

# Small Sample Adapter

Rheological Evaluation Where Sample Volume is Limited

## What's Included

- Water Jacket
- Locating Channel Assembly
- Choice of one SC4 Spindle\*
- Choice of one SC4 Sample Chamber\*
- Insulating Cap
- Extension Link with Coupling Nut (for non-magnetic coupling)

\*User to specify spindle choice when ordering

## Optional Accessories

- Embedded RTD Temperature Probe in Chamber
- SC4-13RD-100 (100/box) Disposable Sample Chambers (requires special water jacket)
- SC4-27D-100 (100/box) Disposable Spindles
- SSA-DCU Special Water Jacket and SC4-13RD Disposable Chambers (100/box)
- SSA27D-13RD-100 Includes SSA-DCU items (above) plus SC4-27D Disposable Spindles (100/box)
- Temperature Bath
- Magnetic Spindle Coupling

For more info on Small Sample Adapter Accessory Kits, visit [brookfieldengineering.com](http://brookfieldengineering.com)

The Small Sample Adapter provides a defined geometry system for accurate viscosity measurements at precise shear rates. Consisting of a cylindrical sample chamber and spindle, the Small Sample Adapter is designed to measure small sample volumes of 2 to 16 mL, and easily attaches to all series Viscometers/Rheometers.



Standard Sample Chamber with embedded temperature probe provides direct temperature measurement of sample



Disposable Sample Chamber (Requires SSA-DCU Water Jacket)

# Small Sample Adapter

## Small Sample Adapter Viscosity Ranges cP(mPa•s)

SPINDLE SAMPLE CHAMBER SAMPLE VOLUME SHEAR RATE (sec-1) MODEL	SC4-18 *SC4-13R(P) 6.7mL 1.32N	SC4-31 *SC4-13R(P) 9.0mL .34N	SC4-34 *SC4-13R(P) 9.4mL .28N	SC4-16 *SC4-8R(P) 4.2mL .29N	(316 s/s only) SC4-25Z *SC4-13R(P) 16.1mL .22N	SC4-21 *SC4-13R(P) 7.1mL .93N	SC4-27(D) *SC4-13R(P) 10.4mL .34N	SC4-15 *SC4-7R(P) 3.8mL .48N	SC4-28 *SC4-13R(P) 11.0mL .28N	SC4-29 *SC4-13R(P) 13.5mL .25N	SC4-14 *SC4-6R(P) 2.1mL .40N
DV3TLV/DVNextLV	1.2-30K	12-300K	24-600K	48-1.2M	192-4.8M	It is possible to use the above spindles with any of these instruments. However, it is not recommended. Digital Viscometers/Rheometers will automatically calculate viscosity. Please contact AMETEK Brookfield or an authorized dealer if you require information on viscosity ranges.					
DV2TLV	1.5-30K	15-300K	30-600K	60-1.2M	240-4.8M						
DV1LV	3-10K	30-100K	60-200K	120-400K	800-1.6M						
DVELV	3-10K	30-100K	60-200K	120-400K	800-1.6M						
LVT	5-10K	50-100K	100-200K	200-400K	800-1.6M						
DV3TRV/DVNextRV	It is possible to use the above spindles with any of these instruments. However, it is not recommended. Digital Viscometers/Rheometers will automatically calculate viscosity. Please contact AMETEK Brookfield or an authorized dealer if you require information on viscosity ranges.					20-500K	100-2.5M	200-5M	200-5M	400-10M	500-12.5M
DV2TRV						25-500K	125-2.5M	250-5M	250-5M	500-10M	625-12.5M
DV1RV						50-170K	250-830K	500-1.7M	500-1.7M	1K-3.3M	1.25K-4.2M
DVERV						50-170K	250-830K	500-1.7M	500-1.7M	1K-3.3M	1.25K-4.2M
RVT						50-100K	250-500K	500-1M	500-1M	1K-2M	1.25K-2.5M
DV3THA/DVNextHA						40-1M	200-5M	400-10M	400-10M	800-20M	1K-25M
DV2THA						50-1M	250-5M	500-10M	500-10M	1K-20M	1.25K-25M
DV1HA						100-300K	500-1.7M	1K-3.3M	1K-3.3M	2K-6.7M	2.5K-8.3M
DVEHA						100-300K	500-1.7M	1K-3.3M	1K-3.3M	2K-6.7M	2.5K-8.3M
HAT						100-200K	500-1M	1K-2M	1K-2M	2K-4M	2.5K-5M
DV3THB/DVNextHB						160-4M	800-20M	1.6K-40M	1.6K-40M	3.2K-80M	4K-100M
DV2THB						200-4M	1K-20M	2K-40M	2K-40M	4K-80M	5K-100M
DV1HB						400-1.3M	2K-6.7M	4K-13.3M	4K-13.3M	8K-26.7M	10K-33.3M
DVEHB						400-1.3M	2K-6.7M	4K-13.3M	4K-13.3M	8K-26.7M	10K-33.3M
HBT						400-800K	2K-4M	4K-8M	4K-8M	8K-16M	10K-20M

