

RLM3

ELECTRIC FAST / SLOW SPEED SELECTION VALVE SERIES 21

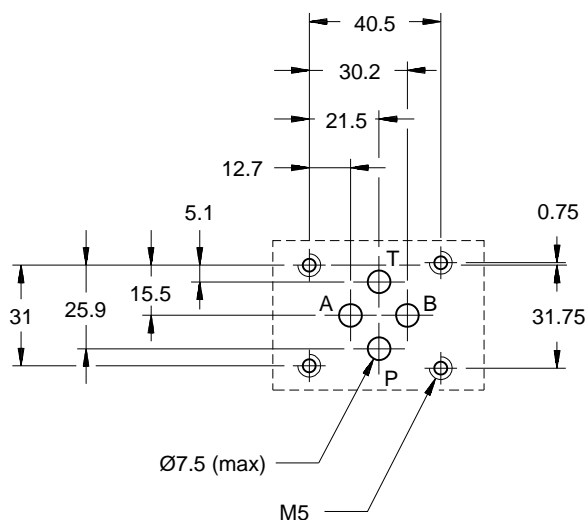


MODULAR VERSION ISO 4401-03

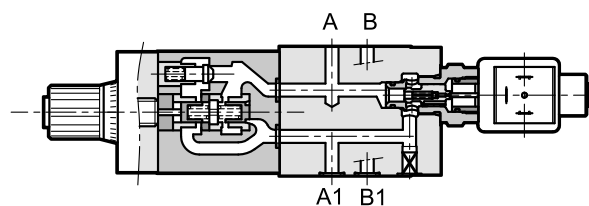
p max 250 bar
Q max (see table of performances)

MOUNTING SURFACE

ISO 4401-03 -02-0-05
(CETOP 4.2-4-03-250)



OPERATING PRINCIPLE



- RLM3* valves are modular valves for fast / slow speed control of hydraulic actuators. The mounting surface is according to ISO 4401-03 standards.
- The slow speed regulation is done by a compensated flow control valve (RPC1, catalogue 32 200). Six adjustment ranges are available.
- The fast/slow speed selection is done by a solenoid poppet valve KT08 (see catalogue 43 105).
- RLM3* valves can be easily stacked under ISO 4401-03 directional solenoid valves with no need of pipes, allowing the construction of directional and speed controls for actuators in a single station.

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)

- Type "A": meter-out control on port A (control on outgoing flow from the A chamber of the actuator) .
- Type "T": control on the T path of the directional solenoid valve which will be stacked above the RLM3, to regulate the speed in both the directions.

1 - IDENTIFICATION CODE

R	L	M	3	-	/	21	N	-			
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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)

NBR seals for mineral oils

Manual override (see point 11):
 Omit for valves with no manual override
/CK2 = push and twist

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

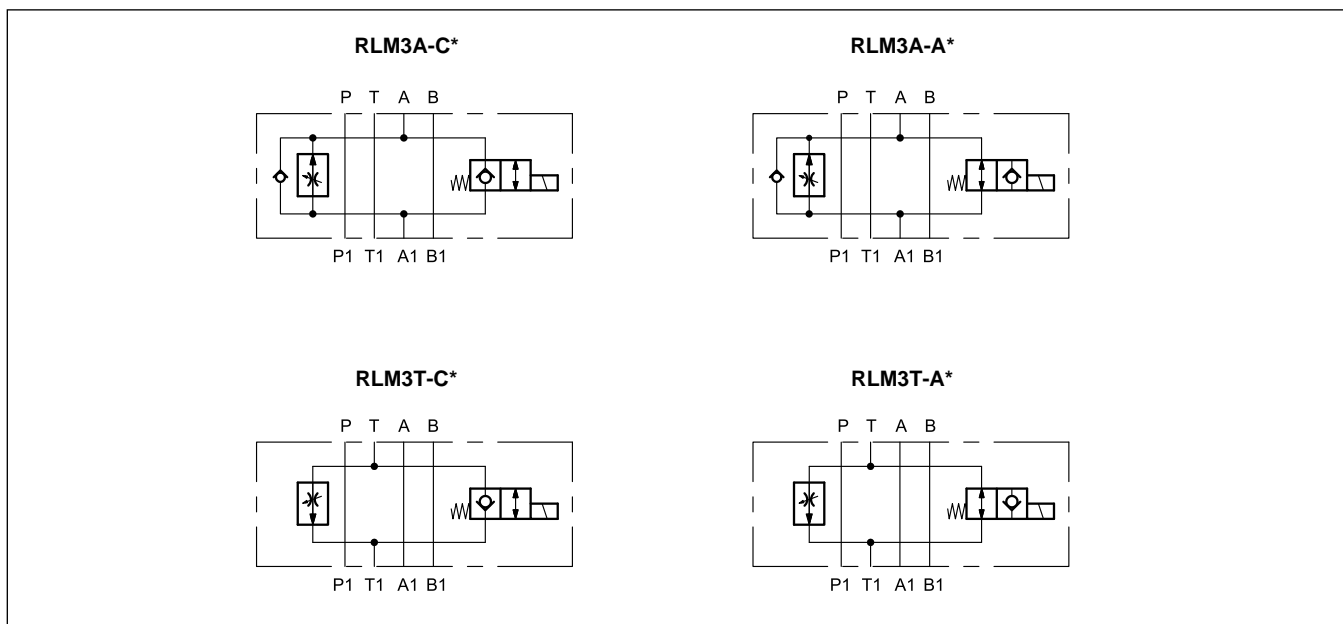
For **D12** and **D24** coils only:
K2 = plug for connector type AMP JUNIOR
K7 = plug DEUTSCH DT04-2P for male connector type DEUTSCH DT06-2S

