PLATE-FIN HEAT EXCHANGERS

COOLBIT

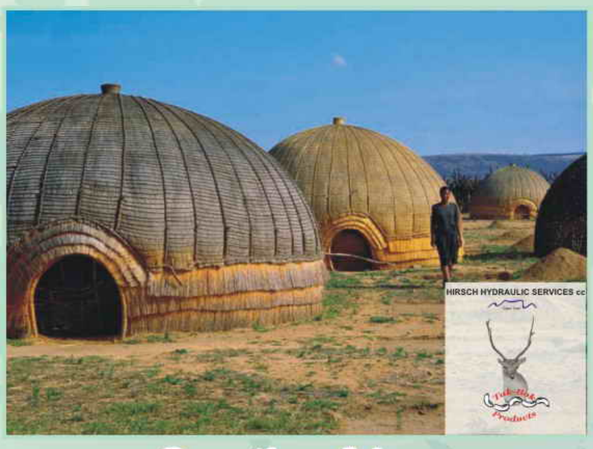
2008E

Thailand

Wanted

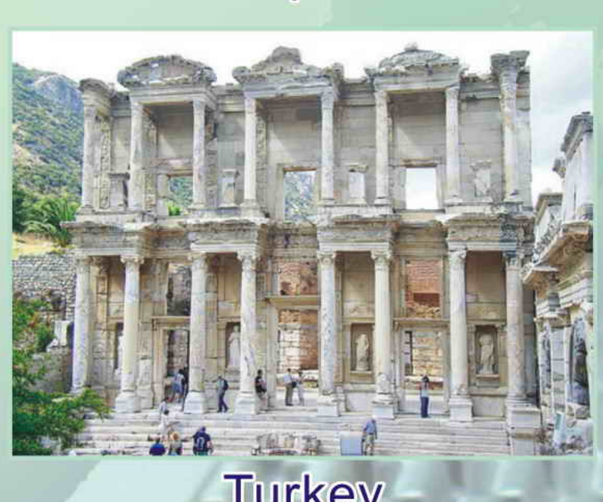
Australia

Japan



South africa

India



Turkey

Indonesia

Vietnam

Malaysia

Italy

Procreation

AH Production

AH Testing

AL Welding

AL Assembling

Workshop

Hand Welding

Robot Welding

TH Product line

AH SERIES

Maximum dynamic pressure ：20 bar.

To Protect Heat Exchangers, A By-Pass Valve Should Always Be Fitted.

AH	Thread	Fan Dia.	Capacity	Hydraulic System	L×H×W m/m	Weight	Phase	Safety	Page
	PT/PT"	m\m	△t=30℃	Hp		Kg		Reg.	
AH0608T-CA*	3/4"	150	1,200	1～2	305×200×115	4.2	Single	CE	8
AH0608LT-CA*	3/4"	150×2	2,400	2～3	405×200×115	6	Single	CE	9
AH1012-CA*	1"	250	5,000	3～5	417×360×200	10	Single	CE,CCC	10
AH1012-3PCA*	1"	250	5,500	3～5	417×360×200	10	3	CE,CCC	10
AH1215-CA*	1"	300	7,000	5～7.5	510×390×210	15	3	CE,CCC	11
AH1417-A*	1"	350	9,000	7.5～10	570×411×200	11	Single		12
AH1418-CA*	1"	350	10,000	7.5～10	570×420×200	17	3	CE,CCC	13
AH1428-CA*	1 1/4"	350	13,000	15～20	570×420×230	21	3	CE,CCC	14
AH1470-A*	1 1/4"	350	11,000	10～15	570×407×225	13	Single		12
AH1470-CA*	1 1/4"	350	13,000	15～20	520×475×320	25	3		15
AH1490-CA*	1 1/2"	350	16,000	20～25	520×640×300	30	3	CE,CCC	16
AH1680-CA*	1 1/2"	400	21,000	25～40	520×640×320	35	3	CE,CCC	17
AH1890-CA*	1 1/2"	450	25,000	30～50	650×800×380	52	3	CE,CCC	18
AH2342-CA*	1 1/2"	560	37,000	50～75	605×935×543	80	3	CE	19
AH2583-CA*	RP1 1/2"	630	50,000	75～100	645×950×630	100	3	CE	21
AH2890-CA*	1 1/2"	700	60,000	100～125	875×1000×900	150	3	CE	22
AH3-2583-CA*	1 1/2"	630×3	140,000	300	875×2400×700	300	3	CE	23

AW Series----For systems using Variable Displacement Piston Pumps, fitted to drain line only.

AW	Thread	Flow	Max. Pressure	Capacity	L×H×W m/m	Weight	Phase	Safety	Page
	PT/PT"	L/Min	BAR	△t=30℃		Kg		Reg.	
AW0607-CA*	1/2"	20	15	700	250×200×108	3.3	Single	CE,CCC	24
AW0608-CA*	1/2"	20	15	900	310×200×108	3.7	Single	CE,CCC	25
AW0608L-CA*	1/2"	20	15	1500	410×200×108	5.2	Single	CE,CCC	26

AL Series----This series does not withstand peak pressures

For systems using Variable Vane Pumps, Pressure Settings Under 70 Bar, line fitted to drain line only.

AL	Thread	Flow	Max. Pressure	Capacity	L×H×W m/m	Weight	Phase	Safety	Page
	PT/PT"	L/Min	BAR	△t=30℃		Kg		Reg.	
AL404	1/2"	10	10		250×203×67	1			27
AL404-A*	1/2"	10	10	1100	250×203×120	2.25	Single		28
AL404-CA*	1/2"	10	10	1200	250×203×120	2.85	Single	CE,CCC	29
AL404-4A*	1/2"	10	10	800	250×203×98	1.75	Single		30
AL608	3/8"	10	10		250×203×57	0.75			27
AL608-A*	3/8"	10	10	800	250×203×110	2	Single		28
AL608-CA*	3/8"	10	10	900	250×203×110	2.6	Single	CE,CCC	29
AL608-4A*	3/8"	10	10	600	250×203×88	1.5	Single		30
AL190	3/8"	10	10		220×167×56	0.5			27
AL609	1/2"	10	10		250×203×57	0.75			27

AIR-OIL HEAT EXCHANGERS

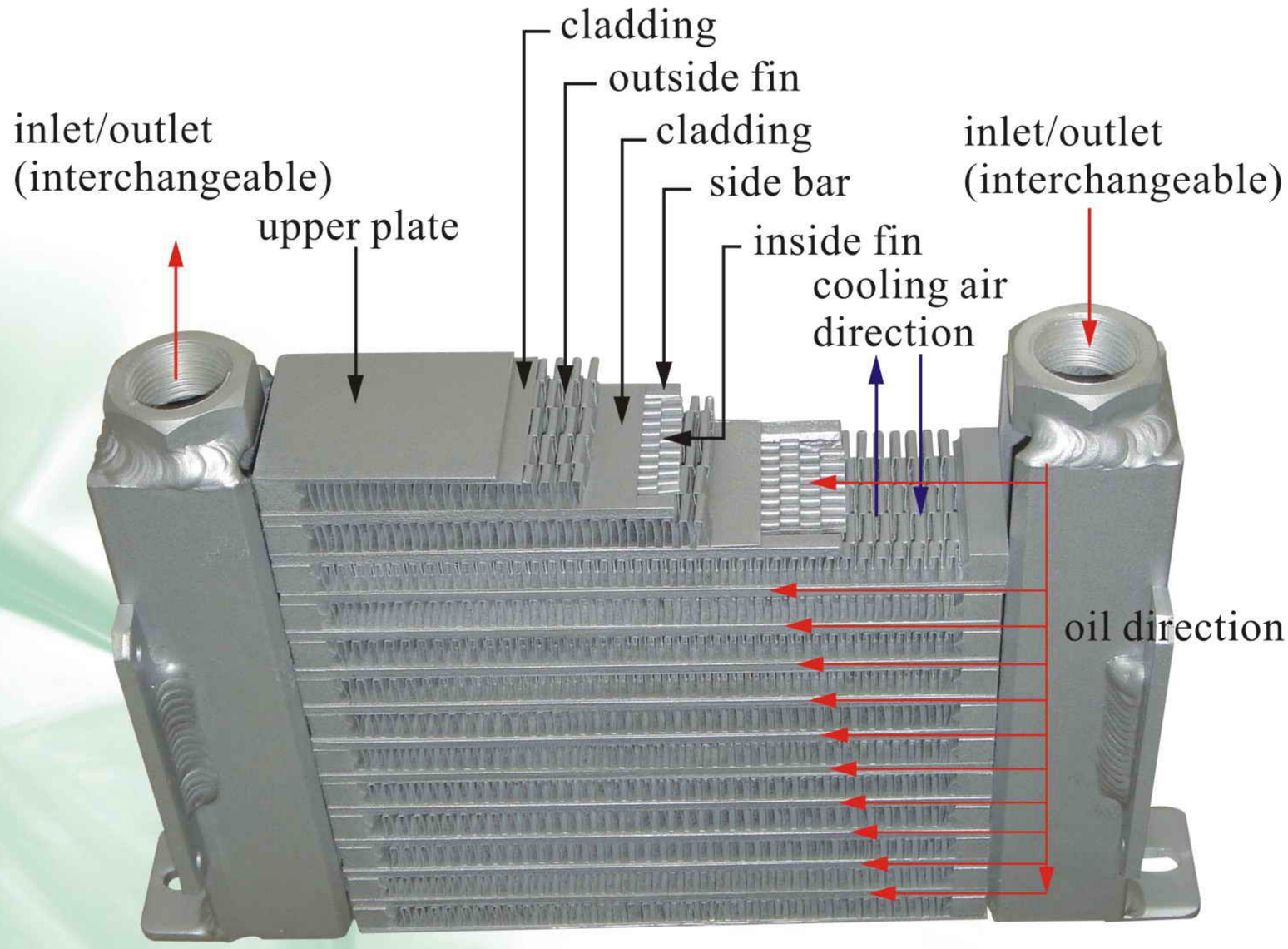
The use of air-oil heat-exchangers for hydraulic systems are getting more and more frequent than that of water-oil heat-exchangers.
By studying the tables below air-oil heat-exchanger are the best choice.
Except in some instances; such as, if the request for temperatures to be lower than ambient air temperature….

Contrast Forms

	Environment Protect	Consume of energy	Demand Of water	Cost of Installation		maintain	Cooling capacity	Influence of breakdown	Install
				factory	customer				
Air-oil	superior	less	×	large	None	less	No limit	less	easy
Water-oil	inferior	medium	○	less	Huge	Huge	good	water mix with oil	hard
Freeze	inferior	large	×	huge	None	medium	limit	less	easy

Plate-Fin Heat-exchangers

The plate-fin heat exchanger is characterized by its compact, lightweight, efficient design. The oil passes inside the welded fin and connects with the outside fin rigidly. The efficiency of heat conduction is even superior to shell-and-tube type heat exchanger.
It provides significantly more cooling per cubic inch than the other designs described earlier.



Product Characteristics

AH series

The cooler element of the plate-fin heat type exchanger is superimposed aluminum and brazed in a furnace at controlled temperatures of around 600℃.
Maximum dynamic pressure ：20 bar.
Maximum static pressure ：30 bar.
Max. operating temperature：120℃ (Excluding the fan motor.)

To protect the heat exchanger, when installed on the return line of a system or when the equipment is started with cold oil, a by-pass valve should always be mounted in parallel to the exchanger in order to avoid excessive pressure surges.
An alternate piping method using a separate circuit from the reservoir with a small pump to drive the oil through the heat exchanger.
Filters are often incorporated into these side circuits or kidney loops, as they are sometimes called.
For all applications, with the exception of oil cooling, it is recommended to consult our technical department.

AW series

To suit higher pressure, settings of variable displacement piston/vane pump drain lines, or separated cooling systems.

