BIBUS

MOVICONTROL BIBUS

Refrigeradores
Água – óleo

Bowman

supporting your success

Os refrigeradores da BOWMAN servem para refrigerar o óleo-hidráulico através de água doce ou salgada

INFORMAÇÃO ÚTIL

Tipo	Débito máximo*.	Caudal máximo de água do mar	Caudal máximo de água doce	Volume interno de óleo	Volume interno de água
	l/min	l/min	l/min		
EC 80-1425-1	100	54	80	0.26	0.31
EC100-1425-2	110	"	"	0.49	0.44
EC120-1425-3	90	"	"	0.74	0.57
EC140-1425-4	80	"	"	0.97	0.71
EC160-1425-5	70	"	"	1.30	0.91
FC 80-1426-1	140	95	140	0.75	0.65
FC100-1426-2	130	"	"	1.10	0.84
FC120-1426-3	110	"	"	1.50	1.06
FC140-1426-4	100	"	"	2.00	1.35
FC160-1426-5	90	"	"	2.60	1.68
FG 80-1427-1	230	125	190	1.64	1.26
FG100-1427-2	210	"	"	2.40	1.56
FG120-1427-3	190	"	"	3.00	1.96
FG140-1427-4	170	"	"	3.90	2.42
FG160-1427-5	150	"	"	5.00	2.97
FG200-1427-7	130	"	"	7.58	4.53
GL140-1428-2	330	225	330	3.60	3.10
GL180-1428-3	290	"	"	4.80	3.80
GL240-1428-4	280	"	"	6.30	4.60
GL320-1428-5	260	"	"	8.00	5.50
GL400-1428-6	260	"	"	10.00	6.60
GL480-1428-7	240	"	"	12.20	7.70
GK190-1658-3	500	325	490	7.00	6.30
GK250-1658-4	470	"	"	9.00	7.50
GK320-1658-5	440	"	"	11.60	9.00
GK400-1658-6	420	"	"	14.60	10.60
GK480-1658-7	400	"	"	17.40	12.30
GK600-1658-8	360	"	"	22.10	14.70
JK190-1661-3	780	460	700	9.70	8.80
JK250-1661-4	740	"	"	12.50	10.40
JK320-1661-5	690	"	"	16.10	12.50
JK400-1661-6	660	"	"	20.30	14.70
JK480-1661-7	620	"	"	24.20	17.10
JK600-1661-8	560	"	"	30.70	20.40
PK190-1669-3	1200	700	1050	13.60	16.00
PK250-1669-4	1100	"	"	17.70	18.60
PK320-1669-5	1050	"	"	22.60	21.80
PK400-1669-6	1000	"	"	28.50	25.30
PK480-1669-7	960	"	"	34.00	29.00
PK600-1669-8	900	"	"	42.50	34.40

*** Caudal máximo permitido de óleo baseado na marca Shell Tellus 37a 60ºC**

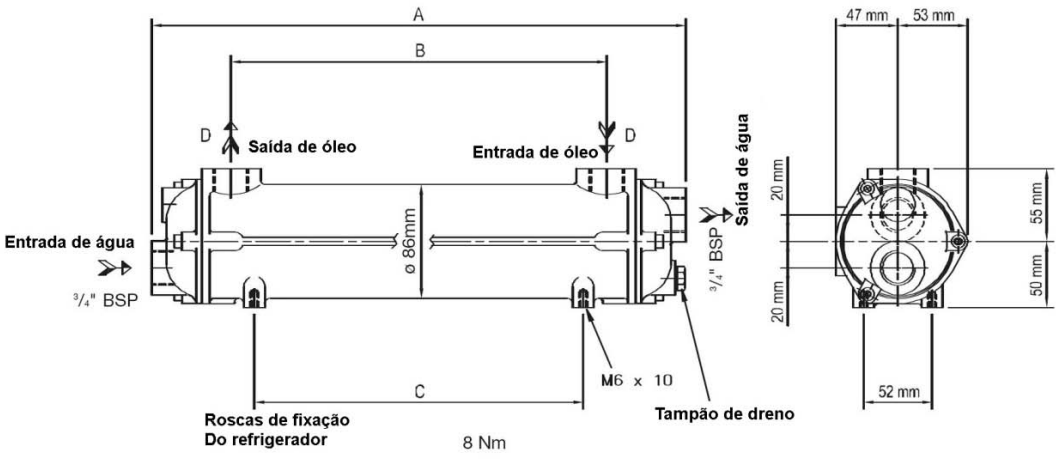
Se se exceder o caudal máximo permitido de água, pode causar roturas nos tubos interiores.

