Momentum Technologies GmbH

MTL113

Hybrid Drum Motor

oil-less

Efficiency IE 4

Partner Company

ROLLEX SYSTEMS

Momentum Technologies GmbH

Characteristics

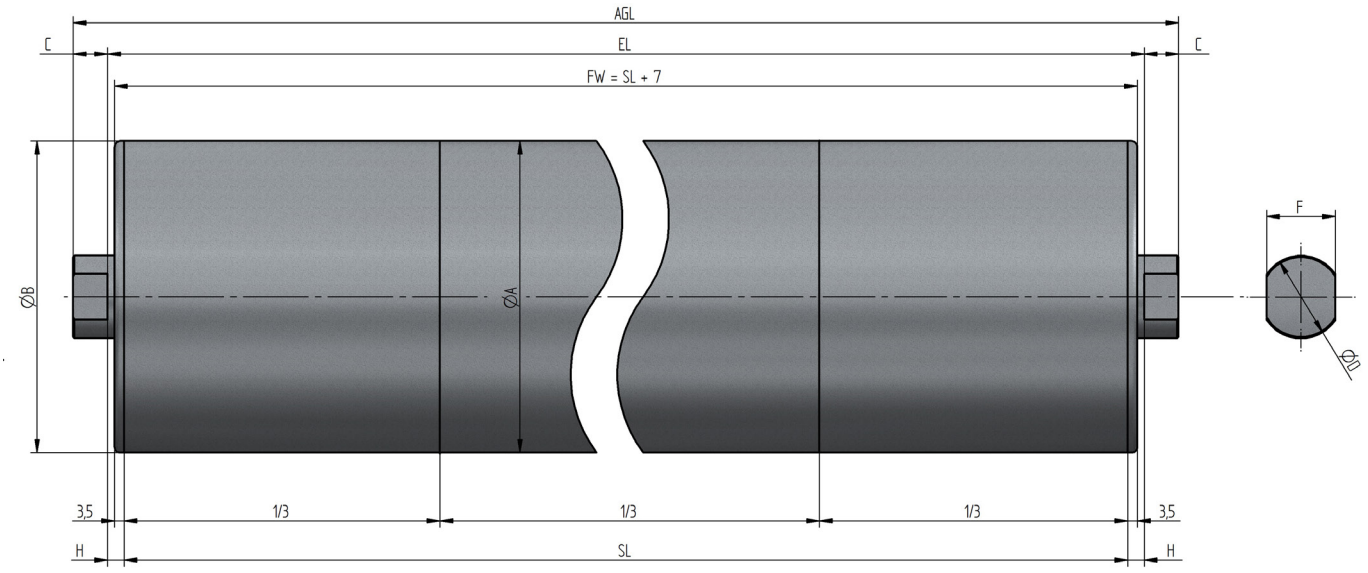
Nominal Diameter (mm)	113	**oil-free (no leakage)**
Nominal Power (kW)	0.09 - 0.57	**very high efficiency (IE4)**
Nominal Force (N)	5 - 779	minimal heating
Nominal Torque (Nm)	0.3 - 44.0	maintenance free
Nominal Speed (m/min)	1,065 - 2	steel or stainless steel construction
Nominal Speed (m/s)	17.7 - 0.03	hardened steel planetary gear
Nominal Speed (U/min)	3,000 - 6	with cable gland

Drum motors listed on the following pages are available with short lead times.

Technical Data

Type of motor	AC hybrid permanent magnet motor
Connection	mains operation or frequency inverter
Voltage	230/400 V ± 5 % 50 Hz (alternatives available on request) single or dual voltage (Δ/Y)
Motor winding insulation class	F
Thermal protection	thermal switch
Temperature range	+5 °C to +40 °C (standard) for operation with belt low temperature range to -25 °C (optional)
Protection class	IP66 (standard), IP62 or IP69K optional
Electrical connection	cable shielded 4 x 0.5 qmm + 2 x 0.25 qmm (single voltage) 7 x 0.5 qmm + 2 x 0.25 qmm (dual voltage)

