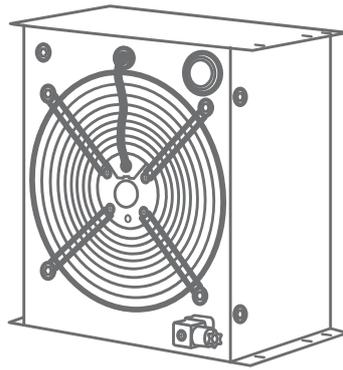


AC MOTOR AIR-OIL HEAT EXCHANGERS

SCAMBIATORI DI CALORE ARIA OLIO CON VENTILATORE A CORRENTE ALTERNATA



The advantage of using air into the cooling of oleo hydraulic systems has its bases on the following facts:

- There is no need of water
- The system is independent of the connection to the water main
- Lower working costs in comparison with the water-oil exchangers, even if the starting investment is higher
- Possibility to use warm air to heat the room in winter.

The particular structure of the cooling element allows great thermic performances and pressure resistance. **Maximum working static pressure: 20 bar; test pressure: 35 bar.**

Our technical Department is available to suggest and find the better solution in case of particular working conditions, pressures, frequencies, vibrations, etc.

It is always recommended to assemble in parallel with the exchanger a by-pass valve to avoid extreme counter-pressures, particularly when the machine is started with cold oil. On the contrary, it is not useful to use a check valve as by-pass to protect the exchanger from pressure's peaks, since the inertia of the valve itself is too high in comparison with the speed of the pressure waves that occur into the oleo hydraulic systems.

The flow rates shown in the tables are the ones recommended for the exchanger proper working.

The efficiency curves show the specific exchange capacity in kcal/h°C or in kW/h°C according to the different oil rates. To calculate the heat quantity the different exchangers are able to dissipate it is enough to multiply such capacity by the difference between the requested oil temperature and the summer room temperature.

The electric system of these exchangers is already wired, according to EN 20204 Regulation.

Starting from the type AP 300, all the exchangers of this series are equipped with an adjustable thermo switch, which allows keeping the oil temperature between 30°C and 90°C, according to the different needs.

Particular attention is paid to the noise of our fans that, working into industrial factories and close to the operators, should have low noise levels but at the same time should have the proper exchange efficiency.

For the right calculation of air-oil heat exchangers, we supply our customers with a calculation program on CD-ROM or that can be downloaded from our website.

The air-oil heat exchangers can be used to cool other kind of fluids, which must be compatible with aluminium and its alloys.

However, for each use, with the exception of oil cooling, we recommend to consult our Technical Department.

Il vantaggio dell'utilizzo dell'aria nel raffreddamento di impianti oleoidraulici trova le sue ragioni nei seguenti fattori:

- *Non necessità l'utilizzo di acqua*
- *Indipendenza della macchina dalle tubazioni di allacciamento alla rete idrica*
- *Inferiore costo di esercizio rispetto agli scambiatori acqua-olio, anche se maggiore è l'investimento iniziale*
- *Possibilità di utilizzare l'aria calda in uscita per riscaldare l'ambiente nella stagione invernale*

*La particolare costruzione del radiatore consente di ottenere notevoli rese termiche e forte resistenza alla pressione. **Pressione massima statica di funzionamento: 20 bar; pressione di collaudo: 35 bar.***

Il nostro Ufficio Tecnico è a disposizione per valutare la soluzione più opportuna in presenza di particolari condizioni di lavoro, pressioni, frequenze, vibrazioni, ecc..

È sempre consigliabile montare in parallelo allo scambiatore una valvola di by-pass per evitare eccessive contropressioni soprattutto al momento dell'avviamento della macchina con olio freddo. Non è invece conveniente utilizzare una valvola di ritegno come by-pass per proteggere lo scambiatore dai picchi di pressione in quanto l'inerzia della valvola stessa è troppo alta rispetto alla velocità delle onde di pressione che si sviluppano all'interno dell'olio degli impianti oleoidraulici.

Le portate olio indicate nelle tabelle sono quelle consigliate per il buon funzionamento dello scambiatore.

Le curve di rendimento forniscono la potenzialità di scambio specifica in kcal/h°C o in kW/h°C in funzione della portata olio; per calcolare la quantità di calore che i vari scambiatori sono in grado di disperdere, è sufficiente moltiplicare tale potenzialità per la differenza tra le temperature dell'olio desiderata e dell'aria ambiente massima estiva. Gli scambiatori sono forniti con impianto elettrico già cablato, eseguito secondo la norma europea EN 20204.

Dal tipo AP 300 in su, gli scambiatori sono dotati di termostato regolabile che consente di mantenere l'olio a qualsiasi temperatura tra i 30 e i 90°C, a seconda delle esigenze dell'utilizzatore.

Notevole attenzione è stata posta alla rumorosità dei ventilatori in quanto, dovendo funzionare all'interno di capannoni industriali e quindi a contatto con gli operatori, è molto importante che il loro livello sonoro sia il più basso possibile, compatibilmente con l'esigenza di ottenere rese termiche accettabili.

Per il calcolo degli scambiatori aria-olio è disponibile un programma su CD-rom o scaricabile dal nostro sito internet.

Gli scambiatori aria-olio possono essere utilizzati per raffreddare altri tipi di fluidi, a condizione che essi siano compatibili con l'alluminio e le sue leghe.

Consigliamo comunque, per qualsiasi impiego che non sia il raffreddamento dell'olio, di contattare il nostro Ufficio Tecnico.



PURCHASE CODES

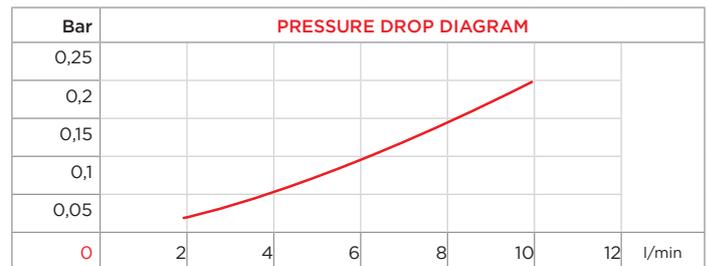
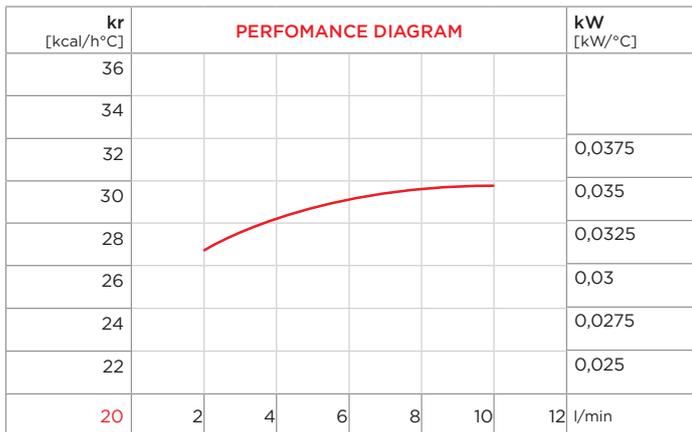
AP 178 E single-phase

3RAP178



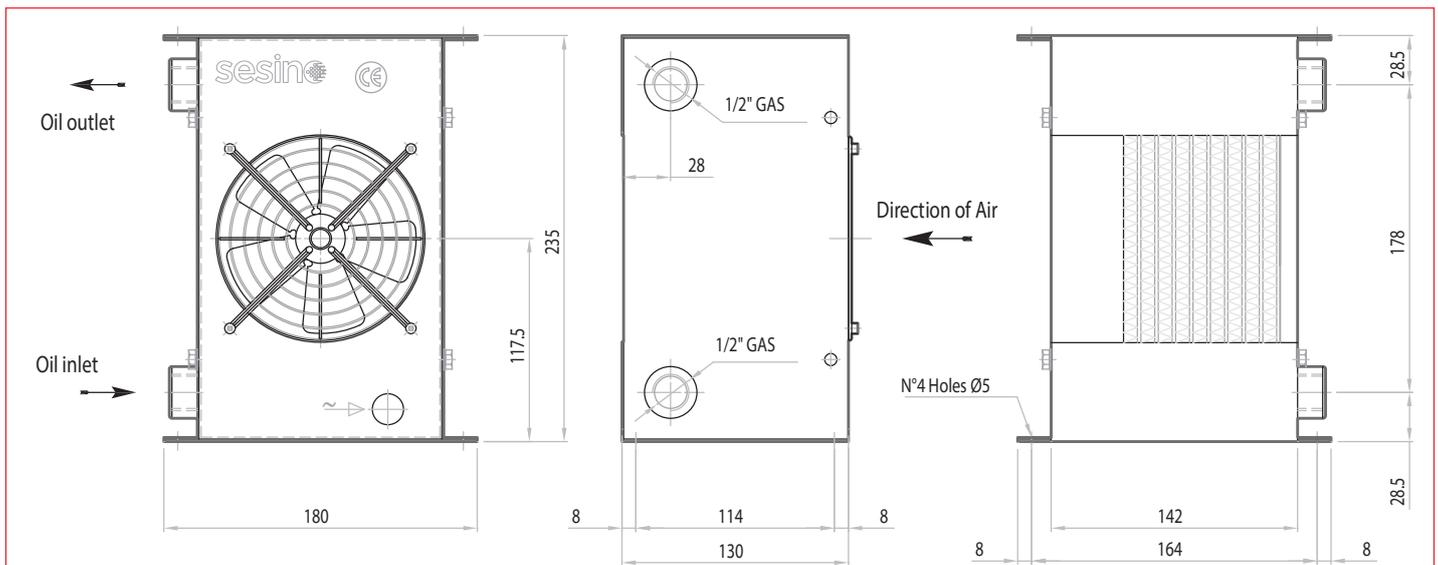
SPARE PARTS

Cooling element	1RO92302
Fan grill	1GPR178
Frame	3CN178.1
Housing	3TL178.1
Electric Fan for 3RAP178	1VNAP178230



		CORRECTION FACTOR					
cSt	22	30	46	68	100	150	220
f	0,6	1	1,5	2,3	3,5	5	7

- Dimensions and technical characteristics are not binding



OIL FLOW	CAPACITY	VOLTAGE	FREQUENCY	POWER	CURRENT	AIR FLOW	PROTECTION	NOISE LEVEL	WEIGHT	ø FAN
l/min	l	V	hz	W	A	m³/h	IP	dB(A)	kg	mm
1-10	0,5	230	50/60	19/18	1,2/1,1	125	54	55	4	125



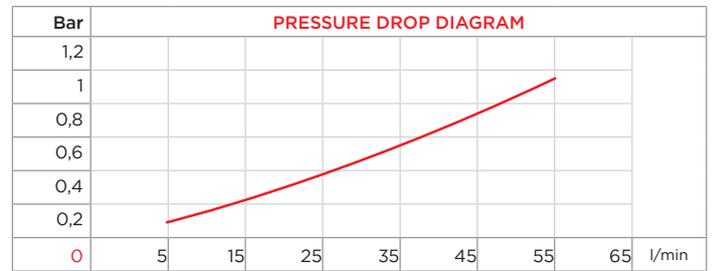
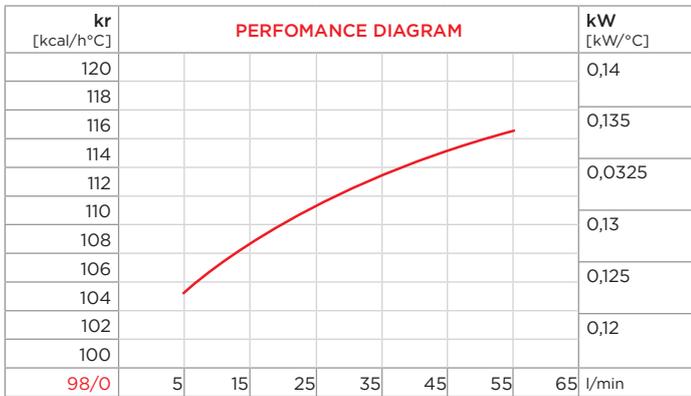
PURCHASE CODES

