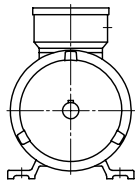
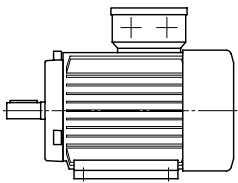
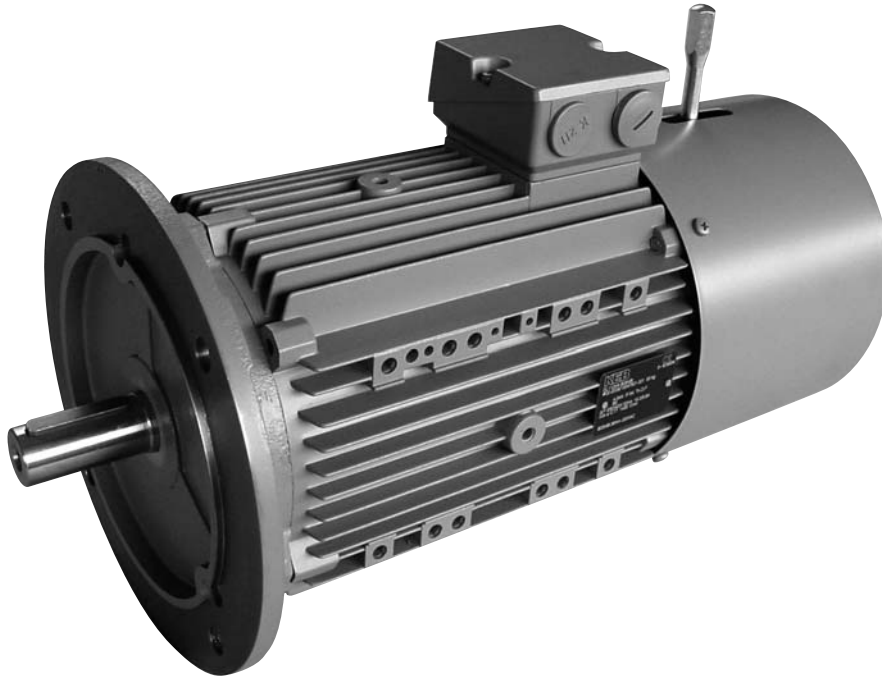
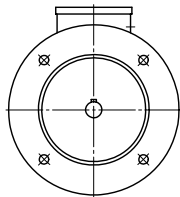
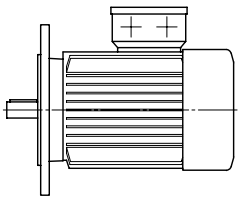


# Three phase motors

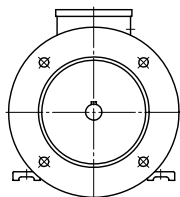
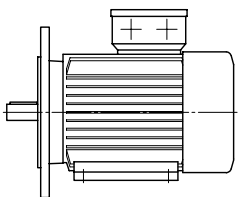
# KEB



Foot mounted version  
Example: DL80G4 – B3



Flange mounted version  
Example: DA132M4 – B5



Foot - Flange mounted version  
Example: DL90S4 – B3/B5

# Three phase motors



## Technical characteristics

The motors correspond to the following standards:

DIN EN 60034	Rotating electrical machines, rating and performance.
IEC60072	Totally enclosed fan-cooled motors with squirrel cage, fixing dimensions and allocation of rating.
DIN42948	Mounting flanges for electrical machines

In the standard version the motors have insulation class F. Insulation class H is available.

## Voltage/Frequency

DL63 ..DL112	DA132 .. DA200
<ul style="list-style-type: none"> <li>230/400V Δ/Y 50Hz</li> <li>220-240/380-420V Δ/Y 50/60Hz</li> <li>275/480 V Δ/Y 60 Hz *)</li> <li>230/460V 60 Hz</li> </ul>	<ul style="list-style-type: none"> <li>230/400V Δ/Y 50Hz</li> <li>220-240/380-420V Δ/Y 50/60Hz</li> <li>275/480 V Δ/Y 60Hz *)</li> <li>230/460V 60Hz</li> </ul>
400/690 V Δ/Y 50 Hz 380-420/660-690 V Δ/Y 50 oder 60 Hz 480V 60Hz *)	<ul style="list-style-type: none"> <li>400/690 V Δ/Y 50 Hz</li> <li>380-420/660-690 V Δ/Y 50/60Hz</li> <li>480V 60Hz *)</li> </ul>
290/500 V Δ/Y 50Hz 200V 50Hz / 220V 60Hz	500V Δ 50Hz 200V 50Hz / 220V 60Hz

• Standard voltages

\*) Power and speed are increased by about 20%.

Different voltages and frequencies are available.

## Motor Power Pn

The values given in the tables are valid for the following conditions:

- Duty cycle S1
- Maximum ambient temperature +40°C
- Installation altitude up to 1000m above mean sea level

The available motor power for different conditions is calculated as follows:  $P = P_n \cdot f_s \cdot f_t \cdot f_h$

## Factor fs for different duty type

Duty type		fs
S1	Continuous duty. Operation with constant load. The motor reaches the thermal equilibrium.	1.0
S2-10min	Short term duty. Operation with constant load followed by a stop. During the stop the motor returns to the ambient temperature. Described by the duration of the load period in min.	1.4
S2-30min		1.25
S2-60min		1.1
S3-15%ED	Intermittent periodic duty. Operation with a sequence of identical cycles including a time of operation with constant load and a stop. Described by the cyclic duration factor in %.	1.4
S3-25%ED		1.3
S3-40%ED		1.2
S3-60%ED		1.1
S4 .. S10	Intermittent periodic duty. The start or stop phase of the motor is effecting the temperature raise. More data of the duty cycle are necessary.	On request

