

Input units

	Orientation
7/2	Overview
	General technical data
7/4	Permissible radial forces and torques
7/6	Maximum motor weight
	Input unit K2
7/7	Selection and ordering data
	Input unit K4
7/9	Selection and ordering data
	Input unit KQ / KQS
7/11	Selection and ordering data
	Input unit A und P
7/13	Selection and ordering data
	Special versions
7/15	Input units with backstop K2X, AX, PX
7/16	Slip clutch
7/16	Speed monitoring
	Dimensions
7/17	Dimension drawing overview
7/18	Dimension drawings

Geared motors

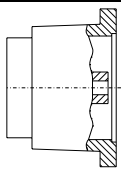
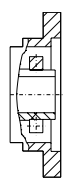
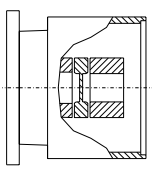
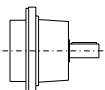
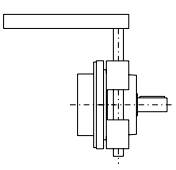
Input units

Orientation

Overview

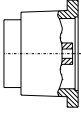
For most applications, it is best to mount the motor so that it is integrated on the gear unit. This provides an optimum solution in terms of a short overall length and the least weight.

On request, the gear units can also be fitted with an input unit for mounting standard motors.

Input unit	Description	Flexible coupling	Backlash-free flexible coupling	Clamping hub	Backstop	Slip clutch	Speed encoder	Protective belt cover, optional
 K2	Coupling lantern with flexible coupling for connecting IEC motors	✓			✓	✓	✓	
 K4	Short coupling lantern with clamp connection for connecting IEC motors			✓				
 KQ KQS	Lantern for servomotor with backlash-free flexible coupling for connecting servomotors		✓	✓				
 A	Input unit with free output shaft				✓			
 P	Input unit with free output shaft and motor bracket				✓			✓

Overview (continued)

Input unit K2 (coupling lantern)



This input unit for motors in IEC sizes is suitable for general applications with all load types. The input unit contains a torsionally flexible cam coupling which can compensate for axial movement.

Input unit K2 is also available in an ATEX version.

Please refer to the Operating Instructions for information on mounting.

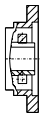
For additional options, see "Special versions".

Order codes:

Input unit K2 **A03**

Flexible coupling **A16**

Input unit K4 (short lantern)



This input unit is designed for mounting situations that call for an extremely short overall length. The input units are suitable for connecting IEC standard motors within the context of general applications.

The connection between the shafts is rigid and there is no axial compensation. Therefore, we recommend using motors with a fixed bearing on the drive side for optimum service life. It is preferable to use K2 input units in situations involving a high mass inertia and a high number of starting operations in particular. With a class III load classification, you should use input unit K2 or contact us for more information.

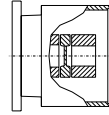
Input unit K4 is also available in an ATEX version.

Please refer to the Operating Instructions for information on mounting.

Order code:

Input unit K4 **A04**

Input unit KQ/KQS (servo motor lantern)



This input unit enables servo motors with a square mounting flange to be mounted on the gear unit. This provides the geared motor with a solid and attractive design. The input unit features a backlash-free, torsionally flexible cam coupling which compensates for axial movement.

Input unit KQ is designed for motor shafts with parallel key.

Input unit KQS is designed for motor shafts without parallel key.

Order codes:

Input unit KQ **A07**

Input unit KQS **A08**

Motor size	Order code
71.2	N61
80.3	N62
90.4	N63
112.3	N62
132.3	N62

Input unit A with free input shaft

Input unit A has a free solid input shaft and is designed for general solutions where the motor is mounted separately from the gear unit. It is also suitable for solutions that call for manual operation of the input shaft.

Order code:

Input unit A **A00**

Input unit P with free input shaft and motor bracket

Input unit P has a free solid input shaft as well as a motor bracket. A foot-mounted standard motor can be piggy-backed onto the unit and connected to the gear unit input shaft by means of a V belt. A protective belt cover (PS version) is available on request.

Pulley and belt are not included in the scope of delivery.

Order codes:

Input unit P **A09**

Input unit PS **A10**

Geared motors

Input units

General technical data

Permissible radial forces and torques

Permissible torques for input units K, A and P

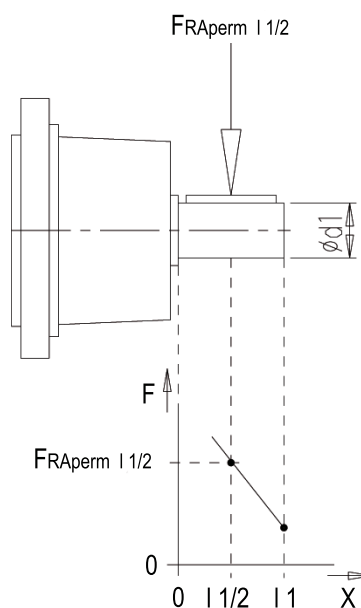
Size	Permissible input torque T_1 ¹⁾ Nm
71	3
80	5
90	10
100	20
112	26
132	61
160	98
180	198
200	198
225	291
250	356
280	580
315	1290

¹⁾ 2.5x the value is permissible for a brief period (e.g. motor starting torque)

Permissible radial force for input units A and P

Size	d1 mm	l1 mm	Permissible radial force $F_{RAperm} \text{ l1/2}$ at $0.5 \times l1$ N
71	16	40	240
80	19	40	240
90	24	50	620
100	28	60	840
112	28	60	1000
132	38	80	1700
160	42	110	1800
180	55	110	3000
200	55	110	3000
225	60	140	3450
250	65	140	3900
280	70	140	5150
315	–	–	–

* based on 1450 rpm with input units A, P



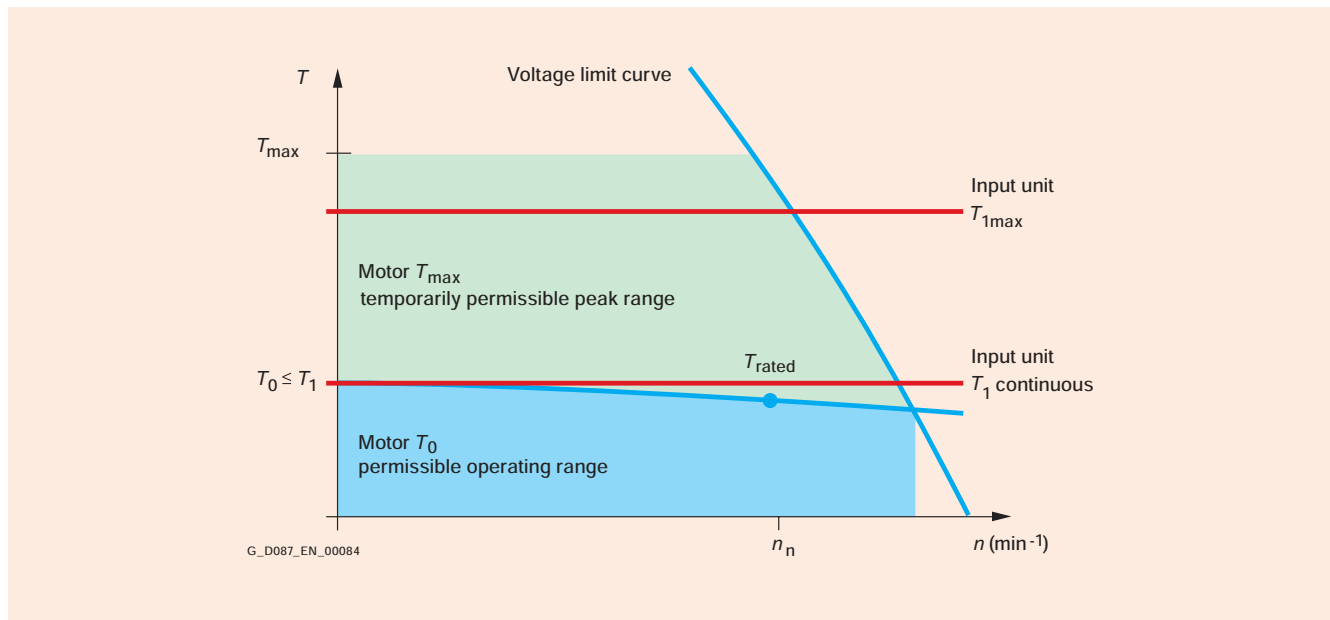
Permissible radial forces and torques (continued)

Permissible torque with input unit KQ (S)

Input unit KQ/KQS	Transmitted torques		Max. speed n_{1max} RPM
	T_1 Nm	T_{1max} Nm	
71.2	3.0	7.5	3600
80.3	5.0	12.5	3600
90.4	10.0	25.0	3600
112.3	26.0	65.0	3600
132.3	61.0	152.5	3600

T_1 = max. torque transmitted with continuous duty

T_{1max} = max. permissible peak torque



Speed-torque characteristic for servo motors and with S1 duty

Explanation of servo motor characteristic values

Abbreviation	Name	Explanation
T_0	Permanent static torque	Permanent torque acting on motor shaft at speed $n = 0$
T_{rated}	Rated torque	Permanent torque at rated speed
T_{max}	Maximum torque	Maximum transient torque
n_{rated}	Rated speed	Motor speed specified by manufacturer

Geared motors

Input units

General technical data

Maximum motor weight

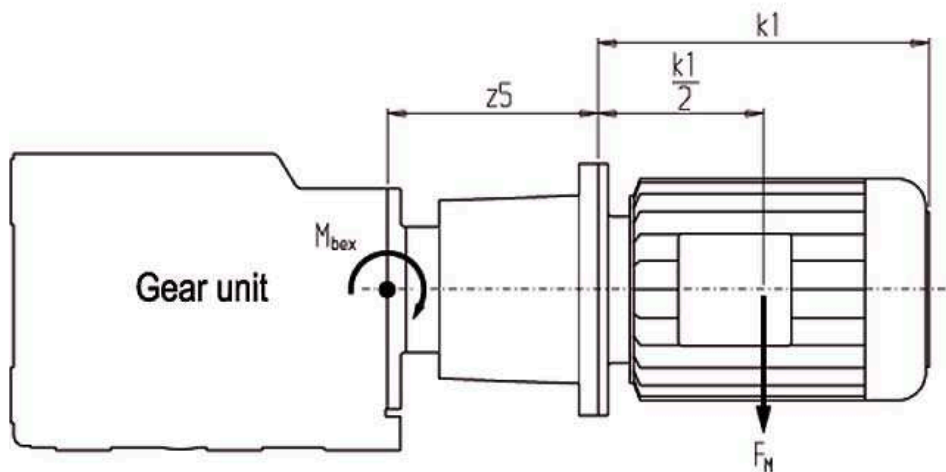
Geared motors with an input unit should be designed to be as short as possible.

The prevailing bending moment can be calculated on the basis of the formulae below. If the permissible bending moment is exceeded, it means that a shorter design is required or that the motor requires additional support.

This particularly applies in the case of the following drive scenarios:

- Any geared motors that are not listed in this catalog
- Any motors that are mounted on the gear unit using a K2, K4 or KQ/KQS input unit
- Any gear units, particularly compound gear units with input units that are exposed to high levels of impact and vibration.

However, if a connection to the input unit is necessary, the motor must be supported independently of the gear unit. Within this context, it is important to ensure that no additional forces are induced in the gear unit as a result of this support. In the case of extremely long designs, you will need to contact us.



IEC size	71	80	90	100	112	132	160	180	200	225	250	280	315
Permiss. bending moment M_{bperm}	159	159	159	159	441	765	2289	6105	6105	6010	5894	18000	22000
Nm													

$z5$ = for dimensions, see Chapter 7 "Input units" [m]

$k1$ = motor length [m]

m_{mot} = motor weight force [N]

M_{bex} = prevailing bending moment

The prevailing bending moment M_{bex} is calculated as follows:

$$M_{bex} = m_{mot} \cdot \{z5 + (k1/2)\}$$

In the case of applications that involve powerful impacts or vibrations M_{bex} must be multiplied by 2.

The following condition applies here in respect of M_{bex} :

$$M_{bex} < M_{bperm}$$

Selection and ordering data

Gear units with K2 input units can be supplied as solo gear units or with an IEC standard motor. For possible gear unit ratios, see "Gear unit ratios and maximum torques" in the gear unit sections.

Order code:

Input unit K2 **A03**

When selecting a solo gear unit configuration, remember to insert an **A** in the **10th position** of the order number, and a **0** in the **11th to 13th positions**.

Size Gear unit	Order number Gear unit	IEC size, input unit														
		63	71	80	90	100	112	132	160	180	200	225	250	280	315	
		Order number 9th position														
		B	C	D	E	F	G	H	J	K	L	M	N	P	Q	
Single-stage helical gear units E																
E38	2KJ1001-■■■■■-■■■■■			✓	✓	✓										
E48	2KJ1002-■■■■■-■■■■■			✓	✓	✓	✓	✓								
E68	2KJ1003-■■■■■-■■■■■			✓	✓	✓	✓	✓								
E88	2KJ1004-■■■■■-■■■■■			✓	✓	✓	✓	✓	✓							
E108	2KJ1005-■■■■■-■■■■■				✓	✓	✓	✓	✓	✓	✓					
E128	2KJ1006-■■■■■-■■■■■					✓	✓	✓	✓	✓	✓	✓				
E148	2KJ1007-■■■■■-■■■■■							✓	✓	✓	✓	✓	✓	1)		
Two-stage helical gear unit Z																
Z38	2KJ1102-■■■■■-■■■■■			✓	✓	✓										
Z48	2KJ1103-■■■■■-■■■■■			✓	✓	✓	✓	✓								
Z68	2KJ1104-■■■■■-■■■■■			✓	✓	✓	✓	✓								
Z88	2KJ1105-■■■■■-■■■■■			✓	✓	✓	✓	✓	✓							
Z108	2KJ1106-■■■■■-■■■■■				✓	✓	✓	✓	✓	✓	✓					
Z128	2KJ1107-■■■■■-■■■■■					✓	✓	✓	✓	✓	✓	✓				
Z148	2KJ1108-■■■■■-■■■■■							✓	✓	✓	✓	✓	✓			
Z168	2KJ1110-■■■■■-■■■■■							✓	✓	✓	✓	✓	✓	1)		
Z188	2KJ1111-■■■■■-■■■■■								✓	✓	✓	✓	✓	1)	✓	
Three-stage helical gear units D																
D38	2KJ1202-■■■■■-■■■■■			✓	✓											
D48	2KJ1203-■■■■■-■■■■■			✓	✓	✓										
D68	2KJ1204-■■■■■-■■■■■			✓	✓	✓										
D88	2KJ1205-■■■■■-■■■■■			✓	✓	✓	✓	✓								
D108	2KJ1206-■■■■■-■■■■■			✓	✓	✓	✓	✓	✓							
D128	2KJ1207-■■■■■-■■■■■				✓	✓	✓	✓	✓	✓	✓					
D148	2KJ1208-■■■■■-■■■■■					✓	✓	✓	✓	✓	✓	✓				
D168	2KJ1210-■■■■■-■■■■■							✓	✓	✓	✓	✓				
D188	2KJ1211-■■■■■-■■■■■								✓	✓	✓	✓	✓			

1) Available at end of 2008

Geared motors

Input units

Input unit K2

Selection and ordering data (continued)

Size	Order number	IEC size, input unit													
		63	71	80	90	100	112	132	160	180	200	225	250	280	315
Gear unit	Gear unit	Order number													
		9th position													
		B	C	D	E	F	G	H	J	K	L	M	N	P	Q
Two-stage parallel-shaft gear units FZ															
FZ38B	2KJ1301-■■■■■-■■■■■			✓	✓	✓									
FZ48B	2KJ1302-■■■■■-■■■■■			✓	✓	✓									
FZ68B	2KJ1303-■■■■■-■■■■■			✓	✓	✓	✓	✓							
FZ88B	2KJ1304-■■■■■-■■■■■			✓	✓	✓	✓	✓							
FZ108B	2KJ1305-■■■■■-■■■■■			✓	✓	✓	✓	✓	✓						
FZ128B	2KJ1306-■■■■■-■■■■■				✓	✓	✓	✓	✓	✓	✓				
FZ148B	2KJ1307-■■■■■-■■■■■					✓	✓	✓	✓	✓	✓	✓			
FZ168B	2KJ1308-■■■■■-■■■■■							✓	✓	✓	✓	✓	✓		
FZ188B	2KJ1310-■■■■■-■■■■■							✓	✓	✓	✓	✓	✓	1)	✓
Three-stage parallel-shaft gear units FD															
FD38B	2KJ1401-■■■■■-■■■■■			✓	✓	✓									
FD48B	2KJ1402-■■■■■-■■■■■			✓	✓	✓									
FD68B	2KJ1403-■■■■■-■■■■■			✓	✓	✓	✓	✓							
FD88B	2KJ1404-■■■■■-■■■■■			✓	✓	✓	✓	✓							
FD108B	2KJ1405-■■■■■-■■■■■			✓	✓	✓	✓	✓	✓						
FD128B	2KJ1406-■■■■■-■■■■■				✓	✓	✓	✓	✓	✓	✓				
FD148B	2KJ1407-■■■■■-■■■■■					✓	✓	✓	✓	✓	✓	✓			
FD168B	2KJ1408-■■■■■-■■■■■							✓	✓	✓	✓	✓	✓		
FD188B	2KJ1410-■■■■■-■■■■■							✓	✓	✓	✓	✓	✓		
Bevel helical gear units B															
B38	2KJ1501-■■■■■-■■■■■			✓	✓	✓									
Bevel helical gear units K															
K38	2KJ1502-■■■■■-■■■■■			✓	✓	✓									
K48	2KJ1503-■■■■■-■■■■■			✓	✓	✓									
K68	2KJ1504-■■■■■-■■■■■			✓	✓	✓	✓	✓							
K88	2KJ1505-■■■■■-■■■■■			✓	✓	✓	✓	✓							
K108	2KJ1506-■■■■■-■■■■■			✓	✓	✓	✓	✓	✓						
K128	2KJ1507-■■■■■-■■■■■				✓	✓	✓	✓	✓	✓	✓				
K148	2KJ1508-■■■■■-■■■■■					✓	✓	✓	✓	✓	✓	✓			
K168	2KJ1510-■■■■■-■■■■■							✓	✓	✓	✓	✓	✓		
K188	2KJ1511-■■■■■-■■■■■							✓	✓	✓	✓	✓	✓	1)	✓
Helical worm gear units C															
C38	2KJ1601-■■■■■-■■■■■			✓	✓	✓									
C48	2KJ1602-■■■■■-■■■■■			✓	✓	✓									
C68	2KJ1603-■■■■■-■■■■■			✓	✓	✓	✓	✓							
C88	2KJ1604-■■■■■-■■■■■			✓	✓	✓	✓	✓							

1) Available at end of 2008

Selection and ordering data

Gear units with K4 input units can be supplied as solo gear units or with an IEC standard motor. For possible gear unit ratios, see "Gear unit ratios and maximum torques" in the gear unit sections.

Order code:

Input unit K4 **A04**

When selecting a solo gear unit configuration, remember to insert an **A** in the **10th position** of the order number, and a **0** in the **11th to 13th positions**.

Size Gear unit	Order number Gear unit	IEC size, input unit														
		63	71	80	90	100	112	132	160	180	200	225	250	280	315	
		Order number 9th position														
		B	C	D	E	F	G	H	J	K	L	M	N	P	Q	
Single-stage helical gear units E																
E38	2KJ1001-■■■■■-■■■■■	✓	✓	✓	✓	✓										
E48	2KJ1002-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓	✓								
E68	2KJ1003-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓	✓	✓							
E88	2KJ1004-■■■■■-■■■■■			✓	✓	✓	✓	✓	✓	✓						
E108	2KJ1005-■■■■■-■■■■■				✓	✓	✓	✓	✓	✓	✓	✓				
E128	2KJ1006-■■■■■-■■■■■					✓	✓	✓	✓	✓	✓	✓	✓			
E148	2KJ1007-■■■■■-■■■■■							✓	✓	✓	✓	✓	✓	✓		
Two-stage helical gear unit Z																
Z38	2KJ1102-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓									
Z48	2KJ1103-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓	✓								
Z68	2KJ1104-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓	✓	✓							
Z88	2KJ1105-■■■■■-■■■■■			✓	✓	✓	✓	✓	✓	✓						
Z108	2KJ1106-■■■■■-■■■■■				✓	✓	✓	✓	✓	✓	✓	✓				
Z128	2KJ1107-■■■■■-■■■■■					✓	✓	✓	✓	✓	✓	✓	✓			
Z148	2KJ1108-■■■■■-■■■■■							✓	✓	✓	✓	✓	✓	✓		
Z168	2KJ1110-■■■■■-■■■■■							✓	✓	✓	✓	✓	✓	✓		
Z188	2KJ1111-■■■■■-■■■■■								✓	✓	✓	✓	✓	✓		
Three-stage helical gear units D																
D38	2KJ1202-■■■■■-■■■■■	✓	✓	✓	✓											
D48	2KJ1203-■■■■■-■■■■■	✓	✓	✓	✓	✓										
D68	2KJ1204-■■■■■-■■■■■	✓	✓	✓	✓	✓										
D88	2KJ1205-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓	✓								
D108	2KJ1206-■■■■■-■■■■■			✓	✓	✓	✓	✓	✓							
D128	2KJ1207-■■■■■-■■■■■				✓	✓	✓	✓	✓	✓	✓					
D148	2KJ1208-■■■■■-■■■■■					✓	✓	✓	✓	✓	✓	✓				
D168	2KJ1210-■■■■■-■■■■■							✓	✓	✓	✓	✓				
D188	2KJ1211-■■■■■-■■■■■							✓	✓	✓	✓	✓	✓	✓		

Geared motors

Input units

Input unit K4

Selection and ordering data (continued)

Size	Order number	IEC size, input unit													
		63	71	80	90	100	112	132	160	180	200	225	250	280	315
Gear unit	Gear unit	Order number													
		9th position													
		B	C	D	E	F	G	H	J	K	L	M	N	P	Q
Two-stage parallel-shaft gear units FZ															
FZ38B	2KJ1301-■■■■■-■■■■■	✓	✓	✓	✓	✓									
FZ48B	2KJ1302-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓								
FZ68B	2KJ1303-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓	✓							
FZ88B	2KJ1304-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓	✓	✓						
FZ108B	2KJ1305-■■■■■-■■■■■			✓	✓	✓	✓	✓	✓	✓					
FZ128B	2KJ1306-■■■■■-■■■■■				✓	✓	✓	✓	✓	✓	✓	✓			
FZ148B	2KJ1307-■■■■■-■■■■■					✓	✓	✓	✓	✓	✓	✓	✓		
FZ168B	2KJ1308-■■■■■-■■■■■							✓	✓	✓	✓	✓	✓	✓	
FZ188B	2KJ1310-■■■■■-■■■■■								✓	✓	✓	✓	✓	✓	✓
Three-stage parallel-shaft gear units FD															
FD38B	2KJ1401-■■■■■-■■■■■	✓	✓	✓	✓	✓									
FD48B	2KJ1402-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓								
FD68B	2KJ1403-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓	✓							
FD88B	2KJ1404-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓	✓	✓						
FD108B	2KJ1405-■■■■■-■■■■■			✓	✓	✓	✓	✓	✓	✓					
FD128B	2KJ1406-■■■■■-■■■■■				✓	✓	✓	✓	✓	✓	✓	✓			
FD148B	2KJ1407-■■■■■-■■■■■					✓	✓	✓	✓	✓	✓	✓	✓		
FD168B	2KJ1408-■■■■■-■■■■■							✓	✓	✓	✓	✓	✓	✓	
FD188B	2KJ1410-■■■■■-■■■■■								✓	✓	✓	✓	✓	✓	✓
Bevel helical gear units B															
B38	2KJ1501-■■■■■-■■■■■	✓	✓	✓	✓	✓									
Bevel helical gear units K															
K38	2KJ1502-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓								
K48	2KJ1503-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓								
K68	2KJ1504-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓	✓							
K88	2KJ1505-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓	✓	✓						
K108	2KJ1506-■■■■■-■■■■■			✓	✓	✓	✓	✓	✓	✓					
K128	2KJ1507-■■■■■-■■■■■				✓	✓	✓	✓	✓	✓	✓	✓			
K148	2KJ1508-■■■■■-■■■■■					✓	✓	✓	✓	✓	✓	✓	✓		
K168	2KJ1510-■■■■■-■■■■■							✓	✓	✓	✓	✓	✓	✓	
K188	2KJ1511-■■■■■-■■■■■								✓	✓	✓	✓	✓	✓	✓
Helical worm gear units C															
C38	2KJ1601-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓								
C48	2KJ1602-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓								
C68	2KJ1603-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓	✓							
C88	2KJ1604-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓	✓	✓						

Selection and ordering data

For possible gear unit ratios, see "Gear unit ratios and maximum torques" in the gear unit sections.

