



## **05 - Materials - technical features**

- Elastomer and plastic materials table
- Grease - technical specifications
- Lubricants for machine tools
- Recommended oils for pneumatic circuits

## ELASTOMER AND PLASTIC MATERIALS

CODE (According to ISO 1629)	Working temperature	Chemical description
<b>ELASTOMERS</b>		
EPDM	-40°C ÷ +100°C	ethylene propylene diene monomer
FFPM - FFKM	-5°C ÷ +200°C	Elastomero perfluorurato
FPM - FKM	-5°C ÷ +150°C	Fluoro rubber
HNBR	-5°C ÷ +120°C	Hydrogenated acrylonitrile butadiene
NBR	-5°C ÷ +70°C	Nitrile rubber
PUR	-30°C ÷ +80°C	Polyurethan
EU	-30°C ÷ +80°C	Injection molding polyurethan
<b>PLASTIC MATERIALS</b>		
PTFE	-150°C ÷ +200°C	Polytetrafluoroethylene
POM	-40°C ÷ +110°C	Acetalic resin
PA	-40°C ÷ +120°C	Polyamide (Nylon)
PC	-100°C ÷ +130°C	Polycarbonate
PBT	-40°C ÷ +130°C	Polybutylene terephthalate

## GREASE SPECIFICATIONS

### Polymer 400

Mineral grease fluorinated with PTFE that fills the microasperity of metallic surfaces to the molecular level, preceding metal-metal contact and so reducing operating temperature, friction and the wear. Green coloured, soft, and adhesive. Has excellent washout resistance, operating temperature from -20°C to +160°C.

Excellent adhesive properties make the grease extremely long lasting.

Producer: Oil Center research-USA, distributor tecnolubeseal-Italia.

Used on valves; cylinders series 1380-1600(Ø25-32-40), guided compact cylinders series 6100 and 6200 series slide units.

### Molycote PG 54

Silicon based grease with lithium thickener.

White-pink coloured, soft, water resistant, operating temperature from -50°C to +180°C.

Low friction coefficient makes this grease suitable for applications where good sliding properties are requested.

Good adhesive properties make the grease long lasting.

Producer: Down Corning Corporation-USA

Normally used on "LOW FRICTION" cylinder series 1319-1380-1280.

### Molycote 111

Dimethyl silicone based grease with inorganic thickener. Has a heavy-consistency (class 2 & 3) which makes it suitable for low speed applications where a smooth movement is required

Temperature range from -40°C to +200°C with good resistance to water. Very good adhesive properties; extremely long lasting.

Producer: Down Corning Corporation-USA. Normally used on rodless cylinder series 1600 Ø50-63 and on slow speed applications.

### Paraliq GA 351

Paraffin oil based grease with silver soap thickener. Adhesive, with a temperature range from -40 to 120°C. Suitable for food applications, is a medium lasting grease. Producer: Klüber Lubrication - Germany

### Berlub FR B

Synthetic based mineral grease with special lithium soap thickener. Resistant to water, both hot and cold, to steam and detergents. Very good adhesive properties, rust preventing capabilities, temperature range from -50 to +140°C.

Long lasting grease ideal for low temperature applications improves sliding properties of elastomers on steel and non ferrous materials

Producer: Bechem.

Used on low temperature applications.

### Turtemp II/400RS 2

Mineral grease white colour, pasty and smooth with perfluoric thickener.

Temperature range from -30°C to +260°C

Compatible with all materials (it is recommended to clean all surfaces before applying the grease in order to increase adhesivity and performance) prevents electrostatic charges build up.

Producer: Lubcon-Germania.

