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## Class Description

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Class Number	Description
8811-01	<b>ENERGY EFFICIENCY - MOTORS-Three Phase Induction</b>

**COVERAGE:**

Three-phase induction motors rated 0.746kW and greater.

**REQUIREMENTS:**

CSA Std CAN/CSA C390 Test Methods, Marking Requirements and Energy Efficiency Levels for Three-Phase Induction Motors

**MARKING:**

- submittor's identification;
- model designation or equivalent;
- complete electrical rating;
- date code or equivalent;
- quoted efficiency at 100% of the rated full load;
- CSA Energy Efficiency Verification Marking.

The Verification Marking must be incorporated into the equipment rating plate or applied in the form of a separate label, which may be purchased from CSA.

**LABEL**

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Customer	Class	File Number
Shanghai Top Motor Co., Ltd. No. 303 Kangliu Road, Kangqiao Industrial Area Nanhui Shanghai China 201315	8811-01 ENERGY EFFICIENCY - MOTORS-Three Phase Induction	224693

### TO THE REQUIREMENT OF CSA C390-10

- Three-phase induction motors, Type TAF and TCF series, TEFC, Class F insulation, 40C ambient max.

Model/Type	Voltage (V) at 60Hz	Output (HP)	Output (kW)	IEC Frame	Pole (No.)	Efficiency (%)
TAF801-2, TCF801-2	230/460, 575	1	0.75	80	2	75.5
TAF802-4, TCF802-4	230/460, 575	1	0.75	80	4	82.5
TAF802-2, TCF802-2	230/460, 575	1.5	1.1	80	2	82.5
TAF90S-6, TCF90S-6	230/460, 575	1	0.75	90	6	80.0
TAF90S-4, TCF90S-4	230/460, 575	1.5	1.1	90	4	84.0
TAF90S-2, TCF90S-2	230/460, 575	2	1.5	90	2	84.0
TAF90L-6, TCF90L-6	230/460, 575	1.5	1.1	90	6	85.5
TAF90L-4, TCF90L-4	230/460, 575	2	1.5	90	4	84.0
TAF90L-2, TCF90L-2	230/460, 575	3	2.2	90	2	85.5
TAF100L-6, TCF100L-6	230/460, 575	2	1.5	100	6	86.5
TAF100L1-4, TCF100L1-4	230/460, 575	3	2.2	100	4	87.5
TAF112M-2, TCF112M-2	230/460, 575	5	3.7	112	2	87.5
TAF112M-4, TCF112M-4	230/460, 575	5	3.7	112	4	87.5
TAF112M-6, TCF112M-6	230/460, 575	3	2.2	112	6	87.5
TAF132S1-2, TCF132S1-2	230/460, 575	7.5	5.5	132	2	88.5
TAF132S-4, TCF132S-4	230/460, 575	7.5	5.5	132	4	89.5
TAF132S2-2, TCF132S2-2	230/460, 575	10	7.5	132	2	89.5
TAF132M1-6, TCF132M1-6	230/460, 575	5	3.7	132	6	87.5

TAF132M2-6, TCF132M2-6	230/460, 575	7.5	5.5	132	6	89.5
TAF132M-4, TCF132M-4	230/460, 575	10	7.5	132	4	89.5
TCF160M1-2	230/460, 575	15	11	160	2	90.2
TCF160M-4	230/460, 575	15	11	160	4	91.0
TCF160M2-2	230/460, 575	20	15	160	2	90.2
TCF160M-6	230/460, 575	10	7.5	160	6	89.5
TCF160L-6	230/460, 575	15	11	160	6	90.2
TCF160L-4	230/460, 575	20	15	160	4	91.0
TCF160L-2	230/460, 575	25	18.5	160	2	91.0
TCF180M-4	230/460, 575	25	18.5	180	4	92.4
TCF180M-2	230/460, 575	30	22	180	2	91.0
TCF180L-6	230/460, 575	20	15	180	6	90.2
TCF180L-4	230/460, 575	30	22	180	4	92.4
TCF200L1-2	230/460, 575	40	30	200	2	91.7
TCF200L1-6	230/460, 575	25	18.5	200	6	91.7
TCF200L-4	230/460, 575	40	30	200	4	93.0
TCF200L2-2	230/460, 575	50	37	200	2	92.4
TCF200L2-6	230/460, 575	30	22	200	6	91.7
TCF225S-4	230/460, 575	50	37	225	4	93.0
TCF225M-2	230/460, 575	60	45	225	2	93.0
TCF225M-4	230/460, 575	60	45	225	4	93.6
TCF225M-6	230/460, 575	40	30	225	6	93.0
TCF250M1-2	230/460, 575	75	55	250	2	93.0
TCF250M1-4	230/460, 575	75	55	250	4	94.1
TCF250M1-6	230/460, 575	50	37	250	6	93.0
TCF250M2-2	230/460, 575	100	75	250	2	93.6
TCF250M2-4	230/460, 575	100	75	250	4	94.5
TCF250M2-6	230/460, 575	60	45	250	6	93.6
TCF280S-2	460, 575	125	90	280	2	94.5
TCF280S-4	460, 575	125	90	280	4	94.5
TCF280S-6	460, 575	75	55	280	6	93.6
TCF280M-2	460, 575	150	110	280	2	94.5
TCF280M-4	460, 575	150	110	280	4	95.0
TCF280M-6	460, 575	100	75	280	6	94.1

