CPLS

Asynchronous motors for variable speed

95 N.m to 2900 N.m

LEROY-SOMER™

Nidec

All for dreams

Introduction

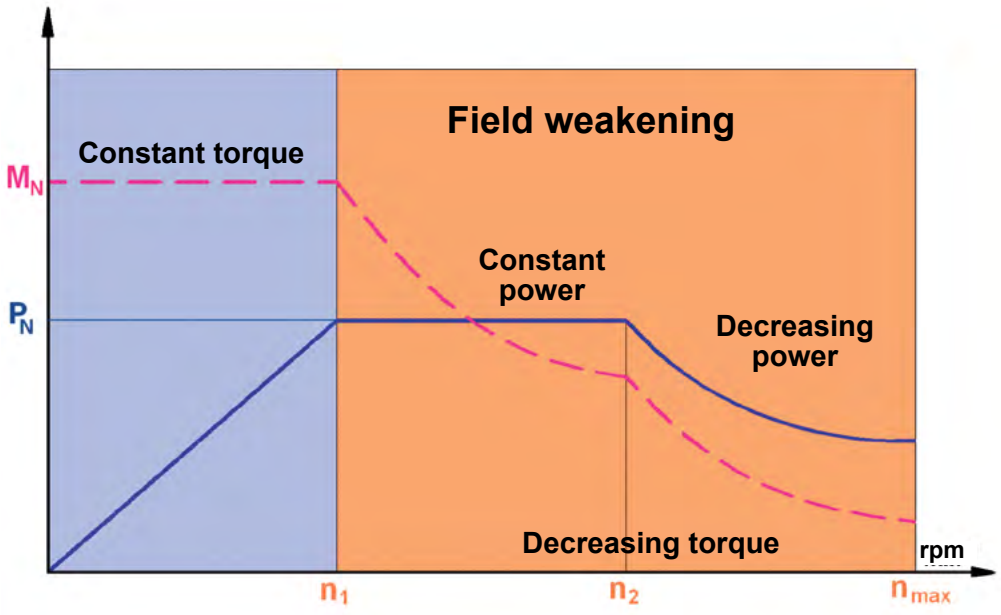
The **CPLS** range of asynchronous motors with **IP23** protection has been designed for variable or fixed speed applications in restricted spaces and (or) where there is a large speed variation range.

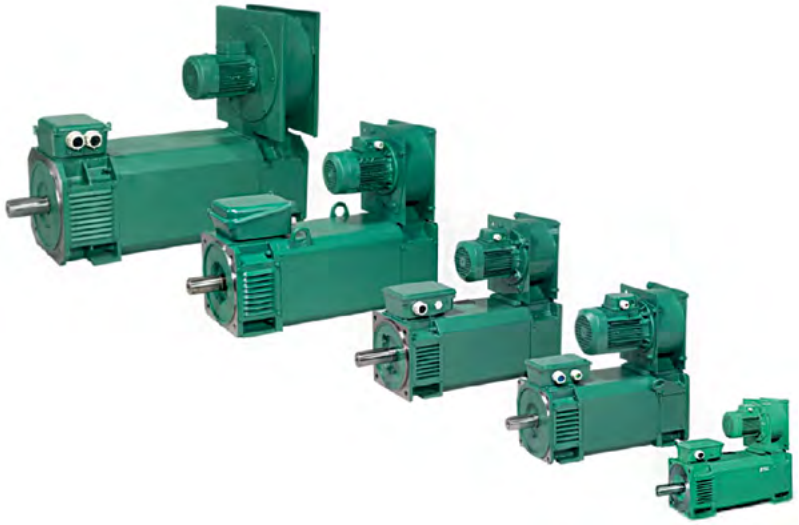
These motors are supplied using variable speed drives, and operate in open-loop or closed-loop mode. As standard they deliver specified rated torque (M_N) up to their design speeds (n_1) then supply constant power P_N from a speed of n_1 to a speed of n_2.

Asynchronous squirrel-cage motors are well suited to operations in de-fluxed weakened field mode, over as wide a range as the lamination allows.

Each machine is defined **by its design torque**, with this torque being available in **continuous service** below the design speed thanks to effective radial ventilation.

The performance levels of these motors are comparable with direct current motors and some brushless motor characteristics. **They have low inertia**, thus offering good **dynamic performance levels**.





Leroy-Somer reserves the right to modify the characteristics of its products at any time in order to incorporate the latest technological developments. The information contained in this document is therefore liable to be changed without notice.

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Description

• **CPLS series asynchronous motor**, frame size 112 to 250 mm.

• **Protection**: IP23.

• **Fixing form**: B3 or B35, all mounting positions.

• **Insulation class F. Temperature class F**

• **Power supply**: as standard 3 wires, supply by variable speed drive.

• **Winding**: class F as standard. Protection by PTC sensors 150°C

• **Magnetic laminations**: designed to provide good characteristics in the usage range including in defluxed mode.

Depending on the machine's operating speed, the use of low-loss laminations means that the electrical characteristics of the motor/drive assembly can be optimised .

• **Rotor**: made of aluminium or copper depending on sizes. Balancing class A as standard, in accordance with ISO 8821, by half-key (letter H).

• **Housing**: steel.

• **Flanges**: in cast iron, fixed by tie-rods. The fixing feet form part of the front and rear bearings.

• **Terminal box**: aluminium. It may be turned through consecutive 90 degrees, and aligned on any of the faced of the front or rear bearing.

There are only three connection cables available in the terminal box.

ATTENTION: the terminal box cover must be closed once connection of the cables has been completed.

• **Ball bearings**: C3 play, greased for life as standard.

• **Lifting rings**: depending on the type they are threaded onto the bearings of the machine.

• **Fan**: three-phase auxiliary radial ventilation cools the machine irrespective of its speed. The standard IEC 34-6 cooling mode is IC06.

Unless specified the cooling air must be between -16°C and +40°C and have humidity below 80% RH.

The fan may be aligned every 90 degrees with any of the faces of the front or rear bearing.

As standard the fan voltage is: 230/400V 50 Hz and 265/460V 60 Hz.

The power of the fan motor varies with the size of the machine: see page 18.

• **Finish**: paint RAL 6000 (green).

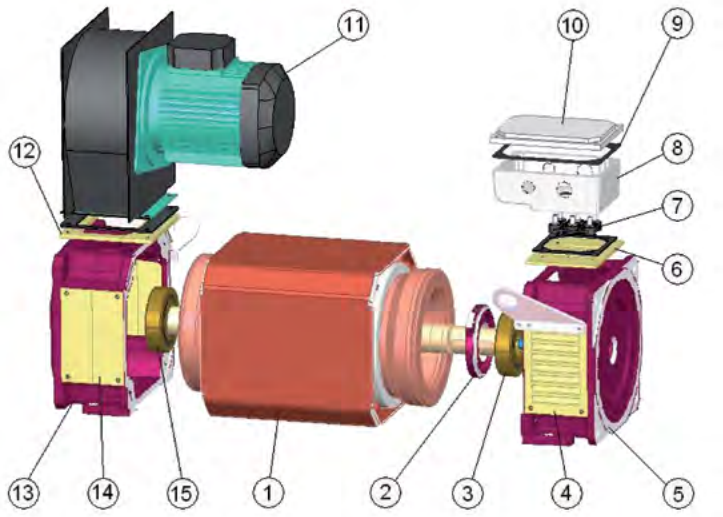
Identification on nameplate fixed to the motor housing.

• **Options available**:

- Drive-end roller bearings
- Special High Speed bearing
- Class B balancing
- Special shaft extension
- Different flanges from standard by frame size
- Filter on radial FV (standard or MIOVYL)
- Ducted Fan
- Fan pressure switch
- Second shaft extension
- PTO, PTF, PT1000, PT100 sensors in windings or bearings
- Incremental encoder, absolute encoder
- Brake
- Preparation for torque meter

• **Other options available on request**

Constituent parts



Item	Designation	Item	Designation
1	Stator in its housing	9	Terminal box seal
2	Bearing flange (depending on assembly)	10	Terminal box cover
3	Bearing	11	Forced ventilation
4	Fan grille	12	Fan seal
5	Front bearing housing	13	Rear bearing housing
6	Terminal box support plate	14	Closure plate
7	Terminal plate	15	Rear bearing
8	Terminal box body		

Standards and approvals

Reference		International standards
IEC 60034-1	EN 60034-1	Electrical rotating machines: ratings and operating characteristics
IEC 60034-5	EN 60034-5	Electrical rotating machines: classification of degrees of protection provided by casings of rotating machines
IEC 60034-6	EN 60034-6	Electrical rotating machines (except traction): cooling methods
IEC 60034-7	EN 60034-7	Electrical rotating machines (except traction): symbols for mounting positions and assembly layouts
IEC 60034-8		Electrical rotating machines: terminal markings and direction of rotation
IEC 60034-9	EN 60034-9	Electrical rotating machines: noise limits
IEC 60034-12	EN 60034-12	Starting performance of single-speed three-phase cage induction motors for supply voltages up to and including 660 V
IEC 60034-14	EN 60034-14	Electrical rotating machines: mechanical vibration of certain machines with shaft heights 56 mm and higher. Measurement, evaluation and limits of vibrational intensity
IEC 60034-25		Cage induction motors when fed from converters - Application guide
IEC 60038		IEC standard voltages
IEC 60072-1		Dimensions and power series for electrical rotating machines: designation of casings between 56 and 400 and flanges between 55 and 1080
IEC 60085		Evaluation and thermal classification of electrical insulation
IEC 60721-2-1		Classification of natural environment conditions. Temperature and humidity
IEC 60892		Effects of an imbalance in the voltage system on the characteristics of three-phase squirrel-cage induction motors.
IEC 61000-2-10/11 and 2-2		Electromagnetic compatibility (EMC): environment
IEC guide 106		Guidelines on the specification of environmental conditions for the determination of operating characteristics of equipment
ISO 281		Bearings - Basic dynamic loadings and nominal bearing life
ISO 1680	EN 21680	Acoustics - Test code for measuring airborne noise emitted by electrical rotating machines: a method for establishing an expert opinion for free field conditions over a reflective surface
ISO 8821		Mechanical vibration - Balancing. Conventions on shaft keys and related parts
	EN 50102	Degree of protection provided by electrical housings against extreme mechanical impacts
ISO 12944-2		Corrosion protection

Standards and approvals

CPLS MOTOR MARKINGS

There are lots of special markings throughout the world. They mainly concern product conformance with current user safety standards in different countries. Some markings or labels only concern energy regulations. The same country can therefore have two markings: one for safety and one for energy.

CE	This marking is mandatory throughout the European Economic Community. It means that the product conforms to all the relevant directives. If the product does not conform to a relevant directive, it cannot be **CE** rated and consequently cannot bear the **CE** mark.

Note: *c CSA us and c UL us mean the same thing but one is delivered by the CSA and the other by the UL.*

c UL us	**The c UL us** mark, which is optional, indicates conformance with Canadian requirements and those of the United States. **UL** encourages manufacturers distributing products bearing the **UL** Recognised mark for both countries to use this combined mark.

For Canada at least c UR us or c CSA us is required. Both are also possible.

Components covered by the UL "Recognized Component Mark" programme are designed to be installed in another device, system or final product. They should be installed in the factory, not in the field and it is possible that their performance capability will be restricted and will limit their use. When a complete product or system containing UL Recognized components is assessed, the final product assessment process can be rationalised.

EAC	The **EAC** mark replaces the **GOST** mark. It is the equivalent of the **CE** mark for the European Union market. This new mark covers regulations for Russia, Kazakhstan and Belarus. All products marketed in these three countries must bear this marking.

Standards and approvals

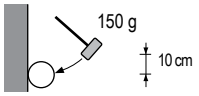
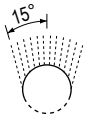
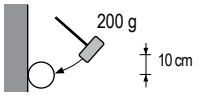
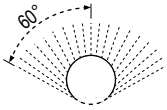
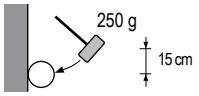
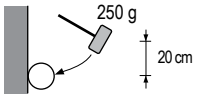
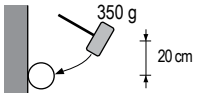
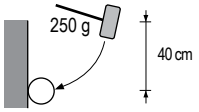
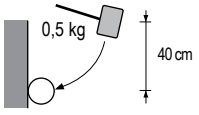
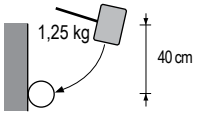
INTERNATIONAL AND NATIONAL STANDARD EQUIVALENTS

International reference standards		National standards				
IEC	**Title** (summary)	**FRANCE**	**GERMANY**	**U.K.**	**ITALY**	**SWITZERLAND**
60034-1	Ratings and operating characteristics	NFEN 60034-1 NFC 51-120 NFC 51-200	DIN/VDE 0530	BS 4999	IEC 2.3.VI.	SEV ASE 3009
60034-5	Classification of degrees of protection	NFEN 60034-5	DIN/EN 60034-5	BS EN 60034-5	UNEL B 1781	
60034-6	Cooling methods	NFEN 60034-6	DIN/EN 60034-6	BS EN 60034-6		
60034-7	Mounting arrangements and assembly layouts	NFEN 60034-7	DIN/EN 60034-7	BS EN 60034-7		
60034-8	Terminal markings and direction of rotation	NFC 51 118	DIN/VDE 0530 Teil 8	BS 4999-108		
60034-9	Noise limits	NFEN 60034-9	DIN/EN 60034-9	BS EN 60034-9		
60034-12	Starting characteristics for single-speed motors for supply voltages ≤ 660 V	NFEN 60034-12	DIN/EN 60034-12	BS EN 60034-12		SEV ASE 3009-12
60034-14	Mechanical vibrations of machines with frame size ≥ 56 mm	NFEN 60034-14	DIN/EN 60034-14	BS EN 60034-14		
60072-1	Dimensions and output powers for machines of between 56 and 400 frame size and flanges of between 55 and 1080.	NFC 51 104 NFC 51 105	DIN 748 (~) DIN 42672 DIN 42673 DIN 42631 DIN 42676 DIN 42677	BS 4999		
60085	Evaluation and thermal classification of electrical insulation	NFC 26206	DIN/EN 60085	BS 2757		SEV ASE 3584

Definition of "Index of Protection" (IP)

CPLS PROTECTION INDICES IP23 IK08

In accordance with IEC 60034-5 - EN 60034-5 (IP) - IEC 62262 (IK)

1st number: protection against solid bodies			2nd number: protection against liquids			3rd number: mechanical protection		
IP	**Tests**	**Definition**	**IP**	**Tests**	**Definition**	**IK**	**Tests**	**Definition**
0		No protection	0		No protection	00		No protection
1		Protected against solid bodies greater than 50 mm (e.g. involuntary hand contact)	1		Protected against vertically falling water droplets (condensation)	01		Impact energy: 0.15 J
2		Protected against solid bodies greater than 12 mm (e.g. fingers)	2		Protected against falling water droplets up to 15° from the vertical	02		Impact energy: 0.20 J
			3		Protected against rainwater up to 60° from the vertical	03		Impact energy: 0.37 J
						04		Impact energy: 0.50 J
						05		Impact energy: 0.70 J
						06		Impact energy: 1 J
						07		Impact energy: 2 J
						08		Impact energy: 5 J

Example:

IP : Index of protection

Environmental limitations

NORMAL OPERATING CONDITIONS

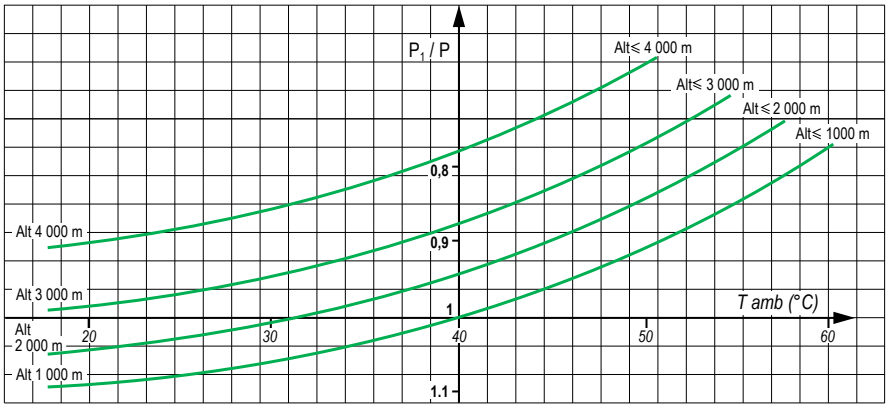
According to IEC 60034-1, motors can operate in the following normal conditions:

- ambient temperature within the range -16°C to +40°C,
- altitude less than 1000 m,
- atmospheric pressure: 1050 hPa (mbar) = (750 mm Hg)

Power correction factor

For operating conditions outside these limits, apply the power correction coefficient shown in the chart on the right while maintaining the thermal reserve, as a function of the altitude and ambient temperature of the operating location.

Correction coefficient table
NB: The output power can only be corrected upwards once the ability of the motor to start the load has been checked.



NORMAL STORAGE CONDITIONS

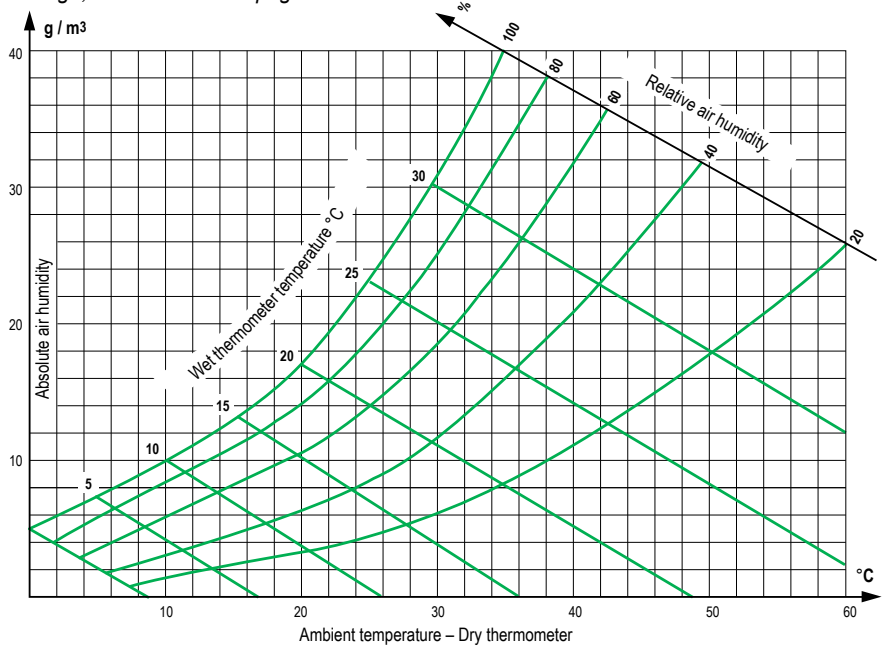
Machines should be stored in a horizontal position at an ambient temperature between -16°C and +80°C for aluminium motors, between -40°C and +80°C for cast iron motors, and at a relative humidity of less than 90%.
For restarting, see the commissioning manual.

RELATIVE AND ABSOLUTE HUMIDITY

Measuring the humidity:

Humidity is usually measured by the "wet and dry bulb thermometer" method. Absolute humidity, calculated from the readings taken on the two thermometers, can be determined using the chart on the right. The chart also provides relative humidity figures.
To determine the humidity correctly, a good air flow is required for stable readings, and accurate readings must be taken on the thermometers.
During the construction of aluminium motors, the materials of the various components which are in contact with one another are selected so as to minimise deterioration by galvanic effect. The voltages in the metal combinations used (cast iron-steel; cast iron-aluminium; steel-aluminium; steel-tin) are too low to cause deterioration.

In temperate climates, relative humidity is generally between 50 and 70%. For the relationship between relative humidity and motor impregnation, especially where humidity and temperature are high, see table on next page.



DRIP COVERS

For machines operating outdoors, with the drive shaft downwards, drip covers are recommended.
This is an option and should be specified on the order if required.

Reinforced insulation

CPLS machines have a reinforced insulation as standard

Standard motors in the CPLS range are compatible with power supplies with the following characteristics:
• U = 480 V max.
• $\hat{U}_{LL}$<1800V_{pk}; $\hat{U}_{LE}$<1300V_{pk} with dv/dt <4000V/µs and 5µs min between two PWM pulses

Note:
$\hat{U}_{LL}$: Peak voltage between phases
$\hat{U}_{LE}$: Peak voltage between phase/earth

For more information see the good practice guide ref. 5626

However, they can be supplied with power in harsher conditions if additional protection is provided (various filters, choke).

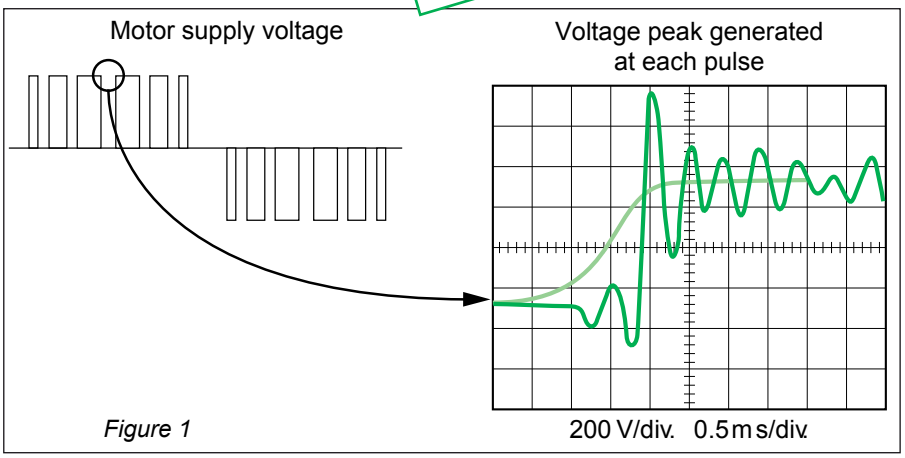
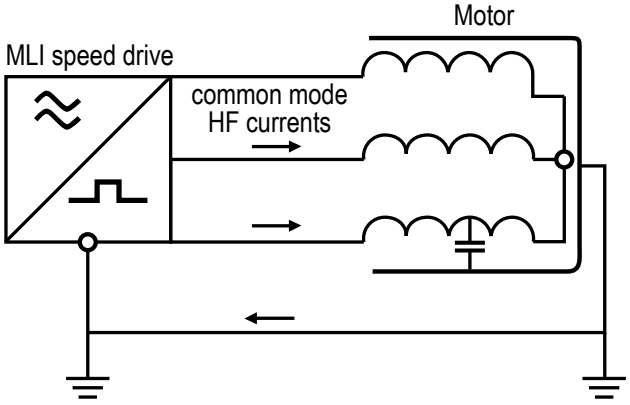


Figure 1

Reinforced insulation of winding

The main effect associated with supplying power via an electronic drive is overheating of the motor due to the non-sinusoidal shape of the signal.
In addition, this can result in accelerated ageing of the winding through the voltage peaks generated at each pulse in the power supply signal (see figure 1).

All motors in the CPLS range have reinforced insulation for this reason.



Reinforced insulation of the mechanical parts

Supplying power via a drive can affect the mechanical parts and can lead to premature wear of the bearings.
This is because, in any motor, a shaft voltage exists with respect to earth. This voltage, due to electromechanical asymmetries, creates a potential difference between the rotor and the stator. This effect can generate electrical discharges between balls and slip-rings and lead to a reduction in bearing life.

If power is supplied by a PWM drive, a second phenomenon can occur in the form of high frequency currents generated by the IGBT output bridges of the drives.

These currents “attempt” to spread towards the drive and therefore flow through the stator and via earth where the link between the casing, machine frame and earth is correctly made.

Otherwise they will take the path of least resistance: shrouds / bearings / shaft / machine coupled to the motor. Bearings must therefore be protected in these instances.
An "insulated bearing" option is thus available throughout the range.

Insulated bearing characteristics

The outer rings of the bearings are coated with a layer of an electrically insulating ceramic.

The dimensions and tolerances of these bearings are identical to the standard ones used and can therefore be fitted in place of these with no modifications to the motors. The breakdown voltage is 500V. For information on the types of bearing fitted as standard, please refer to the section on "Bearings and lubrication".

Operating conditions

EXTREME OPERATING CONDITIONS AND OTHER POINTS

Motor connections

Leroy-Somer do not recommend any specific connections for applications operating with a single motor on a single drive.

Transient overloads

Drives are designed to withstand transient overload. When the overload values are too high, the system will automatically shut down. Leroy-Somer motors are designed to withstand these overloads, however in the event of very repetitive operation we still recommend use of a temperature sensor in the winding of the motor.

Starting torque and current

Thanks to advances in control electronics, the torque available when the motor is switched on can be adjusted to a value between the rated torque and the variable speed drive breakdown torque. The starting current will be directly related to the torque (120 or 180%).

Adjusting the switching frequency

The variable speed drive switching frequency has an impact on losses in the motor and the drive, on the acoustic noise and the torque ripple.
A low switching frequency has an adverse effect on temperature rise in motors.
Leroy-Somer recommends a drive switching frequency of 3 kHz minimum (4 kHz for high-frequency motors).
In addition, a high switching frequency optimises the acoustic noise and torque ripple level.

Choice of motor

There are two possibilities:

a - The variable speed drive is not supplied by Leroy-Somer
All the motors in this catalogue can be used with a variable speed drive. Depending on the application, motors will need to be derated by around 10% compared to the motor operating curves in order to guarantee that motors will not be damaged.

b - The variable speed drive is supplied by Leroy-Somer
As these two ranges have been specifically designed for use in combination, excellent performance is guaranteed, in accordance with the curves on the previous page.

Good wiring practice

WIRING RULES

General

It is the responsibility of the user and/or the installer to connect the motor and drive system in accordance with the current legislation and regulations in the country of use. This is particularly true for the cable size and the ground connection. The information given below does not replace the standards that are in force or relieve installers of their responsibilities.

Equipotential earth bonding

Grounding and earthing

The primary reason for grounding components and equipment in an industrial installation is to protect people and minimize the risk of damage in the event of a major fault on the power supply or following a lightning strike. The second objective of earthing is to create a common low-impedance voltage equipotential reference which reduces:

- the risks of interference between equipment in installations incorporating sensitive and interconnected electronic and electrical systems,
- the risk of material failure in case of fault currents,
- the risk of current flow through bearings of electrical machines powered by a variable speed drive,
- the level of electromagnetic emissions whether conducted or radiated.

It is essential that the earth network is designed and implemented by the installation supervisor so that its impedance is as low as possible, in order to distribute the fault currents and high-frequency currents so that they do not pass through the electrical equipment. The underlying philosophy of any earthing installation is to maximize mesh bonding of ground connections between metal parts (machine frame, building structures, pipework, etc.) and connect this mesh bonding to earth at multiple points. Metal grounds must be mechanically connected to each other with the largest possible electrical contact area or with grounding strips. The motor housing must be connected to the equipment frame by high frequency flat braids (their width/length ratio must at least be 1/10).

Under no circumstances can the earth connections designed to protect people, by linking metal grounds to earth via a cable, serve as a substitute for the ground connections (see IEC 61000-5-2).

In particular, the motor earth terminal (PE Protective Earth) must be connected directly to the drive earth terminal. One or more separate PE (Protective Earth) protective conductors are mandatory if the conductivity of the cable shield is less than 50% of the conductivity of the phase conductor.

Equipotential bonding in variable speed drive cabinets

To ensure good equipotential reference in drive cabinets, it is strongly recommended to place the components (drives, EMC filters, input/output unit, etc.) on an unpainted conductive drive cabinet bottom plate that will be connected to the frame of the drive cabinet through the largest contact area possible. The side and rear panels will be connected to the PE bar or plates by large width grounding braids. Paint on the panels should be removed in the braid connection areas.
If several drive cabinet frames are combined side by side, the frames of the various drive cabinets must be screwed together at several regularly distributed points to provide a conductive connection (use of contact washers) and the bottom plates must also be connected to each other by several braids.

