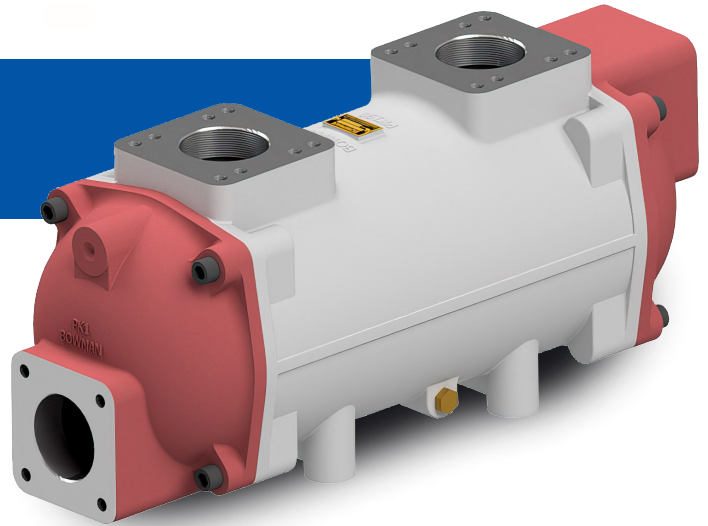


PRODUCT PROFILE

PK Series Hydraulic Oil Coolers



Introduction

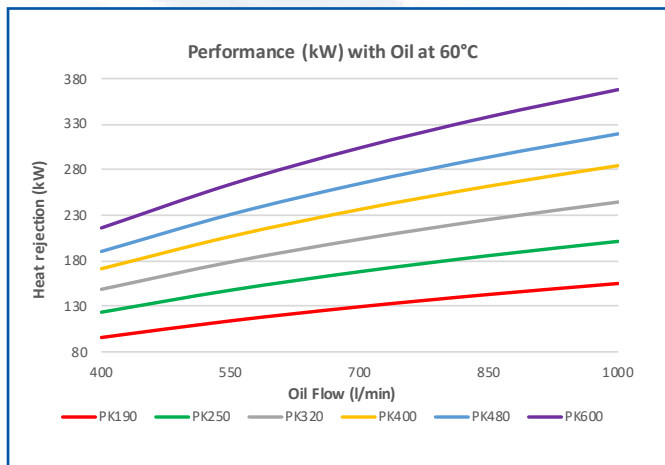
Bowman hydraulic oil coolers offer efficient, reliable heat transfer performance for a wide range of cooling requirements. Suitable for cooling a variety of oils, using either fresh or sea water, they have become the unit of choice for hydraulic engineers the world over.

Typical Performance

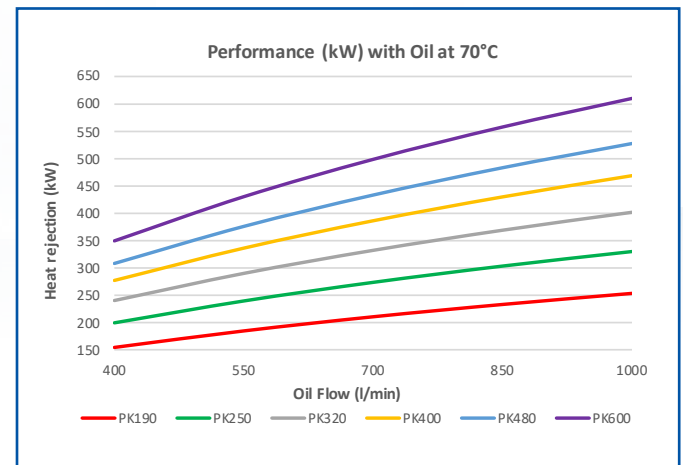
Bowman PK oil coolers can remove from around 96kW up to 610kW of heat and the tables and graphs below show examples of their cooling performance throughout the range, using different water flow rates and oil temperatures.

The figures show typical heat transfer performance and any changes in temperature, flow rate or fluids will significantly alter their performance, so whilst this information is provided for guidance, specific application details should be sent to Bowman, or an authorised distributor, to ensure the correct unit is specified.

