Motori sincroni modulari a magneti permanenti

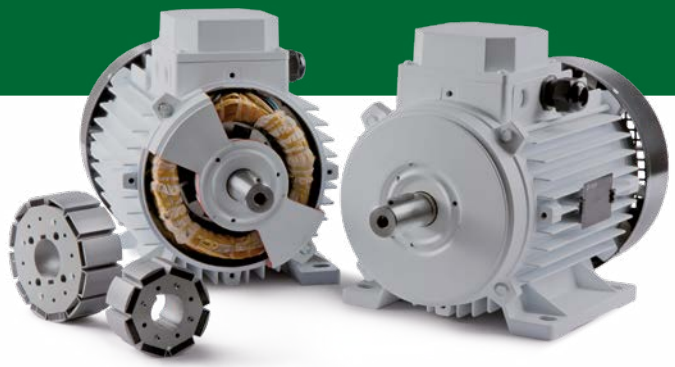
Modular permanent magnets synchronous motors

PMM

MADE IN ITALY

soga®

Motori sincroni brushless a magneti permanenti
Synchronous brushless permanent magnets motors



I prodotti SOGA della serie **PMM** sono **motori sincroni a magneti permanenti** trifase di nuova concezione che offrono ottime performance di potenza e coppia al variare della velocità e possono essere alimentati dalla maggior parte degli inverter standard disponibili nel mercato normalmente utilizzati con i motori asincroni, purché predisposti al controllo dei motori sincroni a magneti permanenti.

I PMM, dotati di rotori multipolari modulari con magneti al neodimio-ferro-boro (NdFeb), sono raccomandati in diverse applicazioni a seconda delle 4 versioni di design adottate:

1 LOW SPEED RANGE
Motori per utilizzo in "direct drive" per evitare sistemi di riduzione di velocità o, al limite, semplificarli a meno stadi di riduzione (e quindi con ulteriore aumento del rendimento).

2 HIGH EFFICIENCY RANGE
Motori con ottime caratteristiche di coppia e di rendimento. Soluzione ideale per assicurare, in un ingombro ridotto e leggero, alte prestazioni in servizio continuo a velocità variabile e ridurre i costi operativi del sistema.

3 HIGH PERFORMANCE RANGE
Motori con buon rendimento (IE3) che in dimensioni della taglia IEC160 offrono prestazioni di potenza e di coppia di molto superiori a quelle dei motori asincroni tradizionali.
Ottima soluzione per macchine con poco spazio disponibile per alloggiare un motore.

4 CONSTANT TORQUE RANGE
Motori servoventilati e dotati di resolver o encoder per utilizzo in applicazioni a coppia costante.

I motori PMM vengono realizzati in costruzioni meccaniche standardizzate IEC nelle altezze d'asse 90, 112 e 160, in tutte le forme costruttive, per una facile intercambiabilità con i tradizionali motori asincroni ma offrendo caratteristiche ben superiori in dimensioni ridotte.
A richiesta possono essere realizzate esecuzioni custom con alberi, flange e componenti speciali per meglio aderire alle applicazioni del cliente.
Per ottimizzare le prestazioni e ridurre ulteriormente le dimensioni di ingombro, anche i motori ribassati per macchine da taglio MR71 e MR93 sono disponibili nelle versioni sincrone PMM.
Le applicazioni tipiche per questo tipo di motori sono: compressori a vite, ventilatori industriali, pompe, motoriduttori, automazione industriale, argani, rulli avvolgimento, macchine utensili, macchine tessili, ecc.

*SOGA products of **PMM** series are new-designed three-phase **synchronous permanent magnet motors** offering highest output and torque performances at variable speed.*
They can be supplied by the most of standard inverters available in the market commonly used with asynchronous motors, if suitable to drive also synchronous permanent magnet motors.

PMMs, equipped with neodymium (NdFeb) modular multipole rotors, are recommended in different applications depending on the 4 design versions adopted:

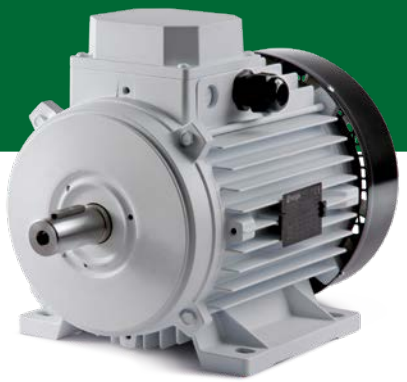
LOW SPEED RANGE
Motors for "direct drive" use to avoid speed reduction systems or also to simplifying them with fewer reduction stages (therefore, by further improving efficiency).

HIGH EFFICIENCY RANGE
Motors with highest torque and efficiency values. They are the ideal solution to ensure, with compact and light size, high performances in continuous duty at variable speed by reducing the system operating costs.

HIGH PERFORMANCE RANGE
Motors with a good efficiency level (IE3) that, on IEC160 frame size, offer output and torque performances much superior than the ones of traditional asynchronous motors. This is the best solution for machines with small space to place a motor.

