High-Voltage Motors
H-compact Standardline
Operation on supply system

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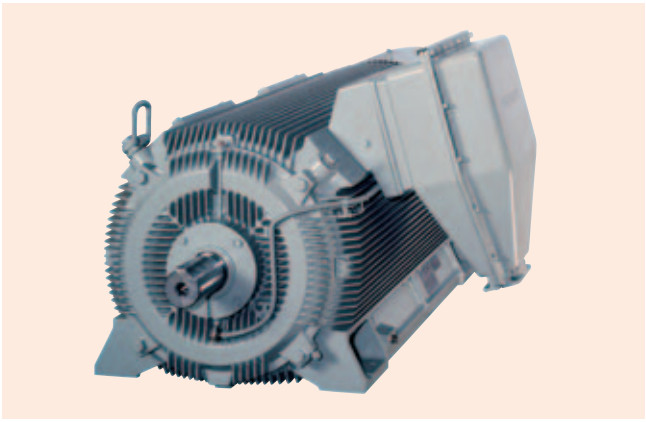
Operation on supply system

Overview



H-compact Standardline is a range of standardized, rib-cooled high-voltage motors incorporating the latest state-of-the-art technology.

Their appeal lies in their excellent reliability, durability and robust design.

The following versions of H-compact Standardline motors are available:

- Power range 200 to 800 kW
- Supply voltages 3 / 3.3 / 6 and 6.6 kV, 50 Hz
- 2-pole, 4-pole and 6-pole
- Type of construction IM B3

Benefits

The focus on a design which is standardized, but capable of satisfying a wide range of applications, has made it possible to optimize production processes and consequently slash delivery times and the price at which high-voltage motors are supplied.

Benefits to the customer:

- State-of-the-art motor technology which is already in use worldwide
- Attractive price
- Quick delivery time of only 6 weeks
- Maximum power density
- Low operating costs thanks to excellent efficiency
- High output combined with small dimensions makes it possible to build extremely compact units

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Technical specifications

Type of construction	IM B3 (IM 1001)
Shaft heights	315 mm, 355 mm, 400 mm
Type of protection	IP55
Cooling method	IC 411; ribbed cooling, self-ventilated, with additional inner cooling circuit
Ambient conditions	Max. ambient temperature (cooling medium temp.) CT = 40 °C Installation altitude ≤1000 m above sea level. Ambient temperatures up to 55 °C possible with utilization according to temperature class F. Operation and starting permissible at temperatures down to -20 °C.
Insulation system	MICALASTIC® with Vacuum Pressure Impregnation (VPI)
Rotor construction	with aluminum die-cast cage
Bearing construction	Deep-groove ball bearing to DIN 625, with SPM nipple (shock pulse measurement)
Bearing box and shields	Made of grey cast iron, integrally cast motor feet
Temperature monitoring	By 6 PT 100s in stator winding as standard (not included if PTC thermistors are ordered)
Auxiliary terminal box	standard feature
Regulations and standards	in accordance with IEC 60034-1 ff.

Selection and Ordering Data

Note:

Motors are available only with the specified data for voltage, frequency and output.

The documentation supplied is standardized. It contains starting characteristics for V_{rated} and 80 % V_{rated} without load torque. A starting inspection is not included.

