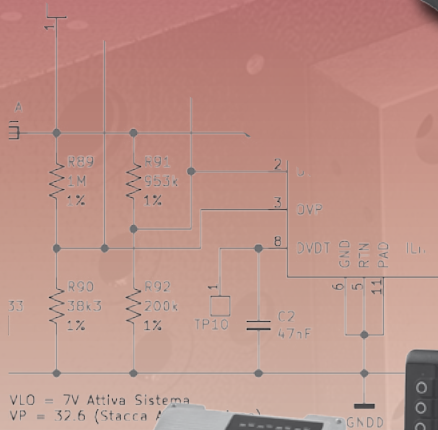
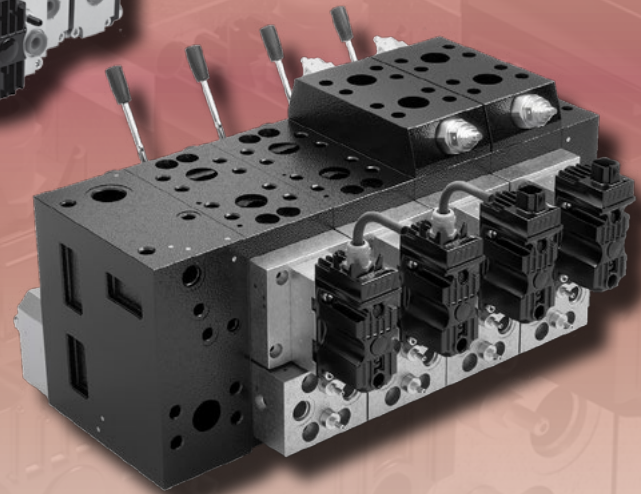
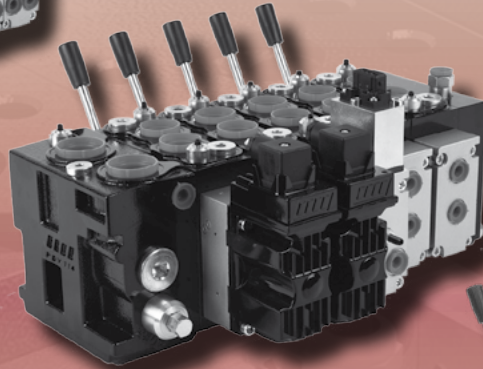
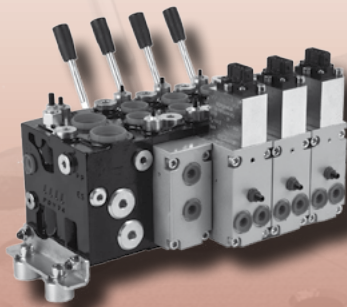


OMFB

HYDRAULIC POWER CONTROL

Proportional Directional Valves series: PDV315



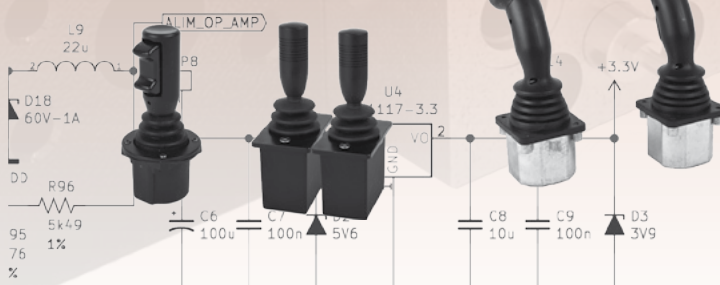
VLO = 7V Attiva Sistema
VP = 32.6 (Stacca A)
opo OVP la tensione
il sistema riparte



age and under voltage protection
nit
re
polarity
short circuit
Rispettare layout da datasheet. Thermal pad

00

OUT_VER_3_CAN_L



PRELIMINARY DATASHEET

General

The **PDV** technology platform, is the latest step in proportional directional valves configuration.

It takes mobile machine control to next level of performance, reliability, and feature stringent technical demands, exacting quality standard, and safety regulations.

Based on load sensing technology, are new breakthrough products with up-graded hydraulic functions that fulfil the ever increasing market demands for improved machines productivity, safety requirements, energy efficient and environmental operations.

They provides also a wide choice of control options, and are meant to be used in hazardous area also, according to **Atex 2014/34/UE Directive and IECEx** protocol.

Safety Conformity assessment

FMEA and **FMEDA**, (failure modes effects and diagnostic analysis), are systematic analysis technique applied in early phases of a given system development, in order to detect weak points early.

When it comes to more complex products and assemblies involving a combination of both electrical and hydraulic parts, the need to ensure that adequate surveillance over the design and manufacturing of key parts is paramount, to be compliance with the on-going series Standards **IEC 61508**.

Evaluation of the achieved performance level PL and relationship with SIL

Parts of machinery control systems that are assigned to provide safety functions are called safety-related parts of control systems and these can consist in hydraulic valves with hardware and software, and can either be separate from the machine control system or an integral part of it.

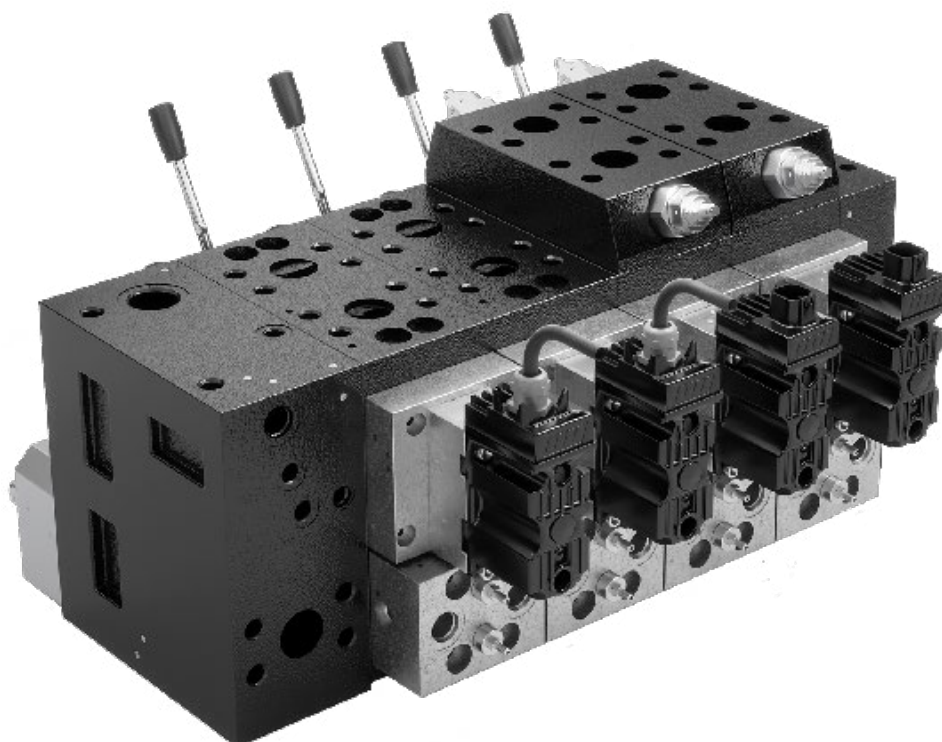
PDV units, can be requested to be applied as " logic units to ensure safety functions in accordance with Machine Directive EN 13849".

For the purpose of this part of Machine Directive, the ability of safety-related parts to perform a safety function is expressed through the determination of the performance level.

To make the assessment of the quantifiable aspects of the PL easier, this part of EN 13849 provides a simplified method based on the definition of five designated architectures that fulfil specific design criteria and behaviour under a fault condition.

Therefore, the machine builder or system integrator have full accountability for making the final products selection and assuring that all performance, safety and warning requirements of the application are being met.

PDV315 Proportional Directional valve

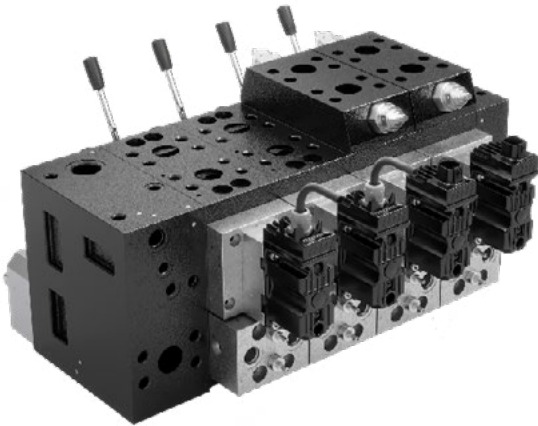


General description	298.
PIU solenoid LS unloading valves	302.
PDS flow control spool	306.
PDR spool centered set	308.
Modules and code numbers	312.
Shock and suction valves	317.
PDL Electrical LS A/B unloading	319.
PDL D Proportional Electrical LS A/B unloading	323.
PEAC131 Proportional closed loop spool control input signal 0,5 Udc	324.
PEAC132 Proportional closed loop spool control input signal control 0 ÷ 10 V	332.
PEAC136 Proportional closed loop spool control input signal control 4 ÷ 20 mA	340.
PEAC031 Proportional open loop spool control input signal 0,5 Udc	348.
PEAC032 Proportional open loop spool control input signal control 0 ÷ 10 V	355.
PEAC036 Proportional open loop spool control input signal control 4 ÷ 20 mA	362.
PEAD3 Proportional open loop spool control input signal PWM and ON-OFF	369.
PEAP3 Proportional open loop spool control input signal PWM and ON-OFF	375.
Overall dimension drawing	382.
Product selection chart	386.
Composition form	388.

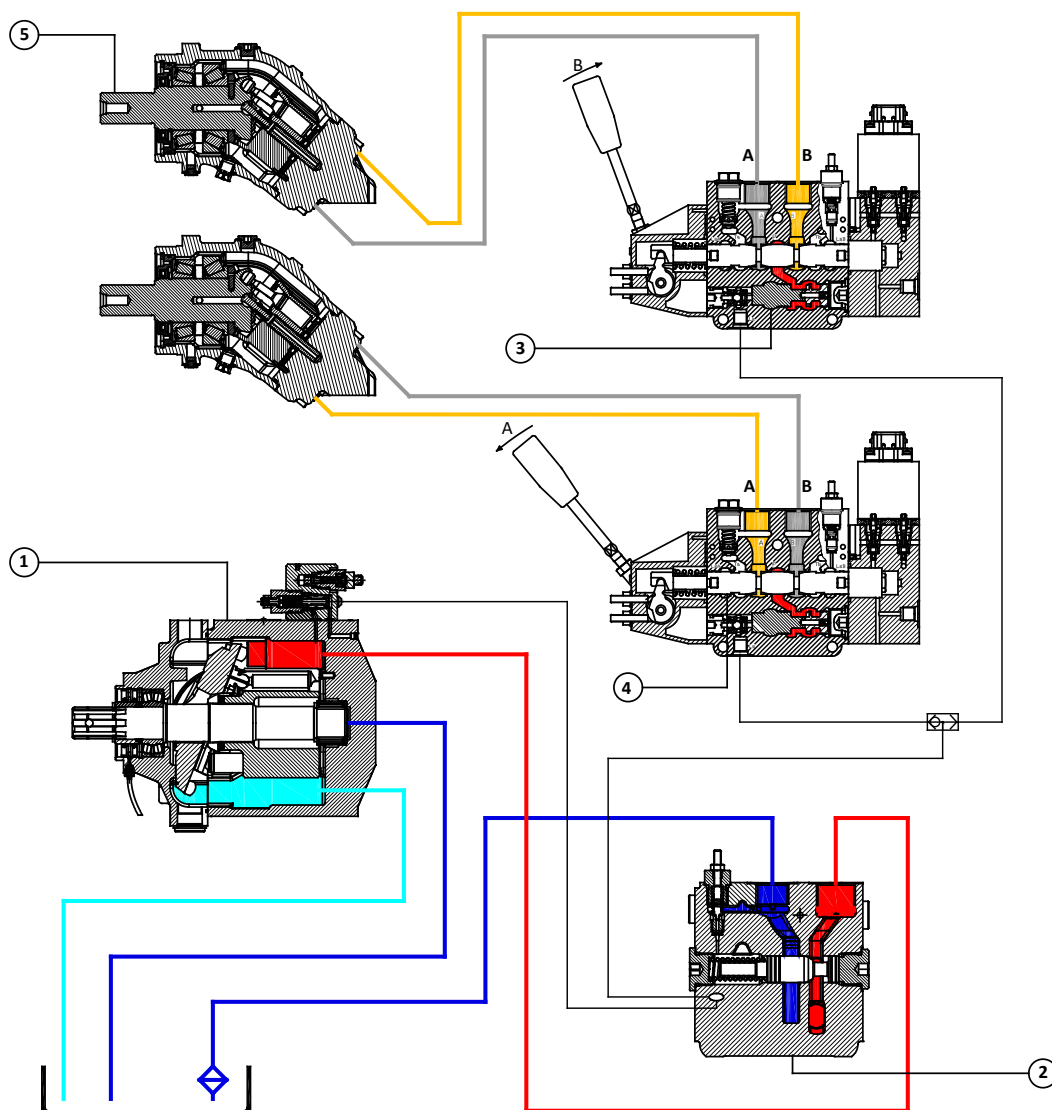
PDV315 Proportional valve
General description

PDV315 is a hydraulic proportional directional valve, designed to offers a wide range controls options and flexibility.

The **PDV315** 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.

**PDV315 main features:**

- Load sensing up-stream pressure compensation
- High flow/low pressure drop capability
- 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 communication
- 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 **PDV315** proportional valve ② which in turn feeds the down-stream working sections.

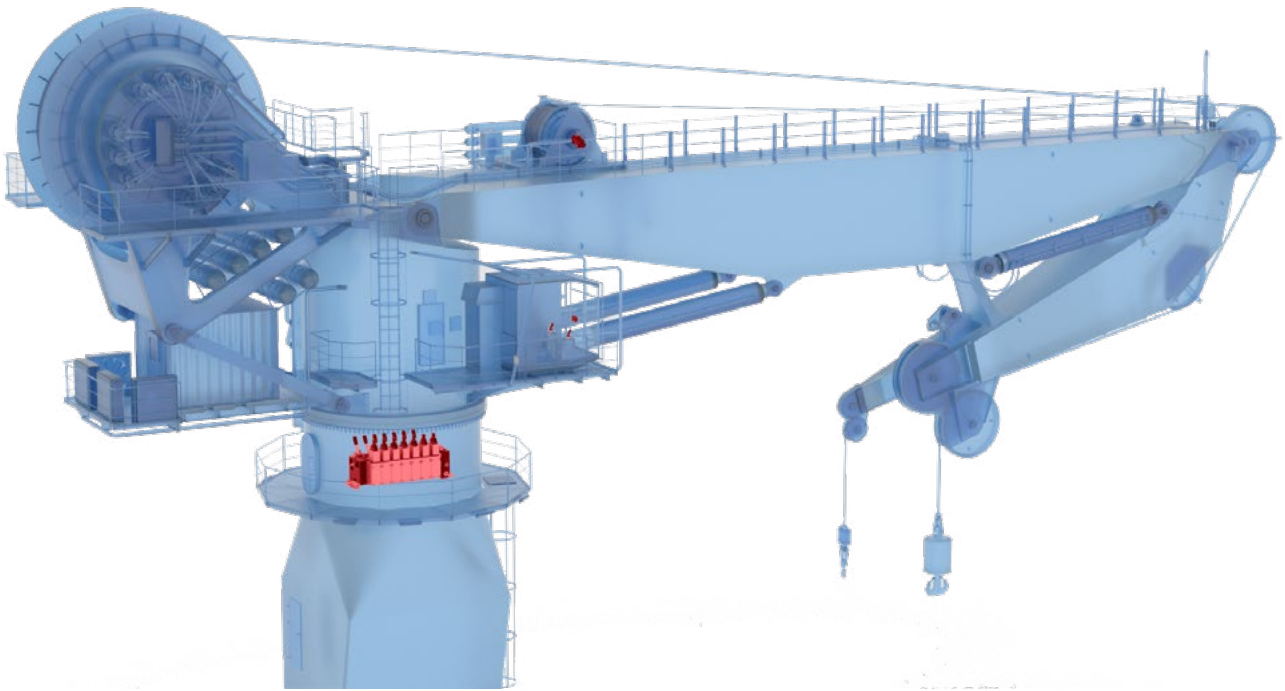
The **PDS** spool neutral position ④ unload the LS pump signal to tank, so that the swashplate angle is towards the minimum displacement and pressure in stand-by setting.

