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Pos	Designation of Lubricant	Operating Temp Range (°C)	Mineral	Viscosity cST@40 C	PAO Synthetic (may contain esters)	Viscosity cST@40°C
1	Multipurpose Ball-Bearing Grease	- 25° / + 120°	Mobilux EP 2	150		
			Mobilgrease XHP 222	220	Mobilith SHC 220	220
2	Transmission Grease	- 15° / + 100°	Mobilux EP 023	320		
					Mobilith SHC 007	460
3	Gear Oil 135 - 165 cST at 40 °C	- 22° / + 100°	Mobilgear 600 XP 150	150		Mobil SHC 629
						150
4	Gear Oil 198 - 242 cST at 40 °C	- 17° / + 130°	Mobilgear 600XP 220	220		Mobil SHC 630
					Mobil SHC Gear 220	220
5	Hypogear Oil 80 - 150 cST at 40 °C	- 25° / + 120°	Mobilgear 600 XP 100	100		Mobil SHC 627
			Mobilube HD Plus 80-90	139	Mobil Delvac 1 Gear oil 75W-90	120
6	Hypogear Oil 170-210 cST at 40 °C	- 16° / + 130°	Mobilube HD 85W-140	328		Mobil Delvac 1 Gear oil 80W-140
						310
7	Gear Oil 25 -40 cST at 40 °C	- 40° / +130°	Mobil ATF D/M	32		Mobil SHC 624
						
Pos	Designation of lubricants	Operating Temp Range (°C)	Mineral	Viscosity cST@40 C	PAO Synthetic (may contain esters)	Viscosity cST@40°C
1	Multipurpose Ball-Bearing Grease	- 25° / + 120°	Gadus S2 V220 2	220		Gadus S5 V220 2
						220
2	Transmission Grease	- 15° / + 100°	Gadus S2 V220 00	220		
					Gadus S5 V460 00	460
3	Gear Oil 135 - 165 cST at 40 °C	- 22° / + 100°	Omala S2 G 150	150		Omala S4 GX 150
						157.7
4	Gear Oil 198 - 242 cST at 40 °C	- 17° / + 130°	Omala S2 G 220	220		Omala S4 GX 220
						229.4
5	Hypogear Oil 80 - 150 cST at 40 °C	- 25° / + 120°	Spirax Hd 80W-90	139		
					Spirax S6 AXRME 75W-90	150
6	Hypogear Oil 170-210 cST at 40 °C No exact Shell matches for Kissling Table	- 16° / + 130°	Spirax HD 85W -140 <sup>b</sup>	323		
					Spirax S6 AXME 80W-140 <sup>b</sup>	271
7	Gear Oil 25 -40 cST at 40 °C	- 40° / +130°	Dexron 111 (Pennzoil ATF Dex/Merc)	36.8		
						
Pos	Designation of lubricants Viscosity in Centistokes (cST)	Operating Temp Range (°C)	Mineral	Viscosity cST@40 C	PAO Synthetic (may contain esters)	Viscosity cST@40°C
1	Multipurpose Ball-Bearing Grease Multi-Purpose NLGI#2 Grease ISO 100	- 25° / + 120°	Castrol Tribol GR 100-2PD	95		
					Castrol Spheerol SY 1002	100
2	Transmission Grease Semi-Fluid Grease, EP	- 15° / + 100°	Castrol Molub-Alloy 969/320	320		
					Castrol Spheerol SHL #00	460
3	Gear Oil 135 - 165 cST at 40 °C	- 22° / + 100°	Castrol Alpha SP150	150		Castrol Alphasyn EP 150
4	Gear Oil 198 - 242 cST at 40 °C	- 17° / + 130°	Castrol Alpha SP 220	220		Castrol Alphasyn EP-220
5	Hypogear Oil 80 - 150 cST at 40 °C Gear Oil, API GL-5	- 25° / + 120°	Castrol AP Gear Oil 80W90	160		
					Castrol Syngear 75W-90	103
6	Hypogear Oil 170-210 cST at 40 °C Gear Oil, API GL-5	- 16° / + 130°	Castrol AP Gear Oil 85W-140	385		
					Castrol Syngear 80W-140	312
7	Gear Oil 25 -40 cST at 40 °C Transmission Fluid, Dex III/Dex VI	- 40° / +130°	Castrol HD Multipurpose ATF	34		
					Castrol Transmax FS MV ATF	30.2
<b>Additional Specs Provided for BP/Castrol</b>						
1.1	Multi-Purpose NLGI#2 Grease ISO 220-320	- 25° / + 120°	Castrol Pyroplex Blue #2	247		Castrol Pyroplex Protection ES #2
3.1	Synthetic Gear Oil Anti-Wear	- 22° / + 100°				Castrol Alphasyn T 150
4.1	Synthetic Gear Oil Anti-Wear	- 17° / + 130°				Castrol Alphasyn T 220
7.1	Synthetic Anti-Wear	- 40° / +130°				Castrol Alphasyn T32
W	Non-EP ISO 220 Worm Gears		Castrol Magna CL 220	220		Castrol Alphasyn T 220
	Non-EP ISO 320 Worm Gears		Castrol Magna CL 320	320		Castrol Alphasyn T 320
	Non-EP ISO 460 Worm Gears		Castrol Magna CL 460	460		Castrol Alphasyn T 460

