

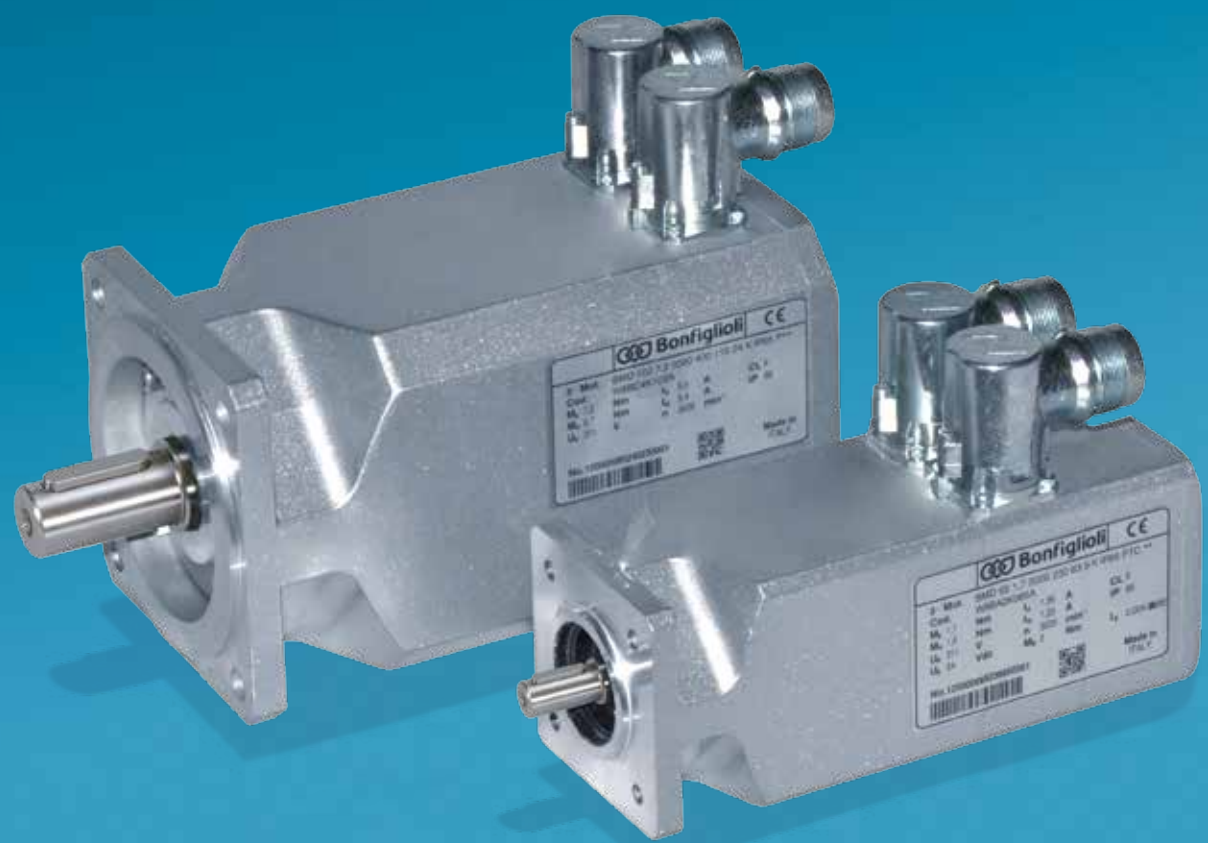
NEW INTERMEDIATE SIZES

Bonfiglioli

Riduttori

BMD

Permanent Magnet AC
Synchronous Motors



Bonfiglioli permanent magnet synchronous motors range

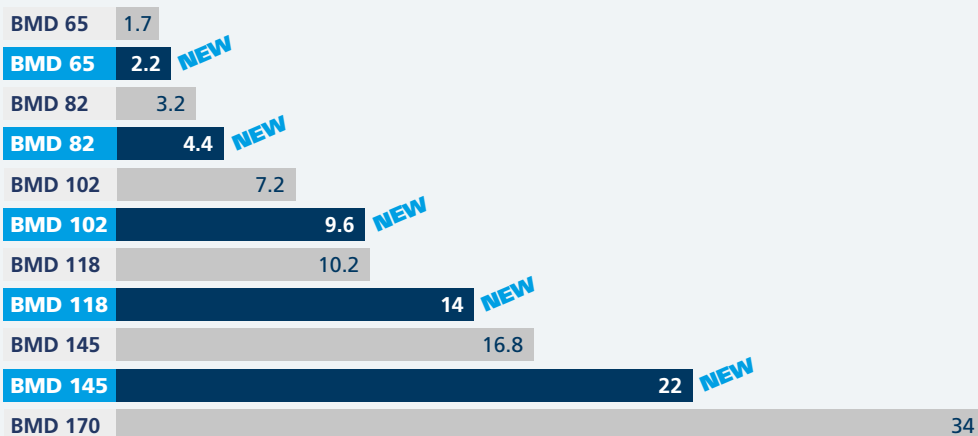
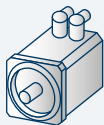
The BMD permanent magnet AC synchronous motor series is designed for high dynamic applications for processing machines in plastic industry, textile industry, printing, food & beverage, packaging, winding and metal machining.

For customer applications the scalability of the motor is really a major improvement. Various options are available depending on the application: two possible inertia executions for each motor size, temperature protection by PTC or KTY, permanent magnet holding brake and built-in feedback sensor from resolver to high resolution absolute single or multiturn encoders. Sensorless variant make it possible to perform Open Loop Vector control using ACU drive with increased speed control range.

With the new intermediate sizes, the BMD motor series now is the complete saleable solution for industrial applications. The customers have the options to select between 11 torque classes, 6 frame sizes, nominal speed up to 6000 rpm and nominal voltage starting from 48V.

For any further customization requests, the application engineers and the R&D specialists of the Bonfiglioli are ready to support the customers for advice on a solution that fits properly the application requirements.

