Bonfiglioli
Forever Forward

BMS Series

Precision Planetary Servo Gear Motor

PRODUCTS & SOLUTIONS

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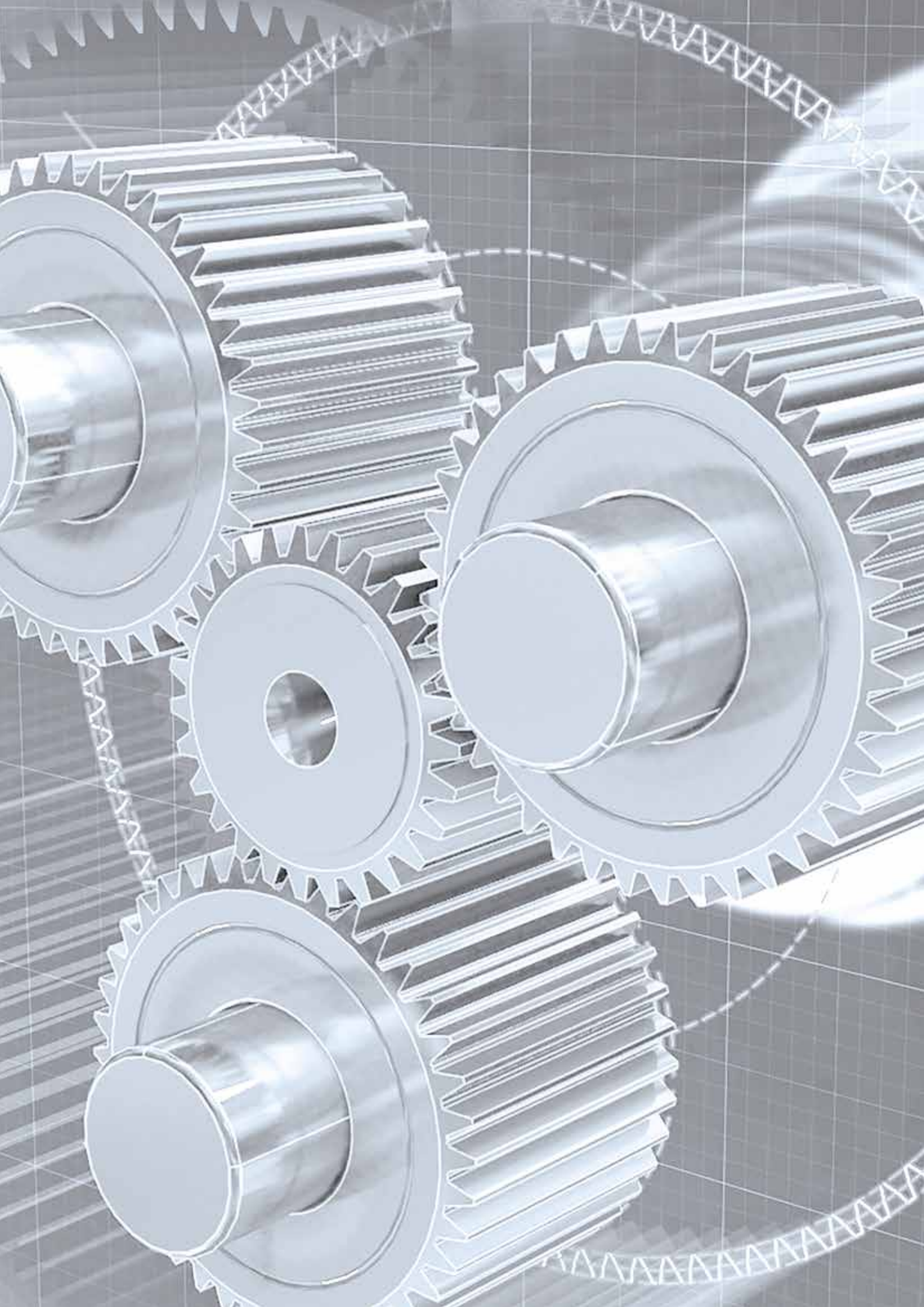


The highest level of precision, efficiency and energy optimization

With almost 20 years of experience in creating tailored and forward-thinking motion control systems, Bonfiglioli has proven being a reliable partner as **one-stop shop for mechatronic applications** in industrial automation.
Bonfiglioli engineering specialists work side by side with customers to develop dedicated integrated solutions, covering the entire motion drive train according to an **Industry 4.0 approach**.
Thanks to the extensive know-how and the long-term collaboration with key customers, our two centers of excellence, located in Italy and Germany, develop **breakthrough mechatronic innovations**, including low backlash planetary gearboxes, servomotors, open and closed loop inverters, servo drives and energy regenerative units.

This, combined with a comprehensive range of **Professional Services**, enables us to respond to customers' requests by:

- providing **user friendly, plug & play solutions**
- **increasing** applications' **efficiency** and **productivity**
- designing **flexible, modular solutions** targeted to a wide range of applications
- granting access to real time data for **diagnostic, maintenance** and **predictive analytics**


ASSESSMENT & RECOMMENDATION


ENGINEERING & PLANNING


INSTALLATION & COMMISSIONING


RETROFIT & UPGRADE


MAINTENANCE & REPAIR

Fully committed to the efficiency of customers' system over its life cycle

Bonfiglioli technical sales experts support customers with a proactive, flexible and dedicated approach **throughout the system's entire life cycle**.

- **Assessment and recommendation**: our team provides support starting from the very early stage of the project by assessing the requirements and developing a targeted analysis of the application, guiding customers in the choice of the most suitable components for their drive solution.
- **Engineering and planning**: our experts work with customers to co-engineer their application, offering consultancy in sizing, fine tuning and selecting the optimized drive train, always considering life cycle cost optimization.
- **Installation and commissioning**: we partner with our customers to ensure a quick, cost-effective and successful installation, optimizing the benefits and functions of their drive technology.
- **Retrofit and upgrade**: we update customers' machines with state-of-the-art technology to ensure constant levels of productivity, reliability and performance.
- **Maintenance and repair**: we work side by side with customers to avoid failures, reduce down times and ensure the best system operation.

A complete integrated solution for all industrial applications

Our engineering specialists **work side by side with customers** to create the most effective solution, whether the request is to optimize an existing machine or to develop a new one. Our relationship with customers is based on an **active partnership** with fast decision-making processes to develop individually tailored offers.

Our full-range and modular offering provides the necessary products for the development of vertically integrated solutions in **a variety of sectors**, such as material handling, automated storage, textile and packaging. Our team of experts assists customers in designing cost effective and energy efficient machines, aligning performance to meet the specific requirements.

A complete integrated solution

- Precision Planetary Gearboxes
- Industrial Gearboxes
- Permanent Magnet Synchronous Motors
- Synchronous Reluctance Motors
- Asynchronous Motors
- Servo Inverters
- Frequency Inverters
- Energy Regenerative Inverters
- Motion Control
- Industry 4.0 solutions

Industry sector expertise

- MATERIAL HANDLING
- HOIST & CRANES
- FOOD & BEVERAGE
- AUTOMATED WAREHOUSE
- PACKAGING
- TEXTILES
- MATERIAL WORKING

Bonfiglioli Digital Tools

Thanks to a powerful set of **software tools** and **online platforms**, developed through partnerships with the main market leaders, Bonfiglioli enables its customers to **engineer tailored applications** in a smooth and productive way: the components selection and sizing, as well as the design of the whole motion drive train, are made simpler and more reliable.

In addition, thanks to its in-depth knowledge of industrial solutions, **Bonfiglioli engineering team is ready to assist customers** in their selection and design process, providing high quality technical support for specific application developments.

SERVOSOFT | Develop optimized solutions

Bonfiglioli and SERVOsoft® work together to **support customers in sizing complete multi-axis servo systems**, including motors, gearboxes and servodrives with 15 mechanisms and up to 50 axes in a shared bus or standalone configuration.

With the Bonfiglioli products available on SERVOsoft, customers are able to select, size and design their customized and high performance applications.

In addition, the Bonfiglioli engineering team, thanks to its in-depth knowledge of the products, uses the high level servosizing tool SERVOsoft® to provide a **top level customer support** service by developing **optimized**, **energy-efficient** and **tailored engineering solutions** to meet individual needs.

MOSAICO | Product configuration and order assistant

Bonfiglioli's **complete e-business system** guides customers, distributors and agents through the process of **selecting the right product** for their specific needs, and provides support for **design activities** and **order management**, greatly accelerating the selection and ordering process and improving accuracy.

Thanks to this web-based technology, customers can get in touch with Bonfiglioli technical service any time from anywhere around the world.

EPLAN | Enhance your electrical design

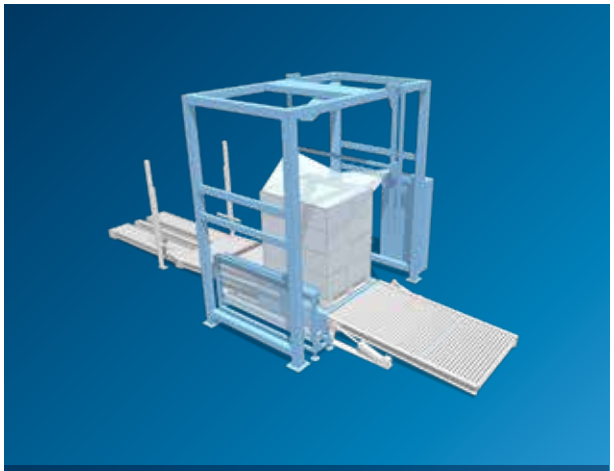
Bonfiglioli and EPLAN work together to **provide efficient engineering solutions**, aimed at reducing the gap between the initial concept and its development, programming and commissioning, thanks to:

- Always up-to-date device data and documentation
- Easy drag and drop function to develop optimized electrical drawings

The right solution for a wide spectrum of applications

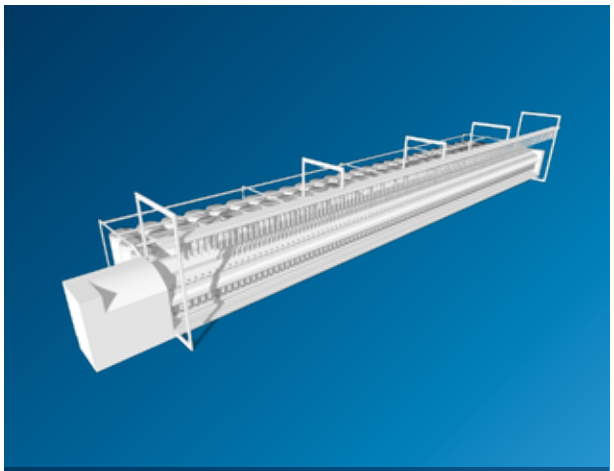
Whether in material handling, automated storage, packaging, textile or automation technology, our precision planetary servo gearmotors are **optimized for numerous applications**.

Our offer expands far beyond standard, providing the **right solutions tailored to customers' needs** in terms of performance and price.

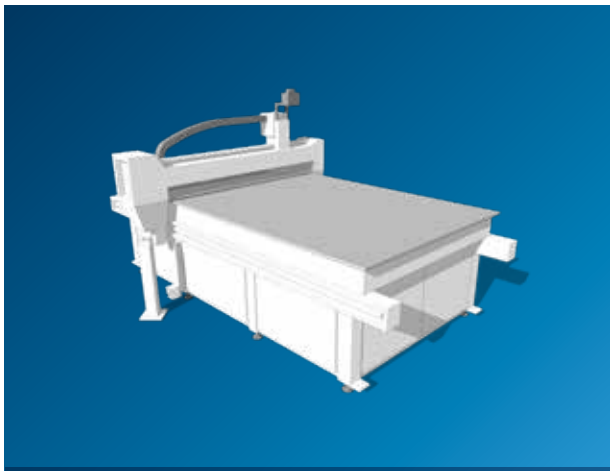


PALLETIZER

AUTOMATED STORAGE



ROVING MACHINE



DRILLING-FORMING MACHINE

Technical information

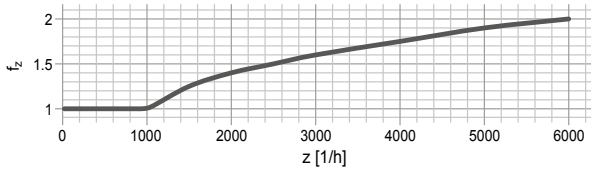
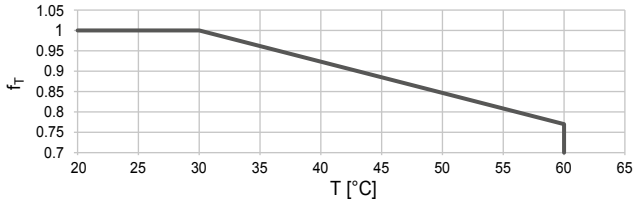
Gear Motor Parameters

Symbol	U.m.	Description
$A_{2/3\ max}$	[N]	Admissible axial force on shaft
$A_{2/3'max}$	[N]	Axial force acting simultaneously with radial force
C_B	[Nm]	Constant for bearing's lifetime calculation
Ct	[Nm/arcmin]	Torsional stiffness
f	-	Factor ratio between axial and radial force
f_d	-	Thermal derating factor
f_n	[Hz]	Rated frequency
f_T	-	Temperature adjusting factor
f_z	-	Cycle factor
i	-	Gearbox ratio
I_a	[A]	Current at maximum acceleration torque (M_{a2})
I_b	[A]	Brake current
I_n	[A]	Current at rated torque (M_{n2})
I_p	[A]	Current at emergency stop torque (M_{p2})
I_0	[A]	Current at stall torque (M_{02})
J_b	[kg cm^2]	Brake moment of inertia
J_1	[kg cm^2]	Moment of inertia at motor shaft
K_e	[mV/min^{-1}]	Back EMF constant
K_n	-	Speed constant
K_p	-	Gear motor parameter for calculating the thermal derating factor (f_d)
L_{pp}	[mH]	Stator phase-phase inductance
L_z	[mm]	Factor for bearing lifetime calculation
L_{10h}	[h]	Bearings basic rating life
Δm_b	[kg]	Mass increase with brake
Δm_J	[kg]	Mass increase with additional inertia
m	[kg]	Mass without brake/ flywheel
M_{a2}	[Nm]	Maximum acceleration torque
M_b	[Nm]	Brake torque
M_{b2}	[Nm]	Brake torque on shaft
M_{n2}	[Nm]	Rated torque
M_{p2}	[Nm]	Emergency stop torque. 1000 times during service life of the gearbox
M_{th2}	[Nm]	Equivalent thermal torque
$M_{T2\ max}$	[Nm]	Maximum shaft tilting moment
M_{02}	[Nm]	Stall torque
M_2	[Nm]	Gear motor torque at equivalent speed ($n_{2\ EQU}$)
n_{a2}	[min^{-1}]	Maximum permissible speed at maximum acceleration torque (M_{a2})
n_{n2}	[min^{-1}]	Rated speed
p	-	Bearing lifetime exponent
P_b	[W]	Brake electrical power at 20 °C
P_n	[kW]	Rated power
R_{pp}	[Ohm]	Stator phase-phase resistance
t_1	[ms]	Brake engaging time
t_2	[ms]	Brake release time
V_b	[V_{DC}]	Brake DC voltage
V_n	[V_{AC}]	Gear motor rated voltage
φ_R	[arcmin]	Reduced backlash is calculated in static conditions and with the application of a torque equal to 2% of the gear unit rated torque
φ_s	[arcmin]	Standard backlash is calculated in static conditions and with the application of a torque equal to 2% of the gear unit rated torque
2p	-	Number of poles

Application Parameters

Symbol	U.m.	Description
A_2	[N]	Axial force on shaft
$A_{2\ EQU}$	[N]	Equivalent axial force applying on shaft
$A_{2\ MAX}$	[N]	Maximum axial force applying on shaft
ED	[s]	Duration of the duty
ED%	[%]	Cyclic duration factor
$L_{10h\ TARGET}$	[h]	Bearings desired basic rating life
$M_{2(1)}$... $M_{2(n)}$	[Nm]	Torque at times t_1... t_n
$M_{2\ EQU}$	[Nm]	Equivalent torque
$M_{2\ MAX}$	[Nm]	Maximum torque in case of emergency
$M_{2\ PEAK}$	[Nm]	Maximum torque of the load diagram
$M_{T2\ EQU}$	[Nm]	Equivalent shaft tilting moment
$M_{T2\ MAX}$	[Nm]	Maximum permissible shaft tilting moment
n_{MAX}	[min-1]	Maximum speed of the speed diagram
$n_{2(1)}$... $n_{2(n)}$	[Nm]	Speed based on the times t_1... t_n
$n_{2\ EQU}$	[min-1]	Equivalent speed
R_2	[N]	Radial force on shaft
$R_{2\ EQU}$	[N]	Equivalent radial force applying on shaft
$R_{2\ MAX}$	[N]	Maximum radial force applying on shaft
T	[°C]	Ambient temperature
t_1... t_n	[s]	Operating time
t_Σ	[s]	Cycle duration including break pause
Z	[1/h]	Number of cycles per hour

Selecting the gear motor

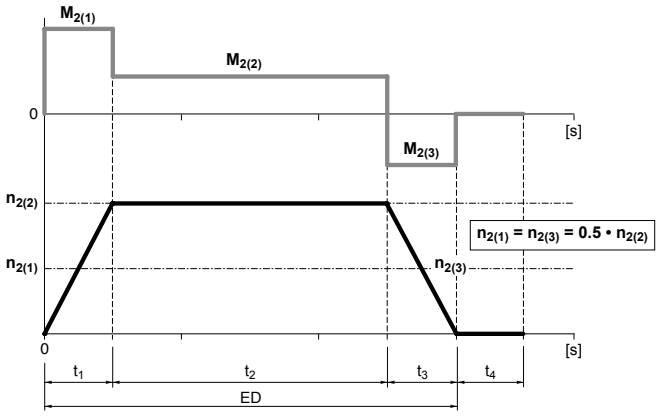
(a)	Cyclic duration factor Duration of the duty	ED% ED	[%] [s]	$ED\% = \frac{ED}{t_\Sigma} \cdot 100$ $ED = t_1 + t_2 + ... + t_n$
(b)	Cycle factor (For Z>6000 please contact us!)	f_z	-	
(c)	Equivalent torque	$M_{2\,EQU}$	[Nm]	$M_{2EQU} = \sqrt[3]{\frac{\lvert n_{2(1)}\rvert \cdot t_1 \cdot \lvert M_{2(1)}\rvert^3 + ... + \lvert n_{2(n)}\rvert \cdot t_n \cdot \lvert M_{2(n)}\rvert^3}{\lvert n_{2(1)}\rvert \cdot t_1 + ... + \lvert n_{2(n)}\rvert \cdot t_n}}$
(d)	Equivalent speed	$n_{2\,EQU}$	[min^{-1}]	$n_{2EQU} = \frac{\lvert n_{2(1)}\rvert \cdot t_1 + \lvert n_{2(2)}\rvert \cdot t_2 + ... + \lvert n_{2(n)}\rvert \cdot t_n}{t_\Sigma}$
(e)	Gear motor torque at equivalent speed $n_{2\,EQU}$	M_2	[Nm]	$M_2 = M_{0\,2} + (M_{n2} - M_{0\,2}) \cdot (n_{2\,EQU} / n_{n2})$
(f)	Thermal derating factor	f_d	-	$f_d = 0.9 - K_p \cdot (n_{2\,EQU} \cdot i / 40000)^2$
(g)	Equivalent thermal torque of the gear motor	$M_{th\,2}$	[Nm]	$M_{th\,2} = M_2 \cdot f_d$
(h)	Temperature adjusting factor	f_T	-	

