

Intelligent Drivesystems



pe ee se

MOTORS & BRAKEMOTORS

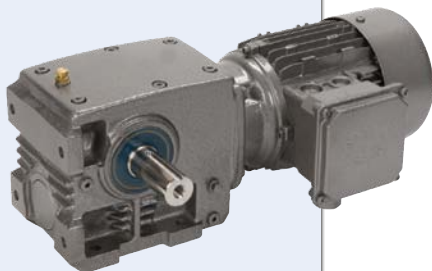
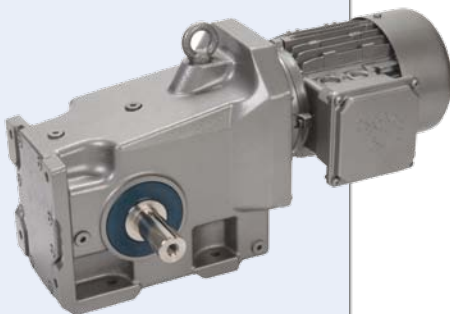
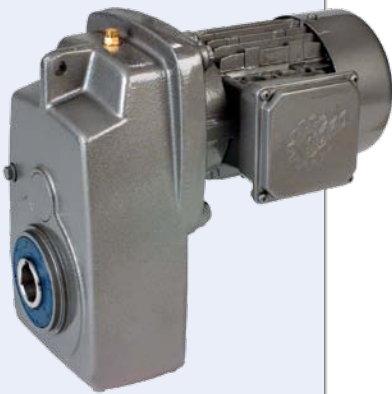
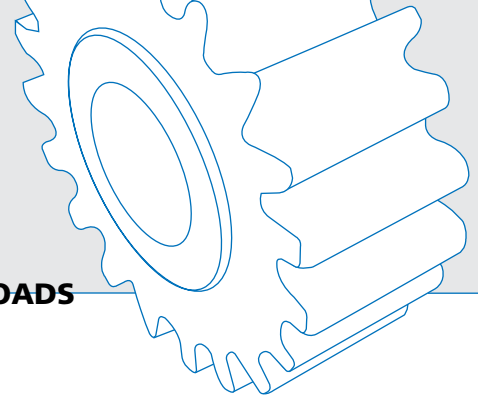
Standard & High Efficiency • 4 Pole • 50 & 60 Hz

F7011


DRIVESYSTEMS

High Performance Motor Brakes

TO DRIVE HEAVY INDUSTRIAL LOADS



VOLTAGES

- 230/460 for 60 Hz
- 575V for 60 Hz
- 200-208V for 60 Hz
- 400V (380-415) for 50 Hz
- Many others

FLEXIBLE MOUNTING SOLUTIONS

- NEMA C-face flange
- Foot mounted metric B3 motors
- B14 face flange metric
- B5 flange metric
- With NORD high performance speed reducer






NEMA DESIGN B PERFORMANCE

- High starting torque
- High dynamic running torque
- High breakdown torque

INVERTER/VECTOR DUTY FOR OVER 10 YEARS

- Conforms to NEMA MG-1 1998 Section 31.4.4.2
- 5:1 constant torque 60-12Hz
- 10:1 constant torque 60-6Hz with modifications
- 20:1 constant torque 80-4Hz
- 1000+:1 constant torque 60-0Hz with blower fan

INTERNATIONAL CERTIFICATIONS

-  File numbers E19150, E 93429
-  File number 189340-1293961
- European  rating conformance

ENERGY MISER DESIGNS

- EISA (United States)
- EPACT (United States)
- NRCan regulations (Canada)
- PE - Premium Efficiency
- EE - Energy Efficiency
- SE - Standard Efficiency
- International Efficiency IE1, IE2, IE3