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. PPV90 load sensing piston pump
2. Pump splitter gear box
3. I/O controller PHSI7101008
4. PDV74/6 closed centre inlet
5. Electronic double axis joystick PEJD
6. Graphic display PDHI703000
7. PPM40 piston motors

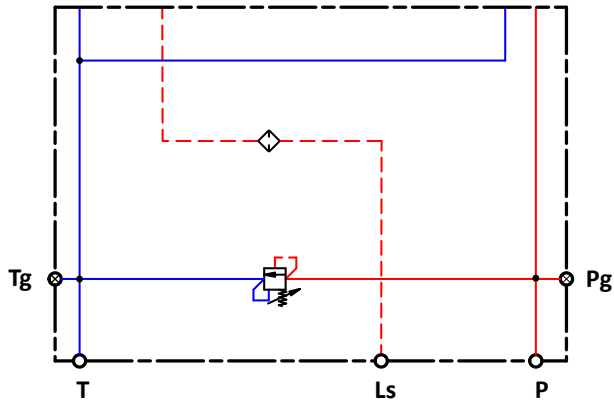
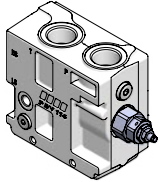
The hydraulic features listed in this chart, are typical measured data obtained by using mineral based hydraulic oil according to DIN 51524 with a viscosity of 21 mm²/sec [102 SUS] and a temperature of 50 °C [122 °F]

Oil flow rate	PDI inlet section, P port		600 l/min (max)	158 US gal/min
	PDIM - Mid inlet section, P port		600 l/min	158 US gal/min
	A, B port with pressure compensator		500 l/min	132 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	35 bar	508 psi
Max. pilot pressure oil supply			30 bar	435 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		9 mm	0,35 in
	Flow control proportional range		7,5 mm	0,3 in
	Pressure control propotional range		7,5 mm	0,3 in
Daed band spool	Flow control		1,5 mm	0,06 in
	Pressure control		1,5 mm	0,06 in
Max internal leakage A/B port at 100 bar [1450 psi] and 21 mm²/sec		A/B T without shock valves	100 cm³/min	6,1 in³/min
		A/B T with shock valves	115 cm³/min	7 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

Product
Hydraulic diagram
Description


For mechanically actuated valves, only

Code numbers

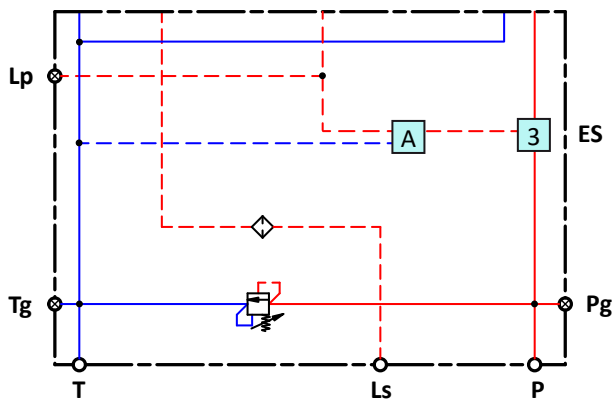
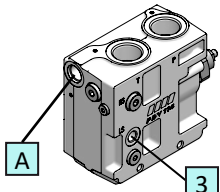
PDI01C30000

PDI01C30010

BSPP

UN-UNF

Connections thread see page [249](#)



With pilot oil supply for electrically and hydraulic actuated valves **3**

Code numbers

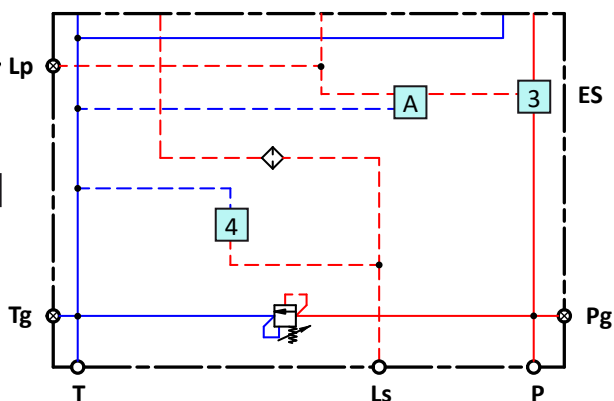
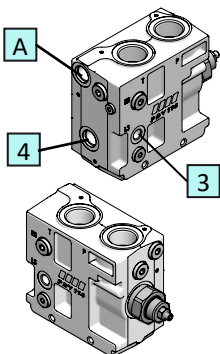
PDI01C40000

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

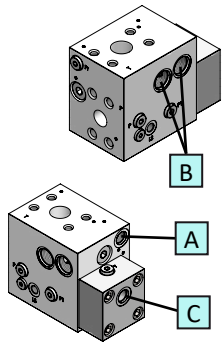
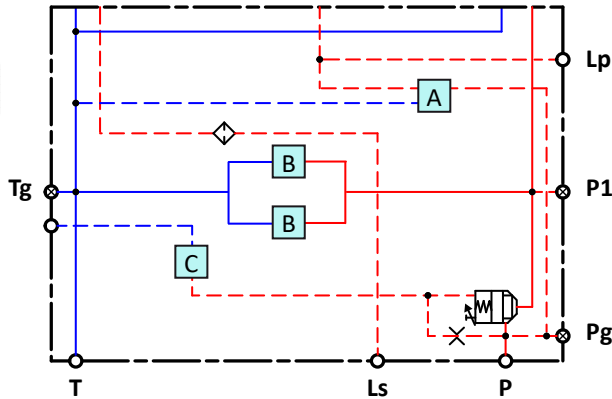
PDI01C41000

PDI01C41010

BSPP

UN-UNF

Connections thread see page [249](#)

Product

Hydraulic diagram

Description

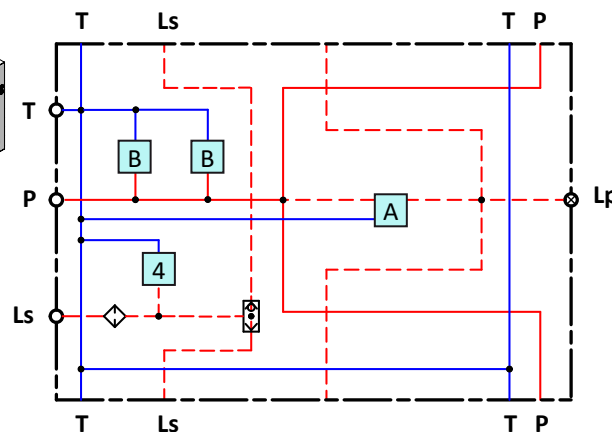
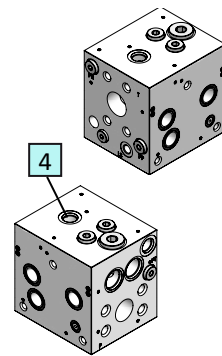
With pilot oil supply for electrically and hydraulic actuated valves **3** and cut-off system

Code numbers

PDI01C44000
PDI01C44010

BSPP

UN-UNF

 Connections thread see page [249](#)


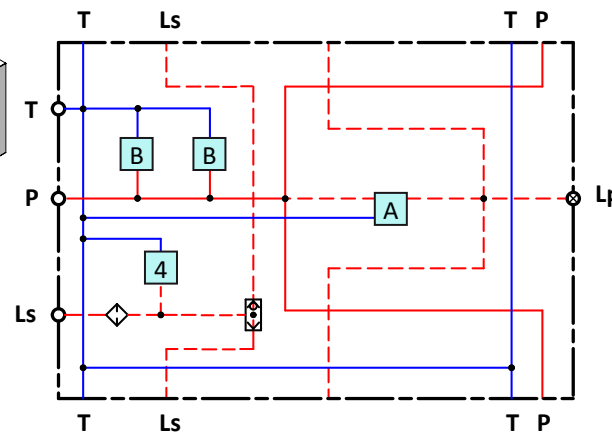
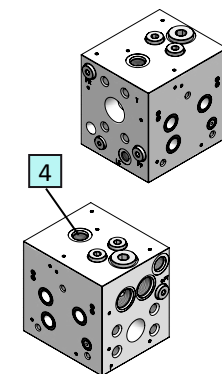
MID inlet PDV114 with pilot oil supply for electrically and hydraulic actuated valves and facility for LS unloading **4**

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

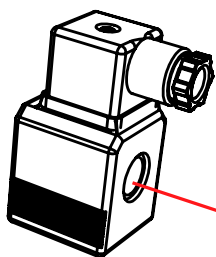
PDIM4C41000
PDIM4C41010

BSPP

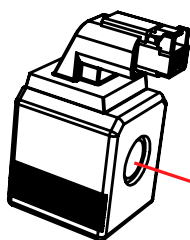
UN-UNF

 Connections thread see page [166](#)

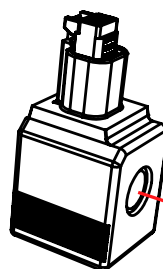
DIN 43650A



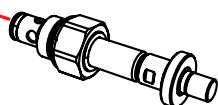
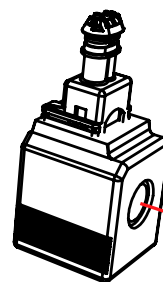
Deutsch Parallel



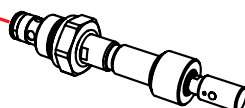
Deutsch Perpendicular



Junior Power Timer



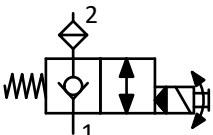
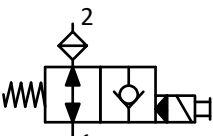
Normally closed
 Emergency: screw



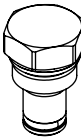

Normally open
 Emergency: push and twist

Code numbers

PIU solenoid LS unloading valve codes

Cartridge valve type	Connector type	12 Vdc	24 Vdc
Normally closed Emergency: screw 	DIN 43650A	PIU0C023200	PIU0C013200
	Deutsch Parallel	PIU0C021200	PIU0C011200
	Deutsch Perpendicular	PIU0C022200	PIU0C012200
	Junior Power Timer	PIU0C024200	PIU0C014200
Normally open Emergency: push and twist 	DIN 43650A	PIU0A023100	PIU0A013100
	Deutsch Parallel	PIU0A021100	PIU0A011100
	Deutsch Perpendicular	PIU0A022100	PIU0A012100
	Junior Power Timer	PIU0A024100	PIU0A014100

Plug for LS unloading cavity

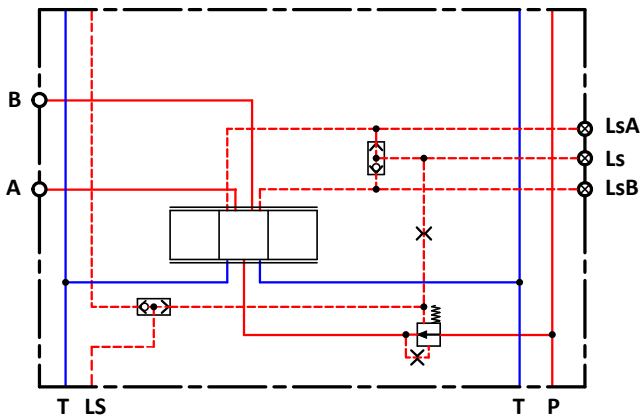
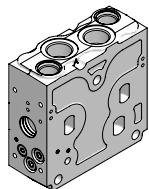
Plug cavity	Hydraulic scheme	Code numbers
		PIP10000000

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

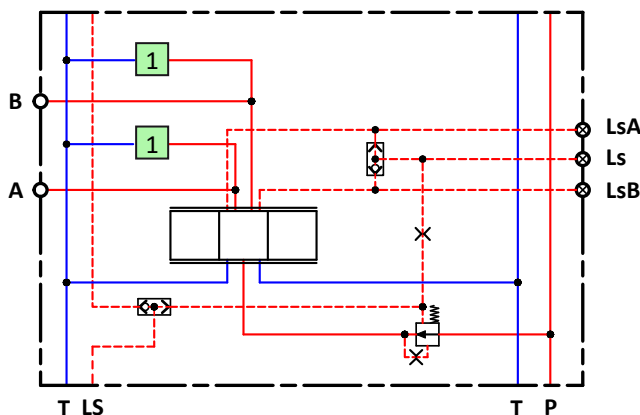
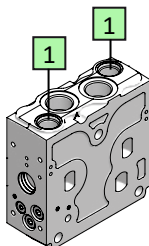
PDW11000000
PDW11000010

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

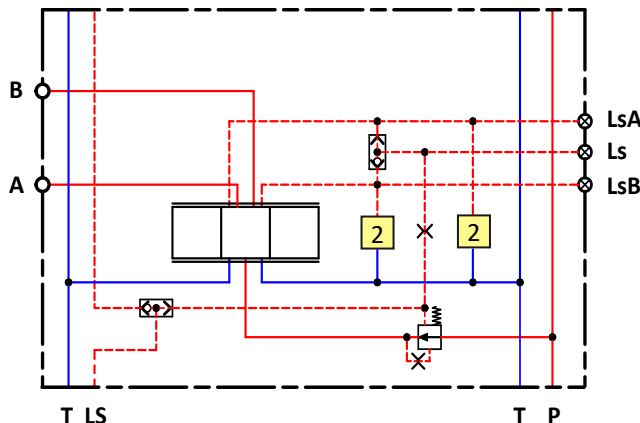
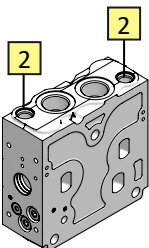
PDW11010000
PDW11010010

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

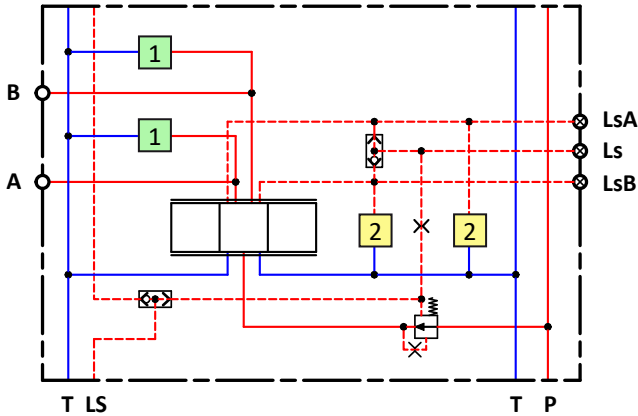
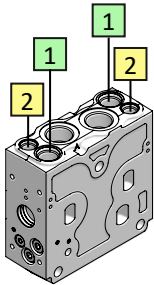
PDW11100000
PDW11100010

BSPP

UN-UNF

A/B ports 3/4"
Ls-LsA-LsB remote
pressure connections
1/4"

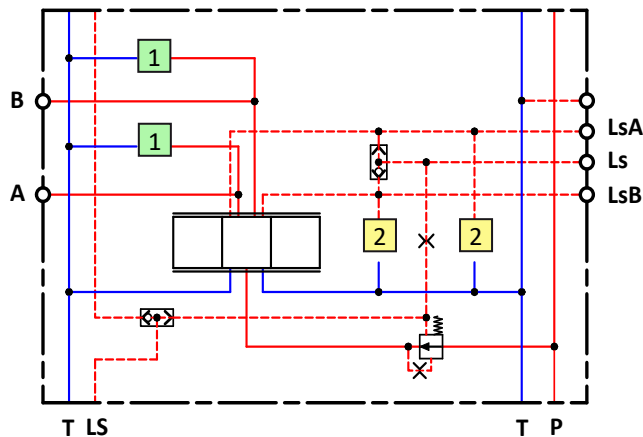
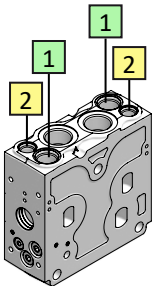
A/B ports
1-1/16"-12UNF-2B
Ls-LsA-LsB remote
pressure connections
7/16"-20UNF-2B

Product
Hydraulic diagram
Description


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

Code numbers

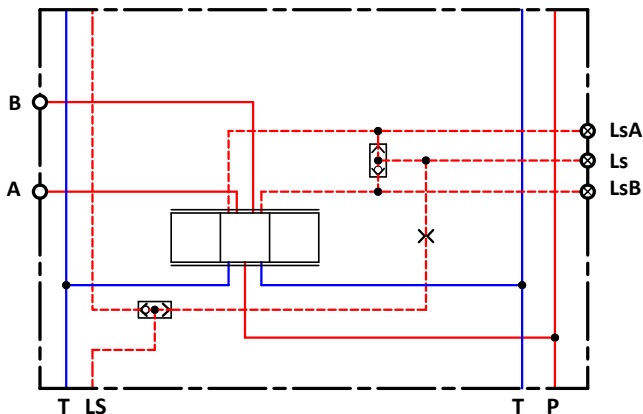
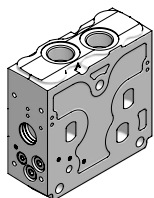
PDW11110000	PDW11110010
BSPP	UN-UNF
A/B ports 3/4" Ls-LsA-LsB remote pressure connections 1/4"	A/B ports 1-1/16"-12UNF-2B Ls-LsA-LsB remote pressure connections 7/16"-20UNF-2B



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


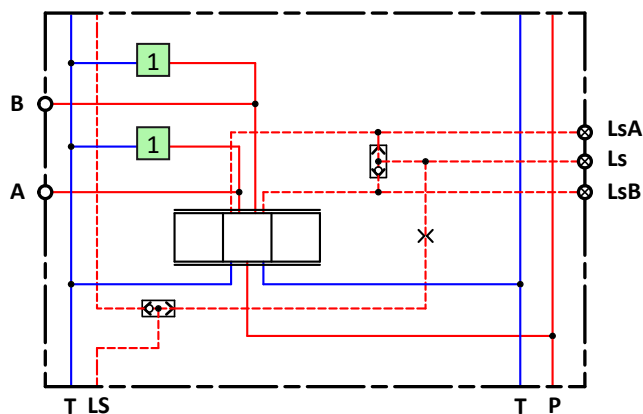
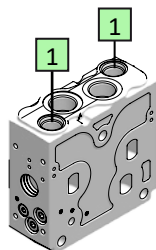
No facilities for shock-suction valves

