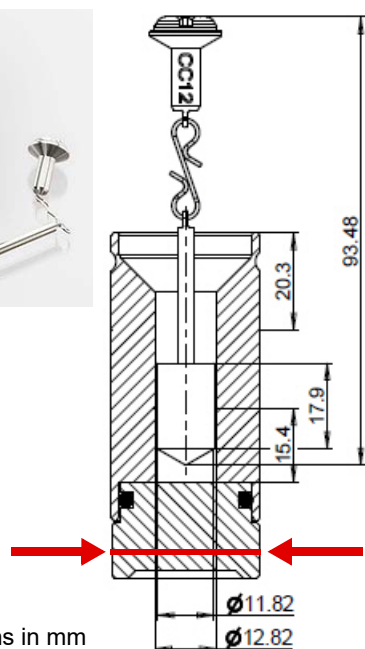


### 191724 Measuring System CC12



Dimensions in mm

Measuring system consisting of

- 1 bob B-CC12 (Mat. No. **191771**, p. 62) and
- 1 cup C-CC12 (Mat. No. **191720**, p. 63).

For measurement according to ISO 3219 and DIN 53019-1.

The measuring bob 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 of the bob to the magnetic coupling.

The bob is intended for use with Measuring Cup C-CC12.

The cup consists of 3 parts:

- 1 wall made of anodized aluminum 3.2315 (6082)
- 1 bottom plug made of PEEK (Poly Ether Ether Ketone) black (marked by a cut in ring – see arrows)
- 1 O-ring (Mat. No. **222559**, p. 84), seals the gap between wall and bottom

**NOTE:** Click the Mat. No. of the O-ring to learn about the applicable temperature range and alternatives!

Use the system with PTD 80 (Mat. No. **220906**, p. 30), PTD 175 (Mat. No. **220907**, p. 32), or mount the system on the ViscoQC with the DIN adapter (Mat. No. **191719**, p. 56).

- Option: Cover DIN Spindles (Mat. No. **191342**, p. 83) – included in standard supply of PTD 175

ViscoQC Model	Sample volume mL	SMC <sup>a</sup>	SRC <sup>b</sup>	YMC <sup>c</sup>	Minimum viscosity <sup>d</sup> Pa·s	Maximum viscosity <sup>e</sup> Pa·s
L	2	12.13	1.2908	---	@ 60 rpm: 0.02	@ 0.3 rpm: 37.9
R	2	12.13	1.2908	---	@100 rpm: 0.12	50
H	2	12.13	1.2908	---	@100 rpm: 1.0	50

a. Spindle Multiplier Constant

b. Shear Rate Constant

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

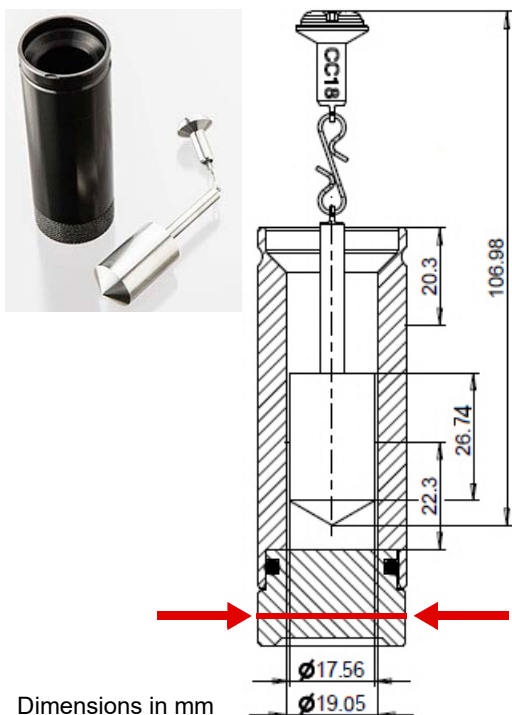
d. Specified speed is the maximum standard speed of the specific ViscoQC model.

e. Maximum viscosity limited to 50 Pa·s to ensure correct filling.

- 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.

### 191725 Measuring System CC18



Dimensions in mm

Measuring system consisting of

- 1 bob B-CC18 (Mat. No. **191772**, p. 62) and
- 1 cup C-CC18 (Mat. No. **191721**, p. 63).

For measurement according to ISO 3219 and DIN 53019-1.

The measuring bob 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 of the bob to the magnetic coupling.

The bob is intended for use with Measuring Cup C-CC18. The cup consists of 3 parts:

- 1 wall made of anodized aluminum 3.2315 (6082)
- 1 bottom plug made of PEEK (Poly Ether Ether Ketone) black (marked by a cut in ring – see arrows)
- 1 O-ring (Mat. No. **222559**, p. 84), seals the gap between wall and bottom

**NOTE:** Click the Mat. No. of the O-ring to learn about the applicable temperature range and alternatives!

Use the system with PTD 80 (Mat. No. **220906**, p. 30), PTD 175 (Mat. No. **220907**, p. 32), or mount the system on the ViscoQC with the DIN adapter (Mat. No. **191719**, p. 56).

- Option: Cover DIN Spindles (Mat. No. **191342**, p. 83) – included in standard supply of PTD 175

ViscoQC Model	Sample volume mL	SMC <sup>a</sup>	SRC <sup>b</sup>	YMC <sup>c</sup>	Minimum viscosity <sup>d</sup>	Maximum viscosity <sup>e</sup>
					Pa·s	Pa·s
L	6.4	3.65	1.2908	---	@ 60 rpm: 0.005	@ 0.3 rpm: 11.4
R	6.4	3.65	1.2908	---	@100 rpm: 0.04	50
H	6.4	3.65	1.2908	---	@100 rpm: 0.3	50

a. Spindle Multiplier Constant

b. Shear Rate Constant

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

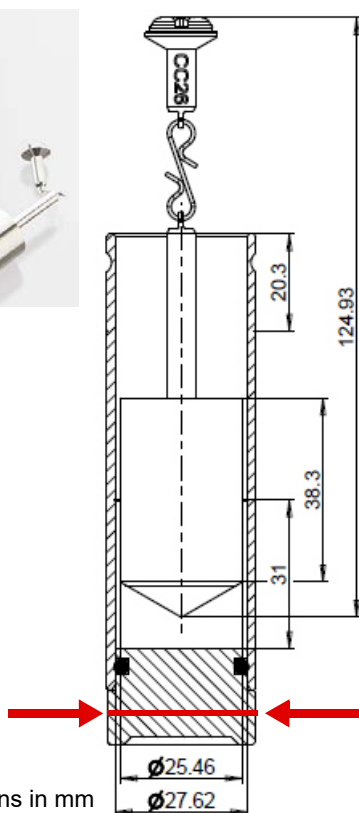
d. Specified speed is the maximum standard speed of the specific ViscoQC model.

e. Maximum viscosity limited to 50 Pa·s to ensure correct filling.

- 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.

