



Building a better future
Global Leader

ee CC 038A



IEEE-841 Motors

Crown Triton™ Series

- **5 Year Warranty**
- Chemical & Process Duty Motors, IEEE-841 (2001)
- Premium Efficiency TEFC Severe Duty Design
- Corona Resistant Magnet Wire
- Class 1, Division 2, Groups A, B, C, D
- Class 1, Zone 2, Groups IIA, IIB & IIC
- CSA Certified



Experience Combined with Technology

We at Hyundai Heavy Industries Co., Ltd. use Finite Element Analysis (FEA) and Computer Aided Design (CAD) methods to develop and produce the most innovative motors from state-of-the-art and fully automated manufacturing facilities. Hyundai's Crown Triton™ cast iron frames greatly improve motor performance by maximizing heat dissipation.

The use of advanced technology to design and manufacture electric motors, results in a reasonably priced, top quality motor with superior performance characteristics.

Compared with other high efficiency motors, Hyundai's Premium Efficiency motors guarantee better performance.

Standard Production Range

- Frame Size : 143T to 449TZ
- Horsepower : 1 to 250 HP
- Poles : 2, 4, 6, 8 pole
- Enclosure : TEFC, Rigid cast iron construction

Approvals : CSA C US, EEV mark, CE, Class 1 Division 2, C-UL





IEEE-841 Chemical & Process Motors

Standard Features & Construction

Approvals & Standards:

- 5 Year (60 months) warranty
- Fully compliant with IEEE-841 standard
- Meets or exceeds NEMA MG1 (2003), Part 31
- Efficiency verified (exceeds EPCACT 92 & CSA C390)
- Fully tested per IEEE-112, method B
- Approvals : CSA C US, EEV mark, CE, ISO9001
- Certified for Class 1, Division 2 / Zone 2, Groups A, B, C & D / IIA, IIB & IIC with temperature code T3C for NEMA frame 140 to 320, and T3A for NEMA frame 360 to 440

Winding & Inverter Powered Ratings:

- Hyundai's inverter shield insulation system using inverter grade magnet wire and Hyundai's own low stress winding technique for exceptional corona and transient protection.
- Constant torque : 10:1 speed range, variable torque : zero to base speed
- Suitable for 1.5 x base speed, constant HP (subject to mechanical limits)
- SF 1.15 @ 40°C, SF 1.0 @ 65°C (Sine Wave), SF 1.0 PWM
- Class F insulation with Class B temperature rise
- Class H non-hygroscopic varnish, double dip & bake cycles
- Single voltages, 460 V or 575 V, 60 Hz full range
- Supply voltage +/-10 %, frequency +/-5 %
- Altitude up to 3,000 feet (1,000 meters) without de-rating; ambient of -30°C to +40°C

Construction:

- Totally Enclosed Fan Cooled, IP55 Protection
- Full construction per IEEE-841
- Nema design B or C torque
- Stainless steel nameplate, corrosion resistant zinc plated hardware
- Corrosion resistant, non-sparking polypropylene cooling fan
- Epoxy painted stator, rotor and motor frame
- Stainless steel condensation T-drain plugs on DE & NDE
- Ground lug on motor frame and inside conduit box
- Oversize conduit box exceeds CSA, NEMA & NEC volume requirements
- Neoprene lead separator
- Precision foot flatness eliminates soft foot and extends bearing life
- Precision balanced rotor not to exceed 0.08 inches/second peak velocity

Bearings:

- ProTECH™ (IP66) labyrinth bearing isolator on DE
- Oversize vacuum degassed bearings
- Regreaseable bearings with internal bearing caps on DE & NDE, full range
- Bearings rated for 100K hours, L10 for direct coupled applications and 50K hours, L10 for V-belt applications
- Mobil Polyrex EM grease (-35°C to +75°C)
- Bearing temperature rise (direct coupled) will not exceed 45°C (50°C for 2 pole motors)
- IEEE-841 motor test report supplied with each motor
- C & D flanges kits available for field modification