Rated output [1]	Order No. + order codes for further options	Operating values at rated output						Starting torque	Starting current	Stalling torque	Moment of inertia J		Sound pressure level [2]
		Rated speed	Efficiency η with		Power factor	Rated current	Rated torque	with direct starting as multiple of rated			Motor	External max. perm.	
			4/4 load	3/4 load	cos φ			torque	current	torque			No load/ load
kW		rpm	%	%		A	Nm				kgm²	kgm²	dB(A)
3 kV, 50 Hz													
3000 rpm, 2-pole													
200	**1LA4310-2AN30-Z + B20**	2970	95.2	95.2	0.87	46.0	643	0.90	5.05	2.3	2.2	28	73/74
236	**1LA4312-2AN30-Z + B20**	2967	95.0	95.2	0.87	55.0	759	0.90	5.00	2.3	2.2	26	73/74
300	**1LA4314-2AN30-Z + B20**	2972	95.7	95.8	0.88	69.0	964	1.05	5.20	2.4	2.7	30	73/74
355	**1LA4316-2AN30-Z + B20**	2974	96.2	96.2	0.88	81.0	1140	1.10	5.30	2.5	3.1	35	73/74
400	**1LA4350-2AN30-Z + B20**	2978	96.1	96.2	0.88	91.0	1283	1.05	5.25	2.3	4.3	38	75/76
450	**1LA4352-2AN30-Z + B20**	2978	96.4	96.4	0.88	102.0	1443	1.20	5.55	2.5	4.8	43	75/76
500	**1LA4354-2AN30-Z + B20**	2980	96.6	96.7	0.88	114.0	1602	1.20	5.55	2.5	5.2	46	75/76
560	**1LA4400-2AN30-Z + B20**	2984	96.5	96.4	0.88	128.0	1792	0.85	5.40	2.5	7.8	26	77/78
650	**1LA4402-2AN30-Z + B20**	2985	96.8	96.7	0.88	146.0	2079	0.90	5.60	2.6	8.7	27	77/78
750	**1LA4404-2AN30-Z + B20**	2985	96.7	96.7	0.89	168.5	2398	0.95	5.60	2.6	9.9	30	77/78
1500 rpm, 4-pole													
200	**1LA4310-4AN30-Z + B20**	1480	94.3	94.4	0.81	50.0	1290	1.15	5.20	2.30	2.8	159	75/77
250	**1LA4312-4AN30-Z + B20**	1480	95.0	95.2	0.84	60.0	1613	1.15	5.30	2.30	3.5	201	75/77
300	**1LA4314-4AN30-Z + B20**	1480	95.2	95.4	0.85	72.0	1936	1.25	5.50	2.40	4.0	222	75/77
365	**1LA4316-4AN30-Z + B20**	1481	95.7	95.9	0.85	87.0	2353	1.25	5.50	2.40	4.8	297	75/77
400	**1LA4350-4AN30-Z + B20**	1485	95.7	95.8	0.84	96.0	2572	1.25	5.50	2.50	6.0	224	77/79
470	**1LA4352-4AN30-Z + B20**	1484	95.9	96.0	0.85	110.0	3024	1.20	5.30	2.35	6.9	247	77/79
560	**1LA4354-4AN30-Z + B20**	1485	96.2	96.3	0.86	130.0	3601	1.30	5.50	2.40	8.1	296	77/79
630	**1LA4400-4AN30-Z + B20**	1488	96.3	96.3	0.85	148.0	4043	1.20	5.50	2.50	11.6	288	79/81
710	**1LA4402-4AN30-Z + B20**	1488	96.5	96.5	0.85	166.0	4556	1.20	5.50	2.50	12.9	330	79/81
800	**1LA4404-4AN30-Z + B20**	1488	96.6	96.6	0.86	186.0	5134	1.20	5.50	2.50	14.5	381	79/81
1000 rpm, 6-pole													
236	**1LA4314-6AN30-Z + B20**	986	94.6	94.9	0.82	59.0	2286	1.25	5.30	2.50	5.3	375	69/72
270	**1LA4316-6AN30-Z + B20**	985	94.8	95.2	0.82	66.0	2617	1.25	5.50	2.40	6.4	431	69/72
315	**1LA4350-6AN30-Z + B20**	989	95.3	95.5	0.82	78.0	3042	1.10	5.30	2.30	10.8	541	71/74
365	**1LA4352-6AN30-Z + B20**	989	95.6	95.8	0.83	89.0	3523	1.10	5.30	2.20	12.7	667	71/74
425	**1LA4354-6AN30-Z + B20**	990	95.8	95.9	0.82	104.0	4099	1.25	5.50	2.40	15.0	841	71/74
490	**1LA4400-6AN30-Z + B20**	991	95.9	96.0	0.81	118.0	4722	1.05	5.50	2.30	21.2	740	73/76
570	**1LA4402-6AN30-Z + B20**	992	96.2	96.3	0.81	136.0	5487	1.10	5.50	2.30	24.2	1193	73/76
630	**1LA4404-6AN30-Z + B20**	991	96.3	96.3	0.80	154.0	6071	1.20	5.50	2.40	27.3	1233	73/76

1) Temperature class F, utilization in accordance with B.

2) Measured at distance of 1 m in accordance with DIN 45635 (Part 1), tolerance +3 dB(A).

