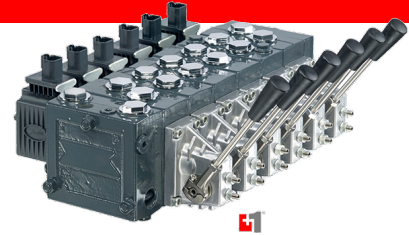


## Proportional Load Sensing Valves – PVG32 Danfoss

PVG load-sensing proportional valves features and benefits:

- Load-independent flow control:
  - - Oil flow to an individual function is independent of the load pressure of this function
  - - Oil flow to one function is independent of the load pressure of other functions
- Possible combination with the rest of the PVG family, when using an interface module
- Up to 12 basic modules per PVG 32 valve group
- Reliable regulation characteristics across the entire flow range
- Load sense relief valves for A and B port enables reduced energy loss at target pressure
- Several options for connection threads and flange mount
- Compact design, easy installation and serviceability
- **Our commonly stocked range is the PVHC actuated PVG32. There are many other options available. Contact your Hyspecs rep for full valve specification & pricing.**



<b>Maximum pressure</b>	<b>Port P, A/B continuous with PVS end plate</b>	300 bar	[4351 psi]
	<b>Port P, A/B continuous with PVS1 end plate</b>	350 bar	[5075 psi]
	<b>Port P intermittent</b>	400 bar	[5800 psi]
	<b>Port A/B intermittent</b>	420 bar	[6090 psi]
	<b>Port T, static/dynamic</b>	25/40 bar	[365/580 psi]
<b>Oil flow rated</b>	<b>Port P with PVP inlet</b>	140 l/min	[37 US gal/min]
	<b>Port P with PVPM/PVPVM mid inlet</b>	230 l/min	[61 US gal/min]
	<b>Port A/B with pressure compensator</b>	100 l/min	[26.4 US gal/min]
	<b>Port A/B without pressure compensator</b>	125 l/min	[33 US gal/min]
<b>Spool travel, standard</b>		± 7 mm	[± 0.28 in]
<b>Spool travel, float position</b>	<b>Proportional range</b>	± 4.8 mm	[± 0.19 in]
	<b>Float position</b>	± 8 mm	[± 0.32 in]
<b>Dead band, flow control spools</b>	<b>Standard</b>	± 1.5 mm	[± 0.06 in]
	<b>Linear characteristic</b>	± 0.8 mm	[± 0.03 in]
<b>Maximum internal leakage at 100 bar [1450 psi] and 21 mm<sup>2</sup>/s [102 SUS]</b>	<b>A/B → T, PVB without PVLP</b>	20 cm <sup>3</sup> /min	[1.85 in <sup>3</sup> /min]
	<b>A/B → T, PVB with PVLP</b>	25 cm <sup>3</sup> /min	[2.15 in <sup>3</sup> /min]
<b>Maximum internal leakage at 200 bar [2900 psi] and 21 mm<sup>2</sup>/s [102 SUS]</b>	<b>A/B → T, PVBZ with PO check valves</b>	1 cm <sup>3</sup> /min	[0.06 in <sup>3</sup> /min]
	<b>A/B → T, PVBZ with PO check valves and PVLP</b>	6 cm <sup>3</sup> /min	[0.37 in <sup>3</sup> /min]
<b>Oil temperature (inlet temperature)</b>	<b>Recommended temperature</b>	30 to 60 °C	[86 to 140 °F]
	<b>Minimum temperature</b>	-30 °C	[-22 °F]
	<b>Maximum temperature</b>	90 °C	[194 °F]
<b>Ambient temperature</b>		-30 to 60 °C	[-22 to 140 °F]
<b>Oil viscosity</b>	<b>Operating range</b>	12 to 75 mm <sup>2</sup> /s	[65 to 347 SUS]
	<b>Minimum viscosity</b>	4 mm <sup>2</sup> /s	[39 SUS]
	<b>Maximum viscosity</b>	460 mm <sup>2</sup> /s	[2128 SUS]
<b>Filtration / maximum contamination according to ISO 4406</b>		23/19/16	
<b>Oil consumption in pilot oil reduction valve</b>		0.5 l/min	[0.13 US gal/min]

