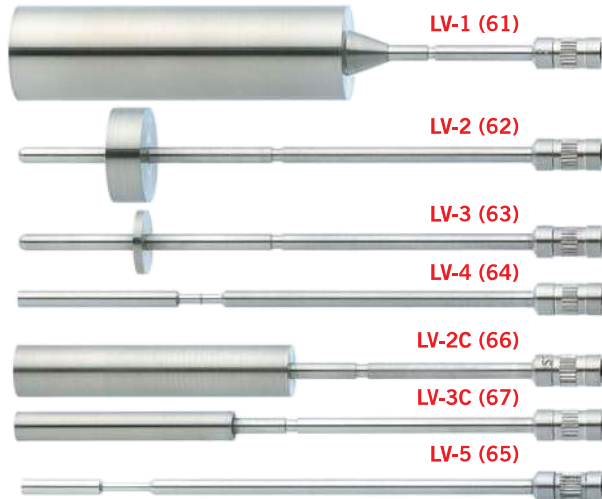


Spindles



LV Spindles cP(mPa•s)

SPINDLE	RANGE*
LV-1 (61)	15 - 20K
LV-2 (62)	50 - 100K
LV-3 (63)	200 - 400K
LV-4 (64)	1K - 2M
LV-5 (65)	2K - 4M
LV-2C	50 - 100K
LV-3C	200 - 400K

* Based on Standard LV speeds .3 - 60 rpm
 Note: LV-1 through LV-4 are optional with LV instruments.
 LV-2C & LV-3C are optional "cylindrical spindles" offering geometry for calculating shear rates.
 LV and RV/HA/HB spindles are supplied in 302 stainless steel.
 Optional 316 stainless or teflon coated spindles are available

LV-5 is an optional spindle designed to increase measuring range.

M = 1 million K = 1 thousand

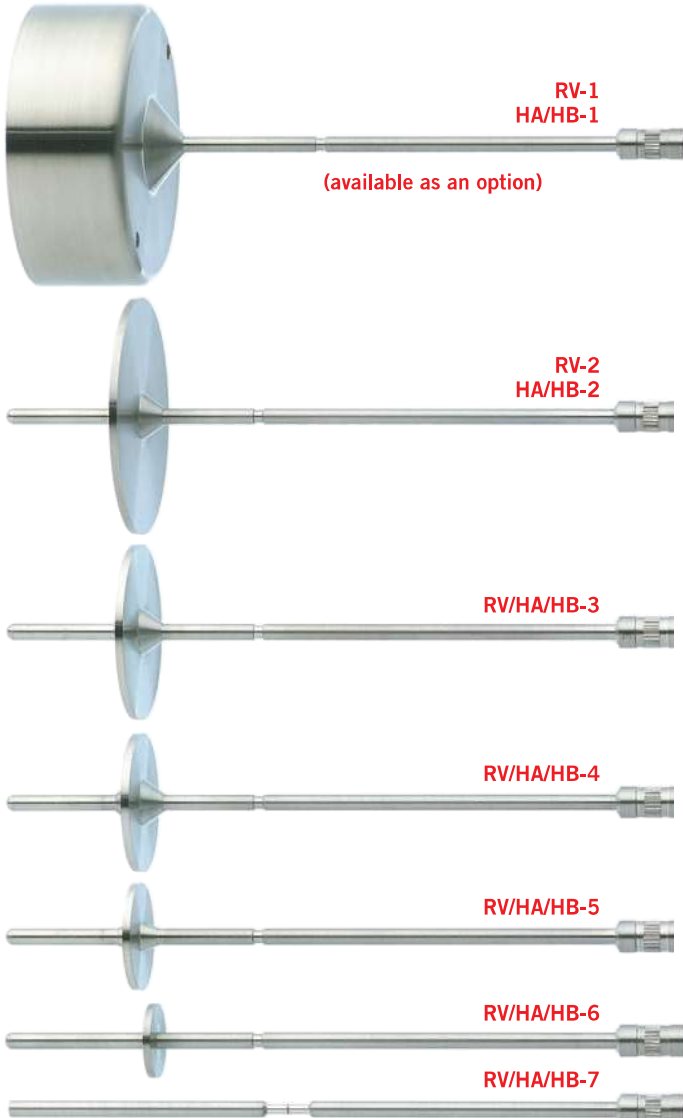
RV/HA/HB Spindles cP(mPa•s)