## Factor ft for different ambient temperature θ

θ ≤ 40°C	ft=1.0
40°C < θ ≤ 50°C	ft=0.87
50°C < θ ≤ 60°C	ft=0.75

## Factor fh for different altitude h

h ≤ 1000m	fh=1.0
1000m < h ≤ 2000m	fh=0.95
2000m < h ≤ 3000m	fh=0.87
3000m < h ≤ 4000m	fh=0.80

# Three phase motors



## Type of protection IP

IP	1. Code number Protection against foreign objects	2. Code number Protection against water
0	Not protected	Not protected
1	Protected against solid foreign objects $\varnothing$ 50 mm and larger	Protected against dripping water
2	Protected against solid foreign objects $\varnothing$ 12 mm and larger	Protected against dripping water if the housing is tilted by up to 15°
3	Protected against solid foreign objects $\varnothing$ 2.5 mm and larger	Protected against spraying water
4	Protected against solid foreign objects $\varnothing$ 1 mm and larger	Protected against splash water
5	Protected against dust	Protected against water jets
6	Dust-proof	Protected against powerful water jets
7		Protected against intermittent immersion in water
8		Protected against sustained immersion in water

In the standard version the motors have protection IP55 (braked motors IP54).

With the option „Dust and water protected“ the motors are IP65. Motors with higher protection standard on request.

## Permissible Radial Forces for the Output Shaft

Motor	Output shaft d <sub>xl</sub> [mm]	K1 [mm]	K2 [mm]	F <sub>R2</sub> [N]	F <sub>R1</sub> [N]			
					3000 1/min	1500 1/min	1000 1/min	750 1/min
DL63	11x23	187	40	550	340	430	430	
DL71	14x30	158	37.5	580	340	430	430	430
DL80	19x40	201	46	1000	580	730	730	730
DL90	24x50	240.5	54	1100	600	770	770	770
DL100	28x60	287	30	1600	580	860	860	860
DL112	28x60	318	62	1600	770	980	980	980
DA132	38x80	368.5	76.5	3300	1440	1780	2100	2310
DA160	42x110	495	94.5	3500	1390	1780	2050	2350
DA180	48x110	540.5	55	6500	1980	2630	3080	3420
DA200	55x110	590.5	101.5	4900	1880	2440	2990	3320

Use, see page 6/7

# Three phase motors



## Three phase motors 2 pole

Motor	Pn [kW]	n1 [1/min]	In (400V)	cos φ	η [%]	Ma/Mn	Ia/In	Mk/Mn	JE [kgcm <sup>2</sup> ]	~kg	Brake	COMBIVERT 50 Hz
DL63K2	0.18	2850	0.44	0.80	74.0	2.4	5.7	2.8	2.5	5.0	B02	07●
DL63G2	0.25	2820	0.58	0.83	75.0	2.1	5.3	2.5	2.5	5.0	B02	07●
DL71K2	0.37	2800	0.93	0.80	72.0	2.1	5.0	2.4	2.7	5.2	B02	07●
DL71G2	0.55	2790	1.30	0.81	75.5	2.3	5.4	2.5	3.4	6.0	B02	07●
DL80K2	0.75	2830	1.61	0.84	80.0	2.7	6.2	2.7	6.2	10	B03/B02	07●
DL80G2	1.1	2830	2.48	0.84	76.5	2.5	6.0	2.4	7.8	11	B03/B02	09●
DL90S2	1.5	2860	3.05	0.85	84.0	2.9	7.2	2.8	14.5	14	B04/B03	09●
DL90L2	2.2	2860	4.4	0.85	84.5	2.8	8.1	2.9	17.9	16	B04/B03	10●
DL100L2	3	2860	5.9	0.86	85.4	2.5	7.2	2.8	30.5	23	B05/B04	11●/12
DL112M2	4	2910	8.3	0.79	88.0	2.3	7.6	3.1	49.4	28	B06/B05	12●
DA132S2	5.5	2900	10	0.90	87.5	3.3	8.0	3.6	74.0	50	B07/B06	13●
DA132SX2	7.5	2895	13.7	0.90	87.5	3.3	7.8	3.6	80.0	53	B07/B06	14●
DA160M2	11	2940	21.7	0.83	88.6	2.0	6.5	2.9	430.0	75	B08/B07	15●
DA160MX2	15	2945	27.8	0.86	90.4	2.6	7.5	3.3	570.0	91	B08/B07	16
DA160L2	18.5	2945	33.5	0.88	91.0	2.5	7.6	3.2	700.0	107	B08/B07	17
DA180M2	22	2940	39.5	0.88	91.5	2.5	7.3	3.0	1240.0	129	B09/B08	18
DA200L2	30	2950	53	0.88	92.5	2.7	7.8	3.5	1640.0	164	B09/B08	19
DA200LX2	37	2955	65	0.90	93.0	3.2	8.6	4.3	1960.0	183	B09/B08	20

