

# DRUM MOTOR 138LS

138.5Ø 0.10kW - 1.00kW, with steel helical gearbox

## Product description

The drum motor 138LS is a very flexible component thanks to the wide range of powers and speeds.

### Characteristics

- Salt water resistant aluminum bearing housing
- Three phase AC induction motor
- Dual voltage
- Integral motor protection
- Steel- hardened helical spur gear
- Low noise operation
- Maintenance free
- Lifetime lubrication
- Reversible operation
- Reinforced shaft for RL greater than 800 mm

### Applications

- Conveyors for heavy and frequent use
- Conveyors for transportation of packages
- Logistics applications
- Check-in desks at airports
- Conveyors for furniture manufacture
- Manufacturing of food processes
- Modular belts, steel or plastic applications
- Dry, damp and frequent 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) Special voltage on request
Frequency	50/60 Hz
Internal shaft sealing system	Double-lipped FPM or nitrile rubber, NBR
Protection rate	IP66, IP69 in TS8N Version
Thermal protection	Bimetallic Contact
Ambient temperature, 3-phase motor	-25 to +40 °C
General technical data	
Max. Roller length (RL)	1800 mm

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		Std	TS8N		
	With O-grooves		Std	TS8N		
	With chain sprockets		Std	TS8N		
Shaft	Standard		Std	TS8N		
	Cross-drilled and threaded, M8		Std	TS8N		
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  $\pm 5^\circ$ )
- TS8N with mild steel shell is possible
- Dynamic balancing

## Note

The combination of encoder and electromagnetic brake is not possible.

## Accessories

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

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**TECHNICAL DATA DRUM MOTOR 138LS - 3PHASE - 50HZ - STANDARD**

$P_N$ [kW]	np (rpm)	$I_t$ [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]						
0.10	12 (440)	1.3/0.75	3	78.40	0.04	0.04	6	162	2360	min 300 max 1800						
				66.00	0.05	0.05	7	136	1987							
			52.96	0.06	0.06	8	109	1594	2		29.56	0.11	0.10	15	61	890
			66.00	0.07	0.08	10	160	2331								
0.18	8 (670)	2.0/1.15	3	52.96	0.09	0.10	13	128	1870	min 300 max 1800						
				43.65	0.11	0.13	15	106	1542							
			29.56	0.16	0.16	23	72	1044	2		25.20	0.19	0.20	26	61	890
			66.00	0.10	0.10	14	156	2280								
0.24	6 (920)	1.55/0.9	3	52.96	0.12	0.13	17	125	1830	min 300 max 1800						
				43.65	0.15	0.16	21	103	1508							
			29.56	0.22	0.20	31	70	1021	2		25.20	0.26	0.25	36	60	871
			66.00	0.10	0.10	14	156	2280								
0.37	6 (935)	2.25/1.3	3	51.85	0.13	0.13	17	190	2776	min 320 max 1800						
				66.00	0.15	0.16	21	158	2310							
	4 (1400)	2.1/1.2	3	52.96	0.19	0.20	26	127	1854	min 300 max 1800						
				43.65	0.23	0.25	32	105	1528							
				29.56	0.34	0.32	47	71	1035							
			2	25.20	0.40	0.40	55	60	882							
				20.22	0.50	0.50	68	48	708							
				16.67	0.60	0.63	83	40	583							
12.44	0.81	0.80	111	30	435											
0.55	2 (2730)	2.3/1.3	3	77.41	0.25	0.25	35	141	2065	min 300 max 1800						
				66.00	0.30	0.32	41	121	1761							
				52.96	0.37	0.40	51	97	1413							
				43.65	0.45	0.50	62	80	1165							
			2	29.56	0.66	0.63	91	54	789							
				25.20	0.78	0.80	107	46	672							
				20.22	0.97	1.00	134	37	539							
				16.67	1.17	1.25	162	30	445							
				12.44	1.57	1.60	217	23	332							
				38.72	0.25	0.25	35	193	2818							
0.75	4 (1365)	3.6/2.1	3	32.59	0.30	0.32	41	162	2371	min 320 max 1800						
				25.20	0.39	0.40	54	126	1834							
			2	20.22	0.48	0.50	67	101	1471							
				16.67	0.59	0.63	81	83	1213							
	2 (2845)	3.1/1.8	2	25.20	0.81	0.80	112	60	880							
				20.22	1.01	1.00	139	48	706							
				16.67	1.22	1.25	169	40	582							
				12.44	1.64	1.60	226	30	434							
				1.0	2 (2810)	4.1/2.35	3	43.65	0.46		0.50	64	141	2057	min 350 max 1800	
								32.59	0.68		0.63	94	95	1393		
2	25.20	0.80	0.80				110	81	1188							
	20.22	1.00	1.00				137	65	953							
16.67	1.21	1.25	167	54	786											
12.44	1.62	1.60	223	40	586											
10.00	2.02	2.00	278	32	471											

