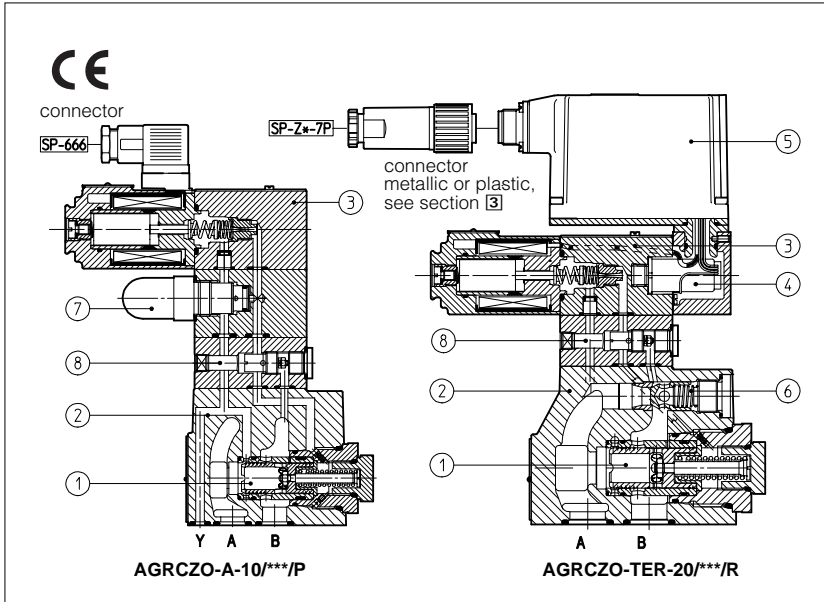


# Proportional reducing valves type **AGRCZO**

two stages, normally closed, ISO/Cetop sizes 06P, 08P



AGRCZO are two-stage normally closed proportional pressure reducing valves with pressure regulation proportional to electronic reference signals.

They operate in association with electronic drivers, see table 5 which supply the proportional valve with correct current signal to align valve regulation to the reference signal supplied to the electronic driver (which may be integral or Eurocard type).

They are available in different options:

- ZO-A, ZO-AE for open or closed loop controls with external pressure transducer;
- ZO-TER with integral pressure transducer plus electronics preset in control loop featuring improved static and dynamic performances.

The piloting pressure to the poppet ① of the main stage ② is modulated by a proportional pressure relief valve type RZMO ③, see tab. F007.

A modular pressure compensated flow control cartridge ⑧ assures constant pilot flow and therefore high pressure stability.

The ZO-TER versions are equipped with integral pressure transducer ④ and electronics ⑤, which realizes the pressure closed loop control inside the valve. This allows higher dynamic performances, eliminates hysteresis and the linearity errors of the valve.

The integral construction ensures factory presetting, fine functionality plus valve-to-valve interchangeability and simplified wiring and system installation.

Version with internal check valve ⑥ and/or pressure relief mechanical valve ⑦ available on request.

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

Surface mounting: ISO/Cetop 06P, 08P  
 Max flow: 160, 300 l/min respectively  
 Max pressure: 315 bar.

## 1 MODEL CODE

**AGRCZO - A - 10 / 315 / \* \*\* / \***

Proportional pressure reducing valve  
 ISO/Cetop 06P, 08P

**A** = without integral transducer  
**AE** = as A plus integral electronics  
**TER** = with integral electronics and pressure transducer

See note 2 at section 4

Size:

**10** = ISO/Cetop 06P  
**20** = ISO/Cetop 08P

Pressure range (3):

**50** = 50 bar (0 → 50 bar)  
**100** = 100 bar (0 → 100 bar)  
**210** = 210 bar (0 → 210 bar)  
**315** = 315 bar (0 → 315 bar)

Synthetic fluids  
**WG** = water-glycol  
**PE** = phosphate ester

Design number

Options:

**P** = with integral mechanical pressure limiter;  
**R** = with check valve;

only for -A versions:  
**6** = with 6 Vcc coil instead of standard 12 Vcc coil

**18** = with 18 Vcc coil instead of standard 12 Vcc coil

only for -AE, -TER versions:

**I** = current reference (4 ÷ 20 mA)  
**F** = fault signal (only -TER versions)  
**Q** = with enable signal without signal zero (only -TER versions)  
**FI** = with fault signal and current reference input (only -TER versions)

