

# DRUM MOTOR

## DM SERIES

### DM 0138



Practice-oriented, scalable and thought out in detail: The new drum motor DM 0138 makes it easy to build a completely individual conveyor system and is dimensioned for the higher requirements of permissible belt tension now demanded from industry and belt manufacturers alike.

With a broader speed spectrum, the DM 0138 covers all possible applications. The clever plug-and-play connection significantly simplifies the installation. Each motor is approved, tested, and modularized so that it can be produced and delivered around the world in the shortest amount of time.

The modular design of the DM 0138 allows a free combination of individual module groups, such as shaft, end housing, shell or steel gear, to perfectly meet the requirements of an application. In addition, various options, such as encoder, brake, backstop, rubber laggings, etc., as well as different accessories are available.

With the platform concept of the DM 0138, it is possible to cover all internal logistics applications in the food processing sector, as well as in industry, distribution and airports.



## Technical data

	<b>Asynchronous squirrel cage motor</b>
<b>Insulation class of motor windings</b>	Class F, IEC 34 (VDE 0530)
<b>Voltage</b>	230/400 V $\pm 5\%$ (IEC 34/38) Most of the common international voltages and frequencies are available upon request
<b>Frequency</b>	50 Hz
<b>Shaft seal, internal</b>	NBR
<b>Protection rate Motor*</b>	IP69K
<b>Thermal protection</b>	Bi-metal switch
<b>Operating mode</b>	S1
<b>Ambient temperature, 3-phase motor</b>	+2 to +40 °C Low temperature ranges on request
<b>Ambient temperature, 3-phase motor for applications with form-fit belts or no belt</b>	+2 to +25 °C

\* The protection rate of the cable connector may deviate.

## Design variants and accessories

<b>Laggings</b>	Lagging for friction drive belts Lagging for modular plastic belts Lagging for positive drive solid homogeneous belts
<b>Sprockets</b>	Sprockets only on request
<b>Options</b>	Backstop Electromagnetic holding brake and rectifier* Encoder* Balancing Plug connection
<b>Oils</b>	Food-grade oils (EU, FDA, NSF H1)
<b>Certificate</b>	cULus safety certificates
<b>Accessories</b>	Idler pulleys; conveyor rollers; mounting brackets; cables; inverters

\* Depending on the output and speed, the motor extends by 50 – 70 mm.

# DRUM MOTOR

## DM SERIES

### DM 0138

#### Material variants

The following components can be selected for the drum motor and the electrical connection. The combination of components depends on the material used.

Component	Version	Aluminum	Mild steel	Stainless steel	Brass/nickel	Technopolymer
<b>Shell</b>	Crowned		●	●		
	Cylindrical		●	●		
	Cylindrical + key for sprockets		●	●		
<b>End housing</b>	Standard	●		●		
<b>Shaft</b>	Standard			●		
	Cross-drilled thread			●		
<b>Gear boxes</b>	Planetary gear box		●			
<b>Electrical connector</b>	Straight connector			●	●	●
	Straight hygienic connector			●		
	Elbow connector			●		●
	Terminal box	●		●		●
	Straight plug connection			●		
	90° plug connection			●		
	90° hygienic connector			●		
<b>Motor winding</b>	Asynchronous motor					
<b>External seal</b>	PTFE					

