General data

Motor type	13.71□.35.□.2.0	13.71□.□□.□.□.□	13.75□.□□.□.□.□
Enclosure	IP54 or IP 55		
Thermal class (VDE530)	F		
Motor protection	-	Thermal contact (normally-closed contact)	
Cooling	Naturally ventilated		Integral fan
Temperature range	-20 to +40 °C		
Site altitude	Up to 1000 m a.m.s.l.		
Electrical connection	Terminal box		
Bearing	Deep-groove ball bearing		
Operating mode (VDE530)	S1		

Description
The multi-range windings make three-phase asynchronous motors suitable for operation in a wide range of operating voltages – 3-phase 220-240/380-415 V. The lower voltage applies to delta connections and the higher to star connections.

Three-phase asynchronous motor type: 13.710 (smooth housing)

Three-phase asynchronous motor type: 13.750 (ribbed housing)

Operation with frequency inverters for AC motors
The sticker in the terminal box indicates the voltage limit values for your motor.

Permissible voltage
û ≤ 0.75 kV
dU/dt ≤ 5kV µs

Sticker for product range 13.7□□

Protecting the motor from excessive voltage spikes
- When operating the motor with a frequency inverter or for mains switching operation, voltage spikes can occur which can damage the motor insulation.
- To prevent malfunctions, the limit values given in the tables must not be exceeded:

Operating the motor with	Limit values for voltage spikes	
	Max. amplitude û (kV)	Max. rate of rise dU/dt (kv / µs)
Frequency inverter single-phase	0.75	
Frequency inverter three-phase	1.5	5
Mains switching operation	0.75	

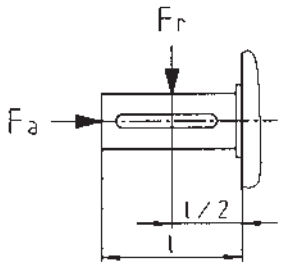
TIP!
For mains switching operation, the voltage spikes can be limited by the use of a suppressor circuit with RC components or varistors (not part of scope of supply). The suppressor circuit must be of a suitable dimension for the application in question!

Rated data

Motor type (smooth housing)	**13.710.35**	**13.710.35**	**13.710.47**	**13.710.47**	**13.710.55**	**13.710.55**
Rated power (W)	12	25	40	75	60	90
Rated torque (Nm)	0.085	0.088	0.28	0.27	0.42	0.32
Rated current (A)	0.18 / 0.1	0.35 / 0.2	0.38 / 0.22	0.40 / 0.23	0.37 / 0.21	0.44 / 0.25
Rated voltage (V)	230/400	230/400	230/400	230/400	230/400	230/400
Rated frequency (Hz)	50	50	50	50	50	50
Rated speed (rpm)	1350	2700	1350	2700	1350	2700
Power factor	0.7	0.53	0.61	0.76	0.72	0.86
Moment of inertia (kgcm²)	0.22	0.22	0.41	0.41	1.4	0.85
Max. radial force (N) F_r	240	190	350	280	340	270
Max. axial force (N) F_a	230	170	320	240	320	240
M_A/M_N	2.6	2.6	2.2	2.4	1.9	2.1
M_K/M_N	2.0	2.0	2.5	2.0	1.8	2.1

Motor type (ribbed housing)	**13.750.45**	**13.750.45**	**13.750.55**	**13.750.55**	**13.750.65**	**13.750.65**
Rated power (W)	30	60	90	150	180	250
Rated torque (Nm)	0.21	0.21	0.64	0.53	1.27	0.86
Rated current (A)	0.42 / 0.24	0.48 / 0.28	0.70 / 0.40	0.73 / 0.42	1.20 / 0.70	1.27 / 0.73
Rated voltage (V)	230/400	230/400	230/400	230/400	230/400	230/400
Rated frequency (Hz)	50	50	50	50	50	50
Rated speed (rpm)	1350	2700	1350	2700	1350	2750
Power factor	0.56	0.62	0.65	0.86	0.79	0.83
Moment of inertia (kgcm²)	0.31	0.31	1.3	0.79	2.1	1.4
Max. radial force (N) F_r	240	190	400	320	570	450
Max. axial force (N) F_a	120	90	380	280	520	390
M_A/M_N	2.8	3.3	2.1	2.3	1.7	2.7
M_K/M_N	2.0	2.9	1.9	2.6	2.0	2.0

