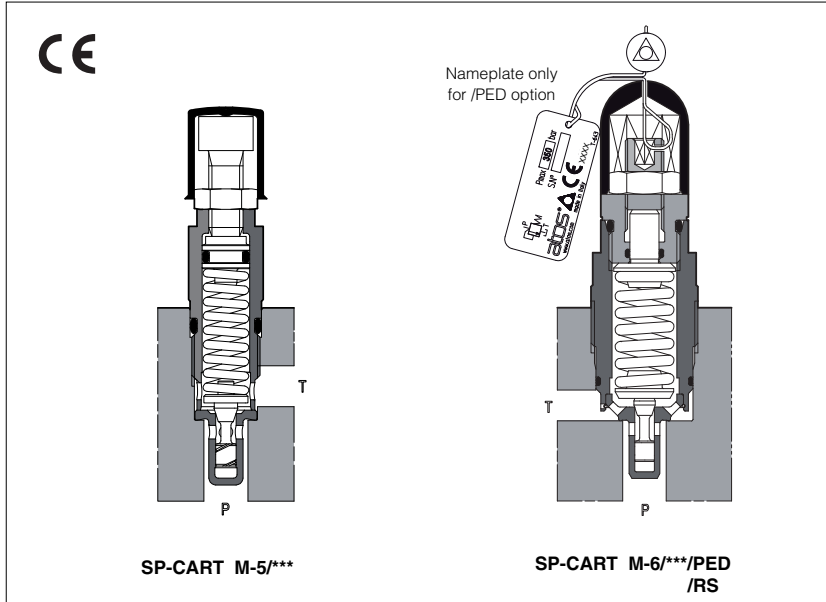


Cartridge pressure relief valves type SP-CART

screw-in mounting



SP-CART are direct operated pressure relief valves for screw-in mounting. They are used to limit the max pressure in the hydraulic systems or to protect part of the circuit from overpressure. They are available in six sizes for different flow and pressure range. The cartridge execution is specifically designed to reduce the dimension of blocks and manifolds, without penalizing the functional characteristics.

The following safety options are available with factory preset regulation, not adjustable (lead sealed regulation):

/RS conforming to the Machine Directive (2006/42/CE). The factory preset regulation required by the customer corresponds to the valve's cracking pressure.

/PED certified by ConCert according to PED Directive (97/23/CE). The valves are factory set at the pressure level required by the customer with a flow through the valve as shown in section 6. For this version, the P/Q limits are shown in section 7.

Max flow: 150 l/min.
Max pressure: 350 bar,
400 bar for SP-CART-ARE-20

1 MODEL CODE

SP-CART	M-6	/	350	/PED	/*	**	/*
Screw-in relief cartridges							Synthetic fluid WG= water glycol PE = phosphate ester
Size: M-3 = G1/2 (1) M-4 = M14x1 M-5 = M20x1,5 M-6 = M33x1,5 (1) ARE-15 = M32x1,5 ARE-20 = M35x1,5 (1)						Series number	
Max pressure setting: see section 3 for available setting				Options, see section 5 for options availability and combination: /R = reduced leakage for special application (standard code for SP-CART M-4 and SP-CART ARE-20) (2) /RS = as /R, plus conforming to 2006/42/CE /PED = as /R, plus certified by ConCert according to 97/23/CE /F = fixed pressure setting Only for standard and /R option (3): /N = regulating handwheel /VF = regulating knob /NS = regulating knob with safety locking		Only for RS, PED options: 280 = factory pressure setting to be defined depending to the customer requirement (example 280 = 280 bar)	

(1) Available also in stainless steel execution, see technical table E135

(2) Standard execution of SP-CART M-4 and SP-CART ARE-20 provides the reduced leakage feature, then the /R is always present in the valve model code

(3) For handwheel and knob features, see sections 10, 11. For their availability, see section 5