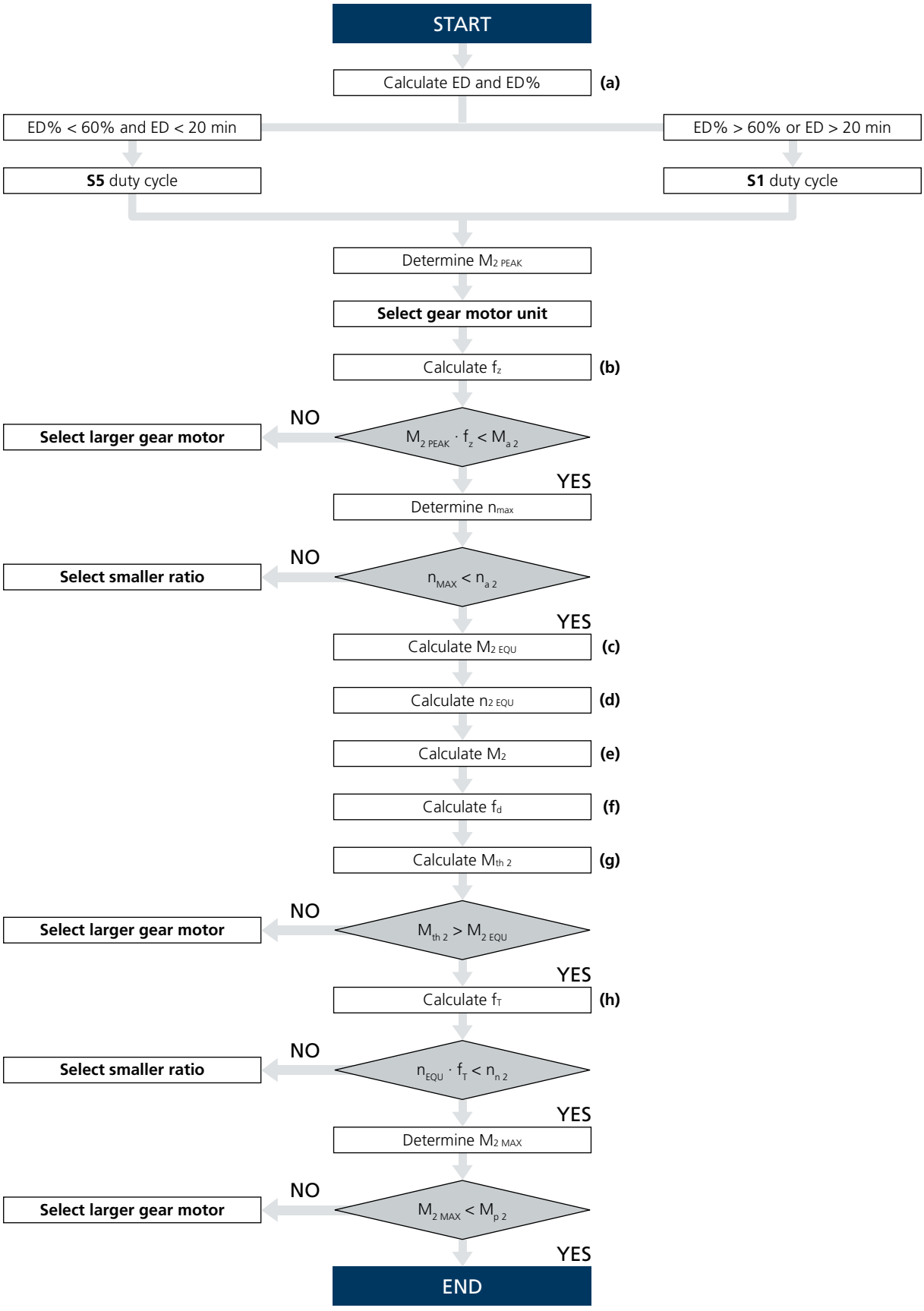
Load diagram

M_2: Output torque

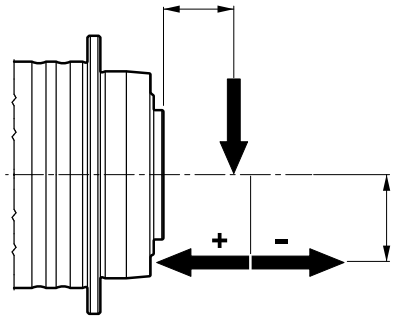
Speed diagram

n_2: Output speed



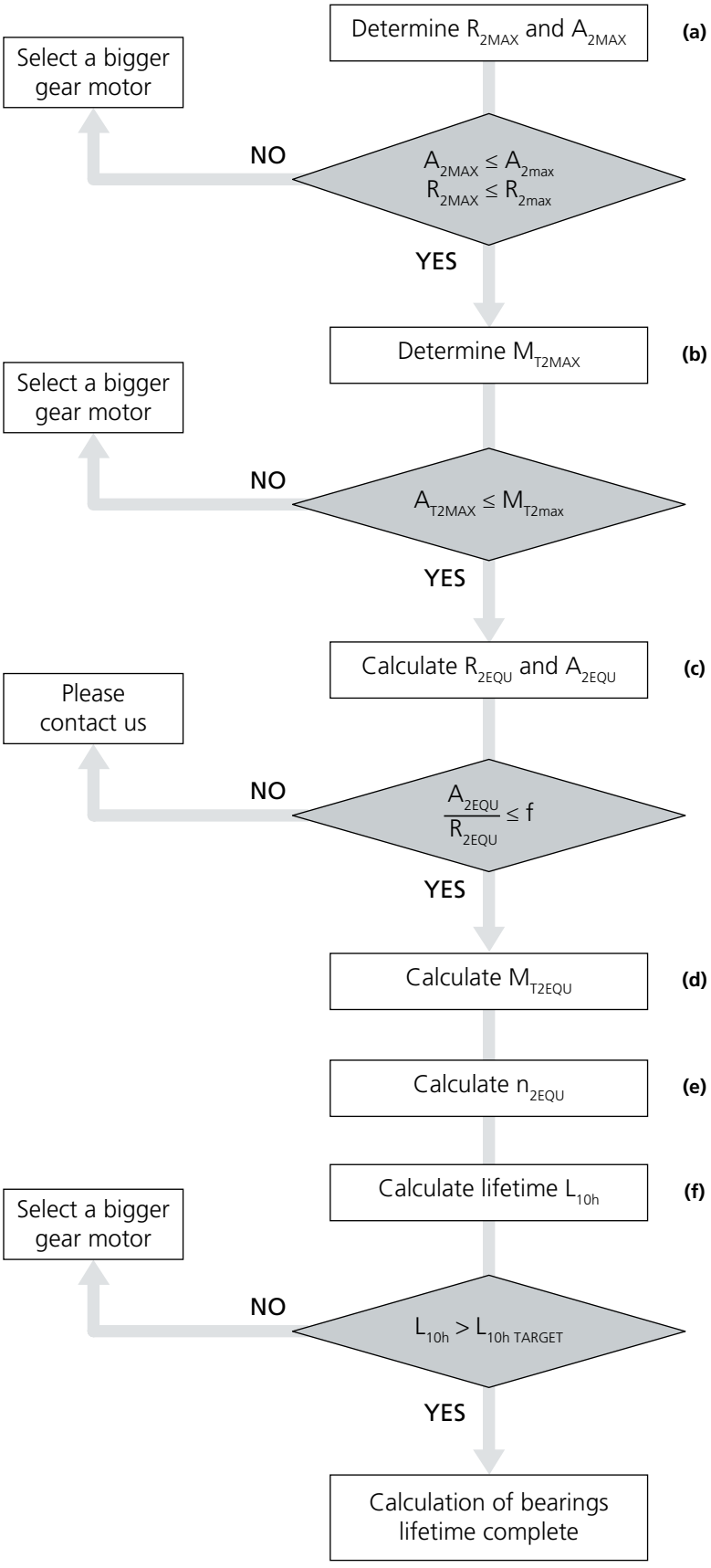

START
Calculate ED and ED%
(a)
ED% < 60% and ED < 20 min
ED% > 60% or ED > 20 min
S5 duty cycle
S1 duty cycle
Determine M2 PEAK
Select gear motor unit
Calculate fz
(b)
NO
Select larger gear motor
M2 PEAK · fz < Ma 2
YES
Determine nmax
NO
Select smaller ratio
nMAX < na 2
YES
Calculate M2 EQU
(c)
Calculate n2 EQU
(d)
Calculate M2
(e)
Calculate fd
(f)
Calculate Mth 2
(g)
NO
Select larger gear motor
Mth 2 > M2 EQU
YES
Calculate fT
(h)
NO
Select smaller ratio
nEQU · fT < n2
YES
Determine M2 MAX
NO
Select larger gear motor
M2 MAX < Mp 2
YES
END

Service life of bearings



(a)	Maximum radial force applied on output shaft Maximum axial force applied on output shaft	$R_{2\,MAX}$ $A_{2\,MAX}$	[N] [N]	Please consider the specific conditions (e.g. belt drives under acceleration torque)
(b)	Maximum tilting moment applied on output shaft	$M_{T\,2\,MAX}$	[Nm]	$M_{T2MAX} = \frac{R_{2\,MAX} \cdot (x + L_Z) \pm A_{2\,MAX} \cdot y}{1000}$
(c)	Equivalent forces applied on output shaft	$R_{2\,EQU}$ $A_{2\,EQU}$	[N] [N]	$R_{2EQU} = \sqrt[3]{\frac{\lvert n_{2(1)}\rvert \cdot t_1 \cdot \lvert R_{2(1)}\rvert^3 + \ldots + \lvert n_{2(n)}\rvert \cdot t_n \cdot \lvert R_{2(n)}\rvert^3}{\lvert n_{2(1)}\rvert \cdot t_1 + \ldots + \lvert n_{2(n)}\rvert \cdot t_n}}$ $A_{2EQU} = \sqrt[3]{\frac{\lvert n_{2(1)}\rvert \cdot t_1 \cdot \lvert A_{2(1)}\rvert^3 + \ldots + \lvert n_{2(n)}\rvert \cdot t_n \cdot \lvert A_{2(n)}\rvert^3}{\lvert n_{2(1)}\rvert \cdot t_1 + \ldots + \lvert n_{2(n)}\rvert \cdot t_n}}$
(d)	Equivalent tilting moment applied on output shaft	$M_{T\,2\,EQU}$	[Nm]	$M_{T2EQU} = \frac{R_{2\,EQU} \cdot (x + L_Z) + A_{2\,EQU} \cdot y}{1000}$
(e)	Equivalent output speed	$n_{2\,EQU}$	[min^{-1}]	$n_{2EQU} = \frac{\lvert n_{2(1)}\rvert \cdot t_1 + \lvert n_{2(2)}\rvert \cdot t_2 + \ldots + \lvert n_{2(n)}\rvert \cdot t_n}{t_1 + t_2 + \ldots + t_n}$
(f)	Bearings basic rating life	L_{10h}	[h]	$L_{10h} = \frac{16666}{n_{2EQU}} \cdot \left(\frac{C_B}{M_{T2EQU}}\right)^p$

		BMS 060	BMS 070	BMS 090	BMS 130	BMS 160
L_Z	[mm]	48	72	78	100	128
$M_{T\,2\,max}$	[Nm]	115	318	430	1200	3700
C_B	[Nm]	490	1335	1815	5055	16200
p	-	3.33	3.33	3.33	3.33	3.33
f		0.37				


Determine R_{2MAX} and A_{2MAX}
(a)
Select a bigger gear motor
NO
$A_{2MAX} \leq A_{2max}$
$R_{2MAX} \leq R_{2max}$
YES
Determine M_{T2MAX}
(b)
Select a bigger gear motor
NO
$A_{T2MAX} \leq M_{T2max}$
YES
Calculate R_{2EQU} and A_{2EQU}
(c)
Please contact us
NO
$\frac{A_{2EQU}}{R_{2EQU}} \leq f$
YES
Calculate M_{T2EQU}
(d)
Calculate n_{2EQU}
(e)
Calculate lifetime L_{10h}
(f)
Select a bigger gear motor
NO
$L_{10h} > L_{10h\ TARGET}$
YES
Calculation of bearings lifetime complete

BMS
Bonfiglioli Motion Solution

Bonfiglioli Motion Solution (BMS) represents the edge of products integration. BMS is the result of the deep knowledge Bonfiglioli has in precision planetary gearboxes and low inertia permanent magnet servomotor technologies.

Compared to solutions based on separate units, interfaced BMS ensures several competitive advantages, such as:
- reduced outline dimensions
- maximized performances thanks to optimized gear motor selection
- longer lifetime
- higher stiffness
- top in class energy efficiency

Low-backlash planetary gearboxes of the BMS series feature a flanged output shaft and are perfectly suited for high demanding applications in term of stiffness and radial load.
In combination with top class torque density and dynamics servomotors, BMS perfectly matches the performance demand of every motion control application.
BMS series provides a straightforward selection of the compact unit using a unique selection method.
When dynamics and high precision are required, and compactness makes the difference, it is a relevant advantage to have a mechatronic product easy to select, order and install.

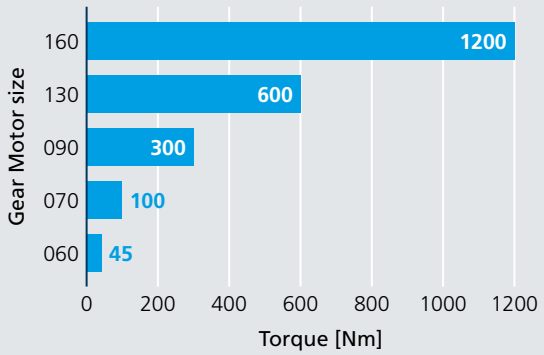
BMS features

- Output torque: 8... 800 Nm
- Output speed: 43... 875 rpm
- Designed for continuous duty & intermittent duty
- Universal mounting position
- Power supply: 230 & 400 VAC
- Two classes of precision:
  - 1-stage unit backlash: standard $\varphi_S \leq 5'$- reduced $\varphi_R \leq 3'$
  - 2-stage unit backlash: standard $\varphi_S \leq 7'$- reduced $\varphi_R \leq 5'$
- IP65 degree of protection
- Ambient temperature -20 °C… +30 °C
- Lubrication optimized for S1 and S5 duty types

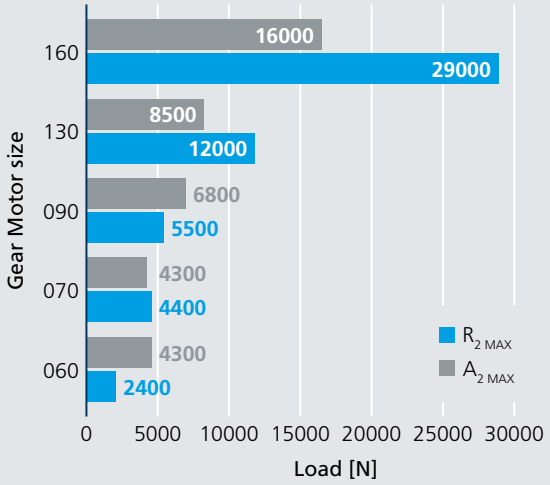
Duty	BMS 060... BMS 160
S1 (continuous)	Synthetic oil viscosity ISO VG 220
S5 (intermittent)	NLGI grease consistency 00

Distribution of nominal torque M_{n2} [Nm]												
[i]	4	5	7	10	16	20	25	28	35	40	50	70
BMS 060	30	30	25	20	30	30	30	30	30	-	-	-
BMS 070	70	70	60	40	70	70	70	70	70	70	70	60
BMS 090	200	180	160	110	200	180	180	200	180	200	180	-
BMS 130	400	400	360	280	400	400	400	400	400	400	400	360
BMS 160	-	-	-	-	800	800	800	800	800	800	800	-

