



Drives & Motors Technology

Product Portfolio

Issue 2 – January 2018

LEROY-SOMER[™]

Aim of this presentation

- This is a comprehensive product presentation designed for sales teams and staff, as:
 - Reference material for our full complement of current products
 - Material for customer presentations
- The content:
 - Can be edited, with slides deleted and used, as required
 - Is not expected to be presented to customers as a whole
 - Can be used globally but may need to be localized before publishing or used with customers
- **This slide is just for instruction, please delete before presenting**

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Product Overview

Drives & Motors Technology - Meeting Customer Needs with a Comprehensive Range



Drives and controllers	AC Drives for Process control										
	Powerdrive MD2, Powerdrive FX and Proxdrive										
						Up to 2.8 MW (4,200 hp)					
Motors	Permanent Magnet Motors		Induction Motors		Induction Motors with integrated drive	Induction Motors for Automation		Servo Motors	DC Motors	Elevator Motors	
	Dyneo®		IMfinity®	IMfinity® LC	ID300	LSMV	CPLS	Unimotor fm & hd		LSK	E27
											
Up to 500 kW (680 hp)		Up to 900 kW (1,200 hp)	Up to 1,500 kW (2,000 hp)	Up to 11 kW (15 hp)	Up to 132 kW (180 hp)	Up to 560 kW (750 hp)	Up to 136 Nm (100.3 lb.ft) (408 Nm / 300 lb.ft peak)		Up to 560 kW (750 hp)	Up to 1,000 kg (2,205 lb)	
Gears & Brakes	Geared motors					Brake Motors		Geared Servo Motors	Process		
									Manufacturing		
Up to 23,000 Nm (16,961.7 lb.ft)					Up to 5,000 Nm (3,687.3 lb.ft)		Up to 3,000 Nm (2,212.4 lb.ft)	General Purpose			
								Elevators			

Drives

Drives - Contents



[Powerdrive](#) — MD2, FX (AC drives), Option modules & Software

[Proxidrive](#) (IP66 AC drive)

[Soft Starters](#)

Powerdrive MD2 - Ready-to-use variable speed drive solutions for high power process applications



AC drive

45 kW - 2.8 MW
(60 - 4,200 hp)

200/400/575/690 V

6, 12, 18 or 24 pulse

2 or 4 quadrants

IP 21 – IP54

Liquid cooling 132 - 1,600 kW

Active Front End 45 - 1,600 kW

Typical applications

Pumping, waste water treatment, refrigeration, ventilation, crushing

Ready-to-use solution

- Complete system: protection, control, interface & safety:
 - Line interrupter (lockable)
 - Safe Torque Off
 - Emergency push button
 - Line reactor
 - High speed fuses

Compact and robust

- < 250 kW flexible wall or chassis mounting
- > 250 kW compact free standing cabinet
- IP54 option
- Install close to motor
- High temperature operation
- Fire mode

Simple and user friendly

- Simple/quick commissioning
- Easy back-up & cloning
- 4.3in color touch screen display
- Alarms prior to tripping
- Diagnostic tools allow quick & safe restarting

Reliability & serviceability

- Programmable **induction & PM** motor control modes
- Preventive auto-test of components at each start
- Logging key data prior to trip
- Extended operating data with option module
- Fire mode (certified)
- Accessible & interchangeable components

For more info, [click here](#).

Powerdrive FX

Ultra compact regenerative drive solution



AC drive

22 - 90 kW
(30 - 125 hp)

400 – 480 V

Typical applications

Permanent or cyclic braking, material handling, high inertia, ventilation for critical applications, variable load applications, specific environment (wood or textile industry)



Innovative technology

- Dynamic braking - naturally regenerative rectifier
- No braking resistor
- High efficiency & low losses
- THDI > IEC 61000-3-12
- Components size reduction due to improved form factor
- Stabilized DC bus

Integrated safety

- 2 x STO inputs: (SIL3/PLe)
- Security mode: protection disabled for drive to run
- 70°C operation for 1 hour
- Time stamping of 10 trips

Outdoor installation

- Minimized IP54 enclosure
 - Through panel mounted
 - Integrated IP54 line reactor & EMC filter
 - Low loss capacitors
 - Integrated PLC functions
- Harsh environment enclosure

Outstanding sensorless PM control

- Starting torque as high as 80% of rated torque
- Full torque from $\frac{1}{20}$ nominal speed
- Speed/position feedback option for dynamic performance

For more info, [click here](#).

Powerdrive MD2/FX

Option modules

Communications



- MDX-ETHERNET for Modbus TCP
- MDX-ETHERNET IP for EtherNet/IP
 - 2 x Ethernet port (internal switch)
 - Onboard web pages
 - E-mail alerts (SMTP)
- MDX-MODBUS for Modbus RTU on RS485/232
- MDX-PROFIBUS for Profibus DP V1
- MDX-CAN OPEN for Can Open
- MDX-Profinet for Profinet

Interface



- MDX keypad: remote keypad



- MDX-Powerscreen:
 - Color touch screen interface for commissioning, display & diagnostics
 - Option for FX only (standard on MD2)

Feedback



- MDX-ENCODER: Encoder input
 - Incremental
 - Incremental with commutation channels
 - Hall effect sensors
- MDX-RESOLVER: Resolver input

Additional I/O & clock



- MDX-I/O Lite: I/O extension



- MDX I/O M2M: Data logger & I/O extension
 - Real Time Clock
 - Web pages

Proxidrive IP66 complete decentralized drive solution



0.75 - 7.5 kW *
208 - 480 V – three-phase
50 - 60 Hz
*0.75 - 4 kW power network
208 - 240 V

Typical applications

*Food & beverage,
automotive, pumps, waste
water in all environments,
especially harsh*

Easy commissioning through adapted tools

- Express cloning using XPressKey
- 12 preset configurations
- Optimized functions by console or software

Flexible offer

- Wired local control, dynamic braking, line disconnect, etc.
- Solution for harsh environments
 - Waterproof: IP66 - NEMA 4X P
 - Robust: IK 08
- Complete solution without cabinet
 - Open or closed loop vector control
 - Safety input compliant to EN ISO 13849-1 PLb level or to EN IEC 62061 SIL1 level
 - PLC features
 - Up to 20 I/Os
 - Fieldbus
 - Brake control

For more info, [click here](#).

Digistart CS/D2 & IS/D3 Soft Starter series



Overview

- *Wide range*
- *Integrated bypass contactor up to 1,000 A*
- *Fieldbus communications options*

Digistart CS/D2



- 7.5 – 110 kW (18 – 200 A)
- 200, 400 & 575 V
- IP54 panel mountable keypad
- Simple rotary switch configuration

Typical applications

Pumps, Compressors, Fans, Material handling & Machinery automation

Digistart IS/D3



- 7.5 – 800 kW (23 - 1,600 A)
- 200, 400, 575 & 690 V
- Intelligent three-phase control
- Integrated delta connection
- Fire mode
- Adaptive control for optimizing acceleration
- IP65 remote mountable multilingual keypad

For more info, [click here](#).

