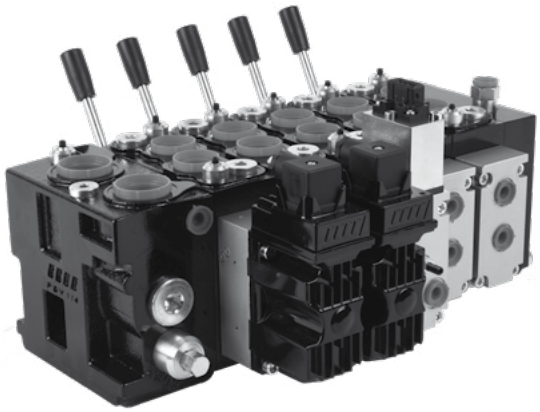
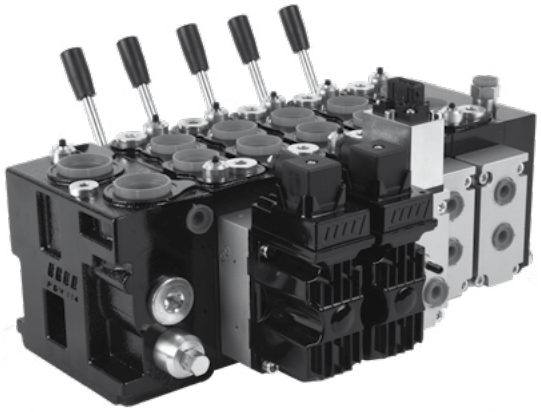
PDV114 Proportional Directional valve



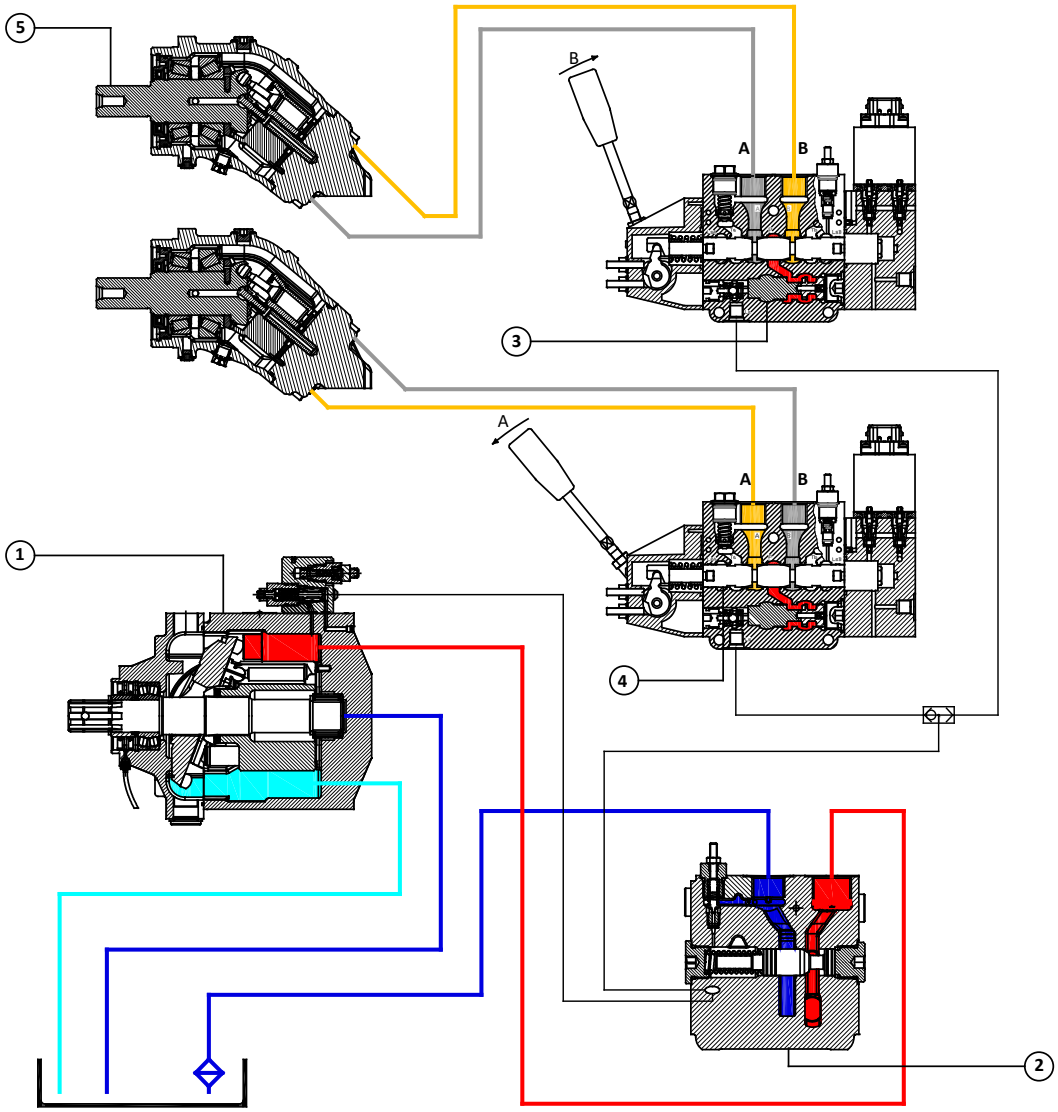
PDV114 Proportional valve
General description

PDV114 is a hydraulic proportional directional valve, designed to offers a wide range controls options and flexibility.
The **PDV114** modular system enables bankable groups to perform many individual tasks, to meeting and exceeding the changing control needs of the off-highway machines of today, and well into the future to maximize the efficiency, controllability and reliability of vehicles.



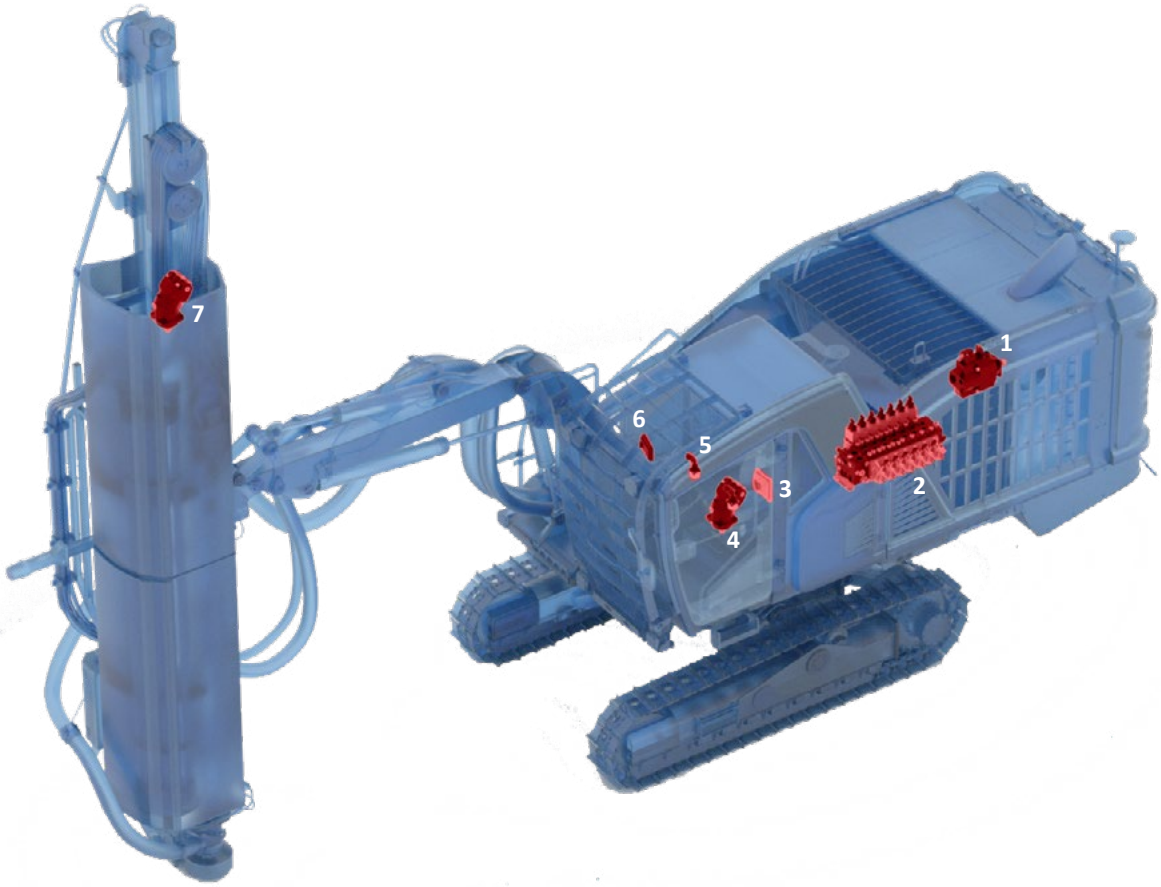
PDV114 main features:

- Load sensing up-stream pressure compensation
- High flow/low pressure drop capability in a compact size
- Integrated pump unloading system
- Integrated cut-off pump system
- Open/closed centre shifting system
- Precise metering capabilities
- LSA-LSB electrical unloading
- LSA-LSB electrical working pressure remote control
- Constant flow regardless of pressure
- Working sections symmetrical flow
- Optional priority inlet for steering or different priority functions
- Optional dual hydraulic pilot and electrohydraulic control
- ATEX and IECEx configuration
- CAN-Bus comunication
- EMC immunity ensures high safety with regard to electro-magnetic compatibility



High pressure port of **PPV** piston pump ① supply the closed centre inlet section of **PDV114** proportional valve ② which in turn feeds the down-stream working sections.
The **PDS** spool neutral position ④ unload the LS pump signal to tank, so that the swashplate angle is towards the minimum displacement and pressure in stand-by setting.
The spool position determines the flow demands (speed rotation) of the two **HPM** motors ⑤.
The PDS main spool compares the pressure drop before and after the spool notches (differential pressure Δp), and therefore, the pump flow remain constant.
If the differential pressure increase, the pump swashplate is swivelled back towards the minimum displacement, and if the differential pressure decrease, the swashplate angle increase towards the max flow displacement until balance is restored within the valve.

Actuators load determines the working pressure, and the built-in pressure compensator ③ enable simultaneously function regardless of different working pressure.



1. PPV110 load sensing piston pump

2. PDV114/7 closed centre inlet

3. I/O controller PHSI7101008

4. PPM80 bent axis piston motor

5. Electronic double axis joystick PEJD

6. Graphic display PDHI703000

7. PPM20 bent axis piston motor

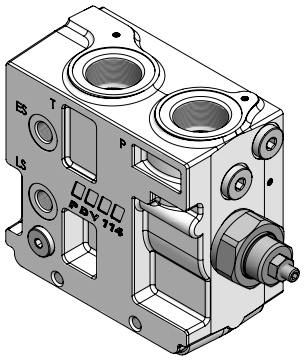
PDV114 Proportional Valve
Technical data

The hydraulic features listed in this chart, are typical measured data obtained by using mineral based hydraulic oil according to DIN 51524 with a viscosity of 21 mm²/sec [102 SUS] and a temperature of 50 °C [122 °F]

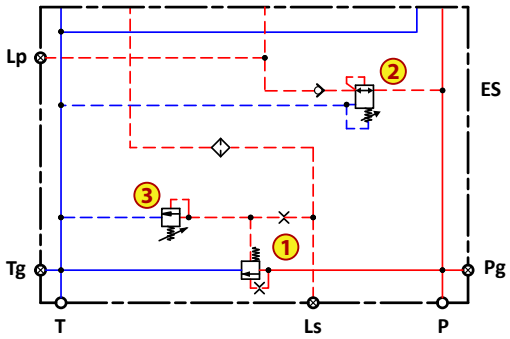
Oil flow rate	PDI inlet section, P port		**260 l/min (max)**	**69 US gal/min**
	PDIM - Mid inlet section, P port		**380 l/min**	**100 US gal/min**
	A, **B** port with pressure compensator		**190 l/min**	**50 US gal/min**
	A, **B** port without pressure compensator		**205 l/min**	**54 US gal/min**
Max. pressure	**P** port	Pressure relief valve setting	**400 bar**	**5800 psi**
		Working pressure	**370 bar**	**5370 psi**
	A, **B** port		**370 bar**	**5370 psi**
	Ty port, directly to tank			
	T port	Static	**25 bar**	**363 psi**
		Dynamic	**37 bar**	**537 psi**
Max. pilot pressure oil supply			**18 ÷ 22 bar**	**260 ÷ 320 psi**
Oil temperature	Recommended		**30 ÷ 65 °C**	**86 °F ÷ 149 °F**
	Min		**-30 °C**	**-22 °F**
	Max		**90 °C**	**194 °F**
Ambient temperature			**-30 ÷ 60 °C**	**-22 ÷ 140 °F**
Oil viscosity	Operating range		**12 ÷ 75 mm²/sec**	**65 ÷ 347 SUS**
	Min		**4 mm²/sec**	**39 SUS**
	Max		**460 mm²/sec**	**2128 SUS**
Spool stroke	Standard		**8 mm**	**0,31 in**
	Flow control proportional range		**6,5 mm**	**0,26 in**
	Pressure control propotional range		**7 mm**	**0,28 in**
Daed band spool	Flow control		**1,5 mm**	**0,06 in**
	Pressure control		**1 mm**	**0,04 in**
Max internal leakage A/B port at 100 bar [1450 psi] and 21 mm²/sec		**A/B T** without shock valves	**21 cm³/min**	**1,28 in³/min**
		A/B T with shock valves	**25 cm³/min**	**1,53 in³/min**
Filtration	Max. contamination: class 9 according to NAS 1638 (20/18/15 according to ISO 4406)			

PDH module - hydraulic control		
Pilot pressure	Spool start movement	4 bar / 58 psi
	Spool end stroke	15 bar / 218 psi
Max. pilot pressure		30 bar / 436 psi

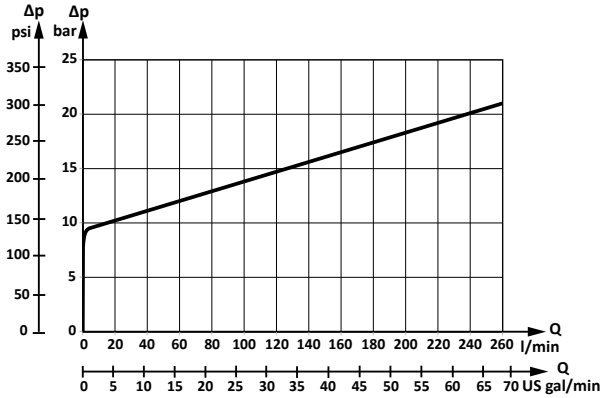
PDV74 internal filters, mesh 100 µm
Mineral oil hydraulic fluid: according to DIN 51524 and 51525 or ISO 6743/4 PDV74 can also be used with phosphate esters (HFDR), water-glycol (HFC) or water oil (HFB) mixes, subject to our Technical Dept. approval



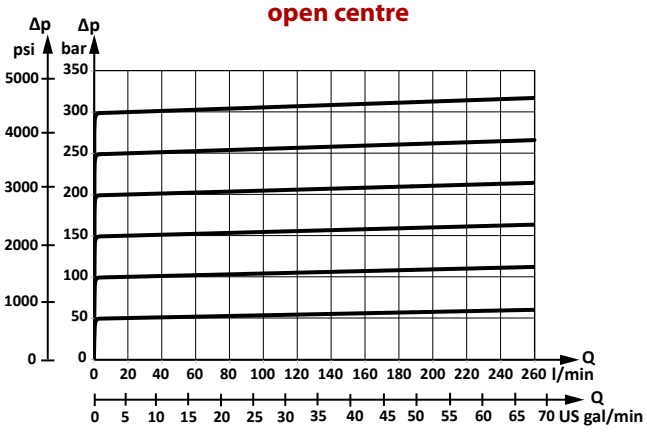
Hydraulic diagram



Neutral flow-pressure drop in PDI, open centre



Pressure relief valve characteristic in PDI, open centre

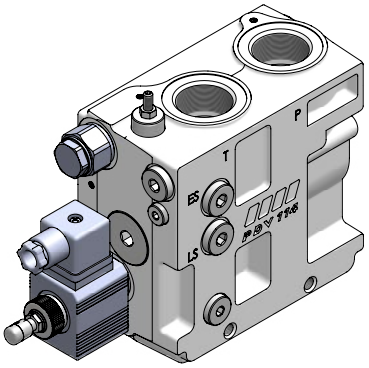


Designed for use with fixed displacement pumps.

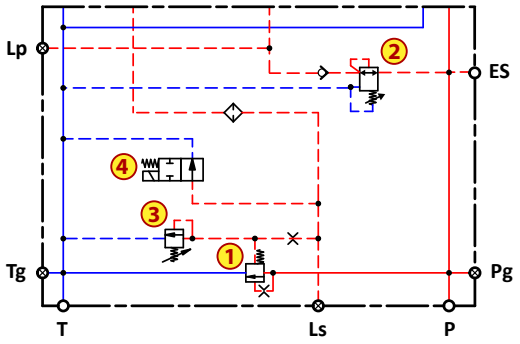
Inlet comes standard with pressure compensated 3-way flow regulator ①, that when pump is started and working sections spools are in neutral position, it's unloaded to tank, and the oil flow being supplied from the pump, passes through the 3-way flow regulator to tank with minimal off-load pressure drop (see diagram below).

When one or more of the spools are actuated, the highest working pressure signal is fed to the 3-way flow regulator, that maintains the Δp at a constant level, so that the flow rate is independent of the load, and proportional to the opened spool area.
The built in pressure reducing valve ②, act as the pilot pressure supply for the electrical actuators, as well as, the hydraulic remote controls.
When the main PDS spools are actuated, the exceeding pump flow is being sent to tank at the highest load pressure value.
If the working pressure reaches the setting of the upstream max pressure pilot relief valve ③, the 3-way flow regulator will be opened to tank, thus limiting the working pressure inside the complete PDV.

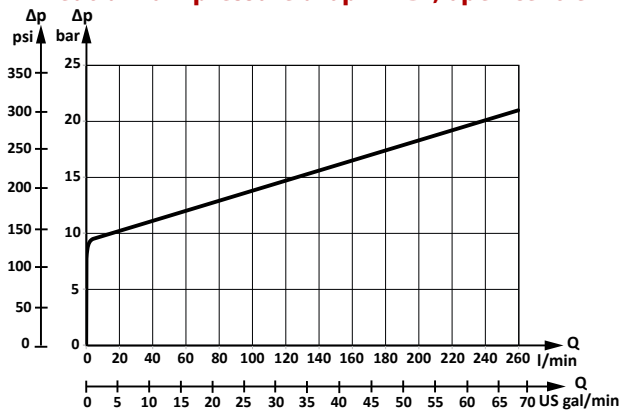
On this configuration, the level of safety degrees for the complete PDV valve is really low, therefore, operator's great supervision is strictly request.



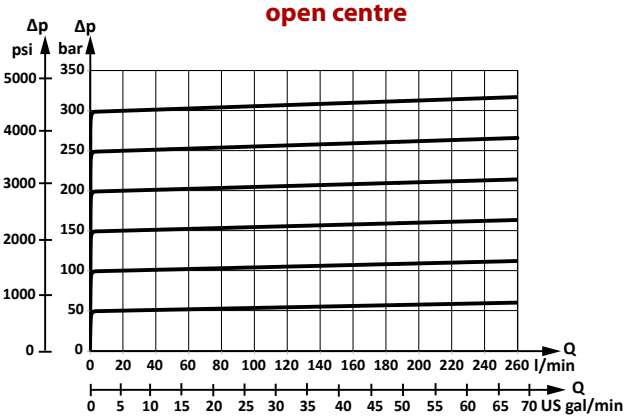
Hydraulic diagram



Neutral flow-pressure drop in PDI, open centre



Pressure relief valve characteristic in PDI, open centre



Designed for use with fixed displacement pumps.

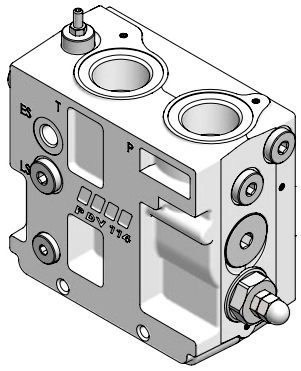
Inlet comes standard with pressure compensated 3-way flow regulator (1), that when pump is started and working sections spools are in neutral position, it's unloaded to tank, and the oil flow being supplied from the pump, passes through the 3-way flow regulator to tank with minimal off-load pressure drop (see diagram below).

When one or more of the spools are actuated, the highest working pressure signal is fed to the 3-way flow regulator, that maintains the Δp at a constant level, so that the flow rate is independent of the load, and proportional to the opened spool area.
The built in pressure reducing valve (2), act as the pilot pressure supply for the electrical actuators, as well as, the hydraulic remote controls.
When the main PDS spools are actuated, the exceeding pump flow is being sent to tank at the highest load pressure value.
If the working pressure reaches the setting of the upstream max pressure pilot relief valve (3), the 3-way flow regulator will be opened to tank, thus limiting the working pressure inside the complete PDV.

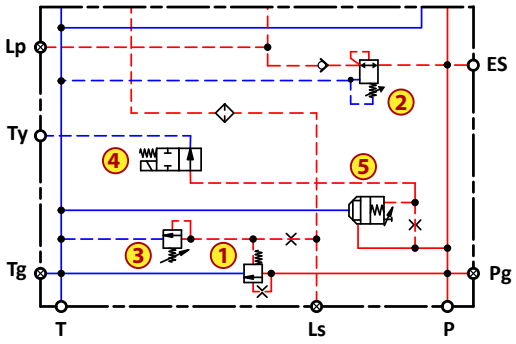
According to an electrical signal coming from the remote controls or I/O controller, the PDU solenoid unloading valve (4), enable the LS signal to be relieved to tank, and the effect of this configuration is an almost pressureless system, where the activated actuators will be automatically catted off.
The pressure in the system will be reduced to the sum of the tank port pressure, plus the neutral flow pressure drop through the 3-way flow regulator.

Care must be given, because all the actuators whose working pressure is lower than the pressure drop through the 3-way regulator, might be still operated.

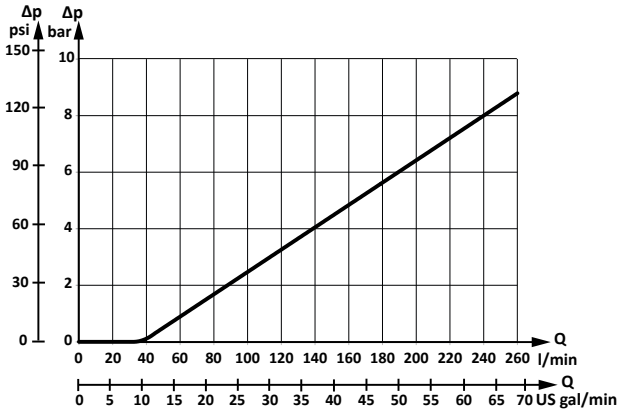
Also with the use of PDU emergency solenoid unloading valve, the level of safety degrees for the complete PDV valve is quite low, therefore, operator's supervision is required.



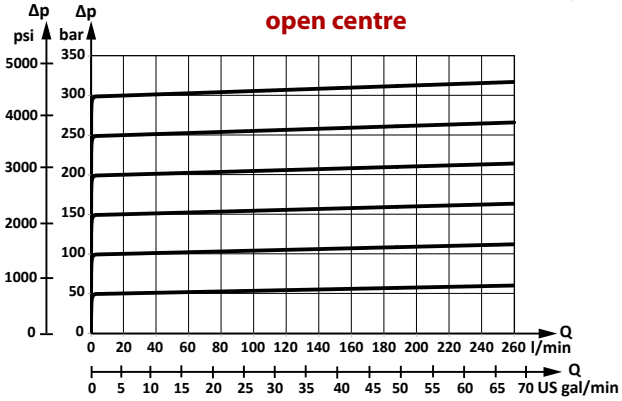
Hydraulic diagram



Neutral flow-pressure drop in PDI, open centre



Pressure relief valve characteristic in PDI, open centre



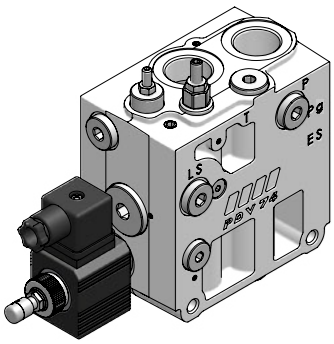
Designed for use with fixed displacement pumps.

Inlet comes standard with pressure compensated 3-way flow regulator ①, that when pump is started and working sections spools are in neutral position, it's unloaded to tank, and the oil flow being supplied from the pump, passes through the 3-way flow regulator to tank with minimal off-load pressure drop (see diagram below).

When one or more of the spools are actuated, the highest working pressure signal is fed to the 3-way flow regulator, that maintains the Δp at a constant level, so that the flow rate is independent of the load, and proportional to the opened spool area.
The built in pressure reducing valve ②, act as the pilot pressure supply for the electrical actuators, as well as, the hydraulic remote controls.
When the main PDS spools are actuated, the exceeding pump flow is being sent to tank at the highest load pressure value.
If the working pressure reaches the setting of the upstream max pressure pilot relief valve ③, the 3-way flow regulator will be opened to tank, thus limiting the working pressure inside the complete PDV.

By means of an electrical signal coming from the remote controls or I/O controller, the PDU solenoid valve ④, operates the poppet type pilot operated valve ⑤, which in turn, allows the full flow coming from the pump to be relieved to tank, bypassing the 3-way flow regulator ①.
The effect of this condition is a complete and safely pressureless system, where all actuators will be automatically catted-off, and the pressure into the system will be reduced to the sum of the tank port pressure, plus the pressure drop through the poppet unloading valve (see characteristic curve below)

When the inlet section comes with this configuration and the pump unloading system is connected with the active fault monitoring spool actuators, the level of safety degree protection for the complete hydraulic system becomes very high, operator free, and helps OEM to meet the PL (Performance Level) required to be comply with the safety demands of Machinery Directive 2006/42/EC.



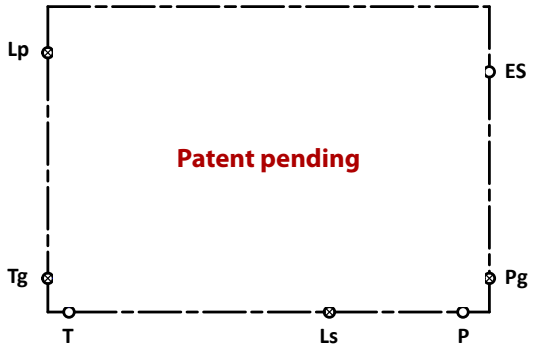
Designed to be configured either as open centre (fixed displacement pumps) or closed centre version (variable displacement pumps.)

Inlet comes standard with pressure compensated 3-way flow regulator (1), that when pump is started and working sections spools are in neutral position, it's unloaded to tank, and the oil flow being supplied from the pump, passes through the 3-way flow regulator to tank with minimal off-load pressure drop (see diagram below).

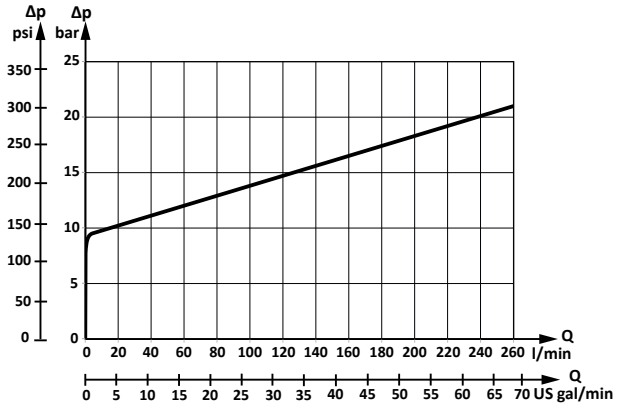
When one or more of the spools are actuated, the highest working pressure signal is fed to the 3-way flow regulator, that maintains the Δp at a constant level, so that the flow rate is independent of the load, and proportional to the opened spool area.
The built in pressure reducing valve (2), act as the pilot pressure supply for the electrical actuators, as well as, the hydraulic remote controls.
When the main PDS spools are actuated, the exceeding pump flow is being sent to tank at the highest load pressure value.
If the working pressure reaches the setting of the upstream max pressure pilot relief valve (3), the 3-way flow regulator will be opened to tank, thus limiting the working pressure inside the complete PDV.

By acting clockwise on the pilot shifting spool (4), without changing any components, the inlet section circuit will be transformed into closed centre configuration.
In this configuration the load sensing pilot pressure is led to pump control via the LS connection. When a main spool is actuated, the pump regulator will adjust the displacement so that the set differential pressure (stand-by pressure) between P and LS signal is maintened.
The pressure relief valve 3 is to be set at 35 bar above maximum cut-off pressure set on the pump.
The LS control performs as a constant pressure control also, decreasing pump displacement when system pressure reaches the PC setting.
The pressure compensating function has the priority over the load sensing function.

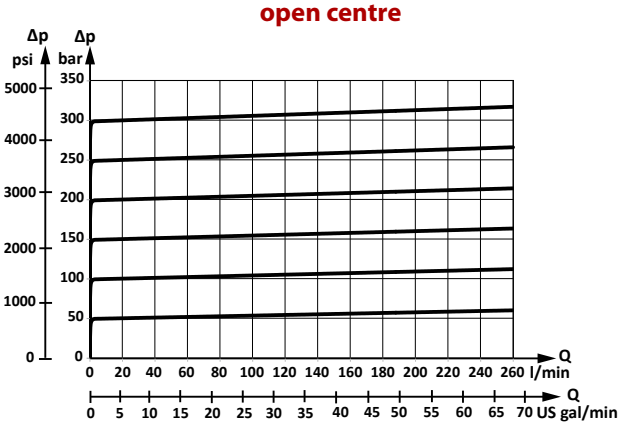
Hydraulic diagram

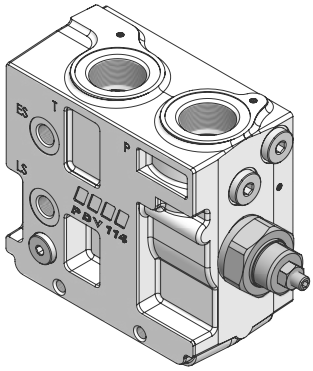


Neutral flow-pressure drop in PDI, open centre



Pressure relief valve characteristic in PDI, open centre





Designed for use with LS variable displacement pumps.

Inlet comes standard without pressure compensated 3-way flow regulator.

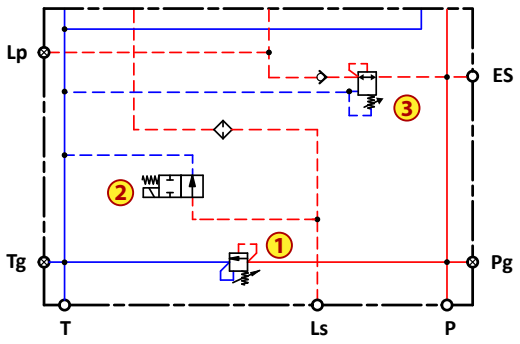
When pump is started and PDV spools are in neutral position, the LS pump signal is unloaded to tank.
When one or more of the spools are actuated, the highest signal is sent to the pump regulator that control the pump swashplate angle.
The PDS main spool compares the pressure drop before and after the spool notches
(differential pressure Δp), and therefore, the pump flow remain constant.
The position of the PDS spool determines the flow demand. If the differential pressure increase, the pump swashplate is swivelled back towards the minimum displacement, and if the differential pressure decrease, the swashplate angle increase towards the max flow displacement until balance is restored within the valve.

The inlet section can comes with an optional pressure relief valve ① that should be set at pressure about 35 bar above maximum system pressure set on the pump regulator.

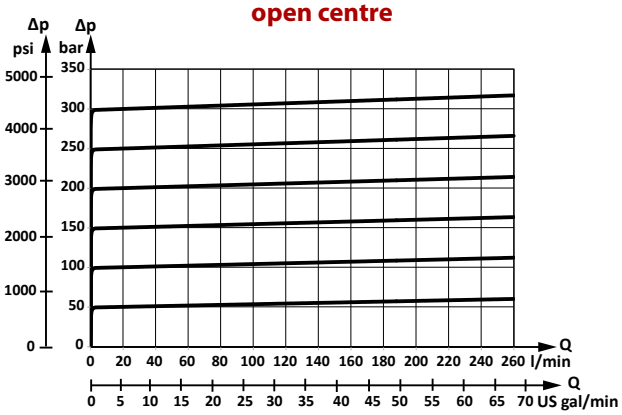
According to an electrical signal coming from the remote controls or I/O controller, the PIU solenoid unloading valve ② enable the LS signal to be relieved to tank.
The effect of this configuration is an almost pressureless system, where the activated actuators will be automatically catted off, and the pressure in the system will be reduced to the sum of the tank port pressure, plus the differential pressure of the pump, therefore, care must be given, because all the actuators whose working pressure is lower than the remaining pressure might be still operated.
The built in pressure reducing valve ③, act as the pilot pressure supply for the electrical actuators, as well as, the hydraulic remote controls.

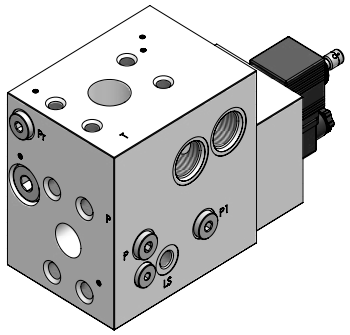
Also with the use of PIU emergency solenoid unloading valve, the level of safety degrees for the complete PDV valve is quite low, therefore, operator's great supervision is required.

Hydraulic diagram

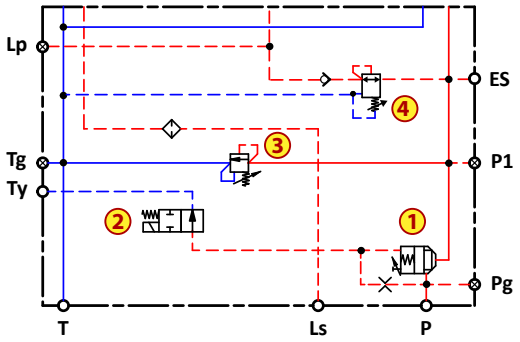


Pressure relief valve characteristic in PDI, open centre

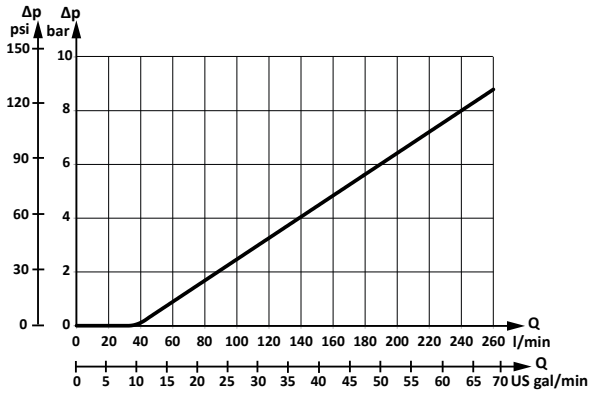




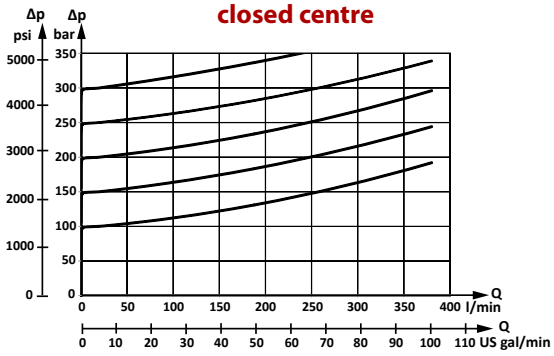
Hydraulic diagram



Pressure drop cut-off system in PDI, closed centre



Pressure relief valve characteristic in PDI, closed centre



Designed for use with LS variable displacement pumps.

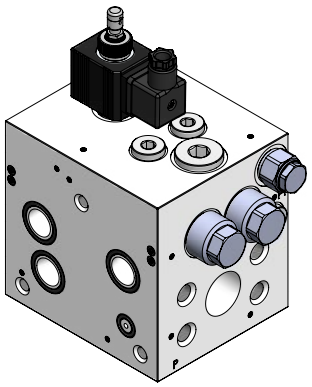
This version of inlet comes standard with a double stage cut-off pump system (1), that when activated according to an electrical signal (2), all down-stream working section will be perfectly and safely sealed from pressure and flow, protecting the complete hydraulic machines control against the negative effect of the remaining stand by pressure.

Inlet comes standard without pressure compensated 3-way flow regulator.

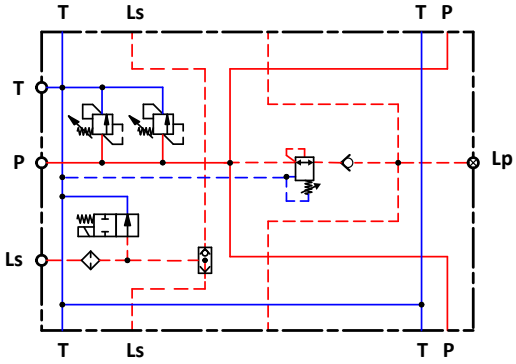
When pump is started and PDV spools are in neutral position, the LS pump signal is unloaded to tank.
When one or more of the spools are actuated, the highest signal is sent to the pump regulator that control the pump swashplate angle.
The PDS main spool compares the pressure drop before and after the spool notches
(differential pressure Δp), and therefore, the pump flow remain constant.
The position of the PDS spool determines the flow demand. If the differential pressure increase, the pump swashplate is swivelled back towards the minimum displacement, and if the differential pressure decrease, the swashplate angle increase towards the max flow displacement until balance is restored within the valve.

The inlet section can comes with an optional pressure relief valve (3) that should be set at pressure about 35 bar above maximum system pressure set on the pump regulator.
The built in pressure reducing valve (4), act as the pilot pressure supply for the electrical actuators, as well as, the hydraulic remote controls.

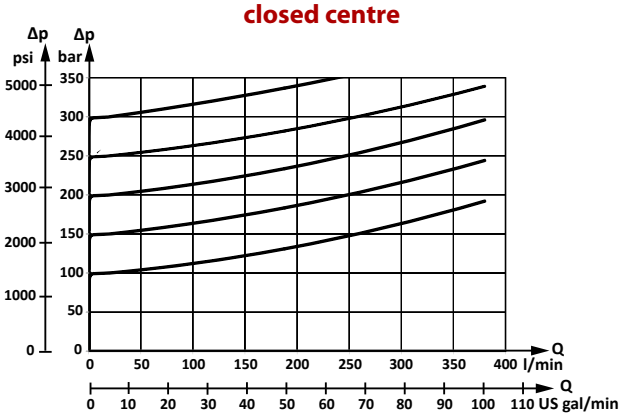
When the inlet section comes with this configuration and the cut-off pump system is connected with the active fault monitoring spool actuators, the level of safety degree protection for the complete hydraulic system becomes very high, operator free, and helps OEM to meet the PL (Performance Level) required to be comply with the safety demands of Machinery Directive 2006/42/EC.



Hydraulic diagram



Pressure relief valve characteristic in PDI, closed centre



Designed for use with LS variable displacement pumps.

PDIM is a MID inlet section that allows the PDV74 to be supplied with a larger variable pump flow capacity with a lower pressure drop.
PDIM enable to PDW to be mounted on both sides of the pump side module, therefore, the PDW fitted on PMID left side, the A-B work port position are reversed.

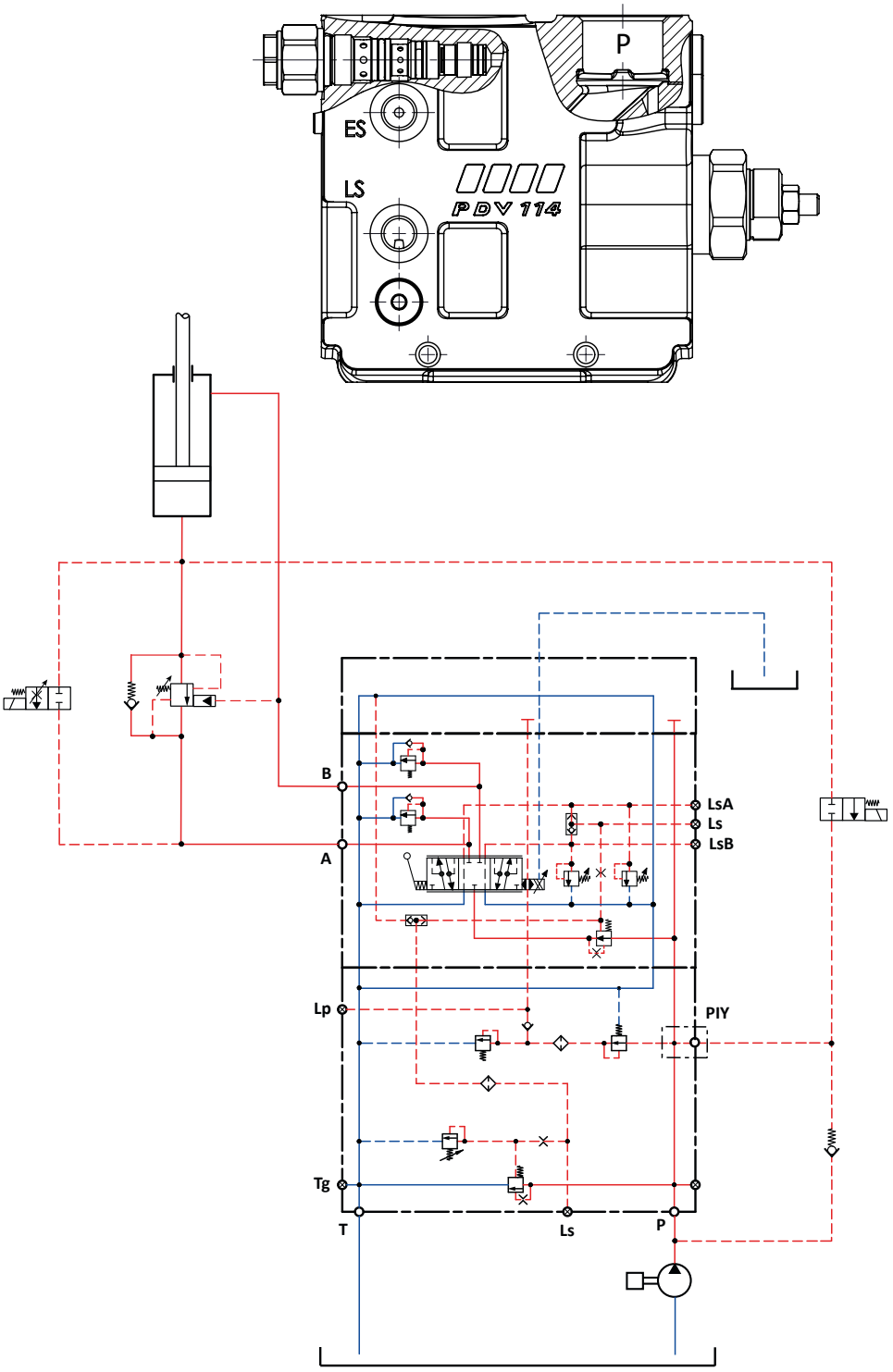
Inlet comes standard without pressure compensated 3-way flow regulator.

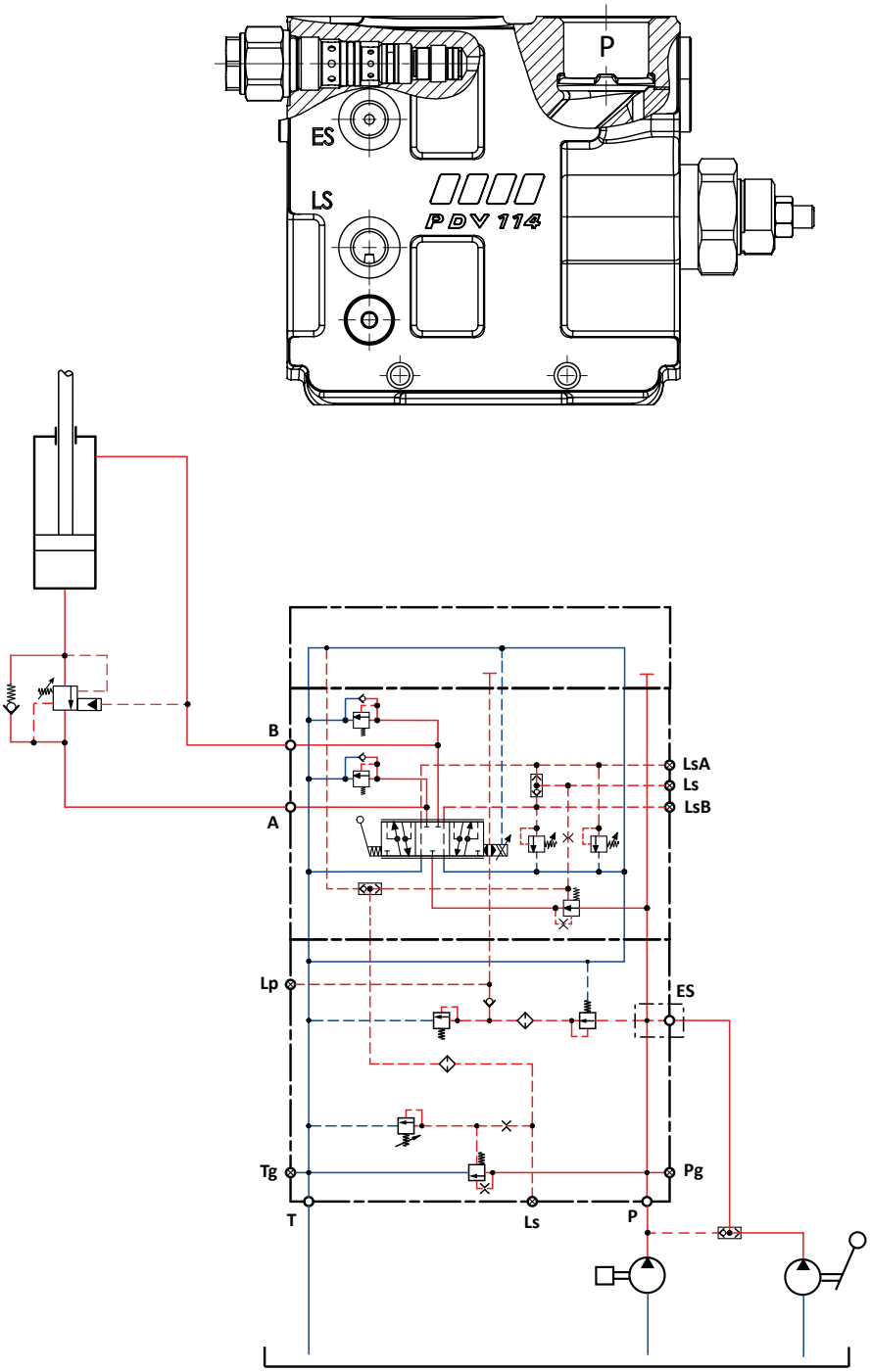
When pump is started and PDV spools are in neutral position, the LS pump signal is unloaded to tank.
When one or more of the spools are actuated, the highest signal is sent to the pump regulator that control the pump swashplate angle.
The PDS main spool compares the pressure drop before and after the spool notches
(differential pressure Δp), and therefore, the pump flow remain constant.
The position of the PDS spool determines the flow demand. If the differential pressure increase, the pump swashplate is swivelled back towards the minimum displacement, and if the differential pressure decrease, the swashplate angle increase towards the max flow displacement until balance is restored within the valve.

The inlet section may comes with an optional pressure relief valve that should be set at pressure about 35 bar above maximum system pressure set on the pump regulator.

According to an electrical signal coming from the remote controls or I/O controller, the PIU solenoid unloading valve enable the LS signal to be relieved to tank.
The effect of this configuration is an almost pressureless system, where the activated actuators will be automatically catted off, and the pressure in the system will be reduced to the sum of the tank port pressure, plus the differential pressure of the pump, therefore, care must be given, because all the actuators whose working pressure is lower than the remaining pressure might be still operated.

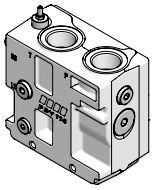
Also with the use of PIU emergency solenoid unloading valve, the level of safety degrees for the complete PDV valve is quite low, therefore, operator's great supervision is required.

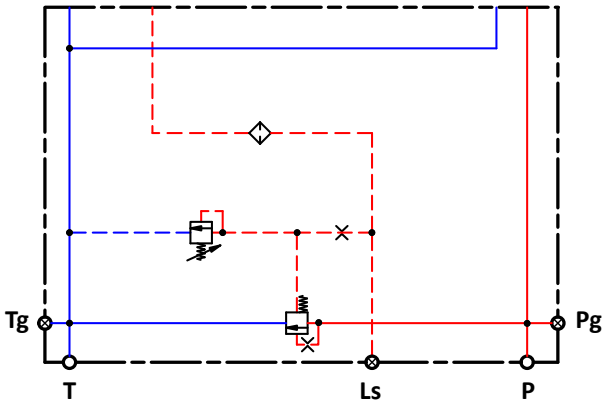

P
ES
LS
PDV 114
B
A
LsA
Ls
LsB
Lp
PIY
Tg
T
Ls
P



This inlet configuration (for open or closed centre) is suited to supply the PDV74 with a flow from an auxiliary manual operated emergency pump.
Normally the main pump supply the built in pressure reducing valve through the PIY, screw-in cartridge.
In case of main pump failure, the external shuttle valve ensure that the main pressure reducing valve is being supplied from the emergency hand pump, and the pilot oil supply available for electric actuators.