## Three phase motors 4 pole

Motor	Pn [kW]	n1 [1/min]	In (400V)	cos φ	η [%]	Ma/Mn	Ia/In	Mk/Mn	JE [kgcm <sup>2</sup> ]	~kg	Brake	COMBIVERT 50 Hz	87 Hz
DL63K4	0.12	1410	0.36	0.71	69.0	1.8	3.8	2.3	4.0	5.1	B02	07●	07●
DL63G4	0.18	1410	0.59	0.67	66.0	2.1	3.8	2.4	4.0	5.1	B02	07●	07●
DL71K4	0.25	1385	0.78	0.72	64.6	1.8	3.5	2.1	4.3	5.3	B02	07●	07●
DL71G4	0.37	1380	1.09	0.71	69.0	2.0	3.8	2.2	5.4	6.3	B02	07●	07●
DL80K4	0.55	1410	1.49	0.72	74.0	2.2	7.0	2.3	9.5	10	B03/B02	07●	09●
DL80G4	0.75	1400	1.98	0.73	75.0	2.3	4.7	2.3	11.6	11	B03/B02	07●	09●
DL90S4	1.1	1420	2.68	0.76	78.0	2.5	6.0	2.7	22.8	14	B04/B03	09●	10●
DL90L4	1.5	1405	3.40	0.81	78.5	2.0	5.1	2.2	28.0	15	B04/B03	09●	11●/12
DL100L4	2.2	1415	4.80	0.80	82.5	2.4	6.0	2.6	45.1	23	B05/B04	10●	12
DL100LX4	3	1430	7.45	0.70	83.0	3.2	6.6	3.5	59.9	24	B05/B04	11●/12	14
DL112M4	4	1435	8.8	0.77	85.0	2.6	6.7	3.1	99.9	32	B06/B05	12●	14●
DA132S4	5.5	1450	11.3	0.82	86.0	2.6	7.4	3.3	143	47	B07/B06	13●	15●
DA132M4	7.5	1450	15.2	0.82	87.2	2.6	7.6	3.3	190	56	B07/B06	14●	16
DA160MS4	9.2	1470	17.5	0.87	88.5	1.9	6.9	3.0	513	76	B08/B07	15●	16
DA160M4	11	1470	21	0.85	89.2	2.4	7.6	3.3	580	82	B08/B07	15●	17
DA160L4	15	1470	27.8	0.86	90.5	2.5	8.2	3.5	780	103	B09/B08	16	18
DA180M4	18.5	1475	35	0.84	91.0	2.5	7.2	3.2	1600	125	B09/B08	17	19
DA180L4	22	1475	42	0.83	91.5	2.8	7.6	3.4	1800	140	B10/B09	18	21
DA200L4	30	1475	55	0.85	92.0	2.7	7.9	3.3	2580	180	B10/B09	19	22

# Three phase motors



## Three phase motors 6 pole

Motor	Pn [kW]	n1 [1/min]	In (400V)	cos φ	η [%]	Ma/Mn	Ia/In	Mk/Mn	JE [kgcm <sup>2</sup> ]	~kg	Brake	COMBIVERT 50 Hz	87 Hz
DL63G6	0.12	925	0.58	0.53	56.0	1.7	2.7	2.2	4.5	5.6	B02	07●	07●
DL71K6	0.18	925	0.82	0.55	58.0	2.0	2.9	2.4	5.0	5.8	B02	07●	07●
DL71G6	0.25	900	1.06	0.58	62.0	1.8	2.8	2.0	6.6	6.7	B02	07●	07●
DL80K6	0.37	930	1.30	0.66	62.0	1.9	3.3	2.1	14.2	8.8	B03 / B02	07●	07●
DL80G6	0.55	925	1.79	0.67	66.0	2.0	3.6	2.2	18.7	10	B03 / B02	07●	09●
DL90S6	0.75	940	2.40	0.65	70.0	2.1	4.0	2.3	34.8	14	B04 / B03	07●	10●
DL90L6	1.1	930	3.40	0.65	71.5	2.1	3.9	2.3	42.6	16	B04 / B03	09●	11●/12
DL100L6	1.5	935	4.15	0.68	76.4	2.0	4.0	2.1	68.9	22	B05 / B04	10●	11●/12
DL112M6	2.2	945	5.05	0.78	80.5	2.3	5.4	2.7	135.3	30	B06 / B05	10●	12●
DA132S6	3	950	7.5	0.73	80.5	1.7	4.7	2.3	140	45	B07 / B06	12●	14●
DA132M6	4	955	9.5	0.72	83.0	1.9	5.4	2.4	180	50	B07 / B06	12●	14●
DA132MX6	5.5	950	13.5	0.73	83.0	1.9	5.3	2.4	220	55	B07 / B06	14●	15●
DA160M6	7.5	965	16	0.79	86.0	2.2	6.3	2.9	810	85	B08 / B07	14●	16
DA160L6	11	970	24	0.77	88.0	2.7	7.1	3.6	1100	103	B09 / B08	15●	17
DA180L6	15	980	30	0.80	89.0	1.9	6.8	3.2	1970	136	B09 / B08	16	19
DA200L6	18.5	980	36	0.82	90.0	1.8	7.0	3.2	2370	164	B10 / B09	17	20
DA200LX6	22	975	43	0.83	90.5	2.1	7.2	3.3	2760	180	B10 / B09	18	20

## Three phase motors 8 pole

Motor	Pn [kW]	n1 [1/min]	In (400V)	cos φ	η [%]	Ma/Mn	Ia/In	Mk/Mn	JE [kgcm <sup>2</sup> ]	~kg	Brake	COMBIVERT 50 Hz	87 Hz
DL71K8	0.09	670	0.55	0.55	43.0	1.8	2.0	2.0	5.4	6.1	B02	07●	07●
DL71G8	0.12	665	0.83	0.52	40.0	2.1	2.0	2.2	6.4	7.6	B02	07●	07●
DL80K8	0.18	685	0.75	0.63	55.5	1.9	2.6	2.1	14.2	8.6	B03 / B02	07●	07●
DL80G8	0.25	695	1.18	0.57	54.0	2.0	2.7	2.2	18.7	10.1	B03 / B02	07●	07●
DL90S8	0.37	705	1.68	0.53	60.0	2.1	3.0	2.3	33.0	13.1	B04 / B03	07●	09●
DL90L8	0.55	700	2.25	0.56	63.0	2.0	2.9	2.0	40.3	15.2	B04 / B03	07●	09●
DL100L8	0.75	700	2.74	0.58	68.0	2.0	3.0	2.0	69.4	21.6	B05 / B04	09●	10●
DL100LX8	1.1	710	3.80	0.59	71.0	2.2	3.9	2.6	89.8	24.9	B05 / B04	09●	11●/12
DL112M8	1.5	695	4.1	0.69	77.0	2.0	4.0	2.2	135.3	30	B06 / B05	10●	12●
DA132S8	2.2	720	5.5	0.71	82.0	1.8	4.8	2.4	170	45	B07 / B06	12●	12●
DA132M8	3	710	7.3	0.73	82.5	2.0	4.7	2.4	210	50	B07 / B06	12●	14●
DA160M8	4	730	10	0.69	86.0	1.3	4.4	2.1	520	71	B08 / B07	13●	15●
DA160MX8	5.5	730	13	0.72	86.5	1.3	4.4	2.1	690	81	B08 / B07	14●	15●
DA160L8	7.5	730	18	0.70	87.5	1.3	4.6	2.0	930	99	B09 / B08	15●	16
DA180L8	11	730	25	0.75	86.5	1.5	4.8	2.4	1970	136	B09 / B08	16	18

