

**SYSTEMS & SOLUTIONS FOR MOTION CONTROL**



BRUSHLESS MOTORS with integrated drive  
**IBD**



*CMZ engineers and manufactures electronic systems for industrial motion control.*

*The company targets to OEMs and systems integrators for the co-development of automatic machines featuring a deep level of customization in multi axis motion. The result: high performing machines with unique, special features.*

*Established in 1976 focusing on controllers, today CMZ offers a complete portfolio of solutions including the systems design, the electronics programming, the development of ready-to-use application libraries and ad-hoc softwares, alongside a wide selection of master controllers IEC61131 up to 99 axis, integrated and stand-alone drives, brushless and stepper motors up to 120 Nm strictly compact and Made in Italy, peripherals and I/O modules both digital and analogic, integrated vision systems based on machine learning technology, HMI operator panels.*

*CMZ's high technological and safety standing is based on its team of 70 technicians and engineers. The systems realized to date in its plant count over 125,000 units.*

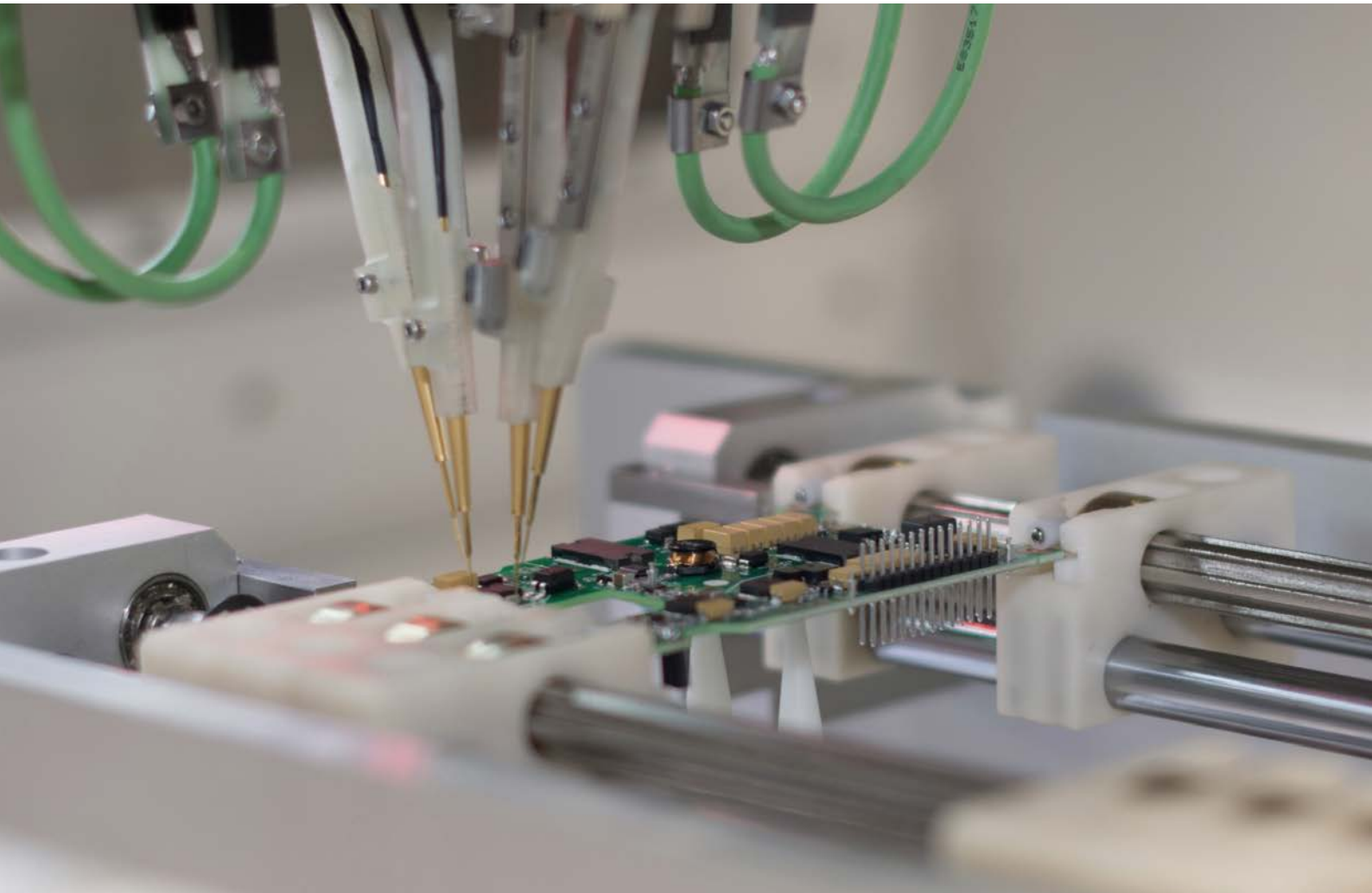
*CMZ is part of SOGA ENERGY TEAM industrial group operating in energy, motion and control since 1966.*