Motor cables

Shielding of the power conductors is a preferred method that enables the common mode currents to return to their point of origin without dispersing into other possible paths (equipotential conductors, piping, building structure, etc.). It significantly reduces the levels of electromagnetic emissions, both conducted and radiated. For this reason, it is mandatory to use shielded cables between drive and motor to ensure compliance with the EMC emission standards (IEC 61800-3, etc.). Shielded cables are also used to limit shaft voltage and the risk of damage to the bearings.

Type of cables:

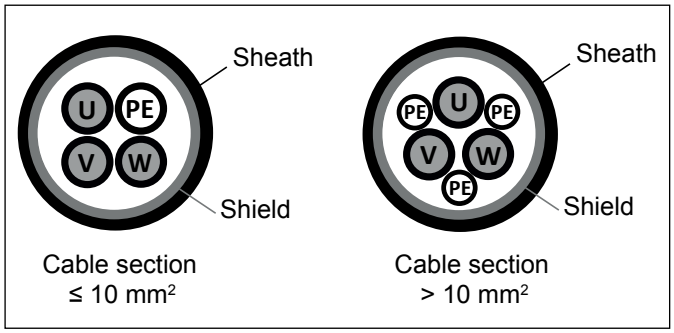
Shielded cables

Shielded cables must in all cases be symmetrical multi-conductor cables with low stray capacity. Cables with a single equipotential conductor can be used up to sections of approximately 10 mm^2. For larger sections only use cables with 3 equipotential conductors.

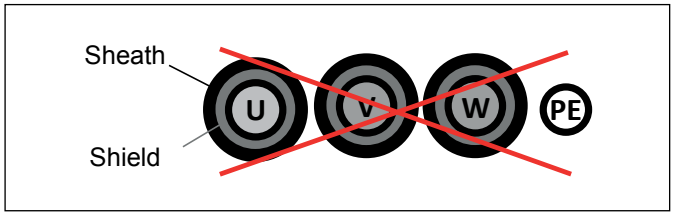
The shielding must be connected at both ends: drive end and motor end (connected round the whole circumference). The unshielded part of the cable must be as short as possible, and use metal cable glands (clamping on the cable shield) on the motor side; refer to the installation instructions for connection of the shield on the drive side.

Good wiring practice

Shielded motor cables



Configuration of shielded cables not to be used



Reinforced or shielded single-conductor cables should not be used.

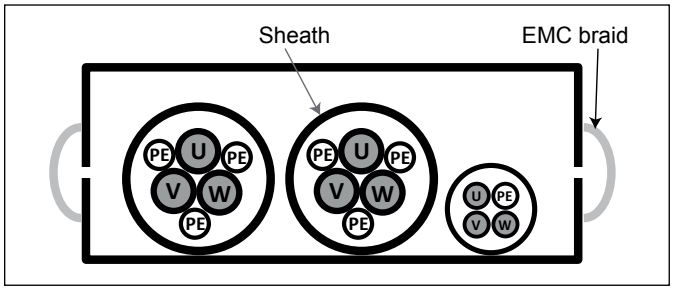
For applications that so require, the shielded cables can be replaced by cables with external PE protection concentric conductor.

Unshielded cables

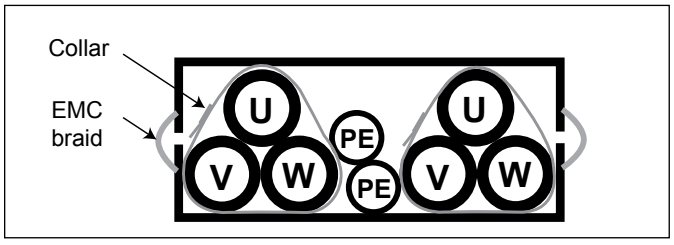
In second industrial environment locations (according to the EN 61800-3 standard, an environment including all establishments other than those directly connected to a low voltage power supply network that powers buildings used for residential purposes), when the power supply cable of the motor is short (<10 m), the shielded cable can be replaced by a cable with 3 phase conductors combined in cloverleaf pattern + 1 earth conductor. All conductors must be placed in a metal conduit 360° closed over its entire circumference (metal cable duct for example). This metal conduit must be mechanically connected to the electrical cabinet and the structure supporting the motor.

If the conduit consists of several pieces, these should be interconnected by braids to ensure ground continuity. The cables must be positioned and held in a cloverleaf formation in the conduit.

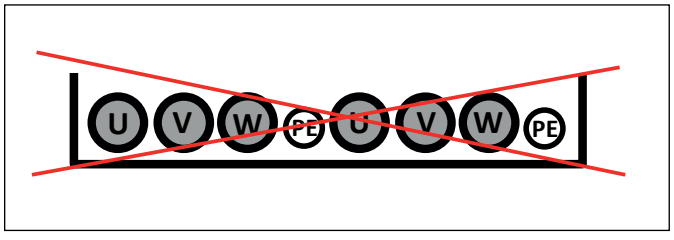
Unshielded cables in a conduit



Unshielded cables in a conduit with several pieces.



Configuration of unshielded cables not to be used.



Typical installation of a motor-drive

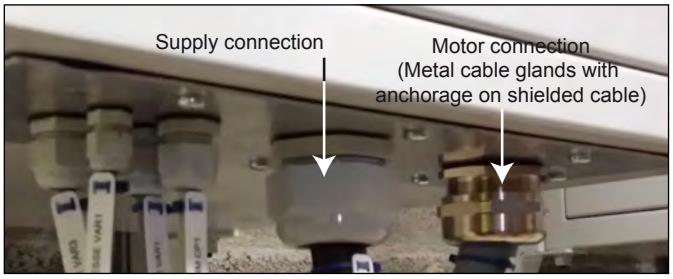
TYPICAL CONNECTION OF A MOTOR-DRIVE

An equipotential bonding between the chassis, the motor, the variable speed drive, the transformer and the earth carried out in accordance with best practices will significantly help reduce the voltage between the shaft and the motor frame, will reduce the passage of high frequency current via the shaft and, consequently, will prevent the risk of premature failure of the bearings and the encoders.

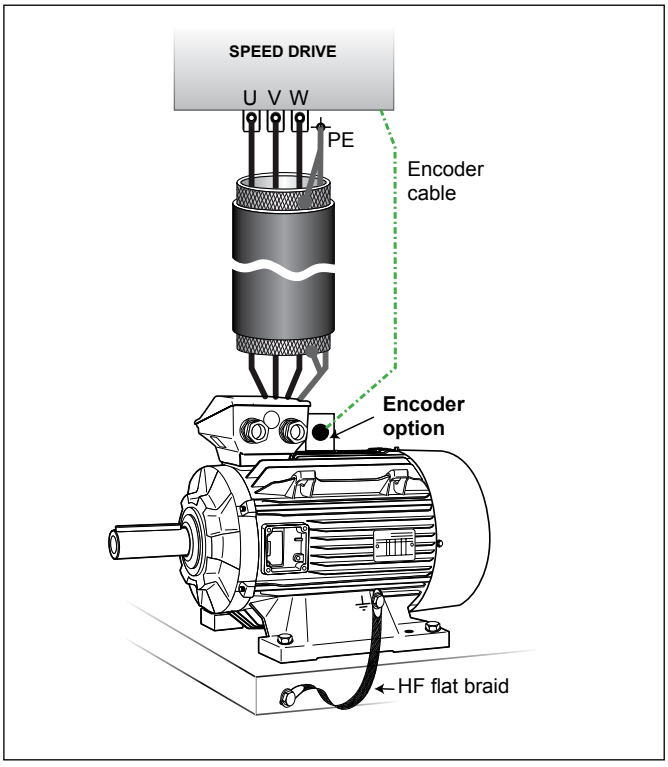
The motor must be earthed in accordance with the applicable regulations (protection of workers).

The HF flat braid which connects the motor casing to the machine frame must have a minimum width/length ratio of 1/10.

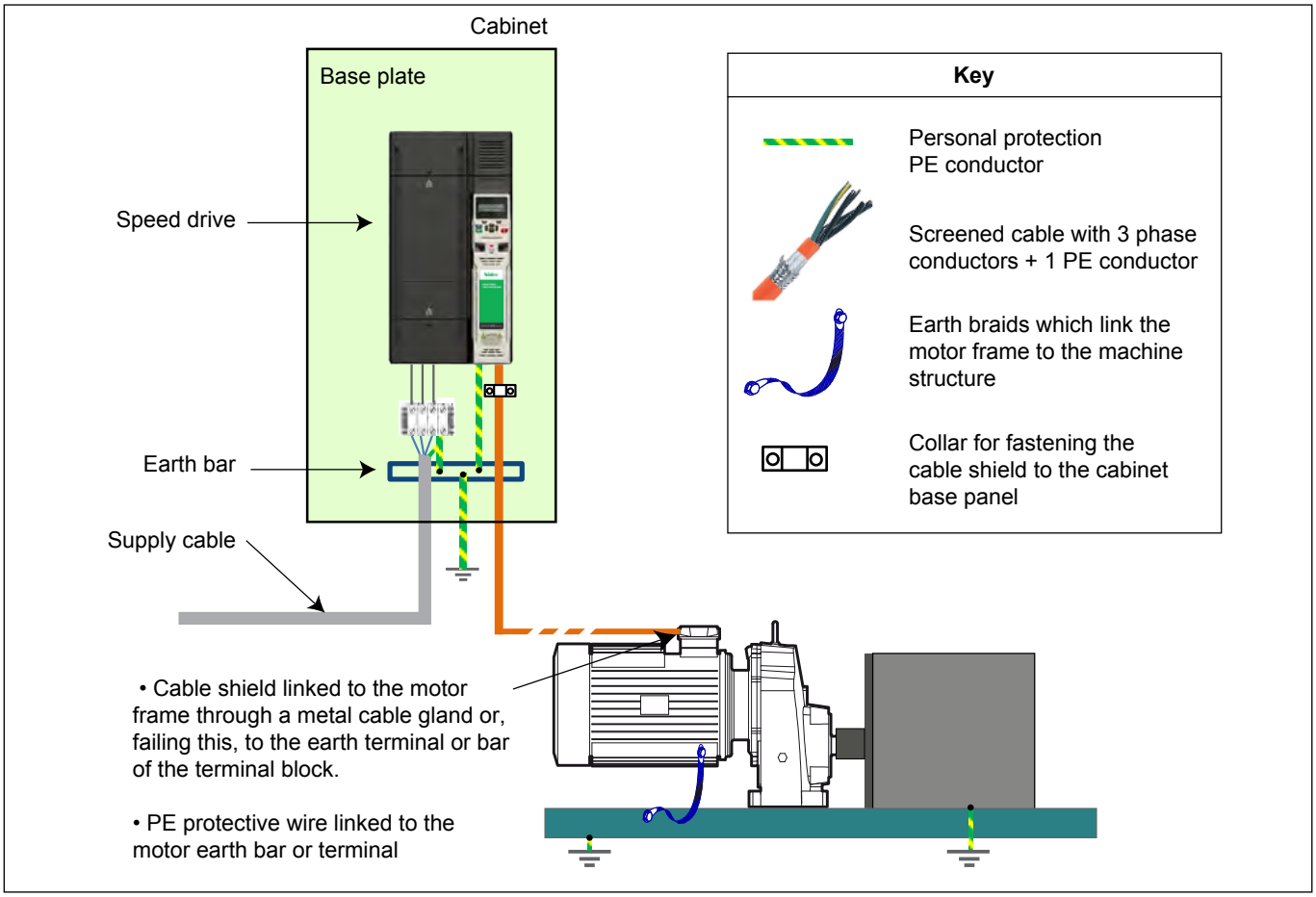
Use of a metallic cable gland with anchor for the motor cable



Typical connection of a motor drive



Typical connection of a complete system



Typical installation of a motor-drive

Special precautions for low power variable speed drive

At each voltage pulse switching of the drive, the capacitance of the motor cable must be charged and then discharged, which induces a succession of high frequency current peaks that must be supplied / absorbed by the drive. The amplitude of these current peaks is linked to the length of the cable. The longer the cables, the higher the peaks.

For variable speed drives whose power is higher than a few kW, these peaks of capacitive currents are low in comparison to the motor current and have no effect on the functioning of the drive.

For low power variable speed drives used with long cables, these current peaks are significant and can affect the functioning of the drive and even lead to an over current trip.

These high-frequency currents can also induce excessive heating of the internal EMC capacitors of the drive.
To prevent the risk, it is recommended to insert a choke or a dv/dt filter between the drive and the motor as soon as the cable length exceeds 20 m for drive sizes less than 2 kW.

Cable sizing

The variable speed drive and the power supply cables must be sized according to the applicable standards, and according to the operating current stated in the drive documentation. The different factors to be taken into consideration are:

- The installation method: in a duct, a cable tray, suspended, etc.

- The type of conductor: copper or aluminium

Once the cable cross-section has been determined, the voltage drop at the motor terminals must be checked. A high voltage drop causes a current increase and additional loss in the motor (heating).

The sections of conductors given below or in specific Leroy-Somer product manuals do not replace in any case the applicable standards in each country (NF C15- 100 in France).

Example of admissible currents for multi-conductor shielded copper cables

Conditions:

- Maximum length: 50 m
- Maximum fundamental frequency: 100 Hz
- Installation in a single layer on perforated cable trays, ladders, corbels
- Ambient temperature: 40°C

Number of cables x conductor section	Admissible current of cable (A)	
mm²	70°C (1)	90°C (1)
1 x (3x35+PE)	108	142
1 x (3x50+PE)	132	174
1 x (3x70+PE)	170	222
1 x (3x95+PE)	206	270
1 x (3x120+PE)	240	314
1 x (3x150+PE)	276	358
1 x (3x185+PE)	316	408
1 x (3x240+PE)	374	488
2 x (3x50+PE)	230	305
2 x (3x70+PE)	300	390
2 x (3x95+PE)	360	475

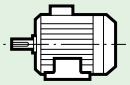
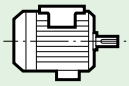
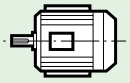
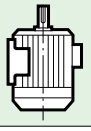
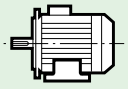
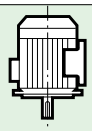
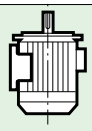
Number of cables x conductor section	Admissible current of cable (A)	
mm²	70°C (1)	90°C (1)
2 x (3x120+PE)	420	550
2 x (3x150+PE)	485	630
2 x (3x185+PE)	555	720
2 x (3x240+PE)	655	860
4 x (3x50+PE)	415	545
4 x (3x70+PE)	530	695
4 x (3x95+PE)	645	845
4 x (3x120+PE)	745	980
4 x (3x150+PE)	865	1120
4 x (3x185+PE)	985	1275
4 x (3x240+PE)	1165	1525

(1) Maximum permissible cable temperature (for 70 °C max., type Ölflex SERVO 2YSLCY-JB and for 90 °C max., type TOXFREE ROZ1-K or RHEYFLEX® Power EMC 2XSLSTCYK-Y).

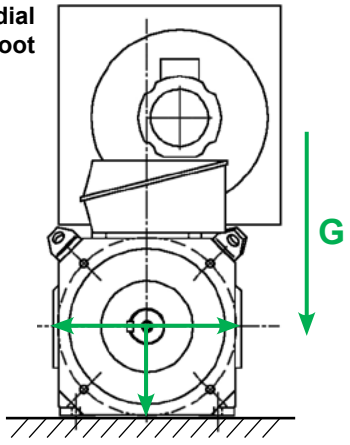
Example: 2 x (3x95 + PE) corresponds to two cables each comprising 3 phase conductors of 95 mm² section and 3 earth conductors (PE).

Mounting arrangements and operating positions

Mountings and positions (IEC standard 60034-7)

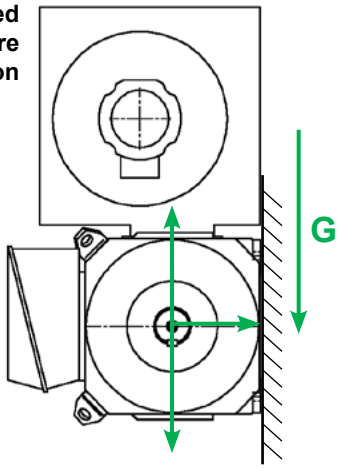
Foot mounted motors	IM 1001 (IM B3) - Horizontal shaft - Feet on floor 	IM 1071 (IM B8) - Horizontal shaft - Feet on top 
	IM 1051 (IM B6) - Horizontal shaft - Wall mounted with feet on left when viewed from drive end 	IM 1011 (IM V5) - Vertical shaft facing down - Feet on wall 
		IM 1031 (IM V6) - Vertical shaft facing up - Feet on wall 
(FF) flange mounted motors with smooth hole flange	IM 3011 (IM V1) - Vertical shaft facing down 	IM 2001 (IM B35) - Horizontal shaft - Feet on floor 
		IM 2011 (IM V15) - Vertical shaft facing down - Feet on wall 
		IM 2031 (IM V36) - Vertical shaft facing up - Feet on wall 
(FT) face mounted motors with tapped holes	Please consult us	

Possible directions of radial loads according to the foot position



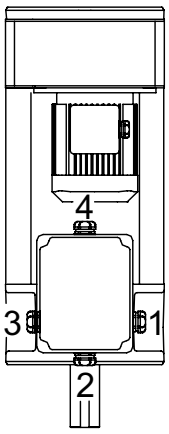
Feet on floor only
B3 or B35

For wall on feet mounted motors, only position B or D are authorised for forced ventilation

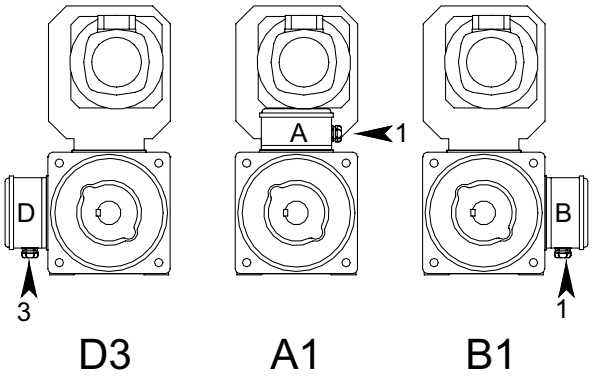


Other positions

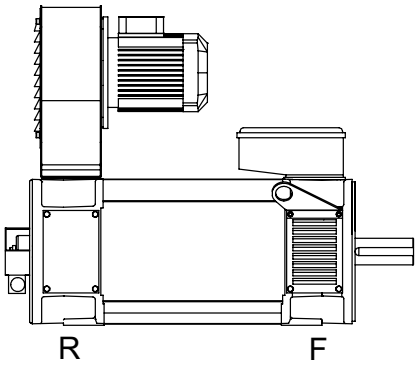
Position of the terminal box and of the forced ventilation



Position of the cable gland outlet relative to the output shaft.

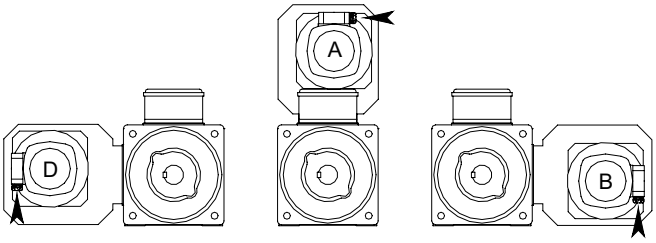


Terminal box + PE position
(For terminal box fitting possibilities, see page 53).



Position of the terminal box and of the forced ventilation relative the motor bearing housings.

F: on front bearing
R: on rear bearing



Position of the forced ventilation
(viewed from drive end)

Example:

Terminal box in position A1 on the front bearing housing, fan in position B mounted on the rear bearing housing

Designation: A1 F - B R

position BAB + PE

position VF

Forced ventilation motor characteristics

CPLS motor Size	Asynchronous motor with "2 pole fan"							
Cooling	Rated power	Permissible voltage	Rated current	Frequency	LS type	Flange	Shaft	Weight
IC 06	*kW*	*V*	*A*	*Hz*		*mm*	*mm*	*kg*
CPLS 112 CPLS 132	0.37	220 to 240 Δ 80 to 415 Y	Δ 1.7 Y 1 (380 V)	50	LS 71 L	FF 130 (CPLS 112)	14 x 30 (CPLS 112)	6.4
	0.44	254 to 280 Δ 440 to 480 Y	Δ 1.7 (254 V) Y 0.95	60	LS 71 L	FF 165 (CPLS 132)	19 x 40 (CPLS 132)	
CPLS 160	1.1	230 Δ 400 Y	Δ 4 Y 2.3	50	LSES 80 L	FF 165	19 x 40	10.7
	1.3	265 Δ 460 Y	Δ 3.8 Y 2.2	60	LSES 80 L			16.1
CPLS 200	2.2	230 Δ 400 Y	Δ 7.8 Y 4.5	50	LSES 90 L	FT 130	24 x 50	16.1
	2.2	265 Δ 460 Y	Δ 6.9 Y 3.95	60	LSES 90 L			
CPLS 250	3	230 Δ 400 Y	Δ 10.2 Y 5.9	50	LSES 100 L	FT 130	28 x 60	22.2
	3.6	265 Δ 460 Y	Δ 10.2 Y 5.9	60	LSES 100 LU			26.5

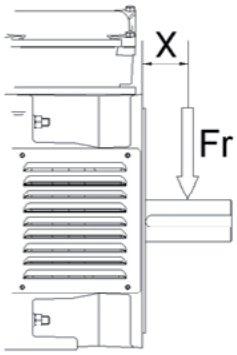
LSES: IE3

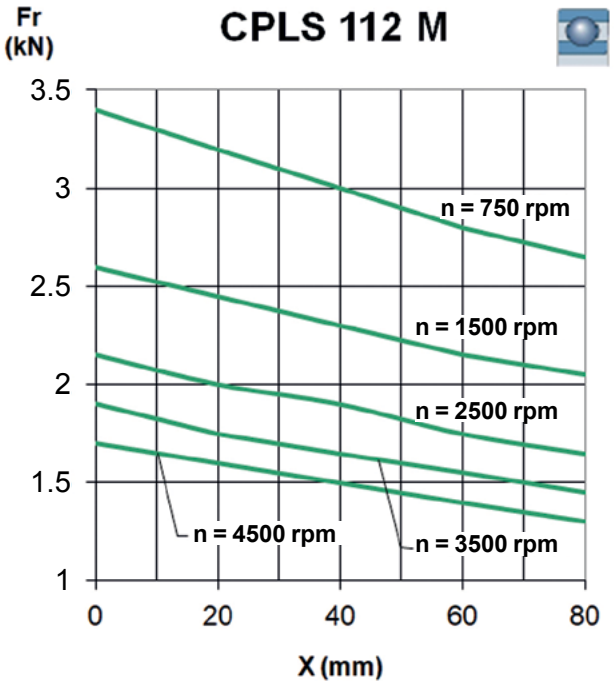
If different mains supply, provide details of the control frequency and voltage.

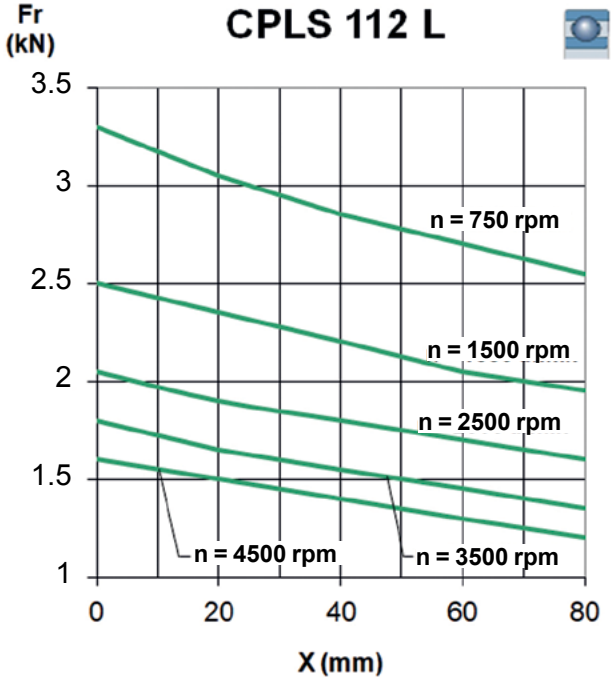
Permissible radial loads (ball bearings)

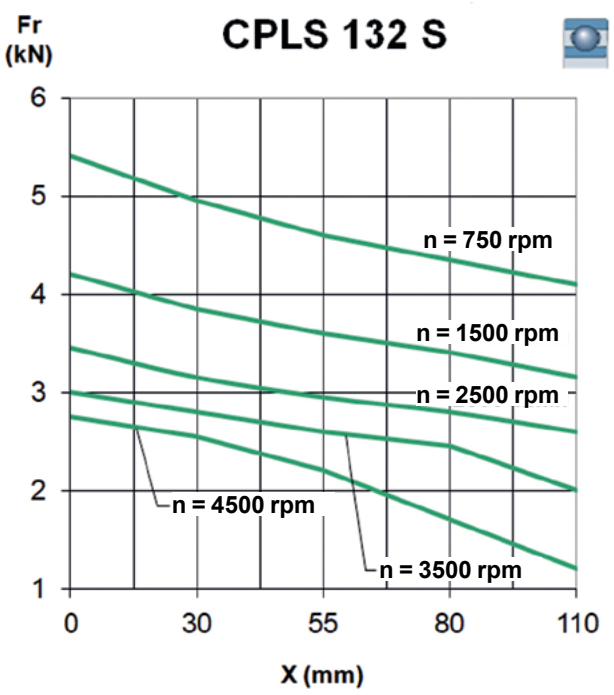
Maximum radial load permitted on the end of the main shaft, horizontal or vertical motor, output shaft high or low with ball bearing for a service life L_{10h} calculated at 20,000 hours.

In pulley and belt couplings, the end of the drive shaft with the pulley is subjected to a radial force ***Fr*** applied at a distance ***X*** (mm) from the support at the end of a shaft of length ***E***.

