

➤ High Efficiency Drives



A KSB Company • KSB 

FlexiMova[®] mm – The drive system for decentralized control systems



Efficient, flexible decentralized motor control

FlexiMova® mm is REEL's new motor- or equipment-mounted drive system for efficient control of synchronous reluctance motors (REEL SuPremE®), asynchronous motors and permanent magnet synchronous motors.

This is the ideal drive for field installations, even in particularly critical environments, thanks to the elevated mechanical resistance of its structure, together with its capacitorless technology.

Its wireless interface and broad selection of the most popular types of fieldbus make it possible to create accurate and flexible control systems.

It is so easy to install that the user can get maximum performance and immediate energy efficiency advantages in the system it is installed in. Use in combination with the high-efficiency REEL SuPremE® motor for optimum energy savings.



Benefits of FlexiMova® mm

A series of immediate advantages for the user make the drive system the ideal product both for new facilities and for existing facilities which need to optimise their energy consumption and performance, as well as making their command switchboards more compact.

+ Efficient

- Typical efficiency 98% (drive efficiency class IE2 according to EN50598)
- Excellent performance in combination with the REEL SuPremE® motor

+ Decentralized

- Mounted straight onto the motor or machine
- Compact design saves space
- On-board EMC filter
- Integrated braking chopper
- Safety Torque Off (STO) integrated: SIL 3 in accordance with IEC61508 / EN61800-5-2

+ Easy to use

- Intuitive graphic interface
- Removable keyboard for programming and cloning drive systems
- Programming tool for PC with option to use IrDA interface
- Bluetooth® wireless interface

+ Flexible

- Designed for asynchronous, permanent magnet synchronous and synchronous reluctance motors (REEL SuPremE®)
- IP55 protection
- Extensive power range: from 0.37 kW to 55 kW
- Suitable for a variety of industrial automation applications

Energy saving

In combination with the REEL SuPremE[®] synchronous reluctance motor, the frequency converter FlexiMova[®] mm optimizes the system efficiency gains with a saving potential of up to 10% depending on the type of application.

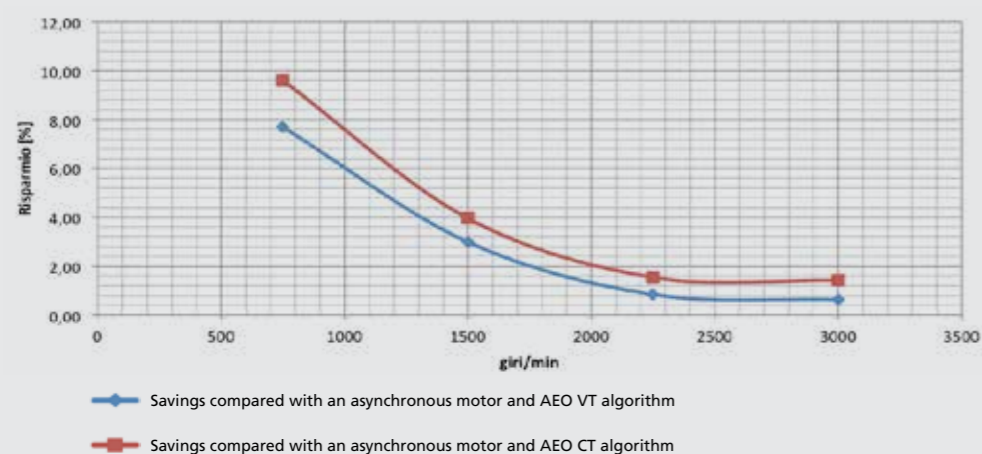
Long-term cost savings

Energy costs account for approximately one third of all life cycle cost and can be substantially reduced by controlling power input, especially with fluctuating demands.

FlexiMova[®] mm not only increases energy efficiency, but also the machine performance as the frequency converter's firmware is optimized for the control of synchronous reluctance motors, in order to achieve an optimal functioning and the highest system efficiency.

Energy saving of REEL SuPremE[®] compared to an IE3 asynchronous motor

Energy saving % measured in line



AEO VT algorithm: control algorithm with automatic flow reduction for quadratic torque systems (pumps, fans, etc.)

AEO CT algorithm: control algorithm for constant torque systems (compressors)



FlexiMova[®] mm
frequency converter



REEL SuPremE[®]
motor

A wide power range

FlexiMova[®] mm is the only decentral frequency converter with IP55 protection degree in the range from 0.37 kW to 55 kW.

The frequency converter can be installed in the entire power range on top of the REEL SuPremE[®] motors for an optimal control in terms of energy savings offered by the synchronous reluctance technology, in combination with a compact size of the whole system. The inverter can be also installed on board of the machine decentralizing the inverter position to make the use of it easier and responding to the application needs.

The possibility to decentralized the installation offers an effortless programming and a more compact machine design.



FlexiMova[®] mm family: Sizes A-B-C-D-E

Flexible, efficient solutions

The broad range, the installation flexibility and the solidity make the decentral drive FlexiMova® mm ideal to be installed for a variety of applications: from pumps and fans to complex industrial automation systems.

Always where you need it

Mounted on top of the motor, to the wall or machine, FlexiMova® mm can be positioned to meet customer requirements and conditions on site.



Motor mounting.

The frequency converter FlexiMova® mm can be mounted directly on the synchronous reluctance motor REEL SuPremE® up to 55kW, making it compatible with the constraints on site. Retrofit applications are easy, thanks to the motor fixing adapter, by eliminating the need for installation space in the control cabinet.



Wall mounting.

The inverter FlexiMova® mm can be wall-mounted in any position and orientation to allow an optimal control of the system.



Machine mounting.

Thanks to the high vibration resistance (1.8 g), the frequency converter FlexiMova® mm can be easily placed on board of the machine, in any position and orientation, making the drive programming and the access to the device much easier.