BMD series Permanent Magnet AC Motors



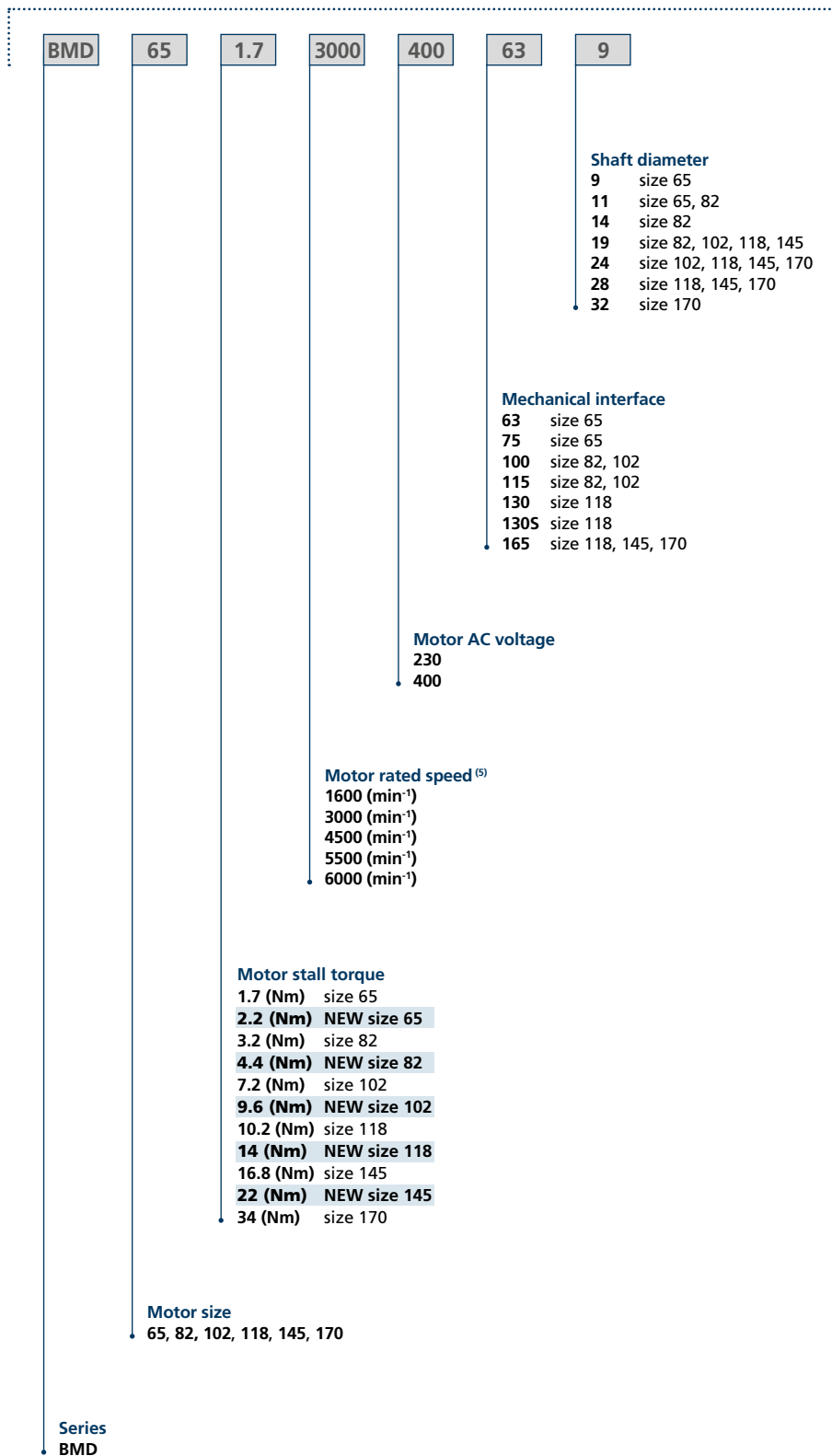
Datasheet **NEW** Intermediate sizes

Parameter	Symbol	Unit	Motor				
			65	82	102	118	145
Standstill torque (dT=100K)	M_0	[Nm]	2.2	4.4	9.6	14	22
Rated Speed	n_n	[min ⁻¹]	3000	3000	3000	3000	3000
Motor rated voltage	V_n	[VAC]	333	332	334	327	325
Number of motor poles	p_{mot}		8	8	8	8	8
Rated Torque (dT=100K)	M_n	[Nm]	2.05	3.8	8.5	12.2	19.2
Current at rated speed	I_n	[A]	1.60	2.9	5.7	8.4	14.2
Standstill current	I_0	[A]	1.70	3.3	6.5	9.6	16.4
Max Torque	M_{max}	[Nm]	6.2	11.5	28	39	59
Max Current	I_{max}	[A]	5.4	9.9	21	31	54
Back EMF constant	K_e	[V/1000min ⁻¹]	90	92	102	100	96
Torque constant	K_T	[Nm/A]	1.29	1.33	1.48	1.46	1.34
Rated Power	P_n	[kW]	0.64	1.2	2.7	3.8	6.0
Stator phase-phase Resistance (at 20°C)	R_{pp}	[Ω]	18.8	6.77	2.07	1.05	0.59
Stator phase-phase Inductance	L_{pp}	[mH]	56.9	38.3	17.4	13.8	9.4
Rotor inertia (without brake)	J_m	[kgm ² x 10 ⁻³]	0.06	0.17	0.47	0.99	1.76
Electric time constant (at 20°C)	τ_{el}	[ms]	3.0	5.7	8.4	13.1	16.0
Thermal time constant	τ_{therm}	[min]	26	33	38	42	47
Motor mass without brake	m_M	[kg]	2.6	4.6	7.4	11.7	18.2

Product designation of Bonfiglioli servomotors

Brushless Motors designation

Basic Variants



Basic Variants

K	65	PTC	RES1	P1	S1	F24	F1	CUS
Shaft keyway K with key NK without key								
Degree of protection 65 IP65 67 IP67								
Thermal protection PTC PTC KTY KTY 84-130								
Feedback device RES1 2 poles resolver 8kHz RES2 2 poles resolver 10kHz ENB1 encoder EnDat S ENB2 encoder EnDat M ENB3 encoder Hiperface S ENB4 encoder Hiperface M SEN ⁽¹⁾ Sensorless								
Power connector P1 6 PIN, orientable, with mating connector P1N 6 PIN, orientable, without mating connector P2 ⁽¹⁾ cable, without connectors								
Signal connector S1 orientable, with mating connector S1N orientable, without mating connector S2 ⁽¹⁾ cable, without connectors								
Brake (blank) no brake (default) F24 brake 24Vdc								
Flywheel (blank) no flywheel (default) F1 ⁽²⁾ flywheel								
Certified execution (blank) CE CUS ⁽³⁾ UL								

