

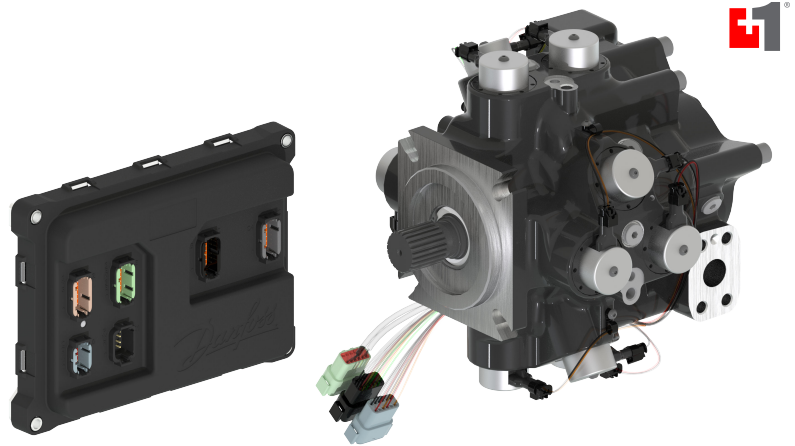
Data Sheet

Digital Displacement[®] Pump

DDP096 and DPC12

Digital displacement is a revolutionary new hydraulic pump technology based on a radial piston pump design. Partnering the Danfoss Digital Displacement[®] Pump* (DDP096) with the Danfoss Digital Pump Controller (DPC12) produces the most efficient high power pump for hydraulic machinery on the market today.

The DPC12 controls each piston individually with an on/off valve, making the pump displacement vary entirely digitally and resulting in fast, accurate flow control. The DDP096 has high efficiency and very low idle losses because it uses only as many pistons as are needed to meet the demand.



Features

Features and benefits of the DDP096 and the DPC12 include the following:

- High efficiency radial piston pump with exceptional part-load performance
- Low idle losses even when pressurized
- Direct digital control
 - Fast response, low displacement hysteresis
 - CAN-bus interface with performance and diagnostic information, tunable parameters
- Virtually no leakage at zero flow
- Zero to full displacement (or the reverse) in 3/4 of a revolution (24.7ms at 1850 rpm)
- Options for multiple independent outlets from a single pump, through-shaft capability and auxiliary mounting

* Digital Displacement is a registered trademark of Artemis Intelligent Power, Ltd.

Technical Specifications (pump)

Parameter	Value	Units
Displacement	Min: 0 Max: 96	cc/rev
Outlet pressure*	Max continuous: 420 Max intermittent peak: 450	bar
Max operating speed	Min: 1450 Continuous: 1800 Max: 1850	rpm
Flow at rated speed (Theoretical)	144 lpm @ 1500 rpm 173 lpm @ 1800 rpm	
Weight (Approximate)	51.6	kg
Viscosity range (nominal)	15-80	cSt
Low viscosity limit	10	cSt
High viscosity limit	1000	cSt
Rotation	Clockwise	
Front mounting flange	SAE C 4-Bolt	
Front input shaft	23T 16/32	
Endcap	Radial non-thru drive single service	
Inlet port	2 inch code 61	
Outlet port	1 inch Code 62	
Housing plugs	All M14 ports: steel plugs	
Lifting brackets	One bracket aligned with outlet port, two on endcap bolt	
Oil type	Mineral and synthetic hydraulic fluids	
Oil Temperature (Min)	0	°C
(Max continuous)	60	°C
(Max intermittent peak)	70	°C

* 45kW maximum power limit.

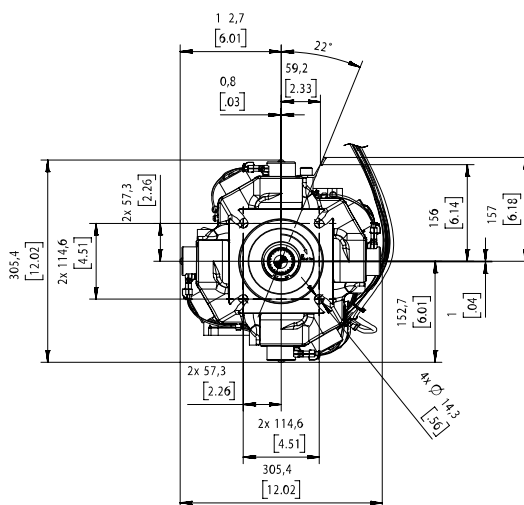
Technical Specifications (controller)