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


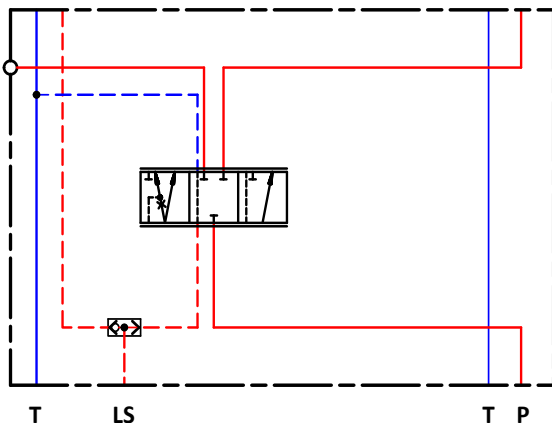
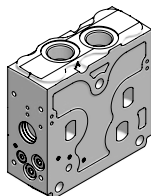
Facilities for shock-suction valves **1**

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

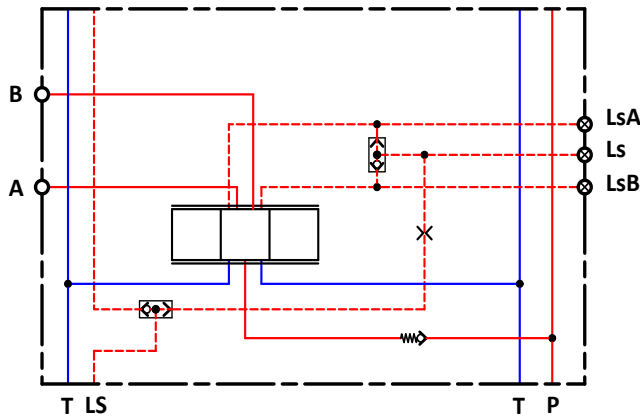
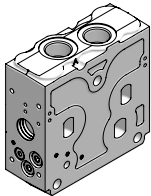
Code numbers
PDW15000000
PDW15000010

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

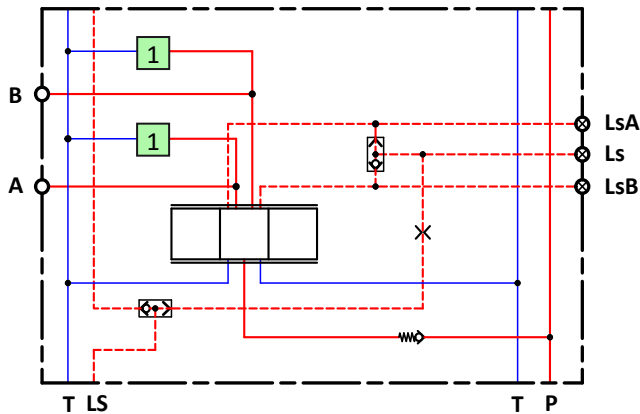
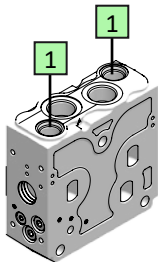
Code numbers
PDW13000000
PDW13000010

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

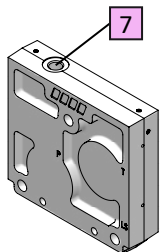
BSPP

UN-UNF

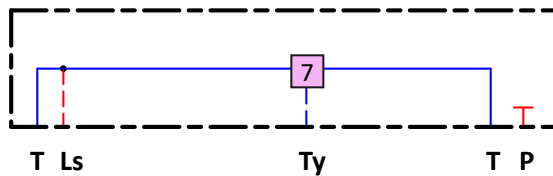
A/B ports 3/4"
Ls-LsA-LsB piloting
connections 1/4"

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

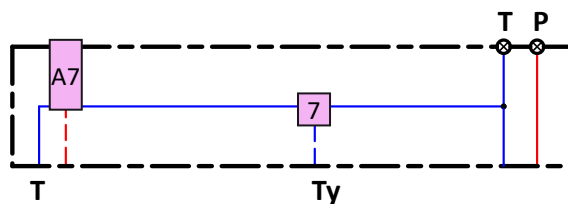
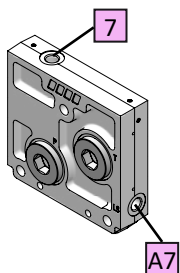
PDE01010000

PDE01010010

BSPP

UN-UNF

Connections thread see page [249](#)



Ls port **A7** prearranged for external/internal drain **7**

Code numbers

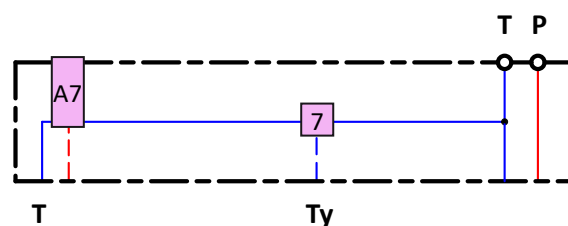
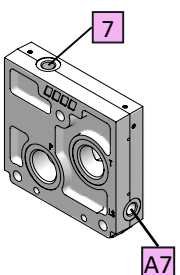
PDE01210000

PDE01210010

BSPP

UN-UNF

Connections thread see page ____



P-T-Ls ports **A7** prearranged for external/internal drain **7**

Part number

PDE01110000

PDE01110010

BSPP

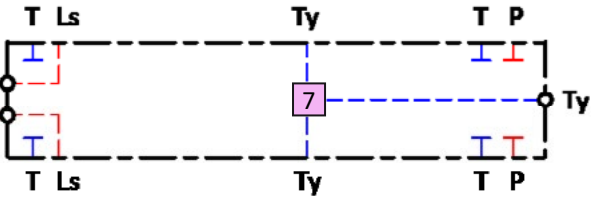
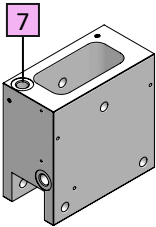
UN-UNF

Connections thread see page ____

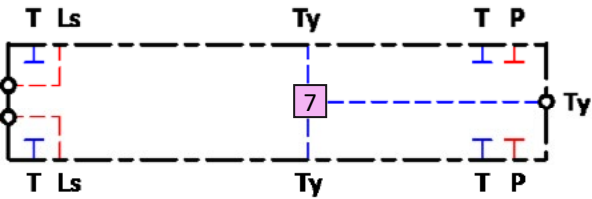
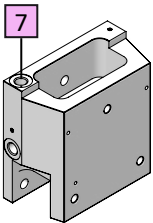
Product

Hydraulic diagram

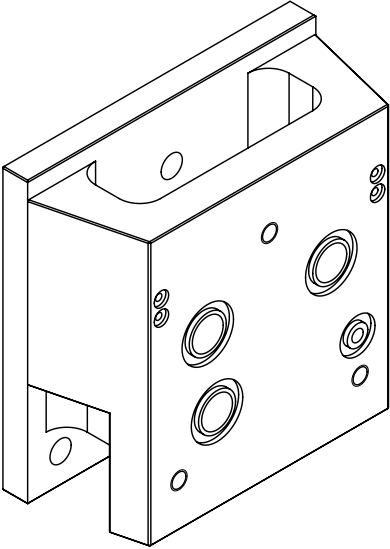
Description

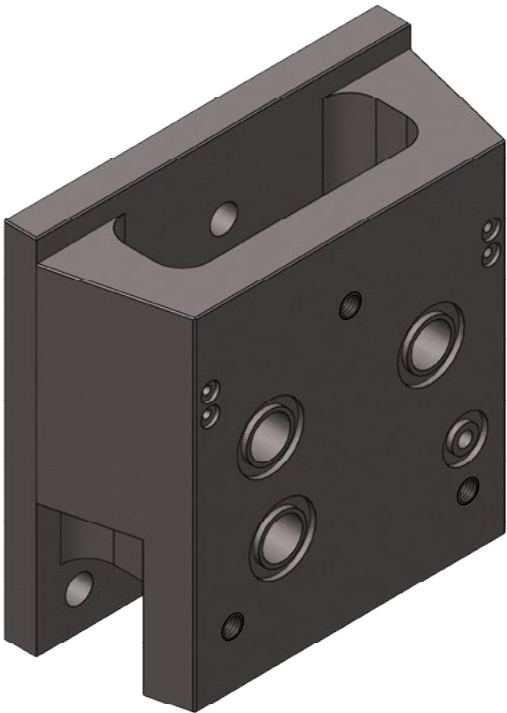


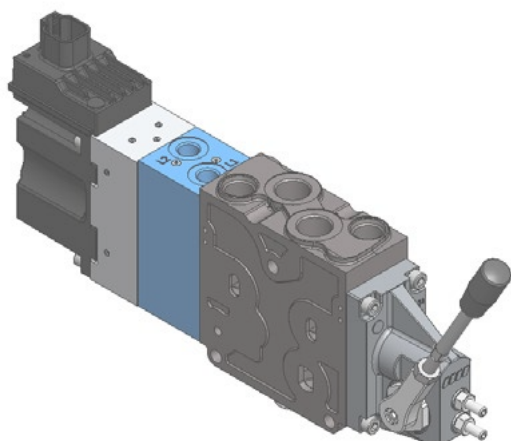
Mid End PDV114 7	
Code numbers	
PDEM1010000	PDEM1010010
BSPP	UN-UNF
Connections thread see page 255	



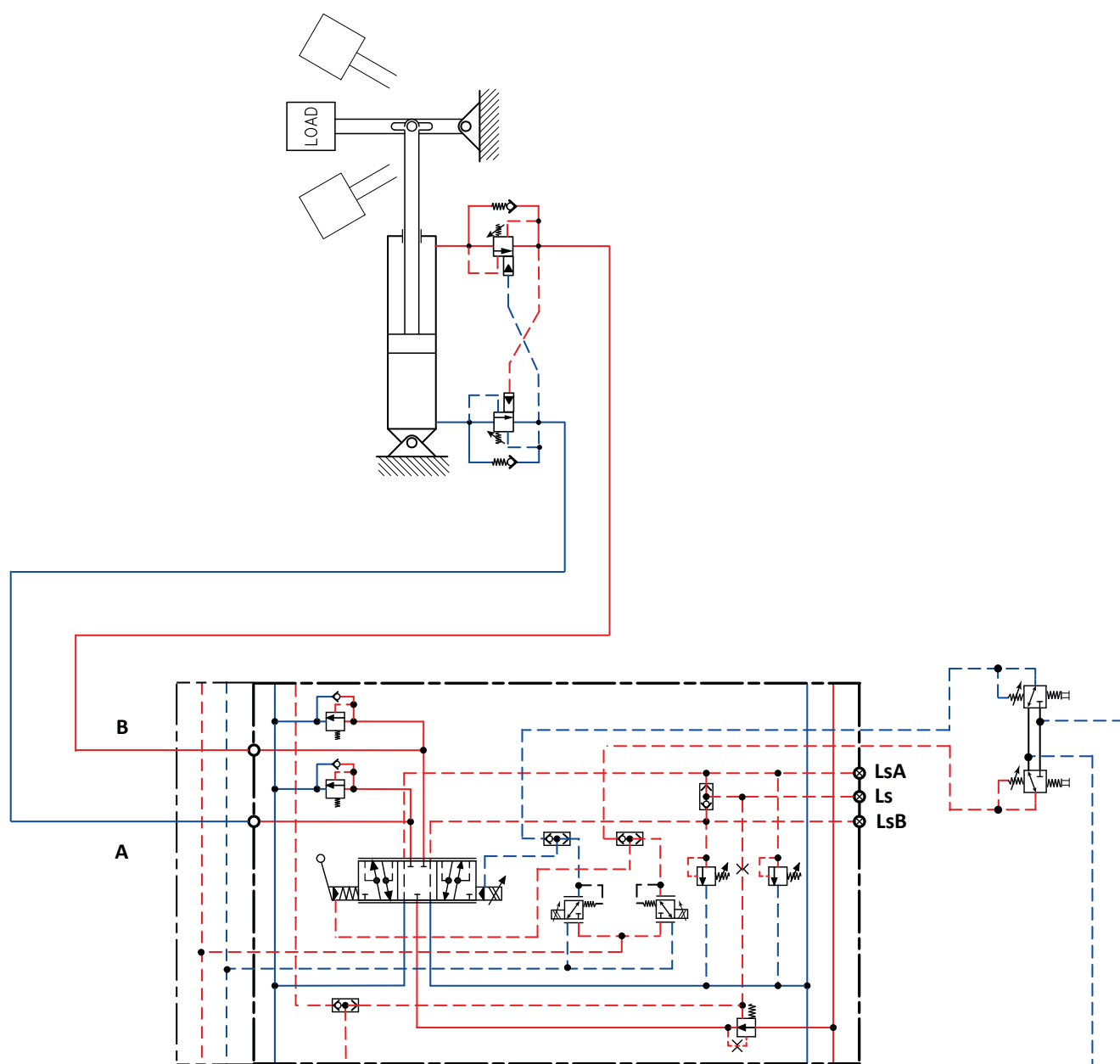
Mid End PDV117 7	
Code numbers	
PDEM4010000	PDEM4010010
BSPP	UN-UNF
Connections thread see page 265	

	Description	PDEI4000000





PDZ is a small HIC body that can be matched with any kind of PDV74 working section PDW, to get hydraulic and electro-hydraulic spool control

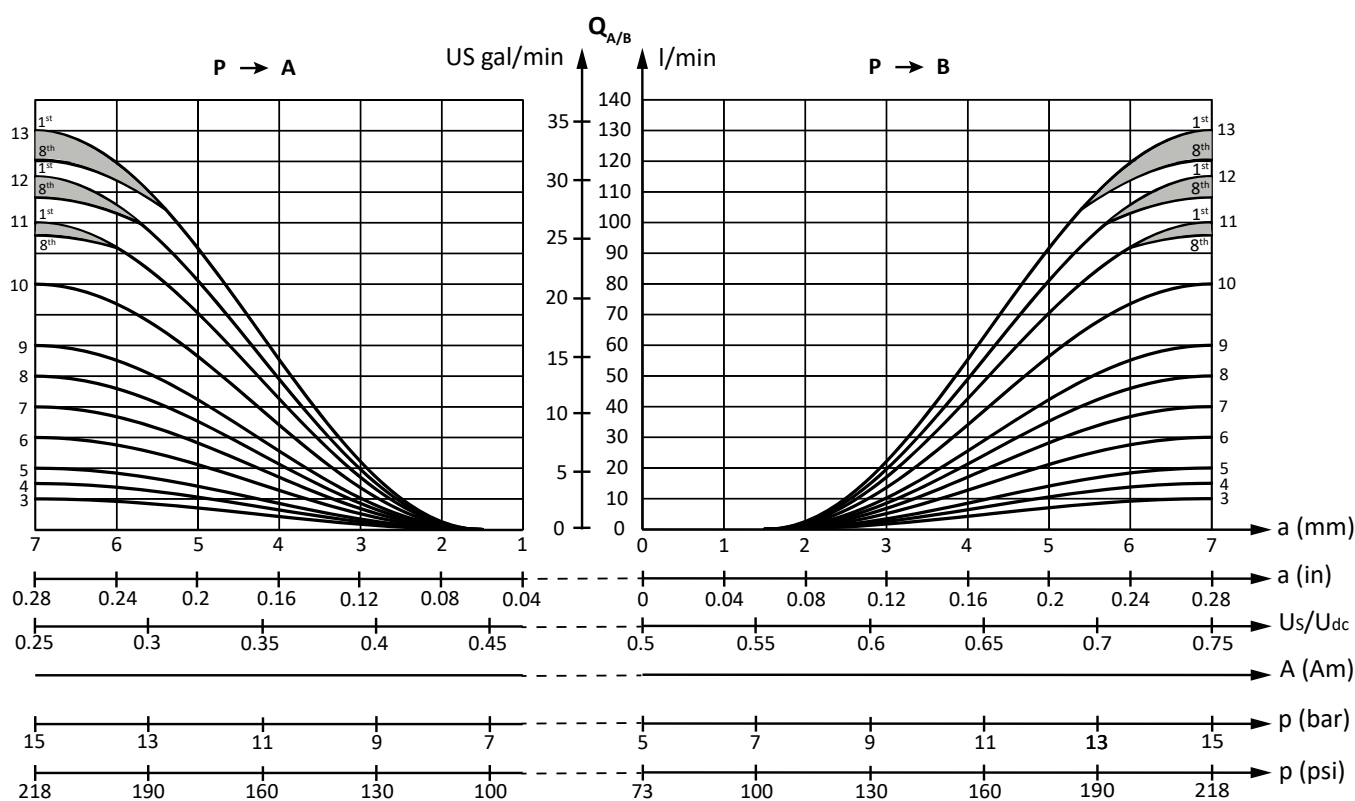
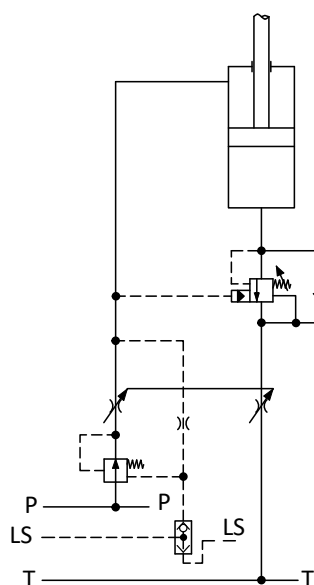


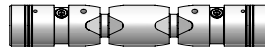
PDZ overall dimensions	For open loop spool control	For closed loop spool control
	PDZ70000000 1/4" BSPP - 12 mm deep	PDZ 1/4" BSPP - 12 mm deep
	PDZ [7/16 in-20 UNF-2B - 0,47 in deep]	PDZ [7/16 in-20 UNF-2B - 0,47 in deep]

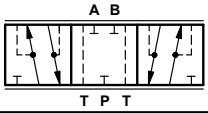
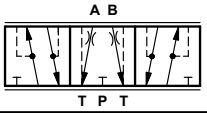
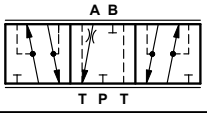
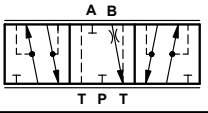
Oil flow characteristics

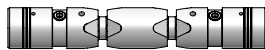
With flow control spool, the oil flow depends on type of PDW module (with or without pressure compensator) and type of pump (fixed or variable displacement).

