



Aircol MR

Rotary Screw Compressor Lubricant

Description

The Castrol Aircol™ MR compressor oil range of premium lubricants are formulated from highly refined mineral oils and novel additive technology to give outstanding antiwear and antirust performance to meet the requirements of Atlas Copco and similar types of compressor design.

Application

Aircol MR incorporates a carefully balanced antioxidant system providing improved oxidative and thermal stability giving “extended” service life for both oil flooded and oil injected rotary screw compressors operating continuously at air discharge temperatures up to 90°C. The product has been designed to meet service drain intervals of 4000 hours. For intermittent or continuous operation with air discharge temperatures above 90°C the manufacturers’ standard oil change periods should be used.

The Aircol MR range is fully compatible with nitrile, silicone and fluoropolymer seal materials.

Aircol MR is classified as follows:

- ISO 6743-3 Compressor Oils
- DAG and DAH for rotary air compressors

Aircol MR grades meet the requirements of:

- Atlas Copco for 4000 hour oil life.

Advantages

- Very low deposit forming tendencies extends oil change intervals and air filter life which contributes to a reduction in maintenance costs.
- Good air/oil separation properties at the separator element reduces risk of oil carry over.
- Good antiwear protection reduces rotor wear.
- Excellent water separation characteristics allows condensation to readily separate from the oil, minimising the risk of emulsions which could block the oil separator element.
- Excellent oxidation and thermal stability minimises oil thickening and extends the oil separator life and reduces fouling of coolers & pipes.
- Prevents corrosion when operating under humid conditions.

Typical Characteristics

Name	Method	Units	MR 46	MR 68
Appearance	Visual	-	Clear & Bright	Clear & Bright
ISO ViscosityGrade	-	-	46	68
Density @ 15°C / 59°F	ASTM D4052	kg/m ³	880	880
Kinematic Viscosity @ 40°C / 104°F	ASTM D445	mm ² /s	46	68
Kinematic Viscosity @ 100°C / 212°F	ASTM D445	mm ² /s	6.7	8.6
Viscosity Index	ASTM D2270	-	>95	>95
Foam Sequence I - tendency / stability	ASTM D892	ml/ml	30/0	30/0
Pour Point	ASTM D97	°C	-21	-21
Flash Point, PMCC	ASTM D93	°C	>195	>195
Rust test - synthetic seawater (24 hrs)	ASTM D665B	-	Pass	Pass
Water Separation @ 54°C / 129°F (40/37/3)	ASTM D1401	min	15	15
Oxidation Stability - Rotating Pressure Vessel test	ASTM D2272	min	700	700

Subject to usual manufacturing tolerances.

Aircol MR
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Aircol PD

Air Compressor Lubricants

Description

Castrol Aircol™ PD oils are a range of compressor lubricants, based upon highly refined mineral oils, which are intended for the lubrication of both reciprocating and rotary air compressors.

Application

Aircol PD grades are ashless oils recommended for the lubrication of rotors, bearings and gears in rotary compressors, especially the oil flooded screw type with lubricant drain cycles of up to 2000 hours under normal use. Normal use in screw type compressors is defined by a maximum air discharge temperature $\leq 100^{\circ}\text{C}$ as defined by ISO 6743-3:2003.

Aircol PD can be used for either normal or severe duty lubrication of reciprocating and rotary drip-feed air compressors, as defined by ISO 6743.

Normal duty is described as:-

- discharge temperatures $\leq 165^{\circ}\text{C}$
- differential pressures $\leq 2.5\text{ MPa}$ (25 bar)
- discharge pressures $\leq 7.0\text{ MPa}$ (70 bar).

Severe Duty is described as:-

- discharge temperatures $> 165^{\circ}\text{C}$
- differential pressures $> 2.5\text{ MPa}$ (25 bar)
- discharge pressures $> 7.0\text{ MPa}$ (70 bar)

Aircol PD compressor oils exhibit low carbon forming tendencies and meet the requirements of the DIN 51506 VDL classification for reciprocating compressors having air discharge temperatures up to 220°C .