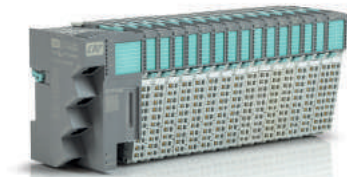
CMZ sviluppa e realizza sistemi elettronici e soluzioni per il motion control industriale.

L'azienda si rivolge a OEMs e system integrators per la co-progettazione di macchine automatiche dotate di funzionalità personalizzate e speciali nella movimentazione degli assi. Il risultato: macchine ad alta performance e dalle caratteristiche uniche.

Fondata nel 1976 con focus sui controllori, oggi CMZ offre un portfolio integrale di soluzioni che include la progettazione dei sistemi, la programmazione dell'elettronica, lo sviluppo di librerie applicative ready-to-use e pacchetti software ad-hoc, affiancati a un'ampia scelta di controllori IEC 61131 programmabili fino a 99 assi, azionamenti integrati e stand-alone, motori brushless e passo-passo fino a 120 Nm rigorosamente compatti e Made in Italy, periferiche e moduli I/O digitali e analogici, sistemi di visione integrata con tecnologia machine learning, pannelli operatore HMI.

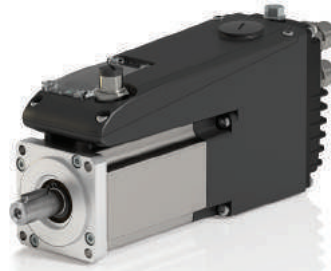
L'elevato standing tecnologico e di sicurezza di CMZ si basa su un team di 70 tecnici e ingegneri. I sistemi realizzati fino ad oggi nel sito produttivo dell'azienda sono oltre 125.000. CMZ fa parte del gruppo industriale SOGA ENERGY TEAM, attivo dal 1966 a livello internazionale nei settori power generation, motion e control.





### Master controllers

FCT640 modular  
basis, 04, 08, 16, >16 axes  
FCT200 8 axes motion controller  
FCT300 99 axes motion controller



### Brushless motors & drives

LBD Brushless Drive 230-400V  
EASY Brushless Drive 230V  
MMB Servo motors  
IBD Integrated Brushless Drive  
NBD Drive for brushless and linear motors



### Stepless motors & drives

ISD Integrated Stepless Drive  
SVM Stepless drive  
MM Stepless motors



### Peripherals

CANopen & EtherCAT modules  
I/O modules



### HMI

PT2 Touch screen operator panels



### Custom Products

Design and engineering service  
upon customer's specifications



### Solutions

Solution for OEMS  
New Integrated Vision

# RANGE OF PRODUCTS *GAMMA PRODOTTI*

# IBD

Brushless  
motors & drives  
integrated and Near by

## • IBD size 60 mm

- Decentralized architecture with reduced wiring
- Programmable according to the standard IEC61131
- Maximum power concentration in a small size
- Architettura decentrata con cablaggio ridotto
- Programmabile secondo lo standard IEC61131
- Massima concentrazione di potenza in poco spazio

### HARDWARE FEATURES

#### Power supply

275 ÷ 730 Vdc (560 Vdc nominal)

