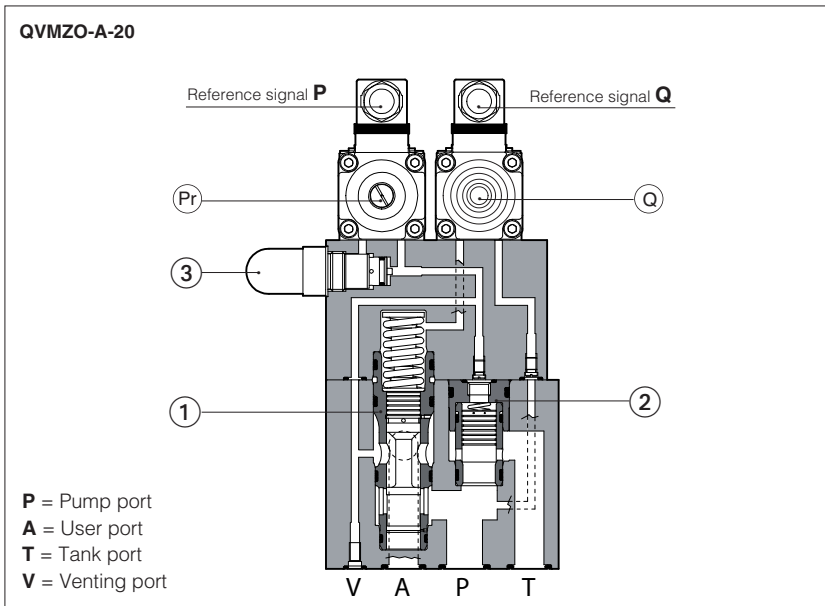


# Proportional pressure and flow control valves type QVMZO

independent pressure and 3-way compensated flow regulation



QVMZO are double proportional valves, which provide the independent flow and pressure control in systems with fixed displacement pump, according to the electronic reference signal.

They operate in association with electronic drivers, see sect. 7, which supply the proportional valves with correct current signal to align valve regulation to the reference signal supplied to the electronic driver.

The cartridge ① regulates the flow at port A according to the reference signal Q.

The cartridge ② operates as 3-way pressure compensator between P and A ports discharging excess flow through port T.

The pressure is regulated according to the reference signal P.

The pressure relief valve with manual setting ③ operates as safety valve.

The coils are fully plastic encapsulated (insulation class H) and valves have antivibration, antishock and weather-proof features.

Surface mounting: ISO size 16, 25, flange attachment 1 1/4" SAE 3000.

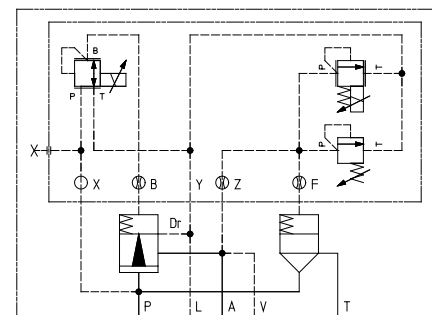
Max flow up to 170 l/min, 280 l/min, 500 l/min respectively with compensating  $\Delta p = 7$  bar.

Max pressure: 250 bar.

<b>1 MODEL CODE</b>	
<b>QVMZO - A - 20 / 3 L4 / 250 / 18 ** /*</b>	
Double proportional valve for pressure and flow control	Seals material: omit for NBR (mineral oil & water glycol) PE = FPM
A = without integral transducer	Series number
Size: 20 = ISO 6263 size 20 32 = ISO 6263 size 25 40 = flange 1" 1/4 SAE 3000	Coil voltage (only for -A execution) - = standard coil for 24V <sub>DC</sub> Atos drivers 6 = optional coil for 12V <sub>DC</sub> Atos drivers 18 = optional coil for low current drivers
3 = 3-way	Maximum pressure 250 = 250 bar
	Regulation characteristics: L2 = linear (only for size 20); S2 = progressive (only for size 20) L4 = linear; S4 = progressive

