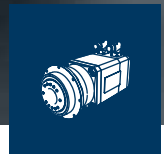


Bonfiglioli **Tecnoingranaggi**

BMS series

Precision Planetary Servo Gear Motor



PRODUCT

 **Bonfiglioli**
Forever Forward

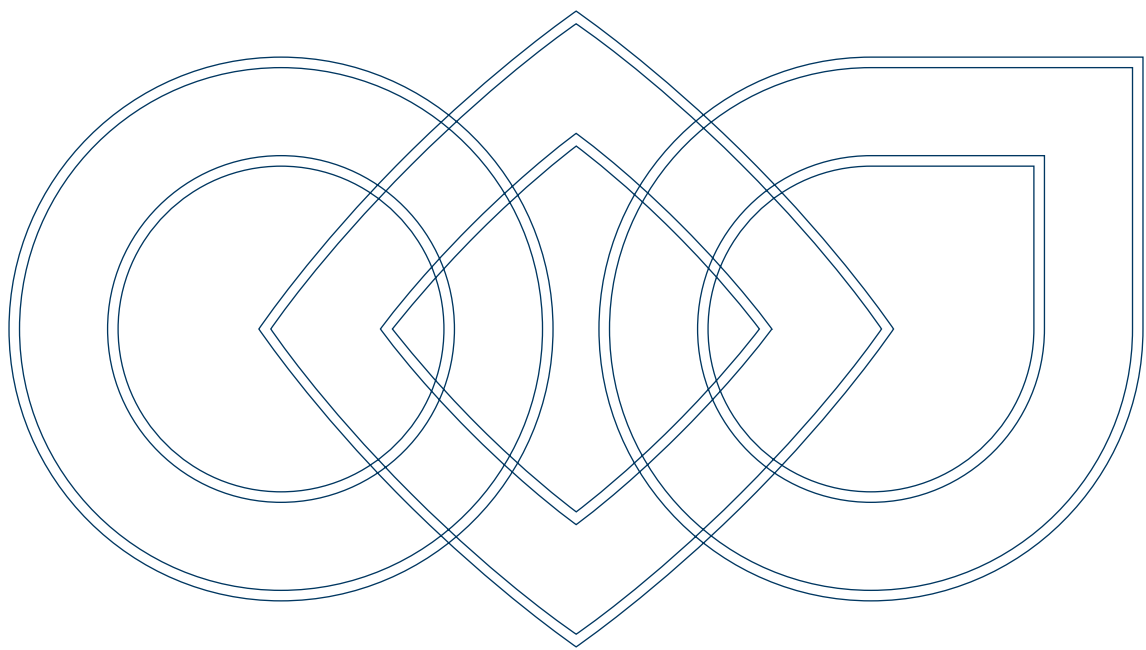


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The highest level of precision, efficiency and energy optimization.

Committed to become your world class partner, Bonfiglioli is a leading name in power transmission since 1956. Our best-in-class solutions are backed by nearly 60 years of engineering expertise as well as an in-depth understanding of the industries we serve.

Our solutions include precision planetary gearboxes, servomotors, servo inverters and regenerative inverters. A unique combination of mechatronic solutions plus a vast range of industrial products make Bonfiglioli a one-stop-shop for applications in many different sectors.

Our two centres of excellence, one in Italy and one in Germany, drive success in mechatronics by developing breakthrough innovations.

High innovative mechatronic tailored solutions from unique supplier to meet any kind of specific needs.

1988



BGT SERIES

2002



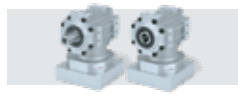
MP/TR SERIES

2004



LC SERIES

2008



KR SERIES

2009



SL SERIES

2010



LCK SERIES

2013



TQ SERIES

2014



TQK SERIES

2015



TQF SERIES

2017



BMS SERIES

Mechatronic Solutions for all Industrial Applications

Bonfiglioli is a leading drive and automation specialist in mechatronic applications. We develop electronically-orientated products as well as mechatronic and vertically-integrated solutions. Utilizing its mechanical, electrical, electronic and applications competences, Bonfiglioli can assist you in designing cost-effective and energy-efficient machines and installations, aligning their performance to precisely meet your needs.



**CO-ENGINEERING
DEVELOPMENT**



**PROJECT
COMMISSIONING**



**MAINTENANCE &
SERVICES**

A COMPLETE INTEGRATED SOLUTION

APPLICATION / ENGINEERING

Research & Development focusing on
Mechanical and Mechatronic
Customized solutions
Prototyping, testing and analysis

INSTALLATION / START-UP

On-site assistance
Start-up assistance
Commissioning

AFTER SALES

Maintenance
Pre- and post-sale customer service

OUR SERVICES

- FREQUENCY INVERTERS
- ENERGY REGENERATIVE INVERTERS
- AC MOTORS
- PM SYNCHR. MOTORS
- PRECISION PLANETARY GEARBOXES
- INDUSTRIAL GEARBOXES
- SERVO INVERTERS



INDUSTRY SECTOR EXPERTISE



MATERIALS HANDLING



CRANES



FOOD,
BEVERAGE &
TOBACCO



MINING



PACKAGING



TEXTILES



RUBBER AND
PLASTICS



WOOD
PROCESSING

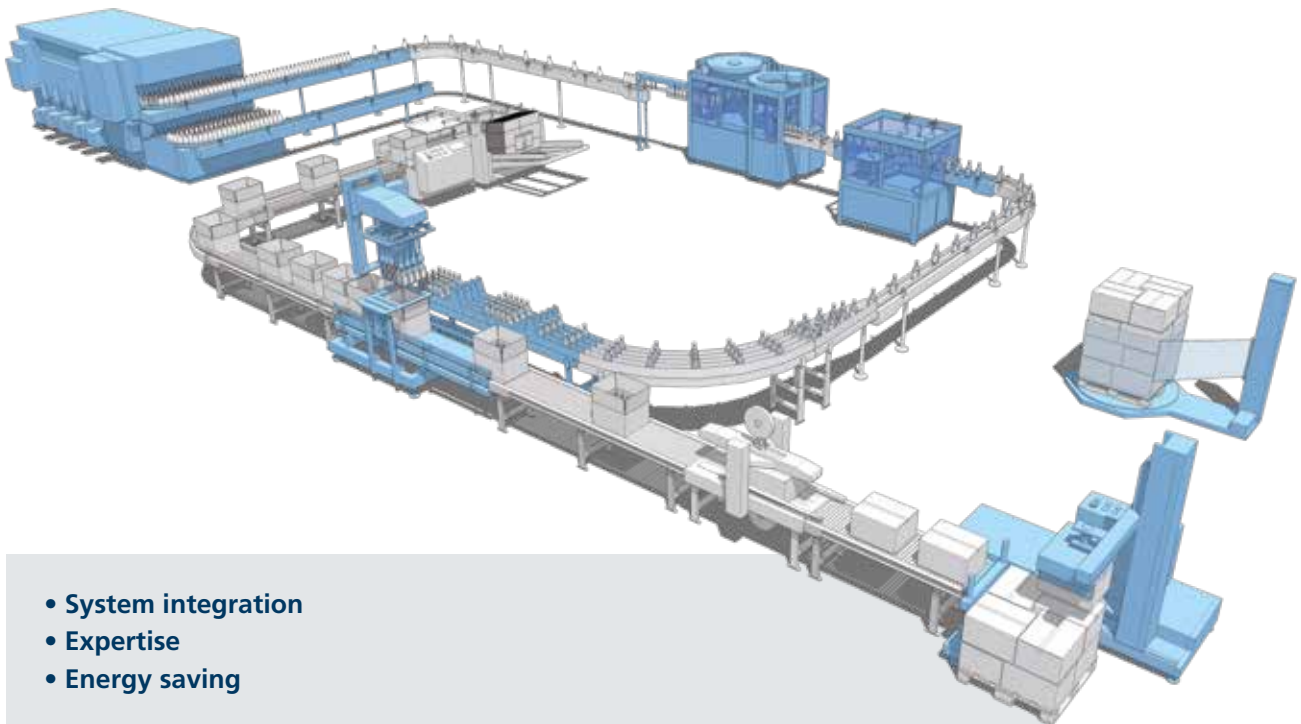
Mechatronics - The Challenge to build your Success

Faster, better and cheaper - this is the new challenge for machine designers!

Increasing demands regarding the productivity of complex system machines, and thus more flexible machines which run at highest efficiency levels, now require new intelligent technical solutions that enhance future growth.

Bonfiglioli has implemented a precise and detailed strategy to precisely achieve this objective!

Bonfiglioli Mechatronic Drives & Solutions division is born with the mission to improve profitability by acting as a riskless partner and a provider of energy-efficient solutions over the total life cycle in the field of industrial automation.



TRAINING



MECHANICAL &
MECHATRONIC STUDIES



PRODUCT
CUSTOMIZATION



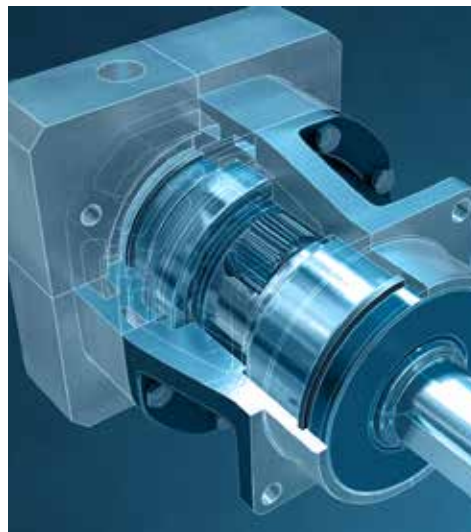
REALIZATION OF
PROTOTYPES, TESTS AND
ANALYSIS REPORTS

Our Expertise from start to finish!