AP 260 E single-phase	3RAP260T1
AP 260 E three-phase	3RAP26038T1



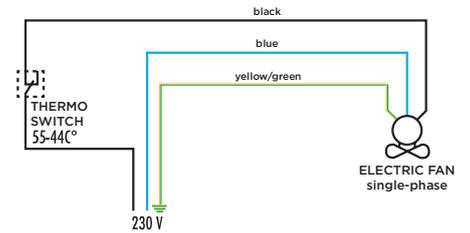
SPARE PARTS

Cooling element	3RNAP260
Thermo-switch 55-42 IP54	1TRM55-42
Frame	3CNAP260CA.1
Electric Fan for 3RAP260T1	1VNA2E200.1
Electric Fan for 3RAP26038T1	1VNA2D200

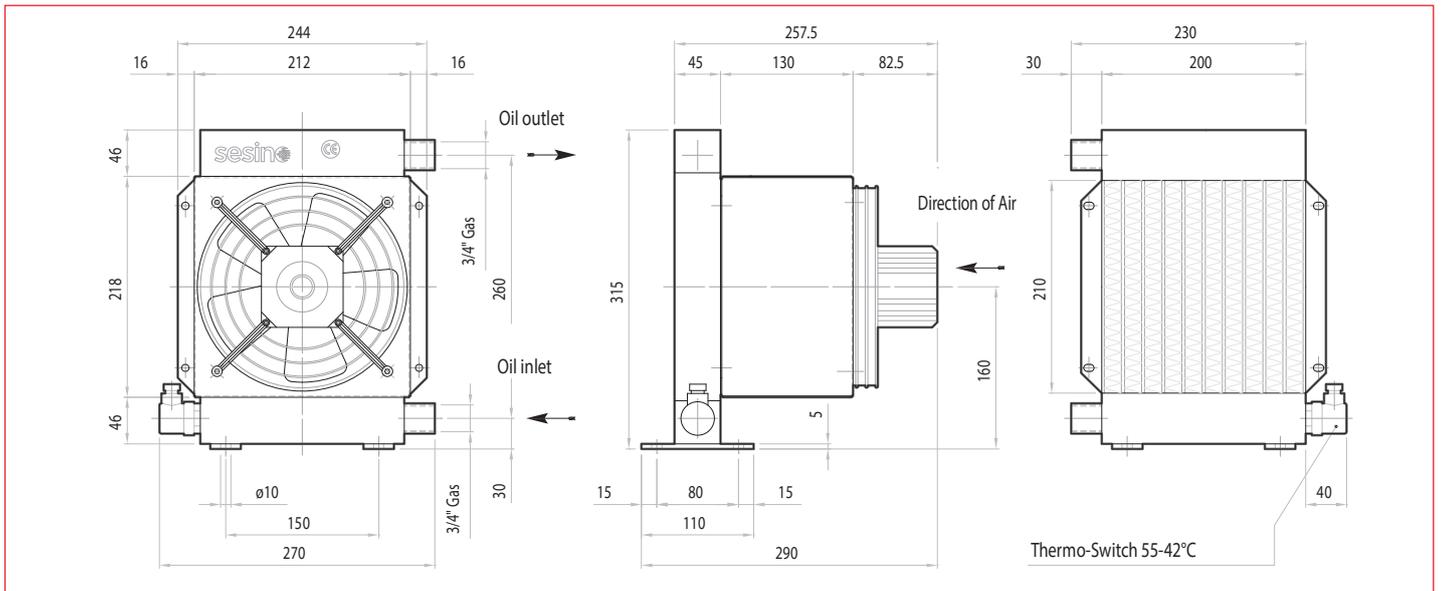


CORRECTION FACTOR

cSt	22	30	46	68	100	150	220
f	0,6	1	1,5	2,3	3,5	5	7



- Dimensions and technical characteristics are not binding



OIL FLOW	CAPACITY	VOLTAGE	FREQUENCY	POWER	CURRENT	AIR FLOW	PROTECTION	NOISE LEVEL	WEIGHT	ø FAN
l/min	l	V	hz	W	A	m³/h	IP	dB(A)	kg	mm
50-60	1,2	230/240	50/60	18/62	0,27	630	54	55	6	200
50-60	1,2	400	50/60	68/70	0,17/0,13	630	54	55	6	200



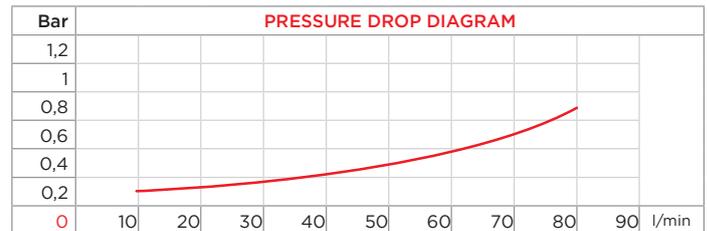
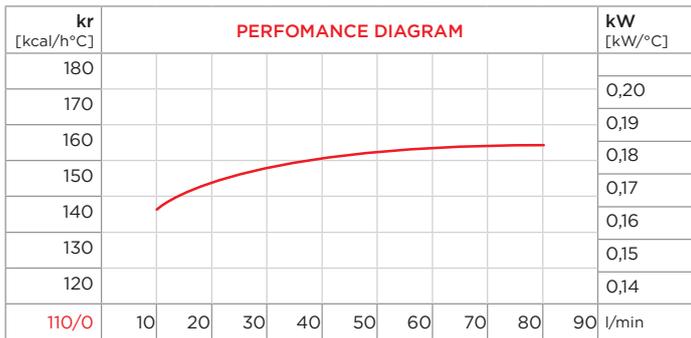
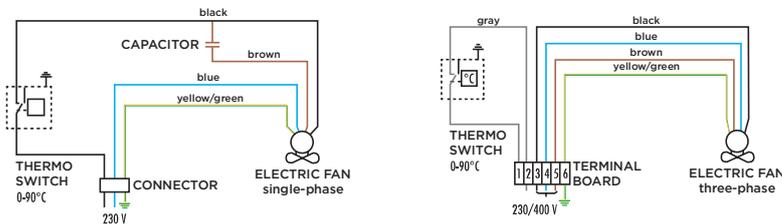
PURCHASE CODES

AP 300 E single-phase	3RAP300
AP 300 E three-phase	3RAP30038



SPARE PARTS

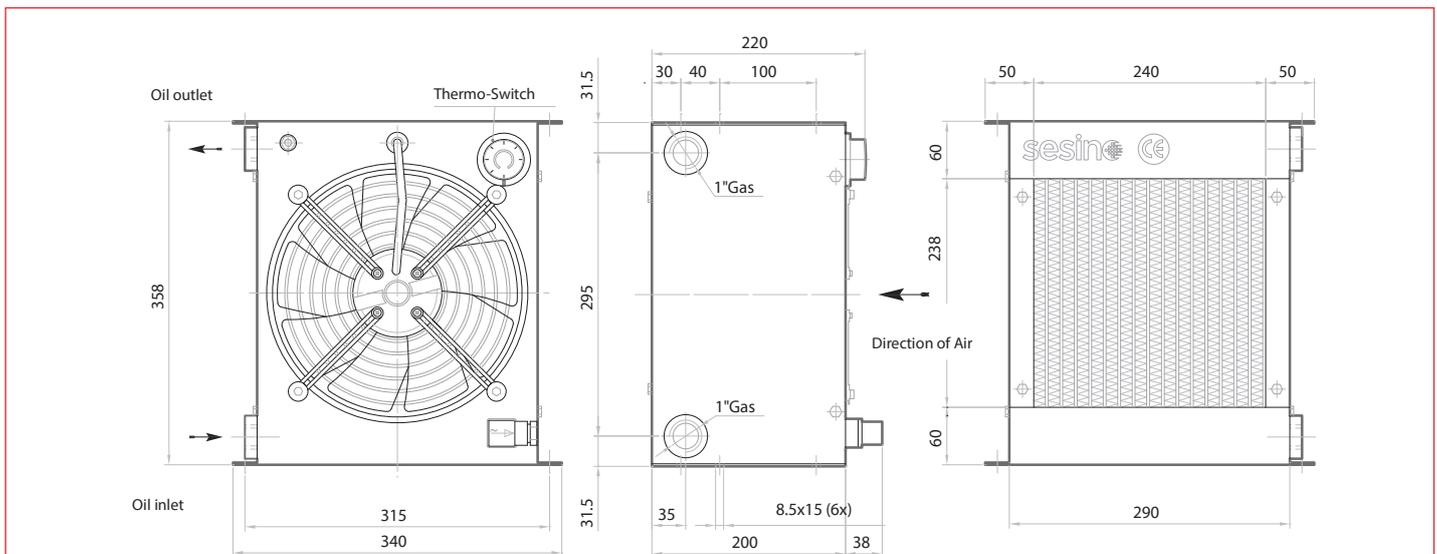
Cooling element	3RNAP300
Frame	3CNAP300
Housing	1300TLV
Adjustable thermo-switch	1TRMO-90
Electric fan for 3RAP300	1VNA2E250G
Electric fan for 3RAP30038	1VNA2D250.2
Electric junction box for 3RAP30038	1CSSDSAREL



CORRECTION FACTOR

cSt	22	30	46	68	100	150	220
f	0,6	1	1,5	2,3	3,5	5	7

- Dimensions and technical characteristics are not binding



OIL FLOW	CAPACITY	VOLTAGE	FREQUENCY	POWER	CURRENT	AIR FLOW	PROTECTION	NOISE LEVEL	WEIGHT	Ø FAN
l/min	l	V	hz	W	A	m³/h	IP	dB(A)	kg	mm
10-80	2	230	50/60	115/150	0,51/0,66	910	54	74	12	250
10-80	2	400	50/60	0,20/0,23	100/140	950	54	73	12	250

AP 300 2/E

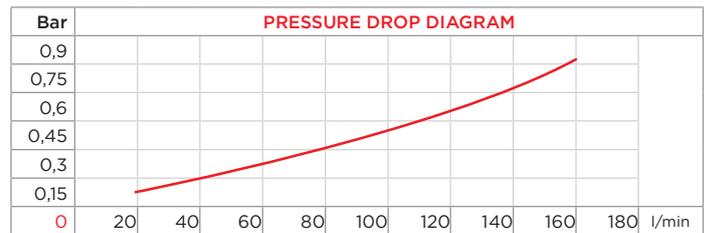
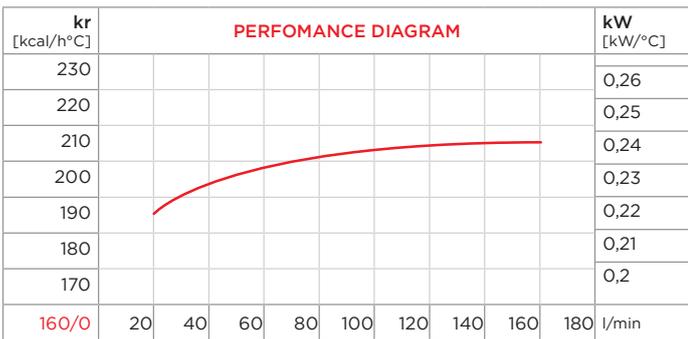
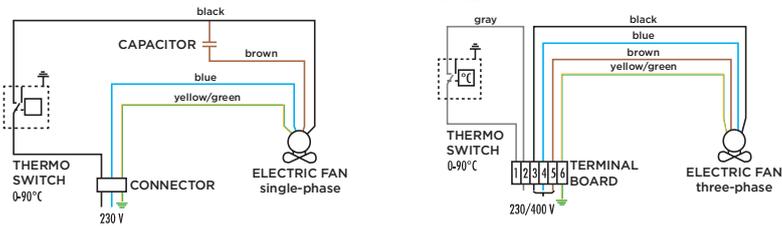


