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Description:

ERP series electro-hydraulic proportional pressure reducing valves are used as a remote pilot stage of services that require a variable and smooth adjustment of the servo-system control.

They are typically utilized to control both open and closed centre directional valves, proportional valves, servo systems of variable displacement pumps and motors, clamp cylinders, hydraulic clutches and braking systems. These are applications where the efforts required for a direct manual control of the services would be too high, or where it would be impractical to use mechanical linkages due to the disposition of the components.

The valves are hydraulically fed with a primary inlet pressure that is reduced and adjusted to the desired value of the secondary output pressure, which varies in a linear and proportional mode with the variation of the electric signal that feeds the magnet. The electric signal format is a PWM pulsing current remotely controlled through a manually operated potentiometer. An electronic card (Fig. 1) is interposed, acting as a converter/amplifier and it can be set up at the required parameters through a PC with an interface kit and dedicated software.



Fig. 1

The flow signal which generates the primary pressure can either be taken from a dedicated auxiliary pump or derived from the main hydraulic system through a pressure reducing valve. The secondary pressure is independent from the primary one as far as this is equal to the maximum output reduced pressure required plus the pressure drop of the system. A relatively small drain flow, conforming with the design data, is diverted direct to the tank. An overload's compensation mechanism is released when the secondary pressure raises above the value set up by the remote potentiometer, therefore the pressure reducing valve in some way is acting also as a relief valve limiting the output pressure. With relatively low values of pressure and flow energy consumption of the full servo-system is minimum.

The ERP range comprises 2 configurations: type A rated at high pressure up to 350 bar and type B rated at low pressure up to 32 bar, both available in single (1 magnet) and double acting (2 magnets) options and mono-block or stackable design.

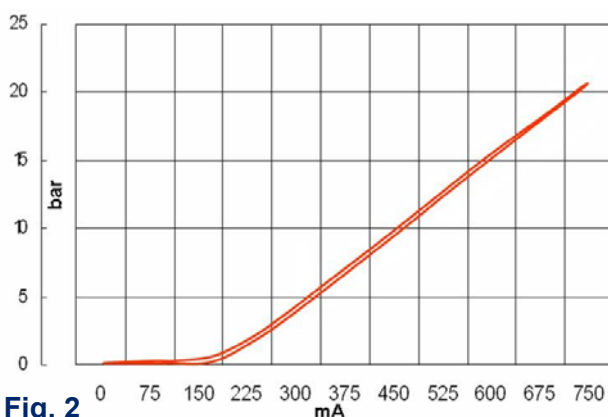


Fig. 2

The diagram of Fig. 2 shows a typical metering curve of the secondary output pressure (from 0 up to 20 bar) as a function of the electric control signal (from 0 up to 750 mA @ a supply voltage of 24 V-DC) with a primary inlet pressure of 25 bar.

For control electronics, interface kit and the dedicated software programme please contact our technical sales department.

All data reported on this catalogue are referred to the standard product; they are not binding and the maker reserves the right to modify them at any time, for technical improvement purposes, without notice. The maker is not responsible for any damage caused by an inappropriate use of the product.

Features:

- Pressure reducing over the whole range independent of the supply pressure.
- Wide range of output pressure metering curves from 20 up to 350 bar
- Non symmetrical metering curves options available for double acting valve configuration
- Long life oil immersed proportional solenoids (valves type A)
- IP67 explosion proof solenoid option (valves type A)
- Adjustable valve response time (valves type A)
- Single or multiple assemblies
- Manifold mounting (valves type A) or in line threaded ports (valves type B)
- Choice of ISO/CETOP single or multiple sub-plates



