



Optigear EP Range

High Performance Gear Range

Description

Castrol Optigear EP Range are mineral oil based high performance gear oils containing Castrols advanced gear oil system which gives special plastic deformation (PD) and surface improvement characteristics. Performance is further enhanced with the inclusion of high load carrying additives which mean optimum load carrying for both gears and bearings.

Optigear EP exceeds the minimum requirements according to DIN 51517, part 3, CLP gear oils and also meets the FZG "Sprungtest" included in the GL5 specification.

Application

In Optigear EP the combination of PD, CLP and the GL5 - FZG "Sprungtest" performance means this product range is particularly suited for applications where boundary lubrication conditions can occur. These are most likely found in gear boxes and bearings which have stop/start motion such as in Robots or Textile machines.

The combination of high performance in the GL5 - FZG "Sprungtest, FE8 bearing test, elastomer compatibility, low friction makes this range is unique in Industrial gears.

Advantages

- Very high load carrying capacity.
- Reduction of the coefficient of friction and temperature.
- Extended operating periods even under high loads and speed.
- Improvement of the surface quality and smoothing of existing surface damage.
- Reduced running-in period or even eliminated.
- Extended service life of gears.
- Reduced energy, maintenance and disposal costs.

Typical Characteristics

Name	Method	Units	EP 32	EP 46	EP 68	EP 100	EP 150	EP 220	EP 320	EP 460
Appearance	Visual	-	clear, yellow/brown	clear, yellow/brown	clear, yellow/brown	clear, yellow/brown	clear, yellow/brown	clear, yellow/brown	clear, yellow/brown	clear, yellow/brown
Density @ 15°C / 59°F	ISO 12185 / ASTM D4052	kg/m³	873	880	885	892	896	900	905	908
Kinematic Viscosity @ 40°C / 104°F	ISO 3104 / ASTM D 445	mm²/s	32.3	46.6	68.9	102	148	210	326	450
Kinematic Viscosity @ 100°C / 212°F	ISO 3104 / ASTM D 445	mm²/s	5.5	7.0	8.9	11.4	14.5	18.3	24.4	30
Viscosity Index	ISO 2592	-	107	105	102	97	95	95	95	94
Copper corrosion (3 hrs @ 100°C/212°F)	ISO 2160 / ASTM D130	Rating	1	1	1	1	1	1	1	1
Pour Point	ISO 3016 / ASTM D97	°C/°F	-33/-27	-30/-22	-27/-17	-24/-11	-24/-11	-15/5	-9/16	-9/16
Flash Point - open cup method	ISO 2592 / ASTM D92	°C/°F	220/428	230/446	240/464	240/464	240/464	250/482	240/464	240/464
Rust test - distilled water (24 hrs)	ISO 7120 / ASTM D665A	-	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Foam Sequence I - tendency / stability	ISO 6247 / ASTM D892	ml/ml	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Foam Sequence II - tendency / stability	ISO 6247 / ASTM D892	ml/ml	50/0	50/0	50/0	50/0	50/0	50/0	50/0	50/0
Water Separation @ 54°C / 129°F (40/37/3)	ISO 6614 / ASTM D1401	min	10	10	10	-	-	-	-	-
Water Separation @ 82°C / 180°F (40/37/3)	ISO 6614 / ASTM D1401	min	-	-	-	20	20	20	20	20
Aging behaviour @ 95°C/203°F Change in Viscosity @ 100°C/212°F Precipitation	ISO 4263-4 / ASTM D2893	% ml	<3 none	<3 none	<3 none	<3 none	<3 none	<3 none	<3 none	<3 none
Elastomer compatibility SRE-NBR 28, 168 hours at 100°C/212°F	ISO 1817	ΔShore D Δ Vol %	-3 to 0 9.5	-3 to 0 8.0	-3 to 0 6.0	-3 to 0 6.0	-3 to 0 7.0	-3 to 0 5.0	-3 to 0 4.0	-3 to 0 3.0
FZG Gear Scuffing test - A/8.3/90	ISO 14635-1	Failure Load Stage	> 12	> 12	> 12	> 12	> 12	> 12	> 12	> 12
FZG Micropitting test @ 90°C/194°F	FVA 54-7	Failure Load Stage / Micropitting Rating	-	-	-	-	-	> 10 / High	-	-
FZG Gear Scuffing test - S-A10/16,6R/90 (API GL-5 Sprungtest)	FVA 243	Failure Load Stage	-	-	-	> 9	> 9	> 9	> 9	> 9
FE-8 Bearing Wear test (F.562831.01-7.5/80-80)	DIN 51819-3	roller wear (Mw50)	-	-	-	25	-	10	-	-

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Four Ball Test										
Weld Load	DIN 51350-4	N	2400	2600	2800	3000	3200	3400	3200	3200
Wear Scar Diameter (300N/1h)	DIN 51350-5	mm	0.48	0.45	0.38	0.39	0.39	0.42	0.42	0.43
Wear Scar Diameter (1000N/1min)	DIN 51350-5	mm	0.6	0.5	0.5	0.45	0.7	0.95	0.8	0.75
SRV Test - 5AE										
Coefficient of Friction	DIN 51834-2	-	0.112	-	0.103	0.105	-	0.103	-	0.107
Wear scar diameter		mm	0.54	-	0.53	0.55	-	0.55	-	0.55
Brugger Wear Test	DIN 51347	N/mm ²	85	85	90	90	90	90	90	90

Subject to usual manufacturing tolerances.

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