

HYDROLIC OIL COOLERS

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COOLING SOLUTIONS



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HYDROLIC
OIL COOLERS
HİDROLİK YAĞ EŞANJÖRLERİ



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REFKAR
COOLING SOLUTIONS

GİRİŞ | INTRODUCTION

Yağ soğutma eşanjörleri ısı transfer sıvıları, yağlama yağları ve soğutma yağları için uygundur. Yüksek kaliteli bu ürünler en iyi malzemenin (hammadenin) ve en yeni üretim tekniklerinin birleşimiyle üretilmektedir.

Standart üretimde tatlı su soğutmalı ve deniz suyu soğutmalı 4 farklı ürün grubu bulunmaktadır. Yüksek verim, kolay temizlik, dayanıklılık ve ekonomik olarak ürünleri sınıflandırmak mümkündür.

Oil cooling exchangers are ideal for heat transfer fluids, lubricating oils. These high-quality products are manufactured by latest production techniques using the best raw materials.

Standart manufacturing range involves 4 fresh-water-cooled and sea-water-cooled product groups. The products are marked by high efficiency, ease of cleaning, durability and low cost.



DİZAYN ŞARTLARI VE TASARIM | DESIGN SPECIFICATIONS

REFKAR eşanjörlerinde tatlı su uygulamalarında ısı transfer borusu bakır, gövde borusu ve ayna sacları karbon çeliği, kapaklar GGG döküm, contalar asbestsiz klingirit olarak uygulanır.

Deniz suyu soğutmalı ürünlerde ise CuNiFe %10 ısı transfer boruları ve DDI316L ayna sacları belirleyici özelliklerdir. Deniz suyunda kapaklarda ayrıca Zn anot kullanılır.

Tasarım Unilab, HTRI, Siemens NX, mekanik TS EN134453 uygulamaları ile yapılır. Standart yağ eşanjörleri maksimum 12 bar çalışma basıncına göre dizayn edilmiştir ve 18 bar azot ile test edilir. 120 °C'ye kadar rahatlıkla çalışabilir.

Fresh water implementations of REFKAR exchangers include copper heat transfer tubes, carbon steel body tubes and shims, GGG-cast covers and klingerite non-asbestos gaskets.

In sea-water-cooled products, distinctive features are CuNiFe 10% heat transfer tubes and DDI316L shims. Zn anode is used for covers of sea-water-cooled products.

Unilab, HTRI, Siemens NX and mechanical TS EN134453 applications are used for design. Standard oil exchangers are manufactured for maximum 12 bar operating pressure and tested with 18 bar nitrogen. They are well-equipped for operation at 120 °C.

SEÇİM | SELECTION

Katalog içerisinde bulunan seçim tabloları, grafikler ve düzeltme faktörleri, hesaplama kılavuzunda belirtilen şekilde kullanılarak ihtiyaç olunan ürün kolaylıkla hesaplanabilir. Seçim yapılırken aşağıda belirtilen verilere ihtiyaç vardır.

Soğutulacak yağın cinsi	cSt at °C
Yağ debisi	l/dk
Giriş yağı sıcaklığı	°C
Atılması istenen ısı miktarı	kcal/h
Soğutucu akışkan giriş sıcaklığı	°C

The required product can be easily determined using the selection tables, graphics and corrective factors given in the catalog as specified in the calculating guideline. The following data are required for selection.

Type of oil cooled	cSt at °C
Oil flow rate	l/min
Inlet oil temperature	°C
Quantity of heat to be expelled	kcal/h
Inlet temperature of cooling fluid	°C

ÖRNEK ÜRÜN SEÇİMİ | PRODUCT SELECTION SAMPLE

Veriler:

Yağ Debisi	100	l/dk
Viskozite	32	cSt
Yağ Sıcaklığı	60	°C
Su Sıcaklığı	28	°C
Kapasite	17,5	kW

Data:

Oil Flow	100	l/min
Viscosity	32	cSt
Oil Temp.	60	°C
Water Temp.	28	°C
Capacity	17,5	kW

Yukarıdaki verileri ve ürün seçimi ile ilgili katsayıları kullanarak ihtiyacımız olan ürünü kolaylıkla seçebilirsiniz.

You can easily select required product using the data above and coefficients.

Buna göre;

$$Q = 22 \text{ (kW)} \times 0.81 \text{ (K Faktörü)} \times 1 \text{ (F Faktörü)}$$

Grafikten Tablodan Yağ Cinsi

(60/28 değeri için)

Q = 17,82 kW kapasite RYG 90/1060-4P modeli olarak tercihimizi doğrular.

Regarding to above explanation;

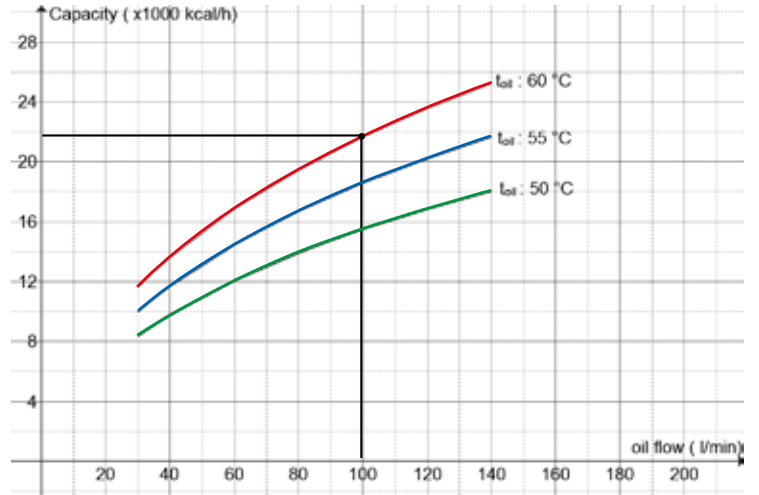
$$Q = 22 \text{ (kW)} \times 0.81 \text{ (K Factor)} \times 1 \text{ (F Factor)}$$

Graph Table Oil Grade

Q = 17,82 kW capacity confirm our choice RYG 90/1060-4P model.

Tabloda verilen değerlerde su giriş sıcaklığı t_{win} : 20 °C, yağ viskozitesi 32 cSt olarak kabul edilmiştir.

Note: The graphs above are prepared according to water inlet temperature t_{win} : 20 °C and oil viscosity 32 cSt values.



Sıcaklık Değerlerine Göre Düzeltme Faktörü (K) - Temperature Correction Factor (K)

t_{oil}/t_{water}	40,00	35,00	30,00	28,00	25,00	20,00	15,00	10,00
60,00	0,52	0,64	0,76	0,81	0,88	1,00	1,10	1,20
55,00	0,45	0,59	0,73	0,87	0,92	1,00	1,12	1,24
50,00	0,34	0,51	0,68	0,84	0,90	1,00	1,14	1,28

Yağ Cinsine Göre Düzeltme Faktörü (F) / Oil Grade Correction Factor (F)

CST	10	15	20	32	40	50	60	80	100	200	300
F	0,50	0,65	0,77	1,00	1,20	1,40	1,60	1,90	2,10	3,30	4,30

KURULUM | INSTALLATION

Yağ eşanjörleri, soğutma suyunun tam verimde çalışabileceği şekilde ters akışta ve aşağıda belirtilen montaj şemasına uygun olarak kurulmalıdır. Eğer su akış kontrol valfi kullanılacaksa su valf kesinlikle su giriş tarafına uygulanmalıdır. Soğutma suyunun pH değerinin 7,2 - 7,8 arasında olmasına dikkat edilmelidir.

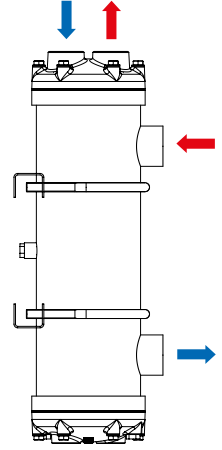
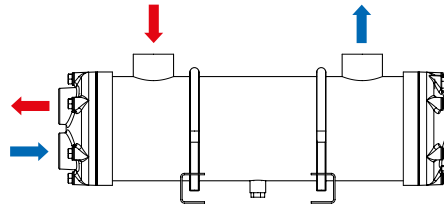
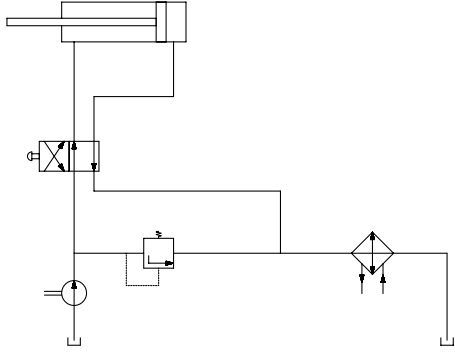
Yağ soğutma eşanjörleri, hidrolik sistemlerde, dönüş borusu ile yağ tankı arasındaki düşük basınçlı alanda uygulanmalıdır. Eğer sistemde böyle bir hat yoksa yağ tankı ile yağ eşanjörü düşük basınçlı ikinci bir pompa ile birbirine bağlanmalı ve soğutma bu şekilde gerçekleştirilmelidir.

Her ihtimale karşı yağ basıncının, soğutma suyu basıncından yüksek olması önerilir. Olası bir kaçak durumunda yağ suya doğru sızar ve hidrolik yağının zarar görmesi kısmen engellenebilir. Hidrolik sistemine ve yağına su karışmamış olur.

Oil heat exchangers should be installed opposite to the flow where they can operate with maximum efficiency and according to the installation schema given below. If a water flow control valve is to be used, this valve must always be used on the water entry side. Care should be taken to keep the coolant water pH value between 7,2 and 7,8. In addition, some water values according to the table below should be used for the coolant water.

Oil cooling heat exchangers must be used in hydraulic systems, in the low pressure area between the return pipe and the oil tank. If there is no such line in the system, the oil tank and the oil heat exchanger must be connected to each other with a second pump and cooling must be performed this way.

To be on the safe side, it is recommended to have a higher oil pressure than the coolant water pressure. In case of a possible leak, oil will leak into the water and you may be partially able to prevent damage to the hydraulic oil. Therefore no water will mix with the hydraulic system and oil.



KULLANIM VE BAKIM | OPERATION AND MAINTENANCE

Hiçbir eşanjör üreticisi kullanım şartlarından dolayı ürünlerine tam bir ömür garantisi veremez. Bununla birlikte ürünlerimizden en iyi verimi ve en uzun ömrü alabilmeniz için bazı önerilerde bulunabiliriz.

- Su devresinin kireçlenmeye ve kirlenmelere karşı uygun kimyasallar ile düzenli olarak temizlenmesi.
- Yağ devresindeki basıncın su devresindeki basınçtan yüksek tutulması.
- Sistem kullanılmadığında yağ eşanjöründeki suyun boşaltılması.
- Yağ devresinde oluşabilecek kirlilikler ve birikimlerin perklorid ile ters akış sağlanarak temizlenmesi.
- Ürünlerin izin verilen limitler dahilinde kullanılması.

No heat exchanger manufacturer can guarantee a precise lifetime for their products due to operating conditions. However, we can provide some recommendations for you to obtain the best efficiency and longest service life from our products.

- Cleaning the water circuit regularly with chemicals against calcification and contamination.
- Keeping the pressure in the oil circuit higher than the pressure in the water circuit.
- Draining the water inside the oil heat exchanger when the system is not in use.
- Cleaning any contamination and deposits in the oil circuit via perchlorate in the opposite flow direction.
- Using the products within allowed specifications.