Very convenient with the easiest installation

- Pre-set at the factory
- Optionally integrated master switch for disconnection of the inverter from the power supply
- The display can be removed and rotated by 180 degrees
- Intuitive graphic interface
- IrDA interface for easy programming

A solid housing

- Housing realized in metal for the application in harsh environment
- Protection rating IP55
- Resistance to vibrations up to 1.8 g

for every application



Food industry

- Packaging lines
- Refrigeration units



Steel industry

- Roller conveyors
- Processing ovens
- Cooling and lubricating stations
- Processing and finishing lines
- Slitting lines
- Small paint shops



Chemical, textile and paper industries

- Coating lines
- Resining lines
- Coupling lines
- Non-woven fabric lines
- Printing lines



General-purpose industrial automation tasks

- Transport lines
- Conveyors
- Roller conveyors
- Storage and retrieval machine



Rubber and plastics industry

- Printing lines
- Processing lines for round/flat materials



Wine industry

- Pump units
- Refrigeration units
- Mobile pumps
- Hi-tech processing and packaging plants

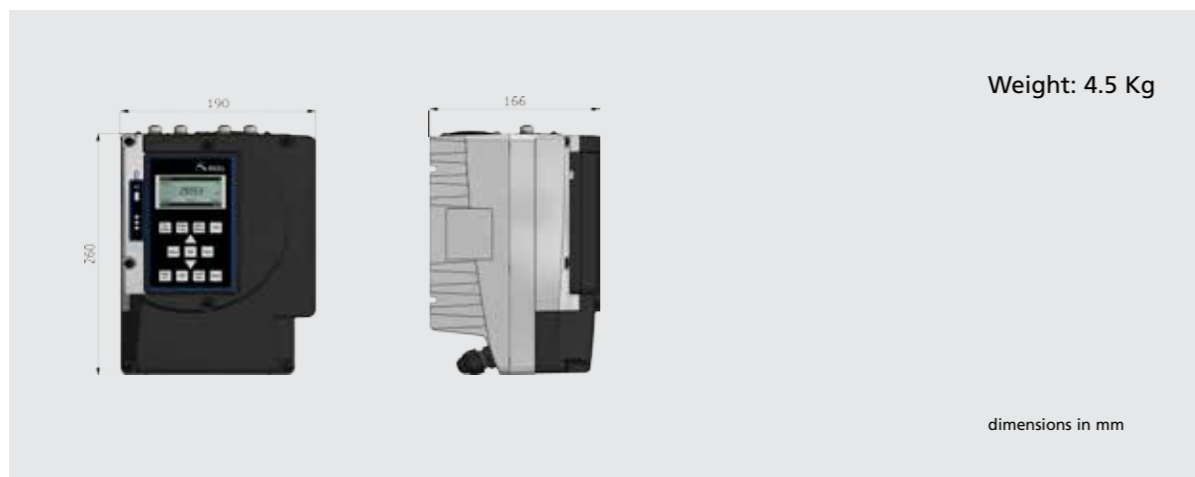
Range of powers and functions

Features		FlexiMova® mm																	
		Size A					Size B				Size C			Size D				Size E	
Code		F0K37	F0K55	F0K75	F1K10	F1K50	F2K20	F3K00	F4K00	F5K50	F7K50	F11K0	F15K0	F18K5	F22K0	F30K0	F37K0	F45K0	F55K0
Electrical data	Typical Power of Motor (kW)	0,37	0,55	0,75	1,1	1,5	2,2	3,0	4,0	5,5	7,5	11,0	15,0	18,5	22,0	30,0	37,0	45,0	55,0
	Nominal Current (A)	1,3	1,8	2,5	3,5	4,9	6,0	8,0	10,0	14,0	18,0	26,0	34,5	44,0	51,0	68,0	84,0	101,0	120,0
	Three-phase 400V (380-500) and overload current																		
	Continuous Current in Ampère (OL 110% 180/300sec)	1,2	1,6	2,3	3,3	4,6	5,7	7,5	9,5	13,2	17,0	24,5	32,5	42,0	48,0	64,0	79,0	95,0	113,0
	Continuous Current in Ampère (OL 150% 60/300sec)	1,1	1,5	2,2	3,1	4,4	5,3	7,1	8,9	12,5	16,2	23,0	31,0	39,0	46,0	61,0	75,0	90,0	107,0
Maximum current available (A)	2,0	2,7	3,8	5,3	7,4	9,0	12,0	15,0	21,0	27,0	39,0	51,8	66,0	76,5	102,0	126,0	151,5	180,0	
Regulator performance	Maximum output frequency	500 Hz																	
	Switching frequency range	2 -4 - 8 -12 - Default 8 kHz																	
	Current loop update (@ 12 kHz)	83 µs																	
Motor Control Mode	V/f control	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Open-loop vector control	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Closed-loop vector control *	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Open-loop brushless control*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Closed-loop brushless control*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Sensorless reluctance control	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	IPM reluctance control*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Reluctance control with feedback device*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Integrated communication	Modbus RTU	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	IrDA interface	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bluetooth*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Integrated safety	Safety STO (SIL3)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Slot 1: Fieldbus	Modbus RTU	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Slot 2: Fieldbus	Profibus FX-Profibus	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt
	ProfiNet FX-Profinet	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt
	Modbus TCP* FX-Modtcp	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt
	EtherCAT* FX-Ethercat	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt
Slot 3: Expansion card	I/O expansion card FX-I/O-A	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt
	I/O expansion card FX-I/O-B	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt
	I/O expansion card FX-I/O-C	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt
	Speed feedback card FX-FDB-A*	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt	opt
Auxiliary power	Backup 24Vcc	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Parameter backup	On the keyboard, with possibility of cloning	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Programming keyboard	Grafic, IP55 FX-LCP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
User programming tool	Available for Windows	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bluetooth connection or optional fieldbus*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