## Proportional Load Sensing Valves – PVG32 Danfoss

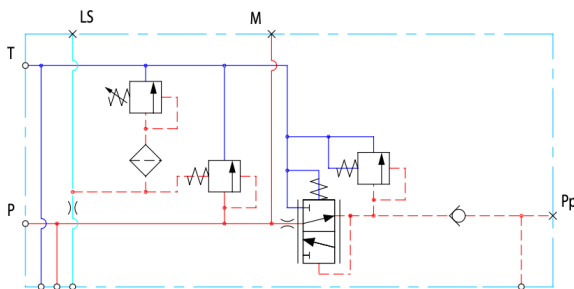
### Select Inlet

The **Open Centre PVP inlet** with integrated pilot pressure reduction valve (PPRV) is intended for use with fixed displacement pumps in applications, where a valve group with electro-hydraulically or hydraulically controlled work sections is desired (PVE or PVH/PVHC).

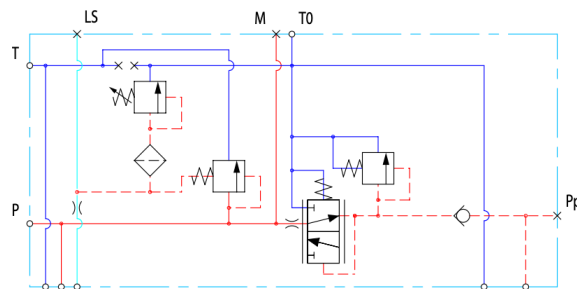


- Integrated LS pressure relief valve
- Threaded ports for P/T/LS and M measuring gauge
- Integrated pilot pressure reducing valve (PPRV) for PVE or PVH/PVHC
- Optional T0 facility and external T0 port
- Optional external pilot pressure port (Pp)
- Optional LS unloading valve, PVPX
- Models with T0 port have internal T0 connection closed by default.
- All modules can be manually activated with the PVM actuation.

*Open center PVP with PPRV schematic*



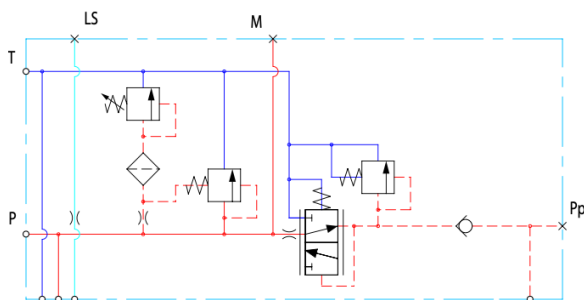
*Open center PVP with PPRV and T0*



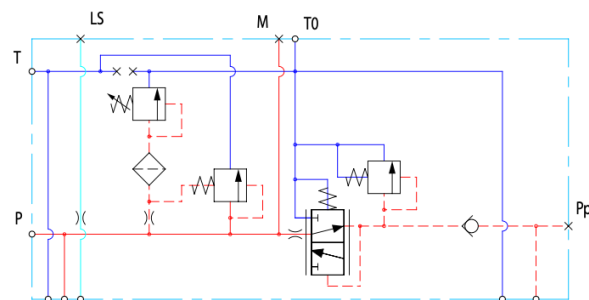
The **Closed Centre PVP inlet** with integrated pilot pressure reduction valve (PPRV) is intended for use with variable displacement pumps in applications where a valve group with electro-hydraulic or hydraulically controlled work sections is desired.