Parameter	Value	Units
Supply voltage range	9 to 36	V
Operating temperature range	-40 to +70	°C
Storage temperature range	-55 to +85	°C
IP rating	IP67 and IP69K*	
Weight (Approximate)	3	kg

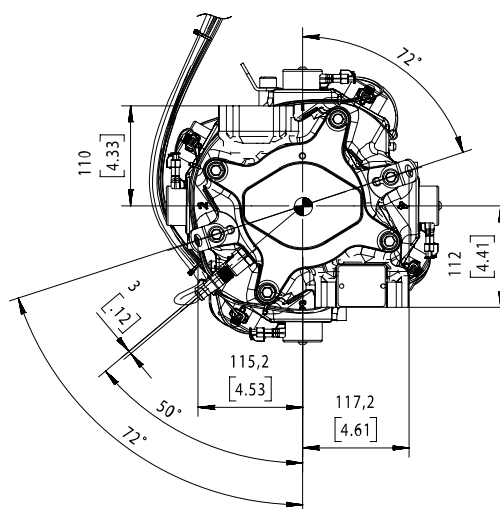
* IP67 and IP69K ratings are only valid when the mating connectors are in place and unused connector pin positions have sealing plugs installed.

Pump Dimensions

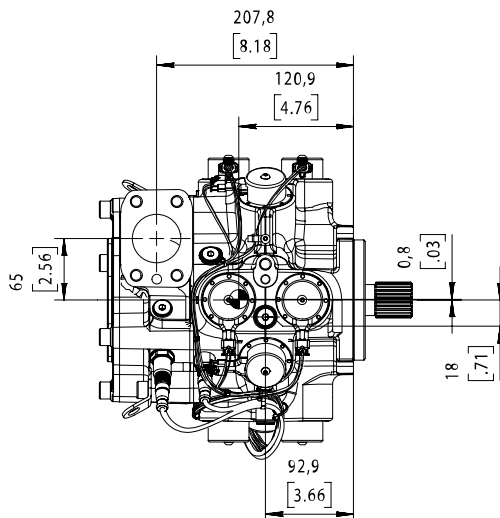
Shaft end view

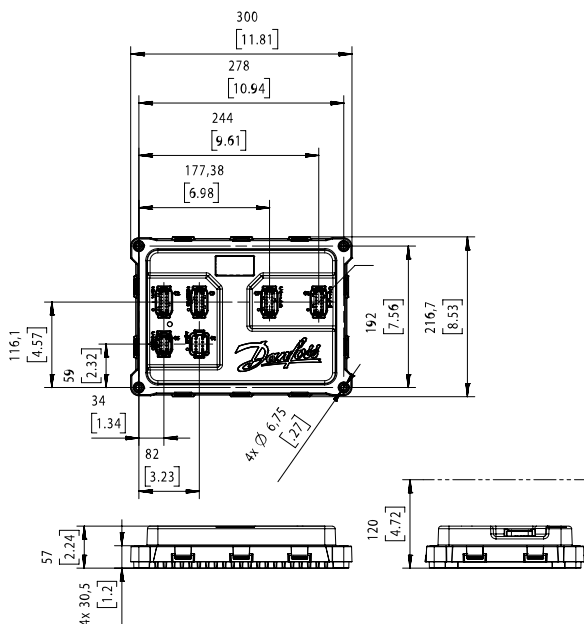


End cap view



Top view



Controller dimensions
Controller diagram


For complete technical information about the Digital Displacement® Pump DDP096 and DPC12 see document BC306384089197.

Comprehensive technical literature is online at www.danfoss.com

Power Connection, mating receptacle: DEUTSCH DT06-08SA (Grey)

Connector 2 pinout

Pin #	Name	Description
C2p01	CANH	
C2p02	CANL	
C2p03	CAN Shield	
C2p04	DigIn1	Reserved - do not connect, install sealing pin in mating connector
C2p05	PLS1+	Reserved - do not connect, install sealing pin in mating connector
C2p06	PLS1-	Reserved - do not connect, install sealing pin in mating connector
C2p07	PLS2+	Reserved - do not connect, install sealing pin in mating connector
C2p08	PLS2-	Reserved - do not connect, install sealing pin in mating connector
C2p09	PLS3+	Reserved - do not connect, install sealing pin in mating connector
C2p10	PLS3-	Reserved - do not connect, install sealing pin in mating connector
C2p11	PLS4+	Reserved - do not connect, install sealing pin in mating connector
C2p12	PLS4-	Reserved - do not connect, install sealing pin in mating connector

System Connection, mating receptacle: DEUTSCH DTM06-12SD (Brown)