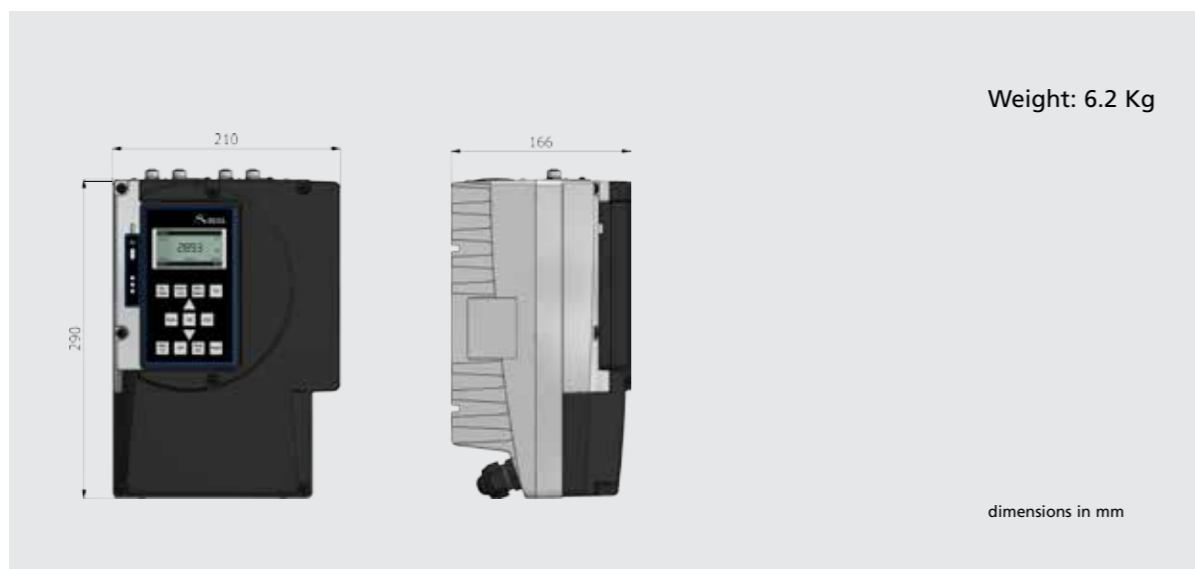
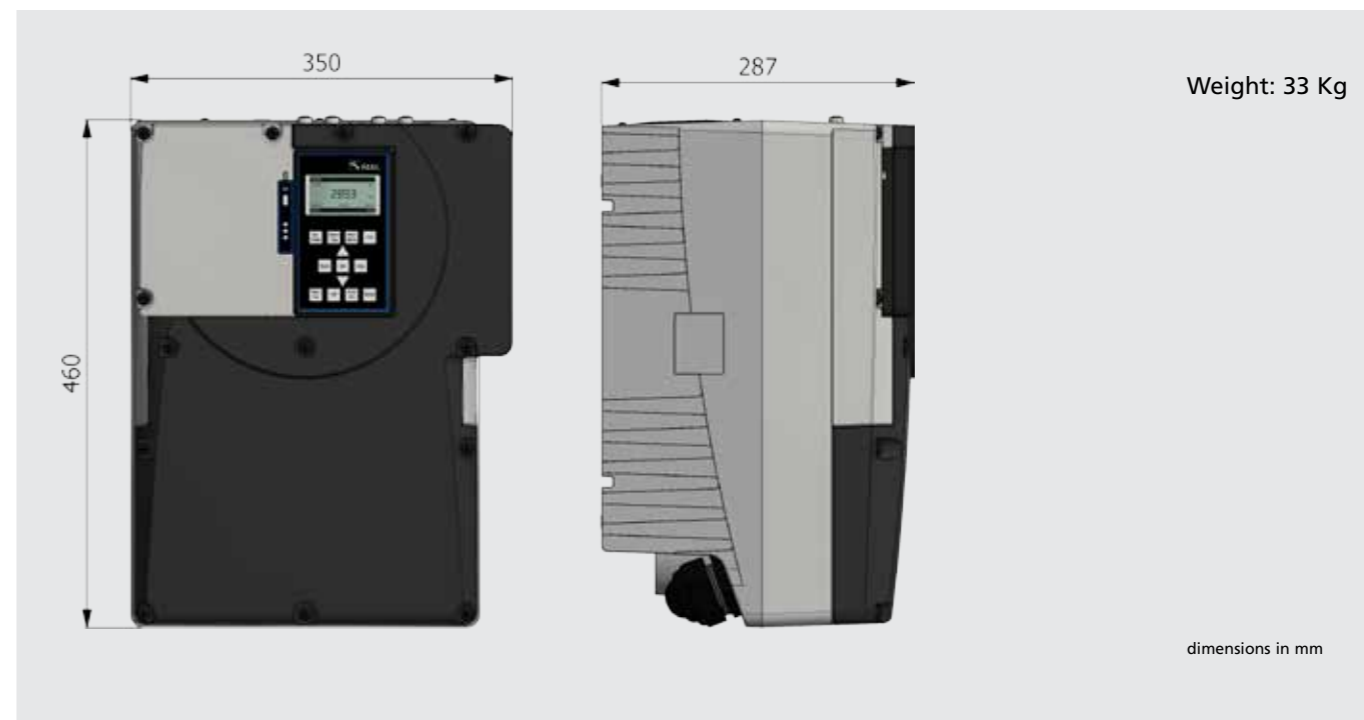
* available in future

