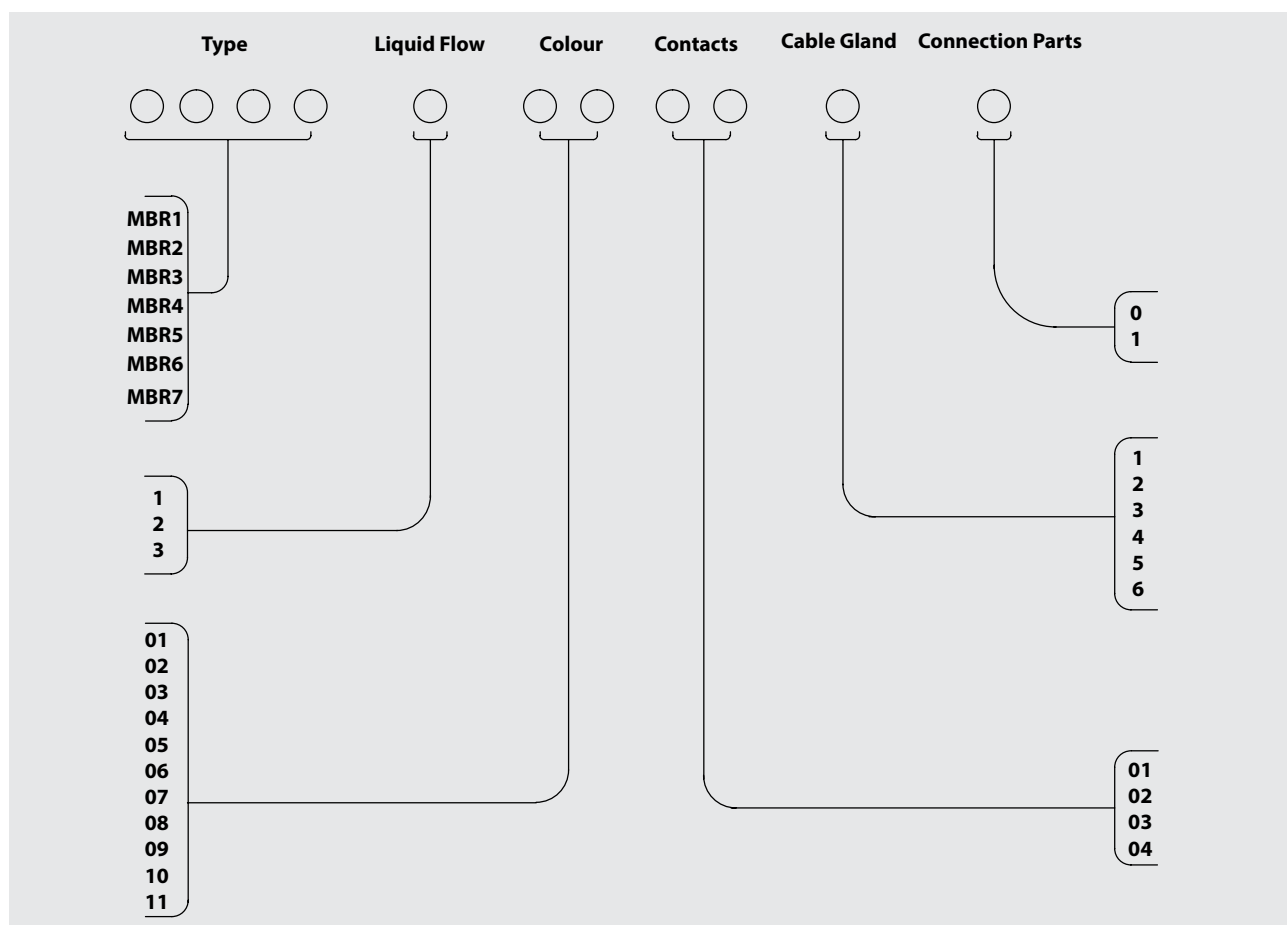
Parameters and Technical Data

Parameters	Technical Data	
	Materials	
Housing and upper part	Aluminium / C5-M powder coating / coated RAL 7032..... (more upon request)	
Sight class	UV stabilized Lexan	
	Reed switch	
Switching element	Magnetic contact tube / reed contacts	
number of switching contacts	Upon request up to 2 contacts per function (NO and/or CW)	
Insensitivity to magnetic fields	25 mT	
Nominal voltage	AC 230 V AC/DC	12 V to 250 V
Nominal current	AC 230 V AC/DC	12 V to 250 V
Contact voltage capacity	AC 1000 V	
Insulation voltage capacity	AC 2000 V	
	Key figures	
Nominal pipe diameter	DN25 / DN50 / DN80 / G 1½" threaded connection	
Ambient temperature	- 40 °C / + 55 °C (DIN EN 60068-2-78 : 2002-09)	
Temperature of the insulating liquid	- 40 °C / + 115 °C (more upon request)	
Degree of protection	IP 54	
Response of switching system in case of gas accumulation	200 cm ³ - 300 cm ³	
Viscosity of the insulating liquid	< 1100 mm ² /s	
Cable gland	M 20 x 1,5 (more upon request)	
Nominal installation position	0° - 5° (Ascending towards expansion tank)	
	Tests	
Shock resistance	Vibration: 2 - 200 Hz, 2 g Shock: 25 g, 11 ms	
Pressure resistance	0.25 MPa	
Vacuum resistance	< 2.5 kPa	
	Flap valve	
Flap valve	magnetically held	
Response time	< 0,1s	
Insulating liquid flow for response pressure	for DN25, DN50 and DN80 on customer request 0,65 m/s, 1 m/s, 1,5 m/s, 2 m/s, (each ±15%)	

Buchholzrelay MBR in Accordance With EN 50216-2

Ordering Options

In case of an order please select from the table below



Type	Insulating Liquid Flow		Colour (more upon request)		Contacts (Table on page 3)		Cable Gland		Connection Parts	
	m/s	Code	Farbe	Code	Art	Code	Art	Code	Art	Code
MBR 1	0,65 m/s 1,00 m/s 1,50 m/s	1 2 3	RAL 1016	01	1 NO 1 CW 2 NO 2 CW	01 02 03 04	PG16	1	Without With	0 1
MBR 2			RAL 7001	02			PG21	2		
MBR 3			RAL 7012	03			M20x1,5	3		
MBR 4			RAL 7016	04			PG16 16x2pcs	4		
MBR 5			RAL 7022	05			PG16 21x2 pcs	5		
MBR 6			RAL 7032	06			M20x1,5x2 pcs	6		
MBR 7			RAL 7033	07						
	RAL 7035	08								
	RAL 7037	09								
	RAL 7038	10								
	RAL 9002	11								