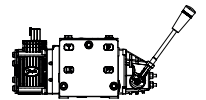


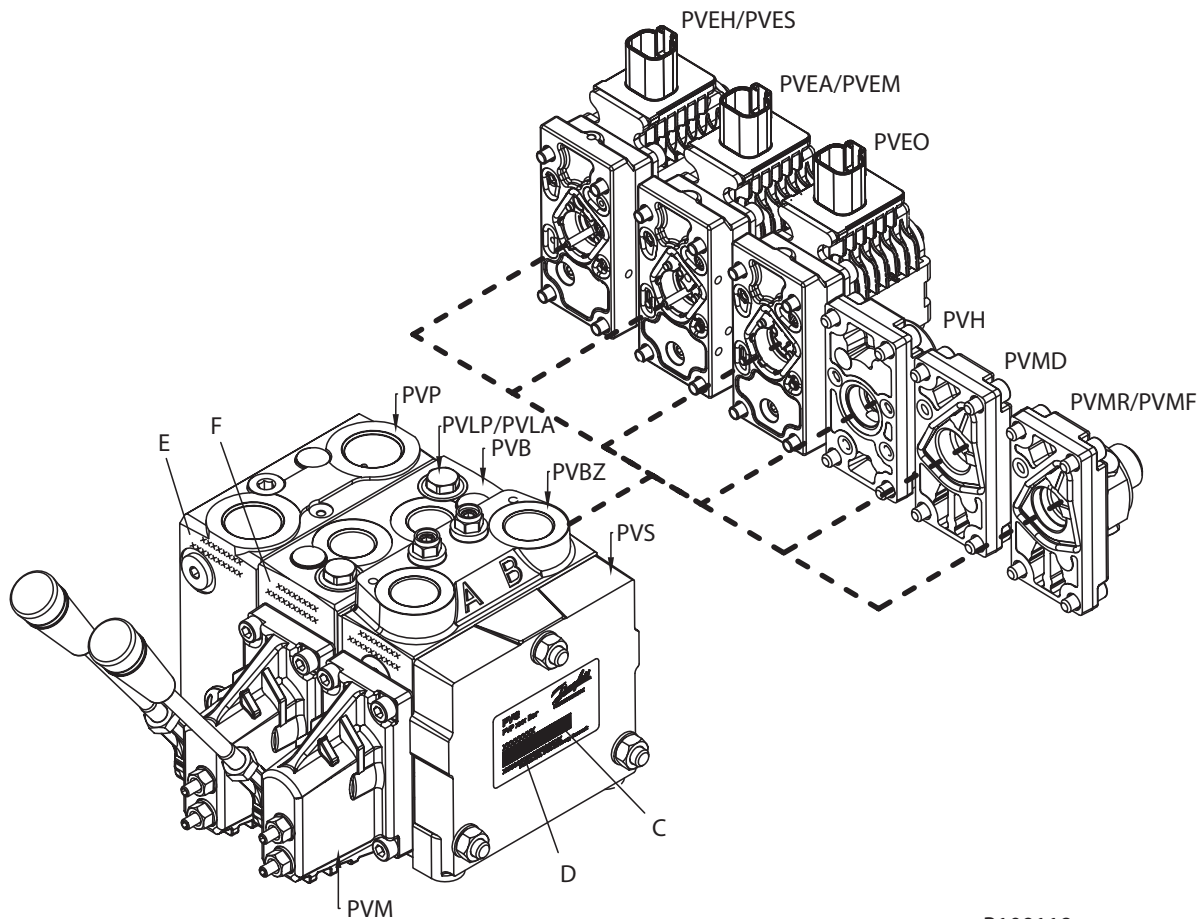
Installation Guide

Proportional Valve Group

PVG 32



Identification

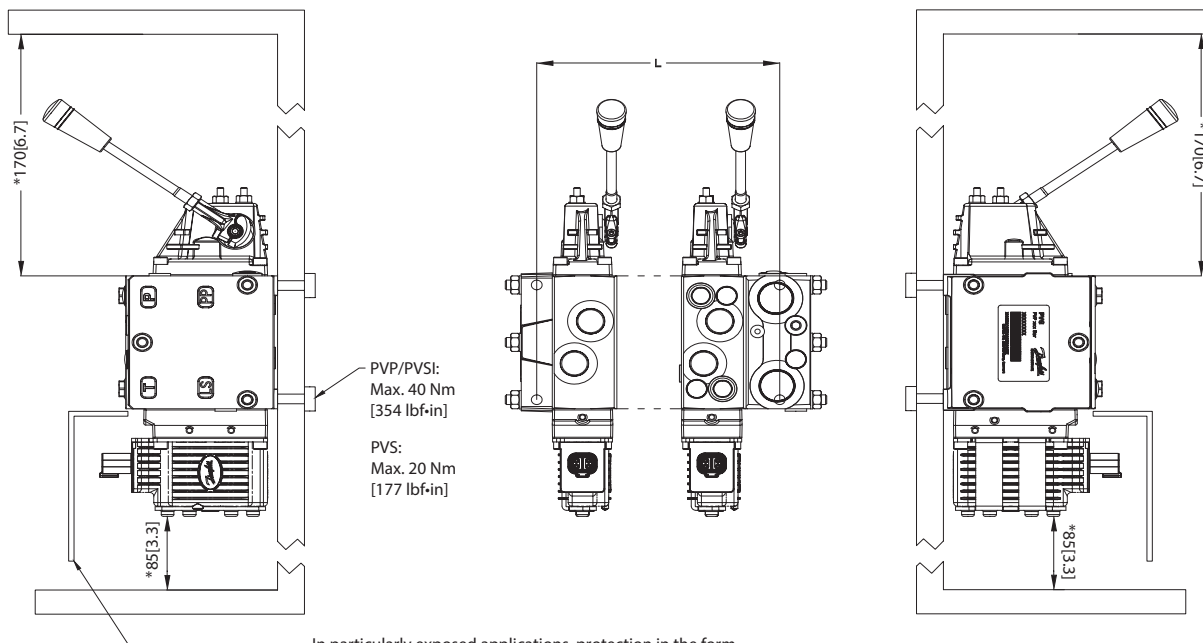


P109118

- C: PVG-nummer, uge og år for montage og serienummer
 - D: PVP-trykindstilling
 - E: PVP-nummer, uge og år for fremstilling og serienummer
 - F: PVB - A-port, nummer, uge og år for fremstilling og serienummer
-
- C: PVG-number, week and year of installation and series number
 - D: PVP - pressure setting
 - E: PVP-number, week and year of manufacturing and series number
 - F: PVB - A-port, number, week and year of manufacturing and series number
-
- C: PVG-Nummer, Woche und Jahr der Montage und Seriennummer
 - D: PVP - Druckeinstellung
 - E: PVP-Nummer, Woche und Jahr der Herstellung und Seriennummer
 - F: PVB - A-Anschluß, Nummer, Woche und Jahr der Herstellung und Seriennummer
-
- C: PVG-numéro, semaine et année de montage et numéro sériel
