

sesino

AIR - OIL coolers **DC motor driven** **APL range catalogue**



air - oil coolers

stationary applications
mobile applications
marine & ATEX applications

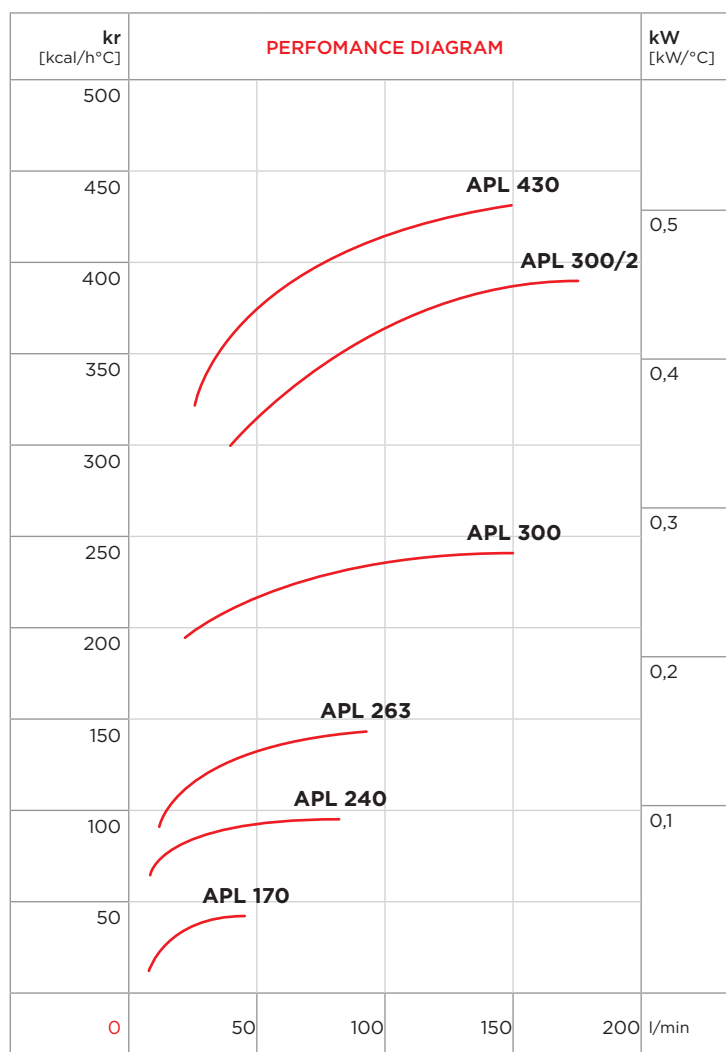
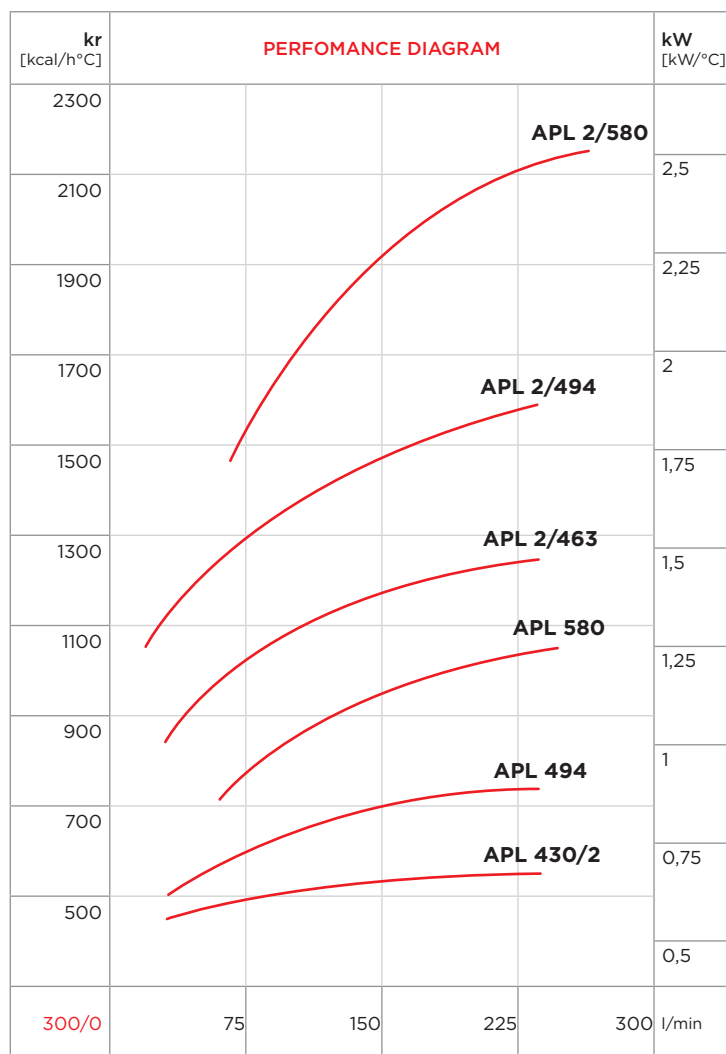
mdt

authorised regional warehouse
and distributor of Sesino SPA

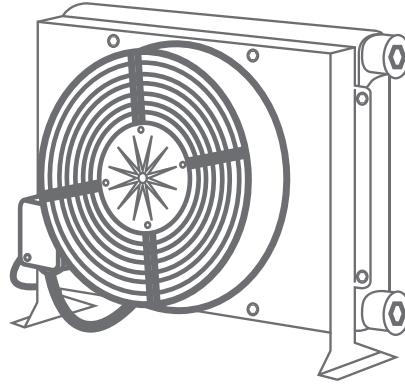
www.mdtco.com

ÖC MOTOR AIR OIL COOLERS

5D@G9F=9G



DC MOTOR AIR-OIL HEAT EXCHANGERS



These type of exchangers are particularly suitable to cool oleo hydraulic systems of mobile machines, having fans at 12V or 24V to be connected to the battery of the machine.

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/°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.

We pay particular attention to the choice of our components in order to supply the customer with a reliable product.

Long lasting fans with IP68 electric protection and thermo switches with IP67 protection, available with two temperature ranges, 47°C or 60°C.

The thermo switch calibration shows the initial temperature of the fans, while the stop temperature is 11°C lower. We must consider that the tolerance on the above mentioned operating temperatures is 35°C.

The electric system of these exchangers is already wired.

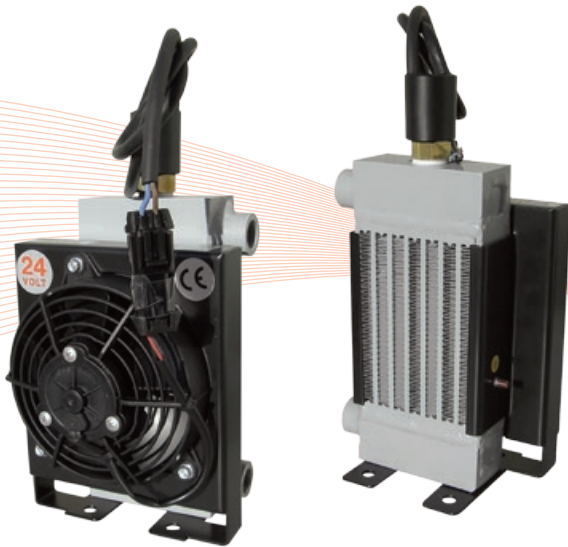
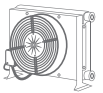
If the exchanger is equipped with thermo switch, the electric system has a relay integrated into the thermo switch itself.

The carbon steel parts are powder painted in order to resist to corrosive phenomena.

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.

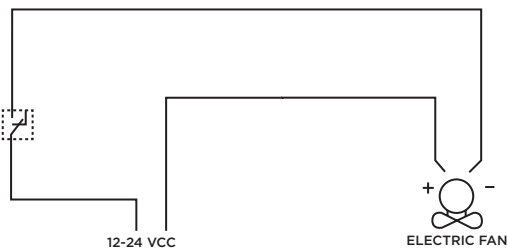
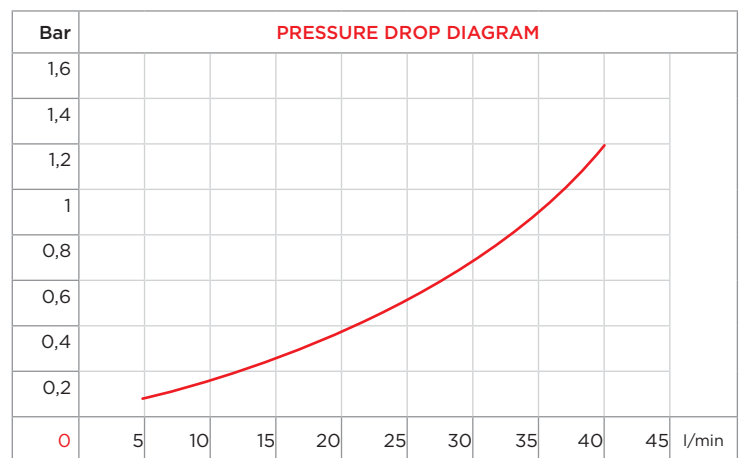
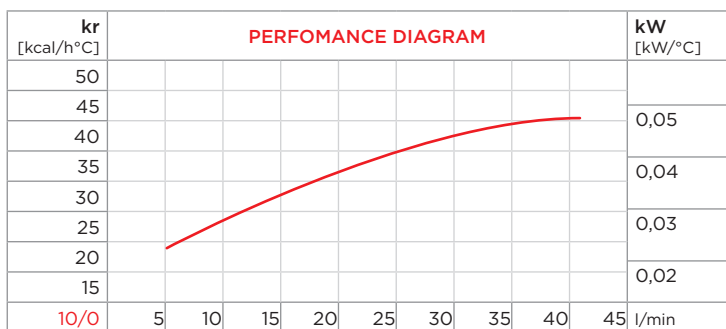


PURCHASE CODES

APL 170 12/24V without thermo switch	3RL17012 / 3RL17024
APL 170 12/24V with thermo switch	3RL17012T247 / 3RL17024T247 3RL17012T260 / 3RL17024T260

