

Lubrication Sheet for Refrigeration Systems

The below mentioned specifications and lubricants are suitable for the standard refrigerants currently in use, such as R 12, R 22 etc.

Units working with the refrigerants R 134 a, R 404 A, R 507 are normally operating with a fully synthetic ester oil, new "RENISO Triton SE/SEZ"-series (old "RENISO E"-series), in the prescribed viscosity grade.

Car air-conditioning systems equipped with Japanese-make compressors are normally functioning with polyglycol oil (such as RENISO PAG 46 / RENISO PAG 100)

As concerns the application of chlorine-free refrigerants, see our comments on the last page of this document.

Only for internal use (not complete / only examples)

Manufacturer	Unit / Type	Lubricant Specification	FUCHS brand	Refrigerant / Remarks
AEG	Hermetic		RENISO HP 32 RENISO SP 32	R 12
ASPERA	Hermetic		RENISO KM 32 RENISO SP 32 RENISO SP 46	R 12, R 22
	Aspera Hermetic	(46 cSt/25°C)	RENISO Triton SE/SEZ	R 404 A/R 134 a/ and others
AUDI	Car air conditioning	TL-VW 777	RENISO KES 100 RENISO SP 100	R 12
Airtemp (Chrysler)	Water chillers			Oil type in line with the specifications of the compressor manufacturer
	Semi-hermetic	SUNISO 3 GS	RENISO KM 32 RENISO SP 46	*) down to -80°C
APV Baker	Hall Screw Compressor	RL 100 S	RENISO Triton SEZ 100	R 134 a/R 404 A/ and others
(BBC) York	Turbo Compressor	York ABC	RENISO KC 68 RENISO TES 68	R 12, R 22 R 11, NH ₃
International	Turbo Compressor	R 123 oils	RENISO SP 100	R 123
	Piston Compressor	York D	RENISO KM 32 RENISO SP 46	*) down to -80°C

Manufacturer	Unit / Type	Lubricant Specification	FUCHS brand	Refrigerant / Remarks	
Bitzer	Piston Compressor (Open and hermetic)	Bitzer Oil BSE 32 Bitzer Oil BSE 55	RENISO Tr.SEZ 32 RENISO Tr.SE 55	R134a, R404A,...	
	Piston Compressor (Open and hermetic)	Bitzer B5.2	RENISO SP-series RENISO KMH 46 RENISO MS-series RENISO KM/KS/KC	(H)FCKW, e.g. R 22	
	Open piston compressor	G 68	RENISO KC 68	Ammonia	
	Open screw Compressor		B100 (alkylate) B150SH (ester oil)	RENISO SP 100 --	R 22
			BSE 170 (ester oil)	RENISO Tr. SE170	R134a, R404a, ...
			G32, G46, G68	RENISO KM 32 RENISO KS 46 RENISO KC 68	Ammonia
	Hermetic screw compressors		B 320 SH (ester oil)	RENISO Tr. SE/SEZ	R22
			BSE 170 (ester oil)	RENISO Tr.SEZ 170	R134a,R404A, R407C
	Hermetic screw compressors		B100 (alkylate) B150SH (ester oil) BSE 170 (ester oil)	RENISO SP 100 -- RENISO Tr. SEZ 170	R22 R134a, R404A
			Scroll compressors	Mineral Oil Ester Oil	RENISO K/SP-series RENISO Tr. SE/SEZ
BMW	Car air conditioning		RENISO KES 100 RENISO SP 100	R 12	
Bock	Semi-hermetic piston	RENISO SP 46	RENISO SP 46	*) down to -80°C R22, R502,...	
	Bus air conditioning open piston	RENISO KES 100	RENISO KES 100	R 12	
	Bus air conditioning open piston	RENISO TritonSE 55	RENISO TritonSE 55	R 134 a	
	Semi hermetic piston	RENISO TritonSE 55	RENISO TritonSE 55	R 134 a/R 404/ A and others	
	Open piston	RENISO KC 68	RENISO KC 68	Ammonia	
Open piston	RENISO TritonSE 55	RENISO Triton SE 55	RENISO Triton SE 55	R134a, R404A,...	