Software tools

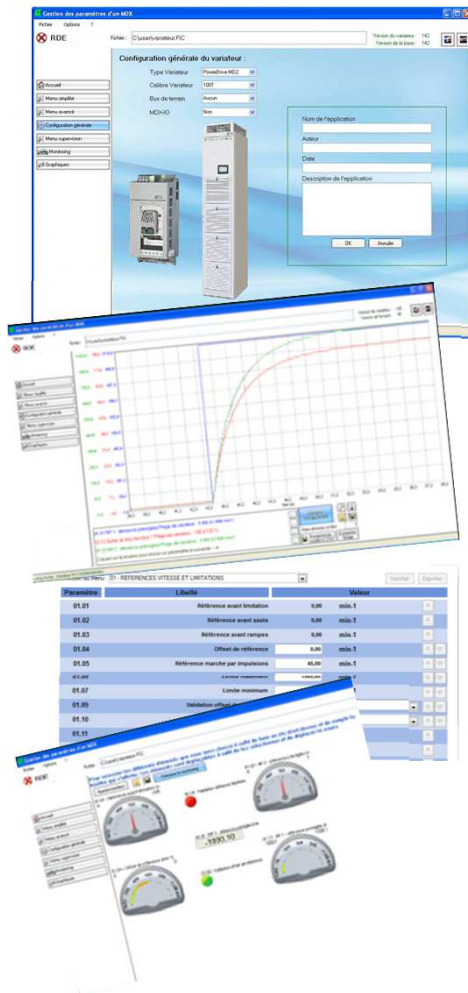
Software tools - Contents



[MDX-SOFT \(Powerdrive MD2\)](#)

[Energy Savings Advisor](#)

Powerdrive MD2 software MDX-SOFT



Commissioning software

- Drive setting by downloading an existing parameter file or by using simplified interactive macros or advanced menus
- Firmware upgrade in order for the operator to take benefit of the latest improvements
- Parameter comparison to detect deviations between 2 parameter files which could explain abnormal behavior
- Scope feature for supervising up to 4 programmable channels with a 125 μ s minimum sampling time
- Back-up to ensure that files are recovered
- Suitable tools for advanced parameter setting

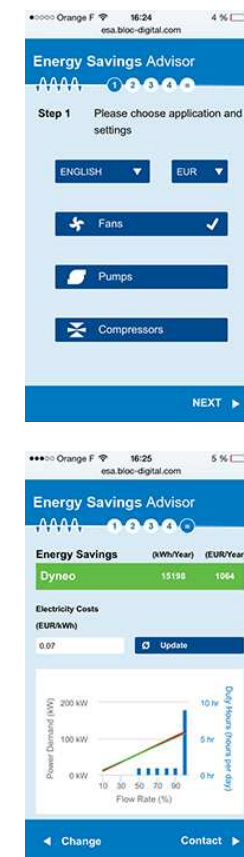
Energy Savings Advisor

App to calculate solution energy savings



Work out your energy savings at the press of a button

- Intuitive, accurate & interactive application
- Quickly estimate & assess energy savings achievable with our high-efficiency drive & motor solutions
- Allows comparisons with different customized scenario parameters
- Graphic overview of potential savings
- Complete report with simulation breakdown & results obtained by e-mail.
- Direct expert support & interpretation of results via app
- Optimized for mobile devices
- Multilingual availability



For more info, [click here](#).

Motors

Standard or Harsh Environment

- Motors
 - Induction – [LSES/LS](#), [FLSES](#), [PLSES](#), [LC](#), [LSP/LSPR](#), [DP/DPR](#), [LSMV](#), [CPLS](#), [Commander ID300](#), [Varmeca](#)
 - Permanent Magnet – [LSRPM](#), [PLSRPM](#), [HPM](#)
 - DC – [LSK](#)
 - Gearless (Elevator) – [E27](#)
 - Servo – [Unimotor hd & fm](#), [Dynabloc Low & Standard Backlash](#) & [Dynabox](#)
 - Fractional power DC – [MFA](#), [MBT](#), [MS](#) & [BP100/CBZ](#)
- Geared motors
 - [Compabloc](#), [Manubloc](#), [Orthobloc](#), [Multibloc](#), [Poulibloc](#)
- Brake Motors
 - [FFB: LS](#), [LSES & FLSES](#) and [FCPL](#)

ATEX

- Dust – [Zone 21: LSPX, FLSPX](#) & [Zone 22: LS/LSES, LSVMA, FLSES](#)
- Gas – [Zone 1: FLSD](#), [Zone 2 – LSN & FLSN](#)

Smoke Extraction – [LSHT & FLSHT](#)

High Temperature Motors – [HT & HTP](#)

LSES & LS

NIE IE2 IE3

- Aluminum IP55
- Frame size 56 - 315 mm (3.2 – 12.4 in)
- 2, 4, 6 & 8 poles and 2 speed motors
- 0.09 - 200 kW (0.10 - 275 hp)
- Widest range on the market



FLSES

IE2 IE3 IE4

- Cast iron IP55
- Frame size 80 - 450 mm (3.2 – 17.7 in)
- 2, 4, 6 & 8 poles and 2 speed motors
- 0.75 - 900 kW (1 – 1,200 hp)



PLSES

IE2 IE3

- Open drip proof / IP23
- Frame size 225 - 450 mm (8.9 – 17.7 in)
- 2 & 4 poles
- 55 - 900 kW (70 – 1,200 hp)



LC IE3 IE4 or higher on request

- Steel frame IP55
- Liquid Cooled
- Frame size 315 - 500 mm (12.4 - 20 in)
- 2, 4 & 6 poles
- 150 - 1,500 kW (200 – 2,050 hp)



IMfinity® - LSES & LS

Three-phase induction motor, Aluminum IP55



- Frame size 56 - 315 mm (3.2 – 12.4 in)
- 2, 4 & 6 poles
- 0.09 - 200 kW (0.10 - 275 hp)
- 380/400/415/460 V
- 50 - 60 Hz
- **NIE** IE2 IE3
- Other polarities available: 8 poles, multi-speeds etc.

Typical applications

Ventilation, pumps, material handling in light industries

Overview

- *Widest reliable range on the market*
- *Fixed & variable speed performance*
- *Express Availability*

Variable speed adaptation

- Cast iron flanges for DE & NDE bearing
- Optional non-standard flanges
- Robust cast iron end shields
- Cable gland
- Anti-clogging cover
- Drip cover

Environmental adaptation

- Paint system
- Designed with 25K thermal reserve

Mechanical or electrical adaptation

- Thermal protection (PTC sensors included $\geq 160\text{mm}$)
- Reinforced insulated bearings & winding system
- Forced ventilation
- Encoder (model appropriate)

For more info, [click here](#).

IMfinity[®] - FLSES

Three-phase induction motor, Cast iron IP55



IE2

- 2, 4, 6 poles: 0.75 - 900 kW (1 – 1,200 hp)
- Frame size: 80 - 450 mm (3.2 – 17.7 in)

IE3

- 2, 4, 6 poles: 0.75 - 900 kW (1 – 1,200 hp)
- Frame size: 80 - 450 mm (3.2 – 17.7 in)

IE4

- 2 & 4 poles: 75 - 355 kW (1 – 475 hp)
- Frame size: 280 - 355 mm (11 – 14 in)

Other polarities available: 8 poles, multi-speeds

Typical applications

Ventilation, pump, material handling in heavy industries

Overview

- *High reliability: adapted to harsh environments*
- *Multi-voltages & frequencies*
- *Fixed & variable speed performance*
- *Express Availability*

Variable speed adaptation

- Cast iron flanges for DE & NDE bearing
- Optional non-standard flanges
- Robust cast iron end shields
- Cable gland
- Drip cover
- Anti-clogging cover

Environmental adaptation

- Paint system
- Designed with 25K thermal reserve

Mechanical or electrical adaptation

- Thermal protection (PTC sensors included ≥ 160 mm)
- Reinforced insulated bearings & winding system
- Forced ventilation
- Encoder

For more info, [click here](#).

