

INTERCAMBIADORES DE CALOR

SERIE OR

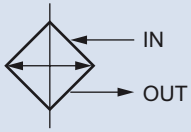
 HYDROME



KAORI

高力

MULTI-TUBE TYPE OIL COOLER



How to order

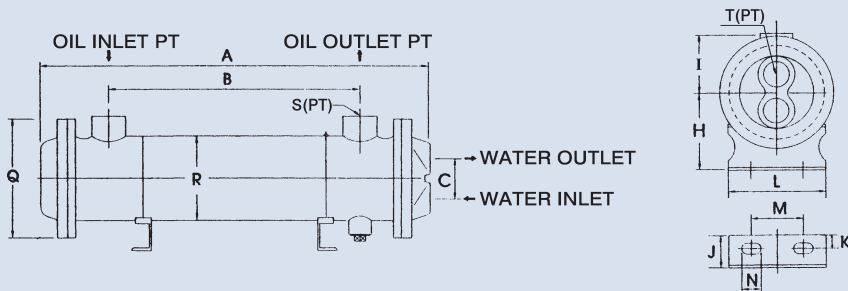
OR - 60

1	2
1	Model
2	Flow (lpm)

Specifications

Model	Heat Diffusion Area (m ²)	Nos. of Tube	Flow (lpm)	Weight (kg)	Model	Heat Diffusion Area (m ²)	Nos. of Tube	Flow (lpm)	Weight (kg)
OR-30	0.17	22	30	6.5	OR-800	2.9	58	800	48.6
OR-60	0.3	22	60	7.7	OR-1000	3.7	58	1000	57.4
OR-100	0.4	26	100	10.2	OR-1200	6.1	124	1200	103
OR-150	0.63	42	150	17.5	OR-1400	6.9	124	1400	111
OR-250	1.26	58	250	22.10	OR-1800	8.1	124	1800	118
OR-350	1.75	58	350	29.80	OR-2500	10.1	200	2500	160
OR-600	2	58	600	36.8	OR-3000	12.56	200	3000	200

Dimensions



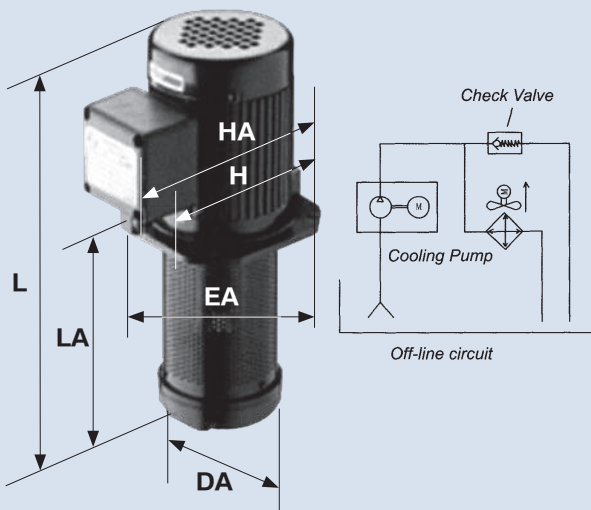
Unit: mm

Model	A	B	C	H	I	J	K	L	M	N	Q	R	S	T
OR-30	299	150	46	77	63	23	11	115.5	95	7x10	121	89.1	3/4"	3/4"
60	450	305												
100	555	403	76	95	70	33	12.5	145.5	106.5	10x20	134	101.6	3/4"	3/4"
150	575	385												
250	780	585												
350	1180	990	87	136	95	30	12.5	175	130	13x16	175	139.8	1-1/4"	1"
600	1175	950												
800	1700	1490												
1000	2135	1910												
1200	1690	1380	114	184	150	50	25	333	229	16x33	269	217	2-1/2"	2"
1400	1840	1530												
1800	2150	1840												
2500	1815	1435												
3000	2150	1800	154	218	178	50	25	352	247	16x33	302	273	3"	2"

COOLING PUMP & ANTI-BURST VALVE

Dimensions

Cooling pump-for off-line circuit



Model	Motor (HP)	Flow Rate (lpm)	L	LA	DA	H	HA	EA	Port (Rc/PT)
TC-6130	1/6	20	275	130	90	124	160	128	1/2"
TC-6180	1/6	20	325	180	90	124	160	128	1/2"
TC-4155	1/4	50	341	155	126	160	191	158	3/4"
TC-4220	1/4	50	406	220	126	160	191	158	3/4"
TC-4350	1/4	50	536	350	126	160	191	158	3/4"
TC-2180	1/2	80	385	180	126	170	196	171	1"
TC-2290	1/2	80	495	290	126	170	196	171	1"
TC-1180	1	120	400	180	151	180	191	185	1"
TC-1240	1	120	460	240	151	180	196	185	1"
TC-1380	1	120	600	380	151	180	196	185	1"