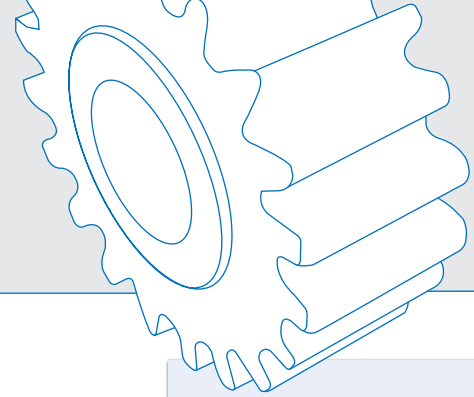
PROTECTION FROM THE ENVIRONMENT

- Sealed construction IP55 protection rating
- Totally Enclosed Fan Cooled (TEFC)

LOW ROTATING INERTIA

- High cycle rates
- Faster starts and stops
- More torque to start the load package

High Performance Specifications



STANDARD EFFICIENCY MOTORS



Motor Type	Power		Full Load n_N [rpm]	Torque T_N [lb-in]	Full Load Current - I_N			Pf $\cos \phi$	Eff. η [%]	Starting Torque T_A/T_N	Breakdown Torque T_K/T_N	Starting Current I_A/I_N [%]	Code letter	Inertia J_m [lb-ft ²]
	P_N [HP]	[kW]			230 V [A]	460 V [A]	575 V [A]							
63 S/4	0.16	0.12	1700	5.9	0.88	0.44	0.37	0.66	52.0	2.7	3.5	250	F	0.0050
63 L/4	0.25	0.18	1680	9.4	1.12	0.56	0.46	0.71	57.0	2.3	2.5	270	E	0.0066
71 S/4	0.33	0.25	1710	12.2	1.56	0.78	0.66	0.64	63.0	2.4	2.7	310	G	0.015
71 L/4	0.5	0.37	1720	18.3	1.90	0.95	0.80	0.69	71.0	2.3	2.7	350	F	0.018
80 S/4	0.75	0.55	1710	27.6	2.70	1.35	1.12	0.71	72.0	2.2	2.3	350	F	0.030
80 L/4	1	0.75	1650	38.2	3.66	1.83	1.46	0.74	70.0	2.2	2.3	390	G	0.039
90 S/4	1.5	1.1	1660	57.0	4.84	2.42	1.94	0.78	73.0	2.5	2.8	490	G	0.056
90 L/4	2	1.5	1660	75.9	6.34	3.17	2.54	0.80	74.0	2.5	2.8	510	G	0.074
100 L/4	3	2.2	1705	111	9.00	4.50	3.63	0.81	76.0	2.3	2.6	490	G	0.107
100 LA/4	5	3.7	1725	183	15.2	7.62	6.10	0.75	81.0	2.7	3.1	510	G	0.178
132 S/4	7.5	5.5	1735	272	19.8	9.90	7.92	0.82	85.0	2.4	2.7	540	G	0.553
132 M/4	10	7.5	1735	363	25.8	12.9	10.3	0.84	87.0	2.9	3.2	630	H	0.752
160 M/4	15	11	1770	534	35.8	17.9	14.5	0.85	90.7	2.9	3.8	820	H	1.19
160 L/4	20	15	1760	716	48.4	24.2	19.3	0.87	89.4	2.9	3.9	850	K	1.59
180 MX/4	25	18.5	1760	895	59.0	29.5	23.6	0.87	90.5	3.4	4.3	880	J	1.90
180 LX/4	30	22	1765	1071	74.4	37.2	29.8	0.80	92.8	3.6	4.4	890	H	2.18