CONSTANT TORQUE RANGE
Servo-ventilated motors with resolver or encoder for constant torque applications.

PMM motors are made in IEC standard mechanical design on the frame sizes 90, 112 and 160, in all possible construction forms, to allow an easy interchangeability with traditional asynchronous motors but offering much superior features in reduced dimensions.
On request customized executions can be realized with special shafts, flanges and components to better fit the client's requirements.
For optimizing performances and further reducing the overall dimensions, also our flat motors MR71 and MR93 for cutting machines are available in PMM synchronous versions.
Typical applications for this kind of motors are: screw compressors, industrial fans, pumps, gearboxes, industrial automation, cranes, rewinding rollers, tool machines, textile machines, etc.

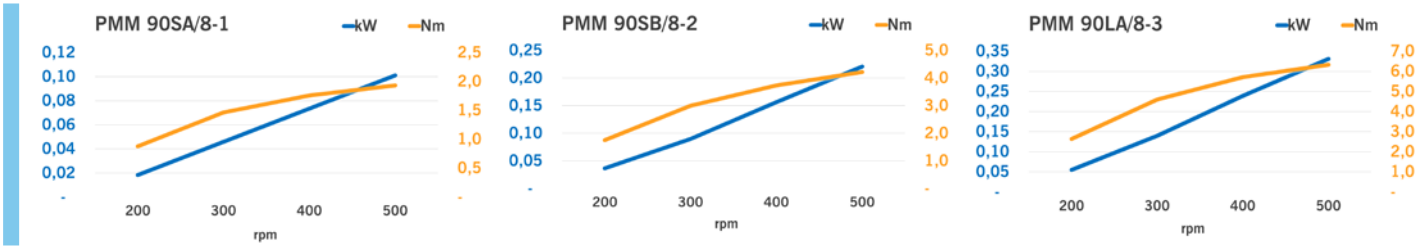


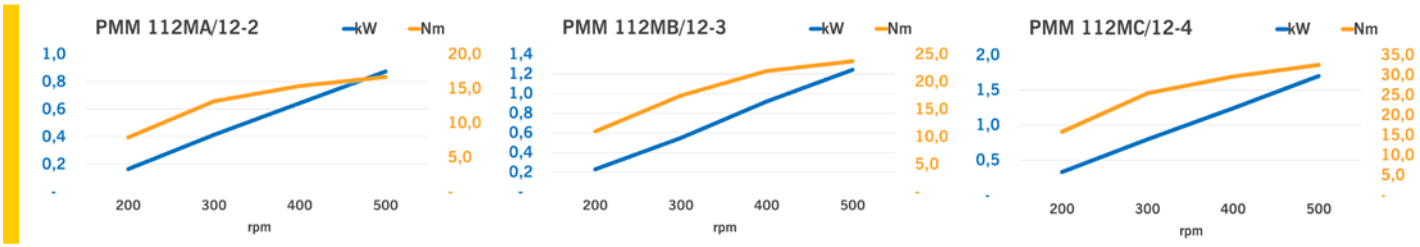
1 LOW SPEED RANGE

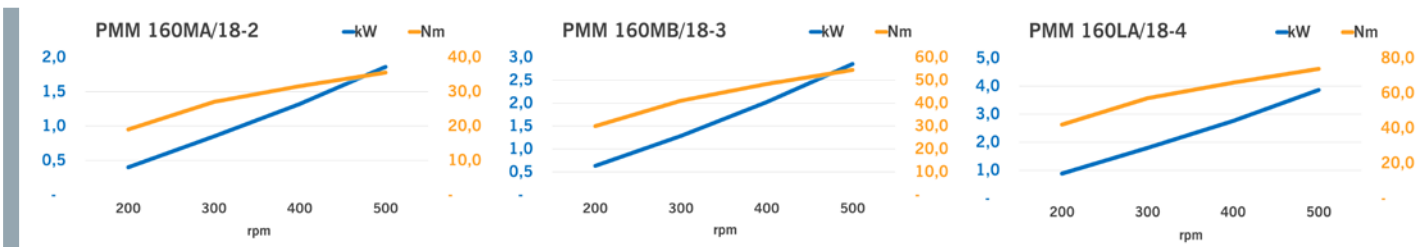
Riduttori, argani, rulliere motorizzate, ventilatori, compressori, miscelatori, automazione...

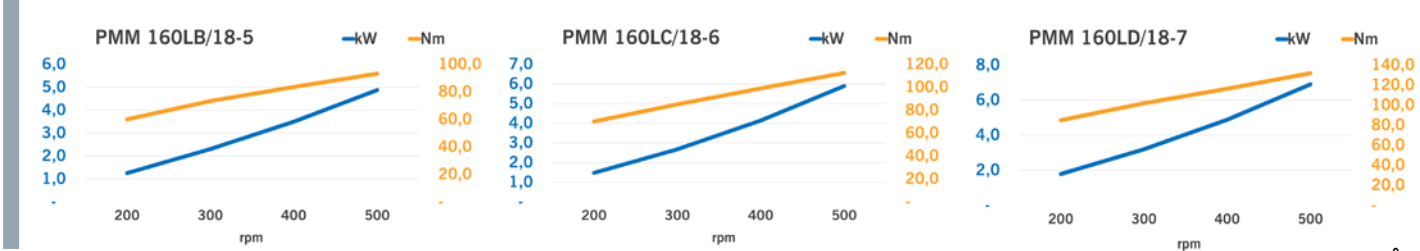
Gearboxes, winches, motorized roller conveyors, fans, compressors, mixers, automation...

