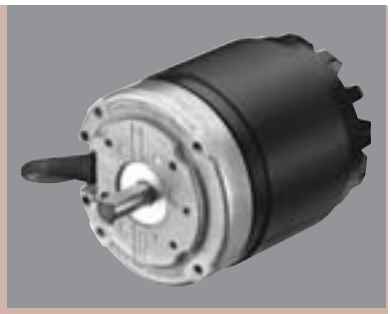
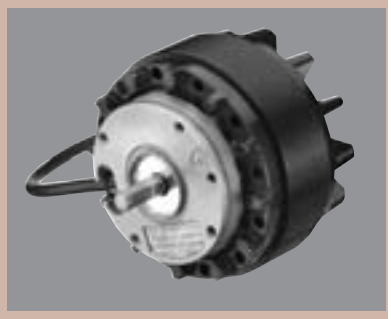
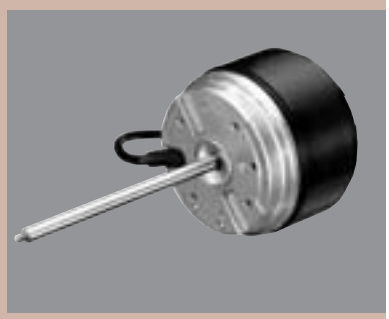






Alternating Current

Technical Notes
As drive motors, external-rotor motors operate at constant speed and very low noise level. Their short and compact design is of further advantage. Due to their rather high inertia, external-rotor motors guarantee constant speeds at varying loads.

The motors listed here only serve as overview on our standard range of motors. Whenever necessary, the motor design may be adapted and optimised to meet individual customer specifications.
Motors for thermostats and beverage coolers come as closed design and have a shaft of stainless steel. All rotors are stove-enamelled in black.
There are also exernal-rotor motors available in electronically commutated (EC) motor design. These motors have high efficiency and can, with regard to their electronics, be offered in various options. Connecting them to a 230 V AC power supply is one of these options.

Performance Data
All performance data refer to open motors of protection class IP 00.
For IP 44, performance is lower by about 25 – 30 % in order not to exceed the maximum admissible temperature. This, however, does not apply if the motor is placed in the air stream of a fan. We gladly assist you in selecting the best type for your application and to optimise performance of the unit. Data on the temperature rise of the wiring was established in keeping with EN 60034-1.

Speed Control
Their special motor characteristic makes external-rotor motors easily speed-controllable in relation to their loads by simply reducing the voltage. Depending on the application, fixed resistors and other, motor-integrated, controls can be used, such as speed graduation, autotransformer, capacitive resistor, electronic controls etc.

Motor types

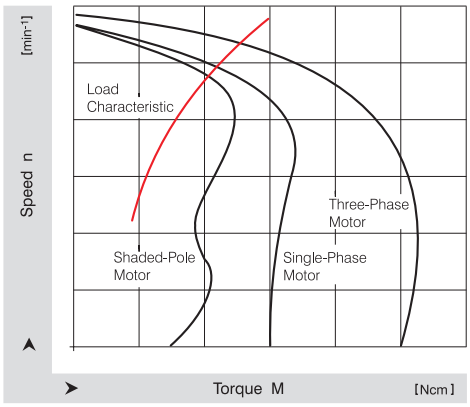
S = Shaded-Pole Motor
Self-starting, comparatively low starting torque, low efficiency, limited range for speed control.

E = Single-Phase Capacitor Motor
Comparatively high starting torque, good speed control properties resulting in less than optimum efficiency.

D* = Three-Phase Motor
Steinmetz configuration with capacitor, high pullout torque, steep torque / speed curve, high efficiency, high level of speed stability.

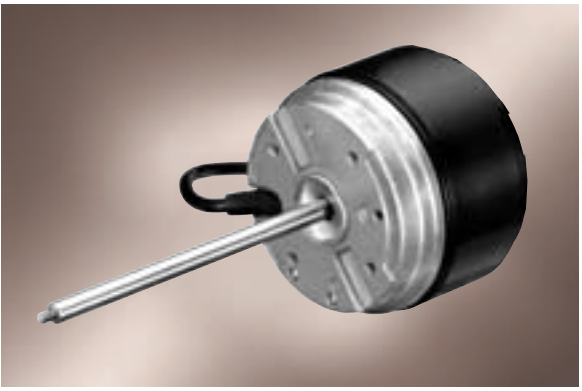
D = Three-Phase Motor
Exceptionally high starting torque, very good efficiency, good speed control characteristic 400 V Δ / Y version for two speed levels available on request.