ENERGY EFFICIENT MOTORS



Motor Type	Power		Full Load n_N [rpm]	Torque T_N [lb-in]	Full Load Current - I_N			Pf $\cos \phi$	Eff. η [%]	Starting Torque T_A/T_N	Breakdown Torque T_K/T_N	Starting Current I_A/I_N [%]	Code letter	Inertia J_m [lb-ft ²]
	P_N [HP]	[kW]			230 V [A]	460 V [A]	575 V [A]							
80 LH/4	1	0.75	1750	36.0	3.88	1.94	1.50	0.59	82.5	4.6	4.3	600	L	0.045
90 SH/4	1.5	1.1	1740	54.3	4.30	2.15	1.75	0.76	84.0	3.5	3.8	630	J	0.081
90 LH/4	2	1.5	1745	72.2	6.30	3.15	2.45	0.71	84.0	4.3	4.5	670	K	0.093
100 LH/4	3	2.2	1765	107	8.60	4.30	3.40	0.73	87.5	3.6	4.7	790	L	0.178
112 MH/4	5	3.7	1770	178	14.4	7.20	5.60	0.74	87.5	4.0	4.8	810	L	0.304
132 SH/4	7.5	5.5	1780	266	20.9	10.5	8.30	0.74	89.5	4.3	4.6	820	L	0.752
132 MH/4	10	7.5	1770	356	27.0	13.5	10.8	0.78	89.5	3.2	4.0	740	J	0.840
160 MH/4	15	11	1770	534	26.0	18.0	14.4	0.84	91.7	3.2	3.8	870	K	1.59
160 LH/4	20	15	1775	710	48.0	24.0	19.2	0.84	92.6	3.5	4.2	880	L	2.18
180 MH/4	25	18.5	1780	885	60.0	30.0	24.0	0.84	92.4	3.5	3.6	850	K	3.08
180 LH/4	30	22	1780	1062	70.0	35.0	28.0	0.85	92.4	3.6	3.6	830	J	3.80

