



KT*
**SOLENOID OPERATED
CARTRIDGE, POPPET TYPE
SERIES 1**

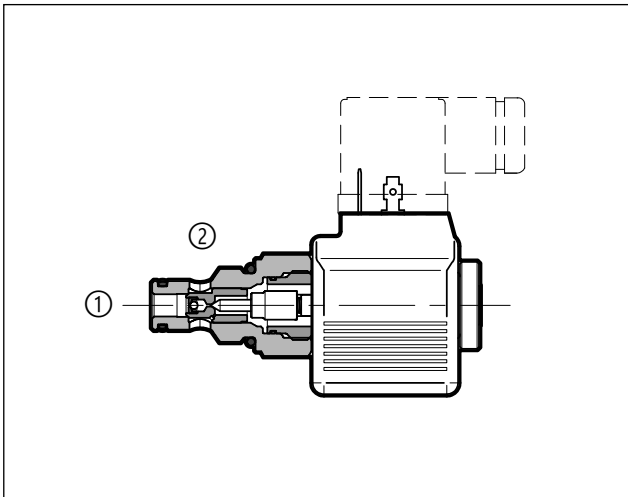
CARTRIDGE TYPE

seat SAE 08, SAE 10 and SAE 12

p max **350** bar

Q max **150** l/min

OPERATING PRINCIPLE



- The KT* are 2-port pilot operated poppet valves, actuated by solenoid. They are available in three nominal sizes, in normally closed versions (NC) and in normally open versions (NO).
- Single flow, reverse flow and double seal designs are available, with maximum flow rate up to 150 l/min.
- KT* valves ensure a low internal leakage, which decreases while the pressure increases.
- Coils for DC power supply with standard connection type EN 175301-803 (ex DIN 43650), AMP Junior or DEUTSCH are available.
- The manual override is available as option (see point 19).

PERFORMANCES

(working with mineral oil of viscosity of 36 cSt at 50°C)

| | | KT08 | KT10 | KT12 |
|-------------------------------------|---|-----------|-----------|------|
| Maximum operating pressure | bar | 350 | | |
| Nominal flow rate | l/min | 40 | 80 | 150 |
| Maximum internal leakage at 350 bar | cm ³ /min | 0.25 | | |
| Pressure drops $\Delta p - Q$ | view points 7, 9, 11, 13, 15 | | | |
| Electrical characteristics | view point 16 | | | |
| Electrical connections | EN 175301-803 (ex DIN 43650) / AMP Junior / DEUTSCH | | | |
| Ambient temperature range | °C | -20 / +50 | | |
| Fluid temperature range | °C | -20 / +80 | | |
| Fluid viscosity range | cSt | 10 ÷ 400 | | |
| Fluid contamination degree | according to ISO 4406:1999 class 20/18/15 | | | |
| Recommended viscosity | cSt | 25 | | |
| Mass | kg | 0.1 ÷ 0.5 | 0.2 ÷ 0.6 | 0.25 |
| Surface treatment of the cartridge | zinc coating (salt spray resistance: 96 h) | | | |

1 - IDENTIFICATION CODE

| | | | | | | | | | | | |
|--|----------|----------|----------|----------|--|----------|--|----------|----------|----------|----------|
| | K | T | - | 2 | | - | | - | N | - | 1 |
|--|----------|----------|----------|----------|--|----------|--|----------|----------|----------|----------|

Cartridge solenoid valve

Poppet type valve

Nominal body dimension:
08 = 3/4-16 UNF-2A
10 = 7/8-14 UNF-2A
12 = 1 1/16-12 UN-2A

2-port

Seals (see hydraulic symbols and table for availability):
S = standard seal (from 2 to 1)
R = reverse seal (from 1 to 2)
D = double seal

Initial position:
NC = normally closed
NO = normally open

Availability

| | nominal dimension | | |
|------|-------------------|----|----|
| | 08 | 10 | 12 |
| 2SNC | ■ | ■ | ■ |
| 2RNC | ■ | ■ | - |
| 2DNC | ■ | - | - |
| 2SNO | ■ | ■ | - |
| 2DNO | ■ | - | - |

Series Number

Manual override (see point 19):
N = no override, blind
K2 = push and twist

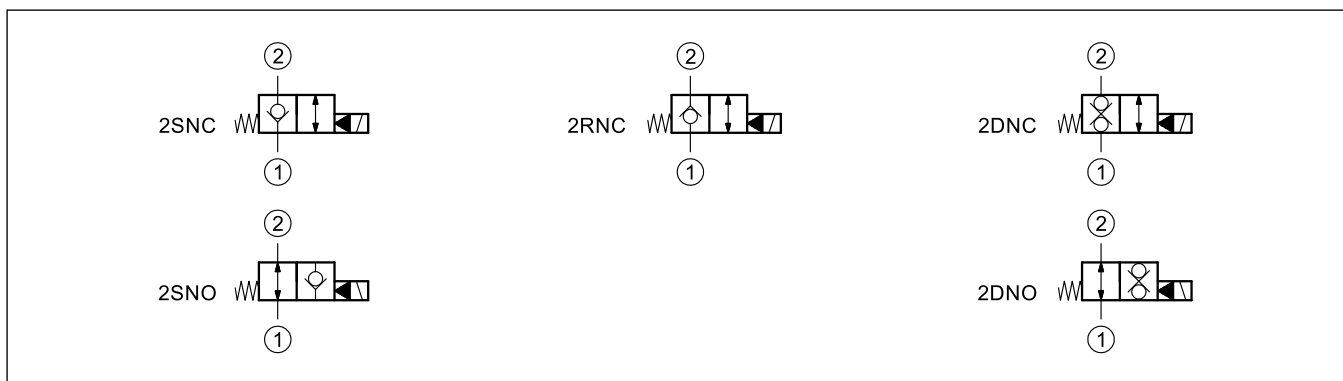
NBR seal for mineral oil

Coil electrical connection (see point 17):
K1 = plug for connector type EN 175301-803 (ex DIN 43650) (**standard**)

For **D12** and **D24** coils only:
K2 = plug for connector type AMP JUNIOR
K7 = plug DEUTSCH DT04-2P for male connector type DEUTSCH DT06-2S

DC power supply :
D00 = valve without coil (the coil locking ring and the related OR are supplied)
D12 = 12 V
D24 = 24 V
D110 = 110 V
D220 = 220 V

2 - HYDRAULIC SYMBOLS



3 - HYDRAULIC FLUIDS

Use mineral oil-based hydraulic fluids HL or HM type, according to ISO 6743-4. For these fluids, use NBR seals (code N). For fluids HFDR type (phosphate esters) use FPM seals (code V). For the use of other fluid types such as HFA, HFB, HFC, please consult our technical department.

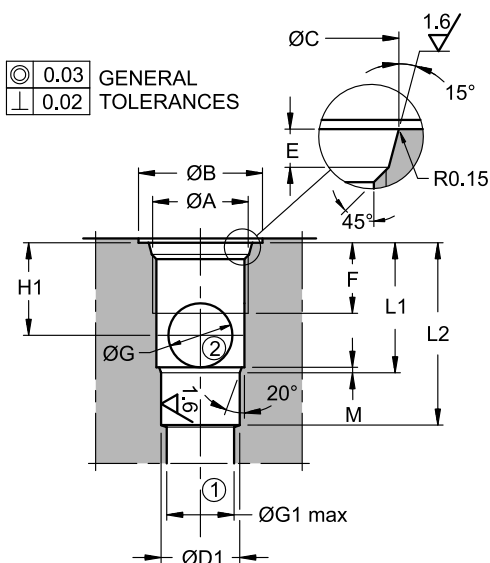
Using fluids at temperatures higher than 80 °C causes a faster degradation of the fluid and of the seals characteristics. The fluid must be preserved in its physical and chemical characteristics.

