DRUM MOTOR
DM SERIES
DM 0113

Practice-oriented, scalable and thought out in detail: The new drum motor DM 0113 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 0113 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 0113 allows a free combination of individual module groups, such as shaft, end housing, shell or steel gear, asynchronous or synchronous motor winding, 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 0113, 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	AC synchronous permanent magnet motor
Insulation class of motor windings	Class F, IEC 34 (VDE 0530)	Class F, IEC 34 (VDE 0530)
Voltage	230/460 V ±5 % (IEC 34/38) Most of the common international voltages and frequencies are available upon request	230 or 400 V
Frequency	60 Hz	200 Hz
Shaft seal, internal	NBR	NBR
Protection rate Motor*	IP69K	IP69K
Thermal controller	Bi-metal switch	Bi-metal switch
Operating mode	S1	S1
Ambient temperature, 3-phase motor	36 to 104 °F Low temperature ranges on request	36 to 104 °F Low temperature ranges on request
Ambient temperature, 3-phase motor for applications with form-fit belts or no belt	36 to 77 °F	36 to 104 °F

* 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
Options	Backstop Electromagnetic holding brake and rectifier* Encoder* Balancing Plug connection*
Oils	Food-grade oils (EU, FDA, NSF H1)
Certificate	cULus safety certificates
Accessories	Idler pulleys; conveyor rollers; mounting brackets; cables; inverters

A combination of encoder and safety holding brake is not possible. In addition, the use of a backstop with a synchronous motor is technically not meaningful.

* Depending on the option, the motor extends by 1.97" – 2.76".

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 for sprockets		●	●		
End housing	Standard	●		●		
Shaft	Standard			●		
	Cross-drilled thread			●		
Gear boxes	Planetary gear box		●			
Electrical connector	Straight connector			●	●	●
	Straight hygienic connector			●		
	Elbow connector			●		●
	Terminal box	●		●		●
	Straight plug connection			●		
	90° plug connection			●		
	90° hygienic connector			●		
Motor winding	Asynchronous motor					
	Synchronous motor					
External seal	PTFE					

Motor variants

Mechanical data for synchronous motors with steel gear

P_N [W/HP]	n_P	gs	i	v [ft/min]	n_A [min^{-1}]	M_A [lbf*ft]	F_N [lbf]	M_{MAX}/M_A	FW_{MIN} [in]	SL_{MIN} [in]
300/0.40	8	3	120	30	25	73	391	1.60	8.98	8.70
300/0.40	8	3	100	35	30	61	326	2.00	8.98	8.70
300/0.40	8	3	80	43	38	48	261	2.50	8.98	8.70
300/0.40	8	2	63	55	48	40	216	3.00	8.19	7.91
300/0.40	8	2	45	79	67	29	154	3.00	8.19	7.91
300/0.40	8	2	36	96	83	23	124	3.00	8.19	7.91
300/0.40	8	2	30	116	100	19	103	3.00	8.19	7.91
300/0.40	8	2	24	146	125	15	82	3.00	8.19	7.91
300/0.40	8	2	20	175	150	13	69	3.00	8.19	7.91
300/0.40	8	2	16	219	188	10	55	3.00	8.19	7.91
300/0.40	8	2	12	291	250	8	41	3.00	8.19	7.91
300/0.40	8	1	9	390	333	6	33	3.00	8.19	7.91
300/0.40	8	1	6	585	500	4	22	3.00	8.19	7.91
700/0.94	8	2	63	55	48	93	502	1.30	10.16	9.88
700/0.94	8	2	45	79	67	67	359	1.80	10.16	9.88
700/0.94	8	2	36	96	83	53	287	1.40	10.16	9.88
700/0.94	8	2	30	116	100	44	239	1.70	10.16	9.88
700/0.94	8	2	24	146	125	36	191	2.00	10.16	9.88
700/0.94	8	2	20	175	150	30	159	2.50	10.16	9.88
700/0.94	8	2	16	219	188	24	128	3.00	10.16	9.88
700/0.94	8	2	12	291	250	18	96	3.00	10.16	9.88
700/0.94	8	1	9	390	333	14	76	3.00	10.16	9.88
700/0.94	8	1	6	585	500	9	50	3.00	10.16	9.88
1100/1.48	8	2	36	96	83	84	450	1.40	11.34	11.06
1100/1.48	8	2	30	116	100	70	375	1.60	11.34	11.06
1100/1.48	8	2	24	146	125	56	300	2.00	11.34	11.06
1100/1.48	8	2	20	175	150	46	250	2.50	11.34	11.06
1100/1.48	8	2	16	219	188	37	200	3.00	11.34	11.06
1100/1.48	8	2	12	291	250	28	150	3.00	11.34	11.06
1100/1.48	8	1	9	390	333	22	119	3.00	11.34	11.06
1100/1.48	8	1	6	585	500	15	79	3.00	11.34	11.06

