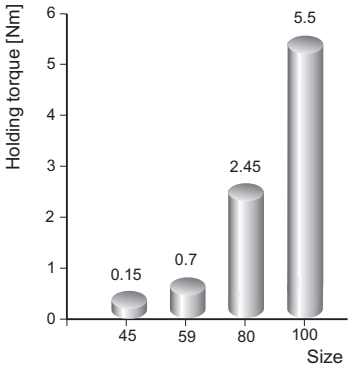
ESS 45 to 100

phytron

Extreme Environment Stepper Motors for Tough Environmental Conditions

The ESS Stepper Motors

The phytron ESS stainless steel series is designed for the toughest environmental conditions.
The ESS series consists of the motor sizes 45, 59, 80 and 100 with holding tourques between 0.15 and 5.5 Nm :



Extreme Environment

The experience of more than 20 years phytron extreme environment stepper motor development results in reliable products for special requirements.
Due to their construction, the ESS motors are specified for surface temperatures from –40 to +150 °C.

The IP 67 protection class allows the ESS motors to operate under high air humidity, condensation and hoarfrost.

Particularly in the maritime and in the chemical industry, in modified version also in the food and fish processing industry, the ESS series proves its enormous advantages.

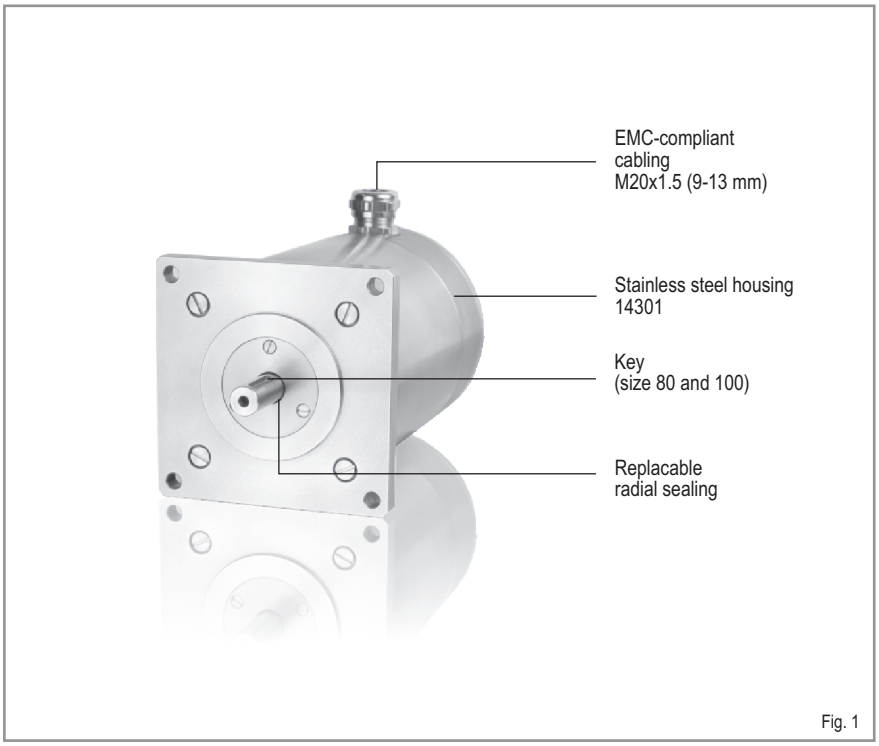


Fig. 1

Technical Information

- 2-phase hybrid stepper motors
- 4-leads, parallel windings
- Stainless steel housing
- 4 standard sizes: 45, 59, 80 and 100
- Admissible surface temperature range: -40 to +150 °C
- Protection class IP 67, rel. humidity 95 %
- Holding torques from 150 mNm to 5.5 Nm
- Standard number of steps/rev.: 200, step angle: 1.8°
- Design voltage acc. to EN 60034:
  ESS 45 and 59: 100 VAC
  ESS 80 and 100: 200 VAC
- Insulation class C acc. to VDE 0530
- Test voltage:
  ESS 45: 560 VAC
  ESS 59 and ESS 80/100: 1200 VAC
- EMC-compliant cabling M20x1.5 (9-13 mm)
- Replaceable radial sealing