4 - SWITCHING TIMES

The values indicated refer to a valve tested with $Q = 25$ l/min, $p = 350$ bar, with mineral oil at a temperature of 50°C and a viscosity of 36 cSt.

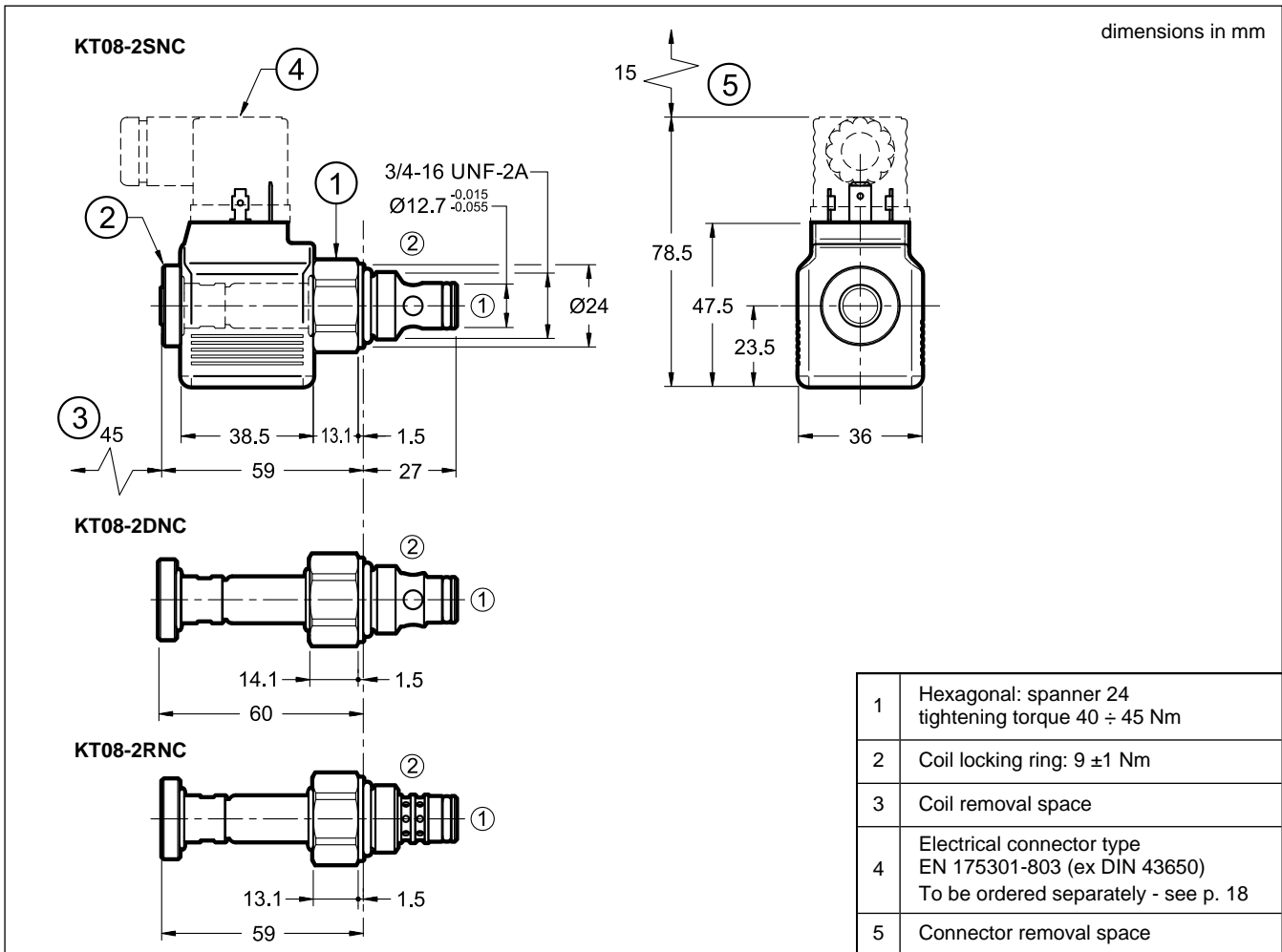
| TIMES [ms] | | |
|--|------------|---------------|
| | ENERGIZING | DE-ENERGIZING |
| KT08-2SNC, KT08-2SNO, KT08-2RNC, KT10-2SNC | 30 | 60 |
| KT08-2DNC | 30 ÷ 40 | 60 ÷ 80 |
| KT10-2RNC | 50 | 70 |
| KT08-2DNO, KT10-2SNO | 100 | 50 |
| KT12-2SNC | 40 | 90 |

5 - SEAT DIMENSIONS FOR SAE CARTRIDGE VALVES



| | KT08 | KT10 | KT12 |
|---------|------------------|-------------------|-------------------|
| cavity | SAE 08-2N | SAE 10-2N | SAE 12-2N |
| øA | 3/4-16 UNF-2B | 7/8-14 UNF-2B | 1-1/16 12 UN-2B |
| øB | 26 | 30 | 35 |
| øC | $20.6^{+0.1}_0$ | $23.9^{+0.1}_0$ | $29.2^{+0.1}_0$ |
| øD1 | $12.7^{+0.05}_0$ | $15.87^{+0.05}_0$ | $22.22^{+0.05}_0$ |
| E | $2.6^{+0.3}_0$ | $2.6^{+0.3}_0$ | $3.3^{+0.3}_0$ |
| F | 13 | 15 | 20 |
| øG | 9 | 11.75 | 18 |
| øG1 max | 12 | 15 | 19 |
| H1 | 14 | 17.5 | 25.3 |
| L1 | 20.5 ± 0.3 | 25.5 ± 0.3 | 36.5 ± 0.3 |
| L2 | 29 ± 0.3 | 34.5 ± 0.3 | 48 ± 0.3 |
| M | 1.5 | 1.5 | 1.6 |

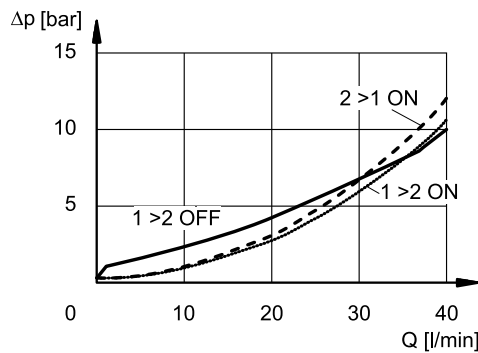
6 - KT08-2*NC - OVERALL AND MOUNTING DIMENSIONS



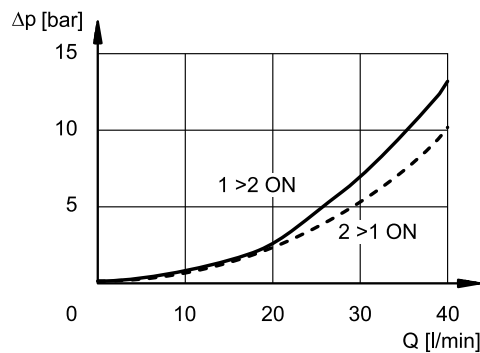
7 - KT08-2*NC - PRESSURE DROPS

(Obtained with viscosity 46 cSt at 40 °C, minimum voltage 90% nom.)