PREMIUM EFFICIENT MOTORS



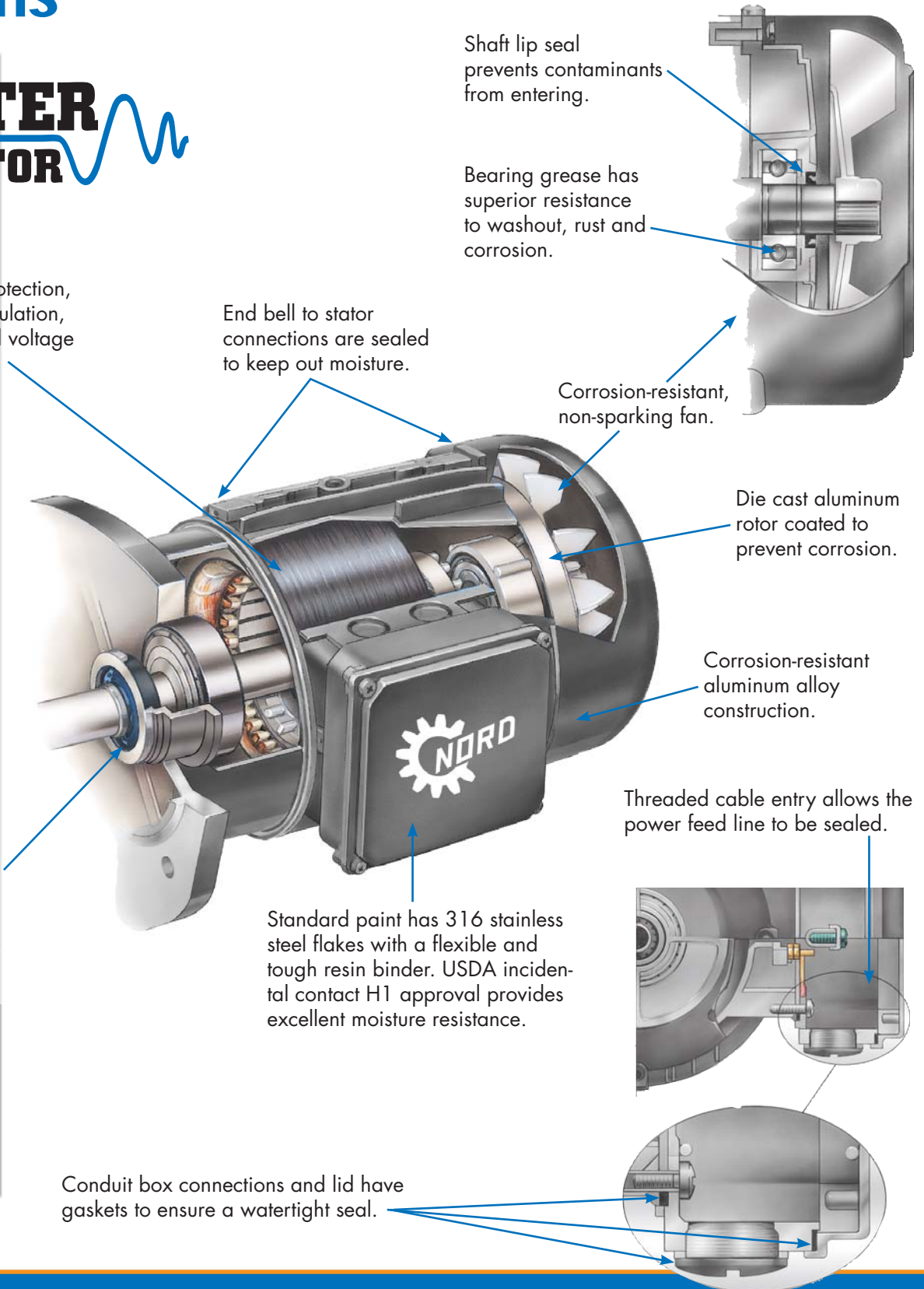
Motor Type	Power		Full Load n_N [rpm]	Torque T_N [lb-in]	Full Load Current - I_N			Pf $\cos \phi$	Eff. η [%]	Starting Torque T_A/T_N	Breakdown Torque T_K/T_N	Starting Current I_A/I_N [%]	Code letter	Inertia J_m [lb-ft ²]
	P_N [HP]	[kW]			230 V [A]	460 V [A]	575 V [A]							
80 LP/4	1	0.75	1730	36.4	3.14	1.57	1.30	0.70	86.1	3.4	3.8	650	L	0.045
90 SP/4	1.5	1.1	1740	54.3	4.20	2.10	1.68	0.76	86.9	4.1	4.9	840	J	0.081
90 LP/4	2	1.5	1730	72.9	5.60	2.80	2.24	0.78	87.0	3.8	4.2	760	K	0.093
100 LP/4	3	2.2	1770	107	7.70	3.84	3.07	0.79	90.0	3.0	4.5	920	L	0.192
112 MP/4	5	3.7	1755	180	13.0	6.50	5.20	0.80	90.3	3.8	4.3	910	L	0.332
132 SP/4	7.5	5.5	1770	267	19.5	9.80	7.80	0.77	91.7	4.7	5.0	1020	L	0.759
132 MP/4	10	7.5	1765	357	26.6	13.3	10.6	0.77	91.7	4.7	5.0	960	J	0.831
160 MP/4	15	11	1770	534	35.6	17.8	14.2	0.84	92.5	3.2	3.8	880	K	1.59
160 LP/4	20	15	1775	710	47.6	23.8	19.0	0.85	93.0	4.3	4.6	1080	L	2.18
180 MP/4	25	18.5	1780	885	61.0	30.3	24.2	0.82	93.6	3.4	3.6	860	K	3.80
180 LP/4	30	22	1780	1062	70.0	34.8	27.8	0.85	93.6	3.3	3.4	880	J	3.80

High Performance Designs

INVERTER DUTY MOTOR

Inverter duty winding protection, Class H magnet wire insulation, double coated wire, and voltage spike protection.

Shaft lip seal excludes speed reducer lubricant, allowing motor to be mounted in any position.



Shaft lip seal prevents contaminants from entering.

Bearing grease has superior resistance to washout, rust and corrosion.

End bell to stator connections are sealed to keep out moisture.

Corrosion-resistant, non-sparking fan.

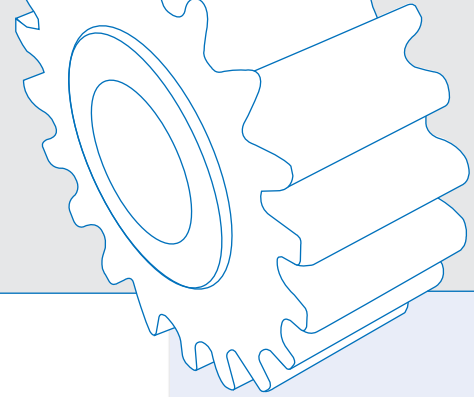
Die cast aluminum rotor coated to prevent corrosion.