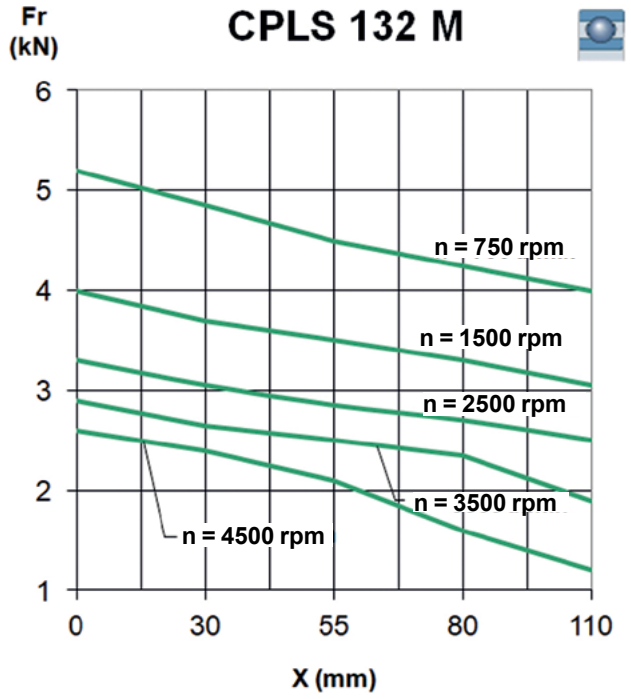


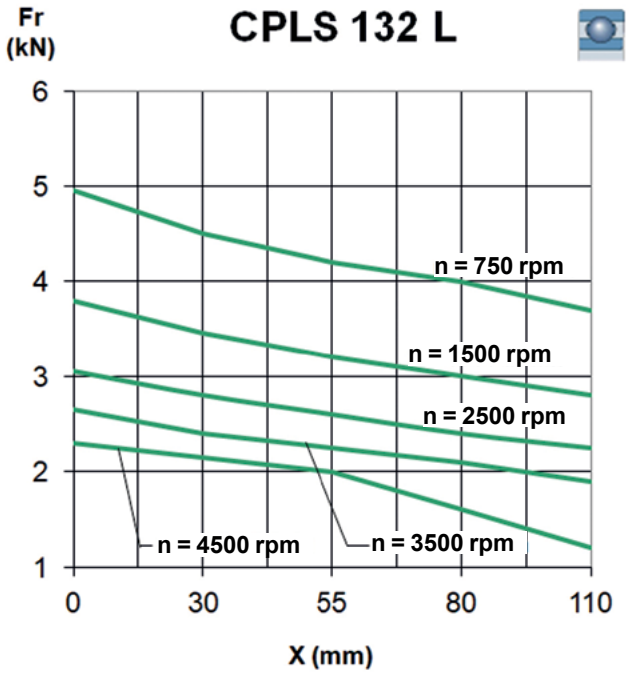


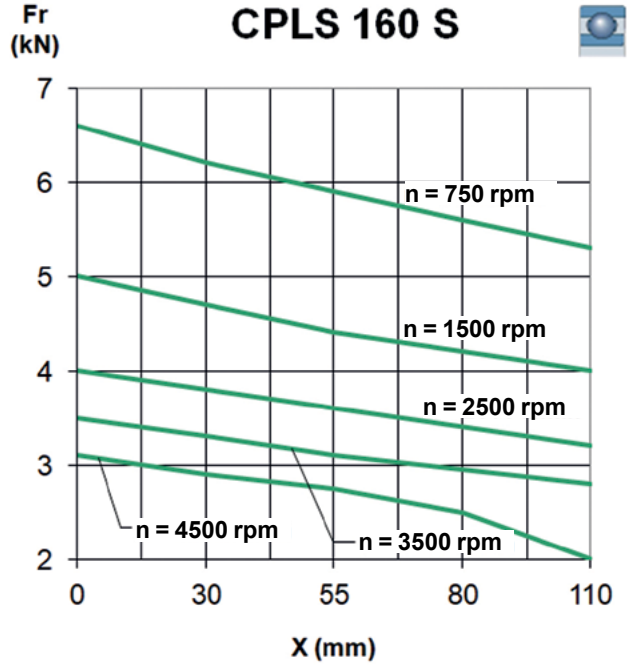


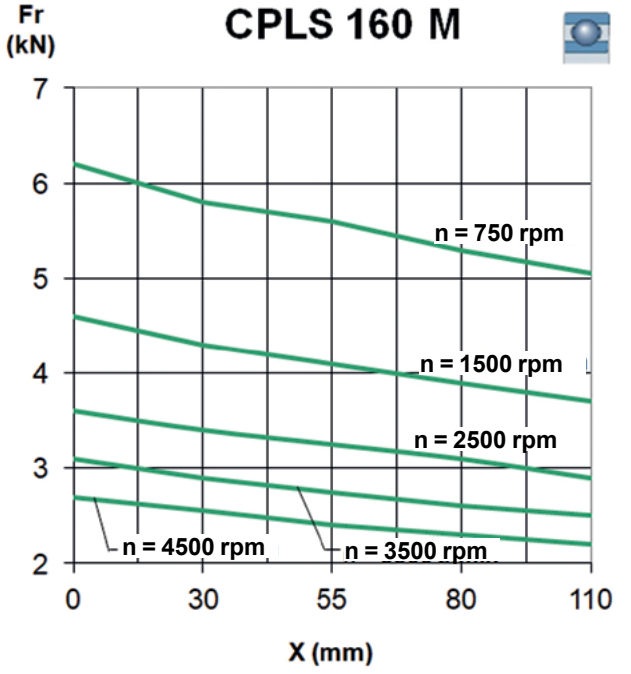


Permissible radial loads (ball bearings)

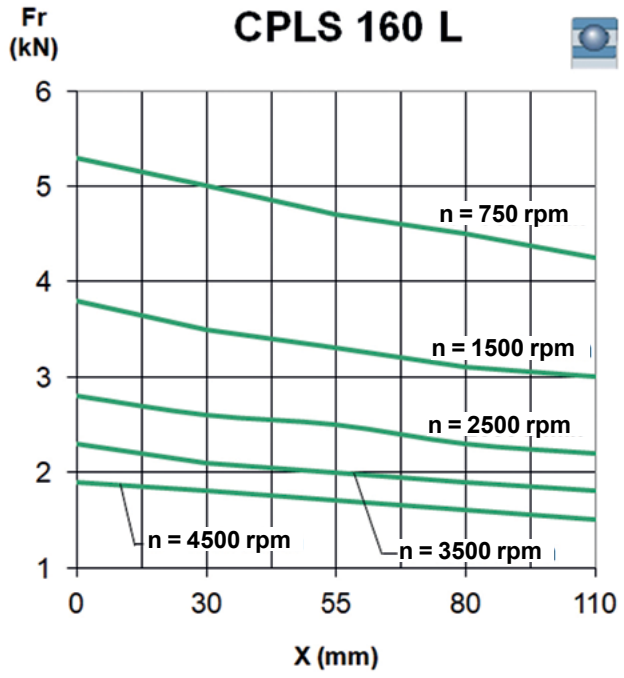


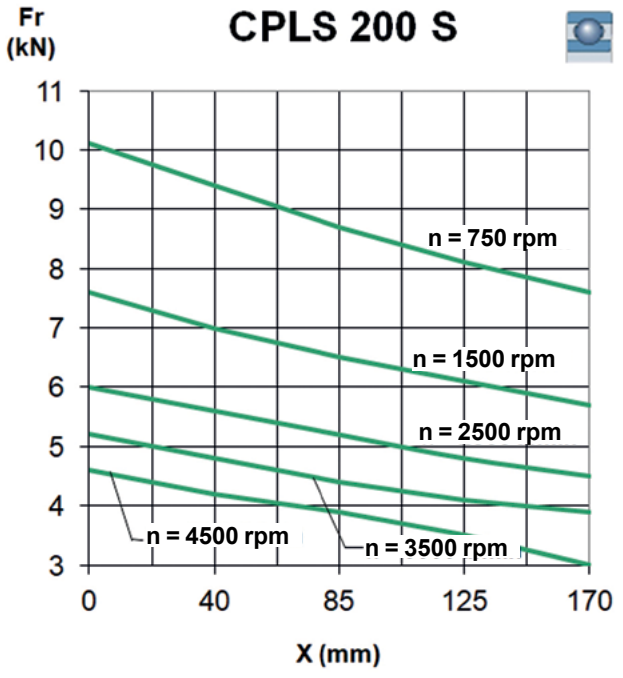


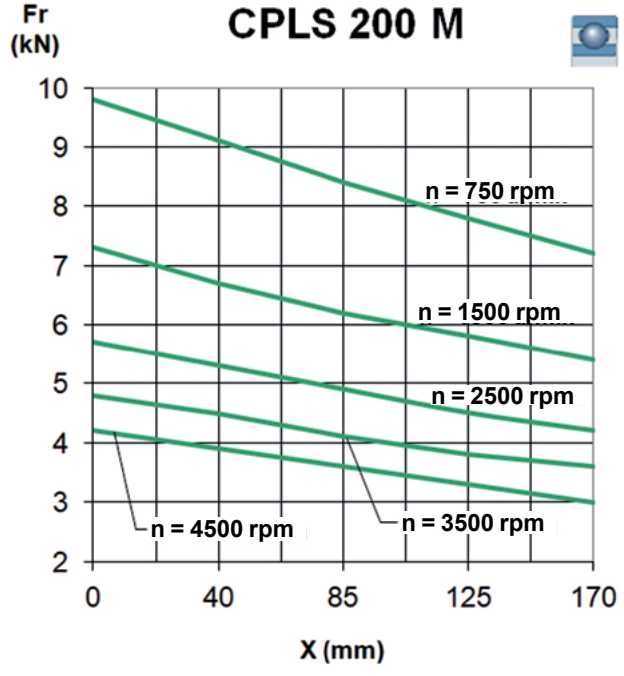


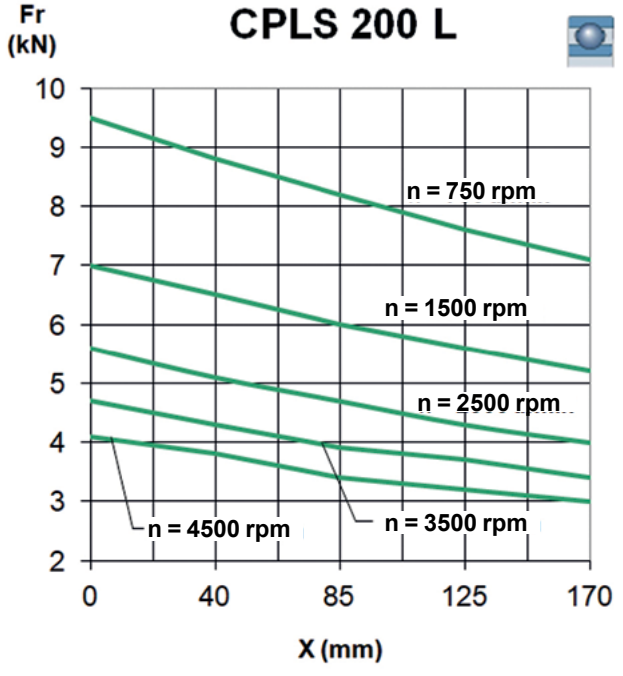


Permissible radial loads (ball bearings)

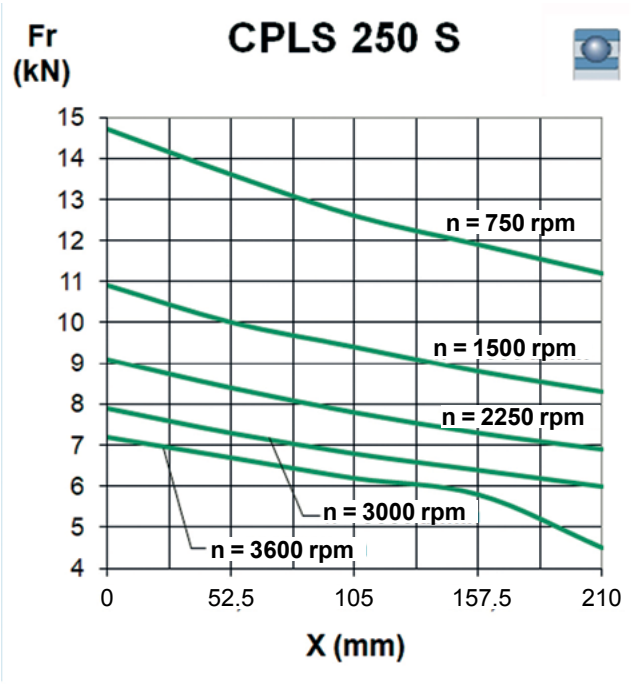


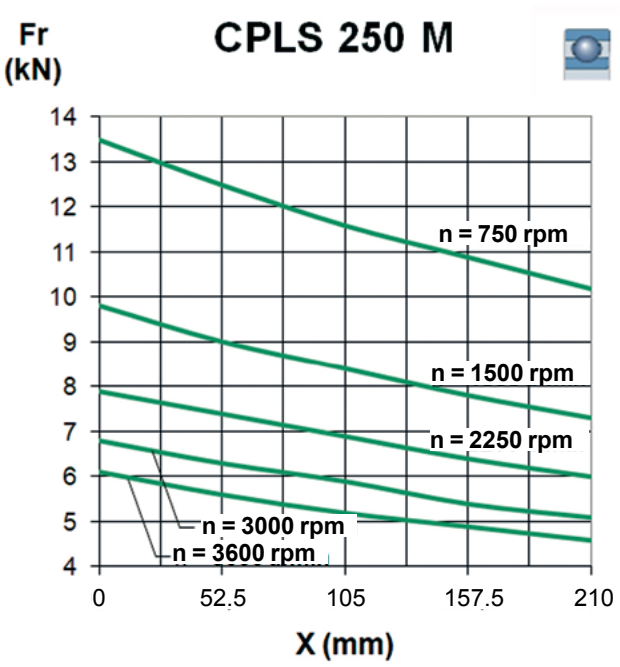


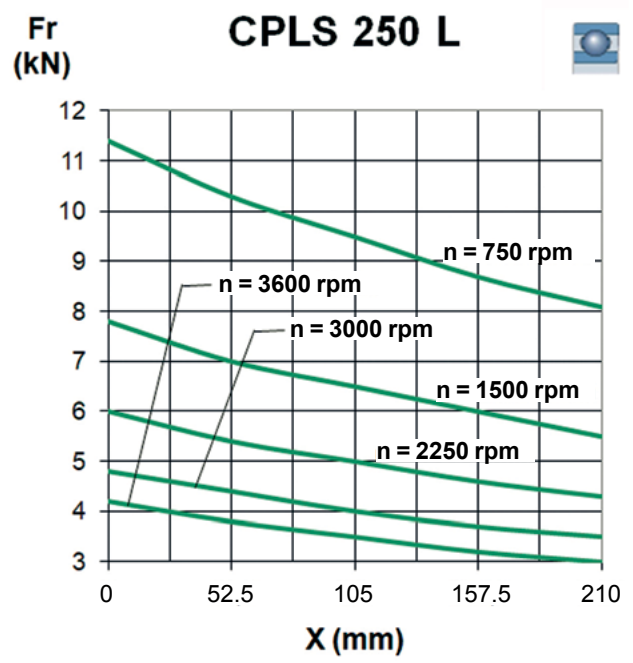




Permissible radial loads (ball bearings)



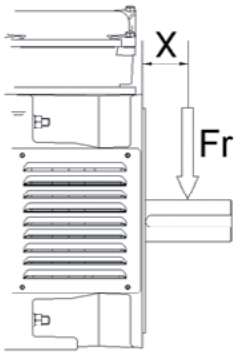


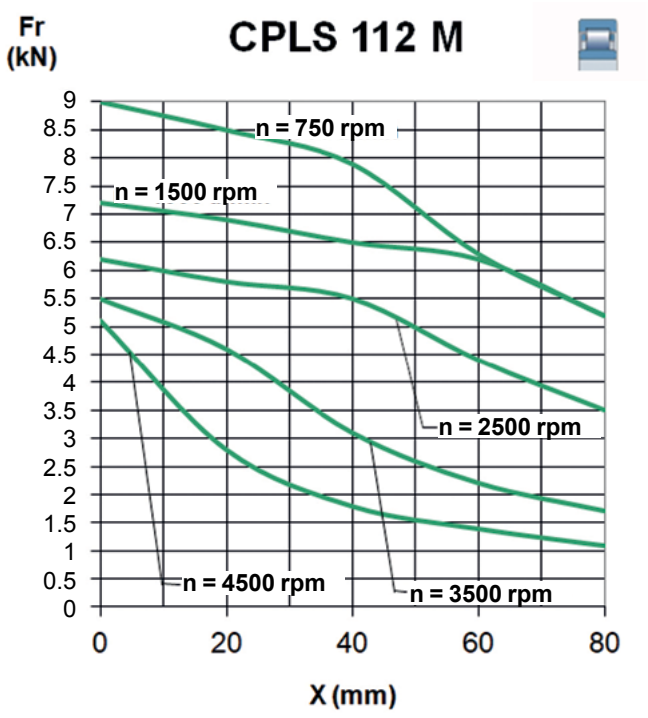


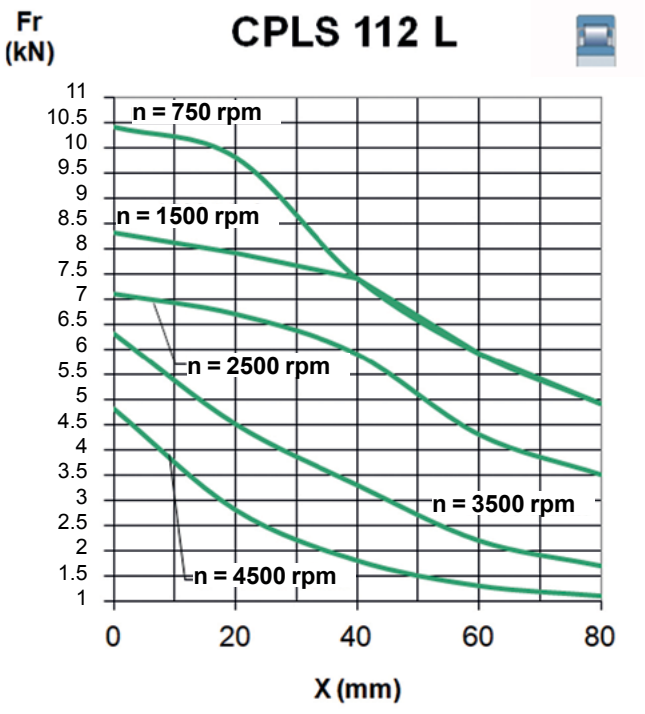
Permissible radial loads (roller bearings)

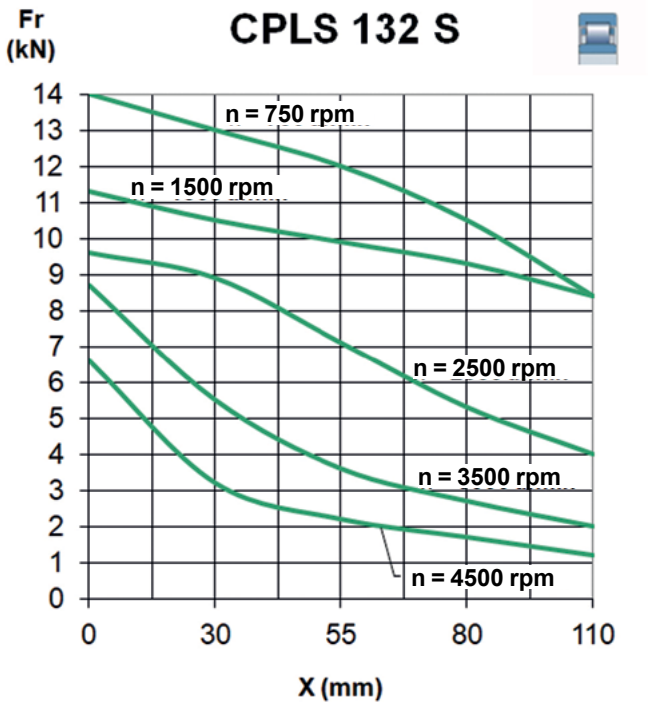
Maximum radial load permitted on the end of the main shaft, horizontal motor and roller bearing for a service life L_{10h} calculated at 20,000 hours.

In pulley and belt couplings, the end of the drive shaft with the pulley is subjected to a radial force ***Fr*** applied at a distance ***X*** (mm) from the support at the end of a shaft of length ***E***.

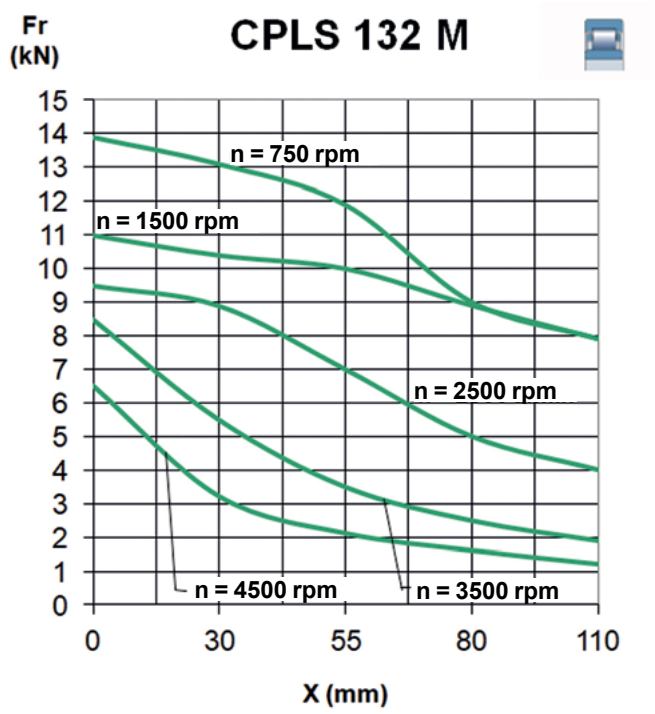


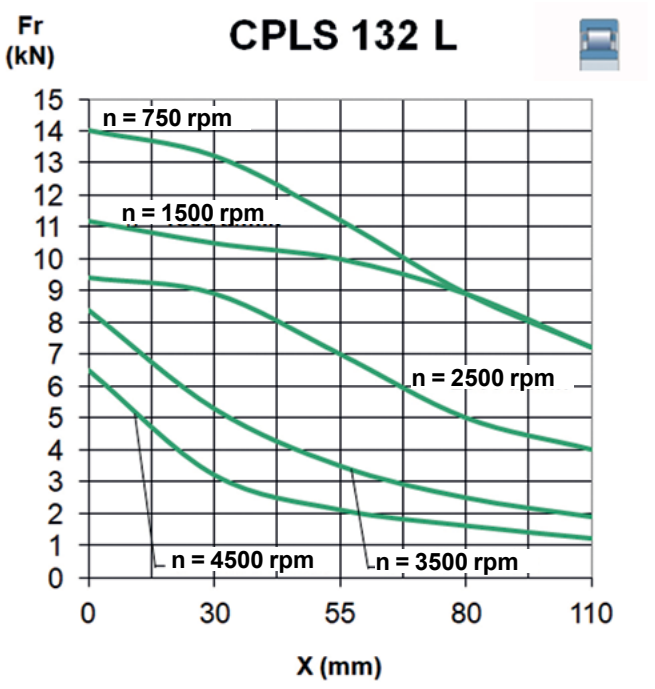


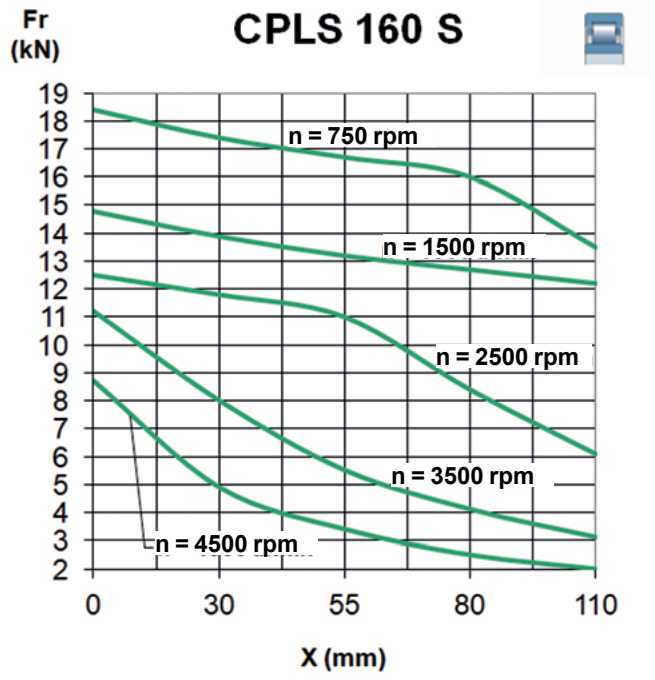


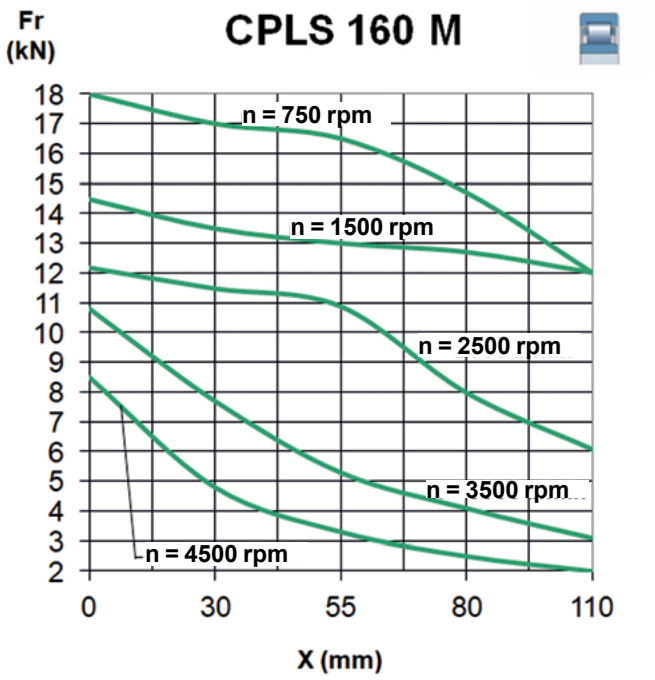


Permissible radial loads (roller bearings)

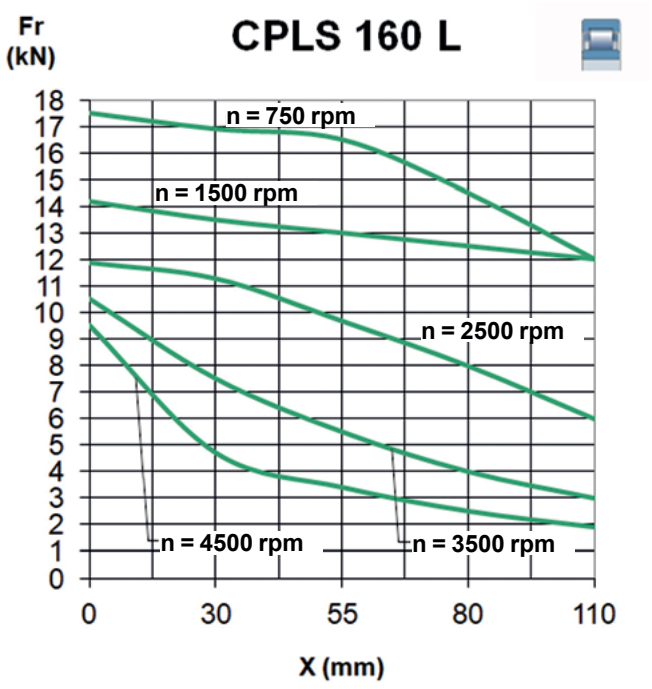


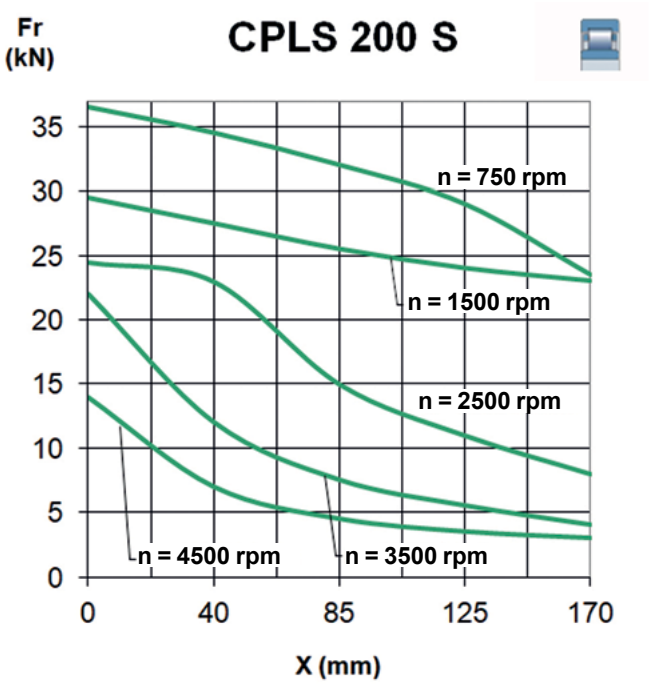


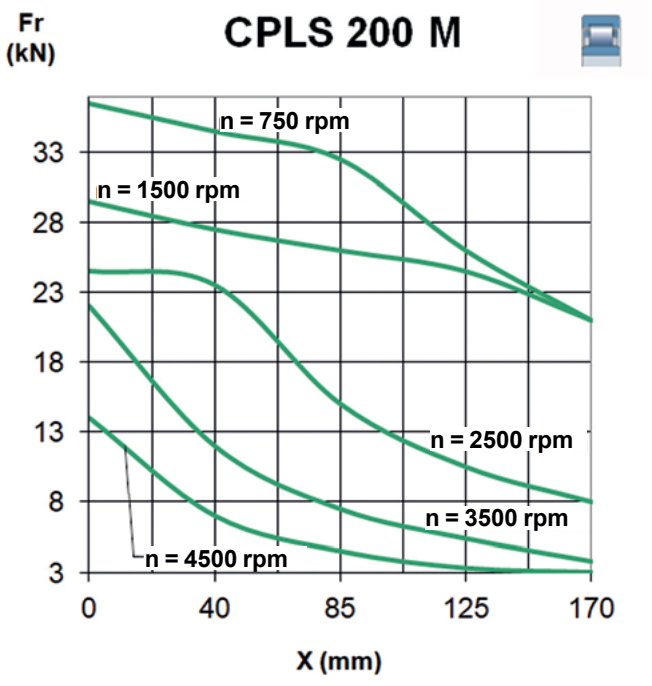


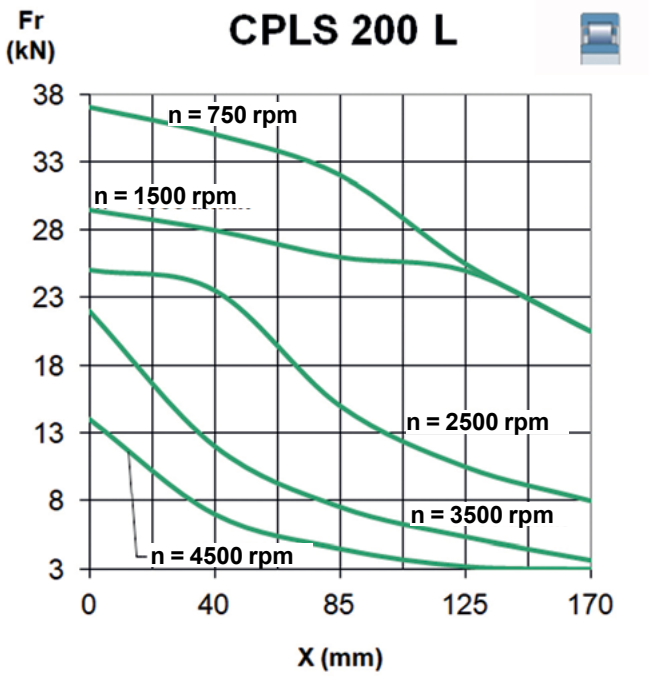


Permissible radial loads (roller bearings)

