

## 5.1 BALL SCREW LINEAR ACTUATOR **BSA 10**

Compact ball screw linear actuator with integral electric motor suitable for push and pull motions.

- Rolled and hardened ball screw.
- Case hardened and ground ball nut.
- Electric A.C. 3-phase, 1-phase or D.C. motors, available with or without brake.
- Internal safety clutch (FS) is available on request, to prevent damage caused by dynamic overloads.
- The dimensional drawings in this catalogue show the standard motor mounting position on the right side. On request the motor can be mounted on the left side, at 180° with respect to the standard position.
- Rear fixing attachment can be also supplied mounted at 90° with respect to the motor axis.

The actuator BSA 10 is not self-locking: to sustain static push or pull loads it is necessary to have a brake motor. The ball screw linear actuator BSA 10 performances stated in this catalogue can be achieved with a continuous duty cycle.

ACCESSORIES	Electric stroke limit device FCE	Magnetic stroke limit device FCM
	Rear bracket SP	Wide range of front attachments

### PERFORMANCE with: Duty Cycle Fi = 100 % over 10 min. at 25 °C environment

Max. static loads admitted: pull load 3000 N - push load 4000 N.

The linear speeds and dynamic loads stated below are performances achievable both at the same time during a working condition.

**The following actuators performances are related to ball screw rated lifetime  $L_{10} = 2000$  hours, without shock-loads or vibrations. For different lifetime requirements refer to graphs on page 23.**

PERFORMANCE WITH AC 3-PHASE MOTOR				
LINEAR SPEED [mm/s]	DYNAMIC LOAD [N]		RATIO	SELF-LOCKING COEFFICIENT
	AC MOTOR 0.06 kW	AC BRAKE-MOTOR 0.09 kW		
58	750	1100	RH1	0.56
36	1150	1700	RV1	0.57
18	2150	2800	RN1	0.49
9	3000	3000	RL1	0.37
4.5	3000	3000	RXL1	0.25

PERFORMANCE WITH AC 1-PHASE MOTOR			
LINEAR SPEED [mm/s]	DYNAMIC LOAD [N]	RATIO	SELF-LOCKING COEFFICIENT
58	1100	RH1	0.56
36	1700	RV1	0.57
18	2800	RN1	0.49
9	3000	RL1	0.37
4.5	3000	RXL1	0.25

PERFORMANCE WITH DC MOTOR 24 V or 12 V					
LINEAR SPEED [mm/s]	DYNAMIC LOAD [N]	RATIO	SELF-LOCKING COEFFICIENT	RUNNING CURRENT [A]	
				24 V	12 V
62	800	RH1	0.56	5	10
40	1300	RV1	0.57	5	10
20	2500	RN1	0.49	5	10
10	3000	RL1	0.37	3	7
5	3000	RXL1	0.25	2	4.5

**5.2 BALL SCREW LINEAR ACTUATORS Series BSA with AC 3-PHASE MOTORS**  
**PERFORMANCE with: Duty Cycle Fi = 100 % at 25 °C environment temp.**

The following actuators performances are related to ball screw rated lifetime  $L_{10} = 2000$  hours, without shock-loads or vibrations. For different lifetime requirements refer to graphs on page 23.

BSA 20				
LINEAR SPEED [mm/s]	DYNAMIC LOAD [N]	RATIO	MOTOR POWER [kW] NUMBER OF POLES SPEED [rpm]	SELF-LOCKING COEFFICIENT
60	1600	RH1	0.12 kW 2 poles 2800	0.56
37	2250	RV1	0.12 kW 2 poles 2800	0.57
30	2150	RH1	0.09 kW 4 poles 1400	0.56
20	2800	RN1	0.12 kW 2 poles 2800	0.49
9	3550	RN1	0.09 kW 4 poles 1400	0.49
4.5	4000	RL1	0.09 kW 4 poles 1400	0.37
2.3	4000	RXL1	0.09 kW 4 poles 1400	0.25

BSA 25				
LINEAR SPEED [mm/s]	DYNAMIC LOAD [N]	RATIO	MOTOR POWER [kW] NUMBER OF POLES SPEED [rpm]	SELF-LOCKING COEFFICIENT
60	1600	RH1	0.12 kW 2 poles 2800	0.56
37	2400	RV1	0.12 kW 2 poles 2800	0.56
30	2200	RH1	0.09 kW 4 poles 1400	0.56
20	3800	RN1	0.12 kW 2 poles 2800	0.48
9	4800	RN1	0.09 kW 4 poles 1400	0.48
4.5	5000	RL1	0.09 kW 4 poles 1400	0.37
2.3	5000	RXL1	0.09 kW 4 poles 1400	0.25

