

## Brake motors range

Safety, reliability and breadth of range  
0.06 kW to 550 kW  
3 to 5000 N.m

**LEROY-SOMER**<sup>™</sup>

***Nidec***  
All for dreams

# A concentrate of experience and know-how

## One-stop shop with more than 100 years' experience

Nidec Leroy-Somer has a presence around the world, and proposes a wide range of motors, brakes, gearboxes and drives. With its vast experience and in-house engineering and development resources, Nidec Leroy-Somer is capable of designing drive systems that are increasingly high-performance and efficient, and which meet the requirements of so many applications.

To satisfy, for example, the needs of the materials handling industry, which today requires more productive, more scalable and less energy-intensive systems, Nidec Leroy-Somer offers a broad range of brake motors from 0.06 kW to 550 kW. Their robust, compact and modular design guarantees sure and precise movement, maximum protection for users, and easy integration.

For its know-how, expertise and end-to-end control of its brake motors production line, Nidec Leroy-Somer can guarantee that you get the highest quality levels.

## Ranges of brake motors to suit your machines

- **Proven design and configuration adaptable to different motor technologies**
- Brake integration on motors in-plant **making deployment easier** for the user
- **Reliable and robust** construction taking into account the most demanding application requirements
- Mechanical and electrical design based on powerful calculation and simulation tools and **a truly high level of expertise**
- **Suitability for most applications:** system suited to fixed and variable speeds
- **Qualification of all safety components** in accordance with the standards (ISO, EN13135) and the recommendations of the FEM\*
- **Operating safety:** control of the braking parameters
- **Systems service life:** compatibility of movement transmission devices
- **Brake motors modularity:** aluminium or cast-iron motors, IP55 or IP23 protection rating, induction technology, and combination with our gearbox ranges

\*European materials handling federation

# Brake motors

## At the core of industry

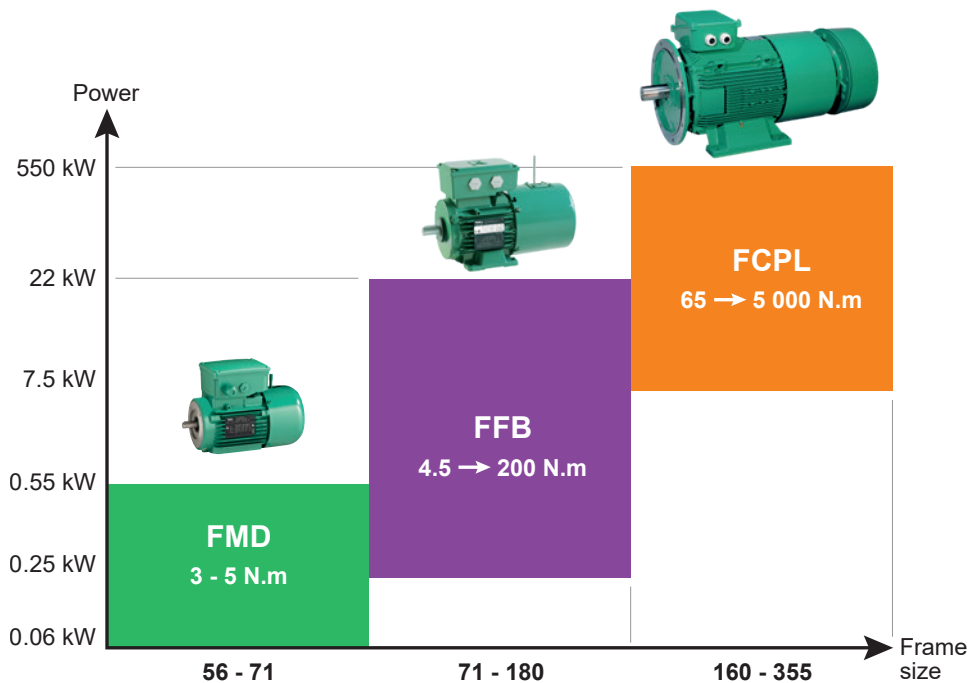
### An offering designed to address the widest variety of requirements

Brake motors are an integral part of the drive systems offering from Nidec Leroy-Somer. Brake motors conceived as a single assembly: optimised dimensions of all parts, precision and in-plant testing guaranteeing high reliability.