SPINDLE	RANGE* RV SERIES	RANGE* HA SERIES	RANGE* HB SERIES
RV-1**	100 - 20K	200 - 40K	800 - 160K
HA/HB-1**	100 - 20K	200 - 40K	800 - 160K
RV-2	100 - 80K	200 - 160K	800 - 640K
HA/HB-2	100 - 80K	200 - 160K	800 - 640K
RV/HA/HB-3	100 - 200K	200 - 400K	800 - 1.6M
RV/HA/HB-4	200 - 400K	400 - 800K	1.6K - 3.2M
RV/HA/HB-5	400 - 800K	800 - 1.6M	3.2K - 6.4M
RV/HA/HB-6	1K - 2M	2K - 4M	8K - 16M
RV/HA/HB-7	4K - 8M	8K - 16M	32K - 64M

* Based on standard RV/HA/HB speeds .5-100 RPM.
 Note: LV and RV/HA/HB spindles are supplied in 302 stainless steel.
 Optional 316 stainless or teflon coated spindles are available
 ** This spindle available as an option

M = 1 million K = 1 thousand

(available as an option)



SPINDLE RACK
SR-23Y

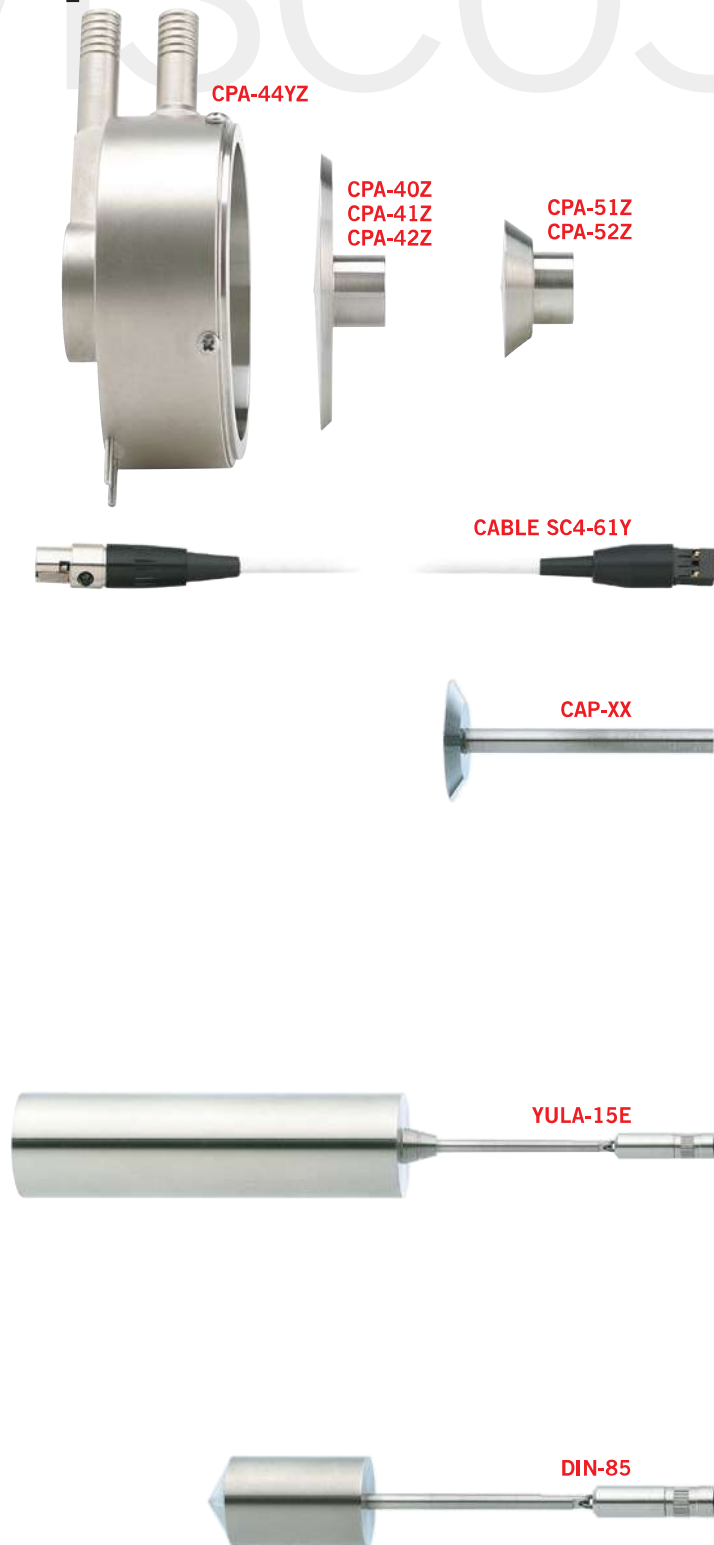
RV/HA/HB Spindle Set includes spindles #2 - #7 and is supplied with standard AMETEK Brookfield Viscometers and Rheometers.