## 2 HYDRAULIC CHARACTERISTICS (1) - see notes at section 4

Hydraulic symbols	AGRCZO-A,		AGRCZO-AE		AGRCZO-TER (2)	
	10	20	10	20	10	20
Size	10	20	10	20	10	20
Max regulated pressure (Q = 10 l/min) [bar]	50; 100; 210; 315		100; 210; 315		100; 210; 315	
Min regulated pressure at port A [bar]	0		0		0	
Max pressure at port B [bar]	315		315		315	
Max pressure at port A [bar]	315		315		315	
Max flow [l/min]	160	300	160	300	160	300
Response time [ms] 0 - 100% signal variation (depending on installation)	50	60	50	60	45	50
Hysteresis [% of the regulated max pressure]	≤ 1,5		≤ 1,5		≤ 0,5	
Linearity [% of the regulated max pressure]	≤ 3		≤ 3		≤ 0,5	
Repeatability [% of the regulated max pressure]	≤ 2		≤ 2		≤ 0,1	

### 3 MAIN CHARACTERISTICS OF PROPORTIONAL PRESSURE REDUCING VALVES TYPE AGRCZO

Assembly position	Any position	
Subplate surface finish	Roughness index, $\sqrt{0.4}$ flatness ratio 0,01/100 (ISO 1101)	
Ambient temperature	-20°C ÷ +70°C for AGRCZO-A version / -20°C ÷ +60°C for AGRCZO-AE and AGRCZO-TER versions	
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 18/15 achieved with in line filters of 10 µm and $\beta_{10} \geq 75$ (recommended)	
Fluid temperature	T ≤ 80°C, if T ≥ 60°C select /PE seals	
Coil resistance R at 20°C	3 ÷ 3.3 Ω for standard 12 V <sub>DC</sub> coil; 2 ÷ 2,2 Ω for 6 V <sub>DC</sub> coil; 13 ÷ 13,4 Ω for 18 V <sub>DC</sub> coil	
Max solenoid current	2,6 A (1,8 A for version /32) for standard 12 V <sub>DC</sub> coil; 3,25 A (2,25 A for version /32) for 6 V <sub>DC</sub> coil; 1,5 A (0,8 A for version /32) for 18 V <sub>DC</sub> coil	
Max power	40 Watt	
Relative duty factor	Continuous rating (ED=100%)	
Type of connector	for -A versions	Type SP-666 (plastic - black); 3 pins, cable clamp PG11, cable max. Ø 10 mm
	for -AE, -TER versions	Type SP-ZM-7P (metallic), 7 pins, cable clamp PG11, cable max Ø 10 mm <b>to be ordered separately</b> Type SP-ZH-7P (plastic), 7 pins, cable clamp PG11, cable max Ø 10 mm
Connectors features	SP-666: DIN 43650 - ISO 4400; IP 65 (DIN 40050); VDE 0110C; SP-ZM-7P: according to MIL-C-5015G; IP 66 (DIN 40050); SP-ZH-7P: mounting dimensions according to MIL-C-5015G; IP 67 (DIN 40050);	

### 4 NOTES TO TABLES 2 AND 3

- 1) Typical characteristics in table 2 refer to valves coupled with Atos electronic drivers and operation with ISO VG-36 mineral oil at 50°C.
- 2) The integral closed loop control of -TER type valves is affected by the stiffness of the hydraulic circuit: tgreater is the stiffness of the circuit, better are the performances. Please contact our technical office in case of circuits with accumulators and/or with great fluid volumes and/or with long hoses.
- 3) Pressure range 50 not available for version -TER.

### 5 ELECTRONIC DRIVERS

For full information regarding electronic drivers, see section G.

