

# Low-Voltage Motors in ...



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# production machines



SIEMENS

## Low-Voltage Motors in Production Machines

	AC INDUCTION MOTORS																
	Asynchronous Servomotor Squirrel-Cage without housing			Standard Motor Aluminum housing "Improved Efficiency"		Standard Motor Cast Iron housing "Improved Efficiency"		Standard Motor Aluminum housing "High Efficiency"		Standard Motor Cast Iron housing "High Efficiency"		Non-Standard Motor (N-Compact) Cast Iron housing		Geared Motor	Wound-Rotor Motor	Brake Motor	Explosion-Proof Motor
				self-ventilated	separately-ventilated	self-ventilated	separately-ventilated	self-ventilated	separately-ventilated	self-ventilated	separately-ventilated	self-ventilated	separately-ventilated				
Order No.	1PH7	1PL6	1PH4	1LA7, 1LA5	1LA7, 1 LA5	1LA6, 1LG4	1LG4	1LA9	1LA9	1LG6	1LG6	1LA8, 1LL8, 1LA1	1PQ1/1PQ8	2KG1	1LT8, 1LT9	1LD8, 1LD9	1MJ6, 1MJ8
Catalog	DA 65.3	DA 65.3	DA 65.3	M 11	M 11	M 11	M 11	M 11	M 11	M 11	M 11	Based on Inquiry		M 15	HE 1	HE 1	M 11
Rated Voltage	400-480 V 690 V	400-480 V 690 V	400-480 V	230 V, 400 V, 500 V, 690 V	230 V, 400 V, 500 V, 690 V	230 V, 400 V, 500 V, 690 V	230 V, 400 V, 500 V, 690 V	230 V, 400 V, 500 V, 690 V	230 V, 400 V, 500 V, 690 V	230 V, 400 V, 500 V, 690 V	230 V, 400 V, 500 V, 690 V	400 V, 500 V, 690 V	400 V, 500 V, 690 V	230/400 V 400/690 V	380 V, 400 V, 460 V, 500 V, 660 V, 690 V	380 V, 400 V, 460 V, 500 V, 660 V, 690 V	230 V, 400 V, 500 V, 690 V
Rated Speed rpm	400-2900	400-2900	1500-2000	750, 1000, 1500, 3000	750, 1000, 1500, 3000	750, 1000, 1500, 3000	750, 1000, 1500, 3000	1000, 1500, 3000	1000, 1500, 3000	750, 1000, 1500, 3000	750, 1000, 1500, 3000	750, 1000, 1500, 3000	750, 1000, 1500, 3000	750, 1000, 1500, 3000	600, 750, 1000, 1500	1500	750, 1000, 1500, 3000
Rated Power	3.7 to 385 kW	20.5 to 630 kW	7.5 to 65 kW	0.06 to 45 kW	0.75 to 45 kW	0.75 to 200 kW	11 to 200 kW	0.06 to 37 kW	1.5 to 37 kW	11 to 200 kW	11 to 200 kW	160 to 2160 kW	250 to 2570 kW	0.09 to 45 kW	1.1 to 250 kW	5.5 to 45 kW	0.25 to 900 kW
Rated Torque	22 to 2480 Nm	370 to 3600 Nm	45 to 333 Nm	0.3 to 294 Nm	9.9 to 294 Nm	9.9 to 1708 Nm	71 to 1708 Nm	0.3 to 215 Nm	9.9 to 215 Nm	71 to 1704 Nm	71 to 1704 Nm	1600 to 23000 Nm	1600 to 24000 Nm	80 to 11500 Nm	10.5 to 1700 Nm	36 to 291 Nm	1.3 to 8075 Nm
Type of Protection/Explosion Protection	IP 55	IP 23	IP 65	IP 55 optional (E) Exn or Ex (Dust-proof)	IP 55	IP 55 optional (E) Exn or Ex (Dust-proof)	IP 55	IP 55 optional (E) Exn or Ex (Dust-proof)	IP 55	IP 55 optional (E) Exn or Ex (Dust-proof)	IP 55	IP 55/1LL8 in IP 23 optional (E) Exn or Ex (Dust-proof)	IP 55	IP 55	IP 54, IP 55	IP 54, IP 56	IP 55 EEx de II CT3
Cooling Method	separately-ventilated	separately-ventilated	water-cooled	self-ventilated	separately-ventilated	self-ventilated	separately-ventilated	self-ventilated	separately-ventilated	self-ventilated	separately-ventilated	self-ventilated	separately-ventilated	self-ventilated	self-ventilated	self-ventilated	self-ventilated
Frame Size	100 to 280	180 to 280	100 to 160	56 M to 225 M	100 L to 225 M	100 L to 315 L	180 M to 315 L	56 M to 200 L	100 L to 200 L	180 M to 315 L	180 M to 315 L	315 to 630	315 to 630	63 to 225	100 to 200	132 S to 225 M	71 M to 450
Encoder Feedback		Pulse Encoder (HTL) Resolver Incremental Encoder (sin-cos) Absolute Encoder		Pulse Encoder (HTL/TTL)		Pulse Encoder (HTL/TTL)		Pulse Encoder (HTL/TTL)		Pulse Encoder (HTL/TTL)		Pulse Encoder (HTL/TTL)		Pulse Encoder (HTL/TTL)	Tachometer	Pulse Encoder (TTL)	on request
Typical Applications	For general industrial applications with requirements for high dynamic response and compact design, e.g. Printing Presses, Wire Drawing Machines, Extruders, Calender, Continuous Web Lines.					Use in general industrial applications not requiring high dynamic responses, in lower power ranges, such as Pumps, Compressors, Auxiliary Drives, Main Drives in Cranes and Presses, Continuous Web Lines.					Use in general industrial applications not requiring high dynamic responses, in higher power ranges, such as Pumps, Compressors, Auxiliary Drives, Main Drives in Cranes and Presses, Continuous Web Lines.		Standard motor with built-on gears, for general industrial applications.	Use predominantly for hoisting/lifting, Robust and extremely high torque for high stress loads.	Standard motor with built-on disc brakes. Use in lifting trolleys and hoists.	Chemical and petrochemical industries, gas plants, coke furnaces, utility companies, laminating plants, filling stations, all Ex zone 1 explosion-proof areas.	