2 HYDRAULIC SYMBOLS



3 HYDRAULIC CHARACTERISTICS

Valve model	SP-CART M-3	SP-CART M-4	SP-CART M-5	SP-CART M-6	SP-CART ARE-15	SP-CART ARE-20	
Max pressure setting [bar]	STANDARD	/50 /100 /210 /350	/100 /210	/50 /100 /210 /250 /350	/50 /100 /210 /350	/15 /50 /75 /150 /250 /350	/50 /100 /210
	/R		/350		/50 /100 /210 /350	/15 /50 /75 /150 /250	/315 /400
	/RS		/220 /270 /350		/220 /270 /330 /350	/150 /190 /230	
	/PED	/50 /100 /210 /350	/100 /210 /350	/100 /210 /350	/100 /210 /350	/75 /150 /250 /350	/100 /210 /315 /400
	/F			/200 /250 /280	/200 /250 /350 /200	/200 /250 /280	
Pressure range [bar]	STANDARD (1)	4÷50 6÷100 7÷210 8÷350	6÷100 7÷210	2÷50 3÷100 5÷210 7÷250 8÷350	2÷50 3÷100 8÷210 15÷350	2÷15 3÷50 4÷75 8÷150 8÷250 80÷350	3÷50 5÷100 6÷210
	/R (1)		8÷350		2÷50 3÷100 10÷210 15÷350	2÷15 3÷50 4÷75 8÷150 8÷250	8÷315 10÷400
	/RS (1)		210÷260 260÷300 300÷370		200÷250 250÷290 290÷350 310÷370	130÷170 170÷210 210÷250	
	/PED	4÷50 6÷100 7÷210 8÷350	6÷100 7÷210 8÷350	25÷100 100÷210 210÷350	25÷100 100÷210 210÷350	25÷75 75÷150 150÷250 150÷350	25÷100 100÷210 210÷315 315÷400
	/F			200 250 280	200 250 350	200 250 280	
Max flow [l/min]	STANDARD	2,5	15	35	40	75	120
	/RS, /PED, /F	2,5	15	50	60	100	150

(1) The values correspond to the min and max regulation of the valve's craking pressure.

4 MAIN CHARACTERISTICS OF CARTRIDGE PRESSURE RELIEF VALVES

Assembly position	Any position
Ambient temperature	-20°C + 70°C
Fluid	Hydraulic oil as per DIN 51524...535; for other fluids see section 11
Recommended viscosity	15÷100 mm ² /s at 40°C (ISO VG 15÷100)
Fluid contamination class	ISO 19/16, achieved with in line filters at 25 µm value and β ₂₅ ≥75 (recommended)
Fluid temperature	-20°C +60°C (standard and /WG seals) -20°C +80°C (/PE seals)

5 OPTIONS AVAILABILITY

Valve model	SP-CART M-3	SP-CART M-4	SP-CART M-5	SP-CART M-6	SP-CART ARE-15	SP-CART ARE-20
Option	/R	STANDARD		●	●	STANDARD
	/RS		●		●	
	/PED	●	●	●	●	●
	/F			●	●	●
	/V	●			●	●
	/VF				●	●
	/VS				●	●
Combinated option (1)	/RV			●	●	●
	/RVF			●	●	
	/RVS			●	●	

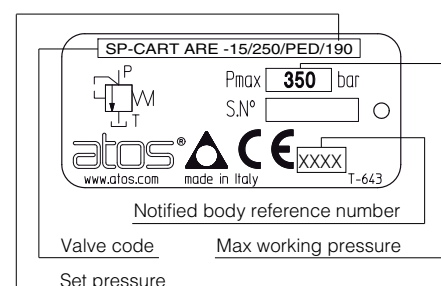
- (1) **/RV** = reduced leakage and regulating handwheel
/RVF = reduced leakage and regulating knob
/RVS = reduced leakage and regulating knob with safety lock