Operation on supply system

Rated output [1]	Order No. + order codes for further options	Operating values at rated output						Starting torque	Starting current	Stalling torque	Moment of inertia J		Sound pressure level [2]
		Rated speed	Efficiency η with		Power factor	Rated current	Rated torque	with direct starting as multiple of rated			Motor	External max. perm.	
			4/4 load	3/4 load	cos φ			torque	current	torque			No load/ load
kW		rpm	%	%		A	Nm				kgm^2	kgm^2	dB(A)
3.3 kV, 50 Hz													
3000 rpm, 2-pole													
200	**1LA4310-2AN00-Z + B20**	2977	95.5	95.2	0.85	43.0	641	1.10	6.00	2.85	2.2	28	73/74
236	**1LA4312-2AN00-Z + B20**	2975	95.2	95.2	0.84	52.0	757	1.10	5.90	2.80	2.2	26	73/74
300	**1LA4314-2AN00-Z + B20**	2978	95.9	95.7	0.85	65.0	962	1.30	6.15	2.95	2.7	30	73/74
355	**1LA4316-2AN00-Z + B20**	2980	96.3	96.1	0.85	76.0	1138	1.35	6.30	3.10	3.1	35	73/74
400	**1LA4350-2AN00-Z + B20**	2983	96.3	96.2	0.85	86.0	1280	1.30	6.15	2.85	4.3	38	75/76
450	**1LA4352-2AN00-Z + B20**	2983	96.5	96.4	0.85	96.5	1441	1.45	6.50	3.10	4.8	43	75/76
500	**1LA4354-2AN00-Z + B20**	2985	96.7	96.7	0.85	107.0	1600	1.45	6.55	3.10	5.2	46	75/76
560	**1LA4400-2AN00-Z + B20**	2988	96.6	96.3	0.84	121.5	1790	1.05	6.35	3.05	7.8	26	77/78
650	**1LA4402-2AN00-Z + B20**	2988	96.8	96.6	0.85	138.0	2077	1.10	6.60	3.20	8.7	27	77/78
750	**1LA4404-2AN00-Z + B20**	2989	96.8	96.6	0.87	157.0	2396	1.15	6.70	3.20	9.9	30	77/78
1500 rpm, 4-pole													
200	**1LA4310-4AN00-Z + B20**	1484	94.4	94.2	0.74	50.0	1287	1.40	5.75	2.80	2.8	159	75/77
250	**1LA4312-4AN00-Z + B20**	1485	95.2	95.2	0.79	58.0	1608	1.40	6.15	2.85	3.5	201	75/77
300	**1LA4314-4AN00-Z + B20**	1484	95.4	95.4	0.80	69.5	1931	1.55	6.35	2.95	4.0	222	75/77
365	**1LA4316-4AN00-Z + B20**	1485	95.9	95.9	0.80	83.5	2346	1.55	6.35	2.95	4.8	297	75/77
400	**1LA4350-4AN00-Z + B20**	1488	95.8	95.6	0.77	95.0	2566	1.55	6.20	3.05	6.0	224	77/79
470	**1LA4352-4AN00-Z + B20**	1488	96.1	96.0	0.80	105.5	3017	1.45	6.15	2.85	6.9	247	77/79
560	**1LA4354-4AN00-Z + B20**	1489	96.4	96.3	0.82	124.0	3592	1.60	6.40	2.95	8.1	296	77/79
630	**1LA4400-4AN00-Z + B20**	1491	96.4	96.2	0.80	143.0	4036	1.45	6.35	3.05	11.6	288	79/81
710	**1LA4402-4AN00-Z + B20**	1491	96.6	96.4	0.81	159.0	4548	1.45	6.40	3.05	12.9	330	79/81
800	**1LA4404-4AN00-Z + B20**	1491	96.7	96.5	0.82	177.5	5125	1.45	6.45	3.05	14.5	381	79/81
1000 rpm, 6-pole													
236	**1LA4314-6AN00-Z + B20**	989	94.8	94.8	0.77	57.0	2279	1.50	6.10	3.05	5.3	375	69/72
270	**1LA4316-6AN00-Z + B20**	988	95.1	95.2	0.78	62.5	2609	1.55	6.45	2.95	6.4	431	69/72
315	**1LA4350-6AN00-Z + B20**	991	95.5	95.4	0.78	74.5	3034	1.35	6.20	2.80	10.8	541	71/74
365	**1LA4352-6AN00-Z + B20**	991	95.8	95.7	0.79	84.5	3515	1.35	6.20	2.70	12.7	667	71/74
425	**1LA4354-6AN00-Z + B20**	992	95.9	95.8	0.78	99.5	4091	1.55	6.40	2.95	15.0	841	71/74
490	**1LA4400-6AN00-Z + B20**	993	96.0	95.9	0.81	111.5	4713	1.30	6.50	2.80	21.2	740	73/76
570	**1LA4402-6AN00-Z + B20**	994	96.3	96.2	0.81	128.5	5476	1.35	6.45	2.80	24.2	1193	73/76
630	**1LA4404-6AN00-Z + B20**	993	96.4	96.2	0.78	146.5	6060	1.45	6.45	2.95	27.3	1233	73/76

1) Temperature class F, utilization in accordance with B.

2) Measured at distance of 1 m in accordance with DIN 45635 (Part 1), tolerance +3 dB(A).

