



IE2
High Efficiency

**3-PHASE INDUCTION MOTORS
SERIES 2SIE - INCREASED OUTPUT**



3-PHASE INDUCTION MOTORS

SERIES 2SIE - INCREASED OUTPUT

TD 227
Version V_02, 03-03-2020
Changes and misprints reserved

Kolmer Elektromotoren B.V.
Industrieweg 16
3881 LB Putten
The Netherlands
Tel. +31 (0) 341 - 369 696
Fax +31 (0) 341 - 369 690
E-mail: info@kolmerelectricmotors.com
Website: www.kolmerelectricmotors.com

Contents

1. General information	5
1.1. Cantoni product range	5
1.2. Standards	5
1.3. Standard operating conditions	6
1.4. Tolerances of motor parameters.....	6
1.5. Mounting arrangements	7
1.6. Terminal box equipment	8
1.7. Bearings	9
1.8. Permissible loads on the shaft end.....	10
2. 2SIE series - increased output	11
2.1. Technical data	11
2.2. Spare parts	14



1. General information

1.1. Cantoni product range

Cantoni offers a full range of induction electric motors, from 0,04 kW up to 6000 kW, in standard and special executions. Cantoni motors operate in almost all industrial segments like: pumps, fans, compressors, conveyors, mining, power plants and many other fields. The Cantoni product range consists of standard motors according to IEC standard in efficiency classes IE1, IE2, IE3, IE4 and motors according to NEMA standard e.g. NEMA Premium motors. Apart from standard motors, it is possible to offer motors for special applications in marine, oil, gas, energy, construction and many other industries. All main components of the motors are produced in Europe (Poland) in order to guarantee the highest quality level. Particular importance is attached to the raw materials used for production, they are delivered only by qualified suppliers exclusively from the European Union.

The designs and solutions correspond to the customer requirements and international norms. All motors are manufactured according to Quality Management System consistent with ISO 9001 and Environmental Management System consistent with ISO 14001. Cantoni motors are provided with CE mark and fulfil the EU Directives regarding the safety measures. The motors comply with almost all international standards: German standards DIN VDE, British standards BS, Italian standards CEI and on request Canadian standards CSA, American standards UL, NEMA or EU standard ATEX.

1.2. Standards

The electric motors are manufactured according to the international standards:

Description	Standard
Rating and performance	IEC 60034-1
Methods for determining losses and efficiency	IEC 60034-2-1
Classification of degrees of protection	IEC 60034-5
Methods of cooling	IEC 60034-6
Symbols of construction and mounting arrangements	IEC 60034-7
Terminal markings and direction of rotation	IEC 60034-8
Noise limits	IEC 60034-9
Dimensions and output of electric machines	IEC 60072-1
Vibration limits	IEC 60034-14

1.3. Standard operating conditions

Cantoni motors can operate under the following conditions:

- Motor of series 2SIE - increased output are efficiency class IE2
- Motors are insulated with Class F (105K) materials and Class B temperature rise
- Motors are equipped with PTC 140°C. Other temperature values are available on request
- The standard degree of enclosure protection is IP55. Shafts are fitted with oil seal as standard
- The cooling method is IC411: TEFC (Totally Enclosed Fan Cooled)
- The standard voltage of the motors is 230/400V or 400/690V at a frequency of 50 Hz
- Motors are suitable for operating mode S1 (continuous operation)
- Motors are suitable to operate at an ambient temperature of -20°C / +40°C
- Motors are balanced Class A (½ key)
- Special executions are available on request (for example brake motors, marine execution, etc)

For other operating conditions, please contact Kolmer to check whether this condition is suitable or not.

1.4. Tolerances of motor parameters

Permissible deviations between real values and catalogue values according to IEC 60034-1:

Description	Permissible deviations
Power factor $\cos \varphi$	$\Delta \cos \varphi = -\frac{1}{6} \cdot (1 - \cos \varphi_N)$
Efficiency η	$\Delta \eta = -15\% \cdot (100 - \eta_N)$ for $P_N \leq 150$ kW $\Delta \eta = -10\% \cdot (100 - \eta_N)$ for $P_N > 150$ kW
Speed n	$\Delta n = \pm 20\% \cdot (n_s - n_N)$ for $P_N > 1$ kW $\Delta n = \pm 30\% \cdot (n_s - n_N)$ for $P_N \leq 1$ kW
Locked rotor current I_L/I_N	$\Delta \frac{I_L}{I_N} = +20\% \cdot \frac{I_L}{I_N}$
Locked rotor torque T_L/T_N	Min $\frac{T_L}{T_N} = -15\% \cdot \frac{T_L}{T_N}$ Max $\frac{T_L}{T_N} = +25\% \cdot \frac{T_L}{T_N}$
Breakdown torque T_B/T_N	$\Delta \frac{T_B}{T_N} = -10\% \cdot \frac{T_B}{T_N}$
Moment of inertia J [kg·m ²]	$\Delta J = \pm 10\% \cdot J$
Sound pressure level L_{PA} [dB]	$\Delta L_{PA} = +3$ dB /A/