Selection of the required viscosity grade should be based upon the compressor manufacturers' recommendation. However as a general guide Aircol PD 32 and 46 are suitable for oil flooded rotary compressors, whereas Aircol PD 68 and 100 would be selected for lubricating the crankcase and cylinders of reciprocating compressors. Aircol PD 150 is recommended for sliding-vane compressors, or for reciprocating units at high ambient temperatures.

The Aircol PD range is fully compatible with nitrile, silicone and fluropolymer seal materials.

Aircol PD is classified as follows:

- DIN 51506 classification - VDL
- ISO 6743/3 - DAA and DAB for reciprocating air compressors, DAG for rotary air compressors

Aircol PD meets the requirements (for appropriate viscosity grade) of major compressor manufacturers such as Atlas Copco, Champion, Sullair, Compair/Broomwade, Ingersoll-Rand, Kaeser and Bauer.

Advantages

- Good water separation characteristics allows condensation to readily separate from the oil, minimising the risk of emulsions which could block the oil separator element.
- Fully inhibited against corrosion which enables protection even when operating under humid conditions.
- Good thermal stability, low volatility and low carbon formation reduces the risk of fire and explosion and leads to a longer operating life (up to 2000 hours).
- Low deposit forming tendencies extends oil change intervals and provides longer air filter life which contributes to a reduction in maintenance costs.
- Excellent coalescing properties mean little carry over of oil in the air stream.

Typical Characteristics

Name	Method	Units	32	46	68	100
Density @ 15°C / 59°F	ISO 12185 / ASTM D4052	kg/m ³	870	880	880	890
Kinematic Viscosity @ 40°C / 104°F	ISO 3104 / ASTM D445	mm ² /s	32	46	68	100
Kinematic Viscosity @ 100°C / 212°F	ISO 3104 / ASTM D445	mm ² /s	5.6	6.7	8.6	11.4
Viscosity Index	ISO 2909 / ASTM D2270	-	110	100	100	98
Foam Sequence I - tendency / stability	ISO 6247 / ASTM D892	ml/ml	30/0	30/0	30/0	30/0
Flash Point - open cup method	ISO 2592 / ASTM D92	°C/°F	226/ 439	232/ 450	232/ 450	253/ 487
Pour Point	ISO 3016 / ASTM D97	°C/°F	-21/-6	-21/-6	-21/-6	-12/10
Water Separation @ 54°C / 129°F (40/37/3)	ISO 6614 / ASTM D1401	min	15	15	15	-
Water Separation @ 82°C / 180°F (40/37/3)	ISO 6614 / ASTM D1401	min	-	-	-	20
Rust test - synthetic seawater (24 hrs)	ISO 7120 / ASTM D665B	-	Pass	Pass	Pass	Pass
Carbon residue - Conradson test - after air ageing	DIN 51352-2	%wt	0.7	0.7	0.7	<3.0
Oxidation Stability - Rotating Pressure Vessel test	ASTM D2272 / IP 229	min	270	270	270	-

Subject to usual manufacturing tolerances.

Additional Information

Castrol Aircol PD compressor oils are available in a wide range of viscosities, to suit different types of compressors operating in varying ambient temperatures. Selection of the required viscosity grade should be based upon the compressor manufacturers recommendations for the appropriate ambient temperature range, which will have been chosen to provide the best compromise between maintaining a fluid film between the working surface and minimising the amount of power absorbed by fluid friction in this oil film.

Aircol PD
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Aircol SN Range

Synthetic Air Compressor Lubricant

Description

Castrol Aircol™ SN compressor lubricants are formulated using high quality synthetic diesters.

Application

Castrol Aircol SN compressor lubricants are formulated to cope with the severe operating conditions experienced in rotary screw, rotary vane and reciprocating air compressors operating at high compression ratios and high discharge temperatures. Under these conditions Aircol SN compressor oils offer reduced carbon forming tendencies and extended oil life when compared to mineral oils due to their much higher oxidation resistance. In reciprocating units, Aircol SN grades have up to eight times the service life of mineral oils.