- Integrated LS pressure relief valve
- Threaded ports for P/T/LS and M measuring gauge
- Integrated pilot pressure reducing valve (PPRV) for PVE or PVH/PVHC
- Optional T0 facility and external T0 port
- Optional LS unloading valve, PVPX
- Models with T0 port have internal T0 connection closed by default.

*Closed center PVP with PPRV schematic*



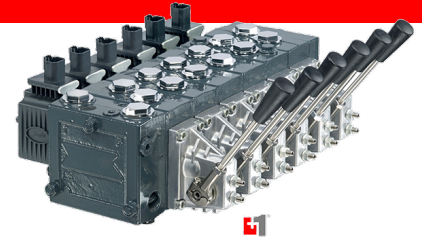
*Closed center PVP with PPRV and T0*



## Proportional Load Sensing Valves – PVG32 Danfoss

### Select Inlet

- P and T-ports G3/4", LS Port G1/4" and mounting holes M8



Code	Description
157B5190	Danfoss PVP inlet module open centre c/w pilot supply for PVH/PVHC
157B5191	Danfoss PVP inlet module closed centre c/w pilot supply for PVH/PVHC

### Select Inlet Module Accessories

#### PVPX Electrical LS Pressure Unloading Valve

The electrical LS pressure unloading valve is an accessory available for PVP inlet modules with PVPX facility. The PVPX consist of a solenoid valve and a magnetic coil package, allowing the operator to relieve the LS pressure to tank electrically.

#### PVPC without Check Valve

The PVPC external pilot pressure adapter without check valve is an accessory in the M-port available for PVP inlet modules with integrated pilot pressure reduction valve (PPRV). The PVPC without check valve cuts off the integrated PPRV to the PVE or PVH/PVHC in the valve group and enables an external pilot pressure supply through the PVPC adapter.

#### PVPC with Check Valve

The PVPC external pilot pressure adapter with check valve is an accessory in the M-port available for PVP inlet modules with integrated pilot pressure reduction valve (PPRV). The PVPC with check valve enables an external pilot pressure supply through the PVPC adapter and the PPRV, while also allowing the main pump to supply the PPRV through the P-gallery as a standard Open Centre PVP with PPRV.

Code	Description
11180766	Danfoss PVPX electrical LS unloader 12VDC deutsch normally open
11180767	Danfoss PVPX electrical LS unloader 24VDC deutsch normally open
11180768	Danfoss PVPX electrical LS unloader 12VDC deutsch normally closed
11180769	Danfoss PVPX electrical LS unloader 24VDC deutsch normally closed
157B5400	Danfoss PVPC external pilot pressure adaptor without check
157B5600	Danfoss PVPC external pilot pressure adaptor with check

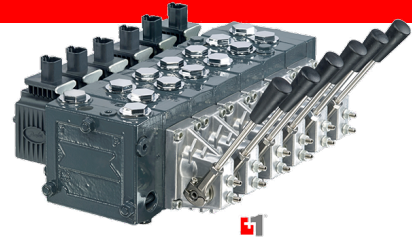
## Proportional Load Sensing Valves – PVG32 Danfoss

### Select Working Section

#### PVB Basic Modules

##### Compensated PVB with LS A/B (157B6203 & 157B6233)

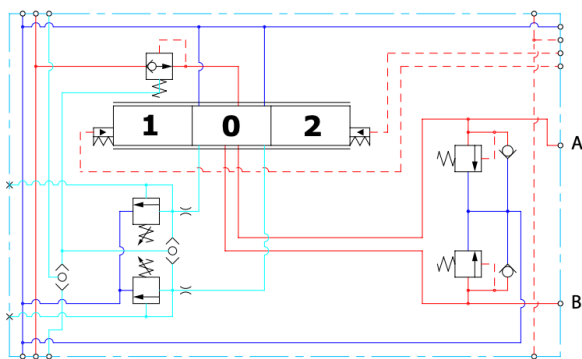
The compensated PVB is intended for controlling a work function where the function behaviour in terms of flow and pressures requires independency on the load pressure of other functions used simultaneously. The integrated LSA/B relief valve is used to limit the maximum work port build-up on the A/B-ports individually.