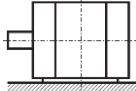
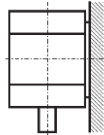
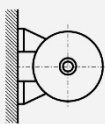
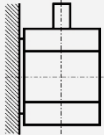
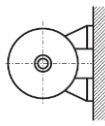
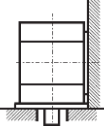
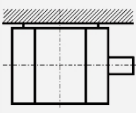
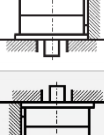
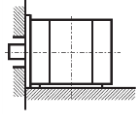
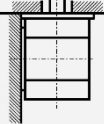
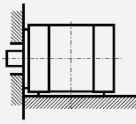
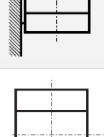
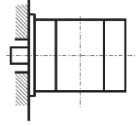
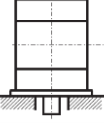
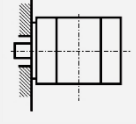
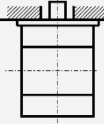
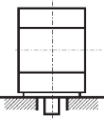
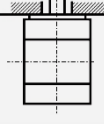
Standard motors comply with Voltage value and frequency variations within zone A according IEC 60034-1. Other tolerances of supply Voltage and their frequency are available on request.

Description	Permissible deviations
Voltage value U	$\Delta U = \pm 5\%$
Frequency f	$\Delta f = \pm 2\%$



1.5. Mounting arrangements

The most commonly used mounting arrangements are shown in the table below. Other mounting arrangements are available on request. According to the safety standard for electrical machines, foreign objects must be prevented from falling into the fan cover. On request, a protective hood (rain cover) can be mounted over the fan cover.

Horizontal shaft				Vertical shaft			
	IEC EN 60034-7 code II	IEC EN 60034-7 code I	Frame size		IEC EN 60034-7 code II	IEC EN 60034-7 code I	Frame size
	IM 1001	IM B3	56 - 315		IM 1011	IM V5	56 - 315
	IM 1051	IM B6	56 - 280		IM 1031	IM V6	56 - 315
	IM 1061	IM B7	56 - 280		IM 2011	IM V15	56 - 315
	IM 1071	IM B8	56 - 280		IM 2111	IM V17	56 - 160
	IM 2001	IM B35	56 - 315		IM 2031	IM V36	56 - 315
	IM 2101	IM B34	56 - 160		IM 2131	IM V37	56 - 160
	IM 3001	IM B5	56 - 315		IM 3011	IM V1	56 - 315
	IM 3601	IM B14	56 - 160		IM 3031	IM V3	56 - 280
					IM 3611	IM V18	56 - 160
					IM 3631	IM V19	56 - 160

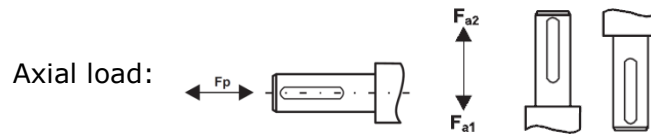
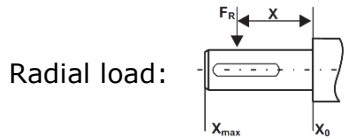
1.6. Terminal box equipment

Frame size	Number of terminals	Terminal size	Terminal box position	Cable glands	Cable gland direction	Temperature sensors
71	6	M4	Top	M20 (1x)	To right	PTC 140°C
80	6	M4	Top	M20 (1x)	To right	PTC 140°C
90	6	M5	Top	M25 (1x), M20 (1x)	To right	PTC 140°C
100	6	M5	Top	M25 (1x), M20 (1x)	To right	PTC 140°C
112	6	M5	Top	M25 (1x), M20 (1x)	To right	PTC 140°C
132	6	M6	Top	M25 (2x)	To right	PTC 140°C
160	6	M6	Top	M40 (2x)	To right	PTC 140°C
180	6	M6	Top	M40 (2x)	To right	PTC 140°C
200	6	M8	Top	M50 (2x), M16 (1x)	To right	PTC 140°C
225	6	M8	Top	M50 (2x), M16 (1x)	To right	PTC 140°C
250	6	M10	Top	M63 (2x), M16 (1x)	To right	PTC 140°C
280	6	M10	Top	M63 (2x), M16 (1x)	To right	PTC 140°C
315L	6	M16	Top	M63 (2x), M16 (1x)	To right	PTC 140°C

