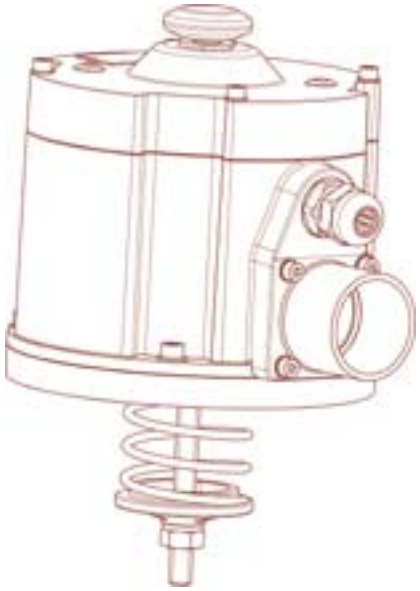


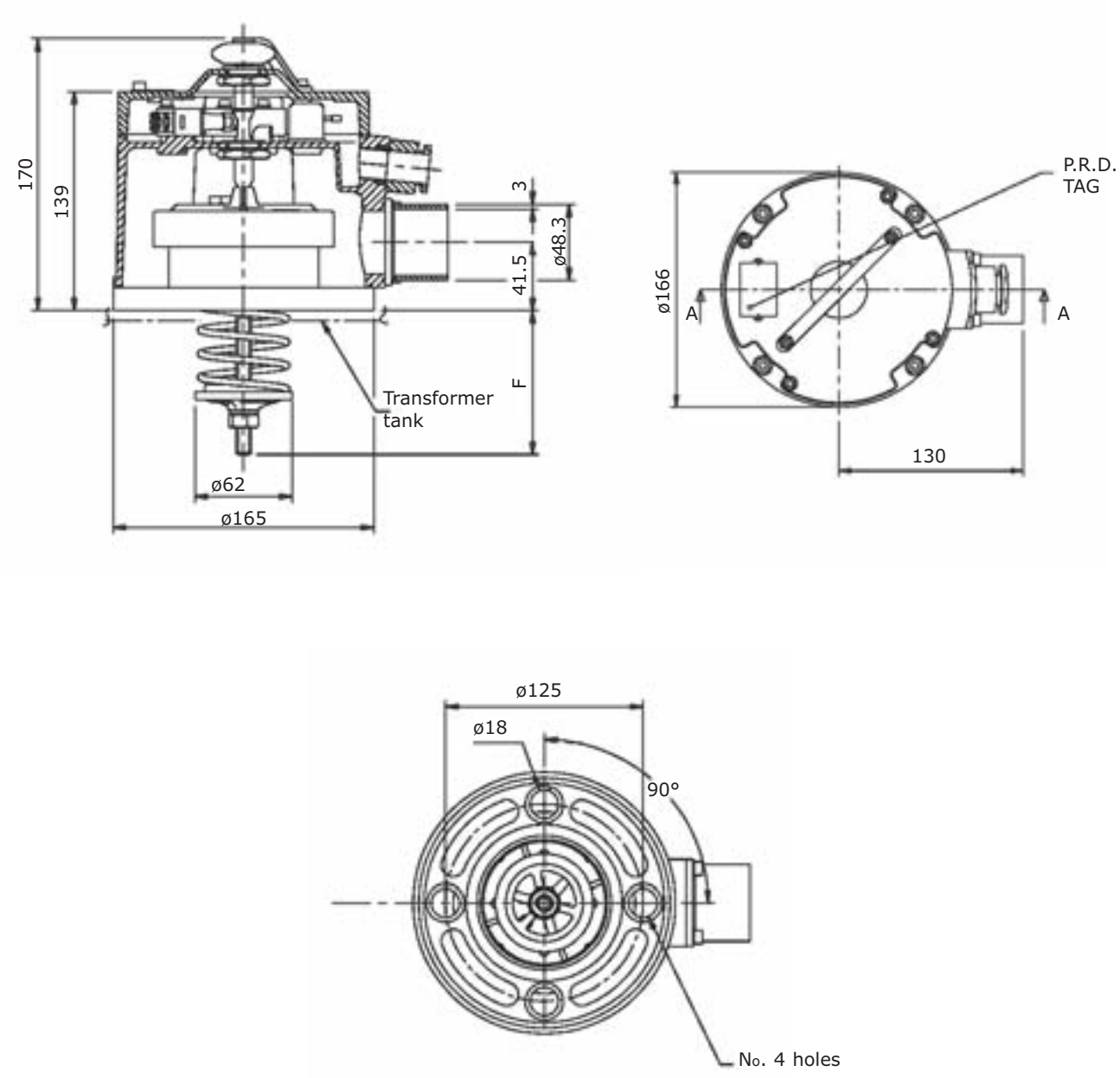
NEW TYPE "M"
PRESSURE RELIEF DEVICE

comem

"M" PRESSURE RELIEF DEVICE ACCORDING TO EN 50216-5/A2

PRESSURE RELIEF DEVICE TYPE **"50 M"**

Section A-A