Pn	Nominal Power
n1	Nominal Speed
In	Nominal current
cos φ	Power factor
η	Efficiency
Ma/Mn	Relative starting torque
Ia/In	Relative starting current
Mk/Mn	Relative pull-out torque
JE	Inertia
COMBIVERT 50Hz	Recommended size of KEB frequency inverter at 50Hz operation
COMBIVERT 87Hz	Recommended size of KEB frequency inverter at 87Hz operation
●	available as integrated frequency inverter

# Motor-Options



## B - Brake COMBISTOP

- spring-loaded twin-disc safety brake
- fail-safe brake
- asbestos-free friction linings
- Protection standard: IP54
- connection via contacts in terminal box
- adjustment provision for wear of friction linings without dismantling
- torque reduction possible
- Standard voltages: 230VAC, 400VAC, 24VDC

### Options:

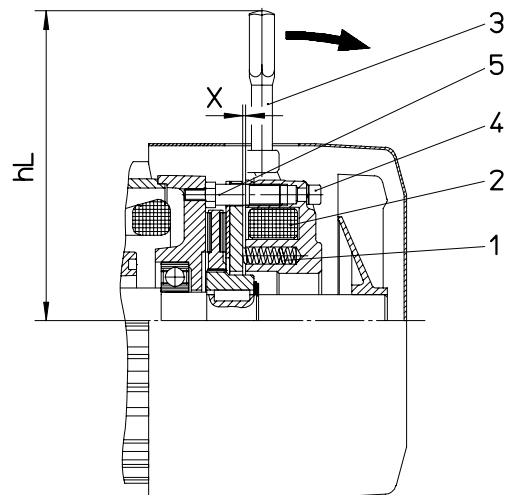
- Manual brake release MB
  - CSA approved version
  - Corrosion-proof version
  - Quick-acting rectifier „Powerbox“ for switch cabinet mounting
- Depending on the type of application, this rectifier improves the off period, or the on period, or the service life of the brake before readjustment of the air gap is required.

## Mode of Operation

The brake is released by direct-current excitation of the brake coil (2) or by a manual release unit MB (3) which can be attached as an option.

Braking is achieved in power off condition by means of spring force (1).

The adjusting screws (5) are used to adjust the nominal air gap (X) in case of wear.



## Technical Data

Brake	Mbr [Nm]	Mbred [Nm]		JB [kgcm <sup>2</sup> ]	P20 [W]	t2 [ms]	t11~ [ms]	t11= [ms]	WR0.1 [J*10 <sup>6</sup> ]	WRmax [J*10 <sup>3</sup> ]	X [mm]	Xn [mm]	hL [mm]	~kg	
B02	5	2.5	1.5	0.3	25	40	70	10	7.5	5.3	0.2	0.4	106	1.4	
B03	10	7.5	5	3	30	55	100	15	12.5	7.5	0.2	0.5	114	2.0	
B04	20	15	10	6	30	90	180	25	19.1	18	0.2	0.6	128	3.6	
B05	36	27	18	11	3.5	48	110	220	25	28.0	28	0.2	0.6	168	5.7
B06	70	53	35	21	5.6	62	240	260	25	28.8	38	0.3	1.0	176	9.1
B07	100	75	50	30	16	65	220	400	40	35.7	49	0.3	1.0	225	15
B08	150	113	75	45	30	75	320	700	50	44.2	56	0.4	1.2	235	24
B09	250	188	125	75	75	80	350	900	60	69.0	78	0.4	1.2	256	34
B10	500	375	250	150	210	130	400	1400	100	80.0	100	0.5	1.5	335	49

Mbr	Static braking torque after completed run-in phase
Mbred	possible reduced brake torques
JB	Inertia
P20	Excitation rating at 20°C
t2	Release time, time from connecting the current to the beginning of torque decrease
t11~	Engagement delay time for AC side switching (Fig. 1,3)
t11=	Engagement delay time for DC side switching (Fig. 2)
WR0.1	friction work until 0.1mm abrasion
WRmax	permissible friction work for emergency stop from 3000 1/min (B08..B10 - 1500 1/min)
X	Nominal clearance
Xn	Clearance, at which a readjustment is recommended

The specified switching times apply to nominal clearance and nominal torque. It relates to average values and depends on the type of rectification and coil temperature.