6 SETTING OF VALVES WITH /PED OPTION

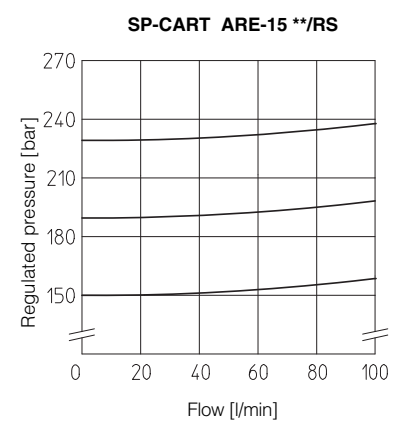
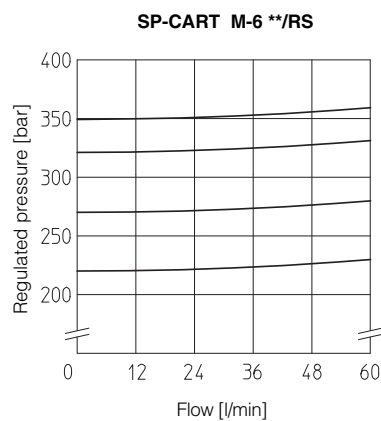
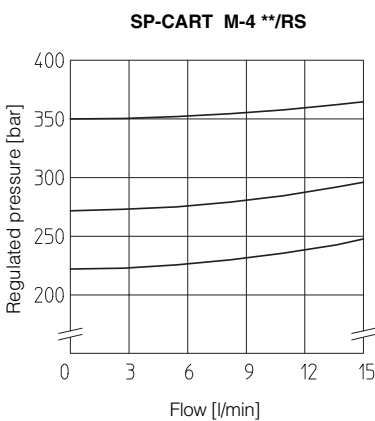
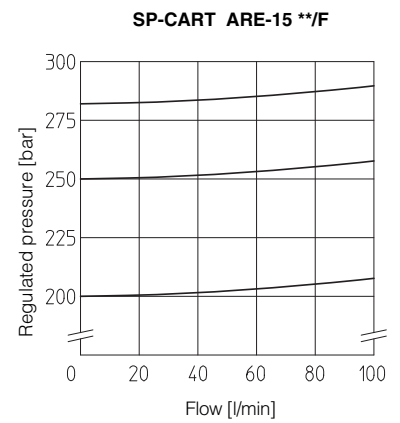
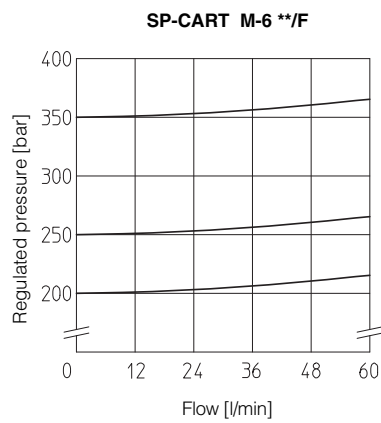
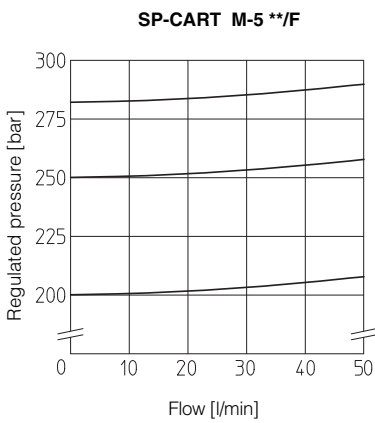
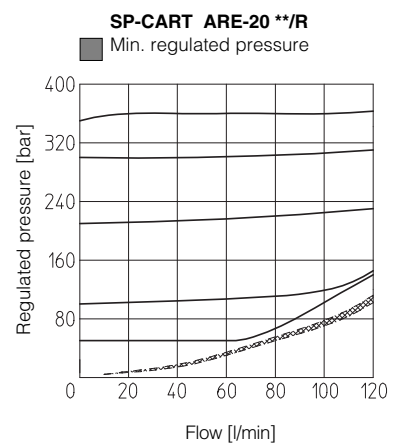
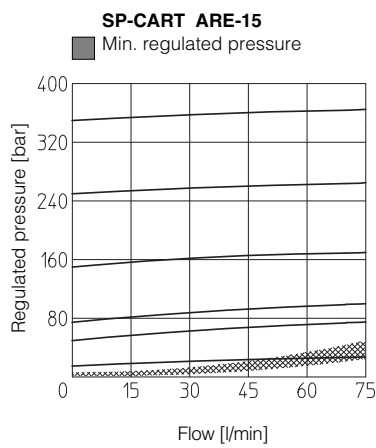
