NOMINAL FULL LOAD EFFICIENCIES

Nominal Full Load Efficiencies of Premium Efficient 60Hz </=600V Motors

Open Motors				
HP	2 Pole	4 Pole	6 Pole	8 Pole
1	77.0	85.5	82.5	75.5
1.5	84.0	86.5	86.5	77.0
2	85.5	86.5	87.5	86.5
3	85.5	89.5	88.5	87.5
5	86.5	89.5	89.5	88.5
7.5	88.5	91.0	90.2	89.5
10	89.5	91.7	91.7	90.2
15	90.2	93.0	91.7	90.2
20	91.0	93.0	92.4	91.0
25	91.7	93.6	93.0	91.0
30	91.7	94.1	93.6	91.7
40	92.4	94.1	94.1	91.7
50	93.0	94.5	94.1	92.4
60	93.6	95.0	94.5	93.0
75	93.6	95.0	94.5	94.1
100	93.6	95.4	95.0	94.1
125	94.1	95.4	95.0	94.1
150	94.1	95.8	95.4	94.1
200	95.0	95.8	95.4	94.1
250	95.0	95.8	95.8	95.0
300	95.4	95.8	95.8	-
350	95.4	95.8	95.8	-
400	95.8	95.8	-	-
450	96.2	96.2	-	-
500	96.2	96.2	-	-

Enclosed Motors				
HP	2 Pole	4 Pole	6 Pole	8 Pole
1	77.0	85.5	82.5	75.5
1.5	84.0	86.5	87.5	78.5
2	85.5	86.5	88.5	84.0
3	86.5	89.5	89.5	85.5
5	88.5	89.5	89.5	86.5
7.5	89.5	91.7	91.0	86.5
10	90.2	91.7	91.0	89.5
15	91.0	92.4	91.7	89.5
20	91.0	93.0	91.7	90.2
25	91.7	93.6	93.0	90.2
30	91.7	93.6	93.0	91.7
40	92.4	94.1	94.1	91.7
50	93.0	94.5	94.1	92.4
60	93.6	95.0	94.5	92.4
75	93.6	95.4	94.5	93.6
100	94.1	95.4	95.0	93.6
125	95.0	95.4	95.0	94.1
150	95.0	95.8	95.8	94.1
200	95.4	96.2	95.8	94.5
250	95.8	96.2	95.8	95.0
300	95.8	96.2	95.8	-
350	95.8	96.2	95.8	-
400	95.8	96.2	-	-
450	95.8	96.2	-	-
500	95.8	96.2	-	-