Order code:

Input unit KQ **A07**

Input unit KQS **A08**

Size Gear unit	Order number Gear unit	Size, input unit				
		71.2	80.3	90.4	112.3	132.3
		Order code for size index				
		N61	N62	N63	N62	N62
		Order number 9th position				
		C	D	E	G	H
Single-stage helical gear units E						
E38	2KJ1001-■■■■■-■■■■■	✓	✓	✓		
E48	2KJ1002-■■■■■-■■■■■	✓	✓	✓	✓	
E68	2KJ1003-■■■■■-■■■■■	✓	✓	✓	✓	✓
E88	2KJ1004-■■■■■-■■■■■		✓	✓	✓	✓
E108	2KJ1005-■■■■■-■■■■■			✓	✓	✓
E128	2KJ1006-■■■■■-■■■■■				✓	✓
E148	2KJ1007-■■■■■-■■■■■					✓
Two-stage helical gear unit Z						
Z28	2KJ1101-■■■■■-■■■■■	✓	✓	✓		
Z38	2KJ1102-■■■■■-■■■■■	✓	✓	✓		
Z48	2KJ1103-■■■■■-■■■■■	✓	✓	✓	✓	
Z68	2KJ1104-■■■■■-■■■■■	✓	✓	✓	✓	✓
Z88	2KJ1105-■■■■■-■■■■■		✓	✓	✓	✓
Z108	2KJ1106-■■■■■-■■■■■			✓	✓	✓
Z128	2KJ1107-■■■■■-■■■■■				✓	✓
Z148	2KJ1108-■■■■■-■■■■■					✓
Z168	2KJ1110-■■■■■-■■■■■					✓
Z188	2KJ1111-■■■■■-■■■■■					✓
Three-stage helical gear units D						
D28	2KJ1202-■■■■■-■■■■■	✓	✓	✓		
D38	2KJ1202-■■■■■-■■■■■	✓	✓	✓		
D48	2KJ1203-■■■■■-■■■■■	✓	✓	✓		
D68	2KJ1204-■■■■■-■■■■■	✓	✓	✓		
D88	2KJ1205-■■■■■-■■■■■	✓	✓	✓	✓	✓
D108	2KJ1206-■■■■■-■■■■■		✓	✓	✓	✓
D128	2KJ1207-■■■■■-■■■■■			✓	✓	✓
D148	2KJ1208-■■■■■-■■■■■				✓	✓
D168	2KJ1210-■■■■■-■■■■■					✓
D188	2KJ1211-■■■■■-■■■■■					✓

Geared motors

Input units

Input unit KQ/KQS

Selection and ordering data (continued)

Size Gear unit	Order number Gear unit	Size, input unit				
		71.2	80.3	90.4	112.3	132.3
		Order code for size index				
		N61	N62	N63	N62	N62
		Order number 9th position				
		C	D	E	G	H
Two-stage parallel-shaft gear units FZ						
FZ28	2KJ1300-■■■■■-■■■■■	✓	✓	✓		
FZ38B	2KJ1301-■■■■■-■■■■■	✓	✓	✓		
FZ48B	2KJ1302-■■■■■-■■■■■	✓	✓	✓		
FZ68B	2KJ1303-■■■■■-■■■■■	✓	✓	✓	✓	
FZ88B	2KJ1304-■■■■■-■■■■■	✓	✓	✓	✓	✓
FZ108B	2KJ1305-■■■■■-■■■■■		✓	✓	✓	✓
FZ128B	2KJ1306-■■■■■-■■■■■			✓	✓	✓
FZ148B	2KJ1307-■■■■■-■■■■■				✓	✓
FZ168B	2KJ1308-■■■■■-■■■■■					✓
FZ188B	2KJ1310-■■■■■-■■■■■					✓
Three-stage parallel-shaft gear units FD						
FD28	2KJ1400-■■■■■-■■■■■	✓	✓	✓		
FD38B	2KJ1401-■■■■■-■■■■■	✓	✓	✓		
FD48B	2KJ1402-■■■■■-■■■■■	✓	✓	✓		
FD68B	2KJ1403-■■■■■-■■■■■	✓	✓	✓	✓	
FD88B	2KJ1404-■■■■■-■■■■■	✓	✓	✓	✓	✓
FD108B	2KJ1405-■■■■■-■■■■■		✓	✓	✓	✓
FD128B	2KJ1406-■■■■■-■■■■■			✓	✓	✓
FD148B	2KJ1407-■■■■■-■■■■■				✓	✓
FD168B	2KJ1408-■■■■■-■■■■■					✓
FD188B	2KJ1410-■■■■■-■■■■■					✓
Bevel helical gear units B						
B28	2KJ1500-■■■■■-■■■■■	✓	✓	✓		
B38	2KJ1501-■■■■■-■■■■■	✓	✓	✓		
Bevel helical gear units K						
K38	2KJ1502-■■■■■-■■■■■	✓	✓	✓		
K48	2KJ1503-■■■■■-■■■■■	✓	✓	✓		
K68	2KJ1504-■■■■■-■■■■■	✓	✓	✓	✓	
K88	2KJ1505-■■■■■-■■■■■	✓	✓	✓	✓	✓
K108	2KJ1506-■■■■■-■■■■■		✓	✓	✓	✓
K128	2KJ1507-■■■■■-■■■■■			✓	✓	✓
K148	2KJ1508-■■■■■-■■■■■				✓	✓
K168	2KJ1510-■■■■■-■■■■■					✓
K188	2KJ1511-■■■■■-■■■■■					✓
Helical worm gear units C						
C38	2KJ1601-■■■■■-■■■■■	✓	✓	✓		
C48	2KJ1602-■■■■■-■■■■■	✓	✓	✓		
C68	2KJ1603-■■■■■-■■■■■	✓	✓	✓	✓	
C88	2KJ1604-■■■■■-■■■■■	✓	✓	✓	✓	✓

Selection and ordering data

For possible gear unit ratios, see "Gear unit ratios and maximum torques" in the gear unit sections.

Order code:

Input unit A

A00

Input unit P

A09

Size Gear unit	Order number Gear unit	Size, input unit													
		63	71	80	90	100	112	132	160	180	200	225	250	280	315
		Order number 9th position													
		B	C	D	E	F	G	H	J	K	L	M	N	P	Q
Single-stage helical gear units E															
E38	2KJ1001-■■■■■-■■■■■	✓	✓	✓	✓	✓									
E48	2KJ1002-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓								
E68	2KJ1003-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓	✓							
E88	2KJ1004-■■■■■-■■■■■			✓	✓	✓	✓	✓	✓						
E108	2KJ1005-■■■■■-■■■■■				✓	✓	✓	✓	✓	✓	✓				
E128	2KJ1006-■■■■■-■■■■■					✓	✓	✓	✓	✓	✓	✓			
E148	2KJ1007-■■■■■-■■■■■							✓	✓	✓	✓	✓	✓	✓	
Two-stage helical gear unit Z															
Z38	2KJ1102-■■■■■-■■■■■	✓	✓	✓	✓	✓									
Z48	2KJ1103-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓								
Z68	2KJ1104-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓	✓							
Z88	2KJ1105-■■■■■-■■■■■			✓	✓	✓	✓	✓	✓						
Z108	2KJ1106-■■■■■-■■■■■				✓	✓	✓	✓	✓	✓	✓				
Z128	2KJ1107-■■■■■-■■■■■					✓	✓	✓	✓	✓	✓	✓			
Z148	2KJ1108-■■■■■-■■■■■							✓	✓	✓	✓	✓	✓	✓	
Z168	2KJ1110-■■■■■-■■■■■							✓	✓	✓	✓	✓	✓	✓	
Z188	2KJ1111-■■■■■-■■■■■								✓	✓	✓	✓	✓	✓	
Three-stage helical gear units D															
D38	2KJ1202-■■■■■-■■■■■	✓	✓	✓	✓										
D48	2KJ1203-■■■■■-■■■■■	✓	✓	✓	✓	✓									
D68	2KJ1204-■■■■■-■■■■■	✓	✓	✓	✓	✓									
D88	2KJ1205-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓	✓							
D108	2KJ1206-■■■■■-■■■■■			✓	✓	✓	✓	✓	✓						
D128	2KJ1207-■■■■■-■■■■■				✓	✓	✓	✓	✓	✓					
D148	2KJ1208-■■■■■-■■■■■					✓	✓	✓	✓	✓	✓	✓			
D168	2KJ1210-■■■■■-■■■■■							✓	✓	✓	✓	✓			
D188	2KJ1211-■■■■■-■■■■■							✓	✓	✓	✓	✓	✓	✓	

Geared motors

Input units

Input units A and P

Selection and ordering data (continued)

Size Gear unit	Order number Gear unit	Size, input unit														
		63	71	80	90	100	112	132	160	180	200	225	250	280	315	
		Order number 9th position														
		B	C	D	E	F	G	H	J	K	L	M	N	P	Q	
Two-stage parallel-shaft gear units FZ																
FZ38B	2KJ1301-■■■■■-■■■■■	✓	✓	✓	✓	✓										
FZ48B	2KJ1302-■■■■■-■■■■■	✓	✓	✓	✓	✓										
FZ68B	2KJ1303-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓									
FZ88B	2KJ1304-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓	✓								
FZ108B	2KJ1305-■■■■■-■■■■■			✓	✓	✓	✓	✓	✓							
FZ128B	2KJ1306-■■■■■-■■■■■				✓	✓	✓	✓	✓	✓	✓					
FZ148B	2KJ1307-■■■■■-■■■■■					✓	✓	✓	✓	✓	✓	✓				
FZ168B	2KJ1308-■■■■■-■■■■■							✓	✓	✓	✓	✓	✓	✓	✓	
FZ188B	2KJ1310-■■■■■-■■■■■								✓	✓	✓	✓	✓	✓	✓	
Three-stage parallel-shaft gear units FD																
FD38B	2KJ1401-■■■■■-■■■■■	✓	✓	✓	✓	✓										
FD48B	2KJ1402-■■■■■-■■■■■	✓	✓	✓	✓	✓										
FD68B	2KJ1403-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓									
FD88B	2KJ1404-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓	✓								
FD108B	2KJ1405-■■■■■-■■■■■			✓	✓	✓	✓	✓	✓							
FD128B	2KJ1406-■■■■■-■■■■■				✓	✓	✓	✓	✓	✓	✓					
FD148B	2KJ1407-■■■■■-■■■■■					✓	✓	✓	✓	✓	✓	✓				
FD168B	2KJ1408-■■■■■-■■■■■							✓	✓	✓	✓	✓	✓	✓	✓	
FD188B	2KJ1410-■■■■■-■■■■■								✓	✓	✓	✓	✓	✓	✓	
Bevel helical gear units B																
B38	2KJ1501-■■■■■-■■■■■	✓	✓	✓	✓	✓										
Bevel helical gear units K																
K38	2KJ1502-■■■■■-■■■■■	✓	✓	✓	✓	✓										
K48	2KJ1503-■■■■■-■■■■■	✓	✓	✓	✓	✓										
K68	2KJ1504-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓									
K88	2KJ1505-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓	✓								
K108	2KJ1506-■■■■■-■■■■■			✓	✓	✓	✓	✓	✓							
K128	2KJ1507-■■■■■-■■■■■				✓	✓	✓	✓	✓	✓	✓					
K148	2KJ1508-■■■■■-■■■■■					✓	✓	✓	✓	✓	✓	✓				
K168	2KJ1510-■■■■■-■■■■■							✓	✓	✓	✓	✓	✓	✓	✓	
K188	2KJ1511-■■■■■-■■■■■								✓	✓	✓	✓	✓	✓	✓	
Helical worm gear units C																
C38	2KJ1601-■■■■■-■■■■■	✓	✓	✓	✓	✓										
C48	2KJ1602-■■■■■-■■■■■	✓	✓	✓	✓	✓										
C68	2KJ1603-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓									
C88	2KJ1604-■■■■■-■■■■■	✓	✓	✓	✓	✓	✓	✓								

Input units with backstop K2X, AX, PX

For applications that only require one permissible direction of rotation, input units K2, A and P can be supplied with a backstop feature. In this case, an **X** needs to be added to the input unit code.

The backstops have centrifugal sprags and are suitable for use up to a maximum speed of 3600 rpm.

The backstops have been designed to offer a long service life, provided that they are used at a higher speed than the minimum specified in the table. Once this speed is reached and exceeded, the sprags lift off so that the backstop is not subject to wear and is maintenance-free.

All backstops are integrated into the input units and have no impact on the dimensions.

Note:

It is necessary to specify the desired direction of rotation of the output shaft when ordering a gear unit with backstop. The direction of rotation is determined by front view of the output shaft. See also "Direction of rotation of geared motors", Page 1/42.

With parallel shaft gear units, bevel helical gear units and helical worm gear units, it is again necessary to specify the side on which the output shaft is located, i.e. either "Output side A" or "Output side B". The output side is defined by specifying the mounting position. See also "Mounting types and mounting positions", Pages 4/90 and 5/49.

K2, A, P		71	80	90	100	112	132	160	180	200	225	250	280
IEC size													
Minimum speed	[rpm]	890.0	820.0	820	750	750	670	670	610	610	610	610	400
Max. backstop starting torque	[Nm]	12.3	12.3	25	49	66	151	247	305	494	741	906	1482

Gear unit	Size	Gear stages	View in relation to the output shaft	Output shaft direction of rotation	Input shaft direction of rotation
Z	38 - 188	2	Facing output shaft	Clockwise	Clockwise
Z	38 - 188	2	Facing output shaft	Counterclockwise	Counterclockwise
D	38 - 188	3	Facing output shaft	Clockwise	Counterclockwise
D	38 - 188	3	Facing output shaft	Counterclockwise	Clockwise
FZ	38 - 188B	2	Facing drive end of output shaft	Clockwise	Clockwise
FZ	38 - 188B	2	Facing drive end of output shaft	Counterclockwise	Counterclockwise
FD	38 - 188B	3	Facing drive end of output shaft	Clockwise	Counterclockwise
FD	38 - 188B	3	Facing drive end of output shaft	Counterclockwise	Clockwise
C	38 - 88	2	Facing drive end of output shaft	Clockwise	Clockwise
C	38 - 88	2	Facing drive end of output shaft	Counterclockwise	Counterclockwise
B	28 - 38	2	Facing drive end of output shaft	Clockwise	Clockwise
B	28 - 38	2	Facing drive end of output shaft	Counterclockwise	Counterclockwise
K	38 - 88	3	Facing drive end of output shaft	Clockwise	Counterclockwise
K	38 - 88	3	Facing drive end of output shaft	Counterclockwise	Clockwise
K	108 - 188	3	Facing drive end of output shaft	Clockwise	Clockwise
K	108 - 188	3	Facing drive end of output shaft	Counterclockwise	Counterclockwise
K	38 - 188	3	Facing non-drive end of output shaft	Clockwise	Counterclockwise
K	38 - 188	3	Facing non-drive end of output shaft	Counterclockwise	Clockwise

Geared motors

Input units

Special versions

Example:

K 108 - 188

Facing drive end of output shaft

Output shaft direction of rotation = clockwise

Input shaft direction of rotation = clockwise

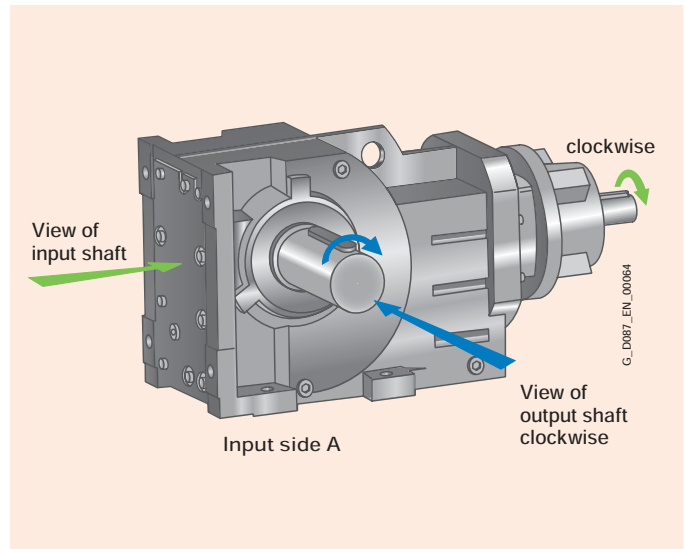
Additional order codes:

Backstop (X) **A15**

Output shaft direction of rotation:

Clockwise **K18**

Counterclockwise **K19**



Slip clutch

Gear units and geared motors with a K2 input unit can be fitted with a slip clutch as an option. The slip clutch creates a friction-locked connection between the motor output shaft and the gear unit input shaft until a set torque value is achieved. Once this torque is exceeded the clutch will slip.

Slip clutches are used when there is a risk of the geared motor sustaining damage as a result of stalling.

Order code **A17**

7

Speed monitoring

For monitoring speed deviations, a speed monitor can be used in coupling lantern K2 together with a slip clutch (order code **A17**).

The complete speed monitor system consists of proximity switch and speed monitor. The proximity switch operates contact-free according to the sampling method and emits one signal per coupling rotation which is evaluated by the speed monitor.

The signal sequence sent by the proximity switch is compared in the speed monitor with the set setpoint speed. If the speed is below or above the configured setpoint speed, a relay is actuated (depending on the function setting) via an output stage.

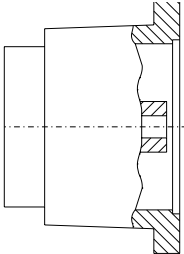
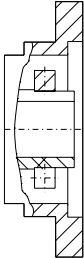
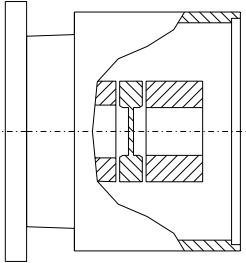
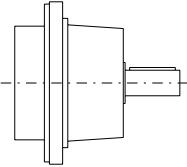
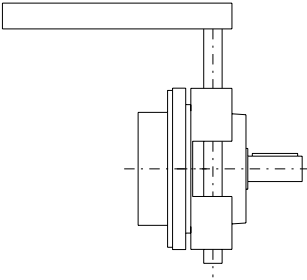
Both components can also be obtained separately.

