

Linear actuators ATL Series

2.2 TECHNICAL DATA - acme screw linear actuators ATL Series

ATL 50	ATL 63	ATL 80	ATL 100	ATL 125	SIZE
50	60	90	100	150	Push rod diameter [mm]
70	90	115	150	200	Outer tube diameter [mm]
30	35	40	60	80	Front attachment diameter [mm]
30	35	40	60	80	Rear attachment diameter [mm]
19	24	28	32	38	Input solid shaft diameter [mm]
63 B5 - 71 B5	80 B5	80 B5 - 90 B5	100 - 112 B5	—	Attachment for IEC standard motor (flange and hollow shaft)
80 B5 - 90 B5 80 B14 - 90 B14	90 B5 - 100 B5 90 B14 - 100 B14	100 - 112 B5 100 - 112 B14	132 B5	132 B5 160 B5	Attachment for IEC standard motor (flange adapter + coupling)
25 000	50 000	80 000	200 000	350 000	Max. dynamic load [N]
25 000	50 000	80 000	200 000	350 000	pull Max. static load [N]
25 000	50 000	100 000	200 000	350 000	push
—	—	—	—	—	RH
1 : 6 (4 : 24)	1 : 7 (4 : 28)	1 : 8 (4 : 32)	1 : 8 (4 : 32)	3 : 32	RV
1 : 18 (2 : 36)	1 : 14 (2 : 28)	1 : 24	1 : 24	1 : 16 (2 : 32)	RN Ratio
1 : 24	1 : 28	1 : 32	1 : 32	1 : 32	RL
1 : 44	1 : 40	—	—	—	RXL
Tr 30×6	Tr 40×7	Tr 60×12	Tr 70×12	Tr 100×12	1-start acme screw
—	—	—	—	—	RH1
1	1	1.5	1.5	1.12	RV1
0.33	0.5	0.5	0.5	0.75	RN1 Ratio Linear travel [mm] for 1 input shaft revolution
0.25	0.25	0.38	0.38	0.38	RL1
0.14	0.18	—	—	—	RXL1
Tr 30×12 (P6)	Tr 40×14 (P7)	Tr 60×24 (P12)	Tr 70×24 (P12)	Tr 100×24 (P12)	2-start acme screw
—	—	—	—	—	RH2
2	2	3	3	2.25	RV2
0.67	1	1	1	1.5	RN2 Ratio Linear travel [mm] for 1 input shaft revolution
0.5	0.5	0.75	0.75	0.75	RL2
0.27	0.35	—	—	—	RXL2
30	50	95	200	400	Mass (actuator 100 mm stroke length, without motor, with lubricant) [kg]
2	3	5.5	10.5	18.5	Extra-mass for each additional 100 mm stroke length [kg]

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ACME SCREW LINEAR ACTUATORS ATL Series with AC 3-PHASE MOTOR

PERFORMANCE with: Duty Cycle $F_i = 30\%$ over 10 min at ambient temperature $25\text{ }^{\circ}\text{C}$