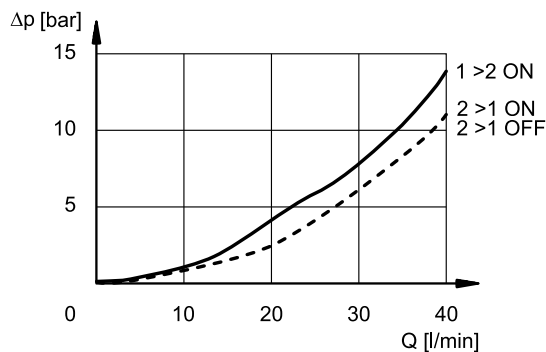
7.1 - KT08-2SNC

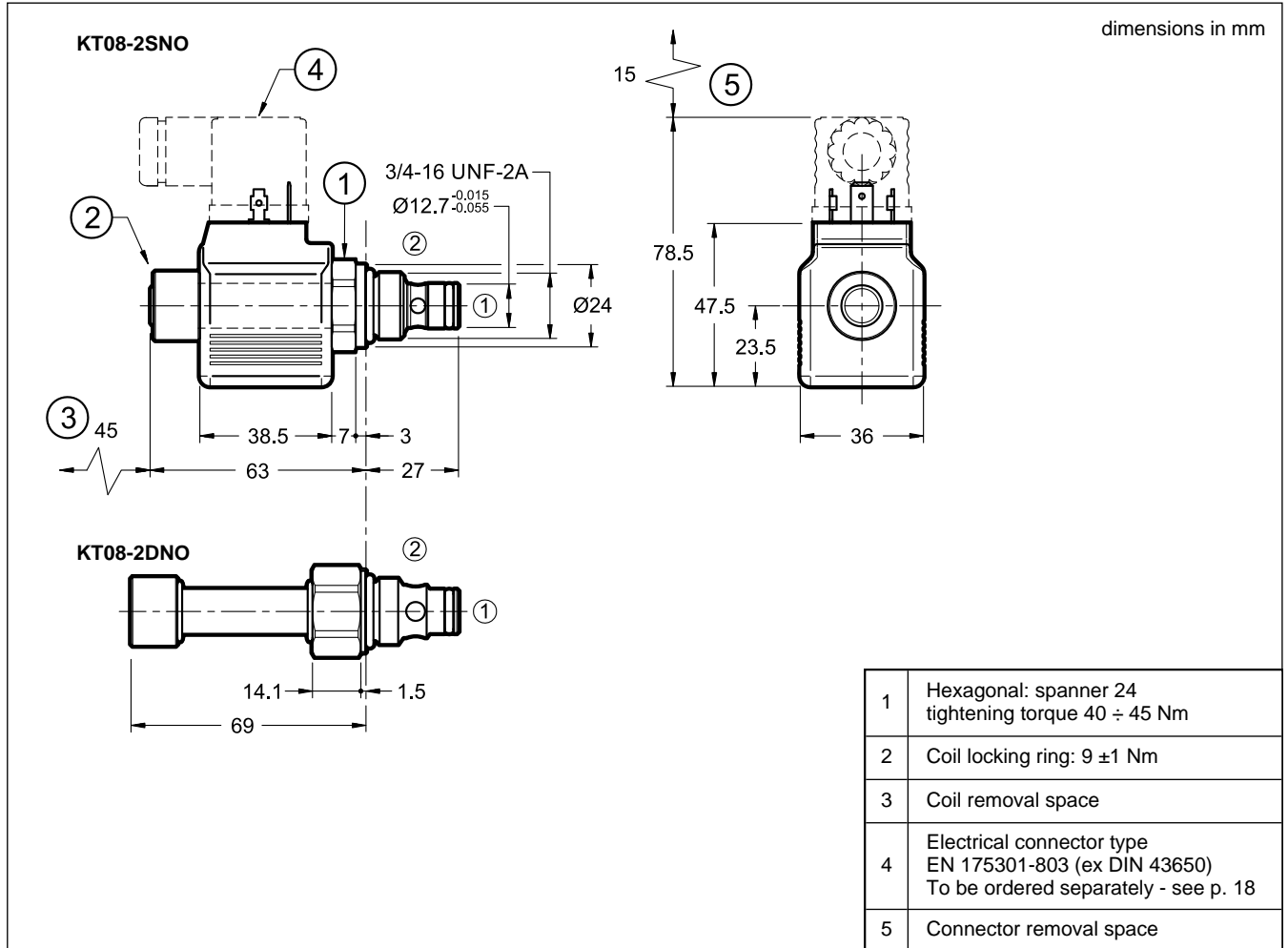


7.2 - KT08-2DNC

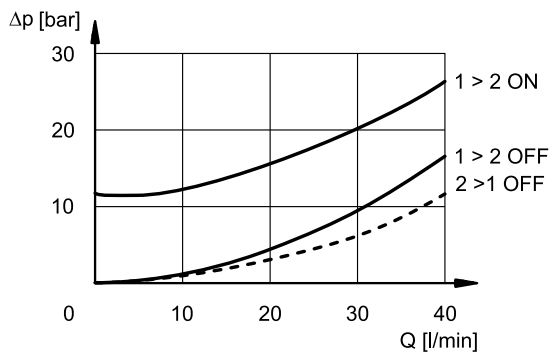
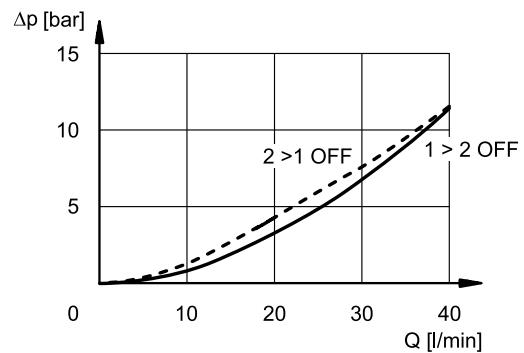