Suitable for oxygen and medical applications



TABLE OF THE SYMBOLS OF UNI 7164 AND ISO 3498 STANDARDS  
IN CORRESPONDENCE WITH THE LUBRICANTS OF THE COMPANY LISTED

CLASSE	UNI 7164	COMLUBE	elf	ESSO	EURAL	FINA	FUCHS	IGLTA	ISAJOL	ISAJOL
A	AA 10	UNI 7164 A 100	MOYACO	EURO 02	EURO 01	EURO 01	REVAL 08	SEMO 08	EURO 01 08	EURO 01 08
	AA 32	UNI 7164 A 32	AVILLO 32	EURO 02	EURO 02	EURO 02	REVAL 32	SEMO 32	EURO 01 32	EURO 01 32
	AA 68	UNI 7164 A 68	TO STEEP 68	EURO 02	EURO 02	EURO 02	REVAL 68	SEMO 68	EURO 01 68	EURO 01 68
	AA 100	UNI 7164 A 100	MUNILAR 100	EURO 02	EURO 02	EURO 02	REVAL 100	SEMO 100	EURO 01 100	EURO 01 100
C	CC 100	UNI 7164 C 100	PERDITE SF 100	EURO 02	EURO 02	EURO 02	REVAL 100	SEMO 100	EURO 01 100	EURO 01 100
	CC 220	UNI 7164 C 220	PERDITE SF 220	EURO 02	EURO 02	EURO 02	REVAL 220	SEMO 220	EURO 01 220	EURO 01 220
	CC 460	UNI 7164 C 460	PERDITE SF 460	EURO 02	EURO 02	EURO 02	REVAL 460	SEMO 460	EURO 01 460	EURO 01 460
	CC 680	UNI 7164 C 680	PERDITE SF 680	EURO 02	EURO 02	EURO 02	REVAL 680	SEMO 680	EURO 01 680	EURO 01 680
F	FF 5	UNI 7164 F 5	PERDITE SF 5	EURO 02	EURO 02	EURO 02	REVAL 5	SEMO 5	EURO 01 5	EURO 01 5
	FF 10	UNI 7164 F 10	PERDITE SF 10	EURO 02	EURO 02	EURO 02	REVAL 10	SEMO 10	EURO 01 10	EURO 01 10
	FF 22	UNI 7164 F 22	PERDITE SF 22	EURO 02	EURO 02	EURO 02	REVAL 22	SEMO 22	EURO 01 22	EURO 01 22
	FF 46	UNI 7164 F 46	PERDITE SF 46	EURO 02	EURO 02	EURO 02	REVAL 46	SEMO 46	EURO 01 46	EURO 01 46
G	GG 220	UNI 7164 G 220	PERDITE SF 220	EURO 02	EURO 02	EURO 02	REVAL 220	SEMO 220	EURO 01 220	EURO 01 220
	GG 460	UNI 7164 G 460	PERDITE SF 460	EURO 02	EURO 02	EURO 02	REVAL 460	SEMO 460	EURO 01 460	EURO 01 460
	GG 680	UNI 7164 G 680	PERDITE SF 680	EURO 02	EURO 02	EURO 02	REVAL 680	SEMO 680	EURO 01 680	EURO 01 680
	GG 1000	UNI 7164 G 1000	PERDITE SF 1000	EURO 02	EURO 02	EURO 02	REVAL 1000	SEMO 1000	EURO 01 1000	EURO 01 1000
H	HH 02	UNI 7164 H 02	PERDITE SF 02	EURO 02	EURO 02	EURO 02	REVAL 02	SEMO 02	EURO 01 02	EURO 01 02
	HH 04	UNI 7164 H 04	PERDITE SF 04	EURO 02	EURO 02	EURO 02	REVAL 04	SEMO 04	EURO 01 04	EURO 01 04
	HH 06	UNI 7164 H 06	PERDITE SF 06	EURO 02	EURO 02	EURO 02	REVAL 06	SEMO 06	EURO 01 06	EURO 01 06
	HH 08	UNI 7164 H 08	PERDITE SF 08	EURO 02	EURO 02	EURO 02	REVAL 08	SEMO 08	EURO 01 08	EURO 01 08
*	HH 10	UNI 7164 H 10	PERDITE SF 10	EURO 02	EURO 02	EURO 02	REVAL 10	SEMO 10	EURO 01 10	EURO 01 10
	HH 15	UNI 7164 H 15	PERDITE SF 15	EURO 02	EURO 02	EURO 02	REVAL 15	SEMO 15	EURO 01 15	EURO 01 15
	HH 22	UNI 7164 H 22	PERDITE SF 22	EURO 02	EURO 02	EURO 02	REVAL 22	SEMO 22	EURO 01 22	EURO 01 22
	HH 46	UNI 7164 H 46	PERDITE SF 46	EURO 02	EURO 02	EURO 02	REVAL 46	SEMO 46	EURO 01 46	EURO 01 46
X	XX 1	UNI 7164 X 1	PERDITE SF 1	EURO 02	EURO 02	EURO 02	REVAL 1	SEMO 1	EURO 01 1	EURO 01 1
	XX 2	UNI 7164 X 2	PERDITE SF 2	EURO 02	EURO 02	EURO 02	REVAL 2	SEMO 2	EURO 01 2	EURO 01 2
	XX 3	UNI 7164 X 3	PERDITE SF 3	EURO 02	EURO 02	EURO 02	REVAL 3	SEMO 3	EURO 01 3	EURO 01 3
	XX 4	UNI 7164 X 4	PERDITE SF 4	EURO 02	EURO 02	EURO 02	REVAL 4	SEMO 4	EURO 01 4	EURO 01 4