LINEAR SPEED [mm/s]	DYNAMIC LOAD [N]	RATIO	MOTOR: POWER [kW] — N° of POLES SPEED [rpm]	SELF-LOCKING COEFFICIENT
ATL 50				
93	13.7 ¹⁾	RV2	2.2 kW 2-pole 2800	0.34
46	17 ¹⁾	RV2	1.5 kW 4-pole 1400	0.34
30	25 ²⁾	RN2	2.2 kW 2-pole 2800	0.26
23	25 ²⁾	RV1	1.5 kW 4-pole 1400	0.24
15	25 ²⁾	RN2	1.5 kW 4-pole 1400	0.26
11	25 ²⁾	RL2	0.75 kW 4-pole 1400	0.23
7.5	25 ²⁾	RN1	0.75 kW 4-pole 1400	0.18
5.5	25 ²⁾	RL1	0.75 kW 4-pole 1400	0.15
3.2	25 ²⁾	RXL1	0.37 kW 4-pole 1400	0.12
ATL 63				
93	18 ¹⁾	RV2	3 kW 2-pole 2800	0.32
46	33 ¹⁾	RV2	3 kW 4-pole 1400	0.32
23	45 ¹⁾	RV1	3 kW 4-pole 1400	0.21
11	40 ¹⁾	RN1	1.5 kW 4-pole 1400	0.18
5.5	50 ²⁾	RL1	1.5 kW 4-pole 1400	0.13
4.1	50 ²⁾	RXL1	1.1 kW 4-pole 1400	0.12
ATL 80				
140	17 ¹⁾	RV2	4 kW 2-pole 2800	0.34
70	31 ¹⁾	RV2	4 kW 4-pole 1400	0.34
46	41 ¹⁾	RN2	4 kW 2-pole 2800	0.24
35	48 ¹⁾	RV1	4 kW 4-pole 1400	0.23
23	73 ¹⁾	RN2	4 kW 4-pole 1400	0.24
17	80 ²⁾	RL2	4 kW 4-pole 1400	0.22
11	80 ²⁾	RN1	4 kW 4-pole 1400	0.16
8.5	80 ²⁾	RL1	3 kW 4-pole 1400	0.15
ATL 100				
140	31 ¹⁾	RV2	7.5 kW 2-pole 2800	0.31
70	57 ¹⁾	RV2	7.5 kW 4-pole 1400	0.31
47	75 ¹⁾	RN2	7.5 kW 2-pole 2800	0.22
35	95 ¹⁾	RL2	7.5 kW 2-pole 2800	0.20
23	137 ¹⁾	RN2	7.5 kW 4-pole 1400	0.22
18	167 ¹⁾	RL2	7.5 kW 4-pole 1400	0.20
12	194 ¹⁾	RN1	7.5 kW 4-pole 1400	0.15
9	200 ²⁾	RL1	7.5 kW 4-pole 1400	0.13
ATL 125				
105	74 ¹⁾	RV2	15 kW 2-pole 2800	0.24
70	102 ¹⁾	RN2	15 kW 2-pole 2800	0.22
53	131 ¹⁾	RV2	15 kW 4-pole 1400	0.24
35	180 ¹⁾	RN2	15 kW 4-pole 1400	0.22
26	183 ¹⁾	RV1	15 kW 4-pole 1400	0.15
18	302 ¹⁾	RL2	15 kW 4-pole 1400	0.17
9	350 ²⁾	RL1	15 kW 4-pole 1400	0.10

1) value limited by electric motor power

The total dynamic efficiency (η) of ATL 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