Product	Hydraulic diagram	Description

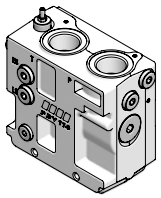


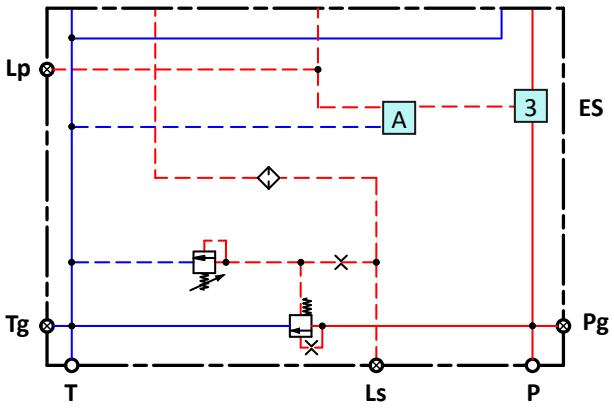


For mechanically actuated valves, only

Code numbers	
PDI01A30000	**PDI01A30010**
BSPP	UN-UNF

Connections thread see page 249

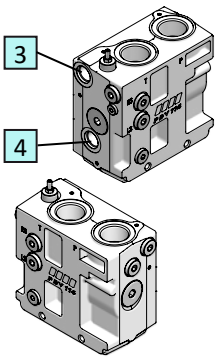


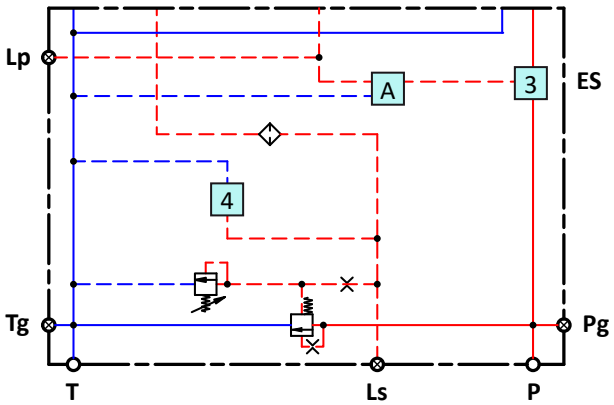


With pilot oil supply for electrically and hydraulic actuated valves 3

Code numbers	
PDI01A40000	**PDI01A40010**
BSPP	UN-UNF

Connections thread see page 249



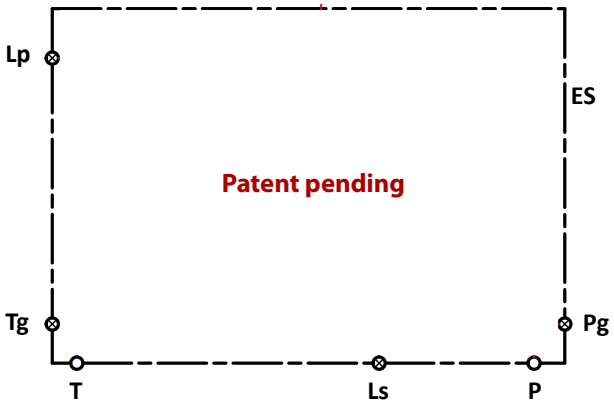


With pilot oil supply for electrically and hydraulic actuated valves 3 and facility for LS unloading 4

Code numbers	
PDI01A41000	**PDI01A41010**
BSPP	UN-UNF

Connections thread see page 249

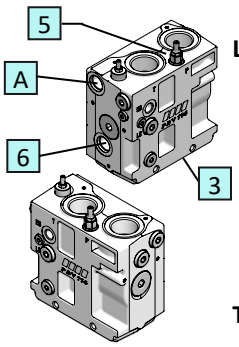
Product	Hydraulic diagram	Description

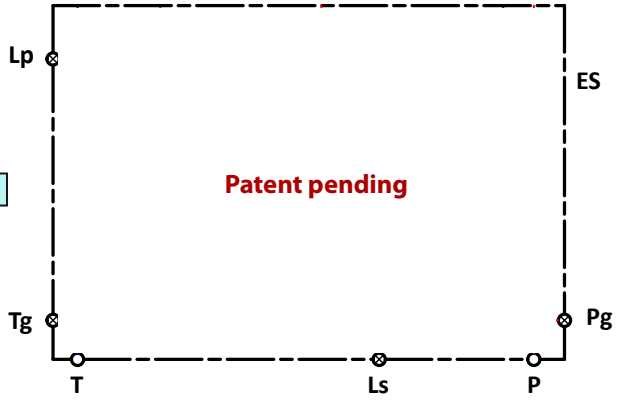


With pilot oil supply, for electrically and hydraulic actuated valves 3 and shifting pump system 5

Code numbers	
PDI01B40000	**PDI01B40010**
BSPP	UN-UNF

Connections thread see page 249



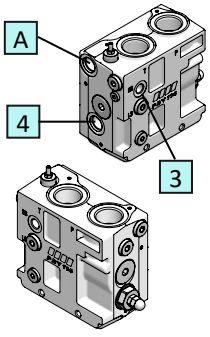


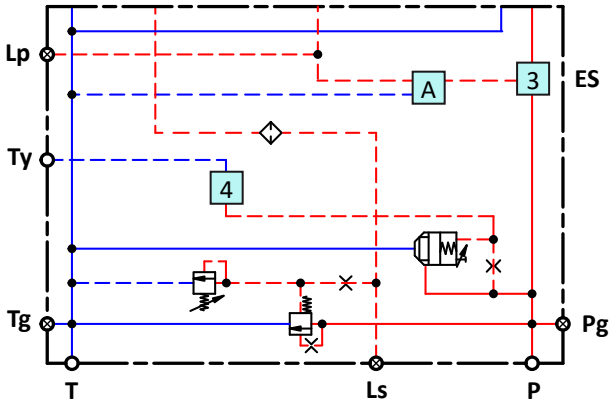
With pilot oil supply for electrically and hydraulic actuated valves 5, shifting pump system 6 and facility for LS unloading 3

Code numbers	
PDI01B41000	**PDI01B41010**
BSPP	UN-UNF

Connections thread see page 249

Product	Hydraulic diagram	Description

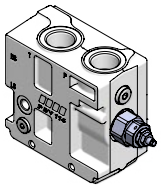
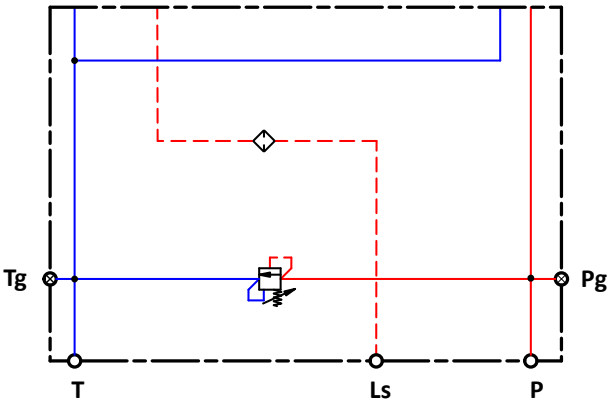
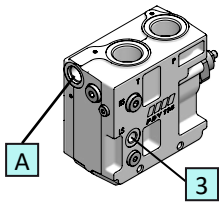
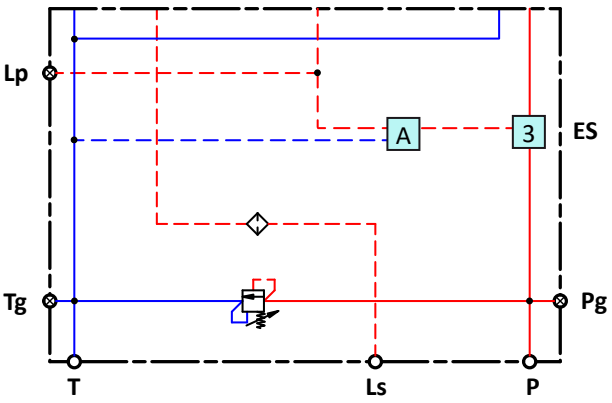
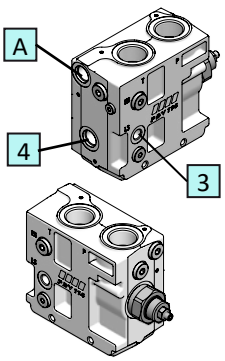
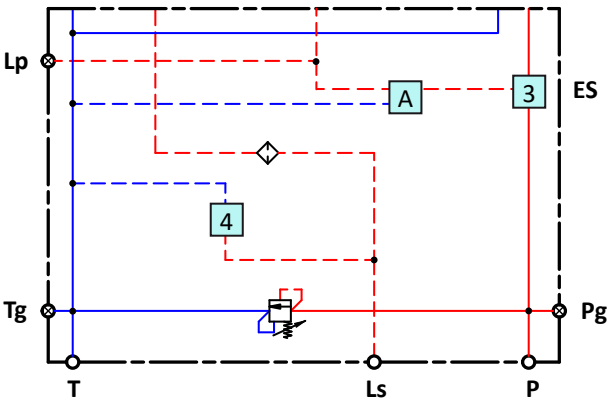




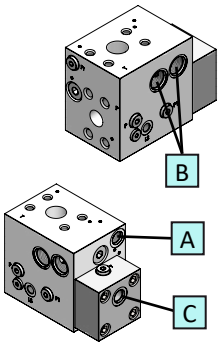
With pilot oil supply for electrically and hydraulic actuated valves 3 and pump unloading system 4

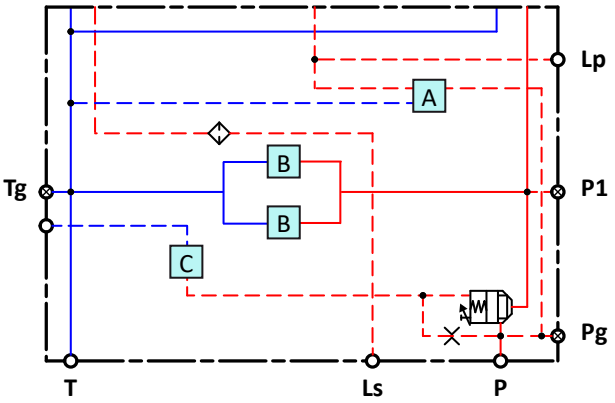
Code numbers	
PDI01A42000	**PDI01A42010**
BSPP	UN-UNF

Connections thread see page 249

Product	Hydraulic diagram	Description
		For mechanically actuated valves, only Code numbers **PDI01C30000** / **PDI01C30010** BSPP / UN-UNF Connections thread see page 249
		With pilot oil supply for electrically and hydraulic actuated valves 3 Code numbers **PDI01C40000** / **PDI01C40010** BSPP / UN-UNF Connections thread see page 249
		With pilot oil supply for electrically and hydraulic actuated valves 4 and facility for LS unloading 3 Code numbers **PDI01C41000** / **PDI01C41010** BSPP / UN-UNF Connections thread see page 249

Product	Hydraulic diagram	Description

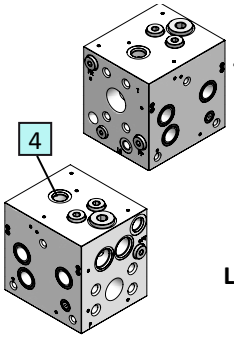


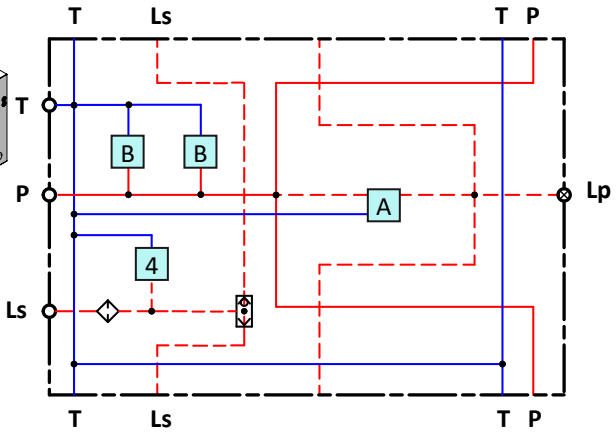


With pilot oil supply for electrically and hydraulic actuated valves 3 and cut-off system

Code numbers	
PDI01C44000	**PDI01C44010**
BSPP	UN-UNF

Connections thread see page 249

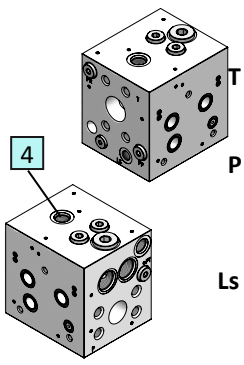


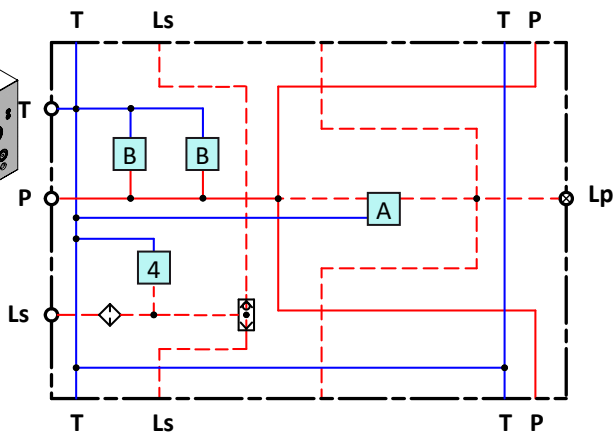


MID inlet PDV114 with pilot oil supply for electrically and hydraulic actuated valves and facility for LS unloading 4

Code numbers	
PDIM1C41000	**PDIM1C41010**
BSPP	UN-UNF

Connections thread see page 261

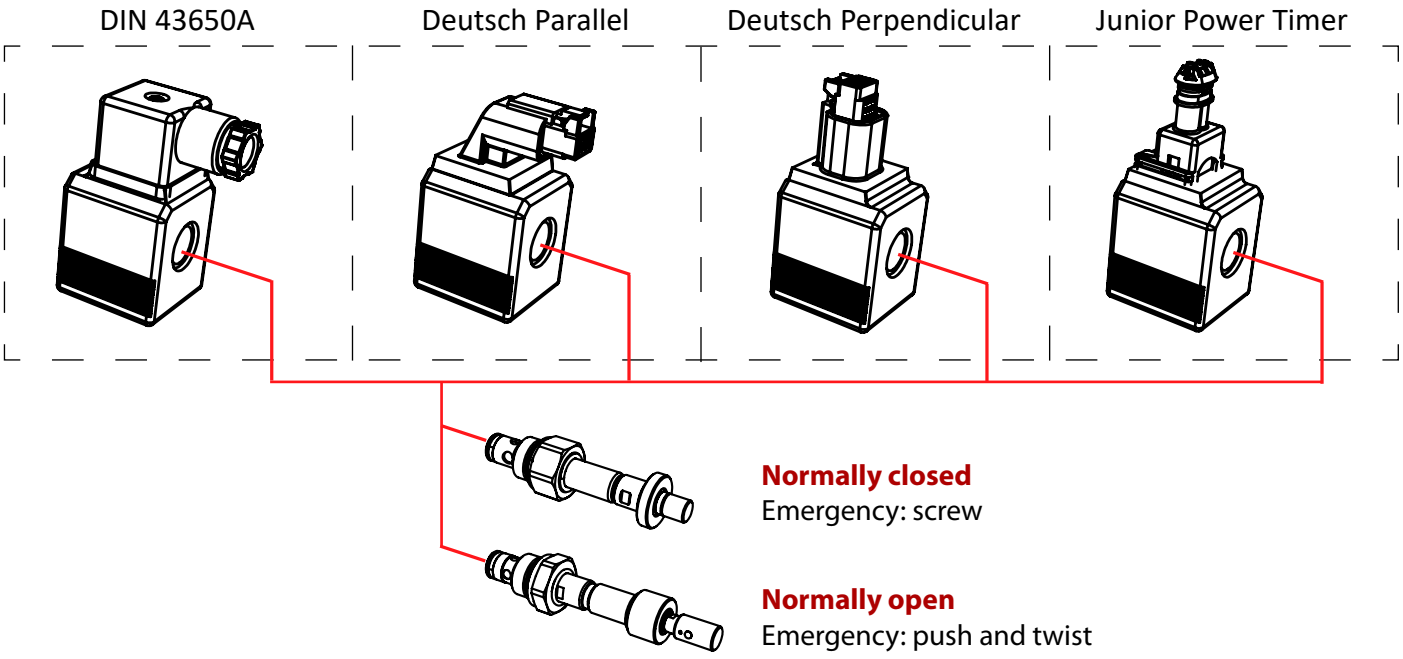


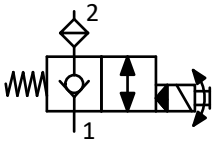
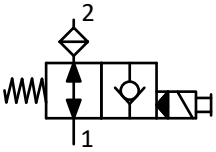


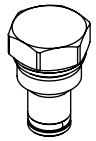
MID inlet PDV117 with pilot oil supply for electrically and hydraulic actuated valves and facility for LS unloading 4

Code numbers	
PDIM4C41000	**PDIM4C41010**
BSPP	UN-UNF

Connections thread see page 166

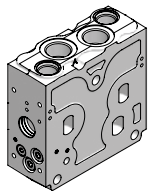


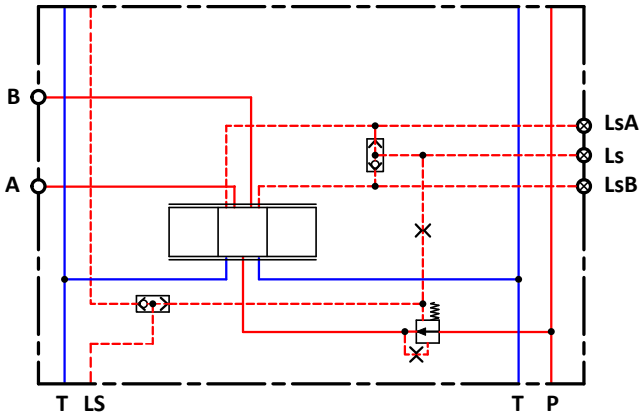
Code numbers PIU solenoid LS unloading valve codes			
Cartridge valve type	Connector type	12 Vdc	24 Vdc
Normally closed Emergency: screw 	DIN 43650A	**PIU0C123200**	**PIU0C113200**
	Deutsch Parallel	**PIU0C121200**	**PIU0C111200**
	Deutsch Perpendicular	**PIU0C122200**	**PIU0C112200**
	Junior Power Timer	**PIU0C124200**	**PIU0C114200**
Normally open Emergency: push and twist 	DIN 43650A	**PIU0A123100**	**PIU0A113100**
	Deutsch Parallel	**PIU0A121100**	**PIU0A111100**
	Deutsch Perpendicular	**PIU0A122100**	**PIU0A112100**
	Junior Power Timer	**PIU0A124100**	**PIU0A114100**

Plug for LS unloading cavity		
Plug cavity	Hydraulic scheme	Code numbers
		**PIP10000000**

Max. operating pressure		**350 bar**	
Max. internal leakage		**350 bar, 46 mm²/sec 1 cm³/min**	
max pressure drop		**< 1,5 bar**	
Expected life - 350 bar, 0,5 Hz (1s on / 1s off)		**10.000.000 cycles**	
Response time for LS pressure relief		**< 280ms**	
Oil temperature	**Recommended**	**30 ÷ 60 °C**	
	Min.	**-30 °C**	
	Max.	**90 °C**	
Ambient temperature		**-30 ÷ 60 °C**	
Max. coil surface temperature		**160 °C**	
Oil viscosity	**Operating range**	**10 ÷ 90 cSt**	
	Min.	**4 mm²/sec**	
	Max.	**460 mm²/sec**	
Degree of enclosure	**Connector DIN 43650**	**IP65**	
	Connector Deutsch DT04-2p	**IP67**	
		IP69K integrated to coil	
Rated voltage		**12 Vdc**	**24 Vdc**
Supply voltage		**10,6 ÷ 14,6 Vdc**	**20,4 ÷ 28,6 Vdc**
Working temperature		**-30 ÷ 80 °C**	
Maximum coil surface temperature		**175 °C**	
Heat insulation		**Class H (180 °C)**	
Resistance		**7,5 Ω**	**29,9 Ω**
Current consumption		**1,6 A**	**0,8 A**
Power consumption		**19 W**	

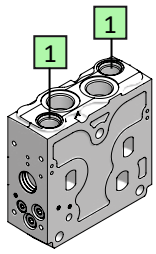
Product	Hydraulic diagram	Description

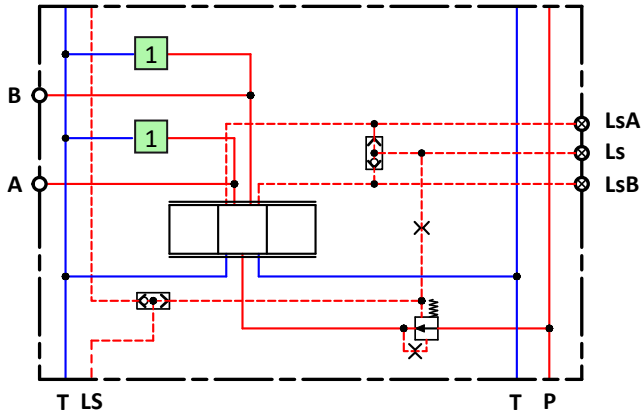




No facilities for shock-suction valves
No facilities for LS A/B pilot relief valves

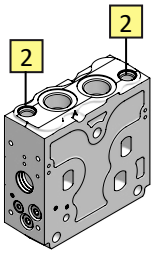
Code numbers	
PDW11000000	**PDW11000010**
BSPP	UN-UNF
A/B ports 3/4" Ls-LsA-LsB remote pressure connections 1/4"	A/B ports 1-1/16"-12UNF-2B Ls-LsA-LsB remote pressure connections 7/16"-20UNF-2B

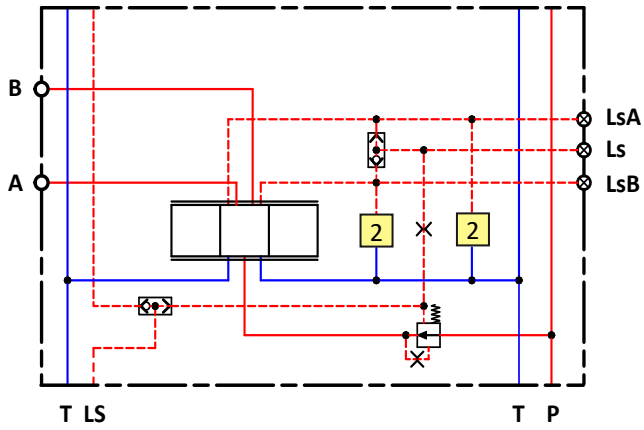




Facilities for shock-suction valves 1
No facilities for LS A/B pilot relief valves

Code numbers	
PDW11010000	**PDW11010010**
BSPP	UN-UNF
A/B ports 3/4" Ls-LsA-LsB remote pressure connections 1/4"	A/B ports 1-1/16"-12UNF-2B Ls-LsA-LsB remote pressure connections 7/16"-20UNF-2B

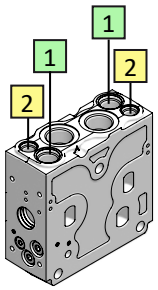


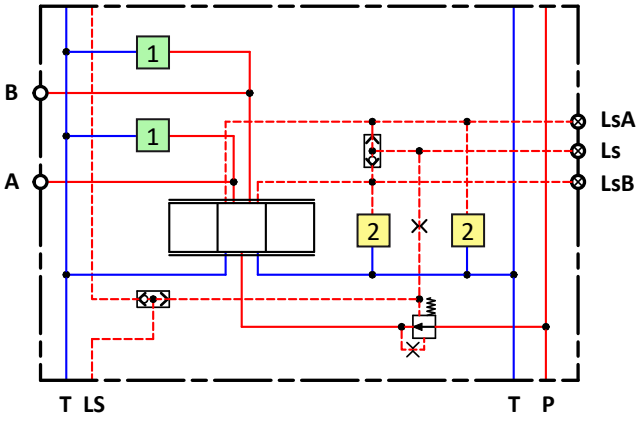


No facilities for shock-suction valves
Facilities for LS A/B pilot relief valves 2

Code numbers	
PDW11100000	**PDW11100010**
BSPP	UN-UNF
A/B ports 3/4" Ls-LsA-LsB remote pressure connections 1/4"	A/B ports 1-1/16"-12UNF-2B Ls-LsA-LsB remote pressure connections 7/16"-20UNF-2B

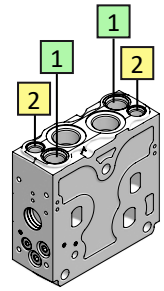
Product	Hydraulic diagram	Description

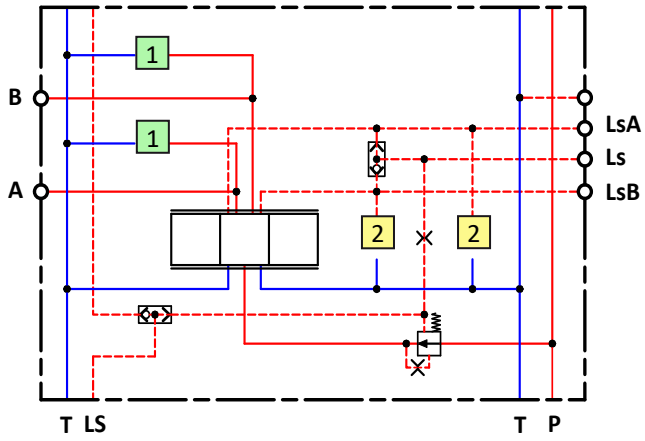




Facilities for shock-suction valves 1
Facilities for LS A/B pilot relief valves 2

Code numbers	
PDW11110000	**PDW11110010**
BSPP	UN-UNF
A/B ports 3/4" Ls-LsA-LsB remote pressure connections 1/4"	A/B ports 1-1/16"-12UNF-2B Ls-LsA-LsB remote pressure connections 7/16"-20UNF-2B

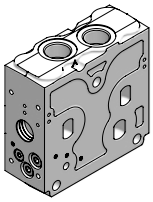


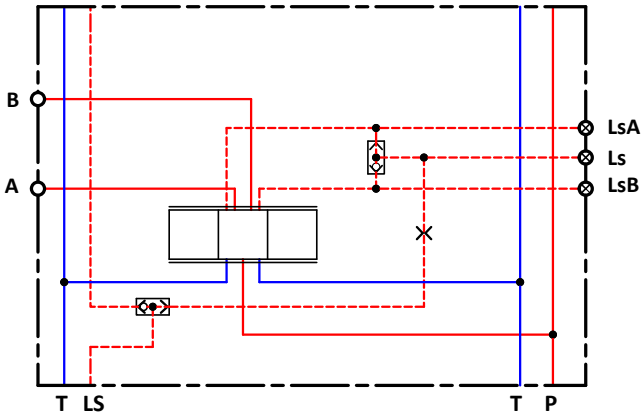


Facilities for shock-suction valves 1
Facilities for LS A/B pilot relief valves and electric unloading LS A/B piloting 2

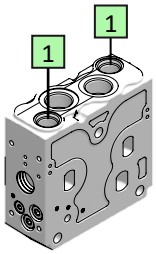
Code numbers	
PDW11111000	**PDW11111010**
BSPP	UN-UNF
A/B ports 3/4" Ls-LsA-LsB remote pressure connections 1/4"	A/B ports 1-1/16"-14UNF-2B Ls-LsA-LsB remote pressure connections 7/16"-20UNF-2B

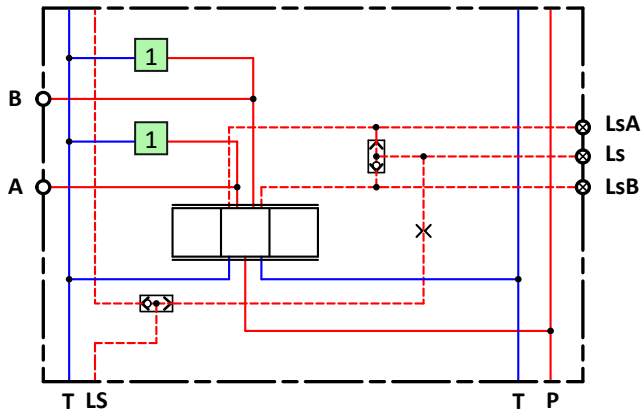
Product	Hydraulic diagram	Description



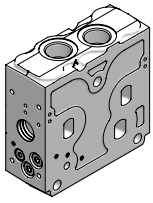


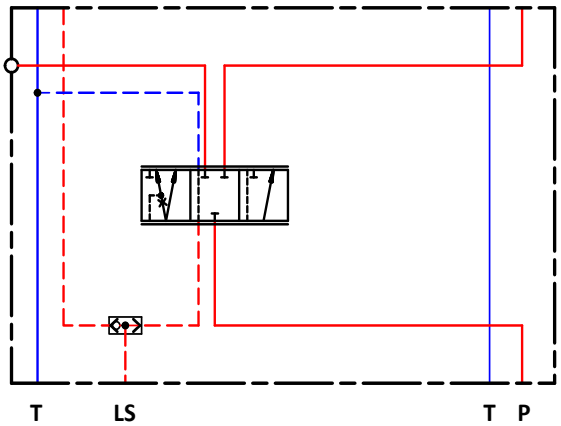
No facilities for shock-suction valves	
Code numbers	
PDW10000000	**PDW10000010**
BSPP	UN-UNF
A/B ports 3/4" Ls-LsA-LsB piloting connections 1/4"	A/B ports 1-1/16"-12UNF-2B Ls-LsA-LsB piloting connections 7/16" - 20UNF - 2B





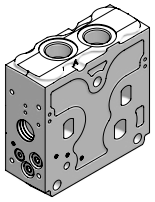
Facilities for shock-suction valves 1	
Code numbers	
PDW10010000	**PDW10010010**
BSPP	UN-UNF
A/B ports 3/4" Ls-LsA-LsB piloting connections 1/4"	A/B ports 1-1/16"-12UNF-2B Ls-LsA-LsB piloting connections 7/16" - 20UNF - 2B

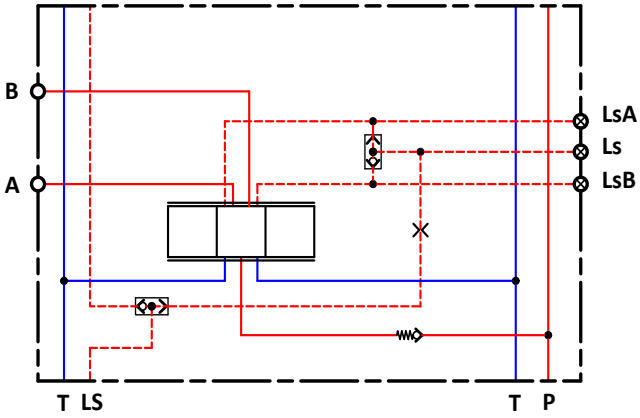




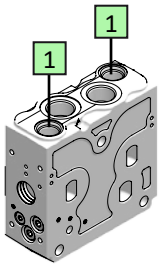
Functional safety cut off system and diverter flow	
Code numbers	
PDW15000000	**PDW15000010**
BSPP	UN-UNF
A/B ports 3/4" Ls-LsA-LsB piloting connections 1/4"	A/B ports 1-1/16"-12UNF-2B Ls-LsA-LsB piloting connections 7/16" - 20UNF - 2B

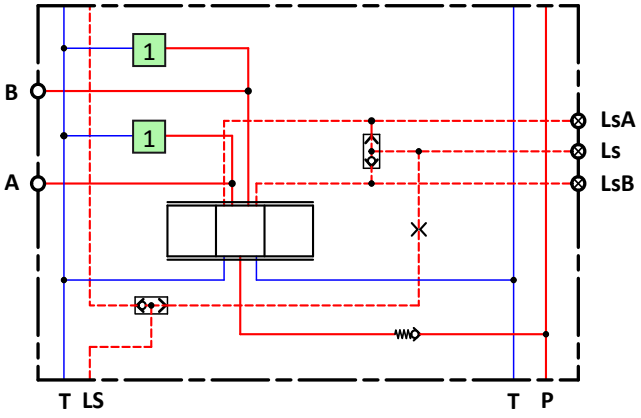
Product	Hydraulic diagram	Description





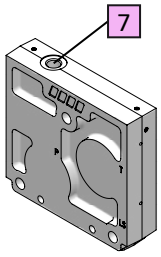
No facilities for shock-suction valves With load drop check valve on P channel	
Code numbers	
PDW13000000	**PDW13000010**
BSPP	UN-UNF
A/B ports 3/4" Ls-LsA-LsB piloting connections 1/4"	A/B ports 1-1/16"-12UNF-2B Ls-LsA-LsB piloting connections 7/16" - 20UNF - 2B

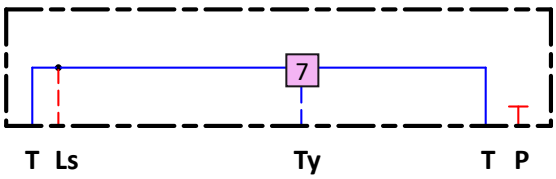




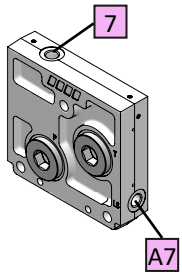
Facilities for shock-suction valve 1 With load drop check valve on P channel	
Code numbers	
PDW13010000	**PDW13010010**
BSPP	UN-UNF
A/B ports 3/4" Ls-LsA-LsB piloting connections 1/4"	A/B ports 1-1/16"-12UNF-2B Ls-LsA-LsB piloting connections 7/16" - 20UNF - 2B

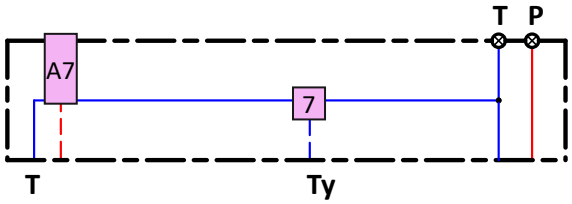
Product	Hydraulic diagram	Description



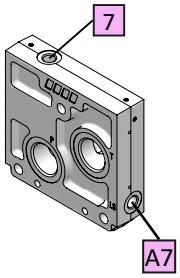


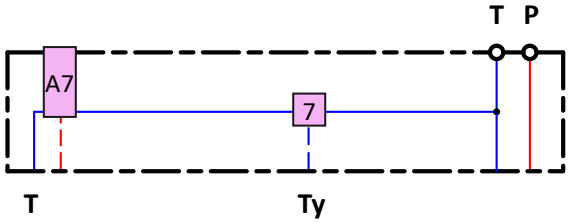
No ported, prearranged for external/internal drain 7	
Code numbers	
PDE01010000	**PDE01010010**
BSPP	UN-UNF
Connections thread see page 249	





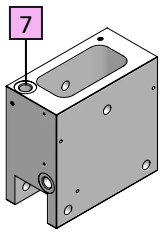
Ls port A7 prearranged for external/internal drain 7	
Code numbers	
PDE01210000	**PDE01210010**
BSPP	UN-UNF
Connections thread see page____	

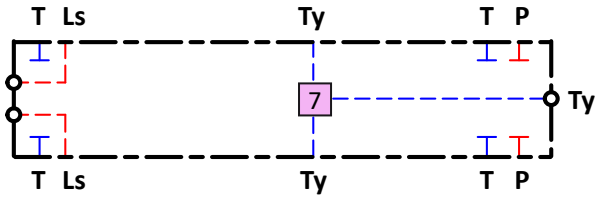




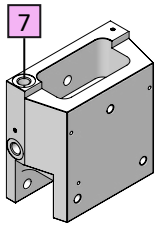
P-T-Ls ports A7 prearranged for external/internal drain 7	
Part number	
PDE01110000	**PDE01110010**
BSPP	UN-UNF
Connections thread see page___	

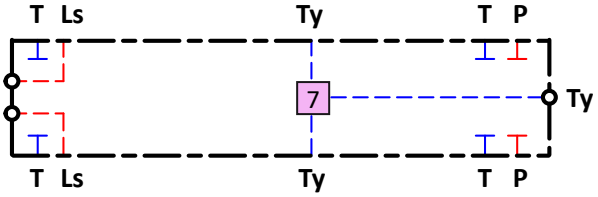
Product	Hydraulic diagram	Description



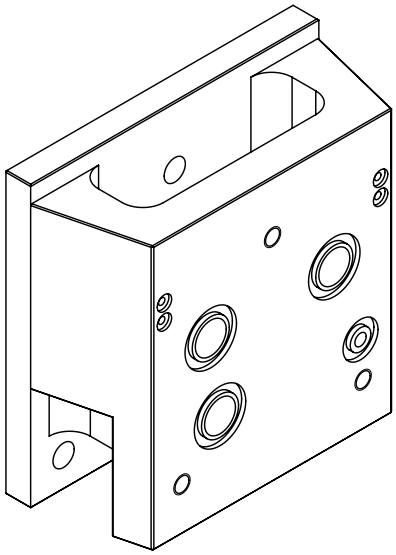


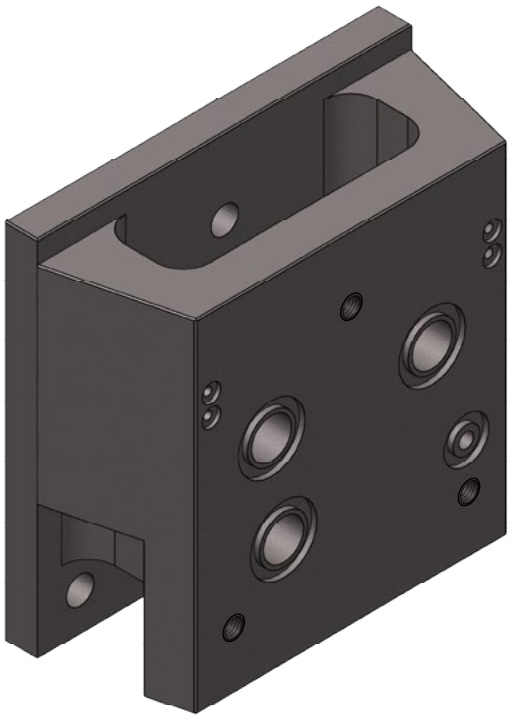
Mid End PDV114 7	
Code numbers	
PDEM1010000	**PDEM1010010**
BSPP	UN-UNF
Connections thread see page 255	



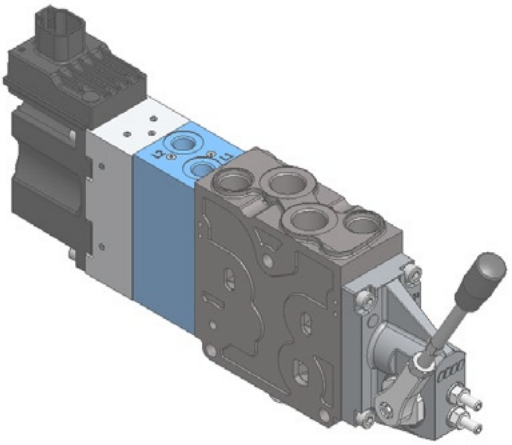


Mid End PDV117 7	
Code numbers	
PDEM4010000	**PDEM4010010**
BSPP	UN-UNF
Connections thread see page 265	

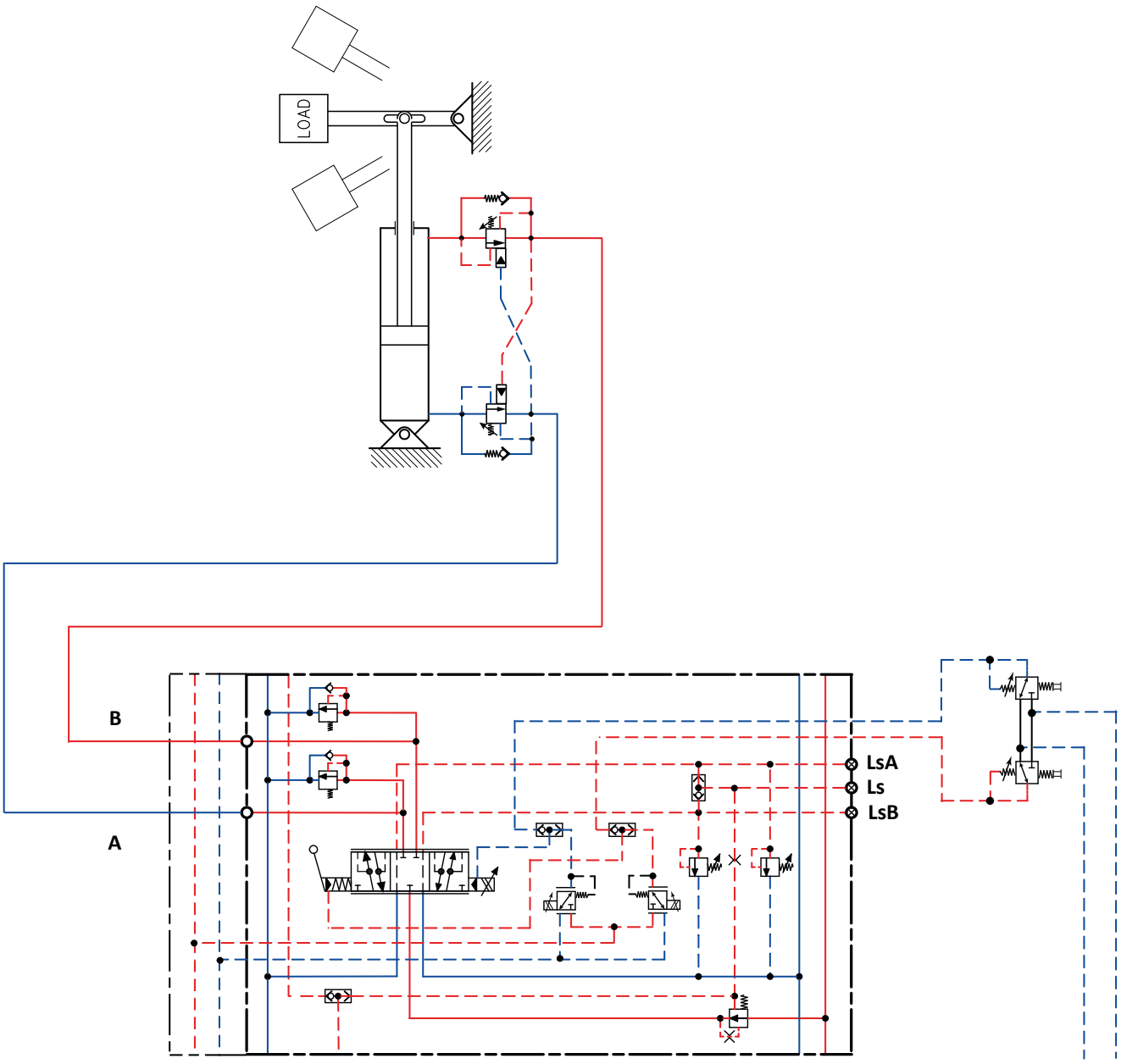
	Description	
		PDEI4000000



PDV114 Proportional Valve
PDZ module - Dual spool control



PDZ is a small HIC body that can be matched with any kind of PDV114 working section PDW, to get hydraulic and electro-hydraulic spool control

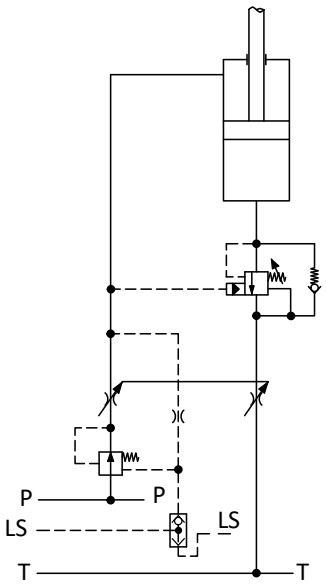


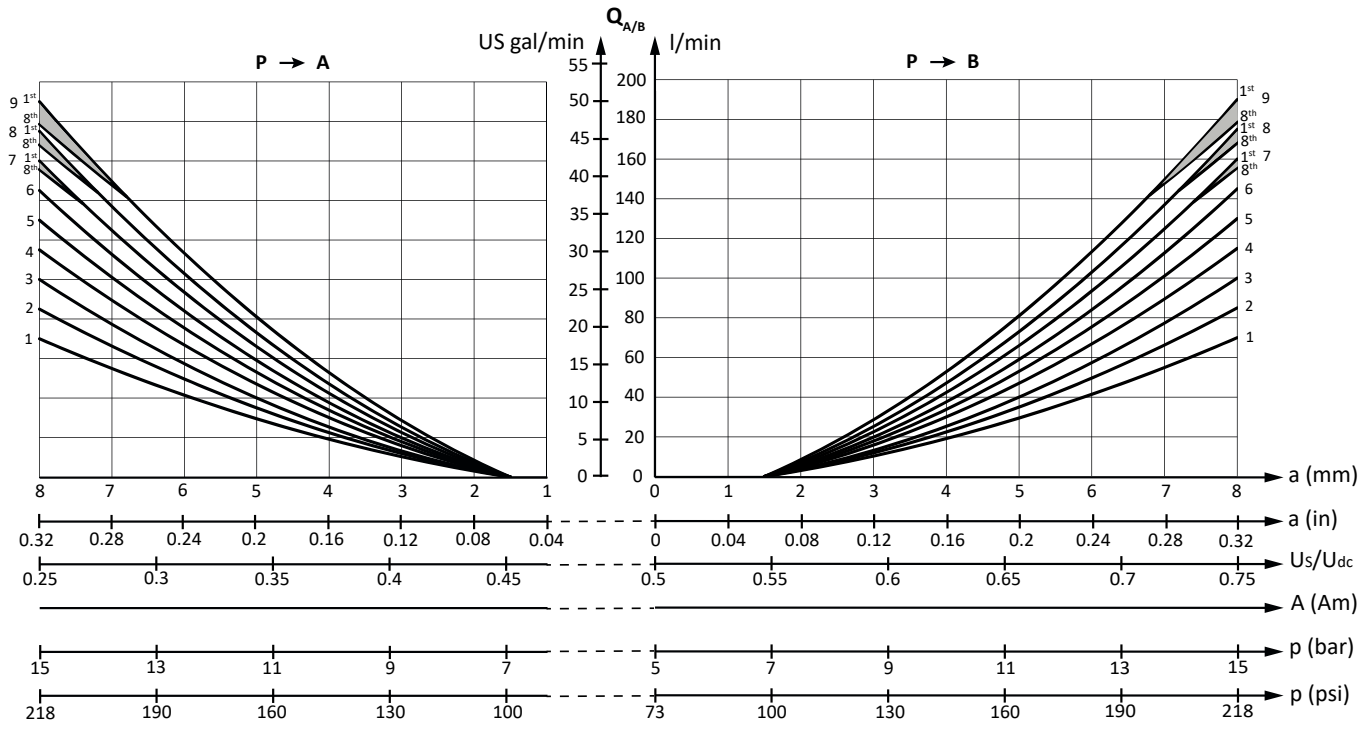
PDZ overrall dimensions	For open loop spool control	For closed loop spool control
	PDZ70000000 1/4" BSPP - 12 mm deep	**PDZ** 1/4" BSPP - 12 mm deep
	PDZ [7/16 in-20 UNF-2B - 0,47 in deep]	**PDZ** [7/16 in-20 UNF-2B - 0,47 in deep]

Oil flow characteristics

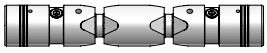
With flow control spool, the oil flow depends on type of PDW module (with or without pressure compensator) and type of pump (fixed or variable displacement).

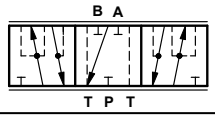
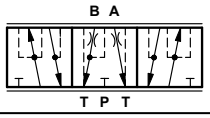
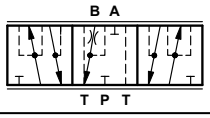
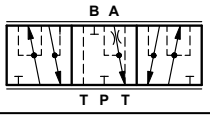
In the below chart, the ordinate numbers refer to spool size, and the ordinal numbers refer to the same spool size but fitted in a different position with related lost flow.



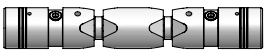


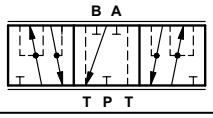
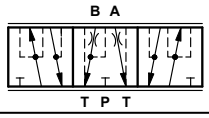
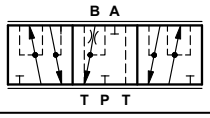
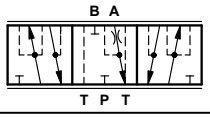
Double acting flow control spool



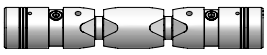
Size	Max oil flow pressure compensated **l/min**	Code numbers and symbol			
					
		4-way, 3-position - A, B closed	4-way, 3-position, A, B → T	4-way, 3-position, B → T; A closed	4-way, 3-position, A → T; B closed
1	**70**	**PDS01110101**	**PDS01120102**		
2	**85**	**PDS01110103**	**PDS01120104**		
3	**100**	**PDS01110105**	**PDS01120106**		
4	**115**	**PDS01110107**	**PDS01120108**		
5	**130**	**PDS01110109**	**PDS01120110**		
6	**145**	**PDS01110111**	**PDS01120112**		
7	**160**	**PDS01110117**	**PDS01120118**		
8	**175**	**PDS01110119**	**PDS01120120**		
9	**190**	**PDS01110121**	**PDS01120122**		

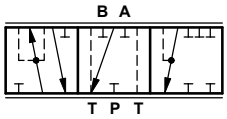
Double acting asymmetric flow control spool



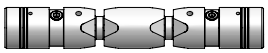
Max oil flow pressure compensated **l/min**		Code numbers and symbol			
					
A	**B**	4-way, 3-position - A, B closed	4-way, 3-position, A, B → T	4-way, 3-position, B → T, A closed	4-way, 3-position, A → T, B closed
190	**70**	**PDS01130101**	**PDS01130102**		
190	**115**	**PDS01130103**	**PDS01130104**		

Single acting flow control spool



Size	Max oil flow pressure compensated **l/min**	Symbol and code numbers	
			
		3-way, 3-position P → A	3-way, 3-position P → B
1			
2			
3			
4			
5			
6			
7			
8			
9			

Double acting flow control spool, floating position

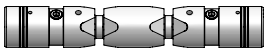


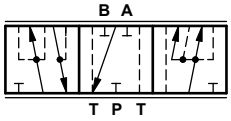
Size	Max oil flow pressure compensated **l/min**	Symbol and code numbers	
			
		3-way, 4-position floating position on A port	3-way, 4-position floating position on B port
1			
2			
3			
4			
5			

Spool centered set, code numbers (needed for any kind of flow control spool)

Tightening torque		Tightening torque
6^{+1}_{0} Nm		6^{+1}_{0} Nm
$53,1^{+8,85}_{0}$ lb*in		$53,1^{+8,85}_{0}$ lb*in
Manual control	**PDR00300101**	
Hydraulic - Electrohydraulic	**PDR00300102**	

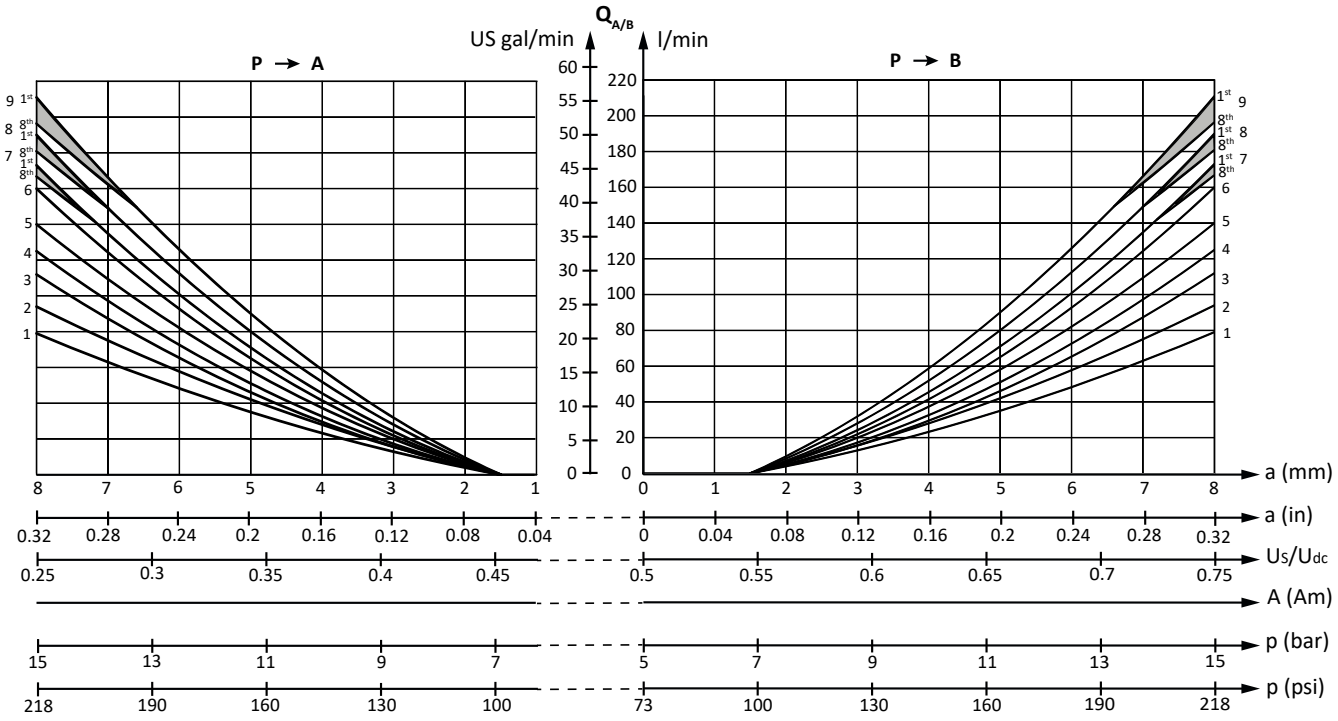
Double acting flow control, regenerative function



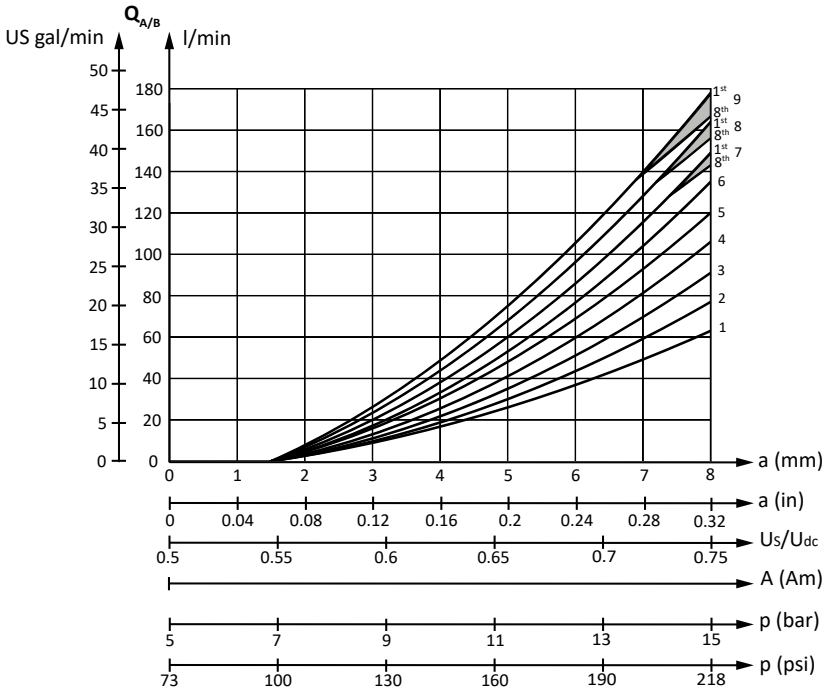
Size	Max oil flow pressure compensated **l/min**	Symbol and code numbers	
			
		Regenerative circuit on A port	Regenerative circuit on B port
1	**70**		
2	**85**		
3	**100**		
4	**115**		
5	**130**		
6	**145**		
7	**160**		
8	**175**		
9	**190**		
10			

Spool centered set, code numbers (needed for any kind of flow control spool)

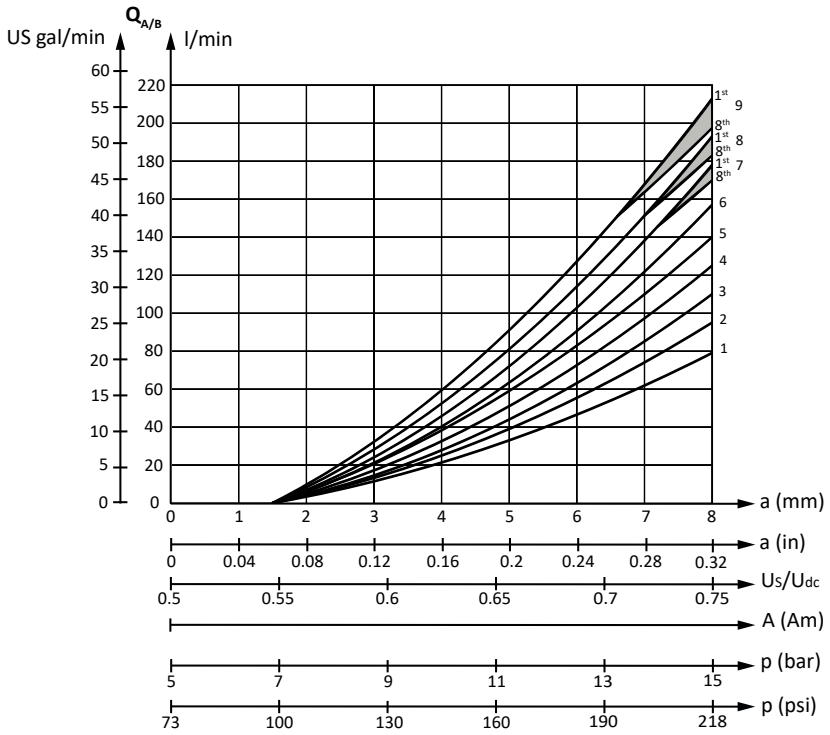
Tightening torque		Tightening torque
6^{+1}_{0} Nm		6^{+1}_{0} Nm
$53,1^{+8,85}_{0}$ lb*in		$53,1^{+8,85}_{0}$ lb*in
Manual control	**PDR00300101**	
Hydraulic - Electrohydraulic	**PDR00300102**	


$Q_{A/B}$
US gal/min
l/min
P → A
P → B
a (mm)
a (in)
Us/Udc
A (Am)
p (bar)
p (psi)

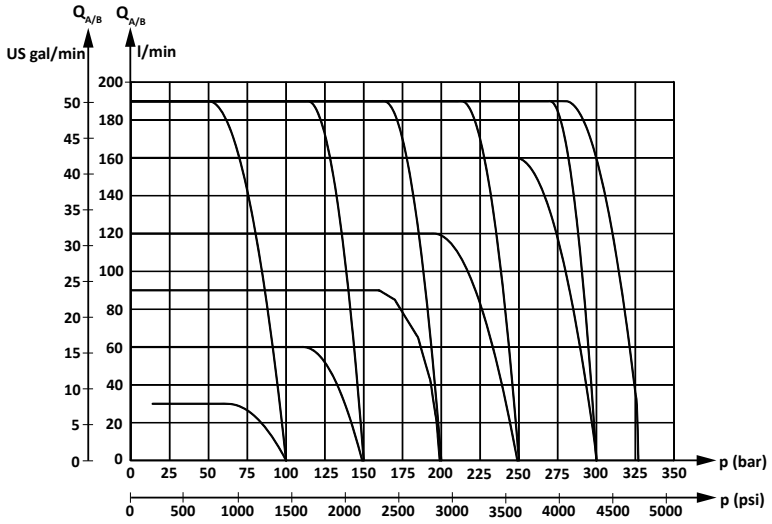
Oil flow characteristics PDW without pressure compensator, and pump differential pressure setting = 16 bar



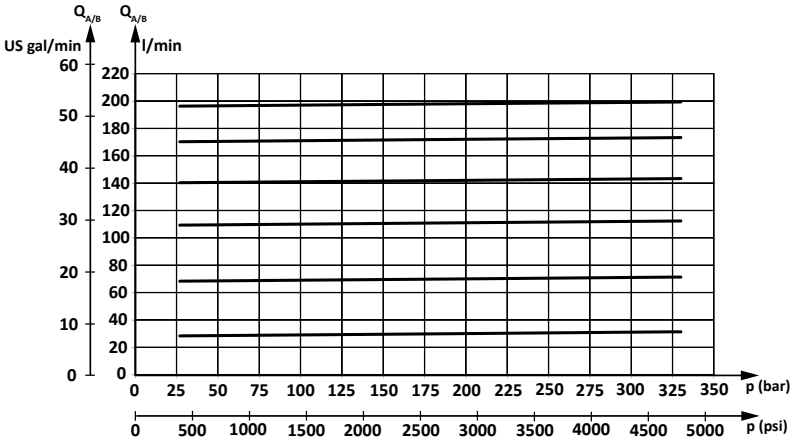
Oil flow characteristics PDW without pressure compensator, and pump differential pressure setting = 25 bar



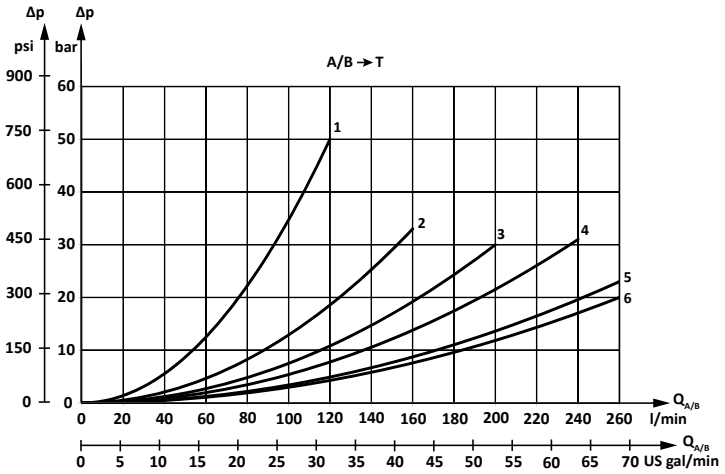
Oil flow PDW pressure compensated with LS A/B pilot relief valves



Load independent oil flow pressure compensated PDW



PDW pressure drop at max main spool travel

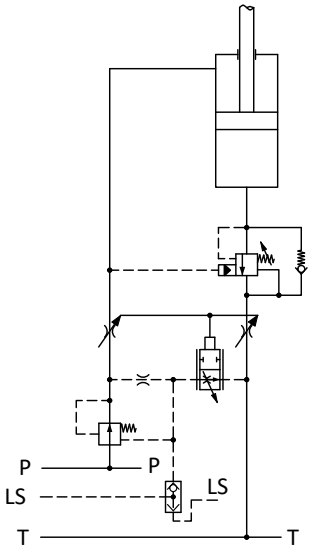


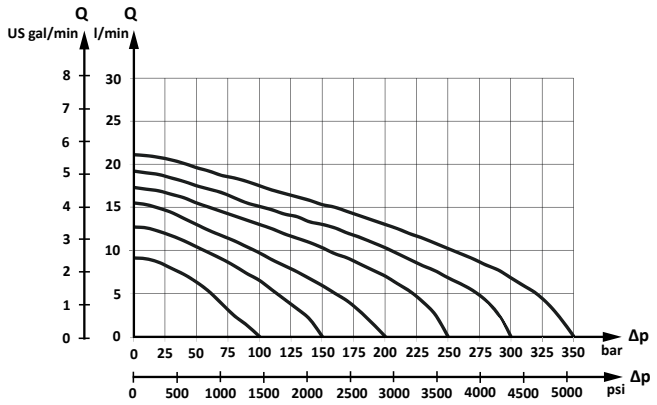
PDV114 Proportional Valve
PDS modules - **Pressure control main spool**

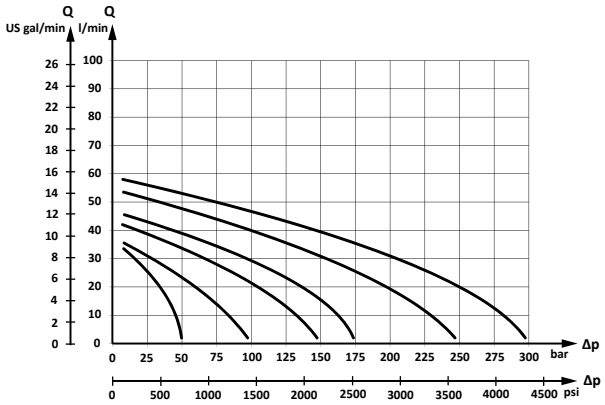
By using proportional directional valves along with overcenter valves, instability problems may occurs in the form of pressure surging.
To suite this problems, spools with different circuit named " Pressure Control " have been developed.
The main purpose of these spools, is to hold in position the 2-way pressure compensator, preventing it from going into unstable condition, and in turn, to keep the overcenter's pilot pressure value as stable as possible.
Pressure control spools, must always be used with pressure compensated working sections equipped with pilot LS A/B relief valves.