## 2 HYDRAULIC CHARACTERISTICS (based on mineral oil ISO VG 46 at 50 °C)

Model		QVMZO-20	QVMZO-32	QVMZO-40
Regulation characteristics		L2, S2, L4, S4	L4, S4	L4, S4
Maximum pressure [bar]		250		
Maximum flow [l/min]		90	170	500
Flow regulation range [l/min]		1 ÷ 90	1 ÷ 170	2,5 ÷ 280
Pressure regulation range [bar]		14 ÷ 250		
FLOW CONTROL Q	Compensating $\Delta p$ [bar]	7	7	7
	Hysteresis [%]	≤ 3		
	Repeatability [%]	≤ 1		
PRESSURE CONTROL P	Minimum piloting pressure [bar]	14		
	Hysteresis [%]	≤ 2		
	Repeatability [%]	≤ 1		



Note: plug on port V is normally open.  
V port can be used for optional connection to a solenoid valve for venting.

Above performances data refer to valve coupled with Atos electronic drivers, see section 7.

### 3 MAIN CHARACTERISTICS OF PROPORTIONAL PRESSURE AND FLOW VALVES QVMZO

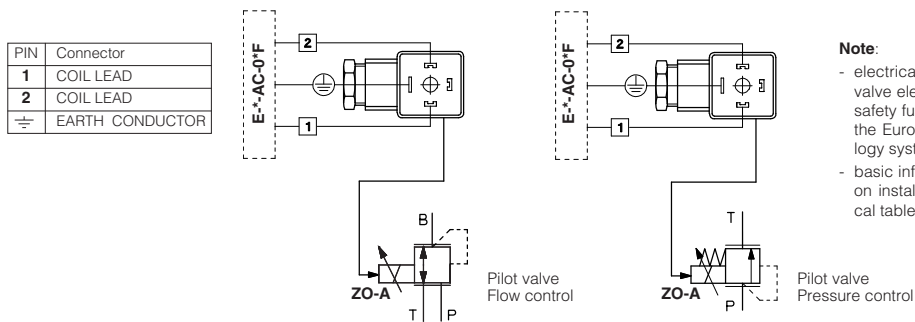
Assembly position	Any position
Subplate surface finishing	Roughness index Ra 0,4 - flatness ratio 0,01/100 (ISO 1101)
Ambient temperature	-20°C ÷ +70°C
Fluid	Hydraulic oil as per DIN 51524 ... 535 for other fluids see section I
Recommended viscosity	15 ÷ 100 mm <sup>2</sup> /s at 40°C (ISO VG 15÷100)
Fluid contamination class	ISO 4406 class 20/18/15 NAS 1638 class 9, in line filters of 10 µm (β <sub>10</sub> ≥ 75 recommended)
Fluid temperature	-20°C +60°C (standard seals and water glycol) -20°C +80°C (/PE seals)