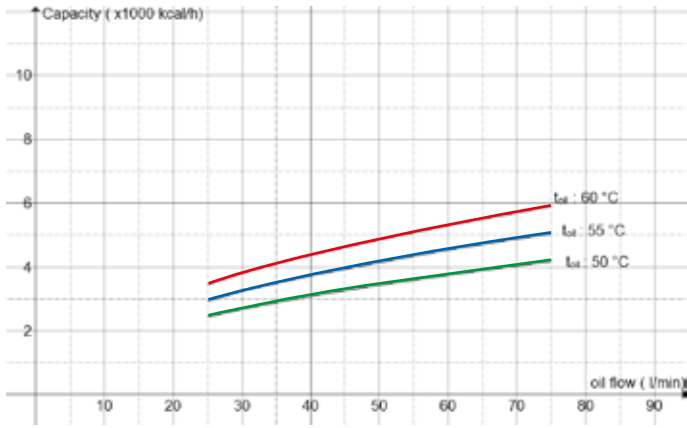
MÜŞTERİ ODAKLI ÇÖZÜMLER | CUSTOMER-FOCUSED SOLUTIONS

Tüm bu standart seri ürünlerin haricinde, müşterilerimizin ihtiyaçlarına yönelik, farklı basınçlarda ve değişik sıcaklıklarda çeşitli ısı eşanjörleri üretilebilmektedir. Bu gibi özel ihtiyaçlarınız için firmamız size özel çözümler üretmekten onur ve mutluluk duyacaktır.

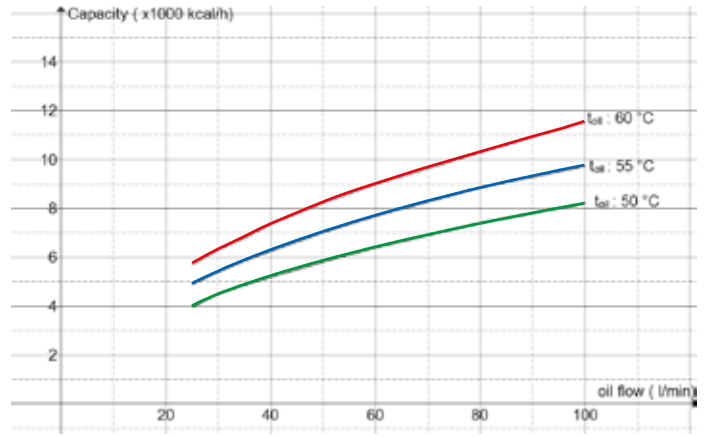
In addition to all these standard series of products, we can manufacture various types of heat exchangers with different pressure and temperature values to address the needs of our customers. Our company will be proud and happy to produce custom solutions for you if you have such needs.

$t_{w-in} = 20\text{ °C}$

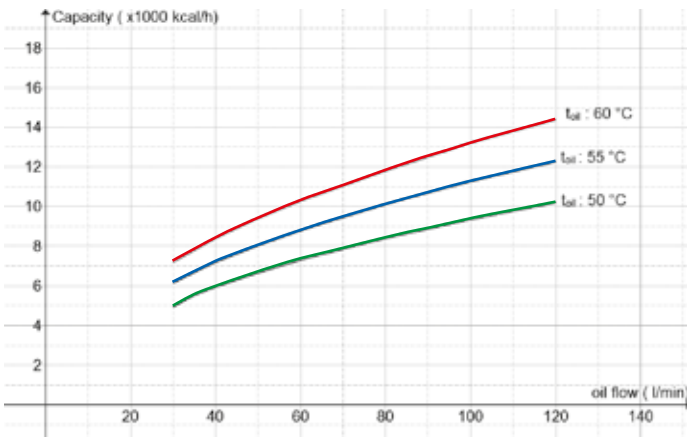
RYG 90/330-4P



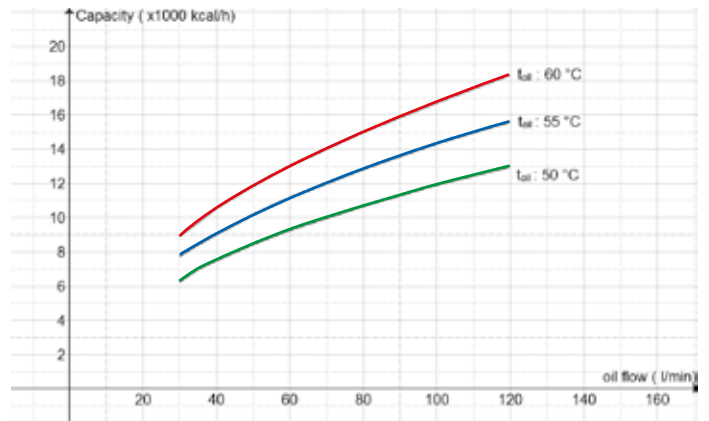
RYG 90/510-4P



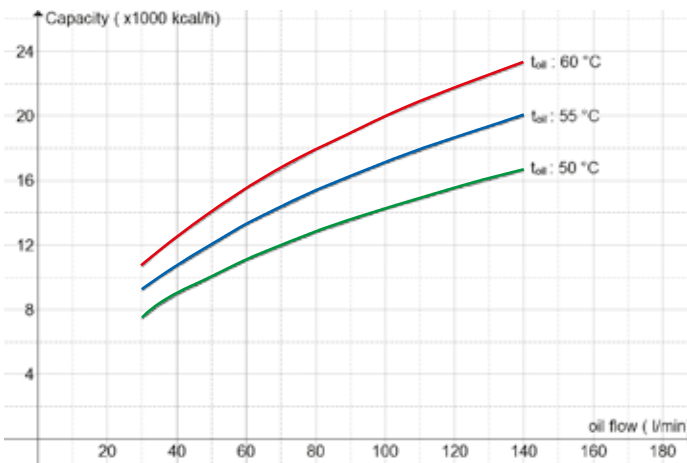
RYG 90/580-4P



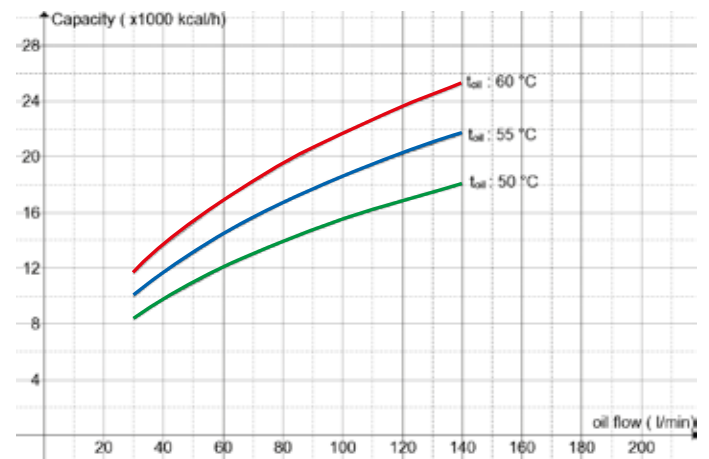
RYG 90/740-4P



RYG 90/910-4P

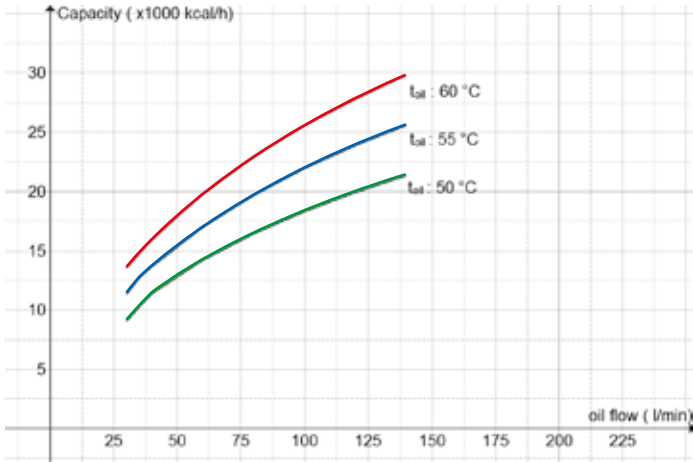


RYG 90/1060-4P

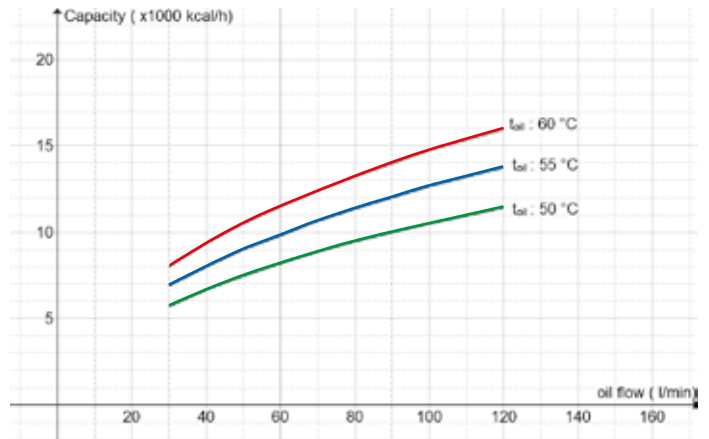


$t_{w-in} = 20\text{ }^{\circ}\text{C}$

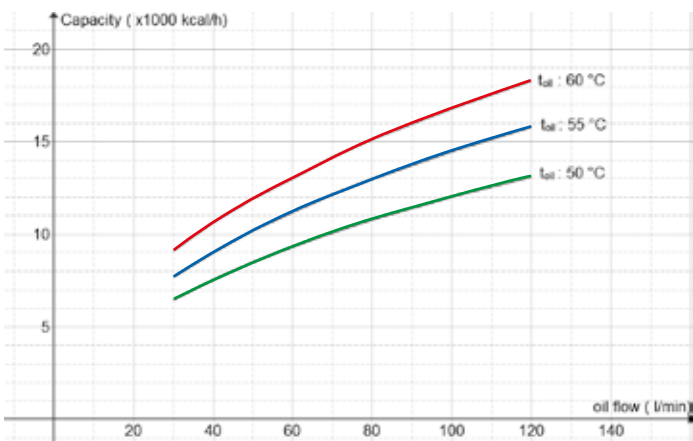
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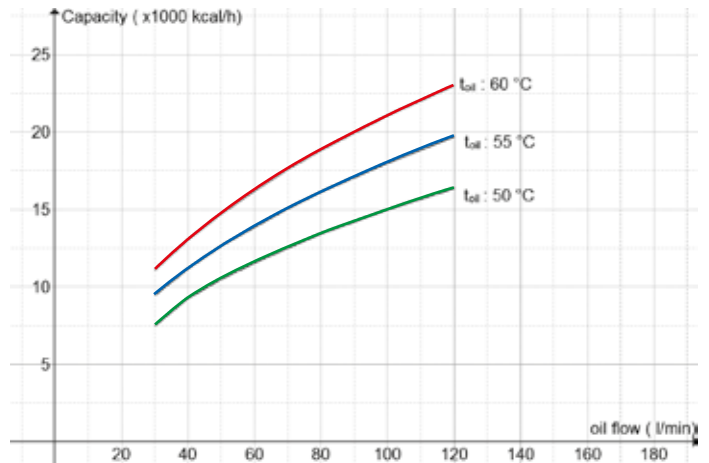
RYG 100/510-4P