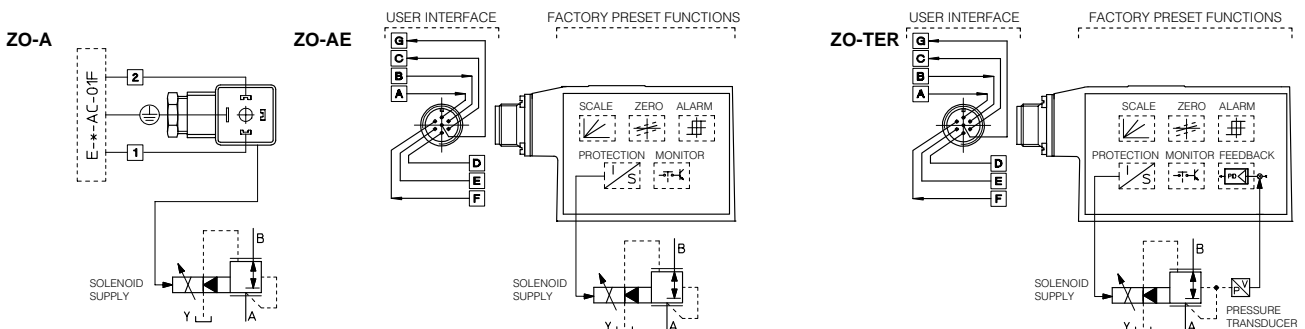
Models	Valve model	Execution (1)	Max power consumption (2)	Driver response	Reference signals (3)	Ramps (4)	Special functions (5)	Alarm (6)
E-MI-AC-01F	AGRCZO-A	I	40W	normal	C, (A)	YES	NO	NO
E-BM-AC-01F		B	40W	fast	C	YES	NO	NO
E-RP-AC-01F		S	50W	fast	C, (A)	YES	ENABLE	NO
E-ME-AC-01F		E	50W	fast	C, (A)	YES	ENABLE	NO
E-RI-AE-01F (7)	AGRCZO-AE	X	50W	fast	C, (A)	YES	MONIT.	NO
E-RI-TE-01H (7)	AGRCZO-TER	X	50W	high performance	C, (A)	NO	MONIT. FAULT	YES

#### NOTES

- (1) Execution, Format/Connection  
I = plug DIN 43650-IP65, VDE 0110 on solenoid  
B = fast plug in standard undecal base housing, relay type  
S = sealed box with cable clamp binding screw type  
E = Eurocard 100x160 mm (plug in unit DIN 41494)  
X = sealed box on the valve; IP67 - DIN 40050
- (2) Power supply at 24 V<sub>DC</sub> ± 10%
- (3) Reference signals  
A (option/I) = 4÷20 mA; 0÷20 mA (only for E-MI)  
C = 0÷10 V<sub>DC</sub> or 0÷5 V<sub>DC</sub> (not available for E-RI)
- (4) Ramps options, i.e. control of rapidly on rise and fall of supply current and consequently of hydraulic parameters
- (5) Enable: to allow driver operation only with an electric enabling signal.  
Monitor: value of regulated pressure or driving current  
Fault: alarm = 0 V<sub>DC</sub>; normal working = 24 V<sub>DC</sub>
- (6) Options to monitor anomalous operating conditions of driver
- (7) Integral digital electronics type E-RI-AES (open loop) and E-RI-TEs (closed loop) available on request

### 6 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



PIN	
1	COIL LEAD
2	COIL LEAD
⊕	EARTH CONDUCTOR

PIN	SIGNAL DESCRIPTION	TECHNICAL SPECIFICATION
A	Power supply 24 V <sub>DC</sub>	Nominal: + 24 V <sub>DC</sub>
B	Power supply zero	Filtered and rectified: V <sub>rms</sub> = 21 ÷ 33 (ripple max 2 V <sub>pp</sub> )
C	Signal zero	Reference 0 V <sub>DC</sub>
D	Input signal +	0 ÷ 10 V <sub>DC</sub> (4 ÷ 20 mA for option /I)
E	Input signal -	
F	Monitor: -regulated pressure (for E-RI-TE) -driving current (for E-RI-AE)	0 ÷ 100% ↔ 0 ÷ 10 V <sub>DC</sub> (R <sub>out</sub> = 10 KΩ); 0 ÷ 5 V <sub>DC</sub> (1V = 1A)      4 ÷ 20 mA for option /I
	Fault signal (only for E-RI-TE with option /F)	Alarm = 0 V <sub>DC</sub> ; Normal working = 24 V <sub>DC</sub>
G	Earth	Connect only when the power supply is not conform to VDE 0551 (CEI 14/6)

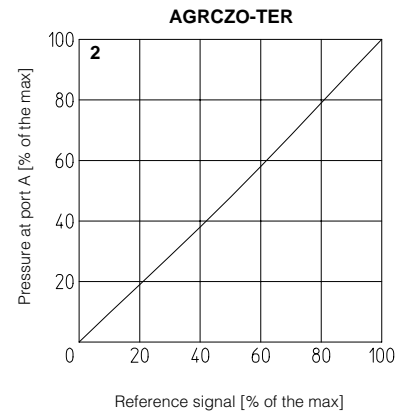
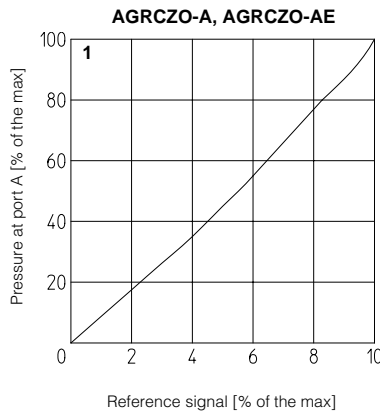
#### Note:

- electrical signals (e.g. actual - feedback signals) taken via valve electronics must not be used to switch off the machine safety functions. This is in accordance with the regulations to the European standard (Safety requirements of fluid technology systems and components - hydraulics).
- basic information for commissioning and start-up are present on installation notes always enclosed to the specific technical tables and relevant components.