The technical data are intended for general information. Please observe the operating instructions and the references indicated on the products for installation, operation and maintenance. The technical data, selection and ordering data (order numbers), accessories and availability are subject to alteration.

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	SYNCHRONOUS MOTORS												DC MOTORS								
	Permanent-magnet Servomotor High Performance			Permanent-magnet Servomotor without housing			Permanent-magnet Servomotor with Squirrel-cage	Permanent-magnet Torque motor	Permanent-magnet Linear motor		Stepper motor	DC motor with internal cooling			Totally-enclosed self-ventilated DC motor						
Order No.	1FT6...-A	1FT6...-S	1FT6...-W	1FS6	1FK6	1FK7 (CT) Compact	1FK7 (HD) High Dynamic	1FU8	1FW6	1FN1	1FN3	1FL3	1GA5	1GF, 1GL	1GG, 1GH	1HC	1HA	1HF	1HQ	1HS	
Catalog	DA 65.3	DA 65.3	DA 65.3	DA 65.3	DA 65.3	DA 65.3	DA 65.3	DA 48	on request	NC 60	NC 60	NC 60	DA 12	DA 12	DA 12	DA 12	DA 12	DA 12	DA 12	DA 12	
Rated Voltage	the supply voltage of the respective drive system, 380 V-480 V											325 V									
Rated Speed rpm	1500, 2000, 3000, 4500, 6000			3000, 6000			3000, 4500, 6000	1000, 1500, 3000	26 to 610	Max. speed at rated force 145 to 200 minin	Max. speed at rated force 105 to 836 minin	steps/revolution 500, 1000, 10000	Depending on the selected motor type, the speed can range from 50 to 4000 rpm								
Rated Power	0.2 to 15.5 kW	6.9 to 56 kW	3.2 to 84 kW	1.2 to 12.2 kW	0.5 to 5.2 kW	0.4 to 5.4 kW	0.6 to 3.1 kW	0.3 to 22 kW					0.8 to 26 kW	1.1 to 76 kW	1.1 to 1610 kW	0.55 to 10 kW	6 to 14 kW	10 to 28 kW	21 to 1125 kW	83 to 1610 kW	
Rated Torque	0.3 to 88 Nm	17 to 346 Nm	10 to 500 Nm	1.9 to 68 Nm	0.8 to 16.5 Nm	0.6 to 20.5 Nm	0.9 to 12 Nm	0.4 to 57 Nm	100 to 4150 Nm	Rated force 790 to 6600 N	Rated force 200 to 8100 N	2 to 15 Nm	6 to 160 Nm	7 to 480 Nm	7 to 41800 Nm	3.5 to 65 Nm	38 to 90 Nm	64 to 180 Nm	134 to 30700 Nm	530 to 41800 Nm	
Type of Protection/Explosion Protection	IP 64 - IP 68	IP 54	IP 64, IP 65	IP 64, IP 65 EEx de IIC T3				IP 54, IP 55	IP 20			IP 65	IP 23	IP 23	IP 23 (IP 54)	IP 54	IP 54	IP 54	IP 54	IP 54	
Cooling Method	naturally-ventilated	separately-ventilated	water-cooled	naturally-ventilated	naturally-ventilated	separately-ventilated	self-ventilated, naturally-ventilated	water-cooled		water-cooled		naturally-ventilated	self-ventilated	separately-ventilated, axial	separately-ventilated, radial, or pipe-ventilated	naturally-ventilated	self-ventilated	separately-ventilated	separately-ventilated	separately-ventilated	
Frame Size	28 to 132	80 to 160	63 to 160	71 to 132	36 to 100	28 to 100	36 to 80	71 to 160	diameter classes 230 to 730	See catalog for dimensions		4355	100 to 160	100 to 160	100 to 630	100 to 630	132 to 160	132 to 160	180 to 630	180 to 630	
Encoder Feedback		Resolver Incremental Encoder (sin/cos 1 Vpp) Absolute Encoder		Incremental Encoder (sin/cos 1 Vpp) Absolute Encoder		Resolver Incremental Encoder (sin/cos 1 Vpp) Absolute Encoder		No Encoder	Resolver Incremental Encoder (sin/cos 1 Vpp) Absolute Encoder	Incremental Encoder (sin/cos 1 Vpp) Linear Encoder Absolute Encoder (EnDat)		No Encoder	Tachometer, Pulse Encoder								
Typical Applications	All industry segments requiring the highest demands for precision and also requires high dynamics, e.g. Packaging Machines, Stacker Cranes, Conveyor Systems, Material Handling Systems, Printing Presses.			Use in all industry segments where potential explosive environment exists.			All industry segments requiring the highest demands on dynamics and also requires precision, e.g. Packaging Machines, Stacker Cranes, Conveyor Systems, Material Handling Systems, Printing Presses.			Textile, man-made fibers, e.g. Multimotor drives, Hollow Glass Machines.	Index tables, Direct drives, Injection molding machines.	Machines for all industry segments requiring high demands on dynamics and precision, e.g. Processing Machines.	Simple, cost-effective, exacts positioning in low power ranges.	Use in general industrial applications, e.g. Extruders, Cranes and Hoists, Printing Presses, Presses, Continuous Web Lines. Not for high dynamic requirements.							

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