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Industrial Shell & Tube Heat Exchangers - Series 400

Hydraulic Oil Coolers - Series 400

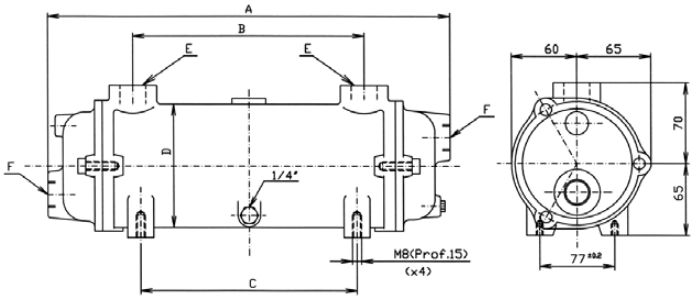
HENNLICH Shell and Tube Heat Exchangers are designed in a three passes tube stack arrangement with cooling fluid inlet and outlet in opposite sides and counter current fluids. Tube stack is fully floating type thus thermal stresses are minimised while maintenance operations are eased. HENNLICH HCT range of Industrial Shell & Tube Heat Exchangers are suitable for any sort of heat transfer fluids, heating or cooling process fluids. Its use is restricted to liquid phase fluids and material compatibility should be observed.

MAWP: oil 14 bar, water 10 bar * MAWT: 120ºC (180ºC with VITON seals)
* Testing Standard: BS6755 Stabillity Test performed at 20 bar, Sealing Leakage Test at 14 bar.

Dimensions

Model	A	B	C	D	E-F	Weight
401	273	123	109	Ø108	1”	5
402	355	205	191	Ø108	1”	6
403	452	302	289	Ø108	1”	7
404	587	437	425	Ø108	1”	8,2
405	730	580	566	Ø108	1”	10

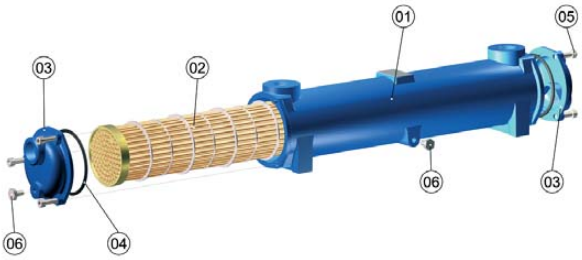
Length Units expressed in mm, Diametres in Inches / Weight in Kgs
General Arrangement Drawings pdf or Auto-Cad formats are available on request.



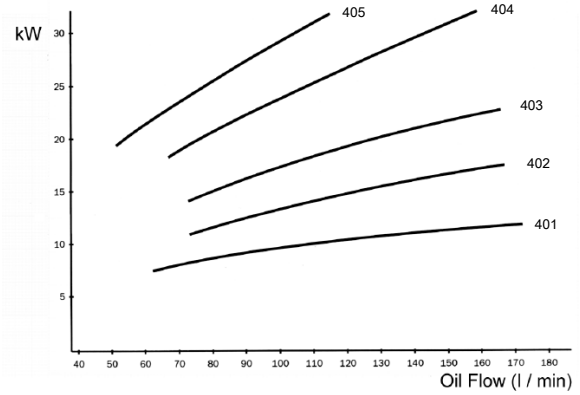
Parts and Materials

Part	Name	Material
1	Shell	**Aluminium** /Bronze/Cast Iron
2	Tube Stack	
2.1	Tubes	**Copper** / Copper-Nickel / St. Steel
2.2	Tube plates	**Brass** / Bronze
2.3	Baffles	Aluminium
2.4	Welding	Tin welded 60/40
3	End caps	**Brass** / Bronze
4	Seals	**NBR** / Viton
5	Cover screws	Steel
6	Drain plugs	Brass

Remarked materials denote standard construction for Industrial Units.



Performance Graphs



Graphs were plotted using the parametres shown in the right side table.
For oil pressure drop graphs see separated sheet.

Flow Rate

Model	Heat dissipated (kW)	Oil flow (l/min)	Water flow (l/min)	Oil pressure drop (bar)	Water pressure drop (bar)	Surface (m2)
401	8	66	33	0,16	0,02	0,33
402	12	80	40	0,32	0,03	0,48
403	18	104	52	0,96	0,07	0,66
404	25	106	53	1	0,11	0,90
405	29	98	49	1,04	0,14	1,16

Maximal Fresh Water Flow Rate Capacity: 80 l/min (50 l/min if sea water).This table means a typical performance of the shown units at given average process data of oil outlet temperature : 50ºC; Water Inlet Temperature: 25ºC, Viscosity of Oil: 38Cst with SAE 30 type and 50ºC. Any other change in the chosen parametres could result in a different oil cooler selection.

Temperature Correction Factors

When temperature gap between oil outlet and water inlet exceeds the given 25ºC the following correction factors should be used: 10ºC: 0.4 / 15ºC: 0.6 / 20ºC: 0.8 / 30ºC: 1.2 / 35ºC: 1.4 / 40ºC: 1.6 (multiply KW by the suitable correction factor).

Flow Rate Correction Factors

For water flow rates other than 50% of the oil flow rate, the following correction factors should be used:
25%: 0.8 / 100%: 1.2 (multiply the flow rate by the suitable correction factor).