AL series

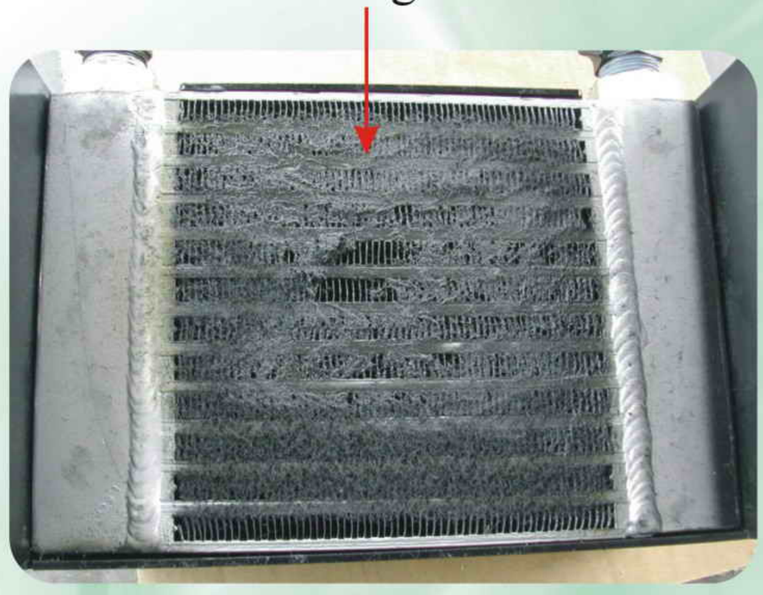
This series does not withstand pressure peaks and can only be used where pressure peaks do not exist.
For hydraulic systems of variable displacement vane pumps, maximum pressure under 70 bar, Drain line only

Installation & Maintenance

For the correct installation of the exchanger, it must be supported by flexible components and connected to flexible tubing.
The exchanger should be installed in such a way that there should be no obstruction to the air flow. Particular attention should be paid to the cleaning of the cooler element so that normal air exchange can be guaranteed, in order to avoid a reduction in thermal efficiency.

Air Side Cleaning

Cleaning on the air side can be done by using compressed air or water, directing the jet parallel to the fins so as not to damage them.
During this operation, the electric motor must be disconnected from the power supply and must be properly protected.



OIL RETURNING FITTINGS

1.We do not suggest oil returning cooling mothod.
Seperated cooling circuit is strongly recommended
2. Be carefull the hammering and pulsations pressure which may cause irreversible damage to the cooler.
3.The spring of chuck valve may crack after a long period of working.

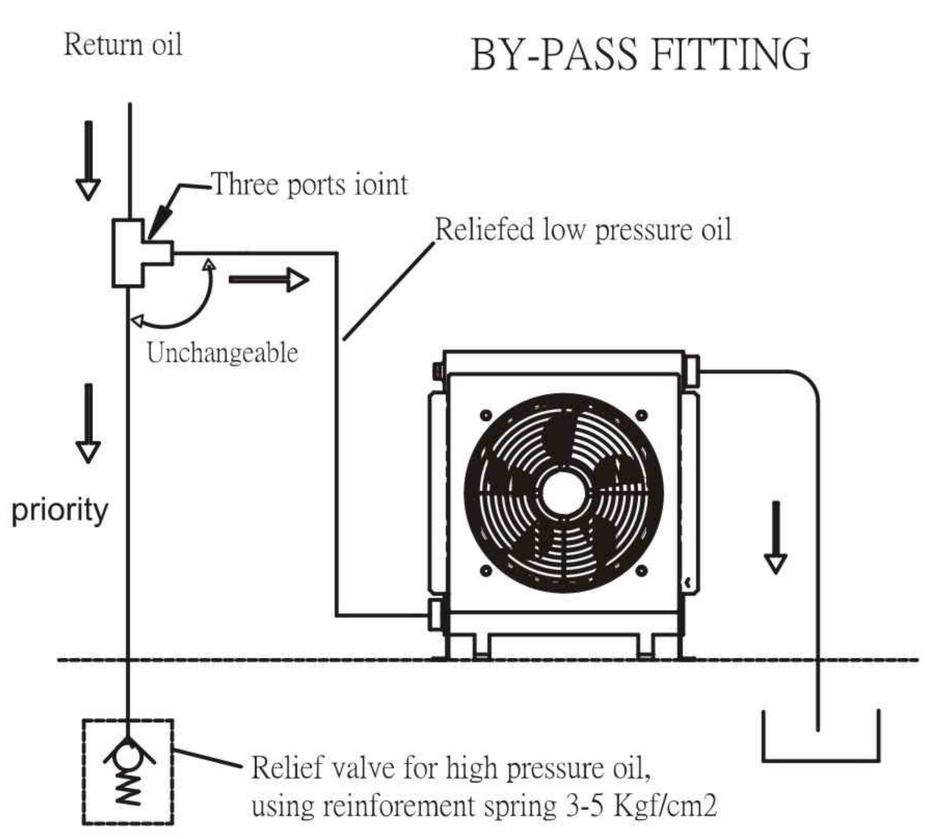


Fig. 1

Fitting Caution (Fig.1)

1.Outlet pip's diameter must match with diameter of the port, and can not be shrinked.
2.Using straight joint or flexible pipe to reduce feedback resistence.
3.Cuver angle and no. of bending should be as less as possible.

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

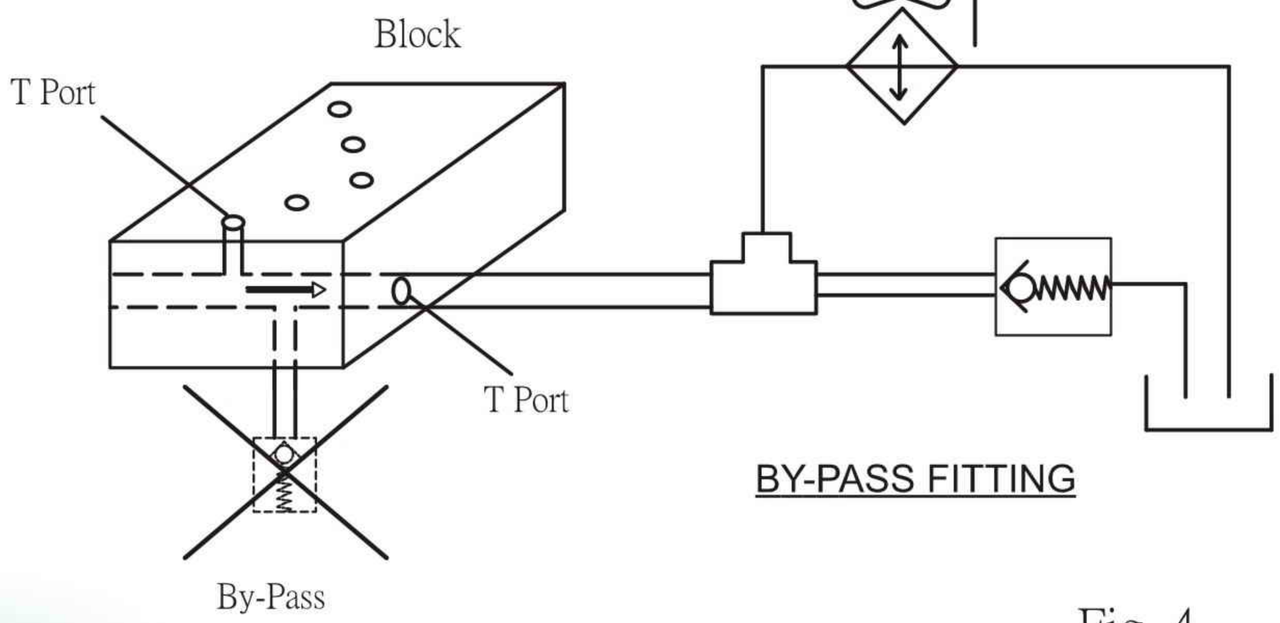
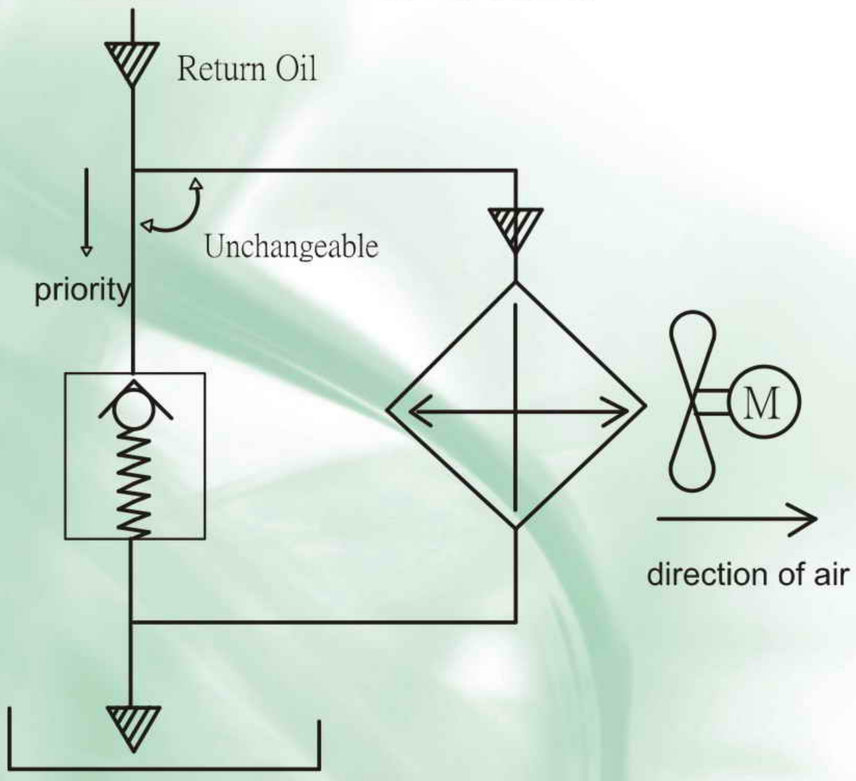


Fig. 2

Fig. 3



Mounting Caution(Fig.4)

1. Install the cooler at a well ventilation place.
2. Guarantee the space between the cooler and the wall to be larger than 1/2 fan diameter on each side.
3. Keep clean and dust-free of cooling air inlet by using compressed air.

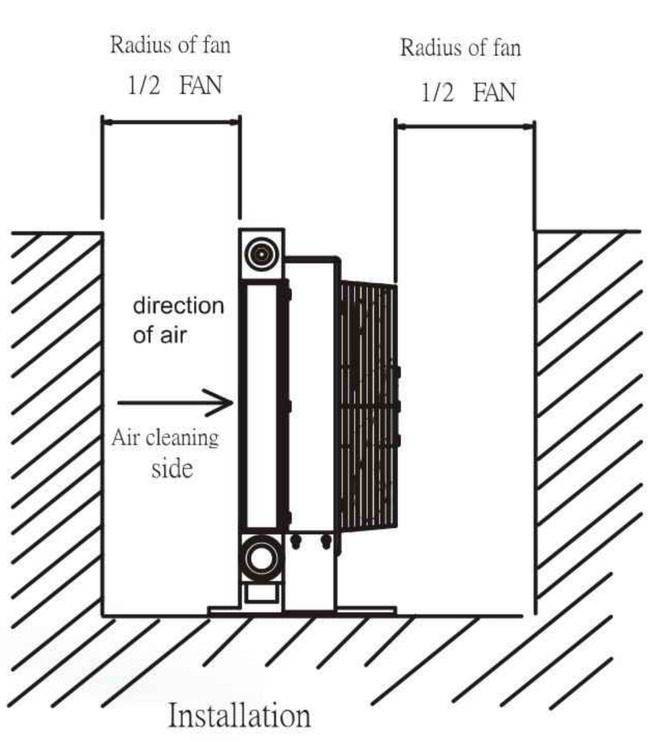


Fig. 4

Q&A

Q1: Is it true that "Water-Oil Cooler" cooling system is better than "Air-Oil Cooler" cooling system?