IEEE-841 Chemical & Process Motors



Optional Features

- Special voltages
- Two speed motors
- Special shaft designs and materials
- Special ProTech™ bearing isolators
- Space heaters
- Drip canopies for vertical applications
- Thermistors
- Thermostats
- RTD for windings or bearings
- Constant speed blowers
- Encoders

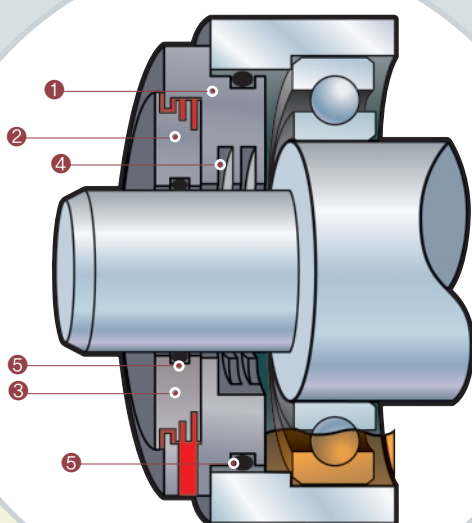
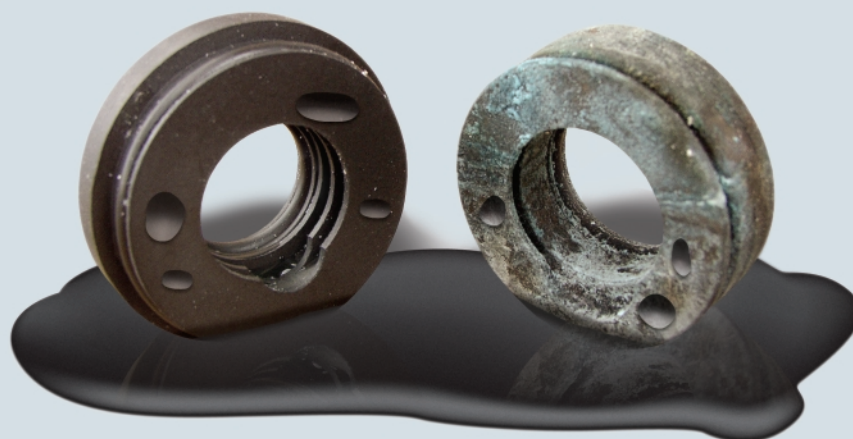
Crown Triton IEEE-841			
Premium Efficiency AC 3 Phase Motor (2001)			
MODEL		ENCL. TEFC	AMPS
FRAME	DUTY CONT	CODE	HERTZ 60
TYPE PLS		INS. CLASS F HD-F1	NEMA NOM. EFF.
B R C S	DRIVE	S.F. 1.15	RPM
	OPP.	NEMA DESIGN B	AMB. 40 °C
GUAR MIN. EFF		POWER FACTOR	MAX. AMB @SF1.0 65 °C
CLASS 1, DIVISION 2 GROUPS A,B,C AND D / CLASS		1, ZONE 2, GROUP IIA, IIB AND IIC / TEMP. CODE T3C (160 °C)	
NO.		DATE	WEIGHT
NP248A7171RC		MADE IN KOREA H1	
C-US EHV189973		HYUNDAI HEAVY INDUSTRIES CO., LTD.	



Your Seal of Approval - The Ultimate in Bearing Protection

The Bronze Age is Out – High-Tech Bearing Isolators are in PROTECH™ vs Bronze

Corrosive test results prove PROTECH™'s rotating labyrinth seal is superior to bronze IP66 rated, PROTECH™ utilization of PTFE (Graphite / Teflon) provides impressive sealing and longevity performance



PROTECH™ "LS"

- True Non-contact seal. Will not wear out. No friction losses
- Custom formulated reinforced impervious PTFE material
- No internal O-rings
- Two-way seal. Nothing in. Nothing out
- Zero lubricant leakage
- Total exclusion of contaminants
- Replaces radial lip oil seal or bronze seals
- Extends bearing life (less maintenance)
- IP66 UL tested for dust and water / chemical exclusion
- Corrosion resistant for 160 types of chemicals
- Optional FDA food grade, anti microbial available

