416 205

Lenze

Drives with worm gearboxes 52.□□□

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Contents

Introducing Lenze

4

General data

Worm gearboxes
Possible combinations 5
Actual ratios 5
Permissible radial force output 6
Starting efficiency and self-locking 7

AC-motors
Technical data 8

Worm geared motors

Contents 13
Product information 14
Technical data 16
Selection 18
Drive selection 19

Worm gearboxes

Contents 39
Product information 40
Technical data 42
Selection 44
Drive selection 46

Compact units

Contents 51
Product information 52
Technical data 54
Selection 59
Drive selection 61

DISCO-variable speed drive

Contents 73
Product information 74
Technical data 76
Selection 80
Drive selection 82

Lenze worldwide

98

No matter which drive solution you imagine, we make your dreams come true.

According to our maxim “one stop shopping”, we offer you a complete programme of electronic and mechanical drive systems which are distinguished by reliability and efficiency. Our supply range includes frequency inverters, speed controllers, servo controllers, variable speed drives and gearboxes, clutches and brakes, as well as the appropriate motors.
Lenze is thus not only the supplier for single components, but also offers solutions for complete drive systems including project planning, execution and commissioning of your applications.
Furthermore, a worldwide service and distribution network allows a qualified customer advisory service on site and a fast and extensive after sales service.
Our quality assurance system for development, production, sales and service is certified according to DIN ISO 9001.
Our customers set the scale for measuring the quality of our products.
Our task is to meet your requirements. Customer orientation as a Lenze principle means the highest quality.
See for yourself.

Possible combinations motor-gearboxes

Ratio	Gearbox size													
	04			05		06		08			10		12	
	Motor frame size													
	63	71	80	71	80	80	90	80	90	100/112	90	100/112	100/112	132
5	○	○	○	○	○	○	○	○	○	○		●		
7	○	○	○	○	○		○	○	○	○		●		●
10	○	○	○	○	○	○	○	○	○	○		●	●	●
15	○	○	○	○	○	○	○	○	○	○	●	●	●	●
20	○	○	○	○	○	○	○	○	○	○	●	●	●	●
30	○	○	○	○	○	○	○	○	○	○	●	●	●	●
40	○	○	○	○	○	○	○	○	○	○	●	●	●	●
53	○	○	○	○	○	○	○	○	○	○	●	●	●	
60	○	○	○	○	○	○	○	○	○		●	●	●	

○ Combination is possible with motors in B5 and B14 design.
● Combination is possible with motors in B5 design.

The motor – gearbox combination only shows the constructive possibilities; the power combination must be checked, if not indicated in the selection tables.

Actual ratios

Size	04		05		06		08		10		12	
i	z_2/z_1	i_t	z_2/z_1	i_t	z_2/z_1	i_t	z_2/z_1	i_t	z_2/z_1	i_t	z_2/z_1	i_t
5	29/6	4.83	29/6	4.83	29/6	4.83	30/6	5	30/6	5	29/6	4.83
7	29/4	7.25	29/4	7.25	29/4	7.25	30/4	7.5	30/4	7.5	29/4	7.25
10	40/4	10	38/4	9.5	39/4	9.75	40/4	10	40/4	10	40/4	10
13	52/4	13	53/4	13.25	51/4	12.75	53/4	13.25	52/4	13	52/4	13
15	29/2	14.5	29/2	14.5	29/2	14.5	30/2	15	30/2	15	29/2	14.5
20	40/2	20	38/2	19	39/2	19.5	40/2	20	40/2	20	40/2	20
26	52/2	26	53/2	26.5	51/2	25.5	53/2	26.5	52/2	26	52/2	26
30	29/1	29	29/1	29	29/1	29	30/1	30	30/1	30	29/1	29
40	40/1	40	38/1	38	39/1	39	40/1	40	40/1	40	40/1	40
53	52/1	52	53/1	53	51/1	51	53/1	53	52/1	52	52/1	52
60	62/1	62	62/1	62	61/1	61	62/1	62	62/1	62	62/1	62

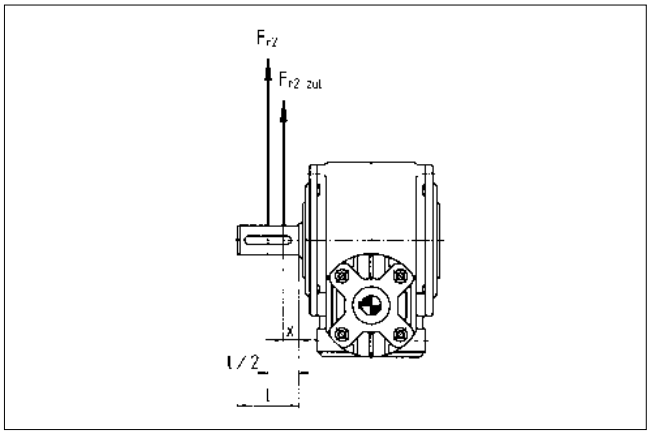
z_1 = Number of starts
z_2 = Number of teeth of the worm wheel
i_t = Ratio

Permissible radial forces output

The values for the permissible radial force *Fr* stated in the table below refer to the middle of the output shaft.

For forces *Fr* not acting on the middle of the output shaft, the permissible radial force $Fr_{perm.}$ can be calculated as follows:

$$Fr_{perm} = Fr \cdot fw$$

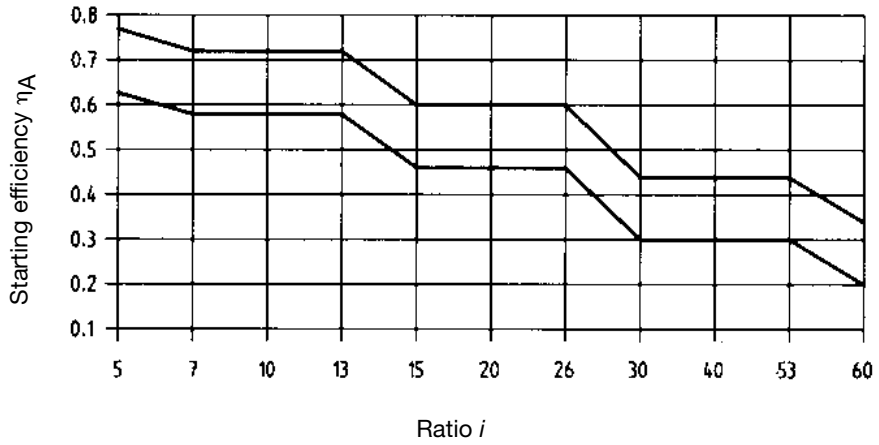


x/l	0	0,2	0,4	0,6	0,8	1
fw	1.32	1.18	1.05	0.84	0.63	0.5

Size	04	05	06	08	10	12	04	05	06	08	10	12	04	05	06	08	10	12
Radial force Fr_2 [kN]																		
i	**n_1 = 2800 1/min**						**n_1 = 1400 1/min**						**n_1 = 930 1/min**					
5	1.7	2.6	3.5	4.3	12.8	22.0	2.2	3.3	4.3	4.9	12.5	21.0	2.4	3.7	4.8	5.6	12.5	21.0
7	2.1	3.2	4.2	5.0	12.8	22.0	2.6	4.0	5.1	5.8	12.5	21.0	2.9	4.4	5.7	6.7	12.3	21.0
10	2.3	3.5	4.5	5.5	12.8	22.0	2.9	4.4	5.6	6.5	12.4	21.0	3.0	4.5	5.4	7.5	12.3	21.0
13	2.8	4.2	5.0	6.0	12.8	22.0	3.3	5.0	5.6	7.2	12.3	21.0	3.3	5.0	5.4	8.3	12.2	21.0
15	2.8	4.2	5.5	6.6	12.8	22.0	3.0	4.7	5.8	7.9	12.5	21.0	2.8	4.5	5.5	9.0	12.3	21.0
20	3.1	4.6	6.0	7.2	12.8	22.0	2.9	4.6	5.7	8.7	12.3	21.0	2.7	4.4	5.2	8.8	12.2	21.0
26	3.2	4.9	5.9	7.9	12.7	22.0	3.2	4.9	5.5	8.9	12.2	21.0	3.2	4.9	5.0	8.7	12.0	21.0
30	3.2	4.9	6.1	8.6	12.8	22.0	3.0	4.7	5.8	9.2	12.5	21.0	2.8	4.5	5.5	9.0	12.3	21.0
40	3.1	4.8	6.1	9.9	12.8	22.0	2.9	4.6	5.6	9.0	12.3	21.0	2.8	4.4	5.1	8.8	12.2	21.0
53	3.1	4.8	6.0	9.7	12.7	22.0	3.2	4.8	5.4	8.8	12.2	21.0	3.2	4.8	4.9	8.6	12.0	21.0
60	3.1	4.9	6.1	10.0	12.8	22.0	3.2	4.9	5.8	9.2	12.4	21.0	3.2	4.9	5.6	9.0	12.3	21.0
i	**n_1 = 700 1/min**						**n_1 = 500 1/min**						**n_1 = 150 1/min**					
5	3.0	4.0	5.1	6.0	12.2	21.0	3.0	4.3	5.1	6.5	12.0	20.0	3.0	4.3	4.0	3.2	5.4	10.0
7	2.8	4.4	5.3	7.2	12.2	21.0	2.8	4.1	4.7	7.7	11.8	20.0	2.8	4.1	2.9	1.8	4.8	10.0
10	3.0	4.3	5.0	8.4	12.0	20.0	3.0	4.2	4.2	7.5	11.5	19.5	3.0	4.3	4.3	5.6	9.4	10.0
13	3.3	5.0	5.4	8.4	11.8	20.0	3.2	5.0	5.4	8.4	11.8	20.0	3.3	5.0	5.6	8.6	11.9	20.0
15	2.7	4.3	5.1	8.5	12.0	21.0	2.7	4.0	4.4	7.6	11.6	20.0	2.7	4.0	3.9	3.2	6.2	10.0
20	2.7	4.1	4.7	8.4	11.8	20.0	2.7	4.1	3.9	7.2	11.3	19.0	2.7	4.1	3.9	5.5	8.8	10.0
26	3.2	4.9	4.6	8.0	11.6	20.0	3.2	4.9	4.6	8.0	11.0	18.5	3.2	4.9	4.8	8.0	11.1	18.5
30	2.7	4.3	5.0	8.5	12.2	21.0	2.7	4.0	4.2	7.6	11.9	20.0	2.7	4.0	1.7	3.8	8.4	10.0
40	2.7	4.1	4.6	8.4	11.8	20.0	2.7	4.0	3.9	7.1	11.2	19.0	2.7	4.0	3.9	5.7	8.6	10.0
53	3.2	4.8	4.6	8.0	11.6	20.0	3.2	4.8	4.6	8.0	10.8	18.5	3.2	4.8	4.5	8.0	10.7	17.5
60	3.2	4.9	5.6	8.5	12.0	21.0	3.2	4.9	5.6	8.3	11.5	19.5	3.2	4.9	5.6	8.2	11.3	18.5

Starting efficiency and self-locking

The efficiency of a worm gearbox is determined among others by the speed ratios in the gearing and the state of the lubricant. In general, the efficiency increases with the gearbox size, increasing speed and decreasing ratio.



Starting efficiency ηA
From the above, we can conclude that the efficiency ηA of a worm gearbox during starting is smaller than the operating efficiency η at rated speed.
Therefore the starting efficiency ηA must always be considered when starting under load is required.
The following diagram shows the ηA values, which are to be expected as limit values after running in.

Self locking:
A worm gearbox is in a self locking or irreversibility condition when no amount of torque applied to the worm wheel will rotate the worm shaft. We distinguish between static and dynamic self locking.

Static self locking:
In a static self locking condition it is not possible to start the driving worm wheel from standstill. A self locking condition of the gearing can in some cases be counteracted by shocks and/or vibrations in the gearbox so that it is possible to start driving the worm wheel!
The static self locking can be checked roughly using the above diagram and the starting efficiency ηA. If $\eta A < 0.5$, a gearbox has static self locking.

Dynamic self locking:
The gearbox comes to a standstill even if a torque acts on the output side of the motor during disconnection. Dynamic self locking can be checked roughly using the total efficiency from the selection tables on pages 46/47.
If $\eta < 0.5$, a gearbox has dynamic self locking.
A precise check of static or dynamic self locking is possible in the factory, when the operating factors are known.

Technical data

The fitted three-phase motors comply with the standards and regulations of electrical machines IEC 34 – VDE 530 DIN 57530 and DIN 42677.

Voltage and frequency
Lenze supplies three-phase motors in the standard version with multiple-range voltage, in enclosure IP 55 and insulation class F, suitable for the following connecting voltages:

0.18 – 3.0 kW	**(1500 1/min)**	**50 Hz: 220–240/380–415 V [1])**
	(1800 1/min)	**60 Hz: 220–266/380–460 V**
	(1000 1/min)	**50 Hz: 220–240/380–415 V [1])**
	(1200 1/min)	**60 Hz: 220–266/380–460 V**
4.0 – 45.0 kW	**(1500 1/min)**	**50 Hz: 380 V–415 V △ [2])**
	(1800 1/min)	**60 Hz: 440 V–460 V △**

[1]) New rated voltage 230/400 V included
[2]) New rated voltage 400 V Δ included

Three-phase motors with different specifications are available. Motors wound for 50 Hz can also be connected to 60 Hz supply. The conversion factors for 60 Hz operation can be obtained from the table.

Motor winding 50 Hz	Connection to 60 Hz	Rated speed	Rated power	Rated torque
220 V	220 V	1.2	1.0	0.83
230 V 230 V	230 V 266 V	1.2 1.2	1.0 1.15	0.83 0.96
380 V 380 V 380 V	380 V 440 V 440 V	1.2 1.2 1.2	1.0 1.0 1.15	0.83 0.83 0.96
440 V 400 V	460 V 460 V	1.2 1.2	1.0 1.15	0.83 0.96
440 V	440 V	1.2	1.0	0.83
500 V 500 V	500 V 550 V	1.2 1.2	1.0 1.1	0.83 0.91

Permissible voltage tolerance ± 5 % at rated power and rated frequency acc. to DIN 57530

Operating mode
Continuous operation with constanting load,
Operating mode S1 (VDE 0530)

Enclosure
IP 55:
Complete protection against contact, protection against dust accumulation and water jets.

Power derating
The rated power is valid for continuous operation acc. to DIN 57530, part 1, for a max. ambient temperature of 40 °C, and for an installation height up to 1000 m amsl.

Isolation class
Isolation class F
Perm. continuous temperature <= 155 °C

Motor protection
We recommend to use a circuit breaker.
Find the rated current as a first information in the table on page 9

For other conditions the permissible powers are listed in the table below.

Ambient temperature °C	**Perm. power** in % of rated power
30	107
35	104
40	**100**
45	96
50	92
55	87
60	82

Installation height in m amsl.	**Perm. power** in % of rated power
1000	**100**
1500	97
2000	94
2500	90
3000	86
3500	82
4000	77

Technical data

Rated currents

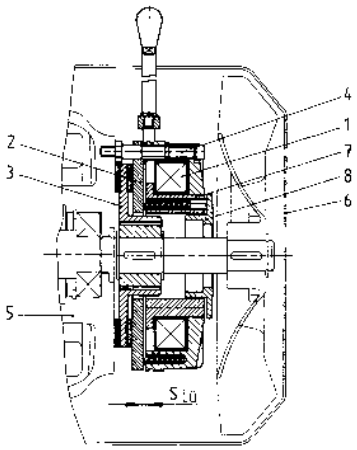
Rated power	Frame size/ No. of poles	Rated current I_N ca. A to frame size 100 220–240/380–415 V from frame size 112 380–415 V △ **multiple-range voltage**	Rated current I_N ca. A to frame size 100 220/240 V from frame size 112 400 V △ **standard voltage**
0.18	63 L / 4 71 K / 4 71 S / 6 71 L / 8	– 1.1 / 0.64 1.3 / 0.75 –	0.95 / 0.57 – 1.08 / 0.62 1.35 / 0.76
0.25	71 S / 4 71 L / 6 80 S / 8	1.4 / 0.82 1.7 / 1.0 –	1.35 / 0.76 1.48 / 0.86 1.65 / 0.95
0.37	71 L / 4 80 S / 6 80 L / 8	2.1 / 1.2 2.4 / 1.4 –	1.8 / 1.0 2.3 / 1.35 2.5 / 1.45
0.55	80 S / 4 80 L / 6 90 L / 8	2.8 / 1.6 3.3 / 1.9 –	2.45 / 1.4 2.75 / 1.6 3.15 / 1.8
0.75	80 L / 4 90 S / 6 100 L / 8	3.5 / 2.0 4.3 / 2.5 –	3.3 / 1.9 3.8 / 2.2 3.8 / 2.2
1.1	90 S / 4 90 L / 6 100 L / 8	4.5 / 2.6 5.5 / 3.2 –	4.75 / 2.8 5.25 / 3.15 5.30 / 3.15
1.5	90 L / 4 100 L / 6 112 M / 8	6.0 / 3.5 6.7 / 3.9 –	6.1 / 3.5 6.75 / 3.9 5.15
2.2	100 L / 4 112 M / 6 132 S / 8	9.7 / 5.6 – –	9.0 / 5.3 5.4 5.4
3.0	100 L / 4 132 S / 6 132 M / 8	12.6 / 7.3 – –	12.2 / 7.1 7.4 7.6
4.0	112 M / 4 132 M / 6 132 M / 8	8.5 10.0 –	8.6 9.2 9.2
5.5	132 S / 4 132 M / 6 160 M / 8	11.5 – –	11.0 12.7 11.4
7.5	132 M / 4 160 M / 6 160 L / 8	15.3 – –	15.4 15.7 16.1
9.2	132 M / 4a 180 M / 8	19.0 –	19.0 21.0
11	160 M / 4 160 L / 6 180 L / 8	22 – –	22.0 22.0 23.5

The stated rated currents are approximate values.
Technical alterations reserved.

Options – brakes

Brake motors are fitted with Lenze spring-loaded brakes (mounted between motor endshield and fan blade) under the fan cowl. When the motor is switched on, the brake is supplied with DC voltage via a suitable rectifier. The spring-loaded brake is a normally on, electromagnetically released brake comprising the stator (1), the armature (2) and the brake rotor (3). It is fixed to the motor endshield (5) with screws (4) and located under the fan cowl (6). The motor endshield serves as counter friction face. When the release current does not flow the springs (7) press the armature (2) against the brake rotor (3), the rotor against the endshield (5). The braking torque is generated through friction on both friction faces. When switching on the motor, the brake release coil is activated and the magnetic force of the stator (1) releases the armature (2). The rotor (3) is released.
The brake torque can be reduced by max. 40 % by using setting ring (8).

Hand release



1 Stator
2 Armature
3 Rotor
4 Screws
5 Endshield
6 Fan cowl
7 Springs
8 Torque setting ring

Possible combinations
Brake size – motor frame size

Motor frame size	Motor extension [mm]	Brake size							
		06	08	10	12	14	16	18	20
		Brake torque [Nm]							
		4	8	16	32	60	80	150	240
63	60	●	●						
71	68	●	●						
80	67		●	●					
90	75		●	●	●				
100	90			●	●	●			
112	95				●	●	●		
132	122					●	●	●	
160	130					●	●	●	●
Extra weight [kg]		0.75	1.25	2.5	3.8	5.8	9.0	14.5	23.5

Hand release lever
This serves to manually release the brake and can be supplied at a surcharge.

Options – Brakes

Brake voltage
As a rule, the brake coil voltage is designed so that it corresponds to the delta voltage of the motor (i. e. motor 230/400 V △/λ = brake coil voltage = 230 Vac rectified). For motors which are star/delta started and with pole-changing motors, the brake voltage is designed according to the phase voltage of the mains supply.

$$\text{Phase voltage} = \frac{\text{supply voltage}}{\sqrt{3}}$$

Motor voltage	**AC voltage** input to the rectifier	**Rated coil voltage**	**Rectifier**	**Type 4-pole**	**Type 6-pole**
42/72 V	42 V ~	36 V	Full-wave	14.630.13.004/014	14.630.32.006/016
127/220 V	127 V ~	115 V	Full-wave	14.630.13.004/014	14.630.32.006/016
220/380 V	220 V ~	205 V	Full-wave	14.630.13.004/014	14.630.32.006/016
		103 V	Half-wave	14.630.14.004/014	14.630.33.006/016
230/400 V	230 V ~	205 V	Full-wave	14.630.13.004/014	14.630.32.006/016
		103 V	Half-wave	14.630.14.004/014	14.630.33.006/016
240/415 V	240 V ~	205 V	Full-wave	14.630.13.004/014	14.630.32.006/016
		103 V	Half-wave	14.630.14.004/014	14.630.33.006/016
255/440 V	255 V ~	215 V	Full-wave	14.630.13.004/014	14.630.32.006/016
		115 V	Half-wave	14.630.14.004/014	14.630.33/006/016
290/500 V	290 V ~	127 V	Half-wave	14.630.14.004/014	14.630.33.006/016
380 V △	380 V ~	180 V	Half-wave	14.630.14.004/014	14.630.33.006/016
400 V △	400 V ~	180 V	Half-wave	14.630.14.004/014	14.630.33.006/016
415 V △	415 V ~	180 V	Half-wave	14.630.14.004/014	14.630.33.006/016
420 V △	420 V ~	180 V	Half-wave	14.630.14.004/014	14.630.33.006/016
440 V △	440 V ~	205 V	Half-wave	14.630.14.004/014	14.630.33.006/016
460 V △	460 V ~	205 V	Half-wave	14.630.14.004/014	14.630.33.006/016
480 V △	480 V ~	215 V	Half-wave	14.630.15.014	
500 V △	500 V ~	215 V	Half-wave	14.630.15.014	

Standard voltages 24 V, 103 V, 180 V, 205 V

Note:
Max. direct current:
14.630.13/14.004/014: 1 A to 60 °C
14.630.32/33.006/016: 0.75 A to 60 °C
14.630.15.014: on request
Max. possible nominal coil voltage: 250 V DC

Worm geared motors

Product information

Illustrations 14
Type code 15
Order information 15

Technical data

Mounting positions 16
Terminal box positions 17

Selection of worm geared motors

Selection 18
Operating factors 18

Drive selection

Selection tables 19
Dimensions 36
Options 38

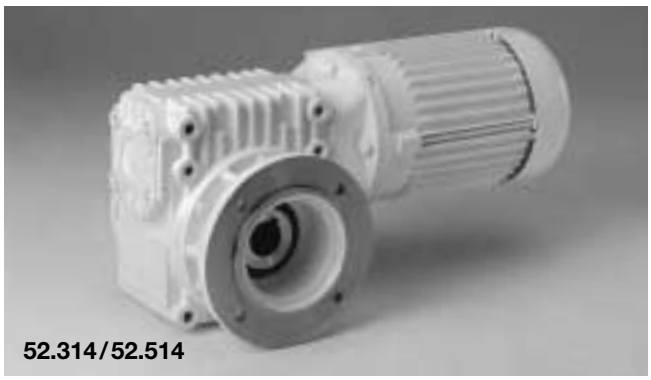
Illustrations

Worm geared motors (motor mounting B14)

52.307/52.507

52.308/52.508

52.309/52.509



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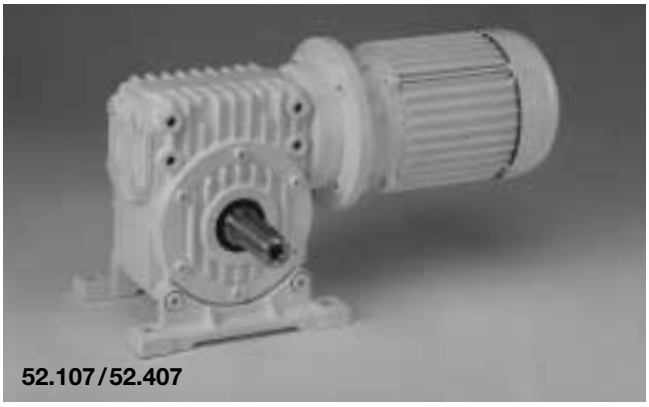
Worm geared motors (motor mounting B5)



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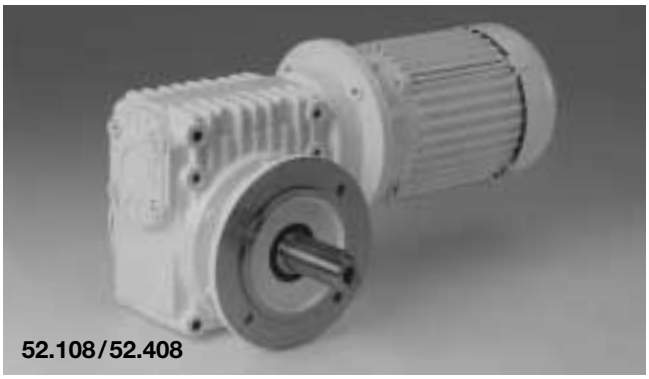

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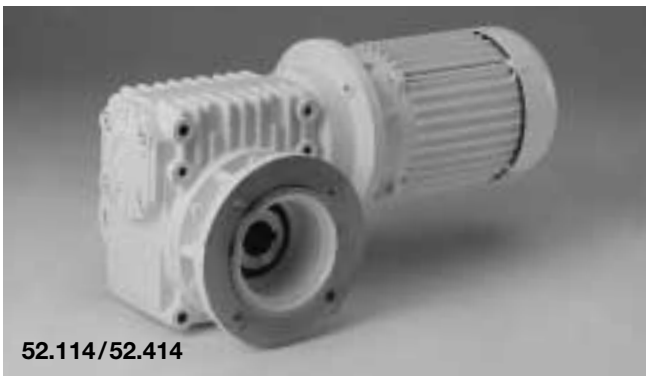

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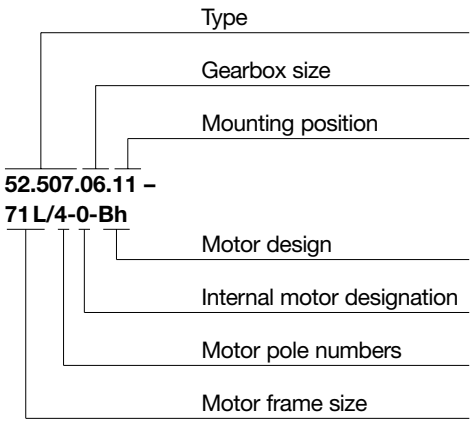


Type

Design on output side	Type Worm geared motors	
	B 5-Motor	B 14-Motor
Foot mounted design	52.107/52.407	52.307/52.507
Flange mounted design	52.108/52.408	52.308/52.508
Hollow shaft design	52.109/52.409	52.309/52.509
Flange/Hollow shaft design	52.114/52.414	52.314/52.514

Gearbox size
04, 05, 06, 08, 10, 12

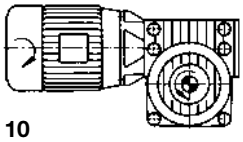
Internal motor designation
H, O, T, W – without influence on the motor data (will be indicated in the order confirmation).

Motor design
Br – with spring-loaded brake
Bh – with spring-loaded brake and hand release
Ex – explosion-proof
Fl – with separately driven fan
Ta – with tacho
Kt – with PTC thermistors
Th – with thermal circuit-breaker
Em – single phase motor

Order information
– complete type code
– Ratio
– Motor power and voltage
– Mounting position and position of the terminal box
– Flange design: Output flange diameter
– Hollow shaft design: hollow shaft bore
– Gearbox options
– Motor options

Mounting positions

with output shaft end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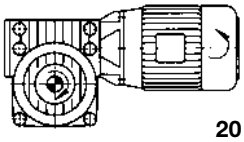
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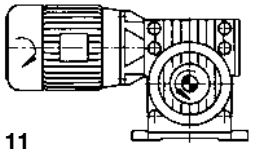
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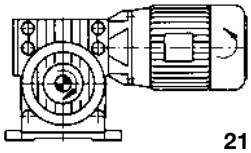
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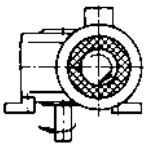
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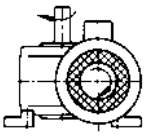
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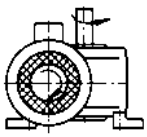
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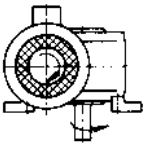
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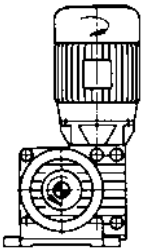
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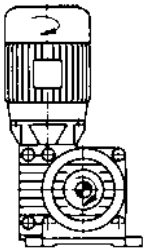
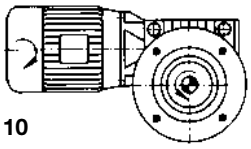

25

with output flange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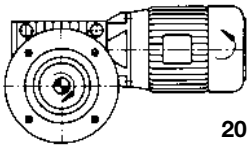
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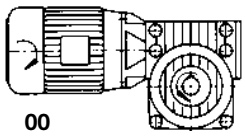
with hollow shaft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For output flange **and** hollow shaft the mounting position of the flange-mounted design applies.

Teminal box positions

Worm geared motors

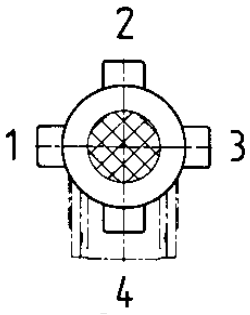


Fig. A

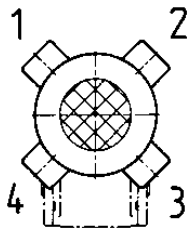


Fig. B

Terminal box positions according to figure A or figure B depend on the gearbox size and motor flange diameter.

Standard design:
With view of the motor blower the terminal box is in pos. 1.

Type		**52.107...52.114 52.407...52.414**	**52.307...53.314 52.507...52.514**
Gearbox size	Flange diameter	Fig.	
04	≦ 105 > 105	– A	B A
05	≦ 120 > 120	– A	B A
06	140 160 200	– – A	B A –
08	≦ 160 > 160	– A	B –
10	≦ 300	A	–
12	≦ 350	A	–

Selection

Worm geared motors must be selected according to the input power P_1 and the output speed n_2, as shown in the selection tables. Ensure that the c_s value shown in the table is equal to or greater than the larger of the two factors k_A and k_T. If, with the desired output speed (n_2), the c_s value is smaller than the larger of the two values k_A and k_T, a slightly different speed (n_2) fulfilling these conditions, or, with the same power, a motor with a larger gearbox must be selected.
It may be necessary to select a geared motor from the next power class up.

P_1 = required motor power in kW
n_2 = output speed in rpm
k_A = factor from the table
k_T = factor from the table

Operating factors

Factor k_A

Running time/d in h	Load class of the machine								
	I			II			III		
	Startings per h								
	< 10	10 … 100	100 … 400	< 10	10 … 100	100 … 400	< 10	10 … 100	100 … 400
< 0.5	0.80	0.90	1.00	0.90	1.00	1.15	1.00	1.15	1.25
> 0.5 … 2	0.90	1.00	1.15	1.00	1.15	1.25	1.25	1.40	1.50
> 2 … 10	1.00	1.15	1.25	1.25	1.40	1.50	1.50	1.70	1.80
> 10 … 24	1.25	1.40	1.50	1.50	1.70	1.80	1.80	2.00	2.10

Load classes of the machine:
I = uniform load – virtually shock-free
II = medium load – moderate shocks
III = heavy load – strong shocks
Minimum operating factor with changing load: k_A = 1.40

Factor k_T

Ambient temperature °C	Running time per hour				
	100 %	80 %	60 %	40 %	20 %
< 10	0.90	0.85	0.78	0.68	0.50
20	1.00	0.94	0.86	0.74	0.56
30	1.15	1.10	1.00	0.85	0.65
40	1.35	1.25	1.15	1.00	0.76
50	1.60	1.50	1.40	1.20	0.90

Selection table

P_1 Motor power
n_2 Output speed
M_2 Output torque
i Ratio of the gearbox
c_s Operating factor

P_1	n_2 [1/min]	M_2 [Nm]	c_s	Type □ Mounting position (see page 16)	i	Design	Dimensions Page
0.18 kW	285	5.5	10.1	52.507.04.□–63L/4 52.508.04.□–63L/4 52.509.04.□–63L/4 52.514.04.□–63L/4	5	1 2 3 4	36/37
	190	8.0	7.6	52.507.04.□–63L/4 52.508.04.□–63L/4 52.509.04.□–63L/4 52.514.04.□–63L/4	7	1 2 3 4	36/37
	138	10	6.1	52.507.04.□–63L/4 52.508.04.□–63L/4 52.509.04.□–63L/4 52.514.04.□–63L/4	10	1 2 3 4	36/37
	120	12	5.9	52.507.04.□–71S/6 52.508.04.□–71S/6 52.509.04.□–71S/6 52.514.04.□–71S/6	7	1 2 3 4	36/37
	95	14	4.5	52.507.04.□–63L/4 52.508.04.□–63L/4 52.509.04.□–63L/4 52.514.04.□–63L/4	15	1 2 3 4	36/37
	87	16	3.9	52.507.04.□–71S/6 52.508.04.□–71S/6 52.509.04.□–71S/6 52.514.04.□–71S/6	10	1 2 3 4	36/37
	69	19	3.7	52.507.04.□–63L/4 52.508.04.□–63L/4 52.509.04.□–63L/4 52.514.04.□–63L/4	20	1 2 3 4	36/37
	60	22	3.5	52.507.04.□–71S/6 52.508.04.□–71S/6 52.509.04.□–71S/6 52.514.04.□–71S/6	15	1 2 3 4	36/37
	47	24	2.6	52.507.04.□–63L/4 52.508.04.□–63L/4 52.509.04.□–63L/4 52.514.04.□–63L/4	30	1 2 3 4	36/37
	43	30	2.7	52.507.04.□–71S/6 52.508.04.□–71S/6 52.509.04.□–71S/6 52.514.04.□–71S/6	20	1 2 3 4	36/37
	34	32	2.2	52.507.04.□–63L/4 52.508.04.□–63L/4 52.509.04.□–63L/4 52.514.04.□–63L/4	40	1 2 3 4	36/37
	30	37	2.1	52.507.04.□–71S/6 52.508.04.□–71S/6 52.509.04.□–71S/6 52.514.04.□–71S/6	30	1 2 3 4	36/37

Design
1 = Foot-mounted design
2 = Flange-mounted design
3 = Hollow-shaft design
4 = Flange-mounted/Hollow shaft design

Selection table

P_1 Motor power
n_2 Output speed
M_2 Output torque
i Ratio of the gearbox
c_s Operating factor

P_1	n_2 [1/min]	M_2 [Nm]	c_s	Type □ Mounting position (see page 16)	i	Design	Dimensions Page
0.18 kW	26	38	1.3	52.507.04.□–63L/4 52.508.04.□–63L/4 52.509.04.□–63L/4 52.514.04.□–63L/4	53	1 2 3 4	36/37
	22	39	1.2	52.507.04.□–63L/4 52.508.04.□–63L/4 52.509.04.□–63L/4 52.514.04.□–63L/4	60	1 2 3 4	36/37
	21	48	1.7	52.507.04.□–71S/6 52.508.04.□–71S/6 52.509.04.□–71S/6 52.514.04.□–71S/6	40	1 2 3 4	36/37
	16	56	0.8	52.507.04.□–71S/6 52.508.04.□–71S/6 52.509.04.□–71S/6 52.514.04.□–71S/6	53	1 2 3 4	36/37
	16	59	1.4	52.507.05.□–71S/6 52.508.05.□–71S/6 52.509.05.□–71S/6 52.514.05.□–71S/6	53	1 2 3 4	36/37
	14	58	1.3	52.507.05.□–71S/6 52.508.05.□–71S/6 52.509.05.□–71S/6 52.514.05.□–71S/6	60	1 2 3 4	36/37
0.25 kW	285	7.6	7.2	52.507.04.□–71S/4 52.508.04.□–71S/4 52.509.04.□–71S/4 52.514.04.□–71S/4	5	1 2 3 4	36/37
	190	11	5.4	52.507.04.□–71S/4 52.508.04.□–71S/4 52.509.04.□–71S/4 52.514.04.□–71S/4	7	1 2 3 4	36/37
	145	14	6.9	52.507.05.□–71S/4 52.508.05.□–71S/4 52.509.05.□–71S/4 52.514.05.□–71S/4	10	1 2 3 4	36/37
	138	15	4.4	52.507.04.□–71S/4 52.508.04.□–71S/4 52.509.04.□–71S/4 52.514.04.□–71S/4	10	1 2 3 4	36/37
	125	16	4.3	52.507.04.□–71L/6 52.508.04.□–71L/6 52.509.04.□–71L/6 52.514.04.□–71L/6	7	1 2 3 4	36/37
	95	20	3.2	52.507.04.□–71S/4 52.508.04.□–71S/4 52.509.04.□–71S/4 52.514.04.□–71S/4	15	1 2 3 4	36/37
	91	22	2.9	52.507.04.□–71L/6 52.508.04.□–71L/6 52.509.04.□–71L/6 52.514.04.□–71L/6	10	1 2 3 4	36/37