Operation on supply system

Rated output [1]	Order No. + order codes for further options	Operating values at rated output						Starting torque	Starting current	Stalling torque	Moment of inertia J		Sound pressure level [2]
		Rated speed	Efficiency η with		Power factor	Rated current	Rated torque	with direct starting as multiple of rated			Motor	External max. perm.	
			4/4 load	3/4 load	cos φ			torque	current	torque			No load/ load
kW		rpm	%	%		A	Nm				kgm^2	kgm^2	dB(A)
6 kV, 50 Hz													
3000 rpm, 2-pole													
200	**1LA4310-2AN60-Z + B20**	2970	95.2	95.2	0.87	23.0	643	0.90	5.00	2.30	2.2	28	73/74
236	**1LA4312-2AN60-Z + B20**	2967	95.0	95.2	0.87	27.5	759	0.90	5.00	2.30	2.2	26	73/74
300	**1LA4314-2AN60-Z + B20**	2972	95.7	95.8	0.88	34.5	964	1.05	5.20	2.40	2.7	30	73/74
355	**1LA4316-2AN60-Z + B20**	2974	96.2	96.2	0.88	40.5	1140	1.10	5.30	2.50	3.1	35	73/74
400	**1LA4350-2AN60-Z + B20**	2978	96.1	96.2	0.88	45.5	1283	1.05	5.20	2.30	4.3	38	75/76
450	**1LA4352-2AN60-Z + B20**	2978	96.4	96.4	0.88	51.0	1443	1.20	5.50	2.50	4.8	43	75/76
500	**1LA4354-2AN60-Z + B20**	2980	96.6	96.7	0.88	57.0	1602	1.20	5.50	2.50	5.2	46	75/76
560	**1LA4400-2AN60-Z + B20**	2984	96.5	96.4	0.88	64.0	1792	0.85	5.40	2.50	7.8	26	77/78
650	**1LA4402-2AN60-Z + B20**	2985	96.8	96.7	0.88	73.0	2079	0.90	5.60	2.60	8.7	27	77/78
750	**1LA4404-2AN60-Z + B20**	2985	97.0	96.9	0.89	84.0	2399	0.95	5.60	2.60	9.9	30	77/78
1500 rpm, 4-pole													
200	**1LA4310-4AN60-Z + B20**	1480	94.3	94.4	0.81	25.0	1290	1.15	5.20	2.30	2.8	159	75/77
250	**1LA4312-4AN60-Z + B20**	1480	95.0	95.2	0.84	30.0	1613	1.15	5.30	2.30	3.5	201	75/77
300	**1LA4314-4AN60-Z + B20**	1480	95.2	95.4	0.85	36.0	1936	1.25	5.50	2.40	4.0	222	75/77
365	**1LA4316-4AN60-Z + B20**	1481	95.7	95.9	0.85	43.5	2353	1.25	5.50	2.40	4.8	297	75/77
400	**1LA4350-4AN60-Z + B20**	1485	95.7	95.8	0.84	48.0	2572	1.25	5.50	2.50	6.0	224	77/79
470	**1LA4352-4AN60-Z + B20**	1484	95.9	96.0	0.85	55.0	3024	1.20	5.30	2.35	6.9	247	77/79
560	**1LA4354-4AN60-Z + B20**	1485	96.2	96.3	0.86	65.0	3601	1.30	5.50	2.40	8.1	296	77/79
630	**1LA4400-4AN60-Z + B20**	1488	96.3	96.3	0.85	74.0	4043	1.20	5.50	2.50	11.6	288	79/81
710	**1LA4402-4AN60-Z + B20**	1488	96.5	96.5	0.85	83.0	4556	1.20	5.50	2.50	12.9	330	79/81
800	**1LA4404-4AN60-Z + B20**	1488	96.6	96.6	0.86	93.0	5134	1.20	5.50	2.50	14.5	381	79/81
1000 rpm, 6-pole													
236	**1LA4314-6AN60-Z + B20**	986	94.6	94.9	0.82	29.5	2286	1.25	5.30	2.50	5.3	375	69/72
270	**1LA4316-6AN60-Z + B20**	985	94.8	95.2	0.82	33.0	2617	1.25	5.50	2.40	6.4	431	69/72
315	**1LA4350-6AN60-Z + B20**	989	95.3	95.5	0.82	39.0	3041	1.10	5.30	2.30	10.8	541	71/74
365	**1LA4352-6AN60-Z + B20**	989	95.6	95.8	0.83	44.5	3524	1.10	5.30	2.20	12.7	667	71/74
425	**1LA4354-6AN60-Z + B20**	990	95.8	95.9	0.82	52.0	4099	1.25	5.50	2.40	15.0	841	71/74
490	**1LA4400-6AN60-Z + B20**	991	95.9	96.0	0.84	59.0	4722	1.05	5.50	2.30	21.2	740	73/76
570	**1LA4402-6AN60-Z + B20**	992	96.2	96.3	0.84	68.0	5487	1.10	5.50	2.30	24.2	1193	73/76
630	**1LA4404-6AN60-Z + B20**	991	96.3	96.3	0.82	77.0	6071	1.20	5.50	2.40	27.3	1233	73/76

1) Temperature class F, utilization in accordance with B.

2) Measured at distance of 1 m in accordance with DIN 45635 (Part 1), tolerance +3 dB(A).

