TORONTECH

INDUSTRIAL OIL OPTICAL REFRACTOMETER

Industrial Oil Optical Refractometer – ToronOR™ OI Series

An Industrial Oil Optical Refractometer is a handheld Refractometer used to check refractive index ranges of oils and related industrial liquids through a simple visual reading. The ToronOR™ OI Series is built around two oil-test models, ToronOR™ OI 27 and ToronOR™ OI 25, each covering a different refractive-index span so users can match the instrument to lighter or heavier oil types.

A handheld Optical Refractometer measures how light bends through a liquid sample, then converts that optical behavior into a direct scale reading in the eyepiece. In the ToronOR™ OI Series, the scale is set in Nd refractive index ranges, which makes the instrument suitable for oil screening rather than sugar, salinity, or coolant service. This is why the series is better described as an oil-testing refractometer rather than a general-purpose refractometer.

These models differ from regular Brix or salinity refractometers because they are calibrated around the refractive index of oils, not dissolved solids or salt concentration. For a U.S. audience, the closest recognized standards context is ASTM D1218 for refractive index of transparent liquids and ISO 5661 for refractive index of transparent and light-colored hydrocarbon liquids. Those standards describe the underlying optical principle, while these handheld models are practical field tools for quick checks rather than formal lab bench instruments.

APPLICATIONS

Industrial Oil Optical Refractometer – ToronOR™ OI Series Application

- Industrial oil identification and screening: These models are suited to quick oil identification and comparison where users need to check whether a sample falls within an expected refractive-index band. Since the two models cover different Nd ranges, they can support basic sorting or verification of oils with lower or higher refractive indices.

- Petroleum and hydrocarbon liquid checks: The broader standards context also supports use with transparent and light-colored hydrocarbon liquids. ISO 5661 specifically applies to transparent and light-colored hydrocarbon liquids with refractive indices in the range 1.33 to 1.7, which overlaps the type of measurement approach used by these models.
- Workshop, plant, and field verification: Because the models are handheld, manual, and do not require a battery or external power source, they fit routine checks in workshops, plants, service environments, and incoming inspection where a fast visual result is more practical than sending every sample to a lab. These series is durable aluminum construction and standard carry-case format, which supports portable use.

ToronOR™ OI Series
Industrial Oil Optical Refractometer

Standards

- EN 61000-6-1: 2007
- EN 61000-3-2: 2014
- EN 61000-3-3: 2013
- EN 61000-6-3: 2007+A1:2011+AC:2012
- EN 61000-4-2: 2009
- EN 61000-4-3: 2006+A1:2008+A2:2010
- EN 61000-4-4: 2012
- EN 61000-4-5: 2014
- EN 61000-4-6: 2014
- EN 61000-4-8: 2010
- EN 61000-4-11: 2004

FEATURES

Industrial Oil Optical Refractometer – ToronOR™ OI Series Key Features

- Handheld analog Optical Refractometer design for industrial oil refractive-index testing.
- Two different refractive-index ranges to cover lighter and heavier oil-testing needs.
- Pure aluminum construction for durable workshop and field use.
- Ambient-light operation with no battery or external power required.
- Manual focus and calibration for routine use.
- Non-slip rubber grip for easier handling.
- ATC function for more convenient day-to-day readings.
- Standard accessory set with refractometer, pipette, mini screwdriver, protective carrying case, manual, and cleaning cloth.

THEORY & METHOD

Theory and Method

Each handheld Optical Refractometer uses a prism and ambient light to create a light/dark boundary visible through the eyepiece. A few drops of oil are placed on the prism, the daylight plate is closed, and the user reads the corresponding refractive-index value directly from the internal scale. These instruments use ambient light only, with no battery or additional power source required.

This manual approach is based on the same optical concept reflected in ASTM D1218 and ISO 5661, but packaged in a simpler field tool. That makes the ToronOR™ OI Series useful for fast screening, incoming checks, and oil identification work where a compact manual refractometer is sufficient.

TECHNICAL SPECIFICATIONS

Industrial Oil Optical Refractometer – ToronOR™ OI Series Technical Specification

Model	What this model is for	Scale details	Best-fit use case	Common build / package details
Toron OR™ OI 27	A lower-range industrial oil refractometer for oils and transparent liquids that fall in the lower Nd region. This is the better fit when the expected refractive index is closer to light hydrocarbon or lighter industrial oil ranges.	1.330 to 1.3448 Nd. The ToronOR™ OI 27 is an oil test refractometer with this full range.	Best for lighter oil identification, transparent hydrocarbon liquid checks, and general lower-range refractive-index screening.	Pure aluminum body, ambient-light operation, manual focus/calibration, non-slip rubber grip, refractometer format, and standard kit with refractometer, pipette, mini screwdriver, protective carrying case, manual, and cleaning cloth.

Model	What this model is for	Scale details	Best-fit use case	Common build / package details
Toron OR™ OI 25	A higher-range industrial oil refractometer for oils and related liquids that require measurement deeper into the higher Nd region. This makes it the stronger option when samples are expected to have a denser or optically heavier refractive-index profile.	1.435 to 1.520 Nd. The ToronOR™ OI 25 is an oil test refractometer with the higher-range Nd span.	Best for heavier oil screening, higher-index industrial liquid checks, and applications where the lower-range RND-027 would not cover the sample.	

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