

HOLLOSHAFT® Motors for New DOE Standards

Vertical AC Motors, High Thrust Inverter Duty and SINEWAVE OPTIMIZED™ Premium Efficient



Horsepower: 7.5 – 600 HP

Speed: 3600 - 1200 RPM

Design Voltages: Three Phase / 460 Vac / 60 Hz

Enclosure: Weather Protected Type 1

Efficiency Level: NEMA Premium®+ per MG-1 Table 12-12 (IE-3)



New DOE Regulations Impact Motor Market

In 2014, the U.S. Department of Energy (DOE) enacted regulations raising the efficiency requirements of special purpose motors. As of June 2016, vertical motors manufactured or imported for use in the United States will have to meet NEMA Premium® efficiency levels.

Previous to this action, the DOE did not define efficiency levels for vertical motors. Motor manufacturers were free to use terms such as Energy Efficient, High Efficient or similar nomenclature to describe their product lines. The motors met whatever level of efficiency the manufacturer chose. However, as of June 2016, any motor labeled NEMA Premium, including vertical HOLLOSHAFT® and solid shaft P-base motors, has to meet the efficiency specifications defined by NEMA MG-1 Table 12-12.

Nidec Motor Corporation now stocks Vertical HOLLOSHAFT® motors that meet the NEMA Premium efficiency levels in MG-1 Table 12-12.

Motors Designed for a Changing Market

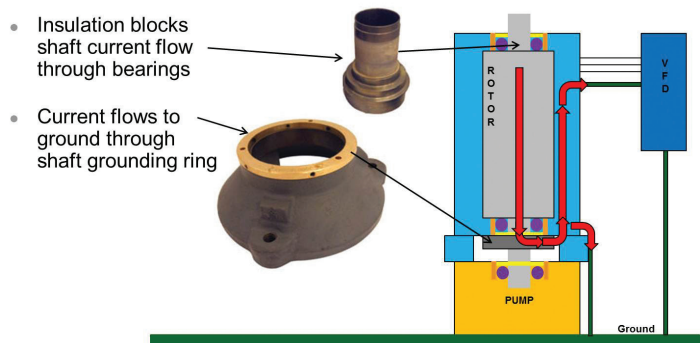
Even though standard efficient motors can no longer be manufactured, many pumping applications are still best served by a constant speed motor. Others require a variable speed motor to maintain constant pressure or flow. To meet those needs, Nidec Motor Corporation offers two product lines; U.S. MOTORS® brand Inverter Duty and SINEWAVE OPTIMIZED™ premium efficient. Both product lines meet NEMA Premium® efficiency levels. The Inverter Duty motors are built with features designed to protect against the punishing effects of PWM waveforms generated by inverters. The SINEWAVE OPTIMIZED™ premium efficient motors provide a lower cost alternative for constant speed applications.

Inverter Duty and SINEWAVE OPTIMIZED™ Premium Efficient Comparison Chart

Feature	Inverter Duty (AUSI/RUSI)	SINEWAVE OPTIMIZED™ Premium Efficient (AUS/RUS)
NEMA Premium Efficiency per MG-1 Table 12-12	X	X
Space Heaters (Up through 250 HP)	X	X
INVERTER GRADE® Insulation per NEMA MG-1 Part 31	X	X
Insulated Motor Bearings (100 HP and above)	X	
Motor Shaft Ground Ring	X	
Motor Winding Thermostats	X	

HOLLOSHAFT® Inverter Duty Motors Go Beyond NEMA MG-1 Part 31 Specifications

Expensive to repair, inverter induced damage can remain hidden for months or even years. Bearing insulation and shaft grounding rings minimize bearing damage caused by VFD induced motor shaft currents.



U.S. MOTORS® brand Vertical HOLLOSHAFT® high thrust Inverter Duty motors are built to meet NEMA MG-1 Part 31 and NEMA Premium specifications but do not stop there. Additional features are added to protect against stresses NEMA Part 31 does not address, resulting in a more reliable and longer lasting inverter fed motor.

