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Find the *SEW Eurodrive PSF511/R/EK04 CM71L/BR/TF/RH1L/SB52* at our website: *Click HERE*

SEW EURODRIVE

Low Backlash Planetary Gear Units

Edition

07/2002





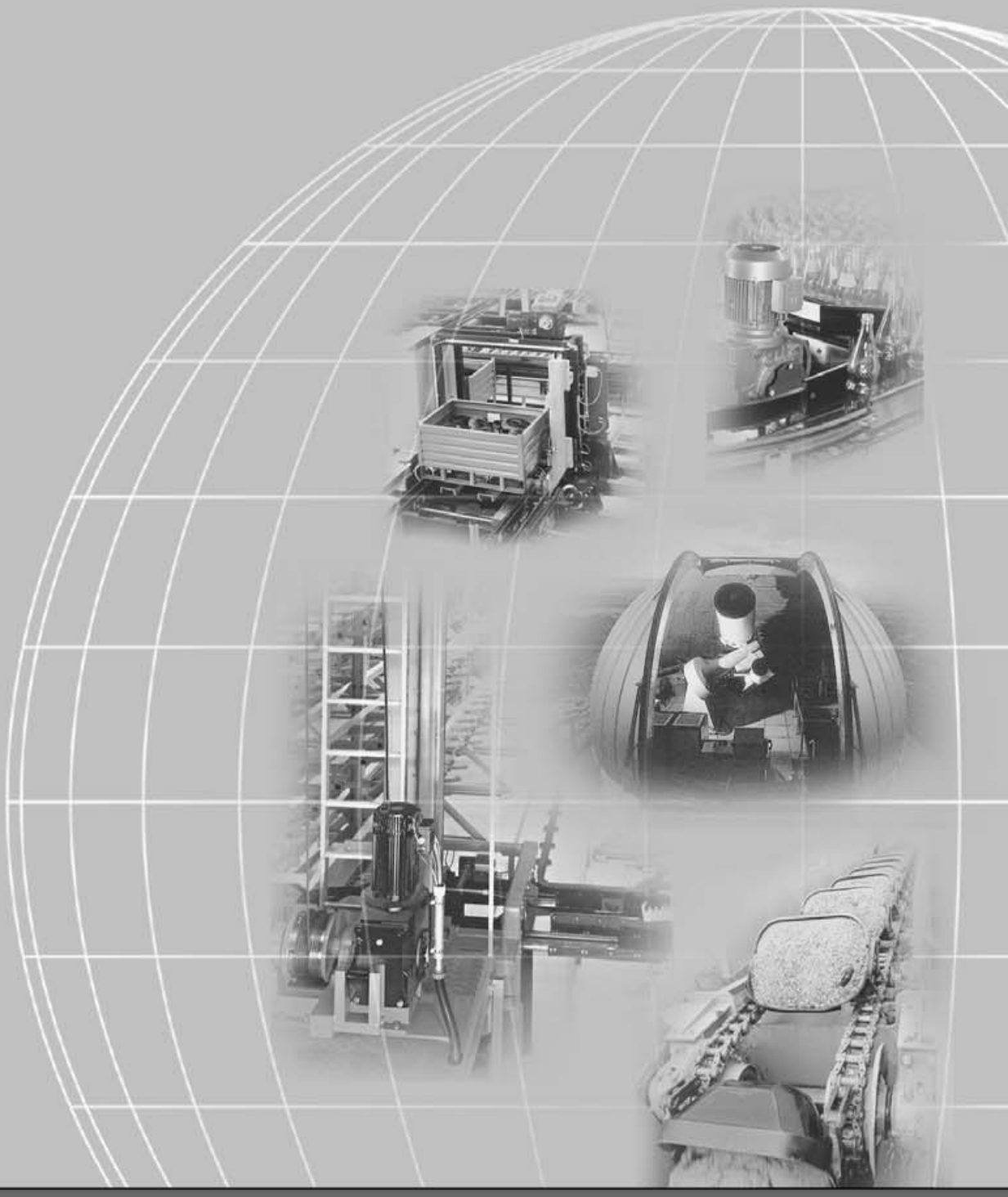


Catalog

1053 7619 / EN

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SEW
EURODRIVE



SEW-EURODRIVE



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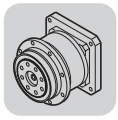
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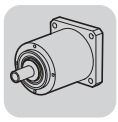
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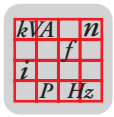
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1 The SEW-EURODRIVE Group of Companies

What is SEW?

SEW-EURODRIVE is a leading company in the global market for electrical drive engineering. SEW's global presence, extensive product range and broad spectrum of services mean it is the ideal partner for the machinery and plant construction industry when it comes to providing drive systems for demanding applications.

SEW possesses many years of experience in drive engineering which it puts to good use when developing, producing and selling all its drives with components drawn from mechanical and electrical engineering and electronics.

The headquarters of the group of companies is located in Bruchsal, Germany. Components for SEW's modular drive system are manufactured to the highest quality standards in production plants sited in Germany, France, the USA, Brazil and China. These stocked components are utilized in assembly plants in over 30 industrialized countries all over the world. The assembly plants offer close proximity to customers and particularly short delivery times for individual drive systems – with a constantly high standard of quality. SEW's sales, consulting, customer and spare parts services are to be found in more than 50 countries all over the world.

The product range

- Geared motors, gear units and motors
  - Helical gear units/geared motors
  - Parallel shaft helical gear units/geared motors
  - Helical-bevel gear units/geared motors
  - Helical-worm gear units/geared motors
  - Spiroplan® right-angle geared motors
  - Planetary geared motors
  - Industrial gear units
  - Low backlash gear units/geared motors
  - Brake motors
  - Drives for trolley drive systems
  - Geared torque motors
  - Pole-changing geared motors

- Electronically controlled drives with
  - MOVITRAC® frequency inverters
  - MOVIDRIVE® drive inverters
  - MOVIDYN® servo controllers
  - Technology and communications options for the inverters
  - Asynchronous AC motors and AC geared motors
  - Asynchronous and synchronous servomotors and geared servomotors
  - DC motors, brake motors and geared motors
  - Synchronous and asynchronous linear motors

- Components for decentralized installation
  - MOVIMOT® geared motors with integrated frequency inverter
  - MOVI-SWITCH® geared motors with integrated switching and protection function
  - Field distributors, fieldbus interfaces

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- Mechanical variable speed drives
  - VARIBLOC® wide V-belt variable speed geared motors
  - VARIMOT® friction disk variable speed geared motors
- Explosion-proof drives acc. to ATEX 100a
- Services
  - Technical consulting
  - Application software
  - Seminars and training courses
  - Extensive technical documentation
  - Worldwide customer service

Content of the catalog

This catalog describes PSF, PSB and PSE low backlash planetary gear units. It contains project planning notes, mounting positions, technical data, selection tables and dimension sheets.

Please refer to the separate catalogs for further information about servomotors, gear units and geared motors.

Other catalogs

- Gear units
- Geared motors
- Geared servomotors
- MOVIMOT® geared motors
- Pole-changing geared motors

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2 Product Description and Overview of Types

2.1 General description

Low backlash planetary and planetary right-angle gear units in the PSF, PSB and PSE series are single and double stage gear units with rated output torques from 55 to 3000 Nm. The distribution of load between several planet wheels results in a power-to-weight ratio which is significantly higher than in helical gear units, meaning that the units are more compact.

PSF, PSB and PSE planetary gear units are available as geared motors with mounted SEW servomotors. Adapters with couplings are available for mounting of commercial motors.

These combinations let us create drives for demanding applications with the following characteristics:

Low backlash Optimized gearing geometry and the closest possible production tolerances ensure circumferential backlash values between 3 and 6 angular minutes (< 1' available on request).

Precise gradings All gear ratios between i = 4 and i = 100 are whole number ratios and mathematically accurate. This means the gear units are particularly suited to applications in controllers in which it is important to have divisible resolution values in terms of encoder increments.

Accurate positioning The special design guarantees very high levels of torsional rigidity.

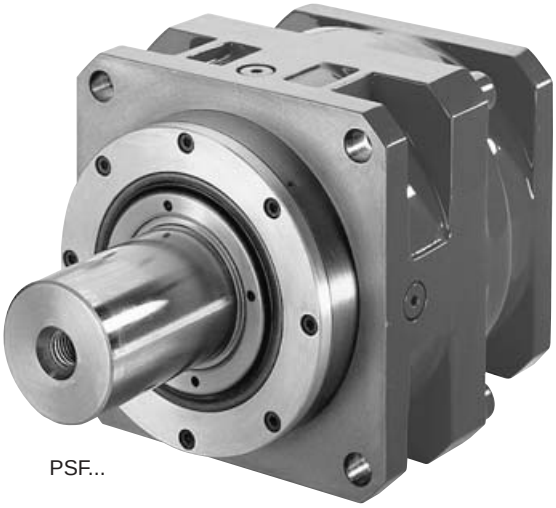
Compact The high power-to-weight ratio means the units are as small as possible.

Low-noise All PSF, PSB and PSE planetary gear units operate below the permitted noise levels as defined in VDI directive 2159.

Low-maintenance PSF, PSB and PSE planetary gear units are supplied with lubrication for life employing a synthetic lubricant.

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2.2 Overview of types



PSF...



PSB...



PSE...

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Fig. 1: Overview of types of low backlash planetary gear units

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2.3 Low backlash planetary gear unit designations

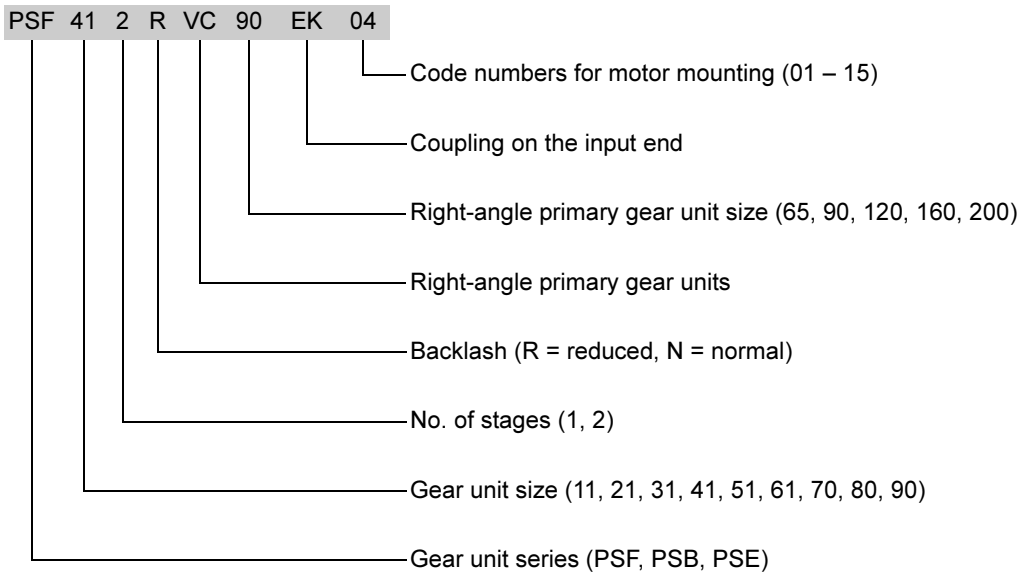
PSF...	Planetary gear unit, low backlash, B5 flange-mounted
PSB...	Planetary gear unit, low backlash, B5 flange-mounted and flange block shaft
PSE...	Planetary gear unit, low backlash, B14 flange-mounted

Options

VC...	Right-angle primary gear unit
N	Normal backlash
R	Reduced backlash
EK..	Adapter with coupling on the input end, with code number for motor mounting
ED	Free shaft end on the input end

2.4 Order information

The following example illustrates the pattern for order information which always starts from the output end.



Example of a complete order:

Type:	PSF412 R VC90 EK04
Mounting position:	M1
Ratio:	80
Output shaft:	Smooth

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2.5 Gear ratios and circumferential backlash values

Single and double stage planetary gear units

Gear unit type	i whole number	Circumferential backlash α	
		Normal N	Reduced R[1)]
PSF211 – PSF901	4, 5, 7, 10	< 6'	< 3'
PSB311 – PSB611			
PSE211 – PSE611			
PSF212 – PSF902	16, 20, 25, 28, 35, 40, 49, 70, 100		
PSB312 – PSB612			
PSE212 – PSE612			

1) < 1' on request

Planetary right-angle gear units

Gear unit type	i whole number	Circumferential backlash α	
		Normal N	Reduced R[1)]
PSF211 VC..	8, 10, 14, 20	< 10'	< 5'
PSE211 VC..			
PSF311 VC.. – PSF801 VC..	7, 10, 14, 21, 28, 35, 40, 50, 60		
PSB311 VC.. – PSB611 VC..			
PSE311 VC.. – PSE611 VC..			

1) < 3' on request

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3 Project Planning

3.1 Additional documentation

In addition to this catalog, SEW-EURODRIVE offers an extensive range of documentation covering the entire topic of electrical drive engineering. These are mainly the publications in the "Drive Engineering - Practical Implementation" series as well as the manuals and catalogs for electronically controlled drives.

The SEW homepage (http://www.sew-eurodrive.com) provides links to the current documentation in various languages which you can order or download. The list below includes other documents which are of interest in terms of project planning. You can order these publications from SEW-EURODRIVE.

Geared servomotors catalog

The "Geared Servomotors" catalog provides information on

- Project planning notes
- Technical data
- Selection tables
- Dimension sheets.

It contains detailed information on the selection as well as the functional principles of servomotors and their accessories.

Operating instructions

The "Low Backlash Planetary Gear Units" operating instructions contain extensive safety information as well as information on

- Installation
- Mounting
- Disassembly
- Startup
- Inspection
- Maintenance
- Troubleshooting

Drive Engineering - Practical Implementation

The "Drive Engineering - Practical Implementation, Project Planning - Drives" publication contains extensive information about the properties, differentiating characteristics and fields of application of SEW drives. This publication contains an extensive library of the most important drive calculation formulae as well as detailed examples of the most frequent applications. This information means the publication is an important tool for project planning and an essential complement to SEW product catalogs.

The "Drive Engineering - Practical Implementation, Servo Drives" booklet provides comprehensive information about highly dynamic servo drives.

The following chapters also contain important information about rating of low backlash planetary gear units. In addition, SEW-EURODRIVE will be glad to offer additional advice.

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3.2 Drive selection data

Certain data are essential to specify the components for your drive. These are:

Drive selection data			Your entry
$n_{a\ max}$	Maximum output speed	[1/min]	
n_{am}	Average output speed	[1/min]	
$M_{a\ max}$	Maximum output torque assumed for the drive in project planning	[Nm]	
M_{am}	Average output torque	[Nm]	
M_N	Rated torque (→ Sec. Selection tables)	[Nm]	
M_B	Maximum acceleration torque (→ Sec. Selection tables)	[Nm]	
$M_{em.\ off}$	Maximum braking torque in emergency off braking	[Nm]	
i	Gear unit reduction ratio		
F_{Aa}	Axial load at the gear unit output (central axial load)	[N]	
F_{Ra}	Overhung load on the gear unit output (Load applied to the middle of the shaft end. Otherwise, the precise point of application of force is required in order to adjust the calculation.)	[N]	
F_{RxL}	Permitted overhung load at point x based on bearing service life	[N]	
F_{RxW}	Permitted overhung load at point x based on shaft strength	[N]	
α	Circumferential backlash	[']	
n_e	Input speed	[1/min]	
J	Mass moment of inertia to be driven	[10^{-4}kgm^2]	
M1 – M6	Mounting position (→ Sec. Mounting Positions)	-	
ϑ_{amb}	Ambient temperature	[°C]	
H	Altitude	[m above sea level]	
S.., ..%cdf	Operating mode and intermittency factor cdf; alternatively, exact load cycle can be specified	-	

Design and operating notes



When mounting large motor masses

- single stage: $m_{motor} / m_{gear\ unit} \geq 4$
- double stage: $m_{motor} / m_{gear\ unit} \geq 2.5$

it is necessary to support the motor. Please contact us for information.



When input and output elements are mounted on **PSF gear units**, the **shaft nut** on the input and output shaft **must not be used as a stop** for transmission elements (belt pulley, pinion gear, etc.).

When input and output elements are mounted on **PSE gear units**, the **shaft shoulder can be used as a stop** for transmission elements (belt pulley, pinion gear, etc.).



High quality double-sealed (2RS) bearings are used on the output end of **PSE gear units**. Avoid splash water and abrasives!

Low backlash planetary gear units can be used at ambient temperatures between -10 °C and +60 °C. They have lubrication for life employing a high quality synthetic lubricant (applies to normal operating conditions).

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3.3 Project planning sequence

The following flowchart shows a schematic view of the project planning procedure of a low backlash planetary gear unit for a positioning drive in S3 operation.

Necessary information about the machine to be driven
- Technical data and ambient conditions
- Positioning accuracy
- Speed setting range (true-running accuracy)
- Calculation of the travel cycle

↓

Calculation of the relevant application data
- Travel cycle
- Static, dynamic and regenerative power
- Speeds (maximum and average output speed)
- Torques (maximum and average output torque)
- Cyclic duration factor, maximum switch-on time
- Number of cycles

↓

Gear unit selection (S3 operation: cyclic duration factor ≤ 60 % , switch-on time ≤ 20 min)
- Definition of gear unit size, gear unit reduction ratio and gear unit type
- Determine the speed constant n_K
- Calculate the speed ratio f_D
- Determine the correction factor f_K
- Determine the permitted output torque M_B/f_K
- Check the gear unit load ($M_m \leq M_B/f_K$ and $M_{max} \leq M_B$)

↓

Gear unit selection
- Check the emergency off torque
- Check the positioning accuracy
- Check the maximum speed
- Check the overhung and axial loads
- Check the mass moments of inertia (→ Sec. 9)

↓

System selection according to the task
- Supply system or inverter operation

↓

Motor selection

↓

Inverter selection

↓

Check whether all requirements are met

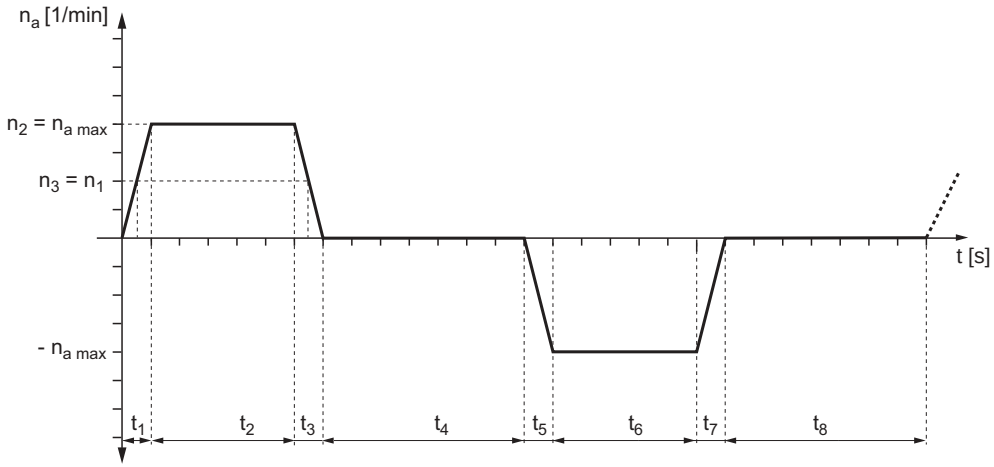
Please contact SEW-EURODRIVE if project planning for a cyclic duration factor > 60 %.

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3.4 Project planning of a planetary gear unit in S3 operation

Depending on their gear ratio and starting frequency, planetary gear units can be loaded in excess of their rated torque M_N up to the maximum acceleration torque M_B. Furthermore, the average torque M_m must be checked using a travel cycle as part of project planning.

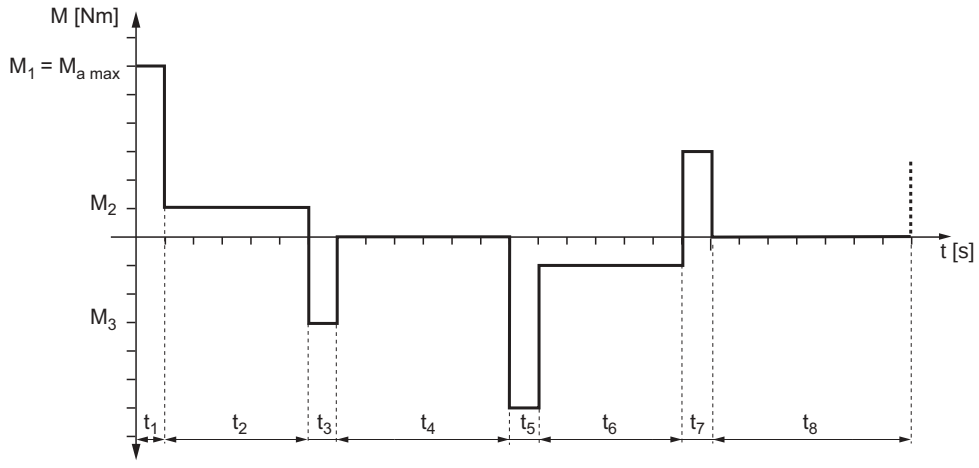
Travel cycle



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The travel cycle is used to determine the corresponding torque diagram.

Torque diagram



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Selecting the planetary gear unit

Refer to the torque diagram and read off the maximum torque $M_{a\ max}$ which can occur. Use this value to determine the appropriate planetary gear unit from the selection tables. The following condition must be met:

$$\mathbf{M_{a\ max} \leq M_B}$$

Key

$M_{a\ max}$ [Nm] = Maximum torque which can occur (→ torque diagram)

M_B [Nm] = Maximum acceleration torque (→ selection tables)

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Average output speed

Calculate the average output speed n_{am}:

$$n_{am} = \frac{n_1 \bullet t_1 + ... + n_n \bullet t_n}{t_1 + ... + t_n} \quad (1)$$

Key

n_{am} [1/min] = Average output speed
$n_1 – n_n$ [1/min] = Output speed in time period $t_1 – t_n$
$t_1 – t_n$ [s] = Time period 1 to n

Speed ratio

Determine the speed ratio f_D:

$f_D = n_{am}/n_K$ (2)

Key

n_{am} [1/min] = Average output speed
n_K [1/min] = Speed constant (→ following table)

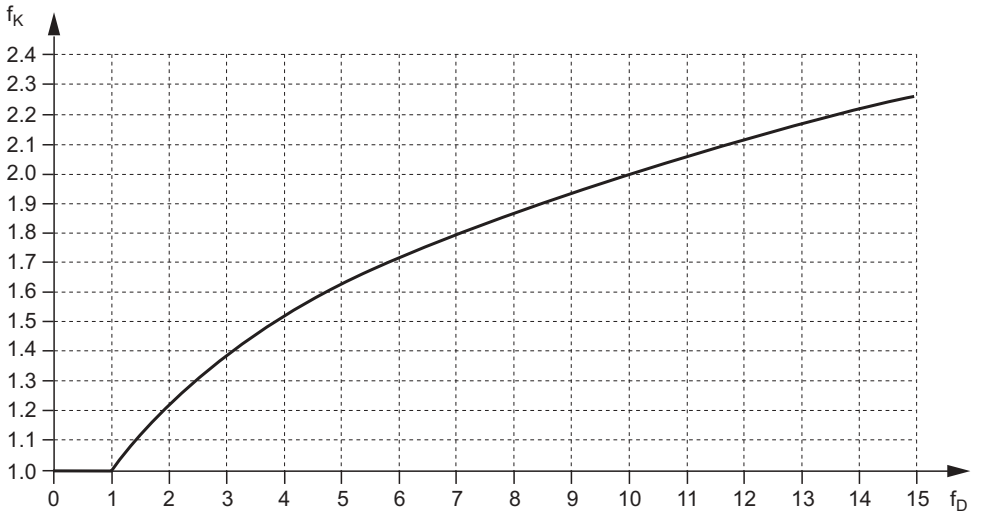
Gear unit type	Size	M_B [1] [Nm]		n_K [1/min]		
		i = 4, 5, 7, 16 – 70	i = 10, 100	i = 4, 5, 7	i = 10	i = 16 – 100
PSF/PSE/PSB	211/212	85	60	110	300	110
PSF/PSE/PSB	311/312	165	120	100	250	50
PSF/PSE/PSB	411/412	210	160	100	220	100
PSF/PSE/PSB	511/512	370	270	100	220	100
PSF/PSE/PSB	611/612	670	500	180	400	180
PSF	701/702	1200	1000	25	35	25
PSF	801/802	2300	2300	50	40	10
PSF	901/902	4200	3200	80	190	25

1) See selection tables

Checking:

- If $\mathbf{f_D \leq 1}$, then the project planning of the planetary gear unit is complete.
- If $\mathbf{f_D > 1}$, then read off the correction factor f_K from the following diagram and calculate the average output torque.

Correction factor



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Average output torque

Calculate the average output torque M_{am}:

$$M_{am} = \sqrt[3]{\frac{n_1 \bullet t_1 \bullet M_1^{\,3} + \ldots + n_n \bullet t_n \bullet M_n^{\,3}}{n_1 \bullet t_1 + \ldots + n_n \bullet t_n}} \qquad (3)$$

Key

M_{am} [Nm] = Average output torque
$n_1 – n_n$ [1/min] = Output speed in time period $t_1 – t_n$
$M_1 – M_n$ [Nm] = Output torque in time period $t_1 – t_n$
$t_1 – t_n$ [s] = Time period 1 to n

Checking:

$\mathbf{M_{am} \leq M_B/f_K}$

If the condition is met, then the selected planetary gear unit is an appropriate choice.

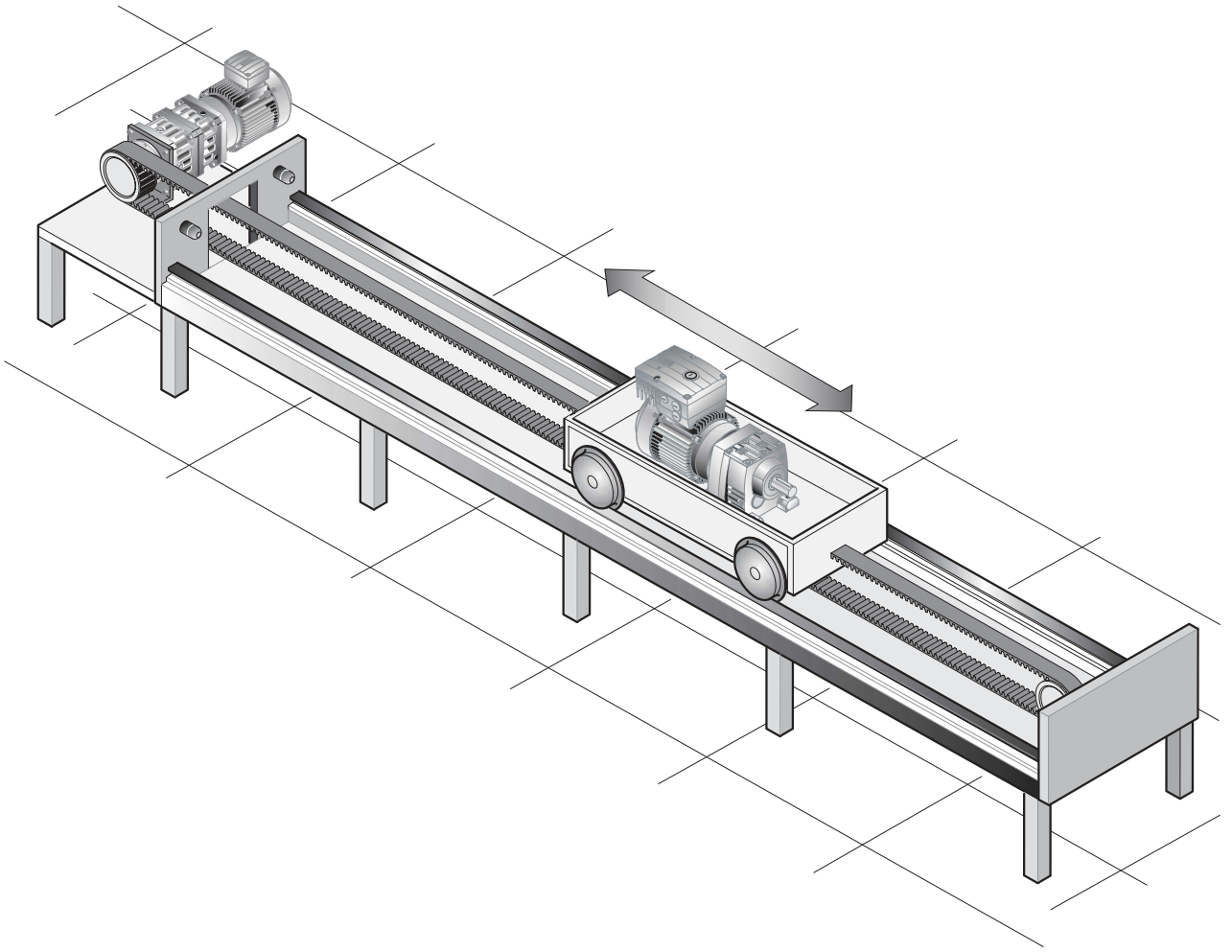
Overhung and axial loads

Check the permitted overhung and axial loads on the output shaft (→ Sec. Overhung and axial loads).

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3.5 Project planning example

Project planning of a travel drive in S3 operation



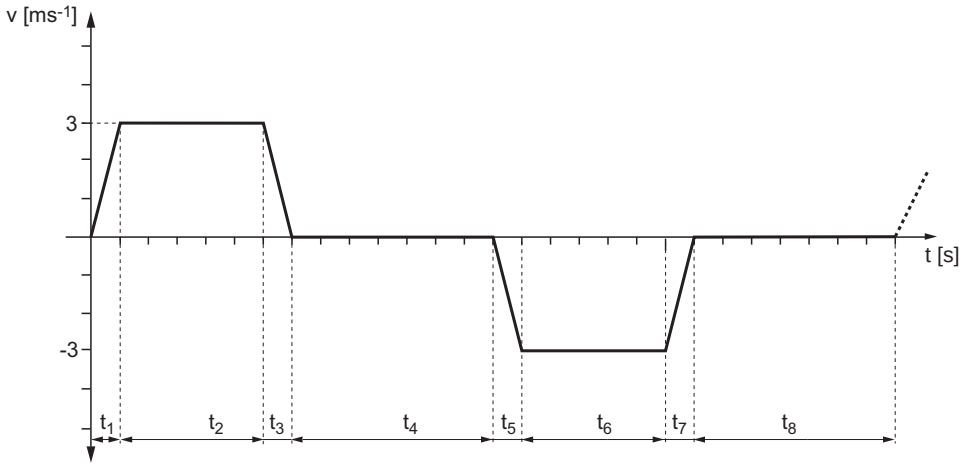
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The following data are given:

- Servomotor with 3000 1/min
- Weight of the load: 140 kg
- Weight of the carriage: 100 kg
- Traveling velocity: 3.0 ms^{-1}
- Acceleration: 10 ms^{-2}
- Deceleration: 10 ms^{-2}
- Efficiency of the machine: 90 %
- Resistance to motion: 90 N/t
- Diameter of the toothed belt pulley: 150 mm (drive via toothed belt)

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Travel cycle

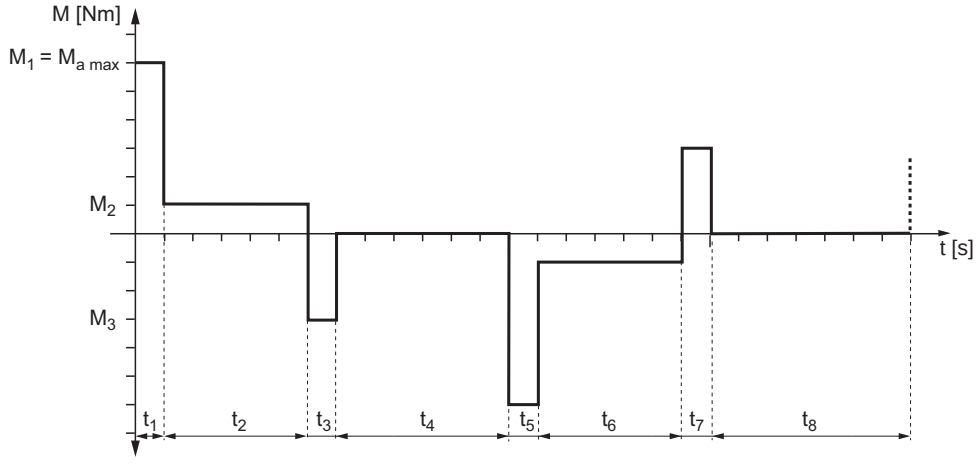


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The travel cycle produces the following time periods:
$t_1 = t_3 = t_5 = t_7 = 0.3$ s switch-on time
$t_2 = t_6 = 1.5$ s switch-on time
$t_4 = t_8 = 1.9$ s pause time

$n_2 = n_{a\ max} = 381$ 1/min at traveling velocity 3.0 ms^{-1}
$n_1 = n_3 = -n_5 = -n_7 = n_2/2 = 191$ 1/min
$n_2 = n_6 = 381$ 1/min
$n_4 = n_8 = 0$

Torque diagram



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Derived from the torque diagram:
$M_1 = -M_5 = M_{a\ max} = 202$ Nm
$M_2 = -M_6 = 2$ Nm
$M_3 = -M_7 = -160$ Nm
$M_4 = M_8 = 0$

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Selecting the planetary gear unit

The torque diagram indicates that the maximum torque $M_{a\ max}$ which can occur is 202 Nm. The following condition must be met to select a planetary gear unit with a suitable acceleration torque (→ selection tables):

$$\mathbf{M_{a\ max} \leq M_B}$$

A PSF411 (M_B = 210 Nm) with a gear unit reduction ratio i = 7 is selected from the selection tables.

Average output speed

Calculate the average output speed according to formula (1):

n_{am} = 171 1/min

Speed ratio

Determine the speed ratio f_D according to formula (2):

f_D = 1.71

Gear unit type	Size	M_B [1] [Nm]		n_K [1/min]		
		i = 4, 5, 7, 16 – 70	i = 10, 100	i = 4, 5, 7	i = 10	i = 16 – 100
PSF/PSE/PSB	211/212	85	60	110	300	110
PSF/PSE/PSB	311/312	165	120	100	250	50
PSF/PSE/PSB	411/412	210	160	100	220	100
PSF/PSE/PSB	511/512	370	270	100	220	100
PSF/PSE/PSB	611/612	670	500	180	400	180
PSF	701/702	1200	1000	25	35	25
PSF	801/802	2300	2300	50	40	10
PSF	901/902	4200	3200	80	190	25

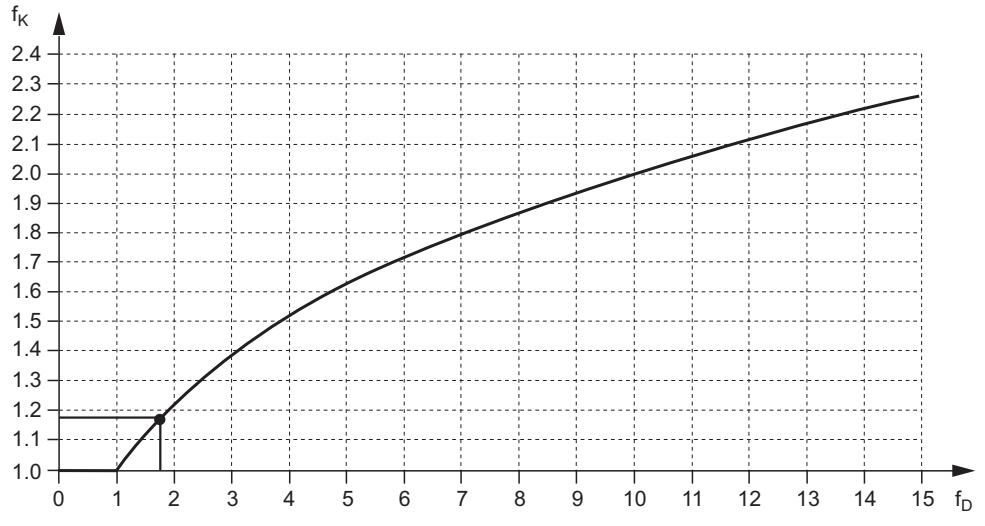
1) See selection tables

Checking:

Since $\mathbf{f_D > 1}$, the correction factor f_K must be read off the following diagram and the average output torque calculated.

Correction factor

The correction factor f_K is read off as 1.18.



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Average output torque

Calculate the average output torque M_{am} according to formula (3):

M_{am} = 70.2 Nm

Checking:

$\mathbf{M_{am} \leq M_B / f_K}$

70.2 Nm ≤ 210 Nm / 1.18

70.2 Nm ≤ 178 Nm

This means the project planning is complete.

Overhung and axial loads

Check the permitted overhung and axial loads (→ Sec. Overhung and axial loads).

3.6 Permitted emergency off torques

A maximum torque as stated in the following formula is permitted in emergency off braking:

$$M_{Not\text{-}Aus} = M_N \bullet f$$

i	f
4, 5, 7, 16, 20, 25, 28, 30, 35, 40, 49, 70	2.5
10, 100	1.5

Key

$M_{em.\ off}$ [Nm] = Maximum braking torque in emergency off braking

M_N [Nm] = Rated torque (→ selection tables)

f = Transmission element factor

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3.7 Overhung and axial loads on the output shaft

Determining the overhung load

When determining the overhung load, you must consider the type of transmission element mounted on the shaft end. The following transmission element factors f_Z also have to be considered for various transmission elements:

Transmission elements	Transmission element factor f_Z	Remarks
Gears	1.15	< 17 teeth
Toothed belt pulleys	-	Pre-tensioning value
Chain sprockets	1.4	< 13 teeth
Chain sprockets	1.25	< 20 teeth

The overhung load acting on the gear shaft is then calculated as follows:

$$F_{Ra2} = \frac{M_d \bullet 2000}{d_0} \bullet f_Z$$

$$F_{Ra2} \leq F_{Ra1}$$

Key

M_d [Nm]= Torque

d_0 [mm]= Average diameter of the mounted transmission element

f_Z = Transmission element factor

Converting the permitted overhung loads

If the force is applied other than at the shaft extension's midpoint, the permitted overhung loads F_{Rx} [N] must be converted using the following correction formulae:

Overhung load conversion	Based on bearing service life	Based on shaft strength
PSF, PSE	$F_{RxL} = F_{Ra} \bullet \frac{a}{b+x}$ [1)]	$F_{RxW} = \frac{c}{f+x}$ [1)]
PSB	$F_{RxL} = \frac{1000 K_1}{n_a^{exp} \bullet (a+x)}$	Not used

1) The lower of the two values F_{RxL} and F_{RxW} is permitted

Key

x [mm] = Distance between overhung load application and shaft shoulder

F_{RxL} [N] = Permitted overhung load at point x based on bearing service life

F_{RxW} [N] = Permitted overhung load at point x based on shaft strength

Higher permitted overhung loads

Higher overhung loads on the output shaft are permitted if reinforced bearings are installed.
Please contact SEW-EURODRIVE in this case.