Maximum Acceleration Torque

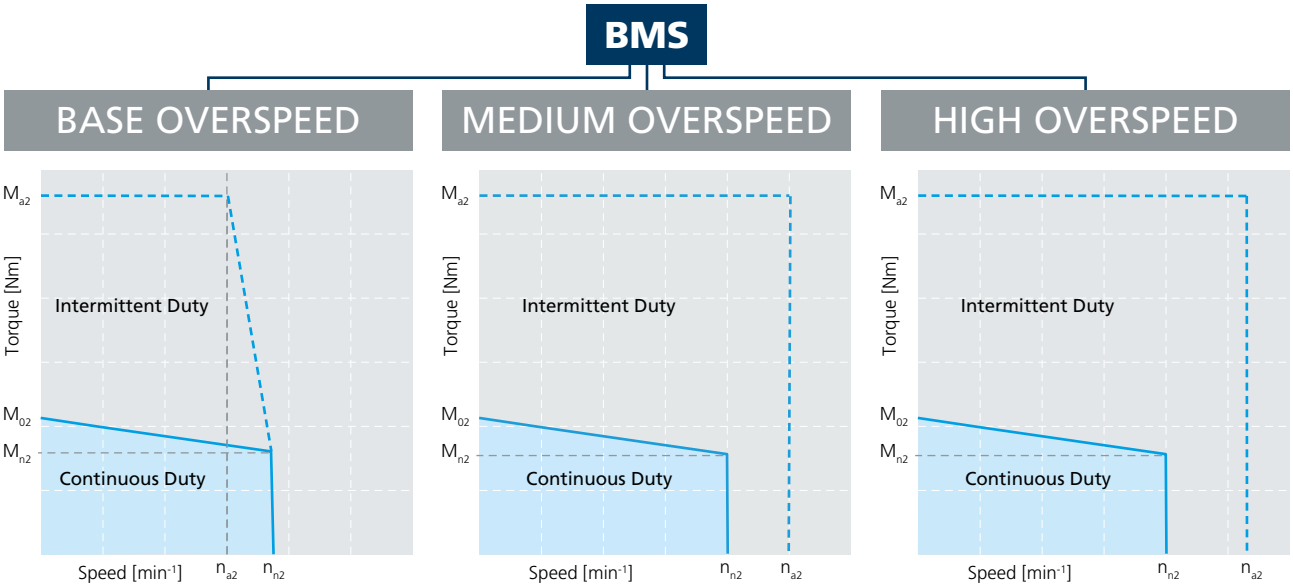


Maximum Axial and Radial Load

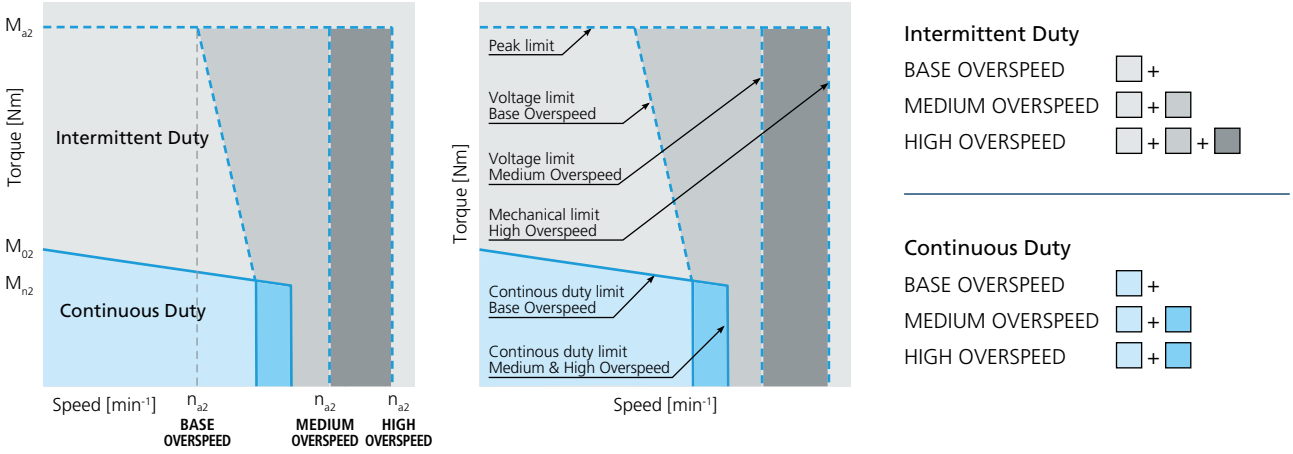


BMS overspeed

BMS gear motor rating is defined by the torque-speed selected with the overspeed variant. The permissible operating range corresponds to the area in the torque-speed characteristics limited by the thermal, electrical and mechanical limit curves.
The continuous operating zone is enclosed by torque curve for S1 duty up to the intersection with the voltage limit or the mechanical limit curve. Continuous duty above the S1 characteristic curve is not thermally permitted for the gear motor.
The intermittent duty zone is the area between the short-term peak torque curve and the voltage limit or the mechanical limit curve.
According to the application requirements, in terms of speed-torque and operation cycle, it is possible to select the suitable gear motor choosing between the BASE (B), MEDIUM (M) or HIGH (H) overspeed variants.



The following diagrams highlight the extension of the gear motor operating areas according to the selected overspeed (B, M, H). Applications that need high torque overloads at high speed require a MEDIUM or HIGH overspeed variant. On the other side, the selected overspeed affects the drive selection: the higher the maximum speed n_{a2} the higher the required current I_a.



BMS designation

BMS	F	060	B	5	065B	400	STD	S1	UH1	PTC	RES1	F24	AN

Connections
AN Angled turning receptacles
ST Straight receptacles

Brake
(blank) No brake or flywheel (default)
F24 Brake 24 Vdc
F1 Additional flywheel / inertia

Feedback device
RES1(1) 2-pole resolver 8 kHz
RES2 2-pole resolver 10 kHz
ENB1 Optical encoder EnDat Single Turn
ENB2 Optical encoder EnDat Multi Turn
ENB3 Optical encoder Hiperface Single Turn
ENB4 Optical encoder Hiperface Multi Turn
ENB5 Capacitive encoder Hiperface Single Turn
ENB6 Capacitive encoder Hiperface Multi Turn

Thermal protection
PTC PTC
KTY KTY84-130
TC1 PT1000

Lubricant
(blank) Standard (default)
UH1 Food grade synthetic lubricant

Duty
S1 Continuous duty
S5 Intermittent duty

Backlash

	Gear ratio ≤10	Gear ratio >10
STD	$\varphi_s \leq 5'$	$\varphi_s \leq 7'$
LOW	$\varphi_R \leq 3'$	$\varphi_R \leq 5'$

Supply AC voltage
230 230 V
400 400 V

Motor size
065A... 170C

Gear ratio
4... 70

Overspeed
B Base
M Medium
H High

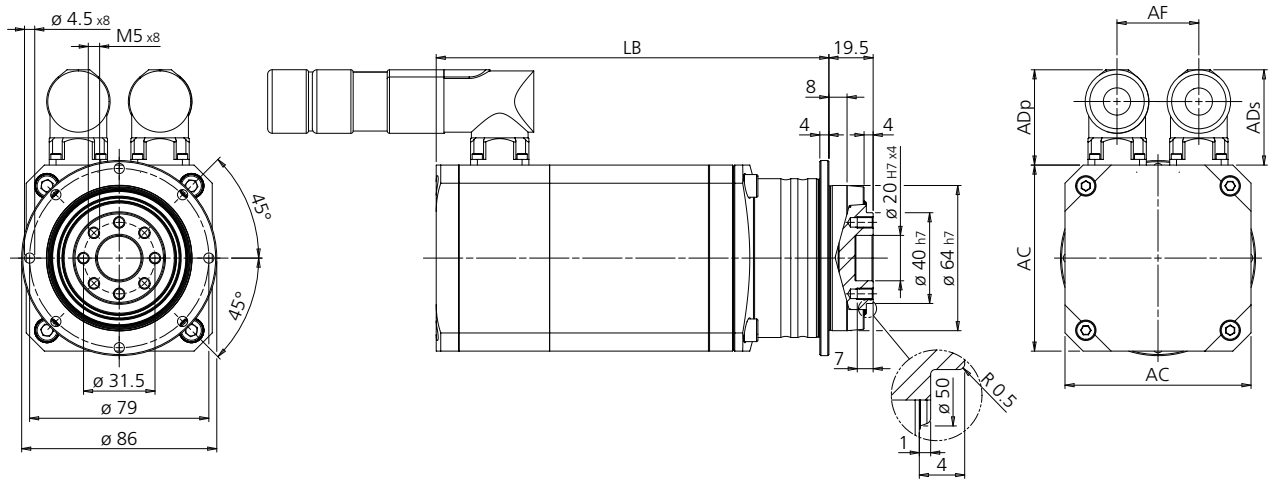
Gearbox size
060... 160

Version
F Flanged

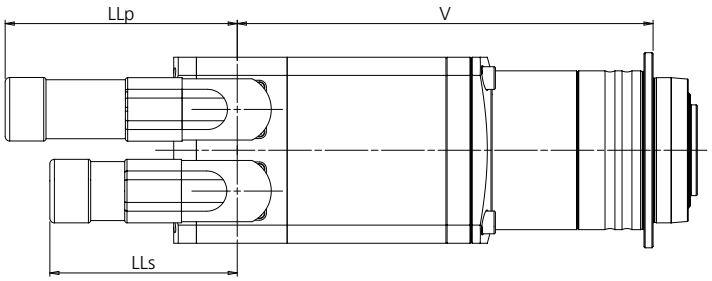
Gear motor series
BMS

(1) Not available for motor sizes 065A and 065B

BMS F 060
Dimensions and technical data



DIMENSION LB		
	Variants	
LB2	RES1 / RES2	
LB3	RES1 / RES2	F24 / F1
LB4	ENB1 / ENB2	
LB5	ENB3...ENB6	
LB6	ENB1 / ENB2	F24 / F1
LB7	ENB3...ENB6	F24 / F1



DIMENSION V		
	Variants	
V8	RES1 / RES2 ENB1...ENB6	
V9	RES1 / RES2	F24 / F1
V10	ENB1 / ENB2	F24 / F1
V11	ENB5...ENB6	F24 / F1

Motor size	AC	LB2	LB3	LB4	LB5	LB6	LB7	ADp	ADs	AF	LLp	LLs	V8	V9	V10	V11
BMS 060 - 4… 10 - 1 STAGE																
065A	65	137	168	155	155	204	204	42	42	32	102	83	114	114	163	163
065B		160	191	178	178	227	227	42	42	32	102	83	137	137	186	186
082B	82	173	213	196	173	236	236	42	42	36	102	83	145	145	208	208
082C		193	233	216	193	256	256	42	42	36	102	83	165	165	228	228
BMS 060 - 16… 35 - 2 STAGE																
065A	65	175	206	193	193	242	242	42	42	32	102	83	114	114	163	163
065B		198	229	216	216	265	265	42	42	32	102	83	137	137	186	186
082B	82	211	251	234	211	274	274	42	42	36	102	83	183	183	246	246
082C		231	271	254	231	294	294	42	42	36	102	83	203	203	266	266

Gear motor stages	i	φ_s ≤	φ_r ≤	R_{2max}	A_{2max}
		[arcmin]		[N]	[N]
1	4… 10	5'	3'	2400	4300
2	16… 35	7'	5'	2400	4300

BMS F 060

Performance data • Base overspeed

Designation		n_{n2}	n_{a2}	M_{n2}	M_{02}	M_{a2}	M_{p2}	I_n	I_0	I_a	I_p	C_t	J_1	m	K_p
		[min⁻¹]	[min⁻¹]	[Nm]	[Nm]	[Nm]	[Nm]	[A]	[A]	[A]	[A]	[Nm/arcmin]	[kg cm²]	[kg]	
BMS F 060 B 35 065A	400	86	106	28	30	45	80	0.72	0.76	1.23	2.18	12	0.28	3.9	7.4
	230							1.16	1.23	1.97	3.50				
BMS F 060 B 28 065A	400	107	125	22	24	45	71	0.72	0.76	1.53	2.43	12	0.28	3.9	8.3
	230							1.16	1.23	2.46	3.90				
BMS F 060 B 25 065A	400	120	124	20	21	45	64	0.72	0.76	1.72	2.43	12	0.31	3.9	8.8
	230							1.16	1.23	2.75	3.90				
BMS F 060 B 20 065A	400	150	130	16	17	45	51	0.72	0.76	2.14	2.43	12	0.33	3.9	10
	230							1.16	1.23	3.44	3.90				
BMS F 060 B 16 065A	400	188	156	13	14	41	41	0.72	0.76	2.43	2.43	12	0.34	3.9	11
	230							1.16	1.23	3.90	3.90				
BMS F 060 B 16 065B	400	188	194	26	27	45	78	1.33	1.35	2.64	4.60	12	0.54	4.5	20
	230							2.30	2.30	4.59	8.00				
BMS F 060 B 10 065A	400	300	250	8.0	9.0	26	26	0.72	0.76	2.43	2.43	12	0.27	2.9	17
	230							1.16	1.23	3.90	3.90				
BMS F 060 B 10 065B	400	300	300	16	17	30	49	1.33	1.35	2.82	4.60	12	0.47	3.5	32
	230							2.30	2.30	4.90	8.00				
BMS F 060 B 7 065B	400	429	286	11	12	34	34	1.33	1.35	4.56	4.56	12	0.49	3.5	46
	230							2.30	2.30	7.93	7.93				
BMS F 060 B 7 082B	400	429	443	21	22	38	59	2.50	2.60	5.68	8.83	12	1.49	5.1	28
	230							4.30	4.50	9.90	15.4				
BMS F 060 B 5 065B	400	600	400	8.0	9.0	25	25	1.33	1.35	4.60	4.60	13	0.53	3.5	65
	230							2.30	2.30	8.00	8.00				
BMS F 060 B 5 082B	400	600	440	15	16	43	43	2.50	2.60	8.90	8.90	13	1.53	5.1	39
	230							4.3	4.5	15.5	15.5				
BMS F 060 B 5 082C	400	600	560	19	22	45	58	2.90	3.30	7.75	9.90	13	1.83	6.2	49
	230							5.10	5.80	13.6	17.4				
BMS F 060 B 4 082B	400	750	550	12	13	34	34	2.50	2.60	8.90	8.90	13	1.58	5.1	47
	230							4.30	4.50	15.5	15.5				
BMS F 060 B 4 082C	400	750	575	15	18	45	46	2.90	3.30	9.68	9.90	13	1.88	6.2	59
	230							5.10	5.80	17.0	17.4				

BMS F 060

Performance data • Medium overspeed

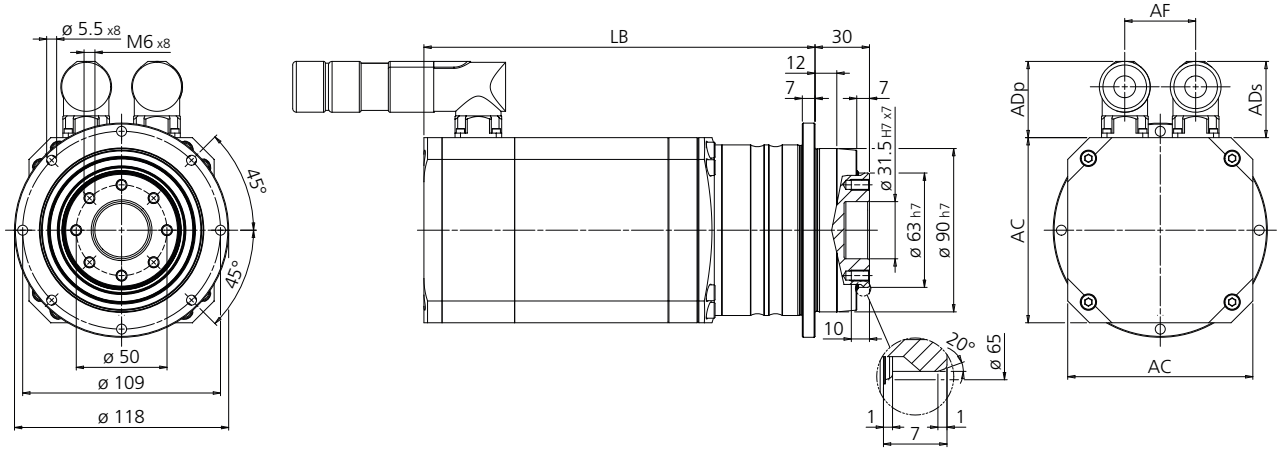
Designation		n_{n2}	n_{a2}	M_{n2}	M_{02}	M_{a2}	M_{p2}	I_n	I_0	I_a	I_p	C_t	J_1	m	K_p
		[min^{-1}]	[min^{-1}]	[Nm]	[Nm]	[Nm]	[Nm]	[A]	[A]	[A]	[A]	[Nm/arcmin]	[kg cm^2]	[kg]	
BMS F 060 M 35 065A	400	129	142	27	30	45	80	0.88	0.98	1.56	2.78	12	0.28	3.9	7.4
	230							1.74	1.90	3.13	5.56				
BMS F 060 M 28 065A	400	161	161	21	24	45	71	0.88	0.98	1.95	3.10	12	0.28	3.9	8.3
	230							1.74	1.90	3.91	6.20				
BMS F 060 M 25 065A	400	180	164	19	21	45	64	0.88	0.98	2.19	3.10	12	0.31	3.9	8.8
	230							1.74	1.90	4.38	6.20				
BMS F 060 M 20 065A	400	225	175	15	17	45	51	0.88	0.98	2.74	3.10	12	0.33	3.9	10
	230							1.74	1.90	5.47	6.20				
BMS F 060 M 16 065A	400	281	188	12	14	41	41	0.88	0.98	3.10	3.10	12	0.34	3.9	11
	230							1.74	1.90	6.20	6.20				
BMS F 060 M 16 065B	400	281	312	24	27	45	78	1.85	1.98	3.85	6.70	12	0.54	4.5	20
	230							3.20	3.40	6.60	11.5				
BMS F 060 M 10 065A	400	400	300	7.6	9.0	26	26	0.88	0.98	3.10	3.10	12	0.27	2.9	17
	230							1.74	1.90	6.20	6.20				
BMS F 060 M 10 065B	400	400	500	15	17	30	49	1.85	1.98	4.10	6.70	12	0.47	3.5	32
	230							3.20	3.40	7.04	11.5				
BMS F 060 M 7 065B	400	571	500	11	12	34	34	1.85	1.98	6.64	6.64	12	0.49	3.5	46
	230							3.20	3.40	11.4	11.4				
BMS F 060 M 7 082B	400	571	714	20	22	38	59	3.40	3.90	8.43	13.1	12	1.49	5.1	28
	230							5.30	6.00	13.2	20.4				
BMS F 060 M 5 065B	400	700	700	7.6	9.0	25	25	1.85	1.98	6.70	6.70	13	0.53	3.5	65
	230							3.20	3.40	11.5	11.5				
BMS F 060 M 5 082B	400	700	700	14	16	43	43	3.40	3.90	13.2	13.2	13	1.53	5.1	39
	230							5.30	6.00	20.6	20.6				
BMS F 060 M 5 082C	400	700	800	18	22	45	58	3.90	4.80	11.3	14.4	13	1.83	6.2	49
	230							6.80	8.40	19.6	25.1				
BMS F 060 M 4 082B	400	875	875	11	13	34	34	3.40	3.90	13.2	13.2	13	1.58	5.1	47
	230							5.30	6.00	20.6	20.6				
BMS F 060 M 4 082C	400	875	875	14	18	45	46	3.90	4.80	14.1	14.4	13	1.88	6.2	59
	230							6.80	8.40	24.6	25.1				