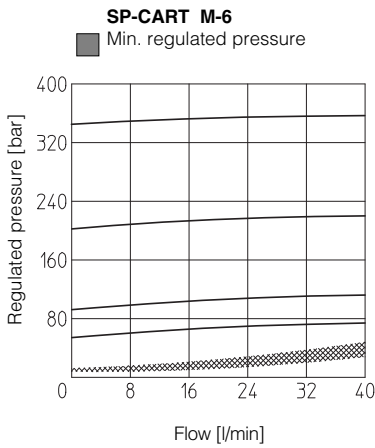
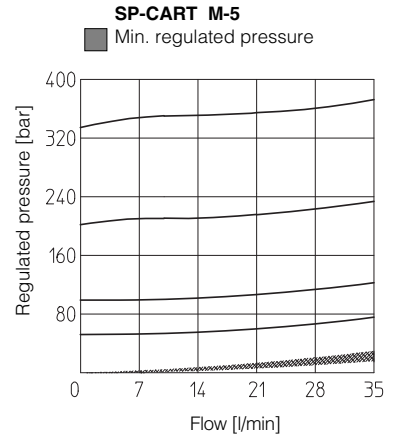
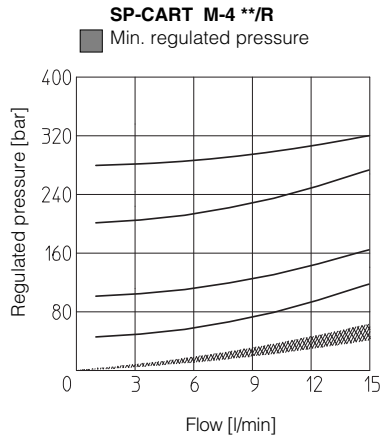
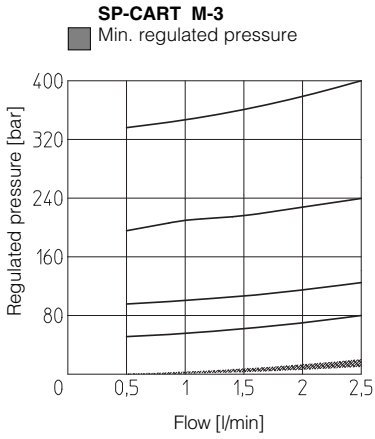
The /PED valves are factory set at the pressure level required by the customer (every 1 bar) at the following flow shown in the table.
The set pressure is marked on the valve nameplate, see section 6.1