Available in several variants of configurations and finishes, they address the widest range of industrial requirements.

Whether for constructing machines or equipment, with severe operating constraints or the need for increased productivity, you will find a combination totally suited to your needs.

The breadth of the brake motors range makes it possible to adapt precisely to the different application typologies and covers a wide range of power, torque or voltage specifications.



# FMD Brake Motor

## A simple and cost-effective model

Satisfying the durability, availability, safety and resistance constraints of applications linked to materials handling is the basis of the FMD brake motor concept.


This motor is easy to deploy, with no adjustments needed, and is reliable and cost-effective.

### Benefits of the FMD brake motor

- Compact for ease of integration and installation in your machines
- Reliability based on our IMfinity® motors platform, renowned for its high quality
- Cost-effective
- IP55 protection: effective seal against water splashes
- Dynamic brake
- Suited to variable speed and fixed speed
- FMD booster: rapid brake opening and closing for improved productivity



### Main specifications

Basic standard motor	
Frame size	56 to 71 mm
Power	0.06 to 0.55 kW
Polarity	4 and 6 poles
Efficiency class	NIE
Mountings	- IEC: B3, B5, B14, B34, B35 - Gearbox integral mounting
Protection rating	IP55
Insulation class	F
Ambient temperature	-20°C to +40°C
Housing	Aluminium
Paint finish	RAL 6000 or unpainted
Voltage range	230-380-400-415-460 V three-phase / 220-240 V single-phase
Frequency range	50 or 60 Hz
Standards	CE c  us
Coils voltage	180 V or 24 V / DC
Maximum speed	4500 min <sup>-1</sup>
Braking torque	3 and 5 N.m

### Options

- Release lever
- 2<sup>nd</sup> shaft end
- Encoder and forced ventilation
- PTC and PTO thermal protection
- Booster supply



## Main applications

- 1 Automatic barriers
- 2 Chain hoists
- 3 Packaging machines
- 4 Low-capacity overhead cranes
- 5 Industrial door openings



1



2



3



4



5

# FFB Brake Motor

## A flexible concept

FFB brake motors are built on the IMfinity® motors platform. Thanks to their tried-and-tested design and their flexible configuration, they offer optimum characteristics in terms of reliability, robustness, performance and safety.

Their modularity and wide range makes them ideally suited to all kinds of automation and material handling applications.

### Benefits of the FFB brake motor

- Scalable
- Easy to deploy without adjustment and in complete safety
- Precise control of movement and information feedback
- Low inertia for better braking dynamics and speed
- Suited to fixed speed and variable speed
- Operating safety: control of the braking parameters
- Systems longevity: compatibility of movement transmission devices
- FFB booster: rapid brake opening and closing for improved productivity



### Main specifications

Basic standard motor	
Frame size	71 to 180 mm
Power	0.25 to 22 kW
Polarity	2, 4, 6 poles
Efficiency class	Non-IE, IE3
Mountings	IEC: B3, B5, B14, B34, B35 - Gearbox integral mounting
Protection rating	IP55
Insulation class	F
Ambient temperature	-20°C to +40°C
Thermal protection	PTC as standard from 160
Housing	Aluminium or cast iron
Paint finish	RAL 6000
Voltage range	230-380-400-415-460 V
Frequency range	50 or 60 Hz
Standards	CE, UL, C-UL, C-UL-USA
Coils voltage	180 V or 20 V / DC
Maximum speed	4500 min <sup>-1</sup>
Braking torque	4.5 to 200 N.m

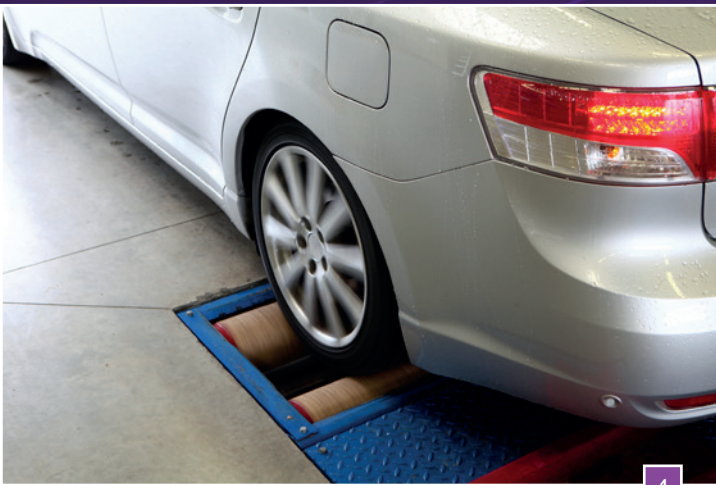
### Options

- Auto-return hand brake release (DLRA)
- Brake release lock off (DLM)
- Remote brake release (DMD)
- Encoder and forced axial ventilation
- Booster supply
- Crank shaft socket



