2.2 TECHNICAL DATA - ball screw linear actuators BSA Series

SIZE				BSA 20	BSA 25	BSA 28	BSA 30	BSA 40
Push rod diameter			[mm]	25	30	30	35	40
Outer tube diameter			[mm]	36	45	45	55	60
Front attachment diameter			[mm]	10	12	12	14	20
Rear attachment diameter			[mm]	12	12	12	14	20
Input solid shaft diameter			[mm]	9	9	9	10	14
Attachment for IEC standard motor (flange and hollow shaft)				56 B14	56 B14	63 B14	63 B14	71 B14
Attachment for IEC standard motor (flange adapter + coupling)				–	–	–	–	–
Max. dynamic load			[N]	4 000	6 000	7 500	9 000	12 000
Max. static load		pull	[N]	4 000	6 000	8 000	10 000	12 000
		push	[N]	6 000	8 000	10 000	12 000	15 000
Ratio			RH	1 : 4 (5 : 20)	1 : 4 (5 : 20)	1 : 4 (5 : 20)	–	–
			RV	1 : 6.25 (4 : 25)	1 : 6.25 (4 : 25)	1 : 6.25 (4 : 25)	1 : 4 (4 : 16)	1 : 5 (4 : 20)
			RN	1 : 12.5 (2 : 25)	1 : 12.5 (2 : 25)	1 : 12.5 (2 : 25)	1 : 16 (2 : 32)	1 : 20
			RL	1 : 25	1 : 25	1 : 25	1 : 24	1 : 25
			RXL	1 : 50	1 : 50	1 : 50	1 : 34	1 : 55
Ball screw (STANDARD)	Diameter × Lead			14×5	16×5	16×5	20×5	25×6
	Ball		[mm]	3.175 (1/8 “)	3.175 (1/8 “)	3.175 (1/8 “)	3.175 (1/8 “)	3.969 (5/32 “)
	N° of circuits			2	3	4	3	3
	Dynamic load C_a		[N]	6 600	10 400	13 400	12 000	17 400
	Static load C_{0a}		[N]	8 600	15 600	20 900	21 200	30 500
Linear travel [mm] for 1 input shaft revolution (STANDARD ball screw)		Ratio	RH1	1.25	1.25	1.25	–	–
			RV1	0.8	0.8	0.8	1.25	1.2
			RN1	0.4	0.4	0.4	0.31	0.3
			RL1	0.2	0.2	0.2	0.21	0.24
			RXL1	0.1	0.1	0.1	0.15	0.11
Mass (actuator 100 mm stroke length, without motor, with lubricant)			[kg]	2.2	2.5	2.5	3.8	6.5
Extra-mass for each additional 100 mm stroke length			[kg]	0.3	0.5	0.5	0.8	0.9

ON REQUEST

Ball screw (Diameter × Lead)		14×10	16×10	16×10	20×10	25×10
Ball	[mm]	3.175 (1/8 “)	3.175 (1/8 “)	3.175 (1/8 “)	3.175 (1/8 “)	3.969 (5/32 “)
N° of circuits		2	3	3	3	3
Dynamic load C_a	[N]	6 900	11 300	11 300	12 900	18 000
Static load C_{0a}	[N]	9 300	18 000	18 000	23 500	33 000

NOTE: When these ball screws are used, the actuator length will be increased.
Please, contact SERVOMECH to get information about the exact length.

2

BALL SCREW LINEAR ACTUATORS BSA Series with AC 3-PHASE MOTOR
PERFORMANCE with: Duty Cycle F_i = 100 % at ambient temperature 25 °C

LINEAR SPEED [mm/s]	DYNAMIC LOAD [N]	RATIO	MOTOR: POWER [kW] — N° of POLES SPEED [rpm]	SELF-LOCKING COEFFICIENT
BSA 20				
60	1650 [1]	RH1	0.12 kW 2-pole 2800	0.56
37	2200 [2]	RV1	0.12 kW 2-pole 2800	0.57
30	2250 [1]	RH1	0.09 kW 4-pole 1400	0.56
20	2800 [2]	RN1	0.12 kW 2-pole 2800	0.49
9	3500 [2]	RN1	0.09 kW 4-pole 1400	0.49
4.5	4000 [3]	RL1	0.09 kW 4-pole 1400	0.37
2.3	4000 [3]	RXL1	0.09 kW 4-pole 1400	0.25
BSA 25				
60	1650 [1]	RH1	0.12 kW 2-pole 2800	0.56
37	2550 [1]	RV1	0.12 kW 2-pole 2800	0.56
30	2250 [1]	RH1	0.09 kW 4-pole 1400	0.56
20	4400 [2]	RN1	0.12 kW 2-pole 2800	0.48
9	5500 [2]	RN1	0.09 kW 4-pole 1400	0.48
4.5	6000 [3]	RL1	0.09 kW 4-pole 1400	0.37
2.3	6000 [3]	RXL1	0.09 kW 4-pole 1400	0.25
BSA 28				
60	3300 [1]	RH1	0.25 kW 2-pole 2800	0.56
37	4500 [2]	RV1	0.25 kW 2-pole 2800	0.56
30	4500 [1]	RH1	0.18 kW 4-pole 1400	0.56
20	5650 [2]	RN1	0.25 kW 2-pole 2800	0.48
9	7100 [2]	RN1	0.18 kW 4-pole 1400	0.48
4.5	7500 [3]	RL1	0.18 kW 4-pole 1400	0.37
2.3	7500 [3]	RXL1	0.18 kW 4-pole 1400	0.25
BSA 30				
60	3350 [1]	RV1	0.25 kW 2-pole 2800	0.56
30	4350 [2]	RV1	0.18 kW 4-pole 1400	0.56
15	5500 [2]	RN1	0.25 kW 2-pole 2800	0.43
10	6300 [2]	RL1	0.25 kW 2-pole 2800	0.34
7	7000 [2]	RN1	0.18 kW 4-pole 1400	0.43
5	7900 [2]	RL1	0.18 kW 4-pole 1400	0.34
3.5	9000 [2]	RXL1	0.18 kW 4-pole 1400	0.30
BSA 40				
56	5400 [2]	RV1	0.55 kW 2-pole 2800	0.56
28	6800 [2]	RV1	0.37 kW 4-pole 1400	0.56
14	8600 [2]	RN1	0.55 kW 2-pole 2800	0.38
11	9250 [2]	RL1	0.55 kW 2-pole 2800	0.36
7	10800 [2]	RN1	0.37 kW 4-pole 1400	0.38
5.5	11600 [2]	RL1	0.37 kW 4-pole 1400	0.36
2.5	12000 [3]	RXL1	0.37 kW 4-pole 1400	0.20

[1] value limited by electric motor power; ball screw lifetime L_{10h} > 1000 hours (see diagrams on pages 33 ... 35)
The total dynamic efficiency (η) of BSA Series actuators, used to determine the DYNAMIC LOAD is calculated as follows:

$$\eta = \eta_1 \times \eta_2 \times \eta_3$$

where:
η_1 – wormgear dynamic efficiency, calculated according to BS 721 : Part 2 : 1983
η_2 = 0.9 – ball screw - nut efficiency
η_3 = 0.9 – bearings and sealing elements “efficiency”

