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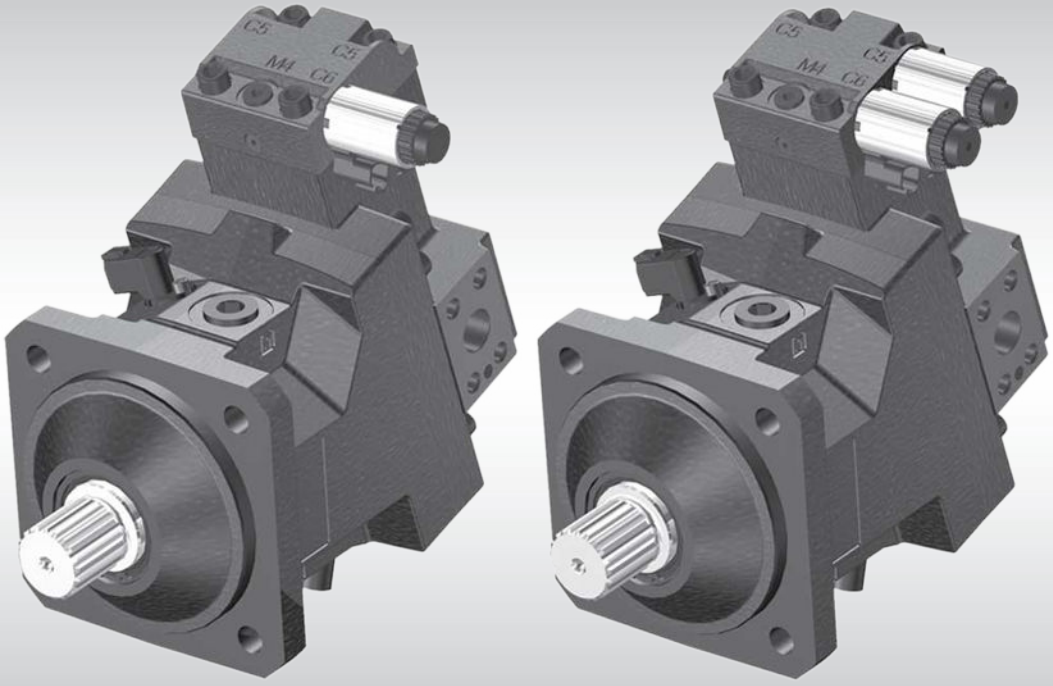
Electrical Installation

H1B Motor Electric Proportional PCOR Control

P1, P2



Revision history

Table of revisions

Date	Changed	Rev
June 2015	Converted to Danfoss layout	BA
November 2011	Corrected physical terms and values in Electrical specifications table	AE
November 2011	Corrected title of diagrams	AD
April 2009	Title changed to H1B Motor....	AC
March 2009	Reference	AB
February 2009	First edition	AA

Contents

Literature references

H1B motor electric proportional PCOR control P1, P2 literature references

Literature title	Description	Literature number
H1B Bent Axis Variable Displacement Motors Technical Information	Complete product electrical and mechanical specifications	*11037153*
PLUS+1® Compliant H1B Motor Electric Proportional PCOR Control Function Block User Manual	Compliant function block set-up information	*11063663*

Latest version of technical literature

Danfoss product literature is online at: *http://powersolutions.danfoss.com/literature/*

Product overview

Product image

P1DA, P2DA and P1D1, P2D2

Nomenclature

B and C module - control options

B	Description	C	Description
P1	Electric two-position control, 12 V, DEUTSCH DT 04-2P connector, de-energized = minimum displacement, with electric proportional PCOR	DA	Without brake pressure defeat
		D1	With brake pressure defeat, 12 V, DEUTSCH DT 04-2P connector, de-energized BPD = PCOR active at port A
P2	Electric two-position control, 24 V, DEUTSCH DT 04-2P connector, de-energized = minimum displacement, with electric proportional PCOR	DA	Without brake pressure defeat
		D2	With brake pressure defeat,24 V, DEUTSCH DT 04-2P Connector, de-energized BPD = PCOR active at port A

Only certain control options for the H1B motor use the electric two-position control. Please refer to the motor's nomenclature to determine if the motor is equipped with the proper option. You can find the nomenclature on the motor's nametag. For nomenclature details, refer to *H1B Bent Axis Variable Displacement Motors Technical Information, 11037153.*

Product overview

Theory of operation

VPCOR P1XX, P2XX

The electric two-position control with Variable Pressure Compensator Override (VPCOR) valve consists of an electric proportional solenoid driving a three-way porting spool with an adjustable spring on the opposing side. Maximum signal current to the proportional solenoid overrides the pressure compensator and strokes the motor to maximum displacement. The proportional solenoid changes the pressure compensator setting to allow different, on the go, settings. The solenoid and loop system pressure work against the spring. This allows, at decreased signal current on the proportional solenoid, a reduction of the additive forces from the proportional solenoid, causing an increased pressure compensator setting for the high loop pressure and consequently provides a variable pressure compensator. During production test, the PCOR setting is adjusted to 240 bar with the setting screw on the control housing in reference to input current of 800 mA for P1 (12 V) and 400 mA for P2 (24 V).

- Solenoid De-energized = minimum displacement
- Solenoid Full-energized = maximum displacement

P1DA, P2DA and P1D1, P2D2 with BPD

For propel applications, use the electric brake pressure defeat (BPD) option in conjunction with the pressure compensator override (PCOR) option. The BPD shuttle valve is located ahead of the pressure compensator control valve. The BPD defeat consists of an electric off/on solenoid and a two-position, three-way porting spool. The applied logic allows the pressure compensator control to operate normally with high loop system pressure during acceleration and cuts off the supply pressure during deceleration or overrun. This prevents rapid or uncontrolled deceleration while the machine is slowing down. With the BPD solenoid de-energized, spring force centers the porting spool. A direction lever switch or a microcontroller output signal must control the BPD solenoid.