customized solutions in motion

phytron Stepper Motors

Stepper motor: Drawings / Dimensions

ESS Stepper Motor

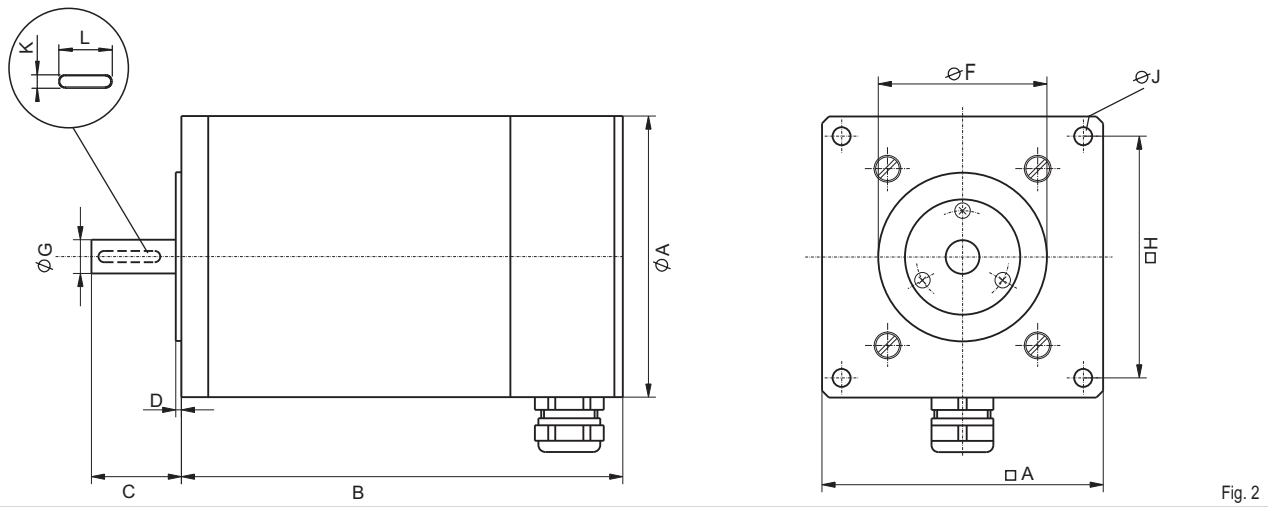


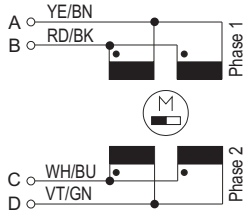
Fig. 2

Stepper motor		Dimensions in mm										
Size	Standard design 200 steps/rev.	A	B	C	D	F	G[1]	H	J	K	L	
45	ESS 45-2.200.2,5	45	81	16	1.5	22	5	38	3.2	-	-	
59	ESS 59-3.200.2,5	59	98.5	22	1.5	38	6.35	49	5.2	-	-	
80	ESS 80-2.200.7,5	80	131	27	2	50	10	68	6.4	3	20	
100	ESS 100-2.200.10	100	157	32	2	60	12	86	6.4	4	22	

Stepper motor		Mechanical Characteristics			Standards			Electrical Characteristics[2]		
Size	Standard design 200 steps/rev.	Holding torque	Detent torque	Mass inertia	Protection class	High voltage test	Design voltage	Current per phase	Resistance per phase[3]	Inductance per phase[3]
		Nm	Nm	kg cm^2			V	A	Ω	mH
45	ESS 45-2.200.2,5	0.15	0.005	0.045	IP 67	EN 60034-1 :2005	> 100	2.5	0.34	0.6
59	ESS 59-3.200.2,5	0.7	0.05	0.24				2.5	0.8	2
80	ESS 80-2.200.7,5	2.45	0.12	1.24			> 200	7.5	0.2	2
100	ESS 100-2.200.10	5.5	0.14	4.4				10	0.15	2.1

[1] Shaft diameter tolerances: g5 [2] Electrical connection, 4-leads, parallel connected windings, bipolar control mode [3] ± 10%

ESS Connection Diagram



4-leads parallel windings

for bipolar control mode

Fig. 3

Important:
All values and characteristics given above were measured at surface temperature of 25 °C (77 °F).