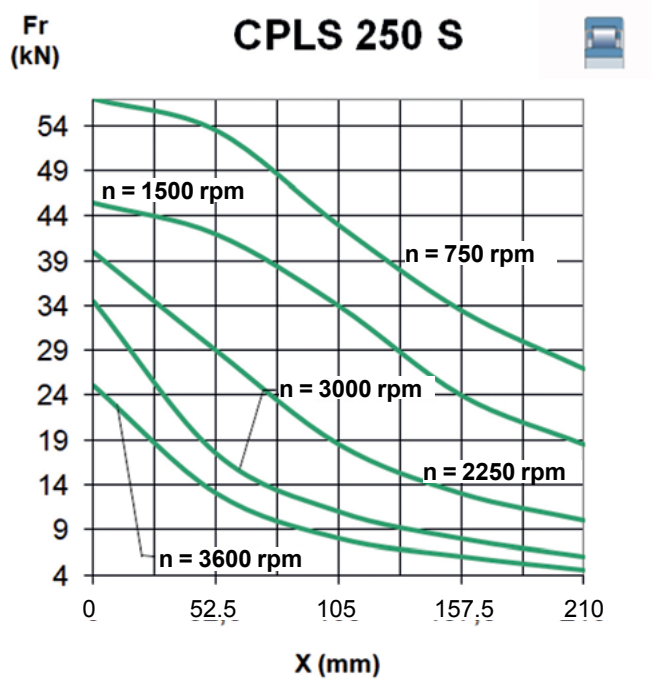


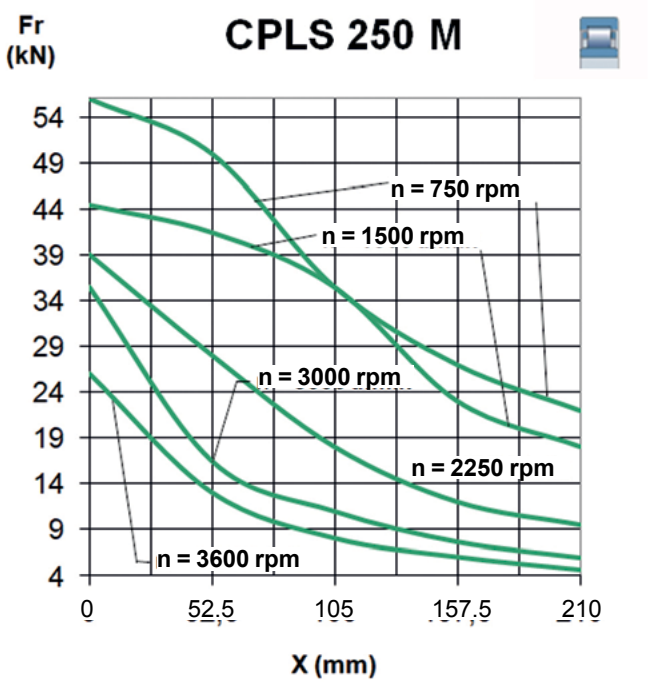


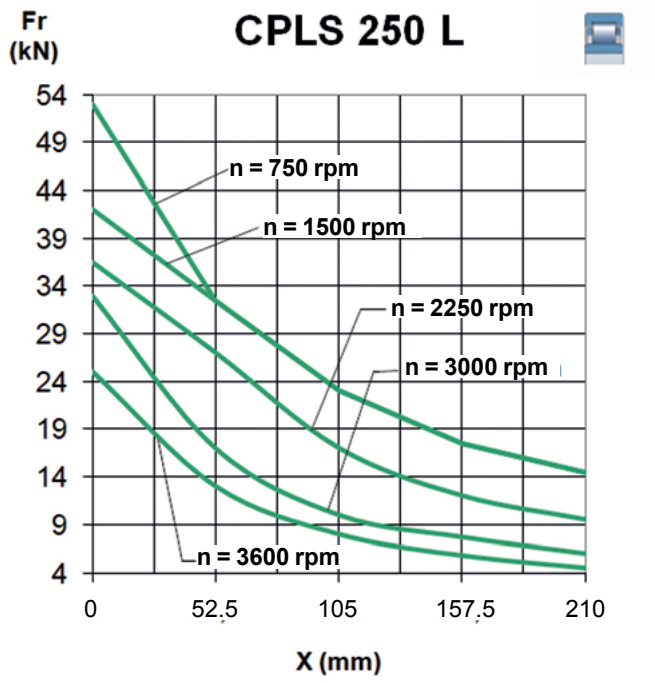




Permissible radial loads (roller bearings)







Noise and vibration

NOISE LEVEL

Standard IEC 6034-9 defines maximum noise levels for rotary electrical machinery. However, these values do not apply to ac machines supplied by frequency converters.
The values below are therefore given for indication purposes only.

Noise level (indicative) **expressed as acoustic pressure Lp(A)**

Type	No-load *dbA*	Under load *dbA*
CPLS 112 CPLS 132	75	79
CPLS 160	80	84
CPLS 200	82	86
CPLS 250	84	88

Limits: 0 / + 3 dbA

Maximum frequency: 100 Hz

Reduction of noise level

In instances which require lower noise levels, cooling mode IC 37 can be selected where the fan is located in a less sensitive location.

For operating factors ≤ 60%, 4 pole VF motors can be fitted instead of 2 pole motors (please contact the factory).

Please ask for a quotation for acoustic traps available. Noise levels can be reduced by between 5 db(A) to 10 db(A) (according to the type of CPLS).

MACHINE VIBRATION LEVELS

Maximum vibration magnitude limits (RMS values), in terms of displacement, speed and acceleration for a frame size H (IEC 60034-14)

Vibration level	Frame size H (mm)					
	CPLS 112 and 132			CPLS 160 / 200 / 250		
	Displacement *µm*	Speed *mm/s*	Acceleration m/s^2	Displacement *µm*	Speed *mm/s*	Acceleration m/s^2
A	25	1.6	2.5	35	2.2	3.5
B	11	0.7	1.1	18	1.1	1.7

VIBRATION LEVELS OF MACHINES ≥ 6000 RPM

The type of support to which the CPLS motor is fixed can have a significant effect on the levels of vibration that the latter is exposed to. The integrator installing the equipment must ensure that the motor support is sufficiently rigid to avoid resonance effects or amplification of motor vibration levels. They will also isolate the motor of the machine being driven as much as possible in order to minimise this risk.

External finish

CPLS motors are compliant with System 1a requirements

Surface protection is defined in the ISO 12944 standard. This standard defines the planned lifetime of a paint system until the first major application of maintenance paint. Durability is not a guarantee.
The EN ISO 12944 standard comprises 8 sections. Part 2 covers the classification of the environments.

Leroy-Somer motors are protected with a range of surface finishes.
The surfaces receive appropriate special treatments, as shown below.

PREPARATION OF SURFACES

Surfaces	Parts	Surface treatment
Cast iron	End shields	Shot blasting + Primer
Steel	Accessories	Phosphatization + Primer
	Terminal boxes - Fan covers	Electrostatic painting or Epoxy powder
Aluminium alloy	Housings - Terminal boxes	Shot blasting
Polymer	Fan covers - Terminal boxes Fan grilles	None, but must be free from grease, casting-mould coatings, and dust which would affect paint adhesion

CLASSIFICATION OF ENVIRONMENTS

ATMOSPHERIC CORROSIVITY CATEGORIES	CORROSIVITY* CATEGORY AS PER ISO 12944-2	Durability class	ISO 6270 Water condensation No of hours	ISO 9227 Salt mist No of hours	Leroy-Somer system equivalent
AVERAGE	C3	Limited	48	120	**I**a
		Medium	120	240	**II**a
		High	240	480	**II**b
HIGH	C4	Limited	120	240	-
		Medium	240	480	**III**a

Standard for CPLS motors

* *Values given for information only since the substrates vary in nature whereas the standard only takes account of steel substrates.*

The **I**a system applies to the group of moderate climates and the II**a** system to the group of general climates, as defined in standard NFC 20 000 (or IEC 60721.2.1.).

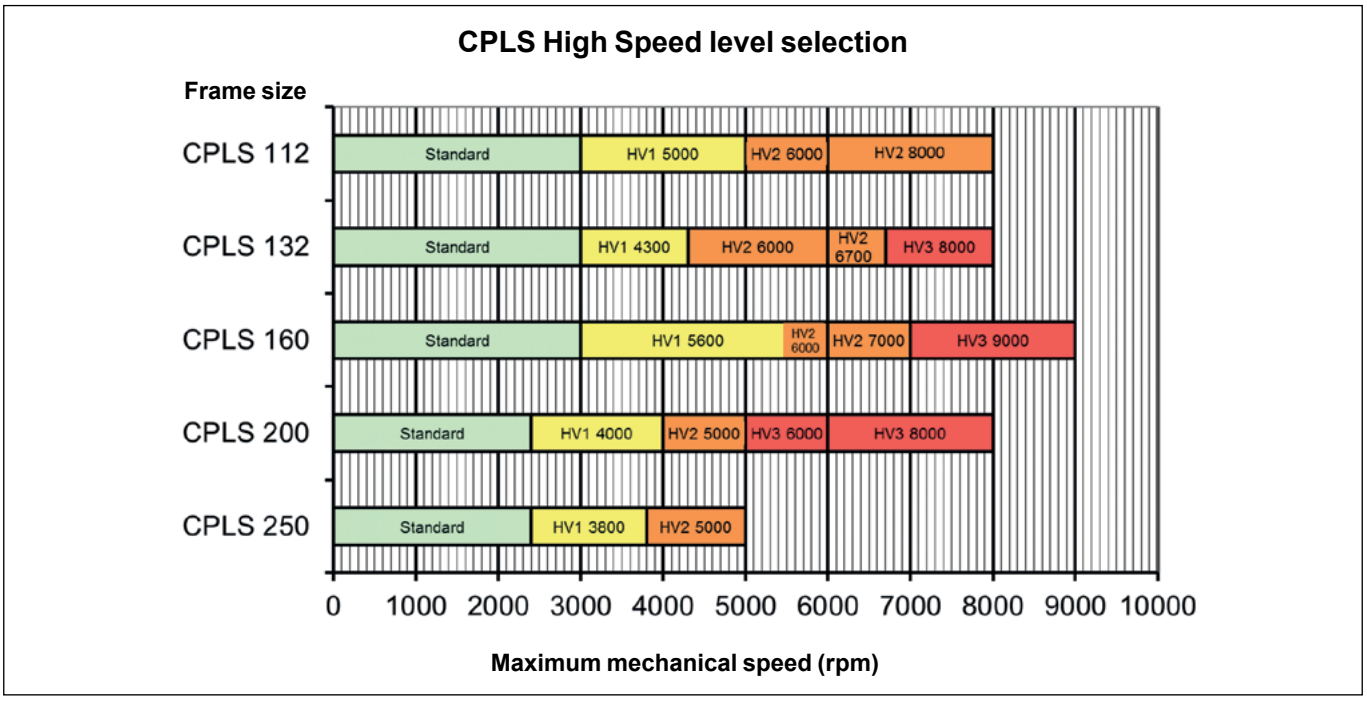
Leroy-Somer standard paint colour reference:

RAL 6000

High Speed Configuration

To meet the requirements of high-speed applications, several configurations (HV1, HV2, HV3) have been designed depending on the size of the CPLS and on the speeds that can be attained.

The graph below shows details of the maximum attainable speeds.



CPLS 160 L, CPLS 200 L, CPLS 250 L, limited to 5,000, 4,500 and 3,800 rotations rpm respectively.

The table below shows details of each of the configurations.

	CPLS 112		CPLS 132			CPLS 160[1]			CPLS 200[2]			CPLS 250[3]	
	HV1	HV2	HV1	HV2	HV3	HV1	HV2	HV3	HV1	HV2	HV3	HV1	HV2
Max speed (rpm)	3000-5000	5000-8000	3000-4300	4300-6700	6700-8000	3000-5600	5600-7000	7000-9000	2400-4000	4000-5000	5000-8000	2400-3800	3800-5000
Sealed bearings (2RS)	●		●										
Protected bearings (2Z)		●		●	●	●			●				
Open bearings							●	●		●	●	●	●
High-speed bearings					●			●			●		
DE insulated bearing	●	●	●	●	●	●	●	●	●	●	●	●	●
NDE insulated bearing	●	●	●	●	●	●	●	●	●	●	●	●	●
Re-greasing system							●	●		●	●	●	●
High Performance Grease					●		●	●		●	●	●	●
Bearing T° sensor		●		●	●		●	●			●		
Reinforced balancing	●	●	●	●	●	●	●	●	●	●	●	●	●
Vibrational checks		●		●	●		●	●		●	●		●
Encoder adaptation V > 6000 rpm		●		●	●		●	●			●		
Max shaft diameter (mm)	38	38	48	48	48	55	55	55	80	80	65	100	80

● : standard ●: option

1 CPLS 160 L limited to 5000 rpm *2.CPLS 200 L limited to 4500 rpm* *3. CPLS 250 L limited to 3800 rpm*

In the standard configuration, the bearings are sealed 2RS types except for the CPLS 250 which has open bearings.

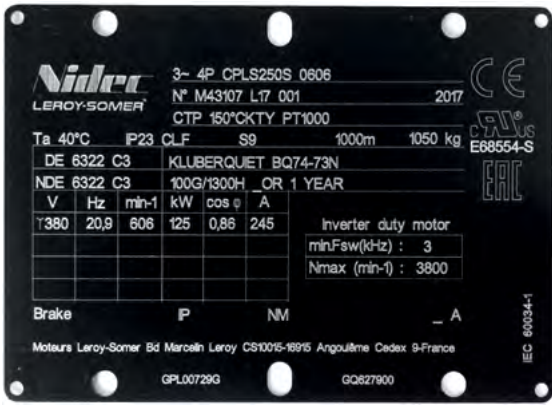
Complete reference

CPLS-112L-0606-IM1001-B1-F-B-R-HV1

- Motor type
- Frame size and length
- Winding specification
- Fixing form IEC 60034-7 (B3)
- Terminal box orientation (A-B-D)* + cable gland orientation (1-2-3-4)*
- Terminal box position (front F or rear R bearing)
- Orientation of the forced ventilation (A-B-D)*
- Fan position (front F or rear R bearing)
- High Speed Configuration

** For further information see pages 53 and 54.*

DEFINITION OF SYMBOLS USED ON NAMEPLATES



Legal mark of conformity of product to the requirements of European Directives

Mains supply plate:

MOT 3 ~	: Three-phase A.C. motor
CPLS	: Series
250	: Frame size
S	: Housing length

M43107	: Motor serial number
L	: Month of production
17	: Year of production
001	: Serial number

IP23 IK08	: Index of protection
I cl. F	: Insulation class F
40°C	: Contractual ambient temperature for operation
S9	: Duty - Duty (operating) factor
kg	: Weight
V	: Rated voltage
Hz	: Rated frequency
rpm	: Revolutions per minute
kW	: Rated output power
Cos φ	: Power factor
A	: Rated intensity

Please quote when ordering spare parts

Bearings

DE	: Drive end Drive end bearing
NDE	: Non drive end Non drive end bearing
g	: Amount of grease at each regreasing (in g)
h	: Regreasing interval (in hours)

KLUBERQUIET: Type of grease

Inverter settings	: Required settings for the variable speed drive **(V ; Hz)**
Min. Fsw (kHz)	: Minimum cut-off frequency acceptable for the motor
Nmax (rpm)	: Maximum mechanical speed acceptable for the motor

Choice of motor

To help you to determine your motor/drive combination quickly we have produced specific variable speed sizing technical data sheets.

a – First you need to determine the rated output torque required for your application. The required torque (M_N) at the rated point (n_1) defines the size of the machine in the range.
The range of iso-power curves opposite allows you to make an initial approach to choose the size of the machine.

b – From the technical data sheet that corresponds to the selected motor torque, depending on the voltage available at the drive output choose the basic speed which is closest to the desired speed.

This choice determines the machine type, that is, the most suitable winding which will allow you to use the drive rating that is closest to your needs.
This is shown in the determination sheet.

This selection method allows sizing of the motor/drive combination that corresponds to the actual application requirements.

An example determination is given on page 24.

Our machines are tested on test benches supplied by drives from the **Leroy-Somer range**. These characteristics can be requested from the factory when they are available.

Choice of inverter

Depending on the application, the rated power of the machine and the rating of the drive for the machine may be different.

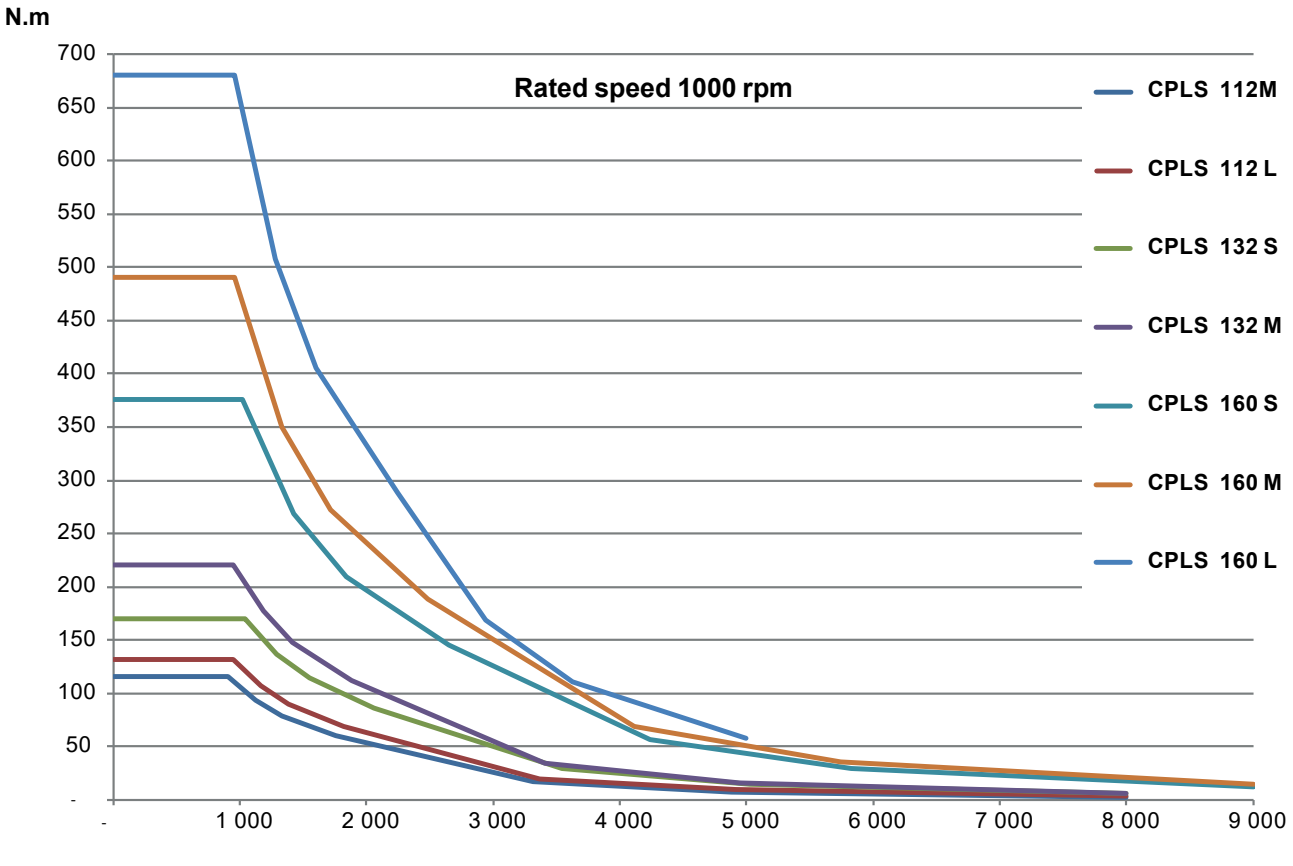
If operation is from zero speed to speed n1 of the machine, the drive rating that corresponds to the rated current of the machine is to be adopted.

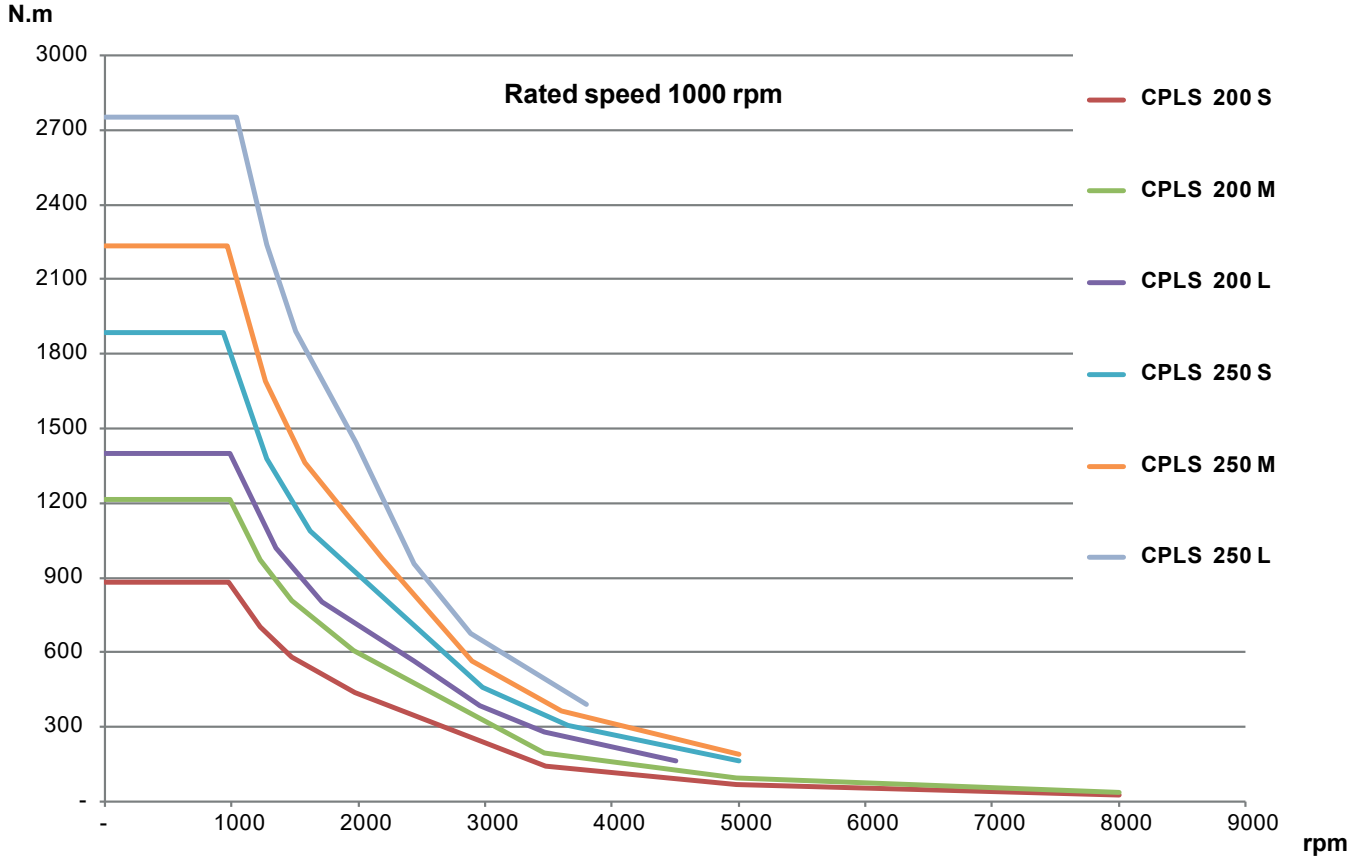
Our range of machines offer as standard a constant power range up to double the rated speed (n2) without the drive rating having to be derated.
Beyond this the operational power is reduced as a result of the rapid decrease in the maximum torque of asynchronous motors.

TAKE CARE to select a drive switching frequency equal to at least 12 times the motor supply frequency.