Two Centres of Excellence drive MDS'innovation:

- Bonfiglioli Vectron in Germany, with strong technical, R&D and manufacturing capabilities with regard to electronic components, and most notably inverters and servo drives;
- BMR (Bonfiglioli Mechatronic Research), situated in Rovereto (Trento, Italy) offering strong R&D capabilities and providing innovative new solutions for your specific needs. BMR is a production facility where new mechatronic solutions become reality.

The key to our MDS'success is the strongest technical support from our specialist DSC (Drive Service Centre team). They accompany you throughout the entire installation's life cycle, from the initial concept to design and commissioning.



Bonfiglioli is close to your needs internationally through its branches, which can directly follow the customers using streamlined international teams.



**ON-SITE
ACTIVITIES**



**START-UP
ASSISTANCE**



COMMISSIONING



MAINTENANCE



**CUSTOMER
SERVICE**

One-Stop Shop for your mechatronic applications

As a competent technology partner, our engineering specialists are **building together with you tailored and forward-looking integrated solutions to meet the individual needs and to deliver mechatronic energy-efficient for your application.**

Bonfiglioli servopackage includes all the components required for a complete automation solution in one coordinating product package:

- HMI – Bonfiglioli Human Machine Interface
- Programmable controller (ANG, ACU, AGL)
- Highly dynamic servomotors with various feedback devices - BMD series
- Precision planetary gearboxes (TQ, TQF, TQK, TR, MP, LC, LCK, SL)
- Precision bevel gearboxes (KR)
- “Ready-to-use” accessories (cables, chokes, filters, etc.)



Benefits

- Highest precision and dynamic
- Strong and compact
- Highest radial and axial load capacities
- Highest tilting stiffness
- Quiet operation



Benefits

- High precision & dynamic
- Frequent reverse cycle
- Highest power density



Benefits

- Energy saving
- Simplified system solution
- Wide constant torque
- Accurate torque and speed control
- Highest power density

Complete automation Servo Package from a single supplier!

Our services

Application / Engineering

- Mechanical and mechatronic Research & Development
- Customized solutions
- Prototyping, testing and analysis

Installation / Start-up

- On-site assistance
- Start-up assistance
- Commissioning

After sales

- Maintenance
- Pre- and post-sale customer service



CO-ENGINEERING
DEVELOPMENT



PROJECT
COMMISSIONING



MAINTENANCE
& SERVICES



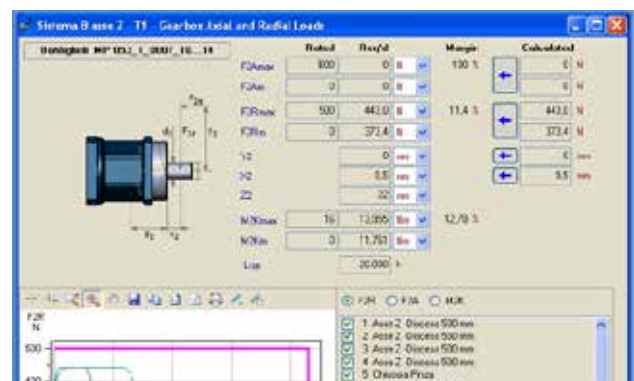
ENERGY
SAVINGS

Focusing on the sizing service

Bonfiglioli is your partner assisting you in sizing, fine tuned optimization and selection of a drive train.

Our attention is focused in designing and manufacturing products for your motion requirements, but we also have implemented servo tools that make your design process easier. We are able to optimize the servopackage avoiding over sizing that increases the initial system cost as well as the ongoing operating cost of a servo system.

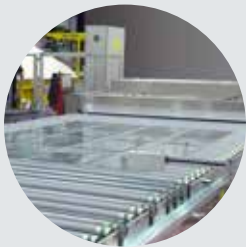
Bonfiglioli optimizes the efficiency of drive trains by analysing and assessing energy saving potential in detail.



A reliable partner for your business

Bonfiglioli Riduttori brings decades of experience supporting customers across a broad spectrum of industry sectors. Our industry expertise means we understand your applications: product and requirements must fit and form a solution that matches your application.

Our tailored-solutions to always offer you a complete approach.



PACKAGING & LABELLING



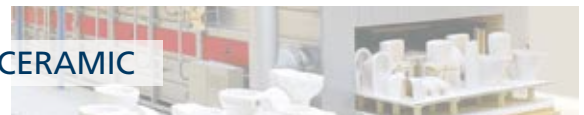
FOOD, BEVERAGE & TOBACCO



WOODWORKING MACHINES



CERAMIC



SOME OF THE INDUSTRIAL SECTORS WE SERVE:

- Machine tools
- Packaging & labelling
- Food, beverage & tobacco
- Glass working
- Robotics
- Automation storage
- Ceramic
- Electronics & electronic assembly
- Woodworking

Sharing the value of our work with you

Our team is fully dedicated to continuous improvement in the fields of quality, safety and the environment, across the entire value chain, from the smallest supplier to the end customer.

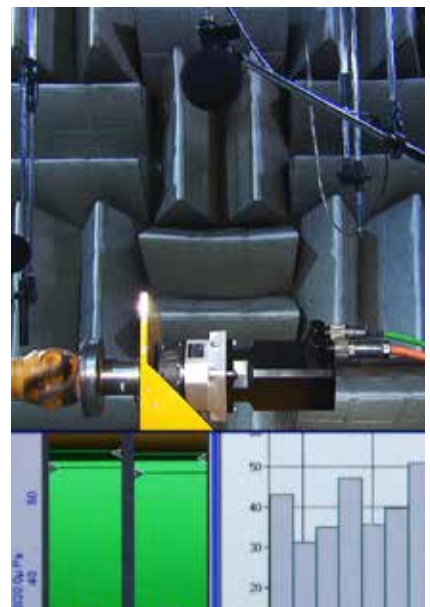
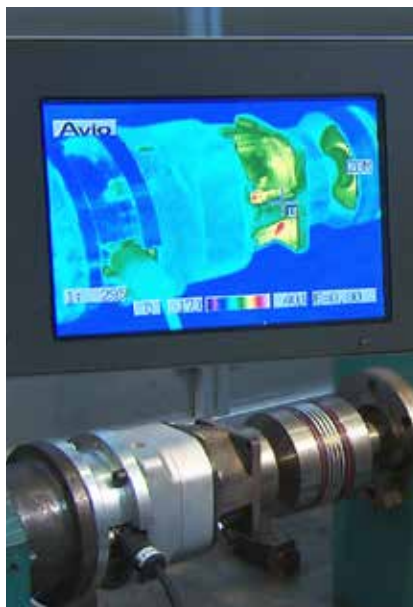
Bonfiglioli management systems are certified to ISO 9001: 2008, ISO 14001 and OHSAS 18001, while our products are covered by international certifications.

Product reliability, excellence and innovation make Bonfiglioli a preferred partner.

SYSTEM CERTIFICATIONS:



PRODUCT CERTIFICATIONS:



Our products at a glance

	PRODUCT	IN-LINE	RIGHT ANGLE	PRODUCT LINE-UP	CONFIGURATIONS	
HIGH POWER DENSITY	INNOVATIVE LINE	BMS 	Yes		Compactness & dynamics	• Output Flange
		TQ 	Yes		<ul style="list-style-type: none"> • Highest Precision & Performance • High Speed Applications • Highest Axial & Radial Load Capacities • Quiet Operation • Modular Design for your Needs 	• Solid Shaft
		TQF 	Yes		<ul style="list-style-type: none"> • Strong & Compact • Highest Precision & Dynamic • Highest Axial & Radial Load Capacities • Highest Tilting Stiffness • Quiet Operation 	• Output Flange
		TQK 		Yes	<ul style="list-style-type: none"> • Highest Precision & Performance • High Speed Applications • Highest Axial & Radial Load Capacities • Quiet Operation • Modular Design for your Needs 	• Solid Shaft
ADVANCED LINE	TR 	Yes	Yes	<ul style="list-style-type: none"> • High Performance • High Precision • Modular Design for your Needs 	<ul style="list-style-type: none"> • Solid Shaft • Hollow Bore Shaft • Input Shaft 	
	MP 	Yes	Yes	<ul style="list-style-type: none"> • High Performance • Medium Precision • Modular Design for your Needs 	<ul style="list-style-type: none"> • Solid Shaft • Hollow Bore Shaft • Input Shaft 	
FLEXIBLE LINE	LC 	Yes		<ul style="list-style-type: none"> • Flexible • Economic Precision • New High Torque Option Available 	<ul style="list-style-type: none"> • Solid Shaft • Input Shaft 	
	LCK 		Yes	<ul style="list-style-type: none"> • Flexible • Economic Precision • New High Torque Option Available 	<ul style="list-style-type: none"> • Solid Shaft • Input Shaft 	
	SL 	Yes		<ul style="list-style-type: none"> • Dynamic Belt Application • Compactness • Economic Precision • New High Torque Option Available 	• Solid Shaft	
BASIC LINE	KR 		Yes	Precision, Dynamics & Compactness at an Unbeatable Price	<ul style="list-style-type: none"> • Solid Shaft • Flange • Shrink Disk 	