7.3 - KT08-2RNC

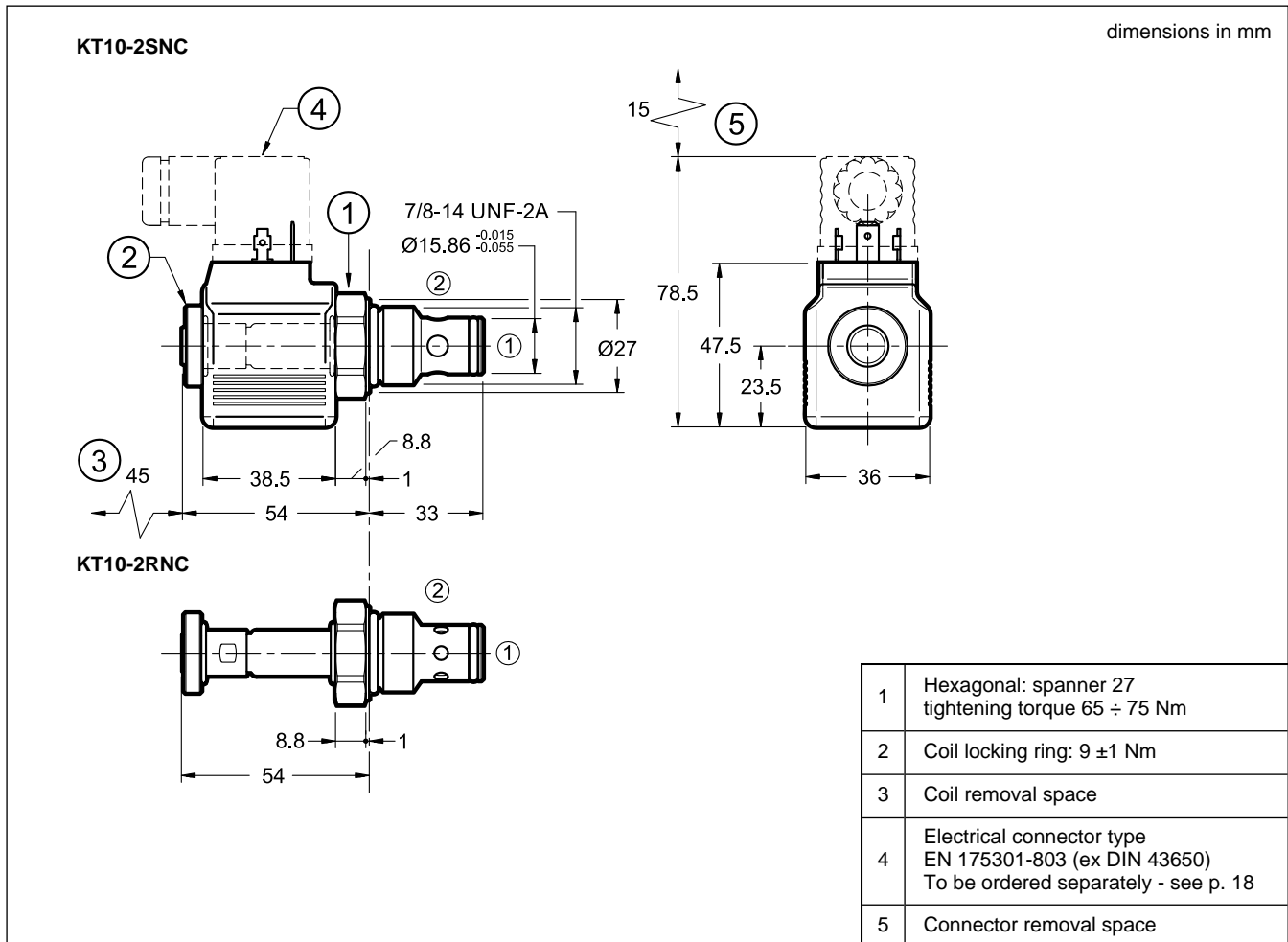


8 - KT08-2*NO - OVERALL AND MOUNTING DIMENSIONS

9 - KT08-2*NO - PRESSURE DROPS

(Obtained with viscosity 46 cSt at 40 °C, minimum voltage 90% nom.)

9.1 - KT08-2SNO

9.2 - KT08-2DNO


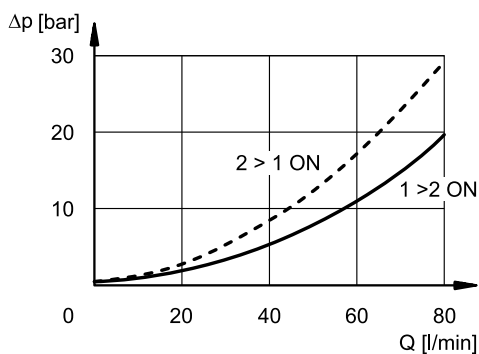
10 - KT10-2*NC - OVERALL AND MOUNTING DIMENSIONS



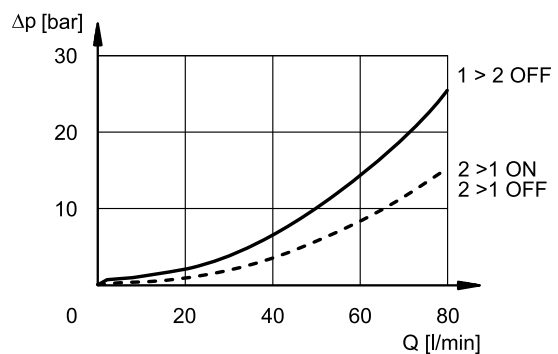
11 - KT10-2*NC - PRESSURE DROPS

(Obtained with viscosity 46 cSt at 40 °C, minimum voltage 90% nom.)