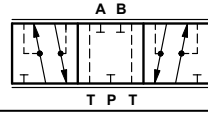
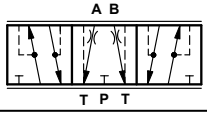
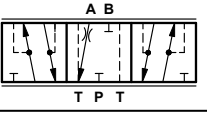
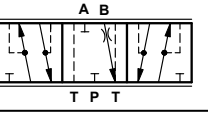
In the below chart, the ordinate numbers refer to spool size, and the ordinal numbers refer to the same spool size but fitted in a different position with related lost flow.

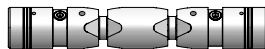


Double acting flow control spool


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					
2					
3					
4					
5					
5,5					
6					
7					
8					
9					
10					
11					
12					
13					

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
15	7,5				
20	40				
25	15				
30	40				
40	20				
40	30				
40	60				
50	30				
60	40				
65	30				
75	30				
80	40				
110	40				
130	60				


Single acting flow control spool


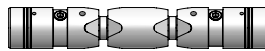
Size	Max oil flow pressure compensated l/min	Symbol and code numbers	
		3-way, 3-position $P \rightarrow A$	3-way, 3-position $P \rightarrow B$
1	7,5		
2	15		
3	20		
4	30		
5	40		
6	50		
7	60		
8	80		
9	100		

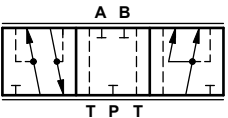
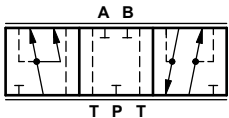
Double acting flow control spool, floating position


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	10		
2	15		
3	25		
4	40		
5	50		


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

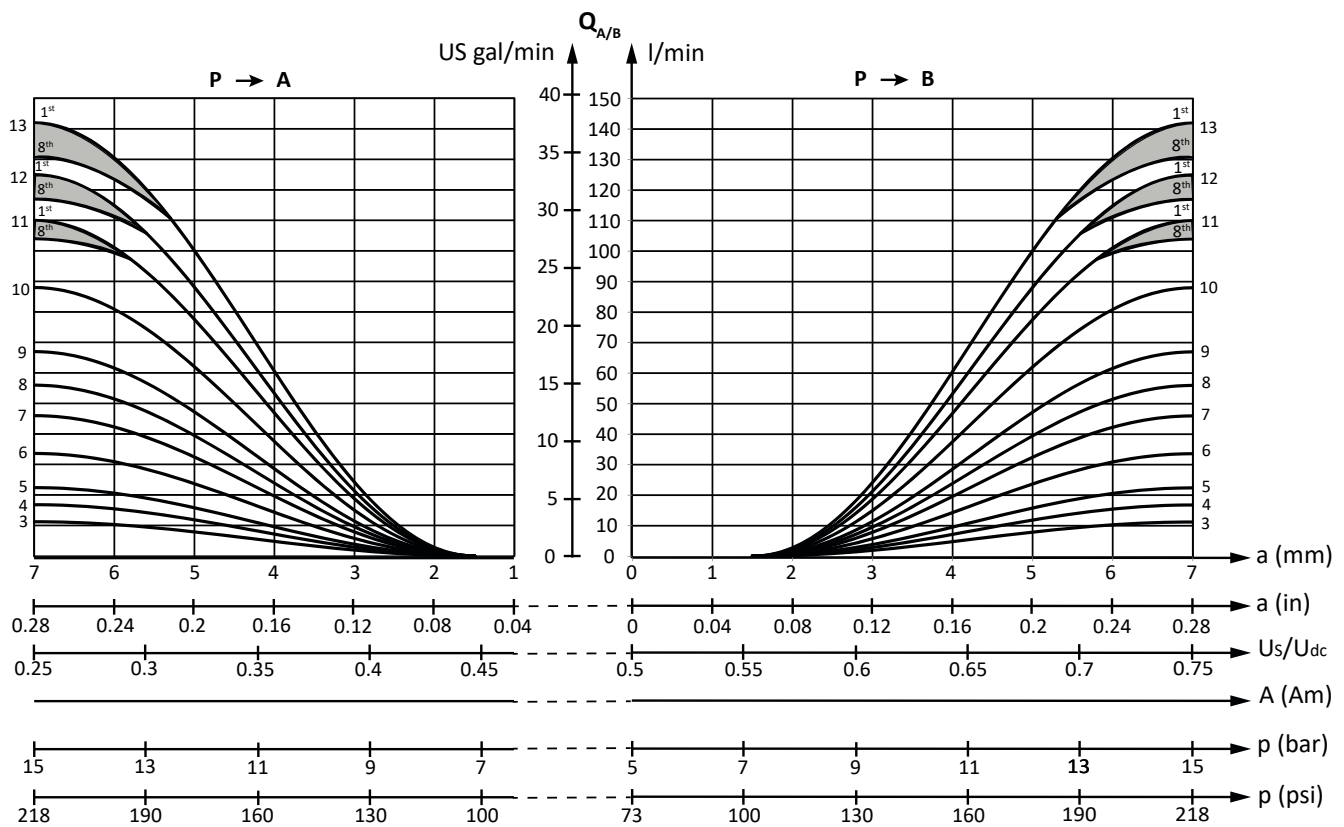
Tightening torque		Tightening torque
6^{+1}_0 Nm		6^{+1}_0 Nm
$53,1^{+8,85}_0$ lb*in		$53,1^{+8,85}_0$ lb*in
Manual control	PDR00300101	
Hydraulic - Electrohydraulic	PDR00300102	

Double acting flow control, regenerative function


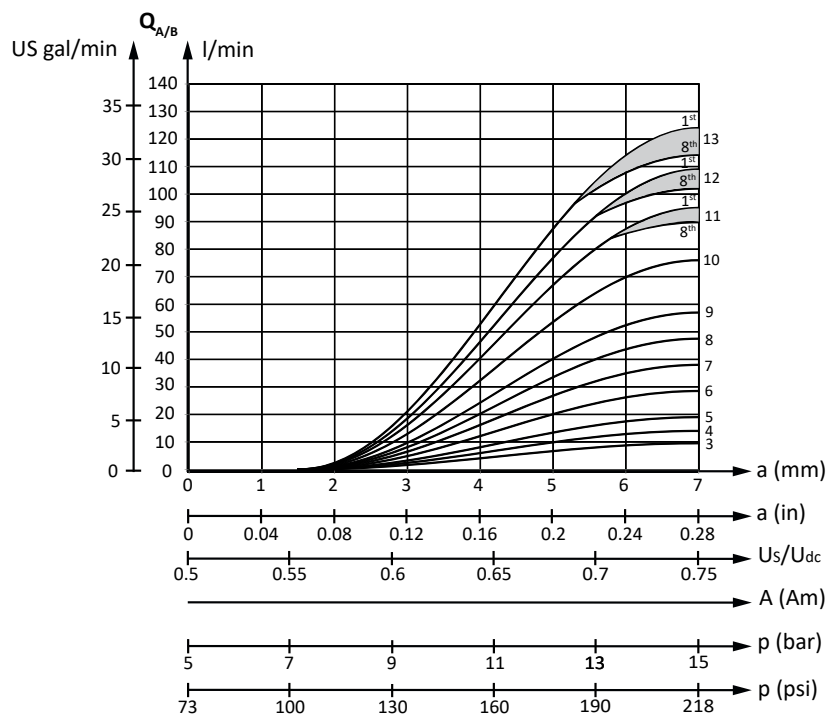
Size	Max oil flow pressure compensated l/min	Symbol and code numbers	
			
		Regenerative circuit on A port	Regenerative circuit on B port
1	7,5		
2	15		
3	20		
4	30		
5	40		
6	50		
7	60		
8	80		
9	100		
10	130		

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

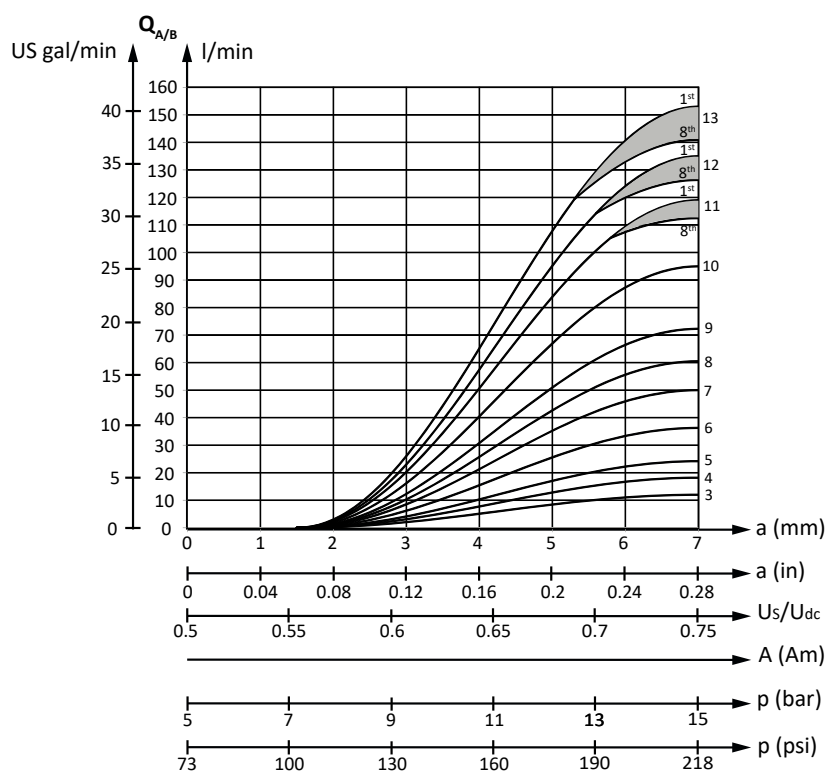
Tightening torque		Tightening torque
6^{+1}_0 Nm		6^{+1}_0 Nm
$53,1^{+8,85}_0$ lb*in		$53,1^{+8,85}_0$ lb*in
Manual control	PDR00300101	
Hydraulic - Electrohydraulic	PDR00300102	

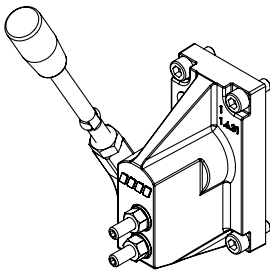
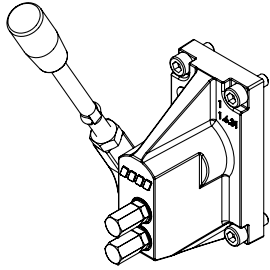
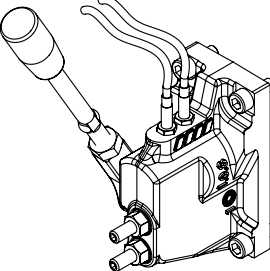
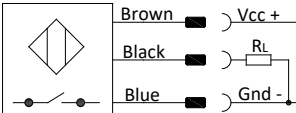
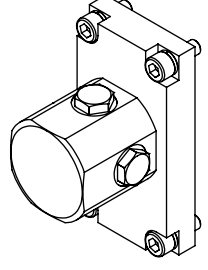
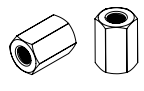


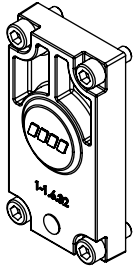
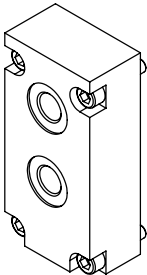

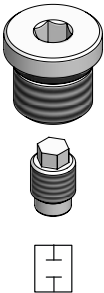
Oil flow characteristics PDW without pressure compensator, and pump differential pressure setting = 16 bar

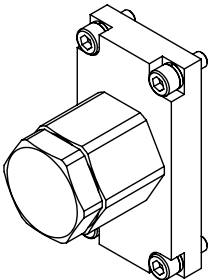
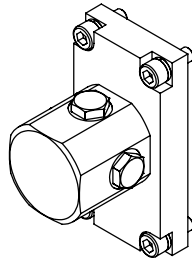


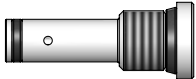
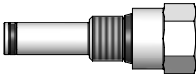
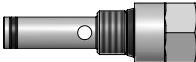



Oil flow characteristics PDW without pressure compensator, and pump differential pressure setting = 25 bar



Product	Description	Aluminium	Cast iron
PDM 	Mechanical actuation	With lever	
		PDM10101000	PDM11101000
		Without lever	
		PDM101000000	PDM111000000
PDM 	Mechanical actuation, with flow adjustment nuts protection	PDM10200000	PDM11200000
PDM 	Mechanical actuation with directional sensors for electrical monitoring of spool valve movement  <p> Brown — Vcc + Black — R_L Blue — Gnd - </p> <p> Vcc 10 V ... 30 V I_L < 200 mA </p>	With lever	
		Normally closed: PDM1111100	
		Normally open: PDM1112100	
PDF 	Friction detent (for mechanical actuation only)	Cast iron only	
		PDF10000000	
	Flow adjustment protection nuts for PDM mechanical control		

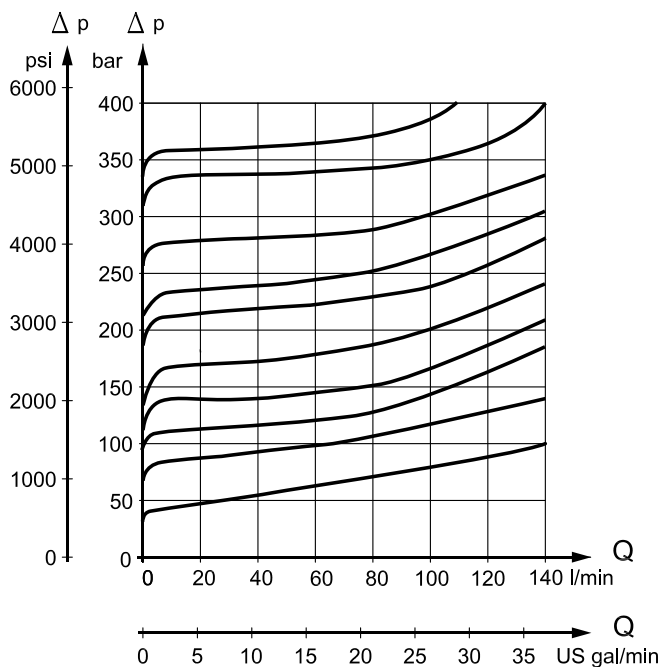
Product	Description	Aluminium	Cast iron
PDC 	Rear cover for mechanical actuation	PDC00000000	PDC10000000
PDH 	Hydraulic actuation	A/B pilot port 1/4 BSPP deep: 12 mm (0,47 in) PDH70000000	A/B pilot port 1/4 BSPP deep: 12 mm (0,47 in) PDH71000000
		A/B pilot port 7/16-20UNF-2B deep: 12 mm (0,47 in) PDH70000100	A/B pilot port 7/16-20UNF-2B deep: 12 mm (0,47 in) PDH71000100
	Pilot LS _{A/B} relief valve	10 ÷ 40 bar	PLS0A100000
		41 ÷ 80 bar	PLS0A200000
		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 PDD30100000	
		P→A - free P→B - lock PDD30010000	
		P→A - lock P→B - lock PDD30110000	
		P→A - float P→B - free PDD30200000	
		P→A - free P→B - float PDD30020000	
PDF 	Friction control		PDF12000001

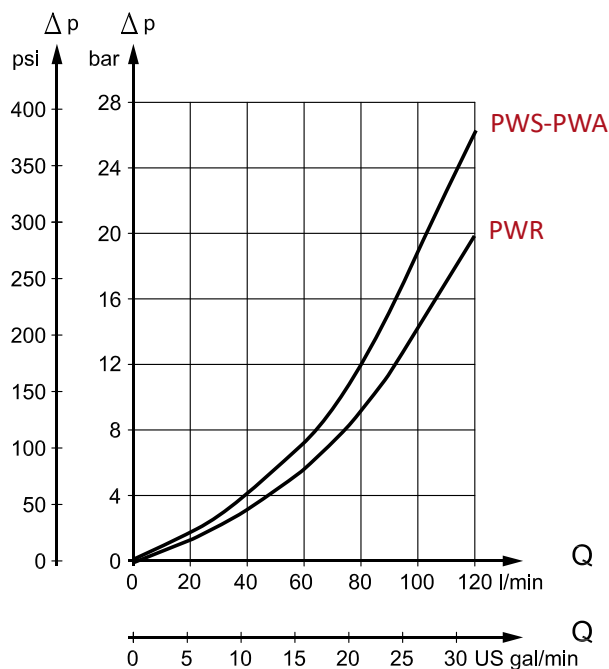
Product	Description	Code numbers	
PIZ 	For PDI with internal pilot oil supply	PIZ10000000	
PIY 	For PDI with external pilot oil supply	A/B pilot port 1/4 BSPP deep: 12 mm (0,47 in) PIY10000000	A/B pilot port 7/16-20UNF-2B deep: 12 mm (0,47 in) PIY10000010
	For PDE with external drain line electrical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

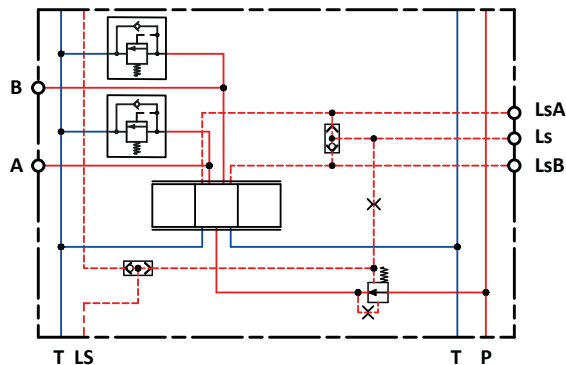
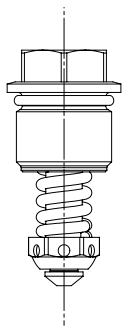
PWS, PWA and **PWB** are shock suction valves design to absorb shock effects only, and they should never be used as a pressure relief valves.

