



# WINE & ALCOHOL DIGITAL REFRACTOMETER

## **Wine & Alcohol Digital Refractometer – ToronDR™ WA Series**

A Digital Refractometer in the ToronDR™ WA Series is designed for fast concentration checks in wine, beer, alcohol, and specialty solvent applications. Based on the listed DR models, this series covers Brix, alcohol by volume, Oechsle, KMW/Babo, specific gravity, Plato, alcohol by weight, methanol-related scales, and refractive index, depending on the model.

A wine model (ToronDR™ WA 401), beer models (ToronDR™ WA 402 and ToronDR™ WA 402P), alcohol models (ToronDR™ WA 403 / ToronDR™ WA 403H), and methanol-oriented models (ToronDR™ WA 405W / ToronDR™ WA 405V), which makes the lineup broader than a standard Brix-only refractometer family.

This type of Refractometer is useful where operators want a direct digital result instead of reading a manual optical boundary line. ToronDR™ WA is a digital handheld refractometer platform built for winery, brewing, alcohol, and specialty-liquid workflows. The family includes dedicated wine models that combine Brix with wine scales such as %Vol, °Oe, and °KMW, beer-focused models that combine Brix, specific gravity, or Plato, and alcohol-oriented models that pair alcohol concentration with refractive index.

Compared with a general manual refractometer, this series is more application-focused. Instead of a single analog scale, the operator gets a direct digital value in the units used in wine, beer, or alcohol processing.

That makes the series practical for cellar work, brewing checks, alcohol-process support, and incoming or in-process QC where users need quick numeric readings and less operator interpretation. This is an inference based on the application-specific digital scale sets.

### **APPLICATIONS**

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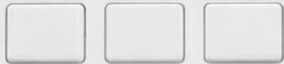
## **Wine & Alcohol Digital Refractometer – ToronDR™ WA Series Application**

- Wine and grape must be evaluated: the ToronDR™ WA 401 model is built for wine-related measurement because it combines 0–45% Brix, 0–22.0% Vol, 0–140°Oe, and 0–25°KMW in one instrument. This makes it suitable for grape must checks, winery intake, and fermentation-related process monitoring where several wine scales may be used side by side. Oechsle and KMW/Babo are widely used winery interpretation scales, and ISO 2173 provides recognized refractometric context for soluble-solids measurement.
- Brewing and wort concentration checks: the beer-focused models are ToronDR™ WA 402 and ToronDR™ WA 402P. The first uses 0–50% Brix with 1.000–1.130 specific gravity, while the second is positioned for Plato and specific gravity. This makes the series useful for brew-house concentration checks, wort preparation, and brewing process control where SG or Plato is preferred over a standard Brix-only scale. Independent brewing references also note that Plato and wort SG are standard brewing interpretation scales for refractometers.
- Alcohol concentration screening: the ToronDR™ WA 403 / ToronDR™ WA 403H models are positioned for alcohol by volume, alcohol by weight, and refractive index. These models are better suited to alcohol-process checks, distilled-product support, or liquid verification tasks where operators need direct alcohol-related scales rather than only Brix. The OIV alcohol references provide broader international context for alcohol determination in wines and musts, though these handheld digital models are best presented as process tools rather than formal OIV lab replacements.
- Methanol-related specialty checks: The ToronDR™ WA 405W and ToronDR™ WA 405V models are specialty instruments in the same family. Their titles indicate Methanol W10 / Refractive Index and Methanol vol 45 / Refractive Index, which suggests use for specific methanol-related process or solution checks rather than general beverage testing. The safest presentation is as specialty methanol digital refractometers within the broader ToronDR™ WA family.



SD1 26.2°C  
0.8%

READ CAL SCALE



TORONTECH

**ToronDR™ WA Series**  
Wine & Alcohol Digital Refractometer

## FEATURES

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### Wine & Alcohol Digital Refractometer – ToronDR™ WA Series Key Features

- Handheld Digital Refractometer platform for wine, beer, alcohol, and specialty-liquid applications.
- Wine model with combined Brix, %Vol, °Oe, and °KMW scales.
- Beer models with Brix + specific gravity or Plato + specific gravity configuration.
- Alcohol models combine alcohol by volume, alcohol by weight, and refractive index.
- Specialty methanol models with methanol-focused scales plus refractive index.
- Digital workflow is easier to read than a manual optical Refractometer during repeated testing.

## THEORY & METHOD

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### Theory and Method

A Digital Refractometer measures how light changes as it passes through a liquid sample, then converts that optical response into a digital value. In the ToronDR™ WA Series, that same refractometric principle is expressed in application-focused units such as Brix, specific gravity, Plato, %Vol, °Oe, °KMW, or refractive index, depending on the model. ISO 2173 describes the general refractometric approach as measuring refractive index and correlating it with soluble-solids content, while ASTM D1218 provides broader context for refractive-index measurement of transparent liquids.

This digital format reduces manual reading error and makes repeated checks easier during production or laboratory support work. That is especially useful in winery, brewing, and alcohol workflows where operators often compare multiple samples in a short time. This is a practical inference based on the digital product family and the listed scale structure.

TECHNICAL SPECIFICATIONS

Wine & Alcohol Digital Refractometer - ToronDR™ WA Series Technical Specification

General Technical Data

| Feature                                  | Specification                                                       |
|------------------------------------------|---------------------------------------------------------------------|
| Resolution                               | 0.1% for concentration/Brix/Plato, 0.001 for SG, and 0.0001 for nD. |
| Accuracy                                 | ±0.2% for concentration and ±0.0003 for Refractive Index.           |
| Automatic Temperature Compensation (ATC) | 10°C to 40°C (50°F to 104°F).                                       |
| Measurement Time                         | Approximately 1.5 seconds per reading.                              |
| Min. Sample Volume                       | 2 metric drops                                                      |

| Model            | Application / Substance       | Measurement Range                                | Refractive Index (nD) |
|------------------|-------------------------------|--------------------------------------------------|-----------------------|
| ToronDR™ WA 401  | Wine (Brix, Alcohol, Oe, KMW) | Brix: 0-45%   Alc: 0-22%   Oe: 0-140   KMW: 0-25 | 1.3330 - 1.4200       |
| ToronDR™ WA 402  | Beer (Brix & Wort SG)         | Brix: 0-50%   Wort SG: 1.000 - 1.130             | 1.3330 - 1.4200       |
| ToronDR™ WA 500  | Glycerol Concentration        | Concentration: 0 - 100%                          | 1.3330 - 1.5040       |
| ToronDR™ WA 402P | Beer (Plato & SG)             | Plato: 0.0 - 30.0°P   Wort SG: 1.000 - 1.130     | 1.3330 - 1.4200       |
| ToronDR™ WA 403H | Alcohol (Vol & Weight)        | Alc Vol: 0 - 80%   Alc Weight: 0 - 70%           | 1.3330 - 1.4200       |
| ToronDR™ WA 405W | Methanol (CH <sub>3</sub> OH) | Methanol (w/w): 0.0 - 100.0%                     | 1.3330 - 1.4200       |

## Key Operational Features

- Dual Scale Display: Most models allow users to toggle between the specific substance scale (like % Alcohol or Plato) and the raw Refractive Index.
- High Range Support: The ToronDR™ WA 500 model is specifically designed with a wider Refractive Index range (up to 1.5040 nD) to accommodate high-purity glycerol.
- Power Management: Includes an auto-off feature after 3 minutes of inactivity and is powered by a standard 9V battery (good for roughly 5,000 measurements).
- Durability: The optical sensor is protected by a rugged housing, making it suitable for both lab environments and production floor testing.



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