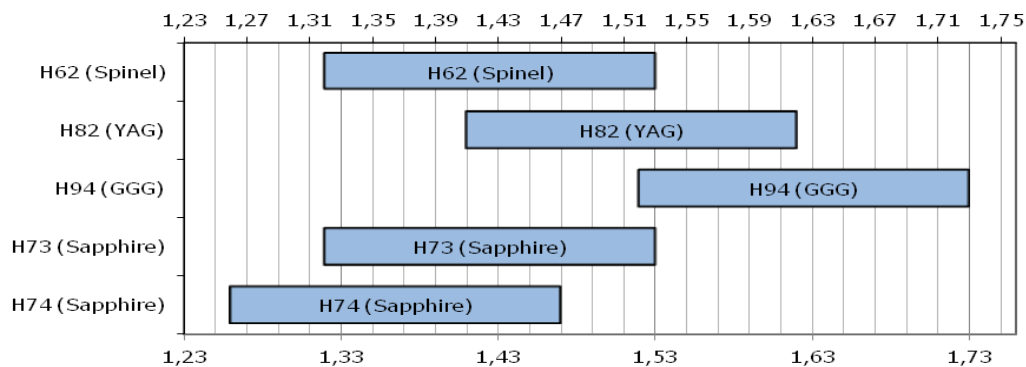


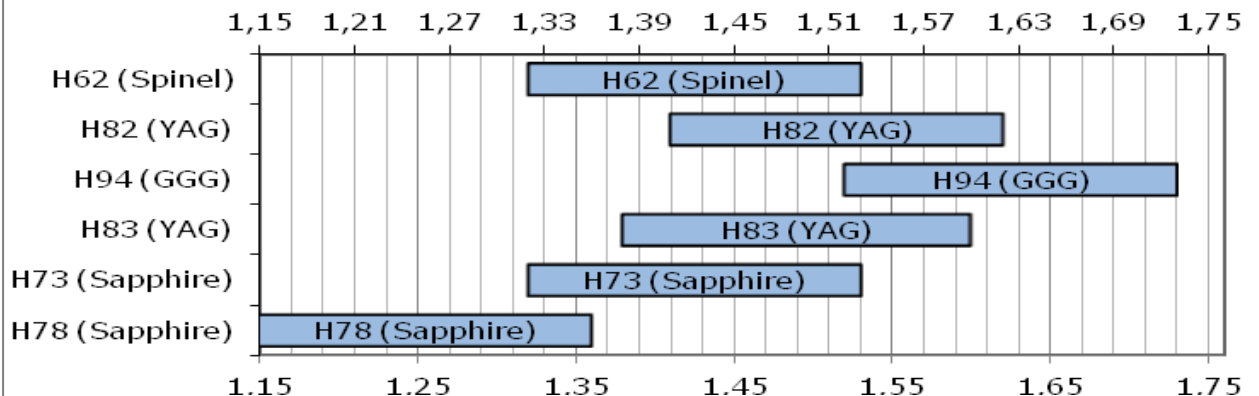
1. PR-23/33 COMPACT TYPE SENSOR

CORE-Optics	Prism and material	Refractive Index n_D range			Price category	Verification method
		Min.	Max.	Span		
PR-10012	H62 Spinel	1.32	1.53	0.21	Standard	Standard
PR-10012-YAG	H82 YAG	1.41	1.62	0.21	Optional	Contact manufacturer
PR-10012-GGG	H94 GGG	1.52	1.73	0.21	Optional	Contact manufacturer
PR-10036	H73 Sapphire	1.32	1.53	0.21	Standard	Standard
PR-10034	H74 Sapphire	1.26	1.47	0.21	Optional	Contact manufacturer