EXEMPLOS TÍPICOS DO FUNCIONAMENTO DE UM REFRIGERADOR A UMA TEMPERATURA DE SAÍDA DO ÓLEO A 50ºC E UMA TEMPERATURA DE ENTRADA DE ÁGUA A 25ºC

Tipo	Calor dicipado	Débito	Perda de carga	Caudal de água	Perda de altura manométrica
	kW	l/min	kPa	l/min	kPa
*EC 80-1425-1	4	80	100	80	50
*EC100-1425-2	9	92	”	80	”
*EC120-1425-3	13	77	”	77	”
*EC140-1424-4	17	68	”	72	”
*EC160-1425-5	22	64	”	66	”
*FC 80-1426-1	13	140	100	140	50
*FC100-1426-2△	19	145	”	135	”
*FC120-1426-3	26	116	”	125	”
*FC140-1426-4	35	105	”	120	”
*FC160-1426-5	45	96	”	108	”
*FG 80-1427-1	28	192	100	185	50
*FG100-1427-2△	37	190	”	175	”
*FG120-1427-3△	50	160	”	160	”
*FG140-1427-4△	62	160	”	150	”
*FG160-1427-5△	79	145	”	135	”
*FG200-1427-7	123	130	”	120	”
*GL140-1428-2△	56	300	100	300	50
*GL180-1428-3	73	285	”	280	”
*GL240-1428-4△	93	280	”	260	”
*GL320-1428-5	114	270	”	240	”
*GL400-1428-6	146	240	”	220	”
*GL480-1428-7	172	235	”	205	”
*GK190-1658-3	112	460	100	420	50
*GK250-1658-4	144	445	”	385	”
*GK320-1658-5	181	430	”	355	”
*GK400-1658-6	221	420	”	325	”
*GK480-1658-7	259	400	”	300	”
*GK600-1658-8	329	365	”	275	”
JK190-1661-3	145	830	100	600	50
JK250-1661-4	186	740	”	550	”
JK320-1661-5	232	690	”	500	”
JK400-1661-6	283	650	”	460	”
JK480-1661-7	335	620	”	430	”
JK600-1661-8	401	600	”	400	”
PK190-1669-3	212	1600	100	900	50
PK250-1669-4	270	1240	”	840	”
PK320-1669-5	336	1060	”	750	”
PK400-1669-6	414	950	”	700	”
PK480-1669-7	497	890	”	650	”
PK600-1669-8	660	750	”	600	”

1 kW = 14,4 kcal/min = 60 kj/min = 1,34HP 100 kPa = 1 bar

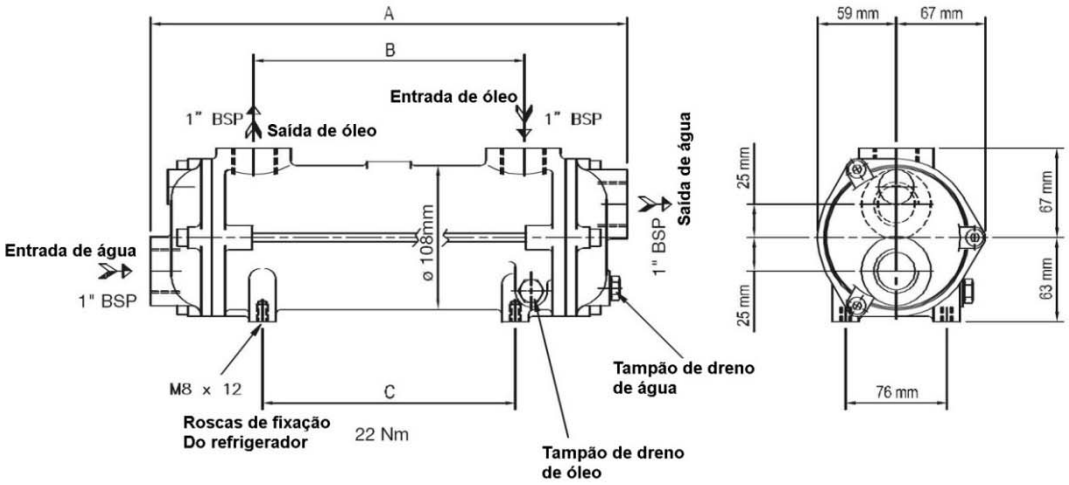
EC



		A	B	C	D
	kg	mm	mm	mm	BSP
EC 80-1425-1	2,4	174	60	60	1/2"
EC100-1425-2	3,2	260	140	104	3/4"
EC120-1425-3	3,8	346	226	190	3/4"
EC140-1425-4	4,8	444	324	288	3/4"
EC160-1425-5	5,7	572	452	416	3/4"