RENISO / RENISO TRITON Refrigerator Oils



Manufacturer	Unit / Type	Lubricant Specification	FUCHS brand	Refrigerant / Remarks
Borsig	Turbo Compressor	RENISO KES 100	RENISO KES 100	R 12
	Turbo Compressor	RENISO KS 46	RENISO KS 46	R 22
	Turbo Compressor	RENISO KS 46	RENISO KS 46	NH ₃
	Turbo Compressor	RENISO TES	RENISO TES 100	Propane
	Turbo Compressor	RENISO TES	RENISO TES 100	Propylene
	Turbo Compressor	RENISO TES	RENISO TES 100	R 11
	Turbo Compressor	Ester Oil ISO-VG 100	RENISO Triton SEZ 100	R 134 a
Bristol	Hermetic Piston Compressor	CHEVRON Zerol RL 32 S	RENISO SP 32 RENISO Triton SEZ 32	R 12,R 22 R 134 a/R 404 A/and others
Carrier	Semi-hermetic	Spec. PP 33-1 Spec. PP 33-2 SUNISO 3 GS Spec. PP 36-1 Spec. PP 36-2 SUNISO 4 GS	RENISO KM 32 RENISO SP 46	*) down to -80°C
	Turbo Compressor		RENISO KS 46 RENISO SP 46 RENISO TES 68 RENISO KC 68	R 11 R 12, R 22
Carrier/CAES	Turbo Compressor	RL 32 H/RL 68 H	RENISO Triton SEZ 32/ SEZ 68	R 134 a
Carrier Carlyle	Screw Compressor 05T/06T	RL 100 S	RENISO Triton SEZ 100	R 134 a/R 404 A/ and others
	Piston Compressor 06D/E	RL 68 H	RENISO Triton SEZ 68	
Copeland	Piston and Scroll compressor	RL 32 CF	RENISO Triton SEZ 32	R 134 a/R 404 A/ and others
COMEF		KC 46	RENISO KS 46	*) down to -80°C
			RENISO SP 46	*) down to -80°C

Manufacturer	Unit / Type	Lubricant Specification	FUCHS brand	Refrigerant / Remarks
Danfoss	Small hermetic	Colour white with blue stripe Ester Oil (R 134 a)	RENISO Triton SE/SEZ series	R 134 a
		Colour blue Esso Zerice S 15	RENISO Triton WF-Series	Isobutane
		Colour yellow Shell Clarus G 15		
		Colour green Shell Clarus G 32	RENISO KM 32 RENISO SP 32	R 22
		Colour white Chevron Zerol	RENISO SP 32	
Daimler-Benz	Car air conditioning	DBL 6644	RENISO KES 100	R 12
John Deere	Car air conditioning	KC 46	RENISO KS 46	R 12
Dunham-Bush	Screw Compressor **	Oil 2 SUS 150 Oil 4 SUS 300	RENISO KM 32 RENISO KS 46 RENISO SP 32 RENISO SP 46	Naphthene-base *) down to -80°C
		Oil 13 SUS 150 Oil 14 SUS 300	RENISO OL 68	synth.
DWM Copeland	Semi-hermetic Hermetic	Shell 2212	RENISO KMH 46 RENISO SP 46 RENISO KM 32	*) down to -80°C
Dorin	Piston Compressor (Series K)	RL 22 H	RENISO Triton SEZ 22/SEZ 32	R 134 a/R 404 A/ and others
EFIM, Italy	Heat pumps, after chillers, room climate, total climatisation			Oil type in line with the specifications of the compressor manufacturer
Escher-Wyss Lindau (Sulzer)		KC 32	RENISO KM 32 RENISO KMH 46	
		KC 46	RENISO KS 46 RENISO SP 46	*) down to -80°C
		SUNISO 5 G	RENISO KES 100	NH ₃
		SUNISO 6	RENISO SP 100 SUNISO 6	
	Turbo Compressor	KC 68	RENISO KC 68 RENISO TES 68	R 11

RENISO / RENISO TRITON Refrigerator Oils



Manufacturer	Unit / Type	Lubricant Specification	FUCHS brand	Refrigerant / Remarks
Fedders	Rotary piston		RENISO SP 46	*) down to -80°C
Frascold	Open and Semi--hermetic	Shell 2212	RENISO KMH 46 RENISO SP 46	*) down to -80°C
Ford	Car air conditioning		RENISO KES 100 RENISO SP 100	R 12
Frigopol	Hermetic Piston Compressor	RENISO SP 46 RL 32 S/RL 32 H	RENISO SP 46 RENISO Triton SE/SEZ-series	*) down to -80°C, R22 R 134 a/R 404 A/ and others
Frigette	Car air conditioning	SUNISO 5 GS	RENISO KES 100	R 12
Gelpha S.A.	Piston Compressor	SUNISO 3 GS	RENISO KM 32 RENISO SP 46	
	Piston Compressor	RL 32 S	RENISO Triton SEZ 32	R 134 a/R 404 A
General-Electric		Ref.no. D6B3B2	RENISO KMH 46	
GHH	Screw Compressor **	Oil A 16mm ² /s/50°C	RENISO KM 32	R 717 (NH ₃) +)
		Oil B 25mm ² /s/50°C	RENISO KMH 56	R 12, R 22 ++)
		Oil C 32mm ² /s/50°C	RENISO KS 46	R 717 (NH ₃) ++) R 12, R 22 ++)
Gram	Piston Compressor	Typ AC, ACT, HC, HCT, GSV, GSB, GST	RENISO KC 68 RENISO S 68	NH ₃
		Typ HC, HCT, GSV, GSB, GST	RENISO KC 68 RENISO S 68	R-type Refrigerant from -20 to +5°C
		Typ HC, HCT, FX, FC	RENISO KS 46 RENISO SP 46	R-type Refrigerant belowr -20°C
	Screw Compressor **		RENISO OL 150 RENISO SP 220	
GRASSO	Piston Compressor	KA, KC 46	RENISO KS 46 RENISO SP 46	NH ₃ R 22
		KA, KC 68	RENISO KC 68 RENISO S 68	NH ₃ R 22
	Screw compressor	Ester Oil ISO-VG 68	RENISO Triton SEZ 68	R 134 a/R 404 A
Hall, GB	Srew Compressor **	SHELL CLAVUS G 68	RENISO KS 68 RENISO S 68	R 22