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Frequency Characteristics / Ordering Code

Torque and Power Characteristics

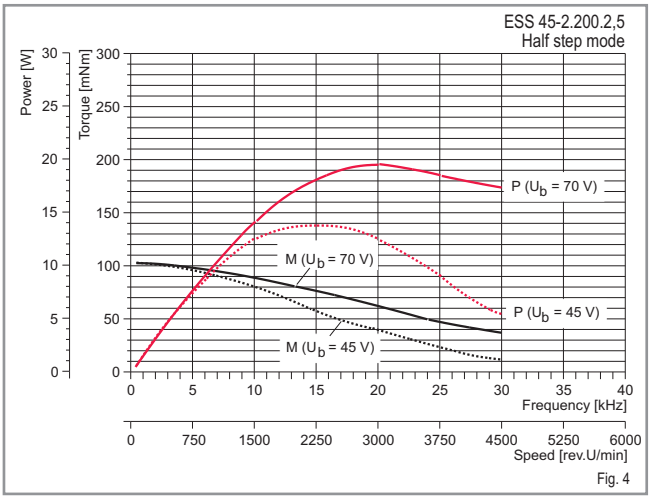

Fig. 4

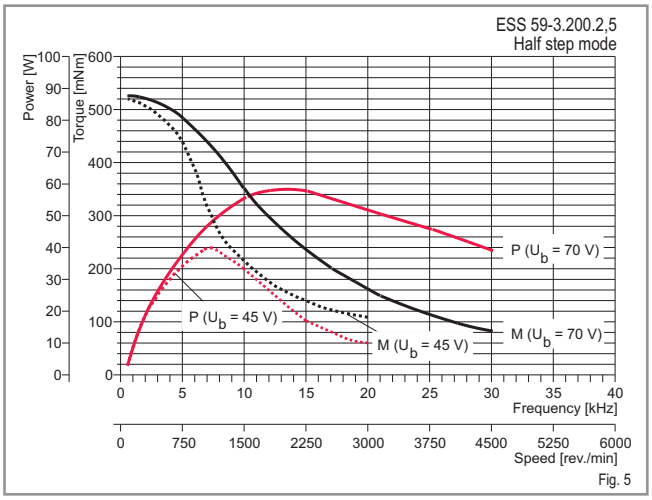

Fig. 5

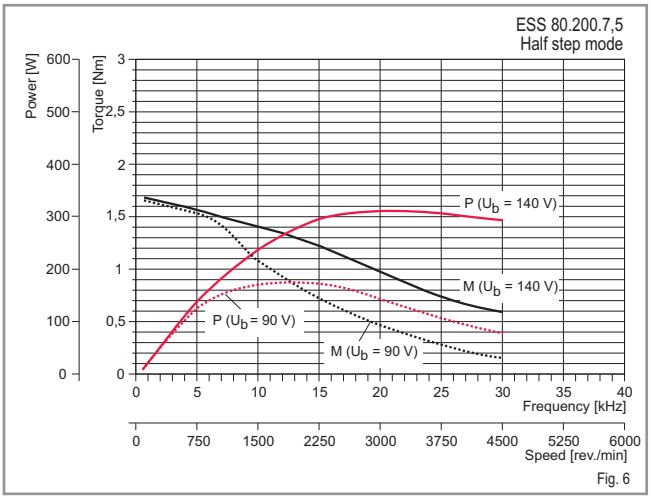

Fig. 6

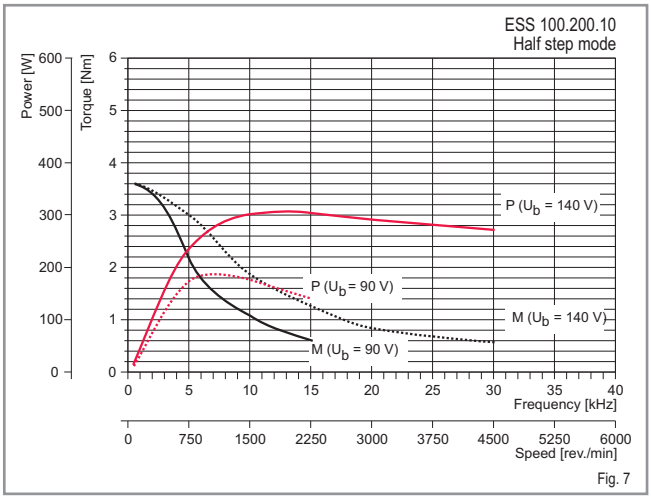

Fig. 7

Ordering Code

ESS 45-2 . 200 . 2,5 - 4lp - XX - YY

Type	ESS
Size	45-2, 59-3, 80-2, 100-2
Number of steps	200
Phase current	2.5 A (depending on size)
Electrical connection	4lp = 4-lead, parallel windings
Optional	
Modification	

Optional Accessories

- Shielded temperature cable
- Motor cable set
- Motor connector set
- Gear shaft sealings

subject to change

customized solutions in motion

Remarks

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