### 191726 Measuring System CC26



Dimensions in mm

Measuring system consisting of

- 1 bob B-CC26 (Mat. No. **191773**, p. 62) and
- 1 cup C-CC26 (Mat. No. **191722**, p. 64).

For measurement according to ISO 3219 and DIN 53019-1.

The measuring bob 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 of the bob to the magnetic coupling.

The bob is intended for use with Measuring Cup C-CC26. The cup consists of 3 parts:

- 1 wall made of anodized aluminum 3.2315 (6082)
- 1 bottom plug made of PEEK (Poly Ether Ether Ketone) black (marked by a cut in ring – see arrows)
- 1 O-ring (Mat. No. **222559**, p. 84), seals the gap between wall and bottom

**NOTE:** Click the Mat. No. of the O-ring to learn about the applicable temperature range and alternatives!

Use the system with PTD 80 (Mat. No. **220906**, p. 30), PTD 175 (Mat. No. **220907**, p. 32), or mount the system on the ViscoQC with the DIN adapter (Mat. No. **191719**, p. 56).

- Option: Cover DIN Spindles (Mat. No. **191342**, p. 83) – included in standard supply of PTD 175

ViscoQC Model	Sample volume mL	SMC <sup>a</sup>	SRC <sup>b</sup>	YMC <sup>c</sup>	Minimum viscosity <sup>d</sup>	Maximum viscosity <sup>e</sup>
					Pa·s	Pa·s
L	18.5	1.22	1.2908	---	@ 60 rpm: 0.002	@ 0.3 rpm: 3.8
R	18.5	1.22	1.2908	---	@100 rpm: 0.015	@ 0.5 rpm: 24.4
H	18.5	1.22	1.2908	---	@100 rpm: 0.1	50

a. Spindle Multiplier Constant

b. Shear Rate Constant

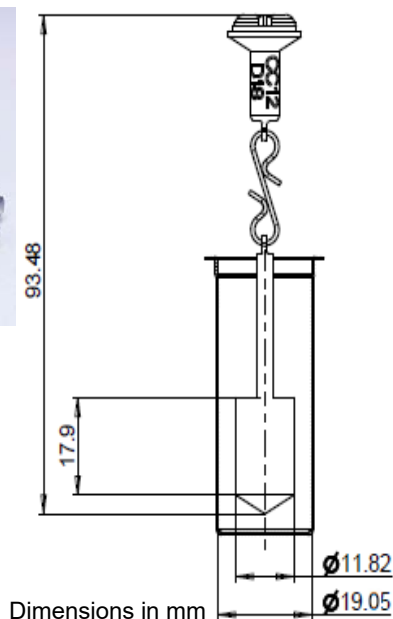
c. Yield Multiplier Constant – for yield stress determination with vane spindles and V-Curve

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

e. Maximum viscosity limited to 50 Pa·s to ensure correct filling.

- 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.

**198918 Disposable Measuring System CC12/D18**


Measuring system consisting of

- 1 bob B-CC12/D18 (Mat. No. **224599**, p. 62),
- 1 holder CC18 (Mat. No. **199005**, p. 64) with
- 100 pcs. disposable cups D18

To order additional cups use Mat. No. **241630**, p. 64.

System with defined gap, but wider than specified in ISO 3219.

The measuring bob 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 of the bob to the magnetic coupling.

The bob is intended for use with Disposable Measuring Cup D18 or Measuring Cup C-CC18 (Mat. No. **191721**, p. 63).

**Note:** B-CC12/DG18 has similar dimensions as B-CC18, but **different identification and spindle constants** stored on the Toolmaster™ chip.

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 80 (Mat. No. **220906**, p. 30), PTD 175 (Mat. No. **220907**, p. 32), or mount the system on the ViscoQC with the DIN adapter (Mat. No. **191719**, p. 56).

- Option: Cover DIN Spindles (Mat. No. **191342**, p. 83) – included in standard supply of PTD 175

ViscoQC Model	Sample volume mL	SMC <sup>a</sup>	SRC <sup>b</sup>	YMC <sup>c</sup>	Minimum viscosity <sup>d</sup>	Maximum viscosity <sup>e</sup>
					Pa·s	Pa·s
L	11.8	43.282	0.3380	---	@ 60 rpm: 0.07	100
R	11.8	43.282	0.3380	---	@100 rpm: 0.44	100
H	11.8	43.282	0.3380	---	@100 rpm: 3.5	100

a. Spindle Multiplier Constant

b. Shear Rate Constant

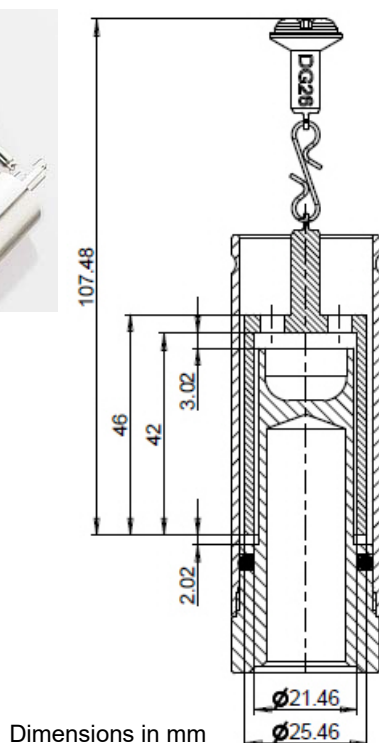
c. Yield Multiplier Constant – for yield stress determination with vane spindles and V-Curve

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

e. Maximum viscosity limited to 100 Pa·s to ensure correct filling.

- 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.

**191727 Measuring System DG26**


Measuring system consisting of

- 1 bob B-DG26 (Mat. No. **191770**, p. 62) and
- 1 cup C-DG26 (Mat. No. **191723**, p. 65).

For measurement according to DIN 54453.

The hollow measuring bob 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 of the bob to the magnetic coupling.

The bob is intended for use with Measuring Cup C-DG26. The cup consists of 3 parts:

- 1 wall made of anodized aluminum 3.2315 (6082)
- 1 bottom plug plus inner cylinder made of anodized aluminum 3.2315 (6082)
- 1 O-ring (Mat. No. **222559**, p. 84), seals the gap between wall and bottom

**NOTE:** Click the Mat. No. of the O-ring to learn about the applicable temperature range and alternatives!

Use the system with PTD 80 (Mat. No. **220906**, p. 30), PTD 175 (Mat. No. **220907**, p. 32), or mount the system on the ViscoQC with the DIN adapter (Mat. No. **191719**, p. 56).