#### 3.1 Coils characteristics

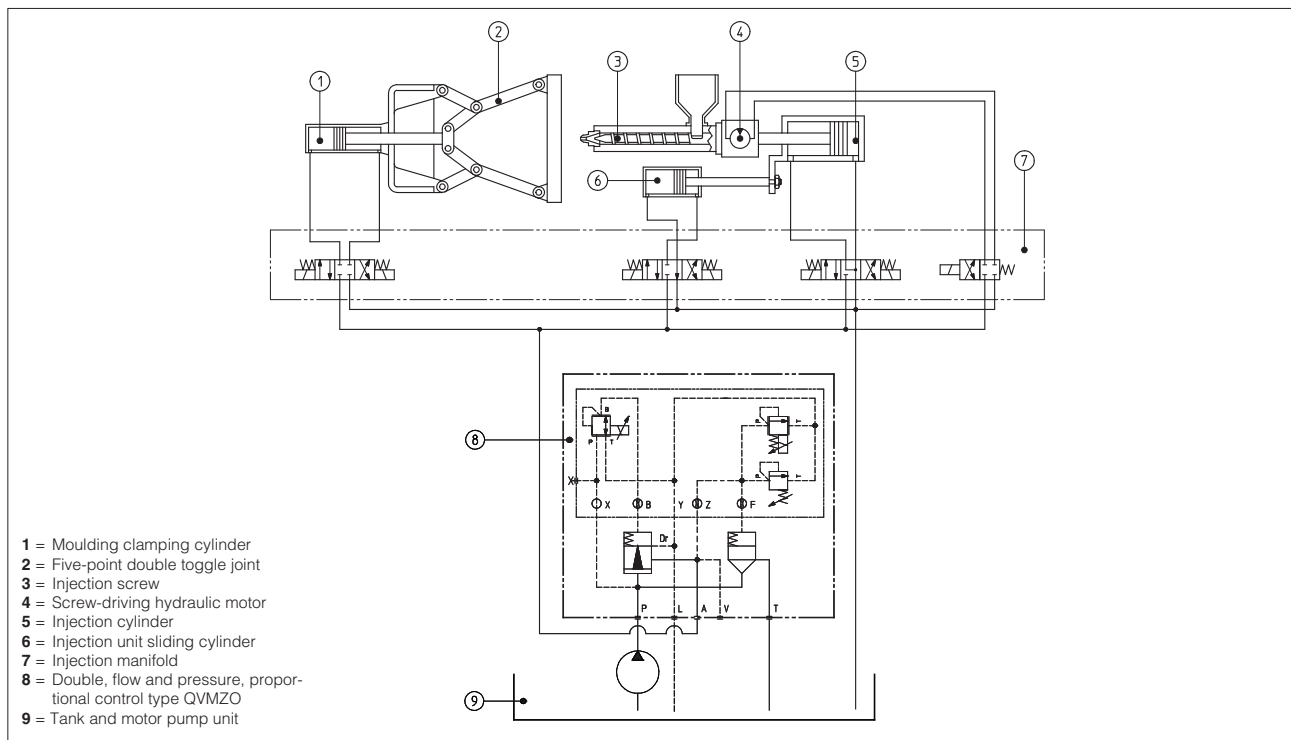
Valve model		QVMZO		
		Standard	option /6	option /18
Coil resistance R at 20°	Flow control Q	3 ÷ 3,3 Ω	2 ÷ 2,2 Ω	13 ÷ 13,4 Ω
	Pressure control P			
Max. solenoid current	Flow control Q	1,75 A	2,2 A	0,75 A
	Pressure control P	2 A	2,4 A	0,9 A
Max. power	Flow control Q	30 W	30 W	30 W
	Pressure control P	35 W	35 W	35 W
Protection degree (CEI EN-60529)		IP65		
Duty factor		Continuous rating (ED=100%)		

### 4 ELECTRIC WIRING

Electric wiring to reference generators must be made using shielded cables: the sheat must be connected to the power supply zero **on the generator side**. The power supply must be properly stabilized or rectified and filtered. For complete electric wiring with all available options, see section G



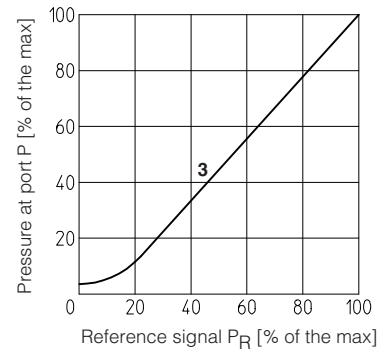
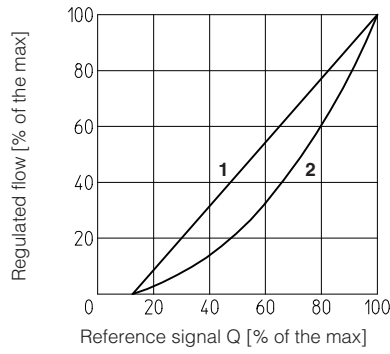
### 5 TYPICAL APPLICATION IN PLASTIC INJECTION MACHINES



