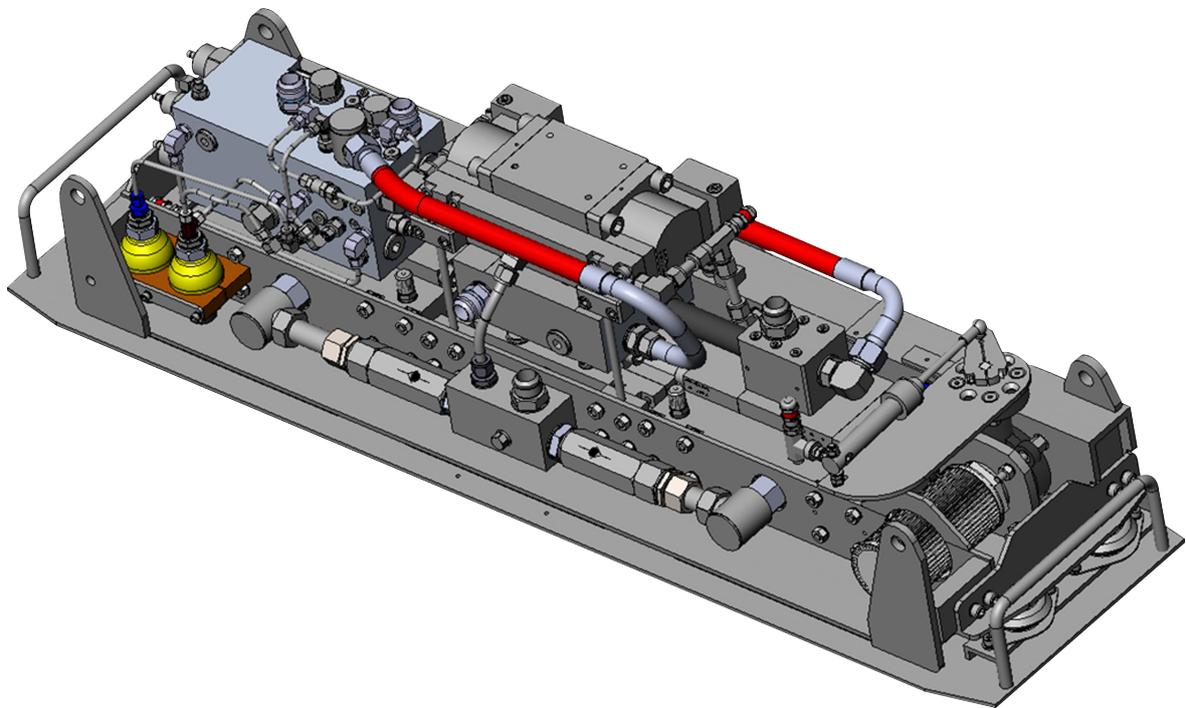


4- Stage Hi-Flow Pump



FEATURES

Series High/Low Pressure Pump Arrangement

Automatic Stage Transfer

Emergency Sea water Suction Design

4-Stage Hi-Flow Pump

The Pump Set consists of two LP pumps and two HP Pumps. This pump set is controlled by an Oceaneering hydraulic control manifold. The pump set switches automatically through four modes, relative to the oil pressure at the time of operation.

The pump suction inlet is fitted with a 3 way ball valve. This valve allows the inlet fluid to be switched between two different sources of supply into a central supply to the pressure pumps. One inlet is fitted with an inlet filter to allow emergency suction from the sea, whilst the other could be connected to a tank, bladder or other source volume.

The ball valve may be positioned in two different configurations, depending on the location and connection requirements of the source volume.

Check valves are employed to ensure that the flow direction

and pressure build up is maintained during pumping operations, and does not bleed back through the system when the pumps are stationary.

The hydraulic control manifold sequence the pump operations throughout the pressure cycle. This includes the transition from LP to HP with no loss of flow. Should there be any pressure drop in the manifold will ensure that the pumps compensate accordingly.