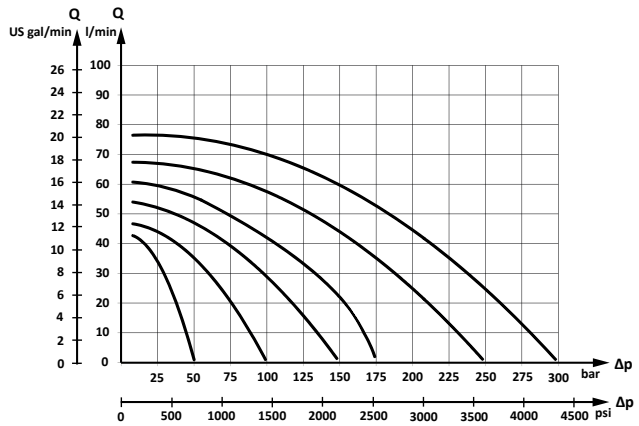
Pressure control spool, normally give a higher degree of stability to whole hydraulic system, however, we advise to look after their use, because:

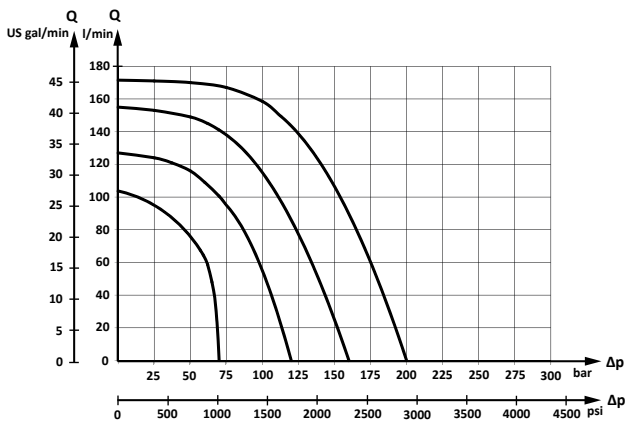
- The valve may loose a bit of pressure compensation, becoming load dependent.
- The pump pressure may be considerably higher than that necessary to move the load.



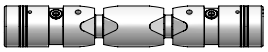


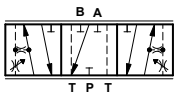
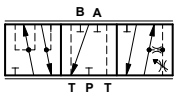
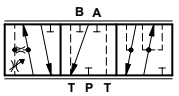
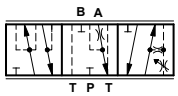
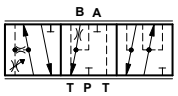






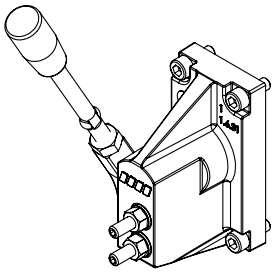
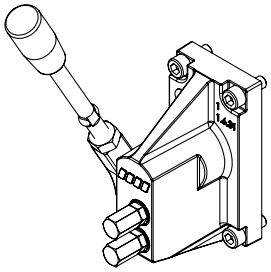
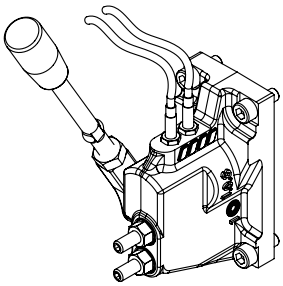
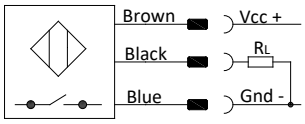
Pressure control spool

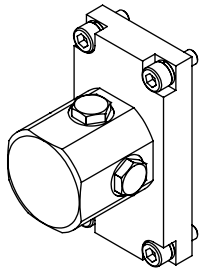
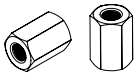


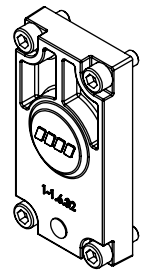
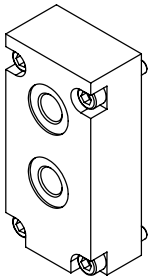
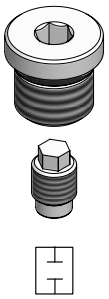
Size	Symbol and code numbers (PC = Pressure control - FC = Flow control)					
						
	4-way, 3-position, A, B closed	4-way, 3-position, A, B throttled open to T	4-way, 3-position, A, B closed	4-way, 3-position, A, B closed	4-way, 3-position, A throttled open to T, B closed	4-way, 3-position, A closed, B throttled open to T
1	**PDS** PC→A + B	**PDS** PC→A + B	**PDS** PC→A FC→B, Q=--l/min	**PDS** PC→B FC→A, Q=--l/min	**PDS** PC→A FC→B, Q=--l/min	**PDS** PC→B FC→A, Q=--l/min
	-	-	**PDS00760121** PC→A FC→B, Q=--l/min	-	-	-
2	**PDS00710115** PC→A + B	**PDS00720116** PC→A + B	**PDS00760115** PC→A FC→B, Q=--l/min	**PDS00770116** PC→B FC→A, Q=--l/min	**PDS00780115** PC→A FC→B, Q=--l/min	**PDS00790116** PC→B FC→A, Q=--l/min
3	**PDS00710117** PC→A + B	**PDS00720118** PC→A + B	**PDS00760117** PC→A FC→B, Q=--l/min	**PDS00770118** PC→B FC→A, Q=--l/min	**PDS00780117** PC→A FC→B, Q=--l/min	**PDS00790118** PC→B FC→A, Q=--l/min
3,5	**PDS00710111** PC→A + B	**PDS00720112** PC→A + B	**PDS00760111** PC→A FC→B, Q=--l/min	**PDS00770112** PC→B FC→A, Q=--l/min	**PDS00780111** PC→A FC→B, Q=--l/min	**PDS00790112** PC→B FC→A, Q=--l/min
4	**PDS00710119** PC→A + B	**PDS00720120** PC→A + B	**PDS00760119** PC→A FC→B, Q=--l/min	**PDS00770120** PC→B FC→A, Q=--l/min	**PDS00780119** PC→A FC→B, Q=--l/min	**PDS00790120** PC→B FC→A, Q=--l/min

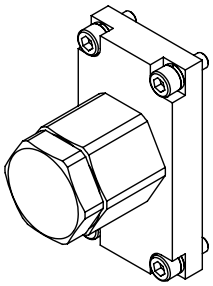
Spool centered set, code numbers (needed for any kind of flow control spool)

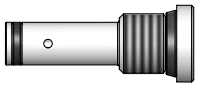
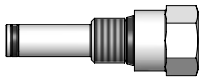
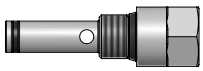
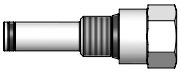
Tightening torque		Tightening torque
6^{+1}_{0} Nm		6^{+1}_{0} Nm
$53,1^{+8,85}_{0}$ lb*in		$53,1^{+8,85}_{0}$ lb*in
Manual control	**PDR00300101**	
Hydraulic - Electrohydraulic	**PDR00300102**	

<table>
<tr><th>Product</th><th>Description</th><th>Aluminium</th><th>Cast iron</th></tr>
<tr><td rowspan="4">PDM
  </td><td rowspan="4">Mechanical actuation</td><td colspan="2">With lever</td></tr>
<tr><td>PDM10101000_</td><td>PDM11101000</td></tr>
<tr><td colspan="2">Without lever</td></tr>
<tr><td>PDM101000000</td><td>PDM11100000</td></tr>
<tr><td>PDM
  </td><td>Mechanical actuation, with flow adjustement nuts protection</td><td>PDM10200000</td><td>PDM11200000</td></tr>
<tr><td rowspan="3">PDM
  </td><td rowspan="3">Mechanical actuations with directional sensors for electrical monitoring of spool valve movement
 

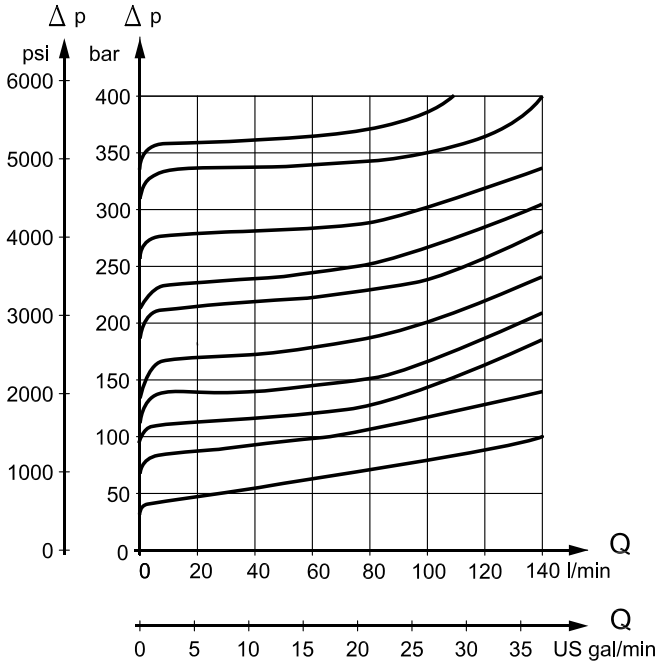
Vcc 10 V ... 30 V
I L < 200 mA</td><td colspan="2">With lever</td></tr>
<tr><td colspan="2">Normally closed: PDM1111100</td></tr>
<tr><td colspan="2">Normally open: PDM1112100</td></tr>
<tr><td rowspan="2">PDF
  </td><td rowspan="2">Friction detent (for mechanical actuation only)</td><td colspan="2">Cast iron only</td></tr>
<tr><td colspan="2">PDF10000000</td></tr>
<tr><td>  </td><td>Flow adjustement protection nuts for PDM mechanical control</td><td colspan="2"></td></tr>
</table>

Product	Description	Aluminium	Cast iron
PDC 	Rear cover for mechanical actuation	**PDC00000000**	**PDC10000000**
PDH 	Hydraulic actuation	A/B pilot port 1/4 BSPP deep: 12 mm (0,47 in) **PDH70000000**	A/B pilot port 1/4 BSPP deep: 12 mm (0,47 in) **PDH71000000**
		A/B pilot port 7/16-20UNF-2B deep: 12 mm (0,47 in) **PDH70000100**	A/B pilot port 7/16-20UNF-2B deep: 12 mm (0,47 in) **PDH71000100**
	Pilot LS A/B relief valve	50 ÷ 80 bar	**PLS0A100000**
		81 ÷ 380 bar	**PLS0A400000**
	Plug for pilot LS A/B relief valve cavity	**PLS0P000000**	

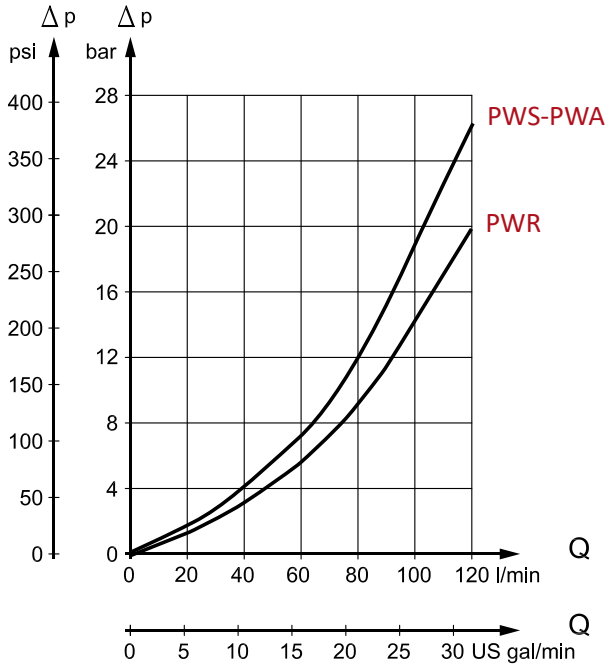
Product	Description	Aluminium	Cast iron
PDD 	Mechanical spool lock device, manual release	P→A - lock P→B - free **PDD10100000**	
		P→A - free P→B - lock **PDD10010000**	
		P→A - lock P→B - lock **PDD10110000**	
		P→A - float P→B - free **PDD10200000**	
		P→A - free P→B - float **PDD10020000**	

Product	Description	Code numbers	
PIZ 	For PDI with internal pilot oil supply	**PIZ10000000**	
PIY 	For PDI with external pilot oil supply	A/B pilot port 1/4 BSPP deep: 12 mm (0,47 in) **PIY10000000**	A/B pilot port 7/16-20UNF-2B deep: 12 mm (0,47 in) **PIY10000010**
	For PDE with external drain line electrical actuation	A/B pilot port 1/4 BSPP deep: 12 mm (0,47 in) **PED10000000**	A/B pilot port 7/16-20UNF-2B deep: 12 mm (0,47 in) **PED10000010**
	For PDE with internal drain line electrical actuation	**PEI10000000**	
	For PDE with LS carry-over	A/B pilot port 1/4 BSPP deep: 12 mm (0,47 in) **PED20000000**	A/B pilot port 7/16-20UNF-2B deep: 12 mm (0,47 in) **PED20000010**
	For PDE prearranged LS carry-over	**PEI10000000**	

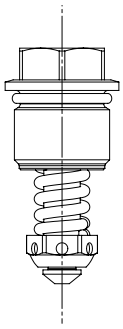
PWS, PWA and PWB are shock suction valves design to absorb shock effects only, and they should never be used as a pressure relief valves.
PWS, PWA and PWB are set at an oil flow of 10 l/min.
If the hydraulic actuator requires a pressure relief valve function, a PDW module with built-in LS A/B pilot pressure limit valves should be used

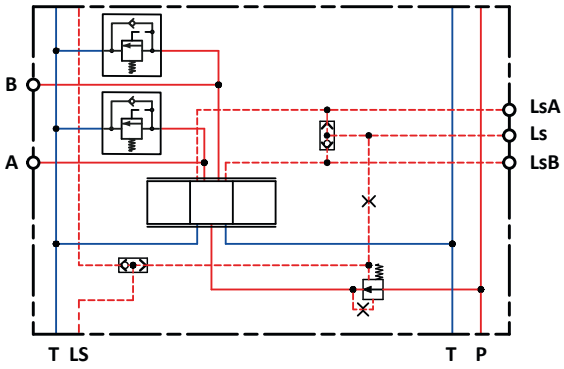


PWR suction valve



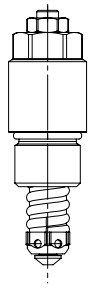
PWS shock and suction valve for A/B port. **Not adjustable**

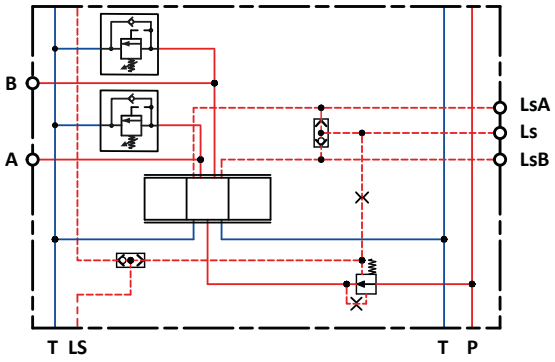




Setting Pressure*(bar)*	Code numbers
50	**PWS1M200050**
70	**PWS1M200070**
90	**PWS1M200090**
110	**PWS1M200110**
130	**PWS1M200130**
150	**PWS1M200150**
180	**PWS1M200180**
200	**PWS1M200200**
230	**PWS1M200230**
260	**PWS1M200260**
290	**PWS1M200290**
320	**PWS1M200320**
350	**PWS1M200350**
380	**PWS1M200380**

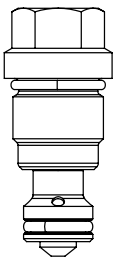
PWA shock and suction valve for A/B port. **Adjustable**

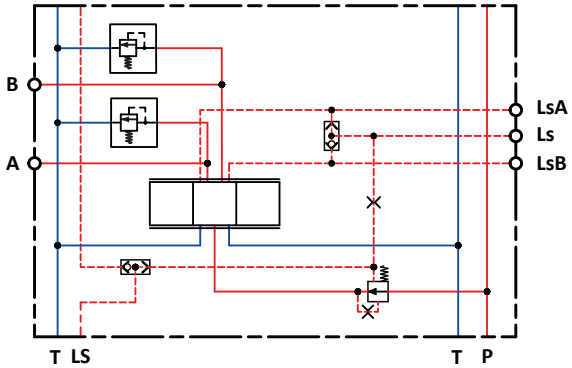




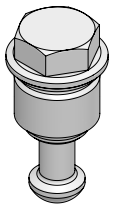
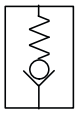
Range setting *(bar)*	Code numbers
20 ÷ 100	**PWA1M200S00**
101 ÷ 170	**PWA1M200T00**
171 ÷ 250	**PWA1M200F00**
251 ÷ 350	**PWA1M200C00**
351 ÷ 420	**PWA1M200R00**

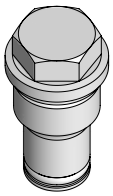
PWB shock valve for A/B port. **Not adjustable**





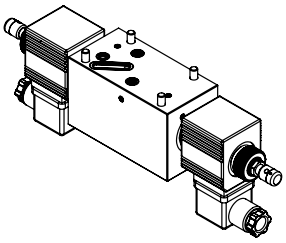
Setting pressure*(bar)*	Code numbers
50	**PWB1M200050**
70	**PWB1M200070**
90	**PWB1M200090**
110	**PWB1M200110**
130	**PWB1M200130**
150	**PWB1M200150**
180	**PWB1M200180**
200	**PWB1M200200**
230	**PWB1M200230**
260	**PWB1M200260**
290	**PWB1M200290**
320	**PWB1M200320**
350	**PWB1M200350**
380	**PWB1M200380**

PWR suction valve for A/B port		
Product	Hydraulic diagram	Code numbers
		**PWR1M200000**

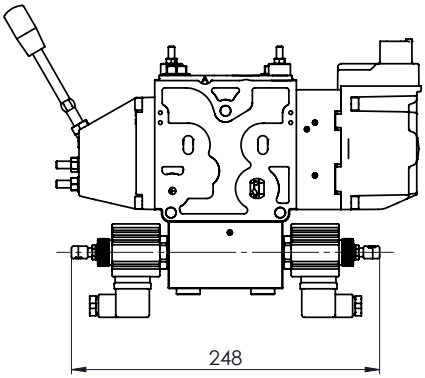
Plug for **PWS - PWA - PWB** and **PWR** cavity		
Product	Hydraulic diagram	Code numbers
		**PWP1M20000**

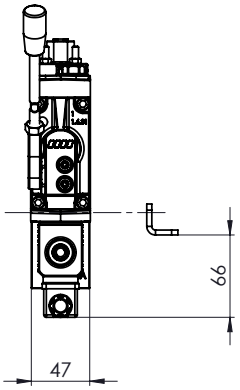
OMFB
HYDRAULIC POWER CONTROL

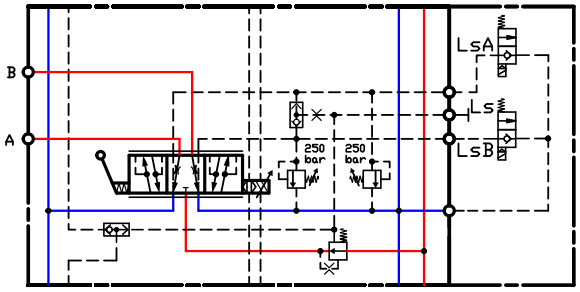
PDV74 Proportional Valve
PDL module - **Electrical LS$_{A/B}$ unloading**
ON-OFF actuation normally closed

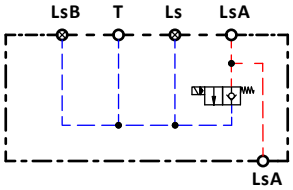
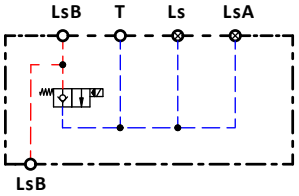
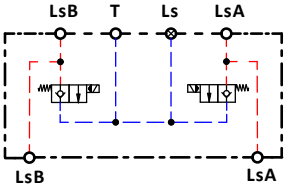
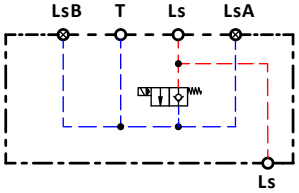


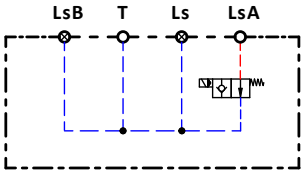
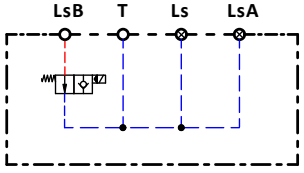
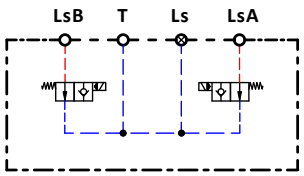
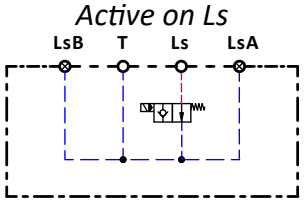
When PDL is energized, the piloting signal is lead to tank and in turn the work port oil flow will be cutted off.
PDL modules is always to be matched with PDW pressure compesated.





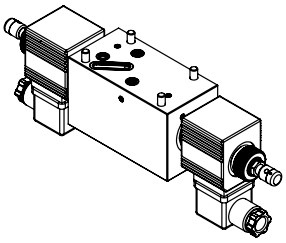


PDL code numbers			
Hydraulic diagram	**Connector type**	**12V dc**	**24V dc**
Active on LsA 	Deutsch Parallel	**PDL12C11201**	**PDL12C31201**
	Deutsch Perpendicular	**PDL12C12201**	**PDL12C32201**
	DIN	**PDL12C13201**	**PDL12C33201**
	JPT	**PDL12C14201**	**PDL12C34201**
Active on LsB 	Deutsch Parallel	**PDL13C11201**	**PDL13C31201**
	Deutsch Perpendicular	**PDL13C12201**	**PDL13C32201**
	DIN	**PDL13C13201**	**PDL13C33201**
	JPT	**PDL13C14201**	**PDL13C34201**
Active on LsA and LsB 	Deutsch Parallel	**PDL11C11201**	**PDL11C31201**
	Deutsch Perpendicular	**PDL11C12201**	**PDL11C32201**
	DIN	**PDL11C13201**	**PDL11C33201**
	JPT	**PDL11C14201**	**PDL11C34201**
Active on Ls 	Deutsch Parallel	**PDL14C11201**	**PDL14C31201**
	Deutsch Perpendicular	**PDL14C12201**	**PDL14C32201**
	DIN	**PDL14C13201**	**PDL14C33201**
	JPT	**PDL14C14201**	**PDL14C34201**

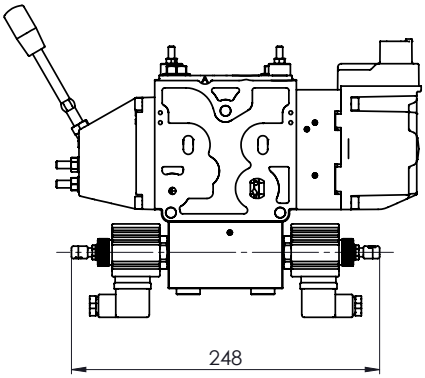
PDL code numbers			
Normally open module	**Connector type**	**12V**	**24V**
Active on LsA 	Deutsch Parallel	**PDL32A11101**	**PDL32A31101**
	Deutsch Perpendicular	**PDL32A12101**	**PDL32A32101**
	DIN	**PDL32A13101**	**PDL32A33101**
	JPT	**PDL32A14101**	**PDL32A34101**
Active on LsB 	Deutsch Parallel	**PDL33A11101**	**PDL33A31101**
	Deutsch Perpendicular	**PDL33A12101**	**PDL33A32101**
	DIN	**PDL33A13101**	**PDL33A33101**
	JPT	**PDL33A14101**	**PDL33A34101**
Active on LsA and LsB 	Deutsch Parallel	**PDL35A11101**	**PDL35A31101**
	Deutsch Perpendicular	**PDL35A12101**	**PDL35A32101**
	DIN	**PDL35A13101**	**PDL35A33101**
	JPT	**PDL35A14101**	**PDL35A34101**
Active on Ls 	Deutsch Parallel	**PDL34A11101**	**PDL34A31101**
	Deutsch Perpendicular	**PDL34A12101**	**PDL34A32101**
	DIN	**PDL34A13101**	**PDL34A33101**
	JPT	**PDL34A14101**	**PDL34A34101**

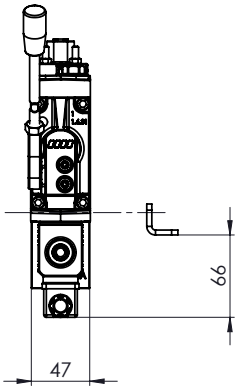
OMFB
HYDRAULIC POWER CONTROL

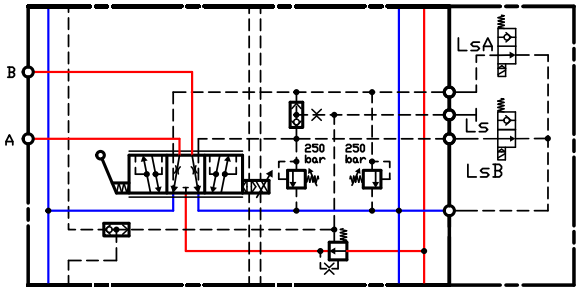
PDV74 Proportional Valve
PDL module - **Electrical LS$_{A/B}$ unloading**
ON-OFF actuation normally open

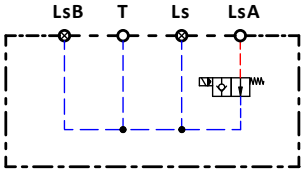
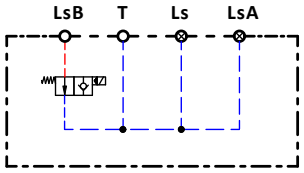
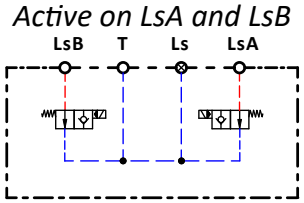
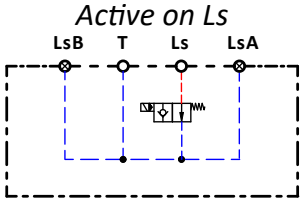


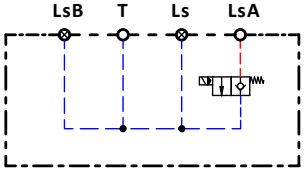
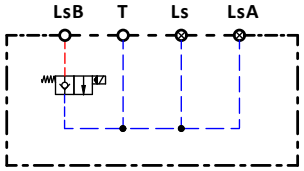
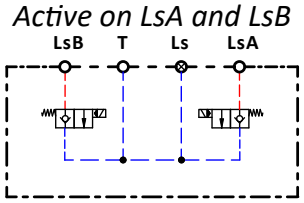
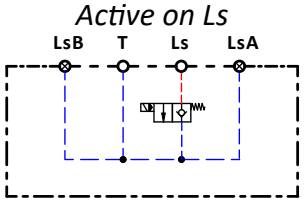
When PDL is deenergized, the piloting signal is lead to tank and in turn the work port oil flow will be cutted off.
PDL modules is always to be matched with PDW pressure compesated.





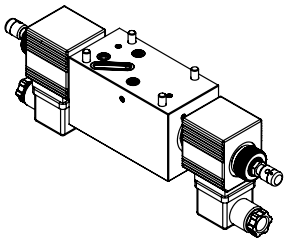


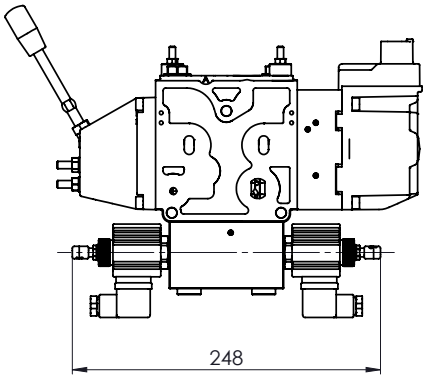
PDL code numbers			
Hydraulic diagram	**Connector type**	**12V dc**	**24V dc**
Active on LsA 	Deutsch Parallel	**PDL32A11101**	**PDL32A31101**
	Deutsch Perpendicular	**PDL32A12101**	**PDL32A32101**
	DIN	**PDL32A13101**	**PDL32A33101**
	JPT	**PDL32A14101**	**PDL32A34101**
Active on LsB 	Deutsch Parallel	**PDL33A11101**	**PDL33A31101**
	Deutsch Perpendicular	**PDL33A12101**	**PDL33A32101**
	DIN	**PDL33A13101**	**PDL33A33101**
	JPT	**PDL33A14101**	**PDL33A34101**
Active on LsA and LsB 	Deutsch Parallel	**PDL35A11101**	**PDL35A31101**
	Deutsch Perpendicular	**PDL35A12101**	**PDL35A32101**
	DIN	**PDL35A13101**	**PDL35A33101**
	JPT	**PDL35A14101**	**PDL35A34101**
Active on Ls 	Deutsch Parallel	**PDL34A11101**	**PDL34A31101**
	Deutsch Perpendicular	**PDL34A12101**	**PDL34A32101**
	DIN	**PDL34A13101**	**PDL34A33101**
	JPT	**PDL34A14101**	**PDL34A34101**

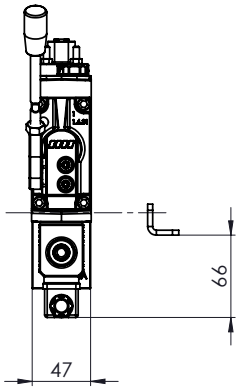
PDL code numbers			
Normally closed module	**Connector type**	**12V**	**24V**
Active on LsA 	Deutsch Parallel	**PDL32C11201**	**PDL32C31201**
	Deutsch Perpendicular	**PDL32C12201**	**PDL32C32201**
	DIN	**PDL32C13201**	**PDL32C33201**
	JPT	**PDL32C14201**	**PDL32C34201**
Active on LsB 	Deutsch Parallel	**PDL33C11201**	**PDL33C31201**
	Deutsch Perpendicular	**PDL33C12201**	**PDL33C32201**
	DIN	**PDL33C13201**	**PDL33C33201**
	JPT	**PDL33C14201**	**PDL33C34201**
Active on LsA and LsB 	Deutsch Parallel	**PDL35C11201**	**PDL35C31201**
	Deutsch Perpendicular	**PDL35C12201**	**PDL35C32201**
	DIN	**PDL35C13201**	**PDL35C33201**
	JPT	**PDL35C14201**	**PDL35C34201**
Active on Ls 	Deutsch Parallel	**PDL34C11201**	**PDL34C31201**
	Deutsch Perpendicular	**PDL34C12201**	**PDL34C32201**
	DIN	**PDL34C13201**	**PDL34C33201**
	JPT	**PDL34C14201**	**PDL34C34201**

OMFB
HYDRAULIC POWER CONTROL

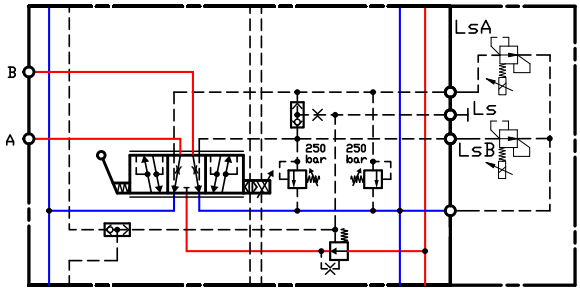
PDV114 Proportional Valve
PDLD module - **Electrical LS$_{A/B}$ unloading**
Proportional actuation normally open (current signal mA)

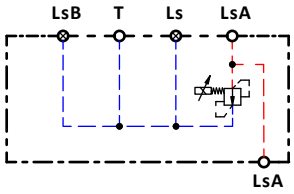
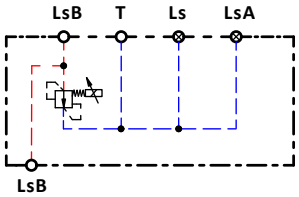
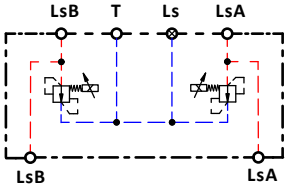
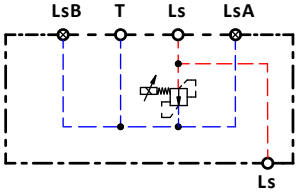




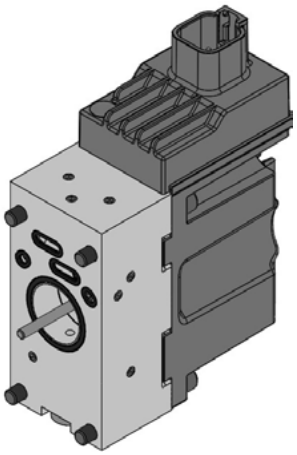


PDLD is an electro-hydraulic device that allows the A/B port working pressure to be remotely an proportionally operated according to a current signal (mA). When the working pressure exceed the setting pressure value, the A/B port oil flow will be cutted off.
When PDLD is not energized, PDW is almost pressureless, as well as the A-B oil flow is cutted off.



PDLD code numbers			
Hydraulic diagram	**Connector type**	**12V dc**	**24V dc**
Active on LsA 	Deutsch Parallel	**PDL12D11001**	**PDL12D31001**
Active on LsB 	Deutsch Parallel	**PDL13D11001**	**PDL13D31001**
Active on LsA and LsB 	Deutsch Parallel	**PDL11D11001**	**PDL11D31001**
Active on Ls 	Deutsch Parallel	**PDL14D11001**	**PDL14D31001**

PDV114 - PEAC121 Electro-hydraulic proportional actuation
Closed loop spool control, high performance resolution
Input signal control 0,5 Udc



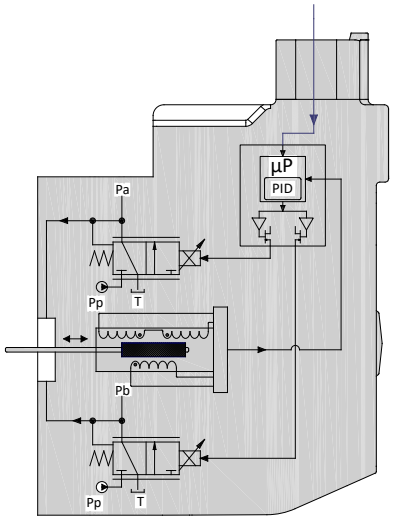
PEAC121 is a proportional high performance PDV spool actuation with integrated electronics and inductive transducer (LVDT) that operates safely and precisely the main spool movement according to an electrical signal coming from a remote control.
The input signal by means of the PCB and the two proportional pressure reducing valves, determines the level of the pilot pressure which moves the main spool.
The spool position is detected in the LVDT transducer which generates an electric feed-back signal registered by the electronics.
The variation between the input signal and the feed-back signal, actuates the solenoid valves accordingly, so that, the hydraulic pilot pressure will drive the main spool in the right position.

All PEAC121 modules comes with integrated fault monitoring system, available in two version:

Active version
Passive version

Active fault monitoring

When an error state is detected, the two proportional solenoid valves will be automatically deactivated, a red lamp will light-up and drive the spool in neutral position (if it's not seized up).
The system will only react to failures of more than 500 ms (in other words there is delay of half a second before anything happens). An alarm signal is sent out through the connector, and minus is opened.
This error state is memorized, and continues until the system is being reset by switching off the supply voltage.
Shortly, when the active fault monitoring system is connected and an error state is detected, the system ensures a fast and operator free reaction, that will put the complete hydraulic circuit into venting conditions, thus preventing uncontrollable machine movements.



Passive fault monitoring

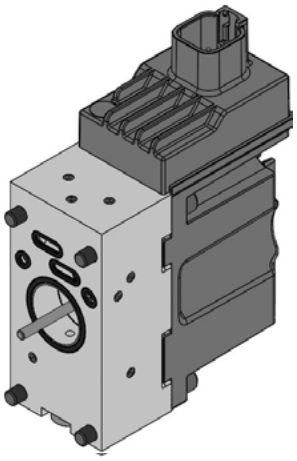
When an error state is detected, the two proportional solenoid valves will not be deactivated, a red lamp will light-up, but still control the main spool.
When a fault condition occurs, after a delay of 250 ms an alarm signal is sent out through a devoted pin
This state is not memorized, and when the faulty state disappears, the alarm signal will turn to passive again.
In order to prevent the electronic from going into an undefined state, any time the system is being triggered or reset, a general check of power supply and the internal clock frequency is made.

The use of PEAC121 module both passive or active version, allows the machines hydraulic system to be made with different level of safety degree that for the choice of which it is essential to know the exactly required functions.

When the PEAC121 module active version is connected with the pump unloading system, the level of safety degree protection for the complete hydraulic system becomes very high, operator free, and helps OEM to meet the PL (Performance Level) required to be comply with the safety demands of Machinery Directive 2006/42/EC.

OMFB HYDRAULIC POWER CONTROL

PDV114 - PEAC121 Electro-hydraulic proportional actuation
Closed loop spool control, high performance resolution
Input signal control 0,5 Udc

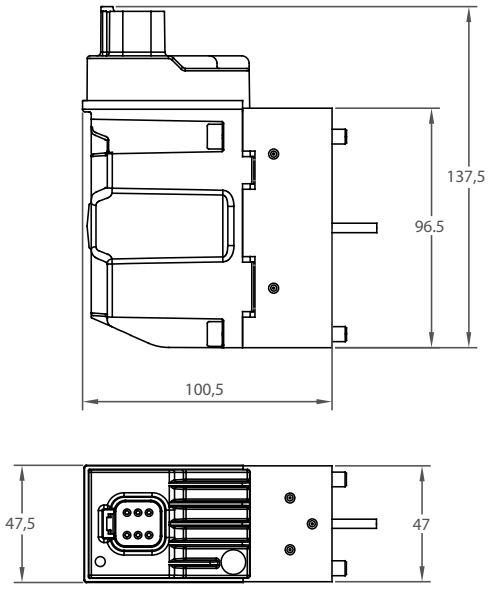


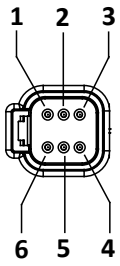
PEAC121 is defined by:

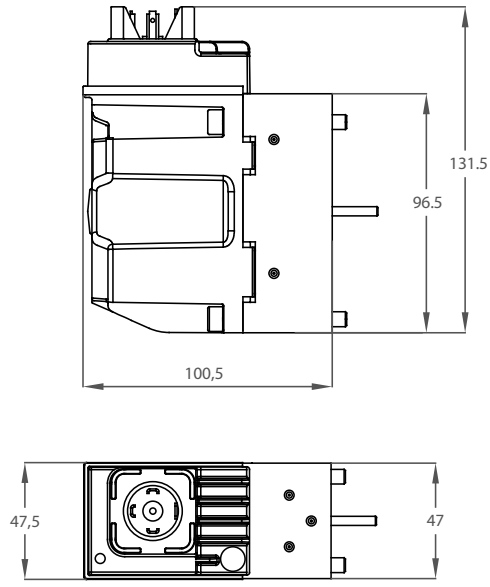
- Inductive transducer with resolution < 12 µm
- Integrated diagnosis and error memory
- Fault monitoring transistor output for signal source
- Higher spool control accuracy
- EMC performace according to Directive 2014/30/UE
- Low hysteresis
- Quicker reaction time
- Spool direction movement output
- Integrated PWM/Pulse Width Modulation
- Low electrical power

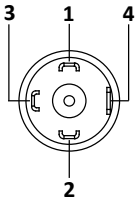
PEAC121 Technical data		
Rated supply voltage		**10 ÷ 30 Vdc**
Max ripple		**5%**
Signal control		**0,5 Udc**
Range control signal		**0,25 Udc to 0,75 Udc**
Neutral spool position		**0,5 Udc**
Max threshold signal, **A** port		**1 V**
Max threshold signal, **B** port		**1 V**
Max current signal @ rated voltage		**48 mA**
Input capacitor		**100 ηF**
Signal control impedance		**25 kΩ**
Power consumption		**8,7 W**
Heat insulation		**Class H (180°C)**
Duty cycle		**ED 100%**
Max current consumption		**650 mA**
Current consumption in neutral position		**80 mA**
Coil impedance @ 20°C		**8,9 Ω**
Dither frequency		**50-200 Hz**
Recommended frequency		**100 Hz**
Enclouser degree **(Electrical wiring excepted)**		**IP 66 - IP 67 - IP 69K**
Weight cast iron body		**1,8 kg**
Weight aluminium body		**1,3 kg**
Bootloader function, debugging parameters and set-up function available only with Deutsch connector AT04-6P (to be matched with AT06-6S)		
Fault monitoring system	Max current on safety output (pin 5)	**50 mA**
	Reaction time a fault	**500 ms**
Max current output signal for spool direction moviment		**50 mA**
Reaction time (constant voltage)	From neutral position to max spool travel	**110 - 140 ms**
	From max spool travel to neutral	**70 - 90 ms**
Reaction time (neutral switch)	From neutral position to max spool travel	**130 - 170 ms**
	From max spool travel to neutral	**70 - 90 ms**

PDV114 - PEAC121 Electro-hydraulic proportional actuation
Closed loop spool control, high performance resolution
Input signal 0,5 Udc - Electrical connectors



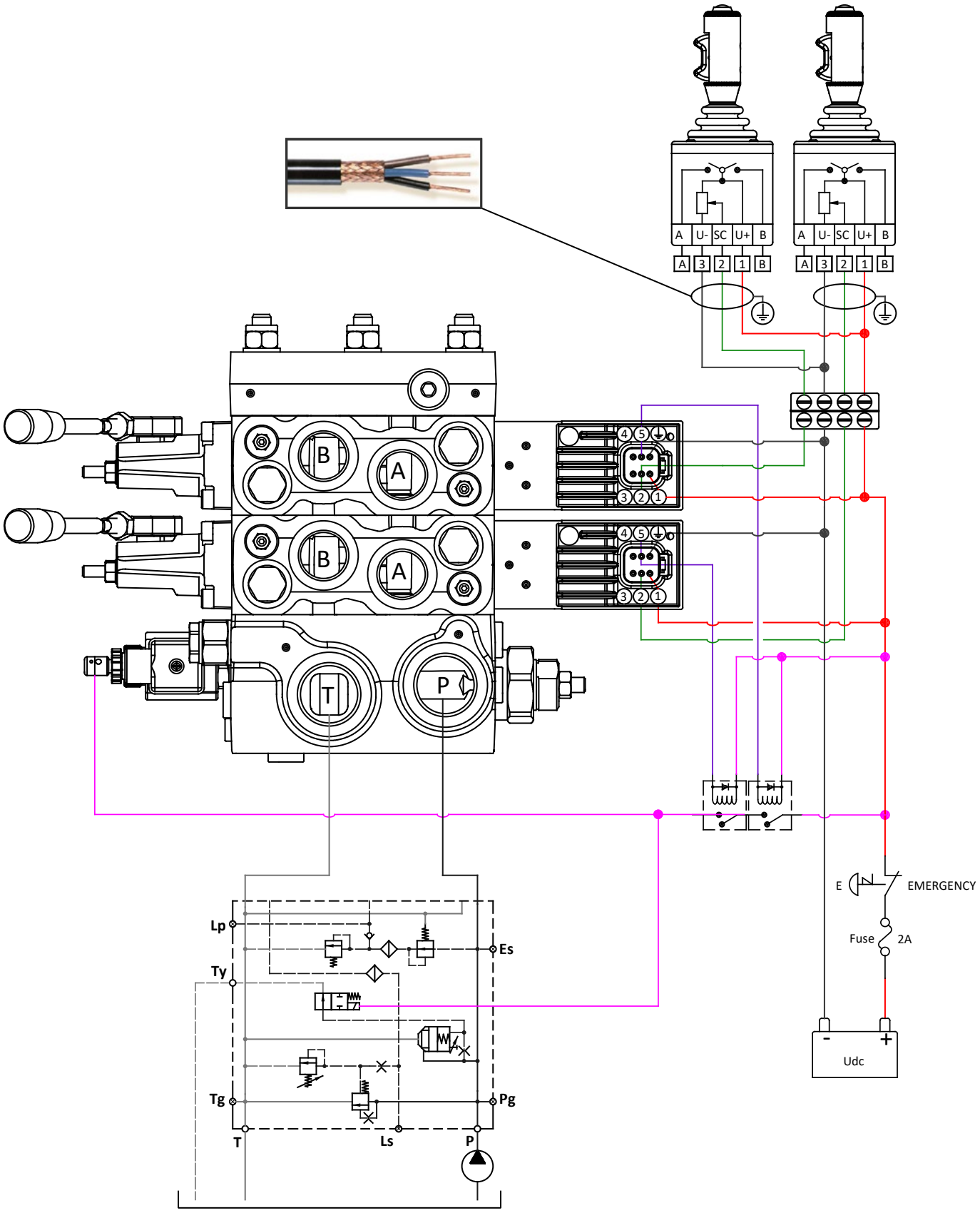
Deutsch connector AT04-6P Enclousure degree IP 69K PIN-assignment			
	**1**	Power supply	
	2	Input signal control	
	3	CAN-high	**A** port-spool movement signal
	4	CAN-low	**B** port-spool movement signal
	5	Fault monitoring signal	
	6	Ground	



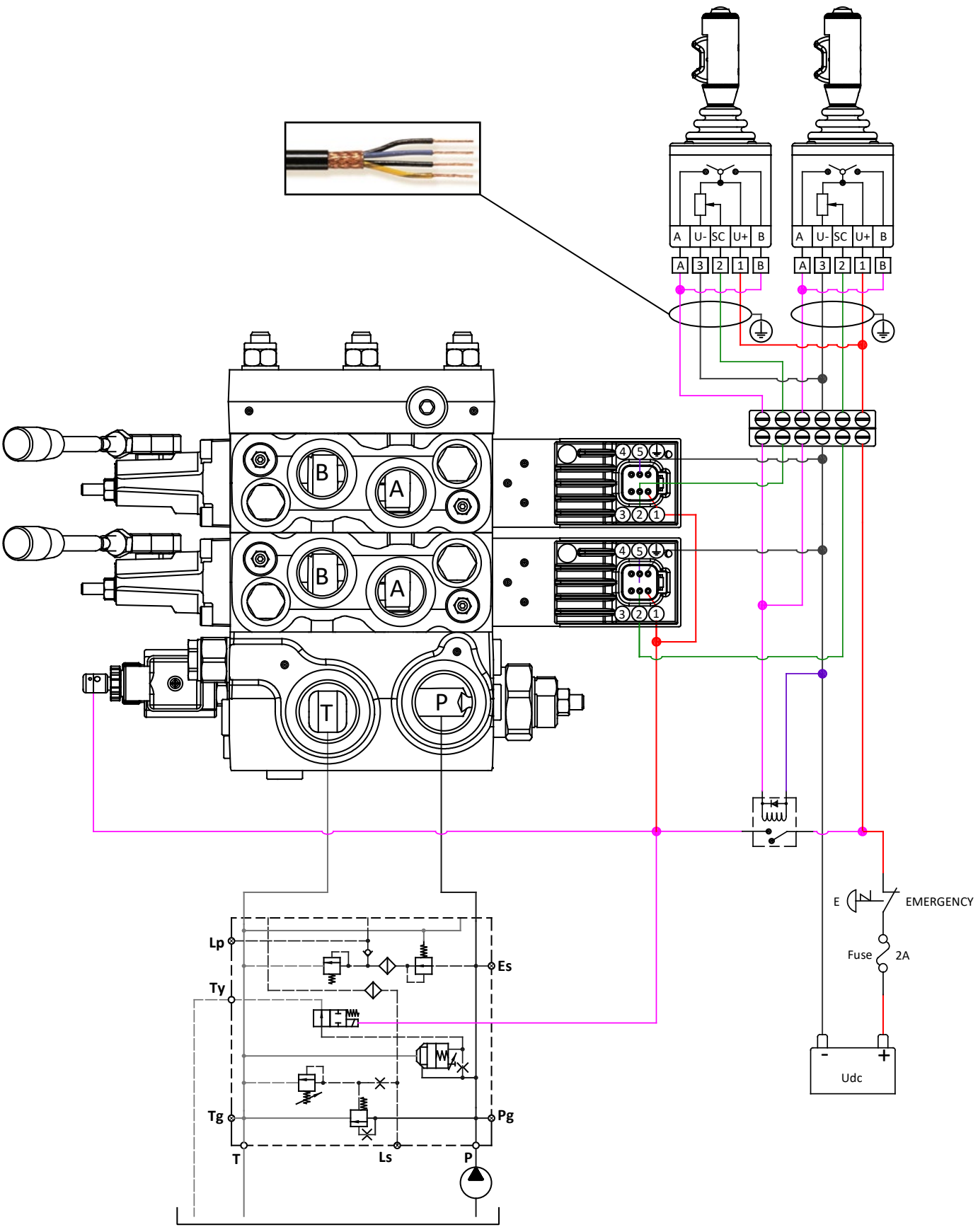
Hirschmann connector DIN 43650 Enclousure degree IP 65 PIN-assignment		
	**1**	Power supply
	2	Input signal control
	3	Fault monitoring signal
	4	Ground

Connector version	Code numbers			
	Active version		Passive version	
	Cast-iron body	Aluminium body	Cast-iron body	Aluminium body
Deutsch AT04-6P	**PEAC0141000**	**PEAC1141000**	**PEAC0131000**	**PEAC1131000**
DIN 43650	**PEAC0141200**	**PEAC1141200**	**PEAC0131200**	**PEAC1131200**

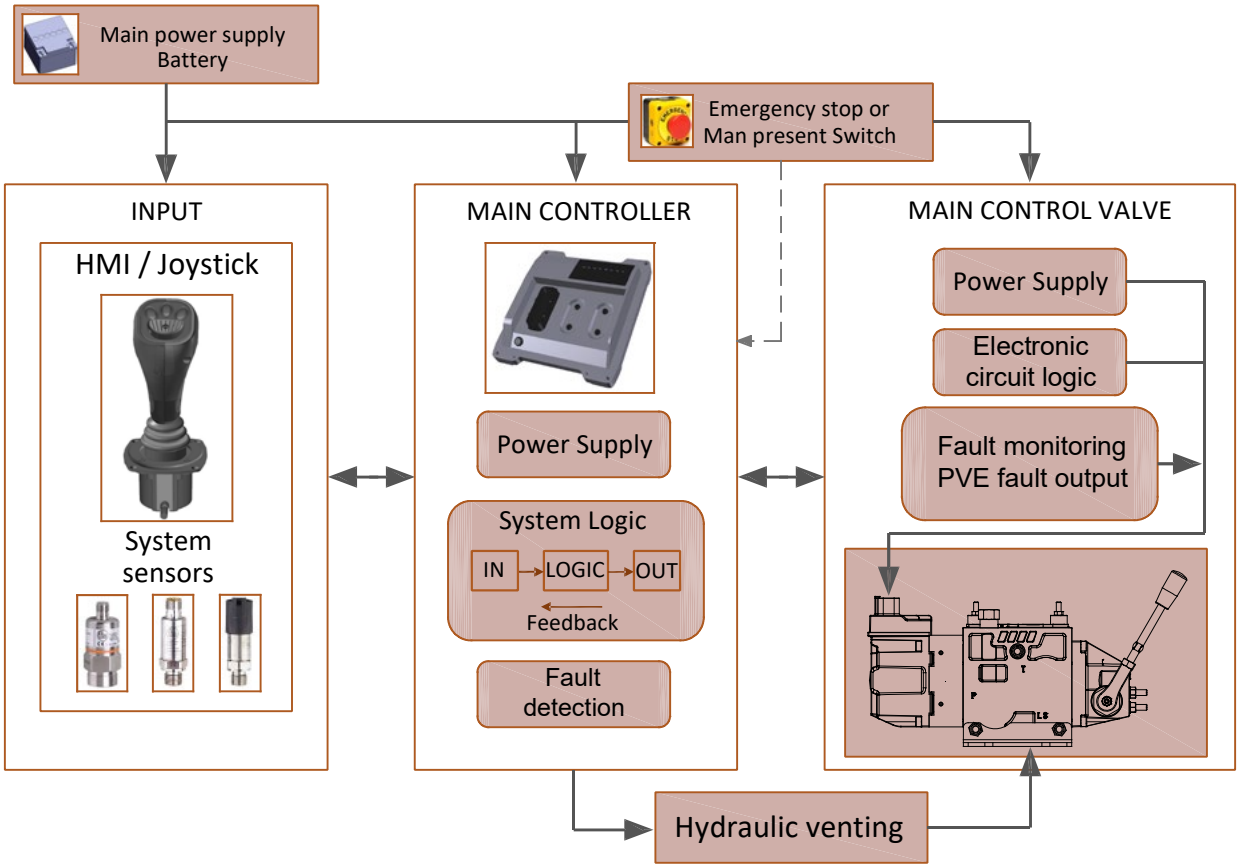
PDV114 - PEAC121 Electro-hydraulic proportional actuation
Closed loop spool control, high performance resolution
Input signal control 0,5 Udc



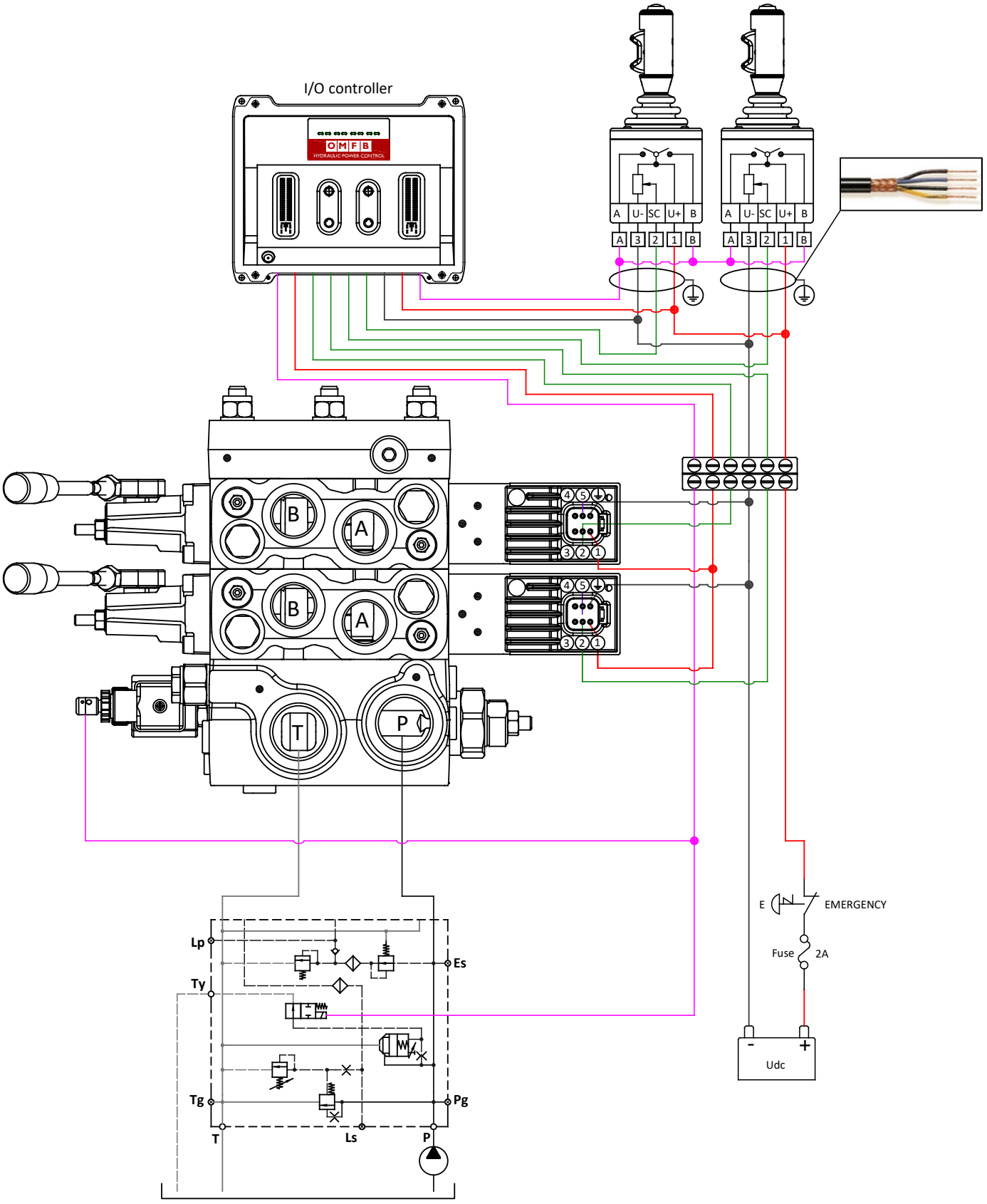
PDV114 - PEAC121 Electro-hydraulic proportional actuation
Closed loop spool control, high performance resolution
Input signal control 0,5 Udc



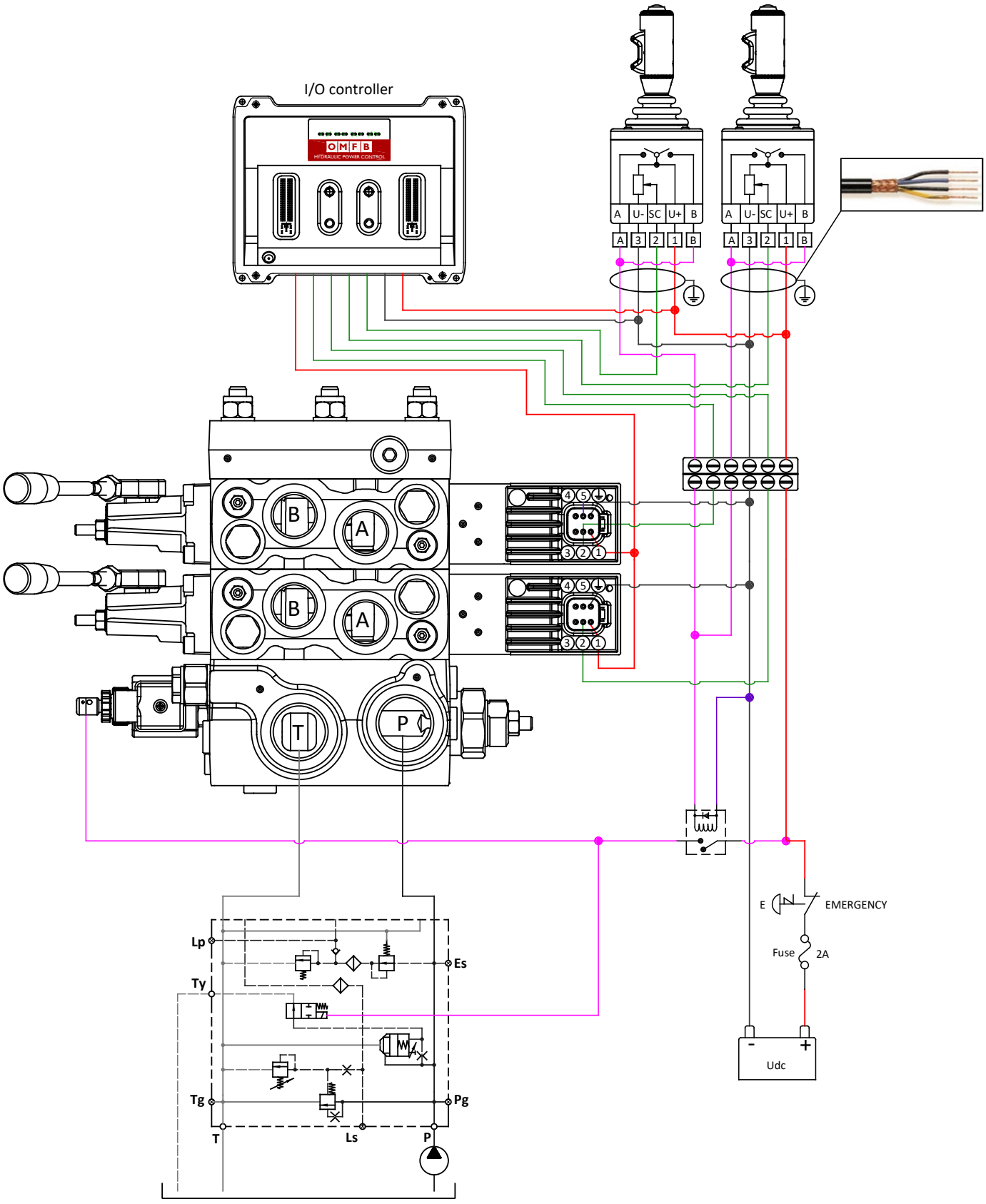
PDV114 - PEAC121 Electro-hydraulic proportional actuation
Closed loop spool control, high performance resolution
Electrical block diagram for intelligent ring machine control



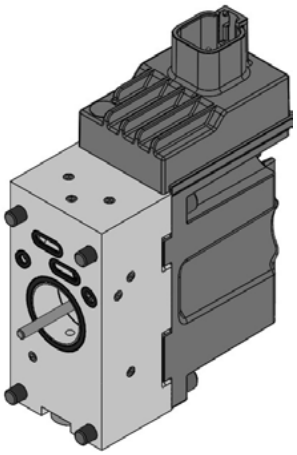
PDV114 - PEAC121 Electro-hydraulic proportional actuation
Electrical wiring diagram with OMFB I/O controller
Input signal 0,5 Udc



PDV114 - PEAC121 Electro-hydraulic proportional actuation
Electrical wiring diagram with OMFB I/O controller
Input signal 0,5 Udc



PDV114 - PEAC122 Electro-hydraulic proportional actuation
Closed loop spool control, high performance resolution
Input signal control 0 ÷ 10 V



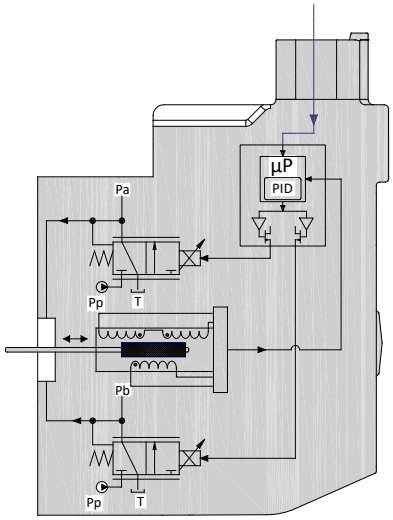
PEAC122 is a proportional high performance PDV spool actuation with integrated electronics and inductive transducer (LVDT) that operates safely and precisely the main spool movement according to an electrical signal coming from a remote control.
The input signal by means of the PCB and the two proportional pressure reducing valves, determines the level of the pilot pressure which moves the main spool.
The spool position is detected in the LVDT transducer which generates an electric feed-back signal registered by the electronics.
The variation between the input signal and the feed-back signal, actuates the solenoid valves accordingly, so that, the hydraulic pilot pressure will drive the main spool in the right position.