Order code:

Proximity switch **A18**

Speed monitor **A19**

Dimension drawing overview

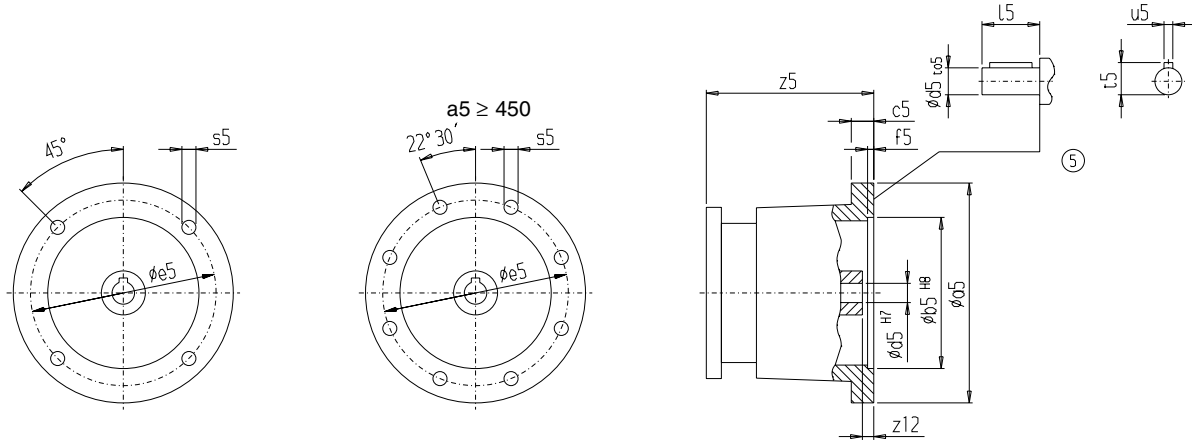
	Input unit	Dimension drawing on page
	K2	7/17
	K4	7/20
	KQ and KQS	7/25
	A	7/27
	P	7/30

Geared motors

Input units

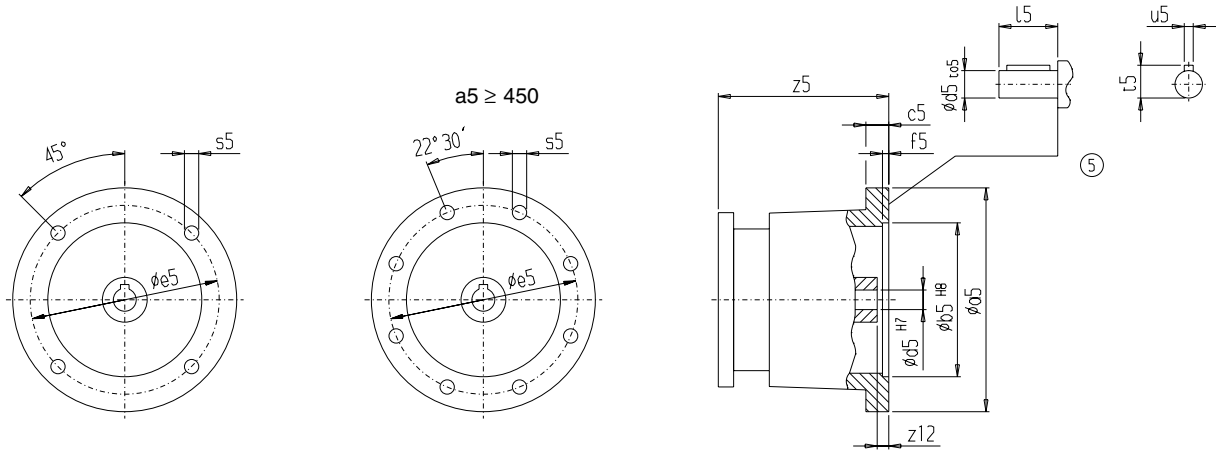
Dimensions

Input unit K2



Gear unit					a5	b5	c5	f5	e5	s5	z12	d5	to5	l5	t5	u5	z5	
E.Z.	D.	K./C.	FZ./FD.															
-	-	B38	38B	-K2	(80)	200	130	17	4.5	165	M10	15	19	k6	40	21.5	6	176.0
					(90)	200	130	17	4.5	165	M10	26	24	k6	50	27.0	8	176.0
					(100)	250	180	19	5.0	215	M12	30	28	k6	60	31.0	8	198.5
38	-	38 48	48B	-K2	(80)	200	130	17	4.5	165	M10	15	19	k6	40	21.5	6	201.0
					(90)	200	130	17	4.5	165	M10	26	24	k6	50	27.0	8	201.0
					(100)	250	180	19	5.0	215	M12	30	28	k6	60	31.0	8	223.5
-	38	-	-	-K2	(80)	200	130	17	4.5	165	M10	15	19	k6	40	21.5	6	216.0
					(90)	200	130	17	4.5	165	M10	26	24	k6	50	27.0	8	216.0
48	-	68	68B	-K2	(80)	200	130	17	4.5	165	M10	15	19	k6	40	21.5	6	195.5
					(90)	200	130	17	4.5	165	M10	26	24	k6	50	27.0	8	195.5
					(100)	250	180	19	5.0	215	M12	30	28	k6	60	31.0	8	218.0
					(112)	250	180	19	5.0	215	M12	30	28	k6	60	31.0	8	217.0
-	48	-	-	-K2	(80)	200	130	17	4.5	165	M10	15	19	k6	40	21.5	6	212.5
					(90)	200	130	17	4.5	165	M10	26	24	k6	50	27.0	8	212.5
					(100)	250	180	19	5.0	215	M12	30	28	k6	60	31.0	8	235.0
68	-	88	88B	-K2	(80)	200	130	17	4.5	165	M10	15	19	k6	40	21.5	6	189.5
					(90)	200	130	17	4.5	165	M10	26	24	k6	50	27.0	8	189.5
					(100)	250	180	19	5.0	215	M12	30	28	k6	60	31.0	8	212.0
					(112)	250	180	19	5.0	215	M12	30	28	k6	60	31.0	8	209.0
					(132)	300	230	19	5.0	265	M12	45	38	k6	80	41.0	10	270.5
-	68	-	-	-K2	(80)	200	130	17	4.5	165	M10	15	19	k6	40	21.5	6	208.0
					(90)	200	130	17	4.5	165	M10	26	24	k6	50	27.0	8	208.0
					(100)	250	180	19	5.0	215	M12	30	28	k6	60	31.0	8	230.5
88	-	108	108B	-K2	(90)	200	130	17	4.5	165	M10	26	24	k6	50	27.0	8	174.5
					(100)	250	180	19	5.0	215	M12	30	28	k6	60	31.0	8	194.5
					(112)	250	180	19	5.0	215	M12	30	28	k6	60	31.0	8	190.5
					(132)	300	230	19	5.0	265	M12	45	38	k6	80	41.0	10	252.0
					(160)	350	250	30	6.0	300	M16	66	42	k6	110	45.0	12	318.5
-	88	-	-	-K2	(80)	200	130	17	4.5	165	M10	15	19	k6	40	21.5	6	199.5
					(90)	200	130	17	4.5	165	M10	26	24	k6	50	27.0	8	199.5
					(100)	250	180	19	5.0	215	M12	30	28	k6	60	31.0	8	222.0
					(112)	250	180	19	5.0	215	M12	30	28	k6	60	31.0	8	219.5
					(132)	300	230	19	5.0	265	M12	45	38	k6	80	41.0	10	280.0

Input unit K2 (continued)



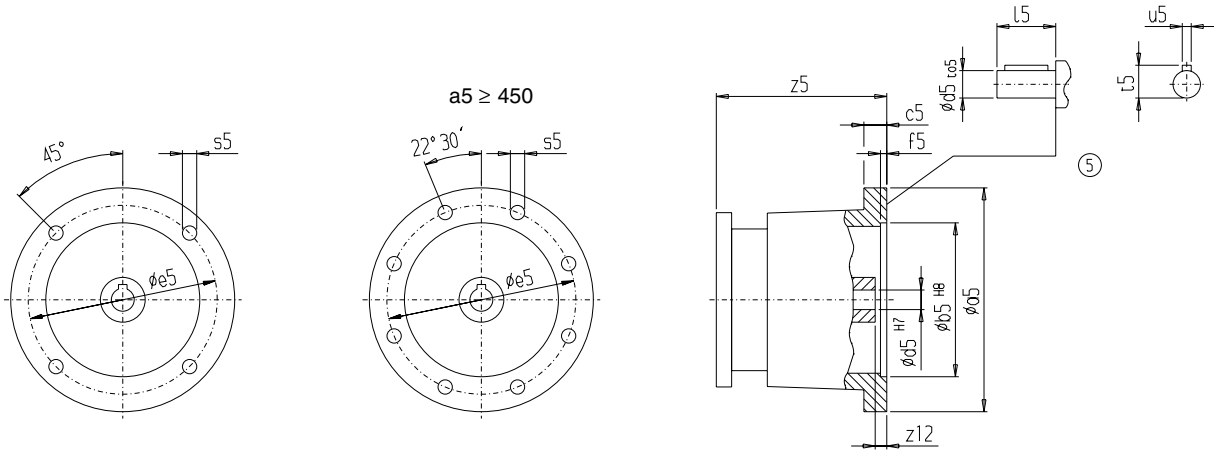
Gear unit					a5	b5	c5	f5	e5	s5	z12	d5	to5	l5	t5	u5	z5	
E.Z.	D.	K./C.	FZ./FD.															
108	-	128	128B	-K2	(90)	200	130	17	4.5	165	M10	26	24	k6	50	27.0	8	163.0
					(100)	250	180	19	5.0	215	M12	30	28	k6	60	31.0	8	182.5
					(112)	250	180	19	5.0	215	M12	30	28	k6	60	31.0	8	191.0
					(132)	300	230	19	5.0	265	M12	45	38	k6	80	41.0	10	239.5
					(160)	350	250	30	6.0	300	M16	66	42	k6	110	45.0	12	307.0
					(180)	350	250	25	6.0	300	M16	59	48	k6	110	51.5	14	357.5
					(200)	400	300	25	6.0	350	M16	60	55	m6	110	59.0	16	358.5
-	108	-	-	-K2	(80)	200	130	17	4.5	165	M10	15	19	k6	40	21.5	6	193.5
					(90)	200	130	17	4.5	165	M10	26	24	k6	50	27.0	8	193.5
					(100)	250	180	19	5.0	215	M12	30	28	k6	60	31.0	8	216.0
					(112)	250	180	19	5.0	215	M12	30	28	k6	60	31.0	8	210.5
					(132)	300	230	19	5.0	265	M12	45	38	k6	80	41.0	10	272.0
					(160)	350	250	30	6.0	300	M16	66	42	k6	110	45.0	12	336.5
128	-	148	148B	-K2	(100)	250	180	19	5.0	215	M12	30	28	k6	60	31.0	8	173.0
					(112)	250	180	19	5.0	215	M12	30	28	k6	60	31.0	8	168.5
					(132)	300	230	19	5.0	265	M12	45	38	k6	80	41.0	10	229.0
					(160)	350	250	30	6.0	300	M16	66	42	k6	110	45.0	12	290.5
					(180)	350	250	25	6.0	300	M16	59	48	k6	110	51.5	14	344.0
					(200)	400	300	25	6.0	350	M16	60	55	m6	110	59.0	16	345.0
					(225)	450	350	27	6.0	400	M16	90	60	m6	140	64.0	18	428.5
-	128	-	-	-K2	(90)	200	130	17	4.5	165	M10	26	24	k6	50	27.0	8	186.5
					(100)	250	180	19	5.0	215	M12	30	28	k6	60	31.0	8	209.0
					(112)	250	180	19	5.0	215	M12	30	28	k6	60	31.0	8	202.5
					(132)	300	230	19	5.0	265	M12	45	38	k6	80	41.0	10	263.0
					(160)	350	250	30	6.0	300	M16	66	42	k6	110	45.0	12	327.5
					(180)	350	250	25	6.0	300	M16	59	48	k6	110	51.5	14	381.0
					(200)	400	300	25	6.0	350	M16	60	55	m6	110	59.0	16	382.0
148	-	168	168B	-K2	(132)	300	230	19	5.0	265	M12	45	38	k6	80	41.0	10	221.0
					(160)	350	250	30	6.0	300	M16	66	42	k6	110	45.0	12	283.0
					(180)	350	250	25	6.0	300	M16	59	48	k6	110	51.5	14	336.5
					(200)	400	300	25	6.0	350	M16	60	55	m6	110	59.0	16	337.5
					(225)	450	350	27	6.0	400	M16	90	60	m6	140	64.0	18	421.0
(250)	550	450	27	6.0	500	M16	75	65	m6	140	69.0	18	425.5					

Geared motors

Input units

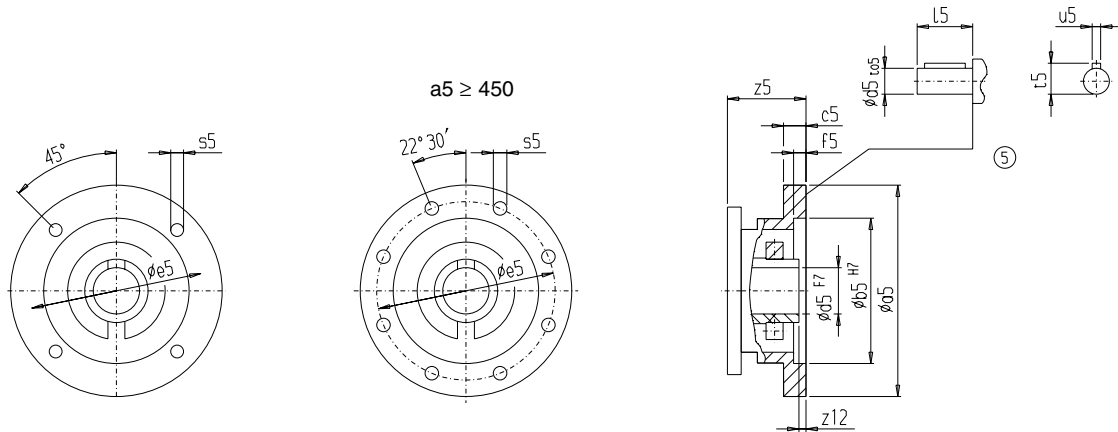
Dimensions

Input unit K2 (continued)



Gear unit					a5	b5	c5	f5	e5	s5	z12	d5	to5	l5	t5	u5	z5	
E.Z.	D.	K./C.	FZ./FD.															
-	148	-	-	-K2	(100)	250	180	19	5	215	M12	30	28	k6	60	31.0	8	204.0
					(112)	250	180	19	5	215	M12	30	28	k6	60	31.0	8	199.5
					(132)	300	230	19	5	265	M12	45	38	k6	80	41.0	10	259.0
					(160)	350	250	30	6	300	M16	66	42	k6	110	45.0	12	321.0
					(180)	350	250	25	6	300	M16	59	48	k6	110	51.5	14	374.5
					(200)	400	300	25	6	350	M16	60	55	m6	110	59.0	16	375.5
					(225)	450	350	27	6	400	M16	90	60	m6	140	64.0	18	459.0
					(250)	550	450	27	6	500	M16	75	65	m6	140	69.0	18	411.0
168	-	188	188B	-K2	(132)	300	230	19	5	265	M12	45	38	k6	80	41.0	10	206.5
					(160)	350	250	30	6	300	M16	66	42	k6	110	45.0	12	268.5
					(180)	350	250	25	6	300	M16	59	48	k6	110	51.5	14	322.0
					(200)	400	300	25	6	350	M16	60	55	m6	110	59.0	16	323.0
					(225)	450	350	27	6	400	M16	90	60	m6	140	64.0	18	406.5
					(250)	550	450	27	6	500	M16	75	65	m6	140	69.0	18	411.0
-	168	-	-	-K2	(132)	300	230	19	5	265	M12	45	38	k6	80	41.0	10	247.5
					(160)	350	250	30	6	300	M16	66	42	k6	110	45.0	12	309.5
					(180)	350	250	25	6	300	M16	59	48	k6	110	51.5	14	363.0
					(200)	400	300	25	6	350	M16	60	55	m6	110	59.0	16	364.0
					(225)	450	350	27	6	400	M16	90	60	m6	140	64.0	18	447.5
188	-	-	-	-K2	(160)	350	250	30	6	300	M16	66	42	k6	110	45.0	12	268.5
					(180)	350	250	25	6	300	M16	59	48	k6	110	51.5	14	322.0
					(200)	400	300	25	6	350	M16	60	55	m6	110	59.0	16	323.0
					(225)	450	350	27	6	400	M16	90	60	m6	140	64.0	18	406.5
					(250)	550	450	27	6	500	M16	75	65	m6	140	69.0	18	411.0
					(315)	660	550	32	8	600	M20	33	80	m6	170	85.0	22	299.0
-	188	-	-	-K2	(132)	300	230	19	5	265	M12	45	38	k6	80	41.0	10	206.5
					(160)	350	250	30	6	300	M16	66	42	k6	110	45.0	12	268.5
					(180)	350	250	25	6	300	M16	59	48	k6	110	51.5	14	322.0
					(200)	400	300	25	6	350	M16	60	55	m6	110	59.0	16	323.0
					(225)	450	350	27	6	400	M16	90	60	m6	140	64.0	18	406.5
					(250)	550	450	27	6	500	M16	75	65	m6	140	69.0	18	411.0

Input unit K4



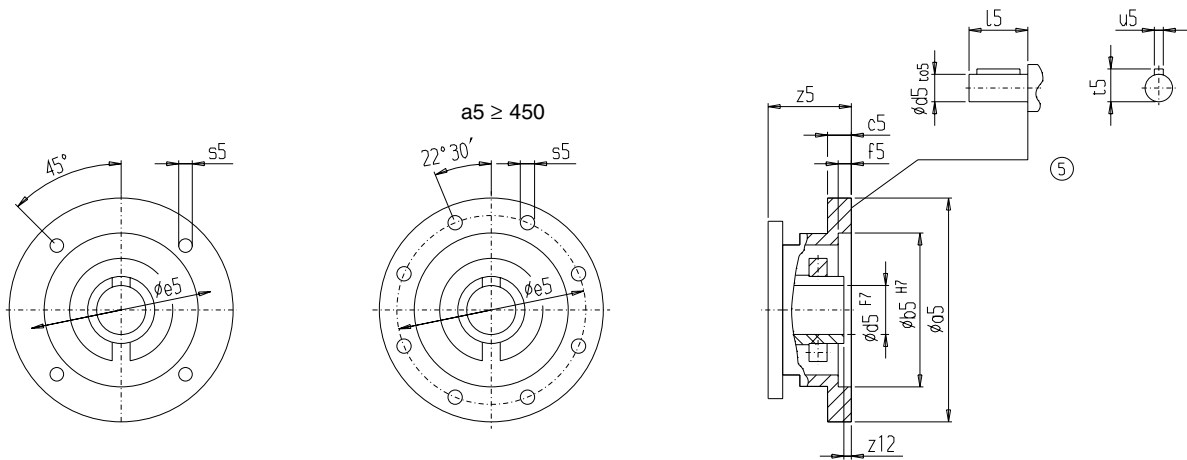
Gear unit					a5	b5	c5	f5	e5	s5	z12	d5	to5	l5	t5	u5	z5	
E.Z.	D.	K./C.	FZ./FD.															
-	-	B38	38B	-K4	(63)	140	95	10.0	4.5	115	M8x17	4.0	11	k6	23	12.5	4	48.5
					(71)	160	110	10.0	4.5	130	M8x17	4.0	14	k6	30	16.0	5	45.0
					(80)	200	130	15.5	4.5	165	M10	15.5	19	k6	40	21.5	6	69.0
					(90)	200	130	15.5	4.5	165	M10	15.5	24	k6	50	27.0	8	69.0
					(100)	250	180	20.5	5.0	215	M12	7.0	28	k6	60	31.0	8	76.5
38	-	38 48	48B	-K4	(63)	140	95	10.0	4.5	115	M8x17	4.0	11	k6	23	12.5	4	73.5
					(71)	160	110	10.0	4.5	130	M8x17	4.0	14	k6	30	16.0	5	70.0
					(80)	200	130	15.5	4.5	165	M10	15.5	19	k6	40	21.5	6	94.0
					(90)	200	130	15.5	4.5	165	M10	15.5	24	k6	50	27.0	8	94.0
					(100)	250	180	20.5	5.0	215	M12	7.0	28	k6	60	31.0	8	103.5
					(112)	250	180	20.0	5.0	215	M12	7.0	28	k6	60	31.0	8	110.5
-	38	-	-	-K4	(63)	140	95	10.0	4.5	115	M8x17	4.0	11	k6	23	12.5	4	88.5
					(71)	160	110	10.0	4.5	130	M8x17	4.0	14	k6	30	16.0	5	85.0
					(80)	200	130	15.5	4.5	165	M10	15.5	19	k6	40	21.5	6	109.0
					(90)	200	130	15.5	4.5	165	M10	15.5	24	k6	50	27.0	8	109.0
48	-	68	68B	-K4	(63)	140	95	10.0	4.5	115	M8x17	4.0	11	k6	23	12.5	4	68.0
					(71)	160	110	10.0	4.5	130	M8x17	4.0	14	k6	30	16.0	5	64.5
					(80)	200	130	15.5	4.5	165	M10	15.5	19	k6	40	21.5	6	88.5
					(90)	200	130	15.5	4.5	165	M10	15.5	24	k6	50	27.0	8	88.5
					(100)	250	180	20.5	5.0	215	M12	7.0	28	k6	60	31.0	8	96.0
					(112)	250	180	19.0	5.0	215	M12	7.0	28	k6	60	31.0	8	104.5
-	48	-	-	-K4	(132)	300	230	20.0	5.0	265	M12	22.0	38	k6	80	41.0	10	147.5
					(63)	140	95	10.0	4.5	115	M8x17	4.0	11	k6	23	12.5	4	85.0
					(71)	160	110	10.0	4.5	130	M8x17	4.0	14	k6	30	16.0	5	81.5
					(80)	200	130	15.5	4.5	165	M10	15.5	19	k6	40	21.5	6	105.5
-	48	-	-	-K4	(90)	200	130	15.5	4.5	165	M10	15.5	24	k6	50	27.0	8	105.5
					(100)	250	180	20.5	5.0	215	M12	7.0	28	k6	60	31.0	8	113.0

Geared motors

Input units

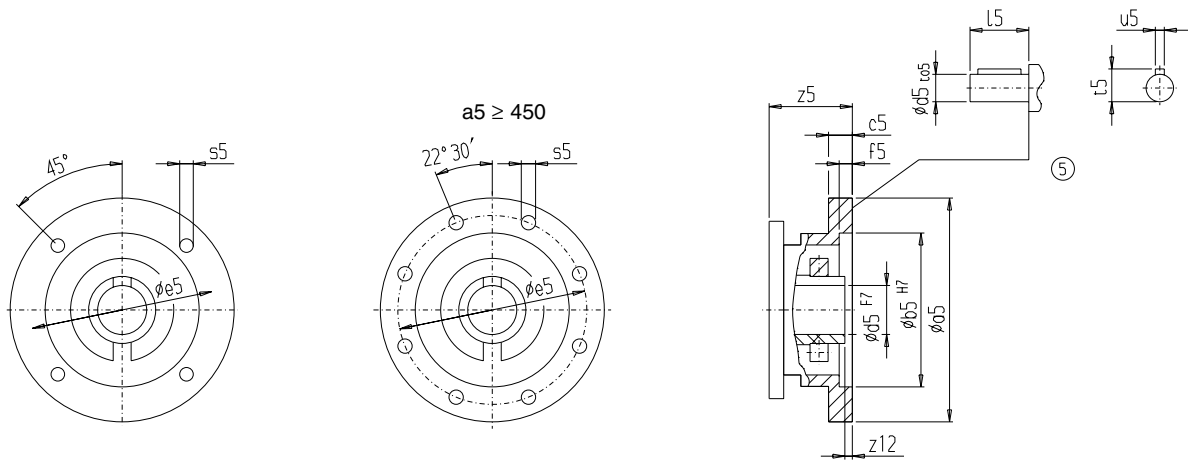
Dimensions

Input unit K4 (continued)



