



# Data Sheet

## Refractometer readings

RS stock number 685-768

### Introduction

The refractometer is a device which will read accurately the emulsion strength of water mix cutting fluids at the point of use or mixing.

It has been estimated that 90% of machine shop problems involving water mix cutting fluids are traceable to incorrect emulsion strength.

### Benefits achieved

- Concentrate cost savings
- Optimum cutting performance
- No risk of corrosion
- Robust construction and handy pocket size
- Adjustment screw for accurate calibration.

### Operating instructions

#### To fix zero (0) point

1. Place one or two droplets of water onto the prism face ensuring that the whole prism face is covered (Figure 1).
2. Close cover and aim prism face toward light (Figure 2).
3. Look through eyepiece and adjust focus by rotating eyepiece.
4. If boundary line of light and darkness is out of zero (0) point, regulated by rotating adjustment screw on top.
5. After fixing zero (0) level, wipe water from the prism face with tissue paper.

#### Emulsion testing

1. Place one or two droplets of the sample onto the prism face.
2. Close cover and aim prism face toward light.
3. Look through eyepiece and take direct reading from 0 to 15 scale.
4. After measuring, wipe prism face and cover with clean tissue paper.

**Note:** Should it prove difficult to obtain a strong clear reading on the scale repeat steps 1 and 2 to ensure a continuous film of liquid on the prism.

Figure 1

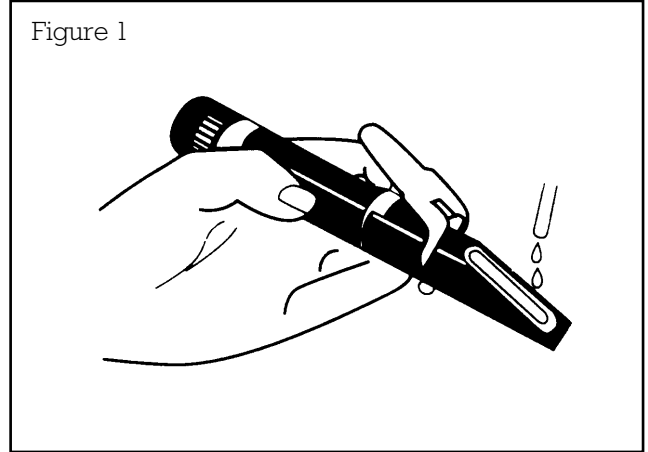
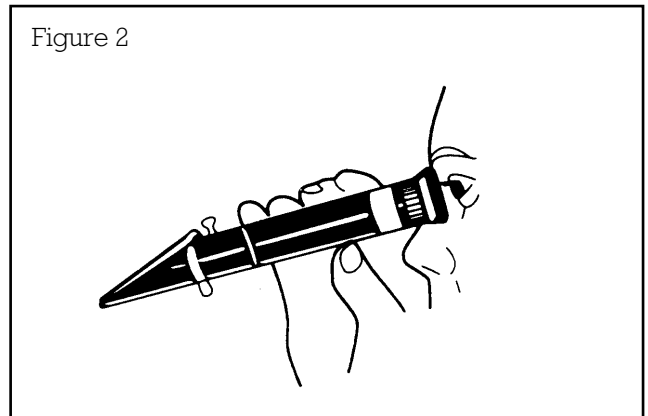


Figure 2



## Interpretation and scale readings

The correlation between scale readings and emulsion strength varies between different water mix cutting fluids – because they do not all have the same quantity of oil in the concentrate. See Table 1 for Refractometer readings (%).

**Table 1**

Product Dilution ratio	Ultracut 250 RS stock no. 685-702	Ultracut 255 RS stock no. 685-718	Ultracut 320 RS stock no. 685-724	Ultracut 370 RS stock no. 685-730	Ultracut 430 RS stock no. 685-752
15:1					
20:1	5.5	5.0	5.0		
25:1	4.3	4.1	3.9		
30:1	3.3	3.3	3.1		1.5
35:1	3.0	2.8	2.8		1.2
40:1	2.6	2.4	2.4	1.7	1.1
45:1			2.2	1.5	1.0
50:1			2.1	1.3	0.9
55:1			1.6	1.2	0.5
60:1			1.5	1.1	0.5
65:1				1.0	
70:1				1.0	

The information provided in RS technical literature is believed to be accurate and reliable; however, RS Components assumes no responsibility for inaccuracies or omissions, or for the use of this information, and all use of such information shall be entirely at the user's own risk.

No responsibility is assumed by RS Components for any infringements of patents or other rights of third parties which may result from its use.

Specifications shown in RS Components technical literature are subject to change without notice.