IMfinity® - PLSES

Three-phase induction motors, Open drip proof IP23



IE2

- 2 poles: 75 - 280 kW (100 - 400 hp)
- 4 poles: 55 - 250 kW (70 - 350 hp)
- Frame size: 280 - 315 mm (11 – 12.4 in)

IE3

- 2 & 4 poles: 75 - 900 kW (100 – 1,200 hp)
- 6 poles: 370 - 710 kW (500 - 950 hp)
- Frame size: 355 - 450 mm (14 – 17.7 in)

Typical applications

Marine, compressors, refrigeration & large hoisting

Overview

- High reliability & power-to-weight ratio
- Fixed & variable speed performance
- Multi-voltages & frequencies
- Express Availability

Variable speed adaptation

- Non-standard flanges
- Flying leads

Environmental adaptation

- Paint system
- Designed with 25K thermal reserve

Mechanical or electrical adaptation

- Thermal protection (PTC sensors included ≥ 160 mm)
- Reinforced insulated bearings & winding system
- Vibration sensor

For more info, [click here](#).

IMfinity® - LC

Three-phase induction motors, Liquid cooled IP55/IP56



- Frame size 315 - 500 mm (12.4 – 19.7 in)
- 2, 4 & 6 poles
- 150 – 1,500 kW (200 – 2,050 hp)
- 400 – 690 V
- Power supply frequency: 50 – 60 Hz

Typical applications

Plastics, rubber, test stands & marine

Overview

- High reliability & power-to-weight ratio
- Compact design
- Fixed & variable speed performance
- Noise level 10 to 20 dB(A) less than air cooling

Variable speed adaptation

- Non-standard flanges
- Flanges or threaded holes for liquid inlet & outlet
- Breather plug to limit maintenance
- Cooling circuit: IC71W
- Water leakage detector

Environmental adaptation

- Paint system
- Designed with 25K thermal reserve
- Marine certification: ABS, Lloyd's, DNV & BV

Mechanical or electrical adaptation

- Various thermal protection
- Reinforced insulated bearings & winding system
- Encoder adaptation

For more info, [click here](#).

LSP/LSPR & DP/DPR

Single-phase induction motors

LSP/LSPR

- Aluminum IP55
- Frame size 56 - 132 mm (2.2 – 5.2 in)
- 2, 4 & 6 poles
- 0.06 – 1.8 kW (0.10 – 2.2 hp)



Typical applications

Pumps (filtration, vacuum, hydraulic), small compressors, fans.

DP/DPR

- IP00
- 0.6 – 2.2 kW (0.10 – 3 hp)
- Three-phase version available



Typical applications

All open drip proof applications, small compressors, cutters, mixers, centrifuges, floor cleaning.

For more info, [click here](#).

LSMV

Three-phase variable speed induction motors



- Frame size 71 - 315 mm (2.8 – 12.4 in)
- 2, 4 & 6 poles
- 0.25 – 132 kW (0.50 – 175 hp)
- Power supply: drive
- Available with the 3000 range of geared motors

Typical applications

Automation, material handling, automotive industry, printing & packaging

Overview

- *Easy integration with all applications & can be combined with:*
 - *Incremental or absolute encoders*
 - *Resolvers*
 - *Forced ventilation*
 - *Brakes and gears*

Mechanical interchangeability

- With standard motor

Guaranteed performance

- From 5 – 100 Hz

For more info, [click here](#).

Constant torque

- Over a wide speed range without ventilation

Express availability

- For 4 pole motors
- Options up to 11 kW

CPLS

High performance variable speed induction motor



- Frame size 132 - 250 mm
- 7.5 – 560 kW (10 - 750 hp)
- Torque: 95 – 2,900 Nm (70.1 – 2,138.6 lb in)
- Speed: up to 9,000 rpm
- IP23

Typical applications

Test stands, hoisting, extrusion, machine tools, DC retrofit & calendaring

Overview

- Adapted to machinery requiring high dynamic performance
- Low inertia motor
- Increased productivity:
 - Constant power operation over extended speed range
 - Speed ratio of 1 to 2 as standard and more on demand
- Compact & reliable design with high power density

Machine adaptation

- Forced ventilation
- High-capacity bearings
- Complete winding protection
- Insulated bearing

Application adaptation

- Encoder (incremental or absolute)
- Holding and dynamic brake

Mechanical or electrical adaptation

- Foot or foot & flange mounted
- Second or special shaft end
- Terminal box (4 positions)
- Filter on forced ventilation unit
- Various types of ventilation (IC17, IC27 & IC37)

For more info, [click here](#).

Commander ID300

Integrated drive on IMfinity® motor



- 0.25 to 7.5 kW
- IP55 (IP65 on demand)
- 3 phase: 230/400/480 V, 50/60 Hz
- 1 phase: 230 V, 50 Hz
- Based on IMfinity® motors
- Geared motor & FFB brake versions

Typical applications

Manufacturing, process, intralogistics, pump, ventilation

Overview

- *All in one decentralized drive system, combining reliability and performance*
- *Perfect combination between electronics and motor*
- *Application oriented solution with a panel of pre-set configurations*
- *Fieldbuses and PC tools 100% in-common with Unidrive M*

High performance

- Auto calibration and drive set-up carried out at factory
- Constant torque guaranteed using flux vector control
- 180% for 3s motor overload
- High dynamics on fast transient load
- Energy efficiency higher than IES2

Modular system

- **Multiple combinations:** drive with options
- High efficiency IMfinity® motors, FFB brake, 3000 range gears with dedicated functions

For more info, [click here](#).

Advanced machine control

- Onboard PLC with real-time task
- Onboard pump program
- Control system simplified thanks to fieldbuses
- Integrated safety features certified by TÜV (2 x STO)

Ready to use

- Ease of Installation: side flanges mounted at factory, click-on connectors
- Simple set-up, configuration & diagnostics: Intuitive keypad, software, LED status, preset configurations

Dyneo® PM synchronous motors



Typical applications

*Refrigeration, pumps,
compressors, plastic
extrusion & animal feed*

Overview

- Exceeds IE4 and NEMA Super Premium efficiency
- Magnet rotor technology with proven induction mechanism
- Optimized ROI & TCO and dedicated energy saving tools (ESA)
- Express Availability

Energy savings

- Exceptional efficiency over the whole speed range
- Reduced usage and installation costs

Improved reliability

- Low rotor temperature rise & better bearing life time
- High performance sensorless mode control (associated with drive):
 - Eliminates encoder, EMC interference, long cables & vibration

Torque/speed performance

- Optimum torque over wide speed range

Options

- Variable speed protection (thermal protection, insulated bearings, winding insulation)
- Mechanical/electrical adaptation (forced ventilation, encoder etc.)

For more info, [click here](#).

Dyneo® PM synchronous motors

LSRPM

- Best-in-class efficiency
- Aluminum IP55
- Frame size 90 - 315 mm (3.5 – 12.4 in)
- 3 - 350 kW (5 - 470 hp)
- Up to 5,500 rpm
- Mechanical design: compliant with IEC standards or compact version



PLSRPM

- Open drip proof / IP23
- Frame size 315 mm (12.4 in)
- 315 – 500 kW (435 – 670 hp)
- Up to 3,600 rpm
- Better machine performance by increasing its speed
- Highest power-to-weight ratio on market



HPM

- 30 - 270 kW (40 – 360 hp)
- Stator/rotor sub-assembly designed for machine integration
- Simplify/eliminate mechanical transmission
- Increase installation efficiency while cutting costs



LSK Industrial DC motors



- 2 – 750 kW (3 – 1,000 hp)
- 50 – 6,600 Nm (82.6 – 4,867.3 lb ft)
- Frame size: 112 - 355 mm (4.4 - 14 in)
- IP23S, IP44R, IP55R, IP55 with exchangers

Typical applications

Packaging, test stands, cranes, hoisting, textiles & winding/unwinding

Overview

- *Well known and mastered technology*
- *Multi-position and multi-configuration*
- *Various protections available to adapt to process constraints*
- *Express Availability*

Modular design

- Ideal for any dimension constraints
- Multi-position terminal box
- Forced ventilation

Resolve process constraints

- Very high starting torque
- Up to 200 % overload capacity
- High overhung load

For more info, [click here](#).