[2] value related to the ball screw lifetime L_{10h} = 1000 h, with constant load, without load vibrations nor shocks; for different lifetime refer to diagrams on pages 33 ... 35

[3] limit value of linear actuator dynamic load capacity (see page 44)

Linear actuators BSA Series

BALL SCREW LINEAR ACTUATORS BSA Series with AC 1-PHASE MOTOR
PERFORMANCE with: Duty Cycle F_i = 100 % at ambient temperature 25 °C

LINEAR SPEED [mm/s]	DYNAMIC LOAD [N]	RATIO	MOTOR: POWER [kW] — N° of POLES SPEED [rpm]	SELF-LOCKING COEFFICIENT
BSA 20				
60	1550 [1)]	RH1	0.12 kW 2-pole 2800	0.56
37	2200 [2)]	RV1	0.12 kW 2-pole 2800	0.57
30	2250 [1)]	RH1	0.09 kW 4-pole 1400	0.56
20	2800 [2)]	RN1	0.12 kW 2-pole 2800	0.49
9	3500 [2)]	RN1	0.09 kW 4-pole 1400	0.49
4.5	4000 [3)]	RL1	0.09 kW 4-pole 1400	0.37
2.3	4000 [3)]	RXL1	0.09 kW 4-pole 1400	0.25
BSA 25				
60	1550 [1)]	RH1	0.12 kW 2-pole 2800	0.56
37	2450 [1)]	RV1	0.12 kW 2-pole 2800	0.56
30	2200 [1)]	RH1	0.09 kW 4-pole 1400	0.56
20	4400 [2)]	RN1	0.12 kW 2-pole 2800	0.48
9	5500 [2)]	RN1	0.09 kW 4-pole 1400	0.48
4.5	6000 [3)]	RL1	0.09 kW 4-pole 1400	0.37
2.3	6000 [3)]	RXL1	0.09 kW 4-pole 1400	0.25
BSA 28				
60	3200 [1)]	RH1	0.25 kW 2-pole 2800	0.56
37	4500 [2)]	RV1	0.25 kW 2-pole 2800	0.56
30	4450 [1)]	RH1	0.18 kW 4-pole 1400	0.56
20	5650 [2)]	RN1	0.25 kW 2-pole 2800	0.48
9	7100 [2)]	RN1	0.18 kW 4-pole 1400	0.48
4.5	7500 [3)]	RL1	0.18 kW 4-pole 1400	0.37
2.3	7500 [3)]	RXL1	0.18 kW 4-pole 1400	0.25
BSA 30				
60	3300 [1)]	RV1	0.25 kW 2-pole 2800	0.56
30	4350 [2)]	RV1	0.18 kW 4-pole 1400	0.56
15	5500 [2)]	RN1	0.25 kW 2-pole 2800	0.43
10	6300 [2)]	RL1	0.25 kW 2-pole 2800	0.34
7	7000 [2)]	RN1	0.18 kW 4-pole 1400	0.43
5	7900 [2)]	RL1	0.18 kW 4-pole 1400	0.34
3.5	9000 [2)]	RXL1	0.18 kW 4-pole 1400	0.30
BSA 40				
56	5400 [2)]	RV1	0.55 kW 2-pole 2800	0.56
28	6800 [2)]	RV1	0.37 kW 4-pole 1400	0.56
14	8600 [2)]	RN1	0.55 kW 2-pole 2800	0.38
11	9250 [2)]	RL1	0.55 kW 2-pole 2800	0.36
7	10800 [2)]	RN1	0.37 kW 4-pole 1400	0.38
5.5	11600 [2)]	RL1	0.37 kW 4-pole 1400	0.36
2.5	12000 [3)]	RXL1	0.37 kW 4-pole 1400	0.20

1) value limited by electric motor power; ball screw lifetime L_{10h} > 1000 hours (see diagrams on pages 33 ... 35)
The total dynamic efficiency (η) of BSA Series actuators, used to determine the DYNAMIC LOAD is calculated as follows:

$$\eta = \eta_1 \times \eta_2 \times \eta_3$$

where:
η_1 – wormgear dynamic efficiency, calculated according to BS 721 : Part 2 : 1983
η_2 = 0.9 – ball screw - nut efficiency
η_3 = 0.9 – bearings and sealing elements "efficiency"

2) value related to the ball screw lifetime L_{10h} = 1000 h, with constant load, without load vibrations nor shocks; for different lifetime refer to diagrams on pages 33 ... 35

3) limit value of linear actuator dynamic load capacity (see page 44)

BALL SCREW LINEAR ACTUATORS BSA Series with DC MOTOR
PERFORMANCE with: Duty Cycle F_i = 100 % at ambient temperature 25 °C

LINEAR SPEED [mm/s]	DYNAMIC LOAD [N]	RATIO	CURRENT [A]	SELF-LOCKING COEFFICIENT
BSA 20 with DC motor 24 V 3000 g/min 100 W 5.5 A				
62	1200 [1)]	RH1	6.5	0.56
40	1850 [1)]	RV1	6.5	0.57
20	2750 [2)]	RN1	5.5	0.49
10	3500 [2)]	RL1	3.5	0.37
5	4000 [3)]	RXL1	2.5	0.25
BSA 25 with DC motor 24 V 3000 g/min 150 W 8.4 A				
62	1800 [1)]	RH1	9.5	0.56
40	2800 [1)]	RV1	9.5	0.57
20	4300 [2)]	RN1	7	0.48
10	5400 [2)]	RL1	5	0.37
5	6000 [3)]	RXL1	3	0.25
BSA 30 with DC motor 24 V 3000 g/min 300 W 15.6 A				
62	3400 [2)]	RV1	16	0.56
15	5350 [2)]	RN1	7	0.43
10	6150 [2)]	RL1	6	0.34
7.5	7000 [2)]	RXL1	5	0.30
BSA 40 with DC motor 24 V 3000 g/min 500 W 25 A				
60	5300 [2)]	RV1	25	0.56
15	8400 [2)]	RN1	12	0.38
12	9000 [2)]	RL1	10	0.36
5.5	12000 [2) 3)]	RXL1	8	0.20