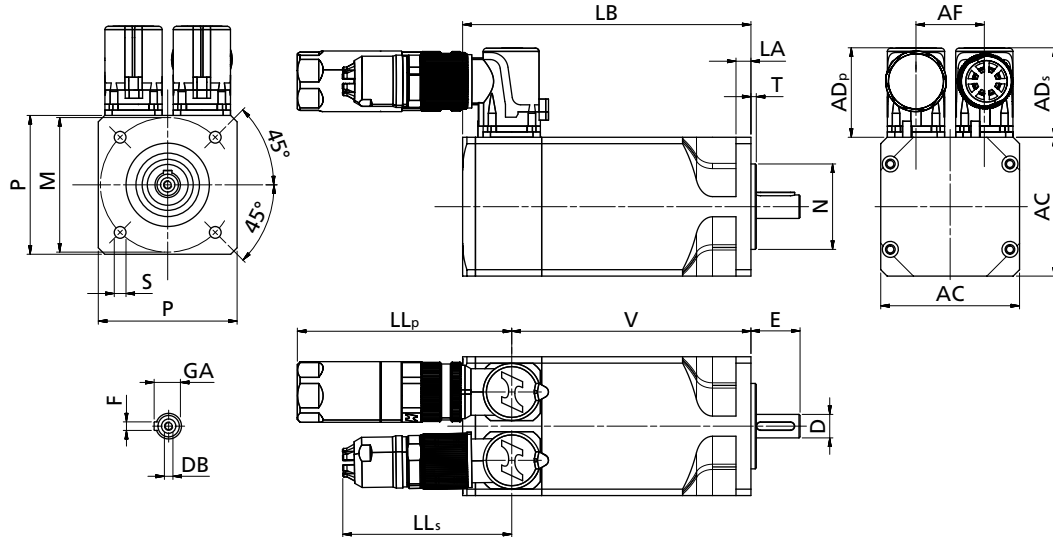
Notes:

(1) with SEN option, only cables without connectors are available: (P2), (S2)

(2) not available if brake is provided

(3) UL certification pending for new sizes

Dimensions (from BMD 65 to BMD 102)



Type	Shaft				
	D	E	DB	GA ⁽¹⁾	F ⁽¹⁾
65	9	20	M3	10.2	3
	11	23	M4	12.5	4
82	11	23	M4	12.5	4
	14	30	M5	16	5
	19	40	M6	21.5	6
102	19	40	M6	21.5	6
	24	50	M8	27	8

Type	Flange					
	M	N	P	S	T	LA
65	63	40	65	5.5	2.5	7
	75	60	65	6	2.5	7
82	100	80	82	6.5	3	10
	115	95	100	9	3	10
102	100	80	102	7	3	10
	115	95	102	9	3	10

Type	Motor																
	T ₀	AC	LB ₂	LB ₃	LB ₄	LB ₅	LB ₆	LB ₇	ADp	ADs	AF	LLp	LLs	V ₈	V ₉	V ₁₀	V ₁₁
65	1.7	65	135	166	153	153	202	202	41.5	41.5	32	96	96	112	112	161	161
	2.2		161	192	179	179	228	228						138	138	187	187
82	3.2	82	160	200	183	160	223	223	41.5	41.5	36	96	96	132	132	195	195
	4.4		180	220	203	180	243	243						152	152	215	215
102	7.2	102	180	220	203	180	243	220	41.5	41.5	39	96	96	150	150	190	190
	9.6		207	247	230	207	297	247						177	177	217	217

Notes:

(1) Motor shaft extension without key available.

LB2 Motor length with resolver, or in sensorless version.

LB3 Motor length with resolver, or in sensorless version, and with brake or flywheel.

LB4 Motor length with encoder EnDat (ENB1, ENB2).

LB5 Motor length with encoder Hyperface (ENB3, ENB4).

LB6 Motor length with encoder EnDat (ENB1, ENB2) and with brake or flywheel.

LB7 Motor length with encoder Hyperface (ENB3, ENB4) and with brake or flywheel.

