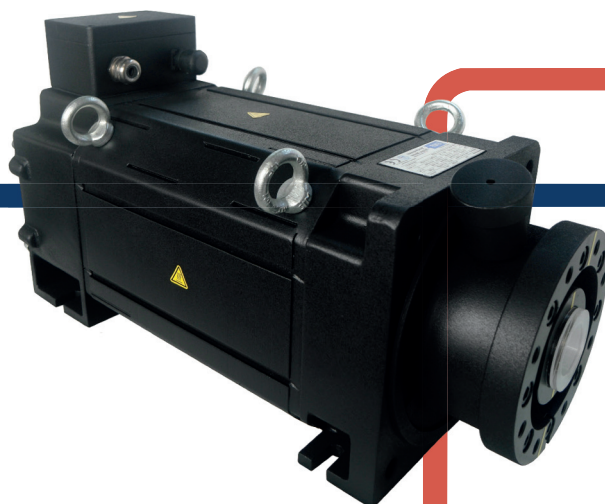
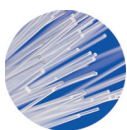




Extruder Blow Moulding Injection

Patented **New** Direct Drive Technology for **Plastics**



- High extrusion quality
- Direct drive system without gearbox
- Stable torque even at low speeds
- Precise speed control
- Very high efficiency, even at low speeds
- No water cooling
- High performance



EMF Motor®

EMF Motor

Only the Best wins ...

Every solution comes from a real understanding of the challenges facing designers and users.

EMF Motor continues to be a company made of innovative individuals striving to design, create and build products and solutions that help to improve industrial technology. We design our products for durability and we test them rigorously to ensure the highest levels of reliability.

Our products are the **“next big thing”** in electric motors. Our patented technology provides the ground to attract world’s most talented and motivated engineers. EMF Motor products will benefit design engineers to innovate compact products that will respond to the increasing demand from customers.

“Precise motion” is our focus. SQM Torquemotor can distinctly differentiate your product, your efficiency and your operations and deliver a market place advantage by improving its performance. This means totally increased efficiency which is the expectation within every company. Perfectly deployed motion can make your product more reliable and efficient and enhance accuracy.

How is this all possible? What is so different about the SQM Torquemotor?

SQM Torquemotor works with a patented motor principle that is most suitable for applications with high torque at low speed. SQM Torquemotor is a synchronous machine and the windings have no influence on the pole number. The high pole number is achieved by intelligent magnetic field.

As a result SQM Torquemotor, as a direct drive, offers great advantages in all performance criterias, such as very high energy efficiency, high dynamics, high overload capacity, quiet and practically maintenance free operation.

SQME Gearless Extruder Motor

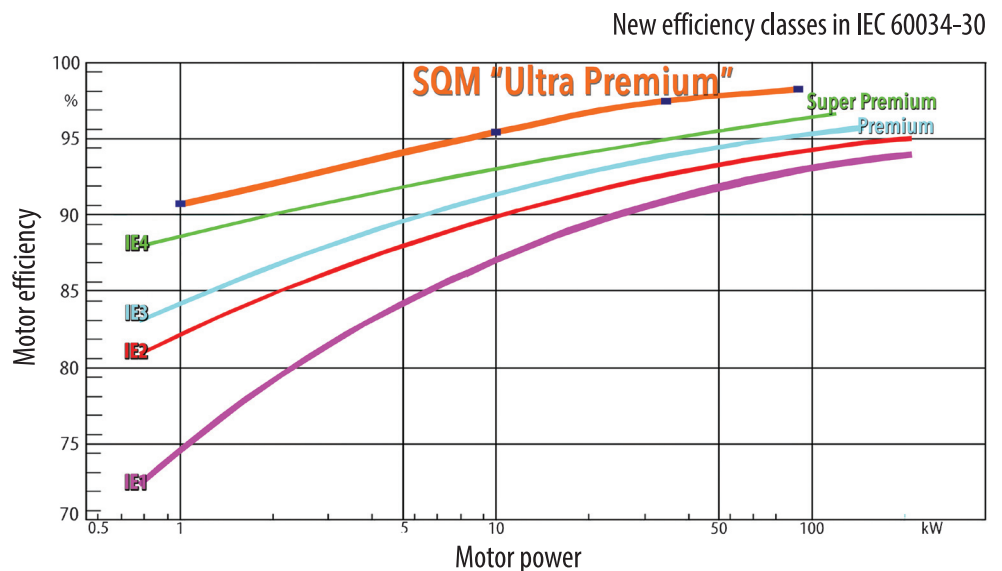
Patented and most efficient Direct Drive Technology for the Extruder Industry