Corrosion-resistant aluminum alloy construction.

Threaded cable entry allows the power feed line to be sealed.

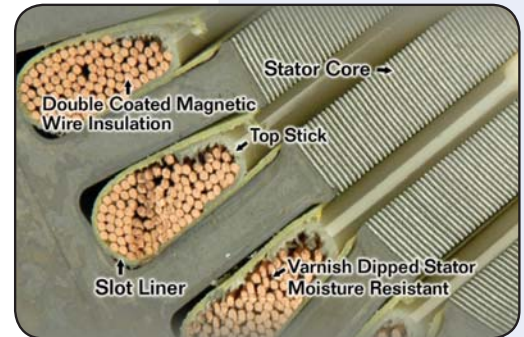
Standard paint has 316 stainless steel flakes with a flexible and tough resin binder. USDA incidental contact H1 approval provides excellent moisture resistance.

Conduit box connections and lid have gaskets to ensure a watertight seal.



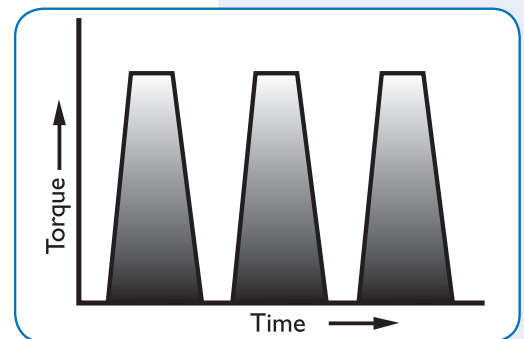
DESIGN FOR.....INVERTER/VECTOR DUTY

- Class H magnet wire insulation is double coated for extra protection
- Magnet wire slots are lined with insulation to prevent chafing
- First turn winding construction handles line surges
- Varnish dipped stator gives added moisture protection
- 1.15 Service Factor
- Class B temperature rise
- Voltage spike resistance per NEMA MG-1 1998 Section 31.4.4.2
- Phase paper
- Sleeved connecting leads



DESIGN FOR.....HIGH START/STOP CYCLE RATES

- Low rotating inertia
- Rapid acceleration/deceleration
- Reversible rotation
- Finned aluminum alloy stator housing
- Low temperature rise
- Across the line or inverter operation
- Up to 8600 starts per hour



DESIGN FOR.....HIGH PERFORMANCE BRAKING

- Faster release
- Quicker stopping
- Multiple brake sizes available
- Brake voltage options
- No external wires for standard brake
- AC or DC switching
- Adjustable torque

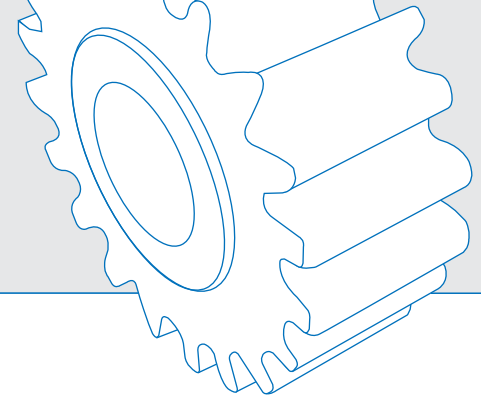


DESIGN FOR.....PROTECTION FROM THE ELEMENTS

- Corrosion resistant aluminum alloy housing
- Shaft lip seals exclude contaminants from both ends
- Inorganic fungus protection
- Sealed end bell connections
- Bearing grease resists moisture
- Moisture resistant internal materials
- Gasketed and sealed terminal box
- Terminal block connector organizes power feed
- Cast metal terminal box for connection rigidity



High Performance Options



POWER OFF BRAKES (BRE)

- Deliver torque when power is off
- Ready-to-go wired by factory
- Long life
- Rapid cycling
- Adjustable torque
- Simple mechanical construction



ENERGY EFFICIENT MOTOR

- High efficiencies
- Cost Savings
- Premium Efficiency (EISA)
- Energy Efficiency (EISA)
- International efficiency IE1, IE2, IE3.



