



05 - Materials - technical features

05

- 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
ELASTOMERS		
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 acrylonitrille butadiene
NBR	-5°C + +70°C	Nitrile rubber
PUR	-30°C + +80°C	Polyurethan
EU	-30°C + +80°C	Injection molding polyurethan
PLASTIC MATERIALS		
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: Kluber 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

SYMBOL	ARAL	Agip	ARCO	barelli	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL
A	ARAL	Agip	ARCO	barelli	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL
B	ARAL	Agip	ARCO	barelli	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL
C	ARAL	Agip	ARCO	barelli	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL
F	ARAL	Agip	ARCO	barelli	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL
G	ARAL	Agip	ARCO	barelli	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL
H	ARAL	Agip	ARCO	barelli	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL
#	ARAL	Agip	ARCO	barelli	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL
X	ARAL	Agip	ARCO	barelli	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL	ELI-VAL

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* 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

CLASS	SYMBOL	COMLUBE	elf	ESSO	EURAL	FINA	Fuchs	INLEA	ISAFIN	SYMBOLS
A	AA 10	ULIO 10	MOX 10	ULIO 10	EP 10	EPV 10	REVA 10	EPV 10	ISAFIN 10	EPV 10
	AA 20	ULIO 20	MOX 20	ULIO 20	EP 20	EPV 20	REVA 20	EPV 20	ISAFIN 20	EPV 20
	AA 30	ULIO 30	MOX 30	ULIO 30	EP 30	EPV 30	REVA 30	EPV 30	ISAFIN 30	EPV 30
	AA 40	ULIO 40	MOX 40	ULIO 40	EP 40	EPV 40	REVA 40	EPV 40	ISAFIN 40	EPV 40
C	CA 10	ULIO 10	MOX 10	ULIO 10	EP 10	EPV 10	REVA 10	EPV 10	ISAFIN 10	EPV 10
	CA 20	ULIO 20	MOX 20	ULIO 20	EP 20	EPV 20	REVA 20	EPV 20	ISAFIN 20	EPV 20
	CA 30	ULIO 30	MOX 30	ULIO 30	EP 30	EPV 30	REVA 30	EPV 30	ISAFIN 30	EPV 30
	CA 40	ULIO 40	MOX 40	ULIO 40	EP 40	EPV 40	REVA 40	EPV 40	ISAFIN 40	EPV 40
F	FA 10	ULIO 10	MOX 10	ULIO 10	EP 10	EPV 10	REVA 10	EPV 10	ISAFIN 10	EPV 10
	FA 20	ULIO 20	MOX 20	ULIO 20	EP 20	EPV 20	REVA 20	EPV 20	ISAFIN 20	EPV 20
	FA 30	ULIO 30	MOX 30	ULIO 30	EP 30	EPV 30	REVA 30	EPV 30	ISAFIN 30	EPV 30
	FA 40	ULIO 40	MOX 40	ULIO 40	EP 40	EPV 40	REVA 40	EPV 40	ISAFIN 40	EPV 40
G	GA 10	ULIO 10	MOX 10	ULIO 10	EP 10	EPV 10	REVA 10	EPV 10	ISAFIN 10	EPV 10
	GA 20	ULIO 20	MOX 20	ULIO 20	EP 20	EPV 20	REVA 20	EPV 20	ISAFIN 20	EPV 20
	GA 30	ULIO 30	MOX 30	ULIO 30	EP 30	EPV 30	REVA 30	EPV 30	ISAFIN 30	EPV 30
	GA 40	ULIO 40	MOX 40	ULIO 40	EP 40	EPV 40	REVA 40	EPV 40	ISAFIN 40	EPV 40
H	HA 10	ULIO 10	MOX 10	ULIO 10	EP 10	EPV 10	REVA 10	EPV 10	ISAFIN 10	EPV 10
	HA 20	ULIO 20	MOX 20	ULIO 20	EP 20	EPV 20	REVA 20	EPV 20	ISAFIN 20	EPV 20
	HA 30	ULIO 30	MOX 30	ULIO 30	EP 30	EPV 30	REVA 30	EPV 30	ISAFIN 30	EPV 30
	HA 40	ULIO 40	MOX 40	ULIO 40	EP 40	EPV 40	REVA 40	EPV 40	ISAFIN 40	EPV 40
X	XA 10	ULIO 10	MOX 10	ULIO 10	EP 10	EPV 10	REVA 10	EPV 10	ISAFIN 10	EPV 10
	XA 20	ULIO 20	MOX 20	ULIO 20	EP 20	EPV 20	REVA 20	EPV 20	ISAFIN 20	EPV 20
	XA 30	ULIO 30	MOX 30	ULIO 30	EP 30	EPV 30	REVA 30	EPV 30	ISAFIN 30	EPV 30
	XA 40	ULIO 40	MOX 40	ULIO 40	EP 40	EPV 40	REVA 40	EPV 40	ISAFIN 40	EPV 40

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* 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