SQME-Series torque motors are the perfect direct-drive solution for low speed high torque applications based on permanent magnet synchronous motor technology. SQME is the latest direct drive concept to replace the traditional gearbox system for applications such as extruders, injection moulding machines, winders-unwinders, mixers, etc. The High Performance SQME Gearless Extruder Motor generates constant torque from zero to rated speed. No more maintenance and no more typical gearbox problems.

Due to the very high magnetic pole numbers, accurate speed regulation and smooth, dynamic performance results in the highest extrusion quality. SQME-Series have the **"ULTRA Premium"** efficiency despite their high pole number (such as 66, 88 or 110 poles)

Characteristics that produce the HIGHEST extrusion quality for the LOWEST Energy cost!

- Direct Drive System without gearbox
- No water cooling required
- No heat exchanger kit for oil cooling
- High efficiency across the full speed range
- Low energy consumption
- High performance
- High torque output
- Highest torque density
- Stable torque across the full speed range
- Precise speed control
- Integrated thrust bearing
- Compact design
- Silent operation
- Hollow motor shaft
- No maintenance



Technical Specifications

- | | |
|------------------------------|--|
| ● Motor Technology | Permanent magnet synchronous motor |
| ● Frame Size | 100, 132, 160, 200, 250 and 315 mm |
| ● Torque Range | up to 13.000 Nm (*) |
| ● Number of Poles | 66 - 88 - 110 |
| ● Nominal speed | 20-400 rpm for SQME100, SQME132- 20-200 rpm for SQME160, SQME200, SQME315 |
| ● Rated voltage | 380, 400, 480 up to 690 VAC supply voltage |
| ● Cooling | IC410 - water cooling is not required for standard motors. IC416 - optional for special projects |
| ● Protection level | IP 54, IP 55 |
| ● Thermal protection | PT100 or KTY and PTC |
| ● Shaft Hollow shaft | (Customized mechanical interfaces available on request) |
| ● Thrust bearing | Mounted on motor with special housing |
| ● Feedback sensor | EnDat Encoder as standard (SinCos and Resolver option) |
| ● Extruder Specific Features | Integrated thrust bearing |
| ● Marking | CE |
| (*) with the blower kit | |

Special Motors

- Custom motor design options for different torque and speed values according to customer requirements without the need for a gearbox.
- Mounting can also be optimized according to customer needs.

EMF customise SQME motors according to customer's needs. The motors are optimized per torque and speed requirements.