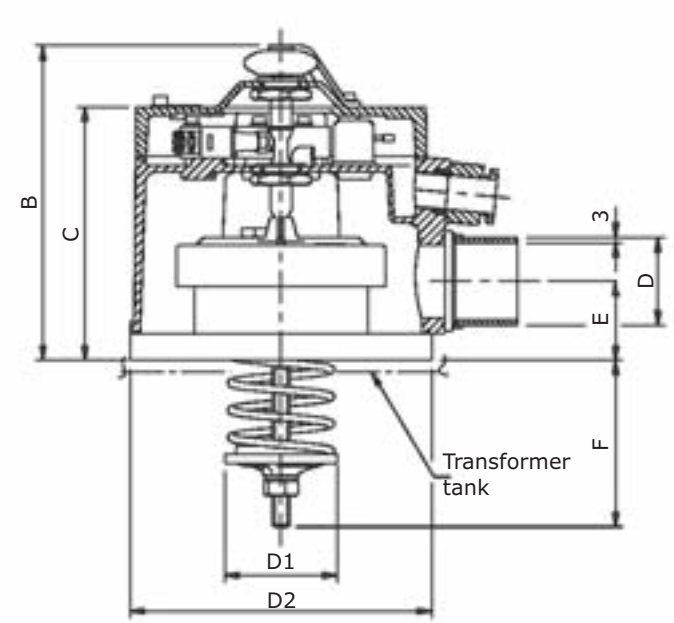


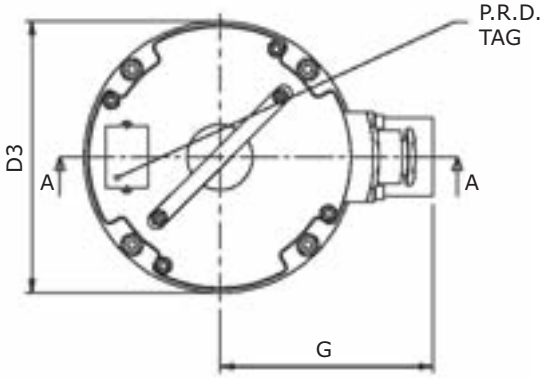
Type	F^{*}_{20KPA}	F^{*}_{70KPA}	Kg
50 M	85	45	2.1

*F = *THE DIMENSION VARIES WITH SET PRESSURE*

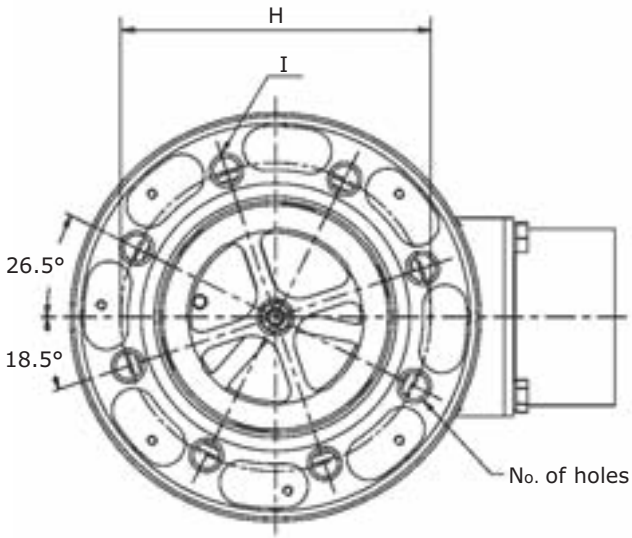
PRESSURE RELIEF DEVICE TYPE "125 M-8" AND "125 M-6"

