



## Tribol™ GR 4020 PD Range

High performance bearing grease

### Description

Castrol Tribol™ GR 4020 PD Range (previously called Tribol™ 4020 Range) greases are formulated from highly refined petroleum base oils, a lithium complex thickener, and Tribol Grease Oil Additive (TGOA), the latest advancement in the field of friction reducing and surface improving additive technology. These multi-service greases are designed to extend the service life of bearings in heavy duty and elevated temperature applications. The load-carrying, anti-wear, and friction reducing capabilities of Tribol GR 4020 PD greases exceed conventional complex greases due to the advanced TGOA additive technology. Under relatively high specific loads and related temperatures, this technology promotes a non-destructive smoothing of surface roughness in the micro-range.

This smoothing effect reduces friction and leads to an increase of the actual load-bearing surface. If surface roughness peaks redevelop because of shock loads or stop-and-go operation, the TGOA additive package automatically reactivates.

Surface roughness is again smoothed and lubrication optimized.

### Application

Tribol GR 4020 PD greases were formulated as multi-service lubricants for heavy duty applications of plain and anti-friction bearings under medium to high loads. The TGOA additives are very effective in protecting the machined surfaces of bearings during the critical 'running-in' period. Good bearing surfaces are essential for long bearing life. Tribol GR 4020 PD is commonly used as a plant wide lubricant in the automotive industry as well as industries where the preference is for a high performance non-dark grease.

### Advantages

- Advanced TGOA additive technology – multiple benefits including reduced friction, temperatures and noise, increased load carrying ability, and superior surface protection
- Excellent water resistance – the coating film stays on the surface even in the presence of water
- Excellent mechanical stability and adhesion – the grease keeps its consistency in service ensuring long term protection and reduced consumption as film stays between lubricated surfaces
- Superior oxidation resistance – prevents corrosive activity on bearings in aggressive environments
- Formulated to address environmental concerns – it is free of antimony, barium, lead, and zinc

## Typical Characteristics

Name	Method	Units	GR 220-1 PD	GR 220-2 PD	GR 460-1 PD	GR 460-2 PD
Appearance	Visual	-	Light amber		Amber	
Thickener type	-	-	Lithium complex			
Base oil	-	-	Mineral oil			
Consistency	ASTM D217 / ISO 2137	NLGI Grade	1	2	1	2
Density @ 20°C / 68°F	in house method	kg/m <sup>3</sup>	920	916	-	908
Worked Penetration (60 strokes @ 25°C / 77°F)	ASTM D217 / ISO 2137	0.1 mm	310-340	265-295	310-340	265-295
Dropping Point	ASTM D566 / ISO 2176	°C/°F	240/464	240/464	240/464	240/464
Base Oil Viscosity @ 40°C / 104°F	ASTM D 445 / ISO 3104	mm <sup>2</sup> /s	220	220	460	460
Base Oil Viscosity @ 100°C / 212°F	ASTM D 445 / ISO 3104	mm <sup>2</sup> /s	19	19	28.5	28.5
Flash Point - open cup method	ASTM D92 / ISO 2592	°C/°F	225 / 437	225 / 437	232 / 450	232 / 450
Rust Test - distilled water (24hrs)	ASTM D665A / ISO 7120	Rating	Pass	Pass	Pass	Pass
Rust test - Emscor - distilled water	ASTM D6138 / ISO 11007	Rating	0/0	0/0	0/0	0/0
Copper Corrosion (24 hrs, 100°C / 212°F)	ASTM D130 / ISO 2160	Rating	1b	1b	1b	1b
Four Ball Wear test - Wear Scar Diameter (40 kgf / 75°C / 1200 rpm / 1 hr)	ASTM D2266 / ISO 51350	mm	0.5	0.5	0.5	0.5
Four Ball Weld Load test - Load Wear Index	ASTM D2783	kgf	80	80	80	80
Four Ball Weld Load test - Weld Point	ASTM D2783	kgf	400	400	400	400
Four Ball Wear test - Wear Scar Diameter	DIN 51350-5E	mm	0.7	0.7	0.7	0.7
Four Ball Wear test - Weld Load	DIN 51350-2	N	4200 / 4400	4200 / 4400	4200 / 4400	4200 / 4400
Timken OK Load	ASTM D2509	kg / lbs	23 / 50	23 / 50	23 / 50	23 / 50
SRV Friction and Wear test (300 N / 2 hr / 50°C)	ASTM D5707	coeff. of friction	0.08	0.08	0.08	0.08

FE-9 Bearing Life test - A/1500/6000-140	DIN 51821-2	Pass	>100	>100	-	>100
Water Wash-out @ 79°C/175°F	ASTM D1264 / ISO 11009	%wt loss	4	4	4	4
Water Resistance	DIN 51807-1	Rating	1	1	1	1
Roll Stability test - Shear Stability	ASTM D1831	0.1 mm	10	10	10	10
Flow pressure @ -20°C / -4°F	DIN 51805	mBar	500	850	1150	1300
DIN Classification	DIN 51502	-	KP 1 N-30	KP 2 N-30	-	KP 2 N-20
ISO Classification	ISO 6743/9	-	L-XBDHB-1	L-XBDHB-2	-	L-XBDHB-2

Subject to usual manufacturing tolerances.

## Additional Information

In order to minimize potential incompatibilities when converting to a new grease, all previous lubricant should be removed as much as possible prior to operation. During initial operation, re-lubrication intervals should be monitored closely to ensure all previous lubricant is purged.

**This product was previously called Tribol 4020 Range. The name was changed in 2015.**

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