Pressão máx. de trabalho óleo	20 bar
Pressão máx. de trabalho água	20 bar
Temperatura máx. de trabalho do óleo	120°C
Temperatura máx. de trabalho do óleo	110°C

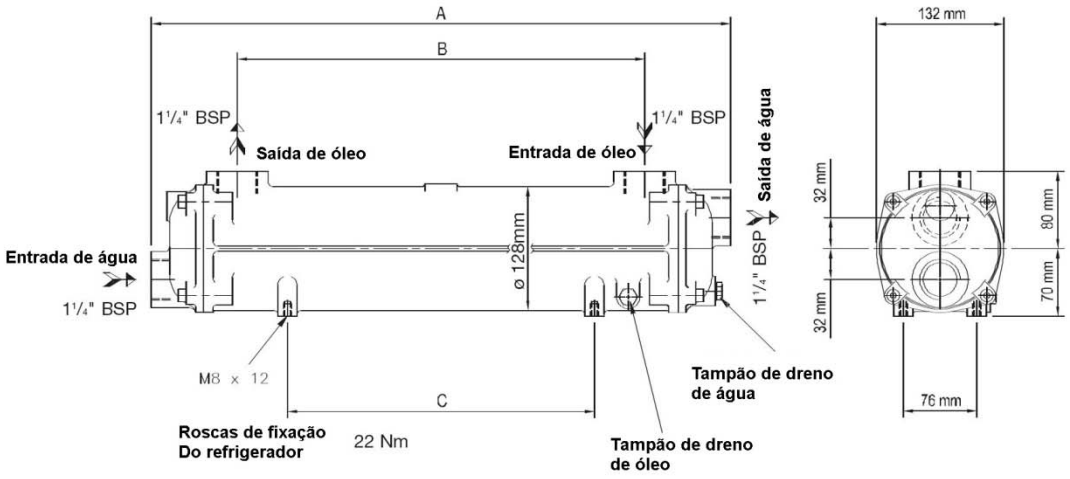
FC



		A	B	C
	kg	mm	mm	mm
FC 80-1426-1	5,5	272	116	104
FC100-1426-2	6,3	358	202	190
FC120-1426-3	7,3	456	300	288
FC140-1426-4	9,4	584	428	288
FC160-1426-5	11,0	730	574	434

Pressão máx. de trabalho óleo	20 bar
Pressão máx. de trabalho água	20 bar
Temperatura máx. de trabalho do óleo	120°C
Temperatura máx. de trabalho do água	110°C

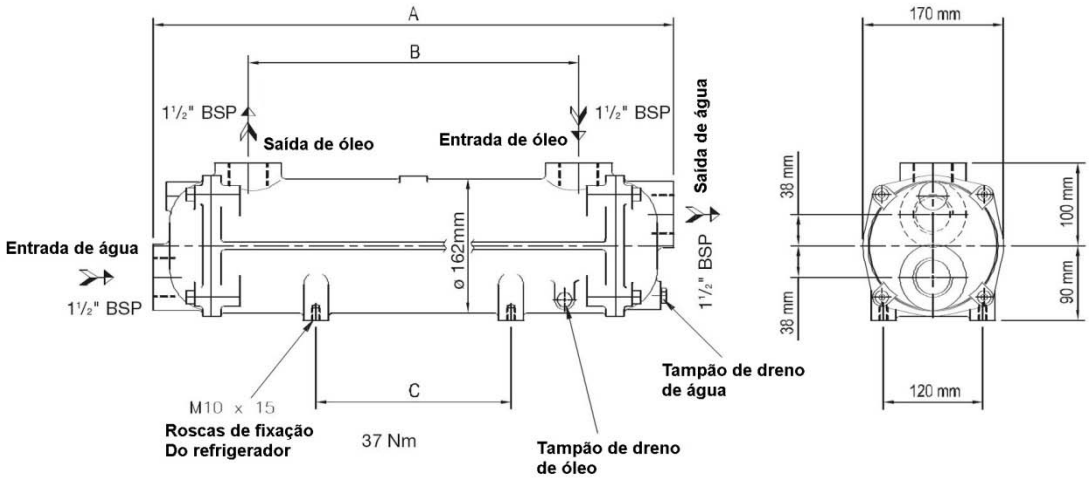
FG



		A	B	C
	kg	mm	mm	mm
FG 80-1427-1	8,5	374	196	92
FG100-1427-2	10,0	472	294	190
FG120-1427-3	12,0	600	422	318
FG140-1427-4	14,5	746	568	464
FG160-1427-5	17,5	924	746	642
FG200-1427-7	24,0	1330	1152	1048