Section A-A

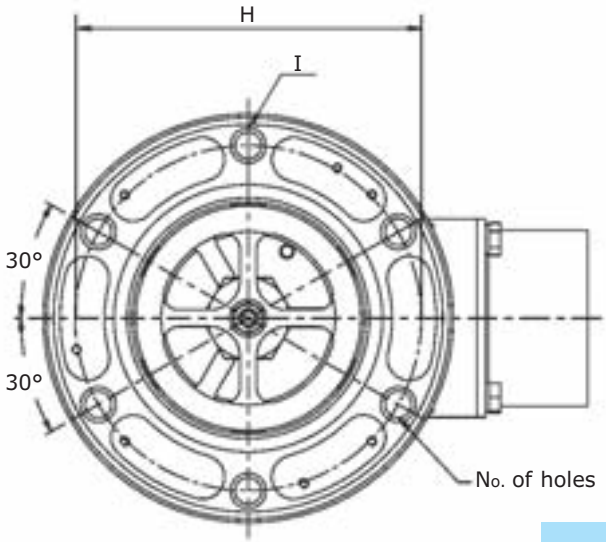




125 M-8



125 M-6



Weight kg 10

Type	B	C	D	D1	D2	D3	E	F20KPA	F70KPA	G	H	I	No. of HOLES
125 M-8	278	228	ø120	ø153	ø278	ø278	86	175	80	230	ø210	ø18	8
125 M-6	278	228	ø120	ø153	ø278	ø278	86	175	80	230	ø235	ø18	6

F = *THE DIMENSION VARIES WITH SET PRESSURE*

Comem "M" pressure relief devices are used to control pressures inside tanks. They are used where accidental, instantaneous and uncontrolled increases in pressure may create the danger of explosion. They are designed to discharge the pressure increases that have taken place to the exterior in a very short time period (a few thousandths of a second).
They are widely used in the metal tanks of oil-cooled electric transformers. Sudden and violent short circuits inside these tanks, in fact, instantly generate an enormous amount of gas with a great increase in interior pressures. If the pressure cannot discharge to the exterior there is danger that the transformer may explode, with all the possible harm and damages this may cause. This danger can be prevented by installing one or more pressure relief device with discharge sizes proportional to the volume of oil contained in the transformer. It is always good practice to install these pressure relief devices in all situations where internal pressure values must not exceed specific safety limits.

CONSTRUCTION
Our pressure relief devices are totally protected against external corrosion and against penetration of foreign bodies between cover and protective cap. This ensures perfect operating efficiency even for extended periods of time.

TYPE "M" PRESSURE RELIEF DEVICE
These consist of a flanged body and a corrosion-proof aluminium alloy disk. A brass rod that holds the spring is applied to the central part of the disk. There are two gaskets in the pressure relief device: a special shaped upper gasket and a lip seal.
When the pressure relief device is closed the upper gasket is pressed against the disk. The shape of the gasket permits a perfect seal even if the disk lifts 1-2 mm. The disk also makes a seal against the lip seal gasket as it moves upwards. If, due to interior pressure, the disk rises beyond this amount then the upper seal is no longer maintained while the lip seal remains. At this instant the surface of the washer invested by internal pressure is multiplied in area as is the total force applied on the spring. This causes total and instantaneous opening of the pressure relief device which consequently discharges excess pressures to the exterior.
When pressure has been discharged the disk, pushed back by the spring, lowers down and closes the valve. As the disk moves downwards it first closes against the side gasket and then against the upper gasket.
This latter gasket, because of its special shape, is pressed down 1-2 mm. and the disk moves further down, breaking the seal on the lip seal gasket. This releases any pressure that may have been trapped between the two gaskets. Now the pressure relief device is ready to work.

TOTAL PRESSURE RELIEF DEVICE OPENING
Pressure relief device opening is total each time the pressure relief device operates for pressure settings between 20 and 90 kPa.
The discharge opening area, for each pressure relief device operation, is equal to that for higher pressure settings even when pressure settings are lower than 20 kPa. If, however, pressures are generated inside the tank that are much higher than the setting then the spring, further compressed, allows the closing disk to create even larger discharge areas when it operates.

OPERATING PERFORMANCE
Nominal operating pressure: the pre-fixed overpressure value shall be agreed between supplier and purchaser within the standard range from 20 up to 90 kPa, with 10 kPa steps, with a tolerance of - 5 kPa to + 7 kPa.

ROUTINE TESTS
It is necessary to carry on operational tests, with compressed air:
- to check the correct functioning of the device at the operating pressure value
- to check the functioning of the optic signal and of the electric contacts.