Operation on supply system

Rated output [1]	Order No. + order codes for further options	Operating values at rated output						Starting torque	Starting current	Stalling torque	Moment of inertia J		Sound pressure level [2]
		Rated speed	Efficiency η with		Power factor	Rated current	Rated torque	with direct starting as multiple of rated			Motor	External max. perm.	
			4/4 load	3/4 load	cos φ			torque	current	torque			No load/ load
kW		rpm	%	%		A	Nm				kgm^2	kgm^2	dB(A)
6.6 kV, 50 Hz													
3000 rpm, 2-pole													
200	**1LA4310-2AN70-Z + B20**	2977	95.4	95.2	0.85	21.5	641	1.10	6.00	2.80	2.2	28	73/74
236	**1LA4312-2AN70-Z + B20**	2975	95.2	95.2	0.84	26.0	757	1.10	5.90	2.80	2.2	26	73/74
300	**1LA4314-2AN70-Z + B20**	2978	95.9	95.7	0.85	32.5	962	1.30	6.15	2.95	2.7	30	73/74
355	**1LA4316-2AN70-Z + B20**	2980	96.3	96.1	0.85	38.0	1138	1.35	6.30	3.05	3.1	35	73/74
400	**1LA4350-2AN70-Z + B20**	2983	96.3	96.2	0.85	43.0	1280	1.30	6.10	2.80	4.3	38	75/76
450	**1LA4352-2AN70-Z + B20**	2983	96.5	96.3	0.85	48.0	1441	1.45	6.50	3.05	4.8	43	75/76
500	**1LA4354-2AN70-Z + B20**	2985	96.7	96.7	0.85	53.5	1600	1.45	6.50	3.05	5.2	46	75/76
560	**1LA4400-2AN70-Z + B20**	2988	96.5	96.3	0.84	60.5	1790	1.00	6.30	3.05	7.8	26	77/78
650	**1LA4402-2AN70-Z + B20**	2988	96.8	96.6	0.85	69.0	2077	1.10	6.60	3.20	8.7	27	77/78
750	**1LA4404-2AN70-Z + B20**	2989	97.1	96.8	0.87	78.5	2396	1.15	6.70	3.20	9.9	30	77/78
1500 rpm, 4-pole													
200	**1LA4 310-4AN70-Z + B20**	1484	94.4	94.2	0.74	25.0	1287	1.40	5.75	2.80	2.8	159	75/77
250	**1LA4 312-4AN70-Z + B20**	1485	95.2	95.2	0.79	29.0	1609	1.40	6.10	2.80	3.5	201	75/77
300	**1LA4 314-4AN70-Z + B20**	1484	95.4	95.3	0.80	35.0	1931	1.55	6.30	2.95	4.0	222	75/77
365	**1LA4 316-4AN70-Z + B20**	1485	95.9	95.9	0.80	42.0	2346	1.55	6.35	2.95	4.8	297	75/77
400	**1LA4 350-4AN70-Z + B20**	1488	95.8	95.6	0.77	47.5	2567	1.50	6.20	3.05	6.0	224	77/79
470	**1LA4 352-4AN70-Z + B20**	1488	96.1	96.0	0.80	53.0	3017	1.45	6.15	2.85	6.9	247	77/79
560	**1LA4 354-4AN70-Z + B20**	1490	96.4	96.3	0.82	62.0	3592	1.55	6.40	2.95	8.1	296	77/79
630	**1LA4 400-4AN70-Z + B20**	1491	96.4	96.2	0.80	71.5	4036	1.45	6.35	3.05	11.6	288	79/81
710	**1LA4 402-4AN70-Z + B20**	1491	96.6	96.4	0.81	79.5	4548	1.45	6.40	3.05	12.9	330	79/81
800	**1LA4 404-4AN70-Z + B20**	1491	96.7	96.5	0.82	88.5	5125	1.45	6.40	3.05	14.5	381	79/81
1000 rpm, 6-pole													
236	**1LA4 314-6AN70-Z + B20**	989	94.8	94.8	0.77	28.5	2279	1.50	6.10	3.05	5.3	375	69/72
270	**1LA4 316-6AN70-Z + B20**	988	95.1	95.2	0.78	31.5	2609	1.55	6.45	2.95	6.4	431	69/72
315	**1LA4 350-6AN70-Z + B20**	991	95.5	95.4	0.78	37.0	3034	1.35	6.15	2.80	10.8	541	71/74
365	**1LA4 352-6AN70-Z + B20**	991	95.8	95.7	0.79	42.0	3515	1.35	6.20	2.70	12.7	667	71/74
425	**1LA4 354-6AN70-Z + B20**	992	95.9	95.8	0.78	50.0	4091	1.55	6.40	2.95	15.0	841	71/74
490	**1LA4 400-6AN70-Z + B20**	993	96.0	95.9	0.81	55.5	4713	1.30	6.45	2.80	21.2	740	73/76
570	**1LA4 402-6AN70-Z + B20**	994	96.3	96.2	0.81	64.5	5476	1.35	6.45	2.80	24.2	1193	73/76
630	**1LA4 404-6AN70-Z + B20**	993	96.4	96.2	0.78	73.0	6060	1.45	6.45	2.95	27.3	1233	73/76

1) Temperature class F, utilization in accordance with B.