Torque characteristics



External-rotor motor

for agitating machines, size 068



- Mounting flange in diecast aluminium
- Rotor stove-enamelled in black
- Shaft in stainless steel
- Maintenance-free ball bearings
- Direction of rotation clockwise, viewed on rotor
- Type of protection IP 44 when installed
  (final evaluation has to be carried out in customer's application)
- CE Approval

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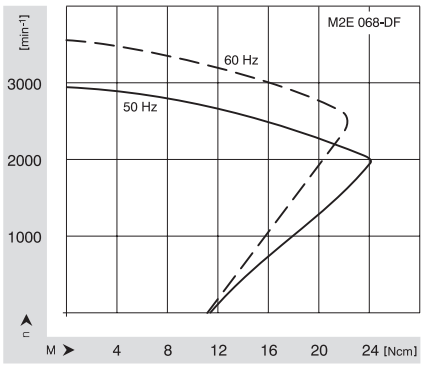
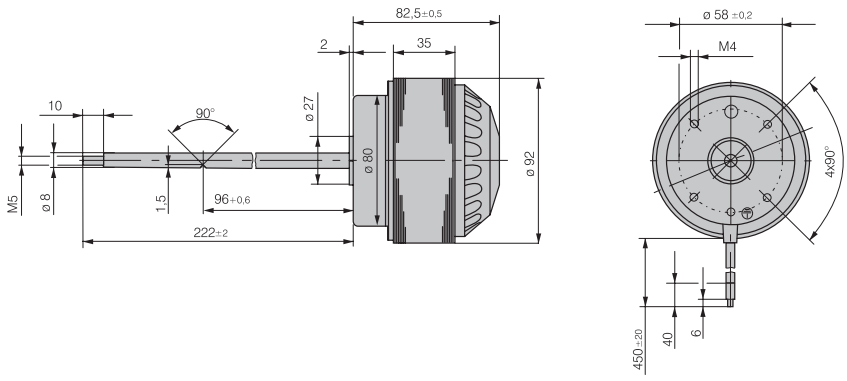
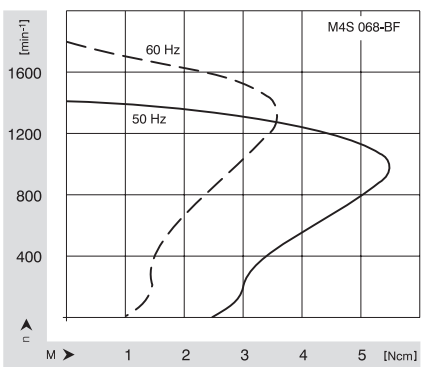
Nominal Data	Voltage	Frequency	Speed	Power output	Power input	Input current	Capacitor	Starting torque	Torque	Temperature rise	approx. Mass
Type	**VAC**	**Hz**	**min^{-1}**	**W**	**W**	**A**	**mF/VDB**	**Ncm**	**Ncm**	**K**	**kg**
M2E 068-DF 65 -03	230	50	2500	50	92	0.45	2.0 / 400	11.0	19.0	60	2.0
		60	3100	54	85	0.37	2.0 / 400	10.7	16.6	40	2.0
M4S 068-BF 08 -08	230	50	1200	5.8	28	0.18	—	2.5	4.6	55	1.1
		60	1400	5.3	25	0.16	—	1.5	3.6	45	1.1

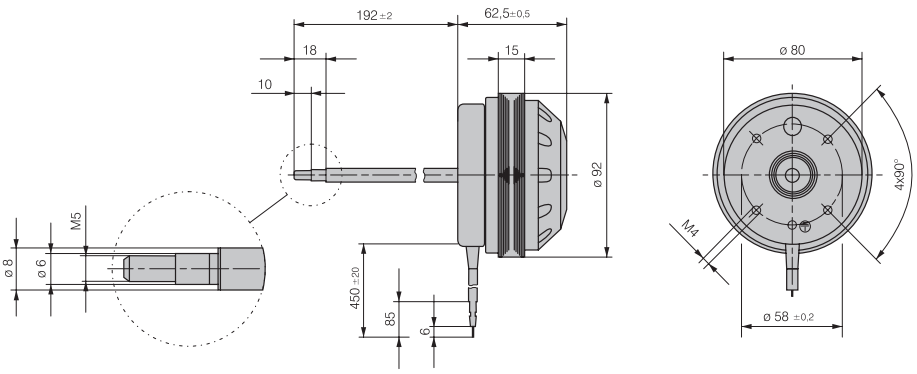


Type M2E 068 -DF





Type M4S 068-BF



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External-rotor motor

Drive motor, size 068

- Mounting flange in diecast aluminium
- Rotor stove-enamelled in black
- Shaft in roller bearing steel
- Maintenance-free ball bearings
- Direction of rotation either clockwise or counterclockwise rotation, viewed on rotor.
- Type of protection IP 00
- CE Approval