Electrical characteristics

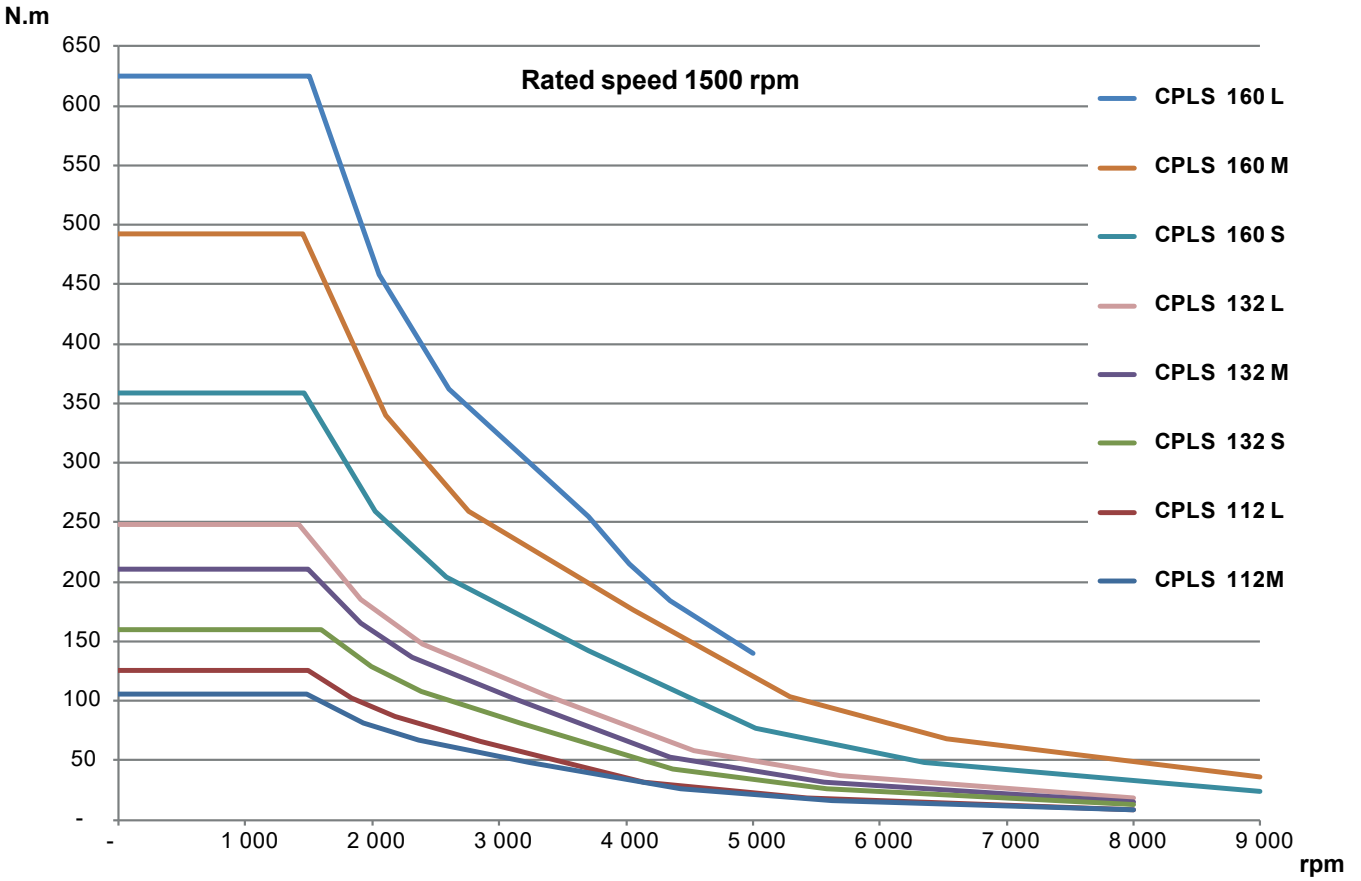
CPLS 112M at 250L - 1000 RPM range

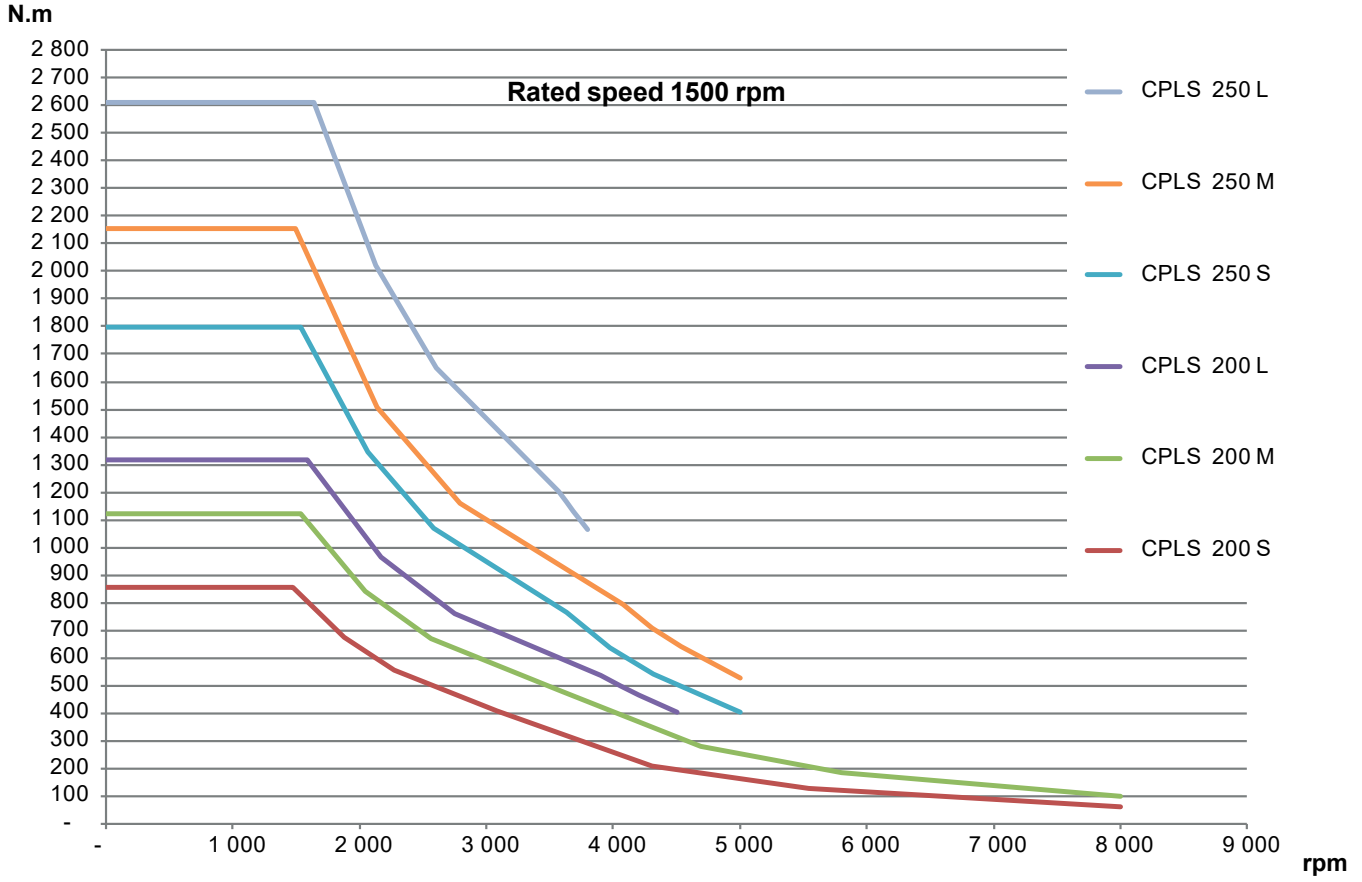




Electrical characteristics

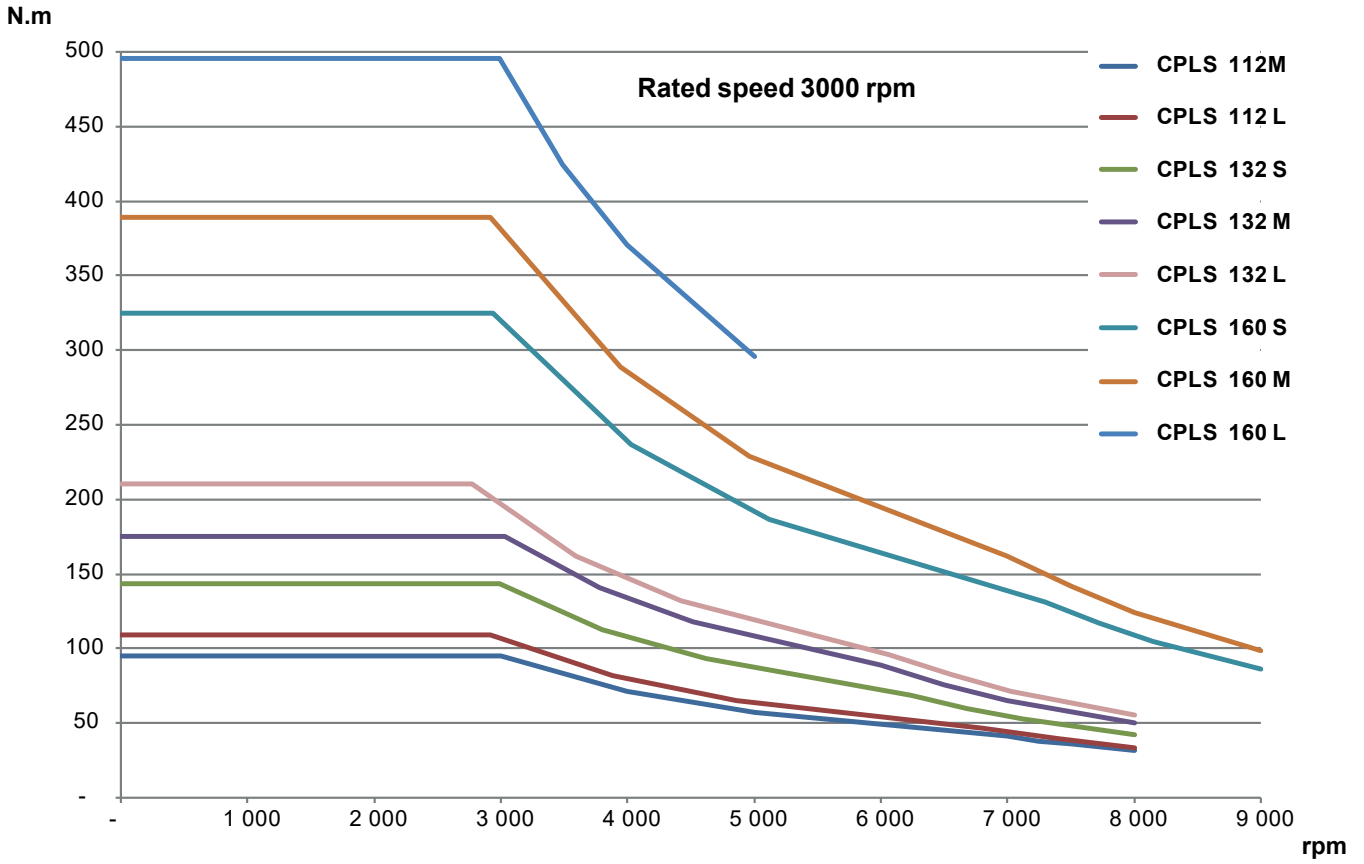
CPLS 112M at 250L - 1500 RPM range

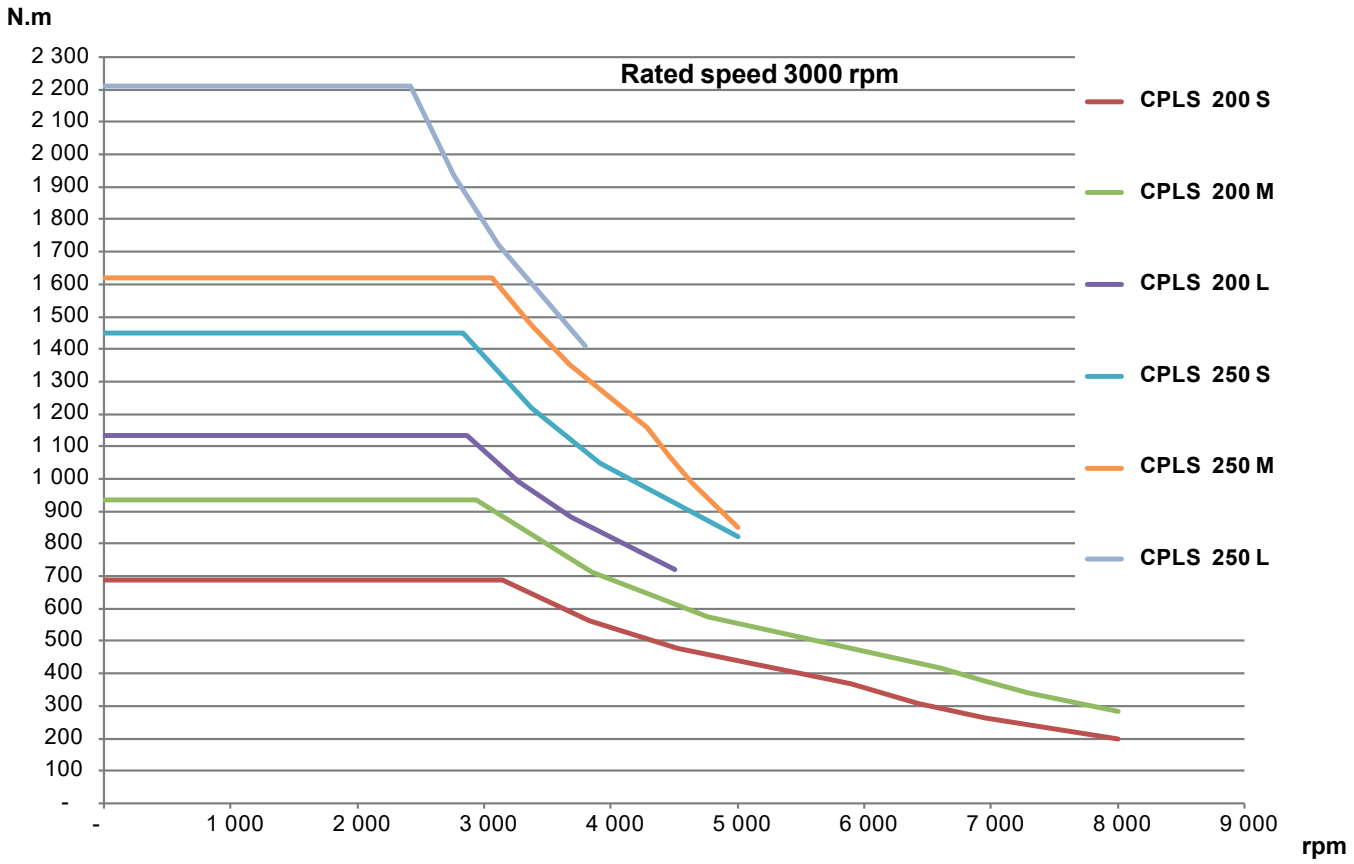




Electrical characteristics

CPLS 112M at 250L - 3000 RPM range





Example of selection

The method of determination requires a knowledge of the torque required by your application. If the torque is known, go directly to step no. 3.

Example: I have an application which requires 6kW at 1200 rpm in S1 service.
The ambient temperature will be +20°C in operation at an altitude of less than 1000 m.
The terminal box must be on the right hand side and fan on the top of the machine when looking from the output shaft end.

Step no.1: Correction factors
• Correction as a function of the temperature and of the altitude (page 7).
• Correction as a function of the service (page 7).

Example: there is no need for derating in order to take service or environmental conditions into account.

Step no.2: Calculation of the rated torque
You know the power and the speed, so the torque is calculated using the formula:

$$C = P \times 9550 / n$$

C : torque in N.m
P : power in kW
n : speed in rpm

Example: the torque required for my application is 127 Nm

Step no.3: Determination of the frame size
The diagram on page 23 is used to quickly determine the size of the machine depending on the torque and on the speed.

Example: in the chart on page 23, I choose machine CPLS 112 L

Step no.4: Determination of the machine
Depending on the voltage at the drive output, on the machine data sheet you choose the speed that is closest to or immediately above your requirement.
From the line selected, you obtain the principal mechanical and electrical parameters that define your operating point, as well as the drive size and the machine's product code.

Example:
See technical data sheet for motor CPLS 112 L.
For a drive output voltage of 360 V.
The speed that is immediately above my requirement is 1215 rpm.

Step no.5: Verification
The machine torque shown on the line is that obtained in S1 service. I verify that it is equal to or greater than my requirements. If this is not the case, I move up to the next machine size.

For example: the motor torque in S1 service is 130 N m for a requirement of 127 N m, so the machine size is correct.

Motorisation selected:
Motor: CPLS 112 L 0606 B1F AR
Drive: UNIDRIVE SP 27T

CAUTION: specify the maximum speed in operation as this determines the choice of bearings.

UNIDRIVE M

CPLS 112M / 95 - 115 N.m

Motor IP23 – Fan IC06 – Class F
Service S1 – Ambient temperature 40°C – Total mass: 87 Kg
Inertia: 0.030 kg.m² - Maximum mechanical speed: 8000 rpm
Forced ventilation 0.37 kW – 230/400V 50Hz

CPLS	Pn (kW)	U (V)*	F(Hz)	n_1 (rpm)	Mn (N.m)	In (A)	cos φ	η (%)	n_2 (rpm)	UNIDRIVE M	POWERDRIVE
										M700	MD2S
112 M 0604	9.1	340	27.5	762	114	22.7	0.86	78	1511	054-00270A	
	9.7	360	29.1	812	114	22.8	0.86	79	1630		
	10.3	380	30.7	860	114	22.8	0.85	80	1697		
	11	400	32.3	908	115	23	0.85	81	1760		
	12	440	35.5	1006	114	22.7	0.84	82	2083		
	12.5	460	37.2	1057	112.5	22.5	0.84	82.5	2202		
	12.9	480	38.8	1107	111	22.3	0.83	83	2320		
112 M 0605	12.5	340	38.3	1081	110	28.7	0.89	83	2122	054-00300A	
	13.4	360	40.6	1151	110	28.6	0.89	83	2245		
	14.2	380	42.8	1217	111	28.8	0.88	84	2410		
	15	400	45.1	1283	109	28.5	0.89	85	2600		
	16.1	440	49.6	1424	108	27.8	0.87	86	2853		
	16.7	460	51.9	1494	107	27.6	0.87	86.5	3005		
	17.3	480	54.2	1564	106	27.3	0.87	87	3157		
112 M 0606	15.6	340	49	1403	106	35.6	0.86	86	3061	064-00420A	
	16.5	360	51.8	1488	106	35.5	0.85	87	3240		
	17.5	380	54.7	1575	106	35.5	0.85	87	3428		
	18.5	400	57.6	1663	106	35.6	0.85	88	3610		
	20.4	440	63.4	1837	106	35.5	0.84	89	4170		
	21.4	460	66.3	1923	106	35.5	0.84	89	4381		
	22.3	480	69.1	2009	106	35.5	0.84	89	4591		
112 M 0607	18.6	340	59.2	1708	104	41.2	0.86	88	3475	064-00420A	
	19.7	360	62.6	1811	104	41.1	0.86	89	3755		
	20.9	380	66.1	1916	104	41.2	0.86	89	4080		
	22	400	69.6	2021	104	41.1	0.85	90	4300		
	24.3	440	76.6	2232	104	41.1	0.85	90	4760		
	25.4	460	80.1	2336	104	41.1	0.85	90.5	4985		
	26.5	480	83.5	2440	104	41	0.85	91	5210		
112 M 0608	25.3	340	86.7	2543	95	55.9	0.83	91	5900	074-00660A	
	26.9	360	92	2702	95	56	0.83	92	6300		
	28.4	380	97	2852	95	56	0.83	92	6700		
	30	400	102	3002	95	56.2	0.83	92	7000		
	32.9	440	117	3450	91	54.1	0.85	93	7500		
	34.5	460	127.5	3763	87.5	53.2	0.87	93	7750		
	36.1	480	138	4075	84	52.3	0.88	93	8000		

* voltage available at drive output

Values are for information only and are not contractual. They may be modified by the manufacturer at any time.

Selection tables

CPLS 112L / 110 - 140 N.m

Motor IP23 – Fan IC06 – Class F
Service S1 – Ambient temperature 40°C – Total mass: 97 Kg
Inertia: 0.035 kg.m² - Maximum mechanical speed: 8000 rpm
Forced ventilation 0.37 kW – 230/400V 50Hz

CPLS	Pn (kW)	U (V)*	F(Hz)	n_1 (rpm)	Mn (N.m)	In (A)	cos φ	η (%)	n_2 (rpm)	UNIDRIVE M	POWERDRIVE
										M700	MD2S
112 L 0604	9.1	340	22.9	623	139	23.2	0.87	76	1130	054-00270A	
	9.7	360	24.2	663	140	23.2	0.87	77	1245		
	10.4	380	25.6	704	141	23.4	0.86	78	1385		
	11	400	26.9	745	141	23.4	0.86	78	1480		
	12.4	440	29.6	826	143	23.7	0.85	80	1680		
	13.1	460	31	867	144	23.9	0.85	80.5	1793		
	13.8	480	32.3	907	145	24	0.85	81	1905		
112 L 0605	12.2	340	32	893	130	28.5	0.89	81	1600	054-00300A	
	13.1	360	33.8	947	132	28.7	0.89	82	1730		
	14	380	35.7	1004	133	28.9	0.89	82	1860		
	15	400	37.6	1060	135	29.2	0.88	83	1950		
	16.6	440	41.4	1175	135	29.1	0.88	84	2200		
	17.4	460	43.3	1231	135	29.1	0.88	84.5	2350		
	18.2	480	45.1	1287	135	29.1	0.88	85	2500		
112 L 0606	15.6	340	40.3	1143	130	35.4	0.88	84	2302	064-00420A	
	16.6	360	42.7	1215	130	35.4	0.88	85	2462		
	17.5	380	45	1286	130	35.2	0.88	85	2606		
	18.5	400	47.4	1358	130	35.1	0.88	86	2785		
	20.4	440	52.2	1503	129	35	0.87	87	3147		
	21.3	460	54.6	1574	129	34.9	0.87	87.5	3409		
	22.2	480	56.9	1645	129	34.8	0.87	88	3670		
112 L 0607	18.5	340	49.3	1412	125	41.6	0.86	87	2760	064-00420A	
	19.7	360	52.2	1499	125	41.6	0.86	87	2850		
	20.8	380	55.1	1587	125	41.6	0.86	88	3100		
	22	400	58	1674	125	41.6	0.86	88	3420		
	24.2	440	63.8	1849	125	41.4	0.85	89	3750		
	25.6	460	66.7	1936	126	41.7	0.85	89.5	3900		
	26.9	480	69.6	2022	127	41.9	0.85	90	4050		
112 L 0608	25.3	340	72.2	2108	115	56.5	0.83	91	4950	074-00660A	
	26.9	360	76.5	2237	115	56.5	0.83	91	5000		
	28.4	380	80.7	2364	115	56.5	0.83	91	5300		
	30	400	85	2493	115	56.6	0.83	92	5680		
	33.1	440	93.5	2748	115	56.7	0.82	92	6400		
	34.7	460	97.8	2876	115	56.7	0.82	92	6700		
	36.2	480	102	3003	115	56.7	0.82	92	7000		
112 L 0609	31.2	340	93	2732	109	67.7	0.84	92	6415	074-00770A	
	33.3	360	99	2912	109	67.8	0.84	92	6800		
	35	380	104	3063	109	67.7	0.84	93	7250		
	37	400	110	3242	109	67.7	0.84	93	7600		
	40.8	440	121	3573	109	67.7	0.84	93	8000		
	42.7	460	130.5	3857	106	66.6	0.86	93.5	8000		
	44.6	480	140	4140	103	65.5	0.87	94	8000		

* voltage available at drive output

Values are for information only and are not contractual. They may be modified by the manufacturer at any time.

Selection tables

CPLS 132S / 145 - 170 N.m

Motor IP23 – Fan IC06 – Class F
Service S1 – Ambient temperature 40°C – Total mass: 125 Kg
Inertia: 0.065 kg.m² - Maximum mechanical speed: 6700 rpm (8000 rpm with HV3 configuration)
Forced ventilation 0.37 kW – 230/400V 50Hz

CPLS	Pn (kW)	U (V)*	F(Hz)	n_1 (rpm)	Mn (N.m)	In (A)	cos φ	η (%)	n_2 (rpm)	UNIDRIVE M	POWERDRIVE
										M700	MD2S
132 S 0604	9.2	340	19.4	517	170	24.1	0.86	76	821	054-00270A	
	9.8	360	20.5	552	170	24.1	0.85	77	932		
	10.4	380	21.7	588	169	24	0.85	78	1050		
	11	400	22.8	617	170	24.3	0.83	79	1159		
	12.3	440	25.1	692	170	24.2	0.83	80	1363		
	12.9	460	26.3	727	170	24.3	0.83	81	1435		
	13.5	480	27.4	761	170	24.3	0.82	82	1507		
132 S 0605	12.6	340	25.8	705	171	30.7	0.88	80	1190	064-00350A	
	13.4	360	27.3	751	170	30.6	0.87	81	1333		
	14.2	380	28.8	797	170	30.5	0.87	82	1419		
	15	400	30.3	842	170	30.5	0.86	82	1568		
	16.6	440	33.6	942	168	30.2	0.86	84	1777		
	17.4	460	35.4	996	166.5	30	0.86	84.5	1882		
	18.2	480	37.2	1050	165	29.8	0.86	85	1986		
132 S 0606	15.6	340	31.4	873	170	36.8	0.87	83	1570	064-00420A	
	16.5	360	33.2	929	170	36.6	0.86	84	1743		
	17.6	380	35.1	985	170	36.7	0.86	84	1862		
	18.5	400	36.9	1040	170	36.6	0.86	85	2058		
	20.5	440	42	1192	164	35.7	0.87	87	2245		
	21.5	460	44.4	1263	162	35.4	0.88	87.5	2368		
	22.4	480	46.7	1333	160	35.1	0.88	88	2491		
132 S 0607	18.4	340	37.4	1048	168	43.2	0.85	85	1886	064-00470A	
	19.6	360	39.6	1114	168	43.2	0.85	86	2008		
	20.6	380	41.2	1165	169	43.4	0.84	86	2193		
	22	400	44	1247	168	43.3	0.84	87	2358		
	24.2	440	49	1398	165	42.6	0.85	88	2631		
	25.5	460	51.5	1473	165	42.6	0.85	88.5	2766		
	26.7	480	54	1547	165	42.5	0.85	89	2900		
132 S 0608	25.3	340	52.7	1510	160	56.9	0.85	89	2982	074-00660A	
	26.9	360	55.8	1603	160	57	0.84	90	3163		
	28.4	380	58.9	1697	160	56.9	0.84	90	3373		
	30	400	62	1790	160	56.9	0.84	90	3554		
	33.1	440	68.2	1976	160	56.9	0.84	91	3945		
	34.7	460	71.9	2086	158.5	56.5	0.84	91.5	4141		
	36.2	480	75.5	2195	157	56.1	0.84	92	4336		
132 S 0609	31.4	340	68	1971	152	68.6	0.85	91	3916	074-00770A	
	33.3	360	72	2091	152	68.6	0.85	92	4353		
	35.2	380	76	2211	152	68.6	0.85	92	4623		
	37	400	80	2332	152	68.4	0.85	92	4866		
	40.9	440	89	2601	150	67.9	0.85	93	5433		
	42.8	460	94	2752	147.5	66.9	0.86	93	5748		
	44.7	480	99	2902	145	65.9	0.86	93	6063		
132 S 0610	38.2	340	86.7	2531	144	80.5	0.87	93	5021	074-01000A	
	40.5	360	91.8	2684	144	80.5	0.87	93	5578		
	42.8	380	96.9	2837	144	80.5	0.87	93	5908		
	45	400	102	2991	144	80.3	0.86	94	6239		
	49.7	440	118	3468	135	77.4	0.88	94	6903		
	50.4	460	123	3621	132	75.7	0.88	94.5	7211		
	51	480	128	3773	129	74	0.88	95	7519		

* voltage available at drive output

Values are for information only and are not contractual. They may be modified by the manufacturer at any time.