Pressão máx. de trabalho óleo	20 bar
Pressão máx. de trabalho água	20 bar
Temperatura máx. de trabalho do óleo	120°C
Temperatura máx. de trabalho do água	110°C

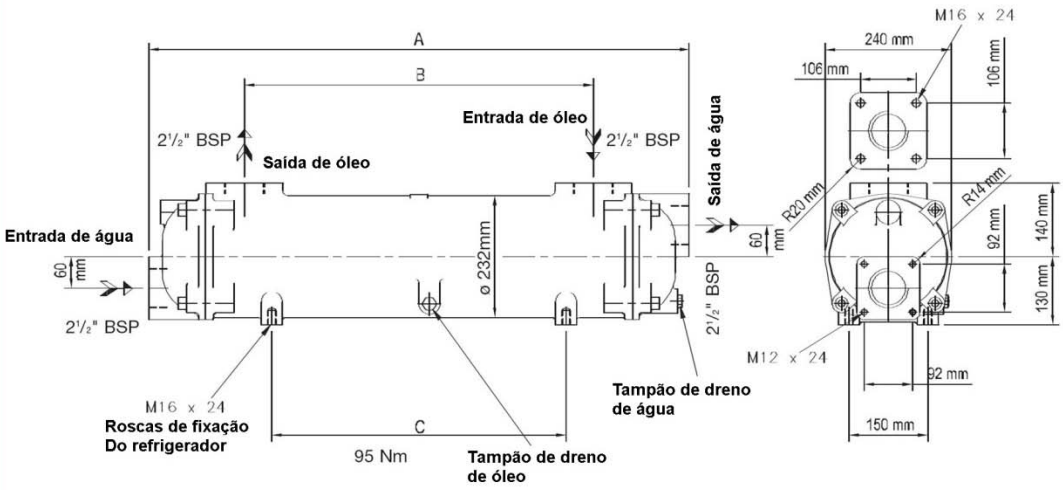
GL



		A	B	C
	kg	mm	mm	mm
GL140-1428-2	18	502	272	108
GL180-1428-3	21	630	400	236
GL240-1428-4	25	776	546	382
GL320-1428-5	30	954	724	560
GL400-1428-6	36	1156	926	762
GL480-1428-7	42	1360	1130	966

Pressão máx. de trabalho óleo	20 bar
Pressão máx. de trabalho água	20 bar
Temperatura máx. de trabalho do óleo	120°C
Temperatura máx. de trabalho do água	110°C

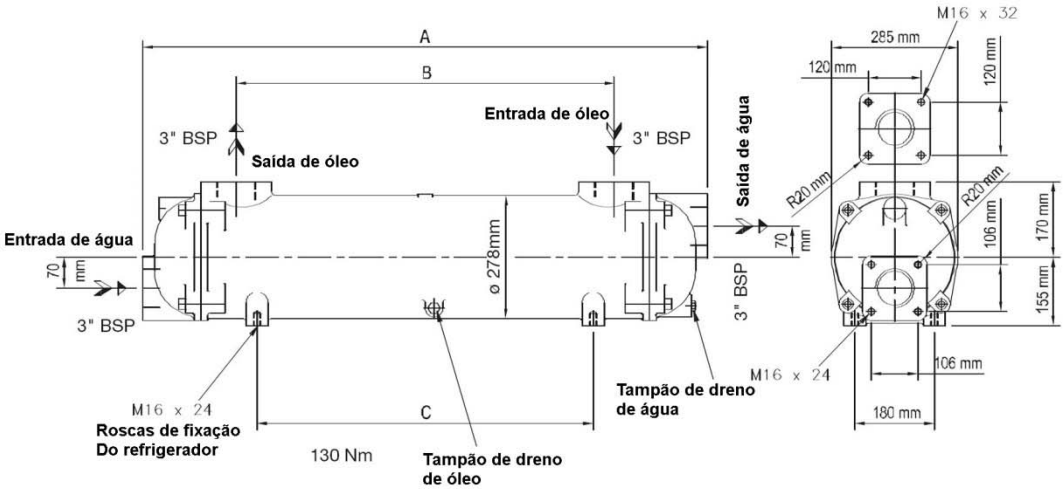
JK



		A	B	C
	kg	mm	mm	mm
JK190-1661-3	58	704	340	236
JK250-1661-4	66	850	486	382
JK320-1661-5	78	1028	664	560
JK400-1661-6	92	1230	866	762
JK480-1771-7	105	1434	1070	966
JK600-1661-8	126	1738	1374	1270