A: Most people felt that "Air-Oil Cooler" could only be effectively applied to lower Horse Power (HP) hydraulic systems, but with today's technology, "Air-Oil Cooler" cooling system becomes more efficient for Heat Exchanger solutions. As a result, it could work with higher Horse Power (HP) e.g.: Even an "Air-Oil Cooler" unit with a single fan is able to work efficiently in a 100 HP Hydraulic Power Unit.

"Air-Oil Cooler" cooling system, by its own nature does not require water waste; it is CLEAN and ENVIRONMENTALLY FRIENDLY being energized by electrical power.

Q2: Does "DRAIN" cooling method work effectively for Power Pack of 5HP?

A: The "DRAIN" cooling method can only relieve part of the heat created by variable displacement pumps, whereby the remaining heat, from pump main-outlet to the working systems, will gradually increase the oil heat.

Most people always focused on the fact that oil heat from the pump "Drain-Port" requires more attention, without realizing that the oil temperature level, from pump main-outlet, actually increases gradually and it also requires a similar attention.

Q3: Why do we need to mention Horse Power (HP) instead of Flow Rate when selecting an "Air-Cooled Cooler" cooling systems?

A: Flow Rate is one of the common ways that is mostly used to select a "Water-Oil Cooler" cooling system with no specific reason.

Flow Rate is unable to provide a specific measurement of heat.

Cooling is a supplementary support to Hydraulic systems and not just a part of the Hydraulic components. Therefore a design and selection work is required before purchasing.

For cooling measurement, equilibrium between the heat created by an Hydraulic system and the heat dissipated by a cooling unit is required.

Q4: Why "Air-Oil Cooler" cooling system was not commonly used?

A: The main reason is that its cost was not taken into consideration by most machine manufacturers.

Conventionally, by using "Water-Oil Cooler" cooling system, machine manufacturers only required a multi-tube type "Water-Oil Cooler" connected to the hydraulic power system.

Eventually it involved cost such as water resource, piping and cooling tower to be borne by end users separately and included space consideration, whereby, "Air-Oil Cooler" is a complete unit system that is ready-to-use when connected as a separate unit to hydraulic power systems.

For "Water-Oil Cooler" end users need to bear a much higher cost for maintenance and production factors, besides the setting-up costs.

Q5: In comparing the "Return-Line" cooling method with the "Separate" cooling method, what is the difference between these two methods?

A: The "Return-Line" cooling method is commonly used in China & Taiwan while the "Separate" cooling method is commonly used in USA & EUROPE. That is because, in China & Taiwan, hydraulic companies are using the assembling methods of "Water-Oil Cooler" for "Air-Oil Cooler" application.

Disadvantages of using "Return-Line" cooling method:

a)The absence of a "by-pass" or an incorrect cooling "by-pass" installation, may cause the cooler to burst
b)Check Valve spring damage, caused by "Return-Line" flow action
c)Inconsistency of heated oil from "Return-Line" flow will cause a negative effect on the hydraulic system
d)Further to these factors, production stoppages for repair purposes

"Separate" cooling method does not relate direct to the hydraulic system therefore will not have a negative effect despite the (Q5) disadvantages factors, because it is a separate unit entity by itself. Also, the cooler unit failure will not effect the hydraulic operating system

Q6: How is it possible to install an "Air-Oil Cooler" into my hydraulic system?

A: Basically a "Separate" cooling method is advisable. If a "Return-Line" cooling method is used, a "by-pass" system is required, and in the case of incorrect installation, it may cause a cooler failure.

The "Separate" cooling method is used mostly by first world countries such as US and Europe.

In applying this method, one has to install a small pump, where the heated oil is circulated through the cooler and returns the oil back to the reservoir. This system has no pressure peaks within the hydraulic system. It will provide a safe & positive result.

An economic coolant pump can be used in this "Separate" cooling system.

In the case of a "Return-Line" cooling method being selected, please refer to your supplier for further assistance.

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 cannot be estimate 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 choice 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 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)
To=maximum allowed oil temperature (℃)
Tamb=ambient temperature (℃)
Kr： Means the required specific performance of the heat exchanger
Kr=Q/△, dove △T 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℃　T amb=35℃
Q= 70%x20kw=14 kW=12040 kcal/h （1 kW=860 kcal/h ）
△T=50－35=15℃
Kr=12040 kcal/h ÷15℃ =**802 kcal/h**℃ =**0.93 kw/**℃
The choice of the correct cooler is made by using the diagrams.
You will find in our technical catalogues.

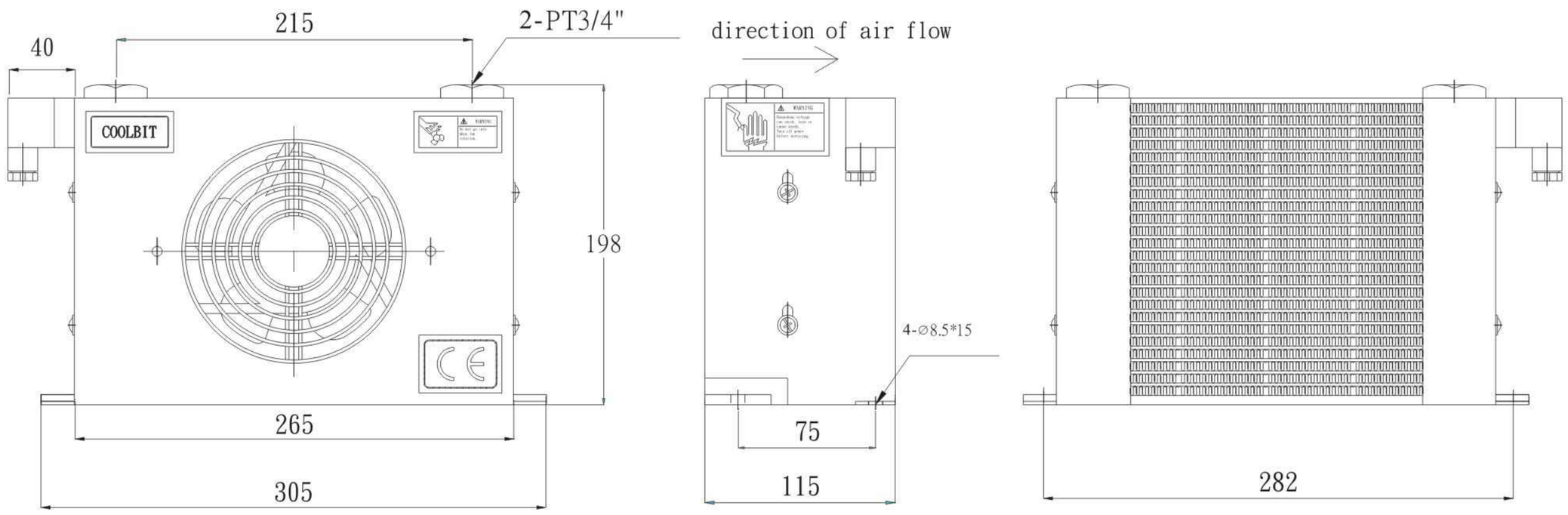
Equivalents among main units

1HP = 635kcal/h　　1kW = 860 kcal/h　　1 cSt = 1 mm2/ sec
1 BTU = 0.35 kcal/h　　1 cSt =1mm2/sec　　1 bar = 100kpa

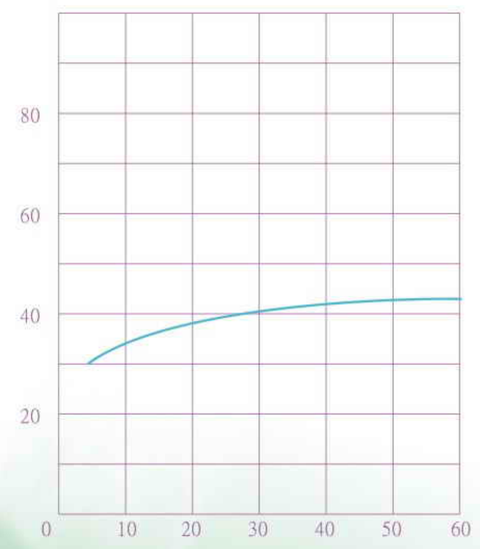
AH0608T-CA*

To preserve the heat exchanger, when installed on the return line of the system, a by-pass valve should always be mounted. An alternate piping method used a separate circuit from the reservoir with a small pump to drive the oil through the heat exchanger.

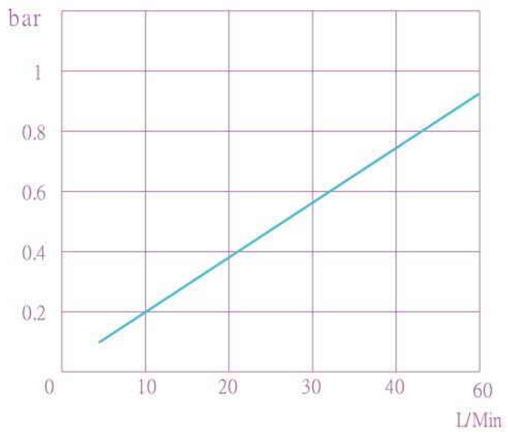
Oil-flow	Voltage	Frequency	Power	Current	Rated	Air-flow		Noise	Safety
l/min	V	Hz	W	A	R.P.M.	m^3/h	IP	dB(A)	Reg.
3 - 60	230	50/60		0.27/ 0.23	2850/ 3450	457/ 553	54	42/48	CE
	115	50/60		0.5/ 0.6	2850/ 3450	457/ 553	54	42/48	CE
	DC12V			2.5	3350	500		51	
	DC24V			0.58	3350	420		51	



kr[$\frac{kcal}{h^\circ c}$] PERFORMANCE DIAGRAM



LOSE OF PRESSURE DIAGRAM



AH 06 08T C A*

- A1：AC115V 1P 50/60Hz 45/37W　D1：DC12V
- A2：AC230V1P 50/60Hz 45/37W　D2：DC24V
- A3：AC380V 1P 50/60Hz 30/25W，ALL SINGLE-PHASE MOTOR

Fan case

Heat-exchanger model

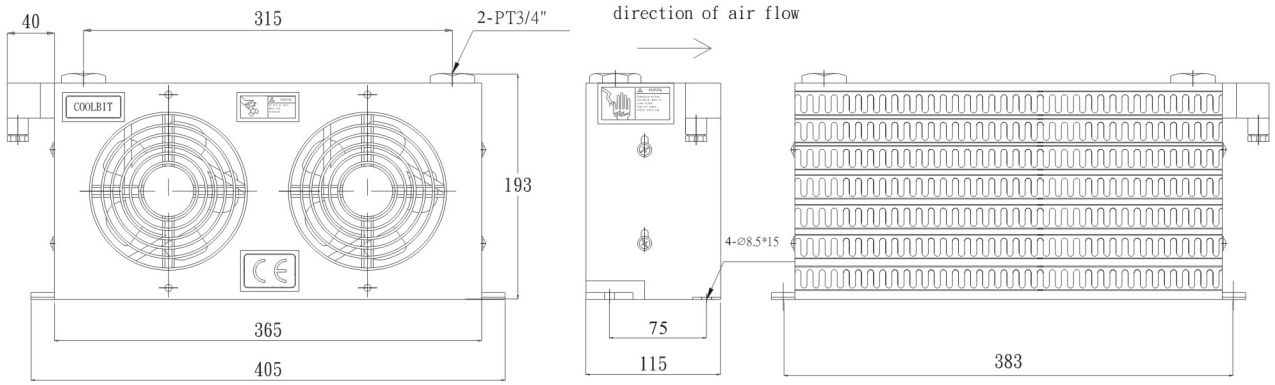
§ Fan in inch：6"X1, with temperature protected.

