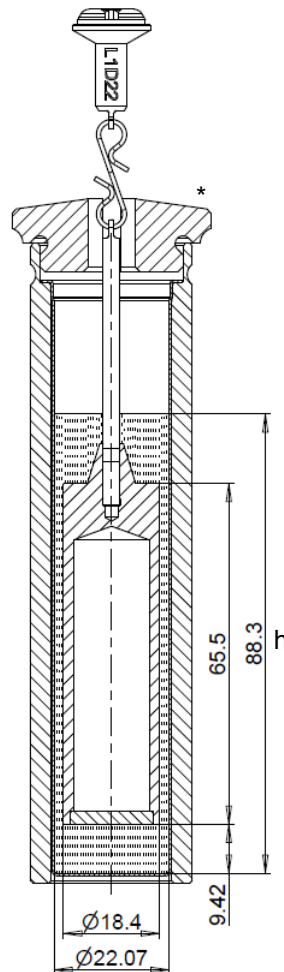


**Measuring System L1D22**

 Dimensions in mm  
 h = filling height

 For **ASTM D5133/D7110**.

Measuring system consisting of

- 1 spindle L1D22 and
- 1 cup holder D22 with
- 100 pcs. disposable cups D22

System with defined gap for measuring according to ASTM D5133/D7110. This measuring method requires software package V-Curve.

The spindle is made of stainless steel AISI 316L (1.4404 / 1.4545). Equipped with Toolmaster™ and magnetic coupling. A hook made of stainless steel AISI 301 (1.4310) connects the spindle body to the magnetic coupling.

The spindle is intended for use with Disposable Measuring Cup D22. The cup consists of blank aluminum (Al 99.7/F13). It requires a holder, which is made of hard anodized aluminum.

Use the system with PTD 175.

\* The cover for DIN spindles visible in the dimensions drawing is not part of the measuring system, but of PTD 175.

- According to ASTM D7110, L1D22 spindle is intended for viscosity values of at least 90 Pa·s (90 000 mPa·s). This standard also requires a steady flow of gas or dry air. Order additionally.
- Measuring ranges according to ASTM D5133 and ASTM D7110 at 0.3 rpm:

ViscoQC Model	Sample volume mL	SMC <sup>a</sup>	SRC <sup>b</sup>	YMC <sup>c</sup>	Minimum viscosity <sup>d</sup> (10 % torque) Pa·s	Maximum viscosity (100 % torque) Pa·s
L	16.1	2.835	0.667	---	@ 0.3 rpm: 0.772	@0.3 rpm: 7.723
R	16.1	2.835	0.667	---	@ 0.3 rpm: 8.240	@0.3 rpm: 82.40
H	16.1	2.835	0.667	---	@ 0.3 rpm: 65.92	@0.3 rpm: 659.2

a. Spindle Multiplier Constant – **NOTE!** SMC = 2.835 is stored in the spindle list from the following software versions on: ViscoQC 100 SW 1.008.010 / ViscoQC 300 SW 1.60 build 116. For older SW versions, always activate the Toolmaster™ function when using L1D22, otherwise you get a wrong SMC!

b. Shear Rate Constant

c. Yield Multiplier Constant – for yield stress determination with vane spindles and V-Curve

d. Specified speed is the maximum standard speed of the specific ViscoQC model.

- The default SCF (Spindle Correction Factor) is 1.
- Calculation of shear rate: Shear rate [1/s] = SRC · Speed [rpm]
- Viscosity limits calculated for a torque range of 10 % to 100 % unless overruled by other limitations.

**TIP:** Sample handling of high-viscosity liquids requires special precautions to avoid trapped bubbles. You may have to prewarm the sample for filling.