Pressão máx. de trabalho óleo	20 bar
Pressão máx. de trabalho água	20 bar
Temperatura máx. de trabalho do óleo	120°C
Temperatura máx. de trabalho do água	110°C

PK



		A	B	C
	kg	mm	mm	mm
PK190-1669-3	81	754	330	236
PK250-1669-4	94	900	476	382
PK320-1669-5	110	1078	654	560
PK400-1669-6	125	1280	856	762
PK480-1669-7	140	1484	1060	966
PK600-1669-8	158	1788	1364	1270

Pressão máx. de trabalho óleo	20 bar
Pressão máx. de trabalho água	20 bar
Temperatura máx. de trabalho do óleo	120°C
Temperatura máx. de trabalho do água	110°C

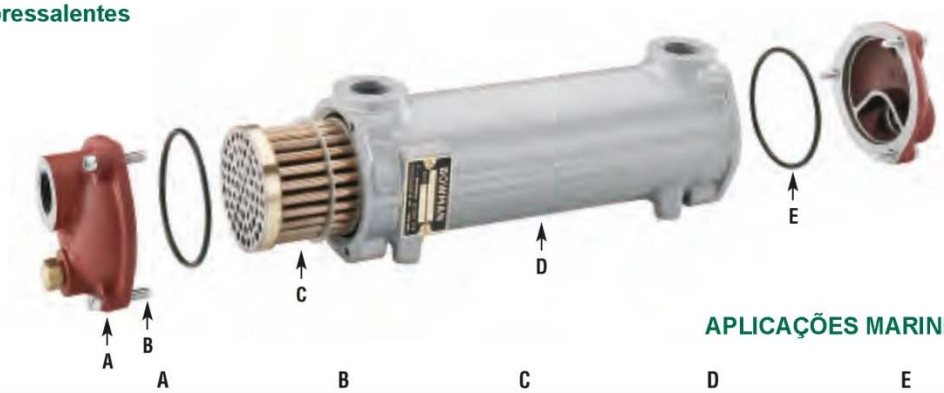
Sobressalentes

Normal

A B C D E

Tipo	Tampas	Parafusos	Ninho	Corpo	Vedantes
EC 80-1425-1	EC3-1040CI	HSO6X30	785-1TN1A	EC21-978AL	AN12NT
EC100-1425-2	"	"	785-2TN1A	EC10-783-2AL	"
EC120-1425-3	"	"	785-3TN1A	EC12-783-3AL	"
EC140-1425-4	"	"	785-4TN1A	EC14-783-4AL	"
EC160-1425-5	"	"	785-5TN1A	EC16-783-5AL	"
FC 80-1426-1	FC3-1281CI	HSO8X35	15301TN1A	FC 8-1200-1AL	OS46NT
FC100-1426-2	"	"	15302TN1A	FC10-1200-2AL	"
FC120-1426-3	"	"	15303TN1A	FC12-1200-3AL	"
FC140-1426-4	"	"	15304TN1A	FC14-1200-4AL	"
FC160-1426-5	"	"	15305TN1A	FC16-1200-5AL	"
FG 80-1427-1	FG3-1583CI	HS08X35	1959-1TN1A	FG 8-1650-1AL	OS52NT
FG100-1427-2	"	"	1959-2TN1A	FG10-1650-2AL	"
FG120-1427-3	"	"	1959-3TN1A	FG12-1650-3AL	"
FG140-1427-4	"	"	1959-4TN1A	FG14-1650-4AL	"
FG160-1427-5	"	"	1959-5TN1A	FG16-1650-5AL	"
FG200-1427-7	"	"	1959-7TN1A	FG20-1650-7AL	"
GL140-1428-2	GL3-3141CI	HS10X40	1789-2TN1A	GL15-3136-2AL	OS63NT
GL180-1428-3	"	"	1789-3TN1A	GL19-3136-3AL	"
GL240-1428-4	"	"	1789-4TN1A	GL25-3136-4AL	"
GL320-1428-5	"	"	1789-5TN1A	GL33-3136-5AL	"
GL400-1428-6	"	"	1789-6TN1A	GL41-3136-6AL	"
GL480-1428-7	"	"	1789-7TN1A	GL49-3136-7AL	"
GK190-1658-3	GK1-2864CI	HS12X50	2315-3TN1A	GK19-2865-3AL	OS69NT
GK250-1658-4	"	"	2315-4TN1A	GK25-2865-4AL	"
GK320-1658-5	"	"	2315-5TN1A	GK32-2865-5AL	"
GK400-1658-6	"	"	2315-6TN1A	GK40-2865-6AL	"
GK480-1658-7	"	"	2315-7TN1A	GK48-2865-7AL	"
GK600-1658-8	"	"	2315-8TN1A	GK60-2865-8AL	"
JK190-1661-3	JK1-3333CI	HS16X70	3334-3TN1B	JK19-3332-3AL	OS74NT
JK250-1661-4	"	"	3334-4TN1B	JK25-3332-4AL	"
JK320-1661-5	"	"	3334-5TN1B	JK32-3332-5AL	"
JK400-1661-6	"	"	3334-6TN1B	JK40-3332-6AL	"
JK480-1661-7	"	"	3334-7TN1B	JK48-3332-7AL	"
JK600-1661-8	"	"	3334-8TN1B	JK60-3332-8AL	"
PK190-1669-3	PKI-2918CI	HS16X70	2829-3TN1B	PK19-2919-3AL	OS81NT
PK250-1669-4	"	"	2829-3TN1B	PK25-2919-4AL	"
PK320-1669-5	"	"	2829-3TN1B	PK32-2919-5AL	"
PK400-1669-6	"	"	2829-3TN1B	PK40-2919-6AL	"
PK480-1669-7	"	"	2829-3TN1B	PK48-2919-7AL	"
PK600-1669-8	"	"	2829-3TN1B	PK60-2919-8AL	"