Sizes and dimensions

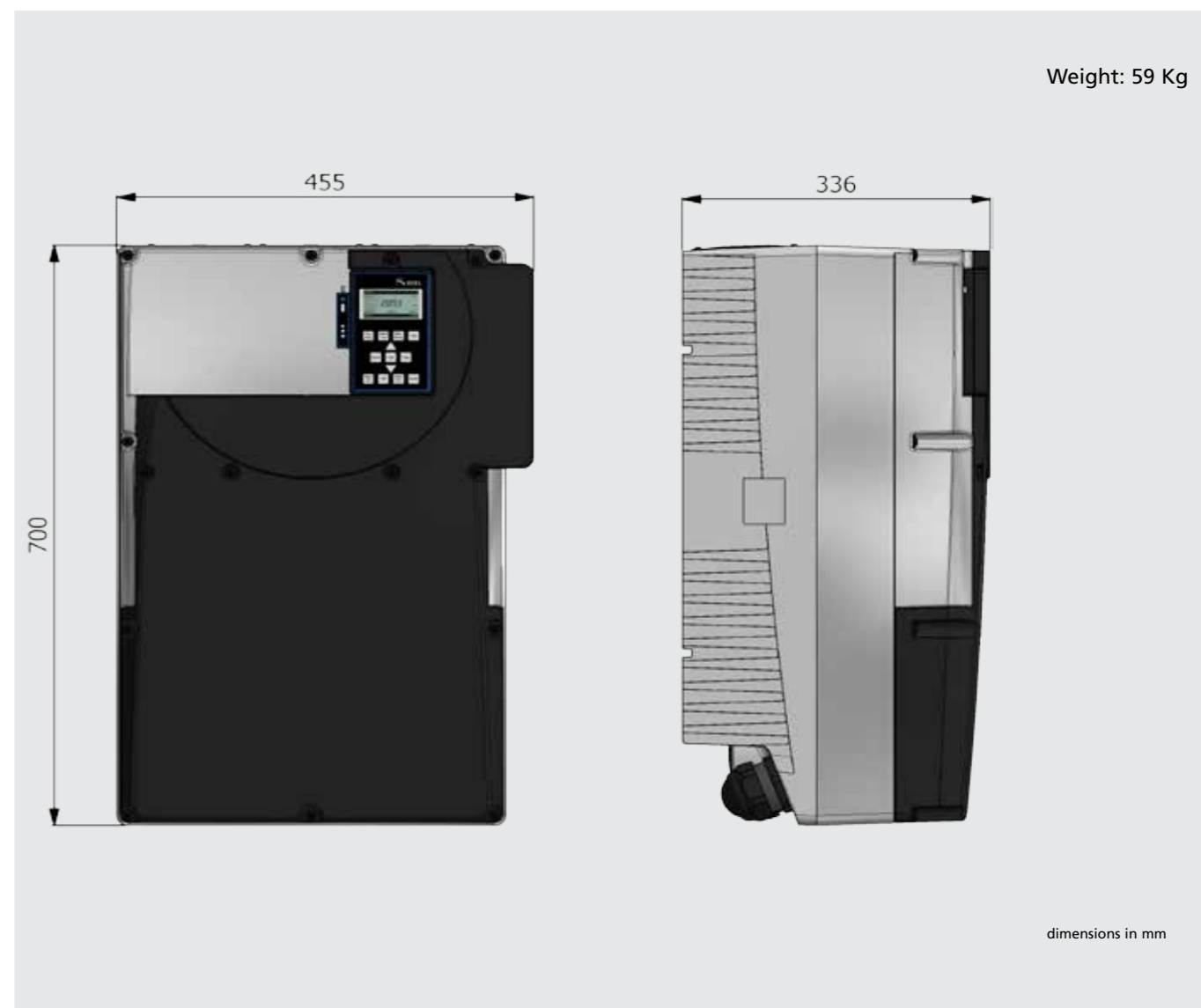
Size D



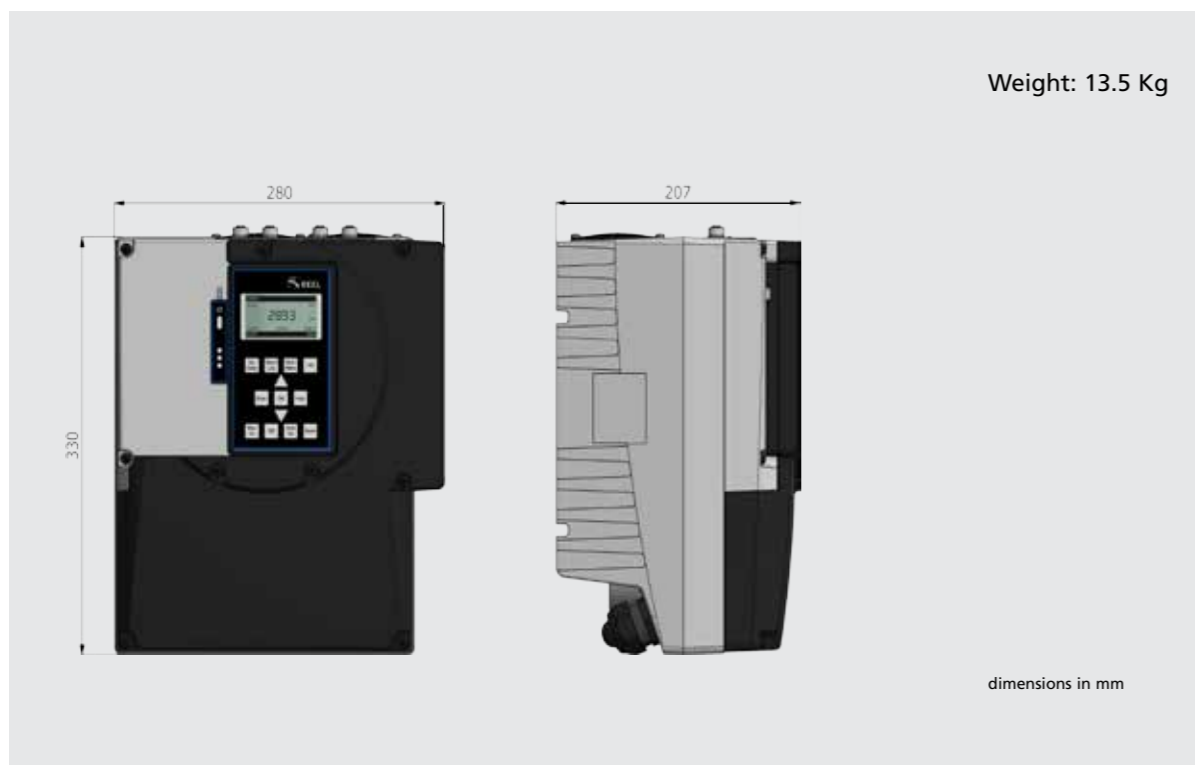
Size A



Size B



Size E



Size C

Broad power range

From 0.37 kW to 55 kW
with IP55 protection.

**Capacitorless technology**

Use of film capacitors*
for longer drive system life.



* version with electrolytic capacitors available
as option

Efficient

With its typical efficiency of 98%, it enables
extremely high efficiency levels also in
combination with
REEL SuPremE®.

**Control flexibility**

Suitable for controlling various types of motor:

- synchronous reluctance motors
- asynchronous motors
- permanent magnet synchronous motors



FlexiMova® mm mounted on
the REEL SuPremE® synchronous
reluctance motor

Remote drive

With its compact design, FlexiMova® mm can be
installed either straight onto the motor or
on the machine, without affecting system
reliability.

**Simple and quick to program using the wireless function**

FlexiMova® mm

- is equipped with IrDA interface
- can be programmed via Bluetooth

FlexiMova® mm can be programmed either using
the REEL Pro tool on the PC („Reel PRO“, availa-
ble on the website www.reel.it) or the optional
display.