The motors are dimensioned for a rated frequency of 50 Hz. The rated frequency of 60 Hz is permissible. If the same rated voltage is maintained with 60 Hz operation the utilisation of the motor and thus the motor temperature reduce. If the rated voltage is increased by the factor 1.2 (ratio 60 Hz/50 Hz) in 60 Hz operation, the motor utilisation remains constant and the temperatures are the same as in 50 Hz operation.



Frequency	Voltage	Power	Speed	Torque	Starting torque
Hz	U/U_N in %	P/P_N in %	n/n_N in %	M/M_N in %	M_A/M_{AN} in %
50	100	100	100	100	100
60	100	100	120	83	70
60	120	120	120	100	100

Selection table Type 13.710.□□.□.2.□

Motor type	P_N W rpm	50 Hz n_2 Nm	50 Hz M_2	Design A-side	Selection (tick as required)
13.710.35.0.2.0	12	1350	0.09	B14	
13.710.35.0.2.0	25	2700	0.09	B14	
13.710.47.0.2.□	40	1350	0.28	B14	
13.710.47.0.2.□	75	2700	0.27	B14	
13.710.55.1.2.□	60	1350	0.42	IEC56 B14 C80	
13.710.55.1.2.□	90	2700	0.32	IEC56 B14 C80	