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Determining the permitted axial load F_{Ax} [N] with simultaneous overhung load application at point x

Gear unit type	Conversion formula
PSF21. / 31. PSE21. – PSE61.	$F_{Ax} = F_{Aa1}$
PSF41. / 51.	$F_{Ax} = F_{Aa1} + 1{,}06 \bullet F_{Ra1} - \left(0{,}57 + 0{,}017 \bullet x \bullet \frac{1}{mm}\right) \bullet F_{Rx2}$
PSF61.	$F_{Ax} = F_{Aa1} + 0{,}83 \bullet F_{Ra1} - \left(0{,}44 + 0{,}0096 \bullet x \bullet \frac{1}{mm}\right) \bullet F_{Rx2}$
PSF70. / 80. / 90.	On request
PSB31. – PSB61.	$F_{Ax} = \frac{\frac{1000 K_1}{n_a^{exp}} - (x + e) \bullet F_{Rx2}}{b}$ 1)

1) The formula applies under the following conditions:
Distance from shaft shoulder $x \geq 0$, existing overhung load $F_{Rx2} \leq F_{RxL}$ and axial load $F_{Ax} \leq F_{Aa1}$

Gear unit constants for overhung and axial load conversion

Type	a [mm]	b [mm]	c [Nmm]	e [mm][1)]	e [mm][2)]	f [mm]	exp	K_1 [Nm]
PSF21.	47	33	3.70×10^4	–	–	0.5	–	–
PSF31.	53	35	1.25×10^5	–	–	9.2	–	–
PSF41.	77	48	3.36×10^5	–	–	10.4	–	–
PSF51	77	48	2.83×10^5	–	–	10.4	–	–
PSF61.	111	70	5.23×10^5		–	0.5	–	–
PSF70.	73	32	1.57×10^6	–	–	16.7	–	–
PSF80.	86	33.5	3.39×10^6	–	–	0.5	–	–
PSF90.	91.5	39	5.37×10^6	–	–	22	–	–
PSB31.	83	62	–	24	51	–	1/3	1636
PSB41. / **PSB51.**	98	93	–	23	58	–	1/3	2765
PSB61.	90	124	–	45	52	–	0.3	5989
PSE21.	41.5	27.5	3.09×10^4	–	–	–	–	–
PSE31.	58	40	8.26×10^4	–	–	–	–	–
PSE41.	78	49	2.93×10^5	–	–	–	–	–
PSE51.	78	49	2.27×10^5	–	–	–	–	–
PSE61.	103.5	62.5	3.45×10^5	–	–	–	–	–

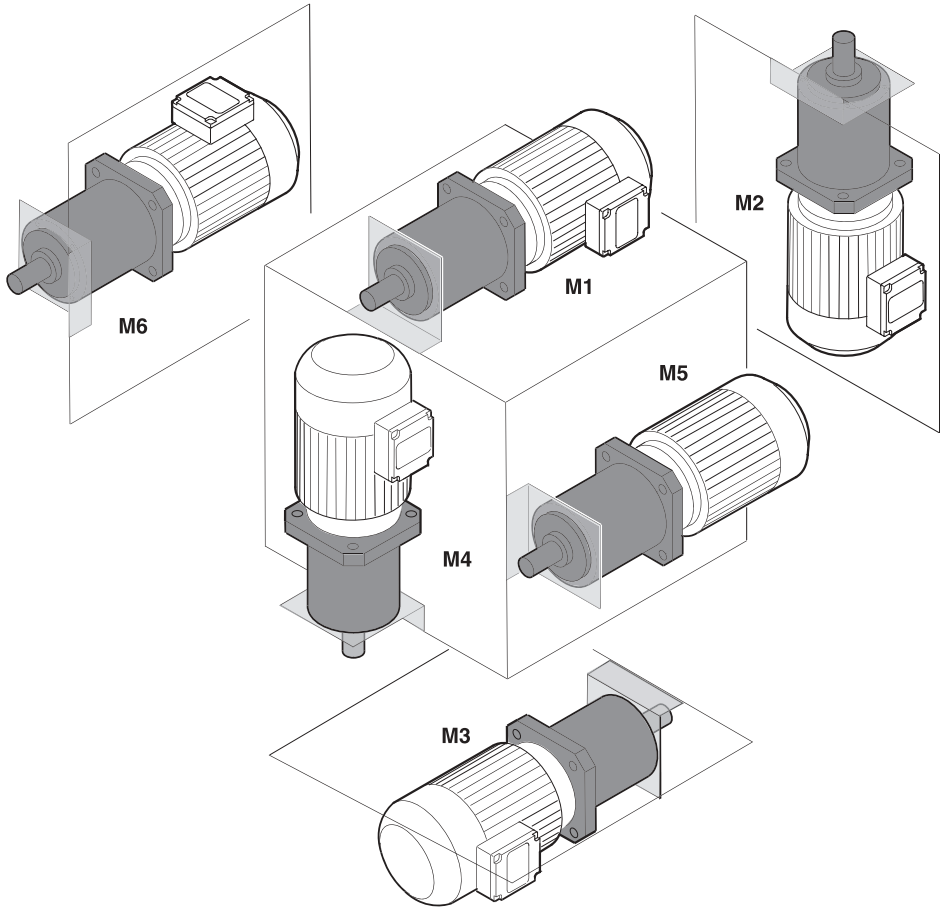
1) F_A = Compression
2) F_A = Tension

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4 Mounting Positions

4.1 General information about mounting positions

In the case of planetary gear units, SEW-EURODRIVE distinguishes between mounting positions M1 to M6. The following figure shows the spatial arrangement of the gear unit in mounting positions M1 to M6.



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Symbols used

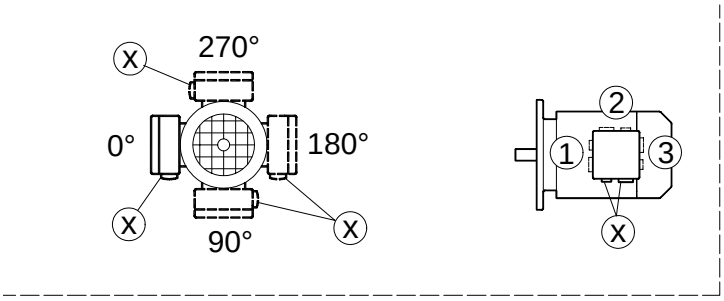
The following table shows which symbols are used in the mounting position sheets and what they mean:

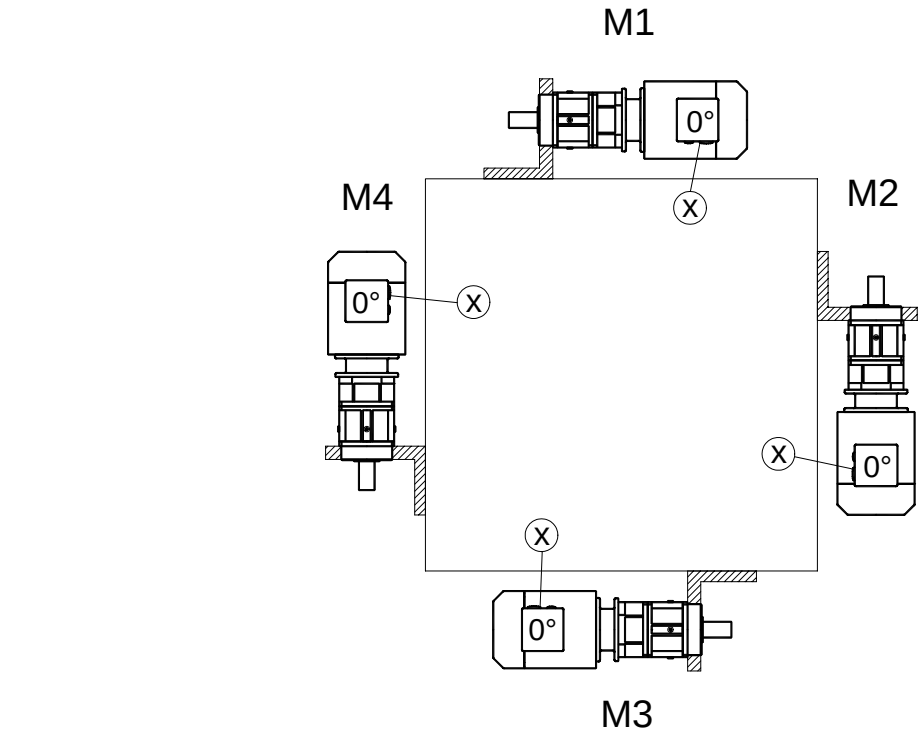
Symbol	Meaning
	No breather valve
	No oil level plug
	No oil drain plug
X, 1, 2, 3	Possible position of the cable entry (X = normal position)

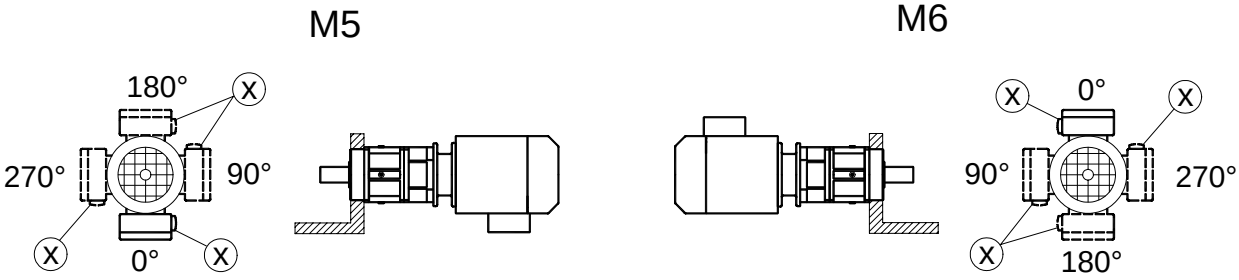
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4.2 PSF211 – PSF902

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M1 - M6

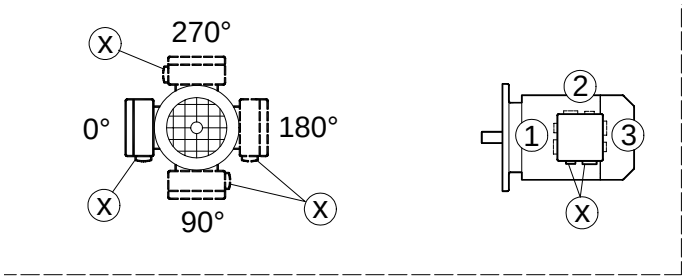
M1 - M6

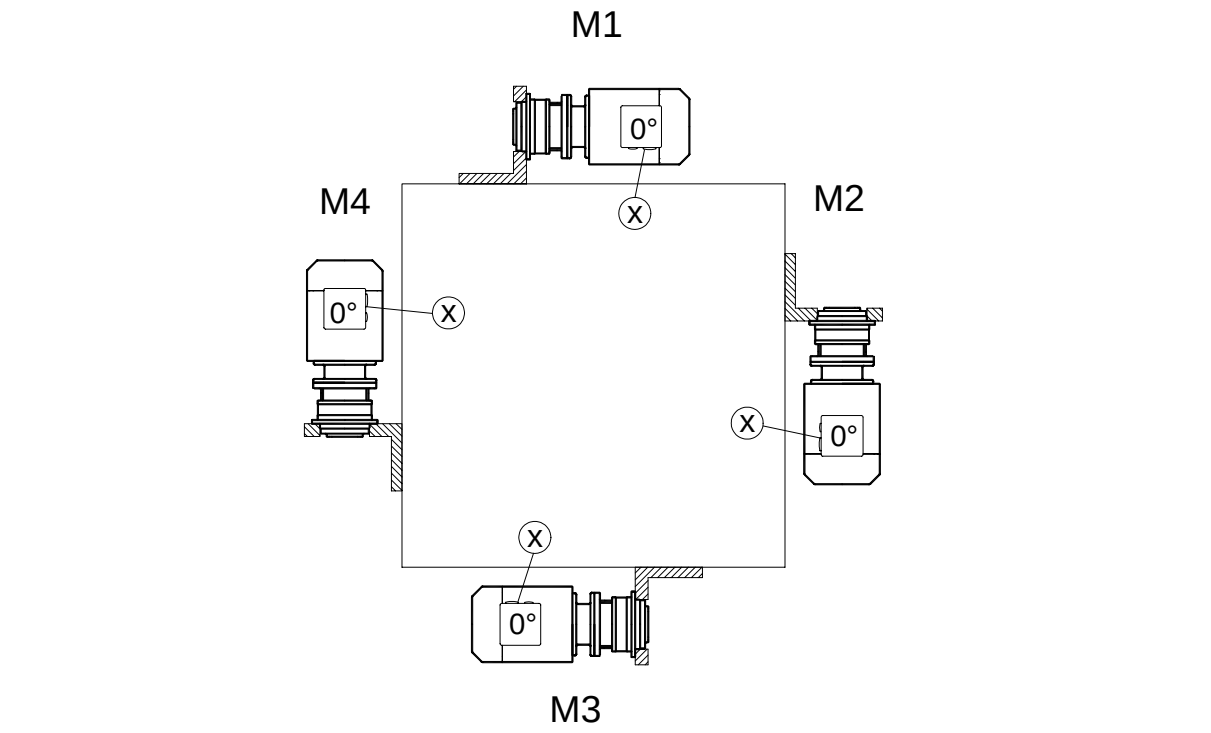
M1 - M6

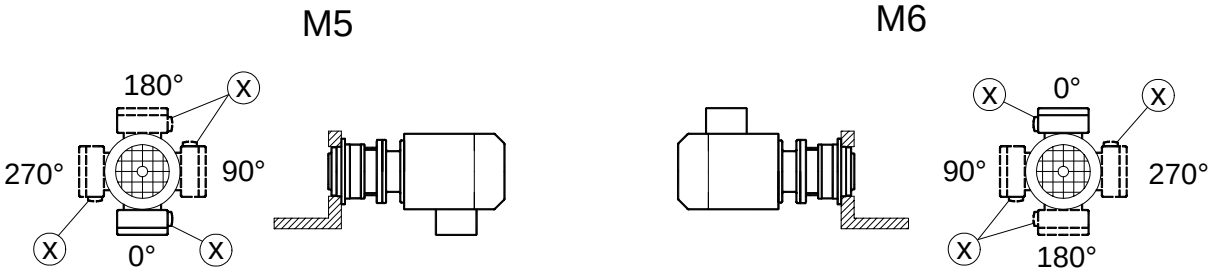
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4.3 PSB311 – PSB612

44 002 000







M1 - M6

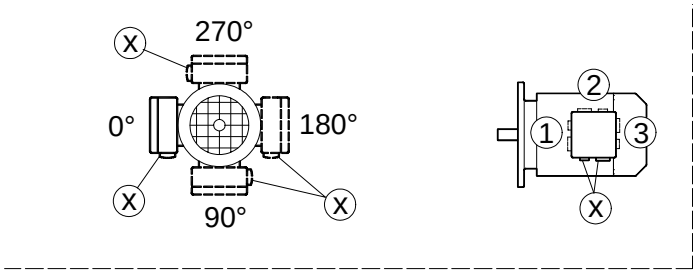
M1 - M6

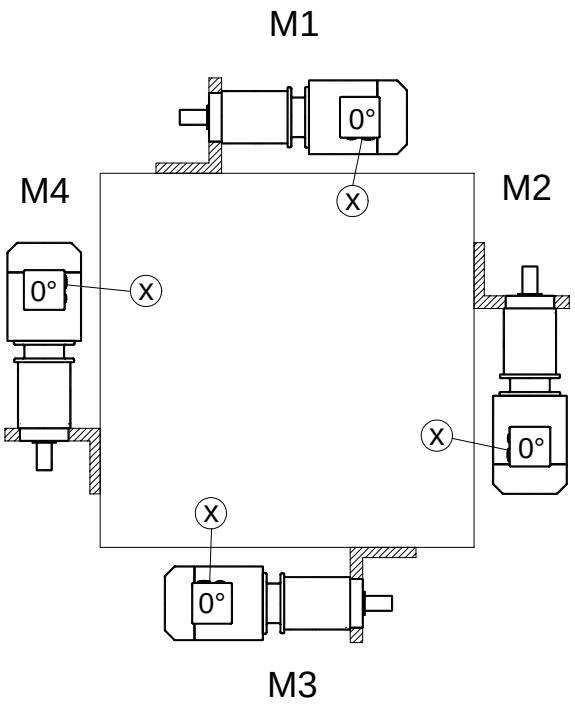
M1 - M6

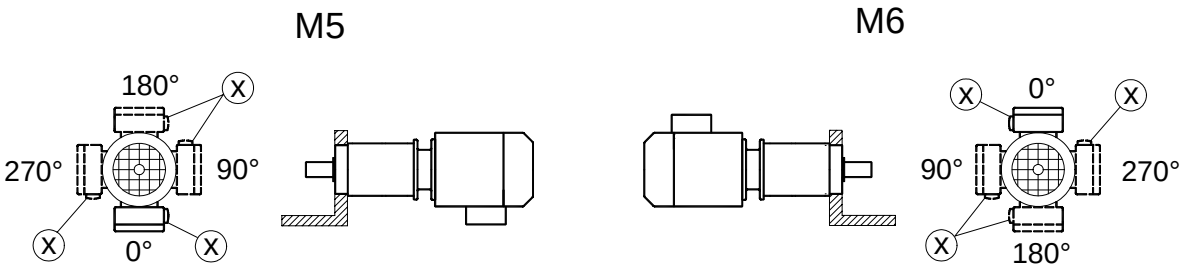
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4.4 PSE211 – PSE612

44 001 001







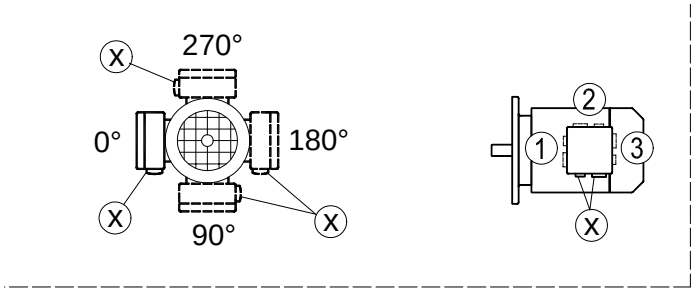
M1 - M6

M1 - M6

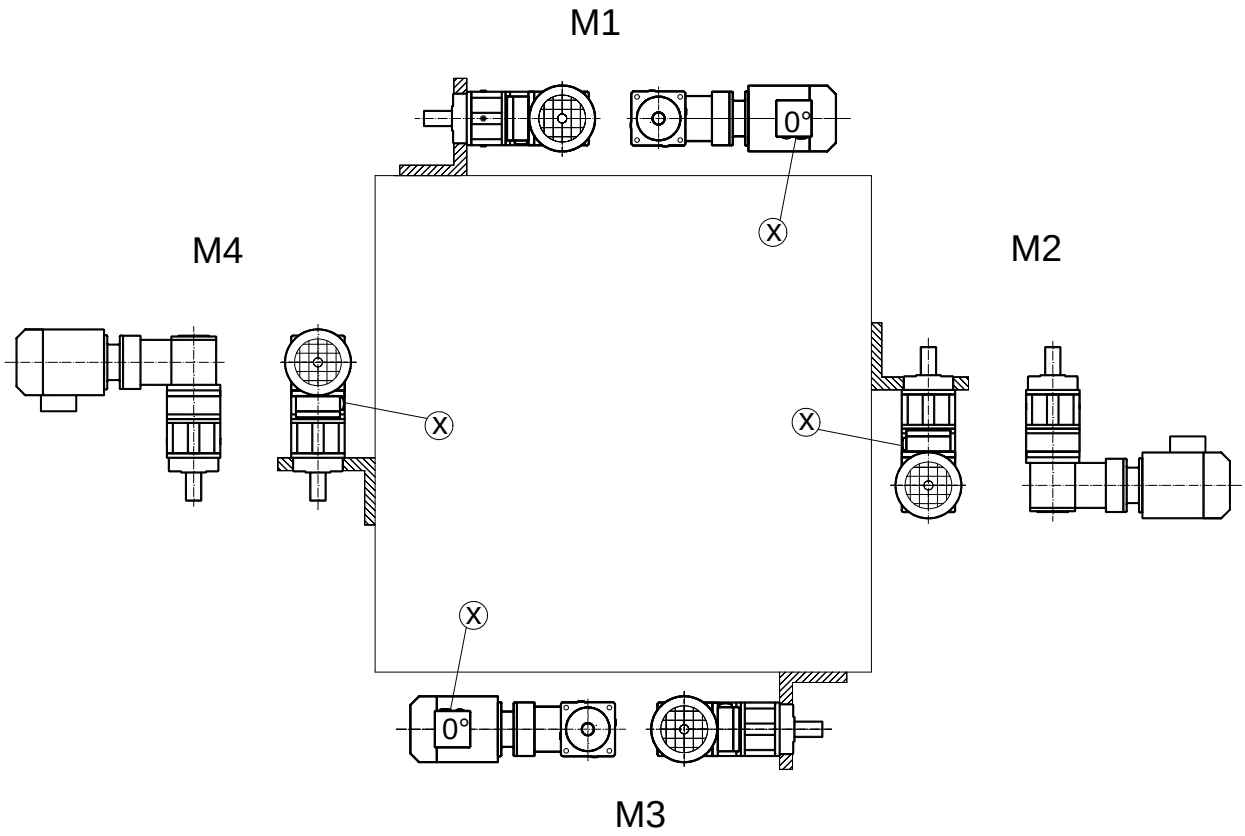
M1 - M6

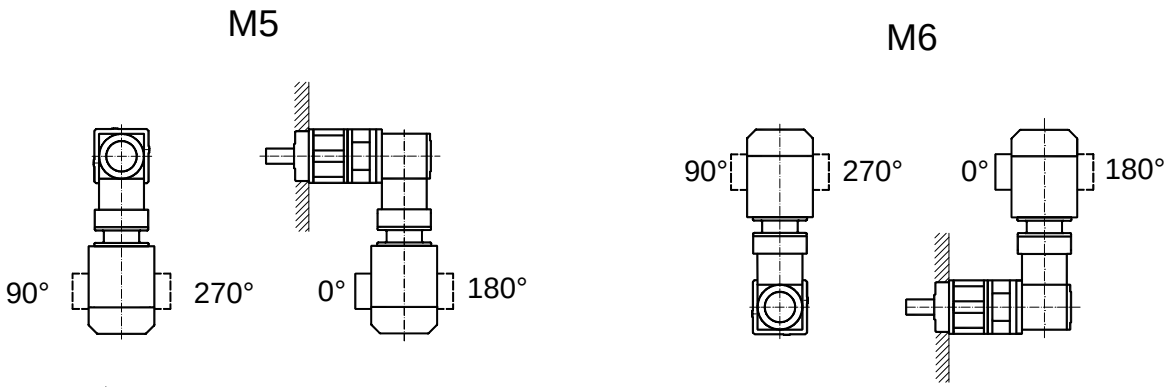
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4.5 PSF211 VC.. – PSF802 VC..



44 001 002





M1 - M6

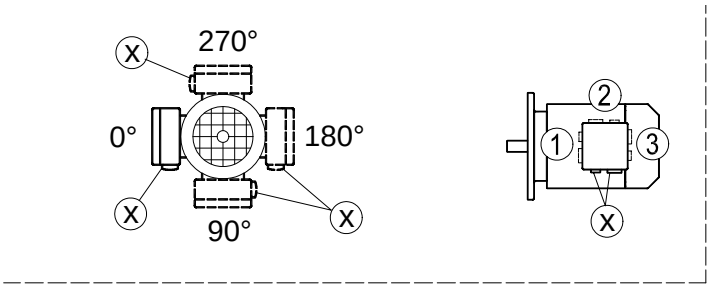
M1 - M6

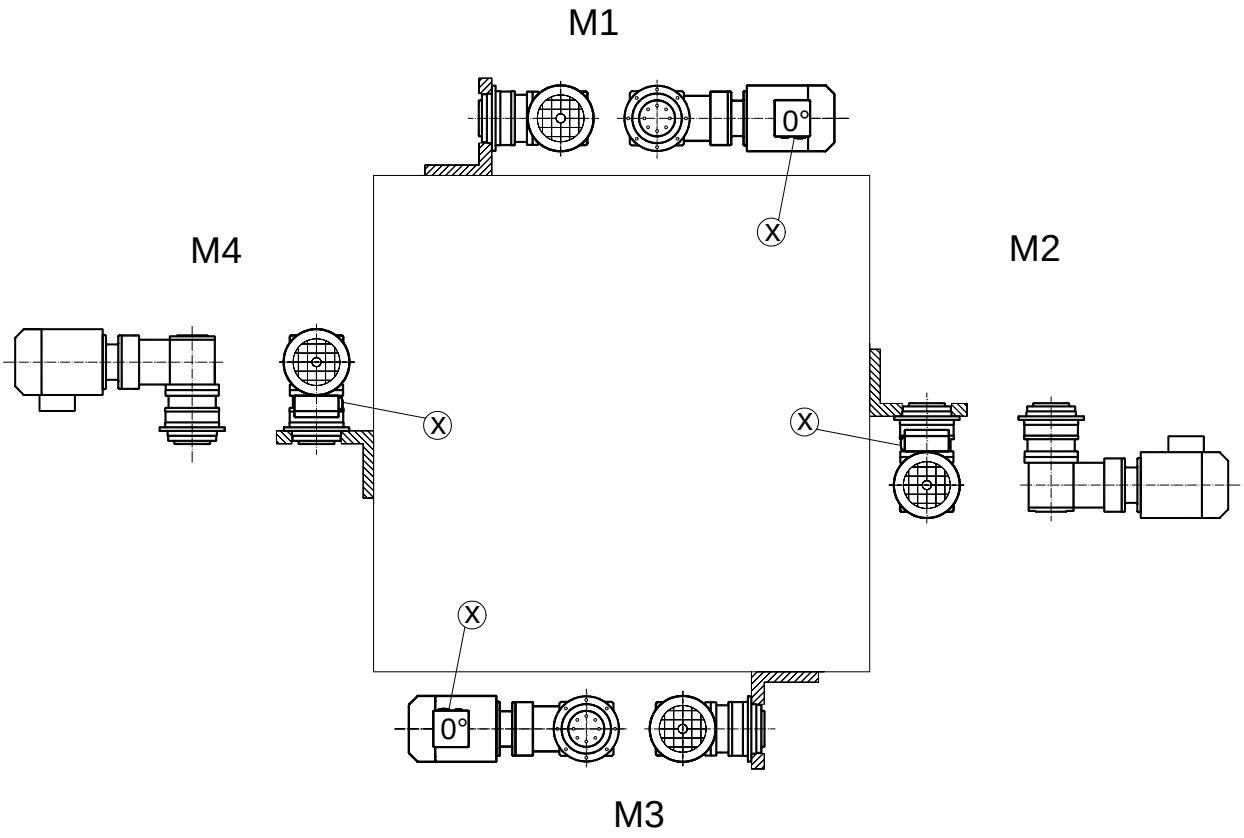
M1 - M6

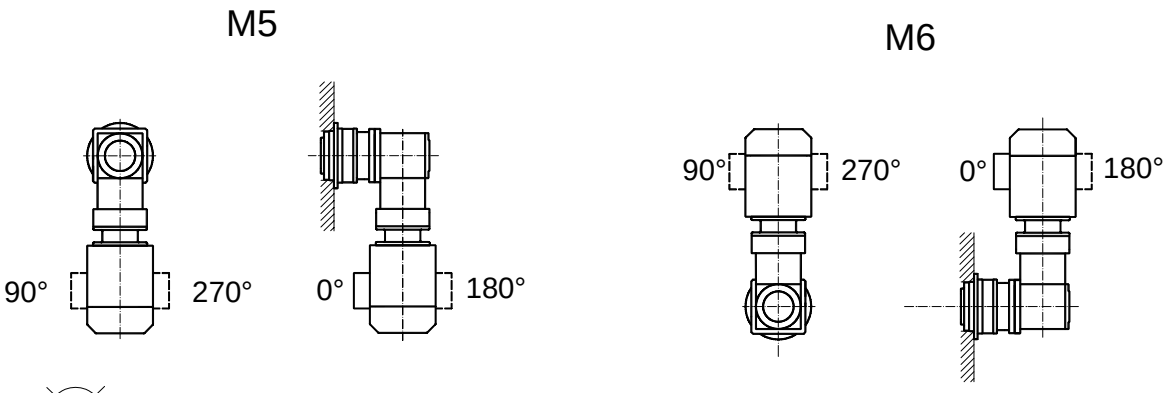
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4.6 PSB311 VC.. – PSB 612 VC..

44 002 002







M1 - M6

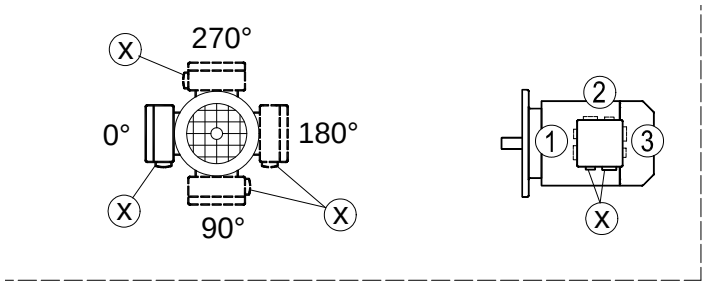
M1 - M6

M1 - M6

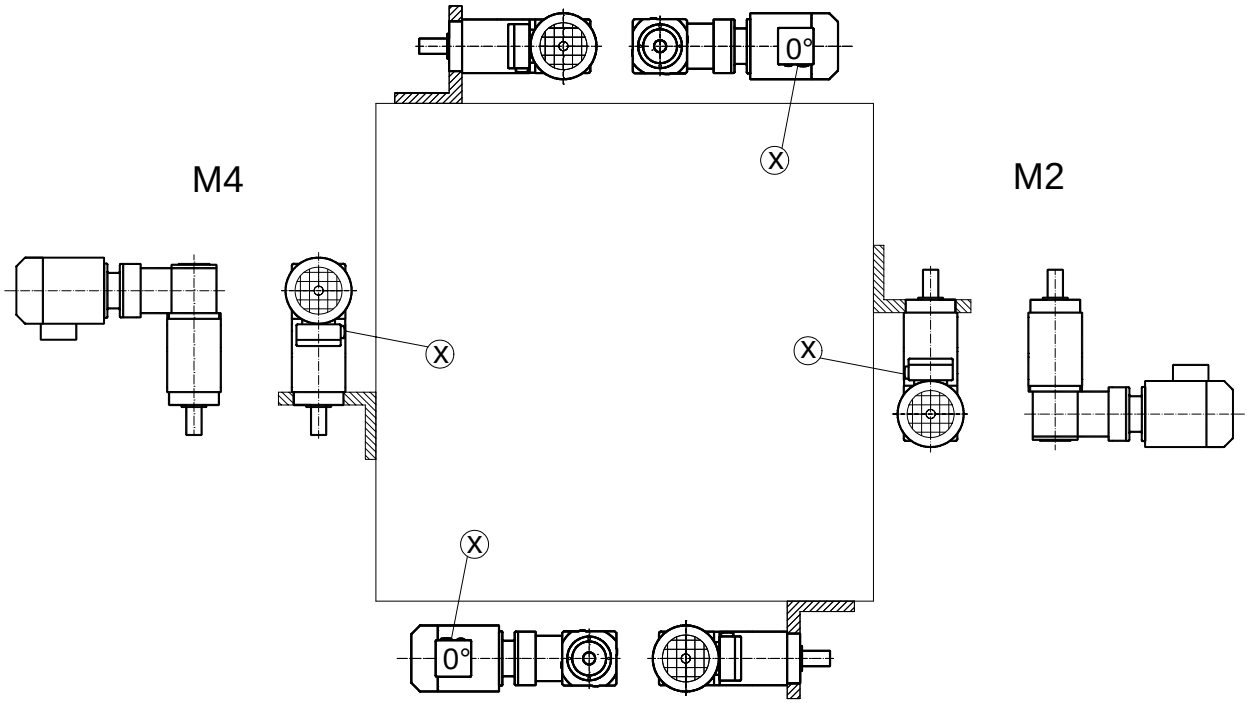
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4.7 PSE211 VC.. – PSE612 VC..

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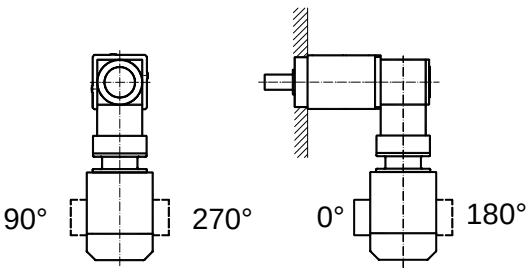


M1

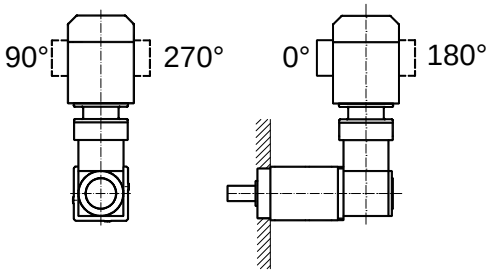


M3

M5



M6



M1 - M6

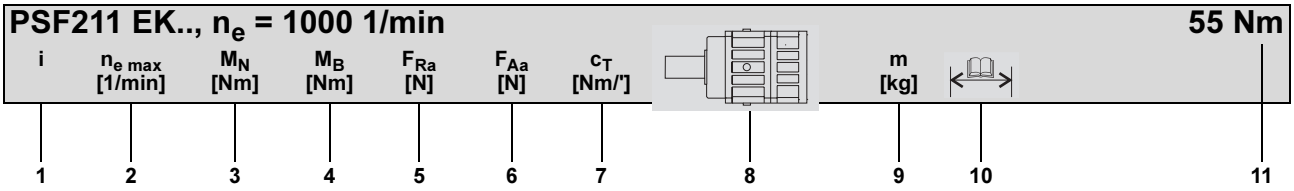
M1 - M6

M1 - M6

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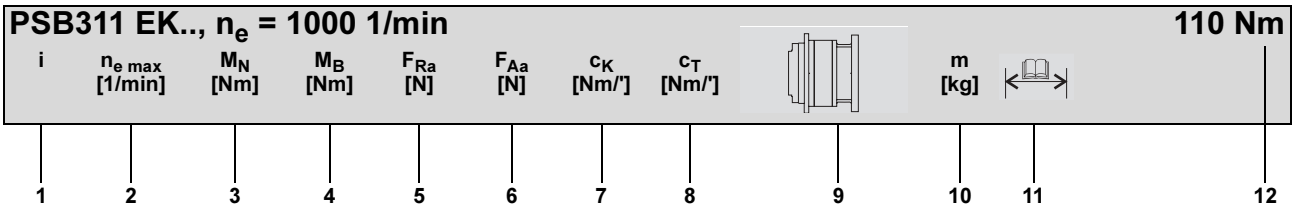
5 Important Information on Selection Tables and Dimensions Sheets

5.1 Structure of the PSF...EK.. and PSE...EK.. selection tables



1 Gear unit reduction ratio
2 Maximum input speed (permitted briefly)
3 Rated torque in S3 operation (60 % cdf at n_e = 1000 1/min)
4 Acceleration torque
5 Overhung load at n_e = 1000 1/min with overhung load and axial load acting simultaneously
6 Axial load at n_e = 1000 1/min with overhung load and axial load acting simultaneously In the case of PSF 70./80./90., the values only apply if the specified maximum overhung load is also acting at the same time. The reduction in permitted axial load is directly proportional to the reduction in overhung load.
7 Torsional rigidity
8 Series and size
9 Weight
10 Dimension sheet page number
11 Torque class

5.2 Structure of the PSB..EK.. selection tables



1 Gear unit reduction ratio
2 Maximum input speed (permitted briefly)
3 Rated torque in S3 operation (60 % cdf at n_e = 1000 1/min)
4 Acceleration torque
5 Overhung load at n_e = 1000 1/min with overhung load and axial load acting simultaneously
6 Axial load at n_e = 1000 1/min with overhung load and axial load acting simultaneously In the case of PSF 70./80./90., the values only apply if the specified maximum overhung load is also acting at the same time. The reduction in permitted axial load is directly proportional to the reduction in overhung load.
7 Tilting rigidity
8 Torsional rigidity
9 Series and size
10 Weight
11 Dimension sheet page number
12 Torque class

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5.3 Information about dimension sheets

Scope of delivery



= Standard parts are supplied by SEW.



= Standard parts are not supplied by SEW.

