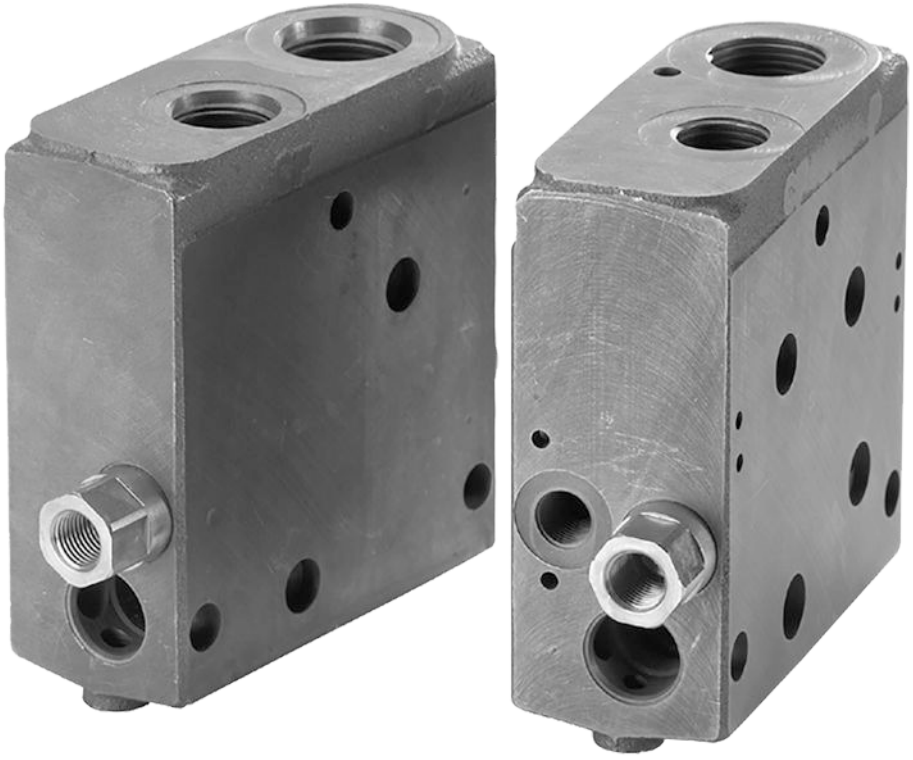
ENGINEERING
TOMORROW

Technical Information

Priority Modules
PVSP, PVSPM



powersolutions.danfoss.com

Revision history

Table of revisions

Date	Changed	Rev
Nov 2017	Updated images and minor text changes	0106
Feb 2014	Converted to Danfoss layout – DITA CMS	AE
2010-2012	Various updates	AB-AD
Jul 2007	New Edition	AA

Contents

Introduction

PVSP, PVSM General information 4
Version and code numbers 4
Sectional view of priority module PVSP/PVSPM 5

Code numbers and hydraulic schematics

Code numbers of other components 7
PVSP, PVSPM hydraulic schematics 8
Characteristics of PVSP/PVSPM 9

Dimensions

Valve group combination with PVPVM + PVSP 10
Valve group combination with PVPV/M + PVSP/M 12
Stay bolt set PVAS, for pressure range 320-350 bar [4640-5076 psi] 13
Stay bolt set PVAS, for pressure up to 350 bar [5076 psi] 14

PVG 32 specification sheet

Introduction

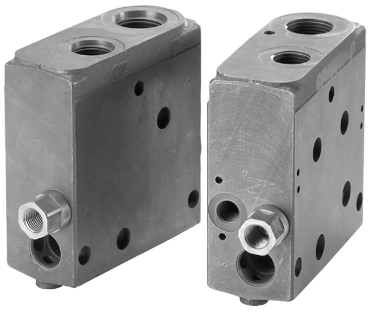
PVSP, PVSM General information

With the introduction of PVSP, Danfoss can now supply modules with integrated priority function.

The modules offer the following advantages:

- Integrated priority function for the OSP steering unit and/or the working hydraulics, PVB.
- Compatible with open-centre or closed-centre PVP pump side modules with flows up to 160 l/min.

PVSP, PVSM

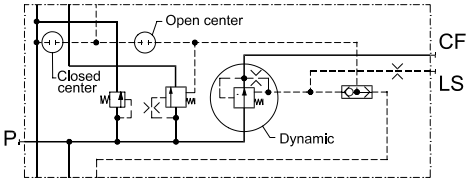
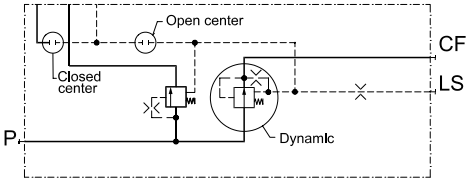
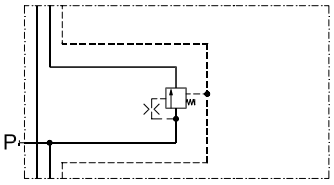


Spool



Version and code numbers

- PVSPM modules 157B6707, 157B6727 and 157B6709 to be installed as Mid-Inlet.
- PVSP modules 157B6708, 157B6728, 157B6808 and 157B6828 to be installed as the valve group end module instead of the PVS end plate.