	MAX. NOM. TORQUE MAX. ACC. TORQUE	RATIO i	TORQUE DENSITY	TORSIONAL STIFFNESS	BACKLASH	RADIAL FORCES	WIDE RANGE OF RATIO
	[Nm]	[-]			[arcmin]		
BMS	800 1200	4-50	●●●	●●●	STANDARD $\leq 5-7$ LOW $\leq 3-5$	●●●	●●
TQ	800 1200	3-100	●●●	●●●	STANDARD $\leq 4-6$ LOW $\leq 2-4$	●●●	●●
TQF	800 1200	4-100	●●●	●●●	STANDARD $\leq 5-7$ LOW $\leq 3-5$	●●●	●●
TQK	800 1200	6-200	●●●	●●●	STANDARD $\leq 5-7$ LOW $\leq 4-6$	●●●	●●
TR	1000 1200	3-1000	●●	●●	STANDARD $\leq 5-7$ LOW $\leq 3-5$	●●	●●●
MP	1000 1200	3-1000	●●	●●	STANDARD $\leq 15-17$ LOW $\leq 10-12$	●●	●●●
LC	450 700	3-100	●●	●●	STANDARD $\leq 12-15$ LOW $\leq 6-8$	●●	●●
LCK	450 700	6-100	●●	●●	STANDARD $\leq 6-8$	●●	●●
SL	155 300	3-100	●●	●●	STANDARD ≤ 12 LOW ≤ 6	●●●	●●
KR	120 170	1-5	●	●	STANDARD ≤ 8	●	●

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

Selecting the gear motor

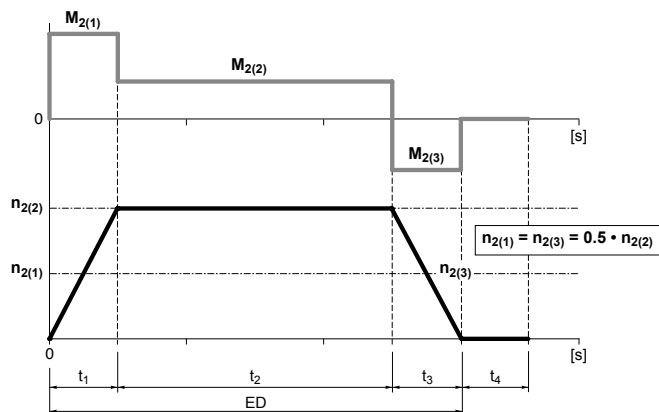
(a)	Cyclic duration factor	ED%	[%]	$ED\% = \frac{ED}{t_{\Sigma}} \cdot 100$
	Duration of the duty	ED	[s]	$ED = t_1 + t_2 + \dots + t_n$
(b)	Cycle factor (For Z>6000 please contact us!)	f_z	-	
(c)	Equivalent torque	$M_{2\text{EQU}}$	[Nm]	$M_{2\text{EQU}} = \sqrt[3]{\frac{ n_{2(1)} \cdot t_1 \cdot M_{2(1)} ^3 + \dots + n_{2(n)} \cdot t_n \cdot M_{2(n)} ^3}{ n_{2(1)} \cdot t_1 + \dots + n_{2(n)} \cdot t_n}}$
(d)	Equivalent speed	$n_{2\text{EQU}}$	[min ⁻¹]	$n_{2\text{EQU}} = \frac{ n_{2(1)} \cdot t_1 + n_{2(2)} \cdot t_2 + \dots + n_{2(n)} \cdot t_n}{t_{\Sigma}}$
(e)	Gear motor torque at equivalent speed $n_{2\text{EQU}}$	M_2	[Nm]	$M_2 = M_{0,2} + (M_{n_2} - M_{0,2}) \cdot (n_{2\text{EQU}} / n_{n_2})$
(f)	Thermal derating factor	f_d	-	$f_d = 0.9 - K_p \cdot (n_{2\text{EQU}} \cdot i / 40000)^2$
(g)	Equivalent thermal torque of the gear motor	$M_{\text{th}2}$	[Nm]	$M_{\text{th}2} = M_2 \cdot f_d$
(h)	Temperature adjusting factor	f_T	-	