Anti-burst valve - effective for peak pressure

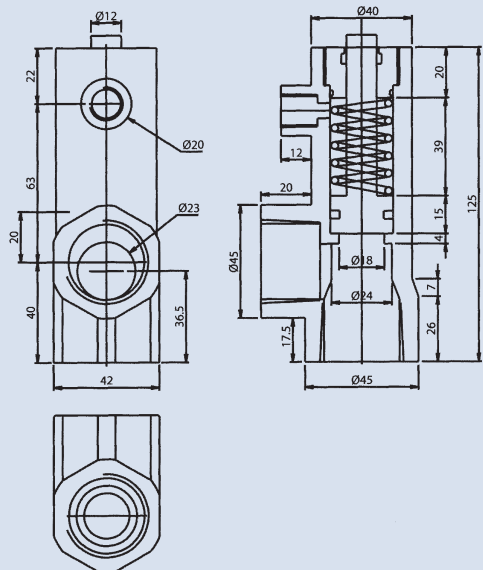
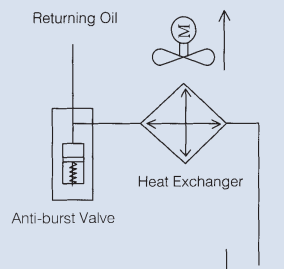
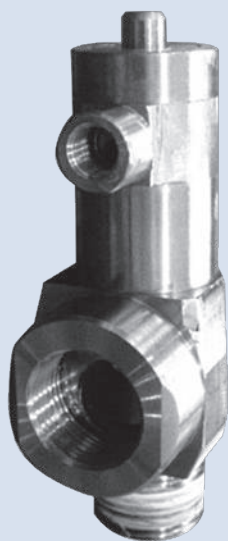


PLATE-FIN HEAT EXCHANGER

INSTALLATION & MAINTENANCE

AH cooler fittings

- Option 1. Off-line circuit is strongly recommended
- Option 2. Use patent product anti-burst Valve Fig.1 / Fig.2
- Option 3. By-pass with check valve (not recommend) Fig.3 / Fig.4

Special notes for option 3

1. The working pressure for AH series is 20 bar.
2. Be carefully the hammering and pulsations pressure which may cause irreversible damage to the cooler.
3. The spring of check valve may crack after a long period of working.

Piping caution

1. Outlet pipe's diameter must match with diameter of the port, and cannot be shrank.
2. Using straight joint or flexible pipe to reduce the feedback resistance.
3. More less of curve and curve angles should be better.

Conclusion: The feedback oil goes as smooth or fast as possible, to get a better heat rejection.

Installation

The cooler should be mounted at clean environment where is well ventilated area, keep fan diameter free from both cooling side and hot side.

Avoid locating the cooler at areas where can cause obstruction of air intake or exhaust vent.

Avoid locating the cooler at environment with atmosphere contactining corrosive or flammable dusts, oil mist, conductive power (such as carbon or metal).

If mounted in a closed area, sufficient ventilation must be provided. Heat transfer from the cooling system to ambient air may not increase room temperature, if these conditions are not met, air ducts have to be installed between cooling system and the outside to provide sufficient ventilation.

Check the supply voltage and frequency correspond to the rating plate.

Maintenance

Before maintenance, please make sure to keep the power off.