Robust

High vibration resistance:

- Size A - B - C: 1.8 g
- Size D - E: 1 g



Options

Options installable on Slot 1: Fieldbus

Fieldbus card - Modbus

FX-Modbus

The Modbus RTU protocol is available on the card FX-Modbus with interface RS485.

Allows to configure and supervision the converter both using standard Master Modbus and the REEL PC tool named „Reel PRO“.

Options installable on Slot 2: Fieldbus

Fieldbus card - Profibus

FX-Profibus

Getting the frequency converter to function via a fieldbus will enable you to reduce system costs, to communicate quickly and efficiently and to take advantage of a simpler user interface.

The optional card FX-Profibus provides:

- Broad compatibility for main PLC models.
- Rapid and efficient communication, diagnostics, advanced parameter setting and process data autoconfiguration via the GSD file.
- Cyclic exchange designed for standard telegrams PROFIdrive or with a user-customized configuration.

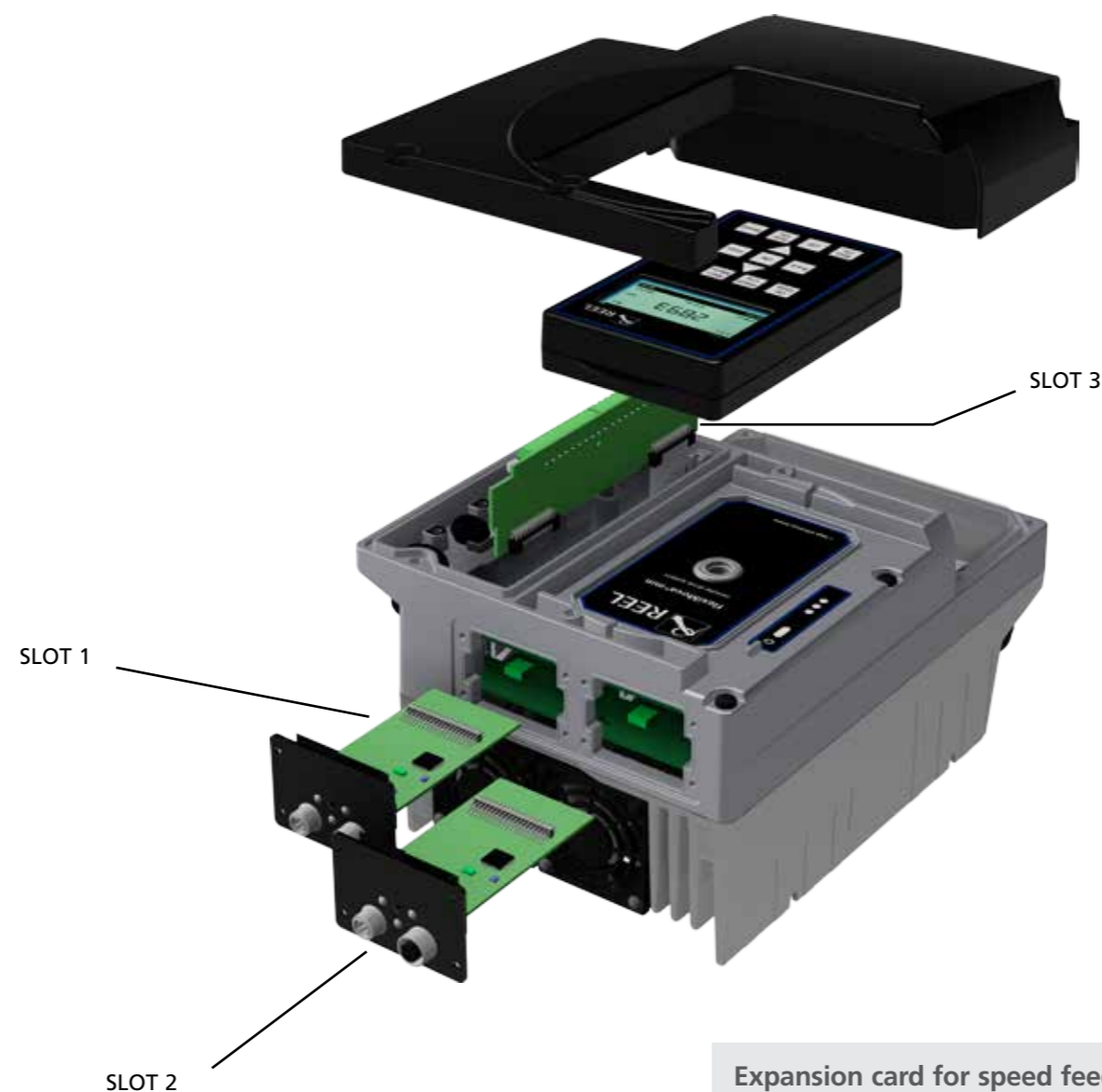
Fieldbus card - Profinet

FX-Profinet

The card FX-Profinet enables the frequency converter to be integrated without any limitations into a shared Ethernet network with TCP/IP.

The main advantages of the interface on the frequency converter are as follows:

- High-performance integrated switch makes it possible to develop both line and star topology, thus eliminating the need for external switches.
- Cyclic exchange designed for standard telegrams PROFIdrive or with a user-customized configuration.



Options installable on Slot 3: Expansion cards

I/O expansion cards

If the number of hardware inputs and outputs needs to be increased, an expansion card can be installed on the FlexiMova® mm.

The expansion cards installable on Slot 3 can be ordered and installed only when ordering the converter.

FX-I/O-A

The card has 3 digital inputs, 8 digital outputs, 1 analog input, 1 analog output.

In details:

- 1 configurable differential analogue input +/- 10V, 0/4-20mA o PT1000, 11 bit + sign
- 1 configurable analogue output, 0/2-10V, 4-20mA, accuracy 2% f.s.
- 3 configurable opto-isolated digital inputs, 24V PNP
- 2 configurable digital outputs, 24V PNP
- 1 relay output with change-over contact 30Vdc 3A – 240Vac 0,25A
- 5 relay outputs with NO contact 30Vdc 3A – 240Vac 0,25A

FX-I/O-B with Modbus RTU

The card is equipped with fieldbus and digital inputs.

In details:

- 1 RS485 communication port with Modbus RTU protocol
- 3 configurable opto-isolated digital inputs, 24V PNP

FX-I/O-C with Modbus RTU and relay outputs

The card is equipped with fieldbus, digital inputs and relay outputs.