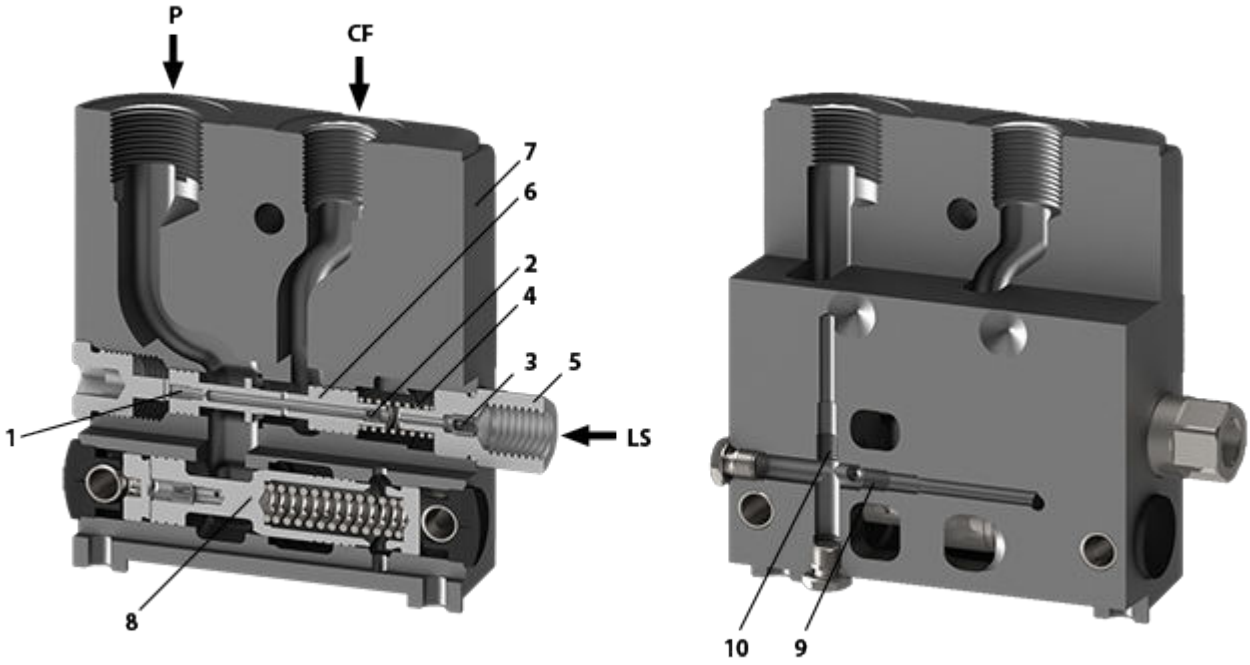
Symbol	Description	Code number	
		CF = G½ P = G 1	**CF = [7/8 -14] P = [1 5/16 -12 UN]**
 157-383.12	*PVSPM module* giving priority to OSP + PVB Prepared for PVLP 63 shock valve. Max. pump pressure = 350 bar [5076 psi] Max. pump flow = 160 l/min. [42 US gal/min] CF flow OSP = 60 l/min [12 US gal/min] CF flow PVB = 100 l/min [26.4 US gal/min]	157B6707 (Open center)	–
		157B6727 (Closed center)	–
 157-371.12	*PVSP module* giving priority tor OSP Max. pump pressure = 350 bar [5076 psi] Max. pump flow = 160 l/min [42 US gal/min] CF flow OSP = 60 l/min [12 US gal/min]	157B6708 (Open center)	157B6808 (Open center)
		157B6728 (Closed center)	157B6828 (Closed center)
 157-382.12	*PVSPM module* giving priority to PVB Max. pump pressure = 350 bar [5076 psi] Max. pump flow = 160 l/min. [42 US gal/min] CF flow PVB = 100 l/min [26.4 US gal/min]	157B6709 (Open/ Closed center)	–

Compensator spool and shockvalve has to be specified separately see *PVG 32 order specification form.*

Introduction

Sectional view of priority module PVSP/PVSPM

Sectional view of priority module PVSP/PVSPM



1 – PP fixed orifice
2 – Dynamic orifice
3 – LS orifice for steering unit
4 – Spring for compensator spool
5 – Connection for LS-signal
6 – Compensator spool for CF-connection
7 – PVSP housing
8 – Priority spool
9 – Plug, open-centre
10 – Plug, closed-centre steering unit

Priority module PVSP contains a P-connection (for the pump) and a CF-connection (control flow). Accordingly, the standard pump connections in PVP and PVPVM must therefore always be provided with a steel plug.