model	poles	modules	output (S1)	rpm			
			torque	200	300	400	500
PMM 90SA/8-1	8	1	kW	0,02	0,05	0,07	0,10
			Nm	0,88	1,46	1,76	1,93
PMM 90SB/8-2	8	2	kW	0,04	0,09	0,16	0,22
			Nm	1,76	3,00	3,74	4,22
PMM 90LA/8-3	8	3	kW	0,06	0,14	0,24	0,33
			Nm	2,64	4,60	5,71	6,33
PMM 112MA/12-2	12	2	kW	0,17	0,41	0,64	0,87
			Nm	7,91	13,18	15,38	16,70
PMM 112MB/12-3	12	3	kW	0,23	0,55	0,92	1,24
			Nm	10,99	17,50	21,97	23,73
PMM 112MC/12-4	12	4	kW	0,33	0,80	1,24	1,70
			Nm	15,82	25,46	29,67	32,52
PMM 160MA/18-2	18	2	kW	0,40	0,85	1,32	1,86
			Nm	19,00	27,00	31,57	35,57
PMM 160MB/18-3	18	3	kW	0,63	1,29	2,02	2,85
			Nm	30,00	41,02	48,34	54,50
PMM 160LA/18-4	18	4	kW	0,88	1,79	2,76	3,86
			Nm	42,00	57,13	65,92	73,83
PMM 160LB/18-5	18	5	kW	1,25	2,30	3,50	4,88
			Nm	60,00	73,25	83,50	93,17
PMM 160LC/18-6	18	6	kW	1,47	2,67	4,14	5,89
			Nm	70,00	85,00	98,89	112,51
PMM 160LD/18-7	18	7	kW	1,78	3,20	4,88	6,90
			Nm	85,00	102,00	116,46	131,85







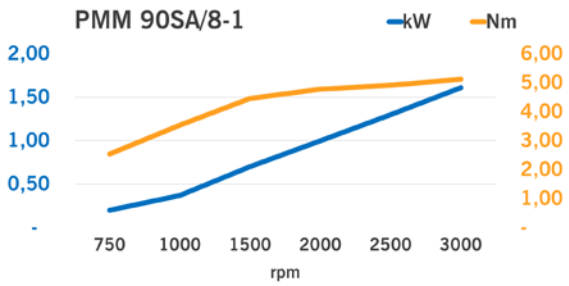


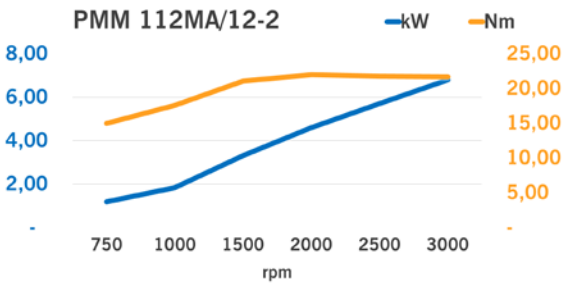
2 HIGH EFFICIENCY RANGE

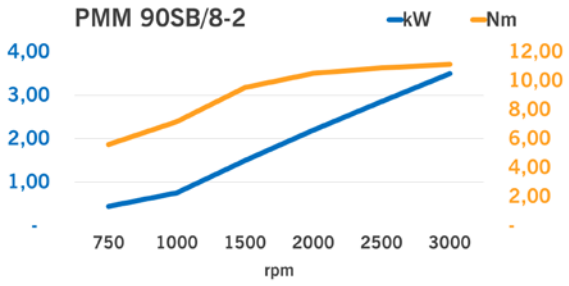
Applicazioni HVAC, movimentazione, pompe da vuoto, compressori a vite...

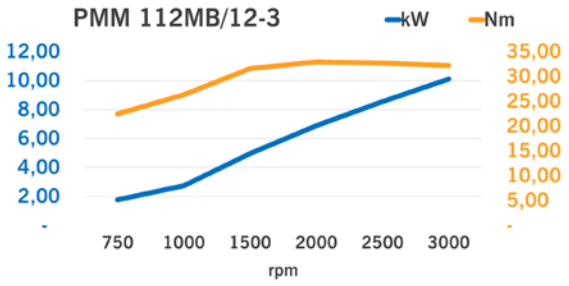
HVAC applications, material handling, vacuum pumps, screw compressors...