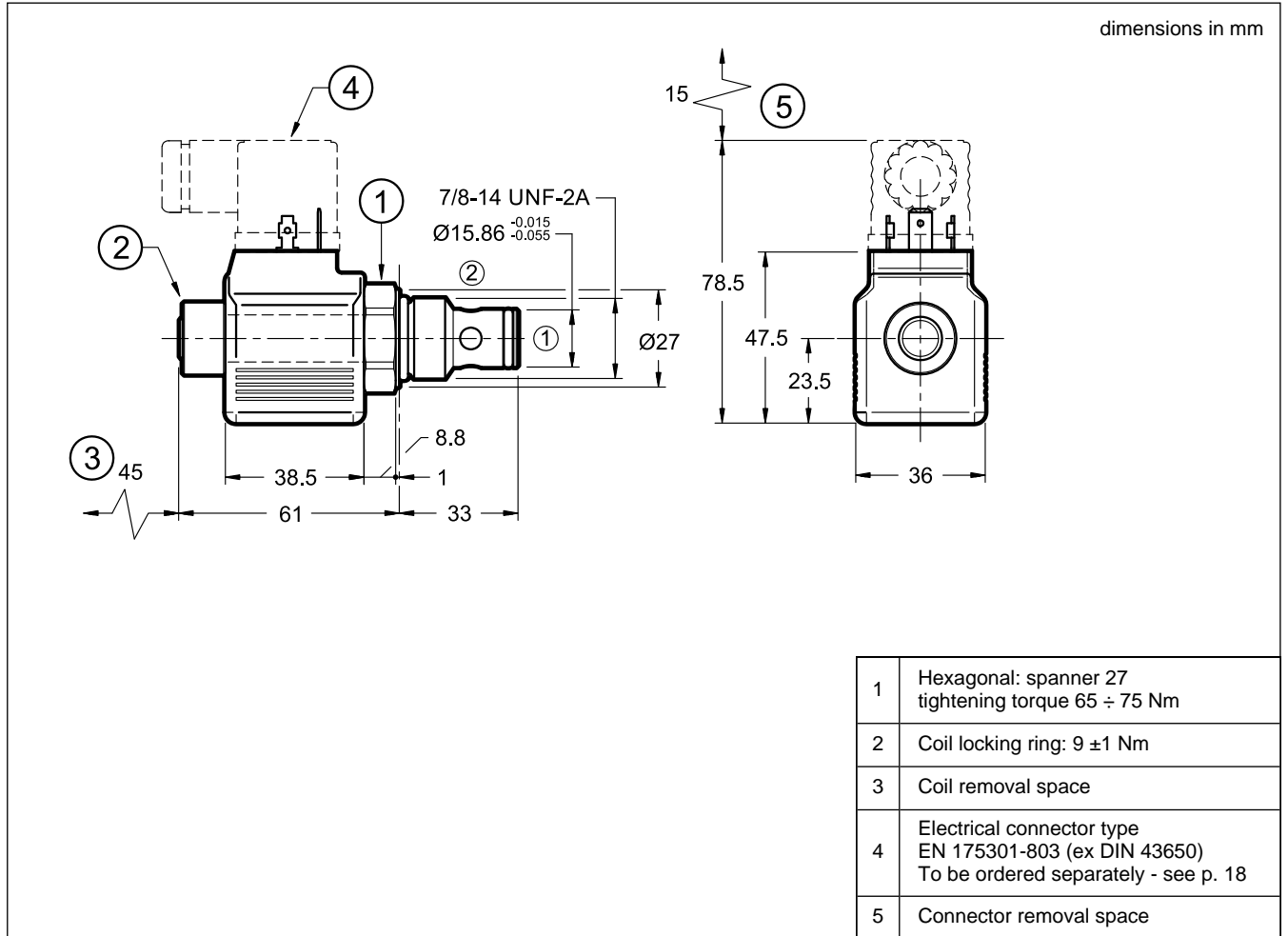
11.1 - KT10-2SNC



11.2 - KT10-2RNC

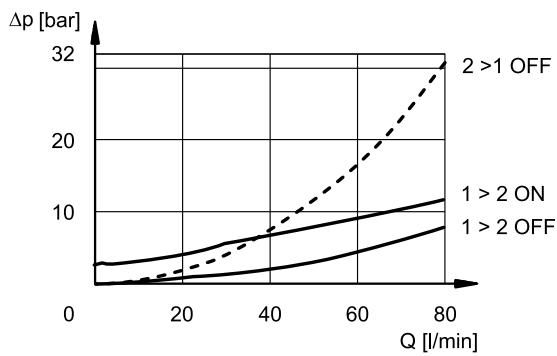


12 - KT10-2SNO - OVERALL AND MOUNTING DIMENSIONS

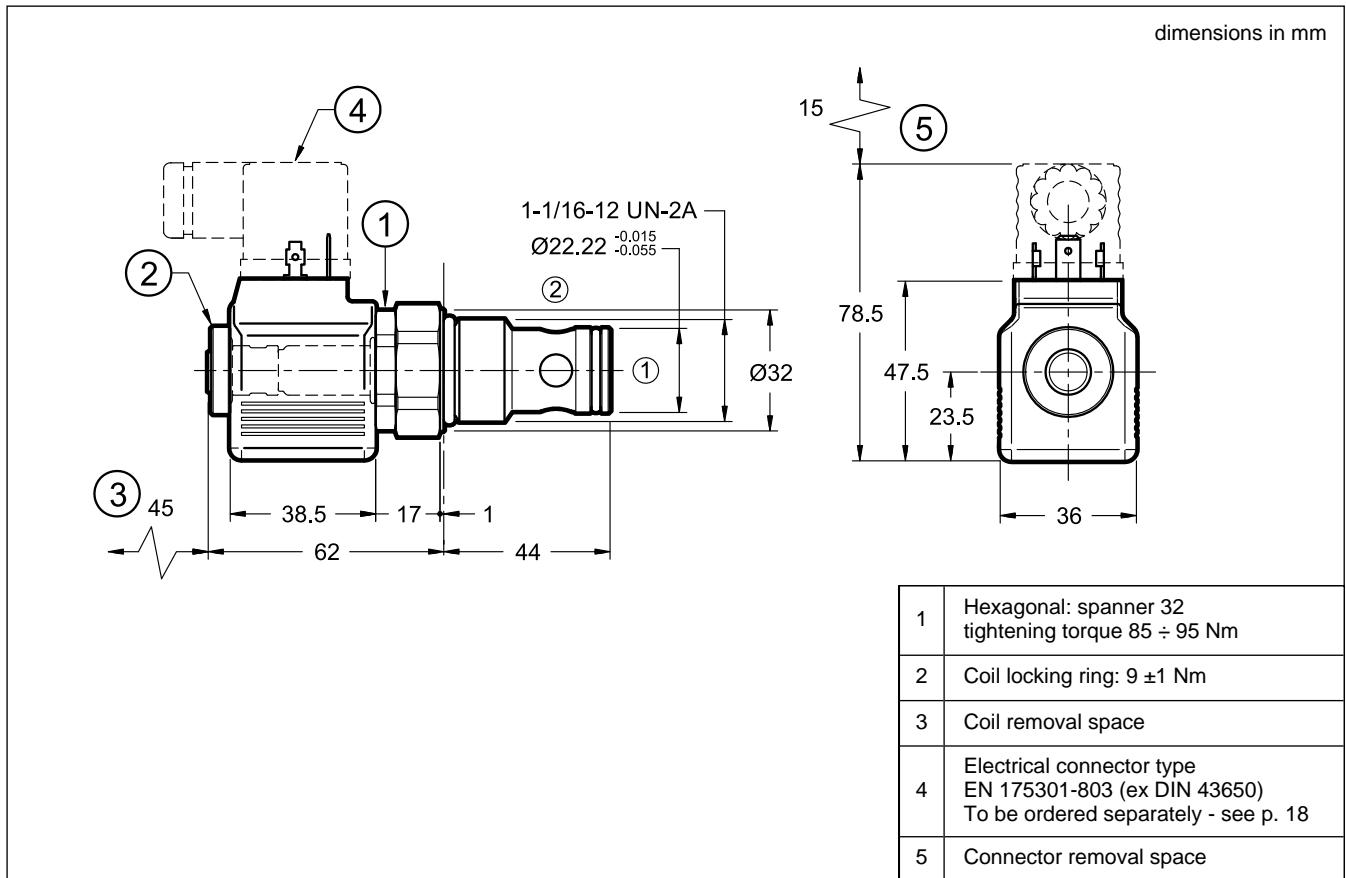


13 - KT10-2SNO - PRESSURE DROPS

(Obtained with viscosity 46 cSt at 40 °C, minimum voltage 90% nom.)

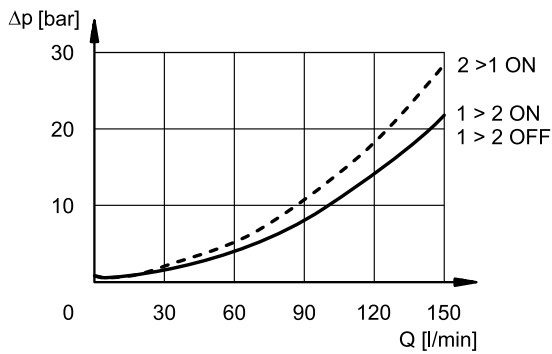


14 - KT12-2SNC - OVERALL AND MOUNTING DIMENSIONS



15 - KT12-2SNC - PRESSURE DROPS

(Obtained with viscosity 46 cSt at 40 °C, minimum voltage 90% nom.)



16 - ELECTRICAL FEATURES

16.1 - Solenoids

These are essentially made up of two parts: tube and coil. The tube is threaded into the valve body and includes the armature that moves immersed in oil, without wear. The inner part, in contact with the oil in the return line, ensures heat dissipation.

The coil is fastened to the tube by a threaded ring, and can be easily replaced. To replace the coil even with different voltage it is possible without replacing the tube.

Protection from atmospheric agents IEC 60529

The IP protection degree is guaranteed only with both valve and connectors of an equivalent IP degree, correctly connected and installed.

| electric connection | electric connection protection | whole valve protection |
|---------------------|--------------------------------|------------------------|
| K1 | IP65 | IP65 |
| K2 | IP65/67 | |
| K7 | IP65/67 | |

| | |
|--|-------------------------------|
| SUPPLY VOLTAGE FLUCTUATION | ± 10% Vnom |
| MAX SWITCH ON FREQUENCY | 10.000 ins/hour |
| DUTY CYCLE | 100% |
| ELECTROMAGNETIC COMPATIBILITY (EMC) | In compliance with 2014/30/UE |
| LOW VOLTAGE | In compliance with 2014/35/UE |
| CLASS OF PROTECTION Coil insulation (VDE 0580) Impregnation | class H class F |

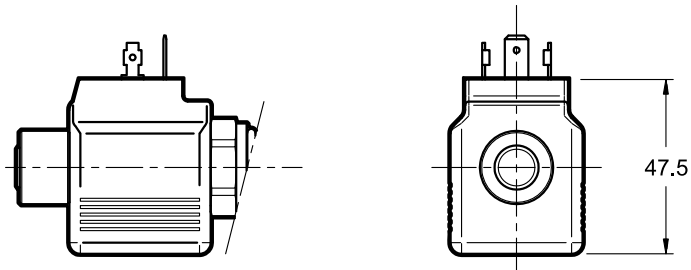
16.2 - Current and absorbed power

The table shows the absorption values relating to the various types of coil for direct current power supply.

