

Technical Data

ARMSTRONG MOTORS - 50HZ OPERATION

STANDARDS CONFORMANCE

The motors conform to IEC 34, IEC 72, BS4999, BS5000 and BS3979 standards.

The motors meet EN 60034, EN 55014, EN 50082-1/2, EN 61000-3-2, VDE 0839 Teil 82-2, VDE 0875 Teil 14 standards and carry CE mark for Europe.

Motors are also offered to CSA C22.2 No. 100-95 and UL 1004 for safety and carry CSA/C-US mark, for Canada and U.S.A.

The standard TEFC, 50 Hz motors are with EFF2 (improved) level efficiencies as per CEMEP Agreement with EU for Energy Efficient Motors.

Motors with EFF1 (high) level efficiencies are offered on request.

CONSTRUCTION

TEFC squirrel cage motors with the following frame construction:

Frames 63 - 132 - Aluminium Pressure Die cast (Prefix SD)

Frames 112 - 355 - Cast Iron (Prefix ND)

SPECIFICATIONS OF STANDARD PRODUCTS

GENERAL OPERATION:	
VOLTAGE VARIATION	400+/-10%
FREQUENCY VARIATION	50HZ+/-5%
FRAME DIMENSIONS	AS PER IEC 72-1 & IEC 72-2
CLASS OF INSULATION	"F"
AMBIENT TEMPERATURE	45°C
TEMPERATURE RISE	MAX 75°C BY RESISTANCE METHOD (UNLESS OTHERWISE STATED)
ALTITUDE	MAX 1000 METERS
RELATIVE HUMIDITY	UP TO 100%
ATMOSPHERIC CONDITION	NON CORROSIVE AND NON HAZARDOUS ATMOSPHERE
RATING/DUTY	CONTINUOUS/S1
DEGREE OF PROTECTION	IP55
VIBRATION LEVEL	AS PER NORMAL CLASS OF BS4999
EFFICIENCY	NAMEPLATE EFFICIENCY STATED AT FULL LOAD
OVERLOAD CAPACITY	CAPABLE OF WITHSTANDING 60% OVERLOAD FOR 15 SEC
WYE DELTA STARTING AMPS	APPROX 1/3 OF CURRENT WHEN STARTING DOL
INVERTER OPERATION:	
MAX PEAK VOLTAGE AT MOTOR TERMINALS	$V_{peak} \leq 1000V$ (SINGLE AMPLITUDE - 0 TO PEAK - LINE TO LINE VOLTAGE)
MINIMUM INVERTER RISE TIME	$t_r \geq 0.2\mu s$
MAX CABLE LENGTH TO MOTOR	30 METERS

DERATING FACTORS

The duration factors applicable under different conditions are given below:

Operating Conditions:

A: 415 V +/- 6%, 50Hz +/- 3%.

B: 415V +/- 10%, 50Hz +/- 5%.

Table A: Permissible output as % of standard output for different ambient temperatures.

Ambient Temperature	40°C	45°C	50°C	55°C	60°C	65°C
A	100%	100%	93.3%	86.7%	80%	73%
B	100%	100%	92%	85%	78%	70.5%

Table B: Permissible output as % of standard output at different altitude.

Altitude above MSL	1000 Metres	1500 Metres	2000 Metres	2500 Metres	3000 Metres	3500 Metres	4000 Metres
A	100%	98%	93%	87%	82%	78%	73%
B	100%	95%	90%	84%	78%	75%	70%

Table C: Permissible output as % of standard output for different % of unbalance in voltage.

% Unbalance	1%	2%	3%	4%	5%
A	100%	100%	95%	82.5%	75%
B	100%	95%	90%	78%	70%

Table D: Permissible output as % of standard output at different voltages.

Voltage	100%	90%	85%	80%	70%
40°C Ambient	100%	100%	90%	85%	75%
45°C Ambient	100%	90%	85%	80%	70%

Table E: Permissible output as % of standard output * for different duties.