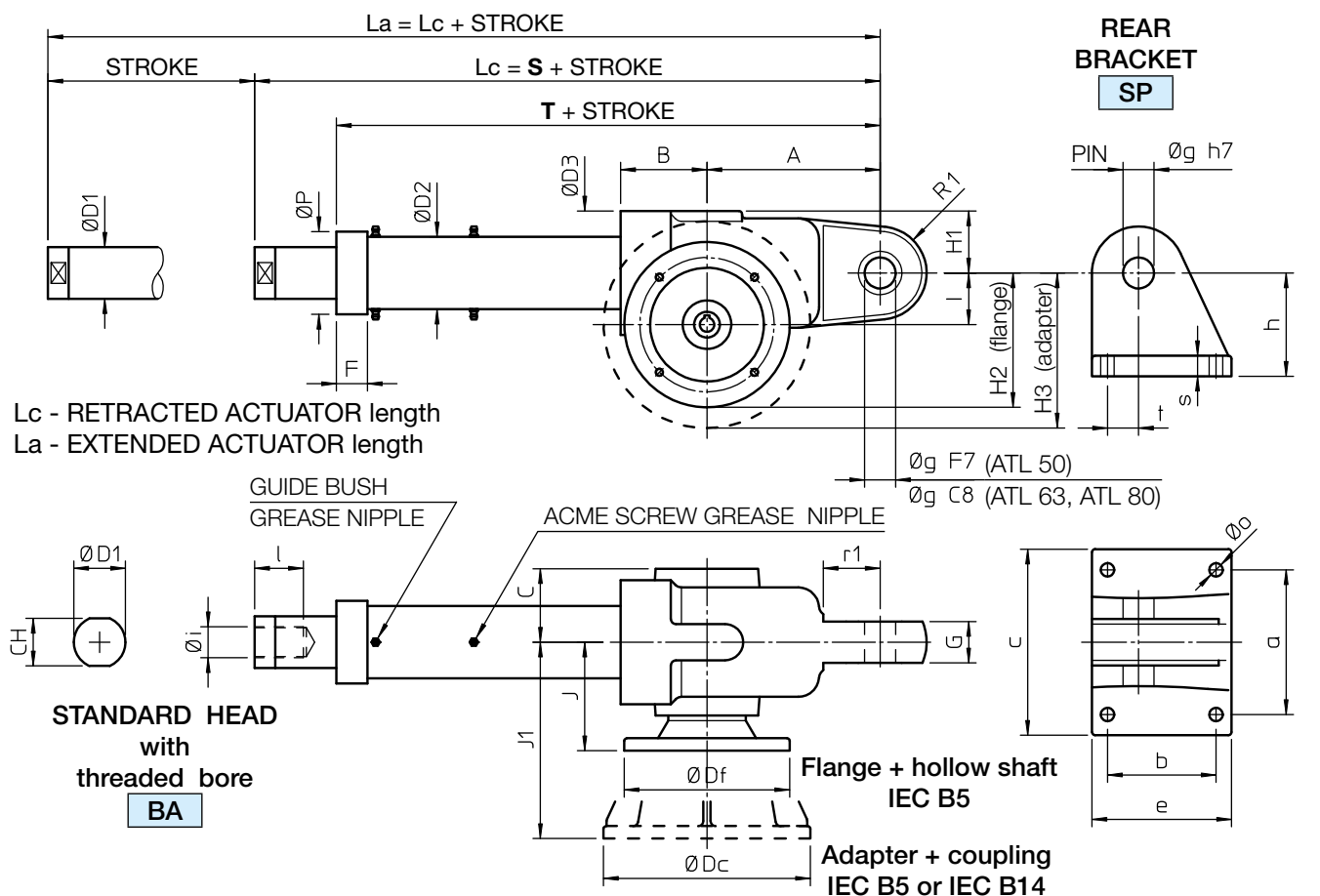
η_2 – acme screw-bronze nut dynamic efficiency, calculated with reference to the speed

$\eta_3 = 0.9$ – bearings and sealing elements “efficiency”

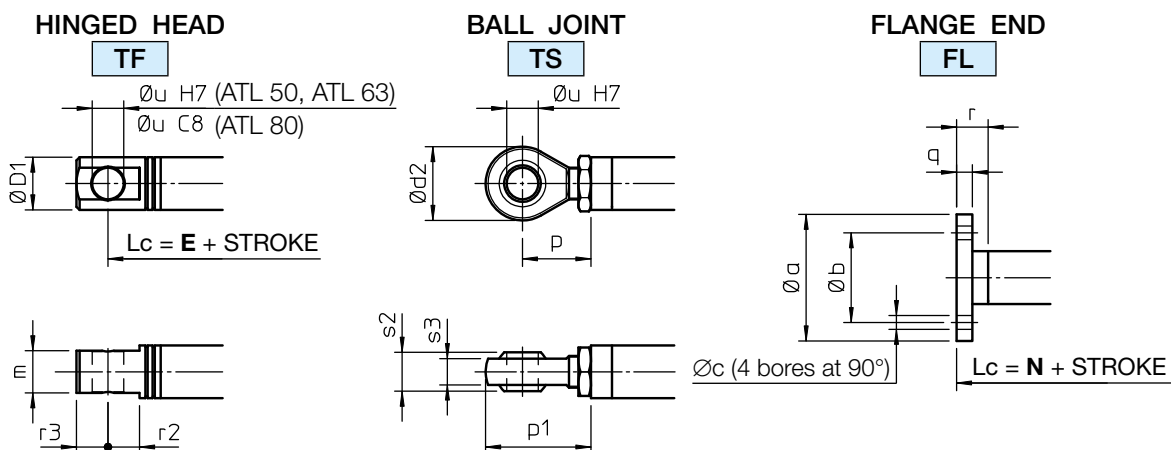
2) limit value of linear actuator dynamic load capacity (see pages 42 ... 43)