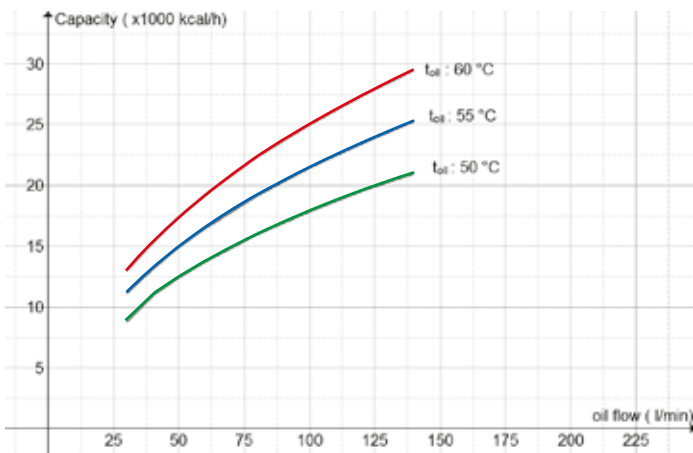
RYG 100/580-4P



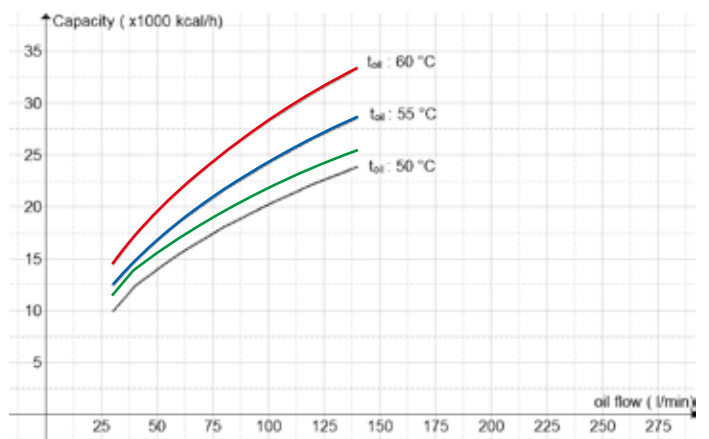
RYG 100/740-4P



RYG 100/910-4P

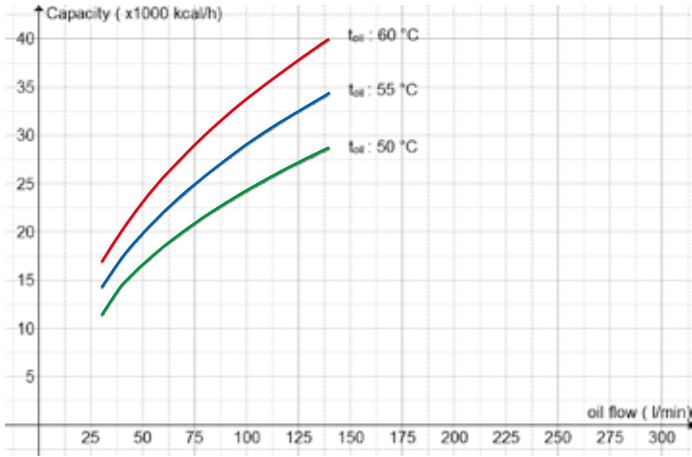


RYG 100/1060-4P

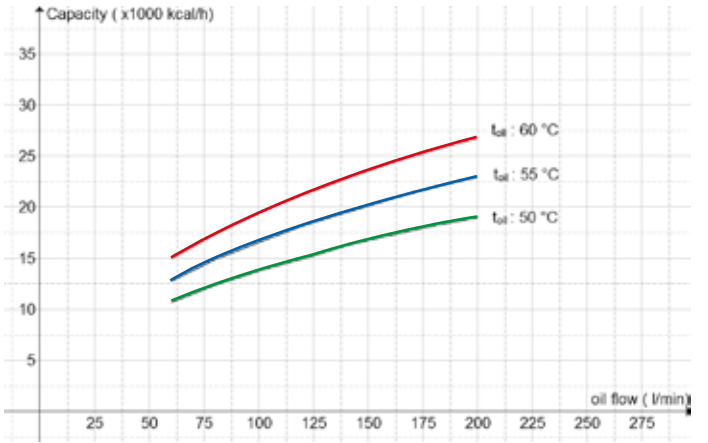


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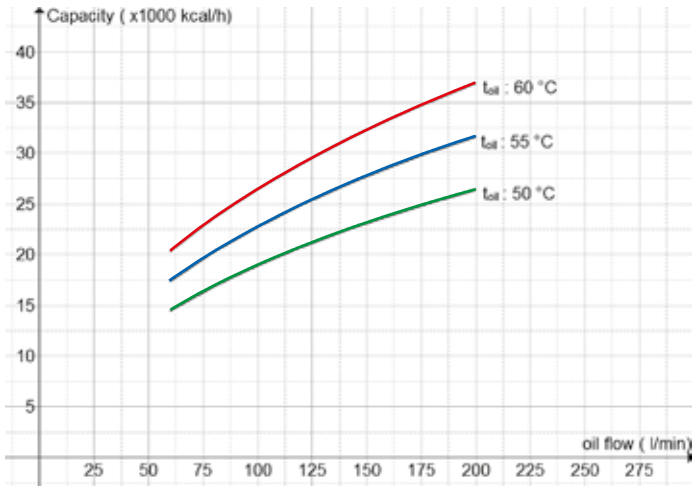
RYG 100/1360-4P



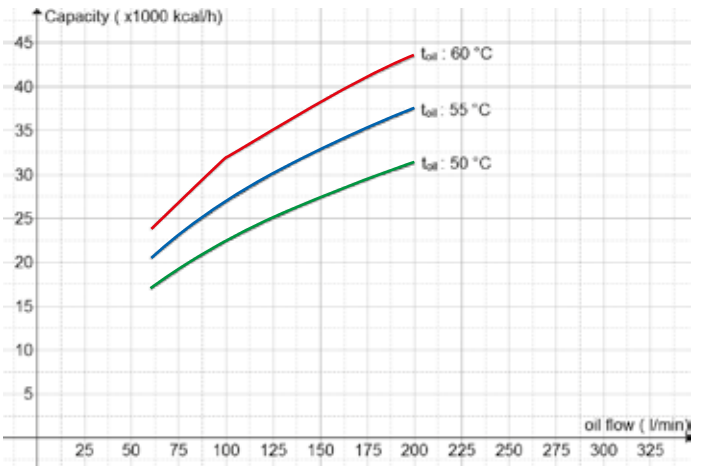
RYG 115/510-4P



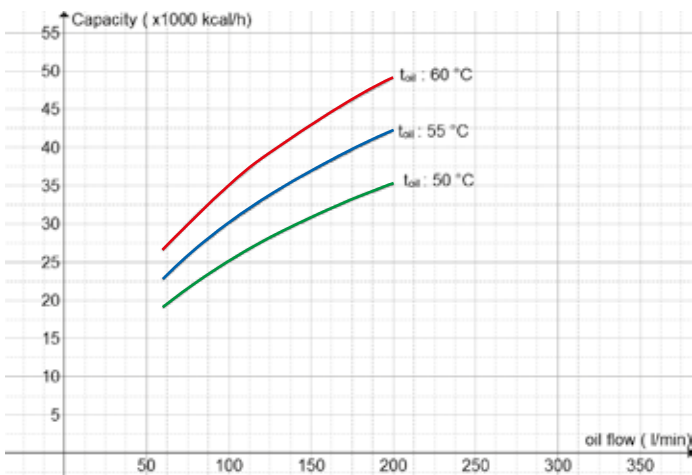
RYG 115/810-4P



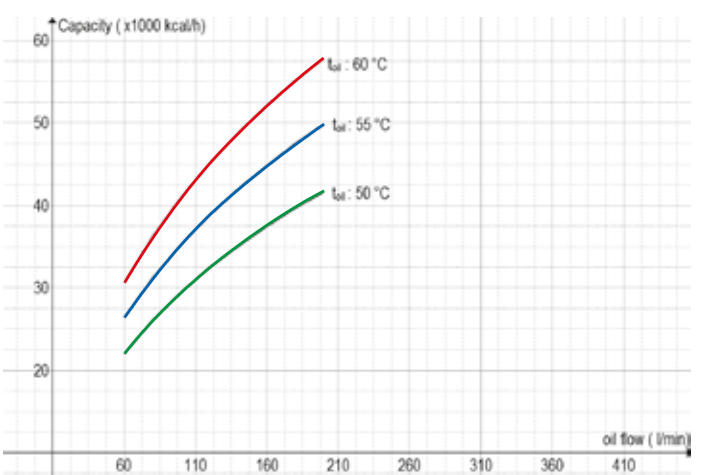
RYG 115/910-4P



RYG 115/1060-4P

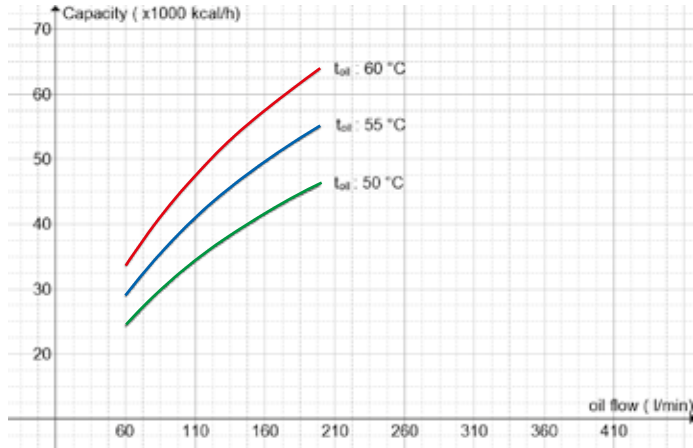


RYG 115/1360-4P

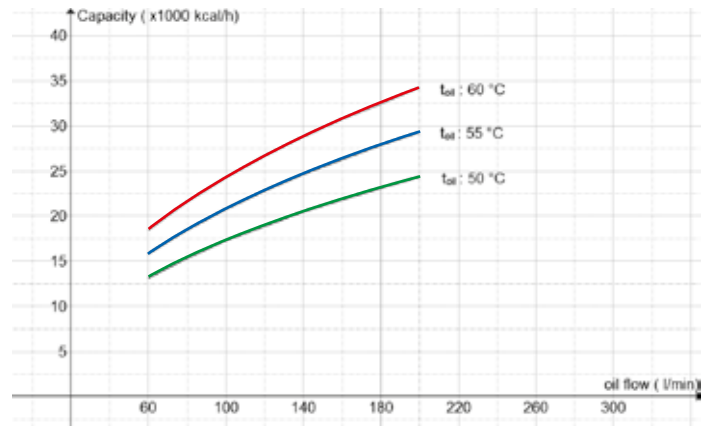


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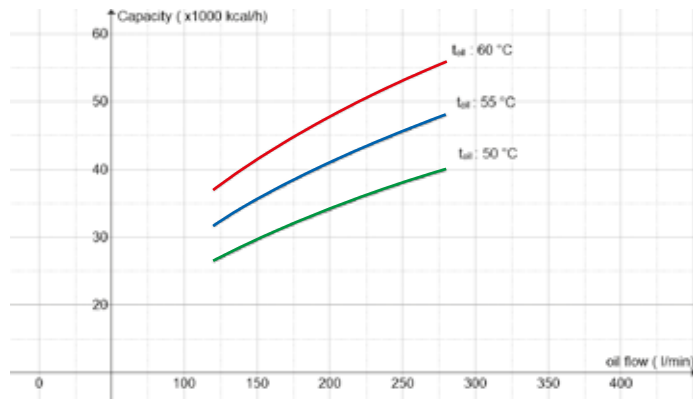
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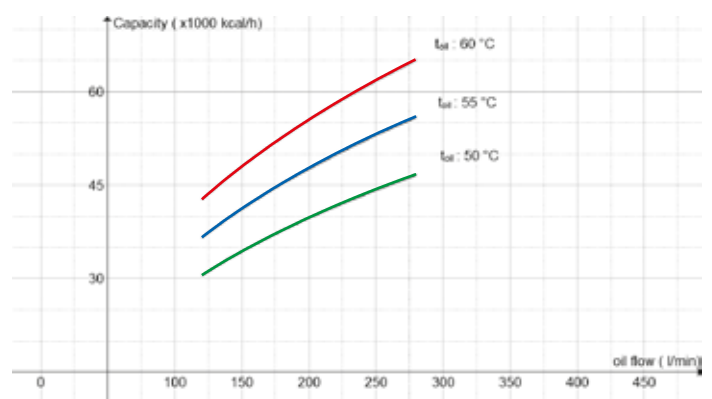
RYG 140/525-4P