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## 138.5Ø 0.10kW - 1.00kW, with steel helical gearbox

**TECHNICAL DATA DRUM MOTOR 138LS - 3PHASE - 50HZ - DERATED**

$P_N$ [kW]	np (rpm)	$I_f$ [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]
0.21	6 (930)	1.15/0.65	3	66.00	0.10	0.10	13.9	135	1974	min 300 max 1800
				52.96	0.13	0.13	17.4	108	1584	
				43.65	0.15	0.16	21.1	89	1305	
			2	29.56	0.23	0.20	31.1	61	884	
				25.20	0.26	0.25	36.5	52	754	
				20.22	0.33	0.32	45.5	41	605	
0.31	4 (1380)	1.4/0.8	3	66.00	0.15	0.16	20.7	134	1964	min 300 max 1800
				52.96	0.19	0.20	25.8	108	1576	
				43.65	0.23	0.25	31.3	89	1299	
			2	29.56	0.33	0.32	46.2	60	879	
				25.20	0.39	0.40	54.2	51	750	
				20.22	0.49	0.50	67.5	41	602	
				16.67	0.59	0.63	81.9	34	496	
				12.44	0.80	0.80	109.7	25	370	
0.45	2 (2740)	1.7/1.0	3	77.41	0.25	0.25	35.0	115	1684	min 300 max 1800
				66.00	0.30	0.32	41.1	98	1436	
				52.96	0.37	0.40	51.2	79	1152	
				43.65	0.45	0.50	62.1	65	949	
			2	29.56	0.66	0.63	91.7	44	643	
				25.20	0.78	0.80	107.6	38	548	
				20.22	0.97	1.00	134.0	30	440	
				16.67	1.18	1.25	162.6	25	363	
				12.44	1.58	1.60	217.9	19	271	
0.62	4 (1415)	2.7/1.55	3	38.72	0.26	0.25	36.1	154	2247	min 320 max 1800
				32.59	0.31	0.32	42.9	130	1891	
			2	25.20	0.40	0.40	55.5	100	1462	
				20.22	0.50	0.50	69.2	80	1173	
				16.67	0.61	0.63	84.0	66	967	