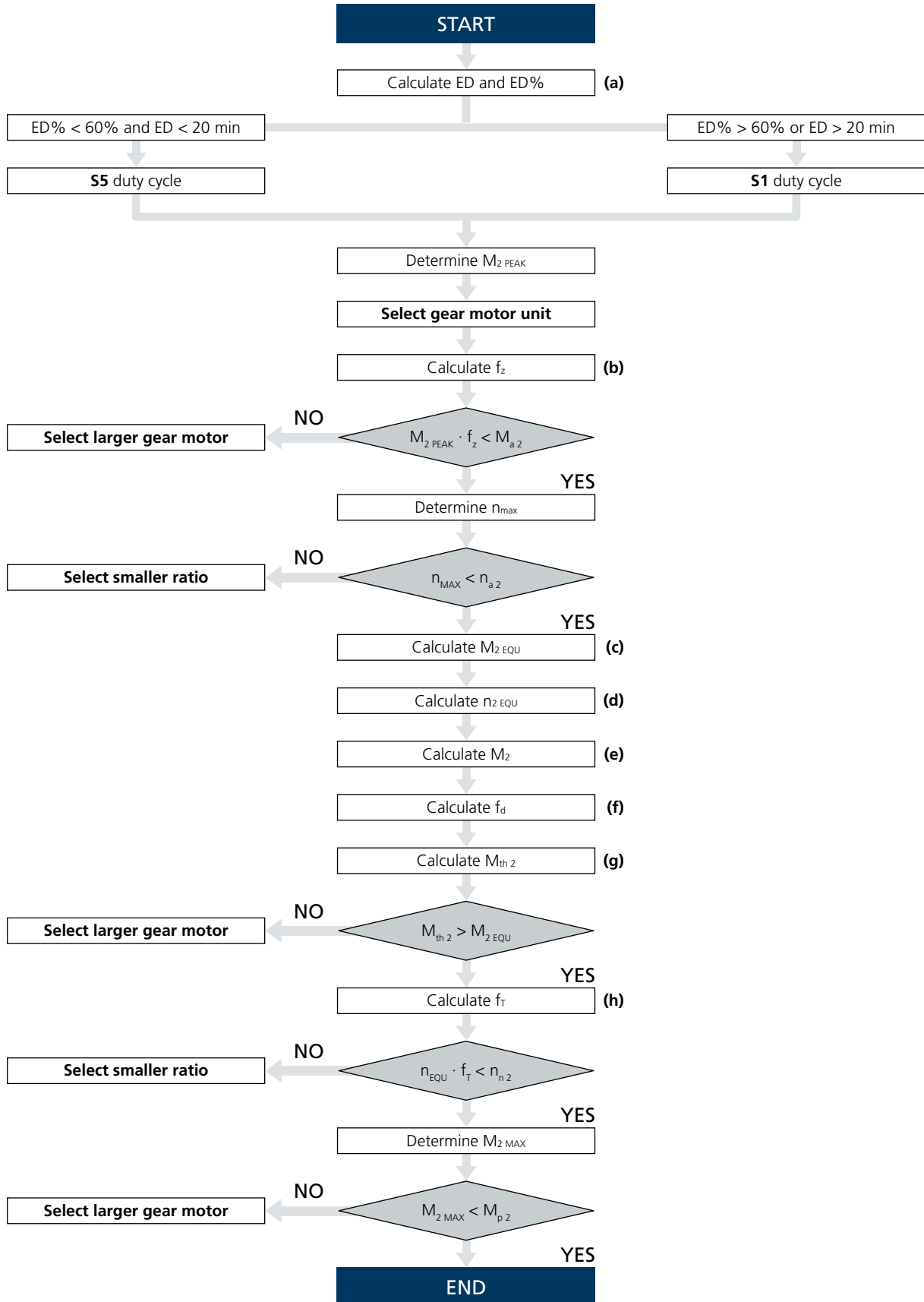
Load diagram

— M_2 : Output torque

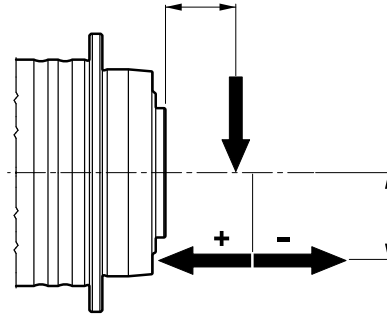
Speed diagram

— n_2 : Output speed



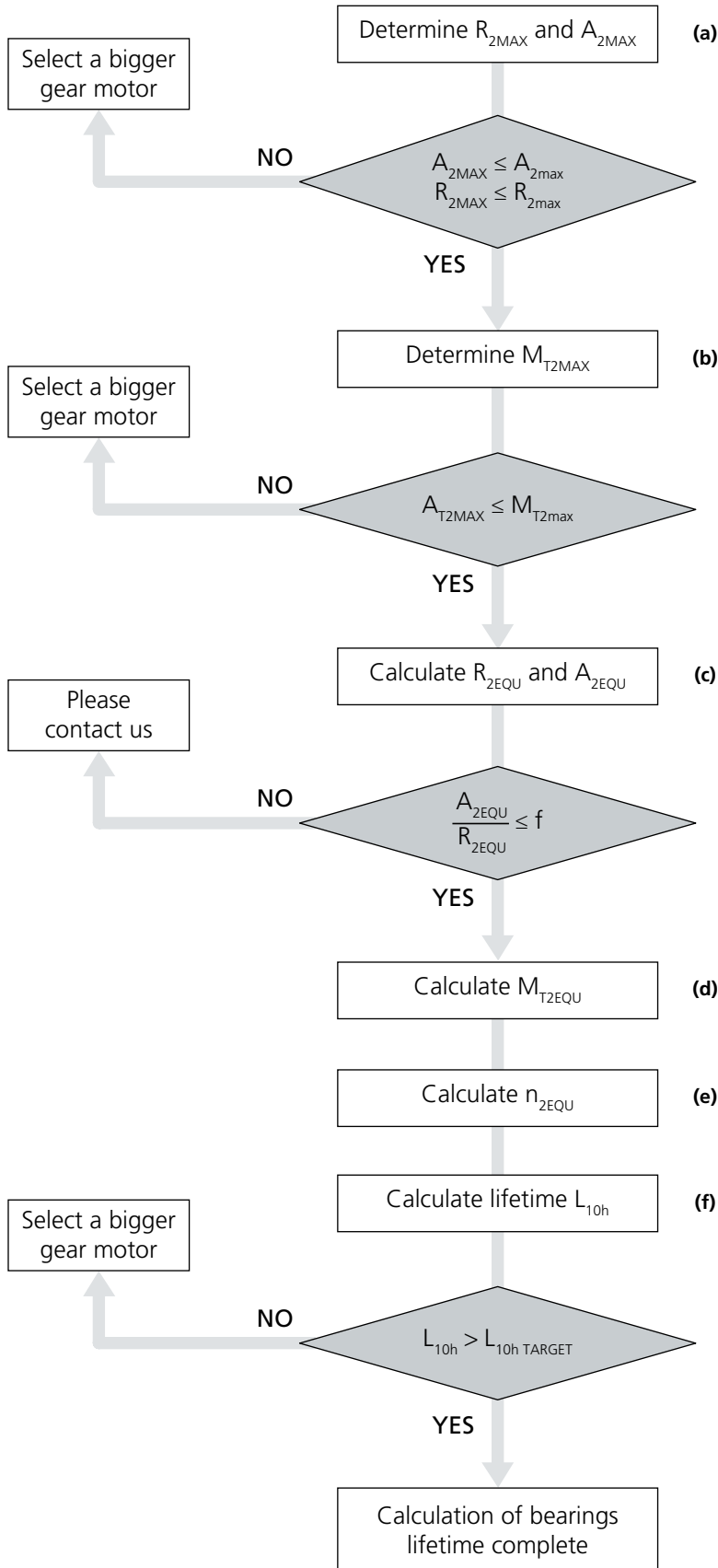


Service life of bearings



(a)	Maximum radial force applied on output shaft	$R_{2\text{MAX}}$	[N]	Please consider the specific conditions (e.g. belt drives under acceleration torque)
	Maximum axial force applied on output shaft	$A_{2\text{MAX}}$	[N]	
(b)	Maximum tilting moment applied on output shaft	$M_{T2\text{MAX}}$	[Nm]	$M_{T2\text{MAX}} = \frac{R_{2\text{MAX}} \cdot (x + L_z) \pm A_{2\text{MAX}} \cdot y}{1000}$
(c)	Equivalent forces applied on output shaft	$R_{2\text{EQU}}$	[N]	$R_{2\text{EQU}} = \sqrt[3]{\frac{ n_{2(1)} \cdot t_1 \cdot R_{2(1)} ^3 + \dots + n_{2(n)} \cdot t_n \cdot R_{2(n)} ^3}{ n_{2(1)} \cdot t_1 + \dots + n_{2(n)} \cdot t_n}}$
		$A_{2\text{EQU}}$	[N]	$A_{2\text{EQU}} = \sqrt[3]{\frac{ n_{2(1)} \cdot t_1 \cdot A_{2(1)} ^3 + \dots + n_{2(n)} \cdot t_n \cdot A_{2(n)} ^3}{ n_{2(1)} \cdot t_1 + \dots + n_{2(n)} \cdot t_n}}$
(d)	Equivalent tilting moment applied on output shaft	$M_{T2\text{EQU}}$	[Nm]	$M_{T2\text{EQU}} = \frac{R_{2\text{EQU}} \cdot (x + L_z) + A_{2\text{EQU}} \cdot y}{1000}$
(e)	Equivalent output speed	$n_{2\text{EQU}}$	[min ⁻¹]	$n_{2\text{EQU}} = \frac{ n_{2(1)} \cdot t_1 + n_{2(2)} \cdot t_2 + \dots + n_{2(n)} \cdot t_n}{t_1 + t_2 + \dots + t_n}$
(f)	Bearings basic rating life	L_{10h}	[h]	$L_{10h} = \frac{16666}{n_{2\text{EQU}}} \cdot \left(\frac{C_B}{M_{T2\text{EQU}}} \right)^p$

		BMS 060	BMS 070	BMS 090	BMS 130	BMS 160
L_z	[mm]	48	72	78	100	128
$M_{T2\text{max}}$	[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				



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:

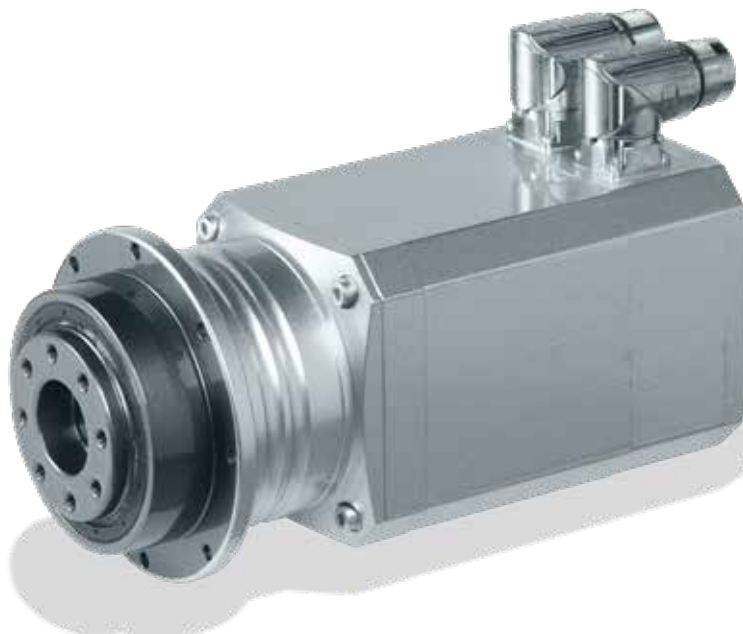
- reduced outline dimensions
- maximized performances thanks to optimized gear motor selection
- longer lifetime
- higher stiffness
- top in class energy efficiency

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.

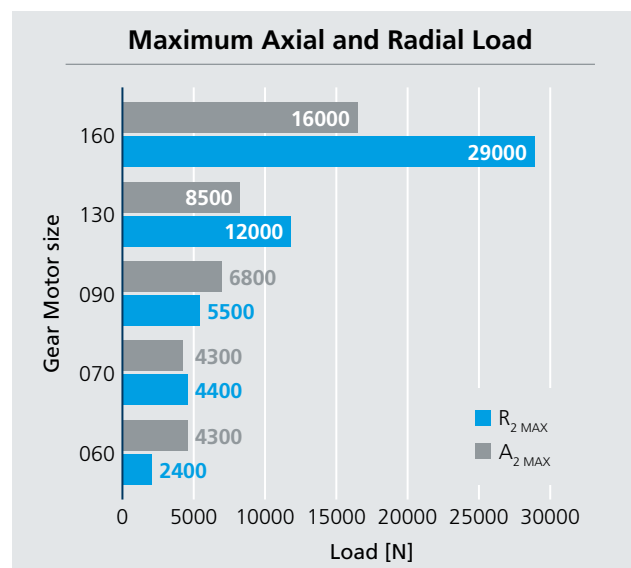
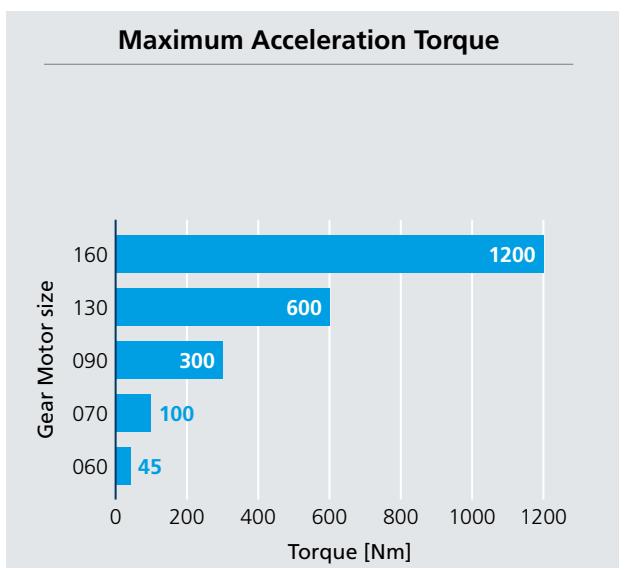


BMS features

- 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	-



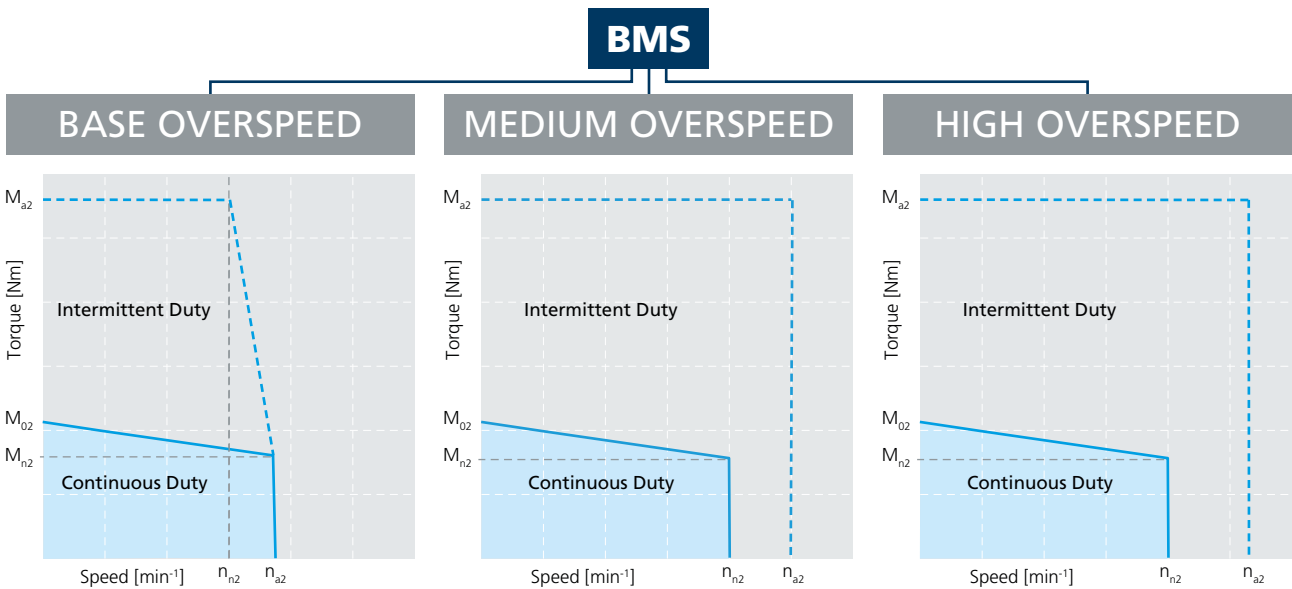
BMS overspeed

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.