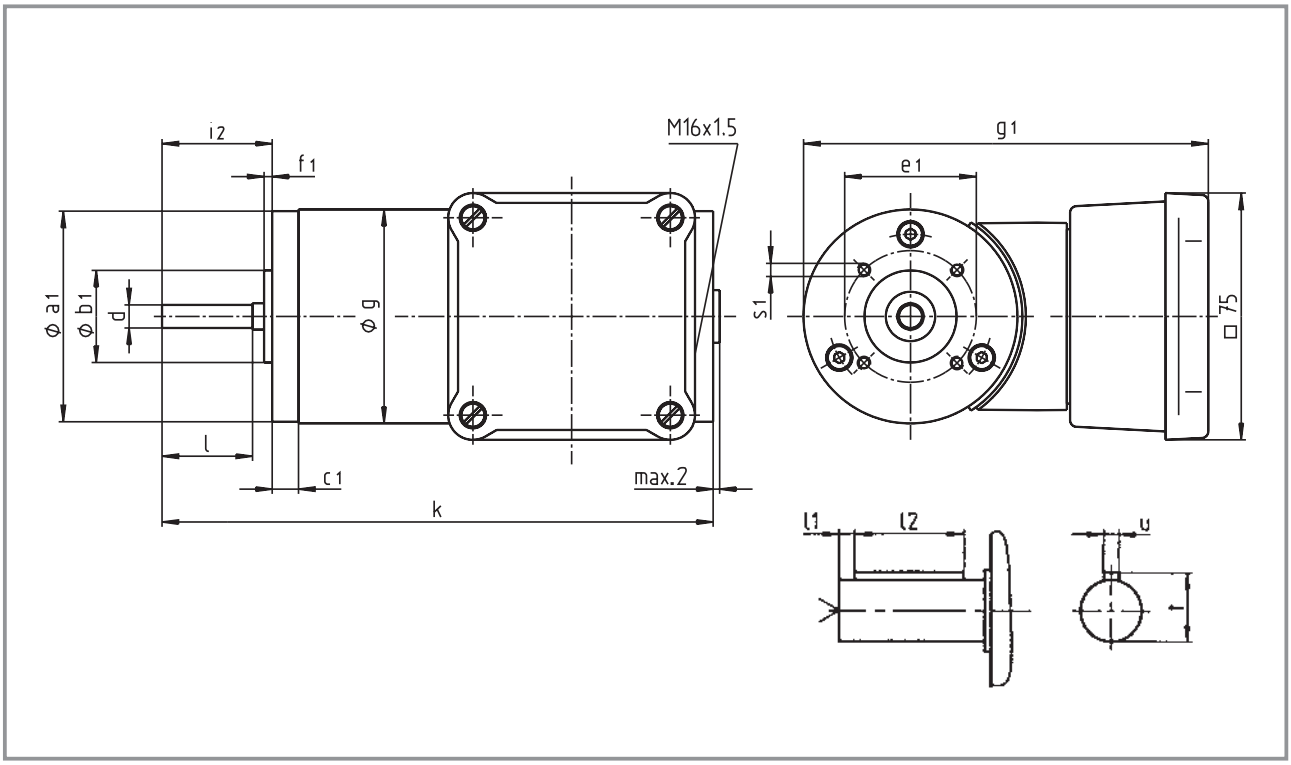
Additional order information

B-side design	0 = no built-on accessories	
	1 = with spring-applied brake	
	7 = for brake attachment	
Enclosure	IP54	
	IP55	
Brake supply voltage	24 V DC with motor frame size 47 and 55 only	
	230 V AC with bridge rectifier with motor frame size 47 and 55 only	
Position of electrical connection		2

Type code see pages 1-3 to 1-6.

Mounting position see cover fold-out.

Dimensions Type 13.710.□□.□.2.□



Motor type	Frame size	a_1	b_1 j7	c_1	d	e_1	f_1	g	g_1	i_2	k	l	l_1	l_2	s_1	t	u	Weight approx. kg
13.710.35.0.2.0		64	28	10	7 h6	40	2.5	65	123	33.5	167.5	31	–	–	M4	–	–	1.8
13.710.47.0.2.□		74	28	10	8 h6	45	2.5	75	133	32.5	186.5	29	–	–	M4	–	–	2.9
13.710.55.1.2.□	IEC 56	85	50	14	9 k6	65	2.5	85	144	20	183	20	3	14	M5	10.2	3	3.6

Dimensions in mm

Selection table Type 13.750.□□.□.□.□

Motor type	P_N W rpm	50 Hz n_2 Nm	50 Hz M_2	Design A-side	Selection (tick as required)
13.750.45.0.3.□	30	1350	0.21	B3	
13.750.45.0.2.□				B14	
13.750.45.0.3.□	60	2700	0.21	B3	
13.750.45.0.2.□				B14	
13.750.55.1.3.□	90	1350	0.64	IEC56 B3	
13.750.55.1.2.□				IEC56 B14 C80	
13.750.55.1.3.□	150	2700	0.53	IEC56 B3	
13.750.55.1.2.□				IEC56 B14 C80	
13.750.65.1.3.□	180	1350	1.27	IEC63 B3	
13.750.65.1.2.□				IEC63 B14 C90	
13.750.65.1.3.□	250	2750	0.86	IEC63 B3	
13.750.65.1.2.□				IEC63 B14 C90	

