

Linear synchronous iron core 3-phase motors www.ruchservomotor.com

Parameter (all data ±10%), (*) - terminal-terminal	LC32-	Unit	87-30- HS1	87-30- HS1	87-50- HS1	87-50- HS1	87-75- HS1	87-75- HS1	167- 30- HS1	167- 30- HS1	167- 50- HT1
Iron core width	He	mm	30	30	50	50	75	75	30	30	50
Pole pair length	P	m	0,032	0,032	0,032	0,032	0,032	0,032	0,032	0,032	0,032
Attraction force of magnets	Fm	N	575	575	958	958	1437	1437	1105	1105	1842
Peak force max	Fp	N	229	229	382	382	574	574	459	459	765
Continuous force	Fa	N	53	53	91	91	139	139	104	104	178
Continuous stall force	Fas	N	41	41	71	71	109	109	81	81	139
Cogging (Detent) force	Fd	Nrms	5	5	8	8	12	12	6	6	10
Duty cycle peak current	Da	%	3%	3%	4%	4%	4%	4%	3%	3%	3%
Peak current	Ip	Arms	7,7	7,7	7,7	7,7	7,7	7,7	7,7	7,7	13,3
Continuous current	Ia	Arms	1,4	1,4	1,5	1,5	1,5	1,5	1,4	1,4	2,5
Continuous stall current	Ias	Arms	1,1	1,1	1,1	1,1	1,2	1,2	1,1	1,1	1,9
Max velocity current at Fb and Vb	Iov	Arms	0,07	0,12	0,04	0,07	0,03	0,05	0,03	0,06	0,06
Maximum current frequency	Fa	Hz	276	480	165	288	110	192	138	240	143
Recommended supply voltage DC	Us	V DC	310	540	310	540	310	540	310	540	310
Maximum velocity at Fp and Us	Vp	m/s	5,0	9,6	2,7	5,5	1,5	3,4	1,8	4,2	2,2
Maximum velocity at Fa and Us	Va	m/s	8,3	14,7	4,9	8,7	3,2	5,7	3,9	7,2	4,2
Maximum velocity at F=0 and Us	Vb	m/s	8,8	15,4	5,3	9,2	3,5	6,1	4,4	7,7	4,6
Resistance at 20C *	Ruv	Ohm	5,2	5,2	6,9	6,9	9,2	9,2	10,3	10,3	4,6
Inductance *	Luv	mH	17	17	28	28	42	42	33	33	18
Electrical time constant 3LI/4U	Tu	ms	0,31	0,18	0,52	0,30	0,77	0,44	0,62	0,36	0,60
Force constant	Kf	N/Arms	37	37	62	62	93	93	74	74	72
Back EMF constant (Vpeak *)	Ku	V/(m/s)	30	30	51	51	76	76	61	61	58
Motor constant	Ko	N/√W	13	13	19	19	25	25	19	19	27
Thermal resistance of forcer	Rta	K/W	5,83	5,83	4,06	4,06	2,95	2,95	3,03	3,03	2,11
Peak power dissipation	Pp	W	657	657	882	882	1164	1164	1313	1313	1765
Continuous power dissipation	Pa	W	22	22	32	32	44	44	43	43	62
Peak mechanical power	Pmp	W	1141	2208	1032	2108	886	1978	805	1907	1667
Continuous mechanical power	Pma	W	437	778	443	794	441	800	409	743	746
Peak power consumption	Pnp	W	1797	2865	1914	2990	2051	3142	2119	3220	3432
Continuous power consumption	Pna	W	460	800	475	826	485	844	452	786	807
Motor cable diameter	Df	mm	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0
Motor wires cross-section	Sc	mm2	0,75	0,75	0,75	0,75	0,75	0,75	0,75	0,75	0,75
Forcer length	LF	mm	103	103	103	103	103	103	183	183	183
Iron core length	LC	mm	87	87	87	87	87	87	166,7	167	167
Forcer width	WF	mm	56	56	76	76	101	101	56	56	76
Forcer height	HF	mm	23,0	23,0	23,0	23,0	23,0	23,0	23,0	23,0	23,0
Number of forcer's M4 thread rows	NH		2	2	2	2	3	3	2	2	2
Forcer's M4 holes across pitch	LW	mm	18,0	18,0	18,0	18,0	18,0	18,0	18,0	18,0	18,0
Forcer's M4 holes lengthwise pitch	LL	mm	26,7	26,7	26,7	26,7	26,7	26,7	26,7	26,7	26,7
Number of M4 forcer's thread holes	NT		6	6	6	6	9	9	12	12	12
M4 thread holes depth	HH	mm	8	8	8	8	8	8	8	8	8
Forcer weight	MF	kg	1,0	1,0	1,4	1,4	1,9	1,9	1,9	1,9	2,7
Stator width with base plate	WS	mm	60	60	80	80	105	105	60	60	80
Stator plate height	HP	mm	5,6	5,6	7,6	7,6	7,6	7,6	5,6	5,6	7,6
Stator height	HS	mm	10,0	10,0	12,0	12,0	12,0	12,0	10,0	10,0	12,0
Stators bore Ø7/Ø10x4 width pitch	BC	mm	45	45	65	65	90	90	45	45	65
Stators bore Ø7/Ø10x4 length pitch	LC	mm	64	64	64	64	64	64	64	64	64
Stator weight / 1m	MS	kg	3,7	3,7	6,6	6,6	9,0	9,0	3,7	3,7	6,6
Stator-forcer assembly height	HM	mm	34,0	34,0	36,0	36,0	36,0	36,0	34,0	34,0	36,0