#### Control supply

24Vdc

#### Continuous torque

M0=1,22 Nm

#### Rated speed

Vn=3000 rpm

#### Feedback

HIPERFACE absolute encoder single or multiturn

#### On board inputs

3 digital inputs PNP 24V

2 digital outputs PNP 24V

1 programmable input/output PNP 24V

#### Interface

EtherCAT, CANopen

#### Safety

STO 2 channels, SIL3 (pending)

#### Protection

IP65

**Certifications:** CE, UL (Drive UL+Motor UL)

### FUNCTIONAL FEATURES

#### Stand alone programmability

according to the standard IEC61131,

#### Integrated movement features

device profile DS402, interpolated mode, positioning, extended gearing function, homing, capture

#### Capture input

PC parametrization tool

#### Protection

I2t, Overload, Short circuit, Overtemperature, Overvoltage



**NEW**  
product

**daisy chain**  
version

- IBD SIZE 80, 100, 142, 190 mm

## HARDWARE FEATURES

### Power supply

Nominal 560Vdc (min 275Vdc max 740Vdc)

### Control supply

24Vdc

### Continuous torque

M0 3 Nm, 6 Nm, 15 Nm, 30 Nm

### Rated speed

Vn=3000 rpm

### Feedback

HIPERFACE absolute encoder single or multiturn

### On board I/O's

6 digital IN 24Vdc general purpose, configurable as:

PSTOP, NSTOP, Enable, Home, Capture, Step/Direction

3 digital OUT 24Vdc 250mA, general purpose

1 digital IN/OUT 24Vdc with configurable function

3 differential I/O's configurable as master incremental encoder

1 Analogue IN +/-10V

### Interface

EtherCAT, CANopen

### Safety

STO 2 channels, SIL3 (pending)