1) value limited by electric motor power; ball screw lifetime L_{10h} > 1000 hours (see diagrams on pages 33 ... 35)
The total dynamic efficiency (η) of BSA Series actuators, used to determine the DYNAMIC LOAD is calculated as follows:

$$\eta = \eta_1 \times \eta_2 \times \eta_3$$

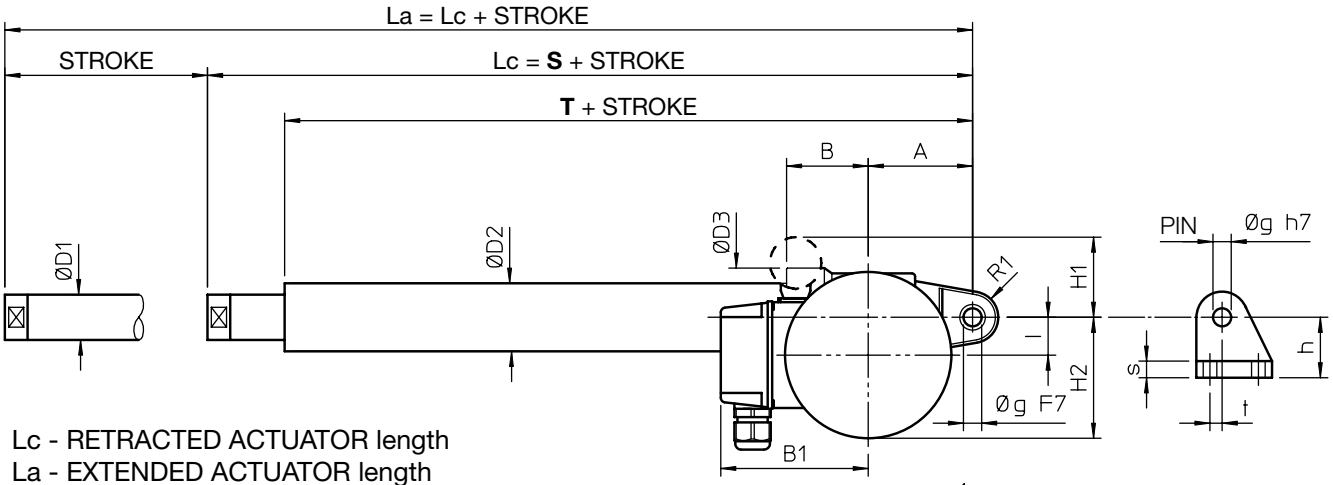
where:
η_1 – wormgear dynamic efficiency, calculated according to BS 721 : Part 2 : 1983
η_2 = 0.9 – ball screw - nut efficiency
η_3 = 0.9 – bearings and sealing elements “efficiency”

2) value related to the ball screw lifetime L_{10h} = 1000 h, with constant load, without load vibrations nor shocks; for different lifetime refer to diagrams on pages 33 ... 35

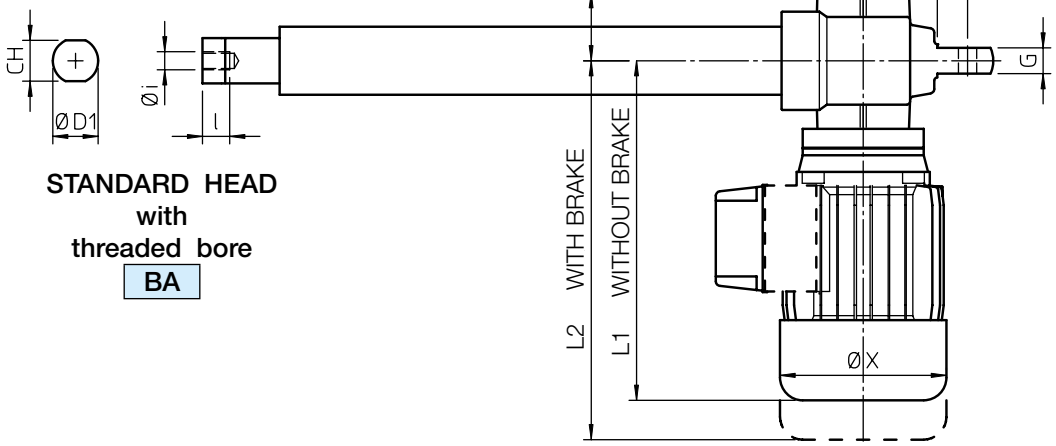
3) limit value of linear actuator dynamic load capacity (see page 44)

Linear actuators BSA Series

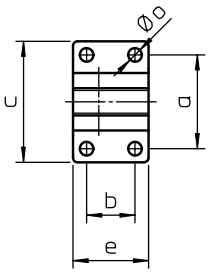
BALL SCREW LINEAR ACTUATORS BSA Series, size 20 — 25 — 28 — 30 — 40
AC 3-phase or 1-phase MOTOR – with Electric Stroke Limit Device FCE



Lc - RETRACTED ACTUATOR length
La - EXTENDED ACTUATOR length



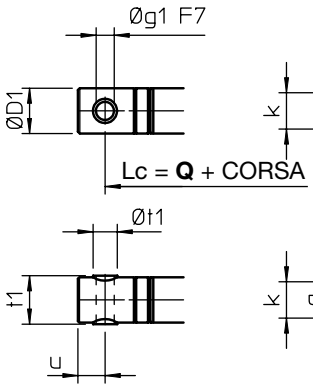
STANDARD HEAD with threaded bore
BA



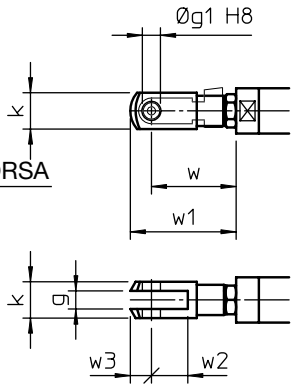
REAR BRACKET
SP

FRONT ATTACHMENTS

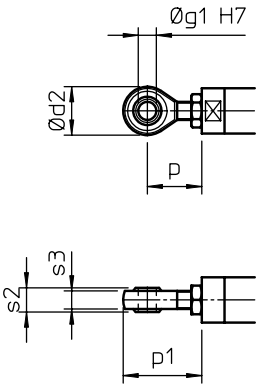
ROD END
ROE



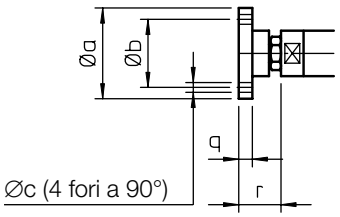
CLEVIS END
FO



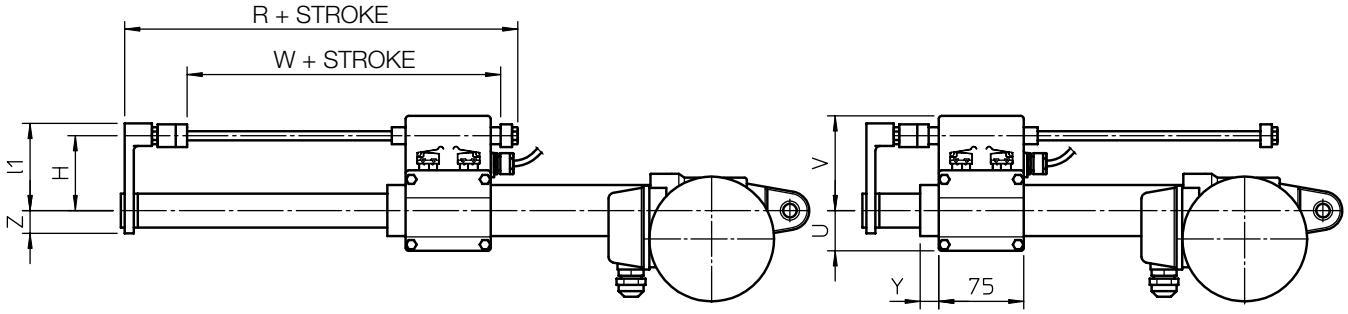
BALL JOINT
TS



FLANGE END
FL



ELECTRIC STROKE LIMIT DEVICE FCE



BALL SCREW LINEAR ACTUATORS BSA Series, size 20 — 25 — 28 — 30 — 40
AC 3-phase or 1-phase MOTOR – with Electric Stroke Limit Device FCE
STANDARD STROKE LENGTHS

		STROKE CODE	C100	C200	C300	C400	C500	C600	C700	C800		S	T	Q
BSA 20		STROKE [mm]	86	186	286	386	486	586	686	786		211	166	226
BSA 25			84	184	284	384	484	584	684	784		222	171	239
BSA 28			78	178	278	378	478	578	678	778		234	177	251
BSA 30			90	190	290	390	490	590	690	790		238	190	258
BSA 40			90	190	290	390	490	590	690	790		295	235	320

NOTE: Different stroke lengths available on request. La = Lc + STROKE
For stroke lengths longer than 800 mm it is necessary to increase the guided length between push rod and outer tube to avoid axial backlash. Dimensions **S**, **T** and **Q** shall be considered increased by 200 mm for stroke lengths up to 1500 mm.
For stroke lengths longer than 1500 mm, please, contact SERVOMECH.