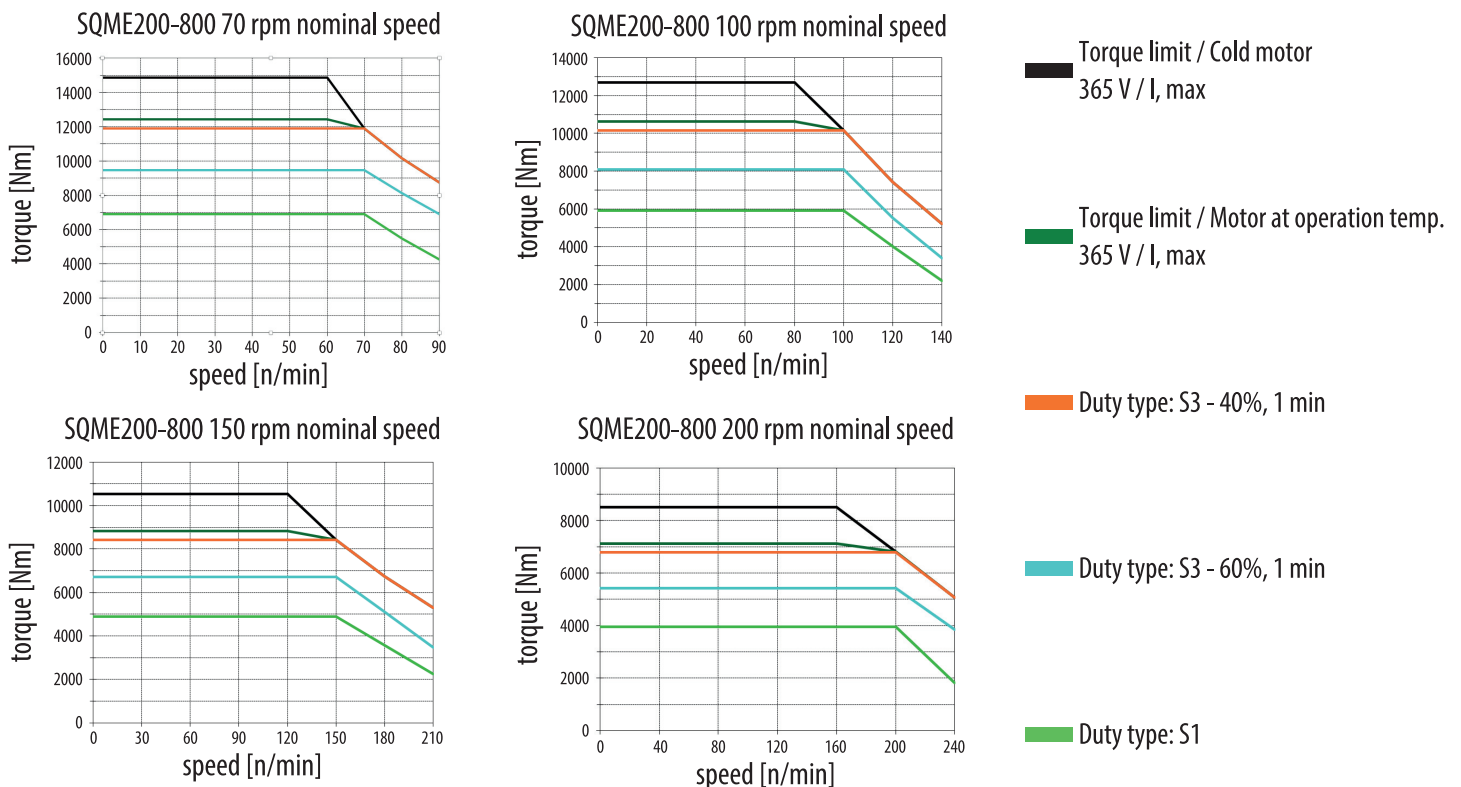
Motor Code	Pole Number	P _n kW	n _n rpm	M _n Nm	f _n Hz	k Nm/A	I _n A	Efficiency %	J (kgm ²)	W (kg) No Brake Fitted
SQME 100-140	66	1,47	100	140	55	35,0	4,0	86	0.036692	67,4
		2,26	200	108	110	20,4	5,3	90		
		3,08	300	98	165	14,6	6,7	92		
		3,48	400	83	220	11,9	7,0	93		
SQME 100-200	66	2,09	100	200	55	35,1	5,7	88	0.051189	85,2
		3,35	200	160	110	19,8	8,1	91		
		4,18	300	133	165	15,1	8,8	93		
		4,52	400	108	220	12,3	8,8	94		
SQME 100-240	66	2,30	100	220	55	35,5	6,2	88	0.060847	97,0
		3,77	200	180	110	20,5	8,8	93		
		4,90	300	156	165	16,4	9,5	94		
		5,24	400	125	220	12,9	9,7	94		
SQME 132-140	66	2,62	100	250	55	34,7	7,2	82	0.166800	160
		4,61	200	220	110	19,1	11,5	87		
		5,50	300	175	165	14,6	12,0	90		
		5,86	400	140	220	11,9	11,8	92		
SQME 132-200	66	3,74	100	357	55	35,0	10,2	85	0.230455	190
		6,58	200	314	110	19,5	16,1	90		
		7,85	300	250	165	14,3	17,5	91		
		8,38	400	200	220	11,7	17,1	92		
SQME 132-240	66	4,48	100	428	55	34,2	12,5	86	0.272891	210
		7,90	200	377	110	18,8	20,1	91		
		9,42	300	300	165	14,0	21,4	92		
		10,05	400	240	220	11,7	20,5	92		
SQME 160-200	66	3,74	70	510	39	49,5	10,3	90	0.456095	258
		5,08	100	485	55	35,9	13,5	92		
		7,23	150	460	83	24,9	18,5	93		
		9,21	200	440	110	19,5	22,6	94		