Selection table

P_1 Motor power
n_2 Output speed
M_2 Output torque
i Ratio of the gearbox
c_s Operating factor

P_1	n_2 [1/min]	M_2 [Nm]	c_s	Type □ Mounting position (see page 16)	i	Design	Dimensions Page
0.25 kW	69	27	2.7	52.507.04.□–71S/4 52.508.04.□–71S/4 52.509.04.□–71S/4 52.514.04.□–71S/4	20	1 2 3 4	36/37
	62	29	2.6	52.507.04.□–71L/6 52.508.04.□–71L/6 52.509.04.□–71L/6 52.514.04.□–71L/6	15	1 2 3 4	36/37
	47	34	1.9	52.507.04.□–71S/4 52.508.04.□–71S/4 52.509.04.□–71S/4 52.514.04.□–71S/4	30	1 2 3 4	36/37
	45	40	2.0	52.507.04.□–71L/6 52.508.04.□–71L/6 52.509.04.□–71L/6 52.514.04.□–71L/6	20	1 2 3 4	36/37
	36	42	2.5	52.507.05.□–71S/4 52.508.05.□–71S/4 52.509.05.□–71S/4 52.514.05.□–71S/4	40	1 2 3 4	36/37
	34	45	1.6	52.507.04.□–71S/4 52.508.04.□–71S/4 52.509.04.□–71S/4 52.514.04.□–71S/4	40	1 2 3 4	36/37
	26	52	0.9	52.507.04.□–71S/4 52.508.04.□–71S/4 52.509.04.□–71S/4 52.514.04.□–71S/4	53	1 2 3 4	36/37
	26	55	1.5	52.507.05.□–71S/4 52.508.05.□–71S/4 52.509.05.□–71S/4 52.514.05.□–71S/4	53	1 2 3 4	36/37
	22	65	1.2	52.507.04.□–71L/6 52.508.04.□–71L/6 52.509.04.□–71L/6 52.514.04.□–71L/6	40	1 2 3 4	36/37
	22	54	0.8	52.507.04.□–71S/4 52.508.04.□–71S/4 52.509.04.□–71S/4 52.514.04.□–71S/4	60	1 2 3 4	36/37
	22	54	1.4	52.507.05.□–71S/4 52.508.05.□–71S/4 52.509.05.□–71S/4 52.514.05.□–71S/4	60	1 2 3 4	36/37
	17	79	1.1	52.507.05.□–71L/6 52.508.05.□–71L/6 52.509.05.□–71L/6 52.514.05.□–71L/6	53	1 2 3 4	36/37

Design
1 = Foot-mounted design
2 = Flange-mounted design
3 = Hollow-shaft design
4 = Flange-mounted/Hollow shaft design

Selection table

P_1 Motor power
n_2 Output speed
M_2 Output torque
i Ratio of the gearbox
c_s Operating factor

P_1	n_2 [1/min]	M_2 [Nm]	c_s	Type □ Mounting position (see page 16)	i	Design	Dimensions Page
0.25 kW	14	78	1.0	52.507.05.□–71L/6 52.508.05.□–71L/6 52.509.05.□–71L/6 52.514.05.□–71L/6	60	1 2 3 4	36/37
0.37 kW	287	11	4.9	52.507.04.□–71L/4 52.508.04.□–71L/4 52.509.04.□–71L/4 52.514.04.□–71L/4	5	1 2 3 4	36/37
	191	16	3.7	52.507.04.□–71L/4 52.508.04.□–71L/4 52.509.04.□–71L/4 52.514.04.□–71L/4	7	1 2 3 4	36/37
	139	22	3.0	52.507.04.□–71L/4 52.508.04.□–71L/4 52.509.04.□–71L/4 52.514.04.□–71L/4	10	1 2 3 4	36/37
	124	24	2.9	52.507.04.□–80S/6 52.508.04.□–80S/6 52.509.04.□–80S/6 52.514.04.□–80S/6	7	1 2 3 4	36/37
	95	29	2.2	52.507.04.□–71L/4 52.508.04.□–71L/4 52.509.04.□–71L/4 52.514.04.□–71L/4	15	1 2 3 4	36/37
	90	33	2.0	52.507.04.□–80S/6 52.508.04.□–80S/6 52.509.04.□–80S/6 52.514.04.□–80S/6	10	1 2 3 4	36/37
	73	38	2.8	52.507.05.□–71L/4 52.508.05.□–71L/4 52.509.05.□–71L/4 52.514.05.□–71L/4	20	1 2 3 4	36/37
	69	39	1.8	52.507.04.□–71L/4 52.508.04.□–71L/4 52.509.04.□–71L/4 52.514.04.□–71L/4	20	1 2 3 4	36/37
	62	44	1.7	52.507.04.□–80S/6 52.508.04.□–80S/6 52.509.04.□–80S/6 52.514.04.□–80S/6	15	1 2 3 4	36/37
	47	50	1.3	52.507.04.□–71L/4 52.508.04.□–71L/4 52.509.04.□–71L/4 52.514.04.□–71L/4	30	1 2 3 4	36/37
	47	51	1.9	52.507.05.□–71L/4 52.508.05.□–71L/4 52.509.05.□–71L/4 52.514.05.□–71L/4	30	1 2 3 4	36/37
	45	60	1.4	52.507.04.□–80S/6 52.508.04.□–80S/6 52.509.04.□–80S/6 52.514.04.□–80S/6	20	1 2 3 4	36/37

Selection table

P_1 Motor power
n_2 Output speed
M_2 Output torque
i Ratio of the gearbox
c_s Operating factor

P_1	n_2 [1/min]	M_2 [Nm]	c_s	Type □ Mounting position (see page 16)	i	Design	Dimensions Page
0.37 kW	36	63	1.7	52.507.05.□–71L/4 52.508.05.□–71L/4 52.509.05.□–71L/4 52.514.05.□–71L/4	40	1 2 3 4	36/37
	34	66	1.1	52.507.04.□–71L/4 52.508.04.□–71L/4 52.509.04.□–71L/4 52.514.04.□–71L/4	40	1 2 3 4	36/37
	31	75	1.0	52.507.04.□–80S/6 52.508.04.□–80S/6 52.509.04.□–80S/6 52.514.04.□–80S/6	30	1 2 3 4	36/37
	31	77	1.6	52.507.05.□–80S/6 52.508.05.□–80S/6 52.509.05.□–80S/6 52.514.05.□–80S/6	30	1 2 3 4	36/37
	26	81	1.0	52.507.05.□–71L/4 52.508.05.□–71L/4 52.509.05.□–71L/4 52.514.05.□–71L/4	53	1 2 3 4	36/37
	23	94	1.4	52.507.05.□–80S/6 52.508.05.□–80S/6 52.509.05.□–80S/6 52.514.05.□–80S/6	40	1 2 3 4	36/37
	22	80	1.0	52.507.05.□–71L/4 52.508.05.□–71L/4 52.509.05.□–71L/4 52.514.05.□–71L/4	60	1 2 3 4	36/37
	17	123	2.0	52.307.06.□–80S/6 52.308.06.□–80S/6 52.309.06.□–80S/6 52.314.06.□–80S/6	53	1 2 3 4	36/37
	14	124	1.5	52.307.06.□–80S/6 52.308.06.□–80S/6 52.309.06.□–80S/6 52.314.06.□–80S/6	60	1 2 3 4	36/37
0.55 kW	285	16	3.3	52.507.04.□–80S/4 52.508.04.□–80S/4 52.509.04.□–80S/4 52.514.04.□–80S/4	5	1 2 3 4	36/37
	190	24	2.5	52.507.04.□–80S/4 52.508.04.□–80S/4 52.509.04.□–80S/4 52.514.04.□–80S/4	7	1 2 3 4	36/37
	138	33	2.0	52.507.04.□–80S/4 52.508.04.□–80S/4 52.509.04.□–80S/4 52.514.04.□–80S/4	10	1 2 3 4	36/37

Design
1 = Foot-mounted design
2 = Flange-mounted design
3 = Hollow-shaft design
4 = Flange-mounted/Hollow shaft design

Selection table

P_1 Motor power
n_2 Output speed
M_2 Output torque
i Ratio of the gearbox
c_s Operating factor

P_1	n_2 [1/min]	M_2 [Nm]	c_s	Type □ Mounting position (see page 16)	i	Design	Dimensions Page
0.55 kW	122	37	1.9	52.507.04.□–80L/6 52.508.04.□–80L/6 52.509.04.□–80L/6 52.514.04.□–80L/6	7	1 2 3 4	36/37
	95	45	2.2	52.507.05.□–80S/4 52.508.05.□–80S/4 52.509.05.□–80S/4 52.514.05.□–80S/4	15	1 2 3 4	36/37
	72	57	1.9	52.507.05.□–80S/4 52.508.05.□–80S/4 52.509.05.□–80S/4 52.514.05.□–80S/4	20	1 2 3 4	36/37
	61	68	1.8	52.507.05.□–80L/6 52.508.05.□–80L/6 52.509.05.□–80L/6 52.514.05.□–80L/6	15	1 2 3 4	36/37
	47	77	1.3	52.507.05.□–80S/4 52.508.05.□–80S/4 52.509.05.□–80S/4 52.514.05.□–80S/4	30	1 2 3 4	36/37
	36	94	1.2	52.507.05.□–80S/4 52.508.05.□–80S/4 52.509.05.□–80S/4 52.514.05.□–80S/4	40	1 2 3 4	36/37
	35	99	1.9	52.307.06.□–80S/4 52.308.06.□–80S/4 52.309.06.□–80S/4 52.314.06.□–80S/4	40	1 2 3 4	36/37
	30	116	1.1	52.507.05.□–80L/6 52.508.05.□–80L/6 52.509.05.□–80L/6 52.514.05.□–80L/6	30	1 2 3 4	36/37
	30	118	1.7	52.307.06.□–80L/6 52.308.06.□–80L/6 52.309.06.□–80L/6 52.314.06.□–80L/6	30	1 2 3 4	36/37
	27	123	1.7	52.307.06.□–80S/4 52.308.06.□–80S/4 52.309.06.□–80S/4 52.314.06.□–80S/4	53	1 2 3 4	36/37
	23	142	0.9	52.507.05.□–80L/6 52.508.05.□–80L/6 52.509.05.□–80L/6 52.514.05.□–80L/6	40	1 2 3 4	36/37
	22	128	1.3	52.307.06.□–80S/4 52.308.06.□–80S/4 52.309.06.□–80S/4 52.314.06.□–80S/4	60	1 2 3 4	36/37
	22	140	2.1	52.307.08.□–80S/4 52.308.08.□–80S/4 52.309.08.□–80S/4 52.314.08.□–80S/4	60	1 2 3 4	36/37

Selection table

P_1 Motor power
n_2 Output speed
M_2 Output torque
i Ratio of the gearbox
c_s Operating factor

P_1	n_2 [1/min]	M_2 [Nm]	c_s	Type □ Mounting position (see page 16)	i	Design	Dimensions Page
0.55 kW	17	184	1.3	52.307.06.□–80L/6 52.308.06.□–80L/6 52.309.06.□–80L/6 52.314.06.□–80L/6	53	1 2 3 4	36/37
	16	201	2.1	52.307.08.□–80L/6 52.308.08.□–80L/6 52.309.08.□–80L/6 52.314.08.□–80L/6	53	1 2 3 4	36/37
	14	186	1.0	52.307.06.□–80L/6 52.308.06.□–80L/6 52.309.06.□–80L/6 52.314.06.□–80L/6	60	1 2 3 4	36/37
	14	208	1.7	52.307.08.□–80L/6 52.308.08.□–80L/6 52.309.08.□–80L/6 52.314.08.□–80L/6	60	1 2 3 4	36/37
0.75 kW	285	22	2.4	52.507.04.□–80L/4 52.508.04.□–80L/4 52.509.04.□–80L/4 52.514.04.□–80L/4	5	1 2 3 4	36/37
	190	33	1.8	52.507.04.□–80L/4 52.508.04.□–80L/4 52.509.04.□–80L/4 52.514.04.□–80L/4	7	1 2 3 4	36/37
	145	43	2.3	52.507.05.□–80L/4 52.508.05.□–80L/4 52.509.05.□–80L/4 52.514.05.□–80L/4	10	1 2 3 4	36/37
	95	61	1.6	52.507.05.□–80L/4 52.508.05.□–80L/4 52.509.05.□–80L/4 52.514.05.□–80L/4	15	1 2 3 4	36/37
	72	77	1.4	52.507.05.□–80L/4 52.508.05.□–80L/4 52.509.05.□–80L/4 52.514.05.□–80L/4	20	1 2 3 4	36/37
	70	81	2.3	52.307.06.□–80L/4 52.308.06.□–80L/4 52.309.06.□–80L/4 52.314.06.□–80L/4	20	1 2 3 4	36/37
	64	91	2.2	52.307.06.□–90S/6 52.308.06.□–90S/6 52.309.06.□–90S/6 52.314.06.□–90S/6	15	1 2 3 4	36/37
	47	105	0.9	52.507.05.□–80L/4 52.508.05.□–80L/4 52.509.05.□–80L/4 52.514.05.□–80L/4	30	1 2 3 4	36/37

Design
1 = Foot-mounted design
2 = Flange-mounted design
3 = Hollow-shaft design
4 = Flange-mounted/Hollow shaft design

Selection table

P_1 Motor power
n_2 Output speed
M_2 Output torque
i Ratio of the gearbox
c_s Operating factor

P_1	n_2 [1/min]	M_2 [Nm]	c_s	Type □ Mounting position (see page 16)	i	Design	Dimensions Page
0.75 kW	47	107	1.6	52.307.06.□–80L/4 52.308.06.□–80L/4 52.309.06.□–80L/4 52.314.06.□–80L/4	30	1 2 3 4	36/37
	36	128	0.8	52.507.05.□–80L/4 52.508.05.□–80L/4 52.509.05.□–80L/4 52.514.05.□–80L/4	40	1 2 3 4	36/37
	35	136	1.4	52.307.06.□–80L/4 52.308.06.□–80L/4 52.309.06.□–80L/4 52.314.06.□–80L/4	40	1 2 3 4	36/37
	34	148	2.2	52.307.08.□–80L/4 52.308.08.□–80L/4 52.309.08.□–80L/4 52.314.08.□–80L/4	40	1 2 3 4	36/37
	27	167	1.3	52.307.06.□–80L/4 52.308.06.□–80L/4 52.309.06.□–80L/4 52.314.06.□–80L/4	53	1 2 3 4	36/37
	26	185	2.0	52.307.08.□–80L/4 52.308.08.□–80L/4 52.309.08.□–80L/4 52.314.08.□–80L/4	53	1 2 3 4	36/37
	23	197	1.2	52.307.06.□–90S/6 52.308.06.□–90S/6 52.309.06.□–90S/6 52.314.06.□–90S/6	40	1 2 3 4	36/37
	22	175	1.0	52.307.06.□–80L/4 52.308.06.□–80L/4 52.309.06.□–80L/4 52.314.06.□–80L/4	60	1 2 3 4	36/37
	22	191	1.6	52.307.08.□–80L/4 52.308.08.□–80L/4 52.309.08.□–80L/4 52.314.08.□–80L/4	60	1 2 3 4	36/37
	18	242	1.0	52.307.06.□–90S/6 52.308.06.□–90S/6 52.309.06.□–90S/6 52.314.06.□–90S/6	53	1 2 3 4	36/37
	17	263	1.6	52.307.08.□–90S/6 52.308.08.□–90S/6 52.309.08.□–90S/6 52.314.08.□–90S/6	53	1 2 3 4	36/37
	15	273	1.3	52.307.08.□–90S/6 52.308.08.□–90S/6 52.309.08.□–90S/6 52.314.08.□–90S/6	60	1 2 3 4	36/37
1.1 kW	289	33	4.1	52.307.06.□–90S/4 52.308.06.□–90S/4 52.309.06.□–90S/4 52.314.06.□–90S/4	5	1 2 3 4	36/37

Selection table

P_1 Motor power
n_2 Output speed
M_2 Output torque
i Ratio of the gearbox
c_s Operating factor

P_1	n_2 [1/min]	M_2 [Nm]	c_s	Type □ Mounting position (see page 16)	i	Design	Dimensions Page
1.1 kW	193	49	3.1	52.307.06.□–90S/4 52.308.06.□–90S/4 52.309.06.□–90S/4 52.314.06.□–90S/4	7	1 2 3 4	36/37
	143	65	2.7	52.307.06.□–90S/4 52.308.06.□–90S/4 52.309.06.□–90S/4 52.314.06.□–90S/4	10	1 2 3 4	36/37
	128	73	2.5	52.307.06.□–90L/6 52.308.06.□–90L/6 52.309.06.□–90L/6 52.314.06.□–90L/6	7	1 2 3 4	36/37
	96	90	1.8	52.307.06.□–90S/4 52.308.06.□–90S/4 52.309.06.□–90S/4 52.314.06.□–90S/4	15	1 2 3 4	36/37
	71	117	1.6	52.307.06.□–90S/4 52.308.06.□–90S/4 52.309.06.□–90S/4 52.314.06.□–90S/4	20	1 2 3 4	36/37
	64	133	1.5	52.307.06.□–90L/6 52.308.06.□–90L/6 52.309.06.□–90L/6 52.314.06.□–90L/6	15	1 2 3 4	36/37
	48	155	1.1	52.307.06.□–90S/4 52.308.06.□–90S/4 52.309.06.□–90S/4 52.314.06.□–90S/4	30	1 2 3 4	36/37
	46	167	1.8	52.307.08.□–90S/4 52.308.08.□–90S/4 52.309.08.□–90S/4 52.314.08.□–90S/4	30	1 2 3 4	36/37
	35	197	1.0	52.307.06.□–90S/4 52.308.06.□–90S/4 52.309.06.□–90S/4 52.314.06.□–90S/4	40	1 2 3 4	36/37
	35	214	1.5	52.307.08.□–90S/4 52.308.08.□–90S/4 52.309.08.□–90S/4 52.314.08.□–90S/4	40	1 2 3 4	36/37
	32	227	0.9	52.307.06.□–90L/6 52.308.06.□–90L/6 52.309.06.□–90L/6 52.314.06.□–90L/6	30	1 2 3 4	36/37
	31	244	1.4	52.307.08.□–90L/6 52.308.08.□–90L/6 52.309.08.□–90L/6 52.314.08.□–90L/6	30	1 2 3 4	36/37

Design
1 = Foot-mounted design
2 = Flange-mounted design
3 = Hollow-shaft design
4 = Flange-mounted/Hollow shaft design

Selection table

P_1 Motor power
n_2 Output speed
M_2 Output torque
i Ratio of the gearbox
c_s Operating factor

P_1	n_2 [1/min]	M_2 [Nm]	c_s	Type □ Mounting position (see page 16)	i	Design	Dimensions Page
1.1 kW	27	242	0.9	52.307.06.□–90S/4 52.308.06.□–90S/4 52.309.06.□–90S/4 52.314.06.□–90S/4	53	1 2 3 4	36/37
	26	278	2.1	52.107.10.□–90S/4 52.108.10.□–90S/4 52.109.10.□–90S/4 52.114.10.□–90S/4	53	1 2 3 4	36/37
	26	268	1.4	52.307.08.□–90S/4 52.308.08.□–90S/4 52.309.08.□–90S/4 52.314.08.□–90S/4	53	1 2 3 4	36/37
	22	276	1.1	52.307.08.□–90S/4 52.308.08.□–90S/4 52.309.08.□–90S/4 52.314.08.□–90S/4	60	1 2 3 4	36/37
	22	295	1.6	52.107.10.□–90S/4 52.108.10.□–90S/4 52.109.10.□–90S/4 52.114.10.□–90S/4	60	1 2 3 4	36/37
1.5 kW	293	45	3.1	52.307.06.□–90L/4 52.308.06.□–90L/4 52.309.06.□–90L/4 52.314.06.□–90L/4	5	1 2 3 4	36/37
	195	66	2.3	52.307.06.□–90L/4 52.308.06.□–90L/4 52.309.06.□–90L/4 52.314.06.□–90L/4	7	1 2 3 4	36/37
	145	87	2.0	52.307.06.□–90L/4 52.308.06.□–90L/4 52.309.06.□–90L/4 52.314.06.□–90L/4	10	1 2 3 4	36/37
	97	121	1.4	52.307.06.□–90L/4 52.308.06.□–90L/4 52.309.06.□–90L/4 52.314.06.□–90L/4	15	1 2 3 4	36/37
	94	129	2.2	52.307.08.□–90L/4 52.308.08.□–90L/4 52.309.08.□–90L/4 52.314.08.□–90L/4	15	1 2 3 4	36/37
	72	158	1.2	52.307.06.□–90L/4 52.308.06.□–90L/4 52.309.06.□–90L/4 52.314.06.□–90L/4	20	1 2 3 4	36/37
	71	167	1.9	52.307.08.□–90L/4 52.308.08.□–90L/4 52.309.08.□–90L/4 52.314.08.□–90L/4	20	1 2 3 4	36/37
	48	209	0.8	52.307.06.□–90L/4 52.308.06.□–90L/4 52.309.06.□–90L/4 52.314.06.□–90L/4	30	1 2 3 4	36/37

Selection table

P_1 Motor power
n_2 Output speed
M_2 Output torque
i Ratio of the gearbox
c_s Operating factor

P_1	n_2 [1/min]	M_2 [Nm]	c_s	Type □ Mounting position (see page 16)	i	Design	Dimensions Page
1.5 kW	47	228	1.8	52.107.10.□– 90L/4 52.108.10.□– 90L/4 52.109.10.□– 90L/4 52.114.10.□– 90L/4	30	1 2 3 4	36/37
	47	225	1.3	52.307.08.□– 90L/4 52.308.08.□– 90L/4 52.309.08.□– 90L/4 52.314.08.□– 90L/4	30	1 2 3 4	36/37
	35	288	1.1	52.307.08.□– 90L/4 52.308.08.□– 90L/4 52.309.08.□– 90L/4 52.314.08.□– 90L/4	40	1 2 3 4	36/37
	35	300	1.8	52.107.10.□– 90L/4 52.108.10.□– 90L/4 52.109.10.□– 90L/4 52.114.10.□– 90L/4	40	1 2 3 4	36/37
	31	332	1.0	52.307.08.□–100L/6 52.308.08.□–100L/6 52.309.08.□–100L/6 52.314.08.□–100L/6	30	1 2 3 4	36/37
	31	336	1.4	52.107.10.□–100L/6 52.108.10.□–100L/6 52.109.10.□–100L/6 52.114.10.□–100L/6	30	1 2 3 4	36/37
	27	374	1.5	52.107.10.□– 90L/4 52.108.10.□– 90L/4 52.109.10.□– 90L/4 52.114.10.□– 90L/4	53	1 2 3 4	36/37
	26	360	1.0	52.307.08.□– 90L/4 52.308.08.□– 90L/4 52.309.08.□– 90L/4 52.314.08.□– 90L/4	53	1 2 3 4	36/37
	22	397	1.2	52.107.10.□– 90L/4 52.108.10.□– 90L/4 52.109.10.□– 90L/4 52.114.10.□– 90L/4	60	1 2 3 4	36/37
	18	552	1.2	52.107.10.□–100L/6 52.108.10.□–100L/6 52.109.10.□–100L/6 52.114.10.□–100L/6	53	1 2 3 4	36/37
	15	582	1.0	52.107.10.□–100L/6 52.108.10.□–100L/6 52.109.10.□–100L/6 52.114.10.□–100L/6	60	1 2 3 4	36/37
2.2 kW	141	133	2.2	52.307.08.□–100 /4 52.308.08.□–100 /4 52.309.08.□–100 /4 52.314.08.□–100 /4	10	1 2 3 4	36/37

Design
1 = Foot-mounted design
2 = Flange-mounted design
3 = Hollow-shaft design
4 = Flange-mounted/Hollow shaft design

Selection table

P_1 Motor power
n_2 Output speed
M_2 Output torque
i Ratio of the gearbox
c_s Operating factor

P_1	n_2 [1/min]	M_2 [Nm]	c_s	Type □ Mounting position (see page 16)	i	Design	Dimensions Page
2.2 kW	128	149	2.0	52.307.08.□–112M/6 52.308.08.□–112M/6 52.309.08.□–112M/6 52.314.08.□–112M/6	7	1 2 3 4	36/37
	94	190	1.5	52.307.08.□–100 /4 52.308.08.□–100 /4 52.309.08.□–100 /4 52.314.08.□–100 /4	15	1 2 3 4	36/37
	94	193	2.3	52.107.10.□–100 /4 52.108.10.□–100 /4 52.109.10.□–100 /4 52.114.10.□–100 /4	15	1 2 3 4	36/37
	70	252	2.0	52.107.10.□–100 /4 52.108.10.□–100 /4 52.109.10.□–100 /4 52.114.10.□–100 /4	20	1 2 3 4	36/37
	70	246	1.3	52.307.08.□–100 /4 52.308.08.□–100 /4 52.309.08.□–100 /4 52.314.08.□–100 /4	20	1 2 3 4	36/37
	64	275	1.2	52.307.08.□–112M/6 52.308.08.□–112M/6 52.309.08.□–112M/6 52.314.08.□–112M/6	15	1 2 3 4	36/37
	48	344	2.2	52.107.12.□–100 /4 52.108.12.□–100 /4 52.109.12.□–100 /4 52.114.12.□–100 /4	30	1 2 3 4	36/37
	48	366	1.6	52.107.10.□–112M/6 52.108.10.□–112M/6 52.109.10.□–112M/6 52.114.10.□–112M/6	20	1 2 3 4	36/37
	47	331	0.9	52.307.08.□–100 /4 52.308.08.□–100 /4 52.309.08.□–100 /4 52.314.08.□–100 /4	30	1 2 3 4	36/37
	47	336	1.2	52.107.10.□–100 /4 52.108.10.□–100 /4 52.109.10.□–100 /4 52.114.10.□–100 /4	30	1 2 3 4	36/37
	35	463	2.0	52.107.12.□–100 /4 52.108.12.□–100 /4 52.109.12.□–100 /4 52.114.12.□–100 /4	40	1 2 3 4	36/37
	35	442	1.2	52.107.10.□–100 /4 52.108.10.□–100 /4 52.109.10.□–100 /4 52.114.10.□–100 /4	40	1 2 3 4	36/37
	27	579	1.8	52.107.12.□–100 /4 52.108.12.□–100 /4 52.109.12.□–100 /4 52.114.12.□–100 /4	53	1 2 3 4	36/37

Selection table

P_1 Motor power
n_2 Output speed
M_2 Output torque
i Ratio of the gearbox
c_s Operating factor

P_1	n_2 [1/min]	M_2 [Nm]	c_s	Type □ Mounting position (see page 16)	i	Design	Dimensions Page
2.2 kW	27	551	1.0	52.107.10.□–100 /4 52.108.10.□–100 /4 52.109.10.□–100 /4 52.114.10.□–100 /4	53	1 2 3 4	36/37
	22	616	1.4	52.107.12.□–100 /4 52.108.12.□–100 /4 52.109.12.□–100 /4 52.114.12.□–100 /4	60	1 2 3 4	36/37
	18	794	0.8	52.107.10.□–112M/6 52.108.10.□–112M/6 52.109.10.□–112M/6 52.114.10.□–112M/6	53	1 2 3 4	36/37
	18	839	1.5	52.107.12.□–112M/6 52.108.12.□–112M/6 52.109.12.□–112M/6 52.114.12.□–112M/6	53	1 2 3 4	36/37
	15	892	1.1	52.107.12.□–112M/6 52.108.12.□–112M/6 52.109.12.□–112M/6 52.114.12.□–112M/6	60	1 2 3 4	36/37
3.0 kW	280	96	2.4	52.307.08.□–100L /4 52.308.08.□–100L /4 52.309.08.□–100L /4 52.314.08.□–100L /4	5	1 2 3 4	36/37
	186	139	1.9	52.307.08.□–100L /4 52.308.08.□–100L /4 52.309.08.□–100L /4 52.314.08.□–100L /4	7	1 2 3 4	36/37
	140	184	1.6	52.307.08.□–100L /4 52.308.08.□–100L /4 52.309.08.□–100L /4 52.314.08.□–100L /4	10	1 2 3 4	36/37
	93	262	1.1	52.307.08.□–100L /4 52.308.08.□–100L /4 52.309.08.□–100L /4 52.314.08.□–100L /4	15	1 2 3 4	36/37
	93	267	1.7	52.107.10.□–100L /4 52.108.10.□–100L /4 52.109.10.□–100L /4 52.114.10.□–100L /4	15	1 2 3 4	36/37
	70	347	1.5	52.107.10.□–100L /4 52.108.10.□–100L /4 52.109.10.□–100L /4 52.114.10.□–100L /4	20	1 2 3 4	36/37
	70	339	0.9	52.307.08.□–100L /4 52.308.08.□–100L /4 52.309.08.□–100L /4 52.314.08.□–100L /4	20	1 2 3 4	36/37

Design
1 = Foot-mounted design
2 = Flange-mounted design
3 = Hollow-shaft design
4 = Flange-mounted/Hollow shaft design

Selection table

P_1 Motor power
n_2 Output speed
M_2 Output torque
i Ratio of the gearbox
c_s Operating factor

P_1	n_2 [1/min]	M_2 [Nm]	c_s	Type □ Mounting position (see page 16)	i	Design	Dimensions Page
3.0 kW	48	474	1.6	52.107.12.□–100L /4 52.108.12.□–100L /4 52.109.12.□–100L /4 52.114.12.□–100L /4	30	1 2 3 4	36/37
	46	463	0.9	52.107.10.□–100L /4 52.108.10.□–100L /4 52.109.10.□–100L /4 52.114.10.□–100L /4	30	1 2 3 4	36/37
	35	638	1.4	52.107.12.□–100L /4 52.108.12.□–100L /4 52.109.12.□–100L /4 52.114.12.□–100L /4	40	1 2 3 4	36/37
	35	609	0.9	52.107.10.□–100L /4 52.108.10.□–100L /4 52.109.10.□–100L /4 52.114.10.□–100L /4	40	1 2 3 4	36/37
	32	711	1.4	52.107.12.□–132S/6 52.108.12.□–132S/6 52.109.12.□–132S/6 52.114.12.□–132S/6	30	1 2 3 4	36/37
	26	798	1.3	52.107.12.□–100L /4 52.108.12.□–100L /4 52.109.12.□–100L /4 52.114.12.□–100L /4	53	1 2 3 4	36/37
	22	850	1.0	52.107.12.□–100L /4 52.108.12.□–100L /4 52.109.12.□–100L /4 52.114.12.□–100L /4	60	1 2 3 4	36/37
4.0 kW	286	125	1.9	52.307.08.□–112M/4 52.308.08.□–112M/4 52.309.08.□–112M/4 52.314.08.□–112M/4	5	1 2 3 4	36/37
	190	182	1.4	52.307.08.□–112M/4 52.308.08.□–112M/4 52.309.08.□–112M/4 52.314.08.□–112M/4	7	1 2 3 4	36/37
	190	186	2.2	52.107.10.□–112M/4 52.108.10.□–112M/4 52.109.10.□–112M/4 52.114.10.□–112M/4	7	1 2 3 4	36/37
	143	240	1.2	52.307.08.□–112M/4 52.308.08.□–112M/4 52.309.08.□–112M/4 52.314.08.□–112M/4	10	1 2 3 4	36/37
	143	243	1.9	52.107.10.□–112M/4 52.108.10.□–112M/4 52.109.10.□–112M/4 52.114.10.□–112M/4	10	1 2 3 4	36/37
	98	344	2.2	52.107.12.□–112M/4 52.108.12.□–112M/4 52.109.12.□–112M/4 52.114.12.□–112M/4	15	1 2 3 4	36/37

Selection table

P_1 Motor power
n_2 Output speed
M_2 Output torque
i Ratio of the gearbox
c_s Operating factor

P_1	n_2 [1/min]	M_2 [Nm]	c_s	Type □ Mounting position (see page 16)	i	Design	Dimensions Page
4.0 kW	95	348	1.3	52.107.10.□–112M/4 52.108.10.□–112M/4 52.109.10.□–112M/4 52.114.10.□–112M/4	15	1 2 3 4	36/37
	95	342	0.8	52.307.08.□–112M/4 52.308.08.□–112M/4 52.309.08.□–112M/4 52.314.08.□–112M/4	15	1 2 3 4	36/37
	71	464	1.9	52.107.12.□–112M/4 52.108.12.□–112M/4 52.109.12.□–112M/4 52.114.12.□–112M/4	20	1 2 3 4	36/37
	71	454	1.1	52.107.10.□–112M/4 52.108.10.□–112M/4 52.109.10.□–112M/4 52.114.10.□–112M/4	20	1 2 3 4	36/37
	66	512	1.8	52.107.12.□–132M/6 52.108.12.□–132M/6 52.109.12.□–132M/6 52.114.12.□–132M/6	15	1 2 3 4	36/37
	49	619	1.2	52.107.12.□–112M/4 52.108.12.□–112M/4 52.109.12.□–112M/4 52.114.12.□–112M/4	30	1 2 3 4	36/37
	48	690	1.6	52.107.12.□–132M/6 52.108.12.□–132M/6 52.109.12.□–132M/6 52.114.12.□–132M/6	20	1 2 3 4	36/37
	35	833	1.1	52.107.12.□–112M/4 52.108.12.□–112M/4 52.109.12.□–112M/4 52.114.12.□–112M/4	40	1 2 3 4	36/37
	27	1041	1.0	52.107.12.□–112M/4 52.108.12.□–112M/4 52.109.12.□–112M/4 52.114.12.□–112M/4	53	1 2 3 4	36/37
5.5 kW	198	245	2.7	52.107.12.□–132S/4 52.108.12.□–132S/4 52.109.12.□–132S/4 52.114.12.□–132S/4	7	1 2 3 4	36/37
	144	339	2.4	52.107.12.□–132S/4 52.108.12.□–132S/4 52.109.12.□–132S/4 52.114.12.□–132S/4	10	1 2 3 4	36/37
	99	470	1.6	52.107.12.□–132S/4 52.108.12.□–132S/4 52.109.12.□–132S/4 52.114.12.□–132S/4	15	1 2 3 4	36/37

Design
1 = Foot-mounted design
2 = Flange-mounted design
3 = Hollow-shaft design
4 = Flange-mounted/Hollow shaft design

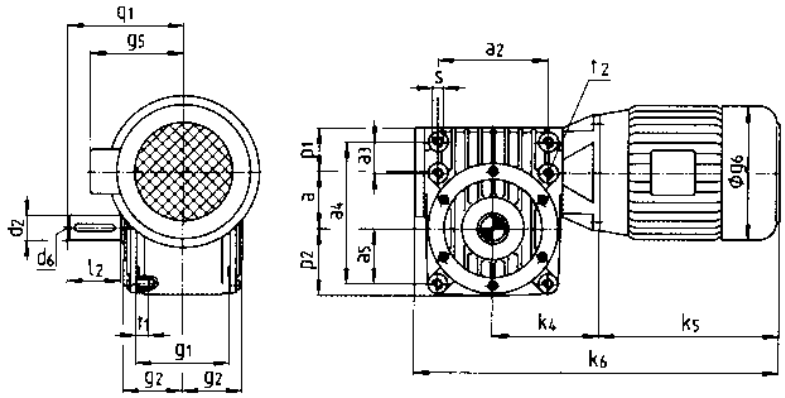
Selection table

P_1 Motor power
n_2 Output speed
M_2 Output torque
i Ratio of the gearbox
c_s Operating factor

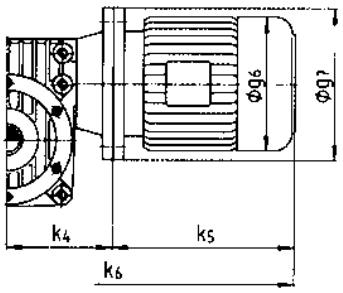
P_1	n_2 [1/min]	M_2 [Nm]	c_s	Type □ Mounting position (see page 16)	i	Design	Dimensions Page
5.5 kW	72	634	1.4	52.107.12.□–132S/4 52.108.12.□–132S/4 52.109.12.□–132S/4 52.114.12.□–132S/4	20	1 2 3 4	36/37
	49	846	0.9	52.107.12.□–132S/4 52.108.12.□–132S/4 52.109.12.□–132S/4 52.114.12.□–132S/4	30	1 2 3 4	36/37
7.5 kW	200	333	2.0	52.107.12.□–132M/4 52.108.12.□–132M/4 52.109.12.□–132M/4 52.114.12.□–132M/4	7	1 2 3 4	36/37
	145	459	1.7	52.107.12.□–132M/4 52.108.12.□–132M/4 52.109.12.□–132M/4 52.114.12.□–132M/4	10	1 2 3 4	36/37
	100	637	1.2	52.107.12.□–132M/4 52.108.12.□–132M/4 52.109.12.□–132M/4 52.114.12.□–132M/4	15	1 2 3 4	36/37
	72	859	1.0	52.107.12.□–132M/4 52.108.12.□–132M/4 52.109.12.□–132M/4 52.114.12.□–132M/4	20	1 2 3 4	36/37

Dimensions

52.307/52.507

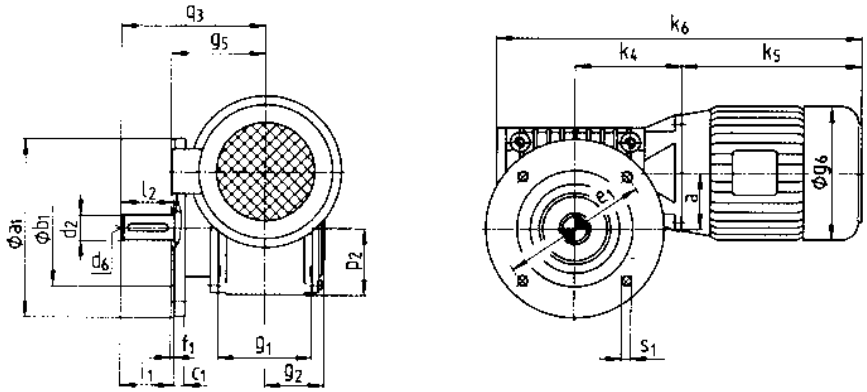


52.107/52.407

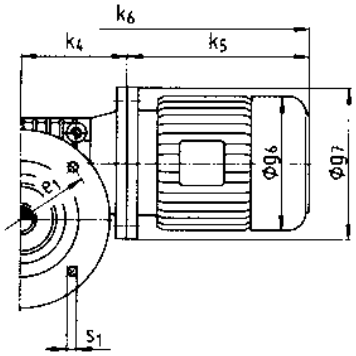


The output shaft can also be supplied double ended at a surcharge.