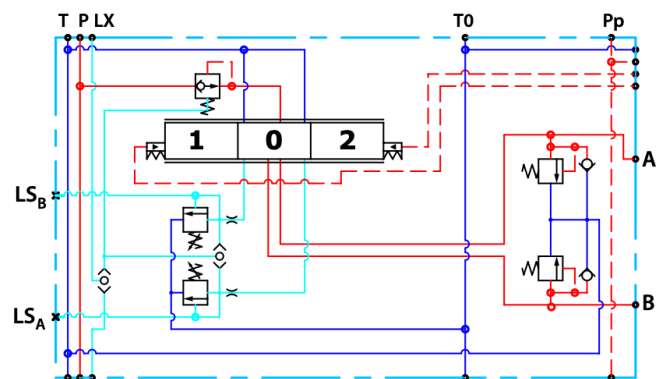
##### The compensated PVB with LSA/B features:

- Integrated LS shuttle network
- Integrated compensator
- Integrated adjustable LSA/B pressure relief valves
- External LSA/B port connection
- Integrated LSA/B shuttle valve for float spool usage
- Optional shock/anti-cavitation valve facility (PVLP)
- Optional T0 facility

Compensated PVB with LS



Compensated PVB with LS and T0



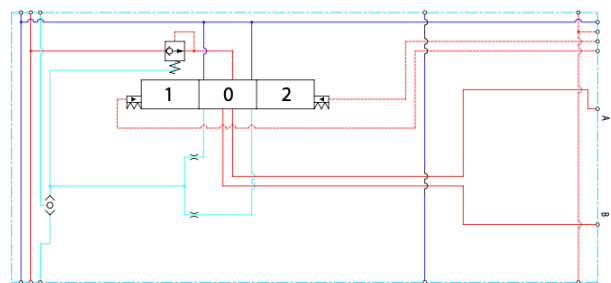
##### Compensated PVB (157B6230)

The compensated PVB is intended for controlling a work function where the function behaviour in terms of flow and pressures requires independence on the load pressure of other functions used simultaneously.

##### The Compensated PVB features:

- Integrated LS shuttle network
- Integrated compensator
- Optional shock/anti-cavitation valve facility (PVLP)
- Optional T0 facility and external T0 port

Compensated PVB schematic



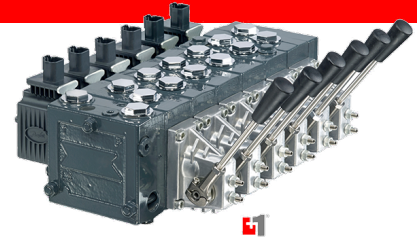
Code	Description
157B6203	Danfoss PVB section compensated & LS A/B no port reliefs 1/2" BSP
157B6230	Danfoss PVB section compensated port reliefs 1/2" BSP
157B6233	Danfoss PVB section compensated & LS A/B port reliefs 1/2" BSP

## Proportional Load Sensing Valves – PVG32 Danfoss

### Select Spool - PVBS Main Spools

The main spools (PVBS) determine the flow out of the work section or the pressure build up. The PVBS main spool can be activated in three different ways:

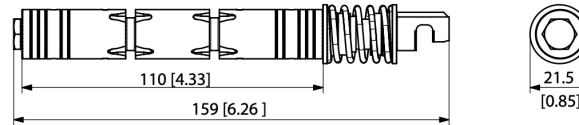
- Mechanically by a PVM lever
- Electrically by a PVE/PVHC actuator
- Hydraulically by a PVH actuator