Gear unit					a5	b5	c5	f5	e5	s5	z12	d5	to5	l5	t5	u5	z5						
E.Z.	D.	K./C.	FZ./FD.																				
68	-	88	88B	-K4	(63)	140	95	10.0	4.5	115	M8x17	4.0	11	k6	23	12.5	4	62.0					
					(71)	160	110	10.0	4.5	130	M8x17	4.0	14	k6	30	16.0	5	58.5					
					(80)	200	130	15.5	4.5	165	M10	15.5	19	k6	40	21.5	6	82.5					
					(90)	200	130	15.5	4.5	165	M10	15.5	24	k6	50	27.0	8	82.5					
					(100)	250	180	20.5	5.0	215	M12	7.0	28	k6	60	31.0	8	90.0					
					(112)	250	180	19.0	5.0	215	M12	7.0	28	k6	60	31.0	8	96.5					
					(132)	300	230	19.0	5.0	265	M12	22.0	38	k6	80	41.0	10	137.5					
					(160)	350	250	26.0	6.0	300	M16	20.0	42	k6	110	45.0	12	178.5					
-	68	-	-	-K4	(63)	140	95	10.0	4.5	115	M8x17	4.0	11	k6	23	12.5	4	80.5					
					(71)	160	110	10.0	4.5	130	M8x17	4.0	14	k6	30	16.0	5	77.0					
					(80)	200	130	15.5	4.5	165	M10	15.5	19	k6	40	21.5	6	101.0					
					(90)	200	130	15.5	4.5	165	M10	15.5	24	k6	50	27.0	8	101.0					
					(100)	250	180	20.5	5.0	215	M12	7.0	28	k6	60	31.0	8	108.5					
					88	-	108	108B	-K4	(90)	200	130	15.5	4.5	165	M10	15.5	24	k6	50	27.0	8	67.5
										(100)	250	180	20.5	5.0	215	M12	7.0	28	k6	60	31.0	8	72.5
										(112)	250	180	19.0	5.0	215	M12	7.0	28	k6	60	31.0	8	78.0
(132)	300	230	19.0	5.0						265	M12	22.0	38	k6	80	41.0	10	119.0					
(160)	350	250	26.0	6.0						300	M16	20.0	42	k6	110	45.0	12	162.0					
(180)	350	250	26.0	6.0						300	M16x22	21.0	48	k6	110	51.5	14	179.0					
-	88	-	-	-K4	(63)	140	95	10.0	4.5	115	M8x17	4.0	11	k6	23	12.5	4	72.0					
					(71)	160	110	10.0	4.5	130	M8x17	4.0	14	k6	30	16.0	5	68.5					
					(80)	200	130	15.5	4.5	165	M10	15.5	19	k6	40	21.5	6	92.5					
					(90)	200	130	15.5	4.5	165	M10	15.5	24	k6	50	27.0	8	92.5					
					(100)	250	180	20.5	5.0	215	M12	7.0	28	k6	60	31.0	8	100.0					
					(112)	250	180	19.0	5.0	215	M12	7.0	28	k6	60	31.0	8	107.0					
					(132)	300	230	19.0	5.0	265	M12	22.0	38	k6	80	41.0	10	147.0					
					108	-	128	128B	-K4	(90)	200	130	15.5	4.5	165	M10	15.5	24	k6	50	27.0	8	56.0
(100)	250	180	20.5	5.0						215	M12	7.0	28	k6	60	31.0	8	60.5					
(112)	250	180	19.0	5.0						215	M12	7.0	28	k6	60	31.0	8	66.5					
(132)	300	230	19.0	5.0						265	M12	22.0	38	k6	80	41.0	10	106.5					
(160)	350	250	25.0	6.0						300	M16	20.0	42	k6	110	45.0	12	150.5					
(180)	350	250	15.5	6.0						300	M16x22	21.0	48	k6	110	51.5	14	164.0					
(200)	400	300	25.0	6.0						350	M16	30.0	55	m6	110	59.0	16	174.0					
(225)	450	350	27.0	6.0						400	M16	30.0	60	m6	140	64.0	18	247.0					

Input unit K4 (continued)



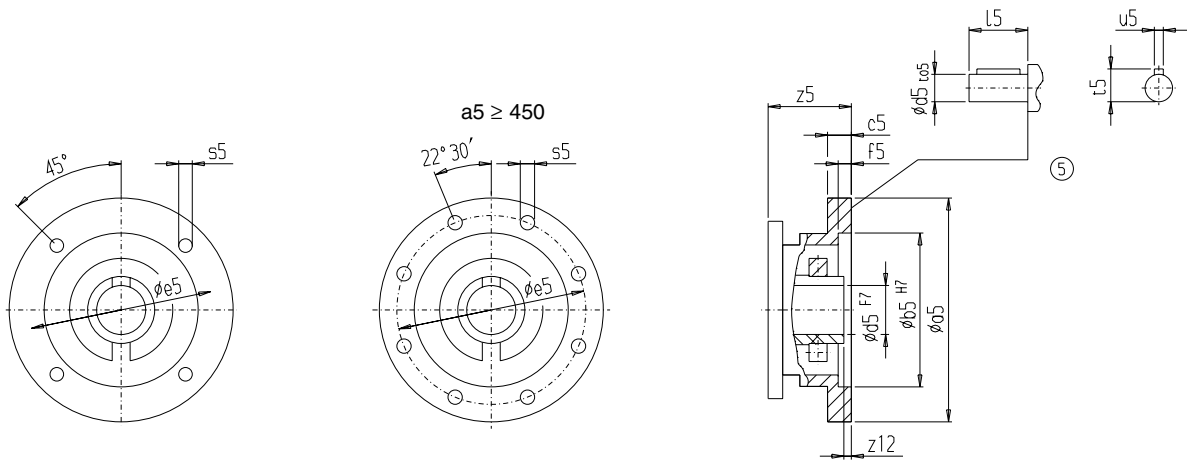
Gear unit					a5	b5	c5	f5	e5	s5	z12	d5	t05	l5	t5	u5	z5	
E.Z.	D.	K./C.	FZ./FD.															
-	108	-	-	-K4	(80)	200	130	15.5	4.5	165	M10	15.5	19	k6	40	21.5	6	86.5
					(90)	200	130	15.5	4.5	165	M10	15.5	24	k6	50	27.0	8	86.5
					(100)	250	180	20.5	5.0	215	M12	7.0	28	k6	60	31.0	8	94.0
					(112)	250	180	19.0	5.0	215	M12	7.0	28	k6	60	31.0	8	98.0
					(132)	300	230	19.0	5.0	265	M12	22.0	38	k6	80	41.0	10	139.0
					(160)	350	250	25.0	6.0	300	M16	20.0	42	k6	110	45.0	12	180.0
128	-	148	148B	-K4	(100)	250	180	20.5	5.0	215	M12	7.0	28	k6	60	31.0	8	51.0
					(112)	250	180	19.0	5.0	215	M12	7.0	28	k6	60	31.0	8	56.0
					(132)	300	230	19.0	5.0	265	M12	22.0	38	k6	80	41.0	10	96.0
					(160)	350	250	25.0	6.0	300	M16	20.0	42	k6	110	45.0	12	134.0
					(180)	350	250	15.5	6.0	300	M16x22	21.0	48	k6	110	51.5	14	150.5
					(200)	400	300	25.0	6.0	350	M16	30.0	55	m6	110	59.0	16	160.5
					(225)	450	350	27.0	6.0	400	M16	30.0	60	m6	140	64.0	18	233.0
					(250)	550	450	27.0	6.0	500	M16	30.0	65	m6	140	69.0	18	233.0
-	128	-	-	-K4	(90)	200	130	15.5	4.5	165	M10	15.5	24	k6	50	27.0	8	79.5
					(100)	250	180	20.5	5.0	215	M12	7.0	28	k6	60	31.0	8	87.0
					(112)	250	180	19.0	5.0	215	M12	7.0	28	k6	60	31.0	8	90.0
					(132)	300	230	19.0	5.0	265	M12	22.0	38	k6	80	41.0	10	130.0
					(160)	350	250	25.0	6.0	300	M16	20.0	42	k6	110	45.0	12	171.0
					(180)	350	250	15.5	6.0	300	M16x22	21.0	48	k6	110	51.5	14	187.5
					(200)	400	300	25.0	6.0	350	M16	30.0	55	m6	110	59.0	16	197.5
					(250)	550	450	27.0	6.0	500	M16	30.0	65	m6	140	69.0	18	233.0
148	-	168	168B	-K4	(132)	300	230	19.0	5.0	265	M12	22.0	38	k6	80	41.0	10	88.0
					(160)	350	250	25.0	6.0	300	M16	20.0	42	k6	110	45.0	12	126.5
					(180)	350	250	15.5	6.0	300	M16x22	21.0	48	k6	110	51.5	14	143.0
					(200)	400	300	25.0	6.0	350	M16	30.0	55	m6	110	59.0	16	153.0
					(225)	450	350	27.0	6.0	400	M16	30.0	60	m6	140	64.0	18	225.5
					(250)	550	450	27.0	6.0	500	M16	30.0	65	m6	140	69.0	18	225.0
(280)	550	450	27.0	6.0	500	M16	30.0	75	m6	140	79.5	20	238.0					

Geared motors

Input units

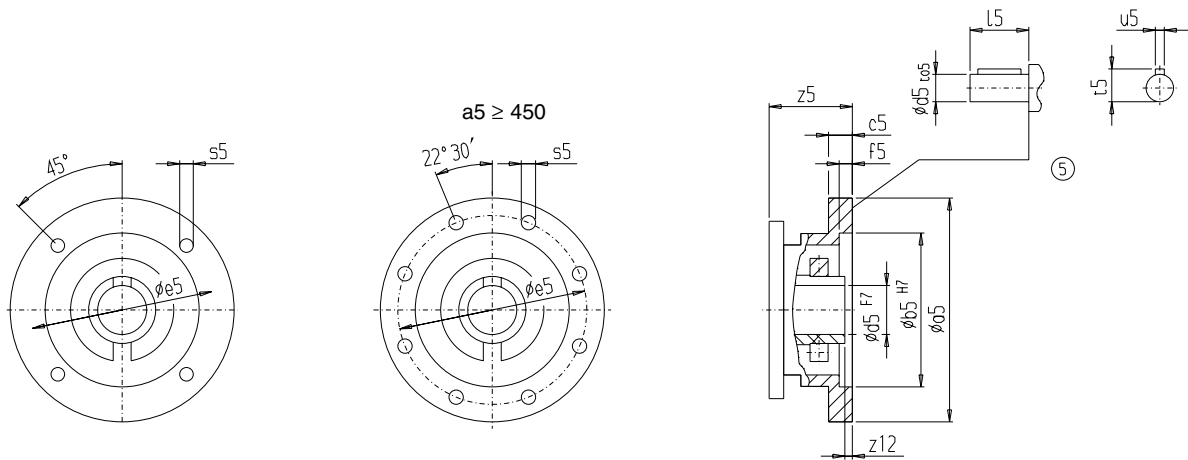
Dimensions

Input unit K4 (continued)



Gear unit					a5	b5	c5	f5	e5	s5	z12	d5	to5	l5	t5	u5	z5	
E.Z.	D.	K./C.	FZ./FD.															
-	148	-	-	-K4	(100)	250	180	20.5	5	215	M12	7	28	k6	60	31.0	8	82.0
					(112)	250	180	19.0	5	215	M12	7	28	k6	60	31.0	8	87.0
					(132)	300	230	19.0	5	265	M12	22	38	k6	80	41.0	10	126.0
					(160)	350	250	25.0	6	300	M16	20	42	k6	110	45.0	12	164.5
					(180)	350	250	15.5	6	300	M16x22	21	48	k6	110	51.5	14	181.0
					(200)	400	300	25.0	6	350	M16	30	55	m6	110	59.0	16	191.0
					(225)	450	350	27.0	6	400	M16	30	60	m6	140	64.0	18	263.5
					(250)	550	450	27.0	6	500	M16	30	65	m6	140	69.0	18	210.5
168	-	188	188B	-K4	(132)	300	230	19.0	5	265	M12	22	38	k6	80	41.0	10	73.5
					(160)	350	250	25.0	6	300	M16	20	42	k6	110	45.0	12	112.0
					(180)	350	250	15.5	6	300	M16x22	21	48	k6	110	51.5	14	128.5
					(200)	400	300	25.0	6	350	M16	30	55	m6	110	59.0	16	138.5
					(225)	450	350	27.0	6	400	M16	30	60	m6	140	64.0	18	211.0
					(250)	550	450	27.0	6	500	M16	30	65	m6	140	69.0	18	210.5
					(280)	550	450	27.0	6	500	M16	30	75	m6	140	79.5	20	223.5
					(280)	550	450	27.0	6	500	M16	30	75	m6	140	79.5	20	223.5
-	168	-	-	-K4	(132)	300	230	19.0	5	265	M12	22	38	k6	80	41.0	10	114.5
					(160)	350	250	25.0	6	300	M16	20	42	k6	110	45.0	12	153.0
					(180)	350	250	15.5	6	300	M16x22	21	48	k6	110	51.5	14	169.5
					(200)	400	300	25.0	6	350	M16	30	55	m6	110	59.0	16	179.5
					(225)	450	350	27.0	6	400	M16	30	60	m6	140	64.0	18	252.0
					(250)	550	450	27.0	6	500	M16	30	65	m6	140	69.0	18	210.5
					(280)	550	450	27.0	6	500	M16	30	75	m6	140	79.5	20	223.5
					(280)	550	450	27.0	6	500	M16	30	75	m6	140	79.5	20	223.5
188	-	-	-	-K4	(160)	350	250	25.0	6	300	M16	20	42	k6	110	45.0	12	112.0
					(180)	350	250	15.5	6	300	M16x22	21	48	k6	110	51.5	14	128.5
					(200)	400	300	25.0	6	350	M16	30	55	m6	110	59.0	16	138.5
					(225)	450	350	27.0	6	400	M16	30	60	m6	140	64.0	18	211.0
					(250)	550	450	27.0	6	500	M16	30	65	m6	140	69.0	18	210.5
					(280)	550	450	27.0	6	500	M16	30	75	m6	140	79.5	20	223.5
					(280)	550	450	27.0	6	500	M16	30	75	m6	140	79.5	20	223.5
					(280)	550	450	27.0	6	500	M16	30	75	m6	140	79.5	20	223.5

Input unit K4 (continued)



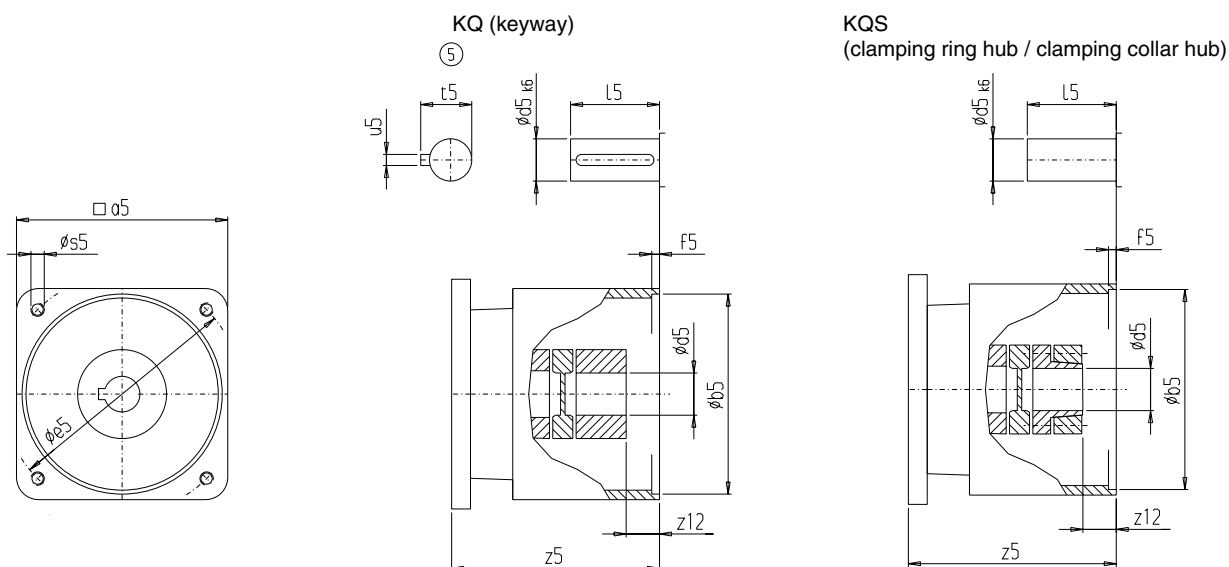
Gear unit					a5	b5	c5	f5	e5	s5	z12	d5	to5	l5	t5	u5	z5						
E.Z.	D.	K./C.	FZ./FD.																				
-	188	-	-	-K4	(132)	300	230	19.0	5	265	M12	22	38	k6	80	41.0	10	73.5					
					(160)	350	250	25.0	6	300	M16	20	42	k6	110	45.0	12	112.0					
					(180)	350	250	15.5	6	300	M16x22	21	48	k6	110	51.5	14	128.5					
					(200)	400	300	25.0	6	350	M16	30	55	m6	110	59.0	16	138.5					
					(225)	450	350	27.0	6	400	M16	30	60	m6	140	64.0	18	211.0					
					(250)	550	450	27.0	6	500	M16	30	65	m6	140	69.0	18	210.5					
					(280)	550	450	27.0	6	500	M16	30	75	m6	140	79.5	20	223.5					
					168	-	188	188B	-K4	(132)	300	230	19.0	5	265	M12	22	38	k6	80	41.0	10	73.5
-	168	-	-	-K4	(160)	350	250	25.0	6	300	M16	20	42	k6	110	45.0	12	112.0					
					(180)	350	250	15.5	6	300	M16x22	21	48	k6	110	51.5	14	128.5					
					(200)	400	300	25.0	6	350	M16	30	55	m6	110	59.0	16	138.5					
					(225)	450	350	27.0	6	400	M16	30	60	m6	140	64.0	18	211.0					
					(250)	550	450	27.0	6	500	M16	30	65	m6	140	69.0	18	210.5					
					(280)	550	450	27.0	6	500	M16	30	75	m6	140	79.5	20	223.5					
					188	-	-	-	-K4	(160)	350	250	25.0	6	300	M16	20	42	k6	110	45.0	12	112.0
					-	188	-	-	-K4	(180)	350	250	15.5	6	300	M16x22	21	48	k6	110	51.5	14	128.5
(200)	400	300	25.0	6						350	M16	30	55	m6	110	59.0	16	138.5					
(225)	450	350	27.0	6						400	M16	30	60	m6	140	64.0	18	211.0					
(250)	550	450	27.0	6						500	M16	30	65	m6	140	69.0	18	210.5					
(280)	550	450	27.0	6						500	M16	30	75	m6	140	79.5	20	223.5					
(132)	300	230	19.0	5						265	M12	22	38	k6	80	41.0	10	73.5					
(160)	350	250	25.0	6						300	M16	20	42	k6	110	45.0	12	112.0					
(180)	350	250	15.5	6						300	M16x22	21	48	k6	110	51.5	14	128.5					
(200)	400	300	25.0	6	350	M16	30	55	m6	110	59.0	16	138.5										
(225)	450	350	27.0	6	400	M16	30	60	m6	140	64.0	18	211.0										
(250)	550	450	27.0	6	500	M16	30	65	m6	140	69.0	18	210.5										
(280)	550	450	27.0	6	500	M16	30	75	m6	140	79.5	20	223.5										

Geared motors

Input units

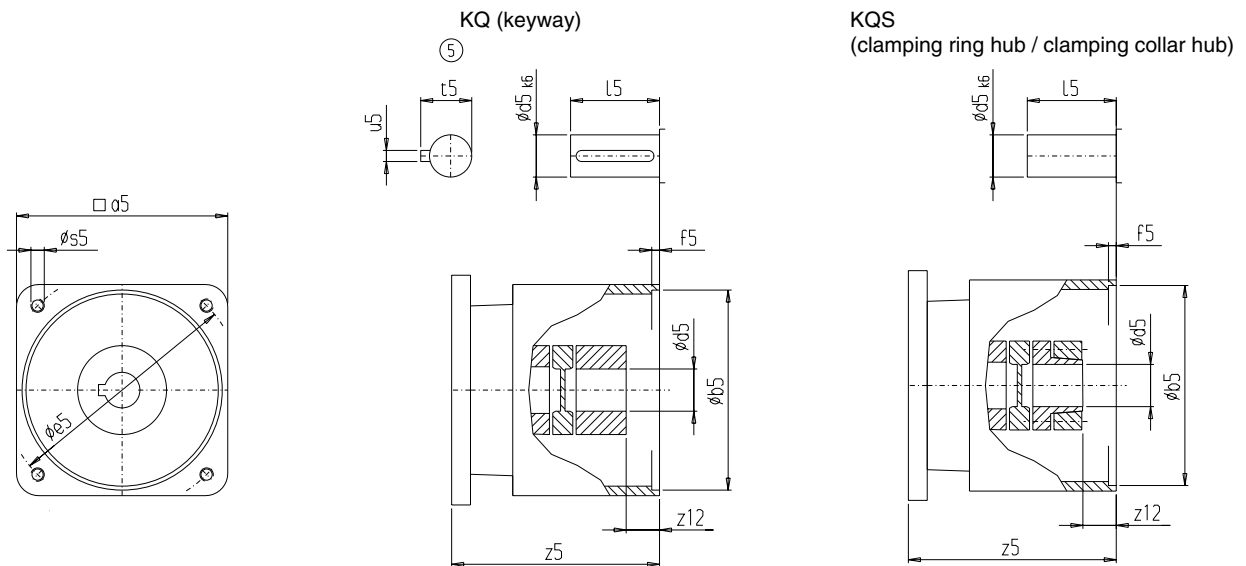
Dimensions

Input unit KQ and KQS



Gear unit					a5	b5	f5	e5	s5	z12	d5	l5	t5	u5	z5	
E.Z.	D.	K./C.	FZ./FD.													
Z28	28	B28	28	-KQ	(71.2)	82	60	5	75	M5	19	14	30	16.0	5	102.5
				-KQS	(80.3)	100	80	5	100	M6	15	19	40	21.5	6	145.5
					(90.4)	115	110	7	130	M8	15	24	50	27.0	8	160.5
-	-	B38	38B	-KQ	(71.2)	82	60	5	75	M5	19	14	30	16.0	5	69.0
				-KQS	(80.3)	100	80	5	100	M6	15	19	40	21.5	6	112.0
					(90.4)	115	110	7	130	M8	15	24	50	27.0	8	127.0
38	-	38 48	48B	-KQ	(71.2)	82	60	5	75	M5	19	14	30	16.0	5	94.0
				-KQS	(80.3)	100	80	5	100	M6	15	19	40	21.5	6	137.0
					(90.4)	115	110	7	130	M8	15	24	50	27.0	8	152.0
-	38	-	-	-KQ	(71.2)	82	60	5	75	M5	19	14	30	16.0	5	109.0
				-KQS	(80.3)	100	80	5	100	M6	15	19	40	21.5	6	152.0
					(90.4)	115	110	7	130	M8	15	24	50	27.0	8	167.0
48	-	68	68B	-KQ	(71.2)	82	60	5	75	M5	19	14	30	16.0	5	88.5
				-KQS	(80.3)	100	80	5	100	M6	15	19	40	21.5	6	131.5
					(90.4)	115	110	7	130	M8	15	24	50	27.0	8	146.5
					(112.3)	140	130	5	165	M10	25	32	60	35.0	10	183.0
-	48	-	-	-KQ	(71.2)	82	60	5	75	M5	19	14	30	16.0	5	105.5
				-KQS	(80.3)	100	80	5	100	M6	15	19	40	21.5	6	148.5
					(90.4)	115	110	7	130	M8	15	24	50	27.0	8	163.5
68	-	88	88B	-KQ	(71.2)	82	60	5	75	M5	19	14	30	16.0	5	82.5
				-KQS	(80.3)	100	80	5	100	M6	15	19	40	21.5	6	125.5
					(90.4)	115	110	7	130	M8	15	24	50	27.0	8	140.5
					(112.3)	140	130	5	165	M10	25	32	60	35.0	10	175.0
					(132.3)	190	180	7	215	M12	30	38	80	41.0	10	224.5
-	68	-	-	-KQ	(71.2)	82	60	5	75	M5	19	14	30	16.0	5	101.0
				-KQS	(80.3)	100	80	5	100	M6	15	19	40	21.5	6	144.0
					(90.4)	115	110	7	130	M8	15	24	50	27.0	8	159.0