## Main applications

- 1 Roller conveyors
- 2 Overhead cranes
- 3 Wind turbine movement control
- 4 Braking test benches
- 5 Bulk materials handling



# FCPL Brake Motor

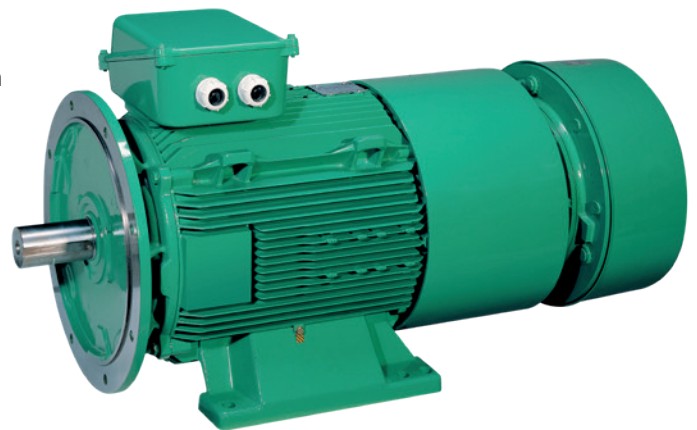
## A reference for high capacities

Automated handling offers many advantages, such as reduced dimensions, lower construction costs, along with improved productivity and operational safety.


The use of the FCPL brake motor is particularly suited to hoisting and translation and in all situations where braking speed and precision keep downtime due to inertia to a minimum.

### Benefits of the FCPL brake motor

- Winding of the brake coil with a twin-component resin: real know-how for better electrical and mechanical protection even in difficult environments
- DC switch-off: improved safety by reducing the brake application response time
- Reduced response time and coil heating with booster (CDF7/10) guaranteeing fast brake release and drop in voltage
- Brakes traceability for enhanced reliability and quality of hoisting machinery
- Motors with wide field-weakening range, 1 to 6 max. for increased productivity
- Windings suited to torque and speed requirements
- Low inertia for better braking dynamics and speed



### Main specifications

Basic standard motor	
Frame size	160 to 355 mm
Power	7.5 to 550 kW
Polarity	4, 6, 8 poles and multi-speed
Efficiency class	NIE, IE2, IE3
Mountings	IEC: B3, B5, B14, B34, B35 - Gearbox integral mounting
Protection rating	IP55, IP23
Insulation class	F
Ambient temperature	-20°C to +40°C
Thermal protection	PTC as standard from 160
Housing	Aluminium, cast iron or steel
Paint finish	RAL 6000
Voltage range	230-380-400-415 460 V
Frequency range	50 or 60 Hz
Standards	CE 
Coils voltage	20 V, 100 V, 180 V or 207 V / DC
Maximum speed	3600 to 4500 min <sup>-1</sup> according to size
Braking torque	65 to 5000 N.m

### Options

- IP56/66 for marine applications with cast-iron cover
- IP65 excluding ATEX applications
- Internal or specific encoder mounting
- 2<sup>nd</sup> shaft end possible
- Axial or radial forced ventilation
- Protection: PTO, PTC, PT100, PT1000
- Wear and brake release indicators
- Adjustable air gap
- Release lever
- Stator and brake heaters
- Filter kit at forced ventilation intake (sand, dust)
- Reinforced winding insulation for operation at variable speed
- Mechanical reinforcement of winding (varnish) for harsh atmospheres
- Reinforced encoder for different environmental constraints



## Main applications

- 1 Offshore platforms
- 2 Marine winches
- 3 Heavy materials handling
- 4 Hoisting mechanisms for cranes
- 5 Overhead cranes