RENISO / RENISO TRITON Refrigerator Oils



Manufacturer	Unit / Type	Lubricant Specification	FUCHS brand	Refrigerant / Remarks
Happel Daikin, Japan	Water chiller	SUNISO 4 GS	RENISO KS 46	R 12, R 22
Hasegawa	Piston Compressor	SUNISO 4 GS	RENISO KS 46 RENISO SP 46	
HITACHI	Hermetic		RENISO KM 32 RENISO SP 32	Room climate R 12
HKT GmbH (Goeldner)	Semi-hermetic and open systems Type H S Type H, two steps	RENISO KM 32 RENISO S 68 RENISO KMH 46	RENISO KM 32 RENISO S 68 RENISO KMH 46	NH ₃
	Piston Compressor	RENISO SP 46 RENISO Triton SE 55 = E 46	RENISO SP 46 RENISO Triton SE 55 = E 46	R 22 R 134 a/R 404 A/ and others
Huppmann	Semi-hermetic	KA 15-32	RENISO KLT RENISO KM 32	NH ₃
		KC 32	RENISO KS 46 RENISO KM 32 RENISO SP 46	R 12 R 22/R 502□*) down to -80°C
IRE	Hermetic		RENISO KM 32 RENISO SP 32	
Konvekta	Car cooling		RENISO KES 100 RENISO SP 100	R 12
	Car air conditioning	Ester Oil ISO-VG 68	RENISO Triton SE 55/SEZ 68	R 134 a
	Cooling during transportation		RENISO SP 46	R 22, R 12
Linde	Piston Compressor	KA, KC 32	RENISO KM 32	NH ₃
		KA, KC 46	RENISO HP 32 RENISO KMH 46	R-type Refrigerant Ethylene
		KA, KC 68	RENISO KS 46 RENISO S 68	
		KC 100	RENISO KES 100 RENISO SP 100	Propane Propylen R-type Refrigerant, Ethylene
L'Unite Hermetic	Hermetic	own brand	RENISO HP 32 RENISO SP 32	
MAC	Hermetic	KC 32	RENISO KM 32 RENISO SP 32	

RENISO / RENISO TRITON Refrigerator Oils



Manufacturer	Unit / Type	Lubricant Specification	FUCHS brand	Refrigerant / Remarks
Maneurop	Hermetic	General Electric	RENISO KM 32 RENISO SP 32	
Mycom, Japan	Srew Compressor **	Mobil SHC 226	RENISO Synth 68	Condensation temperature 60°C
		SUNISO 5 GS	RENISO KES 100 RENISO SP 100	Condensation temperature < 45°C
MC. Quay Europa	Turbo Compressor CE 050/063/079/087	SUNISO 4 G	RENISO KS 46 RENISO SP 46	
		RL 22/32	RENISO Triton SEZ 22/SEZ 32	R 134 a
		RL 32/46	RENISO Triton SEZ 32/SE 55	R 134 a
Mitsubishi	Piston Compressor	SUNISO 3 GS	RENISO KM 32 RENISO SP 46	
	Rotary Piston Compressor	SUNISO 4 GS	RENISO KS 46 RENISO SP 46	
NECCHI	Hermetic	Chevron Zerol	RENISO KM 32 RENISO SP 32	
NIPPON DENSO	Car air conditioning		RENISO KES 100 RENISO SP 100	
OPEL	Car air conditioning		RENISO KES 100 RENISO SP 100	
Prestcold	R-, S- and Tandem-compressor, ASN-, ASR- and AS-compressor	KC 32	RENISO KM 32 RENISO SP 46	R 12 R 22 R 502 *) down to -80°C
	Piston Compressor	Ester Oil ISO-VG 32	RENISO Triton SEZ 32	R 134 a/R 404 a
Rotocold	Rotary Slide Compressor	SHELL CLAVUS G 68	RENISO S 68 RENISO KC 68	for oil cooling systems, an oil of lower viscosity may be used
	Rotary Vane Compressor	RL 68 S	RENISO Triton SEZ 68	R 134 a/R 404 a
	Car air conditioning	ISO-VG 100	RENISO KES 100 RENISO SP 100	R 12