PVBS main spool



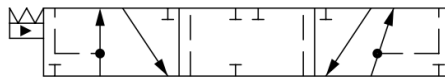
PVBS main spool dimensions



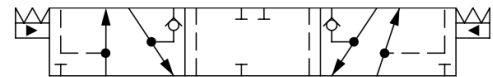
Weight: 0.25 kg [ 0.55 lb]

### Flow Control Spools—Closed Neutral Position

Schematic for PVBS without shuttle valve



Schematic for PVBS with shuttle valve



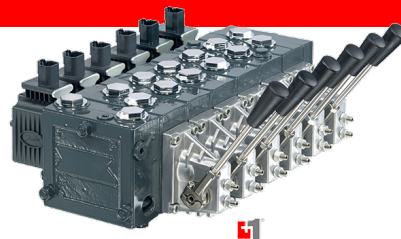
Code	Description
157B9005	Danfoss PVBS spool closed centre 5 lpm PVH/PVHC
157B9000	Danfoss PVBS spool closed centre 10 lpm PVH/PVHC
157B9001	Danfoss PVBS spool closed centre 25 lpm PVH/PVHC
157B9002	Danfoss PVBS spool closed centre 40 lpm PVH/PVHC
157B9003	Danfoss PVBS spool closed centre 65 lpm PVH/PVHC
157B9004	Danfoss PVBS spool closed centre 100 lpm PVH/PVHC
157B9006	Danfoss PVBS spool closed centre 130 lpm PVH/PVHC
157B9025	Danfoss PVBS spool closed centre 5 lpm PVH/PVHC with shuttle
157B9020	Danfoss PVBS spool closed centre 10 lpm PVH/PVHC with shuttle
157B9021	Danfoss PVBS spool closed centre 25 lpm PVH/PVHC with shuttle
157B9022	Danfoss PVBS spool closed centre 40 lpm PVH/PVHC with shuttle
157B9023	Danfoss PVBS spool closed centre 65 lpm PVH/PVHC with shuttle
157B9024	Danfoss PVBS spool closed centre 100 lpm PVH/PVHC with shuttle
157B9026	Danfoss PVBS spool closed centre 130 lpm PVH/PVHC with shuttle

- Note: Spools with shuttles are required for load sense on A & B ports

## Proportional Load Sensing Valves – PVG32 Danfoss

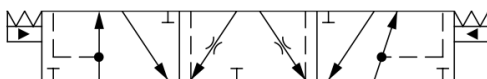
### Select Spool - PVBS Main Spools

The main spools (PVBS) determine the flow out of the work section or the pressure build up. The PVBS main spool can be activated in three different ways:

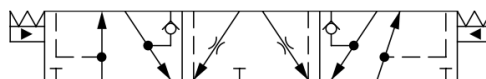


#### Flow Control Spools—Throttled Open Neutral Position

Schematic for PVBS without shuttle valve



Schematic for PVBS with shuttle valve

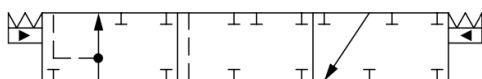


Code	Description
157B9105	Danfoss PVBS spool throttled open neutral position 5 lpm PVH/PVHC
157B9100	Danfoss PVBS spool throttled open neutral position 10 lpm PVH/PVHC
157B9101	Danfoss PVBS spool throttled open neutral position 25 lpm PVH/PVHC
157B9102	Danfoss PVBS spool throttled open neutral position 40 lpm PVH/PVHC
157B9103	Danfoss PVBS spool throttled open neutral position 65 lpm PVH/PVHC
157B9104	Danfoss PVBS spool throttled open neutral position 100 lpm PVH/PVHC
157B9106	Danfoss PVBS spool throttled open neutral position 130 lpm PVH/PVHC
157B9125	Danfoss PVBS spool throttled open neutral position 5 lpm PVH/PVHC with shuttle
157B9120	Danfoss PVBS spool throttled open neutral position 10 lpm PVH/PVHC with shuttle
157B9121	Danfoss PVBS spool throttled open neutral position 25 lpm PVH/PVHC with shuttle
157B9122	Danfoss PVBS spool throttled open neutral position 40 lpm PVH/PVHC with shuttle
157B9123	Danfoss PVBS spool throttled open neutral position 65 lpm PVH/PVHC with shuttle
157B9124	Danfoss PVBS spool throttled open neutral position 100 lpm PVH/PVHC with shuttle
157B9126	Danfoss PVBS spool throttled open neutral position 130 lpm PVH/PVHC with shuttle