Tightening M4 forcers bolts - in 3 stages crosswise from centre to 40%, 70%, 100% of tightening torque 0,9 Nm

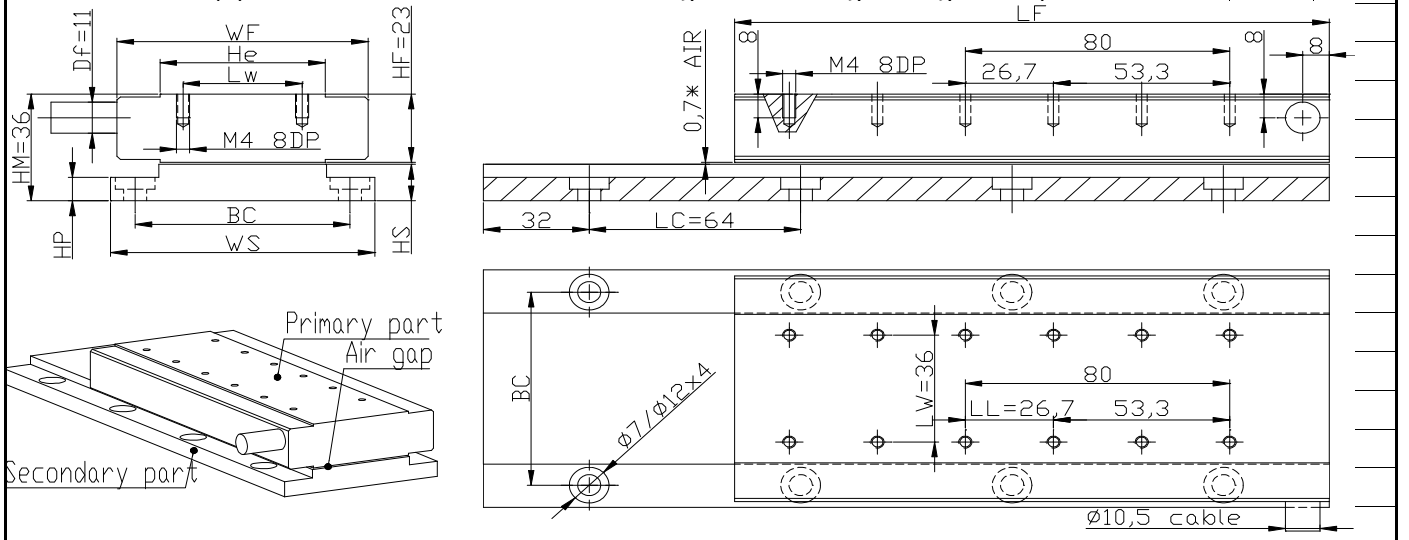
Forcer order: LC32-167-50-C-HT1-1000-N0-B, where LC32-type, 167-iron core length,

50-magnet width, C-no cooling, HT1 - winding, 1000-cable length, N0-flying leads, B-cable to left side

Tightening DIN 7984 M6 stators bolts - in 3 stages crosswise from centre to 40%, 70%, 100% of tightening torque 3 Nm

Stator order: LW32-512-50-A, where LW32-type, 512(or 256,128,54)-length, 50-magnet width, A-mounting above

Forcer and stator(s) must be mounted to user's linear stage steel carriage with guideways and encoder