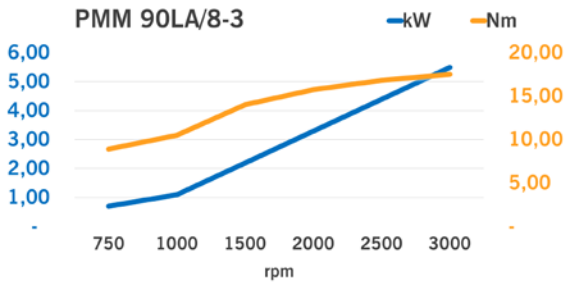
model	poles	modules	output (S1)	rpm					
			torque	750	1000	1500	2000	2500	3000
PMM 90SA/8-1	8	1	kW	0,20	0,37	0,70	1,00	1,30	1,61
			Nm	2,54	3,54	4,46	4,78	4,92	5,13
PMM 90SB/8-2	8	2	kW	0,44	0,75	1,50	2,20	2,85	3,50
			Nm	5,60	7,17	9,55	10,51	10,89	11,13
PMM 90LA/8-3	8	3	kW	0,70	1,10	2,20	3,30	4,40	5,50
			Nm	8,92	10,51	14,04	15,76	16,82	17,52
PMM 112MA/12-2	12	2	kW	1,18	1,84	3,31	4,60	5,70	6,81
			Nm	15,00	17,58	21,10	21,97	21,80	21,68
PMM 112MB/12-3	12	3	kW	1,77	2,76	4,97	6,90	8,56	10,12
			Nm	22,50	26,37	31,64	32,96	32,70	32,23
PMM 112MC/12-4	12	4	kW	2,33	3,68	6,62	9,20	11,50	13,62
			Nm	30,00	35,16	42,19	43,95	43,95	43,36

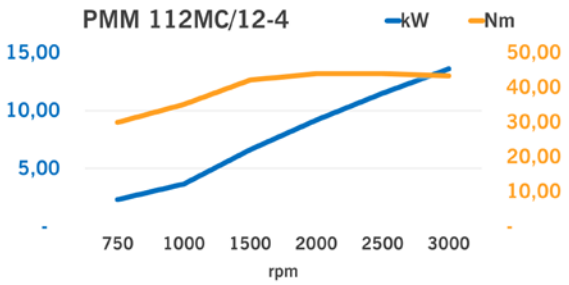










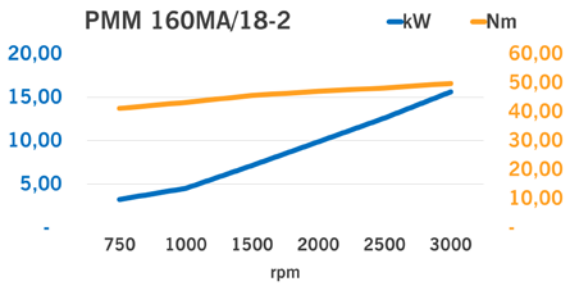


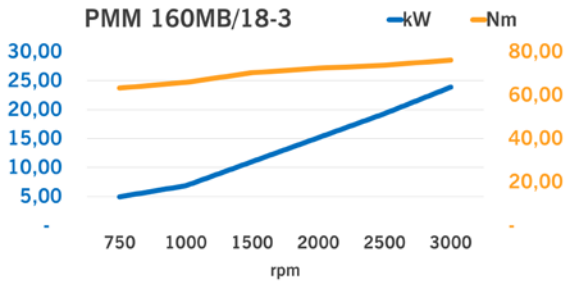
3 HIGH PERFORMANCE RANGE

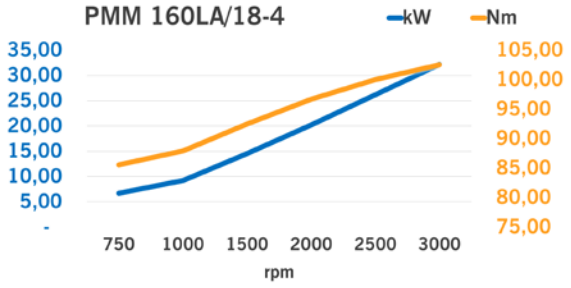
Applicazioni in cui, per esiguità di spazio disponibile, è necessaria una costruzione compatta con elevate caratteristiche di potenza e coppia.

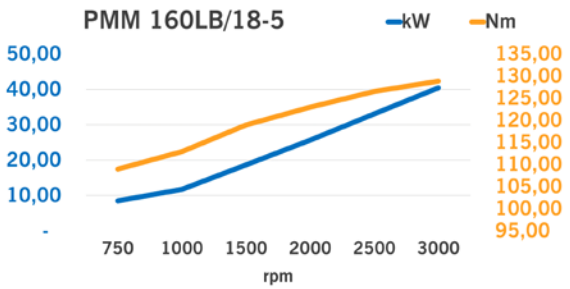
Applications wherever, due to limited space available, a compact construction with high output and torque characteristics is required.