SQME 160-300	66	5,61	70	765	39	49,4	15,5	91	0.669536	335
		7,61	100	727	55	35,0	20,8	93		
		9,97	150	635	83	25,9	24,5	95		
		11,94	200	570	110	20,2	28,2	95		
SQME 160-400	66	7,48	70	1020	39	46,6	21,9	91	0.876796	412
		10,16	100	970	55	36,3	26,7	93		
		12,49	150	795	83	26,8	29,7	94		
		14,66	200	700	110	22,4	31,2	95		
SQME 160-500	66	9,35	70	1275	39	49,0	26,0	91	1.100037	489
		12,69	100	1212	55	36,7	33,0	94		
		14,67	150	934	83	28,2	33,1	95		
		16,82	200	803	110	22,4	35,8	96		
SQME 200-300	88	10,04	70	1370	51	45,7	30,0	92	1.474654	562
		12,04	100	1150	73	35,4	32,5	93		
		16,02	150	1020	110	25,1	40,6	95		
		18,01	200	860	147	21,3	40,3	96		
SQME 200-400	88	13,39	70	1827	51	44,6	41,0	92	2.046779	672
		16,05	100	1533	73	35,9	42,7	94		
		20,58	150	1310	110	24,7	53,0	95		
		21,99	200	1050	147	21,9	48,0	96		
SQME 200-500	88	15,98	70	2180	51	45,4	48,0	93	2.389074	781
		19,16	100	1830	73	35,9	51,0	95		
		27,33	150	1740	110	23,8	73,0	95		
		28,27	200	1350	147	20,7	65,1	96		
SQME 200-600	88	19,18	70	2617	51	45,6	57,4	93	2.846651	890
		23,04	100	2200	73	37,3	59,0	94		
		32,20	150	2050	110	24,7	83,0	95		
		34,14	200	1630	147	21,2	77,0	96		
SQME 200-700	88	22,38	70	3053	51	43,6	70,0	93	3.398674	1000
		26,81	100	2560	73	33,7	76,0	95		
		36,60	150	2330	110	24,5	95,2	96		
		39,79	200	1900	147	19,3	98,5	97		