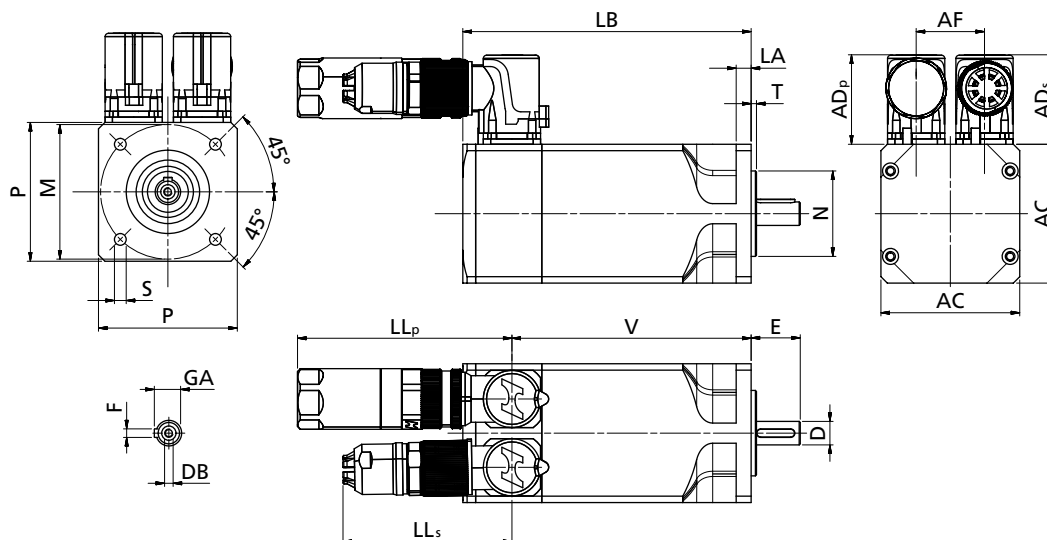
V8 Motor with resolver, encoder (ENB1, ENB2, ENB3, ENB4) or in sensorless version.

V9 Motor with resolver, or in sensorless version and with brake or flywheel.

V10 Motor with encoder EnDat (ENB1, ENB2) and with brake or flywheel.

V11 Motor with encoder Hyperface (ENB3, ENB4) and with brake or flywheel.

Dimensions (from BMD 118 to BMD 170)



Type	Shaft				
	D	E	DB	GA ⁽¹⁾	F ⁽¹⁾
118	19	40	M6	21.5	6
	24	50	M8	27	8
	28	60	M10	31	8
145	19	40	M6	21.5	6
	24	50	M8	27	8
	28	60	M10	31	8
170	24	50	M8	27	8
	28	60	M10	31	8
	32	60	M12	35	10

Type	Flange					
	M	N	P	S	T	LA
118	130	95	118	9	3.5	10
	130	110	118	9	3.5	10
	165	130	145	11.5	3.5	10
145	165	130	145	11.5	3.5	12
	165	130	145	11.5	3.5	12
	165	130	170	11.5	3.5	12

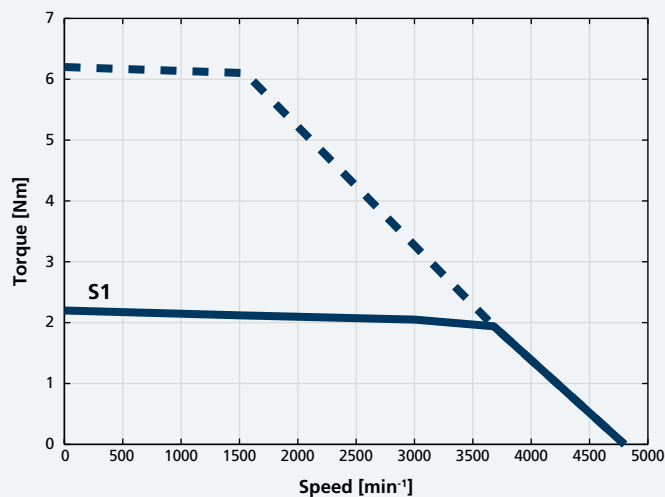
Type		Motor															
	T ₀	AC	LB ₂	LB ₃	LB ₄	LB ₅	LB ₆	LB ₇	ADp	ADs	AF	LLp	LLs	V ₈	V ₉	V ₁₀	V ₁₁
118	10.2	118	210	260	235	210	285	260	41.5	41.5	96	96	96	175	225	225	225
	14		243	293	268	243	351	293						208	258	258	258
145	16.8	145	230	280	255	230	305	280	41.5	41.5	96	96	96	195	245	245	245
	22		265	315	290	265	375	315						230	280	280	280
170	34	170	265	340	302.5	265	377.5	340	41.5	41.5	140	96	96	233	308	308	308