VALVE MODEL	FLOW FOR FACTORY PRESSURE SETTING (l/min)
SP-CART M-3	1
SP-CART M-4	1
SP-CART M-5	20
SP-CART M-6	30
SP-CART ARE-15	50
SP-CART ARE-20	50

6.1 EXAMPLE OF NAMEPLATE FOR /PED OPTION

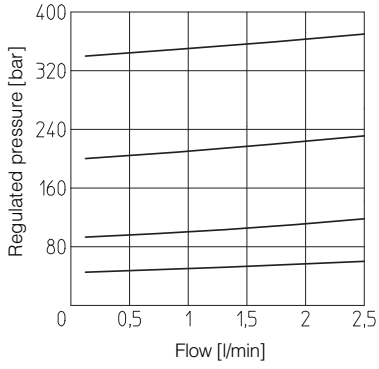


7 REGULATED PRESSURE VERSUS FLOW DIAGRAMS (based on mineral oil ISO VG 46 at 50°C)

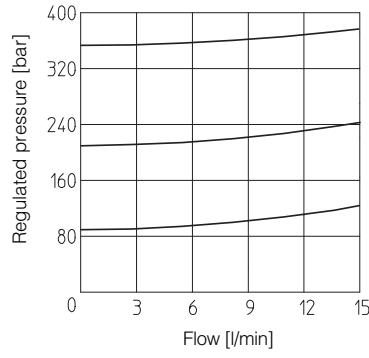


8 REGULATED PRESSURE VERSUS FLOW DIAGRAMS (based on mineral oil ISO VG 46 at 50°C)