PURCHASE CODES

AP 300/2 E single-phase	3RNAP302
AP 300/2 E three-phase	3RAP30238

SPARE PARTS

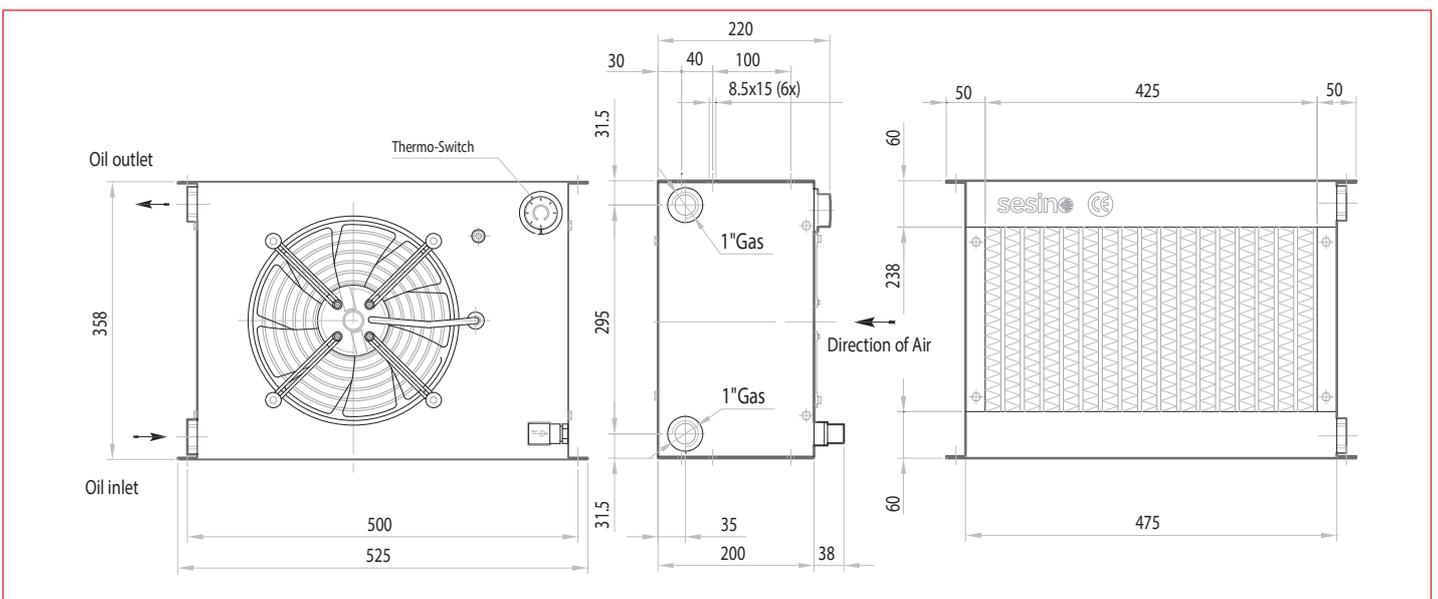
Cooling element	3RNAP302
Frame	3CNAP302
Housing	13O2TLV
Adjustable thermo-switch	1TRMO-90
Electric fan for 3RAP302	1VNA2E250G
Electric fan for 3RAP30238	1VNA2D250.2
Electric junction box for 3RAP30038	1CSSDSAREL



CORRECTION FACTOR

cSt	22	30	46	68	100	150	220
f	0,6	1	1,5	2,3	3,5	5	7

- Dimensions and technical characteristics are not binding



OIL FLOW	CAPACITY	VOLTAGE	FREQUENCY	POWER	CURRENT	AIR FLOW	PROTECTION	NOISE LEVEL	WEIGHT	ø FAN
l/min	l	V	hz	W	A	m³/h	IP	dB(A)	kg	mm
20-160	3,6	230	50/60	115/150	0,51/0,66	1.300	54	75	17	250
20-160	3,6	400	50/60	0,20/0,23	100/140	1.300	54	73	12	250



PURCHASE CODES

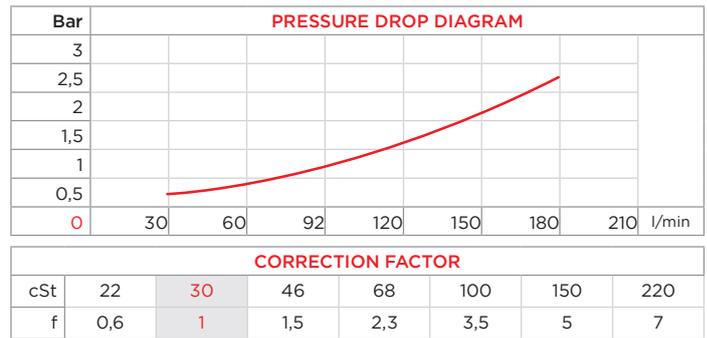
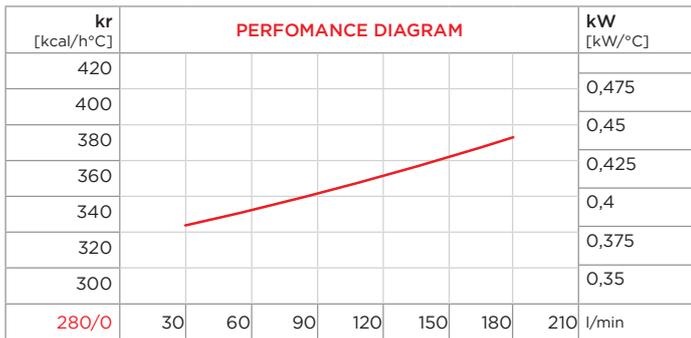
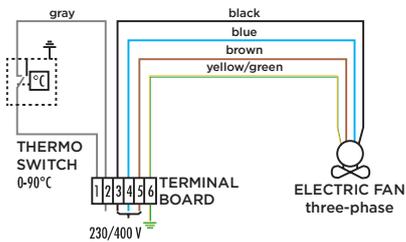
AP 430 E three-phase

3RAP430

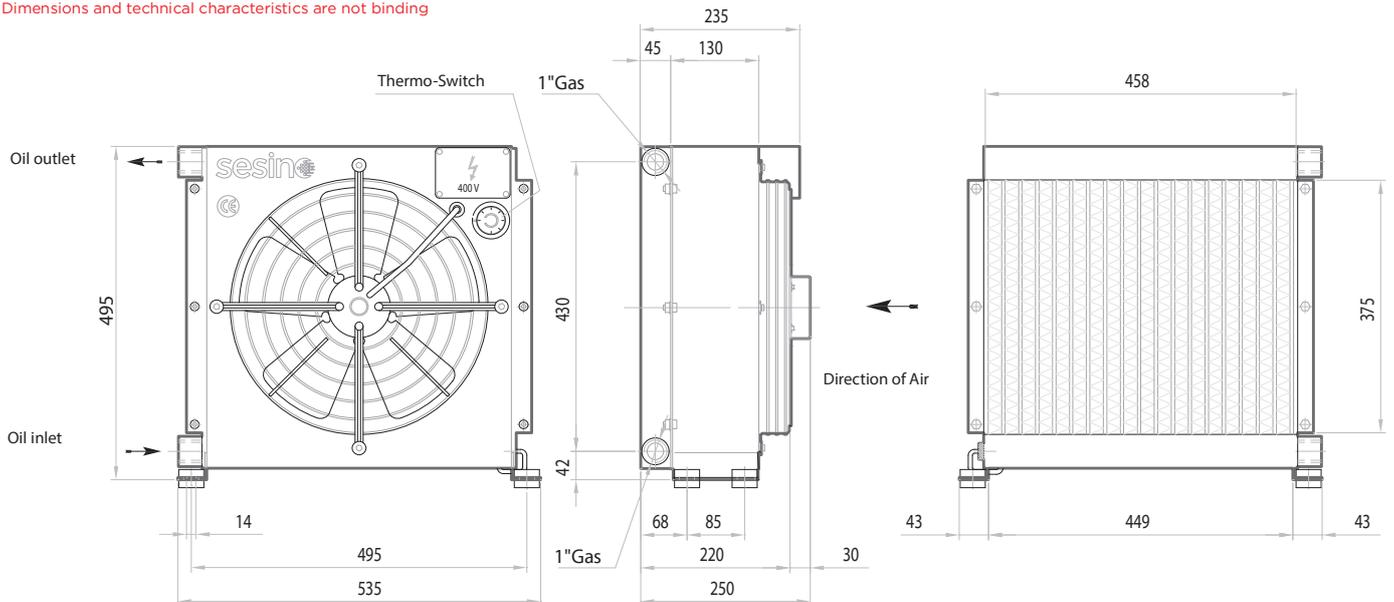


SPARE PARTS

Cooling element	3RNAP430E
Frame	1430CNV
Adjustable thermo-switch	1TRM0-90
Shock isolating mounting (4 pcs)	3KIT4511
Electric Fan for 3RAP430	1VNELCO43038DV
Electric junction box for 3RAP430	1CSSDSAREL



- Dimensions and technical characteristics are not binding



OIL FLOW	CAPACITY	VOLTAGE	FREQUENCY	POWER	CURRENT	AIR FLOW	PROTECTION	NOISE LEVEL	WEIGHT	ø FAN
l/min	l	V	hz	W	A	m³/h	IP	dB(A)	kg	mm
30-180	3,6	Δ 230 Y 400	50	110/205	0,67/0,39	2.750	55	73	18	350
30-180	3,6	Δ 265 Y 460	60	110/200	0,57/0,33	2.750	55	73	18	350

AP 430 2/E



PURCHASE CODES

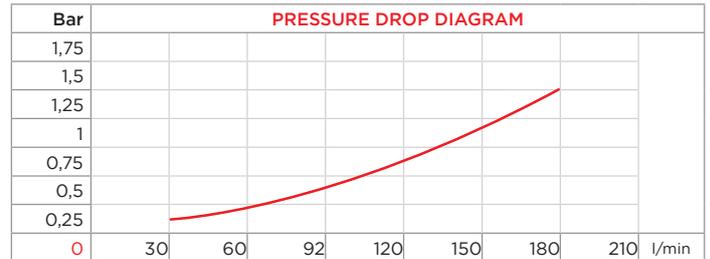
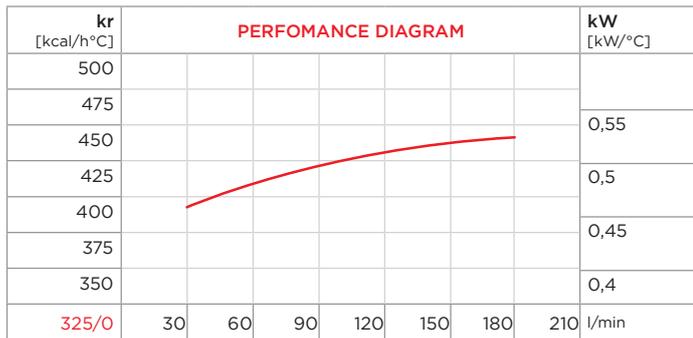
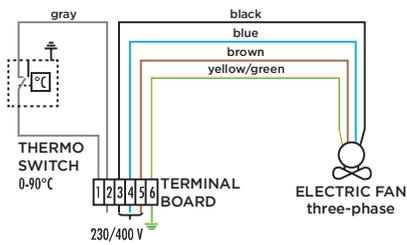
AP 430 2/E three-phase