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P_N = Rated power
n_P = Number of poles
gs = Gear stages
i = Speed ratio
v = Speed @ 200 Hz
n_A = Shell rated speed @ 200 Hz
M_A = Drum motor rated torque
F_N = Drum motor rated belt pull
M_{MAX}/M_A = Ratio of max. acceleration torque to rated torque
FW_{MIN} = Minimum drum width
SL_{MIN} = Minimum shell length

Electrical data for synchronous motors

P_N [W/HP]	n_P	U_N [V]	I_N [A]	I_0 [A]	I_{MAX} [A]	f_N [Hz]	η	n_N [RPM]	J_R [kgcm²]	M_N [Nm]	M_0 [Nm]	M_{MAX} [Nm]	R_M [Ω]	L_{SD} [mH]	L_{SQ} [mH]	k_e [V/krpm]	T_e [ms]	k_{TN} [Nm/A]	U_{SH} [V]
300/0.40	8	230	1.25	0.2	3.76	200	0.85	3000	1.8	0.96	0.96	2.88	17.2	5.5	10.2	50.34	1.19	0.76	10.78
300/0.40	8	400	0.72	0.1	2.17	200	0.85	3000	1.8	0.96	0.96	2.88	17.2	16.5	30.7	87.20	3.57	1.32	18.68
700/0.94	8	230	2.67	0.2	8.00	200	0.89	3000	5.4	2.23	2.23	6.69	3.95	2.5	4.4	55.48	2.24	0.84	5.27
700/0.94	8	400	1.54	0.1	4.62	200	0.89	3000	5.4	2.23	2.23	6.69	3.95	7.4	13.3	96.10	6.73	1.45	9.12
1100/1.48	8	230	3.97	0.2	11.90	200	0.92	3000	7.2	3.50	3.50	10.49	2.83	1.9	3.2	56.52	2.26	0.88	5.61
1100/1.48	8	400	2.29	0.1	6.87	200	0.92	3000	7.2	3.50	3.50	10.49	2.83	5.8	9.6	97.90	6.78	1.53	9.72

P_N = Rated power
n_P = Number of poles
U_N = Rated voltage
I_N = Rated current
I_0 = Standstill current
I_{MAX} = Maximum current
f_N = Rated frequency
η = Efficiency
n_N = Rated torque of rotor
J_R = Rotor moment of inertia
M_N = Rated torque of rotor
M_0 = Standstill torque
M_{MAX} = Maximum torque
R_M = Phase to phase resistance
L_{SD} = d-axis inductance
L_{SQ} = q-axis inductance
k_e = EMF (mutual induction voltage constant)
T_e = Electrical time constant
k_{TN} = Torque constant
U_{SH} = Heating voltage

