



MTL135
MTL138
Hybrid Drum Motor



Partner Company



Characteristics

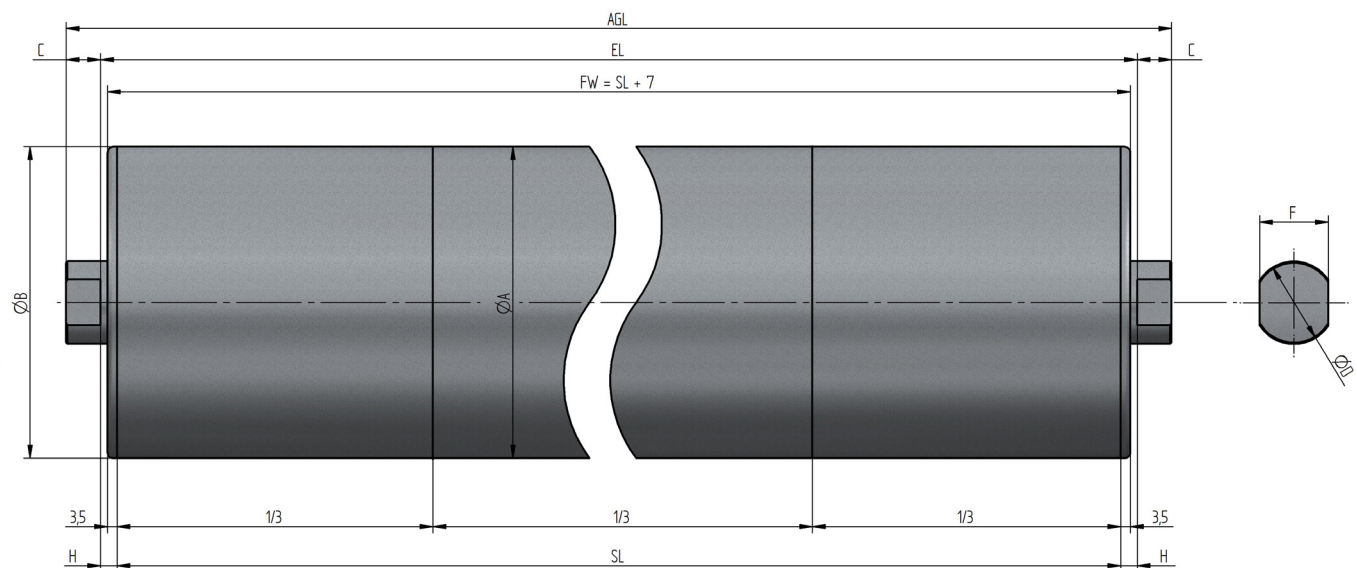
Nominal Diameter (mm)	137	oil-free (no leakage)
Nominal Power (kW)	0.09 - 0.75	very high efficiency (IE4)
Nominal Force (N)	4 - 1,460	minimal heating
Nominal Torque (Nm)	0.28 - 100	maintenance free
Nominal Speed (m/min)	1,291 - 0.7	steel or stainless steel construction
Nominal Speed (m/s)	21.5 - 0.01	hardened steel planetary gear
Nominal Speed (U/min)	3,000 - 1.5	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 $\pm$ 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) 4 x 0.75 qmm + 2 x 0.34 qmm (single voltage) 7 x 0.5 qmm + 2 x 0.25 qmm (dual voltage)

Dimensions



Dimensions Shell

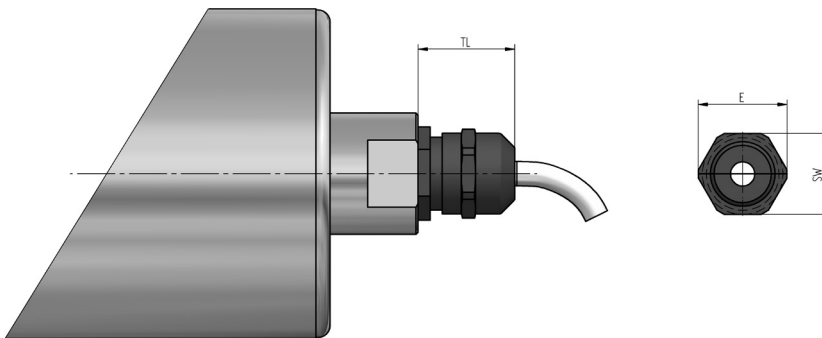
Type	ØA (mm)	ØB (mm)	shell length max.* (mm)
crowned	138.0	136.0	900
cylindrical	136.0	136.0	900
cylindrical with key	137.0	137.0	900

* 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	30.0	20.0	25.0	15.0	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
	angled cable gland	Steel	Stainless steel A2
	terminal box	Stainless steel	

Motor variants

MTL135-0.09-2

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	188	81	1.34	4.2	61	240
	150	65	1.08	5.3	77	240
	94	40	0.67	8.4	123	240
	50	22	0.36	15.1	221	260
	38	16	0.27	20.2	294	260
	30	13	0.22	25.2	368	260
	25	11	0.18	30.2	441	260

MTL135-0.38-2

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	188	81	1.34	18.0	263	270
	150	65	1.08	22.6	329	270
	94	40	0.67	36.1	527	270
	50	22	0.36	44.0	642	290
	38	16	0.27	44.0	642	290
	30	13	0.22	44.0	642	290
	25	11	0.18	44.0	642	290

MTL135-0.57-2

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	188	81	1.34	25.6	373	300
	150	65	1.08	32.0	467	300
	94	40	0.67	44.0	642	300
	50	22	0.36	44.0	642	320
	38	16	0.27	44.0	642	320
	30	13	0.22	44.0	642	320
	25	11	0.18	44.0	642	320