Tolerances

Shaft ends

Type of shaft ends:

PSF, PSB	→ Smooth shaft end for shrink disk connection
PSE	→ Flange shaft acc. to EN ISO 9409 with additional tapped holes

Diameter tolerance PSF, PSE → ISO k6

Maximum concentricity deviation between internal centering and external centering in PSB → 0.02 mm

Center holes in accordance with DIN 332, shape DR:

∅	= 7 – 10 mm	→ M3
∅	> 10 – 13 mm	→ M4
∅	> 13 – 16 mm	→ M5
∅	> 16 – 21 mm	→ M6
∅	> 21 – 24 mm	→ M8
∅	> 24 – 30 mm	→ M10
∅	> 30 – 38 mm	→ M12
∅	> 38 – 50 mm	→ M16
∅	> 50 – 85 mm	→ M20

Keys: In accordance with DIN 6885 (domed type)

Flanges

Centering shoulder tolerance → ISO h6

Internal centering

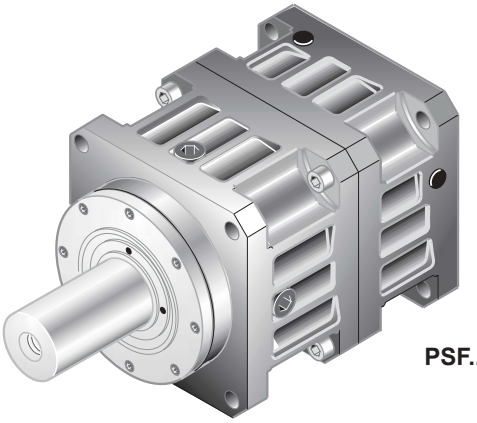
PSB (B5 flange) → ISO H7

External centering

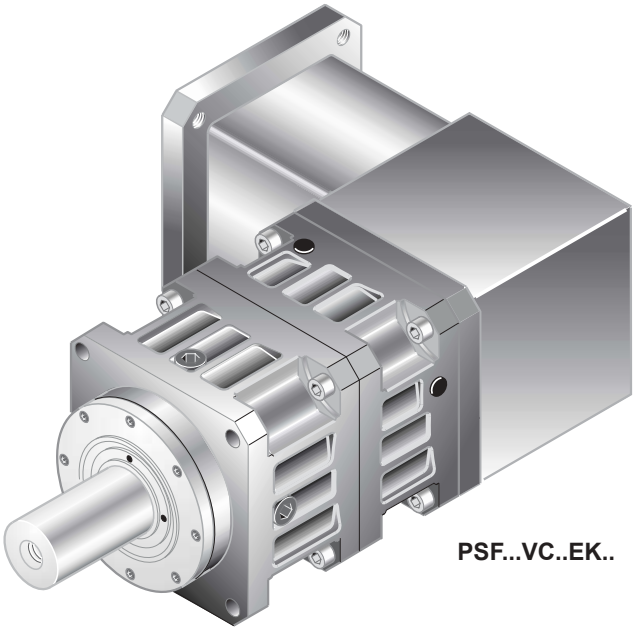
PSF	→ ISO g6
PSB	→ ISO h7

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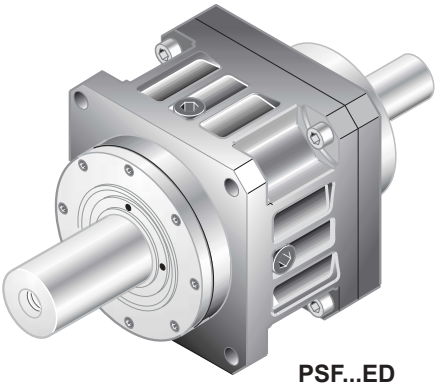
6 Low Backlash Planetary Gear Units PSF...



PSF...EK..



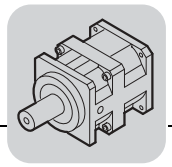
PSF...VC..EK..



PSF...ED

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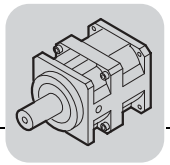
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6.1 PSF...EK.. [Nm]

i	$n_{e\,max}$ [1/min]	M_N [Nm]	M_B [Nm]	F_{Ra} [N]	F_{Aa} [N]	c_T [Nm/ ']			m [kg]	
PSF211 EK.., n_e = 1000 1/min										**55 Nm**
4	6000	55	85	1050	1000					
5	6000	55	85	1150	1100	**3.4**	**PSF**	**211EK**	2.2	43
7	6000	55	85	1300	1250					
10	6000	55	60	1450	1400					
PSF212 EK.., n_e = 1000 1/min										**55 Nm**
16	6000	55	85	1700	1700					
20	6000	55	85	1800	1900					
25	6000	55	85	1900	2100					
28	6000	55	85	2000	2200					
35	6000	55	85	2200	2400	**2.8**	**PSF**	**212EK**	2.6	43
40	6000	55	85	2300	2600					
49	6000	55	85	2400	2800					
70	6000	55	85	2550	3300					
100	6000	55	60	2550	3300					
PSF311 EK.., n_e = 1000 1/min										**110 Nm**
4	6000	110	165	1180	1100					
5	6000	110	165	1280	1200	**9**	**PSF**	**311EK**	3.3	44
7	6000	110	165	1430	1350					
10	6000	110	120	1600	1500					
PSF312 EK.., n_e = 1000 1/min										**110 Nm**
16	6000	110	165	1800	1880					
20	6000	110	165	1900	2070					
25	6000	110	165	2030	2290					
28	6000	110	165	2150	2400					
35	6000	110	165	2250	2650	**7**	**PSF**	**312EK**	4.1	44
40	6000	110	165	2300	2800					
49	6000	110	165	2450	3060					
70	6000	110	165	2780	3580					
100	6000	110	120	3250	3900					
PSF411 EK.., n_e = 1000 1/min										**160 Nm**
4	4500	160	210	6500	2500					
5	4500	160	210	6900	2750	**28**	**PSF**	**411EK**	6.7	45
7	4500	160	210	7650	3250					
10	4500	150	160	8500	3800					
PSF412 EK.., n_e = 1000 1/min										**160 Nm**
16	4500	160	210	8520	3980					
20	4500	160	210	8520	4880					
25	4500	160	210	8520	5840					
28	4500	160	210	8520	6360					
35	4500	160	210	8520	7430	**23**	**PSF**	**412EK**	8.7	45
40	4500	160	210	8520	8100					
49	4500	160	210	8520	9180					
70	4500	160	210	8520	11200					
100	4500	150	160	8520	13500					
PSF511 EK.., n_e = 1000 1/min										**300 Nm**
4	4500	300	370	6500	2500					
5	4500	300	370	6900	2750	**31**	**PSF**	**511EK**	7.0	46
7	4500	300	370	7180	3250					
10	4500	270	270	7180	3800					

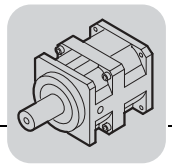
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PSF...EK.. [Nm]

i	$n_{e\,max}$ [1/min]	M_N [Nm]	M_B [Nm]	F_{Ra} [N]	F_{Aa} [N]	c_T [Nm/ ']			m [kg]	
PSF512 EK.., n_e = 1000 1/min										**300 Nm**
16	4500	300	370	7180	5400					
20	4500	300	370	7180	6300					
25	4500	300	370	7180	7270					
28	4500	300	370	7180	7780					
35	4500	300	370	7180	8850	**27**	**PSF**	**512EK**	9.0	46
40	4500	300	370	7180	9520					
49	4500	300	370	7180	10600					
70	4500	300	370	7180	12700					
100	4500	270	270	7180	14900					
PSF611 EK.., n_e = 1000 1/min										**600 Nm**
4	4500	600	670	12600	6410					
5	4500	600	670	12600	7570	**59**	**PSF**	**611EK**	15	47
7	4500	600	670	12600	9460					
10	4500	500	500	12600	11700					
PSF612 EK.., n_e = 1000 1/min										**600 Nm**
16	4500	600	670	12600	15000					
20	4500	600	670	12600	16800					
25	4500	600	670	12600	18600					
28	4500	600	670	12600	19600					
35	4500	600	670	12600	21700	**48**	**PSF**	**612EK**	19	47
40	4500	600	670	12600	23000					
49	4500	600	670	12600	25100					
70	4500	600	670	12600	29100					
100	4500	500	500	12600	33500					
PSF701 EK.., n_e = 1000 1/min										**800 Nm**
4	3000	800	1200	20900	11600					
5	3000	800	1200	19000	16500	**149**	**PSF**	**701EK**	28	48
7	3000	800	1200	18000	15700					
10	3000	800	1000	20300	17600					
PSF702 EK.., n_e = 1000 1/min										**800 Nm**
16	3000	800	1200	27300	20300					
20	3000	800	1200	27300	20300					
25	3000	800	1200	27300	20300					
28	3000	800	1200	27300	20300					
35	3000	800	1200	27300	20300	**126**	**PSF**	**702EK**	38	48
40	3000	800	1200	27300	20300					
49	3000	800	1200	27300	20300					
70	3000	800	1200	27300	20300					
100	3000	800	1000	27300	20300					
PSF801 EK.., n_e = 1000 1/min										**1500 Nm**
4	3000	1500	2300	25000	12500					
5	3000	1500	2300	27000	13500	**350**	**PSF**	**801EK**	40	49
7	3000	1500	2300	30500	15300					
10	3000	1500	2300	34000	17000					
PSF802 EK.., n_e = 1000 1/min										**1500 Nm**
16	3000	1500	2300	40000	20000					
20	3000	1500	2300	43000	21500					
25	3000	1500	2300	45000	27500					
28	3000	1500	2300	48500	24300					
35	3000	1500	2300	52500	26300	**290**	**PSF**	**802EK**	57	49
40	3000	1500	2300	54500	27300					
49	3000	1500	2300	57000	28500					
70	3000	1500	2300	64000	32500					
100	3000	1500	2300	64000	37000					

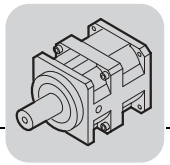
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PSF901 EK.., n_e = 1000 1/min										3000 Nm
i	$n_{e\ max}$ [1/min]	M_N [Nm]	M_B [Nm]	F_{Ra} [N]	F_{Aa} [N]	c_T [Nm/ ']			m [kg]	
4	3000	3000	4200	33500	16800					
5	3000	3000	4200	36500	18300					
7	3000	3000	4200	40500	20300	**510**	**PSF**	**901EK**	66	50
10	3000	3000	3200	46000	23000					

PSF902 EK.., n_e = 1000 1/min										3000 Nm
16	3000	3000	4200	53500	26800					
20	3000	3000	4200	56000	28000					
25	3000	3000	4200	61800	30700					
28	3000	3000	4200	61800	30700					
35	3000	3000	4200	61800	30700	**420**	**PSF**	**902EK**	75	50
40	3000	3000	4200	61800	30700					
49	3000	3000	4200	61800	30700					
70	3000	3000	4200	61800	30700					
100	3000	3000	3200	61800	30700					

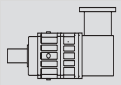
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6.2 PSF...VC..EK.. [Nm]

i	$n_{e\,max}$ [1/min]	M_N [Nm]	M_B [Nm]	F_{Ra} [N]	F_{Aa} [N]			m [kg]	
PSF211 VC65 EK.., n_e = 1000 1/min									**55 Nm**
8	6000	55	85	1350	1300				
10	6000	55	60	1450	1400	**PSF**	**211VC65EK**	4.7	51
14	6000	55	85	1500	1450				
20	6000	55	85	1800	1900				
PSF311 VC90 EK.., n_e = 1000 1/min									**110 Nm**
7	6000	110	165	1430	1350				
10	6000	110	120	1600	1500				
14	6000	110	165	1750	1650				
21	6000	110	165	1950	2090				
28	6000	110	165	2150	2400	**PSF**	**311VC90EK**	8.8	52
35	6000	110	165	2250	2650				
40	6000	110	120	2300	2800				
50	6000	110	120	2490	3090				
60	6000	110	120	2690	2280				
PSF411 VC90 EK.., n_e = 1000 1/min									**160 Nm**
7	4500	160	210	7650	3250				
10	4500	150	160	8500	3800				
14	4500	160	210	8520	3880				
21	4500	160	210	8520	4890				
28	4500	160	210	8520	6360	**PSF**	**411VC90EK**	12	53
35	4500	160	210	8520	7430				
40	4500	150	160	8520	8100				
50	4500	150	160	8520	9200				
60	4500	150	160	8520	10000				
PSF511 VC120 EK.., n_e = 1000 1/min									**300 Nm**
7	4500	300	370	7180	3250				
10	4500	270	270	7180	3800				
14	4500	300	370	7180	4000				
21	4500	300	370	7180	6350				
28	4500	300	370	7180	7780	**PSF**	**511VC120EK**	19	54
35	4500	300	370	7180	8850				
40	4500	270	270	7180	9520				
50	4500	270	270	7180	10700				
PSF611 VC160 EK.., n_e = 1000 1/min									**600 Nm**
7	4500	600	670	12600	9460				
10	4500	500	500	12600	11700				
14	4500	600	670	12600	14000				
21	4500	600	670	12600	16900				
28	4500	600	670	12600	19600	**PSF**	**611VC160EK**	27	55
35	4500	600	670	12600	21700				
40	4500	500	500	12600	23000				
50	4500	500	500	12600	25200				
60	4500	500	500	12600	26800				
PSF701 VC160 EK.., n_e = 1000 1/min									**800 Nm**
7	3000	800	1200	18000	15700				
10	3000	800	1000	20300	17600				
14	3000	800	1200	27300	20000				
21	3000	800	1200	27300	20300				
28	3000	800	1200	27300	20300	**PSF**	**701VC160EK**	52	56
35	3000	800	1200	27300	20300				
40	3000	800	1000	27300	20300				
50	3000	800	1000	27300	20300				

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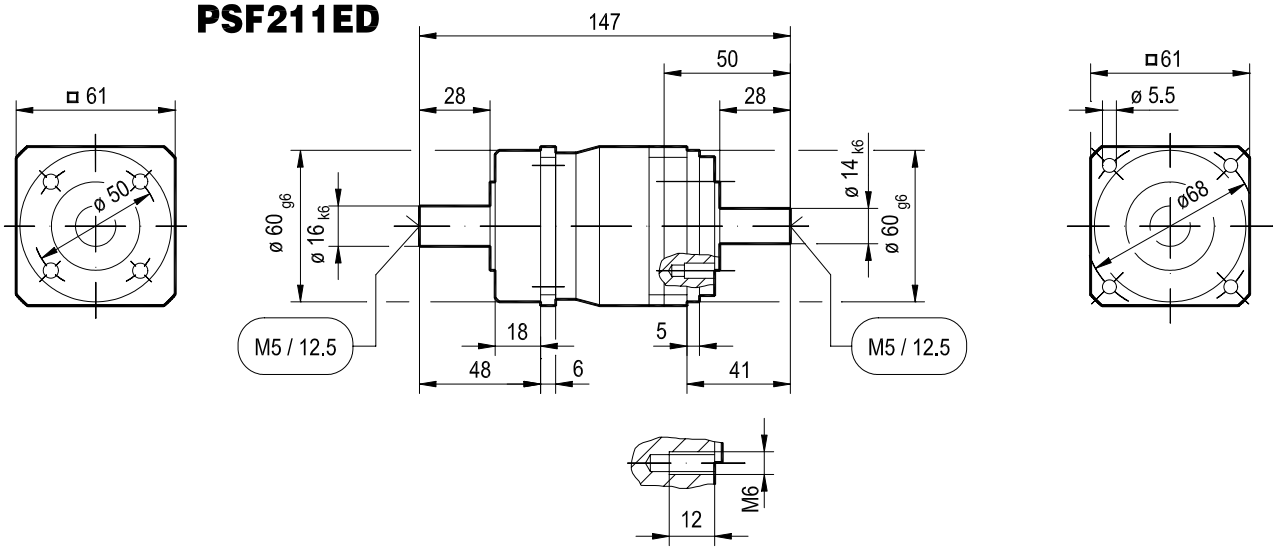
PSF801 VC200 EK.., n_e = 1000 1/min									1500 Nm
i	$n_{e\,max}$ [1/min]	M_N [Nm]	M_B [Nm]	F_{Ra} [N]	F_{Aa} [N]			m [kg]	
7	3000	1500	2300	30500	15300				
10	3000	1500	2300	34000	17000				
14	3000	1500	2300	38500	18500				
21	3000	1500	2300	43200	21600	**PSF**	**801VC200EK**	88	57
28	3000	1500	2300	48500	24300				
35	3000	1500	2300	52500	26300				
40	3000	1500	2300	54500	27300				
50	3000	1500	2300	57000	28500				

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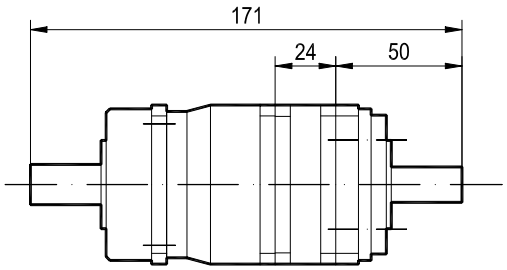
6.3 PSF211/212 ED [mm]

43 001 101

PSF211ED



PSF212ED

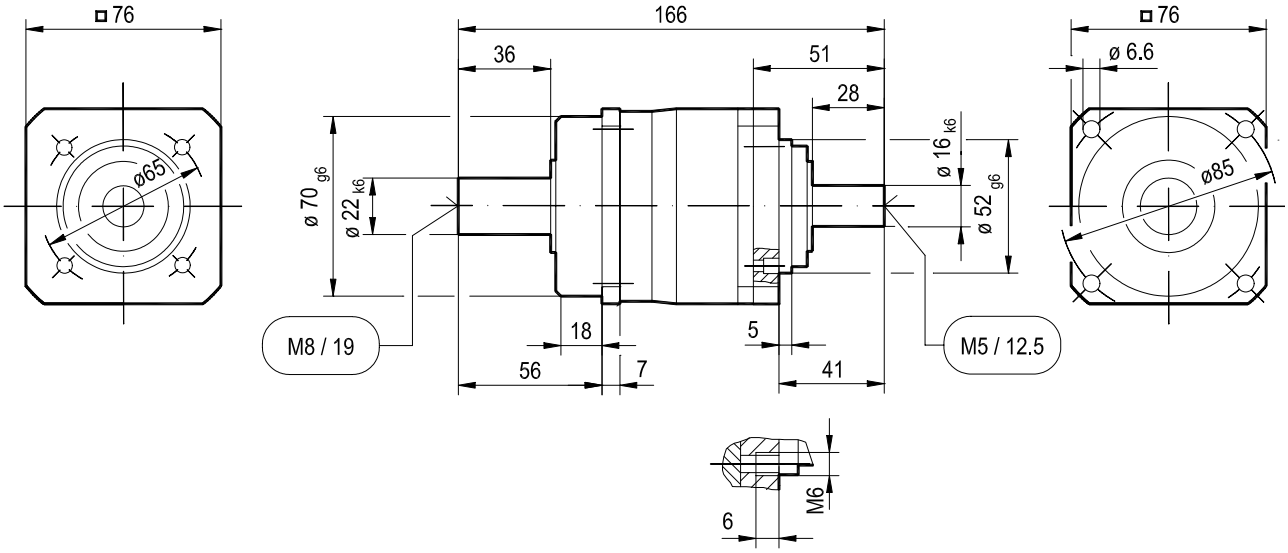


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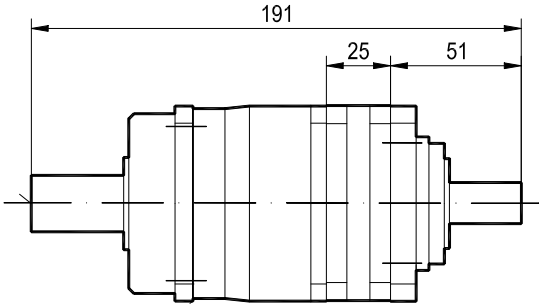
6.4 PSF311/312 ED [mm]

43 002 101

PSF311ED



PSF312ED

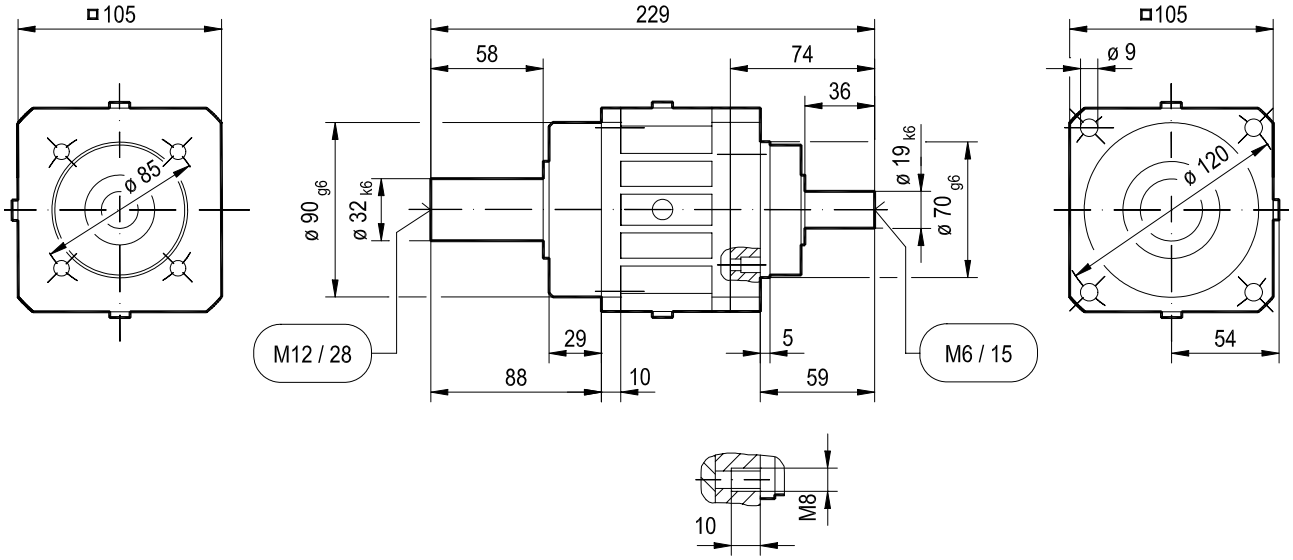


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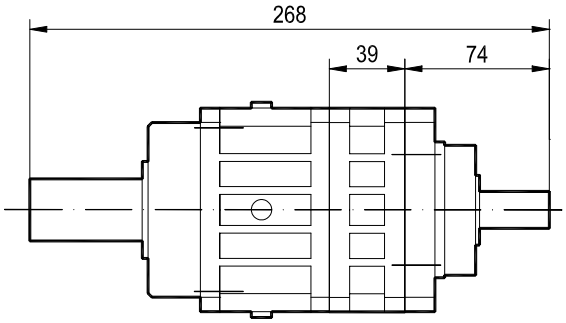
6.5 PSF411/412 ED [mm]

43 003 101

PSF411ED



PSF412ED

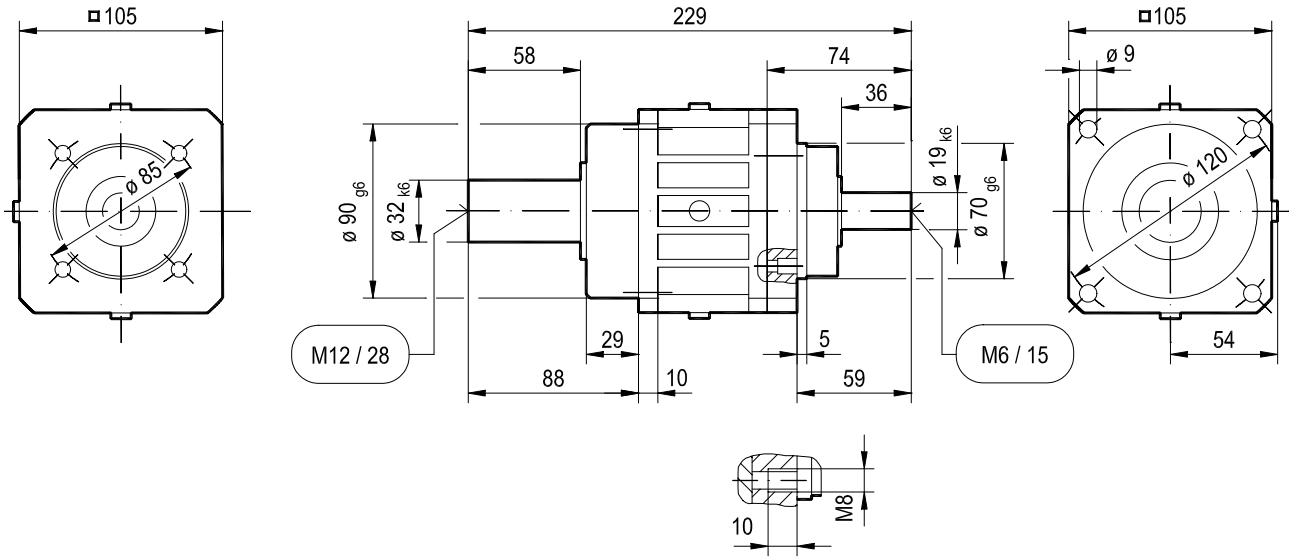


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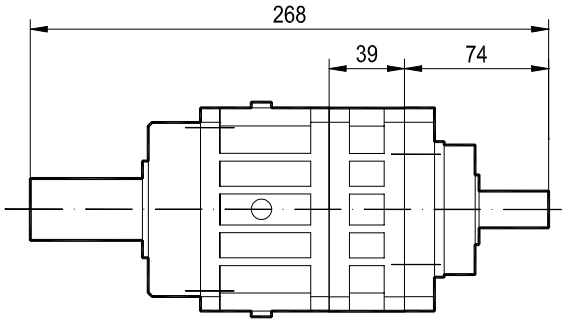
6.6 PSF511/512 ED [mm]

43 004 101

PSF511ED



PSF512ED

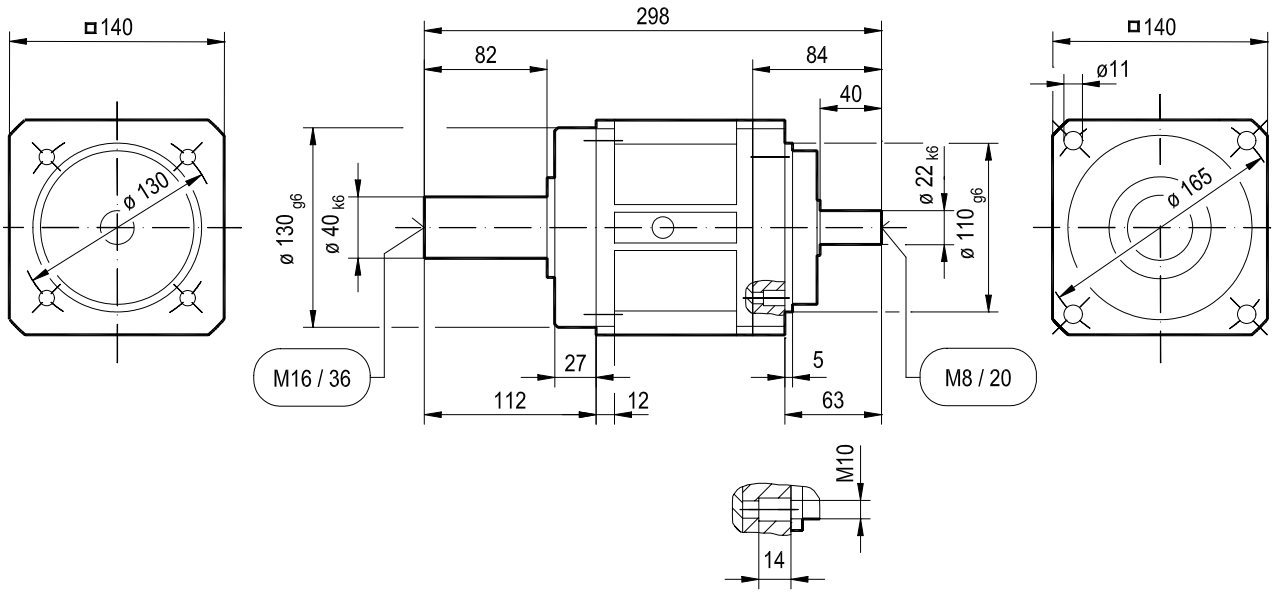


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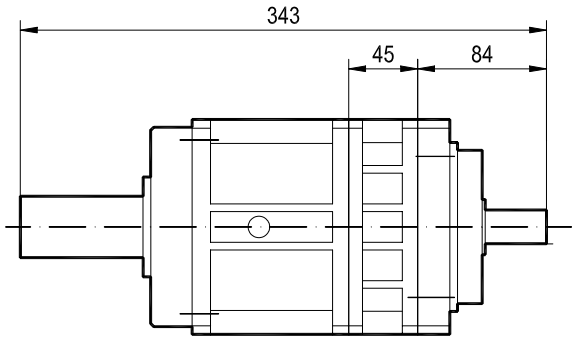
6.7 PSF611/612 ED [mm]

43 005 101

PSF611ED



PSF612ED

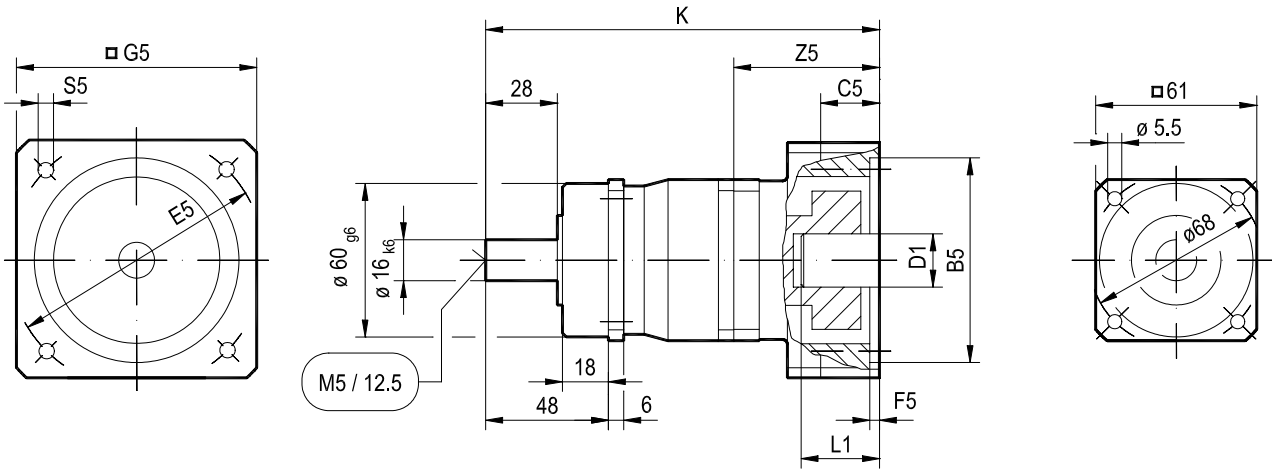


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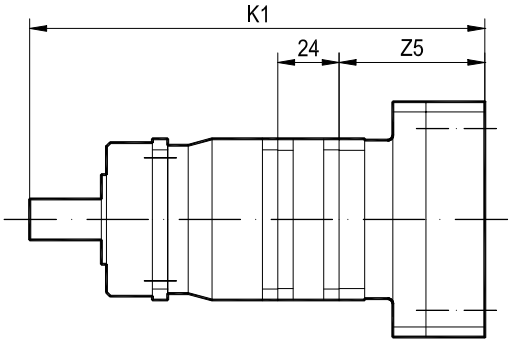
6.8 PSF211/212 EK.. [mm]

43 009 001

PSF211EK..



PSF212EK..



	EK01	EK02	EK12	EK03	EK05	EK18	EK17	EK13	EK04				
B5	40	60	60	80	95	60	50	80	95				
C5	23	23	23	23	23	23	23	23	23				
E5	63	75	75	100	115	90	95	100	115				
F5	5	5	5	5	5	5	5	5	5				
G5	82	82	82	92	105	82	82	92	105				
S5	M4	M5	M5	M6	M8	M5	M6	M6	M8				
Z5	57	57	57	57	57	57	57	57	57				
D1	9	11	14	14	14	14	14	19	19				
L1	20	23	30	30	30	30	30	40	40				
K	154	154	154	154	154	154	154	154	154				
K1	178	178	178	178	178	178	178	178	178				

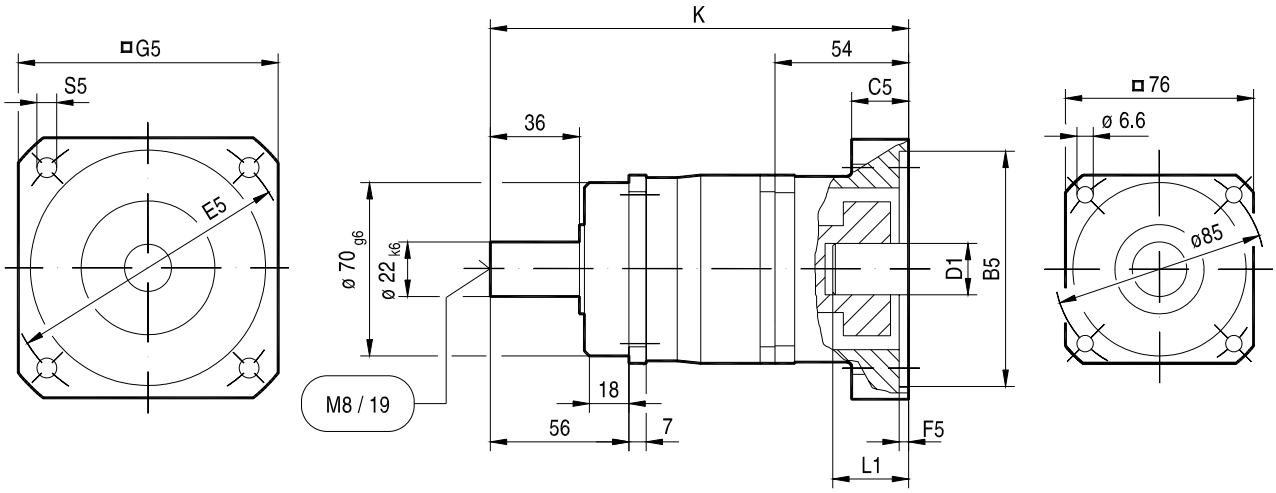
SEW EURODRIVE

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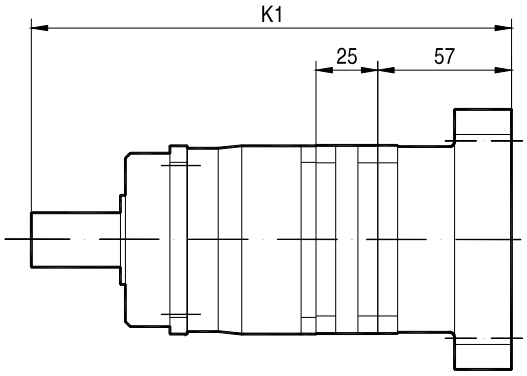
6.9 PSF311/312 EK.. [mm]

43 010 001

PSF311EK..



PSF312EK..



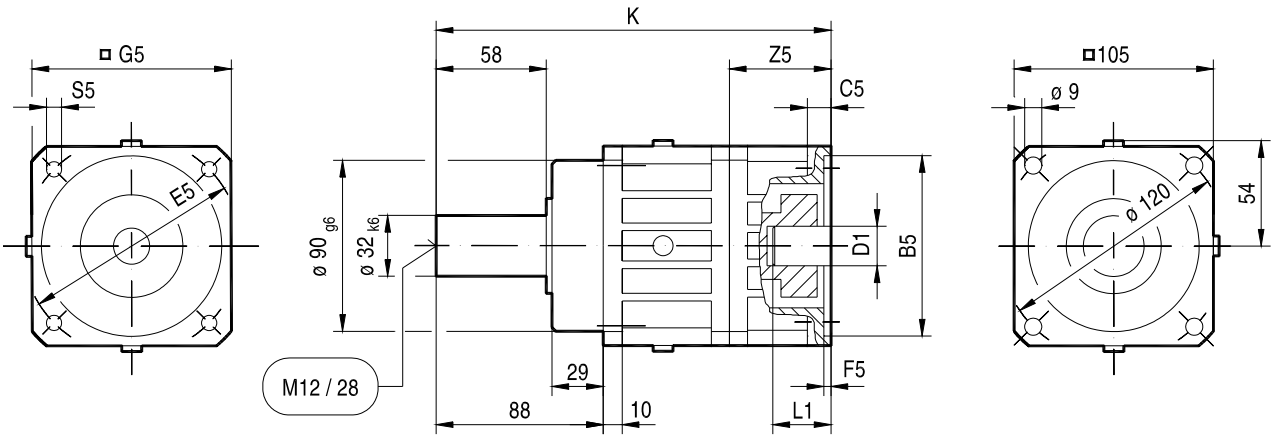
	EK02	EK18	EK17	EK12	EK03	EK05	EK13	EK04	EK07	EK06	EK19	EK14	EK08	EK09
B5	60	60	50	60	80	95	80	95	95	110	110	110	110	130
C5	23	23	23	23	23	23	23	23	23	23	23	23	23	23
E5	75	90	95	75	100	115	100	115	130	130	145	130	165	165
F5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
G5	82	82	82	82	92	105	92	105	115	115	120	115	140	140
S5	M5	M5	M6	M5	M6	M8	M6	M8	M8	M8	M8	M8	M10	M10
D1	11	14	14	14	14	14	19	19	19	19	19	24	24	24
L1	23	30	30	30	30	30	40	40	40	40	50	50	50	50
K	169	169	169	169	169	169	169	169	169	169	169	169	169	169
K1	197	197	197	197	197	197	197	197	197	197	197	197	197	197

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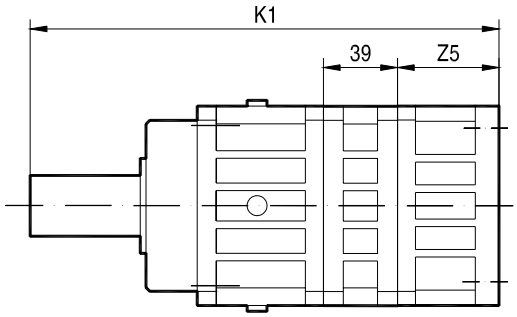
6.10 PSF411/412 EK.. [mm]

43 011 001

PSF411EK..



PSF412EK..