Notes:

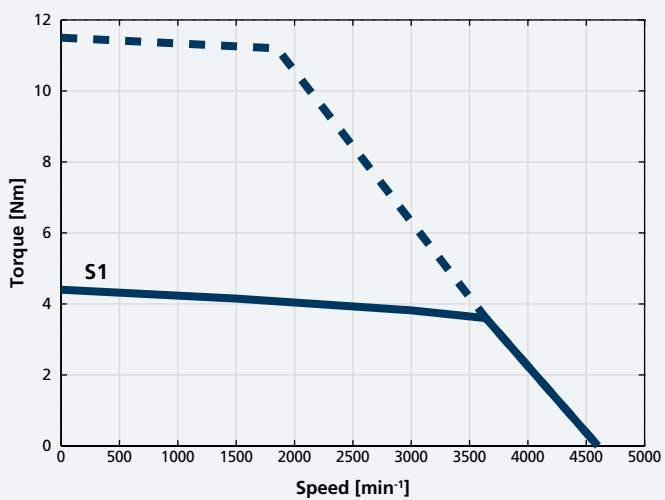
- (1) Motor shaft extension without key available.
- LB2 Motor length with resolver, or in sensorless version.
- LB3 Motor length with resolver, or in sensorless version, and with brake or flywheel.
- LB4 Motor length with encoder EnDat (ENB1, ENB2).
- LB5 Motor length with encoder Hyperface (ENB3, ENB4).
- LB6 Motor length with encoder EnDat (ENB1, ENB2) and with brake or flywheel.
- LB7 Motor length with encoder Hyperface (ENB3, ENB4) and with brake or flywheel.
- V8 Motor with resolver, encoder (ENB1, ENB2, ENB3, ENB4) or in sensorless version.
- V9 Motor with resolver, or in sensorless version and with brake or flywheel.
- V10 Motor with encoder EnDat (ENB1, ENB2) and with brake or flywheel.
- V11 Motor with encoder Hyperface (ENB3, ENB4) and with brake or flywheel.