Sobressalentes



APLICAÇÕES MARINHAS

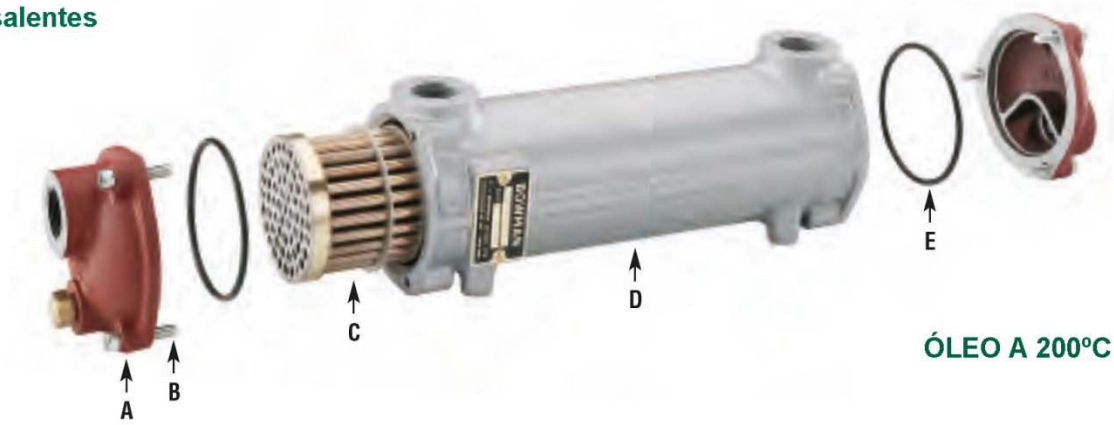
	A	B	C	D	E
Tipo	**Tampas**	**Parafusos**	**Ninho**	**Corpo**	**Vedantes**
EC 80-3875-1	EC3-1040GM	HSO6X30	785-1TN1A	EC21-978AL	AN12NT
EC100-3875-2	"	"	785-2TN1A	EC10-783-2AL	"
EC120-3875-3	"	"	785-3TN1A	EC12-783-3AL	"
EC140-3875-4	"	"	785-4TN1A	EC14-783-4AL	"
EC160-3875-5	"	"	785-5TN1A	EC16-783-5AL	"
FC 80-3876-1	FC3-1281GM	HSO8X35	15301TN1A	FC 8-1200-1AL	OS46NT
FC100-3876-2	"	"	15302TN1A	FC10-1200-2AL	"
FC120-3876-3	"	"	15303TN1A	FC12-1200-3AL	"
FC140-3876-4	"	"	15304TN1A	FC14-1200-4AL	"
FC160-3876-5	"	"	15305TN1A	FC16-1200-5AL	"
FG 80-3877-1	FG3-1583GM	HS08X35	1959-1TN1A	FG 8-1650-1AL	OS52NT
FG100-3877-2	"	"	1959-2TN1A	FG10-1650-2AL	"
FG120-3877-3	"	"	1959-3TN1A	FG12-1650-3AL	"
FG140-3877-4	"	"	1959-4TN1A	FG14-1650-4AL	"
FG160-3877-5	"	"	1959-5TN1A	FG16-1650-5AL	"
FG200-3877-7	"	"	1959-7TN1A	FG20-1650-7AL	"
GL140-3878-2	GL3-3141GM	HS10X40	1789-2TN1A	GL15-3136-2AL	OS63NT
GL180-3878-3	"	"	1789-3TN1A	GL19-3136-3AL	"
GL240-3878-4	"	"	1789-4TN1A	GL25-3136-4AL	"
GL320-3878-5	"	"	1789-5TN1A	GL33-3136-5AL	"
GL400-3878-6	"	"	1789-6TN1A	GL41-3136-6AL	"
GL480-3878-7	"	"	1789-7TN1A	GL49-3136-7AL	"
GK190-3879-3	GK1-2864GM	HS12X50	2315-3TN1A	GK192865-3AL	OS69NT
GK250-3879-4	"	"	2315-4TN1A	GK25-2865-4AL	"
GK320-3879-5	"	"	2315-5TN1A	GK32-2865-5AL	"
GK400-3879-6	"	"	2315-6TN1A	GK40-2865-6AL	"
GK480-3879-7	"	"	2315-7TN1A	GK48-2865-7AL	"
GK600-3879-8	"	"	2315-8TN1A	GK60-2865-8AL	"
JK190-3881-3	JK1-3333GM	HS16X70	3334-3TN1B	JK19-3332-3AL	OS74NT
JK250-3881-4	"	"	3334-4TN1B	JK25-3332-4AL	"
JK320-3881-5	"	"	3334-5TN1B	JK32-3332-5AL	"
JK400-3881-6	"	"	3334-6TN1B	JK40-3332-6AL	"
JK480-3881-7	"	"	3334-7TN1B	JK48-3332-7AL	"
JK600-3881-8	"	"	3334-8TN1B	JK60-3332-8AL	"
PK190-3880-3	PKI-2918GM	HS16X70	2829-3TN1B	PK19-2919-3AL	OS81NT
PK250-3880-4	"	"	2829-3TN1B	PK25-2919-4AL	"
PK320-3880-5	"	"	2829-3TN1B	PK32-2919-5AL	"
PK400-3880-6	"	"	2829-3TN1B	PK40-2919-6AL	"
PK480-3880-7	"	"	2829-3TN1B	PK48-2919-7AL	"
PK600-3880-8	"	"	2829-3TN1B	PK60-2919-8AL	"