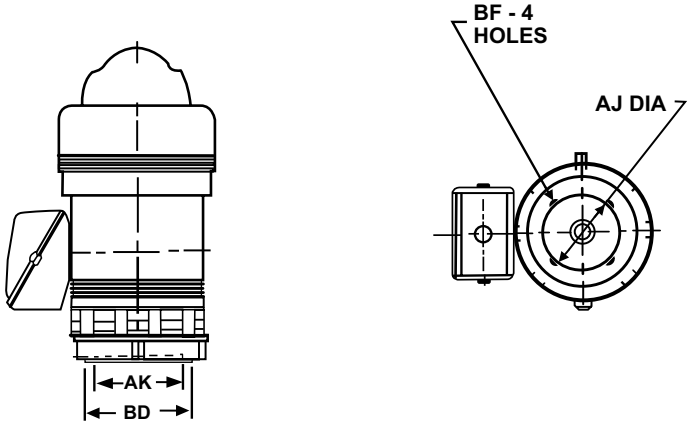
NOMINAL FULL LOAD EFFICIENCIES

Nominal Full Load Efficiencies of Energy Efficient 60Hz </=600V Motors

Open Motors				
HP	2 Pole	4 Pole	6 Pole	8 Pole
1	-	82.5	80.0	74.0
1.5	82.5	84.0	84.0	75.5
2	84.0	84.0	85.5	85.5
3	84.0	86.5	86.5	86.5
5	85.5	87.5	87.5	87.5
7.5	87.5	88.5	88.5	88.5
10	88.5	89.5	90.2	89.5
15	89.5	91.0	90.2	89.5
20	90.2	91.0	91.0	90.2
25	91.0	91.7	91.7	90.2
30	91.0	92.4	92.4	91.0
40	91.7	93.0	93.0	91.0
50	92.4	93.0	93.0	91.7
60	93.0	93.6	93.6	92.4
75	93.0	94.1	93.6	93.6
100	93.0	94.1	94.1	93.6
125	93.6	94.5	94.1	93.6
150	93.6	95.0	94.5	93.6
200	94.5	95.0	94.5	93.6
250	94.5	95.4	95.4	94.5
300	95.0	95.4	95.4	-
350	95.0	95.4	95.4	-
400	95.4	95.4	-	-
450	95.8	95.8	-	-
500	95.8	95.8	-	-

Enclosed Motors				
HP	2 Pole	4 Pole	6 Pole	8 Pole
1	75.5	82.5	80.0	74.0
1.5	82.5	84.0	85.5	77.0
2	84.0	84.0	86.5	82.5
3	85.5	87.5	87.5	84.0
5	87.5	87.5	87.5	85.5
7.5	88.5	89.5	89.5	85.5
10	89.5	89.5	89.5	88.5
15	90.2	91.0	90.2	88.5
20	90.2	91.0	90.2	89.5
25	91.0	92.4	91.7	89.5
30	91.0	92.4	91.7	91.0
40	91.7	93.0	93.0	91.0
50	92.4	93.0	93.0	91.7
60	93.0	93.6	93.6	91.7
75	93.0	94.1	93.6	93.0
100	93.6	94.5	94.1	93.0
125	94.5	94.5	94.1	93.6
150	94.5	95.0	95.0	93.6
200	95.0	95.0	95.0	94.1
250	95.4	95.0	95.0	94.5
300	95.4	95.4	95.0	-
350	95.4	95.4	95.0	-
400	95.4	95.4	-	-
450	95.4	95.4	-	-
500	95.4	95.8	-	-

A. BASE DIAMETER DIMENSIONS AND FRAME SUFFIX NOMENCLATURE



"BD" BASE DIAMETER	"AK" RABBET DIAMETER	"AJ" BOLT CIRCLE	"BF" BOLT HOLE	QTY "BF" HOLES
10.0	8.25	9.125	.438	4
12.0	8.25	9.125	.438	4
16.5	13.50	14.75	.688	4
20.0	13.50	14.75	.688	4
24.5	13.50	14.75	.688	4
24.5	13.50	22.00	.938	4(1)
30.5	22.00	26.00	.813	4
36	26.00	32.00	1.00	4/8*(2)
42	33.75	39.00	1.125	8
SPECIAL				

NOTES:

(1) Alternate on 5800 frame TEFC only
(2) 8 holes on 5813 VPA and 6800 PA
(3) TP frame suffix is high-thrust HOLLOSHAFT®
(4) VP frame suffix is high-thrust solid shaft
(5) LP frame suffix is medium-thrust solid shaft (In-line)
(6) HP frame suffix is normal-thrust solid shaft
(7) P, PH, PA Titan solid or HOLLOSHAFT®