The data is valid for 400 V supply voltage. Please contact EMF for different torque, speed and voltage levels.

EMF customise SQME motors according to customer's needs. The motors are optimized per torque and speed requirements.

Motor Code	Pole Number	P _n kW	n _n rpm	M _n Nm	f _n Hz	k Nm/A	I _n A	Efficiency %	J (kgm ²)	W (kg) No Brake Fitted
SQME 200-800	88	25,58	70	3490	51	44,2	79,0	93	3.8510	1110
		30,89	100	2950	73	33,1	89,0	96		
		39,74	150	2530	110	27,8	91,0	97		
		45,03	200	2150	147	22,3	96,3	97		
SQM 250-400SE	88	24,9	70	3400	51,3	43,6	78	93	6.5700	1058
		30,9	100	2950	73,3	32,4	91	94		
		37,7	150	2400	110	25,0	96	95		
		40,8	200	1950	147	21,7	90	95		
SQM 250-600SE	88	35,2	70	4800	51,3	47,1	102	94	9.7000	1383
		42,9	100	4100	73,3	37,6	109	95		
		53,4	150	3400	110	28,1	121	96		
		57,6	200	2750	147	21,7	127	96		
SQM 250-800SE	88	48,4	70	6600	51,3	43,4	152	95	12.8300	1720
		61,8	100	5900	73,3	36,2	163	96		
		77,0	150	4900	110	25,0	196	96		
		82,7	200	3950	147	21,7	182	97		
SQM 315-700SE	110	52,0	70	7100	64,2	51,1	139	95	33.5358	2500
		69,6	100	6650	91,7	35,4	188	95		
		86,4	150	5500	138	26,4	208	96		
		91,1	200	4350	183	20,3	214	96		
SQM 315-900SE	110	61,6	70	8400	64,2	52,5	160	96	42.4460	3030
		77,5	100	7400	91,7	39,4	188	96		
		100,5	150	6400	138	26,2	244	96		
		106,8	200	5100	183	22,7	225	96		
SQM 315-1100SE	110	68,9	70	9400	64,2	55,3	170	96	50.3932	3610
		88,0	100	8400	91,7	41,6	202	96		
		111,5	150	7100	138	27,7	256	96		
		119,4	200	5700	183	23,9	238	96		

SQME200-800 Performance Diagrams



SQME Dimensions

There are 2D drawings and 3D softcopies of every SQME Motor available.
Please contact info@emfmotor.com

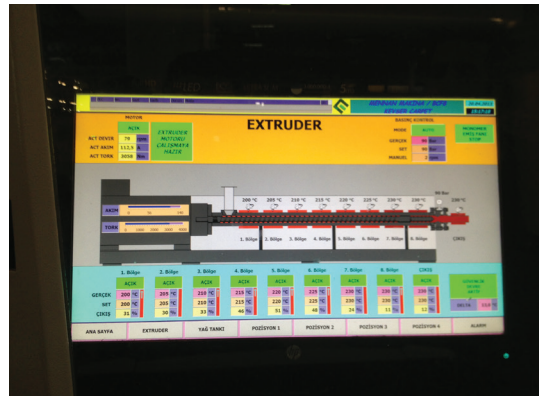
For further performance diagrams please contact
info@emfmotor.com

Applications with SQME

Medical hose, Edge profile, Cartilaginous hose, Cable, Bin liner, Carpet yarn, Cable co-extruders

Plastic rope, Disposable Plastic Table Cloth, Floropolimer cable (high temp. Resistant cable)

Profile extruder, Bottle extruder, Film extruder, Injection moulding pressing the row material into the screw