52.308/52.508

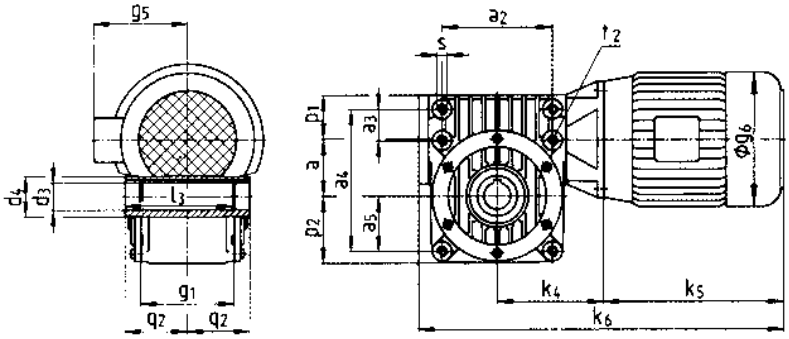


52.108/52.408

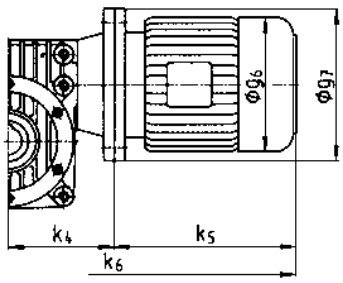


The output shaft can also be supplied double ended at a surcharge.

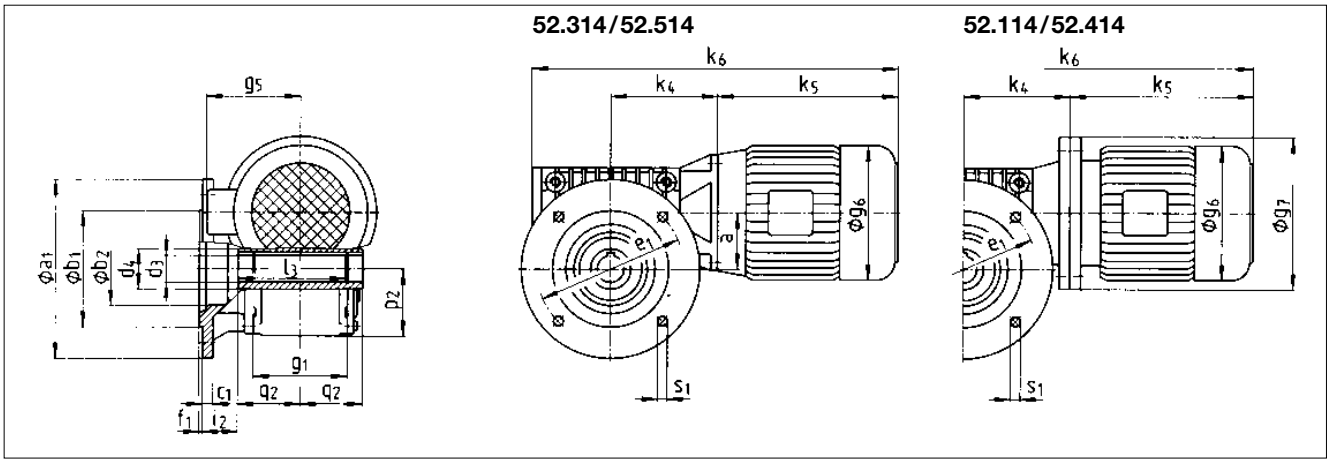
52.309/52.509



52.109/52.409



Dimensions



Size	a	a1 4)	a2	a3	a4	a5	b1 2) j7	b2	c1	d2 1)	d3 H7	d4	d6	e1	f1	g1	g2	i1	i2
04	40	120/**140**	85	20	105	39	80/ 95	53	8/ 8	19	20	35	M 6	100/115	3/3	76	49	50	29
05	50	140/**160**	104	25	129	52	95/110	66	10/10	24	25	45	M 8	115/130	3/3.5	88	59	60	39
06	63	160/**200**	124	35	159	62	110/130	82	12/12	28	30	55	M 10	130/165	3.5/3.5	105	67	70	40
08	80	200/**250**	148	40	188	74	130/180	99	14/14	38	40	65	M 12	165/215	3.5/4	130	82	80	54
10	100	250/**300**	176	50	226	88	180/230	120	16/16	48	50	75	M 16	215/265	4/4	138	87	100	59
12	125	300/**350**	224	59	283	112	230/250	150	20/20	55	70	90	M 20	265/300	4/5	174	105	110	68

Size	Motor	g5 5)	g6 5)	g7	k4	k5 5)	k6 5)	l2	l3	p1	p2	q1	q2	q3	s	s1	t1	t2	m5) [kg] 52.□07	52.□08	52.□09	52.□14
04	63	112	123	140	119	187	371	50	87	35	51	100	50	122	M 6	6.6/9	10	7.5	13	13	12	13
	71	125	138	160	119	212	396	50	87	35	51	100	50	122	M 6	6.6/9	10	7.5	15	15	14	15
	80	137	156	200	129	233	427	50	87	35	51	100	50	122	M 6	6.6/9	10	7.5	18	18	17	18
05	71	125	138	160	125	212	410	60	104	40	62	120	60	149	M 8	9/9	13	10	19	21	18	20
	80	137	156	200	135	233	441	60	104	40	62	120	60	149	M 8	9/9	13	10	22	24	21	23
06	80	137	156	200	120	233	441	70	122	50	75	140	70	172	M 10	9/11	13	13	30	33	29	32
	90S	147	176	200	120	250	458	70	122	50	75	140	70	172	M 10	9/11	13	13	37	40	36	39
	90L	147	176	200	120	275	483	70	122	50	75	140	70	172	M 10	9/11	13	13	41	44	40	43
08	80	137	156	200	146	233	482	80	148	55	90	165	85	207	M 10	11/14	19	16	42	48	41	47
	90S	147	176	200	146	250	499	80	148	55	90	165	85	207	M 10	11/14	19	16	50	56	49	55
	90L	147	176	200	146	275	524	80	148	55	90	165	85	207	M 10	11/14	19	16	54	60	53	59
	100	156	198	250	146	306	555	80	148	55	90	165	85	207	M 10	11/14	19	16	57	63	56	62
	112	167	220	250	146	322	571	80	148	55	90	165	85	207	M 10	11/14	19	16	73	79	72	78
10 6)	90L	147	176	200	153	275	546	100	154	65	110	190	90	234	M 12	14/14	18	18	65	74	68	72
	100	156	198	250	163	306	587	100	154	65	110	190	90	234	M 12	14/14	18	18	68	77	71	75
	112	167	220	250	163	322	603	100	154	65	110	190	90	234	M 12	14/14	18	18	84	93	87	91
12 6)	100	156	198	250	195	306	647	110	187	72	141	218	107.5	272	M 16	14/18	23	23	115	122	110	119
	112	167	220	250	195	322	663	110	187	72	141	218	107.5	272	M 16	14/18	23	23	131	138	126	135
	132S	195	260	300	203	363	712	110	187	72	141	218	107.5	272	M 16	14/18	23	23	150	157	145	154
	132M	195	260	300	203	401	750	110	187	72	141	218	107.5	272	M 16	14/18	23	23	161	168	156	165

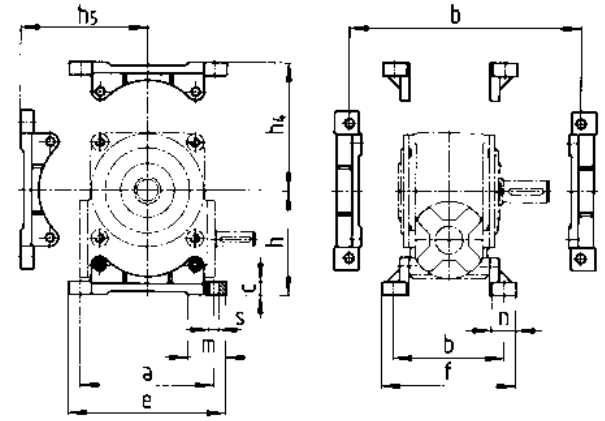
1) ISO tolerance up to Ø 50 mm = k6
over Ø 50 mm = m6
2) ISO tolerance h7 for b1 over 230 mm
4) Bold print = standard
5) Deviations in motor dimensions possible
6) Sizes 10 and 12 not available as type 52.307/308/309/314
Keys to DIN 6885/1

For motor dimensions see page 50

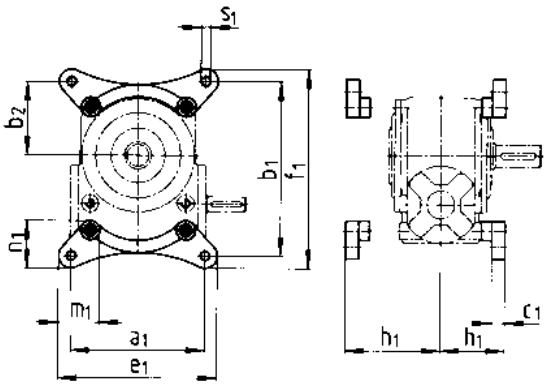
For brake motors, see the different dimensions and weights according to page 10.

Dimensions in [mm]

Options

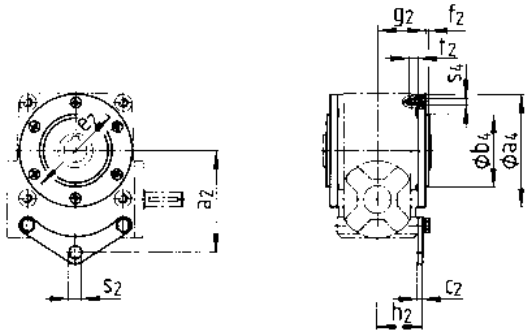


Angular foot for mounting position
11/12/15/16/21/22/25/26

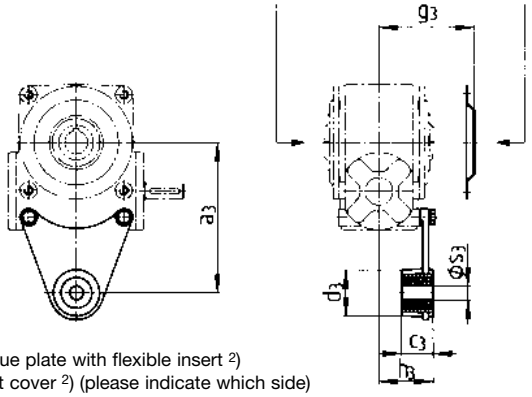


Side foot for mounting position
13/14/23/24

Page 2 Page 1



Rigid torque plate [1]
output covers with centring [2] (only hollow shaft design)



Torque plate with flexible insert [2]
shaft cover [2] (please indicate which side)

Size	a	a_1	a_2	a_3	a_4	b	b_1	b_2	b_4 j7	c	c^1	c_2	c_3	d_3	e	e_1	e_2
04	118	118	96	130	99	98	157	65	62	11	14	5	41	60	140	142	85
05	152	152	107	155	115	114	191	83	75	14	14	6	41	60	180	178	100
06	174	174	132	195	148	136	225	95	94	17	17	6	41	60	205	206	128
08	212	212	154	220	177	166	268	114	130	19	19	6	46	70	245	248	158
10	240	240	188	275	215	194	310	130	154	22	22	6	46	70	280	284	195
12	300	300	226	339	278	235	375	158	215	25	25	6	70	85	350	350	252

Size	f	f_1	f_2	g_2	g_3	h	h_1	h_2	h_3	h_4	h_5	m	m_1	n	n_1	s	s_1	s_2	s_3	s_4	t_2
04	122	181	2.5	45.5	57	94	64	43	50	67	71	35	36	21	46	10	10	10.5	18	M 6	8
05	146	217	3	54	69	108	70	50	60	83	83	44	51	27	54	10	10	12.5	18	M 6	11
06	175	257	2	62.5	79	135	83	59	70	100	100	48	54	32	62	12	12	16.5	18	M 6	12
08	200	304	2.5	77	95	161	98	71	85	121	121	58	65	32	73	14	14	16.5	25	M 8	15
10	234	354	2.8	83.7	99	200	109	75	90	150	150	63	67	40	77	18	18	20.5	25	M10	15
12	286	425	3	99.5	120	245	127	93	108	186	186	67	79	48	87	22	22	20.5	30	M12	22

[1]) no surcharge [2]) surcharge Dimensions in [mm]

Worm gearboxes

Product information

Illustrations 40
Type code 41
Order information 41

Technical data

Mounting positions 42
Permissible radial forces input 43

Selection worm geared motors

Selection 44

Drive selection

Selection tables 46
Dimensions 48
Options gearbox (see chapter geared motors) 38

Illustrations

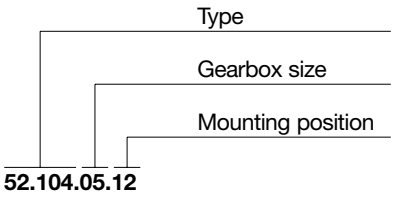
52.104

52.106

52.105

52.113

Type code



Type

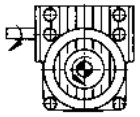
Design on output side	Type Worm gearboxes
Foot mounted design	52.104
Flange mounted design	52.105
Hollow shaft design	52.106
Flange/Hollow shaft design	52.113

Gearbox size
04, 05, 06, 08, 10, 12

Order information
- Complete type code
- Ratio
- Mounting position
- Flange design: Output flange diameter
- Hollow shaft design: hollow shaft bore
- Gearbox design with motor adapter: size of the motor flange
- Gearbox options

Mounting positions

with output shaft end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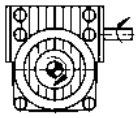
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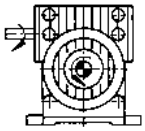
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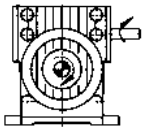
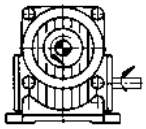

21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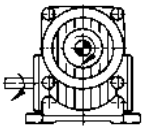
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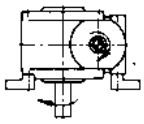
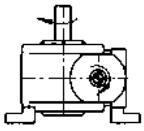

13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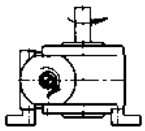
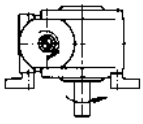

14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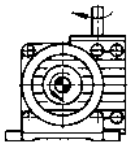
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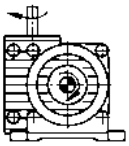
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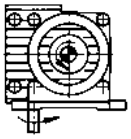
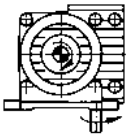
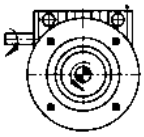

16


26

with output flange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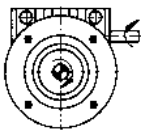
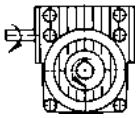

20

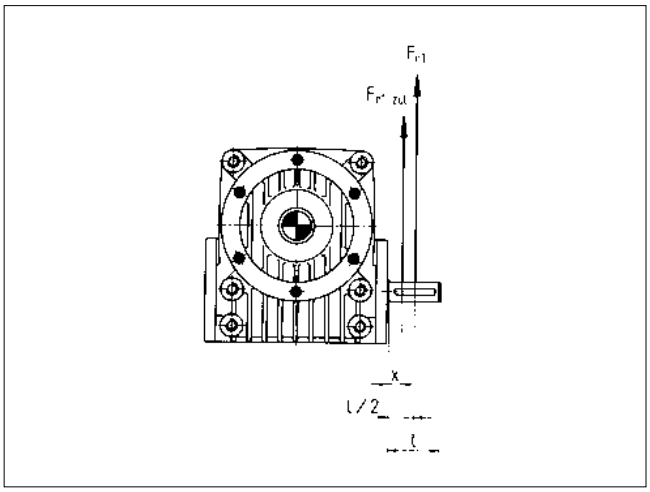
with hollow shaft


00

For output flange **and** hollow shaft the mounting position of the flange-mounted design applies.

Permissible radial forces input

$$Fr_{perm} = Fr \cdot fw$$



x/l	0	0.2	0.4	0.6	0.8	1
fw	1.2	1.1	1.04	0.9	0.77	0.65

Size	04	05	06	08	10	12	04	05	06	08	10	12	04	05	06	08	10	12
Radial force Fr_1 [kN]																		
i	**n_1 = 2800 1/min**						**n_1 = 1400 1/min**						**n_1 = 930 1/min**					
5	1.00	1.90	2.75	3.9	5.5	8.2	1.05	1.90	2.75	3.8	5.5	8.2	1.00	1.80	2.75	3.8	5.5	8.2
7	1.00	1.90	2.75	3.9	5.6	8.2	1.05	1.90	2.75	3.9	5.5	8.2	0.85	1.90	2.75	3.8	5.5	8.2
10	0.80	1.55	2.65	3.9	5.6	8.2	0.80	1.90	2.40	3.7	5.5	8.0	1.05	1.75	2.20	3.5	5.5	7.4
13	1.10	1.95	1.45	3.9	4.0	4.6	1.10	1.95	1.25	3.9	3.2	3.7	1.10	1.95	1.10	3.9	3.0	3.2
15	1.00	1.70	2.75	3.9	5.6	8.2	1.00	1.80	2.75	3.9	5.6	8.2	0.50	1.75	2.75	3.9	5.6	8.2
20	0.65	1.40	2.75	3.9	5.6	8.2	0.50	1.70	2.50	3.7	5.6	8.1	0.50	1.35	2.30	3.6	5.5	7.5
26	1.10	1.95	1.55	3.9	4.0	4.6	1.10	1.95	1.30	3.9	3.3	3.8	1.10	1.95	1.05	3.9	3.1	3.4
30	0.80	1.30	2.75	3.9	5.6	8.2	0.65	1.80	2.75	3.9	5.6	8.2	0.50	1.55	2.75	3.9	5.6	8.2
40	0.50	1.25	2.75	3.9	5.6	8.2	0.50	1.50	2.50	3.7	5.6	8.1	0.50	1.25	2.30	3.6	5.5	7.5
53	0.80	1.25	1.55	3.9	4.0	4.6	1.10	1.95	1.30	3.9	3.3	3.8	1.10	1.95	1.05	3.9	3.1	3.4
60	0.75	1.25	2.75	3.9	5.6	8.2	1.10	1.95	2.75	3.9	5.6	8.2	1.10	1.95	2.75	3.9	5.6	8.2
i	**n_1 = 700 1/min**						**n_1 = 500 1/min**						***n_1 = 150 1/min***					
5	1.00	1.85	2.75	3.8	5.5	8.2	1.00	1.80	2.75	3.8	5.5	8.1	1.00	1.80	2.65	3.7	5.1	7.7
7	0.95	1.75	2.75	3.8	5.5	8.2	0.95	1.30	2.75	3.8	5.5	8.2	1.00	1.80	2.70	3.8	5.3	8.0
10	1.05	1.35	2.00	3.2	5.0	6.8	1.05	1.60	1.75	2.9	4.5	5.9	1.05	1.60	1.70	2.4	2.7	3.3
13	1.10	1.95	1.10	3.9	2.5	2.6	1.10	1.95	1.10	3.9	2.5	2.6	1.10	1.95	1.10	3.9	2.5	2.6
15	0.50	1.35	2.75	3.9	5.5	8.2	1.00	1.25	2.75	3.9	5.5	8.2	1.00	1.85	2.75	3.8	5.5	8.2
20	1.00	1.25	2.10	3.4	5.2	6.8	1.05	1.55	1.90	3.0	4.7	6.2	1.00	1.60	1.80	2.6	3.2	4.3
26	1.10	1.95	0.95	3.9	2.7	2.8	1.10	1.95	0.95	3.9	2.1	2.2	1.10	1.95	0.90	3.9	2.1	2.2
30	0.50	1.25	2.75	3.9	5.6	8.2	1.00	1.25	2.75	3.9	5.6	8.2	1.00	1.85	2.75	3.9	5.5	8.2
40	0.75	1.25	2.10	3.4	5.2	7.0	1.05	1.35	2.00	3.1	4.8	6.5	1.05	1.60	1.85	2.6	3.4	4.9
53	1.10	1.95	0.95	3.9	2.8	2.9	1.10	1.95	0.95	3.9	2.2	2.3	1.10	1.95	0.80	3.9	2.0	2.0
60	1.10	1.95	2.75	3.9	5.6	8.2	1.10	1.95	2.75	3.9	5.6	8.2	1.10	1.95	2.75	3.9	5.6	8.2

Selection

A worm gearbox can be selected according to the rated power (P) or the torque required by the machine (M).

Selection according to the torque:

$$M = \frac{9550 \cdot P}{n_2}$$

M = Required torque at the machine in Nm
P = Required power at the machine in kW
n_2 = Speed at the machine in 1/min
= Output speed of the gearbox

For the desired input speed n_1 and ratio i, the gearbox output torque M_2 (selection table) must at least as great as the greater of the two torques M_m or M_w.

$$M_2 \geq M_m = M \cdot k_A$$
$$M_2 \geq M_w = M \cdot k_T$$

M_2 = Output torque according to selection table
M_m = Calculated mechanical output torque in Nm
M_w = Calculated thermic output torque in Nm
k_A = Factor according to table page 18
k_T = Factor according to table page 18

Selection

Selection according to the required power:
The power (P) required by the machine is calculated using the following equations:

$$P_m = P \cdot k_A$$
$$P_w = P \cdot k_T$$

For the greater of the two powers P_m or P_w, check if:

$$P_1 \geqq \frac{P_m}{\eta}$$

$$P_1 \geqq \frac{P_w}{\eta}$$

P_m = calculated mechanical output power in kW
P_w = calculated thermic power in kW
P_1 = Input power in kW
k_A = Factor according to table page 18
K_T = Factor according to table page 18

Considering the output speed n_1 and the desired ratio i, the value η can be obtained from the selection table.

Selection table

P_1 = Input power
M_2 = Output torque
η = Efficiency
n_1 = Input speed
i = Ratio of the gearbox

n_1	2800 1/min						1400 1/min						930 1/min					
Size	04	05	06	08	10	12	04	05	06	08	10	12	04	05	06	08	10	12
i	P_1 [kW] M_2 [Nm] η [%]																	
5	2.81 43 93	3.97 61 93	6.02 92 93	8.70 138 93	12.59 201 94	21.8 338 94	1.77 53 91	2.62 79 91	4.51 138 93	7.40 236 94	11.39 366 94	18.9 593 95	1.47 66 90	2.18 99 92	3.54 162 92	5.50 262 93	8.75 422 94	16.6 784 95
7	2.11 47 90	3.02 68 91	4.60 103 91	6.75 157 91	9.77 229 92	16.6 380 93	1.34 59 89	1.97 87 89	3.39 152 91	5.63 263 91	8.84 419 93	14.4 665 93	1.12 72 88	1.65 109 89	2.67 178 90	4.19 293 91	6.66 472 92	12.4 862 93
10	1.89 57 88	2.64 77 89	4.18 125 90	6.03 185 90	8.80 272 91	14.7 457 91	1.13 67 87	1.69 96 88	2.91 172 89	4.80 295 90	7.55 471 91	12.7 805 93	0.75 66 86	1.42 120 87	2.29 201 88	3.58 327 89	5.67 528 91	10.3 976 92
13 *)	0.90 34 85	1.45 57 87	3.64 139 88	5.42 218 89	7.94 316 90	13.3 536 90	0.45 34 84	0.74 56 83	2.49 188 87	4.08 326 88	6.53 521 90	11.0 892 91	0.30 33 81	0.49 55 83	1.85 207 85	3.03 360 87	4.90 583 89	8.88 1077 91
15	1.23 50 82	1.78 74 84	2.71 113 84	4.00 174 85	5.77 253 86	9.73 420 87	0.79 63 81	1.16 94 82	1.99 164 83	3.29 288 86	5.12 458 87	8.38 736 89	0.65 76 78	0.98 118 81	1.58 193 82	2.47 321 84	3.88 516 86	7.12 940 89
20	0.97 54 81	1.55 82 82	2.49 137 83	3.58 203 83	5.25 302 84	8.70 508 86	0.66 71 79	1.01 104 79	1.73 186 81	2.83 320 83	4.44 516 85	7.42 883 87	0.52 82 77	0.85 129 78	1.37 218 79	2.12 356 82	3.36 580 84	6.03 1072 87
26 *)	0.64 44 78	1.07 76 79	2.16 150 80	3.25 240 82	4.73 347 83	7.87 588 84	0.33 44 74	0.55 75 75	1.50 203 78	2.44 355 80	3.85 567 83	6.47 979 85	0.23 43 70	0.37 74 74	1.19 237 76	1.83 392 79	2.91 635 82	5.25 1184 84
30	0.65 46 71	0.96 69 73	1.51 109 73	2.35 179 74	3.10 233 73	5.19 396 77	0.47 64 69	0.69 96 70	1.18 168 72	1.92 295 75	2.70 419 76	4.78 759 80	0.38 76 67	0.59 121 69	0.95 197 70	1.46 329 73	2.06 472 74	4.05 966 80
40	0.52 48 69	0.86 77 69	1.37 129 71	2.13 208 72	3.10 312 74	4.66 475 75	0.39 70 66	0.62 106 66	1.05 191 68	1.68 328 72	2.60 531 75	4.26 906 78	0.31 80 63	0.52 129 64	0.84 223 66	1.28 365 69	1.98 597 73	3.49 1100 77
53	0.43 48 63	0.64 75 65	1.22 142 67	1.91 239 69	2.82 355 71	4.20 541 73	0.23 48 59	0.38 85 62	0.93 208 64	1.48 363 68	2.29 581 72	3.78 1006 75	0.16 48 56	0.27 84 57	0.75 243 62	1.13 402 65	1.75 652 70	3.09 1218 74
60	0.39 46 56	0.55 65 55	0.96 115 58	1.42 179 60	2.10 275 62	3.01 400 63	0.21 46 51	0.36 78 51	0.74 172 56	1.19 300 60	1.80 487 64	2.92 837 68	0.15 45 48	0.25 78 49	0.57 189 53	0.91 334 58	1.39 548 62	2.41 1017 66

*) The ratios 13 and 26 are only available for gearboxes with free input shaft (type 52.104/105/106/113)

Selection table

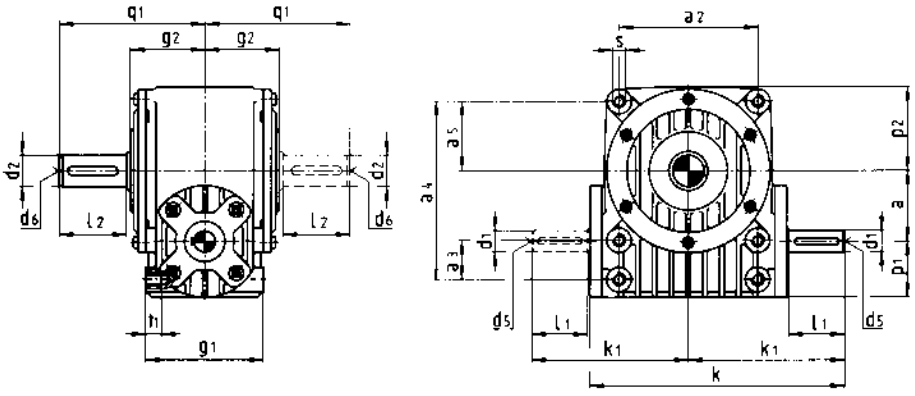
P_1 = Input power
M_2 = Output torque
η = Efficiency
n_1 = Input speed
i = Ratio of the gearbox

n_1	700 1/min						500 1/min						150 1/min					
Size	04	05	06	08	10	12	04	05	06	08	10	12	04	05	06	08	10	12
i	P_1 [kW] M_2 [Nm] η [%]																	
5	1.13 67 90	1.93 115 90	3.15 189 91	4.91 310 93	7.89 504 94	15.06 942 95	0.82 66 87	1.67 138 90	2.73 228 90	4.30 376 92	6.95 618 93	13.34 1163 94	0.25 63 82	0.52 138 86	1.13 298 86	2.19 610 88	4.32 1234 90	7.08 2000 92
7	0.91 77 86	1.46 127 88	2.38 209 89	3.76 346 90	6.02 564 92	11.24 1035 93	0.66 77 84	1.27 152 86	2.08 251 87	3.29 421 89	5.32 692 91	9.97 1279 93	0.21 74 76	0.42 158 82	0.90 339 82	1.75 700 84	3.35 1387 87	5.10 2100 89
10	0.57 66 84	1.26 140 86	2.03 234 87	3.20 386 88	5.11 628 90	9.34 1168 92	0.41 65 83	0.95 145 84	1.77 281 85	2.80 468 88	4.51 768 89	8.26 1437 91	0.13 62 76	0.30 142 78	0.58 285 79	1.17 605 81	2.23 1194 84	3.98 2200 87
13 *)	0.23 33 80	0.37 55 82	1.40 205 84	2.52 393 86	4.41 692 88	8.02 1285 90	0.17 32 77	0.27 54 79	1.01 203 83	1.81 389 85	3.24 704 88	5.81 1291 90	0.05 31 72	0.08 51 72	0.31 192 76	0.56 370 78	1.00 676 82	1.79 1248 84
15	0.54 83 78	0.88 138 79	1.41 226 81	2.22 379 83	3.52 617 86	6.48 1130 88	0.41 85 75	0.74 158 77	1.25 273 79	1.97 461 82	3.13 758 84	5.78 1396 87	0.14 83 66	0.25 160 69	0.46 300 71	0.99 700 74	1.88 1400 78	2.98 2250 82
20	0.40 83 76	0.73 145 77	1.23 255 78	1.91 420 81	3.04 691 83	5.48 1285 86	0.30 82 72	0.58 156 74	1.06 300 76	1.69 510 79	2.70 847 82	4.88 1582 85	0.10 82 65	0.20 155 65	0.36 302 68	0.72 647 71	1.35 1283 75	2.25 2250 79
26 *)	0.17 43 69	0.29 74 70	1.01 262 75	1.64 459 77	2.63 755 81	4.76 1414 84	0.13 42 67	0.21 73 68	0.75 262 72	1.20 460 76	2.34 923 79	4.22 1729 83	0.04 41 59	0.07 69 61	0.25 252 62	0.41 456 66	0.76 896 71	1.35 1679 75
30	0.33 84 64	0.54 141 66	0.86 232 68	1.32 390 72	1.88 563 73	3.71 1161 79	0.25 85 61	0.45 158 63	0.77 280 66	1.18 475 70	1.69 691 71	3.33 1436 78	0.09 85 51	0.16 160 54	0.34 350 56	0.61 700 60	1.12 1328 62	1.74 2250 70
40	0.26 85 60	0.45 144 62	0.76 262 65	1.16 430 68	1.81 711 72	3.19 1319 76	0.19 84 58	0.37 159 59	0.65 300 62	1.04 523 66	1.62 871 70	2.87 1625 74	0.07 85 49	0.13 159 49	0.24 300 50	0.47 658 55	0.85 1310 61	1.35 2250 65
53	0.13 48 54	0.21 84 55	0.64 267 60	1.01 466 64	1.60 775 68	2.82 1455 73	0.09 47 51	0.15 83 53	0.48 266 57	0.75 466 61	1.44 948 66	2.54 1787 71	0.03 50 43	0.06 85 45	0.18 270 47	0.27 469 51	0.53 980 56	0.95 1909 61
60	0.12 45 46	0.20 78 46	0.45 189 50	0.84 394 55	1.28 653 60	2.21 1218 65	0.09 45 43	0.15 78 44	0.34 188 47	0.67 422 53	1.16 800 58	2.01 1501 63	0.03 46 35	0.06 78 34	0.13 190 37	0.26 429 42	0.46 849 47	0.82 1709 53

*) The ratios 13 and 26 are only available for gearboxes with free input shaft (type 52.104/105/106/113)

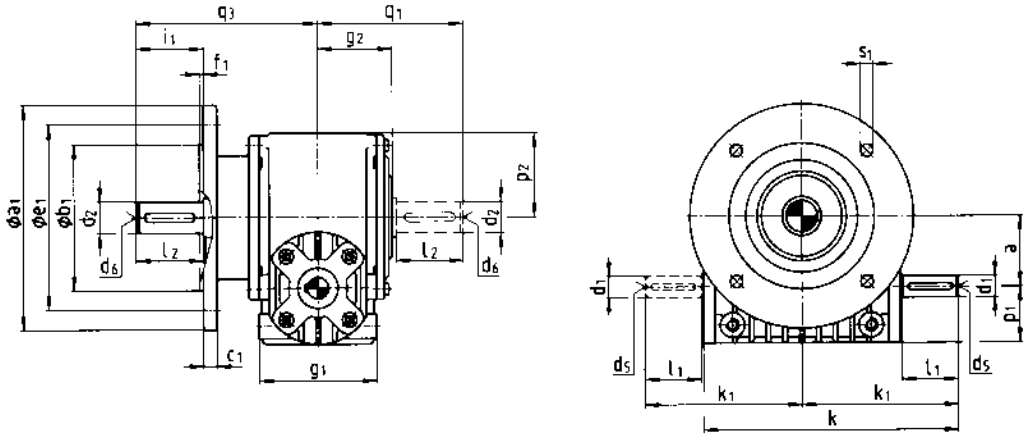
Dimensions

52.104



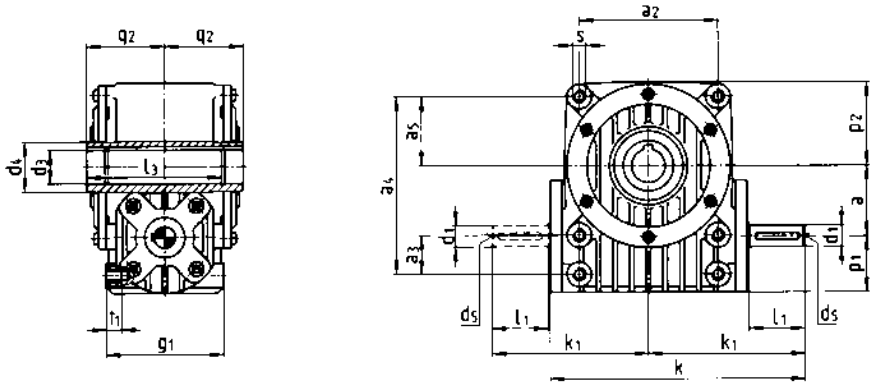
Input and output shaft can also be supplied double ended at a surcharge.