### Protection

IP65

### Option

Motor brake

**Certifications:** CE



## FUNCTIONAL FEATURES

### Stand alone programmability

according to the standard IEC61131,

### Integrated movement features:

device profile DS402, interpolated mode,

positioning, extended gearing function,

homing, capture

### Capture input

PC parametrization tool

### Protection

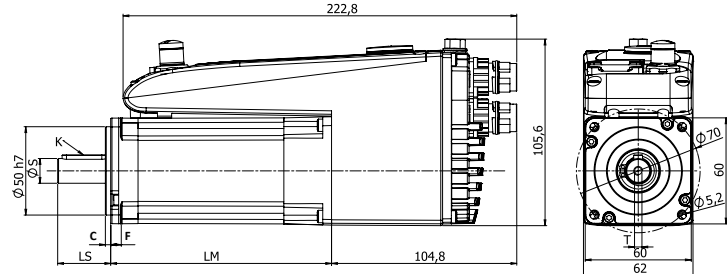
I2t, Overload, Short circuit,

Overtemperature, Overvoltage

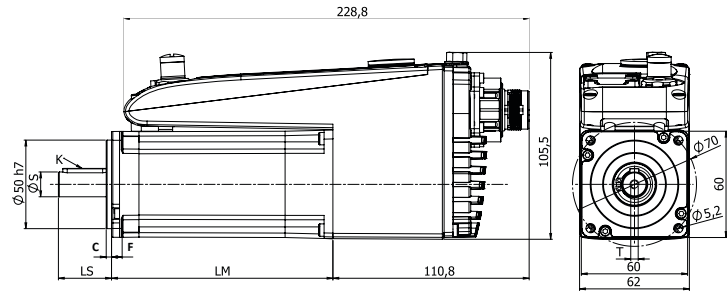
# IBD

Brushless  
motors & drives  
integrated and Near by

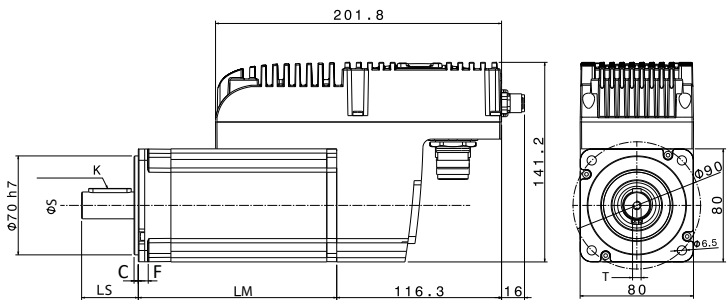
IBD Flange 60 mm  
daisy chain version



IBD Flange 60 mm  
star version



IBD Flange 80 mm



## • OVERALL DIMENSIONS

Type	IBD5670xyy/xxx.z03x0 1.22 Nm	IBD56H0xyy/xxx.z0000 3 Nm
Flange (mm)	60	80
Lenght LM without brake (mm)	122	110
Lenght LM with brake (mm)	161	157
Shaft lenght LS (mm)	30	40
Shaft diameter (ØS)	14h6	19h6
Thread (T)	M5	M6
Key dimensions (K)	5x5x20	6x6x30
C	2,5	3
F	10	13
Weight (kg)	1,8	4,1
Weight with brake (Kg)	2	4,8

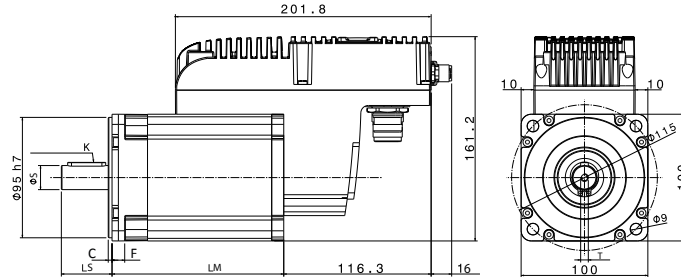
Power consumption in continuous operation

## • TECHNICAL FEATURES

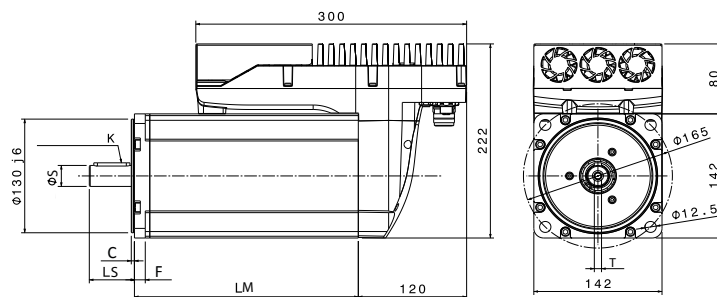
Type	M0 Stall torque (Nm)	Mn Rated torque (Nm)	Mpeak Peak Torque (Nm)	Power Watt* (W)	Jm Rotor Inertia (kgcm <sup>2</sup> )	Vn Rated Speed (rpm)
IBD5670	1,22	1,15	3,66	420	0,16	3000
IBD56H0	3	2,6	9	970	0,616	3000

\*Power consumption in continuous operation

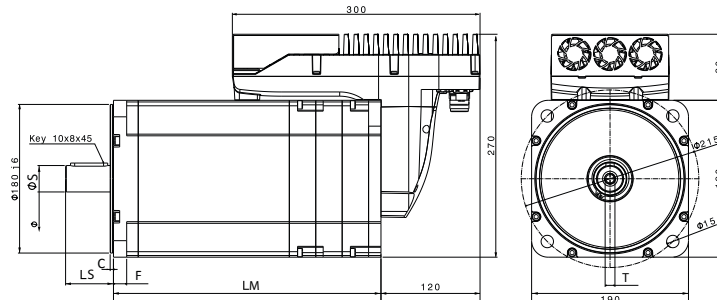
IBD Flange 100 mm



IBD Flange 142 mm



IBD Flange 190 mm



## • OVERALL DIMENSIONS

Type	IBD5610xyy/xxx.z0000 6 Nm	IBD56F0xyy/xxx.z0030 15 Nm	IBD56G0xYY/CAN.z0030 30 Nm
Flange (mm)	98	142	190
Lenght LM without brake (mm)	185	243	303,5
Lenght LM with brake (mm)	236	268	333,5
Shaft lenght LS (mm)	40	50	58
Shaft diameter (ØS)	19h6	24k6	32k6
Thread (T)	M6	M8	M12
Key dimensions (K)	6x6x30	8x7x40	10x8x45
C	3	3,5	4
F	14	12	16
Weight (kg)	8	17	38
Weight with brake (Kg)	9,2	18,5	43