Provided by S.T.A.N.I.M.U.C. - Turin

\* Oils recommended for pneumatic system



TABLE OF THE SYMBOLS OF UNI 7164 AND ISO 3498 STANDARDS  
IN CORRESPONDENCE WITH THE LUBRICANTS OF THE COMPANY LISTED

CLASSIFICATION	SYMBOLS OF ISO 3498	TAMOIL	TENAX	STAR	TOTAL	Vahlral	VALVOLINE	Vanguard	WEBER
A	AM 88	LUBRIFICANT PERFORMANT	PERFORMANT	AM 88	AM 88	AM 88	AM 88	AM 88	AM 88
	CM 37	PERFORMANT	PERFORMANT	CM 37	CM 37	CM 37	CM 37	CM 37	CM 37
	CM 68	PERFORMANT	PERFORMANT	CM 68	CM 68	CM 68	CM 68	CM 68	CM 68
C	CM 150	PERFORMANT	PERFORMANT	CM 150	CM 150	CM 150	CM 150	CM 150	CM 150
	CC 159	PERFORMANT	PERFORMANT	CC 159	CC 159	CC 159	CC 159	CC 159	CC 159
	CC 320	PERFORMANT	PERFORMANT	CC 320	CC 320	CC 320	CC 320	CC 320	CC 320
F	FD 6	PERFORMANT	PERFORMANT	FD 6	FD 6	FD 6	FD 6	FD 6	FD 6
	FD 10	PERFORMANT	PERFORMANT	FD 10	FD 10	FD 10	FD 10	FD 10	FD 10
	FD 22	PERFORMANT	PERFORMANT	FD 22	FD 22	FD 22	FD 22	FD 22	FD 22
G	G 32	PERFORMANT	PERFORMANT	G 32	G 32	G 32	G 32	G 32	G 32
	G 68	PERFORMANT	PERFORMANT	G 68	G 68	G 68	G 68	G 68	G 68
	G 220	PERFORMANT	PERFORMANT	G 220	G 220	G 220	G 220	G 220	G 220
H *	HM 32	PERFORMANT	PERFORMANT	HM 32	HM 32	HM 32	HM 32	HM 32	HM 32
	HM 46	PERFORMANT	PERFORMANT	HM 46	HM 46	HM 46	HM 46	HM 46	HM 46
	HM 68	PERFORMANT	PERFORMANT	HM 68	HM 68	HM 68	HM 68	HM 68	HM 68
X	HM 32	PERFORMANT	PERFORMANT	HM 32	HM 32	HM 32	HM 32	HM 32	HM 32
	HM 46	PERFORMANT	PERFORMANT	HM 46	HM 46	HM 46	HM 46	HM 46	HM 46
	HM 68	PERFORMANT	PERFORMANT	HM 68	HM 68	HM 68	HM 68	HM 68	HM 68