52.105



Input and output shaft can also be supplied double ended at a surcharge.

52.106

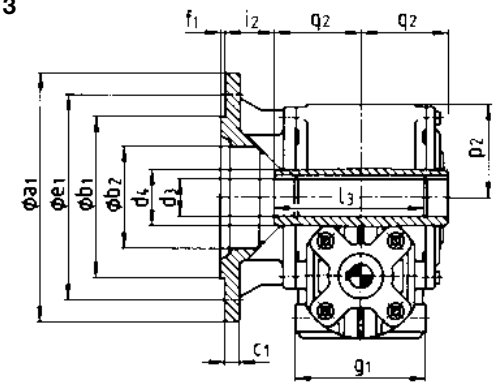


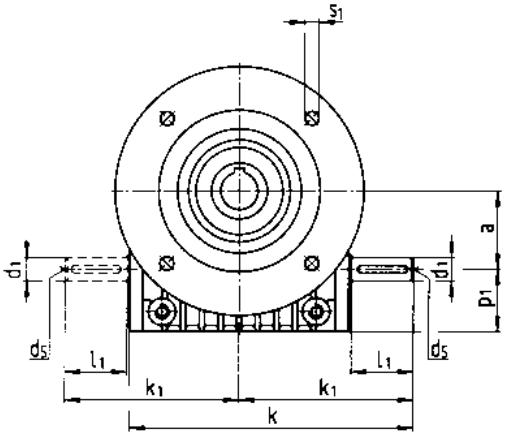
Input shaft can also be supplied double ended at a surcharge.

Dimensions for gearbox feet, torque plate or output cover with centring see under options on page 38.

Dimensions

52.113





Input shaft can also be supplied
double ended at a surcharge.

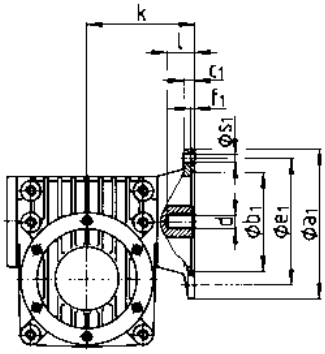
Size	a	a_1 3)	a_2	a_3	a_4	a_5	b_1 2) j7	b_2	c_1	d_1 k6	d_2 1)	d_3 H7	d_4	d_5	d_6	e_1	f_1	g_1
04	40	120/**140**	85	20	105	39	80/ 95	53	8	14	19	20	35	M 6	M 6	100/115	3 /3	76
05	50	140/**160**	104	25	129	52	95/110	66	10	19	24	25	45	M 6	M 8	115/130	3 /3.5	88
06	63	160/**200**	124	35	159	62	110/130	82	12	19	28	30	55	M 6	M10	130/165	3.5/3.5	105
08	80	200/**250**	148	40	188	74	130/180	99	14	24	38	40	65	M 8	M12	165/215	3.5/4	130
10	100	250/**300**	176	50	226	88	180/230	120	16	28	48	50	75	M10	M16	215/265	4 /4	138
12	125	300/**350**	224	59	283	112	230/250	150	20	38	55	70	90	M12	M20	265/300	4 /5	174

Size	g_2	i_1	i_2	k	k_1	l_1	l_2	l_3	p_1	p_2	q_1	q_2	q_3	s	s_1	t_1	m [kg]			
																	52.104	52.105	52.106	52.113
04	49	50	29	172	107	40	50	87	35	51	100	50	122	M 6	6.6/ 9	10	5.2	6.5	6	6.5
05	59	60	39	198	125	50	60	104	40	62	120	60	149	M 8	9 / 9	13	9.5	12	9	12
06	67	70	40	228	140	50	70	122	50	75	140	70	172	M10	9 /11	13	16	20	16	20
08	82	80	54	268	165	60	80	148	55	90	165	85	207	M10	11 /14	19	28	34	27	34
10	87	100	59	308	190	70	100	154	65	110	190	90	234	M12	14 /14	18	39	48	42	48
12	105	110	68	385	239	90	110	187	72	141	218	107.5	272	M16	14 /18	23	75	82	80	82

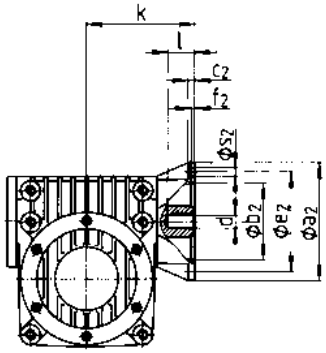
1) ISO tolerance up to Ø 50 mm = k6
over Ø 50 mm = m6
2) ISO tolerance h7 for b1 over 230 mm
3) Bold print = standard
Keys to DIN 6885/1
Dimensions in [mm]

Dimensions

52.107/108/109/114
52.407/408/409/414



52.307/308/309/314
52.507/508/509/514



Size	Motor	a_1	a_2	b_1 H8	b_2 H8	c_1	c_2	d
04	63 63 71 80	– 140 160 200	90 – 105/140 120/160	– 95 110 130	60 – 70/ 95 80/110	– 9 9 12	7 – 7/9 7/9	11 H7 11 H7 14 H7 19 H7
05	71 80	160 200	105/140 120/160	110 130	70/ 95 80/110	9 12	7/9 7/9	14 H7 19 H7
06	80 90	200 200	140/160 140/160	130 130	95/110 95/110	15 15	10/14 10/14	19 E7 24 E7
08	80 90 100/112	200 200 250	160 160 160/200	130 130 180	110 110 110/130	15 15 18	14 14 14/15	19 E7 24 E7 28 E7
10	90 100/112	200 250	– –	130 180	– –	15 18	– –	24 E7 28 E7
12	100/112 132	250 300	– –	180 230	– –	18 18	– –	28 E7 38 E7

Size	Motor	e_1	e_2	f_1	f_2	k	l	s_1	s_2
04	63 63 71 80	– 115 130 165	75 – 85/115 100/130	– 4 4 4	3 – 4 4	114 119 119 129	25 30 30 40	– 9 M 8 M 10	5,5 – 7/9 7/9
05	71 80	130 165	85/115 100/130	4 4	4 4	125 135	30 40	M 8 M 10	7/9 7/9
06	80 90	165 165	115/130 115/130	4 4	4 4	120 120	40 50	M 10 M 10	9 9
08	80 90 100/112	165 165 215	130 130 130/165	4 4 5	4 4 4	146 146 146	40 50 60	M 10 M 10 M 12	9 9 9
10	90 100/112	165 215	– –	4 5	– –	153 163	50 60	M 10 M 12	– –
12	100/112 132	215 265	– –	5 5	– –	195 203	60 80	M 12 M 12	– –

For other dimensions see “Worm-geared motors”
Dimensions in [mm]

Compact units

Product information

Illustrations 52
Type code 53
Order information 53

Technical data

Mounting positions 54
Swivel positions 56
Terminal box positions 56
Position of adjustment units 57
General data of belt variable speed drives 58

Selection

Selection
– Determination of the rated point 59
– Determination of the operating factor k 60
– Determination of the effective forces 60

Drive selection

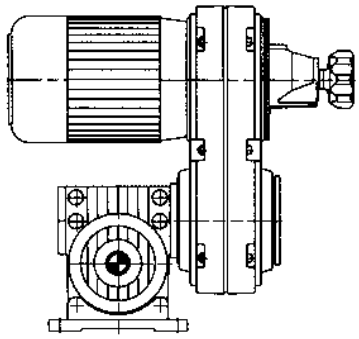
Selection tables 61
Dimensions 64

Options for belt variable speed drives
Speed-adjustment units
– Angular control 68
– Electrical remote control 68

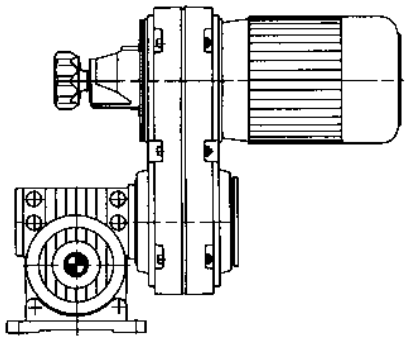
Speed-measuring units
– DC signal generator 70
– Pulse generator 70
– Handwheel indicator 70
– Analog display 70
– Digital display 70

Options for gearboxes (see chapter geared motors) 38

Illustrations

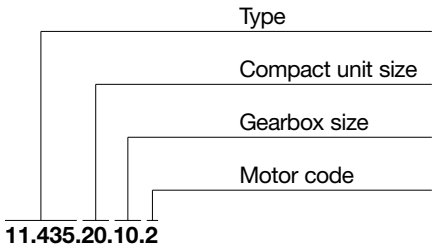


11.435



11.445

Type code



Type
11.435 Compact unit in U-configuration
11.445 Compact unit in Z-configuration

Compact unit size
10, 13, 16, 20, 25

Gearbox size
Worm gearboxes 04, 05, 06, 08, 10, 12

Motor code

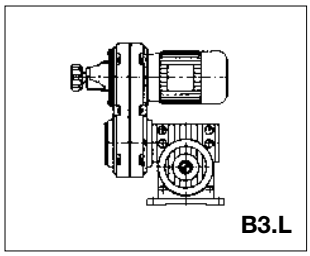
Motor code	Compact unit size						
	10	13	16	20	25	31	40
	IEC motor frame size, mounting, flange diameter						
1	71 B14 / 105	71 B5 / 160	80 B14 / 160	90 B14 / 160	100/112 B5 / 250	132 B5 / 300	180 B5 / 350
2		80 B14 / 160	90 B14 / 160	100 B14 / 160	132 B5 / 300	160 M B5 / 350	200 B5 / 400
3		90 B14 / 160	100 B14 / 160	112 B14 / 160	160 B5 / **300***	160 L B5 / 350	225 B5 / 450
4						180 B5 / 350	

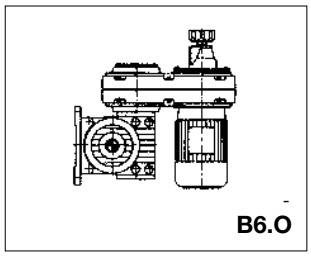
* special flange

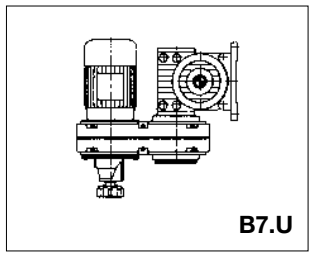
Order information
– Complete type code
– Ratio
– Motor power and voltage
– Mounting positions and position of the terminal box
– Flange design: output flange diameter
– Hollow shaft design: hollow shaft bore
– Compact unit options
– Gearbox options
– Motor options

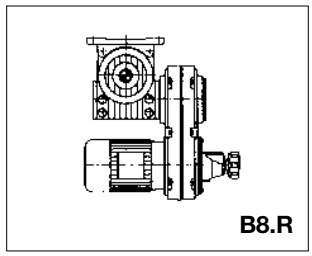
Mountings

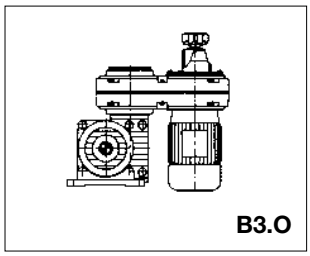
Foot-mounted design

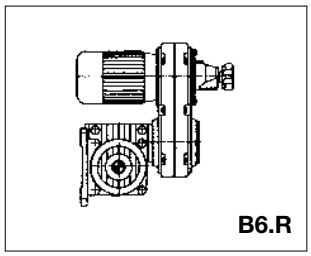

B3.L

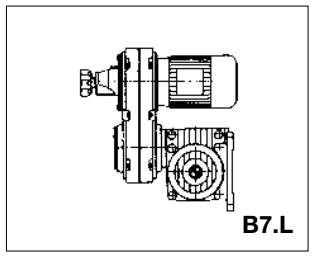

B6.O


B7.U


B8.R


B3.O


B6.R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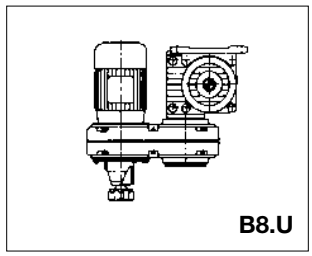
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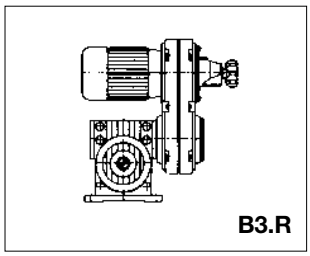
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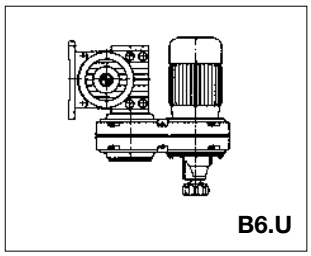
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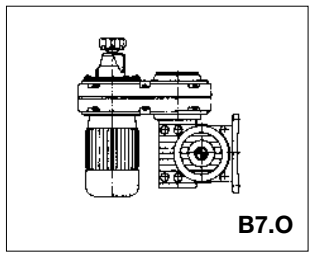
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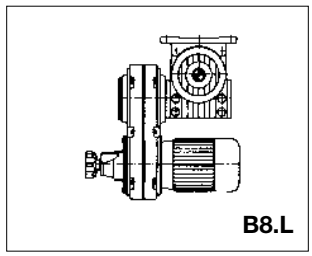
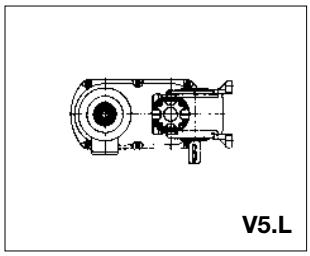
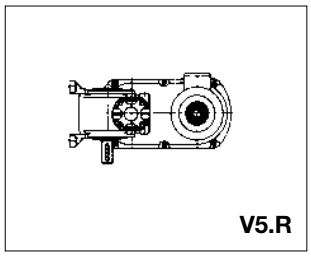

B8.L

Flange-mounted design


V5.L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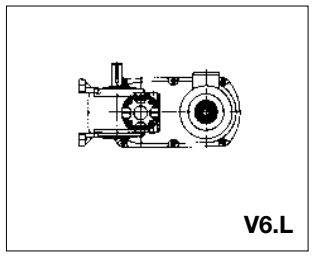
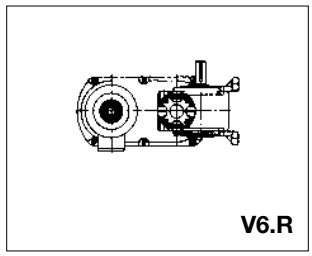
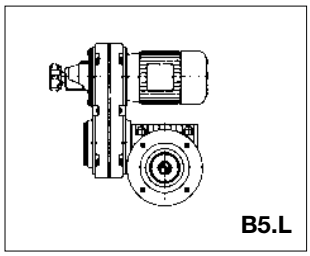
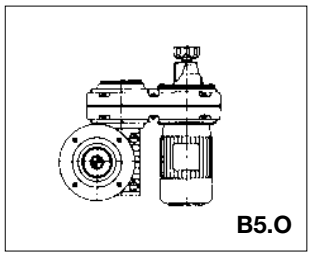
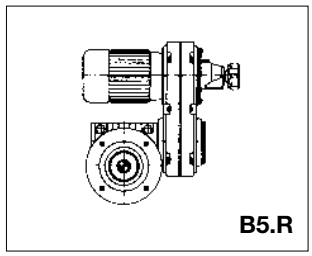
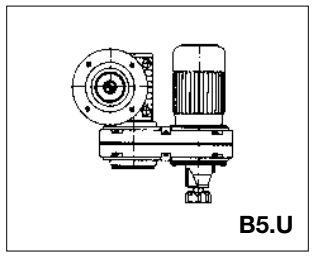

V6.L

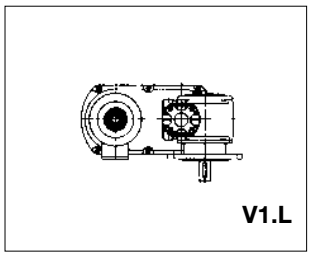

V6.R

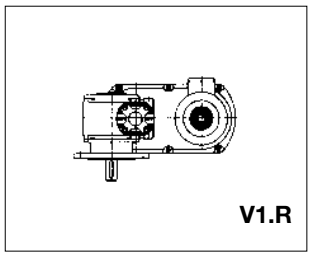

B5.L

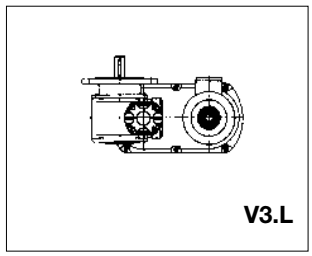

B5.O

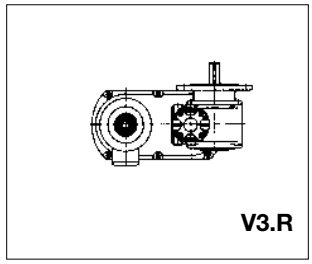

B5.R


B5.U


V1.L

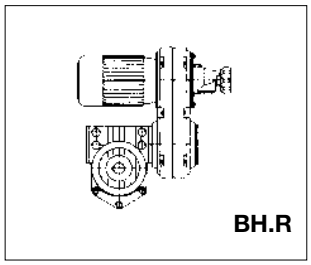

V1.R

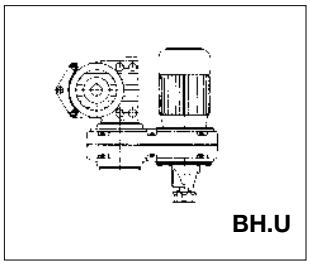

V3.L


V3.R

Mountings

Hollow shaft design


BH.R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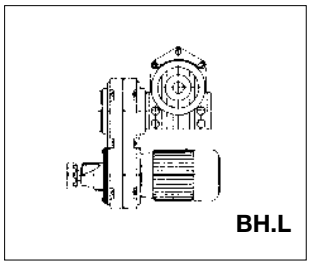
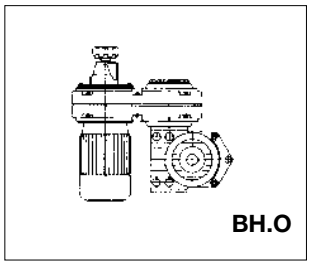
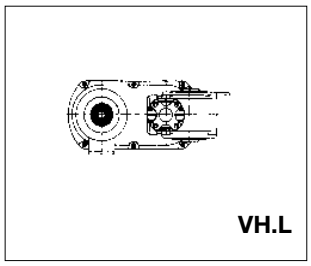
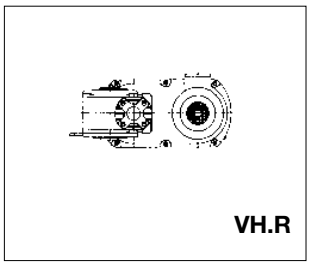
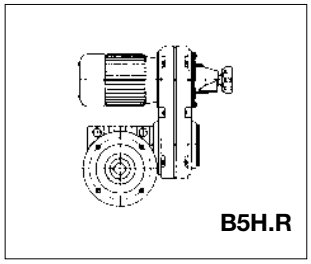

BH.L

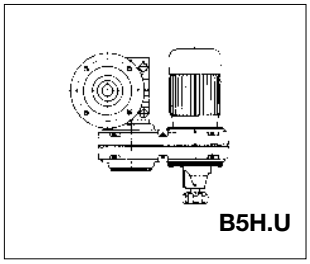

BH.O

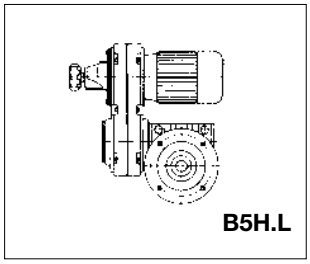

VH.L


VH.R

Flange hollow shaft design


B5H.R


B5H.U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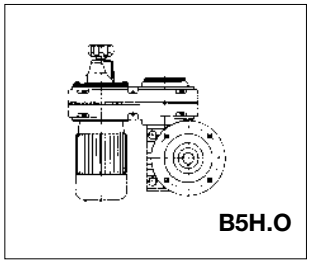
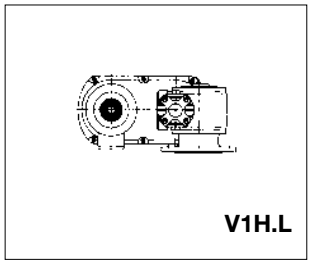
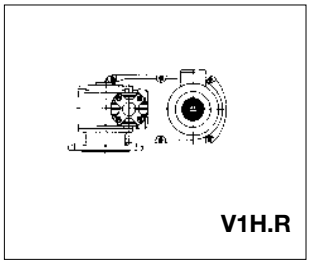
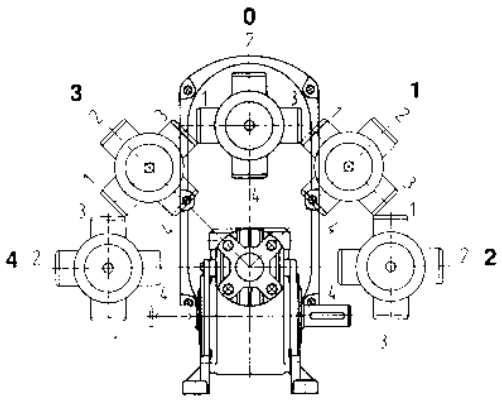

B5H.O


V1H.L

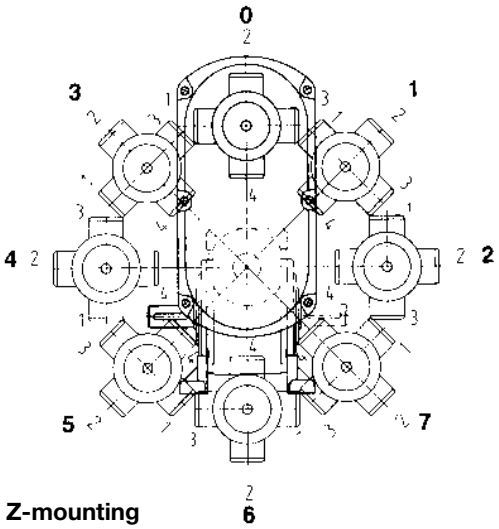

V1H.R

The mounting denominations are also valid for Z-configuration.
The motor is mounted opposite to the gearbox.

Swivel positions
Terminal box positions



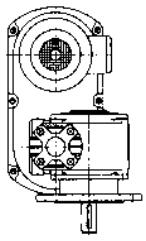
U-mounting



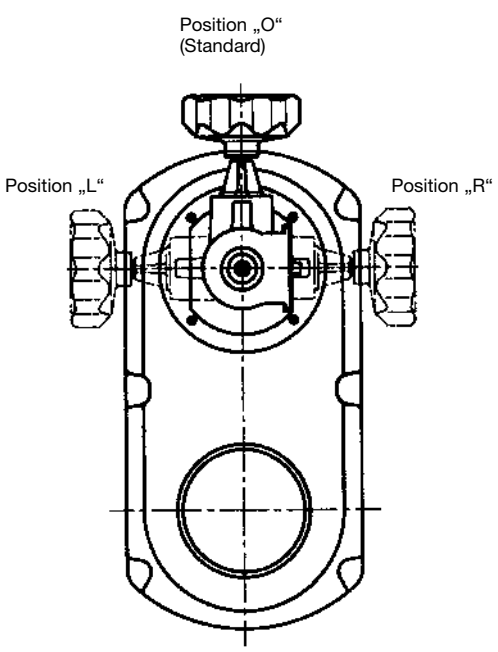
Z-mounting

Swivel positions and terminal box positions are fixed with view from the motor fan side.
If no indications of the position of terminal box and swivel position are given, swivel position 0 and terminal box position 1 are supplied.
For swivel position 4 without indication of terminal box position, terminal box position 2 is supplied.

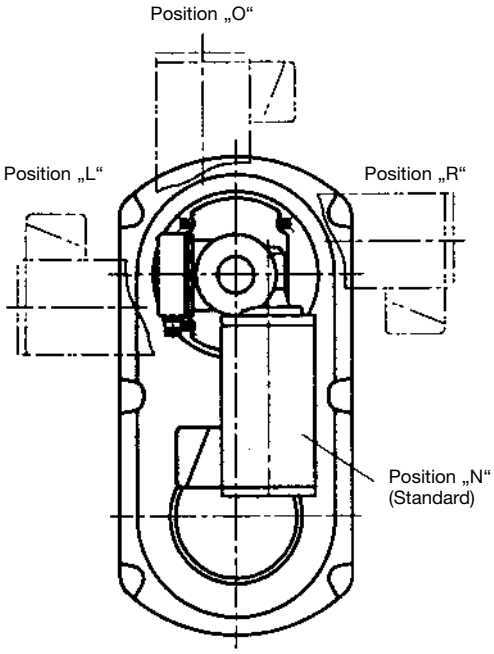
Example:
V1.L.2 terminal box pos. 3
└ swivel position
└ mounting



Position of adjustment units



Angular control



Electrical remote control

Note The control position does not depend on the overall mounting.

For U-configuration with speed-measuring units,
the position N is not possible. Position O is here standard.
For Z-configuration, the position N is not possible.
Position R is here standard.

General data of belt variable speed drives

Features
- Hub: coated, polygon profile
- Variable speed pulleys: self-centering, prestress by helical or saucer springs
- Belts: V-belts in “sandwich design”

Material
- Housing: aluminium diecast or cast iron according to size
- Variable speed pulleys: aluminium diecast
- Hubs: St52-3K, polyamide coated
- Belts: composite material, conductive to ISO 1813

Mechanical efficiency
$0.79 <= \eta <= 0.85$ (at rated torque), depending on the output speed

Data specific for belt variable speed drives

Compact unit Size	P_{2perm} ($n_{2\,min}..n_{2\,max}$) [kW]	$n_{2\,min}..n_{2\,max}$ (n_1 = 1400/min) [1/min]	Setting range	V-belt W x H [mm x mm]	J [10-3 kgm2]	m [kg]
10	0.2..0.35	600-3320	5.8	14 x 5	0.25	0.46
13	0.5..1.3	620-3285	5.5	22 x 6	2.0	1.4
16	1.1..2.6	580-3540	6.3	28 x 8	3.2	2.2
20	1.7..4.7	565-3675	6.7	37 x 10	7.1	3.4
25	3.5..9.4	570-3725	6.7	47 x 13	20	6.6

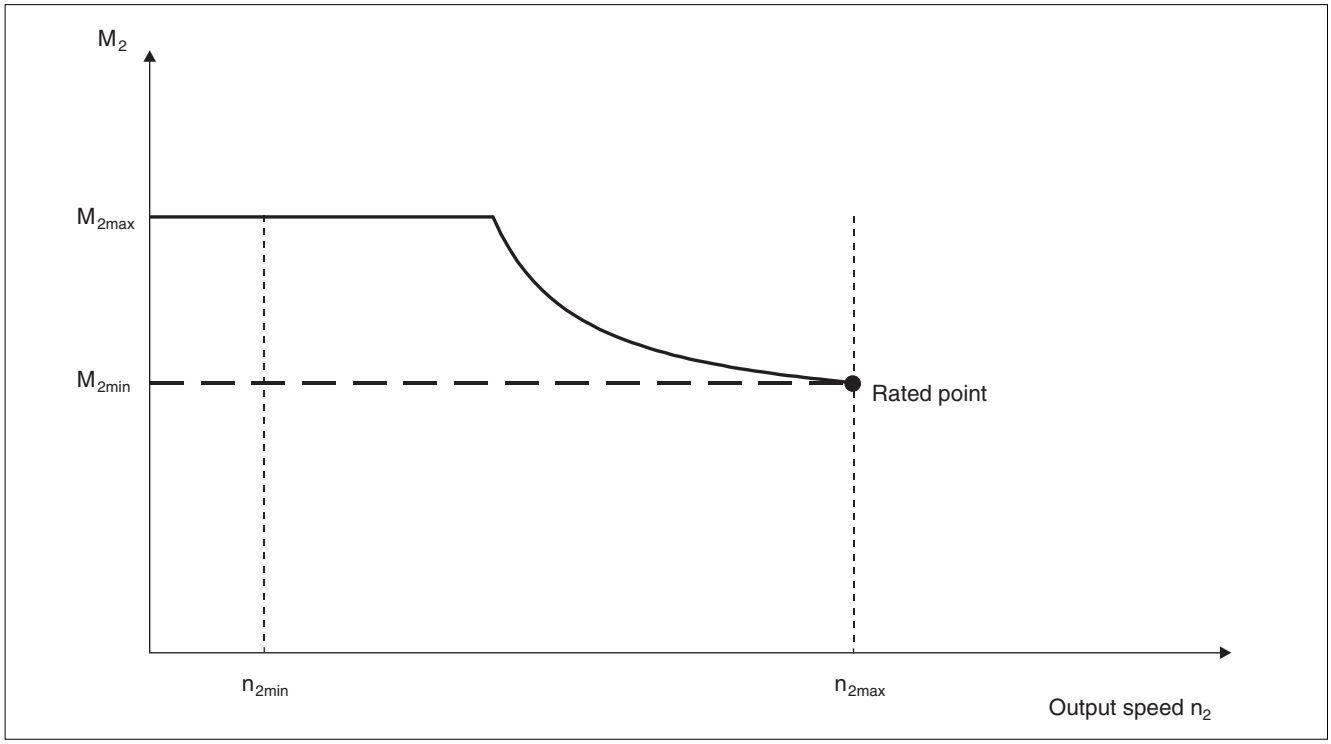
Determination of the rated point (P_1, M_2, n_2)

The rated point results from the maximum drive power required by the whole speed-torque profile. The rated point is at n_{2max} when the torque requirement
– is constant
– corresponds to the torque characteristic of the compact unit (see fig.).

Rated point n_{2max} (50 Hz)
Features:
- Large speed setting range < = 6...7
- For short time up to double (maximum) torque at n_{2min} (Caution: Corresponds to many times the rated torque!)
- Good self ventilation of the motor because of constant motor speed at mains frequency.

Technical notes:
– Variable speed drives are designed for operation with low switching frequency. For high switching frequencies please contact the manufacturer.
– The torque values M_2 (at n_{2min}) indicated in the selection tables can be considerably exceeded under operation with wrong selection.