RENISO / RENISO TRITON Refrigerator Oils



Manufacturer	Unit / Type	Lubricant Specification	FUCHS brand	Refrigerant / Remarks
Sabroe	Piston Compressor	ISO-VG 68	RENISO KC 68 RENISO S 68	CMO, SMC, FWA Frigore SA, TSA R 134 a, R 404 a ... or higher viscosity grade
		ISO VG 100	RENISO KES 100 RENISO SP 100	
	Screw Compressor	ISO VG 150	RENISO OL 150 RENISO SP 220	
	Piston Compressor	Ester Oil 68/100	RENISO Triton SEZ 68/SEZ 100	
	Screw Compressor	Ester Oil 100	RENISO Triton SEZ 68/SEZ 100	
Stal-Astra GmbH	Semi-hermetic Piston Compressor	SUNISO 3 ½ G	RENISO KM 32	
		SUNISO 4 GS	RENISO KS 46	
	Screw Compressor **	SUNISO 5 GS	RENISO S 68 RENISO KES 100 RENISO SP 100	
Sütrak	Car air conditioning		RENISO KES 100 RENISO SP 100	R 12
		Ester Oil ISO-VG 46/68	RENISO Triton SE 55	R 134 a
	Cooling during transportation		RENISO SP 100	
Sulzer	Labyrinth Pistons	ISO-VG 100	RENISO KES 100	(Oil-free compressor spaces)
	Turbo Compressor	ISO-VG 150 ISO-VG 120	RENOLIN 210 SUNISO 6	
TBM	Semi-hermetic	RENISO SP 46	RENISO SP 46	*) down to -80°C
Technofrigo	Piston Compressor 1 and 2 steps	down to -30°C: RENISO KM 32	RENISO KM 32	
		below 30°C: RENISO KMH 46	RENISO SP 46 RENISO KM 46 RENISO SP 46	
	Screw Compressor **	NH ₃ RENISO KC 68 Clavus G 68	RENISO KC 68 RENISO S 68	
Type PMI Type PBI 90		KC 68	RENISO KC 68 RENISO OL 68 RENISO S 68	

Manufacturer	Unit / Type	Lubricant Specification	FUCHS brand	Refrigerant / Remarks
Tecumseh	Water chillers Semi-hermetic	Specif. No.. 4-10.01 at 100°F	RENISO KS 46 RENISO SP 46	
Trane USA	Water chillers Semi-hermetic	Specif.No. 4-10.03 150-160 SSU at 100°C	RENISO KM 32	
		Specif.No. 4.-10.05 500-540 SSU at 100°C	RENISO KES 100	
		Specif.No. 4-10.17 29,6-34,1 mm ² /s at 40°C	RENISO KM 32	
	Trane Screw	025E – alkylate / mineral oil	RENISO MS 68	R 22
	Trane Turbo	027E – alkylate / mineral oil	RENISO MS 32	R 22
	Trane Screw	020/021E – ester oil	RENISO Triton SE 55	R 134a, R 410 A
	Trane Turbo	020/021E – ester oil	RENISO Triton SEZ 68	R 134a, R 410 A
VW	Heat Pumps Car air conditioning	KC 68 TL-VW 777 Type X	RENISO S 68 RENISO KC 68	
		TL-VW 777	RENISO KES 100 RENISO SP 100	
Witt	Cooling Media Pumps		RENISO OL 32	Cooling Medium temperature -50°C
	Piston Compressor		RENISO KS 46 RENISO SP 46 RENISO S 68	
YORK	Car air conditioning		RENISO KES 100 RENISO SP 100	R 12
Zanussi	Hermetic		RENISO WF Series RENISO Triton SE/SEZ series	R 600a – isobutane R 134 a

*) For evaporation temperatures below -50°C, we recommend to use RENISO SP 32 and RENISO SP 46, respectively. When using these types, no problems of oil flowing back are to be expected down to -80°C.

**) Screw Compressors require in some cases high viscosity refrigerator oils, as a function of the final compression pressure and the final compression temperature. If necessary, please contact the compressor manufacturer for further information.

+) Low pressure compressor
++) High pressure compressor

Please contact the compressor manufacturers for detail information about the recommended lubricant viscosity and the lubricant classification.