**7 DIAGRAMS**

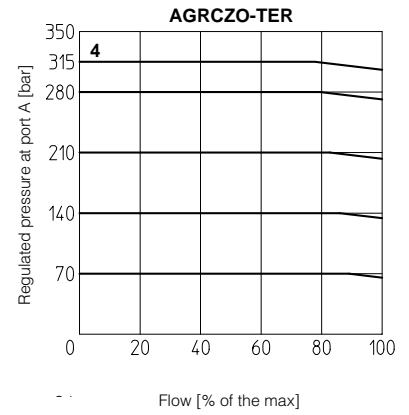
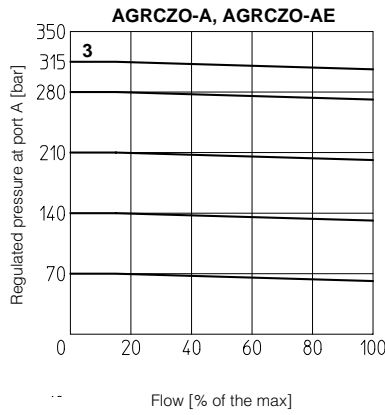
**7.1 Regulation diagrams**  
with flow rate Q = 10 l/min

- 1 = AGRCZO-A, AGRCZO-AE
- 2 = AGRCZO-TER



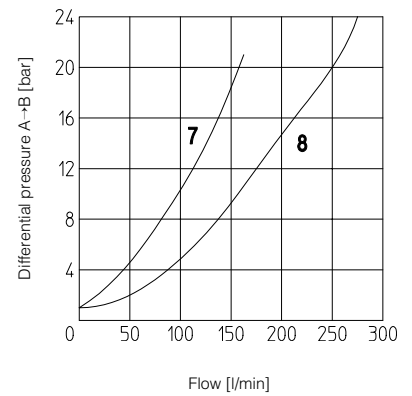
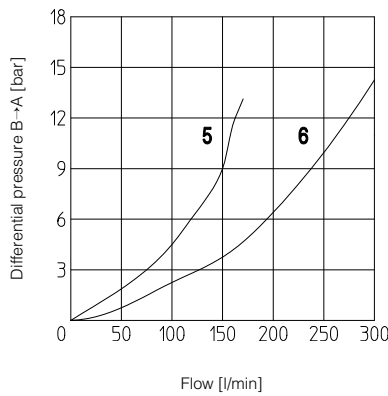
**7.2 Pressure/flow diagrams**  
with reference pressure set with  
Q = 10 l/min

- 3 = AGRCZO-A, AGRCZO-AE
- 4 = AGRCZO-TER



**7.3 Pressure drop/flow diagrams**  
with reference signal "null"

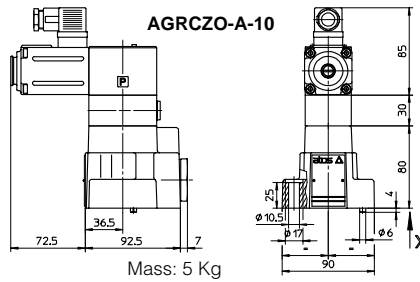
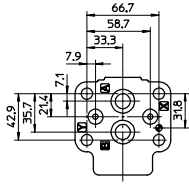
- 5 = AGRCZO-\*-10
- 6 = AGRCZO-\*-20
- 7 = AGRCZO-\*-10\*/R
- 8 = AGRCZO-\*-20\*/R



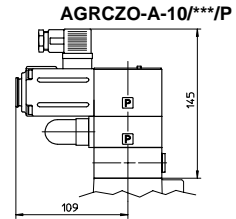
**8 INSTALLATION DIMENSIONS [mm]**

**ISO/Cetop 06P**

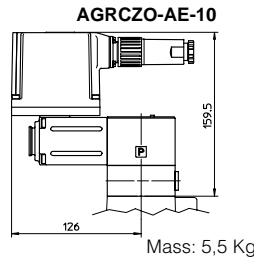
Fastening bolts: 4 socket head screws M10 x 45  
 Seals: 2 OR 109; 2 OR 3068  
 Diameters of ports A, B:  $\varnothing = 14$  mm  
 Diameters of ports X, Y:  $\varnothing = 5$  mm