QUICK ENGINEERING FACTS

WP-I & WP-II

FRAME SIZE	STD. (BD) BASE DIA.INCHES	ALTER BD'S INCHES	MAX "BX" CPLG BORE	CD DIM. CPLG HEIGHT	TYPICAL SHIPPING WEIGHT IN LBS.		STEADY BUSHING KIT
					WP-I	WP-II	
SINGLE PHASE MOTOR PRODUCT ONLY						NOT AVAILABLE	AVAILABLE.
213P	10	---	1.001	17.56	162		
215P	10	---	1.001	17.56	186		
254P	10	12	1.001	23.38	250		
256P	10	12	1.001	23.38	275		
THREE PHASE MOTOR PRODUCT ONLY							
213TP	10	---	1.00	17.56	210		
215TP	10	---	1.00	17.56	210		
254TP	10	12/16.5**	1.25	23.38	320		
256TP	10	12/16.5**	1.25	23.38*	330		
284TP	10	12/16.5	1.25	24.75	370		
286TP	10	12/16.5	1.25	24.75	380		LOWER BEARING IS GREASE LUBE ON OPEN MOTORS AS STD. THROUGH THE WP1 447TP FRAME.
324TP	16.5	12	1.501	28.22	635		
326TP	16.5	12	1.501	28.22	675		
364TP	16.5	12	1.501	31.16	730		
365TP	16.5	12	1.501	31.16	750		
404TP	16.5	20	1.688	36.94	1200	USE TEFC PRODUCT WHEN WP-II IS SPECIFIED	
405TP	16.5	20	1.688	36.94	1220		
444TP	16.5	20	2.251	44.78	1700		
445TP	16.5	20	2.251	44.78	1800		
447TP	20/16.5	24.5	2.251	49.78	2300		
449TP	24.5	20/30.5	2.251	49.78	3150	3650	
5008P	24.5	20/30.5	2.501	57.06	4050	4400	NOT AVAILABLE AS KITS. THESE FRAME SIZES HAVE OIL LUBE LOWER GUIDE BEARINGS AVAILABLE AS A MANUFACTURED PRODUCT ONLY
5012P	24.5	20/30.5	2.751	72.30	5450	5900	
5813P	30.5	36	3.875	93.13	10200	10700	
6808P	30.5	36	3.875	80.06	8000	9150	
6810P	30.5	36	3.875	91.06	9350	10350	
6813P	30.5	36/42	3.875	111.66	19400	20500	
8005P	42	36	3.875	80.562	9400	10900	
8006P	42	36	3.875	84.562	11000	11900	
8007P	42	36	3.875	88.562	10600	12500	
8008P	42	36	3.875	92.562	12200	13000	
8009P	42	36	3.875	96.562	13300	14100	
8010P	42	36	3.875	100.562	14200	15100	
8011P	42	36	3.875	104.562	15100	16100	
8012P	42	36	3.875	108.562	15800	16600	
9601P	42	SEE MOD. SECTION	4.250	85.03	14500	15500	
9602P	42		4.250	89.03	15100	16100	
9603P	42		4.250	93.03	15800	16400	
9604P	42		4.250	97.03	16900	17700	
9605P	42		4.250	101.03	18000	18800	
9606P	42		4.250	105.03	19100	19900	
9607P	42		4.250	109.03	20200	21000	
9608P	42		4.250	113.03	21300	22100	

*Premium efficiency has 24.75" CD on this frame

**16.5" BD only available on Vertical HOLLOSHAFT® motors

QUICK ENGINEERING FACTS

TEFC & HAZARDOUS LOCATION

FRAME SIZE	STD. (BD) BASE DIA. INCHES	ALTER BD'S INCHES	MAX CPLG BORE	CD-CPLG HEIGHT TEFC	CD-CRLG HEIGHT X-PROOF	TYPICAL WEIGHT TEFC	TYPICAL SHIPPING WEIGHT C-DUTY	TYPICAL SHIPPING WEIGHT X-PROOF	STEADY BUSHING KIT
182TP	10	---	1.001	17.56	17.50	150	175	165	AVAILABLE
184TP	10	---	1.001	17.56	17.50	170	190	180	
213TP	10	---	1.001	17.56	17.50	210	230	220	
215TP	10	---	1.001	17.56	17.50	220	240	230	
254TP	10	12	1.251	22.94	22.94	320	430	400	
256TP	10	12	1.251	22.94	22.94	320	430	400	
284TP	10	12/16.5	1.251	26.56	26.56	330	450	420	
286TP	10	12/16.5	1.251	26.56	26.56	330	450	420	
324TP	16.5	12	1.501	28.50	28.50	720	800	740	
326TP	16.5	12	1.501	28.50	28.50	720	800	750	
364TP	16.5	---	1.751	30.0	30.0	1000	1050	1000	
365TP	16.5	---	1.751	30.0	30.0	1025	1075	1050	
404TP	16.5	---	1.938	39.93	39.94	1600	1750	1600	
405TP	16.5	---	1.938	39.93	39.94	1600	1750	1725	
444TP	16.5	20	1.937	43.06	42.50	2000	2200	2000	
445TP	16.5	20	1.937	43.06	42.50	2200	2200	2100	
447TP	16.5	20	1.937	46.56	46.00	2400	2600	2400	
449TP	24.5	20	2.501	56.88	56.88	3400	3600	---	NOT AVAILABLE AS KITS. MFG'D PRODUCT ONLY
5008P	24.5	20	2.501	56.50	56.50	3700	3950	3700	
5807P	30.5	24.5	2.750	61.53	61.53	5800	6100	5800	
5809P	30.5	24.5	2.750	68.53	68.53	6800	7100	6900	
5811P	30.5	24.5	2.750	76.53	76.53	8000	8300	8000	
5812P	30.5	36	2.750	83.88	---	10200	10500	---	
6812P	42	30.5/36	2.75	98.3	---	17000	17000	---	