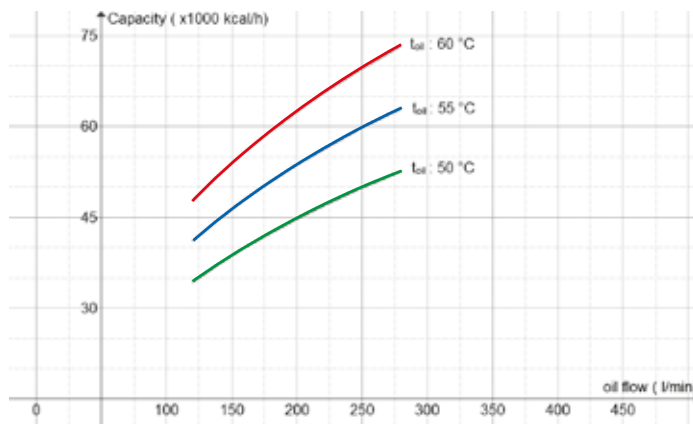
RYG 140/755-4P



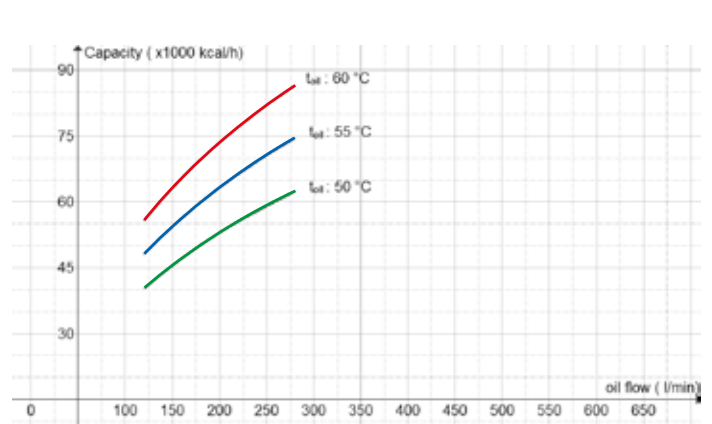
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RYG 140/1075-4P

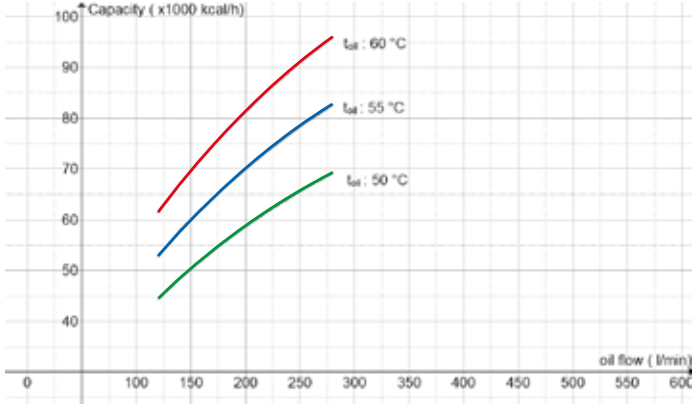


RYG 140/1375-4P

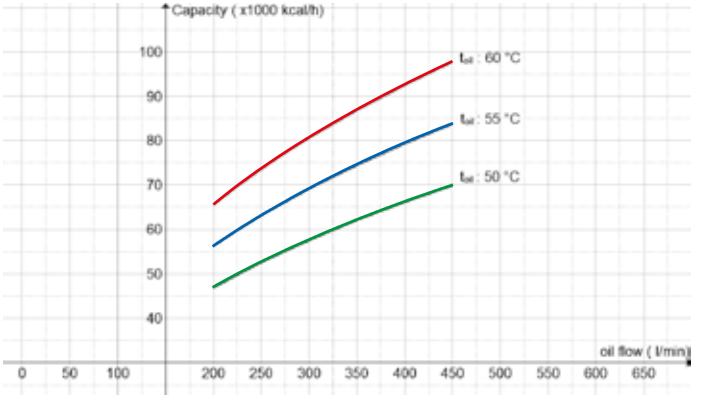


$t_{w-in} = 20\text{ °C}$

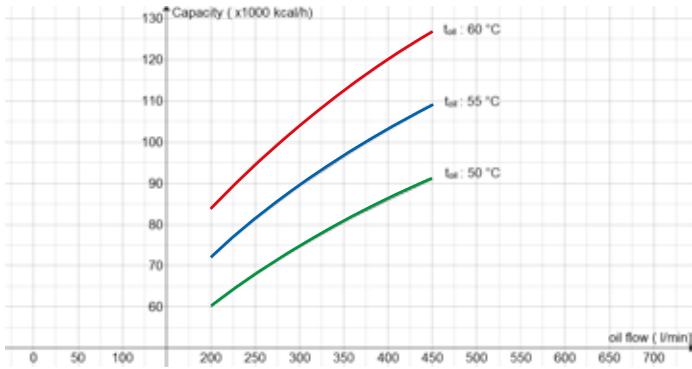
RYG 140/1625-4P



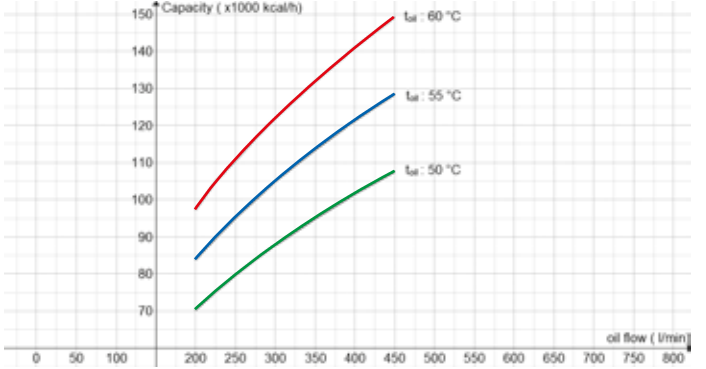
RYG 170/775-4P



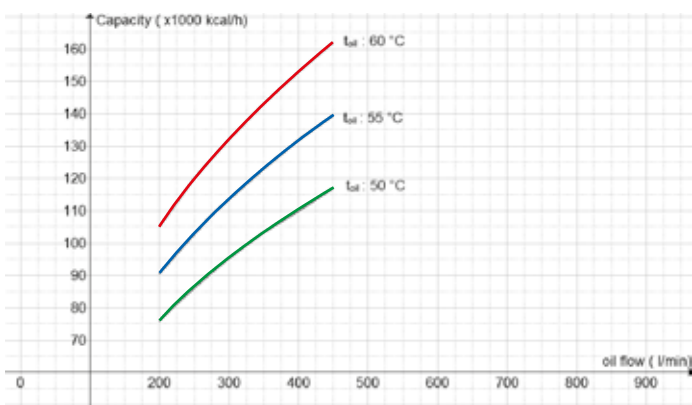
RYG 170/1095-4P



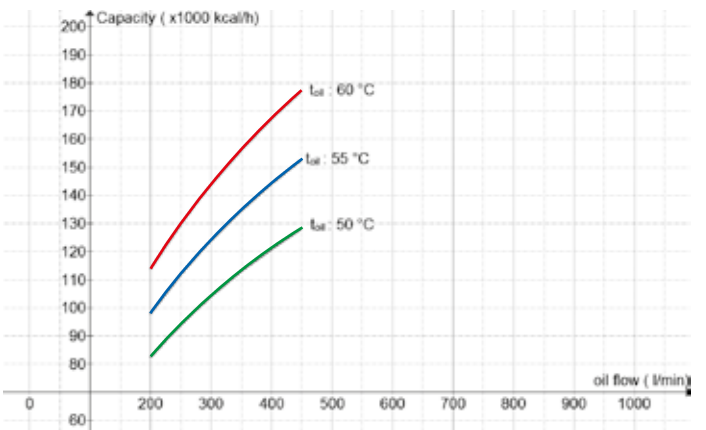
RYG 170/1395-4P



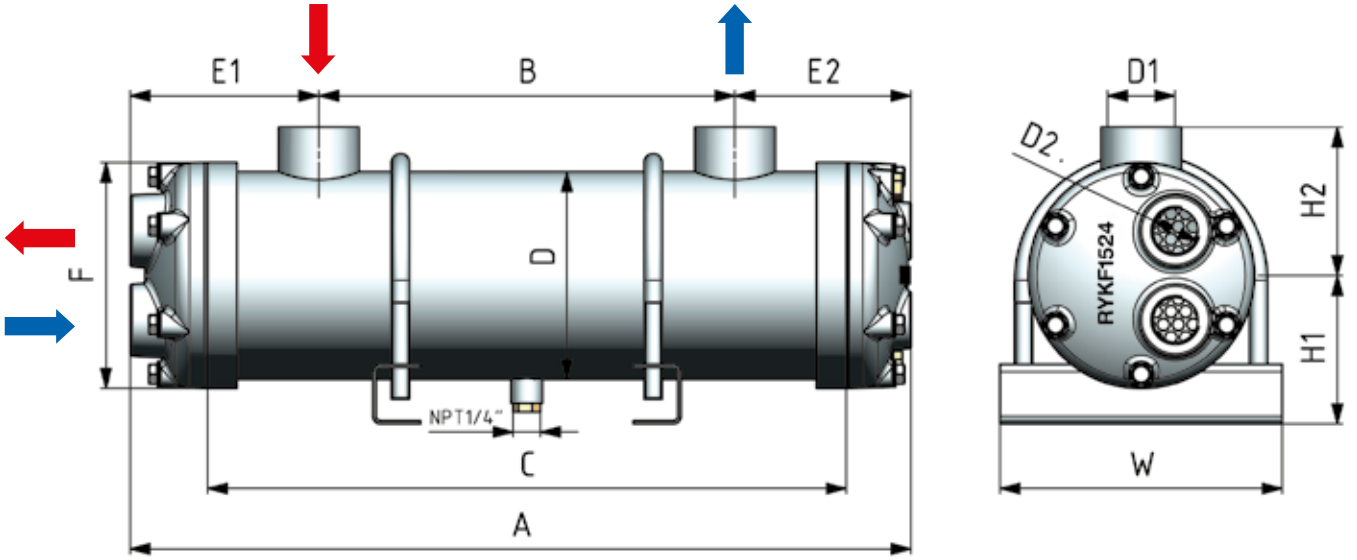
RYG 170/1645-4P



RYG 170/1915-4P



Model $t_{w-in} = 20\text{ }^{\circ}\text{C}$ oil $V = 32\text{ cSt}$		RYG 90/330-4P	RYG 90/510-4P	RYG 90/580-4P	RYG 90/740-4P	RYG 90/910-4P	RYG 90/1060-4P
Maksimum Kapasite / Maximum Capacity	kcal/h	5895	11550	14355	18360	23300	25250
Yüzey Alanı / Surface Area	m ²	0,27	0,47	0,55	0,72	0,91	1,07
Yağ Debisi (max.) / Oil Flow (max.)	l/min	75	100	120	120	140	140
Su Debisi (max.) / Water Flow (max.)	m ³ /h	2,8	2,8	2,8	2,8	2,8	2,8
Su Devre Sayısı / Water Pass Number	pass	4	4	4	4	4	4