CPLS 132M / 175 - 220 N.m

Motor IP23 – Fan IC06 – Class F
Service S1 – Ambient temperature 40°C – Total mass: 143 Kg
Inertia: 0.082 kg.m² - Maximum mechanical speed: 6700 rpm (8000 rpm with HV3 configuration)
Forced ventilation 0.37 kW – 230/400V 50Hz

CPLS	Pn (kW)	U (V)*	F(Hz)	n_1 (rpm)	Mn (N.m)	In (A)	cos φ	η (%)	n_2 (rpm)	UNIDRIVE M	POWERDRIVE
										M700	MD2S
132 M 0605	12.6	340	20.3	544	221	31.6	0.87	78	889	064-00350A	
	13.4	360	21.5	581	220	31.5	0.87	79	1002		
	14.2	380	22.7	618	219	31.4	0.86	80	1101		
	15	400	23.9	654	219	31.3	0.86	81	1166		
	16.7	440	26.3	727	219	31.4	0.85	82	1369		
	17.6	460	27.5	764	219	31.5	0.85	82.5	1437		
	18.4	480	28.7	800	219	31.5	0.84	83	1505		
132 M 0606	15.6	340	24.6	675	220	38.1	0.86	81	1266	064-00420A	
	16.6	360	26	717	220	38.1	0.85	82	1417		
	17.5	380	27.5	763	219	37.9	0.85	83	1509		
	18.5	400	28.9	806	219	37.9	0.84	84	1596		
	20.6	440	31.8	893	220	38.1	0.84	85	1771		
	21.6	460	33.3	937	220	38.1	0.84	85.5	1859		
	22.6	480	34.7	981	220	38.1	0.83	86	1947		
132 M 0607	18.4	340	28.7	796	221	43.6	0.86	83	1495	064-00470A	
	19.6	360	30.4	848	221	43.6	0.86	84	1674		
	20.8	380	32.1	899	221	43.6	0.86	85	1778		
	22	400	33.8	950	221	43.6	0.85	85	1881		
	24.3	440	37.2	1053	220	43.5	0.85	86	2088		
	25.3	460	39.1	1111	217.5	43.1	0.85	86.5	2204		
	26.3	480	41	1168	215	42.6	0.85	87	2319		
132 M 0608	25.2	340	39.1	1105	218	59.4	0.83	87	2189	074-00660A	
	26.8	360	41.4	1175	218	59.4	0.83	87	2439		
	28.4	380	43.7	1244	218	59.5	0.82	88	2587		
	30	400	46	1313	218	59.5	0.82	89	2745		
	33.1	440	50.6	1452	218	59.5	0.82	89	3045		
	34.7	460	53.3	1533	216	59.1	0.82	89.5	3127		
	36.2	480	56	1614	214	58.6	0.82	90	3208		
132 M 0609	31.2	340	49.3	1412	211	71.1	0.84	89	2813	074-00770A	
	33.1	360	52.2	1499	211	71	0.83	90	3131		
	35	380	55.1	1587	211	71	0.83	90	3313		
	37	400	58	1673	211	71.1	0.83	91	3549		
	40.8	440	65	1883	207	69.9	0.84	91	3744		
	42.7	460	68.7	1992	205	69.3	0.85	91.5	3967		
	44.6	480	72.3	2101	203	68.7	0.85	92	4190		
132 M 0610	37.9	340	61.2	1765	205	82.3	0.86	91	3503	074-01000A	
	40.2	360	64.8	1874	205	82.2	0.86	91	3731		
	42.5	380	68.4	1982	205	82.2	0.86	92	4109		
	45	400	72	2090	205	82.5	0.86	92	4347		
	49.5	440	81.7	2380	198	80.5	0.87	93	4745		
	51.8	460	87.6	2555	193.5	79.6	0.88	93	5084		
	54.1	480	93.5	2730	189	78.6	0.89	93	5422		
132 M 0611	46.6	340	81.6	2378	187	97.1	0.88	93	4749	074-01000A	60T
	49.4	360	86.4	2522	187	97.1	0.87	93	5021		
	52.2	380	91.2	2667	187	97	0.87	93	5577		
	55	400	96	2811	187	97	0.87	94	5878		
	60.7	440	114	3345	173	94.5	0.9	94	6650		
	61.4	460	116	3410	172	92.2	0.89	94.5	6751		
	62	480	118	3475	171	89.9	0.88	95	6851		
132 M 0612	52.5	340	97.8	2864	175	107.2	0.89	94	5550	084-01340A	60T
	55.6	360	103.5	3036	175	107.1	0.89	94	6000		
	58.8	380	109.3	3210	175	107	0.89	94	6300		
	62	400	115	3380	175	107	0.88	94	6700		
	64	440	131	3864	158	99.5	0.89	95	7400		
	65	460	137	4046	153.5	96.8	0.89	95	7700		
	66	480	143	4228	149	94.1	0.89	95	8000		

* voltage available at drive output
Values are for information only and are not contractual. They may be modified by the manufacturer at any time.

Selection tables

CPLS 132L / 210 - 250 N.m

Motor IP23 – Fan IC06 – Class F
Service S1 – Ambient temperature 40°C – Total mass: 174 Kg
Inertia: 0.107 kg.m² - Maximum mechanical speed: 6700 rpm (8000 rpm with HV3 configuration)
Forced ventilation 0.37 kW – 230/400V 50Hz

CPLS	Pn (kW)	U (V)*	F(Hz)	n_1 (rpm)	Mn (N.m)	In (A)	cos φ	η (%)	n_2 (rpm)	UNIDRIVE M	POWERDRIVE
										M700	MD2S
132 L 0605	12.4	340	17.8	478	248	31	0.87	78	797	064-00350A	
	13.2	360	18.8	509	248	30.9	0.86	79	909		
	14.1	380	19.9	542	248	31	0.86	80	1021		
	15	400	20.9	572	250	31.2	0.86	80	1083		
	16.6	440	23	636	249	31	0.85	82	1257		
	17.5	460	24.1	668	249.5	31.1	0.85	82.5	1321		
	18.3	480	25.1	700	250	31.1	0.85	83	1385		
132 L 0606	15.5	340	21.5	590	250	37.8	0.86	81	1163	064-00420A	
	16.5	360	22.8	630	250	37.7	0.86	82	1253		
	17.4	380	24	666	250	37.7	0.85	82	1380		
	18.5	400	25.3	705	250	37.7	0.85	83	1462		
	20.4	440	27.8	781	250	37.7	0.84	84	1548		
	21.5	460	29.1	821	250	37.7	0.84	84.5	1627		
	22.5	480	30.4	860	250	37.6	0.84	85	1706		
132 L 0607	18.4	340	25.2	702	250	43.8	0.85	83	1455	064-00470A	
	19.6	360	20.7	747	250	43.8	0.85	84	1547		
	20.7	380	28.2	792	250	43.9	0.85	85	1718		
	22	400	29.7	837	250	43.8	0.84	85	1818		
	24.3	440	32.7	928	250	43.7	0.84	86	2022		
	25.5	460	34.2	972	250	43.7	0.84	86.5	2114		
	26.6	480	35.6	1016	250	43.7	0.84	87	2205		
132 L 0608	25.3	340	34	967	250	58.4	0.84	87	2190	074-00660A	
	26.9	360	36	1027	250	58.4	0.84	87	2340		
	28.5	380	38	1087	250	58.5	0.84	88	2463		
	30	400	40	1147	250	58.4	0.84	88	2613		
	33.2	440	45	1297	244	57.4	0.85	89	2968		
	34.5	460	48	1387	238	56.4	0.86	89.5	3217		
	35.8	480	51	1476	232	55.3	0.86	90	3466		
132 L 0609	31.2	340	41.8	1199	248	72.7	0.81	89	2725	074-00770A	
	33.3	360	44.3	1273	249	73.1	0.81	90	2959		
	35.1	380	46.7	1346	249	73.2	0.81	90	3194		
	37	400	49.2	1421	249	73.1	0.81	90	3376		
	40.9	440	54.1	1568	249	73.2	0.8	91	3709		
	42.8	460	56.6	1642	249	73.3	0.8	91	3890		
	44.7	480	59	1716	249	73.3	0.8	91	4070		
132 L 0610	38	340	52.3	1513	240	85.5	0.83	91	3440	074-01000A	60T
	40.3	360	55.3	1603	240	85.6	0.82	91	3652		
	42.6	380	58.4	1696	240	85.5	0.82	91	3863		
	45	400	61.5	1790	240	85.7	0.82	92	4073		
	49.6	440	67.6	1973	240	85.7	0.82	92	4692		
	51.3	460	71.3	2084	235	84.2	0.83	92.5	4964		
	53	480	75	2195	230	82.7	0.83	93	5235		
132 L 0611	46.4	340	66.3	1927	230	98.5	0.86	92	4179	074-01000A	60T
	49.2	360	70.2	2044	230	98.4	0.86	92	4448		
	52	380	74.1	2161	230	98.5	0.86	93	4718		
	55	400	78	2279	230	98.6	0.86	93	4959		
	60.5	440	85.8	2513	230	98.3	0.86	93	5471		
	62.3	460	90.4	2652	224.5	96.5	0.86	93.5	5917		
	64	480	95	2790	219	94.7	0.86	94	6363		
132 L 0612	57.6	340	89.3	2617	210	118.8	0.87	93	5450	084-01340A	75T
	61	360	94.5	2773	210	118.7	0.87	94	5800		
	64.4	380	99.8	2932	210	118.5	0.87	94	6050		
	68	400	105	3088	210	118.7	0.87	94	6400		
	70	440	115.5	3408	196	111.2	0.87	94	7320		
	71	460	120.8	3568	190.5	108.2	0.87	94.5	7535		
	72	480	126	3727	185	105.2	0.86	95	7750		

* voltage available at drive output
Values are for information only and are not contractual. They may be modified by the manufacturer at any time.

CPLS 160S / 325 - 380 N.m

Motor IP23 – Fan IC06 – Class F
Service S1 – Ambient temperature 40°C – Total mass: 230 Kg
Inertia: 0.188 kg.m² - Maximum mechanical speed: 7000 rpm (9000 rpm with HV3 configuration)
Forced ventilation 1.1 kW – 230/400V 50Hz

CPLS	Pn (kW)	U (V)*	F(Hz)	n_1 (rpm)	Mn (N.m)	In (A)	cos φ	η (%)	n_2 (rpm)	UNIDRIVE M	POWERDRIVE
										M700	MD2S
160 S 0602	18.3	340	17.4	475	367	45	0.86	80	1100	064-00470A	
	19.6	360	18.5	509	368	45	0.86	80	1150		
	20.8	380	19.5	539	368	45	0.86	81	1250		
	22	400	20.5	572	367	45	0.86	82	1300		
	24.3	440	22.6	633	367	45	0.85	84	1500		
	25.5	460	23.6	664	366.5	45	0.85	84.5	1575		
	26.7	480	24.6	694	366	45	0.84	85	1650		
160 S 0603	25.2	340	23.4	655	367	59	0.86	84	1600	074-00660A	
	26.8	360	24.8	697	367	59	0.86	85	1700		
	28.4	380	26.1	737	368	59	0.86	85	1800		
	30	400	27.5	779	368	59	0.85	86	1900		
	33.2	440	30.3	864	367	59	0.85	87	2100		
	34.8	460	31.7	905	367.5	59	0.85	87.5	2225		
	36.4	480	33	945	368	59	0.84	88	2350		
160 S 0604	31.2	340	27.6	782	381	74	0.84	86	2000	074-00770A	
	33.1	360	29	825	383	74	0.83	86	2100		
	35.1	380	30.9	881	380	74	0.84	87	2250		
	37	400	32.5	930	380	74	0.83	87	2400		
	40.8	440	35.8	1030	378	74	0.83	88	2650		
	42.8	460	37.4	1078	379	74	0.83	88.5	2800		
	44.8	480	39	1125	380	74	0.82	89	2950		
160 S 0605	38	340	33.6	963	377	88	0.84	88	2500	074-01000A	60T
	40.3	360	35.6	1024	376	88	0.83	88	2650		
	42.7	380	37.5	1080	377	88	0.83	89	2810		
	45	400	39.5	1140	377	88	0.82	89	3100		
	49.7	440	43.5	1260	376	88	0.82	90	3450		
	51.4	460	46.3	1343	365.5	85.5	0.84	90	3800		
	53	480	49	1426	355	83	0.85	90	4150		
160 S 0606	46.6	340	42.8	1237	360	101	0.87	90	3050	084-01340A	60T
	49.5	360	45.3	1312	360	101	0.87	90	3250		
	52.3	380	47.8	1387	360	101	0.87	91	3450		
	55	400	50.3	1462	360	101	0.87	91	3700		
	57.9	440	55.4	1618	342	96	0.86	91	4200		
	59.5	460	57.9	1694	335.5	95	0.86	91.5	4600		
	61	480	60.4	1770	329	94	0.86	92	5000		
160 S 0607	63.4	340	59.3	1730	350	140	0.83	92	4800	084-01570A	75T
	67.3	360	62.8	1835	350	140	0.83	92	5000		
	71.1	380	66.3	1940	350	140	0.83	93	5200		
	75	400	69.8	2045	350	140	0.83	93	5500		
	80.5	440	76.8	2256	341	137	0.82	93	6700		
	83	460	80.3	2362	336	135.5	0.82	93.5	7025		
	85.5	480	83.8	2468	331	134	0.82	94	7350		
160 S 0608	77.9	340	74	2168	343	165	0.86	93	5400	094-02000A	100T
	82.7	360	78.3	2297	344	165	0.86	94	5700		
	85.5	380	82.7	2428	336	162	0.86	94	6050		
	90	400	87	2560	336	162	0.85	94	6350		
	94	440	95.7	2824	318	154	0.85	94	7360		
	96	460	100.1	2956	310.5	151	0.85	94.5	7680		
	98	480	104.4	3087	303	148	0.84	95	8000		
160 S 0609	94.3	340	94.3	2773	325	190	0.89	94	6850	094-02240A	120T
	100	360	99.9	2941	325	190	0.89	94	7300		
	105	380	105	3095	324	190	0.89	95	7600		
	110	400	111	3275	321	188	0.89	95	8000		
	115	440	122	3609	305	179	0.89	95	8000		

* voltage available at drive output
Values are for information only and are not contractual. They may be modified by the manufacturer at any time.

Selection tables

CPLS 160M / 390 - 490 N.m

Motor IP23 – Fan IC06 – Class F
Service S1 – Ambient temperature 40°C – Total mass: 289 Kg
Inertia: 0.246 kg.m² - Maximum mechanical speed: 7000 rpm (9000 rpm with HV3 configuration)
Forced ventilation 1.1 kW – 230/400V 50Hz

CPLS	Pn (kW)	U (V)*	F(Hz)	n_1 (rpm)	Mn (N.m)	In (A)	cos φ	η (%)	n_2 (rpm)	UNIDRIVE M	POWERDRIVE
										M700	MD2S
160 M 0602	17.8	340	13.3	350	480	44	0.88	77	680	064-00470A	
	19.2	360	14.1	380	485	45	0.88	78	730		
	20.8	380	14.9	400	495	45	0.88	79	750		
	22	400	15.7	425	495	45	0.88	80	810		
	24.5	440	17.3	470	495	45	0.87	81	950		
	25.7	460	18.1	493	495	45	0.87	82	1025		
	26.8	480	18.8	515	495	45	0.86	83	1100		
160 M 0603	25.2	340	17.9	490	490	59	0.88	81	1005	074-00660A	
	26.8	360	18.9	520	490	59	0.88	82	1070		
	28.3	380	20	550	490	59	0.88	83	1120		
	30	400	21	585	490	59	0.87	84	1240		
	33.2	440	23.1	648	490	59	0.87	85	1405		
	34.9	460	24.2	679	490	59	0.87	85.5	1479		
	36.5	480	25.2	710	490	59	0.86	86	1552		
160 M 0604	30.9	340	21.6	602	490	71	0.87	84	1320	074-00770A	
	32.9	360	22.9	641	490	71	0.87	85	1390		
	34.8	380	24.1	675	490	71	0.87	85	1540		
	37	400	25.4	715	490	71	0.87	86	1680		
	40.6	440	27.9	790	490	71	0.86	87	1950		
	42.6	460	29.2	831	490	71	43.43	87.5	2035		
	44.6	480	30.5	871	490	71	86	88	2120		
160 M 0605	37.4	340	25.8	730	490	85	0.86	86	1750	074-01000A	60T
	40	360	27.5	780	490	85	0.86	87	1920		
	42.3	380	29	820	490	85	0.86	87	2090		
	45	400	30.5	870	490	86	0.86	88	2270		
	49.3	440	33.5	960	490	86	0.85	89	2460		
	51.7	460	35.1	1005	490	86	0.85	89	2665		
	54	480	36.6	1050	490	86	0.84	89	2870		
160 M 0606	46.2	340	31.5	900	490	103	0.86	88	2270	084-01340A	60T
	49	360	33.3	955	490	103	0.86	89	2480		
	51.7	380	35.1	1010	490	102	0.86	89	2710		
	55	400	37	1065	490	103	0.86	89	2970		
	59.5	440	40.7	1175	480	101	0.85	90	3170		
	60.8	460	42.6	1233	470	99	0.85	90.5	3460		
	62	480	44.4	1290	460	97	0.84	91	3750		
160 M 0607	63.1	340	42.5	1230	490	145	0.81	91	3450	084-01570A	100T
	67	360	45	1305	490	145	0.81	91	3610		
	70.8	380	47.5	1380	490	145	0.81	92	3760		
	75	400	50	1455	490	145	0.81	92	4060		
	81	440	55	1605	480	143	0.8	92	4370		
	83	460	57.5	1683	470	141	0.8	92.5	4935		
	85	480	60	1760	460	139	0.79	93	5500		
160 M 0608	76.4	340	52.7	1535	475	167	0.83	92	4350	094-02000A	100T
	81	360	55.8	1628	475	167	0.83	93	4650		
	85.6	380	58.9	1720	475	167	0.83	93	4940		
	90	400	62	1810	475	168	0.83	93	5100		
	97.5	440	68.2	2000	465	164	0.82	94	5850		
	100.3	460	71.3	2095	457.5	162	0.82	94	6225		
	103	480	74.4	2189	450	160	0.82	94	6600		
160 M 0609	92.8	340	67.1	1960	450	191	0.88	93	4960	094-02240A	120T
	98.4	360	71.1	2083	450	190	0.88	94	5250		
	104	380	75.1	2204	450	190	0.88	94	5550		
	110	400	79	2320	450	192	0.88	94	5800		
	116	440	86.9	2560	430	183	0.87	94	6500		
	119	460	92.5	2725	417.5	178	0.88	94	6750		
	122	480	98	2890	405	173	0.88	94	7000		
160 M 0610	113	340	93.5	2755	390	224	0.9	95	6567	104-02700E	150T
	119	360	99	2920	390	223	0.89	95	7000		
	127	380	105	3100	390	223	0.9	95	7000		
	132	400	110	3255	390	223	0.89	95	7000		

* voltage available at drive output
Values are for information only and are not contractual. They may be modified by the manufacturer at any time.

CPLS 160L / 490 - 700 N.m

Motor IP23 – Fan IC06 – Class F
Service S1 – Ambient temperature 40°C – Total mass: 362 Kg
Inertia: 0.455 kg.m² - Maximum mechanical speed: 5000 rpm
Forced ventilation 1.1 kW – 230/400V 50Hz

CPLS	Pn (kW)	U (V)*	F(Hz)	n_1 (rpm)	Mn (N.m)	In (A)	cos φ	η (%)	n_2 (rpm)	UNIDRIVE M	POWERDRIVE
										M700	MD2S
160 L 0603	25.1	340	12.4	341	702	60	0.9	79	600	074-00660A	
	26.6	360	13.1	363	700	59	0.9	80	700		
	28.4	380	13.9	387	700	59	0.9	81	750		
	30	400	14.6	409	700	59	0.89	82	800		
	33.2	440	16.1	454	698	59	0.88	83	900		
	34.8	460	16.8	475	698	59	0.88	83.5	950		
	36.3	480	17.5	496	698	59	0.88	84	1000		
160 L 0604	31	340	15.1	422	700	71	0.9	82	850	074-00770A	
	33	360	16	450	700	71	0.9	83	900		
	35	380	16.9	477	700	71	0.89	83	950		
	37	400	17.8	504	700	71	0.89	84	1050		
	40.9	440	19.6	558	700	71	0.89	85	1250		
	42.9	460	20.5	586	700	71	0.89	85.5	1300		
	44.9	480	21.4	613	700	71	0.88	86	1350		
160 L 0605	37.9	340	18.2	516	700	85	0.89	85	1100	074-01000A	60T
	40.3	360	19.3	549	700	85	0.89	85	1200		
	42.5	380	20.3	580	700	85	0.89	86	1300		
	45	400	21.4	613	700	85	0.88	87	1400		
	49.6	440	23.5	676	700	85	0.88	87	1500		
	51.8	460	24.6	710	697	84.5	0.88	87.5	1575		
	54	480	25.7	743	694	84	0.88	88	1650		
160 L 0606	46.5	340	22.1	634	700	102	0.88	87	1450	084-01340A	60T
	49.3	360	23.4	673	700	102	0.88	88	1650		
	52	380	24.7	712	700	102	0.88	88	1750		
	55	400	26	751	699	102	0.88	88	1850		
	59.6	440	28.6	830	685	100	0.87	89	2050		
	61.8	460	29.9	870	678.5	99.5	0.87	89.5	2150		
	64	480	31.2	909	672	99	0.86	90	2250		
160 L 0607	63.6	340	31	898	676	139	0.87	90	2100	084-01570A	75T
	67.6	360	32.9	955	676	138	0.86	90	2250		
	71.4	380	34.7	1010	675	138	0.86	90	2375		
	75	400	36.5	1064	673	138	0.86	91	2500		
	81.4	440	40.2	1175	661	136	0.85	92	2900		
	84.7	460	42	1230	657.5	135	0.85	92	3050		
	88	480	43.8	1284	654	134	0.85	92	3200		
160 L 0608	76.2	340	38.3	1119	650	165	0.85	92	2850	094-02000A	100T
	80.9	360	40.6	1188	650	165	0.86	92	3000		
	85.4	380	42.8	1254	650	165	0.85	92	3150		
	90	400	45.1	1323	649	164	0.85	92	3350		
	97	440	49.6	1459	635	161	0.85	93	3600		
	100.5	460	51.9	1527	629	160	0.85	93	3775		
	104	480	54.1	1595	623	159	0.84	93	3950		

* voltage available at drive output

Values are for information only and are not contractual. They may be modified by the manufacturer at any time.

Selection tables

CPLS 160L / 490 - 700 N.m

Motor IP23 – Fan IC06 – Class F
Service S1 – Ambient temperature 40°C – Total mass: 362 Kg
Inertia: 0.455 kg.m² - Maximum mechanical speed: 5000 rpm
Forced ventilation 1.1 kW – 230/400V 50Hz

CPLS	Pn (kW)	U (V)*	F(Hz)	n_1 (rpm)	Mn (N.m)	In (A)	cos φ	η (%)	n_2 (rpm)	UNIDRIVE M	POWERDRIVE
										M700	MD2S
160 L 0609	93.3	340	48.5	1425	625	197	0.86	93	3500	094-02240A	120T
	98.8	360	51.3	1509	625	197	0.86	93	3700		
	104.5	380	54.2	1596	625	197	0.86	93	3900		
	110	400	57	1680	625	197	0.86	93	4150		
	117	440	62.7	1853	603	191	0.85	94	4700		
	121	460	65.6	1939	596.5	189.5	0.85	94	4850		
	125	480	68.4	2025	590	188	0.85	94	5000		
160 L 0610	115.5	340	62.9	1852	596	230	0.9	94	4000	104-02700E	150T
	121.4	360	66.6	1964	591	228	0.9	94	4300		
	126.4	380	70.3	2075	582	225	0.9	94	4600		
	132	400	74	2187	577	223	0.9	94	5000		
	139	440	81.4	2411	551	213	0.9	95	5000		
	143.5	460	85.1	2523	544	210.5	0.9	95	5000		
	148	480	88.8	2634	537	208	0.9	95	5000		
160 L 0611	144	340	90.1	2666	516	280	0.92	95	5000	104-03200E	180T
	150	360	95.4	2826	507	275	0.92	95	5000		
	155	380	100.7	2986	496	268	0.92	95	5000		
	160	400	106	3146	486	263	0.91	95	5000		
	166	440	116.6	3466	458	248	0.91	96	5000		
	168.5	460	121.9	3626	445	241	0.91	96	5000		
	171	480	127.2	3786	432	234	0.91	96	5000		

* voltage available at drive output

Values are for information only and are not contractual. They may be modified by the manufacturer at any time.

CPLS 200S / 680 - 940 N.m

Motor IP23 – Fan IC06 – Class F
Service S1 – Ambient temperature 40°C – Total mass: 505 Kg
Inertia: 0.700 kg.m² - Maximum mechanical speed: 5000 rpm (8000 rpm with HV3 configuration)
Forced ventilation 2.2 kW – 230/400V 50Hz

CPLS	Pn (kW)	U (V)*	F(Hz)	n_1 (rpm)	Mn (N.m)	In (A)	cos φ	η (%)	n_2 (rpm)	UNIDRIVE M	POWERDRIVE
										M700	MD2S
200 S 0604	37.5	340	14.9	403	887	91.3	0.88	79.3	605	074-01000A	60T
	40	360	15.8	431	886	91	0.88	80.4	676		
	42.5	380	16.625	455	891	91	0.87	81.3	735		
	45	400	17.5	482	890	90.7	0.87	82.2	846		
	50.5	440	19.25	536	898	91.3	0.87	83.57	909		
	53	460	20.1	562	899	91.2	0.87	84.2	985		
	55.5	480	21	588	900	91.1	0.86	84.8	1060		
200 S 0605	46.3	340	17	470	940	113	0.85	82.3	878	084-01340A	75T
	49.5	360	18	500	944	113	0.85	83.1	950		
	52.3	380	19	531	940	112.6	0.84	83.9	1051		
	55	400	20	561	935	112	0.84	84.7	1165		
	61	440	22	622	935	112	0.83	85.9	1261		
	64	460	23	652	936	112	0.83	86.4	1308		
	67	480	24	682	937	112	0.83	86.9	1355		
200 S 0606	63.2	340	23.715	670	900	145	0.86	86.4	1290	084-01570A	100T
	67.2	360	25.11	712	900	145	0.86	87.02	1351		
	71.3	380	26.505	755	900	145	0.85	87.6	1441		
	75	400	27.9	796	900	144	0.85	88.2	1587		
	82.5	440	30.69	881	893	143	0.85	89.1	1700		
	86.3	460	32.1	924	891.5	142.8	0.85	89.5	1783		
	90	480	33.48	966	890	142.5	0.85	89.9	1865		
200 S 0607	76.5	340	28.7	820	890	171.7	0.86	88.2	1614	094-02000A	100T
	81	360	30.4	871	887	171	0.86	88.8	1734		
	85.5	380	32.1	922	884	170	0.85	89.3	1826		
	90	400	33.8	974	882	170	0.85	89.7	1974		
	98.6	440	37.2	1076	875	168	0.85	90.55	2186		
	103.1	460	38.9	1128	872.5	167.5	0.85	90.9	2278		
	107.5	480	40.6	1180	870	167	0.85	91.2	2369		
200 S 0608	94	340	35.275	1019	880	208.4	0.85	90.1	2100	094-02240A	120T
	99.5	360	37.35	1083	877	207.7	0.85	90.6	2300		
	105	380	39.425	1143	877	207.3	0.85	91	2460		
	110	400	41.5	1200	875	206	0.84	91.4	2600		
	121	440	45.65	1338	866	205	0.84	91.8	2758		
	126	460	47.7	1398	862	203.5	0.84	92.2	2851		
	131	480	49.8	1457	858	202	0.84	92.5	2944		
200 S 0609	112	340	42.925	1246	858	246.5	0.84	91.6	2600	104-02700E	150T
	118.8	360	45.45	1324	856	246	0.84	91.9	2775		
	125.4	380	47.975	1400	855	246	0.84	92.3	2930		
	132	400	50.5	1474	855	245	0.84	92.6	3080		
	145.5	440	55.55	1627	853	245	0.84	93.1	3380		
	151.8	460	58.1	1703	850.5	244.3	0.84	93.4	3474		
	158	480	60.6	1778	848	243.5	0.83	93.6	3568		

* voltage available at drive output

Values are for information only and are not contractual. They may be modified by the manufacturer at any time.

Selection tables

CPLS 200S / 680 - 940 N.m

Motor IP23 – Fan IC06 – Class F
Service S1 – Ambient temperature 40°C – Total mass: 505 Kg
Inertia: 0.700 kg.m² - Maximum mechanical speed: 5000 rpm (8000 rpm with HV3 configuration)
Forced ventilation 2.2 kW – 230/400V 50Hz

CPLS	Pn (kW)	U (V)*	F(Hz)	n_1 (rpm)	Mn (N.m)	In (A)	cos φ	η (%)	n_2 (rpm)	UNIDRIVE M	POWERDRIVE
										M700	MD2S
200 S 0610	136	340	52.7	1540	843	294.5	0.84	92.8	3125	104-03200E	180T
	144	360	55.8	1633	841	293.8	0.84	93.1	3320		
	152	380	58.9	1726	840	293.4	0.84	93.4	3450		
	160	400	62	1819	840	293	0.84	93.7	3712		
	174	440	68.2	2005	830	289	0.84	94.1	4100		
	181	460	71.3	2099	825	287.5	0.84	94.3	4284		
	188	480	74.4	2192	820	286	0.84	94.5	4467		
200 S 0611	169.5	340	72.25	2125	760	357	0.86	93.9	4030	114-03770E	220T
	179.5	360	76.5	2254	760	357	0.86	94.2	4257		
	190	380	80.75	2383	760	357	0.86	94.4	4500		
	200	400	85	2510	760	357	0.86	94.6	4750		
	213	440	93.5	2764	736	345	0.85	94.9	5700		
	220.5	460	97.8	2892	728.5	342	0.85	95.1	5000		
	228	480	102	3020	721	339	0.85	95.2	6450		
200 S 0612	216	340	100.3	2967	696	447	0.86	95.1	5600	-	270T
	226.5	360	106.2	3145	688	441.8	0.86	95.3	5900		
	238	380	112.1	3322	685	439.5	0.86	95.4	6400		
	250	400	118	3500	683	438	0.86	95.5	6600		

* voltage available at drive output

Values are for information only and are not contractual. They may be modified by the manufacturer at any time.

