

# DRUM MOTOR 113LS

113.0Ø 0.035kW - 0.55kW, with steel helical gearbox

## Product description

This drum motor has been designed specifically for applications that require a strong drive.

### Characteristics

- Salt water resistant aluminum bearing housing
- Three phase AC induction motor
- 3-phase dual voltage standard
- Integral motor protection
- Hardened steel helical gear type
- Low noise operation
- Maintenance free
- Lifetime lubrication
- Reversible operation
- Reinforced internal shaft for RL exceeding 800 mm

### Applications

- Heavy and frequent use Conveyors
- Conveyors for check-in at airports
- Packaging equipment
- Weighing Machines
- Metal detector
- Pharmaceutical industries
- Food processing
- Plastic or modular belt applications
- Dry, damp and wash down applications

## TECHNICAL DATA

### Motor Data

Type of Motor	Asynchronous squirrel-cage, IEC 34 (VDE 0530)
Insulation class of motor windings	Class F, IEC 34 (VDE 0530)
Derated windings (20% power reduction)	On request for applications without belt
Voltage	230/400 V ± 5% (IEC 34/38) single voltage Dual voltage or special voltage on request
Frequency	50/60 Hz
Internal shaft sealing system	Double-lipped FPM or nitrile; NBR
Protection rate	IP66, IP69 in TS8N Version
Thermal protection	Bimetallic Contact
Ambient temperature, 3-phase motor	-5°C to + 40°C mineral oil -25°C to + 40°C synthetic oil

### General technical data

Max. Roller length (RL)	1200 mm
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All data and values declared in the catalogue refer to operation with a frequency of 50 Hz.



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## Materials

The following drum motor components are available in different versions, as shown in the below chart, with further options for the material type as indicated.

Components	Version	Material				
		Aluminium	Steel	Stainless Steel	Brass /Nickel	Polymer
Shell	Crowned		Std	TS8N		
	Cylindrical		Std	TS8N		
	Cylindrical + key (for sprockets)		Std	TS8N		
	Special crowns and grooves		Std	TS8N		
End housing	Standard	Std		TS8N		
	With V-grooves			TS8N		
	With O-grooves			TS8N		
Shaft	Standard			Std		
	Cross-drilled and threaded, M6			Std		
Electrical connection	Straight connector			TS8N	Std	
	Elbow connector			TS8N		Std
	Terminal box	Std		TS8N		

Please contact Rulmeca for further versions.

**TS8N Version** - End Caps in stainless steel with PTFE lip seals.

## Options

- Rubber Lagging for standard belts
- Profiled lagging for plastic modular belts
- Profiled lagging for thermoplastic belts
- Sprockets for plastic modular belts
- Backstop / Anti run-back bearing
- Electromagnetic brake
- Rectifiers
- Encoder
- Food-grade Oil (EU, FDA and USDA)
- Non-horizontal mounting (more than  $\pm 5^\circ$ )
- Dynamic balancing

## Note

The combination of encoder and electromagnetic brake is not possible.

## Accessories

- Mounting brackets
- Idler Pulleys
- Rollers for conveyors
- Shaft caps
- Frequency Converters

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**TECHNICAL DATA DRUM MOTOR 113LS - 3PHASE - 50HZ - STANDARD RANGE**

$P_N$ [kW]	np (rpm)	$I_n$ [A]	gs	i	$V_A$ [m/s]	$V_N$ [m/s]	$n_A$ [min <sup>-1</sup> ]	$M_N$ [Nm]	$F_T$ [N]	RL [mm]
0.035	12 (420)	0.80/0.46	3	42.66	0.06	0.05	9.8	32.3	571	min 250 max 1200
				36.35	0.07	0.06	11.6	27.5	486	
				31.36	0.08	0.07	13.4	23.7	420	
0.07	12 (380)	1.11/0.64	3	42.66	0.05	0.05	8.9	71.3	1262	min 300 max 1200
				36.35	0.06	0.06	10.5	60.7	1075	
				31.36	0.07	0.07	12.1	52.4	928	
0.08	8 (635)	0.97/0.56	3	42.66	0.09	0.09	14.9	48.8	863	min 250 max 1200
0.10	6 (900)	0.90/0.52	3	42.66	0.12	0.11	21.1	43.0	761	
				36.35	0.15	0.13	24.8	36.6	648	
				31.36	0.17	0.16	28.7	31.6	559	
				27.32	0.19	0.18	32.9	27.5	487	
				23.99	0.22	0.22	37.5	24.2	428	
				21.18	0.25	0.25	42.5	21.3	378	
0.15	4 (1370)	1.02/0.59	2	15.17	0.35	0.32	59.3	15.3	271	
				12.92	0.41	0.40	69.7	13.0	230	
				11.15	0.48	0.45	80.7	11.2	199	
				42.66	0.09	0.09	14.8	92.1	1631	
				36.35	0.10	0.11	17.3	78.5	1390	
				31.36	0.12	0.13	20.1	67.7	1199	
0.20	6 (895)	1.44/0.84	3	42.66	0.12	0.13	21.0	86.5	1531	
				36.35	0.15	0.14	24.6	73.7	1304	
				31.36	0.17	0.16	28.5	63.6	1125	
				27.32	0.19	0.20	32.8	55.4	980	
				23.99	0.22	0.22	37.3	48.6	861	
				21.18	0.25	0.25	42.3	42.9	760	
				15.17	0.35	0.35	59.0	30.8	544	
				12.92	0.41	0.40	69.3	26.2	464	
11.15	0.47	0.50	80.3	22.6	400					