BRAKE OPTIONS

- Hand release lever (HL)
- Lockable hand lever (FHL)
- Current sensing relay (IR)
- Fast release rectifier (GP)
- Corrosion protection (RG)
- Severe duty protection (NSD+)



SEVERE DUTY PROTECTIVE PAINT COASTINGS

- Stainless Steel (NSD+)
- White (NSD+W)
- Stainless Steel & Clear Coat (NSD-X3)
- White & Clear Coat (NSD-X3W)



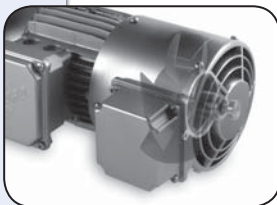
INCREMENTAL ENCODER (IG...)

- Feedback speed/position control
- Pulse count from 100-5000
- Operating voltages from 4-6 or 10-30VDC
- Interface either RS422/TTL or HTL/push-pull type



IP66 ENCLOSURE PROTECTION

- Can handle high-pressure wash downs



BLOWER FANS (F, FC)

- Independent of motor speed
- Available for line power
- Use with low motor speeds



SPACE HEATER (SH)

- Anti-condensation heater installed inside motor
- Heats up windings preventing condensation
- Available voltages



THERMAL PROTECTION

- Thermostat bi-metallic switches (TW)
- Thermistor PTC Sensors (TF)



POWER PLUG QUICK CONNECTOR (MS)

- Simple and fast power connect or disconnect
- Modular plug wired - ready to go
- Allows rapid change out of motor
- Makes remote assembly easier



DOUBLE FAN DRIP COVER (RDD)

- Extra protection from wind blown moisture
- Ideal option for windy outdoor duty



HIGH INERTIA COOLING FAN (Z)

- Adds inertia to motor
- Slows down motor starts/stops
- Mechanical soft start or soft stop
- Stores motor kinetic energy
- Smoothing for rapid load changes



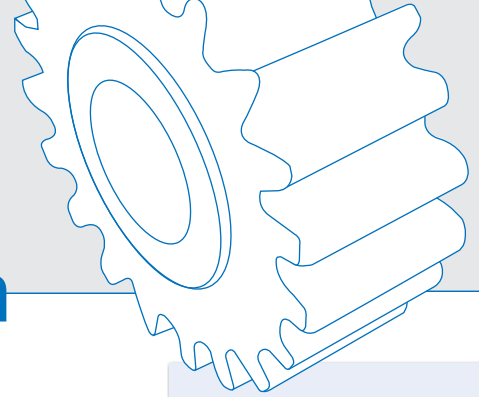
CANOPY DRIP COVER (RD)

- Use in wet vertical up installations
- Protects motor from falling water
- Provides umbrella protection for motor

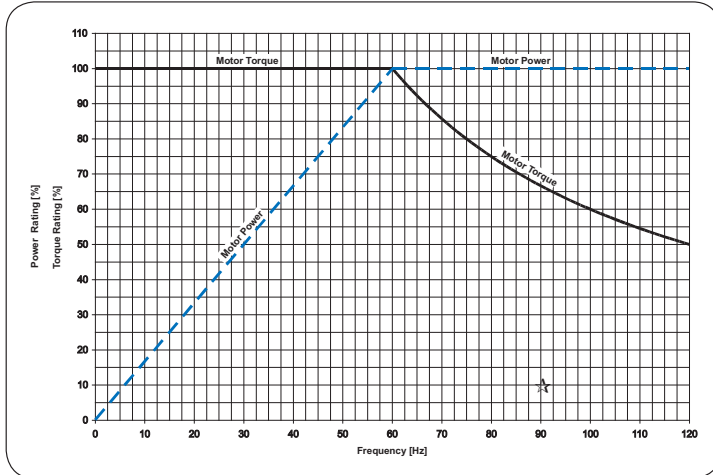


SHAFT EXTENSION OUTSIDE FAN COWL (WE)