 - D: PVP - réglage de pression
 - E: PVP-numéro, semaine et année de fabrication et numéro sériel
 - F: PVB - orifice-A, numéro, semaine et année de fabrication et numéro sériel

Montering og orientering af stik
Installation and plug orientation
Montage und Ausrichtung des Steckers
Montage et orientation de la prise

| PVB | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|--------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| L (mm) | 82 | 130 | 178 | 226 | 274 | 322 | 370 | 418 | 466 | 514 |
| L (in) | 3.23 | 5.12 | 7.01 | 8.90 | 10.79 | 12.68 | 14.57 | 16.46 | 18.35 | 20.24 |

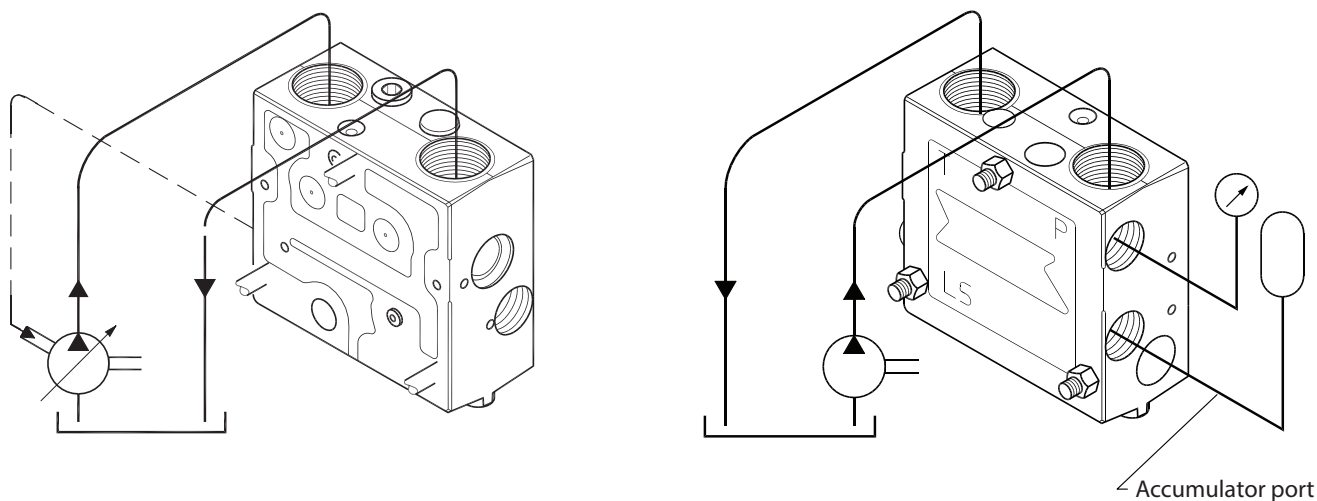


In particularly exposed applications, protection in the form of screening of the electrical actuator is recommended

P109192

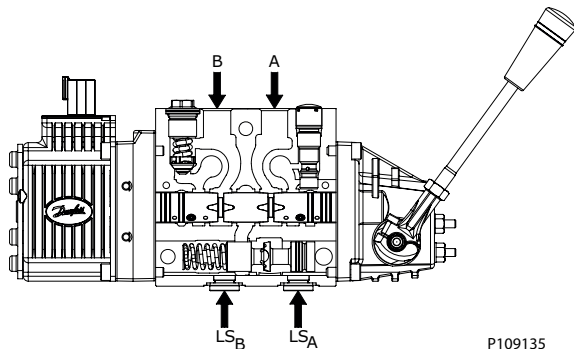
* Plads til demontage / * Room for dismantling / * Platz für Demontage / * Espace pour démontage