Feature	Benefit
INVERTER GRADE® Insulation per NEMA MG-1 Part 31	Motor windings will withstand additional electrical stress induced by VFD generated PWM waveforms
Insulated Motor Bearings	Minimizes bearing damage caused by the discharge of shaft currents prevalent in VFD fed motors
Motor Shaft Grounding Ring	Protects motor and pump bearings by shunting VFD induced shaft current to ground
Motor Winding Thermostats	Added protection against overheating caused by reduced airflow during low speed operation and PWM waveforms
Space Heater	Reduces condensation that can lead to motor winding failures and lubricant contamination
NEMA Premium® Efficient	Greater resistance to heat buildup caused by low speed operation and electrical stresses from VFD generated PWM waveforms

HOLLOSHAFT® Inverter Duty Motors

U.S. MOTORS® brand Vertical HOLLOSHAFT® Inverter Duty motors available today are designed for pumping applications requiring variable speed or NEMA Premium efficiency levels.

HP	RPM	Voltage	Frame	Catalog Number	Type	List w/ NRR	NNE	Down Thrust (lbs.)
15	1800	230/460	254TP	HO15V2BLE	AUSI	\$5,226	93.0	3300
20	1800	230/460	256TPH	HO20V2BLF	AUSI	\$5,728	93.0	3300
25	1800	230/460	284TPA	HO25V2BLF	AUSI	\$6,456	93.6	3300
30	1800	230/460	286TPA	HO30V2BLF	AUSI	\$7,024	94.1	3300
40	1800	230/460	324TP	HO40V2BLG	RUSI	\$7,779	94.1	5700
	1800	230/460	324TPH	HO40V2BLF	RUSI	\$7,779	94.1	5700
	1800	575	324TP	HO40V2GLG	RUSI	\$7,779	94.1	5700
50	1800	230/460	326TP	HO50V2BLG	RUSI	\$8,894	94.5	5700
	1800	575	326TP	HO50V2GLG	RUSI	\$8,894	94.5	5700
60	1800	460	364TP	HO60V2SLG	RUSI	\$10,528	95.0	5700
	1800	575	364TP	HO60V2GLG	RUSI	\$10,528	95.0	5700
75	1800	460	365TP	HO75V2SLG	RUSI	\$12,312	95.0	5700
	1800	575	365TP	HO75V2GLG	RUSI	\$12,312	95.0	5700
100	1800	460	404TP	HO100V2SLGX	RUSI	\$16,418	95.4	11725
	1800	460	404TP	HO100V2SLG	RUSI	\$15,885	95.4	6700
	1800	575	404TP	HO100V2GLG	RUSI	\$15,885	95.4	6700
125	1800	460	405TP	HO125V2SLGX	RUSI	\$19,153	95.4	11725
	1800	460	405TP	HO125V2SLG	RUSI	\$18,509	95.4	6700
	1800	575	405TP	HO125V2GLG	RUSI	\$18,509	95.4	6700
150	1800	460	H444TP	HO150V2SLGX	RUSI	\$25,109	95.8	17150
	1800	460	H444TP	HO150V2SLG	RUSI	\$24,562	95.8	9800
	1800	575	H444TP	HO150V2GLG	RUSI	\$24,562	95.8	9800

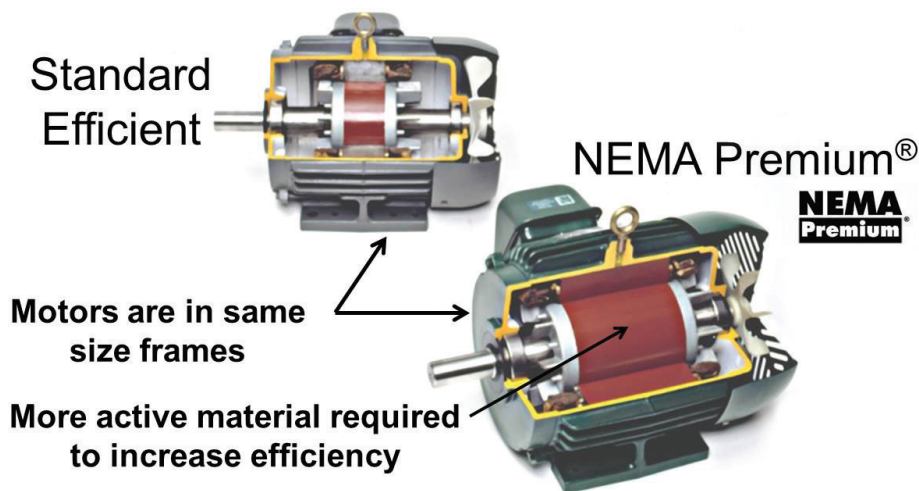
(continuation)