Spindle #1 is available as an option.

Spindle Rack is also available as an option with both LV and RV/HA/HB spindle sets.

Call or visit our website for more information on spindles with EZ-Lock connectors.

Spindles



Wells/Brookfield Spindles & Cups				
SPINDLE	SHEAR RATE	SAMPLE VOLUME	CONE ANGLE	CONE RADIUS
CPA-40Z	7.50N sec ⁻¹	.5mL	.8°	2.4cm
CPA-41Z	2.00N sec ⁻¹	2.0mL	3°	2.4cm
CPA-42Z	3.84N sec ⁻¹	1.0mL	1.5°	2.4cm
CPA-51Z	3.84N sec ⁻¹	.5mL	1.5°	1.2cm
CPA-52Z	2.00N sec ⁻¹	.5mL	3°	1.2cm
CUP				
CPA-44YZ	Standard cup without temperature probe			
CPA-44PYZ	Standard cup with RTD temperature probe			
PCPA-3YZ	Cup with 1 purge fitting			
PCPA-6YZ	Cup with luer fitting and 1 purge fitting			
PCPA-4YZ	Cup with luer fitting and 2 purge fittings			
PCPA-7YZ	Cup with luer fitting and 4 purge fittings			

Note: 1. Wells-Brookfield cones and cups are calibrated at the factory.
 Cones ordered after shipment require cups to be returned for calibration to new cone.
 2. CPA cups and spindles are compatible with CPE cups and spindles
 3. See page 18 for viscosity ranges

CAP Spindles				
SPINDLE	SHEAR RATE	SAMPLE VOLUME	CONE ANGLE	CONE RADIUS
CAP-01	13.3N sec ⁻¹	67 µL	0.45°	1.511cm
CAP-02	13.3N sec ⁻¹	38 µL	0.45°	1.200cm
CAP-03	13.3N sec ⁻¹	24 µL	0.45°	0.953cm
CAP-04	3.3N sec ⁻¹	134 µL	1.8°	1.200cm
CAP-05	3.3N sec ⁻¹	67 µL	1.8°	0.953cm
CAP-06	3.3N sec ⁻¹	30 µL	1.8°	0.702cm
CAP-07	2.0N sec ⁻¹	1700 µL	3.0°	2.399cm
CAP-08	2.0N sec ⁻¹	400 µL	3.0°	1.511cm
CAP-09	2.0N sec ⁻¹	100 µL	3.0°	0.953cm
CAP-10	5.0N sec ⁻¹	170 µL	1.2°	1.511cm

Note: 1. Recommend ordering calibration fluids specific to cone for field calibration
 2. See page 21 for viscosity ranges

UL Spindles & Chambers			
SPINDLE	TYPE	SAMPLE VOLUME	SHEAR RATE
YULA-15(E)	Spindle - 304 stainless steel		1.224N
YULA-15(E)Z	Spindle - 316 stainless steel		1.224N
ULA-31(E)Y	Sample Chamber - 304 stainless steel	16mL	
ULA-31(E)YZ	Sample Chamber - 316 stainless steel	16mL	

Note: 1. See page 41 for viscosity ranges
 2. (E) represents enhanced UL version (introduced Jan. 2006) N = rpm

DIN Spindles		
SPINDLE	SHEAR RATE	SAMPLE VOLUME
ULA-DIN-85	1.29N	17.0mL
ULA-DIN-86	1.29N	6.5mL
ULA-DIN-87	1.29N	2.0mL
HT-DIN-81 for Thermosel	1.29N	7.0mL
SC4-DIN-82 for SSA	1.29N	1.5mL
SC4-DIN-83 for SSA	1.29N	1.5mL
CHAMBER		
ULA-DIN-6Y	for use with ULA-DIN-86 and 87	
DAA-1	for use with ULA-DIN-85	