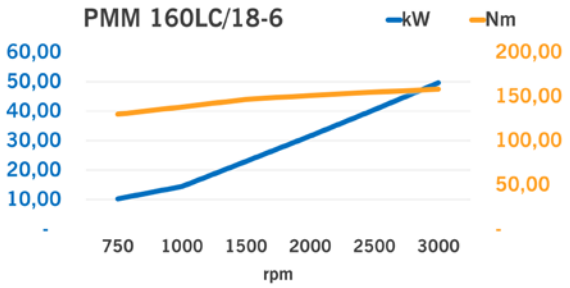
model	poles	modules	output (S1)	rpm					
			torque	750	1000	1500	2000	2500	3000
PMM 160MA/18-2	18	2	kW	3,23	4,52	7,16	9,87	12,63	15,64
			Nm	41,20	43,23	45,60	47,13	48,26	49,81
PMM 160MB/18-3	18	3	kW	4,97	6,90	11,04	15,18	19,32	23,92
			Nm	63,29	65,92	70,32	72,52	73,83	76,18
PMM 160LA/18-4	18	4	kW	6,72	9,20	14,53	20,24	26,18	32,20
			Nm	85,55	87,90	92,50	96,69	100,00	102,55
PMM 160LB/18-5	18	5	kW	8,56	11,83	18,70	25,76	33,12	40,48
			Nm	108,99	113,00	119,00	123,06	126,57	128,92
PMM 160LC/18-6	18	6	kW	10,21	14,45	23,00	31,63	40,48	49,68
			Nm	130,00	138,00	146,50	151,00	154,70	158,22
PMM 160LD/18-7	18	7	kW	11,96	16,56	26,39	36,77	47,65	58,88
			Nm	152,36	158,22	168,00	175,50	182,00	187,52