Easy configuration

- Multi-position for an easy machine integration
- Foot, flange, horizontal or vertical mounting

Mastered maintenance

- Brush wear detector
- Air flow detection
- Washable filter for dust
- Transparent inspection doors to check brushes & collector

E27

Dedicated synchronous gearless motor for elevators



- 125 – 305 Nm (92.2 - 224.9 lb in)
- Cabin load up to 1,000 kg
- 1 or 1.6 m/s
- 2:1 roping

Typical applications

Dedicated for elevators

Overview

- *Excellent ride comfort with low noise*
- *Easy mechanical & electrical installation with Machine Room Less (MRL) configurations*
- *Lightweight chassis for easier handling & installation*

Ease of mechanical installation

- Full access to sheave & traction ropes
- Central sheave & separated end-shields
- Simplified chassis
- Flexible pads

Compliance

- 95/16/CE Elevator guidelines
- Safety standards EN 81-1: 1998 + A3: 2009

Safety and optimized maintenance

- Brake independent from motor
- Secured static braking torque
- Dismount/reassemble without losing the encoder phasing

Ease of electrical connection

- Optional shielded motor cables
- Fast connectors for motor power supply

For more info, [click here](#).

AC Servo motors and geared motor range



Unimotor hd

- 0.72 - 85 Nm (255 Nm peak)
- 6.4 lb.in – 62.7 lb.ft (188.1 lb.ft peak)
- High dynamic AC brushless range
- For use in pulse duty applications where rapid acceleration/deceleration is required



Unimotor fm

- 1.2 - 136 Nm (408 Nm peak)
- 0.9 lb.in – 100.3 lb.ft (300 lb.ft peak)
- High performance brushless AC range
- For use in demanding continuous duty applications



Dynabloc Low Backlash

- Geared motor : backlash 1-14 arcmin
- Planetary or worm gearbox
- Available with Unimotor hd or fm



Dynabloc Standard Backlash

- Geared motor: backlash 10-30 arcmin
- Helical, helical bevel or worm gearbox
- Available with Unimotor fm (hd motor for Mb 4101 & 4202)



Unimotor hd – High dynamic servo motors for pulse duty applications



- 0.72 - 85 Nm (255 Nm peak)
(6.4 lb.in – 62.7 lb.ft
[188.1 lb.ft peak])
- 55 - 190 mm (2.2 – 7.5 in)
- IP65
- Adapted windings 220 & 400 V
- Rated speeds: 1,000 - 6,000 rpm

Typical applications

Industrial robotics, pick & place and packaging

Unimotor hd Overview

- *For integration into the smallest, most demanding applications*
- *Accuracy and resolution with a range of feedback options*
- *Custom built motors to meet specific requirements*

Compact but powerful

- High power-to-weight ratio
- High torque-to-inertia ratio
- High energy dissipation brake

For more info, [click here](#).

Dynabloc gears available

Pje Dynabloc – Economical in-line planetary (Low Backlash Range)

Pjr Dynabloc - High performance in-line planetary (Low Backlash Range)

Mjd Dynabloc - High performance right-angle worm (Low Backlash Range)

Mb Dynabloc (4101, 4202) - Compact, economical, right-angle worm (Standard Backlash Range)

For more info, [click here](#).



Unimotor fm – High performance servo motors for continuous duty



- 1.2 – 136 Nm (408 Nm peak)
(0.9 – 100.3 lb.ft [300.9 lb.ft peak])
- 75 - 250 mm (3 – 9.8 in)
- IP65
- Adapted windings 220 & 400 V
- Rated speeds: 1,000 - 6,000 rpm

Typical applications

Printing, pick & place and hoisting

Unimotor fm Overview

- *High flexibility with inertia adapted to the load*
- *Various mounting arrangements and motor lengths*
- *Accuracy and resolution with range of feedback options*
- *Custom built motors to meet specific requirements*

Highly flexible

- 6 frame sizes
- Various IEC/NEMA flanges
- High energy parking brakes
- Various shaft diameters, keyed or plain
- Ideal for retrofit: same mechanical & electrical interfaces

For more info, [click here](#).

Dynabloc gears available

- All Dynabloc Low Backlash & Standard Backlash gearboxes available with Unimotor fm (except Mb 4101 & 4202)



For more info, [click here](#).

Dynabloc Low Backlash Geared Servo Motors with Unimotor fm and hd

Overview

- Backlash 1 - 14' – available with Unimotor fm or hd
- Intermittent duty torque up to 1,300 Nm

Pje

- Economical planetary gearbox
- In-line output
- BT flange mounted
- Backlash: 8 - 14'



Typical applications

*Textiles, digital printing,
machining & robotics*

Pjr

- High performance planetary gearbox with high torsional stiffness
- In-line output
- BS flange mounted
- Backlash: 2 - 7'



Mjd

- Precision worm gearbox with high torsional stiffness
- Right-angle output
- BT flange mounted
- Backlash: 1 - 10'



Dynabloc Standard Backlash Geared Servo Motors with Unimotor fm and hd

Overview

- Backlash 10 - 30' – available with Unimotor fm (hd for Mb 4101 & 4202)
- Continuous duty torque up to 3,000 Nm

Cb

- Rugged helical gearbox
- In-line output
- Integrated mounting
- Backlash: 10 - 30'
- High torque



Ot

- High efficiency helical bevel gearbox
- Right-angle output
- Integrated mounting
- Backlash: 10 - 30'
- High torque



Mb

- Compact, economical worm gearbox
- Right angle output
- Universal mounting
- Backlash 10 - 30'



Typical applications

Packaging, printing & hoisting

Dynabox Low Backlash Gearboxes

Dynabox – Dynabox XL



- High Precision
- Orthogonal: Space saving
- No gear noise by design (worm gear) - silent applications
- Multi purpose housing - easy mounting
- Shrink disk on output - easy to unlock without dismounting
- Versatile - quick adaptation

- 11 sizes: 25 - 200
- Torque: 10 - 2,500 Nm (7.4 – 1,843.7 lb.ft)
- Accuracy:
 - 1 arcmin (Expert)
 - 5 arcmin (Medium)
 - 10 arcmin (Basic)
- Ratio: 3 to 90
- Configuration: 5 available output shafts
- Mounting: 2 positions
- Motor kit: all servo motors

Typical applications

Healthcare equipment, robotics, machining transfer, automated machines (laser cutting, punching machine, machining center), printing & packaging and precision positioning (e.g. radar antenna)

MFA, MBT & MS

Fractional power DC motors

MBT

- Low voltage motor
- 12 - 96Vdc
- 0,03kW to 0,72 kW
(0.05 – 1 hp)
- IP40
- Steel flanges
- Different mounting system (foot, flange)



MFA

- Medium voltage motor
- 96 to 180Vdc
- 0.075 – 0.5 kW
(0.10 – 0.75 hp)
- IP 44
- Aluminium flanges
- Different mounting system (foot, flange)



MS

- Wound motor
- 24 – 230 Vdc/ac
- 0.04 – 0.75 kW
(0.05 – 1 hp)
- IP 00 for MS 36-35,
IP 23 or IP 44 for the remaining motors



Typical applications

*Material handling & lifting
equipment, medical, cleaning
equipment and sailing equipment*

For more info, [click here](#).