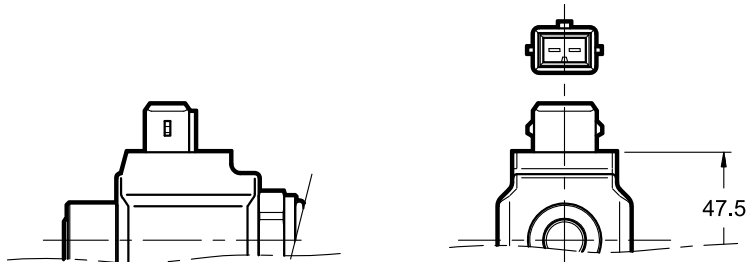
| | Nominal voltage [V] (±10%) | Resistance at 20°C [Ω] (±7%) | Absorbed current [A] | Absorbed power [W] | Coil code | | |
|-------------|----------------------------|------------------------------|----------------------|--------------------|-----------|---------|---------|
| | | | | | K1 | K2 | K7 |
| D12 | 12 | 6.5 | 1.84 | 22 | 1904140 | 1904180 | 1904150 |
| D24 | 24 | 26.2 | 0.92 | 22 | 1904141 | 1904181 | 1904151 |
| D110 | 110 | 550 | 0.2 | 22 | 1904142 | - | - |
| D220 | 220 | 2200 | 0.1 | 22 | 1904143 | - | - |

17 - ELECTRIC CONNECTIONS

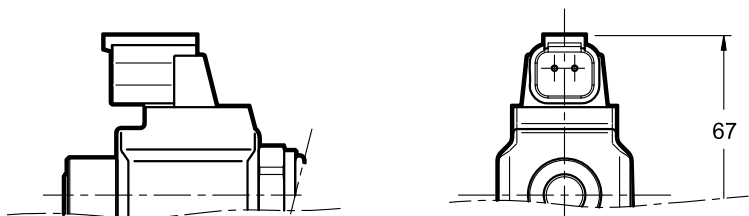
connection for EN 175301-803 (ex DIN 43650) connector code **K1 (standard)**



connection for AMP JUNIOR connector type code **K2**



connection for DEUTSCH DT06-2S male connector type code **K7**



18 - ELECTRIC CONNECTORS

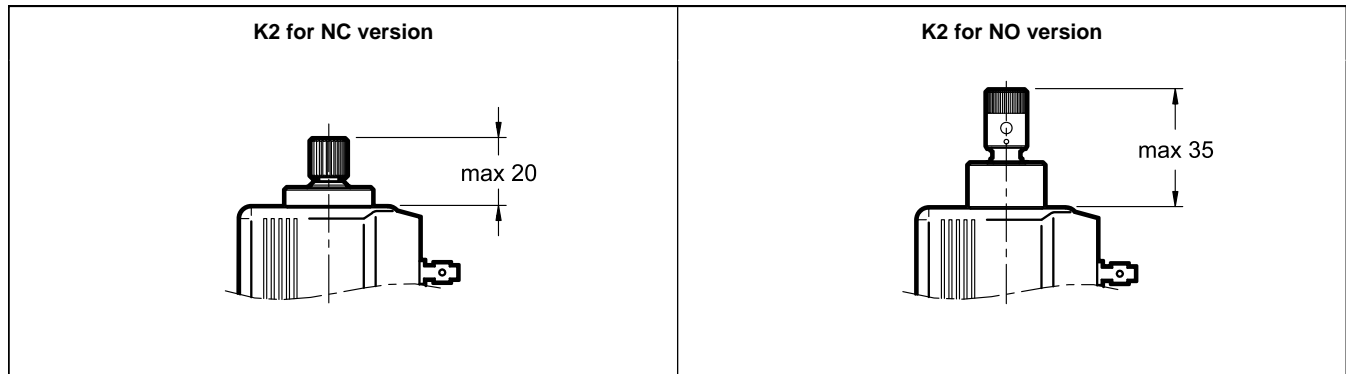
Solenoid valves are delivered without connectors. Connectors type EN 175301-803 (ex DIN 43650) for K1 connection can be ordered separately. See catalogue 49 000.

19 - MANUAL OVERRIDE

Valves can be delivered with push and twist manual override (K2 code) or without any override (N code).

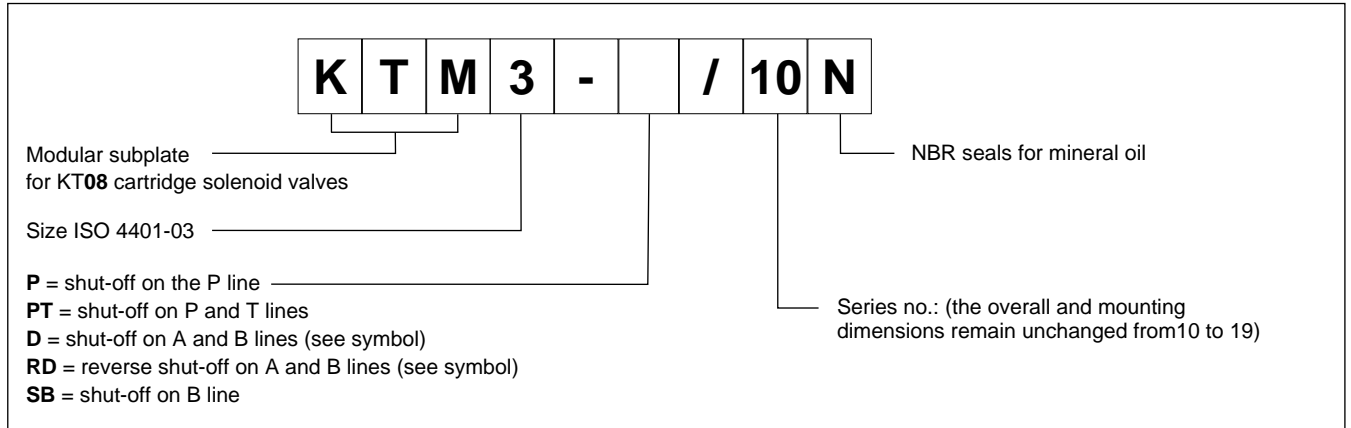
The override is activated by pressing and turning the knob (clockwise for NO versions, anticlockwise for NC versions); it is deactivated by pressing and turning the knob again in the opposite direction. A small spring allows the knob to return to its initial position.

The shape is different depending on NC or NO version.

