

Reasons to choose the MASTER

Water Resistant

α-H-53S-500

5 Durability

1



The concept of a washable hand-held analog unit is exceptional. After measuring, the instrument can be cleaned with running water under a faucet. The new structural-design of these units allows them to be washed whenever necessary. Rated IP65 (dust tight and water resistant).



The world's first feature



The MASTER series has passed all water resistance, dust resistance, and drop tests. Instruments were subjected to water jets from four directions, dropped from a height of one meter onto an oak platform, and withstood the pressure changes of air travel.

6 Calibration



The α and H types can now be calibrated with the new waterproof calibration screw. All MASTER models can be calibrated by end-user.

7 Automatic Sample Distribution (ASD)



ATAGO has developed a spoon-shaped tip that automatically spreads the sample across the prism. This makes the instrument even more user-friendly, saving valuable time.

Hygienic Design

2



The MASTER series was also designed with a smooth and easy-to-clean grip, eliminating the possibility of food and samples being trapped which can result in contamination and bacterial growth.

Visibility

3



Efficiently using an analog unit depends on how easily the measured value can be read. Extensive research and the use of quality optics result in a measurement scale that is very bright, creating a high contrast to see clearly where the boundary intersects the memory lines of the scale.

4 Automatic Temperature Compensation (ATC) α-T-H-53S



The newly designed ATC system allows the MASTER series to read more accurately than any comparable unit. ATAGO has applied for a patent on the design of the improved ATC system. The MASTER series reads more accurately than any comparable unit in the market.

8 Repair and Service



ATAGO has established a close network of customers by providing excellent customer service and support. When an ATAGO instrument needs servicing, not only is each customer treated with respect, but they are also provided with detailed methods and userspecific suggestions on sampling and taking measurements, based on individual needs.

9 Reputation for Quality



ATAGO has built a firm reputation for reliability and quality during its over 70 years history. We are a strong company that exports to over 154 countries with continued growth expectations. ISO 9001 certified, along with our integrated system for producing and marketing our products, based on the "Plan-Do-Check-Act" cycle, is essential to the continued quality and to the promoting of the ATAGO name.

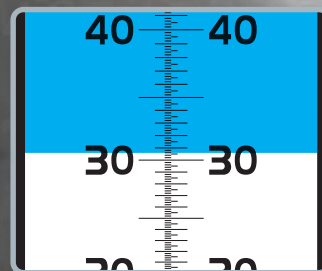
Simple Operation



Apply 1-2 drops onto the prism.



2 Close the daylight plate. View the scale through the eyepiece.



3 Read the measurement value where the boundary line intersects the scale.

Applications

-Measuring sugar concentration, concentration, Brix and Refractive Index-

Honey



Honey

Jam, Syrup



Jam, syrup, confectioneries

Soy milk



Soy milk

Condiments



Condiment, seasonings, ketchup, various sauces, soy sauce

Wine



Grapes, wine must

Drink



Fruit juice, soft drink, carbonated beverage

Cooking



Chinese noodle soup, various soup, various sauces

Agriculture



Fruit and vegetable juice, leaf juice, stem juice, root juice

Salinity



Sodium chloride solution, sea water, pickles

Machine Tools



Firefighting foam, soluble cutting oil

Chemicals and medicine



Brine, deicing solution, medicine, chemical, cosmetics, cleaning solution

Clinical



Urine, serum

Optional Accessories

Daylight Plate

For metal body model

Parts.No. RE-2315-60M

For plastic body model

Parts.No. RE-2315-61M

Small Volume Daylight Plate With Hinge Pin

For metal body model

Parts.No. RE-2311-67M

For plastic body model

Parts.No. RE-2391-67M

Super Extractor

Parts.No. RE-29401

Sucrose solution

(for Brix confirmation)

Parts.No. RE-110010 10 % Sucrose

Parts.No. RE-110020 20 % Sucrose

Parts.No. RE-110030 30 % Sucrose

Parts.No. RE-110040 40 % Sucrose

Parts.No. RE-110050 50 % Sucrose

Parts.No. RE-110060 60 % Sucrose

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HACCP GMP GLP

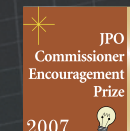
ATAGO products comply with HACCP, GMP, and GLP system standards.