- Energy Efficiency Verification of three-phase squirrel cage induction motors, 230/460, 575 V, 60 Hz, SF 1.15, TD (suffixes may follow) Series, Enclosure ODP, Class F Insulation.

Nominal efficiency values in percent at full load are as follows: Motors may have higher efficiency than efficiencies shown in the table below.

<u>Number of Poles</u>		<u>2</u>	<u>4</u>	<u>6</u>
HP	kW			
1	0.75	75.5	82.5	80.0
1.5	1.1	82.5	84.0	84.0
2	1.5	84.0	84.0	85.5
3	2.2	84.0	86.5	86.5
5	3.7	85.5	87.5	87.5
7.5	5.5	87.5	88.5	88.5
10	7.5	88.5	89.5	90.2
15	11	89.5	91.0	90.2

- Energy Efficiency Verification of three-phase squirrel cage induction motors, 230/460, 575 V, 60 Hz, SF 1.15, TFC and TFA (suffixes may follow) Series, Enclosure TEFC, Class F Insulation.

Nominal efficiency values in percent at full load are as follows: Motors may have higher efficiency than efficiencies shown in the table below.

<u>Number of Poles</u>		<u>2</u>	<u>4</u>	<u>6</u>
HP	kW			
1	0.75	75.5	82.5	80.0
1.5	1.1	82.5	84.0	85.5
2	1.5	84.0	84.0	86.5
3	2.2	85.5	85.5	87.5
5	3.7	87.5	87.5	87.5
7.5	5.5	88.5	89.5	89.5
10	7.5	89.5	89.5	89.5
15	11	90.2	91.0	90.2
20	15	90.2	91.0	90.2
25	19	91.0	92.4	91.7
30	22	91.0	92.4	91.7
40	30	91.7	93.0	93.0
50	37	92.4	93.0	93.0
60	45	93.0	93.6	93.6
75	55	93.0	94.1	93.6
100	75	93.6	94.5	94.1
125	90	94.5	94.5	94.1
150	110	94.5	95.0	95.0
200	150	95.0	95.0	95.0

- Energy Efficiency Verification of three-phase squirrel cage induction motors, IEC Frame 80 to 280, IEC design N, 230(Δ)/400(Y) V for 1 to 5.5 HP and 400(Δ)/690(Y) V for 7.5 to 120 HP, 50 Hz, SF 1.0, TM (suffixes may follow) Series, Enclosure TEFC, Class F Insulation.

The following motors comply with the energy requirements of Table 4 (IE2) in standard CAN/CSA C390-10. Nominal efficiency values in percent at full load are as follows, motors may have higher efficiency than efficiencies shown in the table below.

<u>Number of Poles</u>		<u>2</u>	<u>4</u>	<u>6</u>
<u>HP</u>	<u>kW</u>			
1	0.75	77.4	79.6	75.9
1.5	1.1	79.6	81.4	78.1
2	1.5	81.3	82.8	79.8
3	2.2	83.2	84.3	81.8
4	3	84.6	85.5	83.3
5.5	4	85.8	86.6	84.6
7.5	5.5	87.0	87.7	86.0
10	7.5	88.1	88.7	87.2
15	11	89.4	89.8	88.7
20	15	90.3	90.6	89.7
25	18.5	90.9	91.2	90.4
30	22	91.3	91.6	90.9
40	30	92.0	--	91.7
50	37	92.5	92.7	92.2
60	45	92.9	93.1	92.7
75	55	93.2	93.5	93.1
100	75	93.8	94.0	93.7
120	90	94.1	94.2	94.0

- Energy Efficiency Verification of three-phase squirrel cage induction motors, IEC Frame 80 to 315, IEC design N, 230/460, 575 V, 1 to 200 HP, 60 Hz, SF 1.0, TAF (suffixes may follow) Series with cast aluminum frame, TCF (suffixes may follow) Series with cast iron frame, Enclosure TEFC, Class F Insulation.

The following motors comply with the energy requirements of Table 3 (Premium Efficiency) in standard CAN/CSA C390-10. Nominal efficiency values in percent at full load are as follows, motors may have higher efficiency than efficiencies shown in the table below.