SPARE PARTS

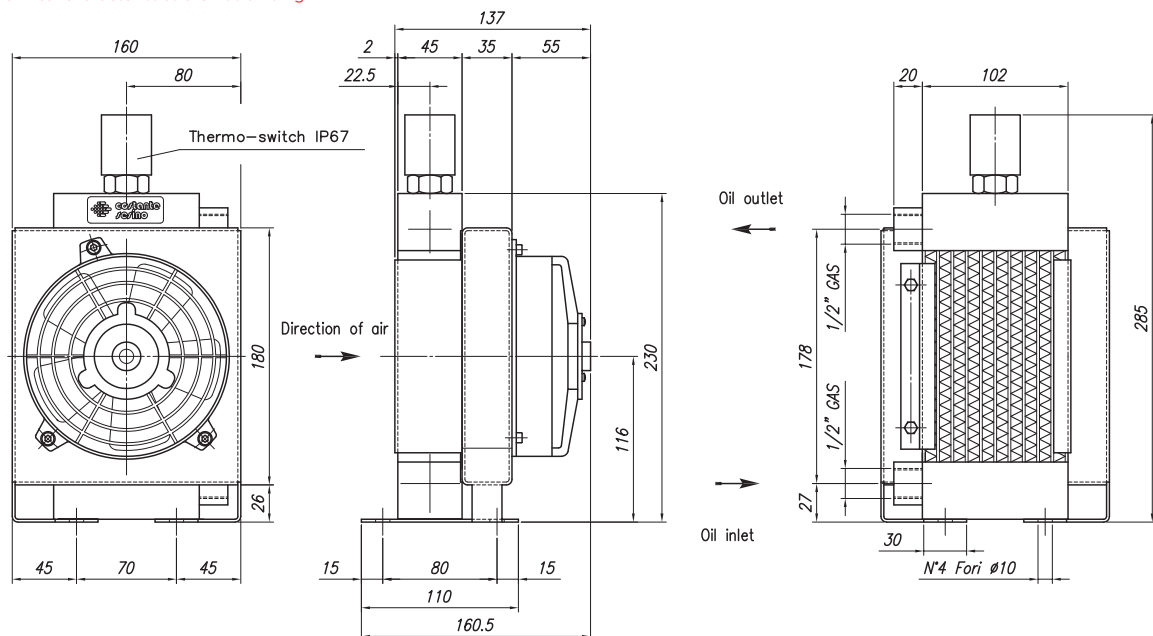
Thermo-switch 47-36 12V IP 67	1TRM47-36/12V
Thermo-switch 47-36 24V IP 67	1TRM47-36/24V
Thermo-switch 60-49 12V IP 67	1TRM60-49/12V
Thermo-switch 60-49 24V IP 67	1TRM60-49/24V
Cooling element	1RO92302
Frame	3CNL170.1
Frame support	3STFL170.1
12VDC Electric fan	1MCVA-37A101A
24VDC Electric fan	1MCVA-37B101A



CORRECTION FACTOR

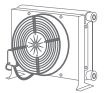
cSt	22	30	46	68	100	150	220
f	0,6	1	1,5	2,3	3,5	5	7

- Dimensions and technical characteristics are not binding



OIL FLOW	VOLTAGE	POWER	CURRENT	AIR FLOW	ELECTRIC PROTECTION	NOISE LEVEL	WEIGHT	CAPACITY	Ø FAN
l/min	V	W	A	m ³ /h	IP	dB(A)	kg	lt.	mm
5-40	12	65	5,4	400	65	70	3	0,5	130
5-40	24	65	2,7	400	65	70	3	0,5	130

APL 240

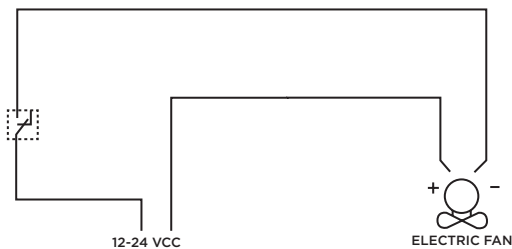
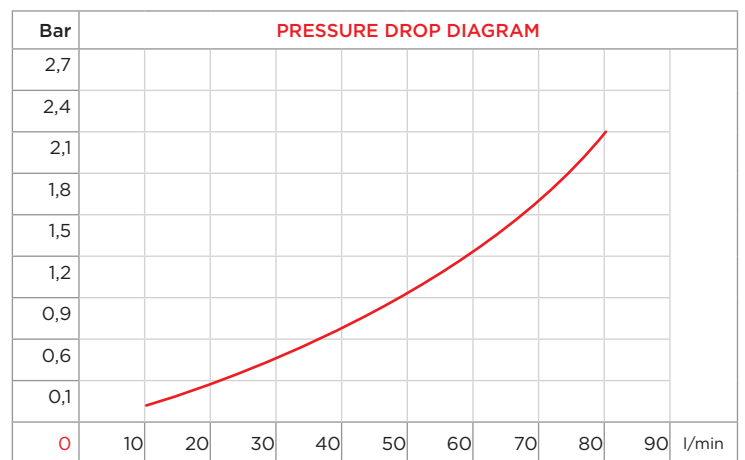
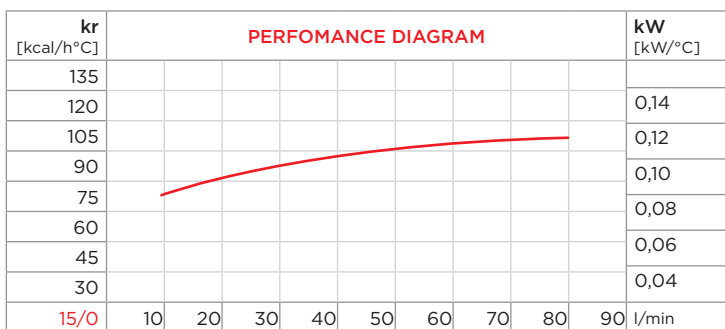


PURCHASE CODES

APL 240 12/24V without thermo switch	3RL24012 / 3RL24024
APL 240 12/24V with thermo switch	3RL24012T247 / 3RL24024T247 3RL24012T260 / 3RL24024T260

SPARE PARTS

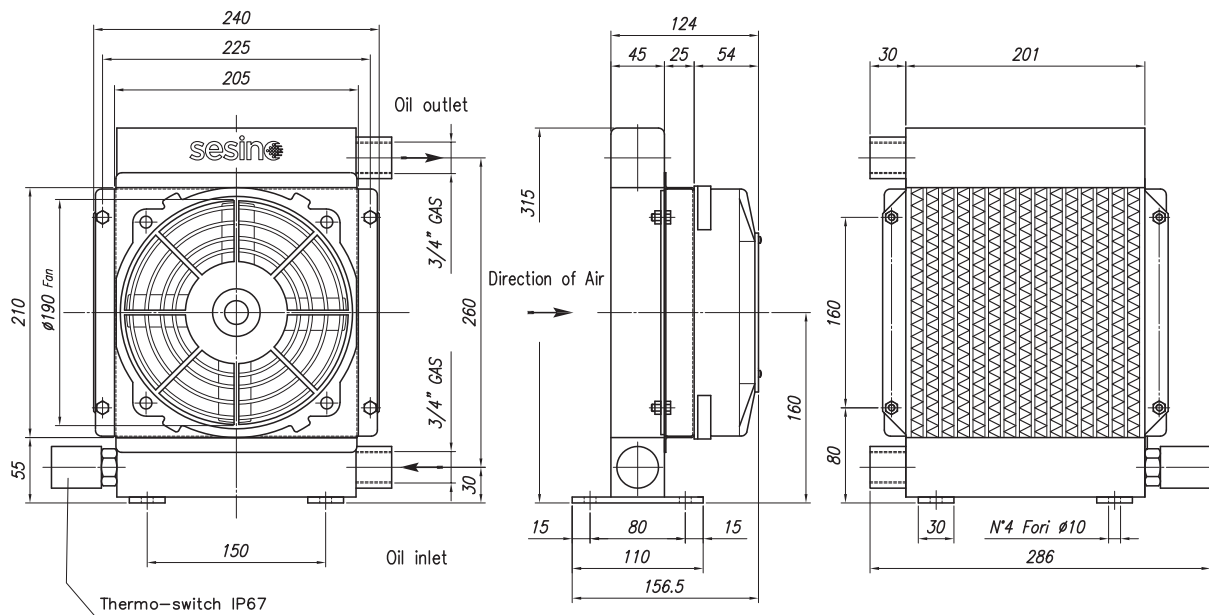
Thermo-switch 47-36 12V IP 67	1TRM47-36/12V
Thermo-switch 47-36 24V IP 67	1TRM47-36/24V
Thermo-switch 60-49 12V IP 67	1TRM60-49/12V
Thermo-switch 60-49 24V IP 67	1TRM60-49/24V
Cooling element	3RNAP260
Frame	3CNAP260.1
12VDC Electric fan	1MCVA14AP7AC
24VDC Electric fan	1MCVA14BP7AC



CORRECTION FACTOR

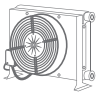
cSt	22	30	46	68	100	150	220
f	0,6	1	1,5	2,3	3,5	5	7

- Dimensions and technical characteristics are not binding



OIL FLOW	VOLTAGE	POWER	CURRENT	AIR FLOW	ELECTRIC PROTECTION	NOISE LEVEL	WEIGHT	CAPACITY	ø FAN
l/min	V	W	A	m³/h	IP	dB(A)	kg	lt.	mm
10-80	12	65	5,4	500	64	72	5	1	190
10-80	24	65	2,7	500	64	72	5	1	190

APL 263

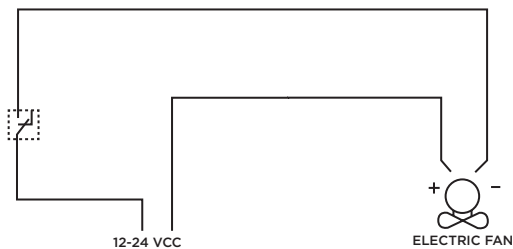
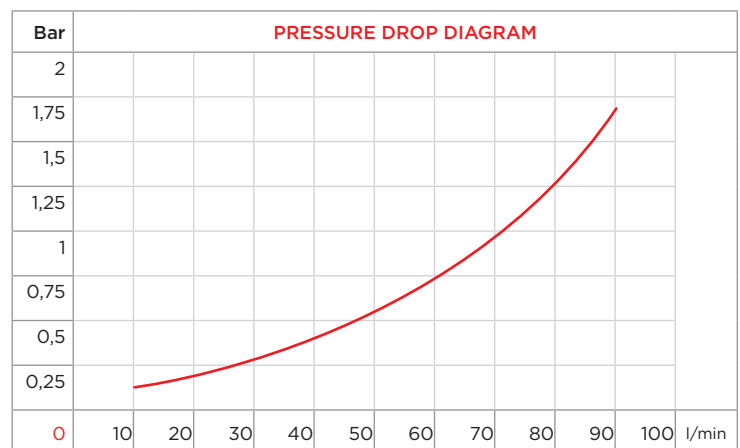
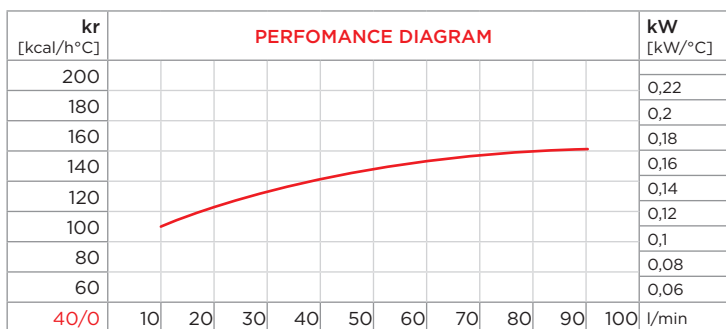


PURCHASE CODES

APL 263 12/24V without thermo switch	3RL26312 / 3RL26324
APL 263 12/24V with thermo switch	3RL26312T247 / 3RL26324T247 3RL26312T260 / 3RL26324T260