1.7. Bearings

Frame size	Number of poles	Bearing DE	Bearing NDE
71	2 - 6		6203 2Z C3
80	2 - 6		6204 2Z C3
90	2 - 6		6205 2Z C3
100	2 - 6		6206 2Z C3
112	2 - 6		6306 2Z C3
132	2 - 6		6308 2Z C3
160	2 - 6		6309 2Z C3
180	2 - 6		6311 2Z C3
200	2 - 6		6312 C3
225	2 - 6		6313 C3
250	2 - 6		6315 C3
280	2		6315 C3
280	4 - 6		6318 C3

1.8. Permissible loads on the shaft end



Frame size	Number of poles	Horizontal operation		Vertical operation		
		$F_R (X=0)$	$F_R (X=X_{max})$	F_P	F_{a1}	F_{a2}
71	2	0,29	0,24	0,07	0,05	0,09
80	2	0,33	0,27	0,09	0,06	0,12
	4	0,44	0,37	0,12	0,09	0,15
	6	0,51	0,42	0,14	0,11	0,17
90	2	0,68	0,44	0,68	0,35	0,38
	4	0,78	0,44	0,78	0,35	0,38
100	2	0,88	0,46	0,90	0,28	0,40
	6	1,20	0,46	1,10	0,38	0,40
112	2	1,00	0,48	1,00	0,40	0,45
	4	1,45	0,48	1,40	0,40	0,45
132	2	1,82	0,66	1,90	0,43	0,60
	4	2,10	0,66	2,20	0,45	0,60
160	2	2,22	0,98	2,30	0,92	0,95
180	2	2,92	1,30	3,00	1,10	1,20

Frame size	Number of poles	Horizontal operation		Vertical operation		
		$F_R (X=0)$	$F_R (X=X_{max})$	F_P	F_{a1}	F_{a2}
180	4	3,60	1,30	3,60	1,10	1,30
200LC	2	3,00	2,50	2,30	1,80	2,90
200L	4	3,70	3,10	2,80	2,00	3,90
200LC	6	4,20	3,50	3,60	2,80	4,60
225M	2	3,30	2,80	2,50	1,90	3,30
	4	4,10	3,30	3,20	2,30	4,20
	6	4,70	3,80	4,00	3,00	5,30
250	2	4,10	3,40	3,10	2,30	4,10
	4	5,20	4,30	3,90	2,90	5,20
	6	5,60	4,60	5,00	3,60	6,70
280M	2	3,80	3,20	3,00	1,90	4,50
	4	6,50	5,50	4,90	3,40	6,90
	6	7,40	6,30	5,70	3,90	7,90
315L		On request				



2. 2SIE series - increased output

2.1. Technical data

2-Pole motors (3000 rpm)

Type	Rated output	Rated speed	Rated torque	Efficiency			Power Factor	Full load current			Locked rotor current	Locked rotor torque	Breakdown torque	Moment of inertia	Sound pressure level	Netto weight B ₃
	P _N	n _N	T _N	η _N [%]			cosφ _N	I _N [A]			I _L /I _N	T _L /T _N	T _B /T _N	J	L _{PA}	m
	[kW]	[min ⁻¹]	[N·m]	50% load	75% load	100% load	[-]	230V	400V	690V	[-]	[-]	[-]	[kg·m ²]	[dB]	[kg]
2SIE 71x-2C	0,75	2780	2,57	73,0	77,0	78,0	0,81	3,10	1,80		4,8	2,1	2,2	0,000691		7,6
2SIE 80x-2C	1,5	2820	5,07	79,0	81,0	81,3	0,82	5,70	3,30	1,91	5,0	2,8	2,8	0,00145		12,0
2SIE 90L2A	3	2865	10,0	76,8	85,4	84,6	0,83	10,7	6,2	3,6	8,0	3,9	4,2	0,0019	63	19,4
2SIE 100L2A	4	2880	13,3	84,9	86,2	85,8	0,80		8,4	4,9	7,6	2,9	3,1	0,0039	62	26,7
2SIE 112M2A	5,5	2915	18,0	86,9	87,6	87,0	0,88		10,4	6,0	9,0	2,8	3,1	0,0075	61	41,0
2SIE 112M2B	7,5	2915	24,6	87,4	88,5	88,1	0,79		15,6	9,0	8,3	3,0	3,6	0,0077	61	43,0
2SIE 132M2	9,2	2920	30,1	89,4	89,7	88,8	0,90		16,6	9,6	8,6	2,7	3,2	0,017	68	70,8
2SIE 132S2D	11	2910	36,1	89,9	90,3	89,4	0,91		19,5	11,3	8,0	2,8	3,3	0,020	68	80
2SIE 132M2A	11	2910	36,1	89,9	90,3	89,4	0,91		19,5	11,3	8,0	2,8	3,3	0,020	68	79,0
2SIE 160L2A	22	2930	71,6	91,7	91,9	91,3	0,88		39,5	22,9	7,9	2,5	2,7	0,059	69	118
2SIE 180L2	30	2935	97,6	92,5	92,6	92,0	0,90		52,3	30,3	7,5	2,4	2,5	0,095	75	190
2SIE 200L2C	45	2952	146	93,7	93,5	93,0	0,89	136	78	45	6,6	2,3	2,7	0,20		310
2SIE 225M2C	55	2968	177	94,3	94,3	93,7	0,90	164	94	54	6,5	1,9	2,6	0,28		415
2SIE 250M2C	75	2969	241	94,3	94,4	93,9	0,90	223	128	74	7,4	2,3	3,2	0,42		497
2SIE 280M2C	110	2978	353	94,9	94,9	94,6	0,92	317	182	106	6,9	1,9	2,9	0,98		723