Linear synchronous iron core 3-phase motors ww'											
Parameter (all data ±10%), (*) - terminal-terminal	LC32-	Unit	167- 50- HS1	167- 75- GT1	167- 75- HT1	247- 30- HS1	247- 30- HS1	247- 50- GT1	247- 50- GS1	247- 75- GT1	247- 75- GS1
Iron core width	He	mm	50	75	75	30	30	50	50	75	75
Pole pair length	P	m	0,032	0,032	0,032	0,032	0,032	0,032	0,032	0,032	0,032
Attraction force of magnets	Fm	N	1842	2763	2763	1635	1635	2726	2726	4089	4089
Peak force max	Fp	N	765	1147	1147	688	688	1147	1147	1721	1721
Continuous force	Fa	N	178	272	273	154	154	264	264	405	405
Continuous stall force	Fas	N	139	213	214	121	121	207	207	317	317
Cogging (Detent) force	Fd	Nrms	10	15	15	7	7	12	12	18	18
Duty cycle peak current	Da	%	3%	4%	4%	3%	3%	3%	3%	4%	4%
Peak current	Ip	Arms	7,7	31,1	13,3	7,7	7,7	31,1	17,9	31,1	17,9
Continuous current	Ia	Arms	1,4	5,9	2,5	1,4	1,4	5,7	3,3	5,9	3,4
Continuous stall current	Ias	Arms	1,1	4,6	2,0	1,1	1,1	4,5	2,6	4,6	2,6
Max velocity current at Fb and Vb	Iov	Arms	0,03	0,22	0,07	0,02	0,04	0,22	0,13	0,14	0,08
Maximum current frequency	Fa	Hz	144	222	166	92	160	222	224	148	149
Recommended supply voltage DC	Us	V DC	540	310	540	310	540	310	540	310	540
Maximum velocity at Fp and Us	Vp	m/s	2,2	4,1	2,9	0,6	2,3	4,0	4,0	2,4	2,4
Maximum velocity at Fa and Us	Va	m/s	4,2	6,7	4,9	2,5	4,7	6,7	6,7	4,4	4,4
Maximum velocity at F=0 and Us	Vb	m/s	4,6	7,1	5,3	2,9	5,1	7,1	7,2	4,7	4,8
Resistance at 20C *	Ruv	Ohm	13,9	1,1	6,1	15,5	15,5	1,3	3,9	1,7	5,1
Inductance *	Luv	mH	55	5	28	50	50	5	15	8	23
Electrical time constant 3LI/4U	Tu	ms	0,59	0,38	0,51	0,93	0,53	0,38	0,38	0,58	0,57
Force constant	Kf	N/Arms	124	46	107	112	112	46	80	69	120
Back EMF constant (Vpeak *)	Ku	V/(m/s)	101	38	88	91	91	38	65	56	98
Motor constant	Ko	N/√W	27	35	36	23	23	33	33	43	43
Thermal resistance of forcer	Rta	K/W	2,11	1,53	1,53	2,05	2,05	1,43	1,43	1,04	1,04
Peak power dissipation	Pp	W	1765	2353	2329	1970	1970	2675	2675	3530	3530
Continuous power dissipation	Pa	W	62	85	85	63	63	91	91	126	126
Peak mechanical power	Pmp	W	1682	4738	3276	408	1575	4588	4621	4174	4208
Continuous mechanical power	Pma	W	750	1823	1350	386	718	1765	1775	1771	1782
Peak power consumption	Pnp	W	3447	7091	5605	2378	3545	7263	7296	7704	7738
Continuous power consumption	Pna	W	812	1907	1435	449	781	1856	1866	1896	1907
Motor cable diameter	Df	mm	11,0	11,0	11,0	11,0	11,0	11,0	11,0	12,5	11,0
Motor wires cross-section	Sc	mm2	0,75	0,75	0,75	0,75	0,75	0,75	0,75	1,50	0,75
Forcer length	LF	mm	183	183	183	263	263	263	263	264	263
Iron core length	LC	mm	167	167	167	247	247	247	247	247	247
Forcer width	WF	mm	76	101	101	56	56	76	76	101	101
Forcer height	HF	mm	23,0	23,0	23,0	23,0	23,0	23,0	23,0	23,0	23,0
Number of forcer's M4 thread rows	NH		2	3	3	2	2	2	2	3	3
Forcer's M4 holes across pitch	LW	mm	18,0	18,0	18,0	18,0	18,0	18,0	18,0	18,0	18,0
Forcer's M4 holes lengthwise pitch	LL	mm	26,7	26,7	26,7	26,7	26,7	26,7	26,7	26,7	26,7
Number of M4 forcer's thread holes	NT		12	18	18	18	18	18	18	27	27
M4 thread holes depth	HH	mm	8	8	8	8	8	8	8	8	8
Forcer weight	MF	kg	2,7	2,6	3,6	2,8	2,8	2,7	2,7	3,8	3,8
Stator width with base plate	WS	mm	80	105	105	60	60	80	80	105	105
Stator plate height	HP	mm	7,6	7,6	7,6	5,6	5,6	7,6	7,6	7,6	7,6
Stator height	HS	mm	12,0	12,0	12,0	10,0	10,0	12,0	12,0	12,0	12,0
Stators bore Ø7/Ø10x4 width pitch	BC	mm	65	90	90	45	45	65	65	90	90
Stators bore Ø7/Ø10x4 length pitch	LC	mm	64	64	64	64	64	64	64	64	64
Stator weight / 1m	MS	kg	6,6	9,0	9,0	3,7	3,7	6,6	6,6	9,0	9,0
Stator-forcer assembly height	HM	mm	36,0	36,0	36,0	34,0	34,0	36,0	36,0	36,0	36,0
Tightening M4 forcers bolts - in 3 stages crosswise fro											
Forcer order: LC32-167-50-C-HT1-1000-N0-B, where											
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