

Insulation Resistance Readings

TABLE 33 Normal Ohm and Megohm Values Between All Leads and Ground

Condition of Motor and Leads	Ohms Value	MEGOHM Value
A new motor (without drop cable).	200,000,000 (or more)	200 (or more)
A used motor which can be reinstalled in well.	10,000,000 (or more)	10 (or more)
Motor in well. Readings are for drop cable plus motor.		
New motor	2,000,000 (or more)	2.0 (or more)
Motor in good condition.	1,000,000 - 2,000,000	1.0
Insulation damage, locate and repair	Less than 1,000,000	Less than 1.0

Insulation resistance varies very little with rating. Motors of all HP, voltage, and phase rating have similar values of insulation resistance. Table 33 is based on readings taken with a megohm meter with a 500VDC output. Readings may vary using a lower voltage ohmmeter, consult Franklin Electric if readings are in question.

Resistance of Drop Cable (Ohms)

The values below are for copper conductors. If aluminum conductor drop cable is used, the resistance will be higher. To determine the actual resistance of the aluminum drop cable, divide the ohm readings from this chart by 0.61. This chart shows total resistance of cable from control to motor and back.

Winding Resistance Measuring

The winding resistance measured at the motor should fall within the values in tables 13, 16, & 17. When measured through the drop cable, the resistance of the drop cable must be subtracted from the ohmmeter readings to get the winding resistance of the motor. See table below.

Drop Cable Resistance

DC Resistance in Ohms per 100 meters of wire (two conductors) @ 10°C

Square millimeter (Copper)	1.5	2.5	4	6	10	16		
Ohms	2.630	1.576	0.977	0.651	0.374	0.238		
25	35	50	70	95	120	150	185	240
0.153	0.108	0.075	0.053	0.040	0.031	0.025	0.021	0.016