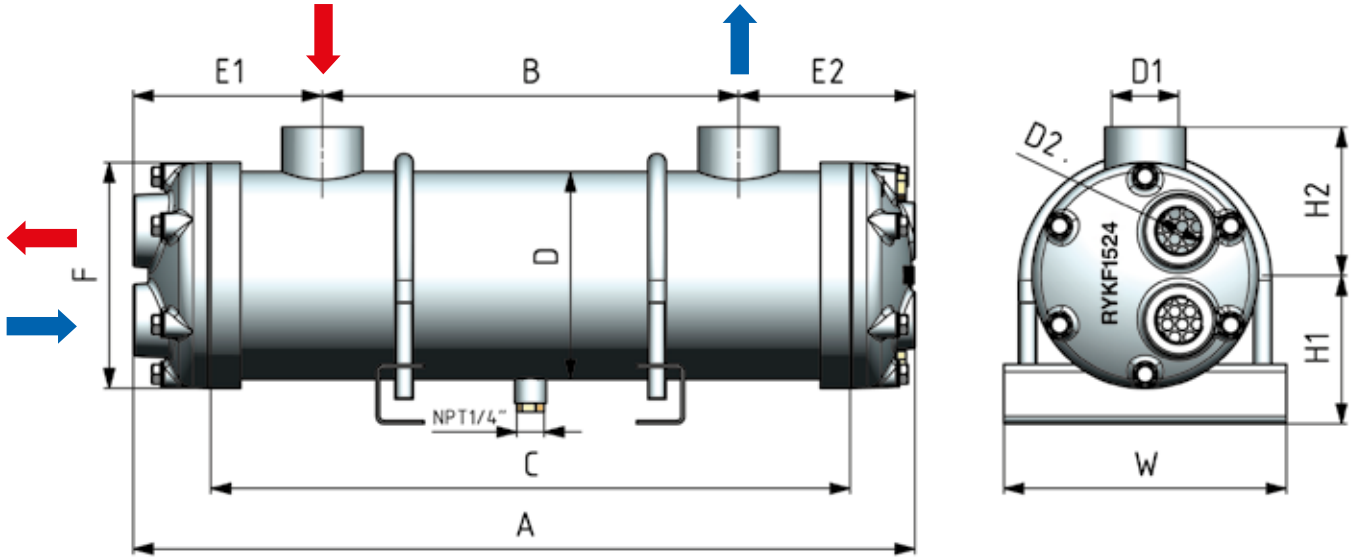


Ölçüler / Dimensions		RYG 90/330-4P	RYG 90/510-4P	RYG 90/580-4P	RYG 90/740-4P	RYG 90/910-4P	RYG 90/1060-4P
A	mm	328	508	578	738	908	1058
B	mm	140	290	360	520	690	840
C	mm	250	430	500	660	830	980
D	mm	89	89	89	89	89	89
E1	mm	95	110	110	110	110	110
E2	mm	93	108	108	108	108	108
F	mm	110	110	110	110	110	110
H1	mm	75	75	75	75	75	75
H2	mm	65	65	65	65	65	65
W	mm	140	140	140	140	140	140
D1	inch	G1"	G1"	G1"	G1"	G1"	G1"
D2	inch	G1/2"	G1/2"	G1/2"	G1/2"	G1/2"	G1/2"
P	kg	8,2 kg	10,4 kg	11,2 kg	13,2 kg	15,2 kg	17,0 kg

Malzeme Özellikleri / Material Properties

Isı Transfer Boruları / Heat Transfer Tubes	Bakır / Copper	Kapaklar / Caps	GGG40 Özellikli Döküm / GGG40 Cast Iron
Aynalar / Tubesheet	Karbon Çeliği / Carbon Steel	D1	Yağ Giriş-Çıkış / Oil Inlet-Outlet
Gövde / Shell	Karbon Çeliği / Carbon Steel	D2	Su Giriş-Çıkış / Water Inlet-Outlet

Model $t_{w-in} = 20\text{ }^{\circ}\text{C}$ oil $V = 32\text{ cSt}$		RYG 90/1360-4P	RYG 100/510-4P	RYG 100/580-4P	RYG 100/740-4P	RYG 100/910-4P	RYG 100/1060-4P
Maksimum Kapasite / Maximum Capacity	kcal/h	29800	15950	18300	23000	29500	33400
Yüzey Alanı / Surface Area	m ²	1,40	0,64	0,75	0,99	1,24	1,47
Yağ Debisi (max.) / Oil Flow (max.)	l/min	140	120	120	120	140	140
Su Debisi (max.) / Water Flow (max.)	m ³ /h	2,8	3,8	3,8	3,8	3,8	3,8
Su Devre Sayısı / Water Pass Number	pass	4	4	4	4	4	4

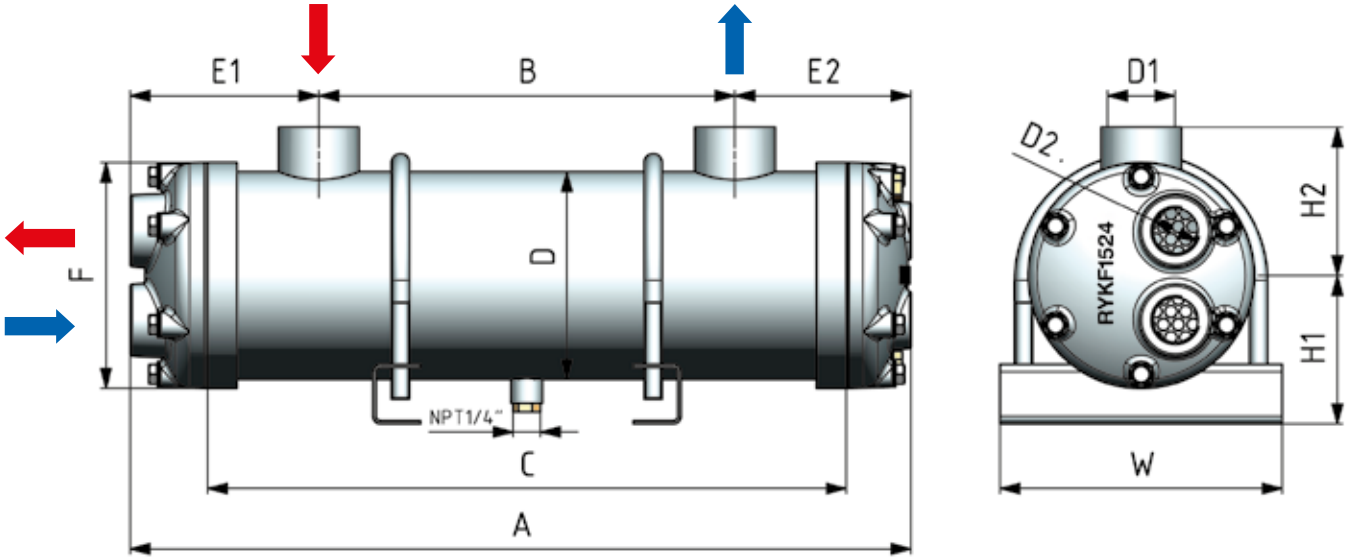


Ölçüler / Dimensions		RYG 90/1360-4P	RYG 100/510-4P	RYG 100/580-4P	RYG 100/740-4P	RYG 100/910-4P	RYG 100/1060-4P
A	mm	1358	508	578	738	908	1058
B	mm	1140	280	330	490	660	810
C	mm	1280	430	500	660	830	980
D	mm	89	102	102	102	102	102
E1	mm	110	115	125	125	125	125
E2	mm	108	113	123	123	123	123
F	mm	110	120	120	120	120	120
H1	mm	75	81	81	81	81	81
H2	mm	65	71	71	71	71	71
W	mm	140	150	150	150	150	150
D1	inch	G1"	G1 1/4"	G1 1/4"	G1 1/4"	G1 1/4"	G1 1/4"
D2	inch	G1/2"	G3/4"	G3/4"	G3/4"	G3/4"	G3/4"
P	kg	20,6 kg	11,9 kg	12,8 kg	13,7 kg	15,9 kg	17,9 kg

Malzeme Özellikleri / Material Properties

Isı Transfer Boruları / Heat Transfer Tubes	Bakır / Copper	Kapaklar / Caps	GGG40 Özellikli Döküm / GGG40 Cast Iron
Aynalar / Tubesheet	Karbon Çeliği / Carbon Steel	D1	Yağ Giriş-Çıkış / Oil Inlet-Outlet
Gövde / Shell	Karbon Çeliği / Carbon Steel	D2	Su Giriş-Çıkış / Water Inlet-Outlet

Model $t_{w-in} = 20\text{ }^{\circ}\text{C}$ oil $V = 32\text{ cSt}$		RYG 100/1360-4P	RYG 115/510-4P	RYG 115/810-4P	RYG 115/910-4P	RYG 115/1060-4P	RYG 115/1360-4P
Maksimum Kapasite / Maximum Capacity	kcal/h	39900	26800	36900	43500	49100	57800
Yüzey Alanı / Surface Area	m ²	1,92	0,81	1,38	1,57	1,86	2,43
Yağ Debisi (max.) / Oil Flow (max.)	l/min	140	200	200	200	200	200
Su Debisi (max.) / Water Flow (max.)	m ³ /h	3,8	4,5	4,5	4,5	4,5	4,5
Su Devre Sayısı / Water Pass Number	pass	4	4	4	4	4	4

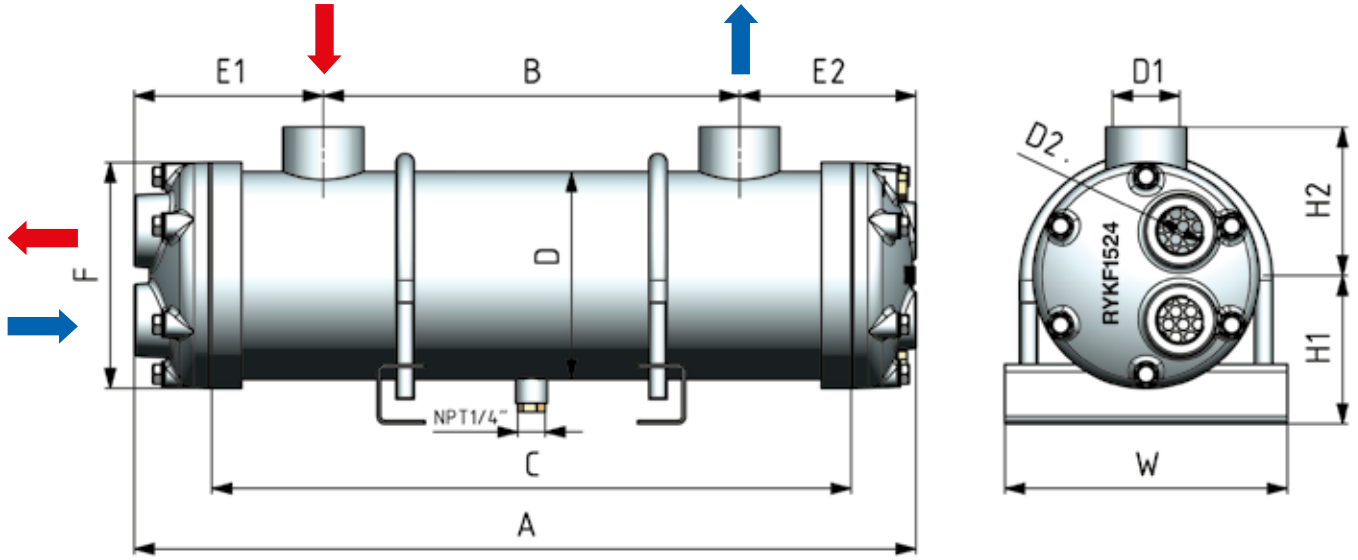


Ölçüler / Dimensions		RYG 100/1360-4P	RYG 115/510-4P	RYG 115/810-4P	RYG 115/910-4P	RYG 115/1060-4P	RYG 115/1360-4P
A	mm	1358	511	811	911	1061	1361
B	mm	1110	270	540	640	790	1090
C	mm	1280	430	730	830	980	1280
D	mm	102	114	114	114	114	114
E1	mm	125	122	137	137	137	137
E2	mm	123	119	134	134	134	134
F	mm	120	130	130	130	130	130
H1	mm	81	87	87	87	87	87
H2	mm	71	82	82	82	82	82
W	mm	150	160	160	160	160	160
D1	inch	G1 1/2"	G1 1/2"	G1 1/2"	G1 1/2"	G1 1/2"	G1 1/2"
D2	inch	G3/4"	G1"	G1"	G1"	G1"	G1"
P	kg	21,9 kg	16,6 kg	22,3 kg	24,2 kg	27,1 kg	32,8 kg

Malzeme Özellikleri / Material Properties

Isı Transfer Boruları / Heat Transfer Tubes	Bakır / Copper	Kapaklar / Caps	GGG40 Özellikli Döküm / GGG40 Cast Iron
Aynalar / Tubesheet	Karbon Çeliği / Carbon Steel	D1	Yağ Giriş-Çıkış / Oil Inlet-Outlet
Gövde / Shell	Karbon Çeliği / Carbon Steel	D2	Su Giriş-Çıkış / Water Inlet-Outlet