Tilslutning – PVP, pumpe side modul
Connection – PVP, pump side module
Anschluss – PVP, pumpenseitiges Modul
Raccordement – PVP, plaque d'entrée



P109134

Tilslutning - PVB, basismodul
 Connection - PVB, basic module
 Anschluss - PVB, Grundmodul
 Raccordement - PVB, module de base



P109135

Nominal tryk
 Rated pressure
 Nomineller Druck
 Pression nominale

| Product | Rated Pressure |
|-------------------------|--------------------|
| PVG 32 w. PVS | 300 bar [4351 psi] |
| PVG 32 w. PVSI | 350 bar [5076 psi] |
| PVG 32 w. PVBZ | 210 bar [3046 psi] |
| PVG 32 w. HIC steel | 350 bar [5076 psi] |
| PVG 32 w. HIC aluminium | 210 bar [3046 psi] |
| PVG 120/32 w. PVS | 300 bar [4351 psi] |
| PVG 120/32 w. PVSI | 350 bar [5076 psi] |
| PVG 100/32 w. PVS | 300 bar [4351 psi] |
| PVG 100/32 w. PVSI | 350 bar [5076 psi] |

Tilslutningsgevind type G (ISO 228/1)
 Connection threads type G (ISO 228/1)
 Anschlussgewinde Typ G (ISO 228/1)
 Filetage de raccordement type G (ISO 228/1)

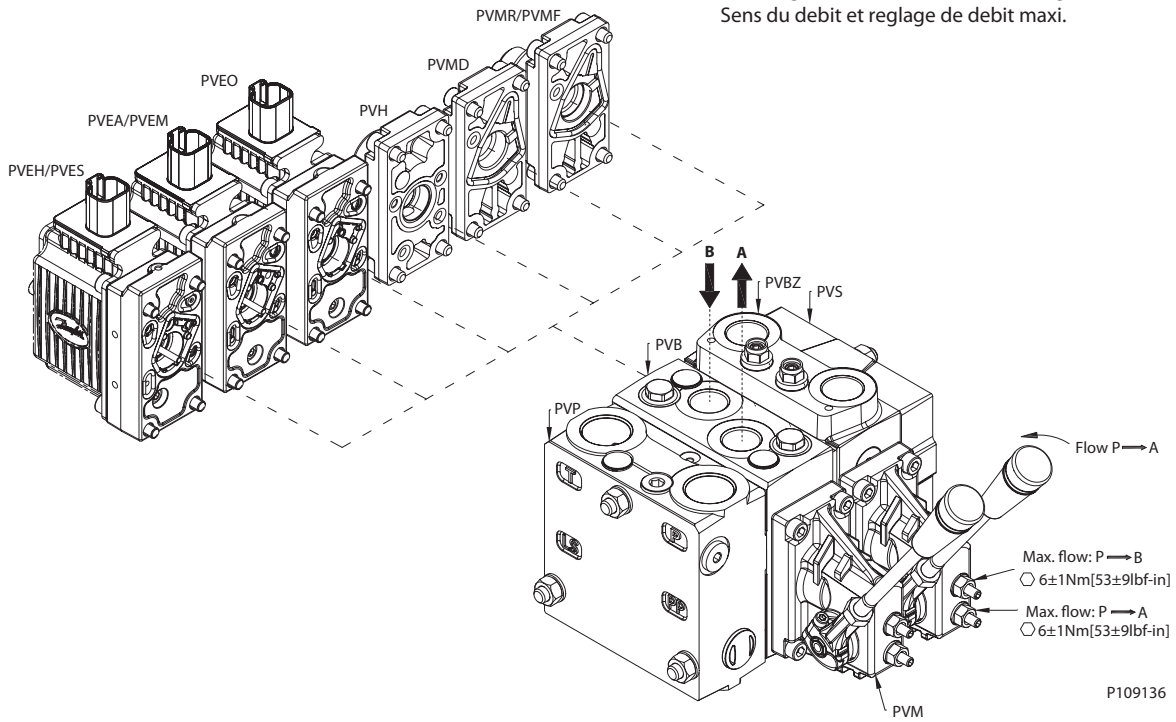
| Maks. tilspændingsmoment / Max. tightening torques / Max. Anzugsmomente / Couples de serrage maxi | | | | | | | | |
|--|---|--------------------------|--------------------------|--------------------------|--------------------------|----------------------------------|------------------------|------------------------|
| Tilslutning / Connection Anschluss / Reccordment | | P | | A/B | T | LS, M, LSA, LSB, PVH, Accu | LX, PVS, PVSI | |
| Tætning Sealing Dichtung Etanchéite | Gevind Thread Gewinde Filetage | G 1/2 | G 3/4 | G 1/2 | G 3/4 | G 1/4 | G 1/8 | G 1/4 |
| med stålskive with steel washer mit Stahlscheibe avec rondelle en acier | | 130 N•m [1150 lbf•in] | 210 N•m [1850 lbf•in] | 130 N•m [1150 lbf•in] | 210 N•m [1850 lbf•in] | 40 N•m [350 lbf•in] | 17 N•m [150 lbf•in] | 40 N•m [350 lbf•in] |
| med kobberskive With cooper washer mit Kupferscheibe avec rondelle en cuivre | | 30 N•m [270 lbf•in] | 50 N•m [445 lbf•in] | 30 N•m [270 lbf•in] | 50 N•m [445 lbf•in] | 20 N•m [180 lbf•in] | 15 N•m [135 lbf•in] | 20 N•m [180 lbf•in] |
| med aluminiumsskive with aluminium washer mit Aluminiumscheibe avec rondelle en aluminium | | 70 N•m [620 lbf•in] | 110 N•m [970 lbf•in] | 70 N•m [620 lbf•in] | 110 N•m [970 lbf•in] | 30 N•m [270 lbf•in] | 15 N•m [135 lbf•in] | 30 N•m [270 lbf•in] |
| med skærekant with cutting edge mit Dichtkante tranchant | | 130 N•m [1150 lbf•in] | 210 N•m [1850 lbf•in] | 130 N•m [1150 lbf•in] | 210 N•m [1850 lbf•in] | 40 N•m [350 lbf•in] | 17 N•m [150 lbf•in] | 40 N•m [350 lbf•in] |