Torque characteristic
(under ideal operating conditions)



Determination of the operating factor k

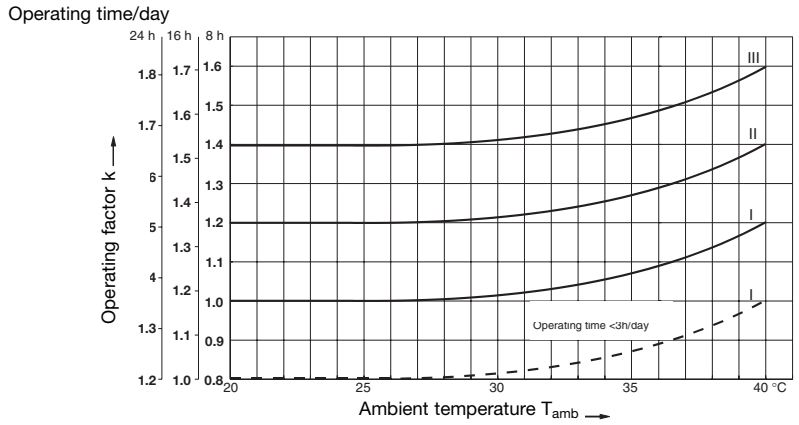
Requirements:
– $M_2 \geq M_N \cdot k$
(M_2 from selection tables)

1. Determining load class from type of input load:

Load class	Type of load and intensity
I	regular operation, virtually shock-free
II	irregular operation, moderate shocks
III	irregular operation, strong shocks and/or changing load

2. Determination of the ambient temperature

3. Read operating factor k from chart



Determination of the effective forces

Requirements:
– $F_{r_{perm}} \geq F_r$
($F_{r_{perm}}$ from General data gearbox)

1. Determining the radial force:
– The acting radial forces depend on the application.
– For transmission elements from table: $F_r = \frac{2000 \cdot M_2 \cdot f_z}{d_W}$

f_z	Transmission element
1.12	toothed gears
1.25 ... 1.4	chain wheels
1.5	crown gears
1.5 ... 2.0	small V-belt pulleys depending on initial tension

2. Determining the axial force
– The effective axial forces depend on the application.

Selection table

P_1	n_2 [1/min]	M_2 [Nm]	Type □ = 3 = U-Configuration □ = 4 = Z-Configuration	IEC-motor	*i*	Figure No.	Page
0.25 kW	621 – 124	2.7 – 14	11.4.□5.10.04.1	71 – 4	5	120/134	64/66
	414 – 83	3.9 – 20	11.4.□5.10.04.1	71 – 4	7	120/134	64/66
	300 – 60	5.4 – 26	11.4.□5.10.04.1	71 – 4	10	120/134	64/66
	231 – 46	6.5 – 24	11.4.□5.10.04.1	71 – 4	13	120/134	64/66
	207 – 41	7.2 – 34	11.4.□5.10.04.1	71 – 4	15	120/134	64/66
	150 – 30	9.7 – 40	11.4.□5.10.04.1	71 – 4	20	120/134	64/66
	115 – 23	13 – 28	11.4.□5.10.04.1	71 – 4	26	120/134	64/66
	103 – 21	13 – 53	11.4.□5.10.04.1	71 – 4	30	120/134	64/66
	75 – 15	16 – 37	11.4.□5.10.04.1	71 – 4	40	120/134	64/66
	58 – 12	17 – 24	11.4.□5.10.04.1	71 – 4	53	120/134	64/66
	48 – 9.7	18 – 23	11.4.□5.10.04.1	71 – 4	60	120/134	64/66
0.37 kW	621 – 124	4.0 – 14	11.4.□5.10.04.1	71 – 4	5	120/134	64/66
	414 – 83	5.8 – 20	11.4.□5.10.04.1	71 – 4	7	120/134	64/66
	300 – 60	7.9 – 26	11.4.□5.10.04.1	71 – 4	10	120/134	64/66
	231 – 46	9.7 – 24	11.4.□5.10.04.1	71 – 4	13	120/134	64/66
	207 – 41	11 – 34	11.4.□5.10.04.1	71 – 4	15	120/134	64/66
	150 – 30	14 – 40	11.4.□5.10.04.1	71 – 4	20	120/134	64/66
	115 – 23	17 – 28	11.4.□5.10.04.1	71 – 4	26	120/134	64/66
	103 – 21	18 – 53	11.4.□5.10.04.1	71 – 4	30	120/134	64/66
	75 – 15	23 – 37	11.4.□5.10.04.1	71 – 4	40	120/134	64/66
	58 – 12	24 – 24	11.4.□5.10.04.1	71 – 4	53	120/134	64/66
	48 – 9.7	23 – 23	11.4.□5.10.04.1	71 – 4	60	120/134	64/66
0.55 kW	621 – 128	6.0 – 30	11.4.□5.13.05.2	80 – 4	5	121/135	64/66
	414 – 86	8.7 – 43	11.4.□5.13.05.2	80 – 4	7	121/135	64/66
	316 – 65	11 – 55	11.4.□5.13.05.2	80 – 4	10	121/135	64/66
	226 – 47	15 – 41	11.4.□5.13.05.2	80 – 4	13	121/135	64/66
	207 – 43	16 – 76	11.4.□5.13.05.2	80 – 4	15	121/135	64/66
	158 – 33	20 – 95	11.4.□5.13.05.2	80 – 4	20	121/135	64/66
	113 – 23	26 – 53	11.4.□5.13.05.2	80 – 4	26	121/135	64/66
	103 – 21	27 – 107	11.4.□5.13.05.2	80 – 4	30	121/135	64/66
	79 – 16	34 – 99	11.4.□5.13.05.2	80 – 4	40	121/135	64/66
	57 – 12	41 – 54	11.4.□5.13.05.2	80 – 4	53	121/135	64/66
	48 – 10	43 – 62	11.4.□5.13.05.2	80 – 4	60	121/135	64/66
0.75 kW	621 – 128	8.1 – 33	11.4.□5.13.05.2	80 – 4	5	121/135	64/66
	414 – 86	12 – 48	11.4.□5.13.05.2	80 – 4	7	121/135	64/66
	316 – 65	15 – 62	11.4.□5.13.05.2	80 – 4	10	121/135	64/66
	226 – 47	20 – 41	11.4.□5.13.05.2	80 – 4	13	121/135	64/66
	207 – 43	22 – 85	11.4.□5.13.05.2	80 – 4	15	121/135	64/66
	158 – 33	28 – 106	11.4.□5.13.05.2	80 – 4	20	121/135	64/66
	113 – 23	36 – 53	11.4.□5.13.05.2	80 – 4	26	121/135	64/66
	103 – 21	37 – 107	11.4.□5.13.05.2	80 – 4	30	121/135	64/66
	79 – 16	46 – 99	11.4.□5.13.05.2	80 – 4	40	121/135	64/66
	57 – 12	50 – 54	11.4.□5.13.05.2	80 – 4	53	121/135	64/66
	48 – 10	59 – 62	11.4.□5.13.05.2	80 – 4	60	121/135	64/66
	37 – 7.6	65 – 88	11.4.□5.13.06.2	80 – 4	80	123/137	64/66
1.1 kW	621 – 128	12 – 33	11.4.□5.13.05.3	90 – 4	5	122/136	64/66
	414 – 86	18 – 48	11.4.□5.13.05.3	90 – 4	7	122/136	64/66
	316 – 65	23 – 62	11.4.□5.13.05.3	90 – 4	10	122/136	64/66
	226 – 47	30 – 41	11.4.□5.13.05.3	90 – 4	13	122/136	64/66
	207 – 43	32 – 85	11.4.□5.13.05.3	90 – 4	15	122/136	64/66
	158 – 33	41 – 105	11.4.□5.13.05.3	90 – 4	20	122/136	64/66
	113 – 23	52 – 52	11.4.□5.13.05.3	90 – 4	26	122/136	64/66
	103 – 21	54 – 107	11.4.□5.13.05.3	90 – 4	30	122/136	64/66
	67 – 99	46 – 99	11.4.□5.13.05.3	90 – 4	40	122/136	64/66
	59 – 12	87 – 176	11.4.□5.13.06.3	90 – 4	53	124/138	64/66
	49 – 10	88 – 147	11.4.□5.13.06.3	90 – 4	60	124/138	64/66

Selection table

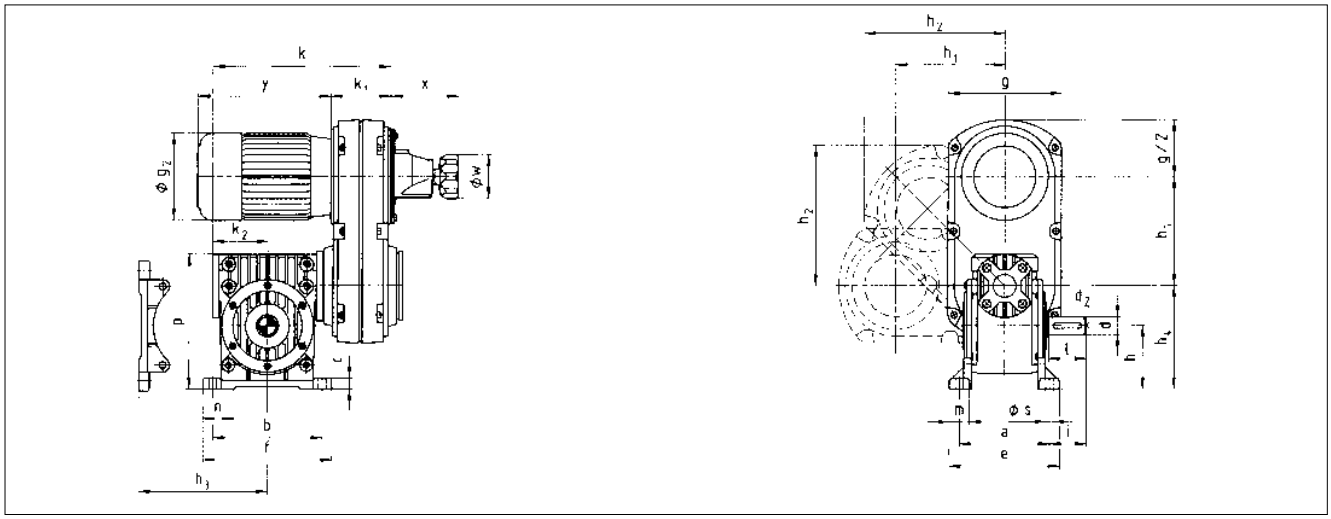
P_1	n_2 [1/min]	M_2 [Nm]	Type □ = 3 = U-Configuration □ = 4 = Z-Configuration	IEC-motor	*i*	Figure No.	Page
1.5 kW	621 – 128	16 – 33	11.4.□5.13.05.3	90 – 4	5	122/136	64/66
	414 – 86	24 – 48	11.4.□5.13.05.3	90 – 4	7	122/136	64/66
	316 – 65	31 – 62	11.4.□5.13.05.3	90 – 4	10	122/136	64/66
	226 – 47	41 – 41	11.4.□5.13.05.3	90 – 4	13	122/136	64/66
	207 – 43	44 – 85	11.4.□5.13.05.3	90 – 4	15	122/136	64/66
	158 – 33	56 – 106	11.4.□5.13.05.3	90 – 4	20	122/136	64/66
	118 – 24	73 – 142	11.4.□5.13.05.3	90 – 4	26	122/136	64/66
	103 – 21	70 – 107	11.4.□5.13.05.3	90 – 4	30	122/136	64/66
	59 – 12	119 – 176	11.4.□5.13.06.3	90 – 4	53	124/138	64/66
	49 – 10	115 – 147	11.4.□5.13.06.3	90 – 4	60	124/138	64/66
	37 – 7.1	156 – 195	11.4.□5.16.08.2	90 – 4	80	127/141	64/66
2.2 kW	621 – 120	26 – 79	11.4.□5.16.06.3	100 – 4	5	126/140	64/66
	414 – 80	38 – 114	11.4.□5.16.06.3	100 – 4	7	126/140	64/66
	308 – 60	50 – 151	11.4.□5.16.06.3	100 – 4	10	126/140	64/66
	235 – 46	65 – 158	11.4.□5.16.06.3	100 – 4	13	126/140	64/66
	207 – 40	70 – 188	11.4.□5.16.06.3	100 – 4	15	126/140	64/66
	154 – 30	92 – 226	11.4.□5.16.06.3	100 – 4	20	126/140	64/66
	118 – 23	116 – 188	11.4.□5.16.06.3	100 – 4	26	126/140	64/66
	103 – 20	109 – 184	11.4.□5.16.06.3	100 – 4	30	126/140	64/66
	75 – 15	156 – 381	11.4.□5.16.08.3	100 – 4	40	128/142	64/66
	57 – 11	197 – 404	11.4.□5.16.08.3	100 – 4	53	128/142	64/66
	49 – 9.4	179 – 314	11.4.□5.16.08.3	100 – 4	60	128/142	64/66
3.0 kW	621 – 120	35 – 79	11.4.□5.16.06.3	100 – 4	5	126/140	64/66
	414 – 80	52 – 114	11.4.□5.16.06.3	100 – 4	7	126/140	64/66
	308 – 60	69 – 151	11.4.□5.16.06.3	100 – 4	10	126/140	64/66
	235 – 46	88 – 158	11.4.□5.16.06.3	100 – 4	13	126/140	64/66
	207 – 40	95 – 188	11.4.□5.16.06.3	100 – 4	15	126/140	64/66
	154 – 30	125 – 226	11.4.□5.16.06.3	100 – 4	20	126/140	64/66
	118 – 23	152 – 188	11.4.□5.16.06.3	100 – 4	26	126/140	64/66
	100 – 20	168 – 336	11.4.□5.16.08.3	100 – 4	30	128/142	64/66
	75 – 15	207 – 381	11.4.□5.16.08.3	100 – 4	40	128/142	64/66
4.0 kW	600 – 113	49 – 131	11.4.□5.20.10.3	112 – 4	5	130/144	64/66
	400 – 75	72 – 191	11.4.□5.20.10.3	112 – 4	7	130/144	64/66
	300 – 57	94 – 251	11.4.□5.20.10.3	112 – 4	10	130/144	64/66
	231 – 44	121 – 319	11.4.□5.20.10.3	112 – 4	13	130/144	64/66
	200 – 38	132 – 348	11.4.□5.20.10.3	112 – 4	15	130/144	64/66
	150 – 28	172 – 453	11.4.□5.20.10.3	112 – 4	20	130/144	64/66
	115 – 22	217 – 568	11.4.□5.20.10.3	112 – 4	26	130/144	64/66
	100 – 19	224 – 564	11.4.□5.20.10.3	112 – 4	30	130/144	64/66
	75 – 14	288 – 660	11.4.□5.20.10.3	112 – 4	40	130/144	64/66
	58 – 11	352 – 713	11.4.□5.20.10.3	112 – 4	53	130/144	64/66
5.5 kW	600 – 113	67 – 131	11.4.□5.20.10.3	112 – 4	5	130/144	64/66
	400 – 75	98 – 191	11.4.□5.20.10.3	112 – 4	7	130/144	64/66
	300 – 57	130 – 251	11.4.□5.20.10.3	112 – 4	10	130/144	64/66
	231 – 44	166 – 319	11.4.□5.20.10.3	112 – 4	13	130/144	64/66
	200 – 38	181 – 348	11.4.□5.20.10.3	112 – 4	15	130/144	64/66
	150 – 28	237 – 453	11.4.□5.20.10.3	112 – 4	20	130/144	64/66
	115 – 22	299 – 568	11.4.□5.20.10.3	112 – 4	26	130/144	64/66
	100 – 19	278 – 564	11.4.□5.20.10.3	112 – 4	30	130/144	64/66
	58 – 11	486 – 952	11.4.□5.20.12.3	112 – 4	53	131/145	64/66

Selection table

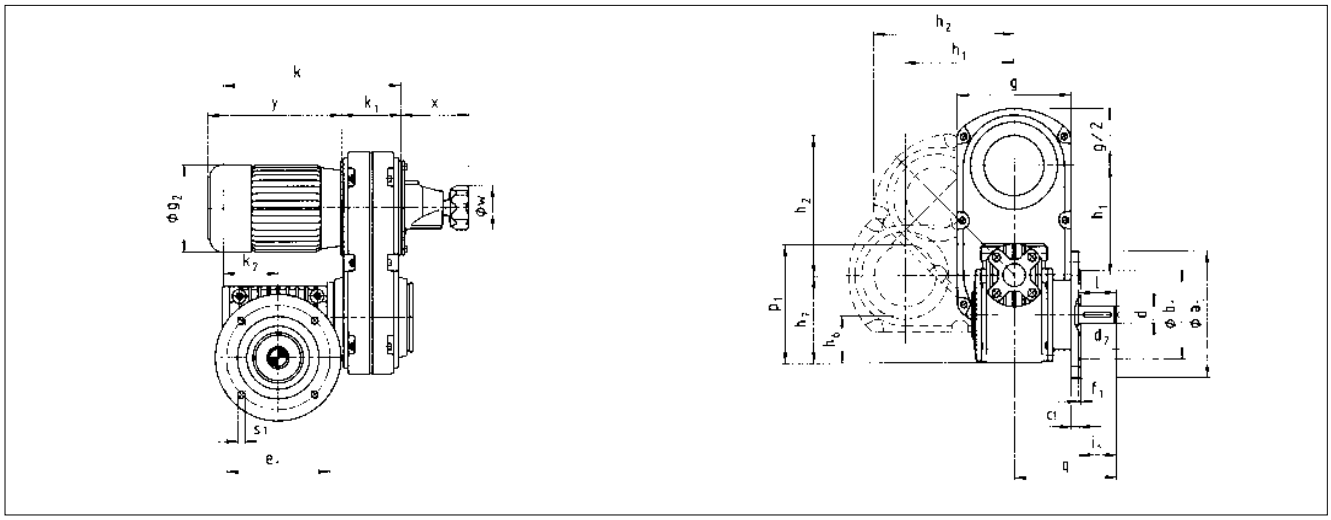
P_1	n_2 [1/min]	M_2 [Nm]	Type	IEC-motor	*i*	Figure No.	Page
7.5 kW	621 – 118	89 – 262	11.435.25.12.2	132 – 4	5	132	64
	414 – 79	130 – 382	11.435.25.12.2	132 – 4	7	132	64
	300 – 57	177 – 519	11.435.25.12.2	132 – 4	10	132	64
	231 – 44	227 – 663	11.435.25.12.2	132 – 4	13	132	64
	207 – 40	239 – 702	11.435.25.12.2	132 – 4	15	132	64
	150 – 29	322 – 943	11.435.25.12.2	132 – 4	20	132	64
	115 – 22	409 – 1194	11.435.25.12.2	132 – 4	26	132	64
	103 – 20	396 – 919	11.435.25.12.2	132 – 4	30	132	64
9.2 kW	621 – 118	109 – 262	11.435.25.12.2	132 – 4	5	132	64
	414 – 79	159 – 382	11.435.25.12.2	132 – 4	7	132	64
	300 – 57	217 – 519	11.435.25.12.2	132 – 4	10	132	64
	231 – 44	278 – 663	11.435.25.12.2	132 – 4	13	132	64
	207 – 40	293 – 702	11.435.25.12.2	132 – 4	15	132	64
	150 – 29	395 – 943	11.435.25.12.2	132 – 4	20	132	64
	115 – 22	502 – 1194	11.435.25.12.2	132 – 4	26	132	64
11 kW	621 – 118	130 – 262	11.435.25.12.3	160 – 4	5	133	64
	414 – 79	190 – 382	11.435.25.12.3	160 – 4	7	133	64
	300 – 57	259 – 519	11.435.25.12.3	160 – 4	10	133	64
	231 – 44	333 – 663	11.435.25.12.3	160 – 4	13	133	64
	207 – 40	351 – 702	11.435.25.12.3	160 – 4	15	133	64
	150 – 29	473 – 943	11.435.25.12.3	160 – 4	20	133	64
	115 – 22	588 – 1194	11.435.25.12.3	160 – 4	26	133	64

Dimensions U-configuration

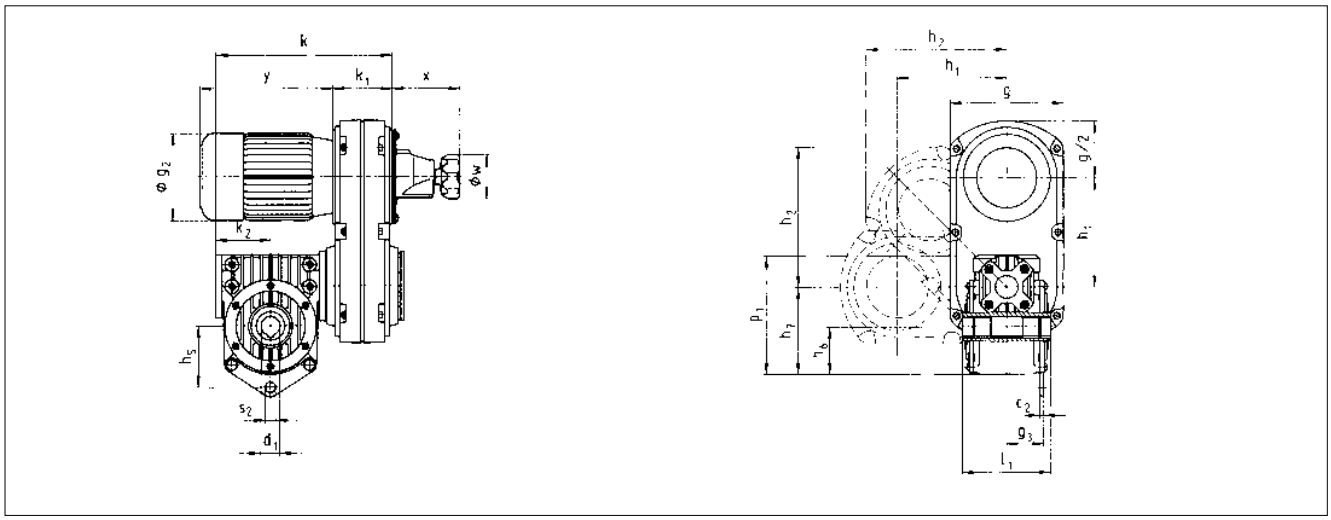
Foot-mounted design



Flange-mounted design

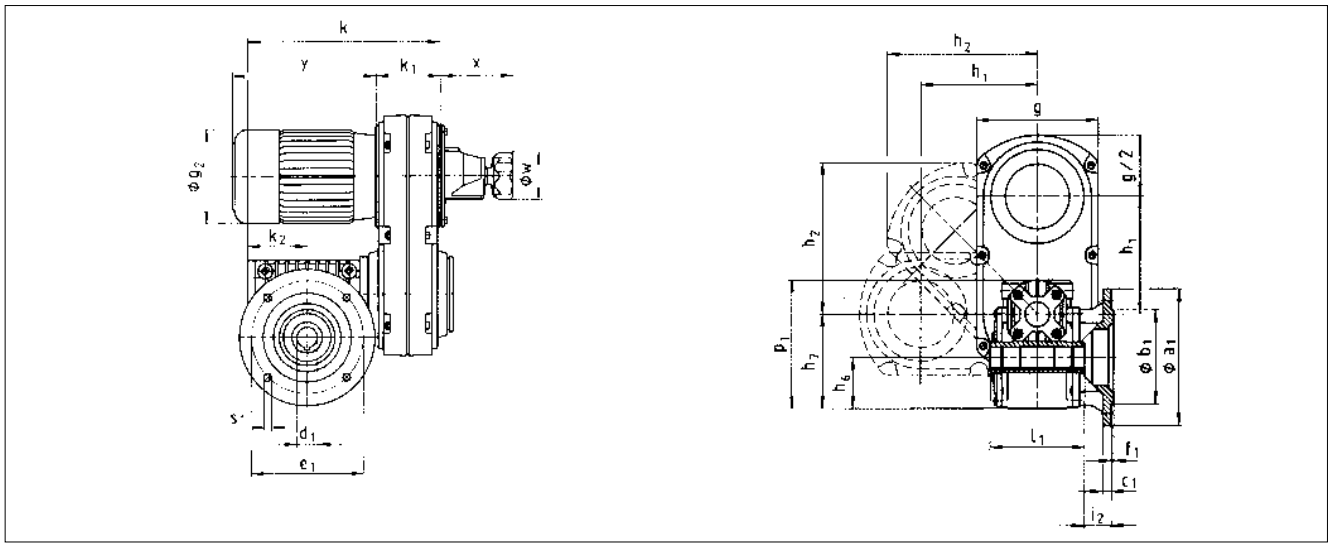


Hollow shaft design



Dimensions U-configuration

Flange hollow shaft design



Dimensions

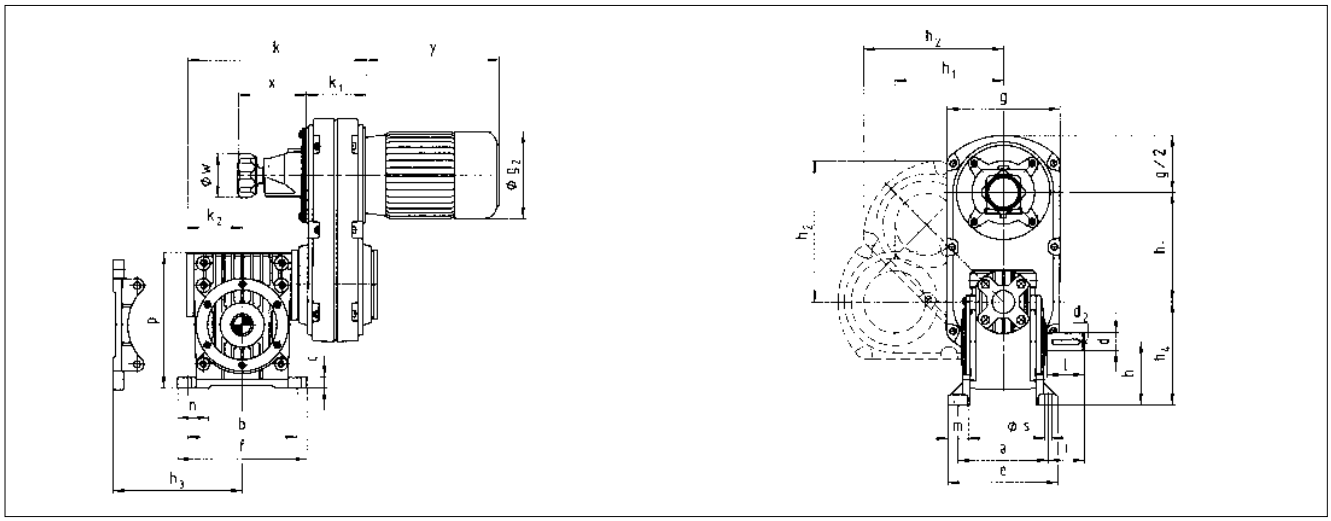
Fig. No.	Type	Motor	Belt	Basic dimensions																					m[1] [kg]
				g	g2[1]	g3	h	h1	h2	h3	h4	h5	h6	h7	k	k1	k2	m	n	p	p1	q	w	x	y[1]	
120	11.435.10.04.1	71	13/475	135	142	43	67	136	172	71	107	69	51	91	208	65	65	21	35	145	128	122	70	100	212	18
121	11.435.13.05.2	80	22/610	180	156	50	83	173	223	83	133	82	62	112	254	95	73	27	44	174	153	149	70	108	234	30
122	11.435.13.05.3	90			178																				276	41
123	11.435.13.06.2	80			156	59	100			100	163	97	75	138	284		88	32	48	215	190	172			234	37
124	11.435.13.06.3	90			178																				276	48
125	11.435.16.06.2	90	28/750	212	178	59	100	217	272	100	163	97	75	138	299	110	88	32	48	215	190	172	105	147	276	52
126	11.435.16.06.3	100			198																				308	60
127	11.435.16.08.2	90			178	71	121			121	201	114	91	171	340		103	32	58	258	228	207			276	66
128	11.435.16.08.3	100			198																				308	74
129	11.435.20.10.2	100	37/900	263	198	75	150	248	321	150	250	138	110	210	391	130	118	40	63	315	275	234	105	147	308	103
130	11.435.20.10.3	112			222																				333	114
131	11.435.20.12.3	112			222	93	186			186	311	167	141	266	445		146	48	67	385	340	272			333	140
132	11.435.25.12.2	132	47/1120	320	262	93	186	316	402	186	311	167	141	266	476	160	146	48	67	385	340	272	160	184	405	183
133	11.435.25.12.3	160			317																				501	223

Type	Foot									Flange										Shaft			Hollow shaft	
	a	b	c	e	f	i	m	n	s	a1	b1[3]	c1	c2	e1	f1	i1	i2	s1	s2	d[2]	l	d2	d1H7	l1
11.435.10.04.1	98	118	11	122	140	51	21	35	10	120 140	80 95	8	5	100 115	3	50	29	6.6 9	10.5	19	50	M 6	20	100
11.435.13.05.□	114	152	14	146	180	63	27	44	10	140 160	95 110	10	6	115 130	3 3.5	60	39	9	12.5	24	60	M 8	25	120
11.435.13.06.□	136	174	17	175	205	72	32	48	12	160 200	110 130	12	6	130 165	3.5	70	40	9 11	16.5	28	70	M10	30	140
11.435.16.06.□	136	174	17	175	205	72	32	48	12	160 200	110 130	12	6	130 165	3.5	70	40	9 11	16.5	28	70	M10	30	140
11.435.16.08.□	166	212	19	200	245	82	32	58	14	200 250	130 180	14	6	165 215	3.5 4	80	54	11 14	16.5	38	80	M12	40	170
11.435.20.10.□	194	240	22	234	280	93	40	63	18	250 300	180 230	16	6	215 265	4	100	59	14	20.5	48	100	M16	50	180
11.435.20.12.3	235	300	25	286	350	101	48	67	22	300 350	230 250	20	6	265 300	4 5	110	68	14 18	20.5	55	110	M20	70	215
11.435.25.12.□	235	300	25	286	350	101	48	67	22	300 350	230 250	20	6	265 300	4 5	110	68	14 18	20.5	55	110	M20	70	215

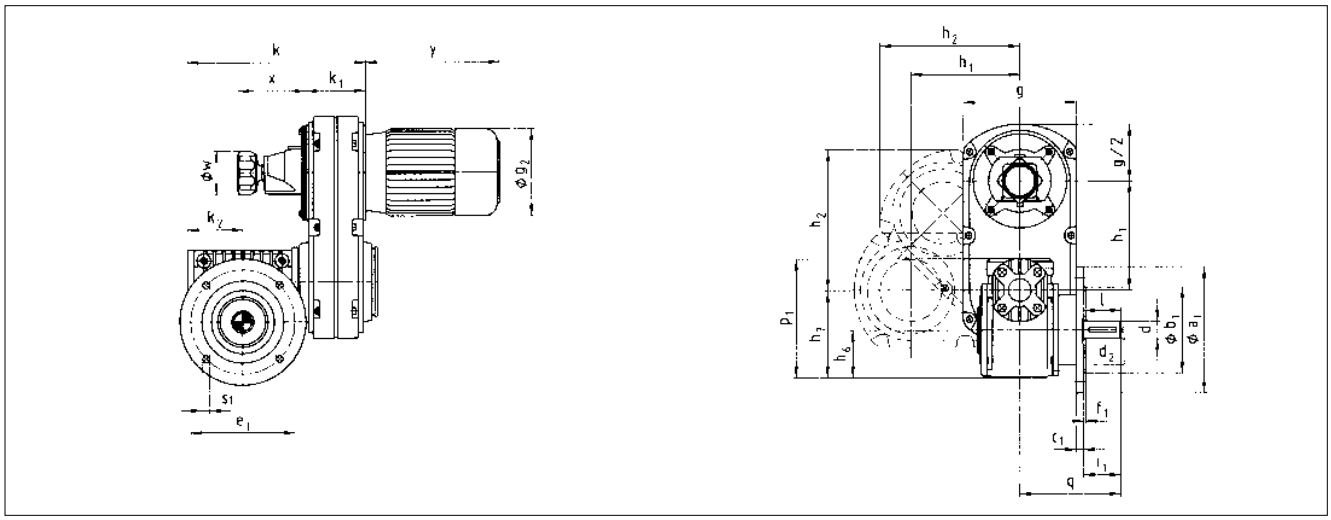
1) Deviations in motor dimensions possible.
2) ISO tolerance up to Ø 50 mm = k6; more than Ø 50 mm = m6
3) ISO tolerance up to Ø 230 mm = j7; more than Ø 230 mm = h7
Keys to DIN 6885/1
Dimensions in [mm]

Dimensions Z-configuration

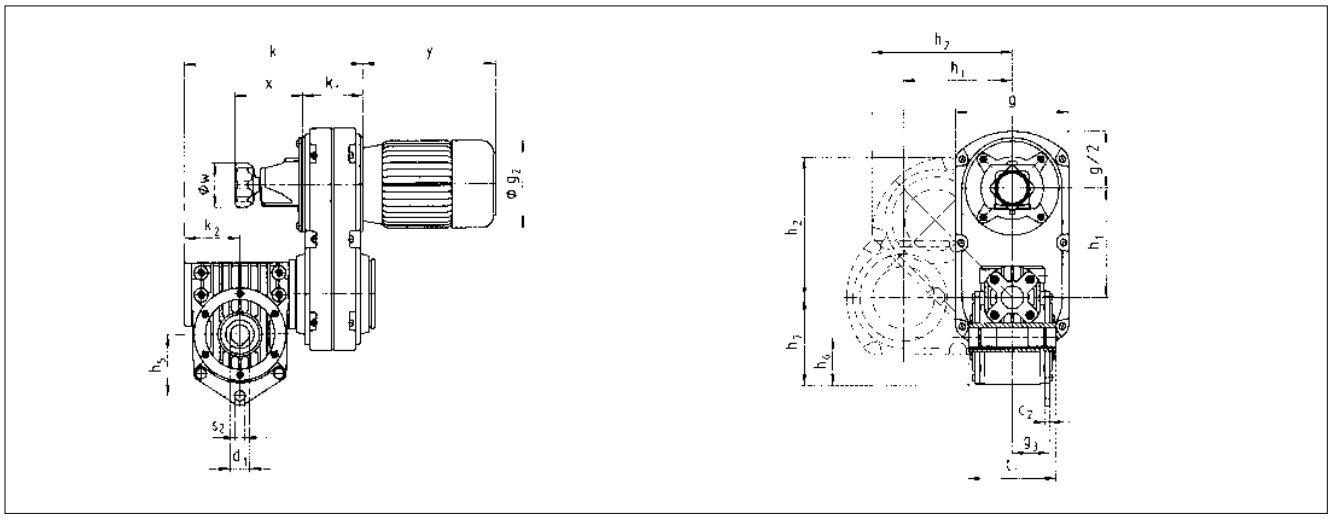
Foot-mounted design



Flange-mounted design

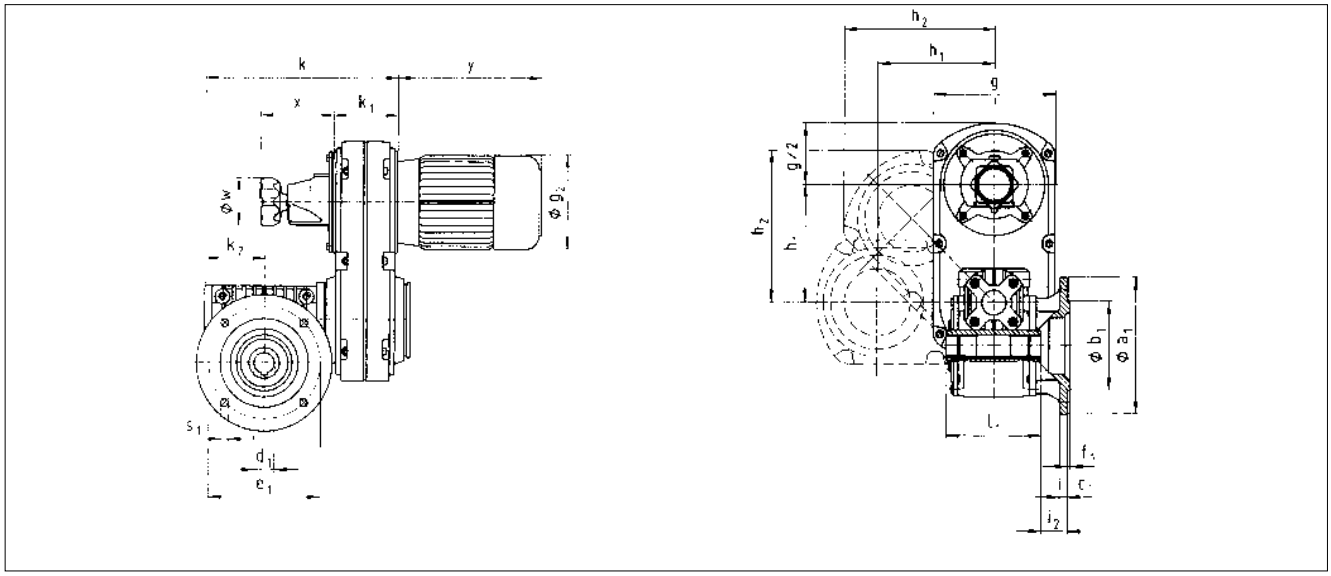


Hollow shaft design



Dimensions Z-configuration

Flange hollow shaft design



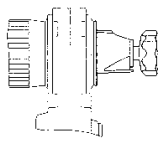
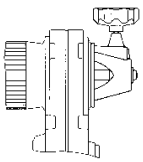
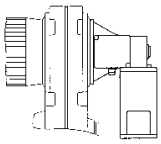
Dimensions

Fig. No.	Type	Motor	Belt	Basic dimensions																					m[1] [kg]
				g	g2[1]	g3	h	h1	h2	h3	h4	h5	h6	h7	k	k1	k2	m	n	p	p1	q	w	x	y[1]	
134	11.445.10.04.1	71	13/475	135	142	43	67	136	172	71	107	69	51	91	208	65	65	21	35	145	128	122	70	100	212	18
135	11.445.13.05.2	80	22/610	180	156	50	83	173	223	83	133	82	62	112	254	95	73	27	44	174	153	149	70	108	234	30
136	11.445.13.05.3	90			178																				276	41
137	11.445.13.06.2	80			156	59	100			100	163	97	75	138	284		88	32	48	215	190	172			234	37
138	11.445.13.06.3	90			178																				276	48
139	11.445.16.06.2	90	28/750	212	178	59	100	217	272	100	163	97	75	138	299	110	88	32	48	215	190	172	105	147	276	52
140	11.445.16.06.3	100			198																				308	60
141	11.445.16.08.2	90			178	71	121			121	201	114	91	171	340		103	32	58	258	228	207			276	66
142	11.445.16.08.3	100			198																				308	74
143	11.445.20.10.2	100	37/900	263	198	75	150	248	321	150	250	138	110	210	391	130	118	40	63	315	275	234	105	147	308	103
144	11.445.20.10.3	112			222																				333	114
145	11.445.20.12.3	112			222	93	186			186	311	167	141	266	445		146	48	67	385	340	272			333	140

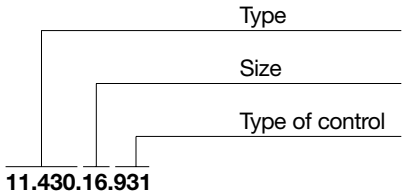
Type	Foot									Flange										Shaft			Hollow shaft	
	a	b	c	e	f	i	m	n	s	a1	b1[3]	c1	c2	e1	f1	i1	i2	s1	s2	d[2]	l	d2	d1H7	l1
11.445.10.04.1	98	118	11	122	140	51	21	35	10	120 140	80 95	8	5	100 115	3	50	29	6.6 9	10.5	19	50	M 6	20	100
11.445.13.05.□	114	152	14	146	180	63	27	44	10	140 160	95 110	10	6	115 130	3 3.5	60	39	9	12.5	24	60	M 8	25	120
11.445.13.06.□	136	174	17	175	205	72	32	48	12	160 200	110 130	12	6	130 165	3.5	70	40	9 11	16.5	28	70	M10	30	140
11.445.16.06.□	136	174	17	175	205	72	32	48	12	160 200	110 130	12	6	130 165	3.5	70	40	9 11	16.5	28	70	M10	30	140
11.445.16.08.□	166	212	19	200	245	82	32	58	14	200 250	130 180	14	6	165 215	3.5 4	80	54	11 14	16.5	38	80	M12	40	170
11.445.20.10.□	194	240	22	234	280	93	40	63	18	250 300	180 230	16	6	215 265	4	100	59	14	20.5	48	100	M16	50	180
11.445.20.12.3	235	300	25	286	350	101	48	67	22	300 350	230 250	20	6	265 300	4 5	110	68	14 18	20.5	55	110	M20	70	215

1) Deviations in motor dimensions possible.
2) ISO tolerance up to Ø 50 mm = k6; more than Ø 50 mm = m6
3) ISO tolerance up to Ø 230 mm = j7; more than Ø 230 mm = h7
Keys to DIN 6885/1
Dimensions in [mm]

Options – Speed-adjustment unit

Name	**Front adjustment** (Standard)	**Angle adjustment** (Option)	**Electric remote adjustment** (Option)
Schematic sketch			
Installation	Hand wheel – impact resistant plastic – drive size 25: Aluminium	Hand wheel – impact resistant plastic	Servo motor – three-phase AC asynchronous motor – for techn. data see below
Location	– parallel axial to axis of variable speed pulley	– rectangular to axis of variable speed pulley	– rectangular to axis of variable speed pulley
Position indication	– in the housing of the adjustment unit	– in the housing of the adjustment unit	–
Position indication in hand wheel	Option – for scaling see below	Option – for scaling see below	–

Controls: Type code



Size: 10, 13, 16, 25, 40

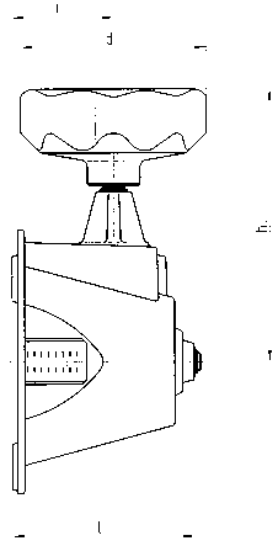
Type of control:
931 – Front control
932 – Angular control
933 – Electrical remote control, enclosure IP54

Techn. data: servo motor (for electric remote adjustm.)

