



Product Bulletin

GULF HARMONY R&O TURBINE / HYDRAULIC OILS

Gulf Harmony R&O Turbine / Hydraulic Oils are premium rust and oxidation (R&O) inhibited multipurpose lubricating oils, formulated from high-quality base oils and a proven additive system. These products can be used as turbine oils, non-antiwear hydraulic oils, compressor oils, and non-EP gear oils.

FEATURES AND BENEFITS:

Gulf Harmony R&O Turbine / Hydraulic Oils provide outstanding demulsibility, minimizing emulsions when coming into contact with high water content, dirt, and other contaminants. They prevent oxidation to minimize sludge and varnish formations, and impart good anti-foam characteristics. These products insure outstanding rust and corrosion protection in the most severe operating conditions.

APPLICATIONS:

Gulf Harmony R&O Turbine / Hydraulic Oils are used in a wide variety of industrial applications including steam and gas turbines, air compressors, electric motors, gear reducers, spindle bearings, machine tools, sleeve bearings, heat transfer operations, and hydraulic circulating systems. These products meet the applicable requirements of Dennison HF-1, DIN 51524 Part 1, US Steel 126, AFNOR E 48603-HL Part II (E 48-600HL), Cincinnati Machine (formerly Cincinnati Milacron) P-38, P-54, P-55, P57, MIL-L-17672D, ASTM D 4304 Type I (ISO 32, 46, 68 & 100) and MIL-L-17672C (ISO VG 68). **See typical properties chart on reverse side for identifying the appropriate viscosity for these specifications.**

SELECTION:

Gulf Harmony R&O Turbine / Hydraulic Oils are available in ten viscosity grades - **22, 32, 46, 68, 100, 115, 150, 220, 320, and 460**. See the Typical Properties chart on the reverse side for information on each viscosity grade. Follow equipment manufacturer recommendations for appropriate viscosity grade.

AVAILABILITY:

Gulf Harmony R&O Turbine / Hydraulic Oils are available throughout Gulf's marketing area. Your Gulf representative or Gulf jobber can provide specific information. Need additional information? Call Gulf @ 1-800-566-GULF (4853).



Gulf Harmony R&O Turbine / Hydraulic Oils – Typical Properties

ISO Viscosity Grade		22	32	46	68	100	115*	150	220	320	460
Product Code	ASTM	334201	334202	334204	334206	334208	334211	334214	334217	334221	334223
Viscosity, cSt @ 40°C	D-445	22	32	46	68	100	115	150	220	320	460
Viscosity, cSt @ 100°C	D-445	4.25	5.3	6.75	8.5	11.0	12.7	14.3	18.8	24.0	30.0
Viscosity, SUS @ 100°F	D-2161	115	165	238	353	521	600	787	1165	1705	2469
Viscosity, SUS @ 210°F	D-2161	40.0	44.0	48.7	54.8	65.4	70.4	76.9	95.1	119	147
Viscosity Index	D-2270	95	95	100	95	102	95	95	96.0	95	95
Color	D-1500	1.0	1.0	1.0	1.5	1.5	2.0	2.5	3.0	3.5	5.0
Pour Point, °F (°C)	D-5949	5 (-15) (max)	-30 (-33) (max)	-15 (-27)	-0.4 (-18) (max)	-11 (-24)	10 (-12) (max)	10 (-12) (max)	15 (-9) (max)	15 (-9) (max)	21.2 (-6)
Flash Point, COC, °F (°C)	D-92	385 (196)	400 (204)	425(218)	430 (220)	475 (246)	475 (216)	485 (252)	505 (263)	475 (246)	550 (288)
TAN	D-664	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
KF Moisture, ppm	D-6304	100 (max)	100 (max)	200 (max)	100 (max)	100 (max)	100 (max)	100 (max)	100 (max)	100 (max)	100 (max)
Rust Test	D-665	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Foam Stability, foam after 10 min.of settling for all sequences	D-892	No foam	No foam	No foam	No foam	No foam	No foam	No foam	No foam	No foam	No foam
Emulsion, 20 min. @ 130°F 60 min. @ 180°F	D-1401	40-37-3 ---	40-37-3 ---	40-37-3 ---	40-37-3 ---	--- 40-37-3	--- 40-37-3	--- 40-37-3	--- 40-37-3	--- 40-37-3	--- 40-37-3
Oxidation Stability Perf., hrs	D-943	2,500+	2,500+	3,500+	3,100+	2,500+	2,500+	2,000+	2,500+	3,000+	1,000+
API Gravity, 60°F	D-4052	33.3	30.7	31.9	28.8	31.1	29.7	27.8	27.3	27.1	27.0
Density, lbs/gal (g/L)		7.15 (857)	7.26 (869)	7.23 (866)	7.35 (881)	7.32 (877)	7.33 (878)	7.40 (889)	7.42 (891)	7.40 (889)	7.45 (893)
U.S. & European R&O Spec's:											
Denison HF-1		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DIN 51524 Part 1		Yes	Yes	Yes	Yes	Yes	N/A	N/A	N/A	N/A	N/A
US Steel 126		N/A	Yes	Yes	Yes	Yes	Yes	Yes	N/A	N/A	N/A
AFNOR E-48603-HL (E48-600HL)		Yes	Yes	Yes	Yes	Yes	N/A	Yes	N/A	N/A	N/A
Cincinnati Machine		P-45	P-38	P-55	P-54	N/A	N/A	P-57	N/A	N/A	N/A
MIL-L-17672D		N/A	Yes	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A
ASTM D 4304 Type I		N/A	Yes	Yes	Yes	Yes	N/A	N/A	N/A	N/A	N/A

N/A – specification not applicable to the viscosity grade

* – 115 is not recognized as an ISO viscosity grade