- Option: Cover DIN Spindles (Mat. No. **191342**, p. 83) – included in standard supply of PTD 175
- **Recommended:** Syringes 20 mL Luer (100 pcs), Mat. No. **21656**, p. 107 – for exact filling (essential for DG26)

ViscoQC Model	Sample volume mL	SMC <sup>a</sup>	SRC <sup>b</sup>	YMC <sup>c</sup>	Minimum viscosity <sup>d</sup>	Maximum viscosity <sup>e</sup>
					Pa·s	Pa·s
L	7.5	0.8	1.2908	---	@ 60 rpm: 0.001	@ 0.3 rpm: 2.6
R	7.5	0.8	1.2908	---	@100 rpm: 0.010	10
H	7.5	0.8	1.2908	---	@100 rpm: 0.060	10

a. Spindle Multiplier Constant

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.

e. Maximum viscosity limited to 10 Pa·s to ensure correct filling.

- 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.

### 223289 Measuring System DG26/SS

Measuring system made of stainless steel for high chemical resistance, consisting of

- 1 bob B-DG26 (Mat. No. **191770**, p. 62) and
- 1 cup C-DG26/SS (Mat. No. **223333**, p. 65).

For measurement according to DIN 54453.

The hollow measuring bob 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 of the bob to the magnetic coupling.

The cup consists of 3 parts:

- 1 wall made of stainless steel AISI 316L (1.4404)
  - 1 bottom plug plus inner cylinder, made of stainless steel AISI 316L (1.4404)
  - 1 O-ring (Mat. No. **191592**, p. 85), seals the gap between wall and bottom
- Use the system with PTD 80 (Mat. No. **220906**, p. 30), PTD 175 (Mat. No. **220907**, p. 32), or mount the system on the ViscoQC with the DIN adapter (Mat. No. **191719**, p. 56).
  - Option: Cover DIN Spindles (Mat. No. **191342**, p. 83).

For filling volume, dimensions and viscosity measuring limits see Measuring System DG26, Mat. No. **191727**, p. 61.

### Concentric Cylinder Measuring Bobs (DIN Spindles)

#### 191771 Measuring Bob B-CC12

Bob of Measuring System CC12 (Mat. No. **191724**, p. 57) – see these parts for a picture and details.

**Note:** Do **not** combine this bob with disposable measuring cups D18, because the spindle constants stored in the Toolmaster™ chip are different from those of bob B-CC12/D18 of the disposable system. See also p. 55.

#### 191772 Measuring Bob B-CC18

Bob of Measuring System CC18, Mat. No. **191725**, p. 58 – see this part for a picture and details.

**TIP:** This bob can also be used with disposable measuring cups D18 and the suitable holder (Mat. No. **199005**, p. 64) or with Measuring Cup C-CC18/SS (Mat. No. **223515**, p. 63). The dimensions of these cups are identical to the default cup of the measuring system CC18. See p. 55.

#### 191773 Measuring Bob B-CC26

Bob of Measuring System CC26, Mat. No. **191726**, p. 59 – see this part for a picture and details.

#### 191770 Measuring Bob B-DG26

Bob of Measuring System DG26, Mat. No. **191727**, p. 61, and Measuring System DG26/SS, Mat. No. **223289**, p. 62 – see these parts for a picture and details.

#### 224599 Measuring Bob B-CC12/D18

Bob of Disposable Measuring System CC12/D18, Mat. No. **198918**, p. 60 – see this part for a picture and details.

**TIP:** This bob can also be used with Measuring Cup C-CC18 (Mat. No. **191721**, p. 63) or with Measuring Cup C-CC18/SS (Mat. No. **223515**, p. 63). The dimensions of these cups are identical to the default cup of the measuring system CC18. See p. 55.

### Concentric Cylinder Measuring Cups

#### 191720 Measuring Cup C-CC12

Cup of Measuring System CC12, Mat. No. **191724**, p. 57 – see this part for a picture and details.

#### 191721 Measuring Cup C-CC18

Cup of Measuring System CC18, Mat. No. **191725**, p. 58 – see this part for a picture and details.

Dimensions of C-CC18 and C-CC18/SS are identical. See p. 55.

**TIP:** Can also be used with the following measuring bobs instead of cup C-CC18/SS:

- Measuring Bob B-SC4-18, Mat. No. **222268**, p. 75
- Measuring Bob B-SC4-21, Mat. No. **222272**, p. 75
- Measuring Bob B-SC4-25, Mat. No. **238670**, p. 75
- Measuring Bob B-SC4-27, Mat. No. **222270**, p. 75
- Measuring Bob B-SC4-28, Mat. No. **239149**, p. 75
- Measuring Bob B-SC4-29, Mat. No. **239151**, p. 75
- Measuring Bob B-SC4-31, Mat. No. **239153**, p. 75
- Measuring Bob B-SC4-34, Mat. No. **239155**, p. 76

#### 223515 Measuring Cup C-CC18/SS

Cup of Small Sample Adapter (SSA) Measuring Systems – SC4-xx Spindles – see these parts for a picture and details:

- Measuring System SC4-18, Mat. No. **223516**, p. 67
- Measuring System SC4-21, Mat. No. **223517**, p. 68
- Measuring System SC4-25, Mat. No. **238623**, p. 69
- Measuring System SC4-27, Mat. No. **223518**, p. 70
- Measuring System SC4-28, Mat. No. **238624**, p. 71
- Measuring System SC4-29, Mat. No. **238625**, p. 72
- Measuring System SC4-31, Mat. No. **238626**, p. 73
- Measuring System SC4-34, Mat. No. **238627**, p. 74

Dimensions of C-CC18 and C-CC18/SS are identical. See p. 55.

**TIP:** Can also be used with Measuring Bob B-CC18, Mat. No. **191772**, p. 62, instead of this bob's default cup C-CC18.

### 199005 Holder Disposable Measuring Cup D18

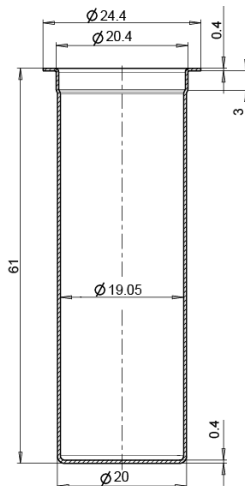
1 pc. holder CC18 (Anodized Aluminum) for disposable measuring cups. Comes with 1 pack of 100 pcs. disposable cups (DC-CC18 Elongated, Mat. No. **241630**, p. 64). See Mat. No. **198918**, p. 60 for a picture of the holder.

Material of the holder: Hard anodized Aluminum 3.2315 AlSi1MgMn (AlMgSi1)

Can be used with Measuring Bob B-CC18, Mat. No. **191772**, p. 62. If you wish to use the disposable cups with wider gap, order Disposable Measuring System CC12/D18, Mat. No. **198918**, p. 60 instead. See also p. 55.

**TIP:** Can also be used with the all SC4-xx bobs instead of cup C-CC18/SS: see "Spindles (SC4xx) for Small Sample Adapter (SSA)", p. 75

### 241630 100 pcs. Disposable Cups DC-CC18 Elongated



1 pack containing 100 pcs. of disposable measuring cups D18 (L = 61 mm) as consumable of Disposable Measuring System CC12/D18, Mat. No. **198918**, p. 60 **from February 2021** on.