BSA 30				
LINEAR SPEED [mm/s]	DYNAMIC LOAD [N]	RATIO	MOTOR POWER [kW] NUMBER OF POLES SPEED [rpm]	SELF-LOCKING COEFFICIENT
60	2850	RV1	0.25 kW 2 poles 2800	0.56
30	3700	RV1	0.18 kW 4 poles 1400	0.56
15	5000	RN1	0.25 kW 2 poles 2800	0.43
10	6000	RL1	0.25 kW 2 poles 2800	0.34
7	6000	RN1	0.18 kW 4 poles 1400	0.43
5	6000	RL1	0.18 kW 4 poles 1400	0.34

BSA 40				
LINEAR SPEED [mm/s]	DYNAMIC LOAD [N]	RATIO	MOTOR POWER [kW] NUMBER OF POLES SPEED [rpm]	SELF-LOCKING COEFFICIENT
56	5000	RV1	0.55 kW 2 poles 2800	0.56
28	6000	RV1	0.37 kW 4 poles 1400	0.56
14	7600	RN1	0.55 kW 2 poles 2800	0.38
11	8000	RL1	0.55 kW 2 poles 2800	0.36
7	8000	RN1	0.37 kW 4 poles 1400	0.38
5.5	8000	RL1	0.37 kW 4 poles 1400	0.36

**5.2 BALL SCREW LINEAR ACTUATORS Series BSA with AC 1-PHASE MOTORS**  
**PERFORMANCE with: Duty Cycle Fi = 100 % at 25 °C environment temp.**

The following actuators performances are related to ball screw rated lifetime  $L_{10} = 2000$  hours, without shock-loads or vibrations. For different lifetime requirements refer to graphs on page 23.

BSA 20				
LINEAR SPEED [mm/s]	DYNAMIC LOAD [N]	RATIO	MOTOR POWER [kW] NUMBER OF POLES SPEED [rpm]	SELF-LOCKING COEFFICIENT
60	1500	RH1	0.12 kW 2 poles 2800	0.56
37	2250	RV1	0.12 kW 2 poles 2800	0.57
30	2150	RH1	0.09 kW 4 poles 1400	0.56
20	2800	RN1	0.12 kW 2 poles 2800	0.49
9	3500	RN1	0.09 kW 4 poles 1400	0.49
4.5	4000	RL1	0.09 kW 4 poles 1400	0.37
2.3	4000	RXL1	0.09 kW 4 poles 1400	0.25

BSA 25				
LINEAR SPEED [mm/s]	DYNAMIC LOAD [N]	RATIO	MOTOR POWER [kW] NUMBER OF POLES SPEED [rpm]	SELF-LOCKING COEFFICIENT
60	1500	RH1	0.12 kW 2 poles 2800	0.56
37	2300	RV1	0.12 kW 2 poles 2800	0.56
30	2150	RH1	0.09 kW 4 poles 1400	0.56
20	3800	RN1	0.12 kW 2 poles 2800	0.48
9	4800	RN1	0.09 kW 4 poles 1400	0.48
4.5	5000	RL1	0.09 kW 4 poles 1400	0.37
2.3	5000	RXL1	0.09 kW 4 poles 1400	0.25

BSA 30				
LINEAR SPEED [mm/s]	DYNAMIC LOAD [N]	RATIO	MOTOR POWER [kW] NUMBER OF POLES SPEED [rpm]	SELF-LOCKING COEFFICIENT
60	2800	RV1	0.25 kW 2 poles 2800	0.56
30	3700	RV1	0.18 kW 4 poles 1400	0.56
15	5000	RN1	0.25 kW 2 poles 2800	0.43
10	6000	RL1	0.25 kW 2 poles 2800	0.34
7	6000	RN1	0.18 kW 4 poles 1400	0.43
5	6000	RL1	0.18 kW 4 poles 1400	0.34

BSA 40				
LINEAR SPEED [mm/s]	DYNAMIC LOAD [N]	RATIO	MOTOR POWER [kW] NUMBER OF POLES SPEED [rpm]	SELF-LOCKING COEFFICIENT
56	5000	RV1	0.55 kW 2 poles 2800	0.56
28	6000	RV1	0.37 kW 4 poles 1400	0.56
14	7600	RN1	0.55 kW 2 poles 2800	0.38
11	8000	RL1	0.55 kW 2 poles 2800	0.36
7	8000	RN1	0.37 kW 4 poles 1400	0.38
5.5	8000	RL1	0.37 kW 4 poles 1400	0.36

**5.2 BALL SCREW LINEAR ACTUATORS Series BSA with DC MOTORS**  
**PERFORMANCE with: Duty Cycle Fi = 100 % at 25 °C environment temp.**

The following actuators performances are related to ball screw rated lifetime  $L_{10} = 2000$  hours, without shock-loads or vibrations. For different lifetime requirements refer to graphs on page 23.