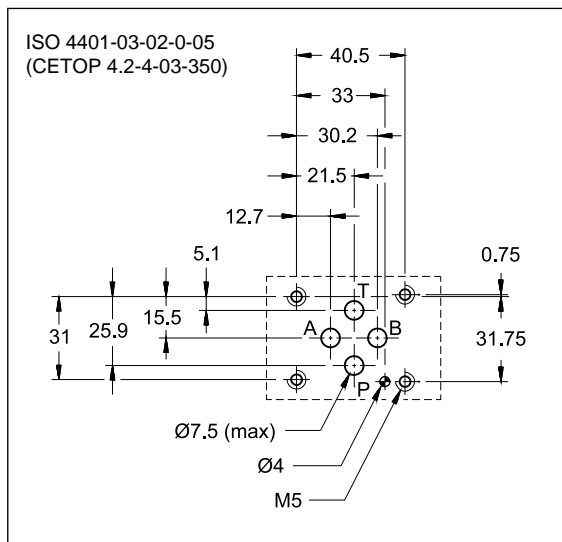


20 - KT08 SUBPLATES FOR MODULAR MOUNTING

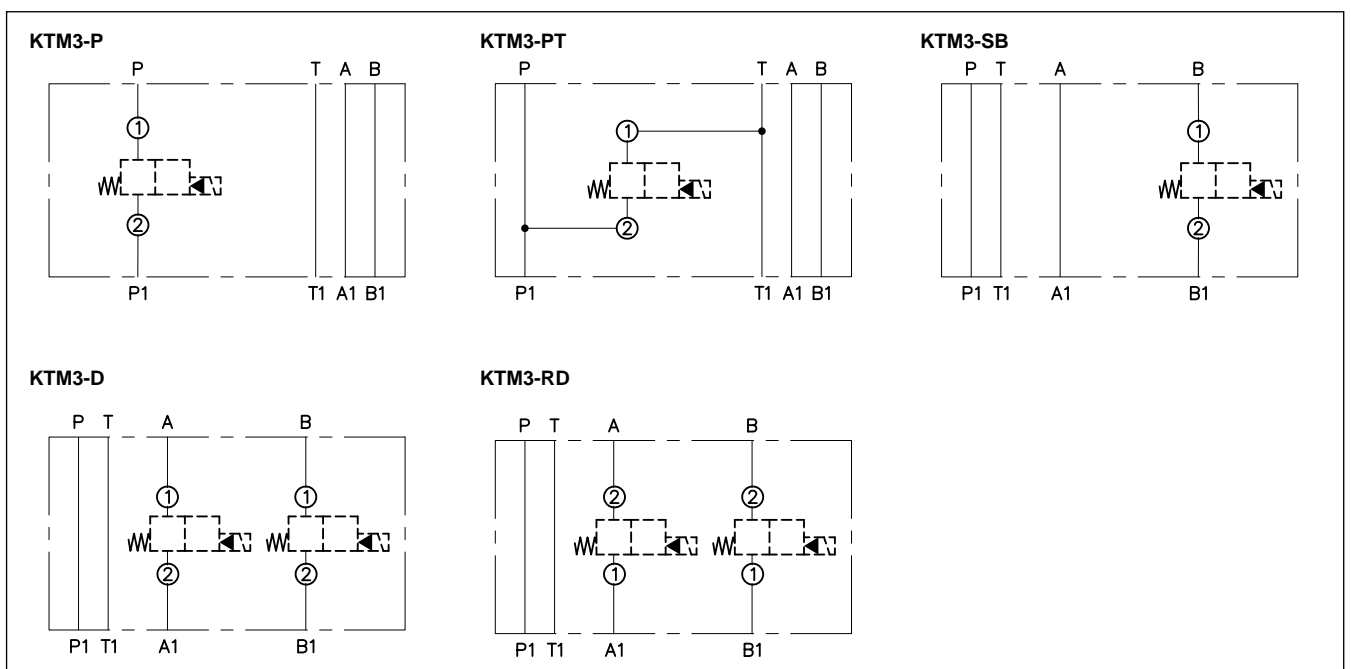
20.1 - Identification code



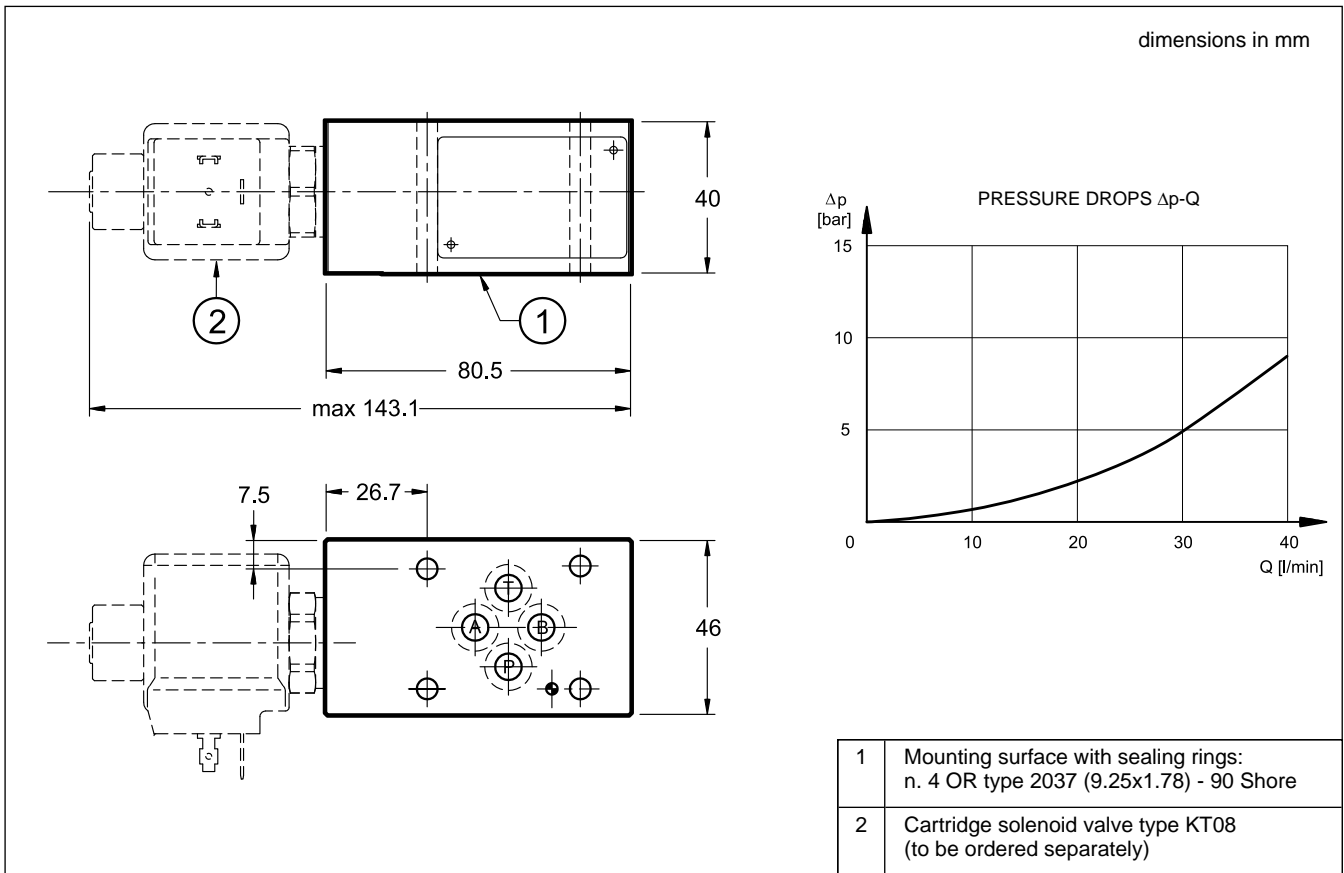
MOUNTING INTERFACE



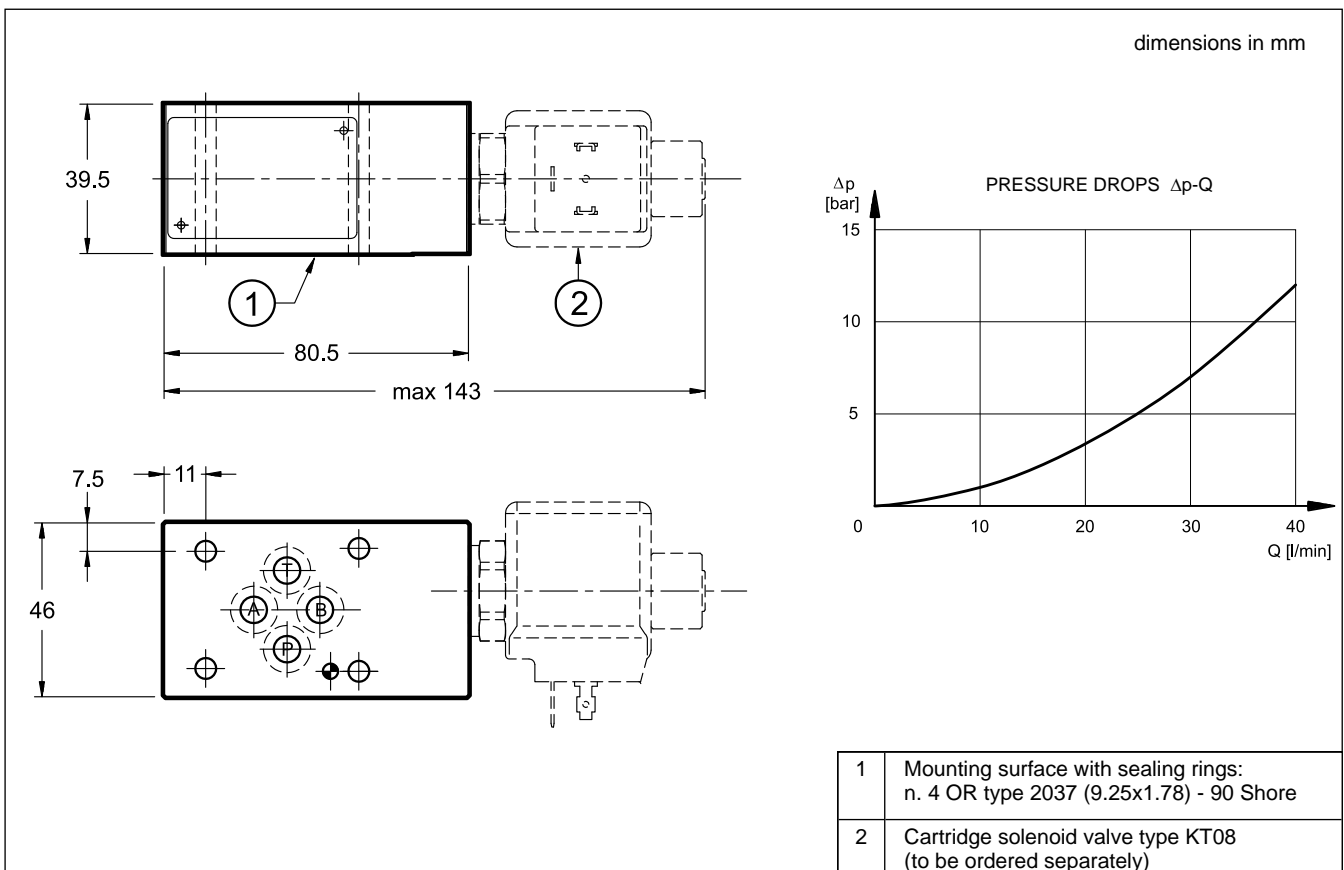
HYDRAULIC SYMBOLS