## • TECHNICAL FEATURES

Type	M0 Stall torque (Nm)	Mn Rated torque (Nm)	Mpeak Peak Torque (Nm)	Power Watt* (W)	Jm Rotor Inertia (kgcm <sup>2</sup> )	Vn Rated Speed (rpm)
IBD56I0	6	5	22	1850	5,501	3000
IBD56F0	15	11,7	45	4300	11,5	3000
IBD56G0	30	25	70	9200	74	3000

\*Power consumption in continuous operation

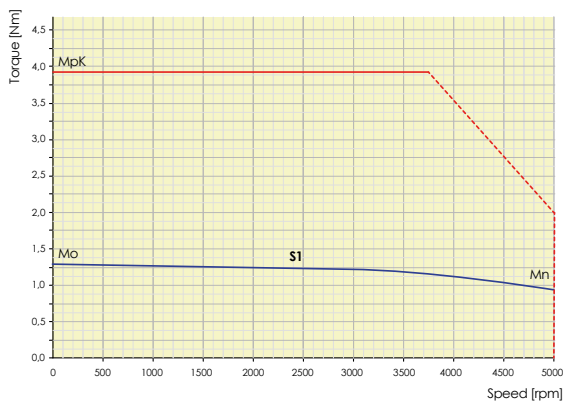
# IBD

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## • TORQUE CURVES

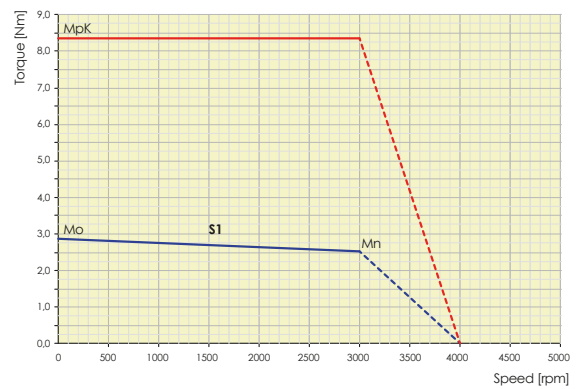
### IBD5670 Flange 60 - 1,22 Nm [M0]

Speed/torque curve at 560Vdc - Te: 40°C



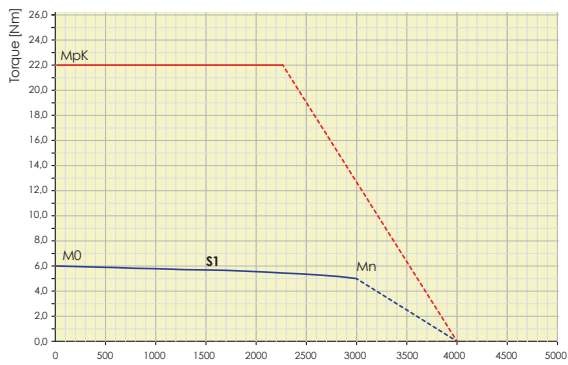
### IBD56H0 Flange 80 - 3 Nm [M0]

Speed/torque curve at 560Vdc - Te: 40°C



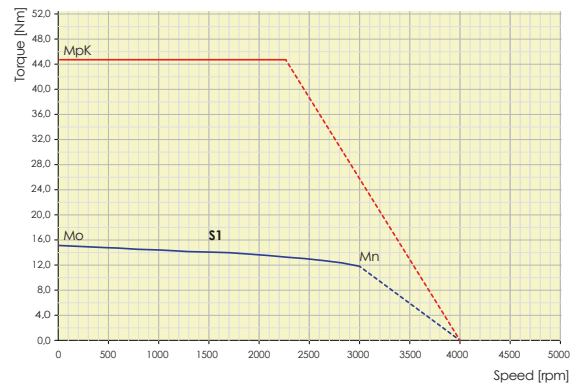
### IBD56I0 Flange 100 - 6 Nm [M0]