SPARE PARTS

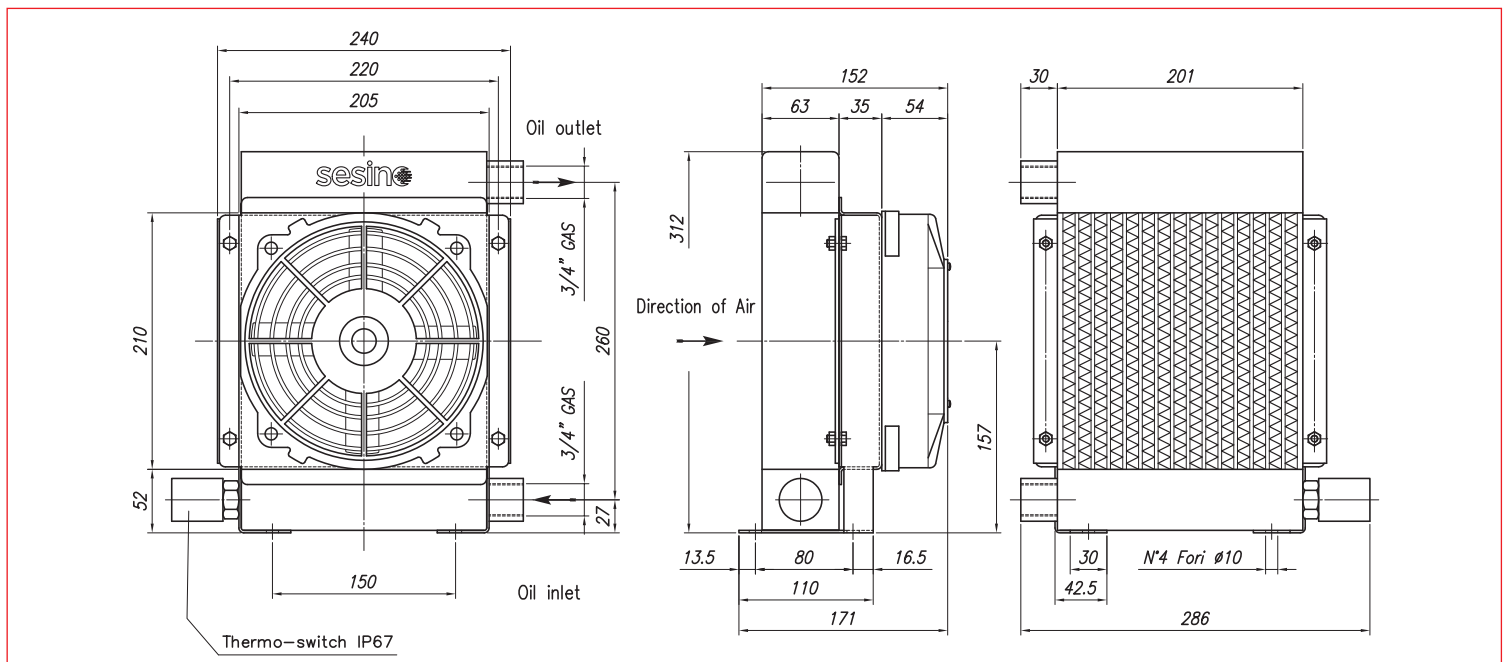
Thermo-switch 47-36 12V IP 67	1TRM47-36/12V
Thermo-switch 47-36 24V IP 67	1TRM47-36/24V
Thermo-switch 60-49 12V IP 67	1TRM60-49/12V
Thermo-switch 60-49 24V IP 67	1TRM60-49/24V
Cooling element	3RNL263
Frame	3CNAP260.1
12VDC Electric fan	1MCVA14AP7AC
24VDC Electric fan	1MCVA14BP7AC



CORRECTION FACTOR

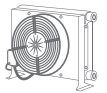
cSt	22	30	46	68	100	150	220
f	0,6	1	1,5	2,3	3,5	5	7

- Dimensions and technical characteristics are not binding



OIL FLOW	VOLTAGE	POWER	CURRENT	AIR FLOW	ELECTRIC PROTECTION	NOISE LEVEL	WEIGHT	CAPACITY	ø FAN
l/min	V	W	A	m³/h	IP	dB(A)	kg	lt.	mm
10-80	12	65	5,2	500	64	72	5	1	190
10-80	24	65	2,6	500	64	72	5	1	190

APL 300



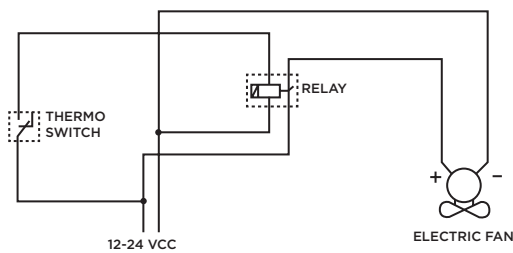
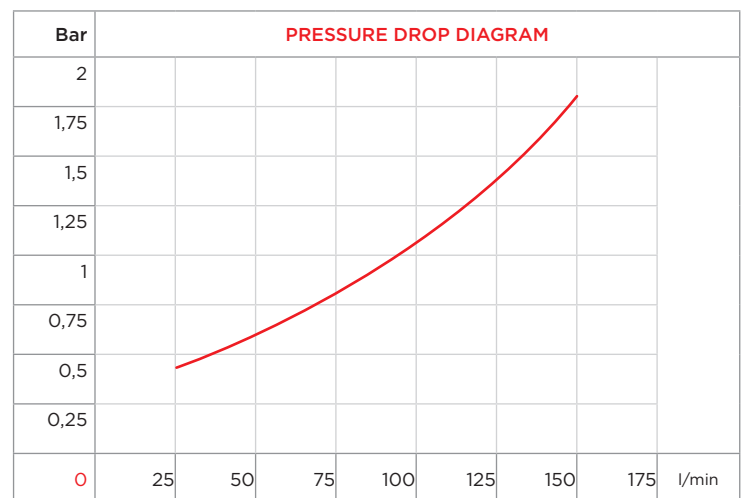
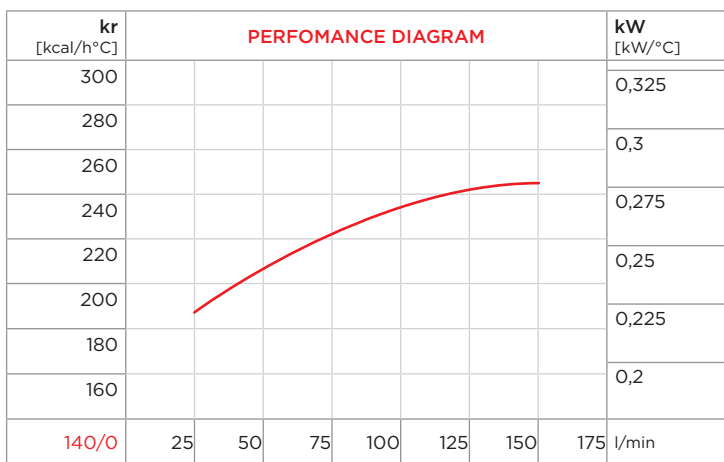
PURCHASE CODES

APL 300 12/24V without thermo switch	3RL30012 / 3RL30024
APL 300 12/24V with thermo switch	3RL30012T247 / 3RL30024T247 3RL30012T260 / 3RL30024T260



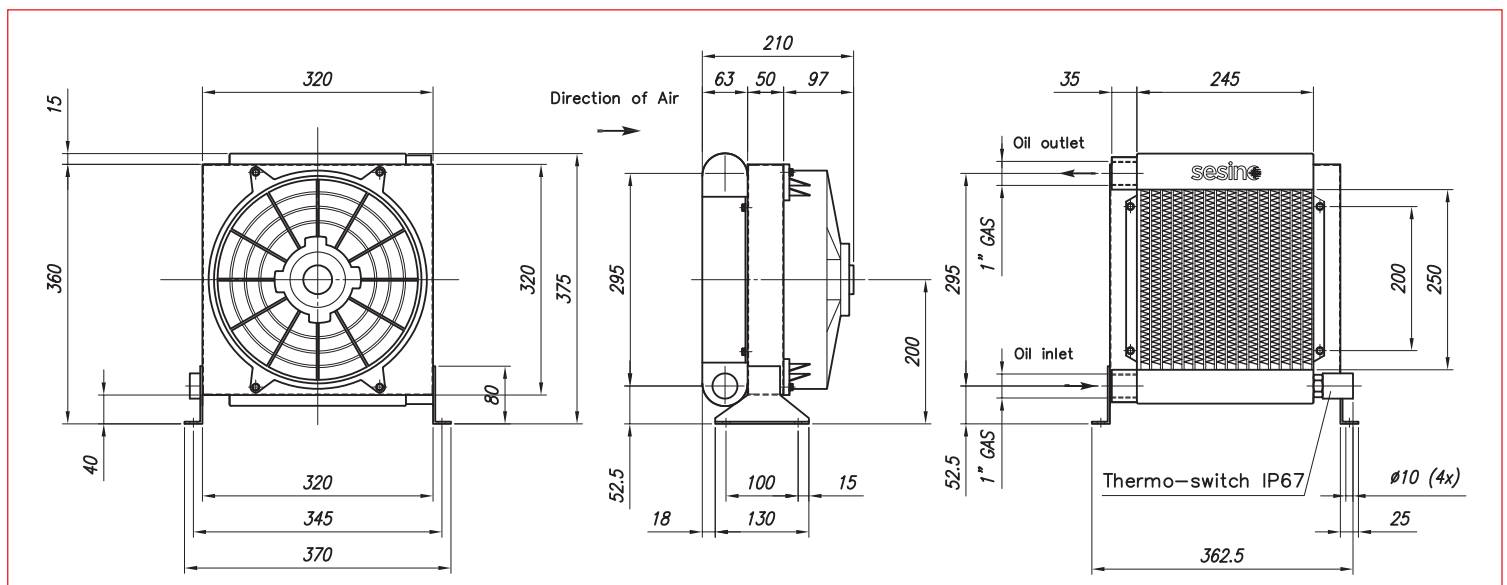
SPARE PARTS

Thermo-switch 47-36 12V IP 67	1TRM47-36/12V
Thermo-switch 47-36 24V IP 67	1TRM47-36/24V
Thermo-switch 60-49 12V IP 67	1TRM60-49/12V
Thermo-switch 60-49 24V IP 67	1TRM60-49/24V
Cooling element	3RNL300
Frame	3CNL300.1
12VDC Electric fan	1VNAPL30012C
24VDC Electric fan	1VNAPL30024C

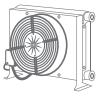


cSt	22	30	46	68	100	150	220
f	0,6	1	1,5	2,3	3,5	5	7

- Dimensions and technical characteristics are not binding



OIL FLOW	VOLTAGE	POWER	CURRENT	AIR FLOW	ELECTRIC PROTECTION	NOISE LEVEL	WEIGHT	CAPACITY	ø FAN
l/min	V	W	A	m³/h	IP	dB(A)	kg	lt.	mm
20-150	12	190	14,8	1.700	68	79	10	2	280
20-150	24	190	7,4	1.700	68	79	10	2	280