Dimensions



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Dimensions Shell

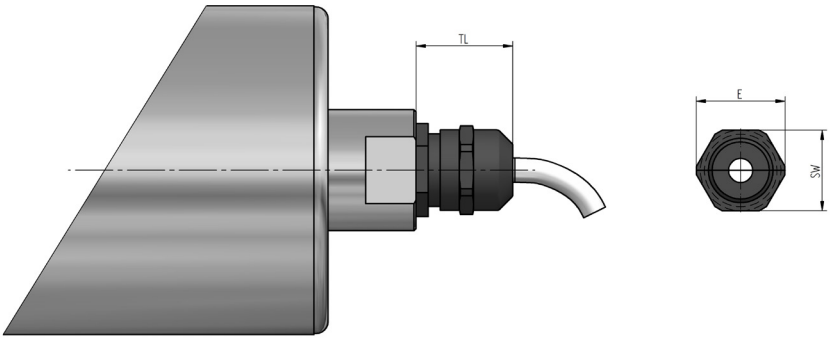
Typ	ØA (mm)	ØB (mm)	shell length max.* (mm)
crowned	113.5	112.0	900
cylindrical	112.0	112.0	900
cylindrical with key	113.0	113.0	900

*longer motors available on request

Dimensions Shaft

	ØD (mm)	F (mm)	C (mm)	H (mm)	cable gland	voltage available
Standard	30.0	25.0	12.5	6.0	M20	single or dual voltage
Option	25.0	20.0	12.5	6.0	M16	single or dual voltage
Option	25.0	20.0	25.0	10.0	M16	single or dual voltage

Dimensions Cable Connection



	SW (mm)	E (mm)	TL (mm)
M20 Brass / Stainless Steel	24	27	27-30
M16 Brass	20	22	26-28
M16 Stainless Steel	22	24	26-28

Construction / Material variants

Component	**Variants**	**Standard**	**Option**
Tube	crowned	Steel	Stainless steel
	cylindrical	Steel	Stainless steel
	cylindrical with key	Steel	Stainless steel
	flat rubber lagging	Steel	Stainless steel
	profiled rubber lagging	Steel	Stainless steel
	sprocket	Steel	Stainless steel
Shaft		Steel	Stainless steel
Cover	laser engraved nameplate	Steel	Stainless steel
Labyrinth seal		Galvanised steel	Stainless steel A2
Electrical connection	straight cable gland	Brass	Stainless steel A2
	straight cable gland	Steel	Stainless steel A2
	terminal box	Stainless steel	

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Motor variants

MTL113-0.09-2

Rated values refer to the drum tube						
Power	Rotational Speed	Linear Speed		Torque	Belt pull	Min. tube length
kW	RPM	m/min	m/s	Nm	N	mm
0.09	250	89	1.48	3.2	56	240
	188	67	1.11	4.2	75	240
	150	53	0.89	5.3	93	240
	94	33	0.55	8.4	149	240
	50	18	0.30	15.1	268	260
	38	13	0.22	20.2	357	260
	30	11	0.18	25.2	446	260

MTL113-0.38-2

Rated values refer to the drum tube						
Power	Rotational Speed	Linear Speed		Torque	Belt pull	Min. tube length
kW	RPM	m/min	m/s	Nm	N	mm
0.38	250	89	1.48	13.5	240	270
	188	67	1.11	18.0	319	270
	150	53	0.89	22.6	399	270
	94	33	0.55	36.1	639	270
	50	18	0.30	44.0	779	290
	38	13	0.22	44.0	779	290
	30	11	0.18	44.0	779	290

MTL113-0.57-2

Rated values refer to the drum tube						
Power	Rotational Speed	Linear Speed		Torque	Belt pull	Min. tube length
kW	RPM	m/min	m/s	Nm	N	mm
0.57	250	89	1.48	19.2	339	300
	188	67	1.11	25.6	453	300
	150	53	0.89	32.0	566	300
	94	33	0.55	44.0	779	300
	50	18	0.30	44.0	779	320
	38	13	0.22	44.0	779	320
	30	11	0.18	44.0	779	320