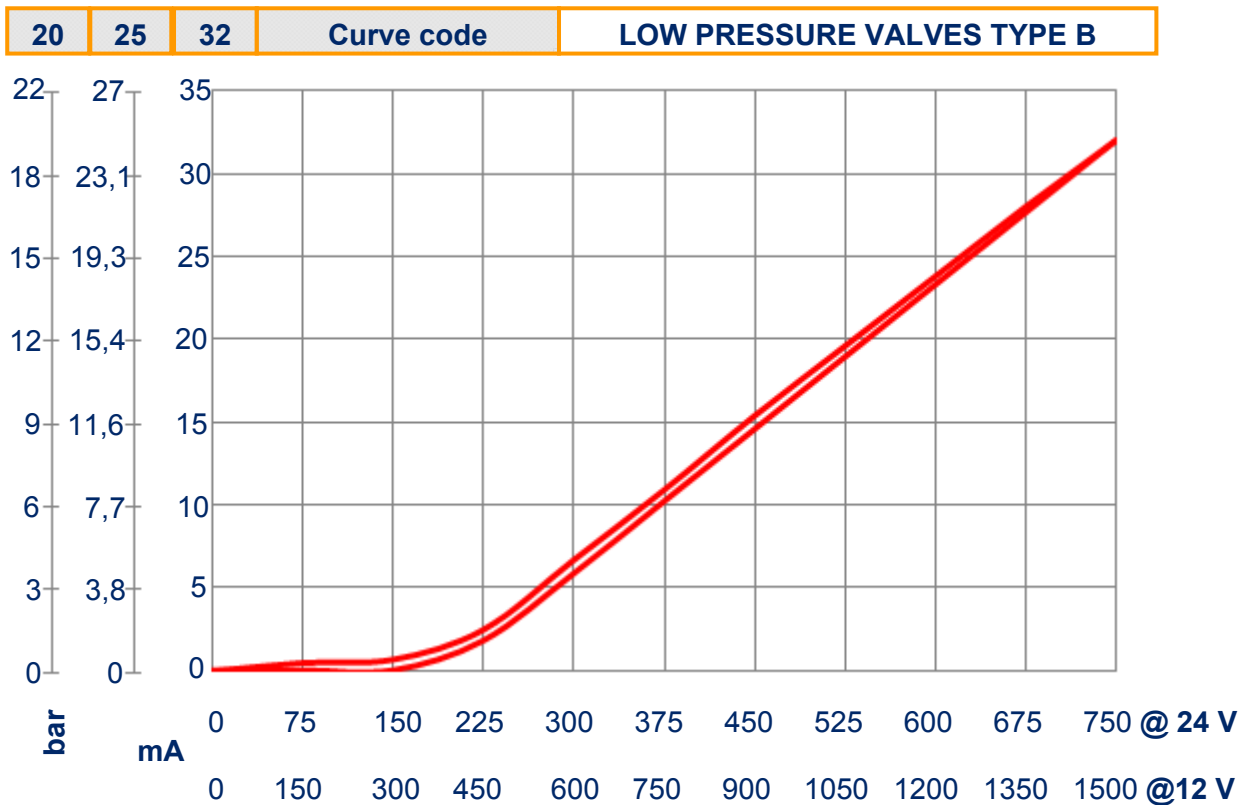
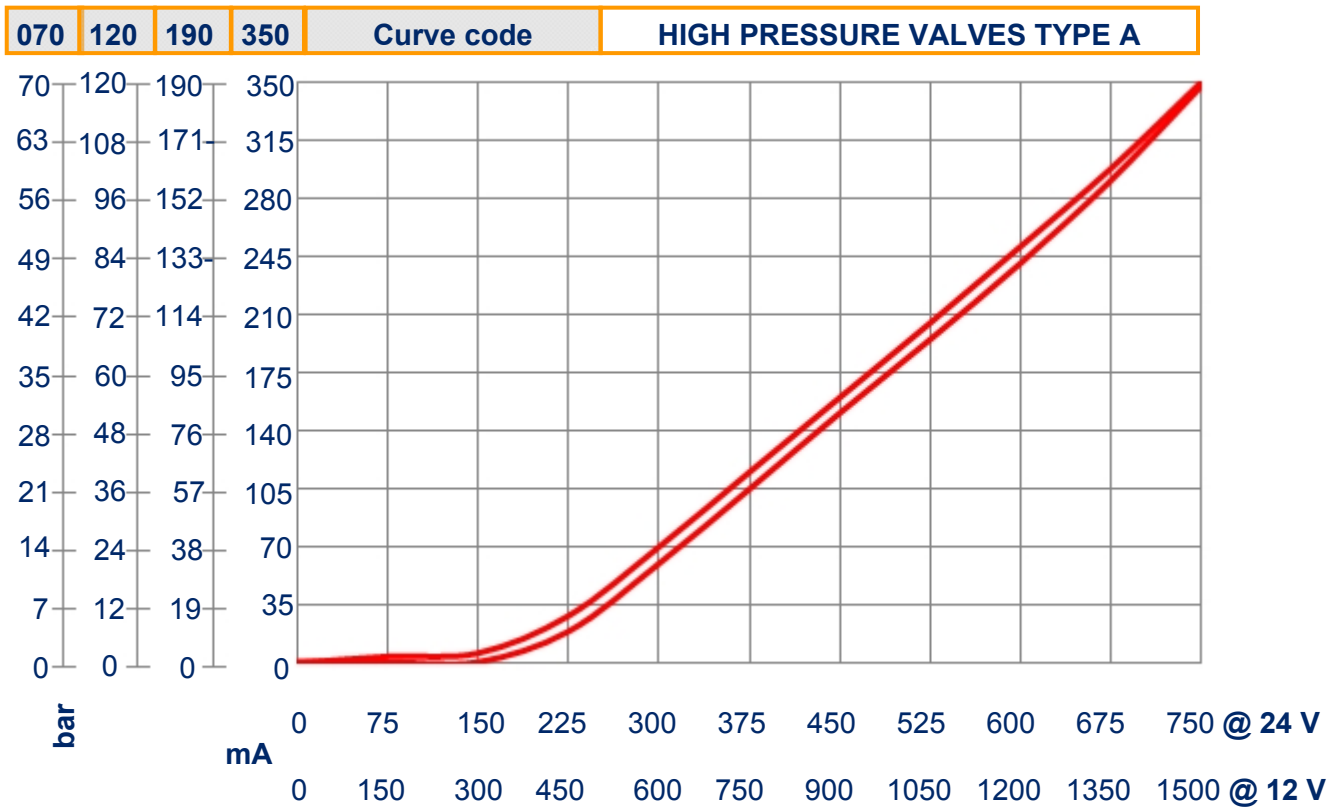
Conforming to European
Directive 2002/95/CE