<b>BSA 20</b> with DC motor 24 V 5.5 A 100 W 3000 rpm				
LINEAR SPEED [mm/s]	DYNAMIC LOAD [N]	RATIO	RUNNING CURRENT [A]	SELF-LOCKING COEFFICIENT
62	1150	RH1	6.5	0.56
40	1800	RV1	6.5	0.57
20	2750	RN1	5.5	0.49
10	3500	RL1	3.5	0.37
5	4000	RXL1	2.5	0.25

<b>BSA 25</b> with DC motor 24 V 8.4 A 150 W 3000 rpm				
LINEAR SPEED [mm/s]	DYNAMIC LOAD [N]	RATIO	RUNNING CURRENT [A]	SELF-LOCKING COEFFICIENT
62	1750	RH1	9.5	0.56
40	2650	RV1	9.5	0.56
20	3700	RN1	7	0.48
10	4700	RL1	5	0.37
5	5000	RXL1	3	0.25

<b>BSA 30</b> with DC motor 24 V 15.6 A 300 W 3000 rpm				
LINEAR SPEED [mm/s]	DYNAMIC LOAD [N]	RATIO	RUNNING CURRENT [A]	SELF-LOCKING COEFFICIENT
62	3000	RV1	16	0.56
15	5000	RN1	7	0.43
10	6000	RL1	6	0.34

<b>BSA 40</b> with DC motor 24 V 25 A 500 W 3000 rpm				
LINEAR SPEED [mm/s]	DYNAMIC LOAD [N]	RATIO	RUNNING CURRENT [A]	SELF-LOCKING COEFFICIENT
60	5000	RV1	24	0.56
15	7500	RN1	10	0.38
12	8000	RL1	9	0.36

**5.3 BALL SCREW LINEAR ACTUATORS Series BSA with AC 3-PHASE MOTORS**  
**PERFORMANCE with: Duty Cycle Fi = 100 % at 25 °C environment temp.**

The following actuators performances are related to ball screw rated lifetime  $L_{10} = 2000$  hours, without shock-loads or vibrations. For different lifetime requirements refer to graphs on page 23.

<b>BSA 50</b>				
<b>LINEAR SPEED [mm/s]</b>	<b>DYNAMIC LOAD [kN]</b>	<b>RATIO</b>	<b>MOTOR POWER [kW] NUMBER OF POLES SPEED [rpm]</b>	<b>SELF-LOCKING COEFFICIENT</b>
78	14	RV1	1.5 kW 2 poles 2800	0.56
40	17	RV1	1.5 kW 4 poles 1400	0.56
25	20	RN1	1.1 kW 2 poles 2800	0.43
20	22	RL1	1.1 kW 2 poles 2800	0.37
13	25	RN1	0.75 kW 4 poles 1400	0.43
10	25	RL1	0.75 kW 4 poles 1400	0.37

<b>BSA 63</b>				
<b>LINEAR SPEED [mm/s]</b>	<b>DYNAMIC LOAD [kN]</b>	<b>RATIO</b>	<b>MOTOR POWER [kW] NUMBER OF POLES SPEED [rpm]</b>	<b>SELF-LOCKING COEFFICIENT</b>
66	20	RV1	2.2 kW 2 poles 2800	0.56
33	25	RV1	1.5 kW 4 poles 1400	0.56
17	30	RN1	0.75 kW 4 poles 1400	0.46
8	37	RL1	0.75 kW 4 poles 1400	0.35

<b>BSA 80</b>				
<b>LINEAR SPEED [mm/s]</b>	<b>DYNAMIC LOAD [kN]</b>	<b>RATIO</b>	<b>MOTOR POWER [kW] NUMBER OF POLES SPEED [rpm]</b>	<b>SELF-LOCKING COEFFICIENT</b>
115	24	RV1	4 kW 2 poles 2800	0.56
60	35	RV1	3 kW 4 poles 1400	0.56
40	44	RN1	2.2 kW 2 poles 2800	0.38
30	48	RL1	2.2 kW 2 poles 2800	0.35
20	55	RN1	1.5 kW 4 poles 1400	0.38
15	60	RL1	2.2 kW 4 poles 1400	0.35