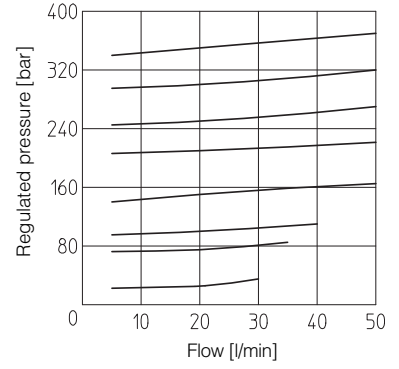
SP-CART M-3 **/PED



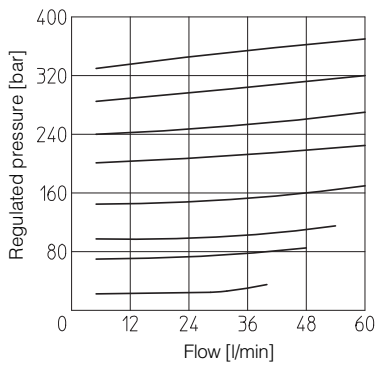
SP-CART M-4 **/PED



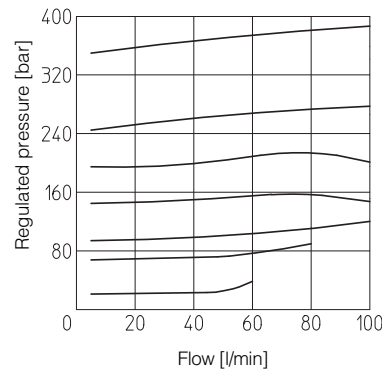
SP-CART M-5 **/PED



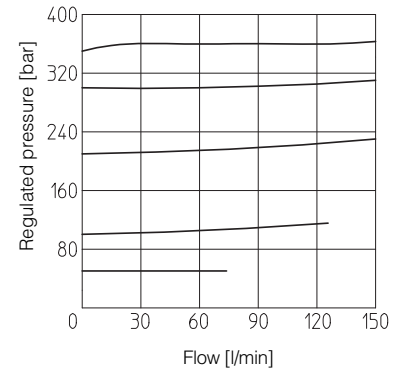
SP-CART M-6 **/PED



SP-CART ARE-15 **/PED

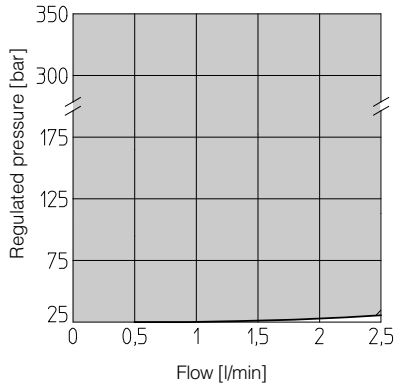


SP-CART ARE-20 **/PED

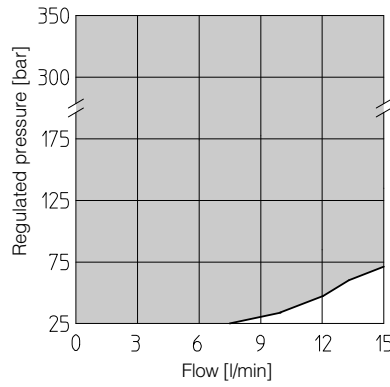


9 PERMITTED WORKING RANGES shaded area (based on mineral oil ISO VG 46 at 50°C)