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Motor data

Motor		MTL113-0.09-2	MTL113-0.38-2	MTL113-0.57-2
Nominal power [kW]	P_N	0.09	0.38	0.57
Pole pairs		1	1	1
Nominal rotational speed [min^{-1}]	n_N	3,000	3,000	3,000
Connection		Δ/Y	Δ/Y	Δ/Y
Nominal voltage [V]	U_N	230/400	230/400	230/400
Nominal frequency [Hz]	f_N	50	50	50
Nominal current per phase [A_{rms}]	I_N	0.73/0.42	2.23/1.29	2.74/1.58
Power factor	cos φ	0.91	0.92	0.71
Efficiency	η	0.82	0.83	0.84
Rotor inertia [kgcm²]	J_R	1.6	3.2	4.8
Ratio starting current - nominal current	I_A/I_N	6	6	6
Ratio starting torque - nominal torque	M_A/M_N	1-1.5*	1-1.5*	1-1.5*

*starting torque depends on load

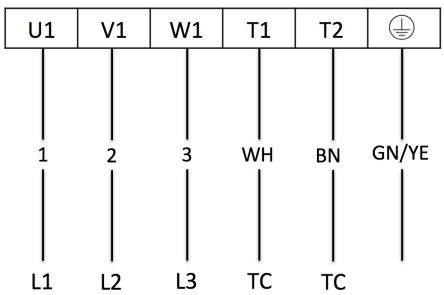
Cable specifications

Power cable

	Single voltage	Dual voltage
Construction	4 x 0.50 mm² + (2 x 0.25 mm²)C shielded	7 x 0.50 mm² + (2 x 0.25 mm²)C shielded
Voltage	600 V (0.5 mm²)	600 V (0.5 mm²)
Sheath material	PUR (TPE-U)	PUR (TPE-U)
Outer diameter	7.6 mm (+/- 0.25)	7.7 mm (+/- 0.25)
Sheath colour	orange (similar to RAL 2003)	orange (similar to RAL 2003)
Temperature range (fixed in place)	-50 °C to +105 °C	-50 °C to +105 °C
Minimum bending radius (fixed in place)	7.5 x D	7.5 x D
flame retardant	yes	yes
halogen free	yes	yes
oil resistant	yes	yes
UL	AWM STYLE 21928/11559 105 °C 600 V	AWM STYLE 21928/11559 105 °C 600 V

Pin assignment single voltage

Colour/Code	Function
black/1	U1
black/2	V1
black/3	W1
green-yellow	PE
brown	thermal protection
white	thermal protection



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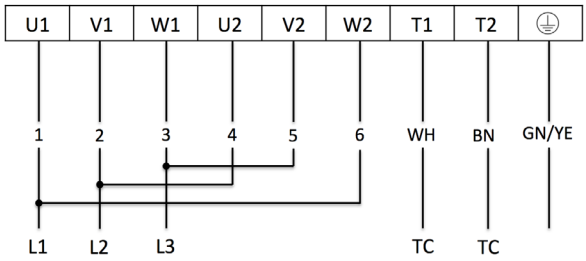
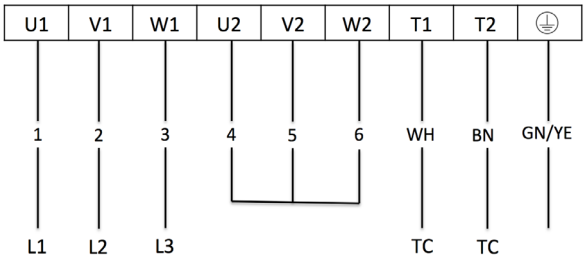
Pin assignment dual voltage

Colour / Code	Function
black / 1	U1
black / 2	V1
black / 3	W1
black / 4	U2
black / 5	V2
black / 6	W2
green-yellow	PE
brown	thermal protection
white	thermal protection

Connection Δ (direction of rotation: clockwise, seen from cable side)



Connection Y (direction of rotation: clockwise, seen from cable side)



Thermal protection

The MTL drum motor is fitted as standard with a bimetallic thermal protector (normally closed contact).

The thermal switch has to be connected in series with a suitable contactor or relay, so that the motor supply voltage is safely switched off when the switch trips.

Thermal protector, technical data

Rated voltage AC	**250 V**		
Rated current AC (cos φ = 1)	2.5 A	Lifetime (cycles)	10,000
Rated current AC (cos φ = 0.6)	1.6 A	Lifetime (cycles)	10,000
Max. switching current AC (cos φ = 1)	6.3 A	Lifetime (cycles)	3,000
Rated voltage DC	**12 V**		
Max. switching current DC	40 A	Lifetime (cycles)	10,000
Contact resistance	< 50 mΩ		