Torque speed diagrams

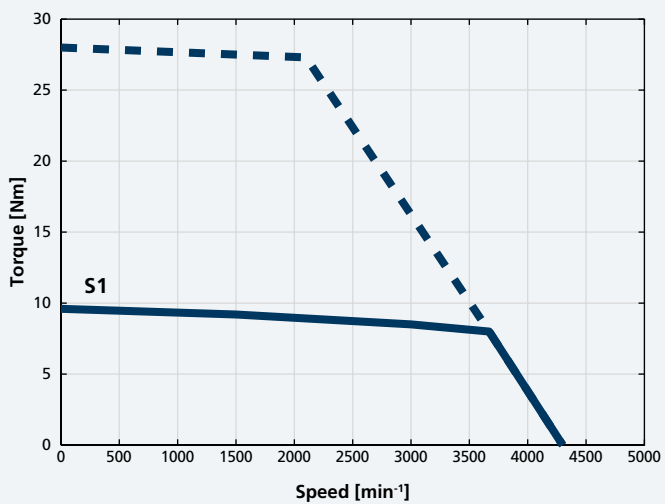
BMD 65
 $M_0 = 2.2\text{Nm}$



BMD 82
 $M_0 = 4.4\text{Nm}$

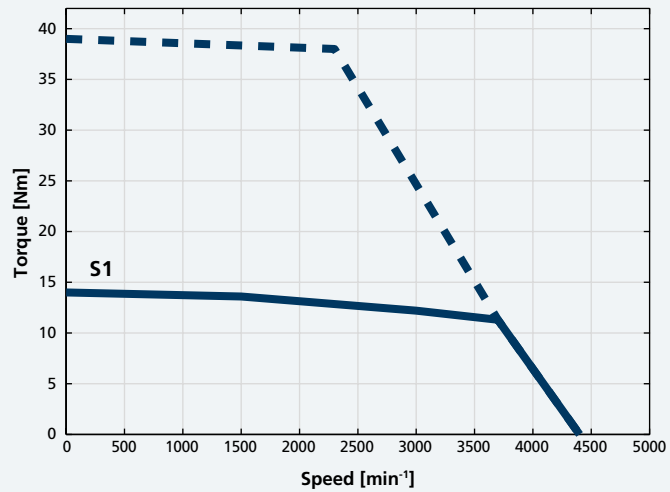


BMD 102
 $M_0 = 9.6\text{Nm}$

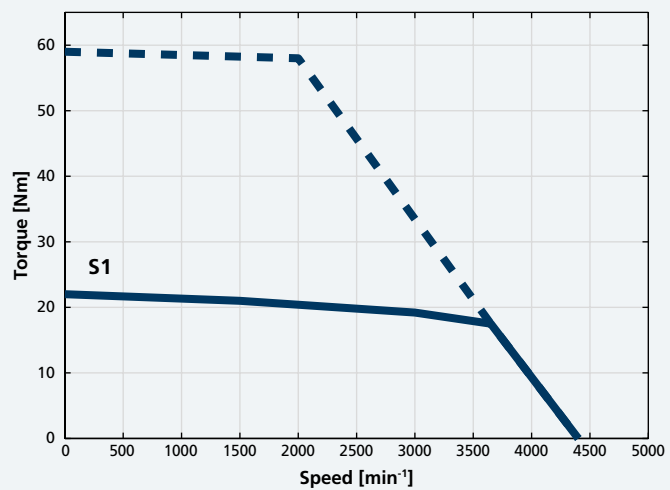


Torque speed diagrams

BMD 118
 $M_0 = 14\text{Nm}$

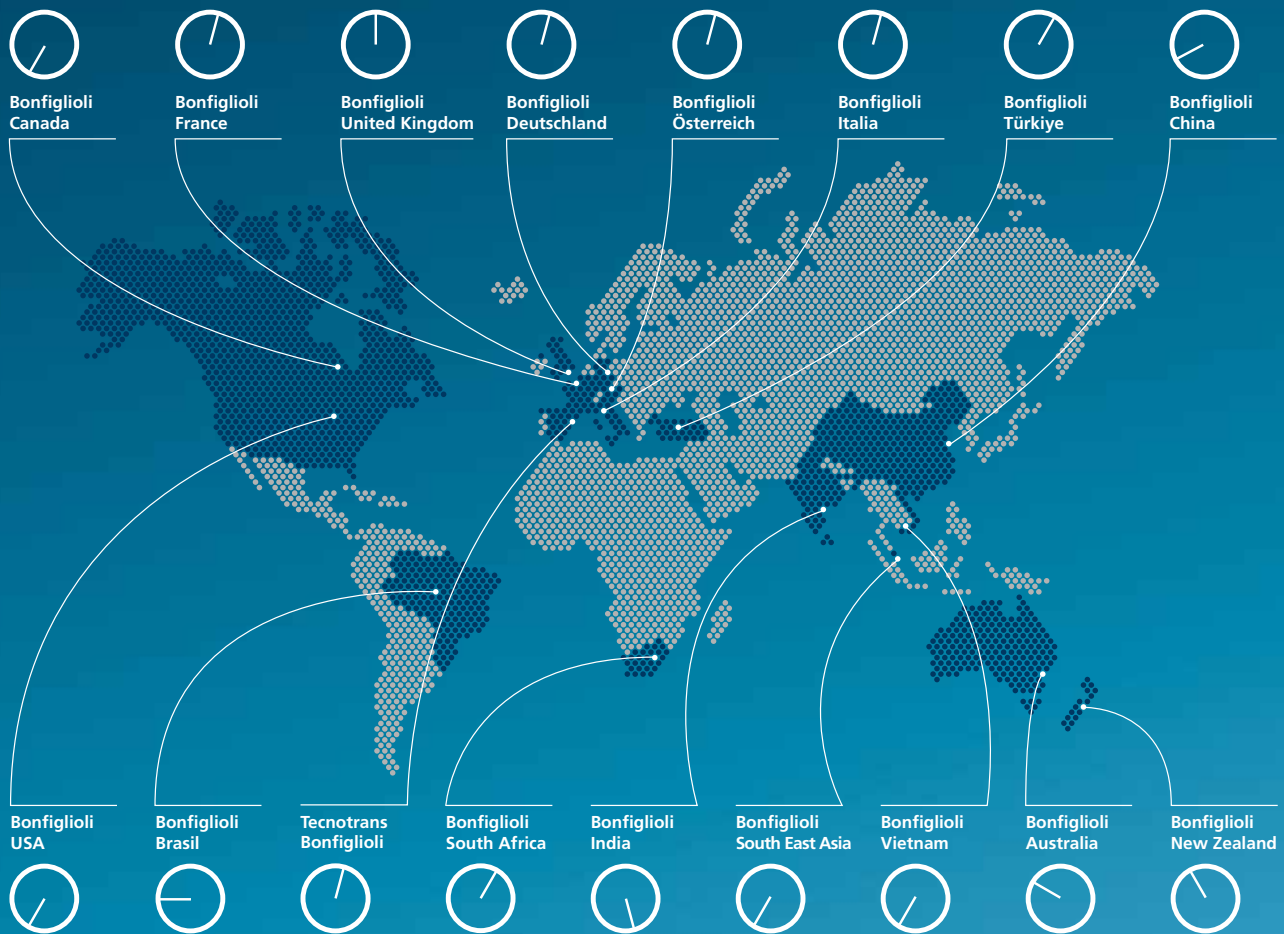