Speed/torque curve at 560Vdc - Te: 40°C



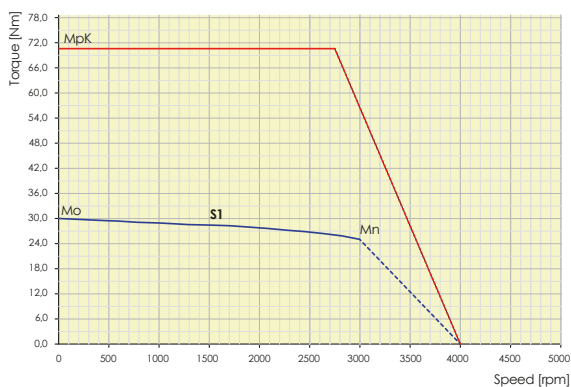
### IBD56F0 Flange 142 - 15,4 Nm [M0]

Speed/torque curve at 560Vdc - Te: 40°C



### IBD56G0 Flange 190 - 30 Nm [M0]

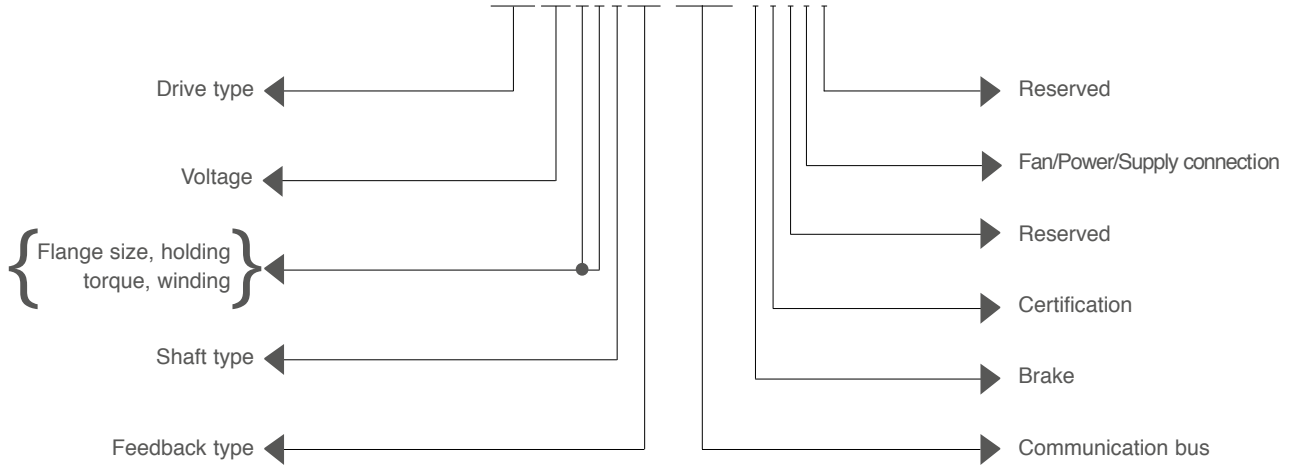
Speed/torque curve at 560Vdc - Te: 40°C





### • ORDER CODE EXAMPLE

IBD56400A3/CAN.00000



### • ORDERING CODES

Ordering codes with options:		IBD56 a b c/d .e f g h i									
Options	IBD	56	a	b	c	/d	.e	f	g	h	i
a	Flange 60 mm - 1,22 mm (8 poles) 560 Vdc/5000 rpm		70								
	Flange 60 mm - 1,3 mm (8 poles) 560 Vdc/5000 rpm		6C								
	Flange 80 mm - 1,5 Nm (8 poles) 560 Vdc/3000 rpm		50								
	Flange 80 mm - 2,8 Nm (8 poles) 560 Vdc/3000 rpm		10								
	Flange 80 mm - 3 Nm (8 poles) 560 Vdc/3000 rpm		H0								
	Flange 80 mm - 4 Nm (8 poles) 560 Vdc/3000 rpm		20								
	Flange 100 mm - 5,6 Nm (8 poles) 560 Vdc/3000 rpm		30								
	Flange 100 mm - 6 Nm (8 poles) 560 Vdc/3000 rpm		40								
	Flange 100 mm - 6 Nm (10 poles) 560 Vdc/3000 rpm		I0								
	Flange 142 mm - 15 Nm (8 poles) 560 Vdc/3000 rpm		F0								
	Flange 190 mm - 30 Nm (10 poles) 560 Vdc/3000 rpm		G0								
b	Keyed shaft*			0*							
	Smooth shaft			1							
c	Multiturn absolute encoder (128 sin/cos), 4096 turns				A0						
	Singleturn absolute encoder (16 sin/cos)*				A3*						
d	CAN communication					CAN					
	Ethercat communicatio					ETC					
e	No brake						0				
	With brake						1				
f	Reserved							0			