Input unit KQ and KQS (continued)



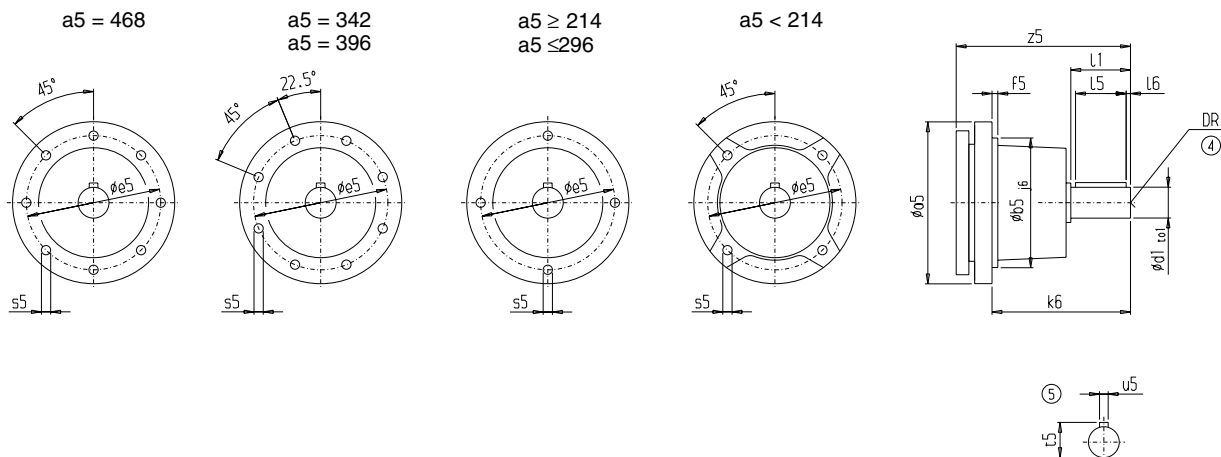
Gear unit					a5	b5	f5	e5	s5	z12	d5	l5	t5	u5	z5	
E.Z.	D.	K./C.	FZ./FD.													
88	-	108	108B	-KQ	(80.3)	100	80	5	100	M6	15	19	40	21.5	6	110.5
				-KQS	(90.4)	115	110	7	130	M8	15	24	50	27.0	8	125.5
					(112.3)	140	130	5	165	M10	25	32	60	35.0	10	156.5
					(132.3)	190	180	7	215	M12	30	38	80	41.0	10	206.0
-	88	-	-	-KQ	(71.2)	82	60	5	75	M5	19	14	30	16.0	5	92.5
				-KQS	(80.3)	100	80	5	100	M6	15	19	40	21.5	6	135.5
					(90.4)	115	110	7	130	M8	15	24	50	27.0	8	150.5
					(112.3)	140	130	5	165	M10	25	32	60	35.0	10	185.5
-	-	-	-	-KQ	(132.3)	190	180	7	215	M12	30	38	80	41.0	10	234.0
				-KQS	(90.4)	115	110	7	130	M8	15	24	50	27.0	8	114.0
					(112.3)	140	130	5	165	M10	25	32	60	35.0	10	145.0
					(132.3)	190	180	7	215	M12	30	38	80	41.0	10	193.5
108	-	128	128B	-KQ	(80.3)	100	80	5	100	M6	15	19	40	21.5	6	129.5
				-KQS	(90.4)	115	110	7	130	M8	15	24	50	27.0	8	144.5
					(112.3)	140	130	5	165	M10	25	32	60	35.0	10	176.5
					(132.3)	190	180	7	215	M12	30	38	80	41.0	10	226.0
128	-	148	148B	-KQ	(80.3)	100	80	5	100	M6	15	19	40	21.5	6	129.5
				-KQS	(90.4)	115	110	7	130	M8	15	24	50	27.0	8	144.5
					(112.3)	140	130	5	165	M10	25	32	60	35.0	10	176.5
					(132.3)	190	180	7	215	M12	30	38	80	41.0	10	226.0
-	108	-	-	-KQ	(90.4)	115	110	7	130	M8	15	24	50	27.0	8	137.5
				-KQS	(112.3)	140	130	5	165	M10	25	32	60	35.0	10	168.5
					(132.3)	190	180	7	215	M12	30	38	80	41.0	10	217.0
					(132.3)	190	180	7	215	M12	30	38	80	41.0	10	217.0
148	-	168	168B	-KQ	(132.3)	190	180	7	215	M12	30	38	80	41.0	10	175.0
				-KQS	(132.3)	190	180	7	215	M12	30	38	80	41.0	10	175.0
					(112.3)	140	130	5	165	M10	25	32	60	35.0	10	165.5
					(132.3)	190	180	7	215	M12	30	38	80	41.0	10	213.0
-	148	-	-	-KQ	(112.3)	140	130	5	165	M10	25	32	60	35.0	10	165.5
				-KQS	(132.3)	190	180	7	215	M12	30	38	80	41.0	10	213.0
					(132.3)	190	180	7	215	M12	30	38	80	41.0	10	160.5
					(132.3)	190	180	7	215	M12	30	38	80	41.0	10	201.5
168	-	188	188B	-KQ	(132.3)	190	180	7	215	M12	30	38	80	41.0	10	160.5
				-KQS	(132.3)	190	180	7	215	M12	30	38	80	41.0	10	160.5
					(132.3)	190	180	7	215	M12	30	38	80	41.0	10	201.5
					(132.3)	190	180	7	215	M12	30	38	80	41.0	10	160.5

Geared motors

Input units

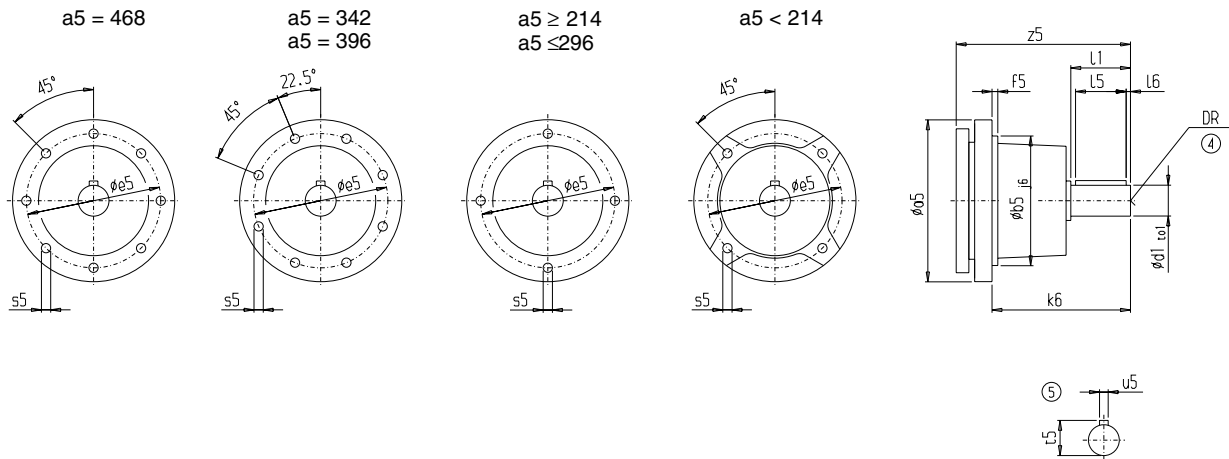
Dimensions

Input unit A



Gear unit					a5	b5	f5	e5	s5	d1	to1	l1	l5	l6	t5	u5	DR	k6	z5	
E.Z.	D.	K./C.	FZ./FD.																	
-	-	B38	38B	-A	(71)	136	95	4.0	116	M8x14	16	k6	40	32	4	18.0	5	M5x12.5	61	125.5
					(80)	140	95	4.0	116	M8x14	19	k6	40	32	4	21.5	6	M6x16	61	160.5
					(90)	140	95	4.0	116	M8x14	24	k6	50	40	5	27.0	8	M8x19	71	170.5
					(100)	174	120	4.0	145	M10x17	28	k6	60	50	5	31.0	8	M10x22	83	186.5
38	-	38 48	48B	-A	(71)	136	95	4.0	116	M8x14	16	k6	40	32	4	18.0	5	M5x12.5	61	151.0
					(80)	140	95	4.0	116	M8x14	19	k6	40	32	4	21.5	6	M6x16	61	186.0
					(90)	140	95	4.0	116	M8x14	24	k6	50	40	5	27.0	8	M8x19	71	196.0
					(100)	174	120	4.0	145	M10x17	28	k6	60	50	5	31.0	8	M10x22	83	212.0
-	38	-	-	-A	(71)	136	95	4.0	116	M8x14	16	k6	40	32	4	18.0	5	M5x12.5	61	166.0
					(80)	140	95	4.0	116	M8x14	19	k6	40	32	4	21.5	6	M6x16	61	201.0
					(90)	140	95	4.0	116	M8x14	24	k6	50	40	5	27.0	8	M8x19	71	211.0
					(100)	174	120	4.0	145	M10x17	28	k6	60	50	5	31.0	8	M10x22	83	223.5
48	-	68	68B	-A	(71)	136	95	4.0	116	M8x14	16	k6	40	32	4	18.0	5	M5x12.5	61	145.5
					(80)	140	95	4.0	116	M8x14	19	k6	40	32	4	21.5	6	M6x16	61	180.5
					(90)	140	95	4.0	116	M8x14	24	k6	50	40	5	27.0	8	M8x19	71	190.5
					(100)	174	120	4.0	145	M10x17	28	k6	60	50	5	31.0	8	M10x22	83	206.5
-	48	-	-	-A	(112)	178	120	4.0	145	M10x17	28	k6	60	50	5	31.0	8	M10x22	83	207.5
					(71)	136	95	4.0	116	M8x14	16	k6	40	32	4	18.0	5	M5x12.5	61	162.5
					(80)	140	95	4.0	116	M8x14	19	k6	40	32	4	21.5	6	M6x16	61	197.5
					(90)	140	95	4.0	116	M8x14	24	k6	50	40	5	27.0	8	M8x19	71	207.5
68	-	88	88B	-A	(100)	174	120	4.0	145	M10x17	28	k6	60	50	5	31.0	8	M10x22	83	223.5
					(71)	136	95	4.0	116	M8x14	16	k6	40	32	4	18.0	5	M5x12.5	61	139.5
					(80)	140	95	4.0	116	M8x14	19	k6	40	32	4	21.5	6	M6x16	61	174.5
					(90)	140	95	4.0	116	M8x14	24	k6	50	40	5	27.0	8	M8x19	71	184.5
-	68	-	-	-A	(100)	174	120	4.0	145	M10x17	28	k6	60	50	5	31.0	8	M10x22	83	200.5
					(112)	178	120	4.0	145	M10x17	28	k6	60	50	5	31.0	8	M10x22	83	199.5
					(132)	214	160	3.5	184	M16x22	38	k6	80	70	5	41.0	10	M12x28	168	284.0
					(71)	136	95	4.0	116	M8x14	16	k6	40	32	4	18.0	5	M5x12.5	61	158.0
-	68	-	-	-A	(80)	140	95	4.0	116	M8x14	19	k6	40	32	4	21.5	6	M6x16	61	193.0
					(90)	140	95	4.0	116	M8x14	24	k6	50	40	5	27.0	8	M8x19	71	203.0
					(100)	174	120	4.0	145	M10x17	28	k6	60	50	5	31.0	8	M10x22	83	219.0

Input unit A (continued)



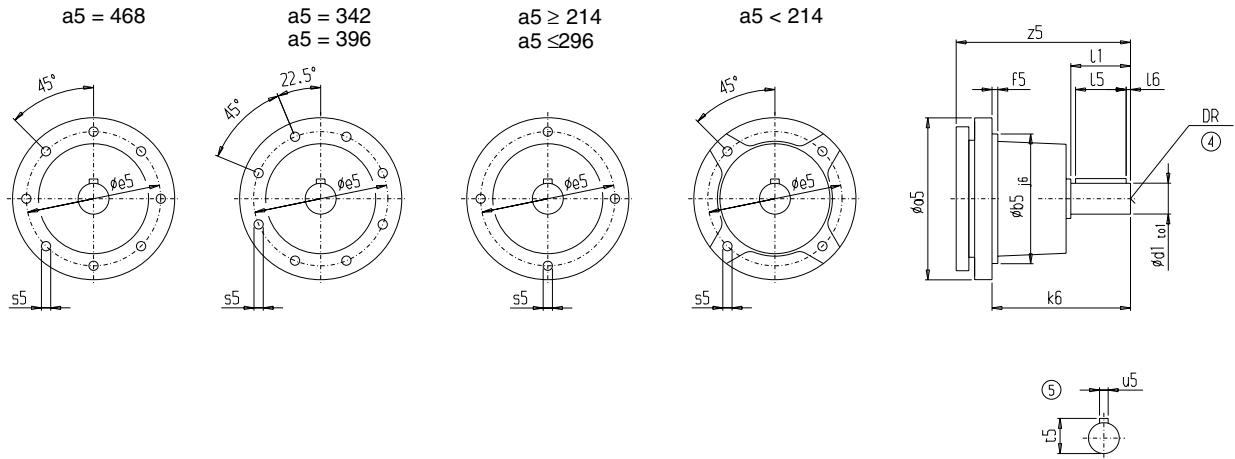
Gear unit					a5	b5	f5	e5	s5	d1	to1	l1	l5	l6	t5	u5	DR	k6	z5	
E.Z.	D.	K./C.	FZ./FD.																	
-	88	-	-	-A	(71)	136	95	4.0	116	M8x14	16	k6	40	32	4	18.0	5	M5x12.5	61	149.5
					(80)	140	95	4.0	116	M8x14	19	k6	40	32	4	21.5	6	M6x16	61	184.5
					(90)	140	95	4.0	116	M8x14	24	k6	50	40	5	27.0	8	M8x19	71	194.5
					(100)	174	120	4.0	145	M10x17	28	k6	60	50	5	31.0	8	M10x22	83	210.5
					(112)	178	120	4.0	145	M10x17	28	k6	60	50	5	31.0	8	M10x22	83	210.0
					(132)	214	160	3.5	184	M16x22	38	k6	80	70	5	41.0	10	M12x28	168	293.5
108	-	128	128B	-A	(90)	140	95	4.0	116	M8x14	24	k6	50	40	5	27.0	8	M8x19	71	157.5
					(100)	174	120	4.0	145	M10x17	28	k6	60	50	5	31.0	8	M10x22	83	170.5
					(112)	178	120	4.0	145	M10x17	28	k6	60	50	5	31.0	8	M10x22	83	169.0
					(132)	214	160	3.5	184	M16x22	38	k6	80	70	5	41.0	10	M12x28	168	252.5
					(160)	251	160	5.0	184	M16x28	42	k6	110	90	10	45.0	12	M16x36	215	297.0
					(200)	296	195	5.0	230	M16x28	55	m6	110	90	10	59.0	16	M20x42	235	317.5
-	108	-	-	-A	(80)	140	95	4.0	116	M8x14	19	k6	40	32	4	21.5	6	M6x16	61	178.5
					(90)	140	95	4.0	116	M8x14	24	k6	50	40	5	27.0	8	M8x19	71	188.5
					(100)	174	120	4.0	145	M10x17	28	k6	60	50	5	31.0	8	M10x22	83	204.5
					(112)	178	120	4.0	145	M10x17	28	k6	60	50	5	31.0	8	M10x22	83	201.0
					(132)	214	160	3.5	184	M16x22	38	k6	80	70	5	41.0	10	M12x28	168	285.5
					(160)	251	160	5.0	184	M16x28	42	k6	110	90	10	45.0	12	M16x36	215	327.0
128	-	148	148B	-A	(100)	174	120	4.0	145	M10x17	28	k6	60	50	5	31.0	8	M10x22	83	161.0
					(112)	178	120	4.0	145	M10x17	28	k6	60	50	5	31.0	8	M10x22	83	158.5
					(132)	214	160	3.5	184	M16x22	38	k6	80	70	5	41.0	10	M12x28	168	242.0
					(160)	251	160	5.0	184	M16x28	42	k6	110	90	10	45.0	12	M16x36	215	280.5
					(200)	296	195	5.0	230	M16x28	55	m6	110	90	10	59.0	16	M20x42	235	304.0
					(225)	342	250	5.0	300	M16x22	60	m6	140	110	15	64.0	18	M20x42	259	361.5
-	128	-	-	-A	(90)	140	95	4.0	116	M8x14	24	k6	50	40	5	27.0	8	M8x19	71	181.5
					(100)	174	120	4.0	145	M10x17	28	k6	60	50	5	31.0	8	M10x22	83	197.5
					(112)	178	120	4.0	145	M10x17	28	k6	60	50	5	31.0	8	M10x22	83	193.0
					(132)	214	160	3.5	184	M16x22	38	k6	80	70	5	41.0	10	M12x28	168	276.5
					(160)	251	160	5.0	184	M16x28	42	k6	110	90	10	45.0	12	M16x36	215	318.0
					(200)	296	195	5.0	230	M16x28	55	m6	110	90	10	59.0	16	M20x42	235	341.5

Geared motors

Input units

Dimensions

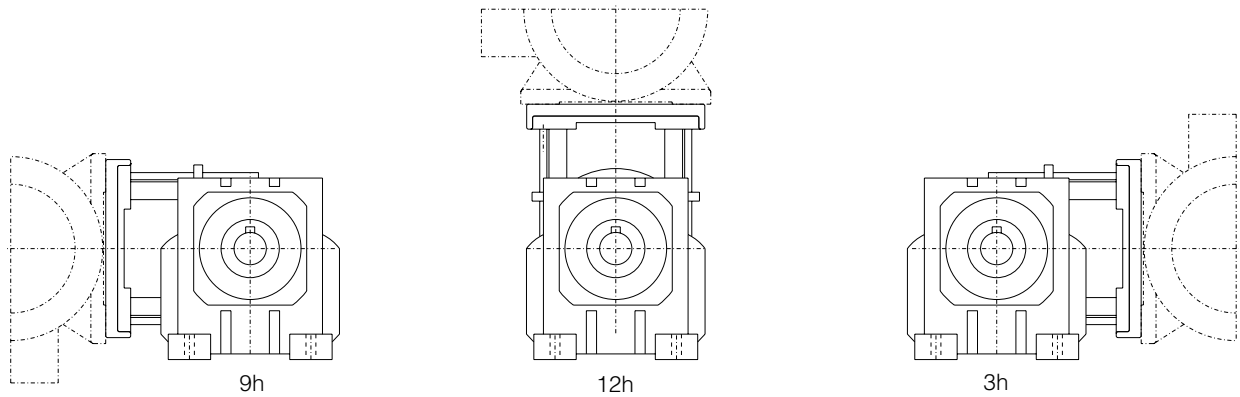
Input unit A (continued)