All ATAGO products are designed and manufactured in Japan.

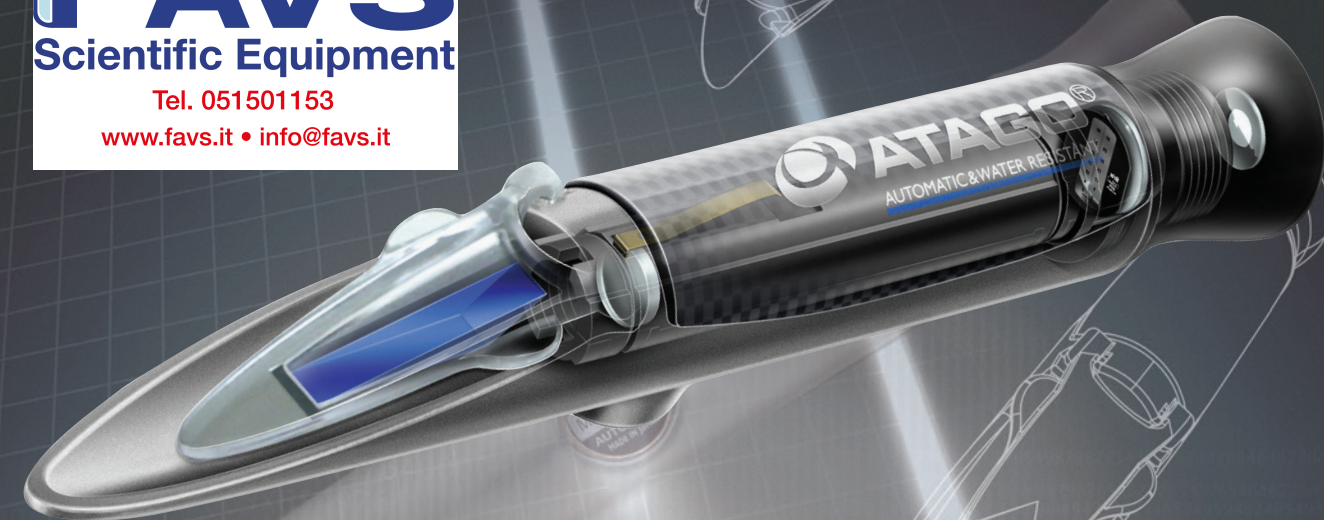
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ATAGO®
MASTER of REFRACTOMETRY



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Scientific Equipment
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The Ultimate Hand-Held Refractometer Unsurpassed
in Function, Operation, and Design

MASTER



About the Trade Mark:
Year 2005-ATAGO was established 65 years ago and we have been developing, manufacturing, and marketing Refractometers based on our in-depth study of optics. This year we have released our NEW Hand-Held Refractometer series, the "MASTER" to support and meet our customer's needs. The NEW "MASTER" series is a fitting name to match its ultimate performance. The trade mark, "光" is the Japanese Kanji which means "light". The decision to use this Kanji as a trade mark for the MASTER series is to emphasize that this product was designed and manufactured in Japan. With the multitude of imitation products out in the market today, ATAGO is maintaining our identity as the master of manufacturing quality instruments. We, ATAGO, would like to be your business partner and to be the "light" to continue towards a bright future together.



Hand-held Refractometer

MASTER series



Brix scale examples
MASTER-530 Brix 0 to 53%



Features 6 types

Both the α and T types are equipped with the Automatic Temperature Compensation feature. Choose the α type for the added feature of IP 65 water-resistance. The H type is the heat-resistant version of the α type.

