

# Small Sample Adapter™

For 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 our website at [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 standard AMETEK Brookfield Viscometers/Rheometers.



Complete system shows the DV2T Viscometer and Small Sample Adapter with Circulating Water Bath for temperature control.



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



Disposable Sample Chamber (Requires SSA-DCU Water Jacket)

Small Sample Adapter Viscosity Ranges cP(mPa•s)

| SPINDLE<br>SAMPLE CHAMBER<br>SAMPLE VOLUME<br>SHEAR RATE (sec-1)<br>MODEL | SC4-18<br>*SC4-13R(P) | SC4-31<br>*SC4-13R(P) | SC4-34<br>*SC4-13R(P) | SC4-16<br>*SC4-8R(P) | (316 s/s only)<br>SC4-25Z<br>*SC4-13R(P) | SC4-21<br>*SC4-13R(P) | SC4-27(D)<br>*SC4-13R(P) | SC4-15<br>*SC4-7R(P) | SC4-28<br>*SC4-13R(P) | SC4-29<br>*SC4-13R(P) | SC4-14<br>*SC4-6R(P) |
|---|-----------------------|-----------------------|-----------------------|----------------------|--|-----------------------|--------------------------|----------------------|-----------------------|-----------------------|----------------------|
| DV3TLV/DVNextLV   | 1.2-30K               | 12-300K               | 24-600K               | 48-1.2M              | 192-4.8M                                 |                       |                          |                      |                       |                       |                      |
| 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   |                       |                       |                       |                      |  | 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              |

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 range.

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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 range. 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. Call for details.



## 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 and 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.



- 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.