BP100/CBZ

Fractional power DC geared motors



BP100 Parallel Gearbox

- Maximum output torque: 10 Nm (7.4 lb.ft)
- Ratio: 23 to 610
- Aluminum housing
- Maximum input speed 8,000 rpm
- Foot or flange mounting



Parallel Gearbox (steering application)

- Maximum output torque: 110 Nm (81.1 lb.ft)
- Ratio: design for customer demand
- Aluminum housing
- Maximum input speed 5,000 rpm
- Design for customer mounting



CBZ

- Maximum output torque: 70 Nm (51.6 lb.ft)
- Ratio: 5.4 to 13
- Aluminum housing
- Maximum input speed 4,000 rpm
- B14 mounting



Planetary Gearbox

- Maximum output torque: 400 Nm (295 lb.ft)
- Ratio: 7.3 to 1,068
- Aluminum housing
- Maximum input speed: 5,000 rpm



Typical applications

Medical & lifting equipment, material handling, cleaning machinery & very low voltage applications (e.g. swimming pool, sailing)

Geared motors

Helical or worm for various customer machine design

Overview

- 30 – 23,000 Nm (22.1 – 16,961.7 lb.ft)

Compabloc

- Helical gears
- Axial output
- Foot or flange mounting



Manubloc

- Helical gears
- Parallel output with solid or hollow shaft, or hollow shaft with shrink disc
- Flange mounting or with torque arm



Orthobloc

- Helical bevel gears
- Orthogonal output shaft: hollow solid shaft or shaft with shrink disc
- Foot or flange mounting, or with torque arm



Multibloc

- Worm & wheel gears
- Orthogonal output with hollow or solid shaft



Compabloc

Geared motor range



- 10 sizes Cb15 – Cb38
- Output torque: 90 – 14,500 Nm
- Motor power: 0.06 – 110 kW (0.08 - 150 hp)
- Reduction ratios : up to 1/252 (1/10,000 with combined gears)

Typical applications

Materiel handling, low speed pumps, mixing & automation machinery

Overview

- *Helical gears with axial output*
- *Increased reliability thanks to high rigidity of the ribbed Monobloc cast-iron housing (Cb31 to Cb38)*
- *Robust shaft & bearing sized for high radial load*
- *Compact and modular mounting: foot/flange*

Perfect association with IMfinity® motors

- Key features & options of LS, LSES, FLSES motors
- Integral & universal mounting
- FFB & FCPL brake version

Application adaptation

- High efficiency geared motors
- Large choice of shafts & fixing forms

High reliability

- Robust cast iron design (Cb31 to Cb38)
- Improved sealing for demanding applications
- High quality components (gear sets, bearings)

For more info, [click here](#).

Orthobloc

Geared motor range



- 9 sizes: Ot31 - Ot39
- Output torque: 250 – 23,000 Nm (184.4 – 16,961.7 lb in)
- Motor power: 0.25 – 110 kW (0.50 - 150 hp)
- Reduction ratios : up to 1/160 (1/5,000 with combined gears)

Typical applications

*Materiel handling,
conveyors & hoisting*

Overview

- *Helical bevel gears with right angle output*
- *Increased reliability thanks to high rigidity of the ribbed monobloc cast-iron housing*
- *Robust shaft & bearing sized for high radial load*
- *Compact and modular mounting: foot/flange*

Perfect association with IMfinity® motors

- All key features & options of LS, LSES, FLSES motors
- Integral and universal mounting
- FFB and FCPL brake version

Application adaptation

- High efficiency geared motors
- Large choice of shafts (hollow, solid, shrink disc) & fixing forms
- Backstop version in integral mounting (e.g. conveyors)

High reliability

- Robust cast iron design
- Improved sealing for demanding applications
- High quality components (gear sets, bearings)

For more info, [click here](#).

Manubloc

Geared motor range



- 8 sizes Mub31- Mub38
- Output torque: 250 – 14,500 Nm (184.4 – 10,693.2 lb in)
- Motor power: 0.25 – 110 kW (0.50 - 150 hp)
- Reduction ratios : up to 1/318 1/4,500 with combined gears

Typical applications

*Materiel handling,
conveyors & hoisting*

Overview

- *Helical gears with parallel output*
- *Increased reliability thanks to high rigidity of the ribbed cast-iron housing*
- *Ease of implementation by pendula mounting*
- *Compact and modular mounting: Foot/flange*

Perfect association with IMfinity® motors

- All key features & options of LS, LSES, FLSES motors
- Integral and universal mounting
- FFB and FCPL brake version

Application adaptation

- High efficiency geared motors
- Large shaft choice (solid, hollow or hollow with shrink disc) & fixing forms for easy integration

High reliability

- Robust cast iron design
- Improved sealing for demanding applications
- High quality components (gear sets, bearings)

For more info, [click here](#).

Multibloc

Geared motor range



- 7 sizes: Mb31, Mb41, Mb22 to Mb26
- Output torque: 30 – 1,000 Nm (22.1 – 737.5 lb in)
- Motor power: 0.06 – 9 kW (0,10 - 10 hp)
- Reduction ratios: 1/5 - 1/100
1/1,400 with combined gears

Typical applications

Conveyors & automation machinery

Overview

- *Worm & wheel gears with orthogonal output*
- *Optimum comfort thanks to its ultra-quiet technology*
- *Increased reliability thanks to high rigidity of the ribbed cast-iron housing (Mb31, Mb 22 to Mb26)*
- *Several mounting options for maximum adaptability (foot, flange & torque arm)*

Perfect association with IMfinity® motors

- All key features & options of LS, LSES, FLSES motors
- Integral and universal mounting
- FFB and FCPL brake version

Application adaptation

- Large choice of shafts (solid, hollow or hollow with shrink disc) & fixing forms
- Quiet operation

High reliability

- Robust cast iron design *Mb31, Mb 22 to Mb26*
- Tested sealing for demanding applications

For more info, [click here](#).

Poulibloc 2000 & 3000

Geared motor ranges

Overview

- *Helical gears & parallel output shaft*
- *Ease of implementation by pendula mounting*
- *High reliability due to rigidity of ribbed cast-iron housing*
- *Installation simplified with taper bushing feature*

Poulibloc 2000



- 8 sizes: Pb20 – Pb27
- Up to 55 kW (75 hp)
- Reduction ratios: 1/5, 1/12, 1/20, 1/25
- Unique taper bushing for easy & versatile mounting on driven shaft
- Ribbed housing for maximum strength, rigidity and permanent gear alignment

For more info, [click here](#).

Poulibloc 3000



- 3 sizes: Pb31- Pb33
- Up to 11 kW (15 hp)
- Oil or grease lubrication
- One stage reduction gearbox
- Reduction ratios: 1/5 & 1/8
- Cylindrical bore
- Cost-effective series

Typical applications

Conveyors & material handling

FFB Brake motors

Based on IMfinity® platform LS, LSES and FLSES



- 0.25 – 18.5 kW (0.5 - 25 hp)
- Frame sizes 71 – 180mm (2.8 – 7.1 in)
- 2, 4 & 6 poles
- IEC standard design (B3, B5, B14) or specific for geared motors (MI)
- Failsafe brake design
- Braking torque: 4.5 - 200 Nm (3.3 – 147.5 lb.ft)
- Monitoring of brake functions (e.g. loose, wear indicators)
- Customized brake specifications

Overview

- Brake motor for variable & fixed speed
- Designed for flexibility and ease of adaptation
- Reliable, safe and robust concept design
- International compatibility

Application adaptation

- Perfect combination with Unidrive M & helical or worm gearboxes
- Optimized variable speed selections
- Brake sized for dynamic and repetitive braking

For more info, [click here](#).