Drive size	**P1** [kW]	**n1** [1/min]	**Voltage/ frequency**	**Enclosure**	**Thermal class**	**Ratio small gearbox**	**Adjust. time** [s]
10 13	0.012	1350	Δ 220-240V / 50 Hz Y 380-415V / 50 Hz	IP 54	F	60	approx. 15 approx. 22
16 20	0.060	1350	Δ 220-240V / 50 Hz Y 380-415V / 50 Hz	IP 54	F	55	approx. 26 approx. 35
25	0.060	1350	Δ 220-240V / 50 Hz Y 380-415V / 50 Hz	IP 54	F	50	approx. 40 approx. 50

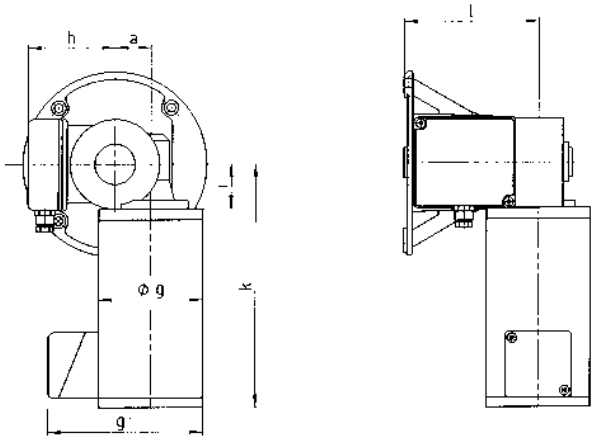
Options – Speed-adjustment units

Angular control



Compact Unit/ Size	Type	Angular control				Weight m [kg]
		d_2	h_2	l_1	l_2	
10	11.430.10.932	70	87	88	105	0.5
13	11.430.13.932	70	104	56	87	0.5
16 16	11.430.16.932 11.430.16.932	105	155	58	103	1.5
25	11.430.25.932	105	179	88	138	4

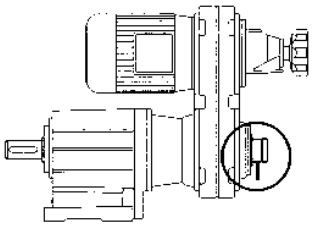
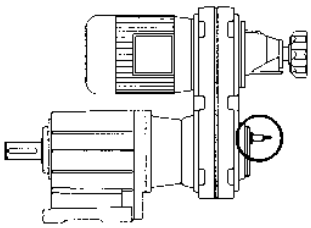
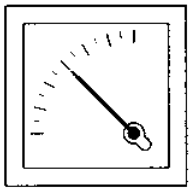
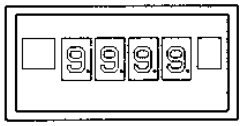
Electrical remote control



Compact Unit/ Size	Type	Electrical remote control							Weight m [kg]
		a	g	g_1	h	i	k	l	
10	11.430.10.933	25	65	123	54	31	165	81	2.5
13	11.430.13.933	25	65	123	60	31	165	82	3.0
16 20	11.430.16.933 11.430.20.933	31	85	144	71	37	199	111	5.5
25	11.430.25.933	35	85	144	95	41	203	148	8

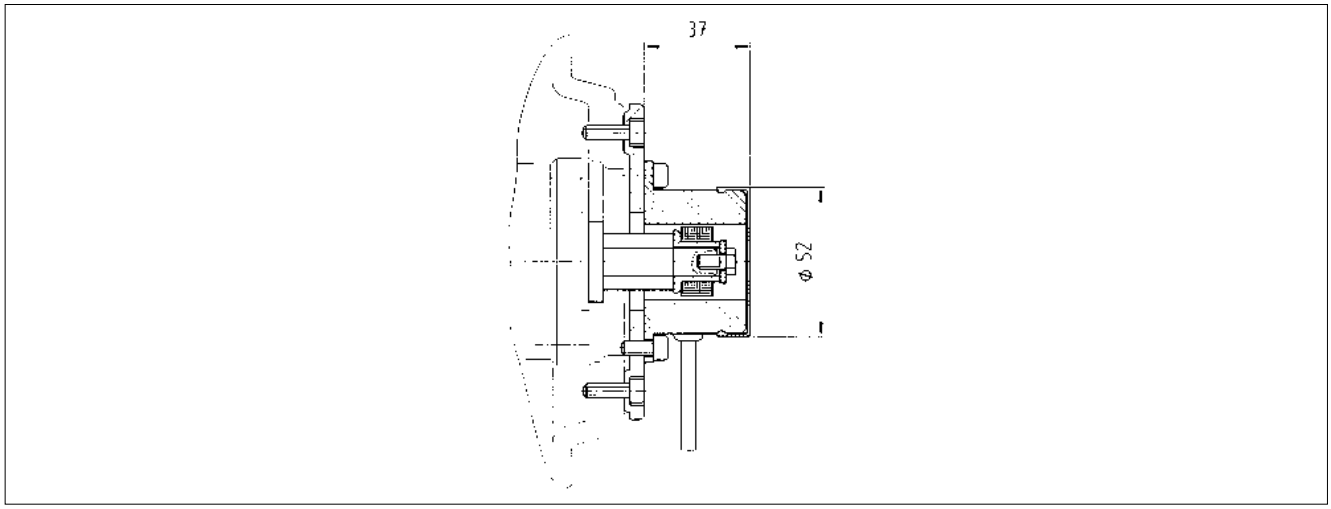
Dimensions in [mm]

Options – Speed-measuring unit

Name	DC speed encoder	Pulse encoder
Schematic sketch		
Installation	– Speed encoder at output shaft of variable speed drives (Input shaft of reduction gearboxes) – Cable length: 1 m	– Speed encoder at output shaft of variable speed drives (Input shaft of reduction gearboxes) – Cable length: 2.5 m (max. cable lenght: 300 m)
Regulations	see motors	DIN 19234 / NAMUR
Input voltage	– (Generator)	8.2 V ± 0.5 V (R_i = 1kOhm ± 50 Ohm) Important: Lenze-Indicators export supply voltage!
Signal voltage	Analog $n_{2\ min}$: approx. 3 V $n_{2\ max}$: approx. 20 V (for R -> endless)	Digital 4 pulse/revolution > 1.2 V
Speed indicators – suitable for control-cabinet installation	Analog display – rear-side encoder input – scaling in (V), adjustable 	
Digital display		– rear-side generator output/input – 4-digit display – adjustable display 

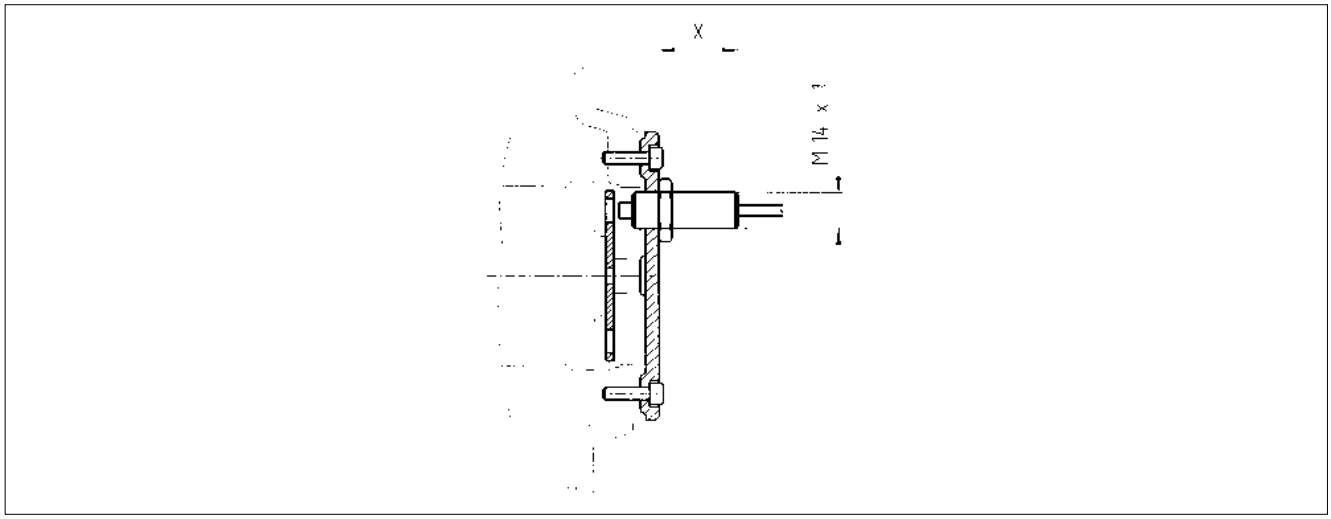
Options – Speed measuring units

DC speed encoder type 11.330.□□.931



Dimensions in [mm]

Pulse encoder type FGL 4/1.5 - 5K

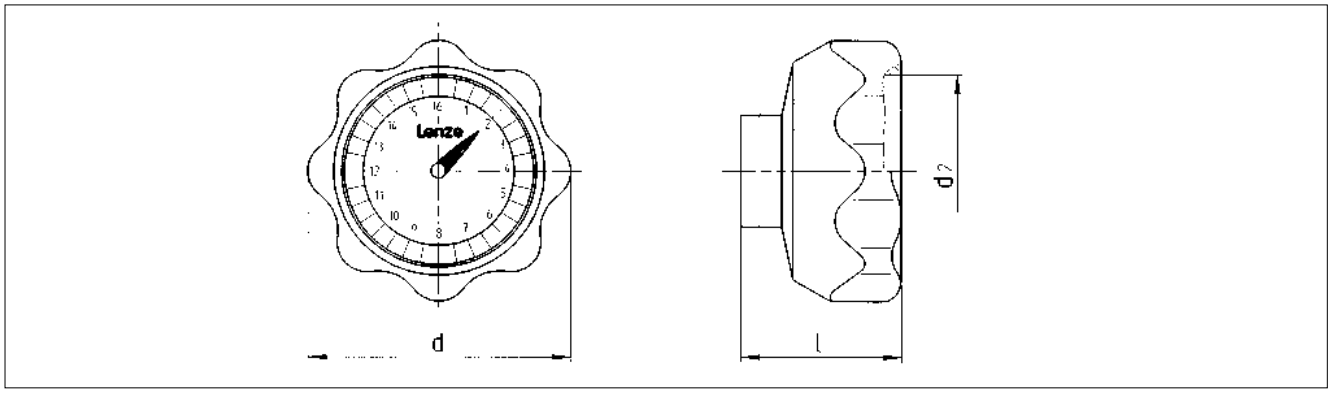


Compact unit/ Size	Pulse encoder x
10	approx. 34
13	approx. 32
16	approx. 33
20 25	approx. 19

Dimensions in [mm]

Options – Speed-measuring units

Hand wheel with position indicator

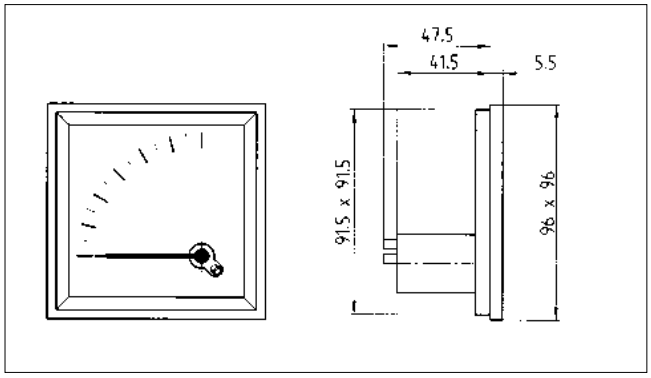


Hand wheel size		Hand wheel with position indicator		
Front adjustment	Angle adjustment	d	d_2	l
HA 8	**HA 8**	70	52	43
HA 10	**HA 10**	105	87	55
HA 15		160	87	55

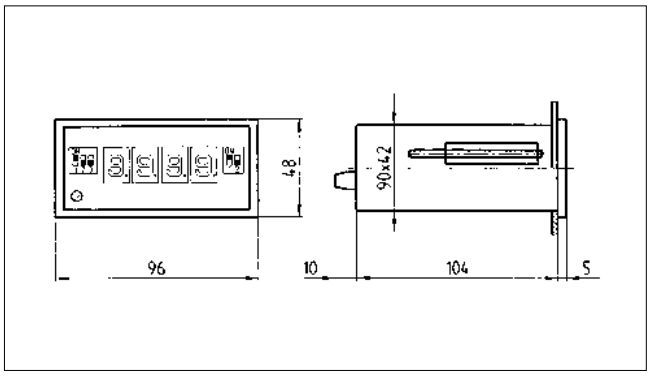
Position indicator in hand wheel: scaling

Compact unit size	10	13	16	20	25
Scaling	1..12	1..12	1..18	1..18	1..24

Analog display type DQW 96 RS



Digital display type ELTA 2000 A



Dimensions in [mm]

DISCO-variable speed drive

Product information

Illustrations 74
Type code 75
Order information 75

Technical data

Mounting positions 76
Spindle housing position 76
Terminal box positions 76
General data 78

Selection

Selection
– Determination of the rated point 80
– Determination of the operating factor 81
– Determination of the effective forces 81

Drive selection

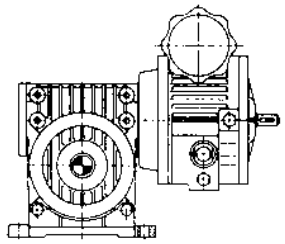
Selection tables 82
Dimensions 84

Options for DISCO-variable speed drives
Speed-adjustment units
– Spindle housing 92
– Bevel gear adjuster 92
– Electrical remote control 92

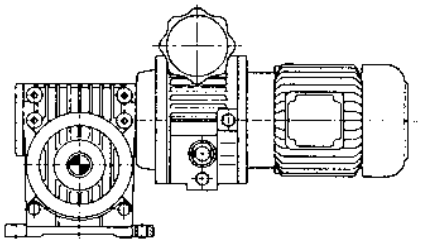
Speed-measuring units
– Inductive speed measurement 94
– Hand wheel indicator 94
– Analog display 94
– Digital display 94

Options for gearboxes (see chapter geared motors) 38

Illustrations

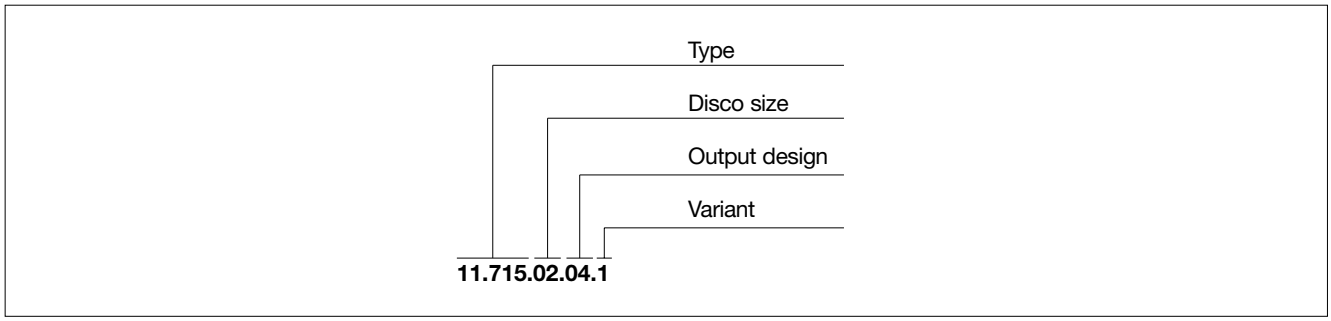


11.705



11.715

Type code



Type
11.715 Disco with motor
11.705 Disco with free input shaft

Disco size
02 . . . 18

Output design
04 . . . 12 = size of the gearbox

Variant
no code = normal
1 = without motor
2 = without gearbox
3 = without motor, without gearbox

Order information
– Complete type code
– Ratio
– Motor power and voltage
– Mounting positions and position of the terminal box
– Flange design: Output flange diameter
– Hollow shaft design: hollow shaft bore
– Speed-adjustment and position
– Disco options
– Gearbox options
– Motor options

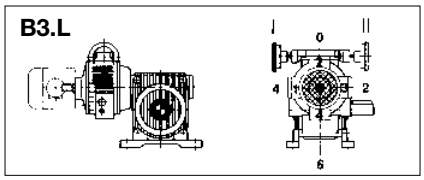
Necessary motor dimensions

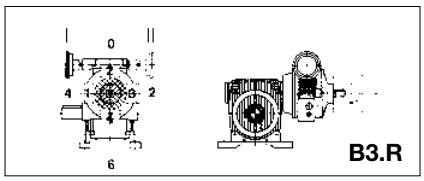
Disco size	02	03	04	05	06	07	08/18
IEC-motor frame size	71	71	80	90	100	112	132
Motor design/Flange diameter	IM B14/C105	IM B14/C105	IM B5/A200	IM B5 1/A200	IM B5/A250	IM B5/A250	IM B5/A300
Motorshaft d x l (mm)	14 x 30	14 x 30	19 x 40	24 x 50	28 x 60	28 x 60	38 x 80

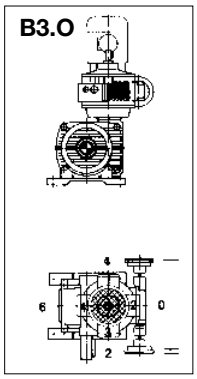
All motors must have oil seals in the flange.

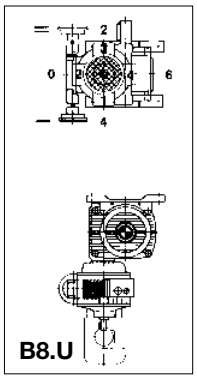
Mountings

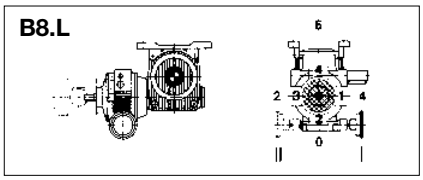
Foot-mounted design

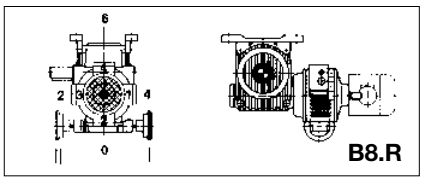


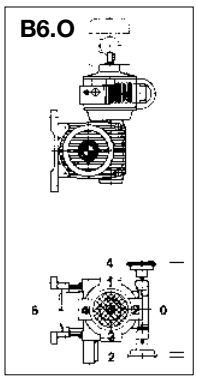


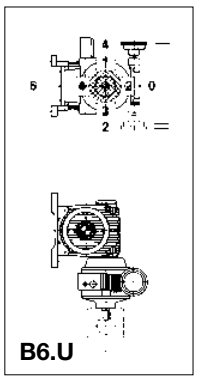


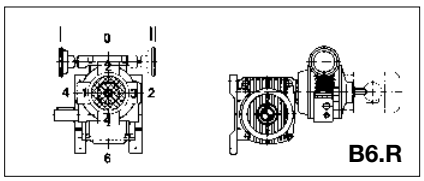


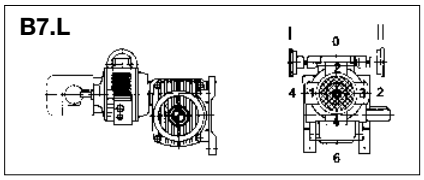


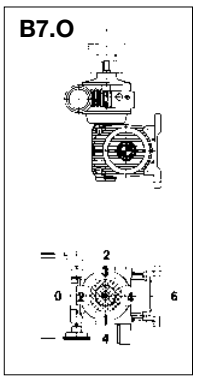


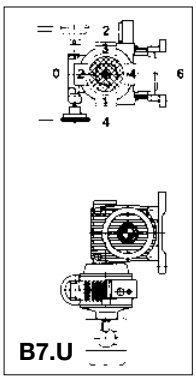


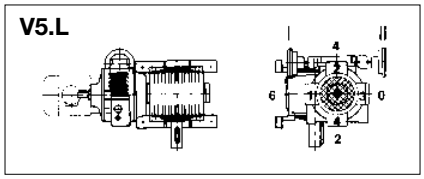


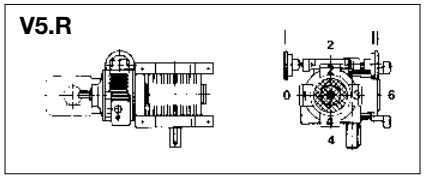


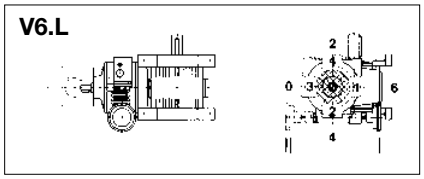


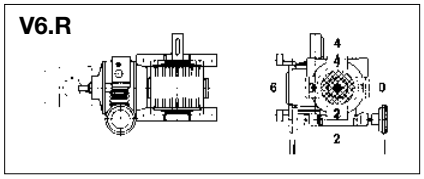






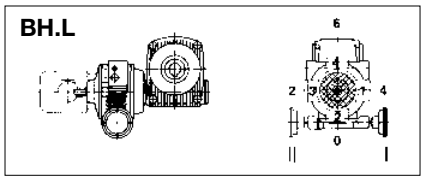


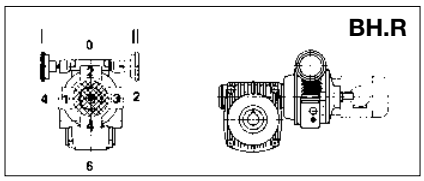


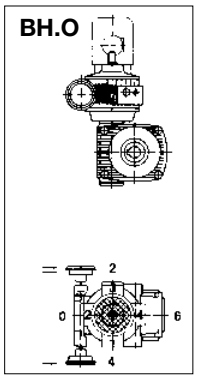


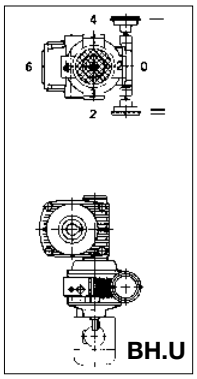
Attention: By changing the position of the adjuster to another position than shown, the position of the motor terminal box is changed accordingly.

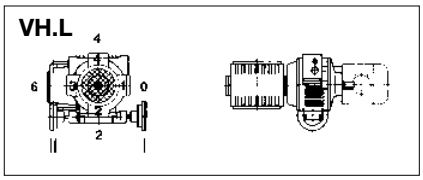
Hollow shaft mounted design

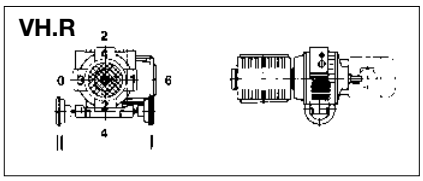






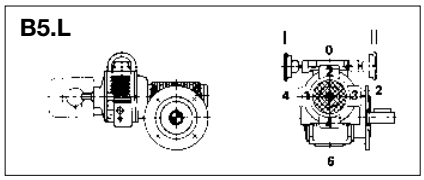


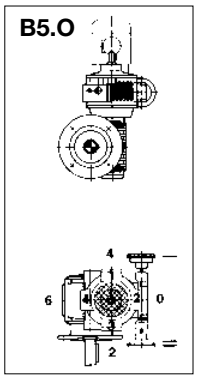


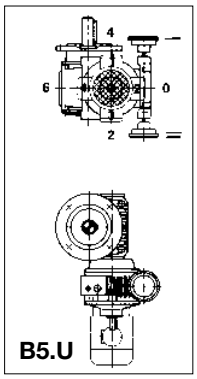


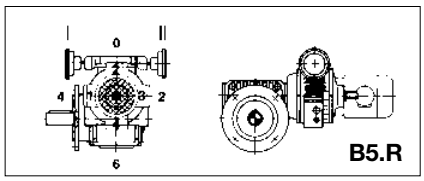
Mountings

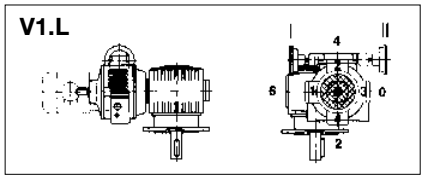
Foot-mounted design

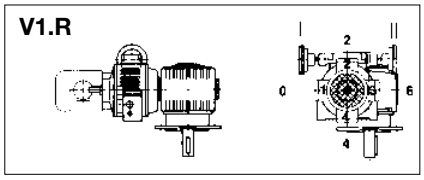


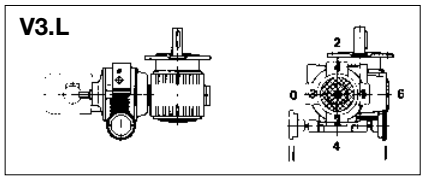


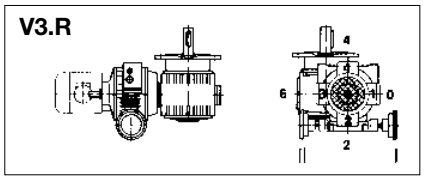






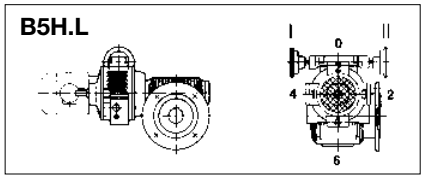


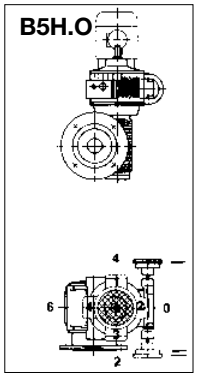


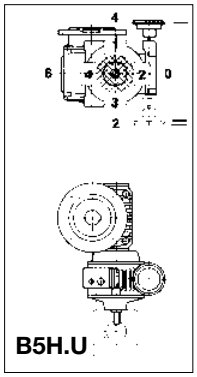


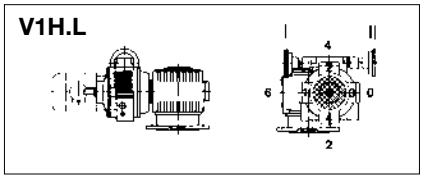
Attention: By changing the position of the adjuster device to another position than shown, the position of the motor terminal box is changed accordingly.

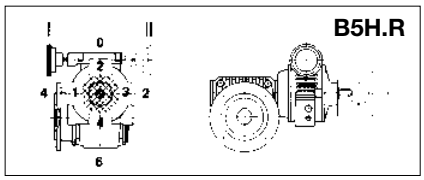
Hollow shaft / flange mounted design

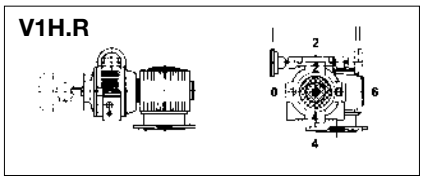


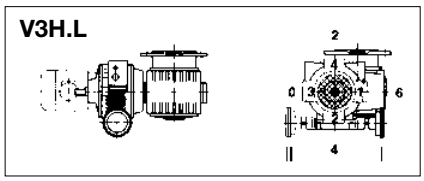


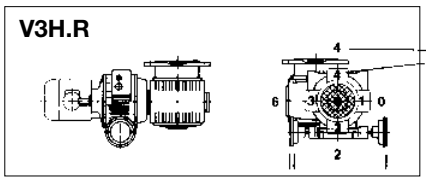












Spindle housing position

Terminal box position

Mounting example

Basic design

Spindle housing position

Terminal box position

V3.L.2.2

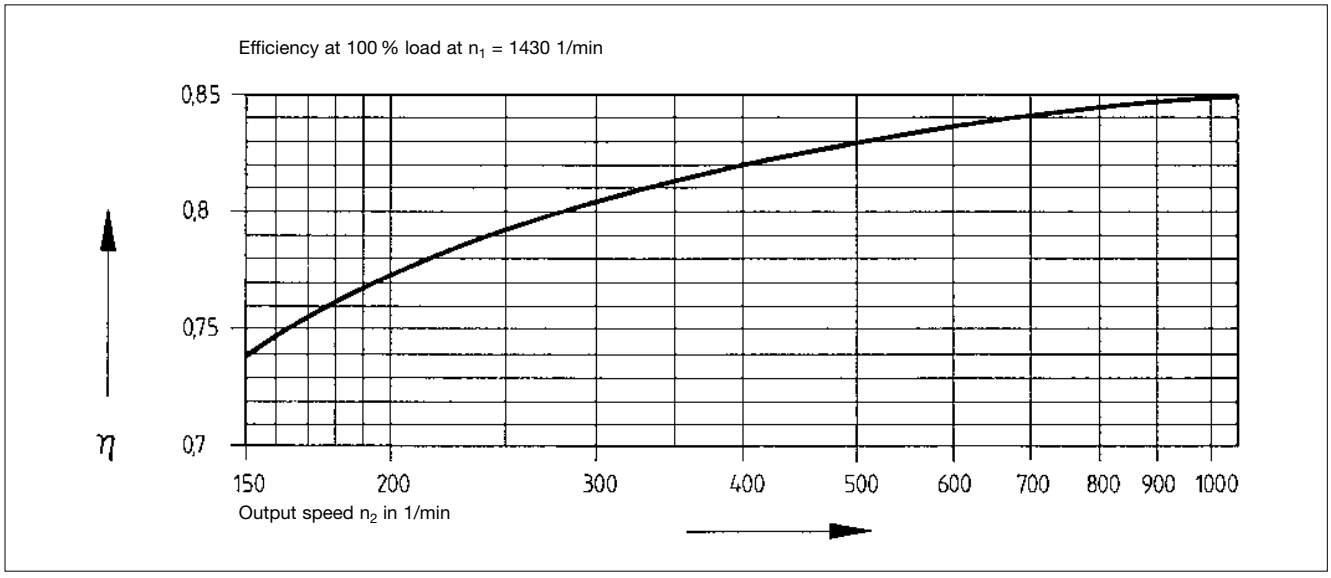
General data

Designs
- Input shaft
  Tolerance k6,
  with key to DIN 6885, sheet 1
- Shaft seals
  double lip seals

Materials
- Housing: aluminium diecast or cast iron according to size
- Input shaft: tempered steel C 45
- Friction parts: roller bearing steel 100 Cr6, hardened
- Shaft seals: NBR/FP

Lubricants
- DISCO-life lubrication oil for ambient temperatures
  0 °C < = Tu < = 40 °C
- Filling quantities
  Factory set according to mounting position
  for filling quantities see “Operating Instructions”

Mechanical efficiency



General data

DISCO-specific data

Size		n_1*) = 3000		n_1 = 1500		n_1 = 1000		n_1 = 750	
02	P_1*) n_2 M_2	0.37 1860 – 310 1.6 – 3.2		0.25 930 – 155 2 – 4		0.18 600 – 100 2 – 4		0.12 450 – 75 2 – 4	
03	P_1 n_2 M_2	0.55 1920 – 335 2.2 – 4.4	0.37 1920 – 335 1.5 – 4.4	0.37 950 – 165 3 – 6		0.25 630 – 110 3 – 6		0.18 460 – 80 3 – 6	
04	P_1 n_2 M_2	1.1 1920 – 335 4.5 – 9	0.75 1920 – 335 3 – 9	0.75 950 – 165 6 – 12	0.55 950 – 165 4.5 – 12	0.55 630 – 110 6 – 12	0.37 630 – 110 4.5 – 12	0.37 460 – 80 6 – 12	0.25 460 – 80 4.5 – 12
05	P_1 n_2 M_2	2.2 1920 – 335 9 – 18	1.5 1920 – 335 6 – 18	1.5 950 – 165 12 – 24	1.1 950 – 165 9 – 24	1.1 630 – 110 12 – 24	0.75 630 – 110 9 – 24	0.75 460 – 80 12 – 24	0.55 460 – 80 9 – 24
06	P_1 n_2 M_2			3 1000 – 175 22 – 44	2.2 1000 – 175 17.5 – 44	2.2 660 – 115 22 – 44	1.5 660 – 115 17.5 – 44	1.5 490 – 85 22 – 44	1.1 490 – 85 17.5 – 44
07	P_1 n_2 M_2			4 1000 – 175 32 – 64		3 660 – 115 32 – 64		2.2 490 – 85 32 – 64	
08/18	P_1 n_2 M_2			7.5 1000 – 200 58 – 116	5.5 1000 – 200 45 – 90	5.5 660 – 130 58 – 116	4 660 – 130 45 – 90	4 490 – 100 58 – 116	3 490 – 100 45 – 90

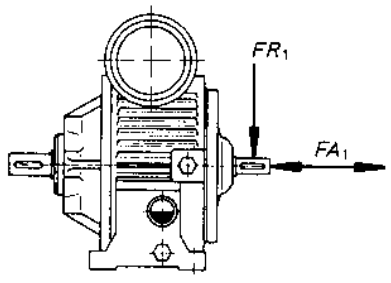
*) P_1 = input power in kW
n_1 = input speed in 1/min
n_2 = output speed in 1/min
M_2 = output torque in Nm

Maximum input speed n_1

Size	02	03	04	05	06	07	08/18
n_1 max. (1/min)	3600	3600	3600	1800* 3600	1800	1800	1800

* free input shaft

Permissible radial and axial forces



Size	FA_1 N	FR_1 N
02	300	300
03	450	450
04	700	700
05	1000	1000
06/07	1500	1500
18/08	1800	1800

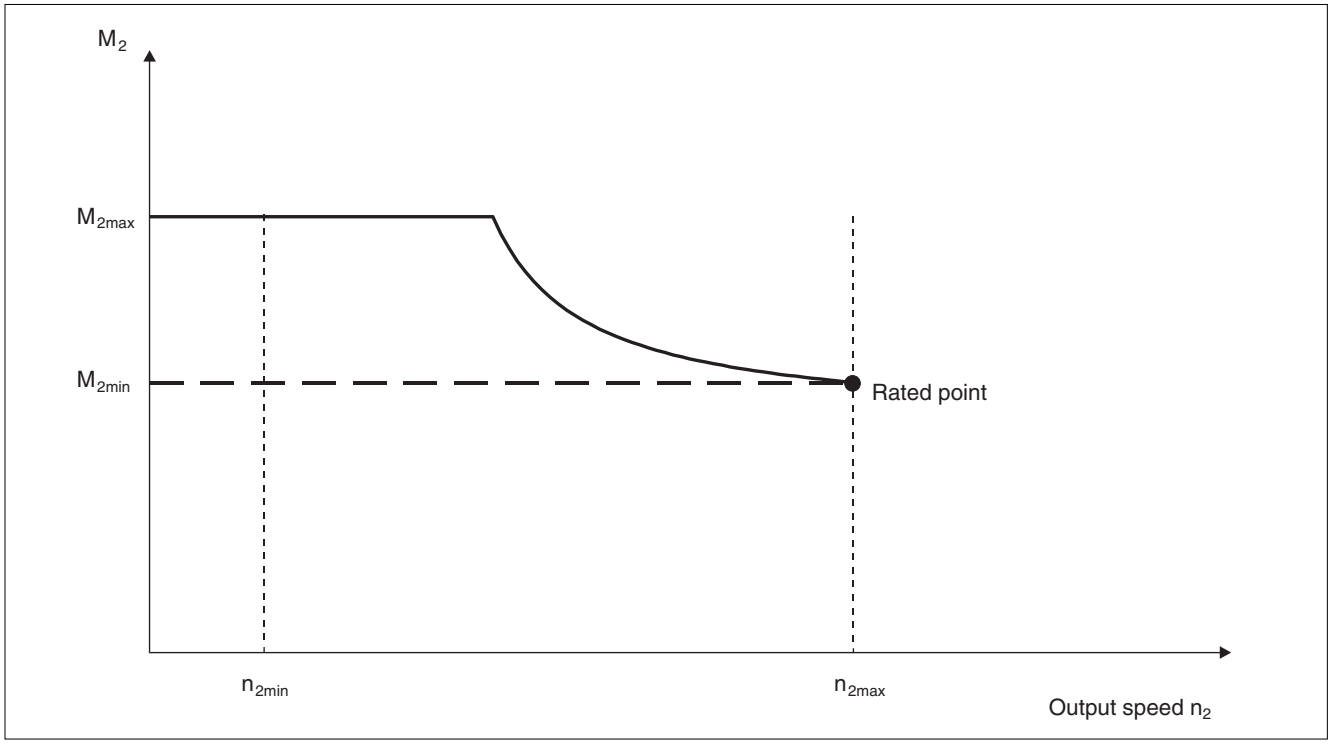
Determination of the rated point (P_1, M_2, n_2)

The rated point results from the maximum drive power required by the whole speed-torque profile. The rated point is at n_{2max} when the torque requirement
– is constant
– corresponds to the torque characteristic of the DISCO-variable speed drive (see fig.).