	EK12	EK03	EK05	EK13	EK04	EK07	EK06	EK14	EK08	EK09	EK15	EK11	EK10
B5	60	80	95	80	95	95	110	110	110	130	130	130	180
C5	12	13	13	13	13	13	13	13	13	13	24	24	24
E5	75	100	115	100	115	130	130	130	165	165	165	215	215
F5	5	5	5	5	5	5	5	5	5	5	5	5	5
G5	105	105	105	105	105	115	115	115	140	140	140	190	190
S5	M5	M6	M8	M6	M8	M8	M8	M8	M10	M10	M10	M12	M12
Z5	59	54	54	54	54	54	54	54	54	54	65	65	65
D1	14	14	14	19	19	19	19	24	24	24	32	32	32
L1	30	30	30	40	40	40	40	50	50	50	60	60	60
K	213	208	208	208	208	208	208	208	208	208	220	220	220
K1	252	247	247	247	247	247	247	247	247	247	259	259	259

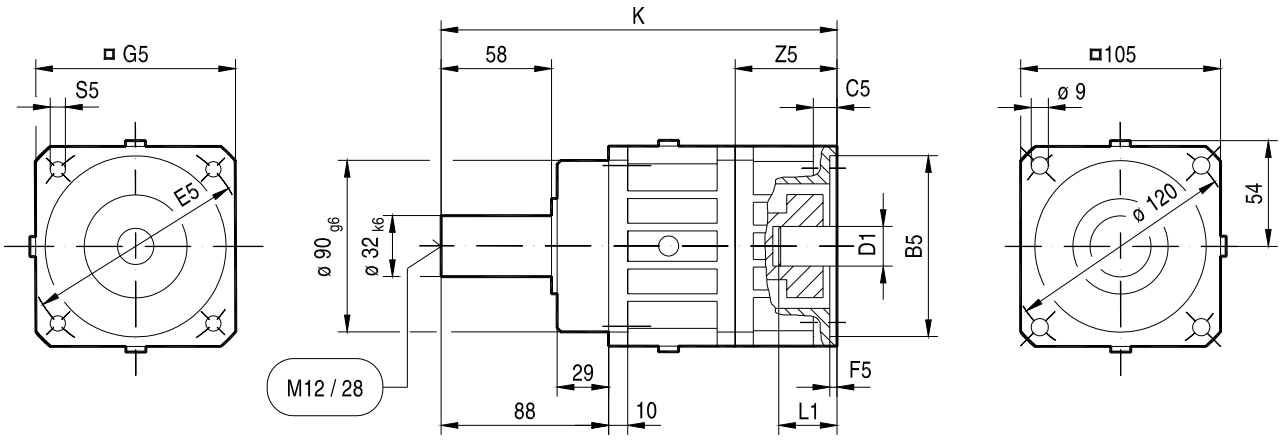
SEW EURODRIVE

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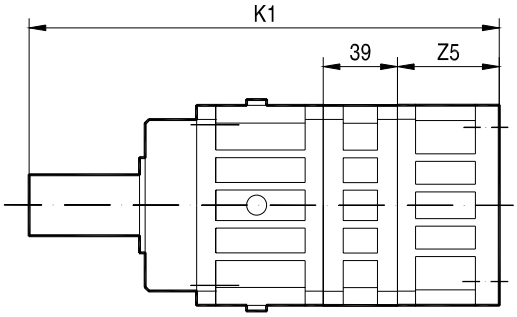
6.11 PSF511/512 EK.. [mm]

43 012 001

PSF511EK..



PSF512EK..



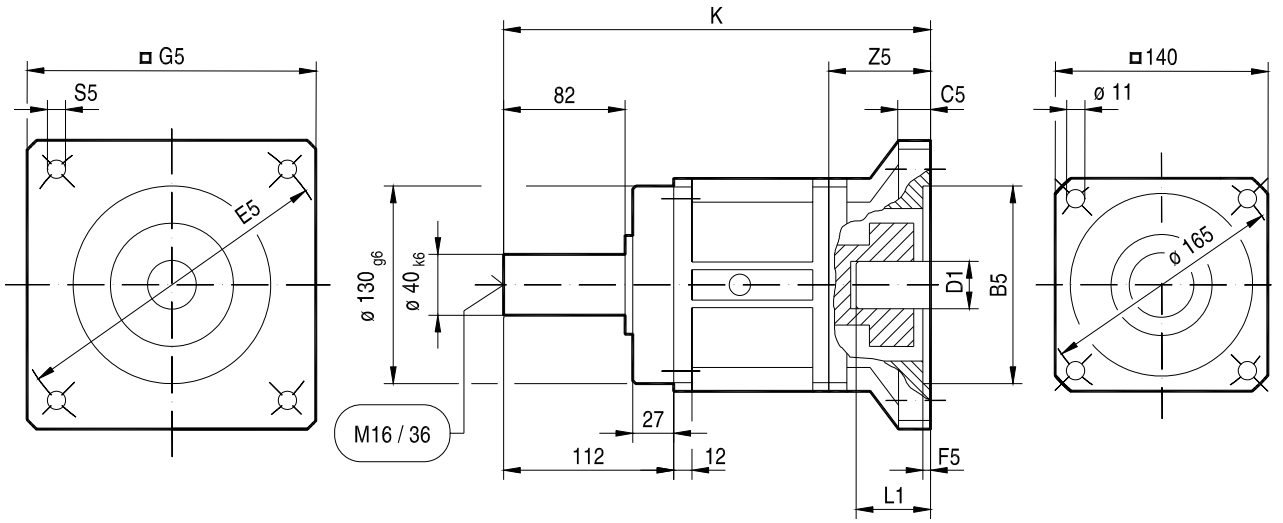
	EK12	EK03	EK05	EK13	EK04	EK07	EK06	EK14	EK08	EK09	EK15	EK11	EK10
B5	60	80	95	80	95	95	110	110	110	130	130	130	180
C5	12	13	13	13	13	13	13	13	13	13	24	24	24
E5	75	100	115	100	115	130	130	130	165	165	165	215	215
F5	5	5	5	5	5	5	5	5	5	5	5	5	5
G5	105	105	105	105	105	115	115	115	140	140	140	190	190
S5	M5	M6	M8	M6	M8	M8	M8	M8	M10	M10	M10	M12	M12
Z5	59	54	54	54	54	54	54	54	54	54	65	65	65
D1	14	14	14	19	19	19	19	24	24	24	32	32	32
L1	30	30	30	40	40	40	40	50	50	50	60	60	60
K	213	208	208	208	208	208	208	208	208	208	220	220	220
K1	252	247	247	247	247	247	247	247	247	247	259	259	259

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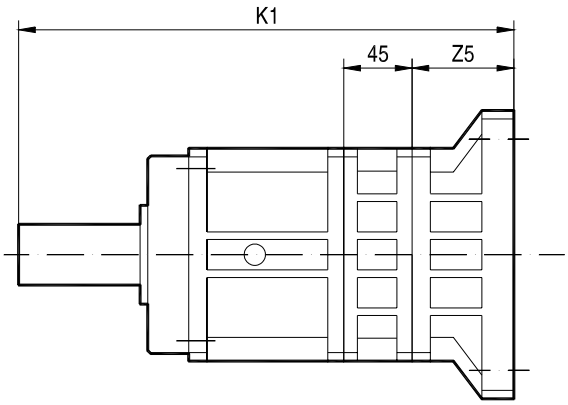
6.12 PSF611/612 EK.. [mm]

43 013 001

PSF611EK..



PSF612EK..



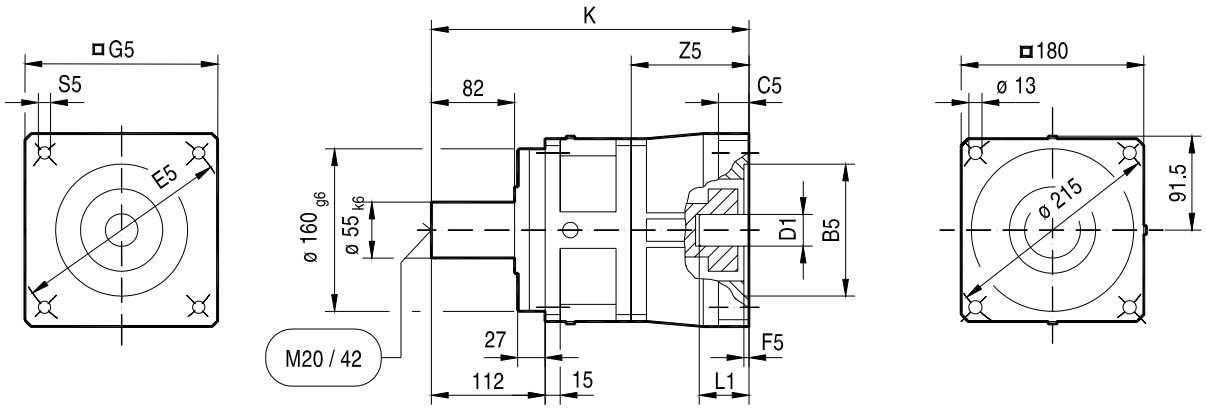
	EK04	EK06	EK14	EK08	EK09	EK15	EK11	EK10	EK16				
B5	95	110	110	110	130	130	130	180	180				
C5	12	12	12	12	12	21	21	21	30				
E5	115	130	130	165	165	165	215	215	215				
F5	5	5	5	5	5	5	5	5	5				
G5	115	115	115	140	140	140	190	190	190				
S5	M8	M8	M8	M10	M10	M10	M12	M12	M12				
Z5	58	58	58	58	58	67	67	67	88				
D1	19	19	24	24	24	32	32	32	38				
L1	40	40	50	50	50	60	60	60	80				
K	272	272	272	272	272	281	281	281	302				
K1	317	317	317	317	317	326	326	326	347				

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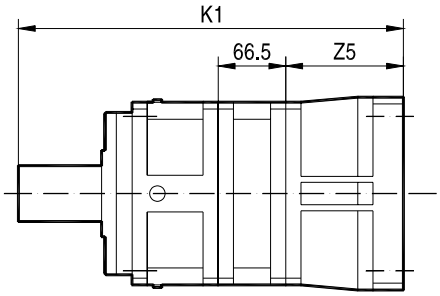
6.13 PSF701/702 EK.. [mm]

43 014 001

PSF701EK..



PSF702EK..



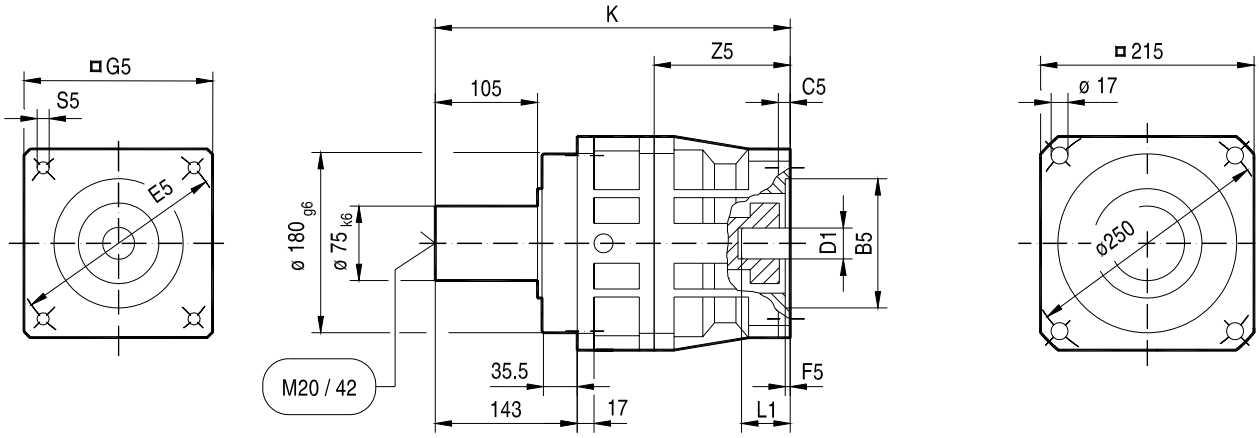
	EK14	EK08	EK09	EK15	EK11	EK10	EK16						
B5	110	110	130	130	130	180	180						
C5	18	40	30	30	30	30	30						
E5	130	165	165	165	215	215	215						
F5	5	5	5	5	5	5	5						
G5	140	140	140	140	190	190	190						
S5	M8	M10	M10	M10	M12	M12	M12						
Z5	134	126	116	116	116	116	116						
D1	24	24	24	32	32	32	38						
L1	50	50	50	60	60	60	80						
K	331	323	313	313	313	313	313						
K1	398	390	380	380	380	380	380						

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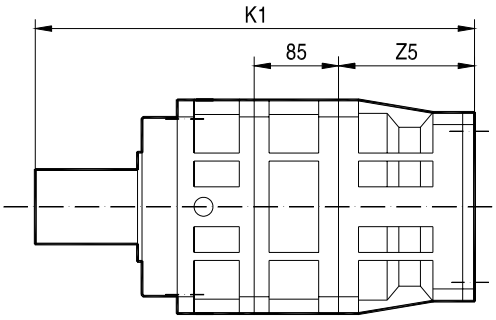
6.14 PSF801/802 EK.. [mm]

43 015 001

PSF801EK..



PSF802EK..



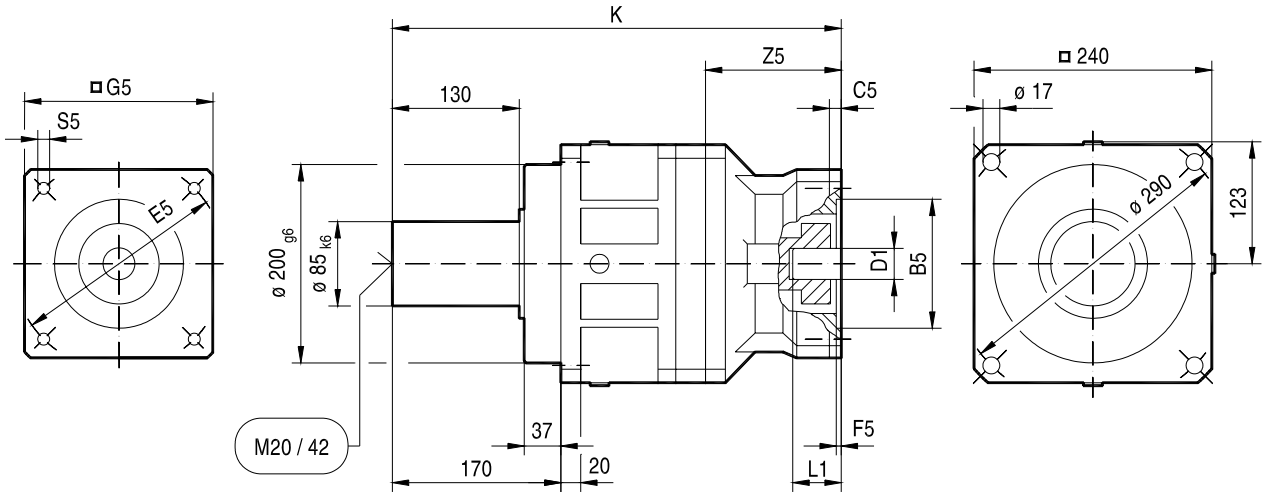
	EK09	EK15	EK11	EK10	EK16	EK22	EK23	EK24	EK25	EK26			
B5	130	130	130	180	180	180	230	250	250	300			
C5	23	23	12	30	30	30	30	30	30	30			
E5	165	165	215	215	215	215	265	300	300	350			
F5	5	5	5	5	5	5	5	5	5	5			
G5	190	190	190	190	190	190	240	260	260	310			
S5	M10	M10	M12	M12	M12	M12	M12	M16	M16	M16			
Z5	148	148	137	125	125	125	155	155	155	155			
D1	24	32	32	32	38	42	42	42	48	55			
L1	50	60	60	60	80	82	85	110	85	110			
K	368	368	357	345	345	345	376	376	376	376			
K1	453	453	442	430	430	430	461	461	461	461			

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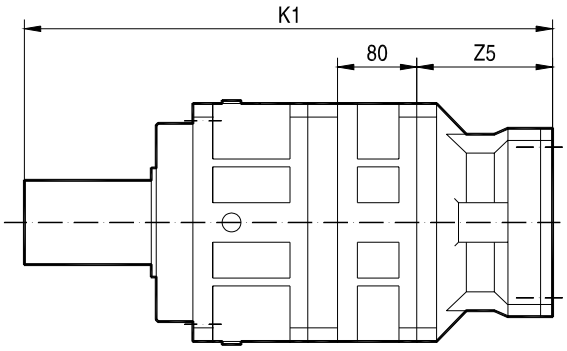
6.15 PSF901/902 EK.. [mm]

43 016 001

PSF901EK..



PSF902EK..



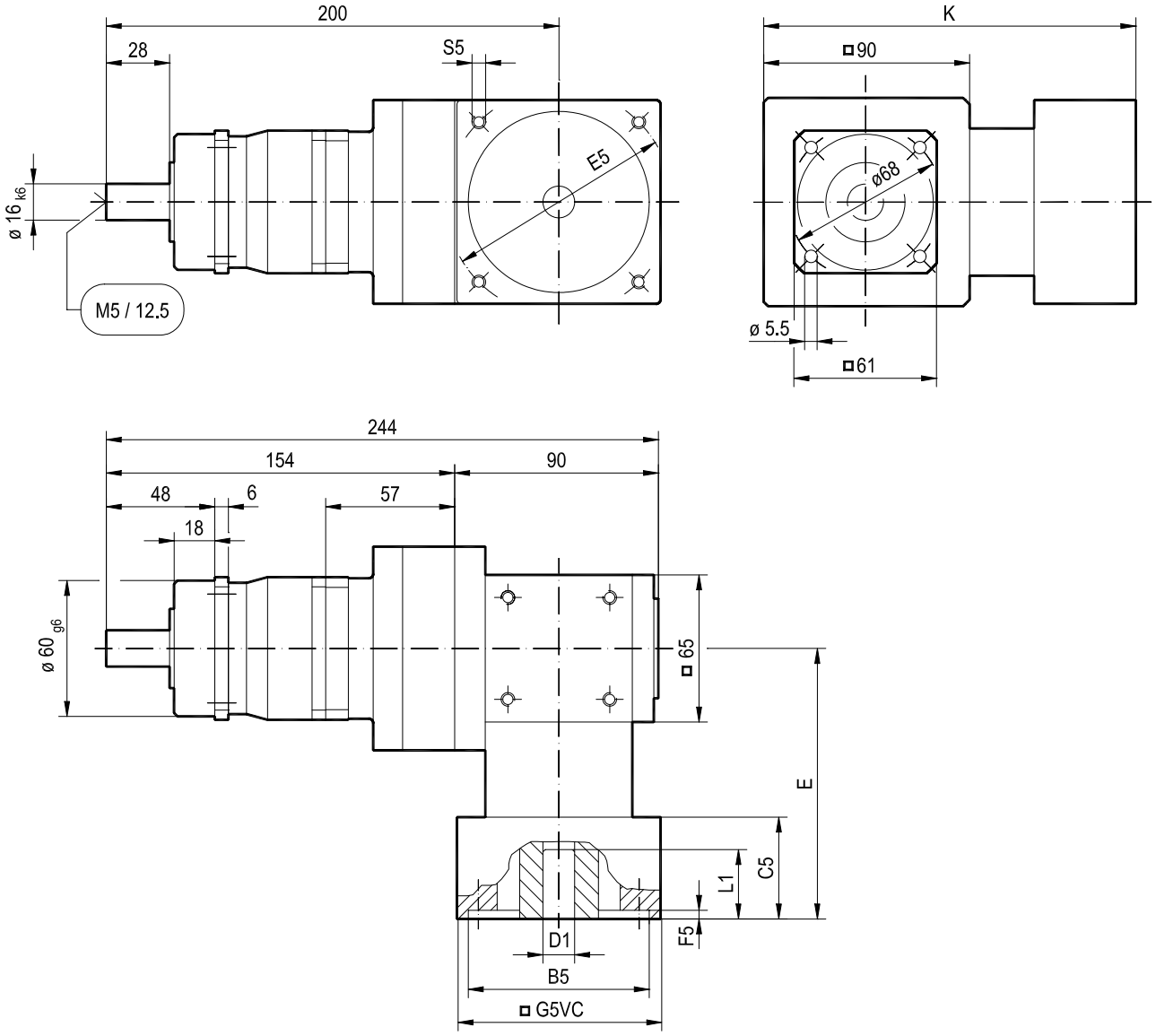
	EK15	EK11	EK10	EK16	EK22	EK23	EK24	EK25	EK26				
B5	130	130	180	180	180	230	250	250	300				
C5 (901/902)	23	12	33/30	33/30	33/30	33/30	33/30	33/30	33/30				
E5	165	215	215	215	215	265	300	300	350				
F5	5	5	5	5	5	5	5	5	5				
G5	190	190	190	190	190	240	260	260	310				
S5	M10	M12	M12	M12	M12	M12	M16	M16	M16				
Z5	148	137	125	125	125	155	155	155	155				
D1	32	32	32	38	42	42	42	48	55				
L1	60	60	60	80	82	85	110	85	110				
K	434	423	411	411	411	441	441	441	441				
K1	514	503	491	491	491	521	521	521	521				

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6.16 PSF211 VC65 EK.. [mm]

43 001 002

PSF211VC65EK..



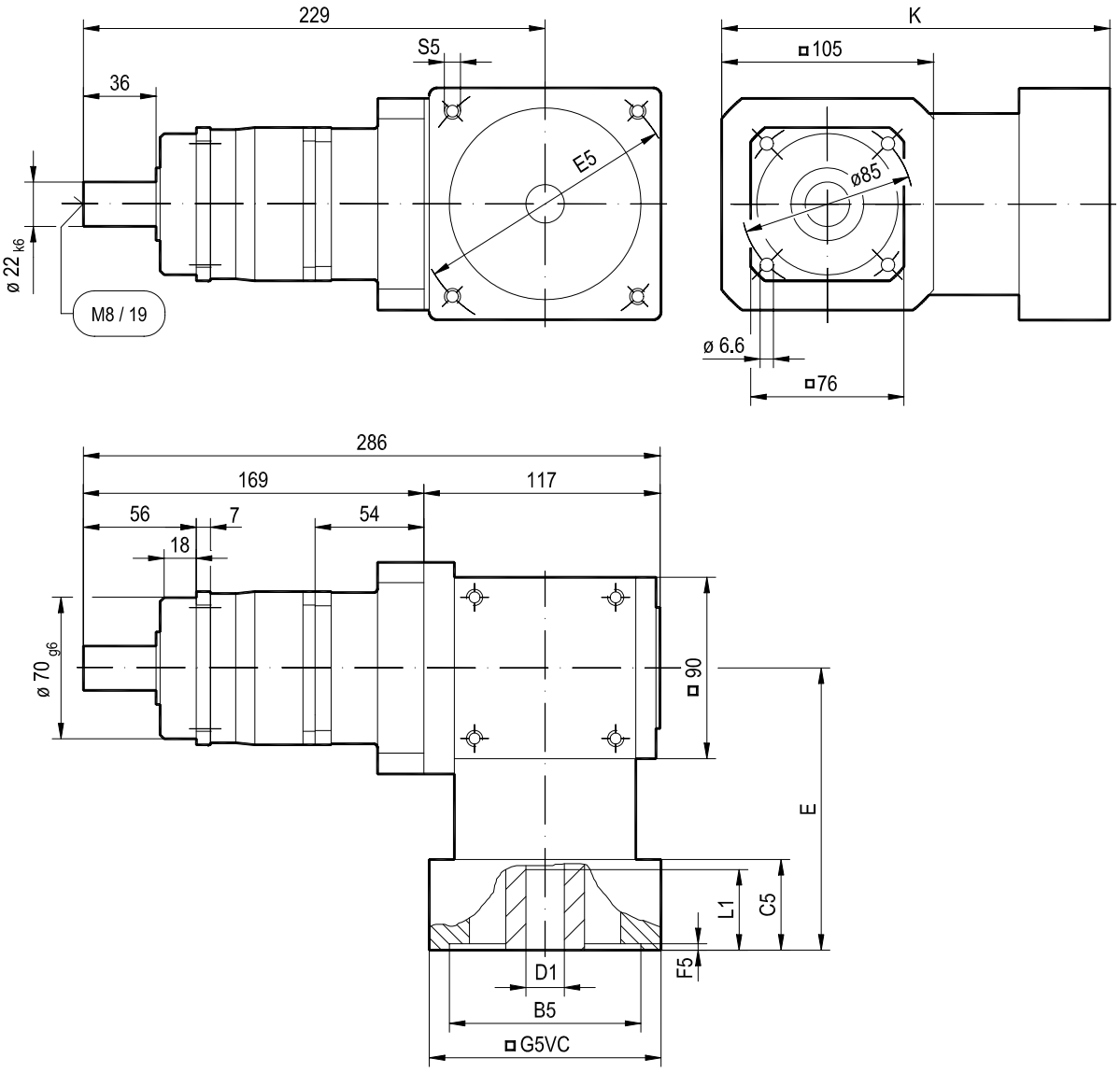
	EK01	EK02	EK12	EK03	EK05								
B5	40	60	60	80	95								
C5	26.5	26.5	45	45	45								
E5	63	75	75	100	115								
F5	4	4	4	4	4								
G5VC	65	65	70	90	100								
S5	M4	M5	M5	M6	M8								
D1	9	11	14	14	14								
L1	20	23	30	30	30								
E	101	101	119.5	119.5	119.5								
K	146	146	164.5	164.5	164.5								

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6.17 PSF311 VC90 EK.. [mm]

43 002 002

PSF311VC90EK..



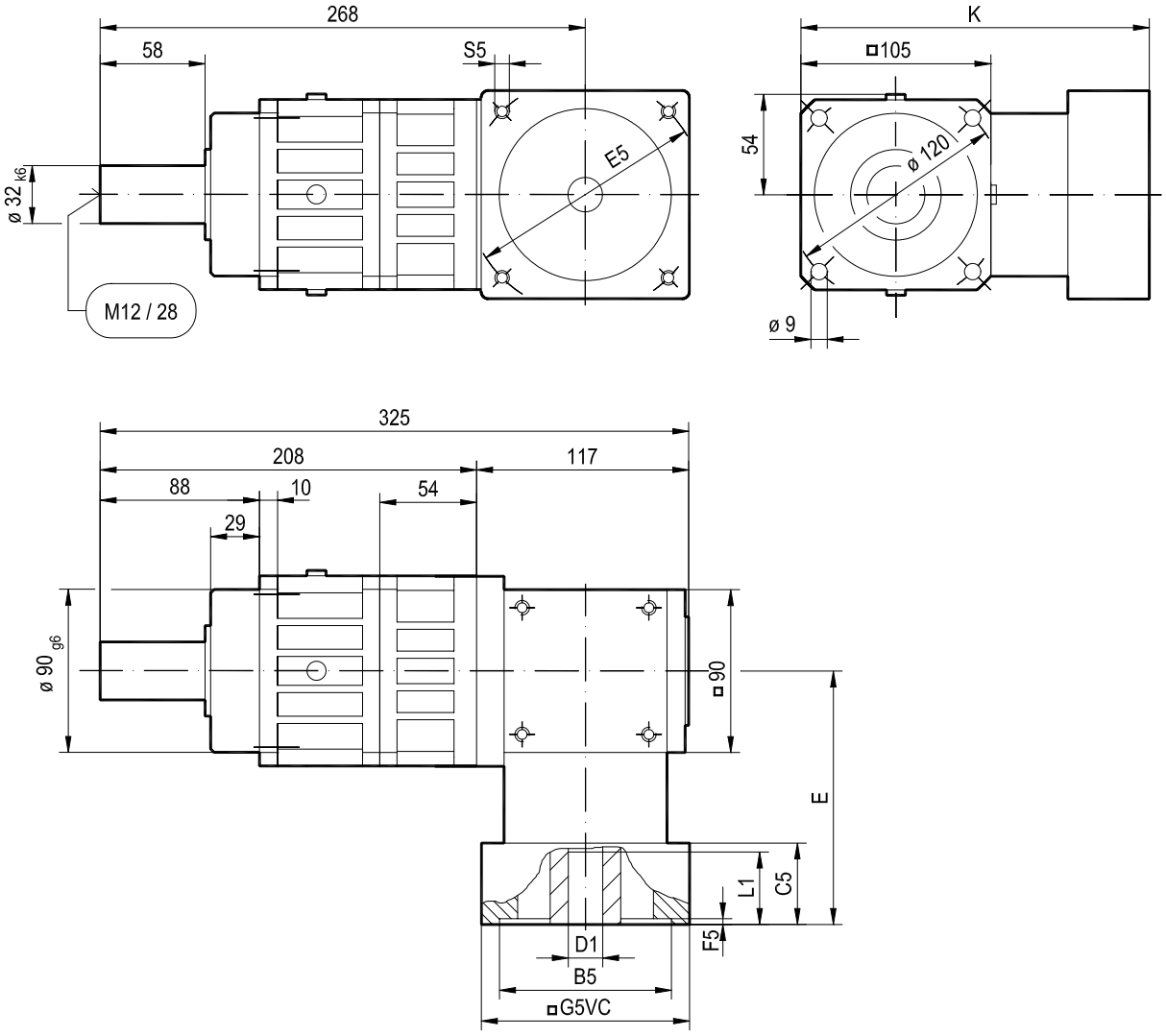
	EK12	EK03	EK05	EK13	EK04	EK07	EK06						
B5	60	80	95	80	95	95	110						
C5	45	45	45	45	45	45	45						
E5	75	100	115	100	115	130	130						
F5	4	4	4	4	4	4	4						
G5VC	90	90	100	95	105	115	115						
S5	M5	M6	M8	M6	M8	M8	M8						
D1	14	14	14	19	19	19	19						
L1	30	30	30	40	40	40	40						
E	140	140	140	140	140	140	140						
K	192.5	192.5	192.5	192.5	192.5	192.5	192.5						

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6.18 PSF411 VC90 EK.. [mm]

43 003 002

PSF411VC90EK..



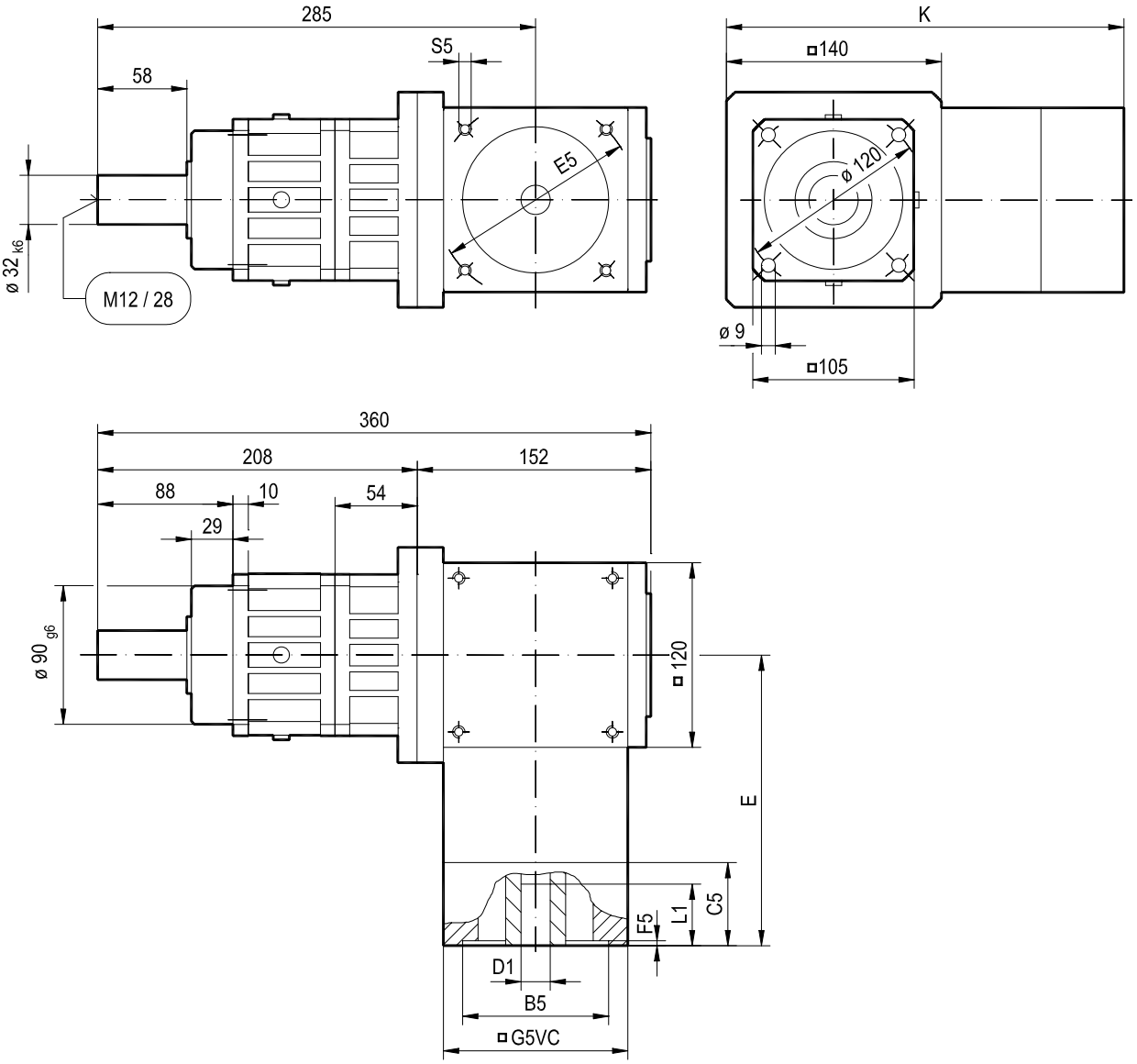
	EK12	EK03	EK05	EK13	EK04	EK07	EK06						
B5	60	80	95	80	95	95	110						
C5	45	45	45	45	45	45	45						
E5	75	100	115	100	115	130	130						
F5	4	4	4	4	4	4	4						
G5VC	90	90	100	95	105	115	115						
S5	M5	M6	M8	M6	M8	M8	M8						
D1	14	14	14	19	19	19	19						
L1	30	30	30	40	40	40	40						
E	140	140	140	140	140	140	140						
K	192.5	192.5	192.5	192.5	192.5	192.5	192.5						

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6.19 PSF511 VC120 EK.. [mm]

43 004 002

PSF511VC120EK..



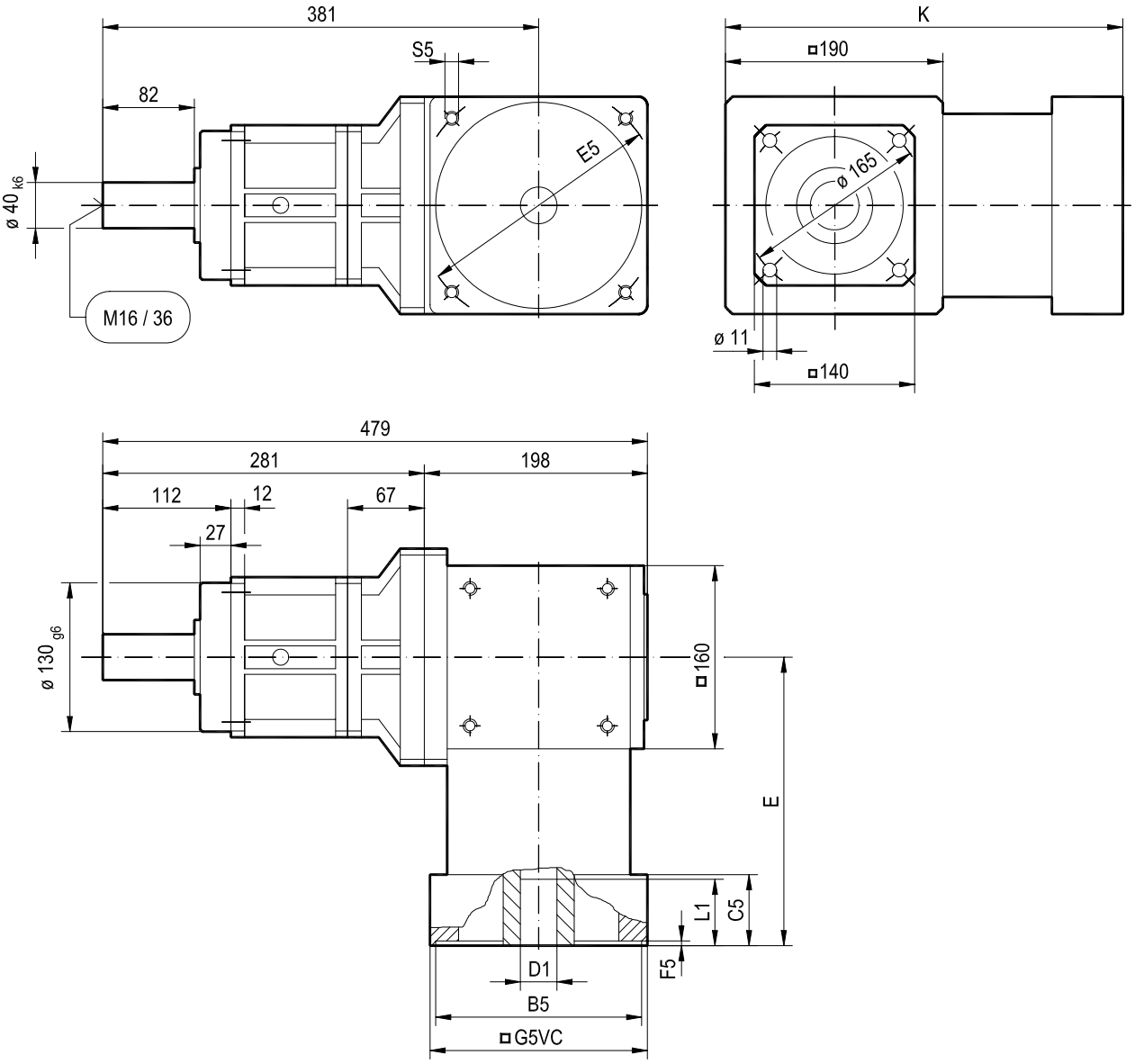
	EK12	EK03	EK05	EK13	EK04	EK07	EK06	EK14	EK08	EK09			
B5	60	80	95	80	95	95	110	110	110	130			
C5	54	54	54	54	54	54	54	54	54	54			
E5	75	100	115	100	115	130	130	130	165	165			
F5	5	5	5	5	5	5	5	5	5	5			
G5VC	120	120	120	120	120	120	120	120	140	140			
S5	M5	M6	M8	M6	M8	M8	M8	M8	M10	M10			
D1	14	14	14	19	19	19	19	24	24	24			
L1	30	30	30	40	40	40	40	50	50	50			
E	170	170	170	170	170	170	170	170	170	170			
K	240	240	240	240	240	240	240	240	240	240			

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6.20 PSF611 VC160 EK.. [mm]

43 005 002

PSF611VC160EK..