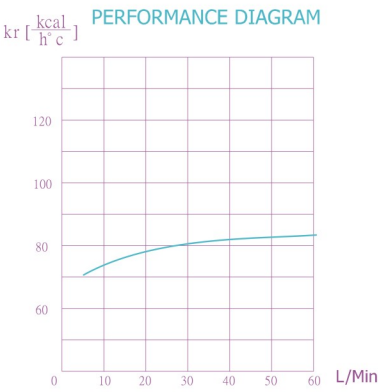
Heat-exchanger Type

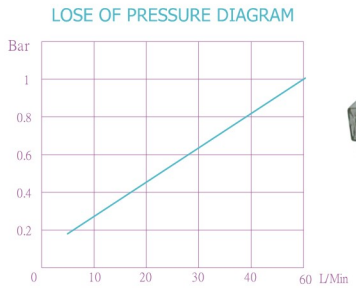
AH0608LT-CA*

To preserve the heat exchanger, when installed on the return line of the system, a by-pass valve should always be mounted. An alternate piping method used a separate circuit from the reservoir with a small pump to drive the oil through the heat exchanger.

Oil-flow	Voltage	Frequency	Power	Current	Rated	Air-flow		FAN	Noise	Safety
l/min	V	Hz	W	A	R.P.M.	m^3/h	IP	Numbers	dB(A)	Reg.
3 - 60	**230**	50/60		**0.27/0.23**	**2850/3450**	**457/ 553**	**54**	**2**	**42/48**	**CE**
	115	50/60		**0.5/ 0.6**	**2850/3450**	**457/ 553**	**54**	**2**	**42/48**	**CE**
	DC12V			2.5	**3350**	**500**		**2**	**51**	
	DC24V			0.58	**3350**	**420**		**2**	**51**	







AH 06 08LT C A*

- A*
  - A1：AC115V 1P 50/60Hz 45/37W x2 D1：DC12Vx2
  - A2：AC230V1P 50/60Hz 45/37W x2 D2：DC24Vx2
  - A3：AC380V 1P 50/60Hz 30/25Wx2 ，ALL SINGLE-PHASE MOTOR
- C — Fan case
- 08LT — Heat-exchanger model
- 06 — § Fan in inch：6"X2 with temperature protected.
- AH — Heat-exchanger Type

AH1012-CA* AH1012-3P-CA*

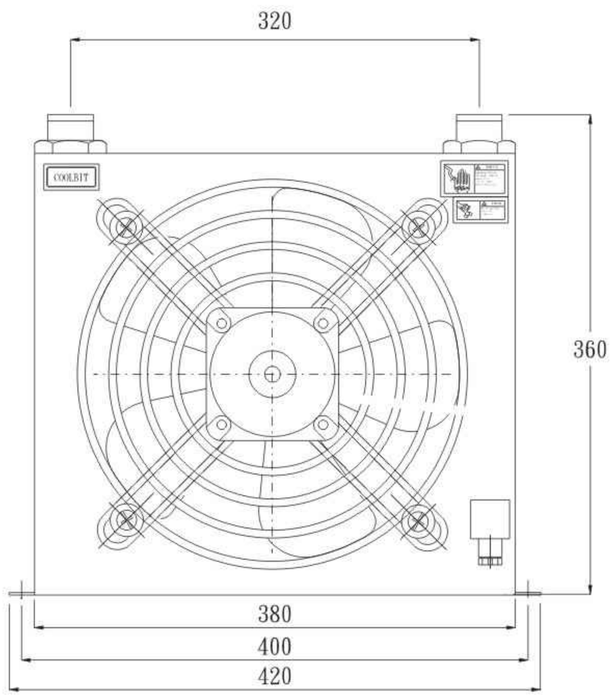
To preserve the heat exchanger, when installed on the return line of the system, a by-pass valve should always be mounted. An alternate piping method used a separate circuit from the reservoir with a small pump to drive the oil through the heat exchanger.

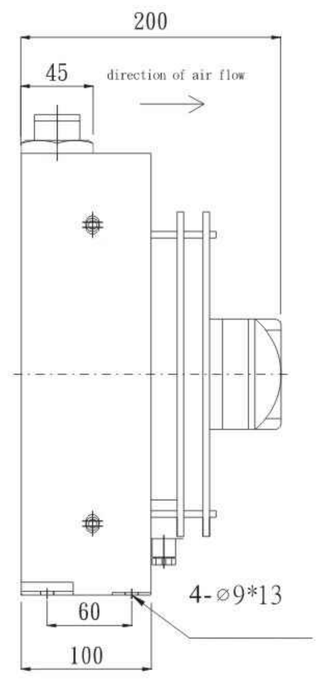
《AH1012-CA》

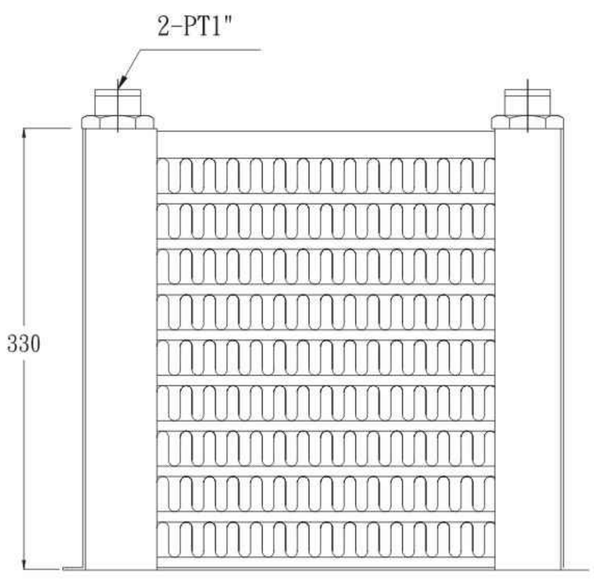
Oil-flow	Voltage	Frequency	Power	Current	Rated	Air-flow	Protection	Noise	Safety
l/min	V	Hz	W	A	R.P.M.	m^3/h	IP	dB(A)	Reg.
20 - 100	230×1P	50/60	16	0.42/ 0.36	1300/1550	840/ 1000	42		CE
	115×1P	50/60	16	0.8/ 0.74	1300/1550	840/ 1000	42		CE
	DC12V			5.5	2000				
	DC24V			3	2400				
The motor of DC fan is carbon brush type. Which mean the life-span was limited. 2000 hours of service.									

《AH1012-3P-CA》

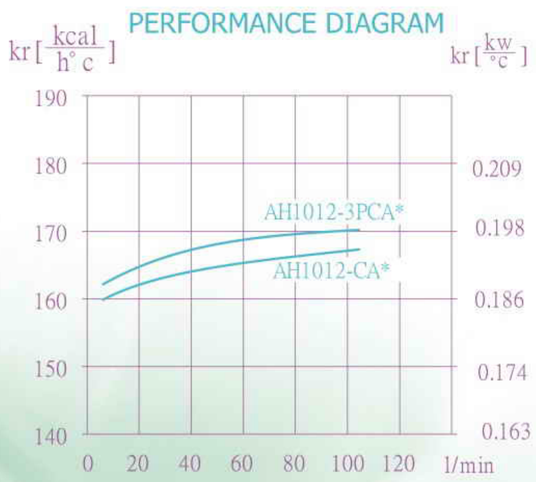
Oil-flow	Voltage	Frequency	Power	Current	Rated	Air-flow	Protection	Noise	Safety
l/min	V	Hz	W	A	R.P.M.	m^3/h	IP	dB(A)	Reg.
20 - 100	230	50/60		0.28/ 0.23	1430/1670	1000/1200	54	55	CE
	400	50/60		0.16/ 0.13	1430/1670	1000/1200	54	55	CE



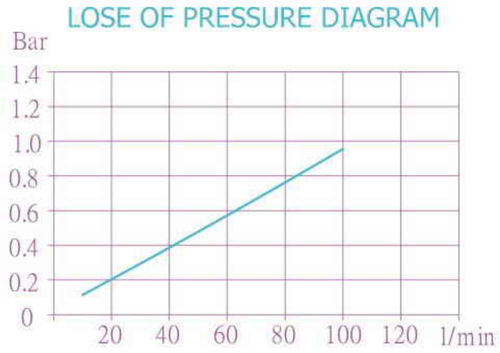




PERFORMANCE DIAGRAM



LOSE OF PRESSURE DIAGRAM



AH1012-CA*

AH1012-3PCA*

AH 10 12 C A*

3P

A1：AC115V 1P 16W D1：DC12V

A2：AC230V 1P 16W D2：DC24V

Fan case

230/400V
3Phase

Heat-exchanger model

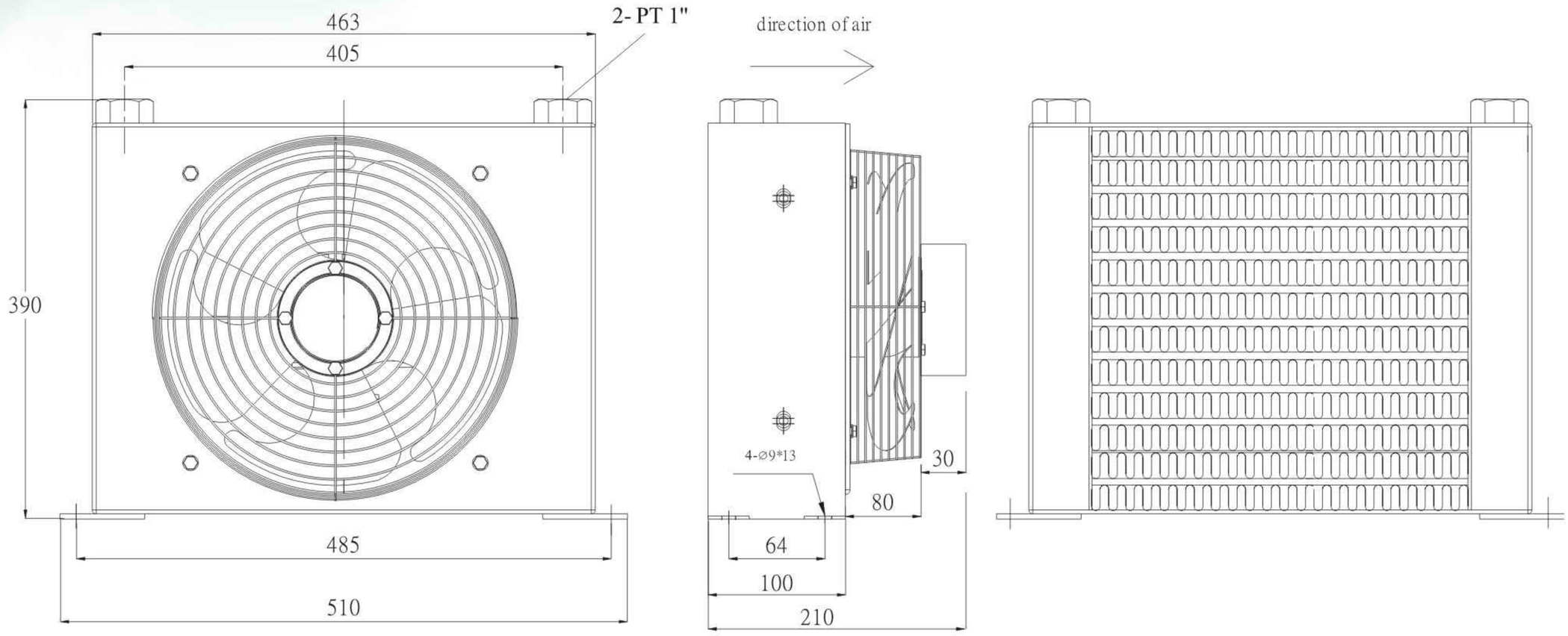
§ Fan in inch：10"X1

Heat-exchanger Type

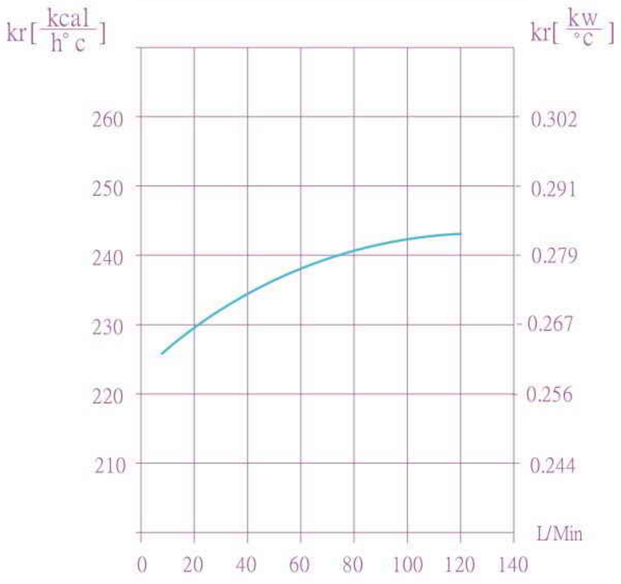
AH1215-CA*

To preserve the heat exchanger, when installed on the return line of the system, a by-pass valve should always be mounted. An alternate piping method used a separate circuit from the reservoir with a small pump to drive the oil through the heat exchanger.

