

# Castrol Optigear Synthetic X 320

Synthetic gear oils

## Description

Castrol Optigear™ Synthetic X is based on synthetic hydrocarbons and a special plastic deformation (PD) and surface improvement additive package.

The additive package, when activated by high specific loads and corresponding temperatures, helps to equalize surface roughness without creating abrasion leading to the surface improvement (plastic deformation.)

Optigear Synthetic X is a CLP-HC gear oil (according to DIN 51502) and exceeds the minimum requirements according to DIN 51517, part 3, CLP gear oils.

## Application

Optigear Synthetic X may be used in spur gear, bevel gears or planetary gear units and in heavy loaded gear units, e.g. wind turbine main gears. It is also suitable for the lubrication of oil-lubricated rolling bearings. Depending on the specific application, Optigear Synthetic X may be used in an operating temperature range from -30 °C to +95 °C.

## Advantages

- High load carrying capacity
- Superior micro pitting protection
- Excellent friction reduction
- Good filtration properties
- Excellent bearing lubrication suitability

## Typical Characteristics

Test	Method	Units	X 150	X 220	X 320	X 460
ISO Viscosity Grade	ASTM D 2422	-	150	220	320	460
Density at + 15°C	ISO 12185 / ASTM D4052	g/ml	0.847	0.85	0.854	0.856
Kinematic Viscosity						
@ 40°C		mm <sup>2</sup> /s	146	218	325	459
@ 100°C	ISO 3104 / ASTM D445	mm <sup>2</sup> /s	19	25.9	34.9	45
Viscosity Index	ISO 2909 / ASTM 2270		148	151	152	153
Flash Point, COC	ISO 2592 / ASTM D92	°C	> 250			
Pour Point	ISO 3016 / ASTM D97	°C	-39	-33	-33	-27
Rust Test						
Procedure A (24 hrs Distilled Water)			Pass	Pass	Pass	Pass
Procedure B (24 hrs Synthetic Sea Water)	ISO 7210 / ASTM D665		Pass	Pass	Pass	Pass
Copper Corrosion (3 hrs @ 100°C)	ISO 2160 / ASTM D130		1a	1a	1a	1a
FE8 wear test (81212MPB-7.5/80-80)						
Roller wear		mg			<10	
Cage wear	DIN 51819-3	mg			<10	
FZG test						
A/8.3/90 scoring load stage					>12	
A/16.6/90 scoring load stage	DIN 51354				12	
FZG micropitting test	FVA No. 54				>10	
Foam Sequence I	ISO 6247 / ASTM D892	mls			<100/10	
Ageing behavior, Increase of viscosity at 100°C after 1000 h	ASTM D 2893	%			2	

Subject to usual manufacturing tolerances.

## Additional Information

Optigear Synthetic X gear oil can be applied by an oil can, oil cup reservoir, splash, spray mist or by automatic dispensing equipment and central or circulation systems.

It is compatible with mineral oils and esters. This means that traces up to 3% of previous oil in the gear case after draining will not pose any problems. However, the beneficial effects of the special PD additives are reduced when mixed with other gear oils.

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