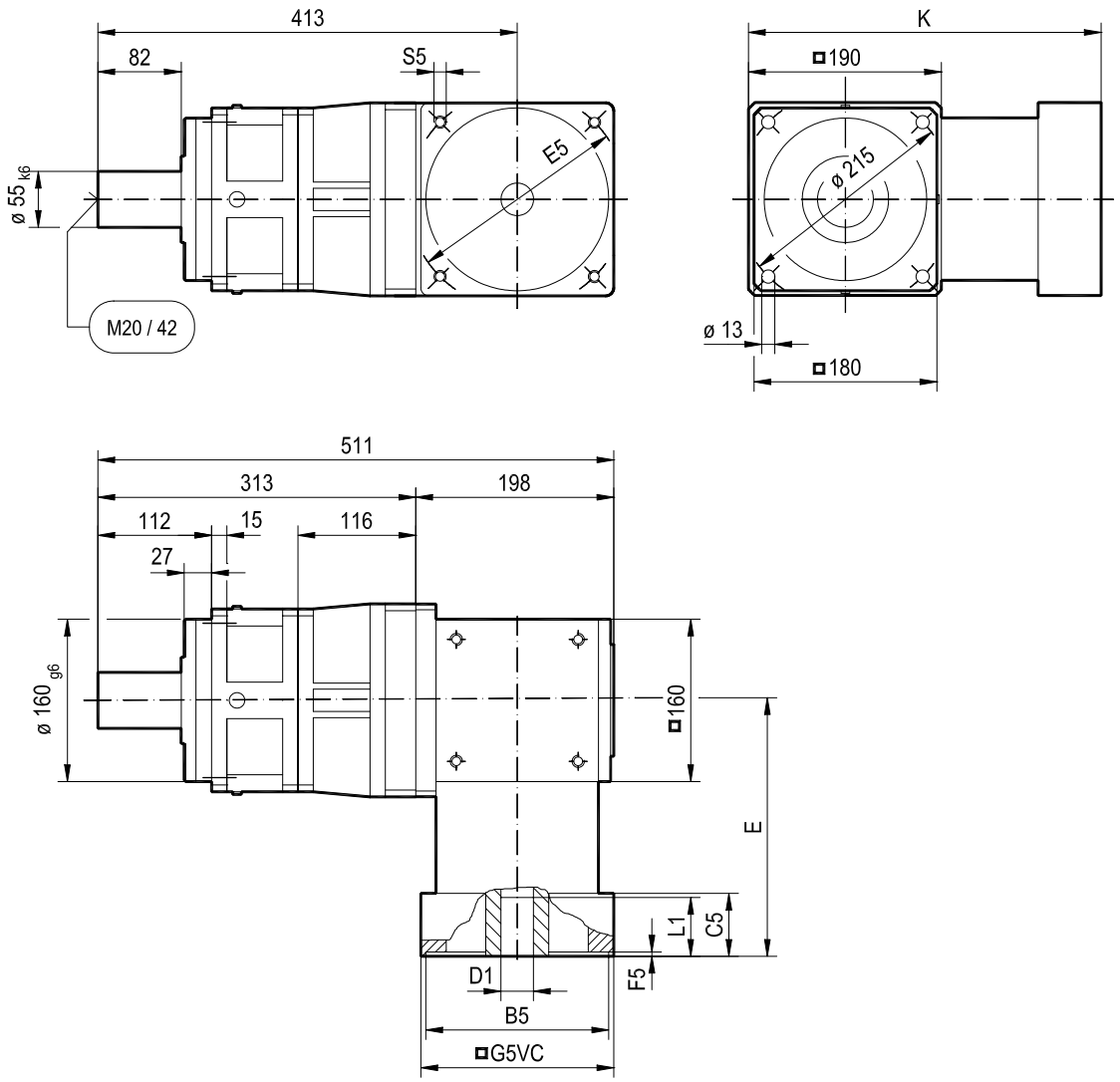
	EK13	EK04	EK07	EK06	EK14	EK08	EK09	EK15	EK11	EK10			
B5	80	95	95	110	110	110	130	130	130	180			
C5	62	62	62	62	62	62	62	62	62	62			
E5	100	115	130	130	130	165	165	165	215	215			
F5	5	5	5	5	5	5	5	5	5	5			
G5VC	160	160	160	160	160	160	160	160	190	190			
S5	M6	M8	M8	M8	M8	M10	M10	M10	M12	M12			
D1	19	19	19	19	24	24	24	32	32	32			
L1	40	40	40	40	50	50	50	60	60	60			
E	215	215	215	215	215	215	215	215	215	215			
K	310	310	310	310	310	310	310	310	310	310			

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6.21 PSF701 VC160 EK.. [mm]

43 006 002

PSF701VC160EK..



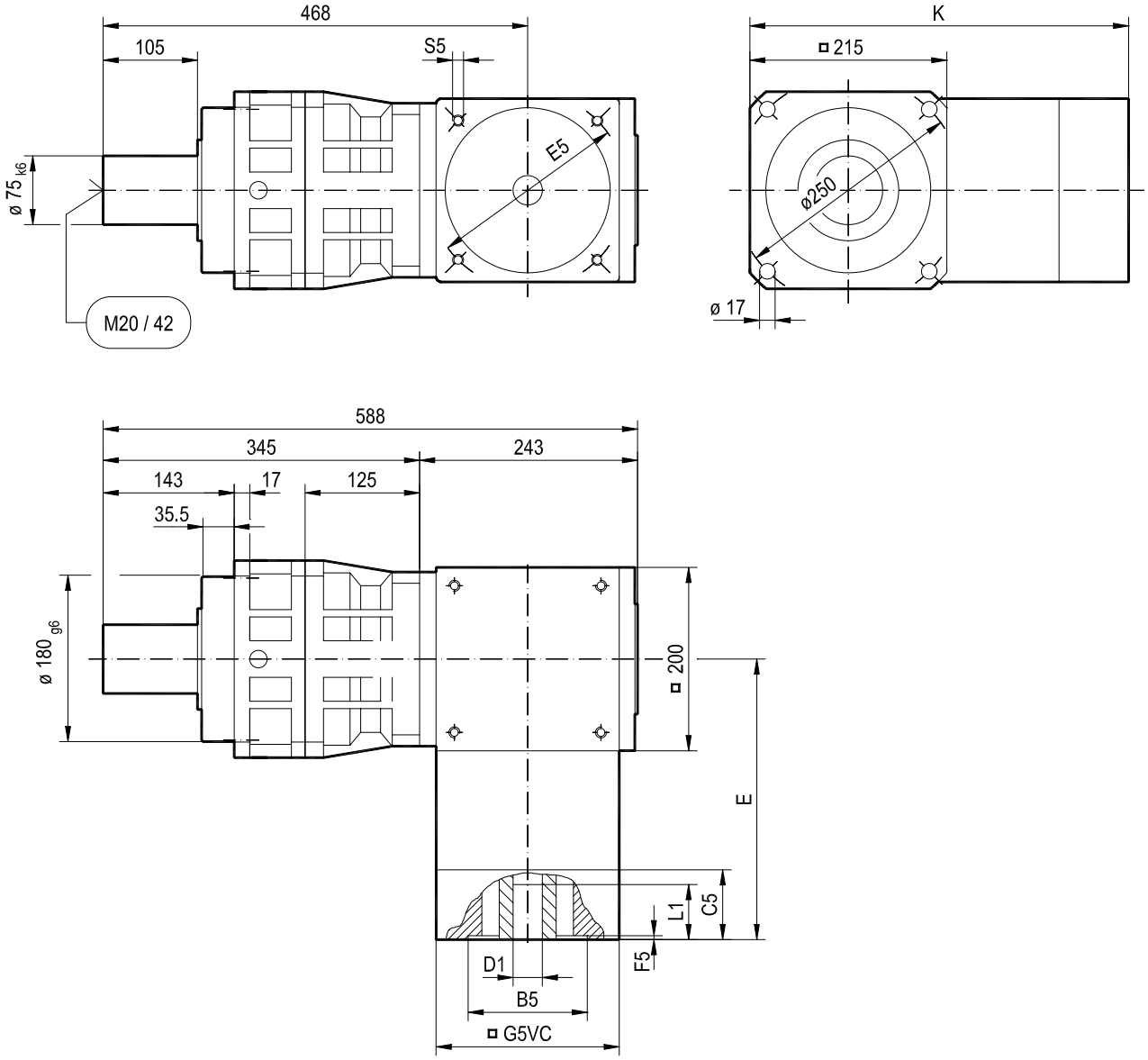
	EK13	EK04	EK07	EK06	EK14	EK08	EK09	EK15	EK11	EK10			
B5	80	95	95	110	110	110	130	130	130	180			
C5	62	62	62	62	62	62	62	62	62	62			
E5	100	115	130	130	130	165	165	165	215	215			
F5	5	5	5	5	5	5	5	5	5	5			
G5VC	160	160	160	160	160	160	160	160	190	190			
S5	M6	M8	M8	M8	M8	M10	M10	M10	M12	M12			
D1	19	19	19	19	24	24	24	32	32	32			
L1	40	40	40	40	50	50	50	60	60	60			
E	215	215	215	215	215	215	215	215	215	215			
K	310	310	310	310	310	310	310	310	310	310			

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6.22 PSF801 VC200 EK.. [mm]

43 007 002

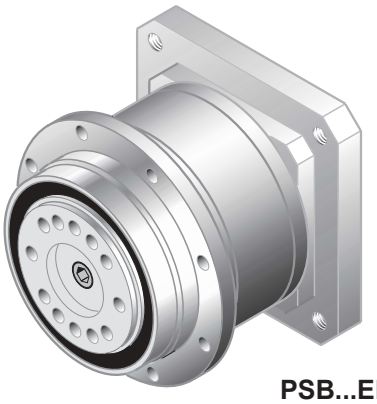
PSF801VC200EK..



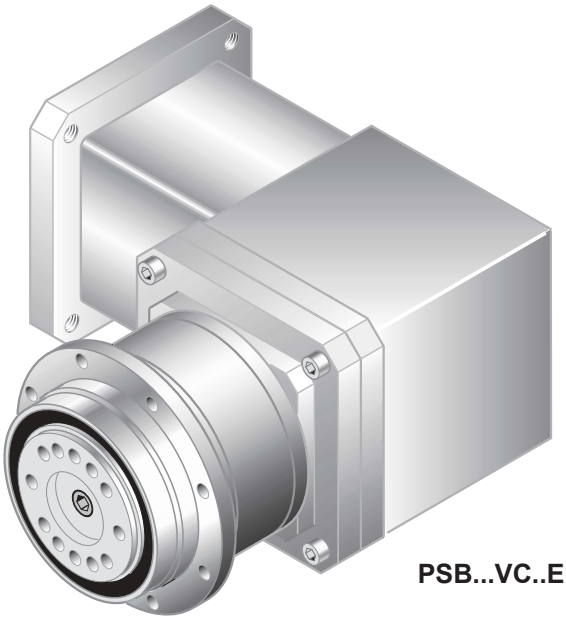
	EK14	EK08	EK09	EK15	EK11	EK10	EK16						
B5	110	110	130	130	130	180	180						
C5	76	76	76	76	76	76	88						
E5	130	165	165	165	215	215	215						
F5	5	5	5	5	5	5	5						
G5VC	200	200	200	200	200	200	200						
S5	M8	M10	M10	M10	M12	M12	M12						
D1	24	24	24	32	32	32	38						
L1	50	50	50	60	60	60	80						
E	262	262	262	262	262	262	274						
K	369.5	369.5	369.5	369.5	369.5	369.5	381.5						

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7 Low Backlash Planetary Gear Units PSB...



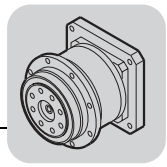
PSB...EK..



PSB...VC..EK..

50776AXX

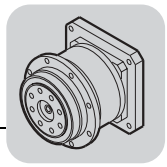
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7.1 PSB...EK.. [Nm]

i	$n_{e\,max}$ [1/min]	M_N [Nm]	M_B [Nm]	F_{Ra} [N]	F_{Aa} [N]	c_K [Nm/ ']	c_T [Nm/ ']			m [kg]	
PSB311 EK.., n_e = 1000 1/min											**110 Nm**
4	6000	110	165	3500	1770						
5	6000	110	165	3800	1920	**330**	**21**	**PSB**	**311EK**	3.8	62
7	6000	110	165	4200	2120						
10	6000	110	120	5100	2200						
PSB312 EK.., n_e = 1000 1/min											**110 Nm**
16	6000	110	165	5500	2200						
20	6000	110	165	5900	2200						
25	6000	110	165	6300	2200						
28	6000	110	165	6600	2200						
35	6000	110	165	7000	2200	**330**	**18**	**PSB**	**312EK**	4.1	62
40	6000	110	165	7300	2200						
49	6000	110	165	7800	2200						
70	6000	110	165	8700	2200						
100	6000	110	120	9700	2200						
PSB411 EK.., n_e = 1000 1/min											**160 Nm**
4	4500	160	210	4900	2070						
5	4500	160	210	5200	2190	**565**	**36**	**PSB**	**411EK**	5.9	63
7	4500	160	210	5800	2450						
10	4500	150	160	6500	2740						
PSB412 EK.., n_e = 1000 1/min											**160 Nm**
16	4500	160	210	7500	3160						
20	4500	160	210	8100	3410						
25	4500	160	210	8600	3630						
28	4500	160	210	9000	3790						
35	4500	160	210	9600	4050	**565**	**29**	**PSB**	**412EK**	7.7	63
40	4500	160	210	10000	4200						
49	4500	160	210	10600	4200						
70	4500	160	210	12500	4200						
100	4500	150	160	13300	4200						
PSB511 EK.., n_e = 1000 1/min											**300 Nm**
4	4500	300	370	4900	2070						
6	4500	300	370	5200	2190	**565**	**39**	**PSB**	**511EK**	6.1	64
7	4500	300	370	5800	2450						
10	4500	270	270	6500	2740						
PSB512 EK.., n_e = 1000 1/min											**300 Nm**
16	4500	300	370	7500	3160						
20	4500	300	370	8100	3410						
25	4500	300	370	8600	3630						
28	4500	300	370	9000	3790						
35	4500	300	370	9600	4050	**565**	**32**	**PSB**	**512EK**	7.9	64
40	4500	300	370	10000	4200						
49	4500	300	370	10600	4200						
70	4500	300	370	12500	4200						
100	4500	270	270	13300	4200						
PSB611 EK.., n_e = 1000 1/min											**600 Nm**
4	4500	600	670	7100	6130						
5	4500	600	670	8600	6130	**830**	**66**	**PSB**	**611EK**	14	65
7	4500	600	670	11000	6130						
10	4500	500	500	14100	6130						

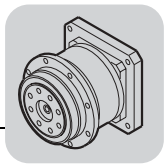
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PSB...EK.. [Nm]

PSB612 EK.., n_e = 1000 1/min											600 Nm
i	$n_{e\,max}$ [1/min]	M_N [Nm]	M_B [Nm]	F_{Ra} [N]	F_{Aa} [N]	c_K [Nm/ ']	c_T [Nm/ ']			m [kg]	
16	4500	600	670	18400	6130						
20	4500	600	670	20300	6130						
25	4500	600	670	21700	6130						
28	4500	600	670	22400	6130						
35	4500	600	670	24000	6130	**830**	**54**	**PSB**	**612EK**	18	65
40	4500	600	670	25000	6130						
49	4500	600	670	26700	6130						
70	4500	600	670	29600	6130						
100	4500	500	500	33000	6130						

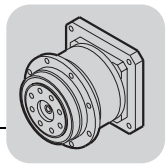
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7.2 PSB...VC..EK.. [Nm]

i	$n_{e\,max}$ [1/min]	M_N [Nm]	M_B [Nm]	F_{Ra} [N]	F_{Aa} [N]	c_K [Nm/ ']				m [kg]	
PSB311 VC90 EK.., n_e = 1000 1/min											**110 Nm**
7	6000	110	165	4200	2120						
10	6000	110	120	5100	2200						
14	6000	110	165	5200	2200						
21	6000	110	165	5900	2200						
28	6000	110	165	6600	2200	**330**	**PSB**	**311VC90EK**		9.3	66
35	6000	110	165	7000	2200						
40	6000	110	120	7300	2200						
50	6000	110	120	7800	2200						
60	6000	110	120	8100	2200						
PSB411 VC90 EK.., n_e = 1000 1/min											**160 Nm**
7	4500	160	210	5800	2450						
10	4500	150	160	6500	2740						
14	4500	160	210	6800	4200						
21	4500	160	210	7800	4200						
28	4500	160	210	9000	3790	**565**	**PSB**	**411VC90EK**		11	67
35	4500	160	210	9600	4050						
40	4500	150	160	10000	4200						
50	4500	150	160	10700	4200						
60	4500	150	160	11100	4200						
PSB511 VC120 EK.., n_e = 1000 1/min											**300 Nm**
7	4500	300	370	5800	2450						
10	4500	270	270	6500	2740						
14	4500	300	370	6800	4200						
21	4500	300	370	7800	4200						
28	4500	300	370	9000	3790	**565**	**PSB**	**511VC120EK**		18	68
35	4500	300	370	9600	4050						
40	4500	270	270	10000	4200						
50	4500	270	270	10700	4200						
PSB611 VC160 EK.., n_e = 1000 1/min											**600 Nm**
7	4500	600	670	11000	6130						
10	4500	500	500	14100	6130						
14	4500	600	670	17400	6130						
21	4500	600	670	20800	6130						
28	4500	600	670	22400	6130	**830**	**PSB**	**611VC160EK**		26	69
35	4500	600	670	24000	6130						
40	4500	500	500	25000	6130						
50	4500	500	500	27000	6130						
60	4500	500	500	28500	6130						

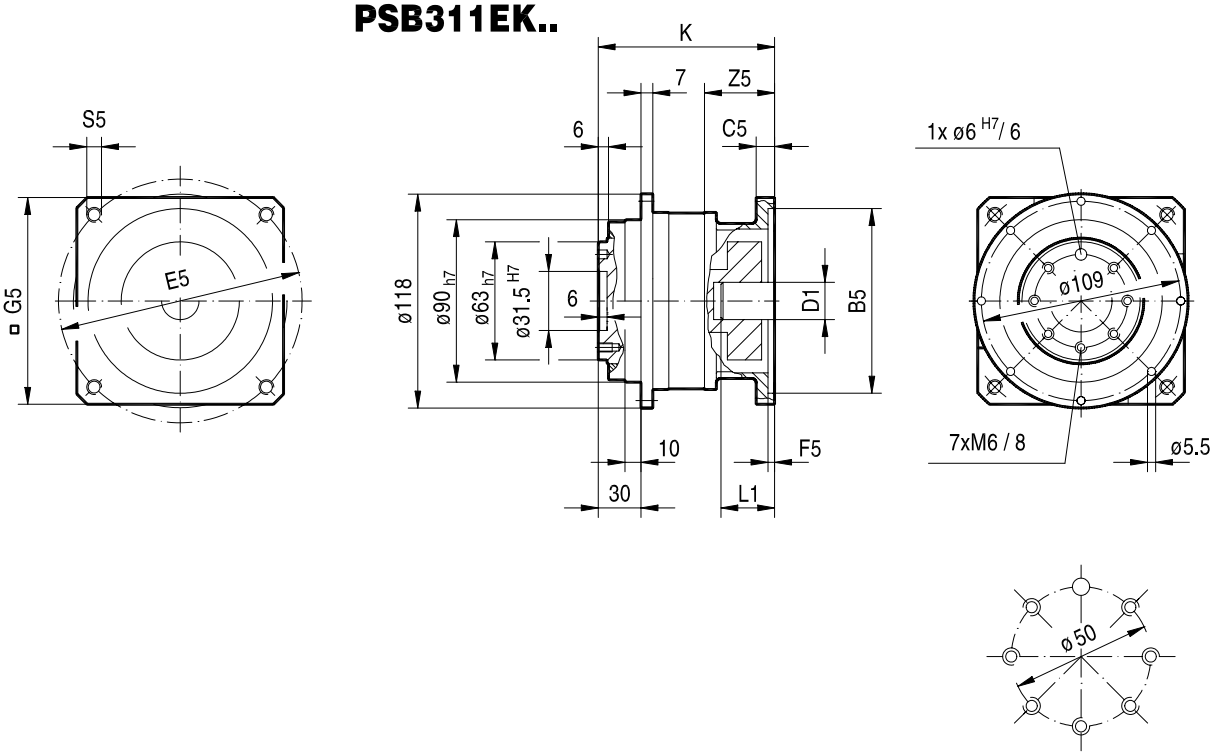
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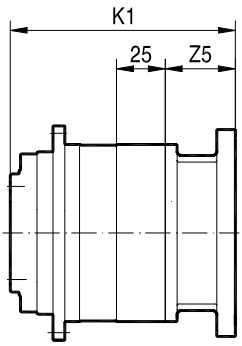
7.3 PSB311/312 EK.. [mm]

43 017 001

PSB311EK..



PSB312EK..



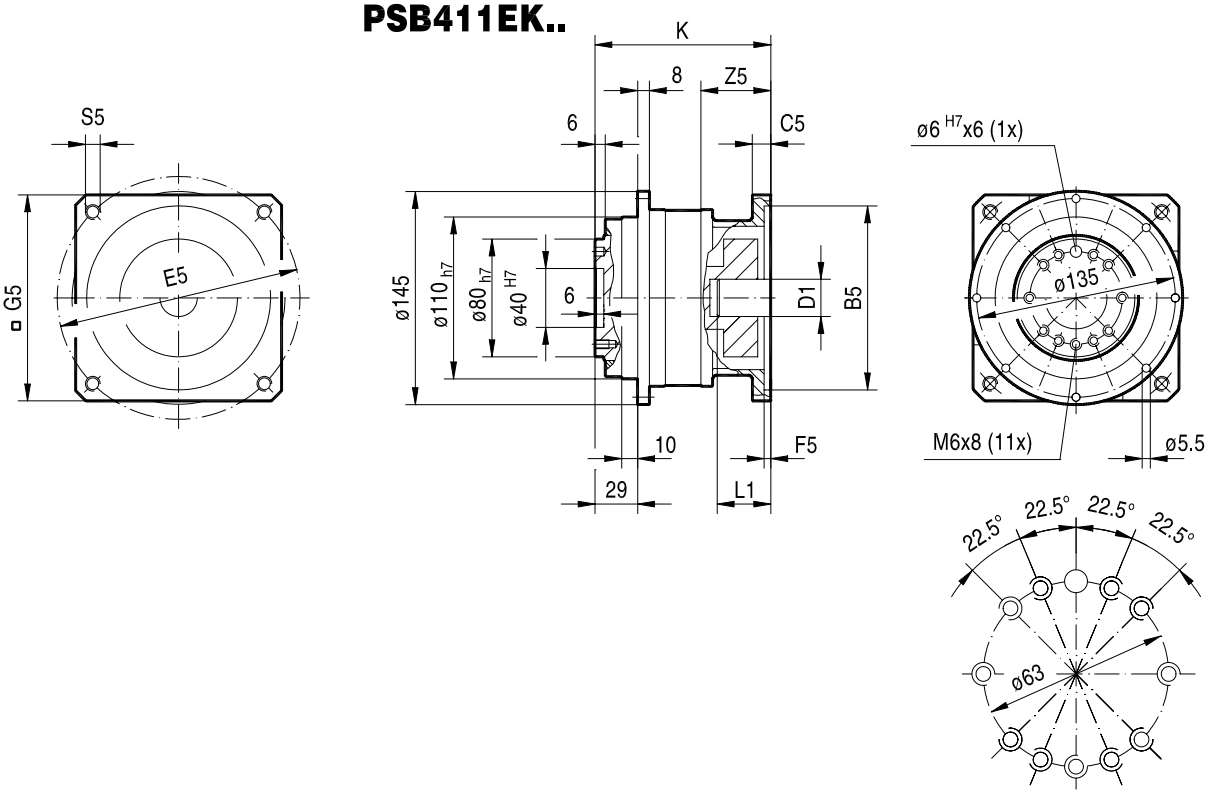
	EK02	EK18	EK17	EK12	EK03	EK05	EK13	EK04	EK07	EK06	EK19	EK14	EK08	EK09
B5	60	60	50	60	80	95	80	95	95	110	110	110	110	130
C5	23	23	23	23	23	23	23	23	23	23	23	23	23	23
E5	75	90	95	75	100	115	100	115	130	130	145	130	165	165
F5	4	4	4	4	4	4	4	4	4	4	4	4	4	4
G5	82	82	82	82	92	105	92	105	115	115	120	115	140	140
S5	M5	M5	M6	M5	M6	M8	M6	M8	M8	M8	M8	M8	M10	M10
Z5	46.5	46.5	46.5	46.5	46.5	46.5	46.5	46.5	46.5	46.5	46.5	46.5	46.5	46.5
D1	11	14	14	14	14	14	19	19	19	19	19	24	24	24
L1	23	30	30	30	30	30	40	40	40	40	50	50	50	50
K	111.5	111.5	111.5	111.5	111.5	111.5	111.5	111.5	111.5	111.5	111.5	111.5	111.5	111.5
K1	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5

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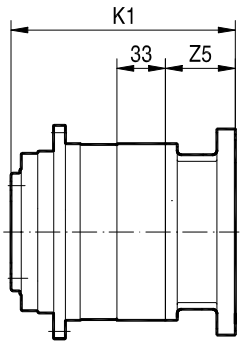
7.4 PSB411/412 EK.. [mm]

43 018 001

PSB411EK..



PSB412EK..



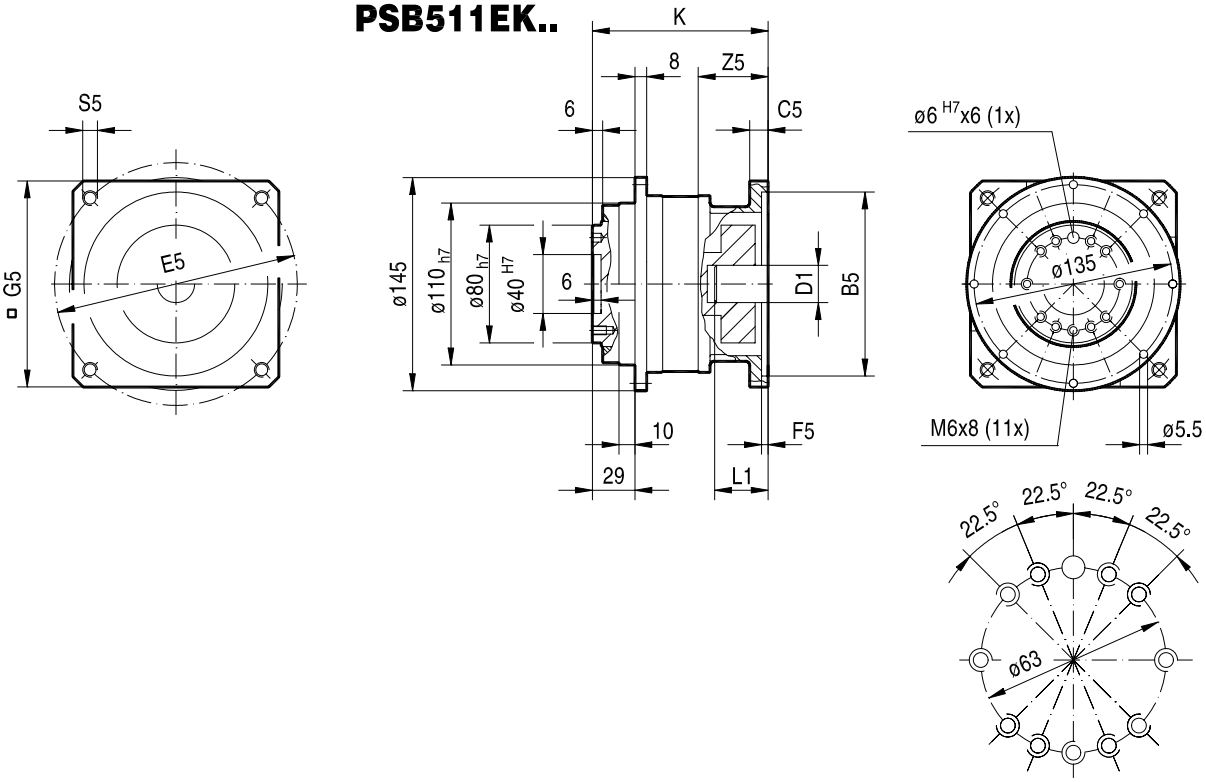
	EK03	EK05	EK13	EK04	EK07	EK06	EK14	EK08	EK09	EK15	EK11	EK10	
B5	80	95	80	95	95	110	110	110	130	130	130	180	
C5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12	22	22	
E5	100	115	100	115	130	130	130	165	165	165	215	215	
F5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	5	5	5	
G5	105	105	105	105	115	115	115	140	140	140	190	190	
S5	M6	M8	M6	M8	M8	M8	M8	M10	M10	M10	M12	M12	
Z5	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5	59.5	69.5	69.5	
D1	14	14	19	19	19	19	24	24	24	32	32	32	
L1	30	30	40	40	40	40	50	50	50	60	60	60	
K	119.5	119.5	119.5	119.5	119.5	119.5	119.5	119.5	119.5	131.5	141.5	141.5	
K1	152.5	152.5	152.5	152.5	152.5	152.5	152.5	152.5	152.5	164.5	174.5	174.5	

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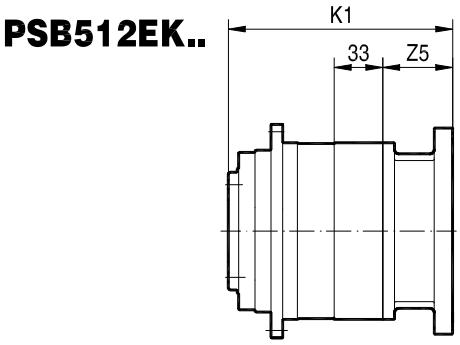
7.5 PSB511/512 EK.. [mm]

43 019 001

PSB511EK..



PSB512EK..



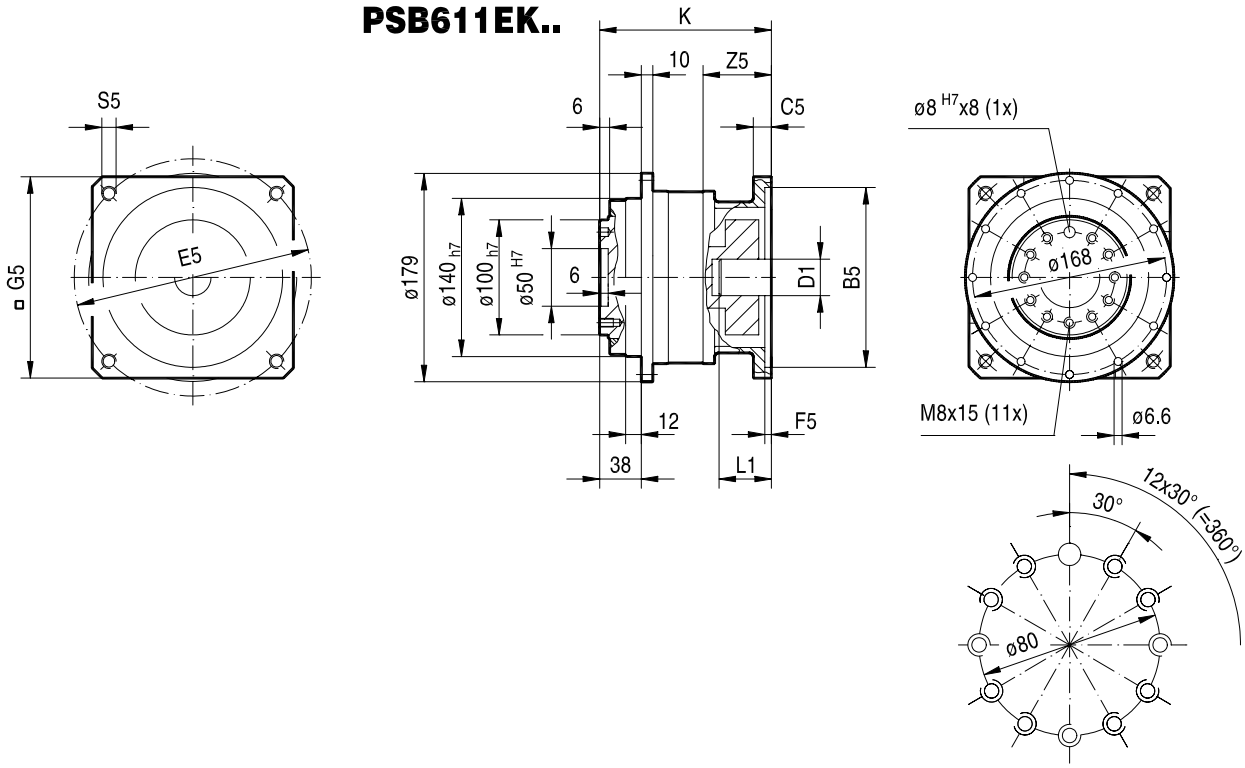
	EK03	EK05	EK13	EK04	EK07	EK06	EK14	EK08	EK09	EK15	EK11	EK10	
B5	80	95	80	95	95	110	110	110	130	130	130	180	
C5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12	22	22	
E5	100	115	100	115	130	130	130	165	165	165	215	215	
F5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	5	5	5	
G5	105	105	105	105	115	115	115	140	140	140	190	190	
S5	M6	M8	M6	M8	M8	M8	M8	M10	M10	M10	M12	M12	
Z5	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5	59.5	69.5	69.5	
D1	14	14	19	19	19	19	24	24	24	32	32	32	
L1	30	30	40	40	40	40	50	50	50	60	60	60	
K	119.5	119.5	119.5	119.5	119.5	119.5	119.5	119.5	119.5	131.5	141.5	141.5	
K1	152.5	152.5	152.5	152.5	152.5	152.5	152.5	152.5	152.5	164.5	174.5	174.5	

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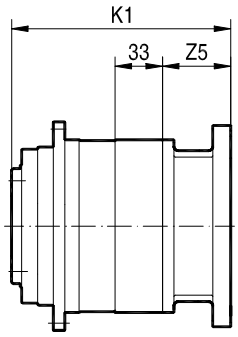
7.6 PSB611/612 EK.. [mm]

43 020 001

PSB611EK..



PSB612EK..



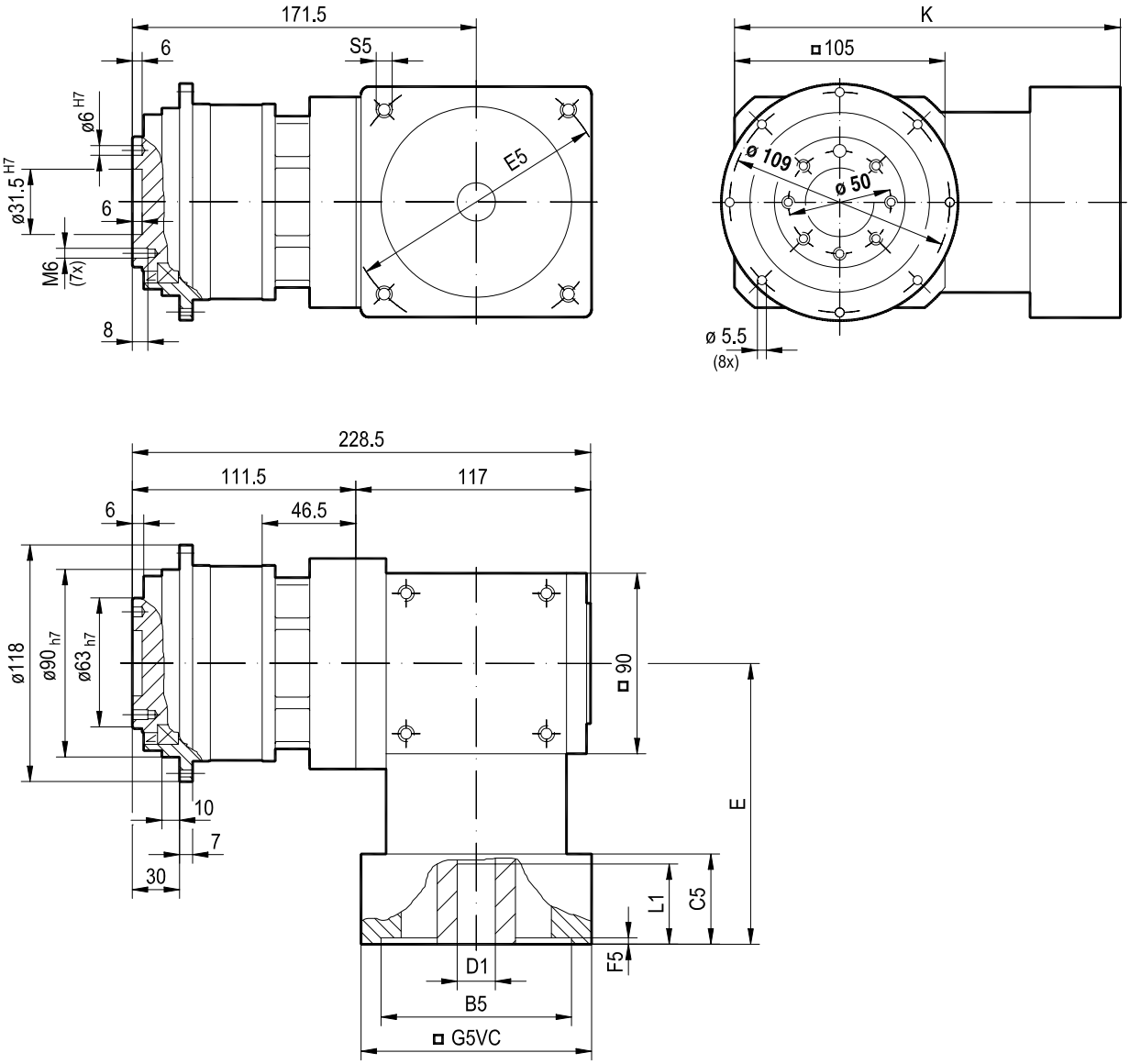
	EK04	EK06	EK14	EK08	EK09	EK15	EK11	EK10	EK16				
B5	95	110	110	110	130	130	130	150	150				
C5	12	12	12	12	12	21	21	21	30				
E5	115	130	130	165	165	165	215	215	215				
F5	5	5	5	5	5	5	5	5	5				
G5	115	115	115	140	140	140	190	190	190				
S5	M8	M8	M8	M10	M10	M10	M12	M12	M12				
Z5	52	52	52	52	52	61	61	61	61				
D1	19	19	24	24	24	32	32	32	38				
L1	40	40	50	50	50	60	60	60	80				
K	142	142	142	142	142	151	151	151	172				
K1	192	192	192	192	192	201	201	201	222				

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7.7 PSB311 VC90 EK.. [mm]

43 008 002

PSB311VC90EK..