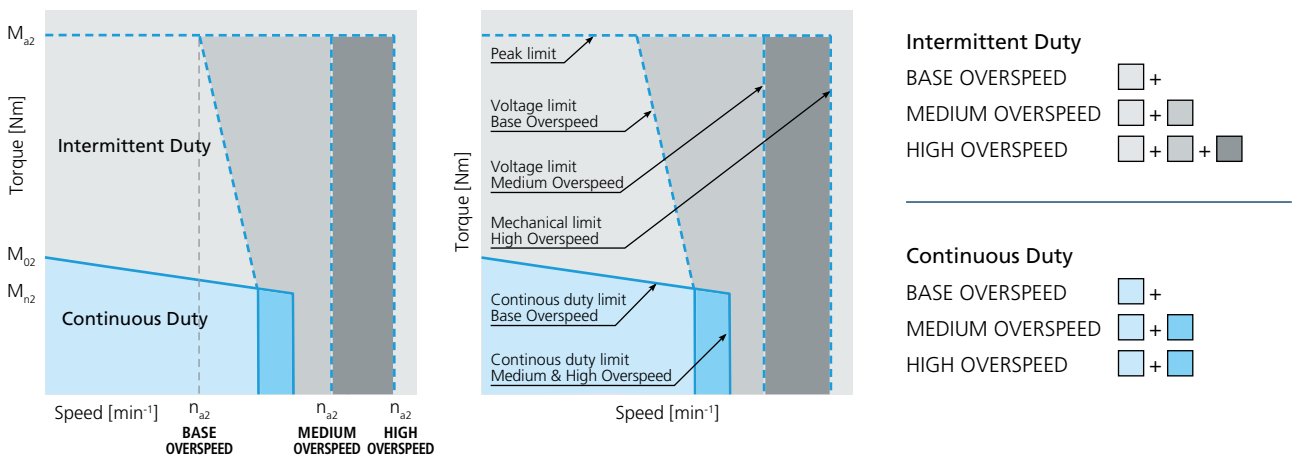
The continuous operating zone is enclosed by torque curve for S1 duty up to the intersection with the voltage limit or the mechanical limit curve. Continuous duty above the S1 characteristic curve is not thermally permitted for the gear motor.

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 .



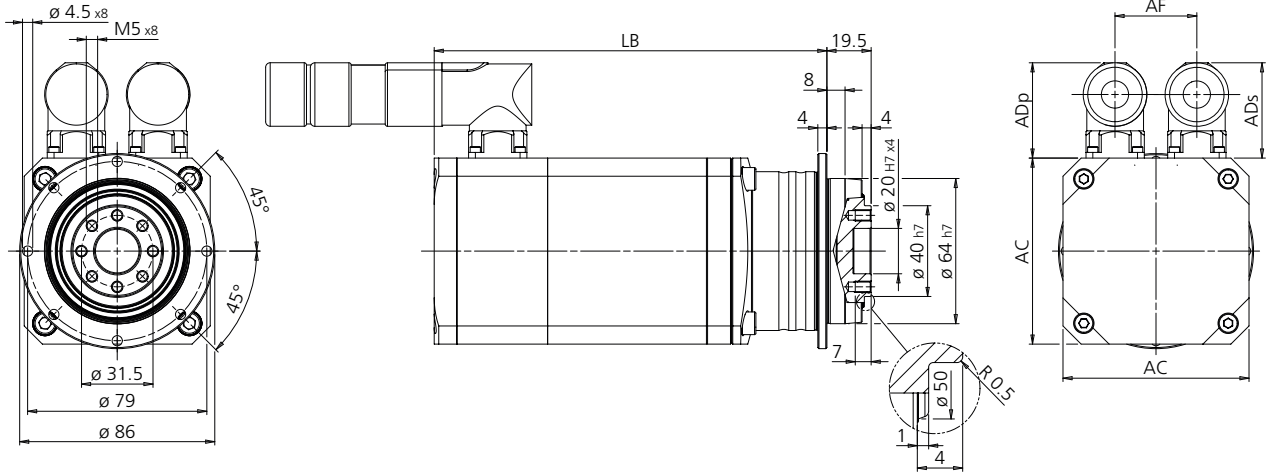
BMS designation

BMS	F	060	B	5	065B	400	STD	S1	UH1	PTC	RES1	F24	AN									
													<p>Connections AN Angled turning receptacles ST Straight receptacles</p> <p>Brake (blank) No brake or flywheel (default) F24 Brake 24 Vdc F1 Additional flywheel / inertia</p> <p>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</p> <p>Thermal protection PTC PTC KTY KTY84-130 TC1 PT1000</p> <p>Lubricant (blank) Standard (default) UH1 Food grade synthetic lubricant</p> <p>Duty S1 Continuous duty S5 Intermittent duty</p> <p>Backlash</p> <table border="1"> <thead> <tr> <th></th> <th>Gear ratio ≤ 10</th> <th>Gear ratio > 10</th> </tr> </thead> <tbody> <tr> <td>STD</td> <td>$\psi_s \leq 5'$</td> <td>$\psi_s \leq 7'$</td> </tr> <tr> <td>LOW</td> <td>$\psi_R \leq 3'$</td> <td>$\psi_R \leq 5'$</td> </tr> </tbody> </table> <p>Supply AC voltage 230 230 V 400 400 V</p> <p>Motor size 065A... 170C</p> <p>Gear ratio 4... 70</p> <p>Overspeed B Base M Medium H High</p> <p>Gearbox size 060... 160</p> <p>Version F Flanged</p> <p>Gear motor series BMS</p>		Gear ratio ≤ 10	Gear ratio > 10	STD	$\psi_s \leq 5'$	$\psi_s \leq 7'$	LOW	$\psi_R \leq 3'$	$\psi_R \leq 5'$
	Gear ratio ≤ 10	Gear ratio > 10																				
STD	$\psi_s \leq 5'$	$\psi_s \leq 7'$																				
LOW	$\psi_R \leq 3'$	$\psi_R \leq 5'$																				

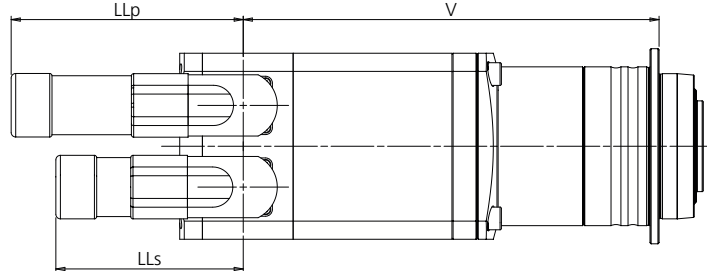
(1) Not available for motor sizes 065A and 065B

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
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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... 100 - 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	ψ_s	ψ_r	R_{2max}	A_{2max}
				[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 cm ²]	[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				

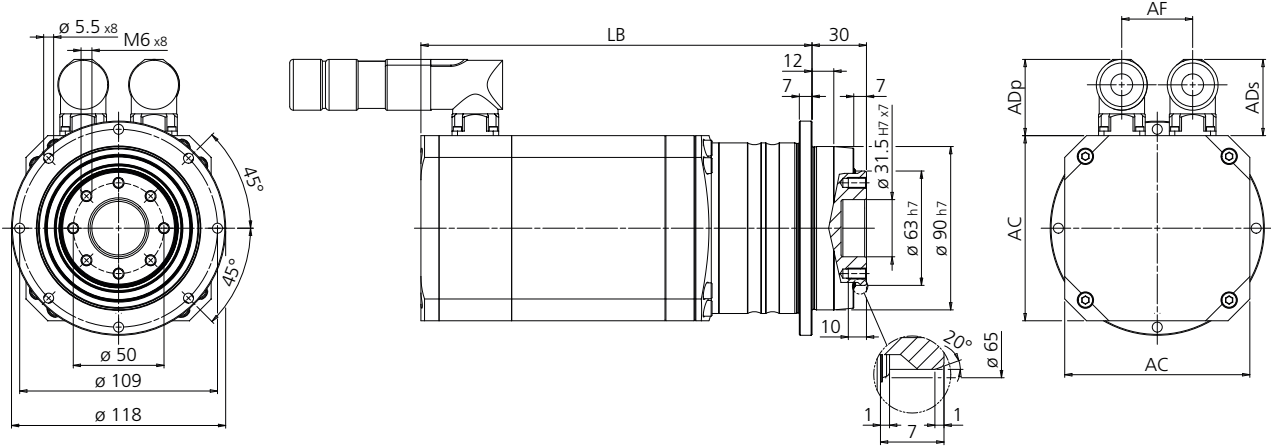
BMS F 060

Performance data • High overspeed

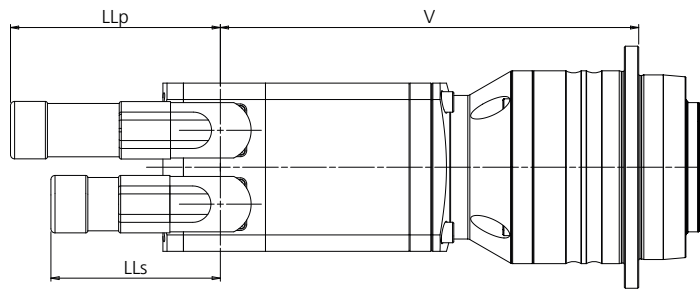
Designation	n_{n2}	n_{a2}	M_{n2}	M_{02}	M_{a2}	M_{p2}	I_n	I_0	I_a	I_p	C_t	J_1	m	K_p	
	[min ⁻¹]	[min ⁻¹]	[Nm]	[Nm]	[Nm]	[Nm]	[A]	[A]	[A]	[A]	[Nm/arcmin]	[kg cm ²]	[kg]		
BMS F 060 H 35 065A	400	129	171	27	30	45	80	1.21	1.38	2.22	3.94	12	0.28	3.9	7.4
	230							2.09	2.39	3.88	6.90				
BMS F 060 H 28 065A	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
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BMS 070 - 4... 10 - 1 STAGE