Connector 1 pinout

Pin #	Name	Description
C1p01	LS+	Logic Supply Input (externally fused), powers everything except coil drivers
C1p02	VC+	Coil Supply Input (externally fused), powers coil drivers
C1p03	VC+	Coil Supply Input (externally fused), powers coil drivers
C1p04	VC+	Coil Supply Input (externally fused), powers coil drivers
C1p05	VC-	Coil Supply Return, internally connected to other Supply Returns
C1p06	VC-	Coil Supply Return, internally connected to other Supply Returns
C1p07	VC-	Coil Supply Return, internally connected to other Supply Returns
C1p08	LS-	Logic Supply Return, internally connected to other Supply Returns

Connector 3 pinout

Pin #	Name	Description
C3p01	STS Shaft	Shaft/Temperature Sensor Shaft Signal Input (SPEED, 2.5mA to 14.5mA)
C3p02	STS V+	Shaft/Temperature Sensor Shaft Signal Power (+15V)
C3p03	STS V-	Shaft/Temperature Sensor Temperature Sensor Ground (0V)
C3p04	STS Temp	Shaft/Temperature Sensor Temperature Signal Input (PUMP_TEMP)
C3p05	PP1+	Pump Pressure Sensor 1 + Signal
C3p06	PP1-	Pump Pressure Sensor 1 - Signal
C3p07	PP2+	Reserved - do not connect, install sealing pin in mating connector
C3p08	PP2-	Reserved - do not connect, install sealing pin in mating connector
C3p09	PP3+	Reserved - do not connect, install sealing pin in mating connector
C3p10	PP3-	Reserved - do not connect, install sealing pin in mating connector
C3p11	PP4+	Reserved - do not connect, install sealing pin in mating connector
C3p12	PP4-	Reserved - do not connect, install sealing pin in mating connector

Sensor Connection, mating receptacle: DEUTSCH DTM06-12SC (Green)

Connector 4 pinout

Pin #	Name	Description	Corresponding cylinder
C4p01	Coil 06+	Coil driver output positive	C2+
C4p02	Coil 05+	Coil driver output positive	B2+
C4p03	Coil 04+	Coil driver output positive	A2+
C4p04	Coil 03+	Coil driver output positive	C1+
C4p05	Coil 02+	Coil driver output positive	B1+
C4p06	Coil 01+	Coil driver output positive	A1+
C4p07	Coil 01-	Coil driver output negative	A1-
C4p08	Coil 02-	Coil driver output negative	B1-
C4p09	Coil 03-	Coil driver output negative	C1-
C4p10	Coil 04-	Coil driver output negative	A2-
C4p11	Coil 05-	Coil driver output negative	B2-
C4p12	Coil 06-	Coil driver output negative	C2-

Coil A Connection, mating receptacle: DEUTSCH DTM06-12SA (Grey)

Connector 5 pinout

Pin #	Name	Description	Corresponding cylinder
C5p01	Coil 12+	Coil driver output positive	C4+
C5p02	Coil 11+	Coil driver output positive	B4+
C5p03	Coil 10+	Coil driver output positive	A4+
C5p04	Coil 09+	Coil driver output positive	C3+
C5p05	Coil 08+	Coil driver output positive	B3+
C5p06	Coil 07+	Coil driver output positive	A3+
C5p07	Coil 07-	Coil driver output negative	A3-
C5p08	Coil 08-	Coil driver output negative	B3-
C5p09	Coil 09-	Coil driver output negative	C3-
C5p10	Coil 10-	Coil driver output negative	A4-
C5p11	Coil 11-	Coil driver output negative	B4-
C5p12	Coil 12-	Coil driver output negative	C4-

Coil B Connection, mating receptacle: DEUTSCH DTM06-12SB (Black)

Connector 6 pinout

Pin #	Name	Description
C6p01	Clk+	Reserved - do not connect, install sealing pin in mating connector
C6p02	Clk-	Reserved - do not connect, install sealing pin in mating connector
C6p03	Dout+	Reserved - do not connect, install sealing pin in mating connector
C6p04	Dout-	Reserved - do not connect, install sealing pin in mating connector
C6p05	Din+	Reserved - do not connect, install sealing pin in mating connector
C6p06	Din-	Reserved - do not connect, install sealing pin in mating connector
C6p07	Diag1 (Rx)	Reserved - do not connect, install sealing pin in mating connector
C6p08	Diag2 (Tx)	Reserved - do not connect, install sealing pin in mating connector

Comm Connection, mating receptacle: DEUTSCH DTM06-08SA (Grey)



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