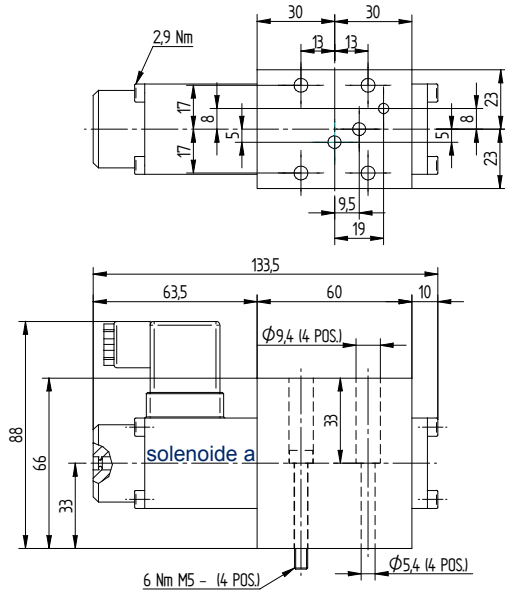
Technical data:

- Maximum inlet pressure: 350 bar (type A), 50 bar (type B) at port P
- Max. back pressure: 5 bar at port T
- Metering curves (ports A & B): 0÷20, 0÷ 25, 0÷ 32 bar (type B)
0÷70, 0÷120, 0÷190 bar, 0÷350 bar
- Min. supply flow: 4 l/min
- Viscosity range: 2,8 - 380 cSt
- Fluid cleanliness class: 20/18/15 ISO 4406
- Ambient temperature range: From -35°C up to +80°C
- Mounting position: Any
- Hydraulic fluids: Hydraulic mineral oils to DIN 51524
- Supply voltage: 12 or 24 V DC
- Nominal supply current: 1600 mA @ 12 VDC, 800 mA @ 24 VDC
- Valve response time: Adjustable from ± 0,08 msec up to 10 sec (type A)
< 100 msec (type B) @ 50 °C
- Hysteresis: < 3% of the maximum reduced output pressure
- Resolution: < 0,5% (with "dither")
- Operation: 100% continuous
- Seals material: BUNA-N standard, Viton® optional
- Dither frequency: 100 Hz recommended
- Connectors: DIN (type A), AMP Junior Timer (type B)
- Emergency control: Integral manual

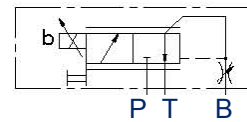
Output metering curves



Dimensional data (Valve type A):