# Wide range of FMD, FFB, FCPL brake motors

## Reliability, Safety, Robustness

### Robust mechanics

- Parts designed using finite element analysis
- Use of cast-iron foundry parts (end shield, coil, bracket, backplate)
- Machining of cast-iron parts in a single operation (5-axis machine tool) for perfect concentricity
- Careful balancing for reduced noise levels
- Steel cover resistant to the most demanding atmospheres
- Encoder mounting on stainless-steel shaft for easy disassembly
- Special anti-corrosion screws guaranteeing longevity in harsh environments
- Stainless-steel brake springs ensuring long-term performance
- Non-stick, anticorrosion-treated friction materials

### Electrical and mechanical safety

- Expert management of the minimum and maximum braking torque (running-in of friction parts) guaranteeing the safety coefficients for sizing the transmission chain
- Failsafe braking (brake engaged in the event of power supply shortage)

### Thermal protection

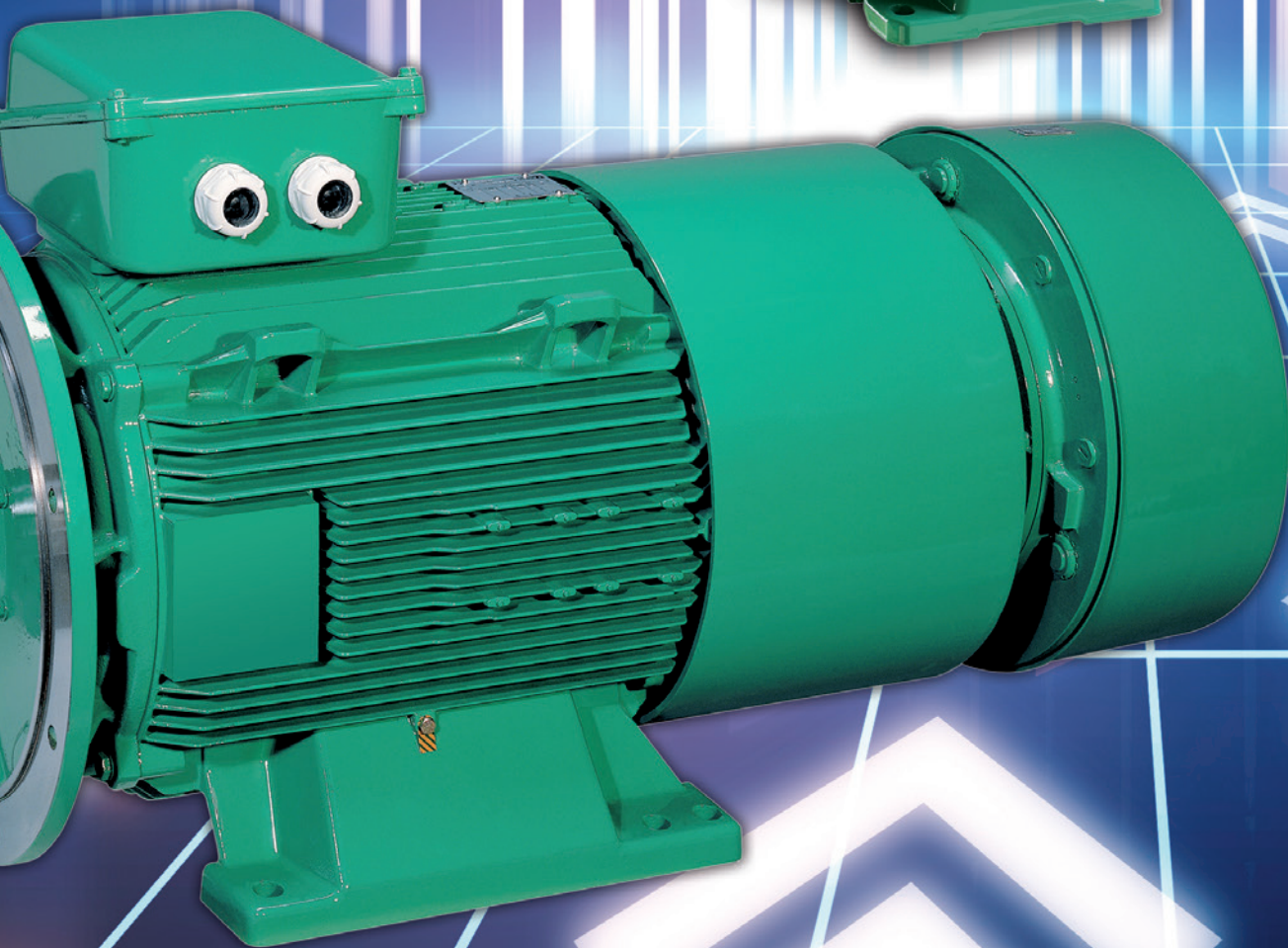
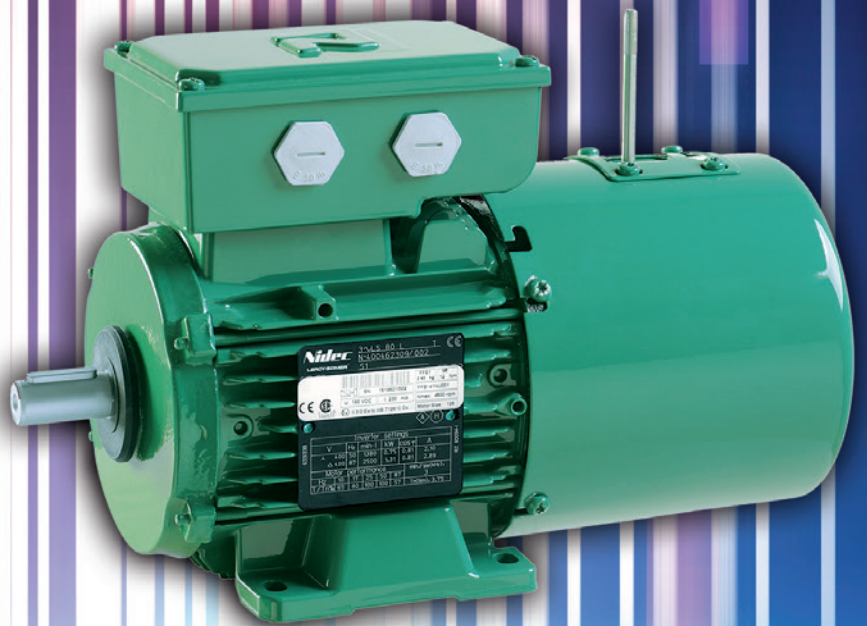
- PTC sensors included for frame sizes  $\geq 160$  mm
- Other types of sensor available on short delivery