ISO 46 Oil at 60°C on inlet to the cooler
Water inlet temperature: 30°C at 500 l/min



ISO 46 Oil at 70°C on inlet to the cooler
Water inlet temperature: 25°C at 650 l/min



Heat Dissipation (kW) vs Oil Flow Rate (l/min)

Model	400 l/min	550 l/min	700 l/min	850 l/min	1000 l/min
PK190	95.8	114.0	129.5	143.0	155.0
PK250	123.6	147.7	168.0	185.7	201.3
PK320	148.7	178.6	203.6	225.3	244.4
PK400	171.3	206.7	236.4	261.9	284.4
PK480	190.3	230.9	264.7	293.8	319.3
PK600	216.1	264.0	303.9	338.1	367.9

Heat Dissipation (kW) vs Oil Flow Rate (l/min)

Model	400 l/min	550 l/min	700 l/min	850 l/min	1000 l/min
PK190	154.3	184.5	210.3	232.9	253.1
PK250	199.3	239.3	273.3	303.1	329.7
PK320	240.1	289.8	331.9	368.7	401.5
PK400	276.9	336.0	386.0	429.7	468.5
PK480	308.0	375.8	433.1	483.0	527.3
PK600	349.3	430.1	498.4	557.6	609.8

Oil Outlet Temp (°C) vs Oil Flow Rate (l/min)

Model	400 l/min	550 l/min	700 l/min	850 l/min	1000 l/min
PK190	51.7	52.8	53.6	54.2	54.6
PK250	49.2	50.7	51.7	52.4	53.0
PK320	47.0	48.7	49.9	50.8	51.5
PK400	45.0	46.9	48.2	49.3	50.1
PK480	43.3	45.3	46.8	47.9	48.9
PK600	41.0	43.2	44.8	46.1	47.2

Oil Outlet Temp (°C) vs Oil Flow Rate (l/min)

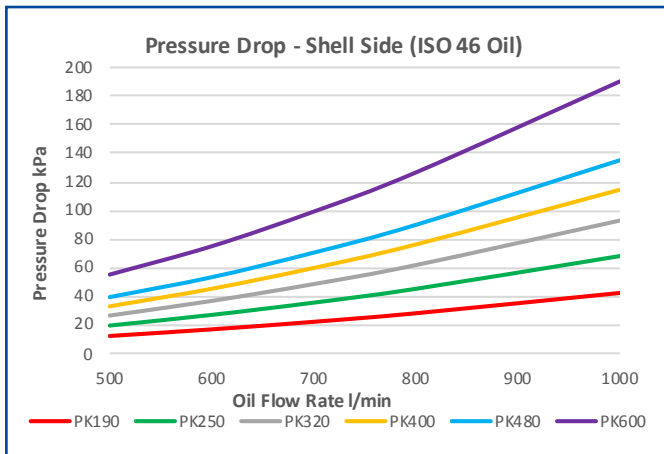
Model	400 l/min	550 l/min	700 l/min	850 l/min	1000 l/min
PK190	56.7	58.4	59.7	60.6	61.3
PK250	52.7	54.9	56.5	57.7	58.6
PK320	49.1	51.7	53.6	55.0	56.1
PK400	45.8	48.7	50.8	52.5	53.8
PK480	43.1	46.2	48.5	50.2	51.7
PK600	39.3	42.6	45.1	47.1	48.8

Computer Selection Programme

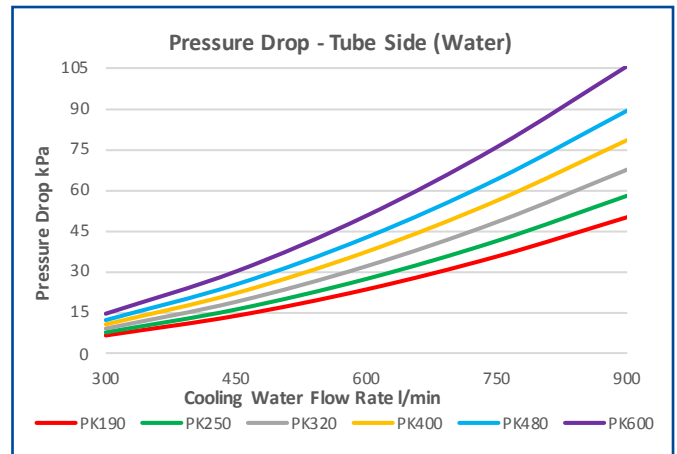
Given specific details including oil type and flow rate, temperatures of oil and water and heat dissipation required we can use computer aided selection software to accurately select the ideal unit for your application. Please contact our technical sales team or your local Bowman distributor for assistance.