B. DECIMAL AND METRIC EQUIVALENTS

Fraction	(inch)	Decimal (inch)	mm	Fraction	(inch)	Decimal (inch)	mm
	1/64	0.01562	0.397		33/64	0.51562	13.097
1/32		0.03125	0.794	17/32		0.53125	13.494
	3/64	0.04688	1.191		35/64	0.54688	13.891
1/16		0.06250	1.588	9/16		0.56250	14.288
	5/64	0.07812	1.984		37/64	0.57812	14.684
3/32		0.09375	2.381	19/32		0.59375	15.081
	7/64	0.10938	2.778		39/64	0.60938	15.478
1/8		0.12500	3.175	5/8		0.62500	15.875
	9/64	0.14062	3.572		41/64	0.64062	16.272
5/32		0.15625	3.969	21/32		0.65625	16.669
	11/64	0.17188	4.366		43/64	0.67188	17.066
3/16		0.18750	4.763	11/16		0.68750	17.463
	13/64	0.20312	5.159		45/64	0.70312	17.859
7/32		0.21875	5.556	23/32		0.71875	18.256
	15/64	0.23438	5.953		47/64	0.73438	18.653
1/4		0.25000	6.350	3/4		0.75000	19.050
	17/64	0.26562	6.747		49/64	0.76562	19.447
9/32		0.28125	7.144	25/32		0.78125	19.844
	19/64	0.29688	7.541		51/64	0.79688	20.241
5/16		0.31250	7.938	13/16		0.81250	20.638
	21/64	0.32812	8.334		53/64	0.82812	21.034
11/32		0.34375	8.731	27/32		0.84375	21.431
	23/64	0.35938	9.128		55/64	0.85938	21.828
3/8		0.37500	9.525	7/8		0.87500	22.225
	25/64	0.39062	9.922		57/64	0.89062	22.622
13/32		0.40625	10.319	29/329		0.90625	23.019
	27/64	0.42188	10.716		59/64	0.92188	23.416
7/16		0.43750	11.113	15/16		0.93750	23.813
	29/64	0.45312	11.509		61/64	0.95312	24.209
15/32		0.46875	11.906	31/32		0.96875	24.606
	31/64	0.48438	12.303		63/64	0.98438	25.003
1/2		0.50000	12.700	1/1		1.00000	25.400

C. DESIGN LETTER

The design letter that is assigned to a polyphase motor is defined by NEMA in Section MG1-16-1. The letter is a function of torques and locked amps exhibited by the motor. NEMA does not define values for every rating. If a rating is not contained within the NEMA "envelopes" shown below, it cannot have a design letter on the nameplate. Voltage is not a factor, only HP and speed. Note that multispeed have no design letter.