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

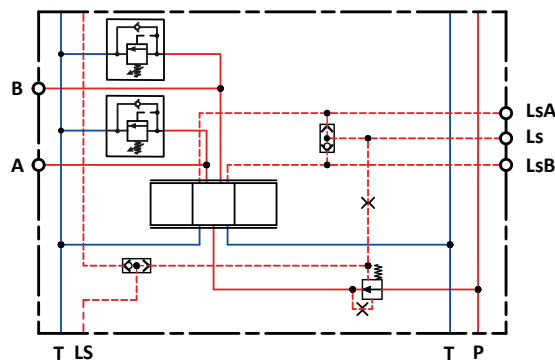
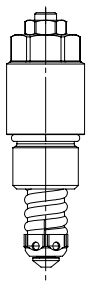


PWR suction valve

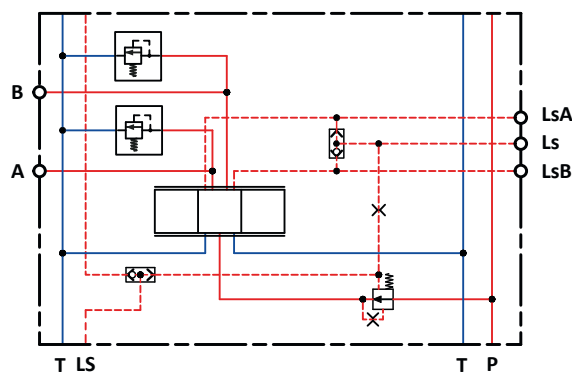
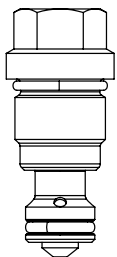


PWS shock and suction valve for A/B port. Not adjustable


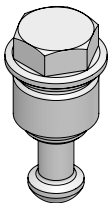
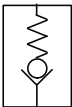
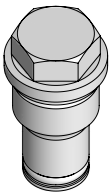

Setting Pressure(bar)	Code numbers
50	PWS7M180050
70	PWS7M180070
90	PWS7M180090
110	PWS7M180110
130	PWS7M180130
150	PWS7M180150
180	PWS7M180180
200	PWS7M180200
230	PWS7M180230
260	PWS7M180260
290	PWS7M180290
320	PWS7M180320
350	PWS7M180350
380	PWS7M180380

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


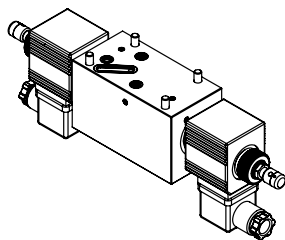
Range setting (bar)	Code numbers
20 ÷ 70	PWA7M180N00
71 ÷ 130	PWA7M180B00
131 ÷ 210	PWA7M180G00
211 ÷ 280	PWA7M180V00
281 ÷ 350	PWA7M180W00
351 ÷ 420	PWA7M180R00

PWB shock valve for A/B port. Not adjustable


Setting pressure(bar)	Code numbers
50	PWB7M180050
70	PWB7M180070
90	PWB7M180090
110	PWB7M180110
130	PWB7M180130
150	PWB7M180150
180	PWB7M180180
200	PWB7M180200
230	PWB7M180230
260	PWB7M180260
290	PWB7M180290
320	PWB7M180320
350	PWB7M180350
380	PWB7M180380

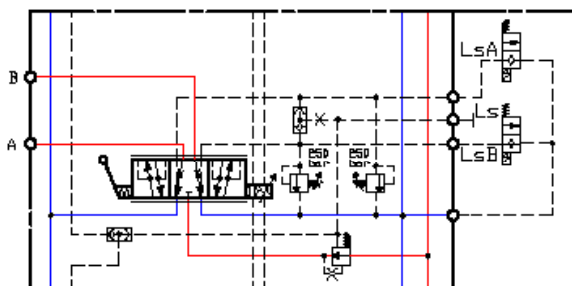
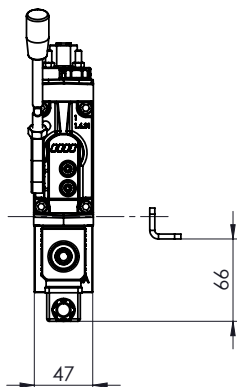
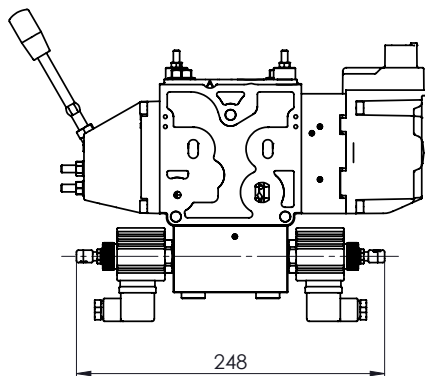
PWR suction valve for A/B port		
Product	Hydraulic diagram	Code numbers
		PWR7M180000
Plug for PWS - PWA - PWB and PWR cavity		
Product	Hydraulic diagram	Code numbers
		PWP7M18000

PDV315 Proportional Valve
PDL module - **Electrical LSA/B unloading**
ON-OFF actuation normally closed

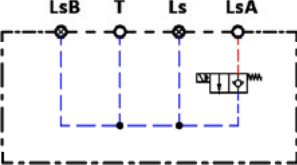
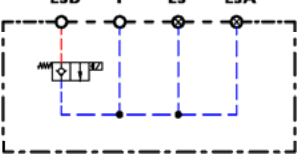
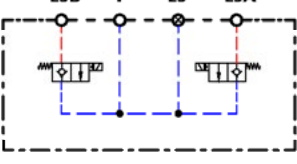
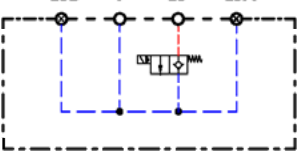


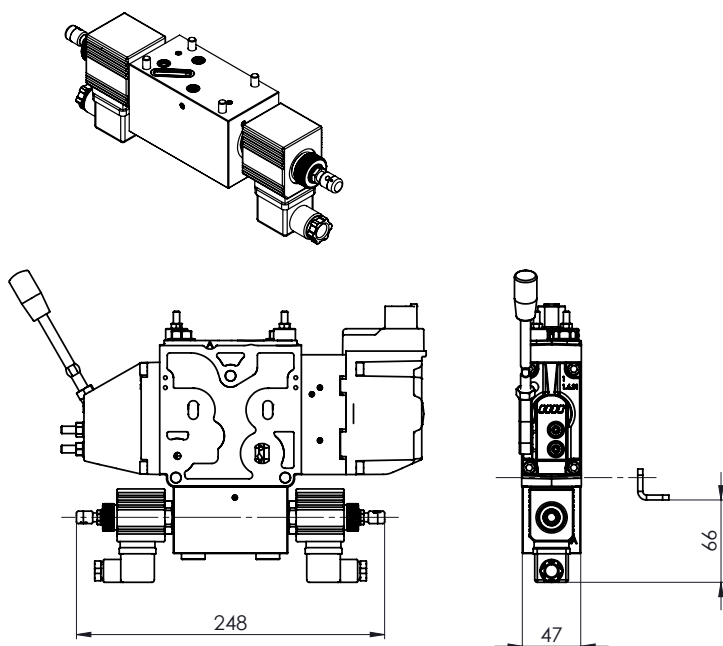
When PDL is energized, the piloting signal is lead to tank and in turn the work port oil flow will be cutted off.

PDL modules is always to be matched with PDW pressure compesated.

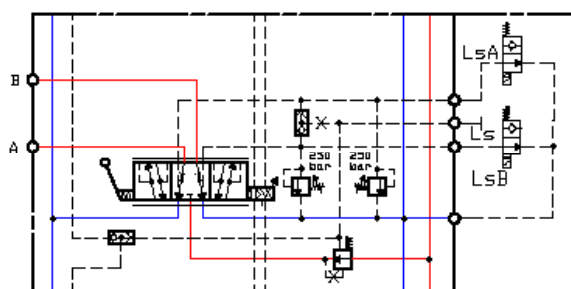


PDL code numbers			
Hydraulic diagram	Connector type	12V dc	24V dc
<i>Active on LsA</i> 	Deutsch Parallel	PDL12C11200	PDL12C31200
	Deutsch Perpendicular	PDL12C12200	PDL12C32200
	DIN	PDL12C13200	PDL12C33200
	JPT	PDL12C14200	PDL12C34200
<i>Active on LsB</i> 	Deutsch Parallel	PDL13C11200	PDL13C31200
	Deutsch Perpendicular	PDL13C12200	PDL13C32200
	DIN	PDL13C13200	PDL13C33200
	JPT	PDL13C14200	PDL13C34200
<i>Active on LsA and LsB</i> 	Deutsch Parallel	PDL11C11200	PDL11C31200
	Deutsch Perpendicular	PDL11C12200	PDL11C32200
	DIN	PDL11C13200	PDL11C33200
	JPT	PDL11C14200	PDL11C34200
<i>Active on Ls</i> 	Deutsch Parallel	PDL14C11200	PDL14C31200
	Deutsch Perpendicular	PDL14C12200	PDL14C32200
	DIN	PDL14C13200	PDL14C33200
	JPT	PDL14C14200	PDL14C34200

PDL code numbers			
Hydraulic diagram	Connector type	12V dc	24V dc
<i>Active on LsA</i> 	Deutsch Parallel	PDL32C11200	PDL32C31200
	Deutsch Perpendicular	PDL32C12200	PDL32C32200
	DIN	PDL32C13200	PDL32C33200
	JPT	PDL32C14200	PDL32C34200
<i>Active on LsB</i> 	Deutsch Parallel	PDL33C11200	PDL33C31200
	Deutsch Perpendicular	PDL33C12200	PDL33C32200
	DIN	PDL33C13200	PDL33C33200
	JPT	PDL33C14200	PDL33C34200
<i>Active on LsA and LsB</i> 	Deutsch Parallel	PDL35C11200	PDL35C31200
	Deutsch Perpendicular	PDL35C12200	PDL35C32200
	DIN	PDL35C13200	PDL35C33200
	JPT	PDL35C14200	PDL35C34200
<i>Active on Ls</i> 	Deutsch Parallel	PDL34C11200	PDL34C31200
	Deutsch Perpendicular	PDL34C12200	PDL34C32200
	DIN	PDL34C13200	PDL34C33200
	JPT	PDL34C14200	PDL34C34200

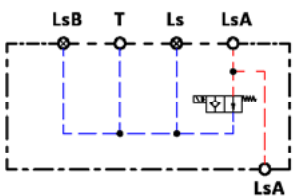
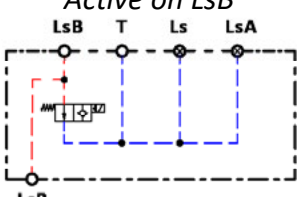
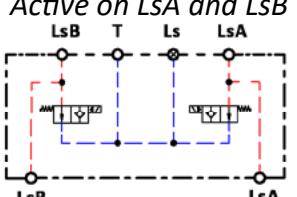
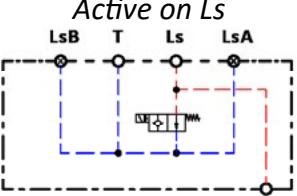


When PDL is deenergized, the piloting signal is lead to tank and in turn the work port oil flow will be cutted off.
PDL modules is always to be matched with PDW pressure compesated.

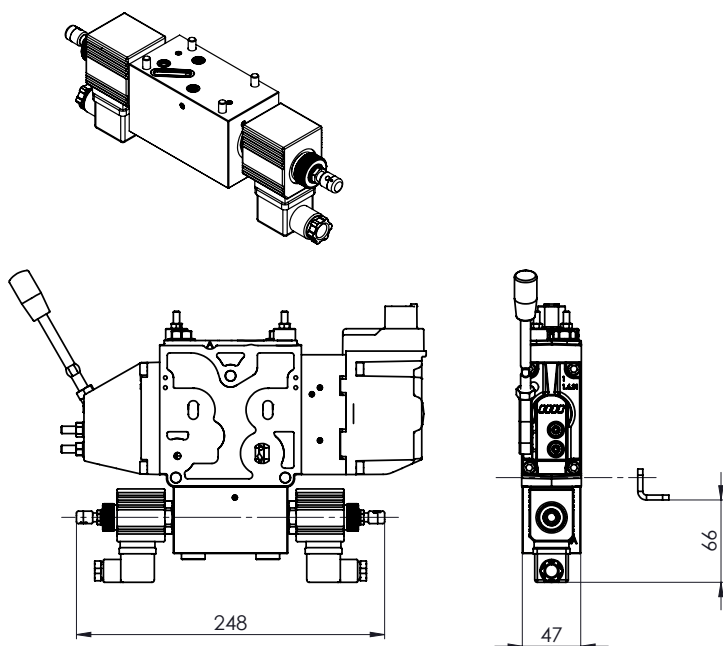


PDL code numbers			
Hydraulic diagram	Connector type	12V dc	24V dc
Active on LsA 	Deutsch Parallel	PDL32A11100	PDL32A31100
	Deutsch Perpendicular	PDL32A12100	PDL32A32100
	DIN	PDL32A13100	PDL32A33100
	JPT	PDL32A14100	PDL32A34100
Active on LsB 	Deutsch Parallel	PDL33A11100	PDL33A31100
	Deutsch Perpendicular	PDL33A12100	PDL33A32100
	DIN	PDL33A13100	PDL33A33100
	JPT	PDL33A14100	PDL33A34100
Active on LsA and LsB 	Deutsch Parallel	PDL35A11100	PDL35A31100
	Deutsch Perpendicular	PDL35A12100	PDL35A32100
	DIN	PDL35A13100	PDL35A33100
	JPT	PDL35A14100	PDL35A34100
Active on Ls 	Deutsch Parallel	PDL34A11100	PDL34A31100
	Deutsch Perpendicular	PDL34A12100	PDL34A32100
	DIN	PDL34A13100	PDL34A33100
	JPT	PDL34A14100	PDL34A34100

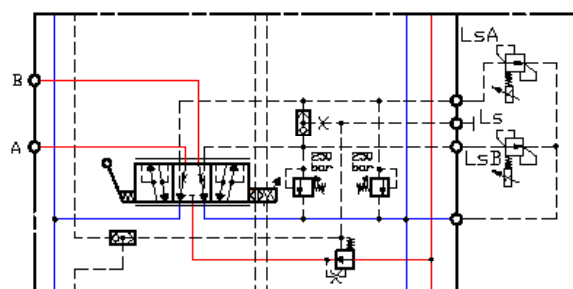
PDL code numbers

Hydraulic diagram	Connector type	12V dc	24V dc
Active on LsA 	Deutsch Parallel	PDL12A11100	PDL12A31100
	Deutsch Perpendicular	PDL12A12100	PDL12A32100
	DIN	PDL12A13100	PDL12A33100
	JPT	PDL12A14100	PDL12A34100
Active on LsB 	Deutsch Parallel	PDL13A11100	PDL13A31100
	Deutsch Perpendicular	PDL13A12100	PDL13A32100
	DIN	PDL13A13100	PDL13A33100
	JPT	PDL13A14100	PDL13A34100
Active on LsA and LsB 	Deutsch Parallel	PDL11A11100	PDL11A31100
	Deutsch Perpendicular	PDL11A12100	PDL11A32100
	DIN	PDL11A13100	PDL11A33100
	JPT	PDL11A14100	PDL11A34100
Active on Ls 	Deutsch Parallel	PDL14A11100	PDL14A31100
	Deutsch Perpendicular	PDL14A12100	PDL14A32100
	DIN	PDL14A13100	PDL14A33100
	JPT	PDL14A14100	PDL14A34100