Technical notes:
– DISCO-variable speed drives are designed for operation with low switching frequency. For high switching frequencies please contact the manufacturer.
– The torque values M_2 (at n_{2min}) indicated in the selection tables can be considerably exceeded under operation with wrong selection.

Rated point n_{2max} (50 Hz)
Features:
- Large speed setting range < = 5...6
- Good self ventilation of the motor because of constant motor speed at mains frequency.

Torque characteristic
(under ideal operating conditions)



Determination of the operating factor k

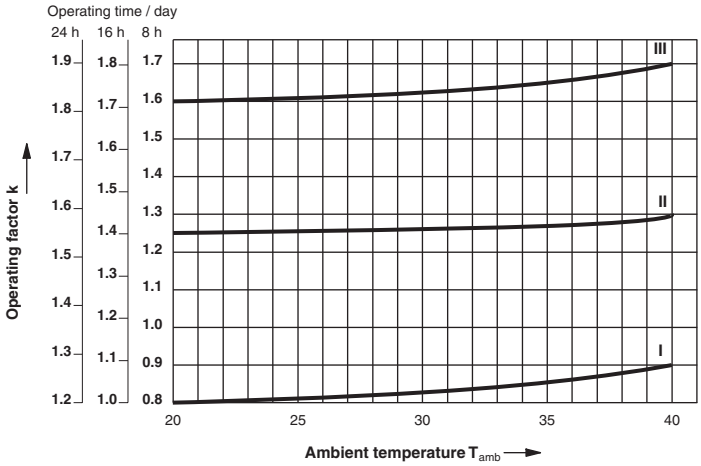
Requirements:
– $M_2 \geq M_N \cdot k$
(M_2 from selection tables)

1. Determining the load class from type of input load:

Load class	Type of load and intensity
I	regular operation, virtually shock-free
II	irregular operation, moderate shocks
III	irregular operation, strong shocks and/or changing load

2. Determination of the ambient temperature

3. Read operating factor k from chart



Determination of the effective forces

Requirements:
– $F_{r_{perm}} \geq F_r$
($F_{r_{perm}}$ from General data gearbox)

1. Determining the radial force:
– The acting radial forces depend on the application.
– For transmission elements from table: $F_r = \frac{2000 \cdot M_2 \cdot f_z}{d_W}$

f_z	Transmission element
1.12	toothed gears
1.25 ... 1.4	chain wheels
1.5	crown gears
1.5 ... 2.0	small V-belt pulleys depending on initial tension

2. Determining the axial force
– The effective axial forces depend on the application.

Selection table

P_1	n_2 [1/min]	M_2 [Nm]	n_1 [1/min]	i	Type 0 = free input shaft 1 = direct mounted motor	Dimensions Page
0.25 kW	192 – 32 128 – 21 93 – 15 71 – 11	9 – 16 12 – 23 16 – 31 20 – 25	1380 1380 1380 1380	5 7 10 13	11.7□5.02.04 11.7□5.02.04 11.7□5.02.04 11.7□5.02.04	84
	64 – 10 46 – 7.8 35 – 5.8 32 – 5.3	22 – 38 29 – 45 37 – 59 36 – 61	1380 1380 1380 1380	15 20 26 30	11.7□5.02.04 11.7□5.02.04 11.7□5.02.05 11.7□5.02.05	84
	24 – 4.1 17 – 2.9 15 – 2.5	45 – 75 53 – 66 55 – 64	1380 1380 1380	40 53 60	11.7□5.02.05 11.7□5.02.05 11.7□5.02.05	84
0.37 kW	385 – 64 256 – 42 186 – 31 143 – 23	7 – 13 10 – 18 13 – 25 17 – 24	2840 2840 2840 2840	5 7 10 13	11.7□5.02.04 11.7□5.02.04 11.7□5.02.04 11.7□5.02.04	84
	128 – 21 93 – 15 70 – 11 64 – 10	18 – 32 24 – 40 30 – 53 31 – 52	2840 2840 2840 2840	15 20 26 30	11.7□5.02.04 11.7□5.02.04 11.7□5.02.05 11.7□5.02.05	84
	48 – 8.2 35 – 5.8 30 – 5.0	38 – 64 47 – 57 48 – 59	2840 2840 2840	40 53 60	11.7□5.02.05 11.7□5.02.05 11.7□5.02.05	84
0.55 kW	397 – 69 264 – 46 192 – 33 144 – 25	7,9 – 18 14 – 26 19 – 35 24 – 40	2840 2840 2840 2840	5 7 10 13	11.7□5.03.04 11.7□5.03.04 11.7□5.03.04 11.7□5.03.05	84
	132 – 23 101 – 17 72 – 12 66 – 11	26 – 46 33 – 58 42 – 52 43 – 73	2840 2840 2840 2840	15 20 26 30	11.7□5.03.05 11.7□5.03.05 11.7□5.03.05 11.7□5.03.05	84
	49 – 8.6 37 – 6.6 31 – 5.5	57 – 97 70 – 116 73 – 114	2840 2840 2840	40 53 60	11.7□5.03.06 11.7□5.03.06 11.7□5.03.06	84
0.75 kW	397 – 69 264 – 46 196 – 34 131 – 22	15 – 38 22 – 55 26 – 49 37 – 70	2810 2810 1380 1380	5 7 5 7	11.7□5.04.05 11.7□5.04.05 11.7□5.04.05 11.7□5.04.05	84
	100 – 17 74 – 12 65 – 11 48 – 8.5	48 – 90 64 – 120 69 – 124 90 – 162	1380 1380 1380 1380	10 13 15 20	11.7□5.04.05 11.7□5.04.06 11.7□5.04.06 11.7□5.04.06	84
	37 – 6.5 32 – 5.7 17 – 3.1 15 – 2.7	114 – 188 114 – 192 195 – 328 192 – 304	1380 1380 1380 1380	26 30 53 60	11.7□5.04.06 11.7□5.04.06 11.7□5.04.08 11.7□5.04.08	84
1.1 kW	397 – 69 264 – 46 202 – 35 150 – 26	20 – 37 29 – 54 37 – 46 50 – 93	2810 2810 2810 2810	5 7 10 13	11.7□5.04.05 11.7□5.04.05 11.7□5.04.05 11.7□5.04.06	84
	132 – 23 98 – 17 75 – 13 66 – 11	54 – 97 71 – 127 89 – 159 92 – 154	2810 2810 2810 2810	15 20 26 30	11.7□5.04.06 11.7□5.04.06 11.7□5.04.06 11.7□5.04.06	84
	49 – 8.6 36 – 6.3 31 – 5.4	117 – 198 155 – 264 154 – 251	2810 2810 2810	40 53 60	11.7□5.04.06 11.7□5.04.08 11.7□5.04.08	84

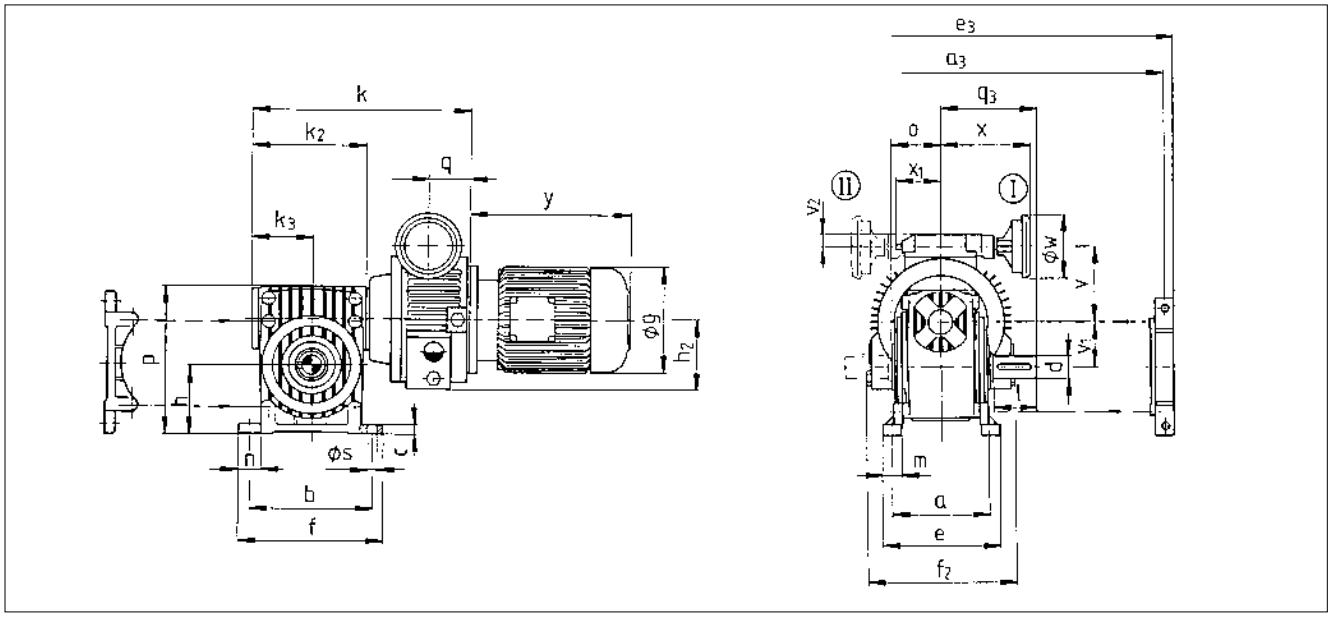
Selection table

P_1	n_2 [1/min]	M_2 [Nm]	n_1 [1/min]	*i*	Type = free input shaft = direct mounted motor	Dimensions Page
1.5 kW	397 – 69 264 – 46 196 – 34 131 – 22	27 – 76 39 – 111 52 – 99 76 – 143	2800 2800 1420 1420	5 7 5 7	11.7□5.05.06 11.7□5.05.06 11.7□5.05.06 11.7□5.05.06	84
	97 – 16 71 – 12 63 – 11 47 – 8.3	101 – 189 136 – 254 147 – 264 190 – 340	1420 1420 1420 1420	10 13 15 20	11.7□5.05.06 11.7□5.05.08 11.7□5.05.08 11.7□5.05.08	84
	35 – 6.2 31 – 5.5 23 – 4.1 18 – 3.2 15 – 2.7	244 – 395 248 – 417 311 – 524 397 – 669 409 – 649	1420 1420 1420 1420 1420	26 30 40 53 60	11.7□5.05.08 11.7□5.05.08 11.7□5.05.08 11.7□5.05.10 11.7□5.05.10	84
2.2 kW**	397 – 69 264 – 46 196 – 34 144 – 25	40 – 76 59 – 110 78 – 146 105 – 196	2800 2800 2800 2800	5 7 10 13	11.7□5.05.06 11.7□5.05.06 11.7□5.05.06 11.7□5.05.08	84
	128 – 22 96 – 16 72 – 12 64 – 11	113 – 207 147 – 267 190 – 341 195 – 335	2800 2800 2800 2800	15 20 26 30	11.7□5.05.08 11.7□5.05.08 11.7□5.05.08 11.7□5.05.08	84
	48 – 8.4 37 – 6.5 30 – 5.4	247 – 421 313 – 540 320 – 534	2800 2800 2800	40 53 60	11.7□5.05.08 11.7□5.05.10 11.7□5.05.10	84
3.0 kW	200 – 35 133 – 23 100 – 17 75 – 13	101 – 191 148 – 276 194 – 361 251 – 292	1400 1400 1400 1400	5 7 10 13	11.7□5.06.08 11.7□5.06.08 11.7□5.06.08 11.7□5.06.08	84
	66 – 11 50 – 8.8 38 – 6.7 33 – 5.8	271 – 486 359 – 646 450 – 681 473 – 793	1400 1400 1400 1400	15 20 26 30	11.7□5.06.08 11.7□5.06.10 11.7□5.06.10 11.7□5.06.10	84
	25 – 4.4 19 – 3.4 16 – 2.8	553 – 1018 766 – 1300 800 – 1240	1400 1400 1400	40 53 60	11.7□5.06.10 11.7□5.06.12 11.7□5.06.12	84
4.0 kW	200 – 35 133 – 23 100 – 17 76 – 13	149 – 281 218 – 406 286 – 535 364 – 527	1430 1430 1430 1430	5 7 10 13	11.7□5.07.10 11.7□5.07.10 11.7□5.07.10 11.7□5.07.10	84
	66 – 11 50 – 8.8 38 – 6.7 34 – 6.0	402 – 720 522 – 940 672 – 1207 686 – 1151	1430 1430 1430 1430	15 20 26 30	11.7□5.07.10 11.7□5.07.10 11.7□5.07.12 11.7□5.07.12	84
	25 – 4.4 19 – 3.4	903 – 1527 1025 – 1478	1430 1430	40 53	11.7□5.07.12 11.7□5.07.12	84
5.5 kW	207 – 36 138 – 24 100 – 17.5 69 – 12 50 – 8.8	203 – 408 300 – 599 409 – 818 557 – 1115 755 – 1510	1450 1450 1450 1450 1450	5 7 10 15 20	11.7□5.18.12 11.7□5.18.12 11.7□5.18.12 11.7□5.18.12 11.7□5.18.12	84
7.5 kW	207 – 36 138 – 24 100 – 17.5 69 – 12 50 – 8.8	262 – 495 385 – 717 525 – 975 717 – 1275 965 – 1720	1450 1450 1450 1450 1450	5 7 10 15 20	11.7□5.08.12 11.7□5.08.12 11.7□5.08.12 11.7□5.08.12 11.7□5.08.12	84

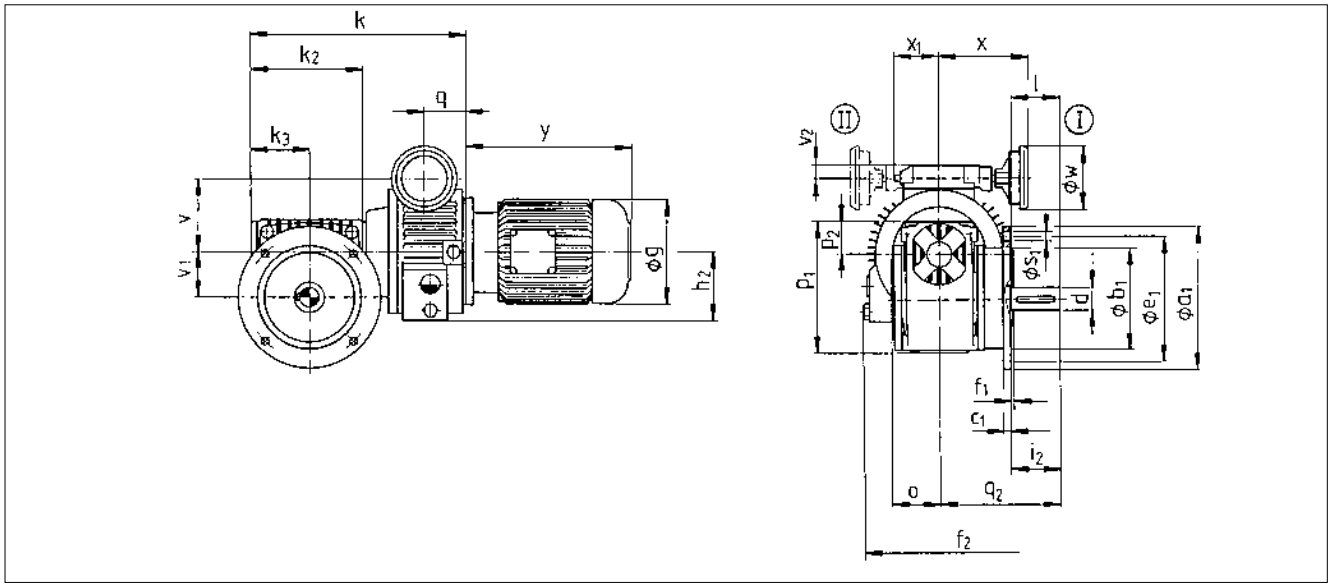
** not permissible for type 11.705
with free input shaft at n_1 = 2800 1/min.

Dimensions

Type 11.715 Foot-mounted design



Type 11.715 Flange-mounted design



Dimensions

Type 11.715

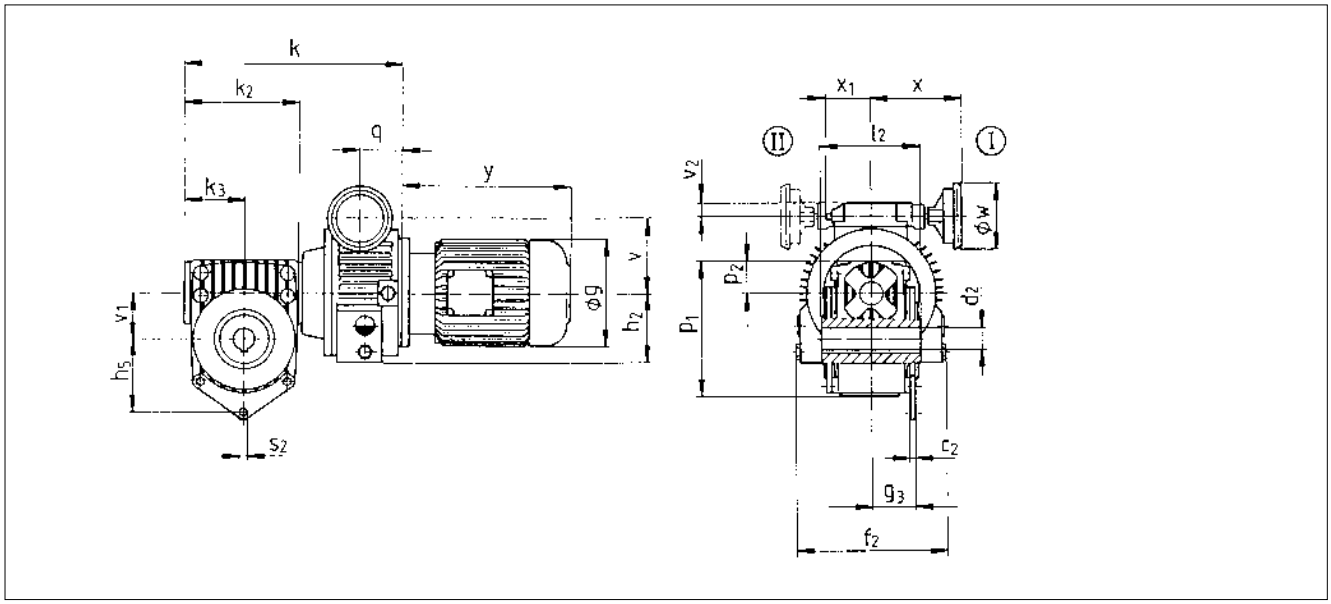
Typ	a	a_1[3]	a_3	b	b_1[4] $j7$	c	c_1	d	e	e_1	e_3	f	f_1	f_2	g[1]	h	h_2	h_4	i_2	k
11.715.02.04	98	120/**140**	98	118	80/ 95	11	8	19	122	100/115	122	140	3	150	145	67	65	71	50	221
11.715.02.05	114	140/**160**	114	152	95/110	14	10	24	146	115/130	146	180	3/3.5			83		83	60	245
11.715.03.04	98	120/**140**	98	188	80/ 95	11	8	19	122	100/115	122	140	3	175	145	67	83	71	50	251
11.715.03.05	114	140/**160**	114	152	95/110	14	10	24	146	115/130	146	180	3/3.5			83		83	60	261
11.715.03.06	136	160/**200**	136	174	110/130	17	12	28	175	130/165	175	205	3.5			100		100	70	289
11.715.04.05	114	140/**160**	114	152	95/110	14	10	24	146	115/130	146	180	3/3.5	215	160	83	98	83	60	280
11.715.04.06	136	160/**200**	136	174	110/130	17	12	28	175	130/165	175	205	3.5			100		100	70	308
11.715.04.08	166	200/**250**	166	212	130/180	19	14	38	200	165/215	200	245	3.5/4			121		121	80	351
11.715.05.06	136	160/**200**	136	174	110/130	17	12	28	175	130/165	175	205	3.5	253	180	100	122	100	70	330
11.715.05.08	166	200/**250**	166	212	130/180	19	14	38	200	165/215	200	245	3.5/4			121		121	80	373
11.715.05.10	194	250/**300**	194	240	180/230	22	16	48	234	215/265	234	280	4			150		150	100	409
11.715.06.08	166	200/**250**	166	212	130/180	19	14	38	200	165/215	200	245	3.5	305	200	121	145	121	80	387
11.715.06.10	194	250/**300**	194	240	180/230	22	16	48	234	215/265	234	280	4			150		150	100	429
11.715.06.12	235	300/**350**	235	300	230/250	25	20	55	286	265/300	286	350	4/5			186		186	110	506
11.715.07.10	194	250/**300**	194	240	180/230	22	16	48	234	215/265	234	280	4	305	225	150	145	150	100	429
11.715.07.12	235	300/**350**	235	300	230/250	25	20	55	286	265/300	286	350	4/5			186		186	110	506
11.715.08.12	235	300/**350**	235	300	230/250	25	20	55	286	265/300	286	350	4/5	379	265	186	176	186	110	522
11.715.18.12	235	300/**350**	235	300	230/250	25	20	55	286	265/300	286	350	4/5			186		186	110	522

Type	k_2	k_3	l	m	n	o	p	p_1	p_2	q	q_2	q_3	s	s_1	v	v_1	v_2	w	x	x_1	y[1]	m[1] [kg]
11.715.02.04	121	65	50	21	35	49	145	128	38	42	122	100	10	6.6/9	83	40	14	70	105	43	215	20
11.715.02.05	136	73	60	27	44	59	175	153	41		149	120	10	9		50						23
11.715.03.04	121	65	50	21	35	49	145	128	38	50	122	100	10	6.6/9	86	40	14	70	105	43	215	28
11.715.03.05	136	73	60	27	44	59	175	153	41		149	120	10	9		50						32
11.715.03.06	166	88	70	32	48	67	215	190	52		172	140	12	9/11		63						40
11.715.04.05	136	73	60	27	44	59	175	153	41	58	149	120	10	9	103	50	17	105	152	63	235	43
11.715.04.06	166	88	70	32	48	67	215	190	52		172	140	12	9/11		63						51
11.715.04.08	195	103	80	32	58	82	258	228	57		207	165	14	11/14		80						65
11.715.05.06	166	88	70	32	48	67	215	190	52	74	172	140	12	9/11	123	63	17	105	152	63	285	71
11.715.05.08	195	103	80	32	58	82	258	228	57		207	165	14	11/14		80						85
11.715.05.10	224	118	100	40	63	87	315	275	65		234	190	18	14		100						107
11.715.06.08	195	103	80	32	58	82	258	228	57	82	207	165	14	11/14	49	80	17	105	152	63	320	118
11.715.06.10	224	118	100	40	63	87	315	275	65		234	190	18	14		100						140
11.715.06.12	277	146	110	48	67	105	385	340	74		272	218	22	14/18		125						174
11.715.07.10	224	118	100	40	63	87	315	275	65	82	234	190	18	14	149	100	17	105	152	63	340	150
11.715.07.12	277	146	110	48	67	105	385	340	74		272	218	22	14/18		125						186
11.715.08.12	277	146	110	48	67	105	385	340	74	104	272	218	22	14/18	190	125	26	160	195[2]	111	415	251
11.715.18.12	277	146	110	48	67	105	385	340	74		272	218	22	14/18		125						251

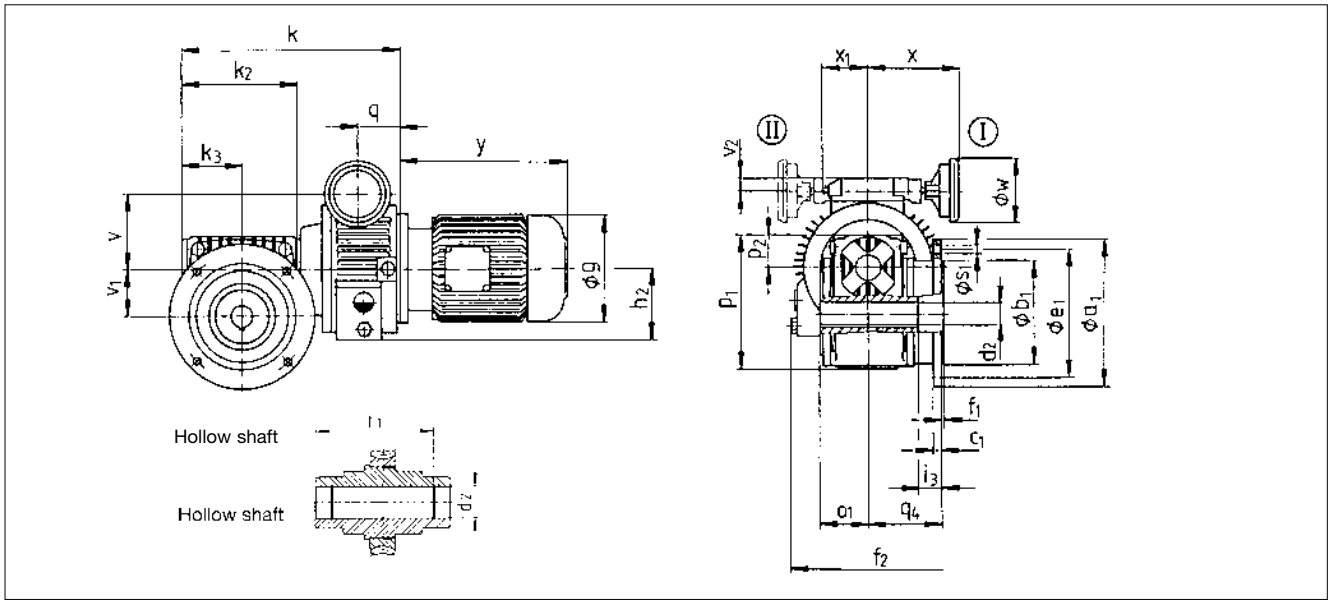
[1]) Deviations in motor dimensions possible
[2]) Add. hand lever 80 mm
[3]) Bold print = standard
[4]) ISO-tolerance h7 for b1 over 230 mm
Shafts: ISO-tolerance up to Ø 50 mm = k6
ISO-tolerance over Ø 50 mm = m6
Keys to DIN 6885/1
Tapped shaft ends to DIN 332-DR
Dimensions in [mm]

Dimensions

Type 11.715 Hollow shaft-mounted design



Type 11.715 Flange-hollow shaft-mounted design



Dimensions

Type 11.715

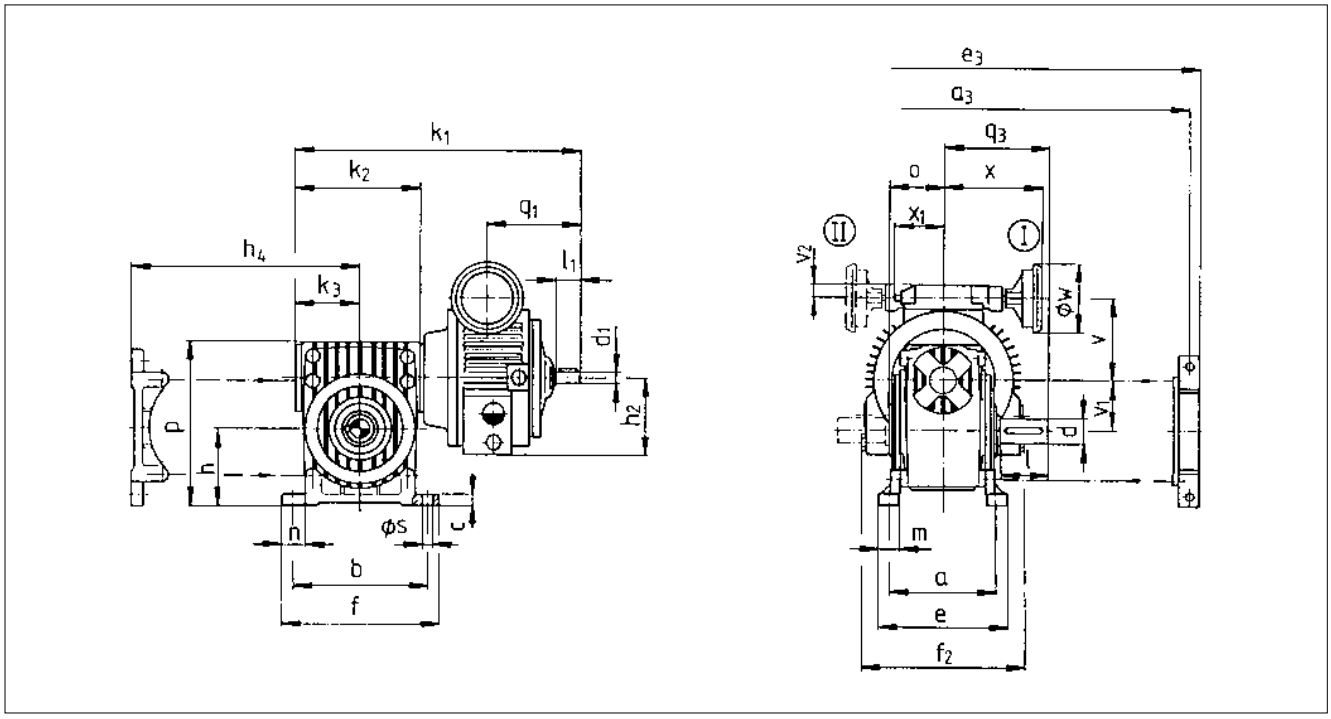
Typ	a_1[3]	b_1[4] j7	c_1	c_2	d_2 H7	e_1	f_1	f_2	g[1]	g_3	h_2	h_5	i_3	k
11.715.02.04	120/**140**	80/ 95	8	5	20	100/115	3	150	145	43	65	69	29	221
11.715.02.05	140/**160**	95/110	10	6	25	115/130	3/3.5			50		82	38.5	245
11.715.03.04	120/**140**	80/ 95	8	5	20	100/115	3	175	145	43	83	69	29	251
11.715.03.05	140/**160**	95/110	10	6	25	115/130	3/3.5			50		82	38.5	261
11.715.03.06	160/**200**	110/130	12	6	30	130/165	3.5			59		97	39.5	289
11.715.04.05	140/**160**	95/110	10	6	25	115/130	3/3.5	215	160	50	98	82	38.5	280
11.715.04.06	160/**200**	110/130	12	6	30	130/165	3.5			59		97	39.5	308
11.715.04.08	200/**250**	130/180	14	6	40	165/215	3.5/4			71		114	53.5	351
11.715.05.06	160/**200**	110/130	12	6	30	130/165	3.5	253	180	59	122	97	39.5	330
11.715.05.08	200/**250**	130/180	14	6	40	165/215	3.5/4			71		114	53.5	373
11.715.05.10	250/**300**	180/230	16	6	50	215/265	4			75		138	58.5	409
11.715.06.08	200/**250**	130/180	14	6	40	165/215	3.5	305	200	71	145	114	53.5	387
11.715.06.10	250/**300**	180/230	16	6	50	215/265	4			75		138	58.5	429
11.715.06.12	300/**350**	230/250	20	6	70	265/300	4/5			93		167	67.5	506
11.715.07.10	250/**300**	180/230	16	6	50	215/265	4	305	225	75	145	138	58.5	429
11.715.07.12	300/**350**	230/250	20	6	70	265/300	4/5			93		167	67.5	506
11.715.08.12	300/**350**	230/250	20	6	70	265/300	4/5	379	265	93	176	167	67.5	522
11.715.18.12	300/**350**	230/250	20	6	70	265/300	4/5			93		167	67.5	522

Type	k_2	k_3	l_2	o_1	p_1	p_2	q	q_4	s_1	s_2	t_1	v	v_1	v_2	w	x	x_1	y[1]	m[1] [kg]
11.715.02.04	121	65	100	50	128	38	42	79	6.6/9	10.5	87	83	40	14	70	105	43	215	20
11.715.02.05	136	73	120	60	153	41		99	9	12.5	104		50						23
11.715.03.04	121	65	100	50	128	38	50	79	6.6/9	10.5	87	86	40	14	70	105	43	215	28
11.715.03.05	136	73	120	60	153	41		99	9	12.5	104		50						32
11.715.03.06	166	88	140	70	190	52		110	9/11	16.5	122		63						40
11.715.04.05	136	73	120	60	153	41	58	99	9	12.5	104	103	50	17	105	152	63	235	43
11.715.04.06	166	88	140	70	190	52		110	9/11	16.5	122		63						51
11.715.04.08	195	103	170	85	228	57		139	11/14	16.5	148		80						65
11.715.05.06	166	88	140	70	190	52	74	110	9/11	16.5	122	123	63	17	105	152	63	285	71
11.715.05.08	195	103	170	85	228	57		139	11/14	16.5	148		80						85
11.715.05.10	224	118	180	90	275	65		149	14	20.5	154		100						107
11.715.06.08	195	103	170	85	228	57	82	139	11/14	16.5	148	149	80	17	105	152	63	320	118
11.715.06.10	224	118	180	90	275	65		149	14	20.5	154		100						140
11.715.06.12	277	146	215	108	340	74		175	14/18	20.5	187		125						174
11.715.07.10	224	118	180	90	275	65	82	149	14	20.5	154	149	100	17	105	152	63	340	150
11.715.07.12	277	146	215	108	340	74		175	14/18	20.5	187		125						186
11.715.08.12	277	146	215	108	340	74	104	175	14/18	20.5	187	190	125	26	160	195[5]	111	415	251
11.715.18.12	277	146	215	108	340	74		175	14/18	20.5	187		125						251

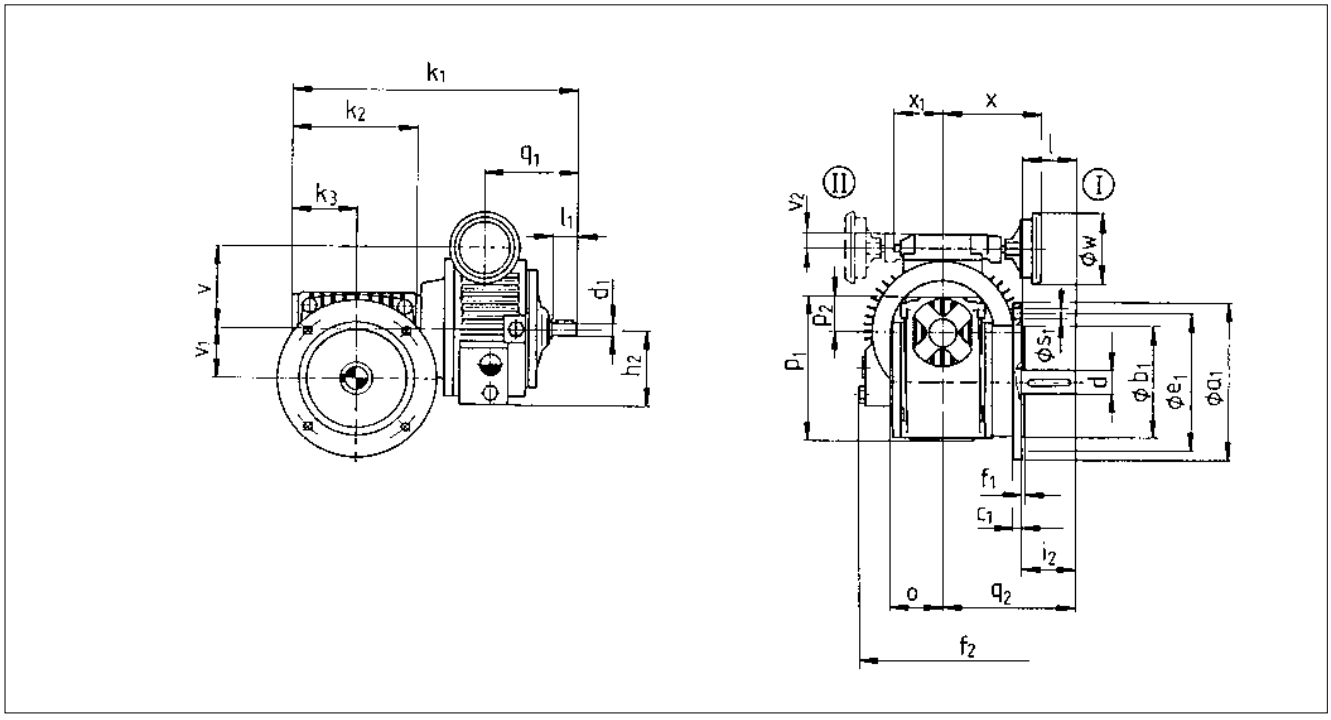
[1]) Deviations in motor dimensions possible
[2]) Add. hand lever 80 mm
[3]) Bold print = standard
[4]) ISO-tolerance h7 for b1 over 230 mm
Keys to DIN 6885/1
Dimensions in [mm]