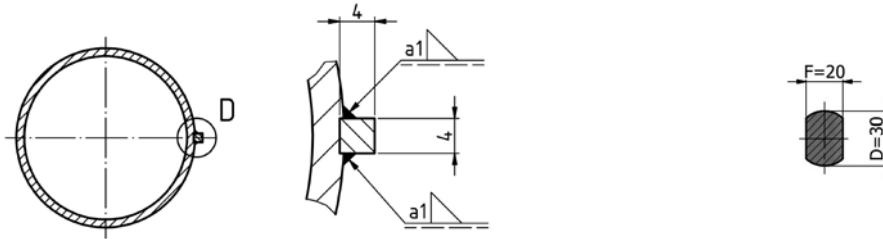
Derated motors are used in applications, where standard windings tend to overheat, typically in applications with no belt as modular belting, in hot environments or when thick lagging is required on shell. To gain the full benefit of the deration, the drum motor has to be operated close to or at full 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  
 $I_f$  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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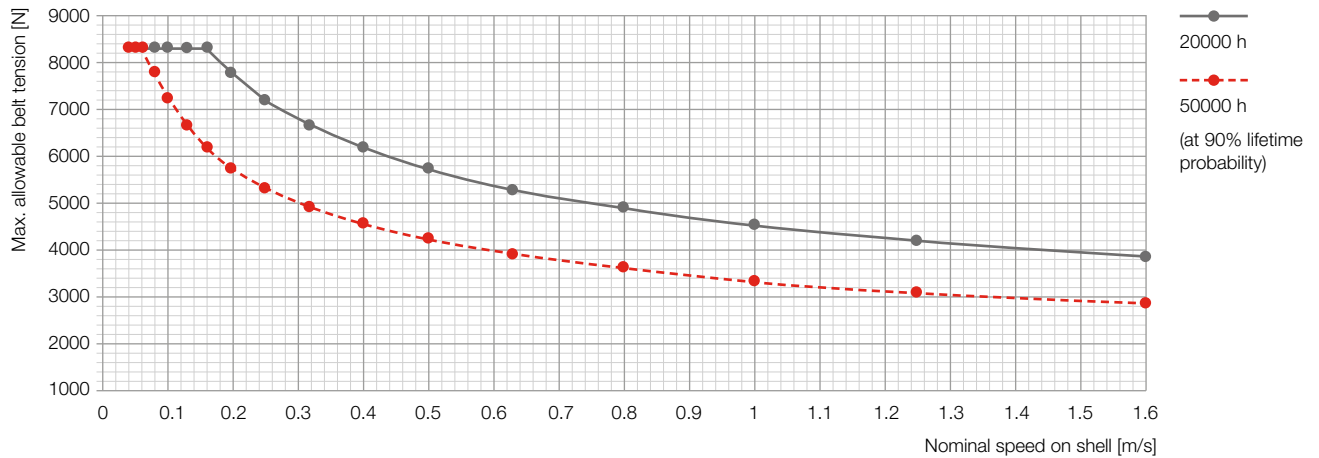
138.5Ø 0.10kW - 1.00kW, with steel helical gearbox



Drum motor with key 4x4

Standard shaft

## Belt tension diagrams



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

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## STANDARD WEIGHT DATA DRUM MOTOR 138LS

P <sub>N</sub>	np	Standard weight [kg] for standard RL [mm]													
		300	320	350	400	450	500	550	600	650	700	750	800	900	1000
0.10	12	14.0	14.5	15.0	16.0	17.0	18.0	19.0	20.0	21.5	23.0	24.0	25.0	27.0	29.0
0.18	8	14.0	14.5	15.0	16.0	17.0	18.0	19.0	20.0	21.5	23.0	24.0	25.0	27.0	29.0
0.24	6	14.0	14.5	15.0	16.0	17.0	18.0	19.0	20.0	21.5	23.0	24.0	25.0	27.0	29.0
0.37	6	---	15.0	15.6	16.5	17.5	18.5	19.5	20.5	22.0	23.5	24.5	25.5	27.5	29.5
	4	14.0	14.5	15.0	16.0	17.0	18.0	19.0	20.0	21.5	23.0	24.0	25.0	27.0	29.0
0.55	2	14.0	14.5	15.0	16.0	17.0	18.0	19.0	20.0	21.5	23.0	24.0	25.0	27.0	29.0
0.75	4	---	15.0	15.6	16.5	17.5	18.5	19.5	20.5	22.0	23.5	24.5	25.5	27.5	29.5
	2	---	---	18.0	19.0	20.0	21.0	22.0	23.0	24.5	26.0	27.0	28.0	30.0	32.0
idler (UT138LS)	-	6.5	7.0	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5	16.5	19.5	21.5

### Cable specification

Available cable options:

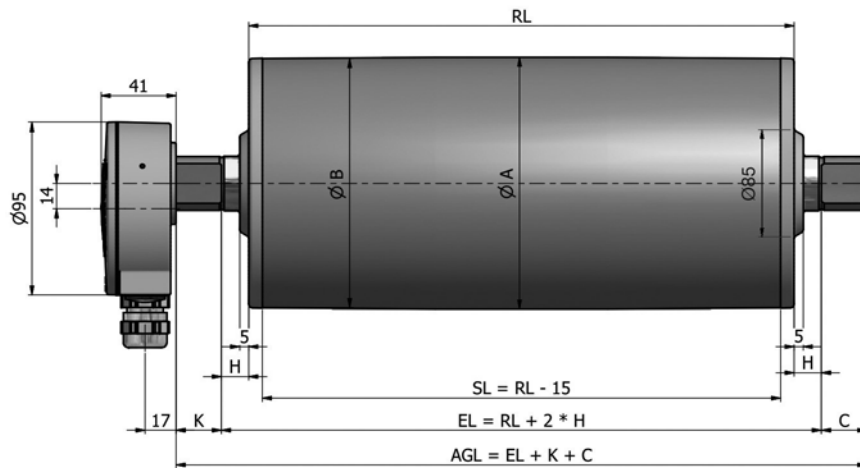
- Standard, screened
- Standard, unscreened
- Halogen-free, screened
- Halogen-free, unscreened

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



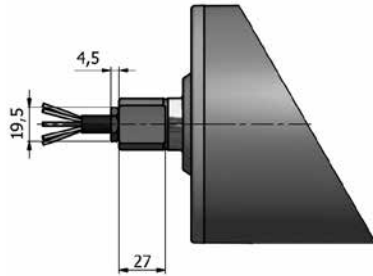
Drum motor with terminal box in aluminium

Drum shell shape	ØA [mm]	ØB [mm]
Crowned	138.5	137.0
Cylindrical	138.25	138.25
Cylindrical with key	137.0	137.0

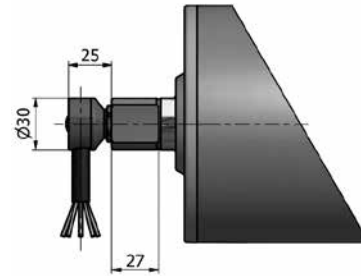
Shaft dimension	Width across flats [mm]	H [mm]	K [mm]	C [mm]
Ø30mm	20.0	15.0	27.0	25.0

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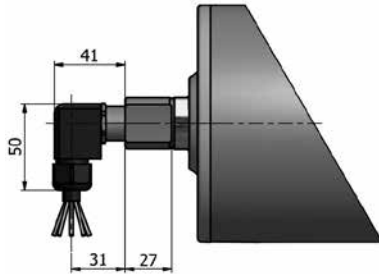
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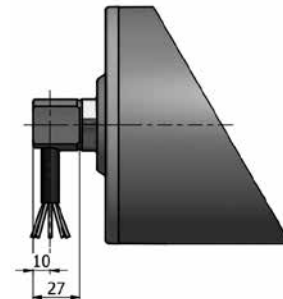
Straight connector in brass or stainless steel



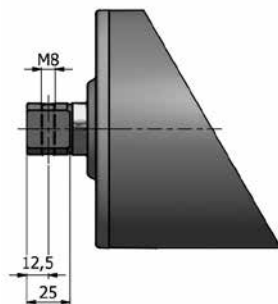
Elbow connector in stainless steel



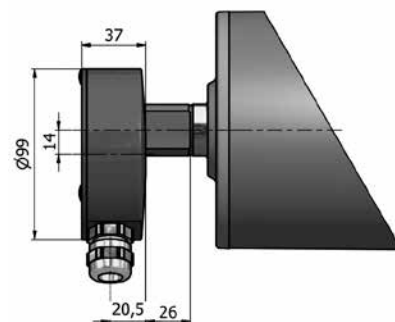
Elbow connector in polyamide



Cable slot 90° with threaded shaft



Cross-drilled and threaded shaft



Terminal box in stainless steel