- 1 PROTECH™ is first to offer unitized construction, self lubricated bearing isolator
 - 2 Contaminate exclusion relies on labyrinth technology, not an internal seal.
PROTECH™ does not rely on simple internal O-ring to protect bearing
 - 3 Superior chemical resistance provided by proprietary PTFE materials
 - 4 Inboard labyrinth construction is the most efficient design for retaining grease lubrication in bearing
 - 5 External O-rings provide press fit at shaft and seal housing for zero wear of shaft or motor endbell
- ※ First bearing isolator UL tested to IEEE-841, meets IP66 and AP1610



IEEE-841 Chemical & Process Motors

IEEE-841 Chemical and Process Motors, TEFC Enclosure

- Meets or exceeds IEEE-841 standard
- Class 1, Division 2, Groups A, B, C & D, T3C temp. code for NEMA frame 140 to 320, and T3A for NEMA frame 360 to 440
- Full cast iron construction
- Fully re-greaseable bearings with inner bearing caps
- Precision 5-plane balance, shaft runout and foot flatness
- Exceeds CSA C390 & EPACT '92 efficiency requirements
- Equipped with ProTECH™ (IP66) bearing isolator on D.E.
- High torque NEMA design C (1800 & 1200 RPM)
- Class F insulation with class B temperature rise
- Inverter grade insulation system meets or exceeds NEMA MG-1 Part 31 (2003)
- Epoxy coated internally and externally
- 3-phase, 60 Hz, 460 V, 575 V, SF 1.15, continuous duty

(Unit : inch)