All PEAC122 modules comes with integrated fault monitoring system, available in two version:

Active version
Passive version

Active fault monitoring

When an error state is detected, the two proportional solenoid valves will be automatically deactivated, a red lamp will light-up and drive the spool in neutral position (if it's not seized up).
The system will only react to failures of more than 500 ms (in other words there is delay of half a second before anything happens). An alarm signal is sent out through the connector, and minus is opened.
This error state is memorized, and continues until the system is being reset by switching off the supply voltage.
Shortly, when the active fault monitoring system is connected and an error state is detected, the system ensures a fast and operator free reaction, that will put the complete hydraulic circuit into venting conditions, thus preventing uncontrollable machine movements.



Passive fault monitoring

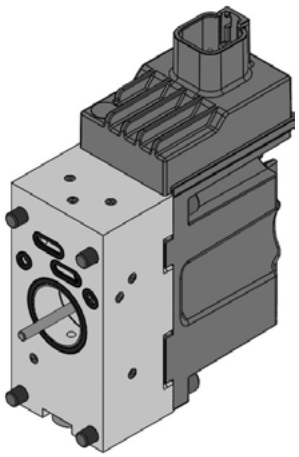
When an error state is detected, the two proportional solenoid valves will not be deactivated, a red lamp will light-up, but still control the main spool.
When a fault condition occurs, after a delay of 250 ms an alarm signal is sent out through a devoted pin
This state is not memorized, and when the faulty state disappears, the alarm signal will turn to passive again.
In order to prevent the electronic from going into an undefined state, any time the system is being triggered or reset, a general check of power supply and the internal clock frequency is made.

The use of PEAC122 module both passive or active version, allows the machines hydraulic system to be made with different level of safety degree that for the choice of which it is essential to know the exactly required functions.

When the PEAC122 module active version is connected with the pump unloading system, the level of safety degree protection for the complete hydraulic system becomes very high, operator free, and helps OEM to meet the PL (Performance Level) required to be comply with the safety demands of Machinery Directive 2006/42/EC.

OMFB
HYDRAULIC POWER CONTROL

PDV114 - PEAC122 Electro-hydraulic proportional actuation
Closed loop spool control, high performance resolution
Input signal control 0 ÷ 10 V

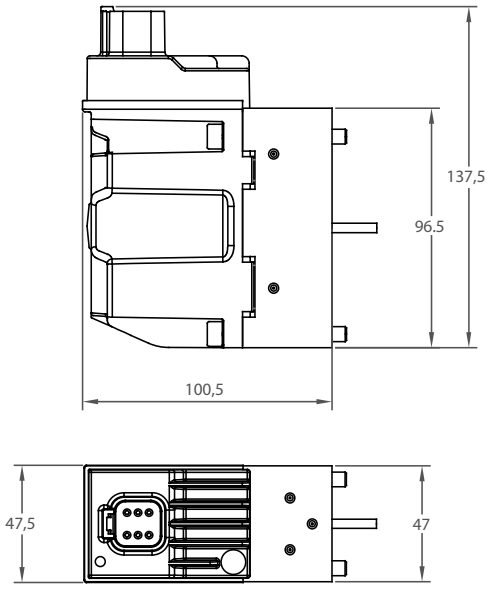


PEAC122 is defined by:

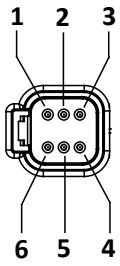
- Inductive transducer with resolution < 12 µm
- Integrated diagnosis and error memory
- Fault monitoring transistor output for signal source
- Higher spool control accuracy
- EMC performace to
- Low hysteresis
- Quicker reaction time
- Spool direction movement output
- Integrated PWM/Pulse Width Modulation
- Low electrical power

PEAC122 Technical data		
Rated supply voltage		**10-30 Vdc**
Max ripple		**5%**
Signal control		**0-10 V**
Range control signal		**2,5 V to 7,5 V**
Neutral spool position		**5 V**
Max threshold signal, **A** port		**1 V**
Max threshold signal, **B** port		**1 V**
Max current signal @ rated voltage		**48 mA**
Input capacitor		**100 ηF**
Signal control impedance		**25 kΩ**
Power consumption		**8,7 W**
Heat insulation		**Class H (180°C)**
Duty cycle		**ED 100%**
Max current consumption		**650 mA**
Current consumption in neutral position		**80 mA**
Coil impedance @ 20°C		**8,9 Ω**
Dither frequency		**50-200 Hz**
Recommended frequency		**100 Hz**
Enclouser degree **(Electrical wiring excepted)**		**IP 66 - IP 67 - IP 69K**
Weight cast iron body		**1,8 kg**
Weight aluminium body		**1,3 kg**
Bootloader function, debugging parameters and set-up function available only with Deutsch connector AT04-6P (to be matched with AT06-6S)		
Fault monitoring system	Max current on safety output (pin 5)	**50 mA**
	Reaction time a fault	**500 ms**
Max current output signal for spool direction moviment		**50 mA**
Reaction time (constant voltage)	From neutral position to max spool travel	**110 - 140 ms**
	From max spool travel to neutral	**70 - 90 ms**
Reaction time (neutral switch)	From neutral position to max spool travel	**130 - 170 ms**
	From max spool travel to neutral	**70 - 90 ms**

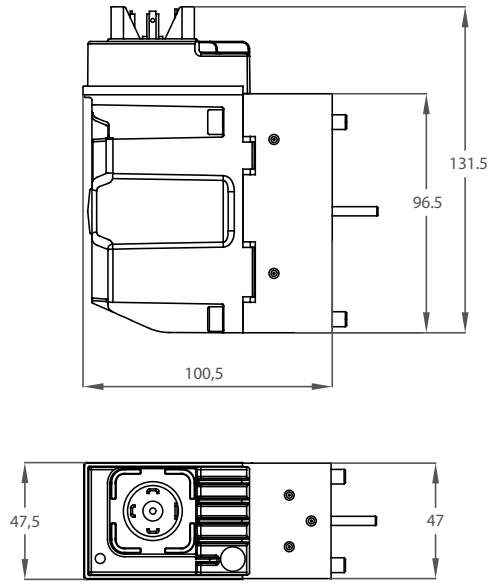
PDV114 - PEAC122 Electro-hydraulic proportional actuation
Closed loop spool control, high performance resolution
Input signal 0 ÷ 10 V - Electrical connectors



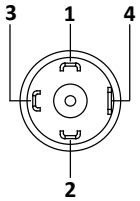
Deutsch connector AT04-6P
Enclousure degree IP 69K
PIN-assignment



1	Power supply	
2	Input signal control	
3	CAN-high	**A** port-spool movement signal
4	CAN-low	**B** port-spool movement signal
5	Fault monitoring signal	
6	Ground	



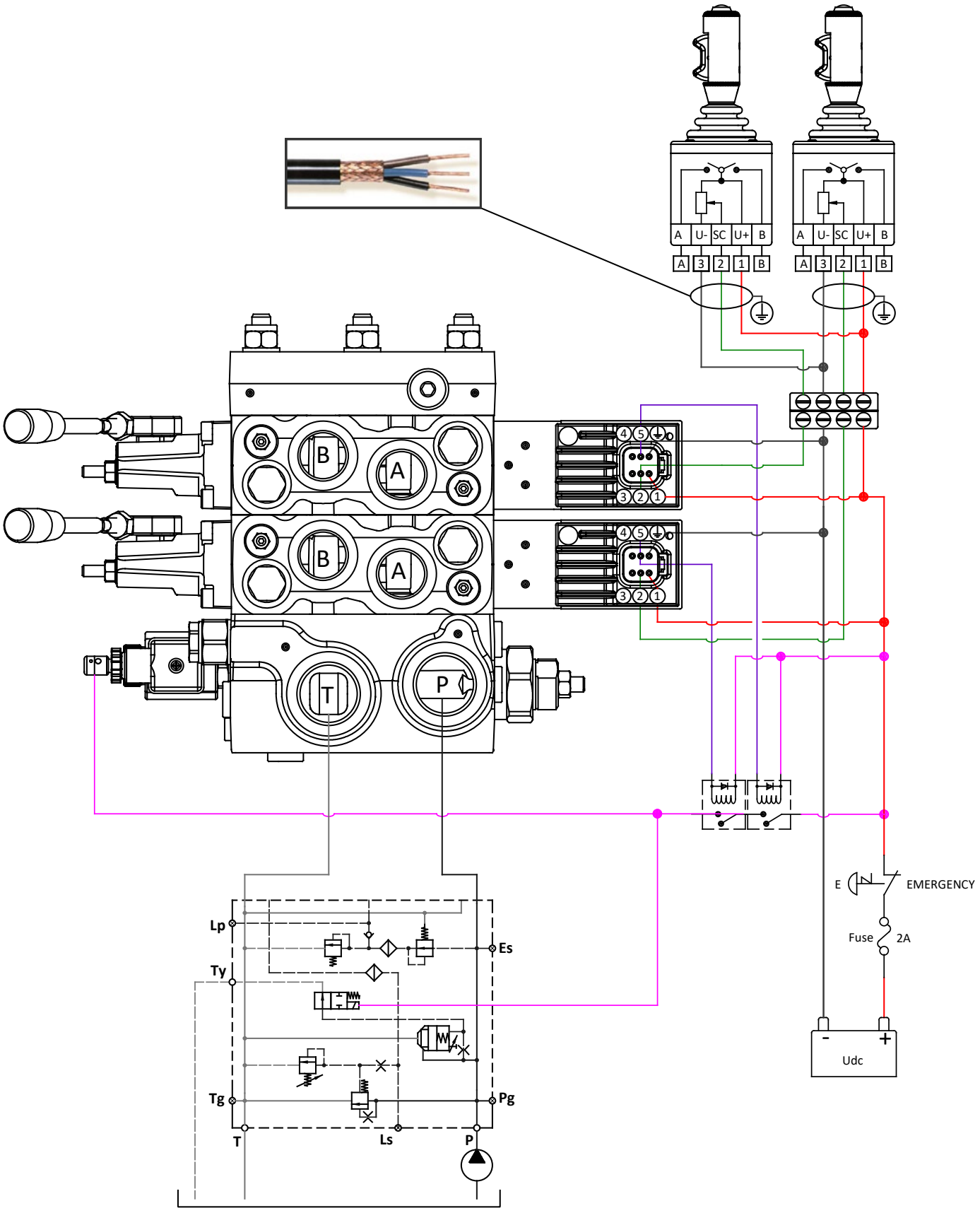
Hirschmann connector DIN 43650
Enclousure degree IP 65
PIN-assignment



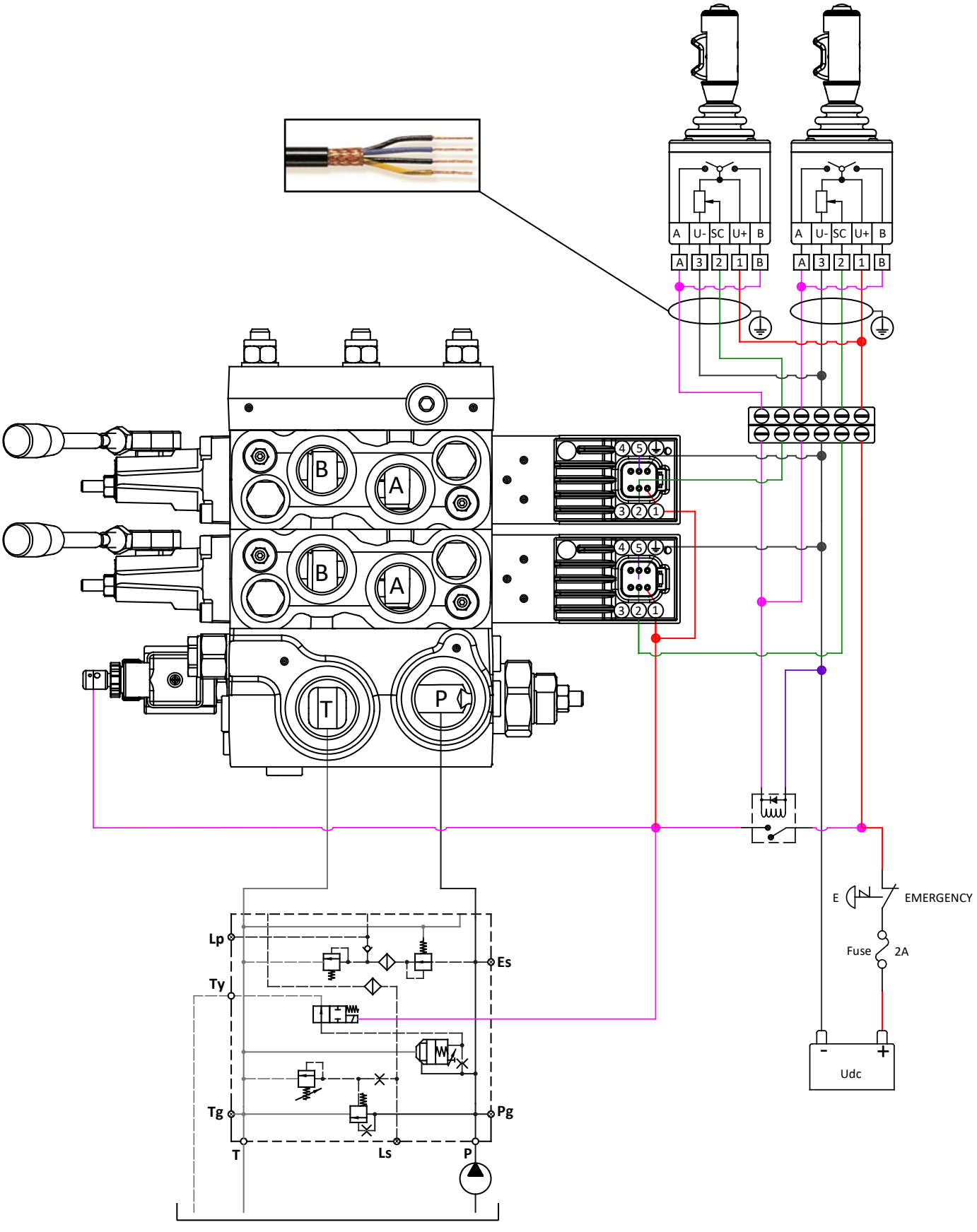
1	Power supply
2	Input signal control
3	Fault monitoring signal
4	Ground

Connector version	Code numbers			
	Active version		Passive version	
	Cast-iron body	Aluminium body	Cast-iron body	Aluminium body
Deutsch AT04-6P	**PEAC0142000**	**PEAC1142000**	**PEAC0132000**	**PEAC1132000**
DIN 43650	**PEAC0142200**	**PEAC1142200**	**PEAC0132200**	**PEAC1132200**

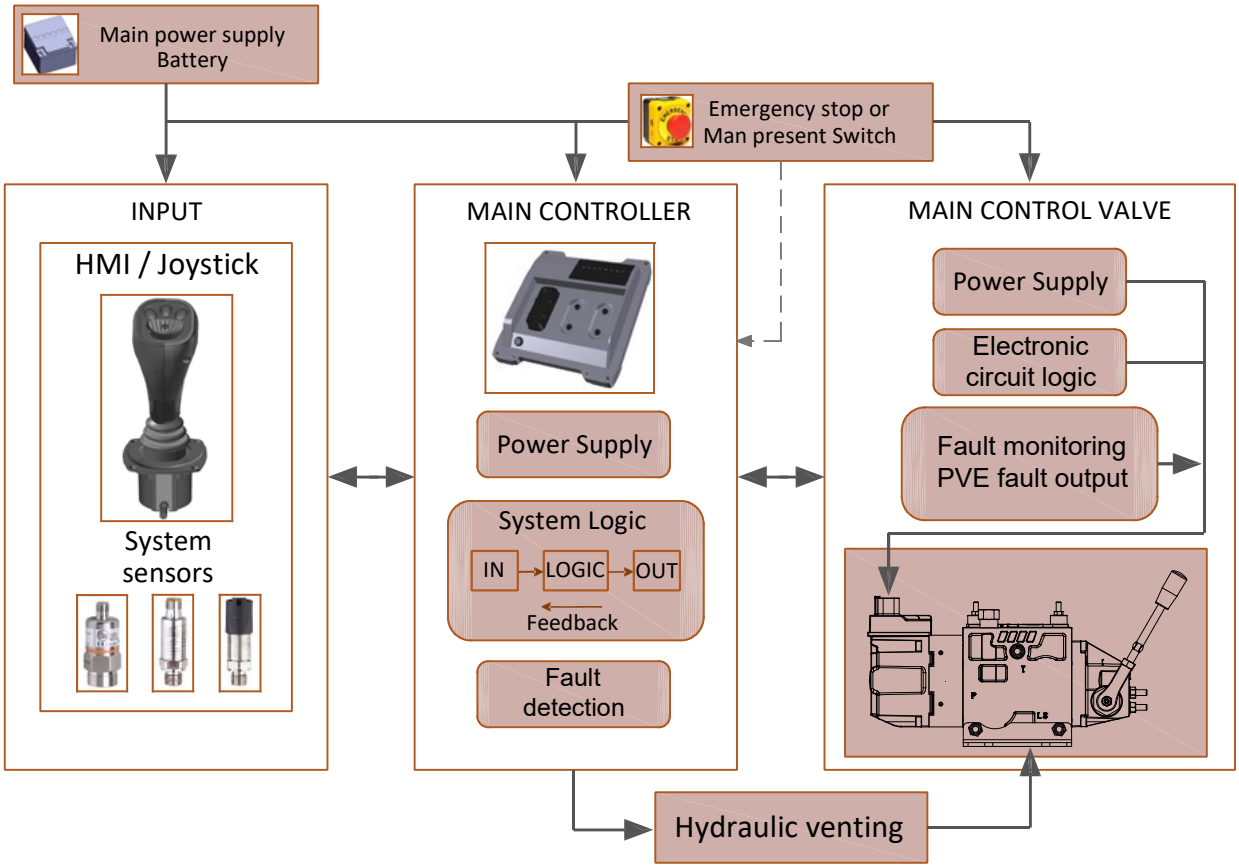
PDV114 - PEAC122 Electro-hydraulic proportional actuation
Closed loop spool control, high performance resolution
Input signal control 0 ÷ 10 V



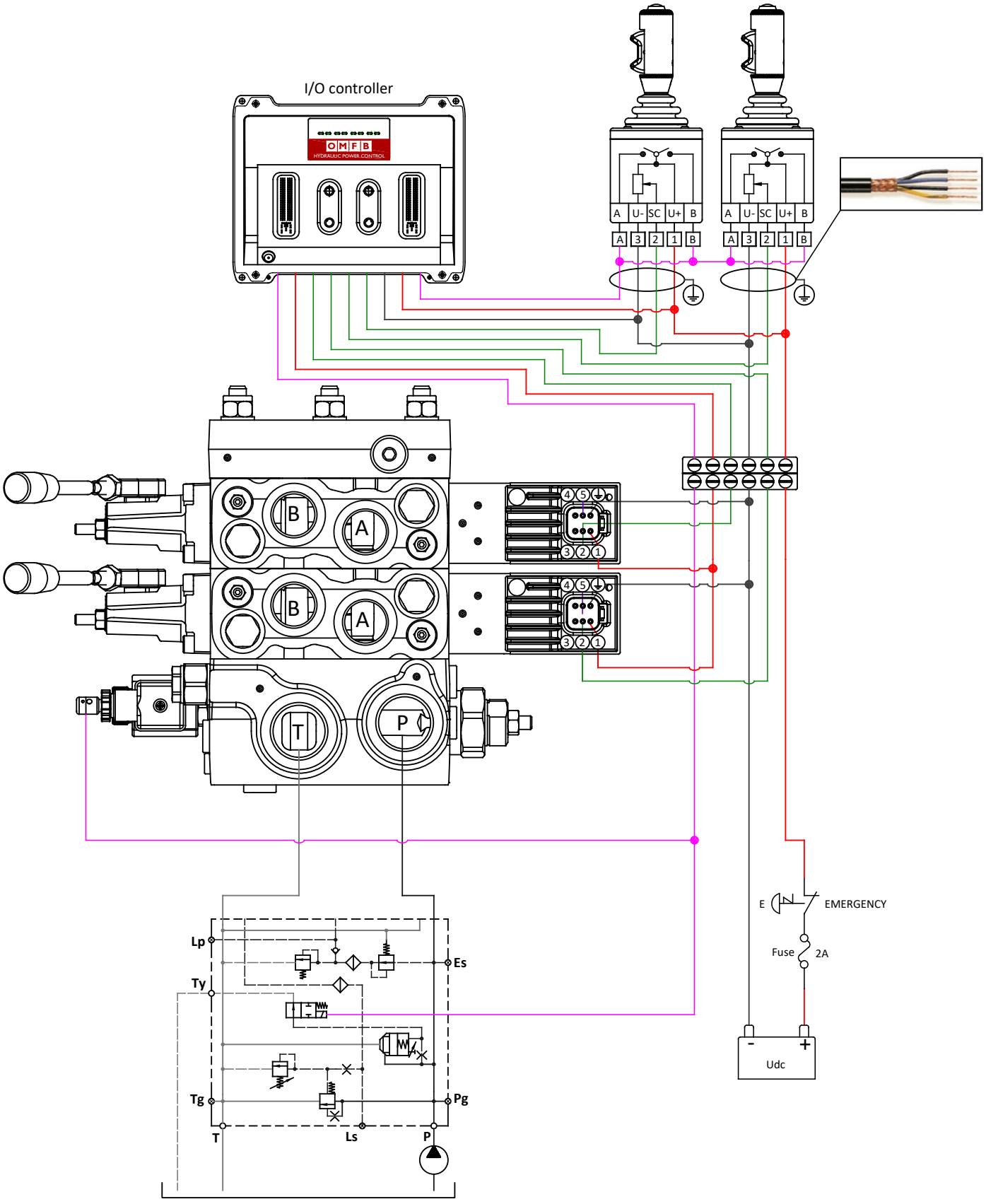
PDV114 - PEAC122 Electro-hydraulic proportional actuation. Closed loop spool control, high performance resolution Input signal control 0 ÷ 10 V



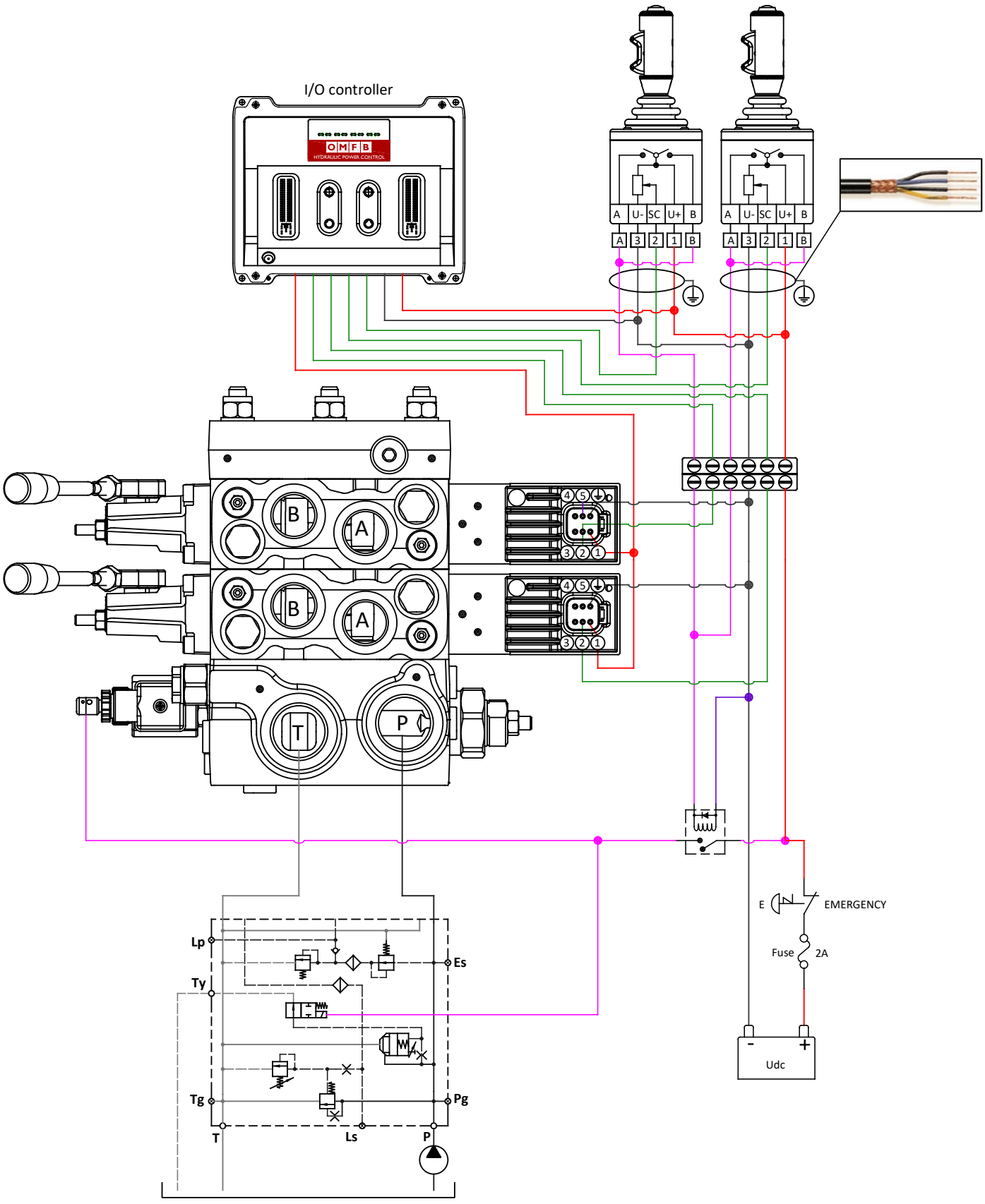
PDV114 - PEAC122 Electro-hydraulic proportional actuation.
Closed loop spool control, high performance resolution
Electrical block diagram for intelligent ring machine control



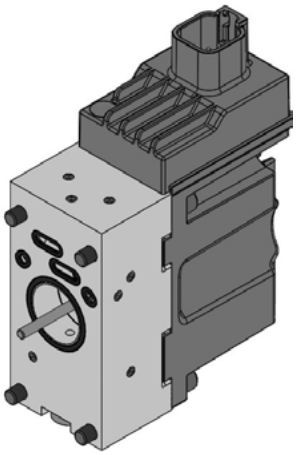
PDV114 - PEAC122 Electro-hydraulic proportional actuation
Electrical wiring diagram with OMFB I/O controller
Input signal 0 ÷ 10 V



PDV114 - PEAC122 Electro-hydraulic proportional actuation
Electrical wiring diagram with OMFB I/O controller
Input signal 0 ÷ 10 V



PDV114 - PEAC126 Electro-hydraulic proportional actuation
Closed loop spool control, high performance resolution
Input signal 4 ÷ 20 mA



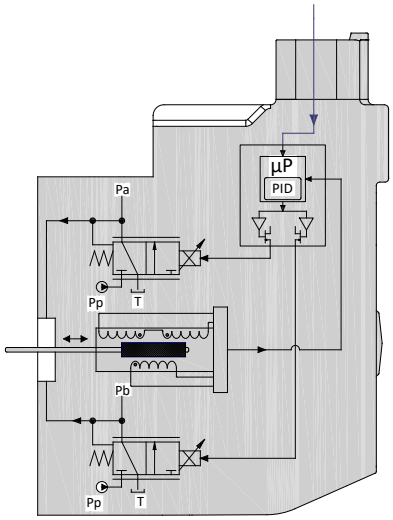
PEAC126 is a proportional high performance PDV spool actuation with integrated electronics and inductive transducer (LVDT) that operates safely and precisely the main spool movement according to an electrical signal coming from a remote control.
The input signal by means of the PCB and the two proportional pressure reducing valves, determines the level of the pilot pressure which moves the main spool.
The spool position is detected in the LVDT transducer which generates an electric feed-back signal registered by the electronics.
The variation between the input signal and the feed-back signal, actuates the solenoid valves accordingly, so that, the hydraulic pilot pressure will drive the main spool in the right position.

All PEAC126 modules comes with integrated fault monitoring system, available in two version:

Active version
Passive version

Active fault monitoring

When an error state is detected, the two proportional solenoid valves will be automatically deactivated, a red lamp will light-up and drive the spool in neutral position (if it's not seized up).
The system will only react to failures of more than 500 ms (in other words there is delay of half a second before anything happens). An alarm signal is sent out through the connector, and minus is opened.
This error state is memorized, and continues until the system is being reset by switching off the supply voltage.
Shortly, when the active fault monitoring system is connected and an error state is detected, the system ensures a fast and operator free reaction, that will put the complete hydraulic circuit into venting conditions, thus preventing uncontrollable machine movements.



Passive fault monitoring

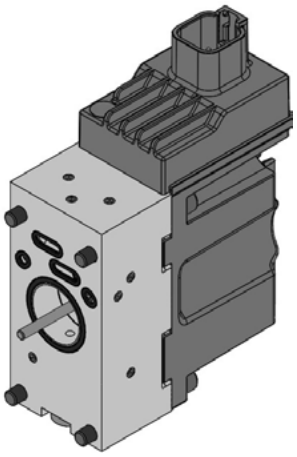
When an error state is detected, the two proportional solenoid valves will not be deactivated, a red lamp will light-up, but still control the main spool.
When a fault condition occurs, after a delay of 250 ms an alarm signal is sent out through a devoted pin
This state is not memorized, and when the faulty state disappears, the alarm signal will turn to passive again.
In order to prevent the electronic from going into an undefined state, any time the system is being triggered or reset, a general check of power supply and the internal clock frequency is made.

The use of PEAC126 module both passive or active version, allows the machines hydraulic system to be made with different level of safety degree that for the choice of which it is essential to know the exactly required functions.

When the PEAC126 module active version is connected with the pump unloading system, the level of safety degree protection for the complete hydraulic system becomes very high, operator free, and helps OEM to meet the PL (Performance Level) required to be comply with the safety demands of Machinery Directive 2006/42/EC.

OMFB HYDRAULIC POWER CONTROL

PDV114 - PEAC126 Electro-hydraulic proportional actuation
Closed loop spool control, high performance resolution
Input signal control 4 ÷ 20 mA

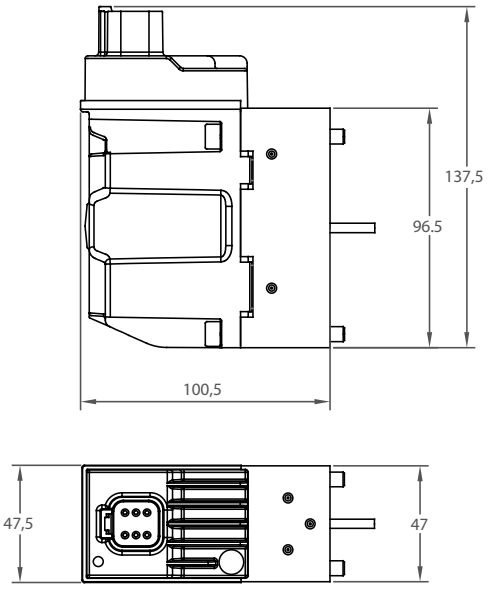


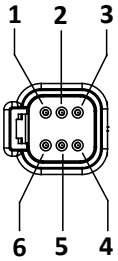
PEAC126 is defined by:

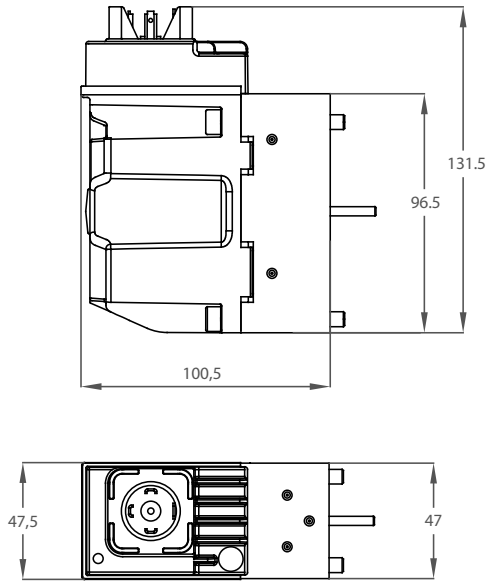
- Inductive transducer with resolution < 12 µm
- Integrated diagnosis and error memory
- Fault monitoring transistor output for signal source
- Higher spool control accuracy
- EMC performace according to Directive 2014/30/UE
- Low hysteresis
- Quicker reaction time
- Spool direction movement output
- Integrated PWM/Pulse Width Modulation
- Low electrical power
- Robust and reliable design

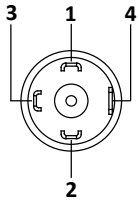
PEAC126 Technical data		
Rated supply voltage		**10 ÷ 30 Vdc**
Max ripple		**5%**
Signal control		**4 ÷ 20 mA**
Range control signal		**4 mA to 20 mA**
Neutral spool position		**12 mA**
Max threshold signal, **A** port		**1,5 mA**
Max threshold signal, **B** port		**1,5 mA**
Max current signal @ rated voltage		**48 mA**
Input capacitor		**100 ηF**
Signal control impedance		**220 Ω**
Power consumption		**8,7 W**
Heat insulation		**Class H (180°C)**
Duty cycle		**ED 100%**
Max current consumption		**650 mA**
Current consumption in neutral position		**80 mA**
Coil impedance @ 20°C		**8,9 Ω**
Dither frequency		**50 ÷ 200 Hz**
Recommended frequency		**100 Hz**
Enclouser degree **(Electrical wiring excepted)**		**IP65 - IP66 - IP69K**
Weight cast iron body		**1,8 kg**
Weight aluminium body		**1,3 kg**
Bootloader function, debugging parameters and set-up function available with Deutsch connector AT04-6P, only (to be matched with AT06-6S)		
Fault monitoring system	Max current on safety output (pin 5)	**50 mA**
	Reaction time a fault	**500 ms**
Max current output signal for spool direction moviment		**50 mA**
Reaction time (constant voltage)	From neutral position to max spool travel	**110 ÷ 140 ms**
	From max spool travel to neutral	**70 ÷ 90 ms**
Reaction time (neutral switch)	From neutral position to max spool travel	**130 ÷ 170 ms**
	From max spool travel to neutral	**70 ÷ 90 ms**

PDV114 - PEAC126 Electro-hydraulic proportional actuation
Closed loop spool control, high performance resolution
Input signal control 4 ÷ 20 mA - Electrical connectors



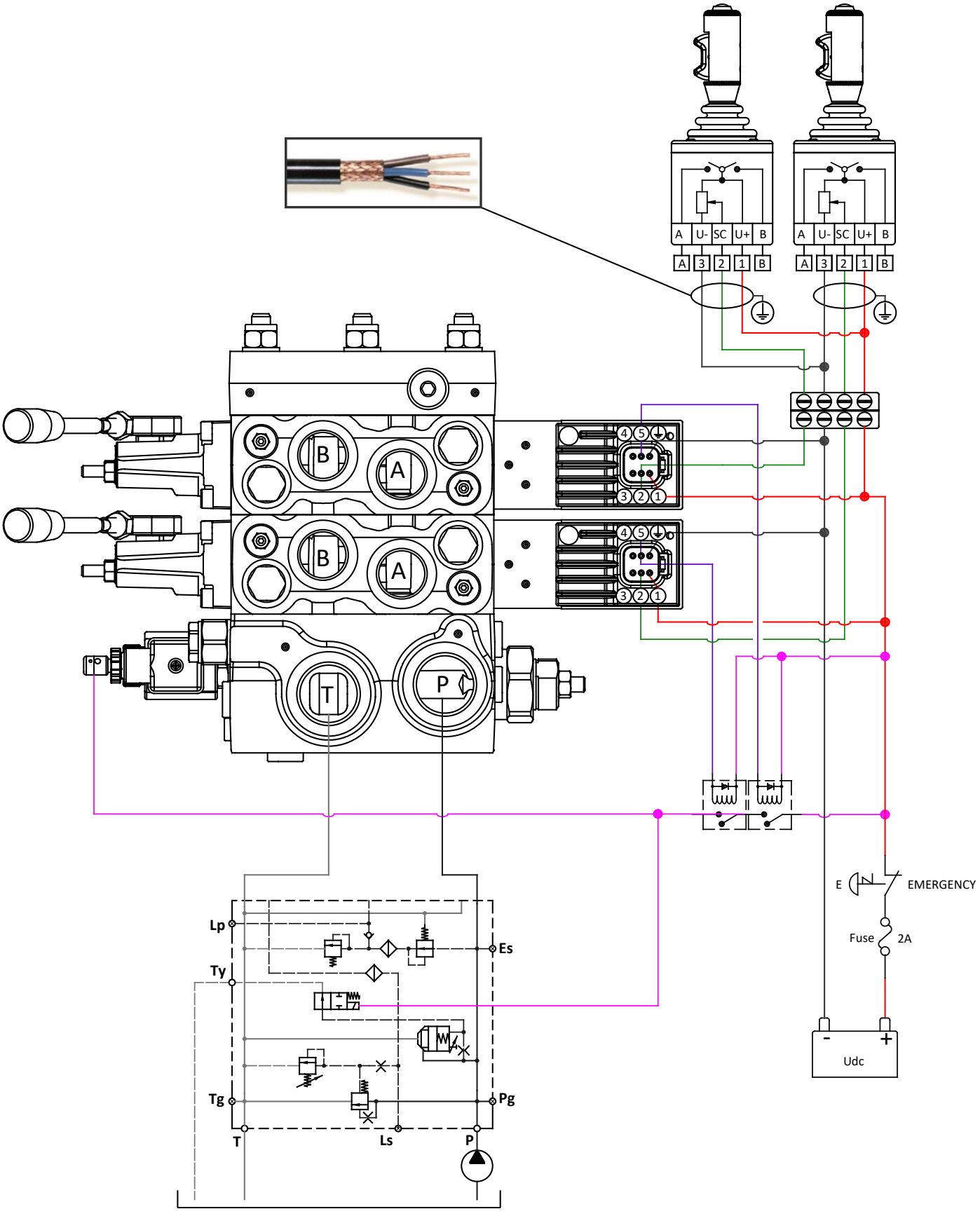
Deutsch connector AT04-6P Enclousure degree IP 69K PIN-assignment			
	**1**	Power supply	
	2	Input signal control	
	3	CAN-high	**A** port-spool movement signal
	4	CAN-low	**B** port-spool movement signal
	5	Fault monitoring signal	
	6	Ground	



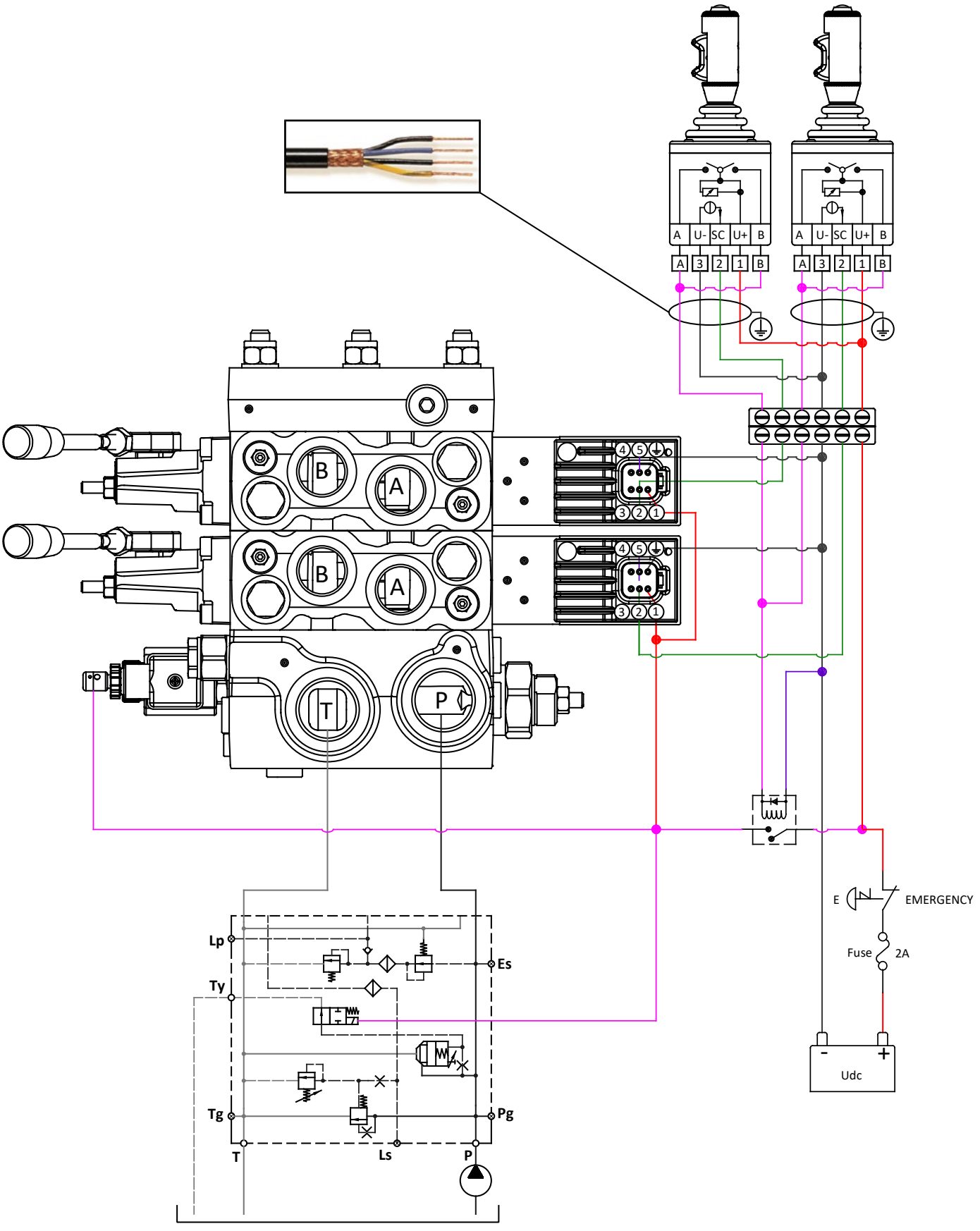
Hirschmann connector DIN 43650 Enclousure degree IP 65 PIN-assignment		
	**1**	Power supply
	2	Input signal control
	3	Fault monitoring signal
	4	Ground

Connector version	Code numbers			
	Active version		Passive version	
	Cast-iron body	Aluminium body	Cast-iron body	Aluminium body
Deutsch AT04-6P	**PEAC0146000**	**PEAC1146000**	**PEAC0136000**	**PEAC1136000**
DIN 43650	**PEAC0146200**	**PEAC1146200**	**PEAC0136200**	**PEAC1136200**

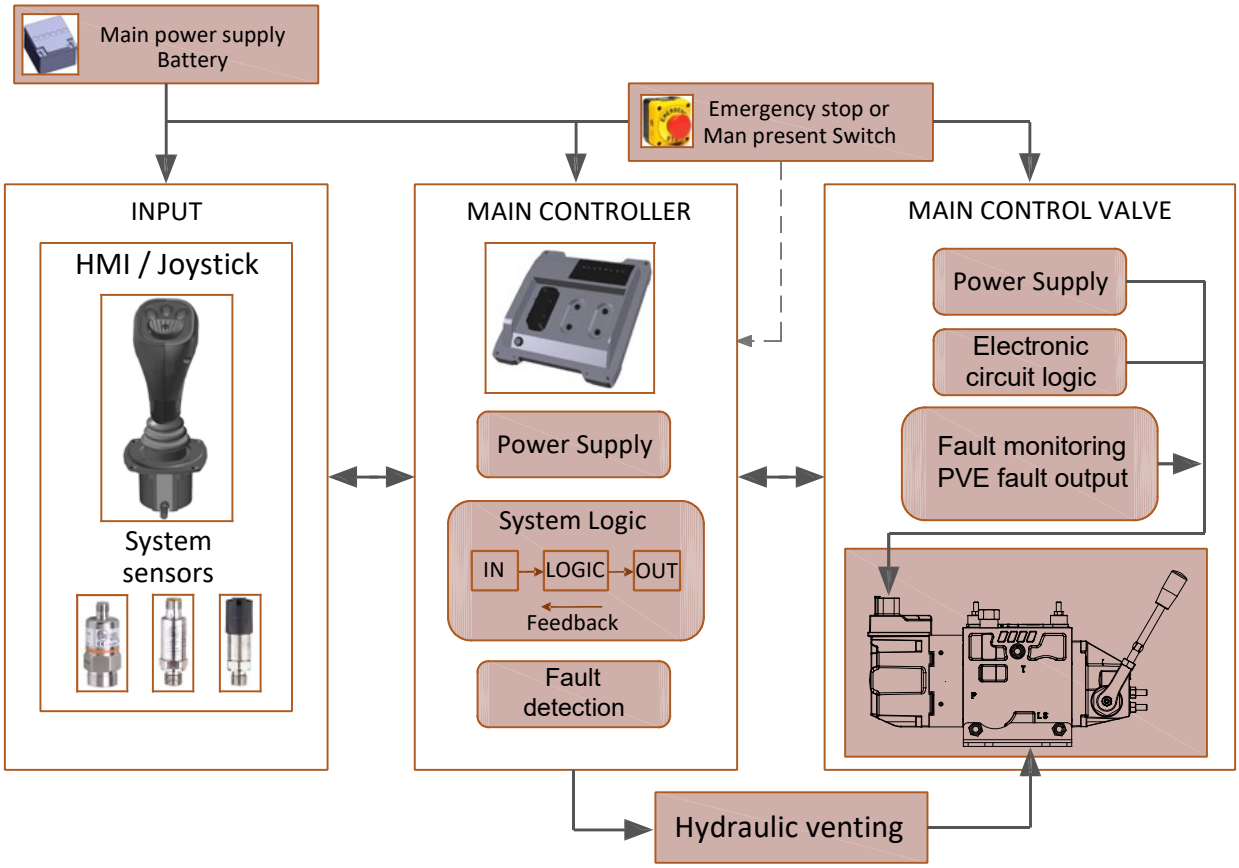
PDV114 - PEAC126 Electro-hydraulic proportional actuation
Closed loop spool control, high performance resolution
Input signal 4 ÷ 20 mA



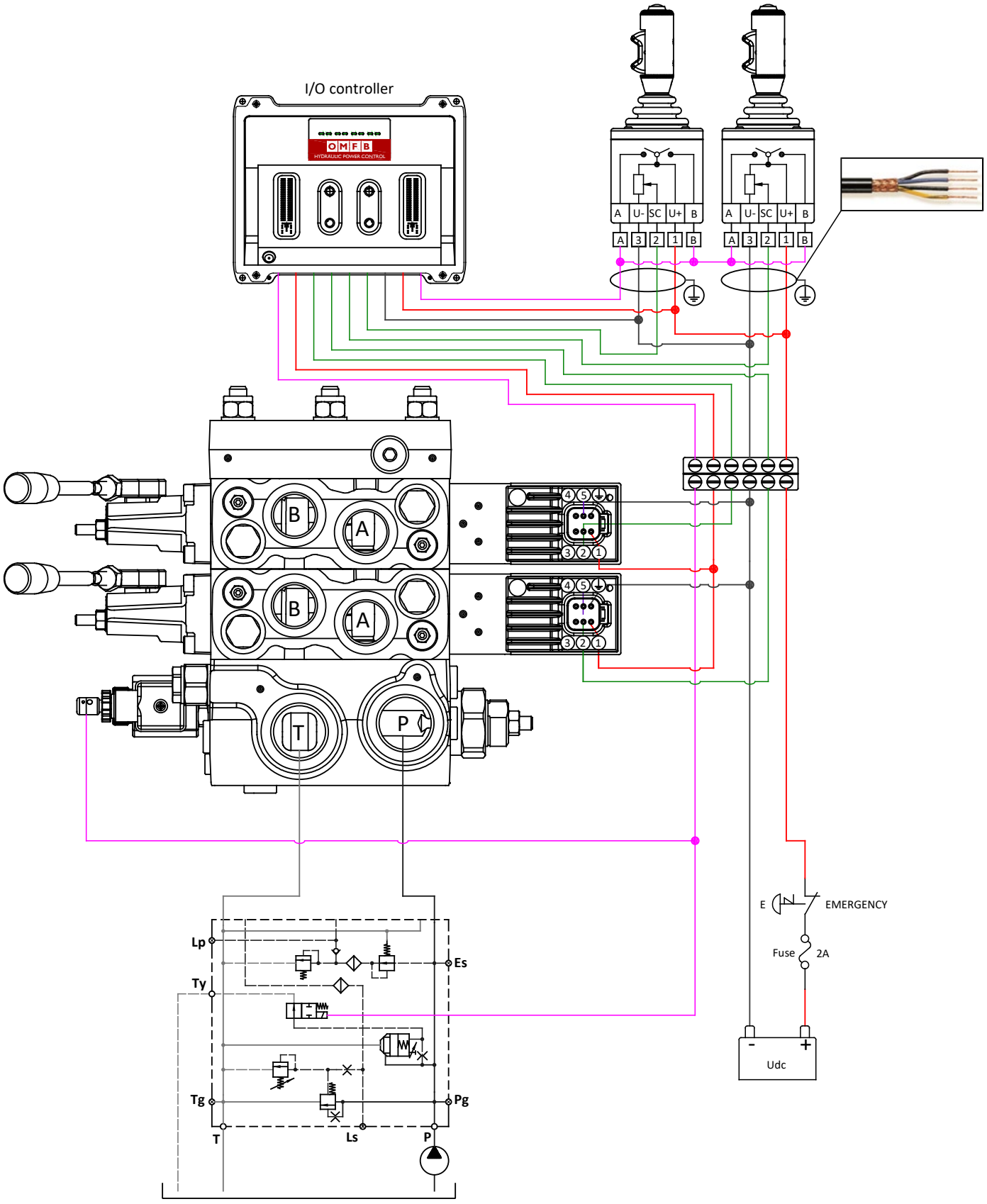
PDV114 - PEAC126 Electro-hydraulic proportional actuation
Closed loop spool control, high performance resolution
Input signal control 4 ÷ 20 mA



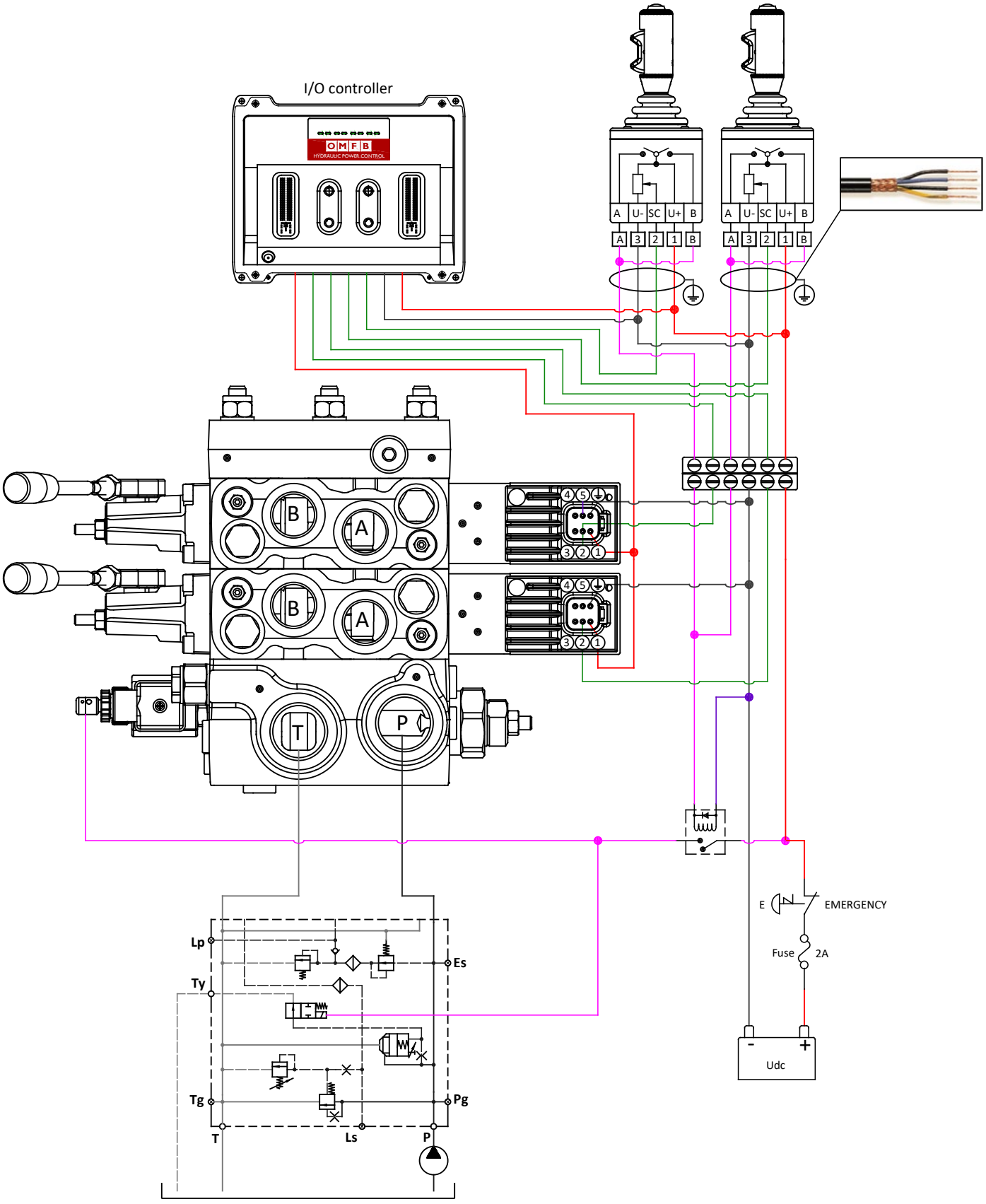
PDV114 - PEAC126 Electro-hydraulic proportional actuation
Closed loop spool control, high performance resolution
Electrical block diagram for intelligent ring machine control



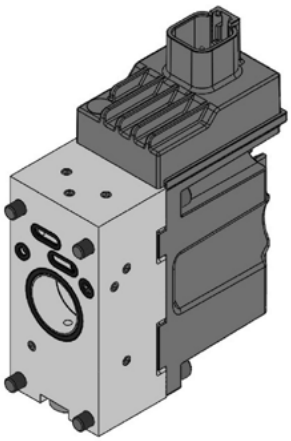
PDV114 - PEAC126 Electro-hydraulic proportional actuation.
Electrical wiring with OMFB I/O controller
Input signal 4 ÷ 20 mA



PDV114 - PEAC126 Electro-hydraulic proportional actuation
Electrical wiring diagram with OMFB I/O controller
Input signal 4 ÷ 20 mA



PDV114 - PEAC021 Electro-hydraulic proportional actuation
Open loop spool control, high performance resolution
Input signal control 0,5 Udc

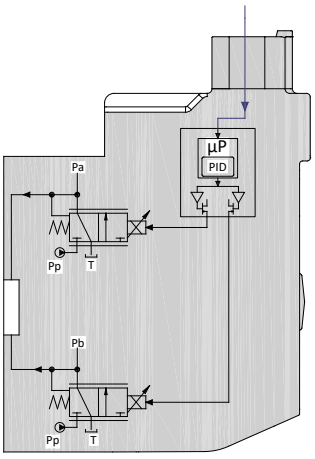


PEAC021 is a proportional open loop spool actuation with integrated electronics that operates the main spool movement according to an electrical signal coming from a remote control.