 $P_N$  Nominal mechanical power

np Number of poles

rpm Actual rotor rpm at full load

 $I_n$  Amperage (230/400V) at full load

gs Gear stages

i Gear ratio

 $V_A$  Theoretical actual belt (tangential) speed at full load\* $V_N$  Nominal belt (tangential) speed $n_A$  Revolutions of shell at full load\* $M_N$  Nominal Torque at full load $F_T$  Belt pull (tangential force) on shell at full load\*

RL Reference length

\* Valid for unlagged shells/ values can deviate at partly or no load conditions

# DRUM MOTOR 113LS

## 113.0Ø 0.035kW - 0.55kW, with steel helical gearbox

**TECHNICAL DATA DRUM MOTOR 113LS - 3PHASE - 50HZ - STANDARD RANGE**

$P_N$ [kW]	np (rpm)	$I_n$ [A]	gs	i	$V_A$ [m/s]	$V_N$ [m/s]	$n_A$ [min <sup>-1</sup> ]	$M_N$ [Nm]	$F_T$ [N]	RL [mm]	
0.24	2 (2766)	1.12/0.65	3	42.66	0.38	0.38	64.8	33.6	594	min 250 max 1200	
				36.35	0.45	0.45	76.1	28.6	506		
				31.36	0.52	0.50	88.2	24.7	437		
				27.32	0.60	0.60	101.2	21.5	381		
				23.99	0.68	0.70	115.3	18.9	334		
			21.18	0.77	0.80	130.6	16.7	295			
			2	15.17	1.08	1.10	182.3	11.9	211		
				12.92	1.27	1.25	214.1	10.2	180		
11.15	1.47	1.50		248.1	8.8	155					
0.30	4 (1390)	1.66/0.96	3	42.66	0.19	0.20	32.6	83.5	1478	min 300 max 1200	
				36.35	0.23	0.22	38.2	71.2	1260		
				31.36	0.26	0.25	44.3	61.4	1087		
				27.32	0.30	0.30	50.9	53.5	947		
				23.99	0.34	0.35	57.9	47.0	831		
			21.18	0.39	0.38	65.6	41.5	734			
			2	15.17	0.54	0.50	91.6	29.7	526		
				12.92	0.64	0.63	107.6	25.3	448		
11.15	0.74	0.70		124.7	21.8	386					
0.37	4 (1350)	1.94/1.12	3	42.66	0.19	0.18	31.6	106.1	1877	min 300 max 1200	
				36.35	0.22	0.22	37.1	90.4	1600		
				31.36	0.25	0.25	43.0	78.0	1380		
				27.32	0.29	0.30	49.4	67.9	1202		
				23.99	0.33	0.32	56.3	59.6	1056		
			21.18	0.38	0.38	63.7	52.7	932			
	2	15.17	0.53	0.50	89.0	37.7	668				
		12.92	0.62	0.60	104.5	32.1	569				
		11.15	0.72	0.70	121.1	27.7	491				
		2	1.56/0.90	3	21.18	0.78	0.80	132.2	25.4		449
					2	15.17	1.09	1.10	184.6		18.2
12.92	1.28					1.25	216.7	15.5	274		
0.55	2 (2790)	2.20/1.27	3	42.66	0.39	0.38	65.4	76.3	1350	min 300 max 1200	
				36.35	0.45	0.45	76.8	65.0	1151		
				31.36	0.53	0.50	89.0	56.1	993		
				27.32	0.60	0.60	102.1	48.9	865		
				23.99	0.69	0.70	116.3	42.9	759		
			21.18	0.78	0.80	131.7	37.9	670			
			2	15.17	1.09	1.10	183.9	27.1	480		
				12.92	1.28	1.25	215.9	23.1	409		
				11.15	1.48	1.50	250.2	19.9	353		