Mechanical data for synchronous motors with oil-free steel gear

P_N [W/HP]	n_P	gs	i	v [ft/min]	n_A [RPM]	M_A [lbf*ft]	F_N [lbf]	M_{MAX}/M_A	FW_{MIN} [in]	SL_{MIN} [in]
190/0.25	8	3	120	30	25	46	246	1.60	8.98	8.70
190/0.25	8	3	100	35	30	38	205	2.00	8.98	8.70
190/0.25	8	3	80	43	38	31	164	2.50	8.98	8.70
190/0.25	8	2	63	55	48	25	136	3.00	8.19	7.91
190/0.25	8	2	45	79	67	18	97	3.00	8.19	7.91
190/0.25	8	2	36	96	83	14	78	3.00	8.19	7.91
190/0.25	8	2	30	116	100	12	65	3.00	8.19	7.91
190/0.25	8	2	24	146	125	10	52	3.00	8.19	7.91
190/0.25	8	2	20	175	150	8	43	3.00	8.19	7.91
190/0.25	8	2	16	219	188	6	35	3.00	8.19	7.91
190/0.25	8	2	12	291	250	5	26	3.00	8.19	7.91

P_N [W/HP]	n_P	gs	i	v [ft/min]	n_A [RPM]	M_A [lbf*ft]	F_N [lbf]	M_{MAX}/M_A	FW_{MIN} [in]	SL_{MIN} [in]
190/0.25	8	1	9	390	333	4	20	3.00	8.19	7.91
190/0.25	8	1	6	585	500	3	14	3.00	8.19	7.91
440/0.59	8	2	63	55	48	59	315	1.30	10.16	9.88
440/0.59	8	2	45	79	67	42	225	1.80	10.16	9.88
440/0.59	8	2	36	96	83	33	180	2.20	10.16	9.88
440/0.59	8	2	30	116	100	28	150	2.60	10.16	9.88
440/0.59	8	2	24	146	125	22	120	3.00	10.16	9.88
440/0.59	8	2	20	175	150	19	100	3.00	10.16	9.88
440/0.59	8	2	16	219	188	15	80	3.00	10.16	9.88
440/0.59	8	2	12	291	250	11	60	3.00	10.16	9.88
440/0.59	8	1	9	390	333	9	47	3.00	10.16	9.88
440/0.59	8	1	6	585	500	6	32	3.00	10.16	9.88
700/0.94	8	2	36	96	83	53	287	2.20	11.34	11.06
700/0.94	8	2	30	116	100	44	239	2.60	11.34	11.06
700/0.94	8	2	24	146	125	36	191	3.00	11.34	11.06
700/0.94	8	2	20	175	150	30	159	3.00	11.34	11.06
700/0.94	8	2	16	219	188	24	128	3.00	11.34	11.06
700/0.94	8	2	12	291	250	18	96	3.00	11.34	11.06
700/0.94	8	1	9	390	333	14	76	3.00	11.34	11.06
700/0.94	8	1	6	585	500	9	50	3.00	11.34	11.06

P_N = Rated power
n_P = Number of poles
gs = Gear stages
i = Speed ratio
v = Speed @ 200 Hz
n_A = Shell rated speed @ 200 Hz
M_A = Drum motor rated torque
F_N = Drum motor rated belt pull
M_{MAX}/M_A = Ratio of max. acceleration torque to rated torque
FW_{MIN} = Minimum drum width
SL_{MIN} = Minimum shell length

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Electrical data for oil-free synchronous motors

P_N [W/HP]	n_P	U_N [V]	I_N [A]	I_0 [A]	I_{MAX} [A]	f_N [Hz]	η	n_N [RPM]	J_R [kgcm²]	M_N [Nm]	M_0 [Nm]	M_{MAX} [Nm]	R_M [Ω]	L_{SD} [mH]	L_{SQ} [mH]	k_e [V/krpm]	T_e [ms]	k_{TN} [Nm/A]	U_{SH} [V]
190/0.25	8	230	0.80	0.2	2.39	200	0.88	3000	1.8	0.60	0.60	1.81	17.2	5.5	10.2	50.34	1.19	0.76	6.85
190/0.25	8	400	0.46	0.1	1.38	200	0.88	3000	1.8	0.60	0.60	1.81	17.2	16.5	30.7	87.20	3.57	1.31	11.87
440/0.59	8	230	1.77	0.2	5.30	200	0.87	3000	5.4	1.40	1.40	4.20	3.73	2.5	4.4	55.48	2.38	0.79	3.29
440/0.59	8	400	1.02	0.1	3.06	200	0.87	3000	5.4	1.40	1.40	4.20	3.73	7.4	13.3	96.10	7.13	1.37	5.71
700/0.94	8	230	2.55	0.2	7.64	200	0.94	3000	7.2	2.23	2.23	6.69	2.83	1.9	3.2	56.52	2.26	0.88	3.60
700/0.94	8	400	1.47	0.1	4.41	200	0.94	3000	7.2	2.23	2.23	6.69	2.83	5.8	9.6	97.90	6.78	1.52	6.24