	A	B	B1	C	CH	∅ D1	∅ D2	∅ D3	G	H1	H2	I	L1	L2
BSA 20	69	54	110	45	22	25	36	65	17	50	80	25	225	251
BSA 25	69	54	110	45	27	30	45	65	17	50	80	25	225	251
BSA 28	69	54	115	45	27	30	45	65	17	60	87	25	251	287
BSA 30	76	62	115	50	30	35	55	78	20	60	92	30	255	291
BSA 40	104	78	124	57	36	40	60	92	24	50	115	40	284	373

	R1	∅ X	a	b	c	e	∅ g	h	∅ i	*l*	∅ o	r1	s	t
BSA 20	17	110	62	32	80	50	12	40	M10×1.5	17	9	20	11	8
BSA 25	17	110	62	32	80	50	12	40	M12×1.75	18	9	20	11	8
BSA 28	17	123	62	32	80	50	12	40	M12×1.75	18	9	20	11	8
BSA 30	18	123	72	38	90	58	14	45	M14×2	24	9	20	12	8
BSA 40	28	150	85	55	110	81	20	58	M20×1.5	27	11	32	15	15

FRONT ATTACHMENT Dimensions

	∅ a	∅ b	∅ c	∅ D1	∅ d2	g	∅ g1	k	p	p1
BSA 20	55	40	5.5	25	28	10	10	20	31	45
BSA 25	60	45	6.5	30	32	12	12	24	36	52
BSA 28	60	45	6.5	30	32	12	12	24	36	52
BSA 30	65	50	6.5	35	36	14	14	27	36	54
BSA 40	80	60	8.5	40	50	20	20	40	53	78

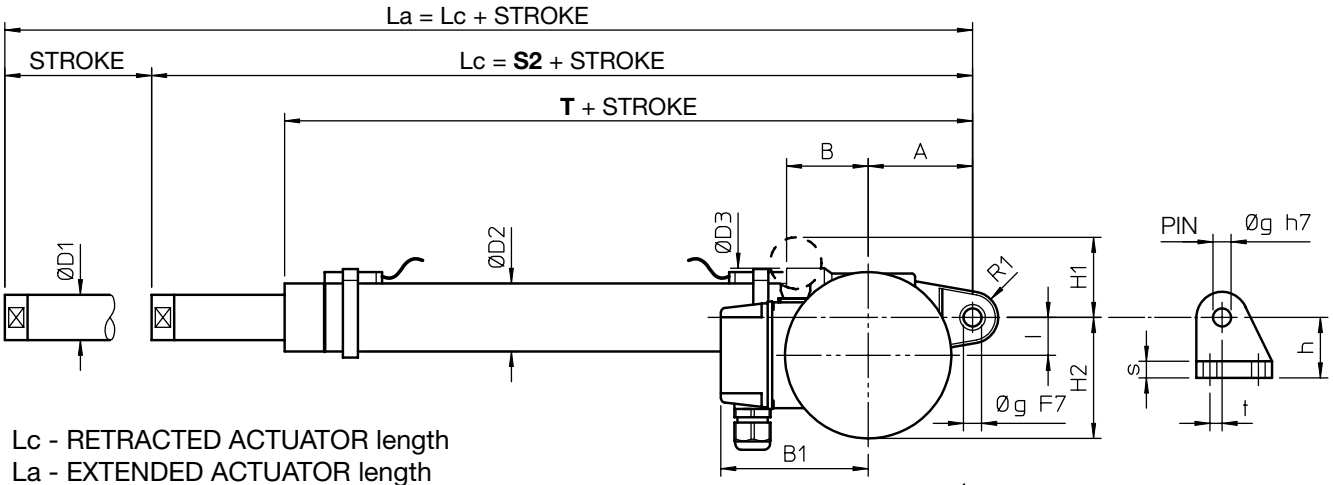
	q	r	s2	s3	t1	∅ t1	u	w	w1	w2	w3
BSA 20	8	27	14	11	26	14	15	49	61	20	12
BSA 25	9	28	16	12	32	16	18	56	70	24	14
BSA 28	9	28	16	12	32	16	18	56	70	24	14
BSA 30	9	32	19	14	36	18	21	65	81	28	16
BSA 40	10	42	25	18	42	25	27	90	115	40	25

ELECTRIC STROKE LIMIT DEVICE FCE Dimensions

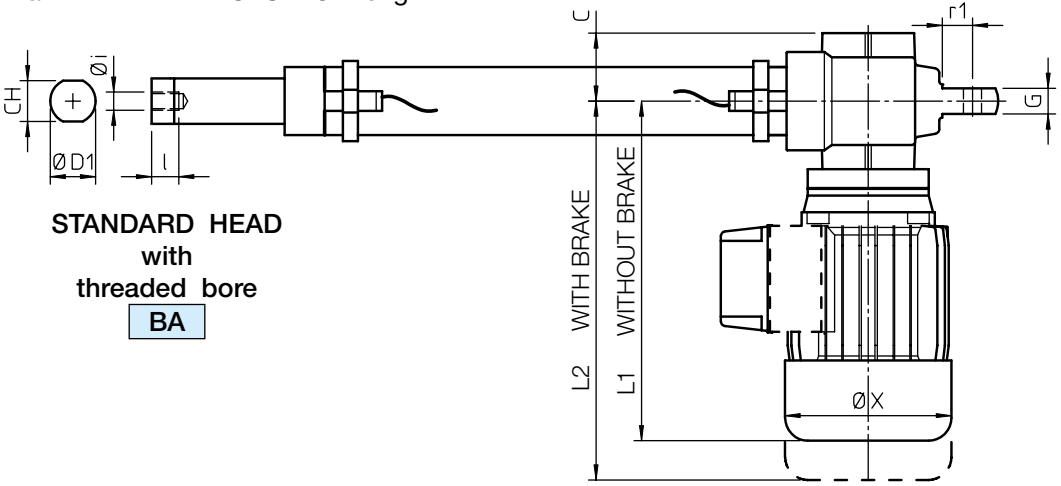
	H	R	U	V	W	Y	Z	I1
BSA 20	62	144	30	80	74	20	18	72
BSA 25	67	146	35	85	74	16	20	77
BSA 28	67	146	35	85	74	16	20	77
BSA 30	71	147	38	90	79	15	23	82
BSA 40	75	163	43	93	79	17	25	85