CCT-XX



RCT-XX-X



VT-80-40



RSS-90Y (1-4000BU)



SC4-XXBS SOLID SHAFT*



SC4-XX LINK HANGING



CHAMBER RACK HT-54



HT-2



HT-2DB-100

RST Spindles

SPINDLE	VISCOSITY RANGE	SHEAR RATE	MAX. SHEAR STRESS	SAMPLE VOLUME
COAXIAL	Pa*s	sec ⁻¹	Pa	mL
CCT-DG	0.00005-4.07K	0.043-5.64K	177	15.7
CCT-40	0.0003-27.6K	0.0215-2.79K	594	68.5
CCT-25	0.002-177K	0.013-1.67K	2.28K	16.8
CCT-14	0.012-1M	0.013-1.68K	13K	3.4
CCT-8	0.065-5.41M	0.013-1.672K	69.6K	1.0
CONE				
RCT-25-1	0.005-407K	0.06-7.8K	24.4K	0.1
RCT-25-2	0.01-814K	0.03-3.9K	24.4K	0.2
RCT-50-1	0.0006-50.9K	0.06-7.8K	3.05K	1.0
RCT-50-2	0.0012-101K	0.03-3.9K	3.05K	2.0
RCT-75-1*	0.0002-15K	0.06-7.8K	905	2.5
RCT-75-2*	0.0004-30K	0.03-3.9K	905	5.0
PLATE				
RPT-25	0.03-2.49M	0.013-1.7K	32.6K	0.5
RPT-50	0.002-155K	0.027-3.4K	4.07K	2.0
RPT-75*	0.0004-30.7K	0.04-5.1K	1.2K	4.5

*For use with water bath version only
 Note: Values based on minimum speed of 1 RPM and maximum speed of 1000 RPM
 1 Pa*s = 1,000 cP K = 1 thousand M = 1 million

RST Vane Spindles

SPINDLE	VANE LENGTH	VANE DIAMETER	SHEAR STRESS
	mm	mm	Pa
VT-10-5	10	5	330-210K
VT-20-10	20	10	41-27K
VT-20-20	20	20	9-5.9K
VT-30-15	30	15	12-8K
VT-40-20	40	20	5.2-3.4K
VT-40-40	40	40	1.2-740
VT-50-25	50	25	2.7-1.7K
VT-60-8	60	8	24-15K
VT-60-15	60	15	7-4.3K
VT-60-30	60	30	1.6-1K
VT-80-40	80	40	0.7-420
VT-80-70	80	70	0.2-120

Values based on minimum speed of 1 RPM and maximum speed of 1000 RPM K = 1 thousand

Thermosel Spindles and Chambers

Link hanging configuration is standard

SPINDLE	SHEAR RATE	SAMPLE VOLUME
SC4-18	1.32N	8.0mL
SC4-31	.34N	10.0mL
SC4-34	.28N	9.5mL
SC4-21	.93N	8.0mL
SC4-27**	.34N	10.5mL
SC4-28	.28N	11.5mL
SC4-29	.25N	13.0mL
HT-DIN-81	1.29N	7.0mL

*SC4-XXBS = Solid Shaft. Not available for SC4-18 and SC4-21 spindles
 **Also available as SC4-27D-100 = Disposable spindle, 100 units • SC4-DSY Chuck/Closer is required

CHAMBER	TYPE
HT-2	Sample Chamber - Reuseable, stainless steel
HT-2DB-100	Sample Chamber - Disposable, aluminum, 100 units