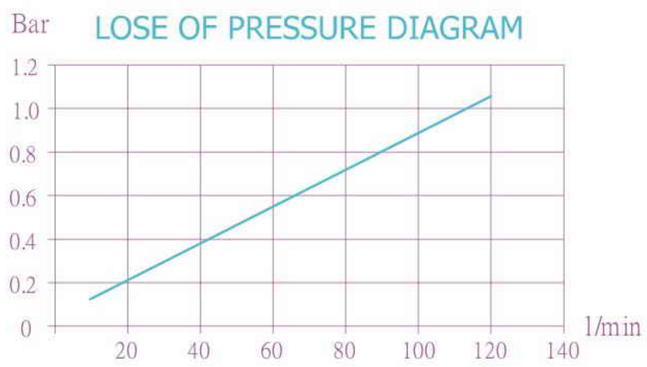
Oil-flow	Voltage	Frequency	Power	Current	Rated	Air-flow	Protection	Noise	Safety
l/min	V	Hz	W	A	R.P.M.	m^3/h	IP	dB(A)	Reg.
20 - 100	230	50/60		0.45/ 0.50	2420/2510	1800/1900	54	60	CE
	400	50/60		0.26/ 0.29	2420/2510	1800/1900	54	60	CE

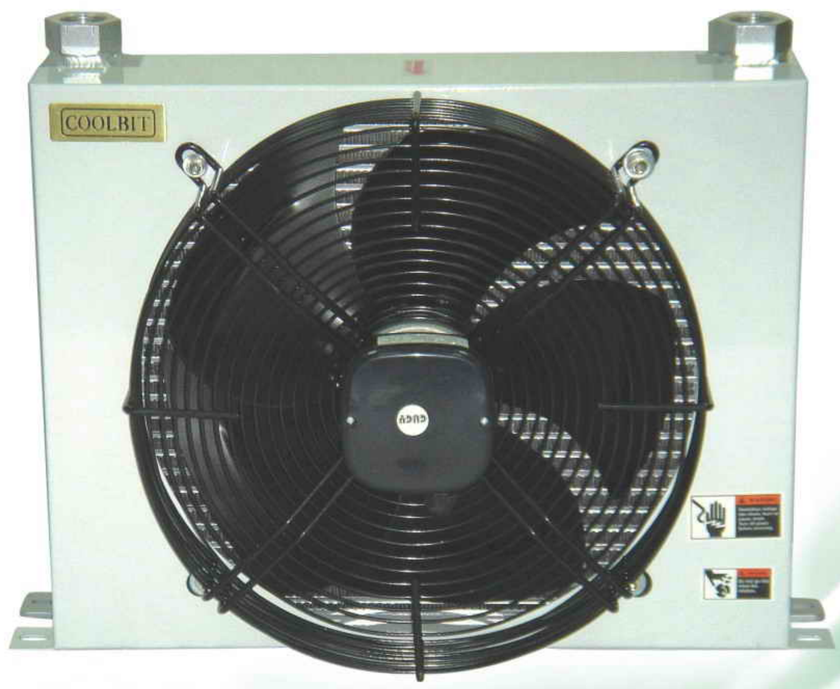


PERFORMANCE DIAGRAM



LOSE OF PRESSURE DIAGRAM





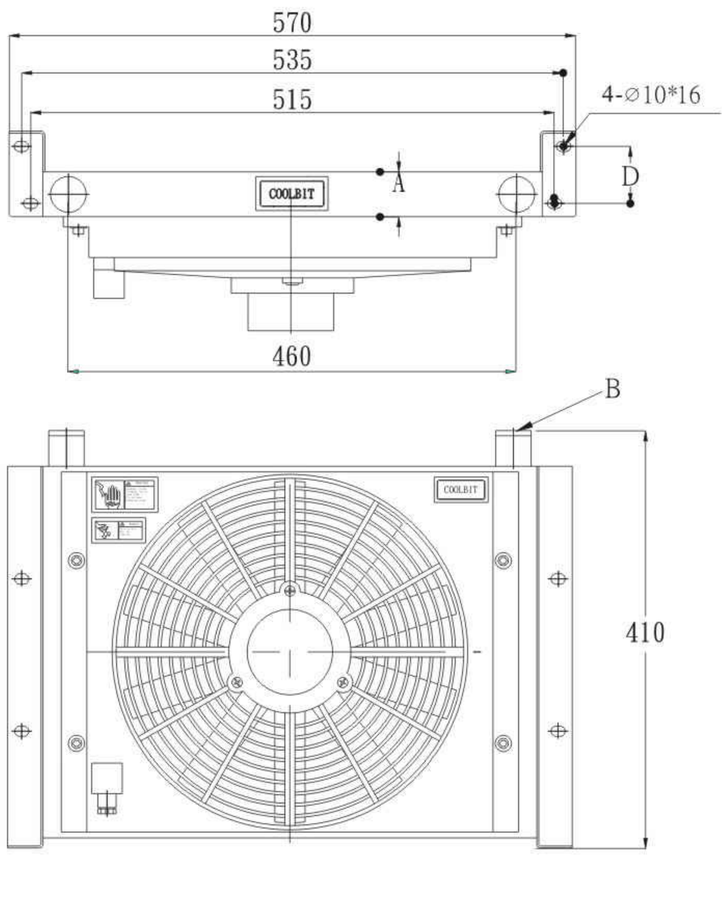
AH 12 15 C A*

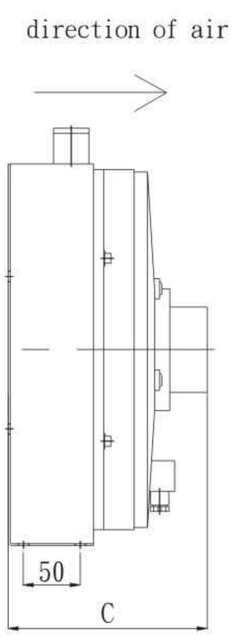
- A2：AC230V/400V 3P 140W
- Fan case
- Heat-exchanger model
- § Fan in inch：12"
- Heat-exchanger type

AH1417-A* AH1470-A*

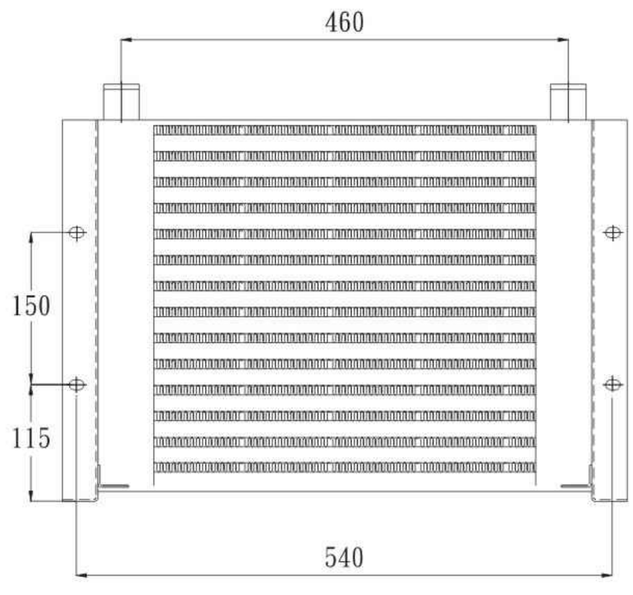
To preserve the heat exchanger, when installed on the return line of the system, a by-pass valve should always be mounted. An alternate piping method used a separate circuit from the reservoir with a small pump to drive the oil through the heat exchanger.

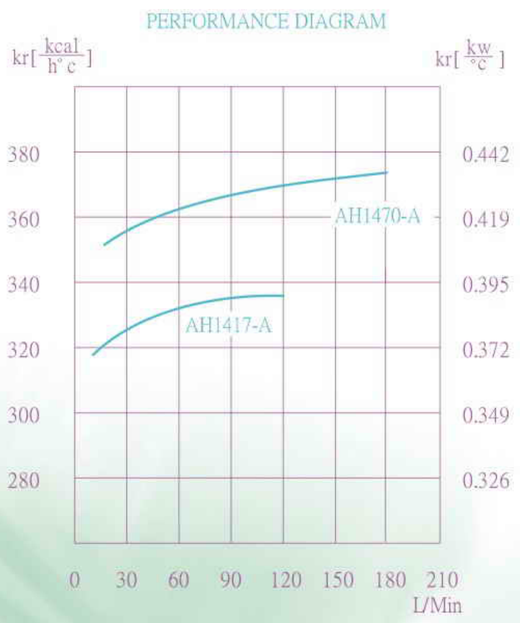
Oil-flow	Voltage	Frequency	Power	Current	Rated	Air flow	Protection	Noise	Safety
l/min	V	Hz	W	A	R.P.M.	m^3/h	IP	dB(A)	Reg.
30 - 100	230	50/60	40/50		1450/1650	2300/2760			
	115	50/60	40/50		1450/1650	2300/2760			
	DC12V			7.5A	2000				
	DC24V			4.5A	2200				
The motor of DC fan is carbon brush type. Which mean the life-span was limited. 2000 hours of service.									