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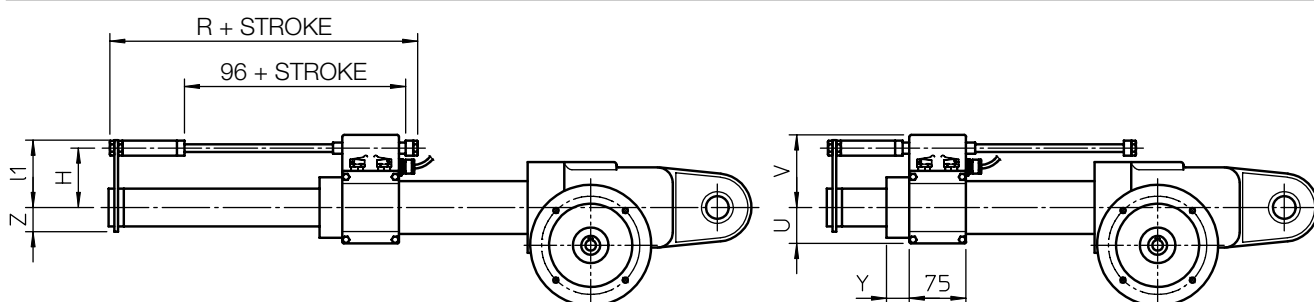
ACME SCREW LINEAR ACTUATORS ATL Series, size 50 – 63 – 80
AC 3-phase MOTOR – with Electric Stroke Limit Device FCE



FRONT ATTACHMENTS



ELECTRIC STROKE LIMIT DEVICE FCE



Linear actuators ATL Series

ACME SCREW LINEAR ACTUATORS ATL Series, size 50 – 63 – 80

AC 3-phase MOTOR – with Electric Stroke Limit Device FCE

STANDARD STROKE LENGTHS

	STROKE CODE	C100	C200	C300	C400	C500	C600	C700	C800	S	T	E	N
ATL 50	STROKE [mm]	100	200	300	400	500	600	700	800	405	326	435	415
ATL 63										516	419	546	526
ATL 80										603 (653)*	509 (569)*	638 (688)*	623 (673)*

* - value in brackets refers to ATL 80 with AR; ATL 80 with AR not available with FCE

NOTE: Different stroke lengths available on request. $L_a = L_c + \text{STROKE}$

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**, **E** and **N** 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	C	CH	Ø D1	Ø D2	Ø D3	F	G	H1	I	Ø P	R1
ATL 50	168	94	68	79	50	70	120	—	40	63	50	—	45
ATL 63	206	96	83	—	60	90	140	37	50	70	63	95	50
ATL 80	240	119	103	—	90	115 (150)*	160	40	60	90	80	125 (150)*	60

* - value in brackets refers to ATL 80 with AR; ATL 80 with AR not available with FCE

	a	b	c	e	Ø g	h	Ø i	l	Ø o	r1	s	t
ATL 50	140	105	185	143	30	100	M30×2	45	13	55	20	30
ATL 63	180	120	228	160	35	120	M36×2	55	17	58	30	30
ATL 80	210	122	278	180	40	130	M42×2	65	21	62	35	32

	Flange IEC	Ø Df	H2	J	Adapter IEC	Ø Dc	H3	J1
ATL 50	63 B5	140	120	102	80 B14 — 80 B5	120 — 200	110 — 150	176 — 182
	71 B5	160	130	102	90 B14 — 90 B5	140 — 200	120 — 150	182
ATL 63	80 B5	200	163	100	90 B14 — 90 B5	140 — 200	133 — 163	200
					100 B14 — 100 B5	160 — 250	143 — 188	220
ATL 80	80 B5; 90 B5	200	180	119	112 B14 — 112 B5	160 — 250	160 — 205	240

FRONT ATTACHMENT Dimensions

	Ø a	Ø b	Ø c	Ø D1	Ø d2	m	p	p1
ATL 50	120	85	13	50	70	40	65	100
ATL 63	140	100	17	60	80	50	86	126
ATL 80	170	130	21	90	90	50	85	130

	q	r	r2	r3	s2	s3	Ø u
ATL 50	15	30	30	30	37	25	30
ATL 63	15	30	30	35	43	28	35
ATL 80	20	40	35	45	49	33	40