### Motor and brake supervision

- Encoder adaptation
- Wear indicator
- Application / release indicator
- Induction sensor









# Brake Motor

## Key component in Industry 4.0

The brake motor, as an integral part of all production machines, is a key component in the 4th industrial revolution. Nidec Leroy-Somer is playing its part in this transformation by proposing energy-efficient solutions accompanied by control, surveillance and safety features for your machines.



**Brake release sensor:** surveillance system for brake status before the motor start-up phase and during operation

*Example: in a hoisting system, the motor start-up command will be confirmed by activation of the brake release sensor*



**Wear sensor:** system controlling the wear status of the brake lining

*Example: this feature communicates real-time information on the brake status, for preventive maintenance*



**Electric brake opening and closing command:** this allows a system to be reset remotely

*Example: on worksite cranes, the slewing movement brake is released remotely so that the jib of the crane is automatically placed in line with the wind direction*



**Speed and position sensor:** this enables movement supervision by providing real-time information remotely

*Example: on a gantry crane, the encoder enables the movement speed and position to be controlled and regulated*



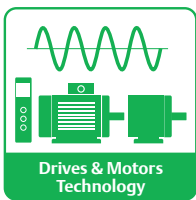
**Winding sensors:** monitoring and thermal protection of the brake motor

*Example: when operating in overload, the motor temperature rise will be detected by the PT100 or PT1000 sensors, enabling the motor and the driven machine to be protected*



**Energy savings:** high-efficiency brake motors and variable-speed control

*Example: when conveying bulk materials in continuous service and with variable loads, the IE3 brake motor, or motor controlled by a variable speed drive, will enable the energy consumption to be reduced*



# Motors and drives technology

## Nidec Leroy-Somer proposes a wide-ranging portfolio to meet the different needs of industries and applications

The brake motors, built on the IMfinity® motor platform, offer a wide variety of configurations and versions. They can be perfectly integrated in variable speed systems, associated with our variable speed drives.