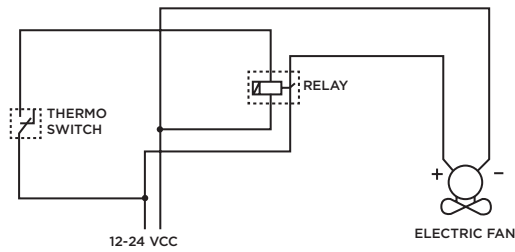
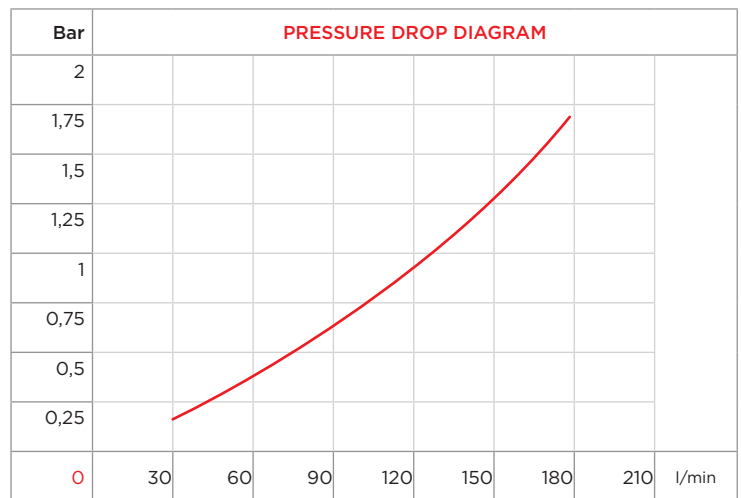
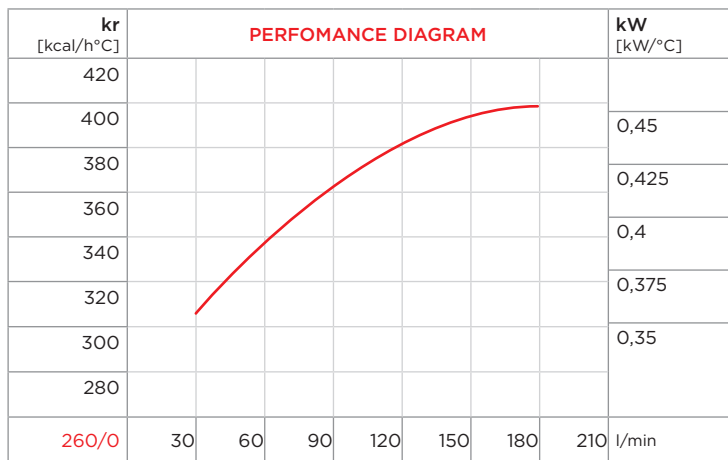
PURCHASE CODES

APL 300/2 12/24V without thermo switch	3RL30212 / 3RL30224
APL 300/2 12/24V with thermo switch	3RL30212T247 / 3RL30224T247 3RL30212T260 / 3RL30224T260



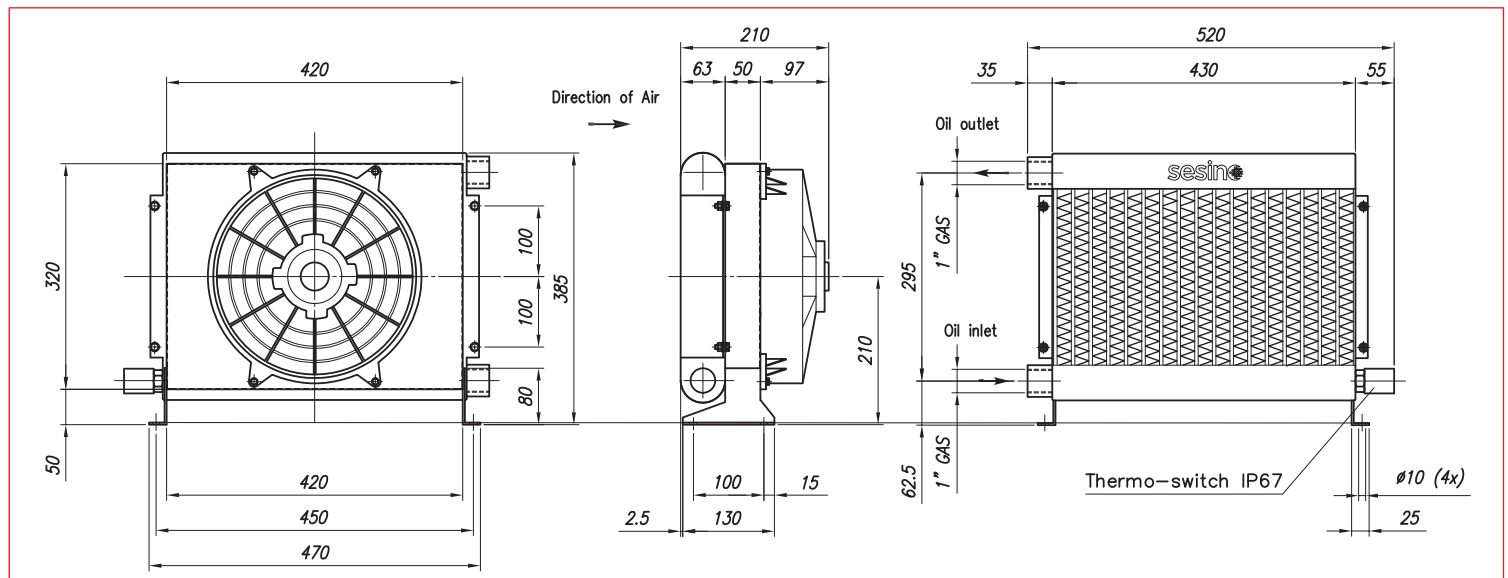
SPARE PARTS

Thermo-switch 47-36 12V IP 67	1TRM47-36/12V
Thermo-switch 47-36 24V IP 67	1TRM47-36/24V
Thermo-switch 60-49 12V IP 67	1TRM60-49/12V
Thermo-switch 60-49 24V IP 67	1TRM60-49/24V
Cooling element	3RNL302
Frame	3CNL302.1
12VDC Electric fan	1VNAPL30012C
24VDC Electric fan	1VNAPL30024C



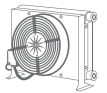
cSt	22	30	46	68	100	150	220
f	0,6	1	1,5	2,3	3,5	5	7

- Dimensions and technical characteristics are not binding



OIL FLOW	VOLTAGE	POWER	CURRENT	AIR FLOW	ELECTRIC PROTECTION	NOISE LEVEL	WEIGHT	CAPACITY	Ø FAN
l/min	V	W	A	m³/h	IP	dB(A)	kg	lt.	mm
30-180	12	180	15,0	2.200	68	83	14	3,6	280
30-180	24	180	7,5	2.200	68	83	14	3,6	280

APL 430

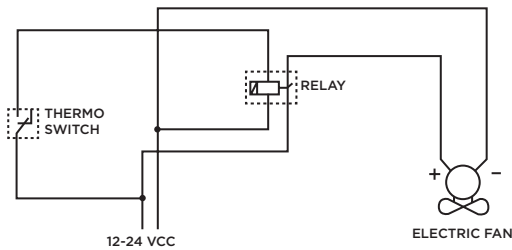
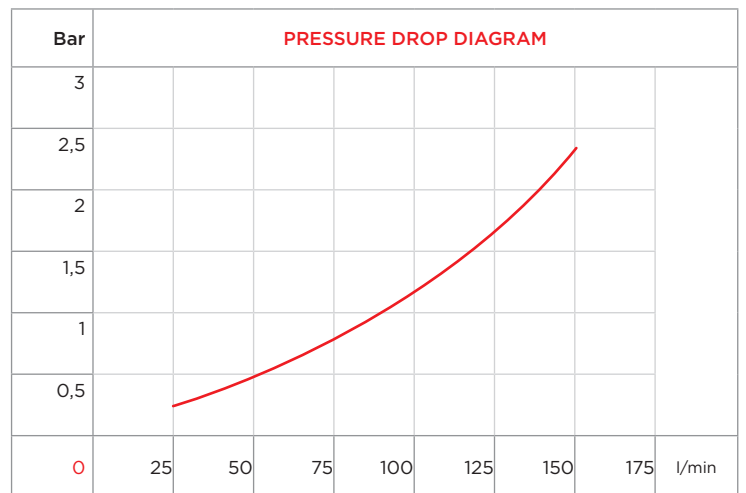
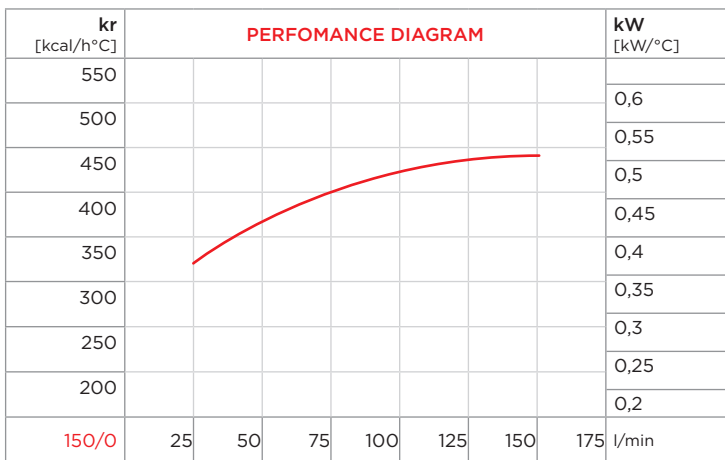


PURCHASE CODES

APL 430 12/24V without thermo switch	3RL43012 / 3RL43024
APL 430 12/24V with thermo switch	3RL43012T247 / 3RL43024T247 3RL43012T260 / 3RL43024T260

SPARE PARTS

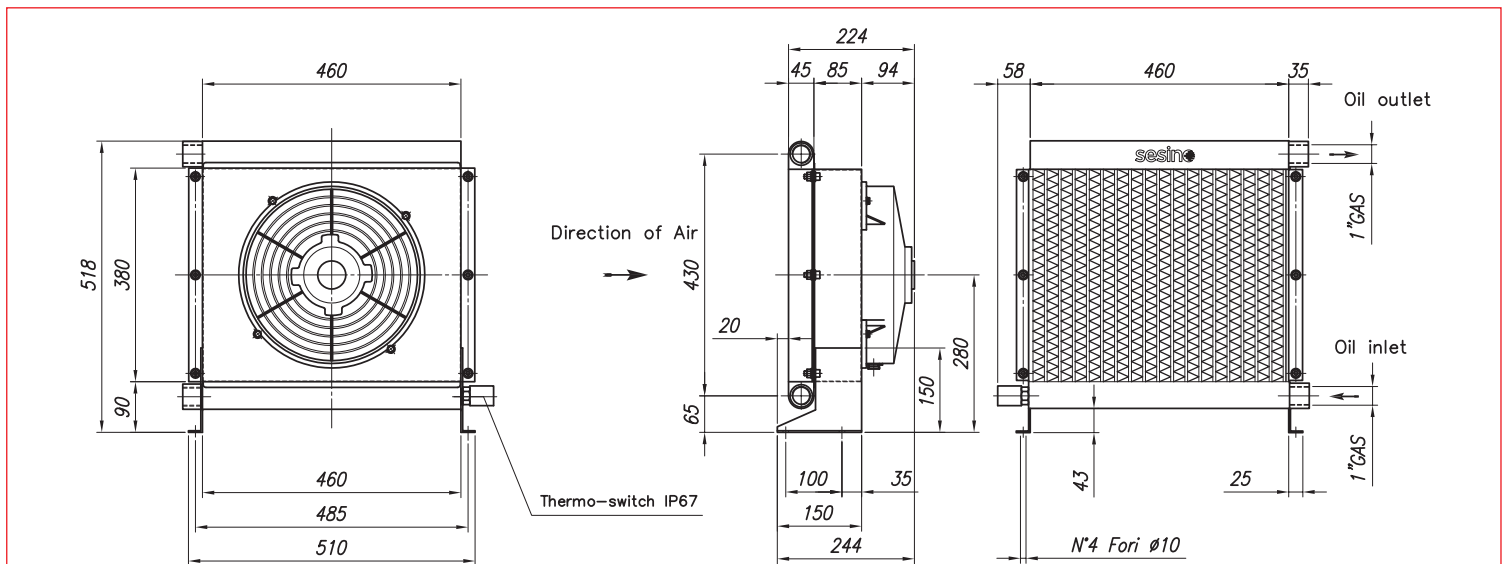
Thermo-switch 47-36 12V IP 67	1TRM47-36/12V
Thermo-switch 47-36 24V IP 67	1TRM47-36/24V
Thermo-switch 60-49 12V IP 67	1TRM60-49/12V
Thermo-switch 60-49 24V IP 67	1TRM60-49/24V
Cooling element	3RNL430
Frame	1430LCNV
12VDC Electric fan	1VNAPL43012C
24VDC Electric fan	1VNAPL43024C