3RAP432.1



SPARE PARTS

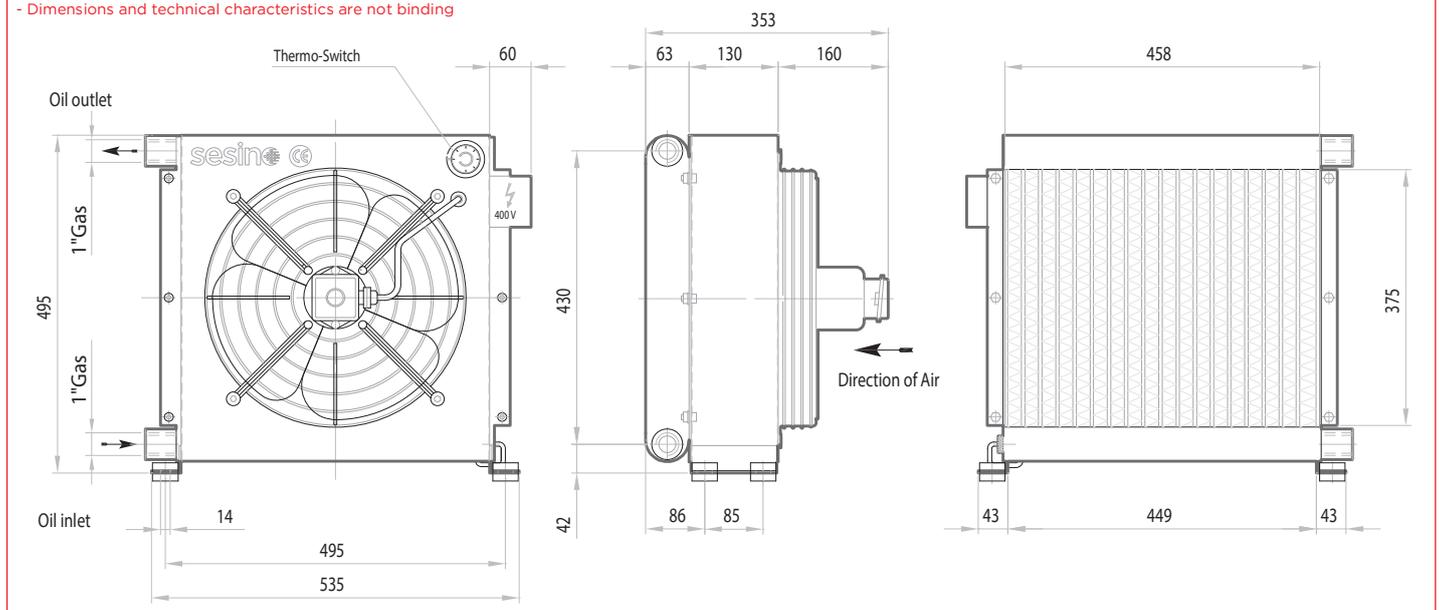
Cooling element	3RNAP432E
Frame	1432CNV
Adjustable thermo-switch	1TRM0-90
Shock isolating mounting (4 pcs)	3KIT4511
Electric Fan for 3RAP432.1	1VNELCO43238DV1
Electric junction box for 3RAP432.1	1CSSDSAREL



CORRECTION FACTOR

cSt	22	30	46	68	100	150	220
f	0,6	1	1,5	2,3	3,5	5	7

- Dimensions and technical characteristics are not binding



OIL FLOW	CAPACITY	VOLTAGE	FREQUENCY	POWER	CURRENT	AIR FLOW	PROTECTION	NOISE LEVEL	WEIGHT	ø FAN
l/min	l	V	hz	W	A	m³/h	IP	dB(A)	kg	mm
30-180	5,5	Δ 230 Y 400	50	110/180	0,57/0,33	2.700	55	72	24	400
30-180	5,5	Δ 265 Y 460	60	145/260	0,68/0,39	3.500	55	72	24	400



PURCHASE CODES

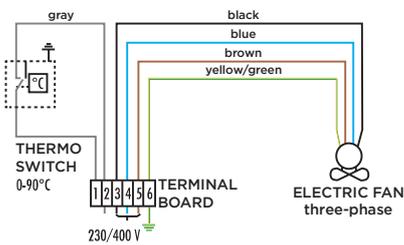
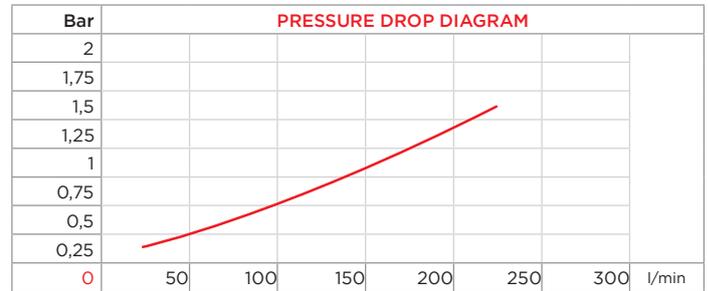
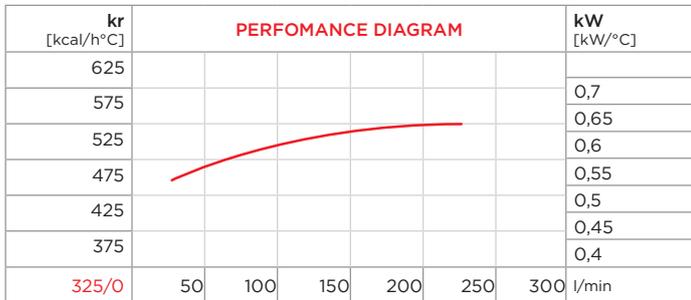
AP 494 EB three-phase

3RAP494EB



SPARE PARTS

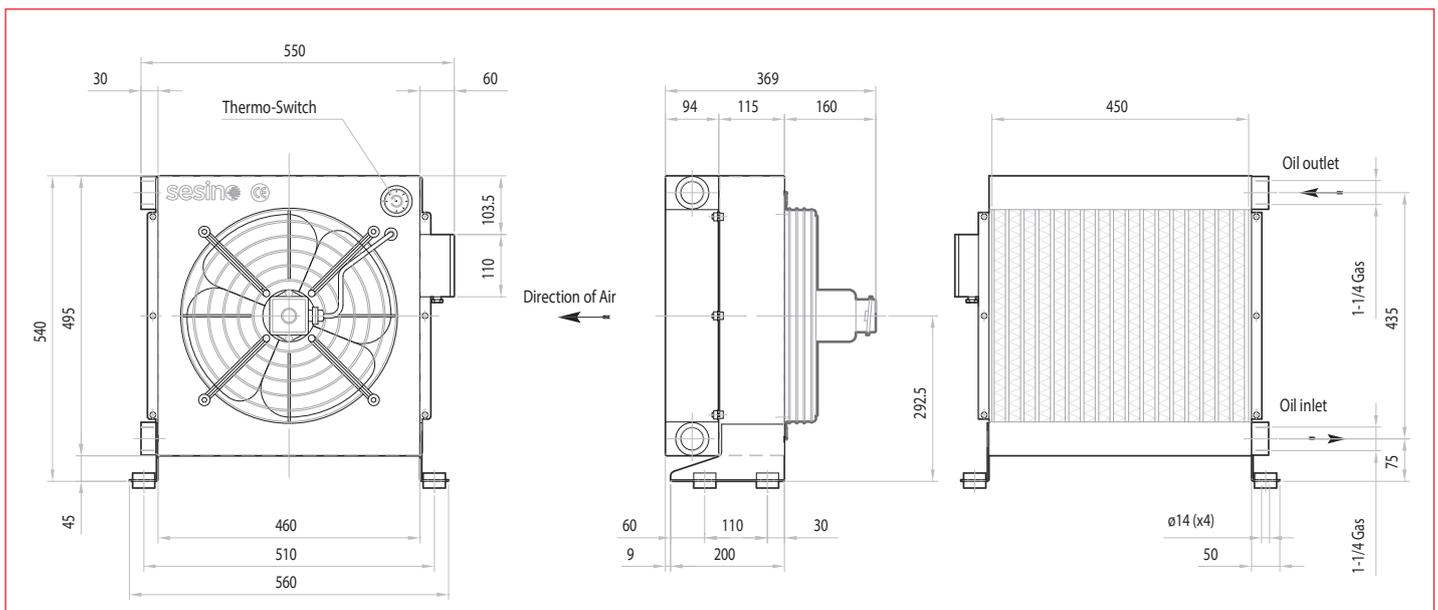
Adjustable thermo-switch	1TRM0-90
Shock isolating mounting (4 pcs)	3KIT4135
Electric junction box	1CSDSAREL
Frame	3CNAP494EB.1
Cooling element	1RO99332
Electric fan	1VNELCO43238DV1



CORRECTION FACTOR

cSt	22	30	46	68	100	150	220
f	0,6	1	1,5	2,3	3,5	5	7

- Dimensions and technical characteristics are not binding



OIL FLOW	CAPACITY	VOLTAGE	FREQUENCY	POWER	CURRENT	AIR FLOW	PROTECTION	NOISE LEVEL	WEIGHT	ø FAN
l/min	l	V	hz	W	A	m³/h	IP	dB(A)	kg	mm
30-240	8	Δ 230 Y 400	50	110/180	0,57/0,33	2.750	55	72	28	400
30-240	8	Δ 265 Y 460	60	145/260	0,68/0,39	3.300	55	73	28	400

AP 580 EB



PURCHASE CODES

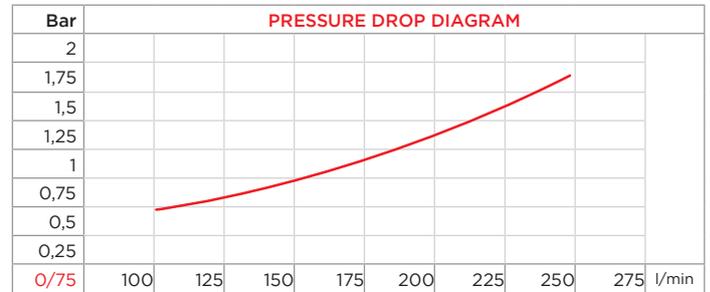
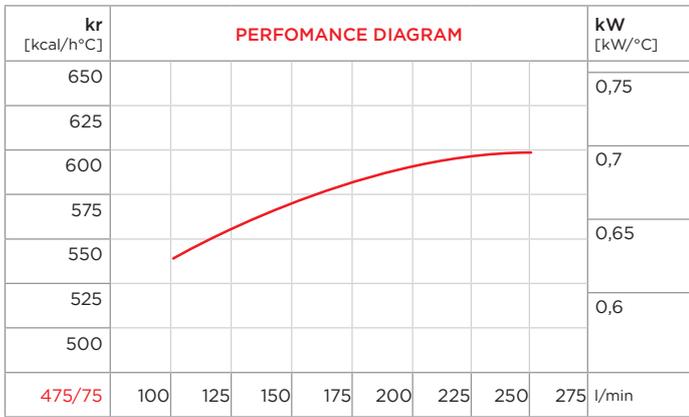
AP 580 EB three-phase

3RAP580EB



SPARE PARTS

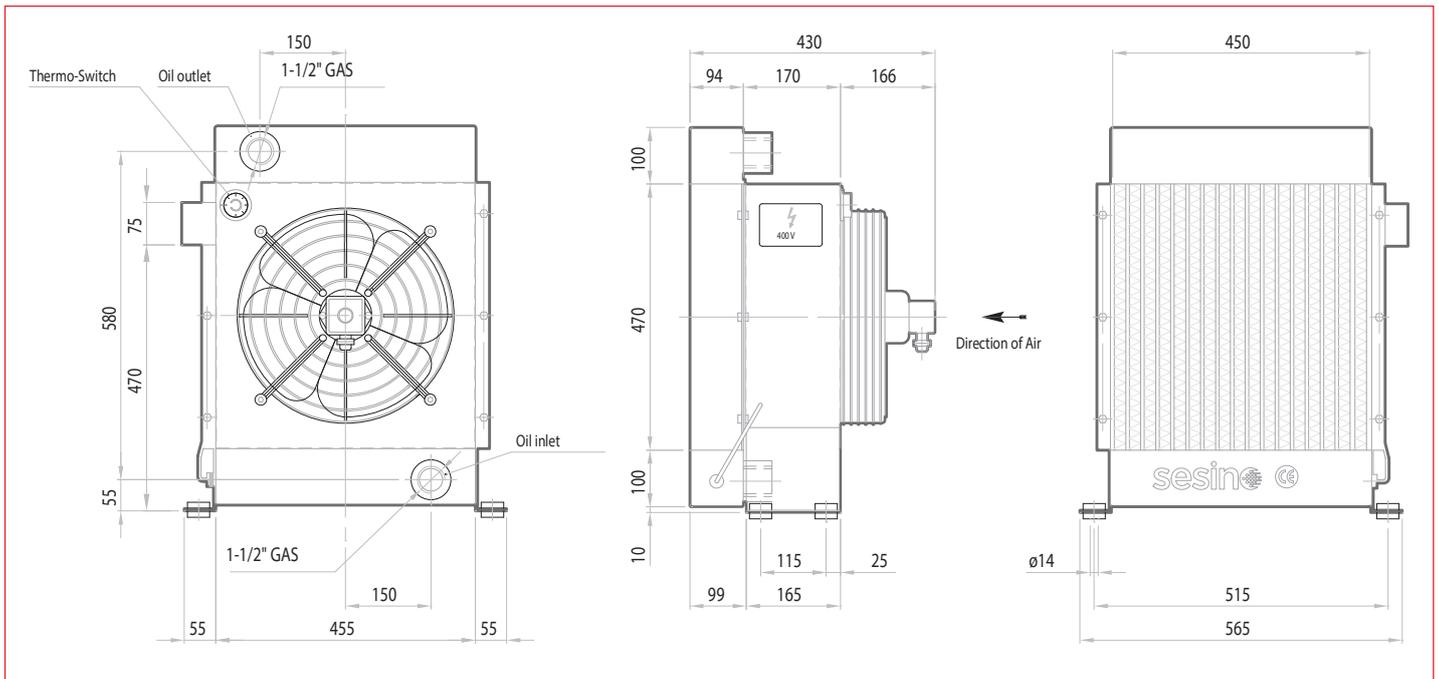
Adjustable thermo-switch	1TRM0-90
Shock isolating mounting (4 pcs)	3KIT4135
Electric junction box	1CSSDSAREL
Cooling element	3RNAP580E
Electric fan	1VNELCO43238DV1
Frame	3CNAP580EB.1



