

# Low-Temperature Torque of Lubricating Grease

## Low-Temperature Torque of Ball Bearing Grease

## Low-Temperature Torque of Grease-Lubricated Wheel Bearings

### test method

Significant for the design and specification of greases for low temperature service, the low temperature torque test measures the extent to which a grease sample retards rotation of a bearing assembly at the test temperature.

### low temperature torque apparatus

- Digital torque indication for two samples
- Choice of test rig combinations
- Mechanically refrigerated, with standard  $-65^{\circ}\text{F}$  ( $-54^{\circ}\text{C}$ ) operating range
- Optional cooling range to  $-100^{\circ}\text{F}$  ( $-73^{\circ}\text{C}$ )
- Conforms to ASTM D1478, D4693 and D4950 specifications
- Data acquisition software available

Refrigerated two unit apparatus for ASTM low temperature torque tests on lubricating greases. Includes an insulated, thermostatically controlled air chamber with test rigs, drive shafts and externally mounted gear motors. Rotates drive shafts at 1rpm while electronic load cell-strain gauge indicators measure the torque required to restrain the test rigs. Digital LED displays indicate torque for each drive unit and cold chamber temperature. On ASTM D4693 models, spindle temperature is also indicated for each drive unit. Includes drive shaft overtorque protection—when drive shaft torque exceeds a preset value, the drive motors automatically shut down to prevent breakage of shaft insulators. Standard cooling range of  $-65^{\circ}\text{F}$  ( $-54^{\circ}\text{C}$ ) meets ASTM requirements for D1478 and D4693 test methods. Optional  $-100^{\circ}\text{F}$  ( $-73^{\circ}\text{C}$ ) range is available for special testing requirements.

**ASTM D1478 Model for Ball Bearing Greases** – Equipped with two test cages and two 6204 ball bearings per ASTM D1478 specifications.

**ASTM D4693 Model for Automotive Wheel Bearing Greases**– Equipped with two spring loaded spindle-bearings-hub assemblies, bearing packer assembly and bearing installation and removal tools.

**Combined ASTM D1478-D4693 Model** – Equipped with one test cage and one 6204 ball bearing for ASTM D1478 testing and one spindle-bearings-hub assembly with bearing packer and tools for ASTM D4693 testing.

**Data acquisition software** – Data acquisition software facilitates running both ASTM D1478 and D4693 tests. Graph of torque versus time details starting torque, running torque and time elapsed. Includes software, data acquisition board and cable.



K18860 Low Temperature Torque Apparatus

### specifications

Conforms to the specifications of:

ASTM D1478, D4693, D4950; FTM 791-334

Cooling Range: **Standard:**  $-65^{\circ}\text{F}$  ( $-54^{\circ}\text{C}$ )

**Optional:**  $-100^{\circ}\text{F}$  ( $-73^{\circ}\text{C}$ )

Temperature Uniformity:  $\pm 1^{\circ}\text{F}$  ( $\pm 0.5^{\circ}\text{C}$ )

Refrigeration: air cooled mechanical cascade hermetic system

Cabinet: floor-mount, polished stainless steel exterior, rides on swivel casters

**Dimensions** lwxh,in.(cm)

48.5x34x45.5 (123x86x116)

Net Weight: 600 lbs (272.2kg)

**Shipping Information**

Shipping Weight: 697 lbs (316.1kg) Dimensions: 6.4 Cu. ft.

### ordering information

catalog no.	test method	cooling range	electrical requirement
K18852	ASTM D1478	$-65^{\circ}\text{F}$ ( $-54^{\circ}\text{C}$ )	220-240V 50Hz
K18862	ASTM D1478	$-65^{\circ}\text{F}$ ( $-54^{\circ}\text{C}$ )	220-240V 60Hz
K18853	ASTM D1478	$-100^{\circ}\text{F}$ ( $-73^{\circ}\text{C}$ )	220-240V 50Hz
K18863	ASTM D1478	$-100^{\circ}\text{F}$ ( $-73^{\circ}\text{C}$ )	220-240V 60Hz
K18850	ASTM D4693	$-65^{\circ}\text{F}$ ( $-54^{\circ}\text{C}$ )	220-240V 50Hz
K18860	ASTM D4693	$-65^{\circ}\text{F}$ ( $-54^{\circ}\text{C}$ )	220-240V 60Hz
K18851	ASTM D4693	$-100^{\circ}\text{F}$ ( $-73^{\circ}\text{C}$ )	220-240V 50Hz
K18861	ASTM D4693	$-100^{\circ}\text{F}$ ( $-73^{\circ}\text{C}$ )	220-240V 60Hz
K18854	Combined ASTM D1478-D4693	$-65^{\circ}\text{F}$ ( $-54^{\circ}\text{C}$ )	220-240V 50Hz
K18864	Combined ASTM D1478-D4693	$-65^{\circ}\text{F}$ ( $-54^{\circ}\text{C}$ )	220-240V 60Hz
K18855	Combined ASTM D1478-D4693	$-100^{\circ}\text{F}$ ( $-73^{\circ}\text{C}$ )	220-240V 50Hz
K18865	Combined ASTM D1478-D4693	$-100^{\circ}\text{F}$ ( $-73^{\circ}\text{C}$ )	220-240V 60Hz

### accessories

K18871	Data Acquisition Package.	1
289-001-006	Test Bearing, 6204, for ASTM D1478	1
308-230-009	Chart Recorder, 115V/230V	1
K18860-0-24	Inboard Test Bearing, for ASTM D4693, LM-67010-LM-67048 tapered roller bearing	1
K18860-0-16	Outboard Test Bearing for ASTM D4693, LM-11910-LM-11949 tapered roller bearing	1