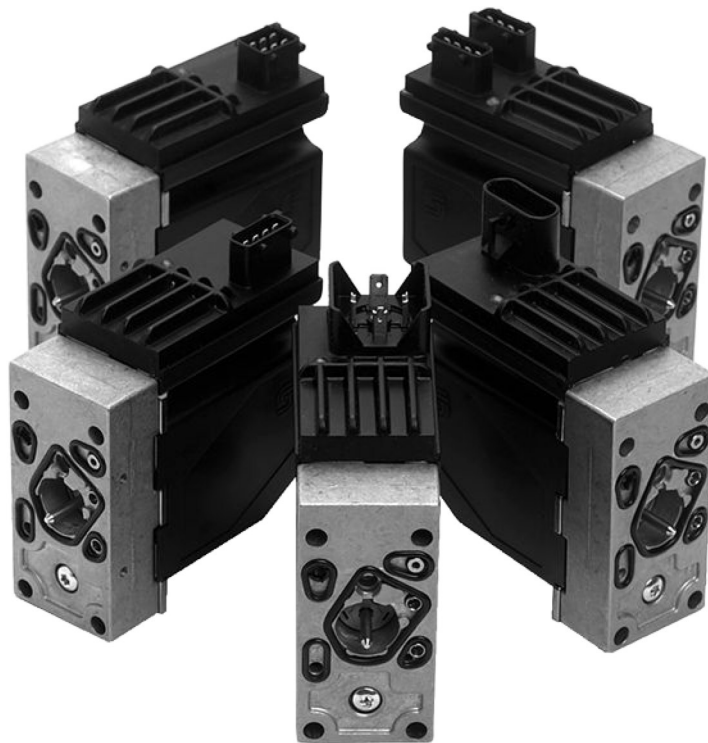


Technical Information

PVE Series 4 and PVHC Electrohydraulic Actuators



Technical Data

PVE operating parameters

Declaration of conformity

The PVEA/H/P/S/U have CE marking according to the EU directive EMC Directive 2004/108/EC. The declarations are available at Danfoss. The PVEO/M and PVHC are not subject to this directive.

The PVE use without oil supply can harm the system.

The PVE is designed for use with pilot pressure range 10 to 15 bar [145 to 220 psi]. Intermittent pressure peaks up to 50 bar [725 psi] can be accepted. Intermittent is no longer than 5 seconds and not more than once per minute.

The technical data below are from typical test results. For the hydraulic system mineral based hydraulic fluid with a viscosity of 21 mm²/s [102 SUS], 12 bar [174 psi] and a temperature of 50 °C [122 °F] was used:

Fluid consumption

Function		Supply voltage	PVEA	PVEH/ M/ O/ U-PVHC prop. high	PVEP / S / U prop. super
Pilot oil flow for PVE l/min [US gal/min]	neutral	OFF	0	0	0.3 [0.106]
	locked	ON	0.4 [0.106]	0.1 [0.026]	0.1 [0.026]
	continuous		1.0 [0.264]	0.7 [0.185]	0.8 [0.21]

Fluid specification

	Minimum	Range	Maximum
Fluid viscosity mm ² /s [SUS]	4 [39]	12 → 75 [65 ÷ 347]	460 [2128]
Fluid temperature	-30°C [-22°F]	30 → 60°C [86 ÷ 140°F]	90°C [194 °F]

Pilot pressure

	Minimum	Nominal	Maximum
PVE ¹⁾	10.0 bar [145 psi]	13.5 bar [196 psi]	15.0 bar [220 psi]
PVHC ²⁾	21 bar [305 psi]	25 bar [363 psi]	25 bar [363 psi]

¹⁾ Relative to T pressure.

²⁾ Designed to be used with hydraulic activated spools, (over tank).

Operating temperature

	Minimum	Maximum
Ambient	-30°C [-22°F]	60°C [140°F]
Stock	-40°C [-40°F]	90°C [194°F]
Recommended long time storage in packaging	10°C [50°F]	30°C [86°F]

Filtering in the hydraulic system

Required operating cleanliness level	Standard
Filtering in the hydraulic system	18/16/13
	ISO 4406, 1999 version

For further information see Danfoss documentation *Hydraulic Fluids and Lubricants, Technical Information, BC00000093*.