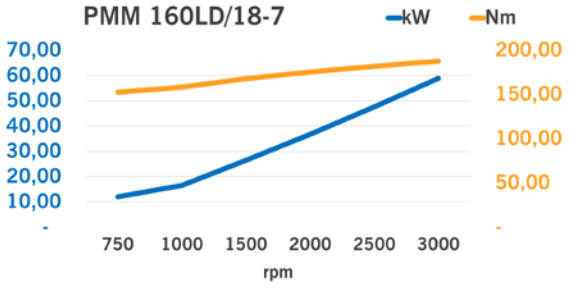


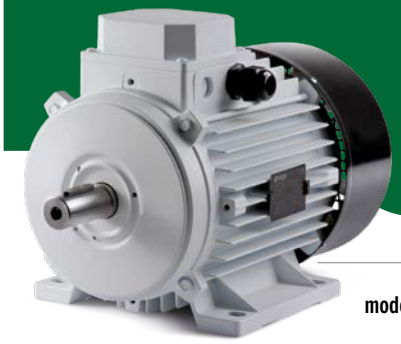










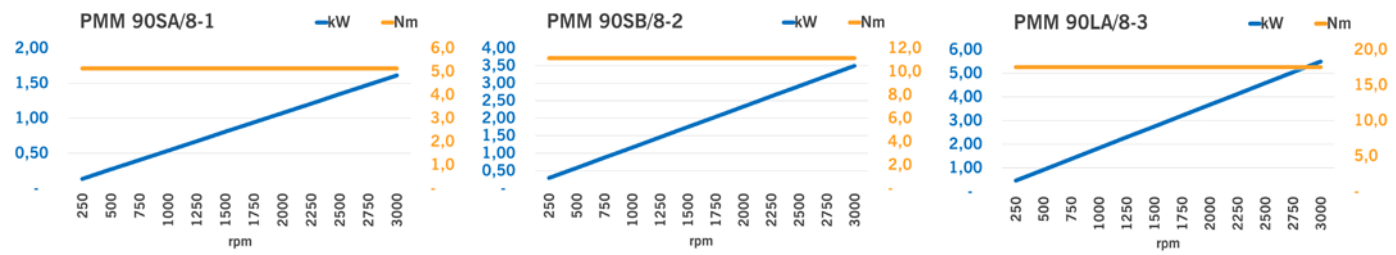


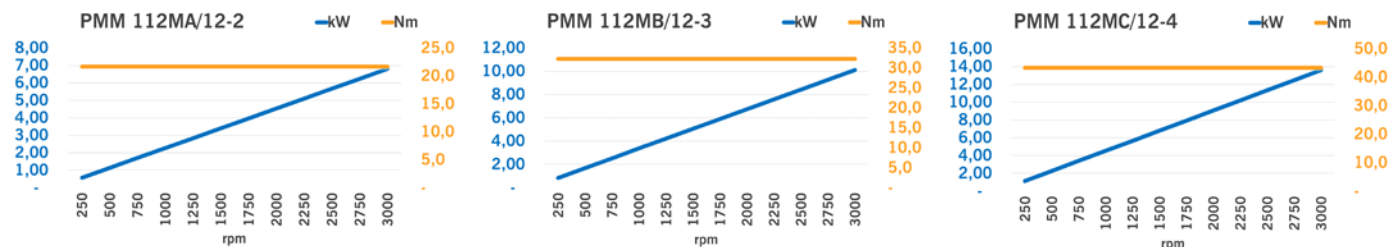
4 CONSTANT TORQUE RANGE

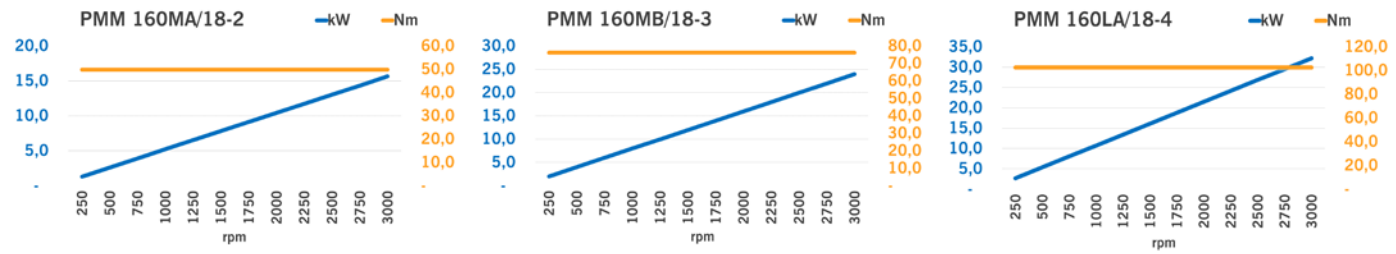
Automazione: rulliere, nastri trasportatori, svolgitori, convogliatori, presse, riduttori...

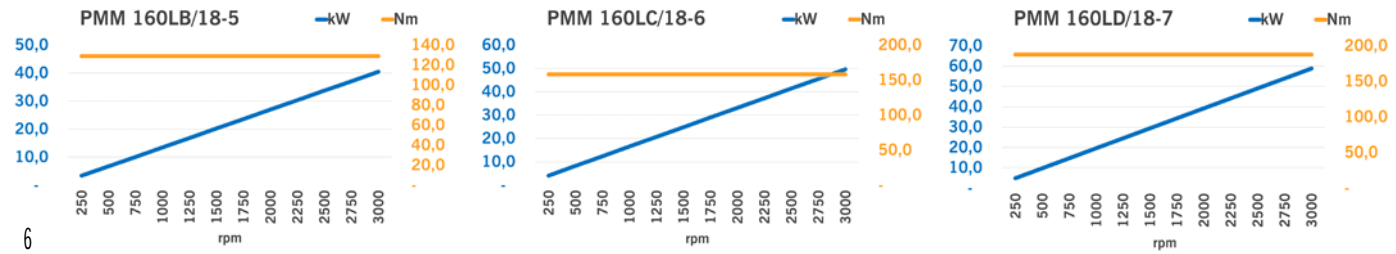
Automation: roller conveyors, conveyor belts, unwinders machines, feeders, presses, gearboxes...

model	poles	modules	output (S1)	rpm											
			torque	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
PMM 90SA/8-1	8	1	kW	0,13	0,27	0,40	0,54	0,67	0,81	0,94	1,07	1,21	1,34	1,48	1,61
			Nm	5,1	5,1	5,1	5,1	5,1	5,1	5,1	5,1	5,1	5,1	5,1	5,1
PMM 90SB/8-2	8	2	kW	0,29	0,58	0,87	1,17	1,46	1,75	2,04	2,33	2,62	2,91	3,20	3,50
			Nm	11,1	11,1	11,1	11,1	11,1	11,1	11,1	11,1	11,1	11,1	11,1	11,1
PMM 90LA/8-3	8	3	kW	0,46	0,92	1,38	1,83	2,29	2,75	3,21	3,67	4,13	4,58	5,04	5,50
			Nm	17,5	17,5	17,5	17,5	17,5	17,5	17,5	17,5	17,5	17,5	17,5	17,5
PMM 112MA/12-2	12	2	kW	0,57	1,13	1,70	2,27	2,84	3,40	3,97	4,54	5,11	5,67	6,24	6,81
			Nm	21,7	21,7	21,7	21,7	21,7	21,7	21,7	21,7	21,7	21,7	21,7	21,7
PMM 112MB/12-3	12	3	kW	0,84	1,69	2,53	3,37	4,22	5,06	5,90	6,75	7,59	8,43	9,28	10,12
			Nm	32,2	32,2	32,2	32,2	32,2	32,2	32,2	32,2	32,2	32,2	32,2	32,2
PMM 112MC/12-4	12	4	kW	1,13	2,27	3,40	4,54	5,67	6,81	7,94	9,08	10,21	11,35	12,48	13,62
			Nm	43,4	43,4	43,4	43,4	43,4	43,4	43,4	43,4	43,4	43,4	43,4	43,4
PMM 160MA/18-2	18	2	kW	1,30	2,61	3,91	5,21	6,52	7,82	9,12	10,43	11,73	13,03	14,34	15,64
			Nm	49,8	49,8	49,8	49,8	49,8	49,8	49,8	49,8	49,8	49,8	49,8	49,8
PMM 160MB/18-3	18	3	kW	1,99	3,99	5,98	7,97	9,97	11,96	13,95	15,95	17,94	19,93	21,93	23,92
			Nm	76,2	76,2	76,2	76,2	76,2	76,2	76,2	76,2	76,2	76,2	76,2	76,2
PMM 160LA/18-4	18	4	kW	2,68	5,37	8,05	10,73	13,42	16,10	18,78	21,47	24,15	26,83	29,52	32,20
			Nm	102,5	102,5	102,5	102,5	102,5	102,5	102,5	102,5	102,5	102,5	102,5	102,5
PMM 160LB/18-5	18	5	kW	3,37	6,75	10,12	13,49	16,87	20,24	23,61	26,99	30,36	33,73	37,11	40,48
			Nm	128,9	128,9	128,9	128,9	128,9	128,9	128,9	128,9	128,9	128,9	128,9	128,9
PMM 160LC/18-6	18	6	kW	4,14	8,28	12,42	16,56	20,70	24,84	28,98	33,12	37,26	41,40	45,54	49,68
			Nm	158,2	158,2	158,2	158,2	158,2	158,2	158,2	158,2	158,2	158,2	158,2	158,2
PMM 160LD/18-7	18	7	kW	4,91	9,81	14,72	19,63	24,53	29,44	34,35	39,25	44,16	49,07	53,97	58,88
			Nm	187,5	187,5	187,5	187,5	187,5	187,5	187,5	187,5	187,5	187,5	187,5	187,5