Typical applications

General use, hoisting, gantry & conveyors

Flexibility

- Brake easily adaptable on pre-equipped IMfinity® motors
- Wide range of options:
 - Variable speed operation: thermal protection, forced ventilation, incremental or absolute encoder
 - Easy system integration: motion control, information feedback, auto-return brake release systems (lock off/remote lever)
 - Wide Express Availability offer

FCPL

High torque brake motors



- 11 – 132 kW (15 – 175 hp)
- Frame sizes 160 – 315 mm (6.3 – 12.4 in)
- 4, 6 & 8 poles & multi-speeds
- IEC standard design (B3, B5 or B35 up to 200 mm, B14) or specific for geared motors (MI)
- Failsafe brake design
- Braking torque: 65 – 5,000 Nm (47.9 – 3,687.3 lb.ft)

Typical applications

Hoisting, gantry, conveyors & marine

Overview

- Brake motor for variable & fixed speed
- Safety and maximum reliability
- Resistance to harsh environments
- Proven for demanding applications (e.g. hoisting)
- IP 23, IP55 and IP56 : aluminium or cast iron

Brake options

- Brake release lever
- Brake release & wear lining indicators
- Space heaters for motor/brake
- Booster CDF7 / CDF10
- Thermal protection PTC, PTO, PT100 for motor winding
- Thermal protection for brake & bearings
- Reinforced insulated bearings & winding system
- Forced ventilation
- Encoder

Application adaptability

- Brake sized for dynamic & repetitive braking

Environmental

- Adaptable paint system

For more info, [click here](#).

ATEX certified motors & geared motors

ATEX 2014/34/EU Conformity

Dust explosive atmospheres

- **Zone 21:** Protection against dust, including conductive (IP65)
 - LSPX, FLSPX: 0.25 - 630 kW (0.30 - 850 hp)
- **Zone 22:** Guaranteed maximum surface temperature:
 - LSES, FLSES motors - 125°C
 - 0.25 - 630 kW (0.50 - 850 hp)



Gaseous explosive atmospheres

- **Zone 1:** FLSD flameproof motors
 - 0.25 - 400 kW (0.25 - 550 hp)
- **Zone 2:** LSN & FLSN non-sparking motors
 - 0.25 - 630 kW (0.30 - 850 hp)



ATEX – Three-phase motors for explosive combustible dust atmospheres

Overview

- Frame size: 56 - 355 mm (2.2 – 14 in)
- 2, 4 & 6 poles
- Conformity:
 - ATEX 2014/34/EU directive
 - IEC 60034, 60072, EN 50281 standards
- **NIE** **IE2** **IE3**
- Temperature class T125°C
 - Variable speed: separate or Varmeca integrated drive
 - Available in geared version

- Certified according to the ATEX directive to be used in all potentially explosive dusty atmospheres
- Express Availability



Safety for zone 21 - ATEX Ex II 2D IP65

- LSPX & LSPX VMA - Aluminum housing
- FLSPX - Cast iron housing
- Geared motor version

Safety for zone 22 - category 3 - II3D T125 marking

- LS/LSES - Aluminum housing
- LSVMA - Aluminum housing
- FLSES - Cast iron housing
- Geared motor version

Typical applications

Food processing, sugar refineries, refineries, chemical industry, pharmaceutical industry & cereals

For more info, [click here](#).

ATEX

Three-phase motors for explosive gas atmospheres

Overview

- Frame size: 80 - 355 mm (3– 14 in)
- Single-speed (2, 4, 6 & 8 poles)
- IP55 or IP65 protection
- **NIE** & **IE2**
- Variable speed
- Available in geared version (FLSD)

Typical applications

*Oil & gas,
pharmaceutical,
chemical & cement
industries, refineries,
quarries, textiles &
printing*

- *Certified to ATEX directive & CE certified by Notified Body INERIS*
- *Benefits from the advantages of induction motors range*
- *Express Availability*

FLSD - Cast iron housing

- Flameproof, zone 1 – ATEX Ex 2G or 2GD
- Flameproof or increased safety terminal box
- Corrosive, harsh environments
- Available in geared motors version



LSN – Non-sparking aluminum housing

- Non-sparking, zone 2 - ATEX Ex 3 or 3GD
- Most cost-effective solution in zone 2 T3



FLSN - Non-sparking cast iron housing

- Non-sparking, zone 2 – ATEX Ex 3 or 3GD
- Most cost-effective solution in zone 2 T3
- Corrosive, harsh environments



For more info, [click here](#).

LSHT & FLSHT

Smoke extraction induction motors



Overview

- Single and 2 speed motors
- Cooling IC 418 or IC 411
- IP55 or IP65 protection
- Safety according to EN12101-3

- *Dual purpose comfort & smoke extraction*
- *Certification tests on load bench & complete fans*
- *Variable speed drive with fire mode certification by Efectis*
- *Express Availability*

Typical applications

Tunnels, parking & buildings, road, railway & metro tunnels

For more info, [click here](#).

LSHT - Aluminum frame

- 0.37 - 160 kW (0.50- 225 hp)
- Up to 300°C for 120 min



FLSHT - Cast iron frame

- 0.55- 500 kW (0.75 – 700 hp)
- Up to 400°C for 120 min



- Longitudinal ventilation
- Reversible ventilation: semi-transversal & transversal
- Continuous duty operation at ambient temperature (when operating in comfort mode)
- Use for a limited time at high temperature in the event of fire (when operating in safety mode)
- Smoke extraction motors for variable speed applications with homologation according to EN 12101-3 standard

HT & HTP

High temperature motor range

Overview

- *Permanent capacitor single motor or three-phase open motor equipped with heat sink*
- *HTP Single-phase: 0.18 - 0.75 kW (0.25 – 1 hp)*
- *HT Three-phase: 0.25 - 0.9 kW (0.50 – 1 hp)*



Typical applications

Bread ovens, heat treatment ovens & glass furnaces

For more info, [click here](#).

Drive & Motor Packages

Drive & Motor Packages - Contents



[Dyneo® solutions \(Permanent Magnet, energy saving\)](#)

[AC solutions \(High performance\)](#)

[Servo solutions](#)

[IMfinity® solutions \(High reliability AC induction\)](#)

[DC solutions](#)

[Elevator solutions](#)

Dyneo[®] solutions

Permanent Magnet variable speed packages



Overview



- Qualified to guarantee package reliability, ruggedness and efficiency
- Proven high energy efficiency, exceeding requirements equivalent to IE4 and NEMA Super Premium
 - Recognized as drive system with highest efficiency on the market by the Swedish Energy Agency
 - Energy Savings Advisor App accurately estimates savings
 - Rapid return on investment (≤ 2 years) and reduced overall cost of ownership
- Configuring the Dyneo[®] motor-drive unit is quick and easy with full compatibility
- Highest power-to-weight ratio on market






Motors

- **LSRPM**
 - 3 - 350 kW (4 - 470 hp)
 - 1,500 - 5,500 rpm
- **PLSRPM**
 - 325 - 500 kW (420 - 670 hp)
 - 1,500 - 3,600 rpm
- **HPM**
 - 30 - 270 kW (40 - 360 hp)
 - Stator/rotor sub-assembly

Geared Motors

- **3000 range**
 - 250 – 23,000 Nm (184 – 16,961.7 lb.ft)
 - Mechanical efficiency >95 %
 - Close integration to transmission shaft
 - Eliminates intermediate devices: pinion, chain or belt pulley


Drives

- **Unidrive M**
 - 0.25 kW - 2.8 MW (0.33 - 4,200 hp)
- **Powerdrive MD2**
 - 45 kW - 2.8 MW (60 - 4,200 hp)
- **Powerdrive F300**
 - 0.25 kW - 2.8 MW (0.33 - 4,200 hp)

AC solutions

High Performance Applications



Overview

- *World leading drive & motor solutions for high dynamic performance*
 - *Increased throughput & exceptional machine control, with numerous encoder options*
 - *Increased productivity with constant power over extended speed range & speed ratio of 1 to 2 as standard and more on demand*
 - *Onboard real-time Ethernet (IEEE 1588 V2)*
 - *Low inertia motors*
 - *Compact & reliable design with high power density*