The PVSP module can give priority to an OSP steering unit (or other valves) and/or a PVB 32 module. The excessive flow is passed on through EF (excess flow) to non-prioritized PVB 32 basic modules.

If priority is solely given to the OSP steering unit (157B6708, 157B6728, 157B6808 or 157B6828), the PVSP module fills in the place of end plate PVS(I). When specifying valve groups of this nature, you are therefore not to give in any code number for PVS into field 11 in the specification form see *PVG 32 order specification form*. In valve groups that must give priority to PVB 32 (max. one PVB), PVSPM must be mounted as Mid-Inlet (157B6707, 157B6727 and 157B6709).

The PVB module that is given priority must be turned a 180° and installed on the right of PVSP see orientation of ports in *Dimensions*. In closed-centre systems, the system relief valve in PVP opens at a higher pressure (max. 20 bar) on the prioritized functions. It is therefore recommended to use PVB and OSP with integrated relief valve.

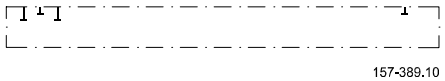
Introduction

If an OSP steering unit and a PVB working function are given priority at the same time (PVSPM, 157B6707 and 157B6727), it is necessary to ensure that the OSP will always have an adequate pump flow available. In prioritized PVB-modules, always remember to dismantle the LS shuttle valve (see example in *Code numbers and hydraulic schematics*). And together with prioritized PVB modules, always use endplate 157B2018/157B2008 (without O-rings). In open-centre systems, prioritized PVB-modules and steering units must always embody an integrated relief valve to avoid that an unintended, high pressure builds-up.

Code numbers and hydraulic schematics

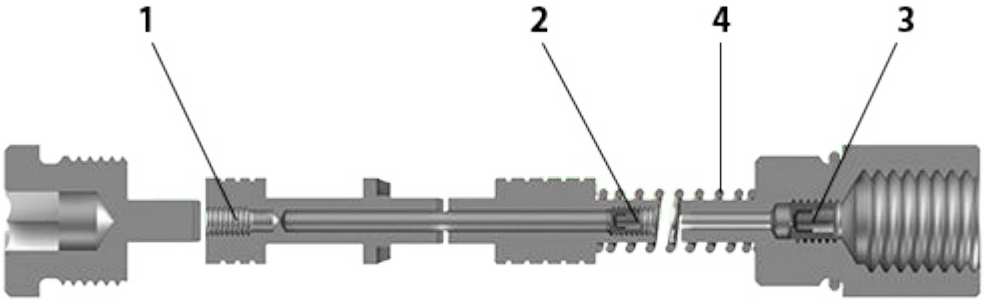
Code numbers of other components

End plate PVSI

	PVSI, without active elements without sealing elements	BSP – **157B2018** SAE – **157B2008**

PVSP module 157B6709 contains no compensator as it solely gives priority to PVB 32. Accordingly, you are not to give in any code number into field 13.

Compensator spool for PVSP/PVSPM



Dynamic LS - European version

Image reference number	**1**	**2**	**3**	**4**
Part number	**PP internal, fixed orifice**	**Dynamic orifice**	**LS orifice LS: G 1/4**	**Spring**
157B7900	0.6 mm	0.9 mm	1.2 mm	7 bar
157B7902	0.6 mm	0.9 mm	-	7 bar
157B7903	0.6 mm	1.0 mm	1.2 mm	10 bar
157B7904	0.6 mm	0.9 mm	1.2 mm	10 bar
157B7905	0.6 mm	1.0 mm	-	7 bar