BMS F 060

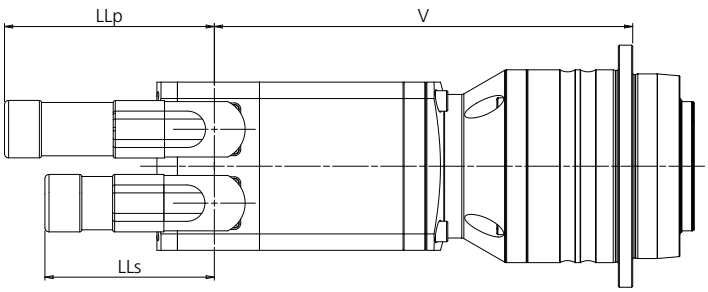
Performance data • High overspeed

Designation		n_{n2}	n_{a2}	M_{n2}	M_{02}	M_{a2}	M_{p2}	I_n	I_0	I_a	I_p	C_t	J_1	m	K_p
		[min⁻¹]	[min⁻¹]	[Nm]	[Nm]	[Nm]	[Nm]	[A]	[A]	[A]	[A]	[Nm/arcmin]	[kg cm²]	[kg]	
BMS F 060 H 35 065A	400	129	171	27	30	45	80	1.21	1.38	2.22	3.94	12	0.28	3.9	7.4
	230							2.09	2.39	3.88	6.90				
BMS F 060 H 28 065A	400	161	214	21	24	45	71	1.21	1.38	2.77	4.40	12	0.28	3.9	8.3
	230							2.09	2.39	4.85	7.70				
BMS F 060 H 25 065A	400	180	240	19	21	45	64	1.21	1.38	3.11	4.40	12	0.31	3.9	8.8
	230							2.09	2.39	5.44	7.70				
BMS F 060 H 20 065A	400	225	250	15	17	45	51	1.21	1.38	3.88	4.40	12	0.33	3.9	10
	230							2.09	2.39	6.79	7.70				
BMS F 060 H 16 065A	400	281	281	12	14	41	41	1.21	1.38	4.40	4.40	12	0.34	3.9	11
	230							2.09	2.39	7.70	7.70				
BMS F 060 H 16 065B	400	281	375	24	27	45	78	2.43	2.68	5.22	9.10	12	0.54	4.5	20
	230							4.20	4.70	9.13	15.9				
BMS F 060 H 10 065A	400	400	450	7.6	9.0	26	26	1.21	1.38	4.40	4.40	12	0.27	2.9	17
	230							2.09	2.39	7.70	7.70				
BMS F 060 H 10 065B	400	400	600	15	17	30	49	2.43	2.68	5.57	9.10	12	0.47	3.5	32
	230							4.20	4.70	9.73	15.9				
BMS F 060 H 7 065B	400	571	714	11	12	34	34	2.43	2.68	9.02	9.02	12	0.49	3.5	46
	230							4.20	4.70	15.8	15.8				
BMS F 060 H 7 082B	400	571	857	20	22	38	59	4.30	5.20	11.3	17.6	12	1.49	5.1	28
	230							7.60	9.00	19.8	30.7				
BMS F 060 H 5 065B	400	700	1000	7.6	9.0	25	25	2.43	2.68	9.10	9.10	13	0.53	3.5	65
	230							4.20	4.70	15.9	15.9				
BMS F 060 H 5 082B	400	700	1000	14	16	43	43	4.30	5.20	17.7	17.7	13	1.53	5.1	39
	230							7.60	9.00	31.0	31.0				
BMS F 060 H 5 082C	400	700	1100	18	22	45	58	4.50	6.20	14.6	18.6	13	1.83	6.2	49
	230							7.60	10.6	25.0	32.0				
BMS F 060 H 4 082B	400	875	1250	11	13	34	34	4.30	5.20	17.7	17.7	13	1.58	5.1	47
	230							7.60	9.00	31.0	31.0				
BMS F 060 H 4 082C	400	875	1175	14	18	45	46	4.50	6.20	18.2	18.6	13	1.88	6.2	59
	230							7.60	10.6	31.3	32.0				

BMS F 070
Dimensions and technical data



DIMENSION LB		
	Variants	
LB2	RES1 / RES2	
LB3	RES1 / RES2	F24 / F1
LB4	ENB1 / ENB2	
LB5	ENB3...ENB6	
LB6	ENB1 / ENB2	F24 / F1
LB7	ENB3...ENB6	F24 / F1



DIMENSION V		
	Variants	
V8	RES1 / RES2 ENB1...ENB6	
V9	RES1 / RES2	F24 / F1
V10	ENB1 / ENB2	F24 / F1
V11	ENB5...ENB6	F24 / F1

Motor size	AC	LB2	LB3	LB4	LB5	LB6	LB7	ADp	ADs	AF	LLp	LLs	V8	V9	V10	V11
BMS 070 - 4… 10 - 1 STAGE																
102A	102	189	229	212	189	252	229	42	42	39	102	83	159	159	199	199
102B		216	256	239	216	279	256	42	42	39	102	83	186	186	226	226
102C		243	283	266	243	306	283	42	42	39	102	83	213	213	253	253
118B	118	243	293	268	243	318	293	42	42	50	102	83	208	258	258	258
118C		276	326	301	276	351	326	42	42	50	102	83	241	291	291	291
BMS 070 - 16… 70 - 2 STAGE																
065A	65	195	226	213	213	262	262	42	42	32	102	83	172	172	221	221
065B		218	249	236	236	285	285	42	42	32	102	83	195	195	244	244
082B	82	232	272	255	232	295	295	42	42	36	102	83	204	204	267	267
082C		252	292	275	252	315	315	42	42	36	102	83	224	224	287	287

Gear motor stages	i	φ_s ≤	φ_r ≤	R_{2max}	A_{2max}
		[arcmin]		[N]	[N]
1	4… 10	5'	3'	4400	4300
2	16… 70	7'	5'	4400	4300

BMS F 070

Performance data • Base overspeed

Designation		n_{n2}	n_{a2}	M_{n2}	M_{02}	M_{a2}	M_{p2}	I_n	I_0	I_a	I_p	C_t	J_1	m	K_p
		[min⁻¹]	[min⁻¹]	[Nm]	[Nm]	[Nm]	[Nm]	[A]	[A]	[A]	[A]	[Nm/arcmin]	[kg cm²]	[kg]	
BMS F 070 B 70 065A	400	43	53	56	60	90	160	0.72	0.76	1.23	2.18	29	0.13	6.9	9.4
	230							1.16	1.23	1.97	3.50				
BMS F 070 B 50 065A	400	60	60	40	43	100	128	0.72	0.76	1.91	2.43	29	0.13	6.9	11
	230							1.16	1.23	3.06	3.90				
BMS F 070 B 40 065A	400	75	63	32	34	100	102	0.72	0.76	2.38	2.43	29	0.14	6.9	13
	230							1.16	1.23	3.82	3.90				
BMS F 070 B 40 065B	400	75	85	64	68	100	180	1.33	1.35	2.35	4.22	29	0.34	7.5	25
	230							2.30	2.30	4.08	7.35				
BMS F 070 B 35 065A	400	86	71	28	30	89	89	0.72	0.76	2.42	2.42	29	0.15	6.9	14
	230							1.16	1.23	3.89	3.89				
BMS F 070 B 35 065B	400	86	86	56	60	100	172	1.33	1.35	2.68	4.60	29	0.35	7.5	26
	230							2.30	2.30	4.66	8.00				
BMS F 070 B 28 065A	400	107	89	22	24	71	71	0.72	0.76	2.42	2.43	29	0.16	6.9	15
	230							1.16	1.23	3.88	3.90				
BMS F 070 B 28 065B	400	107	89	45	48	100	137	1.33	1.35	3.35	4.60	29	0.36	7.5	29
	230							2.30	2.30	5.83	8.00				
BMS F 070 B 25 065A	400	120	100	20	21	64	64	0.72	0.76	2.43	2.43	29	0.18	6.9	16
	230							1.16	1.23	3.90	3.90				
BMS F 070 B 25 065B	400	120	96	40	43	100	123	1.33	1.35	3.76	4.60	29	0.38	7.5	31
	230							2.30	2.30	6.53	8.00				
BMS F 070 B 20 065B	400	150	100	32	34	98	98	1.33	1.35	4.60	4.60	29	0.42	7.5	35
	230							2.30	2.30	8.00	8.00				
BMS F 070 B 20 082B	400	150	160	60	64	100	170	2.50	2.60	5.24	8.90	29	1.42	9.1	30
	230							4.30	4.50	9.12	15.5				
BMS F 070 B 16 065B	400	188	125	26	27	78	78	1.33	1.35	4.58	4.58	29	0.44	7.5	39
	230							2.30	2.30	7.96	7.96				
BMS F 070 B 16 082B	400	188	175	48	51	100	136	2.50	2.60	6.54	8.90	29	1.44	9.1	34
	230							4.30	4.50	11.4	15.5				
BMS F 070 B 16 082C	400	188	200	61	70	100	180	2.90	3.30	5.38	9.68	29	1.74	10	43
	230							5.10	5.80	9.46	17.0				
BMS F 070 B 10 102A	400	300	320	34	40	60	110	2.80	3.30	5.56	10.2	29	2.10	8.6	7.7
	230							4.82	5.68	9.60	17.6				
BMS F 070 B 7 102A	400	429	300	24	28	77	147	2.80	3.30	10.2	10.2	30	2.19	8.6	11
	230							4.82	5.68	17.6	17.6				
BMS F 070 B 7 102B	400	429	457	47	50	90	147	5.40	5.50	12.2	20.0	30	3.69	10	20
	230							9.50	9.70	21.4	35.0				
BMS F 070 B 7 102C	400	429	500	60	60	90	160	5.80	6.50	9.64	17.1	30	4.99	12	26
	230							10.2	12.0	17.0	30.2				
BMS F 070 B 5 102A	400	600	420	17	20	55	105	2.80	3.30	10.2	10.2	31	2.36	8.6	15
	230							4.82	5.68	17.6	17.6				
BMS F 070 B 5 102B	400	600	440	34	36	100	105	5.40	5.50	19.0	20.0	31	3.86	10	28
	230							9.50	9.70	33.3	35.0				
BMS F 070 B 5 118B	400	600	640	48	51	100	150	7.90	8.00	18.7	28.0	31	8.26	14	38
	230							13.5	14.0	32.0	48.0				
BMS F 070 B 5 118C	400	600	680	61	70	100	180	8.40	10.0	16.4	29.5	31	10.4	16	52
	230							14.0	16.0	27.2	48.9				
BMS F 070 B 4 102B	400	750	550	27	29	84	105	5.40	5.50	20.0	20.0	32	4.06	10	35
	230							9.50	9.70	35.0	35.0				
BMS F 070 B 4 118B	400	750	750	38	41	100	120	7.90	8.00	23.3	28.0	32	8.46	14	51
	230							13.5	14.0	40.0	48.0				
BMS F 070 B 4 118C	400	750	775	49	56	100	156	8.40	10.0	20.5	32.0	32	10.6	16	65
	230							14.0	16.0	34.0	53.0				

BMS F 070

Performance data • Medium overspeed

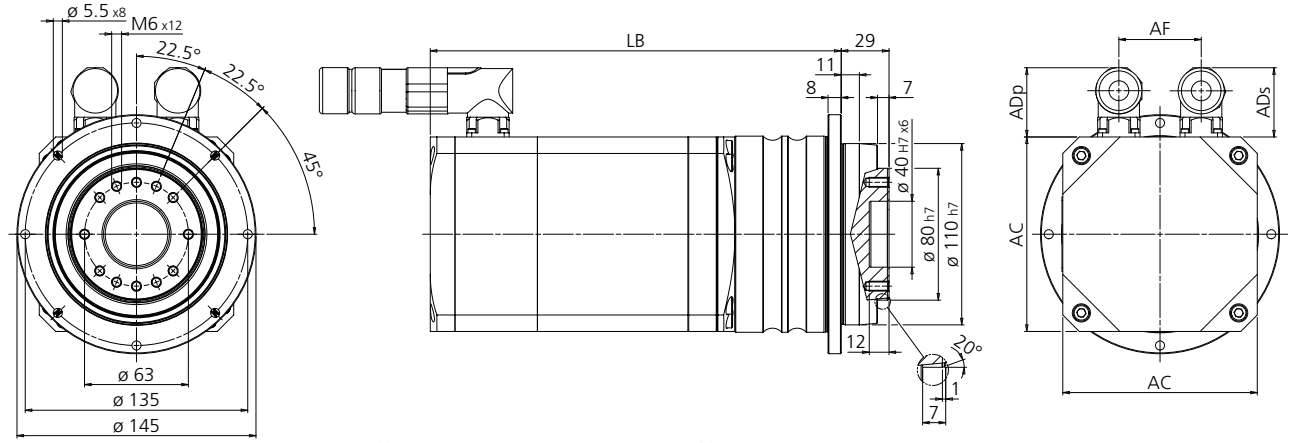
Designation		n_{n2}	n_{a2}	M_{n2}	M_{02}	M_{a2}	M_{p2}	I_n	I_0	I_a	I_p	C_t	J_1	m	K_p
		[min^{-1}]	[min^{-1}]	[Nm]	[Nm]	[Nm]	[Nm]	[A]	[A]	[A]	[A]	[Nm/arcmin]	[kg cm^2]	[kg]	
BMS F 070 M 70 065A	400	57	71	55	60	90	160	0.88	0.98	1.56	2.78	29	0.13	6.9	9.4
	230							1.74	1.90	3.13	5.56				
BMS F 070 M 50 065A	400	70	80	39	43	100	128	0.88	0.98	2.43	3.10	29	0.13	6.9	11
	230							1.74	1.90	4.86	6.20				
BMS F 070 M 40 065A	400	88	75	31	34	100	102	0.88	0.98	3.04	3.10	29	0.14	6.9	13
	230							1.74	1.90	6.08	6.20				
BMS F 070 M 40 065B	400	88	130	62	68	100	180	1.85	1.98	3.42	6.15	29	0.34	7.5	25
	230							3.20	3.40	5.87	10.6				
BMS F 070 M 35 065A	400	100	86	27	30	89	89	0.88	0.98	3.09	3.09	29	0.15	6.9	14
	230							1.74	1.90	6.18	6.18				
BMS F 070 M 35 065B	400	100	143	55	60	100	172	1.85	1.98	3.91	6.70	29	0.35	7.5	26
	230							3.20	3.40	6.71	11.5				
BMS F 070 M 28 065A	400	125	107	22	24	71	71	0.88	0.98	3.08	3.10	29	0.16	6.9	15
	230							1.74	1.90	6.17	6.20				
BMS F 070 M 28 065B	400	125	161	44	48	100	137	1.85	1.98	4.88	6.70	29	0.36	7.5	29
	230							3.20	3.40	8.38	11.5				
BMS F 070 M 25 065A	400	140	120	20	21	64	64	0.88	0.98	3.10	3.10	29	0.18	6.9	16
	230							1.74	1.90	6.20	6.20				
BMS F 070 M 25 065B	400	140	160	39	43	100	123	1.85	1.98	5.47	6.70	29	0.38	7.5	31
	230							3.20	3.40	9.39	11.5				
BMS F 070 M 20 065B	400	175	175	31	34	98	98	1.85	1.98	6.70	6.70	29	0.42	7.5	35
	230							3.20	3.40	11.5	11.5				
BMS F 070 M 20 082B	400	175	250	58	64	100	170	3.40	3.90	7.76	13.2	29	1.42	9.1	30
	230							5.30	6.00	12.1	20.6				
BMS F 070 M 16 065B	400	219	219	25	27	78	78	1.85	1.98	6.67	6.67	29	0.44	7.5	39
	230							3.20	3.40	11.4	11.4				
BMS F 070 M 16 082B	400	219	281	46	51	100	136	3.40	3.90	9.71	13.2	29	1.44	9.1	34
	230							5.30	6.00	15.1	20.6				
BMS F 070 M 16 082C	400	219	313	59	70	100	180	3.90	4.80	7.83	14.1	29	1.74	10	43
	230							6.80	8.40	13.6	24.6				
BMS F 070 M 10 102A	400	350	510	33	40	60	110	3.80	4.90	8.18	15.0	29	2.10	8.6	7.7
	230							6.88	8.82	14.9	27.3				
BMS F 070 M 7 102A	400	500	500	23	28	77	147	3.80	4.90	15.0	15.0	30	2.19	8.6	11
	230							6.88	8.82	27.3	27.3				
BMS F 070 M 7 102B	400	500	714	45	50	90	147	7.50	8.30	18.4	30.0	30	3.69	10	20
	230							12.6	14.0	31.2	51.0				
BMS F 070 M 7 102C	400	500	714	57	60	90	160	7.80	9.70	14.2	25.3	30	4.99	12	26
	230							13.5	17.0	24.8	44.1				
BMS F 070 M 5 102A	400	600	700	17	20	55	105	3.80	4.90	15.0	15.0	31	2.36	8.6	15
	230							6.88	8.82	27.3	27.3				
BMS F 070 M 5 102B	400	600	800	32	36	100	105	7.50	8.30	28.6	30.0	31	3.86	10	28
	230							12.6	14.0	48.6	51.0				
BMS F 070 M 5 118B	400	600	1000	46	51	100	150	10.2	12.0	26.7	40.0	31	8.26	14	38
	230							18.3	21.0	48.7	73.0				
BMS F 070 M 5 118C	400	600	1000	58	70	100	180	10.9	14.0	24.1	43.4	31	10.4	16	52
	-							-	-	-	-				
BMS F 070 M 4 102B	400	750	760	26	29	84	105	7.50	8.30	30.0	30.0	32	4.06	10	35
	230							12.6	14.0	51.0	51.0				
BMS F 070 M 4 118B	400	750	1125	36	41	100	120	10.2	12.0	33.3	40.0	32	8.46	14	51
	230							18.3	21.0	60.8	73.0				
BMS F 070 M 4 118C	400	750	1125	46	56	100	156	10.9	14.0	30.1	47.0	32	10.6	16	65
	-							-	-	-	-				