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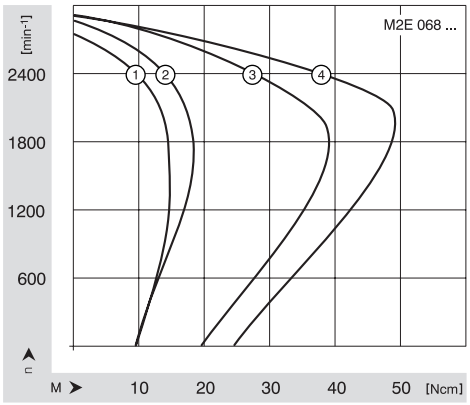
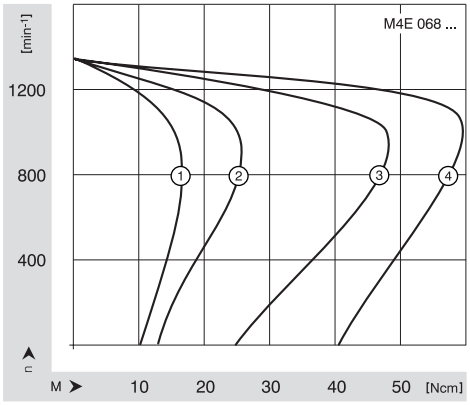
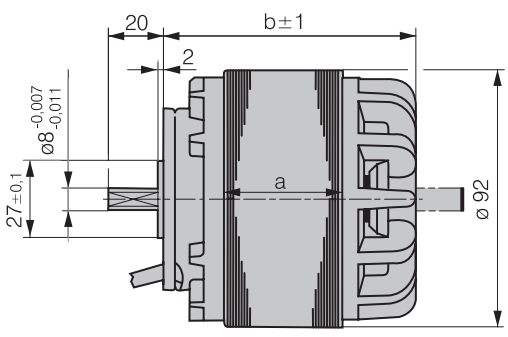
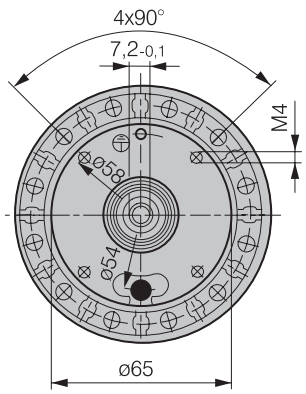
Nominal Data	Voltage	Frequency	Speed	Power output	Power input	Input current	Capacitor	Starting torque	Torque	Temperature rise	approx. Mass	Characteristic curve
Type	**VAC**	**Hz**	**min^{-1}**	**W**	**W**	**A**	**mF/VDB**	**Ncm**	**Ncm**	**K**	**kg**	
M2E 068-BF07 -**	230	50	2200	24	82	0.38	2.0 / 400	9.4	10.5	50	1.0	1
M2E 068-CF01 -**	230	50	2400	37	78	0.35	2.0 / 450	9.5	15.0	30	1.4	2
M2E 068-DF05 -**	230	50	2500	75	143	0.63	4.0 / 400	19.0	28.5	48	1.9	3
M2E 068-EC01 -**	230	50	2500	105	200	0.88	5.0 / 400	24.5	40.0	60	2.2	4
M4E 068-BF09 -**	230	50	1200	19	50	0.23	1.5 / 400	10.5	15.0	60	1.1	1
M4E 068-CF01 -**	230	50	1250	31	62	0.28	1.5 / 400	13.0	23.5	43	1.5	2
M4E 068-DF01 -**	230	50	1300	50	100	0.44	3.0 / 400	25.0	36.0	50	1.9	3
M4E 068-EC03 -**	230	50	1250	65	130	0.60	5.0 / 450	40.0	50.0	75	2.1	4



Type	a	b
M*E 068 -BF	15	62
M*E 068 -CF	25	72,5
M*E 068 -DF	35	84
M*E 068 -EC	42	91