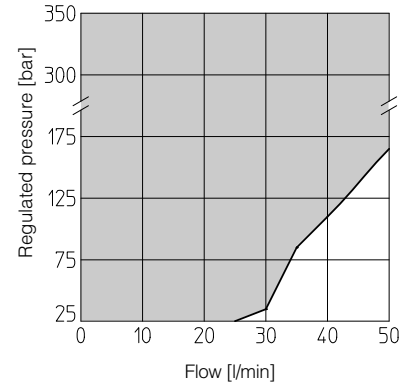
SP-CART M-3 **/PED



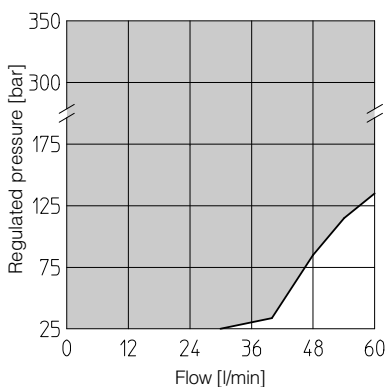
SP-CART M-4 **/PED



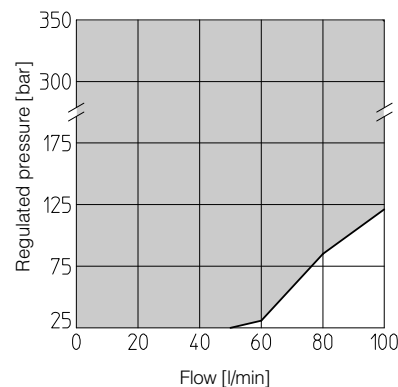
SP-CART M-5 **/PED



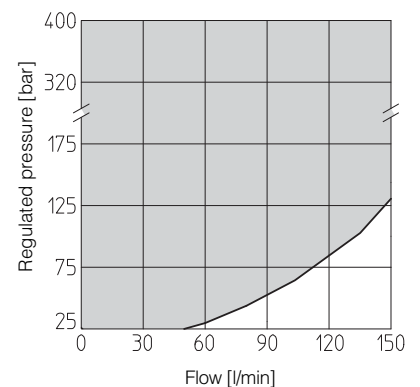
SP-CART M-6 **/PED



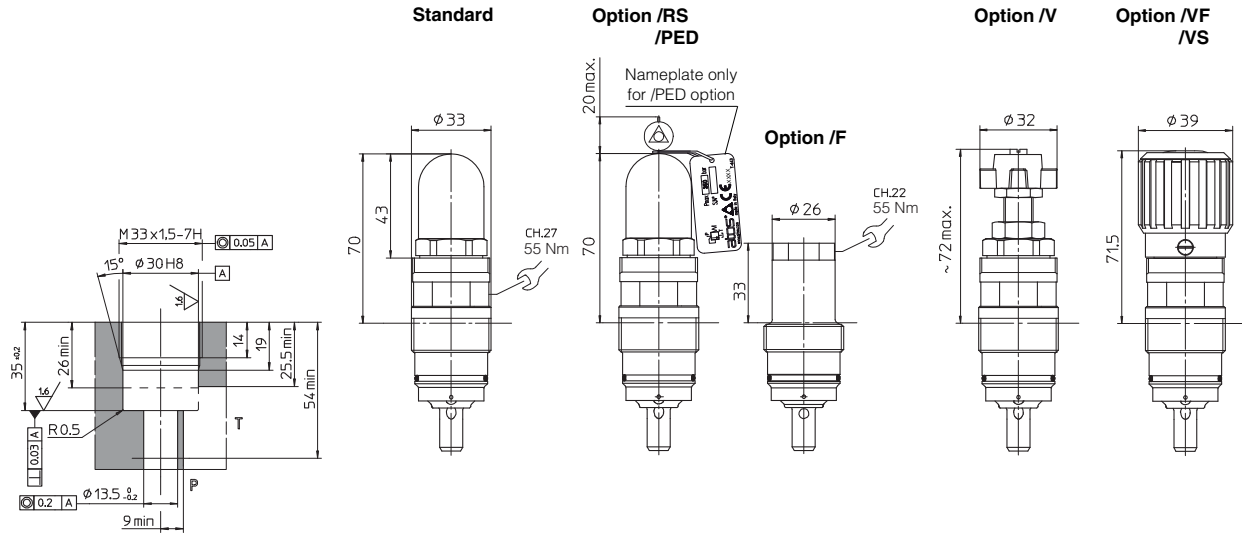
SP-CART ARE-15 **/PED



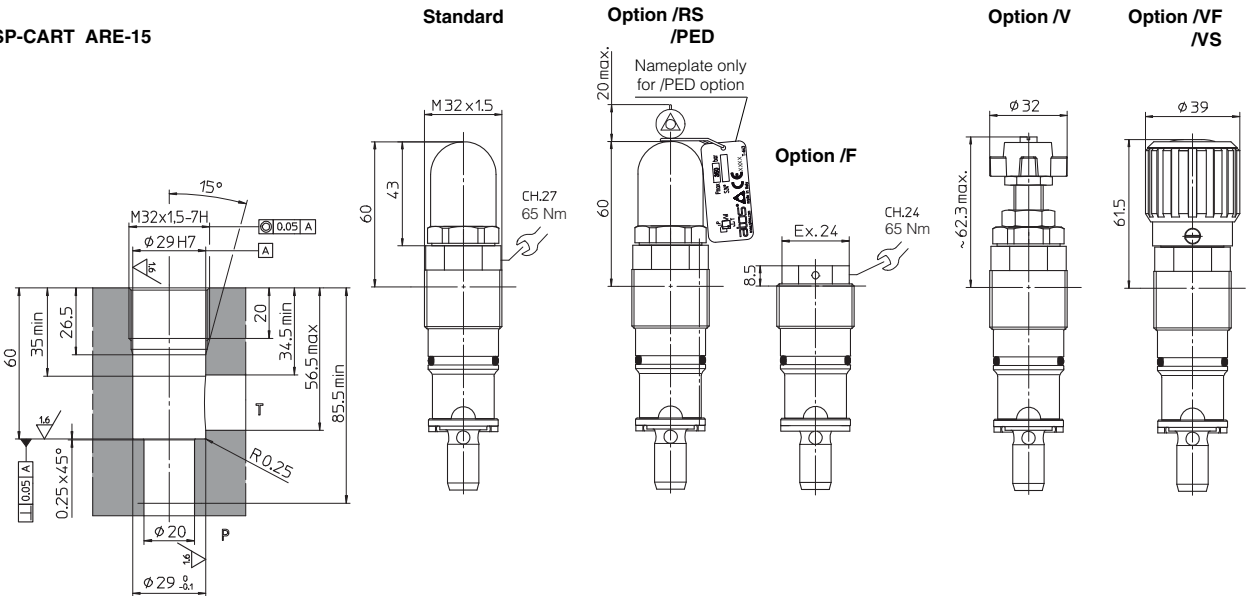
SP-CART ARE-20 **/PED



SP-CART M-6



SP-CART ARE-15



SP-CART ARE-20