Frame Size	Overall					Shaft					Mounting			Conduit Box		Fig.
	BA	C	D	O	P	U	N-W	Keyway			2E	2F1	2F2	AA	AB	
								R	ES	S						
143T	2.25	12.88	3.50	7.44	7.44	0.875	2.25	0.771	1.41	0.188	5.50	(5.00)	4.00	0.75	6.46	A
145T	2.25	12.88	3.50	7.44	7.44	0.875	2.25	0.771	1.41	0.188	5.50	5.00	(4.00)	0.75	6.46	
182T	2.75	14.69	4.50	9.45	9.89	1.125	2.75	0.986	1.78	0.250	7.50	4.50	-	0.75	7.40	
184T	2.75	15.69	4.50	9.45	9.89	1.125	2.75	0.986	1.78	0.250	7.50	5.50	-	0.75	7.40	
213T	3.50	18.33	5.25	11.00	11.50	1.375	3.38	1.201	2.41	0.312	8.50	5.50	-	1.00	8.59	
215T	3.50	19.83	5.25	11.00	11.50	1.375	3.38	1.201	2.41	0.312	8.50	7.00	-	1.00	8.59	
254T	4.25	23.52	6.25	13.08	13.65	1.625	4.00	1.416	2.91	0.375	10.00	8.25	-	1.25	11.30	
256T	4.25	25.25	6.25	13.08	13.65	1.625	4.00	1.416	2.91	0.375	10.00	10.00	-	1.25	11.30	
284TS	4.75	24.76	7.00	14.74	15.48	1.625	3.25	1.416	1.91	0.375	11.00	9.50	-	1.50	11.85	
284T	4.75	26.13	7.00	14.74	15.48	1.875	4.62	1.591	3.28	0.500	11.00	9.50	-	1.50	11.85	
286TS	4.75	27.00	7.00	14.74	15.48	1.625	3.25	1.416	1.91	0.375	11.00	11.00	-	1.50	11.85	
286T	4.75	28.37	7.00	14.74	15.48	1.875	4.62	1.591	3.28	0.500	11.00	11.00	-	1.50	11.85	
324TS	5.25	29.78	8.00	15.91	15.82	1.875	3.75	1.591	2.03	0.500	12.50	(12.00)	10.50	2.00	14.25	
324T	5.25	31.28	8.00	15.91	15.82	2.125	5.25	1.845	3.91	0.500	12.50	(12.00)	10.50	2.00	14.25	
326TS	5.25	29.78	8.00	15.91	15.82	1.875	3.75	1.591	2.03	0.500	12.50	12.00	(10.50)	2.00	14.25	
326T	5.25	31.28	8.00	15.91	15.82	2.125	5.25	1.845	3.91	0.500	12.50	12.00	(10.50)	2.00	14.25	
364TS	5.88	31.88	9.00	18.50	18.23	1.875	3.75	1.591	2.03	0.500	14.00	(12.25)	11.25	2.50	17.13	
364T	5.88	34.01	9.00	18.50	18.23	2.375	5.88	2.021	4.28	0.625	14.00	(12.25)	11.25	2.50	17.13	
365TS	5.88	31.88	9.00	18.50	18.23	1.875	3.75	1.591	2.03	0.500	14.00	12.25	(11.25)	2.50	17.13	
365T	5.88	34.01	9.00	18.50	18.23	2.375	5.88	2.021	4.28	0.625	14.00	12.25	(11.25)	2.50	17.13	
404T	6.62	39.42	10.00	20.79	20.16	2.875	7.25	2.450	5.65	0.750	16.00	(13.75)	12.25	3.00	20.28	
405TS	6.62	36.42	10.00	20.79	20.16	2.125	4.25	1.845	2.80	0.500	16.00	13.75	(12.25)	3.00	20.28	
405T	6.62	39.42	10.00	20.79	20.16	2.875	7.25	2.450	5.65	0.750	16.00	13.75	(12.25)	3.00	20.28	
444TS	7.50	41.46	11.00	23.19	22.40	2.375	4.75	2.021	3.03	0.625	18.00	(16.50)	14.50	3.00	21.26	
444T	7.50	45.21	11.00	23.19	22.40	3.375	8.50	2.880	6.93	0.875	18.00	(16.50)	14.50	3.00	21.26	
445TS	7.50	41.46	11.00	23.19	22.40	2.375	4.75	2.021	3.03	0.625	18.00	16.50	(14.50)	3.00	21.26	
445T	7.50	45.21	11.00	23.19	22.40	3.375	8.50	2.880	6.93	0.875	18.00	16.50	(14.50)	3.00	21.26	
447TS	7.50	44.96	11.00	23.19	22.40	2.375	4.75	2.021	3.03	0.625	18.00	20.00	(17.99)	3.00	23.78	
447T	7.50	48.71	11.00	23.19	22.40	3.375	8.50	2.880	6.93	0.875	18.00	20.00	(17.99)	3.00	23.78	
447TZ	7.50	50.34	11.00	23.19	22.40	3.375	10.125	2.880	8.50	0.875	18.00	20.00	(17.99)	3.00	23.78	
449TS	7.50	50.08	11.00	23.19	22.40	2.375	4.75	2.021	3.03	0.625	18.00	25.00	(20.00)	3.00	23.78	
449T	7.50	53.83	11.00	23.19	22.40	3.375	8.50	2.880	6.93	0.875	18.00	25.00	(20.00)	3.00	23.78	
449TZ	7.50	55.46	11.00	23.19	22.40	3.375	10.125	2.880	8.50	0.875	18.00	25.00	(20.00)	3.00	23.78	

Note: 1. Dimension "D" Tolerance
 140T-360T : +0.00, -0.03
 400T-440T : +0.00, -0.06

2. Dimension "U" Tolerance
 Up to 1.500 Dia. : +0.000, -0.0005
 1.625 Dia. & Larger : +0.000, -0.001

FIG. A

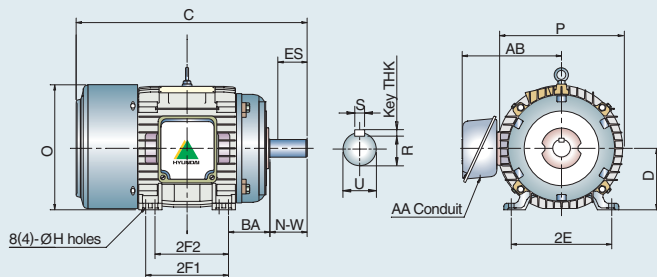
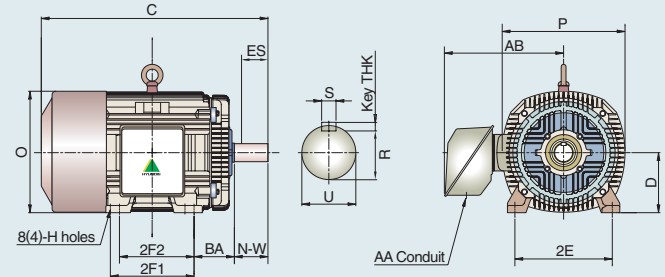


