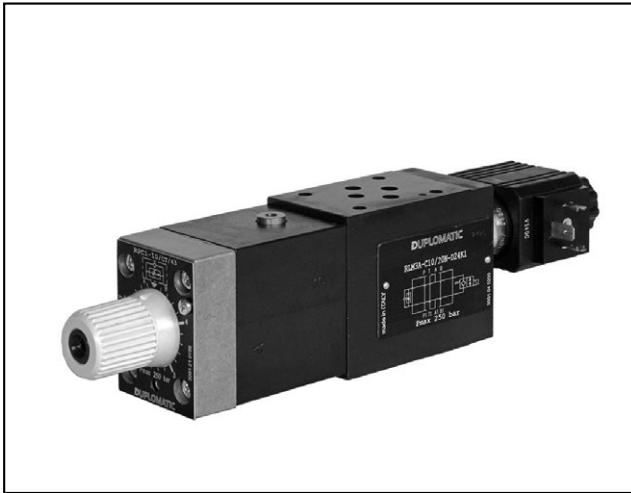


RLM3

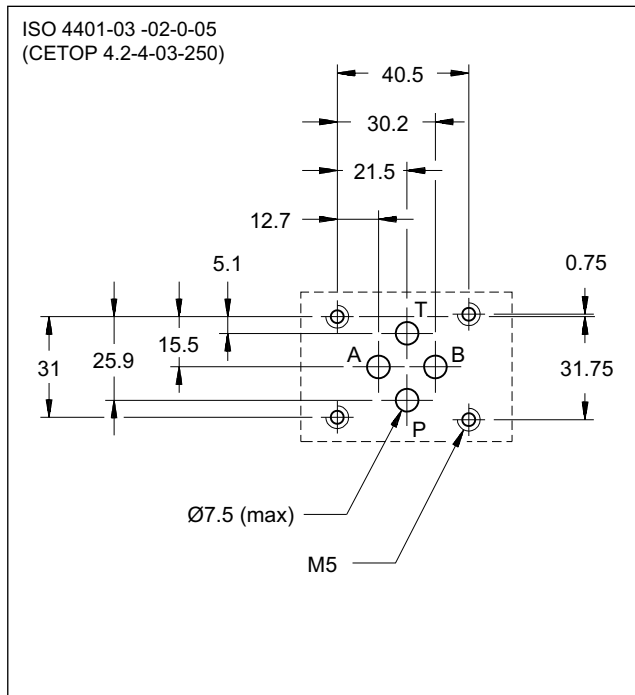
ELECTRIC FAST / SLOW SPEED SELECTION VALVE SERIES 10



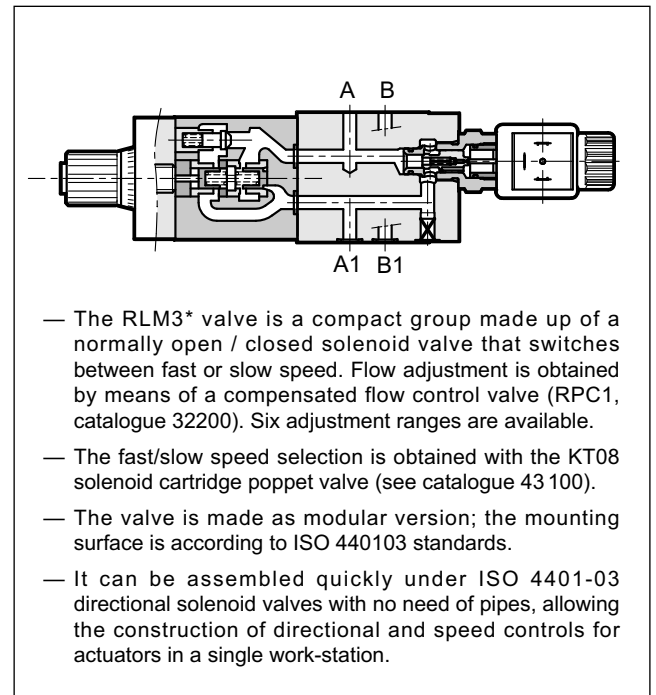
MODULAR VERSION ISO 4401-03

p max 250 bar
Q max (see table of performances)

MOUNTING SURFACE



OPERATING PRINCIPLE



PERFORMANCES

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

| | | |
|--|--|---------------------------------|
| Maximum operating pressure | bar | 250 |
| Maximum flow rate in controlled lines Maximum flow rate in the free lines | l/min | 1 - 4 - 10 - 16 - 22 - 30 65 |
| Minimum controlled flow rate | l/min | 0,025 |
| 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 | 3,1 |

CONFIGURATIONS

(see hydraulic symbols)

- Configuration "A": meter-out control from the actuator on chamber A.
- Configuration "T": act on discharge of the directional solenoid valve above, for speed control of the movement in both the directions.