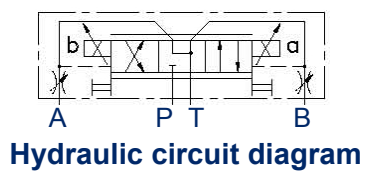
Valve type A single acting



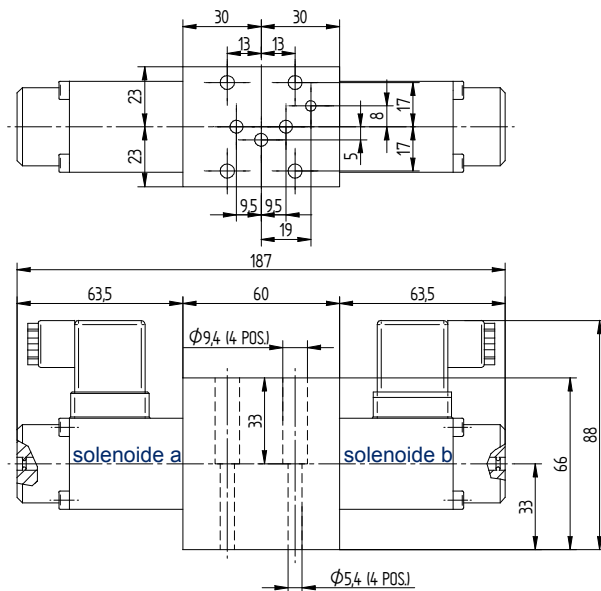
Hydraulic circuit diagram



Valve type A double acting

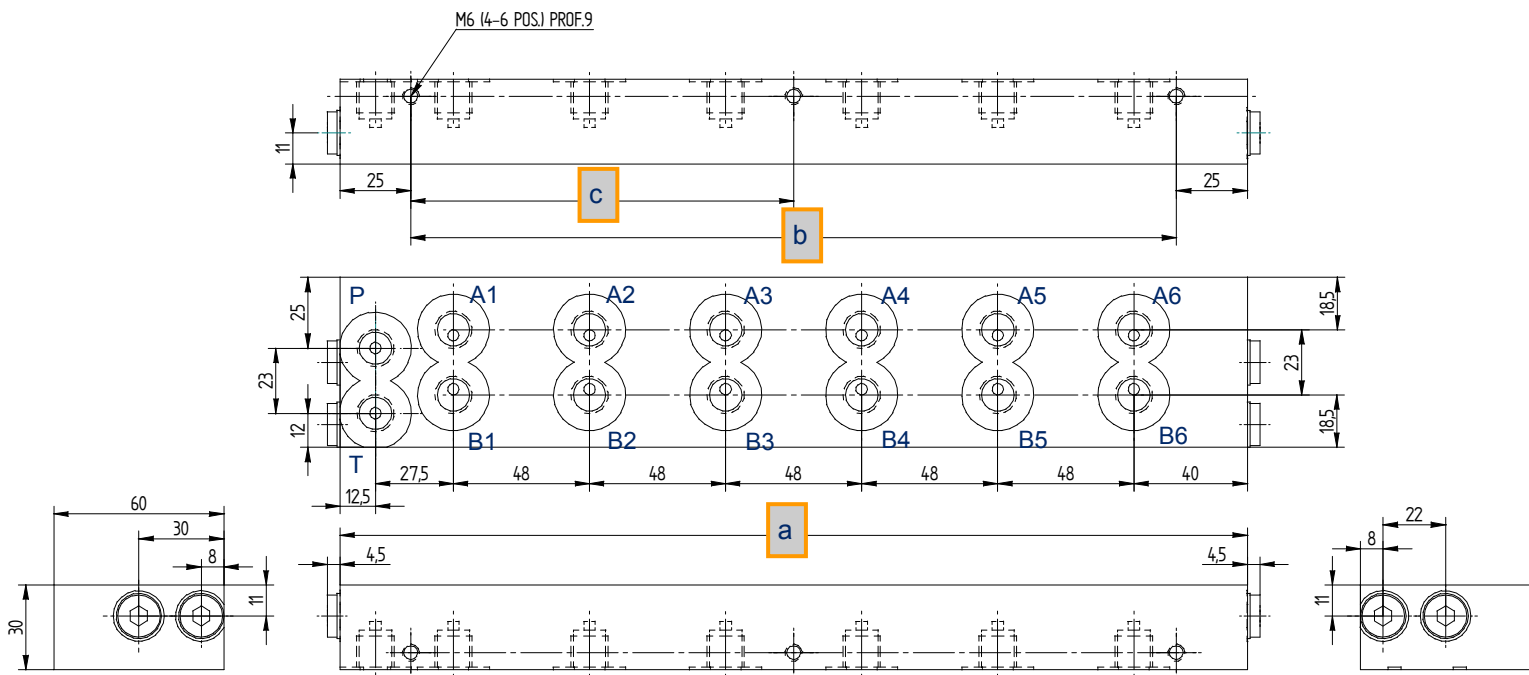


Hydraulic circuit diagram



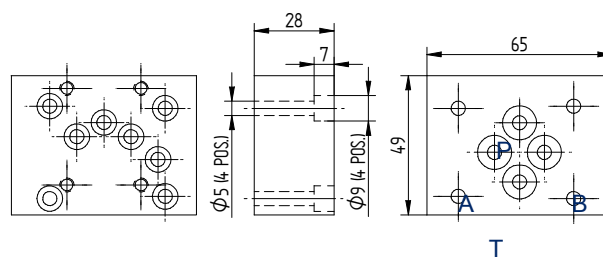
Dimensional data sub-plates (Valve type A)

SP sub-plates option, with BSP ports



Part No.	a	b	c	Ports P, A, B, T
SP-1	80	30	-	1/4" BSP
SP-2	128	78	-	1/4" BSP