CORRECTION FACTOR

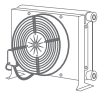
cSt	22	30	46	68	100	150	220
f	0,6	1	1,5	2,3	3,5	5	7

- Dimensions and technical characteristics are not binding



OIL FLOW	VOLTAGE	POWER	CURRENT	AIR FLOW	ELECTRIC PROTECTION	NOISE LEVEL	WEIGHT	CAPACITY	Ø FAN
l/min	V	W	A	m³/h	IP	dB(A)	kg	lt.	mm
20-150	12	210	17	2.500	68	82	16	3,6	310
20-150	24	210	8,5	2.500	68	82	16	3,6	310

APL 494



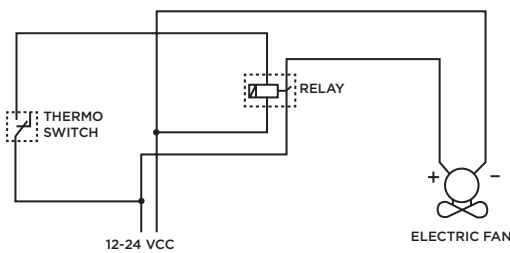
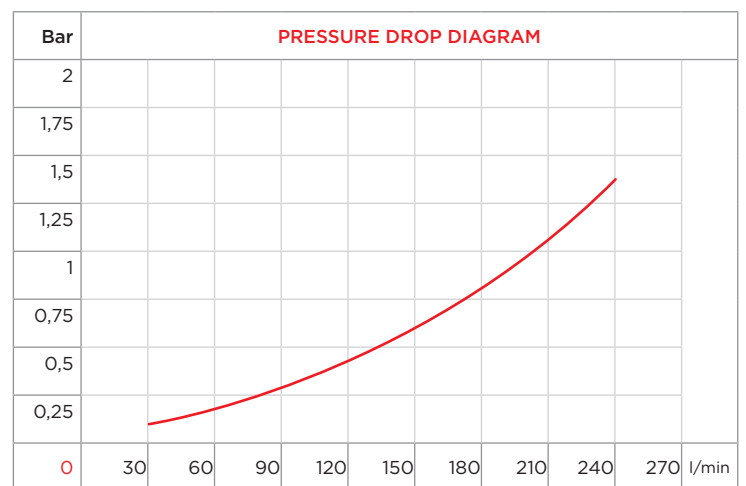
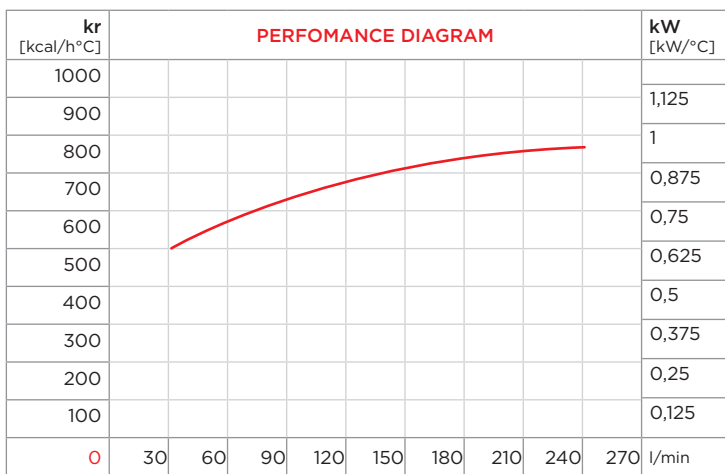
PURCHASE CODES

APL 494 12/24V without thermo switch	3RL49412 / 3RL49424
APL 494 12/24V with thermo switch	3RL49412T247 / 3RL49424T247 3RL49412T260 / 3RL49424T260



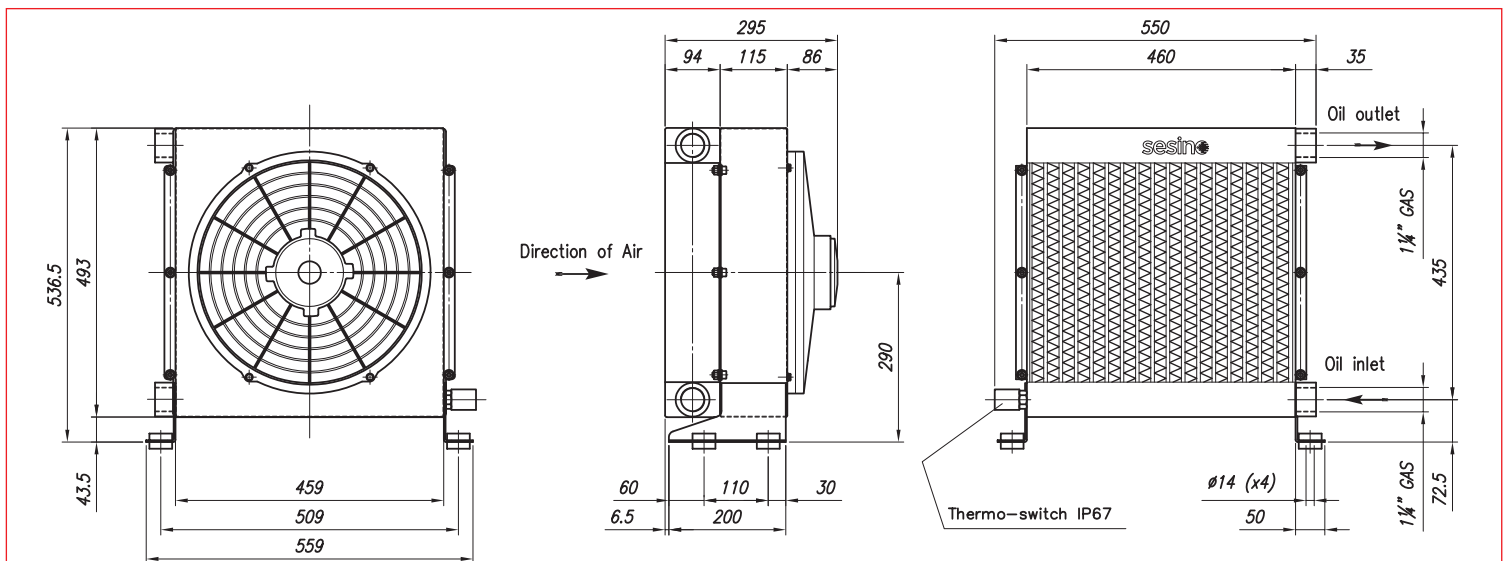
SPARE PARTS

Thermo-switch 47-36 12V IP 67	1TRM47-36/12V
Thermo-switch 47-36 24V IP 67	1TRM47-36/24V
Thermo-switch 60-49 12V IP 67	1TRM60-49/12V
Thermo-switch 60-49 24V IP 67	1TRM60-49/24V
Cooling element	1RO99332
Frame	3CNL494.1
12VDC Electric fan	1MCVA18AP70AC
24VDC Electric fan	1VNAPL58024C



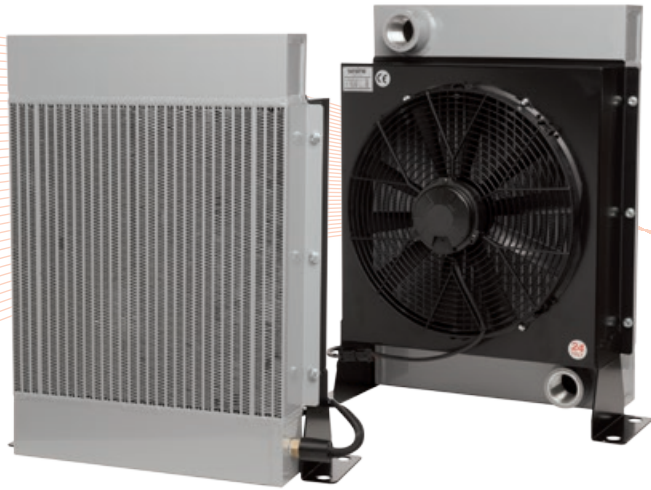
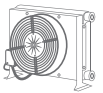
cSt	22	30	46	68	100	150	220
f	0,6	1	1,5	2,3	3,5	5	7

- Dimensions and technical characteristics are not binding



OIL FLOW	VOLTAGE	POWER	CURRENT	AIR FLOW	ELECTRIC PROTECTION	NOISE LEVEL	WEIGHT	CAPACITY	Ø FAN
l/min	V	W	A	m³/h	IP	dB(A)	kg	lt.	mm
30-240	12	240	20	2.800	68	85	25	8	380
30-240	24	240	10	2.800	68	85	25	8	380

APL 580

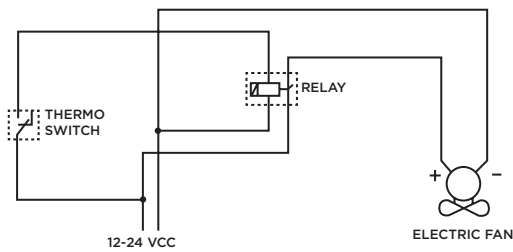
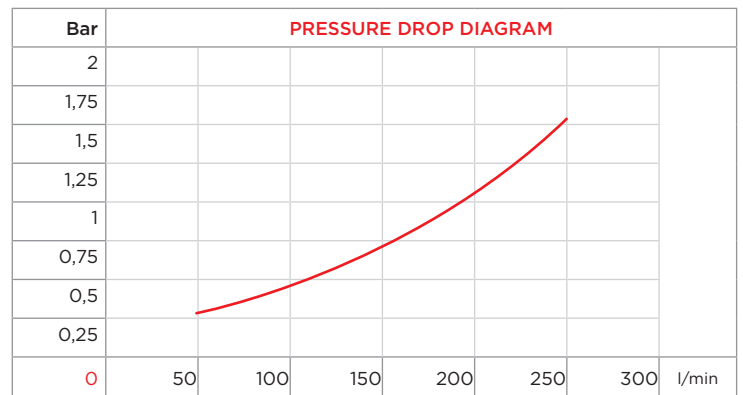
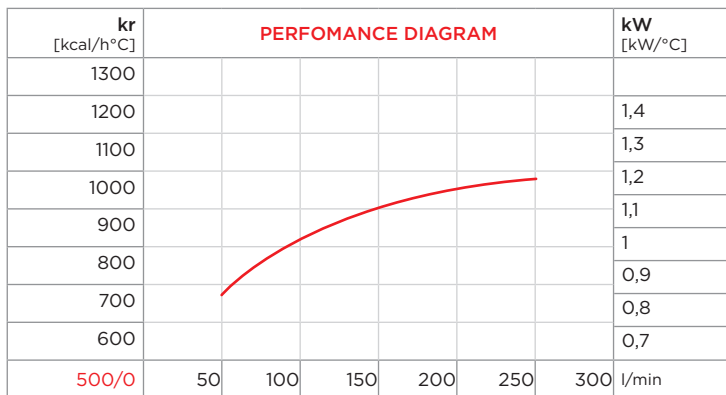


PURCHASE CODES

APL 580 12/24V without thermo switch	3RL58012 / 3RL58024
APL 580 12/24V with thermo switch	3RL58012T247 / 3RL58024T247 3RL58012T260 / 3RL58024T260