Drive



Unidrive M

- 0.25 kW - 2.8 MW
(0.33 - 4,200 hp)
- 200/400/575/690 V

Motors & Geared motors



CPLS

- Frame size 132 - 250 mm
- 7.5 – 560 kW (10 - 750 hp)
- Torque: 95 – 2,900 Nm
(70.1 – 2,138.6 lb in)
- Speed: up to 9,000 rpm



LSMV

- Frame size 71 - 315 mm
(2.8 – 12.4 in)
- 2, 4 & 6 poles
- 0.25 – 132 kW (0.50 – 175 hp)
- Available with the 3000 range of geared motors



Servo solutions For Continuous and Pulse Duty Applications



Overview

- Servo solutions designed to work together to deliver maximum performance
- High reliability and short lead times thanks to rigorous testing & late customization
- Maximum flexibility through multiple options including additional motor inertia
- Two distinct ranges to meet the needs of different applications:
 - **Pulse duty:** Compact, very low inertia & high peak torque
 - **Continuous duty:** High continuous torque, adjustable rotor inertia & various mechanical interfaces

Motors

Geared Motors

Drives

High dynamic servo solutions for pulse duty applications

• Unimotor hd

- 0.72 - 85 Nm (255 Nm peak)
- 6.4 lb.in – 62.7 lb.ft (188.1 lb.ft peak)



• Dynabloc Low Backlash

- Planetary or worm gearbox
- Intermittent torque up to 1,300 Nm (958.7 lb.in)



• Digitax ST

- 0.72 - 18.8 Nm (56.4 peak) (6.4 - 166.5 lb.in [41.6 peak])
- 1.1 - 8 A
200 & 400 V



High performance servo solutions for continuous duty applications

• Unimotor fm

- 1.2 - 136 Nm (408 peak)
- 0.9 lb.in – 100.3 lb.ft (300 lb.ft peak)



• Dynabloc Standard Backlash

- Helical, helical bevel or worm gearbox
- Continuous torque up to 3,000 Nm (2,212.4 lb.ft)



• Unidrive M700

- 0.7 – 136 Nm (408 peak) (0.5 – 100.3 lb.in [300.9 peak])



IMfinity[®] solutions

High reliability AC induction solutions




Overview

- IE2 High efficiency, premium IE3, super premium IE4 efficiency solutions
- Widest range of combinations for the various needs of industries & applications
- High reliability, short lead time and high performance

Motors

				
LS	LSES	FLSES	PLSES	LC
NIE	IE2 IE3	IE2 IE3 IE4	IE2 IE3	IE3
Aluminum IP55	Aluminum IP55	Aluminum IP55	ODP/IP23	Liquid cooled IP55

Drives



Unidrive M
0.25 kW – 2.8 MW
(0.33 – 4,200 hp)






ID300
0.25 – 7.5 kW
(0.33 - 11 hp)





Powerdrive F300
1.1 kW - 2.8 MW
(1.5 hp - 4,200 hp)

Powerdrive MD2
45 kW - 2.8 MW
(60 - 4,200 hp)

Geared Motors

	
Compabloc	Manubloc
< 14,500 Nm (10,693.2lb.in)	< 14,500 Nm (10,693.2lb.in)
	Orthobloc
	< 23,000 Nm (16,961.7 lb.in)

Braked Motors

	FFB
	0.25 – 18.5 kW (0.5 - 25 hp) 4.5 – 200 Nm (3.3 – 147.5 lb.ft)
	FCPL
	37 – 400 kW (50 - 540 hp) 65 – 5,000 Nm (47.9 – 3,687.3 lb.ft)

DC solutions

Leading edge control technology in a DC solution0



Overview

- *Most advanced DC solution available giving optimum performance*
- *Flexible system interfacing capability with multiple comms, I/O, feedback & motion options*
- *High efficiency DC motors with variable speed control for matched energy optimized solution*
- *Cost effective, efficient and simple to implement*
- *DC provides many advantages, especially for regenerative and high power applications*

DC drives



Mentor MP

- 25 - 7,030A
- 24 - 400V / 575V / 690V
- Two or four quadrant operation

DC motors



LSK

- 2 – 750 kW (3 – 1,000 hp)
- 50 – 6,600 Nm (82.6 – 4,867.3 lb ft)
- Frame size: 112 - 355 mm (4.4 - 14 in)
- IP23S, IP44R, IP55R, IP55 with exchangers

Elevator solutions - Easy to select, set-up & optimize while providing class-leading ride comfort



Overview

- *Over 3 million elevators in operation with our control equipment worldwide*
- *Quick delivery of robust and dependable products for new or modernization projects*
- *Installing & commissioning simple with intuitive user interfaces and software tools*
- *Improved energy efficiency & dependable operation*
- *Smooth, reliable and quiet operation with industry leading ride comfort*

Drives

E200 & E300

- Peak: 12.4 – 640 A
- Nominal: 6.2 – 320 A
- 200, 400, 500, 525, 575, 690 V



Motors

E27

- 125 – 305 Nm (92.2 - 224.9 lb in)
- Cabin load up to 1,000 kg
- 1 or 1.6 m/s
- 2:1 roping



Brake Control Unit

BCU

- Brake management
- Rescue operation
- Testing of the brakes



Back-up slides

- Dedicated motor range
 - Sealed unit range - [LSGH](#)
 - Low voltage motors for electric vehicles – [TRA & TRS](#)
 - Motors for heat exchangers - [CM29, CM34 & HE](#)
 - Motors for auxiliary equipment used in rail applications – [FD, FE & FS](#)
 - Motors for naval defense – [MNR, MNN & MNI](#)
 - Slip ring motor ranges – [FLSB & FLSLB](#)

GH

Stator/rotor range for sealed units



- 200 – 690 V
- 50 or 60 Hz
- 20 – 450 kW (25 – 600 hp)
- External diameter: 223 – 430 mm (8.8 – 16.9 in)
- 2 poles – Screw & scroll compressors
- 4 poles – Piston compressors

Overview

- *High performance stator/rotor with high level of efficiency, power factor & speed*
- *High quality and reliable products based on a century experience and optimized processes*
- *Customized products for specific requirements*

High performance

- Compatible with various refrigerants & oils: R22, R134a, R407c, R410a
- Starting modes: Star-Delta, Part Winding Start, Double Delta
- Special wire types: Daglass, Kapton, Peek
- Variable speed design available

High quality & reliability

- Highly reliable copper wires
- Low magnetic lamination losses
- Optimized design
- Quality certification granted by 3rd party

Typical applications

Screw, reciprocating, scroll & centrifugal

For more info, [click here](#).

TRA & TRS

Low voltage motors for electric vehicles

- IP54
- Service S2 / 60 min
- 0 to 14,000 rpm
- Battery power supply up to 250 V

Typical applications

Trains, subways, tramways, trolleybuses, pallet trucks, electrification of mining equipment (loader & doser) & special handling machines

Overview

- *Strong expertise & collaboration with vehicle manufacturers*
- *High efficiency motors with high specific output power*
- *Increased vehicle's performance and longevity*
- *Really compact to optimize the overall space*
- *Air or liquid cooling*

TRA: Induction motor - Aluminum

- Up to 45 kW (60 hp)
- 4 poles
- Adaptability:
 - IP20
 - Sensor bearing
 - KTY thermal protection



TRS: Permanent magnet motors

- Up to 140 kW (190 hp)
- 8 poles
- Stator & rotor coated with epoxy resin
- High mechanical resistance against aggressive ambient
- Speed feedback
- Adaptability: liquid cooling, KTY thermal protection



For more info, [click here](#).