2) Measured at distance of 1 m in accordance with DIN 45635 (Part 1), tolerance +3 dB(A).

Ordering example:

High-voltage motor
H-compact Standardline basic version
6.6 kV, 50 Hz, 1500 rpm, 4-pole, 300 kW
with option M13: Anti-condensation heating for 230 V

1LA4314-4AN70-Z
+B20+M13

Options

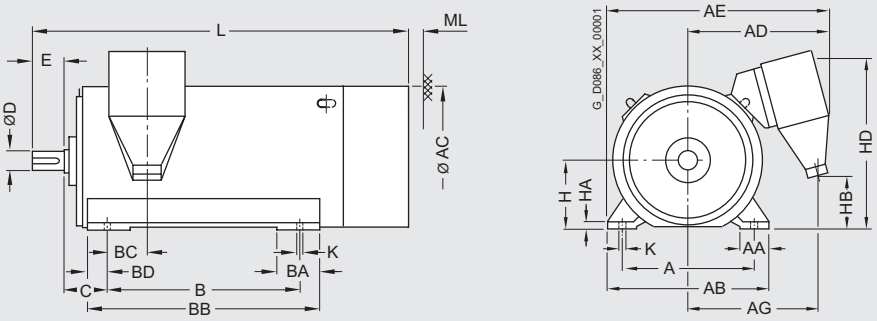
Option description	Order code	Comment
Standardline design	**B20**	Always state
Motor protection through PTC thermistor with 6 built-in temperature sensors for alarm and switch-off	**A12**	
Motor temperature sensing by means of 6 built-in PT100 G resistance thermometers	**A65**	Standard
Installation of 2 screw-in PT100 resistance thermometers in basic circuit for rolling-contact bearings	**A40**	
Nipples for SPM (shock pulse measurement)	**G50**	Standard
Terminal box on RHS (view onto DE)	**K09**	
Terminal box on LHS (view onto DE)	**K10**	
Terminal box at 90° angle, cable from DE	**K83**	
Terminal box at 90° angle, cable from NDE	**K84**	
Terminal box at 180° angle, cable from top	**K85**	
Special finish in standard color RAL 7030	**K26**	
Anti-condensation heating for 110 V	**M12**	
Anti-condensation heating for 230 V	**M13**	
Supplementary (second) auxiliary terminal box in grey cast iron	**M50**	
Version for clockwise rotation	**K97**	
Version for counter-clockwise rotation	**K98**	
Ambient temperature 45 °C	**D11**	With utilization in accordance with F
Ambient temperature 50 °C	**D12**	With utilization in accordance with F
Ambient temperature 55 °C	**D13**	With utilization in accordance with F
Documentation		
Documentation in English	**-**	Standard
Documentation in German	**D00**	
Documentation in Russian	**D56**	
Documentation in Italian	**D72**	
Documentation in French	**D77**	
Documentation in Spanish	**D78**	
Documentation in Portuguese	**D79**	
Documentation in Swedish	**D83**	
Documentation on CD-ROM	**B21**	

Operation on supply system

Dimensional drawings

Design:

Type IM B3, rolling-contact bearing, degree of protection IP55, type of cooling IC 441