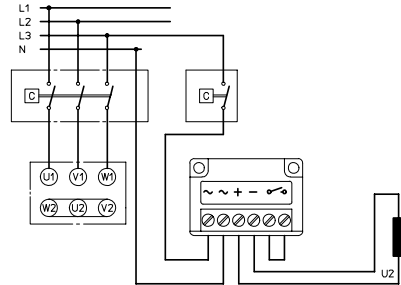
# Motor-Options



## Electrical Connection

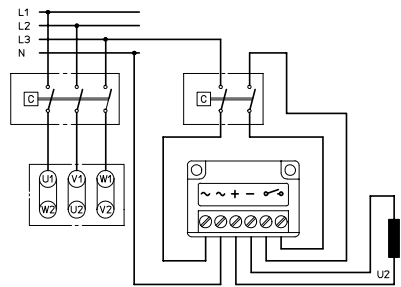
**Figure 1: AC side switching**

- The brake is switched independent from the motor voltage, Engagement delay time  $t_{11\sim}$
- Suitable for operation with frequency inverter



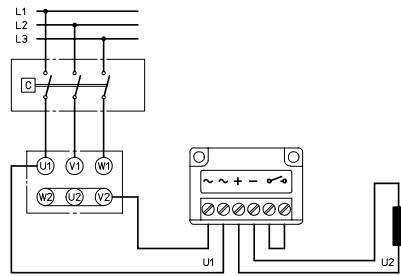
**Figure 2: DC side switching**

- The switching of the brake on AC and DC side leads to faster Engagement delay times  $t_{11=}$ .



**Figure 3: Brake ready for connection**

- voltage supply from motor terminal board.
- The brake is switched together with the motor voltage, Engagement delay time  $t_{11\sim}$
- In comparison to Figure 1 the connection to the brake is made within the motor terminal box
- Not suitable for frequency inverter operation and for pole changing motors with separate windings



## RS - Backstop

The mechanical backstop RS prevents the reverse motion of the drive when the motor is switched off.

Specify the direction of rotation of the motor or geared motor when ordering.

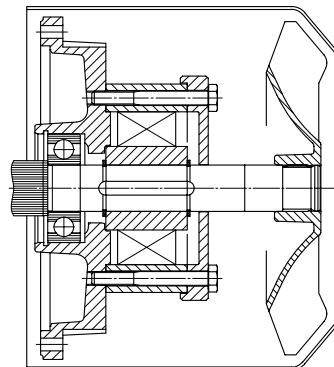
For Helical worm geared motors S and Helical bevel geared motors K, the position of mounting face has to be specified.

The backstop applies for ambient temperatures of  $-40..+60^{\circ}\text{C}$ .

Motor	Nominal locking torque 1) [Nm]	2) $n_{\min}$ [1/min]
DL63 RS, DL71 RS	16.9	875
DL80 RS .. DL112 RS	150	875
DA132 RS, DA160 RS	562	720
DA180 RS, DA200 RS	1025	610

1) maximum locking torque = 2\* nominal locking torque

2) the continuous operating speed shall not be lower than the minimum allowable overrunning speed



# Motor-Options



## F - Forced ventilation

In the standard version a forced ventilation is supplied with the following specification:

- Radial or axial air inlet
- Protection standard IP 66
- Standard voltages
  - DL63 .. DA200: 1 ~ 230 – 277 V, 50/60 Hz
  - 3 ~ 220 V Δ – 500 V Y 50/60 Hz
- The connection is in a extra terminal box mounted on the fan cowl.

Motor	I <sub>F</sub> [A]	I <sub>F</sub> [A]
	3 ~ 230/400V 50Hz	1 ~ 230V 50Hz
DL63 .. DL100	0.23 / 0.13	0.23
DL112 .. DA132	0.24 / 0.14	0.27
DA160 .. DA200	0.59 / 0.35	0.84

I<sub>F</sub> Rated current of forced ventilation

## Motor protection

The following motor protection can be supplied:

- TW - PTC thermistor sensor
- TS - Thermorelay (closed)

## I - Incremental encoder

In the standard version a incremental encoder is supplied with the following specification:

- Pulses/Rev. 1024
- Tracks A, B, 0
- Supply voltage 5VDC(+/- 5%)
- Current consumption 40mA / max. 90mA
- Permissible load / channel +/- 20 mA
- Protection standard IP 66
- Ambient temperature - 20°C ... + 50°C
- Interface RS422 (TTL)
- The incremental encoder is mounted under the motor fan cowl for added protection

Signalstecker 12polig	Pin	Signal
	10	0V
	11	0V Sensor
	12	+UB
	2	+UB Sensor
	5	A
	6	A inverted
	8	B
	1	B inverted
	3	0
	4	0 inverted
	PH	Shield



# Motor-Options

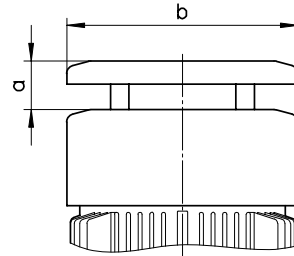


## Protection cowl

The protection cowl prevents the penetration of foreign objects or liquids when the motor is mounted in vertical position.

Motor	a	b
DL63 / DL71	37	133
DL80	37	150
DL90	40	170
DL100	40	190
DL112	40	210
DA132	42	250
DA160	43	240/338 1)
DA180 / DA200	43	240/338 1)

1) Dimension for forced ventilation

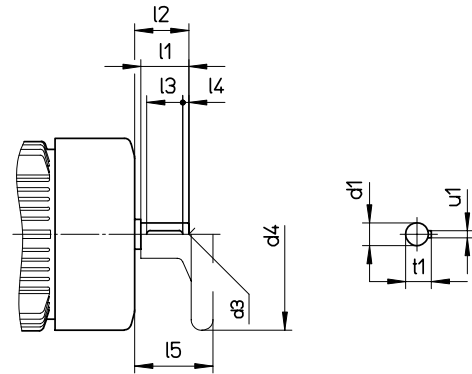


## Second shaft end WE2 and handwheel

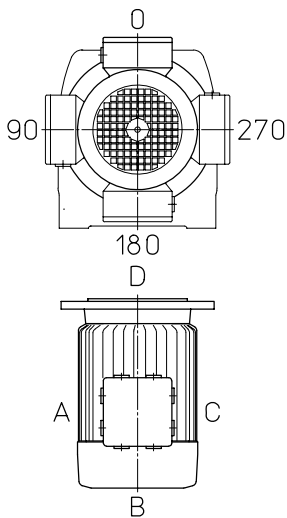
The second shaft end can be used for fixing a handwheel or for radial force free transmission of the motor torque.