Model $t_{w-in} = 20\text{ }^{\circ}\text{C}$ oil $V = 32\text{ cSt}$		RYG 115/1610-4P	RYG 140/525-4P	RYG 140/755-4P	RYG 140/925-4P	RYG 140/1075-4P	RYG 140/1375-4P
Maksimum Kapasite / Maximum Capacity	kcal/h	63900	34250	55800	65100	73380	86500
Yüzey Alanı / Surface Area	m ²	2,90	1,26	1,94	2,44	2,89	3,77
Yağ Debisi (max.) / Oil Flow (max.)	l/min	200	200	280	280	280	280
Su Debisi (max.) / Water Flow (max.)	m ³ /h	4,5	7	7	7	7	7
Su Devre Sayısı / Water Pass Number	pass	4	4	4	4	4	4

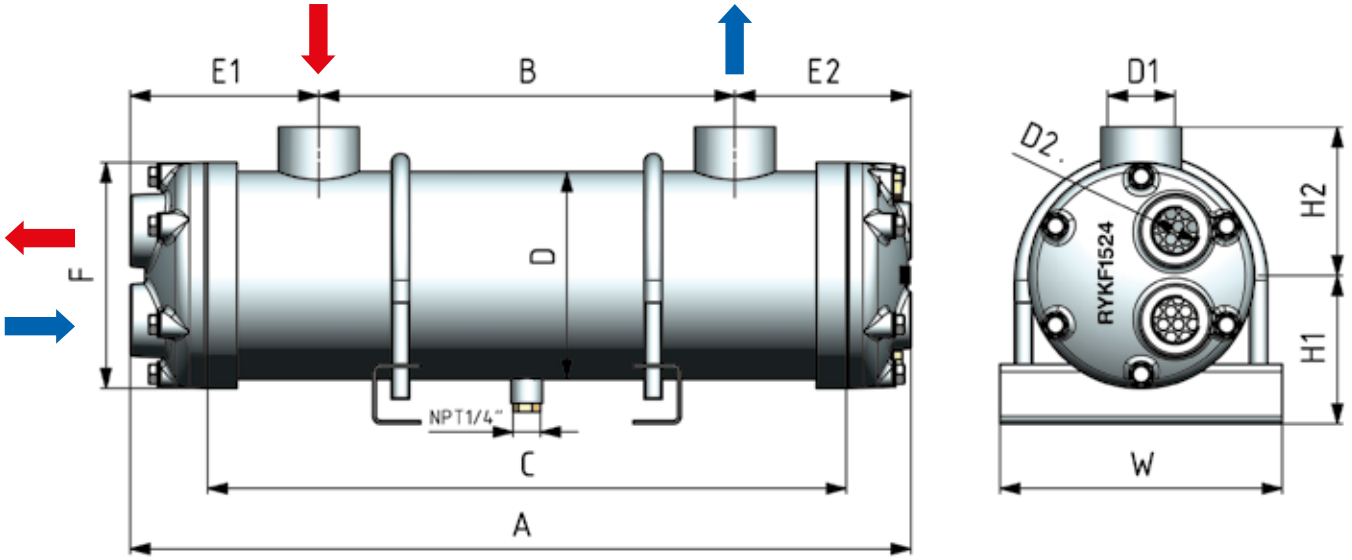


Ölçüler / Dimensions		RYG 115/1610-4P	RYG 140/525-4P	RYG 140/755-4P	RYG 140/925-4P	RYG 140/1075-4P	RYG 140/1375-4P
A	mm	1611	524	754	924	1074	1374
B	mm	1340	270	470	640	790	1090
C	mm	1530	430	660	830	980	1280
D	mm	114	140	140	140	140	140
E1	mm	137	130	145	145	145	145
E2	mm	134	124	139	139	139	139
F	mm	130	152	152	152	152	152
H1	mm	87	100	100	100	100	100
H2	mm	82	95	95	95	95	95
W	mm	160	190	190	190	190	190
D1	inch	G1 1/2"	G2"	G2"	G2"	G2"	G2"
D2	inch	G1"	G1 1/4"	G1 1/4"	G1 1/4"	G1 1/4"	G1 1/4"
P	kg	37,5 kg	23,3 kg	30,0 kg	35,0 kg	39,3 kg	45,4 kg

Malzeme Özellikleri / Material Properties

Isı Transfer Boruları / Heat Transfer Tubes	Bakır / Copper	Kapaklar / Caps	GGG40 Özellikte Döküm / GGG40 Cast Iron
Aynalar / Tubesheet	Karbon Çeliği / Carbon Steel	D1	Yağ Giriş-Çıkış / Oil Inlet-Outlet
Gövde / Shell	Karbon Çeliği / Carbon Steel	D2	Su Giriş-Çıkış / Water Inlet-Outlet

Model $t_{w-in} = 20\text{ }^{\circ}\text{C}$ oil $V = 32\text{ cSt}$		RYG 140/1625-4P	RYG 170/775-4P	RYG 170/1095-4P	RYG 170/1395-4P	RYG 170/1645-4P	RYG 170/1915-4P
Maksimum Kapasite / Maximum Capacity	kcal/h	96000	97700	126830	149190	162000	177150
Yüzey Alanı / Surface Area	m ²	4,51	3,03	4,50	5,88	7,03	8,28
Yağ Debisi (max.) / Oil Flow (max.)	l/min	280	450	450	450	450	450
Su Debisi (max.) / Water Flow (max.)	m ³ /h	7	12	12	12	12	12
Su Devre Sayısı / Water Pass Number	pass	4	4	4	4	4	4



Ölçüler / Dimensions		RYG 140/1625-4P	RYG 170/775-4P	RYG 170/1095-4P	RYG 170/1395-4P	RYG 170/1645-4P	RYG 170/1915-4P
A	mm	1624	776	1096	1396	1646	1916
B	mm	1340	470	790	1090	1340	1610
C	mm	1530	660	980	1280	1530	1800
D	mm	140	168	168	168	168	168
E1	mm	145	157	157	157	157	157
E2	mm	139	149	149	149	149	149
F	mm	152	200	200	200	200	200
H1	mm	100	114	114	114	114	114
H2	mm	95	109	109	109	109	109
W	mm	190	216	216	216	216	216
D1	inch	G2"	G2"	G2"	G2"	G2"	G2"
D2	inch	G1 1/4"	G1 1/2"	G1 1/2"	G1 1/2"	G1 1/2"	G1 1/2"
P	kg	55,3 kg	45,7 kg	58,4 kg	70,3 kg	80,2 kg	90,9 kg

Malzeme Özellikleri / Material Properties

Isı Transfer Boruları / Heat Transfer Tubes	Bakır / Copper	Kapaklar / Caps	GGG40 Özellikle Döküm / GGG40 Cast Iron
Aynalar / Tubesheet	Karbon Çeliği / Carbon Steel	D1	Yağ Giriş-Çıkış / Oil Inlet-Outlet
Gövde / Shell	Karbon Çeliği / Carbon Steel	D2	Su Giriş-Çıkış / Water Inlet-Outlet

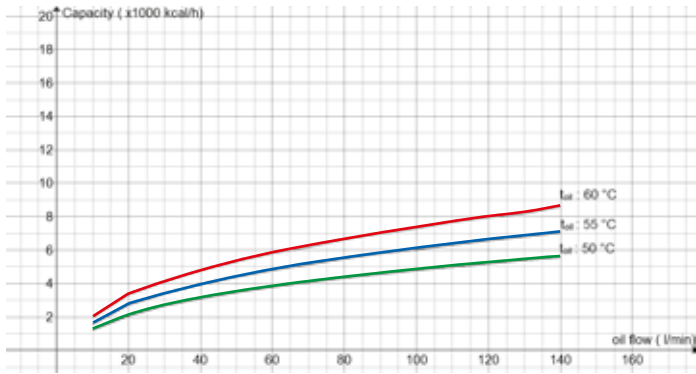
Kolay Kullanımlı RYS Serisi Yağ Eşanjörleri