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

NOTE: For further information about the compensated flow control valve see catalogue 32 200; for further information about the solenoid switching valve see catalogue 43 105.

2 - HYDRAULIC SYMBOLS



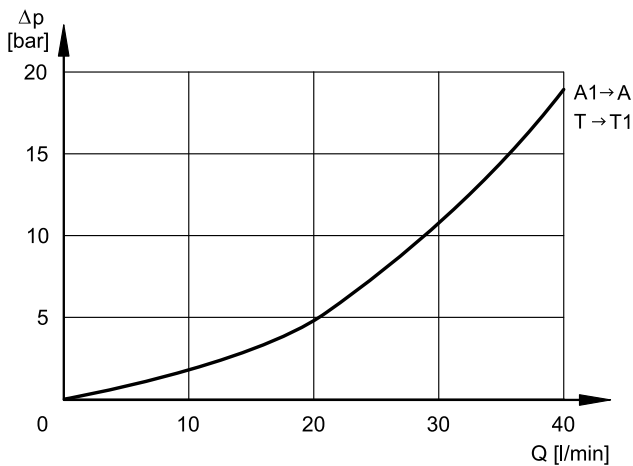
3 - HYDRAULIC FLUIDS

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 $\Delta P-Q$

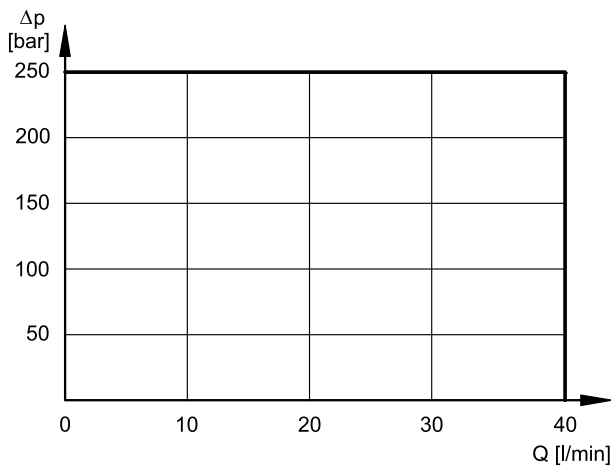
(obtained with viscosity of 36 cSt at 50 °C)



The value in the diagram refer to the fast flow, through the solenoid valve and is the same for both versions A (normally open) and C (normally closed).

5 - OPERATING LIMITS

(obtained with viscosity of 36 cSt at 50 °C and filtration according to ISO 4406:1999 class 18/16/13.)



This curve defines the flow rate operating field according to ISO 6403 standard, with solenoid at rated temperature and voltage equal to 90% of the nominal voltage.

6 - SWITCHING TIME

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

Values obtained according to the ISO 6403 standard.

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 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. Coils of different voltages can be fitted without having to replace 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% V _{nom}
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

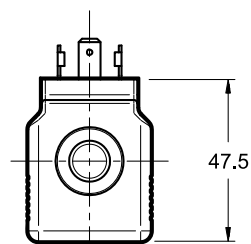
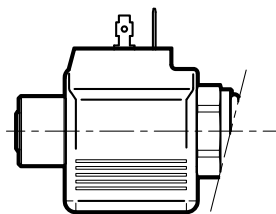
7.2 - Current and absorbed power

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

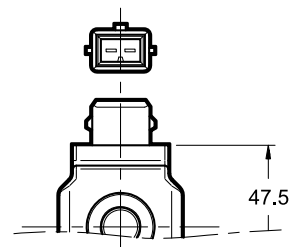
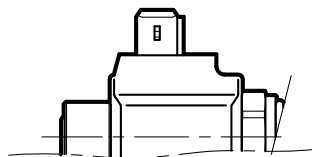
	Nominal voltage [V] (±10%)	Resistance at 20°C [Ω] (±7%)	Absorbed current [A]	Absorbed power [W]	Coil code		
					K1	K2	K7
D12	12	6.5	1.84	22	1904140	1904180	1904150
D24	24	26.2	0.92	22	1904141	1904181	1904151
D110	110	550	0.2	22	1904142	-	-
D220	220	2200	0.1	22	1904143	-	-