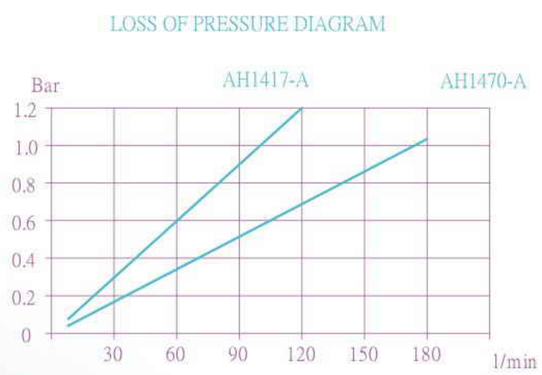




	A	B	C	D
AH1417-A	45	2-PT1"	196	48
AH1470-A	70	2-PT1 1/4"	212	50







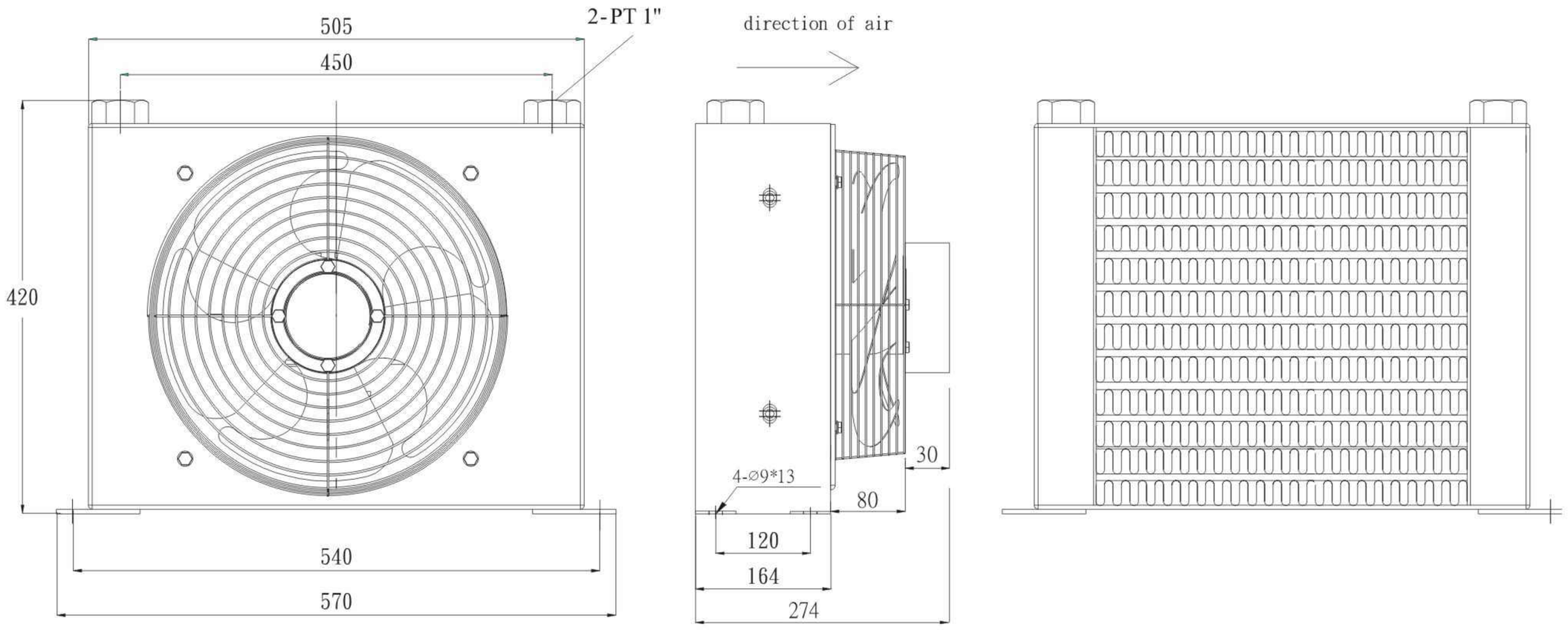
AH 14 70 A*

- A1：AC115V 1P 50W D1：DC12V
- A2：AC230V 1P 50W D2：DC24V
- ALL SINGLE-PHASE
- 17：45mm
- 70：70mm
- § Fan in inch：14"
- Heat-exchanger type

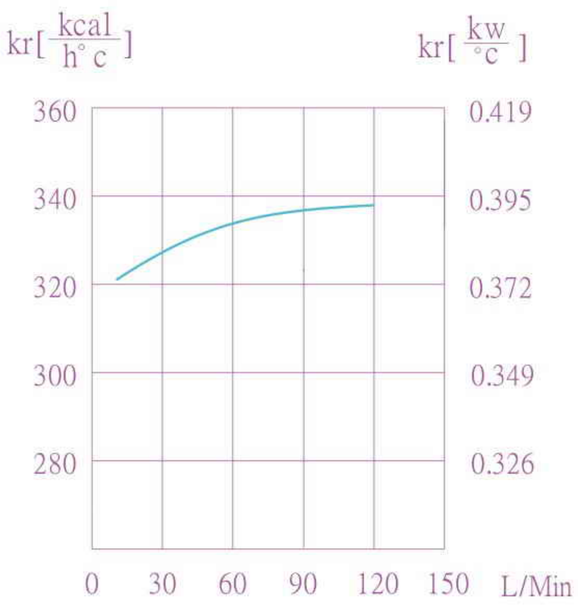
AH1418-CA*

To preserve the heat exchanger, when installed on the return line of the system, a by-pass valve should always be mounted. An alternate piping method used a separate circuit from the reservoir with a small pump to drive the oil through the heat exchanger.

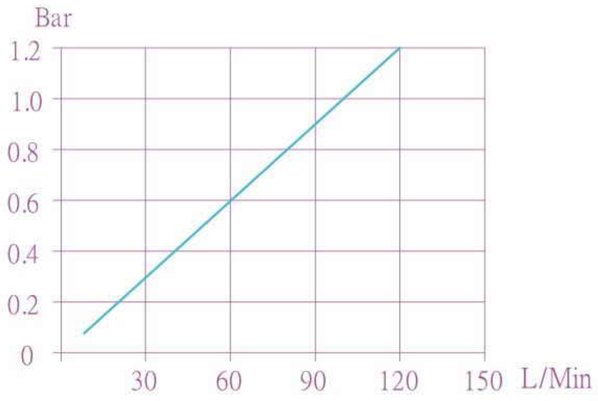
Oil-flow	Voltage	Frequency	Power	Current	Rated	Air flow	Protection	Noise	Safety
l/min	V	Hz	W	A	R.P.M.	m^3/h	IP	dB(A)	Reg.
30 - 200	230	50/60	150/180	0.80/ 0.70	1380/1550	3200/3800	54	62	CE
	400	50/60	150/180	0.40/ 0.36	1380/1550	3200/3800	54	62	CE
	440	50/60	200/260	0.40/ 0.43	1380/1560	3200/3800	54	62	CE



PERFORMANCE DIAGRAM



LOSS OF PRESSURE DIAGRAM



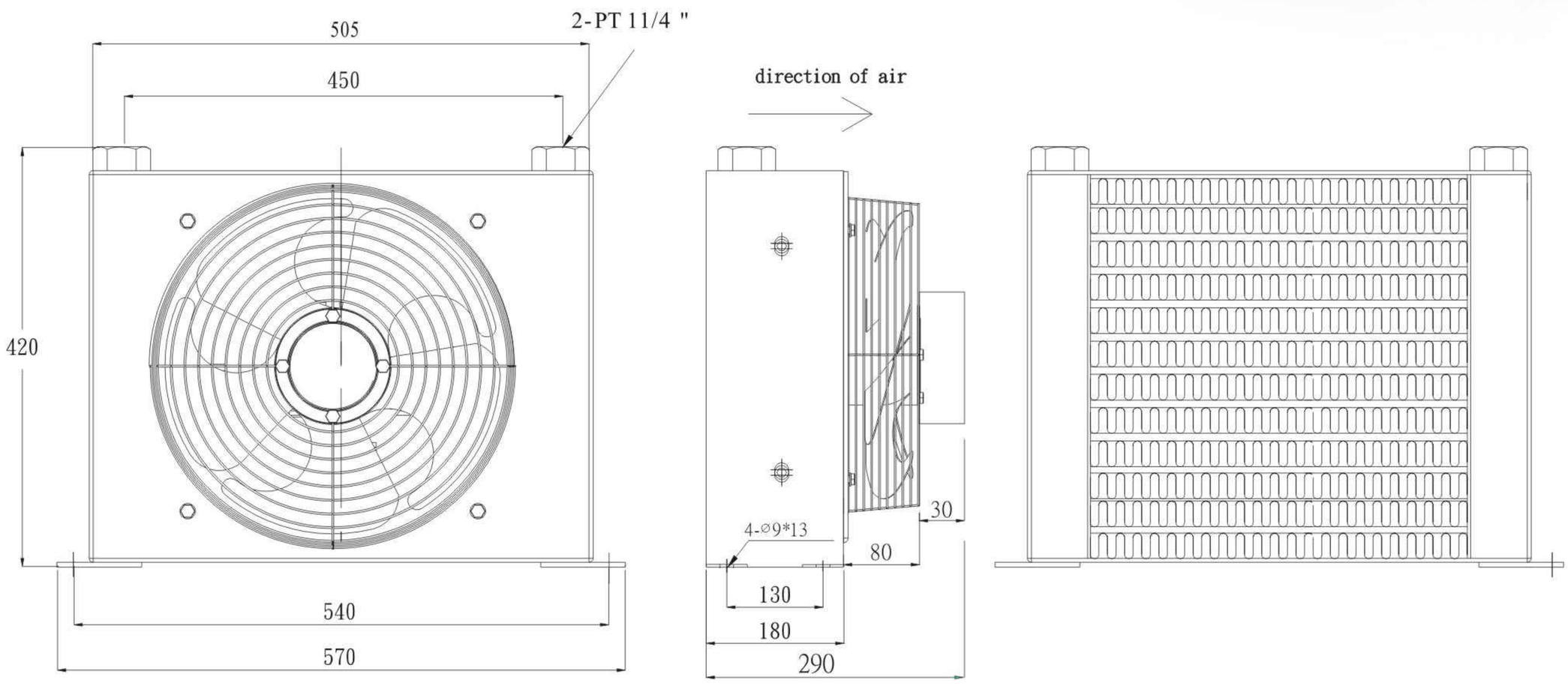
AH 14 18 C A*

- A2：AC230/400V 3P IP54
- Fan case
- Heat-exchanger model
- § Fan in inch：14"
- Heat-exchanger type

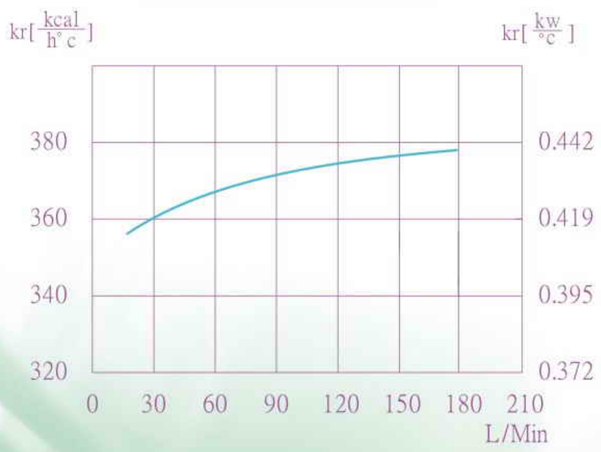
AH1428-CA*

To preserve the heat exchanger, when installed on the return line of the system, a by-pass valve should always be mounted. An alternate piping method used a separate circuit from the reservoir with a small pump to drive the oil through the heat exchanger.

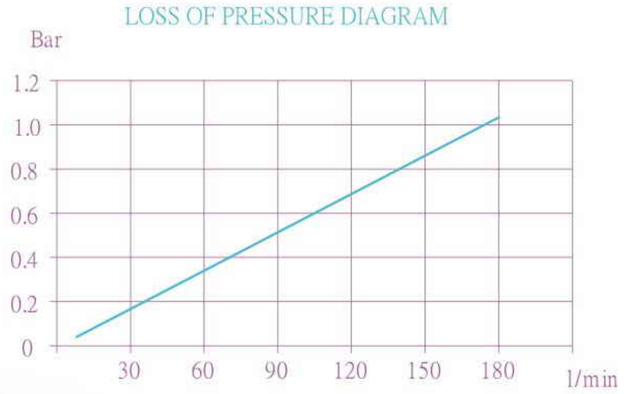
Oil-flow	Voltage	Frequency	Power	Current	Rated	Air flow	Protection	Noise	Safety
l/min	V	Hz	W	A	R.P.M.	m^3/h	IP	dB(A)	Reg.
30 - 200	230	50/60	150/180	0.80/ 0.70	1380/1550	3200/3800	54	62	CE
	400	50/60	150/180	0.40/ 0.36	1380/1550	3200/3800	54	62	CE
	440	50/60	200/260	0.40/ 0.43	1380/1560	3200/3800	54	62	CE