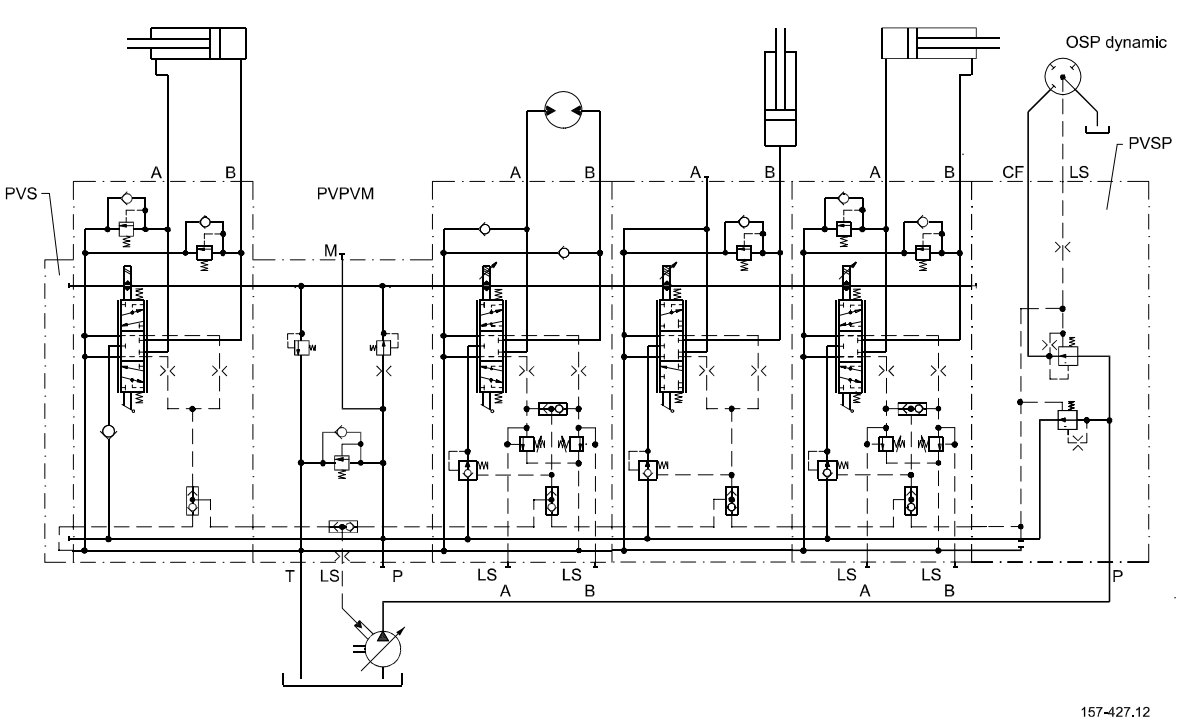
Dynamic LS - US version

Image reference number	**1**	**2**	**3**	**4**
Part number	**PP internal, fixed orifice**	**Dynamic orifice**	**LS orifice LS: [9/16 -18 UNF]**	**Spring**
157B7950	0.024 in	0.035 in	0.047 in	101.5 psi

Code numbers and hydraulic schematics

PVSP, PVSPM hydraulic schematics

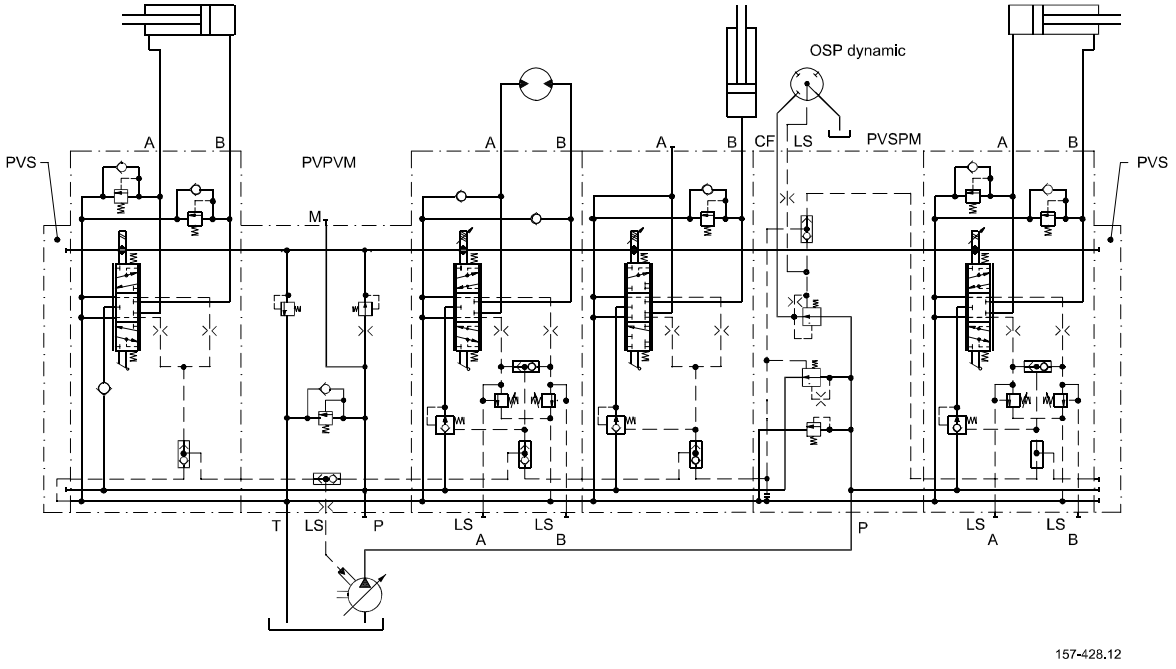
PVSP hydraulic schematic



When specifying a PVG 32 valve group that contains a PVSP module, give in the code number into the field following the last PVB-module in this case in field 6. Give in the code number of the compensator spool into field 13, see *PVG 32 order specification form*. For choice of stay bolt set PVAS, see *Stay Bolt Set PVAS*.