If radial forces apply to the second shaft end, please consult the manufacturer.

	d1	l1	t1	u1	l2	l3	l4	d3	d4	l5
DL63 DL71	11	23	12.5	4	28	18	2.5	M4	100	46
DL80	14	30	16	5	35	25	2.5	M5	100	52
DL90	19	40	21.5	6	45	32	4	M6	160	66
DL100	24	50	27	8	55	40	5	M8	160	75
DL112	24	50	27	8	55	40	5	M8	160	75
DA132	32	80	35	10	85	70	5	M12	225	108
DA160	38	80	41	10	90	70	5	M12	225	113
DA180 DA200	42	110	45	12	120	100	5	M16	280	144



## Position of terminal box



Example: 270C is for terminal box at 270  
cable lead in at C

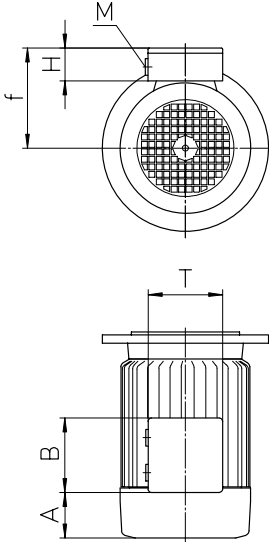
The position of other motor options (manual brake release, connection of forced ventilation, connection of encoder) is specified analogous, if different from position of terminal box.

Example: 90A, Manual brake release 270

# Motor-Options



## Dimensions of terminal box

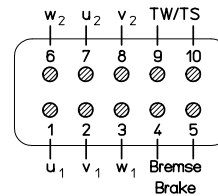
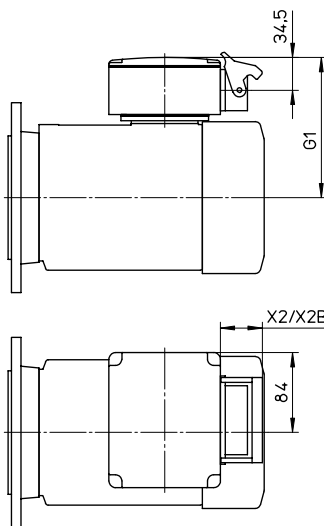
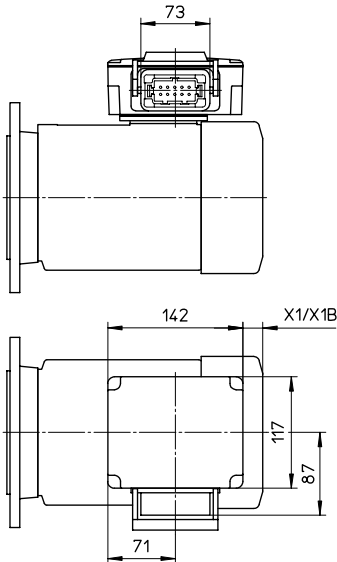


	A	B	T	H	f	M normal	M Brake or TW / TS	M Brake and TW / TS
<b>DL63</b> <b>DL71</b>	45	89.5	89.5	51.5	113	1xM20	2xM20	2xM20+1xM16
<b>DL80</b>	55	89.5	89.5	51.5	120.5	1xM20	2xM20	2xM20+1xM16
<b>DL90</b>	60	89.5	89.5	51.5	129.5	1xM25	2xM25	2xM25+1xM16
<b>DL100</b>	73	89.5	89.5	51.5	140.5	1xM25	2xM25	2xM25+1xM16
<b>DL112</b>	75	89.5	89.5	51.5	150.5	1xM25	2xM25	2xM25+1xM16
<b>DA132</b>	143	142	117	62	188	2xM32	2xM32	2xM32+1xM16
<b>DA160</b>	316	140	140	90	250	2xM40	2xM40	2xM40+1xM16
<b>DA180</b>	205	226	230	121	291	2xM40	2xM40	2xM40+1xM16
<b>DA200</b>	230	226	230	121	291	2xM40	2xM40	2xM40+1xM16

## Plug connector HAN 10ES

Connection at A, C

Connection at D



System: HAN 10ES (Harting)  
 $U_{max} = 500VAC$        $I_{max} = 16 A$

	G1	X1	X1B	X2	X2B
<b>DL63/71</b>	131	6	60	31	85
<b>DL80</b>	138	16	73	41	98
<b>DL90</b>	147	21	86	46	111
<b>DL100</b>	158	34	105	59	130
<b>DL112</b>	168	36	123	61	148

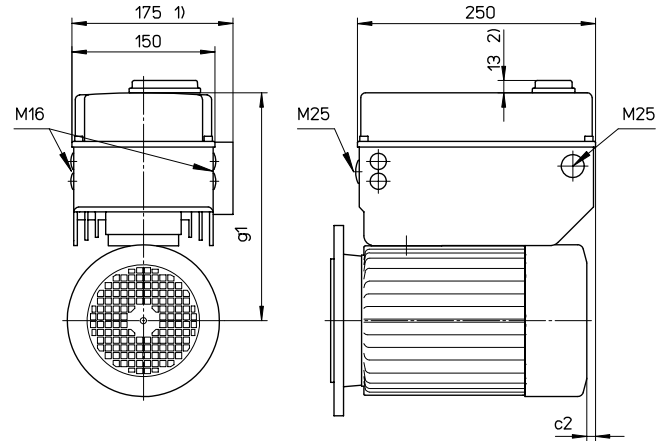
Forced ventilation, incremental encoder or brake with manual release are mounted 90° or 270° to the plug connector.

