



# Moteurs pas à pas

## Hybrides Nema 23 ,34 et 42

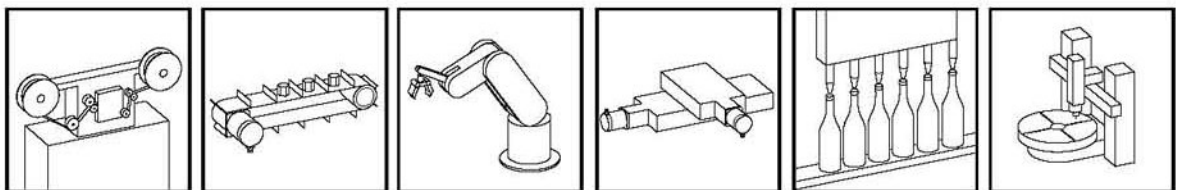
### stepper motors



- gear box
- brake
- encoder
- up to IP68
- special versions



- .....→ **driving**
- .....→ **motion control**
- .....→ **positioning**



**motor specifications:**

- ± 3% accuracy based on 1.8° motor step angle (non cumulative)
- operating temperature -30°C until 80°C (short time until 100°C) for standard types
- insulation class F according to VDE 0530
- dielectric motor strength 1800 vrms (series 56, 11, 100, 1000)

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### stepper motors and equipment

All **STÖGRA** standard motors are 2-phases 1,8° hybrid stepper motors.

The customer can select the optimal stepper motor for his application out of a great variety of stepper motor models with different dimensions and operating torque characteristics.

- range of power: 15 W to 1,3 KW
- range of holding torque: 0,3 to 38 Nm
- phase currents: 1 to 12 A
- protection class:
  - IP55 for cast connection box versions
  - IP41 for leads versions
  - versions until IP68, vacuum compatible and coated versions
  - customer special versions



### stepper motor **equipment** and options:

- permanent magnetical **brake** for holding the stepper motor when the phase current is off (e.g. when using the motor for vertical Z-axis)
- low backlash **planetary gears** with available ratios from 3:1 to 512:1
- **encoder**:
  - E50: 2 x 50 impulses per revolution
  - H200: 2 x 200 impulses per revolution and zero pulse
  - H500: 2 x 500 impulses per revolution and zero pulse

Brakes and encoders are integrated into the class of protection of the motors.

The planetary gears are available until IP68 as special version (standard protection class is IP54).

Further motor options: second shaft end, vacuum compatible version, hollow shaft motor, customer special versions



