DRUM MOTOR
DM SERIES
DM 0217

Practice-oriented, scalable and thought out in detail: The new drum motor DM 0217 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 0217 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 0217 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 0217, it is possible to cover all internal logistics applications in the food processing sector, as well as in industry, distribution and airports.

Technical data

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

* The protection rate of the cable connector may deviate.

Design variants and accessories

Laggings	Lagging for friction drive belts Lagging for modular plastic belts Lagging for positive drive solid homogeneous belts
Sprockets	Sprockets only on request
Options	Backstop Electromagnetic holding brake and rectifier* Encoder* Balancing Plug connection (up to max. 1100 W)
Oils	Food-grade oils (EU, FDA, NSF H1)
Certificate	cULus safety certificates
Accessories	Idler pulleys; conveyor rollers; mounting brackets; cables; inverters

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

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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
Shell	Crowned		●	●		
	Cylindrical		●	●		
	Cylindrical + key		●	●		
End housing	Standard	●		●		
Shaft	Standard			●		
	Cross-drilled thread			●		
Gear boxes	Spur gear box		●			
Electrical connector	Straight connector			●	●	●
	Straight hygienic connector			●		
	Elbow connector			●		●
	Terminal box	●		●		●
	90° hygienic connector			●		
Motor winding	Asynchronous motor					
External seal	PTFE					

Motor variants

Mechanical data for 3-phase asynchronous motor

P_N [W]	n_P	gs	i	v [m/s]	n_A [min^{-1}]	M_A [Nm]	F_N [N]	FW_{MIN} [mm]	SL_{MIN} [mm]
370	8	3	62.37	0.126	11.1	300.6	2764	410	400
550	6	3	62.37	0.154	13.5	365.2	3358	410	400
550	6	3	46.56	0.207	18.1	272.6	2506	410	400
750	4	3	62.37	0.247	21.7	310.6	2856	410	400

P_N [W]	n_P	gs	i	v [m/s]	n_A [min^{-1}]	M_A [Nm]	F_N [N]	FW_{MIN} [mm]	SL_{MIN} [mm]
1100	8	2	31.11	0.254	22.3	451.8	4154	410	500
1100	4	3	46.56	0.323	28.4	348.8	3207	410	400
1100	4	3	39.31	0.382	33.62	294.5	2708	410	400
1100	4	3	31.56	0.476	41.8	263.4	2174	410	400
1100	4	3	24.60	0.611	53.7	184.3	1695	410	400
1100	4	2	19.64	0.766	67.2	150.1	1380	410	400
1100	4	2	14.66	1.026	90.1	112.1	1030	410	400
1100	4	2	12.38	1.215	106.7	94.6	870	410	400
1100	2	3	24.60	1.317	115.7	85.4	786	410	400
1100	2	2	19.64	1.650	144.9	69.6	640	410	400
1100	2	2	14.66	2.211	194.1	51.9	478	410	400
1100	2	2	12.38	2.618	229.9	43.9	403	410	400
1100	2	2	9.65	3.357	294.8	34.2	314	410	400
1500	6	2	27.53	0.397	34.9	394.5	3628	510	500
1500	4	2	31.11	0.516	45.3	303.6	2791	510	550
1500	4	2	27.53	0.583	51.2	268.7	2470	510	500
1500	4	2	20.10	0.799	70.1	196.2	1804	510	500
1500	4	2	16.80	0.956	83.9	163.9	1507	510	500
2200	4	2	31.11	0.520	45.6	442.2	4066	510	500
2200	4	2	27.53	0.587	51.6	391.4	3599	510	500
2200	4	2	20.10	0.804	70.6	285.7	2627	510	500
2200	4	2	16.80	0.963	84.5	238.8	2196	510	500
2200	2	2	27.53	1.156	101.5	198.9	1829	510	500
2200	2	2	20.10	1.583	139.0	145.2	1335	510	500
2200	2	2	16.80	1.894	166.3	121.3	1116	510	500

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P_N [W]	n_P	gs	i	v [m/s]	n_A [min^{-1}]	M_A [Nm]	F_N [N]	FW_{MIN} [mm]	SL_{MIN} [mm]
3,000	4	2	27.53	0.587	51.6	533.6	4907	510	500
3,000	4	2	20.10	0.804	70.6	389.6	3583	510	500
3,000	4	2	16.80	0.963	84.5	325.6	2994	510	500
3,000	2	2	27.53	1.163	102.1	269.5	2478	510	500
3,000	2	2	20.10	1.593	139.9	196.7	1809	510	500
3,000	2	2	16.80	1.906	167.4	164.4	1512	510	500