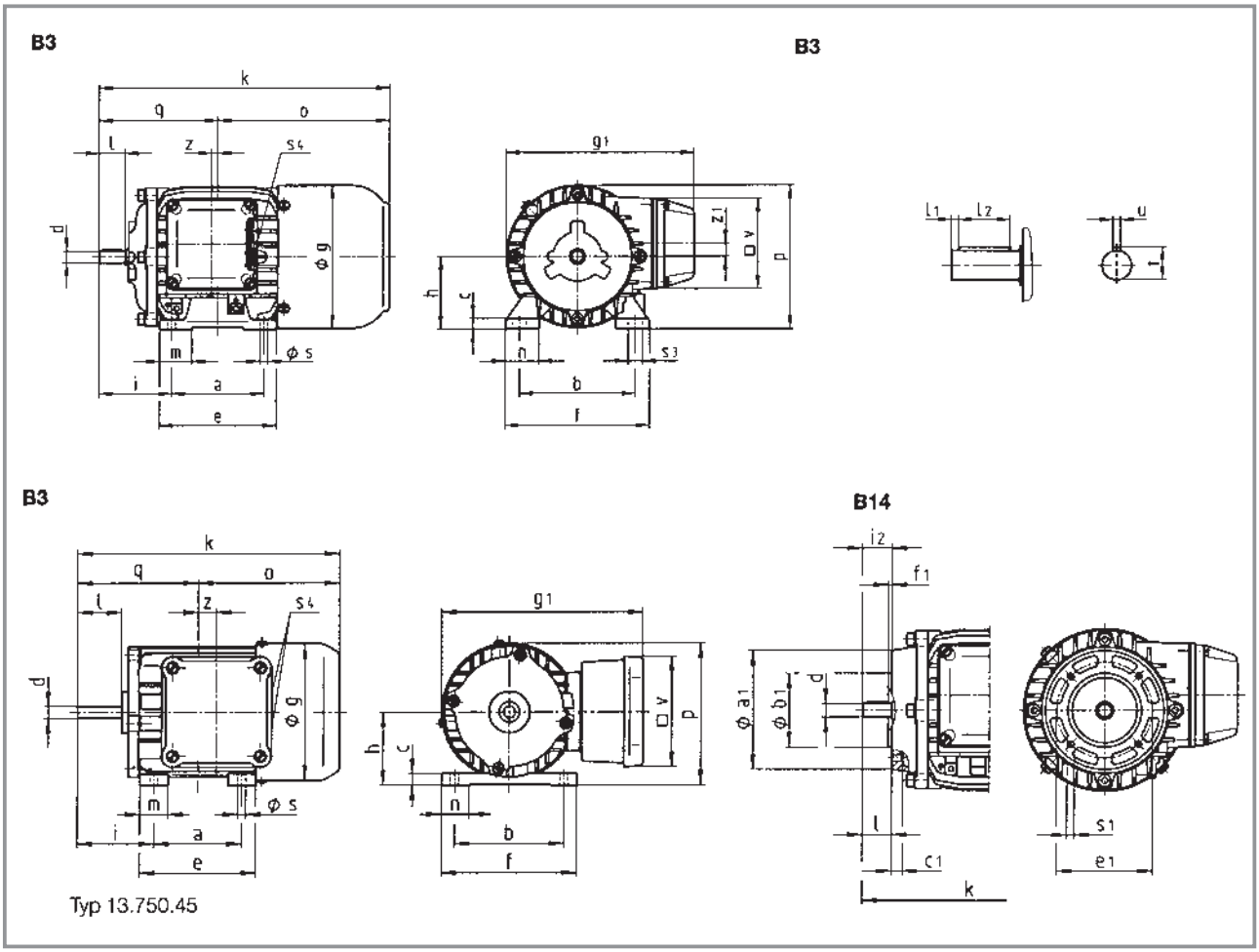
Additional order information

B-side design	0 = no built-on accessories	
	1 = with spring-applied brake	
	7 = for brake attachment	
Enclosure	IP54	
	IP55	
Brake supply voltage	24 V DC	
	230 V AC with bridge rectifier	
Position of electrical connection on type B3		2 3 5
Position of electrical connection on type B14		2

Type code see pages 1-3 to 1-6.

Mounting position see cover fold-out.