Pressure Drop

The graphs show the typical pressure drop that is expected when using a normal flow, three pass, PK series oil cooler. Where flow rates or pressure drops are too high, we may be able to offer alternative configurations such as high flow, single pass or two pass models which can accept higher flow rates with reduced pressure drop. Alternatively, a different size cooler can be selected. If detailed pressure drop information for specific flows, fluids or temperatures is required, please contact a distributor or our technical sales team.

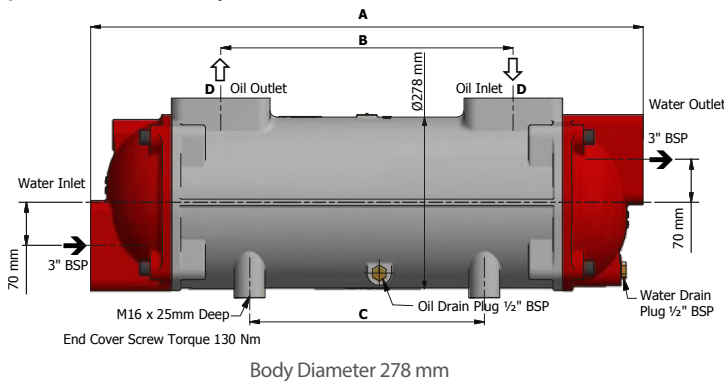


Model	500 l/min	600 l/min	700 l/min	800 l/min	1000 l/min
PK190	12.2	16.8	22.1	28.0	42.2
PK250	19.5	26.9	35.5	45.1	68.1
PK320	26.5	36.7	48.5	61.8	92.9
PK400	32.9	45.2	59.8	76.2	114.5
PK480	39.4	53.3	70.5	89.9	135.1
PK600	55.2	75.0	99.2	126.6	190.3



Model	300 l/min	450 l/min	600 l/min	750 l/min	900 l/min
PK190	6.5	13.8	23.5	35.6	50.1
PK250	7.7	16.1	27.4	41.3	58.0
PK320	9.1	18.9	32.0	48.3	67.6
PK400	10.6	22.1	37.4	56.2	78.5
PK480	12.2	25.3	42.7	64.1	89.4
PK600	14.6	30.1	50.7	75.9	105.7

Specification / Materials



	Standard	Marine	Other options
Tube	90/10 Cupro Nickel	90/10 Cupro Nickel	Copper, 70/30 Cupro Nickel, Titanium
Shell	Aluminium	Aluminium	Cast Iron (some models)
End Covers	Cast Iron	C coat or Brass / Bronze	2 pass and single pass in cast iron and brass / bronze
Seals	Nitrile	Nitrile	Viton, EPDM

Model	Max Flow	Number of Tubes	Surface Area (m ²)	Volume (litres)		Weight (kg)	A (mm)	A1 (mm)	B (mm)	C (mm)	D (mm)	D* (mm)
				Shell	Tube							
PK190	1600	721	6.98	13.6	16	81	754	706	330	236	3"	Ø 108
PK250	1240	721	9.06	17.7	18.6	94	900	852	476	382	3"	Ø 108
PK320	1060	721	11.6	22.6	21.8	110	1078	1030	654	560	3"	Ø 108
PK400	950	721	14.48	28.5	25.3	125	1280	1232	856	762	3"	Ø 108
PK480	890	721	17.39	34	29	140	1484	1436	1060	966	3"	Ø 108
PK600	750	721	21.77	42.5	34.4	158	1788	1740	1364	1270	3"	Ø 108

Please note: dimensions marked D* are for high flow versions only; dimensions marked A1 are for marine versions only.

Flow rates - Tube Side

Flow rate is important to the performance of the oil cooler but it is also crucial that minimum and maximum flow rates are adhered to in order to ensure longevity of the unit in service. Please refer to the following table for minimum and maximum flow rates.

Model	Minimum Flow Rate (l/min) Based on 1m/s Velocity			Maximum Flow Rate (l/min) Sea Water - Based on 2m/s Velocity			Maximum Flow Rate (l/min) Fresh Water - Based on 3m/s Velocity		
	1 Pass	2 Pass	3 Pass	1 Pass	2 Pass	3 Pass	1 Pass	2 Pass	3 Pass
PK Series	1000	500	325	2000	1000	650	3000	1500	1000

Only Genuine Bowman products are sold by Bowman Australia which is an Australian registered company completely separate to and wholly independent of the company that manufactures the products which is EJ Bowman Birmingham Ltd the actual and only manufacturer of genuine Bowman Heat Exchangers and Coolers. The relationship between both companies is that of manufacturer and distributor.



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