2. PR-23 PROBE TYPE SENSOR

CORE-Optics	Prism and material	Refractive Index n_D range			Price category	Verification method
		Min.	Max.	Span		
PR-10022	H62 Spinel	1.32	1.53	0.21	Standard	Standard
PR-10022-YAG	H82 YAG	1.41	1.62	0.21	Optional	Contact manufacturer
PR-10022-GGG	H94 GGG	1.52	1.73	0.21	Optional	Contact manufacturer
PR-10041-YAG	H83 YAG	1.38	1.60	0.22	On request	Contact manufacturer
PR-10041	H73 Sapphire	1.32	1.53	0.21	Standard for -RP	Standard
PR-10044	H78 Sapphire	1.15	1.36	0.21	Optional	Contact manufacturer



CORE-OPTICS AND REFRACTIVE INDEX RANGES

Availability/Compatibility of features:

Feature:	Availability/compatibility:			
Refractive index range limits	All PR-23/33 Process Refractometers delivered after January 1 st , 2012			
	Program versions:			
	<table border="1"> <tr> <td>PR-23</td> <td>Sensor program V. 3.00 (and higher) DTR Program V. 4.00 (and higher)</td> </tr> <tr> <td>PR-33</td> <td>Main Program V. 2.00 (and higher)</td> </tr> </table>	PR-23	Sensor program V. 3.00 (and higher) DTR Program V. 4.00 (and higher)	PR-33
PR-23	Sensor program V. 3.00 (and higher) DTR Program V. 4.00 (and higher)			
PR-33	Main Program V. 2.00 (and higher)			

REFRACTIVE INDEX MEASURING RANGE LIMITS

K-Patents Process Refractometer PR-23 and PR-33 series can be specified either for standard or optional (extended) refractive index n_D range depending on the application. Also custom ranges are available on request.

The specific measuring range for the compact type and probe type sensor models is obtained using a combination of a distinct CORE-optics module that incorporates a prism with certain angle and material, see the tables on page 1.

EXTENDED REFRACTIVE INDEX RANGES

There are a few aspects to consider when using the extended refractive index n_D ranges. In case of a prism change, the whole CORE-optics module is always replaced with a new part and the refractometer is re-calibrated. Also, the Refractive Index verification procedure is different from the standard method.

INSTRUMENT VERIFICATION

The off-line verification of the refractometer sensor calibration is made using a set of five (5) standard refractive index n_D liquids covering the complete measuring range nominal values at 25 °C. For the standard measuring range of n_D 1.33 – 1.53 the verification procedure is menu guided using the transmitter or a web-page and computer via an Ethernet connection.

For the extended ranges the menu guided procedure is not valid and a separate Microsoft Excel application [is available on request](#).

Please contact your local K-Patents representative or the manufacturer in order to get the correct refractive index liquids verification set containing 5 liquids (see table below) and the verification instructions and procedure on Excel for your extended measuring range.

Part No.	Prism	Specification
PR-2001	All	One RI liquid bottle 1/4 fl.oz. <u>specify the R.I. value</u>
PR-2300	H62 Spinel	RI liquid set 5 x 1/4 fl. oz. (7 cc) for PR-23 (Incl R.I. liquids: 1,33; 1,37; 1,42; 1,47; 1,52)
PR-2310	H74 Sapphire	RI liquid set 5 x 1/4 fl. oz. (7 cc) for PR-23 (Incl R.I. liquids: 1,30; 1,33; 1,37; 1,42; 1,47)
PR-2320	H73 Sapphire	RI liquid set 5 x 1/4 fl.oz. (7 cc) (Incl R.I. liquids: 1,32; 1,37; 1,41; 1,47; 1,53)
PR-2330	H82 Sapphire	RI liquid set 5 x 1/4 fl.oz. (7 cc) (Incl R.I. liquids: 1,42; 1,47; 1,52; 1,57; 1,62)
PR-2340	H94 GGG	RI liquid set 5 x 1/4 fl.oz. (7 cc) (Incl R.I. liquids: 1,52; 1,57; 1,62; 1,67; 1,72)

Table: Refractive index liquids verification sets for the prism with extended measuring ranges.