SP-3	176	126	-	1/4" BSP
SP-4	224	174	-	1/4" BSP
SP-5	272	222	126	1/4" BSP
SP-6	320	270	126	1/4" BSP

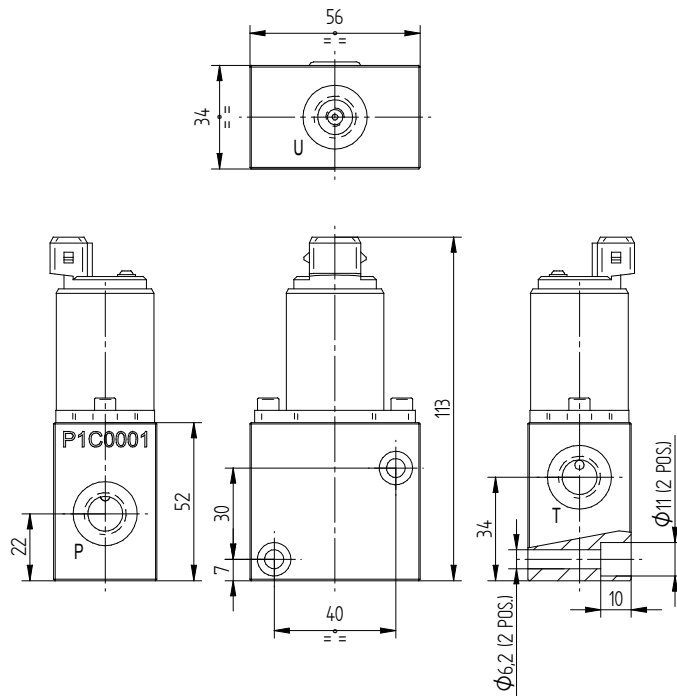
SC sub-plate option, ISO/CETOP manifold mounting



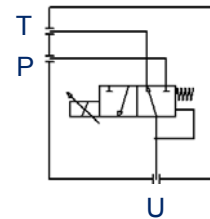
Sub-plates can only be fitted on **A** type valves and have to be ordered separately by specifying the part numbers above for **SP** design and just the qty for **SC** design

Dimensional data (Valve type B non stackable):