DIMENSIONI DI INGOMBRO IN STANDARD IEC
IEC STANDARD OVERALL DIMENSIONS

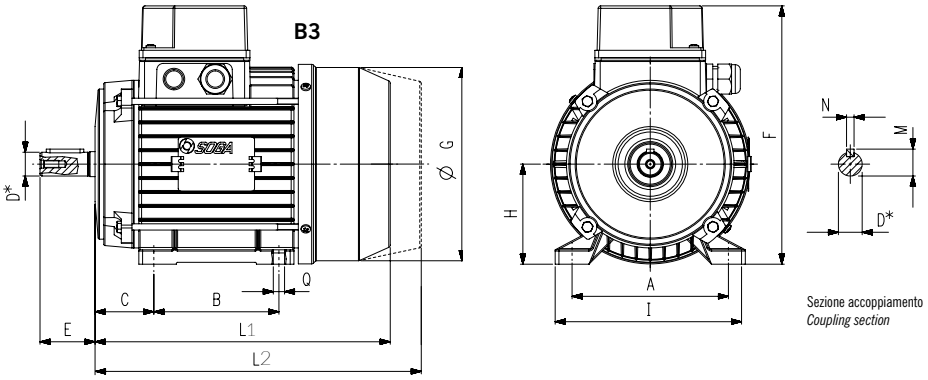
Dimensioni di ingombro dei modelli standard PMG90, PMG112, PMG160. Versioni custom disponibili a richiesta. I motori asincroni ribassati della serie MR possono essere realizzati in versione PMM sulle seguenti taglie:

- MR 71 con parti attive del PMM 90
- MR 93 con parti attive del PMM112.

Overall dimensions for standard models PMG90, PMG112, PMG160. Custom versions available on request. The low profile asynchronous motors of the MR series can be made in the PMM version in the following sizes:

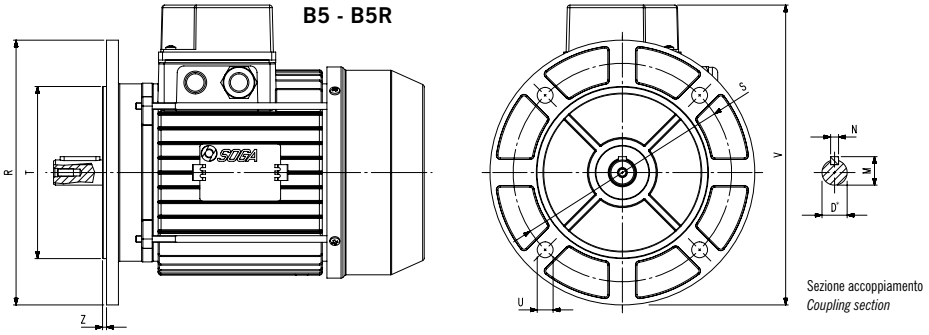
- *MR 71: with active parts of PMM 90*
- *MR 93: with active parts of PMM112.*