	60Min.	S2 30Min.	10Min.	60%CDF	S3 40%CDF	25%CDF	S4-S9
A	110%	120%	130%	110%	110%	130%	Special Design Required
B	100%	115%	120%	100%	105%	120%	

* Standard motors for the above permissible output will have starting and breakdown torque proportionately reduced as % of FLT, hence these will be suitable only for applications requiring low starting torque and are to be started Direct-On-Line.

Note: When the motor is subjected to two or more variations in the above mentioned conditions, then all the appropriate factors are to be multiplied to arrive at the permissible output.

PERFORMANCE DATA, 50HZ

OUTPUT		P O L E	FRAME SIZE	FL RPM	FL AMPS			FLT Kg-m	EFFICIENCY %			POWER FACTOR			DOL STG.		SOUND PRESSURE LEVELS**
kW	HP				@ 380V	@ 400V	@ 415V		FL	3/4 LOAD	1/2 LOAD	FL	3/4 LOAD	1/2 LOAD	STG.T %FLT	STG.C %FLC	
0.18	0.25	2	SD63	2700	0.55	0.52	0.50	0.06	64.0	62.0	58.0	0.79	0.68	0.59	300	500	52
		4	SD63	1330	0.60	0.57	0.55	0.13	64.0	62.0	58.0	0.76	0.73	0.60	200	400	44
0.25	0.33	2	SD63	2700	0.70	0.67	0.65	0.09	68.0	67.0	63.0	0.79	0.72	0.60	275	500	52
		4	SD71	1350	0.82	0.78	0.75	0.18	62.0	61.0	55.0	0.76	0.73	0.60	225	400	43
0.37	0.50	2	SD71	2820	1.00	0.99	0.95	0.13	68.0	67.0	63.0	0.79	0.72	0.60	275	500	56
		4	SD71	1400	1.10	1.00	1.00	0.26	77.0	76.0	74.0	0.76	0.73	0.60	225	600	43
0.55	0.75	2	SD80	2820	1.53	1.40	1.40	0.19	73.0	72.0	68.0	0.81	0.73	0.62	250	600	59
		4	SD80	1410	1.40	1.30	1.25	0.38	77.0	76.0	74.0	0.78	0.75	0.64	200	500	44
0.75	1.00	2	SD80	2820	1.80	1.70	1.65	0.26	77.0	76.0	74.0	0.81	0.73	0.62	300	600	59
		4	SD80	1410	1.90	1.80	1.75	0.52	77.0	76.0	74.0	0.78	0.75	0.64	200	500	44
1.10	1.50	2*	SD80	2820	2.60	2.45	2.35	0.38	79.0	78.0	76.0	0.82	0.77	0.70	225	600	59
		4	SD90S	1415	2.70	2.60	2.50	0.76	78.0	76.0	74.0	0.78	0.75	0.64	200	500	47
1.50	2.00	2	SD90S	2830	3.40	3.20	3.10	0.52	80.0	79.0	77.0	0.82	0.77	0.70	225	600	68
		4	SD90L	1415	3.50	3.30	3.20	1.03	80.0	79.0	77.0	0.81	0.78	0.71	200	500	47
2.20	3.00	2	SD90L	2830	5.00	4.80	4.60	0.76	81.0	80.0	78.0	0.82	0.77	0.70	300	600	68
		4	SD100L	1440	4.90	4.70	4.50	1.49	82.0	81.0	79.0	0.82	0.78	0.72	200	600	51
3.00	4.00	2	SD100L	2865	6.60	6.00	6.00	1.01	82.0	81.0	78.0	0.85	0.80	0.72	250	700	67
		4	SD100L	1425	6.70	6.10	6.10	2.05	81.0	80.0	78.0	0.82	0.76	0.68	200	600	51
4.00	5.50	2	SD112M	2865	8.20	7.80	7.50	1.35	83.0	82.0	79.0	0.88	0.84	0.75	250	650	64
		4	SD112M	1430	9.30	8.80	8.50	2.72	85.0	84.0	81.0	0.81	0.76	0.69	200	600	55
5.50	7.50	2	SD132S	2880	11.50	10.90	10.50	1.86	85.0	84.0	82.0	0.89	0.85	0.80	250	650	68
		4	SD132S	1450	11.00	10.50	10.10	3.69	86.0	85.0	83.0	0.88	0.85	0.75	250	600	58
7.50	10.00	2	SD132S	2890	15.10	12.30	13.80	2.53	85.0	84.0	82.0	0.89	0.85	0.80	275	650	68
		4	SD132M	1455	14.90	14.10	13.60	5.02	87.0	86.0	84.0	0.88	0.85	0.75	275	600	58
11.00	15.00	2	ND160M	2920	21.80	20.80	20.00	3.67	88.0	88.0	86.0	0.88	0.86	0.78	250	650	70
		4	ND160M	1460	22.90	21.80	21.00	7.34	89.0	89.0	86.0	0.82	0.79	0.70	200	600	62
15.00	20.00	2	ND160M	2920	28.40	27.00	26.00	5.00	89.5	89.5	87.5	0.88	0.86	0.79	250	650	70
		4	ND160L	1460	29.50	28.00	27.00	10.01	90.0	90.0	88.0	0.85	0.83	0.75	200	600	62
18.50	25.00	2	ND160L	2920	35.00	33.00	32.00	6.17	90.0	90.0	88.0	0.88	0.86	0.79	275	650	70
		4	ND180M	1475	36.00	34.00	33.00	12.22	92.0	92.0	90.0	0.84	0.80	0.72	200	600	64
22.00	30.00	2	ND180M	2930	45.00	43.00	41.00	7.31	91.0	91.0	89.0	0.83	0.80	0.72	225	600	70
		4	ND180L	1475	43.70	42.00	40.00	14.53	92.0	92.0	90.0	0.84	0.80	0.72	200	600	64