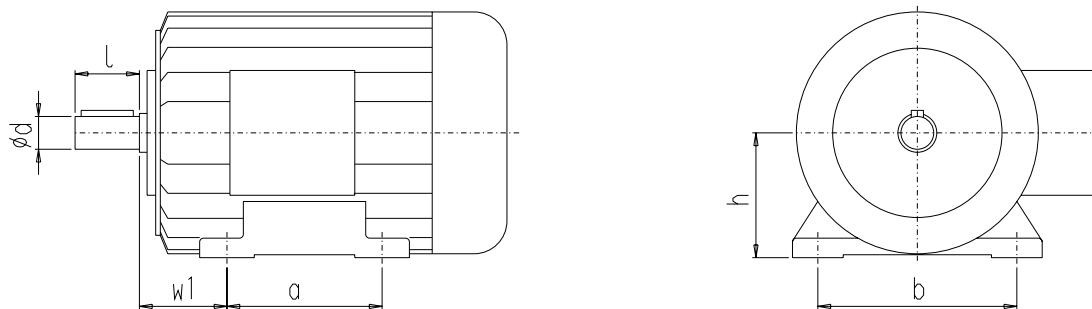
Gear unit				a5	b5	f5	e5	s5	d1	to1	l1	l5	l6	t5	u5	DR	k6	z5		
E.Z.	D.	K./C.	FZ./FD.																	
148	-	168	168B	-A	(132)	214	160	3.5	184	M16x22	38	k6	80	70	5	41.0	10	M12x28	168.0	234.0
					(160)	251	160	5.0	184	M16x28	42	k6	110	90	10	45.0	12	M16x36	215.0	273.0
					(200)	296	195	5.0	230	M16x28	55	m6	110	90	10	59.0	16	M20x42	235.0	296.5
					(225)	342	250	5.0	300	M16x22	60	m6	140	110	15	64.0	18	M20x42	259.0	354.0
					(250)	396	250	5.0	300	M16x22	65	m6	140	110	15	69.0	18	M20x42	259.0	353.5
					(280)	468	250	5.0	300	M20x34	70	m6	140	110	15	74.5	20	M20x42	300.5	361.5
-	148	-	-	-A	(100)	174	120	4.0	145	M10x17	28	k6	60	50	5	31.0	8	M10x22	83.0	192.5
					(112)	178	120	4.0	145	M10x17	28	k6	60	50	5	31.0	8	M10x22	83.0	190.0
					(132)	214	160	3.5	184	M16x22	38	k6	80	70	5	41.0	10	M12x28	168.0	272.5
					(160)	251	160	5.0	184	M16x28	42	k6	110	90	10	45.0	12	M16x36	215.0	311.5
					(200)	296	195	5.0	230	M16x28	55	m6	110	90	10	59.0	16	M20x42	235.0	335.0
					(225)	342	250	5.0	300	M16x22	60	m6	140	110	15	64.0	18	M20x42	259.0	392.5
168	-	188	188B	-A	(132)	214	160	3.5	184	M16x22	38	k6	80	70	5	41.0	10	M12x28	168.0	220.0
					(160)	251	160	5.0	184	M16x28	42	k6	110	90	10	45.0	12	M16x36	215.0	259.0
					(200)	296	195	5.0	230	M16x28	55	m6	110	90	10	59.0	16	M20x42	235.0	282.5
					(225)	342	250	5.0	300	M16x22	60	m6	140	110	15	64.0	18	M20x42	259.0	340.0
					(250)	396	250	5.0	300	M16x22	65	m6	140	110	15	69.0	18	M20x42	259.0	339.5
					(280)	468	250	5.0	300	M20x34	70	m6	140	110	15	74.5	20	M20x42	288.5	347.5
-	168	-	-	-A	(132)	214	160	3.5	184	M16x22	38	k6	80	70	5	41.0	10	M12x28	168.0	261.0
					(160)	251	160	5.0	184	M16x28	42	k6	110	90	10	45.0	12	M16x36	215.0	300.0
					(200)	296	195	5.0	230	M16x28	55	m6	110	90	10	59.0	16	M20x42	235.0	323.5
					(225)	342	250	5.0	300	M16x22	60	m6	140	110	15	64.0	18	M20x42	259.0	381.0
					(250)	396	250	5.0	300	M16x22	65	m6	140	110	15	69.0	18	M20x42	259.0	380.5
					(280)	468	250	5.0	300	M20x34	70	m6	140	110	15	74.5	20	M20x42	288.5	347.5
188	-	-	-	A-	(160)	251	160	5.0	184	M16x28	42	k6	110	90	10	45.0	12	M16x36	215.0	259.0
					(200)	296	195	5.0	230	M16x28	55	m6	110	90	10	59.0	16	M20x42	235.0	282.5
					(225)	342	250	5.0	300	M16x22	60	m6	140	110	15	64.0	18	M20x42	259.0	340.0
					(250)	396	250	5.0	300	M16x22	65	m6	140	110	15	69.0	18	M20x42	259.0	339.5
					(280)	485	250	5.0	300	M20x34	70	m6	140	110	15	74.5	20	M20x42	286.0	347.5
					(280)	485	250	5.0	300	M20x34	70	m6	140	110	15	74.5	20	M20x42	286.0	347.5
-	188	-	-	-A	(132)	214	160	3.5	184	M16x22	38	k6	80	70	5	41.0	10	M12x28	168.0	220.0
					(160)	251	160	5.0	184	M16x28	42	k6	110	90	10	45.0	12	M16x36	215.0	259.0
					(200)	296	195	5.0	230	M16x28	55	m6	110	90	10	59.0	16	M20x42	235.0	282.5
					(225)	342	250	5.0	300	M16x22	60	m6	140	110	15	64.0	18	M20x42	259.0	340.0
					(250)	396	250	5.0	300	M16x22	65	m6	140	110	15	69.0	18	M20x42	259.0	339.5
					(280)	485	250	5.0	300	M20x34	70	m6	140	110	15	74.5	20	M20x42	286.0	347.5

Input unit P

Piggy-back design position



Fixing dimensions for surface-cooled AC motors, mounting position IMB3 to DIN 42673/1



Size	d	l	w1	h	a	b
80	19	40	50	80	100	125
90S	24	50	56	90	100	140
90L					125	
100L	28	60	63	100	140	160
112M	28	60	70	112	140	190
132S	38	80	89	132	140	216
132M					178	
160M	42	110	108	160	210	254
160L					254	
180M	48	110	121	180	241	279
180L					279	
200L	55	110	133	200	305	318
225S	55	110	149	225	286	356
225M	60*	140*			311	
250M	60 65*	140	168	250	349	406
280S	65	140	190	280	368	457
280M	75*				419	

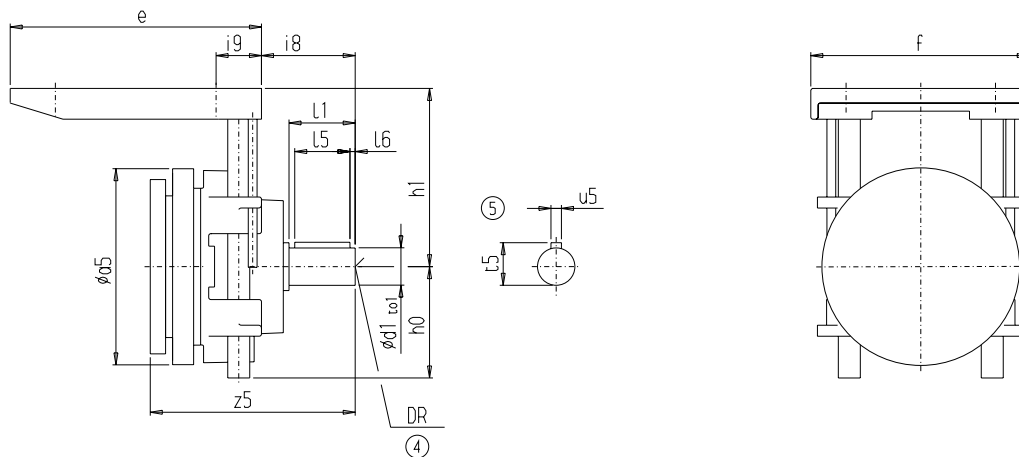
* 4 and multi-pole motors

Geared motors

Input units

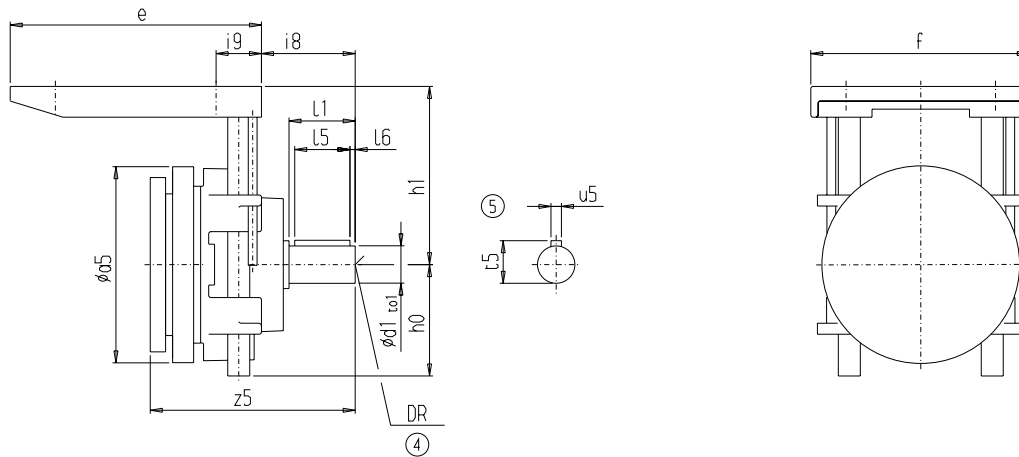
Dimensions

Input unit P (continued)



Gear unit		12h										3/9h										
		a5	e	f	i9	h0	h1	h1	h0	h1	h1	d1	to1	l1	l5	l6	t5	u5	DR	i8	z5	
							Max.	Min.	Max.	Max.	Min.	Max.										
F.38B	-P	(80)	140	225	174	44	88	130	225	88	130	225	19	k6	40	32	4	21.5	6	M6x16	53	160.5
		(90)	140	225	174	53	88	130	225	88	130	225	24	k6	50	40	5	27.0	8	M8x19	63	170.5
		(100)	174	250	232	60	88	145	240	88	145	240	28	k6	60	50	5	31.0	8	M10x22	73	186.5
E./Z.38 K38/48 C.38/48	-P	(80)	140	225	174	44	88	130	235	88	130	235	19	k6	40	32	4	21.5	6	M6x16	53	185.5
		(90)	140	225	174	53	88	130	235	88	130	235	24	k6	50	40	5	27.0	8	M8x19	63	195.5
		(100)	174	250	232	60	88	145	240	88	145	240	28	k6	60	50	5	31.0	8	M10x22	73	211.5
D.38	-P	(80)	140	225	174	44	88	130	235	88	130	235	19	k6	40	32	4	21.5	6	M6x16	53	200.5
		(90)	140	225	174	53	88	130	235	88	130	235	24	k6	50	40	5	27.0	8	M8x19	63	210.0
E./Z.48	-P	(80)	140	225	174	44	88	130	235	88	140	235	19	k6	40	32	4	21.5	6	M6x16	53	180.0
		(90)	140	225	174	53	88	130	235	88	140	235	24	k6	50	40	5	27.0	8	M8x19	63	190.0
		(100)	174	250	232	60	88	145	240	88	145	240	28	k6	60	50	5	31.0	8	M10x22	73	206.0
		(112)	178	250	232	67	88	145	240	88	145	240	28	k6	60	50	5	31.0	8	M10x22	73	207.0
D.48	-P	(80)	140	225	174	44	88	130	235	88	140	235	19	k6	40	32	4	21.5	6	M6x16	53	197.0
		(90)	140	225	174	53	88	130	235	88	140	235	24	k6	50	40	5	27.0	8	M8x19	63	207.0
		(100)	174	250	232	60	88	145	240	88	145	240	28	k6	60	50	5	31.0	8	M10x22	73	223.0
F.48B	-P	(80)	140	225	174	44	88	130	225	88	130	225	19	k6	40	32	4	21.5	6	M6x16	53	186.0
		(90)	140	225	174	53	88	130	225	88	130	225	24	k6	50	40	5	27.0	8	M8x19	63	196.0
		(100)	174	250	232	60	88	145	240	88	145	240	28	k6	60	50	5	31.0	8	M10x22	73	212.0
		(112)	178	250	232	67	88	145	240	88	145	240	28	k6	60	50	5	31.0	8	M10x22	73	181.0
E.68	-P	(80)	140	225	174	44	88	140	235	88	130	235	19	k6	40	32	4	21.5	6	M6x16	53	174.0
		(90)	140	225	174	53	88	140	235	88	130	235	24	k6	50	40	5	27.0	8	M8x19	63	184.0
		(100)	174	250	232	60	88	150	240	88	150	240	28	k6	60	50	5	31.0	8	M10x22	73	200.0
		(112)	178	250	232	67	88	150	240	88	150	240	28	k6	60	50	5	31.0	8	M10x22	73	199.0
		(132)	214	374	300	84	209	180	270	184	180	270	38	k6	80	70	5	41.0	10	M12x28	85	283.5
D.68	-P	(80)	140	225	174	44	88	140	235	88	160	235	19	k6	40	32	4	21.5	6	M6x16	53	192.5
		(90)	140	225	174	53	88	140	235	88	160	235	24	k6	50	40	5	27.0	8	M8x19	63	202.5
		(100)	174	250	232	60	88	145	240	88	160	240	28	k6	60	50	5	31.0	8	M10x22	73	218.5
Z.68	-P	(80)	140	225	174	44	88	140	235	88	160	235	19	k6	40	32	4	21.5	6	M6x16	53	174.0
		(90)	140	225	174	53	88	140	235	88	160	235	24	k6	50	40	5	27.0	8	M8x19	63	184.0
		(100)	174	250	232	60	88	145	240	88	160	240	28	k6	60	50	5	31.0	8	M10x22	73	200.0
		(112)	178	250	232	67	88	145	240	88	160	240	28	k6	60	50	5	31.0	8	M10x22	73	199.0
		(132)	214	374	300	84	139	180	230	139	180	230	38	k6	80	70	5	41.0	10	M12x28	85	283.5

Input unit P (continued)



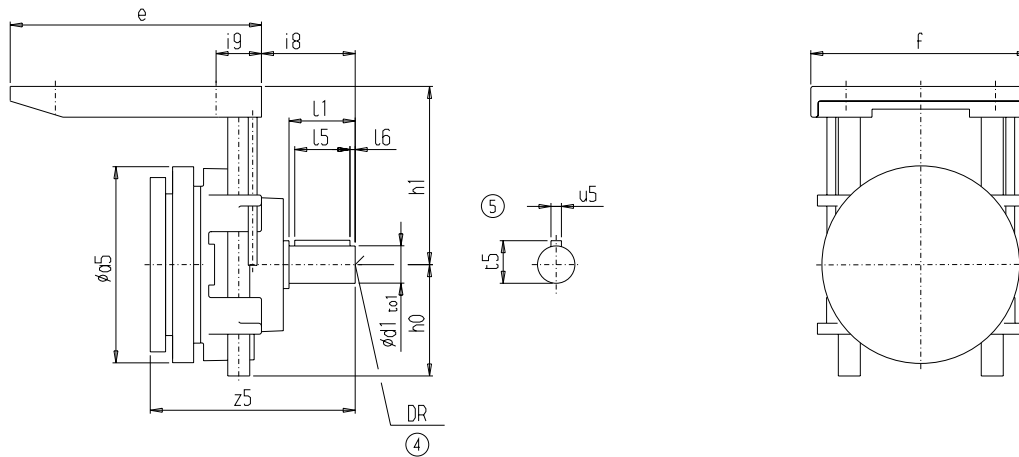
Gear unit		a5	e	f	i9	12h		3/9h			d1	to1	l1	l5	l6	t5	u5	DR	i8	z5		
						h0	h1	h1	h0	h1											h1	
						Max.	Min.	Max.	Max.	Min.											Max.	
K.68	-P	(80)	140	225	174	44	88	140	235	88	160	235	19	k6	40	32	4	21.5	6	M6x16	53	180.5
		(90)	140	225	174	53	88	140	235	88	160	235	24	k6	50	40	5	27.0	8	M8x19	63	190.5
		(100)	174	250	232	60	88	145	240	88	160	240	28	k6	60	50	5	31.0	8	M10x22	73	206.5
		(112)	178	250	232	67	88	145	240	88	160	240	28	k6	60	50	5	31.0	8	M10x22	73	207.5
F.68B	-P	(80)	140	225	174	44	88	140	225	88	140	225	19	k6	40	32	4	21.5	6	M6x16	53	180.5
		(90)	140	225	174	53	88	140	225	88	140	225	24	k6	50	40	5	27.0	8	M8x19	63	190.5
		(100)	174	250	232	60	88	145	240	88	148	238	28	k6	60	50	5	31.0	8	M10x22	73	206.5
		(112)	178	250	232	67	88	145	240	88	148	238	28	k6	60	50	5	31.0	8	M10x22	73	207.5
C.68	-P	(80)	140	225	174	44	88	170	235	88	140	235	19	k6	40	32	4	21.5	6	M6x16	53	180.0
		(90)	140	225	174	53	88	170	235	88	140	235	24	k6	50	40	5	27.0	8	M8x19	63	190.0
		(100)	174	250	232	60	88	175	240	88	145	240	28	k6	60	50	5	31.0	8	M10x22	73	206.0
		(112)	178	250	232	67	88	175	240	88	145	240	28	k6	60	50	5	31.0	8	M10x22	73	207.0
E.88	-P	(90)	140	225	174	53	88	165	235	88	160	235	24	k6	50	40	5	27.0	8	M8x19	63	169.0
		(100)	174	250	232	60	88	160	240	88	160	240	28	k6	60	50	5	31.0	8	M10x22	73	182.5
		(112)	178	250	232	67	88	160	240	88	160	240	28	k6	60	50	5	31.0	8	M10x22	73	180.5
		(132)	214	374	300	84	139	200	270	139	180	270	38	k6	80	70	5	41.0	10	M12x29	85	265.0
Z.88	-P	(90)	140	225	174	53	88	160	235	88	190	235	24	k6	50	40	5	27.0	8	M8x19	63	169.0
		(100)	174	250	232	60	88	160	240	88	190	240	28	k6	60	50	5	31.0	8	M10x22	73	182.5
		(112)	178	250	232	67	88	160	240	88	190	240	28	k6	60	50	5	31.0	8	M10x22	73	180.5
		(132)	214	374	300	84	154	180	230	124	220	270	38	k6	80	70	5	41.0	10	M12x29	85	265.0
K.88	-P	(80)	140	225	174	44	88	140	235	88	160	235	19	k6	40	32	4	21.5	6	M6x16	53	174.5
		(90)	140	225	174	53	88	160	235	88	190	235	24	k6	50	40	5	27.0	8	M8x19	63	184.5
		(100)	174	250	232	60	88	160	240	88	190	240	28	k6	60	50	5	31.0	8	M10x22	73	200.5
		(112)	178	250	232	67	88	160	240	88	190	240	28	k6	60	50	5	31.0	8	M10x22	73	199.5
F.88B	-P	(80)	140	225	174	44	88	163	228	88	168	228	19	k6	40	32	4	21.5	6	M6x16	53	174.5
		(90)	140	225	174	53	88	163	228	88	168	228	24	k6	50	40	5	27.0	8	M8x19	63	184.5
		(100)	174	250	232	60	88	163	238	88	160	240	28	k6	60	50	5	31.0	8	M10x22	73	200.5
		(112)	178	250	232	67	88	163	238	88	160	240	28	k6	60	50	5	31.0	8	M10x22	73	199.5
		(132)	214	374	300	84	137	178	228	127	188	228	38	k6	80	70	5	41.0	10	M12x28	85	284.0

Geared motors

Input units

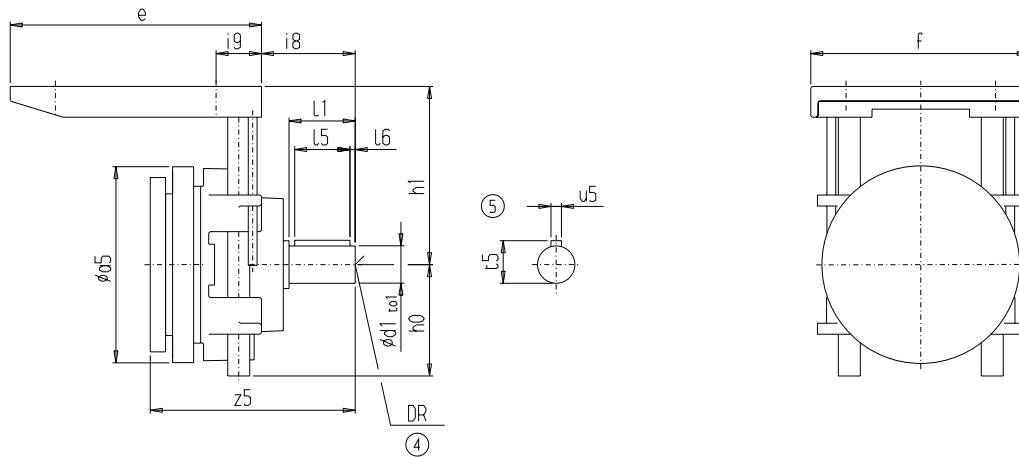
Dimensions

Input unit P (continued)



Gear unit		12h										3/9h										
		a5	e	f	i9	h0	h1	h1	h0	h1	h1	d1	to1	l1	l5	l6	t5	u5	DR	i8	z5	
						Max.	Min.	Max.	Max.	Min.	Max.											
C.88	-P	(80)	140	225	174	44	88	200	235	88	150	235	19	k6	40	32	4	21.5	6	M6x16	53	174.0
		(90)	140	225	174	53	88	200	235	88	150	235	24	k6	50	40	5	27.0	8	M8x19	63	184.0
		(100)	174	250	232	60	88	200	240	88	145	240	28	k6	60	50	5	31.0	8	M10x22	73	200.0
		(112)	178	250	232	67	88	200	240	88	145	240	28	k6	60	50	5	31.0	8	M10x22	73	199.0
		(132)	214	374	300	84	139	220	270	134	220	270	38	k6	80	70	5	41.0	10	M12x28	85	283.5
D.88	-P	(80)	140	225	174	44	88	160	235	88	190	235	19	k6	40	32	4	21.5	6	M6x16	53	184.0
		(90)	140	225	174	53	88	160	235	88	190	235	24	k6	50	40	5	27.0	8	M8x19	63	194.0
		(100)	174	250	232	60	88	160	240	88	190	240	28	k6	60	50	5	31.0	8	M10x22	73	210.0
		(112)	178	250	232	67	88	160	240	88	190	240	28	k6	60	50	5	31.0	8	M10x22	73	209.5
		(132)	214	374	300	84	134	180	230	124	220	270	38	k6	80	70	5	41.0	10	M12x28	85	293.0
E.108	-P	(90)	140	225	174	53	88	195	300	88	195	300	24	k6	50	40	5	27.0	8	M8x19	63	157.5
		(100)	174	250	232	60	88	220	320	88	220	320	28	k6	60	50	5	31.0	8	M10x22	73	170.5
		(112)	178	250	232	67	88	220	320	88	220	320	28	k6	60	50	5	31.0	8	M10x22	73	169.0
		(132)	214	374	300	84	209	240	340	184	220	340	38	k6	80	70	5	41.0	10	M12x30	85	252.5
		(160)	251	374	300	86	184	240	340	159	220	340	42	k6	110	90	10	45.0	12	M16x36	132	297.0
		(180)	296	476	400	96	218	250	352	218	290	352	55	m6	110	90	10	59.0	16	M20x42	135	317.5
		(200)	296	476	400	108	218	250	352	218	290	352	55	m6	110	90	10	59.0	16	M20x42	135	317.5
Z.108	-P	(90)	140	225	174	53	88	190	300	88	230	300	24	k6	50	40	5	27.0	8	M8x19	63	157.5
		(100)	174	250	232	60	88	220	320	88	230	320	28	k6	60	50	5	31.0	8	M10x22	73	170.5
		(112)	178	250	232	67	88	220	320	88	230	320	28	k6	60	50	5	31.0	8	M10x22	73	169.0
		(132)	214	374	300	84	134	220	270	209	255	300	38	k6	80	70	5	41.0	10	M12x30	85	252.5
		(160)	251	374	300	86	134	220	270	209	255	305	42	k6	110	90	10	45.0	12	M16x36	132	297.0
		(180)	296	476	400	96	243	268	352	233	268	352	55	m6	110	90	10	59.0	16	M20x42	135	317.5
		(200)	296	476	400	108	243	268	352	233	268	352	55	m6	110	90	10	59.0	16	M20x42	135	317.5
K.108	-P	(80)	140	225	174	53	88	190	300	88	230	300	24	k6	50	40	5	27.0	8	M8x19	63	159.5
		(90)	140	225	174	53	88	190	300	88	230	300	24	k6	50	40	5	27.0	8	M8x19	63	169.5
		(100)	174	250	232	60	88	220	320	88	230	320	28	k6	60	50	5	31.0	8	M10x22	73	183.0
		(112)	178	250	232	67	88	220	320	88	230	320	28	k6	60	50	5	31.0	8	M10x22	73	181.0
		(132)	214	374	300	84	154	180	230	124	220	270	38	k6	80	70	5	41.0	10	M12x30	85	265.5
		(160)	251	374	300	86	209	180	230	184	220	270	42	k6	110	90	10	45.0	12	M16x36	132	309.0