UN og UNF tilslutningsgevind med O-ringstætning
 UN and UNF connection threads – O-ring boss port
 UN und UNF Anschlussgewinde mit O-ringsdichtung
 Filetage de raccordement UN et UNF avec cône pour joint torique

| Maks. tilspændingsmoment / Max. tightening torques / Max. Anzugsmomente / Couples de serrage maxi | | | | | | | | |
|---|-----|------------------------|--------------------------|------------------------|--------------------------|----------------------------------|-----------------------|------------------------|
| Tilslutning / Connection Anschluss / Reccordment | | P | | A/B | T | LS, M, LSA, LSB, PVH, Accu | LX, PVS, PVSI | |
| Forskruing Screwed connection Verschraubung Raccord | UNF | 7/8 in - 14 | 1 1/16 in - 12 | 7/8 in - 14 | 1 1/16 in - 12 | 1/2 in - 20 | 3/8 in - 24 | 1/2 in - 20 |
| O-ring Joint torique | | 90 N•m [800 lbf•in] | 120 N•m [1060 lbf•in] | 90 N•m [800 lbf•in] | 120 N•m [1060 lbf•in] | 30 N•m [270 lbf•in] | 10 N•m [90 lbf•in] | 30 N•m [270 lbf•in] |

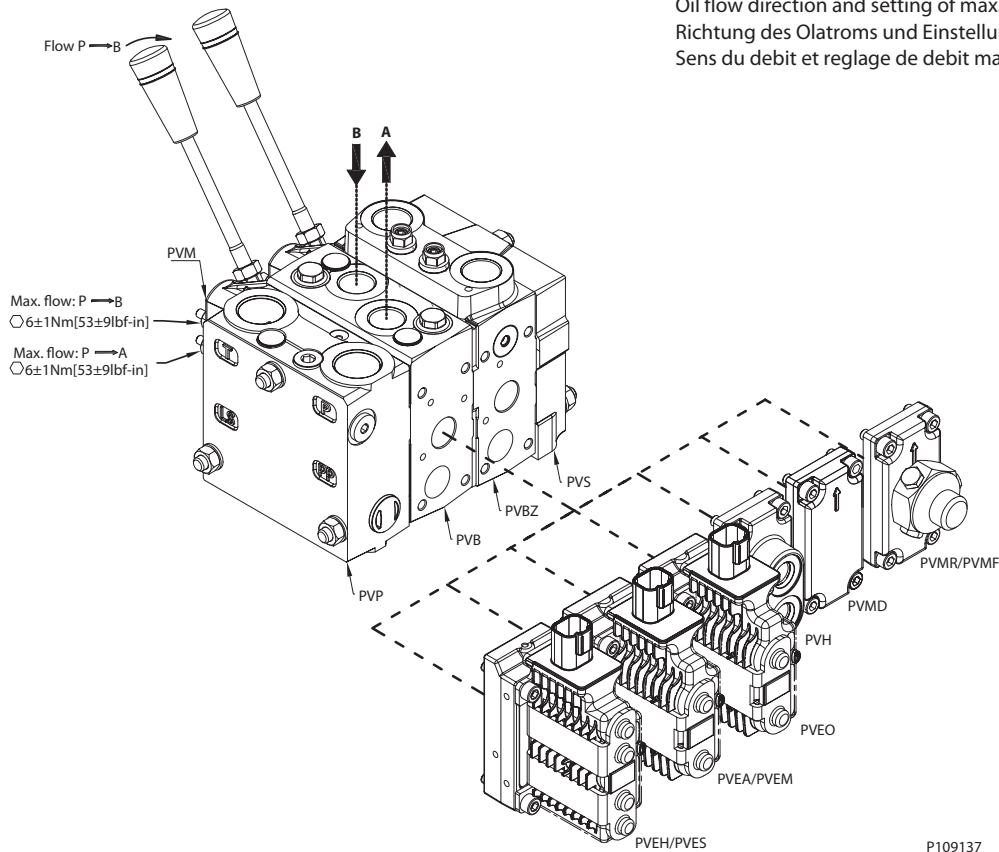
PVG - Standard mounting

Oliestrommens retning og indstilling af max. oliestrøm.
 Oil flow direction and setting of max. flow.
 Richtung des Olatroms und Einstellung des max. Olstroms.
 Sens du debit et reglage de debit maxi.