1 - IDENTIFICATION CODE

| | | | | | | | | | | | |
|----------|----------|----------|----------|----------|--|----------|-----------|----------|--|----------|--|
| R | L | M | 3 | - | | / | 20 | - | | / | |
|----------|----------|----------|----------|----------|--|----------|-----------|----------|--|----------|--|

Electric fast/ slow speed selection valve

Modular version

Size ISO 4401-03

Adjustments:

A = adjustment on chamber A of the actuator
T = adjustment on discharge T of the directional solenoid valve

C = normally closed solenoid valve
A = normally open solenoid valve

Flow adjustment range:

| | |
|----------------------|----------------------|
| 01 = 1 l/min | 16 = 16 l/min |
| 04 = 4 l/min | 22 = 22 l/min |
| 10 = 10 l/min | 30 = 30 l/min |

Series No. (the overall and mounting dimensions remain unchanged from 20 to 29)

Seals:

N = NBR for mineral oils
V = viton for special fluids

Option:
Manual override see point 10.

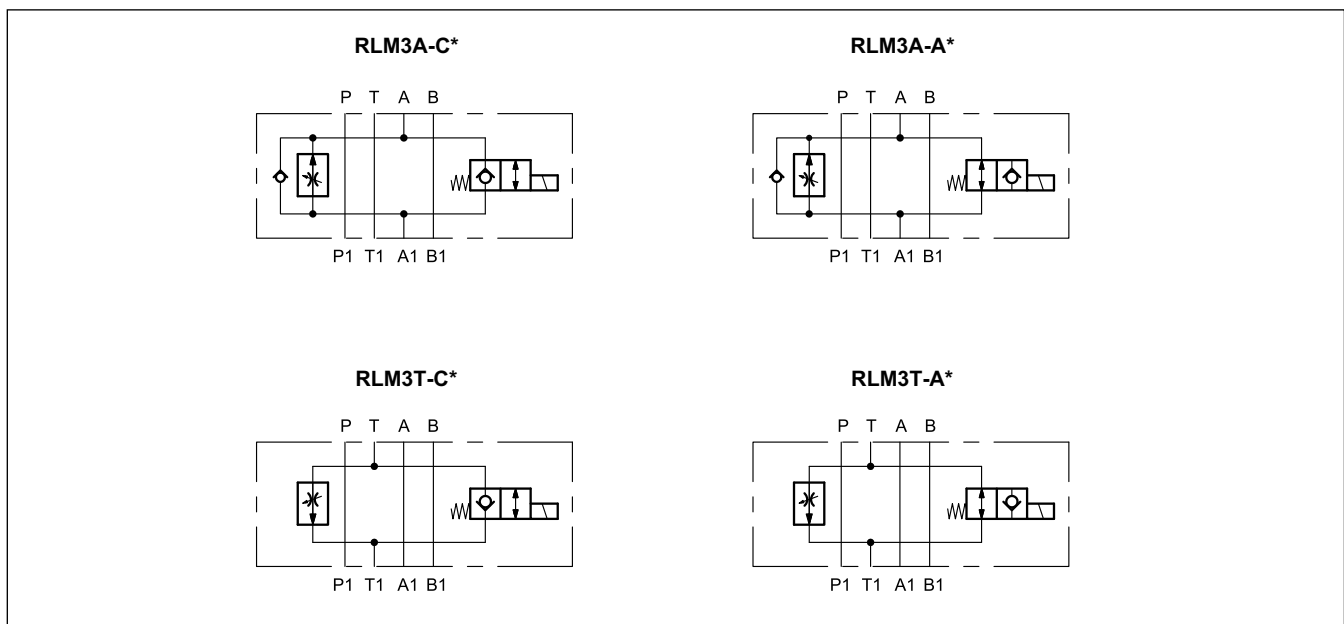
Coil electrical connection:
(see point 8)
K1 = plug for connector type EN 175301-803 (ex DIN 43650) (**standard**)

For **D12** and **D24** coils only:
K2 = plug for connector type AMP JUNIOR
K4 = outgoing cables
WK7 = plug DEUTSCH DT04-2P for male connector type DEUTSCH DT06-2S
WK8 = plug for connector type AMP SUPER SEAL

DC power supply:
direct current (**standard**)
D12 = 12 V
D24 = 24 V
rectified current
R110 = 110 V
R230 = 230 V
D00 = Valve without coil (the coil locking ring and the relevant seals are included in the supply)

NOTE : For further information about the flow control valve see catalogue 32 200; for further information about the cartridge poppet valve see catalogue 43 100.