In details:

- 1 RS485 communication port with Modbus RTU protocol
- 3 configurable opto-isolated digital inputs, 24V PNP
- 1 relay output with change over contact 30Vdc 2A – 240Vac 0,2A
- 2 relay outputs with NO contact 30Vdc 0,5A – 240Vac 0,5A
- 3 relay outputs with NO contact 30Vdc 2A – 240Vac 0,2A

Expansion card for speed feedback

FX-FDB-A

This card improves the motor speed control performance through the use of a Line Driver encoder or a resolver.

The devices that can be connected are:

- 1 TTL or Push/Pull HTL Line Driver encoder, max frequency 250 kHz
- or
- 1 Resolver with programmable resolution from 10 to 16 Bit

In addition the card is provided with

- 2 outputs, 1 for encoder Push/Pull 0÷24V simulation and 1 for Line Driver TTL encoder.

Power options



for sizes A-B-C:
external box

Capacitor kit

FX-CAPACITOR

In the event of installations in environments with particularly unstable power lines, the capacitor kit limits the effects of the power-line faults.

- Provided as an external box for sizes A - B - C, mounting kit included
- For sizes D -E, installed straight onto the drive

for sizes D-E:
integrated



Master switch

FX-DISCONNECTOR

Optionally integrated master switch for disconnection of the drive from the power supply and protection against unintentional start-up.

Accessories



Graphic Local Control Panel

FX-LCP

The Local Control Panel (LCP) provides a user interface solution with information in numerical and graphic form.

- Multi-language display
- Status messages
- Data cloning function*
- Parameter setting with online help function
- Local start and stop commands
- Setpoint function settings.
- Alarm history
- Reset function

*available in future

Remote LCP

FX-LCP remoting kit

The Local Control Panel (LCP) can be removed and placed away from the drive through proper kit (cable and fastening).

Standard version



Version with LCP

with optional Modbus RTU IP55 on Slot 1



Service Adapter per drive programming

FX-PROGRAMMING INTERFACE

The access to the drive programming is easy and intuitive. The IrDA programming interface allows the drive programming even if already connected to the power supply, without the need to take apart covers and thus ensuring the IP55 protection. With the programming tool „Reel PRO“ (available on www.reel.it) installed on the pc, you can access, save and load the drive configuration, activate the datalogger and update the product firmware.

Ordering codes

Position	Description	1	2	3	4	5	6	7	8	9	10	11	12
Position 1	FlexiMova® mm	F											
Position 2 to 5	Letter												
	Number, number, letter, number (15K0 for 15 kW)		1	5	K	0							
	Size												
	Number, letter, number, number (0K75 for 0,75 kW)		0	K	7	5							
	Number, letter, number, number (7K50 for 7,5 kW)		7	K	5	0							
Position 6	Optional fieldbus card Modbus RTU on Slot 1												
	X= No optional fieldbus card							X					
	A= Optional Fieldbus card Modbus RTU FX-Modbus												
Position 7	Optional fieldbus card on Slot 2												
	X= No optional fieldbus card												
	A= Optional Fieldbus card Profibus FX-Profibus												
	B= Optional Fieldbus card ProfiNet FX-Profinet												
	C= Optional Fieldbus card Modbus TCP FX-Modtcp ¹⁾												
	D= Optional Fieldbus card EtherCAT FX-Ethercat ¹⁾												
Position 8	Optional fieldbus card on Slot 3 ²⁾												
	X= No optional fieldbus card												
	A= Speed feedback optional expansion card FX-FDB-A												
	B= I/O optional expansion card FX-I/O-A												
	C= I/O optional expansion card FX-I/O-B with fieldbus Modbus RTU												
	D= I/O optional expansion card FX-I/O-C with fieldbus Modbus RTU & relay outputs												
Position 9	Local Control Panel (LCP)												
	X= No control panel												
	A= Local Control Panel IP55 FX-LCP												
Position 10	Mounting arrangements												
	X= Standard, stand-alone without fixing kit												
	A= Standard, stand-alone with fixing kit included in the box												
	B= With adapting kit for REEL SuPremE® motor ³⁾												
	C= Mounted and delivered on REEL SuPremE® motor ⁴⁾												
	D= As option A + capacitor kit FX-CAPACITOR ⁵⁾												
	E= As option B + capacitor kit FX-CAPACITOR ⁵⁾												
	F= As option C + capacitor kit FX-CAPACITOR ⁵⁾												
Position 11	Power options and special versions												
	X= No option												X
	A= With mains disconnecter FX-DISCONNECTOR												
Position 12	HW/FW versions and personalizations												
	X= most recent firmware / hardware standard version												X
	(A,B,C.. 1,2,3..) = personalized version, contact REEL ⁶⁾												

¹⁾ Available in future
²⁾ Orderable and installable only during production phase
³⁾ Order also the adapting kit and the REEL SuPremE® motor of corresponding size
⁴⁾ Order also the REEL SuPremE® motor of corresponding size, according to „Motor table“ on following page
⁵⁾ For sizes D - E, the capacitor kit can be ordered and installed only during production phase
⁶⁾ Letter Z indicates a product with prototype firmware/hardware version, not released for sales yet

Options names

Optional fieldbus on Slot 1	
Modbus RTU	FX-Modbus
Optional fieldbus on Slot 2	
Profibus	FX-Profibus
ProfiNet	FX-Profinet
Modbus TCP*	FX-Modtcp
EtherCAT*	FX-Ethercat
Optional expansion cards on Slot 3	
Speed feedback expansion card A*	FX-FDB-A
I/O expansion card A	FX-I/O-A
I/O expansion card B with Modbus	FX-I/O-B
I/O expansion card C with Modbus and relay outputs	FX-I/O-C

Accessories	
IP55 Local Control Panel (LCP)	FX-LCP
Remoting kit for LCP	FX-LCP remoting kit
Service adapter for programming	FX-PROGRAMMING INTERFACE
Power options	
Capacitor kit	FX-CAPACITOR
Mains disconnecter	FX-DISCONNECTOR