Sobressalentes

ÓLEO A 150ºC

	A	B	C	D	E
Tipo	**Tampas**	**Parafusos**	**Ninho**	**Corpo**	**Vedantes**
EC 80-3145-1	EC3-1040CI	HSO6X30	785-1TN2A	EC21-978AL	AN12VT
EC100-3145-2	"	"	785-2TN2A	EC10-783-2AL	"
EC120-3145-3	"	"	785-3TN2A	EC12-783-3AL	"
EC140-3145-4	"	"	785-4TN2A	EC14-783-4AL	"
EC160-3145-5	"	"	785-5TN2A	EC16-783-5AL	"
FC 80-3146-1	FC3-1281CI	HSO8X35	15301TN2A	FC 8-1200-1AL	OS46VT
FC100-3146-2	"	"	15302TN2A	FC10-1200-2AL	"
FC120-3146-3	"	"	15303TN2A	FC12-1200-3AL	"
FC140-3146-4	"	"	15304TN2A	FC14-1200-4AL	"
FC160-3146-5	"	"	15305TN2A	FC16-1200-5AL	"
FG 80-3147-1	FG3-1583CI	HS08X35	1959-1TN2A	FG 8-1650-1AL	OS52VT
FG100-3147-2	"	"	1959-2TN2A	FG10-1650-2AL	"
FG120-3147-3	"	"	1959-3TN2A	FG12-1650-3AL	"
FG140-1427-4	"	"	1959-4TN2A	FG14-1650-4AL	"
FG160-3147-5	"	"	1959-5TN2A	FG16-1650-5AL	"
FG200-3147-7	"	"	1959-7TN2A	FG20-1650-7AL	"
GL140-3148-2	GL3-3141CI	HS10X40	1789-2TN1A	GL15-3136-2AL	OS63VT
GL180-3148-3	"	"	1789-3TN1A	GL19-3136-3AL	"
GL240-3148-4	"	"	1789-4TN1A	GL25-3136-4AL	"
GL320-3148-5	"	"	1789-5TN1A	GL33-3136-5AL	"
GL400-3148-6	"	"	1789-6TN1A	GL41-3136-6AL	"
GL480-3148-7	"	"	1789-7TN1A	GL49-3136-7AL	"
GK190-3149-3	GK1-2864CI	HS12X50	2315-3TN2A	GK192865-3AL	OS69VT
GK250-3149-4	"	"	2315-4TN2A	GK25-2865-4AL	"
GK320-3149-5	"	"	2315-5TN2A	GK32-2865-5AL	"
GK400-3149-6	"	"	2315-6TN2A	GK40-2865-6AL	"
GK480-3149-7	"	"	2315-7TN2A	GK48-2865-7AL	"
GK600-3149-8	"	"	2315-8TN2A	GK60-2865-8AL	"
JK190-3152-3	JK1-3333CI	HS16X70	3334-3TN2B	JK19-3332-3AL	OS74VT