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CLASSE	SIMBOLI ISO E UNI	CAMPO DI APPLICAZIONE	Agip	api	ARAL	ARCO	barelli	ELF	FUCHS	IGLEA	BERGOLINE	BP	BRYTOL	Castrol
F	F0 22	MOTORI A CILINDRATAZIONE E FRESSIONE AUTOMOBILE	030 75	API CG-12	ARAL OLIO SAE 30	DURO OLIO 22	TAURO 22	SAFARI 22	SAFARI 22	BERGOLINE 22	ENERGOL 12-22	ENERGOL 12-22	ENERGOL 22	HYPERLUB AW 22
H	H0 32	SISTEMI IDRAULICI E GUIDE	CK 36 32	API CG-12 EP	TAURO 32	TAURO 32	TAURO 32	WAY 32	WAY 32	ENERGOL 32	ENERGOL 32	ENERGOL 32	WAY 32	WAY 32
CLASSE	SIMBOLI ISO E UNI	CAMPO DI APPLICAZIONE	COMILUBE	elf	ESSO	EURAL	FINA	FUCHS	IGLEA	IP	IPSAOIL	IPSAOIL	IPSAOIL	IPSAOIL
F	F0 22	MOTORI A CILINDRATAZIONE E FRESSIONE AUTOMOBILE	OLEO 110 22	SPINLET 22	SPINLET 22	MOTO 22	HYDRA 22	RENOLUB MP 5	IP HOURS OIL 22	IP HOURS OIL 22	SPARKLE OIL 22 A	CRUCOLAN 22	CRUCOLAN 22	CRUCOLAN 22
H	H0 32	SISTEMI IDRAULICI E GUIDE	OLIO 116 32	HYG 32	FEBIS 4 32	TECAL 32	HYDRA 32	RENOLUB MP 10	IP BANTA OIL 16-32	IP BANTA OIL 16-32	IP 281	LANVOR 32	LANVOR 32	LANVOR 32
CLASSE	SIMBOLI ISO E UNI	CAMPO DI APPLICAZIONE	LUBRA	MILIOB	Mobil	OLEBUTZ	OILLIO FITIAT	Persian Oil	Q8	RDL	Shell	SINDOL	SINDOL	SINDOL
F	F0 22	MOTORI A CILINDRATAZIONE E FRESSIONE AUTOMOBILE	OLEO 9 22	MILMOE 22	Mobil VELOCITE OIL 0 MOD. COLE 22	OLIO CITY 9	RIT 22	OROL 22	HAION 22	IP 22	TELLUS OIL 022	SIMULUBE HY 200	TELLUS OIL 022	TELLUS OIL 022
H	H0 32	SISTEMI IDRAULICI E GUIDE	OLIO 01 32	TELEMOX 14 32	Mobil VACUOLINE 01, 146	OLIO CITY 32	POS 32	PAUL 32	WARHER 32	112-EP	TOYMA OIL 124	SIMULUBE NO 3	TOYMA OIL 124	SIMULUBE NO 3
CLASSE	SIMBOLI ISO E UNI	CAMPO DI APPLICAZIONE	TAMOIL	TEMTEX	STAR	TOTAL	Vabriol	VALVOLINE	Vanguard	WEBER	WEBER	WEBER	WEBER	WEBER
F	F0 22	MOTORI A CILINDRATAZIONE E FRESSIONE AUTOMOBILE	TAMPOLE OIL 10 E FRESSIONE TANSPIRANTE 01-22	SECTO 22 VELOC 22	SPORTS OIL 22	AZULLA 22 22	FINOX 22	ETC 22	KOMOL 85V 22	SIGNAL 03 22 (2)	SIGNAL 03 22 (2)	WEBER W.L. 22	SIGNAL 03 22 (2)	WEBER W.L. 22
H	H0 32	SISTEMI IDRAULICI E GUIDE	TAMMOX OIL 32	EMPTON 32	CLEARTEX 01 HAZED OIL 40 32	DORSELA 40 32	NETRA 32 NE 10 32	DES 32	C.O. SPECIAL 32	SIGNAL 70 32 (3)	SIGNAL 70 32 (3)	WEBER WESSTICK 32	SIGNAL 70 32 (3)	WEBER WESSTICK 32

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