- Note: Spools with shuttles are required for load sense on A & B ports

#### Single Acting Cylinder Flow Control Spools—Neutral A-port Position

Schematic for PVBS without shuttle valve



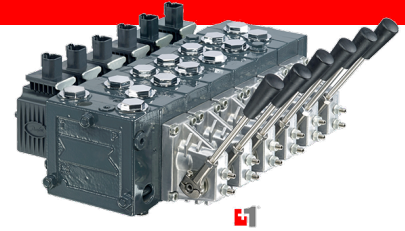
Code	Description
157B9200	Danfoss PVBS spool single acting on a port 10 lpm PVH/PVHC
157B9201	Danfoss PVBS spool single acting on a port 25 lpm PVH/PVHC
157B9202	Danfoss PVBS spool single acting on a port 40 lpm PVH/PVHC
157B9203	Danfoss PVBS spool single acting on a port 65 lpm PVH/PVHC
157B9204	Danfoss PVBS spool single acting on a port 100 lpm PVH/PVHC
11085447	Danfoss PVBS spool single acting on a port 130 lpm PVH/PVHC



## Proportional Load Sensing Valves – PVG32 Danfoss

### Select Working Section Options

#### PVB Basic Modules Accessories

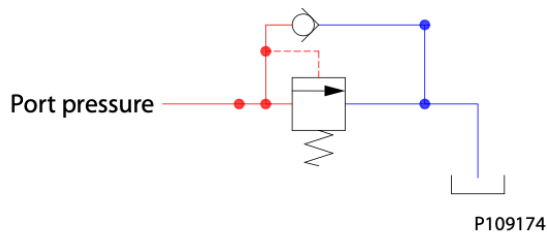


#### PVLP Shock and Anti-Cavitation Valve

The PVLP shock and anti-cavitation valve will relieve a pressure peak to the internal tank galleries and will furthermore suck oil from the tank to the work port to prevent cavitation. Pressure settings range: 32–400 bar.

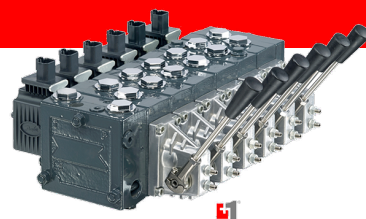
- The pressure setting of the PVLP must always be 20 bar higher than LSA/B setting in the same module.

#### PVLP schematic



Code	Description
157B2050	Danfoss PVLP shock & anti-cavitation valve 50 bar
157B2063	Danfoss PVLP shock & anti-cavitation valve 63 bar
157B2080	Danfoss PVLP shock & anti-cavitation valve 80 bar
157B2100	Danfoss PVLP shock & anti-cavitation valve 100 bar
157B2125	Danfoss PVLP shock & anti-cavitation valve 125 bar
157B2140	Danfoss PVLP shock & anti-cavitation valve 140 bar
157B2160	Danfoss PVLP shock & anti-cavitation valve 160 bar
157B2175	Danfoss PVLP shock & anti-cavitation valve 175 bar
157B2190	Danfoss PVLP shock & anti-cavitation valve 190 bar
157B2210	Danfoss PVLP shock & anti-cavitation valve 210 bar
157B2230	Danfoss PVLP shock & anti-cavitation valve 230 bar
157B2240	Danfoss PVLP shock & anti-cavitation valve 240 bar
157B2250	Danfoss PVLP shock & anti-cavitation valve 250 bar
157B2265	Danfoss PVLP shock & anti-cavitation valve 265 bar
157B2280	Danfoss PVLP shock & anti-cavitation valve 280 bar
157B2300	Danfoss PVLP shock & anti-cavitation valve 300 bar
157B2320	Danfoss PVLP shock & anti-cavitation valve 320 bar
157B2350	Danfoss PVLP shock & anti-cavitation valve 350 bar
157B2365	Danfoss PVLP shock & anti-cavitation valve 365 bar
157B2380	Danfoss PVLP shock & anti-cavitation valve 380 bar
157B2400	Danfoss PVLP shock & anti-cavitation valve 400 bar