The input signal by means of the PCB and the two proportional pressure reducing valves, determines the level of the pilot pressure which moves the main spool.

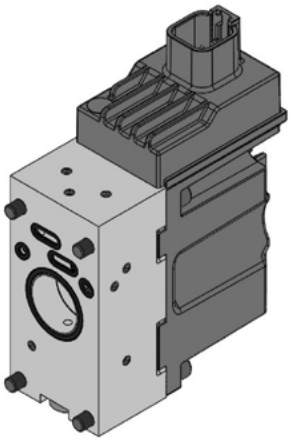
PEAC021 does not have neither the transducer spool position control nor fault monitoring system, this means that any forces which override the pilot pressure spool forces, may chenge the spool position with no error signal, and the safety of the whole system is left to the operator's visual control, only.

PEAC021 is recommended where a simple proportional control is required, and where hysteresis and reaction time are not so critical.



OMFB HYDRAULIC POWER CONTROL

PDV114 - PEAC021 Electro-hydraulic proportional actuation
Open loop spool control, high performance resolution
Input signal control 0,5 Udc

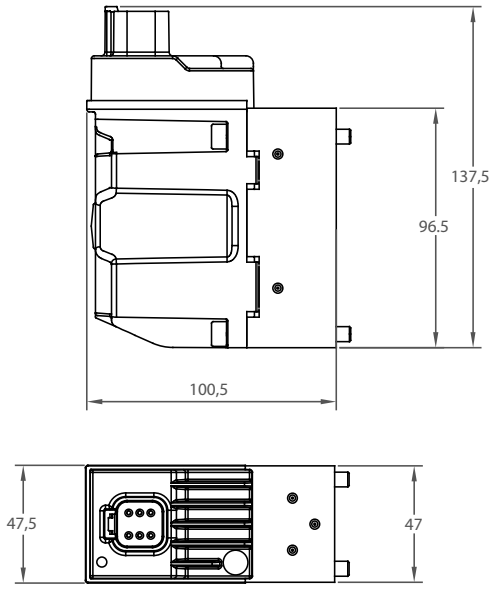


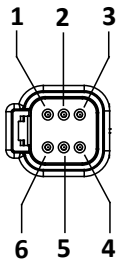
PEAC021 is defined by:

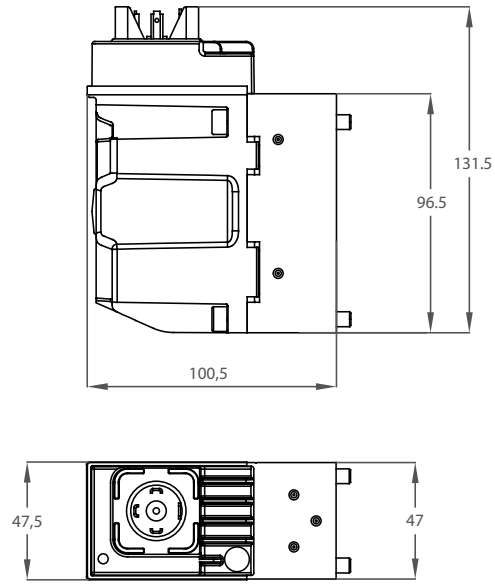
- High spool control accuracy
- EMC performace according to Directive 2014/30/UE
- Quick reaction time
- Integrated PWM/Pulse Width Modulation
- Low electrical power
- Robust and reliable design

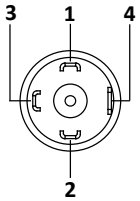
PEAC021 Technical data		
Rated supply voltage		**10-30 Vdc**
Max ripple		**5%**
Signal control		**0,5 Udc**
Range control signal		**0,25 Udc to 0,75 Udc**
Neutral spool position		**0,5 Udc**
Max threshold signal, **A** port		**1 V**
Max threshold signal, **B** port		**1 V**
Max current signal @ rated voltage		**48 mA**
Input capacitor		**100 ηF**
Signal control impedance		**25 kΩ**
Power consumption		**8,7 W**
Heat insulation		**Class H (180°C)**
Duty cycle		**ED 100%**
Max current consumption		**650 mA**
Current consumption in neutral position		**80 mA**
Coil impedance @ 20°C		**8,9 Ω**
Dither frequency		**50-200 Hz**
Recommended frequency		**100 Hz**
Enclouser degree **(Electrical wiring excepted)**		**IP 66 - IP 67 - IP 69K**
Weight cast iron body		**1,8 kg**
Weight aluminium body		**1,3 kg**
Bootloader function, debugging parameters and set-up function available only with Deutsch connector AT04-6P (to be matched with AT06-6S)		
Reaction time (constant voltage)	From neutral position to max spool travel	**110 - 140 ms**
	From max spool travel to neutral	**70 - 90 ms**
Reaction time (neutral switch)	From neutral position to max spool travel	**130 - 170 ms**
	From max spool travel to neutral	**70 - 90 ms**

PDV114 - PEAC021 Electro-hydraulic proportional actuation
Open loop spool control, high performance resolution
Input signal 0,5 Udc - Electrical connectors



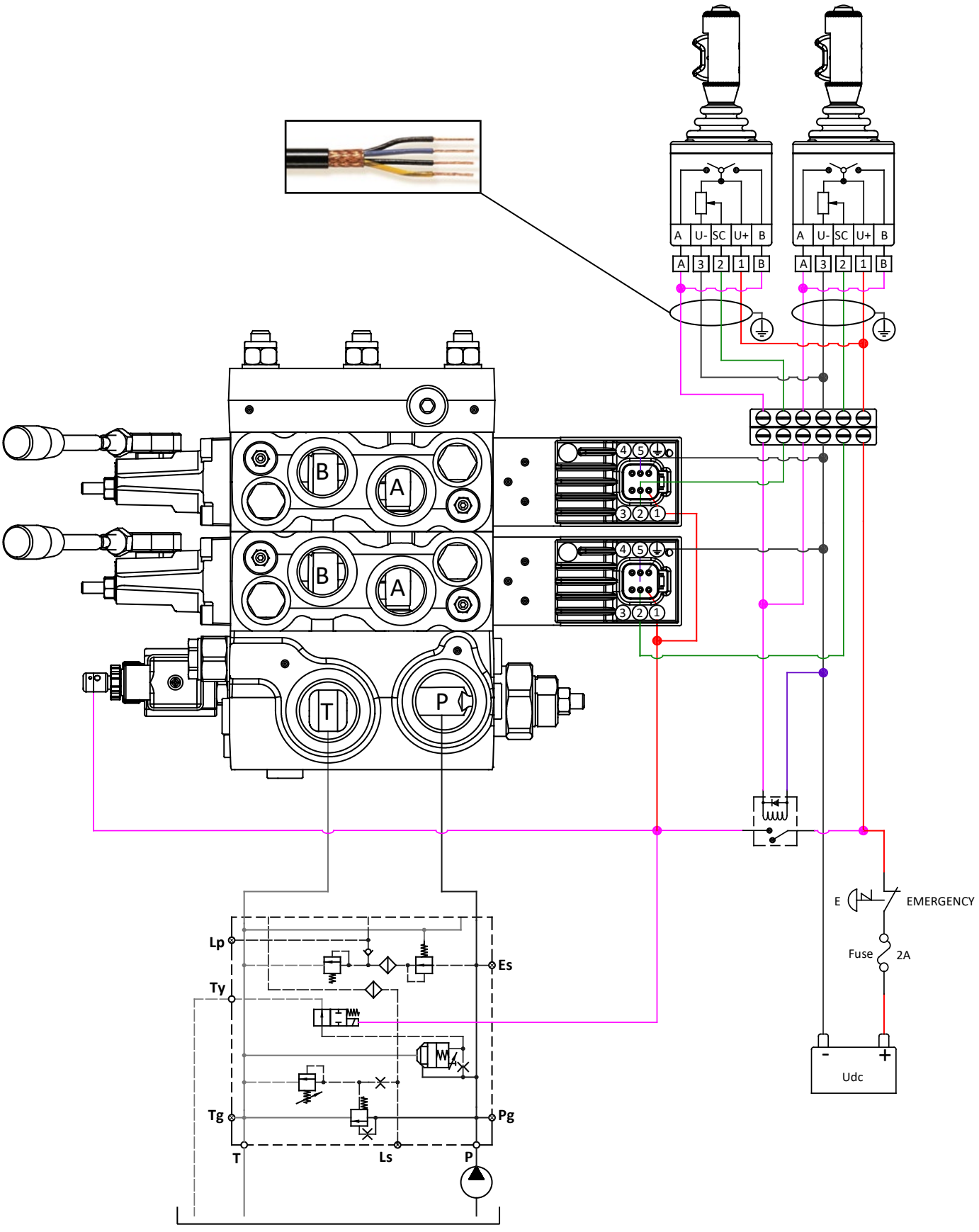
Deutsch connector AT04-6P Enclousure degree IP 69K PIN-assignment		
	**1**	Power supply
	2	Input signal control
	3	CAN-high
	4	CAN-low
	5	Free
	6	Ground



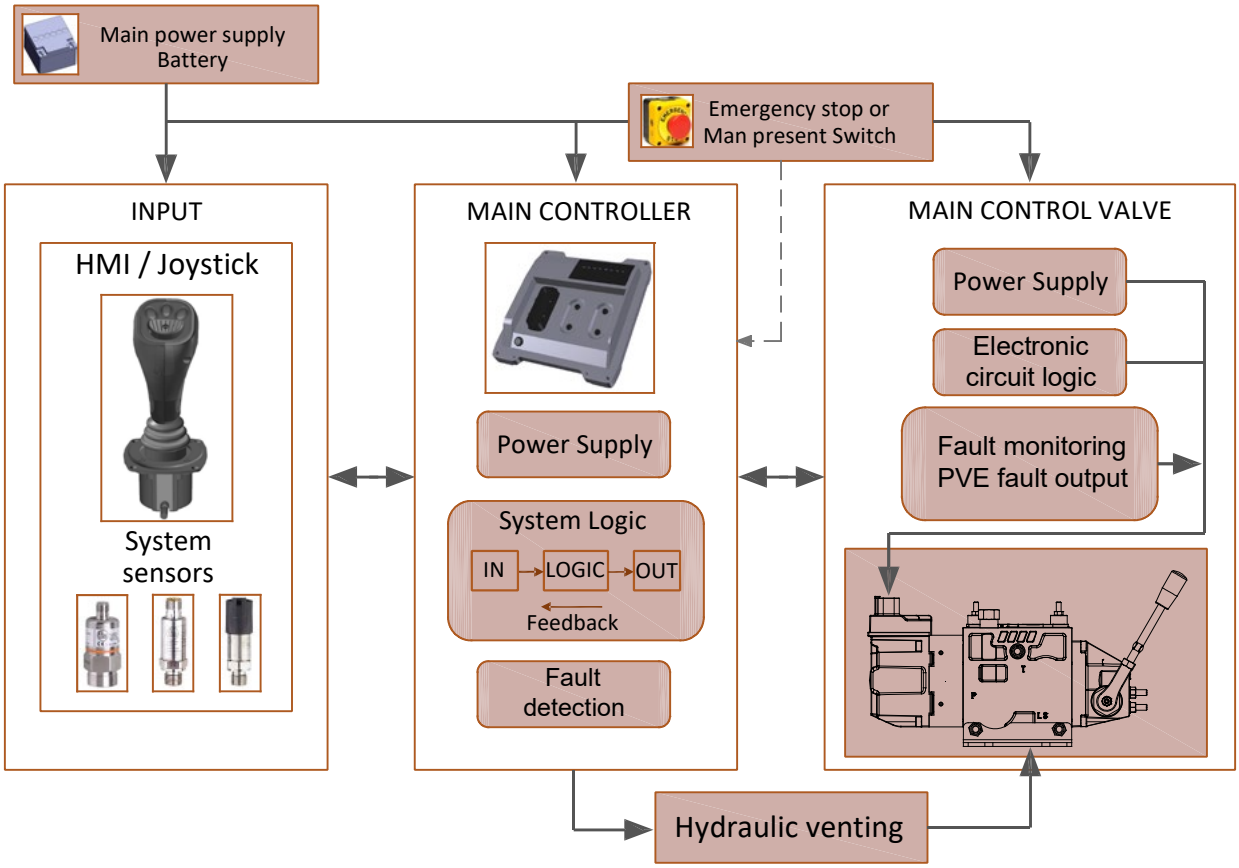
Hirschmann connector DIN 43650 Enclousure degree IP 65 PIN-assignment		
	**1**	Power supply
	2	Input signal control
	3	Free
	4	Ground

Connector version	Code numbers			
	Active version		Passive version	
	Cast-iron body	Aluminium body	Cast-iron body	Aluminium body
Deutsch AT04-6P	**PEAC0041000**	**PEAC1041000**	**PEAC0031000**	**PEAC1031000**
DIN 43650	**PEAC0041200**	**PEAC1041200**	**PEAC0031200**	**PEAC1031200**

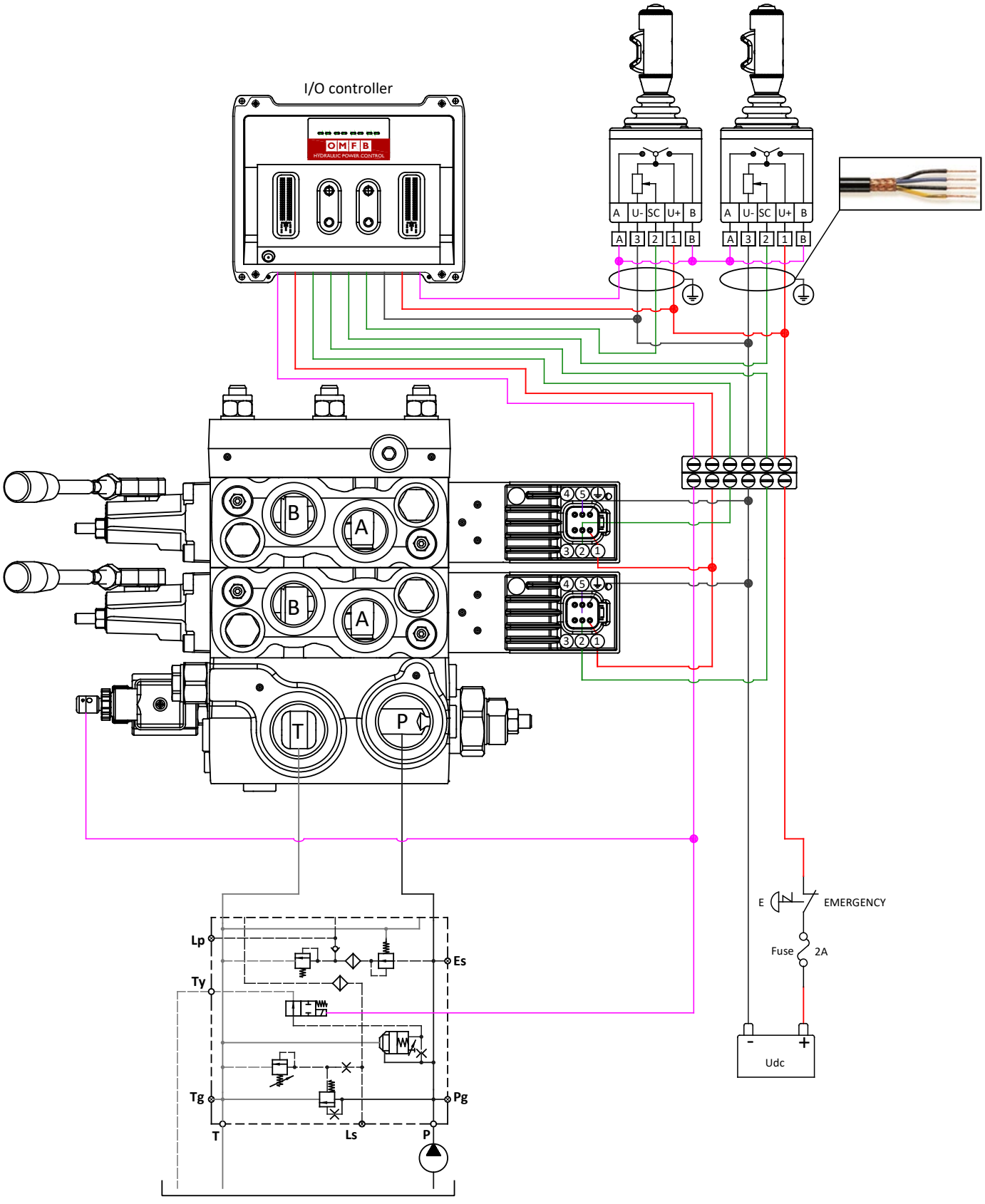
PDV114 - PEAC021 Electro-hydraulic proportional actuation
Open loop spool control, high performance resolution
Input signal control 0,5 Udc



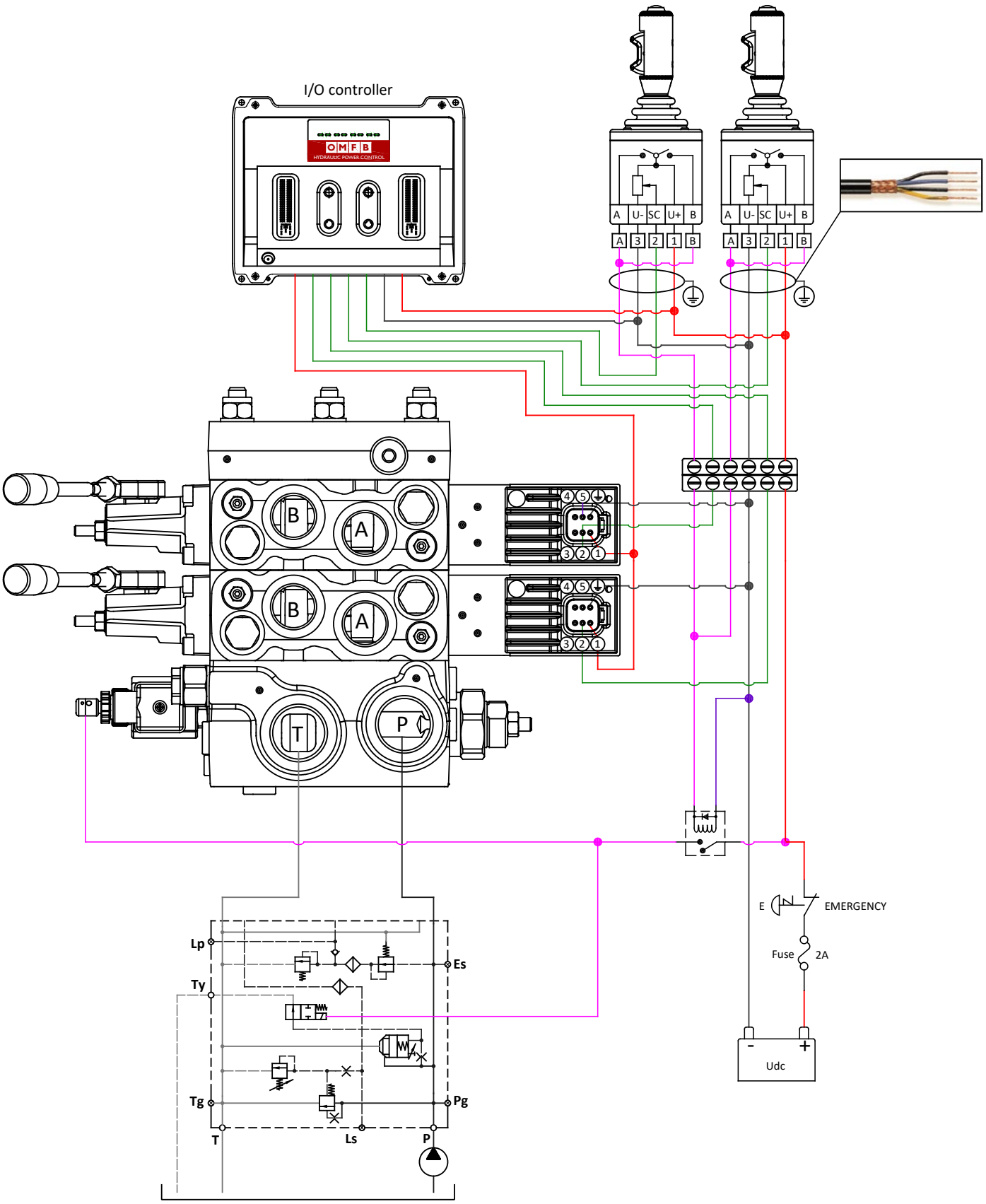
PDV114 - PEAC021 Electro-hydraulic proportional actuation
Open loop spool control, high performance resolution
Electrical block diagram for intelligent ring machine control



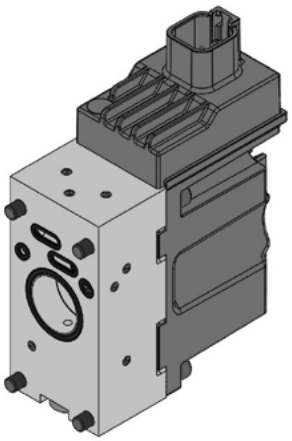
PDV114 - PEAC021 Electro-hydraulic proportional actuation
Electrical wiring diagram with OMFB I/O controller
Input signal 0,5 Udc



PDV114 - PEAC021 Electro-hydraulic proportional actuation
Electrical wiring diagram with OMFB I/O controller
Input signal 0,5 Udc



PDV114 - PEAC022 Electro-hydraulic proportional actuation
Open loop spool control, high performance resolution
Input signal control 0 ÷ 10 V

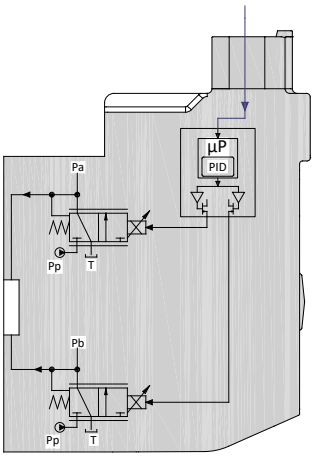


PEAC022 is a proportional open loop spool actuation with integrated electronics that operates the main spool movement according to an electrical signal coming from a remote control.

The input signal by means of the PCB and the two proportional pressure reducing valves, determines the level of the pilot pressure which moves the main spool.

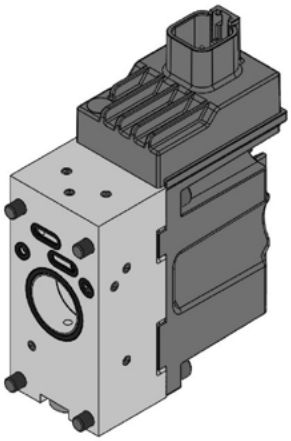
PEAC022 does not have neither the transducer spool position control nor fault monitoring system, this means that any forces which override the pilot pressure spool forces, may chenge the spool position with no error signal, and the safety of the whole system is left to the operator's visual control, only.

PEAC022 is recommended where a simple proportional control is required, and where hysteresis and reaction time are not so critical.



OMFB HYDRAULIC POWER CONTROL

PDV114 - PEAC022 Electro-hydraulic proportional actuation
Open loop spool control, high performance resolution
Input signal control 0 ÷ 10 V

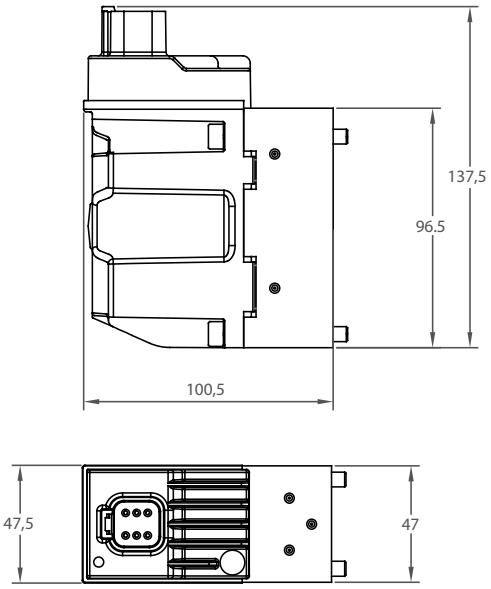


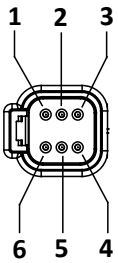
PEAC022 is defined by:

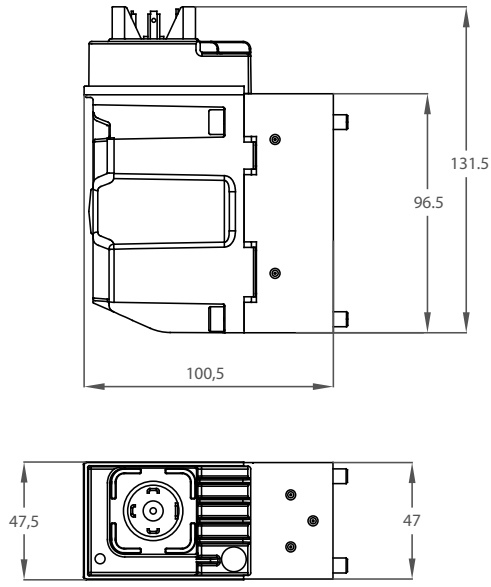
- High spool control accuracy
- EMC performace according to Directive 2014/30/UE
- Quick reaction time
- Integrated PWM/Pulse Width Modulation
- Low electrical power
- Robust and reliable design

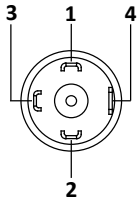
PEAC022 Technical data		
Rated supply voltage		**10-30 Vdc**
Max ripple		**5%**
Signal control		**0-10 V**
Range control signal		**2,5 V to 7,5 V**
Neutral spool position		**5 V**
Max threshold signal, **A** port		**1 V**
Max threshold signal, **B** port		**1 V**
Max current signal @ rated voltage		**48 mA**
Input capacitor		**100 ηF**
Signal control impedance		**25 kΩ**
Power consumption		**8,7 W**
Heat insulation		**Class H (180°C)**
Duty cycle		**ED 100%**
Max current consumption		**650 mA**
Current consumption in neutral position		**80 mA**
Coil impedance @ 20°C		**8,9 Ω**
Dither frequency		**50-200 Hz**
Recommended frequency		**100 Hz**
Enclouser degree **(Electrical wiring excepted)**		**IP 66 - IP 67 - IP 69K**
Weight cast iron body		**1,8 kg**
Weight aluminium body		**1,3 kg**
Bootloader function, debugging parameters and set-up function available only with Deutsch connector AT04-6P (to be matched with AT06-6S)		
Reaction time (constant voltage)	From neutral position to max spool travel	**110 - 140 ms**
	From max spool travel to neutral	**70 - 90 ms**
Reaction time (neutral switch)	From neutral position to max spool travel	**130 - 170 ms**
	From max spool travel to neutral	**70 - 90 ms**

PDV114 - PEAC022 Electro-hydraulic proportional actuation
Open loop spool control, high performance resolution
Input signal 0 ÷ 10 V - Electrical connectors



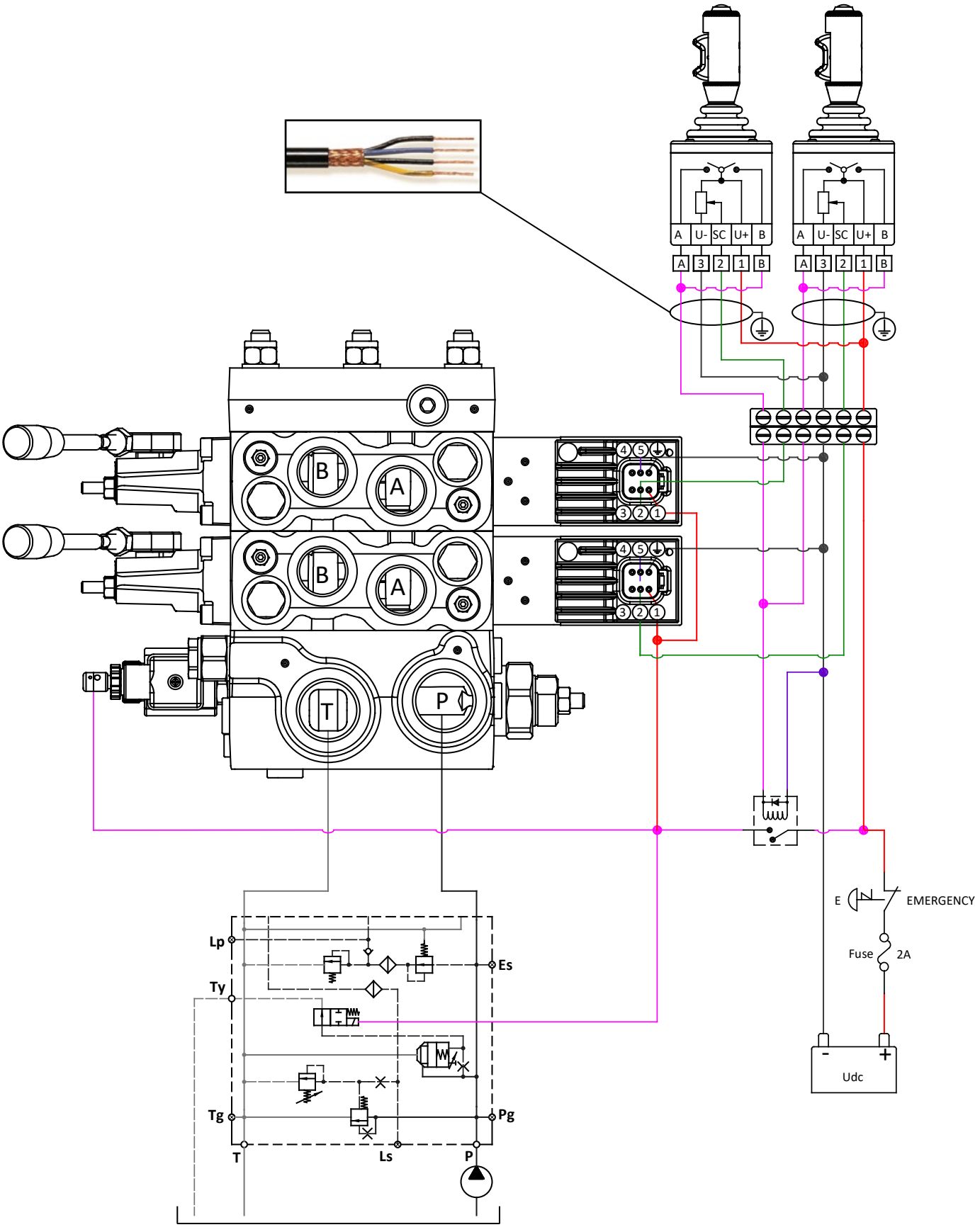
Deutsch connector AT04-6P Enclousure degree IP 69K PIN-assignment		
	**1**	Power supply
	2	Input signal control
	3	CAN-high
	4	CAN-low
	5	Free
	6	Ground



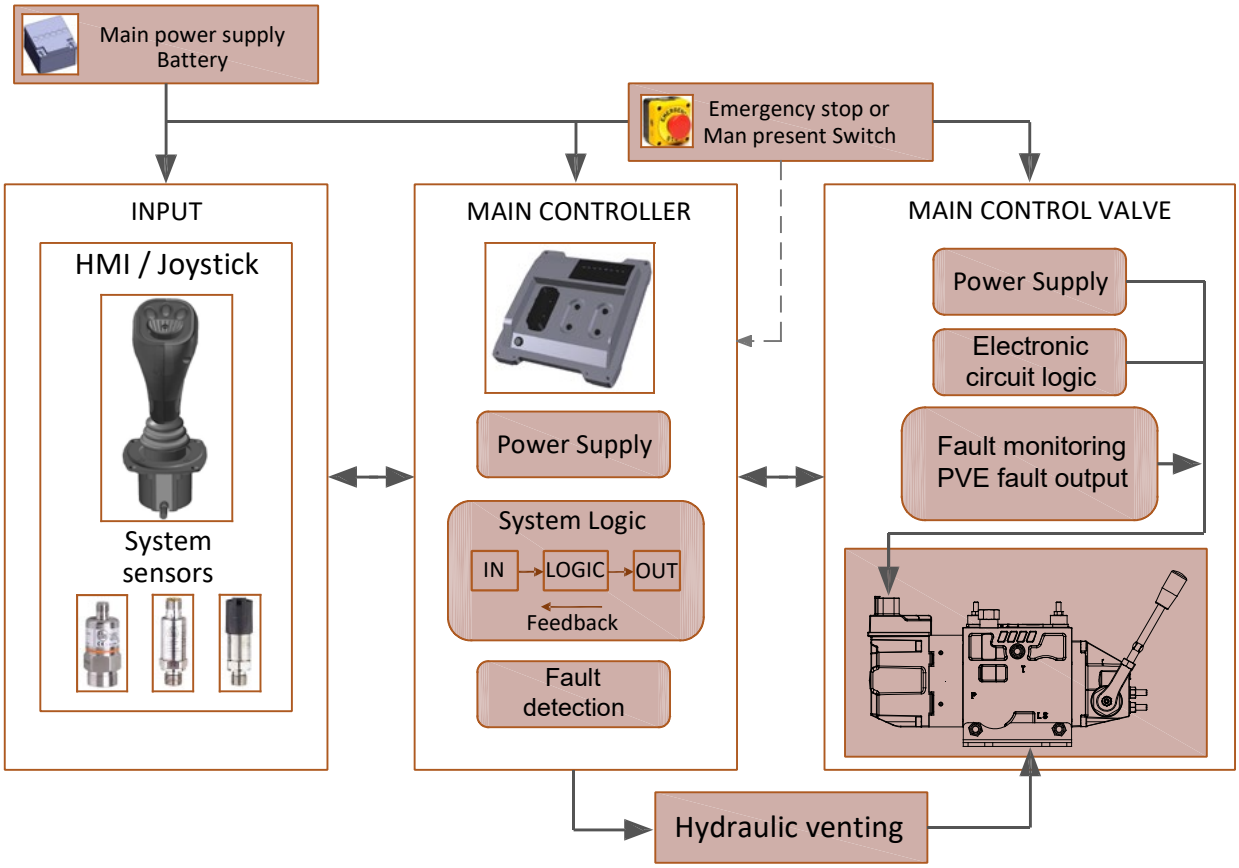
Hirschmann connector DIN 43650 Enclousure degree IP 65 PIN-assignment		
	**1**	Power supply
	2	Input signal control
	3	Free
	4	Ground

Connector version	Code numbers			
	Active version		Passive version	
	Cast-iron body	Aluminium body	Cast-iron body	Aluminium body
Deutsch AT04-6P	**PEAC0042000**	**PEAC1042000**	**PEAC0032000**	**PEAC1032000**
DIN 43650	**PEAC0042200**	**PEAC1042200**	**PEAC0032200**	**PEAC1032200**

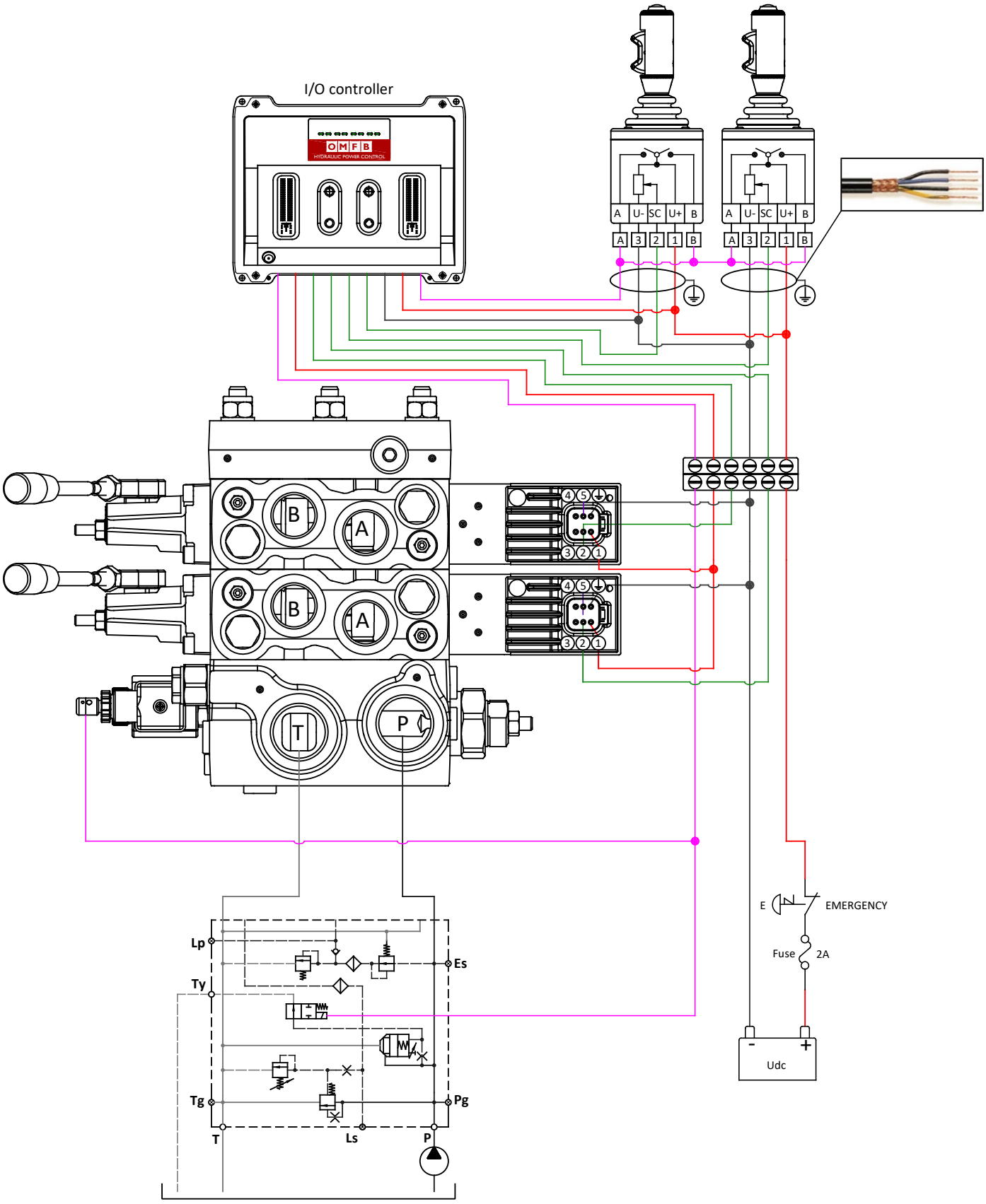
PDV114 - PEAC022 Electro-hydraulic proportional actuation.
Open loop spool control, high performance resolution
Input signal control 0 ÷ 10 V



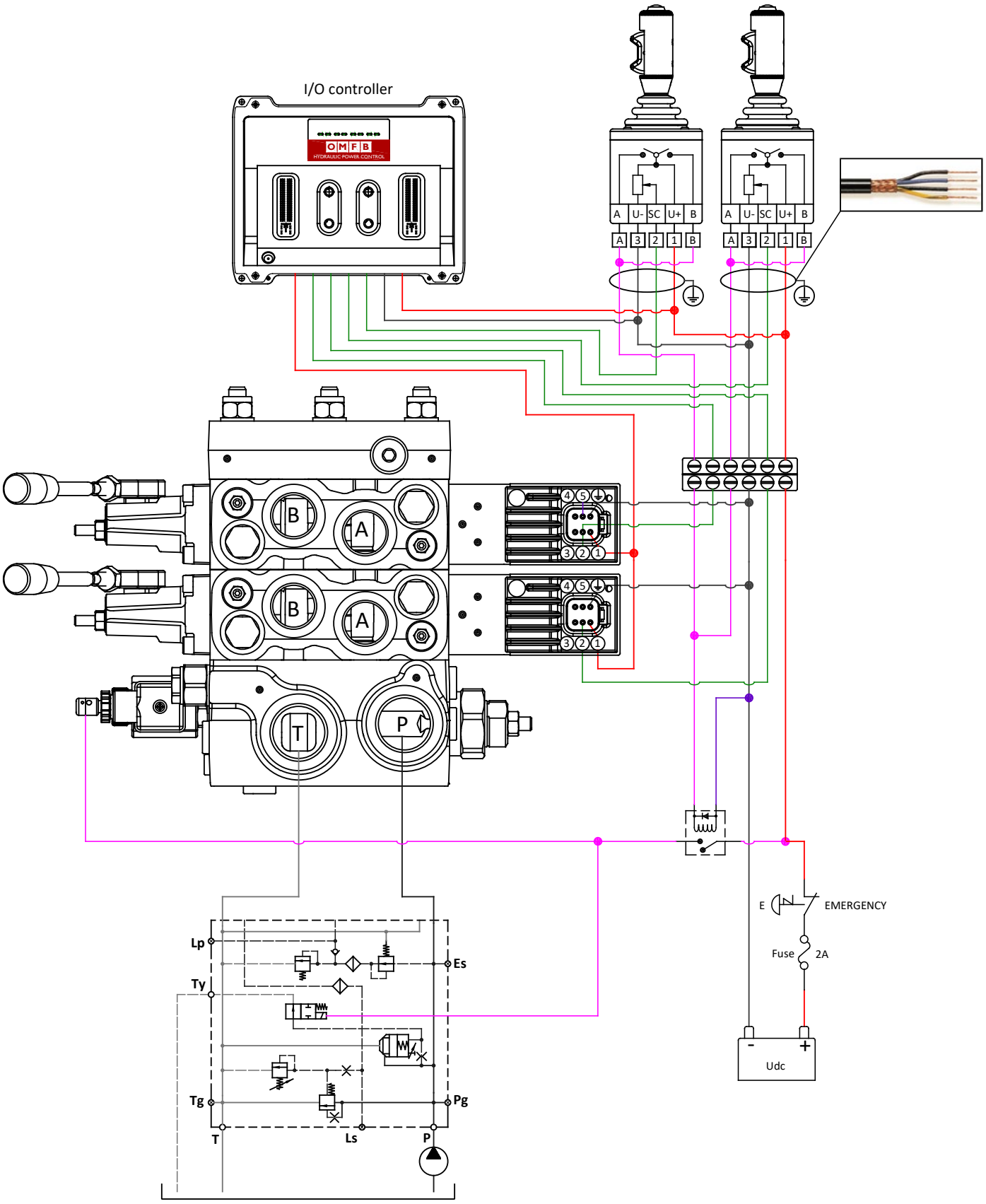
PDV114 - PEAC022 Electro-hydraulic proportional actuation.
Open loop spool control, high performance resolution
Electrical block diagram for intelligent ring machine control



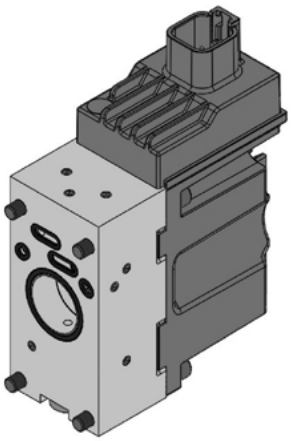
PDV114 - PEAC022 Electro-hydraulic proportional actuation
Electrical wiring diagram with OMFB I/O controller
Input signal 0 ÷ 10 V



PDV114 - PEAC022 Electro-hydraulic proportional actuation
Electrical wiring diagram with OMFB I/O controller
Input signal 0 ÷ 10 V



PDV114 - PEAC026 Electro-hydraulic proportional actuation
Open loop spool control
Input signal 4 ÷ 20 mA

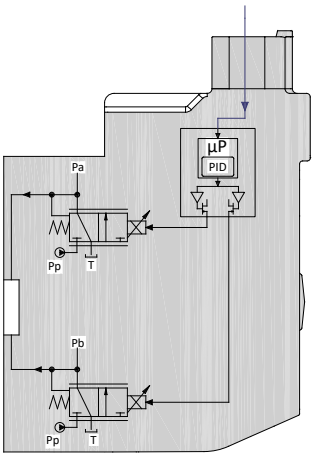


PEAC026 is a proportional open loop spool actuation with integrated electronics that operates the main spool movement according to an electrical signal coming from a remote control.

The input signal by means of the PCB and the two proportional pressure reducing valves, determines the level of the pilot pressure which moves the main spool.

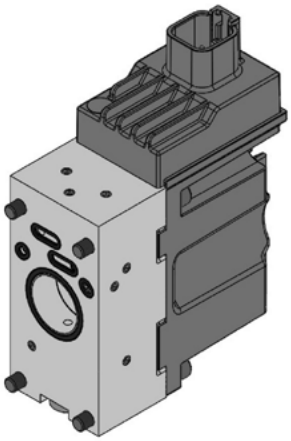
PEAC026 does not have neither the transducer spool position control nor fault monitoring system, this means that any forces which override the pilot pressure spool forces, may chenge the spool position with no error signal, and the safety of the whole system is left to the operator's visual control, only.

PEAC026 is recommended where a simple proportional control is required, and where hysteresis and reaction time are not so critical.



OMFB HYDRAULIC POWER CONTROL

PDV114 - PEAC026 Electro-hydraulic proportional actuation
Open loop spool control
Input signal 4 ÷ 20 mA

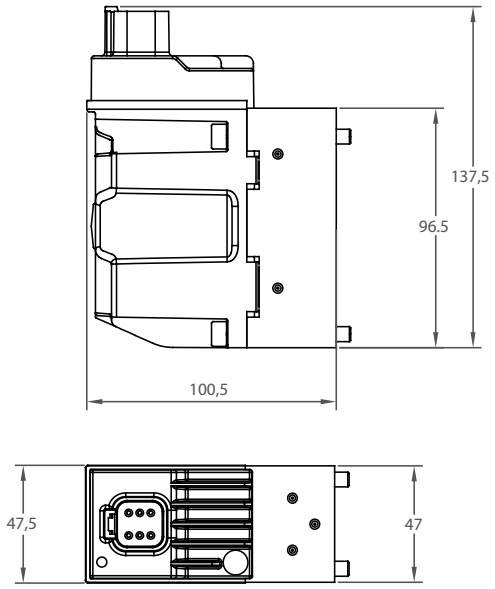


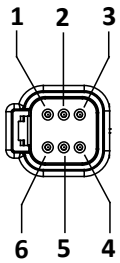
PEAC026 is defined by:

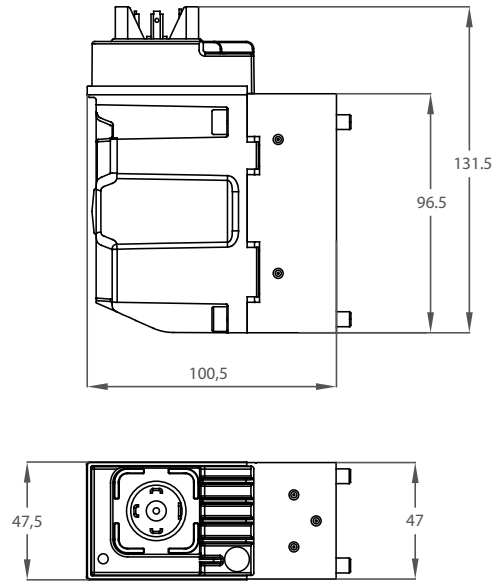
- High spool control accuracy
- EMC performace according to Directive 2014/30/UE
- Quick reaction time
- Integrated PWM/Pulse Width Modulation
- Low electrical power
- Robust and reliable design

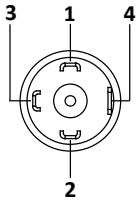
PEAC026 Technical data		
Rated supply voltage		**10-30 Vdc**
Max ripple		**5%**
Signal control		**4-20 mA**
Range control signal		**4 mA to 20 mA**
Neutral spool position		**12 mA**
Max threshold signal, **A** port		**1,5 mA**
Max threshold signal, **B** port		**1,5 mA**
Input capacitor		**100 ηF**
Input impedance		**220 Ω**
Power consumption		**8,7 W**
Heat insulation		**Class H (180°C)**
Duty cycle		**ED 100%**
Max current consumption		**650 mA**
Current consumption in neutral position		**80 mA**
Max current start spool travel		**140 mA**
Max current end spool travel		**450 mA**
Coil impedance @ 20°C		**8,9 Ω**
Signal control impedance		**50 KΩ**
Dither frequency		**50-200 Hz**
Recommended frequency		**100 Hz**
Enclouser degree **(Electrical wiring excepted)**		**IP65 - IP66 - IP69K**
Bootloader function, debugging parameters and set-up function available with Deutsch connector AT04-6P, only (to be matched with AT06-6S)		
Reaction time (constant voltage)	From neutral position to max spool travel	**110 - 140 ms**
	From max spool travel to neutral	**70 - 90 ms**
Reaction time (neutral switch)	From neutral position to max spool travel	**130 - 170 ms**
	From max spool travel to neutral	**70 - 90 ms**

PDV114 - PEAC026 Electro-hydraulic proportional actuation.
Input signal control 4 ÷ 20 mA
Electrical connectors



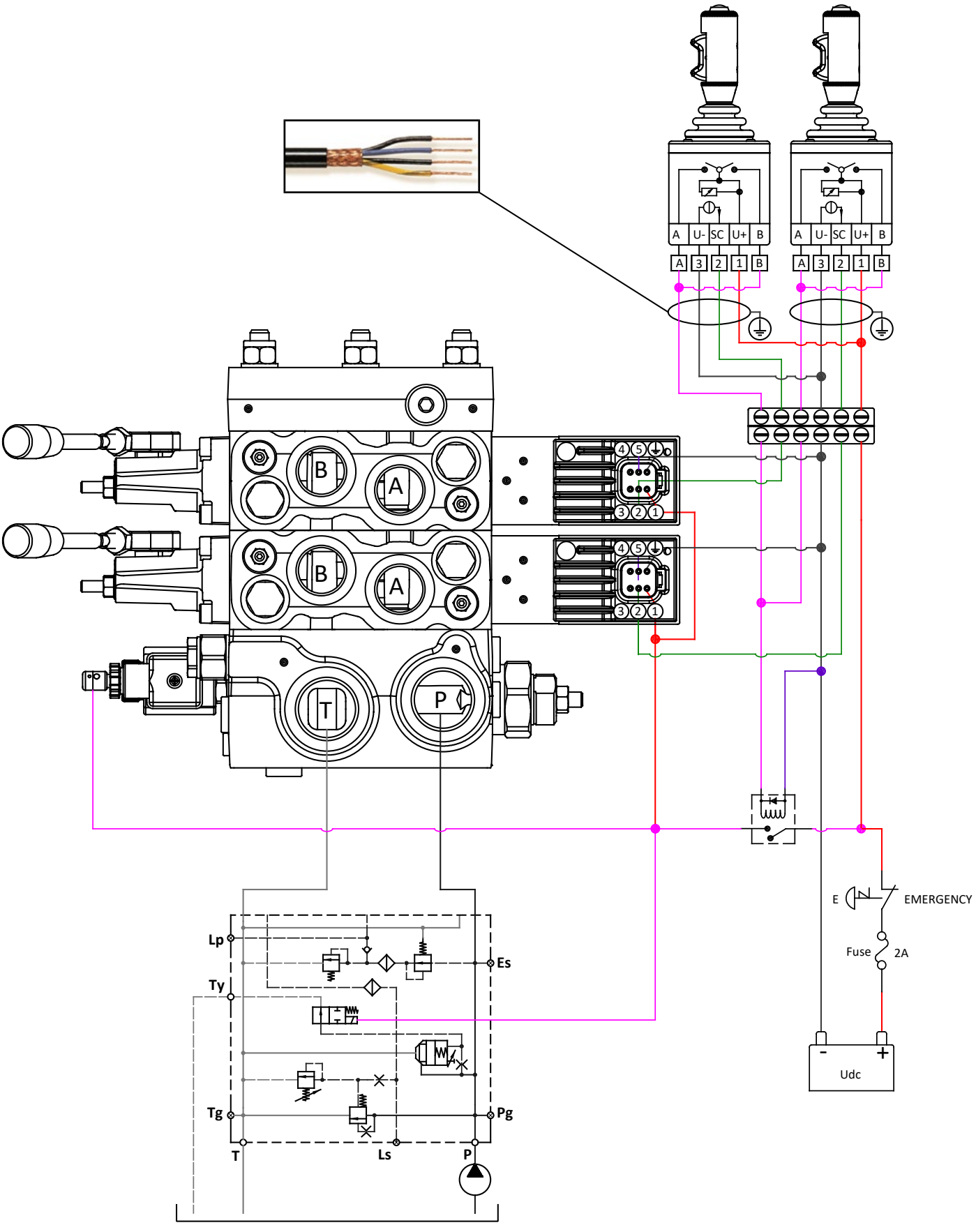
Deutsch connector AT04-6P Enclousure degree IP 69K PIN-assignment		
	**1**	Power supply
	2	Input signal control
	3	CAN-high
	4	CAN-low
	5	Free
	6	Ground

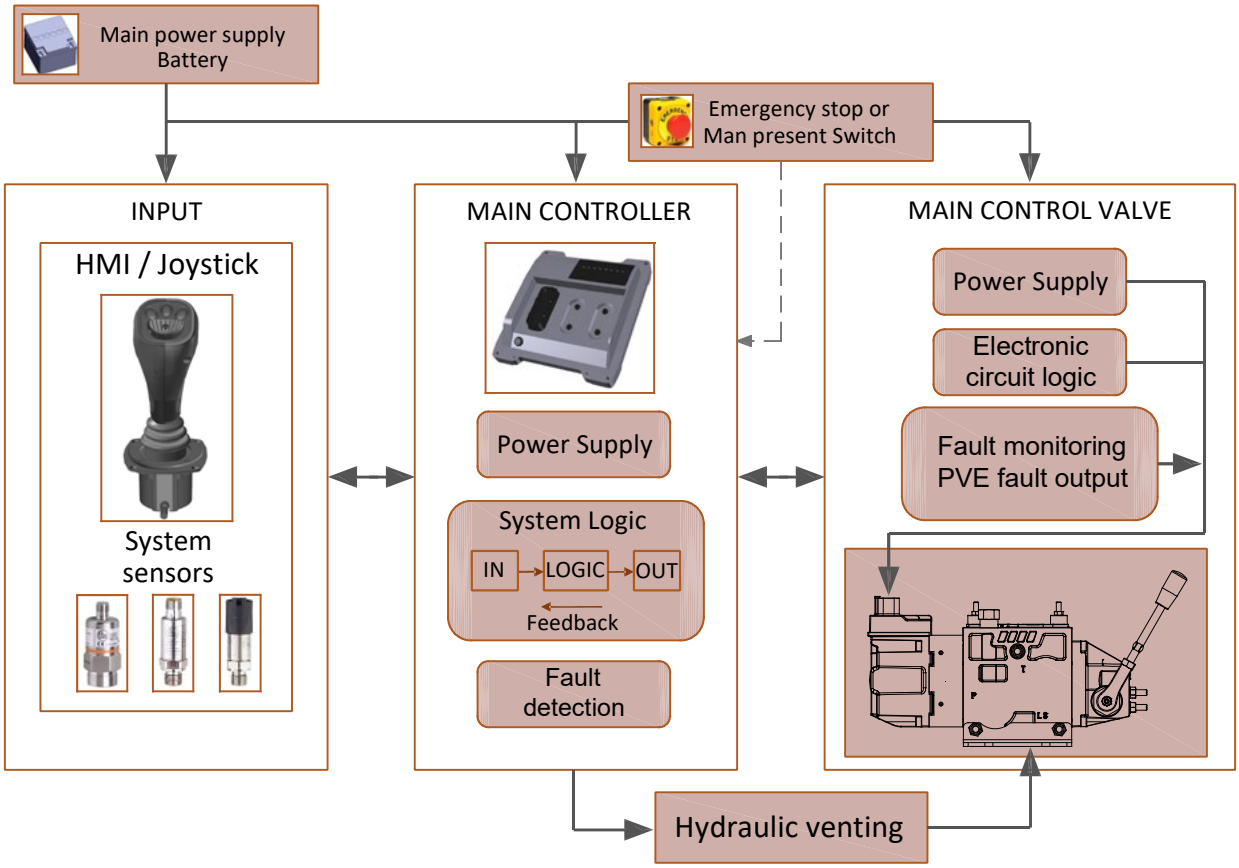


Hirschmann connector DIN 43650 Enclousure degree IP 65 PIN-assignment		
	**1**	Power supply
	2	Input signal control
	3	Free
	4	Ground