P_N = Rated power
n_P = Number of poles
U_N = Rated voltage
I_N = Rated current
I_0 = Standstill current
I_{MAX} = Maximum current
f_N = Rated frequency
η = Efficiency
n_N = Rated torque of rotor
J_R = Rotor moment of inertia

M_N = Rated torque of rotor
M_0 = Standstill torque
M_{MAX} = Maximum torque
R_M = Phase to phase resistance
L_{SD} = d-axis inductance
L_{SQ} = q-axis inductance
k_e = EMF (mutual induction voltage constant)
T_e = Electrical time constant
k_{TN} = Torque constant
U_{SH} = Heating voltage

Mechanical data for 3-phase asynchronous motor with steel gear

P_N [W/HP]	n_P	gs	i	v [ft/min]	n_A [RPM]	M_A [lbf*ft]	F_N [lbf]	FW_{MIN} [in]	SL_{MIN} [in]
160/0.21	4	3	168	12	10	94	503	10.91	10.63
160/0.21	4	3	150	14	11	84	449	10.91	10.63
160/0.21	4	3	120	17	14	67	359	10.91	10.63
160/0.21	4	2	73.8	26	23	43	233	10.12	9.84
160/0.21	4	2	63	31	27	37	198	10.12	9.84
160/0.21	4	2	45	43	37	26	142	10.12	9.84
160/0.21	4	2	36	55	47	21	113	10.12	9.84
160/0.21	4	2	30	66	56	18	95	10.12	9.84
160/0.21	4	2	27	74	62	16	85	10.12	9.84
160/0.21	4	2	24	83	70	14	76	10.12	9.84
160/0.21	4	2	20	97	84	12	63	10.12	9.84
160/0.21	4	2	16	123	105	9	50	10.12	9.84
160/0.21	4	2	12	164	140	7	38	10.12	9.84
160/0.21	4	1	9	218	187	6	30	10.12	9.84
225/0.30	2	2	73.8	52	45	31	166	10.12	9.84
225/0.30	2	2	63	62	53	27	142	10.12	9.84
225/0.30	2	2	45	85	74	19	101	10.12	9.84
225/0.30	2	2	42	92	79	18	95	10.12	9.84
225/0.30	2	2	36	109	92	15	81	10.12	9.84
225/0.30	2	2	32.8	119	101	14	74	10.12	9.84
225/0.30	2	2	30	130	111	13	68	10.12	9.84
225/0.30	2	2	27	145	123	11	61	10.12	9.84
225/0.30	2	2	24	161	138	10	54	10.12	9.84
225/0.30	2	2	20	194	166	8	45	10.12	9.84
225/0.30	2	2	16	242	208	7	36	10.12	9.84
225/0.30	2	2	12	325	277	5	27	10.12	9.84
225/0.30	2	1	9	432	369	4	21	10.12	9.84
300/0.40	4	2	63	31	26	71	381	12.09	11.81
300/0.40	4	2	45	43	37	51	272	12.09	11.81
300/0.40	4	2	36	55	46	41	217	12.09	11.81
300/0.40	4	2	30	64	55	34	181	12.09	11.81
300/0.40	4	2	27	71	61	30	163	12.09	11.81
300/0.40	4	2	24	81	69	27	145	12.09	11.81