PVG - Option mounting

Oliestrommens retning og indstilling af max. oliestrøm.
 Oil flow direction and setting of max. flow.
 Richtung des Olatroms und Einstellung des max. Olstroms.
 Sens du debit et reglage de debit maxi.



PVG - Udluftning

Hvis grupper er monteret vertikalt, anbefales det at udlufte ved justereskruer.

Bemærk: Ved PVEA kan det, pga.dens hydrauliske opbygning, være påkrævet at foretage udluftning.

PVG - Bleeding

If the group is installed vertically, it is recommended to bleed it at the adjusting screws.

Note: Because of the hydraulic build-up of PVEA, it may be necessary to bleed it.

PVG - Entlüftung

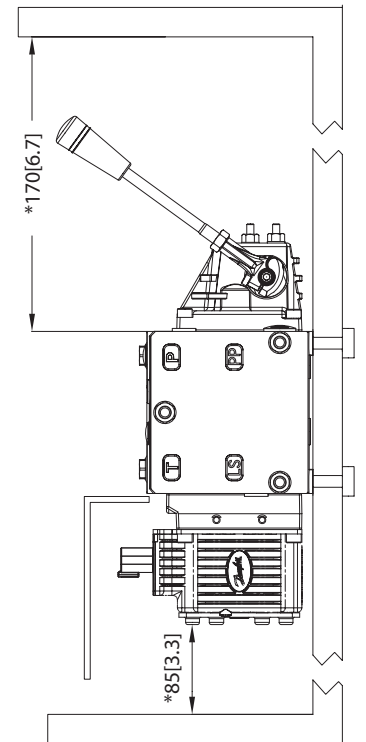
Wenn die Gruppe vertikal montiert ist, empfehlen wir an den Justierschrauben zu entlüften.

Beachte: Wegen des hydraulischen Aufbaus von PVEA kann eine Entlüftung erforderlich sein.

PVG - Purge

Si l'ensemble est monté verticalement, il est recommandé de le purger au moyen des vis d'ajustage.

Nb! En raison du système hydraulique des PVEAs il peut s'avérer nécessaire de purger.