Code numbers and hydraulic schematics

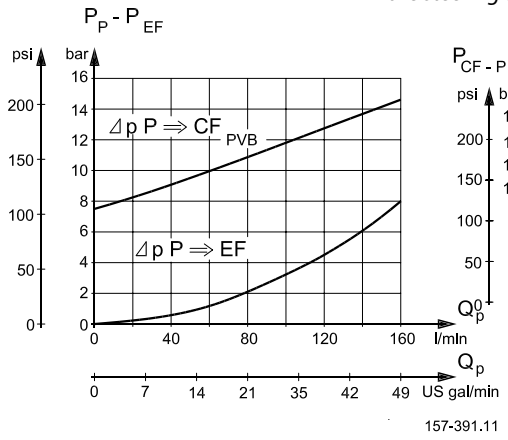
PVSPM hydraulic schematic



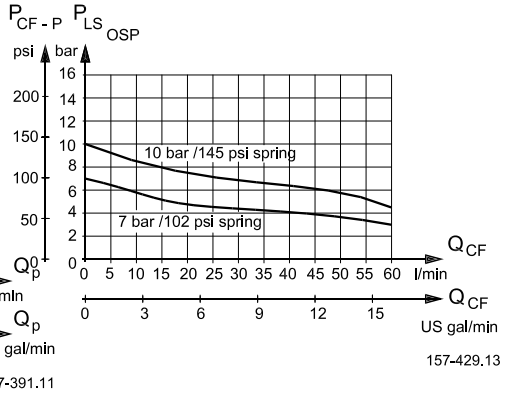
Give in the code number of PVSPM into field 5. For PVSPM, select a PVS endplate without O-rings, code 157B2018/157B2008 see *PVG 32 order specification form*. For choice of stay bolt set PVAS, see *Stay Bolt Set PVAS*.

Characteristics of PVSP/PVSPM

Pressure drop in PVSP/M



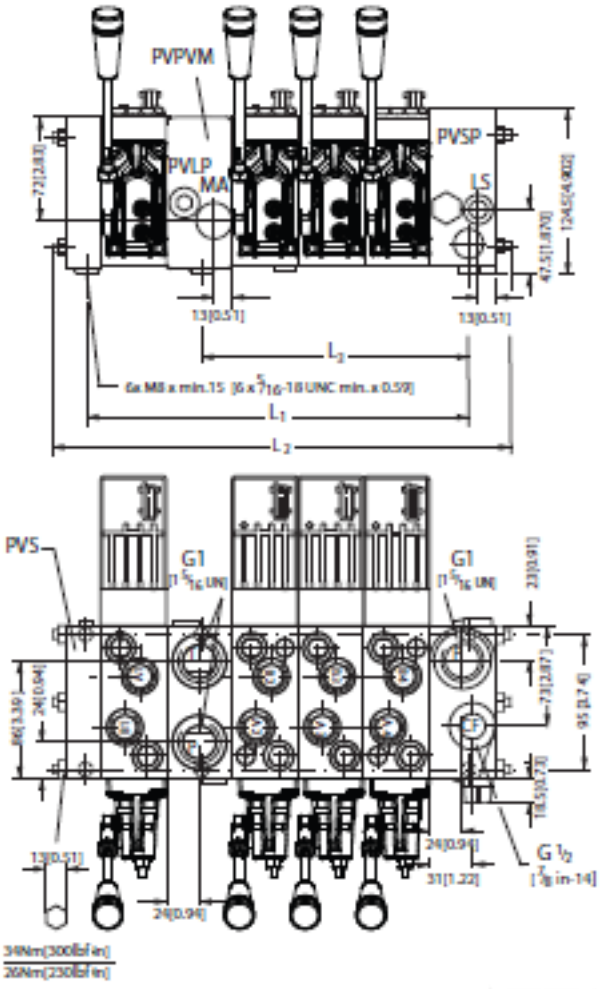
CF-flow for OSP as a function of the pressure drop from CF-port to the steering unit OSP