PERFORMANCE DIAGRAM



LOSS OF PRESSURE DIAGRAM



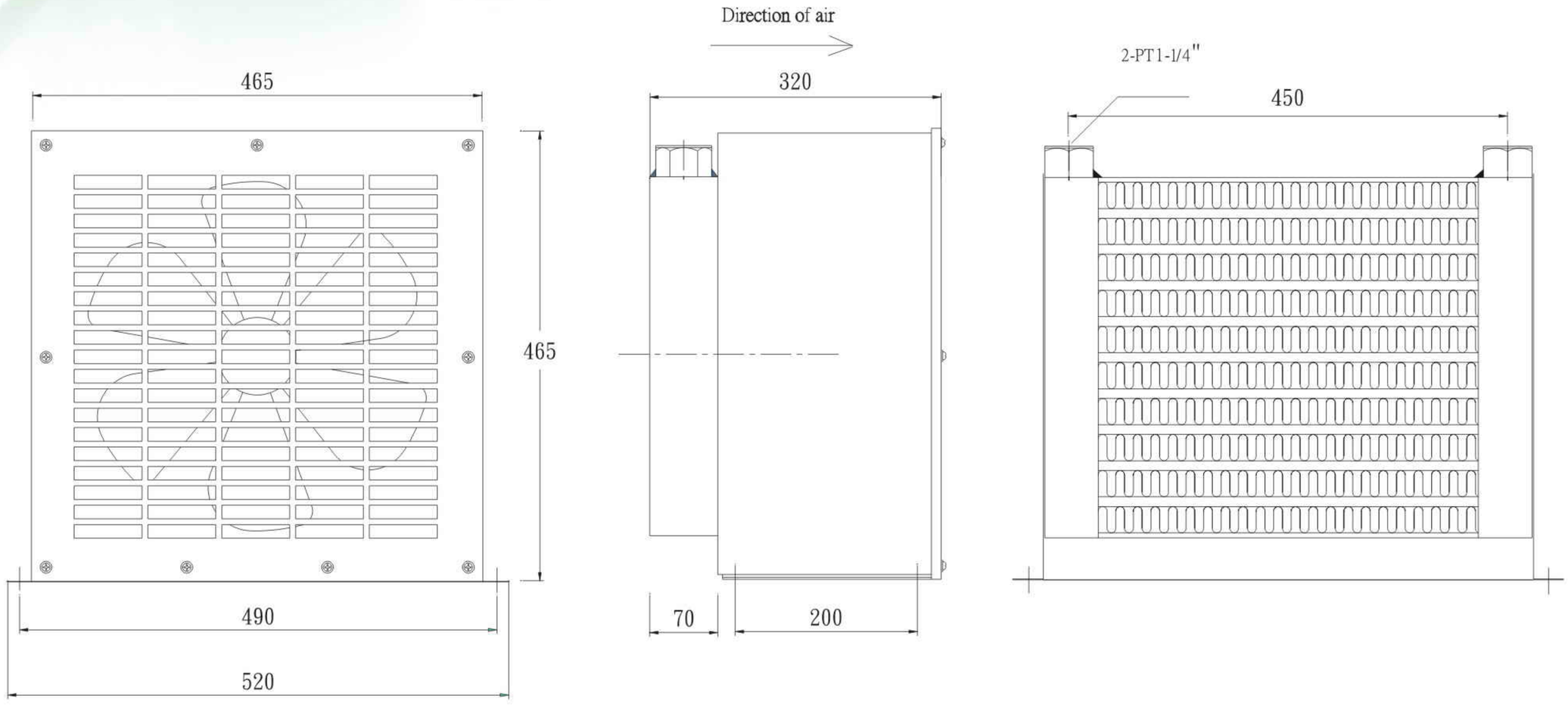
AH 14 28 C A*

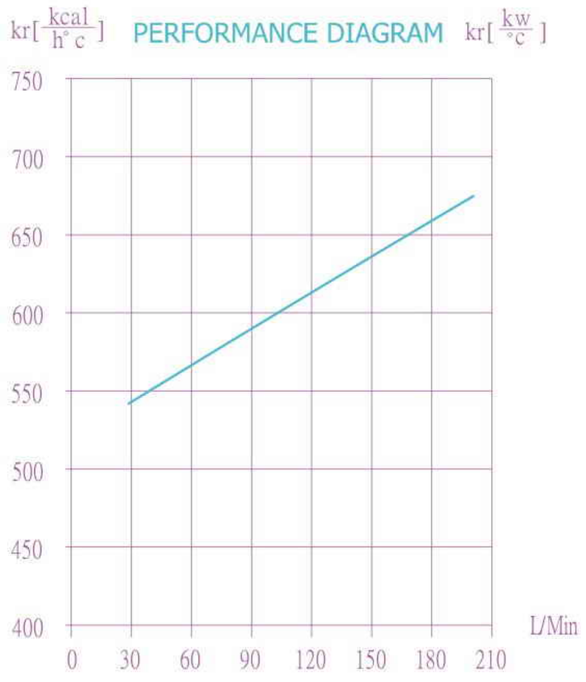
- A2：AC230/400V 3P IP54
- Fan case
- Heat-exchanger model
- § Fan in inch：14"
- Heat-exchanger type

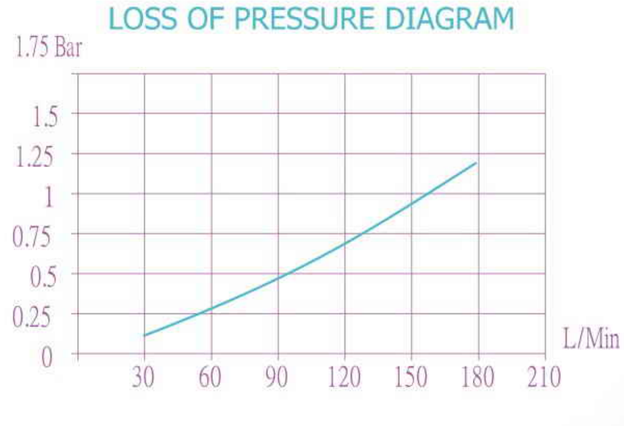
AH1470-CA*

To preserve the heat exchanger, when installed on the return line of the system, a by-pass valve should always be mounted. An alternate piping method used a separate circuit from the reservoir with a small pump to drive the oil through the heat exchanger.

Oil-flow	Voltage	Frequency	Power	Current	Rated	Air flow	Protection	Noise	Safety
l/min	V	Hz	Hp	A	R.P.M.	m^3/h	IP	dB(A)	Reg.
30 - 200	230	50/60	1/2		1380/1550	2400/2880			
	380	50/60	1/2		1380/1550	2400/2880			







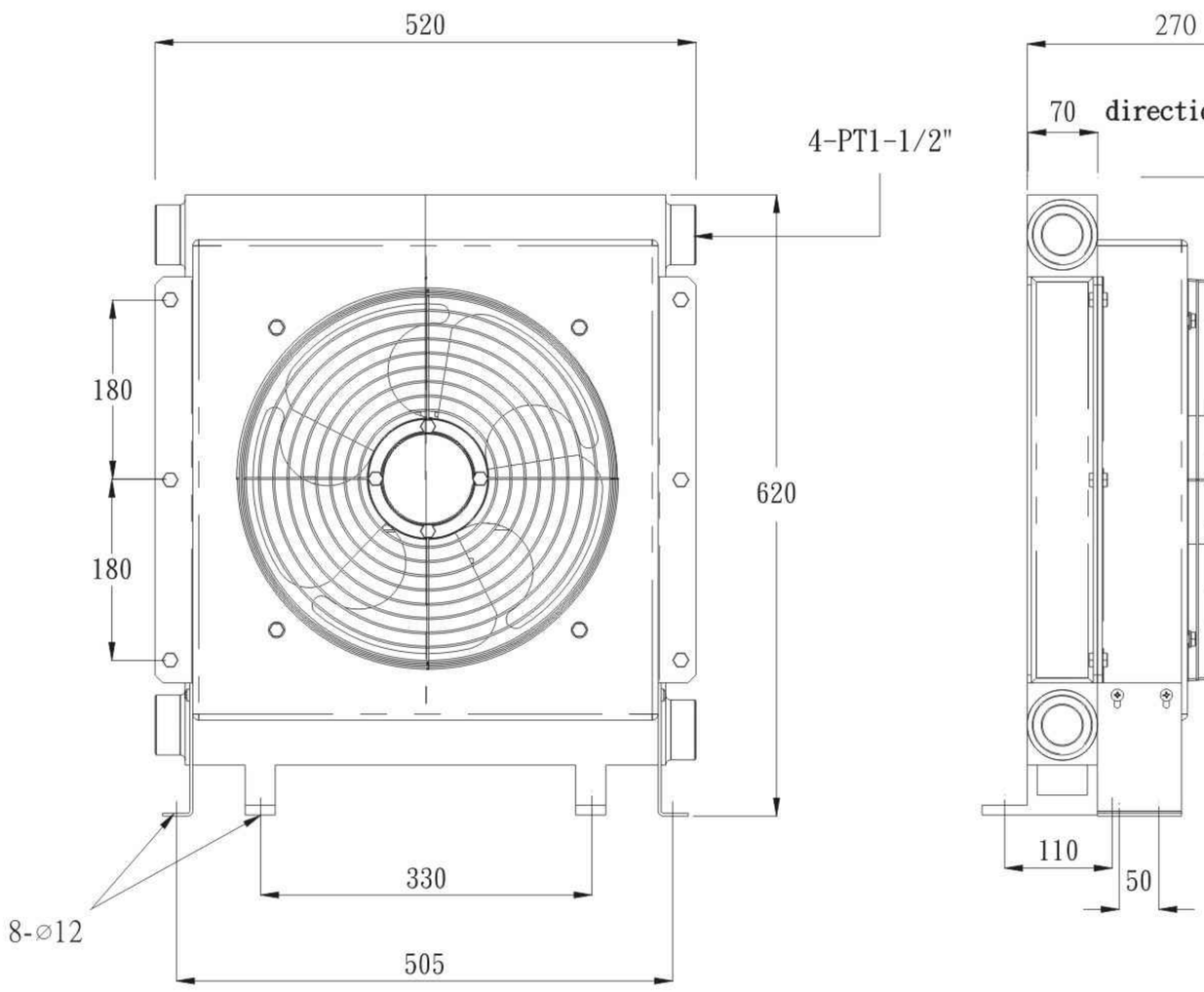
AH 14 70 C A*

- A2：AC230V3P 1/2Hp A3：AC380V 3P 1/2Hp
  AC 400/415/440/480 V
- Fan case
- Heat-exchanger model
- § Fan in inch：14"
- Heat-exchanger type

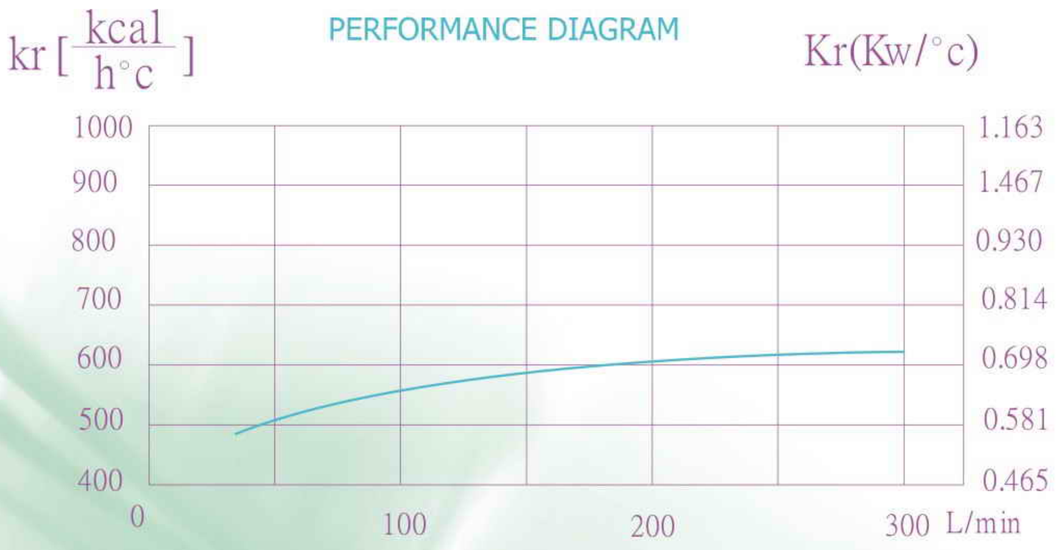
AH1490-CA*

To preserve the heat exchanger, when installed on the return line of the system, a by-pass valve should always be mounted. An alternate piping method used a separate circuit from the reservoir with a small pump to drive the oil through the heat exchanger.

