

1 - INTRODUCTION

The lubricant oils used in Embraco compressors undergo severe approval tests which assure a reliable performance during the complete life span of the compressor.

Embraco charges its compressors with the exact quantity of degassed lubricant oil properly dehydrated from moisture. When this operation is done at the customer plant, the same conditions have to be assured.

Embraco deems null and void the warranty of compressors which undergo any change or adulteration of the originally specified lubricant oil, as well as when a different refrigerant/lubricant is applied, according to the table below.

For the cases in which it is convenient to add lubricant oil in the customer's assembly line, both the lubricant and its treatment process should be approved by Embraco.

The table below shows the lubricant oils and refrigerants approved for use with Embraco compressors:

1.1 - PRODUCT LINE - BRAZIL

REFRIGERANT	COMPRESSOR SERIES											
	EM		FFG/FGS 130		FGV/FGS/FGT		PW		EG/EGS		EGT/EGU	
	LUBRICANT TYPE AND SUPPLIER	VISCOSITY GRADE, 40°C cSt (mm ² /s)	LUBRICANT TYPE AND SUPPLIER	VISCOSITY GRADE, 40°C cSt (mm ² /s)	LUBRICANT TYPE AND SUPPLIER	VISCOSITY GRADE, 40°C cSt (mm ² /s)	LUBRICANT TYPE AND SUPPLIER	VISCOSITY GRADE, 40°C cSt (mm ² /s)	LUBRICANT TYPE AND SUPPLIER	VISCOSITY GRADE, 40°C cSt (mm ² /s)	LUBRICANT TYPE AND SUPPLIER	VISCOSITY GRADE, 40°C cSt (mm ² /s)
R 12	SUNISO 3GS WITCO	ISO VG 32	SUNISO 3GS WITCO	ISO VG 32	SUNISO 3GS WITCO	ISO VG 32	SUNISO 4GS (*) WITCO	ISO VG 46	CP-4700-32 LUBRZOL/CPI	ISO VG 32	-	-
	-	-	-	-	SUNISO 1GS WITCO	ISO VG 10	SUNISO 3GS WITCO	ISO VG 32	SUNISO 3GS WITCO	ISO VG 32	-	-
	ALP-415-LCR DENAR	ISO VG 32	ALP-415-LCR DENAR	ISO VG 32	ALP-415-LCR DENAR	ISO VG 32	ALP-415-LCR DENAR	ISO VG 32	ALP-415-LCR DENAR	ISO VG 32	-	-
					CP-4700-32 LUBRZOL/CPI	ISO VG 32	CP-4700-32 LUBRZOL/CPI	ISO VG 32	CP-4700-32 LUBRZOL/CPI	ISO VG 32		
R 134a	FREOL α 22E JEC/HATCO	ISO VG 22	FREOL α 22E JEC/HACTO	ISO VG 22	FREOL α 22E JEC/HATCO	ISO VG 22	FREOL α 22E JEC/HATCO	ISO VG 22	FREOL α 22E JEC/HATCO	ISO VG 22	-	-
	ARTIC EAL 18 MOBIL	ISO VG 22	ARTIC EAL 18 MOBIL	ISO VG 22	ARTIC EAL 18 MOBIL	ISO VG 22	ARTIC EAL 18 MOBIL	ISO VG 22	ARTIC EAL 18 MOBIL	ISO VG 22	-	-
	EMKARATE RL22H ICI	ISO VG 22	EMKARATE RL22H ICI	ISO VG 22	EMKARATE RL22H ICI	ISO VG 22	EMKARATE RL22H ICI	ISO VG 22	EMKARATE RL22H ICI	ISO VG 22	-	-
	2922E LUBRZOL/CPI	ISO VG 22	2922E LUBRZOL/CPI	ISO VG 22	2922E LUBRZOL/CPI	ISO VG 22	2922E LUBRZOL/CPI	ISO VG 22	2922E LUBRZOL/CPI	ISO VG 22	-	-
	FREOL α 10W (*) JEC/HATCO	ISO VG 10	-	-	FREOL α 10W (*) JEC/HATCO	ISO VG 10	-	-	FREOL α 10W (*) JEC/HATCO	ISO VG 10	-	-
	EMKARATE RL 10H ICI	ISO VG 10	-	-	EMKARATE RL 10H (**) ICI	ISO VG 10	-	-	EMKARATE RL 10H (**) ICI	ISO VG 10	EMKARATE RL 10H (**) ICI	ISO VG 10
	FREOL α 10E (**) JEC/HATCO	ISO VG 10	-	-	FREOL α 10E (**) JEC/HATCO	ISO VG 10	-	-	FREOL α 10E (**) JEC/HATCO	ISO VG 10	EMKARATE RL 7H (**) ICI	ISO VG 7
R 600a	SUNISO 3GS (**) WITCO	ISO VG 32	-	-	SUNISO 3GS (**) WITCO	ISO VG 32	-	-	SUNISO 3GS (**) WITCO	ISO VG 32	-	-
	SUNISO 1GS A (**) WITCO	ISO VG 10	-	-	SUNISO 1GS A (**) WITCO	ISO VG 10	-	-	SUNISO 1GS A (**) WITCO	ISO VG 10	-	-
	FCA15E P (**) SHELL	ISO VG 15	-	-	-	-	-	-	-	-	-	-

The compressor that receives lubricant oil charge at Embraco is identified with a yellow spot color on the compressor cover or by the inscription:

- **Normal oil** (R 12 or R 600a);
- **Ester oil** (R 134a).

Notes: (*) Only for PW 5,5K14
 (**) Use in specific compressor models.