## Proportional Load Sensing Valves – PVG32 Danfoss



### Select Working Section Options

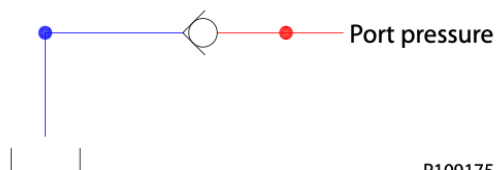
#### PVB Basic Modules Accessories

##### PVLA Suction Valve / Anti-cavitation

The PVLA valve is an accessory available for PVB basic modules.

The PVLA will suck fluid from the tank to the work port to prevent cavitation by the 0.5 bar spring. The plug will ensure that when using a single acting spool, all flow returning through the work port is led to tank.

PVLA schematic



P109175

##### PVM Manual Actuation

The PVM manual actuation cover is intended for use on any work section where the operator has to have the ability to interact with the spool manually. The PVM variants are based on a generic platform with a selection of additional features, enabling you to tailor the PVM to suit the demands of any hydraulic system, which includes the following main variants:

- PVM manual actuation or override of a function
- Spring centre cover without manual override (PVML)
  - Optional with lever base
  - Optional with lever base and lever
  - Optional flow adjustment screws
- The adjustment screws are intended for limiting the spool travel and thereby the maximum achievable flow.



Code	Description
157B2001	Danfoss PVLA anti-cavitation valve A/B port
157B2002	Danfoss PVLA anti-cavitation valve plug A/B port
157B3171	Danfoss PVM mechanical activation
157B0001	Danfoss PVMD cover for PVM for use in mechanically activated sections



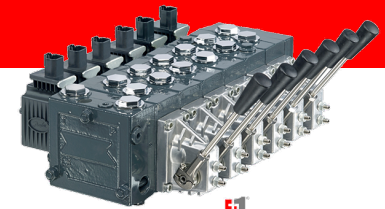
## Proportional Load Sensing Valves – PVG32 Danfoss

### Select Working Section Options

#### PVB Basic Modules Accessories

##### PVH Hydraulic Actuation

The PVH hydraulic actuation is intended for use on any work section where the operator wants to have a possibility to interact with the main spool via a hydraulic joystick. The spool spring package must match with this activation method. ¼” BSPP ports.



 PVH cover



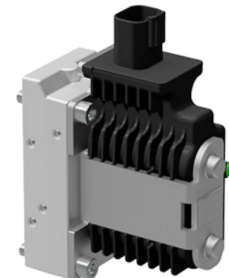
#### Technical data

<b>Main spool spring control pressure range</b>	5 – 15 bar [73 – 218 psi]
<b>Operating torque from neutral</b>	2.5 ±0.2 N·m [22.1±1.8 lb·in]
<b>Operating torque max spool position</b>	6.9 ±0.2 N·m [61.0±1.8 lb·in]
<b>Maximum pilot oil pressure</b>	30 bar [435 psi]

Code	Description
157B0008	Danfoss PVH hydraulic activation

##### PVE Electro-hydraulic Actuation - PVEO-HP

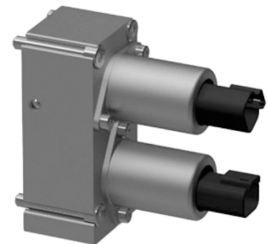
The PVEO-HP actuator is a non-proportional ON/OFF control actuator with open-loop spool control primarily used to control simple ON/OFF work functions where a proportional control of speed or oil flow is not a requirement.