Linear actuators BSA Series

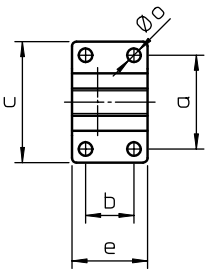
BALL SCREW LINEAR ACTUATORS BSA Series, size 20 — 25 — 28 — 30 — 40
AC 3-phase or 1-phase MOTOR — with Magnetic Stroke Limit Switches FCM



Lc - RETRACTED ACTUATOR length
La - EXTENDED ACTUATOR length



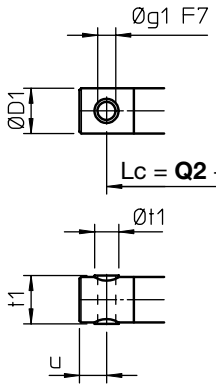
STANDARD HEAD with threaded bore
BA



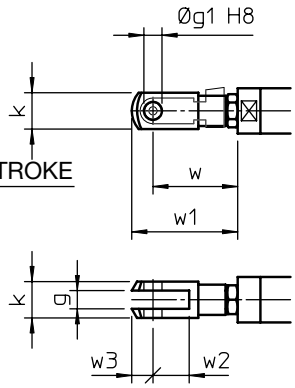
REAR BRACKET
SP

FRONT ATTACHMENTS

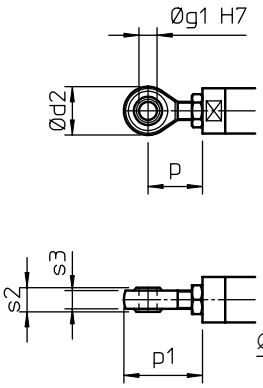
ROD END
ROE



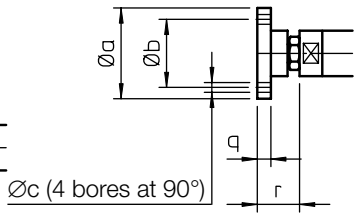
CLEVIS END
FO



BALL JOINT
TS

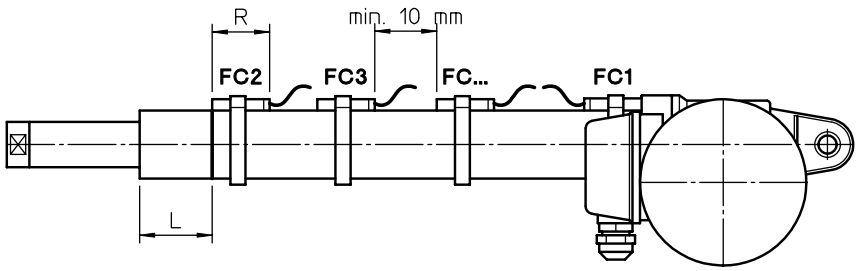


FLANGE END
FL



MAGNETIC STROKE LIMIT SWITCHES FCM Dimensions

	L	
	REED CONTACT	
	NC or (NC+NO)	NO
BSA 20	18.5	23.5
BSA 25	26.5	31.5
BSA 28	26.5	31.5
BSA 30	29	34
BSA 40	35	40



BALL SCREW LINEAR ACTUATORS BSA Series, size 20 — 25 — 28 — 30 — 40
AC 3-phase or 1-phase MOTOR — with Magnetic Stroke Limit Switches FCM
STANDARD STROKE LENGTHS

		STROKE CODE	C100	C200	C300	C400	C500	C600	C700	C800		S2	T	Q2
BSA 20		STROKE [mm]	54	154	254	354	454	554	654	754		275	198	275
BSA 25			47	147	247	347	447	547	647	747		296	208	299
BSA 28			41	141	241	341	441	541	641	741		308	214	311
BSA 30			46	146	246	346	446	546	646	746		326	234	332
BSA 40			37	137	237	337	437	537	637	737		401	288	413

NOTE: Different stroke lengths available on request. La = Lc + STROKE
For stroke lengths longer than 800 mm it is necessary to increase the guided length between push rod and outer tube to avoid axial backlash. Dimensions **S2**, **T** and **Q2** shall be considered increased by 200 mm for stroke lengths up to 1500 mm.
For stroke lengths longer than 1500 mm, please, contact SERVOMECH.

	A	B	B1	C	CH	∅ D1	∅ D2	∅ D3	G	H1	H2	I	L1	L2
BSA 20	69	54	110	45	22	25	36	65	17	50	80	25	225	251
BSA 25	69	54	110	45	27	30	45	65	17	50	80	25	225	251
BSA 28	69	54	115	45	27	30	45	65	17	60	87	25	251	287
BSA 30	76	62	115	50	30	35	55	78	20	60	92	30	255	291
BSA 40	104	78	124	57	36	40	60	92	24	50	115	40	284	373

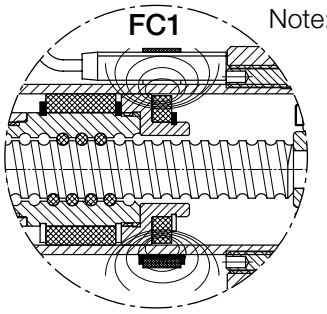
	R1	∅ X	a	b	c	e	∅ g	h	∅ i	*l*	∅ o	r1	s	t
BSA 20	17	110	62	32	80	50	12	40	M10×1.5	17	9	20	11	8
BSA 25	17	110	62	32	80	50	12	40	M12×1.75	18	9	20	11	8
BSA 28	17	123	62	32	80	50	12	40	M12×1.75	18	9	20	11	8
BSA 30	18	123	72	38	90	58	14	45	M14×2	24	9	20	12	8
BSA 40	28	150	85	55	110	81	20	58	M20×1.5	27	11	32	15	15

FRONT ATTACHMENT Dimensions

	∅ a	∅ b	∅ c	∅ D1	∅ d2	g	∅ g1	k	p	p1
BSA 20	55	40	5.5	25	28	10	10	20	31	45
BSA 25	60	45	6.5	30	32	12	12	24	36	52
BSA 28	60	45	6.5	30	32	12	12	24	36	52
BSA 30	65	50	6.5	35	36	14	14	27	36	54
BSA 40	80	60	8.5	40	50	20	20	40	53	78

	q	r	s2	s3	t1	∅ t1	u	w	w1	w2	w3
BSA 20	8	27	14	11	26	14	15	49	61	20	12
BSA 25	9	28	16	12	32	16	18	56	70	24	14
BSA 28	9	28	16	12	32	16	18	56	70	24	14
BSA 30	9	32	19	14	36	18	21	65	81	28	16
BSA 40	10	42	25	18	42	25	27	90	115	40	25