102 A	102	189	229	212	189	252	229	42	42	39	102	83	159	159	199	199
102 B		216	256	239	216	279	256	42	42	39	102	83	186	186	226	226
102 C		243	283	266	243	306	283	42	42	39	102	83	213	213	253	253
118 B	118	243	293	268	243	318	293	42	42	50	102	83	208	258	258	258
118 C		276	326	301	276	351	326	42	42	50	102	83	241	291	291	291

BMS 070 - 16... 100 - 2 STAGE

065 A	65	195	226	213	213	262	262	42	42	32	102	83	172	172	221	221
065 B		218	249	236	236	285	285	42	42	32	102	83	195	195	244	244
082 B	82	232	272	255	232	295	295	42	42	36	102	83	204	204	267	267
082 C		252	292	275	252	315	315	42	42	36	102	83	224	224	287	287

Gear motor stages	i	ψ_s	ψ_r	R_{2max}	A_{2max}
[arcmin]					
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 cm ²]	[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
	-							-	-	-					

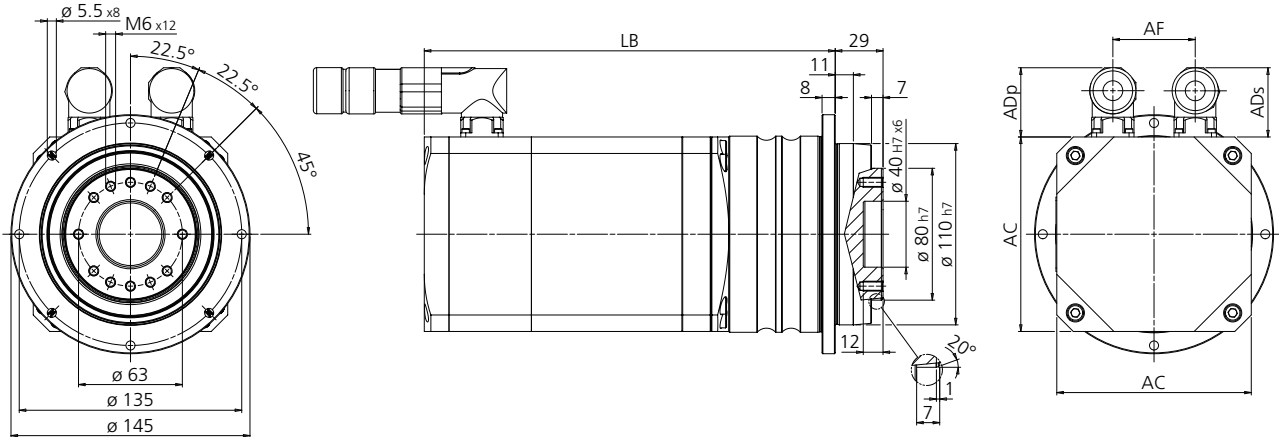
BMS F 070

Performance data • High overspeed

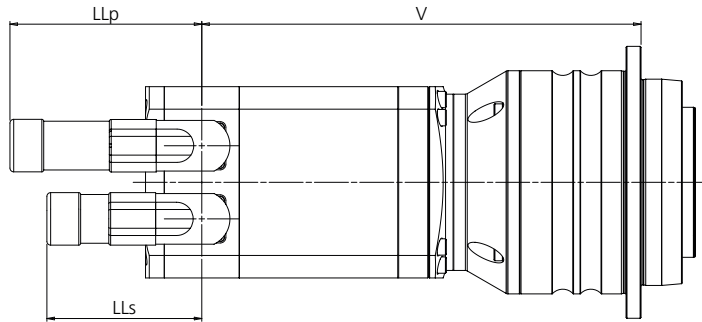
Designation	n_{n2}	n_{a2}	M_{n2}	M_{02}	M_{a2}	M_{p2}	I_n	I_0	I_a	I_p	C_t	J_1	m	K_p	
	[min ⁻¹]	[min ⁻¹]	[Nm]	[Nm]	[Nm]	[Nm]	[A]	[A]	[A]	[A]	[Nm/arcmin]	[kg cm ²]	[kg]		
BMS F 070 H 70 065A	400	57	86	55	60	90	160	1.21	1.38	2.22	3.94	29	0.13	6.9	9.4
	230							2.09	2.39	3.88	6.90				
BMS F 070 H 50 065A	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
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BMS 090 - 4... 10 - 1 STAGE

118 A	118	218	268	243	218	293	268	42	42	50	102	83	183	233	233	233
118 B		249	299	274	249	324	299	42	42	50	102	83	214	264	264	264
118 C		282	332	307	282	357	332	42	42	50	102	83	247	297	297	297
145 B	145	268	318	293	268	343	318	42	42	45	102	83	233	283	283	283
145 C		303	353	328	303	378	353	42	42	45	102	83	268	318	318	318
170 B	170	294	369	332	294	407	369	62	42	90	129	83	267	342	342	342
170 C		348	423	386	348	461	423	62	42	90	129	83	321	396	396	396

BMS 090 - 16... 100 - 2 STAGE

102 A	102	237	277	260	237	300	277	42	42	39	102	83	207	207	247	247
102 B		264	304	287	264	327	304	42	42	39	102	83	234	234	274	274
102 C		291	331	314	291	354	331	42	42	39	102	83	261	261	301	301
118 B	118	292	342	317	292	367	342	42	42	50	102	83	325	325	365	365
118 C		325	375	350	325	400	375	42	42	50	102	83	352	352	392	392

Gear motor stages	i	ψ_s	\leq	ψ_r	R_{2max}	A_{2max}
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 cm ²]	[kg]		
BMS F 090 B 50 102A	400	60	70	170	200	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
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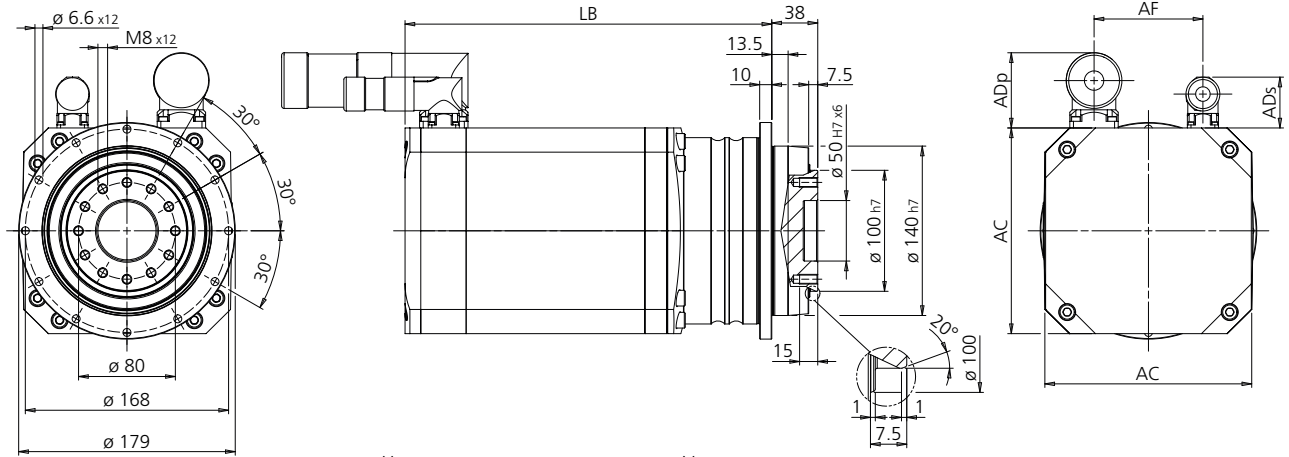
BMS F 090

Performance data • Medium overspeed

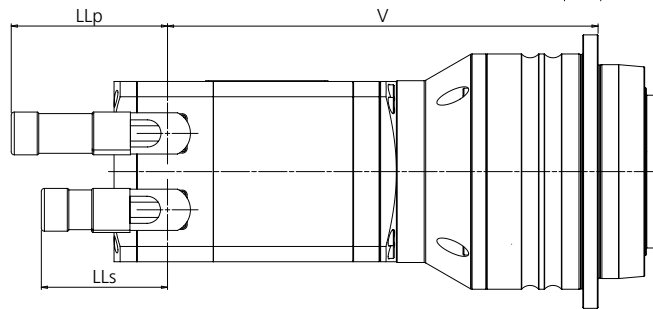
Designation	n_{n2}	n_{a2}	M_{n2}	M_{02}	M_{a2}	M_{p2}	I_n	I_0	I_a	I_p	C_t	J_1	m	K_p	
	[min ⁻¹]	[min ⁻¹]	[Nm]	[Nm]	[Nm]	[Nm]	[A]	[A]	[A]	[A]	[Nm/arcmin]	[kg cm ²]	[kg]		
BMS F 090 M 50 102A	400	70	90	165	200	280	500	3.80	4.90	7.64	13.6	70	1.72	14	10
	230							6.88	8.82	13.9	24.8				
BMS F 090 M 40 102A	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
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BMS 130 - 4... 10 - 1 STAGE