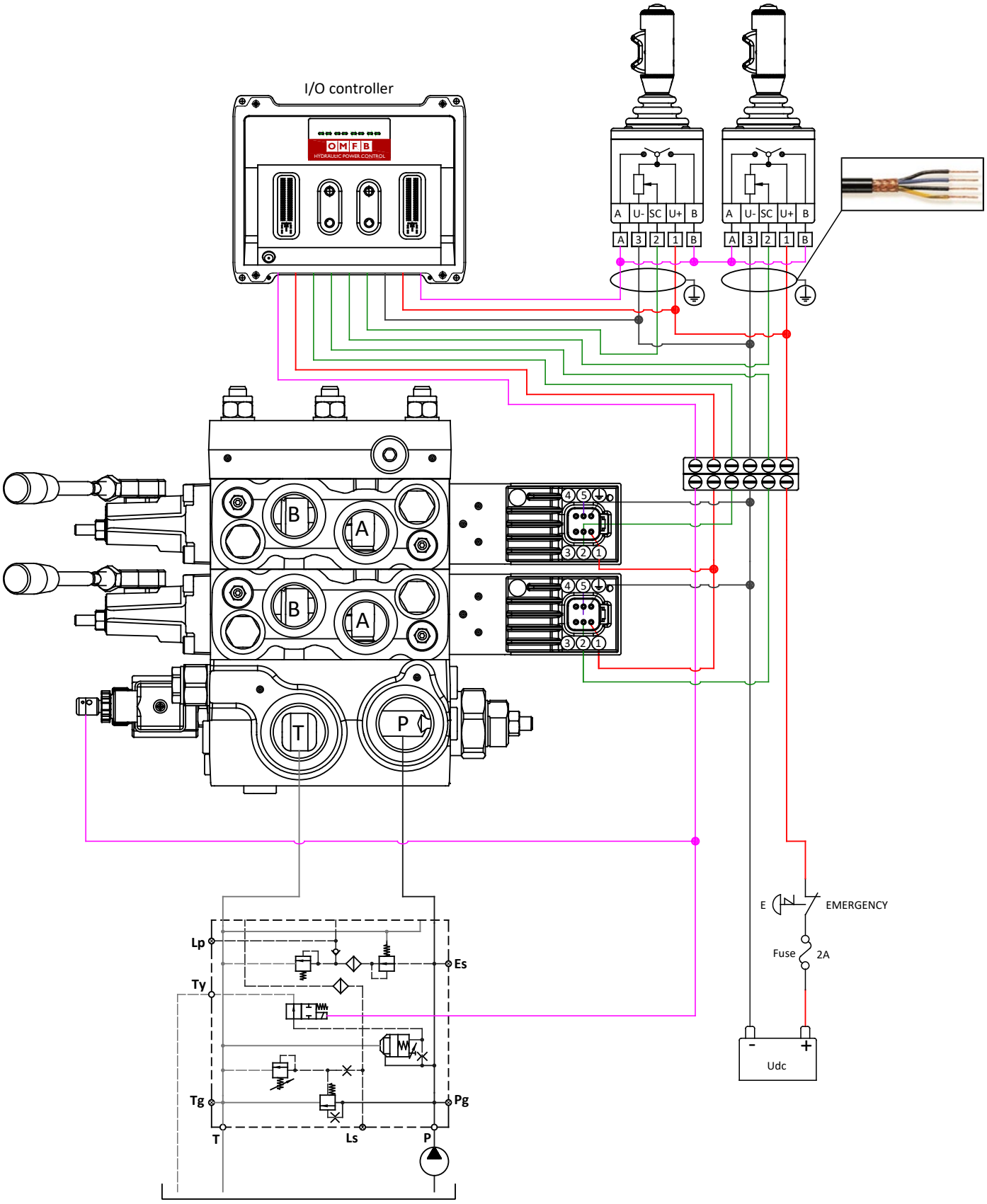
Connector version	Code numbers			
	Active version		Passive version	
	Cast-iron body	Aluminium body	Cast-iron body	Aluminium body
Deutsch AT04-6P	**PEAC0046000**	**PEAC1046000**	**PEAC0036000**	**PEAC1036000**
DIN 43650	**PEAC0046200**	**PEAC1046200**	**PEAC0036200**	**PEAC1036200**

PDV114 - PEAC026 Electro-hydraulic proportional actuation.
Input signal control 4-20 mA
Electrical wiring

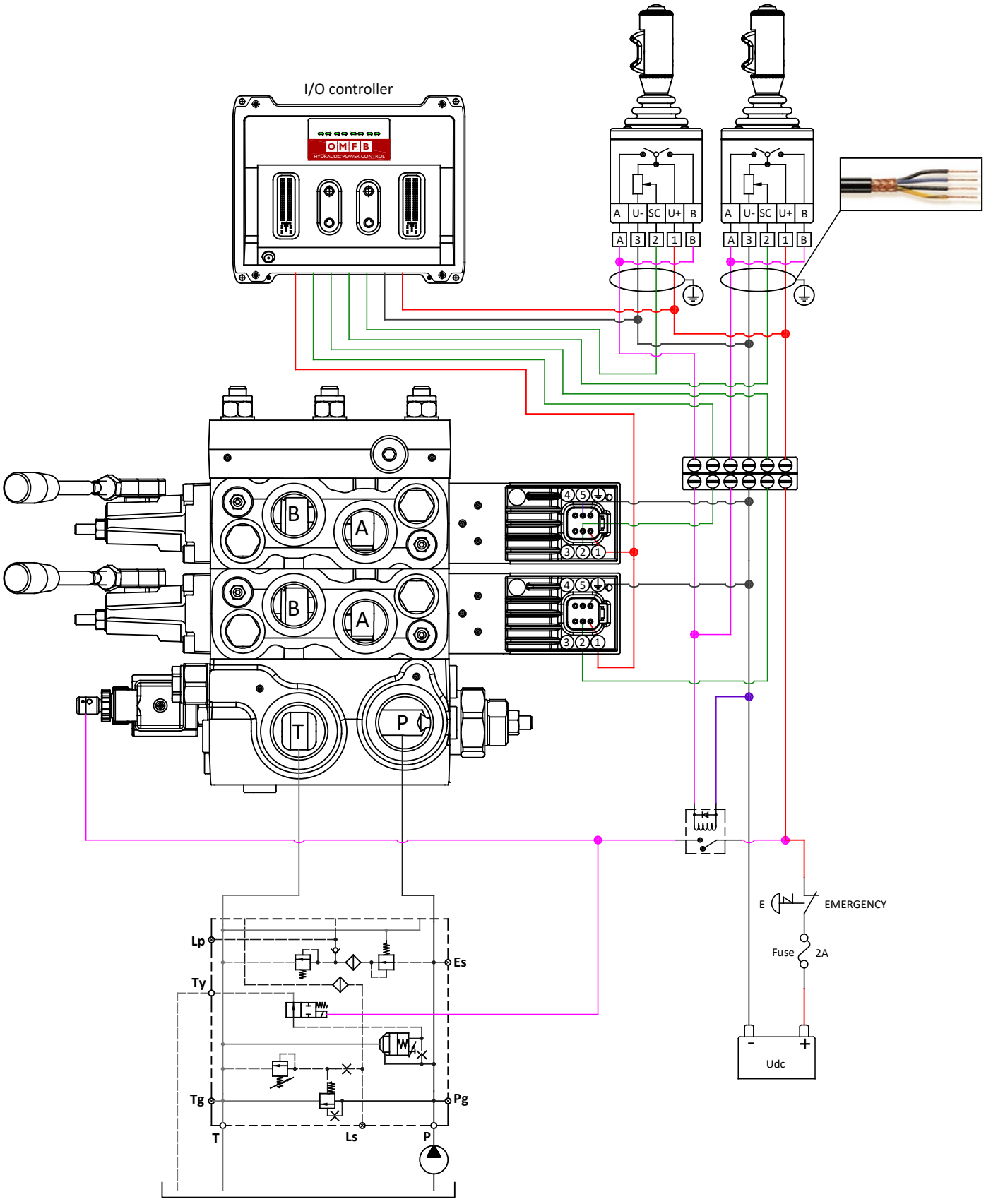



Main power supply
Battery
Emergency stop or
Man present Switch
INPUT
HMI / Joystick
System
sensors
MAIN CONTROLLER
Power Supply
System Logic
IN
LOGIC
OUT
Feedback
Fault
detection
MAIN CONTROL VALVE
Power Supply
Electronic
circuit logic
Fault monitoring
PVE fault output
Hydraulic venting

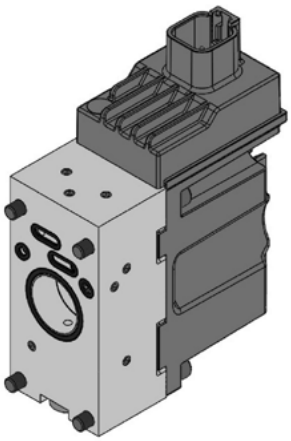
PDV114 - PEAC026 Electro-hydraulic proportional actuation.
Electrical wiring with OMFB I/O controller
Current input signal 4 ÷ 20 mA



PPDV114 - PEAC026 Electro-hydraulic proportional actuation.
Electrical wiring with OMFB I/O controller
Current input signal 4 ÷ 20 mA



PDV114 - PEAD2 Electro-hydraulic proportional actuation
Open loop spool control - Current input signal for PWM or supply voltage for ON/OFF control

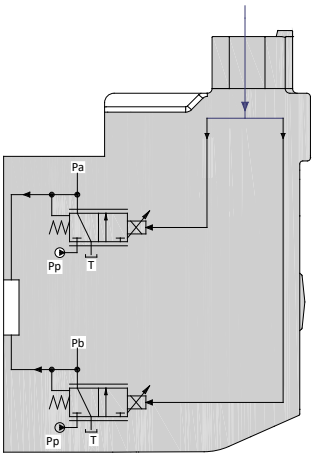


PEAD2 is a proportional open loop spool actuation without integrated electronics that operates the main spool movement according to an electrical signal coming from a remote control.

The input signal by means of the two proportional pressure reducing valves, determines the level of the pilot pressure which moves the main spool.

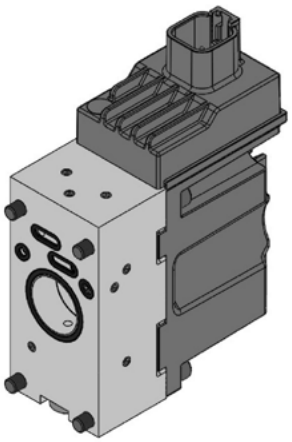
PEAD2 does not have neither the transducer spool position control nor fault monitoring system, this means that any forces which override the pilot pressure spool forces, may chenge the spool position with no error signal, and the safety of the whole system is left to the operator's visual control, only.

PEAD2 is recommended where a simple proportional control is required, and where hysteresis and reaction time are not so critical.



OMFB HYDRAULIC POWER CONTROL

PDV114 - PEAD2 Electro-hydraulic proportional actuation
Open loop spool control - Current input signal for PWM or supply voltage for ON/OFF control

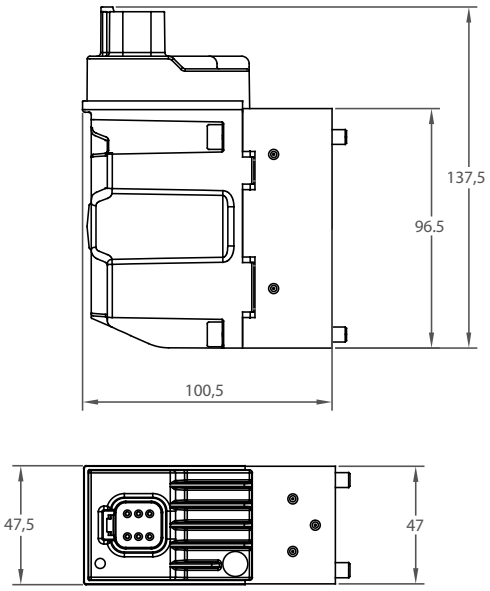


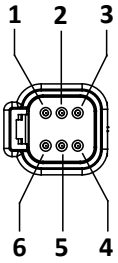
PEAD2 is defined by:

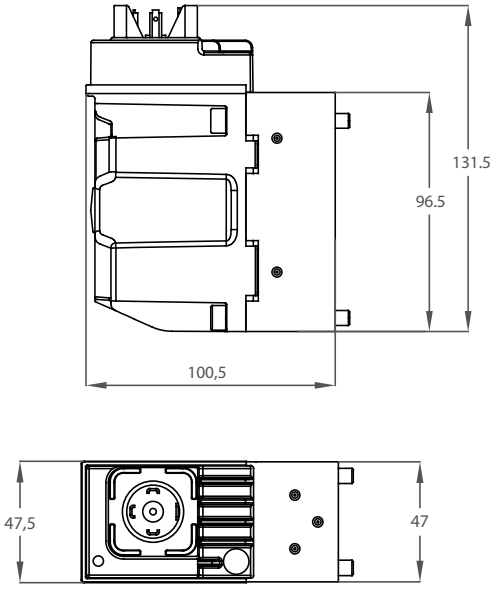
- High spool control accuracy
- EMC performace according to Directive 2014/30/UE
- Quick reaction time
- Integrated PWM/Pulse Width Modulation
- Low electrical power
- Robust and reliable design

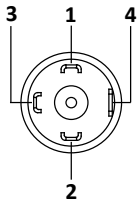
PEAD2 Technical data			
Supply voltage		12 Vdc	24 Vdc
Voltage range		10-16 V	20-30 V
Max ripple		5%	5%
Current consuption at rated voltage		750 mA @ 12 Vdc	400 mA @ 24 Vdc
Power consumption		9 W	9,6 W
R @ 20°C		8,9 Ω	35 Ω
Start spool travel		220 mA	140 mA
End spool travel flow control		650 mA	350 mA
Max spool flow in pre-floating position		650 mA	350 mA
Spool floating position		750 mA	400 mA
Heat insulation		Class H (180°C)	
Oil temperature	(Recommended)	20 ÷ 60 °C	
Oil temperature	(Min)	-30 °C	
Oil temperature	(Max)	80 °C	
Ambient temperature		-30 ÷ 60 °C	
PWM frequency		50 ÷ 200 Hz	
Best frequency		100 Hz	
Duty cycle		100% ED	
Plug connector		6 pins Deutsch or 4 pins DIN	
Enclouser degree	(Electrical wiring excepted)	IP69K	
Weight cast iron body		1, 8 kg	
Weight Aluminium body		1,3 kg	
Max current output signal for spool direction moviment		50 mA	
Reaction time (constant voltage)	From neutral position to max spool travel	110 - 140 ms	
	From max spool travel to neutral	70 - 90 ms	
Reaction time (neutral switch)	From neutral position to max spool travel	130 - 170 ms	
	From max spool travel to neutral	70 - 90 ms	

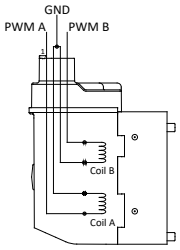
PDV114 - PEAD2 Electro-hydraulic proportional actuation
Open loop spool control - Current input signal for PWM or supply voltage for ON/OFF control - Electrical connectors



Deutsch connector AT04-6P Enclousure degree IP 69K PIN-assignment		
	**1**	**A** port +
	2	Free
	3	**A** port -
	4	**B** port +
	5	Free
	6	**B** port -

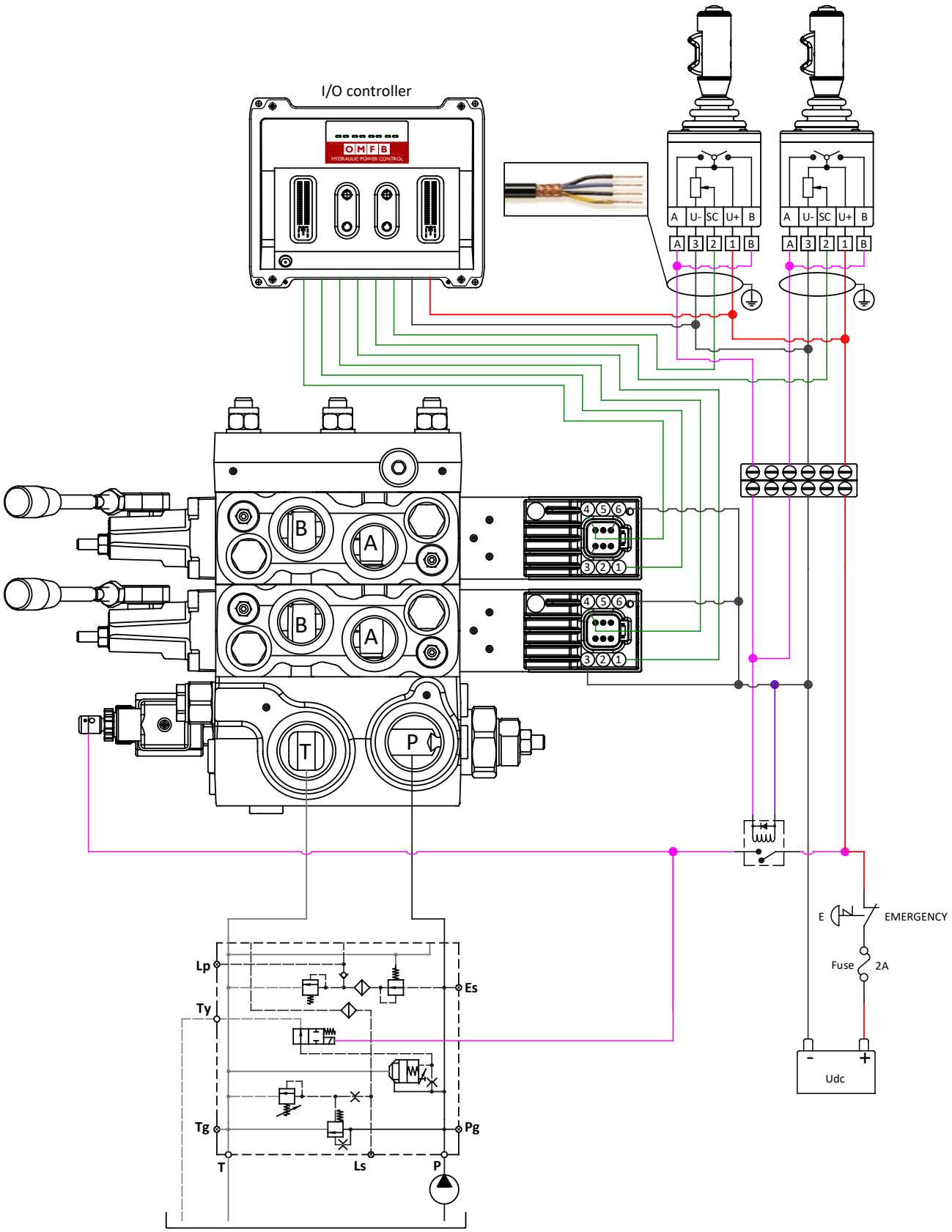


Hirschmann connector DIN 43650 Enclousure degree IP 65 PIN-assignment		
	**1**	**A** port +
	2	**B** port +
	3	Free
	4	Ground

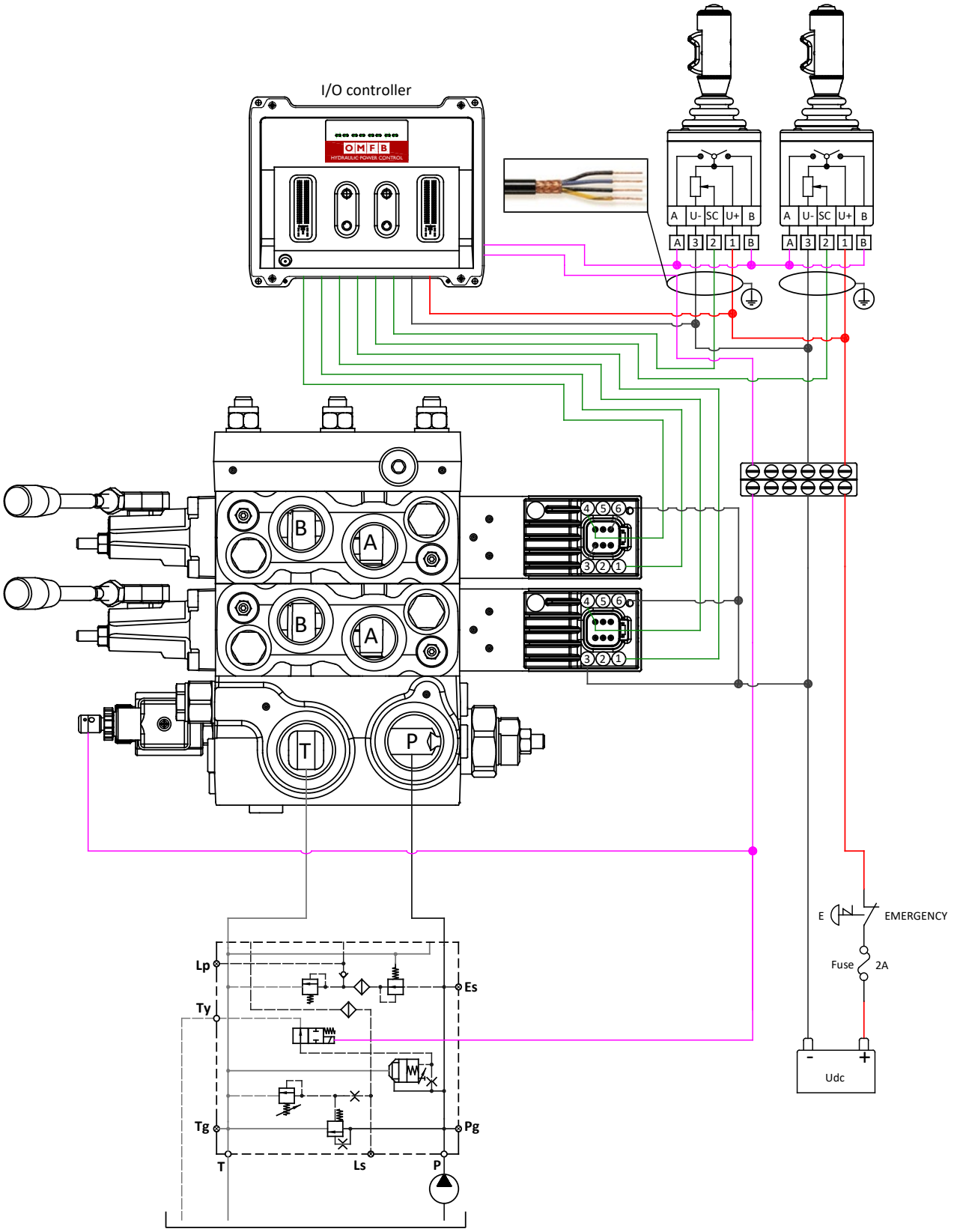


Connector version	Code numbers			
	12 V		24 V	
	Cast-iron body	Aluminium body	Cast-iron body	Aluminium body
Deutsch AT04-6P	**PEAD0100001**	**PEAD1100001**	**PEAD0200001**	**PEAD1200001**
DIN 43650	**PEAD0120001**	**PEAD1120001**	**PEAD0220001**	**PEAD1220001**

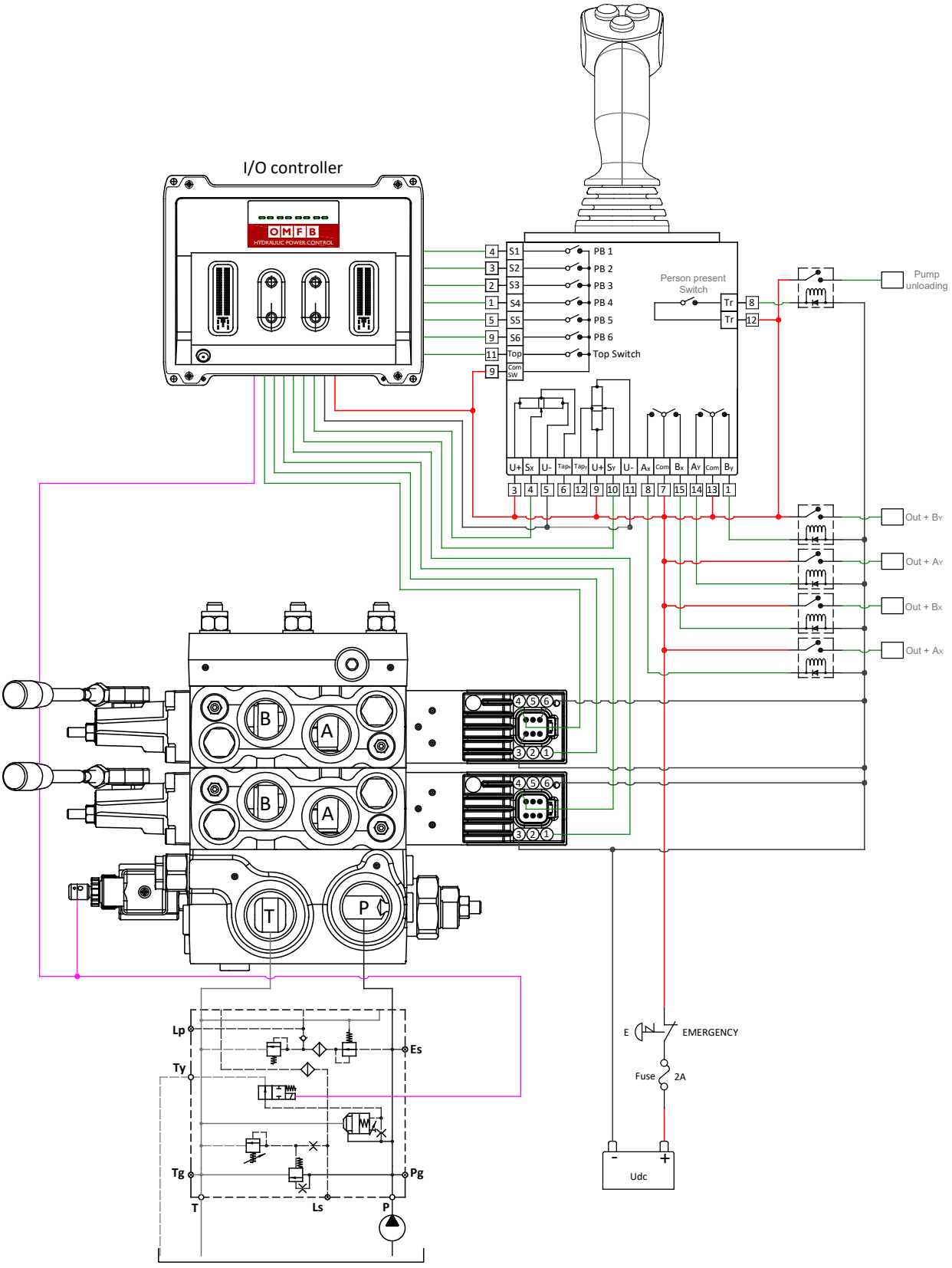
PDV114 - PEAD2 Electro-hydraulic proportional actuation.
Electrical wiring with OMFB I/O controller - Current input signal for PWM or supply voltage for ON/OFF control



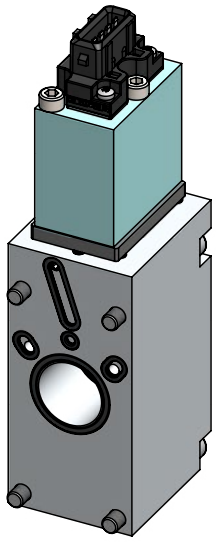
PDV114 - PEAD2 Electro-hydraulic proportional actuation.
Electrical wiring with OMFB I/O controller - Current input signal for PWM or supply voltage for ON/OFF control



PDV114 - PEAD2 Electro-hydraulic proportional actuation.
Electrical wiring with OMFB I/O controller - Current input signal for PWM or supply voltage for ON/OFF control



PDV114 - PEAP2 Electro-hydraulic proportional actuation
Open loop spool control - Current input signal for PWM or supply voltage for ON/OFF control

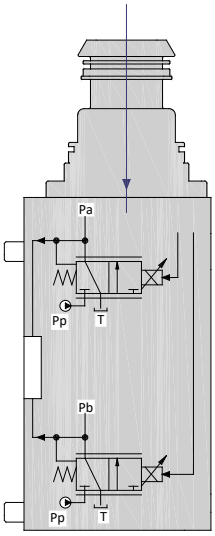


PEAP2 is a proportional open loop spool actuation without integrated electronics that operates the main spool movement according to an electrical signal coming from a remote control.

The input signal by means of the two proportional pressure reducing valves, determines the level of the pilot pressure which moves the main spool.

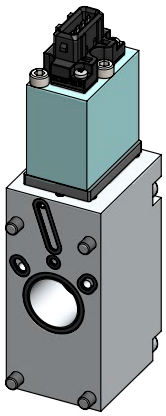
PEAP2 does not have neither the transducer spool position control nor fault monitoring system, this means that any forces which override the pilot pressure spool forces, may chenge the spool position with no error signal, and the safety of the whole system is left to the operator's visual control, only.

PEAP2 is recommended where a simple proportional control is required, and where hysteresis and reaction time are not so critical.



OMFB HYDRAULIC POWER CONTROL

PDV114 - PEAP2 Electro-hydraulic proportional actuation
Open loop spool control - Current input signal for PWM or supply voltage for ON/OFF control

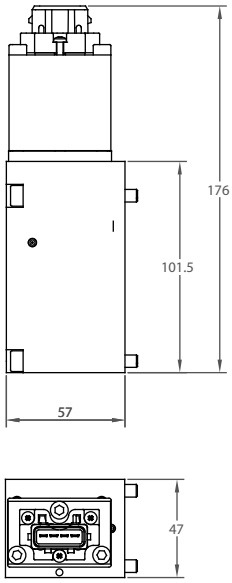


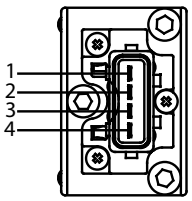
PEAP2 is defined by:

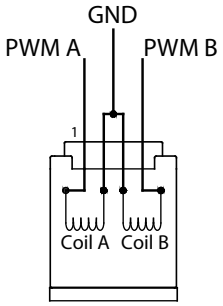
- High spool control accuracy
- EMC performace according to Directive 2014/30/UE
- Quick reaction time
- Integrated PWM/Pulse Width Modulation
- Low electrical power
- Robust and reliable design

PEAP2 Technical data			
Supply voltage		12 Vdc	24 Vdc
Voltage range		10-16 V	20-30 V
Max ripple		5%	5%
Current consuption at rated voltage		1330 mA @ 12 Vdc	630 mA @ 24 Vdc
Power consumption		23 W	21 W
R @ 20°C		6,3 Ω	27 Ω
Start spool travel		220 mA	140 mA
End spool travel flow control		650 mA	350 mA
Max spool flow in pre-floating position		650 mA	350 mA
Spool floating position		750 mA	400 mA
Heat insulation		Class H (180°C)	
Oil temperature	(Recommended)	-20 ÷ 60 °C	
Oil temperature	(Min)	-30 °C	
Oil temperature	(Max)	80 °C	
Ambient temperature		-30 ÷ 60 °C	
PWM frequency		50 ÷ 200 Hz	
Best frequency		100 Hz	
Duty cycle		100% ED	
Plug connector		Amp Junior Power Timer 4 pins	
Enclouser degree	(Electrical wiring excepted)	IP69K	
Max current output signal for spool direction moviment		50 mA	
Reaction time (constant voltage)	From neutral position to max spool travel	110 - 140 ms	
	From max spool travel to neutral	70 - 90 ms	
Reaction time (neutral switch)	From neutral position to max spool travel	130 - 170 ms	
	From max spool travel to neutral	70 - 90 ms	

PDV114 - PEAP2 Electro-hydraulic proportional actuation
Input signal control PWM - Current input signal for PWM or supply voltage for ON/OFF control - Electrical connector

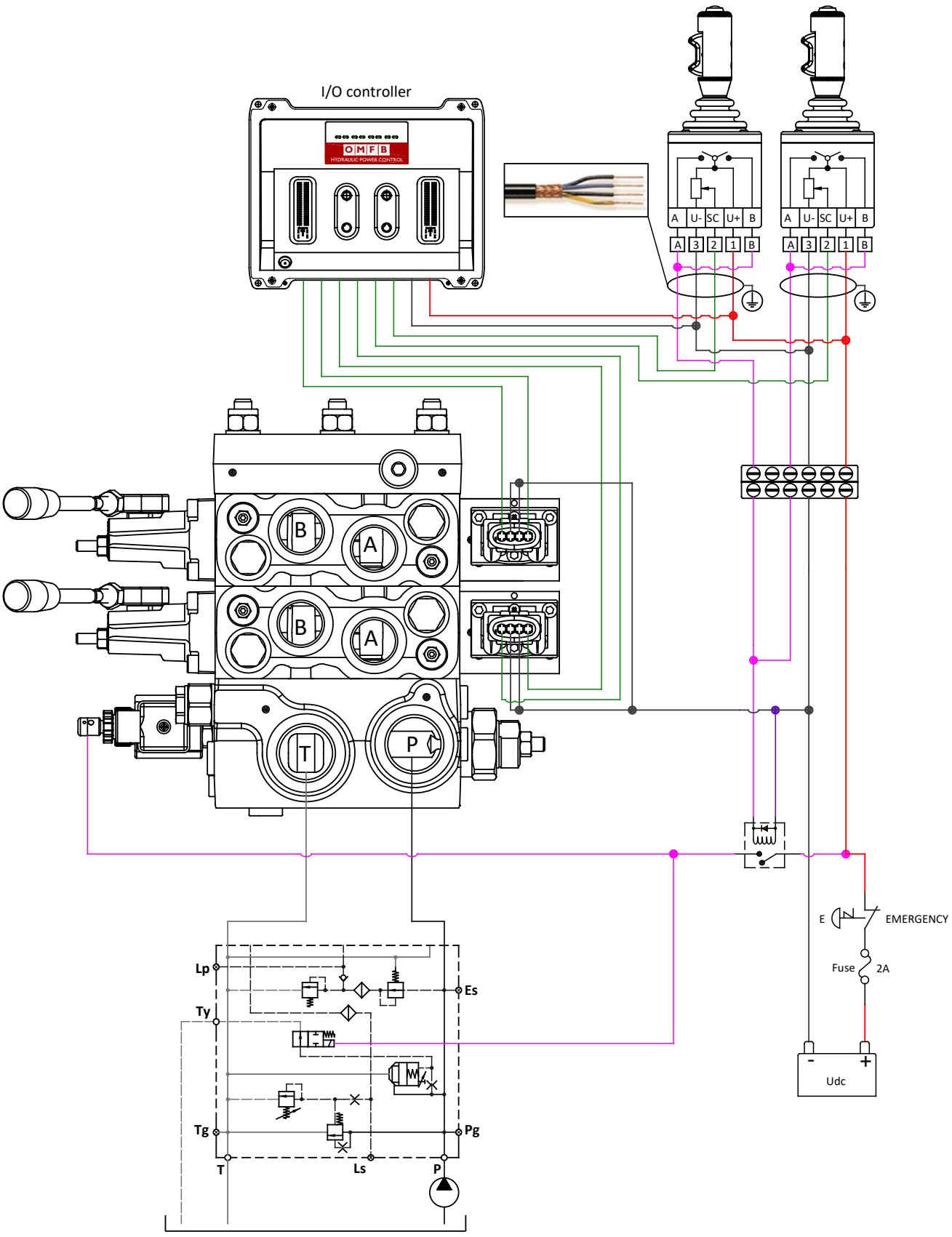


Amp Junior Power Timer 4 pin connector Enclousure degree IP 65 PIN-assignment		
	**1**	**A** port +
	2	**A** port -
	3	**B** port -
	4	**B** port +

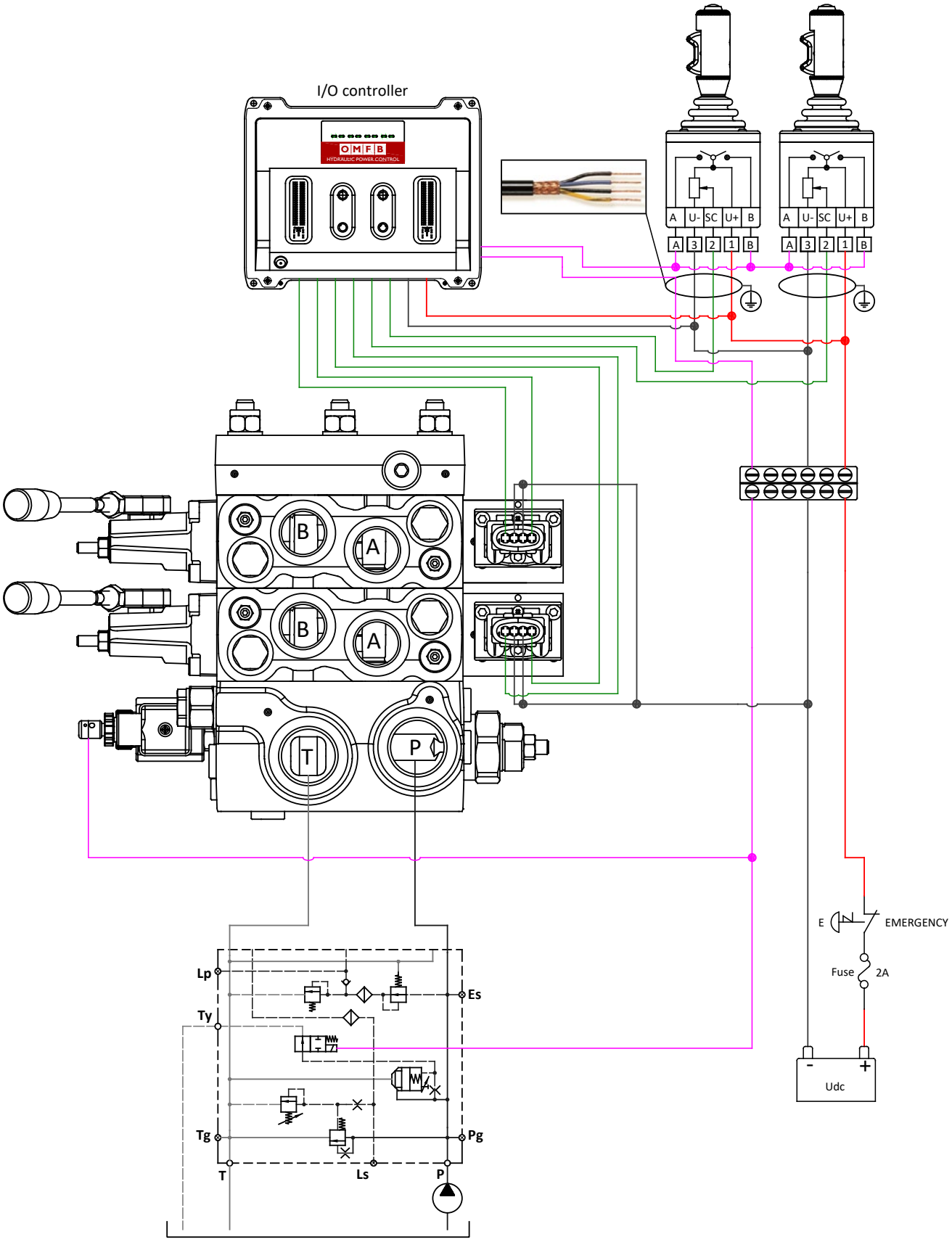


Connector version	Code numbers			
	12 V		24 V	
	Cast-iron body	Aluminium body	Cast-iron body	Aluminium body
AMP Junior timer 4 Pin	**PEAP0110001**	**PEAP1110001**	**PEAP0210001**	**PEAP1210001**

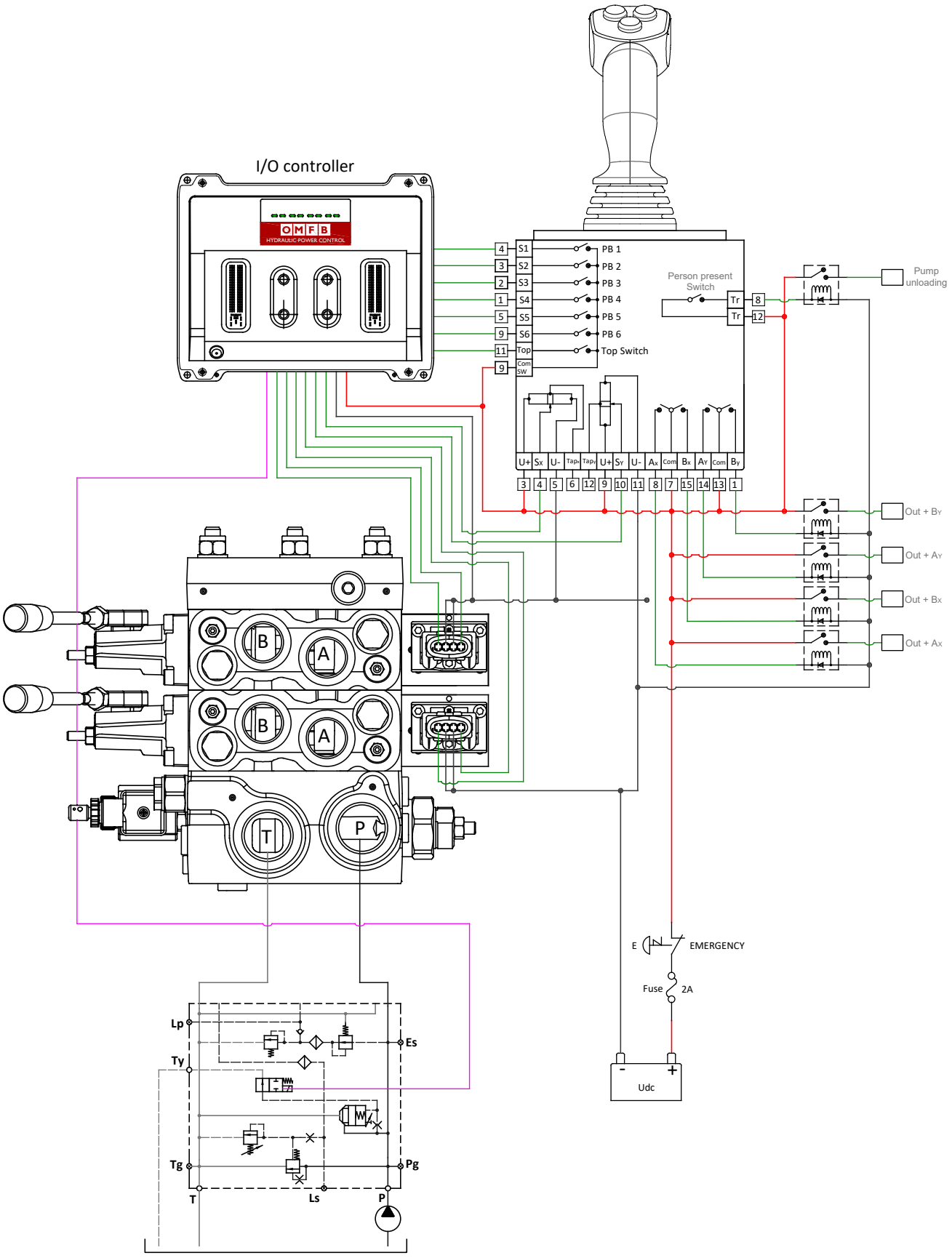
PDV114 - PEAP2 Electro-hydraulic proportional actuation
Electrical wiring with OMFB I/O controller - Current input signal for PWM or supply voltage for ON/OFF control



PDV114 - PEAP2 Electro-hydraulic proportional actuation
Electrical wiring with OMFB I/O controller - Current input signal for PWM or supply voltage for ON/OFF control

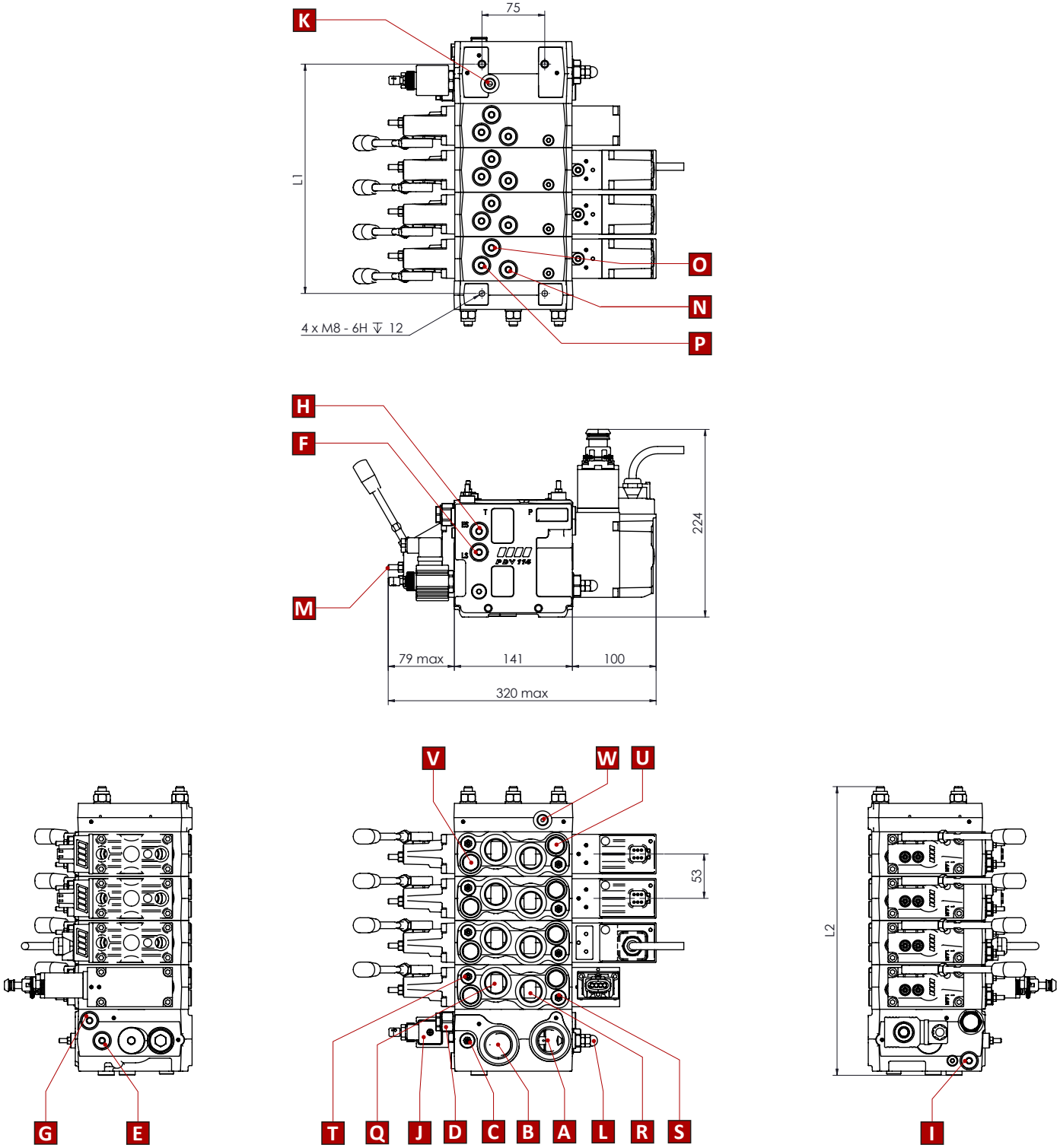


PDV114 - PEAP2 Electro-hydraulic proportional actuation
Electrical wiring with OMFB I/O controller - Current input signal for PWM or supply voltage for ON/OFF control



OMFB
HYDRAULIC POWER CONTROL

PDV114 Proportional valve
Overall dimensions drawing with standard inlet section
Right assembly version

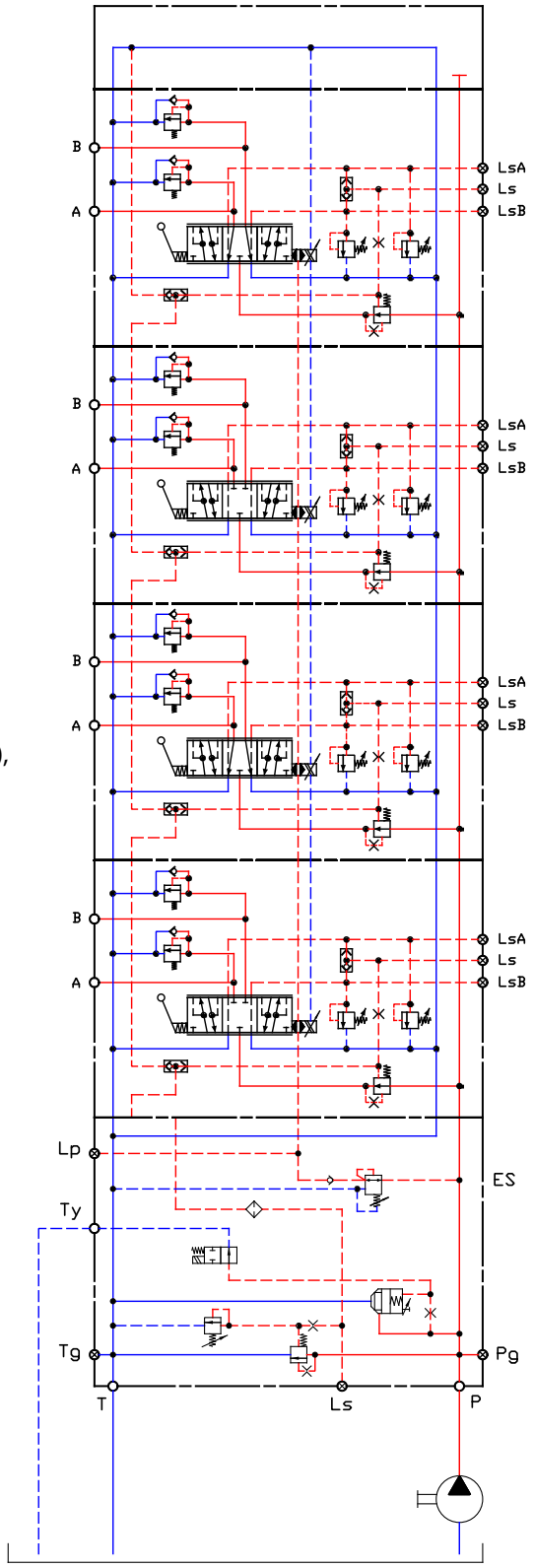


PDW		1	2	3	4	5	6	7	8	9	10	11	12
L1	mm	180	228	276	324	372	420	468	516	564	612	660	708
	in	7,09	8,98	10,87	12,76	14,65	16,54	18,43	20,31	22,20	24,09	25,98	27,87
L2	mm	200	248	296	344	392	440	488	536	584	632	680	728
	in	7,87	9,76	11,65	13,54	15,43	17,32	19,21	21,10	22,99	24,88	26,77	28,66

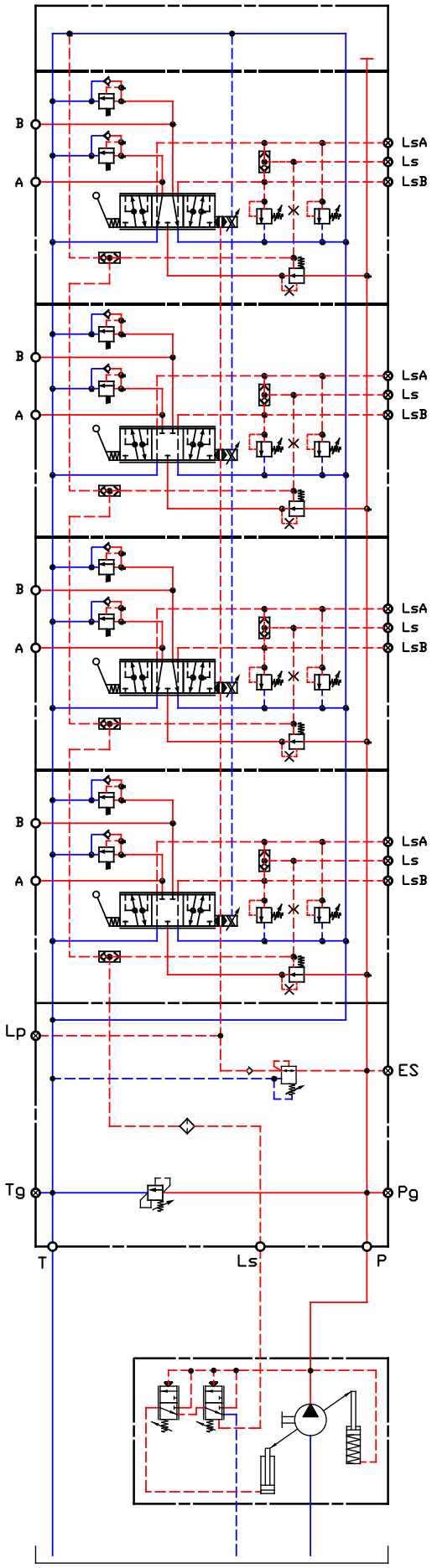
PDV114 Proportional valve
Overall dimensions drawing with standard inlet section
Right assembly version

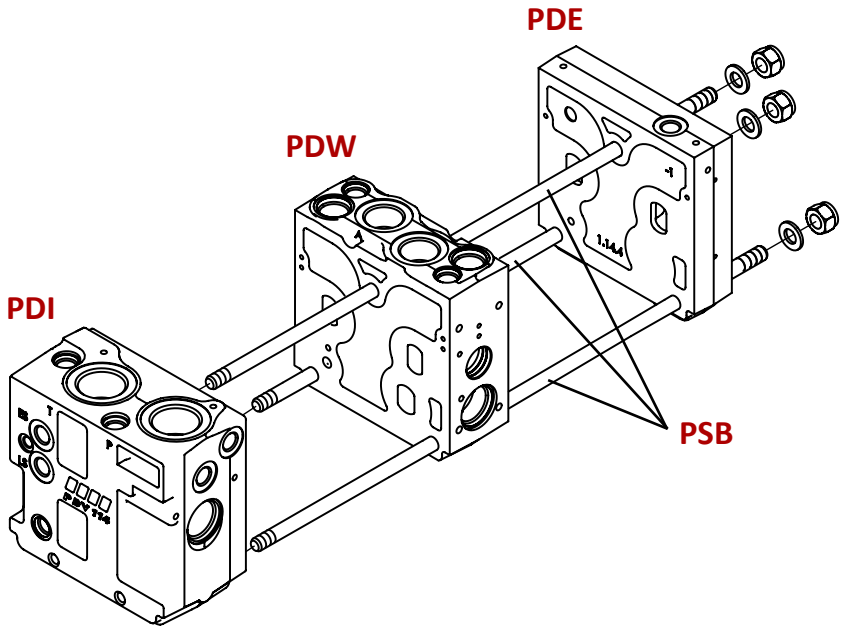
A = Pump side port - 3/4" BSPP - 17 mm deep [1 1⁄16 in 12 UN-2B - 0,67 in deep]
B = T port - 3/4" BSPP - 17 mm deep [1 1⁄16 in 12 UN - 2B - 0,67 in deep]
C = Main pressure relief valve
D = Main pressure reducing valve
E = Pump pressure gauge connection - 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
F = LS connection 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
G = External pilot pressure supply connection 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
H = External feeding main pressure reducing valve 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
I = Tank pressure gauge connection 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
J = Electrical LS/pump unloading function
K = Pump unloading drain port, 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF - 2B - 0,47 in deep]
L = Pump unloading mechanical override
M = A-B port mechanical flow adjustment
N = LSA
O = LSB
P = LS
} remote pilot pressure connection 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF - 2B - 0,47 in deep]
Q = Port A
R = Port B
} 1/2" BSPP - 17 mm deep [7⁄8 in-14 UNF-2B - 0,67 in deep]
S = Ls_B
T = Ls_A
} pilot pressure relief valve
U = Shock/suction valve B port
V = Shock/suction valve A port
W = External drain connection electric actuations - 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]

PDV114 with open centre inlet section (fixed displacement pump), pump unloading system, pilot oil supply for electro-hydraulic spool actuations



PDV114 with closed centre inlet section (variable displacement pump), pilot oil supply for electro-hydraulic spool actuations