Type	Weight	A	AD	AE	B	C	H	HD	L	D	E
	kg	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
2-pole											
1LA4310–2	1550	610	710	1075	710	200	315	860	1590	70	105
1LA4312–2	1550	610	710	1075	710	200	315	860	1590	70	105
1LA4314–2	1850	610	710	1075	900	200	315	860	1790	70	105
1LA4316–2	2000	610	710	1075	900	200	315	860	1790	70	105
1LA4350–2	2300	686	740	1155	1000	224	355	930	1930	75	105
1LA4352–2	2400	686	740	1155	1000	224	355	930	1930	75	105
1LA4354–2	2550	686	740	1155	1000	224	355	930	1930	75	105
1LA4400–2	3150	750	775	1120	1120	254	400	1010	2095	85	130
1LA4402–2	3300	750	775	1120	1120	254	400	1010	2095	85	130
1LA4404–2	3550	750	775	1120	1120	254	400	1010	2095	85	130
4-pole											
1LA4310–4	1500	610	710	1075	710	200	315	860	1610	90	130
1LA4312–4	1650	610	710	1075	710	200	315	860	1610	90	130
1LA4314–4	1900	610	710	1075	900	200	315	860	1810	90	130
1LA4316–4	2050	610	710	1075	900	200	315	860	1810	90	130
1LA4350–4	2350	686	740	1155	1000	224	355	930	1985	100	165
1LA4352–4	2550	686	740	1155	1000	224	355	930	1985	100	165
1LA4354–4	2750	686	740	1155	1000	224	355	930	1985	100	165
1LA4400–4	3400	750	775	1125	1120	254	400	1010	2125	120	165
1LA4402–4	3600	750	775	1125	1120	254	400	1010	2125	120	165
1LA4404–4	3800	750	775	1125	1120	254	400	1010	2125	120	165
6-pole											
1LA4314–6	1950	610	710	1075	900	200	315	860	1810	90	130
1LA4316–6	2150	610	710	1075	900	200	315	860	1810	90	130
1LA4350–6	2400	686	740	1155	1000	224	355	930	1985	100	165
1LA4352–6	2600	686	740	1155	1000	224	355	930	1985	100	165
1LA4354–6	2850	686	740	1155	1000	224	355	930	1985	100	165
1LA4400–6	3500	750	775	1225	1120	254	400	1010	2125	120	165
1LA4402–6	3750	750	775	1225	1120	254	400	1010	2125	120	165
1LA4404–6	4000	750	775	1225	1120	254	400	1010	2125	120	165

More information

Description - construction details

Housing, cooling system

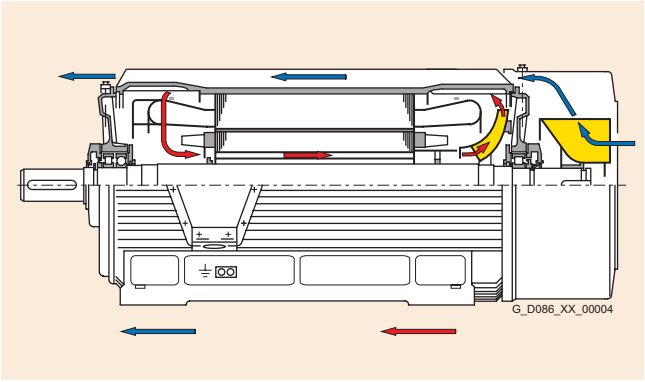
The stator housing on all motors is made of grey cast iron.

The housing contains 4 axial cooling air ducts equally spaced around the circumference.

The main and auxiliary terminal boxes are bolted onto the two upper ducts, which also contain the winding conductors and monitoring cables.

The two bottom ducts are located in the foot area.

These cooling air ducts are a component of the supplementary inner cooling circuit that is a feature of Siemens H-compact and N-compact motors. This cooling circuit ensures even thermal distribution within the motor and provides for optimum cooling. The resulting bearing and winding overhang temperatures have a positive impact on the service life and availability of the motors.



Hoisting gear

Two diagonally arranged, reversible hoisting lugs which align automatically with the lifting cable, i.e. according to the applied direction of force.

Rotor construction

The rotor winding is made of die-cast aluminum.

The aluminum is poured into the rotor slots under pressure and thus bonded with the rotor laminations in a positive connection. This method of manufacture precludes any risk of cage movement or cage “creepage” in the rotor core.

Another advantage of the die-cast method is the excellent thermal coupling between the cage and laminated rotor core, resulting in high permissible starting and rotor locking times.

Shaft

All motors have a shaft extension designed according to DIN 748 “short” with key steel featherkey according to DIN 6880. The rotors are balanced with half-key.

Direction of rotation, fans and fan shroud

The direction of rotation must be stated in every order!

On 2-pole motors, the external fan is a low-noise, direction-dependent axial fan. 4-pole and 6-pole motors are equipped with a direction-neutral radial fan.

The external fan is covered by a sheet-steel shroud.

Vibration response

H-compact Standardline motors comply with vibration severity grade N as stipulated by IEC 60034-14, or grade A according to the revised version of IEC 60034-14 (valid from December 2006). The vibration levels remain well below limit values in most cases.

Insulation system

The SIEMENS-MICALASTIC® insulation system, tried and tested on high-power high-voltage motors for many years, has been used on the H-compact Standardline range.

The MICALASTIC insulation system complies with temperature class F, thermally utilized according to B (in normal operation).

An important element is the VPI (Vacuum Pressure Impregnation) process which is specially tailored to this insulation system.

The winding is resistant to system transfers with 100% residual field and switching operations up to 110% with phase opposition.

The surge withstand capability of the insulation satisfies insulation coordination requirements. The insulation properties exceed the values (V_p = 4 x V_{rated} + 5 kV) stipulated in DIN EN 60034-15/VDE 0530-15.