Advantages

- Superior oxidation stability.
- Improved lubricity and film strength.
- Higher film strength and excellent anti-wear properties.
- Excellent high temperature performance.
- Reduced maintenance, extended oil life and cleaner operations, minimises carbon formulation and provides extended valve life.
- Reduced oil consumption due to a reduction in the required lubricant feed rate to the cylinder walls and piston rings without increasing wear rates. Since less lubricant is consumed the delivered compressed air is also of higher quality.
- Reduced compressor down-time due to less wear on all moving parts, longer machine life and reduced maintenance.
- The operating temperature range of Aircol SN grades extend beyond that of conventional mineral oils. The high spontaneous ignition temperature provides greater safety by reducing the possibility of downstream fires and explosions.

Typical Characteristics

Name	Method	Units	Aircol SN 68	Aircol SN 100
ISO Viscosity Grade	-	-	68	100
Density @ 15°C / 59°F	ISO 12185 / ASTM D4052	kg/m ³	960	960
Kinematic Viscosity @ 40°C / 104°F	ISO 3104 / ASTM D445	mm ² /s	68	100
Kinematic Viscosity @ 100°C / 212°F	ISO 3104 / ASTM D445	mm ² /s	7.6	10.3
Viscosity Index	ISO 2909 / ASTM D2270	-	67	89
Flash Point - open cup method	ISO 2592 / ASTM D92	°C/°F	>200 / >392	>200 / >392
Pour Point	ISO 3016 / ASTM D97	°C/°F	-40 / -40	-40 / -40

Subject to usual manufacturing tolerances.

Aircol SN Range

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Castrol Aircol SR Range

Synthetic Rotary Compressor Lubricant

Description

The Castrol Aircol™ SR compressor oil range of premium lubricants are designed for use in rotary screw compressors and are based on polyalphaolefin (PAO) fluids.

Application

Aircol SR is suitable for use in oil flooded rotary screw compressors operating under extreme climatic conditions, harsh environments and severe operating conditions where very high air discharge temperatures (> 100°C) are experienced.

These oils are also suitable for use in compressor units operating at normal operating conditions, with the maximum air discharge temperature =/< 100°C, as defined by ISO 6743-3:2003.

For normal operating conditions, these products can be used for extended drain intervals up to 8000 hours.

Aircol SR range is fully compatible with nitrile, silicone, polyurethane and fluropolymer seal materials typically used in compressor units. It is not compatible with butadiene styrene (SBR) or ethylene propylene (EPDM) seals.

Aircol SR is classified as follows:

- DIN 51506 classification - VDL
- ISO 6743/3 - DAG, DAH and DAJ for rotary air compressors

Aircol SR grades meet the requirements of:

- Atlas Copco 8000 hour oil drain interval
- Kaeser

Advantages

- Increased oil service life of typically up to 8000 hours in most systems, depending on the operating environment.
- Very low deposit forming tendency, extends service life of filters and separators.
- Outstanding oxidation stability and antiwear performance providing long lubricant and equipment life.
- Ester-free formulation eliminates the formation of corrosive acids leading to longer equipment life.
- Excellent water separation characteristics allow condensation to readily separate from the oil, minimising the risk of emulsions which could block the oil separator element.
- PAO based lubricant means good compatibility with seals and mineral oil based lubricants, allowing changeover to Aircol SR without compatibility issues.

Typical Characteristics

Name	Method	Units	Aircol SR 32	Aircol SR 46	Aircol SR 68
Density at 15°C	ISO 12185, ASTM D4052	g/ml	0.83	0.84	0.84
Kinematic Viscosity at 40°C	ISO 3104, ASTM D445	mm ² /s	32	46	68
Kinematic Viscosity at 100°C	ISO 3104, ASTM D445	mm ² /s	6.1	7.8	10.7
Viscosity Index	ISO 2909, ASTM D2270	-	137	137	142
Foam Sequence I	ISO 6247, ASTM D892	mls/ mls	10/0	10/0	10/0
Pour Point	ISO 3016, ASTM D97	°C	-54	-54	-54
Flash Point, COC	ISO 2592, ASTM D92	°C	264	264	264
Rust Test (24hrs, Synthetic Sea Water)	ISO 7210, ASTM D665B	-	Pass	Pass	Pass
RPVOT	ASTM D2272	Mins	4,500	3,000	3,000
FZG Fail Stage (A8.3/90)	ISO 14635-1, DIN 51354	-	8	9	9

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Castrol Aircol SR Range

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