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P_N [W/HP]	n_P	gs	i	v [ft/min]	n_A [RPM]	M_A [lbf*ft]	F_N [lbf]	FW_{MIN} [in]	SL_{MIN} [in]
300/0.40	4	2	20	97	83	23	121	12.09	11.81
300/0.40	4	2	16	121	103	18	97	12.09	11.81
370/0.50	2	2	73.8	52	45	51	271	12.09	11.81
370/0.50	2	2	63	62	53	43	231	12.09	11.81
370/0.50	2	2	49.2	81	68	34	181	12.09	11.81
370/0.50	2	2	45	88	74	30.85	165.2	12.09	11.81
370/0.50	2	2	42	92	80	29	154	12.09	11.81
370/0.50	2	2	36	109	93	25	132	12.09	11.81
370/0.50	2	2	32.8	119	102	22	120	12.09	11.81
370/0.50	2	2	30	130	112	21	110	12.09	11.81
370/0.50	2	2	27	145	124	19	99	12.09	11.81
370/0.50	2	2	24	164	140	16	88	11.69	11.42
370/0.50	2	2	20	197	167	14	73	12.09	11.81
370/0.50	2	2	18	218	186	12	66	12.09	11.81
370/0.50	2	2	16	244	209	11	59	12.09	11.81
370/0.50	2	1	9	434	372	6	35	12.09	11.81
550/0.74	2	2	42	95	81	42	227	12.48	12.20
550/0.74	2	2	36	109	94	36	195	12.48	12.20
550/0.74	2	2	32.8	121	103	33	177	12.48	12.20
550/0.74	2	2	30	133	113	30	162	12.48	12.20
550/0.74	2	2	27	147	126	27	146	12.48	12.20
550/0.74	2	2	24	166	141	24	130	12.48	12.20
550/0.74	2	2	20	199	169	20	108	12.48	12.20
550/0.74	2	2	16	247	212	16	86	12.48	12.20
550/0.74	2	2	12	330	282	12	65	12.48	12.20

P_N = Rated power
n_P = Number of poles
gs = Gear stages
i = Speed ratio
v = Speed @ 60 Hz
n_A = Rated speed of shell @ 60 Hz
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/HP]	np	n_N [min^{-1}]	f_N [Hz]	U_N [V]	I_N [A]	I_0 [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]	$U_{SHΔ}$ [V]	U_{SHY} [V]
160/0.21	4	1667	60	230	0.83	0.6	0.75	0.64	3.8	3.26	1.74	2	1.74	0.92	63.7	21	–
160/0.21	4	1714	60	460	0.5	0.41	0.63	0.64	3.8	3.63	2.24	2.74	2.24	0.89	63.7	–	36.4
225/0.30	2	3294	60	230	0.9	0.41	0.9	0.69	2.5	4.6	2.45	2.45	2.31	0.65	39.3	16.2	–
225/0.30	2	3385	60	460	0.49	0.3	0.83	0.69	2.5	5.5	3.31	3.31	3.13	0.63	39.3	–	28.1
300/0.40	4	1662	60	230	1.3	0.95	0.81	0.72	6.8	3.07	1.46	2.02	1.46	1.72	33.5	17.9	–
300/0.40	4	1704	60	460	0.75	0.55	0.81	0.72	6.8	3.88	1.98	2.75	1.98	1.68	33.5	–	31
370/0.50	2	3356	60	230	1.38	0.56	0.9	0.75	4.4	5.38	2.75	2.75	2.62	1.05	19.85	12.3	–
370/0.50	2	3425	60	460	0.73	0.39	0.85	0.75	4.4	6.84	3.79	3.79	3.79	1.03	19.85	–	21.29
550/0.74	2	3373	60	230	1.99	0.89	0.89	0.79	5.4	5.83	3.08	3.08	3.08	1.56	11.6	10.5	–
550/0.74	2	3438	60	460	1.07	0.64	0.82	0.79	5.4	7.57	4.52	4.52	4.52	1.53	11.6	–	18.13

