



# PORTABLE REFRACTOMETER OPERATING INSTRUCTIONS

## SERIES

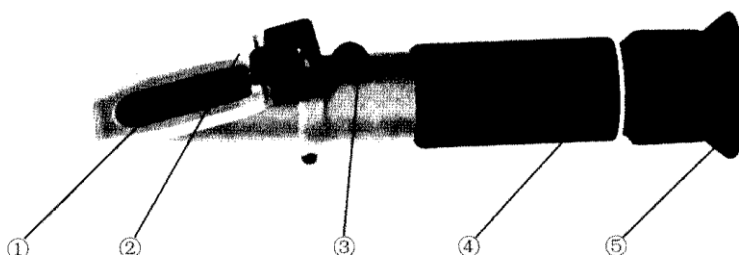
STYLE	MODEL	MEASURING RANGE	RESOLUTION	SIZE $\phi \times L$	WEIGHT
	ORD/ATC			ORD/ATC	ORD/ATC
Wine	FG501/511	0~80% W/W	0~60%: 1% 60~80%: 2.5%	28/30 × 160mm	175g/215g
	FG502/512	0~25% VOL	0.2% VOL	28/30 × 148mm	175g/215g
	FG503/513	0~25% VOL 0~40% Brix	0.2% VOL 0.2% Brix	28/30 × 148mm	175g/215g
	FG504/514	0~25% VOL 0~25 °Be	0.2% VOL 0.5% °Be	28/30 × 148mm	175g/215g

ORDinary: If the condition temperature isn't 20°C, it need to adjust the zero for the measuring accuracy.

ATC(Automatic Temperature Compensation): the ATC device is a built-in type. Its compensation temperature range: 10°C ~30°C

## NAME OF COMPONENTS

1.Prism 2.Cover plate 3.Correct screw 4.Mirror tube 5.Eyepiece(Adjusting ring of diopter)



## APPLICATION

The model FG501/511 can be used for measuring the degree of alcohol of aqueous solution.

The model FG502/512,503/513,504/514 can be used for measuring the sugar content of grape juice, but approximate value of degree of alcohol can be read out directly on the instrument.

Sugar content of grape juice must be controlled strictly for making up grape wine. After grape juice is fermented, the sugar content is transformed to degree of alcohol of grape wine.

The advantage of the instrument is that less amount of grape juice is needed during measurement, it is especially convenient for measuring grape juice with rich pectin which may cause difficulty in filtering. Because less amount of grape juice is needed, you can sample and measure sugar content of different pellets on the same ear of grape or of different ears on the same plant, you can determine vintage quickly.

The approximate value of degree of alcohol of grape wine can be directly read out on Model FG502/512,503/513,504/514. Its physical significance is: If the measured degree of alcohol of grape wine is 1% VOL, it means the corresponding approximate value of sugar content of grape original juice per liter is 16.83g. The instrument conforms to the standardizing regulations of France(September17,1990).

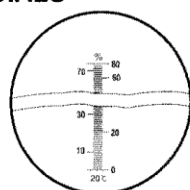
## METHOD OF OPERATION

1. Aim the front end of the refractometer to the direction of bright light, and adjust the adjusting ring of diopter(5) until the reticle can be seen clearly.
2. Adjustment of null  
Open the cover plate(2), drop one or two drops of pure distilled water on the surface of the prism. Close the cover plate and press it lightly, then adjust the correct screw(3) to make the light/dark boundary coincide with the water line.
3. Open the cover plate (2) and clean the water on prism and cover plate by soft cotton flannel, then drop 1~2drops of liquid needed to test on the prism surface. Close the cover plate and press it lightly, the corresponding dial reading on the light/dark boundary is the degree alcohol of grape wine.
4. After measurement, clean away the adherent on the surface of prism and cover plate by moist gauze. After drying, it could be stored perfectly.

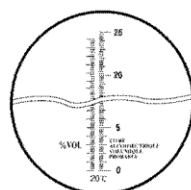
## ATTENTIONS AND MAINTENANCE

1. Adjusting the null liquid and specimen should be under the same temperature, if the temperature varied greatly, the null point should be adjusted once per 30 minutes.
2. The prism must be cleaned completely, because any residual impurity on it could cause error during measuring.
3. After usage, don't use water to wash the instrument, so as to avoid water entering into the pipe of the instrument.
4. As it is a kind of precision optical instrument, you should hand it gently and take good care of it, don't touch and scratch the optical surfaces. It should be kept in the environment of dry, clean and non-corrosiveness air, so as to prevent the surface of it turning mouldy and foggy. Please avoid strong shock during transportation.
5. If the consumers use the instrument in accordance with the mentioned method of usage, it guarantee that instrument can't break down, the optical performance can't change.

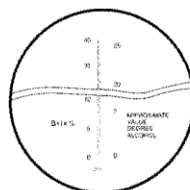
## DIALS



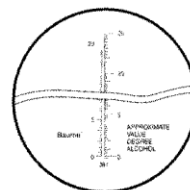
FG501/511



FG502/512



FG503/513



FG504/514

## ACCESSORY:

1. Plastic pipette 2
2. Screw driver 1
3. Cotton flannel 1