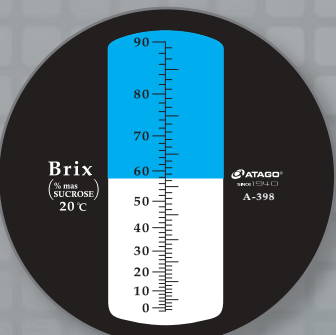
Series / Model	α	T	M	H	53S	500
Water resistant	●	—	—	●	●	●
Automatic temperature compensation	●	●	—	●	●	—
Heat resistant	—	—	—	●	—	●
Milky sample	—	—	—	—	●	—

MASTER-53S for Milky sample

Opaque, inhomogeneous liquids can be difficult to get a clear boundary line with a conventional refractometer. This model is recommended for cream-based sauces, yogurt, mayonnaise, and various emulsions used in industrial processing.

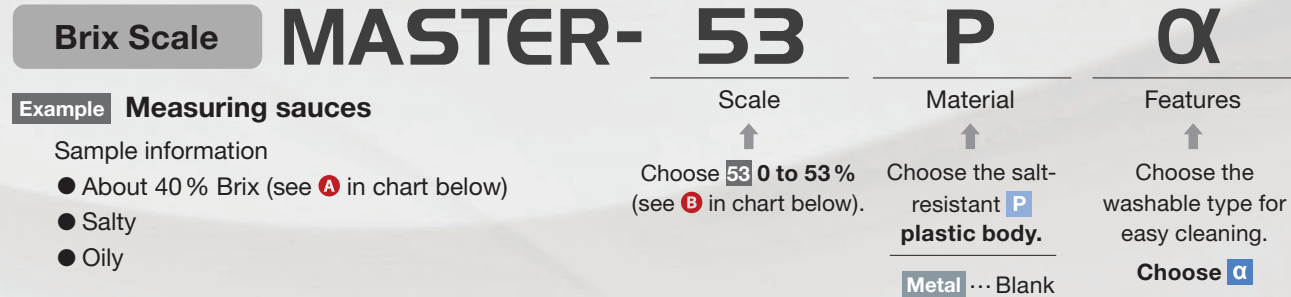


MASTER-500 0 to 90% Wide Brix Range



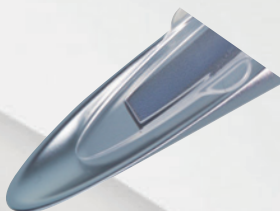
Understanding model names

A model name consists of the scale (sample name), material, and feature type.



Material 2 types

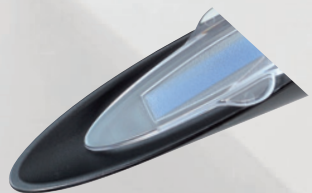
Choose either metal or plastic.



Metal

Die-cast aluminum

Ideal for the agriculture industry, metal working fluids, and various high-temperature samples. Resistant to organic solvents.



Plastic

PBT (polybutylene terephthalate)

Resistant to salty and acidic samples.

Brix of Various Samples

Refractive index and Brix of various types of samples

Brix (%)	Food industry	Chemical industry	Medical Science industry	Memory (Brix) □ = Memory No.
(RI) 1.333	0 Drinks Green tea	Water Cutting oil (emulsion)	Methanol Saline Aloe extract Sea water	B 10 20 53 500 0 0 0 0 % % % %
1.34	5 Fruits / Vegetables Beer Tomato Strawberry Lemon	Seasonings Miso soup Nickel plate liquid	Chlorella extract	10 20 53 90 % % % %
1.35	10 Coffee Soy milk Cola Milk	Gelatin liquid Freon113	Serum	
1.36	15 Beef curry Demiglace (sauce) Orange jelly			
1.37	20 Lactic acid-bacteria beverage Canned syrup	Silicone solution (emulsion) Electrolyte Freon 11	Acetone Ethanol	
1.38	30 Ketchup	Acrylonitrile	Saturated saline	
1.39	40 Soy sauce Sauce A Low-sugar jam	Jam		
1.40	50 Egg yolk	Silicone oil	Octane	
	60 Fats Butter	Ethylene glycol Propylene glycol		
	70 Olive oil	Honey Jam		
	80 Honey Starch Syrup	Diesel oil Ricinus	Glycerin	
1.50	90	Polyvinyl chloride (PCV) Styrene Asphalt		

