

Data Sheet

Digital Displacement[®] Pump Gen 2

DDP096 and DPC12



The Danfoss Digital Displacement[®] Pump Gen 2 (DDP096) with Digital Pump Controller (DPC12) is the most efficient, high-power, variable displacement open circuit pump.

Our technology utilizes a radial design which enables pistons in real time, using ultra-fast mechatronic valves controlled by a dedicated controller. The DPC12 controls each piston individually, making the pump displacement electronically variable and resulting in fast, accurate flow control. By using only as many pistons as required to meet the demand, the DDP096 has high efficiency and low idle losses across a very wide operating range.

Replacing a standard pump with a single- or multi-outlet 96cc Digital Displacement[®] Pump can dramatically increase the productivity of hydraulic machinery, enhancing control, reducing energy consumption and heralding a brighter, digital future. Customers can profit from better fuel consumption and the potential to downsize engines or battery packs. Whichever route is taken, our technology can deliver benefits today, tomorrow and long into the future.



Features

A more intelligent approach

- Efficient radial piston pump with exceptional part-load performance
- Suitable for diesel, hybrid and full electric machines
- Low idle losses even when pressurized
- Virtually no leakage at zero flow output
- Direct digital control
 - Fast response
 - No control hysteresis
 - Control response independent of output pressure
 - Various control modes including pressure, load sense, flow, displacement, torque, power and combinations of these

- CAN-bus interface with performance and diagnostic information
- Sensored outputs
- Tunable parameters
- PLUS+1[®] Compliant
- Zero to full displacement (or the reverse) in half a revolution*
- Options for multiple independent outlets from a single pump, through-shaft capability and auxiliary mounting

What it all means

- A faster control means...

- Increasing productivity
- Increasing usable hydraulic power even with the same size prime mover
- Improved efficiency means ...
 - Downsizing or down-speeding the prime mover without loss of productivity or control
 - Longer work-cycles or smaller batteries for next generation electric machines

* Half a revolution plus about 8.5ms for communication and processing time. For example, at 2600 rpm this is 11.5ms + 8.5ms = 20ms. At 600 rpm this is 50ms + 8.5ms = 58.5ms.

Technical Specifications (pump)

Final specifications subject to qualification testing

Pump Model		Single-Outlet	Multi-Outlet
Max displacement	cm ³ /rev [in ³ /rev]	96 [5.86]	48 [2.93] 24 [1.46] 24 [1.46]
Continuous outlet pressure	bar [psi]	420 [6090]	
Max outlet pressure	bar [psi]	450 [6530]	
Continuous operating speed range	min ⁻¹ (rpm)	600 to 2600	
Flow at maximum speed (Theoretical)	l/min [US gal/min]	250 [66]	125 [33] 62.4 [16.5] 62.4 [16.5]
Weight (Approximate)	kg [lb]	52 [114]	54 [119]
Front mounting flange	SAE C 4-Bolt		
Front input shaft	23 Tooth, 16/32 Pitch		
Endcap	Radial ports, Single outlet	Radial ports, 3 outlets	
Auxiliary mount	Options available		

Tandem units are combinations of single and/or multi-outlet pumps coupled together, each with the same operational limits as individual pumps. Approximate weight is 120 kg [265 lbs].

Technical Specifications (controller)

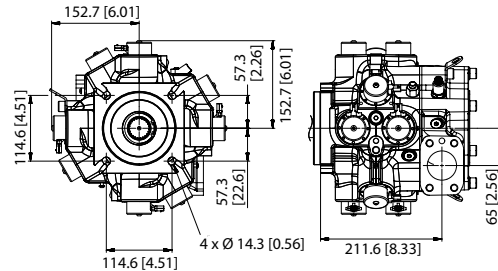
Final specifications subject to qualification testing

Parameter	Value	Units
DC 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

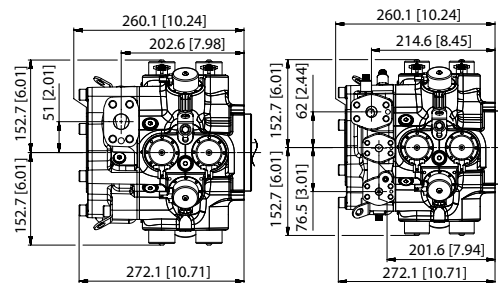
* IP67 and IP69K ratings are only valid when the mating connectors are in place and unused connector pin positions have sealing plugs installed.

Pump Dimensions

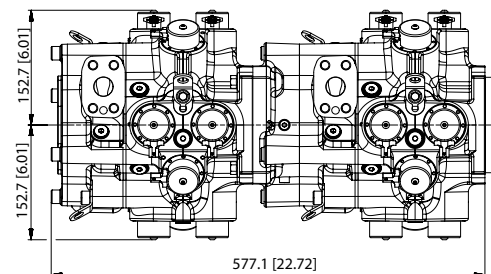
Common dimensions (single and multi-outlet)



Single-outlet (left), Multi-outlet (right)



Tandem



Controller Dimensions