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## 113.0Ø 0.035kW - 0.55kW, with steel helical gearbox

### TECHNICAL DATA DRUM MOTOR 113LS - 3PHASE - 50HZ - DERATED RANGE

$P_N$ [kW]	np (rpm)	$I_n$ [A]	gs	i	$V_A$ [m/s]	$V_N$ [m/s]	$n_A$ [min <sup>-1</sup> ]	$M_N$ [Nm]	$F_T$ [N]	RL [mm]
0.12	4 (1364)	0.73/0.42	3	42.66	0.19	0.18	32.0	34.0	603	min 250 max 1200
				36.35	0.22	0.22	37.5	29.0	513	
				31.36	0.26	0.25	43.5	25.0	443	
				27.32	0.30	0.30	49.9	21.8	386	
				23.99	0.34	0.32	56.9	19.1	339	
			21.18	0.38	0.38	64.4	16.9	299		
			2	15.17	0.53	0.50	89.9	12.1	214	
				12.92	0.62	0.63	105.6	10.3	183	
11.15	0.72	0.70		122.3	8.9	158				
0.25	4 (1410)	1.44/0.83	3	42.66	0.20	0.20	33.1	68.6	1214	min 300 max 1200
				36.35	0.23	0.22	38.8	58.5	1035	
				31.36	0.27	0.25	45.0	50.4	893	
				27.32	0.31	0.30	51.6	43.9	778	
				23.99	0.35	0.35	58.8	38.6	683	
			21.18	0.39	0.38	66.6	34.1	603		
			2	15.17	0.55	0.50	92.9	24.4	432	
				12.92	0.65	0.63	109.1	20.8	368	
11.15	0.75	0.70		126.5	17.9	317				
0.31	4 (1380)	1.64/0.95	3	42.66	0.19	0.18	32.3	86.9	1539	min 300 max 1200
				36.35	0.22	0.22	38.0	74.1	1311	
				31.36	0.26	0.25	44.0	63.9	1131	
				27.32	0.30	0.30	50.5	55.7	985	
				23.99	0.34	0.32	57.5	48.9	865	
			21.18	0.39	0.38	65.2	43.2	764		
	2	15.17	0.54	0.50	91.0	30.9	547			
		12.92	0.63	0.60	106.8	26.3	466			
		11.15	0.73	0.70	123.8	22.7	402			
		3	21.18	0.78	0.80	132.2	21.3	377		
			2	15.17	1.09	1.10	184.6	15.2	270	
12.92	1.28	1.25		216.7	13.0	230				
11.15	1.49	1.50		251.1	11.2	198				

Derated motors are used in applications, where standard windings tend to overheat, typically in applications with no belt as modular belting, in hot environments or when thick lagging is required on shell. To gain the full benefit of the deration, the drum motor has to be operated close to or at full load. Derated motors should not be used together with Frequency Converters. In case of doubts Rulmeca offers technical support to order the optimal motor setup for the application.

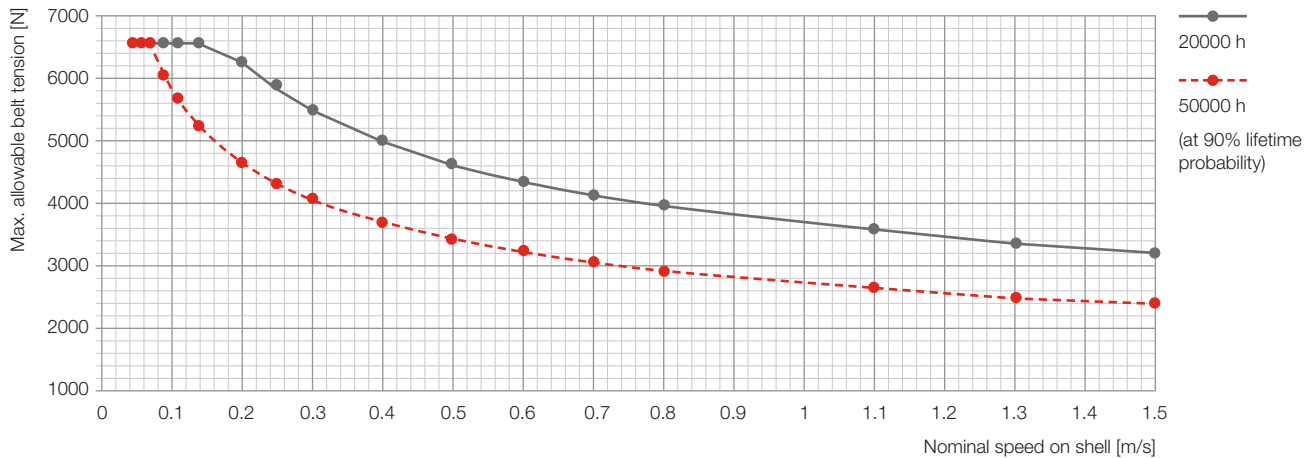
$P_N$  Nominal mechanical power  
 $np$  Number of poles  
 $rpm$  Actual rotor rpm at full load  
 $I_n$  Amperage (230/400V) at full load  
 $gs$  Gear stages  
 $i$  Gear ratio  
 $V_A$  Theoretical actual belt (tangential) speed at full load\*  
 $V_N$  Nominal belt (tangential) speed  
 $n_A$  Revolutions of shell at full load\*