NOTE: All performance figures are subject to tolerances as per IEC. FL - Full Load, STG - Starting, C - Current, T - Torque, DOL - Direct on line.

* With class 'F' temperature rise (90°C rise).

** The measured surface sound pressure level in dB(A) is the mean value of the A-weighted sound pressure level measured in several places on a measured surface at a distance of 1 metre from the contour of the machine.

PERFORMANCE DATA, 50HZ

OUTPUT		P O L E	FRAME SIZE	FL RPM	FL AMPS			FLT Kg-m	EFFICIENCY %			POWER FACTOR			DOL STG.		SOUND PRESSURE LEVELS**
KW	HP				@ 380V	@ 400V	@ 415V		FL	3/4 LOAD	1/2 LOAD	FL	3/4 LOAD	1/2 LOAD	STG.T %FLT	STG.C %FLC	dB(A)
30	40	2	ND200L	2950	55.70	53.00	51.00	9.91	91.5	91.5	90.0	0.90	0.89	0.87	200	600	74
		4	ND200L	1475	55.70	53.00	51.00	19.81	92.0	92.0	90.2	0.89	0.86	0.78	250	600	67
37	50	2	ND200L	2950	68.00	64.00	62.00	12.22	92.0	92.0	90.0	0.90	0.89	0.87	200	600	74
		4	ND225S	1480	69.00	65.00	63.00	24.35	92.5	92.5	91.6	0.89	0.86	0.78	250	600	70
45	60	2	ND225M	2955	80.00	76.00	73.00	14.83	92.0	92.0	90.0	0.94	0.92	0.88	225	650	78
		4	ND225M	1480	83.00	79.00	76.00	29.61	93.0	93.0	91.5	0.89	0.86	0.78	250	600	70
55	75	2	ND250M	2955	96.00	91.00	88.00	18.13	92.5	92.5	90.5	0.94	0.92	0.88	175	600	78
		4	ND250M	1475	100.0	95.00	92.00	36.32	93.5	93.5	92.0	0.89	0.86	0.82	200	600	70
75	100	2	ND280S	2975	135.0	129.0	124.0	24.55	93.5	93.5	92.0	0.90	0.86	0.78	225	600	79
		4	ND280S	1480	134.0	128.0	123.0	49.36	94.0	94.0	92.5	0.90	0.88	0.84	250	600	74
90	120	2	ND280M	2975	162.0	154.0	148.0	29.47	94.0	94.0	92.5	0.90	0.86	0.78	225	600	79
		4	ND280M	1480	161.0	153.0	147.0	59.23	94.5	94.5	92.5	0.90	0.88	0.84	250	600	74
110	150	2	ND315S	2965	189.0	179.0	173.0	63.13	94.0	94.0	92.5	0.94	0.91	0.84	200	600	81
		4	ND315S	1488	192.0	183.0	176.0	72.00	94.5	94.5	92.0	0.92	0.88	0.80	225	600	77
132	180	2	ND315M	2965	227.0	216.0	208.0	43.36	94.0	94.0	92.5	0.94	0.90	0.82	200	600	81
		4	ND315M	1488	229.0	218.0	210.0	86.40	95.0	95.0	94.0	0.92	0.88	0.80	225	600	77