* Available in future

Table of REEL SuPremE® motors arranged for the mounting of FlexiMova® mm

FlexiMova® mm	REEL SuPremE® motor											
	IM B3						IM V1					
	1500 rpm			3000 rpm			1500 rpm			3000 rpm		
Model	Motor code	kW	Model	Motor code	kW	Model	Motor code	kW	Model	Motor code	kW	Model
F0K37	-	-	-	-	-	-	-	-	-	-	-	-
F0K55	1639884	0,55	80M	1639900	0,55	71M	1639820	0,55	80M	1639804	0,55	71M
F0K75	1639915	0,75	80M	1639899	0,75	80M	1639819	0,75	80M	1639803	0,75	80M
F1K10	1639914	1,1	90S	1639898	1,1	80M	1639818	1,1	90S	1639802	1,1	80M
F1K50	1639913	1,5	90L	1639897	1,5	90S	1639817	1,5	90L	1639801	1,5	90S
F2K20	1639912	2,2	100L	1639896	2,2	90L	1639816	2,2	100L	1639800	2,2	90L
F3K00	1639911	3,0	100L	1639895	3,0	100L	1639815	3,0	100L	1639799	3,0	100L
F4K00	1639910	4,0	112M	1639894	4,0	112M	1639814	4,0	112M	1639798	4,0	112M
F5K50	1639909	5,5	132S	1639893	5,5	132S	1639813	5,5	132S	1639797	5,5	132S
F7K50	1639908	7,5	132M	1639892	7,5	132S	1639812	7,5	132M	1639786	7,5	132S
F11K0	1639907	11,0	160M	1639891	11,0	160M	1639811	11,0	160M	1639785	11,0	160M
F15K0	1639906	15,0	160L	1639890	15,0	160M	1639810	15,0	160L	1639784	15,0	160M
F18K5	1639905	18,5	180M	1639889	18,5	160L	1639809	18,5	180M	1639783	18,5	160L
F22K0	1639904	22,0	180L	1639888	22,0	180M	1639808	22,0	180L	1639782	22,0	180M
F30K0	1639903	30,0	200L	1639887	30,0	200L	1639807	30,0	200L	1639781	30,0	200L
F37K0	1639902	37,0	225S	1639886	37,0	200L	1639806	37,0	225S	1639780	37,0	200L
F45K0	1639901	45,0	225M	1639885	45,0	225M	1639805	45,0	225M	1639779	45,0	225M
F55K0	1639901	45,0	225M	1639885	45,0	225M	1639805	45,0	225M	1639779	45,0	225M

Note: Further combinations and variants upon request

The products illustrated as examples are partly fitted with options and accessories incurring a surcharge. The SuPremE motors are painted in blue colour RAL 5002 as standard and can be delivered with KSB label as well. The colour RAL 1036 (pearl gold) is available as option on request.



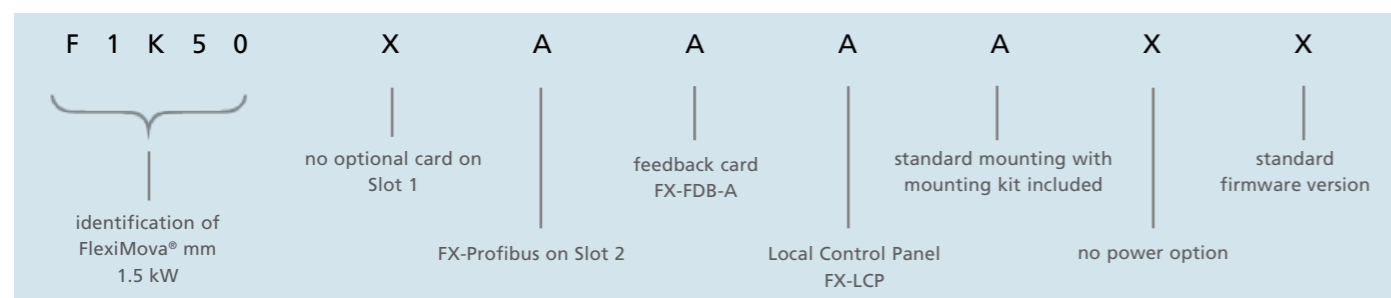
FlexiMova® mm mounted on top of REEL SuPremE® motor

Examples of identification of the ordering code

1) To order a FlexiMova® mm frequency converter, nominal power 1.5 kW equipped with:

- optional fieldbus card FX-Profibus on Slot 2
- feedback optional card FX-FDB-A on Slot 3
- IP55 local control panel FX-LCP
- newest standard firmware version

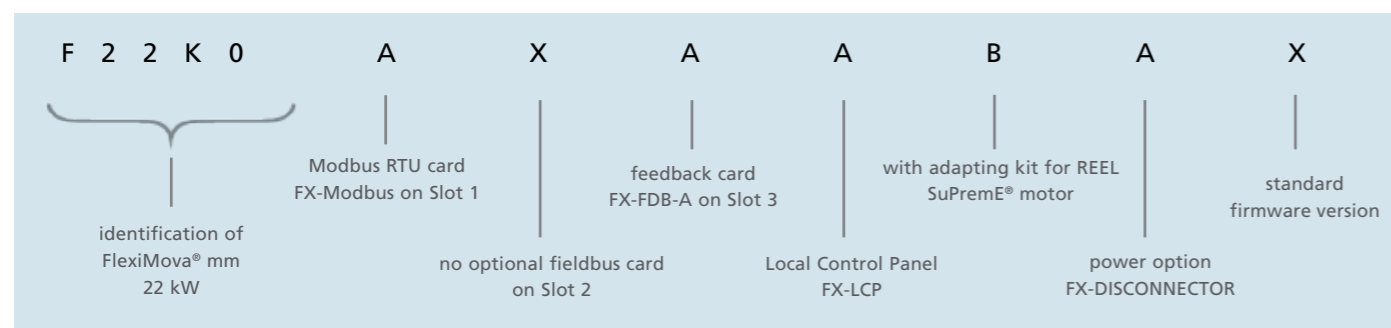
to be mounted on board of the machine for the control of a standard asynchronous motor (with the suitable mounting kit), without any personalization, use the following code:



2) To order a FlexiMova® mm frequency converter, nominal power 22 kW equipped with:

- IP55 local control panel FX-LCP
- mains disconnecter FX-DISCONNECTOR
- Modbus RTU on slot 1 FX-Modbus
- feedback optional card FX-FDB-A