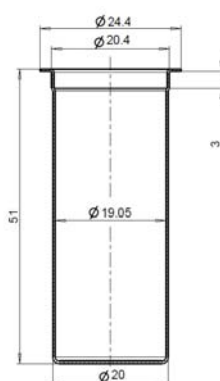
Alternatively, it can be combined with Measuring Bob B-CC18, Mat. No. **191772**, p. 62, and Holder Disposable Measuring Cup D18, Mat. No. **199005**, p. 64. Also suitable for use with all SC4-xx bobs.

Disposable cups made of blank aluminum (Al 99.7/F13)

Cup of Disposable Measuring System CC12/D18, Mat. No. **198918**, p. 60 – see this part for a picture and details.

Dimensions in mm.

### 198377 Disposable Measuring Cup D18



Consumable for measuring systems **ordered until February 2021**. Not for use with holders (Mat. No. **199005**, p. 64) ordered later than February 2021!

1 pack containing 100 pcs. of disposable measuring cups D18 (L = 51 mm) as consumable of Disposable Measuring System CC12/D18, Mat. No. **198918**, p. 60 **until February 2021**. *Not suitable for use with all SC4-xx bobs!*

Disposable cups made of blank aluminum (Al 99.7/F13)

**Until February 2021**, this cup was used with Disposable Measuring System CC12/D18, Mat. No. **198918**, p. 60 – see this part for details.

Dimensions in mm.

### 191722 Measuring Cup C-CC26

Cup of Measuring System CC26, Mat. No. **191726**, p. 59 – see this part for a picture and details.

**191723 Measuring Cup C-DG26**

Cup of Measuring System DG26, Mat. No. **191727**, p. 61 – see this part for a picture and details.

**223333 Measuring Cup C-DG26/SS**

Cup of Measuring System DG26/SS, Mat. No. **223289**, p. 62 – see this part for a picture and details.

# Product Description List

## ViscoQC 100 | ViscoQC 300



Spindles / Measuring Systems

### Small Sample Adapter (SSA) Measuring Systems – SC4-xx Spindles

R = recommended configuration | ✓ = possible configuration

If a **bob + a cup** are available as default measuring system, the below table gives the material number.

#### Overview SSA measuring systems

Temperature device			
<ul style="list-style-type: none"> <li>PTD 80, Mat. No. <b>220906</b>, p. 30 or</li> <li>PTD 175, Mat. No. <b>220907</b>, p. 32</li> </ul>	R	R	R
<b>DIN adapter<sup>a</sup> Mat. No. 191719, p. 56</b>	✓	✓	✓
<b>Cup</b> ----- <b>Bob</b>	C-CC18 Mat. No. <b>191721</b> , p. 63	C-CC18/SS Mat. No. <b>223515</b> , p. 63	D18 + Holder CC18 Mat. No. <b>199005</b> , p. 64
SC4-18, Mat. No. <b>222268</b> , p. 75	✓	Mat. No. <b>223516</b> , p. 67	✓
SC4-21, Mat. No. <b>222272</b> , p. 75	✓	Mat. No. <b>223517</b> , p. 68	✓
SC4-25, Mat. No. <b>238670</b> , p. 75	✓	Mat. No. <b>238623</b> , p. 69	✓
SC4-27, Mat. No. <b>222270</b> , p. 75	✓	Mat. No. <b>223518</b> , p. 70	✓
SC4-28, Mat. No. <b>239149</b> , p. 75	✓	Mat. No. <b>238624</b> , p. 71	✓
SC4-29, Mat. No. <b>239151</b> , p. 75	✓	Mat. No. <b>238625</b> , p. 72	✓
SC4-31, Mat. No. <b>239153</b> , p. 75	✓	Mat. No. <b>238626</b> , p. 73	✓
SC4-34, Mat. No. <b>239155</b> , p. 76	✓	Mat. No. <b>238627</b> , p. 74	✓
Cover Mat. No. <b>191342</b> , p. 83	R	R	R

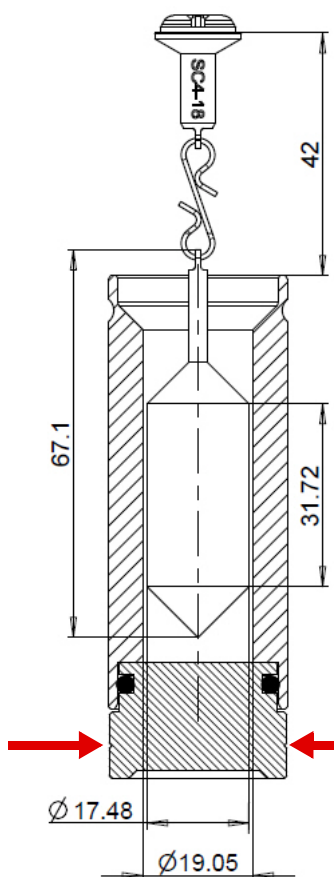
a. A temperature device and the DIN Adapter are mutually exclusive – it is recommended to use a temperature device. If not using a temperature device, the DIN Adapter is required.

#### Measuring ranges of SC4-xx spindles

Meas. system	SC4-18	SC4-21	SC4-25	SC4-27	SC4-28	SC4-29	SC4-31	SC4-34
-----	Shear rate (s <sup>-1</sup> ): 1.32 N	Shear rate (s <sup>-1</sup> ): 0.93 N	Shear rate (s <sup>-1</sup> ): 0.22 N	Shear rate (s <sup>-1</sup> ): 0.34 N	Shear rate (s <sup>-1</sup> ): 0.28 N	Shear rate (s <sup>-1</sup> ): 0.25 N	Shear rate (s <sup>-1</sup> ): 0.34 N	Shear rate (s <sup>-1</sup> ): 0.28 N
<b>Model</b>	Sample volume: 6.7 mL	Sample volume: 7.1 mL	Sample volume: 16.1 mL	Sample volume: 10.4 mL	Sample volume: 11 mL	Sample volume: 13.5 mL	Sample volume: 9.0 mL	Sample volume: 9.4 mL
ViscoQC 100 – L	1.5 to 30K	-	240 to 4.8M	-	-	-	15 to 300K	30 to 600K
ViscoQC 300 – L	1.2 to 30K	-	192 to 4.8M	-	-	-	12 to 300K	24 to 600K
ViscoQC 100 – R	-	25 to 500K	-	125 to 2.5M	250 to 5M	500 to 10M	-	-
ViscoQC 300 – R	-	20 to 500K	-	100 to 2.5M	200 to 5M	400 to 10M	-	-
ViscoQC 100 – H	-	200 to 4M	-	1K to 20M	2K to 40M	4K to 80M	-	-
ViscoQC 300 – H	-	160 to 4M	-	800 to 20M	1.6K to 40M	3.2K to 80M	-	-

M = 1 million, K = 1 thousand, viscosity units: mPa·s, N = RPM,

Example shear rate calculation for spindle SC4-18: 1.32 (SRC) × 10 rpm = 13.2 s<sup>-1</sup>

**223516 Measuring System SC4-18**


Dimensions in mm

Measuring system consisting of

- 1 bob B-SC4-18 (Mat. No. **222268**, p. 75) and
- 1 cup C-CC-18/SS (Mat. No. **223515**, p. 63).