BMS F 070

Performance data • High overspeed

Designation		n_{n2}	n_{a2}	M_{n2}	M_{02}	M_{a2}	M_{p2}	I_n	I_0	I_a	I_p	C_t	J_1	m	K_p
		[min⁻¹]	[min⁻¹]	[Nm]	[Nm]	[Nm]	[Nm]	[A]	[A]	[A]	[A]	[Nm/arcmin]	[kg cm²]	[kg]	
BMS F 070 H 70 065A	400	57	86	55	60	90	160	1.21	1.38	2.22	3.94	29	0.13	6.9	9.4
	230							2.09	2.39	3.88	6.90				
BMS F 070 H 50 065A	400	70	110	39	43	100	128	1.21	1.38	3.45	4.40	29	0.13	6.9	11
	230							2.09	2.39	6.04	7.70				
BMS F 070 H 40 065A	400	88	105	31	34	100	102	1.21	1.38	4.31	4.40	29	0.14	6.9	13
	230							2.09	2.39	7.55	7.70				
BMS F 070 H 40 065B	400	88	150	62	68	100	180	2.43	2.68	4.64	8.36	29	0.34	7.5	25
	230							4.20	4.70	8.11	14.6				
BMS F 070 H 35 065A	400	100	120	27	30	89	89	1.21	1.38	4.39	4.39	29	0.15	6.9	14
	230							2.09	2.39	7.68	7.68				
BMS F 070 H 35 065B	400	100	171	55	60	100	172	2.43	2.68	5.31	9.10	29	0.35	7.5	26
	230							4.20	4.70	9.27	15.9				
BMS F 070 H 28 065A	400	125	150	22	24	71	71	1.21	1.38	4.38	4.40	29	0.16	6.9	15
	230							2.09	2.39	7.66	7.70				
BMS F 070 H 28 065B	400	125	214	44	48	100	137	2.43	2.7	6.63	9.10	29	0.36	7.5	29
	230							4.20	4.70	11.6	15.9				
BMS F 070 H 25 065A	400	140	168	20	21	64	64	1.21	1.38	4.40	4.40	29	0.18	6.9	16
	230							2.09	2.39	7.70	7.70				
BMS F 070 H 25 065B	400	140	232	39	43	100	123	2.43	2.68	7.43	9.10	29	0.38	7.5	31
	230							4.20	4.70	13.0	15.9				
BMS F 070 H 20 065B	400	175	250	31	34	98	98	2.43	2.68	9.10	9.10	29	0.42	7.5	35
	230							4.20	4.70	15.9	15.9				
BMS F 070 H 20 082B	400	175	300	58	64	100	170	4.30	5.20	10.4	17.7	29	1.42	9.1	30
	230							7.60	9.00	18.2	31.0				
BMS F 070 H 16 065B	400	219	313	25	27	78	78	2.43	2.68	9.05	9.05	29	0.44	7.5	39
	230							4.20	4.70	15.8	15.8				
BMS F 070 H 16 082B	400	219	375	46	51	100	136	4.30	5.20	13.0	17.7	29	1.44	9.1	34
	230							7.60	9.00	22.8	31.0				
BMS F 070 H 16 082C	400	219	375	59	70	100	180	4.50	6.20	10.1	18.2	29	1.74	10	43
	230							7.60	10.6	17.4	31.3				
BMS F 070 H 10 102A	400	350	600	33	40	60	110	4.60	6.30	10.4	19.0	29	2.10	8.6	7.7
	230							8.29	11.4	19.1	35.1				
BMS F 070 H 7 102A	400	500	643	23	28	77	147	4.60	6.30	19.0	19.0	30	2.19	8.6	11
	230							8.29	11.4	35.1	35.1				
BMS F 070 H 7 102B	400	500	857	45	50	90	147	9.30	11.0	24.5	40.0	30	3.69	10	20
	230							15.40	18.2	40.4	66.0				
BMS F 070 H 7 102C	400	500	857	57	60	90	160	8.40	12.4	18.4	32.7	30	4.99	12	26
	230							14.80	21.8	32.1	57.1				
BMS F 070 H 5 102A	400	600	900	17	20	55	105	4.60	6.30	19.0	19.0	31	2.36	8.6	15
	230							8.29	11.4	35.1	35.1				
BMS F 070 H 5 102B	400	600	1080	32	36	100	105	9.30	11.0	38.1	40.0	31	3.86	10	28
	230							15.40	18.2	62.9	66.0				
BMS F 070 H 5 118B	400	600	1200	46	51	100	150	11.40	15.8	36.7	55.0	31	8.26	14	38
	-							-	-	-	-				
BMS F 070 H 5 118C	400	600	1200	58	70	100	180	11.80	18.9	31.8	57.2	31	10.4	16	52
	-							-	-	-	-				
BMS F 070 H 4 102B	400	750	135	26	29	84	105	9.30	11.0	40.0	40.0	32	4.06	10	35
	230							15.40	18.2	66.0	66.0				
BMS F 070 H 4 118B	400	750	1500	36	41	100	120	11.40	15.8	45.8	55.0	32	8.46	14	51
	-							-	-	-	-				
BMS F 070 H 4 118C	400	750	1500	46	56	100	156	11.80	18.9	39.7	62.0	32	10.6	16	65
	-							-	-	-	-				

BMS F 090
Dimensions and technical data



DIMENSION LB		
	Variants	
LB2	RES1 / RES2	
LB3	RES1 / RES2	F24 / F1
LB4	ENB1 / ENB2	
LB5	ENB3...ENB6	
LB6	ENB1 / ENB2	F24 / F1
LB7	ENB3...ENB6	F24 / F1

DIMENSION V		
	Variants	
V8	RES1 / RES2 ENB1...ENB6	
V9	RES1 / RES2	F24 / F1
V10	ENB1 / ENB2	F24 / F1
V11	ENB5...ENB6	F24 / F1

Motor size	AC	LB2	LB3	LB4	LB5	LB6	LB7	ADp	ADs	AF	LLp	LLs	V8	V9	V10	V11
BMS 090 - 4… 10 - 1 STAGE																
118A	118	218	268	243	218	293	268	42	42	50	102	83	183	233	233	233
118B		249	299	274	249	324	299	42	42	50	102	83	214	264	264	264
118C		282	332	307	282	357	332	42	42	50	102	83	247	297	297	297
145B	145	268	318	293	268	343	318	42	42	45	102	83	233	283	283	283
145C		303	353	328	303	378	353	42	42	45	102	83	268	318	318	318
170B	170	294	369	332	294	407	369	62	42	90	129	83	267	342	342	342
170C		348	423	386	348	461	423	62	42	90	129	83	321	396	396	396
BMS 090 - 16… 50 - 2 STAGE																
102A	102	237	277	260	237	300	277	42	42	39	102	83	207	207	247	247
102B		264	304	287	264	327	304	42	42	39	102	83	234	234	274	274
102C		291	331	314	291	354	331	42	42	39	102	83	261	261	301	301
118B	118	292	342	317	292	367	342	42	42	50	102	83	325	325	365	365
118C		325	375	350	325	400	375	42	42	50	102	83	352	352	392	392

Gear motor stages	i	φ_s ≤	φ_r ≤	R_{2max}	A_{2max}
		[arcmin]		[N]	[N]
1	4… 10	5'	3'	5500	6800
2	16… 50	7'	5'	5500	6800

BMS F 090

Performance data • Base overspeed

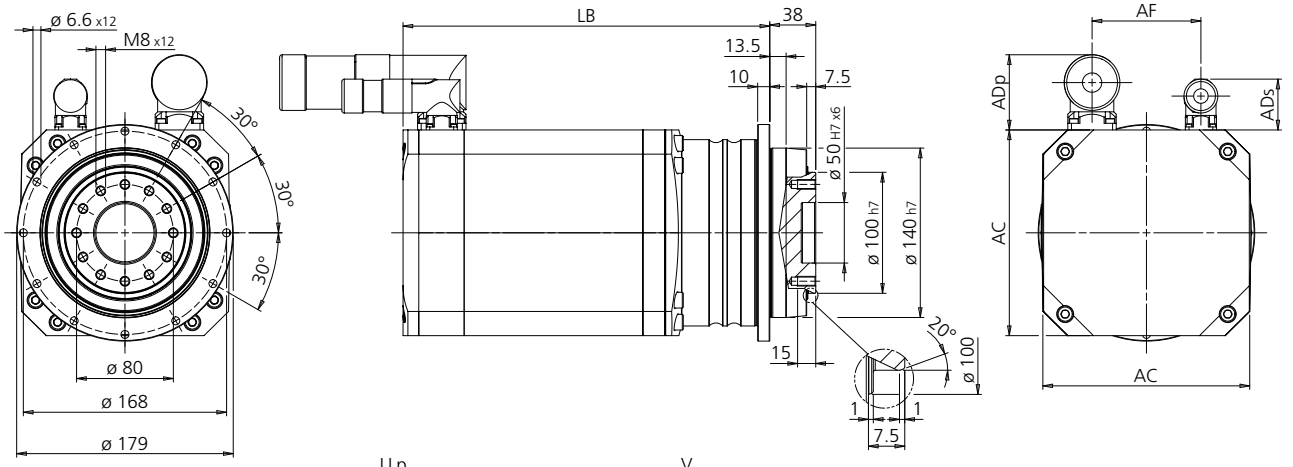
Designation		n_{n2}	n_{a2}	M_{n2}	M_{02}	M_{a2}	M_{p2}	I_n	I_0	I_a	I_p	C_t	J_1	m	K_p
		[min⁻¹]	[min⁻¹]	[Nm]	[Nm]	[Nm]	[Nm]	[A]	[A]	[A]	[A]	[Nm/arcmin]	[kg cm²]	[kg]	
BMS F 090 B 50 102A	400	60	70	170	180	280	500	2.80	3.30	5.19	9.27	70	1.72	14	10
	230							4.82	5.68	8.96	16.0				
BMS F 090 B 40 102A	400	75	75	136	160	300	500	2.80	3.30	6.95	10.2	70	1.73	14	11
	230							4.82	5.68	12.0	17.6				
BMS F 090 B 35 102A	400	86	80	119	140	280	500	2.80	3.30	7.42	10.2	70	1.77	14	13
	230							4.82	5.68	12.8	17.6				
BMS F 090 B 28 102A	400	107	79	95	112	300	500	2.80	3.30	9.94	10.2	70	1.78	14	15
	230							4.82	5.68	17.1	17.6				
BMS F 090 B 28 102B	400	107	125	188	200	300	500	5.40	5.50	10.2	17.0	70	3.28	15	26
	230							9.50	9.70	17.9	29.8				
BMS F 090 B 25 102A	400	120	88	85	100	275	500	2.80	3.30	10.2	10.2	70	1.86	14	15
	230							4.82	5.68	17.6	17.6				
BMS F 090 B 25 102B	400	120	140	168	180	280	500	5.40	5.50	10.7	19.0	70	3.36	15	28
	230							9.50	9.70	18.7	33.3				
BMS F 090 B 20 102B	400	150	150	134	144	280	420	5.40	5.50	13.3	20.0	70	3.46	15	31
	230							9.50	9.70	23.3	35.0				
BMS F 090 B 20 102C	400	150	160	170	180	280	500	5.80	6.50	10.5	18.8	70	4.76	17	37
	230							10.2	12.0	18.5	33.0				
BMS F 090 B 16 102B	400	188	156	107	115	300	336	5.40	5.50	17.9	20.0	70	3.49	15	41
	230							9.50	9.70	31.3	35.0				
BMS F 090 B 16 118B	400	188	219	152	163	300	480	7.90	8.00	17.5	28.0	70	7.89	19	19
	230							13.5	14.0	30.0	48.0				
BMS F 090 B 16 118C	400	188	219	195	200	300	500	8.40	10.0	15.4	25.6	70	10.0	21	26
	230							14.0	16.0	25.5	42.5				
BMS F 090 B 10 118A	400	300	250	51	56	150	150	3.90	4.30	14.0	14.0	70	4.78	15	13
	230							6.64	7.30	23.9	23.9				
BMS F 090 B 10 118B	400	300	360	95	102	170	300	7.90	8.00	15.9	28.0	70	8.18	17	26
	230							13.5	14.0	27.2	48.0				
BMS F 090 B 7 118B	400	429	386	67	71	210	210	7.90	8.00	28.0	28.0	72	8.35	17	37
	230							13.5	14.0	48.0	48.0				
BMS F 090 B 7 118C	400	429	357	85	98	250	273	8.40	10.0	29.3	32.0	72	10.5	19	46
	230							14.0	16.0	48.5	53.0				
BMS F 090 B 7 145B	400	429	400	112	118	250	322	12.5	13.0	38.8	50.0	72	13.4	22	50
	230							21.9	23.0	68.3	88.0				
BMS F 090 B 7 145C	400	429	429	134	154	250	413	14.2	16.0	32.7	54.0	72	18.2	25	58
	230							22.9	27.0	52.7	87.0				
BMS F 090 B 5 118B	400	500	540	48	51	150	150	7.90	8.00	28.0	28.0	75	8.67	17	51
	230							13.5	14.0	48.0	48.0				
BMS F 090 B 5 118C	400	500	480	61	70	195	195	8.40	10.0	32.0	32.0	75	10.8	19	65
	230							14.0	16.0	53.0	53.0				
BMS F 090 B 5 145B	400	500	480	80	84	230	230	12.5	13.0	50.0	50.0	75	13.7	22	67
	230							21.9	23.0	88.0	88.0				
BMS F 090 B 5 145C	400	500	400	96	110	280	295	14.2	16.0	51.3	54.0	75	18.5	25	81
	230							22.9	27.0	82.6	87.0				
BMS F 090 B 5 170B	400	500	640	138	170	280	450	18.6	23.0	43.6	70.0	75	29.1	32	89
	230							32.2	40.0	75.3	121				
BMS F 090 B 5 170C	400	500	640	180	180	280	500	24.9	31.0	43.0	76.8	75	48.4	37	116
	-							-	-	-	-				
BMS F 090 B 4 145B	400	625	600	64	67	184	184	12.5	13.0	50.0	50.0	77	14.0	22	85
	230							21.9	23.0	88.0	88.0				
BMS F 090 B 4 145C	400	625	500	77	88	236	236	14.2	16.0	54.0	54.0	77	18.8	25	101
	230							22.9	27.0	87.0	87.0				
BMS F 090 B 4 170B	400	625	625	110	136	300	360	18.6	23.0	58.3	70.0	77	29.4	32	99
	230							32.2	40.0	101	121				
BMS F 090 B 4 170C	400	625	750	144	180	300	500	24.9	31.0	57.6	96.0	77	48.7	37	127
	-							-	-	-	-				

BMS F 090

Performance data • Medium overspeed

Designation		n_{n2}	n_{a2}	M_{n2}	M_{02}	M_{a2}	M_{p2}	I_n	I_0	I_a	I_p	C_t	J_1	m	K_p
		[min^{-1}]	[min^{-1}]	[Nm]	[Nm]	[Nm]	[Nm]	[A]	[A]	[A]	[A]	[Nm/arcmin]	[kg cm^2]	[kg]	
BMS F 090 M 50 102A	400	70	90	165	200	280	500	3.80	4.90	7.64	13.6	70	1.72	14	10
	230							6.88	8.82	13.9	24.8				
BMS F 090 M 40 102A	400	75	113	136	160	300	500	3.80	4.90	10.2	15.0	70	1.73	14	11
	230							6.88	8.82	18.6	27.3				
BMS F 090 M 35 102A	400	86	129	119	140	280	500	3.80	4.90	10.9	15.0	70	1.77	14	13
	230							6.88	8.82	19.9	27.3				
BMS F 090 M 28 102A	400	107	125	95	112	300	500	3.80	4.90	14.6	15.0	70	1.78	14	15
	230							6.88	8.82	26.6	27.3				
BMS F 090 M 28 102B	400	107	161	188	200	300	500	7.50	8.30	15.3	25.5	70	3.28	15	26
	230							12.6	14.0	26.0	43.4				
BMS F 090 M 25 102A	400	120	140	85	100	275	500	3.80	4.90	15.0	15.0	70	1.86	14	15
	230							6.88	8.82	27.3	27.3				
BMS F 090 M 25 102B	400	120	180	168	180	280	500	7.50	8.30	16.0	28.6	70	3.36	15	28
	230							12.6	14.0	27.2	48.6				
BMS F 090 M 20 102B	400	150	225	134	144	280	420	7.50	8.30	20.0	30.0	70	3.46	15	31
	230							12.6	14.0	34.0	51.0				
BMS F 090 M 20 102C	400	150	225	170	180	280	500	7.80	9.70	15.5	27.7	70	4.76	17	37
	230							13.5	17.0	27.0	48.2				
BMS F 090 M 16 102B	400	188	250	107	115	300	336	7.50	8.30	26.8	30.0	70	3.49	15	41
	230							12.6	14.0	45.5	51.0				
BMS F 090 M 16 118B	400	188	281	152	163	300	480	10.2	12.0	25.0	40.0	70	7.89	19	19
	230							18.3	21.0	45.6	73.0				
BMS F 090 M 16 118C	400	188	281	195	200	300	500	10.9	14.0	22.6	37.7	70	10.0	21	26
	-							-	-	-	-				
BMS F 090 M 10 118A	400	300	400	51	56	150	150	5.20	6.40	21.0	21.0	70	4.78	15	13
	230							9.04	11.2	36.5	36.5				
BMS F 090 M 10 118B	400	300	450	95	102	170	300	10.2	12.0	22.7	40.0	70	8.18	17	26
	230							18.3	21.0	41.4	73.0				
BMS F 090 M 7 118B	400	429	571	67	71	210	210	10.2	12.0	40.0	40.0	72	8.35	17	37
	230							18.3	21.0	73.0	73.0				
BMS F 090 M 7 118C	400	429	571	85	98	250	273	10.9	14.0	43.0	47.0	72	10.5	19	46
	-							-	-	-	-				
BMS F 090 M 7 145B	400	429	586	112	118	250	322	16.4	19.0	56.7	73.0	72	13.4	22	50
	-							-	-	-	-				
BMS F 090 M 7 145C	400	429	643	134	154	250	413	18.3	24.0	48.4	80.0	72	18.2	25	58
	-							-	-	-	-				
BMS F 090 M 5 118B	400	500	800	48	51	150	150	10.2	12.0	40.0	40.0	75	8.67	17	51
	230							18.3	21.0	73.0	73.0				
BMS F 090 M 5 118C	400	500	760	61	70	195	195	10.9	14.0	47.0	47.0	75	10.8	19	65
	-							-	-	-	-				
BMS F 090 M 5 145B	400	500	700	80	84	230	230	16.4	19.0	73.0	73.0	75	13.7	22	67
	-							-	-	-	-				
BMS F 090 M 5 145C	400	500	640	96	110	280	295	18.3	24.0	75.9	80.0	75	18.5	25	81
	-							-	-	-	-				
BMS F 090 M 4 145B	400	625	875	64	67	184	184	16.4	19.0	73.0	73.0	77	14.0	22	85
	-							-	-	-	-				
BMS F 090 M 4 145C	400	625	800	77	88	236	236	18.3	24.0	80.0	80.0	77	18.8	25	101
	-							-	-	-	-				

BMS F 130
Dimensions and technical data



DIMENSION LB	Variants	
LB2	RES1 / RES2	
LB3	RES1 / RES2	F24 / F1
LB4	ENB1 / ENB2	
LB5	ENB3...ENB6	
LB6	ENB1 / ENB2	F24 / F1
LB7	ENB3...ENB6	F24 / F1

DIMENSION V	Variants	
V8	RES1 / RES2 ENB1...ENB6	
V9	RES1 / RES2	F24 / F1
V10	ENB1 / ENB2	F24 / F1
V11	ENB5...ENB6	F24 / F1