1.2 - PRODUCT LINE - EUROPE

REFRIGERANT	APPLICATION	COMPRESSOR SERIES													
		BP		NB		B		E		T		J		EM	
		LUBRICANT TYPE AND SUPPLIER	VISCOSITY GRADE (cSt @ 40°C)	LUBRICANT TYPE AND SUPPLIER	VISCOSITY GRADE (cSt @ 40°C)	LUBRICANT TYPE AND SUPPLIER	VISCOSITY GRADE (cSt @ 40°C)	LUBRICANT TYPE AND SUPPLIER	VISCOSITY GRADE (cSt @ 40°C)	LUBRICANT TYPE AND SUPPLIER	VISCOSITY GRADE (cSt @ 40°C)	LUBRICANT TYPE AND SUPPLIER	VISCOSITY GRADE (cSt @ 40°C)	LUBRICANT TYPE AND SUPPLIER	VISCOSITY GRADE (cSt @ 40°C)
R 12	ALL	AVILUB FC 32 BANTLEON	ISO 32	-	-	AVILUB FC 32 BANTLEON	ISO 32	AVILUB FC 32 ¹ BANTLEON	ISO 32	AVILUB FC 32 BANTLEON	ISO 32	AVILUB FC 32 BANTLEON	ISO 32	-	-
R 22	LBP	-	-	-	-	-	-	RENISO EM46 FUCHS	ISO 46	RENISO EM46 FUCHS	ISO 46	RENISO EM46 FUCHS	ISO 46	-	-
	MBP - HBP	-	-	RENISO EM 46 FUCHS	ISO 46	RENISO ³ EM 46 FUCHS	ISO 46	RENISO EM46 FUCHS	ISO 46	RENISO EM46 FUCHS	ISO 46	RENISO EM46 FUCHS	ISO 46	-	-
	AC	-	-	-	-	-	-	AVILUB FC 32 ⁴ BANTLEON	ISO 32	AVILUB FC 32 BANTLEON	ISO 32	AVILUB FC 32 BANTLEON	ISO 32	-	-
R 134a	ALL	EMKARATE RL22HB ICI	ISO 22	EMKARATE RL22HB ICI	ISO 22	EMKARATE RL22HB ICI	ISO 22	EMKARATE RL22HB ICI	ISO 22	EMKARATE RL22HB ICI	ISO 22	EMKARATE RL22HB ICI	ISO 22	EMKARATE RL10HB ICI	ISO 10
R 404A ⁶	ALL	-	-	EMKARATE RL22HB ICI	ISO 22	EMKARATE RL22HB ICI	ISO 22	EMKARATE RL22HB ICI	ISO 22	EMKARATE RL22HB ICI	ISO 22	EMKARATE RL22HB ICI	ISO 22	-	-
R 407C ⁶	ALL	-	-	EMKARATE RL22HB ICI	ISO 22	EMKARATE RL22HB ICI	ISO 22	EMKARATE RL22HB ICI	ISO 22	EMKARATE RL22HB ICI	ISO 22	EMKARATE RL22HB ICI	ISO 22	-	-
R 502	ALL	-	-	-	-	-	-	RENISO EM46 FUCHS	ISO 46	RENISO EM46 ² FUCHS	ISO 46	RENISO EM46 FUCHS	ISO 46	-	-
R 600a	LBP ⁵	AVILUB FCA 15 EP BANTLEON	ISO 15	AVILUB FCA 15 EP BANTLEON	ISO 15	-	-	-	-	-	-	-	-	AVILUB FCA 15 EP BANTLEON	ISO 15
R 600a BPK/NBK BPE/NBT	LBP VERY HIGH EFFICIENCY	AVILUB FCA 10 EP BANTLEON	ISO 10	AVILUB FCA 10 EP BANTLEON	ISO 10	-	-	-	-	-	-	-	-	-	-

Notes: LBP = Low Back Pressure
 MBP = Medium Back Pressure
 HBP = High Back Pressure
 AC = Air Conditioning

¹ Except for E 6187A, E 6187B after November 1993 and E 6170A 115V - 60Hz

² Except for T 5185A and T 6185A

³ Except for B6144E and B6152E (SHELL V-7041 ISO 32)

⁴ Except for E 7213F

⁵ All models except for BPK and NBK very high efficiency models

⁶ Before December 1st, 1996, Mobil Arctic EAL46 was used

⁷ Color of the mark applied on the top of the compressor shell BP, NB, B, E, T, J. For the EM compressors a white mark is applied on the top of the cover plus description: mineral or ester.

LUBRICANT	TYPE	COLOR CODE ⁷
AVILUB FC 32	MINERAL	WHITE
AVILUB FCA15EP	MINERAL	PINK
AVILUB FCA 10EP	MINERAL	ORANGE
RENISO EM46	ALKYL BENZENE	LIGHT BLUE
V-7041	ALKYL BENZENE	GREEN
EMKARATE RL22HB	POLYOL-ESTER	YELLOW
ARCTIC EAL46	POLYOL-ESTER	RED

1.3 - PRODUCT LINE - CHINA

REFRIGERANT	R 12		R 134a		R 600a	
COMPRESSOR SERIES	LUBRICANT TYPE AND SUPPLIER	VISCOSITY GRADE, 40°C cSt (mm ² /s)	LUBRICANT TYPE AND SUPPLIER	VISCOSITY GRADE, 40°C cSt (mm ² /s)	LUBRICANT TYPE AND SUPPLIER	VISCOSITY GRADE, 40°C cSt (mm ² /s)
ECS / ECT	SUNISO 3GS WITCO	ISO VG 32	FREOL α 22E JEC/HATCO	ISO VG 22	SUNISO 3GS-AJ WITCO	ISO VG 32
	SUNISO 3GS-AJ WITCO		EMKARATE RL22H ICI			

Subject to alteration without previous notice.