PDV315 Proportional Valve
PDLD module - Electrical L_SA/B unloading
Proportional actuation normally open (current signal mA)

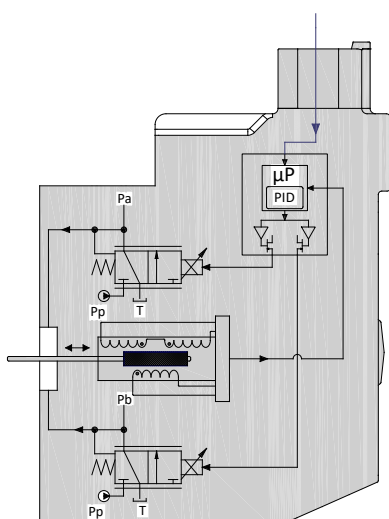
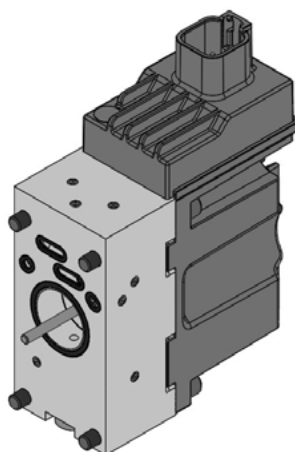


PDLD is an electro-hydraulic device that allows the A/B port working pressure to be remotely and proportionally operated according to a current signal (mA). When the working pressure exceeds the setting pressure value, the A/B port oil flow will be cutted off.
When PDLD is not energized, PDW is almost 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 L_sA 	Deutsch Parallel	PDL12D11000	PDL12D31000
Active on L_sB 	Deutsch Parallel	PDL13D11000	PDL13D31000
Active on L_sA and L_sB 	Deutsch Parallel	PDL11D11000	PDL11D31000
Active on L_s 	Deutsch Parallel	PDL14D11000	PDL14D31000

PDV315 - PEAC131 Electro-hydraulic proportional actuation **Closed loop spool control**, high performance resolution **Input signal control 0,5 Udc**



PEAC131 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 PEAC131 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

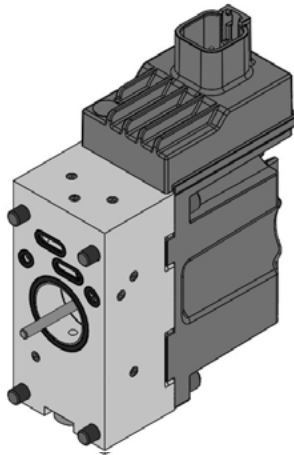
This state is not memorized, and when the faulty state disappears, the alarm signal will turn to passive again.

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 PEAC131 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 PEAC131 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.

PDV315 - PEAC131 Electro-hydraulic proportional actuation
Closed loop spool control, high performance resolution
Input signal control 0,5 Udc

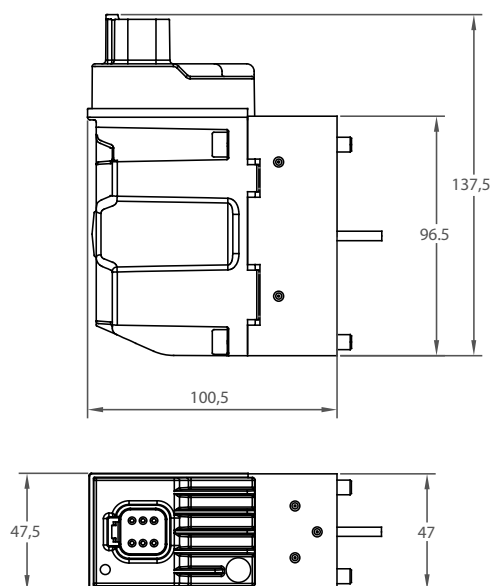


PEAC131 is defined by:

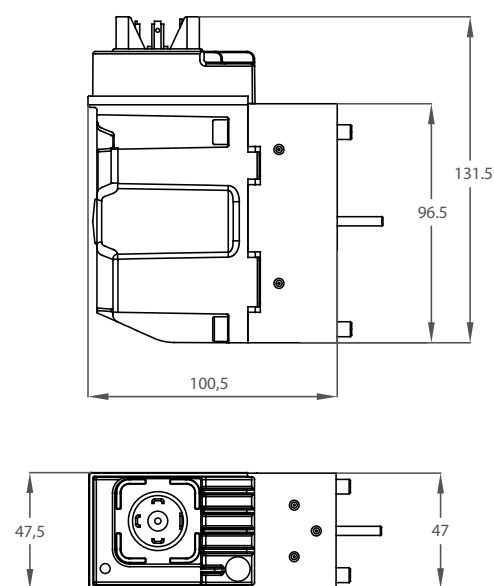
- Inductive transducer with resolution < 12 µm
- Integrated diagnosis and error memory
- Fault monitoring transistor output for signal source
- Higher spool control accuracy
- EMC performace according to Directive 2014/30/UE
- Low hysteresis
- Quicker reaction time
- Spool direction movement output
-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

PEAC131 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 nF
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 DT06-6S		
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



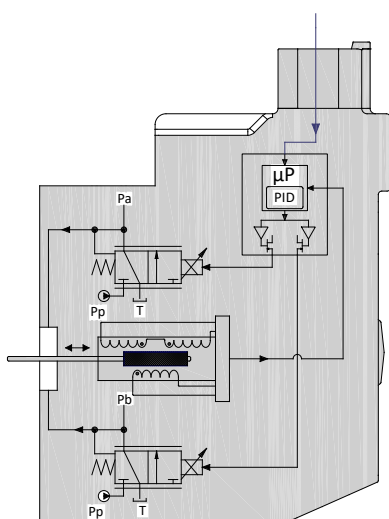
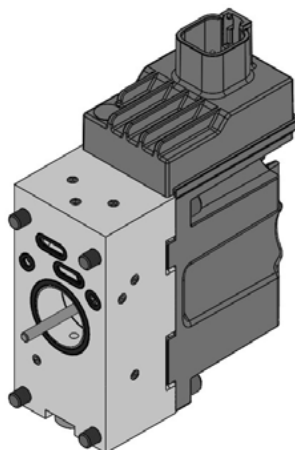
Deutsch connector DT06-6S Enclosure degree IP 69K PIN-assignment			
	1	Power supply	
	2	Input signal control	
	3	CAN-high	A port-spool movement signal
	4	CAN-low	B port-spool movement signal
	5	Fault monitoring signal	
	6	Ground	



Hirschmann connector DIN 43650 Enclosure 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 DT06-6S	PEAC0181000	PEAC1181000	PEAC0171000	PEAC1171000
DIN 43650	PEAC0181200	PEAC1181200	PEAC0171200	PEAC1171200

PDV315 - PEAC132 Electro-hydraulic proportional actuation **Closed loop spool control**, high performance resolution **Input signal control 0 ÷ 10 V**



PEAC132 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 PEAC132 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

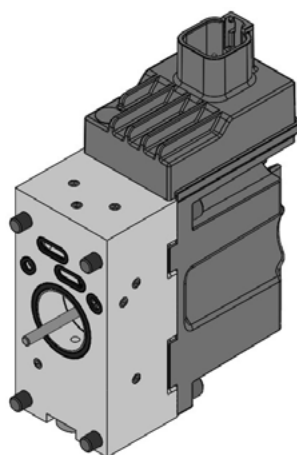
This state is not memorized, and when the faulty state disappears, the alarm signal will turn to passive again.

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 PEAC132 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 PEAC132 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.

PDV315 - PEAC132 Electro-hydraulic proportional actuation
Closed loop spool control, high performance resolution
Input signal control 0 ÷ 10 V



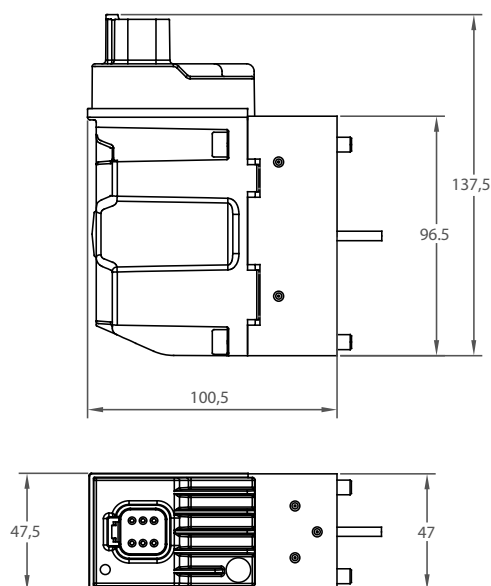
PEAC132 is defined by:

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

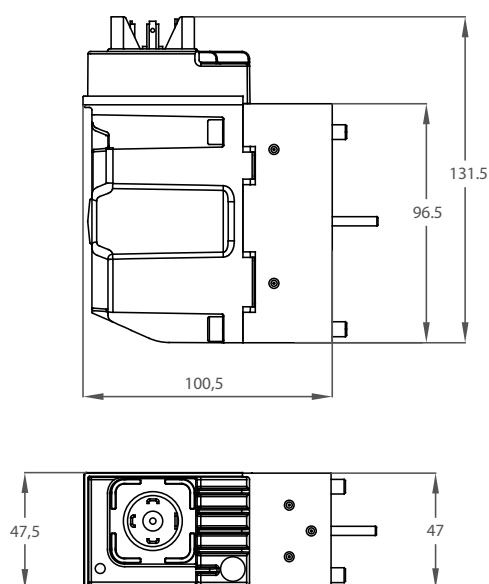
PEAC132 Technical data

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 nF
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 DT06-6S		
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

PDV315 - PEAC132 Electro-hydraulic proportional actuation
Closed loop spool control, high performance resolution
Input signal 0 ÷ 10 V - Electrical connectors



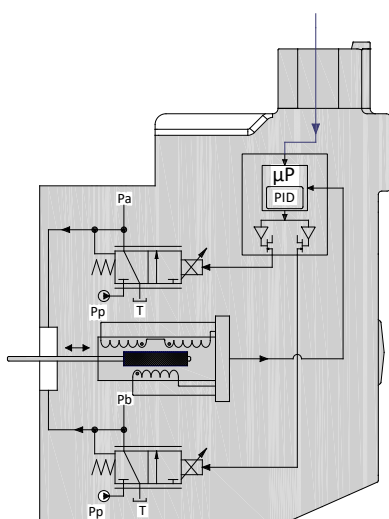
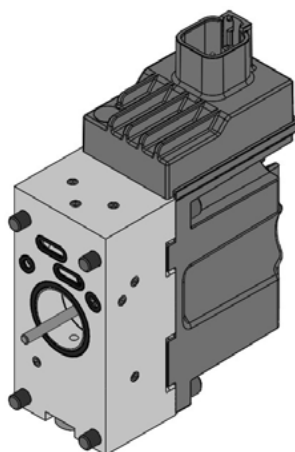
Deutsch connector DT06-6S Enclosure degree IP 69K PIN-assignment			
	1	Power supply	
	2	Input signal control	
	3	CAN-high	A port-spool movement signal
	4	CAN-low	B port-spool movement signal
	5	Fault monitoring signal	
	6	Ground	



Hirschmann connector DIN 43650 Enclosure 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 DT06-6S	PEAC0182000	PEAC1182000	PEAC0172000	PEAC1172000
DIN 43650	PEAC0182200	PEAC1182200	PEAC0172200	PEAC1172200

PDV315 - PEAC136 Electro-hydraulic proportional actuation **Closed loop spool control**, high performance resolution **Input signal 4 ÷ 20 mA**



PEAC136 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 PEAC136 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

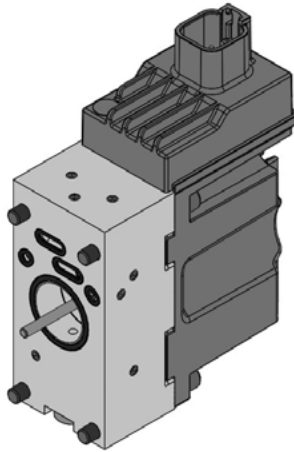
This state is not memorized, and when the faulty state disappears, the alarm signal will turn to passive again.

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 PEAC136 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 PEAC136 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.

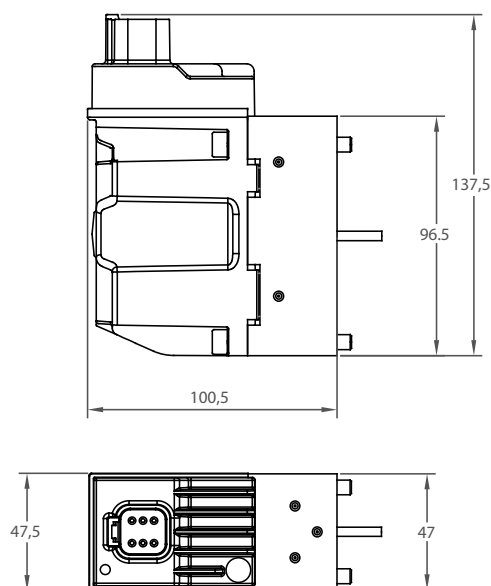
PDV315 - PEAC136 Electro-hydraulic proportional actuation
Closed loop spool control, high performance resolution
Input signal control 4 ÷ 20 mA



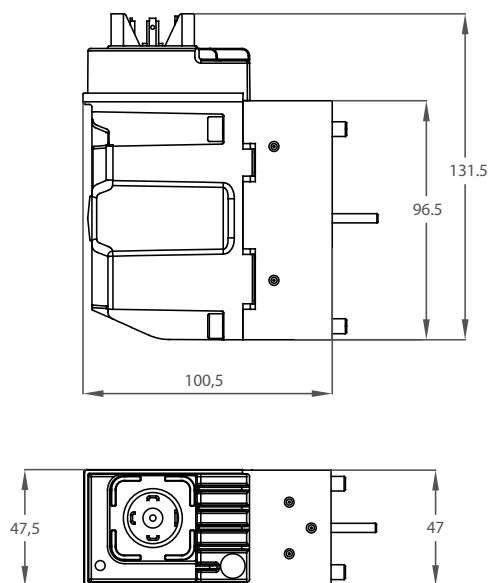
PEAC136 is defined by:

- 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

PEAC136 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 nF
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 DT06-6S, only		
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

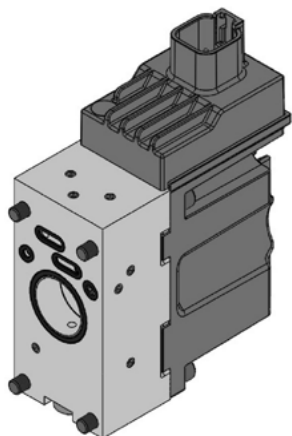


Deutsch connector DT06-6S Enclosure degree IP 69K PIN-assignment			
	1	Power supply	
	2	Input signal control	
	3	CAN-high	A port-spool movement signal
	4	CAN-low	B port-spool movement signal
	5	Fault monitoring signal	
	6	Ground	



Hirschmann connector DIN 43650 Enclosure 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 DT06-6S	PEAC0186000	PEAC1186000	PEAC0176000	PEAC1176000
DIN 43650	PEAC0186200	PEAC1186200	PEAC0176200	PEAC1176200

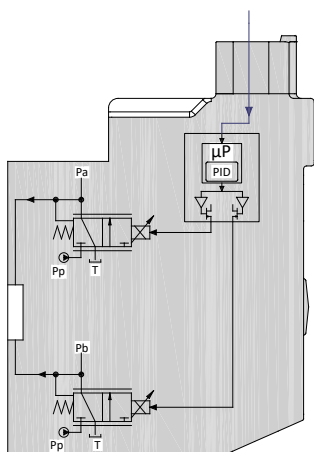


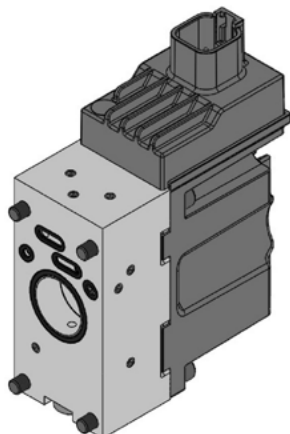
PEAC031 is a proportional open loop spool actuation with integrated electronics that operates the main spool movement according to an electrical signal coming from a remote control.

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.

PEAC031 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 change the spool position with no error signal, and the safety of the whole system is left to the operator's visual control, only.