# Motor-Options

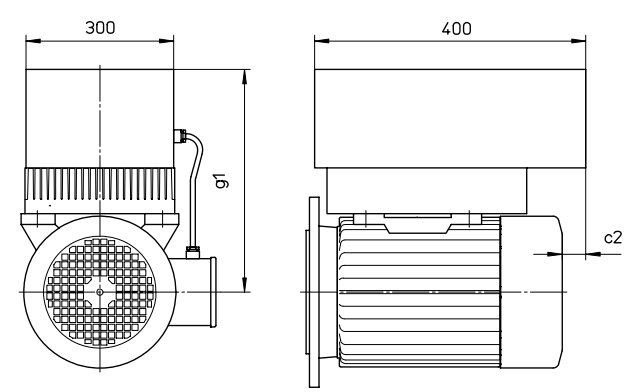


## Integrated Frequency Inverter

Pic. 1



Pic. 2



COMBIVERT	Pic.	In [A] (400V)	Imax [A] (400V)	DL63 DL71 c2 / g1	DL80 c2 / g1	DL90 c2 / g1	DL100 c2 / g1	DL112 c2 / g1	DA132 c2 / g1	DA160 c2 / g1
07.M4	1	2.6	4.6	82 / 222	45 / 230	9 / 239	---	---	---	---
09.M4	1	4.1	7.4	---	45 / 230	9 / 239	-35 / 250	---	---	---
10.M4	1	5.8	10.4	---	---	9 / 239	-35 / 250	-67 / 260	---	---
11.M4	1	7.5	13.4	---	---	9 / 239	-35 / 250	-67 / 260	---	---
12.M4	2	9.5	17.1	---	---	---	---	45 / 395	5 / 415	-78 / 443
13.M4	2	12	21.6/18	---	---	---	---	45 / 395	5 / 415	-78 / 443
14.M4	2	16.5	29.7/24.8	---	---	---	---	45 / 395	5 / 415	-78 / 443
15.M4	2	24	36	---	---	---	---	---	5 / 415	-78 / 443

Standard voltages: 07.M4..09.M4 1~220..240V 50/60Hz  
 3~380..480V 50/60Hz  
 10.M4..15.M4 3~380..480V 50/60Hz

1) with brake resistor

2) 09.M4 1~230V, 10.M4 3~400V, 11.M4 3~400V

### More Motor Options

The following motor options are available on request.

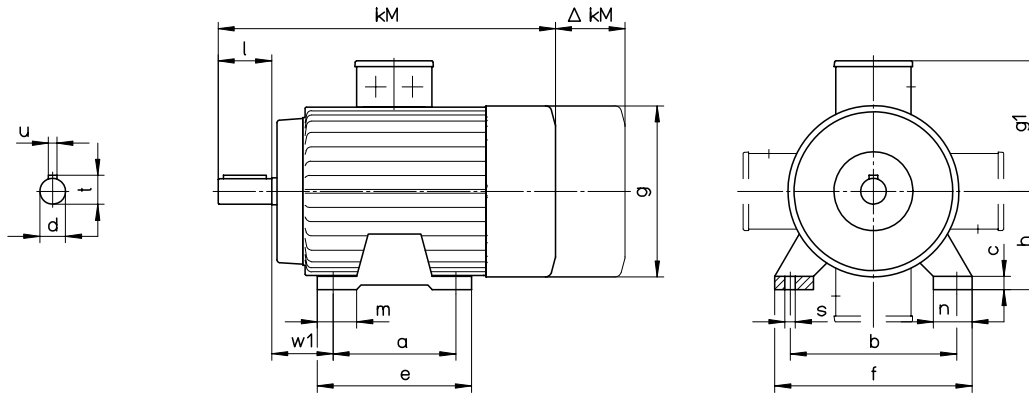
- Pole changing motors  
 4/2 pole; 8/4 pole; 8/2 pole; 6/2 pole; 12/2 pole; 6/4 pole
- Single phase motors, 0.12..1.5 kW  
 with service capacitor and increased resistance rotor Ma / Mn ca. 0.8
- Reluctance motors, 0.25..1.5 kW, 4 pole  
 The output speed of these motors is 1500 1/min and independent from the load (up to the nominal torque).
- Explosion proof motor in accordance with ATEX, for use in zone 1, 2, 21, or 22
- Flame proof Motor EExd
- motors with noise reduced brake or with double brake