The pump should be configured to effectively utilize the maximum ROV- HPU output.

1st - Serial Connection of the Hi-Flow Pump configuration is more effective for ROV-HPU output of 50 lpm -150 lpm.

2nd - Parallel Connection of the Hi-Flow Pump configuration is more effective for ROV-HPU output above 150 lpm.

Serial connection

Suitable for ROV- HPU output of 50 lpm -150 lpm

Outlet water flow and pressure for the two HPW90/150-85 and two HPW460/50-115 hydraulic connection for four modes

HI flow pump specifications

Mode 1:	Two HPW 90/150-85 - works hydraulic side in series, water side in parallel
Mode 2:	One HPW 90/150-85 - works, second is stopped

Mode 3:	Two HPW 460/50-115 - works hydraulic side in series, water side in parallel
Mode 4:	One HPW 460/50-115 - works, second is stopped

Max performance

	Water output (Metric units)	Required input (Metric units)
Mode 1	300 lpm @ 45 bar	85 lpm @ 190 bar
Mode 2	150 lpm @ 90 bar	85 lpm @ 190 bar
Mode 3	100 lpm @ 230 bar	115 lpm @ 240 bar
Mode 4	50 lpm @ 364 bar	115 lpm @ 240 bar
	Water output (American units)	Required input (American units)
Mode 1	79.3 gpm @ 652 psi	13.2 gpm @ 5280 psi
Mode 2	39.6 gpm @ 1305 psi	22.5 gpm @ 2755 psi
Mode 3	26.4 gpm @ 3335 psi	30.4 gpm @ 3480 psi
Mode 4	13.2 gpm @ 5280 psi	30.4 gpm @ 3480 psi

Performance at typical ROV outlet 85 lpm/190bar-22.5 gpm/2755psi		
Water output		
	Metric units	American units
Mode 1	300 lpm @ 45 bar	79.3 gpm @ 652 psi
Mode 2	150 lpm @ 90 bar	39.6 gpm @ 1305 psi
Mode 3	74 lpm @ 182 bar	19.5 gpm @ 2640 psi
Mode 4	37 lpm @ 364 bar	9.8 gpm @ 5280 psi

Parallel Connection

Suitable for ROV - HPU output above 150 lpm

Outlet water flow and pressure for the two HPW90/150-85 and two HPW460/50-115 hydraulic connection for three modes

HI flow pump specifications

Mode 1:	Two HPW 90/150-85 - Works hydraulic side in series , water side in parallel. Also works second HPW460/50-115
Mode 2:	One HPW 90/150-85 - Works, second is stopped. Also works second HPW460/50-115

Mode 3:	Two HPW 460/50-115 - Works hydraulic side in parallel, water side in parallel
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Max performance

	Water output (Metric units)	Required input (Metric units)
Mode 1	350 lpm @ 45 bar	200 lpm @ 190 bar
Mode 2	200 lpm @ 90 bar	200 lpm @ 190 bar
Mode 3	100 lpm @ 350 bar	230 lpm @ 190 bar
Mode 3 Max	100 lpm @ 460 bar	230 lpm @ 240 bar

	Water output (Imperial units US gal)	Required input (Imperial units US gal)
Mode 1	92.5 gpm @ 652 psi	13.2 gpm @ 5280 psi
Mode 2	52.8 gpm @ 1305 psi	22.5 gpm @ 2755 psi
Mode 3	26.4 gpm @ 5076 psi	30.4 gpm @ 3480 psi
Mode 3 Max	26.4 gpm @ 6671 psi	60.8 gpm @ 3480 psi

Mode 3 MAX is available only when supplied with 240 bar

Pump technical specifications

Dimensions	
Length:	1524 mm
Width:	394 mm
Height:	328 mm

Weight	
Total weight:	150 kgs (approx.)
Depth rating	
Depth Rating:	Full ocean depth



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