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Frame Assignments for Alternating Current Integral-Horsepower Induction Motors

NEMA

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION ● 2101 L STREET, N.W., WASHINGTON, D.C. 20037

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Foreword

The purpose of this standard for frame assignments is to assist users in the proper selection and application of alternating current integral-horsepower induction motors by correlating horsepower and speed to an equivalent NEMA frame assignment. Actual motor frame dimensions are contained in ANSI/NEMA MG 1-1978 (R 1981), *Motors and Generators*.

User needs and safety have been considered throughout the development of these standards. This publication is periodically reviewed by the Motor and Generator Section of NEMA for any revisions necessary to keep it up to date with advancing technology. Proposed or recommended revisions should be submitted to:

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Scope

This standard covers frame assignments for the following classifications of alternating current integral-horsepower induction motors:

Single-phase, Design L, horizontal and vertical motors, open type

Polyphase, squirrel-cage, Designs A and B, horizontal and vertical motors, open type and totally enclosed fan-cooled type.

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1.1 FRAME DESIGNATIONS FOR SINGLE-PHASE, DESIGN L, HORIZONTAL AND VERTICAL MOTORS, 60 HERTZ, CLASS B INSULATION SYSTEM, OPEN TYPE, 1.15 SERVICE FACTOR, 230 VOLTS AND LESS

	Speed, Rpm		
Hp	3600	1800	1200
¾	. . .	. . .	145T
1	. . .	143T	182T
1½	143T	145T	184T
2	145T	182T	. . .
3	182T	184T	. . .
5	184T	213T	. . .
7½	213T	215T	. . .

NOTE—See MG 1-11.31 in NEMA Standards Publication No. MG 1-1978 (R 1981), *Motors and Generators*, for the dimensions of the frame designations.
Suggested Standard For Future Design 7-7-1965, revised 11-11-1965, NEMA Standard 7-16-1969, revised 1-17-1974.

1.2 FRAME DESIGNATIONS FOR POLYPHASE, SQUIRREL-CAGE, DESIGNS A AND B, HORIZONTAL AND VERTICAL MOTORS, 60 HERTZ, CLASS B INSULATION SYSTEM, OPEN TYPE, 1.15 SERVICE FACTOR, 575 VOLTS AND LESS*

	Speed, Rpm			
Hp	3600	1800	1200	900
½	. . .	. . .	. . .	143T
¾	. . .	. . .	143T	145T
1	. . .	143T	145T	182T
1½	143T	145T	182T	184T
2	145T	145T	184T	213T
3	145T	182T	213T	215T
5	182T	184T	215T	254T
7½	184T	213T	254T	256T
10	213T	215T	256T	284T
15	215T	254T	284T	286T
20	254T	256T	286T	324T
25	256T	284T	324T	326T
30	284TS	286T	326T	364T
40	286TS	324T	364T	365T
50	324TS	326T	365T	404T
60	326TS	364TS†	404T	405T
75	364TS	365TS†	405T	444T
100	365TS	404TS†	444T	445T
125	404TS	405TS†	445T	. . .
150	405TS	444TS†	. . .	. . .
200	444TS	445TS†	. . .	. . .
250‡	445TS	. . .	. . .	. . .

*The voltage rating of 115 volts applies only to motors rated 15 horsepower and smaller.
†When motors are to be used with V-belt or chain drives, the correct frame size is the frame size shown but with the suffix letter S omitted. For the corresponding shaft extension dimensions, see MG 1-11.31 in NEMA Standards Publication No. MG 1-1978 (R 1981).
‡The 250 horsepower rating at the 3600 rpm speed has a 1.0 service factor.
NOTE—See MG 1-11.31 in NEMA Standards Publication No. MG 1-1978 (R 1981) for the dimensions of the frame designations.
Suggested Standard For Future Design 1-21-1964, revised 11-12-1964; 7-7-1965; 11-11-1965; 8-20-1966, NEMA Standard 7-16-1969, revised 1-17-1974.

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1.3 FRAME DESIGNATIONS FOR POLYPHASE, SQUIRREL-CAGE, DESIGNS A AND B, HORIZONTAL AND VERTICAL MOTORS, 60 HERTZ, CLASS B INSULATION SYSTEM, TOTALLY-ENCLOSED FAN-COOLED TYPE, 1.00 SERVICE FACTOR, 575 VOLTS AND LESS*

	Speed, Rpm			
Hp	3600	1800	1200	900
½	. . .	. . .	. . .	143T
¾	. . .	. . .	143T	145T
1	. . .	143T	145T	182T
1½	143T	145T	182T	184T
2	145T	145T	184T	213T
3	182T	182T	213T	215T
5	184T	184T	215T	254T
7½	213T	213T	254T	256T
10	215T	215T	256T	284T
15	254T	254T	284T	286T
20	256T	256T	286T	324T
25	284TS	284T	324T	326T
30	286TS	286T	326T	364T
40	324TS	324T	364T	365T
50	326TS	326T	365T	404T
60	364TS	364TS†	404T	405T
75	365TS	365TS†	405T	444T
100	405TS	405TS†	444T	445T
125	444TS	444TS†	445T	. . .
150	445TS	445TS†	. . .	. . .
200	. . .	. . .	. . .	. . .
250	. . .	. . .	. . .	. . .

* The voltage rating of 115 volts applies only to motors 15 horsepower and smaller.
† When motors are to be used with V-belt or chain drives, the correct frame size is the frame size shown but with the suffix letter S omitted. For the corresponding shaft extension dimensions, see MG 1-11.31 in NEMA Standards Publication No. MG 1-1978 (R 1981).
NOTE—See MG 1-11.31 in NEMA Standards Publication No. MG 1-1978 (R 1981) for the dimensions of the frame designations.
Suggested Standard for Future Design 1-21-1964, revised 11-12-1964; 7-7-1965; 11-11-1965, NEMA Standard 7-16-1969, revised 1-17-1974.

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(Bylaw—Art. V, Sec. 1)

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(Bylaw—Art. V, Sec. 2, Subsection A)

Dimensions

Where dimensions are given for interchangeability purposes, alternate dimensions satisfying the other provisions of the standards publication may be capable of otherwise equivalent performance.

(NEMA Policy Memorandum 84-2, dated June 7, 1984)

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An Official Standards Proposal is an official draft of a proposed standard which is formally recommended to an outside organization(s) for consideration, comment and/or approval.

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