##### PVHC Electro-Hydraulic Actuation

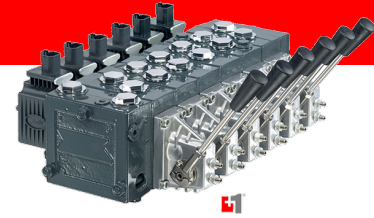
The PVHC is an electrical actuator module for main spool control. The PVHC control is done by dual Pulse Width Modulated, high current supply 100-400 Hz PWM control signals. The spool position will shift when conditions are changed such as temperature change.

- Inlet with Hydraulic Pilot Pressure is needed.



Code	Description
11166765	Danfoss PVEO-HP electro-hydraulic actuator on/off 12VDC deutsch
11166766	Danfoss PVEO-HP electro-hydraulic actuator on/off 24VDC deutsch
11112038	Danfoss PVHC electro-hydraulic actuator proportional PWM 12VDC deutsch
11112039	Danfoss PVHC electro-hydraulic actuator proportional PWM 24VDC deutsch

## Proportional Load Sensing Valves – PVG32 Danfoss



### Select Outlet & Tie Rod Kit

#### PVS End Plates

The PVG 32 PVS end plates are placed at the end the valve stack section. Furthermore, the end plate is ensuring Load Sense (LS) is relieved to tank pressure when the valve is not operated. The LX port enables other remote valves to be connected onto the Load Sense shuttle network.

- The end plates are made of either aluminium (300 bar) or cast iron (350 bar) material.

Code	Description
157B2000	Danfoss PVS end plate without connections - Al
157B2011	Danfoss PVS end plate with LX connection - Al
157B2014	Danfoss PVS end plate without connections - cast iron
157B2015	Danfoss PVS end plate with LX connection - cast iron

#### PVAS Stay Bolts / Tie Rods

PVAS Stay Bolts kit for various PVG combinations consist of three tie rods, six washers, six nuts and O-ring. The tie rods are inserted through the entire length of the PVG valve stack. The nuts are tightened at the pump side and at the end plate.

Code	Description
157B8001	Danfoss PVAS tie rod kit PVG16 & PVG32 1 bank torque 28 nm
157B8002	Danfoss PVAS tie rod kit PVG32 2 bank torque 28 nm
157B8003	Danfoss PVAS tie rod kit PVG32 3 bank torque 28 nm
157B8004	Danfoss PVAS tie rod kit PVG32 4 bank torque 28 nm
157B8005	Danfoss PVAS tie rod kit PVG16 6 bank & PVG32 5 bank torque 28 nm
157B8006	Danfoss PVAS tie rod kit PVG16 7 bank & PVG32 6 bank torque 28 nm
157B8007	Danfoss PVAS tie rod kit PVG32 7 bank torque 28 nm
157B8008	Danfoss PVAS tie rod kit PVG32 8 bank torque 28 nm
157B8009	Danfoss PVAS tie rod kit PVG32 9 bank torque 28 nm
157B8010	Danfoss PVAS tie rod kit PVG32 10 bank torque 28 nm
157B8061	Danfoss PVAS tie rod kit PVG32 11 bank torque 28 nm
157B8062	Danfoss PVAS tie rod kit PVG32 12 bank torque 28 nm

### Seal Kits

Code	Description
11061235	Danfoss PVHC electrical actuator seal kit
157B4997	Danfoss PVEO PVEM PVEP PVEA PVEH PVES actuator seal kit
157B8999	Danfoss PVG32 seal kit 1 work section
11156335	Danfoss PVG32 seal kit 7 work sections