2 - HYDRAULIC SYMBOLS



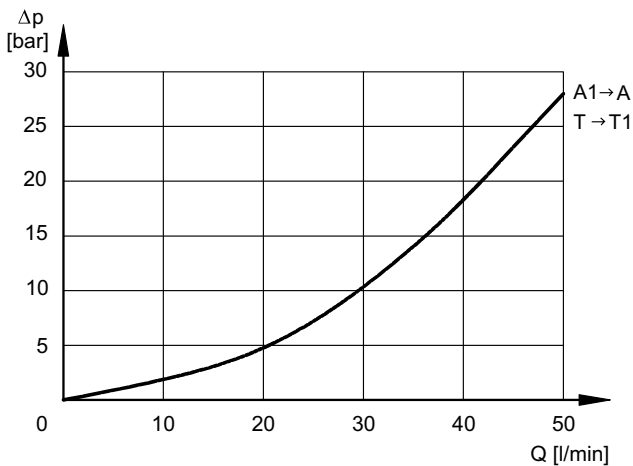
3 - HYDRAULIC FLUIDS

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 kinds of fluid 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.

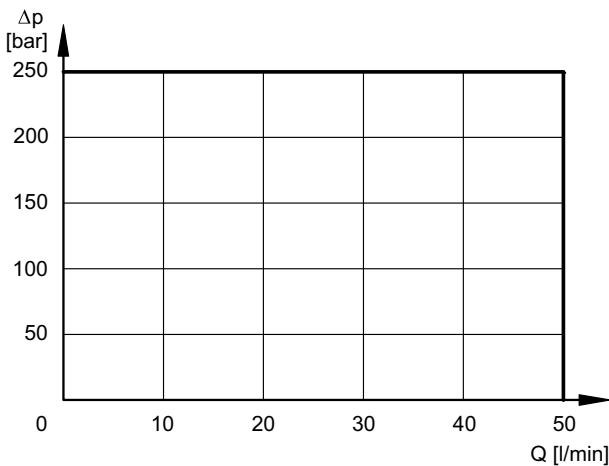
4 - PRESSURE DROPS $\Delta P-Q$

(obtained with viscosity of 36 cSt at 50 °C)



The values in graphs refer to the fast flow through the solenoid valve and are equal for A (normally open) and C (normally closed) versions.

5 - OPERATING LIMITS



The curves define the flow rate operating fields according to the valve pressure of the different versions.

The values have been obtained according to ISO 6403 norm with solenoids at rated temperature and supplied with voltage equal to 90% of the nominal voltage.

The value have been obtained with mineral oil, viscosity 36 cSt, temperature 50 °C and filtration according to ISO 4406:1999 class 18/16/13.

6 - SWITCHING TIME

The values are obtained according to the ISO 6403 standard, with mineral oil at 50 °C, with viscosity of 36 cSt.

| TIMES [ms] | ENERGIZING | DE-ENERGIZING |
|-----------------|------------|---------------|
| RLM3*-C* | 60 | 85 |
| RLM3*-A* | 85 | 60 |



7 - ELECTRICAL FEATURES

7.1 - Solenoids

These are essentially made up of two parts: tube and coil. The tube is threaded onto 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 nut, and can be rotated according to the available space.

The interchangeability of coils of different voltages both D or R type is possible without removing the tube.

Protection from atmospheric agents IEC 60529

The IP protection degree is intended for the whole valve. It is guaranteed only with both valve and connector of an equivalent IP degree, correctly connected and installed.

Versions with CM manual override are IP65 always.

| Electric connection | IP65 | IP66 | IP67 | IP68 | IP69 IP69K (*) |
|---------------------|------|------|------|------|-------------------|
| K1 | x | x | | | |
| K2 | x | | x | | |
| K4 | x | | | | |
| WK7 | x | | x | x | x |
| WK8 | x | x | x | x | x |

(*) The protection degree IP69K is not taken into account in IEC 60529 but it is included in both ISO 20653.

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

NOTE: In order to further reduce the emissions, with DC supply, use of type H connectors is recommended. These prevent voltage peaks on opening of the coil supply electrical circuit (see cat. 49 000).