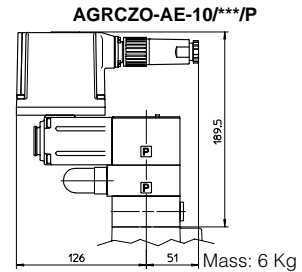
AGRCZO-A-10  
Mass: 5 Kg



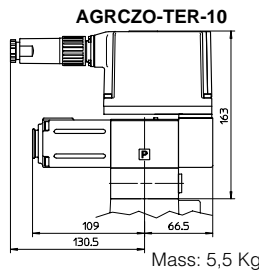
AGRCZO-A-10/\*\*\*P  
Mass: 5,5 Kg



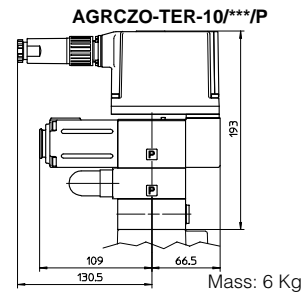
AGRCZO-AE-10  
Mass: 5,5 Kg



AGRCZO-AE-10/\*\*\*P  
Mass: 6 Kg



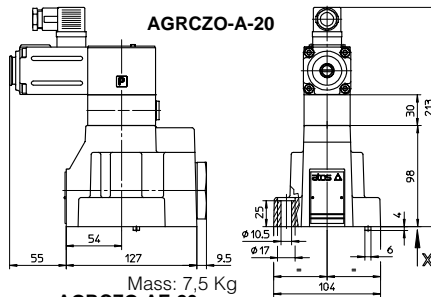
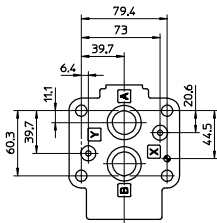
AGRCZO-TER-10  
Mass: 5,5 Kg



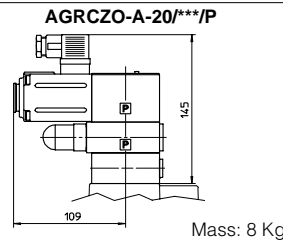
AGRCZO-TER-10/\*\*\*P  
Mass: 6 Kg

**ISO/Cetop 08P**

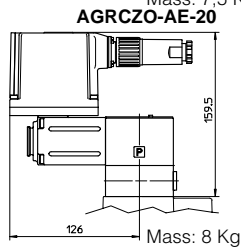
Fastening bolts: 4 socket head screws M10 x 45  
 Seals: 2 OR 109; 2 OR 4100  
 Diameters of ports A, B:  $\varnothing = 22$  mm  
 Diameters of ports X, Y:  $\varnothing = 5$  mm



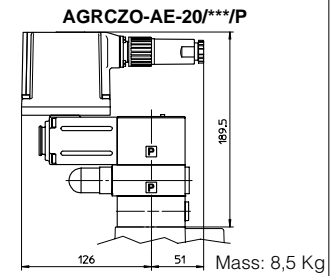
AGRCZO-A-20  
Mass: 7,5 Kg



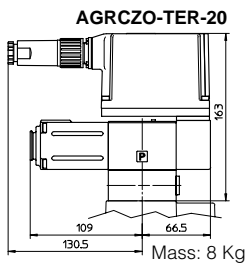
AGRCZO-A-20/\*\*\*P  
Mass: 8 Kg



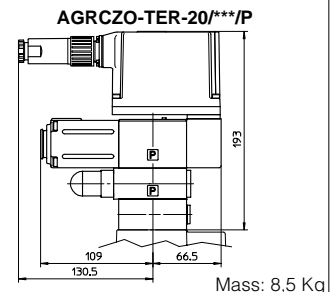
AGRCZO-AE-20  
Mass: 8 Kg



AGRCZO-AE-20/\*\*\*P  
Mass: 8,5 Kg



AGRCZO-TER-20  
Mass: 8 Kg



AGRCZO-TER-20/\*\*\*P  
Mass: 8,5 Kg

**9 MOUNTING PLATES**

Size	Model	Ports location	Gas ports A, B (X, Y)	$\varnothing$ Counterbore [mm] A, B (X, Y)	Mass [kg]
06 P	BA-305	Ports A, B (X, Y) underneath	1/2" (1/4")	30 (21,5)	1
08 P	BA-505	Ports B, (X,Y) underneath	1" (1/4")	46 (21,5)	2