CPLS 200M / 900 - 1300 N.m

Motor IP23 – Fan IC06 – Class F
Service S1 – Ambient temperature 40°C – Total mass: 615 Kg
Inertia: 0.98 kg.m² - Maximum mechanical speed: 5000 rpm (8000 rpm with HV3 configuration)
Forced ventilation 2.2 kW – 230/400V 50Hz

CPLS	Pn (kW)	U (V)*	F(Hz)	n_1 (rpm)	Mn (N.m)	In (A)	cos φ	η (%)	n_2 (rpm)	UNIDRIVE M	POWERDRIVE
										M700	MD2S
200 M 0603	45.9	340	12.4	337	1300	115.5	0.85	79.3	590	084-01340A	75T
	48.8	360	13.14	358	1300	115	0.85	80.4	650		
	52	380	13.87	382	1300	115	0.84	82.2	766		
	55	400	14.6	404	1300	115	0.84	82.2	766		
	61.2	440	16.06	450	1300	114.8	0.84	83.6	897		
	64.2	460	16.8	471	1302.5	114.9	0.84	84.2	963		
	67.2	480	17.52	491	1305	115	0.83	84.8	1028		
200 M 0604	63.2	340	17.2	479	1260	148.4	0.86	83.4	895	084-01570A	100T
	67.2	360	18.2	509	1260	148	0.86	84.7	967		
	71.25	380	19.19	540	1260	147.8	0.86	85.45	1056		
	75	400	20.2	568	1260	147.3	0.85	86.1	1115		
	82.8	440	22.22	630	1254	146.5	0.85	87.3	1240		
	86.8	460	23.2	661	1254	146.4	0.85	87.8	1307		
	90.8	480	24.24	691	1254	146.3	0.85	88.2	1374		
200 M 0605	76.5	340	20.825	589	1230	173.4	0.86	86.5	1148	094-02000A	100T
	81	360	22.05	630	1228	173.2	0.86	87.2	1250		
	85.5	380	23.275	663	1228	172.7	0.85	87.8	1326		
	90	400	24.5	700	1228	172.5	0.85	88.3	1390		
	99	440	26.95	775	1228	172.3	0.85	89.2	1540		
	103.5	460	28.2	811	1228	172.2	0.85	89.6	1655		
	108	480	29.4	847	1228	172	0.85	89.9	1770		
200 M 0606	93.3	340	25.5	728	1222	208.6	0.86	88.5	1445	094-02240A	120T
	99	360	27	774	1221	208	0.86	89.1	1535		
	104.5	380	28.5	819	1217	207.3	0.85	89.6	1626		
	110	400	30	864	1215	206.6	0.85	90	1717		
	121.5	440	33	954	1215	206.3	0.85	90.8	1900		
	127.3	460	34.5	1000	1215	206.2	0.85	91.1	1990		
	133	480	36	1045	1215	206	0.85	91.4	2080		
200 M 0607	112	340	30.345	875	1222	250.2	0.84	90.2	1632	104-02700E	180T
	118.8	360	32.13	929	1220	249.8	0.84	90.6	1820		
	125.4	380	33.915	983	1217	249	0.84	91.05	1963		
	132	400	35.7	1037	1214	248.4	0.84	91.4	2090		
	145.5	440	39.27	1145	1212	247.7	0.84	92	2320		
	152.2	460	41.1	1199	1212	185.9	0.84	92.4	2440		
	158.9	480	42.84	1252	1212	124	0.83	92.7	2560		
200 M 0608	136	340	38.25	1110	1168	295.4	0.85	91.5	2148	104-03200E	180T
	144	360	40.5	1177	1168	294.7	0.85	91.9	2311		
	152	380	42.75	1246	1164	293.8	0.85	92.3	2475		
	160	400	45	1312	1164	293.3	0.85	92.6	2640		
	176	440	49.5	1448	1157	291.3	0.85	93.2	2825		
	183	460	51.8	1516	1151	289.7	0.85	93.5	2933		
	190	480	54	1583	1145	288	0.85	93.7	3040		

* voltage available at drive output

Values are for information only and are not contractual. They may be modified by the manufacturer at any time.

Selection tables

CPLS 200M / 900 - 1300 N.m

Motor IP23 – Fan IC06 – Class F
Service S1 – Ambient temperature 40°C – Total mass: 615 Kg
Inertia: 0.98 kg.m² - Maximum mechanical speed: 5000 rpm (8000 rpm with HV3 configuration)
Forced ventilation 2.2 kW – 230/400V 50Hz

CPLS	Pn (kW)	U (V)*	F(Hz)	n_1 (rpm)	Mn (N.m)	In (A)	cos φ	η (%)	n_2 (rpm)	UNIDRIVE M	POWERDRIVE
										M700	MD2S
200 M 0609	170	340	49.2	1442	1125	375	0.83	93.3	3354	114-03770E	220T
	180	360	52.2	1532	1120	374	0.83	93.6	3593		
	190	380	55.1	1620	1120	373	0.83	93.9	3803		
	200	400	58	1706	1119	373	0.82	94.1	4042		
	217	440	63.7	1878	1104	368	0.82	94.5	4494		
	225.5	460	66.6	1966	1097	365.5	0.82	94.7	4747		
	234	480	69.5	2053	1090	363	0.82	94.8	5000		
200 M 0610	215	340	65	1916	1071	464	0.83	94.4	4400	-	270T
	226	360	68.8	2031	1063	460	0.83	94.6	4750		
	237	380	72.5	2142	1057	458	0.83	94.8	5100		
	250	400	76.5	2262	1056	457	0.83	95	5400		
	270	440	83.9	2485	1038	450	0.83	95.3	6000		
	280	460	87.9	2604	1028	446	0.83	95.4	5000		
	290	480	91.8	2722	1018	442	0.83	95.5	6600		
200 M 0611	272	340	93.4	2769	939	569	0.85	95.5	6150	-	400T
	287	360	98.9	2934	935	566	0.85	95.6	6600		
	300	380	104.4	3100	925	560	0.85	95.7	7100		
	315	400	109.9	3265	922	559	0.85	95.8	7500		
	330	440	120.9	3596	877	533	0.85	96	8000		
	340	460	126.4	3762	864.5	526	0.85	96.1	8000		
	350	480	131.9	3927	852	519	0.84	96.1	8000		

* voltage available at drive output

Values are for information only and are not contractual. They may be modified by the manufacturer at any time.

CPLS 200L / 1100 - 1550 N.m

Motor IP23 – Fan IC06 – Class F
Service S1 – Ambient temperature 40°C – Total mass: 740 Kg
Inertia: 1.579 kg.m² - Maximum mechanical speed: 4500 rpm
Forced ventilation 2.2 kW – 230/400V 50Hz

CPLS	Pn (kW)	U (V)*	F(Hz)	n_1 (rpm)	Mn (N.m)	In (A)	cos φ	η (%)	n_2 (rpm)	UNIDRIVE M	POWERDRIVE
										M700	MD2S
200 L 0603	46	340	10.115	285	1540	108.3	0.87	82.48	630	084-01340A	60T
	49	360	10.71	305	1540	108.4	0.87	83.3	688		
	51.7	380	11.305	321	1538	108	0.87	84.1	734		
	55	400	11.9	340	1545	108.6	0.86	84.7	765		
	60.5	440	13.09	376	1536	108	0.86	86	855		
	63.4	460	13.7	394	1535	108	0.86	86.5	899		
	66.2	480	14.28	412	1534	108	0.85	87	943		
200 L 0604	63.4	340	14.025	402	1505	142.2	0.88	86.46	897	084-01570A	100T
	67.4	360	14.85	429	1500	141.7	0.88	87.14	963		
	71.2	380	15.675	453	1500	141.5	0.87	87.7	1018		
	75	400	16.5	477	1500	141	0.87	88.2	1090		
	82.6	440	18.15	528	1500	141.3	0.87	89.1	1167		
	86.3	460	19	552	1500	141.2	0.87	89.5	1230		
	90	480	19.8	576	1500	141	0.86	89.9	1293		
200 L 0605	76.2	340	16.83	486	1496	169.3	0.87	88.3	1117	094-02000A	100T
	80.8	360	17.82	516	1494	169	0.86	88.9	1184		
	85.5	380	18.81	546	1493	168.9	0.86	89.3	1259		
	90	400	19.8	576	1490	168.5	0.86	89.5	1305		
	99	440	21.78	636	1485	167.9	0.85	90.6	1455		
	103.5	460	22.8	667	1482.5	167.7	0.85	90.9	1530		
	108	480	23.76	697	1480	167.4	0.85	91.2	1605		
200 L 0606	93	340	20.57	600	1479	203	0.86	90.15	1370	094-02240A	120T
	98.8	360	21.78	636	1480	203.2	0.86	90.6	1490		
	104.5	380	22.99	673	1482	203.3	0.86	91	1575		
	110	400	24.2	708	1480	203.2	0.86	91.3	1660		
	120.8	440	26.62	781	1477	202.5	0.85	91.9	1815		
	125.6	460	27.8	817	1468.5	201.6	0.85	92.2	1949		
	130.4	480	29.04	853	1460	200.6	0.85	92.5	2083		
200 L 0607	112	340	25.33	740	1443	236.6	0.88	91.41	1691	104-02700E	150T
	118.5	360	26.82	786	1440	235.9	0.88	91.8	1802		
	125.3	380	28.31	831	1440	235.8	0.88	92.1	1867		
	132	400	29.8	876	1439	235.5	0.88	92.5	1955		
	145	440	32.78	966	1434	234.7	0.87	92.9	2168		
	149.9	460	34.3	1012	1415.5	231.9	0.87	93.2	2321		
	154.8	480	35.76	1057	1397	229	0.87	93.5	2474		
200 L 0608	136	340	31.45	928	1400	290.8	0.86	92.9	2315	104-03200E	180T
	143.7	360	33.3	982	1397	290.2	0.85	93.2	2442		
	151.9	380	35.15	1040	1396	290	0.85	93.4	2540		
	160	400	37	1094	1397	290	0.85	93.6	2680		
	176	440	40.7	1204	1392	289.2	0.85	94	3010		
	181	460	42.6	1260	1371	285.6	0.85	94.2	3205		
	186	480	44.4	1316	1350	282	0.84	94.4	3400		

* voltage available at drive output

Values are for information only and are not contractual. They may be modified by the manufacturer at any time.

Selection tables

CPLS 200L / 1100 - 1550 N.m

Motor IP23 – Fan IC06 – Class F
Service S1 – Ambient temperature 40°C – Total mass: 740 Kg
Inertia: 1.579 kg.m² - Maximum mechanical speed: 4500 rpm
Forced ventilation 2.2 kW – 230/400V 50Hz

CPLS	Pn (kW)	U (V)*	F(Hz)	n_1 (rpm)	Mn (N.m)	In (A)	cos φ	η (%)	n_2 (rpm)	UNIDRIVE M	POWERDRIVE
										M700	MD2S
200 L 0609	171	340	41.225	1218	1337	357.4	0.86	94.1	2890	114-03770E	220T
	180.5	360	43.65	1293	1334	356.4	0.86	94.4	3100		
	190	380	46.075	1365	1330	355	0.86	94.6	3250		
	200	400	48.5	1422	1330	355	0.86	94.8	3450		
	218	440	53.35	1584	1314	351.5	0.86	95.1	3750		
	226.5	460	55.8	1656	1306	349.8	0.86	90.3	3920		
	235	480	58.2	1728	1298	348	0.85	85.4	4090		
200 L 0610	219	340	53.55	1590	1315	453.5	0.86	95.1	3905	-	270T
	226	360	56.7	1683	1293	446.6	0.86	95.3	4150		
	237.8	380	59.85	1800	1276	441.3	0.86	95.5	4360		
	250	400	63	1872	1275	441	0.86	95.5	4500		
	272	440	69.3	2062	1260	436	0.85	95.89	4500		
	280	460	72.5	2157	1241	430	0.85	95.9	4500		
	288	480	75.6	2251	1222	424	0.85	96	4500		
200 L 0611	268	340	71.5	2127	1203	539	0.89	95.6	4500	-	340T
	284	360	76.1	2265	1198	537	0.89	95.8	4500		
	302	380	80.9	2405	1200	541	0.89	95.9	4500		
	315	400	85	2533	1187	535	0.89	96	4500		
	345	440	93.5	2788	1182	532	0.89	96.2	4500		
	359	460	97.8	2916	1176	532.5	0.89	96.3	4500		
	373	480	102	3043	1170	533	0.89	96.3	4500		
200 L 0612	309	340	85.85	2560	1153	620	0.89	95.7	4500	-	470T
	324	360	90.9	2710	1142	614	0.88	95.8	4500		
	340	380	95.95	2863	1134	610	0.88	95.9	4500		
	355	400	101	3013	1125	605	0.88	96	4500		
	380.5	440	111.1	3313	1095	590	0.88	96.2	4500		

* voltage available at drive output

Values are for information only and are not contractual. They may be modified by the manufacturer at any time.

Selection tables

CPLS 250S / 1950 - 1570 N.m

Motor IP23 – Fan IC06 – Class F
Service S1 – Ambient temperature 40°C – Total mass: 1050 Kg
Inertia: 2.65 kg.m² - Maximum mechanical speed: 5000 rpm
Forced ventilation 3 kW – 230/400V 50Hz
Regreasable bearings (NDE insulated as standard)

CPLS	Pn (kW)	U (V)*	F(Hz)	n_1 (rpm)	Mn (N.m)	In (A)	cos φ	η (%)	n_2 (rpm)	UNIDRIVE M	POWERDRIVE
										M700	MD2S
250 S 0603	62	340	11.2	316	1875	144	0.88	82.9	725	084-01570A	100T
	66	360	11.8	334	1886	144	0.87	83.7	770		
	71	380	12.7	360	1880	144	0.88	84.5	788		
	75	400	13.4	381	1876	144	0.88	85.2	847		
	83	440	14.7	421	1880	144	0.87	86.4	993		
	87	460	15.4	441	1884	144	0.87	86.9	1052		
	91	480	16	460	1888	144	0.87	87.3	1111		
250 S 0604	76	340	13.1	372	1950	174	0.87	84.8	844	094-02000A	100T
	81	360	13.9	396	1951	174	0.87	85.5	903		
	86	380	14.7	420	1953	174	0.87	86.2	963		
	90	400	15.3	439	1957	174	0.86	86.8	1050		
	100	440	16.9	486	1961	174	0.86	87.8	1200		
	105	460	17.7	511	1962	174	0.86	88.2	1246		
	110	480	18.5	535	1963	174	0.86	88.6	1292		
250 S 0605	92	340	15.6	448	1961	209	0.86	87	1080	094-02240A	120T
	98	360	16.5	475	1970	209	0.86	87.6	1142		
	104	380	17.5	505	1966	209	0.86	88.1	1203		
	110	400	18.4	531	1973	209	0.86	88.6	1292		
	122	440	20.4	592	1968	208	0.86	89.5	1413		
	128	460	21.4	622	1965.5	208	0.86	89.9	1502		
	134	480	22.4	652	1963	208	0.86	90.2	1590		
250 S 0606	111	340	18.7	540	1961	245	0.87	88.7	1263	104-02700E	150T
	118	360	19.8	574	1964	245	0.87	89.2	1352		
	125	380	20.9	606	1967	245	0.86	89.7	1442		
	132	400	22	640	1970	245	0.86	90.1	1530		
	145	440	24.1	703	1969	245	0.86	90.8	1740		
	152	460	25.3	739	1963.5	244.5	0.86	91.2	1830		
	159	480	26.5	775	1958	244	0.86	91.5	1920		
250 S 0607	135	340	23.4	681	1891	289	0.88	90.6	1565	104-03200E	180T
	144	360	24.9	726	1893	289	0.88	91	1645		
	152	380	26.2	765	1896	289	0.87	91.4	1775		
	160	400	27.5	805	1898	289	0.87	91.7	1907		
	177	440	30.3	889	1901	289	0.87	92.3	2074		
	185	460	31.7	931	1897.5	288.5	0.87	92.6	2207		
	193	480	33.1	973	1894	288	0.87	92.8	2340		
250 S 0608	157	340	27.3	799	1876	334	0.87	91.7	1893	114-03770E	220T
	167	360	28.9	847	1883	334	0.87	92	2024		
	176	380	30.4	892	1883	334	0.87	92.3	2185		
	185	400	31.9	937	1885	334	0.86	92.6	2311		
	204	440	35.5	1045	1864	331	0.87	93.1	2580		
	213.5	460	37.6	1107	1844.5	329	0.88	93.4	2613		
	223	480	39.6	1168	1825	327	0.88	93.6	2646		

* voltage available at drive output

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CPLS 250S / 1950 - 1570 N.m

Motor IP23 – Fan IC06 – Class F
Service S1 – Ambient temperature 40°C – Total mass: 1050 Kg
Inertia: 2.65 kg.m² - Maximum mechanical speed: 5000 rpm
Forced ventilation 3 kW – 230/400V 50Hz
Regreasable bearings (NDE insulated as standard)

CPLS	Pn (kW)	U (V)*	F(Hz)	n_1 (rpm)	Mn (N.m)	In (A)	cos φ	η (%)	n_2 (rpm)	UNIDRIVE M	POWERDRIVE
										M700	MD2S
250 S 0609	192	340	33.6	987	1857	399	0.88	92.8	2185	114-04170E	220T
	203	360	35.4	1040	1861	399	0.88	93.1	2375		
	212	380	37.3	1099	1844	395	0.87	93.3	2525		
	225	400	40.2	1185	1814	393	0.88	93.6	2580		
	244	440	44.8	1323	1762	384	0.89	94.1	2830		
	253	460	47.3	1398	1731	379.5	0.89	94.3	2905		
	262	480	49.8	1473	1700	375	0.89	94.5	2980		
250 S 0610	214	340	37.7	1110	1842	449	0.86	93.5	2611	-	270T
	226	360	39.7	1170	1846	449	0.86	93.8	2843		
	238	380	41.7	1230	1849	449	0.86	94	3049		
	250	400	43.7	1290	1850	449	0.85	94.2	3238		
	273	440	48	1420	1837	446	0.85	94.6	3626		
	285.5	460	51.6	1527	1818.5	445.5	0.87	94.8	3553		
	298	480	55.2	1634	1800	445	0.88	95	3480		
250 S 0611	274	340	49	1450	1807	569	0.87	94.7	3420	-	340T
	290	360	52	1539	1800	567	0.87	94.9	3631		
	303	380	55.5	1644	1761	558	0.87	95.1	3840		
	315	400	58	1720	1750	553	0.86	95.2	4150		
	343	440	66	1960	1673	537	0.88	95.6	4387		
	351.5	460	68	2020	1663	531.5	0.87	95.7	4694		
	360	480	70	2080	1653	526	0.86	95.8	5000		
250 S 0612	314	340	58	1719	1745	645	0.87	95.2	4020	-	400T
	325	360	60.7	1801	1724	636	0.86	95.4	4470		
	338	380	64	1900	1700	627	0.86	95.5	4890		
	355	400	68	2020	1680	622	0.86	95.7	5000		
	388	440	79.2	2355	1575	600	0.88	96	5000		
	399	460	83.1	2473	1543.5	590	0.88	96.1	5000		
	410	480	87	2590	1512	580	0.88	96.2	5000		
250 S 0613	375	340	76	2261	1584	770	0.86	96	5000	-	470T
	391	360	80	2382	1568	762	0.86	96.1	5000		
	409	380	86	2562	1525	747	0.87	96.2	5000		
	430	400	95	2831	1450	728	0.88	96.4	5000		

* voltage available at drive output

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CPLS 250M / 2360 - 1710 N.m

Motor IP23 – Fan IC06 – Class F
Service S1 – Ambient temperature 40°C – Total mass: 1200 Kg
Inertia: 3.14 kg.m² - Maximum mechanical speed: 5000 rpm
Forced ventilation 3 kW – 230/400V 50Hz
Regreasable bearings (NDE insulated as standard)

CPLS	Pn (kW)	U (V)*	F(Hz)	n_1 (rpm)	Mn (N.m)	In (A)	cos φ	η (%)	n_2 (rpm)	UNIDRIVE M	POWERDRIVE
										M700	MD2S
250 M 0603	62	340	9.2	256	2310	143	0.89	82.3	537	084-01570A	100T
	67	360	9.9	277	2311	144	0.9	83.2	560		
	71	380	10.4	292	2321	144	0.89	84	600		
	75	400	11	310	2309	143	0.89	84.8	650		
	83	440	12	340	2327	143	0.88	85.9	730		
	86.5	460	12.4	353	2338.5	143	0.88	86.4	803		
	90	480	12.8	365	2350	143	0.87	86.9	875		
250 M 0604	76	340	11	309	2347	171	0.9	84.4	601	094-02000A	100T
	81	360	11.6	327	2362	171	0.89	85.1	649		
	86	380	12.2	346	2376	171	0.89	85.8	729		
	90	400	12.7	361	2380	170	0.88	86.4	815		
	99	440	13.8	395	2395	170	0.87	87.5	934		
	103.5	460	14.4	412	2401.5	170	0.87	87.9	994		
	108	480	14.9	428	2408	170	0.86	88.3	1053		
250 M 0605	92	340	13.1	373	2354	203	0.88	86.7	750	094-02240A	120T
	98	360	13.9	397	2356	203	0.88	87.3	800		
	104	380	14.7	421	2357	203	0.88	87.9	853		
	110	400	15.5	445	2359	203	0.88	88.4	925		
	121	440	17.1	493	2341	201	0.88	89.4	1060		
	127	460	17.9	517	2343	201.5	0.88	89.8	1106		
	133	480	18.7	541	2345	202	0.88	90.1	1151		
250 M 0606	111	340	16.1	462	2292	237	0.89	88.6	857	104-02700E	150T
	118	360	17	489	2301	237	0.89	89.1	917		
	125	380	18	519	2297	237	0.89	89.6	988		
	132	400	18.9	547	2305	237	0.89	90	1065		
	145	440	20.6	598	2314	236	0.89	90.8	1228		
	152	460	21.6	627	2315.5	236	0.89	91.1	1294		
	159	480	22.5	655	2317	236	0.88	91.4	1359		
250 M 0607	136	340	19.4	562	2311	287	0.89	90.3	1124	104-03200E	180T
	144	360	20.4	592	2321	287	0.88	90.7	1227		
	152	380	21.4	622	2330	287	0.88	91.1	1330		
	160	400	22.4	652	2340	287	0.88	91.5	1449		
	176	440	24.6	719	2337	286	0.88	92.1	1640		
	184	460	25.8	755	2327.5	285	0.88	92.4	1724		
	192	480	27	791	2318	284	0.88	92.6	1807		
250 M 0608	157	340	22.2	647	2317	332	0.88	91.4	1449	114-03770E	220T
	167	360	23.6	689	2314	331	0.88	91.8	1533		
	176	380	24.9	728	2308	330	0.88	92.2	1666		
	185	400	26.1	764	2311	330	0.88	92.4	1791		
	204	440	28.7	842	2312	330	0.87	93	1986		
	213.5	460	30.1	884	2305	329	0.87	93.2	2091		
	223	480	31.5	926	2298	328	0.87	93.4	2195		

* voltage available at drive output

Values are for information only and are not contractual. They may be modified by the manufacturer at any time.

Selection tables

CPLS 250M / 2360 - 1710 N.m

Motor IP23 – Fan IC06 – Class F
Service S1 – Ambient temperature 40°C – Total mass: 1200 Kg
Inertia: 3.14 kg.m² - Maximum mechanical speed: 5000 rpm
Forced ventilation 3 kW – 230/400V 50Hz
Regreasable bearings (NDE insulated as standard)

CPLS	Pn (kW)	U (V)*	F(Hz)	n_1 (rpm)	Mn (N.m)	In (A)	cos φ	η (%)	n_2 (rpm)	UNIDRIVE M	POWERDRIVE
										M700	MD2S
250 M 0609	192	340	27.5	805	2276	396	0.89	92.6	1648	114-04170E	220T
	203	360	29.1	853	2270	394	0.89	93	1811		
	212	380	30.4	892	2266	392	0.88	93.2	1960		
	225	400	32.5	955	2248	391	0.88	93.5	2079		
	244	440	35.8	1054	2211	385	0.88	93.9	2407		
	252	460	37	1091	2207.5	382.5	0.88	94.1	2557		
	260	480	38.2	1127	2204	380	0.87	94.3	2707		
250 M 0610	214	340	31.1	913	2237	443	0.88	93.4	2016	-	270T
	226	360	32.7	961	2245	443	0.87	93.7	2195		
	238	380	34.4	1012	2245	442	0.87	93.9	2359		
	250	400	36	1060	2252	442	0.87	94.1	2522		
	273	440	39.6	1168	2233	438	0.86	94.6	2816		
	285.5	460	41.6	1227	2224.5	436.5	0.87	94.8	2969		
	298	480	43.5	1285	2216	435	0.87	94.9	3122		
250 M 0611	270	340	38.8	1144	2253	565	0.86	94.5	2880	-	340T
	283	360	41	1211	2233	561	0.86	94.7	3090		
	300	380	43.5	1286	2229	561	0.86	94.9	3152		
	315	400	46.2	1367	2200	555	0.86	95.1	3422		
	345	440	52.5	1556	2120	543	0.87	95.5	3607		
	357.5	460	54.9	1628	2100	538	0.87	95.7	3804		
	370	480	57.3	1700	2080	533	0.87	95.8	4000		
250 M 0612	309	340	45.2	1337	2208	647	0.85	95.1	3510	-	400T
	324	360	47.7	1413	2191	643	0.85	95.2	3810		
	338	380	50.5	1497	2157	634	0.85	95.4	4080		
	355	400	54	1600	2117	626	0.86	95.7	4230		
	387	440	60	1782	2075	616	0.86	95.9	4623		
	403.5	460	63.5	1887	2045	610.5	0.86	96	4745		
	420	480	67	1992	2015	605	0.85	96.1	4867		
250 M 0613	380	340	60	1782	2037	786	0.86	95.9	4802	-	470T
	400	360	63	1873	2040	786	0.85	96	5000		
	420	380	66.2	1969	2038	784	0.85	96.2	5000		
	450	400	72.3	2150	2000	778	0.87	96.3	5000		
	480	440	80.8	2406	1905	750	0.87	96.5	5000		
	490	460	85.4	2544	1843	730.5	0.87	96.6	5000		
	500	480	90	2682	1781	711	0.87	96.6	5000		
250 M 0614	461	340	86.7	2577	1710	889	0.91	96.4	3536	-	600T
	480	360	90	2677	1713	874	0.91	96.5	3865		
	510	380	98.7	2937	1659	876	0.92	96.6	3860		
	520	400	103	3067	1620	849	0.92	96.7	4286		

* voltage available at drive output

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CPLS 250L / 2900 - 2300 N.m

Motor IP23 – Fan IC06 – Class F
Service S1 – Ambient temperature 40°C – Total mass: 1500 Kg
Inertia: 4.92 kg.m² - Maximum mechanical speed: 3800 rpm
Forced ventilation 3 kW – 230/400V 50Hz
Regreasable bearings (NDE insulated as standard)

CPLS	Pn (kW)	U (V)*	F(Hz)	n_1 (rpm)	Mn (N.m)	In (A)	cos φ	η (%)	n_2 (rpm)	UNIDRIVE M	POWERDRIVE
										M700	MD2S
250 L 0603	75	340	8.7	248	2891	174	0.88	82.4	380	094-02000A	100T
	80	360	9.2	263	2906	174	0.88	83.3	409		
	85	380	9.7	278	2920	174	0.88	84	441		
	90	400	10.2	293	2932	174	0.88	84.8	471		
	100	440	11.2	323	2954	174	0.87	86	531		
	105	460	11.8	340	2951	174	0.87	86.5	566		
	110	480	12.3	356	2948	174	0.87	87	600		
250 L 0604	92	340	10.5	302	2909	209	0.88	85	483	094-02240A	120T
	98	360	11.1	320	2924	209	0.88	85.8	522		
	104	380	11.7	338	2937	209	0.87	86.4	558		
	110	400	12.3	356	2948	209	0.87	87	596		
	122	440	13.7	398	2926	209	0.87	88	665		
	127.5	460	14.3	415	2934.5	208.5	0.87	88.5	710		
	133	480	14.8	431	2943	208	0.87	88.9	754		
250 L 0605	110	340	12.5	360	2910	245	0.88	87.1	585	104-02700E	150T
	117	360	13.2	383	2915	245	0.87	87.7	621		
	124	380	14	407	2908	245	0.87	88.3	663		
	132	400	14.9	434	2904	245	0.88	88.8	682		
	145	440	16.1	470	2943	245	0.87	89.6	808		
	151.5	460	16.9	493	2935	244	0.87	90	842		
	158	480	17.6	515	2927	243	0.87	90.4	875		
250 L 0606	132	340	15.3	446	2820	289	0.87	89.2	750	104-03200E	180T
	141	360	16.3	476	2825	289	0.87	89.7	786		
	150	380	17.3	506	2828	289	0.87	90.2	817		
	160	400	18.7	548	2788	289	0.88	90.6	804		
	175	440	19.9	584	2858	289	0.87	91.3	966		
	183.5	460	20.9	613	2858.5	289	0.87	91.6	1011		
	192	480	21.8	641	2859	289	0.87	91.9	1056		
250 L 0607	154	340	17.7	519	2833	334	0.86	90.5	905	114-03770E	220T
	164	360	18.8	552	2837	334	0.86	90.9	965		
	174	380	19.9	585	2841	334	0.86	91.3	1010		
	185	400	21.3	626	2820	334	0.87	91.7	1027		
	203	440	23.1	681	2850	334	0.86	92.3	1175		
	212.5	460	24.2	714	2845.5	334	0.86	92.6	1238		
	222	480	25.3	747	2841	334	0.86	92.8	1300		
250 L 0608	188	340	21.8	641	2800	400	0.87	91.9	1050	114-04170E	270T
	200	360	23.2	683	2797	400	0.87	92.2	1110		
	211	380	24.4	720	2803	400	0.87	92.5	1177		
	225	400	26.4	780	2760	400	0.87	92.8	1178		
	242	440	27.8	822	2813	396	0.86	93.3	1500		
	251	460	28.9	855	2804.5	393.5	0.86	93.5	1636		
	260	480	30	888	2796	391	0.85	93.7	1772		

* voltage available at drive output

Values are for information only and are not contractual. They may be modified by the manufacturer at any time.