### Geared motors



**Compabloc**  
up to 14,500 N.m



**Orthobloc**  
up to 23,000 N.m

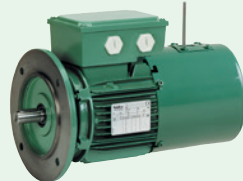


**Manubloc**  
up to 14,500 N.m

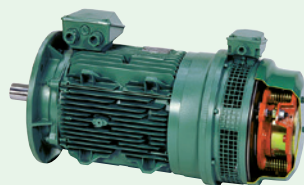
### Brake motors



**FMD**  
0.06 to 0.55 kW



**FFB**  
0.25 to 22 kW



**FCPL**  
7.5 to 550 kW

### Variable speed drives



**Unidrive M** / 0.25 to 2.8 MW



**Powerdrive MD2**  
45 kW to 2.8 MW



**Commander ID300**  
Integrated drive  
IES2  
0.25 kW to 7.5 kW

### Induction motors



**LS / LSES**  
Non IE- IE2- IE3  
Aluminium IP55  
Frame size 56 to 315 mm  
2, 4, 6 and 8 poles  
0.09 to 200 kW



**FLSES**  
IE2 - IE3 - IE4  
IP55 cast iron  
Frame size 80 to 450 mm  
2, 4, 6 and 8 poles  
0.75 to 900 kW



**PLSES**  
IE2 - IE3  
IP23  
Frame size 225 to 450 mm  
2 and 4 poles  
55 to 900 kW

# Services

## Boost and secure your productivity

### Express Availability

All our ranges of brake motors benefit from our international supply chain organisation, guaranteeing very short lead times for many combinations. *Express* availability offers fast reaction times to customer needs, thus enabling customers to improve and guarantee their own productivity:

- by benefiting quickly from energy savings
- by helping to ensure continuity of production
- by minimising the stock of spare parts on-site

#### The *Express* availability offering:

- ready to dispatch in 1 to 10 working days
- motors, servo motors, geared motors, drives, options and accessories
- in limited quantity according to product and option
- access to the list of products eligible for *Express* availability, and the corresponding conditions, directly on our website





# Configurator

- The Configurator is a powerful tool for help in selecting motors or geared motors associated with speed drives.
- All standard products are 100%-characterised, with the technical specifications available in 11 languages.
- Product dimensions in 3D
- Real-time information on the eligibility of the product for the *Express* availability offering

## Online configurator

### Motors & Gears configurator

Material	Aluminum
Environment	Common
Ambience	Non-corrosive
Finish	Non-specific
Zone	For cooled motor
Method of cooling	General applications
Application	Single speed
Number of speed	Brake
Protection type	IP23

### Availability Informations

Express Availability	No
Manufacturing Lead time commitment	On Request

### Motor type

Production	General applications - 30V 30Hz
Generation code	IP23
Efficiency class	IE2
Motor series	LS
Priority - Speed	IP 23/30/30/30
Rated power (kW)	0.75
Frame size (mm)	63
Motor winding (V)	230V/300V/400V/415V/460V

### Availability Informations

Express Availability	No
Manufacturing Lead time commitment	On Request

### Brake type

Production	IP LS BRK C 230V/300V/400V/415V/460V 50-60Hz
Brake series	PFB
Brake size	FA01
Brake treatment	-
Starting torque (Nm)	5.48
FC brake J type	Standard
Rated torque (Nm)	2.553
Brake torque (Nm)	1.58
Brake supply mode	Incorporated supply AC current
Brake type	DC
Brake voltage	180V

### Availability Informations

Express Availability	No
Manufacturing Lead time commitment	No

### Motor mechanical interface V

Motor type	IP LS BRK C 230V/300V/400V/415V/460V 50-60
Facing form	Feet
Facing flange	W1015 (M10)
Operation position	EC STANDARD shaft end - 19x40
Shaft end type	Steel shaft
Shaft extend type	-
Shaft end extension	LS ball bearing
DC bearing type	LEGEND
DC bearing mounting	LEGEND
MCE bearing type	MCE ball bearing
Greasing type	Greased for life

### Availability Informations

Express Availability	No
Manufacturing Lead time commitment	On Request

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