<sup>b</sup>Not exact but recommended for this pos.

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### Lubricant Application Chart

Lubrication System	Pos	Gear Type	Input Shaft Position	Output Shaft Position	Pos	Ambient Temp Range °C	Temp Rang °C
Grease Lubrication	1	Gasjet Lubrication Points	H	H	1	- 25°C - +50	- 25°C - +120
	1	Roller-Bearing Lubrication Points	-	-	1	- 25°C - +50	- 25°C - +120
	2	Worm Gears Barrel Type Gearmotors	H / V	H / V	2	- 15°C - +50	- 15°C - +100
	2	Helical Gears	H / V	H / V	2	- 15°C - +50	- 15°C - +100
Oil Splash Lubrication	3	Planetary Gears	V	V	3	- 22°C - +50	- 22°C - +100
	3	Helical Gears	H	H	3	- 22°C - +50	- 22°C - +100
	3	Helical Gears	V	V	3	- 22°C - +50	- 22°C - +100
	3	Worm Gears	H / V	H / V	3	- 22°C - +40	- 22°C - +100
	4	Planetary Gears	H	H	4	- 17°C - +50	- 17°C - +130
	4	Helical Gears	H	H	4	- 17°C - +50	- 17°C - +130
	4	Worm Gears	H / V	H / V	4	- 17°C - +40	- 17°C - +130
	4	Gearboxes	H	H	4	- 17°C - +50	- 17°C - +130
	5	Helical Gears	V	V	5	- 25°C - +40	- 25°C - +120
	5	Compact Spur Gears	H / V	H / V	5	- 25°C - +40	- 25°C - +120
	5	Compact Spur and Bevel	H / V	H / V	5	- 25°C - +40	- 25°C - +120
	5	Bevel and Helical Gears	H	H	5	- 16°C - +40	- 25°C - +120
	5	Vertical Bevel and Helical	H	V	5	- 16°C - +40	- 25°C - +120
	5	Gearboxes	H	H	5	- 25°C - +40	- 25°C - +120
	6	Heavy-duty Helical Gears	H	H	6	- 16°C - +50	- 16°C - +130
6	Bevel Gear	H / V	H / V	6	- 16°C - +50	- 16°C - +130	
7	Planetary Gears	H / V	H / V	7	- 40°C - +50	- 40°C - +130	
Splash and circulation Lubrication with built-in oil-pump	3	Helical Gears	V	V	3	- 22°C - +50	- 22°C - +100
	4	Helical Gears	H	H	4	- 17°C - +50	- 17°C - +130
	5	Helical Gears	V	V	5	- 25°C - +40	- 25°C - +120
	5	Vertical Bevel and Helical	H	V	5	- 25°C - +40	- 25°C - +120
	6	Vertical Bevel and Helical	H	V	6	- 16°C - +50	- 16°C - +130
Circulation Lubrication with motor pump	3	Vertical Helical Gears	V	V	3	- 22°C - +50	- 22°C - +100
	5	Heavy duty Helical Gears	H	H	5	- 25°C - +40	- 25°C - +120
	5	Bevel and Helical Gears	H	H	5	- 25°C - +40	- 25°C - +120
	5	Bevel and Planetary Gears	H	V	5	- 25°C - +40	- 25°C - +120
	6	Heavy duty Helical Gears	H	H	6	- 16°C - +50	- 16°C - +130
6	Bevel and Helical Gears	H	H	6	- 16°C - +50	- 16°C - +130	
<b>Key:</b>	H = Horizontal / V = Vertical / H/V = Horizontal or Vertical						

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