HP	RPM	Voltage	Frame	Catalog Number	Type	List w/ NRR	NNE	Down Thrust (lbs.)
200	1800	460	H445TPA	HO200V2SLH	RUSI	\$31,516	95.8	9800
	1800	460	H445TPA	HO200V2SLHX	RUSI	\$32,580	95.8	17150
	1800	575	H445TP	HO200V2GLG	RUSI	\$31,516	95.8	9800
250	1800	460	H445TPA	HO250V2SLH	RUSI	\$39,399	95.4	9800
	1800	460	H445TPA	HO250V2SLHX	RUSI	\$40,657	95.4	17150
	1800	575	H445TP	HO250V2GLG	RUSI	\$39,399	95.8	9800
300	1800	460	447TPA	HO300V2SLHX	RUSI	\$47,203	95.8	17150
	1800	460	447TPA	HO300V2SLH	RUSI	\$45,704	95.8	9800
	1800	575	447TP	HO300V2GLG	RUSI	\$45,704	95.8	9800
350	1800	460	447TPA	HO350V2SLH	RUSI	\$50,683	95.8	9800
	1800	460	447TPA	HO350V2SLHX	RUSI	\$52,422	95.8	17150
	1800	575	447TP	HO350V2GLG	RUSI	\$50,683	95.8	9800
400	1800	460	449TPH	HO400V2SLHX	HUSI	\$61,734	95.8	28500
	1800	460	449TPH	HO400V2SLH	HUSI	\$57,514	95.8	9500
	1800	575	449TP	HO400V2GLJ	HUSI	\$57,514	95.8	9500
450	1800	460	449TPH	HO450V2SLH	HUSI	\$61,148	96.2	9500
	1800	460	449TPH	HO450V2SLHX	HUSI	\$65,638	96.2	28500
500	1800	460	5008PH	HO500V2SLH	RUEI	\$73,575	96.2	9500
	1800	460	5008PH	HO500V2SLHX	RUEI	\$78,955	96.2	28500
600	1800	460	5012P	HO600V2SLJX	RUEI	\$99,481	96.2	30900

HOLLOSHAFT® SINEWAVE OPTIMIZED™ NEMA Premium® Efficient Motors

U.S. MOTORS® brand Vertical HOLLOSHAFT® SINEWAVE OPTIMIZED™ premium efficient motors are built to meet NEMA Premium levels specified in NEMA MG-1 Table 12-12, as tested per DOE regulations. These motors contain more active material than their standard efficient counterparts to achieve the mandated efficiency levels.

Progression of Active Material



SINEWAVE OPTIMIZED™ VHS motors are available from stock now. Complementary to the U.S. MOTORS inverter duty products, they are optimized for constant speed applications driven by sinusoidal power.