JK250-3152-4	"	"	3334-4TN2B	JK25-3332-4AL	"
JK320-3152-5	"	"	3334-5TN2B	JK32-3332-5AL	"
JK400-3152-6	"	"	3334-6TN2B	JK40-3332-6AL	"
JK480-3152-7	"	"	3334-7TN2B	JK48-3332-7AL	"
JK600-3152-8	"	"	3334-8TN2B	JK60-3332-8AL	"
PK190-3150-3	PKI-2918CI	HS16X70	2829-3TN2B	PK19-2919-3AL	OS81VT
PK250-3150-4	"	"	2829-3TN2B	PK25-2919-4AL	"
PK320-3150-5	"	"	2829-3TN2B	PK32-2919-5AL	"
PK400-3150-6	"	"	2829-3TN2B	PK40-2919-6AL	"
PK480-3150-7	"	"	2829-3TN2B	PK48-2919-7AL	"
PK600-3150-8	"	"	2829-3TN2B	PK60-2919-8AL	"

Sobressalentes



ÓLEO A 200ºC

	A	B	C	D	E
Tipo	Tampas	Parafusos	Ninho	Corpo	Vedantes
EC120-3635-3	EC3-1040CI	HSO6X30	785-3TN3B	EC12-783-3CI	AN12VT
FC100-3636-2	FC3-1281CI	HSO8X35	1530-2TN3B	FC10-1200-2CI	OS46VT
FG100-3637-2	FG-1583CI	HSO8X35	1959-2TN3B	FG10-1650-2CI	OS52VT
FG120-3637-3	”	”	1959-3TN3B	FG12-1650-3CI	”
FG140-3637-4	”	”	1959-4TN3B	FG14-1650-4CI	”
FG160-3637-5	”	”	1959-5TN3B	FG16-1650-5CI	”
GL140-3638-2	GL3-3141CI	HS10X40	1798-2TN3B	GL15-3136-2CI	OS63VT
GL240-3638-4	”	”	1798-4TN3B	GL25-3136-4CI	”

MINAS

	A	B	C	D	E
Tipo	Tampas	Parafusos	Ninho	Corpo	Vedantes
EC120-3425-3	EC23-4033CI	HSO6X30	785-3TN3B	EC12-783-3CI	AN12VT
FC100-3426-2	FC23-4034CI	HSO8X35	1530-2TN3B	FC10-1200-2CI	OS46VT
FG100-3427-2	FG23-4035CI	HSO8X35	1959-2TN3B	FG10-1650-2CI	OS52VT
FG120-3427-3	”	”	1959-3TN3B	FG12-1650-3CI	”
FG140-3427-4	”	”	1959-4TN3B	FG14-1650-4CI	”
FG160-3427-5	”	”	1959-5TN3B	FG16-1650-5CI	”
GL140-3428-2	GL23-4036CI	HS10X40	1798-2TN3B	GL15-3136-2CI	OS63VT
GL240-3428-4	”	”	1798-4TN3B	GL25-3136-4CI	”