A Handy Gadget,
RYS Series Oil Coolers

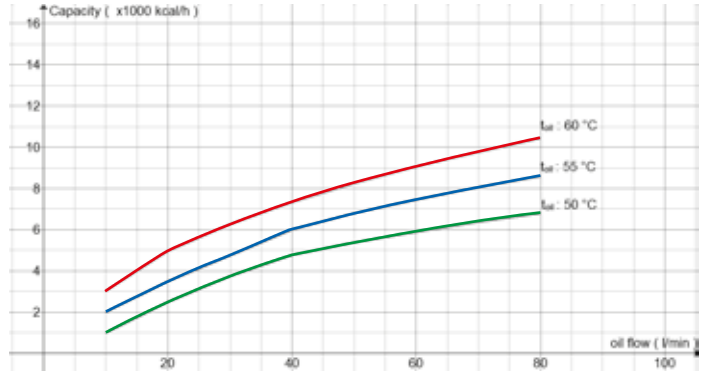


$t_{w-in} = 20\text{ }^{\circ}\text{C}$

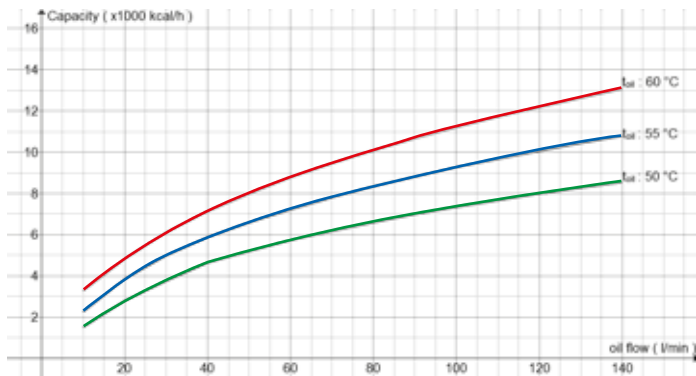
RYS 90/400



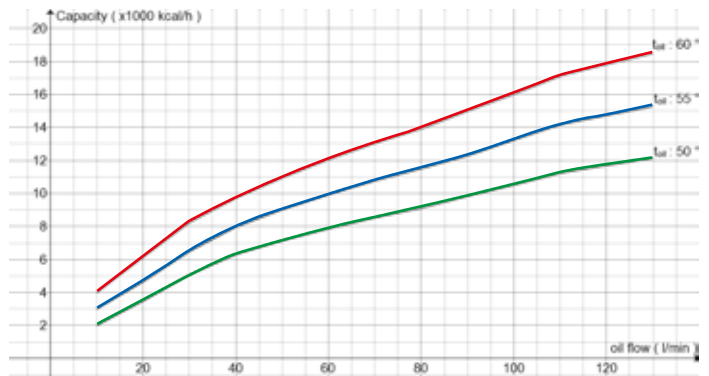
RYS 90/650



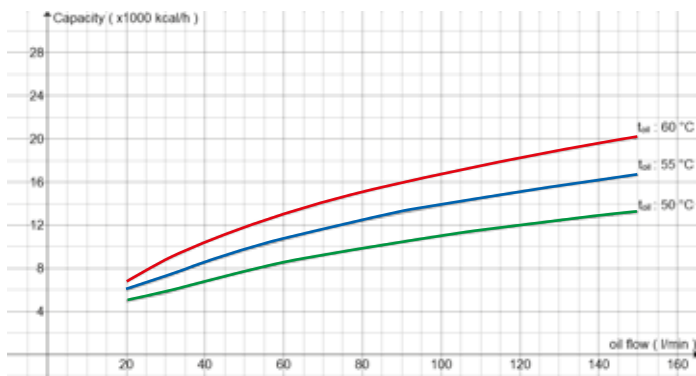
RYS 100/500



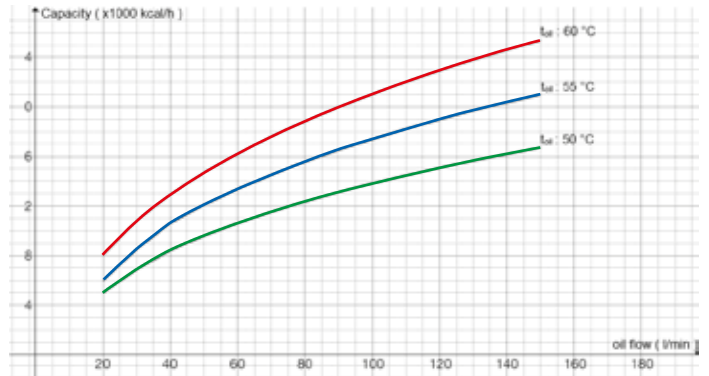
RYS 100/750



RYS 120/750

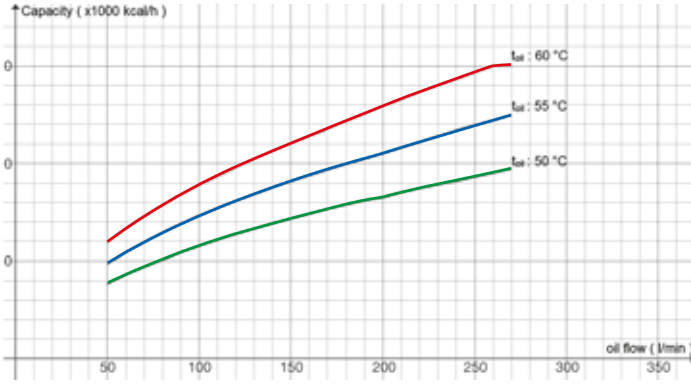


RYS 120/1000

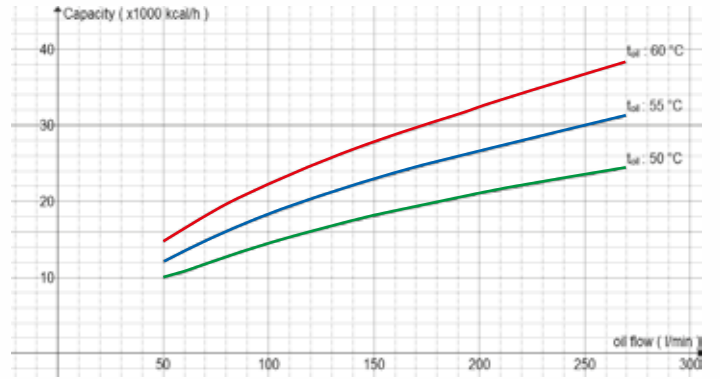


$t_{w-in} = 20\text{ }^{\circ}\text{C}$

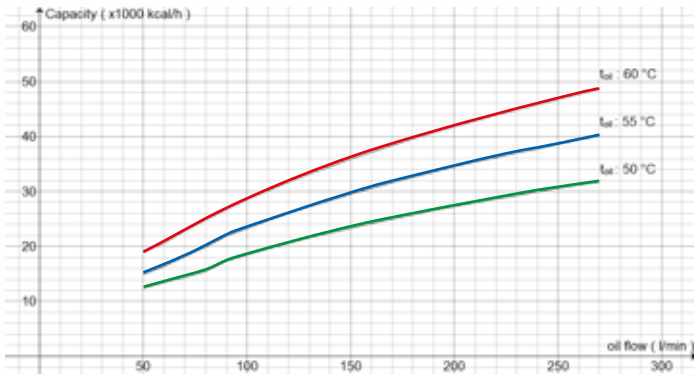
RYS 140/600



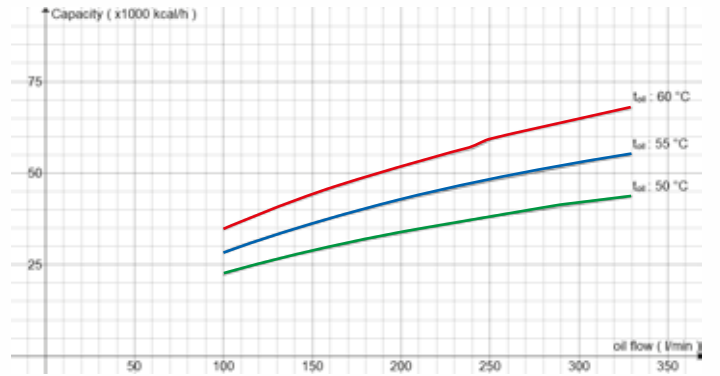
RYS 140/750



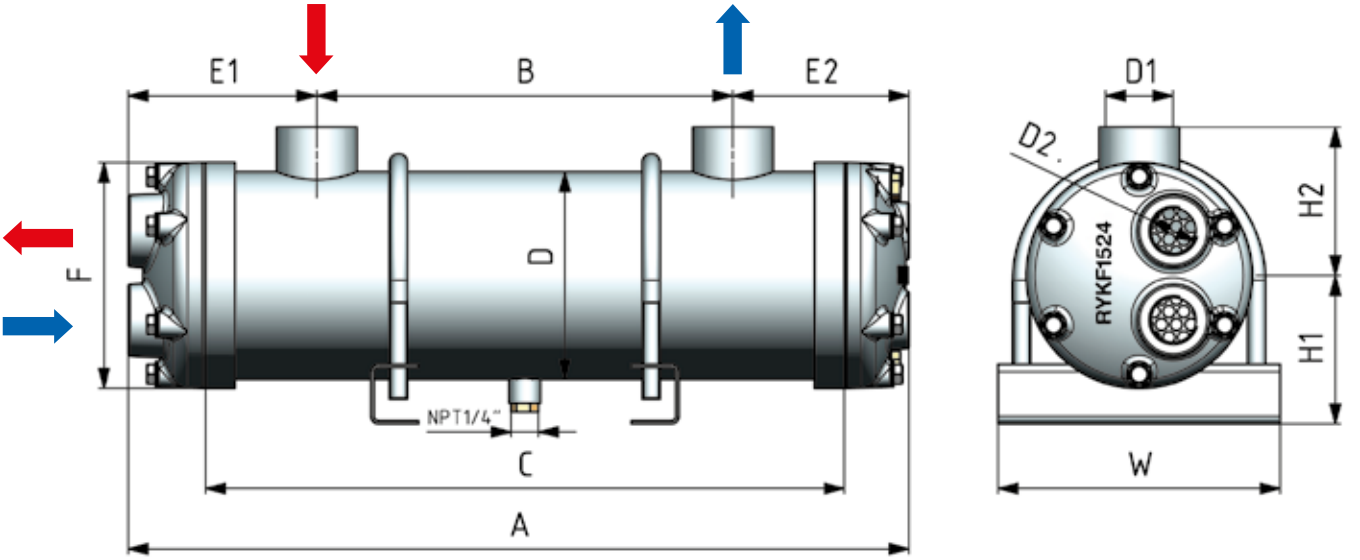
RYS 140/1000



RYS 170/1000



Model $t_{w-in} = 20\text{ }^{\circ}\text{C}$ $t_{oil} = 55\text{ }^{\circ}\text{C}$ oil V = 32 cSt		RYS 90/400	RYS 90/650	RYS 100/500	RYS 100/750	RYS 120/750	RYS 120/1000	RYS 140/600	RYS 140/750	RYS 140/1000	RYS 170/1000
Nominal Kapasite / Nominal Capacity	kcal/h	6200	9100	11100	14800	20100	25300	29400	35100	47000	60300
Yüzey Alanı / Surface Area	m ²	0,36	0,58	0,61	0,90	1,08	1,44	1,40	1,75	2,34	3,35
Yağ Debisi (max.) / Oil Flow (max.)	l/min	140	140	150	150	150	150	270	270	270	330
Su Debisi (max.) / Water Flow (max.)	m ³ /h	3,6	3,6	4,0	4,0	4,2	4,2	7,2	7,2	7,2	9,0
Su Devre Sayısı / Water Pass Number	pass	2	2	2	2	2	2	4	4	4	4



Ölçüler / Dimensions		RYS 90/400	RYS 90/650	RYS 100/500	RYS 100/750	RYS 120/750	RYS 120/1000	RYS 140/600	RYS 140/750	RYS 140/1000	RYS 170/1000
A	mm	500	750	600	850	850	1100	700	850	1100	1100
B	mm	230	480	330	580	580	830	430	580	800	800
C	mm	400	650	500	750	750	1000	600	750	1000	1000
D	mm	89	89	101	101	114	114	139	139	139	168
K	mm	200	325	250	375	375	500	300	375	500	500
M	mm	100	100	110	110	130	130	155	155	155	200
N	mm	60	60	70	70	90	90	115	115	115	160
G	mm	100	100	110	110	130	130	155	155	155	200
D1	inch	G1"	G1"	G1"	G1"	G1 1/4"	G1 1/4"	G1 1/2"	G1 1/2"	G1 1/2"	G2"
D2	inch	G1/2"	G1/2"	G3/4"	G3/4"	G1"	G1"	G1 1/4"	G1 1/4"	G1 1/4"	G1 1/2"

Malzeme Özellikleri / Material Properties

Isı Transfer Boruları / Heat Transfer Tubes	Bakır / Copper	Kapaklar / Caps	GGG40 Özellikle Döküm / GGG40 Cast Iron
Aynalar / Tubesheet	Karbon Çeliği / Carbon Steel	D1	Yağ Giriş-Çıkış / Oil Inlet-Outlet
Gövde / Shell	Karbon Çeliği / Carbon Steel	D2	Su Giriş-Çıkış / Water Inlet-Outlet

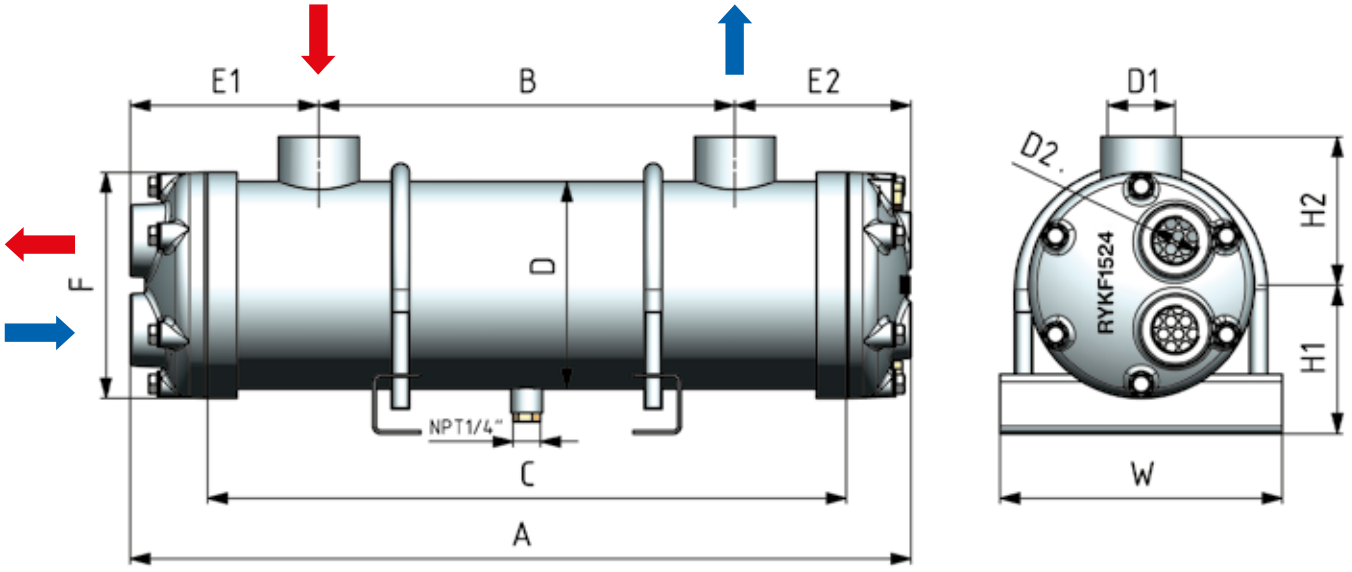
Deniz Suyuna Direnen RYS-M^{"Marin"} Serisi Yağ Eşanjörleri