Dimensions Type 13.750.□□.□.□.□



Motor type	Frame size	a B3	a_1 B14	b B3	b_1 B14 j7	c B3	c_1 B14	d	e B3	e_1 B14	f B3	f_1 B14	g	g_1	h B3	i B3	i_2 B14
13.750.45.0.□.□	–	60	74.5	75	28	8	7	8 h6	79	45	93	4.5	93	137.5	50	52	32.5 34.5
13.750.55.1.□.□	IEC 56	71	80	90	50	8	7.5	9 k6	90	65	112	2.5	110.5	146	56	56	20
13.750.65.1.□.□	IEC 63	80	90	100	60	9.5	8	11 k6	105	75	125	2.5 3	123	158	63	63	23

Motor type	k	l *)	l_1	l_2	m B3	n B3	o	p B3	p_1 B3	q	s B3	s_1 B14	s_3 B3	s_4	t	u	v	z	z_1	Weight approx. kg
13.750.45.0.□.□	178.5	30			19	19	96.5	96.5	141	82	5.5	M5	–	M16x1.5	–	–	75	13.5	–	2.3
13.750.55.1.□.□	187	20	2.5	15	25	26	95.5	111.5	146.5	91.5	6	M5	11	M16x1.5	10.2	3	70	5	10	3.7
13.750.65.1.□.□	215.5	23	3	18	27.5	30	112.5	124.5	165.5	103	7	M5	12	M16x1.5	12.5	4	70	8.5	16	5

*) Motors, if non-IEC motors, do not have a shaft collar

Dimensions in mm

Selection table Type 13.71□.□□.□.2.□

Motor type	P_N W	50 Hz n_2 rpm	50 Hz M_2 Nm	Design A-side for gearbox attachment	Selection (tick as required)
13.710.35.9.2.0	12	1350	0.085	B14 for SPL42	
13.710.35.9.2.0	25	2700	0.088	B14 for SPL42	
13.711.35.2.2.0	12	1350	0.085	B14 for SSN25	
13.711.35.2.2.0	25	2700	0.088	B14 for SSN25	
13.711.47.0.2.0	40	1350	0.280	B14 for SSN25	
13.711.47.0.2.0	75	2700	0.270	B14 for SSN25	
13.711.55.3.2.0	60	1350	0.420	B14 for SSN31	
13.711.55.3.2.0	90	2700	0.320	B14 for SSN31	

Additional order information

B-side design	0 = no built-on accessories	
	1 = with spring-applied brake	
	7 = for brake attachment	
Enclosure	IP54	
	IP55	
Brake supply voltage	24 V DC	
	230 V AC with bridge rectifier	
Position of electrical connection		2

Dimensional drawing available on request

Type code see pages 1-3 to 1-6.

Mounting position see cover fold-out.

Selection table Type 13.751.□□.□.□.□

Motor type	P_N W	50 Hz n_2 rpm	50 Hz M_2 Nm	Design A-side for gearbox attachment	Selection (tick as required)
13.751.45.2.5.□	30	1350	0.21	B3/B14 for SSN25	
13.751.45.2.2.□				B14 for SSN25	
13.751.45.2.5.□	60	2700	0.21	B3B14 for SSN25	
13.751.45.2.2.□				B14 for SSN25	
13.751.55.3.5.□	90	1350	0.64	B3/B14 for SSN31	
13.750.55.1.2.□				B14 for SSN31	
13.751.55.3.5.□	150	2700	0.53	B3/B14 for SSN31	
13.751.55.3.2.□				B14 for SSN31	
13.751.65.5.5.□	180	1350	1.27	B3/B14 for SSN40	
13.751.65.5.2.□				B14 for SSN40	
13.751.65.5.5.□	250	2750	0.86	B3/B14 for SSN40	
13.751.65.5.2.□				B14 for SSN40	

Additional order information

B-side design	0 = no built-on accessories	
	1 = with spring-applied brake	
	7 = for brake attachment	
Enclosure	IP54	
	IP55	
Brake supply voltage	24 V DC	
	230 V AC with bridge rectifier	
Position of electrical connection on type B3/B14		2 3 5
Position of electrical connection on type B14		2

Dimensional drawing available on request

Type code see pages 1-3 to 1-6.

Mounting position see cover fold-out.