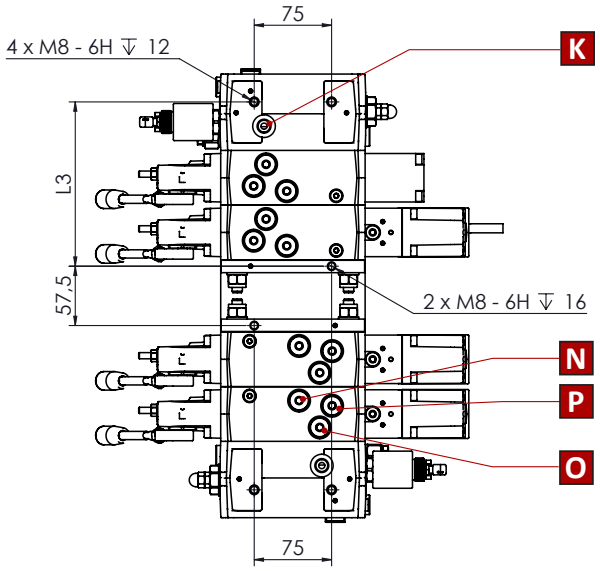


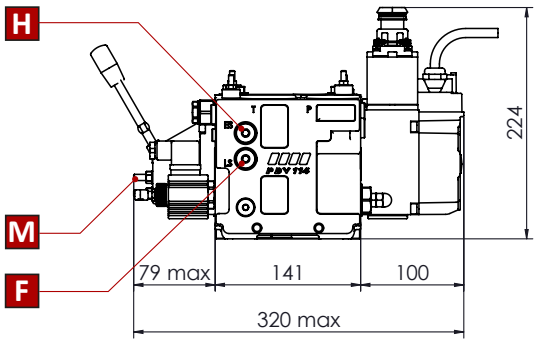


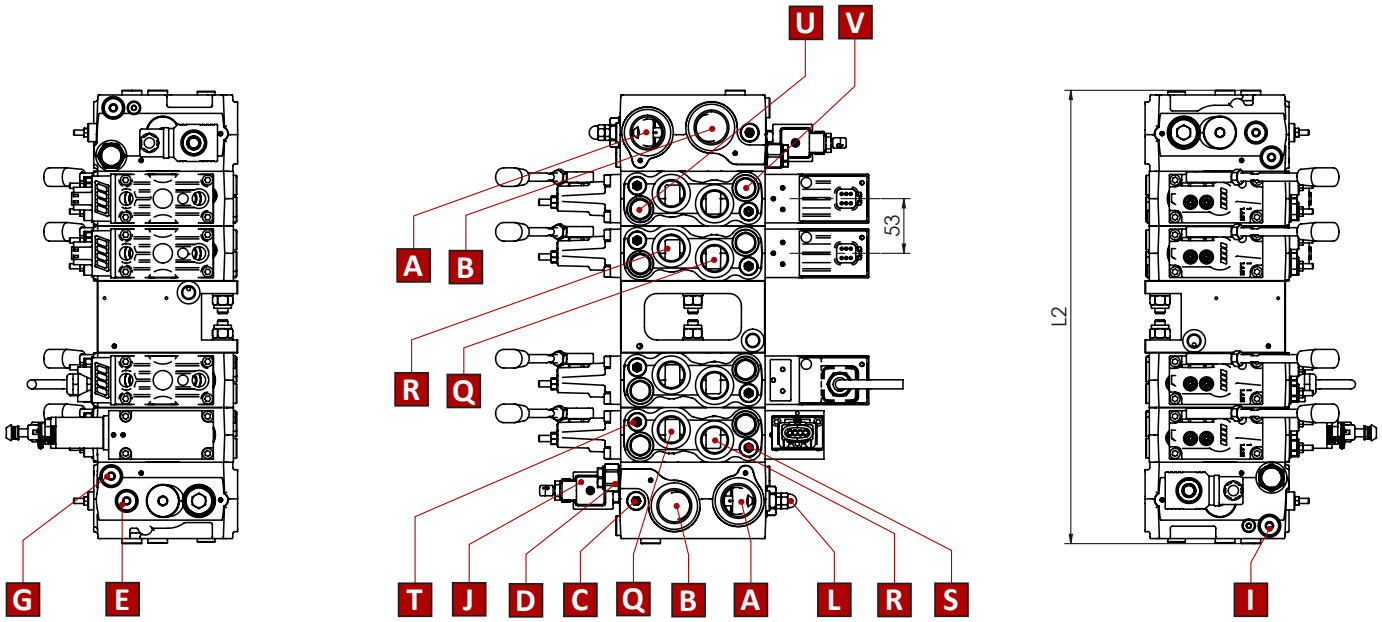
PDW	Code numbers	Tightening torque
1	**PSB10010000**	**25 ± 2 Nm** **220 ± 18 lb*in**
2	**PSB10020000**	
3	**PSB10030000**	
4	**PSB10040000**	
5	**PSB10050000**	
6	**PSB10060000**	
7	**PSB10070000**	
8	**PSB10080000**	
9	**PSB10090000**	
10	**PSB10100000**	

OMFB HYDRAULIC POWER CONTROL

PDV114 Proportional valve
Overall dimensions drawing with double inlet and MID end section





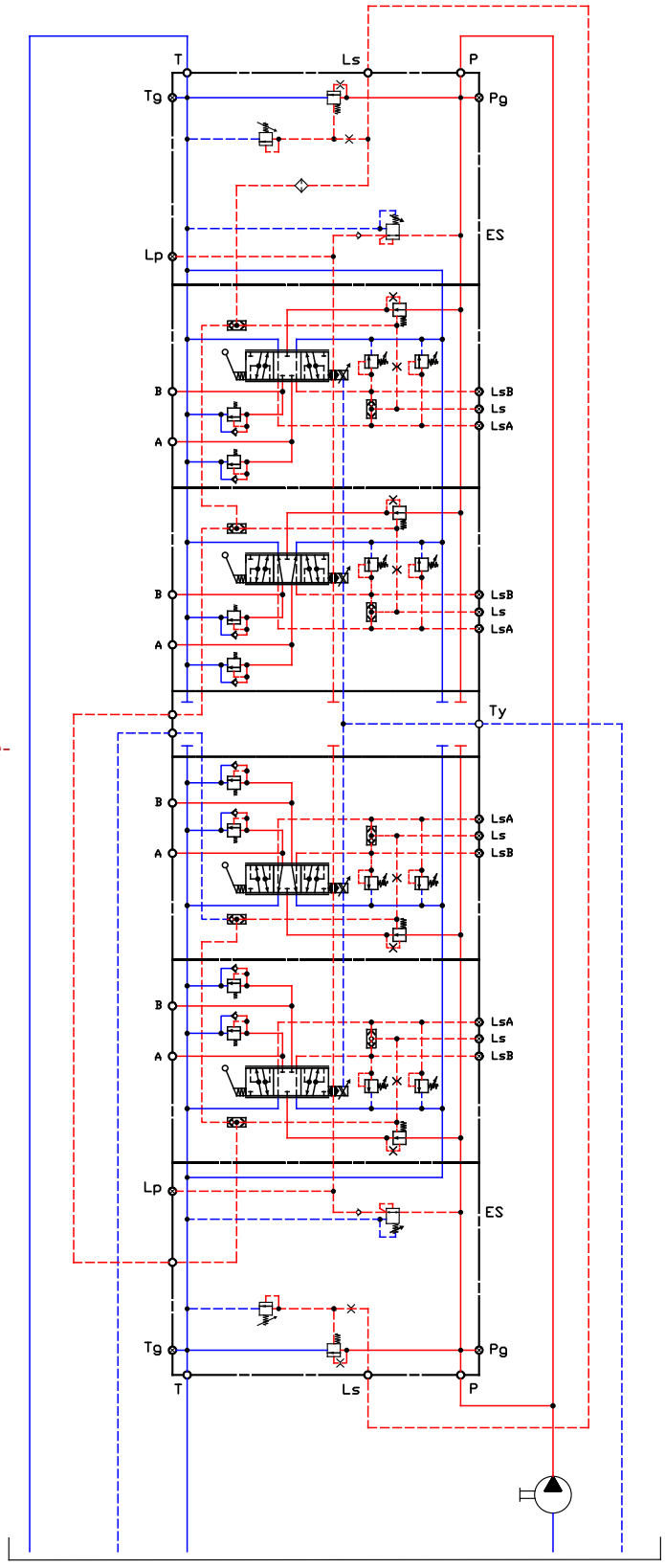


PDW		2	3	4	5	6	7	8	9	10	11	12
L1	mm	331	379	427	475	523	571	619	667	715	763	811
	in	13,03	14,92	16,81	18,70	20,59	22,48	24,37	26,26	28,15	30,04	31,93
L2	mm	351	399	447	495	543	591	639	687	735	783	831
	in	13,82	15,71	17,60	19,49	21,38	23,27	25,16	27,05	28,94	30,83	32,72

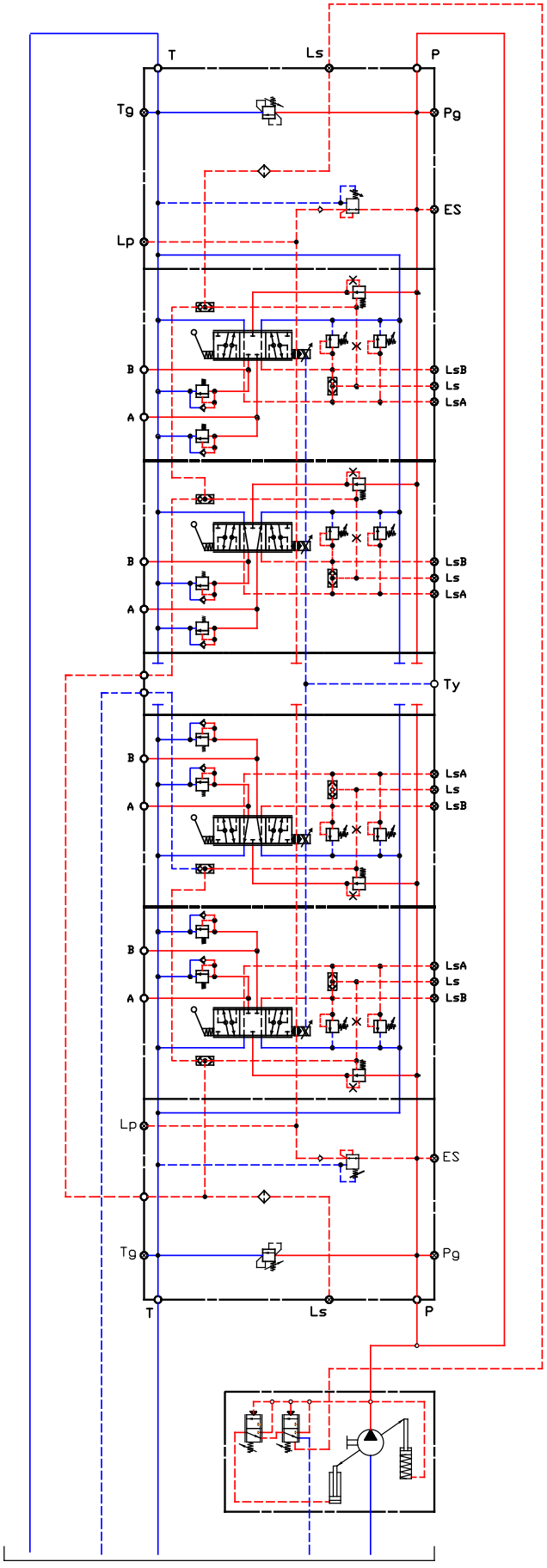
PDV114 Proportional valve
Overall dimensions drawing with double inlet and MID end section

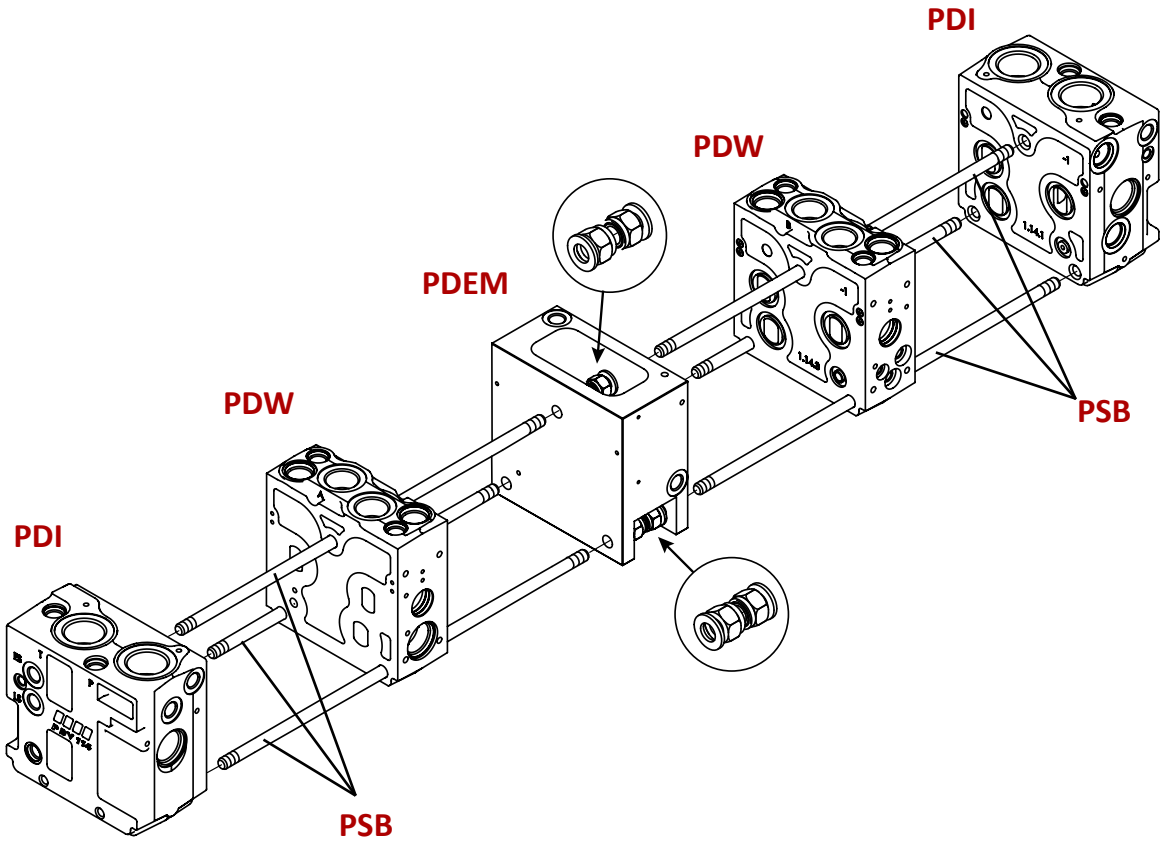
A = Pump side port - 3/4" BSPP - 17 mm deep [1 1⁄16 in 12 UN-2B - 0,67 in deep]
B = T port - 3/4" BSPP - 17 mm deep [1 1⁄16 in 12 UN - 2B - 0,67 in deep]
C = Main pressure relief valve
D = Main pressure reducing valve
E = Pump pressure gauge connection - 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
F = LS connection 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
G = External pilot pressure supply connection 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
H = External feeding main pressure reducing valve 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
I = Tank pressure gauge connection 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
J = Electrical LS/pump unloading function
K = Pump unloading drain port, 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF - 2B - 0,47 in deep]
L = Pump unloading mechanical override
M = A-B port mechanical flow adjustment
N = LSA
O = LSB } remote pilot pressure connection 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF - 2B - 0,47 in deep]
P = LS
Q = Port A
R = Port B } 1/2" BSPP - 17 mm deep [7⁄8 in-14 UNF-2B - 0,67 in deep]
S = Ls_B
T = Ls_A } pilot pressure relief valve
U = Shock/suction valve B port
V = Shock/suction valve A port
W = External drain connection electric actuations - 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]

PDV114 with double open centre inlet section (fixed displacement pump), pilot oil supply for electro-hydraulic spool actuations



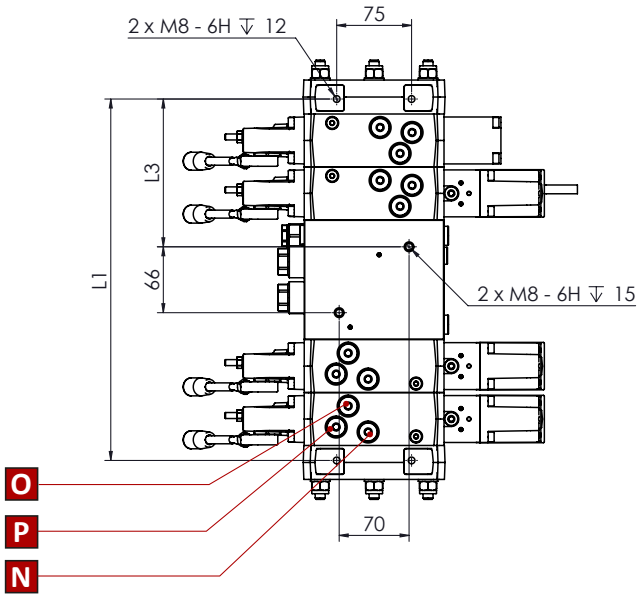
PDV114 Proportional valve
Hydraulic diagram

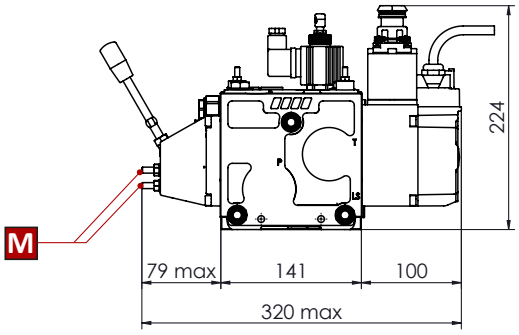


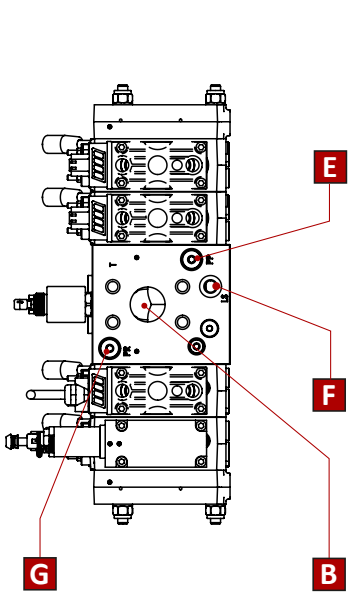


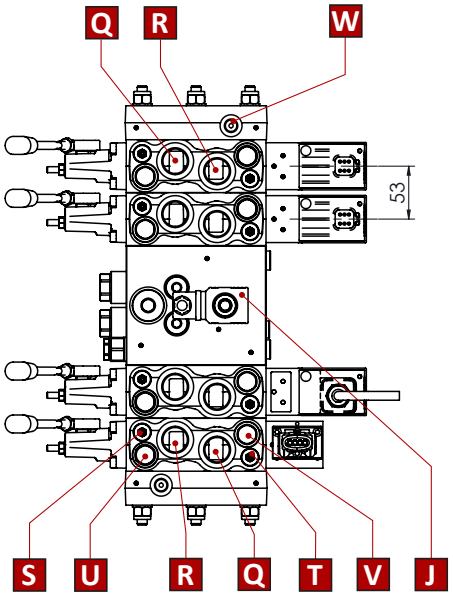
PDW	Code numbers	Tightening torque
1	**PSB12010000**	**25 ± 2 Nm** **220 ± 18 lb*in**
2	**PSB12020000**	
3	**PSB12030000**	
4	**PSB12040000**	
5	**PSB12050000**	
6	**PSB12060000**	

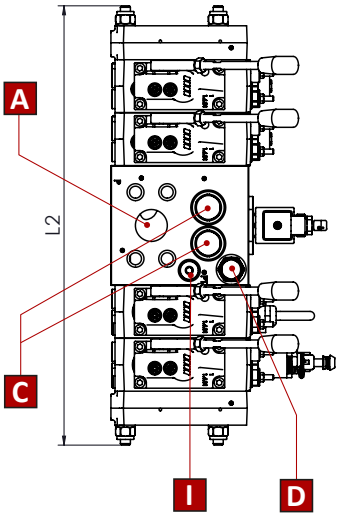
PDV114 Proportional valve
Overall dimensions drawing with closed centre MID inlet section







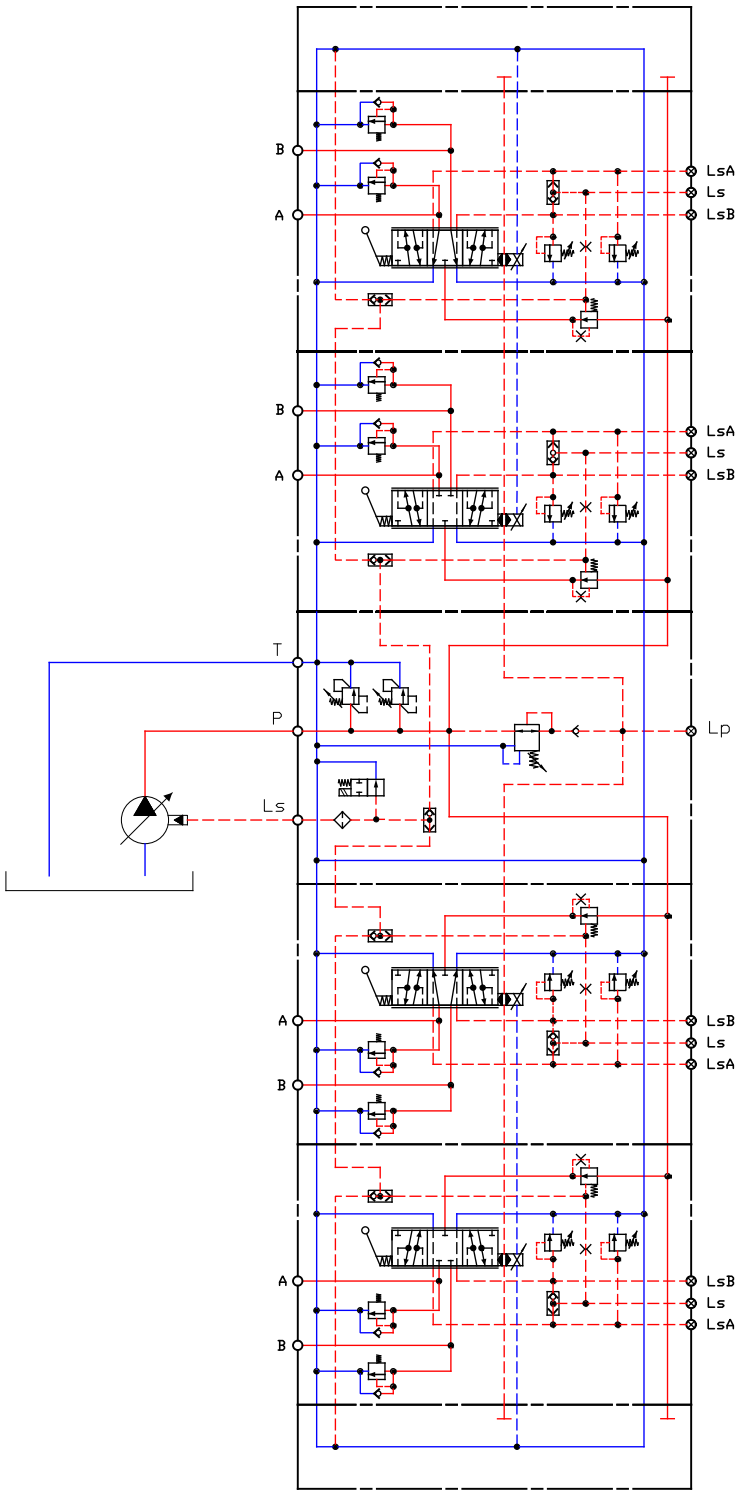


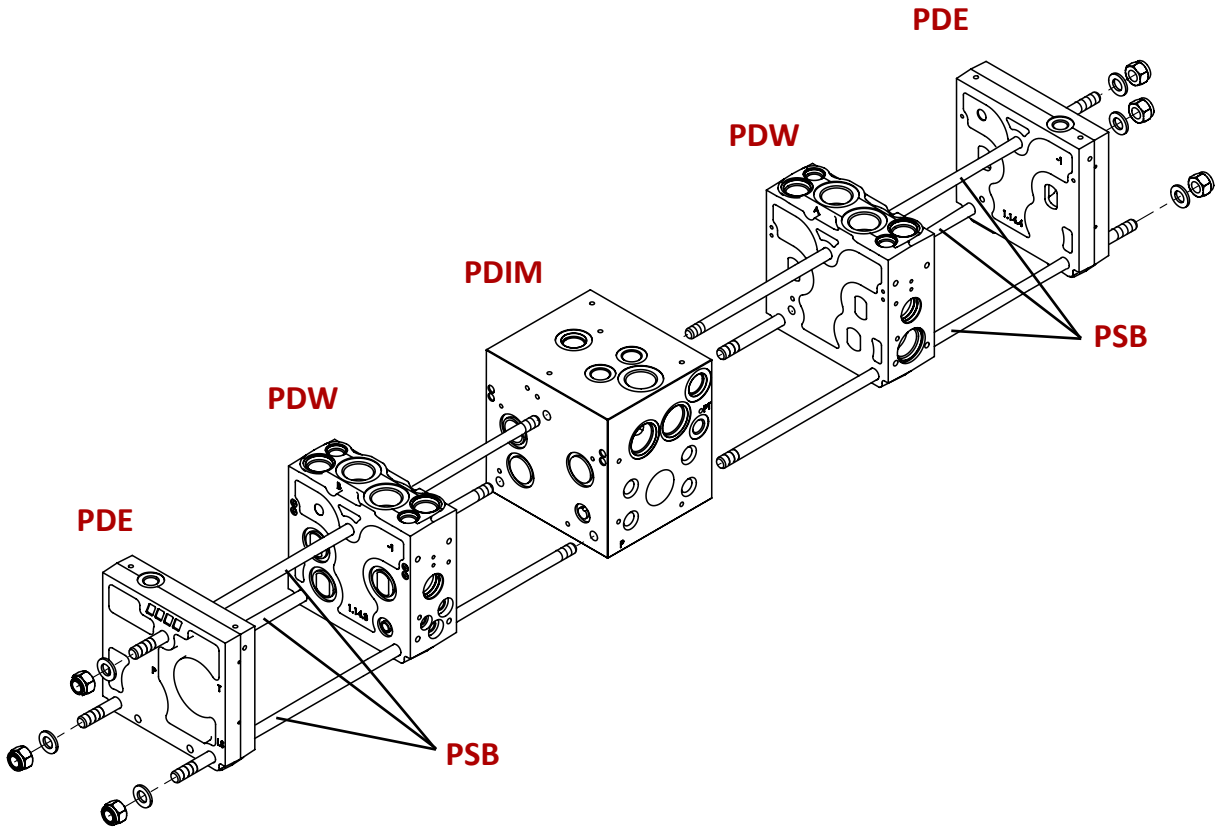


Overall dimensions drawing with closed centre MID inlet section

A = Pump side port - 3/4" BSPP - 17 mm deep [1 1⁄16 in 12 UN-2B - 0,67 in deep]
B = T port - 3/4" BSPP - 17 mm deep [1 1⁄16 in 12 UN - 2B - 0,67 in deep]
C = Main pressure relief valve
D = Main pressure reducing valve
E = Pump pressure gauge connection - 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
F = LS connection 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
G = External pilot pressure supply connection 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
I = Tank pressure gauge connection 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
J = Electrical LS/pump unloading function
M = Pump unloading drain port, 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF - 2B - 0,47 in deep]
N = LSA
O = LSB } remote pilot pressure connection 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF - 2B - 0,47 in deep]
P = LS
Q = Port A
R = Port B } 1/2" BSPP - 17 mm deep [7⁄8 in-14 UNF-2B - 0,67 in deep]
S = Ls_B
T = Ls_A } pilot pressure relief valve
U = Shock/suction valve B port
V = Shock/suction valve A port
W = External drain connection electric actuations - 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]

PDV74 with MID-inlet closed centre section (variable displacement pump), pilot oil supply for electro-hydraulic spool actuations



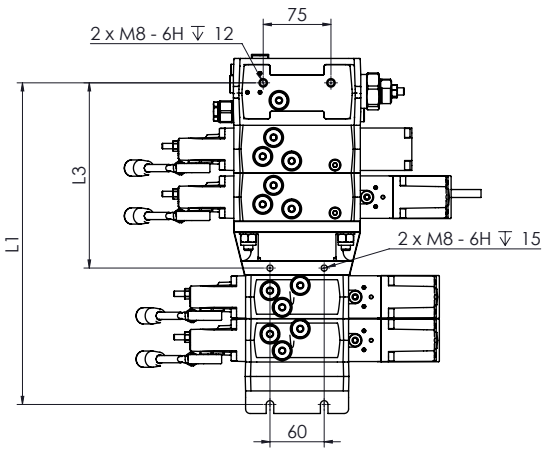


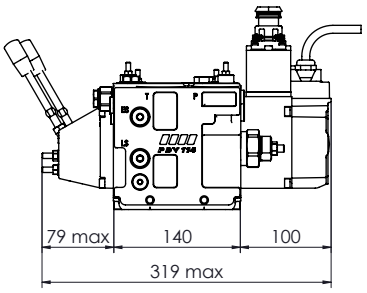
PDW	Code numbers	Tightening torque
1	**PSB11010000**	**25 ± 2 Nm** **220 ± 18 lb*in**
2	**PSB11020000**	
3	**PSB11030000**	
4	**PSB11040000**	
5	**PSB11050000**	
6	**PSB11060000**	

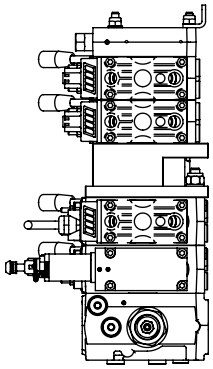
OMFB HYDRAULIC POWER CONTROL

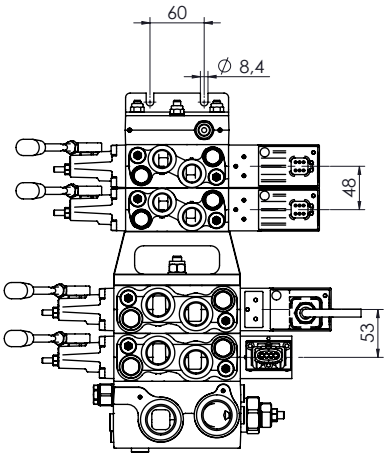
PDV117 Proportional valve

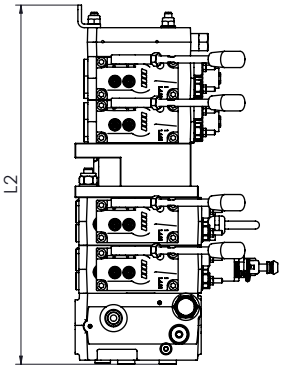
Overall dimensions drawing with standard inlet section
Right assembly version









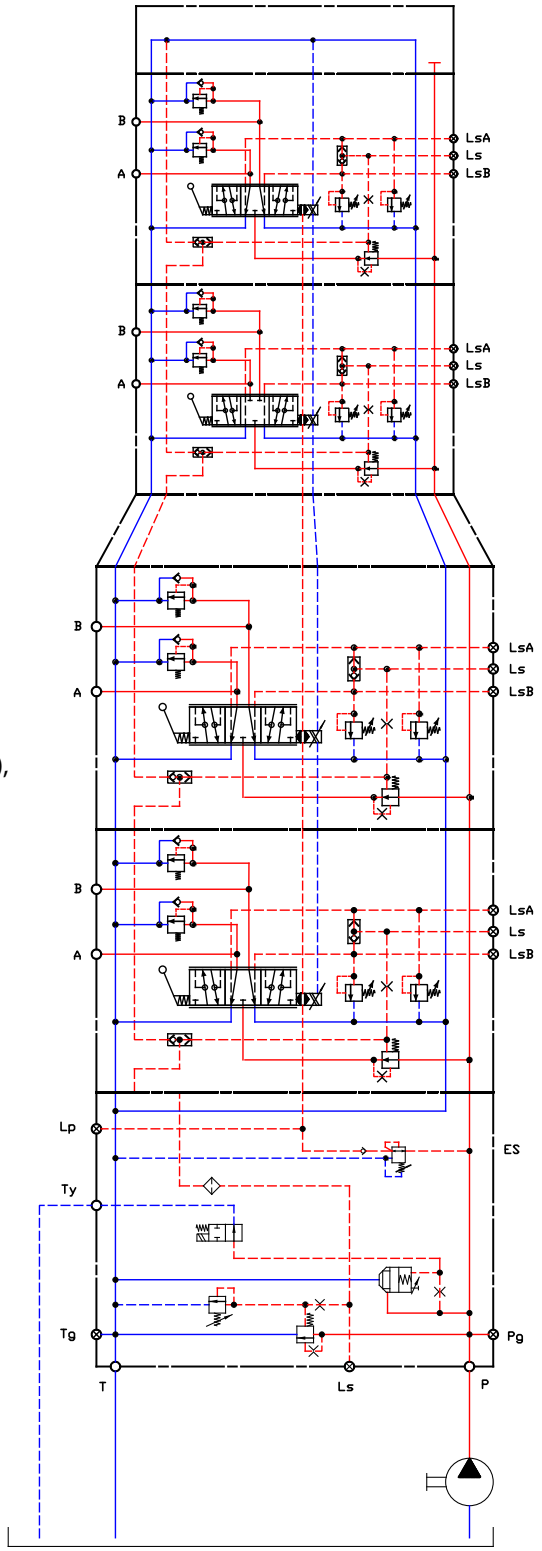


PDW		1	2	3	4	5	6	7	8	9	10	11	12
L1	mm	180	228	276	324	372	420	468	516	564	612	660	708
	in	7,09	8,98	10,87	12,76	14,65	16,54	18,43	20,31	22,20	24,09	25,98	27,87
L2	mm	200	248	296	344	392	440	488	536	584	632	680	728
	in	7,87	9,76	11,65	13,54	15,43	17,32	19,21	21,10	22,99	24,88	26,77	28,66

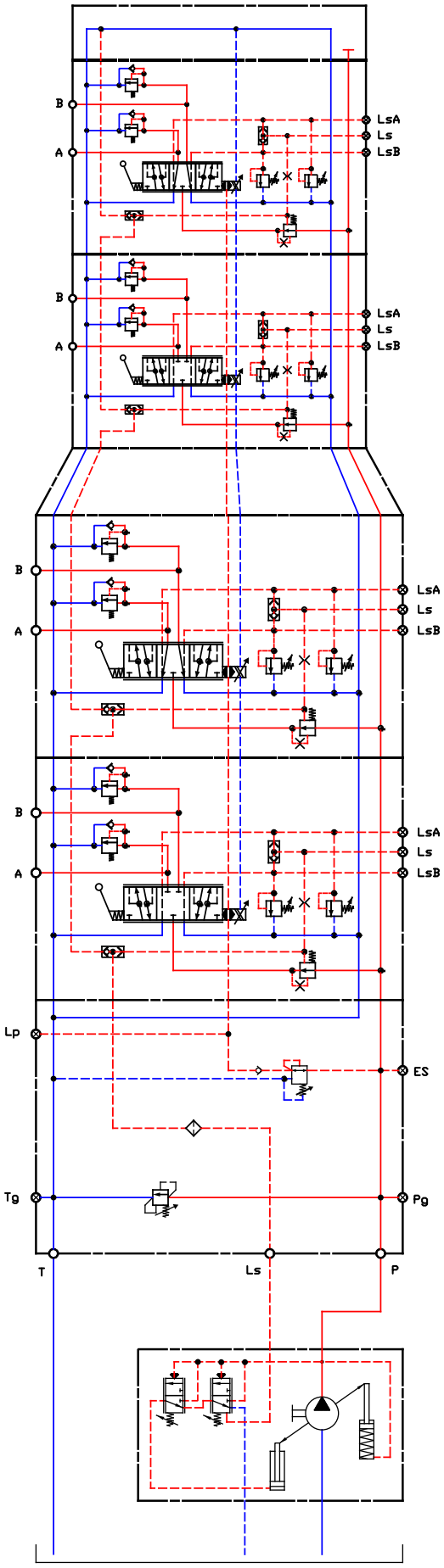
PDV117 Proportional valve
Overall dimensions drawing with standard inlet section
Right assembly version

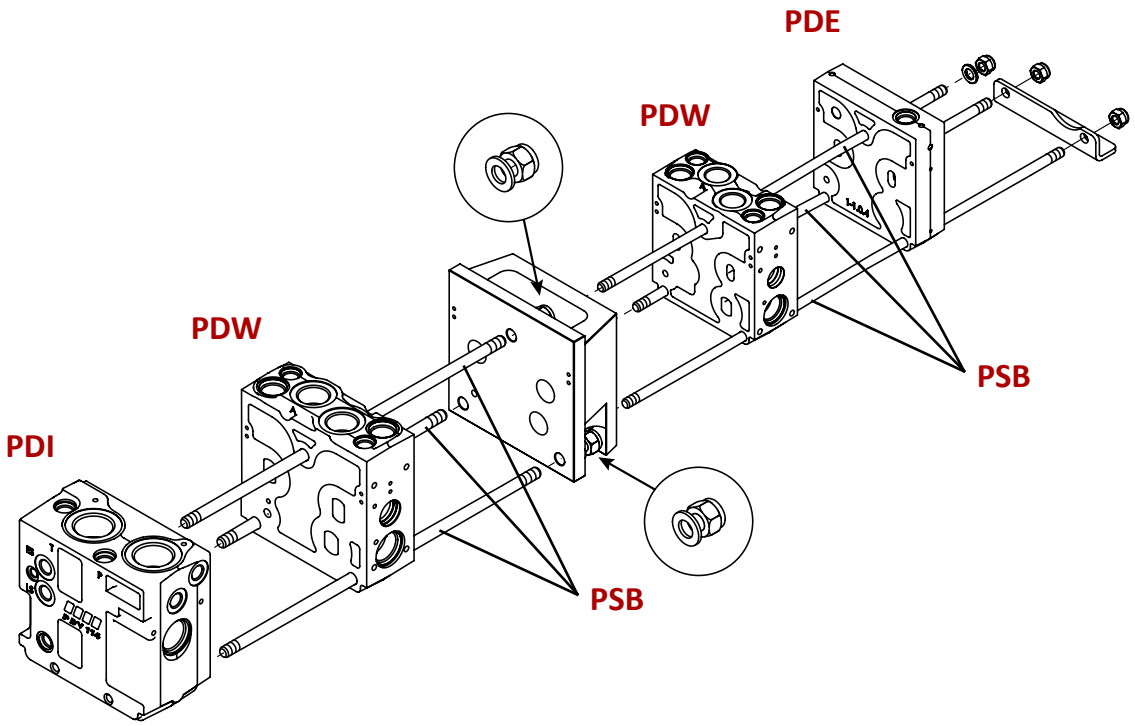
A = Pump side port - 3/4" BSPP - 17 mm deep [1 1⁄16 in 12 UN-2B - 0,67 in deep]
B = T port - 3/4" BSPP - 17 mm deep [1 1⁄16 in 12 UN - 2B - 0,67 in deep]
C = Main pressure relief valve
D = Main pressure reducing valve
E = Pump pressure gauge connection - 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
F = LS connection 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
G = External pilot pressure supply connection 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
H = External feeding main pressure reducing valve 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
I = Tank pressure gauge connection 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
J = Electrical LS/pump unloading function
K = Pump unloading drain port, 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF - 2B - 0,47 in deep]
L = Pump unloading mechanical override
M = A-B port mechanical flow adjustment
N = LSA
O = LSB
P = LS
} remote pilot pressure connection 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF - 2B - 0,47 in deep]
Q = Port A
R = Port B
} 1/2" BSPP - 17 mm deep [7⁄8 in-14 UNF-2B - 0,67 in deep]
S = Ls_B
T = Ls_A
} pilot pressure relief valve
U = Shock/suction valve B port
V = Shock/suction valve A port
W = External drain connection electric actuations - 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]

PDV117 with open centre inlet section (fixed displacement pump), pump unloading system, pilot oil supply for electro-hydraulic spool actuations



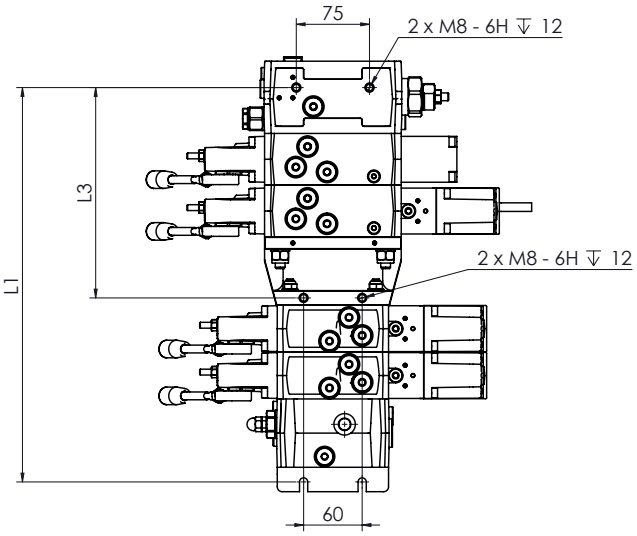
PDV117 with closed centre inlet section (variable displacement pump), pilot oil supply for electro-hydraulic spool actuations

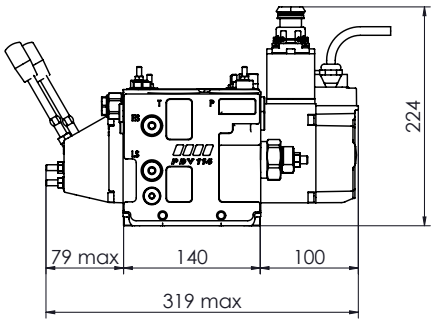


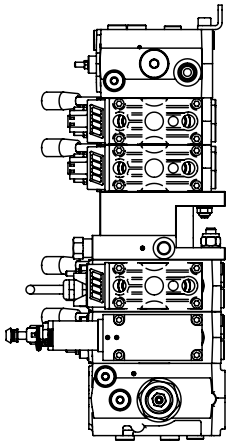


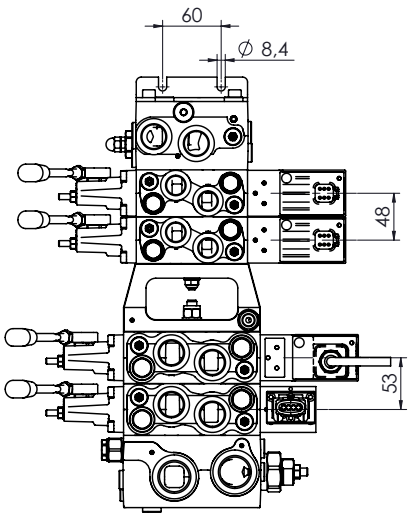
PDW	Code numbers	Tightening torque
1	**PSB1001XXXX**	**25 ± 2 Nm** **220 ±18 lb*in**
2	**PSB10020000**	
3	**PSB10030000**	
4	**PSB10040000**	
5	**PSB10050000**	
6	**PSB10060000**	
7	**PSB10070000**	
8	**PSB10080000**	
9	**PSB10090000**	
10	**PSB10100000**	

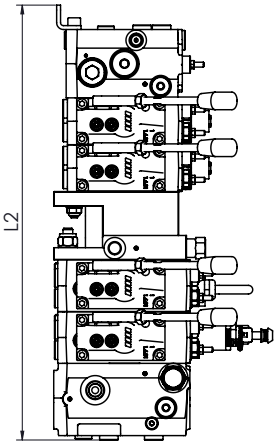
PDV117 Proportional valve
Overall dimensions drawing with double inlet and MID end section







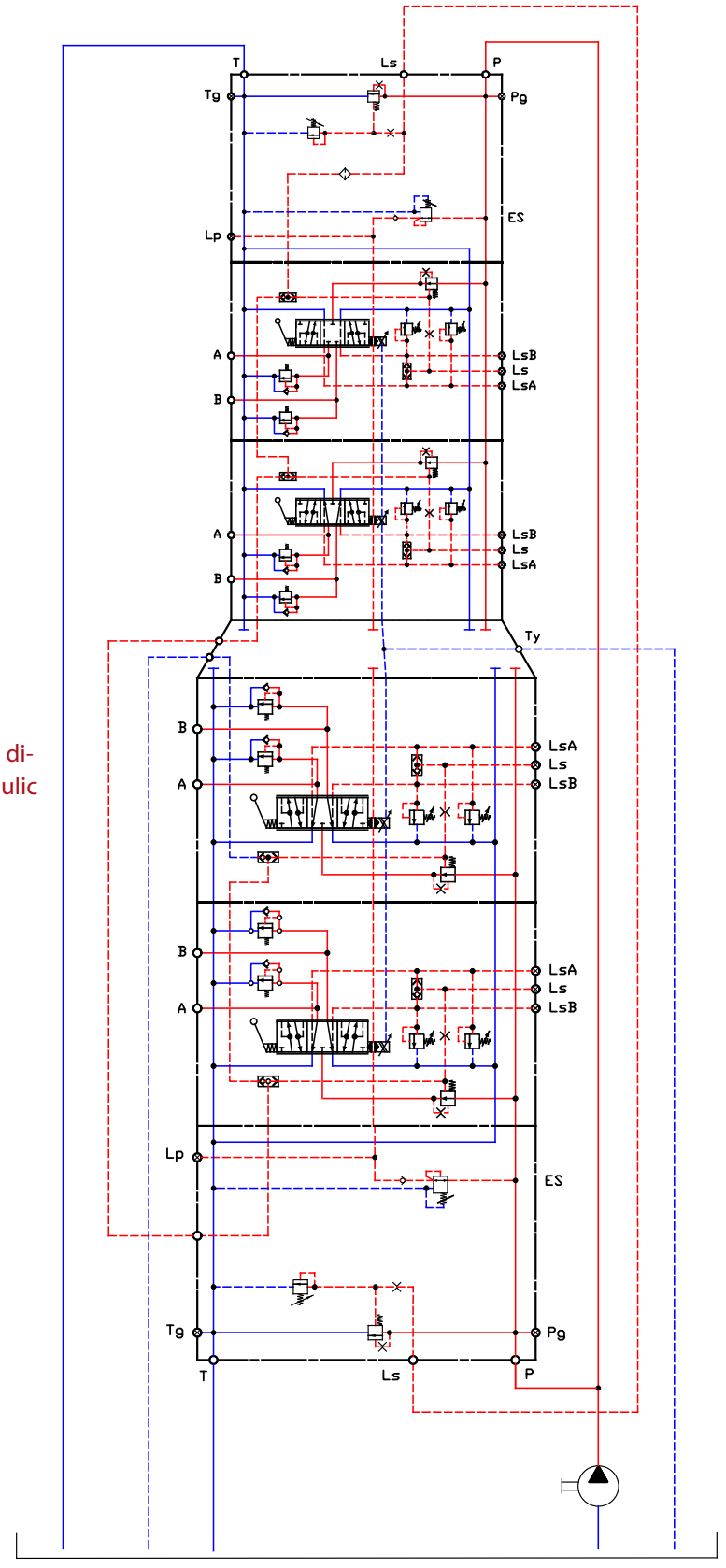


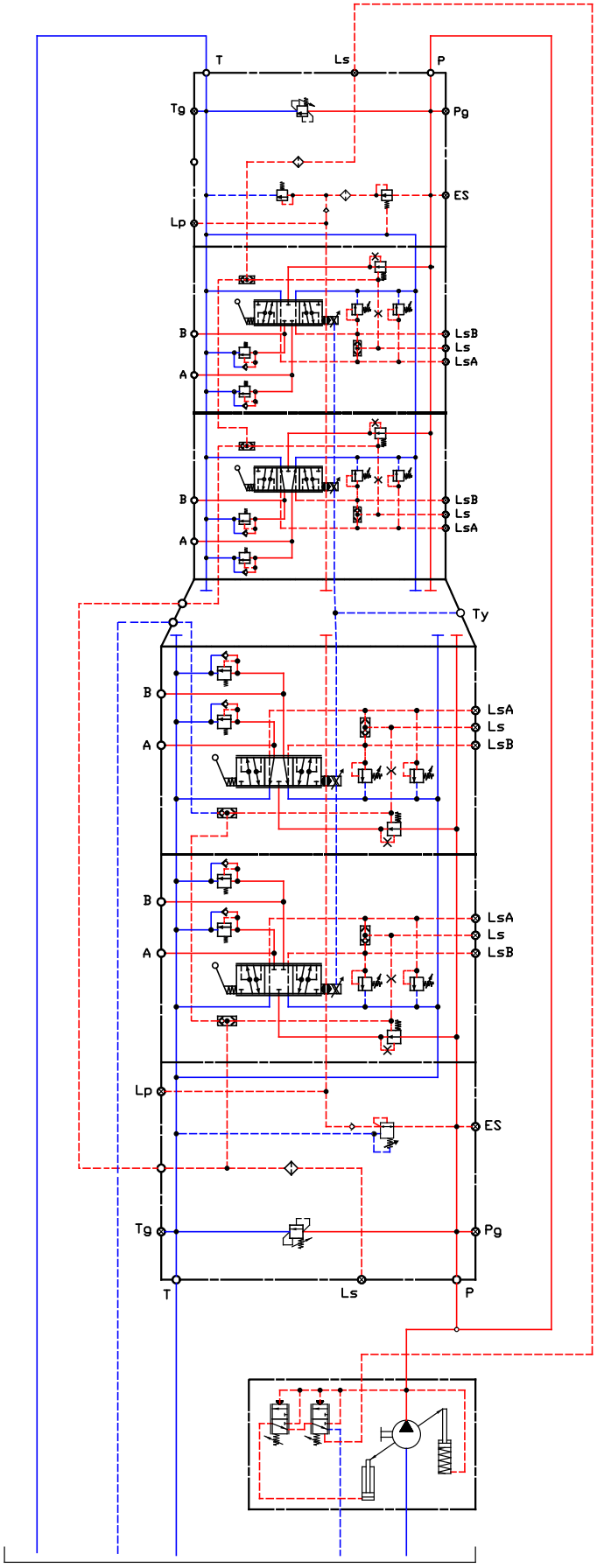


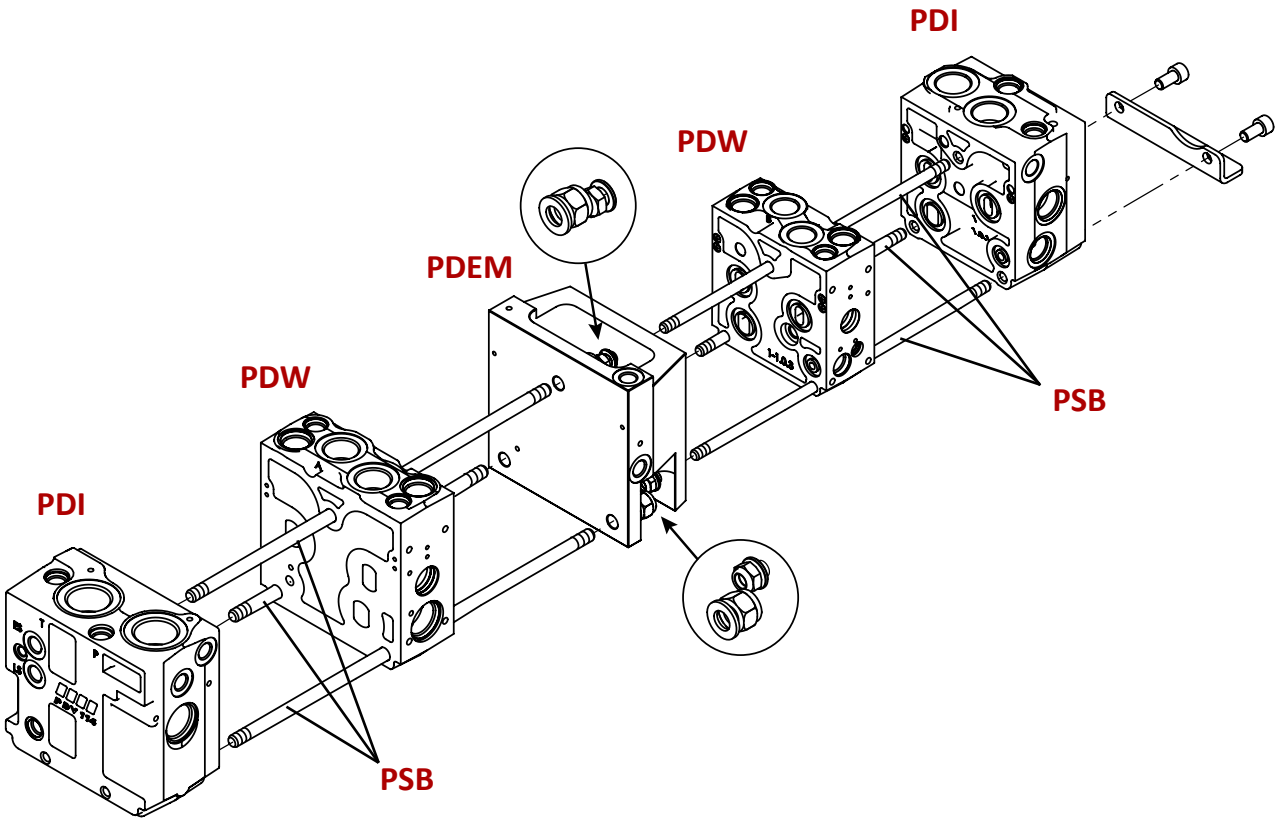
PDV117 Proportional valve
Overall dimensions drawing with double inlet and MID end section

A = Pump side port - 3/4" BSPP - 17 mm deep [1 1⁄16 in 12 UN-2B - 0,67 in deep]
B = T port - 3/4" BSPP - 17 mm deep [1 1⁄16 in 12 UN - 2B - 0,67 in deep]
C = Main pressure relief valve
D = Main pressure reducing valve
E = Pump pressure gauge connection - 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
F = LS connection 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
G = External pilot pressure supply connection 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
H = External feeding main pressure reducing valve 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
I = Tank pressure gauge connection 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
J = Electrical LS/pump unloading function
K = Pump unloading drain port, 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF - 2B - 0,47 in deep]
L = Pump unloading mechanical override
M = A-B port mechanical flow adjustment
N = LSA
O = LSB
P = LS
} remote pilot pressure connection 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF - 2B - 0,47 in deep]
Q = Port A
R = Port B
} 1/2" BSPP - 17 mm deep [7⁄8 in-14 UNF-2B - 0,67 in deep]
S = Ls_B
T = Ls_A
} pilot pressure relief valve
U = Shock/suction valve B port
V = Shock/suction valve A port
W = External drain connection electric actuations - 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]

PDV117 with double open centre inlet section (fixed displacement pump), pilot oil supply for electro-hydraulic spool actuations

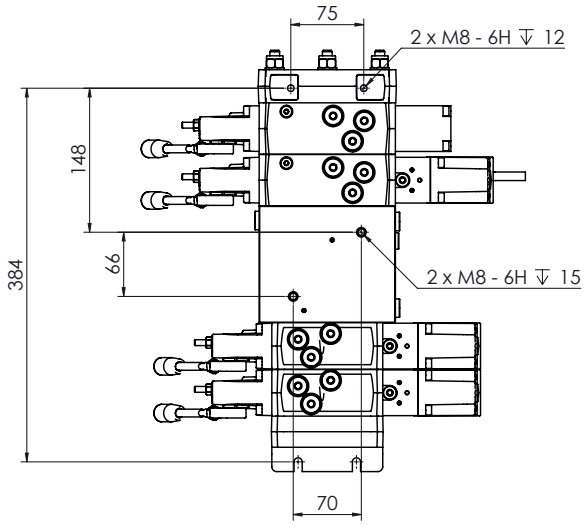


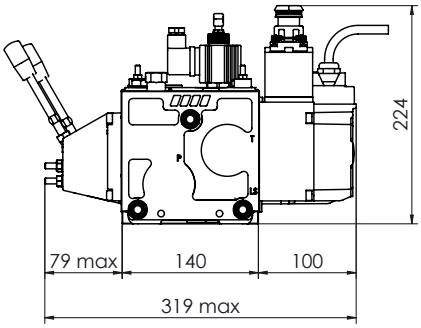

T
Ls
P
Tg
Pg
ES
Lp
B
A
LsB
Ls
LsA
Ty

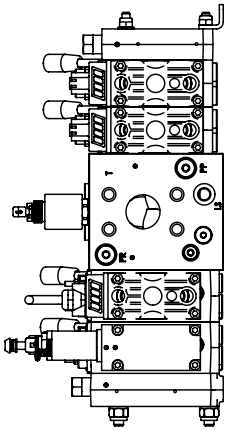


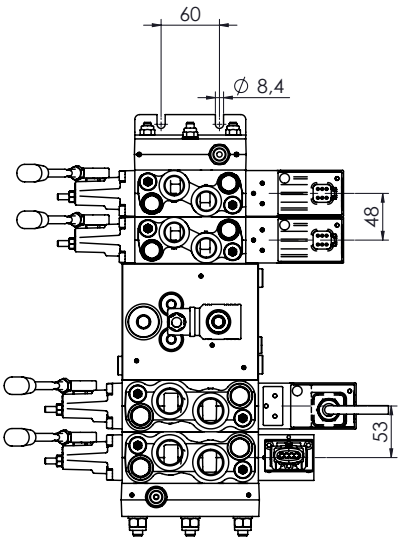
PDW	Code numbers	Tightening torque
1	**PSB12010000**	**25 ± 2 Nm** **220 ±18 lb*in**
2	**PSB12020000**	
3	**PSB12030000**	
4	**PSB12040000**	
5	**PSB12050000**	
6	**PSB12060000**	

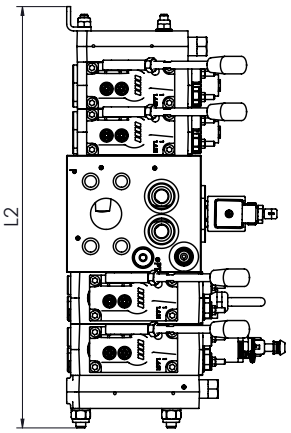
PDV117 Proportional valve
Overall dimensions drawing with closed centre MID inlet section