System with defined gap, but smaller than specified in ISO 3219: SC4-18 does not fulfill ISO 3219. Suitable for shear rate control and data analysis using mathematical models of software package V-Curve.

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

The bob is intended for use with Measuring Cup C-CC18/SS. The cup consists of 3 parts:

- 1 wall made of stainless steel AISI 316L (1.4404)
- 1 bottom plug made of PEEK (Poly Ether Ether Ketone) black (marked by a cut in ring – see arrows)
- 1 O-ring (Mat. No. **222559**, p. 84), seals the gap between wall and bottom

**NOTE:** Click the Mat. No. of the O-ring to learn about the applicable temperature range and alternatives!

Use the system with PTD 80 (Mat. No. **220906**, p. 30), PTD 175 (Mat. No. **220907**, p. 32), or mount the system on the ViscoQC with the DIN adapter (Mat. No. **191719**, p. 56).

- Option: Cover DIN Spindles (Mat. No. **191342**, p. 83) – included in standard supply of PTD 175

Sample volume	SMC <sup>a</sup>	SRC <sup>b</sup>	YMC <sup>c</sup>	Viscosity range
6.7 mL	3.2	1.32	---	see p. 66

a. Spindle Multiplier Constant

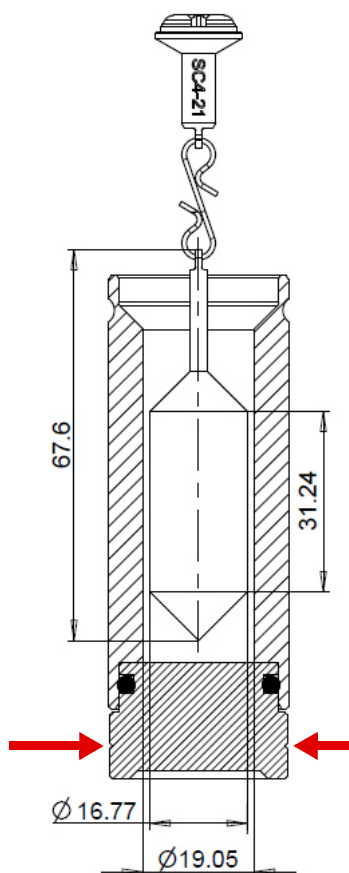
b. Shear Rate Constant

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

- The default SCF (Spindle Correction Factor) is 1.
- Calculation of shear rate: Shear rate [1/s] = SRC · Speed [rpm]

**TIP:**

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

**223517 Measuring System SC4-21**


Dimensions in mm

Measuring system consisting of

- 1 bob B-SC4-21 (Mat. No. **22272**, p. 75) and
- 1 cup C-CC-18/SS (Mat. No. **223515**, p. 63).

System with defined gap, but wider than specified in ISO 3219: SC4-21 does not fulfill ISO 3219. Suitable for shear rate control and data analysis using mathematical models of software package V-Curve.

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

The bob is intended for use with Measuring Cup C-CC18/SS. The cup consists of 3 parts:

- 1 wall made of stainless steel AISI 316L (1.4404)
- 1 bottom plug made of PEEK (Poly Ether Ether Ketone) black (marked by a cut in ring – see arrows)
- 1 O-ring (Mat. No. **222559**, p. 84), seals the gap between wall and bottom

**NOTE:** Click the Mat. No. of the O-ring to learn about the applicable temperature range and alternatives!

Use the system with PTD 80 (Mat. No. **220906**, p. 30), PTD 175 (Mat. No. **220907**, p. 32), or mount the system on the ViscoQC with the DIN adapter (Mat. No. **191719**, p. 56).

- Option: Cover DIN Spindles (Mat. No. **191342**, p. 83) – included in standard supply of PTD 175

Sample volume	SMC <sup>a</sup>	SRC <sup>b</sup>	YMC <sup>c</sup>	Viscosity range
7.1 mL	5.0	0.93	---	see p. 66

a. Spindle Multiplier Constant

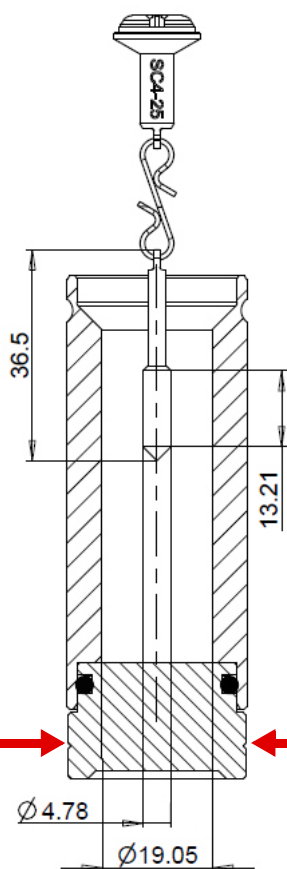
b. Shear Rate Constant

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

- The default SCF (Spindle Correction Factor) is 1.
- Calculation of shear rate: Shear rate [1/s] = SRC · Speed [rpm]

**TIP:**

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

**238623 Measuring System SC4-25**


Dimensions in mm

Measuring system consisting of

- 1 bob B-SC4-25 (Mat. No. **238670**, p. 75) and
- 1 cup C-CC-18/SS (Mat. No. **223515**, p. 63).

System with defined gap, but smaller than specified in ISO 3219: SC4-25 does not fulfill ISO 3219. Suitable for shear rate control and data analysis using mathematical models of software package V-Curve.

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

The bob is intended for use with Measuring Cup C-CC18/SS. The cup consists of 3 parts:

- 1 wall made of stainless steel AISI 316L (1.4404)
- 1 bottom plug made of PEEK (Poly Ether Ether Ketone) black (marked by a cut in ring – see arrows)
- 1 O-ring (Mat. No. **222559**, p. 84), seals the gap between wall and bottom

**NOTE:** Click the Mat. No. of the O-ring to learn about the applicable temperature range and alternatives!

Use the system with PTD 80 (Mat. No. **220906**, p. 30), PTD 175 (Mat. No. **220907**, p. 32), or mount the system on the ViscoQC with the DIN adapter (Mat. No. **191719**, p. 56).