Motor size	AC	LB2	LB3	LB4	LB5	LB6	LB7	ADp	ADs	AF	LLp	LLs	V8	V9	V10	V11
BMS 130 - 4... 10 - 1 STAGE																
145B	145	277	327	302	277	352	327	42	42	45	102	83	242	292	292	292
145C		312	362	337	312	387	362	42	42	45	102	83	277	327	327	327
170B	170	304	379	342	304	417	379	62	42	90	129	83	277	352	352	352
170C		358	433	396	358	471	433	62	42	90	129	83	331	406	406	406
BMS 130 - 16... 70 - 2 STAGE																
118A	118	286	336	311	286	361	336	42	42	50	102	83	251	301	301	301
118B		317	367	342	317	392	367	42	42	50	102	83	282	332	332	332
118C		350	400	375	350	425	400	42	42	50	102	83	315	365	365	365
145B	145	336	386	361	336	411	386	42	42	45	102	83	301	351	351	351
145C		371	421	396	371	446	421	42	42	45	102	83	336	386	386	386

Gear motor stages	i	φ_s ≤	φ_r	R_{2max}	A_{2max}
		[arcmin]		[N]	[N]
1	4... 10	5'	3'	12000	8500
2	16... 70	7'	5'	12000	8500

BMS F 130

Performance data • Base overspeed

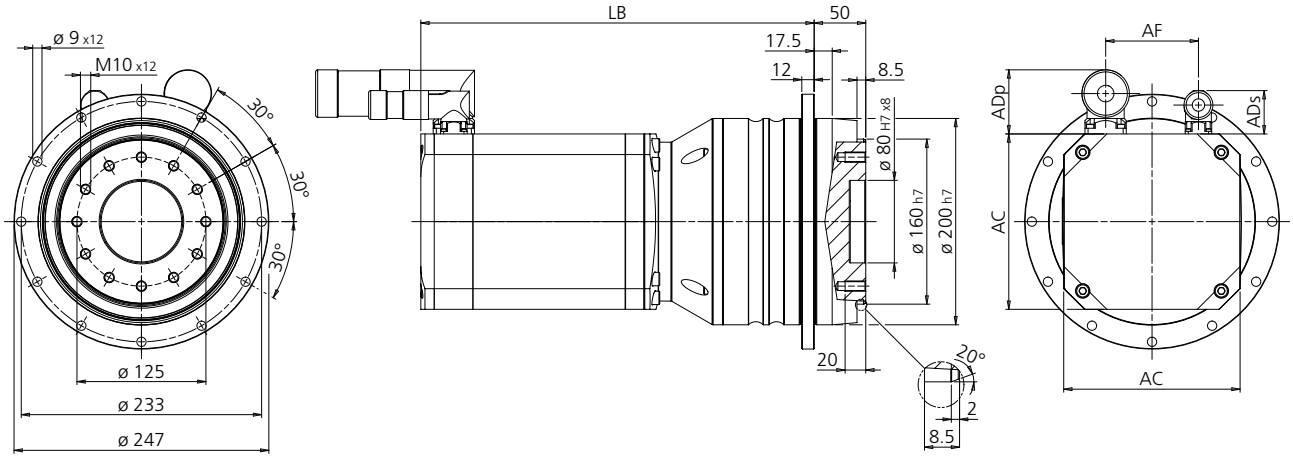
Designation		n_{n2}	n_{a2}	M_{n2}	M_{02}	M_{a2}	M_{p2}	I_n	I_0	I_a	I_p	C_t	J_1	m	K_p
		[min^{-1}]	[min^{-1}]	[Nm]	[Nm]	[Nm]	[Nm]	[A]	[A]	[A]	[A]	[Nm/arcmin]	[kg cm^2]	[kg]	
BMS F 130 B 70 118A	400	43	50	357	392	550	950	3.90	4.30	7.33	12.7	180	3.72	26	5.5
	230							6.64	7.30	12.5	21.6				
BMS F 130 B 50 118A	400	60	60	255	280	600	750	3.90	4.30	11.2	14.0	180	3.73	26	6.3
	230							6.64	7.30	19.1	23.9				
BMS F 130 B 40 118A	400	75	63	204	224	600	600	3.90	4.30	14.0	14.0	180	3.75	26	7.5
	230							6.64	7.30	23.9	23.9				
BMS F 130 B 40 118B	400	75	95	380	400	600	1000	7.90	8.00	14.0	23.3	180	7.15	28	13
	230							13.5	14.0	24.0	40.0				
BMS F 130 B 35 118A	400	80	71	179	196	525	525	3.90	4.30	14.0	14.0	180	3.87	26	8.3
	230							6.64	7.30	23.9	23.9				
BMS F 130 B 35 118B	400	80	103	333	357	600	1000	7.90	8.00	16.0	26.7	180	7.27	28	14
	230							13.5	14.0	27.4	45.7				
BMS F 130 B 28 118B	400	100	114	266	286	600	840	7.90	8.00	20.0	28.0	180	7.31	28	15
	230							13.5	14.0	34.3	48.0				
BMS F 130 B 28 118C	400	100	121	342	392	600	1000	8.40	10.0	17.6	29.3	180	9.41	30	19
	230							14.0	16.0	29.1	48.5				
BMS F 130 B 25 118B	400	112	120	238	255	600	750	7.90	8.00	22.4	28.0	180	7.53	28	15
	230							13.5	14.0	38.4	48.0				
BMS F 130 B 25 118C	400	112	124	305	350	600	975	8.40	10.0	19.7	32.0	180	9.63	30	20
	230							14.0	16.0	32.6	53.0				
BMS F 130 B 25 145B	400	112	136	400	400	600	1000	12.5	13.0	26.1	43.5	180	12.5	34	21
	230							21.9	23.0	45.9	76.5				
BMS F 130 B 20 118B	400	140	135	190	204	600	600	7.90	8.00	28.0	28.0	180	7.82	28	16
	230							13.5	14.0	48.0	48.0				
BMS F 130 B 20 118C	400	140	135	244	280	600	780	8.40	10.0	24.6	32.0	180	9.92	30	22
	230							14.0	16.0	40.8	53.0				
BMS F 130 B 20 145B	400	140	155	320	336	600	920	12.5	13.0	32.6	50.0	180	12.8	34	23
	230							21.9	23.0	57.4	88.0				
BMS F 130 B 20 145C	400	140	160	384	400	600	1000	14.2	16.0	27.5	45.8	180	17.6	37	30
	230							22.9	27.0	44.2	73.7				
BMS F 130 B 16 118B	400	175	169	152	163	480	480	7.90	8.00	28.0	28.0	180	7.95	28	18
	230							13.5	14.0	48.0	48.0				
BMS F 130 B 16 118C	400	175	150	195	224	600	624	8.40	10.0	30.8	32.0	180	10.1	30	24
	230							14.0	16.0	51.0	53.0				
BMS F 130 B 16 145B	400	175	175	256	269	600	736	12.5	13.0	40.8	50.0	180	13.0	34	27
	230							21.9	23.0	71.7	88.0				
BMS F 130 B 16 145C	400	175	175	307	352	600	944	14.2	16.0	34.3	54.0	180	17.8	37	34
	230							22.9	27.0	55.3	87.0				
BMS F 130 B 10 145B	400	250	250	160	168	420	460	12.5	13.0	45.7	50.0	180	14.3	32	45
	230							21.9	23.0	80.3	88.0				
BMS F 130 B 10 145C	400	250	250	192	220	420	590	14.2	16.0	38.4	54.0	180	19.1	32	54
	230							22.9	27.0	61.9	87.0				
BMS F 130 B 10 170B	400	250	350	280	280	420	900	18.6	23.0	32.7	70.0	180	29.7	39	48
	230							32.2	40.0	56.5	121				
BMS F 130 B 7 145B	400	357	343	112	118	322	322	12.5	13.0	50.0	50.0	185	15.3	29	65
	230							21.9	23.0	88.0	88.0				
BMS F 130 B 7 145C	400	357	286	134	154	413	413	14.2	16.0	54.0	54.0	185	20.1	32	77
	230							22.9	27.0	87.0	87.0				
BMS F 130 B 7 170B	400	357	357	440	238	550	630	18.6	23.0	61.1	70.0	185	30.7	39	69
	230							32.2	40.0	106	121				
BMS F 130 B 7 170C	400	357	429	252	315	550	875	24.9	31.0	60.3	96.0	185	50.0	44	94
	-							-	-	-	-				
BMS F 130 B 5 170B	400	500	500	138	170	450	450	18.6	23.0	70.0	70.0	193	32.4	39	97
	230							32.2	40.0	121	121				
BMS F 130 B 5 170C	400	500	480	180	225	600	625	24.9	31.0	92.2	96.0	193	51.7	44	128
	-							-	-	-	-				
BMS F 130 B 4 170B	400	525	625	110	136	360	360	18.6	23.0	70.0	70.0	198	34.4	39	121
	230							32.2	40.0	121	121				
BMS F 130 B 4 170C	400	525	600	144	180	500	500	24.9	31.0	96.0	96.0	198	53.7	44	156
	-							-	-	-	-				

BMS F 130

Performance data • Medium overspeed

Designation		n_{n2}	n_{a2}	M_{n2}	M_{02}	M_{a2}	M_{p2}	I_n	I_0	I_a	I_p	C_t	J_1	m	K_p
		[min^{-1}]	[min^{-1}]	[Nm]	[Nm]	[Nm]	[Nm]	[A]	[A]	[A]	[A]	[Nm/arcmin]	[kg cm^2]	[kg]	
BMS F 130 M 70 118A	400	50	57	357	392	550	950	5.20	6.40	11.0	19.0	180	3.72	26	5.5
	230							9.04	11.2	19.1	33.0				
BMS F 130 M 50 118A	400	64	80	255	280	600	750	5.20	6.40	16.8	21.0	180	3.73	26	6.3
	230							9.04	11.2	29.2	36.5				
BMS F 130 M 40 118A	400	80	100	204	224	600	600	5.20	6.40	21.0	21.0	180	3.75	26	7.5
	230							9.04	11.2	36.5	36.5				
BMS F 130 M 40 118B	400	80	100	380	400	600	1000	10.2	12.0	20.0	33.3	180	7.15	28	13
	230							18.3	21.0	36.5	60.8				
BMS F 130 M 35 118A	400	80	114	179	196	525	525	5.20	6.40	21.0	21.0	180	3.87	26	8.3
	230							9.04	11.2	36.5	36.5				
BMS F 130 M 35 118B	400	80	114	333	357	600	1000	10.2	12.0	22.9	38.1	180	7.27	28	14
	230							18.3	21.0	41.7	69.5				
BMS F 130 M 28 118B	400	100	143	266	286	600	840	10.2	12.0	28.6	40.0	180	7.31	28	15
	230							18.3	21.0	52.1	73.0				
BMS F 130 M 28 118C	400	100	143	342	392	600	1000	10.9	14.0	25.8	43.0	180	9.41	30	19
	-							-	-	-	-				
BMS F 130 M 25 118B	400	112	160	238	255	600	750	10.2	12.0	32.0	40.0	180	7.53	28	15
	230							18.3	21.0	58.4	73.0				
BMS F 130 M 25 118C	400	112	160	305	350	600	975	10.9	14.0	28.9	47.0	180	9.63	30	20
	-							-	-	-	-				
BMS F 130 M 25 145B	400	112	160	400	400	600	1000	16.4	19.0	38.1	63.5	180	12.5	34	21
	-							-	-	-	-				
BMS F 130 M 20 118B	400	140	200	190	204	600	600	10.2	12.0	40.0	40.0	180	7.82	28	16
	230							18.3	21.0	73.0	73.0				
BMS F 130 M 20 118C	400	140	200	244	280	600	780	10.9	14.0	36.2	47.0	180	9.92	30	22
	-							-	-	-	-				
BMS F 130 M 20 145B	400	140	200	320	336	600	920	16.4	19.0	47.6	73.0	180	12.8	34	13
	-							-	-	-	-				
BMS F 130 M 20 145C	400	140	200	384	400	600	1000	18.3	24.0	40.7	67.8	180	17.6	37	30
	-							-	-	-	-				
BMS F 130 M 16 118B	400	175	250	152	163	480	480	10.2	12.0	40.0	40.0	180	7.95	28	18
	230							18.3	21.0	73.0	73.0				
BMS F 130 M 16 118C	400	175	238	195	224	600	624	10.9	14.0	45.2	47.0	180	10.1	30	24
	-							-	-	-	-				
BMS F 130 M 16 145B	400	175	250	256	269	600	736	16.4	19.0	59.5	73.0	180	13.0	34	27
	-							-	-	-	-				
BMS F 130 M 16 145C	400	175	250	307	352	600	944	18.3	24.0	50.8	80.0	180	17.8	37	34
	-							-	-	-	-				
BMS F 130 M 10 145B	400	250	380	160	168	420	460	16.4	19.0	66.7	73.0	180	14.3	32	45
	-							-	-	-	-				
BMS F 130 M 10 145C	400	250	400	192	220	420	590	18.3	24.0	56.9	80.0	180	19.1	32	54
	-							-	-	-	-				
BMS F 130 M 7 145B	400	357	500	112	118	322	322	16.4	19.0	73.0	73.0	185	15.3	29	65
	-							-	-	-	-				
BMS F 130 M 7 145C	400	357	457	134	154	413	413	18.3	24.3	80.0	80.0	185	20.1	32	77
	-							-	-	-	-				

BMS F 160
Dimensions and technical data



DIMENSION LB	Variants	
LB2	RES1 / RES2	
LB3	RES1 / RES2	F24 / F1
LB4	ENB1 / ENB2	
LB5	ENB3...ENB6	
LB6	ENB1 / ENB2	F24 / F1
LB7	ENB3...ENB6	F24 / F1

DIMENSION V	Variants	
V8	RES1 / RES2 ENB1...ENB6	
V9	RES1 / RES2	F24 / F1
V10	ENB1 / ENB2	F24 / F1
V11	ENB5...ENB6	F24 / F1

Motor size	AC	LB2	LB3	LB4	LB5	LB6	LB7	ADp	ADs	AF	LLp	LLs	V8	V9	V10	V11
BMS 160 - 16 ... 50 - 2 STAGE																
145B	145	355	405	380	355	430	405	42	42	45	102	83	320	370	370	370
145C		390	440	415	390	465	440	42	42	45	102	83	355	405	405	405
170B	170	382	457	420	382	495	457	62	42	90	129	83	355	430	430	430
170C		436	511	474	436	549	511	62	42	90	129	83	409	484	484	484

Gear motor stages	i	φ_s ≤	φ_r	R_{2max}	A_{2max}
		[arcmin]		[N]	[N]
2	16... 50	7'	5'	29000	16000

BMS F 160

Performance data • Base overspeed

Designation		n_{n2}	n_{a2}	M_{n2}	M_{02}	M_{a2}	M_{p2}	I_n	I_0	I_a	I_p	C_t	J_1	m	K_p
		[min^{-1}]	[min^{-1}]	[Nm]	[Nm]	[Nm]	[Nm]	[A]	[A]	[A]	[A]	[Nm/arcmin]	[kg cm^2]	[kg]	
BMS F 160 B 50 145B	400	56	68	800	800	1200	2000	12.5	13.0	26.1	43.5	500	12	67	28
	230							21.9	23.0	46.2	76.5				
BMS F 160 B 40 145B	400	70	78	640	672	1200	1840	12.5	13.0	32.6	50.0	500	13	67	31
	230							21.9	23.0	57.7	88.0				
BMS F 160 B 40 145C	400	70	80	768	800	1200	2000	14.2	16.0	27.5	45.8	500	17	70	36
	230							22.9	27.0	44.1	73.7				
BMS F 160 B 35 145B	400	80	86	560	588	1200	1610	12.5	13.0	37.3	50.0	500	13	67	33
	230							21.9	23.0	65.9	88.0				
BMS F 160 B 35 145C	400	80	86	672	770	1200	2000	14.2	16.0	31.5	52.3	500	18	70	39
	230							22.9	27.0	50.4	84.3				
BMS F 160 B 28 145B	400	100	89	448	470	1200	1288	12.5	13.0	46.6	50.0	500	13	67	37
	230							21.9	23.0	82.4	88.0				
BMS F 160 B 28 145C	400	100	89	538	616	1200	1652	14.2	16.0	39.3	54.0	500	18	70	43
	230							22.9	27.0	63.0	87.0				
BMS F 160 B 25 145B	400	112	96	400	420	1150	1150	12.5	13.0	50.0	50.0	500	15	67	39
	230							21.9	23.0	88.5	88.0				
BMS F 160 B 25 145C	400	112	88	480	550	1200	1475	14.2	16.0	44.0	54.0	500	19	70	46
	230							22.9	27.0	70.6	87.0				
BMS F 160 B 25 170B	400	112	140	688	800	1200	2000	18.6	23.0	37.2	62.2	500	30	82	37
	230							32.2	40.0	64.9	108				
BMS F 160 B 20 145B	400	140	120	320	336	920	920	12.5	13.0	50.0	50.0	500	16	67	43
	230							21.9	23.0	88.5	88.0				
BMS F 160 B 20 145C	400	140	100	384	440	1180	1180	14.2	16.0	54.1	54.0	500	21	70	51
	230							22.9	27.0	86.8	87.0				
BMS F 160 B 20 170B	400	140	160	550	680	1200	1800	18.6	23.0	46.5	70.0	500	31	77	41
	230							32.2	40.0	81.1	121				
BMS F 160 B 20 170C	400	140	160	720	800	1200	2000	24.9	31.0	46.2	76.8	500	51	82	55
	-							-	-	-	-				
BMS F 160 B 16 145B	400	175	150	256	269	736	736	12.5	13.0	50.0	50.0	500	17	67	48
	230							21.9	23.0	88.5	88.0				
BMS F 160 B 16 145C	400	175	125	307	352	944	944	14.2	16.0	54.1	54.0	500	21	70	57
	230							22.9	27.0	86.8	87.0				
BMS F 160 B 16 170B	400	175	175	440	544	1200	1440	18.6	23.0	58.1	70.0	500	32	77	49
	230							32.2	40.0	101	121				
BMS F 160 B 16 170C	400	175	188	576	720	1200	2000	24.9	31.0	57.7	96.0	500	51	82	63
	-							-	-	-	-				