60 HZ							
HP	SYNCHRONOUS SPEED, RPM						
	3600	1800	1200	900	720	600	514
1/2	---	---	---				
3/4	---	---					
1	---						
1-1/2							
2				DEFINED			
3							
5				RATINGS			
7-1/2							
10-125, INCLUSIVE							
150							---
200						---	---
250					---	---	---
300-350				---	---	---	---
400-500, INCLUSIVE			---	---	---	---	---

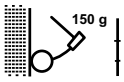
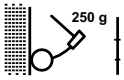
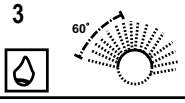
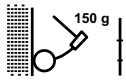
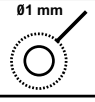
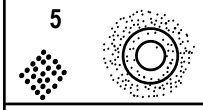
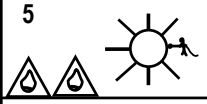
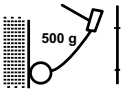
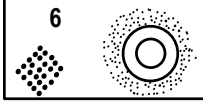
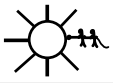
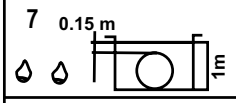
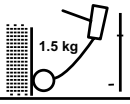
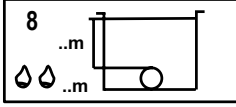
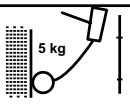
50 HZ				
HP	SYNCHRONOUS SPEED, RPM			
	3600	1500	1000	750
1/2	---	---	---	
3/4	---	---		
1	---			
1-1/2				
2		DEFINED		
3				
5		RATINGS		
7-1/2				
10-125, INCLUSIVE				
150				
200				

D. FORMULAS

- kW = hp x .746
- Torque in lb-ft = $\frac{\text{hp x 5250}}{\text{rpm}}$
- Motor synchronous speed in rpm = $\frac{\text{120 x Hz}}{\text{number of poles}}$
- Three-phase full-load amp= $\frac{\text{hp x .746}}{\text{1.73 x kV x efficiency x power factor}}$
- Rated motor kVA = $\frac{\text{hp (.746)}}{\text{efficiency x power factor}}$
- kW loss = $\frac{\text{hp (.746) (1.0 - efficiency)}}{\text{efficiency}}$
- Wk^2 referred to motor shaft speed = **[**driven machine Wk^2 **(**$\frac{\text{driven machine rpm}}{\text{motor rpm}}$**)**^{2} **]** + gear Wk2 at motor speed
- Accelerating time = $\frac{\text{.462 (Wk}^2\text{ of motor and load) rpm}^2}{\text{motor rated kW x }10^6\text{ x per-unit effective accelerating torque}}$
- kVA in-rush = percent in-rush x rated kVA
- Approximate voltage drop (%) = $\frac{\text{motor kVA in-rush}}{\text{transformer kVA}}$ x transformer impedance (normally 5% to 7%)
- Stored kinetic energy in kW-sec = 2.31 x (total Wk^2) x rpm^2 x 10^7
- Inertia constant (H) in seconds = $\frac{\text{stored kinetic energy in kW-seconds}}{\text{hp (.746)}}$
- Conversion factors: CV = (metric hp) = 735.5 watts = 75 kg-m/sec Wk^2 (lb-ft) = 5.93 x GD^2 ($kg\text{-}m^2$)
- Ventilating-air requirements: 100-125 cfm of 40^0C air at 1/2-in. water pressure for each kW of loss
- Degrees C = (Degrees F-32) x $\frac{5}{9}$
- Degrees F = [(Degrees C) x $\frac{9}{5}$] + 32

E. INDEX OF PROTECTION

DEFINITION

Protection Against Solid Objects			Protection Against Liquids			Mechanical Protection		
No.	**Tests**	**Definition**	**No.**	**Tests**	**Definition**	**No.**	**Tests**	**Definition**
0		**No protection**	**0**		**No protection**	**0**		**No protection**
1		Protected against solid objects over 50mm (e.g. accidental hand contact)	**1**		Protected against vertically dripping water (condensation)	**1**		Impact energy: 0.225 J
2		Protected against solid objects over 12mm (e.g. finger)	**2**		Protected against water dripping up to 15° from the vertical	**2**		Impact energy: 0.375 J
3		Protected against solid objects over 2.5mm (e.g. tools, wire)	**3**		Protected against rain falling at up to 60° from the vertical	**3**		Impact energy: 0.500 J
4		Protected against solid objects over 1mm (e.g. thin wire)	**4**		Protected against water splashes from all directions	**4**		
5		Protected against dust (no deposits of harmful material)[1]	**5**		Protected against jets of water from all directions[2]	**5**		Impact energy: 2 J
6		Totally protected against dust. Does not involve rotating machines	**6**		Protected against jets of water comparable to heavy seas	**6**		
			7		Protected against the effects of immersion to depths of between 0.15 and 1m	**7**		Impact energy: 6 J[3]
			8		Protected against the effects of prolonged immersion at depth	**8**		
						9		Impact energy: 20J