Input unit P (continued)



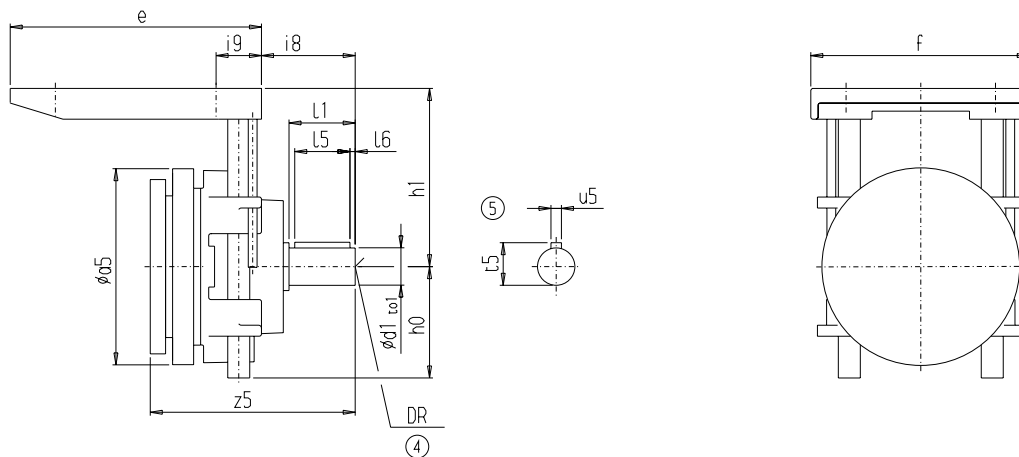
Gear unit		12h										3/9h										
		a5	e	f	i9	h0	h1	h1	h0	h1	h1	d1	to1	l1	l5	l6	t5	u5	DR	i8	z5	
						Max.	Min.	Max.	Max.	Min.	Max.											
F.108B	-P	(80)	140	225	174	44	88	190	295	88	190	295	19	k6	40	32	4	21.5	6	M6x16	53	159.5
		(90)	140	225	174	53	88	190	295	88	190	295	24	k6	50	40	5	27.0	8	M8x19	63	169.5
		(100)	174	250	232	60	88	223	318	88	190	240	28	k6	60	50	5	31.0	8	M10x22	73	183.0
		(112)	178	250	232	67	88	223	318	88	190	240	28	k6	60	50	5	31.0	8	M10x22	73	181.0
		(132)	214	374	300	84	143	207	257	135	215	265	38	k6	80	70	5	41.0	10	M12x28	85	265.5
		(160)	251	374	300	86	143	207	257	135	215	265	42	k6	110	90	10	45.0	12	M16x36	132	309.0
D.108	-P	(80)	140	225	174	44	88	190	300	88	230	300	19	k6	40	32	4	21.5	6	M6x16	53	178.0
		(90)	140	225	174	53	88	190	300	88	230	300	24	k6	50	40	5	27.0	8	M8x19	63	188.0
		(100)	174	250	232	60	88	220	320	88	230	320	28	k6	60	50	5	31.0	8	M10x22	73	204.0
		(112)	178	250	232	67	88	220	320	88	230	320	28	k6	60	50	5	31.0	8	M10x22	73	200.5
		(132)	214	374	300	84	209	220	270	209	255	300	38	k6	80	70	5	41.0	10	M12x28	85	285.0
		(160)	251	374	300	86	209	220	270	209	255	305	42	k6	110	90	10	45.0	12	M16x36	132	326.5
E.128	-P	(100)	174	250	232	60	88	220	320	88	220	320	28	k6	60	50	5	31.0	8	M10x22	73	161.0
		(112)	178	250	232	67	88	220	320	88	220	320	28	k6	60	50	5	31.0	8	M10x22	73	158.5
		(132)	214	374	300	84	154	250	340	124	250	340	38	k6	80	70	5	41.0	10	M12x31	85	242.0
		(160)	251	374	300	86	209	250	340	184	250	340	42	k6	110	90	10	45.0	12	M16x36	132	280.5
		(180)	296	476	400	96	243	270	352	243	270	352	55	m6	110	90	10	59.0	16	M20x42	135	304.0
		(200)	296	476	400	108	243	270	352	243	270	352	55	m6	110	90	10	59.0	16	M20x42	135	304.0
		(225)	342	557	480	142	209	295	345	-	-	-	60	m6	140	110	15	64.0	18	M20x42	147	361.5
Z.128	-P	(100)	174	250	232	60	88	220	320	88	255	320	28	k6	60	50	5	31.0	8	M10x22	73	161.0
		(112)	178	250	232	67	88	220	320	88	255	320	28	k6	60	50	5	31.0	8	M10x22	73	158.5
		(132)	214	374	300	84	139	255	305	134	280	330	38	k6	80	70	5	41.0	10	M12x31	85	242.0
		(160)	251	374	300	86	139	255	305	134	280	330	42	k6	110	90	10	45.0	12	M16x36	132	280.5
		(180)	296	476	400	96	233	253	352	209	293	352	55	m6	110	90	10	59.0	16	M20x42	135	304.0
		(200)	296	476	400	108	233	253	352	209	293	352	55	m6	110	90	10	59.0	16	M20x42	135	304.0
		(225)	342	557	480	142	199	295	340	-	-	-	60	m6	140	110	15	64.0	18	M20x42	147	361.5
K.128	-P	(90)	140	225	174	53	88	230	300	88	255	300	24	k6	50	40	5	27.0	8	M8x19	63	158.0
		(100)	174	250	232	60	88	220	320	88	255	320	28	k6	60	50	5	31.0	8	M10x22	73	171.0
		(112)	178	250	232	67	88	220	320	88	255	320	28	k6	60	50	5	31.0	8	M10x22	73	169.5
		(132)	214	374	300	84	134	220	270	209	255	300	38	k6	80	70	5	41.0	10	M12x28	85	253.0
		(160)	251	374	300	86	134	220	270	209	255	305	42	k6	110	90	10	45.0	12	M16x36	132	297.5
		(180)	296	476	400	96	196	243	352	261	243	352	55	m6	110	90	10	59.0	16	M20x42	135	318.0
		(200)	296	476	400	108	196	243	352	261	243	352	55	m6	110	90	10	59.0	16	M20x42	135	318.0

Geared motors

Input units

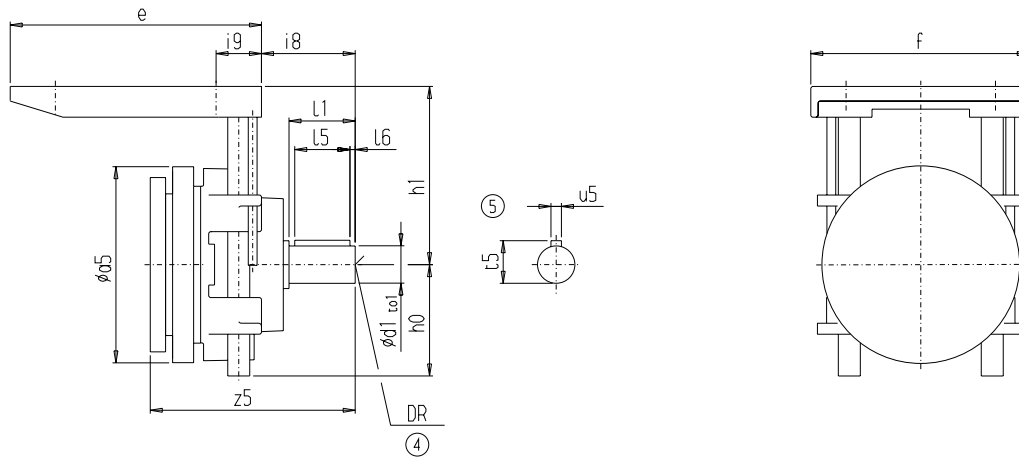
Dimensions

Input unit P (continued)



Gear unit		a5	e	f	i9	12h			3/9h			d1	to1	l1	l5	l6	t5	u5	DR	i8	z5	
						h0	h1	h1	h0	h1	h1											
						Max.	Min.	Max.	Max.	Min.	Max.											
F.128B	-P	(90)	140	225	174	53	88	235	295	88	230	295	24	k6	50	40	5	27.0	8	M8x19	63	158.0
		(100)	174	250	232	60	88	250	320	88	235	320	28	k6	60	50	5	31.0	8	M10x22	73	171.0
		(112)	178	250	232	67	88	250	320	88	235	320	28	k6	60	50	5	31.0	8	M10x22	73	169.5
		(132)	214	374	300	84	195	265	365	175	285	365	38	k6	80	70	5	41.0	10	M12x28	85	253.0
		(160)	251	374	300	86	195	265	365	175	285	365	42	k6	110	90	10	45.0	12	M16x36	132	297.5
		(180)	296	476	400	96	217	268	358	217	268	358	55	m6	110	90	10	59.0	16	M20x42	135	318.0
		(200)	296	476	400	108	217	268	358	217	268	358	55	m6	110	90	10	59.0	16	M20x42	135	318.0
D.128	-P	(90)	140	225	174	53	88	230	300	88	255	300	24	k6	50	40	5	27.0	8	M8x19	63	181.0
		(100)	174	250	232	60	88	220	320	88	255	320	28	k6	60	50	5	31.0	8	M10x22	73	197.0
		(112)	178	250	232	67	88	220	320	88	255	320	28	k6	60	50	5	31.0	8	M10x22	73	192.5
		(132)	214	374	300	84	139	255	305	134	280	330	38	k6	80	70	5	41.0	10	M12x28	85	276.0
		(160)	251	374	300	86	139	255	305	134	280	330	42	k6	110	90	10	45.0	12	M16x36	132	317.5
		(180)	296	476	400	96	233	253	352	209	293	352	55	m6	110	90	10	59.0	16	M20x42	135	341.0
		(200)	296	476	400	108	233	253	352	209	293	352	55	m6	110	90	10	59.0	16	M20x42	135	341.0
E.148	-P	(132)	214	374	300	84	134	280	380	209	280	380	38	k6	80	70	5	41.0	10	M12x32	85	234.0
		(160)	251	374	300	86	134	280	380	209	280	380	42	k6	110	90	10	45.0	12	M16x36	132	273.0
		(180)	296	476	400	96	193	300	425	233	300	425	55	m6	110	90	10	59.0	16	M20x42	135	296.5
		(200)	296	476	400	108	193	300	425	233	300	425	55	m6	110	90	10	59.0	16	M20x42	135	296.5
		(225)	342	557	480	142	254	315	415	-	-	-	60	m6	140	110	15	64.0	18	M20x42	147	354.0
		(250)	396	557	480	161	254	305	350	-	-	-	65	m6	140	110	15	69.0	18	M20x42	147	353.5
		(280)	468	666	558	173	265	399	429	-	-	-	70	m6	140	110	15	74.5	20	M20x42	171	365.5
D.148	-P	(100)	174	250	232	60	88	245	320	88	280	320	28	k6	60	50	5	31.0	8	M10x22	73	192.0
		(112)	178	250	232	67	88	245	320	88	280	320	28	k6	60	50	5	31.0	8	M10x22	73	189.5
		(132)	214	374	300	84	184	280	330	159	305	355	38	k6	80	70	5	41.0	10	M12x28	85	272.0
		(160)	251	374	300	86	184	280	330	159	305	355	42	k6	110	90	10	45.0	12	M16x36	132	311.0
		(180)	296	476	400	96	248	318	407	248	318	407	55	m6	110	90	10	59.0	16	M20x42	135	334.5
		(200)	296	476	400	108	248	293	352	261	318	407	55	m6	110	90	10	59.0	16	M20x42	135	334.5
		(225)	342	557	480	142	199	305	350	-	-	-	60	m6	140	110	15	64.0	18	M20x42	147	392.0
Z.148	-P	(132)	214	374	300	84	184	280	330	159	305	355	38	k6	80	70	5	41.0	10	M12x28	85	234.0
		(160)	251	374	300	86	184	280	330	159	305	355	42	k6	110	90	10	45.0	12	M16x36	132	273.0
		(180)	296	476	400	96	248	318	407	248	318	407	55	m6	110	90	10	59.0	16	M20x42	135	296.5
		(200)	296	476	400	108	248	293	352	248	318	407	55	m6	110	90	10	59.0	16	M20x42	135	296.5
		(225)	342	557	480	142	199	305	350	-	-	-	60	m6	140	110	15	64.0	18	M20x42	147	354.0
		(250)	396	557	480	161	254	305	350	-	-	-	65	m6	140	110	15	69.0	18	M20x42	147	353.5
		(280)	468	666	558	173	265	399	429	-	-	-	70	m6	140	110	15	74.5	20	M20x42	171	365.5

Input unit P (continued)



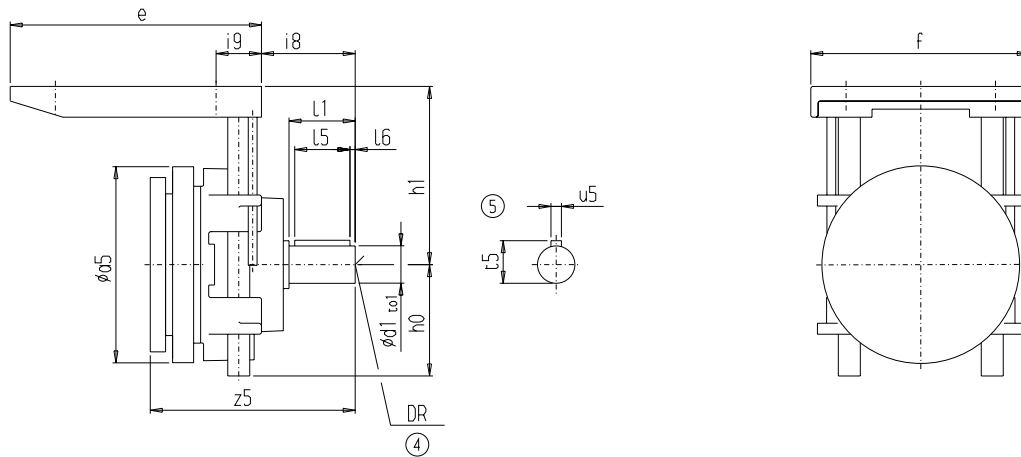
Gear unit		12h										3/9h										
		a5	e	f	i9	h0	h1	h1	h0	h1	h1	d1	to1	l1	i5	i6	t5	u5	DR	i8	z5	
						Max.	Min.	Max.	Max.	Min.	Max.											
K.148	-P	(100)	174	250	232	60	88	245	320	88.0	280	320	28	k6	60	50	5	31.0	8	M10x22	73	161.5
		(112)	178	250	232	67	88	245	320	88.0	280	320	28	k6	60	50	5	31.0	8	M10x22	73	159.0
		(132)	214	374	300	84	139	255	305	184.0	280	330	38	k6	80	70	5	41.0	10	M12x28	85	242.5
		(160)	251	374	300	86	139	255	305	184.0	280	330	42	k6	110	90	10	45.0	12	M16x36	132	281.0
		(180)	296	476	400	96	193	293	352	236.0	253	352	55	m6	110	90	10	59.0	16	M20x42	135	304.5
		(200)	296	476	400	108	193	293	352	236.0	253	352	55	m6	110	90	10	59.0	16	M20x42	135	304.5
		(225)	342	557	480	142	199	345	390	-	-	-	60	m6	140	110	15	64.0	18	M20x42	147	362.0
F.148B	-P	(100)	174	250	232	60	88	255	320	88.0	255	320	28	k6	60	50	5	31.0	8	M10x22	73	161.5
		(112)	178	250	232	67	88	255	320	88.0	255	320	28	k6	60	50	5	31.0	8	M10x22	73	159.0
		(132)	214	374	300	84	170	290	365	175.0	285	365	38	k6	80	70	5	41.0	10	M12x28	85	242.5
		(160)	251	374	300	86	170	290	365	175.0	285	365	42	k6	110	90	10	45.0	12	M16x36	132	281.0
		(180)	296	476	400	96	192	293	358	198.0	287	357	55	m6	110	90	10	59.0	16	M20x42	135	304.5
		(200)	296	476	400	108	192	293	358	198.0	287	357	55	m6	110	90	10	59.0	16	M20x42	135	304.5
		(225)	342	557	480	142	244	323	353	187.5	393	423	60	m6	140	110	15	64.0	18	M20x42	147	362.0
D.168	-P	(132)	214	374	300	84	154	310	360	124.0	340	390	38	k6	80	70	5	41.0	10	M12x28	85	260.5
		(160)	251	374	300	86	154	310	360	124.0	340	390	42	k6	110	90	10	45.0	12	M16x36	132	299.5
		(180)	296	476	400	96	239	337	407	233.0	343	407	55	m6	110	90	10	59.0	16	M20x42	135	323.0
		(200)	296	476	400	108	239	337	407	233.0	343	407	55	m6	110	90	10	59.0	16	M20x42	135	323.0
		(225)	342	557	480	142	199	345	390	-	-	-	60	m6	140	110	15	64.0	18	M20x42	147	380.5
Z168	-P	(132)	214	374	300	84	154	310	360	124.0	340	390	38	k6	80	70	5	41.0	10	M12x28	85	219.5
		(160)	251	374	300	86	154	310	360	124.0	340	390	42	k6	110	90	10	45.0	12	M16x36	132	258.5
		(180)	296	476	400	96	239	337	407	233.0	343	407	55	m6	110	90	10	59.0	16	M20x42	135	282.0
		(200)	296	476	400	108	239	337	407	233.0	343	407	55	m6	110	90	10	59.0	16	M20x42	135	282.0
		(225)	342	557	480	142	199	345	390	-	-	-	60	m6	140	110	15	64.0	18	M20x42	147	339.5
		(250)	396	557	480	161	194	345	390	-	-	-	65	m6	140	110	15	69.0	18	M20x42	147	339.0
		(280)	468	666	558	173	202	402	432	-	-	-	70	m6	140	110	15	74.5	20	M20x42	171	347.5
K.168	-P	(132)	214	374	300	84	184	280	330	159.0	305	355	38	k6	80	70	5	41.0	10	M12x28	85	234.5
		(160)	251	374	300	86	184	280	330	159.0	305	355	42	k6	110	90	10	45.0	12	M16x36	132	273.5
		(180)	296	476	400	96	239	337	407	209.0	277	352	55	m6	110	90	10	59.0	16	M20x42	135	297.0
		(200)	296	476	400	108	239	337	407	209.0	277	352	55	m6	110	90	10	59.0	16	M20x42	135	297.0
		(225)	342	557	480	142	199	390	435	-	-	-	60	m6	140	110	15	64.0	18	M20x42	147	354.5
		(250)	396	557	480	161	199	390	435	-	-	-	65	m6	140	110	15	69.0	18	M20x42	147	354.0
		(280)	468	666	558	173	180	472	502	-	-	-	70	m6	140	110	15	74.5	20	M20x42	171	365.5

Geared motors

Input units

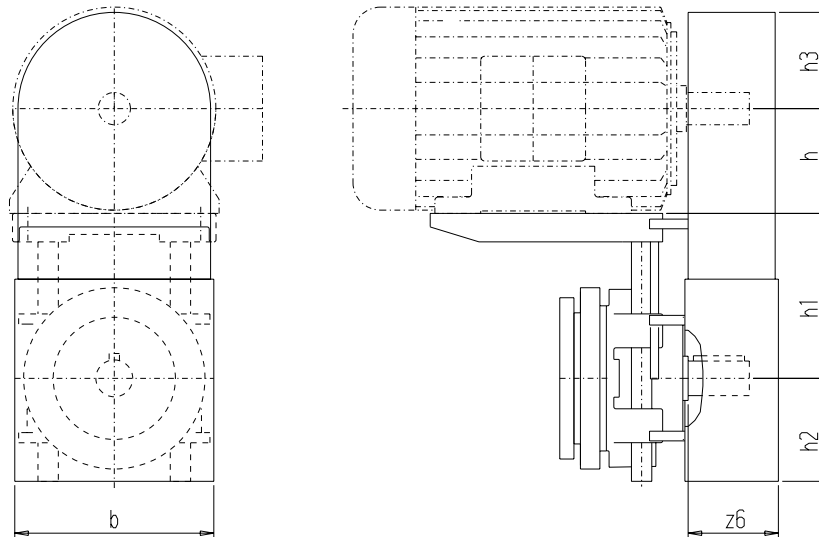
Dimensions

Input unit P (continued)