CORRECTION FACTOR

cSt	22	30	46	68	100	150	220
f	0,6	1	1,5	2,3	3,5	5	7

- Dimensions and technical characteristics are not binding



OIL FLOW	CAPACITY	VOLTAGE	FREQUENCY	POWER	CURRENT	AIR FLOW	PROTECTION	NOISE LEVEL	WEIGHT	ø FAN
l/min	l	V	hz	W	A	m ³ /h	IP	dB(A)	kg	mm
100-250	11,5	Δ 230 Y 400	50	110/180	0,57/0,33	3.500	55	72	40	400
100-250	11,5	Δ 265 Y 460	60	145/260	0,68/0,39	4.800	55	72	40	400



PURCHASE CODES

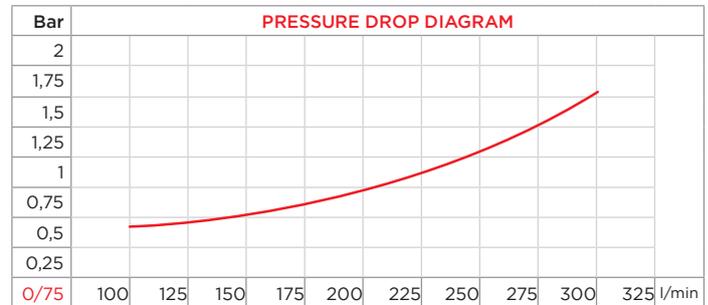
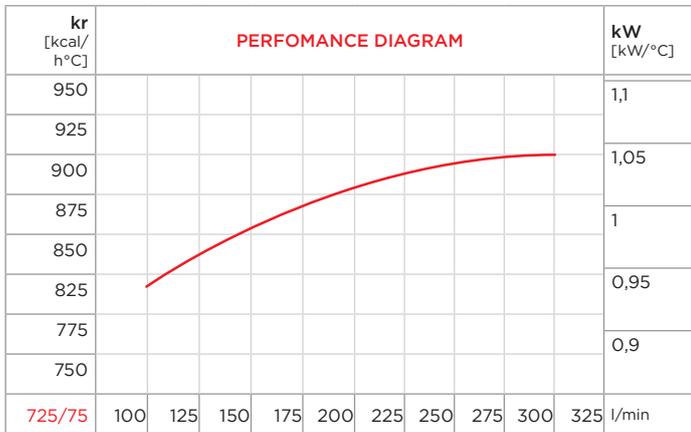
AP 680 EB three-phase

3RAP680EB



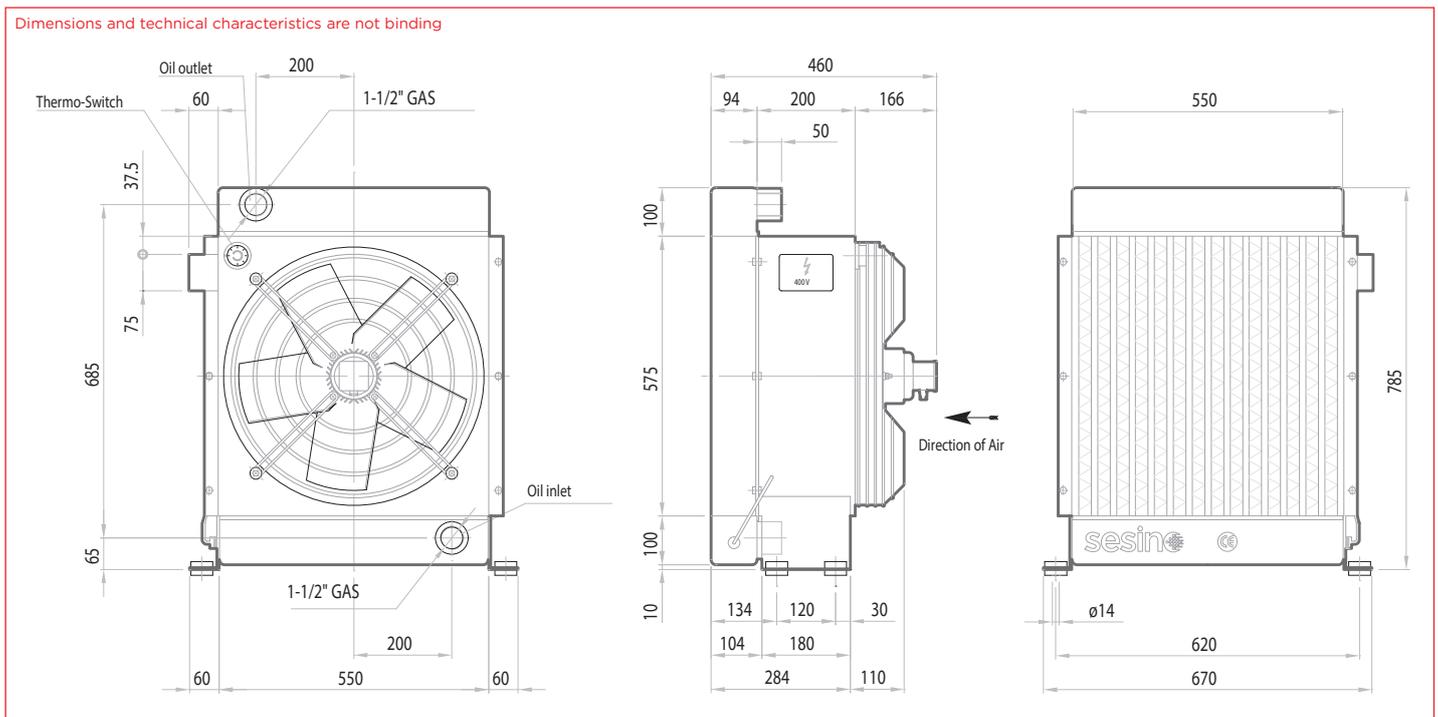
SPARE PARTS

Adjustable thermo-switch	1TRM0-90
Shock isolating mounting (4 pcs)	3KIT4135
Electric junction box	1CSDSAREL
Cooling element	3RNAP680E
Electric fan	1VNA4D500DV
Frame	3CNAP680EB.1



CORRECTION FACTOR

cSt	22	30	46	68	100	150	220
f	0,6	1	1,5	2,3	3,5	5	7



OIL FLOW	CAPACITY	VOLTAGE	FREQUENCY	POWER	CURRENT	AIR FLOW	PROTECTION	NOISE LEVEL	WEIGHT	ø FAN
l/min	l	V	hz	W	A	m³/h	IP	dB(A)	kg	mm
100-300	15	230/400	50	690	2,34	6.300	54	72	62	500
100-300	15	277/480	60	1050	2,72	8.800	54	75	62	500

AP 730 EB



PURCHASE CODES

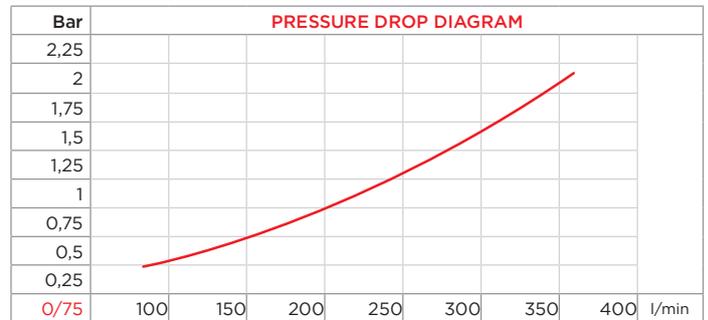
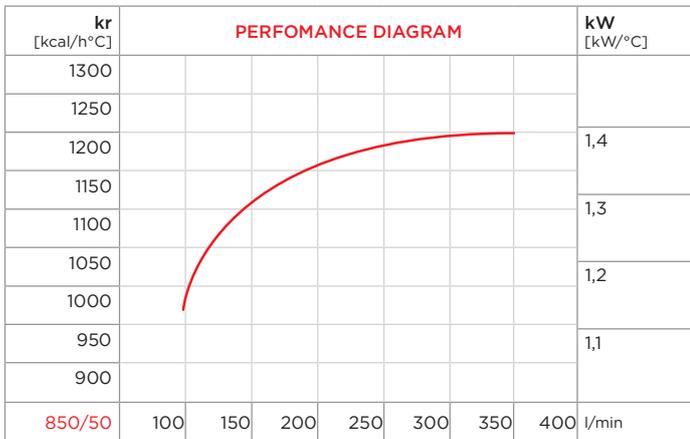
AP 730 EB three-phase

3RAP730EB



SPARE PARTS

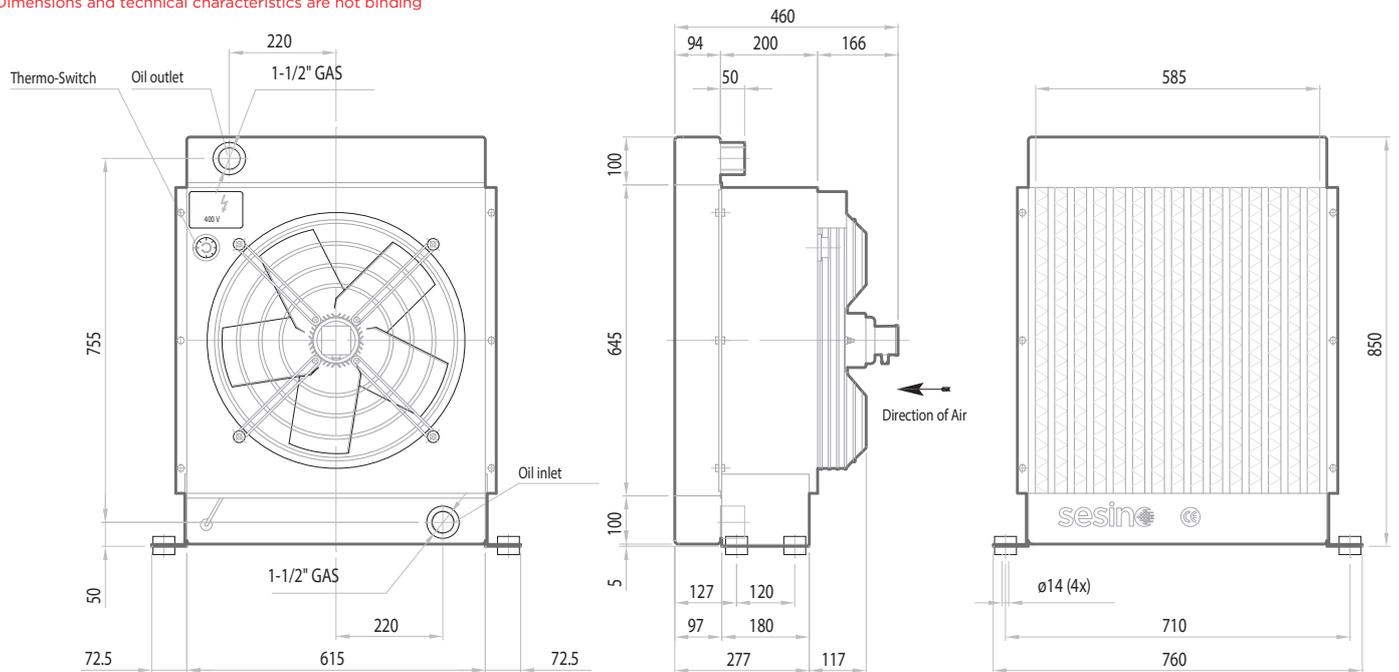
Adjustable thermo-switch	1TRM0-90
Shock isolating mounting (4 pcs)	3KIT4232
Electric junction box	1CSSDSAREL
Cooling element	3RNAP730E
Electric fan	1VNA4D500DV
Frame	3CNAP730EB.1