Atmospheric Protection Index. Weatherproof construction reduces the penetration of rain, snow and airborne particles to a value compatible with the correction running of the machine. Indicated when the letter W is inserted between IP and index numbers.

1. Motor protected against dust and accidental contact. **Test result:** No dust enters in harmful quantities; no risk of direct contact with rotating parts.

2. Motor protected against jets of water from all directions from hoses at 3 m distance with a flow rate of 12.5 l/min at 0.3 bar. **Test result:** No damage from water projected onto the machine while in operation.

3. Motor resistant to impacts of 6 joules (impact of a 1.5 kg hammer from a height of 0.4 meters). **Test result:** Damage caused by impacts does not affect the running of motor.

The conditions and severity of the tests must be subject to a specific agreement between the manufacturer and the end user.

F. LONG-TERM STORAGE FOR MOTORS WITH GREASE AND OIL-LUBRICATED BEARINGS

NOTE: DO NOT WRAP OR COVER MOTOR WITH PLASTIC!

1. When to put a motor in storage

If a motor is not put into immediate service (one month or less), or if it is taken out of service for a prolonged period, special storage precautions should be taken to prevent environmental damage. The following schedule is recommended as a guide to determine storage needs.

- Out of service in storage less than one month -- no special precautions except that space heaters, if supplied, must be energized any time the motor is not running.
- Out of service or in storage for more than one month but less than six months -- store per items 2A, B, C, D, E, F2 and G, items 3A, B and C, and item 4.
- Out of service or in storage for six months or more -- all recommendations.

2. Storage preparation

- Where possible, motors should be stored indoors in a clean, dry area.
- When indoor storage is not possible, the motors must be covered with a tarpaulin. This cover should extend to the ground; however, it should not tightly wrap the motor. This will allow the captive air space to breathe, minimizing formation of condensation. Care must also be taken to protect the motor from flooding or from harmful chemical vapors.
- Whether indoors or out, the area of storage should be free from ambient vibration. Excessive vibration can cause bearing damage. A unit which must be stored in areas with high ambient vibration, such as from heavy construction equipment or other sources, must have the shaft locked to prevent any movement. Precautions should be taken to prevent rodents, snakes, birds, or other small animals from nesting inside the motors. In areas where they are prevalent, precautions must be taken to prevent insects, such as mud dauber wasps, from gaining access to the interior of the motor.
- Inspect the rust preventative coating on all external machined surfaces, including shaft extensions. If necessary, recoat the surfaces with a rust preventative material, such as Rusto Veto No. 342 (manufactured by E.F. Houghton Co.) or an equivalent. The condition of the coating should be checked periodically and surfaces recoated as needed.
- Bearings:
  1) Grease-lubricated cavities must be completely filled with lubricant during storage. Remove the drain plug and fill cavity with grease until grease begins to purge from the drain opening. Refer to the section on “LUBRICATION” in the U.S. MOTORS® Installation/Maintenance Instruction and/or review motor’s lubrication nameplate for correct lubricant.

CAUTION:

DO NOT ATTEMPT TO GREASE BEARINGS WITH DRAIN CLOSED OR WHEN UNIT IS IN OPERATION.

F. LONG-TERM STORAGE FOR MOTORS WITH GREASE AND OIL-LUBRICATED BEARINGS

2) Oil-lubricated motors are shipped without oil and must be filled to the maximum capacity as indicated on the oil chamber sight gauge window immediately upon receipt. Fill reservoir to maximum level with a properly selected oil containing rust and corrosion inhibitors such as Texaco Regal Marine #77, Mobil Vaprotec Light, or an equivalent.