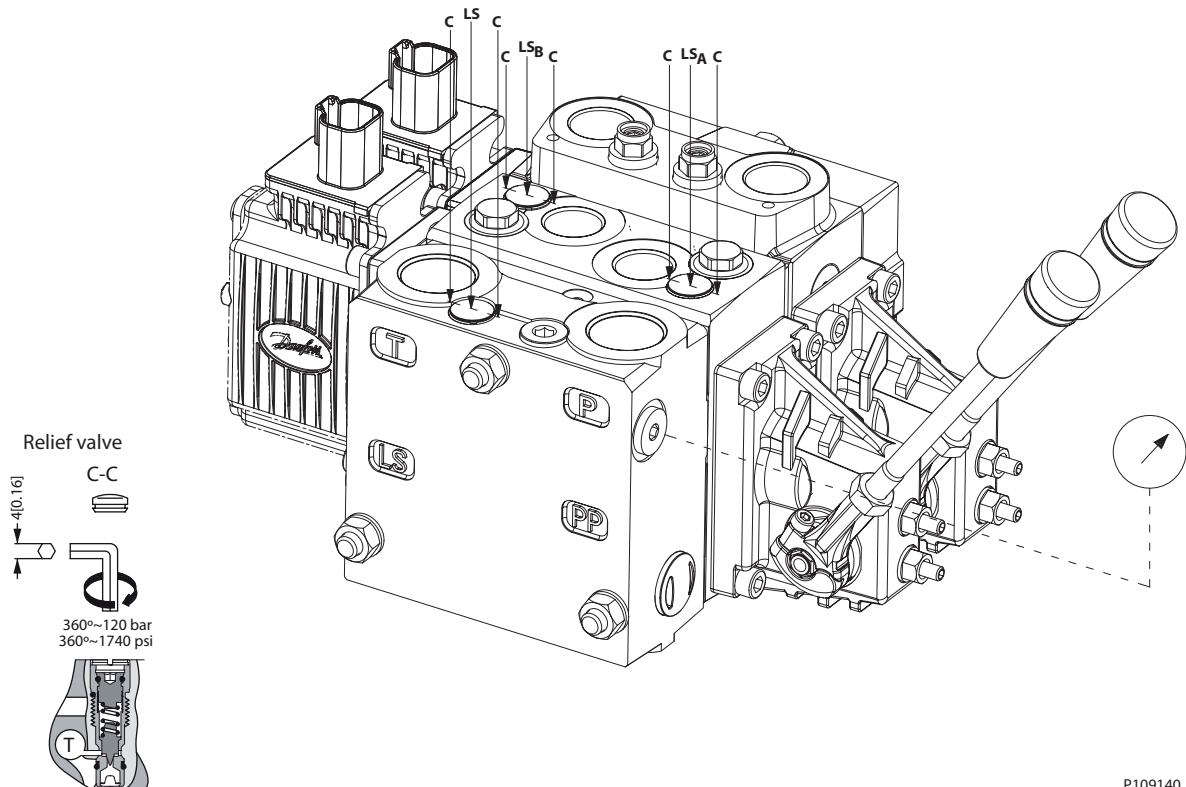
P109122

PVG - Trykindstilling PVP, LS_A, LS_B

PVG - Pressure setting PVP, LS_A, LS_B

PVG - Druckeinstellung PVP, LS_A, LS_B

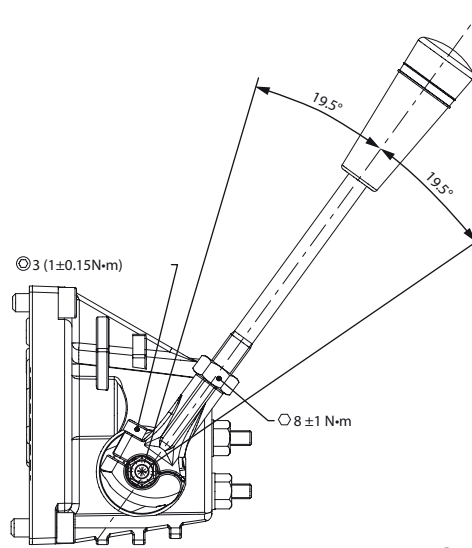
PVG - Reglage de pression PVP, LS_A, LS_B



P109140

PVM - Montering af håndtag
PVM - Installation of lever
PVM - Montage von Hebel
PVM - Montage de manipulateur

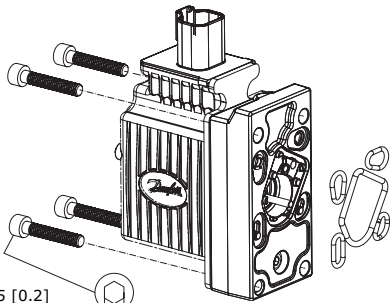
Håndtaget skal skrues helt i bund
 Screw the lever completely home
 Den Hebel völlig einschrauben
 Visser le manipulateur entiereent au fond



P109143

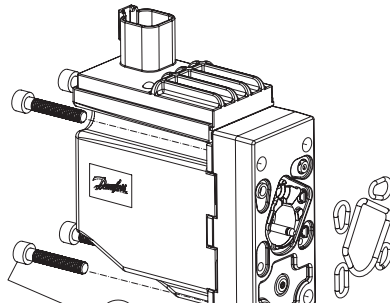
PVE - Montering
PVE - Installation
PVE - Montage
PVE - Installation de PVE

PVEO/M/A Series 7



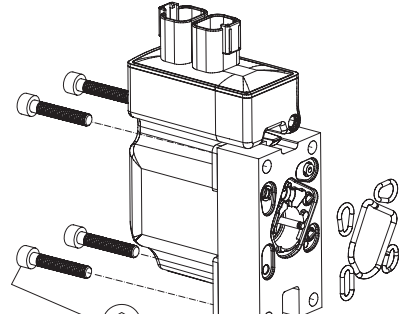
⊙ 5 [0.2]
 8 ± 0.5 Nm
 [70 ± 4.4 lbf in]

PVEP Series 4



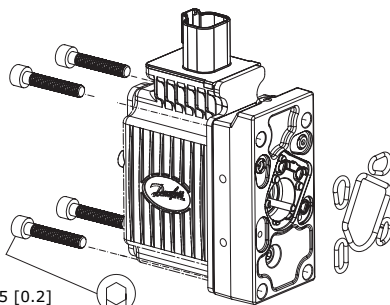
⊙ 5 [0.2]
 8 ± 0.5 Nm
 [70 ± 4.4 lbf in]

PVED Series 5



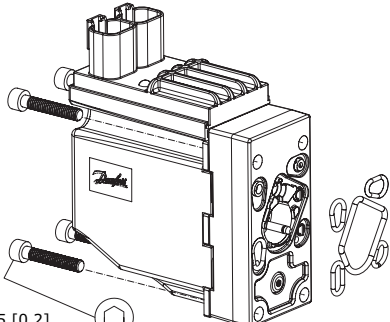
⊙ 5 [0.2]
 8 ± 0.5 Nm
 [70 ± 4.4 lbf in]

PVEH/S Series 7



⊙ 5 [0.2]
 8 ± 0.5 Nm
 [70 ± 4.4 lbf in]