## 6 DIAGRAMS

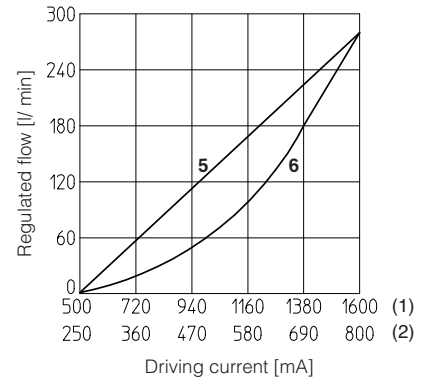
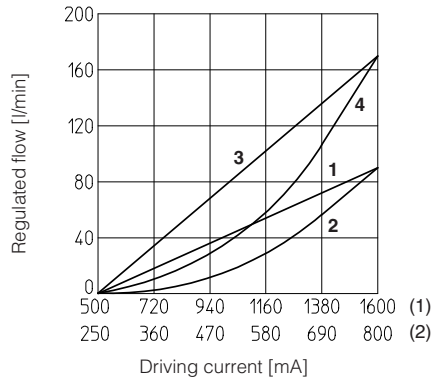
### 6.1 Regulation diagrams for valves with Atos electronic drivers

- 1 = QVMZO...L2, L4
- 2 = QVMZO...S2, S4
- 3 = QVMZO (pressure regulation)



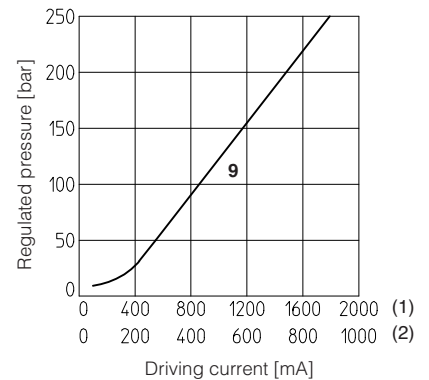
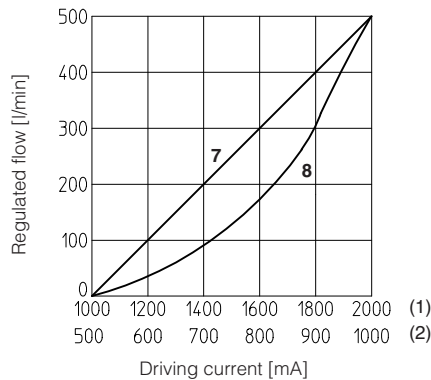
### 6.2 Regulation diagrams: driving current vs. regulated flow and vs. regulated pressure

- 1 = QVMZO-A-20/3L2
- 2 = QVMZO-A-20/3S2
- 3 = QVMZO-A-20/3L4
- 4 = QVMZO-A-20/3S4
- 5 = QVMZO-A-32/3L4
- 6 = QVMZO-A-32/3S4
- 7 = QVMZO-A-40/3L4
- 8 = QVMZO-A-40/3S4
- 9 = QVMZO (pressure regulation)



#### Note:

- (1) = with standard coil 12 V<sub>DC</sub>
- (2) = with coil 18 V<sub>DC</sub>



## 7 ELECTRONIC DRIVERS FOR QVMZO-A\*

Valve model	-A					
Drivers model	E-MI-AC-01F	E-MI-AS-IR	E-BM-AC-011F	E-BM-AS	E-ME-AC-01F	E-RP-AC-01F
Data sheet	G010	G020	G025	G030	G035	G100

For complete information about the drivers characteristics and relevant options, see the technical data sheet specified in the table.

8 INSTALLATION DIMENSIONS [mm]

**QVMZO-20**

ISO 6263: 1999

Mounting surface: 6263-07-11-1-97

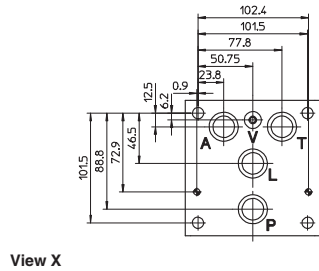
Fastening bolts: 4 socket head screws M10x80 class 12.9

Tightening torque = 70 Nm

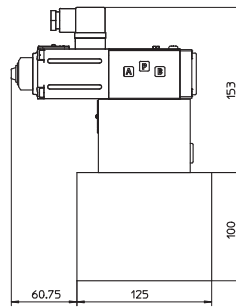
Seals: 4 OR 130; 1 OR 2050

Diameter of ports A, P, T:  $\varnothing = 20$  mm

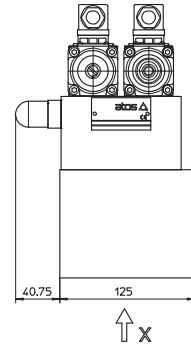
- P = Inlet port
- A = Outlet port
- T = Tank port
- L = Drain port
- V = Vent port