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

Mechanical data for 3-phase asynchronous motor (form-fit belts or without belt)

P_N [W]	n_P	gs	i	v [m/s]	n_A [min^{-1}]	M_A [Nm]	F_N [N]	FW_{MIN} [mm]	SL_{MIN} [mm]
306	8	3	62.37	0.100	13.5	204.2	2521	407	400
455	6	3	62.37	0.115	13.5	301.9	3727	407	400
455	6	3	46.56	0.154	18.1	225.3	2782	407	400
620	4	3	62.37	0.187	22.1	252.3	3114	407	400
909	4	3	46.56	0.240	28.4	288.2	3558	407	400
909	4	3	39.31	0.285	33.6	243.3	3004	407	400
909	4	3	31.56	0.355	41.8	195.3	2411	407	400
909	4	3	24.60	0.455	53.7	152.3	1880	407	400
909	4	2	19.64	0.570	67.2	124.0	1531	407	400
909	4	2	14.66	0.764	90.1	92.6	1143	407	400
909	4	2	12.38	0.905	106.7	78.2	965	407	400
909	2	3	24.60	0.986	116.3	70.3	868	407	400
909	2	2	19.64	1.235	145.6	57.2	707	407	400
909	2	2	14.66	1.655	195.1	42.7	527	407	400
909	2	2	12.38	1.960	231.1	36.1	445	407	400
909	2	2	9.65	2.514	296.4	28.1	347	407	400

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

Electrical data for 3-phase asynchronous motor

P_N [W]	n_P	n_N [min^{-1}]	f_N [Hz]	U_N [V]	I_N [A]	cosφ	η [%]	J_R [$kgcm^2$]	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]
370	8	690	50	400	1.50	0.62	0.57	22.6	2.87	1.90	2.35	1.90	5.12	22.0		31
370	8	690	50	230	2.42	0.62	0.57	22.6	2.87	1.90	2.35	1.90	5.12	22.0	17	
550	6	845	50	400	1.60	0.69	0.72	22.6	3.4	1.40	1.65	1.40	6.22	19.5		32
550	6	845	50	230	2.77	0.69	0.72	22.6	3.4	1.40	1.65	1.40	6.22	19.5	19	
750	4	1355	50	400	1.80	0.80	0.75	11.3	3.5	1.53	1.80	1.30	5.29	23.9		52
750	4	1355	50	230	3.12	0.80	0.75	11.3	3.5	1.53	1.80	1.30	5.29	23.9	30	
1100	2	2845	50	400	2.40	0.86	0.77	7.6	5.2	3.15	3.42	2.10	3.69	2.9		9
1100	2	2845	50	230	4.16	0.86	0.77	7.6	5.2	3.15	3.42	2.10	3.69	2.9	5	
1100	4	1320	50	400	2.80	0.82	0.69	11.3	3.5	1.50	1.70	1.30	7.96	7.2		25
1100	4	1320	50	230	4.85	0.82	0.69	11.3	3.5	1.50	1.70	1.30	7.96	7.2	14	
1100	8	695	50	400	3.20	0.81	0.61	86.0	4.5	1.80	2.20	1.70	15.12	6.3		24
1100	8	695	50	230	5.54	0.81	0.61	86.0	4.5	1.80	2.20	1.70	15.12	6.3	14	
1500	6	960	50	400	4.00	0.82	0.66	86.0	4.8	2.10	2.50	1.90	14.92	4.3		21
1500	6	960	50	230	6.93	0.82	0.66	86.0	4.8	2.10	2.50	1.90	14.92	4.3	12	
1500	4	1410	50	400	3.70	0.87	0.67	49.6	5.5	2.20	2.50	1.80	10.16	3.6		17
1500	4	1410	50	230	6.41	0.87	0.67	49.6	5.5	2.20	2.50	1.80	10.16	3.6	10	
2200	4	1420	50	400	5.20	0.87	0.70	60.0	5.9	2.40	2.90	2.30	14.80	3.55		24
2200	4	1420	50	230	9.01	0.87	0.70	60.0	5.9	2.40	2.90	2.30	14.80	3.55	14	
2200	2	2794	50	400	5.10	0.88	0.71	26.0	6.4	2.60	3.02	2.30	7.52	2.95		20
2200	2	2794	50	230	8.83	0.88	0.71	26.0	6.4	2.60	3.02	2.30	7.52	2.95	11	
3,000	4	1420	50	400	7.00	0.82	0.76	46.9	5.0	2.40	2.90	2.30	20.19	1.85		16
3,000	4	1420	50	230	12.12	0.82	0.76	46.9	5.0	2.40	2.90	2.30	20.19	1.85	9	
3,000	2	2812	50	400	6.65	0.82	0.80	37.1	6.5	2.60	3.40	2.40	10.19	1.55		13
3,000	2	2812	50	230	11.52	0.82	0.80	37.1	6.5	2.60	3.40	2.40	10.19	1.55	7	