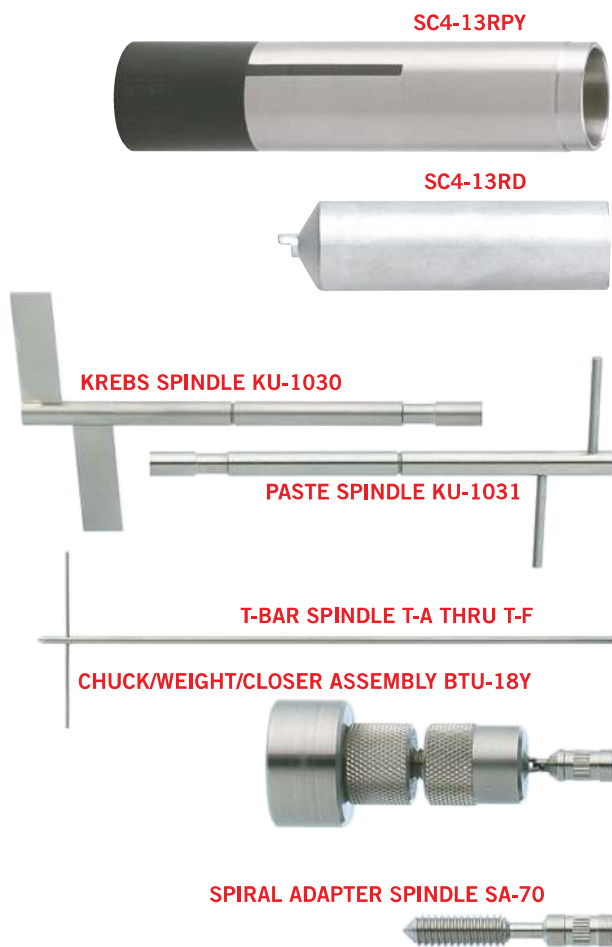
Note: See page 37 for spindle ranges

Call or visit our website for more information on spindles with EZ-Lock connectors.

Spindles



Required for SC4-27D disposable spindles: **SC4-DSY CHUCK/CLOSER**



Small Sample Spindles and Chambers

SPINDLE	SAMPLE CHAMBER	SHEAR RATE	SAMPLE VOLUME
SC4-18	13R	1.32N	6.7 mL
SC4-31	13R	0.34N	9.0 mL
SC4-34	13R	0.28N	9.4 mL
SC4-16	8R	0.29N	4.2 mL
SC4-25Z (316 s/s only)	13R	0.22N	16.1 mL
SC4-21†	13R	0.93N	7.1 mL
SC4-27*†	13R	0.34N	10.4 mL
SC4-15	7R	0.48N	3.8 mL
SC4-28	13R	0.28N	11.0 mL
SC4-29	13R	0.25N	13.5 mL
SC4-14	6R	0.40N	2.1 mL
SC4-DIN-82	13R	1.29N	1.5 mL
SC4-DIN-83	7R	1.29N	1.5 mL

CHAMBER	TYPE
SC4-13R	Sample Chamber w/o temperature probe
SC4-13RPY	Sample Chamber w/RTD temperature probe & cable
SC4-8R	Sample Chamber w/o temperature probe
SC4-8RPY	Sample Chamber w/RTD temperature probe & cable
SC4-7R	Sample Chamber w/o temperature probe
SC4-7RPY	Sample Chamber w/RTD temperature probe & cable
SC4-6R	Sample Chamber w/o temperature probe
SC4-6RPY	Sample Chamber w/RTD temperature probe & cable
SC4-13RD-100‡	Sample Chamber - Disposable, aluminum, 100 units

Note: See page 39 for spindle/chamber ranges ‡ Requires the use of special water jacket SC4-45YD
 * Also available as SC4-27D-100 = Disposable spindle, 100 units
 † Solid shaft option available for spindles SC4-21 (Part No. SC4-21SD) and SC4-27 (Part No. SC4-27SD).

KU-3 Spindles

SPINDLE	TYPE
KU-1030	Standard Krebs Spindle
KU-1031	Optional Paste Spindle

T-Bar Spindles cP(mPa•s)

SPINDLE	LV	RV	HA	HB
T-A	156 - 62.5K	2K - 400K	4K - 800K	16K - 3.2M
T-B	312 - 124.8K	4K - 800K	8K - 6M	24K - 6.4M
T-C	780 - 312K	10K - 2M	20K - 4M	80K - 16M
T-D	1.5K - 624K	20K - 4M	40K - 8M	160K - 32M
T-E	3.9K - 1.5M	50K - 10M	100K - 20M	400K - 80M
T-F	7.8K - 3.1M	100K - 20M	200K - 40M	800K - 160M

M = 1 million K = 1 thousand

Spiral Adapter Spindle

SPINDLE	CHAMBER
SA-70	SA-1Y

Note: See page 44 for ranges

Vane Spindles

SPINDLE	VANE LENGTH (in)	VANE DIAMETER (in)
V-71	2.708	1.354
V-72	1.706	.853
V-73	.998	.499
V-74	.463	.232
V-75	.632	.316

Note: Container diameter should be twice (2x) the vane diameter when possible. See page 43 for ranges.