<u>Number of Poles</u>		<u>2</u>	<u>4</u>	<u>6</u>
<u>HP</u>	<u>kW</u>			
1	0.75	77.0	85.5	82.5
1.5	1.1	84.0	86.5	87.5
2	1.5	85.5	86.5	88.5
3	2.2	86.5	89.5	89.5
5	3.7	88.5	89.5	89.5
5.5	4	88.5	89.5	89.5
7.5	5.5	89.5	91.7	91.0
10	7.5	90.2	91.7	91.0
15	11	91.0	92.4	91.7
20	15	91.0	93.0	91.7
25	19	91.7	93.6	93.0
30	22	91.7	93.6	93.0
40	30	92.4	94.1	94.1
50	37	93.0	94.5	94.1
60	45	93.6	95.0	94.5
75	55	93.6	95.4	94.5
100	75	94.1	95.4	95.0

125	90	95.0	95.4	95.0
150	110	95.0	95.8	95.8
200	150	95.4	96.2	95.8

- Energy Efficiency Verification of three-phase squirrel cage induction motors, NEMA Frame 145T to 215T, NEMA design B, 230/460, 575 V, 1 to 15 HP, 60 Hz, SF 1.15, TXD (suffixes may follow) Series, Enclosure ODP, Class F Insulation.

The following motors comply with the energy requirements of Table 3 (Premium Efficiency) in standard CAN/CSA C390-10. Nominal efficiency values in percent at full load are as follows, motors may have higher efficiency than efficiencies shown in the table below.

<u>Number of Poles</u>		<u>2</u>	<u>4</u>	<u>6</u>
<u>HP</u>	<u>kW</u>			
1	0.75	77.0	85.5	82.5
1.5	1.1	84.0	86.5	86.5
2	1.5	85.5	86.5	87.5
3	2.2	85.5	89.5	88.5
5	3.7	86.5	89.5	89.5
7.5	5.5	88.5	91.0	90.2
10	7.5	89.5	91.7	91.7
15	11	90.2	93.0	91.7

- Energy Efficiency Verification of three-phase squirrel cage induction motors, NEMA Frame 145T to 449T, NEMA design B, 230/460, 575 V, 1 to 250 HP, 60 Hz, SF 1.15, TXA (suffixes may follow) Series with cast aluminum enclosure, TXC (suffixes may follow) Series with cast iron enclosure, Enclosure TEFC, Class F Insulation.

The following motors comply with the energy requirements of Table 3 (Premium Efficiency) in standard CAN/CSA C390-10. Nominal efficiency values in percent at full load are as follows, motors may have higher efficiency than efficiencies shown in the table below.

<u>Number of Poles</u>		<u>2</u>	<u>4</u>	<u>6</u>
<u>HP</u>	<u>kW</u>			
1	0.75	77.0	85.5	82.5
1.5	1.1	84.0	86.5	87.5
2	1.5	85.5	86.5	88.5
3	2.2	86.5	89.5	89.5
5	3.7	88.5	89.5	89.5
7.5	5.5	89.5	91.7	91.0
10	7.5	90.2	91.7	91.0
15	11	91.0	92.4	91.7
20	15	91.0	93.0	91.7
25	19	91.7	93.6	93.0
30	22	91.7	93.6	93.0
40	30	92.4	94.1	94.1
50	37	93.0	94.5	94.1
60	45	93.6	95.0	94.5
75	55	93.6	95.4	94.5
100	75	94.1	95.4	95.0
125	90	95.0	95.4	95.0

150	110	95.0	95.8	95.8
175	132	95.4	96.2	95.8
200	150	95.4	96.2	95.8
250	185	95.8	96.2	--

- Energy Efficiency Verification of Three phase squirrel cage induction motors, TDC Series, Enclosure ODP, NEMA Frames 254T to 445T, 7.5 to 150 HP, 230/460, 575 V, 60 Hz, 40 °C max ambient, SF 1.15, continuous duty, Class F insulation.

The following motors comply with the energy requirements of Table 3 (Premium Efficiency) in standard CAN/CSA C390-10. Nominal efficiency values in percent at full load are as follows, motors may have higher efficiency than efficiencies shown in the table below.

<u>Number of Poles</u>		<u>2</u>	<u>4</u>	<u>6</u>
<u>HP</u>	<u>kW</u>			
7.5	5.5	88.5	91.0	90.2
10	7.5	89.5	91.7	91.7
15	11	90.2	93.0	91.7
20	15	91.0	93.0	92.4
25	19	91.7	93.6	93.0
30	22	91.7	94.1	93.6
40	30	92.4	94.1	94.1
50	37	93.0	94.5	94.1
60	45	93.6	95.0	94.5
75	55	93.6	95.0	94.5
100	75	93.6	95.4	95.0
125	90	94.1	95.4	95.0
150	110	94.1	95.8	95.4

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