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
I_0 = Standstill 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
$U_{SHΔ}$ = Heater voltage in delta connection
U_{SHY} = Heater voltage in star connection

Mechanical data for 1-phase asynchronous motor with steel gear

P_N [W/HP]	n_P	gs	i	v [ft/min]	n_A [RPM]	M_A [lbf*ft]	F_N [lbf]	FW_{MIN} [in]	SL_{MIN} [in]
250/0.34	4	2	45	43	36	43	230	12.09	11.81
250/0.34	4	2	36	52	46	34	184	12.09	11.81
250/0.34	4	2	30	64	55	29	153	12.09	11.81
250/0.34	4	2	27	71	61	26	138	12.09	11.81
250/0.34	4	2	24	81	68	23	123	12.09	11.81
250/0.34	4	2	20	95	82	19	102	12.09	11.81
250/0.34	4	2	16	119	102	15	82	12.09	11.81
250/0.34	4	2	12	159	137	11	61	12.09	11.81

P_N = Rated power
n_P = Number of poles
gs = Gear stages
i = Speed ratio
v = Speed @ 60 Hz
n_A = Rated speed of shell @ 60 Hz
M_A = Drum motor rated torque
F_N = Drum motor rated belt pull
FW_{MIN} = Minimum drum width
SL_{MIN} = Minimum shell length

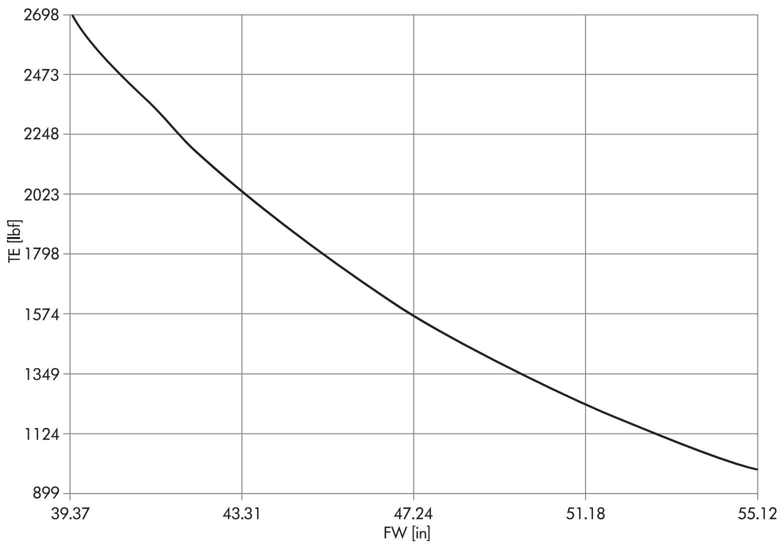
Electrical data for 1-phase asynchronous motor

P_N [W/HP]	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]	$U_{SH\sim}$ [V DC]	C_R [µF]
250/0.34	4	1360	50	230	2.4	0.97	0.5	7.2	1.25	1.1	1.1	1.1	1.76	12.7	44.3	12

