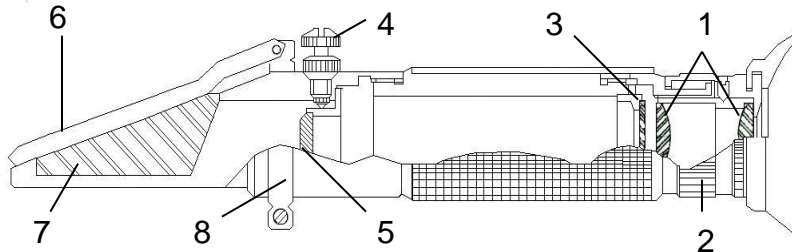


CIMCOOL® METALWORKING FLUID REFRACTOMETER

Instructions for Use



- | | | |
|------------------------|---------------------------|----------------------------|
| 1. Eyepiece | 4. Scale Calibrating Knob | 7. Prism |
| 2. Scale focusing knob | 5. Lens | 8. Frame for plastic cover |
| 3. Scale | 6. Plastic cover | |

Figure 1. Refractometer Schematic

A refractometer is a hand-held optical instrument, which can be used to measure the mix concentration of metalworking fluids. The refractometer provides a numeric reading by measuring the refractive index of the fluid mix. This allows the operator to monitor the concentration of the metalworking fluid.

Calibration

Proper calibration of the refractometer is necessary to obtain an accurate refractive index measurement. Before calibrating the instrument, ensure that the temperatures of the refractometer, water and metalworking fluid sample are at ambient, as accurate calibration is temperature dependent. Proceed as follows:

Place a few drops of water between the plastic cover (6) and the prism (7). Hold the refractometer horizontally and point it at a light source. Look into the eyepiece (1) and adjust the scale calibrating knob (4) until the boundary line which separates the light and dark areas of the scale is aligned with the zero line on the scale. Figure 2 depicts a typical refractometer scale.

Instructions for Use

1. Lift the plastic cover and dry the prism with a clean, dry cloth. Place one or two drops of metalworking fluid on the prism and close the plastic cover.
2. Note the refractometer scale reading at the point where the boundary line separates the light and dark areas on the scale. Determine the concentration by multiplying the refractometer scale reading by the refractometer factor of your metalworking fluid (refer to calculations in Figure 3).

NOTE: Consult your MILACRON CIMCOOL metalworking fluid Product Information Folder to obtain the appropriate refractometer factor. If tramp oil has leaked into your system, these refractometer factors will no longer be accurate. In this case, a slightly lower refractometer factor should be used to compensate for the presence of tramp oil. Alternatively, a more accurate concentration measurement can be obtained using a chemical titration kit.

3. Clean the refractometer prism and plastic cover with a dry, clean cloth prior to storing the refractometer in the carrying case.

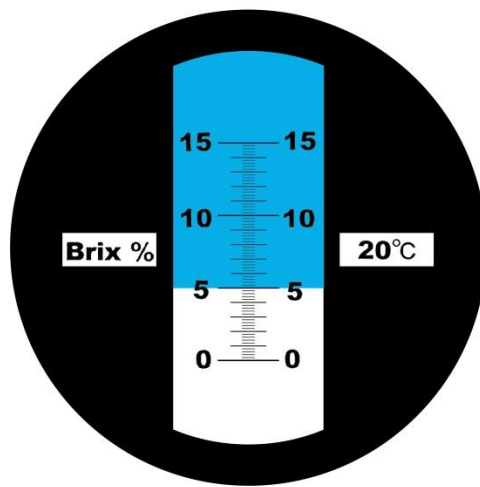


Figure 2. A Typical Refractometer Scale

Figure 3

CIMCOOL® Metalworking Fluid Mix Concentration (%) = Refractometer Reading × Factor

EXAMPLE:

The Product Factor for CIMPERRIAL® 1070 Metalworking Fluid = 1.0

A 5.0 reading on the CIMCOOL® Metalworking Fluid Refractometer Scale, as seen in Figure 2, multiplied by the Product Factor of 1.0 yields a 5.0% mix concentration.

CIMCOOL® Refractometer Spare Parts

ITEM Number	Description		Refractometer Schematic Number
E1003	Plastic Cover with Pin	1100-8A	6
E1004	Prism with House Body	1100-10	7 (Prism shown)
E1005	Frame for Plastic Cover	1100-9A	8
E1009	Eyepiece Set	1100-3	1 & 2
E1010	Scale	1100-4	3
E1011	Scale Adjuster Screw	1100-5	4
E1012	Objective Lens with Frame	1100-6	5 (Lens shown)



For more information,
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