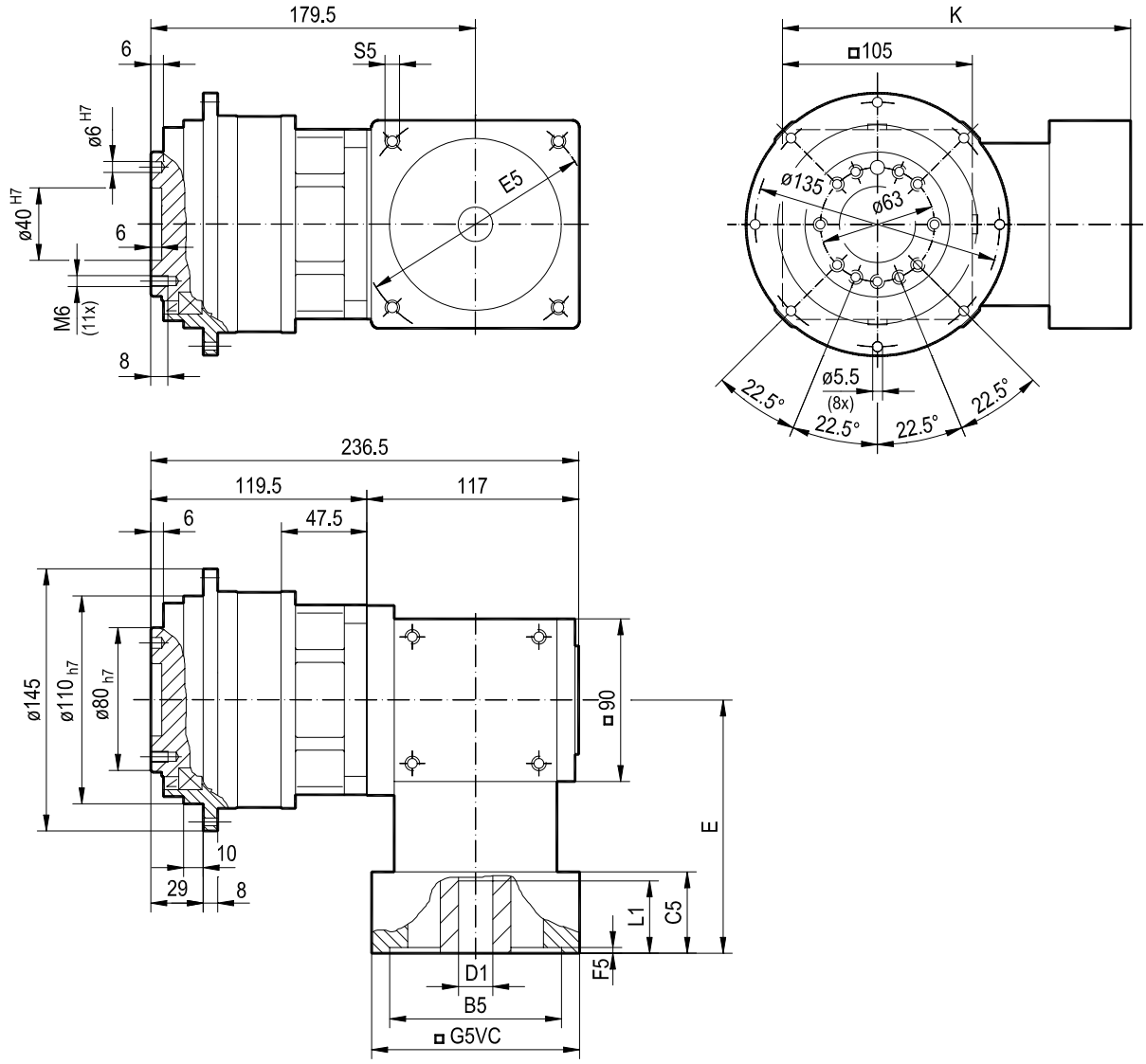
	EK12	EK03	EK05	EK13	EK04	EK07	EK06						
B5	60	80	95	80	95	95	110						
C5	45	45	45	45	45	45	45						
E5	75	100	115	100	115	130	130						
F5	4	4	4	4	4	4	4						
G5VC	90	90	100	95	105	115	115						
S5	M5	M6	M8	M6	M8	M8	M8						
D1	14	14	14	19	19	19	19						
L1	30	30	30	40	40	40	40						
E	140	140	140	140	140	140	140						
K	192.5	192.5	192.5	192.5	192.5	192.5	192.5						

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7.8 PSB411 VC90 EK.. [mm]

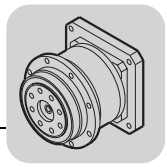
43 009 002

PSB411VC90EK..



	EK12	EK03	EK05	EK13	EK04	EK07	EK06						
B5	60	80	95	80	95	95	110						
C5	45	45	45	45	45	45	45						
E5	75	100	115	100	115	130	130						
F5	4	4	4	4	4	4	4						
G5VC	90	90	100	95	105	115	115						
S5	M5	M6	M8	M6	M8	M8	M8						
D1	14	14	14	19	19	19	19						
L1	30	30	30	40	40	40	40						
E	140	140	140	140	140	140	140						
K	192.5	192.5	192.5	192.5	192.5	192.5	192.5						

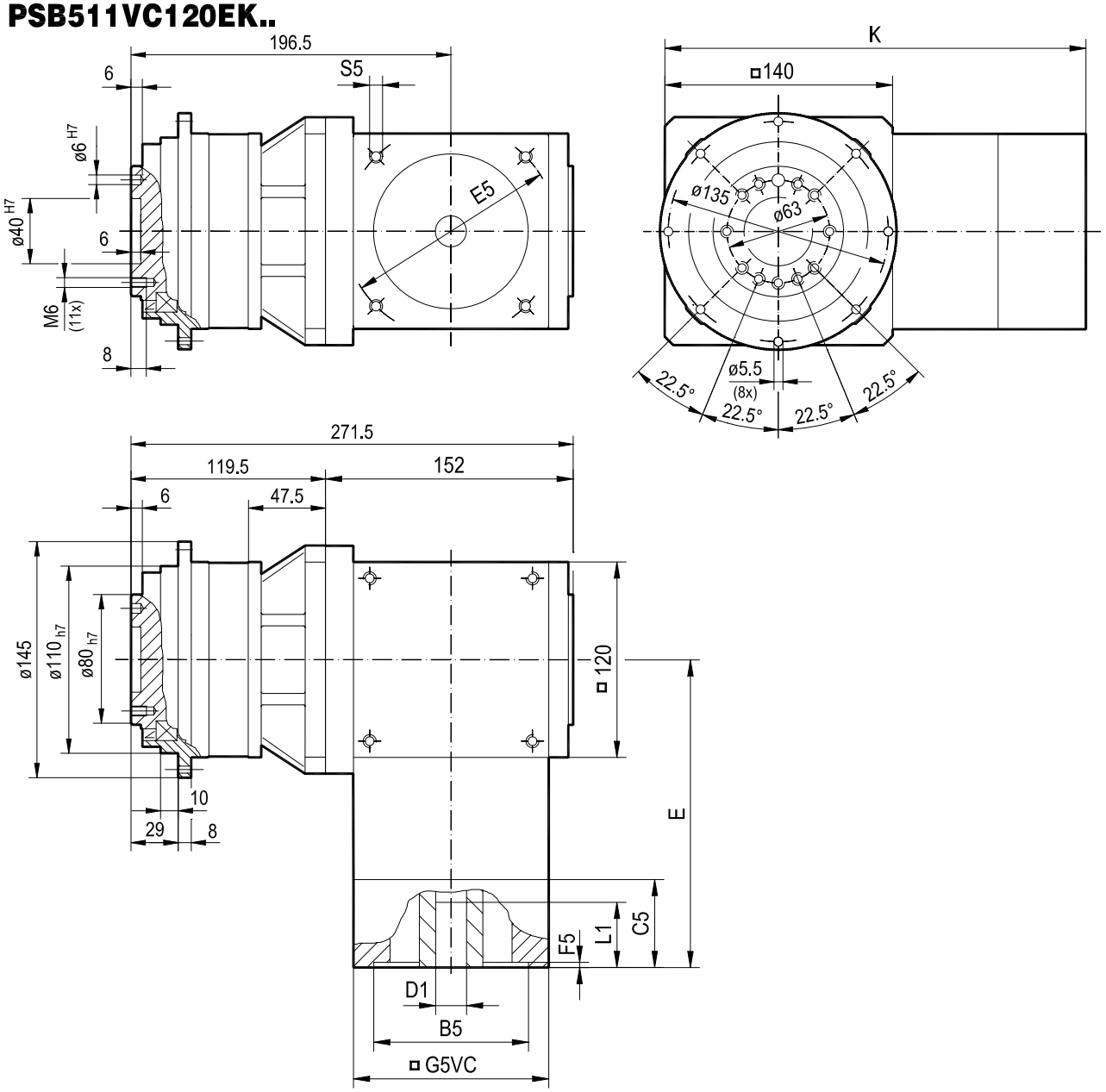
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7.9 PSB511 VC120 EK.. [mm]

43 010 002

PSB511VC120EK..



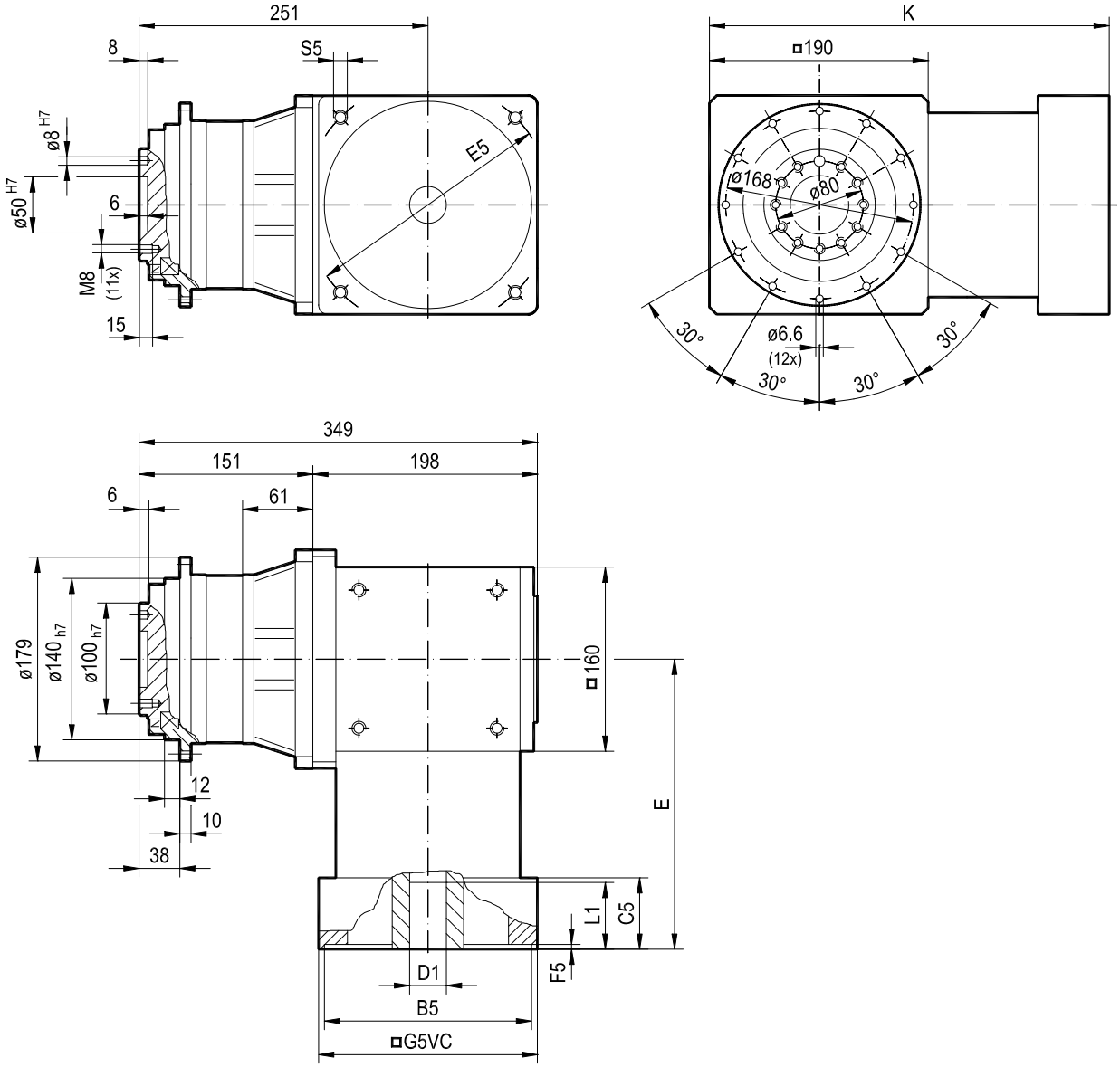
	EK12	EK03	EK05	EK13	EK04	EK07	EK06	EK14	EK08	EK09			
B5	60	80	95	80	95	95	110	110	110	130			
C5	54	54	54	54	54	54	54	54	54	54			
E5	75	100	115	100	115	130	130	130	165	165			
F5	5	5	5	5	5	5	5	5	5	5			
G5VC	120	120	120	120	120	120	120	120	140	140			
S5	M5	M6	M8	M6	M8	M8	M8	M8	M10	M10			
D1	14	14	14	19	19	19	19	24	24	24			
L1	30	30	30	40	40	40	40	50	50	50			
E	170	170	170	170	170	170	170	170	170	170			
K	240	240	240	240	240	240	240	240	240	240			

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7.10 PSB611 VC160 EK.. [mm]

43 011 002

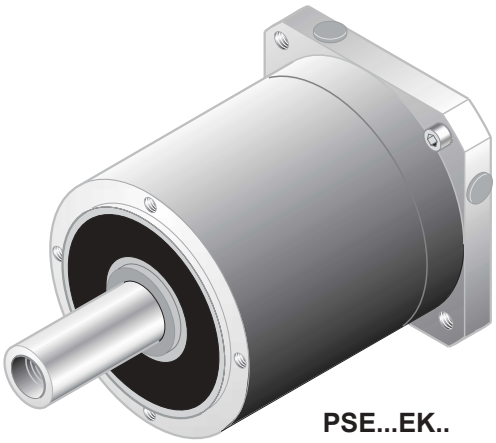
PSB611VC160EK..



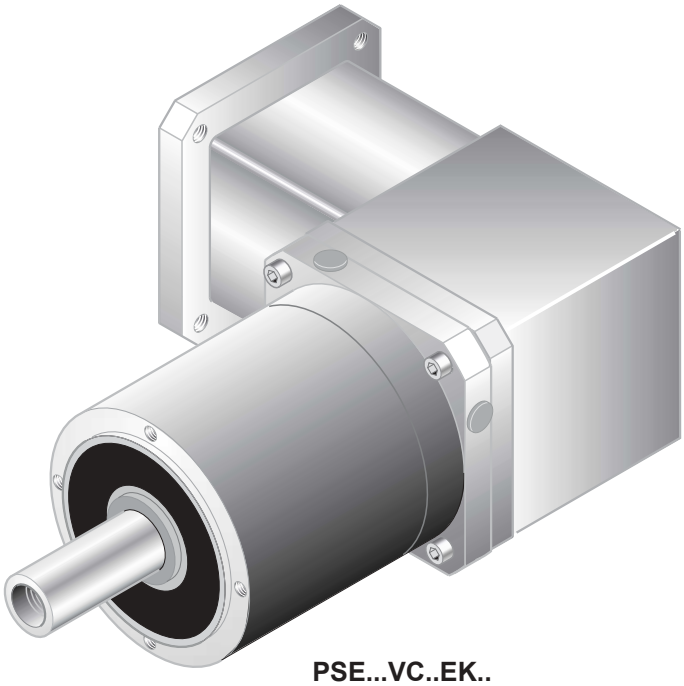
	EK13	EK04	EK7	EK06	EK14	EK08	EK09	EK15	EK11	EK10			
B5	80	95	95	110	110	110	130	130	130	180			
C5	62	62	62	62	62	62	62	62	62	62			
E5	100	115	130	130	130	165	165	165	215	215			
F5	5	5	5	5	5	5	5	5	5	5			
G5VC	160	160	160	160	160	160	160	160	190	190			
S5	M6	M8	M8	M8	M8	M10	M10	M10	M12	M12			
D1	19	19	19	19	24	24	24	32	32	32			
L1	40	40	40	40	50	50	50	60	60	60			
E	215	215	215	215	215	215	215	215	215	215			
K	310	310	310	310	310	310	310	310	310	310			

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8 Low Backlash Planetary Gear Units PSE...



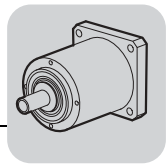
PSE...EK..



PSE...VC..EK..

50777AXX

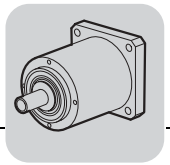
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8.1 PSE...EK.. [Nm]

i	$n_{e\ max}$ [1/min]	M_N [Nm]	M_B [Nm]	F_{Ra} [N]	F_{Aa} [N]	c_T [Nm/ ']				m [kg]	
PSE211 EK.., n_e = 1000 1/min											**55 Nm**
4	6000	55	85	1300	1000						
5	6000	55	85	1400	1100	**3**	**PSE**	**211EK**		3.3	74
7	6000	55	85	1600	1300						
10	6000	55	60	1800	1500						
PSE212 EK.., n_e = 1000 1/min											**55 Nm**
16	6000	55	85	2200	1850						
20	6000	55	85	2200	2150						
25	6000	55	85	2200	2600						
28	6000	55	85	2200	2900						
35	6000	55	85	2200	3500	**2.6**	**PSE**	**212EK**		4.3	74
40	6000	55	85	2200	3900						
49	6000	55	85	2200	3900						
70	6000	55	85	2200	3900						
100	6000	55	60	2200	3900						
PSE311 EK.., n_e = 1000 1/min											**110 Nm**
4	6000	110	165	1850	1160						
5	6000	110	165	1990	1280	**12**	**PSE**	**311EK**		4.5	75
7	6000	110	165	2230	1480						
10	6000	110	120	2510	1730						
PSE312 EK.., n_e = 1000 1/min											**110 Nm**
16	6000	110	165	2940	2120						
20	6000	110	165	3160	2330						
25	6000	110	165	3410	2570						
28	6000	110	165	3540	2700						
35	6000	110	165	3810	2970	**10**	**PSE**	**312EK**		5.4	75
40	6000	110	165	3980	3150						
49	6000	110	165	4260	3440						
70	6000	110	165	4590	4300						
100	6000	110	120	4590	5800						
PSE411 EK.., n_e = 1000 1/min											**160 Nm**
4	4500	160	210	3450	2460						
5	4500	160	210	3710	2710	**26**	**PSE**	**411EK**		9.6	76
7	4500	160	210	4150	3130						
10	4500	150	160	4680	3660						
PSE412 EK.., n_e = 1000 1/min											**160 Nm**
16	4500	160	210	5470	4480						
20	4500	160	210	5890	4940						
25	4500	160	210	6350	5440						
28	4500	160	210	6590	5710						
35	4500	160	210	7100	6300	**21**	**PSE**	**412EK**		13	76
40	4500	160	210	7430	6670						
49	4500	160	210	7840	7440						
70	4500	160	210	7840	10300						
100	4500	150	160	7840	11600						
PSE511 EK.., n_e = 1000 1/min											**300 Nm**
4	4500	300	370	3450	2460						
6	4500	300	370	3710	2710	**30**	**PSE**	**511EK**		9.7	77
7	4500	300	370	4150	3130						
10	4500	270	270	4680	3660						

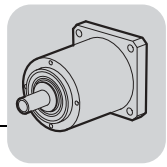
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PSE...EK.. [Nm]

PSE512 EK.., n_e = 1000 1/min										300 Nm
i	$n_{e\,max}$ [1/min]	M_N [Nm]	M_B [Nm]	F_{Ra} [N]	F_{Aa} [N]	c_T [Nm/ ']			m [kg]	
16	4500	300	370	5470	4480					
20	4500	300	370	5890	4940					
25	4500	300	370	6350	5440					
28	4500	300	370	6590	5710					
35	4500	300	370	7100	6300	**25**	**PSE**	**512EK**	12	77
40	4500	300	370	7430	6670					
49	4500	300	370	7840	7440					
70	4500	300	370	7840	10300					
100	4500	270	270	7840	11600					
PSE611 EK.., n_e = 1000 1/min										**600 Nm**
4	4500	600	670	5570	3810					
5	4500	600	670	6000	4200	**55**	**PSE**	**611EK**	19	78
7	4500	600	670	6710	4850					
10	4500	500	500	7560	5660					
PSE612 EK.., n_e = 1000 1/min										**600 Nm**
16	4500	600	670	8610	7240					
20	4500	600	670	8610	8870					
25	4500	600	670	8610	10700					
28	4500	600	670	8610	11700					
35	4500	600	670	8610	13900	**47**	**PSE**	**612EK**	22	78
40	4500	600	670	8610	15400					
49	4500	600	670	8610	17700					
70	4500	600	670	8610	20300					
100	4500	500	500	8610	20300					

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8.2 PSE...VC..EK.. [Nm]

PSE211 VC65 EK.., n_e = 1000 1/min — 55 Nm

i	$n_{e\ max}$ [1/min]	M_N [Nm]	M_B [Nm]	F_{Ra} [N]	F_{Aa} [N]			m [kg]	
8	6000	55	85	1650	1350				
10	6000	55	60	1800	1500				
14	6000	55	85	1950	1700	**PSE**	**211VC65EK**	5.8	79
20	6000	55	85	2200	2150				

PSE311 VC90 EK.., n_e = 1000 1/min — 110 Nm

7	6000	110	165	2230	1480				
10	6000	110	120	2510	1730				
14	6000	110	165	2800	2000				
21	6000	110	165	3200	2380				
28	6000	110	165	3540	2700	**PSE**	**311VC90EK**	10	80
35	6000	110	165	3810	2970				
40	6000	110	120	3980	3150				
50	6000	110	120	4300	3470				
60	6000	110	120	4500	3750				

PSE411 VC90 EK.., n_e = 1000 1/min — 160 Nm

7	4500	160	210	4150	3130				
10	4500	150	160	4680	3660				
14	4500	160	210	5200	4230				
21	4500	160	210	5950	5000				
28	4500	160	210	6590	5710	**PSE**	**411VC90EK**	15	81
35	4500	160	210	7100	6300				
40	4500	150	160	7430	6670				
50	4500	150	160	7840	7550				
60	4500	150	160	7840	8950				

PSE511 VC120 EK.., n_e = 1000 1/min — 300 Nm

7	4500	300	370	4150	3130				
10	4500	270	270	4680	3660				
14	4500	300	370	5200	4230				
21	4500	300	370	5950	5000				
28	4500	300	370	6590	5710	**PSE**	**511VC120EK**	22	82
35	4500	300	370	7100	6300				
40	4500	270	270	7430	6670				
50	4500	270	270	7840	7550				

PSE611 VC160 EK.., n_e = 1000 1/min — 600 Nm

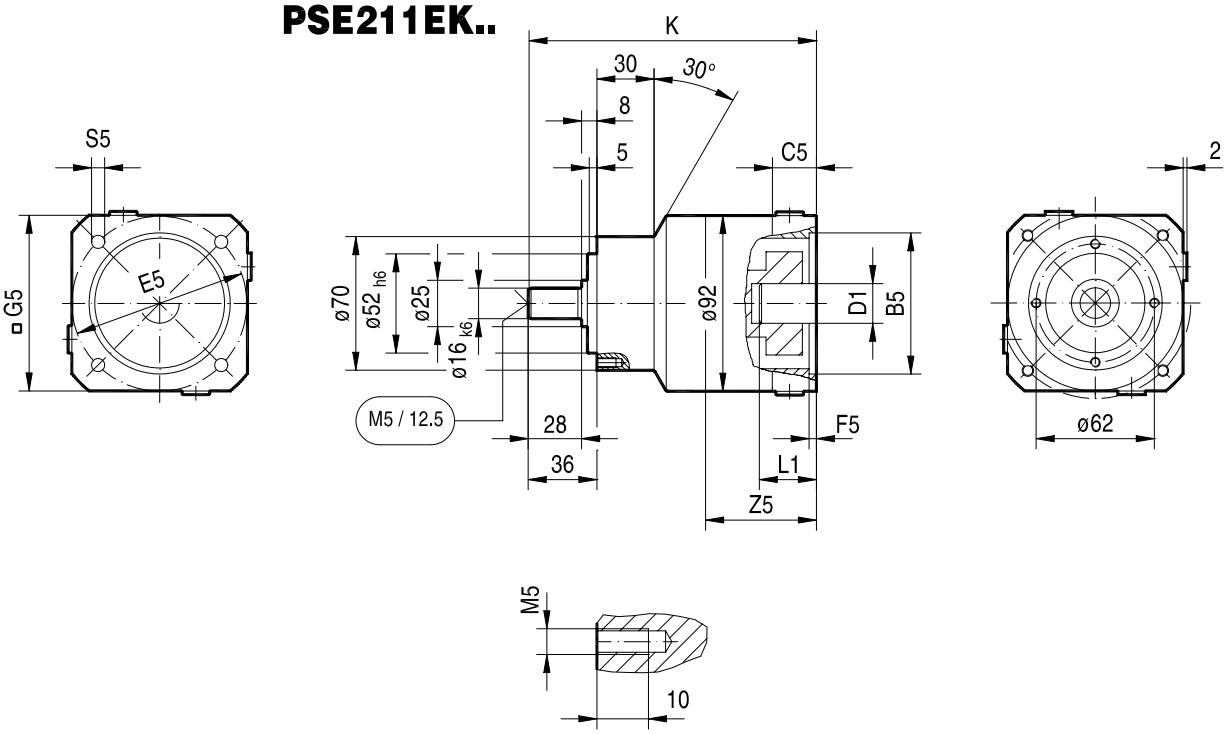
7	4500	600	670	6710	4850				
10	4500	500	500	7560	5660				
14	4500	600	670	8400	6550				
21	4500	600	670	8610	9200				
28	4500	600	670	8610	11700	**PSE**	**611VC160EK**	31	83
35	4500	600	670	8610	13900				
40	4500	500	500	8610	15400				
50	4500	500	500	8610	18000				
60	4500	500	500	8610	20300				

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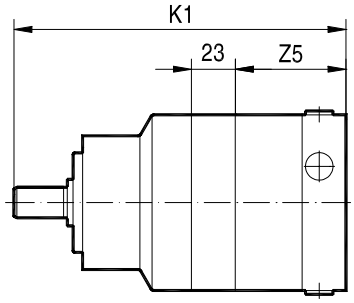
8.3 PSE211/212 EK.. [mm]

43 021 001

PSE211EK..



PSE212EK..



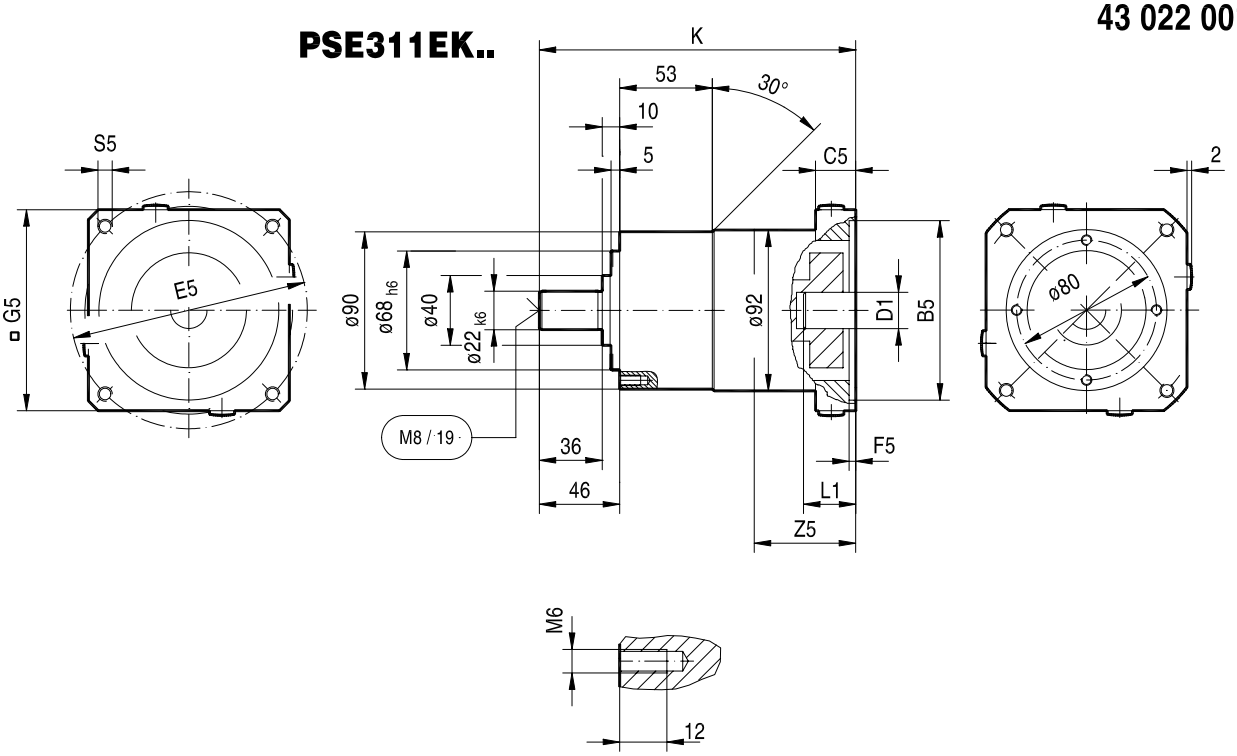
	EK01	EK02	EK12	EK03	EK05	EK18	EK17	EK13	EK04				
B5	40	60	60	80	95	60	50	80	95				
C5	23	23	23	23	23	23	23	23	23				
E5	63	75	75	100	115	90	95	100	115				
F5	4	4	4	4	4	4	4	4	4				
G5	82	82	82	92	105	82	82	92	105				
S5	M4	M5	M5	M6	M8	M5	M6	M6	M8				
Z5	58	58	58	58	58	58	58	58	58				
D1	9	11	14	14	14	14	14	19	19				
L1	20	23	30	30	30	30	30	40	40				
K	151	151	151	151	151	151	151	151	151				
K1	174	174	174	174	174	174	174	174	174				

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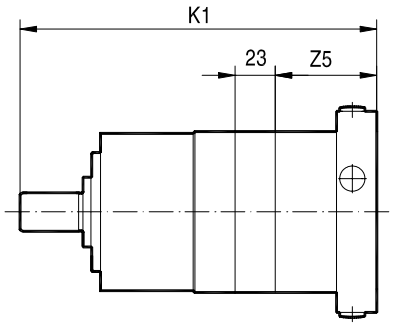
8.4 PSE311/312 EK.. [mm]

43 022 001

PSE311EK..

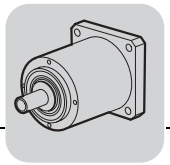


PSE312EK..



	EK02	EK18	EK17	EK12	EK03	EK05	EK13	EK04	EK07	EK06	EK19	EK14	EK08	EK09
B5	60	60	50	60	80	95	80	95	95	110	110	110	110	130
C5	23	23	23	23	23	23	23	23	23	23	23	23	23	23
E5	75	90	95	75	100	115	100	115	130	130	145	130	165	165
F5	4	4	4	4	4	4	4	4	4	4	4	4	4	4
G5	82	82	82	82	92	105	92	105	115	115	120	115	140	140
S5	M5	M5	M6	M5	M6	M8	M6	M8	M8	M8	M8	M8	M10	M10
Z5	58	58	58	58	58	58	58	58	58	58	58	58	58	58
D1	11	14	14	14	14	14	19	19	19	19	19	24	24	24
L1	23	30	30	30	30	30	40	40	40	40	50	50	50	50
K	181	181	181	181	181	181	181	181	181	181	181	181	181	181
K1	204	204	204	204	204	204	204	204	204	204	204	204	204	204

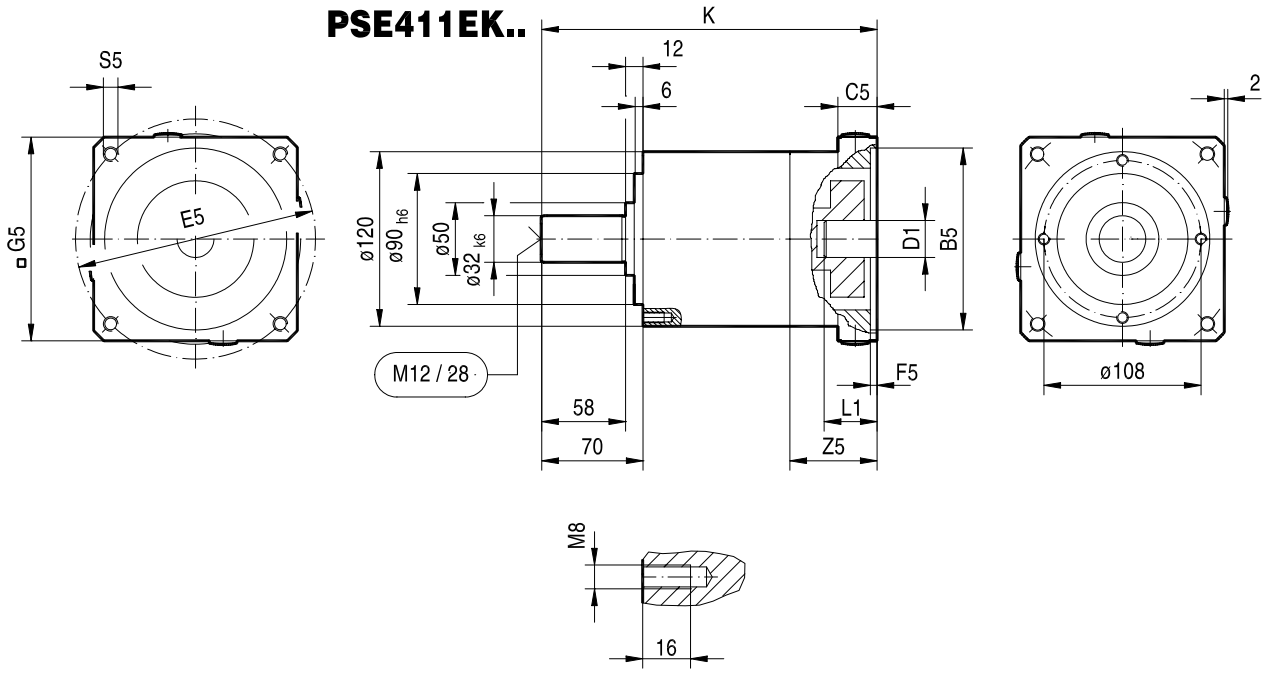
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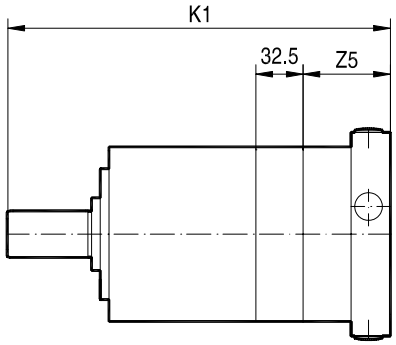
8.5 PSE411/412 EK.. [mm]

43 023 001

PSE411EK..



PSE412EK..