P_N = Rated power
n_P = Number of poles
n_N = Rated speed of rotor
f_N = Rated frequency
U_N = Rated voltage
I_N = Rated current
cosφ = Power factor
η = Efficiency
J_R = Rotor moment of inertia

I_S/I_N = Ratio of startup current – rated current
M_S/M_N = Ratio of startup torque – rated torque
M_B/M_N = Ratio of pull-out torque – rated torque
M_P/M_N = Ratio of pull-up torque – rated torque
M_N = Rated torque of rotor
R_M = Branch resistance
$U_{SH\Delta}$ = Heater voltage in delta connection
U_{SHY} = Heater voltage in star connection

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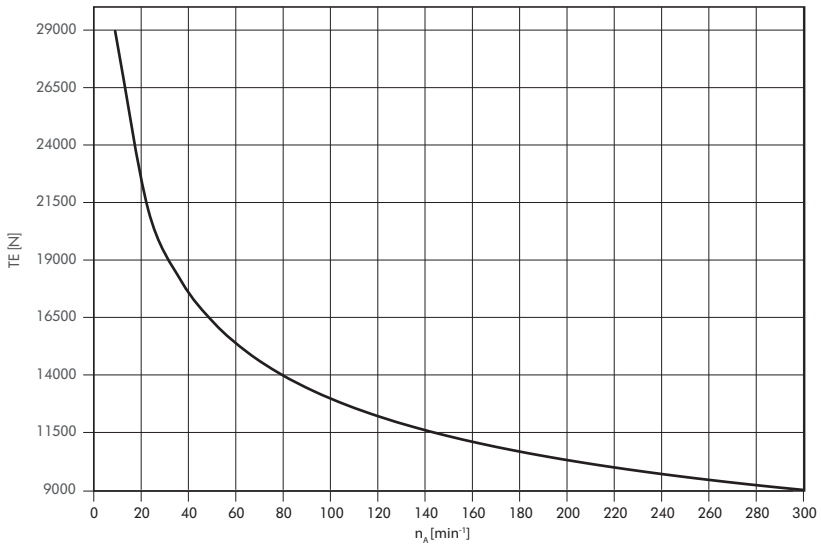
Electrical data for 3-phase asynchronous motor (form-fit belts or without belt)

P_N [W]	n_P	U_N [V]	I_N [A]	cosφ	η [%]	J_R [kgcm^2]	I_S/I_N	M_S/M_N	M_B/M_N	M_P/M_N	R_M [Ω]	$U_{SH\Delta}$ [V]	U_{SHY} [V]
306	8	230	1.97	0.62	0.62	22.6	2.9	1.24	1.40	1.16	28.0	17	
306	8	400	1.15	0.62	0.62	22.6	2.9	1.24	1.40	1.16	28.0		30
455	6	230	2.04	0.75	0.74	22.6	3.1	1.07	1.07	1.07	25.0	19	
455	6	400	1.18	0.75	0.74	22.6	3.1	1.07	1.07	1.07	25.0		33
620	4	230	2.55	0.80	0.76	11.3	3.6	1.26	1.49	1.07	14.4	15	
620	4	400	1.48	0.80	0.76	11.3	3.6	1.26	1.49	1.07	14.4		26
909	4	230	3.92	0.84	0.69	11.3	3.7	1.16	1.24	1.07	8.3	14	
909	4	400	2.27	0.84	0.69	11.3	3.7	1.16	1.24	1.07	8.3		24
909	2	230	3.30	0.86	0.80	7.3	4.6	2.48	2.64	1.74	6.2	9	
909	2	400	1.91	0.86	0.80	7.3	4.6	2.48	2.64	1.74	6.2		15

