

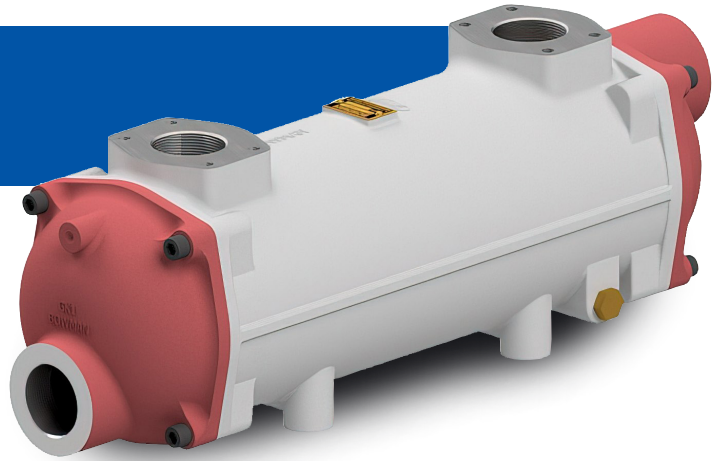
PRODUCT PROFILE

GK Series

Hydraulic Oil Coolers

Introduction

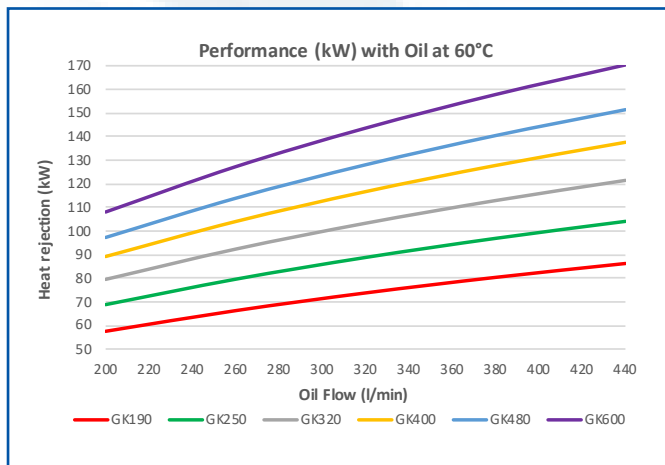
Bowman hydraulic oil coolers offer efficient, reliable heat transfer performance for a wide range of cooling requirements. Suitable for cooling a variety of oils, using either fresh or sea water, they have become the unit of choice for hydraulic engineers the world over.



Typical Performance

Bowman GK oil coolers can remove from around 58kW up to 285kW 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.

ISO 46 Oil at 60°C on inlet to the cooler
Water inlet temperature: 30°C at 225 l/min

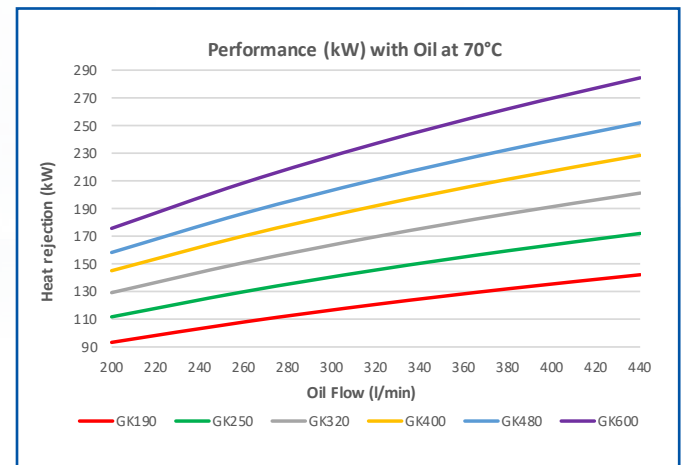


Heat Dissipation (kW) vs Oil Flow Rate (l/min)						
Model	200 l/min	260 l/min	320 l/min	380 l/min	440 l/min	
GK190	57.5	66.3	73.8	80.3	86.2	
GK250	68.8	79.6	88.8	96.9	104.1	
GK320	79.5	92.3	103.3	112.9	121.4	
GK400	89.2	104.0	116.7	127.8	137.6	
GK480	97.3	113.9	128.1	140.4	151.4	
GK600	108.1	127.3	143.6	157.8	170.4	

Oil Outlet Temp (°C) vs Oil Flow Rate (l/min)						
Model	200 l/min	260 l/min	320 l/min	380 l/min	440 l/min	
GK190	50.0	51.1	52.0	52.7	53.2	
GK250	48.0	49.3	50.3	51.1	51.8	
GK320	46.1	47.6	48.7	49.7	50.4	
GK400	44.4	46.0	47.3	48.3	49.1	
GK480	42.9	44.7	46.0	47.1	48.0	
GK600	41.0	42.8	44.3	45.5	46.5	

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 70°C on inlet to the cooler
Water inlet temperature: 25°C at 300 l/min



Heat Dissipation (kW) vs Oil Flow Rate (l/min)						
Model	200 l/min	260 l/min	320 l/min	380 l/min	440 l/min	
GK190	93.4	108.0	120.8	132.0	142.2	
GK250	111.8	129.9	145.6	159.5	172.0	
GK320	129.3	150.9	169.7	186.3	201.2	
GK400	145.2	170.3	192.0	211.2	228.5	
GK480	158.3	186.6	211.0	232.6	251.9	
GK600	175.8	208.6	237.0	262.1	284.5	