INSTALLATION GUIDELINES
Our "M" pressure relief devices come in 2 sizes and have different discharge areas. This allows users to select the type that is best suited for the volume of oil contained in the tank. The following table gives guideline values:

Volume of oil tank:	Type of pressure relief device
up to 3000 dm^3	50 M*
up to 25000 dm^3	125 M*

* These guideline sizes are based on experience.

We recommend using multiple pressure relief devices when oil volumes exceed these levels. It is always good practice to use multiple pressure relief device with smaller discharge areas rather than a single pressure relief device with a large area. The reason for this, in the case of transformers, is that it is better to install one pressure relief device above each winding column since these are the points where maximum interior pressures are generated in case of a short circuit. Instantaneous pressure relief device opening implies direct contact between the closing disk and oil. For this reason the pressure relief device are equipped with a screw to bleed out air that may accumulate during oil tank filling procedures.

OIL TIGHTNESS DUCT
It is a good practice to prevent harm to persons or property from violent jets of hot oil evacuating from the pressure relief device, for pressure relief device discharges to be ducted towards points properly designed to receive the hot oil. The protection of the environment is also another important target which has to be pursued by everybody. Our protection duct allows to drain the oil evacuated by the pressure relief device. The perfect hydraulic tightness of the system guarantees that not any drop of oil is dispersed in the environment, but collected through a pipe in a tank (pipe and tank are not supplied). The sealing oil duct is made of die-casted aluminium; a terminal flanged tube made of steel is also provided if someone wants to weld the pipeline. O-ring gaskets have been adopted for the duct sealing.
Detailed assembling instructions are supplied with the equipment.

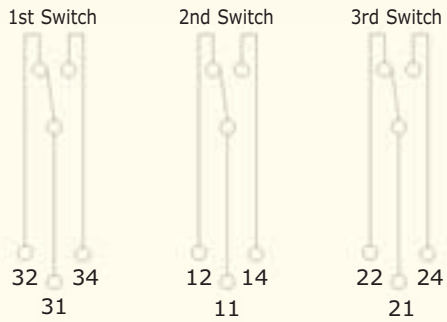
VISUAL SIGNAL THAT THE PRESSURE RELIEF DEVICE IS OPEN
Pressure relief devices are equipped with a visual signal that shows when they have opened. This signal consists of a red knob that protrudes from the central part of the duct when the pressure relief device has opened. Just press it down in order to make it go back to its normal position and reset the switches, too.

ELECTRICAL SIGNALLING SWITCH
Maximum 3 "pressure relief device open signal" contacts can be mounted on request. These are a fast tripping limit switch with switching contact contained inside a watertight room IP 65.
The contacts simultaneously act with the visual signal.
The switches have the following characteristics:

SPECIFICATIONS:

Breaking and making capacity (NO and NC contacts)			
Voltage	**Uninterrupted current (making capacity)**	**Interrupted current (breaking capacity)**	
24 VDC to 220 VDC	2 A	100 mA	L/R<40 ms
230 VAC	2 A	2 A	cos φ >0.5