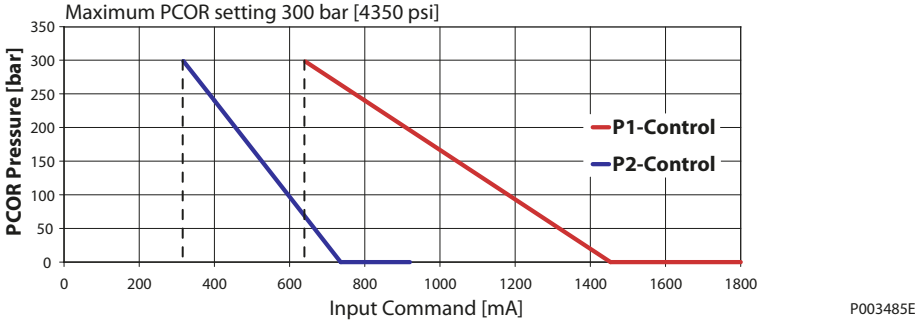
PXDA without BPD

Pressure compensator functions when the motor is providing or absorbing power. There is no electric brake pressure defeat (BPD) feature.

Do not set PCOR above 300 bar.

PCOR pressure versus input command

For P1, P2 control options



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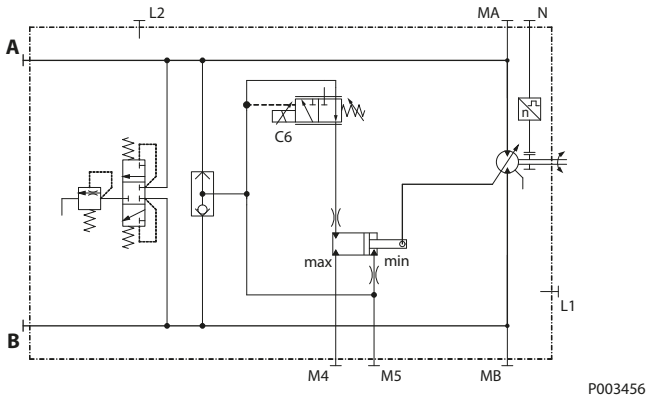
Product overview

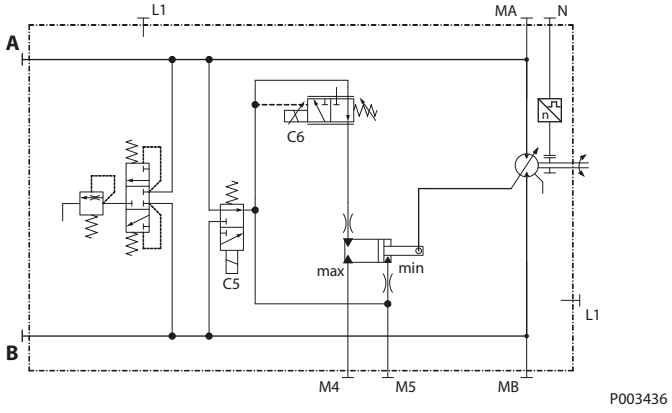
Hydraulic schematics

Motor with electric two-position control P1DA, P2DA circuit diagram



This control is not for use in propel applications.

Motor with electric two-position control and electric brake pressure defeat P1D1, P2D2 circuit diagram



Ports:

A, B	Main pressure lines
L1, L2	Drain lines
M4, M5	Gage port servo pressure
N	Speed sensor (optional)
MA, MB	Gage port system pressure

Electrical specifications

Proportional solenoid data C6

Specification	P1	P2
Voltage	12 V	24 V
Maximum current	1800 mA	920 mA
Nominal coil resistance at 20°C [70°F]	3.66 Ω	14.20 Ω
Nominal coil resistance at 80°C [176°F]	4.52 Ω	17.52 Ω
PWM range*	70 to 200 Hz	

Product overview

Proportional solenoid data C6 (continued)

Specification	P1	P2
PWM frequency (preferred)*	100 Hz	
Inductance	33 mH	140 mH

* PWM signal required for optimum control preformance for proportional solenoid.

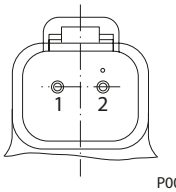
Two-position solenoid data C6

Specification	E1	E2
Voltage	12 V	24 V
Minimum supply voltage	9.5 Vdc	21.1 Vdc
Maximum supply voltage (continuous)	14.6 Vdc	29.0 Vdc
Nominal resistance at 20° C (70° F)	8.4 Ω	34.5 Ω

Electrical installation

Pinout

Two-position control and electric brake pressure defeat solenoid pin location



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Pinout

Pin	Description
1	PWM signal/ voltage input
2	Ground

Alternative pinout

Pin	Description
1	Ground
2	PWM signal/ voltage input

Pin compatibility

PLUS+1® module pin type/ H1B P pin compatibility

Pin	Function
1, 2	PWMOUT/DOUT/PVG Power supply
1, 2	PWMOUT/DOUT/PVGOUT
1, 2	Power ground

PLUS+1® module pin type/ H1B D1, D2 EBPD pin compatibility

Pin	Function
1, 2	PWMOUT/DOUT/PVG Power supply
1, 2	PWMOUT/DOUT/PVGOUT
1, 2	Power ground

Mating connector

Parts list

Description	Quantity	Ordering number
Mating connector	1	DEUTSCH: DT06-2S
Wedge lock	1	DEUTSCH: W2S
Socket contact (16 and 18 AWG)	2	DEUTSCH: 0462-201-16141
Mating connector kit	1	Danfoss: K29657

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