ELECTRIC STROKE LIMIT DEVICE FCE Dimensions

	H	R	U	V	Y	Z	l1
ATL 50	79	188	50	97	5	32	89
ATL 63	89	237	60	107	37	37	100
ATL 80 *	101	237	73	119	40	55	113

* - ATL 80 with AR not available with FCE

Linear actuators ATL Series

ACME SCREW LINEAR ACTUATORS ATL Series, size 50 — 63 — 80

AC 3-phase MOTOR — Proximity Stroke Limit Switches FCP

STANDARD STROKE LENGTHS

	STROKE CODE	C100	C200	C300	C400	C500	C600	C700	C800	S2	T2	E2	N2
ATL 50	STROKE [mm]	100	200	300	400	500	600	700	800	443	345	473	453
ATL 63										554	438	584	564
ATL 80										647 (653)*	531 (569)*	682 (688)*	667 (673)*

* - value in brackets refers to ATL 80 with AR

NOTE: Different stroke lengths available on request. $L_a = L_c + \text{STROKE}$

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**, **T2**, **E2** and **N2** 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	C	CH	Ø D1	Ø D2	Ø D3	F	G	H1	I	Ø P	R1
ATL 50	168	94	68	79	50	70	120	—	40	63	50	—	45
ATL 63	206	96	83	—	60	90	140	37	50	70	63	95	50
ATL 80	240	119	103	—	90	115 (150)*	160	40	60	90	80	125 (150)*	60

* - value in brackets refers to ATL 80 with AR

	a	b	c	e	Ø g	h	Ø i	l	Ø o	r1	s	t
ATL 50	140	105	185	143	30	100	M30×2	45	13	55	20	30
ATL 63	180	120	228	160	35	120	M36×2	55	17	58	30	30
ATL 80	210	122	278	180	40	130	M42×2	65	21	62	35	32

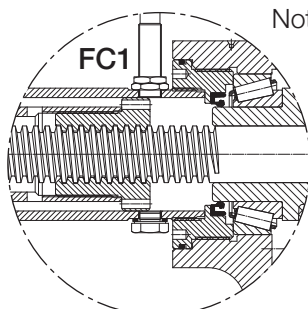
	Flange IEC	Ø Df	H2	J	Adapter IEC	Ø Dc	H3	J1
ATL 50	63 B5	140	120	102	80 B14 — 80 B5	120 — 200	110 — 150	176 — 182
	71 B5	160	130	102	90 B14 — 90 B5	140 — 200	120 — 150	182
ATL 63	80 B5	200	163	100	90 B14 — 90 B5	140 — 200	133 — 163	200
					100 B14 — 100 B5	160 — 250	143 — 188	220
ATL 80	80 B5; 90 B5	200	180	119	112 B14 — 112 B5	160 — 250	160 — 205	240

FRONT ATTACHMENT Dimensions

	Ø a	Ø b	Ø c	Ø D1	Ø d2	m	p	p1
ATL 50	120	85	13	50	70	40	65	100
ATL 63	140	100	17	60	80	50	86	126
ATL 80	170	130	21	90	90	50	85	130

	q	r	r2	r3	s2	s3	Ø u
ATL 50	15	30	30	30	37	25	30
ATL 63	15	30	30	35	43	28	35
ATL 80	20	40	35	45	49	33	40

PROXIMITY STROKE LIMIT SWITCHES FCP Technical features



Note: - The PROXIMITY SWITCH FC1, when activated, gives a signal to stop the motor by means of electric relays before the actuator reaches its minimal retracted length. The RETRACTED ACTUATOR LENGTH (L_c) and EXTENDED ACTUATOR LENGTH (L_a) of the actuator equipped with PROXIMITY SWITCHES FCP are longer then L_a and L_a of the actuator with electric stroke limit device FCE or without stroke end switches.

- Additional PROXIMITY SWITCHES are available for intermediate positions.
- The minimum distance between the PROXIMITY SWITCHES must be of at least 25 mm.