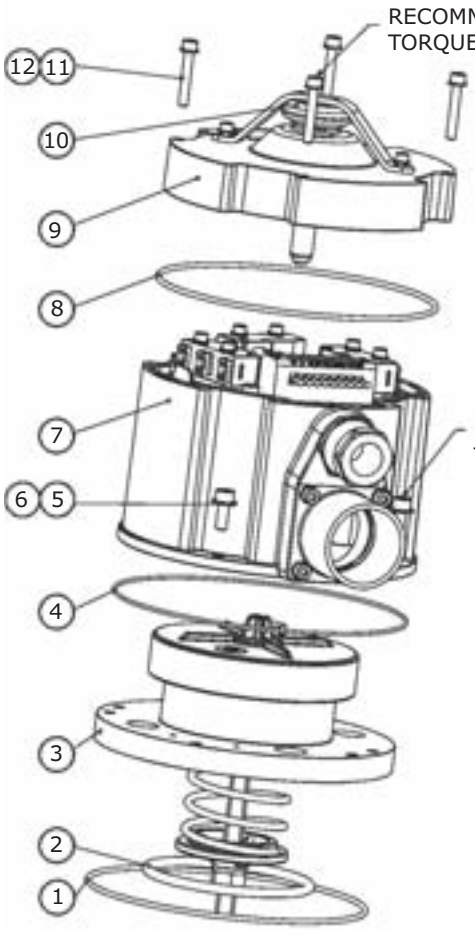
CONTACT DIAGRAM



OTHER CHARACTERISTICS:
- The pressure relief device is supplied with a "locking system" which allows to block the pressure relief device during the transformer oil leakage test; the locking system has been tested to withstand max 2 bar pressure; this locking system can also be used during the transformer transport.
  IMPORTANT NOTICE: the locking system must be removed before energizing the transformer.
- The pressure relief device is supplied with M20x1.5 cable gland for one and two contacts option, while M25x1.5 is supplied for three contacts.

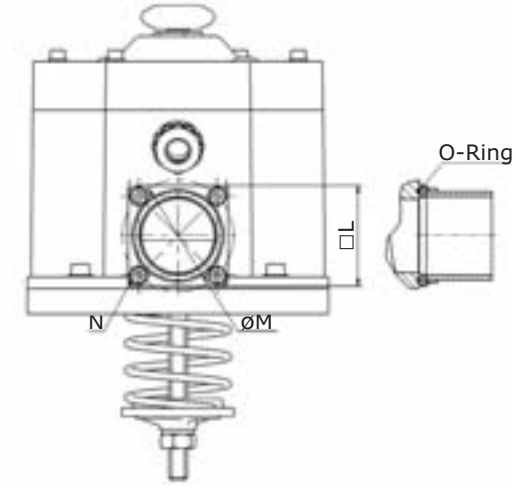
EXTERNAL SURFACE PROTECTION
External surfaces are protected against weather corrosion. Aluminum alloy components are non-corroding and their surfaces are protected with a double layer of paint offering high level protection against all atmospheric agents and resisting temperature variations between -40 °C and +100 °C. Special painting for severe climate applications is also available on request.

ASSEMBLING SEQUENCE



	Q.	50M		125M-8		125M-6	
		CODE	DESCRIPTIONS	CODE	DESCRIPTIONS	CODE	DESCRIPTIONS
1	1	5G0D003600*	GASKET O.R. 3600	5G0D041050**	GASKET O.R. 41050	5G0D041050**	GASKET O.R. 41050
2	1	5G0D000183*	GASKET O.R. 6337	5G0L000227**	GASKET O.R. 8650	5G0L000227**	GASKET O.R. 8650
3	1	-	50M SAFETY VALVE	-	125M-8 SAFETY VALVE	-	125M-6 SAFETY VALVE
4	1	5G0D002637	GASKET O.R. 2637	5G0D041050**	GASKET O.R. 41050	5G0D041050**	GASKET O.R. 41050
5	4	5V51106012	UNI 5931 M6X12 FIXING SCREW	5V50606060	UNI 5931 M6X60 FIXING SCREW	5V50606060	UNI 5931 M6X60 FIXING SCREW
6	4	5400800861	WASHER	5400800861	WASHER	5400800861	WASHER
7	1	-	OIL DUCT 50M	-	OIL DUCT 125M	-	OIL DUCT 125M
8	1	5G0D003600	GASKET O.R. 3600	5G0D041100	GASKET O.R. 41100	5G0D041100	GASKET O.R. 41100
9	1	-	OIL DUCT COVER 50M	-	OIL DUCT COVER 125M	-	OIL DUCT COVER 125M
10	1	-	VISUAL SIGNAL	-	VISUAL SIGNAL	-	VISUAL SIGNAL
11	1	5V50605035	UNI 5931 M5X35 FIXING SCREW	5V50605035	UNI 5931 M5X35 FIXING SCREW	5V50605035	UNI 5931 M5X35 FIXING SCREW
12	1	5RG0600050	WASHER	5RG0600050	WASHER	5RG0600050	WASHER