- Option: Cover DIN Spindles (Mat. No. **191342**, p. 83) – included in standard supply of PTD 175

Sample volume	SMC <sup>a</sup>	SRC <sup>b</sup>	YMC <sup>c</sup>	Viscosity range
16.1 mL	512	0.22	---	see p. 66

a. Spindle Multiplier Constant

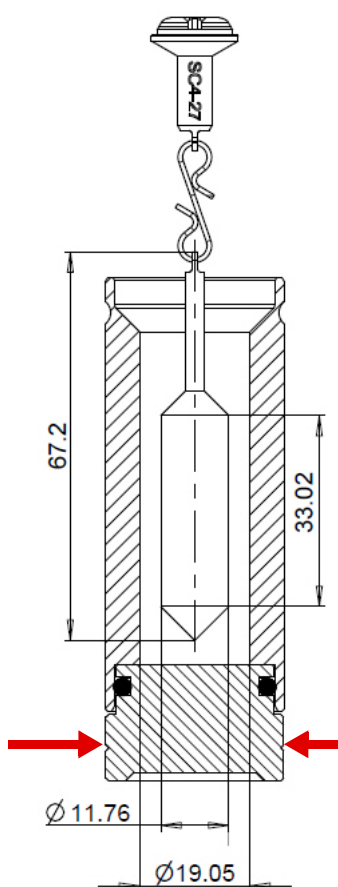
b. Shear Rate Constant

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

- 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.

**223518 Measuring System SC4-27**


Dimensions in mm

Measuring system consisting of

- 1 bob B-SC4-27 (Mat. No. **222270**, p. 75) and
- 1 cup C-CC-18/SS (Mat. No. **223515**, p. 63).

System with defined gap, but wider than specified in ISO 3219: SC4-27 does not fulfill ISO 3219. Suitable for shear rate control and data analysis using mathematical models of software package V-Curve.

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

The bob is intended for use with Measuring Cup C-CC18/SS. The cup consists of 3 parts:

- 1 wall made of stainless steel AISI 316L (1.4404)
- 1 bottom plug made of PEEK (Poly Ether Ether Ketone) black (marked by a cut in ring – see arrows)
- 1 O-ring (Mat. No. **222559**, p. 84), seals the gap between wall and bottom

**NOTE:** Click the Mat. No. of the O-ring to learn about the applicable temperature range and alternatives!

Use the system with PTD 80 (Mat. No. **220906**, p. 30), PTD 175 (Mat. No. **220907**, p. 32), or mount the system on the ViscoQC with the DIN adapter (Mat. No. **191719**, p. 56).

- Option: Cover DIN Spindles (Mat. No. **191342**, p. 83) – included in standard supply of PTD 175

Sample volume	SMC <sup>a</sup>	SRC <sup>b</sup>	YMC <sup>c</sup>	Viscosity range
10.4 mL	25.0	0.34	---	see p. 66

a. Spindle Multiplier Constant

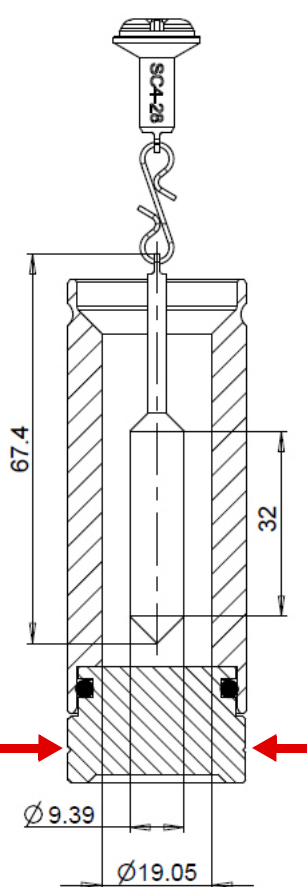
b. Shear Rate Constant

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

- 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.

**238624 Measuring System SC4-28**


Dimensions in mm

Measuring system consisting of

- 1 bob B-SC4-28 (Mat. No. **239149**, p. 75) and
- 1 cup C-CC-18/SS (Mat. No. **223515**, p. 63).

System with defined gap, but smaller than specified in ISO 3219: SC4-28 does not fulfill ISO 3219. Suitable for shear rate control and data analysis using mathematical models of software package V-Curve.

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

The bob is intended for use with Measuring Cup C-CC18/SS. The cup consists of 3 parts:

- 1 wall made of stainless steel AISI 316L (1.4404)
- 1 bottom plug made of PEEK (Poly Ether Ether Ketone) black (marked by a cut in ring – see arrows)
- 1 O-ring (Mat. No. **222559**, p. 84), seals the gap between wall and bottom

**NOTE:** Click the Mat. No. of the O-ring to learn about the applicable temperature range and alternatives!

Use the system with PTD 80 (Mat. No. **220906**, p. 30), PTD 175 (Mat. No. **220907**, p. 32), or mount the system on the ViscoQC with the DIN adapter (Mat. No. **191719**, p. 56).

- Option: Cover DIN Spindles (Mat. No. **191342**, p. 83) – included in standard supply of PTD 175

Sample volume	SMC <sup>a</sup>	SRC <sup>b</sup>	YMC <sup>c</sup>	Maximum viscosity
11 mL	50	0.28	---	see p. 66

a. Spindle Multiplier Constant

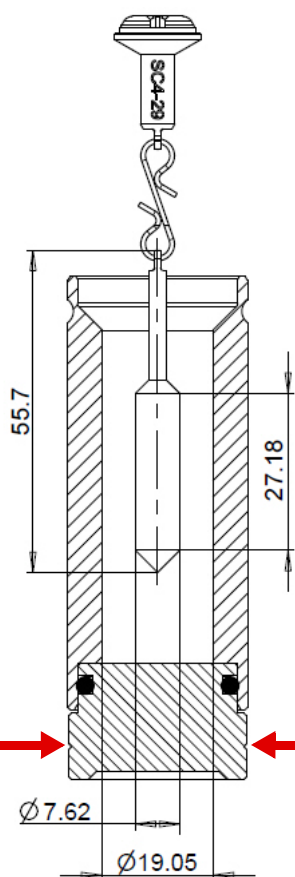
b. Shear Rate Constant

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

- 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.

**238625 Measuring System SC4-29**


Dimensions in mm

Measuring system consisting of

- 1 bob B-SC4-29 (Mat. No. **239151**, p. 75) and
- 1 cup C-CC-18/SS (Mat. No. **223515**, p. 63).

System with defined gap, but smaller than specified in ISO 3219: SC4-29 does not fulfill ISO 3219. Suitable for shear rate control and data analysis using mathematical models of software package V-Curve.

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

The bob is intended for use with Measuring Cup C-CC18/SS. The cup consists of 3 parts:

- 1 wall made of stainless steel AISI 316L (1.4404)
- 1 bottom plug made of PEEK (Poly Ether Ether Ketone) black (marked by a cut in ring – see arrows)
- 1 O-ring (Mat. No. **222559**, p. 84), seals the gap between wall and bottom

**NOTE:** Click the Mat. No. of the O-ring to learn about the applicable temperature range and alternatives!

Use the system with PTD 80 (Mat. No. **220906**, p. 30), PTD 175 (Mat. No. **220907**, p. 32), or mount the system on the ViscoQC with the DIN adapter (Mat. No. **191719**, p. 56).