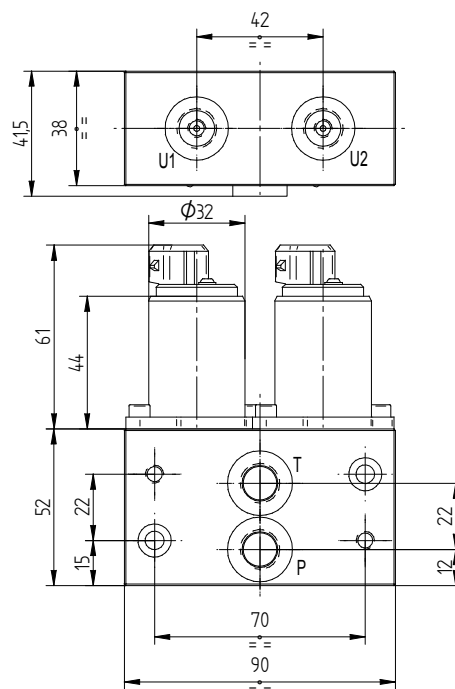
Valve type B single acting



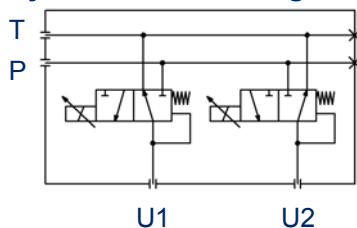
Hydraulic circuit diagram



Valve type B double acting



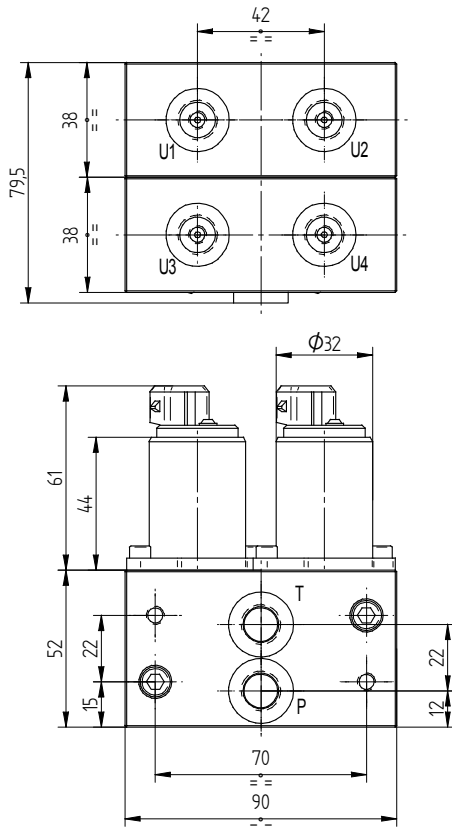
Hydraulic circuit diagram



Dimensional data (Valve type B stackable):

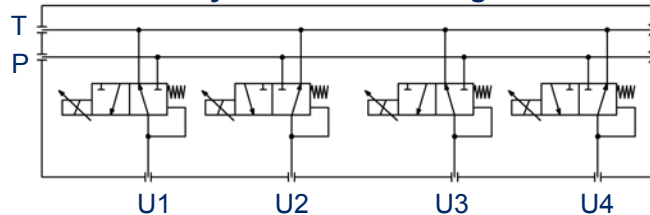
Double acting valves only are stackable, up to a maximum of 6 sections

Valve type B double acting, 2 sections



For configurations from 3 up to 6 sections please add 38 mm to the above dimension of 79,5 mm as many times as the number of sections exceeding 2

Hydraulic circuit diagram



Ordering key:

ERP	B	D2	032	025	24
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Supply voltage:

- **12** = 12 Volt DC
- **24** = 24 Volt DC

Output pressure metering curve (Port B):

Omit for single acting configuration S1

- **020** = 0-20 bar (Valve series B)
- **025** = 0-25 bar (Valve series B)
- **032** = 0-32 bar (Valve series B)
- **070** = 0-70 bar (Valve series A)
- **120** = 0-120 bar (Valve series A)
- **190** = 0-190 bar (Valve series A)
- **350** = 0-350 bar (Valve series A)

Output pressure metering curve (Port A):

- **020** = 0-20 bar (Valve series B)
- **025** = 0-25 bar (Valve series B)
- **032** = 0-32 bar (Valve series B)
- **070** = 0-70 bar (Valve series A)
- **120** = 0-120 bar (Valve series A)
- **190** = 0-190 bar (Valve series A)
- **350** = 0-350 bar (Valve series A)

Valve configuration:

- **S1** = Single acting valve (1 solenoid)
- **D*** = Double acting valve (2 solenoids)
Insert the number of sections required from 1 up to 6 max.

Design series:

- A** = High pressure, max output range 70÷350 bar
- B** = Low pressure, max output range 20÷32 bar

Basic model:

- **ERP** = Electric pressure reducing valve

Sub-plates for valves type A to be required separately with ordering codes as shown on page 7.

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& electronic systems
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The range

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- Remote controls & electronics equipment
- Filters & contamination control
- Heat exchangers & cooling systems
- Fluid monitoring instruments
- Mechanical couplings & accessories
- Design and supply of hydraulic components and customized systems