RYS-M^{"Marin"} Type Oil Coolers
Withstanding to Sea Water



Deniz Suyu Soğutmalı Yağ Soğutma Eşanjörleri / Sea Water - Oil Coolers

Model $t_{w-in} = 20\text{ }^{\circ}\text{C}$ $t_{oil} = 55\text{ }^{\circ}\text{C}$ oil V = 32 cSt		RYS-M 90/400	RYS-M 90/650	RYS-M 100/500	RYS-M 100/750	RYS-M 120/750	RYS-M 120/1000	RYS-M 140/600	RYS-M 140/750	RYS-M 140/1000	RYS-M 170/1000
Nominal Kapasite / Nominal Capacity	kcal/h	6200	9100	11100	14800	20100	25300	29400	35100	47000	60300
Yüzey Alanı / Surface Area	m ²	0,36	0,58	0,61	0,90	1,08	1,44	1,40	1,75	2,34	3,35
Yağ Debisi (max.) / Oil Flow (max.)	l/min	140	140	150	150	150	150	270	270	270	330
Su Debisi (max.) / Water Flow (max.)	m ³ /h	3,6	3,6	4,0	4,0	4,2	4,2	7,2	7,2	7,2	9,0
Su Devre Sayısı / Water Pass Number	pass	2	2	2	2	2	2	4	4	4	4



Ölçüler / Dimensions		RYS-M 90/400	RYS-M 90/650	RYS-M 100/500	RYS-M 100/750	RYS-M 120/750	RYS-M 120/1000	RYS-M 140/600	RYS-M 140/750	RYS-M 140/1000	RYS-M 170/1000
A	mm	500	750	600	850	850	1100	700	850	1100	1100
B	mm	230	480	330	580	580	830	430	580	800	800
C	mm	400	650	500	750	750	1000	600	750	1000	1000
D	mm	89	89	101	101	114	114	139	139	139	168
K	mm	200	325	250	375	375	500	300	375	500	500
M	mm	100	100	110	110	130	130	155	155	155	200
N	mm	60	60	70	70	90	90	115	115	115	160
G	mm	100	100	110	110	130	130	155	155	155	200
D1	inch	G1"	G1"	G1"	G1"	G1 1/4"	G1 1/4"	G1 1/2"	G1 1/2"	G1 1/2"	G2"
D2	inch	G1/2"	G1/2"	G3/4"	G3/4"	G1"	G1"	G1 1/4"	G1 1/4"	G1 1/4"	G1 1/2"

Malzeme Özellikleri / Material Properties

Isı Transfer Boruları / Heat Transfer Tubes	Bakır Nikel 90/10 / Copper Nickel 90/10	Kapaklar / Caps	GGG40 Özellikte Döküm / GGG40 Cast Iron
Aynalar / Tubesheet	316L Paslanmaz Çelik / 316L Stainless Steel	D1	Yağ Giriş-Çıkış / Oil Inlet-Outlet
Gövde / Shell	Karbon Çeliği / Carbon Steel	D2	Su Giriş-Çıkış / Water Inlet-Outlet

Not: Ürün grafikler için RYS grubuna bakınız. (sf. 16-17)

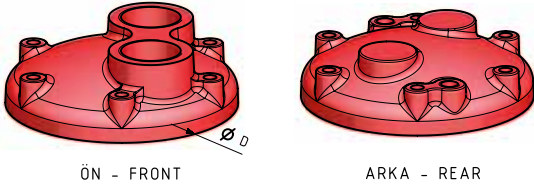
Marin Tipi Yağ Eşanjörleri

Marin Type
Oil Heat Exchangers



ACCESSORIES / SPARE PARTS

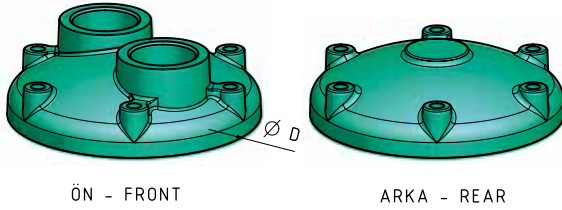
RYG KAPAK SETİ / RYG CAP SET



Ölçüler / Dimensions

KOD / CODE	D (mm)	Pass	Bağlantılar Connections	İlgili Ürün Modelleri Relevant Products
RGK1104	Ø 110	4	G1/2"	RYG90/330-4P, RYG90/510-4P, RYG90/580-4P, RYG90/740-4P, RYG90/910-4P, RYG90/1060-4P, RYG90/1360-4P
RGK1204	Ø 120	4	G3/4"	RYG100/0510-4P, RYG100/580-4P, RYG100/740-4P, RYG100/910-4P, RYG100/1060-4P, RYG100/1360-4P
RGK1304	Ø 130	4	G1"	RYG114/510-4P, RYG114/810-4P, RYG114/910-4P, RYG114/1060-4P, RYG114/1360-4P, RYG114/1610-4P
RGK1524	Ø 152	4	G1 1/4"	RYG140/525-4P, RYG140/755-4P, RYG140/925-4P, RYG140/1075-4P, RYG140/1375-4P, RYG140/1625-4P
RGK2004	Ø 200	4	G1 1/2"	RYG168/775-4P, RYG168/1095-4P, RYG168/1395-4P, RYG168/1645-4P, RYG168/1915-4P

RYS KAPAK SETİ / RYS CAP SET



Ölçüler / Dimensions

KOD / CODE	D (mm)	Pass	Bağlantılar Connections	İlgili Ürün Modelleri Relevant Products
RYK1102	Ø 110	2	G1/2"	RYS090/0400, RYS090/0650
RYK1202	Ø 120	2	G3/4"	RYS100/0500, RYS100/0750
RYK1302	Ø 130	2	G1"	RYS120/0750, RYS120/1000
RYK1522	Ø 152	2	G1 1/4"	RYS140/0600, RYS140/0750, RYS140/1000
K2004	Ø 200	4	G1 1/2"	RYS170/1000

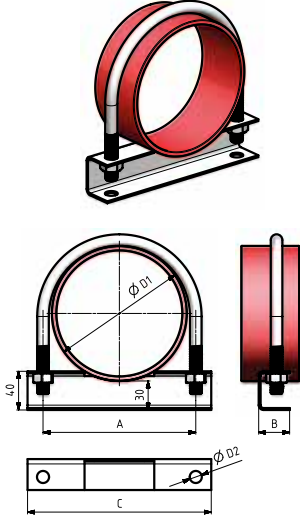
CONTALAR / GASKETS



Ölçüler / Dimensions

KOD / CODE	D (mm)	Pass	İlgili Ürün Modelleri Relevant Products
RGC1104	Ø 110	4	RYG90/330-4P, RYG90/510-4P, RYG90/580-4P, RYG90/740-4P, RYG90/910-4P, RYG90/1060-4P, RYG90/1360-4P
RGC1204	Ø 120	4	RYG100/0510-4P, RYG100/580-4P, RYG100/740-4P, RYG100/910-4P, RYG100/1060-4P, RYG100/1360-4P
RGC1304	Ø 130	4	RYG114/510-4P, RYG114/810-4P, RYG114/910-4P, RYG114/1060-4P, RYG114/1360-4P, RYG114/1610-4P
RGC1524	Ø 152	4	RYG140/525-4P, RYG140/755-4P, RYG140/925-4P, RYG140/1075-4P, RYG140/1375-4P, RYG140/1625-4P
RGC2004	Ø 200	4	RYG168/775-4P, RYG168/1095-4P, RYG168/1395-4P, RYG168/1645-4P, RYG168/1915-4P
RYC1102	Ø 110	2	RYS090/0400, RYS090/0650
RYC1202	Ø 120	2	RYS100/0500, RYS100/0750
RYC1302	Ø 130	2	RYS120/0750, RYS120/1000
RYC1522	Ø 152	2	RYS140/0600, RYS140/0750, RYS140/1000
KC2004	Ø 200	4	RYS170/1000

U-BOLT AYAK SETİ / U-BOLT SUPPORT LEGS



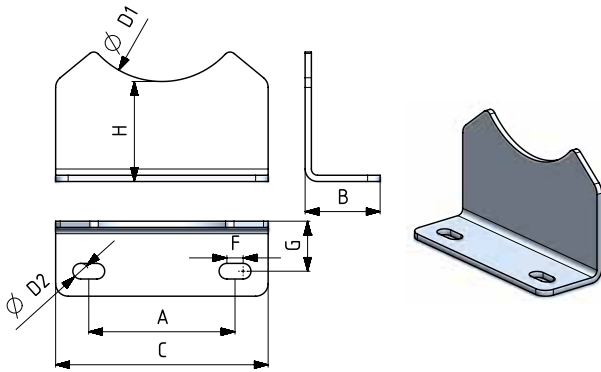
Ölçüler / Dimensions

KOD / CODE	D1(mm)	D2(mm)	A(mm)	B(mm)	C(mm)	İlgili Ürün Modelleri Relevant Products
UBOLT-089	Ø 89	Ø 10.5	104	32	140	RYG90/330-4P, RYG90/510-4P, RYG90/580-4P, RYG90/740-4P, RYG90/910-4P, RYG90/1060-4P, RYG90/1360-4P, RYS090/0400, RYS090/0650
UBOLT-102	Ø 102	Ø 10.5	116	32	150	RYG100/0510-4P, RYG100/580-4P, RYG100/740-4P, RYG100/910-4P, RYG100/1060-4P, RYG100/1360-4P, RYS100/0500, RYS100/0750
UBOLT-114	Ø 114	Ø 10.5	128	32	160	RYG114/510-4P, RYG114/810-4P, RYG114/910-4P, RYG114/1060-4P, RYG114/1360-4P, RYG114/1610-4P, RYS120/0750, RYS120/1000
UBOLT-140	Ø 140	Ø 13.0	158	32	190	RYG140/525-4P, RYG140/755-4P, RYG140/925-4P, RYG140/1075-4P, RYG140/1375-4P, RYG140/1625-4P, RYS140/0600, RYS140/0750, RYS140/1000
UBOLT-168	Ø 168	Ø 15.0	186	33	216	RYG168/775-4P, RYG168/1095-4P, RYG168/1395-4P, RYG168/1645-4P, RYG168/1915-4P, RYS170/1000

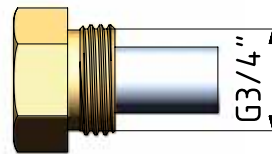
L-TİP KAYNAKLI AYAK SETİ / L-TYPE WELDED SUPPORT LEGS

Ölçüler / Dimensions

KOD / CODE	D1 (mm)	D2 (mm)	A (mm)	B (mm)	C (mm)	H	F	G	İlgili Ürün Modelleri Relevant Products
AY089	Ø 89	Ø 11.0	49	43	90	60	11	29	RYG90/330-4P, RYG90/510-4P, RYG90/580-4P, RYG90/740-4P, RYG90/910-4P, RYG90/1060-4P, RYG90/1360-4P, RYS090/0400, RYS090/0650
AY102	Ø 102	Ø 11.0	80	43	120	60	10	23	RYG100/0510-4P, RYG100/580-4P, RYG100/740-4P, RYG100/910-4P, RYG100/1060-4P, RYG100/1360-4P, RYS100/0500, RYS100/0750
AY114	Ø 114	Ø 11.0	109	44	150	60	11	30	RYG114/510-4P, RYG114/810-4P, RYG114/910-4P, RYG114/1060-4P, RYG114/1360-4P, RYG114/1610-4P, RYS120/0750, RYS120/1000
AY140	Ø 140	Ø 12.5	117	60	170	80	13	40	RYG140/525-4P, RYG140/755-4P, RYG140/925-4P, RYG140/1075-4P, RYG140/1375-4P, RYG140/1625-4P, RYS140/0600, RYS140/0750, RYS140/1000
AY168	Ø 168	Ø 12.5	147	60	200	80	13	40	RYG168/775-4P, RYG168/1095-4P, RYG168/1395-4P, RYG168/1645-4P, RYG168/1915-4P, RYS170/1000



ÇİNKO ANOT / ZİNC ANODE



Tüm ürünlerde aynı tip tuya adaptörü kullanılmaktadır.

Same type of zinc anode adapter is used in all products.

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Yağ Eşanjör kataloğumuza ve firmamızla ilgili daha fazla bilgiye kısa yoldan ulaşın.





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