FIG. B





Performance Data | for 460 V & 575 V Motors |

IEEE-841 Chemical and Process Motors, TEFC Enclosure

3 phases, 60 Hz, 460 V & 575 V, SF, 1.15, continuous duty

TEFC enclosure, class F insulation, 40°C ambient temp.

Rated Output (HP)	Pole	Frame Size	Characteristics at Rated Output								Locked		Torque			Moment of Inertia WK ² (lb.ft ²)	NEMA Code Letter	Approx. Weight (lbs)	Brg. Sizes	
			Full Load Speed (RPM)	Efficiency			Power Factor	Full Load Current		Rotor Current		Full Load (lb.ft)	Locked Rotor (%FLT)	Break-down (%FLT)	D.E.				N-D.E.	
				Full Load	3/4 Load	Full Load		460 V (A)	575 V (A)	460 V (A)	575 V (A)									
				Nom. (%)	Min. (%)	3/4 Load (%)	Full Load (%)	460 V (A)	575 V (A)	460 V (A)	575 V (A)									
1	4	143T	1750	86.5	84.0	86.0	77.0	1.4	1.1	12.9	10.3	3.0	350	400	0.128	M	70	6205ZC3	6204ZC3	
	6	145T	1145	81.5	79.0	80.0	67.5	1.7	1.4	10.2	8.2	4.6	270	320	0.138	K	75	6205ZC3	6204ZC3	
1.5	2	143T	3500	85.5	83.0	84.0	85.0	1.9	1.5	19.1	15.3	2.3	300	375	0.071	M	70	6205ZC3	6204ZC3	
	4	145T	1735	85.5	83.0	84.0	81.0	2.0	1.6	16.2	13.0	4.5	300	330	0.123	K	75	6205ZC3	6204ZC3	
2	6	182T	1170	86.5	85.5	87.1	71.0	2.3	1.8	18.3	14.3	6.7	220	340	0.370	L	82	6206ZC3	6206ZC3	
	2	145T	3500	85.5	83.0	85.0	85.0	2.6	2.1	20.8	16.6	3.0	310	320	0.071	K	75	6205ZC3	6204ZC3	
	4	145T	1735	85.5	83.0	84.5	79.5	2.8	2.2	21.7	17.4	6.1	305	355	0.138	K	75	6205ZC3	6204ZC3	
	6	184T	1165	87.5	86.5	88.6	73.5	2.9	2.3	21.8	17.3	9.0	210	310	0.370	K	99	6206ZC3	6206ZC3	
3	2	182T	3530	87.5	86.5	86.3	87.0	3.7	3.0	26.9	21.9	4.5	240	340	0.147	J	82	6206ZC3	6206ZC3	
	4	182T	1760	88.5	87.5	88.6	80.0	4.0	3.1	29.8	23.3	9.0	240	350	0.308	J	82	6206ZC3	6206ZC3	
	6	213T	1175	88.5	87.5	89.7	74.0	4.3	3.4	32.0	25.4	13.4	220	300	1.125	K	141	6307ZC3	6307ZC3	
5	2	184T	3515	89.5	88.5	90.2	88.0	5.9	4.8	43.4	35.0	7.5	205	320	0.197	H	99	6206ZC3	6206ZC3	
	4	184T	1755	89.5	88.5	91.3	82.0	6.4	5.1	46.0	36.8	15.0	250	330	0.411	J	99	6206ZC3	6206ZC3	
	6	215T	1170	89.5	88.5	89.8	75.0	7.0	5.6	46.0	36.9	22.4	240	300	1.220	J	163	6307ZC3	6307ZC3	
7.5	2	213T	3530	91.0	90.2	92.6	86.5	8.9	7.1	63.5	50.5	11.2	155	275	0.363	G	141	6307ZC3	6307ZC3	
	4	213T	1765	91.7	91.0	92.5	82.0	9.3	7.5	60.7	48.8	22.3	230	250	1.032	H	141	6307ZC3	6307ZC3	