PEAC031 is recommended where a simple proportional control is required, and where hysteresis and reaction time are not so critical.

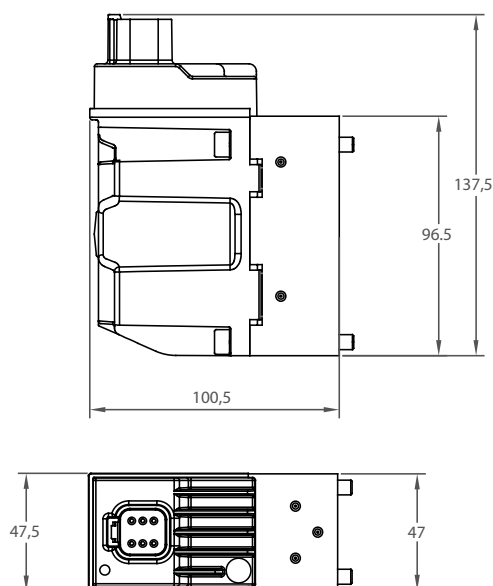



PEAC031 is defined by:

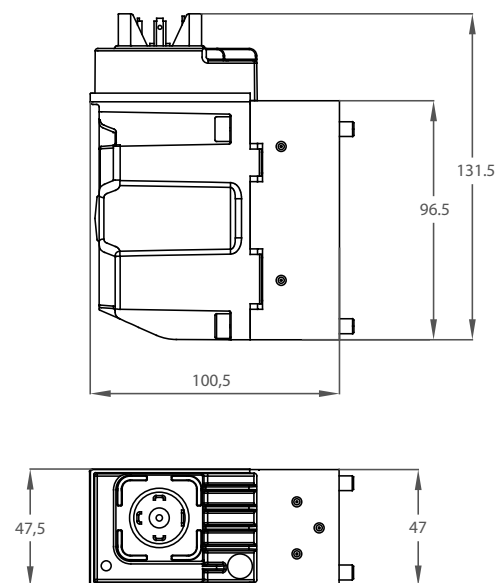
- High spool control accuracy
- EMC performace according to Directive 2014/30/UE
- Quick reaction time
- Integrated PWM/Pulse Width Modulation
- Low electrical power
- Robust and reliable design

PEAC031 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 DT06-6S		
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



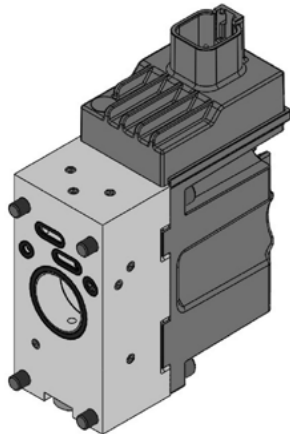
Deutsch connector DT06-6S Enclosure degree IP 69K PIN-assignment		
	1	Power supply
	2	Input signal control
	3	CAN-high
	4	CAN-low
	5	Free
	6	Ground



Hirschmann connector DIN 43650 Enclosure 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 DT06-6S	PEAC0081000	PEAC1081000	PEAC0071000	PEAC1071000
DIN 43650	PEAC0081200	PEAC1081200	PEAC0071200	PEAC1071200

PDV315 - PEAC032 Electro-hydraulic proportional actuation
Open loop spool control, high performance resolution
Input signal control 0 ÷ 10 V

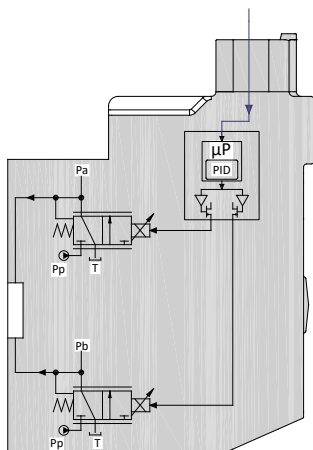


PEAC032 is a proportional open loop spool actuation with integrated electronics that operates the main spool movement according to an electrical signal coming from a remote control.

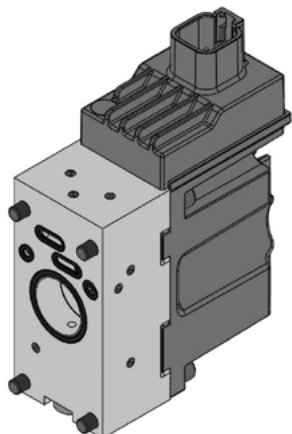
The input signal by means of the PCB and the two proportional pressure reducing valves, determines the level of the pilot pressure which moves the main spool.

PEAC032 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 change the spool position with no error signal, and the safety of the whole system is left to the operator's visual control, only.

PEAC032 is recommended where a simple proportional control is required, and where hysteresis and reaction time are not so critical.



PDV315 - PEAC032 Electro-hydraulic proportional actuation
Open loop spool control, high performance resolution
Input signal control 0 ÷ 10 V

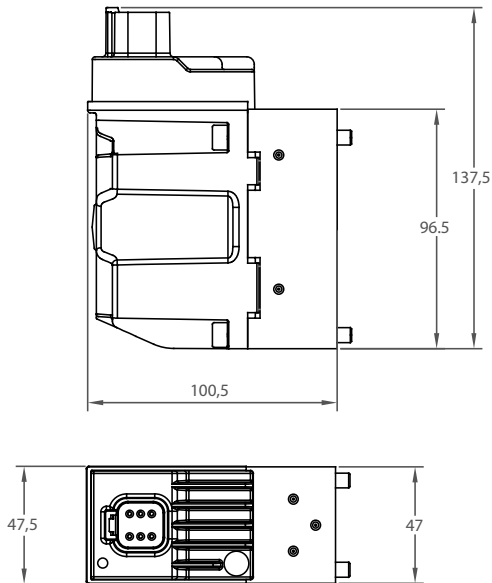


PEAC032 is defined by:

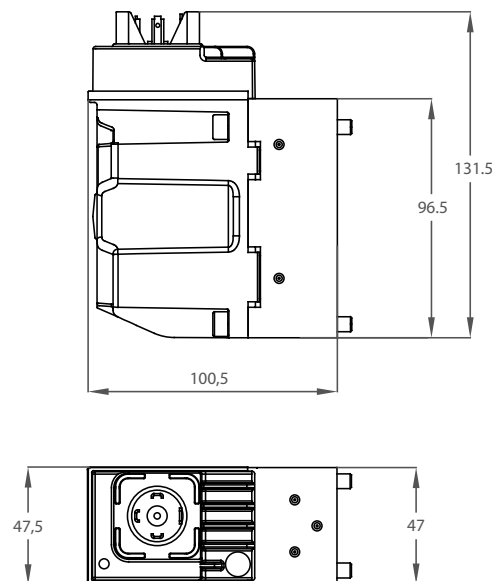
- High spool control accuracy
- EMC performance according to Directive 2014/30/UE
- Quick reaction time
- Integrated PWM/Pulse Width Modulation
- Low electrical power
- Robust and reliable design

PEAC032 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 DT06-6S		
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



Deutsch connector DT06-6S Enclosure degree IP 69K PIN-assignment		
	1	Power supply
	2	Input signal control
	3	CAN-high
	4	CAN-low
	5	Free
	6	Ground



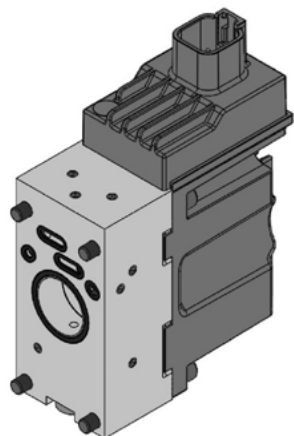
Hirschmann connector DIN 43650 Enclosure degree IP 65 PIN-assignment		
	1	Power supply
	2	Input signal control
	3	Free
	4	Ground

Connector version	Code numbers			
	Active version		Passive version	
	Cast-iron body	Aluminium body	Cast-iron body	Aluminium body
Deutsch DT06-6S	PEAC0082000	PEAC1082000	PEAC0072000	PEAC1072000
DIN 43650	PEAC0082200	PEAC1082200	PEAC0072200	PEAC1072200

OMFB

HYDRAULIC POWER CONTROL

PDV315 - PEAC036 Electro-hydraulic proportional actuation
Open loop spool control
Input signal 4 ÷ 20 mA

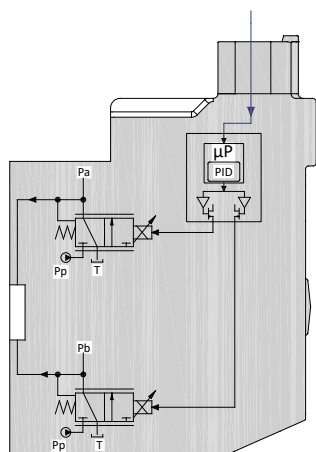


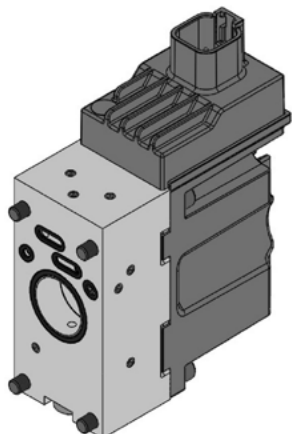
PEAC036 is a proportional open loop spool actuation with integrated electronics that operates the main spool movement according to an electrical signal coming from a remote control.

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.

PEAC036 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 change the spool position with no error signal, and the safety of the whole system is left to the operator's visual control, only.

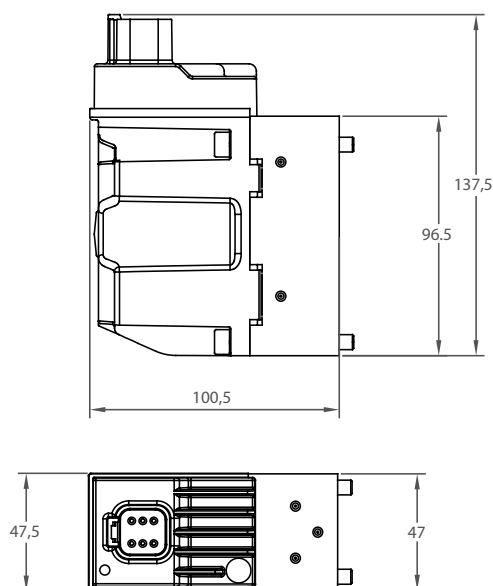
PEAC036 is recommended where a simple proportional control is required, and where hysteresis and reaction time are not so critical.



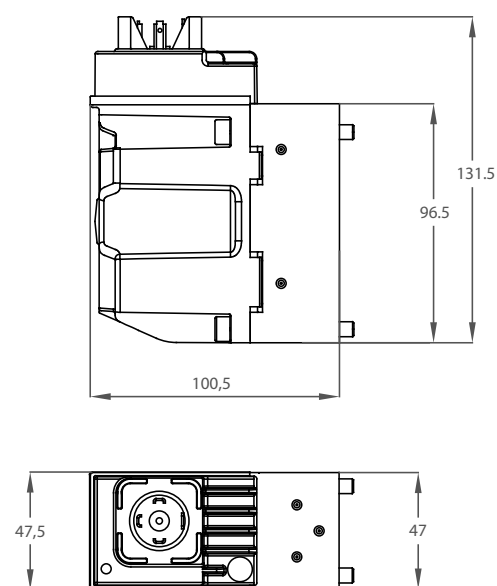

PEAC036 is defined by:

- 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

PEAC036 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 nF
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		IP65 - IP66 - IP69K
Bootloader function, debugging parameters and set-up function available with Deutsch connector DT06-6S, only		
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



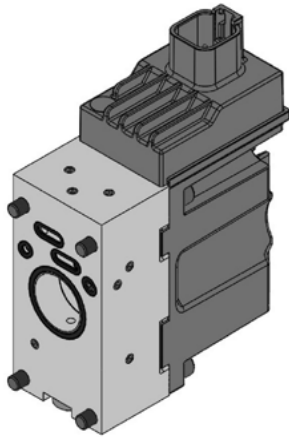
Deutsch connector DT06-6S Enclosure degree IP 69K PIN-assignment		
	1	Power supply
	2	Input signal control
	3	CAN-high
	4	CAN-low
	5	Free
	6	Ground



Hirschmann connector DIN 43650 Enclosure 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 DT06-6S	PEAC0086000	PEAC1086000	PEAC0076000	PEAC1076000
DIN 43650	PEAC0086200	PEAC1086200	PEAC0076200	PEAC1076200

PDV315 - PEAD3 Electro-hydraulic proportional actuation
Open loop spool control - Current input signal for PWM
or supply voltage for ON/OFF control

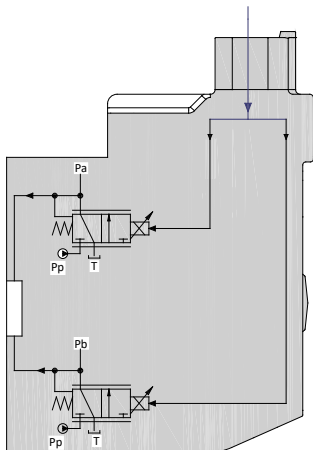


PEAD3 is a proportional open loop spool actuation without integrated electronics that operates the main spool movement according to an electrical signal coming from a remote control.

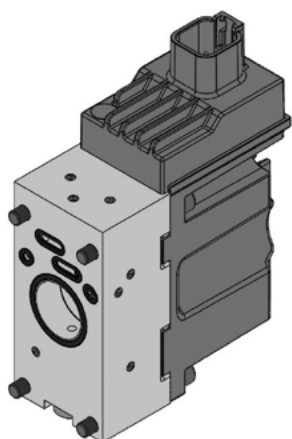
The input signal by means of the two proportional pressure reducing valves, determines the level of the pilot pressure which moves the main spool.

PEAD3 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 change the spool position with no error signal, and the safety of the whole system is left to the operator's visual control, only.

PEAD3 is recommended where a simple proportional control is required, and where hysteresis and reaction time are not so critical.



PDV315 - PEAD3 Electro-hydraulic proportional actuation
Open loop spool control - Current input signal for PWM
or supply voltage for ON/OFF control



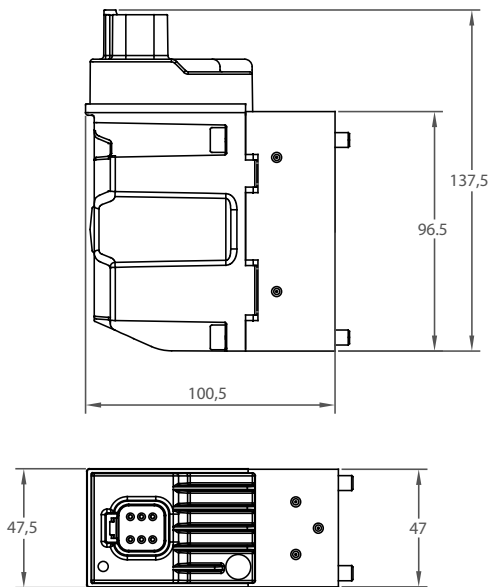
PEAD3 is defined by:

- 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

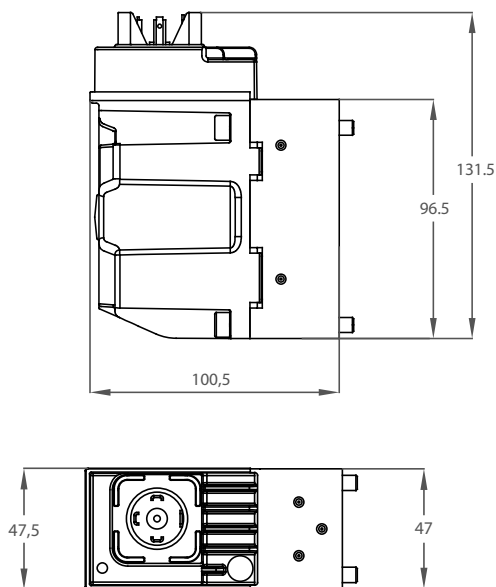
PEAD3 Technical data

Supply voltage	12 Vdc	24 Vdc
Voltage range	10-16 V	20-30 V
Max ripple	5%	5%
Current consumption 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

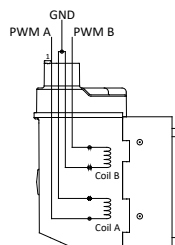
PDV315 - PEAD3 Electro-hydraulic proportional actuation
Open loop spool control - Current input signal for PWM
or supply voltage for ON/OFF control - Electrical connectors



Deutsch connector DT06-6S Enclosure degree IP 69K PIN-assignment		
	1	A port +
	2	Free
	3	A port -
	4	B port +
	5	Free
	6	B port -

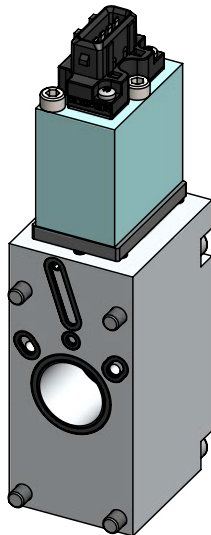


Hirschmann connector DIN 43650 Enclosure degree IP 65 PIN-assignment		
	1	A port +
	2	B port +
	3	Free
	4	Ground



Connector version	Code numbers			
	12 V		24 V	
	Cast-iron body	Aluminium body	Cast-iron body	Aluminium body
Deutsch DT06-6S	PEAD0100002	PEAD1100002	PEAD0200002	PEAD1200002
DIN 43650	PEAD0120002	PEAD1120002	PEAD0220002	PEAD1220002

PDV315 - PEAP3 Electro-hydraulic proportional actuation
Open loop spool control - Current input signal for PWM
or supply voltage for ON/OFF control

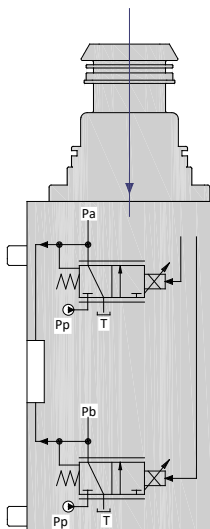


PEAP3 is a proportional open loop spool actuation without integrated electronics that operates the main spool movement according to an electrical signal coming from a remote control.