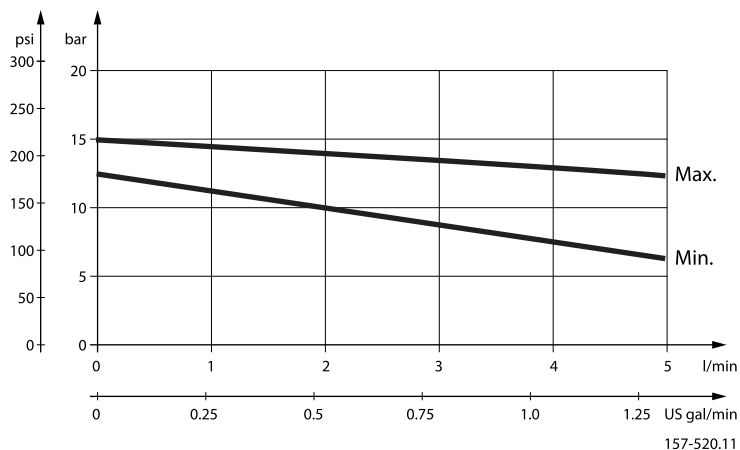
Technical Data

Enclosure and connector versions

Version of connector	Hirschmann connector	AMP JPT connector	Deutsch® connector
Grade of enclosure	IP 65	IP 66	IP 67

According to the international standard IEC 529 NB: In particularly exposed applications, protection in the form of screening is recommended.

PVP modules, Pilot pressure curves



PVHC control specification

Supply voltage U_{DC}	12 V _{DC}	24 V _{DC}
Controller output current	0 – 1500 mA	0 – 750 mA
Pilot pressure	20 – 25 bar [290-363 psi]	
Resistance	4.75 Ω \pm 5%	20.8 Ω \pm 5%
Response time	150 – 200 ms	
PWM frequency	100 \rightarrow 400 Hz	

PVHC reaction time

From neutral position to max. spool travel at power on	max.	0.235s
	rated	0.180s
	min.	0.120s
From max. spool travel to neutral position at power off	max.	0.175s
	rated	0.090s
	min.	0.065s

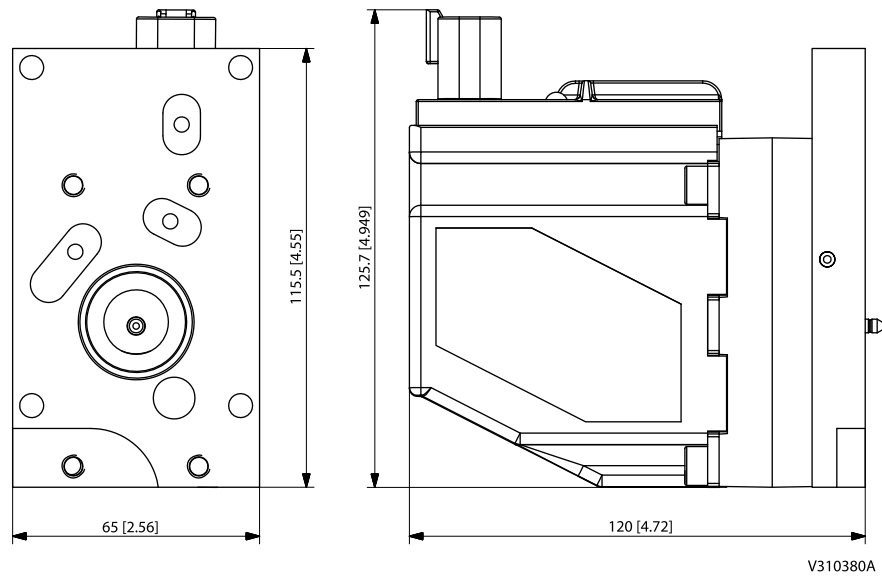
PVEO and PVEM control specification

PVEO and PVEM control specification

Supply voltage U_{DC}	rated	12 V _{DC}	24 V _{DC}
	range	11 \rightarrow 15 V	22 \rightarrow 32 V
	max. ripple	5%	