M = 1 million K = 1 thousand N = RPM e.g. Spindle SC4-18 1.32 x 10 (rpm) = 13.2 sec-1 cP = Centipoise mPa•s = Millipascal•seconds. N/A = Not applicable for historical reasons. However, it is possible to use any spindle/chamber combination with any torque ranges. Digital viscometers/rheometers will automatically calculate viscosity.

### \* Examples

SC4-13R Sample Chamber

SC4-13RPY Sample Chamber with RTD temperature probe and cable to viscometer/rheometer

SC4-27 Stainless Steel Spindle

† Disposable chamber available in 13R size and requires SC4-45YD water jacket

SC4-13RP Sample Chamber with RTD temperature probe

SC4-13RD-100 Disposable Sample Chamber available in packages of 100

SC4-27D Disposable Spindle

Note: Hastelloy C available for some spindles/chambers.



# Small Sample Adapter

## Removable Sample Chamber

The design of the Small Sample Adapter allows the sample chamber to be easily changed and cleaned without disturbing the set-up of the viscometer or temperature bath. This means that successive measurements can be made under identical conditions.

## Temperature Control

The sample chamber fits into a water jacket so that precise temperature control can be achieved when the AMETEK Brookfield circulating temperature bath is used. The stirring action of the rotating spindle, plus the small sample volume, reduces waiting time to achieve thermal equilibrium. Direct readout of sample temperature is provided using sample chambers with optional embedded RTD sensor connected to the DV1, DVPlus, DV2T Viscometers and DVNext Rheometer. Working temperature range for the Small Sample Adapter is from 1°C to 100°C.

## Cylindrical Geometry

The Small Sample Adapter's coaxial cylinder geometry provides extremely accurate viscosity measurements at defined shear rates. Option: Solid shaft.

## Disposable Sample Chambers and SC4-27D Spindle

Disposable 13R chambers, for hard-to-clean materials, are available in a kit that comes complete with 100 chambers and special-sized water jacket (Part No. SSA-DCU). Additional disposable chambers can be purchased in quantities of 100 (Part No. SC4-13RD-100).

## Magnetic Coupling Option

Magnetic Spindle Coupling Option allows spindles to be quickly attached and removed, and prevents any damage that can occur from frequent spindle changes or multiple users.

Typical Small Sample assembly (shown on left) includes:

- Water jacket allows rapid and precise temperature control of sample
- Channel Assembly
- SC4 Spindle
- SC4 Sample Chamber is easily changed. Slides into water jacket and locks in place. RTD Temperature Probe allows simultaneous sample temperature measurement when you order embedded temperature probe in sample chamber.

Note: Optional disposable chamber also available.