View X



**QVMZO-A-20**



Mass: 18,5 Kg

**QVMZO-32**

ISO 6263: 1999

Mounting surface: 6263-08-15-1-97

Fastening bolts: 4 socket head screws M16x120 class 12.9

Tightening torque = 300 Nm

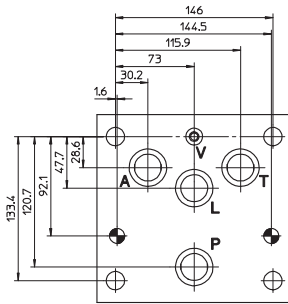
Seals: 4 OR 4112; 1 OR 2050

Ports diameter:

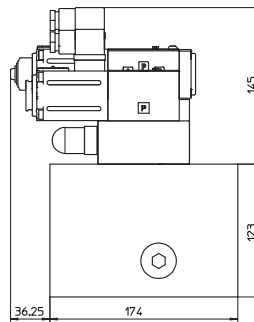
$\varnothing 25$  mm (P, A, L, T);

$\varnothing 5$  mm (V)

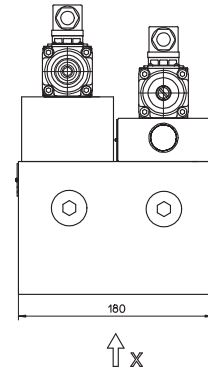
- P = Inlet port
- A = Outlet port
- T = Tank port
- L = Drain port
- V = Vent port



View X



**QVMZO-A-32**



Mass: 32,8 Kg

**QVMZO-40**

Fastening bolts: M8 class 12.9

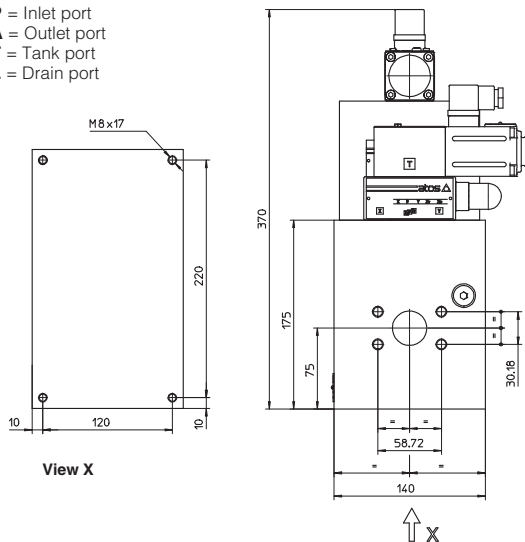
Tightening torque = 35 Nm

Port attachments:

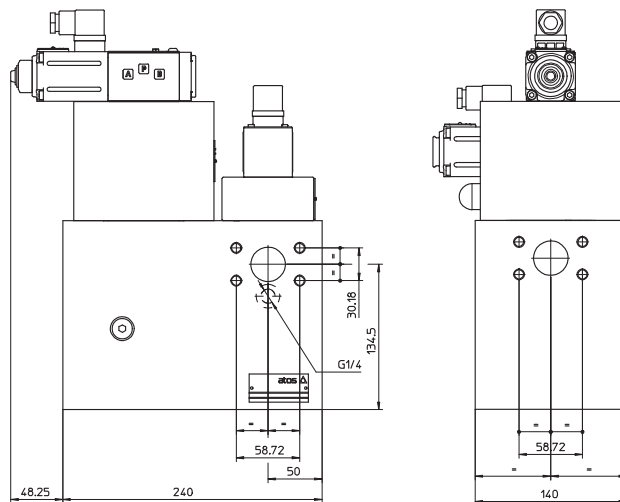
A, P, T = 1" 1/4 SAE 3000

L = G 1/4"

- P = Inlet port
- A = Outlet port
- T = Tank port
- L = Drain port



View X



**QVMZO-A-40**

Mass: 37,5 Kg