stepper motor with gear

stepper motor with brake and encoder

leads version motor

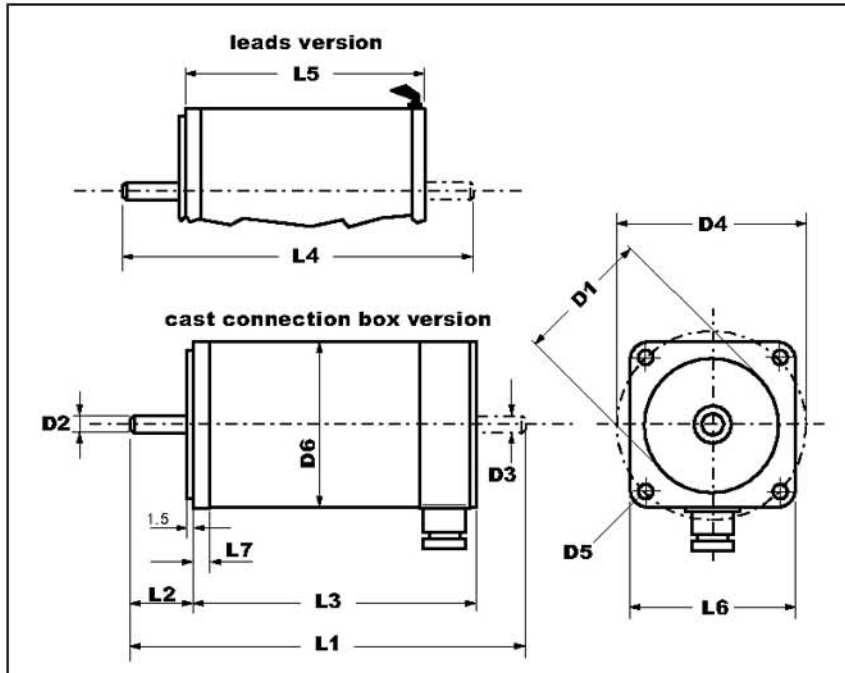
stepper motor with second shaft end

hollow shaft motor



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stepping motor		D1 -0.05		D2 -0.02		D3 -0.02		D4		D5	D6	L1	L2	L3	L4	L5	L6	L7	thread of cable entry		
series	type	M	J	M	J	M	J	M	J				+0.5	±0.5		±0.5					
56	SM 56.1.18											108		76	90	50			M20 x 1.5		
	SM 56.2.18		38.1		6.35		6.35		66.5	5.3	56.5	134	21	102	116	76	56.5	5			
	SM 56.3.18											162		130	144	104					
87	SM 87.1.18											137		85.5	137	60.5			M20 x 1.5		
	SM 87.2.18		73		10		9.52		10		9.52	99	6.5	86		31.5	117.5	169		92.5	86
	SM 87.3.18				(12) <sup>1)</sup>		(12) <sup>1)</sup>					201		149.5	201	124.5					
	SM 87.4.18											233		181.5	233	156.5					
88	SM 88.1.18											145		93.5	145	68.5			M20 x 1.5		
	SM 88.2.18		73		12		9.52		12		9.52	99	6.5	86		31.5	125.5	177		100.5	86
	SM 88.3.18				(10) <sup>1)</sup>		(10) <sup>1)</sup>					209		157.5	209	132.5					
	SM 88.4.18											241		189.5	241	164.5					
107	SM 107.1.18				12		12.7		10			170	32	111			89.5		M20 x 1.5		
	SM 107.2.18		60	55.54					12.7	127.5	125.5	8.5	108				139.5			108	
	SM 107.3.18				16		15.87		12			288	50	211			189.5				
	SM 107.4.18											338		261			239.5				
168	SM 168.1.18				24				19		215		15	168					M20 x 1.5		
	SM 168.2.18		180									268	50.5	179				192		17	
												343		254							

all dimensions in mm

<sup>1)</sup>series SM87 also available with 12 mm shaft and series SM88 also available with 10 mm shaft

M = metric

J = inch

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### Stepper motors with connections via circular connectors series SM ...X and SM ...Y

STÖGRA motors SM 56, SM 87, SM 88 and SM 107 are available optionally with connections via robust industry conform circular connectors type M23.

The standard options »encoder« and »brake« are available for both connector versions.

Available are standard versions with **angled** connectors series SM ...X... and with **straight** connectors series SM ...Y... (the connector for the brake connection ist always straight).



SM 56.3.18JX4,6B E50 with angled connectors series SM ...X...

SM 56.2.18JY3 with straight connector series SM ...Y...

SM 87.2.18MX6 with angled connector series SM ...X...

SM 87.2.18MY6 E50 with straight connectors series SM ...Y...

All connectors mounted at the motor include male contacts. The necessary counter connectors include female contacts.

Connector housings for the connections motor phases and encoder are metallic (zinc diecasting with nickled surface). Protection class of the connectors is IP67. The counter connectors are EMC-justed and a cable shield may be mounted. The connector for the brake is made of PVC, protection class also is IP67.

Ordering examples (see also ordering key at page 4):

SM 56.2.18JX3 E50 (with angled connectors and encoder E50)

SM 87.2.18MX6B (with angled connectors and brake)

SM 87.1.18MYB H200 (with straight connectors and encoder H200)

The counter connectors are not included in the deliveries. Counter connectors have to be ordered seperately.

ordering no.	connector angled	connector straight	motor-phases	encoder E50 / H200 / H500	brake	crimp-connection	soldering-connection	cable Ø mm
GS X	X		X			X		7 – 12 mm
GS XL	X		X				X	7 – 12 mm
GS Y		X	X			X		7 – 12 mm
GS YL		X	X				X	7 – 12 mm
GS X E	X			X		X		5 – 10 mm
GS XLE	X			X			X	5 – 10 mm
GS Y E		X		X		X		5 – 10 mm
GS YLE		X		X			X	5 – 10 mm

Connections motor phases and encoder each include a mounting set with connector housing, connector pins (female pins). The counter connectors for connectors pin socket and connector