Options & Specialty Items



MV1Y

MV1Y Flag Impeller Spindle

Use with the Small Sample Adapter to help keep sample materials in suspension



4B2

4B2 Spindle

Required for viscosity testing in accordance with ASTM D2983 (Low Temperature Viscosity Measurement of Automotive Fluid Lubricants)



ABZ

ABZ Spindle

Used for viscosity testing of thick film pastes. Short spindle length is suitable for immersion into shallow depth containers. Sensing length of spindle is less than 1-inch (2.54cm).

ABZ Spindle

RV	HA	HB
8K-16M	16K-32M	64K-138M

Custom Spindles

Custom spindles can be developed to meet your particular test requirements. Contact AMETEK Brookfield or an authorized dealer for details.



SP1-UC-Y

YDX-1

Type D Extension Link with Hook Coupling

YDX-1	Male coupling nut; attaches to spindle
SP1-UC-Y	Female coupling nut; attaches to viscometer
SXV-XX	Extension link; see below for lengths



SXL-X

SXR-X

SP1-UC-Y

Type S Spindle with one SP1-UC-Y coupling

SPINDLE	
SXL-X	Type S LV spindle (1-4)
SXR-X	Type S RV/HA/HB spindle (1-7)



EXTENSION LINK SXV-XX

Extension

LINK	LENGTH	USED WITH
SXV-08	1"	UL Adapter
SXV-09	1.12"	Small Sample Adapter
SXV-24	3"	Thermosel
SXV-32	4"	Type D/S Extension
SXV-48	6"	Type D/S Extension
SXV-80	10"	Type D/S Extension
SXV-96	12"	Type D/S Extension

Note: Other lengths available; call for details



SP-7Y QUICK CONNECT COUPLING

SP-4

SP-3

SP-5

Quick Connect Coupling (SP-7Y)

PART	
SP-3	Coupling to viscometer/rheometer
SP-4	Coupling to spindle
SP-5	Sleeve (to hold together)

Call or visit our website for more information on spindles with EZ-Lock connectors.

Options & Specialty Items

Model A Lab Stand: Dial, DV-E

Model G Lab Stand: DV3T, DV2T, DV1

All standard viscometers are supplied with either a Model A or Model G Laboratory Stand. These traditional stands move the viscometer up and down by turning the knob on the 14 inch rod* and clamp assembly. The clamp itself has been newly redesigned to allow for an easier, more ergonomic grip.

*Lab Stands with 18 inch rod assemblies are also available for testing with baths. Part Numbers for 18" stands: Model A 18, Model G 18



MODEL A
LAB STAND



MODEL G
LAB STAND

Quick Action Lab Stand:

Optional purchase for Dial, DV-E, DV1, DV2T, DV3T



MODEL QB LAB STAND

Taking measurements has never been so fast or easy! With the push of a button, the instrument moves up and down the lab stand, quicker and easier than ever before. The Quick Action Lab Stand is perfect for busy lab environments, especially those with multiple operators or multiple samples. This stand is available as an option for new Dial, DV-E, and DV1 Viscometers and is also compatible with existing models.

EZ-Lock Spindle Coupling System



Quickly and more safely change spindles with this spring-loaded spindle coupling attachment. Attach the EZ-Lock Spindle Coupling to a spindle and insert the spindle into the chuck. That's it! Changing spindles has never been quicker or easier... making this the perfect option for busy labs with multiple samples to test. EZ-Lock can be purchased as an option for new DV1 and DV2T Viscometers as well as the DV3T Rheometer. It can also be retrofitted to your existing DV-I and DV-II series Viscometer as well as any of your DV-III series Rheometers.

EZ-Lock is also available for use with your favorite AMETEK Brookfield accessories such as the Thermosel and Helipath Stand as well as the following adapters: Small Sample Adapter, UL Adapter, Enhanced UL Adapter and DIN Adapter.*

* Special brackets may be required to accommodate the length of the EZ-Lock system; requirement can be determined at time of ordering.

Ball Bearing Option

If your viscometer or rheometer is used by multiple operators or in a busy lab environment, a more durable ball bearing suspension system may help keep your instrument in calibration longer with less "down time". This option can be ordered at the time of purchase and a retrofit to existing instruments may be available. Consult AMETEK Brookfield or your local AMETEK Brookfield representative for details.**

** This option is for the torque ranges of RV, HA, and HB only - it is not available for instruments in the LV torque range.