GROUP	SYMBOL	SYMBOL	SYMBOL	SYMBOL	SYMBOL	SYMBOL	SYMBOL	SYMBOL	SYMBOL	SYMBOL	SYMBOL	SYMBOL
A	AM 68	AM 68	AM 68	AM 68	AM 68	AM 68	AM 68	AM 68	AM 68	AM 68	AM 68	AM 68
	AM 100	AM 100	AM 100	AM 100	AM 100	AM 100	AM 100	AM 100	AM 100	AM 100	AM 100	AM 100
	AM 150	AM 150	AM 150	AM 150	AM 150	AM 150	AM 150	AM 150	AM 150	AM 150	AM 150	AM 150
	AM 220	AM 220	AM 220	AM 220	AM 220	AM 220	AM 220	AM 220	AM 220	AM 220	AM 220	AM 220
C	CM 68	CM 68	CM 68	CM 68	CM 68	CM 68	CM 68	CM 68	CM 68	CM 68	CM 68	CM 68
	CM 100	CM 100	CM 100	CM 100	CM 100	CM 100	CM 100	CM 100	CM 100	CM 100	CM 100	CM 100
	CM 150	CM 150	CM 150	CM 150	CM 150	CM 150	CM 150	CM 150	CM 150	CM 150	CM 150	CM 150
	CM 220	CM 220	CM 220	CM 220	CM 220	CM 220	CM 220	CM 220	CM 220	CM 220	CM 220	CM 220
F	FM 68	FM 68	FM 68	FM 68	FM 68	FM 68	FM 68	FM 68	FM 68	FM 68	FM 68	FM 68
	FM 100	FM 100	FM 100	FM 100	FM 100	FM 100	FM 100	FM 100	FM 100	FM 100	FM 100	FM 100
	FM 150	FM 150	FM 150	FM 150	FM 150	FM 150	FM 150	FM 150	FM 150	FM 150	FM 150	FM 150
	FM 220	FM 220	FM 220	FM 220	FM 220	FM 220	FM 220	FM 220	FM 220	FM 220	FM 220	FM 220
G	GM 68	GM 68	GM 68	GM 68	GM 68	GM 68	GM 68	GM 68	GM 68	GM 68	GM 68	GM 68
	GM 100	GM 100	GM 100	GM 100	GM 100	GM 100	GM 100	GM 100	GM 100	GM 100	GM 100	GM 100
	GM 150	GM 150	GM 150	GM 150	GM 150	GM 150	GM 150	GM 150	GM 150	GM 150	GM 150	GM 150
	GM 220	GM 220	GM 220	GM 220	GM 220	GM 220	GM 220	GM 220	GM 220	GM 220	GM 220	GM 220
H	HM 68	HM 68	HM 68	HM 68	HM 68	HM 68	HM 68	HM 68	HM 68	HM 68	HM 68	HM 68
	HM 100	HM 100	HM 100	HM 100	HM 100	HM 100	HM 100	HM 100	HM 100	HM 100	HM 100	HM 100
	HM 150	HM 150	HM 150	HM 150	HM 150	HM 150	HM 150	HM 150	HM 150	HM 150	HM 150	HM 150
	HM 220	HM 220	HM 220	HM 220	HM 220	HM 220	HM 220	HM 220	HM 220	HM 220	HM 220	HM 220
X	XM 68	XM 68	XM 68	XM 68	XM 68	XM 68	XM 68	XM 68	XM 68	XM 68	XM 68	XM 68
	XM 100	XM 100	XM 100	XM 100	XM 100	XM 100	XM 100	XM 100	XM 100	XM 100	XM 100	XM 100
	XM 150	XM 150	XM 150	XM 150	XM 150	XM 150	XM 150	XM 150	XM 150	XM 150	XM 150	XM 150
	XM 220	XM 220	XM 220	XM 220	XM 220	XM 220	XM 220	XM 220	XM 220	XM 220	XM 220	XM 220