BMS F 160

Performance data • Medium overspeed

Designation		n_{n2}	n_{a2}	M_{n2}	M_{02}	M_{a2}	M_{p2}	I_n	I_0	I_a	I_p	C_t	J_1	m	K_p
		[min^{-1}]	[min^{-1}]	[Nm]	[Nm]	[Nm]	[Nm]	[A]	[A]	[A]	[A]	[Nm/arcmin]	[kg cm^2]	[kg]	
BMS F 160 M 50 145B	400	56	70	800	800	1200	2000	16.4	19.0	38.1	63.5	500	12	67	28
	-							-	-	-	-				
BMS F 160 M 40 145B	400	70	88	640	672	1200	1840	16.4	19.0	47.6	73.0	500	13	67	31
	-							-	-	-	-				
BMS F 160 M 40 145C	400	70	88	768	800	1200	2000	18.3	24.0	40.7	67.8	500	17	70	36
	-							-	-	-	-				
BMS F 160 M 35 145B	400	80	100	560	588	1200	1610	16.4	19.0	54.4	73.0	500	13	67	33
	-							-	-	-	-				
BMS F 160 M 35 145C	400	80	100	672	770	1200	2000	18.3	24.0	46.5	77.5	500	18	70	39
	-							-	-	-	-				
BMS F 160 M 28 145B	400	100	125	448	470	1200	1288	16.4	19.0	68.0	73.0	500	13	67	37
	-							-	-	-	-				
BMS F 160 M 28 145C	400	100	125	538	616	1200	1652	18.3	24.0	58.1	80.0	500	18	70	43
	-							-	-	-	-				
BMS F 160 M 25 145B	400	112	140	400	420	1150	1150	16.4	19.0	73.0	73.0	500	15	67	39
	-							-	-	-	-				
BMS F 160 M 25 145C	400	112	140	480	550	1200	1475	18.3	24.0	65.1	80.0	500	19	70	46
	-							-	-	-	-				
BMS F 160 M 20 145B	400	140	175	320	336	920	920	16.4	19.0	73.0	73.0	500	16	67	43
	-							-	-	-	-				
BMS F 160 M 20 145C	400	140	175	384	440	1180	1180	18.3	24.0	80.0	80.0	500	21	70	51
	-							-	-	-	-				
BMS F 160 M 16 145B	400	175	219	256	269	736	736	16.4	19.0	73.0	73.0	500	17	67	48
	-							-	-	-	-				
BMS F 160 M 16 145C	400	175	219	307	352	944	944	18.3	24.0	80.0	80.0	500	21	70	57
	-							-	-	-	-				

Motor data set

			n	f_n	2_p	P_n	V_n	I_n	I_0	K_e	R_{pp}	L_{pp}
			[min^{-1}]	[Hz]	[-]	[kW]	[V_{AC}]	[A]	[A]	[mV/min^{-1}]	[$\Omega_{20°}$]	[mH]
B	065A	400	3000	200	8	0.25	295	0.72	0.76	76	50.0	150
		230					181	1.16	1.23	47	19.2	57.5
M	065A	400	4500	300		0.36	331	0.88	0.98	59	30.3	90.7
		230					172	1.74	1.93	30	7.75	23.2
H	065A	400	6000	400		0.46	306	1.21	1.38	42	15.1	45.2
		230					177	2.09	2.39	24	5.04	15.1
B	065B	400	3000	200	8	0.50	311	1.33	1.35	83	26.3	79.5
		230					180	2.30	2.34	48	8.79	26.4
M	065B	400	4500	300		0.72	308	1.85	1.98	57	12.2	37.0
		230					180	3.20	3.40	33	4.19	12.6
H	065B	400	6000	400		0.91	300	2.43	2.68	42	6.65	20.1
		230					171	4.20	4.70	24	2.20	6.60
B	082B	400	3000	200	8	0.94	315	2.50	2.60	85	9.75	55.2
		230					181	4.30	4.50	49	3.23	18.3
M	082B	400	4500	300		1.32	312	3.40	3.90	57	4.42	25.0
		230					200	5.30	6.00	37	1.81	10.3
H	082B	400	6000	400		1.57	308	4.30	5.20	43	2.47	14.0
		230					176	7.60	9.00	24	0.81	4.6
B	082C	400	3000	200	8	1.19	323	2.90	3.30	92	6.77	38.3
		230					184	5.10	5.80	52	2.19	12.4
M	082C	400	4500	300		1.67	328	3.90	4.80	63	3.21	18.1
		230					188	6.80	8.40	36	1.05	6.00
H	082C	400	6000	400		2.00	335	4.50	6.20	49	1.92	10.8
		230					197	7.60	10.6	29	0.66	3.70
B	102A	400	3000	200	8	1.10	305	2.80	3.30	86	7.05	59.3
		230					177	4.82	5.68	50	2.39	20.1
M	102A	400	4500	300		1.50	303	3.80	4.90	58	3.27	27.5
		230					169	6.88	8.82	32	1.02	8.58
H	102A	400	6000	400		1.80	314	4.60	6.30	45	2.00	16.8
		230					174	8.29	11.4	25	0.59	4.96
B	102B	400	3000	200	8	2.10	311	5.40	5.50	86	2.53	21.3
		230					177	9.50	9.70	49	0.82	6.90
M	102B	400	4500	300		2.83	305	7.50	8.30	57	1.11	9.40
		230					182	12.6	13.9	34	0.40	3.30
H	102B	400	6000	400		3.50	305	9.30	11.0	43	0.63	5.30
		230					185	15.4	18.2	26	0.23	1.90
B	102C	400	3000	200	8	2.70	324	5.80	6.50	99	2.11	17.7
		230					184	10.2	11.5	56	0.68	5.70
M	102C	400	4500	300		3.60	323	7.80	9.70	66	0.95	8.00
		230					187	13.5	16.8	38	0.32	2.70
H	102C	400	6000	400		4.10	333	8.40	12.4	52	0.58	4.80
		230					190	14.8	21.8	30	0.19	1.60
B	118A	400	3000	200	8	1.60	315	3.90	4.30	88	3.76	50.5
		230					185	6.64	7.33	52	1.29	17.1
M	118A	400	4500	300		2.20	316	5.20	6.40	59	1.76	23.4
		230					180	9.04	11.2	34	0.56	7.40
H	118A	400	6000	400		2.50	324	5.50	8.20	46	1.04	13.8
		230					171	10.3	15.6	24	0.28	3.72
B	118B	400	3000	200	8	3.00	305	7.90	8.00	86	1.27	16.7
		230					178	13.5	13.7	50	0.43	5.7
M	118B	400	4500	300		4.00	314	10.2	11.6	60	0.61	8.00
		230					174	18.3	20.8	33	0.19	2.50
H	118B	400	6000	400		4.70	306	11.4	15.8	44	0.33	4.30
		-					-	-	-	-	-	-
B	118C	400	3000	200	8	3.80	320	8.40	9.80	98	1.04	13.7
		230					192	14.0	16.3	59	0.37	4.90
M	118C	400	4500	300		5.00	325	10.9	14.4	67	0.48	6.30
		-					-	-	-	-	-	-
H	118C	400	6000	400		5.30	329	11.8	18.9	51	0.28	3.70
		-					-	-	-	-	-	-
B	145B	400	3000	200	8	5.00	308	12.5	13.0	83	0.72	11.5
		230					176	21.9	22.8	47	0.24	3.80
M	145B	400	4500	300		6.60	314	16.4	19.0	57	0.34	5.40
		-					-	-	-	-	-	-
B	145C	400	3000	200	8	6.00	321	14.2	16.4	96	0.59	9.40
		230					202	22.9	26.5	60	0.23	3.60
M	145C	400	4500	300		8.00	323	18.3	24.3	65	0.27	4.30
		-					-	-	-	-	-	-
B	170B	400	3000	200	8	8.60	315	18.6	23.3	93	0.26	5.10
		230					182	32.2	40.4	54	0.09	1.70
B	170C	400	3000	200	8	11.3	314	24.9	31.0	101	0.17	3.30
		-					-	-	-	-	-	-

Feedback devices

Bonfiglioli BMS Compact Servo Gearmotor series is available with different feedback devices. Available feedback devices are resolver and absolute single-turn and multi-turn encoders. All available feedback devices are supported by Bonfiglioli Vectron frequency inverter - Active Cube series.

The resolver is a passive wound device consisting of a stator and rotor elements excited from an external source. It produces two output signals that correspond to the sine and cosine angle of the motor shaft. This is a robust and accurate absolute device, capable of withstanding high temperatures and high levels of vibration. Positional information is absolute within one turn.
Available absolute encoders use a high precision optical disc or a capacitive measuring principle to provide the absolute rotor position. The high resolution performed is based on a combination of absolute data, transmitted with a serial link, and incremental sine/cosine signals. The single-turn absolute encoder has an absolute positional information only within one turn while the multi turn absolute encoder is provided of extra gear wheels that account for several shaft revolution.

Resolver data sheet

Item	MOTOR SIZE		
	065A... 065B	082B... 170C	
	RES2	RES1	RES2
Poles number	2	2	2
Transformation ratio	0.5 ±5%	$0.5\ ^{+15\%}_{-5\%}$	0.5 ±5%
Input voltage [Vac_{rms}]	7	11	5.5
Input current [mA]	65	57	61
Input frequency [kHz]	10	8	10
Phase shift	0°	-11°	-12°
Input impedance Zro ( )	70 + j100	75 + j185	43 + j79
Output impedance Zss (Ω)	175 +j275	135 + j265	62 + j112
Electrical error	±10'	±10'	±10'
Accuracy ripple	1'max	1'max	1'max
Operating temperature	-55 °C... + 155 °C	-55 °C... + 155 °C	-55 °C... + 155 °C
Max Speed [min^{-1}]	10000	20000	10000
Mass [kg]	0.065	0.28	0.28
Rotor Inertia [$kgm^2 \times 10^{-6}$]	3.0	5.0	5.0

Encoder data sheet

Item	MOTOR SIZE			
	065A… 065B		082B… 170C	
	ENB1	ENB2	ENB1	ENB2
Manufacturer	Dr. JOHANNES HEIDENHAIN GmbH			
Data interface	EnDat		EnDat	
Model	ECN1113	EQN1125	ECN1313	EQN1325
Type	Single turn	Multi turn	Single turn	Multi turn
Measuring principle	Optical		Optical	
Power supply	3.6 VDC… 14 VDC		3.6 VDC… 14 VDC	
Current consumption	85 mA (5V)	105 mA (5V)	85 mA (5V)	105 mA (5V)
Periods per revolution	512	512	2048	2048
Position per revolution	8192 (13 bits)	8192 (13 bits)	8192 (13 bits)	8192 (13 bits)
Revolutions	-	4096 (12 bits)	-	4096 (12 bits)
Operating temperature	-40 °C… +115 °C		-40 °C… +115 °C	
Max Speed [min^{-1}]	12000		12000	
Resistance to shocks	1000 m/s^2 - 6 ms		2000 m/s^2 - 6 ms	
Resistance to vibrations	200 m/s^2 - 55… 2000 Hz		300 m/s^2 - 55… 2000 Hz	
Mass [kg]	0.10		0.25	
Rotor Inertia [$kgm^2 \times 10^{-6}$]	0.40		2.60	

Item	MOTOR SIZE					
	065A… 065B		082B… 170C		065A… 170C	
	ENB3	ENB4	ENB3	ENB4	ENB5	ENB6
Manufacturer	SICK AG					
Data interface	Hiperface		Hiperface		Hiperface	
Model	SKS36	SKM36	SRS50	SRM50	SEK37	SEL37
Type	Single turn	Multi turn	Single turn	Multi turn	Single turn	Multi turn
Measuring principle	Optical		Optical		Capacitive	
Power supply	7 VDC… 12 VDC		7 VDC… 12 VDC		7 VDC… 12 VDC	
Current consumption	60 mA	60 mA	80 mA	80 mA	50 mA	50 mA
Periods per revolution	128	128	1024	1024	16	16
Position per revolution	4096 (12 bits)	4096 (12 bits)	32768 (15 bit)	32768 (15 bit)	512 (9 bits)	512 (9 bits)
Revolutions	-	4096 (12 bits)	-	4096 (12 bits)	-	4096 (12 bits)
Operating temperature	-20 °C… +110 °C		-30 °C… +115 °C		-40 °C… +115 °C	-20 °C… +115 °C
Max Speed [min^{-1}]	10000		12000		120000	
Resistance to shocks	100 g / 6 ms		100 g / 6 ms		100 g / 10 ms	
Resistance to vibrations	50 g / 10… 2000 Hz		20 g / 10… 2000 Hz		50 g / 10… 2000 Hz	
Mass [kg]	0.07		0.20		0.04	
Rotor Inertia [$kgm^2 \times 10^{-6}$]	0.45		1.00		0.10	

Thermal protection

BMS compact gear motors are equipped with a thermal protector to avoid windings temperature exceeding the limit of F insulation class (155 °C). The thermal protectors have a double insulation level. Available thermal protectors:

PTC variant
A PTC thermistor rated 150˚C is placed into the motor winding. The PTC thermistor resistance curve is in accordance with DIN 44081-82.

KTY variant
A KTY silicon semi-conductor resistance sensor (KTY84-130 type) is placed into the motor winding. The working temperature range is -40 °C... +260 °C.

TC1 variant
A Platinum resistance temperature sensor (PT1000 type) is placed into the motor winding. The PT1000 characteristic is in accordance with IEC 60751: 2008, tolerance class B. The working temperature range is -40 °C... +250 °C.

Electromechanical holding brake

The BMS gear motor is available also with an electromagnetic holding brake. The brake is for use as an holding brake with motor shaft stationary. Do not use it as a dynamic brake, except for emergencies as main supply failure. The brake variant increases both length and weight of the gear motor. Please note that the brake variant is not available when the F1 flywheel/additional inertia variant is selected.

Data of the available brake for each gear motor size are summarized in the following table. The braking torque Mb refers to the motor shaft and has to be multiplied by the gearbox ratio i.

$$M_{b\,2} = M_b \cdot i$$

Motor size	$M_{b\,20\,°C}$	$M_{b\,100\,°C}$	V_b	I_b	$P_{b\,20\,°C}$	J_b	Δm_b	t_1	t_2
	Nm	Nm	Vdc	A	W	Kg cm²	kg	ms	ms
065A	2.0	1.8	24	0.46	11	0.07	0.2	6	25
065B									
082A	4.5	4.0		0.50	12	0.18	0.6	7	35
082B									
102A	9.0	8.0		0.75	18	0.54	1.1	7	40
102B									
102C									
118A	18	15		1.0	24	1.66	2.2	10	50
118B									
118C									
145B	18	15		1.0	24	1.66	2.6	10	50
145C									
170B	36	32		1.1	26	5.56	4.5	22	90
170C									

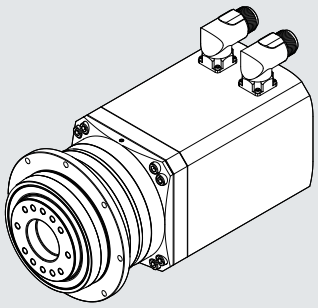
Additional flywheel / inertia

BMS compact servo gear motor series is provided optionally with additional flywheel / inertia (F1 variant).
The additional flywheel / inertia variant increases both length and weight of the gear motor.

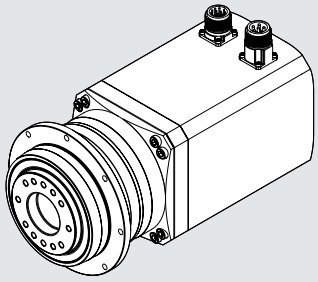
Motor size	J_j	Δm_j
	Kg cm²	kg
065A	0.5	0.4
065B		
082B	3.0	1.0
082C		
102A	7.5	1.7
102B		
102C		
118A	16	3.5
118B		
118C		
145B	36	5.0
145C		
170B	70	8.2
170C		

Connections

The power and feedback device connections of the BMS compact gear motor are provided by means of separate metal circular receptacles. The available circular connectors are angled turning receptacles (AN variant) or straight receptacles (ST variant).



AN variant - Angled turning receptacles



ST variant - Straight receptacles

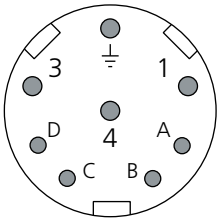
Power connections

The 8-pin power connector includes the pins of the motor supply and the ones for the brake supply (if provided).

MOTOR SIZE - 065A... 145C

Power connector layout

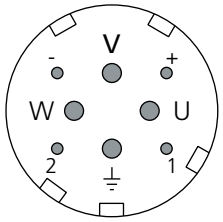
CONNECTOR PIN NUMBER	DESCRIPTION
1	Phase U
⏚	Earth - SL
3	Phase W
4	Phase V
A	-
B	-
C	Brake +
D	Brake -



MOTOR SIZE - 170B... 170C

Power connector layout

CONNECTOR PIN NUMBER	DESCRIPTION
U	Phase U
V	Phase V
W	Phase W
⏚	Earth - SL
1	-
2	-
+	Brake +
-	Brake -



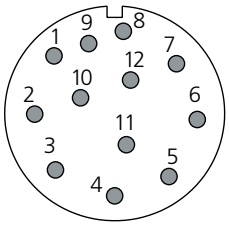
Signal connections

The signal connector gathers the feedback device signals and the thermal protection terminals. Each feedback device, resolver or encoder has a proper signal connector layout.