- Option: Cover DIN Spindles (Mat. No. **191342**, p. 83) – included in standard supply of PTD 175

Sample volume	SMC <sup>a</sup>	SRC <sup>b</sup>	YMC <sup>c</sup>	Maximum viscosity
13.5 mL	100	0.25	---	see p. 66

a. Spindle Multiplier Constant

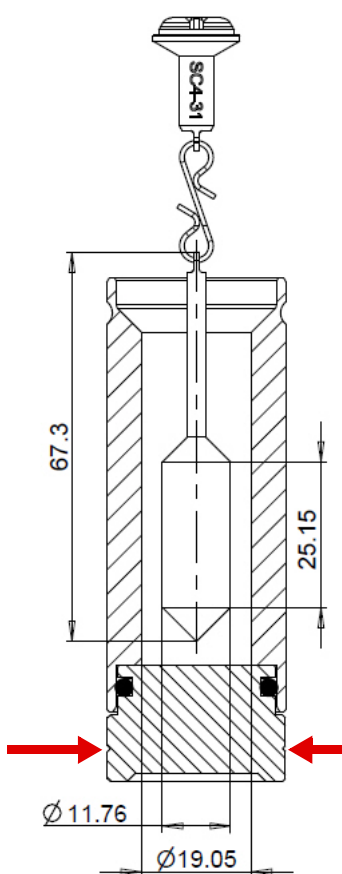
b. Shear Rate Constant

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

- 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.

**238626 Measuring System SC4-31**


Dimensions in mm

Measuring system consisting of

- 1 bob B-SC4-31 (Mat. No. **239153**, p. 75) and
- 1 cup C-CC-18/SS (Mat. No. **223515**, p. 63).

System with defined gap, but smaller than specified in ISO 3219: SC4-31 does not fulfill ISO 3219. Suitable for shear rate control and data analysis using mathematical models of software package V-Curve.

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

The bob is intended for use with Measuring Cup C-CC18/SS. The cup consists of 3 parts:

- 1 wall made of stainless steel AISI 316L (1.4404)
- 1 bottom plug made of PEEK (Poly Ether Ether Ketone) black (marked by a cut in ring – see arrows)
- 1 O-ring (Mat. No. **222559**, p. 84), seals the gap between wall and bottom

**NOTE:** Click the Mat. No. of the O-ring to learn about the applicable temperature range and alternatives!

Use the system with PTD 80 (Mat. No. **220906**, p. 30), PTD 175 (Mat. No. **220907**, p. 32), or mount the system on the ViscoQC with the DIN adapter (Mat. No. **191719**, p. 56).

- Option: Cover DIN Spindles (Mat. No. **191342**, p. 83) – included in standard supply of PTD 175

Sample volume	SMC <sup>a</sup>	SRC <sup>b</sup>	YMC <sup>c</sup>	Maximum viscosity
9 mL	32	0.34	---	see p. 66

a. Spindle Multiplier Constant

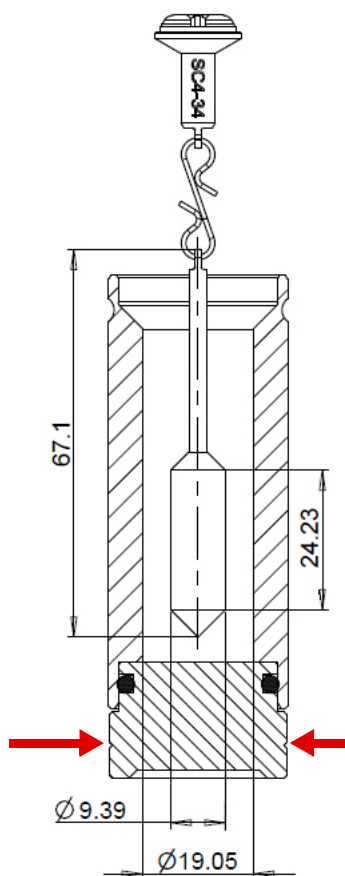
b. Shear Rate Constant

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

- 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.

**238627 Measuring System SC4-34**


Dimensions in mm

Measuring system consisting of

- 1 bob B-SC4-34 (Mat. No. **239155**, p. 76) and
- 1 cup C-CC-18/SS (Mat. No. **223515**, p. 63).

System with defined gap, but smaller than specified in ISO 3219: SC4-34 does not fulfill ISO 3219. Suitable for shear rate control and data analysis using mathematical models of software package V-Curve.

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

The bob is intended for use with Measuring Cup C-CC18/SS. The cup consists of 3 parts:

- 1 wall made of stainless steel AISI 316L (1.4404)
- 1 bottom plug made of PEEK (Poly Ether Ether Ketone) black (marked by a cut in ring – see arrows)
- 1 O-ring (Mat. No. **222559**, p. 84), seals the gap between wall and bottom.

**NOTE:** Click the Mat. No. of the O-ring to learn about the applicable temperature range and alternatives!

Use the system with PTD 80 (Mat. No. **220906**, p. 30), PTD 175 (Mat. No. **220907**, p. 32), or mount the system on the ViscoQC with the DIN adapter (Mat. No. **191719**, p. 56).

- Option: Cover DIN Spindles (Mat. No. **191342**, p. 83) – included in standard supply of PTD 175

Sample volume	SMC <sup>a</sup>	SRC <sup>b</sup>	YMC <sup>c</sup>	Maximum viscosity
9.4 mL	64	0.28	---	see p. 66

a. Spindle Multiplier Constant

b. Shear Rate Constant

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

- 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.

### Spindles (SC4xx) for Small Sample Adapter (SSA)

#### 222268 Measuring Bob B-SC4-18

Bob of Measuring System SC4-18, Mat. No. **223516**, p. 67 – see this part for a picture and details.

*TIP: This bob can also be used with measuring cup C-CC18 (Mat. No. **191721**, p. 63). The dimensions of the cup are identical to the default cup of the measuring system SC4-18.*

#### 222272 Measuring Bob B-SC4-21

Bob of Measuring System SC4-21, Mat. No. **223517**, p. 68 – see this part for a picture and details.

*TIP: This bob can also be used with measuring cup C-CC18 (Mat. No. **191721**, p. 63). The dimensions of the cup are identical to the default cup of the measuring system SC4-21.*

#### 238670 Measuring Bob B-SC4-25

Bob of Measuring System SC4-25, Mat. No. **238623**, p. 69 – see this part for a picture and details.

*TIP: This bob can also be used with disposable measuring cups D18 and the suitable holder (Mat. No. **199005**, p. 64) or with measuring cup C-CC18 (Mat. No. **191721**, p. 63). The dimensions of these cups are identical to the default cup of the measuring system SC4-21.*

#### 222270 Measuring Bob B-SC4-27

Bob of Measuring System SC4-27, Mat. No. **223518**, p. 70 – see this part for a picture and details.