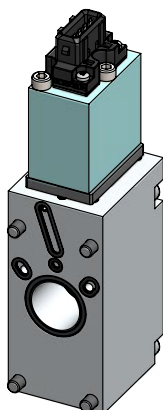
The input signal by means of the two proportional pressure reducing valves, determines the level of the pilot pressure which moves the main spool.

PEAP3 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 change the spool position with no error signal, and the safety of the whole system is left to the operator's visual control, only.

PEAP3 is recommended where a simple proportional control is required, and where hysteresis and reaction time are not so critical.



PDV315 - PEAP3 Electro-hydraulic proportional actuation
Open loop spool control - Current input signal for PWM
or supply voltage for ON/OFF control

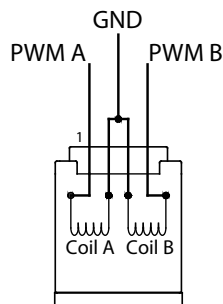
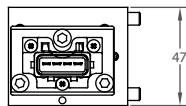
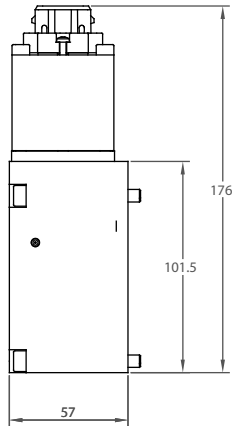


PEAP3 is defined by:

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

PEAP3 Technical data

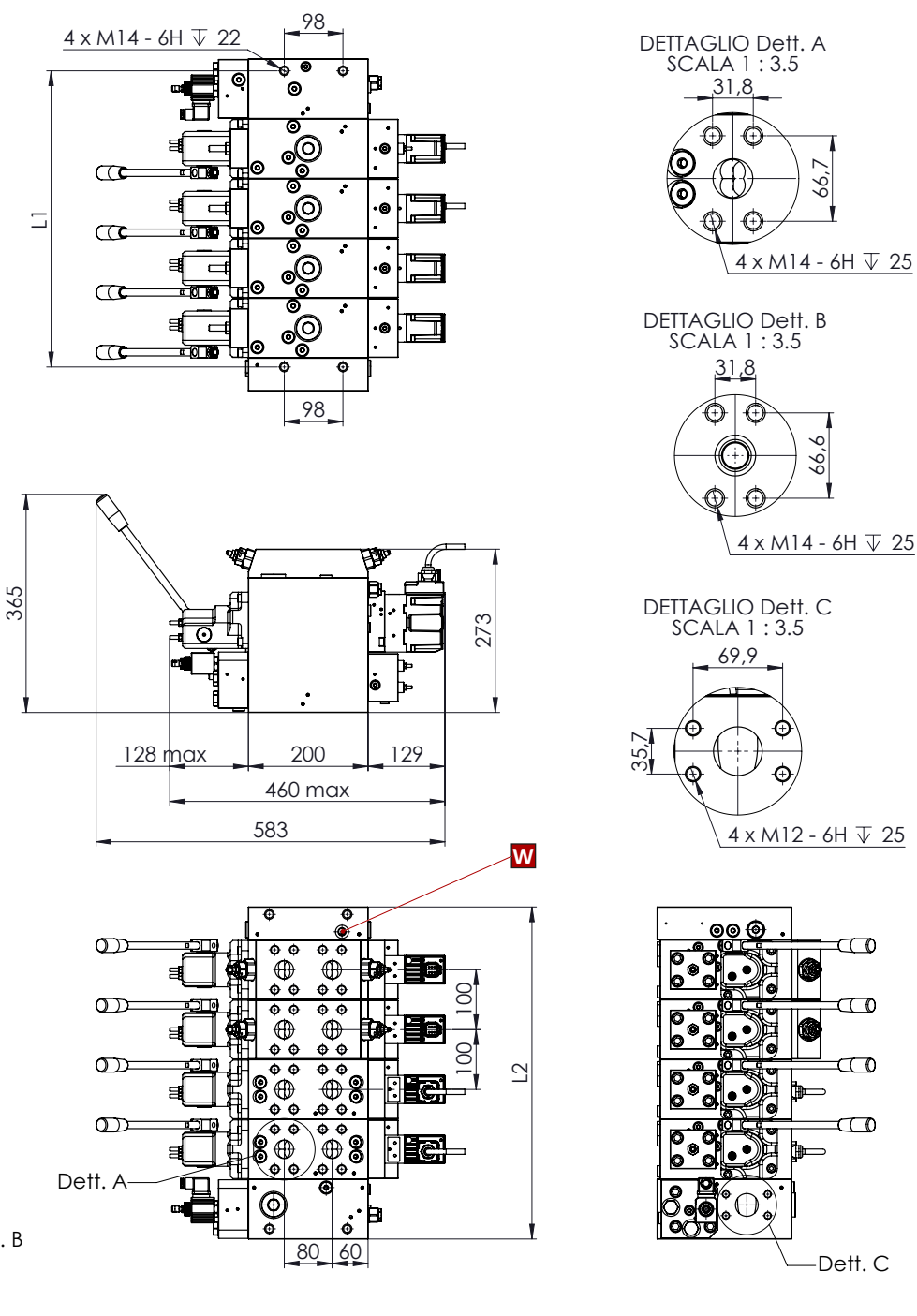
Supply voltage	12 Vdc	24 Vdc
Voltage range	10-16 V	20-30 V
Max ripple	5%	5%
Current consumption at rated voltage	1330 mA @ 12 Vdc	630 mA @ 24 Vdc
Power consumption	23 W	21 W
R @ 20°C	6,3 Ω	27 Ω
Start spool travel	220 mA	140 mA
End spool travel flow control	650 mA	350 mA
Max spool flow in pre-floating 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	
Enclosure degree	(Electrical wiring excepted) IP69K	
Max current output signal for spool direction movement	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



Amp Junior Power Timer 4 pin connector
Enclosure degree IP 65
PIN-assignment

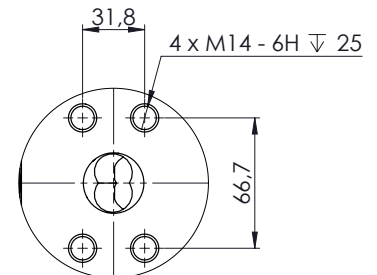
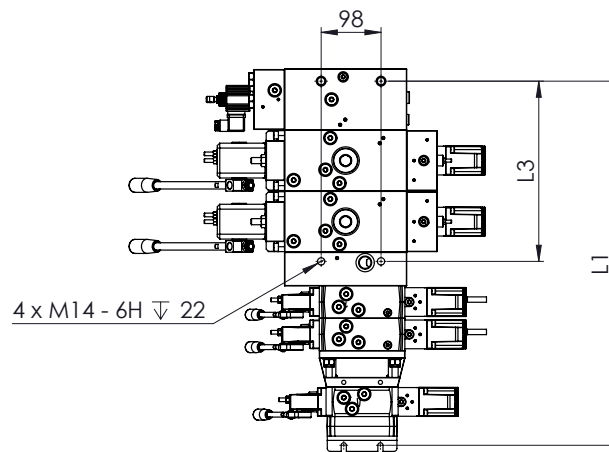
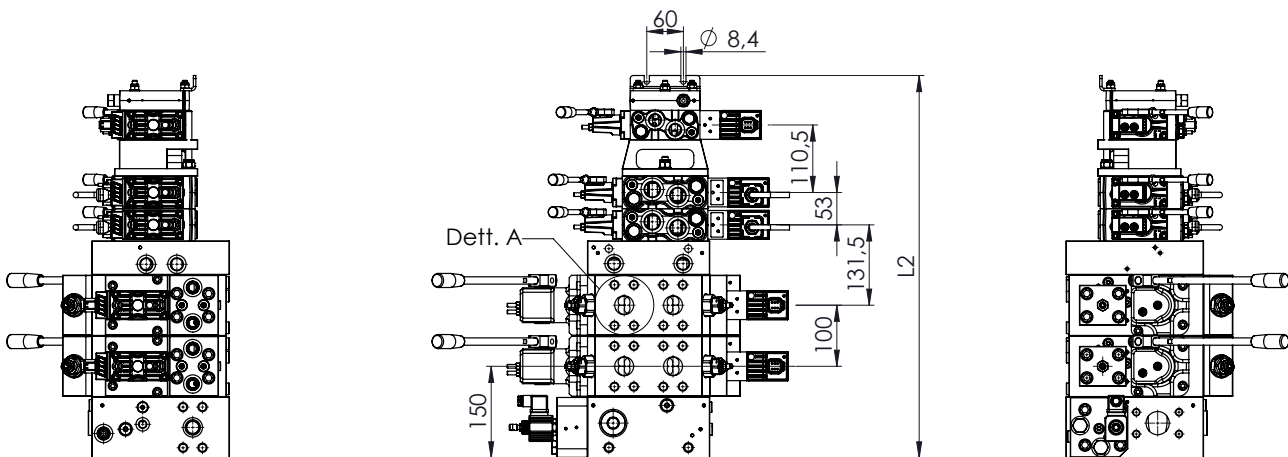
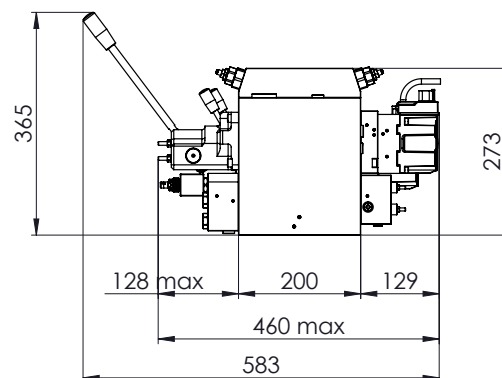
	1	A port +
	2	A port -
	3	B port -
	4	B port +

Connector version	Code numbers			
	12 V		24 V	
	Cast-iron body	Aluminium body	Cast-iron body	Aluminium body
AMP Junior timer 4 Pin	PEAP0312002	PEAP1312002	PEAP0412002	PEAP1412002

PDV315 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

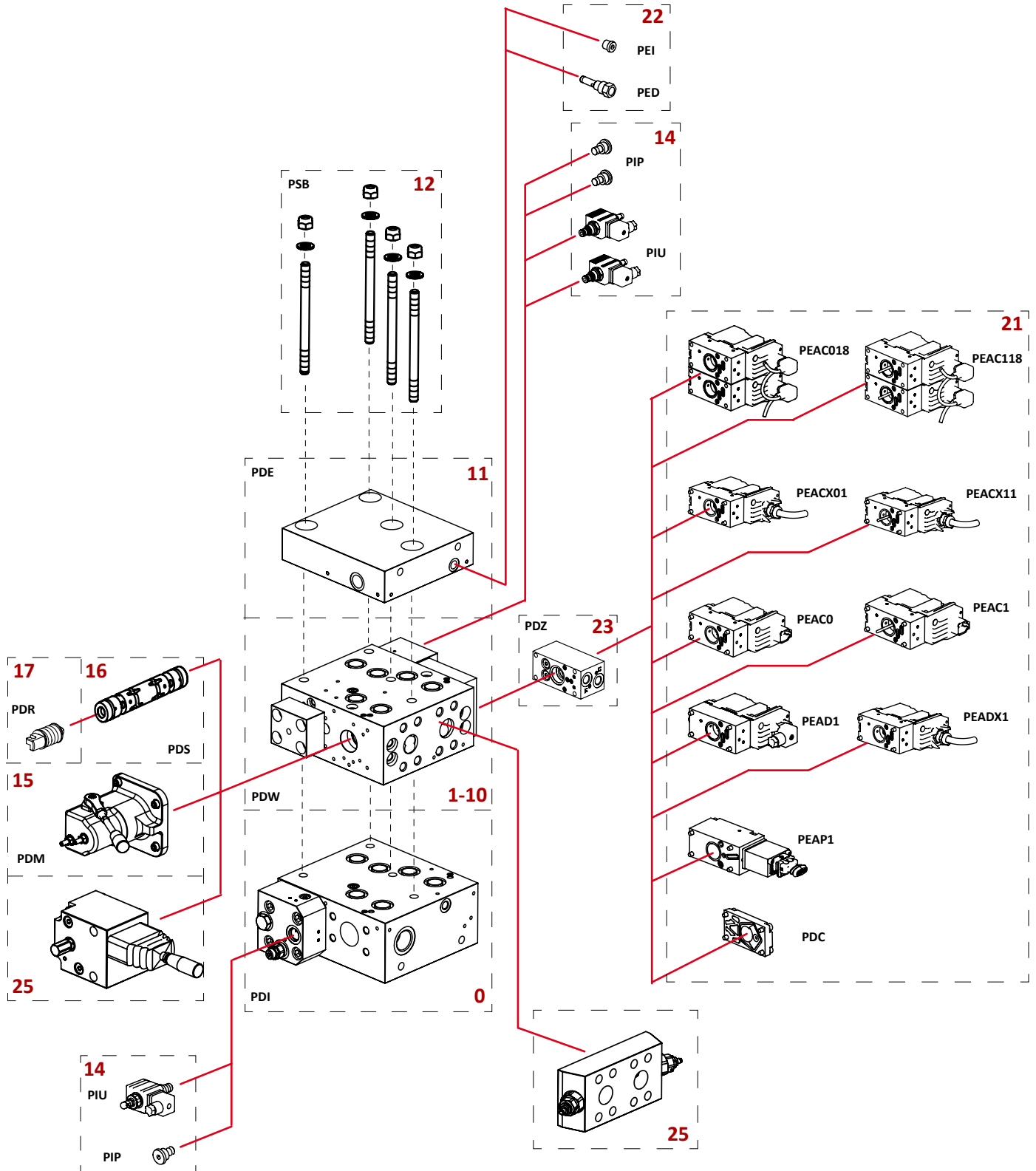
- A** = Pump side port - 3/4" BSPP - 17 mm deep [1 1/16 in 12 UN-2B - 0,67 in deep]
 - B** = T port - 3/4" BSPP - 17 mm deep [1 1/16 in 12 UN - 2B - 0,67 in deep]
 - C** = Main pressure relief valve
 - D** = Main pressure reducing valve
 - E** = Pump pressure gauge connection - 1/4" BSPP - 12 mm deep [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
 - Q** = Port A
 - R** = Port B
 - S** = LSB
 - T** = LSA
 - 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]
- } remote pilot pressure connection 1/4" BSPP - 12 mm deep [7/16 in-20 UNF - 2B - 0,47 in deep]
 } 1/2" BSPP - 17 mm deep [7/8 in-14 UNF-2B - 0,67 in deep]
 } pilot pressure relief valve

PDV315 Proportional valve
Overall dimensions drawing with double inlet and MID end section

 DETTAGLIO Dett. A
SCALA 2 : 5



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

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 } 1/2" BSPP - 17 mm deep [7/8 in-14 UNF-2B - 0,67 in deep]
 } pilot pressure relief valve

PDV315 Proportional Valve PDV Standard configuration



Reference field	Description			Code numbers see pag
0	Inlet sections	Open centre	PDI	
		Closed centre		
1-10	Working sections	with pressure compensator	PDW	
		without pressure compensator		
11	End sections		PDE	
12	Stay bolt set		PSB	
14	Solenoid Ls unloading		PIU	
	Plug for LS unloading cavity		PIP	
15	Mechanical actuation		PDM	
16	Spool		PDS	
17	Spool centered set		PDR	
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	
25	Antishock body			

 HYDRAULIC POWER CONTROL				Code: PDV315				Customer:																			
				Date: / /				Customer ref:																			
				Review index: -				Issued by:																			
				Review date: -				OMFB sales ref:																			
I	Valve type:	PDV 315				V	Working sections Up:	8																			
II	Type of threads:	BSPP				VI	Working sections Down:	X																			
III	Type of inlet:	standard				VII	Inlet section side:	Right version																			
IV	Pump type:	Open Center				VIII	2 nd pump type:	XII																			
0	Notes									Notes																	
		B Port				0	bar					13	A Port														
						23						14															
		Actuation side											Handle side														
1		21		1	bar				bar	16		15															
		17		20						20																	
			19							19																	
			18							23																	
2		21		2	bar				bar	16		15															
		17		20						20																	
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3		21		3	bar				bar	16		15															
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