150	200	2	ND315L	2975	257.0	244.0	235.0	49.11	94.5	94.5	92.5	0.94	0.92	0.90	175	600	81
		4	ND315M	1488	261.0	248.0	239.0	98.19	95.0	95.0	94.0	0.92	0.88	0.80	225	600	77
160	215	2	ND315L	2975	272.0	258.0	249.0	52.38	95.0	94.5	93.5	0.94	0.92	0.90	175	600	81
		4*	ND315M	1490	277.0	264.0	254.0	104.59	95.3	95.0	94.0	0.92	0.88	0.80	225	600	77
180	240	2	ND315L	2975	306.0	291.0	280.0	58.93	95.0	94.5	93.5	0.94	0.92	0.90	200	600	81
		4	ND315L	1490	320.0	304.0	293.0	117.66	95.0	95.0	94.0	0.90	0.88	0.84	225	600	77
200	270	2	ND315L	2975	339.0	322.0	310.0	65.48	95.5	95.5	94.0	0.94	0.92	0.90	200	600	92
		4	ND315L	1490	354.0	336.0	324.0	130.74	95.5	95.5	94.0	0.90	0.88	0.84	225	600	78
225	302	2	ND355L	2980	372.0	354.0	341.0	73.54	95.5	95.5	94.0	0.96	0.92	0.88	175	600	92
		4	ND355L	1490	406.0	386.0	372.0	147.08	95.5	95.5	94.0	0.88	0.86	0.82	185	600	78
250	335	2	ND355LX	2980	398.0	378.0	364.0	81.71	95.5	95.0	93.5	0.96	0.92	0.88	175	650	92
		4	ND355L	1490	432.0	411.0	396.0	163.42	95.7	95.7	94.5	0.88	0.86	0.82	185	600	79
275	369	2	ND355LX	2980	455.0	433.0	417.0	89.88	95.5	95.0	93.5	0.96	0.92	0.88	175	650	92
		4	ND355LX	1490	496.0	471.0	454.0	179.76	95.7	95.7	94.5	0.88	0.86	0.82	185	600	79
315	425	2	ND355LX	2980	522.0	496.0	478.0	102.96	95.5	95.5	94.0	0.96	0.92	0.88	200	600	92
		4	ND355LX	1492	542.0	515.0	496.0	205.64	96.0	96.0	94.5	0.92	0.90	0.88	175	600	79

NOTE: All performance figures are subject to tolerances as per IEC. FL - Full Load, STG - Starting, C - Current, T - Torque, DOL - Direct on line.

* With class 'F' temperature rise (90°C rise).

** The measured surface sound pressure level in dB(A) is the mean value of the A-weighted sound pressure level measured in several places on a measured surface at a distance of 1 metre from the contour of the machine.

Our policy is one of continuous improvement and we reserve the right to alter our dimensions and specifications without notice.

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