Dimensions

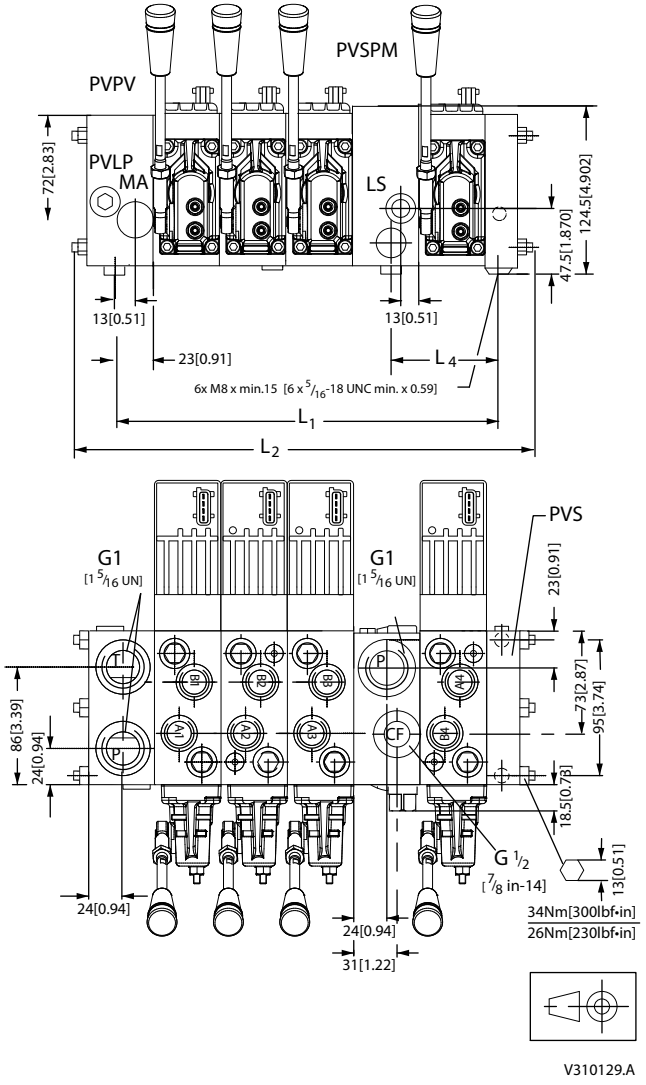
Valve group combination with PVPVM + PVSP

Valve group with PVPVM + PVSP



PVSP: LS : G 1/4 [9/16 -18 UNF]

Dimensions

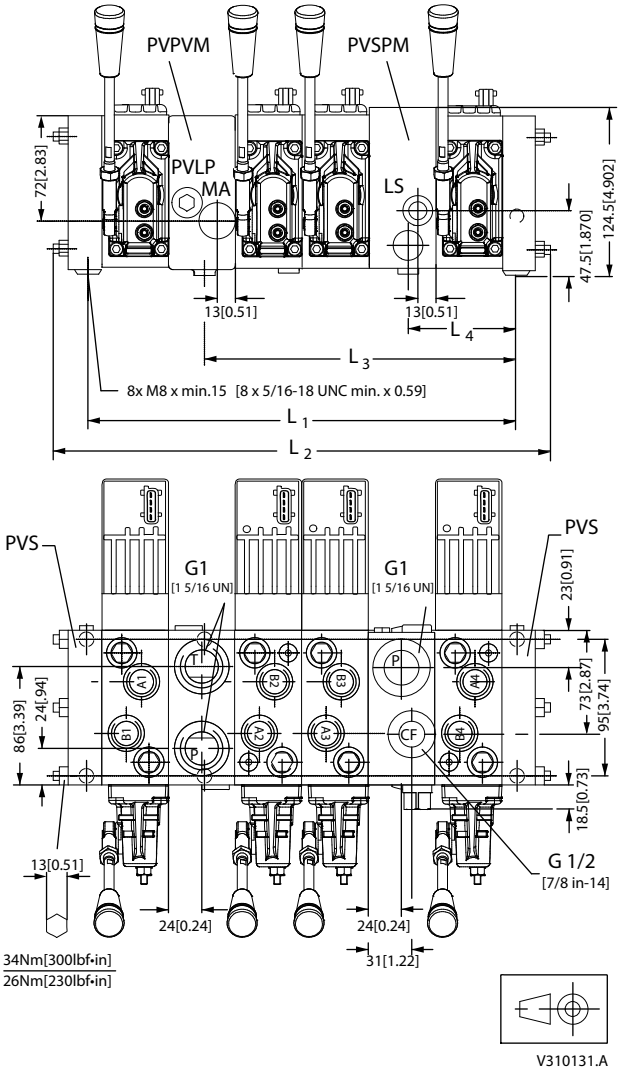


PVSP: LS = G 1/4 [9/16 -18 UNF]