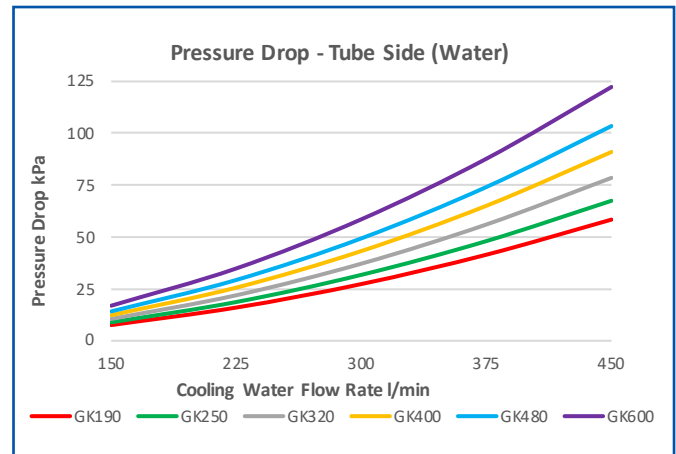
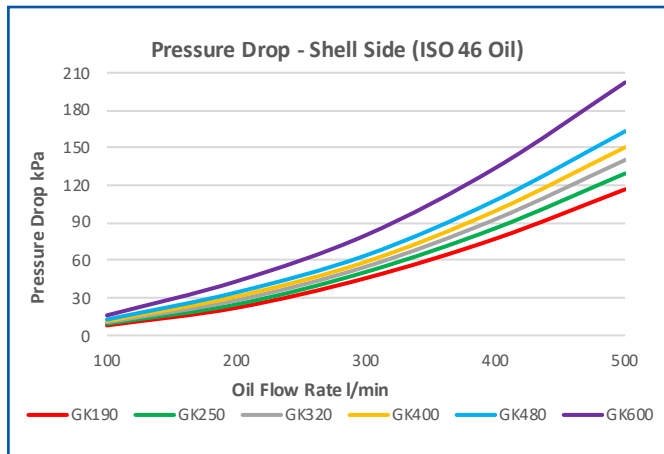
Oil Outlet Temp (°C) vs Oil Flow Rate (l/min)						
Model	200 l/min	260 l/min	320 l/min	380 l/min	440 l/min	
GK190	53.8	55.6	57.0	58.0	58.9	
GK250	50.6	52.7	54.2	55.5	56.5	
GK320	47.5	49.8	51.6	53.0	54.2	
GK400	44.6	47.2	49.1	50.7	52.0	
GK480	42.3	44.9	47.0	48.7	50.1	
GK600	39.1	41.9	44.1	45.9	47.5	

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

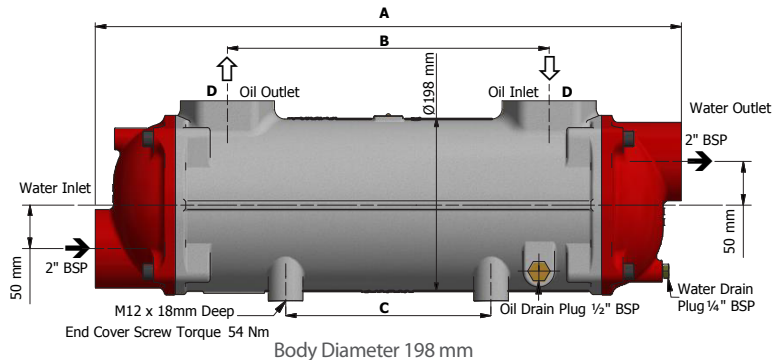
The graphs show the typical pressure drop that is expected when using a normal flow, three pass, GK series oil cooler. Where flow rates or pressure drops are too high, we may be able to offer alternative configurations such as high flow, single pass or two pass models which can accept higher flow rates 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.



Pressure Drop (kPa) - Shell Side (ISO 46 Oil)					
Model	100 l/min	200 l/min	300 l/min	400 l/min	500 l/min
GK190	8.1	22.2	45.9	77.4	116.8
GK250	9.4	24.9	50.8	85.8	129.5
GK320	10.6	28.1	55.0	92.9	140.3
GK400	11.6	31.2	58.9	99.6	150.4
GK480	12.8	34.5	64.1	108.1	163.2
GK600	16.1	43.3	80.3	134.0	202.3

Pressure Drop (kPa) - Tube Side (Water)					
Model	150 l/min	225 l/min	300 l/min	375 l/min	450 l/min
GK190	7.6	16.0	27.4	41.5	58.4
GK250	8.9	18.7	31.8	48.1	67.5
GK320	10.5	22.0	37.2	56.1	78.5
GK400	12.4	25.7	43.3	65.1	91.0
GK480	14.2	29.4	49.4	74.1	103.5
GK600	17.0	34.9	58.6	87.8	122.3

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	A	B	C	D	D*
	Shell side			Shell	Tube	kg	mm	mm	mm	BSP	mm
GK190	460	331	3.17	7	6.3	34	674	370	236	2"	Ø 64
GK250	445	331	4.12	9	7.5	39	820	516	382	2"	Ø 64
GK320	430	331	5.27	11.6	9	46	998	694	560	2"	Ø 64
GK400	420	331	6.58	14.6	10.6	54	1200	896	762	2"	Ø 64
GK480	400	331	7.9	17.4	12.3	62	1404	1100	966	2"	Ø 64
GK600	365	331	9.89	22.1	14.7	74	1708	1404	1270	2"	Ø 64

Please note: Dimensions marked D* are for high flow 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
GK Series	450	225	150	900	450	300	1400	690	460

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