- Used to mount customer-supplied devices
- Also can be power take off



High Performance Inverter / Vector Operation

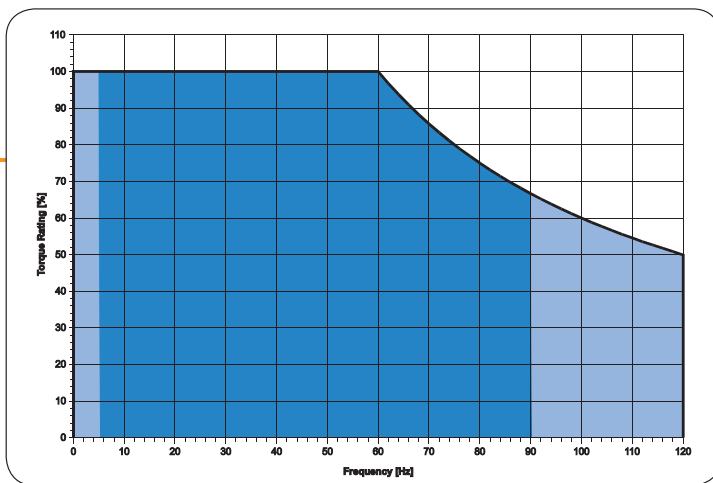
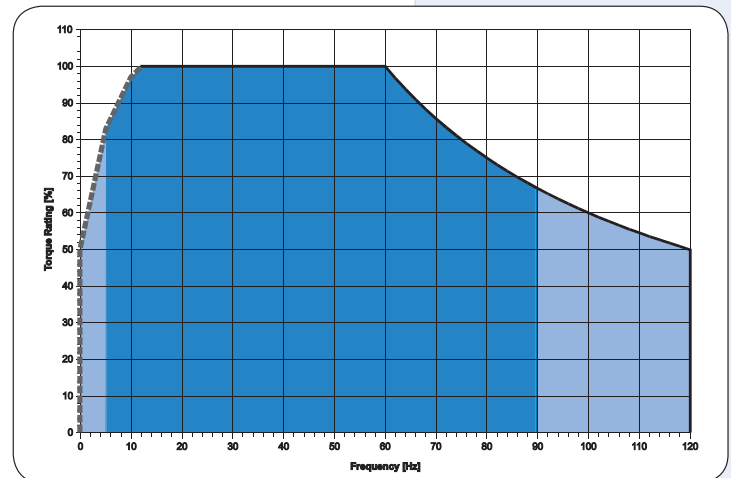


TYPICAL INVERTER/MOTOR PERFORMANCE

Most applications for motors and variable frequency inverters require constant torque. This means that the load torque is constant and is independent of output speed. NORD motors are well suited for constant torque applications. To the left is a typical operating characteristic chart for NORD motors used on constant torque inverters. This chart demonstrates the frequency range NORD motors deliver constant torque and constant power.

TYPICAL TEFC MOTOR PERFORMANCE

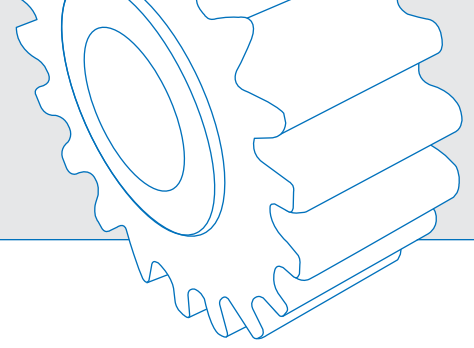
NORD motors can safely operate over a frequency range of 0Hz to 120Hz. The gray shaded zone below the curve on the chart indicates the safe continuous operating zone. The blue shaded zones below 5Hz and above 90Hz indicate cautionary performance limited by the inverter or vector controller.