P_N = Rated power
n_P = Number of poles
U_N = Rated voltage
I_N = Rated current
cosφ = Power factor
η = Efficiency
J_R = Rotor moment of inertia
I_S/I_N = Ratio of startup current – rated current
M_S/M_N = Ratio of startup torque – rated torque
M_B/M_N = Ratio of pull-out torque – rated torque
M_P/M_N = Ratio of pull-up torque – rated torque
M_N = Rated torque of rotor
R_M = Branch resistance
$U_{SH\Delta}$ = Heater voltage in delta connection
U_{SHY} = Heater voltage in star connection

Belt tension diagrams

Belt tension depending on rated speed of shell



Note: The correct value for the maximum permissible belt tension is determined from the maximum permissible TE value for the rpm of the drum motor. The TE value for the shell length does not have to be taken into account for the standard motor DM 0217. The belt tension diagrams apply only to standard shafts.

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

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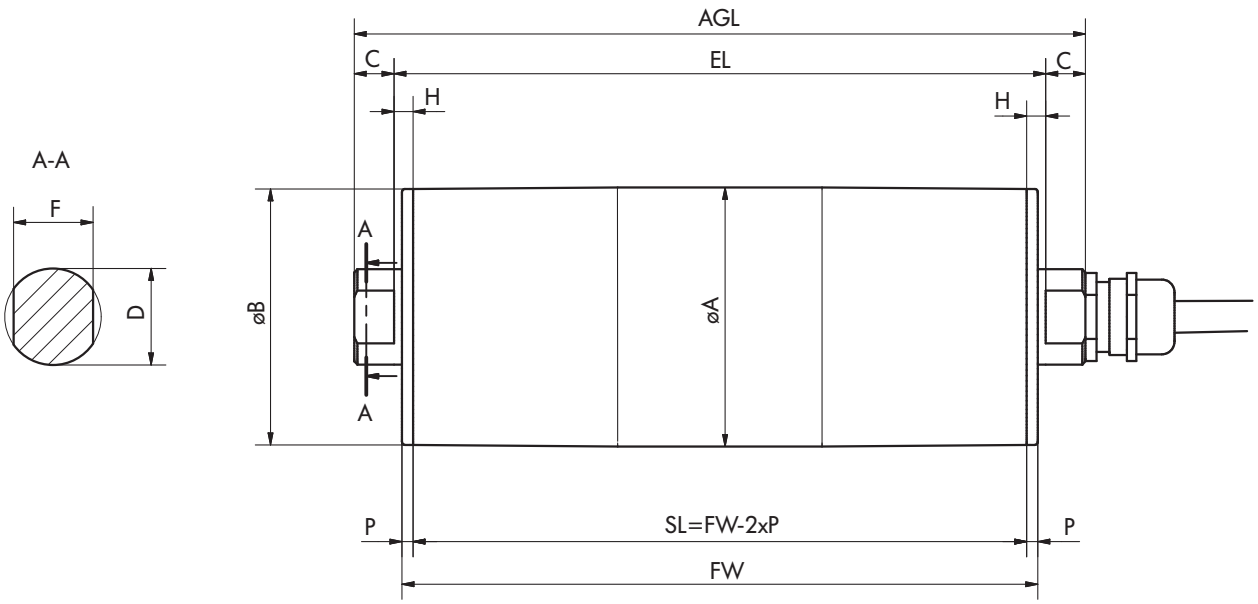
Dimensions

Drum motor



Type	A [mm]	B [mm]	C [mm]	D [mm]	F [mm]	H [mm]	P [mm]	SL [mm]	EL [mm]	AGL [mm]
DM 0217 crowned	217.5	215.5	45	40	30	21.5	5	FW – 10	FW + 33	FW + 123
	217.5	215.5	45	30	25	21.5	5	FW – 10	FW + 33	FW + 123
DM 0217 cylindrical	215.5	215.5	45	40	30	21.5	5	FW – 10	FW + 33	FW + 123
	215.5	215.5	45	30	25	21.5	5	FW – 10	FW + 33	FW + 123
DM 0217 cylindrical + key	215.5	215.5	45	40	30	21.5	5	FW – 10	FW + 33	FW + 123
	215.5	215.5	45	30	25	21.5	5	FW – 10	FW + 33	FW + 123