g	No UL								0		
	UL**									3 only for FL60 5 only for FL80/100 (not yet available)	
h	With fan										3 only for FL142/190
	Without fan										0 only for FL142/190
	Star connection										0 only for FL60
	Daisy chain connection										1 only for FL 60
	Reserved										0 only for FL 80/100
i	Reserved										0

\*Standard \*\*Drive UL+Motor UL

## Ordering codes

### • CABLES FOR IBD

Straight connectors - xxxx = cm

Type	Description
CIBR.CFCG.IIPS.B.xxxx	Power cable for IBD - dynamic laying - star version ( size 60-80-100-142-190)
CIBR.IIPS.CFCH.H.xxxx	Power cable to first IBD - dynamic laying - DAISY CHAIN version (size 60)
CIBR.CMCG.CFCG.H.xxxx	Power cable from second IBD to other IBD - dynamic laying - DAISY CHAIN version (size 60)
CMUL.CFCG.IIPS.C.xxxx	I/O cable for IBD - fixed laying (size 80-100-142-190)
CMUL.CMCP.IIPS.E.xxxx	I/O cable for IBD - dynamic laying (size 60)
CCAN.DFCS.CF1S.E.xxxx	CAN cable from CMZ master FCT200 (Dsub 9p) to IBD (M12) - dynamic laying
CCAN.RMCS.CF1S.B.xxxx	CAN cable from CMZ master FCT640/FCT300 (RJ45) to IBD (M12) - fixed laying
CCAN.CM1S.CF1S.E.xxxx	CAN cable from IBD (M12) to IBD (M12) - dynamic laying
CETC.RMCS.CMCS.M.xxxx	EtherCAT cable from CMZ master FCT300/FCT640 (RJ45) to IBD (M12) - dynamic installation
CETC.CMCS.CMCS.M.xxxx	EtherCAT cable from IBD (M12) to IBD (M12) - dynamic installation
C232.DFCS.CMCG.K.xxxx	Serial RS232 interface cable for debugging