NOTE: Motor must not be moved with oil in reservoir. Drain oil before moving to prevent sloshing and possible damage, then refill when at new location.

- To prevent moisture accumulation, some form of heating must be utilized to prevent condensation. This heating should maintain the winding temperature at a minimum of 50^0C above ambient. If space heaters are supplied, they should be energized. If none are available, single phase or "trickle" heating may be utilized by energizing one phase of the motor's winding with a low voltage. Request the required voltage and transformer capacity from Nidec Motor Corporation. A third option is to use an auxiliary heat source and keep the winding warm by either convection or blowing warm air into the motor.

3. Periodic Maintenance

- Oil should be inspected monthly for evidence of moisture or oxidation. The oil must be replaced whenever contamination is noted or every twelve months, whichever occurs first.
- Grease lubricated bearings must be inspected once a month for moisture and oxidation by purging a small quantity of grease through the drain. If any contamination is present, the grease must be completely removed and replaced.
- All motors must have the shaft rotated once a month to insure the maintenance of a coating lubricant film on the bearing races and journals.
- Insulation History:
  The only accurate way to evaluate the condition of the winding insulation is to maintain a history of the insulation readings. Over a period of months or years these readings will tend to indicate a trend. If a downward trend develops, or if the resistance drops too low, thoroughly clean and dry the windings, retreating if necessary, by an authorized electrical apparatus service shop.

  The recommended insulation resistance tests are as follows:

Two tests are used to evaluate the condition of the winding insulation. The first of these is the one minute insulation resistance test (IR[1]) and the second is the polarization index test (PI), which can also be referred to as a dielectric absorption test. The results of either of these tests can be skewed by factors such as the winding temperature and its relation to the dew point temperature at the time the test was conducted. The PI test is less sensitive to these factors than the IR test, but its results can still be affected significantly. Due to these factors, the most reliable method for evaluating the condition of the winding insulation is to maintain a record of periodic measurements, accumulated over months or years of service, for one or both of these tests. It is important that these tests be conducted under similar conditions of winding temperature, dew point temperature, voltage magnitude and duration, and relative humidity. If a downward trend develops in the historical data for either test, or if the readings from both tests drop below a minimum acceptable value, have an authorized electrical apparatus service shop thoroughly clean and dry the winding and re-treat if necessary.

F. LONG-TERM STORAGE FOR MOTORS WITH GREASE AND OIL LUBRICATED BEARINGS

1. The recommended procedure for the IR_1 test is as follows:

(1) Disconnect all external accessories or equipment that have leads connected to the winding and connect them to a common ground. Connect all other accessories that are in contact with the winding to a common ground.

⚠ WARNING
Failure to have accessories grounded during this test can lead to the accumulation of a hazardous charge on the accessories.

(2) Using a megohmmeter, apply DC voltage at the level noted below for 1 minute and take a reading of the insulation resistance between the motor leads and ground.

Rated Motor Voltage	Recommended DC Test Voltage
UP to 1000 (inclusive)	500 VDC
1001 to 2500 (inclusive)	500 to 1000 VDC
2501 to 5000 (inclusive)	500 to 2500 VDC
5001 and up	500 to 5000 VDC

⚠ WARNING
Follow appropriate safety procedures during and after high voltage testing. Refer to the instruction manual for the test equipment. Make sure the winding insulation is discharged before beginning the test. The winding insulation will retain a potentially dangerous charge after the DC voltage source is removed, so use proper procedures to discharge the winding insulation at the end of the test. Refer to IEEE 43 Standard for additional safety information.

(3) The reading should be corrected to a 40^0C base temperature by utilizing the formula:

$$R_{40C} = K_T R_T$$

Where:
R_{40C} = insulation resistance (in megohms) corrected to 40^0C
K_T = insulation resistance temperature coefficient at temperature T^0C
R_T = measured insulation resistance (in megohms) at temperature T^0C

The value of K_T can be approximated by using the formula:

$$K_T = (0.5)^{(40-T)/10}$$

Where:
T = the winding temperature in ^{O}C that the insulation resistance was measured at