Noise

H-compact Standardline motors are low-noise machines. This is achieved by:

- Motor construction designed for low noise
- Optimization of external ventilation
- Fans with good air-flow form design
- Noise-optimized construction of steel fan shroud
- Number of stator and rotor slots carefully selected for low magnetic noise excitation

Switching frequency

H-compact Standardline motors are designed for continuous operation in accordance with IEC / VDE 0530 Part 1. The permissible switching frequency limit is 5000 starts per year.

Operation on supply system

Terminal box 1XA8711

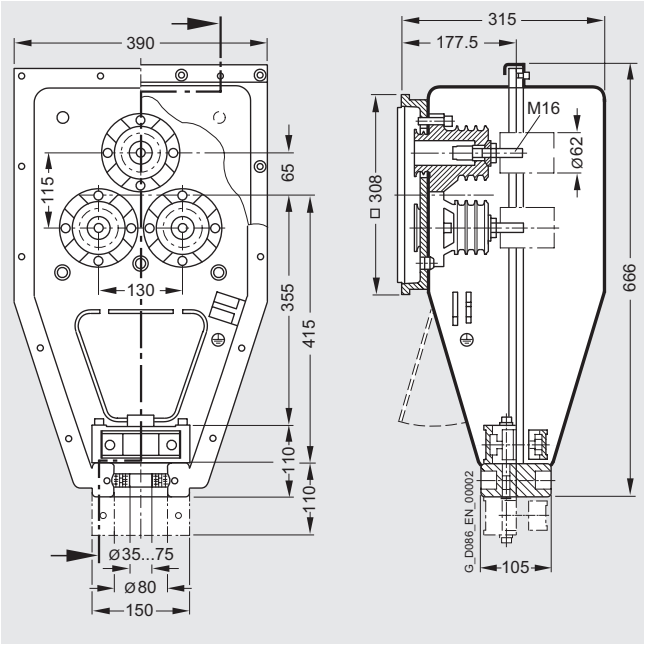
Rated voltage 6.6 kV, up to 315 A, 3 terminals (M16) for mains connection

- Up to 240 mm^2 conductor cross section with cable lug in accordance with DIN 46234,
- Up to 400 mm^2 conductor cross section with cable lug in accordance with DIN 46235,
- Alternatively, connection without cable lug,

Internal ground connection

Mounted on motor on RHS at DE (looking towards the DE shaft end).

As an option, the terminal box can be mounted on LHS at DE, rotated through an angle of 90° or 180°.



Auxiliary terminal box 1XB9014

The auxiliary terminal box is designed to hold terminals for connecting monitoring elements, heating, etc. It is made of aluminum and is shipped as standard with a cable entry plate without drill holes. This means that the cable entry parameters do not need to be clarified in advance when the motor is ordered. The plate is secured by 2 or 4 screws and can be removed easily for machining with the required entry holes.

- Dimensions (W x D x H): 360 x 160 x 90 mm
- No. of terminals: 35
- Max. box mounting height: 50 mm

Paint finish

Two paint systems - standard paint and special paint - are available for protecting motors against corrosion. They satisfy the following requirements relating to environmental conditions:

The **Standard paint** is categorized in the “Moderate” climate group as specified by IEC 721-2-1.

It is suitable for

- installation indoors or outdoors under cover, without direct natural weathering.
- Temperatures up to +120 °C for short periods or +100 °C continuously.
- Rel. air humidity up to 100% at temperatures up to +30 °C for short periods, up to 85% at temperatures up to +25 °C continuously.

Normal paint system:

- Primer approx. 30 µm on parts which can be dipped (casting), approx. 60 µm on parts which can be sprayed (steel)
- Final coat approx. 30 µm

The **Special paint** is categorized in the “Worldwide” climate group as specified by IEC 721-2-1.

It is suitable for

- installation outdoors with direct exposure to solar radiation and weathering over a wide temperature and humidity range (industrial or coastal areas are typical installation sites).
- Temperatures up to +140 °C for short periods or +120 °C continuously.

Special paint system:

- Primer approx. 30 µm on parts which can be dipped (casting), approx. 60 µm on parts which can be sprayed (steel)
- Final coat approx. 60 µm

The primer coat is applied to internal and external surfaces, the final coat to external surfaces.

Increased total film thicknesses, e.g. 120 or 150 µm, are available at an additional cost.

Bearing construction

The motors are equipped with deep-groove ball bearings in accordance with DIN 625.

The location bearing is positioned at the DE.

All rolling-contact bearings are lubricated with mineral-oil-based lithium soap grease. The bearings have a re-greasing device with flat grease nipple M10 x 1 to DIN 3404 and a collector for used grease which is large enough to cover the calculated bearing life when the re-greasing intervals and quantities are observed (lubrication data can be found on lubrication plate or in order documentation).

The rolling-contact bearings are sealed externally by V-ring seals and internally by gap seals.