4-Pole motors (1500 rpm)

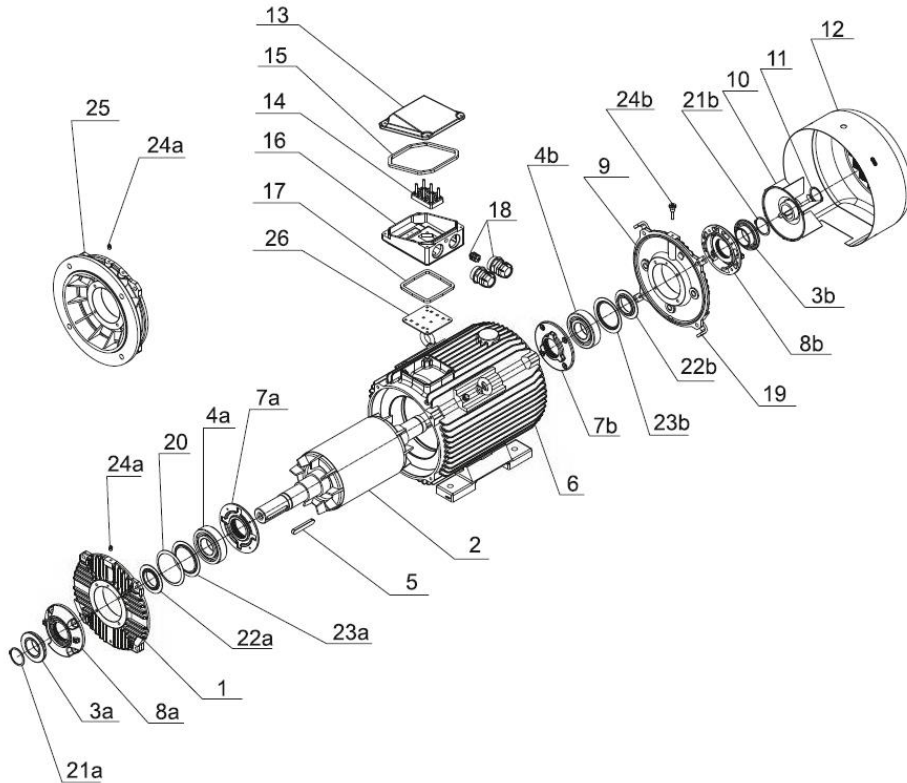
Type	Rated output	Rated speed	Rated torque	Efficiency			Power Factor	Full load current			Locked rotor current	Locked rotor torque	Breakdown torque	Moment of inertia	Sound pressure level	Netto weight B3
	P_N	n_N	T_N	η_N [%]			$\cos\phi_N$	I_N [A]			I_L/I_N	T_L/T_N	T_B/T_N	J	L_{PA}	m
	[kW]	[min ⁻¹]	[N·m]	50% load	75% load	100% load	[-]	230V	400V	690V	[-]	[-]	[-]	[kg·m ²]	[dB]	[kg]
2SIE 80x-4C	1,1	1380	7,61	72,0	78,0	81,4	0,65	5,20	3,00		3,7	2,3	2,1	0,00268		11,5
2SIE 90L4A	1,8	1410	12,2	82,5	84,3	83,5	0,76	7,1	4,1		6,7	2,5	3,9	0,0045	57	69
2SIE 100L4C	4	1455	26,2	84,3	87,1	86,6	0,79	14,7	8,4	4,9	6,2	2,2	3,0	0,0086	55	31
2SIE 112M4A	5,5	1440	36,5	87,8	88,2	87,7	0,79		11,5	6,6	6,4	2,1	2,7	0,0115	58	70
2SIE 132M4A	9,2	1460	60,2	89,5	90,1	89,3	0,80		18,6	10,8	7,7	2,5	3,3	0,042	59	72
2SIE 180L4A	30	1465	195,6	92,0	92,7	92,3	0,86		54,6	31,6	7,0	2,4	2,7	0,185	67	78
2SIE 200L4C	37	1475	240	93,0	93,1	92,7	0,87	115	66	38	6,0	2,2	2,6	0,37		310
2SIE 200L4D	45	1476	291	93,4	93,5	93,1	0,87	139	80	46	6,1	2,2	2,8	0,49		320
2SIE 225M4C	55	1483	354	93,7	94,0	93,7	0,87	169	97	56	7,0	1,9	2,4	0,66		420
2SIE 250M4C	75	1480	484	94,9	95,0	94,5	0,89	224	129	75	6,4	2,0	2,5	1,00		510
2SIE 280M4C	110	1488	706	94,9	95,1	94,6	0,90	324	186	108	6,6	2,0	2,5	1,85		716
2SIE 315L4	250	1484	1609			85,1	0,90		422	245	7,0	2,2	2,0			