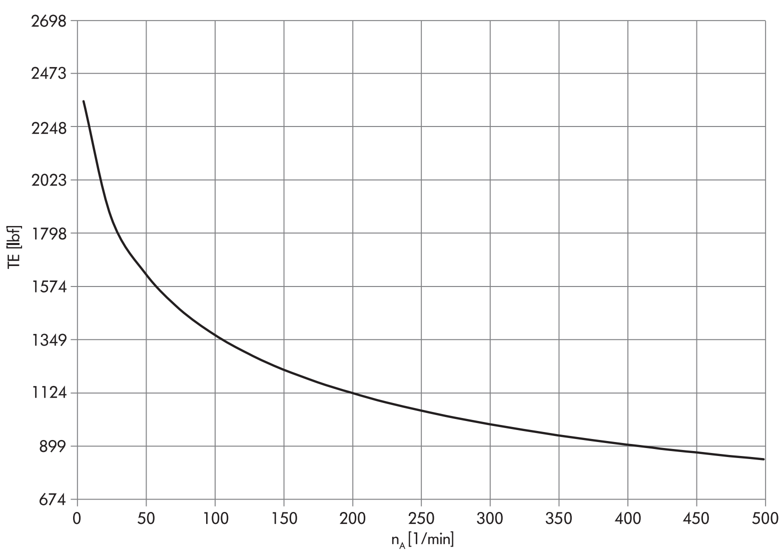
P_N = Rated power
n_P = Number of poles
n_N = Rated speed of rotor
f_N = Rated frequency
U_N = Rated voltage
I_N = Rated current
cosφ = Power factor
η = Efficiency
J_R = Rotor moment of inertia
I_S/I_N = Ratio of startup current – rated current
M_S/M_N = Ratio of startup torque – rated torque
M_B/M_N = 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
$U_{SH\sim}$ = Heater voltage for DC units
C_R = Capacitor size

Belt tension diagrams

Belt tension depending on drum width



Belt tension depending on rated speed of shell

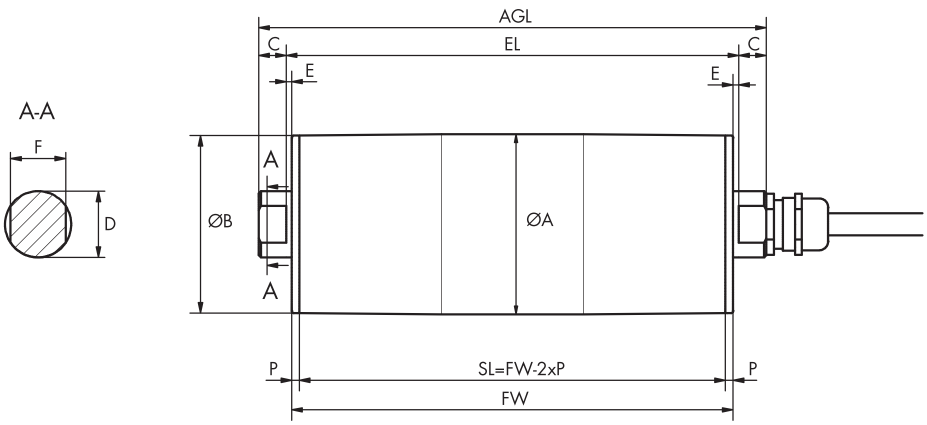


Note: The correct value for the maximum permissible belt tension is determined from the speed of the drum motor. When selecting the motor, also check whether the maximum permissible TE value fits the desired drum width (FW). The belt tension diagrams apply only to standard shafts.

TE = Belt tension
n_A = Rated speed of shell @ 60 Hz
FW = Drum width

Dimensions

Drum motor



Type		A [in]	B [in]	C [in]	D [in]	S [in]	F [in]	P [in]	SL [in]	EL [in]	AGL [in]
DM 0113 crowned	Standard	4.47	4.41	0.98	1.18	0.26	0.98	0.14	FW – 0.28	FW + 0.51	FW + 2.48
	Optional	4.47	4.41	0.98	0.98	0.26	0.79	0.14	FW – 0.28	FW + 0.51	FW + 2.48
DM 0113 cylindrical	Standard	4.41	4.41	0.98	1.18	0.26	0.98	0.14	FW – 0.28	FW + 0.51	FW + 2.48
	Optional	4.41	4.41	0.98	0.98	0.26	0.79	0.14	FW – 0.28	FW + 0.51	FW + 2.48
DM 0113 cylindrical + key	Standard	4.45	4.45	0.98	1.18	0.26	0.98	0.14	FW – 0.28	FW + 0.51	FW + 2.48
	Optional	4.45	4.45	0.98	0.98	0.26	0.79	0.14	FW – 0.28	FW + 0.51	FW + 2.48