

The Model DW-3 Calibration Kit is provided for checking the calibration of the FANN® Model 34 and Model 35 series direct reading viscometer. The device simulates the Shear Stress torque normally transmitted by the Bob and read on the dial. It functions by applying known torques to the bob shaft. For any applied torque, within the torque range of the spring, there is a specific dial reading. This dial reading is allowed a small tolerance. Loss of calibration in service can occur if the bob shaft bearings become contaminated, the bob shaft becomes bent, or the torsion spring has been mis-adjusted or become defective. Periodic calibration checks are advisable.

PROCEDURE

1. With the viscometer resting on a level surface the dial should read zero. When the rotor is turning, the dial should still read zero (movement of $\pm \frac{1}{2}^{\circ}$ is acceptable). If the dial does not read zero, or if there is excessive dial movement when the rotor is turning, the bob shaft bearings are probably contaminated, and should be replaced. This defect should be corrected before continuing with this calibration test.
2. Remove the rotor and the bob. The Rotor is removed by turning it slightly in the direction of negative dial readings while holding the Main Shaft, then pulling downward of it. The bob can be removed by rotating it in the direction of negative dial readings, while pulling downward on it.
3. Be sure that the tapered end of the bob shaft is clean, then install the calibrating spool which is provided in the kit. Install it by pressing upward and rotating it in the direction of negative dial readings until tight.
4. Install the calibrating fixture by clamping it to the upper portion of the viscometer support legs.
5. Each of the calibrating weights has a thread attached and there is a bead at the end of the thread. Select a weight according to the enclosed table. Insert the bead in to the recess in the top of the calibrating spool. Wrap the thread between 1 and 2 turns around the spool and then drape the thread over the pulley. Be careful that the turns of the thread around the spool do not overlap.
6. Adjust the calibrating fixture up or down until the thread from the spool to the pulley is horizontal.
7. Compare dial readings from at least three different weights with those on the enclosed table.

A Viscometer indicating a non-linear spring (some readings too high and some too low) is an indication that the bob shaft is bent. An instrument with these characteristics requires additional service and/or repair.

Also refer to Step 1 above concerning defective Bob Shaft Bearings.

If the spring seems linear, but all values are either high or low, the spring can be adjusted using the adjusting tool supplied in the kit. Refer to Section 5-C in the Model 34 or Model 35 Manual.

DEFLECTION (Degrees) WITH VARIOUS CALIBRATION WEIGHTS FOR TORSION SPRING ASSEMBLIES

TORSION SPRING ASSEMBLY	TORSION SPRING CONSTANT, K ₁ ? NEWTON-CM/DEGREE DEFLECTION	WEIGHT IN GRAMS				
		<u>10</u>	<u>20</u>	<u>50</u>	<u>100</u>	<u>200</u>
F-0.2	.000772	127.0	254.0	-	-	-
F-0.5	.00193	50.8	101.6	254.0	-	-
F-1*	.00386	25.4	50.8	127.0*	254.0*	-
F-2	.00772	-	25.4	63.5	127.0	254.0
F-3	.01158	-	-	43.0	84.7	169.4
F-4	.01544	-	-	-	63.5	127.0
F-5	.01930	-	-	-	50.8	101.6
F-10	.03860	-	-	-	-	50.8

* New Fann Viscometer as supplied are equipped with F-1 springs. Factory tolerances for new instruments equipped with the F-1 spring are $127 \pm 1/2$? for 50 Gram weight and $254 \pm 1/2$? for 100 Gram weight.

? For the formula for Calculating Torsion Spring Constants. Refer to the viscometer instruction manual.

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