Dimensions

Valve group combination with PVPV/M + PVSP/M

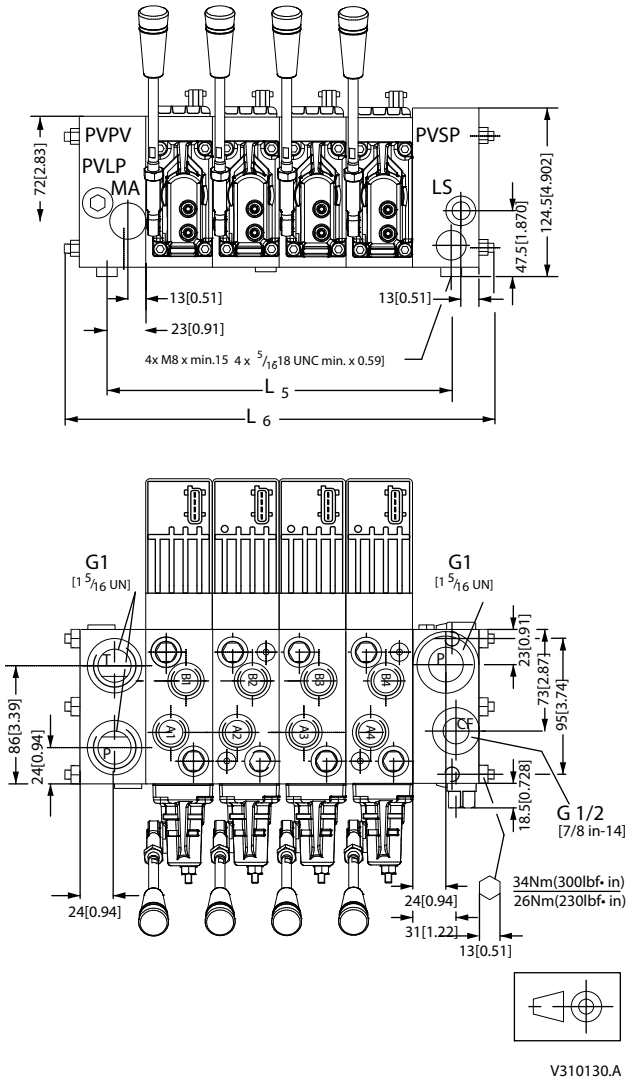
Valve group with PVPVM + PVSPM



PVSP: LS: G 1/4 [9/16 -18 UNF]

Dimensions

Valve group with PVPV + PVSP



PVSP: LS: G 1/4 [9/16 -18 UNF]

Stay bolt set PVAS, for pressure range 320-350 bar [4640-5076 psi]

For pump pressures higher than 320 bar [4640 psi] (however, no more than max. 350 bar [5076 psi] use PVAS **157B8041 – 157B8050**.

In valve groups containing the above combination of modules, use PVAS stay bolt sets as specified in the survey.

Qty, basic module	L1 mm [in]	L2 mm [in]	L3 mm [in]	L4 mm [in]	Code No.	Weight kg [lb]
0	82 [3.22]	140 [5.51]	48 [1.89]	35 [1.37]	157B8001	0.15 [0.3]
1	130 [5.12]	189 [7.44]	96 [3.78]	83 [3.27]	157B8002	0.25 [0.5]
2	178 [7.01]	238 [9.37]	144 [5.67]	131 [5.16]	157B8003	0.30 [0.7]
3	226 [8.90]	287 [11.30]	192 [7.56]	179 [7.05]	157B8004	0.40 [0.9]
4	274 [10.79]	336 [13.23]	240 [9.45]	227 [8.94]	157B8025	0.45 [1.0]
5	322 [12.68]	385 [15.16]	288 [11.34]	275 [10.83]	157B8006	0.50 [1.1]

Dimensions

Qty, basic module	L1 mm [in]	L2 mm [in]	L3 mm [in]	L4 mm [in]	Code No.	Weight kg [lb]
6	370 [14.57]	434 [17.09]	336 [13.23]	323 [12.72]	157B8007	0.60 [1.3]
7	418 [16.46]	483 [19.02]	384 [15.12]	371 [14.61]	157B8008	0.65 [1.4]
8	466 [18.35]	532 [20.95]	432 [17.01]	419 [16.50]	157B8009	0.70 [1.5]
9	514 [20.24]	581 [22.87]	480 [18.90]	467 [18.38]	157B8010	0.80 [1.8]

Stay bolt set PVAS, for pressure up to 350 bar [5076 psi]

PVAS 157B8022 – 157B8030 are intended for pump pressures up to 350 bar [5076 psi]. In valve groups containing this combination of modules, use PVAS stay bolt sets as specified in the survey.