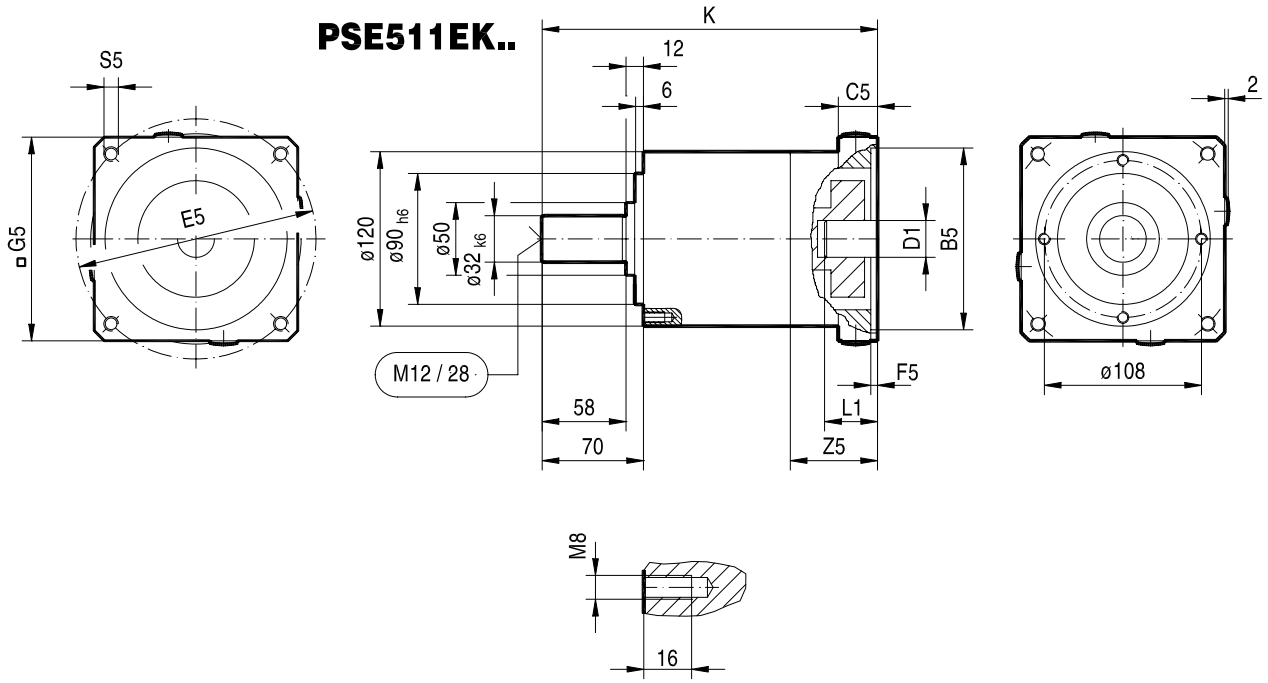
	EK12	EK03	EK05	EK13	EK04	EK07	EK06	EK14	EK08	EK09	EK15	EK11	EK10
B5	60	80	95	80	95	95	110	110	110	130	130	130	180
C5	27	27	27	27	27	27	27	27	27	27	39	39	39
E5	75	100	115	100	115	130	130	130	165	165	165	215	215
F5	5	5	5	5	5	5	5	5	5	5	6	6	6
G5	120	120	120	120	120	120	120	120	140	140	140	190	190
S5	M5	M6	M8	M6	M8	M8	M8	M8	M10	M10	M10	M12	M12
Z5	60	60	60	60	60	60	60	60	60	60	72	72	72
D1	14	14	14	19	19	19	19	24	24	24	32	32	32
L1	30	30	30	40	40	40	40	50	50	50	60	60	60
K	231	231	231	231	231	231	231	231	231	231	243	243	243
K1	263.5	263.5	263.5	263.5	263.5	263.5	263.5	263.5	263.5	263.5	275.5	275.5	275.5

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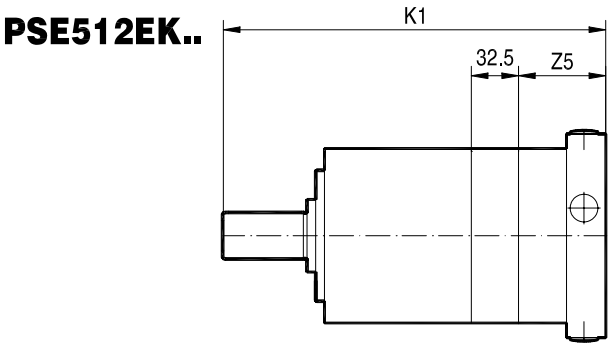
8.6 PSE511/512 EK.. [mm]

43 024 001

PSE511EK..

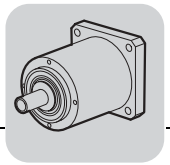


PSE512EK..



	EK12	EK03	EK05	EK13	EK04	EK07	EK06	EK14	EK08	EK09	EK15	EK11	EK10
B5	60	80	95	80	95	95	110	110	110	130	130	130	180
C5	27	27	27	27	27	27	27	27	27	27	39	39	39
E5	75	100	115	100	115	130	130	130	165	165	165	215	215
F5	5	5	5	5	5	5	5	5	5	5	6	6	6
G5	120	120	120	120	120	120	120	120	140	140	140	190	190
S5	M5	M6	M8	M6	M8	M8	M8	M8	M10	M10	M10	M12	M12
Z5	60	60	60	60	60	60	60	60	60	60	72	72	72
D1	14	14	14	19	19	19	19	24	24	24	32	32	32
L1	30	30	30	40	40	40	40	50	50	50	60	60	60
K	231	231	231	231	231	231	231	231	231	231	243	243	243
K1	263.5	263.5	263.5	263.5	263.5	263.5	263.5	263.5	263.5	263.5	275.5	275.5	275.5

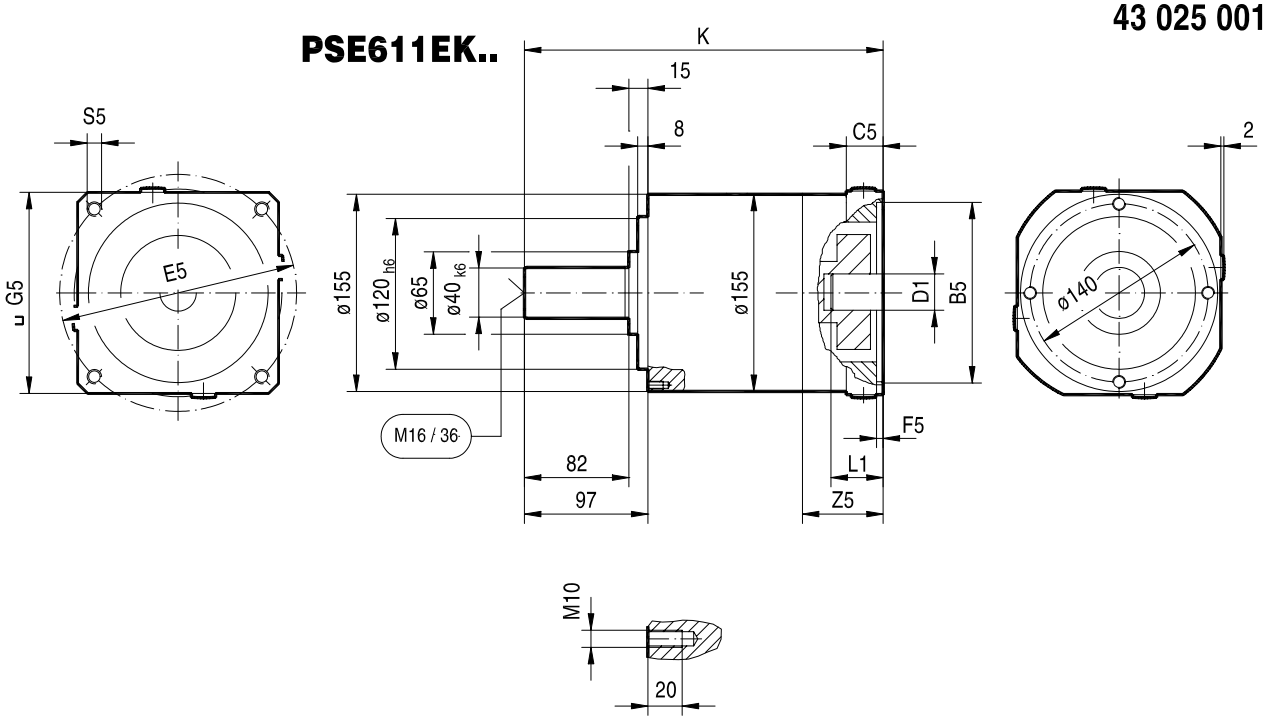
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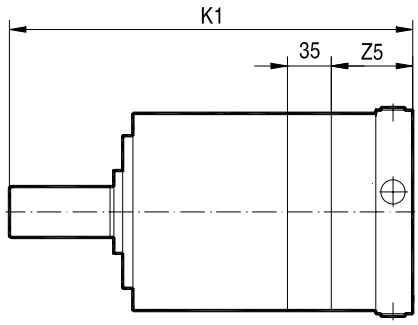
8.7 PSE611/612 EK.. [mm]

43 025 001

PSE611EK..



PSE612EK..



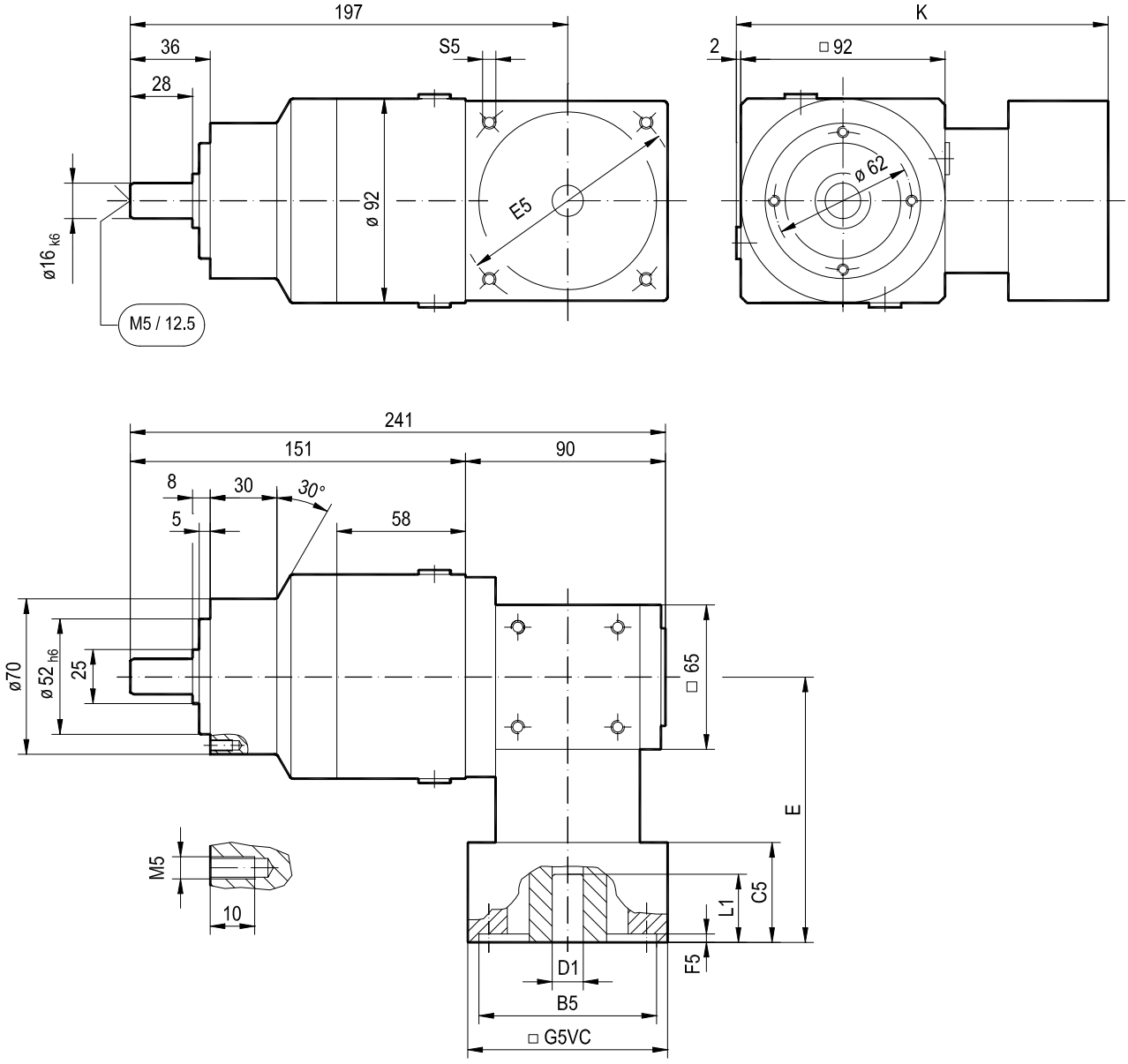
	EK04	EK06	EK14	EK08	EK09	EK15	EK11	EK10	EK16				
B5	95	110	110	110	130	130	130	180	180				
C5	29	29	29	29	29	39	39	39	61				
E5	115	130	130	165	165	165	215	215	215				
F5	5	5	5	5	5	5	5	5	5				
G5	160	160	160	160	160	160	190	190	190				
S5	M8	M8	M8	M10	M10	M10	M12	M12	M12				
Z5	63.5	63.5	63.5	63.5	63.5	73.5	73.5	73.5	95.5				
D1	19	19	24	24	24	32	32	32	38				
L1	40	40	50	50	50	60	60	60	80				
K	282	282	282	282	282	292	292	292	314				
K1	317	317	317	317	317	327	327	327	349				

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8.8 PSE211 VC65 EK.. [mm]

43 012 002

PSE211VC65EK..



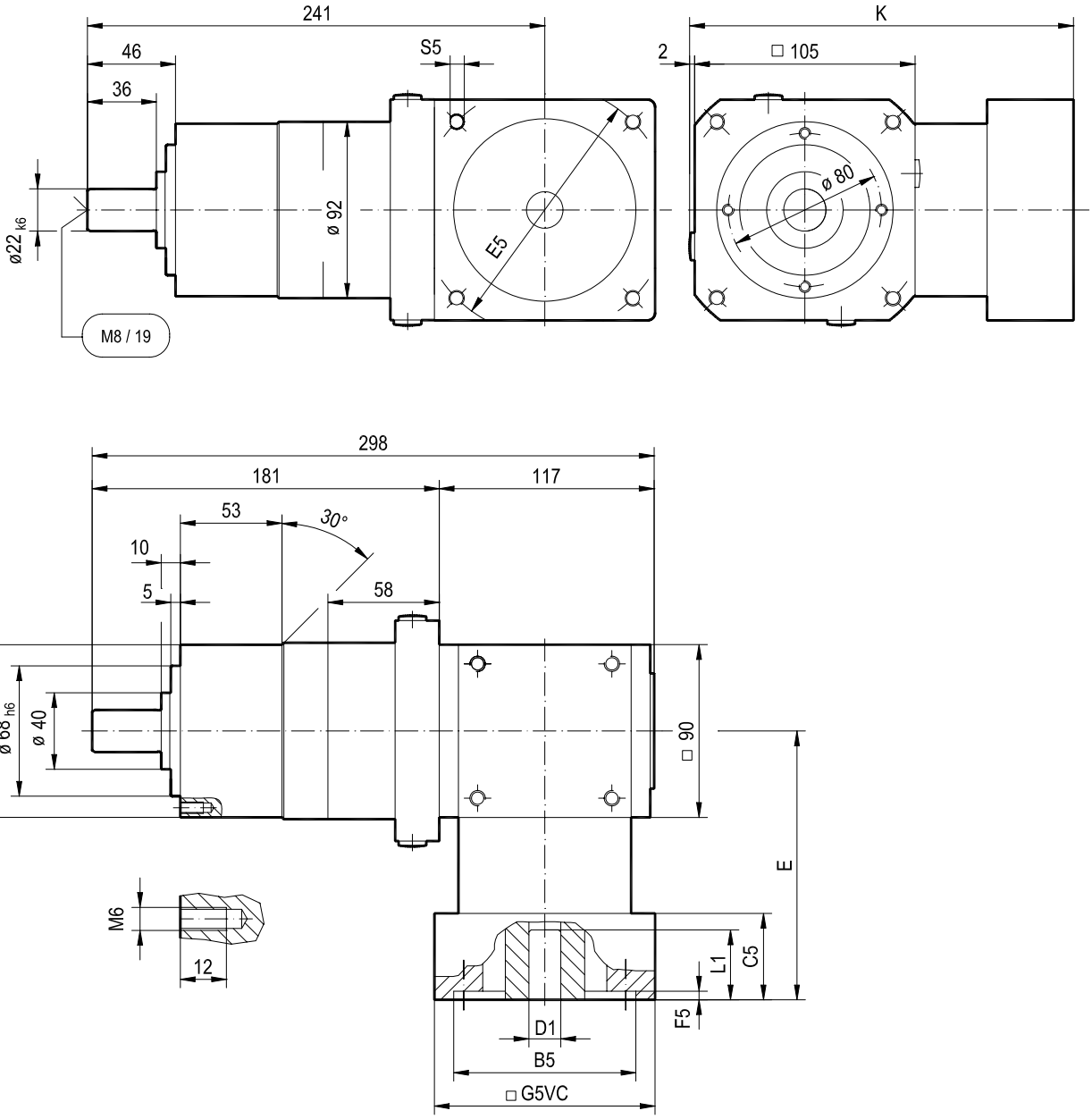
	EK01	EK02	EK12	EK03	EK05								
B5	40	60	60	80	95								
C5	23	23	23	23	23								
E5	63	75	75	100	115								
F5	4	4	4	4	4								
G5VC	65	65	70	90	100								
S5	M4	M5	M5	M6	M8								
D1	9	11	14	14	14								
L1	20	23	30	30	30								
E	101	101	119.5	119.5	119.5								
K	149	149	167.5	167.5	167.5								

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8.9 PSE311 VC90 EK.. [mm]

43 013 002

PSE311VC90EK..



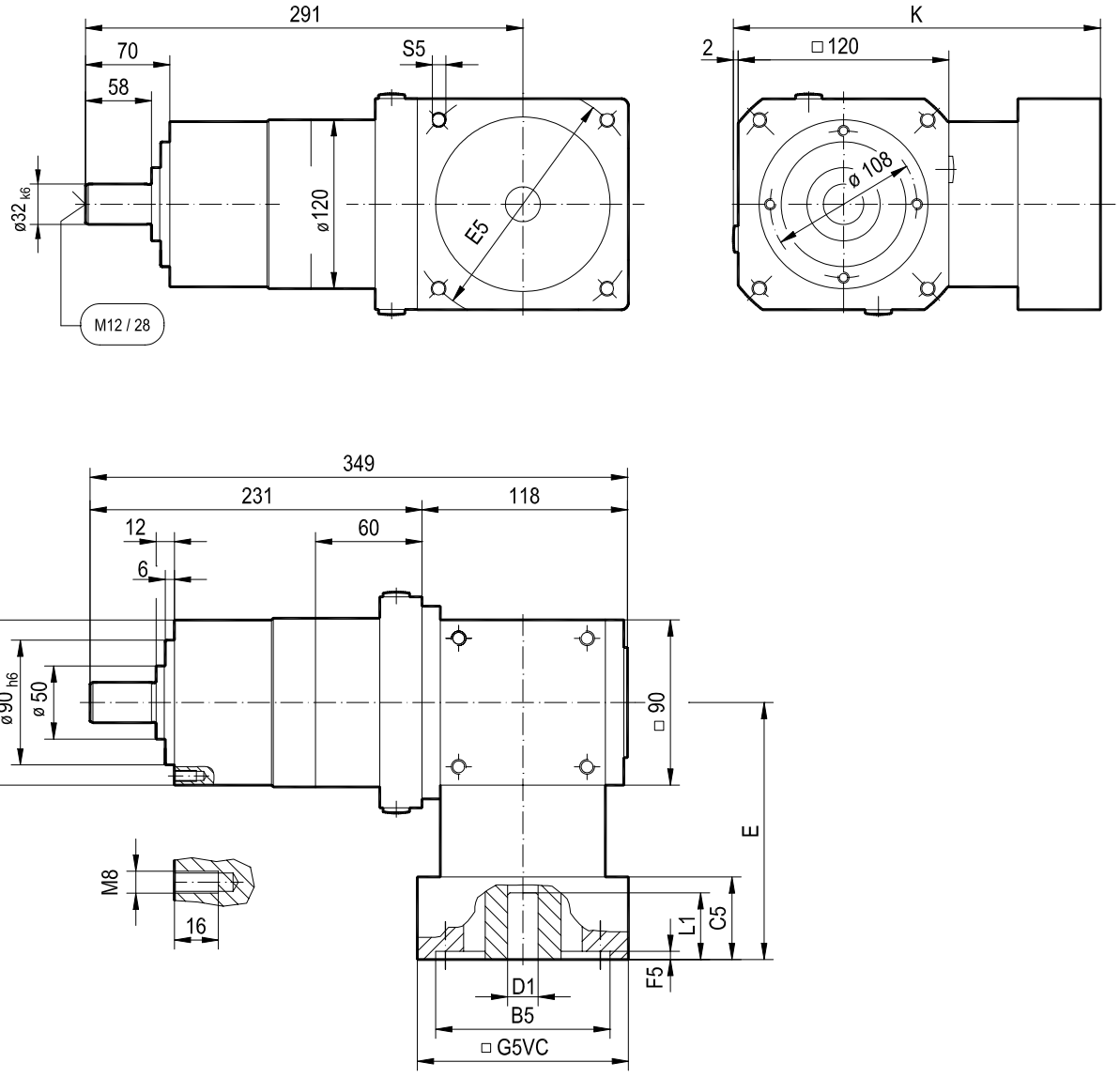
	EK12	EK03	EK05	EK13	EK04	EK07	EK06						
B5	60	80	95	80	95	95	110						
C5	45	45	45	45	45	45	45						
E5	75	100	115	100	115	130	130						
F5	4	4	4	4	4	4	4						
G5VC	90	90	100	95	105	115	115						
S5	M5	M6	M8	M6	M8	M8	M8						
D1	14	14	14	19	19	19	19						
L1	30	30	30	40	40	40	40						
E	140	140	140	140	140	140	140						
K	194.5	194.5	194.5	194.5	194.5	194.5	194.5						

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8.10 PSE411 VC90 EK.. [mm]

43 014 002

PSE411VC90EK..



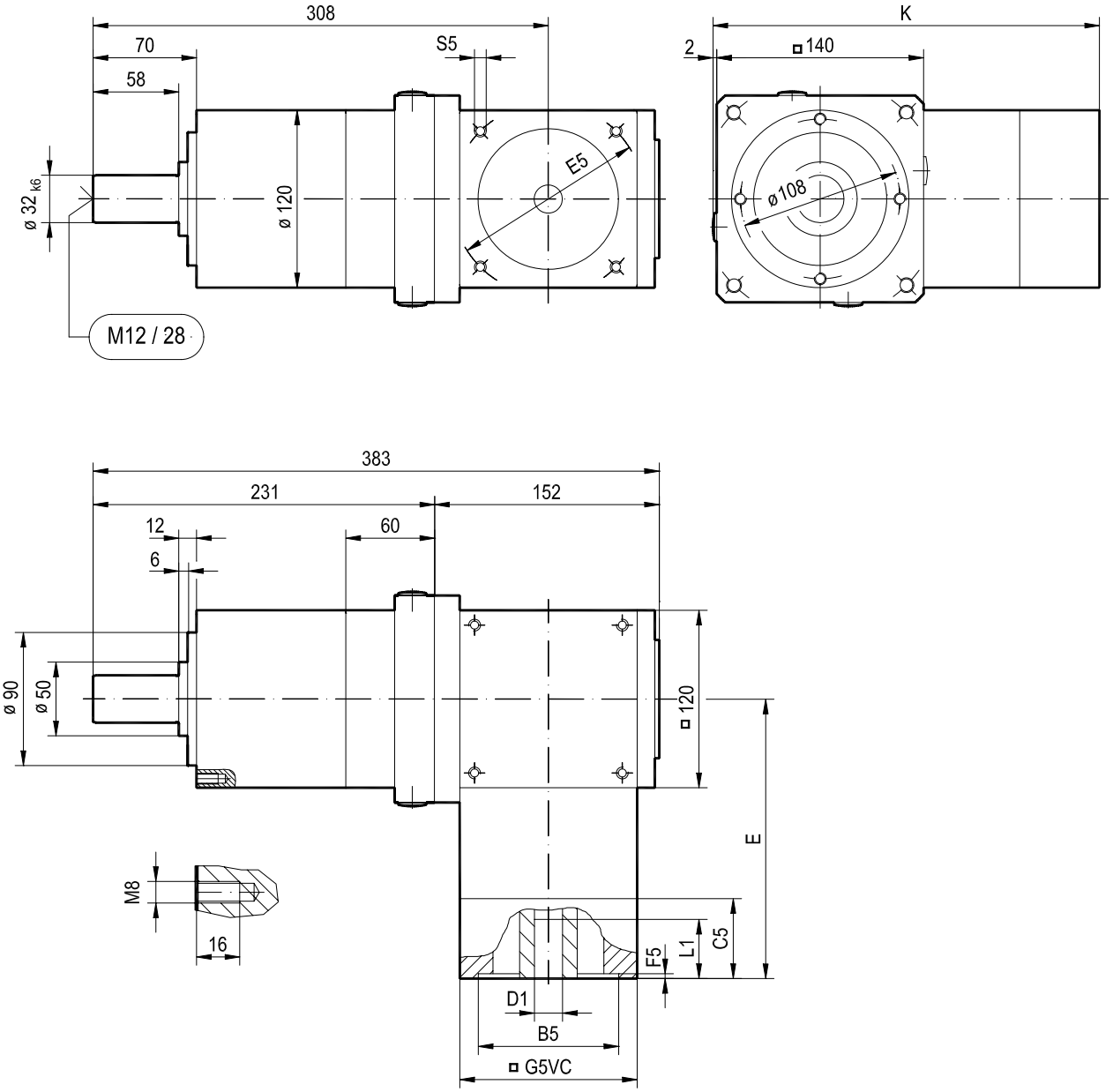
	EK12	EK03	EK05	EK13	EK04	EK07	EK06						
B5	60	80	95	80	95	95	110						
C5	45	45	45	45	45	45	45						
E5	75	100	115	100	115	130	130						
F5	4	4	4	4	4	4	4						
G5VC	90	90	100	95	105	115	115						
S5	M5	M6	M8	M6	M8	M8	M8						
D1	14	14	14	19	19	19	19						
L1	30	30	30	40	40	40	40						
E	140	140	140	140	140	140	140						
K	202	202	202	202	202	202	202						

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8.11 PSE511 VC120 EK.. [mm]

43 015 002

PSE511VC120EK..



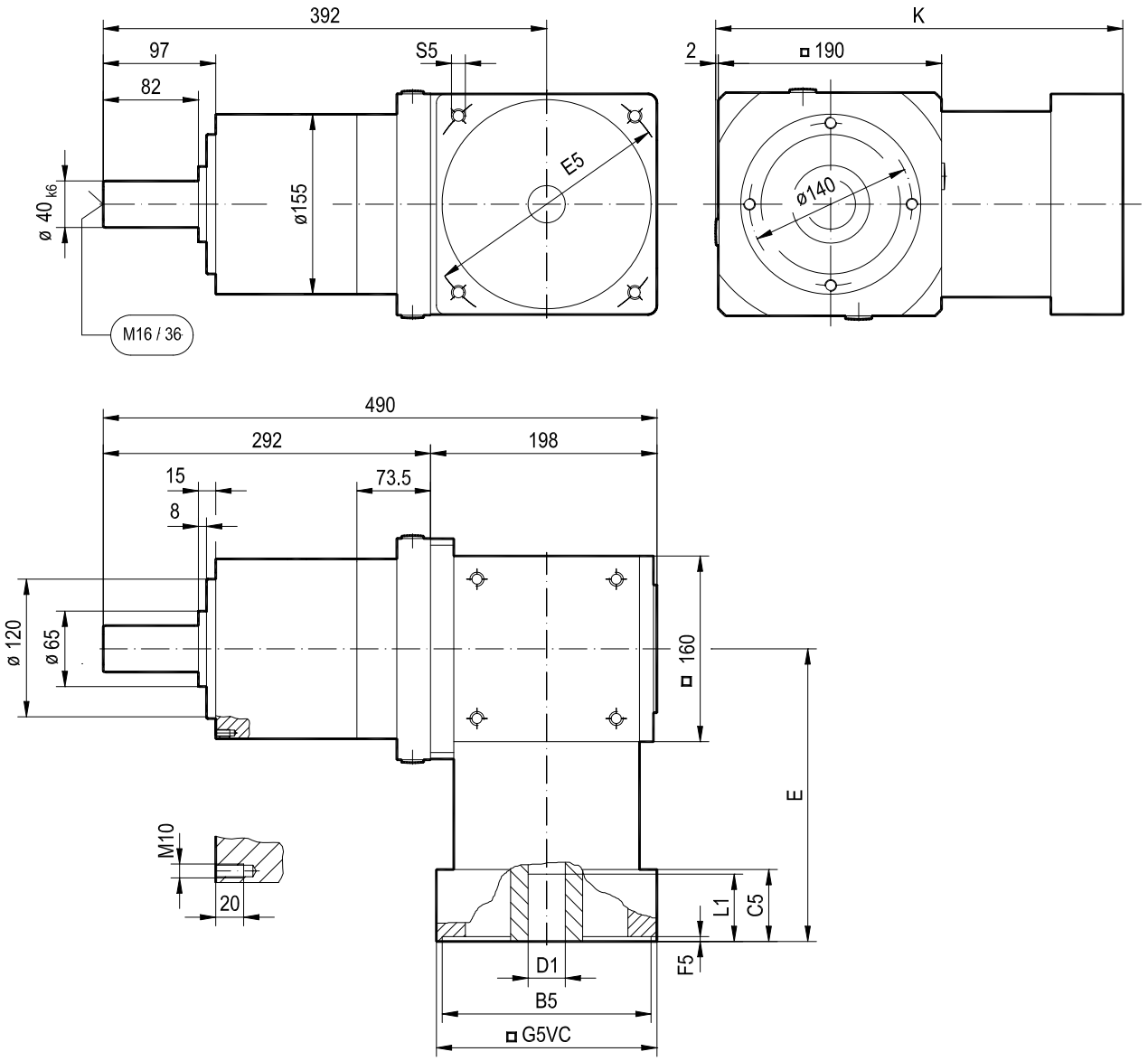
	EK12	EK03	EK05	EK13	EK04	EK07	EK06	EK14	EK08	EK09			
B5	60	80	95	80	95	95	110	110	110	130			
C5	54	54	54	54	54	54	54	54	54	54			
E5	75	100	115	100	115	130	130	130	165	165			
F5	5	5	5	5	5	5	5	5	5	5			
G5VC	120	120	120	120	120	120	120	120	140	140			
S5	M5	M6	M8	M6	M8	M8	M8	M8	M10	M10			
D1	14	14	14	19	19	19	19	24	24	24			
L1	30	30	30	40	40	40	40	50	50	50			
E	170	170	170	170	170	170	170	170	170	170			
K	242	242	242	242	242	242	242	242	242	242			

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8.12 PSE611 VC160 EK.. [mm]

PSE611VC160EK..

43 016 002



	EK13	EK04	EK07	EK06	EK14	EK08	EK09	EK15	EK11	EK10			
B5	80	95	95	110	110	110	130	130	130	180			
C5	62	62	62	62	62	62	62	62	62	62			
E5	100	115	130	130	130	165	165	165	215	215			
F5	5	5	5	5	5	5	5	5	5	5			
G5VC	160	160	160	160	160	160	160	160	190	190			
S5	M6	M8	M6	M8	M8	M10	M10	M10	M12	M12			
D1	19	19	19	19	24	24	24	32	32	32			
L1	40	40	40	40	50	50	50	60	60	60			
E	215	215	215	215	215	215	215	215	215	215			
K	312	312	312	312	312	312	312	312	312	312			

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9 Technical Data

9.1 PSF mass moments of inertia, in relation to the input shaft

PSF...EK..
single stage

i	$J \cdot 10^{-4}$ [kgm^2]							
	PSF 211				PSF 311			
	EK 01	EK 02	EK 03 EK 05 EK 12 EK 17 EK 18	EK 04 EK 13	EK 02	EK 03 EK 05 EK 12 EK 17 EK 18	EK 04 EK 06 EK 07 EK 13 EK 19	EK 08 EK 09 EK 14
4	0.453	0.455	0.475	1.407	0.633	0.627	1.565	2.195
5	0.444	0.441	0.461	1.394	0.560	0.553	1.492	2.122
7	0.435	0.432	0.452	1.384	0.506	0.500	1.439	2.069
10	0.430	0.426	0.447	1.379	0.477	0.471	1.410	2.040

i	$J \cdot 10^{-4}$ [kgm^2]							
	PSF 411				PSF 511			
	EK 03 EK 05 EK 12	EK 04 EK 06 EK 07 EK 13	EK 08 EK 09 EK 14	EK 10 EK 11 EK 15	EK 03 EK 05 EK 12	EK 04 EK 06 EK 07 EK 13	EK 08 EK 09 EK 14	EK 10 EK 11 EK 15
4	2.701	2.681	3.708	5.449	2.804	2.783	3.811	5.552
5	2.442	2.422	3.450	5.190	2.505	2.485	3.513	5.253
7	2.237	2.217	3.245	4.985	2.284	2.264	3.291	5.032
10	2.128	2.108	3.135	4.876	2.165	2.145	3.172	4.913

i	$J \cdot 10^{-4}$ [kgm^2]						
	PSF 611				PSF 701		
	EK 04 EK 06	EK 08 EK 09 EK 14	EK 10 EK 11 EK 15	EK 16	EK 08 EK 09 EK 14	EK 10 EK 11 EK 15	EK 16
4	6.380	6.333	7.735	7.666	18.648	20.462	25.505
5	5.186	5.139	6.541	6.472	14.592	16.406	21.450
7	4.265	4.218	5.620	5.551	11.467	13.282	18.325
10	3.807	3.760	5.162	5.092	10.396	12.210	17.253

i	$J \cdot 10^{-4}$ [kgm^2]									
	PSF 801					PSF 901				
	EK 10 EK 11 EK 15	EK 16	EK 22 EK 23 EK 24	EK 25	EK 26	EK 10 EK 11 EK 15	EK 16	EK 22 EK 23 EK 24	EK 25	EK 26
4	60.340	64.994	66.802	67.786	70.204	97.454	98.857	98.582	97.978	96.879
5	48.908	53.563	55.370	56.354	58.772	67.949	69.352	69.077	68.473	67.391
7	40.511	45.166	46.973	47.958	50.375	47.081	48.484	48.209	47.605	46.523
10	36.454	41.108	42.916	43.900	46.318	36.947	38.350	38.075	37.471	36.389

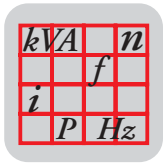
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PSF..EK..
double stage

i	$J \cdot 10^{-4}$ [kgm^2]							
	PSF 212				PSF 312			
	EK 01	EK 02	EK 03 EK 05 EK 12 EK 17 EK 18	EK 04 EK 13	EK 02	EK 03 EK 05 EK 12 EK 17 EK 18	EK 04 EK 06 EK 07 EK 13 EK 19	EK 08 EK 09 EK 14
16	0.460	0.456	0.472	1.409	0.518	0.514	1.453	2.082
20	0.451	0.448	0.464	1.401	0.482	0.498	1.437	2.047
25	0.441	0.438	0.454	1.390	0.478	0.474	1.413	2.043
28	0.447	0.444	0.460	1.397	0.456	0.489	1.428	2.021
35	0.437	0.434	0.449	1.386	0.469	0.465	1.404	2.034
40	0.431	0.428	0.444	1.381	0.458	0.453	1.392	2.022
49	0.429	0.426	0.441	1.378	0.453	0.448	1.387	2.017
70	0.427	0.424	0.440	1.377	0.450	0.446	1.385	2.015
100	0.423	0.420	0.436	1.373	0.442	0.438	1.377	2.007

i	$J \cdot 10^{-4}$ [kgm^2]							
	PSF 412				PSF 512			
	EK 03 EK 05 EK 12	EK 04 EK 06 EK 07 EK 13	EK 08 EK 09 EK 14	EK 10 EK 11 EK 15	EK 03 EK 05 EK 12	EK 04 EK 06 EK 07 EK 13	EK 08 EK 09 EK 14	EK 10 EK 11 EK 15
16	2.494	2.474	3.502	5.242	2.501	2.481	3.508	5.249
20	2.422	2.402	3.429	5.170	2.428	2.408	3.436	5.176
25	2.262	2.242	3.270	5.010	2.264	2.244	3.272	5.012
28	2.382	2.362	3.399	5.130	2.388	2.368	3.396	5.136
35	2.222	2.202	3.230	4.970	2.225	2.204	3.232	4.973
40	2.132	2.112	3.140	4.880	2.132	2.112	3.140	4.880
49	2.118	2.098	3.125	4.886	2.118	2.098	3.126	4.866
70	2.103	2.083	3.110	4.851	2.103	2.083	3.111	4.851
100	2.050	2.030	3.058	4.798	2.050	2.030	3.058	4.798

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PSF mass moments of inertia, in relation to the input shaft

PSF..EK..
double stage

i	J · 10^{-4} [kgm^2]						
	PSF 612				PSF 702		
	EK 04 EK 06	EK 08 EK 09 EK 14	EK 10 EK 11 EK 15	EK 16	EK 08 EK 09 EK 14	EK 10 EK 11 EK 15	EK 16
16	4.720	4.673	6.075	6.006	15.594	17.408	22.451
20	4.509	4.462	5.864	5.795	14.023	15.837	20.880
25	4.136	4.089	5.491	5.422	12.406	14.220	19.263
28	4.394	4.347	5.749	5.680	12.765	14.579	19.622
35	4.021	3.974	5.376	5.307	11.148	12.962	18.005
40	3.759	3.712	5.114	5.044	11.427	13.242	18.285
49	3.714	3.667	5.068	4.999	10.350	12.164	17.207
70	3.669	3.622	5.023	4.954	10.214	12.028	17.071
100	3.529	3.482	4.884	4.815	9.846	11.660	16.703

i	J · 10^{-4} [kgm^2]									
	PSF 802						PSF 902			
	EK 08 EK 09 EK 14	EK 10 EK 11 EK 15	EK 16	EK 22 EK 23 EK 24	EK 25	EK 26	EK 10 EK 11 EK 15	EK 16	EK 22 EK 23 EK 24	EK 25 EK 26
16	34.919	36.695	41.303	43.115	44.108	46.540	46.232	47.635	47.36	46.756
20	32.233	34.010	38.618	40.430	41.422	43.854	42.961	44.364	44.089	43.485
25	30.034	31.811	36.419	38.231	39.233	41.656	37.42	38.822	38.547	37.944
28	31.000	32.776	37.384	39.196	40.189	42.621	41.221	42.624	42.349	41.745
35	28.801	30.578	35.186	36.997	37.990	40.422	35.679	37.082	36.801	36.203
40	28.512	30,289	34.897	36.709	40.053	42.485	40.538	41.941	41.666	41.062
49	27.545	29.322	33.930	35.742	36.734	39.167	31.993	33.396	33.121	32.517
70	27.409	29.186	33.794	35.605	36.598	39.030	31.31	32.713	32.438	32.095
100	26.878	28.654	33.263	35.074	36.067	38.499	29.662	31.065	30.79	30.186

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9.2 PSB mass moments of inertia, in relation to the input shaft