Comparison of energy cost saving



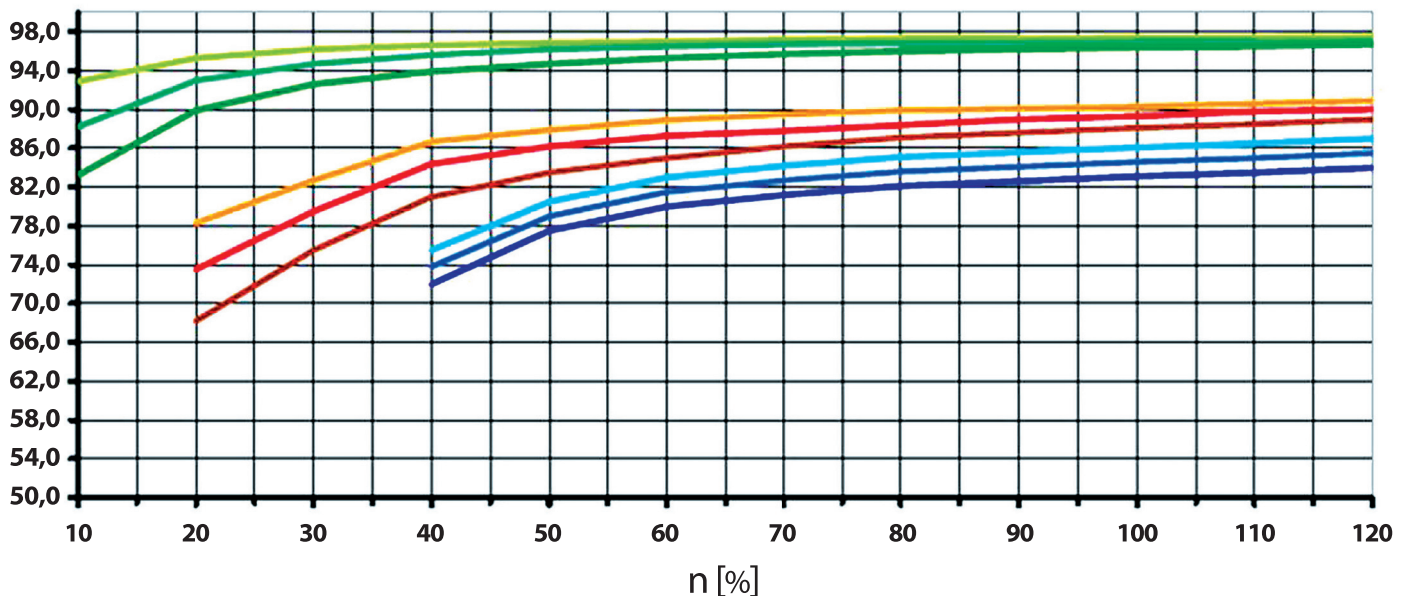
Extruder case	EMF Motor 10.000 Nm, 112 rpm	Standard Torque Motor 10.200 Nm, 120 rpm	AC Geared Motor 10.505 Nm, 120 rpm
$P_{\text{mech, Load}}$	118 kW	118 kW	118 kW
P_{elec}	121,65 kW	129,67 kW	136,45 kW
Energy costs in €	105.106 €	112.035 €	117.893 €
Extra costs per year	-	6.929 €	12.787 €
Motor size	315	400	355
Cooling	No	Water	Forced cooling
Cooling expense	No	7 kW 5.760 €	7,5 kW 7.144 €
TOTAL EXTRA COSTS	No	12.689 €	19.931 €

Load: *10.000 Nm -112 rpm

* Assumption : Energycosts 0,12 € / kWh

300 days / 24 hours / year

Efficiency Diagram in full range of speed and torque



- SQM Torque motor 50%M
- SQM Torque motor 75%M
- SQM Torque motor 100%M
- Standard Torque motor 60%M
- Standard Torque motor 80%M
- Standard Torque motor 100%M
- AC-Geared motor 60%M
- AC-Geared motor 80%M
- AC-Geared motor 100%M

The above mentioned savings are theoretical values. In all applications the measured energy saving is about 20 %.
The reason for this fact is that, the efficiency of SQME is almost constant over the torque and speed range.



EMF Motor®



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Technologies R&D Project Market
Industrialist Category 2012
Grand Prize



Istanbul Chamber of Industry
Energy Efficient Product
Jury Honourable Mention 2011



TET R&D Project Market 2017
Smart Transportation Category



Global Success Club
Turkish - German
Innovation Award 2017

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