$M_N$  Nominal Torque at full load  
 $F_T$  Belt pull (tangential force) on shell at full load\*  
 $RL$  Reference length  
 \* Valid for unlagged shells/ values can deviate at partly or no load conditions

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## Belt tension diagram



For the right allowable belt tension value please check the accordant nominal speed on the drum motor shell.

## STANDARD WEIGHTS FOR DRUM MOTOR 113LS

P <sub>N</sub> [kW]	np	Standard weight [kg] for standard RL [mm]														
		250	260	300	310	360	410	460	510	560	610	660	710	810	910	1010
0.04	12	7.20	7.35	7.95	8.10	8.85	9.60	10.35	11.10	11.85	12.60	13.35	14.10	18.80	20.30	21.80
0.07	12	---	---	10.10	10.25	11.00	11.75	12.50	13.25	14.00	14.75	15.50	16.25	20.95	22.45	23.95
0.08	8	7.20	7.35	7.95	8.10	8.85	9.60	10.35	11.10	11.85	12.60	13.35	14.10	18.80	20.30	21.80
0.10	6	7.20	7.35	7.95	8.10	8.85	9.60	10.35	11.10	11.85	12.60	13.35	14.10	18.80	20.30	21.80
0.15	8	---	---	10.10	10.25	11.00	11.75	12.50	13.25	14.00	14.75	15.50	16.25	20.95	22.45	23.95
	4	7.20	7.35	7.95	8.10	8.85	9.60	10.35	11.10	11.85	12.60	13.35	14.10	18.80	20.30	21.80
0.20	6	---	---	7.95	8.10	8.85	9.60	10.35	11.10	11.85	12.60	13.35	14.10	18.80	20.30	21.80
0.24	2	7.20	7.35	7.95	8.10	8.85	9.60	10.35	11.10	11.85	12.60	13.35	14.10	18.80	20.30	21.80
0.30	4	---	---	10.10	10.25	11.00	11.75	12.50	13.25	14.00	14.75	15.50	16.25	20.95	22.45	23.95
0.37	4	---	---	10.10	10.25	11.00	11.75	12.50	13.25	14.00	14.75	15.50	16.25	20.95	22.45	23.95
	2	---	---	10.10	10.25	11.00	11.75	12.50	13.25	14.00	14.75	15.50	16.25	20.95	22.45	23.95
idler (UT113LS)	-	5.35	6.10	6.85	7.60	8.35	9.10	9.85	10.60	11.35	12.10	12.85	13.60	14.35	15.10	16.60

Other RL dimension within the min & max RL available on request.

### Cable specification

Available cable options:

- Standard, screened
- Standard, unscreened
- Halogen-free, screened
- Halogen-free, unscreened

Available lengths: 1/3/5 m.

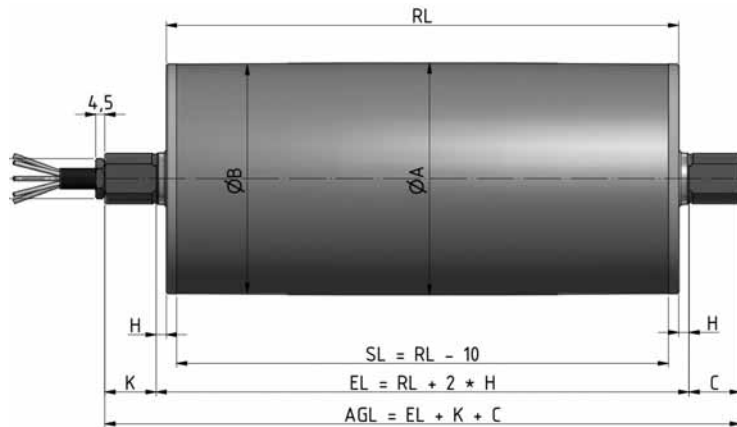
### Min. length with option

The following options increase the minimum length of the drum motor

Option	RL min with option mm
Brake	RL min + 50 mm
Encoder SKF	RL min + 0 mm
Encoder RLS	RL min + 50 mm