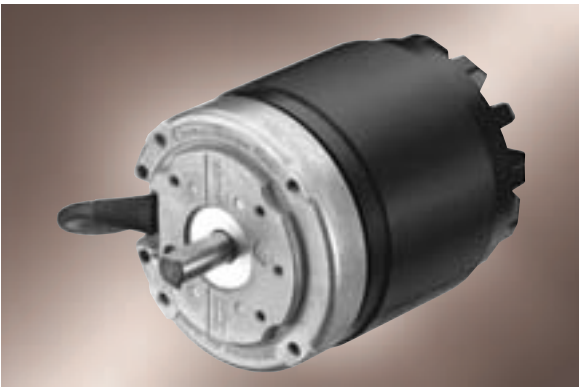






External-rotor motor

Drive motor, size 074



- Mounting flange in diecast aluminium
- Rotor stove-enamelled in black
- Shaft in roller bearing steel
- Maintenance-free ball bearings
- Direction of rotation either clockwise or counterclockwise rotation, viewed on rotor.
- Type of protection IP 00
- CE Approval

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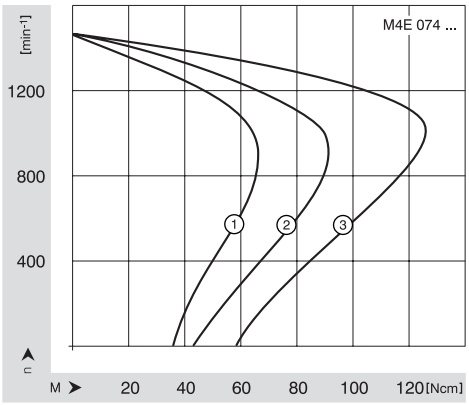
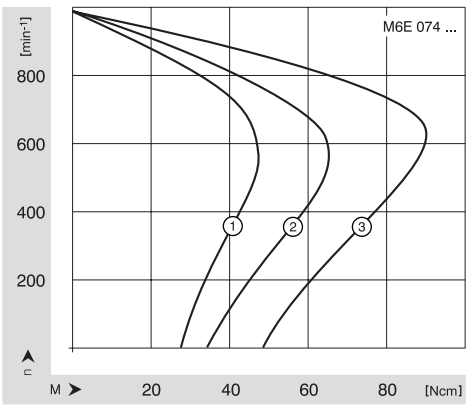
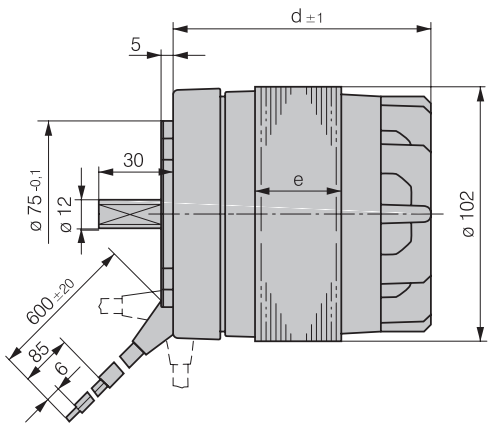
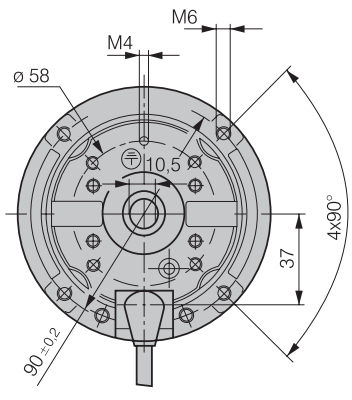
Nominal Data	Voltage	Frequency	Speed	Power output	Power input	Input current	Capacitor	Starting torque	Torque	Temperature rise	approx. Mass	Characteristic curve
Type	**VAC**	**Hz**	**min^{-1}**	**W**	**W**	**A**	**mF/VDB**	**Ncm**	**Ncm**	**K**	**kg**	
M4E 074-DF13 -**	230	50	1350	64	112	0.50	4.0 / 400	35.0	45.0	85	2.5	1
M4E 074-EI15 -**	230	50	1350	92	153	0.68	5.0 / 400	42.0	65.0	65	3.5	2
M4E 074-GA07 -**	230	50	1350	133	218	0.96	6.0 / 400	57.0	94.0	100	4.5	3
M6E 074-DF20 -**	230	50	850	46	98	0.44	2.5 / 450	26.0	51.0	100	2.5	1
M6E 074-EI10 -**	230	50	850	61	118	0.52	3.0 / 450	34.0	68.0	90	3.5	2
M6E 074-GA06 -**	230	50	850	78	150	0.67	4.0 / 450	48.0	88.0	90	4.5	3



Type	e	d
M*E 074 -DF	35	104
M*E 074 -EI	48	117
M*E 074 -GA	60	129







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