Qty, basic Module	L1 mm [in]	L2 mm [in]	L3 mm [in]	L4 mm [in]	L5 mm [in]	L6 mm [in]	Code no.		Weigth	
							PVSPM	PVSP	PVSP kg [lb]	PVSPM kg [lb]
1	166 [6.54]	213 [8.38)	131 [5.16]	83 [3.27]	95 [3.74)	- -	157B8022	157B8021	0.30 [0.70]	- -
2	214 [8.43]	262 [10.31]	179 [7.05]	131 [5.16]	143 [5.63]	213 [8.39]	157B8023	157B8022	0.35 [0.77]	0.30 [0.70]
3	262 [10.32]	311 [12.24]	227 [8.94]	179 [7.05]	191 [7.52]	262 [10.31]	157B8024	157B8023	0.45 [1.00]	0.35 [0.77]
4	310 [12.20]	360 [14.17]	275 [10.82]	227 [8.94]	239 [9.41]	311 [12.24]	157B8025	157B8024	0.50 [1.10]	0.45 [1.00]
5	358 [14.10]	409 [16.10]	323 [12.72]	275 [10.83]	287 [11.30]	360 [14.17]	157B8026	157B8025	0.55 [1.20]	0.50 [1.10]
6	406 [15.98]	458 [18.03]	371 [14.61]	323 [12.72]	335 [13.19]	409 [16.10]	157B8027	157B8026	0.65 [1.40]	0.55 [1.20]
7	454 [17.87]	507 [29.96]	419 [16.50]	371 [14.61]	383 [15.09]	458 [18.03]	157B8028	157B8027	0.70 [1.50]	0.65 [1.40]
8	502 [19.76]	551 [21.69]	467 [18.38]	419 [16.50]	431 [16.97]	507 [19.96]	157B8029	157B8028	0.75 [1.60]	0.70 [1.50]
9	550 [21.65]	600 [23.62]	515 [20.27]	467 [18.38]	479 [18.86]	551 [21.70]	157B8030	157B8029	0.85 [1.90]	0.75 [1.60]

PVG 32 specification sheet

PVG 32
Specification Sheet

Subsidiary / Dealer	PVG No.
Customer	Customer No.
Application	Revision No.

	Function	A-port		B-port
0	Inlet		P = bar	
1		a b	f LS_A = bar LS_B = bar e	c b
2		a b	f LS_A = bar LS_B = bar e	c b
3		a b	f LS_A = bar LS_B = bar e	c b
4		a b	f LS_A = bar LS_B = bar e	c b
5		a b	f LS_A = bar LS_B = bar e	c b
6		a b	f LS_A = bar LS_B = bar e	c b
7		a b	f LS_A = bar LS_B = bar e	c b
8		a b	f LS_A = bar LS_B = bar e	c b
9		a b	f LS_A = bar LS_B = bar e	c b
10		a b	f LS_A = bar LS_B = bar e	c b
11		a b	f LS_A = bar LS_B = bar e	c b
12		a b	f LS_A = bar LS_B = bar e	c b
13		a b	f LS_A = bar LS_B = bar e	c b
14		a b	f LS_A = bar LS_B = bar e	c b
15	End section			
16	PVAS section			
17	Reserved for painting			

Comments –	
Filled in by	Date

ENGINEERING
TOMORROW

Products we offer:

- Bent Axis Motors
- Closed Circuit Axial Piston Pumps and Motors
- Displays
- Electrohydraulic Power Steering
- Electrohydraulics
- Hydraulic Power Steering
- Integrated Systems
- Joysticks and Control Handles
- Microcontrollers and Software
- Open Circuit Axial Piston Pumps
- Orbital Motors
- PLUS+1® GUIDE
- Proportional Valves
- Sensors
- Steering
- Transit Mixer Drives

Danfoss Power Solutions is a global manufacturer and supplier of high-quality hydraulic and electronic components. We specialize in providing state-of-the-art technology and solutions that excel in the harsh operating conditions of the mobile off-highway market. Building on our extensive applications expertise, we work closely with our customers to ensure exceptional performance for a broad range of off-highway vehicles.

We help OEMs around the world speed up system development, reduce costs and bring vehicles to market faster.

Danfoss – Your Strongest Partner in Mobile Hydraulics.

Go to www.powersolutions.danfoss.com for further product information.

Wherever off-highway vehicles are at work, so is Danfoss. We offer expert worldwide support for our customers, ensuring the best possible solutions for outstanding performance. And with an extensive network of Global Service Partners, we also provide comprehensive global service for all of our components.

Please contact the Danfoss Power Solution representative nearest you.

Comatrol
www.comatrol.com

Turolla
www.turollaocg.com

Hydro-Gear
www.hydro-gear.com

Daikin-Sauer-Danfoss
www.daikin-sauer-danfoss.com

Local address:

Danfoss
Power Solutions (US) Company
2800 East 13th Street
Ames, IA 50010, USA
Phone: +1 515 239 6000

Danfoss
Power Solutions GmbH & Co. OHG
Krokamp 35
D-24539 Neumünster, Germany
Phone: +49 4321 871 0

Danfoss
Power Solutions ApS
Nordborgvej 81
DK-6430 Nordborg, Denmark
Phone: +45 7488 2222

Danfoss
Power Solutions Trading (Shanghai) Co., Ltd.
Building #22, No. 1000 Jin Hai Rd
Jin Qiao, Pudong New District
Shanghai, China 201206
Phone: +86 21 3418 5200

Danfoss can accept no responsibility for possible errors in catalogues, brochures and other printed material. Danfoss reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without changes being necessary in specifications already agreed.
All trademarks in this material are property of the respective companies. Danfoss and the Danfoss logotype are trademarks of Danfoss A/S. All rights reserved.