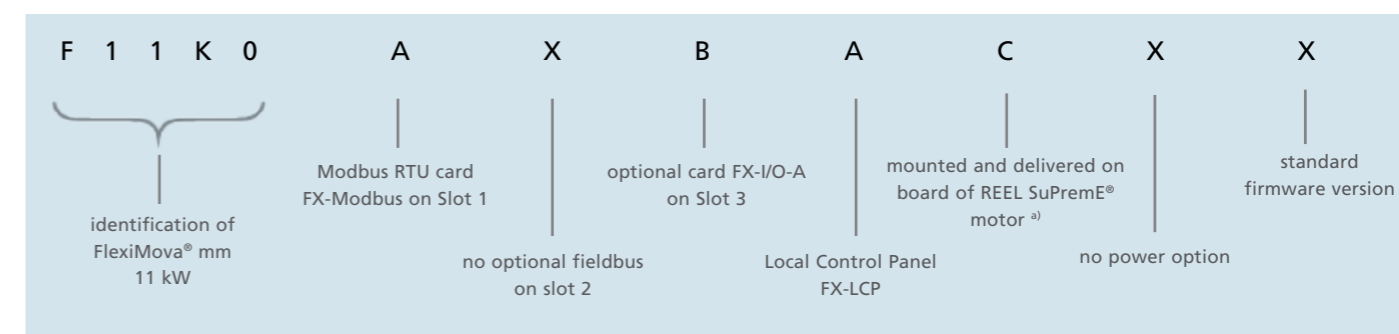
to be mounted on top of REEL SuPremE® motor already installed in the plant, without any personalization, use the following code:



3) To order a FlexiMova® mm, nominal power 11 kW equipped with:

- IP55 local control panel FX-LCP
- Modbus RTU on slot 1 FX-Modbus
- I/O optional expansion card FX-I/O-A

to be mounted on top of the REEL SuPremE® motor provided with adapting plate for FlexiMova® mm, without any personalization, use the following code:



¹⁾ To order the REEL SuPremE® motor suitable for the frequency converter FlexiMova® mm, indicate to REEL the code of the corresponding SuPremE motor as per table on page 19.



Technical data

Power (L1, L2, L3)	
Supply voltage	3 x 380 - 480 V AC..... 0.37 - 55 kW
Supply frequency	50/60 Hz
Unit power factor (cos φ)	> 0.98
Harmonic disturbance	compliant with EN 61000-3-5 for drives with nominal current of up to 16 A EN 61000-3-12 for drives with nominal current of over 16 A
Efficiency class	IE2 according to EN50598
Output (U, V, W)	
Output voltage	0 – 95% of supply voltage in the standard version 0 – 100% of supply voltage with the Capacitor Kit
Output frequency (according to power)	0-500 Hz
Ramp times	0.1 – 600 sec.
Maximum current overload	150% In
Digital inputs	
Programmable digital inputs	4 (1 programmable pulse input @100 kHz, 2 inputs reserved for STO)
Maximum voltage at programmable inputs	30 V DC
Input resistance, Ri	Approx. 2 kΩ
Scan time	1 ms
STO: Safe Torque Off	SIL 3 acc. IEC61508 / EN61800-5-2) ¹⁾
Analogue inputs	
Analogue inputs	2
Mode	Voltage or current
Voltage	from 0 to +/-10 V (scalable)
Current	from 0/4 to 20 mA (scalable)
Precision of analogue inputs	Max. Error: 1% of full scale 11bit + sign
Scan time	1 ms
Pulse inputs (included in digital inputs)	
Programmable pulse inputs	1
Voltage	30 V DC
Precision of pulse inputs (0.1 – 100 kHz)	Max. Error: 0.1% of full scale
Digital / analogue outputs	
Programmable pulse output (alternative to current or voltage output)	1
Output voltage in frequency	0 – 24 V DC
Maximum output current (PNP or NPN)	40 mA
Maximum output frequency at output frequency	from 0 to 100 kHz
Accuracy of frequency output	Max. Error: 0.01% of full scale
Programmable analogue output (alternative to pulse output)	1
Current field analogue output	0/4 – 20 mA or 0 / +10 V DC
Total minimum load of analogue outputs compared to common (terminal 30)	500 Ω
Accuracy of analogue output	Max. Error: 2% of full scale

Scheda di controllo	
IrDA interface	SIR 115.2 kbit / sec.
24 VDC User Output	Maximum load 500 mA (150 mA per canal)
Relay outputs	
Programmable relay outputs	2
Maximum resistive load	240V AC: 200 mA 30V DC: 2A
Voltage applicable	0 – 30 V DC 0 – 220 V AC 0 - 110V AC for UL
Environment	
Protection	IP55 Type 12 (Indoor)
Vibration resistance	Sizes A - B - C: 1.8 g, 10-500 Hz Sizes D - E: 1 g, 10-500 Hz
Maximum relative humidity	5% – 95%
Ambient temperature	Up to 40° C (50°C with derating)
Galvanic isolation	I/O supplies according to PELV
Fieldbus	
Optionally, can be installed on Slot1	Modbus RTU ProfiBus DP V0 ProfiNet EtherCAT* Modbus TCP*
Optionally, can be installed on Slot 2	
Options for I/O expansion	
Optionally, can be installed on Slot 3	Expansion card: FX-I/O-A Expansion cards with Modbus RTU: FX-I/O-B e FX-I/O-C
Feedback options	
Optionally, can be installed on Slot 3	Feedback card FX-FDB-A Encoder Line Driver - Resolver - Encoder simulation*
Protections	
<ul style="list-style-type: none"> Electronic thermal protection of the motor in the event of overload with PTC or klixon Thermal monitoring of the radiator and environment inside the drive ensures that the frequency converter is protected in the event of overheating The frequency converter is protected from short circuits on the motor terminals U, V, W and from a short circuit to earth Protection against phase failure 	
Opzioni di potenza	
For using the frequency converter in critical applications or networks:	Capacitor kit FX-CAPACITOR Mains disconnecter FX-DISCONNECTOR Additional line input inductance ²⁾ dU/dt filter ²⁾ Sinusoidal filter (LC filter) motor output ²⁾

* Available in future

¹⁾ For more information, read the STO instructions

²⁾ Available upon request



REEL

High Efficiency Drives



Surf the website -- www.reel.it --

and download the documentation of FlexiMova® mm and of other REEL products





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