CORRECTION FACTOR

cSt	22	30	46	68	100	150	220
f	0,6	1	1,5	2,3	3,5	5	7

Dimensions and technical characteristics are not binding



OIL FLOW	CAPACITY	VOLTAGE	FREQUENCY	POWER	CURRENT	AIR FLOW	PROTECTION	NOISE LEVEL	WEIGHT	ø FAN
l/min	l	V	hz	W	A	m³/h	IP	dB(A)	kg	mm
100-300	15	230/400	50	690	2,34	6.300	54	72	62	500
100-300	15	277/480	60	1050	2,72	8.800	54	75	62	500

AP 830 EB



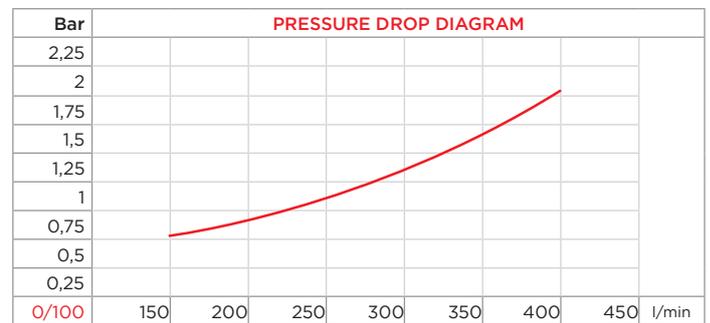
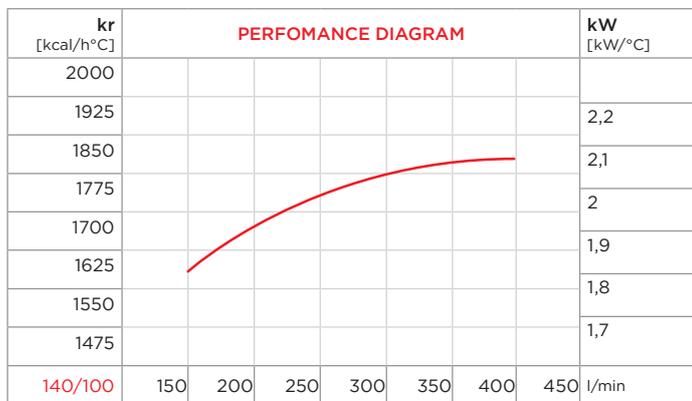
PURCHASE CODES

AP 830 EB three-phase

3RAP830EB

SPARE PARTS

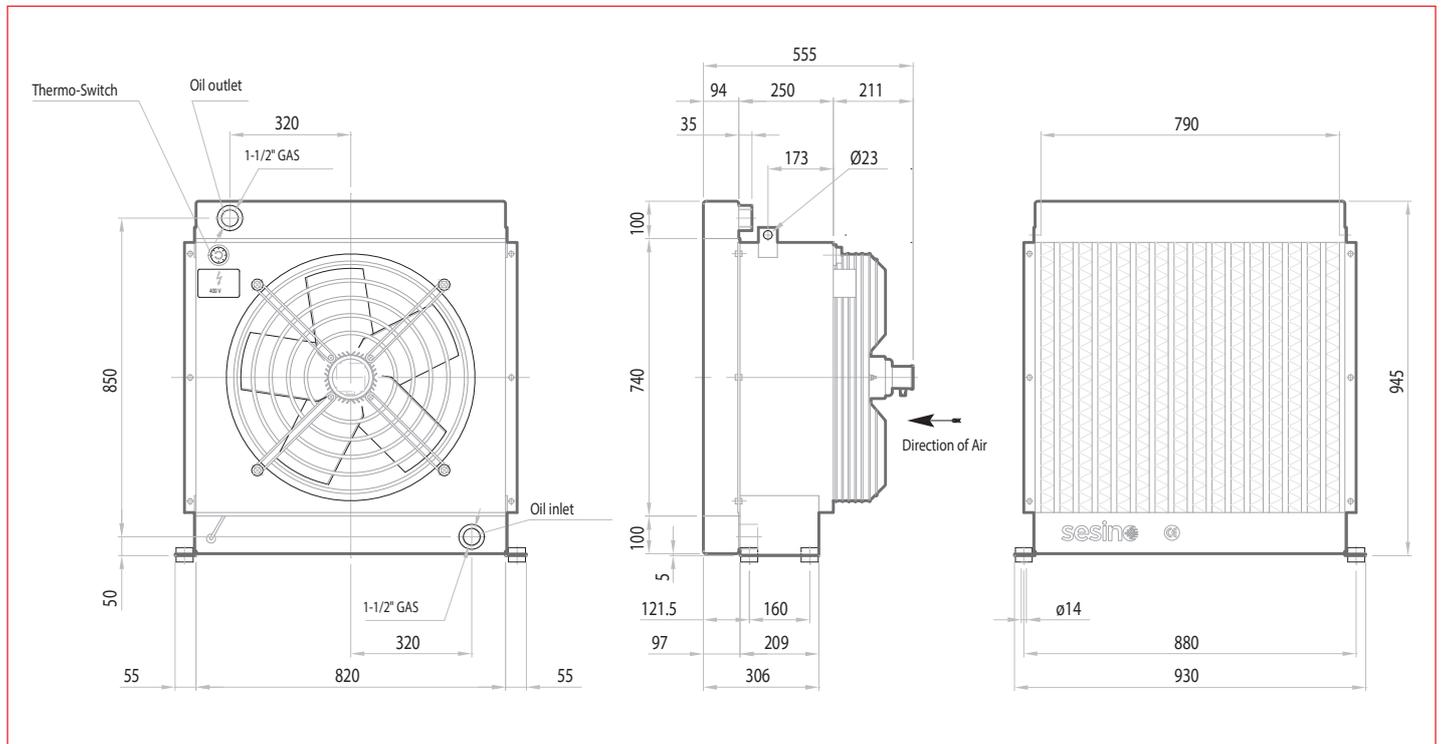
Adjustable thermo-switch	1TRMO-90
Shock isolating mounting (4 pcs)	3KIT4232
Electric junction box	1CSSDSAREL
Cooling element	3RNAP830E
Electric fan	1VNA4D560DV
Frame	3CNAP830EB.1



CORRECTION FACTOR

cSt	22	30	46	68	100	150	220
f	0,6	1	1,5	2,3	3,5	5	7

- Dimensions and technical characteristics are not binding



OIL FLOW	CAPACITY	VOLTAGE	FREQUENCY	POWER	CURRENT	AIR FLOW	PROTECTION	NOISE LEVEL	WEIGHT	ø FAN
l/min	l	V	hz	W	A	m³/h	IP	dB(A)	kg	mm
150-400	20	400	50	810	1,54	9.500	54	73	83	560
150-400	20	480	60	1300	1,94	11.500	54	75	83	560

AP 1200 EB



PURCHASE CODES

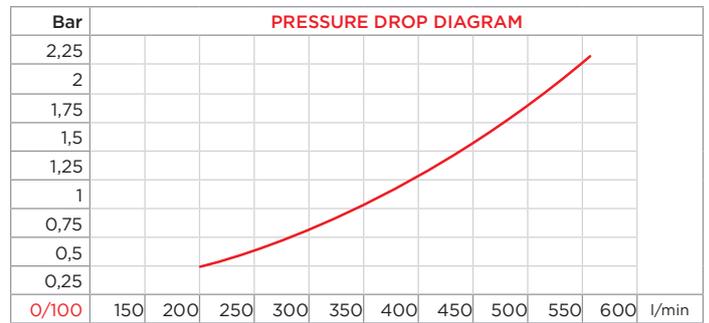
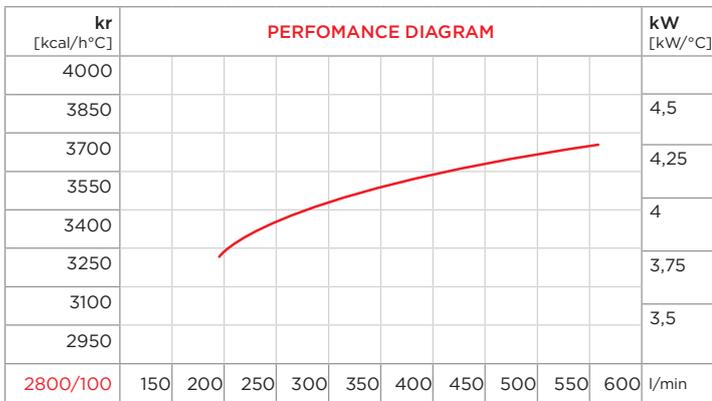
AP 1200 EB three-phase

3RAP1200EB



SPARE PARTS

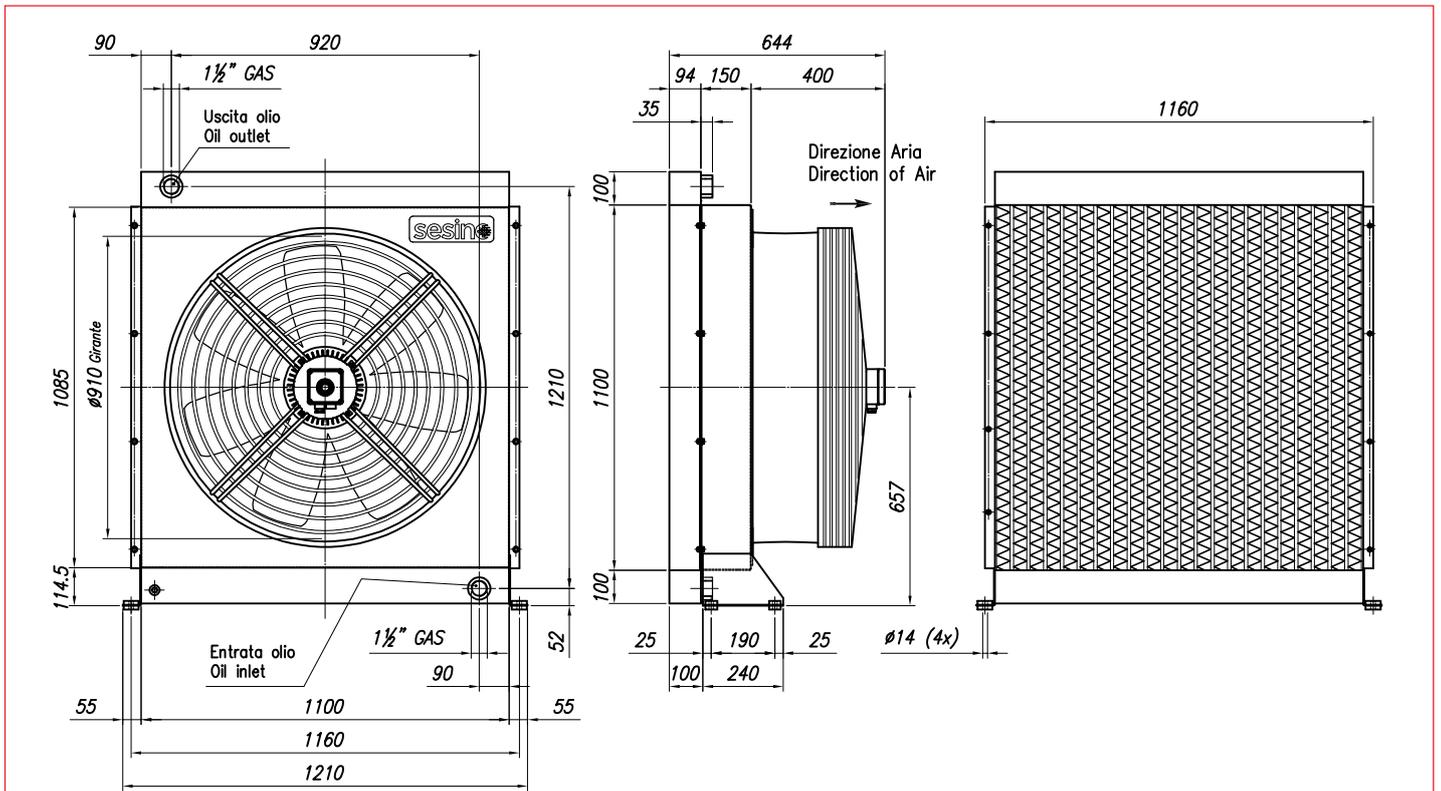
Frame	3CNEO08586.1
Shock isolating mounting (4 pcs)	3KIT4232
Cooling element	1RO08423
Electric fan	1VNEO08586