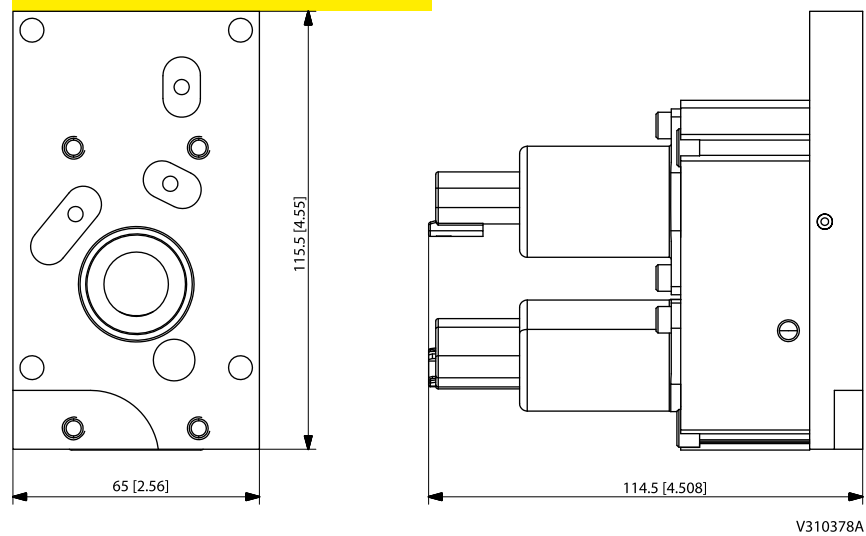
Technical Data

PVE with Deutsch® connector for PVG 120



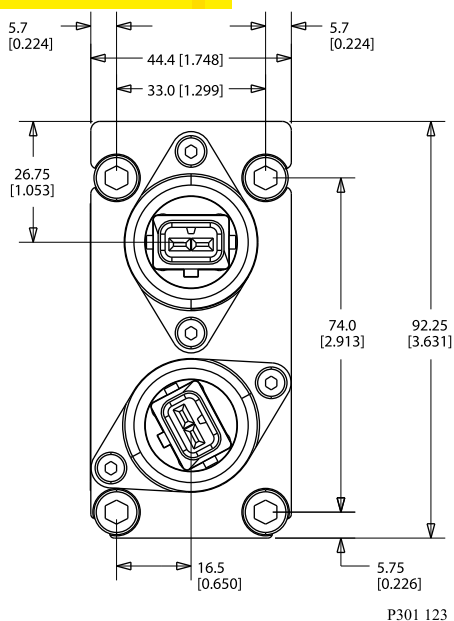
Please notice that connector needs extra space for mounting.

PVHC with Deutsch® connector for PVG 120

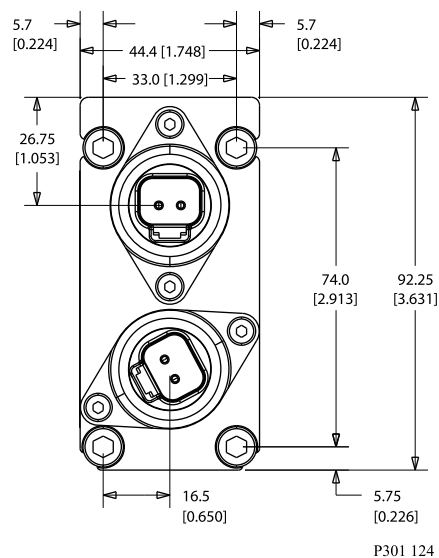


Technical Data

PVHC with AMP version



PVHC with Deutsch® version

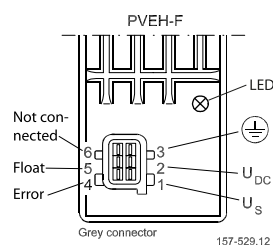


PVE with separate float pin

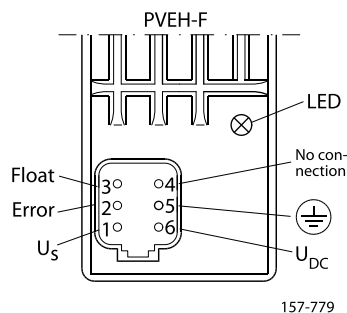
PVEH with float A, 6-pin connection

Connector	U_S	U_{DC}	Float	Ground	Error
AMP	pin 1	pin 2	pin 5	pin 3	pin 4
Deutsch®	pin 1	pin 6	pin 3	pin 5	pin 2

AMP with separate float pin



Deutsch® version with separate float pin



PVEP with controlled PWM

PVEP connection

Connector	PWM A	Error	PWM B	Gnd	U_{DC}
Deutsch®	p 1	p 2	p 3	p 5	p 6

Code Numbers

Hirschmann/DIN connector code numbers (continued)

Feature		S	std.	float B	anodized	ramp
Connector			1x4	1x4	1x4	1x4
PVEM	12 V		157B4116	157B4416		157B4516
	24 V		157B4128	157B4428		157B4528
PVEO	12 V		157B4216		157B4266	157B4217
	24 V		157B4228		157B4268	157B4229

S = super fine hysteresis, 1x4 = one plug four pins

ATEX (24 V) connector code numbers

Cable type		S	PFOP	PFOP	PFOP, cable dir PVB	BFOU
Flying wire			5 m	10 m	5 m	5 m
PVEH	passive		11084101	11084109	11084092	11084098
PVES		S	11084102	11084110	11084093	11084099
PVEO			11084100	11084108	11084051	11084097

S = super fine hysteresis

AMP/Deutsch® code numbers for PVHC

Connector		Code Number
PVHC AMP	12 V	11112037
	24 V	11112036
PVHC Deutsch®	12 V	11112038
	24 V	11112039

PVE code numbers for use on PVG 120

AMP code numbers

Feature		anodized
Connector		1x4 = one plug x four pins
PVEH	active	155G4094
	passive	155G4095
PVEO	12 V	155G4282
	24 V	155G4284

Hirschmann/DIN code numbers

Feature		anodized
Connector		1x4 = one plug x four pins
PVEH	active	155G4092
	passive	155G4093
PVES	passive	11111210
PVEO	12 V	155G4272
	24 V	155G4274