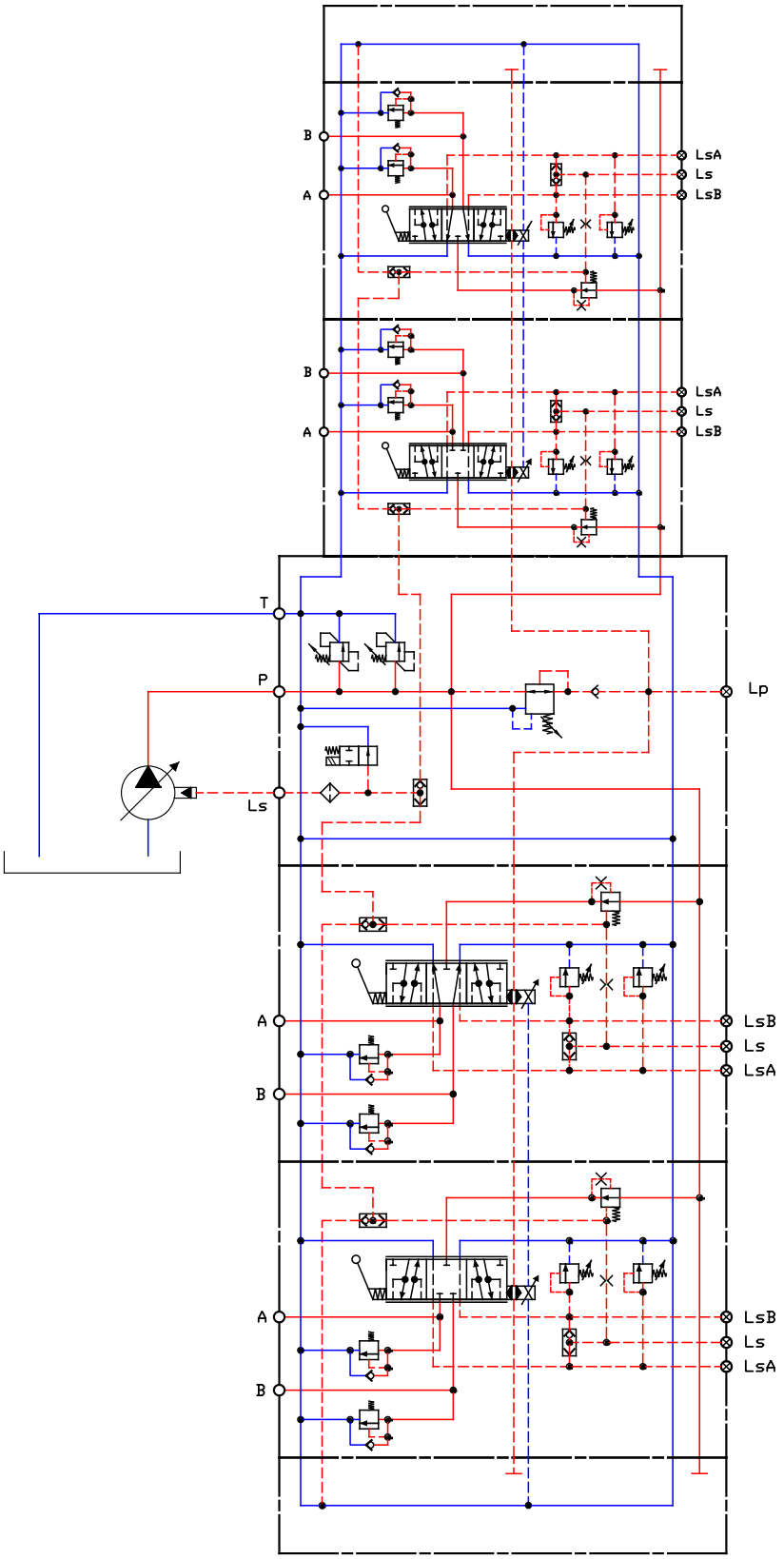




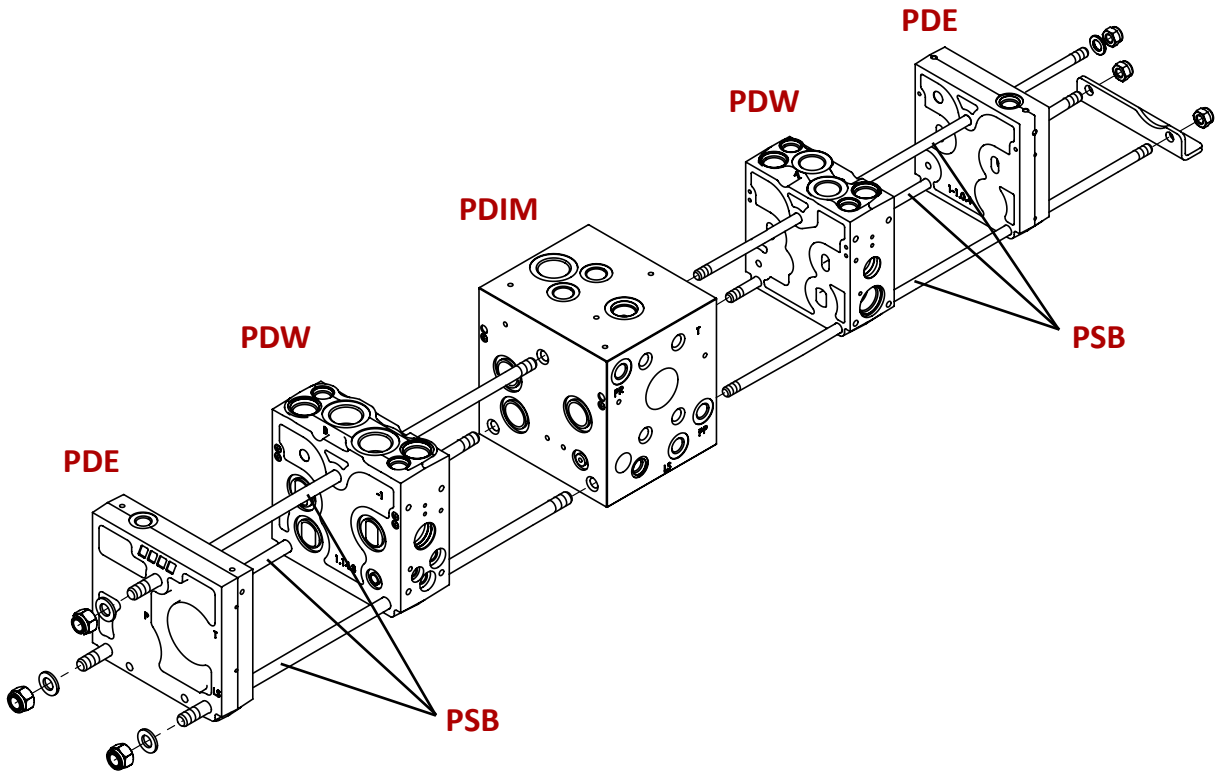




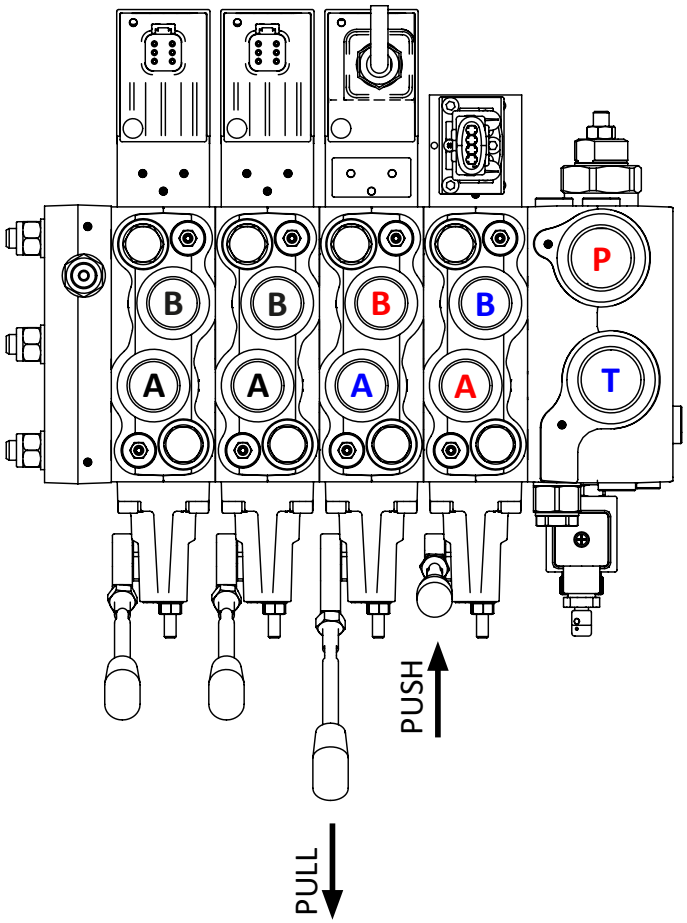
A = Pump side port - 3/4" BSPP - 17 mm deep [1 1⁄16 in 12 UN-2B - 0,67 in deep]
B = T port - 3/4" BSPP - 17 mm deep [1 1⁄16 in 12 UN - 2B - 0,67 in deep]
C = Main pressure relief valve
D = Main pressure reducing valve
E = Pump pressure gauge connection - 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
F = LS connection 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
G = External pilot pressure supply connection 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
H = External feeding main pressure reducing valve 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
I = Tank pressure gauge connection 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]
J = Electrical LS/pump unloading function
K = Pump unloading drain port, 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF - 2B - 0,47 in deep]
L = Pump unloading mechanical override
M = A-B port mechanical flow adjustment
N = LSA
O = LSB } remote pilot pressure connection 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF - 2B - 0,47 in deep]
P = LS
Q = Port A
R = Port B } 1/2" BSPP - 17 mm deep [7⁄8 in-14 UNF-2B - 0,67 in deep]
S = Ls_B
T = Ls_A } pilot pressure relief valve
U = Shock/suction valve B port
V = Shock/suction valve A port
W = External drain connection electric actuations - 1/4" BSPP - 12 mm deep [7⁄16 in-20 UNF-2B - 0,47 in deep]

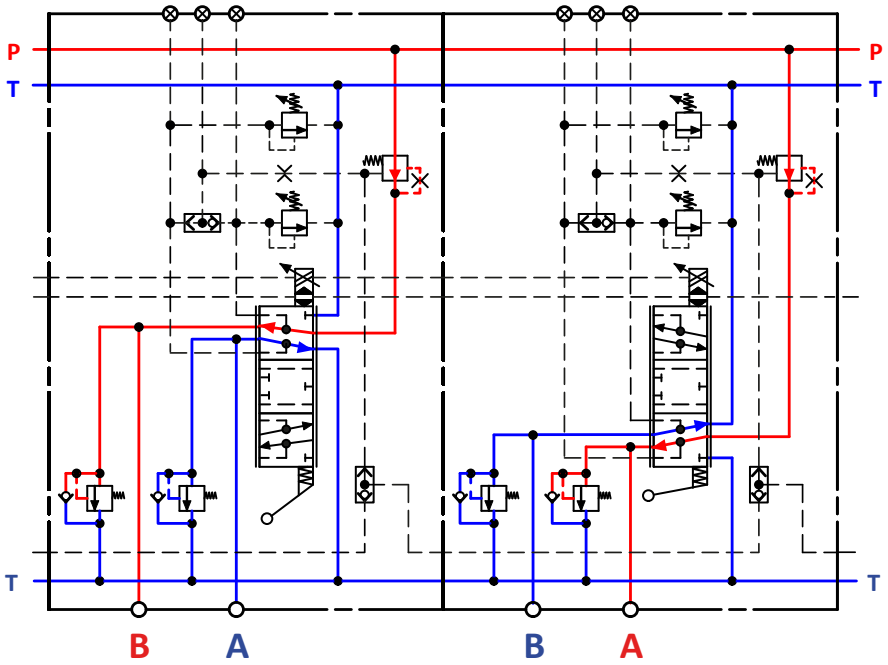

B
A
LsA
Ls
LsB
B
A
LsA
Ls
LsB
T
P
Lp
Ls
A
B
LsB
Ls
LsA
A
B
LsB
Ls
LsA

PDV117 Proportional Valve
PSB Stay bolt set - closed centre MID inlet section configuration

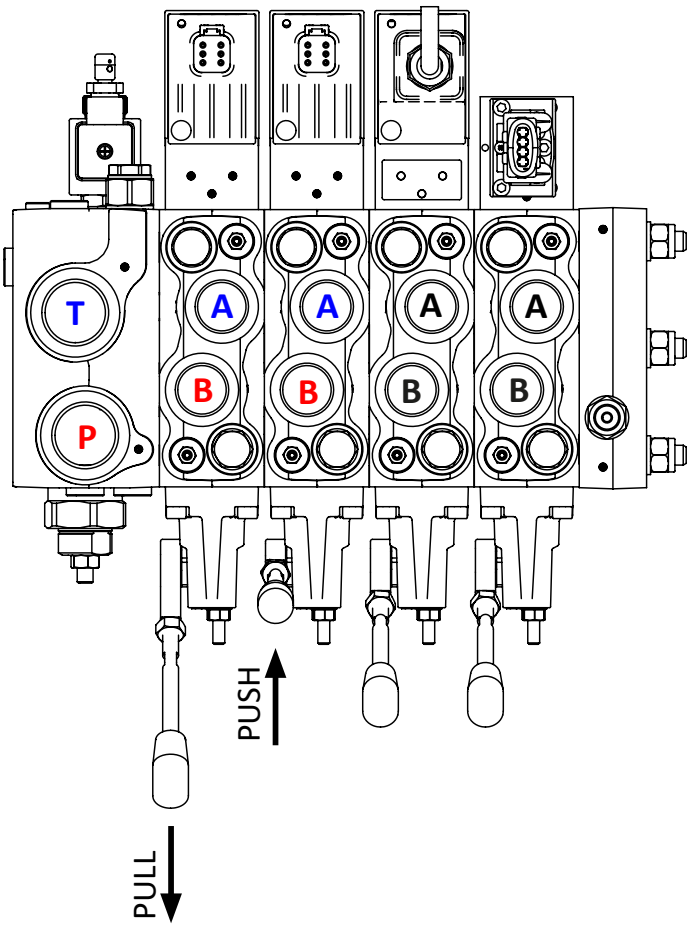


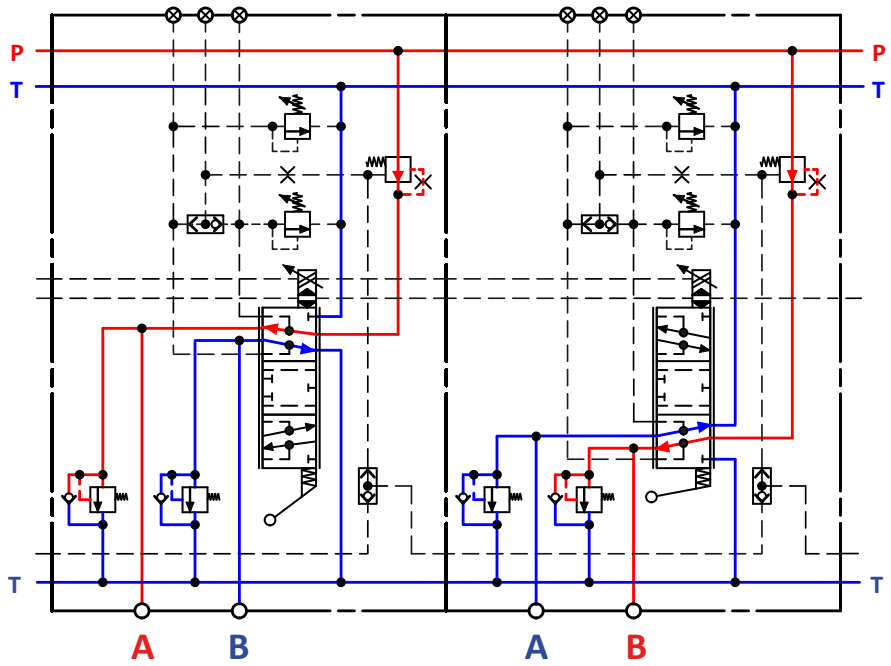
PDV114 Proportional valve
Right side version





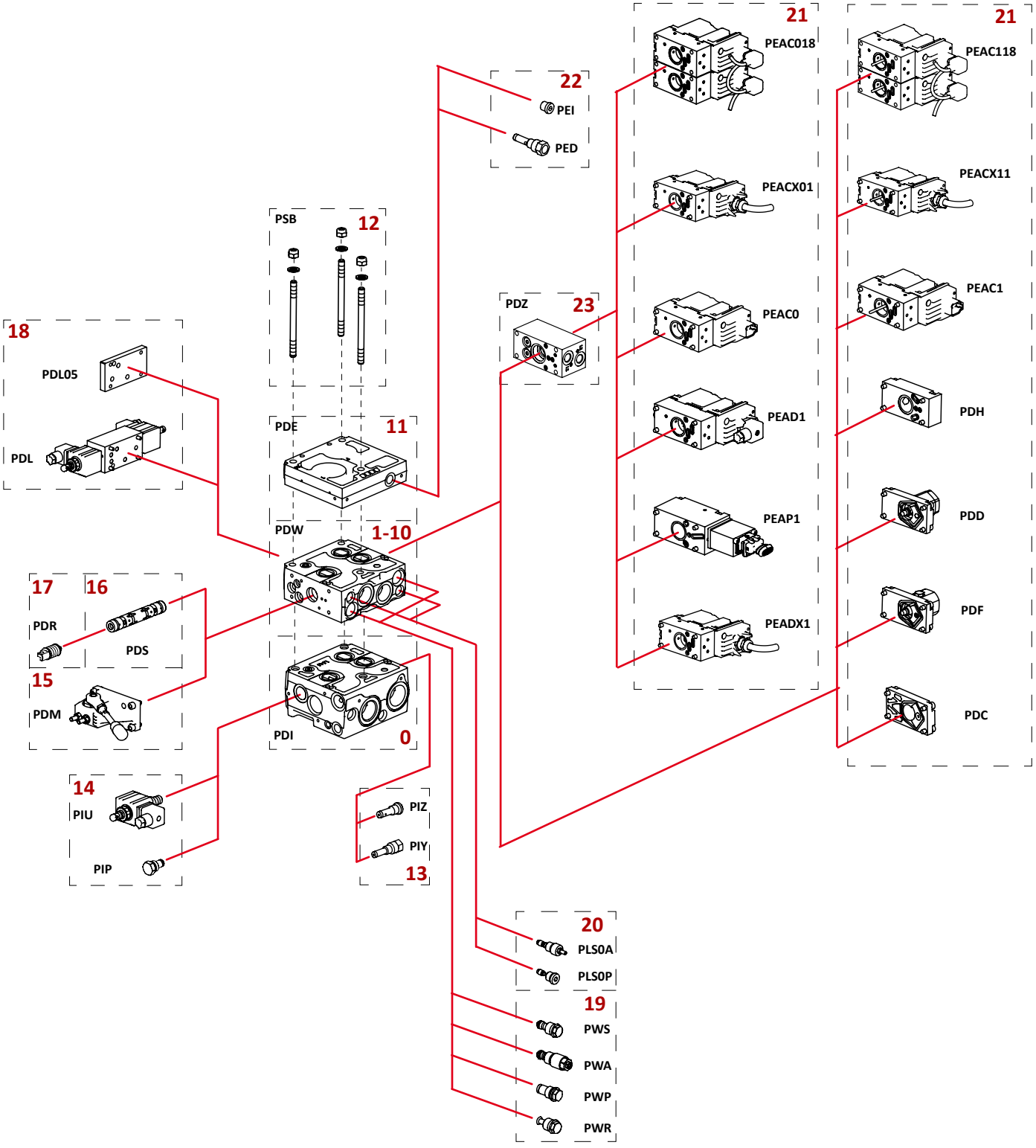
PDV114 Proportional valve
Left side version





PDV114 Proportional valve
Configuration with standard inlet sections - Right side assembly
Product selection chart

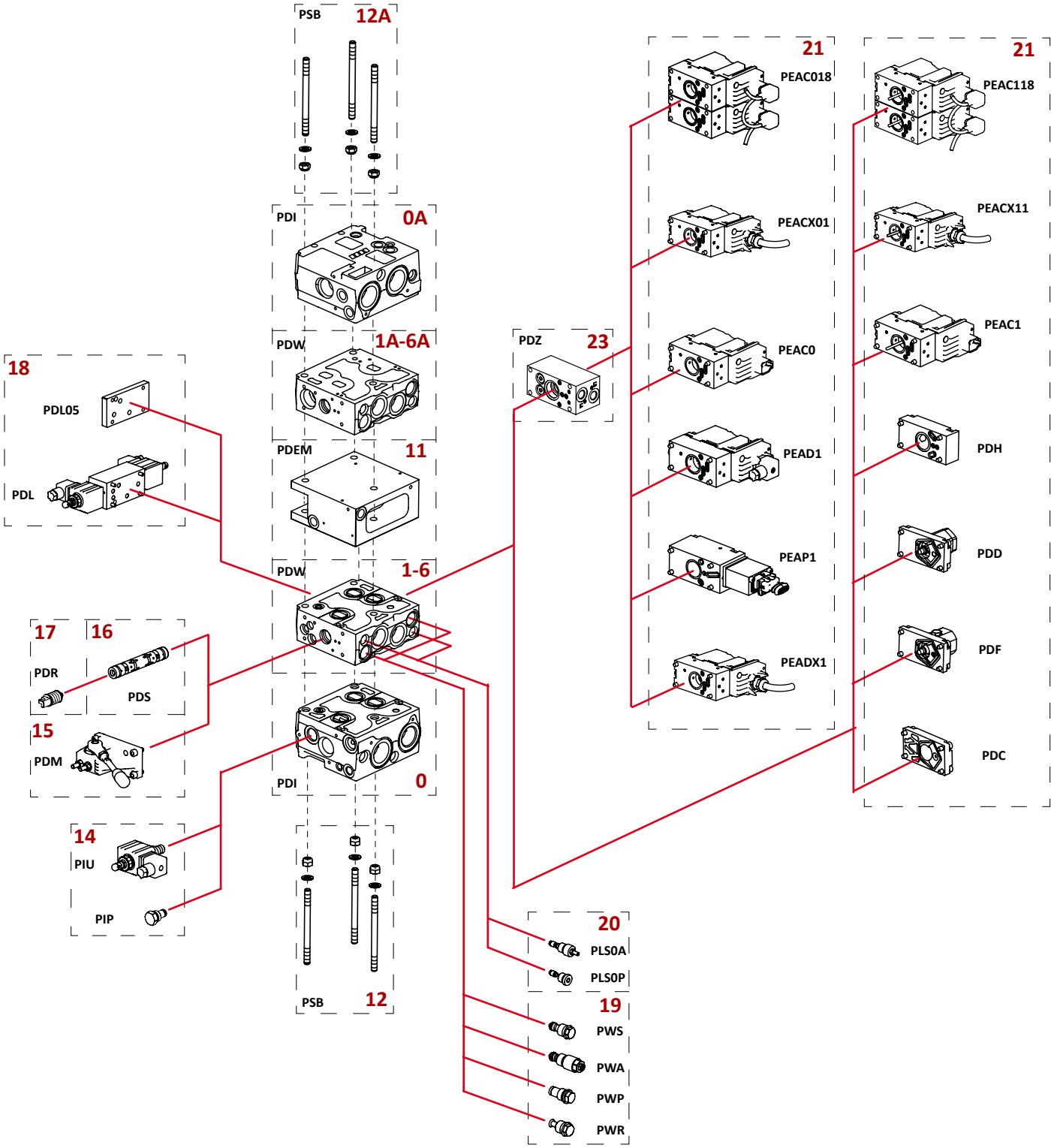
This specification sheet, gives an overview of any modules with which the PDV74 is being assembled. Each module has its own field. The purpose of this chart is to provide a quick access to the module's choice, whose characteristics must always be checked on the catalog related data.



PDV114 Proportional valve, Product selection chart

Reference field	Description			Code numbers see pag
0	Inlet sections	Open centre	PDI	155 - 156
		Closed centre		157 - 158
1-10	Working sections	with pressure compensator	PDW	161 - 162
		without pressure compensator		163 - 164
11	End sections		PDE	165 - 166
12	Stay bolt set		PSB	252
13	Pilot oil supply cartridge	Internal	PIZ	182
		External	PIY	182
14	Solenoid Ls unloading		PIU	159 - 160
	Plug for LS unloading cavity		PIP	159
15	Mechanical actuation		PDM	179
16	Spool		PDS	From 170 to 178
17	Spool centered set		PDR	From 172 to 178
18	Unloading module		PDL	From 186 to 190
	Cover plate		PDL05	
19	Shock and suction valve	not adjustable	PWS	183-184
		adjustable	PWA	183-184
	Plug for shock and suction valve cavity		PWP	185
	Suction valve		PWR	185
20	Pilot pressure $LS_{A/B}$ relief valve		PLS0A	180
	Set plug $LS_{A/B}$ cavity		PLS0P	180
21	Proportional electro-hydraulic actuations	Open loop spool control current signal for PWM and ON-OFF control	PEAD1	From 236 to 241
		Open loop spool control high resolution	PEAC0	From 215 to 235
		Closed loop spool control high performance resolution	PEAC1	From 191 to 214
		Open loop spool control high resolution CAN-Bus	PEAC018	
		Closed loop spool control high performance resolution CAN-Bus	PEAC118	
		Open loop spool control high resolution ATEX	PEACX01	
		Closed loop spool control high performance resolution ATEX version	PEACX11	
		Open loop spool control current signal for PWM and ON-OFF control ATEX version	PEADX1	
		Open loop spool control current input signal for PWM and ON-OFF control - AMP JPT 4 pin	PEAP1	From 242 to 247
	Rear cover for	Hydraulic control	PDH	180
		Detent	PDD	181
		Friction detent	PDF	179
		Mechanical actuation	PDC	180
22	End sections	External drain line cartridge	PED	182
		Internal plug	PEI	182
23	Dual function control body		PDZ	168 - 169

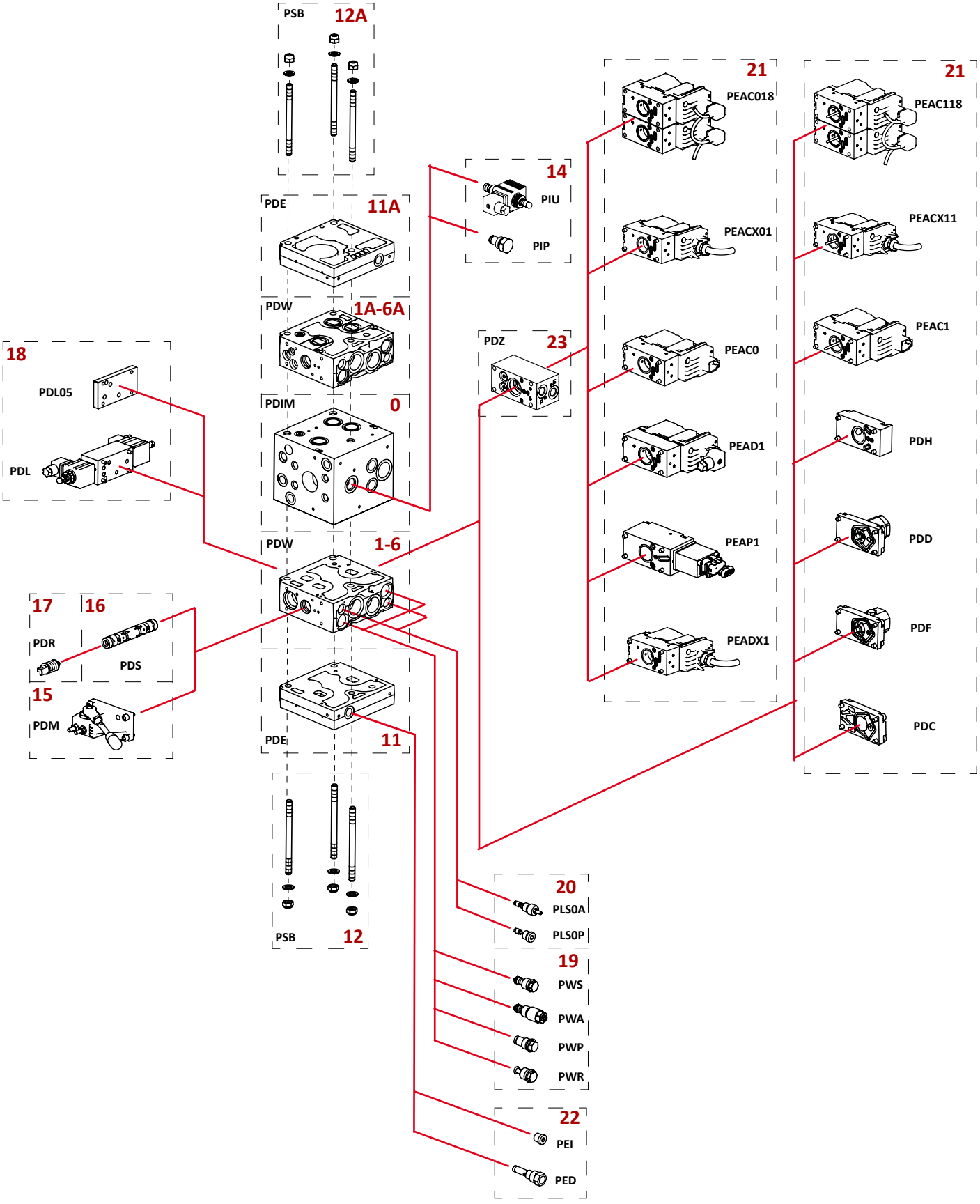
PDV114 Proportional valve, product selection chart
Configuration with double inlet sections and MID end section



PDV114 Proportional valve, Product selection chart

Reference field	Description			Code numbers see pag
0 0A	Inlet sections	Open centre	PDI	155 - 156
		Closed centre		157 - 158
1-6 1A-6A	Working sections	with pressure compensator	PDW	161 - 162
		without pressure compensator		163 - 164
11	End sections		PDE	165 - 166
12 12A	Stay bolt set		PSB	258
13	Pilot oil supply cartridge	Internal	PIZ	182
		External	PIY	182
14	Solenoid Ls unloading		PIU	159 - 160
	Plug for LS unloading cavity		PIP	159
15	Mechanical actuation		PDM	179
16	Spool		PDS	From 170 to 178
17	Spool centered set		PDR	From 172 to 178
18	Unloading module		PDL	From 186 to 190
	Cover plate		PDL05	
19	Shock and suction valve	not adjustable	PWS	183-184
		adjustable	PWA	183-184
	Plug for shock and suction valve cavity		PWP	185
	Suction valve		PWR	185
20	Pilot pressure $LS_{A/B}$ relief valve		PLS0A	180
	Set plug $LS_{A/B}$ cavity		PLS0P	180
21	Proportional electro-hydraulic actuations	Open loop spool control current signal for PWM and ON-OFF control	PEAD1	From 236 to 241
		Open loop spool control high resolution	PEAC0	From 215 to 235
		Closed loop spool control high performance resolution	PEAC1	From 191 to 214
		Open loop spool control high resolution CAN-Bus	PEAC018	
		Closed loop spool control high performance resolution CAN-Bus	PEAC118	
		Open loop spool control high resolution ATEX	PEACX01	
		Closed loop spool control high performance resolution ATEX version	PEACX11	
		Open loop spool control current signal for PWM and ON-OFF control ATEX version	PEADX1	
		Open loop spool control current input signal for PWM and ON-OFF control - AMP JPT 4 pin	PEAP1	From 242 to 247
	Rear cover for	Hydraulic control	PDH	180
		Detent	PDD	181
		Friction detent	PDF	179
		Mechanical actuation	PDC	180
22	End sections	External drain line cartridge	PED	182
		Internal plug	PEI	182
23	Dual function control body		PDZ	168 - 169

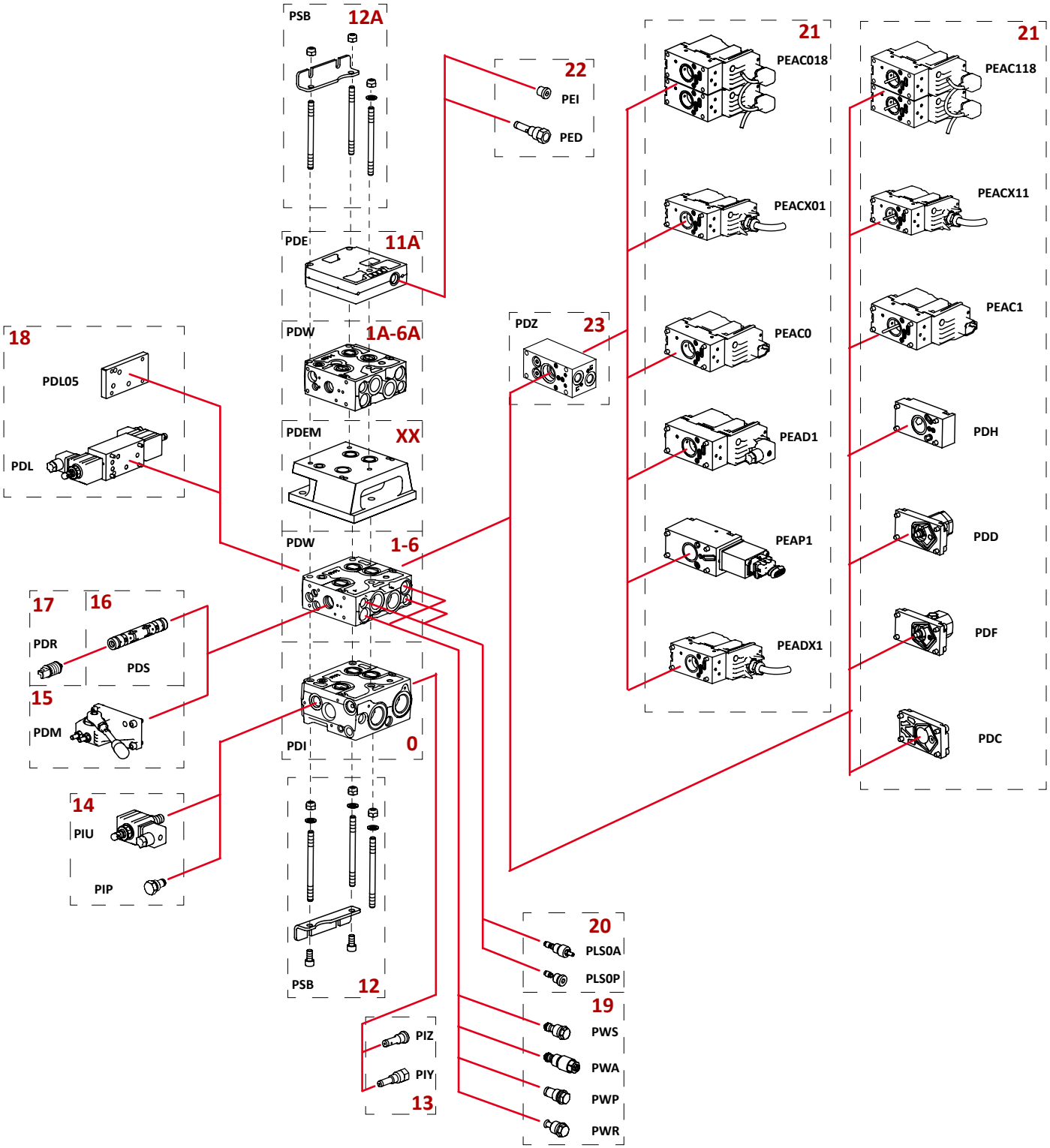
PDV114 Proportional valve, product selection chart
Configuration with MID inlet section



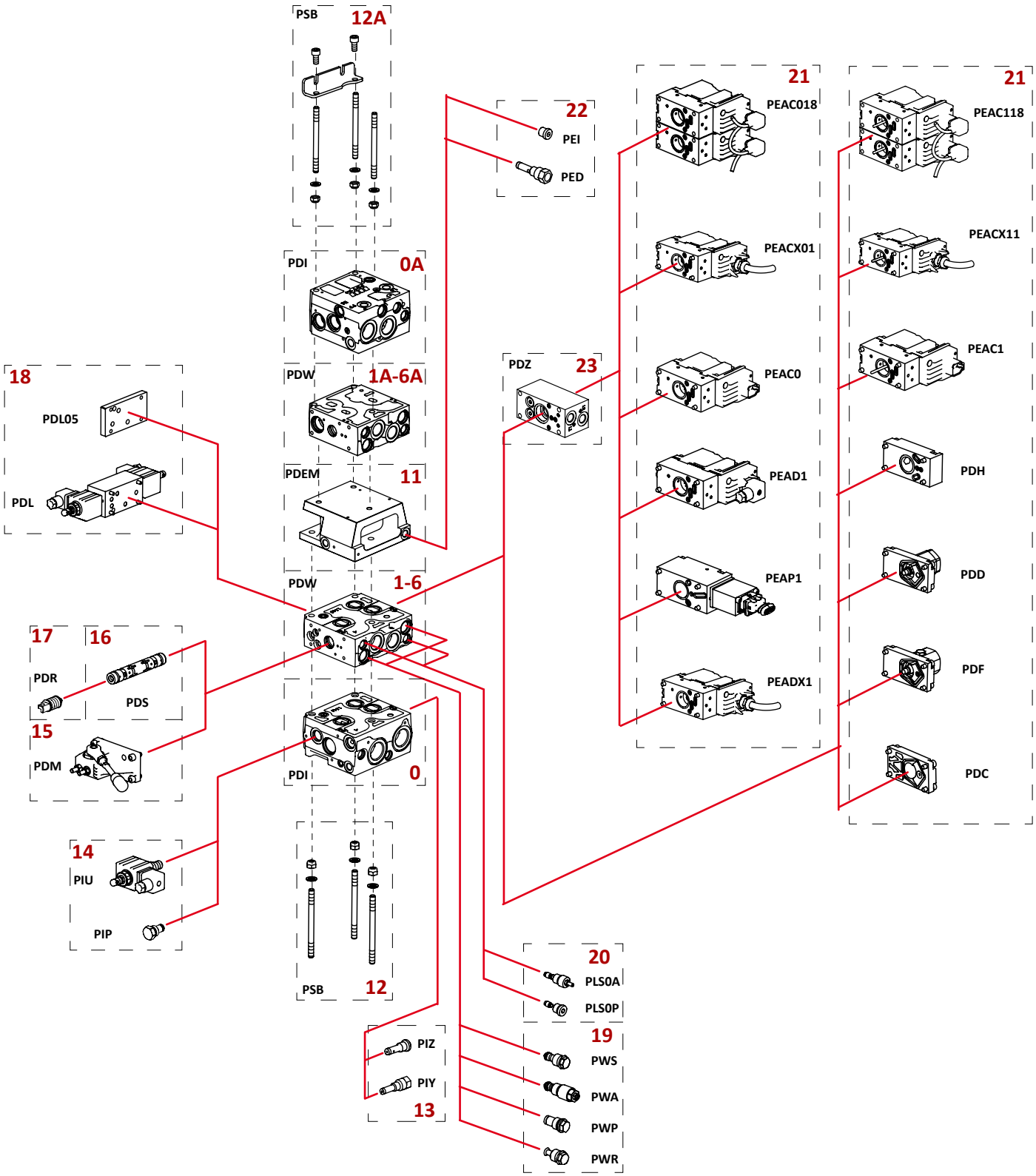
PDV114 Proportional valve, Product selection chart

Reference field	Description			Code numbers see pag
0	Inlet sections	Open centre	**PDI**	155 - 156
		Closed centre		157 - 158
1-6 **1A-6A**	Working sections	with pressure compensator	**PDW**	161 - 162
		without pressure compensator		163 - 164
11 **11A**	End sections		**PDE**	165 - 166
12 **12A**	Stay bolt set		**PSB**	263
14	Solenoid Ls unloading		**PIU**	159 - 160
	Plug for LS unloading cavity		**PIP**	159
15	Mechanical actuation		**PDM**	179
16	Spool		**PDS**	From 170 to 178
17	Spool centered set		**PDR**	From 172 to 178
18	Unloading module		**PDL**	From 186 to 190
	Cover plate		**PDL05**	
19	Shock and suction valve	not adjustable	**PWS**	183-184
		adjustable	**PWA**	183-184
	Plug for shock and suction valve cavity		**PWP**	185
	Suction valve		**PWR**	185
20	Pilot pressure $LS_{A/B}$ relief valve		**PLS0A**	180
	Set plug $LS_{A/B}$ cavity		**PLS0P**	180
21	Proportional electro-hydraulic actuations	Open loop spool control current signal for PWM and ON-OFF control	**PEAD1**	From 236 to 241
		Open loop spool control high resolution	**PEAC0**	From 215 to 235
		Closed loop spool control high performance resolution	**PEAC1**	From 191 to 214
		Open loop spool control high resolution CAN-Bus	**PEAC018**	
		Closed loop spool control high performance resolution CAN-Bus	**PEAC118**	
		Open loop spool control high resolution ATEX	**PEACX01**	
		Closed loop spool control high performance resolution ATEX version	**PEACX11**	
		Open loop spool control current signal for PWM and ON-OFF control ATEX version	**PEADX1**	
		Open loop spool control current input signal for PWM and ON-OFF control - AMP JPT 4 pin	**PEAP1**	From 242 to 247
	Rear cover for	Hydraulic control	**PDH**	180
		Detent	**PDD**	181
		Friction detent	**PDF**	179
		Mechanical actuation	**PDC**	180
22	End sections	External drain line cartridge	**PED**	182
		Internal plug	**PEI**	182
23	Dual function control body		**PDZ**	168 - 169

PDV114 + PDV74 Proportional valve, product selection chart
Standard configuration



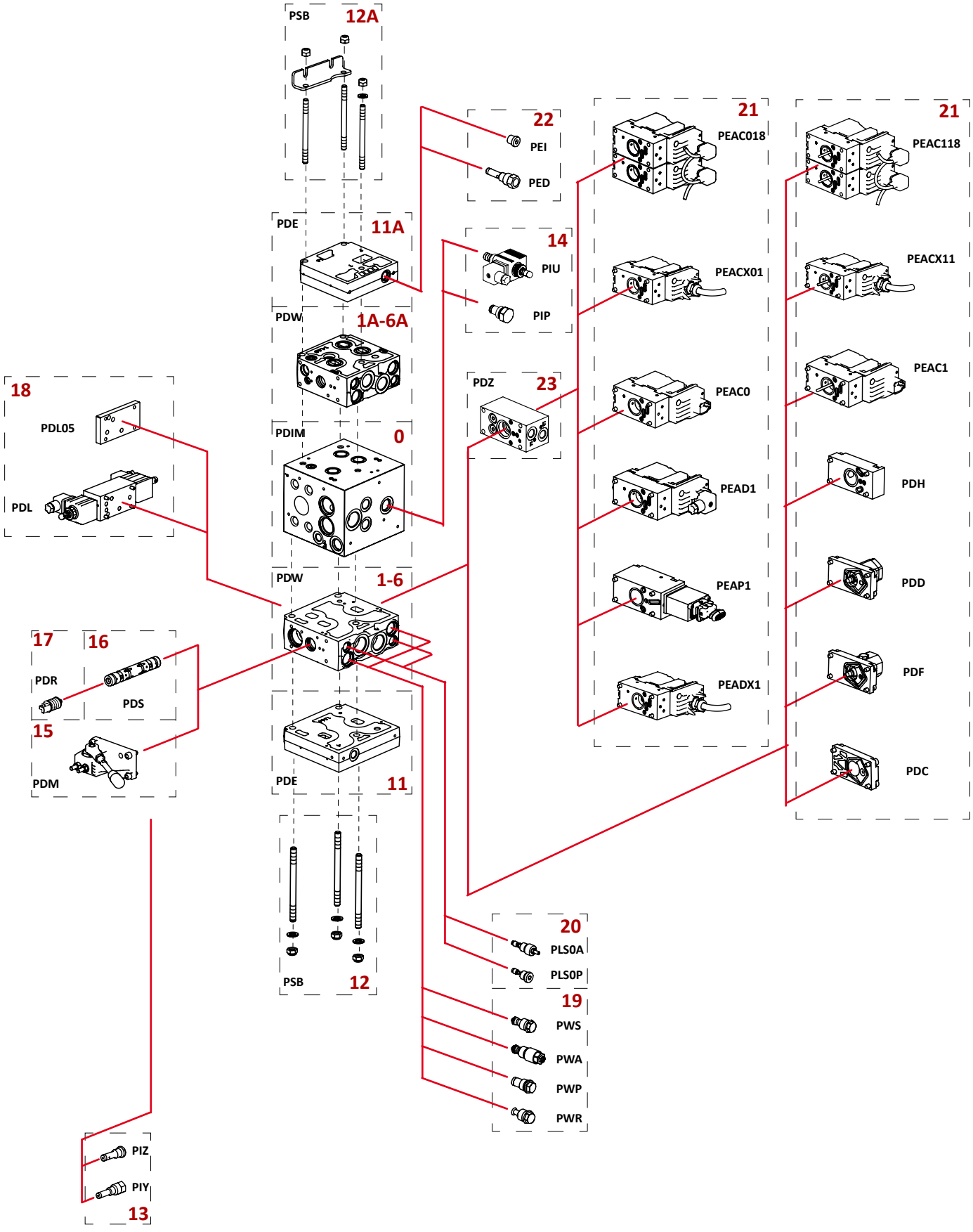
Reference field	Description			Code numbers see pag
0	Inlet sections	Open centre	PDI	155 - 156
		Closed centre		157 - 158
1-10	Working sections	with pressure compensator	PDW	161 - 162
		without pressure compensator		163 - 164
11	End sections		PDE	165 - 166
12	Stay bolt set		PSB	252
13	Pilot oil supply cartridge	Internal	PIZ	182
		External	PIY	182
14	Solenoid Ls unloading		PIU	159 - 160
	Plug for LS unloading cavity		PIP	159
15	Mechanical actuation		PDM	179
16	Spool		PDS	From 170 to 178
17	Spool centered set		PDR	From 172 to 178
18	Unloading module		PDL	From 186 to 190
	Cover plate		PDL05	
19	Shock and suction valve	not adjustable	PWS	183-184
		adjustable	PWA	183-184
	Plug for shock and suction valve cavity		PWP	185
	Suction valve		PWR	185
20	Pilot pressure $LS_{A/B}$ relief valve		PLS0A	180
	Set plug $LS_{A/B}$ cavity		PLS0P	180
21	Proportional electro-hydraulic actuations	Open loop spool control current signal for PWM and ON-OFF control	PEAD1	From 236 to 241
		Open loop spool control high resolution	PEAC0	From 215 to 235
		Closed loop spool control high performance resolution	PEAC1	From 191 to 214
		Open loop spool control high resolution CAN-Bus	PEAC018	
		Closed loop spool control high performance resolution CAN-Bus	PEAC118	
		Open loop spool control high resolution ATEX	PEACX01	
		Closed loop spool control high performance resolution ATEX version	PEACX11	
		Open loop spool control current signal for PWM and ON-OFF control ATEX version	PEADX1	
		Open loop spool control current input signal for PWM and ON-OFF control - AMP JPT 4 pin	PEAP1	From 242 to 247
	Rear cover for	Hydraulic control	PDH	180
		Detent	PDD	181
		Friction detent	PDF	179
		Mechanical actuation	PDC	180
22	End sections	External drain line cartridge	PED	182
		Internal plug	PEI	182
23	Dual function control body		PDZ	168 - 169


PSB
12A
22
PEI
PED
21
PEAC018
PEACX01
PEAC0
PEAD1
PEAP1
PEADX1
21
PEAC118
PEACX11
PEAC1
PDH
PDD
PDF
PDC
PDI
0A
PDW
1A-6A
PDZ
23
18
PDL05
PDL
PDEM
11
PDW
1-6
17
16
PDR
PDS
15
PDM
PDI
0
14
PIU
PIP
PSB
12
20
PLS0A
PLS0P
19
PWS
PWA
PWP
PWR
PIZ
PIY
13

PDV114 + PDV74 Proportional valve, Product selection chart

Reference field	Description			Code numbers see pag
0 0A	Inlet sections	Open centre	PDI	
		Closed centre		
1-6 1A-6A	Working sections	with pressure compensator	PDW	
		without pressure compensator		
11	End sections		PDE	
12 12A	Stay bolt set		PSB	258
13	Pilot oil supply cartridge	Internal	PIZ	
		External	PIY	
14	Solenoid Ls unloading		PIU	
	Plug for LS unloading cavity		PIP	
15	Mechanical actuation		PDM	
16	Spool		PDS	
17	Spool centered set		PDR	
18	Unloading module		PDL	
	Cover plate		PDL05	
19	Shock and suction valve	not adjustable	PWS	
		adjustable	PWA	
	Plug for shock and suction valve cavity		PWP	
	Suction valve		PWR	
20	Pilot pressure $LS_{A/B}$ relief valve		PLS0A	
	Set plug $LS_{A/B}$ cavity		PLS0P	
21	Proportional electro-hydraulic actuations	Open loop spool control current signal for PWM and ON-OFF control	PEAD1	
		Open loop spool control high resolution	PEAC0	
		Closed loop spool control high performance resolution	PEAC1	
		Open loop spool control high resolution CAN-Bus	PEAC018	
		Closed loop spool control high performance resolution CAN-Bus	PEAC118	
		Open loop spool control high resolution ATEX	PEACX01	
		Closed loop spool control high performance resolution ATEX version	PEACX11	
		Open loop spool control current signal for PWM and ON-OFF control ATEX version	PEADX1	
		Open loop spool control current input signal for PWM and ON-OFF control - AMP JPT 4 pin	PEAP1	
	Rear cover for	Hydraulic control	PDH	
		Detent	PDD	
		Friction detent	PDF	
		Mechanical actuation	PDC	
22	End sections	External drain line cartridge	PED	
		Internal plug	PEI	
23	Dual function control body		PDZ	32 - 33

PDV114 + PDV74 Proportional Valve
Configuration with MID inlet section



PDV114 + PDV74 Proportional valve, Product selection chart

Reference field	Description			Code numbers see pag
0	Inlet sections	Open centre	PDI	20 - 21
		Closed centre		22 - 23
1-6 1A-6A	Working sections	with pressure compensator	PDW	26 - 27
		without pressure compensator		28 - 29
11 11A	End sections		PDE	30 - 31
12 12A	Stay bolt set		PSB	263
14	Solenoid Ls unloading		PIU	24 - 25
	Plug for LS unloading cavity		PIP	24
15	Mechanical actuation		PDM	43
16	Spool		PDS	From 34 to 42
17	Spool centered set		PDR	From 36 to 42
18	Unloading module		PDL	From 49 to 53
	Cover plate		PDL05	
19	Shock and suction valve	not adjustable	PWS	46 - 47
		adjustable	PWA	46 - 47
	Plug for shock and suction valve cavity		PWP	48
	Suction valve		PWR	48
20	Pilot pressure $LS_{A/B}$ relief valve		PLS0A	44
	Set plug $LS_{A/B}$ cavity		PLS0P	44
21	Proportional electro-hydraulic actuations	Open loop spool control current signal for PWM and ON-OFF control	PEAD1	From 99 to 104
		Open loop spool control high resolution	PEAC0	From 78 to 98
		Closed loop spool control high performance resolution	PEAC1	From 54 to 77
		Open loop spool control high resolution CAN-Bus	PEAC018	
		Closed loop spool control high performance resolution CAN-Bus	PEAC118	
		Open loop spool control high resolution ATEX	PEACX01	
		Closed loop spool control high performance resolution ATEX version	PEACX11	
		Open loop spool control current signal for PWM and ON-OFF control ATEX version	PEADX1	
		Open loop spool control current input signal for PWM and ON-OFF control - AMP JPT 4 pin	PEAP1	
	Rear cover for	Hydraulic control	PDH	44
		Detent	PDD	
		Friction detent	PDF	43
		Mechanical actuation	PDC	44
22	End sections	External drain line cartridge	PED	45
		Internal plug	PEI	45
23	Dual function control body		PDZ	32 - 33

PDV114 Proportional valve
Composition form for standard inlet section

OMFB HYDRAULIC POWER CONTROL			Code:	PDV114		Customer:			
			Date:	__/__/____		Customer ref:			
			Review index:	-		Issued by:			
			Review date:	-		OMFB sales ref:			
1	Valve type:	PDV 114	5	Working sections Up:	10	9	Rated voltage [V]:	12	
2	Type of threads:	BSPP	6	Working sections Down:		10	Certifications:	None	
3	Type of inlet:	standard	7	Inlet section side:	Right version	11			
4	Pump type:	Open Center	8	2nd pump type:		12	Pump flow [l/min]:		

Notes:

B Port	0	bar			13	A Port
					14	
Actuators side						Handle side

Notes:

1		21		1	bar			bar	16		15	
		17		20					20			
				19					19			
				18								
2		21		2	bar			bar	16		15	
		17		20					20			
				19					19			
3		21		3	bar			bar	16		15	
		17		20					20			
				19					19			
4		21		4	bar			bar	16		15	
		17		20					20			
				19					19			
5		21		5	bar			bar	16		15	
		17		20					20			
				19					19			
6		21		6	bar			bar	16		15	
		17		20					20			
				19					19			
7		21		7	bar			bar	16		15	
		17		20					20			
				19					19			
8		21		8	bar			bar	16		15	
		17		20					20			
				19					19			
9		21		9	bar			bar	16		15	
		17		20					20			
				19					19			
10		21		10	bar			bar	16		15	
		17		20					20			
				19					19			

11			12
22			

PDV Composition form rev. 01 ▪ 06/07/2020

O.M.F.B. S.p.A. - Hydraulic Components - 25050 Provaglio d'Iseo (BS) - Via Cave, 7/9

PDV114 Proportional valve
Composition form with double inlet section and MID End section

OMFB HYDRAULIC POWER CONTROL	Code: **PDV114**	Customer:
	Date: / /	Customer ref:
	Review index: -	Issued by:
	Review date: -	OMFB sales ref:

1	Valve type:	PDV 114	5	Working sections Up:	6	9	Rated voltage [V]:	12
2	Type of threads:	BSPP	6	Working sections Down:	6	10	Certifications:	None
3	Type of inlet:	mid_end	7	Inlet section side:	Right version	11		
4	Pump type:	Open Center	8	2nd pump type:		12	Pump flow [l/min]:	

Notes:

B Port Actuators side	0A	bar			13	A Port Handle side
					14	

Notes:

1A		21		1A	bar			bar	16		15	
		17		20					20			
				19					19			
				18								
2A		21		2A	bar			bar	16		15	
		17		20					20			
				19					19			
				18								
3A		21		3A	bar			bar	16		15	
		17		20					20			
				19					19			
				18								
4A		21		4A	bar			bar	16		15	
		17		20					20			
				19					19			
				18								
5A		21		5A	bar			bar	16		15	
		17		20					20			
				19					19			
				18								
6A		21		6A	bar			bar	16		15	
		17		20					20			
				19					19			
				18								

11		12
12A		

6		21		6	bar			bar	16		15	
		17		20					20			
				19					19			
				18								
5		21		5	bar			bar	16		15	
		17		20					20			
				19					19			
				18								
4		21		4	bar			bar	16		15	
		17		20					20			
				19					19			
				18								
3		21		3	bar			bar	16		15	
		17		20					20			
				19					19			
				18								
2		21		2	bar			bar	16		15	
		17		20					20			
				19					19			
				18								
1		21		1	bar			bar	16		15	
		17		20					20			
				19					19			
				18								

A Port Actuators side	0	bar			13	B Port Handle side
					14	

O.M.F.B. S.p.A. - Hydraulic Components - 25050 Provaglio d'Iseo (BS) - Via Cave, 7/9

PDV114 Proportional valve
Composition form with MID inlet section

OMFB HYDRAULIC POWER CONTROL			Code:	**PDV114**		Customer:			
			Date:	/ /		Customer ref:			
			Review index:	-		Issued by:			
			Review date:	-		OMFB sales ref:			
1	Valve type:	PDV 114	5	Working sections Up:	6	9	Rated voltage [V]:	12	
2	Type of threads:	BSPP	6	Working sections Down:	6	10	Certifications:	None	
3	Type of inlet:	mid_inlet	7	Inlet section side:	Right version	11			
4	Pump type:	Open Center	8	2nd pump type:		12	Pump flow [l/min]:		

Notes:

A Port	11A			12A	**B Port**
	22				
Actuators side					**Handle side**

Notes:

6A		21		6A	bar			bar	16		15	
		17		20					20			
				19					19			
				18								
5A		21		5A	bar			bar	16		15	
		17		20					20			
				19					19			
				18								
4A		21		4A	bar			bar	16		15	
		17		20					20			
				19					19			
				18								
3A		21		3A	bar			bar	16		15	
		17		20					20			
				19					19			
				18								
2A		21		2A	bar			bar	16		15	
		17		20					20			
				19					19			
				18								
1A		21		1A	bar			bar	16		15	
		17		20					20			
				19					19			
				18								

0	bar		14

1		21		1	bar			bar	16		15	
		17		20					20			
				19					19			
				18								
2		21		2	bar			bar	16		15	
		17		20					20			
				19					19			
				18								
3		21		3	bar			bar	16		15	
		17		20					20			
				19					19			
				18								
4		21		4	bar			bar	16		15	
		17		20					20			
				19					19			
				18								
5		21		5	bar			bar	16		15	
		17		20					20			
				19					19			
				18								
6		21		6	bar			bar	16		15	
		17		20					20			
				19					19			
				18								

B Port	11			12	**A Port**
	22				
Actuators side					**Handle side**

O.M.F.B. S.p.A. - Hydraulic Components - 25050 Provaglio d'Iseo (BS) - Via Cave, 7/9