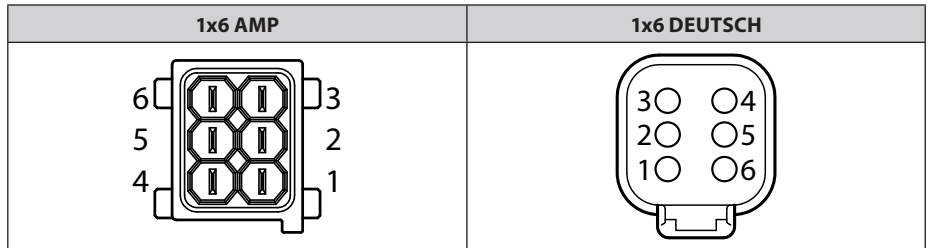
PVED-CC Series 4



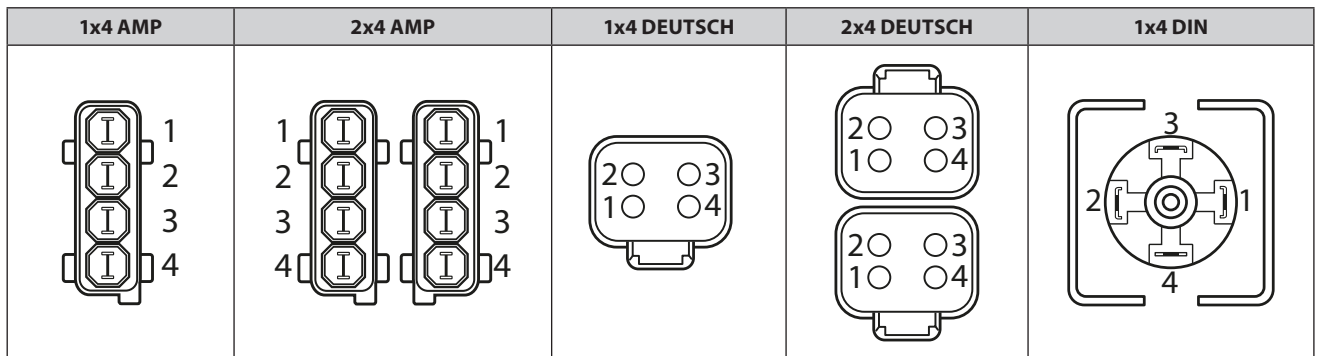
⊙ 5 [0.2]
 8 ± 0.5 Nm
 [70 ± 4.4 lbf in]

P109144

PVE stik varianter
 PVE connector variants
 PVE Stecker varianten
 PVE variantes de connecteur



| Pin | | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 |
|----------|-------------|-------|----------|-------|----------|-------|----------|
| PVEH-FLA | 1x6 AMP | U_s | U_{DC} | GND | Error | Float | |
| | 1x6 DEUTSCH | U_s | Error | Float | | GND | U_{DC} |
| PVES-SP | 1x6 DEUTSCH | U_s | Error | | SP | GND | U_{DC} |
| PVEP | 1x6 DEUTSCH | PWM_A | Error | PWM_B | U_{DC} | GND | |



| Pin | | Pin 1 | Pin 2 | Pin 3 | Pin 4 | |
|--|-------------|------------|------------|------------|------------|-----------|
| PVEO PVEO-R | 1x4 AMP | $U_{DC,A}$ | $U_{DC,B}$ | GND | GND | |
| | 1x4 DEUTSCH | $U_{DC,A}$ | GND | GND | $U_{DC,B}$ | |
| | 1x4 DIN | $U_{DC,A}$ | $U_{DC,B}$ | | GND | |
| PVEM PVEM-FLB | 1x4 DIN | U_{DC} | U_s | Error | GND | |
| PVEA PVEH PVEH-FLB PVEH-S PVEH-U | 1x4 AMP | U_s | U_{DC} | GND | Error | |
| | 1x4 DEUTSCH | U_s | Error | GND | U_{DC} | |
| | 1x4 DIN | U_{DC} | U_s | Error | GND | |
| PVEO-DI | 2x4 AMP | A | $U_{DC,A}$ | $U_{DC,B}$ | GND | GND |
| | | B | DI-B | DI-A | GND | U_{DC2} |
| PVEA-DI PVEH-DI | 2x4 AMP | A | U_s | U_{DC} | GND | Error |
| | | B | DI-B | DI-A | GND | U_{DC2} |
| | 2x4 DEUTSCH | A | U_s | Error | GND | U_{DC} |
| | | B | U_{DC2} | GND | DI-A | DI-B |
| PVED-CC | 2x4 AMP | A/B | CAN_L | U_{DC} | GND | CAN_H |
| | 2x4 DEUTSCH | A/B | CAN_H | CAN_L | U_{DC} | GND |

**PVE driftsbetingelser
PVE operating conditions
PVE Betriebsbedingungen
PVE conditions de
fonctionnement**

| PVEO/PVEH/PVES Operating Conditions | | |
|-------------------------------------|-----------------|------------------------------|
| Pilot Pressure | Nominal | 13.5 bar [196 psi] |
| | Minimum | 10.0 bar [145 psi] |
| | Maximum | 15.0 bar [220 psi] |
| Storage Temp. | Ambient | -50°C → 90°C [-58°F → 194°F] |
| Operating Temp. | Ambient | -40°C → 90°C [-40°F → 194°F] |
| Oil Viscosity | Operating range | 12 → 75 cSt [65 → 347 SUS] |
| | Minimum | 4 cSt [39 SUS] |
| | Maximum | 460 cSt [2128 SUS] |
| Oil Cleanliness | Maximum | 18/16/13 (acc. to ISO 4406) |