CORRECTION FACTOR

cSt	22	30	46	68	100	150	220
f	0,6	1	1,5	2,3	3,5	5	7

- Dimensions and technical characteristics are not binding



OIL FLOW	CAPACITY	VOLTAGE	FREQUENCY	POWER	CURRENT	AIR FLOW	PROTECTION	NOISE LEVEL	WEIGHT	Ø FAN
l/min	l	V	hz	W	A	m³/h	IP	dB(A)	kg	mm
200-550	35	400	50	2100	5,2	20.000	54	76	135	910

AP 2/680 EB

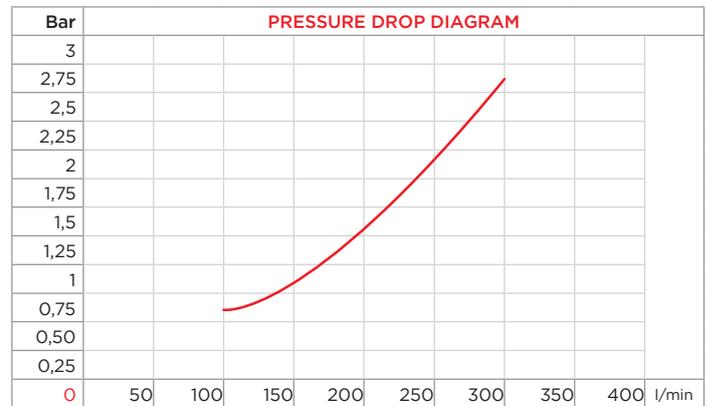
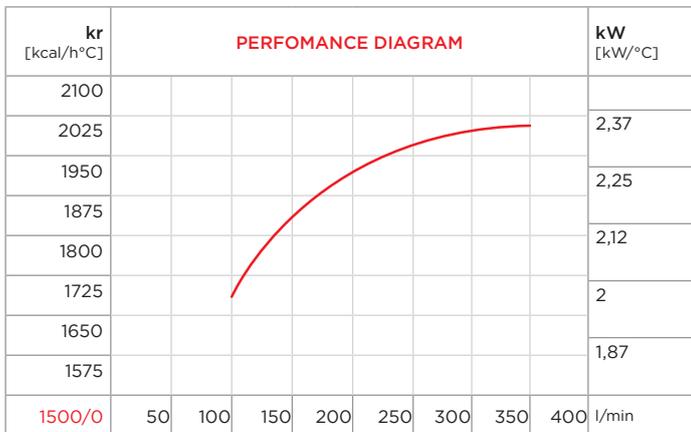


PURCHASE CODES

AP 2/680 EB three-phase **3RAP2/680EB**

SPARE PARTS

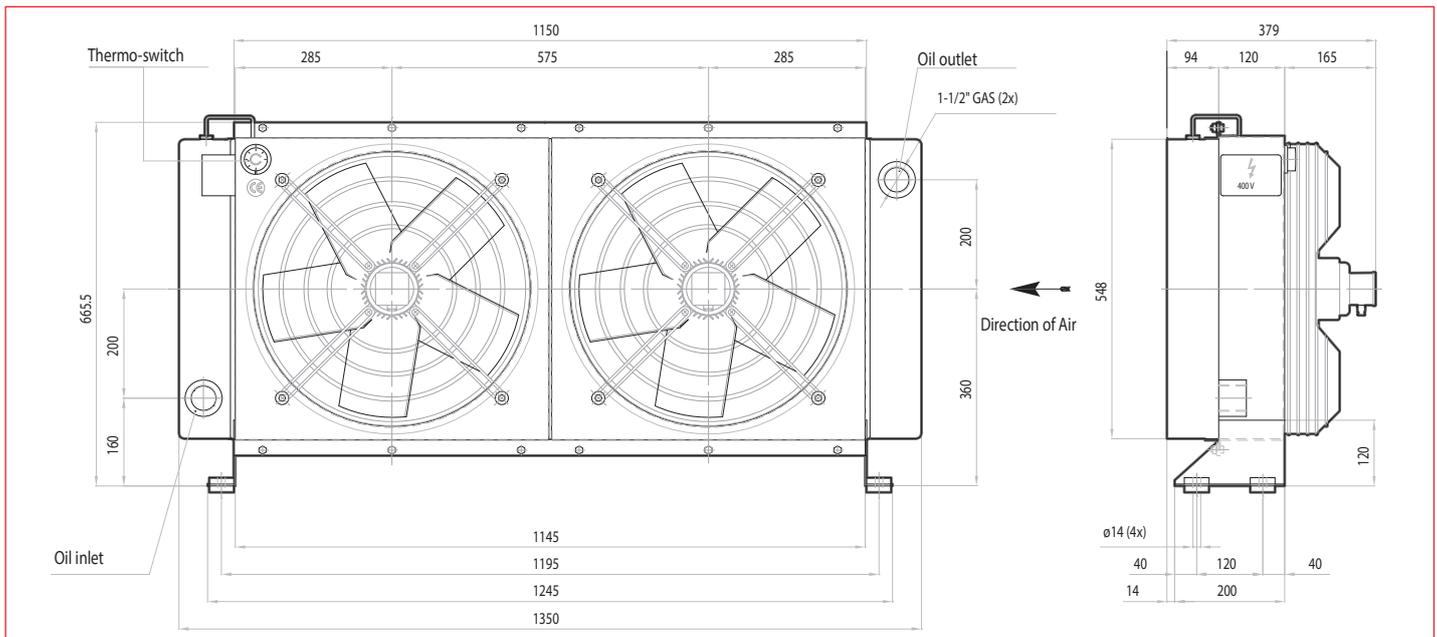
Thermo-switch	1TRM0-90
Shock isolating mounting (4 pcs)	3KIT4232
Electric junction box	1CSSDSAREL
Cooling element	1RO01339
Electric fan	1VNA4D500DV
Frame	3CNAP2/680EB.1



CORRECTION FACTOR

cSt	22	30	46	68	100	150	220
f	0,6	1	1,5	2,3	3,5	5	7

- Dimensions and technical characteristics are not binding



OIL FLOW	CAPACITY	VOLTAGE	FREQUENCY	POWER	CURRENT	AIR FLOW	PROTECTION	NOISE LEVEL	WEIGHT	ø FAN
l/min	l	V	hz	W	A	m³/h	IP	dB(A)	kg	mm
100-300	28	230/400	50	2x 690	2x 2,34	2x 6.300	54	75	120	500
100-300	28	277/480	60	2x 1050	2x 2,72	2x 8.800	54	77	120	500

AP 2/730 EB



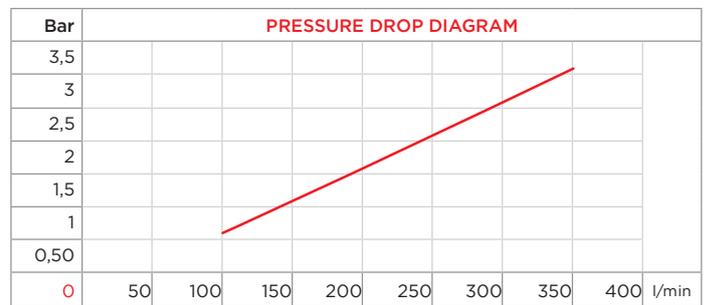
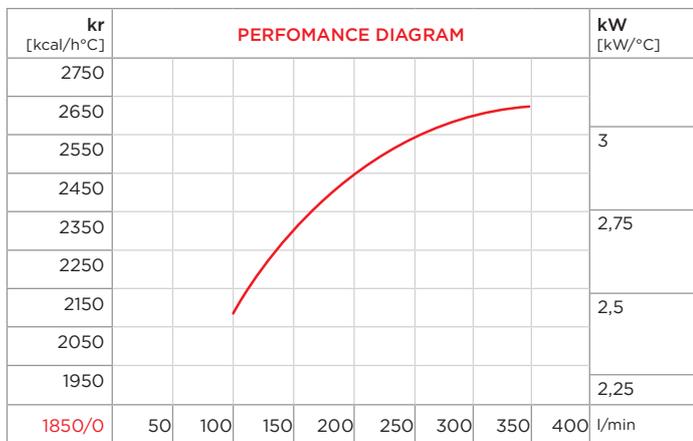
PURCHASE CODES

AP 2/730 EB three-phase

3RAP2/730EB

SPARE PARTS

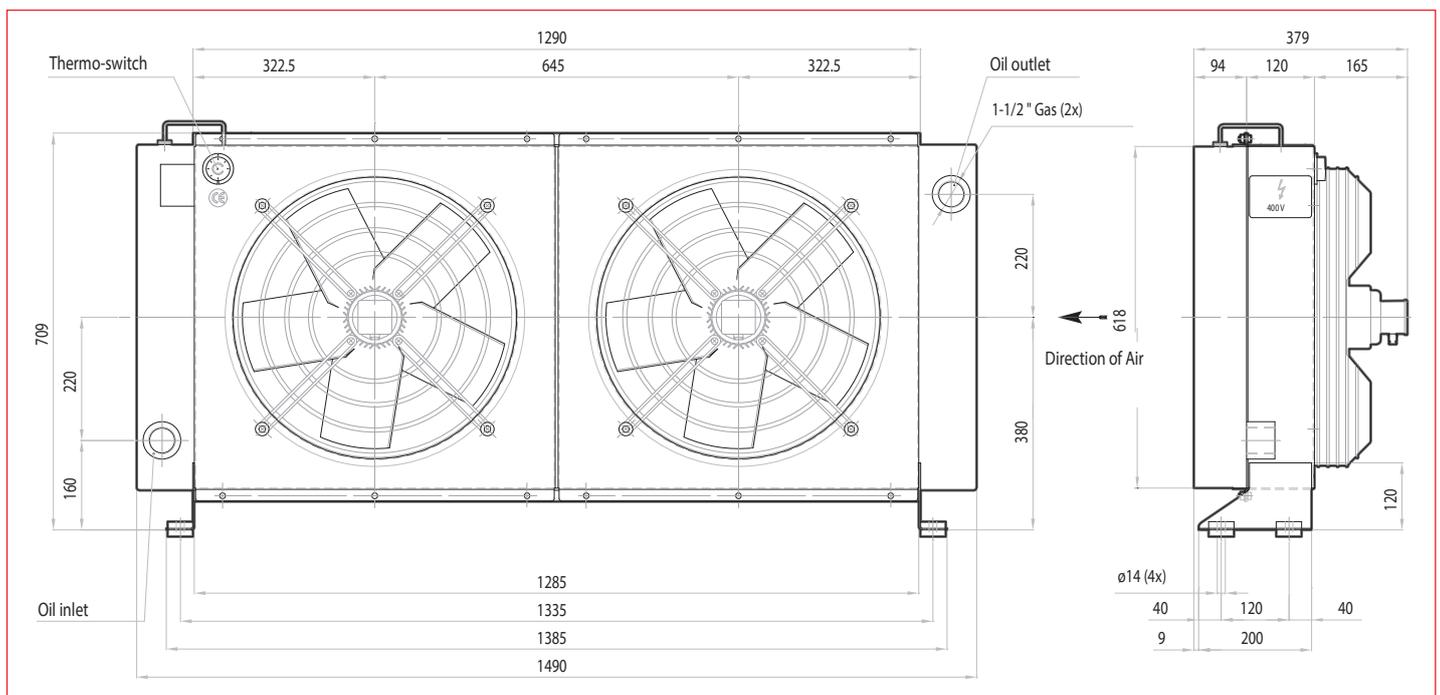
Thermo-switch	1TRM0-90
Shock isolating mounting (4 pcs)	3KIT4232
Electric junction box	1CSSDSAREL
Cooling element	1ROO2357
Electric fan	1VNA4D500DV
Frame	3CNAP2/730EB.1



