



Product Data

Castrol Tribol® 943AW

Hydraulic and Circulating Fluids

Castrol Tribol 943AW Hydraulic and Circulating Fluids were developed specifically for service in advanced numerically controlled (NC) hydraulic systems, including robotics. These high performance, multiservice oils can extend service life for uninterrupted machine availability and production. The following performance characteristics are emphasized:

- **Oxidation Stability** – to significantly extend safe oil service life and to protect tight machine clearances from varnish or deposits.
- **Antiwear Protection** – to maintain crucial tolerance characteristics of advanced hydraulic systems and to protect gears and bearings in circulating systems.
- **Corrosion Resistance** – to give protection, exceeding normal industry standards, against damage from condensed atmospheric moisture.

Description

The base oils in **Castrol Tribol 943AW Hydraulic and Circulating Fluids** are selected for chemical and thermal stability. They are also selected for the naturally high film strength necessary to prevent rupture to the highest pump pressures and tightest clearances where operating conditions usually lead to mixed or boundary (contact) lubrication.

The antiwear characteristics of the **Castrol Tribol 943AW Hydraulic and Circulating Fluids** are achieved by a unique additive system, which does not include zinc.

Castrol Tribol 943AW Hydraulic and Circulating Fluids are part of Castrol Performance Lubricants' Eco-Solutions™ product offering. Formulated to address environmental concerns, **Castrol Tribol 943AW Hydraulic and Circulating Fluids** are free of lead, zinc, chlorinated solvents, and barium. They contain less than 2 ppm of phenol.

The unsurpassed oxidation stability of the **Castrol Tribol 943AW Hydraulic and Circulating Fluids** is a result of extensive research to stabilize petroleum oils at high operating temperatures.

The balanced, total additive system in **Castrol Tribol 943AW Hydraulic and Circulating Fluids** also inhibits foaming, and provides an unusual degree of corrosion protections – see Typical Characteristics.

Castrol Industrial Americas

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Applications

- **Hydraulics** – **Castrol Tribol 943AW Hydraulic and Circulating Fluids** may be used in any industrial, marine, or mobile applications.
- **Circulating Systems**- Outstanding antiwear properties make **Castrol Tribol 943AW Hydraulic and Circulating Fluids** ideal for multi-component systems including antifriction and journal bearings, and all types of gears except where manufacturers specify AGMA “EP” or “Compounded” gear oils.
- **Compressors** - **Castrol Tribol 943 AW-32 and 943 AW-46** in centrifugal and flooded screw compressors can significantly extend oil service life compared with conventional petroleum compressor oils and ATF fluids.

In fact, drain intervals approach the range of some synthetic fluids. **Castrol Tribol 943AW Hydraulic and Circulating Fluids** may also be used in reciprocating compressors if temperatures are not high and units are not prone to valve deposits.

Castrol Tribol 943AW Hydraulic and Circulating Fluids have been approved by the USDA as H2 lubricants acceptable for use where there is no possibility of food contact in official establishments operating under the federal meat and poultry products inspection program.

Advantages

- Greatly extended, trouble-free, service life of the hydraulic oil.
- Wear protection – Maintain critical dimensions in robots and other NC machines; extend the service life of valves and pumps in hydraulics; protect gears and bearings in circulation of any system.
- Consolidate product inventory by using operating costs. Reduced labor and downtime, longer parts life, and extended service life of the lubricant can also product major savings.

Notes

Filtration – Where the ultimate in oil cleanliness is required, as with robots and other NC machines, portable filter systems and hardware, and related Engineering Services are available from Castrol Performance Lubricants’ Engineering Department.

For specific terms, conditions, warranty, and availability, refer to Castrol Performance Lubricants’ Price list in effect at time of purchase.

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Typical Characteristics

	943AW-22	943AW-32	943AW-46	943AW-68	943AW-100
ISO Viscosity Grade, ASTM D 2422	22	32	46	68	100
Specific Gravity, ASTM D 1298, @15.6°C/60°F	0.85	0.86	0.86	0.86	0.86
@20°C, cST	55	86	135	215	
@40°C, cST	22	32	46	68	100
@50°C, cST	15.2	21.5	30	43	
@100°C, cST	4.21	5.42	6.7	8.7	
@100°F, cST/SUS	24/115	35.2/165	51/237	76/352	11.37
@210°F, cST/SUS	4.29/40	5.55/44.5	6.9/49	8.9/55.4	
Viscosity Index, ASTM D 2270	106	105	105	105	103
Flash Point, ASTM D 92, COC, °C/°F	199/388	207/405	213/415	224/435	252/485
Pour Point, ASTM D 97, °C/°F	-34/-30	-32/-25	-29/-20	-29/-20	-26/-15
Rust Preventative Characteristics, ASTM D 665 A & B	Pass	Pass	Pass	Pass	Pass
Oxidation Resistance, ASTM D 943, hrs.	8000+	8000+	8000+	8000+	8000+
Four Ball Wear Test, ASTM D 4172 B (40kg, 75°C/167° F, 1200 rpm, 1hr)					
Scar Diameter, mm	0.50	0.45	0.45	0.45	0.45
FZG A/8.3/90 Fail Stages	-	12	12	12	>12
Zinc Content (Natural and Additive), wt. %	Nil	Nil	Nil	Nil	Nil
Demulsibility, ASTM D 1401, 40/40/0, minutes	10	10	15	15	20
Phenol Content, ppm**	<2	<2	<2	<2	<2
Cincinnati Millicron Approval Specification	N/A	P-68	P-70	P-69	N/A
USDA Approval	H2	H2	H2	H2	H2
Foam Test, ASTM D-8992, Seq. I	0/0	0/0	0/0	0/0	0/0
Seq. II	15/0	15/0	15/0	15/0	25/0
Seq. III	0/0	0/0	0/0	0/0	0/0
Air Release Test, ASTM D 3427	<5 min	<5 min	<5 min	<5 min	<5 min

**Method used: distillation, 4-amino antipyrine method.

Other Typical Test And Qualifications

Castrol Tribol 943AW Hydraulic and Circulating Fluids are designed to meet or exceed the following performance requirements:

Vickers: 35VQ25A, **General Motors:** LH-04-1, LH-06-1, and LH-15-1, **Denison:** HF-0, HF-1, and HF-2, **U.S. Steel:** 127 and 136, **Lee Norse:** 100-1, **Jeffrey No.:** 87, **Ford:** M-6C32, B.F. **Goodrich:** 0152

Subject to usual manufacturing tolerances

All reasonable care has been taken to ensure that this information is accurate as of the date of printing. Nevertheless, such information may be affected by changes in the blend formulation occurring subsequent to the date of printing. Material Safety Data Sheets are available for all Castrol products. The MSDS must be consulted for appropriate information regarding storage, safe handling and disposal of a product.

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