Specifications

Brix Scale

Range (Minimum)	Series	α		T		M	
	Material	Metal	Plastic	Metal	Plastic	Metal	Plastic
53 0 to 53% (0.5%)	Model	MASTER-53 α	MASTER-53P α	MASTER-53T	MASTER-53PT	MASTER-53M	MASTER-53PM
	Cat.No.	2351	2971	2352	2972	2353	2973
	Accuracy	$\pm 0.2\%$ (at 20°C)		$\pm 0.2\%$ (at 20°C)		$\pm 0.2\%$ (at 20°C)	
	Size & Weight	3.2x3.4x16.8cm, 130g	3.2x3.4x16.8cm, 90g	3.2x3.4x16.8cm, 130g	3.2x3.4x16.8cm, 90g	3.2x3.4x16.8cm, 130g	3.2x3.4x16.8cm, 90g
10 0 to 10% (0.1%)	Model	MASTER-10 α	MASTER-10P α	MASTER-10T	MASTER-10PT	MASTER-10M	MASTER-10PM
	Cat.No.	2371	2981	2372	2982	2373	2983
	Accuracy	$\pm 0.2\%$ (10 to 30°C)		$\pm 0.2\%$ (10 to 30°C)		$\pm 0.2\%$ (10 to 30°C)	
	Size & Weight	3.2x3.4x20.3cm, 155g	3.2x3.4x20.3cm, 105g	3.2x3.4x20.3cm, 155g	3.2x3.4x20.3cm, 105g	3.2x3.4x20.3cm, 155g	3.2x3.4x20.3cm, 105g
20 0 to 20% (0.1%)	Model	MASTER-20 α	MASTER-20P α	MASTER-20T	MASTER-20PT	MASTER-20M	MASTER-20PM
	Cat.No.	2381	2991	2382	2992	2383	2993
	Accuracy	$\pm 0.2\%$ (at 20°C)		$\pm 0.2\%$ (at 20°C)		$\pm 0.2\%$ (at 20°C)	
	Size & Weight	3.2x3.4x20.7cm, 165g	3.2x3.4x20.7cm, 110g	3.2x3.4x20.7cm, 165g	3.2x3.4x20.7cm, 110g	3.2x3.4x20.7cm, 165g	3.2x3.4x20.7cm, 110g

Heat resistant

Series	H			
Material	Metal			
Model	MASTER-50H	MASTER-80H	MASTER-93H	MASTER-100H
Cat.No.	2354	2364	2374	2384
Range	Brix 0.0 to 50.0%	Brix 30.0 to 80.0%	Brix 45.0 to 93.0%	Brix 60.0 to 100.0%
Minimum	0.5%			
Accuracy	±0.5% (10 to 30°C)		±0.5% (10 to 40°C)	
Size & Weight	3.2×3.4×16.8cm, 130g			

Milky sample

Series	53S
Material	Metal
Model	MASTER-53S
Cat.No.	2355
Range	Brix 0.0 to 53.0%
Minimum	0.2%
Accuracy	±0.2% (at 20°C)
Size & Weight	3.2×3.4×16.8cm, 130g

Wide Brix

Series	500
Material	Metal
Model	MASTER-500
Cat.No.	2363
Range	Brix 0.0 to 90.0%
Minimum	1%
Accuracy	±1%
Size & Weight	3.2×3.4×16.8cm, 130g