	6	254T	1180	91.7	90.4	92.4	72.0	10.6	8.5	63.3	50.6	33.4	200	250	2.259	H	253	6309ZC3	6309ZC3	
10	2	215T	3520	91.7	91.0	93.6	88.5	11.5	9.2	75.0	59.8	14.9	180	270	0.524	G	163	6307ZC3	6307ZC3	
	4	215T	1765	91.7	91.0	92.7	82.0	12.5	10.0	78.4	63.0	29.8	230	250	1.125	H	163	6307ZC3	6307ZC3	
	6	256T	1175	91.7	90.4	92.7	72.0	14.2	11.3	79.4	63.3	44.7	210	245	2.432	H	302	6309ZC3	6309ZC3	
15	2	254T	3545	91.7	91.0	92.7	89.0	17.2	13.8	111.9	89.7	22.2	180	270	1.196	G	253	6309ZC3	6309ZC3	
	4	254T	1770	92.4	91.7	93.4	82.5	18.4	14.7	116.0	92.6	44.5	200	240	2.432	G	253	6309ZC3	6309ZC3	
	6	284T	1180	91.7	91.0	92.4	82.0	18.7	14.9	116.0	92.5	66.8	200	230	8.116	G	375	6310ZC3	6310ZC3	
20	2	256T	3540	92.4	91.7	93.7	90.0	22.5	18.0	141.9	113.4	29.7	170	270	1.609	G	302	6309ZC3	6309ZC3	
	4	256T	1765	93.0	92.4	94.1	83.0	24.3	19.4	140.7	112.5	59.5	210	230	3.040	G	302	6309ZC3	6309ZC3	
	6	286T	1180	92.4	91.7	93.6	81.5	24.9	19.9	144.2	115.4	89.0	200	230	8.116	G	403	6310ZC3	6310ZC3	
25	2	284TS	3560	93.0	92.4	93.8	91.0	27.7	22.1	179.8	143.7	36.9	185	250	3.351	G	375	6310ZC3	6310ZC3	
	4	284T	1770	93.6	93.0	94.4	83.5	30.0	24.0	182.5	146.2	74.2	190	230	4.222	G	375	6310ZC3	6310ZC3	
	6	324T	1180	93.0	92.4	92.8	81.0	31.1	24.9	182.5	146.2	111.3	200	230	13.288	G	573	6313ZC3	6211ZC3	
30	2	286TS	3555	93.0	92.4	94.1	91.0	33.2	26.6	215.7	172.9	44.3	180	240	3.351	G	403	6310ZC3	6310ZC3	
	4	286T	1775	93.6	93.0	94.8	84.0	35.7	28.6	217.5	174.1	88.8	210	230	4.824	G	403	6310ZC3	6310ZC3	
	6	326T	1180	93.6	92.5	93.4	82.0	36.6	29.3	217.5	174.1	133.5	200	230	17.086	G	595	6313ZC3	6211ZC3	
40	2	324TS	3560	93.6	93.0	92.7	89.0	45.0	36.0	287.7	230.4	59.0	160	220	5.410	G	573	6313ZC3	6211ZC3	
	4	324T	1770	94.1	93.2	93.6	84.0	47.4	37.9	279.6	223.6	118.7	190	240	9.777	G	573	6313ZC3	6211ZC3	
	6	364T	1180	94.1	93.1	94.0	85.0	46.8	37.7	290.0	232.0	178.0	200	250	29.180	G	870	6314C3	6213C3	
50	2	326TS	3560	93.6	93.0	92.7	89.5	55.9	44.7	362.5	289.9	73.8	160	230	6.075	G	595	6313ZC3	6211ZC3	
	4	326T	1770	94.1	93.2	93.6	84.5	58.9	47.1	353.3	282.6	148.4	200	250	13.288	G	595	6313ZC3	6211ZC3	
	6	365T	1180	94.1	93.1	94.1	85.0	58.5	46.4	362.5	290.0	222.5	200	250	35.120	G	930	6314C3	6213C3	
60	2	364TS	3540	94.1	93.0	94.0	91.0	65.6	52.8	435.0	348.0	89.0	120	200	13.910	G	870	6213C3	6213C3	