# DRUM MOTOR 113LS

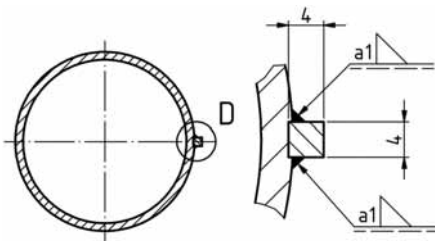
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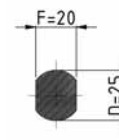
Drum motor with straight connector in stainless steel

Drum shell shape	ØA [mm]	ØB [mm]
Crowned	113.0	111.5
Cylindrical	112.0	112.0
Cylindrical with key	113.0	113.0

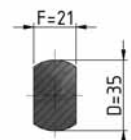
Shaft dimension	Width across flats [mm]	H [mm]	K [mm]	C [mm]
Ø25mm	20	5	25	25
Ø35mm	21	3	20	20



Drum motor with key 4x4



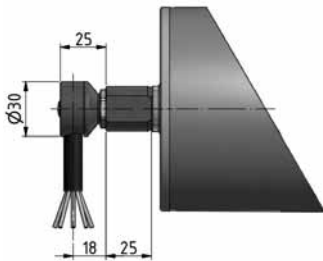
Standard shaft



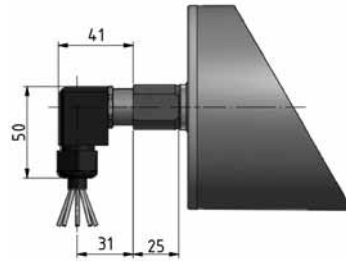
Shaft cap

# DRUM MOTOR 113LS

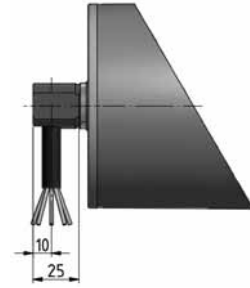
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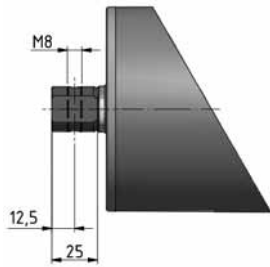
Elbow connector in stainless steel



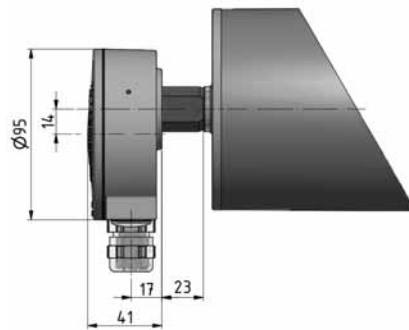
Elbow connector in polyamide



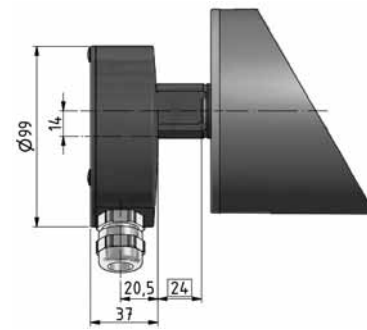
Cable slot 90° with threaded shaft



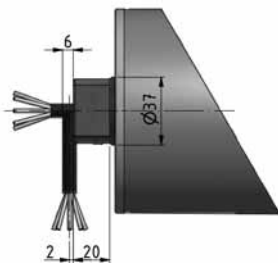
Cross-drilled and threaded shaft



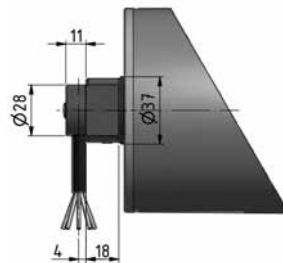
Terminal box in aluminium



Terminal box in stainless steel



Shaft cap Uni in stainless steel



Elbow connector with shaft cap in stainless steel