LSG, PLSG & FLSG – AC generators dedicated to electricity production in cogeneration



Overview

- Driven by any type of turbine
- IE2 or IE3 optimized efficiency
- Designed to withstand overspeed
- Innovative solution with frequency inverters (adapted to hydraulic conditions, constant maximum power by adapting the speed)

- For use in normal operating conditions:

- Temperature
- Altitude
- Atmospheric pressure

Typical applications

Power generation

LSG

- 15 – 175 kW
(20 – 250 hp)

PLSG

- 17 – 900 kW
(25 – 1,200 hp)

FLSG

- 45 – 900 kW
(60 – 1,200 hp)

- Voltage up to 690 V
- Speed of rotation: 600 - 1,500 rpm
- IP23 or IP55 protection
- Horizontal, vertical and inclined shaft
- Wide choice of options and instrumentation

For more info, [click here](#).

CM29, CM34 & HE Motors for heat exchangers

Overview

- 0.25 - 7.5 kW
(0.30 - 10 hp)
- 4, 6, 8 poles
- High temperature
(70°C/ 158°F)
- IP 55

- *High temperature bearings greased for life*
- *Low noise and vibration*
- *High resistance to humid environments*

Typical applications

Refrigeration, air conditioning & heat exchangers

CM29

- Aluminum flange
- Arm fixing



CM34

- Cast iron flange
- Arm fixing



HE

- Aluminium flange
- Fan grill fixing



- Depending on the motor version:
 - Waterproof bearing (2 RS)
 - Terminal box integrated at the rear motor flange for greater ventilation & optimum performance
 - Various connectors for quick and easy installation of the motor "plug & play"
 - Seals without contact on the flange and inside the motor, to enhance waterproof reliability & extend motor life

For more info, [click here](#).

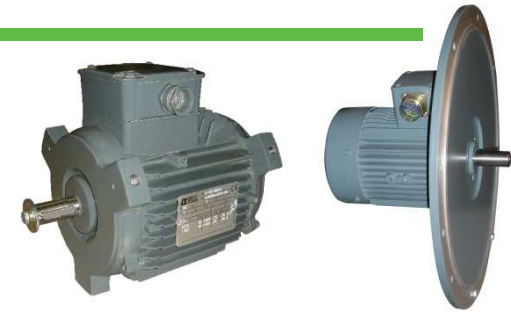
FD, FE & FS

Motors for auxiliary equipment used in rail applications

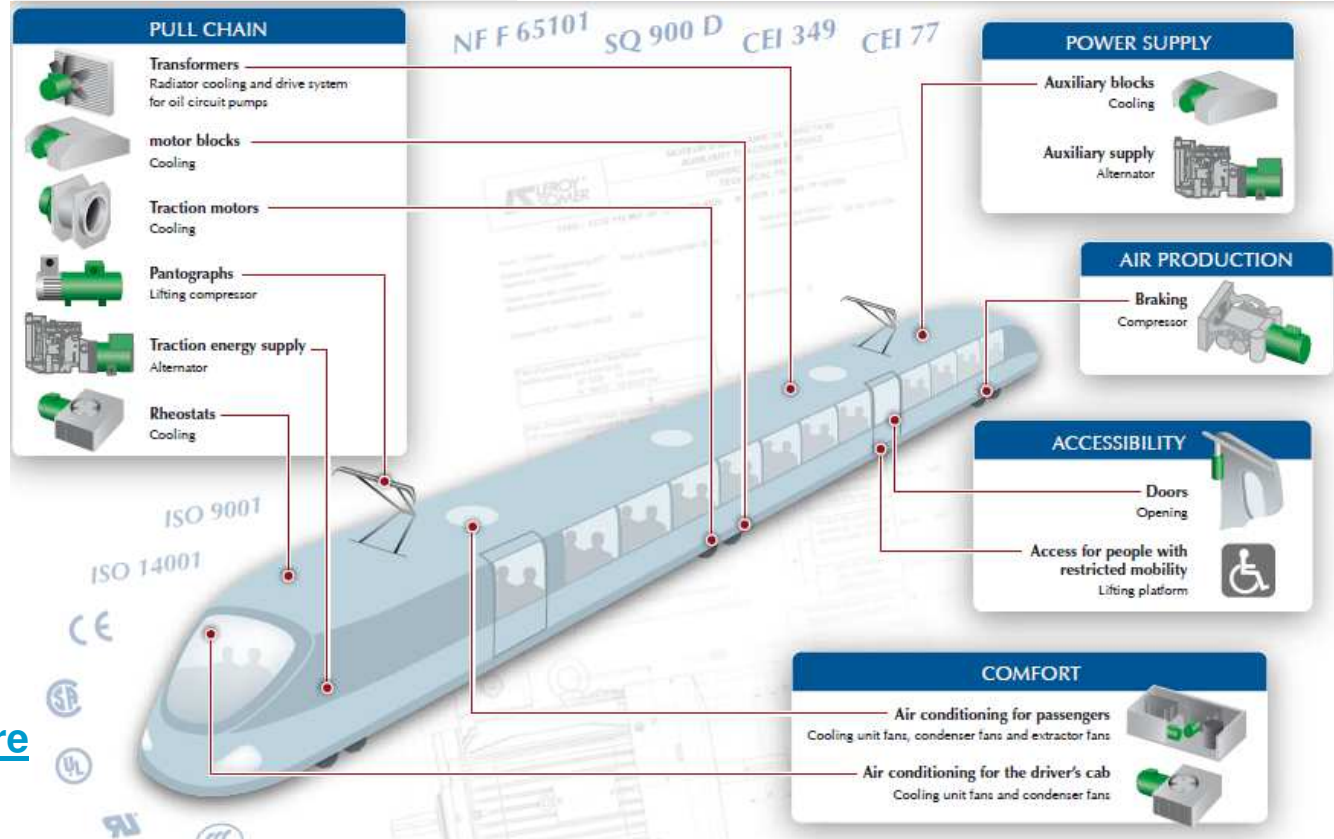


Overview

- Solutions to thermal, mechanical, electrical constraints, plus those affecting logistics and standards, for all the major international programs: EMU, DMU, urban and suburban, locomotives / TGV
- Highly reliable: >40 years service life
- Specific commitments to MTBF (minimum time before failure) and Life Cycle Cost
- Involvement in projects to develop standards for rail drive systems, in partnership with rail operators (e.g. SNCF & RATP)



Typical applications



For more info, [click here](#)

MNR, MNN & MNI Motors for naval defense

Overview

- Three-phase
- IP55
- Cast iron housing
- Shock resistant up to 168G (level II)

- *Expertise in marine defense with renowned references*
- *Integration of required performance*
- *Modular construction to high manufacturing standards*

MNR



- STB 88.12 – 120 g level 1 & 168 g level 2
- 0.25 – 55 kW (0.30 - 75 hp)
- Frame size: 63 – 250 mm (2.5 – 9.8 in)

MNN



- STB 88.14 – 15 g level 1 & 21 g level 2
- 0.25 – 55 kW (0.30 - 75 hp)
- Frame size: 63 – 250 mm (2.5 – 9.8 in)

MNI



- STB 05.94 – 15 g level 1 & 21 g level 2
- 0.75 - 55kW (0.30 - 75 hp)
- Frame size: 80 – 250 mm (3.2 – 9.8 in)

Typical applications

Surface ships & submarines

- Customized range for different types of ships
 - Guaranteed electric performances
 - Vibration resistant
 - Low noise, vibration & electromagnetic (EMC) emissions
 - Designed for use with electronic speed variation
 - Reliability and long life expectancy
 - Safety motors for high temperature & hazardous atmospheres

For more info, [click here](#)