** ALTERNATIVE PLANE GASKET CODE 5C0V412501*
*** ALTERNATIVE PLANE GASKET CODE 5C0V452900*

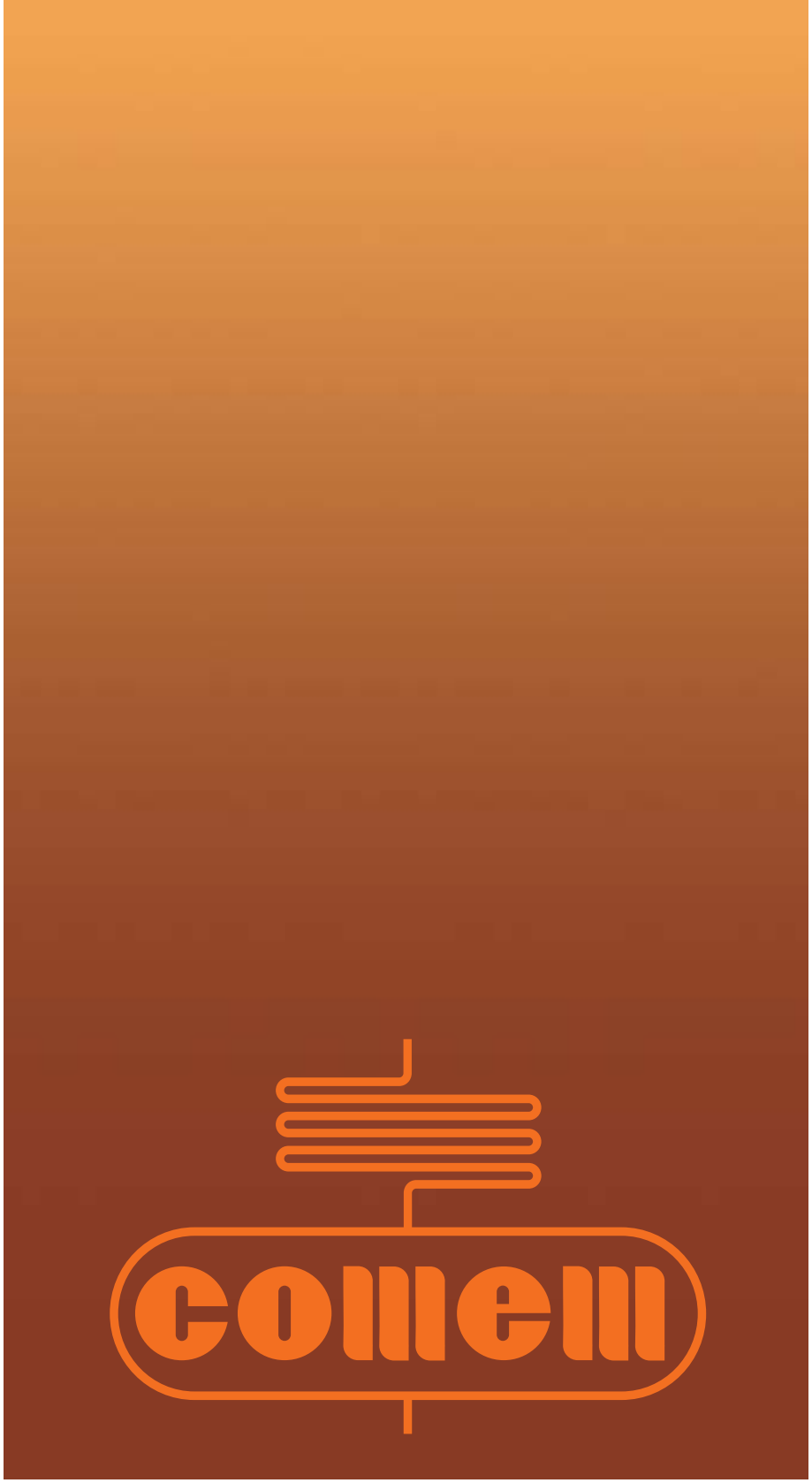


Type	□L	øM	N	O-Ring
50 M	55	61	4 SCREWS M5X12	5G0D002187
125 M-8	135	152	4 SCREWS M12X25	5G0D004475
125 M-6	135	152	4 SCREWS M12X25	5G0D004475

PRESSURE RELIEF DEVICE

ORDER SHEET

Number of pieces	. . . . .		
Valve type	50 M ☐	125 M-8 ☐	125 M-6 ☐
Contacts	**1**	**2**	**3**
Pressure settings **20÷90 kPa**	**Value** . . . . . **Other**		
Applications in	- **Continental or tropical environment** (standard painting) ☐		
	- **Corrosive saline environment** (special painting) ☐		
	- Other . . . . . ☐		
Joint type	**VITON** ☐	- used with silicone oils and/or at high temperatures (temp. -10 °C up to +150 °C)	
	NBR -40°C ☐	- used with mineral oils and at low temperatures (temp. -40 °C up to +120 °C)	



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