CPLS 250L / 2900 - 2300 N.m

Motor IP23 – Fan IC06 – Class F
Service S1 – Ambient temperature 40°C – Total mass: 1500 Kg
Inertia: 4.92 kg.m² - Maximum mechanical speed: 3800 rpm
Forced ventilation 3 kW – 230/400V 50Hz
Regreasable bearings (NDE insulated as standard)

CPLS	Pn (kW)	U (V)*	F(Hz)	n_1 (rpm)	Mn (N.m)	In (A)	cos φ	η (%)	n_2 (rpm)	UNIDRIVE M	POWERDRIVE
										M700	MD2S
250 L 0609	206	340	23.9	703	2800	450	0.84	92.6	1400	-	270T
	220	360	25.4	750	2803	450	0.84	92.9	1448		
	233	380	26.9	795	2801	450	0.85	96.2	1531		
	250	400	29.2	863	2768	450	0.86	93.6	1489		
	270	440	31	918	2810	450	0.84	94	1831		
	283	460	32.6	966	2799.5	448.5	0.84	94.2	1891		
	296	480	34.2	1014	2789	447	0.84	94.4	1950		
250 L 0610	267	340	31.3	927	2753	569	0.85	93.9	1751	-	340T
	282	360	33	978	2755	569	0.84	94.2	1892		
	299	380	35	1038	2752	569	0.85	94.4	1982		
	315	400	36.9	1095	2750	569	0.85	94.6	2102		
	345	440	41	1217	2706	562	0.85	95	2371		
	351.5	460	41.5	1233	2722	562.5	0.83	95.1	2669		
	358	480	42	1249	2738	563	0.81	95.2	2966		
250 L 0611	308	340	36	1068	2755	661	0.84	94.6	2161	-	470T
	325	360	38.3	1137	2730	657	0.84	94.8	2310		
	342	380	40.5	1203	2715	653	0.84	95	2430		
	355	400	41.6	1249	2715	652	0.83	95.2	2700		
	393	440	47	1399	2684	647	0.84	95.5	2851		
	409.5	460	49.5	1474	2656	642	0.84	95.7	2951		
	426	480	52	1548	2628	637	0.84	95.8	3050		
250 L 0612	383	340	47.1	1402	2610	819	0.83	95.5	2971	-	570T
	407	360	50	1489	2611	819	0.83	95.7	3121		
	428	380	52.6	1567	2610	819	0.83	95.8	3360		
	450	400	55.2	1645	2613	819	0.83	96	3570		
	490	440	62.3	1837	2520	797	0.84	96.2	3800		
	499	460	65.2	1934	2455.5	779	0.84	96.3	3800		
	508	480	68	2030	2391	761	0.83	96.4	3800		
250 L 0613	440	340	55	1639	2565	926	0.84	96	3272	-	600T
	465	360	59.5	1773	2500	913	0.85	96.1	3334		
	490	380	62.9	1875	2496	911	0.85	96.2	3545		
	510	400	67.1	2000	2434	895	0.85	96.4	3665		
	540	440	75.2	2245	2300	857	0.86	96.5	3800		
	550	460	79.6	2377	2216	832	0.86	96.6	3800		
	560	480	84	2509	2132	807	0.86	96.7	3800		
250 L 0614	476	340	66.3	1978	2300	989	0.85	96.3	3800	-	600T
	503	360	70	2089	2300	989	0.85	96.4	3800		
	532	380	74	2209	2300	989	0.85	96.5	3800		
	560	400	81	2419	2212	973	0.86	96.6	3800		

* voltage available at drive output

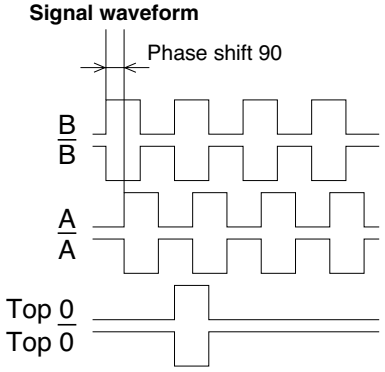
Values are for information only and are not contractual. They may be modified by the manufacturer at any time.

Encoder

INCREMENTAL ENCODER

This pulse generator delivers a pulse frequency which is proportional to the motor speed. Of the hollow shaft type, with two channel + Top 0 + complements output, its voltage supply range is 5 V ±10% or regulated 11-30 V.
For connections of over 20 m the cables used are twisted pairs. The maximum length of the (shielded) cables must not exceed 150 m on optocoupler input.

Signal waveform



SINGLE-TURN ABSOLUTE ENCODER

The Single-turn Absolute Encoder converts a drive shaft rotation into a succession of "electrical encoded steps". The number of steps per turn is determined by an optical disk. One shaft rotation in general comprises 8,192 steps, which corresponds to 13 bits. At the end of one complete shaft rotation of the encoder, the same values are repeated.

MULTI-TURN ABSOLUTE ENCODER

The Multi-turn Absolute encoder stores the position within the rotation, and also over several rotations, with a maximum of 4096 rotations.

For further information on the encoders please see general document: speed and position sensors: ref.5664

For CPLS brake applications or operation at very high speeds > 6000rpm, LEROY-SOMER uses reinforced encoders in order to ensure that the system operates correctly.

Encoder

ENCODER CONNECTION

The use of incremental encoders in industrial environments which include high-current installations or electronic drive controlled installations requires that standard, well-known, fundamental rules are observed.

Basic rules

1 - Use shielded cables. For connections which exceed 20 metres use shielded cable with several shielded twisted pairs, reinforced by a general external shield. The conductors in a single part are reserved for the channel and its complement: example A and $\bar{A}$, B and $\bar{B}$ etc.
It is recommended that conductors with a minimum standard section 0.14mm2 are used (recommended cable type: LIYCY 0.14 mm2).

2 - Keep the encoder connection cables as far away as possible from the power cables and avoid parallel routing.

3 - Distribute and connect 0V and the shields as "star" connections.

4 - Earth the shields using cables of minimum section 4 mm2.

5 - Do not under any circumstances connect a shield to earth at both ends. Preferably earth shielded cable on the "utilisation" side of the encoder signals (cabinet, PLC, meter). On the winding side the shield must be connected to a single point, itself connected to the general earth in accordance with safety standards. On the encoder side, each shield must be completely isolated, both in relation to any of the other shields and in relation to earth or to any potential whatsoever.
Ensure continuity of the shield when using connectors or connection casings.

Precautions during connection

1 - Under no circumstances carry out connection or disconnection on the encoder side or cabinet side without shutting off the supply beforehand.

2 - Use stabilised, filtered and regulated supplies. The use of supplies provided through transformers which deliver 5 V (or 24 V) rms at their secondaries, followed by rectifiers and smoothing capacitors is prohibited since in reality the DC voltages obtained in this way are:
• for 5 V: $5\sqrt{2} = 7.07$ V
• for 24 V: $24\sqrt{2} = 33.936$ V

3 - Comply with the international standards that are in force.

	Incremental encoders (standard Leroy-Somer wiring)											
12 Pins	1	2	3	4	5	6	7	8	9	10	11	12
M23 connector	–	+	A	B	O	$\bar{A}$	$\bar{B}$	$\bar{O}$		⏚	⏚	⏚
Shielded cable	White	Brown	Green	Yellow	Grey	Pink	Blue	Red		Braid	Braid	Braid

View of M23 female connector base (Counter clockwise) user side

Thermal protection

CPLS motors are equipped with PTC sensors as standard

Motors are protected by the speed drive placed between the isolating switch and the motor.
The drive provides total protection of the motor against overloads.
The motors are equipped with PTC sensors in the windings. Optionally specific thermal protection sensors may be selected from the table below.

It must be emphasized that under no circumstances can these sensors be used to carry out direct regulation of the motor operating cycles.

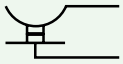
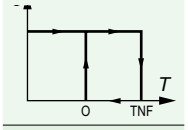
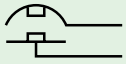
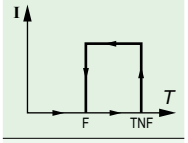
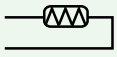
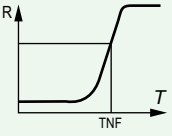
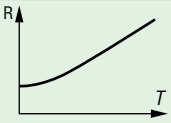
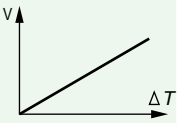
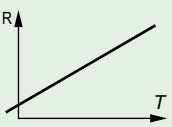
FITTING THE VARIOUS THERMAL PROTECTIONS

- PTO or PTF, in the control circuits
- PTC, with relay, in the control circuits
- PT 100 or thermocouples, with associated reading equipment or recorder, in the installation control panel for continuous surveillance.

ALARM AND EARLY WARNING

All protective equipment can be backed up by another type of protection (with different NRTs): the first device will then act as an early warning (light or sound signals given without shutting down the power circuits), and the second device will be the alarm (shutting down the power circuits).

Built-in indirect thermal protection

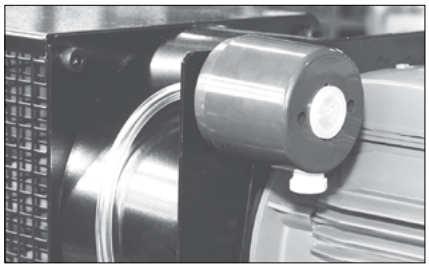
Type	Operating principle	Operating curve	Breaking capacity (A)	Protection provided	Mounting Number of devices*
Thermal protection on opening PTO	bimetallic strip, indirectly heated, with normally closed (NC) contact 		2.5 A at 250 V at cos φ 0.4	general surveillance for non-transient overloads	Installed in the control circuit 2 or 3 in series
Normally open thermal protection PTF	bimetallic strip, indirectly heated, with normally open (NO) contact 		2.5 A at 250 V at cos φ 0.4	general surveillance for non-transient overloads	Installed in the control circuit 2 or 3 in parallel
Positive temperature coefficient thermistor PTC	Linear variable resistor, indirectly heated 		0	general surveillance for transient overloads	Mounted with associated relay in control circuit 3 in series
Platinum temperature PT1000	Resistance depends on the temperature of the winding		0	high precision continuous surveillance of key hot spots	Mounted in control panels with associated reading equipment (or recorder) 1 per hot spot
Thermocouples **T** (T < 150°C) **Constantan Copper** **K** (T < 1000°C) **Copper Cupro-nickel**	Peltier effect		0	continuous surveillance of hot spots at regular intervals	Mounted in control panels with associated reading equipment (or recorder) 1 per hot spot
Platinum temperature sensor PT 100	Linear variable resistor indirectly heated		0	high precision continuous surveillance of key hot spots	Mounted in control panels with associated reading equipment (or recorder) 1 per hot spot

- NRT: nominal running temperature.
- The NRTs are chosen according to the position of the sensor in the motor and the temperature rise class.
* The number of devices relates to the winding protection.

Fan

DETECTION OF AIR FLOWS

A pressure switch relay detects when the fan motor shuts down.
This is an air flow monitoring pressure switch; it may therefore provide sufficient protection against reduced air flow (clogged filter, partial obstruction of the air intake or outlet).
Factory adjusted, it's a uni-pole switch rated 1A at 250V. A "Faston" type connector is used.
This detector is fitted on the forced ventilation.

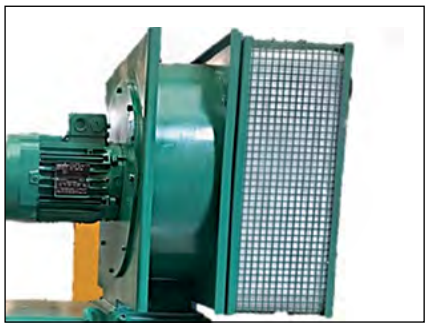


AIR FILTER

The forced ventilation unit can be fitted with a suction filter for use in a relatively dusty environment. There are two types of filter available.

Standard filter

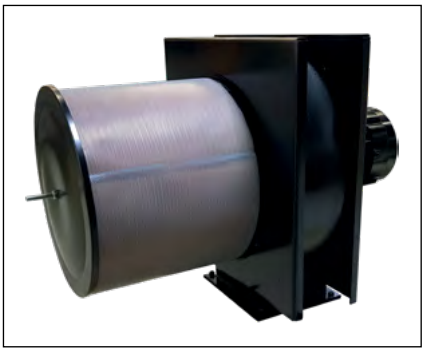
This filter is made of polyester filter elements with mean ASHRAE 52/76 gravimetric efficiency of 88%, and has very low flammability (class F1 according to DIN 53438).
It can be regenerated by brief cleaning (shaking or compressed air jet) or by complete cleaning (soaking for several hours in a bath of non-aggressive detergent then washing with clean water and drying.
A maximum of 2 or 3 washes is recommended.



Standard filter

"Miovyl" filter

This "long-life" filter is composed of polyvinyl chloride filter elements and offers optimum levels of filtration performance for industrial applications:
- mean gravimetric efficiency of 85%
- high retention capacity,
- small increase in pressure drop,
- interchangeable in a few seconds,
- built in, permanent capacity for regeneration (soaking, washing, drying).



"Miovyl" filter

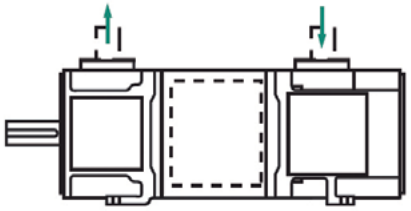
Overall dimensions of the "Miovyl" filter option

CPLS motor Size	Filter	
	diameter AJ	length RB
CPLS 112	Ø 211	155
CPLS 132	Ø 272	286
CPLS 160	Ø 272	340
CPLS 200/250	ask for estimate (quotation)	

EXTERNAL FAN IP55 / IC37

Compliance with flow rates

CPLS motor Size	Flow m^3/h	Pressure *Pa*
CPLS 112	300	600
CPLS 132	550	750
CPLS 160	1200	1500
CPLS 200	2400	1600
CPLS 250	2850	1650



Heaters

HEATING USING ADDITIONAL HEATERS (OPTION)

High humidity environments with wide temperature variations require the use of heating elements in order to prevent condensation.

These are made of tapes that are insulated using glass fibre and positioned at the head of windings. They keep the motor at an average temperature and ensure trouble-free starting by eliminating the drawbacks caused by condensation (loss of machine insulation).

These heating elements must have a voltage applied as soon as the machine stops and must be isolated during operation.
The heater supply wires are led into the motor terminal box.

CPLS motor Size	Number and power *(W)*
CPLS 112	2 x 25
CPLS 132	2 x 25
CPLS 160	2 x 25
CPLS 200	2 x 50
CPLS 250	4 x 50

Heaters are supplied with 220/240V, single phase.

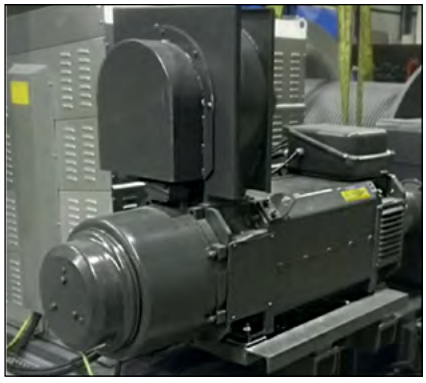
D.C. SUPPLY INJECTION HEATING

An alternative solution to heaters involves using a low voltage A.C. or D.C. supply (10 to15% of the nominal value) of the 2 phases joined in series.

This is often sufficient and avoids having to install heaters.

Other options

BRAKE OPTIONS:



The entire CPLS range can be equipped with a safety brake from the FCPL range on request (70 to 5000 N.m).

Motor max speed 3000rpm
contact Leroy Somer for higher speeds

PREPARATION FOR TORQUE-METER OPTION:

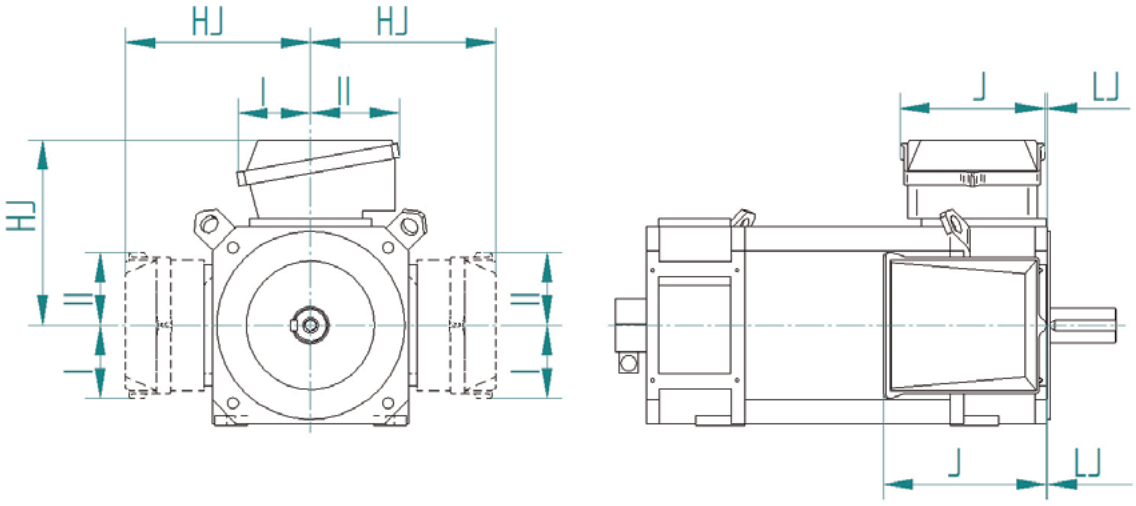
Incorporation of the fixed support and adaptation of the shaft for direct incorporation of the moving part.
Incorporation of the shaft-locking system for calibration of the torque-meter.
Torque meter not supplied by LEROY- SOMER.

CONTROL OF FAN SPEED AS A FUNCTION OF THE MOTOR TEMPERATURE:

Direct control of the fan speed as a function of the motor temperature by drive built into the terminal box ID300. (please contact LEROY -SOMER).

Terminal box and cable gland position

Dimensions in millimetres



Terminal box

Depending on the maximum rated current of the motor (I_{nom}), there are two types of terminal box fitted to the CPLS range:

Motor type	Standard terminal box ($I_N \leq I_{LIM}$)							
	I_{LIM} (A)	Mounting position	I	II	HJ	J	LJ	Terminals
CPLS 112	40	A / B / D	55	55	185	160	2	6 x M6
CPLS 132	74	A / B / D	78.5	78.5	222	194	12.5	6 x M8
CPLS 160	139	A / B / D	118	142	295	231	4	6 x M10
CPLS 200	139	A / B / D	148	180	371	292	19	6 x M10
CPLS 200	380	A / B / D	148	180	371	292	19	6 x M14
CPLS 250	380	A / B / D	148	180	420.5	292	48	6 x M14

Motor type	Expanded terminal box ($I_N \leq I_{LIM}$)							
	I_{LIM} (A)	Mounting position	I	II	HJ	J	LJ	Terminals
CPLS 112 M / L	40	B / D	63.5	122.5	211	209	0.5	6 x M8
CPLS 132 L	74	A / B / D	118	142	397	231	9.5	6 x M8
CPLS 132 S / M	74	B / D	80.5	150.5	266	260	7	6 x M8
CPLS 160 L	139	A / B / D	148	180	327	292	6	6 x M12
CPLS 160 S / M	139	B / D	86	206	330	328	4	6 x M12
CPLS 200 M / L	380	A / B / D	180	235	461	420	-45	6 x M16
CPLS 200 S	380	B / D	150	270	461	415	-15	6 x M16
CPLS 250 S / M / L	380	A / B / D	210	210	510.5	415	-16	6 x M16

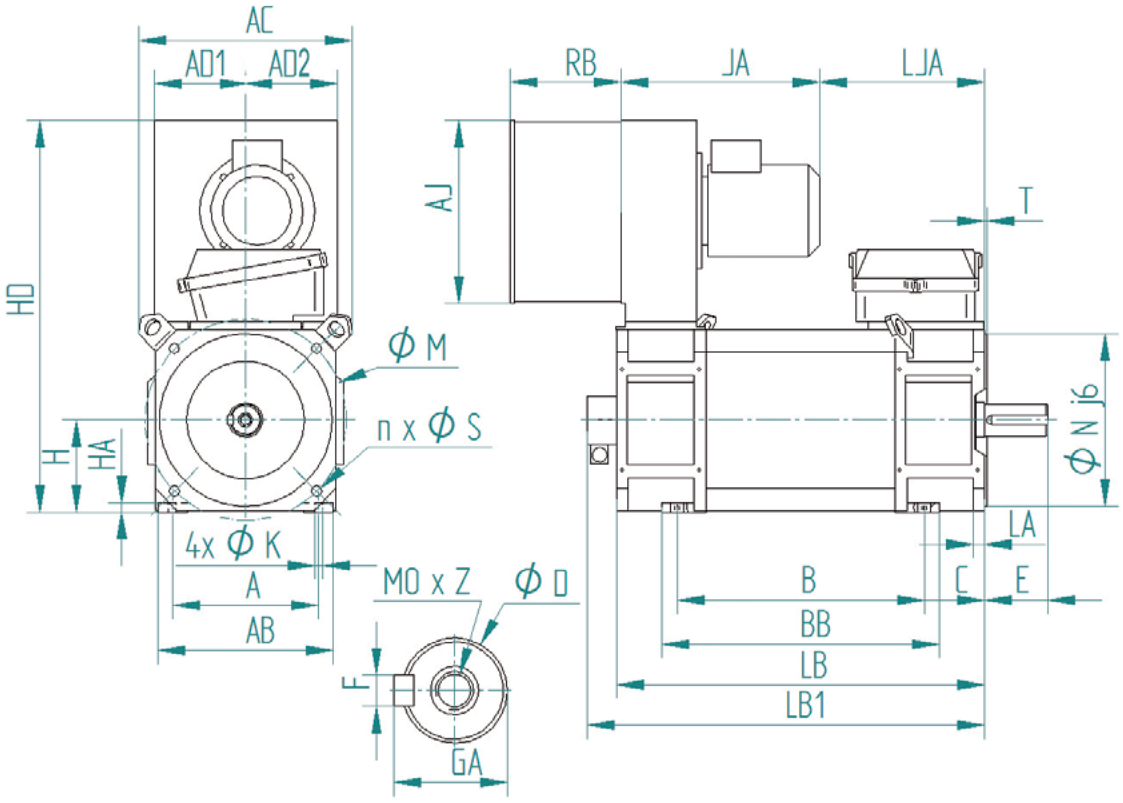
Cable glands *(not supplied as standard)*

I_{LIM} (A)	≤ 32	≤ 40	≤ 74	≤ 139	≤ 380	
Size of power cable glands	1 x M25	1 x M32	1 x M40	1 x M50	2 x M50	For I_{LIM} > 380 A, the terminal boxes supplied have a removable cable gland support plate, without holes
Size of cable glands for accessories / options *	M16	M16	M16	M16	M16	

** the number of cable glands for accessories can vary depending on the options chosen.*
If your needs are different, please state on the order (within the limit of the terminal box's capacity).

Feet, feet and flange fixing

Dimensions in millimetres



Type	Main dimensions															
	H	HA	HD	A	AB	AC	AD1	AD2	B	BB	LB	LB1	C	JA	RB	RB(4)
CPLS 112 M	112	11	482	190	216	288	110	110	290	338	416	472	70	285	150	155
CPLS 112 L	112	11	482	190	216	288	110	110	330	378	456	512	70	295	150	155
CPLS 132 S	132	11	573	216	254	330	130	130	283	329	444	488	89	310	140	309
CPLS 132 M	132	11	573	216	254	330	130	130	338	384	499	543	89	310	140	309
CPLS 132 L	132	11	573	216	254	330	130	130	418	464	579	623	89	310	140	309
CPLS 160 S	160	16	695	254	305	370	118	142	350	403	563	622	103-108(1)	387	183	340
CPLS 160 M	160	16	680	254	305	370	118	142	430	483	643	702	103-108(1)	387	183	340
CPLS 160 L	160	16	680	254	305	370	118	142	560	613	773	832	103-108(1)	387	183	340
CPLS 200 S	200	18	920	318	390	444	198	299	480	542	755	805	133-137(1)	484	165	375
CPLS 200 M	200	18	920	318	390	444	198	299	610	672	885	935	133-137(1)	484	165	375
CPLS 200 L	200	18	920	318	390	444	198	299	730	792	1005	1055	133-137(1)	484	165	375
CPLS 250 S	250	20	1040	406	495	571	207	341	618	828	967	1084	168	493(2) / 512(3)	125	332
CPLS 250 M	250	20	1040	406	495	571	207	341	728	938	1077	1194	168	493(2) / 512(3)	125	332
CPLS 250 L	250	20	1040	406	495	571	207	341	908	1118	1257	1374	168	493(2) / 512(3)	125	332

(1) oblong hole - (2) VF IE3 50Hz - (3) VF IE3 60Hz - (4) RB = Myovil filter

Type	Shaft extensions						Flanges					
	D	E	F	GA	O	Z	LA	M	Nj6	n	S	T
CPLS 112	38k6	80	10	41	12	28	11	265	230	4	14	4
CPLS 132	48k6	110	14	51.5	16	36	15	300	250	4	18	5
CPLS 160	55m6	110	16	59	20	42	20	350	300	4	18	5
CPLS 200 HV3(4)	65m6	140	18	69	20	42	20	400	350	4	18	5
CPLS 200	80m6	170	22	85	20	42						
CPLS 250 HV2 (4)	80m6	170	22	85	20	42	23	400	350	8	18	5
CPLS 250	100m6	210	28	106	24	50						

(4) Not compatible with the roller bearing fitting option

Notes

Notes

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