# DRUM MOTOR DM SERIES DM 0138

## Motor variants

### Mechanical data for 3-phase asynchronous motor with steel gear

$P_N$ [W]	$n_p$	gs	i	v [m/s]	$n_A$ [min <sup>-1</sup> ]	$M_A$ [Nm]	$F_N$ [N]	$FW_{MIN}$ [mm]	$SL_{MIN}$ [mm]
160	4	3	252	0.04	5.5	238	3454	307	300
160	4	3	150	0.07	9.2	142	2056	307	300
160	4	3	120	0.08	11.5	113	1645	307	300
160	4	3	100	0.1	13.9	95	1371	307	300
370	4	2	73.8	0.14	18.8	169	2452	307	300
370	4	2	63	0.16	22.0	144	2093	307	300
370	4	2	49.2	0.2	28.2	113	1635	307	300
370	4	2	42	0.24	33.1	96	1395	307	300
370	4	2	36	0.28	38.6	83	1196	307	300
370	4	2	30	0.33	46.3	69	997	307	300
370	4	2	27	0.37	51.4	62	897	307	300
370	4	2	24	0.42	57.9	55	797	307	300
370	4	2	20	0.5	69.5	46	664	307	300
370	4	2	16	0.63	86.8	37	532	307	300
370	4	2	12	0.84	115.8	28	399	307	300
370	4	1	9	1.11	154.3	22	315	307	300
550	2	2	73.8	0.28	38.7	123	1776	307	300
550	2	2	63	0.33	45.3	105	1516	307	300
550	2	2	49.2	0.42	58.0	82	1184	307	300
550	2	2	42	0.49	68.0	70	1011	307	300
550	2	2	36	0.57	79.3	60	866	307	300
550	2	2	30	0.69	95.2	50	722	307	300
550	2	2	27	0.76	105.7	45	650	307	300
550	2	2	24	0.86	119.0	40	578	307	300
550	2	2	20	1.03	142.8	33	481	307	300
550	2	2	16	1.29	178.4	27	385	307	300
550	2	2	12	1.72	237.9	20	289	307	300
550	2	1	9	2.29	317.2	16	228	307	300

# DRUM MOTOR

## DM SERIES

### DM 0138



$P_N$ [W]	$n_p$	gs	i	v [m/s]	$n_A$ [min <sup>-1</sup> ]	$M_A$ [Nm]	$F_N$ [N]	$FW_{MIN}$ [mm]	$SL_{MIN}$ [mm]
750	4	2	42	0.24	33.3	194	2807	357	350
750	4	2	36	0.28	38.9	166	2406	357	350
750	4	2	30	0.34	46.7	138	2005	357	350
750	4	2	27	0.37	51.9	125	1805	357	350
750	4	2	20	0.51	70.0	92	1337	357	350
750	4	2	16	0.63	87.5	74	1069	357	350
750	4	2	12	0.84	116.7	55	802	357	350
750	4	1	9	1.12	155.6	44	633	357	350
1000	2	2	49.2	0.42	57.9	150	2169	357	350
1000	2	2	42	0.49	67.9	128	1851	357	350
1000	2	2	36	0.57	79.2	109	1587	357	350
1000	2	2	30	0.69	95.0	91	1322	357	350
1000	2	2	27	0.76	105.6	82	1190	357	350
1000	2	2	24	0.86	118.8	73	1058	357	350
1000	2	2	20	1.03	142.6	61	882	357	350
1000	2	2	16	1.29	178.2	49	705	357	350
1000	2	2	12	1.72	237.6	36	529	357	350
1000	2	1	9	2.29	316.8	29	418	357	350

$P_N$  = Rated power  
 $n_p$  = Number of poles  
 gs = Gear stages  
 i = Speed ratio  
 v = Speed

$n_A$  = Shell rated speed  
 $M_A$  = Drum motor rated torque  
 $F_N$  = Drum motor rated belt pull  
 $FW_{MIN}$  = Minimum drum width  
 $SL_{MIN}$  = Minimum shell length

# DRUM MOTOR DM SERIES DM 0138

## Electrical data for 3-phase asynchronous motor

$P_N$ [W]	$n_p$	$n_N$ [min <sup>-1</sup> ]	$f_N$ [Hz]	$U_N$ [V]	$I_N$ [A]	$\cos\varphi$	$\eta$ [%]	$J_R$ [kgcm <sup>2</sup> ]	$I_s/I_N$	$M_s/M_N$	$M_B/M_N$	$M_P/M_N$	$M_N$ [Nm]	$R_M$ [Ω]	$U_{SH\Delta}$ [V]	$U_{SHY}$ [V]
160	4	1390	50	400	0.46	0.76	0.67	3.98	3.5	1.86	2.13	1.86	1.1	60.2		30.7
160	4	1390	50	230	0.79	0.76	0.67	3.98	3.5	1.86	2.13	1.86	1.1	60.2	18.2	
370	4	1389	50	400	1.01	0.75	0.71	6.48	4.07	2.24	2.28	2.00	2.5	21.1		23.7
370	4	1389	50	230	1.74	0.75	0.71	6.48	4.07	2.24	2.28	2.00	2.5	21.1	13.7	
550	2	2855	50	400	1.28	0.77	0.80	4.21	5.49	2.82	3.26	2.82	1.8	11.8		17.4
550	2	2855	50	230	2.21	0.77	0.80	4.21	5.49	2.82	3.26	2.82	1.8	11.8	10.1	
750	4	1400	50	400	1.86	0.77	0.77	11.45	4.47	2.29	2.41	2.07	5.1	9.1		19.4
750	4	1400	50	230	3.22	0.77	0.77	11.45	4.47	2.29	2.41	2.07	5.1	9.1	11.2	
1000	2	2851	50	400	2.03	0.84	0.84	7.45	6.25	2.91	3.12	2.91	3.4	5.7		14.7
1000	2	2851	50	230	3.52	0.84	0.84	7.45	6.25	2.91	3.12	2.91	3.4	5.7	8.5	