6-Pole motors (1000 rpm)

Type	Rated output	Rated speed	Rated torque	Efficiency			Power Factor	Full load current			Locked rotor current	Locked rotor torque	Breakdown torque	Moment of inertia	Sound pressure level	Netto weight B3
	P_N	n_N	T_N	η_N [%]			$\cos\phi_N$	I_N [A]			I_L/I_N	T_L/T_N	T_B/T_N	J	L_{PA}	m
	[kW]	[min ⁻¹]	[N·m]	50% load	75% load	100% load	[-]	230V	400V	690V	[-]	[-]	[-]	[kg·m ²]	[dB]	[kg]
2SIE 80x-6C	0,75	920	7,80	72,0	75,0	76,0	0,71	3,45	2,00		3,8	2,3	2,3	0,00345		7,3
2SIE 100L6A	1,85	945	18,7	78,0	81,1	80,9	0,67	8,6	4,9		5,0	2,4	2,5	0,0100	54	22
2SIE 112M6A	3	945	30,3	84,4	85,0	83,3	0,71	12,7	7,3	4,2	4,5	1,6	1,9	0,0115	58	36
2SIE 180L6A	18,5	970	182,1	91,1	91,3	90,4	0,83		35,6	20,6	6,0	2,7	2,4	0,276	61	198
2SIE 200L6C	30	988	290	90,8	91,8	91,7	0,78	105	61	35	6,1	2,3	2,3	0,7		325
2SIE 225M6C	37	990	357	91,3	92,5	92,4	0,75	134	77	45	6,8	2,6	2,6	0,97		405
2SIE 225M6D	45	988	435	92,7	93,1	92,7	0,78	156	90	52	6,1	2,3	2,3	1,09		440
2SIE 250M6C	45	992	433	92,5	93,1	93,0	0,81	150	86	50	6,6	1,9	2,5	1,55		495
2SIE 250M6D	55	991	530	93,0	93,4	93,1	0,84	177	102	59	6,2	1,8	2,3	1,76		520
2SIE 280M6C	75	990	723	93,8	94,1	93,9	0,80	251	144	83	6,2	2,1	2,2	2,25		740

2.2. Spare parts



#	Description
1	DE shield
2	Rotor
3	Shaft seal
4	Bearing
5	Key
6	Housing with feet
7	Internal bearing cap
8	External bearing cap
9	NDE shield
10	Fan
11	Seeger ring
12	Fan cover
13	Terminal box cover

#	Description
14	Terminal board
15	Rubber gasket
16	Terminal box housing
17	Rubber gasket
18	Cable glands
19	Fan cover support
20	Spring washer
21	Seeger ring
22	Grease shield
23	Bearing internal ring
24	Grease nipple
25	Flange B5
26	Rubber gasket





📍 Industrieweg 16, 3881 LB Putten
☎ +31 (0) 341 - 369 696
🌐 www.kolmerelectricmotors.com

MOTORS WITH ADDED VALUE