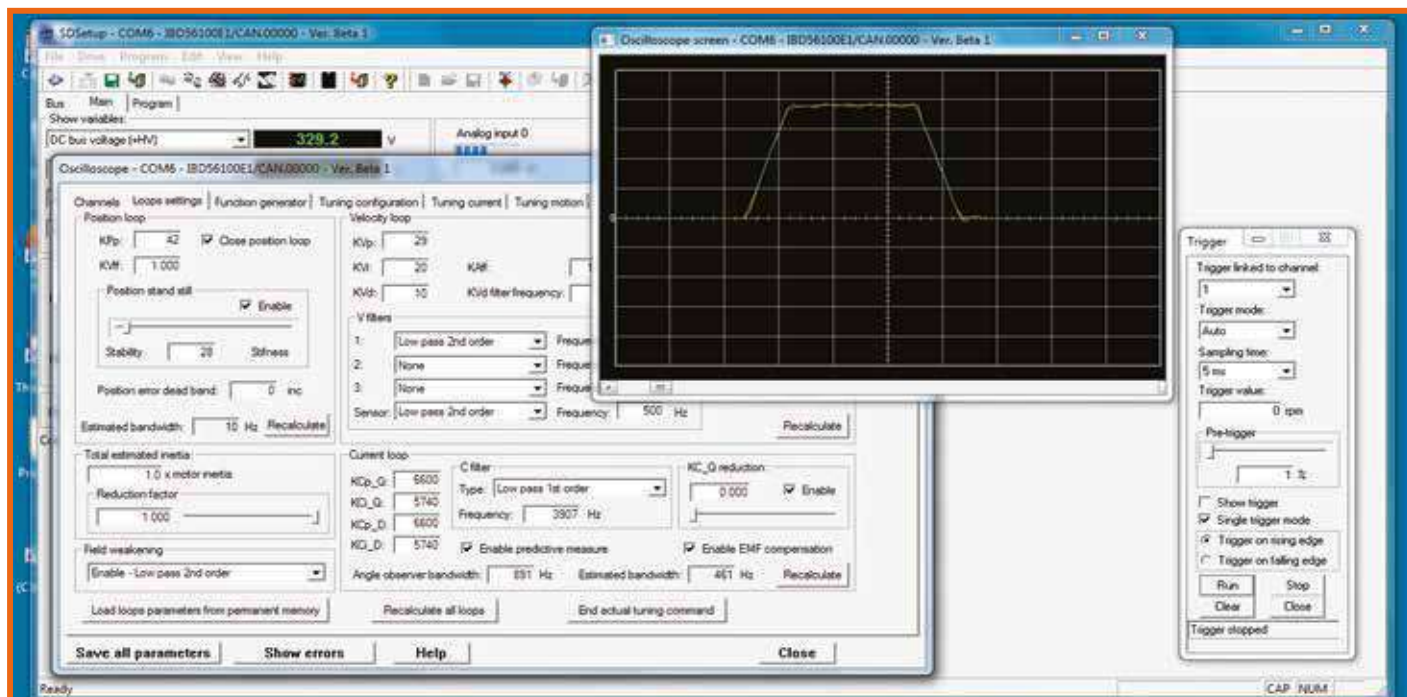
For cables with different lengths ask to sale office

# SD SETUP

## Environment

Brushless  
motors & drives  
integrated and Near by

Brushless motors & drives  
integrated and Near by



**SD setup** is the development environment for the configuration, parameterization, tuning and programming of the drives Sisd/ISD/SVM and IBD/Nearby using the RS232 serial connection or a centralized connection through a fieldbus when the master controller is a controller of the FCT family.

**It is a software that combines various tools such as:**

- Instant monitor of the main variables of the system, but also of all the secondary variables through an access to vocabulary
- Configuration of the system (such as configuration of the digitals I/O modules and the maximum limits of speed/acceleration)
- Updating of parameters and firmware
- Auto-tuning and dedicated tuning of the current loops, speed and position, with help of procedures for self-esteem of the moment of inertia
- Oscilloscope for the analysis of the variables
- Tools for testing of basic movements (Function Generator)

Finally, recalling that the systems are also programmable, SD setup is also proposed as a tool that allows editing and debugging programs written in IEC61131 type Structured Test.

**SD setup** è l'ambiente di sviluppo per la configurazione, parametrizzazione, programmazione e taratura degli azionamenti Sisd/ISD/SVM e IBD/Nearby utilizzando la seriale RS232 o un collegamento centralizzato tramite bus di campo quando il master controller è un controllore della famiglia FCT.

**Si tratta di un software che unisce diversi strumenti come:**

- Monitor immediato delle principali variabili di sistema ma anche di tutte le variabili secondarie tramite un accesso a vocabolario
- Configurazione del sistema (ad esempio degli I/O digitali, dei limiti massimi di velocità/accelerazione)
- Aggiornamento di parametri e firmware
- Autotuning e taratura dedicata dei loop di corrente, velocità e posizione, con ausilio di procedure di autostima del momento di inerzia
- Oscilloscopio per l'analisi delle varie grandezze
- Strumenti per il test dei movimenti base (Function Generator)

Infine, ricordando che i sistemi sono anche programmabili, SD setup si propone anche come lo strumento che permette l'editazione e il debug dei programmi scritti in linguaggio IEC61131 di tipo Structured Test.

CMZ reserves the right to change the data in order to update or improve its products without prior notice  
CMZ si riserva il diritto di modificare i dati per aggiornare o migliorare i propri prodotti senza alcun preavviso

soga  energyteam

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