CORRECTION FACTOR

cSt	22	30	46	68	100	150	220
f	0,6	1	1,5	2,3	3,5	5	7

- Dimensions and technical characteristics are not binding



OIL FLOW	CAPACITY	VOLTAGE	FREQUENCY	POWER	CURRENT	AIR FLOW	PROTECTION	NOISE LEVEL	WEIGHT	ø FAN
l/min	l	V	hz	W	A	m³/h	IP	dB(A)	kg	mm
100-350	30	230/400	50	2x 690	2x 2,34	2x 6.300	54	75	140	500
100-350	30	277/480	60	2x 1050	2x 2,72	2x 8.800	54	77	140	500

AP 2/830 EB



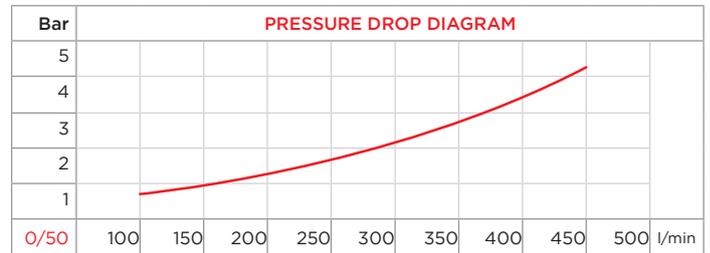
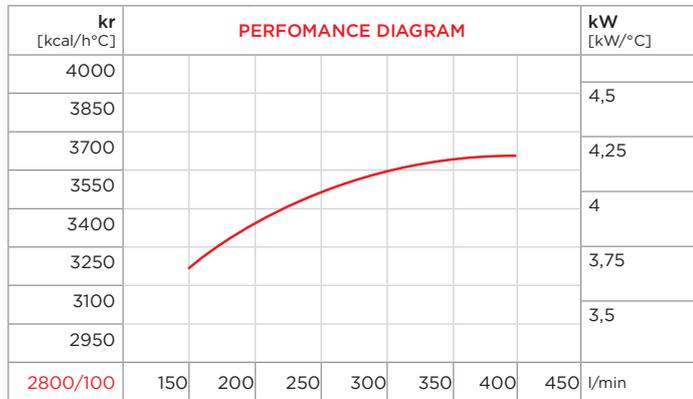
PURCHASE CODES

AP 2/830 EB three-phase **3REO91247**



SPARE PARTS

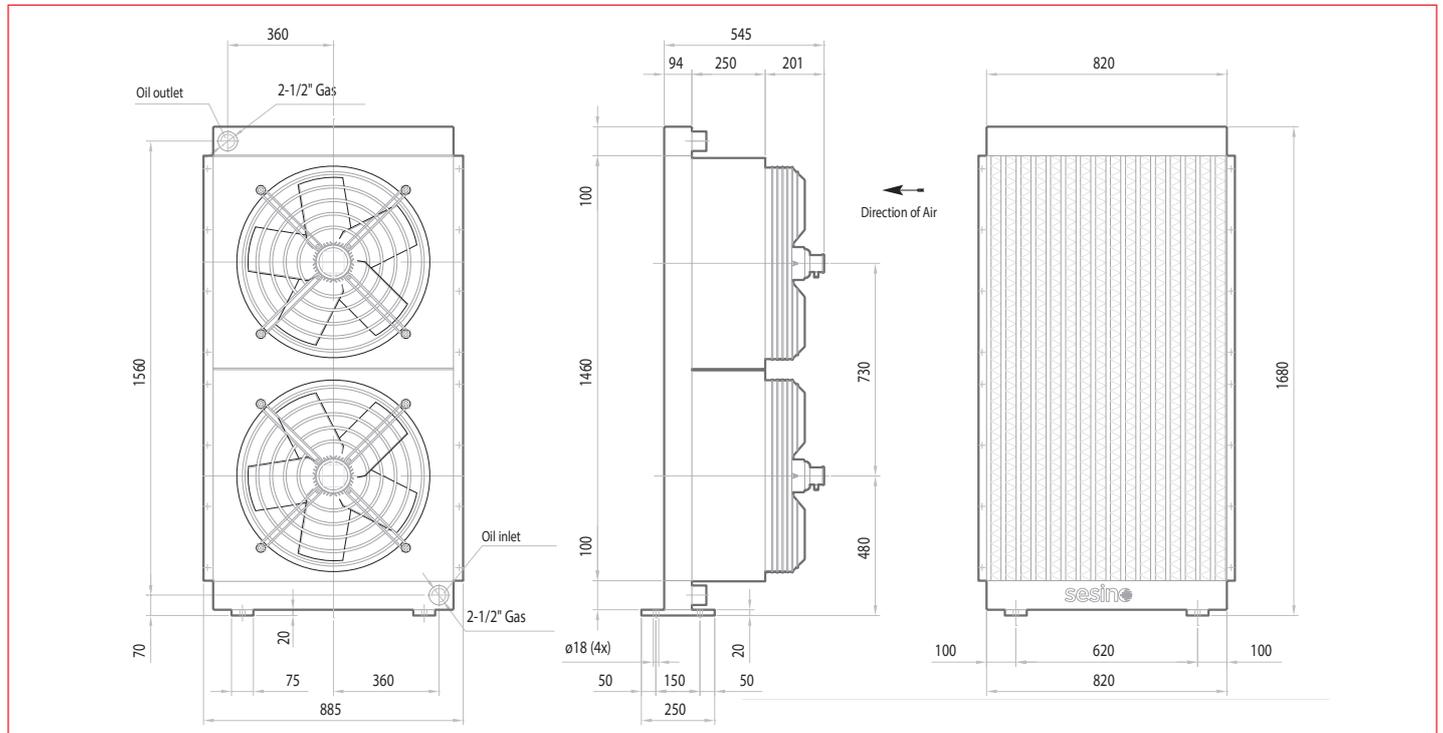
Frame	3CNE091247.1
Cooling element	3RNE091247
Electric fan for 3REO91247	1VNA4D560DV



CORRECTION FACTOR

cSt	22	30	46	68	100	150	220
f	0,6	1	1,5	2,3	3,5	5	7

- Dimensions and technical characteristics are not binding



OIL FLOW	CAPACITY	VOLTAGE	FREQUENCY	POWER	CURRENT	AIR FLOW	PROTECTION	NOISE LEVEL	WEIGHT	Ø FAN
l/min	l	V	hz	W	A	m³/h	IP	dB(A)	kg	mm
150-400	40	400	50	2x 810	2x 1,54	2x 9.500	54	73	180	560
150-400	40	480	60	2x 1300	2x 1,94	2x 11.500	54	75	180	560

AP 3/830 EB



PURCHASE CODES

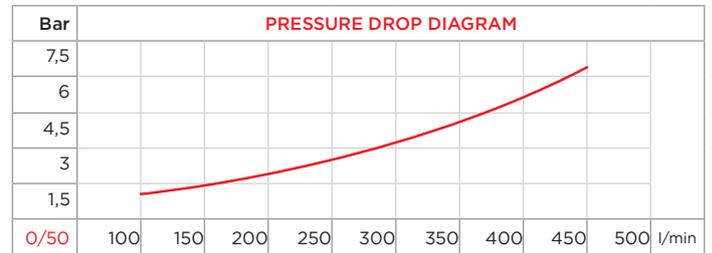
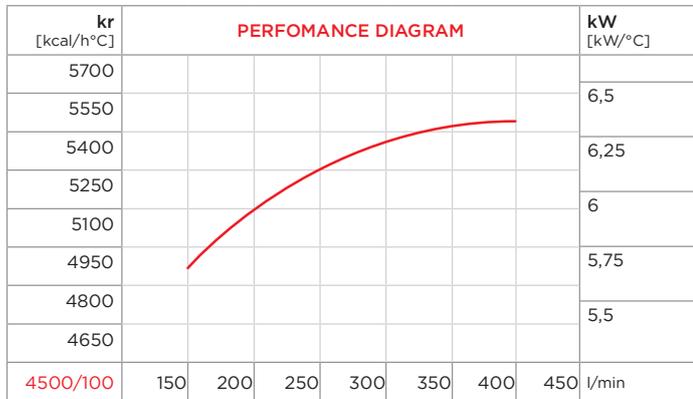
AP 3/830 EB three-phase

3RE091278



SPARE PARTS

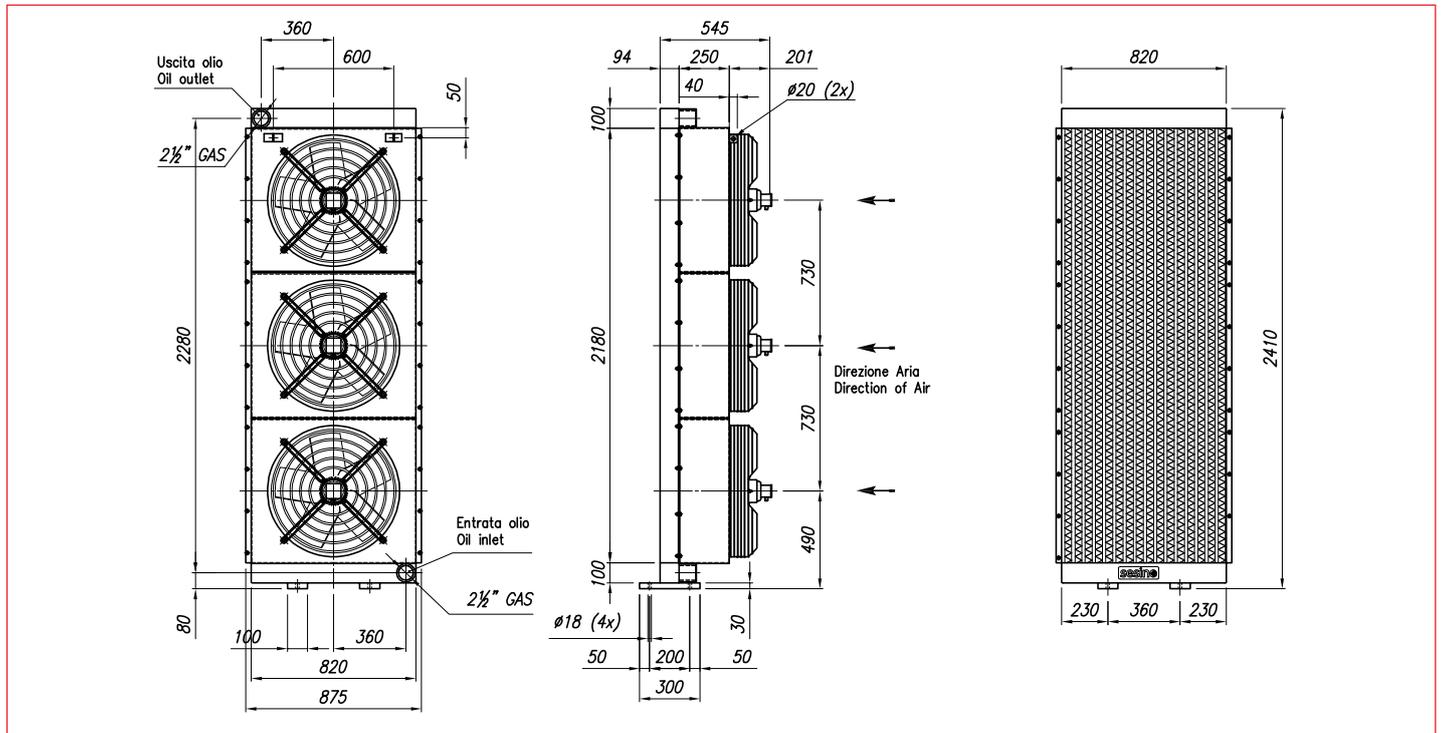
Frame	3CNE091247.1 3CNE091278.1
Cooling element	3RNE091278
Electric fan	1VNA4D560DV



CORRECTION FACTOR

cSt	22	30	46	68	100	150	220
f	0,6	1	1,5	2,3	3,5	5	7

- Dimensions and technical characteristics are not binding



OIL FLOW	CAPACITY	VOLTAGE	FREQUENCY	POWER	CURRENT	AIR FLOW	PROTECTION	NOISE LEVEL	WEIGHT	ø FAN
l/min	l	V	hz	W	A	m³/h	IP	dB(A)	kg	mm
150-400	60	400	50	3x 810	3x 1,54	3x 9.500	54	78	260	560
150-400	60	480	60	3x 1300	3x 1,94	3x 11.500	54	78	260	560

