



# MAKER TURBO ARIES

## Description

MAKER TURBO ARIES has been developed to comply with the stringent requirements in the lubrication of steam and medium-duty gas turbines by major turbine manufacturers. It has been designed to exceed the highest oxidation performance required by modern turbine Specifications. Turbo Aries have outstanding filterability, excellent resistance to rust and corrosion and good air release features. Turbo Aries contains anti-wear protection and can be used also in geared turbine applications. More than 14,000 running hours are attained in the toughest bench test performed, to confirm its antioxidant capability. This is TWO times more than what was stated in the harshest OEM specification for gas turbines. Outstanding RPVOT result is 4.5 times better than the values requested in GEK specifications for gas turbines, while maintaining the same amount of additives.

## Properties

- Resistance to oxidation, ageing and build-up of Varnish thanks to its outstanding antioxidant feature.
- Exceptional antifoaming and air release capacity to avoid cavitation and good pumpability.
- Excellent water separability feature; ideal for incidental water ingress into oil system / reservoir.
- Anti-wear protection, particularly important in geared turbine with EP requirements.

## Quality levels, approvals and recommendations

- HOWDEN & KKK\* (ISO VG 46)
- DIN: 51506, L-VBL (ISO VG 32, ISO VG 46, ISO VG 68)
- DIN: 51517/2 - CL (ISO VG 32, ISO VG 46, ISO VG 68)
- GEK: 46506 E, 32568 J, 28143 B, 101941 A (ISO VG 32, ISO VG 46, ISO VG 68)
- ISO: 3498-CKB (ISO VG 32, ISO VG 46, ISO VG 68)
- ISO: 6743/5 TGA/TSA (ISO VG 32, ISO VG 46, ISO VG 68)
- SIEMENS: TLV 901304 and TLV 901305 (Turbojets without Gearbox) (ISO VG 46)
- ALSTOM: HTGD 90117 V0001T (ISO VG 32, ISO VG 46, ISO VG 68)
- DIN: 51515, L-TD (ISO VG 32, ISO VG 46, ISO VG 68)
- DIN: 8659-2 (ISO VG 32, ISO VG 46, ISO VG 68)
- HOWDEN & KKK (ISO VG 32)
- ISO: 6743/3 - DAA (ISO VG 32, ISO VG 46, ISO VG 68)
- SIEMENS: TLV 901304 and TLV 901305 (Turbojets with & without Gearbox) (ISO VG 32)
- SOLAR: ES 9-224 AA Class II (ISO VG 32, ISO VG 46)

\*Formal approval

## Technical specifications

	UNIT	METHOD	VALUE		
ISO Viscosity Grade			32	46	68
Viscosity at 100 °C	cSt	ASTM D445	5,9	7.1	8.5
Viscosity at 40 °C	cSt	ASTM D445	32	46	68
Viscosity index	-	ASTM D2270	98	106	95
Density at 15 °C	g/cm3	ASTM D4052	0,869	0.862	0,880
Flash point, open cup	°C	ASTM D92	200	230	200
Air release at 50 °C	min	ASTM D3427	3	6	6
Pour point	°C	ASTM D97	-12	-30	-12



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	UNIT	METHOD	VALUE		
Rust resistance, method A	-	ASTM D665	Pass	Pass	Pass
TAN	mg KOH/g	ASTM D974	0,15	0,15	0,15
Oxidation (TAN = 2)	h	ASTM D943	>10000	>10000	>10000
RPVOT	min	ASTM D2272	2600	-	2600
FZG, damage stage	-	ASTM D5182	9	9	10

The above mentioned characteristics are typical values and should not be considered product specifications.