RESOLVER (RES1/RES2)

Signal connector layout

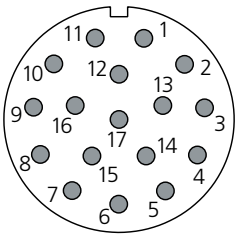
CONNECTOR PIN NUMBER	DESCRIPTION
1	Sin -
2	Sin +
3	n.c.
4	Shield cable
5	n.c.
6	n.c.
7	Exct -
8	PTC / KTY / PT1000 -
9	PTC / KTY / PT1000 +
10	Exct +
11	Cos +
12	Cos -



ENCODER WITH ENDAT INTERFACE (ENB1/ENB2)

Signal connector layout

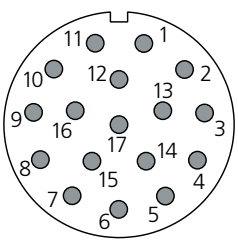
CONNECTOR PIN NUMBER	DESCRIPTION
1	UP SENSOR
2	n.c.
3	n.c.
4	0V SENSOR
5	PTC / KTY / PT1000 -
6	PTC / KTY / PT1000 +
7	UP
8	Clock +
9	Clock -
10	0V
11	Shield cable
12	B +
13	B -
14	DATA +
15	A +
16	A -
17	DATA -



ENCODER WITH HIPERFACE INTERFACE (ENB3/ENB4/ENB5/ENB6)

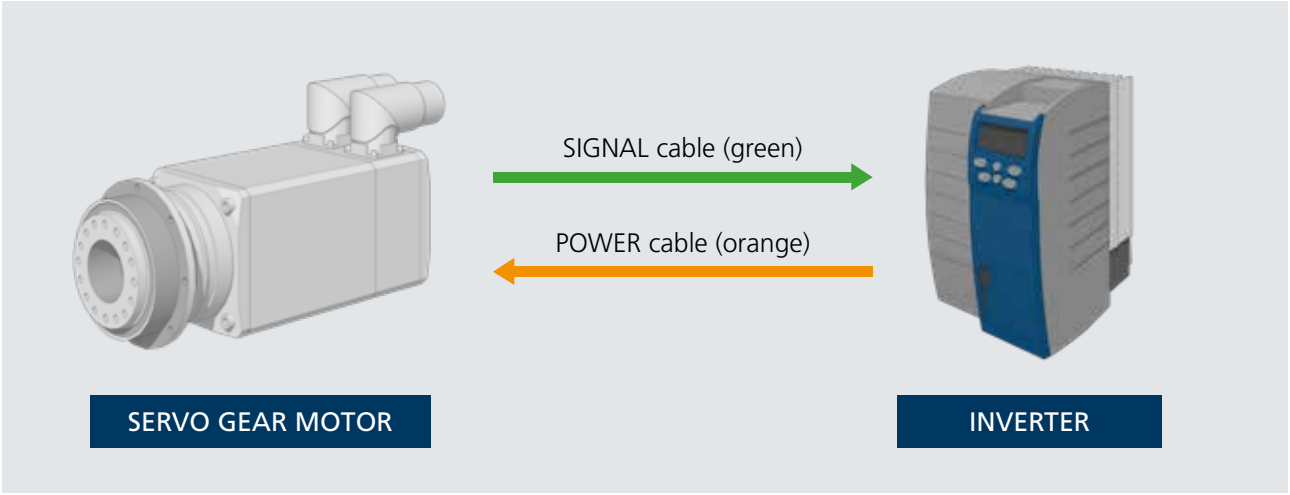
Signal connector layout

CONNECTOR PIN NUMBER	DESCRIPTION
1	Sin +
2	Sin -
3	RS485 +
4	n.c.
5	Shield cable
6	n.c.
7	GND (0V)
8	PTC / PT1000 -
9	PTC / PT1000 +
10	+ Vdc
11	Cos +
12	Cos -
13	RS485 -
14	n.c.
15	n.c.
16	n.c.
17	n.c.



Cables

Cables for power supply and feedback device complete the offer of the BMS compact servo gear motor. Three standard cable lengths available (3m, 5m and 10 m). Custom lengths on request.



Power cables

Power cables can be recognized by the orange colour according to Desina standard. The conductors cross-section depends on the motor nominal current.
The power cable terminates on the inverter side with flying leads covered by ferrules for connections with screw terminals. On the motor side, the power cable is equipped with a metal circular plug with bayonet technology for an easy and sure connection.

Inverter side *Motor side*

The power cables fulfil the following technical requirements:

Technical Data	
Properties	Oil resistant shielded cable for dynamic laying
Conductor	Tinned Stranded Cu wire complying with IEC 60228 Cl 5 / 6
Outer Sheath	PUR or equivalent thermoplastic material Colour: orange RAL 2003
Inner Sheath	PP or TPE
Tinned Cu braided Shield	Coverage overall screen > 80%

Electrical Data	
Nom. Volt. Power cores	U_0/U 600/1000V
Nom. Volt. Control cores	U_0/U 300/500V
AC Test Volt. Power cores	4 kV
AC Test Volt. Control cores	1 kV
Insulation Resistance	> 5 MOhm/km

Mechanical Data	
Service Temperature	-15 / +80 °C
Minimum Bending Radius	10 x Cable diameter
N° bending cycles	≥ 10^6
Max Speed	≥ 180 m/min
Max Acceleration	≥ 15 m/s^2

Standard and Certifications
UL/CSA, RoHS, DESINA

The cable ordering code comprises five fields as follows:

MPC | **3** | **15** | **NB** | **C3**

Connector size and type
C3 8-pin connector, motor with feedback, sizes 65... 145
C4 8-pin connector, motor with feedback, size 170

Brake wires
NB Without brake wires
B With brake wires

Phase wire section
015 1.5 mm²
025 2.5 mm²
040 4 mm²
100 10 mm²

Cable length
03 3 m
05 5 m
10 10 m

The following table shows the suggested combination of power cable designation and motor size according to the selected overspeed and nominal voltage supply. Field XX refers to the cable length (03, 05, 10), while field YY refers to the brake variant (NB, B): see previous page for fields description.

MOTOR SIZE	400V NOMINAL VOLTAGE OVERSPEED			230V NOMINAL VOLTAGE OVERSPEED		
	BASE	MEDIUM	HIGH	BASE	MEDIUM	HIGH
065A	MPC XX 015 YY C3			MPC XX 015 YY C3		
065B						
082B						
082C						
102A						
102B					MPC XX 025 YY C3	MPC XX 040 YY C3
102C						
118A						
118B			MPC XX 025 YY C3			
118C		MPC XX 025 YY C3	MPC XX 040 YY C3			
145B				MPC XX 040 YY C3		
145C		MPC XX 040 YY C3				
170B	MPC XX 040 YY C4	Not available		MPC XX 100 YY C4	Not available	
170C	MPC XX 100 YY C4					

Cables

Signal cables

Signal cables are recognizable by the green colour according to Desina standard. The conductors number, their cross-section and their terminal type depend on the transducer typology supported by the cable.
Cables are available for connection for every feedback option. On the motor side, the power cable is equipped with a metal circular plug with bayonet technology for an easy and sure connection.
On the inverter side, the cable end can be executed with two different terminations:

- with SUB-D male connector for connection with corresponding SUB-D female of the module interface.
- with ferrules for connection to screw terminals of the module interface.

Connections layouts are dedicated to Bonfiglioli Vectron interface modules.

Inverter side *Motor side*

The signal cables fulfil the following technical requirements:

Technical Data	
Properties	Oil resistant shielded cable for dynamic laying
Conductor	Tinned Stranded Cu wire complying with IEC 60228 Cl 5 / 6
Outer Sheath	PUR or equivalent thermoplastic material Colour: green RAL 6018
Inner Sheath	PP or TPE
Tinned Cu braided Shield	Coverage overall screen > 80%

Electrical Data	
Nominal Voltage	30 V
AC Test Voltage	1500 V
Insulation Resistance	> 10 MOhm/km
Capacitance strand/strand	< 150 pF/m

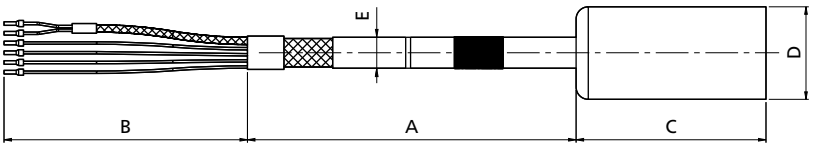
Mechanical Data	
Service Temperature	-20 / +80 °C
Minimum Bending Radius	10 x Cable diameter
N° bending cycles	≥ 10^6
Max Speed	≥ 180 m/min
Max Acceleration	≥ 15 m/s^2

Standard and Certifications
UL/CSA, RoHS, DESINA

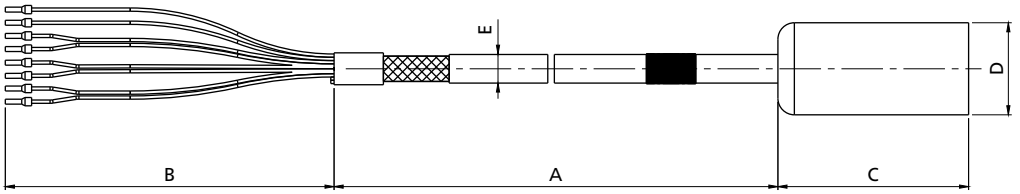
The ordering codes of the signal cables are described in the following table:

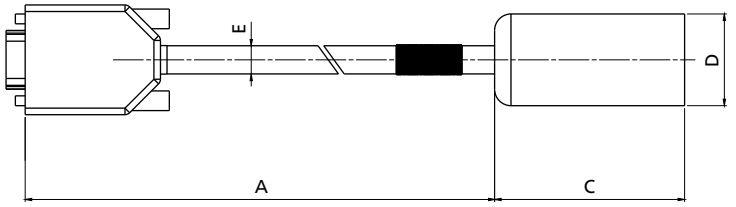
Feedback device	Inverter side termination	Inverter feedback module	Cable length		
			3 m	5m	10 m
RES1 / RES2	Flying leads	EM-RES-01/02 EM-AUT-01/04	MSC 03 RES FW	MSC 05 RES FW	MSC 10 RES FW
	SUB-D9	EM-RES-03	MSC 03 RES SC	MSC 05 RES SC	MSC 10 RES SC
ENB1 / ENB2	HD SUB-D15	EM-ABS-01 EM-AUT-01	MSC 03 EN1 SC	MSC 05 EN1 SC	MSC 10 EN1 SC
	Flying leads	-	MSC 03 EN1 FW	MSC 05 EN1 FW	MSC 10 EN1 FW
ENB3 / ENB4 ENB5 / ENB6	SUB-D15	EM-ABS-01 EM-AUT-01	MSC 03 EN3 SC	MSC 05 EN3 SC	MSC 10 EN3 SC
	Flying leads	-	MSC 03 EN3 FW	MSC 05 EN3 FW	MSC 10 EN3 FW

Power cable layout



Signal cable layout





	Connector size	A	B	C	D
		[m]	[mm]	[mm]	[mm]
Power Cable	C3	3 - 5 - 10 according to designation	150	76	28
	C4			93	46
Signal Cable	-	3 - 5 - 10 according to designation	150	76	28

	Wire section	Brake option	E_{max}
	[mm²]		[mm]
Power Cable	1.5	NB	11.6
		B	12.8
	2.5	NB	13
		B	14.2
	4	NB	14.7
		B	16.3
	10	NB	19.7
		B	21.8

	Feedback designation	E
		[mm]
Signal Cable	RES	8.6
	EN1	8.7
	EN3	8.6

Power and signal cable marking follows the label and wire colours indicated at page 50 and 51.

Cables

Plugs

Cable designation	Plug order code	Description	Manufacturer code
MPC XX 015 YY C3 MPC XX 025 YY C3	712692074	TE CONNECTIVITY 923 Series - M23 8-pin power connector Pin crimping range: 4 x (0.35-2.5 mm^2) + 4 x (0.14-1 mm^2)	B ST A 078 FR 48 48 0100 000
MPC XX 040 YY C3	712692081	TE CONNECTIVITY 923 Series - M23 8-pin power connector Pin crimping range: 4 x (2.5-4 mm^2) + 4 x (0.14-1 mm^2)	B ST A 078 FR 45 59 0100 000
MPC XX 100 YY C4	712692080	TE CONNECTIVITY 940 Series - M40 8-pin power connector Pin crimping range: 4 x (1.5-10 mm^2) + 4 x (0.35-2.5 mm^2)	C ST A 264 FR 48 45 0020 000
MSC XX RES YY	712692053	TE CONNECTIVITY 623 Series - M23 12-pin signal connector Pin crimping range: 12 x (0.14-1 mm^2)	A ST A 021 FR 11 41 0100 000
MSC XX EN1 YY MSC XX EN3 YY	712692063	TE CONNECTIVITY 623 Series - M23 17-pin signal connector Pin crimping range: 17 x (0.14-1 mm^2)	A ST A 035 FR 11 41 0100 000

See previous pages for descriptions of XX and YY fields. Plugs are provided with a complete set of pins.

Combinations **BMS -> Inverter**

Suggested combinations of BMS gear motor and Bonfiglioli Vectron Active Cube Inverter.

BMS Gear Motor						Not Overload Applications				Overload Applications			
Variants			Motor parameters			Selection Criteria: Motor I_0 < Inverter I_n				Selection Criteria: Motor I_0 / I_{max} and < Inverter I_n / I_{pk}			
Overspeed	Motor size	Supply AC voltage	P_m	I_{max}	I_0	Inverter Rated Current I_n	Bonfiglioli Vectron ACU Inverter Size			Inverter Long-Term Overload Current (60s) I_{pk}	Bonfiglioli Vectron ACU Inverter Size		
		[V]	[kW]	[A]	[A]	[A]				[A]			
B	065A	400	0.25	2.43	0.76	1	ACU	410	01	3.2	ACU	410	03
		230		3.9	1.23	1.6	ACU	210	01	5	ACU	210	03
M	065A	400	0.36	3.1	0.98	1	ACU	410	01	3.2	ACU	410	03
		230		6.2	1.93	2.5	ACU	210	03	7.3	ACU	210	09
H	065A	400	0.46	4.4	1.38	1.6	ACU	410	03	4.8	ACU	410	09
		230		7.7	2.39	2.5	ACU	210	03	10.5	ACU	210	11
B	065B	400	0.5	4.6	1.35	1.6	ACU	410	03	4.8	ACU	410	09
		230		8.0	2.34	2.5	ACU	210	03	10.5	ACU	210	11
M	065B	400	0.72	6.7	1.98	2.4	ACU	410	07	8.7	ACU	410	13
		230		11.5	3.4	4	ACU	210	07	14.3	ACU	210	13
H	065B	400	0.91	9.1	2.68	3.2	ACU	410	09	11.7	ACU	410	15
		230		15.9	4.7	5.5	ACU	210	09	16.2	ACU	210	15
B	082B	400	0.94	8.9	2.6	3.2	ACU	410	09	11.7	ACU	410	15
		230		15.5	4.5	5.5	ACU	210	09	16.2	ACU	210	15
M	082B	400	1.32	13.2	3.9	4.2	ACU	410	12	13.5	ACU	410	18
		230		20.6	6.0	7	ACU	210	11	26.2	ACU	210	18
H	082B	400	1.57	17.7	5.2	5.8	ACU	410	13	21	ACU	410	19
		230		31	9	9.5	ACU	210	13	44.5	ACU	210	21
B	082C	400	1.19	9.9	3.3	3.8	ACU	410	11	11.7	ACU	410	15
		230		17.4	5.8	7	ACU	210	11	26.2	ACU	210	18
M	082C	400	1.67	14.4	4.8	5.8	ACU	410	13	21	ACU	410	19
		230		25.1	8.4	9.5	ACU	210	13	26.2	ACU	210	18
H	082C	400	2	18.6	6.2	7.8	ACU	410	15	21	ACU	410	19
		230		32	10.6	12.5	ACU	210	15	44.5	ACU	210	21
B	102A	400	1.1	10.2	3.3	3.8	ACU	410	11	11.7	ACU	410	15
		230		17.6	5.68	7	ACU	210	11	26.2	ACU	210	18
M	102A	400	1.5	15	4.9	5.8	ACU	410	13	21	ACU	410	19
		230		27.3	8.82	9.5	ACU	210	13	30.3	ACU	210	19
H	102A	400	1.8	19	6.3	7.8	ACU	410	15	21	ACU	410	19
		230		35.1	11.4	12.5	ACU	210	15	44.5	ACU	210	21
B	102B	400	2.1	20	5.5	5.8	ACU	410	13	21	ACU	410	19
		230		35	9.7	12.5	ACU	210	15	44.5	ACU	210	21
M	102B	400	2.83	30	8.3	9	ACU	410	18	30.3	ACU	410	22
		230		51	13.9	18	ACU	210	18	51.5	ACU	210	22
H	102B	400	3.5	40	11	14	ACU	410	19	44.5	ACU	410	25
		230		66	18.2	22	ACU	210	19	-			
B	102C	400	2.7	21	6.5	7.8	ACU	410	15	21	ACU	410	19
		230		37	11.5	12.5	ACU	210	15	44.5	ACU	210	21
M	102C	400	3.6	31	9.7	14	ACU	410	19	37.5	ACU	410	23
		230		54	16.8	18	ACU	210	18	-			
H	102C	400	4.1	40	12.4	14	ACU	410	19	44.5	ACU	410	25
		230		70	21.8	22	ACU	210	19	-			
B	118A	400	1.6	14	4.3	5.8	ACU	410	13	21	ACU	410	19
		230		23.9	7.33	9.5	ACU	210	13	26.2	ACU	210	18
M	118A	400	2.2	21	6.4	7.8	ACU	410	15	21	ACU	410	19
		230		36.5	11.2	12.5	ACU	210	15	44.5	ACU	210	21
H	118A	400	2.5	27	8.2	9	ACU	410	18	30.3	ACU	410	22
		230		50.8	15.62	18	ACU	210	18	51.5	ACU	210	22
B	118B	400	3	28	8	9	ACU	410	18	30.3	ACU	410	22
		230		48	13.7	18	ACU	210	18	51.5	ACU	210	22
M	118B	400	4	40	11.6	14	ACU	410	19	44.5	ACU	410	25
		230		73	20.8	22	ACU	210	19	-			
H	118B	400	4.7	55	15.8	18	ACU	410	21	60	ACU	410	27
		-		-	-	-				-			
B	118C	400	3.8	32	9.8	14	ACU	410	19	37.5	ACU	410	23
		230		53	16.3	18	ACU	210	18	-			
M	118C	400	5	47	14.4	18	ACU	410	21	60	ACU	410	27
		-		-	-	-				-			
H	118C	400	5.3	62	18.9	22	ACU	410	22	67.5	ACU	410	29
		-		-	-	-				-			
B	145B	400	5	50	13	14	ACU	410	19	60	ACU	410	27
		230		88	22.8	32	ACU	210	21	-			
M	145B	400	6.6	73	19	22	ACU	410	22	90	ACU	410	31
		-		-	-	-				-			
B	145C	400	6	54	16.4	18	ACU	410	21	60	ACU	410	27
		230		87	26.5	32	ACU	210	21	-			
M	145C	400	8	80	24.3	25	ACU	410	23	90	ACU	410	31
		-		-	-	-				-			
B	170B	400	8.6	70	23.3	25	ACU	410	23	90	ACU	410	31
		230		121	40.4	-				-			
B	170C	400	11.3	96	31	32	ACU	410	25	112.5	ACU	410	33
		-		-	-	-				-			

Global Presence

Bonfiglioli is a market force with a presence spanning 22 countries on 5 continents. Our organization makes the most of geographic proximity to offer complete solutions combining efficiency and competence.

3780 EMPLOYEES	20 BRANCHES	13 PLANTS	550 DISTRIBUTORS	80 COUNTRIES

We Are a Global Company

Thanks to an international network of sales branches and closely interconnecting production plants, we can guarantee the same high standards of Bonfiglioli quality anywhere at any given time. Aware that our direct presence in local markets is the key to long-lasting success, our family includes 20 sales branches, 13 production plants and more than 500 distributors around the world.

Our organization is always close by, offering complete and efficient solutions and supporting our customers with dedicated services, such as co-engineering or after-sales assistance.

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Forever Forward

We have a relentless commitment to excellence, innovation and sustainability. Our team creates, distributes and services world-class power transmission and drive solutions to keep the world in motion.

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