SINEWAVE OPTIMIZED™ Motors

HP	RPM	Voltage	Frame	Catalog Number	Type	List w/ NRR	NNE	Down Thrust (lbs.)
7 1/2	1800	230/460	213TP	HO7P2BLE	AUS	\$3,789	91.7	2500
	1200	230/460	254TPH	HO7P3BLF	AUS	\$4,983	90.2	3800
10	1800	230/460	215TP	HO10P2BLE	AUS	\$4,187	91.7	2500
	1200	230/460	256TPH	HO10P3BLF	AUS	\$5,592	91.7	3800
15	1800	230/460	254TP	HO15P2BLE	AUS	\$4,686	93.0	3300
	1800	230/460	254TPA	HO15P2BLG	AUS	\$4,686	93.0	3300
20	3600	230/460	254TPH	HO20P1BLF	AUS	\$4,708	91.0	2600
	1800	230/460	256TPH	HO20P2BLF	AUS	\$5,122	93.0	3300
	1800	230/460	256TPA	HO20P2BLG	AUS	\$5,122	93.0	3300
25	3600	230/460	256TPH	HO25P1BLF	AUS	\$5,015	91.7	2600
	1800	230/460	284TPA	HO25P2BLF	AUS	\$5,778	93.6	3300
	1800	230/460	284TPH	HO25P2BLG	AUS	\$5,778	93.6	3300
30	3600	230/460	284TPA	HO30P1BLF	AUS	\$5,369	91.7	2600
	1800	230/460	286TPA	HO30P2BLF	AUS	\$6,277	94.1	3300
	1800	230/460	286TPH	HO30P2BLG	AUS	\$6,277	94.1	3300
40	3600	230/460	286TPA	HO40P1BLF	AUS	\$5,927	92.4	2600
	1800	230/460	324TPH	HO40P2BLF	RUS	\$7,017	94.5	5700
	1800	230/460	324TP	HO40P2BLG	RUS	\$7,017	94.5	5700
	1800	460	324TP	HO40P2SLG	RUS	\$7,017	94.5	5700
50	1800	230/460	326TPH	HO50P2BLF	RUS	\$8,182	94.5	5700
	1800	230/460	326TP	HO50P2BLG	RUS	\$8,182	94.5	5700
	1800	460	326TP	HO50P2SLG	RUS	\$8,182	94.5	5700
60	1800	230/460	364TP	HO60P2BLG	RUS	\$9,528	95.0	5700
	1800	460	364TP	HO60P2SLG	RUS	\$9,528	95.0	5700
75	1800	230/460	365TP	HO75P2BLG	RUS	\$11,327	95.0	5700
	1800	460	365TP	HO75P2SLG	RUS	\$11,327	95.0	5700
100	1800	230/460	404TP	HO100P2BLG	RUS	\$14,376	95.4	6700
	1800	460	404TP	HO100P2SLG	RUS	\$14,376	95.4	6700
	1800	460	404TP	HO100P2SLGX	RUS	\$14,858	95.4	11725
125	1800	460	405TP	HO125P2SLG	RUS	\$17,769	95.4	6700
	1800	460	405TP	HO125P2SLGX	RUS	\$18,387	95.4	11725
150	1800	460	H444TP	HO150P2SLG	RUS	\$22,955	95.8	9800
	1800	460	H444TP	HO150P2SLGX	RUS	\$23,466	95.8	17150
	1800	460	H444TP	HO150P2SLH	RUS	\$22,955	95.8	9800
200	1800	460	H445TP	HO200P2SLG	RUS	\$28,995	95.8	9800
	1800	460	H445TP	HO200P2SLHX	RUS	\$29,974	95.8	17150
250	1800	460	H445TP	HO250P2SLHX	RUS	\$37,811	95.8	17150
300	1800	460	447TPA	HO300P2SLHX	RUS	\$43,899	95.8	17150
350	1800	460	447TPA	HO350P2SLHX	RUS	\$49,277	95.8	17150
400	1800	460	449TPH	HO400P2SLHX	HUS	\$55,213	96.2	28500
450	1800	460	449TPH	HO450P2SLHX	HUS	\$58,702	96.2	28500
500	1800	460	5008PH	HO500P2SLHX	RUE	\$69,896	96.2	28500
600	1800	460	5012P	HO600P2SLJX	RUE	\$93,512	96.2	30500

† All marks shown within this document are properties of their respective owners.

Nidec

NIDEC MOTOR CORPORATION

Nidec Motor Corporation, 2016; All Rights Reserved. U.S. MOTORS® is a registered trademark of Nidec Motor Corporation.
Nidec Motor Corporation trademarks followed by the ® symbol are registered with the U.S. Patent and Trademark Office.

8050 W. Florissant Avenue | St. Louis, MO 63136
Phone: 888-637-7333 | Fax: 866-422-7758