B3



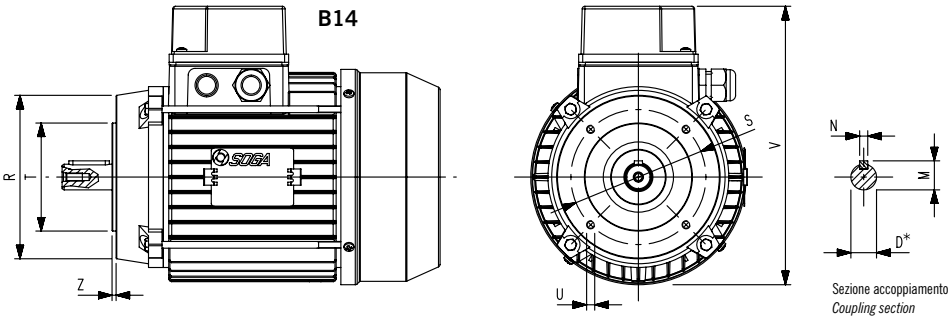
Sezione accoppiamento
Coupling section

B5 - B5R



Sezione accoppiamento
Coupling section

B14



Sezione accoppiamento
Coupling section

frame size IEC	B3													
	A	B	C	D	E	F	G	H	I	L1 PMM motors version 1, 2, 3	L2 PMM motors version 4	M	N	Q
90S	140	100	56	24	50	220	176	90	170	254,5	321,5	27	8	9
90L	140	125	56	24	50	220	176	90	170	279,5	346,5	27	8	9
112	190	140	70	28	60	262	215	112	220	328,5	393,5	31	8	11
160M	254	210	108	42	110	382,5	311	160	318	494	668	45	12	13
160L	254	254	108	42	110	382,5	311	160	318	538	712	45	12	13

frame size IEC	flange B5						flange B5 reduced						flange B14					
	R	S	T	U	V	Z	R	S	T	U	V	Z	R	S	T	U	V	Z
90	200	165	130	11,5	230	3	160	130	110	11,5	218	3,5	140	115	95	M8	219	3
112	250	215	180	14	277	4	200	165	130	14	262	4	160	130	110	M8	263	3,5
160	350	300	250	18	398	5	300	265	230	18	387	5	255	215	180	M12	388	4

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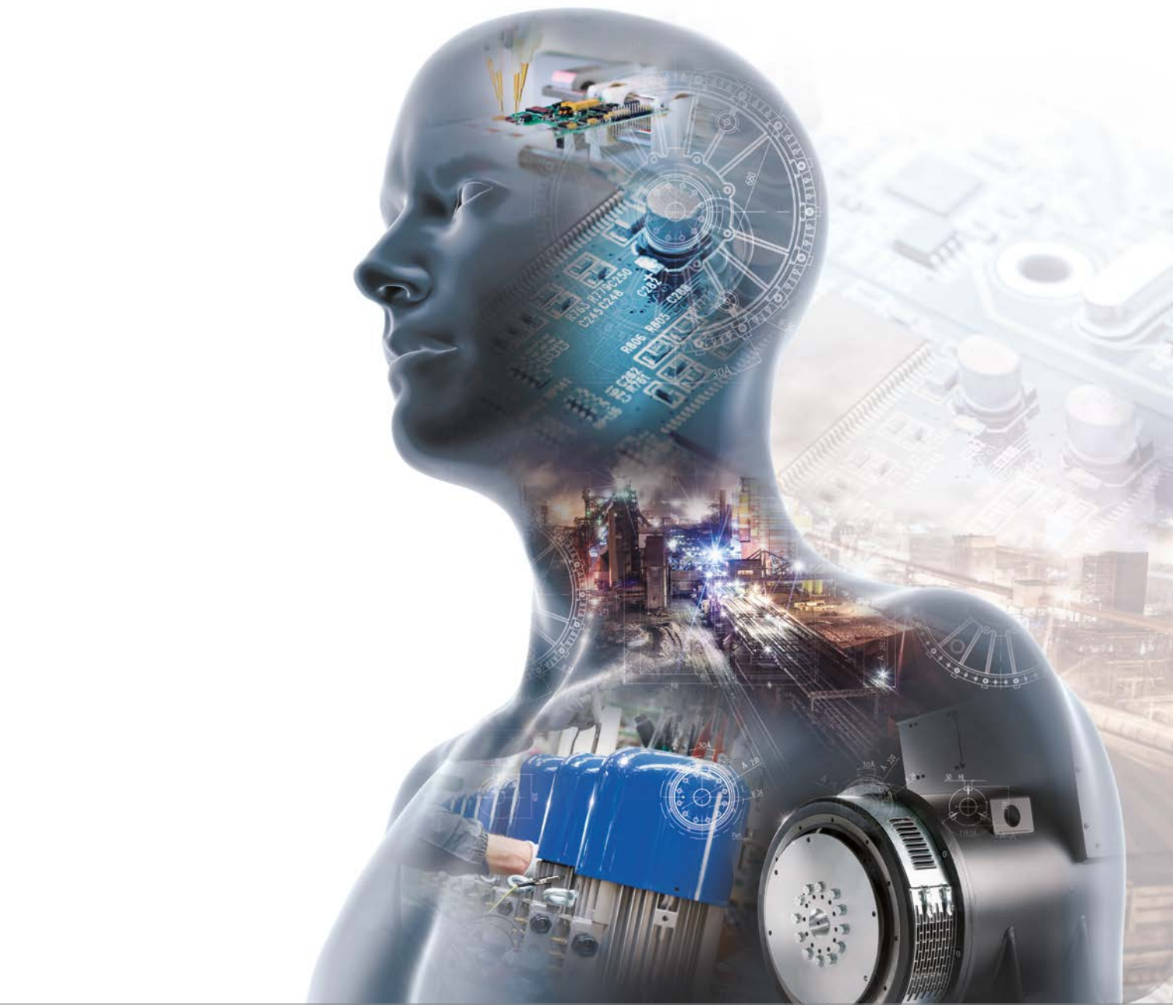

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