$P_N$	= Rated power	$I_s/I_N$	= Ratio of startup current – rated current
$n_p$	= Number of poles	$M_s/M_N$	= Ratio of startup torque – rated torque
$n_N$	= Rated speed of rotor	$M_B/M_N$	= Ratio of pull-out torque – rated torque
$f_N$	= Rated frequency	$M_P/M_N$	= Ratio of pull-up torque – rated torque
$U_N$	= Rated voltage	$M_N$	= Rated torque of rotor
$I_N$	= Rated current	$R_M$	= Branch resistance
$\cos\varphi$	= Power factor	$U_{SH\Delta}$	= Heater voltage in delta connection
$\eta$	= Efficiency	$U_{SHY}$	= Heater voltage in star connection
$J_R$	= Rotor moment of inertia		

# DRUM MOTOR

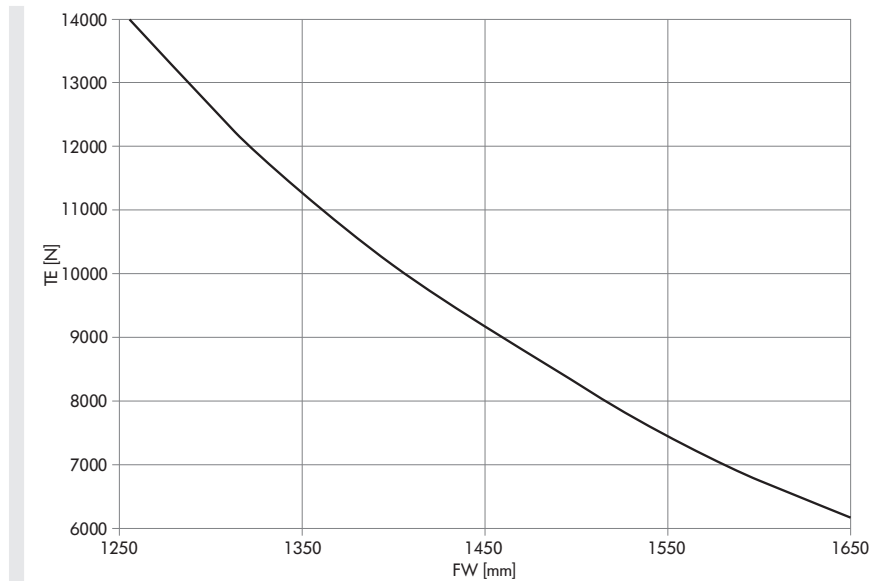
## DM SERIES

### DM 0138

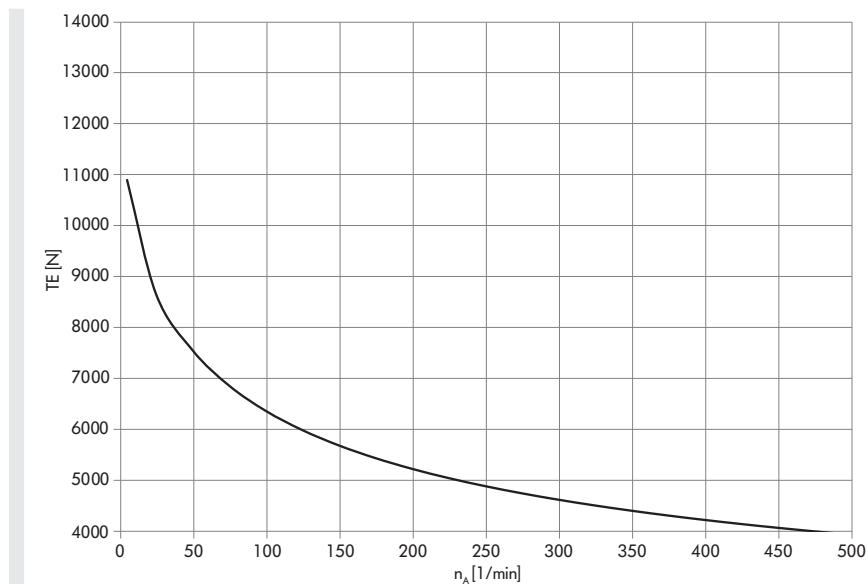


#### Belt tension diagrams

##### Belt tension depending on drum width



##### Belt tension depending on rated speed of shell



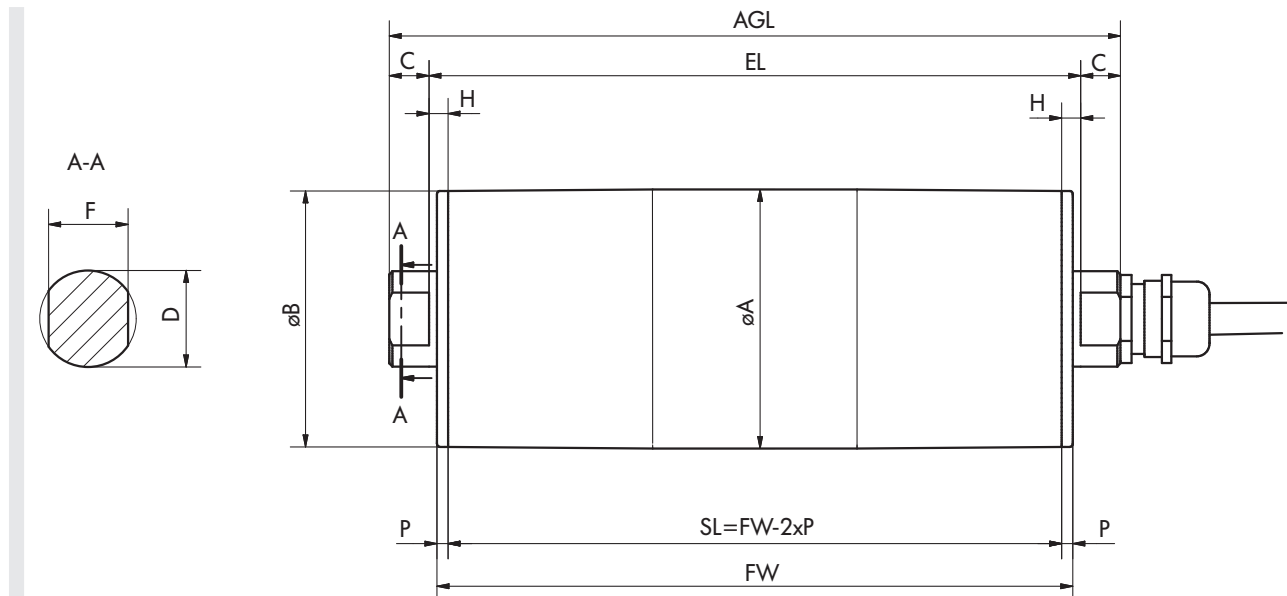
**Note:** The correct value for the maximum permissible belt tension is determined from the speed of the drum motor. When selecting the motor, also check whether the maximum permissible TE value fits the desired drum width (FW). The belt tension diagrams apply only to standard shafts.

- TE = Belt tension
- $n_A$  = Shell rated speed
- FW = Drum width

# DRUM MOTOR DM SERIES DM 0138

## Dimensions

### Drum motor



Type	A [mm]	B [mm]	C [mm]	D [mm]	F [mm]	H [mm]	P [mm]	SL [mm]	EL [mm]	AGL [mm]
DM 0138 crowned	138	136	25	30	25	15	3.5	FW - 7	FW + 23	FW + 73
	138	136	25	30	20	15	3.5	FW - 7	FW + 23	FW + 73
DM 0138 cylindrical	136	136	25	30	25	15	3.5	FW - 7	FW + 23	FW + 73
	136	136	25	30	20	15	3.5	FW - 7	FW + 23	FW + 73
DM 0138 cylindrical + key	137	137	25	30	25	15	3.5	FW - 7	FW + 23	FW + 73
	137	137	25	30	20	15	3.5	FW - 7	FW + 23	FW + 73