Dimensions

Type 11.705 Foot-mounted design



Type 11.705 Flange-mounted design



Dimensions

Type 11.705

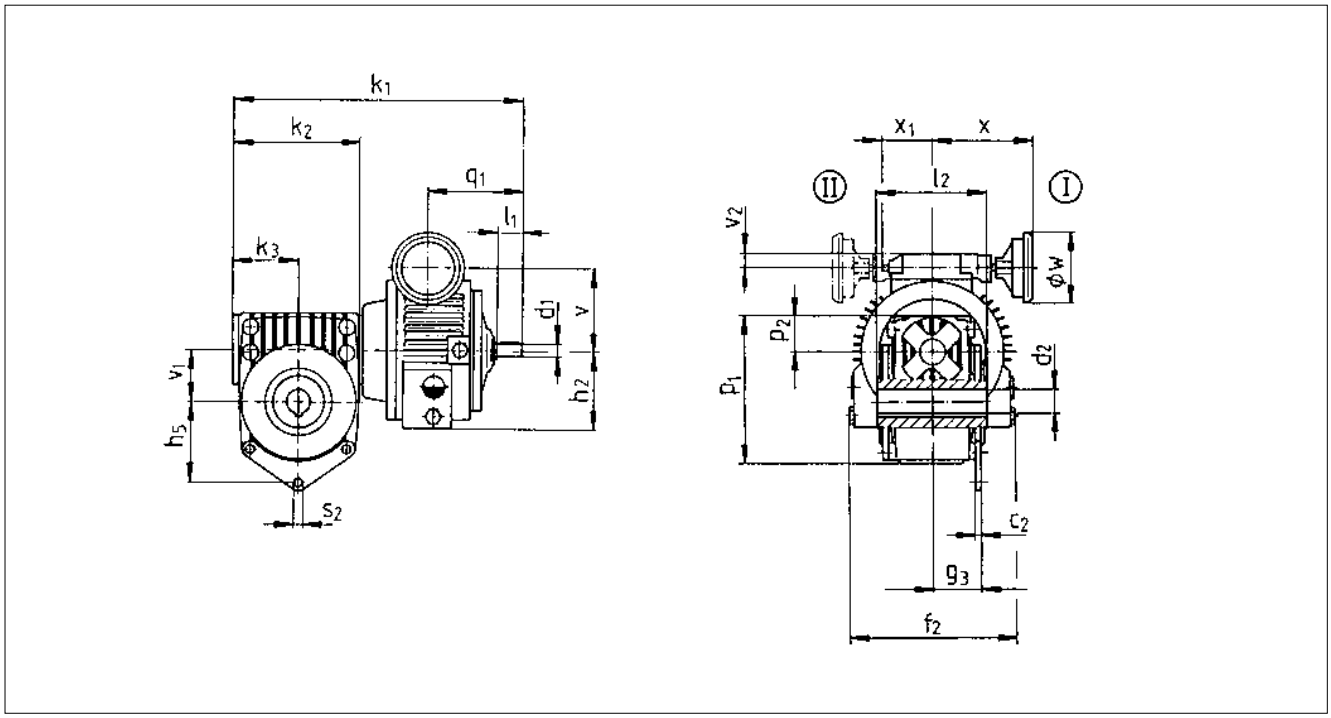
Type	a	a_1[3]	a_3	b	b_1[4] $j7$	c	c_1	d	d_1	e	e_1	e_3	f	f_1	f_2	h	h_2	h_4	i_2	k_1
11.705.02.04	98	120/**140**	98	118	80/ 95	11	8	19	11	122	100/115	122	140	3	150	67	65	71	50	273
11.705.02.05	114	140/**160**	114	152	95/110	14	10	24		146	115/130	146	180	3/3.5		84		83	60	297
11.705.03.04	98	120/**140**	98	188	80/ 95	11	8	19	14	122	100/115	122	140	3	175	67	83	71	50	312
11.705.03.05	114	140/**160**	114	152	95/110	14	10	24		146	115/130	146	180	3/3.5		86		83	60	322
11.705.03.06	136	160/**200**	136	174	110/130	17	12	28		175	130/165	175	205	3/5		100		100	70	350
11.705.04.05	114	140/**160**	114	152	95/110	14	10	24	15	146	115/130	146	180	3/3.5	215	86	98	83	60	333
11.705.04.06	136	160/**200**	136	174	110/130	17	12	28		175	130/165	175	205	3.5		100		100	70	361
11.705.04.08	166	200/**250**	166	212	130/180	19	14	38		200	165/215	200	245	3.5/4		121		121	80	404
11.705.05.06	136	160/**200**	136	174	110/130	17	12	28	20	175	130/165	175	205	3.5	253	100	122	100	70	403
11.705.05.08	166	200/**250**	166	212	130/180	19	14	38		200	165/215	200	245	3.5/4		121		121	80	446
11.705.05.10	194	250/**300**	194	240	180/230	22	16	48		234	215/265	234	280	4		150		150	100	483
11.705.06.08	166	200/**250**	166	212	130/180	19	14	38	25	200	165/215	200	245	3.5/4	305	121	145	121	80	490
11.705.06.10	194	250/**300**	194	240	180/230	22	16	48		234	215/265	234	280	4		150		150	100	532
11.705.06.12	235	300/**350**	235	300	230/250	25	20	55		286	265/300	286	350	4/5		186		186	110	609
11.705.07.10	194	250/**300**	194	240	180/230	22	16	48	25	234	215/265	234	280	4	305	150	145	150	100	532
11.705.07.12	235	300/**350**	235	300	230/250	25	20	55		286	265/300	286	350	4/5		186		186	110	609
11.705.08.12	235	300/**350**	235	300	230/250	25	20	55	25	286	265/300	286	350	4/5	379	186	176	186	110	674
11.705.18.12	235	300/**350**	235	300	230/250	25	20	55		286	265/300	286	350	4/5		186		186	110	674

Type	k_2	k_3	l	l_1	m	n	o	p	p_1	p_2	q_1	q_2	q_3	s	s_1	v	v_1	v_2	w	x	x_1	m [kg]
11.705.02.04	121	65	50	23	21	35	49	145	128	38	94	122	100	10	6.6/9	83	40	14	70	105	43	12
11.705.02.05	136	73	60		27	44	59	175	153	41		149	120	10	9		50					16
11.705.03.04	121	65	50	30	21	35	49	145	128	38	112	122	100	10	6.6/9	86	40	14	70	105	43	21
11.705.03.05	136	73	60		27	44	59	175	153	41		149	120	10	9		50					25
11.705.03.06	166	88	70		32	48	67	215	190	52		172	140	12	9/11		63					33
11.705.04.05	136	73	60	30	27	44	59	175	153	41	112	149	120	10	9	103	50	17	105	152	63	33
11.705.04.06	166	88	70		32	48	67	215	190	52		172	140	12	9/11		63					41
11.705.04.08	195	103	80		32	58	82	258	228	57		207	165	14	11/14		80					55
11.705.05.06	166	88	70	40	32	48	67	215	190	52	147	172	140	12	9/11	123	63	17	105	152	63	55
11.705.05.08	195	103	80		32	58	82	258	228	57		207	165	14	11/14		80					69
11.705.05.10	224	118	100		40	63	87	315	275	65		234	190	18	14		100					91
11.705.06.08	195	103	80	50	32	58	82	258	228	57	186	207	165	14	11/14	149	80	17	105	152	63	92
11.705.06.10	224	118	100		40	63	87	315	275	65		234	190	18	14		100					114
11.705.06.12	277	146	110		48	67	105	385	340	74		272	218	22	14/18		125					150
11.705.07.10	224	118	100	50	40	63	87	315	275	65	186	234	190	18	14	149	100	17	105	152	63	114
11.705.07.12	277	146	110		48	67	105	385	340	74		272	218	22	14/18		125					150
11.705.08.12	277	146	110	50	48	67	105	385	340	74	256	272	218	22	14/18	190	125	26	160	195[2]	111	202
11.705.18.12	277	146	110		48	67	105	385	340	74		272	218	22	14/18		125					202

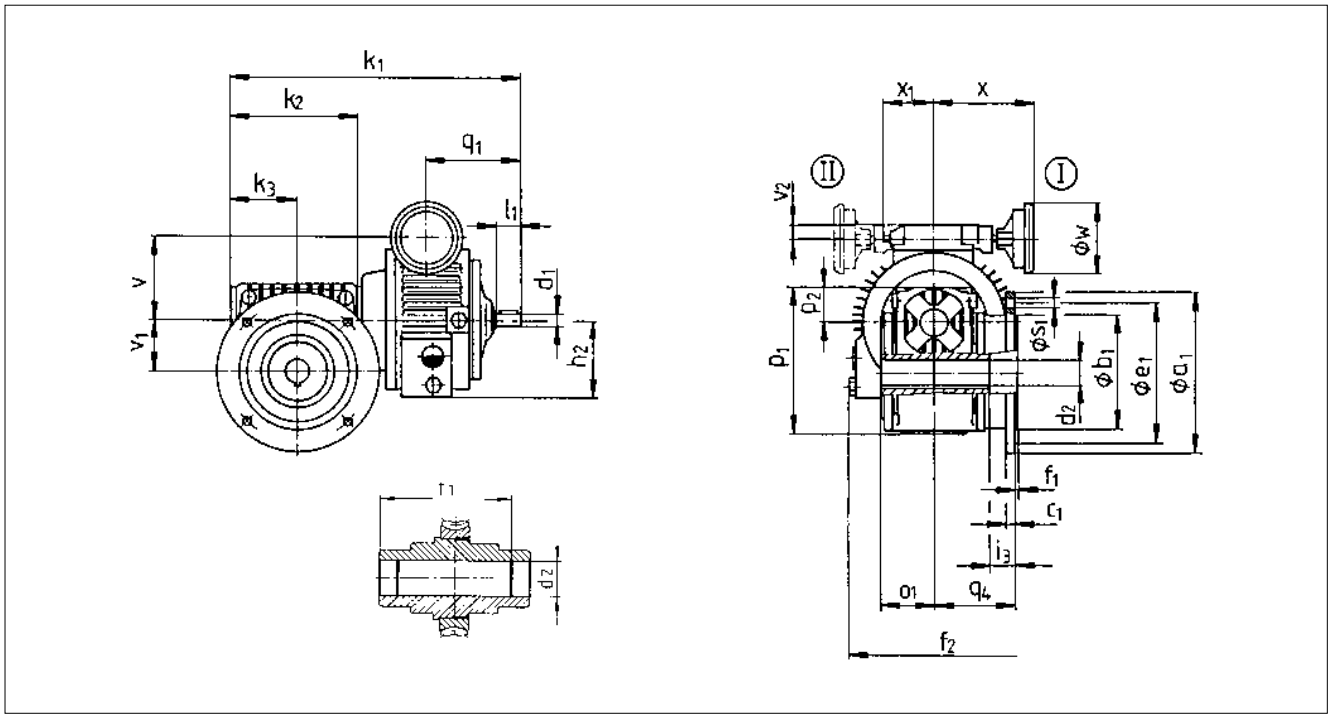
[2]) Add. hand lever 80 mm
[3]) Bold print = standard
[4]) ISO-tolerance h7 for b1 over 230 mm
Shafts: ISO-tolerance up to Ø 50 mm = k6
ISO-tolerance over Ø 50 mm = m6
Keys to DIN 6885/1
Tapped shaft ends to DIN 332-DR
Dimensions in [mm]

Dimensions

Type 11.705 Hollow shaft-mounted design



Type 11.705 Flange-hollow shaft-mounted design



Dimensions

Type 11.705

Type	a_1[3]	b_1[4] j7	c_1	c_2	d_1	d_2 H7	e_1	f_1	f_2	g_3	h_2	h_5	i_3	k_1
11.705.02.04 11.705.02.05	120/**140** 140/**160**	80/ 95 95/110	8 10	5 6	11	20 25	100/115 115/130	3 3/3.5	150	43 50	65	69 82	29 38.5	273 297
11.705.03.04 11.705.03.05 11.705.03.06	120/**140** 140/**160** 160/**200**	80/ 95 95/110 110/130	8 10 12	5 6 6	14	20 25 30	100/115 115/130 130/165	3 3/3.5 3.5	175	43 50 59	83	69 82 97	29 38.5 39.5	312 322 350
11.705.04.05 11.705.04.06 11.705.04.08	140/**160** 160/**200** 200/**250**	95/110 110/130 130/180	10 12 14	6 6 6	15	25 30 40	115/130 130/165 165/215	3/3.5 3.5 3.5/4	215	50 59 71	98	82 97 114	38.5 39.5 53.5	333 361 404
11.705.05.06 11.705.05.08 11.705.05.10	160/**200** 200/**250** 250/**300**	110/130 130/180 180/230	12 14 16	6 6 6	20	30 40 50	130/165 165/215 215/265	3.5 3.5/4 4	253	59 71 75	122	97 114 138	39.5 53.5 58.5	403 446 483
11.705.06.08 11.705.06.10 11.705.06.12	200/**250** 250/**300** 300/**350**	130/180 180/230 230/250	14 16 20	6 6 6	25	40 50 70	165/215 215/265 265/300	3.5 4 4/5	305	71 75 93	145	114 138 167	53.5 58.5 67.5	490 532 609
11.705.07.10 11.705.07.12	250/**300** 300/**350**	180/230 230/250	16 20	6 6	25	50 70	215/265 265/300	4 4/5	305	75 93	145	138 167	58.5 67.5	532 609
11.705.08.12 11.705.18.12	300/**350** 300/**350**	230/250 230/250	20 20	6 6	25	70 70	265/300 265/300	4/5 4/5	379	93 93	176	167 167	67.5 67.5	674 674

Type	k_2	k_3	l_1	l_2	o_1	p_1	p_2	q_1	q_4	s_1	s_2	t_1	v	v_1	v_2	w	x	x_1	m [kg]
11.705.02.04 11.705.02.05	121 136	65 73	23	100 120	50 60	128 153	38 41	94	79 99	6.6/9 9	10.5 12.5	87 104	83	40 50	14	70	105	43	12 16
11.705.03.04 11.705.03.05 11.705.03.06	121 136 166	65 73 88	30	100 120 140	50 60 70	128 153 190	38 41 52	112	79 99 110	6.6/9 9 9/11	10.5 12.5 16.5	87 104 122	86	40 50 63	14	70	105	43	21 25 33
11.705.04.05 11.705.04.06 11.705.04.08	136 166 195	73 88 103	30	120 140 170	60 70 85	153 190 228	41 52 57	112	99 110 139	9 9/11 11/14	12.5 16.5 16.5	104 122 148	103	50 63 80	17	105	152	63	33 41 55
11.705.05.06 11.705.05.08 11.705.05.10	166 195 224	88 103 118	40	140 170 180	70 85 90	190 228 275	52 57 65	147	110 139 149	9/11 11/14 14	16.5 16.5 20.5	122 148 154	123	63 80 100	17	105	152	63	55 69 91
11.705.06.08 11.705.06.10 11.705.06.12	195 224 277	103 118 146	50	170 180 215	85 90 108	228 275 340	57 65 74	186	139 149 175	11/14 14 14/18	16.5 20.5 20.5	148 154 187	149	80 100 125	17	105	152	63	92 114 150
11.705.07.10 11.705.07.12	224 277	118 146	50	180 215	90 108	275 340	65 74	186	149 175	14 14/18	20.5 20.5	154 187	149	100 125	17	105	152	63	114 150
11.705.08.12 11.705.18.12	277 277	146 146	50	215 215	108 108	340 340	74 74	256	175 175	14/18 14/18	20.5 20.5	187 187	190	125 125	26	160	195[2]	111	202 202

[2]) Add. hand lever 80 mm
[3]) Bold print = standard
[4]) ISO-tolerance h7 for b1 over 230 mm
Keys to DIN 6885/1
Tapped shaft ends to DIN 332-DR
Dimensions in [mm]

Options – Speed-adjustment units

Executions

Name	Hand wheel adjuster (Standard)	Bevel gear adjuster (Option)	Electrical adjuster (Option)
Installation	Hand wheel – impact-resistant plastic	Hand wheel – impact-resistant plastic	Servo motor – three-phase AC asynchronous motor – for technical data see below
Position indication	– parallel axial to axis of spindle	– rectangular to axis of spindle	– rectangular to axis of spindle
Position indication in hand wheel	Option – for scaling see below	Option – for scaling see below	

Technical data: servo motor (for electrical remote adjuster)

Disco Size	P_1 [kW]	N_1 [1/min]	Voltage/frequency [V]	Rated current [I]	Enclosure	Thermal class	Ratio small gearbox	Adjustment time [s]
02	0.012	1350	Δ 220 – 240 V / 50 HZ Y 380 – 415 V / 50 HZ	0.18 0.1	IP 54	F	20 60	10 30
03	0.012	1350	Δ 220 – 240 V / 50 HZ Y 380 – 415 V / 50 HZ	0.18 0.1	IP 54	F	20 60	13 40
04	0.060	1350	Δ 220 – 240 V / 50 HZ Y 380 – 415 V / 50 HZ	0.4 0.23	IP 54	F	20 55	15 40
05	0.060	1350	Δ 220 – 240 V / 50 HZ Y 380 – 415 V / 50 HZ	0.4 0.23	IP 54	F	20 55	17 47
06/07	0.060	1350	Δ 220 – 240 V / 50 HZ Y 380 – 415 V / 50 HZ	0.4 0.23	IP 54	F	20 55	19 47
08	0.18	1350	Δ 220 – 240 V / 50 HZ Y 380 – 415 V / 50 HZ	0.94 0.55	IP 54	F	40 80	50 100

Output speed variations for DISCO sizes 06 . . . 18/08 with electrical adjuster

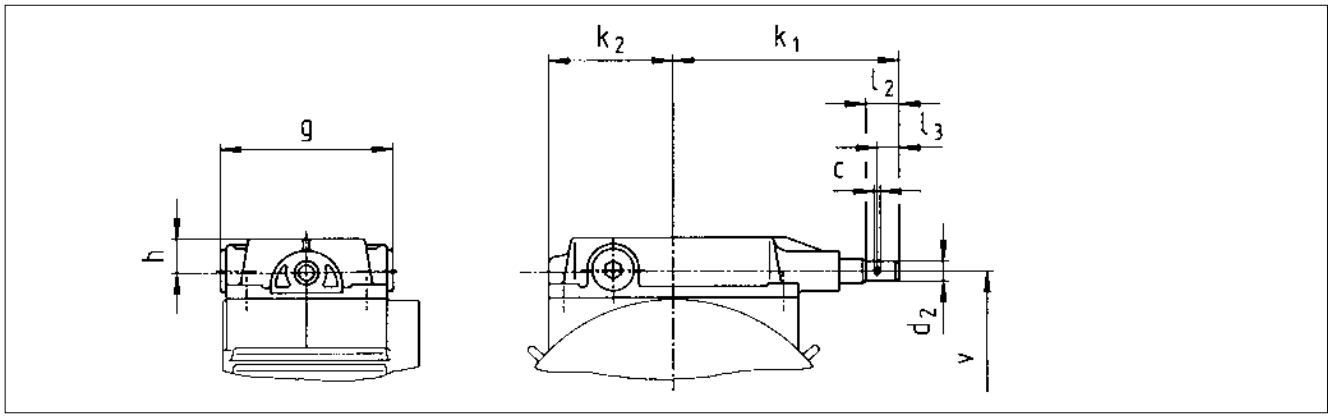
DISCO Size	Input speed n_1 [1/min]		
	1500	1000	750
	Output speed n_2 [1/min]		
06/07	980 – 190	645 – 125	480 – 95
18/08	965 – 220	635 – 145	475 – 110

Position indicator in hand wheel: scaling

DISCO Size	02	03	04/05	06/07	18/08
Scaling	12	18	24	24	36

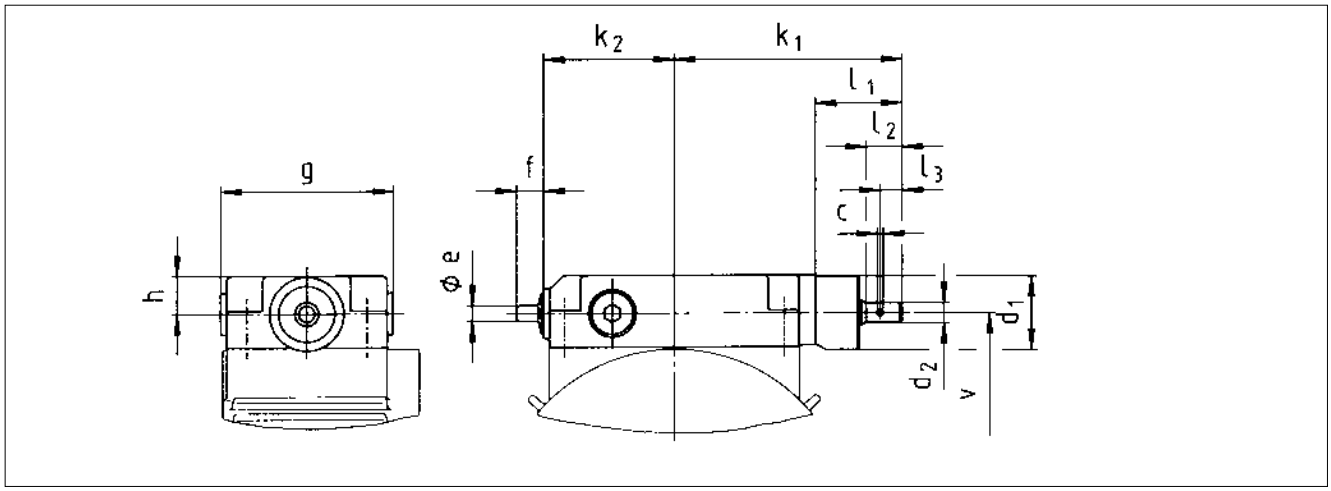
Options – Speed-adjustment units

Spindle housing
Standard design for hand wheel adjuster



Size	c + 0.1	d_2 h9	g	h	k_1	k_2	l_2	l_3	v
02	3.2	8	64	14	74	43	12.5	7	83
03	3.2	8	64	14	74	43	12.5	7	86
04	3.2	10	86	17	114	63	16.5	11	103
05	3.2	10	86	17	114	63	16.5	11	123
06/07	3.2	10	86	17	114	63	16.5	11	149

Universal design suitable for hand wheel adjuster,
bevel gear adjuster and electrical remote adjuster

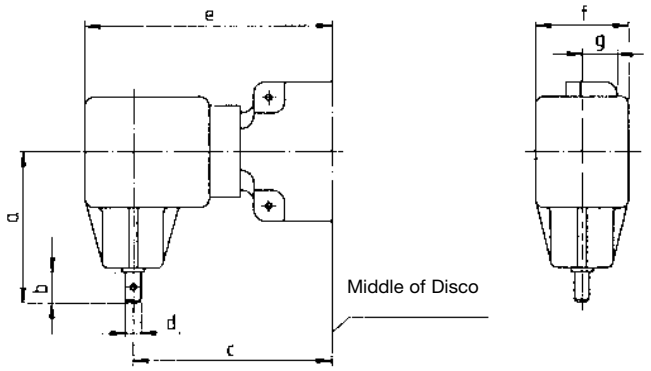


Size	c + 0.1	d_1 h9	d_2 j7	e	f	g	h	k_1	k_2	l_1	l_2	l_3	v
02	3.0	30	8	8	13	64	16	84	46	31	14	7	86
03	3.0	30	8	8	13	64	16	84	46	31	14	7	89
04	3.0	37	10	8	13	86	19	114	66	42	18	11	107
05	3.0	37	10	8	13	86	19	114	66	42	18	11	125
06/07	3.0	37	10	8	13	86	19	114	66	42	18	11	153
18/08*	4.0	52	15	8	13	106	26	161	98	55	21	14	190

* for size 18/08 standard design
Dimensions in [mm]

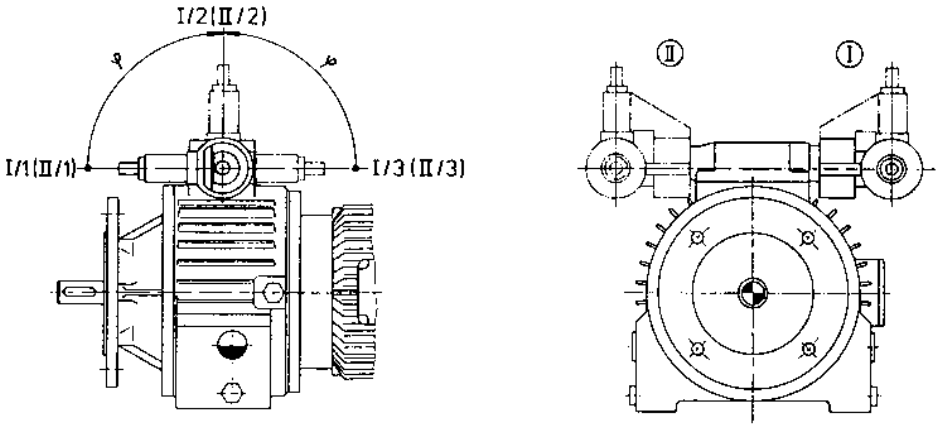
Options – Speed-adjustment units

Bevel gear adjuster



Size	*a*	*b*	*c*	*d* *h8*	*e*	*f*	*g*
02/03	75	22	94	8	116	46	16
04/05/06/07	93	18	127	10	157	56	19
18/08	107	21	173	15	203	73	26

Dimensions in [mm]

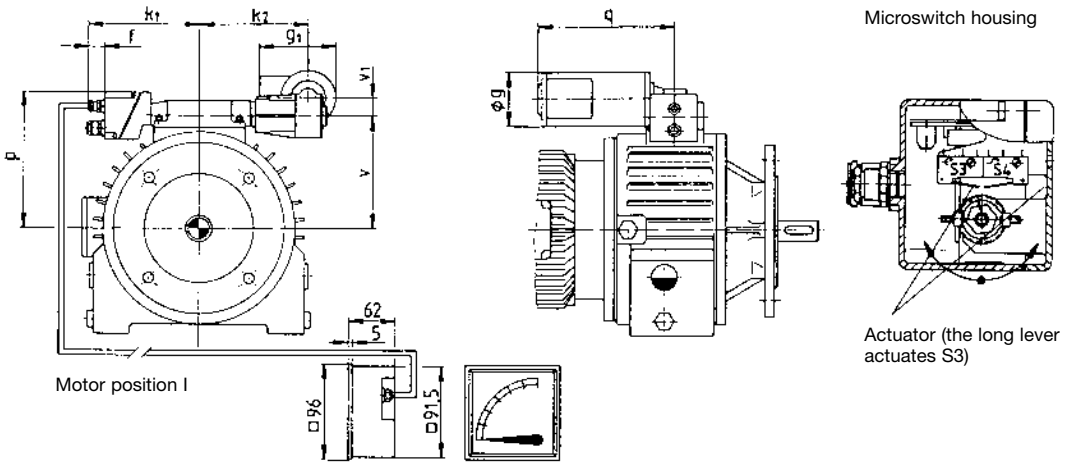


Size	Swivel range φ	
	Hand wheel	Hand wheel with position indicator
02/03/04	90°	0 – 45°
05/06/07	90°	0 – 45°
18/08	70°	20 – 45°

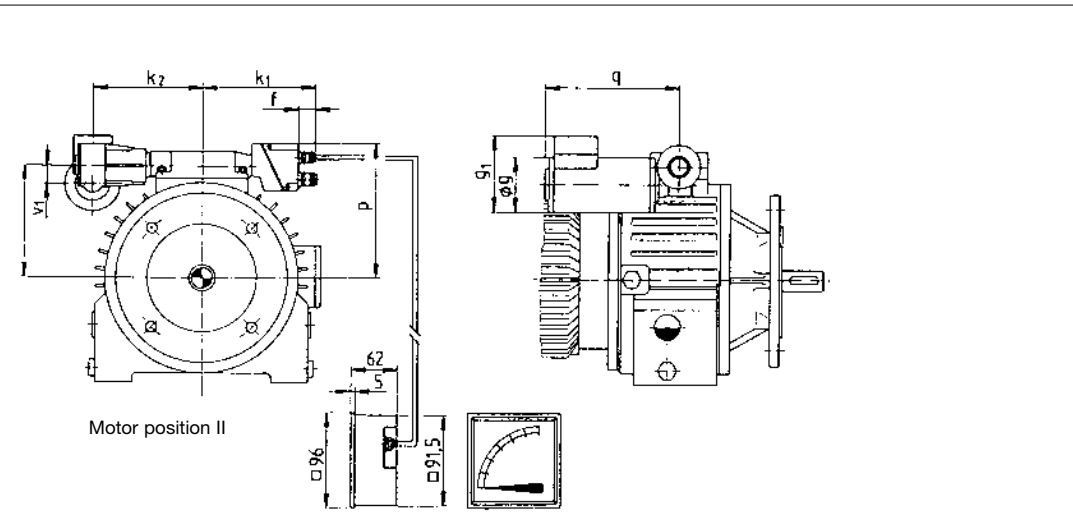
Dimensions in [mm]

Options – Speed-adjustment units

Electrical remote adjuster



Terminal box pos. 2 of main motor is not possible



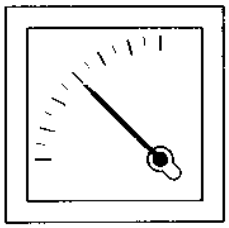
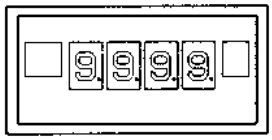
Terminal box pos. 3 of main motor is not possible

Size	*f*	*g*	g_1	k_1	k_2	*p*	*q*	*v*	v_1
02	19	65	123	137	119	118	170	86	25
03						121		89	
04	19	85	144	152	153	139	199	107	31
05						159		127	
06	19	85	144	152	153	185	199	153	31
07									
18/08	19	118	164	190	221[1)]	222	221	190	40

[1)] with slipping clutch: 243 mm
Dimensions in [mm]

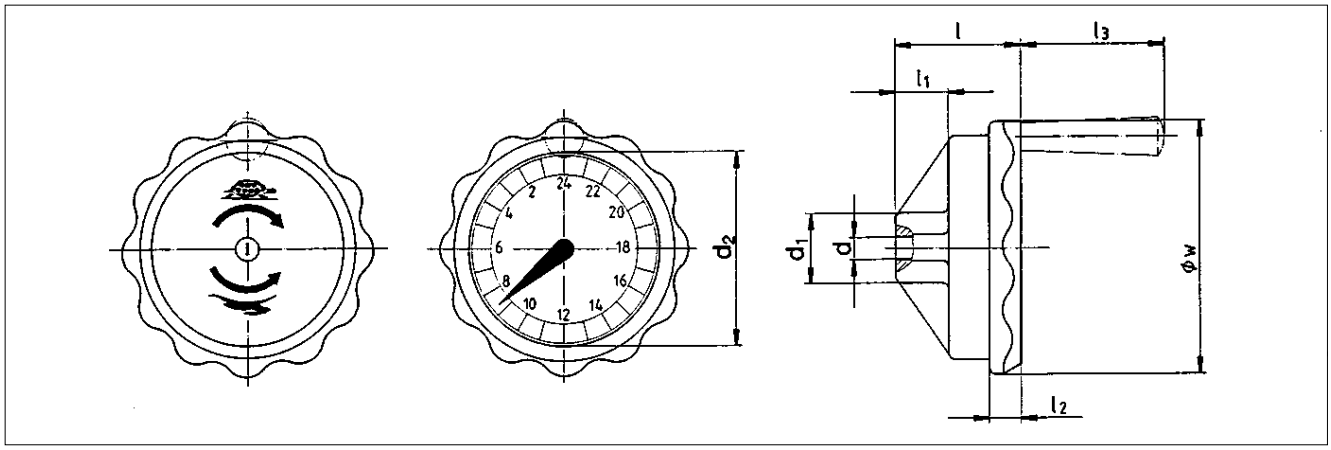
Options – Speed-measuring units

Design:

Name	Electrical remote control with potentiometer	Inductive speed measurement
Installation	– Potentiometer in the limit switch box of the electrical remote control	– inductive pulse encoder in the output cover
Supply voltage	– (Mains supply of the electrical remote control)	– (Generator)
Signal voltage	> 10 V (DC)	12 pulses/revolution > 1.0 V (AC)
Speed indicators – suitable for control-cabinet installation	Analog display – rear-side detector input – scaling in (V), adjustable 	
Digital display		– rear-side generator output/input – 4-digit display – adjustable display 

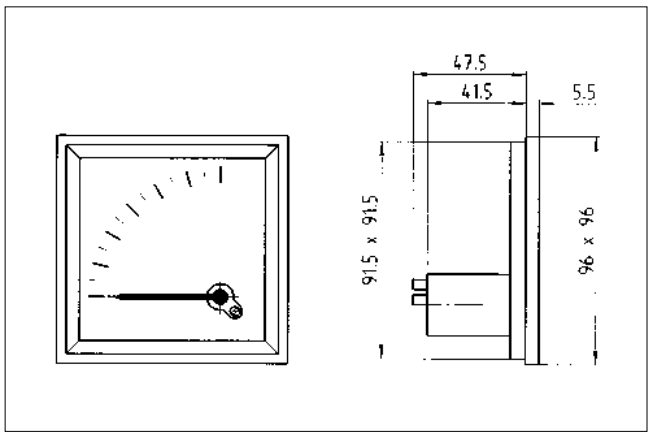
Options – Speed-measuring units

Position indicator / Rev. direction indicator

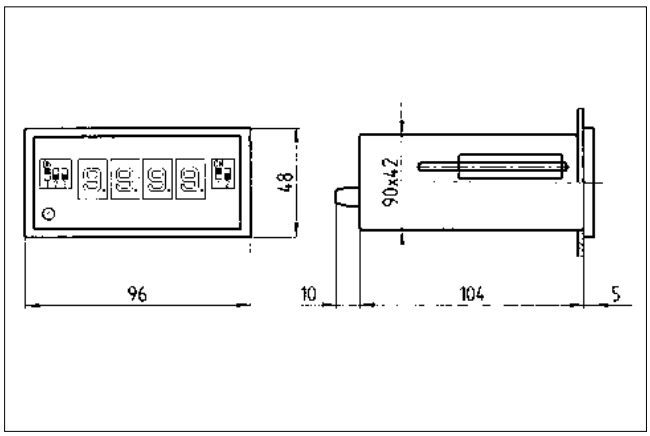


Size	Hand wheel with rev. direction indicator	Hand wheel with position indicator	d H_9	d_1	d_2	l	l_1	l_2	l_3	w
02/03	HD 8	HA 8	08	20	52	43	15	10	–	070
04/05 06/07	HD 10	HA 10	10	30	85	55	23	14	–	105
18/08	HD 15	HA 15	15	25	85	55	23	15	80	160

Analog display type DQW 96 RS



Digital display type ELTA 2000 A



Dimensions in [mm]

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