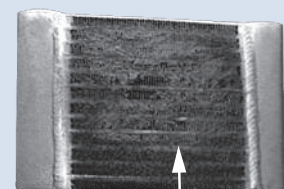
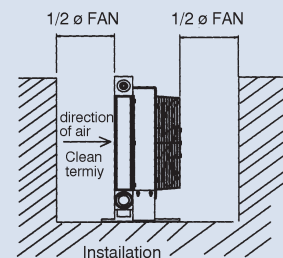
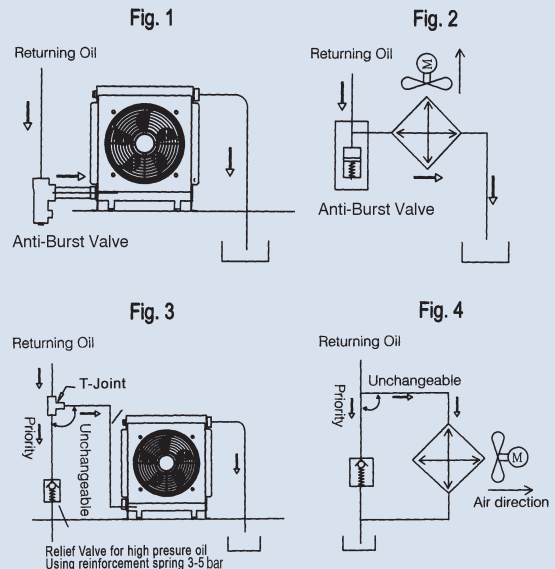
Ensure that there are no obstacles to the flow of air, either at the intake or at the outlet from the core, please maintain the cooler termly for a longer life.

External cleaning of air side

This can be done by either washing the cooler with a mild cleaner (compatible with aluminum), or with compressed air. A power spray washer works well. Care should be taken not to damage the fins. The direction of stream shall be parallel to the fins in order not to damage it. The cooler needs to be dried completely before restarting operation.

Internal cleaning of cooler side

The cooler should be disconnected, and a suitable cleaning agent used for removing the type of deposit, yet safe on aluminum should be circulated through the cooler until clean. After cleaning procedure, the cleaning medium shall be completely drained and blown out by means of compressed air.



Dust on cooling air inlet side

PLATE-FIN HEAT EXCHANGER

CALCULATION OF AIR-OIL HEAT EXCHANGER INSTALLED ON HYDRAULIC SYSTEM

Introduction:

First of all, the choice of cooling system needs finding out the heat quantity of the hydraulic system, and furthermore we can design the appropriate cooling mode and ability for the requirements of clients.

The quantity of producing heat on hydraulic system can not be estimated by calculation, because of the different of components and elements, using frequency and the design of circuit make this impossible.

1. Choosing the cooler rely on flow rate is only a basic condition, because we choose the input motor horse power by considering the pressure of pump and flow rate in the meantime.
2. The selecting of cooler depended on the quantity of producing heat matches up with the cooling capability on the system.
3. According to the actuality experience, we could count up the appraised value by inputting 70% electricity energy into the heat quantity. (different engineer and elements make this different.)
4. If we are using more delicate components and less heat quantity product, then the 70% heat quantity could be lower to 60% or much lower. Please confirm to your distributor.
5. If there is hydraulic motor in the circuit, then we should calculate the heat quantity up to 100%.

Data required

1. Simplify

Contrast the input horse power with hydraulic horse power in the performance table, and you could find out the applicable cooler.

2. Calculate

N =installed power in the system (kW)

Q =heat to be dissipated (kcal/h)

T_o =maximum allowed oil temperature (°C)

T_{amb} =ambient temperature (°C)

K_r : Means the required specific performance of the heat exchanger

$K_r=Q/\Delta T$, ΔT is the difference between oil inlet temperature and summer ambient temperature, while Q is the quantity of heat to be dissipated which can be easily calculated considering 60~100% of installed power.

Example (hydraulic):

$N=20$ kW $T_o=50$ °C $T_{amb}=35$ °C

$Q=70\% \times 20$ kW=14 kW=12040 kcal/h (1kW=860 kcal/h)

$\Delta T=50-35=15$ °C

$K_r=12040$ kcal/h $\div 15$ °C=802 kcal/h °C=0.93 kW/°C

The choice of the correct cooler is made by using the diagrams.

You will find in our technical catalogues.

Equivalent among main units

1HP=635kcal/h 1kW=860kcal/h 1cSt=1 mm²/sec 1BTU=0.25 kcal/h 1bar=100kpa



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Mexico Branch Office

Elements For Manufacturing Processes

MEXICO BRANCH OFFICE

Roberto Diaz No. 401
Ciudad Industrial
Aguascalientes, Ags.
México
20290

4ManPro@4ManPro.com
(449) 171 3420
www.4ManPro.com/SPA/



USA BRANCH OFFICE

4ManPro®
708 Main St.
10th Floor
Houston, Tx, USA
77002

4ManPro-USA@4ManPro.com
+1 (832) 871 5022
www.4ManPro.com/ENG/

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HI HYDROME