**PVE kontrol specifikationer
PVE control specifications
PVE Steuerungsspezifikationen
PVE spécifications de contrôle**

| PVEO Control Specification | | | |
|-----------------------------|-------------|------------------|------------------|
| Supply Voltage (U_{DC}) | Rated | 12 V_{DC} | 24 V_{DC} |
| | Range | 11 → 15 V_{DC} | 22 → 30 V_{DC} |
| | Max. ripple | 5 % | |

| PVEM Control Specification | | |
|------------------------------|-------------|---|
| Supply Voltage (U_{DC}) | Rated/Range | 11 → 32 V_{DC} |
| | Max. ripple | 5% |
| Signal Voltage (U_s) | Neutral | $U_s = 0.5 \cdot U_{DC}$ |
| | Q: P → A | $U_s = (0.5 \rightarrow 0.25) \cdot U_{DC}$ |
| | Q: P → B | $U_s = (0.5 \rightarrow 0.75) \cdot U_{DC}$ |
| Signal Voltage PWM (U_s) | neutral | $U_s = 50\% \text{ DUT}$ |
| | Q: P → A | $U_s = 50\% \rightarrow 25\% \text{ DUT}$ |
| | Q: P → B | $U_s = 50\% \rightarrow 75\% \text{ DUT}$ |
| PWM Frequency (U_s) | Recommended | > 200 Hz |
| Input Impedance | Rated | 12 k Ω |
| Input Capacitance | Rated | 100 nF |

| PVEA/PVEH/PVES Control Specification | | |
|--------------------------------------|-------------|---|
| Supply Voltage (U_{DC}) | Rated/Range | 11 → 32 V_{DC} |
| | Max. ripple | 5% |
| Signal Voltage (U_s) | Neutral | $U_s = 0.5 \cdot U_{DC}$ |
| | Q: P → A | $U_s = (0.5 \rightarrow 0.25) \cdot U_{DC}$ |
| | Q: P → B | $U_s = (0.5 \rightarrow 0.75) \cdot U_{DC}$ |
| Signal Voltage PWM (U_s) | neutral | $U_s = 50\% \text{ DUT}$ |
| | Q: P → A | $U_s = 50\% \rightarrow 25\% \text{ DUT}$ |
| | Q: P → B | $U_s = 50\% \rightarrow 75\% \text{ DUT}$ |
| PWM Frequency (U_s) | Recommended | > 1000 Hz |
| Input Impedance | Rated | 12 k Ω |
| Input Capacitance | Rated | 100 nF |

PVE LED karakteristikk
PVE LED characteristics
PVE LED Eigenschaften
PVE LED caractéristiques

| PVEO LED Characteristics | | |
|--------------------------|----------|----------|
| Color | LED view | Function |
| Green | | Power ON |

| PVEM/PVEA/PVEH/PVES LED Characteristics | | |
|---|----------|-------------------------|
| Color | LED view | Function |
| Green | | Operating |
| Green @ 1.5 Hz | | Neutral - Power Save |
| Red | | Internal fault |
| Red @ 1.5 Hz | | External or Float fault |

| PVEH-U/PVES-U LED Characteristics | | |
|-----------------------------------|----------|-------------------------|
| Color | LED view | Function |
| Green | | Operating |
| Green @ 1.5 Hz | | Neutral - Power Save |
| Red | | Internal fault |
| Red @ 1.5 Hz | | External or Float fault |
| Yellow | | Disable Mode |

▲ Warning

Alle mærker og typer af retningsventiler – også proportional ventiler – kan svigte og forårsage alvorlig skade.

Det er derfor vigtigt at analysere maskinen i alle enkeltheder.

Da proportionalventiler anvendes under mange forskellige driftsbetingelser og i mange forskellige maskiner, er det alene maskinproducentens ansvar at træffe det endelige produktvalg og sikre at samtlige maskinens krav til ydelse, sikkerhed og advarsler er opfyldt.

Ved valg af reguleringssystem – og sikkerhedsniveau – kan man f.eks. støtte sig til EN954-1 (sikkerhedsrelaterede bestanddele i reguleringssystemet).

▲ Warning

All marks and all types of directional control valves – inclusive proportional valves – can fail and cause serious damage.

It is therefore important to analyse all aspects of the application.

Because the proportional valves are used in many different operation conditions and applications, the manufacturer of the application is alone responsible for making the final selection of the products – and assuring that all performance, safety and warning requirements of the application are met.

The process of choosing the control system – and safety level – could e.g. be governed by EN 954-1 (Safety related parts of control system). See also Technical information for PVE series 7.

▲ Warnung

Alle Fabrikate und Typen von Wegeventilen – einschließlich Proportionalventile – können versagen und schlimme Unfälle verursachen. Es ist daher wichtig, die Anwendung in allen Details zu analysieren.

Weil Proportionalventile unter vielen unterschiedlichen Arbeitsbedingungen und in vielen verschiedenen Anwendungen benutzt werden, trägt allein der Maschinenhersteller die Verantwortung für seine endgültige Wahl von Produkt, und er ist ebenfalls dafür verantwortlich, dass alle Leistungs-, Sicherheits- und Warnungsanforderungen an seine Maschine erfüllt sind. Zur Wahl vom Reglersystem und Sicherheitsniveau kann man sich z.B. auf EN954-1 stützen.

▲ Avertissement

Tous les distributeurs - y compris les distributeurs proportionnels - peuvent tomber en panne et entraîner de sérieux dommages. C'est la raison pour laquelle il est important d'analyser chaque aspect de l'application.

Les vannes proportionnelles étant utilisées dans de nombreuses conditions d'exploitation et applications différentes, le fabricant de l'application porte l'entière responsabilité de la sélection finale des produits et du respect des exigences en matière de rendement, de sécurité et d'avertissement.

Le choix du système de commande – et du niveau de sécurité – peut être fait par exemple sur la base de la norme EN 954-1 (parties du système de commande relatives à la sécurité). Se reporter également à Information technique pour PVE série 7.