Gear unit	12h										3/9h										
	a5	e	f	i9	h0	h1	h1	h0	h1	h1	d1	to1	l1	l5	l6	t5	u5	DR	i8	z5	
					Max.	Min.	Max.	Max.	Min.	Max.											
F.168B -P	(132)	214	374	300	84	152.0	308	368	155.0	305	365	38	k6	80	70	5	41.0	10	M12x28	85	234.5
	(160)	251	374	300	86	152.0	308	368	155.0	305	365	42	k6	110	90	10	45.0	12	M16x36	132	273.5
	(180)	296	476	400	96	258.0	318	432	262.0	313	428	55	m6	110	90	10	59.0	16	M20x42	135	297.0
	(200)	296	476	400	108	258.0	318	432	262.0	313	428	55	m6	110	90	10	59.0	16	M20x42	135	297.0
	(225)	342	557	480	142	218.5	393	423	218.5	393	423	60	m6	140	110	15	64.0	18	M20x42	147	354.5
	(250)	396	557	480	161	255.5	356	386	187.5	424	454	65	m6	140	110	15	69.0	18	M20x42	147	354.0
	(280)	468	666	558	173	253.0	399	429	252.0	400	430	70	m6	140	110	15	74.5	20	M20x42	171	365.5
D.188 -P	(132)	214	374	300	84	120.0	340	380	125.0	372	412	38	k6	80	70	5	41.0	10	M12x28	85	219.5
	(160)	251	374	300	86	120.0	340	380	125.0	372	412	42	k6	110	90	10	45.0	12	M16x36	132	258.5
	(180)	296	476	400	96	207.0	368	433	193.0	382	432	55	m6	110	90	10	59.0	16	M20x42	135	282.0
	(200)	296	476	400	108	207.0	368	433	193.0	382	432	55	m6	110	90	10	59.0	16	M20x42	135	282.0
	(225)	342	557	480	142	193.5	393	423	-	-	-	60	m6	140	110	15	64.0	18	M20x42	147	339.5
	(250)	396	557	480	161	193.5	418	448	-	-	-	65	m6	140	110	15	69.0	18	M20x42	147	339.0
Z188 -P	(160)	251	374	300	86	120.0	340	380	125.0	372	412	42	k6	110	90	10	45.0	12	M16x36	132	259.0
	(180)	296	476	400	96	207.0	368	433	193.0	382	432	55	m6	110	90	10	59.0	16	M20x42	135	282.5
	(200)	296	476	400	108	207.0	368	433	193.0	382	432	55	m6	110	90	10	59.0	16	M20x42	135	282.5
	(225)	342	557	480	142	193.5	393	423	-	-	-	60	m6	140	110	15	64.0	18	M20x42	147	340.0
	(250)	396	557	480	161	193.5	418	448	-	-	-	65	m6	140	110	15	69.0	18	M20x42	147	339.5
	(280)	468	666	558	173	201.0	399	424	-	-	-	70	m6	140	110	15	74.5	20	M20x42	171	347.5
K188 -P	(132)	214	374	300	84	140.0	360	410	160.0	300	370	38	k6	80	70	5	41.0	10	M12x28	85	220.0
	(160)	251	374	300	86	140.0	360	410	160.0	300	370	42	k6	110	90	10	45.0	12	M16x36	132	259.0
	(180)	296	476	400	96	197.0	378	433	183.0	302	357	55	m6	110	90	10	59.0	16	M20x42	135	282.5
	(200)	296	476	400	108	197.0	378	433	183.0	302	357	55	m6	110	90	10	59.0	16	M20x42	135	282.5
	(225)	342	557	480	142	223.5	463	493	-	-	-	60	m6	140	110	15	64.0	18	M20x42	147	340.0
	(250)	396	557	480	161	193.5	493	523	-	-	-	65	m6	140	110	15	69.0	18	M20x42	147	339.5
F.188B -P	(132)	214	374	300	84	125.0	335	375	125.0	335	375	38	k6	80	70	5	41.0	10	M12x28	85	220.0
	(160)	251	374	300	86	125.0	335	375	125.0	335	375	42	k6	110	90	10	45.0	12	M16x36	132	259.0
	(180)	296	476	400	96	228.0	347	432	232.0	343	428	55	m6	110	90	10	59.0	16	M20x42	135	282.5
	(200)	296	476	400	108	228.0	347	432	232.0	343	428	55	m6	110	90	10	59.0	16	M20x42	135	282.5
	(225)	342	557	480	142	196.5	390	420	223.5	463	493	60	m6	140	110	15	64.0	18	M20x42	147	340.0
	(250)	396	557	480	161	192.5	419	449	187.5	424	454	65	m6	140	110	15	69.0	18	M20x42	147	339.5
	(280)	468	666	558	173	186.5	463	493	181.0	471	501	70	m6	140	110	15	74.5	20	M20x42	171	347.5

Protective belt cover for piggy-back design PS



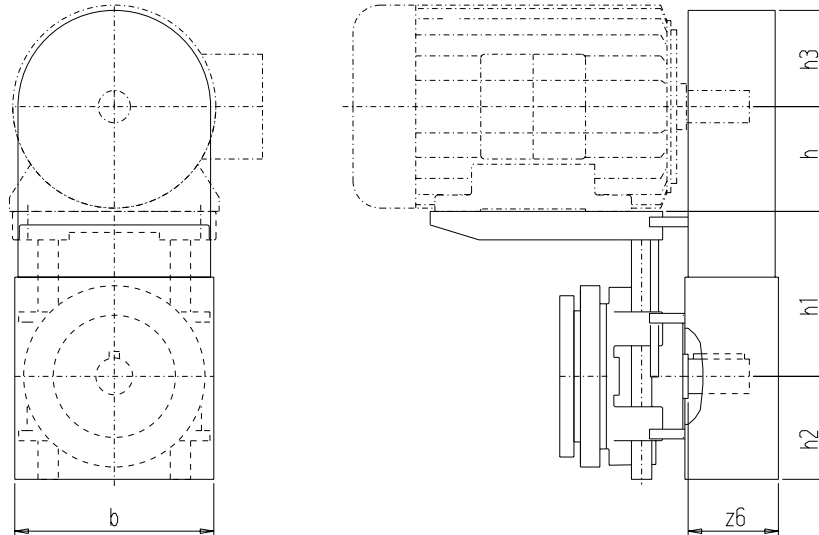
Gear unit		12h		3/9h		h	h2	h3	z6	b	
		h1	h1	h1	h1						
		Min.	Max.	Min.	Max.						
B.38 F.38B/48B	-PS	(80)	130	225	130	225	80	88	97	71	190
		(90)	130	225	130	225	90	88	97	71	190
		(100)	145	240	145	240	100	88	132	83	248
E./Z.38 C.38/48 K.38/48	-PS	(80)	130	235	130	235	80	88	97	71	190
		(90)	130	235	130	235	90	88	97	71	190
		(100)	145	240	145	240	100	88	132	83	248
D.38	-PS	(80)	130	235	130	235	80	88	97	71	190
		(90)	130	235	130	235	90	88	97	71	190
E./Z.48	-PS	(80)	130	235	140	235	80	88	97	71	190
		(90)	130	235	140	235	90	88	97	71	190
		(100)	145	240	145	240	100	88	132	83	248
		(112)	145	240	145	240	112	88	120	83	248
D.48	-PS	(80)	130	235	140	235	80	88	97	71	190
		(90)	130	235	140	235	90	88	97	71	190
		100	145	240	145	240	100	88	132	83	248
E./Z.68 C.68 K.68	-PS	(80)	140	235	160	235	80	88	97	71	190
		(90)	140	235	160	235	90	88	97	71	190
		(100)	145	240	160	240	100	88	132	83	248
		(112)	145	240	160	240	112	88	120	83	248
		(132)	180	230	180	230	132	135	140	147	288
F.68B	-PS	(80)	140	225	140	225	80	88	97	71	190
		(90)	140	225	140	225	90	88	97	71	190
		(100)	145	240	148	238	100	88	132	83	248
		(112)	145	240	148	238	112	88	120	83	248
D.68	-PS	(80)	140	235	160	235	80	88	97	71	190
		(90)	140	235	160	235	90	88	97	71	190
		(100)	145	240	160	240	100	88	132	83	248
E./Z.88	-PS	(90)	160	235	190	235	90	88	97	71	190
		(100)	160	240	190	240	100	88	132	83	248
		(112)	160	240	190	240	112	88	120	83	248
		(132)	180	230	220	270	132	135	140	147	288
		(160)	180	230	220	270	160	135	140	135	288

Geared motors

Input units

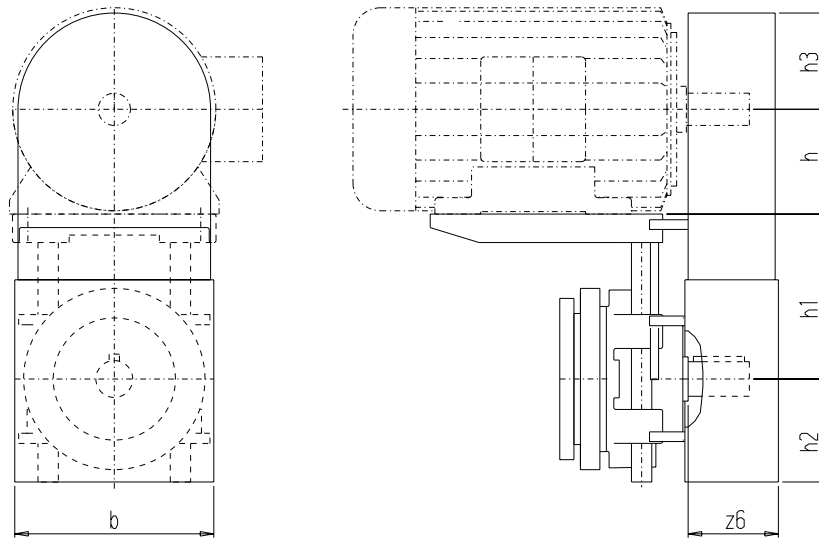
Dimensions

Protective belt cover for piggy-back design PS (continued)



Gear unit		12h		3/9h		h	h2	h3	z6	b	
		h1	h1	h1	h1						
		Min.	Max.	Min.	Max.						
F.88B	-PS	(80)	163	228	168	228	80	88	97	71	190
		(90)	163	228	168	228	90	88	97	71	190
		(100)	163	238	160	240	100	88	132	83	248
		(112)	163	238	160	240	112	88	120	83	248
		(132)	178	228	188	228	132	135	140	147	288
C.88	-PS	(80)	160	235	190	235	80	88	97	71	190
		(90)	160	235	190	235	90	88	97	71	190
		(100)	160	240	190	240	100	88	132	83	248
		(112)	160	240	190	240	112	88	120	83	248
		(132)	180	230	180	230	132	135	140	147	288
K.88	-PS	(80)	160	235	190	235	80	88	97	71	190
		(90)	160	235	190	235	90	88	97	71	190
		(100)	160	240	190	240	100	88	132	83	248
		(112)	160	240	190	240	112	88	120	83	248
		(132)	180	230	180	230	132	135	140	147	288
D.88	-PS	(80)	160	235	190	235	80	88	97	71	190
		(90)	160	235	190	235	90	88	97	71	190
		(100)	160	240	190	240	100	88	132	83	248
		(112)	160	240	190	240	112	88	120	83	248
		(132)	180	230	220	270	132	135	140	147	288
E./Z.108 K.108	-PS	(80)	190	300	230	300	80	88	97	71	190
		(90)	190	300	230	300	90	88	97	71	190
		(100)	220	320	230	320	100	88	132	83	248
		(112)	220	320	230	320	112	88	120	83	248
		(132)	220	270	255	305	132	135	140	147	288
		(160)	220	270	255	305	160	135	140	135	288
		(180)	268	352	268	352	180	205	182	134	372
(200)	268	352	268	352	200	205	182	134	372		

Protective belt cover for piggy-back design PS (continued)



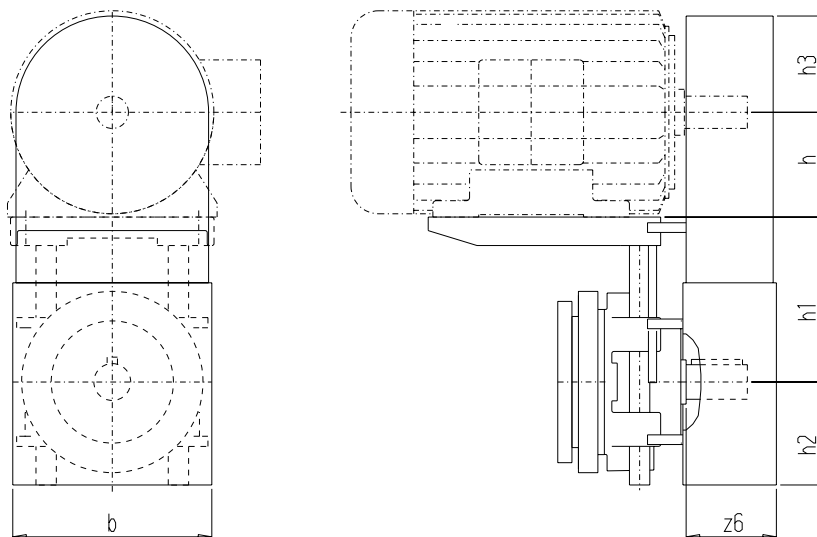
Gear unit		12h		3/9h		h	h2	h3	z6	b	
		h1	h1	h1	h1						
		Min.	Max.	Min.	Max.						
F.108B	-PS	(80)	190	295	190	295	80	88	97.0	71	190
		(90)	190	295	190	295	90	88	97.0	71	190
		(100)	223	318	190	240	100	88	132.0	83	248
		(112)	223	318	190	240	112	88	120.0	83	248
		(132)	207	257	215	265	132	135	140.0	147	288
		(160)	207	257	215	265	160	135	140.0	135	288
D.108	-PS	(80)	190	300	23	300	80	88	97.0	71	190
		(90)	190	300	230	300	90	88	97.0	71	190
		(100)	220	320	230	320	100	88	132.0	83	248
		(112)	220	320	230	320	112	88	120.0	83	248
		(132)	220	270	255	305	132	135	140.0	147	288
		(160)	220	270	255	305	160	135	140.0	135	288
E./Z.128	-PS	(100)	220	320	255	320	100	88	132.0	83	248
		(112)	220	320	255	320	112	88	120.0	83	248
		(132)	255	305	280	330	132	135	140.0	147	288
		(160)	255	305	280	330	160	135	140.0	135	288
		(180)	253	352	293	352	180	205	182.0	134	372
		(200)	253	352	293	352	200	205	182.0	134	372
		(225)	295	340	-	-	225	215	232.5	174	428
F.128B	-PS	(90)	235	295	230	295	90	88	97.0	71	190
		(100)	250	320	235	320	100	88	132.0	83	248
		(112)	250	320	235	320	112	88	120.0	83	248
		(132)	265	365	285	365	132	135	140.0	147	288
		(160)	265	365	285	330	160	135	140.0	135	288
		(180)	268	358	268	358	180	205	182.0	134	372
		(200)	268	358	268	358	200	205	182.0	134	372
K.128	-PS	(90)	230	300	255	300	90	88	97.0	71	190
		(100)	220	320	255	320	100	88	132.0	83	248
		(112)	220	320	255	320	112	88	120.0	83	248
		(132)	220	270	255	305	132	135	140.0	147	288
		(160)	220	270	255	305	160	135	140.0	135	288
		(180)	243	352	243	352	180	205	182.0	134	372
		(200)	243	352	243	352	200	205	182.0	134	372

Geared motors

Input units

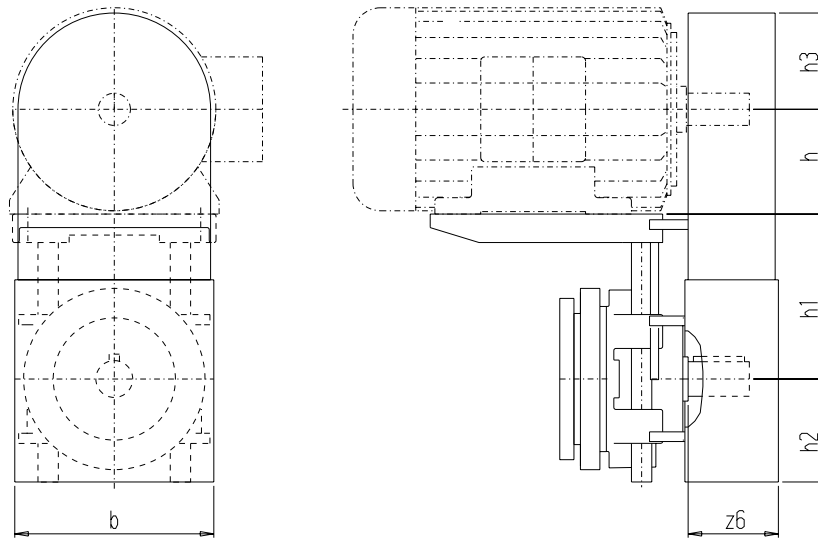
Dimensions

Protective belt cover for piggy-back design PS (continued)



Gear unit		12h		3/9h		h	h2	h3	z6	b	
		h1	h1	h1	h1						
		Min.	Max.	Min.	Max.						
D.128	-PS	(90)	230	300	255	300	90	88	97.0	71	190
		(100)	220	320	255	320	100	88	132.0	83	248
		(112)	220	320	255	320	112	88	120.0	83	248
		(132)	255	305	280	330	132	135	140.0	147	288
		(160)	255	305	280	330	160	135	140.0	135	288
		(180)	253	352	293	352	180	205	182.0	134	372
		(200)	253	352	293	352	200	205	182.0	134	372
E./Z.148	-PS	(132)	280	330	305	355	132	135	140.0	147	288
		(160)	280	330	305	355	160	135	140.0	135	288
		(180)	293	352	318	407	180	205	182.0	134	372
		(200)	293	352	318	407	200	205	182.0	134	372
		(225)	305	350	-	-	225	215	232.5	174	428
		(250)	305	350	-	-	250	215	210.0	174	428
		(280)	339	369	-	-	280	240	274.0	162	556
F.148B	-PS	(100)	255	320	255	320	100	88	132.0	83	248
		(112)	255	320	255	320	112	88	120.0	83	248
		(132)	290	365	285	365	132	135	140.0	147	288
		(160)	290	365	285	365	160	135	140.0	135	288
		(180)	293	358	287	357	180	205	182.0	134	372
		(200)	293	358	287	357	200	205	182.0	134	372
		(225)	323	353	393	423	225	215	232.5	174	428
K.148	-PS	(100)	245	320	280	320	100	88	132.0	83	248
		(112)	245	320	280	320	112	88	120.0	83	248
		(132)	255	305	280	330	132	135	140.0	147	288
		(160)	255	305	280	330	160	135	140.0	135	288
		(180)	293	352	253	352	180	205	182.0	134	372
		(200)	293	352	253	352	200	205	182.0	134	372
		(225)	345	390	-	-	225	215	232.5	174	428

Protective belt cover for piggy-back design PS (continued)



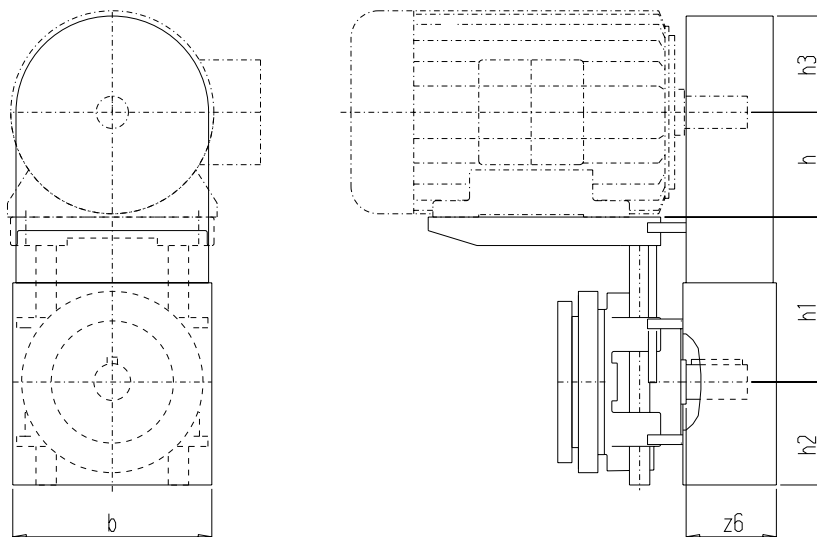
Gear unit		12h		3/9h		h	h2	h3	z6	b	
		h1	h1	h1	h1						
		Min.	Max.	Min.	Max.						
D.148	-PS	(100)	245	320	280	320	100	88	132.0	83	248
		(112)	245	320	280	320	112	88	120.0	83	248
		(132)	280	330	305	355	132	135	140.0	147	288
		(160)	280	330	305	355	160	135	140.0	135	288
		(180)	293	352	318	407	180	205	182.0	134	372
		(200)	293	352	318	407	200	205	182.0	134	372
		(225)	305	350	–	–	225	215	232.5	174	428
Z.168	-PS	(132)	310	360	340	390	132	135	140.0	147	288
		(160)	310	360	340	390	160	135	140.0	135	288
		(180)	337	407	343	407	180	205	182.0	134	372
		(200)	337	407	343	407	200	205	182.0	134	372
		(225)	345	390	–	–	225	215	232.5	174	428
		(250)	345	390	–	–	250	215	210.0	174	428
		(280)	402	432	–	–	280	240	274.0	162	556
F.168B	-PS	(132)	308	368	305	365	132	135	140.0	147	288
		(160)	308	368	305	365	160	135	140.0	135	288
		(180)	318	432	313	428	180	205	182.0	134	372
		(200)	318	432	313	428	200	205	182.0	134	372
		(225)	393	423	393	423	225	215	232.5	174	428
		(250)	356	386	424	454	250	215	210.0	174	428
		(280)	399	429	400	430	280	240	274.0	162	556
K.168	-PS	(132)	280	330	305	355	132	135	140.0	147	288
		(160)	280	330	305	355	160	135	140.0	135	288
		(180)	337	407	277	352	180	205	182.0	134	372
		(200)	337	407	277	352	200	205	182.0	134	372
		(225)	390	435	–	–	225	215	232.5	174	428
		(250)	390	435	–	–	250	215	210.0	174	428
		(280)	472	502	–	–	280	240	274.0	162	556
D.168	-PS	(132)	310	360	340	390	132	135	140.0	147	288
		(160)	310	360	340	390	160	135	140.0	135	288
		(180)	337	407	343	407	180	205	182.0	134	372
		(200)	337	407	343	407	200	205	182.0	134	372
		(225)	345	390	–	–	225	215	232.5	174	428

Geared motors

Input units

Dimensions

Protective belt cover for piggy-back design PS (continued)



Gear unit		12h		3/9h		h	h2	h3	z6	b	
		h1	h1	h1	h1						
		Min.	Max.	Min.	Max.						
Z.188	-PS	(132)	340	380	372	412	132	135	140.0	147	288
		(160)	340	380	372	412	160	135	140.0	135	288
		(180)	368	433	382	432	180	205	182.0	134	372
		(200)	368	433	382	432	200	205	182.0	134	372
		(225)	393	423	–	–	225	215	232.5	174	428
		(250)	418	448	–	–	250	215	210.0	174	428
		(280)	399	424	–	–	280	240	274.0	177	556
K.188	-PS	(132)	360	410	300	370	132	135	140.0	147	288
		(160)	360	410	300	370	160	135	140.0	135	288
		(180)	378	433	302	357	180	205	182.0	134	372
		(200)	378	433	302	357	200	205	182.0	134	372
		(225)	463	493	–	–	225	215	232.5	174	428
		(250)	493	523	–	–	250	215	210.0	174	428
		(280)	472	502	–	–	280	240	274.0	177	556
F.188B	-PS	(132)	335	375	335	375	132	135	140.0	147	288
		(160)	335	375	335	375	160	135	140.0	135	288
		(180)	347	432	343	428	180	205	182.0	134	372
		(200)	347	432	343	428	200	205	182.0	134	372
		(225)	390	420	463	493	225	215	232.5	174	428
		(250)	419	449	424	454	250	215	210.0	174	428
		(280)	463	493	471	501	280	240	274.0	177	556
D.188	-PS	(132)	340	380	372	412	132	135	140.0	147	288
		(160)	340	380	372	412	160	135	140.0	135	288
		(180)	368	433	382	432	180	205	182.0	134	372
		(200)	368	433	382	432	200	205	182.0	134	372
		(225)	393	423	–	–	225	215	232.5	174	428
		(250)	418	448	–	–	250	215	210.0	174	428
		(280)	399	424	–	–	280	240	274.0	177	556