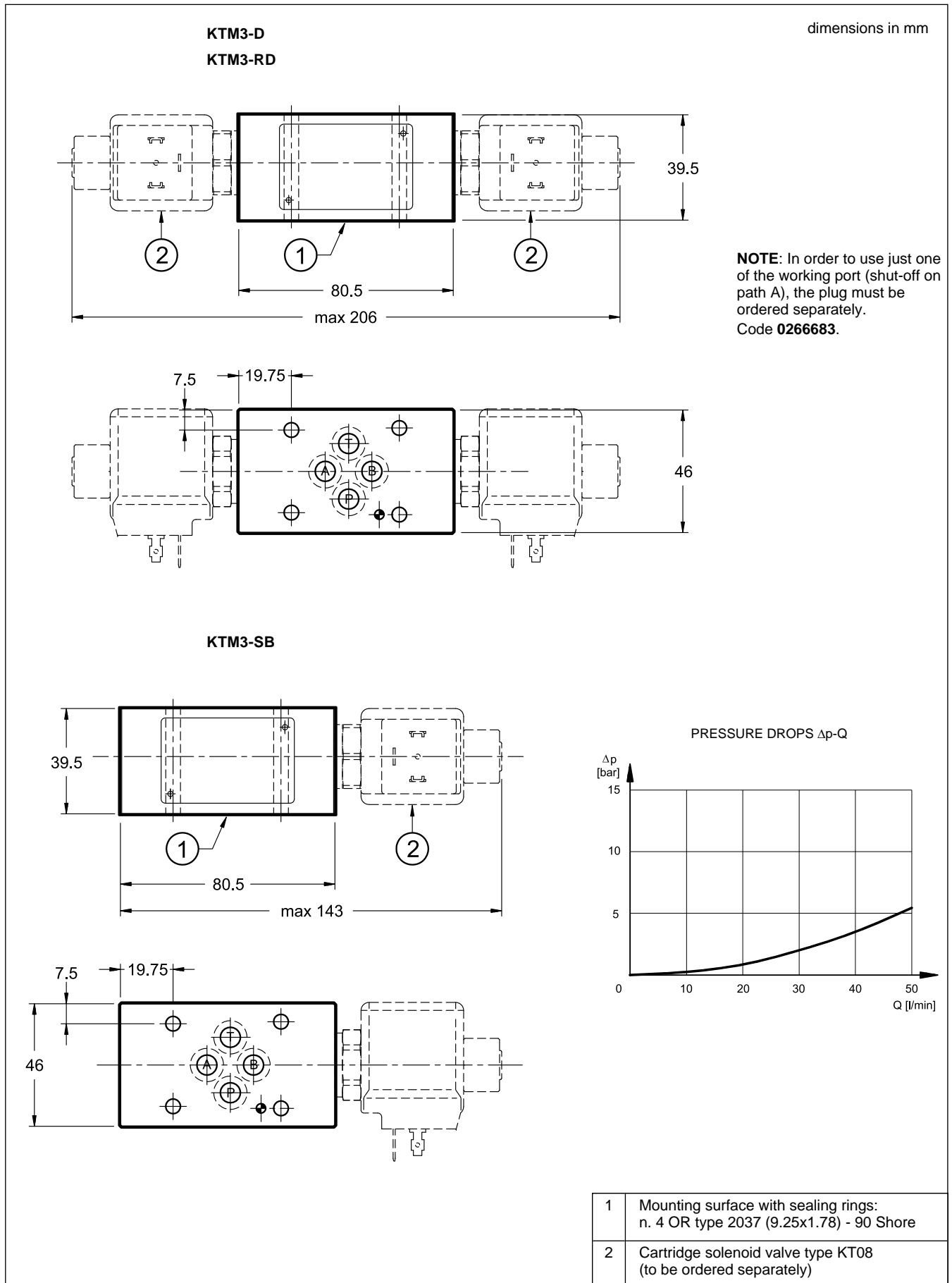
20.2 - Overall and mounting dimensions KTM3-P



20.3 - Overall and mounting dimensions KTM3-PT



20.4 - Overall and mounting dimensions KTM3-D, KTM3-RD and KTM3-SB





KT*
SERIES 1

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