Vegetable and Fruit

Series	M
Material	Metal
Model	MASTER-AGRI
Cat.No.	2462
Range	Brix 0.0 to 53.0%
Minimum	0.2%
Accuracy	±0.2% (at 20°C)
Size & Weight	3.2×3.4×16.8cm, 130g

Special Scale

Sample	Soy Milk	Soy Milk	Honey / Brix	Brix / Salinity
Series	α	M	α	M
Material	Plastic	Plastic	Plastic	Plastic
Model	MASTER-Soy Milk α	MASTER-Soy Milk M	MASTER-HONEY/BX	MASTER-BX/S28M
Cat.No.	2681	2683	2514	2484
Scale	① Soy Milk Concentration (soybean solids) ② Magnesium chloride concentration		① Honey moisture ② Brix	① Brix ② Sodium chloride
Range	① 0.0 to 20.0% ② 0.0 to 12.0%		① 12.0 to 30.0% ② 58.0 to 90.0%	① 0.0 to 33.0% ② 0.0 to 28.0g/100g
Minimum	① 0.2% ② 0.2%		① 0.2% ② 0.2%	① 0.5% ② 0.5g/100g
Accuracy	① ±0.5% (10 to 30°C) ② ±0.2% (10 to 30°C)		① ±0.2% ② ±0.2%	① ±0.2% ② ±0.2%
Size & Weight	3.2×3.4×16.8cm, 90g		3.2×3.4×16.8cm, 90g	3.2×3.4×16.8cm, 90g

Sample	Seawater	Seawater	Salinity	Salinity	Salinity (Wide range)	Salinity (Wide range)
Series	α	M	α	M	α	M
Material	Plastic	Plastic	Plastic	Plastic	Plastic	Plastic
Model	MASTER-S/MIll α	MASTER-S/MIll M	MASTER-S10α	MASTER-S10M	MASTER-S28α	MASTER-S28M
Cat.No.	2491	2493	2471	2473	2481	2483
Scale	① Salinity ② Specific gravity		Sodium chloride		Sodium chloride	
Range	① 0 to 100‰ ② 1.000 to 1.070		0.0 to 10.0g/100g		0.0 to 28.0g/100g	
Minimum	① 1‰ ② 0.001		0.1g/100g		0.2g/100g	
Accuracy	① ±2‰ (10 to 30°C) ② ±0.001 (10 to 30°C)		±0.2g/100g (10 to 30°C)		±0.2g/100g (10 to 30°C)	
Size & Weight	3.2×3.4×20.7cm, 110g		3.2×3.4×20.3cm, 105g		3.2×3.4×16.8cm, 90g	

Sample	Coolant	Battery Coolant	Battery Coolant	Refractive index
Series	M	M	M	M
Material	Plastic	Plastic	Plastic	Metal
Model	MASTER-BR	MASTER-BC	MASTER-BCF	MASTER-RI
Cat.No.	2930	2931	2932	2612
Scale	① propylene glycol ② ethylene glycol	① ethylene glycol freezing temp ② propylene glycol freezing temp ③ battery fluid d20/20	① ethylene glycol freezing temp ② propylene glycol freezing temp ③ battery fluid d20/20	Refractive index
Range	① 0 to 70% 0 to -50°C ② 0 to 70% 0 to -50°C	① 0 to -50°C ② 0 to -50°C ③ 1.15 to 1.30	① 32 to -60°F ② 32 to -50°F ③ 1.15 to 1.30	1.435 to 1.520
Minimum	① 5°C ② 5°C		① 5°C ② 5°C ③ 0.01	0.001
Size & Weight	3.2×3.4×16.8cm, 90g		① 10°F ② 10°F ③ 0.01	3.2×3.4×16.8cm, 130g

Water Resistant α•H•53S•500: IP65 = dust-tight and protected against water jets (except eye piece)