145 B	145	277	327	302	277	352	327	42	42	45	102	83	242	292	292	292
145 C		312	362	337	312	387	362	42	42	45	102	83	277	327	327	327
170 B	170	304	379	342	304	417	379	62	42	90	129	83	277	352	352	352
170 C		358	433	396	358	471	433	62	42	90	129	83	331	406	406	406

BMS 130 - 16... 100 - 2 STAGE

118 A	118	286	336	311	286	361	336	42	42	50	102	83	251	301	301	301
118 B		317	367	342	317	392	367	42	42	50	102	83	282	332	332	332
118 C		350	400	375	350	425	400	42	42	50	102	83	315	365	365	365
145 B	145	336	386	361	336	411	386	42	42	45	102	83	301	351	351	351
145 C		371	421	396	371	446	421	42	42	45	102	83	336	386	386	386

Gear motor stages	i	ψ_s	ψ_r	R_{2max}	A_{2max}
[arcmin]					
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_{o2}	M_{a2}	M_{p2}	I_n	I_o	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
	-							-	-	-	-				

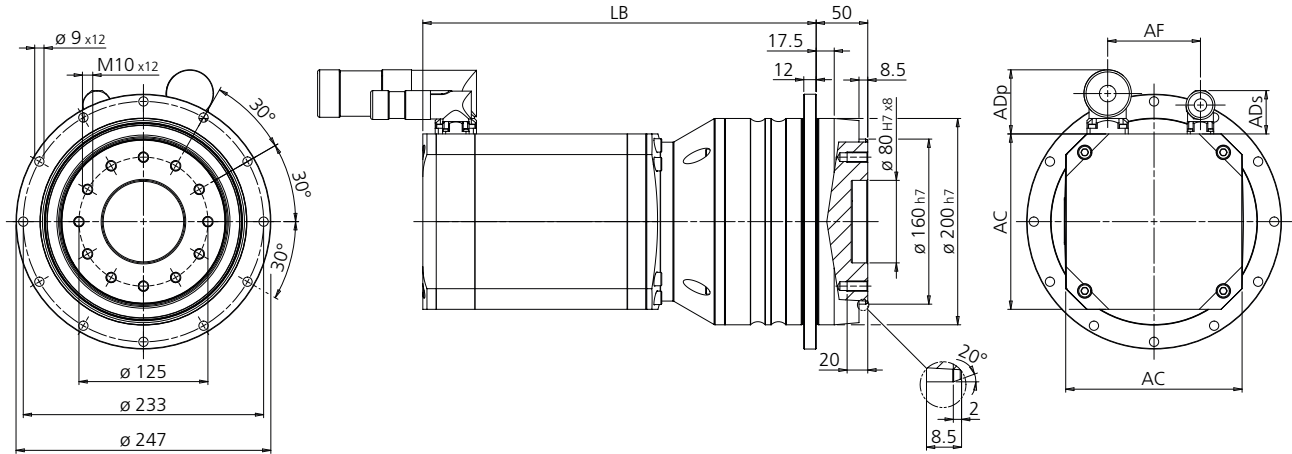
BMS F 130

Performance data • Medium overspeed

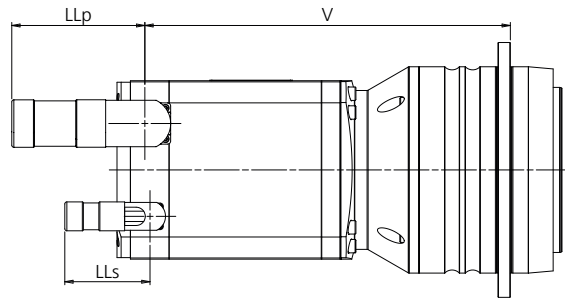
Designation	n_{n2}	n_{a2}	M_{n2}	M_{02}	M_{a2}	M_{p2}	I_n	I_0	I_a	I_p	C_t	J_1	m	K_p	
	[min ⁻¹]	[min ⁻¹]	[Nm]	[Nm]	[Nm]	[Nm]	[A]	[A]	[A]	[A]	[Nm/arcmin]	[kg cm ²]	[kg]		
BMS F 130 M 70 118A	400	50	57	357	392	550	950	5.20	6.40	11.0	19.0	180	3.72	26	5.5
	230							9.04	11.2	19.1	33.0				
BMS F 130 M 50 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
11	ENB5...ENB6	F24 / F1

Motor size	AC	LB2	LB3	LB4	LB5	LB6	LB7	ADp	ADs	AF	LLp	LLs	V8	V9	V10	V11
BMS 160 - 4... 10 - 1 STAGE																
145 B	145	355	405	380	355	430	405	42	42	45	102	83	320	370	370	370
145 C		390	440	415	390	465	440	42	42	45	102	83	355	405	405	405
170 B	170	382	457	420	382	495	457	62	42	90	129	83	355	430	430	430
170 C		436	511	474	436	549	511	62	42	90	129	83	409	484	484	484

Gear motor stages	i	ψ_s	ψ_r	R_{2max}	A_{2max}
1	4... 10	-	-	-	-
2	16... 100	7'	5'	29000	16000

BMS F 160

Performance data • Base overspeed

Designation	n_{n2}	n_{a2}	M_{n2}	M_{o2}	M_{a2}	M_{p2}	I_n	I_o	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_{o2}	M_{a2}	M_{p2}	I_n	I_o	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	Z_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]	[Ω _{20°}]	[mH]
B	065A	400	3000	200	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	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	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	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	1.10	305	2.80	3.30	86	6.20	53.0
		230				177	4.82	5.68	50	2.09	17.9
M	102A	400	4500	300	1.50	303	3.80	4.90	58	2.79	23.8
		230				169	6.88	8.82	32	0.87	7.40
H	102A	400	6000	400	1.80	314	4.60	6.30	45	1.71	14.6
		230				174	8.29	11.4	25	0.52	4.50
B	102B	400	3000	200	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	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	1.60	315	3.90	4.30	88	3.54	47.0
		230				185	6.64	7.33	52	1.22	16.2
M	118A	400	4500	300	2.20	316	5.20	6.40	59	1.61	21.3
		230				180	9.04	11.2	34	0.52	6.90
H	118A	400	6000	400	2.50	324	5.50	8.20	46	0.96	12.8
		230				171	10.3	15.6	24	0.27	3.60
B	118B	400	3000	200	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	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	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	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	8.60	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	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 Z _{ro} ()	70 + j100	75 + j185	43 + j79
Output impedance Z _{ss} (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 x 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 x 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 x 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 M_b refers to the motor shaft and has to be multiplied by the gearbox ratio i .

$$M_{b2} = M_b \cdot i$$

Motor size	$M_{b\ 20^\circ\text{C}}$	$M_{b\ 100^\circ\text{C}}$	V_b	I_b	$P_{b\ 20^\circ\text{C}}$	J_b	Δm_b	t_1	t_2
	Nm	Nm	Vdc	A	W	Kg cm ²	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

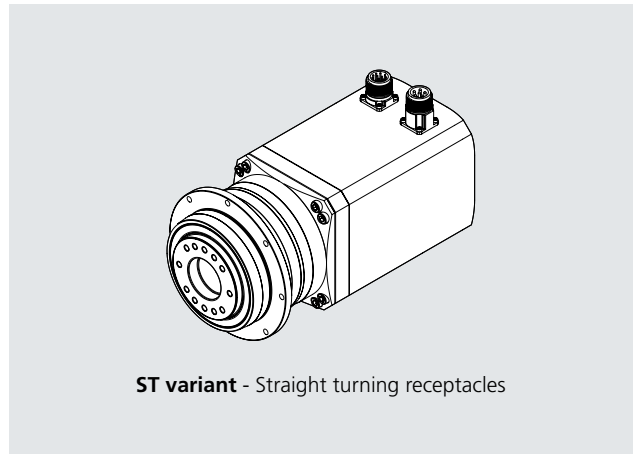
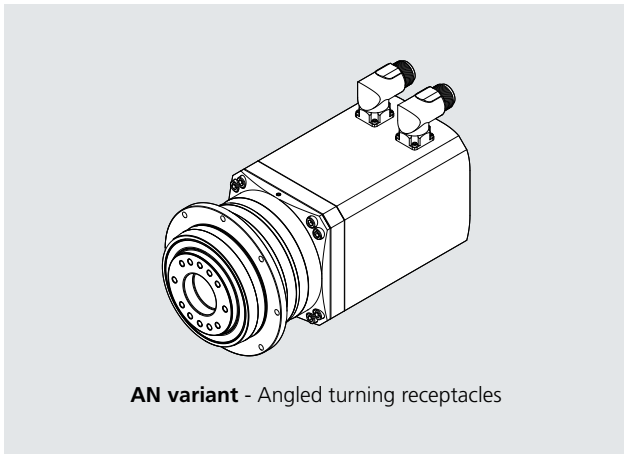
BMS compact servo gear motor series is provided optionally with additional flywheel / inertia (F1 variant).

The additional flywheel / inertia variant increases both length and weight of the gear motor.

Motor size	J_f	Δm_f
	Kg cm ²	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 turning receptacles (ST variant).