# Three phase motors

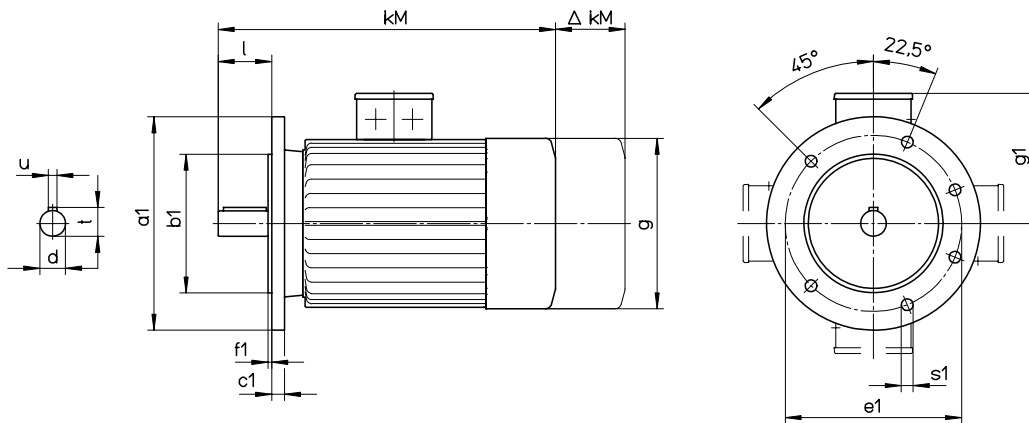
## Dimensions



### B3 - Foot mounted version



### B5 - Flange mounted version

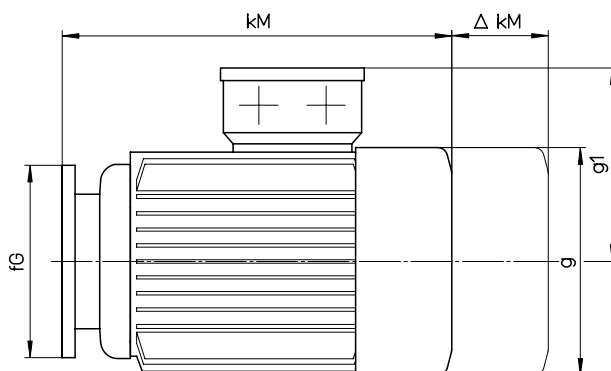
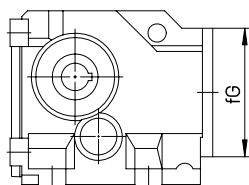
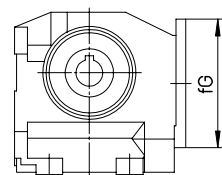
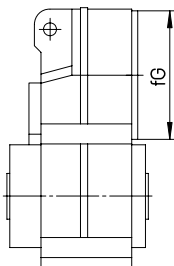
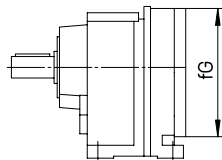


Motor	DL63	DL71	DL80	DL90S	DL90L	DL100	DL112	DA132S	DA132M	DA160M	DA160L	DA180M	DA180L	DA200
a	80	90	100	100	125	140	140	140	178	210	254	241	279	305
b	100	112	125	140	140	160	190	216	216	254	254	279	279	318
c	9	9	9	10	10	15	20	18	18	22	22	20	20	27
e	100	110	122	150	150	175	180	180	218	260	304	300	340	380
f	120	138	148	173	173	192	224	256	256	320	320	352	352	403
h	63	71	80	90	90	100	112	132	132	160	160	180	180	200
m	-	-	-	-	-	-	-	50	50	62	62	75	75	95
n	20	27	27	32	32	32	43	55	55	69	69	74	74	100
w1	40	45	50	56	56	63	70	89	89	108	108	121	121	133
s	7	8	10	10	10	12	12	12	12	14	14	14	14	18
a1	140	160	200	200	200	250	250	300	300	350	350	350	350	400
b1	95	110	130	130	130	180	180	230	230	250	250	250	250	300
c1	9	9	10	10	10	11	11	12	12	13	13	13	13	15
e1	115	130	165	165	165	215	215	265	265	300	300	300	300	350
f1	3	3.5	3.5	3.5	3.5	4	4	4	4	5	5	5	5	5
s1	9	9	11	11	11	14	14	14	14	18	18	18	18	18
d	11	14	19	24	24	28	28	38	38	42	42	48	48	55
l	23	30	40	50	50	60	60	80	80	110	110	110	110	110
u	4	5	6	8	8	8	8	10	10	12	12	14	14	16
t	12.5	16	21.5	27	27	31	31	41	41	45	45	51.5	51.5	59
g	126	126	142	160	160	180	200	245	245	311	311	356	356	356
g1	113	113	121	130	130	141	151	188	188	250	250	291	291	291
hL	106	106	114	128	128	168	176	225	225	256	256	335	335	335
k	207(B3) 239(B5)	214	267	316	316	375	409	485	485	627	627	688	688	738
ΔkM1	54	54	57	65	65	71	87	99	99	120	120	139	139	139
ΔkM2	102	102	110	117	117	120	137	156	156	176	176	199	199	199
ΔkM3	171	171	180	185	185	192	210	216	216	286	286	294	294	294
ΔkM4	96	96	92	91	91	96	100	98	98	151	151	154	154	139

# Three phase motors

## Dimensions

# KEB



Motor	DL63/71	DL80	DL90	DL100	DL112	DA132	DA160	DA180	DA200	fG	Gear Unit
<b>g</b>	126	142	160	180	200	245	311	356	356		
<b>g1</b>	113	121	130	141	151	188	250	291	291		
<b>kM</b>	200.5	244								105	<b>G0, S0</b>
	199.5	243	289							120	<b>G1, S1, F2, K2</b>
	196.5	240	284	334	375					140	<b>G2, S2, F3, K3</b>
	196	239.5	285.5	334	375.5	435				160	<b>G3, S3, F4, K4</b>
	192.5	236	282	329	371	431.5	539.5			200	<b>G4, S4, F5, K5</b>
		231	277	326	367.5	428	532	589	639	250	<b>G5, F6, K6</b>
			270	319	360.5	421	526	583	633	300	<b>G6, F7, K7</b>
				312	353.5	413	522	577.5	627.5	350	<b>G7, K8</b>
<b>ΔkM1</b>	54	57	65	71	87	99	120	139	139	400	<b>G8</b>
<b>ΔkM2</b>	102	110	117	120	137	156	176	199	199		
<b>ΔkM3</b>	171	180	185	192	210	216	286	294	294		
<b>ΔkM4</b>	96	92	91	96	100	98	151	154	154		

<b>kM + ΔkM1</b>	B or I or RS
<b>kM + ΔkM2</b>	B I
<b>kM + ΔkM3</b>	F I or B F or B F I
<b>kM + ΔkM4</b>	F

B	Brake
F	Forced ventilation
I	Incremental encoder
RS	Backstop