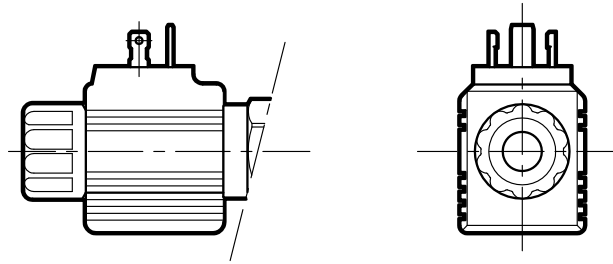
7.2 - Current and absorbed power

In the table are shown current and power consumption values relevant to the different coil types. "R" coil must be used when the valve is fed with AC power supply subsequently rectified by means of rectifier bridge, externally or incorporated in the "D" type connector (see cat. 49 000).

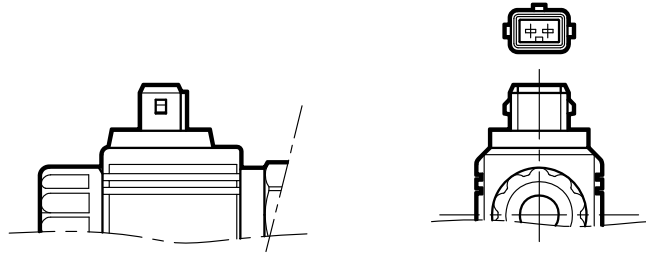
| | Resistance at 20°C [Ω] (±1%) | Absorbed current [A] (±5%) | Absorbed power (±5%) | | Coil code | | | | |
|-------------|------------------------------|----------------------------|----------------------|------|-----------|---------|---------|---------|---------|
| | | | [W] | [VA] | K1 | K2 | K4 | WK7 | WK8 |
| D12 | 5,4 | 2,2 | 26,5 | | 1902740 | 1902750 | 1902770 | 1903510 | 1903520 |
| D24 | 20,7 | 1,16 | 27,8 | | 1902741 | 1902751 | 1902771 | 1903511 | 1903521 |
| R110 | 363 | 0,25 | | 27,2 | 1902742 | | | | |
| R230 | 1640 | 0,11 | | 26,4 | 1902743 | | | | |

8 - ELECTRIC CONNECTIONS

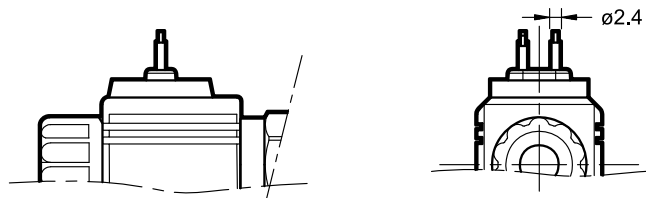
connection for EN 175301-803
(ex DIN 43650) connector type
code **K1 (standard)**



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



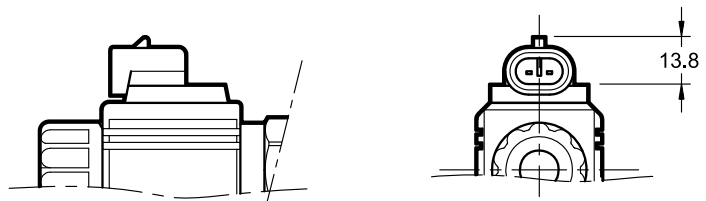
outgoing cable connections
cable length = 1 mt
code **K4**



connection for DEUTSCH DT04-2P
for male connector type DEUTSCH DT06
code **WK7**



connection for AMP SUPER SEAL
(two contacts) connector type
code **WK8**

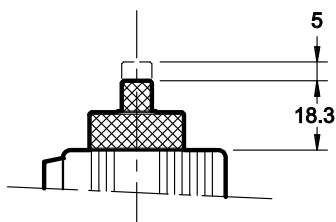


9 - ELECTRIC CONNECTORS

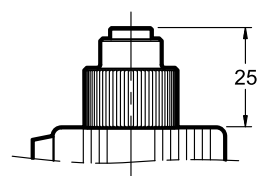
Solenoid valves are delivered without connectors. Connectors type EN 175301-803 (ex DIN 43650) for K1 connection can be ordered separately. See catalogue 49 000.

10 - MANUAL OVERRIDE

CM for RLM3*-C (screw type)



CM for RLM3*-A (pushing type)



11 - OVERALL AND MOUNTING DIMENSIONS