MTL138-0.25-4

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
0.25	125	54	0.90	17.7	258	400
	94	40	0.67	23.6	344	400
	75	32	0.54	29.4	430	400
	60	26	0.43	36.8	537	400
	43	18	0.31	51.5	752	400
	38	16	0.27	59.8	860	400
	30	13	0.22	73.6	1,074	400
	21	9	0.15	100.0	1,460	400

MTL138-0.37-4

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
0.37	125	54	0.90	25.9	379	420
	94	40	0.67	34.6	505	420
	75	32	0.54	43.2	631	420
	60	26	0.43	54.1	789	420
	43	18	0.31	75.7	1,105	420
	38	16	0.27	86.5	1,262	420
	30	13	0.22	100.0	1,460	420
	21	9	0.15	100.0	1,460	420

MTL138-0.55-4

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
0.55	125	54	0.90	38.6	564	410
	94	40	0.67	51.5	752	410
	75	32	0.54	64.4	940	410
	60	26	0.43	80.5	1,175	410
	43	18	0.31	100.0	1,460	410
	38	16	0.27	100.0	1,460	410
	30	13	0.22	100.0	1,460	410
	21	9	0.15	100.0	1,460	410

MTL138-0.75-4

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
0.75	125	54	0.90	52.4	766	440
	94	40	0.67	69.9	1,021	440
	75	32	0.54	87.4	1,276	440
	60	26	0.43	100.0	1,460	440
	43	18	0.31	100.0	1,460	440
	38	16	0.27	100.0	1,460	440
	30	13	0.22	100.0	1,460	440
	21	9	0.15	100.0	1,460	440

Motor data

Motor		MTL135-0.09-2	MTL135-0.38-2	MTL135-0.57-2
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	$\cos \varphi$	0.91	0.92	0.71
Efficiency	η	0.82	0.83	0.84
Rotor inertia [kgcm^2]	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*

Motor		MTL138-0.25-4	MTL138-0.37-4	MTL138-0.55-4	MTL138-0.75-4
Nominal power [kW]	P_N	0.25	0.37	0.55	0.75
Pole pairs		2	2	2	2
Nominal rotational speed [min^{-1}]	n_N	1,500	1,500	1,500	1,500
Connection		Δ/Y	Δ/Y	Δ/Y	Δ/Y
Nominal voltage [V]	U_N	230/400	230/400	230/400	230/400
Nominal frequency [Hz]	f_N	50	50	50	50
Nominal current per phase [A_{rms}]	I_N	1.02/0.59	1.35/0.78	1.69/0.97	2.20/1.26
Power factor	$\cos \varphi$	0.75	0.82	0.94	0.97
Efficiency	η	0.81	0.84	0.86	0.87
Rotor inertia [kgcm^2]	J_R	5.1	7.3	15.4	22.1
Ratio starting current - nominal current	I_A/I_N	4.5	4.8	6.6	7.8
Ratio starting torque - nominal torque	M_A/M_N	1-1.5*	1-1.5*	1-1.5*	1-1.5*

*starting torque depends on load

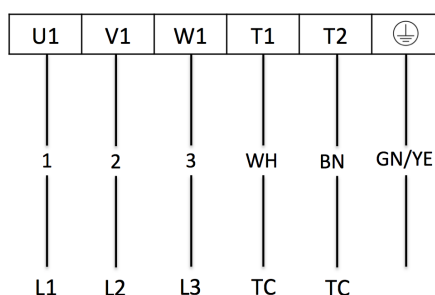
Cable specifications

Power cable

	Single voltage (Standard)	Single voltage (Option)	Dual voltage
Construction	4 x 0.50 mm ² + (2 x 0.25 mm ²)C shielded	4 x 0.75 mm ² + (2 x 0.34 mm ²)C shielded	7 x 0.50 mm ² + (2 x 0.25 mm ²)C shielded
Voltage	600 V (0.5 mm ²)	600 V (0.75 mm ²)	600 V (0.5 mm ²)
Sheath material	PUR (TPE-U)	PUR (TPE-U)	PUR (TPE-U)
Outer diameter	7.6 mm (+/- 0.25)	7.4 mm (+/- 0.25)	7.7 mm (+/- 0.25)
Sheath colour	orange (similar to RAL 2003)		
Temperature range (fixed in place)	-50 °C to +105 °C		
Minimum bending radius (fixed in place)	7.5 x D		
flame retardant	yes		
halogen free	yes		
oil resistant	yes		
UL	AWM STYLE 21928/11559 105 °C 600 V		

Pin assignment single voltage

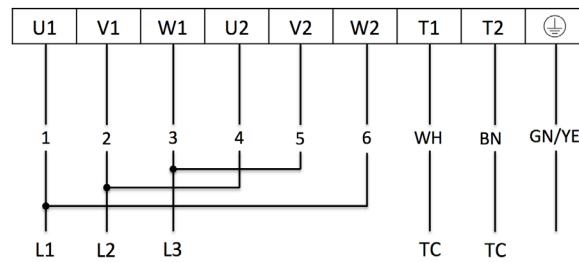
Colour/Code	Function
black / 1	U1
black / 2	V1
black / 3	W1
green-yellow	PE
brown	thermal protection
white	thermal protection



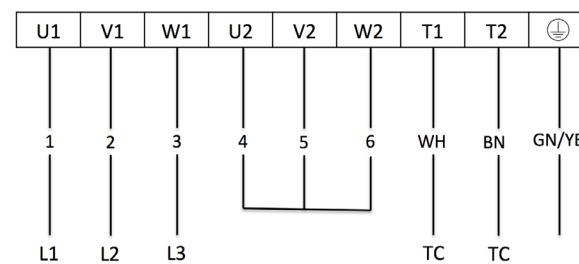
Pin assignment dual voltage

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.