8 - ELECTRIC CONNECTIONS

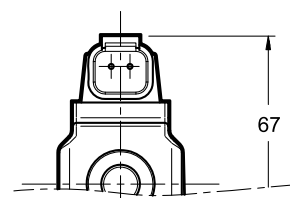
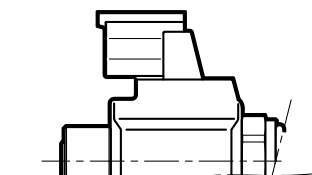
connection for EN 175301-803 (ex DIN 43650) connector code **K1 (standard)**



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



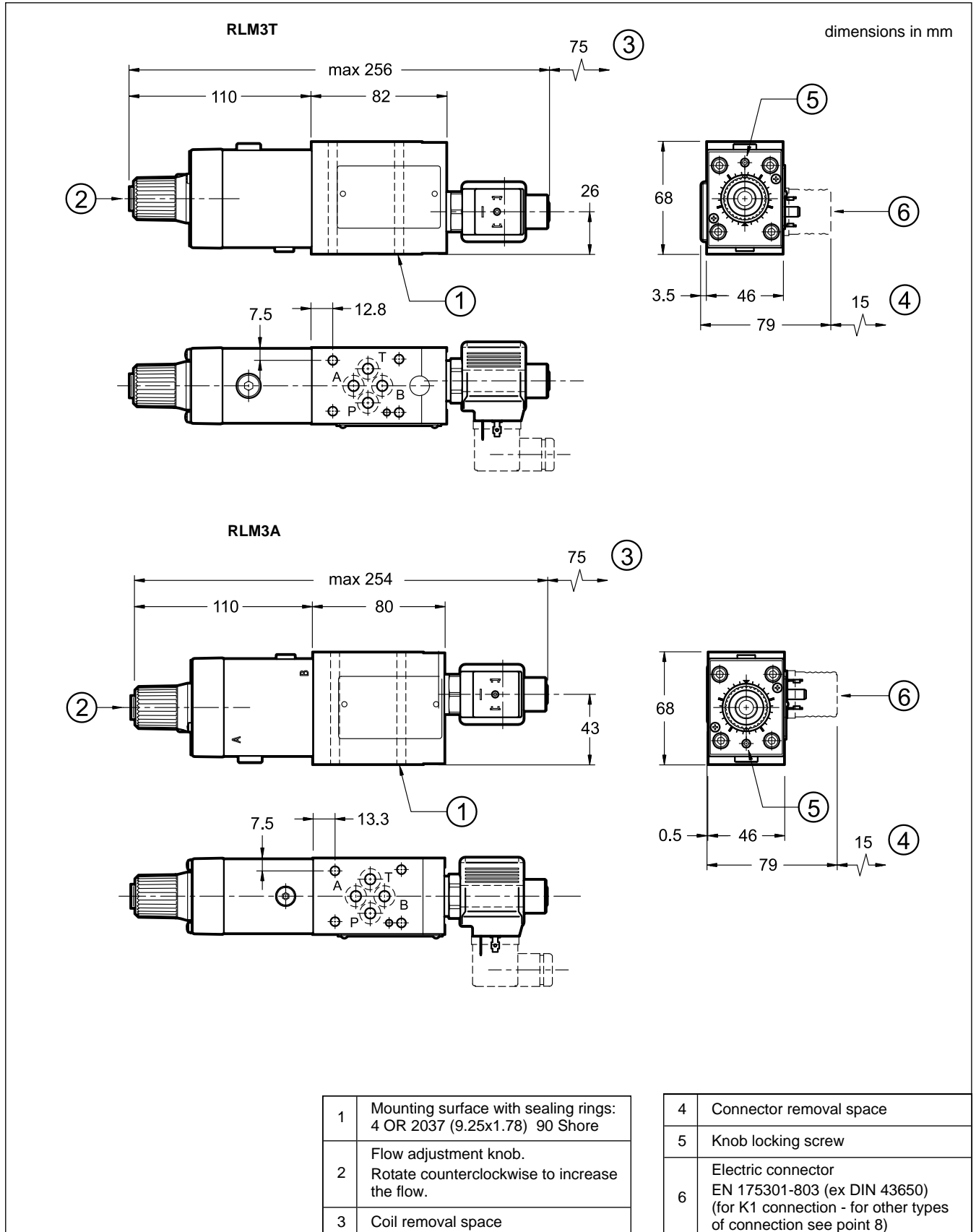
connection for DEUTSCH DT06-2S male connector type code **K7**



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 - OVERALL AND MOUNTING DIMENSIONS



11 - MANUAL OVERRIDE

The switching solenoid valve can be delivered with push and twist manual override (CK2 code) or without any override.

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.

