FC series

Refrigerant Condenser

FARAD
HEAT EXCHANGERS

...we work on quality

FC Refrigerant Condenser

Shell and tube condensers with water flowing inside the tubes are particularly appropriate as refrigerant condensers, because they use enhanced tubes that have been optimized specifically for this application.
This design is preferred in cases where the cooling medium is water, such as air conditioning onboard marine vessels and in land based air conditioning plants that are cooled by seawater, river water or the municipal water supply.

Advantages

- Enhanced tube increases heat transfer rate 3-4 times over an equivalent length plain tube.
- Shell-side handles large refrigerant volumes ensuring low pressure drop on the refrigerant side.
- Large tube size ensures low pressure drop on the water side.
- Same design with different materials for freshwater or seawater.
- Proven shell and tube design.
- Low maintenance cost.

Application

The FC line of refrigerant condensers by Farad covers the majority of refrigeration applications with a range of capacities. Condenser required capacity is equal to evaporator capacity plus compressor power. See compressor manufacturer documentation for compressor rated power. The condensers are suitable for all HCFC, HFC and HFO refrigerants. For refrigerants with glide, such as R407C, contact us for performance data.

Materials

Material selection is key to a long working life. Carbon steel is used for fresh water condensers, with copper tubes for enhanced heat transfer. Stainless steel is used as standard in seawater condensers, with copper-nickel tubes for resistance to seawater corrosion.

Quality

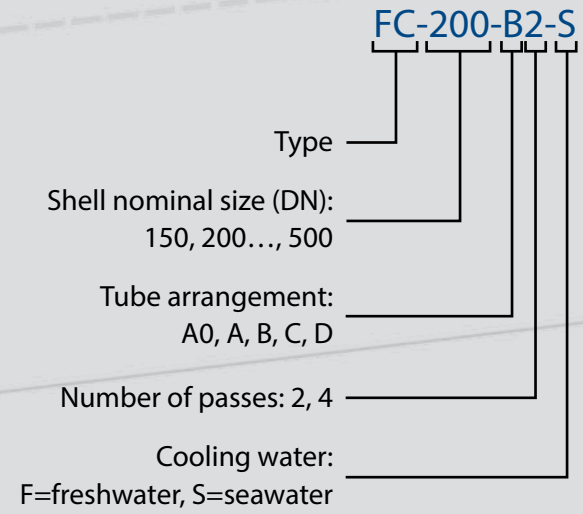
Quality is assured by our third – party approved quality system. For marine installations the heat exchanger is approved by your preferred classification society. All major classification society approvals are available.

Features

All condensers are supplied with:

- Safety valve connection seat
- Air vent and water drains on shell-side and tube-side
- Welding connection at refrigerant inlet
- Dual refrigerant outlets ending in welding connection
- Anodes for prevention of seawater corrosion
- Top mountings for compressor on request
- Sight glass
- Spare parts available on request

Model name



Design data

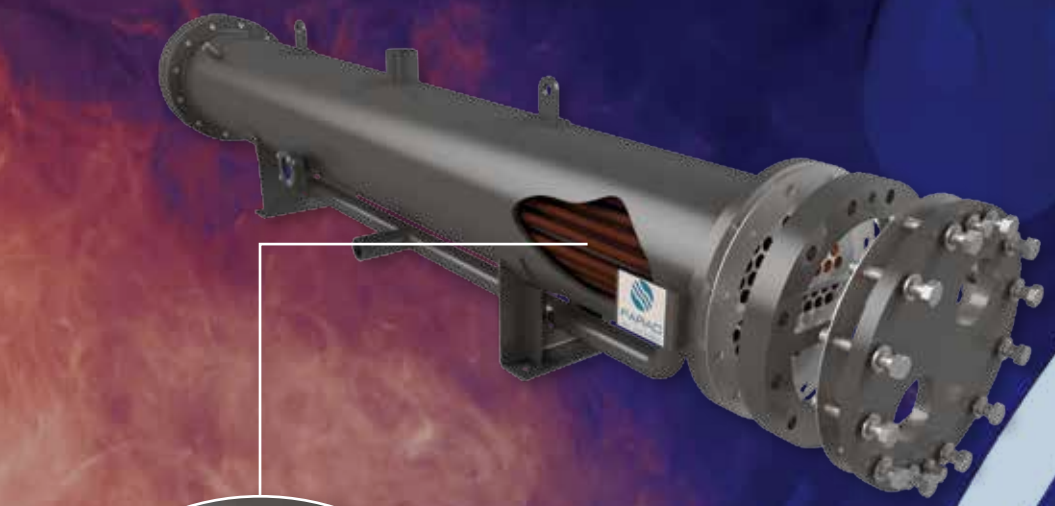
Shell-side (Refrigerant)			Tube-side (Water)		
PD [barg]	TD [°C]	PT [barg]	PD [barg]	TD [°C]	PT [barg]
30	-10 / 120	33	10	-10 / 90	15