SPARE PARTS

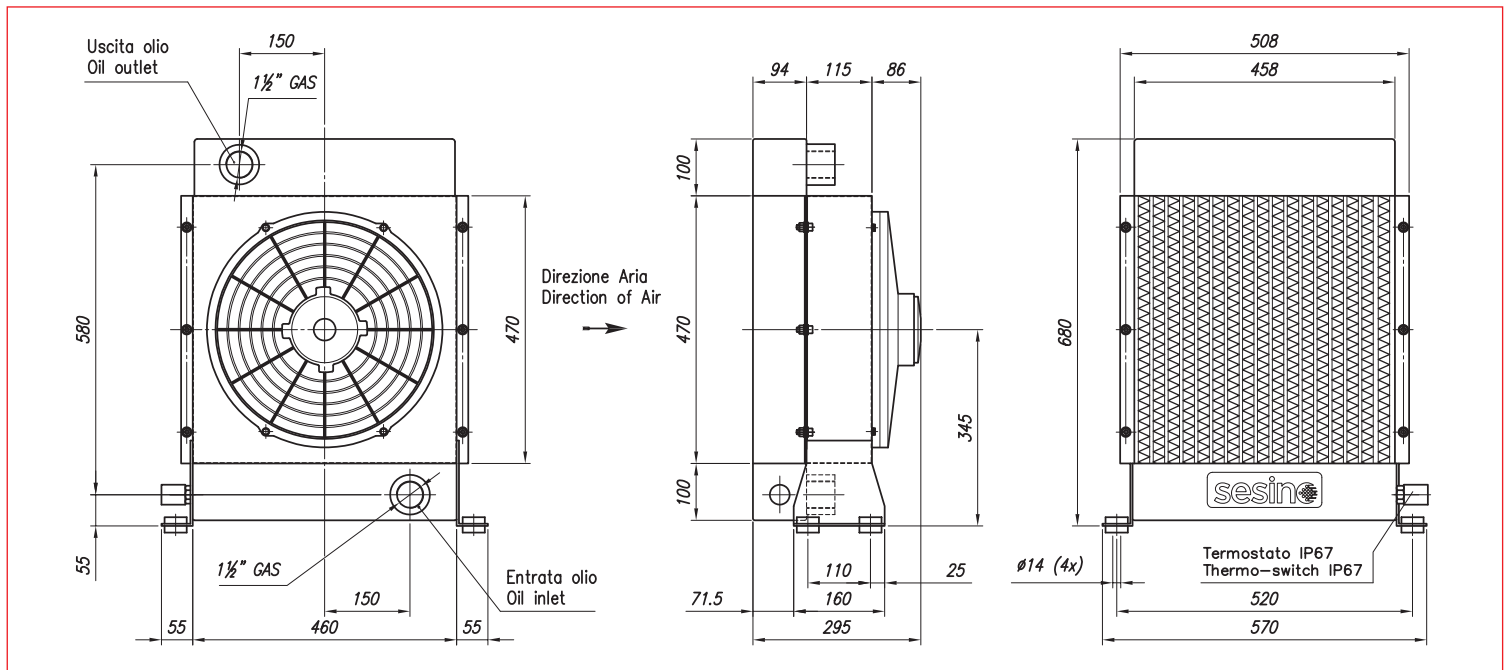
Thermo-switch 47-36 12V IP 67	1TRM47-36/12V
Thermo-switch 47-36 24V IP 67	1TRM47-36/24V
Thermo-switch 60-49 12V IP 67	1TRM60-49/12V
Thermo-switch 60-49 24V IP 67	1TRM60-49/24V
Cooling element	3RNL580
Frame	3CNL580.1
12VDC Electric fan	1MCVA18AP70AC
24VDC Electric fan	1VNAPL58024C



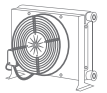
CORRECTION FACTOR

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	VOLTAGE	POWER	CURRENT	AIR FLOW	ELECTRIC PROTECTION	NOISE LEVEL	WEIGHT	CAPACITY	∅ FAN
l/min	V	W	A	m³/h	IP	dB(A)	kg	lt.	mm
50-250	12	240	20	2.900	68	85	33	11,5	380
50-250	24	240	10	2.900	68	85	33	11,5	380

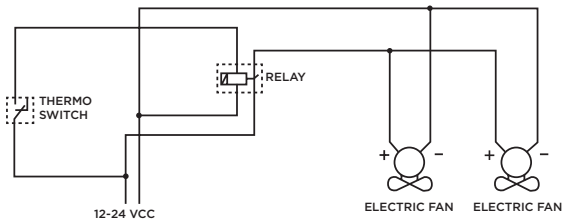
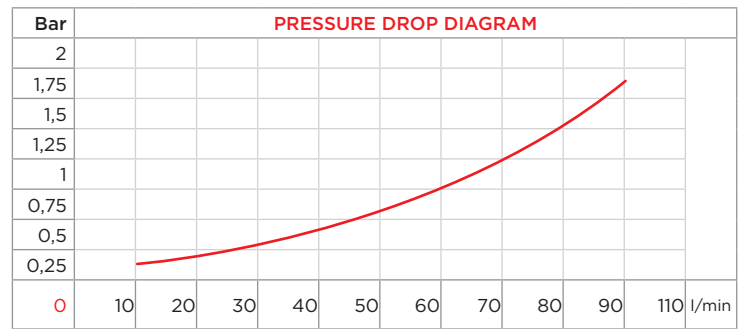
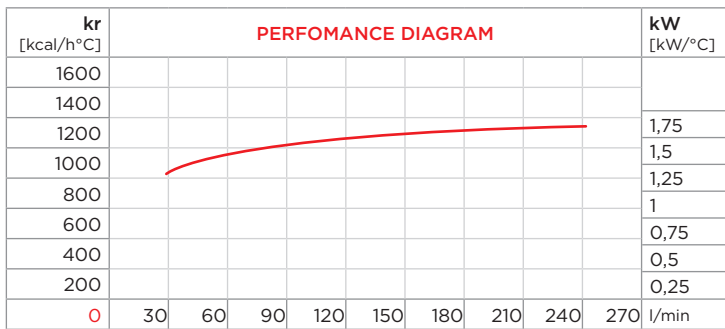


PURCHASE CODES

APL 2/463 12/24V without thermo switch	3RL2/46312 / 3RL2/46324
APL 2/463 12/24V with thermo switch	3RL2/46312T247 / 3RL2/46324T247 3RL2/46312T260 / 3RL2/46324T260

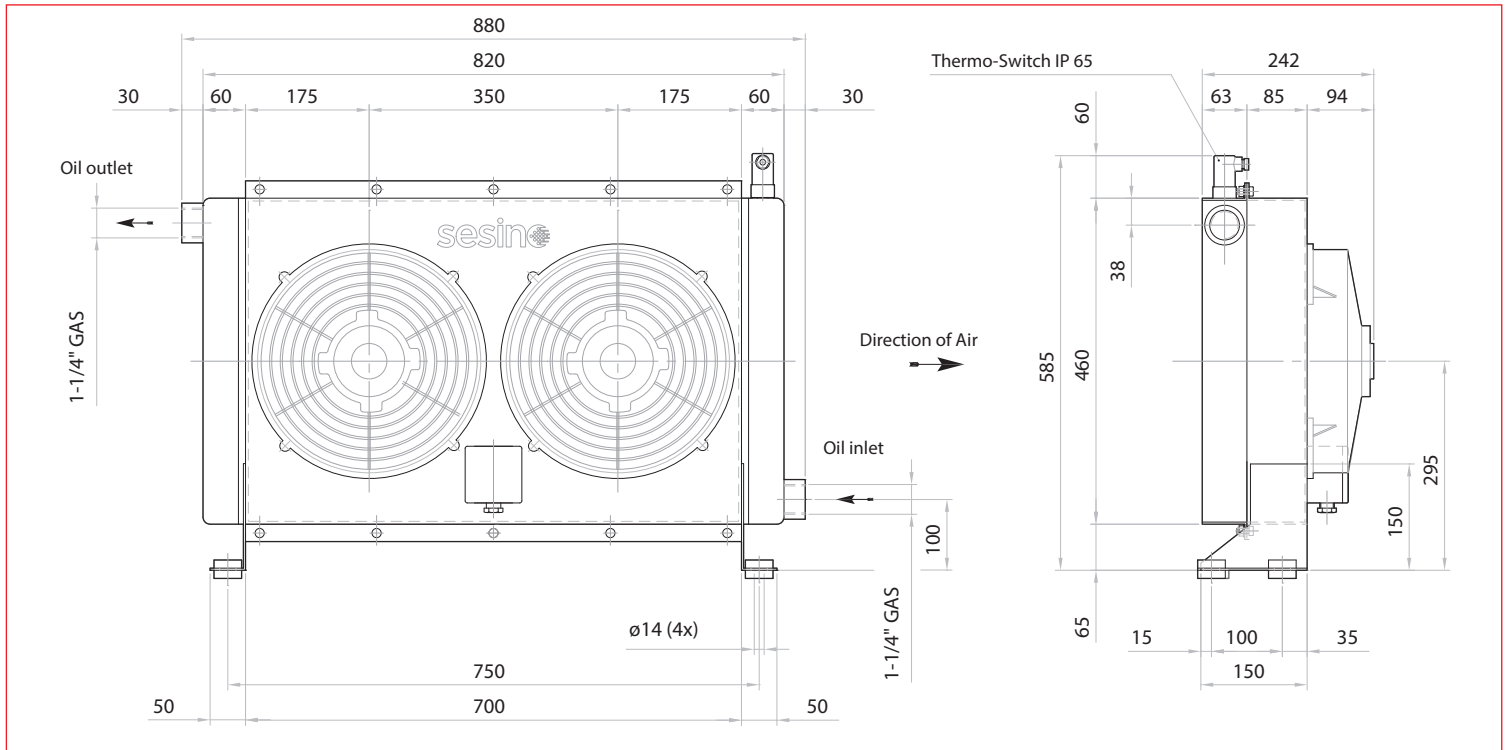
SPARE PARTS

Thermo-switch 60-49 IP 65	1TRM60-49
Thermo-switch 47-36 IP 65	1TRM47-36
Electric junction box	1CSDBOPLA
12VDC Relay	1RLCOPAT12
24VDC Relay	1RLCOPAT
Shock isolating mounting (4 pcs)	3KIT4135
Cooling element	1RO01341
Frame	3CNL2/463.1
12VDC Electric fan	1VNAPL43012C
24VDC Electric fan	1VNAPL43024C

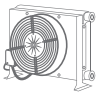


cSt	22	30	46	68	100	150	220
f	0,6	1	1,5	2,3	3,5	5	7

- Dimensions and technical characteristics are not binding



OIL FLOW	VOLTAGE	POWER	CURRENT	AIR FLOW	ELECTRIC PROTECTION	NOISE LEVEL	WEIGHT	CAPACITY	ø FAN
l/min	V	W	A	m³/h	IP	dB(A)	kg	lt.	mm
30-240	12	420	34	4.800	68	85	40	8	310
30-240	24	420	17	4.800	68	85	40	8	310