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CLASS	UNI 7164 SYMBOL	UNI 7164 SYMBOL	TAMOL	TENEX	STAR	TOTAL	Vahlbel	VALVOLINE	Vanguard	WEBER
A	AM 88	LUBRIFICAZIONE	TRAVEL OIL 88	HYPERLUB 88	CHRYSLER	GM 88	MOBIL 88	VALVOLINE 88	ROAD 88	WEBER 88
	CR 3P	COMPACT	CR 3P	CR 3P	CR 3P	CR 3P	CR 3P	CR 3P	CR 3P	WEBER 3P
	CR 88	COMPACT	CR 88	CR 88	CR 88	CR 88	CR 88	CR 88	CR 88	WEBER 88
	CR 150	COMPACT	CR 150	CR 150	CR 150	CR 150	CR 150	CR 150	CR 150	WEBER 150
C	CC 150	COMPACT	CC 150	CC 150	CC 150	CC 150	CC 150	CC 150	CC 150	WEBER 150
	CC 320	COMPACT	CC 320	CC 320	CC 320	CC 320	CC 320	CC 320	CC 320	WEBER 320
	CC 460	COMPACT	CC 460	CC 460	CC 460	CC 460	CC 460	CC 460	CC 460	WEBER 460
	CC 600	COMPACT	CC 600	CC 600	CC 600	CC 600	CC 600	CC 600	CC 600	WEBER 600
F	FD 5	COMPACT	FD 5	FD 5	FD 5	FD 5	FD 5	FD 5	FD 5	WEBER 5
	FD 10	COMPACT	FD 10	FD 10	FD 10	FD 10	FD 10	FD 10	FD 10	WEBER 10
	FD 20	COMPACT	FD 20	FD 20	FD 20	FD 20	FD 20	FD 20	FD 20	WEBER 20
	FD 30	COMPACT	FD 30	FD 30	FD 30	FD 30	FD 30	FD 30	FD 30	WEBER 30
G	GB 10	COMPACT	GB 10	GB 10	GB 10	GB 10	GB 10	GB 10	GB 10	WEBER 10
	GB 20	COMPACT	GB 20	GB 20	GB 20	GB 20	GB 20	GB 20	GB 20	WEBER 20
	GB 30	COMPACT	GB 30	GB 30	GB 30	GB 30	GB 30	GB 30	GB 30	WEBER 30
	GB 40	COMPACT	GB 40	GB 40	GB 40	GB 40	GB 40	GB 40	GB 40	WEBER 40
H	HM 32	COMPACT	HM 32	HM 32	HM 32	HM 32	HM 32	HM 32	HM 32	WEBER 32
	HM 46	COMPACT	HM 46	HM 46	HM 46	HM 46	HM 46	HM 46	HM 46	WEBER 46
	HM 68	COMPACT	HM 68	HM 68	HM 68	HM 68	HM 68	HM 68	HM 68	WEBER 68
	HM 100	COMPACT	HM 100	HM 100	HM 100	HM 100	HM 100	HM 100	HM 100	WEBER 100
X	XM 1	COMPACT	XM 1	XM 1	XM 1	XM 1	XM 1	XM 1	XM 1	WEBER 1
	XM 2	COMPACT	XM 2	XM 2	XM 2	XM 2	XM 2	XM 2	XM 2	WEBER 2
	XM 3	COMPACT	XM 3	XM 3	XM 3	XM 3	XM 3	XM 3	XM 3	WEBER 3
	XM 4	COMPACT	XM 4	XM 4	XM 4	XM 4	XM 4	XM 4	XM 4	WEBER 4

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GRADO	SYMBOLI DISEGNI UNI	Agip	api	ARAL	ARCO	barelli	ELF	BERGOLINE	BP	BRAYCOL	Castrol
F	10 22	MONITOR CINQUEVE FRONT SCORPIONE	API S 22	QUALICOR S 22	DELO S 22	TASCO S 22	SPEM S 22	BERGOLINE S 22	ENERGOL S 22	SUAVOL S 22	HS 100 S 22
H	16 32	SISTEMI DIPLOMATI EQUINE	API CE 32EP		FINESSE S 22	TANCO S 22	WAY S 22	EMERSE S 22	ENERGOL S 22	WIKY S 22	W 200 S 22
CLASSE	SYMBOLI DISEGNI UNI	COMBITE	elf	ESSO	EURAL	FINA	ELFIS	IGLEA	IP	ISADIL	
F	10 22	3000 CINQUEVE FRONT SCORPIONE	SPINOL S 22	SPINOL S 22	NECO S 22	INDURA S 22	RENOL S 22	FEEL S 22	IP S 22	SPINOL S 22	SPINOL S 22
H	16 32	3000 CINQUEVE FRONT SCORPIONE	W 200 S 22	FEELS S 22	TORVAL S 22	INDURON S 22	RENOL S 22	FEELTE S 22	IP S 22	W 200 S 22	LEMON S 22
CLASSE	SYMBOLI DISEGNI UNI	LUBRA	MULLOD	Mobil	TEGRO	OILIO FITTAI	Petrol GAL	Q8	RZL	Shell	SINOL
F	10 22	3000 CINQUEVE FRONT SCORPIONE	M 100 S 22	MOBIL VELOCIT S 22	CLUB S 22	M 100 S 22	DRIO S 22	Q8 S 22	LF S 22	TELLUR S 22	SMOLUC S 22
H	16 32	3000 CINQUEVE FRONT SCORPIONE	TELEMA S 22	MOBIL LARGO S 22	CLUB S 22	RS 32	AGUL S 22	W 100 S 22	100EP	TOVAL S 22	SMOLUC S 22
CLASSE	SYMBOLI DISEGNI UNI	TAMOIL	TEMATEX	STAR	TOTAL	Vabrol	VALVOLINE	Vanguard	WEBER	WESCOOL	WEBER
F	10 22	3000 CINQUEVE FRONT SCORPIONE	TEMA S 22	STAR S 22	AVIA S 22	RIEVE S 22	ETC S 22	W 100 S 22	SPINOL S 22	WESCOOL S 22	WEBER S 22
H	16 32	3000 CINQUEVE FRONT SCORPIONE	TEMA S 22	STAR S 22	AVIA S 22	RIEVE S 22	ETC S 22	W 100 S 22	SPINOL S 22	WESCOOL S 22	WEBER S 22

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