TYPICAL TEBC MOTOR PERFORMANCE (BLOWER COOLED)

NORD motors can safely operate over a frequency range of 0Hz to 120Hz. The gray shaded zone below the curve on the above chart indicates the safe continuous operating zone. The blue shaded zones below 5Hz and above 90Hz indicate cautionary performance limited by the inverter or vector controller.

Product Overview



UNICASE™ SPEED REDUCERS



HELICAL IN-LINE

- Foot or Flange Mount
- Torque up to 205,000 lb-in
- Gear ratios – 1.82:1 to over 300,000:1



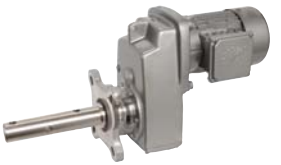
NORDBLOC®.1 HELICAL IN-LINE

- Foot or Flange Mount
- Torque up to 26,550 lb-in
- Gear ratios – 1.88:1 to over 370:1



PARALLEL HELICAL CLINCHER™

- Shaft, Flange or Foot Mount
- Torque up to 797,000 lb-in
- Gear ratios – 4.26:1 to over 300,000:1



SCP SCREW CONVEYOR PACKAGE

- Shaft, or Flange Mount
- Torque up to 53,100 lb-in
- Gear ratios – 4.32:1 to over 1500:1



RIGHT ANGLE HELICAL-BEVEL 2-STAGE

- Foot, Flange or Shaft Mount
- Torque up to 5,840 lb-in
- Gear ratios – 4.1:1 to 72:1



RIGHT ANGLE HELICAL-BEVEL

- Foot, Flange or Shaft Mount
- Torque up to 283,000 lb-in
- Gear ratios – 8.04:1 to over 300,000:1



RIGHT ANGLE HELICAL-WORM

- Foot, Flange or Shaft Mount
- Torque up to 27,585 lb-in
- Gear ratios – 4.40:1 to over 300,000:1

HIGH PERFORMANCE MOTORS & BRAKEMOTORS



INVERTER/VECTOR DUTY

- Standard or Energy Efficient
- Integral, NEMA or Metric IEC
- 1/6 to 250 hp

UNICASE™ SPEED REDUCERS



MINICASE™ RIGHT ANGLE WORM

- Foot, Flange or Shaft Mount
- Torque up to 3,540 lb-in
- Gear ratios – 5:1 to 500:1



FLEXBLOC™ WORM

- Modular bolt-on options
- Torque up to 4,683 lb-in
- Gear ratios – 5:1 to 3,000:1



MAXXDRIVE™ LARGE INDUSTRIAL GEAR UNITS PARALLEL HELICAL

- Modular bolt-on options
- Torque up to 2,027,000 lb-in
- Gear ratios – 5:1 to 1,600:1



MAXXDRIVE™ LARGE INDUSTRIAL GEAR UNITS HELICAL-BEVEL

- Modular bolt-on options
- Torque up to 2,027,000 lb-in
- Gear ratios – 5:1 to 1,600:1

NORDAC AC VECTOR DRIVES



SK200E FAMILY

- Distributed, high performance
- 380-480V, 3-phase to 30 hp
- 200-240V, 3-phase to 15 hp
- 200-240V, 1-phase to 1.5 hp
- 100-120V, 1-phase to 1 hp



SK500E FAMILY

- Compact, cabinet mount, high performance
- 380-480V, 3-phase, to 50hp
- 200-240V, 3-phase, to 25hp
- 200-240V, 1-phase, to 3hp
- 110-120V, 1-phase, to 1.5hp



SK700E FAMILY

- Flexible, cabinet mount, high performance
- 380-480V, 3-phase, to 200hp



DRIVESYSTEMS

www.nord.com

WEST
Corona, CA (Los Angeles)
Phone: 608.849.0190

MIDWEST
Waunakee, WI (Madison)
Phone: 608.849.7300

EAST
Charlotte, NC
Phone: 608.849.0140

NORD Gear Corporation

National Customer Service Toll-Free: 888.314.6673
info.us@nord.com

NORD Gear Limited

Toll-Free in Canada: 800.668.4378
info.ca@nord.com

CANADA
Brampton, ON (Toronto)
Phone: 905.796.3606