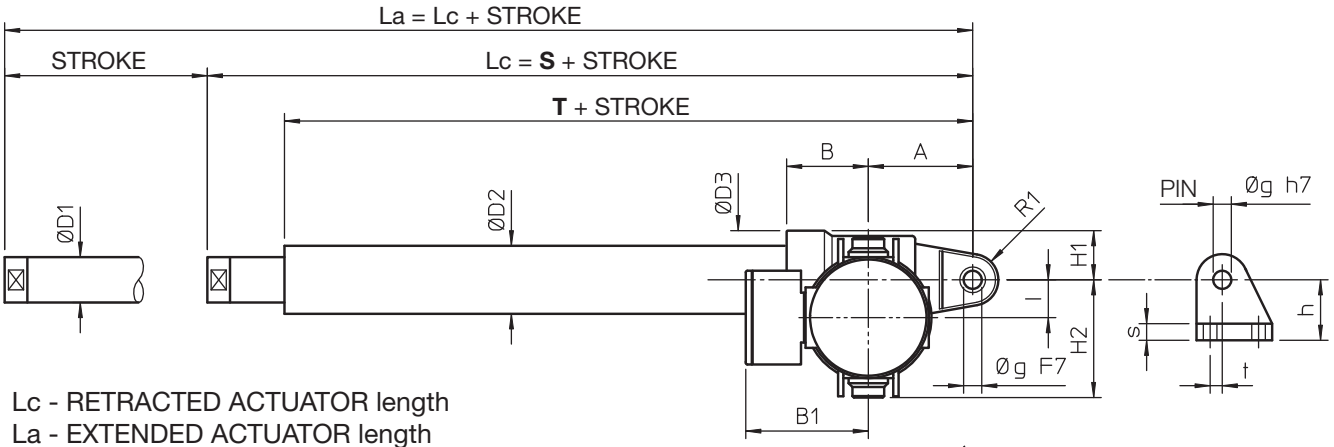
FINECORSA MAGNETICI FCM - caratteristiche funzionali e dimensioni



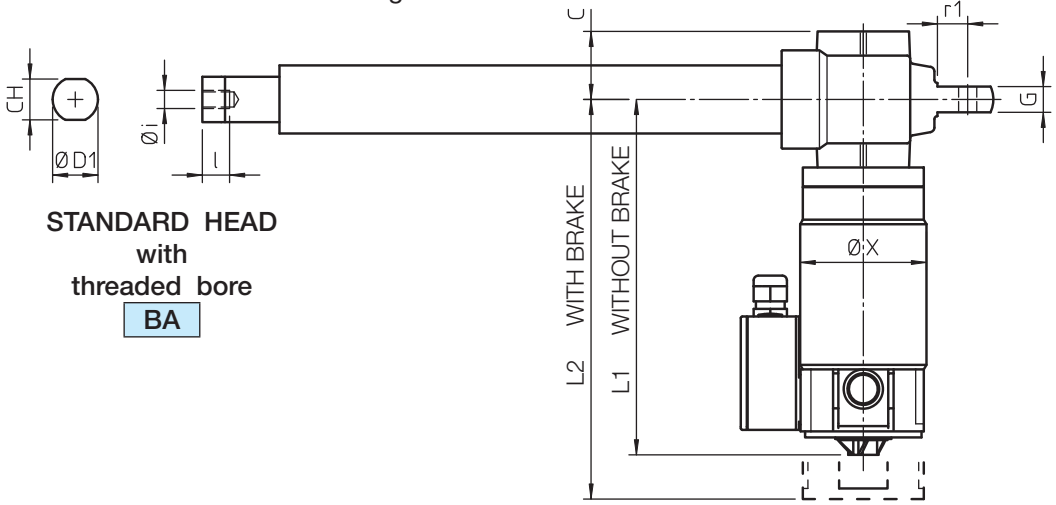
Note: - The travel length performed by an actuator with FCM is reduced if compared to the travel length of an actuator without FCM, because the REED SWITCH FC1 gives the stopping signal to the motor before the actuator reaches its minimum retracted length.
Therefore the actuator in retracted position is longer.
- Additional extra magnetic REED SWITCHES are available for intermediate positions.
- The minimum distance between the REED SWITCHES must be of at least 10 mm.
- REED SWITCH Normally Closed (NC) R = 39 mm
- REED SWITCH Change-over (NC+NO) R = 39 mm
- REED SWITCH Normally Open (NO) R = 29 mm

Linear actuators BSA Series

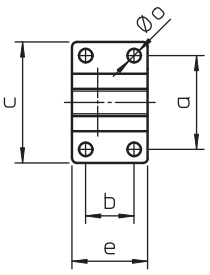
BALL SCREW LINEAR ACTUATORS BSA Series, size 20 — 25 — 30 — 40
DC MOTOR – without stroke limit switches or with Electric Stroke Limit Device FCE



Lc - RETRACTED ACTUATOR length
La - EXTENDED ACTUATOR length



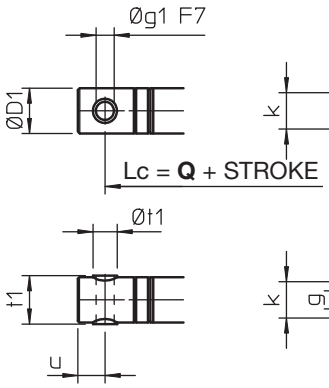
STANDARD HEAD with threaded bore
BA



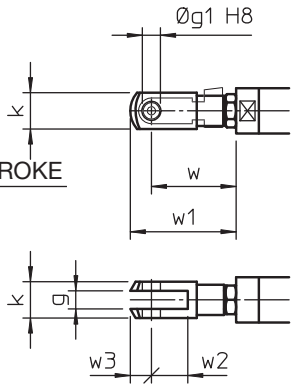
REAR BRACKET
SP

FRONT ATTACHMENTS

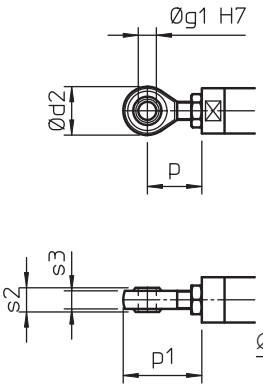
ROD END
ROE



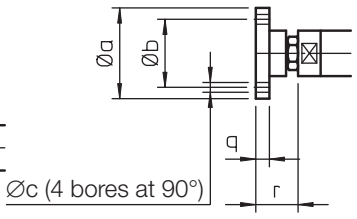
CLEVIS END
FO



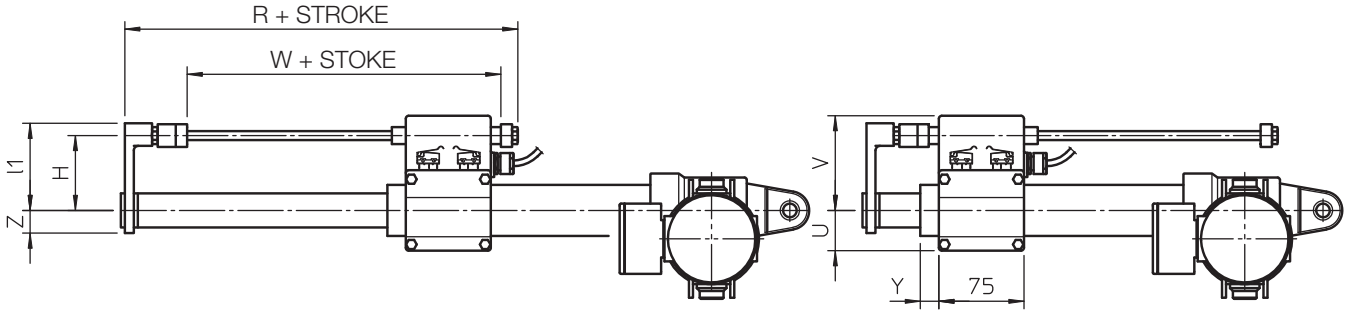
BALL JOINT
TS



FLANGE END
FL



ELECTRIC STROKE LIMIT DEVICE FCE



BALL SCREW LINEAR ACTUATORS BSA Series, size 20 — 25 — 30 — 40
DC MOTOR – without stroke limit switches or with Electric Stroke Limit Device FCE