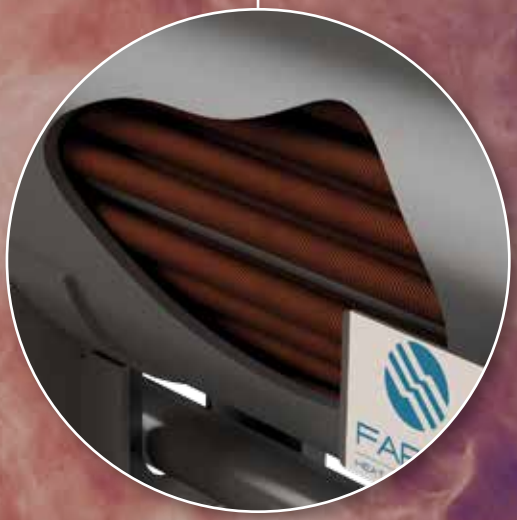
PD: design pressure, TD: design temperature, PT: test pressure

Operational performance, seawater design										
Model FC	2 pass					4 pass				
	Capacity at ΔT*		Nominal	Maximum	Pressure	Capacity at ΔT*		Nominal	Maximum	Pressure
	10°C	15°C	flow	flow	drop	10°C	15°C	flow	flow	drop
	(kW)		(m3/h)	(m3/h)	(bar)	(kW)		(m3/h)	(m3/h)	(bar)
150-A	-	-	-	-	-	14	21	3,08	3,42	0,33
150-B	-	-	-	-	-	21	31	4,60	5,11	0,33
150-C	-	-	-	-	-	31	45	4,60	5,11	0,47
175-A	51	74	13,1	14,6	0,24	43	64	6,55	7,28	0,48
175-B	63	92	16,2	18,0	0,24	53	78	8,10	9,00	0,48
200-A	74	109	16,8	18,7	0,22	61	90	8,40	9,33	0,42
200-B	84	123	19,2	21,3	0,22	70	103	9,60	10,7	0,42
200-C	100	147	22,8	25,3	0,22	83	122	11,4	12,7	0,42
250-A0	126	185	28,8	32,0	0,22	105	155	14,4	16,0	0,42
250-A	147	216	28,8	32,0	0,22	122	180	14,4	16,0	0,42
250-B	173	254	39,5	43,9	0,22	145	213	19,8	21,9	0,42
250-C	206	303	38,4	42,7	0,26	164	242	19,2	21,3	0,52
250-D	226	331	42,0	46,7	0,26	179	263	21,0	23,3	0,52
300-A	284	416	52,9	58,8	0,26	225	332	26,5	29,4	0,52
300-B	323	474	60,0	66,7	0,26	256	378	30,0	33,3	0,52
350-A	373	547	69,4	77,1	0,26	296	437	34,7	38,6	0,52
350-B	424	622	79,2	88,0	0,26	338	498	39,6	44,0	0,52
400-A	477	698	88,8	98,7	0,26	379	558	44,4	49,3	0,52
400-B	527	773	98,4	109	0,26	420	620	49,2	54,7	0,52
400-C	578	848	108	120	0,26	461	679	54,0	60,0	0,52
450-A	653	959	122	136	0,26	521	768	61,0	67,8	0,52
450-B	732	1075	137	152	0,26	584	861	68,5	76,1	0,52
500-A	844	1238	158	176	0,26	675	995	79,0	87,8	0,52
500-B	967	1419	181	201	0,26	773	1138	90,5	101	0,52

*Where ΔT is the temperature difference between cooling water inlet temperature and condensing temperature

Nominal Conditions
Refrigerant: R134a, R404A, R507A, R22
Refrigerant inlet temperature = 90 °C
Fouling factor = 0.000043 m2.K/W
Condenser subcooling = 3 K





High Efficient Low Fin tubes with a special wavelike finned tube-side structure for cooling water services with high fouling tendency.
This special structure is highly resistant to fouling deposits originating from particulate or biological fouling.
Available in Cu-DHP for Fresh Water, or CuNi 90/10 tube for Sea Water operation (CuNi 70/30 also available on request).

FARAD
HEAT EXCHANGERS

14 ALON str., 18540
PIRAEUS, GREECE
Tel.: +30 2104227410, Fax.: +30 2104227303
www.farad.gr, e-mail:info@farad.gr