	4	364T	1775	95.0	94.1	95.2	86.0	68.8	55.3	435.0	348.0	177.5	200	250	21.000	G	870	6314C3	6213C3	
	6	404T	1180	94.1	93.1	94.3	86.0	69.4	55.8	435.0	348.0	267.1	200	250	56.410	G	1380	6316C3	6313C3	
75	2	365TS	3540	94.1	93.6	94.0	92.0	81.1	63.8	542.5	434.0	111.3	120	200	15.660	G	930	6213C3	6213C3	
	4	365T	1775	95.0	94.5	95.2	86.0	85.9	67.6	542.5	434.0	221.9	200	250	24.170	G	930	6314C3	6213C3	
	6	405T	1180	94.1	93.6	94.3	86.0	86.8	68.2	542.5	434.0	333.8	200	250	60.030	G	1410	6316C3	6313C3	
100	2	405TS	3550	95.0	94.1	95.0	90.0	109.5	88.1	725.0	580.0	147.9	110	200	27.140	G	1410	6313C3	6313C3	
	4	405T	1775	95.0	94.5	95.1	86.5	113.9	91.6	725.0	580.0	295.9	200	250	43.470	G	1410	6316C3	6313C3	
	6	444T	1180	95.0	94.1	95.2	86.0	114.6	92.2	725.0	580.0	445.1	200	250	84.430	G	1720	NU318M	6316C3	
125	2	444TS	3555	95.0	94.3	95.0	90.0	136.9	109.2	910.0	728.0	184.7	100	200	43.600	G	1720	6314C3	6314C3	
	4	444T	1778	95.4	94.5	95.1	87.5	140.2	111.9	910.0	728.0	369.2	200	250	64.090	G	1720	NU318M	6316C3	
	6	445T	1180	95.0	94.1	95.2	86.5	142.4	113.6	910.0	728.0	556.4	200	250	98.140	G	2010	NU318M	6316C3	
150	2	445TS	3565	95.0	94.3	95.0	90.0	164.3	129.2	1085.0	868.0	221.0	100	200	49.840	G	2010	6314C3	6314C3	
	4	445T	1780	95.4	94.5	95.5	88.0	167.3	131.6	1085.0	868.0	442.6	200	250	80.700	G	2010	NU318M	6316C3	
	6	447TZ	1180	95.0	94.1	95.0	86.5	170.9	134.4	1085.0	868.0	667.6	200	250	117.330	G	2230	NU318M	6316C3	
200	2	447TS	3565	95.4	94.5	95.2	91.0	215.7	173.5	1450.0	1160.0	294.6	100	200	56.970	G	2230	6314C3	6314C3	
	4	447TZ	1780	95.8	95.0	95.4	88.0	222.1	178.7	1450.0	1160.0	590.1	200	250	86.670	G	2230	NU318M	6316C3	
	6	449TZ	1180	95.4	94.1	95.5	87.0	225.6	181.5	1450.0	1160.0	890.2	200	220	178.450	G	2910	NU318M	6316C3	
250	2	449TS	3565	95.4	94.5	95.5	91.5	268.2	215.1	1825.0	1460.0	368.3	100	200	81.990	G	2910	6314C3	6314C3	
	4	449TZ	1780	95.8	95.0	96.0	88.5	276.1	221.5	1825.0	1460.0	737.7	200	220	130.270	G	2910	NU318M	6316C3	

Note: 1. The above data are average expected values.

2. Actual minimum efficiencies can be certified by direct measurement based on ANSI/IEEE-112 test method B and CSA C 390.

3. Technical data are subject to change without notice.

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