STANDARD STROKE LENGTHS

		STROKE CODE	C100	C200	C300	C400	C500	C600	C700	C800		S	T	Q
BSA 20		STROKE [mm]	86	186	286	386	486	586	686	786		211	166	226
BSA 25			84	184	284	384	484	584	684	784		222	171	239
BSA 30			90	190	290	390	490	590	690	790		238	190	258
BSA 40			90	190	290	390	490	590	690	790		295	235	320

NOTE: Different stroke lengths available on request. La = Lc + STROKE
For stroke lengths longer than 800 mm it is necessary to increase the guided length between push rod and outer tube to avoid axial backlash. Dimensions **S**, **T** and **Q** shall be considered increased by 200 mm for stroke lengths up to 1500 mm.
For stroke lengths longer than 1500 mm, please, contact SERVOMECH.

	A	B	B1	C	CH	∅ D1	∅ D2	∅ D3	G	H1	H2	I	L1	L2
BSA 20	69	54	110	45	22	25	36	65	17	33	80	25	202	243
BSA 25	69	54	110	45	27	30	45	65	17	33	80	25	235	276
BSA 30	76	62	115	50	30	35	55	78	20	39	92	30	291	332
BSA 40	104	78	124	57	36	40	60	92	24	46	115	40	391	432

	R1	∅ X	a	b	c	e	∅ g	h	∅ i	*l*	∅ o	r1	s	t
BSA 20	17	110	62	32	80	50	12	40	M10×1.5	17	9	20	11	8
BSA 25	17	110	62	32	80	50	12	40	M12×1.75	18	9	20	11	8
BSA 30	18	123	72	38	90	58	14	45	M14×2	24	9	20	12	8
BSA 40	28	150	85	55	110	81	20	58	M20×1.5	27	11	32	15	15

FRONT ATTACHMENT Dimensions

	∅ a	∅ b	∅ c	∅ D1	∅ d2	g	∅ g1	k	p	p1
BSA 20	55	40	5.5	25	28	10	10	20	31	45
BSA 25	60	45	6.5	30	32	12	12	24	36	52
BSA 30	65	50	6.5	35	36	14	14	27	36	54
BSA 40	80	60	8.5	40	50	20	20	40	53	78

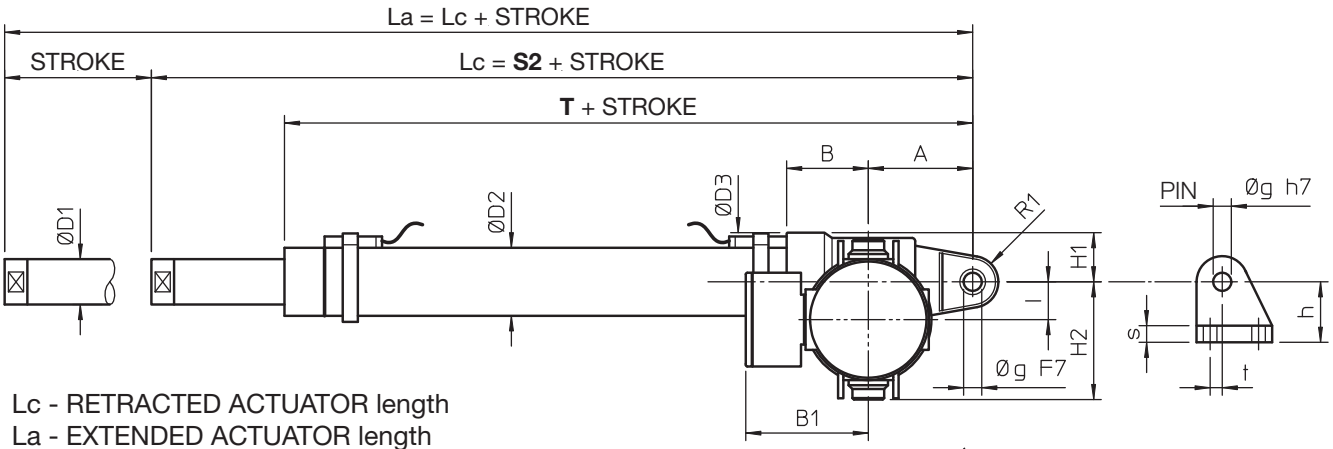
	q	r	s2	s3	t1	∅ t1	u	w	w1	w2	w3
BSA 20	8	27	14	11	26	14	15	49	61	20	12
BSA 25	9	28	16	12	32	16	18	56	70	24	14
BSA 30	9	32	19	14	36	18	21	65	81	28	16
BSA 40	10	42	25	18	42	25	27	90	115	40	25

ELECTRIC STROKE LIMIT DEVICE FCE Dimensions

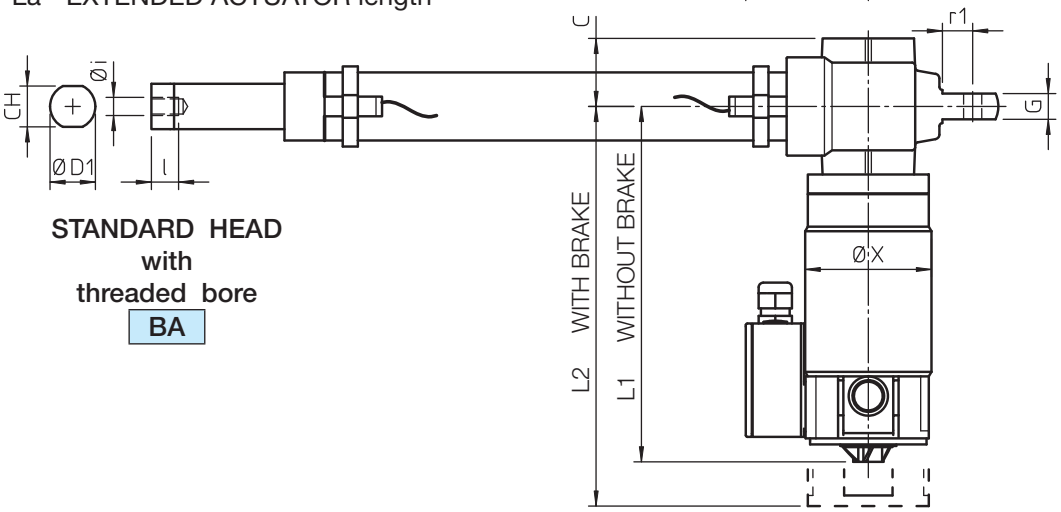
	H	R	U	V	W	Y	Z	I1
BSA 20	62	144	30	80	74	20	18	72
BSA 25	67	146	35	85	74	16	20	77
BSA 30	71	147	38	90	79	15	23	82
BSA 40	75	163	43	93	79	17	25	85