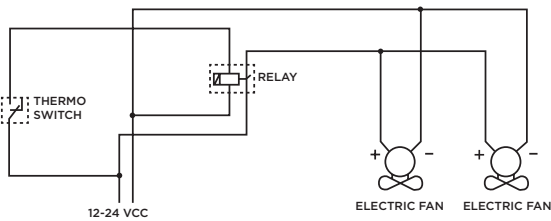
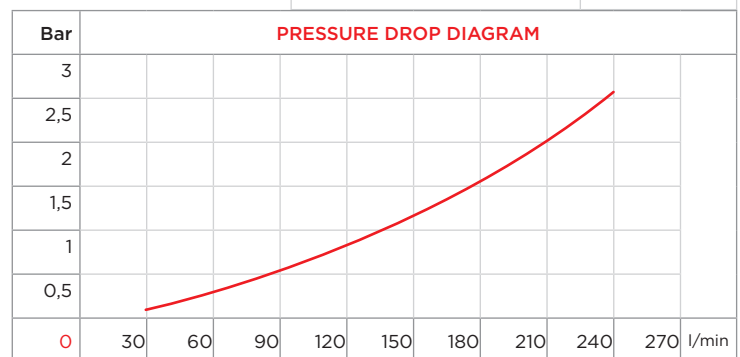
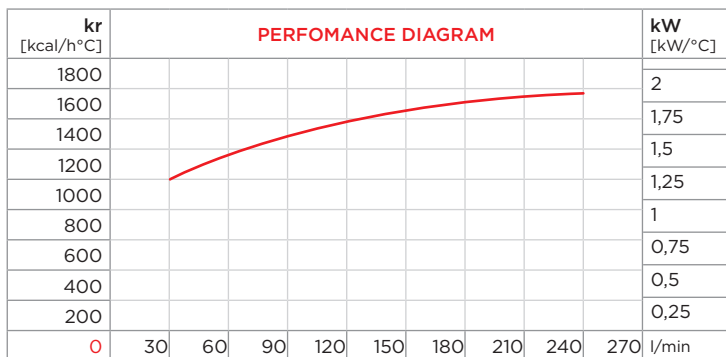


PURCHASE CODES

APL 2/494 12/24V without thermo switch	3RL2/49412 / 3RL2/49424
APL 2/494 12/24V with thermo switch	3RL2/49412T247 / 3RL2/49424T247 3RL2/49412T260 / 3RL2/49424T260

SPARE PARTS

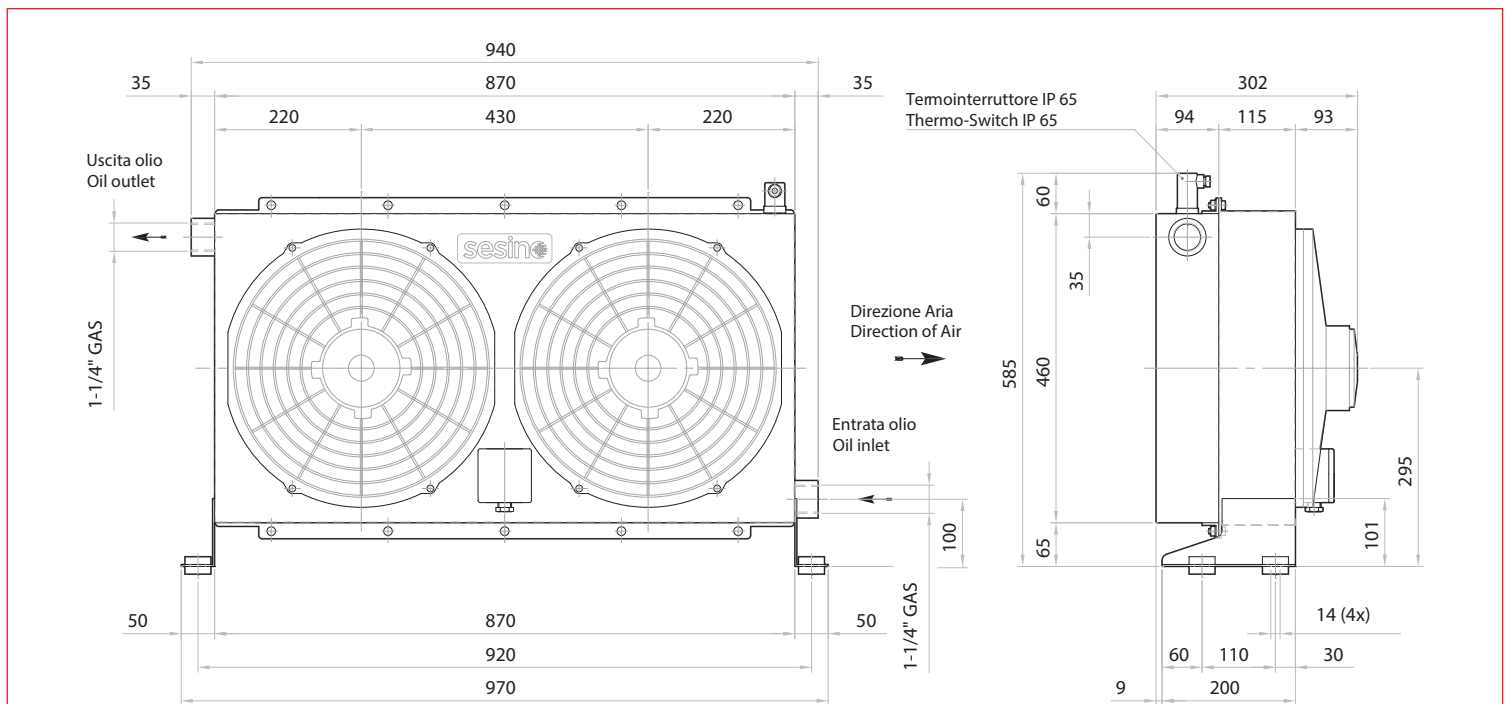
Thermo-switch 60-49 IP 65	1TRM60-49
Thermo-switch 47-36 IP 65	1TRM47-36
Electric junction box	1CSSDBOPLA
12VDC Relay	1RLCOPAT12
24VDC Relay	1RLCOPAT
Shock isolating mounting (4 pcs)	3KIT4135
Cooling element	1RO01342
Frame	3CNL2/494.1
12VDC Electric fan	1MCVA18AP70C
24VDC Electric fan	1VNAPL58024C



CORRECTION FACTOR

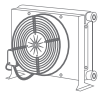
cSt	22	30	46	68	100	150	220
f	0,6	1	1,5	2,3	3,5	5	7

- Dimensions and technical characteristics are not binding



OIL FLOW	VOLTAGE	POWER	CURRENT	AIR FLOW	ELECTRIC PROTECTION	NOISE LEVEL	WEIGHT	CAPACITY	Ø FAN
l/min	V	W	A	m ³ /h	IP	dB(A)	kg	lt.	mm
30-240	12	480	40	5.600	68	88	50	16	380
30-240	24	480	20	5.600	68	88	50	16	380

APL 2/580

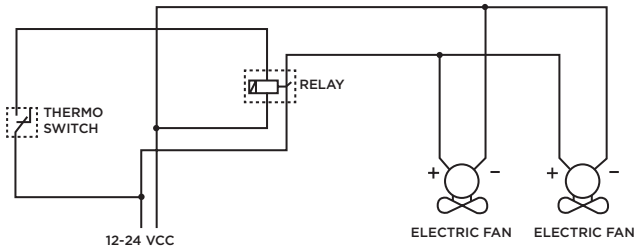
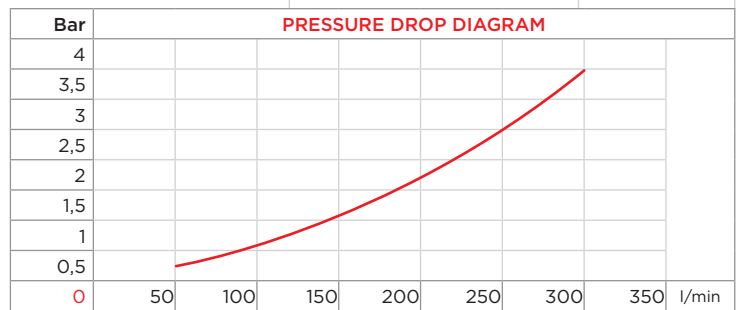
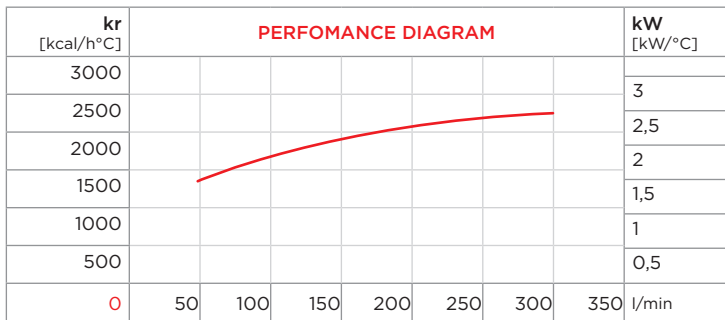


PURCHASE CODES

APL 2/580 12/24V without thermo switch	3RL2/58012 / 3RL2/58024
APL 2/580 12/24V with thermo switch	3RL2/58012T247 / 3RL2/58024T247 3RL2/58012T260 / 3RL2/58024T260

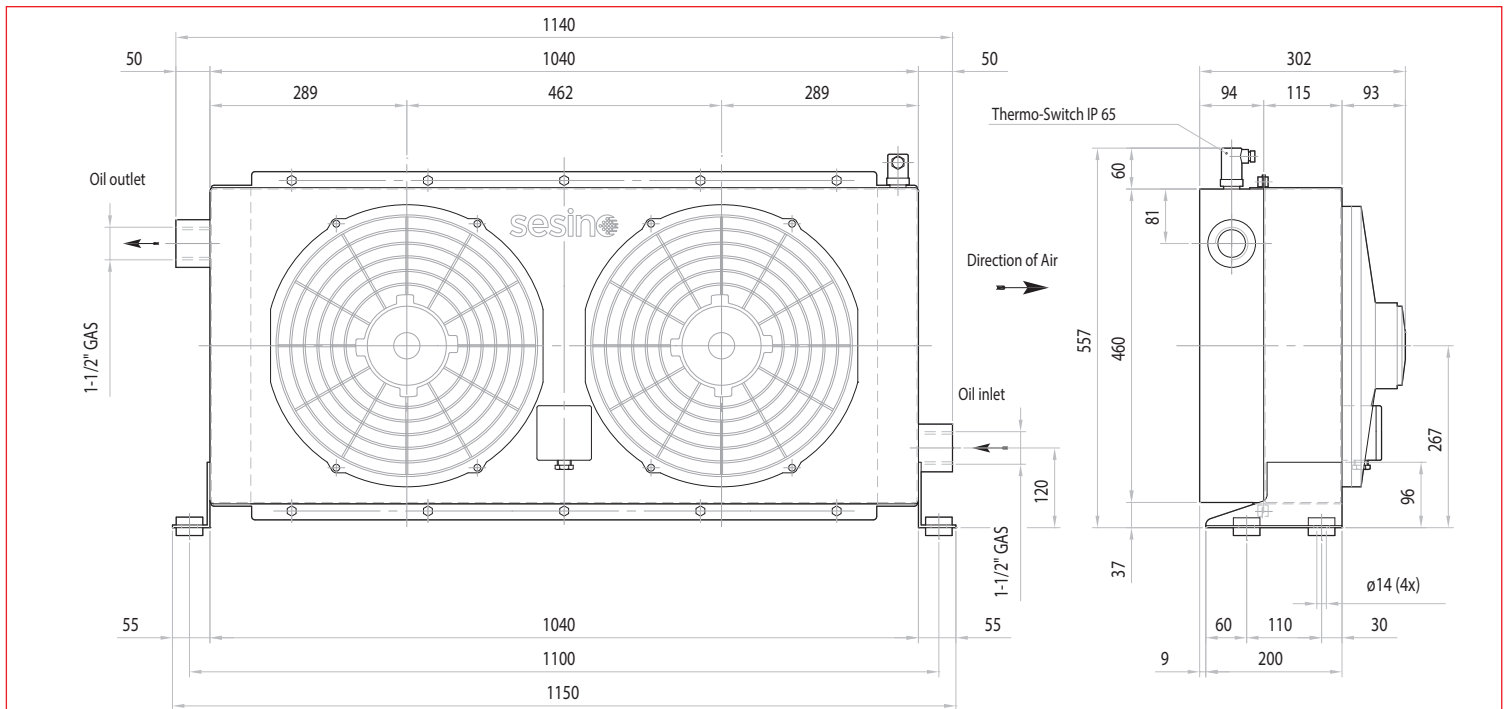
SPARE PARTS

Thermo-switch 60-49 IP 65	1TRM60-49
Thermo-switch 47-36 IP 65	1TRM47-36
Electric junction box	1CSDBOPLA
12VDC Relay	1RLCOPAT12
24VDC Relay	1RLCOPAT
Shock isolating mounting (4 pcs)	3KIT4135
Cooling element	1ROO0336
Frame	3CNL2/580.1
12VDC Electric fan	1MCVA18AP70AC
24VDC Electric fan	1VNAPL58024C