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 -

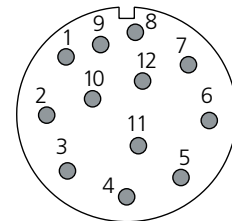
Signal connections

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

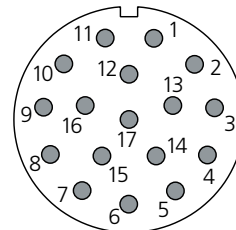
CONNECTOR PIN NUMBER	DESCRIPTION
1	Sin -
2	Sin +
3	n.c.
4	Shield cable
5	n.c.
6	n.c.
7	Exct -
8	PTC / KTY / PT1000 -
9	PTC / KTY / PT1000 +
10	Exct +
11	Cos +
12	Cos -



ENCODER WITH ENDAT INTERFACE (ENB1/ENB2)

Signal connector layout

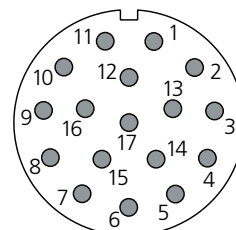
CONNECTOR PIN NUMBER	DESCRIPTION
1	UP SENSOR
2	n.c.
3	n.c.
4	0V SENSOR
5	PTC / KTY / PT1000 -
6	PTC / KTY / PT1000 +
7	UP
8	Clock +
9	Clock -
10	0V
11	Shield cable
12	B +
13	B -
14	DATA +
15	A +
16	A -
17	DATA -



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

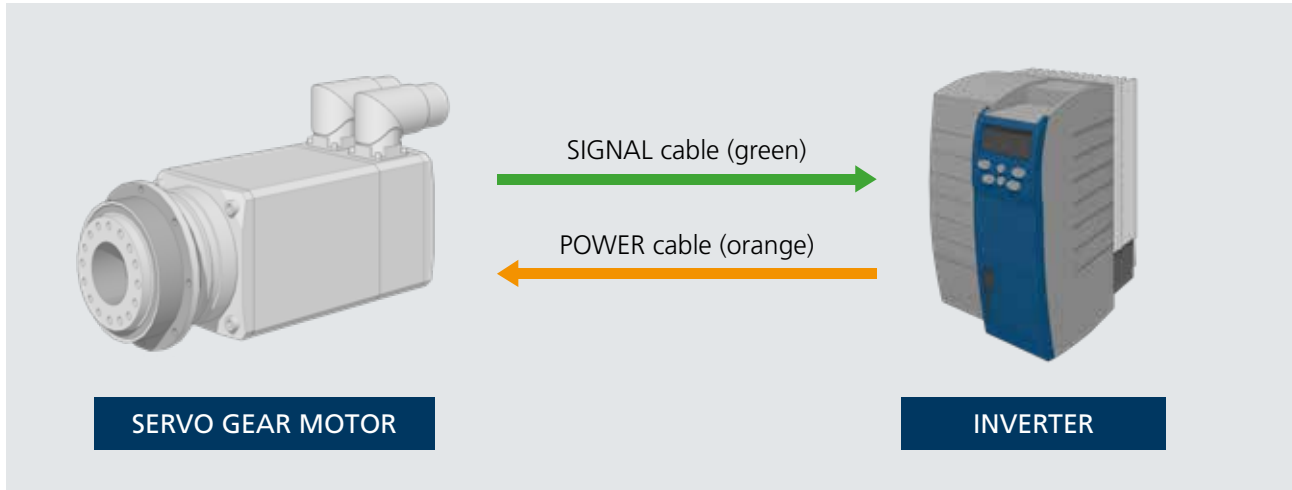
Signal connector layout

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 CI 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	$\geq 10^6$
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	MPC XX 015 YY C3			MPC XX 015 YY C3		
102B	MPC XX 015 YY C3			MPC XX 025 YY C3 MPC XX 040 YY C3		
102C						
118A	MPC XX 025 YY C3			MPC XX 025 YY C3 MPC XX 040 YY C3		
118B						
118C	MPC XX 025 YY C3			MPC XX 025 YY C3 MPC XX 040 YY C3		
145B	MPC XX 040 YY C3			MPC XX 040 YY C3		
145C	MPC XX 040 YY C3			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	Not available			Not available	

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

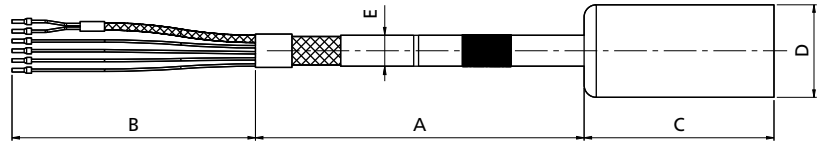
Standard and Certifications

UL/CSA, RoHS, DESINA

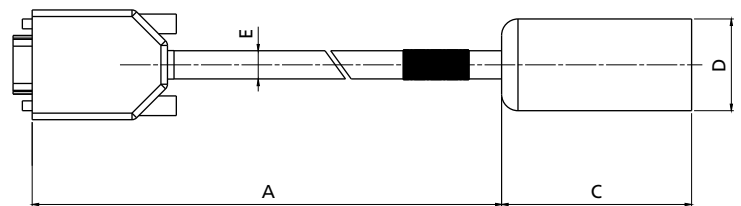
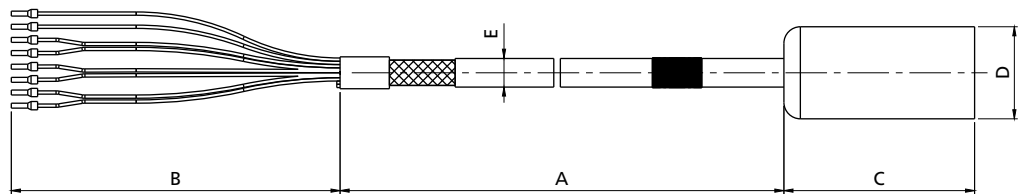
The ordering codes of the signal cables are described in the following table:

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}
	[mm ²]		[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

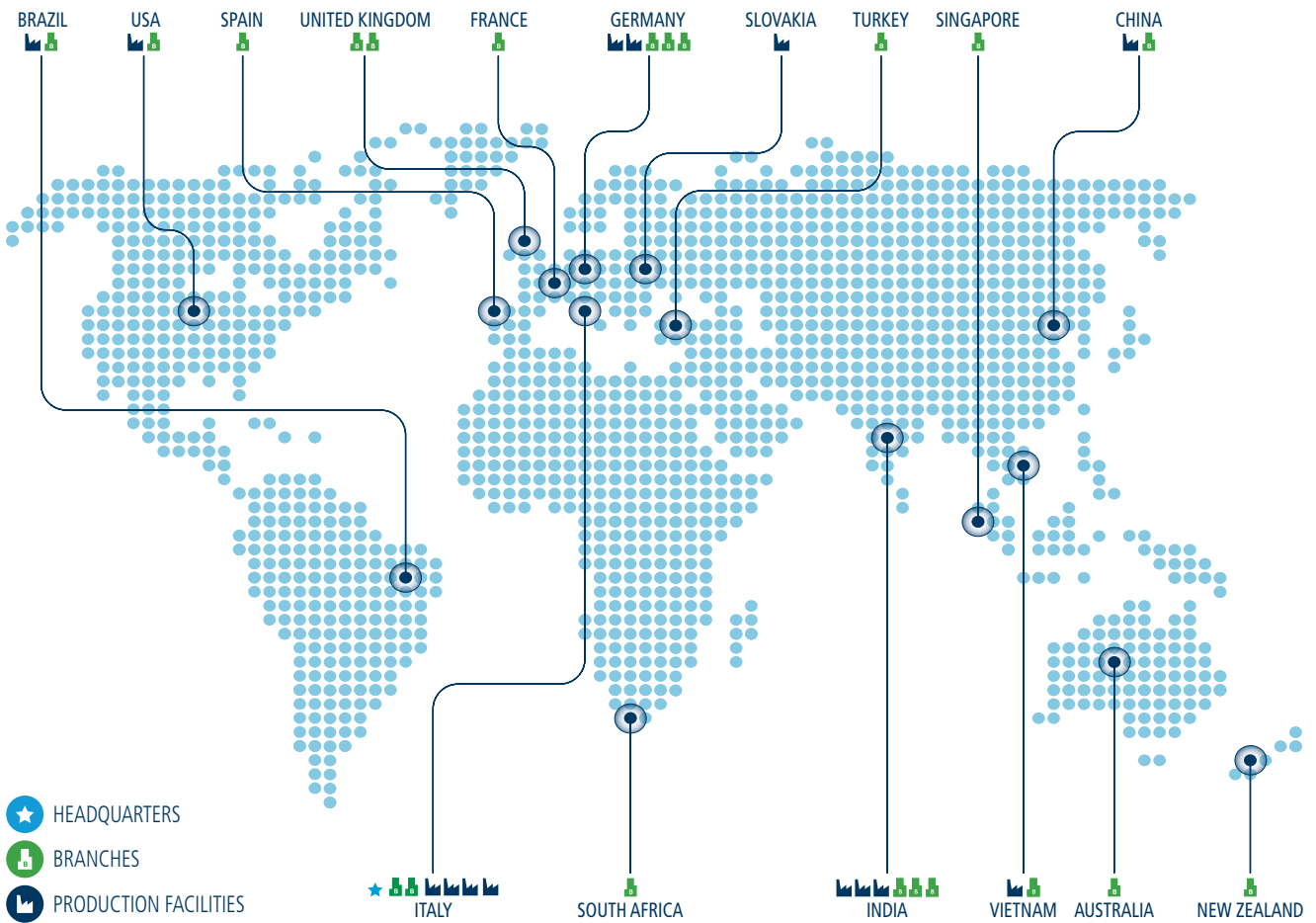
Plugs

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.

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