*TIP: This bob can also be used with disposable measuring cups D18 and the suitable holder (Mat. No. **199005**, p. 64) or with measuring cup C-CC18 (Mat. No. **191721**, p. 63). The dimensions of these cups are identical to the default cup of the measuring system SC4-27.*

#### 239149 Measuring Bob B-SC4-28

Bob of Measuring System SC4-28, Mat. No. **238624**, p. 71 – see this part for a picture and details.

*TIP: This bob can also be used with measuring cup C-CC18 (Mat. No. **191721**, p. 63). The dimensions of the cup are identical to the default cup of the measuring system SC4-21.*

#### 239151 Measuring Bob B-SC4-29

Bob of Measuring System SC4-29, Mat. No. **238625**, p. 72 – see this part for a picture and details.

*TIP: This bob can also be used with measuring cup C-CC18 (Mat. No. **191721**, p. 63). The dimensions of the cup are identical to the default cup of the measuring system SC4-21.*

#### 239153 Measuring Bob B-SC4-31

Bob of Measuring System SC4-31, Mat. No. **238626**, p. 73 – see this part for a picture and details.

*TIP: This bob can also be used with measuring cup C-CC18 (Mat. No. **191721**, p. 63). The dimensions of the cup are identical to the default cup of the measuring system SC4-21.*

### 239155 Measuring Bob B-SC4-34

Bob of Measuring System SC4-31, Mat. No. **238626**, p. 73 – see this part for a picture and details.

**TIP:** This bob can also be used with measuring cup C-CC18 (Mat. No. **191721**, p. 63). The dimensions of the cup are identical to the default cup of the measuring system SC4-21.

### Ultra Low Viscosity Measuring System

R = recommended configuration | ✓ = possible configuration

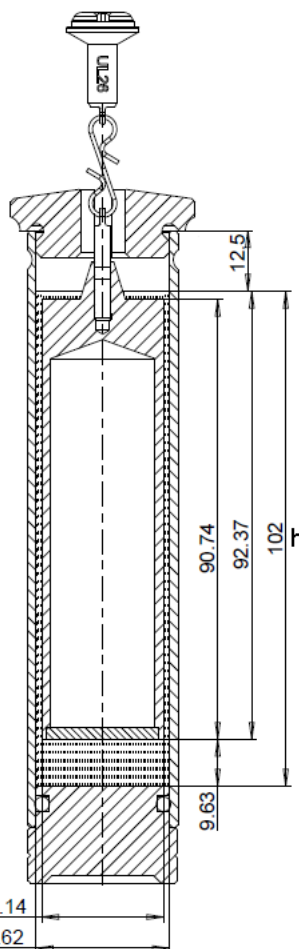
If a **bob + a cup** are available as default measuring system, the below table gives the material number.

#### Overview Ultra Low Viscosity measuring system

<b>Temperature device</b> PTD 175, Mat. No. <b>220907</b> , p. 32	R
<b>DIN adapter <sup>a</sup></b> Mat. No. <b>191719</b> , p. 56	✓
<b>Cup</b> ----- <b>Bob</b>	C-UL26, Mat. No. <b>233394</b> , p. 83
B-UL26, Mat. No. <b>231167</b> , p. 83	Mat. No. <b>237144</b> , p. 82
Cover, Mat. No. <b>191342</b> , p. 83	R

a. A temperature device and the DIN Adapter are mutually exclusive – it is recommended to use a temperature device. If not using a temperature device, the DIN Adapter is required.

### 237144 Measuring System UL26



Dimensions in mm  
h = filling height

Measuring system consisting of

- 1 bob B-UL26 (Mat. No. **231167**, p. 83) and
- 1 cup C-UL26 (Mat. No. **233394**, p. 83).

System with defined gap for measuring very low viscosities.

The bob 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 body of the bob to the magnetic coupling.

The bob is intended for use with Measuring Cup C-UL26. The cup consists of 3 parts:

- 1 wall made of anodized aluminum 3.2315 (6082)
- 1 bottom plug made of PEEK (black)
- 1 O-ring made of EPDM (Mat. No. **222559**, p. 84), seals the gap between wall and bottom.

Use the system with PTD 175 (Mat. No. **220907**, p. 32) or with the DIN adapter (Mat. No. **191719**, p. 56).

- Option: Cover DIN Spindles (Mat. No. **191342**, p. 83) – included in standard supply of PTD 175

ViscoQC Model	Sample volume mL	SMC <sup>a</sup>	SRC <sup>b</sup>	YMC <sup>c</sup>	Minimum viscosity <sup>d</sup> Pa·s	Maximum viscosity Pa·s
L	16	0.64	1.223	---	0.001	2
R	16	0.64	1.223	---	ViscoQC 100: 0.0064 ViscoQC 300: 0.003	2
H	16	0.64	1.223	---	ViscoQC 100: 0.0512 ViscoQC 300: 0.024	2

a. Spindle Multiplier Constant

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. This low-viscosity system is limited to a maximum measuring viscosity of 2000 mPa·s.

### Bob for ULV Measuring Systems

#### 231167 Measuring Bob B-UL26

Bob of Measuring System UL26, Mat. No. **237144**, p. 82 – see this part for a picture and details.

### Cup for ULV Measuring System

#### 233394 Measuring Cup C-UL26

Cup of Measuring System UL26, Mat. No. **237144**, p. 82 – see this part for a picture and details.

### Accessories/Wearing Parts for DIN/SSA/UL/ASTM Measuring Systems

#### 191342 Cover DIN Spindles



Optional cover made of PEEK (Poly Ether Ether Ketone) to cover cups of DIN/SSA and ASTM/ULV measuring systems. Included in standard supply of PTD 175.

Recommended for the following measuring systems:

- Measuring System CC12, Mat. No. **191724**, p. 57
- Measuring System CC18, Mat. No. **191725**, p. 58
- Measuring System CC26, Mat. No. **191726**, p. 59
- Disposable Measuring System CC12/D18, Mat. No. **198918**, p. 60
- Measuring System DG26, Mat. No. **191727**, p. 61
- Measuring System DG26/SS, Mat. No. **223289**, p. 62
- Measuring System 4B2 Insulated, Mat. No. **240388**, p. 78
- Measuring System L1D22, Mat. No. **238362**, p. 79
- Measuring System UL26, Mat. No. **237144**, p. 82
- Measuring System SC4-18, Mat. No. **223516**, p. 67
- Measuring System SC4-21, Mat. No. **223517**, p. 68
- Measuring System SC4-25, Mat. No. **238623**, p. 69
- Measuring System SC4-27, Mat. No. **223518**, p. 70
- Measuring System SC4-28, Mat. No. **238624**, p. 71
- Measuring System SC4-29, Mat. No. **238625**, p. 72
- Measuring System SC4-31, Mat. No. **238626**, p. 73
- Measuring System SC4-34, Mat. No. **238627**, p. 74