BMD 145
 $M_0 = 22\text{Nm}$

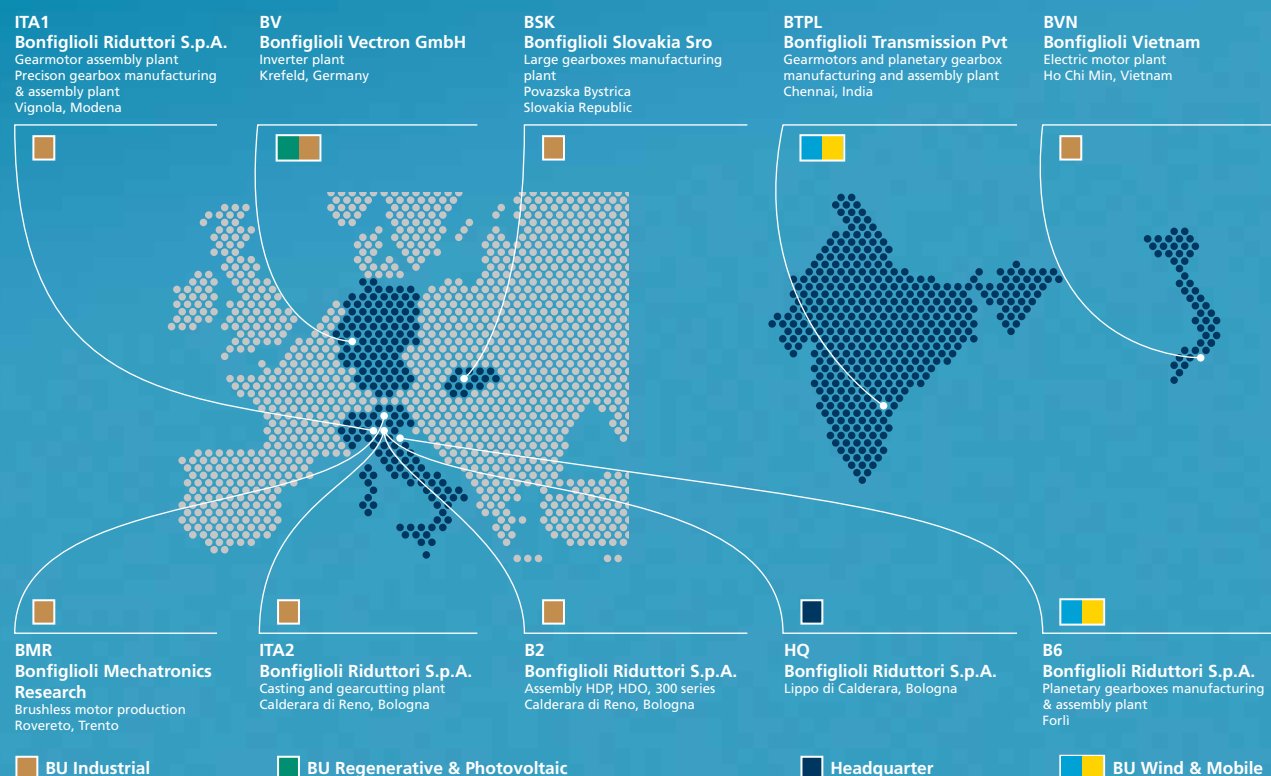


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Bonfiglioli has been designing and developing innovative and reliable power transmission and control solutions for industry, mobile machinery and renewable energy applications since 1956.