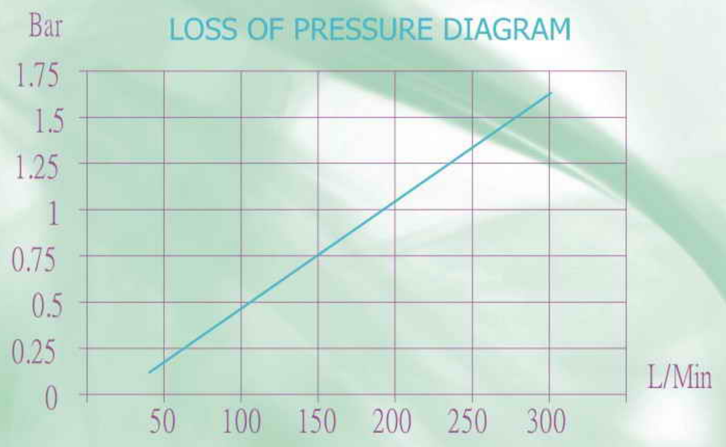
Oil-flow	Voltage	Frequency	Power	Current	Rated	Air flow	Protection	Noise	Safety
l/min	V	Hz	W	A	R.P.M.	m^3/h	IP	dB(A)	Reg.
30 - 200	230	50/60	150/180	0.80/ 0.70	1380/1550	3200/3800	54	62	CE
	400	50/60	150/180	0.40/ 0.36	1380/1550	3200/3800	54	62	CE
	440	50/60	200/260	0.40/ 0.43	1380/1560	3200/3800	54	62	CE



PERFORMANCE DIAGRAM



LOSS OF PRESSURE DIAGRAM



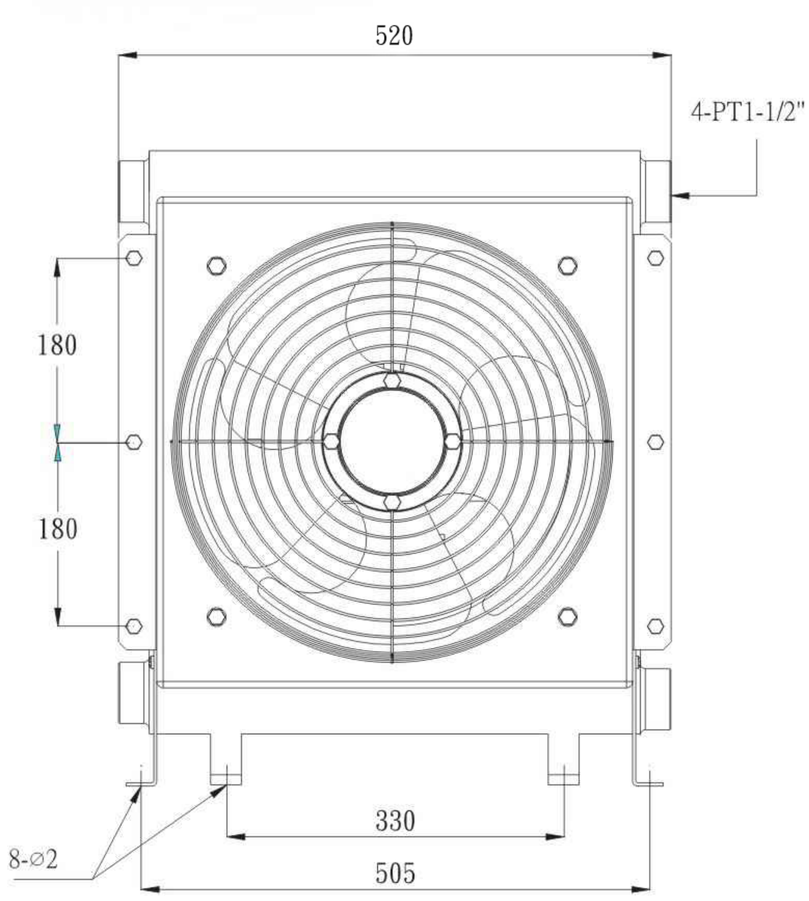
AH 14 90 C A*

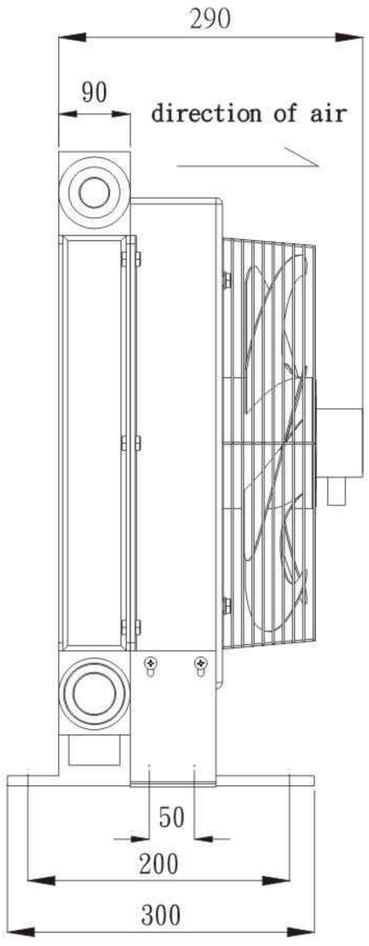
- A2：AC230/400V 3P IP54
- Fan case
- Heat-exchanger model
- § Fan in inch：14"
- Heat-exchanger type

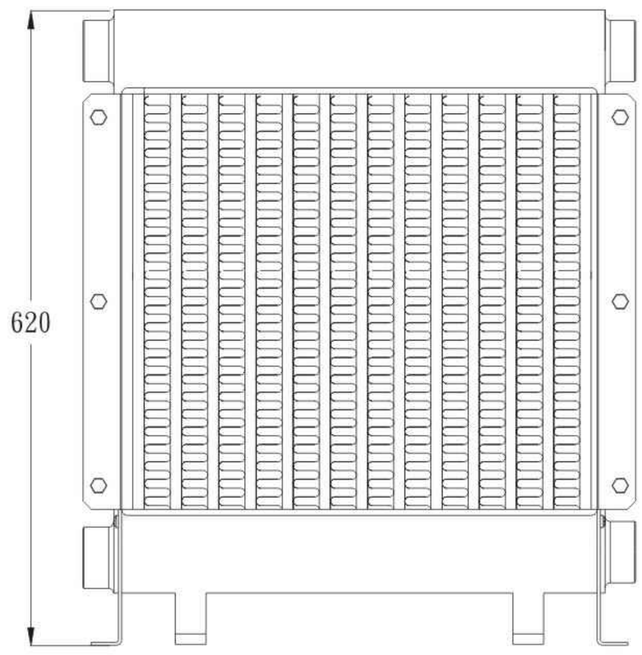
AH1680-CA*

To preserve the heat exchanger, when installed on the return line of the system, a by-pass valve should always be mounted. An alternate piping method used a separate circuit from the reservoir with a small pump to drive the oil through the heat exchanger.

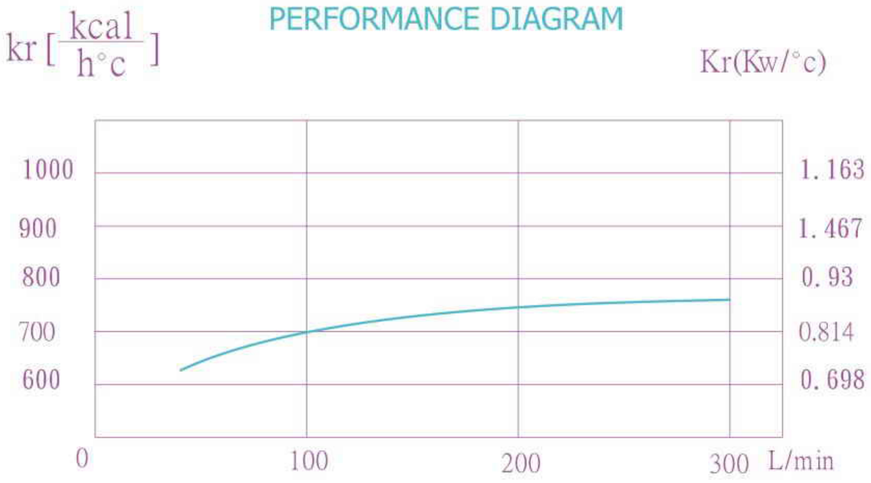
Oil-flow	Voltage	Frequency	Power	Current	Rated	Air flow	Protection	Noise	Safety
l/min	V	Hz	W	A	R.P.M.	m^3/h	IP	dB(A)	Reg.
30 - 250	230	50/60	145/250	0.90/ 1.00	1380/1550	4000/4800	54	68	CE
	400	50/60	145/250	0.50/ 0.52	1380/1550	4000/4800	54	68	CE
	440	50/60	135/175	0.28/ 0.30	1350/1570	4000/4800	54	68	CE



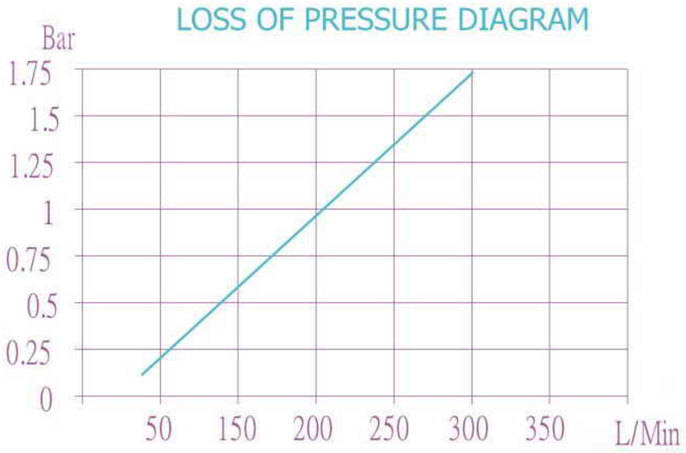




PERFORMANCE DIAGRAM



LOSS OF PRESSURE DIAGRAM



AH 16 80 C A*

- A2：AC230/400V 3P IP54
- Fan case
- Heat-exchanger model
- § Fan in inch：16"
- Heat-exchanger type

PLATE-FIN HEAT EXCHANGERS

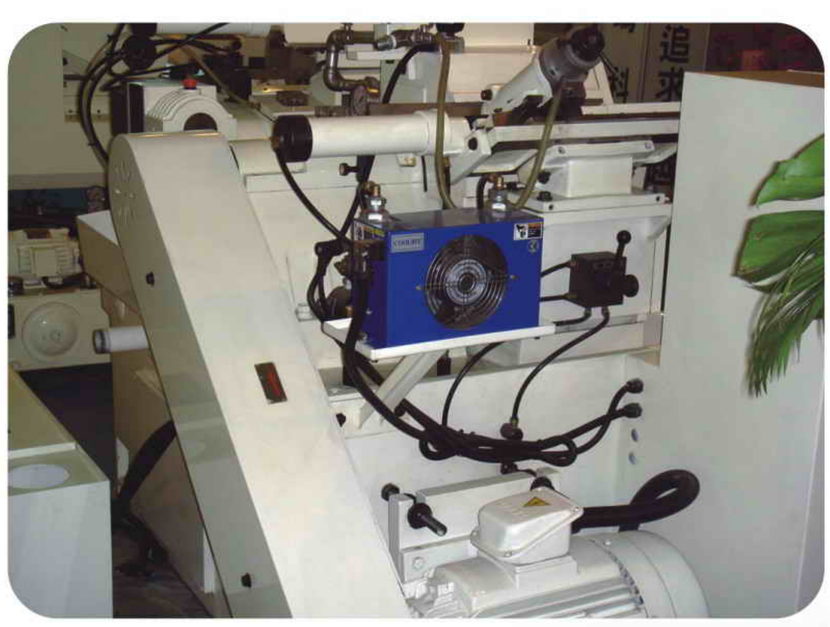
Over loaded

Cooling Unit

Machine Tool

Vacuun Punp

Hydraulic



Machine TooL

AH3-2583

AH3-2583