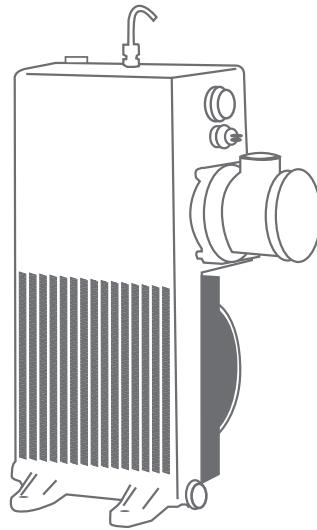
cSt	22	30	46	68	100	150	220
f	0,6	1	1,5	2,3	3,5	5	7

- Dimensions and technical characteristics are not binding



OIL FLOW	VOLTAGE	POWER	CURRENT	AIR FLOW	ELECTRIC PROTECTION	NOISE LEVEL	WEIGHT	CAPACITY	ø FAN
l/min	V	W	A	m³/h	IP	dB(A)	kg	lt.	mm
30-350	12	480	40	5.800	68	88	60	23	380
30-350	24	480	20	5.800	68	88	60	23	380

AIR-OIL HEAT EXCHANGER FOR CONCRETE MIXERS



This is a special type of heat exchanger with incorporated tank and filter. It is suitable for the cooling of hydrostatic transmissions in off-line circuits, above all on concrete mixers, and allows simplifying the hydraulic system and reducing in this way its cost.

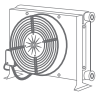
Besides the standard aluminium cooling element with DC fan 12 or 24V, this exchanger is equipped with tank with capacity 18 l. with suction filter, level gauge, condensate drainage system and a thermo switch with a fixed calibration of 65°C.

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

Going down the lowest flow rate, the low oil speed causes a great efficiency decrease, whereas a flow rate, which is superior to the maximum indicated, causes great pressure drops and does not considerably increase the thermal performance.

The efficiency curves show the specific exchange capacity in kcal/h°C or in kW/°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.

As these exchangers are assembled on machines working in the open air, the steel parts are subjected to a chemical treatment, which prevents from rust. On this treatment, the customer can use each kind of painting.

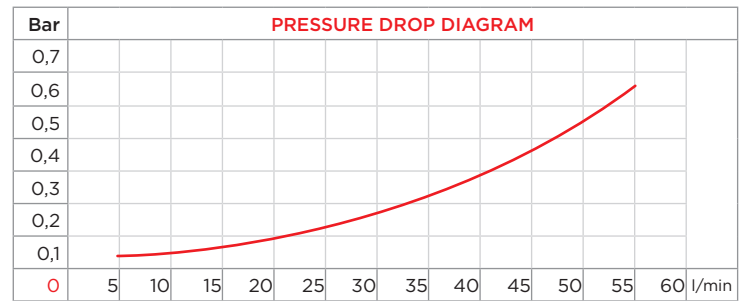
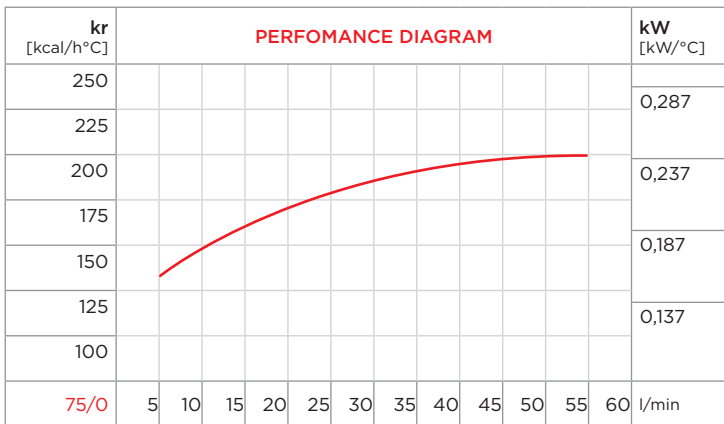


PURCHASE CODES

ELRO 91261 with filter	3REO91261C
ELRO 91261 without filter	3REO91261

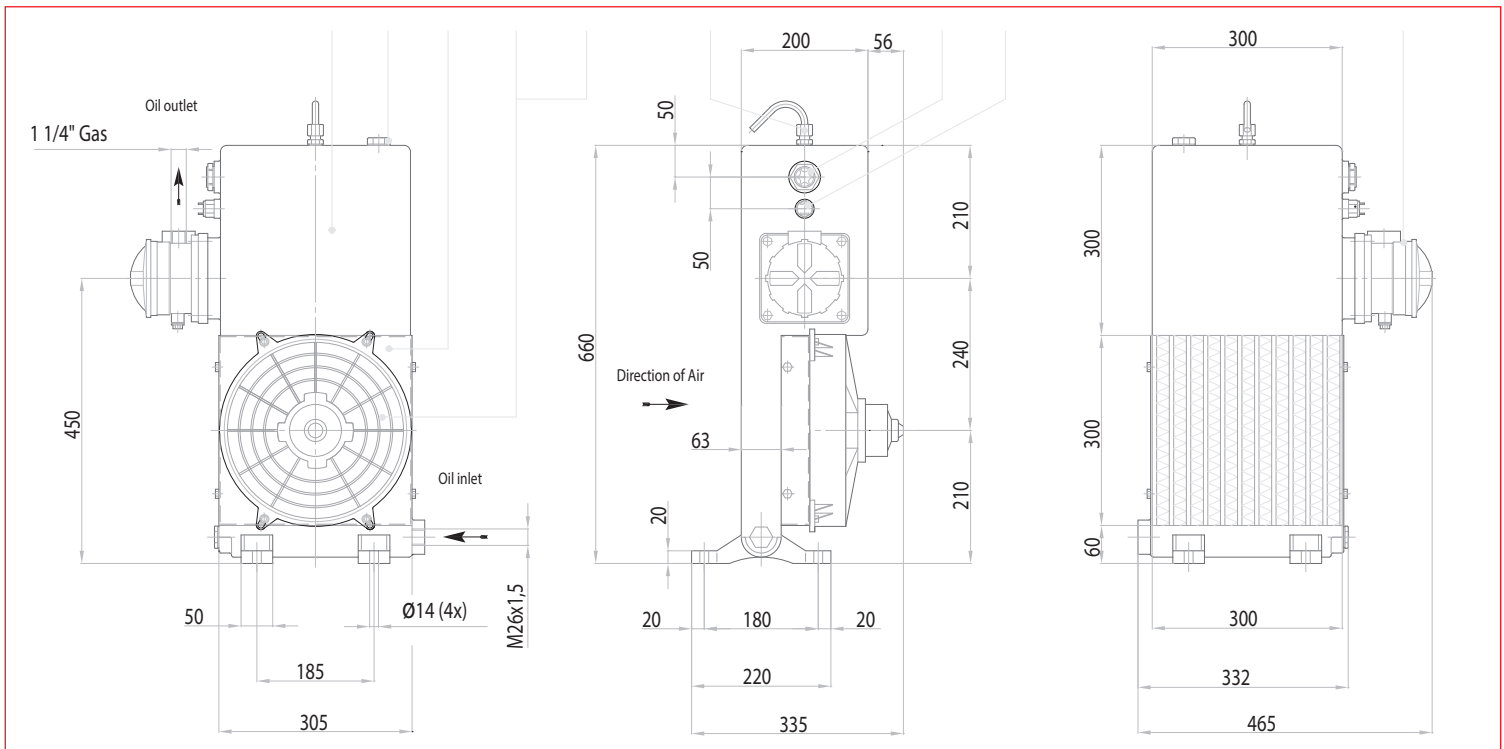
SPARE PARTS

Frame	3CNEO91261.1
Cooling element	3RNEO91261
Electric fan	1VNEO91261
Inlet plug	1T TC6
Level gauge	1LIVTLA56
Thermo-switch 55-44 °C	1TRM55-44
Thermo-switch 65-54 °C	1TRM65-54
Oil Filter	1FTREO91261
Breather pipe	3TBSFEO91261.1
Filter element	1CRTEO91261

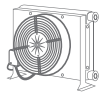


cSt	22	30	46	68	100	150	220
f	0,6	1	1,5	2,3	3,5	5	7

- Dimensions and technical characteristics are not binding



OIL FLOW	CAPACITY	VOLTAGE	POWER	CURRENT	AIR FLOW	PROTECTION	NOISE LEVEL	WEIGHT	ø FAN
l/min	l	V	W	A	m ³ /h	IP	dB(A)	kg	mm
upon request only		12	180	15	1.600	68	74	18	280
5-60	18	24	180	7,5	1.600	68	74	18	280



ASSEMBLING AND MAINTENANCE INSTRUCTIONS OF THE AIR-OIL HEAT EXCHANGERS

Assembling

The exchanger must be assembled so that the airflow is not obstructed.

To obtain a better efficiency it is important to avoid any recycling of warm air between outlet and inlet.

In case of long downtime at cold temperatures, the oil temperature becomes very low and its viscosity increases.

When the machine starts again, the pressure drop can become superior to the maximum allowable pressure; in this case, the exchanger must be equipped with a by-pass valve with proper calibration.

Sesino Air-oil heat exchangers are generally installed in the return circuit.

It is also possible to realize a separate circuit with an autonomous pump and this is recommended when the outlet oil flows are variable. In this way, it is possible to obtain a better heating performance. Oil must flow in from the bottom.

The inlet and outlet fittings must be connected without any tension and must not transmit any vibration to the exchanger.

The pressure peaks must never exceed the maximum allowable dynamic pressure of the exchanger.

Operating

As first check that the tension correspond to the one on the heat exchanger nameplate.

The oil temperature can be adjusted by stopping or starting the electric fan and to do that, the thermo-switch must be adjusted on the required temperature.

If there is a need of a continuous working of the fan, turn the thermo switch knob on the minimum.

In the hydraulic systems, some pressure peaks can occur; they could approach or exceed the maximum allowable pressure of the exchanger. These pulsations move inside the oil at the sound velocity and therefore they cannot be gauged with standard manometers, but only with a proper electronical instrumentation.

If these peaks exceed the value of 20 bar, it is necessary to supply the exchanger with a self-contained pump.

The maximum allowable static pressure is of 2 bar.

MAINTENANCE

Oil side cleaning

For this kind of cleaning, the heat exchanger must be disconnected. In order to remove the dirt, let a detergent circulate from 10 to 30 minutes, then proceed removing the detergent with compressed air.

Air side cleaning

It can be carried with compressed air or water. The direction of the stream must be parallel to the fins to avoid damaging them. It is possible to use some detergent but only if it does not deteriorate the aluminum. If the dirt consists of oil or grease, it is possible to use a stream of steam or hot water. During the cleaning the electric motor has to be adequately protected.