Linear actuators BSA Series

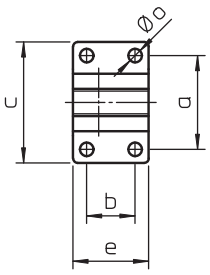
BALL SCREW LINEAR ACTUATORS BSA Series, size 20 — 25 — 30 — 40
DC MOTOR — with Magnetic Stroke Limit Switches FCM



Lc - RETRACTED ACTUATOR length
La - EXTENDED ACTUATOR length



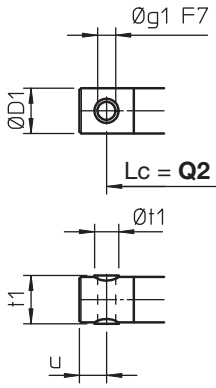
STANDARD HEAD with threaded bore
BA



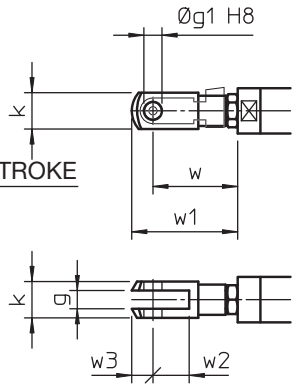
REAR BRACKET
SP

FRONT ATTACHMENTS

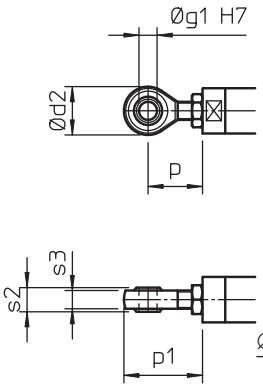
ROD END
ROE



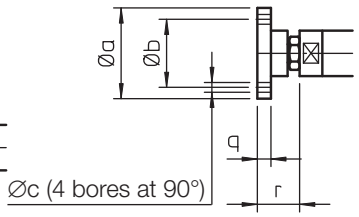
CLEVIS END
FO



BALL JOINT
TS

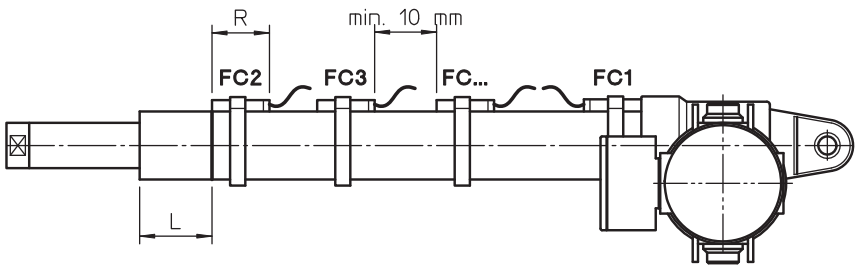


FLANGE END
FL



MAGNETIC STROKE LIMIT SWITCHES FCM Dimensions

	L	
	REED CONTACT	
	NC or (NC+NO)	NO
BSA 20	18.5	23.5
BSA 25	26.5	31.5
BSA 28	26.5	31.5
BSA 30	29	34
BSA 40	35	40



BALL SCREW LINEAR ACTUATORS BSA Series, size 20 — 25 — 30 — 40
DC MOTOR — with Magnetic Stroke Limit Switches FCM
STANDARD STROKE LENGTHS

		STROKE CODE	C100	C200	C300	C400	C500	C600	C700	C800		S2	T	Q2
BSA 20		STROKE [mm]	54	154	254	354	454	554	654	754		275	198	275
BSA 25			47	147	247	347	447	547	647	747		296	208	299
BSA 30			46	146	246	346	446	546	646	746		326	234	332
BSA 40			37	137	237	337	437	537	637	737		401	288	413

NOTE: Different stroke lengths available on request. La = Lc + STROKE
For stroke lengths longer than 800 mm it is necessary to increase the guided length between push rod and outer tube to avoid axial backlash. Dimensions **S2**, **T** and **Q2** shall be considered increased by 200 mm for stroke lengths up to 1500 mm.
For stroke lengths longer than 1500 mm, please, contact SERVOMECH.

	A	B	B1	C	CH	∅ D1	∅ D2	∅ D3	G	H1	H2	I	L1	L2
BSA 20	69	54	110	45	22	25	36	65	17	33	80	25	202	243
BSA 25	69	54	110	45	27	30	45	65	17	33	80	25	235	276
BSA 30	76	62	115	50	30	35	55	78	20	39	92	30	291	332
BSA 40	104	78	124	57	36	40	60	92	24	46	115	40	391	432

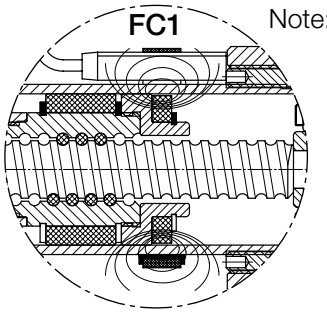
	R1	∅ X	a	b	c	e	∅ g	h	∅ i	*l*	∅ o	r1	s	t
BSA 20	17	110	62	32	80	50	12	40	M10×1.5	17	9	20	11	8
BSA 25	17	110	62	32	80	50	12	40	M12×1.75	18	9	20	11	8
BSA 30	18	123	72	38	90	58	14	45	M14×2	24	9	20	12	8
BSA 40	28	150	85	55	110	81	20	58	M20×1.5	27	11	32	15	15

FRONT ATTACHMENT Dimensions

	∅ a	∅ b	∅ c	∅ D1	∅ d2	g	∅ g1	k	p	p1
BSA 20	55	40	5.5	25	28	10	10	20	31	45
BSA 25	60	45	6.5	30	32	12	12	24	36	52
BSA 30	65	50	6.5	35	36	14	14	27	36	54
BSA 40	80	60	8.5	40	50	20	20	40	53	78

	q	r	s2	s3	t1	∅ t1	u	w	w1	w2	w3
BSA 20	8	27	14	11	26	14	15	49	61	20	12
BSA 25	9	28	16	12	32	16	18	56	70	24	14
BSA 30	9	32	19	14	36	18	21	65	81	28	16
BSA 40	10	42	25	18	42	25	27	90	115	40	25

MAGNETIC STROKE LIMIT SWITCHES FCM Technical features and dimensions



Note: - The travel length performed by an actuator with FCM is reduced if compared to the travel length of an actuator without FCM, because the REED SWITCH FC1 gives the stopping signal to the motor before the actuator reaches its minimum retracted length.
Therefore the actuator in retracted position is longer.
- Additional extra magnetic REED SWITCHES are available for intermediate positions.
- The minimum distance between the REED SWITCHES must be of at least 10 mm.
- REED SWITCH Normally Closed (NC) R = 39 mm
- REED SWITCH Change-over (NC+NO) R = 39 mm
- REED SWITCH Normally Open (NO) R = 29 mm