PSB...EK..
single stage

i	J · 10^{-4} [kgm^2]								
	PSB 311			PSB 411/511			PSB 611		
	EK 02 EK 03 EK 05 EK 12 EK 17 EK 18	EK 04 EK 06 EK 07 EK 13 EK 19	EK 08 EK 09 EK 14	EK 03 EK 04 EK 05 EK 06 EK 07 EK 13	EK 08 EK 09 EK 14	EK 10 EK 11 EK 15	EK 04 EK 06 EK 08 EK 09 EK 14	EK 10 EK 11 EK 15	EK 16
4	0.932	1.88	2.51	4.94	5.97	7.71	7.58	8.99	8.92
5	0.752	1.69	2.32	3.86	4.89	6.63	5.94	7.34	7.27
7	0.602	1.54	2.17	2.97	3.99	5.74	4.63	6.03	5.96
10	0.522	1.46	2.09	2.49	3.52	5.26	3.96	5.36	5.29

PSB...EK..
double stage

i	J · 10^{-4} [kgm^2]								
	PSB 312			PSB 412/512			PSB 612		
	EK 02 EK 03 EK 05 EK 12 EK 17 EK 18	EK 04 EK 06 EK 07 EK 13 EK 19	EK 08 EK 09 EK 14	EK 03 EK 04 EK 05 EK 06 EK 07 EK 13	EK 08 EK 09 EK 14	EK 10 EK 11 EK 15	EK 04 EK 06 EK 08 EK 09 EK 14	EK 10 EK 11 EK 15	EK 16
16	0.522	1.46	2.09	2.58	3.61	5.35	4.75	6.15	6.08
20	0.512	1.45	2.05	2.51	3.53	5.27	4.54	5.94	5.87
25	0.482	1.42	2.05	2.29	3.32	5.06	4.12	5.52	5.45
28	0.502	1.44	2.02	2.47	3.49	5.23	4.43	5.83	5.76
35	0.472	1.41	2.04	2.25	3.28	5.02	4.01	5.41	5.34
40	0.462	1.44	2.01	2.24	3.48	5.22	4.38	5.78	5.31
49	0.452	1.39	2.02	2.11	3.14	4.88	3.67	5.08	5.01
70	0.442	1.38	2.01	2.05	3.12	4.86	3.63	5.03	4.96
100	0.432	1.37	2.01	2.03	3.06	4.80	3.48	4.89	4.82

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9.3 PSE mass moments of inertia, in relation to the input shaft

PSE...EK..
single stage

i	$J \cdot 10^{-4}$ [kgm^2]							
	PSE 211				PSE 311			
	EK 01	EK 02	EK 03 EK 05 EK 12 EK 17 EK 18	EK 04 EK 13	EK 02	EK 03 EK 05 EK 12 EK 17 EK 18	EK 04 EK 06 EK 07 EK 13 EK 19	EK 08 EK 09 EK 14
4	0.60	0.59	0.57	1.41	0.73	0.71	1.60	2.63
5	0.58	0.57	0.55	1.39	0.63	0.61	1.50	2.53
7	0.57	0.56	0.54	1.38	0.56	0.54	1.43	2.45
10	0.57	0.56	0.54	1.38	0.51	0.49	1.38	2.41

i	$J \cdot 10^{-4}$ [kgm^2]							
	PSE 411/511				PSE 611			
	EK 03 EK 05 EK 12	EK 04 EK 06 EK 07 EK 13	EK 08 EK 09 EK 14	EK 10 EK 11 EK 15	EK 04 EK 06	EK 08 EK 09 EK 14	EK 10 EK 11 EK 15	EK 16
4	2.12	2.96	3.99	5.73	6.72	6.67	8.07	8.01
5	1.76	2.60	3.63	5.37	5.40	5.35	6.75	6.69
7	1.48	2.32	3.35	5.09	4.38	4.33	5.73	5.66
10	1.33	2.17	3.20	4.94	3.86	3.81	5.21	5.15

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PSE...EK..
double stage

i	$J \cdot 10^{-4}$ [kgm^2]							
	PSE 212				PSE 312			
	EK 01	EK 02	EK 03 EK 05 EK 12 EK 17 EK 18	EK 04 EK 13	EK 02	EK 03 EK 05 EK 12 EK 17 EK 18	EK 04 EK 06 EK 07 EK 13 EK 19	EK 08 EK 09 EK 14
16	0.60	0.59	0.57	1.41	0.53	0.51	1.41	2.43
20	0.59	0.58	0.56	1.40	0.51	0.49	1.38	2.41
25	0.58	0.57	0.55	1.39	0.49	0.47	1.36	2.38
28	0.59	0.58	0.56	1.40	0.50	0.48	1.37	2.40
35	0.58	0.57	0.55	1.39	0.48	0.46	1.35	2.37
40	0.59	0.58	0.56	1.40	0.50	0.48	1.37	2.39
49	0.57	0.56	0.54	1.39	0.46	0.44	1.33	2.36
70	0.57	0.56	0.54	1.38	0.46	0.44	1.33	2.35
100	0.56	0.55	0.53	1.37	0.45	0.43	1.32	2.35

i	$J \cdot 10^{-4}$ [kgm^2]							
	PSE 412/512				PSE 612			
	EK 03 EK 05 EK 12	EK 04 EK 06 EK 07 EK 13	EK 08 EK 09 EK 14	EK 10 EK 11 EK 15	EK 04 EK 06	EK 08 EK 09 EK 14	EK 10 EK 11 EK 15	EK 16
16	1.60	2.44	3.47	5.21	4.92	4.87	6.27	6.20
20	1.53	2.37	3.40	5.14	4.71	4.66	6.06	6.01
25	1.40	2.24	3.26	5.00	4.26	4.21	5.61	5.54
28	1.49	2.33	3.36	5.10	4.59	4.54	5.95	5.88
35	1.36	2.20	3.22	4.96	4.14	4.09	5.50	5.43
40	1.44	2.32	3.34	5.08	4.55	4.50	5.90	5.83
49	1.25	2.09	3.12	4.86	3.79	3.74	5.14	5.07
70	1.24	2.08	3.11	4.85	3.74	3.69	5.10	5.03
100	1.19	2.03	3.05	4.80	3.57	3.52	4.92	4.85

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10 Abbreviation Legend and Index

10.1 Abbreviation legend

a, b, e, f	Constants for overhung load conversion	[mm]
c	Constant for overhung load conversion	[Nmm]
c_K	Tilting rigidity	[Nm/']
c_T	Torsional rigidity	[Nm/']
d_0	Average diameter of mounted transmission element	[mm]
cdf	Cyclic duration factor	%
f_D	Speed constant	[1/min]
f_K	Correction factor	-
f_Z	Transmission element factor	-
F_{Aa1}	Permitted axial load on the output end, central axial load	[N]
F_{Aa2}	Required axial load on the output end, central axial load	[N]
F_{Aax}	Calculated axial load given simultaneous overhung load at point x	[N]
F_{Ra1}	Permitted overhung load on the output end (given axial load F_{Aa1}), overhung load at midpoint of shaft extension	[N]
F_{Ra2}	Required overhung load on the output end, overhung load at midpoint of shaft extension	[N]
F_{RxL}	Permitted overhung load at point x based on bearing service life	[N]
F_{RxW}	Permitted overhung load at point x based on shaft strength	[N]
H	Altitude	[m above sea level]
i	Gear unit reduction ratio	–
J	Mass moment of inertia of the gear unit referenced to the input speed	[10^{-4}kgm^2]
ϑ_{amb}	Ambient temperature	[°C]
α	Circumferential backlash	[']
m	Mass of the gear unit without lubricant fill	[kg]
$M_{a\ max}$	Maximum output torque assumed for the drive in project planning	[Nm]
M_{am}	Average output torque	[Nm]
M_B	Maximum acceleration torque	[Nm]
M_N	Rated torque (→ selection tables)	[Nm]
$M_{em.\ off}$	Maximum braking torque in emergency off braking	[Nm]
$n_{a\ max}$	Maximum output speed	[1/min]
n_{am}	Average output speed	[1/min]
$n_{e\ max}$	Maximum input speed	[1/min]
S3	Cyclic operating mode	–
η	Efficiency	–

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	Rhein-Main	SEW-EURODRIVE GmbH & Co Niederstedter Weg 5 D-61348 Bad Homburg	Tel. +49 (0) 61 72 / 96 17-0 Fax +49 (0) 61 72 / 96 17-50 tb-rheinmain@sew-eurodrive.de
	Stuttgart	SEW-EURODRIVE GmbH & Co Friedrich-List-Straße 46 D-70771 Leinfelden-Echterdingen	Tel. +49 (0) 7 11 / 1 60 72-0 Fax +49 (0) 7 11 / 1 60 72 72 tb-stuttgart@sew-eurodrive.de
	Ulm	SEW-EURODRIVE GmbH & Co Hauffstraße 21 D-89160 Dornstadt	Tel. +49 (0) 73 48 / 98 85-0 Fax +49 (0) 73 48 / 98 85-90 tb-ulm@sew-eurodrive.de
	Würzburg	SEW-EURODRIVE GmbH & Co Werner-von-Siemens-Straße 55a D-97076 Würzburg-Lengfeld	Tel. +49 (0) 9 31 / 2 78 86-60 Fax +49 (0) 9 31 / 2 78 86-66 tb-wuerzburg@sew-eurodrive.de
	Zwickau / Meerane	SEW-EURODRIVE GmbH & Co Dänkritzer Weg1 D-08393 Meerane	Tel. +49 (0) 37 64 / 76 06-0 Fax +49 (0) 37 64 / 76 06-20 tb-zwickau@sew-eurodrive.de

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Assembly Sales Service	**Bordeaux**	SEW-USOCOME Parc d'activités de Magellan 62, avenue de Magellan - B. P. 182 F-33607 Pessac Cedex	Tel. +33 (0) 5 57 26 39 00 Fax +33 (0) 5 57 26 39 09
	Lyon	SEW-USOCOME Parc d'Affaires Roosevelt Rue Jacques Tati F-69120 Vaulx en Velin	Tel. +33 (0) 4 72 15 37 00 Fax + 33 (0) 4 72 15 37 15
	Paris	SEW-USOCOME Zone industrielle 2, rue Denis Papin F-77390 Verneuil l'Etang	Tel. +33 (0) 1 64 42 40 80 Fax +33 (0) 1 64 42 40 88
Technical Offices	**Alsace Franche-Comté**	SEW-USOCOME 51, rue de Mulhouse F-68210 Balschwiller	Tel. +33 (0) 3 89 25 91 01 Fax +33 (0) 3 89 25 91 21
	Alsace Nord	SEW-USOCOME 32, rue Jeanne d'Arc F-67250 Surbourg	Tel. +33 (0) 3 88 54 74 44 Fax +33 (0) 3 88 80 47 62
	Aquitaine	SEW-USOCOME Parc d'activités de Magellan 62, avenue de Magellan B.P.182 F-33607 Pessac Cedex	Tel. +33 (0) 5 57 26 39 00 Fax +33 (0) 5 57 26 39 09
	Ardennes Lorraine	SEW-USOCOME 7, rue de Prény F-54000 Nancy	Tel. +33 (0) 3 83 96 28 04 Fax +33 (0) 3 83 96 28 07
	Bourgogne	SEW-USOCOME 10, rue de la Poste F-71350 St. Loup de la Salle	Tel. +33 (0) 3 85 49 92 18 Fax +33 (0) 3 85 49 92 19
	Bretagne Ouest	SEW-USOCOME 4, rue des Châtaigniers F-44830 Brains	Tel. +33 (0) 2 51 70 54 04 Fax +33 (0) 2 51 70 54 05
	Centre Pays de Loire	SEW-USOCOME 9, rue des Erables F-37540 Saint Cyr sur Loire	Tel. +33 (0) 2 47 41 33 23 Fax +33 (0) 2 47 41 34 03
	Centre Auvergne	SEW-USOCOME 17, boulevard de la liberté F-63200 Riom	Tel. +33 (0) 4 73 64 85 60 Fax +33 (0) 4 73 64 85 61
	Champagne	SEW-USOCOME 139, rue Thiers F-10120 Saint André les Vergers	Tel. +33 (0) 3 25 79 63 24 Fax +33 (0) 3 25 79 63 25
	Lyon Nord-Est	SEW-USOCOME Parc d'Affaires Roosevelt Rue Jacques Tati F-69120 Vaulx en Velin	Tel. +33 (0) 4 72 15 37 03 Fax +33 (0) 4 72 15 37 15
	Lyon Ouest	SEW-USOCOME Parc d'Affaires Roosevelt Rue Jacques Tati F-69120 Vaulx en Velin	Tel. +33 (0) 4 72 15 37 04 Fax +33 (0) 4 72 15 37 15
	Lyon Sud-Est	SEW-USOCOME 4, Montée du Pavé F-26750 Génissieux	Tel. +33 (0) 4 75 05 65 95 Fax +33 (0) 4 75 05 65 96
	Nord	SEW-USOCOME 348, rue du Calvaire F-59213 Bermerain Cidex 102	Tel. +33 (0) 3 27 27 07 88 Fax +33 (0) 3 27 27 24 41
	Normandie	SEW-USOCOME Les Courtillages Hameau de Coupigny F-14370 Airan	Tel. +33 (0) 2 31 78 99 70 Fax +33 (0) 2 31 78 99 72

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	Paris Ouest	SEW-USOCOME 1, rue Matisse F-78960 Voisins le Bretonneux	Tel. +33 (0) 1 30 64 46 33 Fax +33 (0) 1 30 57 54 86
	Paris Picardie	SEW-USOCOME 25 bis, rue Kléber F-92300 Levallois Perret	Tel. +33 (0) 1 41 05 92 74 Fax +33 (0) 1 41 05 92 75
	Paris Sud	SEW-USOCOME 6. chemin des Bergers Lieu-dit Marchais F-91410 Roinville sous Dourdan	Tel. +33 (0) 1 60 81 10 56 Fax +33 (0) 1 60 81 10 57
	Provence	SEW-USOCOME Chemin Les Grands Vallons F-13100 St Marc Jaumegarde	Tel. +33 (0) 4 42 24 90 05 Fax +33 (0) 4 42 24 90 13
	Pyrénées	SEW-USOCOME 271, Lieu-dit Ninaut F-31190 Caujac	Tel. +33 (0) 5 61 08 15 85 Fax +33 (0) 5 61 08 16 44
	Sud-Atlantique	SEW-USOCOME 9, rue des Mésanges F-44120 Vertou	Tel. +33 (0) 2 40 80 32 23 Fax +33 (0) 2 40 80 32 13

Algeria			
Technical Office	**Alger**	Réducom 16, rue des Frères Zaghnoun Bellevue El-Harrach 16200 Alger	Tel. +213 (0) 2 82 22 84 Fax +213 (0) 2 82 22 84

Argentina			
Assembly **Sales** **Service**	**Buenos Aires**	SEW EURODRIVE ARGENTINA S.A. Centro Industrial Garin, Lote 35 Ruta Panamericana Km 37,5 1619 Garin	Tel. +54 (0) 33 27 45 72 84 Fax +54 (0) 33 27 45 72 21 sewar@sew-eurodrive.com.ar

Australia			
Assembly **Sales** **Service**	**Melbourne**	SEW-EURODRIVE PTY. LTD. 27 Beverage Drive Tullamarine, Victoria 3043	Tel. +61 (0) 3 99 33 10 00 Fax +61 (0) 3 99 33 10 03 http://www.sew-eurodrive.com.au enquires@sew-eurodrive.com.au
	Sydney	SEW-EURODRIVE PTY. LTD. 9, Sleigh Place, Wetherill Park New South Wales, 2164	Tel. +61 (0) 2 97 25 99 00 Fax +61 (0) 2 97 25 99 05 enquires@sew-eurodirve.com.au
Technical Offices	**Adelaide**	SEW-EURODRIVE PTY. LTD. Unit 1/601 Anzac Highway Glenelg, S.A. 5045	Tel. +61 (0) 8 82 94 82 77 Fax +61 (0) 8 82 94 28 93 enquires@sew-eurodrive.com.au
	Perth	SEW-EURODRIVE PTY. LTD. 105 Robinson Avenue Belmont, W.A. 6104	Tel. +61 (0) 8 94 78 26 88 Fax +61 (0) 8 92 77 75 72 enquires@sew-eurodrive.com.au
	Brisbane	SEW-EURODRIVE PTY.LTD. 1 /34 Collinsvale St Rocklea, Queensland, 4106	Tel. +61 (0) 7 32 72 79 00 Fax +61 (0) 7 32 72 79 01 enquires@sew-eurodrive.com.au

Austria			
Assembly **Sales** **Service**	**Wien**	SEW-EURODRIVE Ges.m.b.H. Richard-Strauss-Strasse 24 A-1230 Wien	Tel. +43 (0) 16 17 55 00-0 Fax +43 (0) 16 17 55 00-30 http://sew-eurodrive.at sew@sew-eurodrive.at

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Austria			
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	Graz	SEW-EURODRIVE Ges.m.b.H. Grabenstraße 231 A-8045 Graz	Tel. +43 (0) 316 68 57 56-0 Fax +43 (0) 316 68 57 55 sew@graz.sew-eurodrive.at

Bangladesh			
	Dhaka	Triangle Trade International Bldg-5, Road-2, Sec-3, Uttara Model Town Dhaka-1230 Bangladesh	Tel. +880 (0) 28 91 22 46 Fax +880 (0) 28 91 33 44

Belgium			
Assembly **Sales** **Service**	**Brüssel**	CARON-VECTOR S.A. Avenue Eiffel 5 B-1300 Wavre	Tel. +32 (0) 10 23 13 11 Fax +32 (0) 10 2313 36 http://www.caron-vector.be info@caron-vector.be
Technical Office	**Vlaanderen**	CARON-VECTOR S.A. Industrieweg 112-114 B-9032 Gent (Wondelgem)	Tel. +32 (0) 92 27 34 52 Fax +32 (0) 92 27 41 55

Bolivia			
	La Paz	GRUPO LARCOS LTDA. Av. Jose Carrasco Not. 1398 Entre Hugo Estrada Y Av. Busch La Paz	Tel. +591 (0) 2 34 06 14 Fax +591 (0) 2 35 79 17

Brazil			
Production **Sales** **Service**	**Sao Paulo**	SEW-EURODRIVE Brasil Ltda. Avenida Amâncio Gaiolli, 50 Caixa Postal: 201-07111-970 Guarulhos - Cep.: 07251-250	Tel. +55 (0) 11 64 89 90 00 Fax +55 (0) 11 64 89 90 09 http://www.sew.com.br filial.sp@sew.com.br
	Additional addresses for service in Brazil provided on request!		

Bulgaria			
Sales	**Sofia**	BEVER-DRIVE GMBH Bogdanovetz Str.1 BG-1606 Sofia	Tel. +359 (0) 9 29 53 25 65 Fax +359 (0) 9 29 54 93 45 bever@mbox.infotel.bg

Cameroon			
Technical Office	**Douala**	Electro-Services Rue Drouot Akwa B.P. 2024 Douala	Tel. +237 (0) 43 22 99 Fax +237 (0) 42 77 03

Canada			
Assembly **Sales** **Service**	**Toronto**	SEW-EURODRIVE CO. OF CANADA LTD. 210 Walker Drive Bramalea, Ontario L6T3W1	Tel. +1 (0) 905 7 91-15 53 Fax +1 (0) 905 7 91-29 99 http://www.sew-eurodrive.ca l.reynolds@sew-eurodrive.ca
	Vancouver	SEW-EURODRIVE CO. OF CANADA LTD. 7188 Honeyman Street Delta. B.C. V4G 1 E2	Tel. +1 (0) 604 9 46-55 35 Fax +1 (0) 604 946-2513 b.wake@sew-eurodrive.ca
	Montreal	SEW-EURODRIVE CO. OF CANADA LTD. 2555 Rue Leger Street LaSalle, Quebec H8N 2V9	Tel. +1 (0) 514 3 67-11 24 Fax +1 (0) 514 3 67-36 77 a.peluso@sew-eurodrive.ca
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Chile			
Assembly **Sales** **Service**	**Santiago de Chile**	SEW-EURODRIVE CHILE Motores-Reductores LTDA. Panamericana Norte No 9261 Casilla 23 - Correo Quilicura RCH-Santiago de Chile	Tel. +56 (0) 26 23 82 03 + 6 23 81 63 Fax +56 (0) 26 23 81 79 sewsales@entelchile.net

China			
Production **Assembly** **Sales** **Service**	**Tianjin**	SEW-EURODRIVE (Tianjin) Co., Ltd. No. 46, 7th Avenue, TEDA Tianjin 300457	Tel. +86 (0) 22 25 32 26 12 Fax +86 (0) 22 25 32 26 11 http://www.sew.com.cn
Technical Offices	**Beijing**	SEW-EURODRIVE (Tianjin) Co., LTD Room 1205/1206, Golden Corner Building, No. 129 Xuanwumen Xidajie, Xicheng District Beijing 100031	Tel. +86 (0) 10 66 41 20 26 Fax +86 (0) 10 66 41 10 17 beijing@sew.com.cn
	Chengdu	SEW-Eurodrive (Tianjin) Co. Ltd. Room 715, Sichuan International Building No. 206, Shun Cheng Avenue Chengdu 610015	Tel. +86 (0) 2 86 52 15 60 Fax +86 (0) 2 85 52 15 63 chengdu@sew.com.cn
	Fuzhou	SEW-Eurodrive (Tianjin) Co. Ltd. Unit D, 15/F, Oriental Hotel Fujian Fuzhou 350001	Tel. +86 (0) 59 17 50 75 96 Fax +86 (0) 59 17 50 72 85 fuzhou@sew.com.cn
	Guangzhou	SEW-EURODRIVE Pte.Ltd. Rm 1702, No. 138, Tiyudong Road Guangzhou, Guangdong, 510620	Tel. +86 (0) 20 38 78 00 12 Fax +86 (0) 20 38 78 00 13 guangzhou@sew.com.cn
	Jinan	SEW-Eurodrive (Tianjin) Co.Ltd. Room 2008-2009, Liang You Fu Lin Hotel No. 5, Luo Yuan Avenue Jinan 250063	Tel. +86 (0) 53 16 41 26 22 Fax +86 (0) 53 16 41 24 30 jinan@sew.com.cn
	Kunming	SEW-EURODRIVE (Tianjin) Co., Ltd Room 1401 Dong Yuan Business Building No. 464 Tuodong Road, Kunming Yunnan Province 650011	Tel. +86 (0) 87 13 11 36 77 Fax +86 (0) 87 13 15 44 54 kunming@sew.com.cn
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	Shenyang	SEW-EURODRIVE (Tianjin) Co., Ltd Shenyang OfficeRoom 0605 Koh Brother Building No. 21 Beijing Street Shenhe District Shenyang City, 110013	Tel. +86 (0) 24 22 52 15 96 Fax +86 (0) 24 22 52 15 79 shenyang@sew.com.cn
	Wuhan	SEW-Eurodrive (Tianjin) Co.Ltd. Room 911, Tai He Plaza Wusheng Road Wuhan 430033	Tel. +86 (0) 27 85 71 22 93 Fax +86 (0) 27 85 71 22 82 wuhan@sew.com.cn
	Xian	SEW-EURODRIVE (TIANJIN) CO., Ltd Rm 611, Fan Mei Building No. 1 Nan Guan Main Street Xian 710068, Shanxi Province	Tel. +86 (0) 2 97 81 13 27 Fax +86 (0) 2 97 81 13 27 xian@sew.com.cn

Colombia			
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Croatia			
Sales **Service**	**Zagreb**	KOMPEKS d. o. o. PIT Erdödy 4 II HR 10 000 Zagreb	Tel. +385 (0) 14 61 31 58 Fax +385 (0) 14 61 31 58 kompeks@net.hr

Czech Republic			
Sales	**Praha**	SEW-EURODRIVE CZ S.R.O. Business Centrum Praha Luná 591 CZ-16000 Praha 6 - Vokovice	Tel. +420 (0) 2 20 12 12 34 + 2 20 12 12 36 Fax +420 (0) 2 20 12 12 37 http://www.sew-eurodrive.cz sew@sew-eurodrive.cz
Technical Offices	**Brno**	SEW-EURODRIVE CZ S.R.O. Zvonarka 16 CZ-61700 Brno	Tel. +420 (0) 5 43 25 61 51 + 5 43 25 61 63 Fax +420 (0) 5 43 25 68 45
	Hradec Kralove	SEW-EURODRIVE CZ S.R.O. Technicka Kancelar - vychodni Cechy Smermova CZ-53374 Horni Jeleni	Tel. +420 (0) 6 02 41 03 88 Fax +420 (0) 4 56 89 36 34

Denmark			
Assembly **Sales** **Service**	**Kopenhagen**	SEW-EURODRIVEA/S Geminivej 28-30, P.O. Box 100 DK-2670 Greve	Tel. +45 (0) 43 95 8500 Fax +45 (0) 43 95 8509 http://www.sew-eurodrive.dk sew@sew-eurodrive.dk
Technical Offices	**Aarhus**	SEW-EURODRIVEA/S Birkenhaven 45 DK-8520 Lystrup	Tel. +45 (0) 86 22 8344 Fax +45 (0) 86 22 8490
	Helsingør	SEW-EURODRIVEA/S Rømøvej 2 DK-3140 Ålsgårde	Tel. +45 (0) 49 75 5700 Fax +45 (0) 49 75 5800
	Odense	SEW-EURODRIVEA/S Lindelyvei 29, Nr. Søby DK-5792 Arslev	Tel. +45 (0) 65 90 2070 Fax +45 (0) 65 90 2309

Egypt			
	Cairo	Copam Egypt for Engineering & Agencies 33 El Hegaz ST, Heliopolis, Cairo	Tel. +20 (0) 22 56 62 99 + 22 41 06 39 Fax +20 (0) 22 59 47 57 + 22 40 47 87 copam@datum.com.eg

Estonia			
Sales	**Tallin**	ALAS-KUUL AS Paldiski mnt.125 EE 0006 Tallin	Tel. +372 (0) 6 59 32 30 Fax +372 (0) 6 59 32 31

Finland			
Assembly **Sales** **Service**	**Lahti**	SEW-EURODRIVE OY Vesimäentie 4 FIN-15860 Hollola 2	Tel. +358 (0) 3 589 300 Fax +358 (0) 3 780 6211 http://www.sew-eurodrive.fi sew@sew-eurodrive.fi
Technical Offices	**Helsinki**	SEW-EURODRIVE OY Luutnantinaukio 5C LT2 FIN-00410 Helsinki	Tel. +358 (0) 3 589 300 Fax + 358 (0) 9 566 6311
	Vaasa	SEW-EURODRIVE OY Kauppapuistikko 15 A FIN-65100 Vaasa	Tel. +358 (0) 3 589 300 Fax +358 (0) 6 312 7470

Gabon			
Technical Office	**Libreville**	Electro-Services B.P. 1889 Libreville	Tel. +241 (0) 73 40 11 Fax +241 (0) 73 40 12

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Great Britain			
Assembly **Sales** **Service**	**Normanton**	SEW-EURODRIVE Ltd. Beckbridge Industrial Estate P.O. Box No.1 GB-Normanton, West- Yorkshire WF6 1QR	Tel. +44 (0) 19 24 89 38 55 Fax +44 (0) 19 24 89 37 02 http://www.sew-eurodrive.co.uk info@sew-eurodrive.co.uk
Technical Offices	**London**	SEW-EURODRIVE Ltd. 764 Finchely Road, Temple Fortune GB-London N.W.11 7TH	Tel. +44 (0) 20 84 58 89 49 Fax +44 (0) 20 84 58 74 17
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	Scotland	SEW-EURODRIVE Ltd. Scottish Office No 37 Enterprise House Springkerse Business Park GB-Stirling FK7 7UF Scotland	Tel. +44 (0) 17 86 47 87 30 Fax +44 (0) 17 86 45 02 23

Greece			
Sales **Service**	**Athen**	Christ. Boznos & Son S.A. 12, Mavromichali Street P.O. Box 80136, GR-18545 Piraeus	Tel. +30 (0) 1 04 22 51 34 Fax +30 (0) 1 04 22 51 59 http://www.boznos.gr Boznos@otenet.gr
Technical Office	**Thessaloniki**	Christ. Boznos & Son S.A. Maiandrou 15 562 24 Evosmos, Thessaloniki	Tel. +30 (0) 3 10 70 54 00 Fax +30 (0) 3 10 70 55 15

Hong Kong			
Assembly **Sales** **Service**	**Hong Kong**	SEW-EURODRIVE LTD. Unit No. 801-806, 8th Floor Hong Leong Industrial Complex No. 4, Wang Kwong Road Kowloon, Hong Kong	Tel. +852 (0) 2-7 96 04 77 + 79 60 46 54 Fax +852 (0) 2-7 95-91 29 sew@sewhk.com

Hungary			
Sales **Service**	**Budapest**	SEW-EURODRIVE Kft. H-1037 Budapest Kunigunda u. 18	Tel. +36 (0) 1 437 06 58 Fax +36 (0) 1 437 06 50 sew-eurodrive.voros@matarnet.hu

Iceland			
	Hafnarfirdi	VARMAVERK ehf Dalshrauni 5 IS - 220 Hafnarfirdi	Tel. +354 (0) 5 65 17 50 Fax +354 (0) 5 65 19 51 varmaverk@varmaverk.is

India			
Assembly **Sales** **Service**	**Baroda**	SEW-EURODRIVE India Pvt. Ltd. Plot No. 4, Gidc Por Ramangamdi · Baroda - 391 243 Gujarat	Tel. +91 (0) 265-83 10 86 Fax +91 (0) 265-83 10 87 sew.baroda@gecsl.com
Technical Offices	**Calcutta**	SEW EURODRIVE INDIA PVT. LTD. Juthika Apartment, Flat No. B1 11/1, Sunny Park Calcutta - 700 019	Tel. +91 (0) 33-4 85 39 18 Fax +91 (0) 33-4 85 38 26 sewcal@cal.vsnl.net.in
	Chennai	SEW-EURODRIVE India Private Limited 2nd Floor, Hariram Building Chennai - 600 006, Tamil Nadu	Tel. +91 (0) 44-8 21 44 71 Fax +91 (0) 44-8 21 44 73
	New Delhi	SEW-EURODRIVE India Private Limited 303 Kirti Deep, 2-Nangal Raya Business Centre New Delhi 110 046	Tel. +91 (0) 11-5 61 15 66 Fax +91 (0) 11-5 51 34 94
	Pune	SEW-EURODRIVE India Private Limited 206, Metro House 7 Mangaldas Road Pune 411001, Maharashtra	Tel. +91 (0) 20 60 10 54 Fax +91 (0) 20 63 13 65 sewpun@pn2.vsnl.net.in

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Indonesia			
Technical Office	**Jakarta**	SEW-EURODRIVE Pte Ltd. Jakarta Liaison Office, Menara Graha Kencana Jl. Perjuangan No. 88, LT 3 B, Kebun Jeruk, Jakarta 11530	Tel. +62 (0) 21 535-90 66/7 Fax +62 (0) 21 536-36 86

Ireland			
Sales **Service**	**Dublin**	Alperton Engineering Ltd. 48 Moyle Road Dublin Industrial Estate Glasnevin, Dublin 11	Tel. +353 (0) 18 30 62 77 Fax +353 (0) 18 30 64 58

Israel			
	Tel-Aviv	Liraz Handasa Ltd. Ahofer Str 34B / 228 58858 Holon	Tel. +972 (0) 3-5 59 95 11 Fax +972 (0) 3-5 59 95 12 lirazhandasa@barak-online.net

Italy			
Assembly **Sales** **Service**	**Milano**	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Via Bernini,14 I-20020 Solaro (Milano)	Tel. +39 (0) 2 96 98 01 Fax +39 (0) 2 96 79 97 81 sewit@sew-eurodrive.it
Technical Offices	**Bologna**	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Via Emilia,172 I-40064 Ozzano dell'Emilia (Bo)	Tel. +39 (0) 51 79 66 60 Fax +39 (0) 51 79 65 95
	Caserta	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Viale Carlo III-Parco Matilde A I-81020 S. Nicola la Strada (Caserta)	Tel. +39 (0) 8 23 45 06 11 Fax +39 (0) 8 23 42 14 14
	Firenze	RIMA Via Einstein, 14 I-50013 Campi Bisenzio (Firenze)	Tel. +39 (0) 5 58 98 58 21 /-22 Fax +39 (0) 5 58 98 58 30
	Roma	Elettromec Via Castel Rosso, 10 I-00144 Roma	Tel. +39 (0) 65 92 45 30 Fax +39 (0) 65 92 45 30
	Torino	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Corso G. Ferraris,146 I-10129 Torino	Tel. +39 (0) 1 13 18 66 06 Fax +39 (0) 1 13 19 0115
	Verona	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Via P. Sgulmero, 27/A I-37132 Verona	Tel. +39 (0) 45 97 77 22 Fax +39 (0) 45 97 60 79

Ivory Coast			
Technical Office	**Abidjan**	SICA Ste industrielle et commerciale pour l'Afrique 165, Bld de Marseille B.P. 2323, Abidjan 08	Tel. +225 (0) 25 79 44 Fax +225 (0) 25 84 36

Japan			
Assembly **Sales** **Service**	**Toyoda-cho**	SEW-EURODRIVE JAPAN CO., LTD 250-1, Shimoman-no, Toyoda-cho, Iwata gun Shizuoka prefecture, 438-0818	Tel. +81 (0) 53 83 7 3811-13 Fax +81 (0) 53 83 7 3814 sewjapan@lilac.ocn.ne.jp
Technical Offices	**Fukuoka**	SEW-EURODRIVE JAPAN CO., LTD. C-go, 5th-floor, Yakuin-Hiruzu-Bldg. 1-5-11, Yakuin, Chuo-ku Fukuoka, 810-0022	Tel. +81 (0) 92 713 69 55 Fax +81 (0) 92 713 68 60 sewkyushu@jasmine.ocn.ne.jp
	Osaka	SEW-EURODRIVE JAPAN CO., LTD. B-Space EIRAI Bldg., 3rd Floor 1-6-9 Kyoumachibori, Nishi-ku, Osaka, 550-0003	Tel. +81 (0) 6 64 44-83 30 Fax +81 (0) 6 64 44-83 38 sewosaka@crocus.ocn.ne.jp
	Tokyo	SEW-EURODRIVE JAPAN CO., LTD. Izumi-Bldg. 5 F 3-2-15 Misaki-cho Chiyoda-ku, Tokyo 101-0061	Tel. +81 (0) 3 32 39-04 69 Fax +81 (0) 3 32 39-09 43 sewtokyo@basil.ocn.ne.jp

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Technical Offices	**Busan**	SEW-EURODRIVE KOREA Co., Ltd. No. 407, Samjoo officetel. 116-7, Kamjun-2-dong, Sasang-ku Busan 617-724	Tel. +82 (0) 5 13 13 48 04 Fax +82 (0) 5 13 13 48 05 sewpu2@channeli.net
	Daegu	SEW-EURODRIVE KOREA Co., Ltd. No.1108 Sungan officete l 87-36, Duryu 2-dong, Dalseo-ku Daegu 704-712	Tel. +82 (0) 5 36 50-7111 Fax +82 (0) 5 36 50-7112 sewdaegu@netsgo.com
	DaeJeon	SEW-Eurodrive KOREA Co., Ltd. No. 2017, Hongin offictel 536-9, Bongmyung-dong, Yusung-ku Daejeon 305-710	Tel. +82 (0) 4 28 28-64 61 Fax +82 (0) 4 28 28-64 63 sewdaejeon@netsgo.com
	Kwangju	SEW-EURODRIVE KOREA Co., Ltd. 4fl., Shinhyun B/D 96-16 Unam-dong, Buk-ku Kwangju 500-170	Tel. +82 (0) 62 511-9172 Fax +82 (0) 62 511-9174 sewkwangju@netsgo.com
	Seoul	SEW-EURODRIVE KOREA Co., Ltd. No.1104 Sunkyung officetel 106-4 Kuro 6-dong, Kuro-ku Seoul 152-056	Tel. +82 (0) 28 62-80 51 Fax +82 (0) 28 62-81 99 sewseoul@netsgo.com

Lebanon			
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Luxembourg			
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Macedonia			
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Malaysia			
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	Kuala Lumpur	SEW-EURODRIVE Sdn. Bhd. No. 2, Jalan Anggerik Mokara 31/46 Kota Kemuning Seksyen 31 40460 Shah Alam Selangor Darul Ehsan	Tel. +60 (0) 35 22 96 33 Fax +60 (0) 35 22 96 22 sewpjy@po.jaring.my
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Technical Office	**Casablanca**	S. R. M. Société de Réalisations Mécaniques 5, rue Emir Abdelkader 05 Casablanca	Tel. +212 (0) 2 61 86 69 + 61 86 70 + 61 86 71 Fax +212 (0) 2 62 15 88 srm@marocnet.net.ma
Netherlands			
Assembly **Sales** **Service**	**Rotterdam**	VECTOR Aandrijftechniek B.V. Industrieweg 175 NL-3044 AS Rotterdam Postbus 10085 NL-3004 AB Rotterdam	Tel. +31 (0) 10 44 63 700 Fax +31 (0) 10 41 55 552 http://www.vector-aandrijftechniek.nl info@vector.nu
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	Christchurch	SEW-EURODRIVE NEW ZEALAND LTD. 10 Settlers Crescent, Ferrymead Christchurch	Tel. +64 (0) 3-3 84 62 51 Fax +64 (0) 3-3 85 64 55 sales@sew-eurodrive.co.nz
Technical Office	**Palmerston North**	SEW-EURODRIVE NEW ZEALAND LTD. C/-Grant Shearman, RD 5, Aronui Road Palmerston North	Tel. +64 (0) 6-3 55 21 65 Fax +64 (0) 6-3 55 23 16 sales@sew-eurodrive.co.nz
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Peru			
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Philippines			
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	Porto	AV. D. AFONSO HENRIQUES, 1196-9° Sala 909 - Edificio Acia P- 4450 Matosinhos	Tel. +351 (0) 2 29 35 03 83 Fax +351 (0) 2 29 35 03 84 MobilTel. +351 (0) 9 33 2 55 91 10 esc.porto@sew-eurodrive.pt

Romania			
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Russia			
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	Durban	SEW-EURODRIVE (PROPRIETARY) LIMITED 2 Monaceo Place Pinetown Durban P.O. Box 10433, Ashwood 3605	Tel. +27 (0) 31 700 34 51 Fax +27 (0) 31 700 38 47 dtait@sew.co.za
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	Richards Bay	SEW-EURODRIVE PTY LTD. 25 Eagle Industrial Park Alton Richards Bay P.O. Box 458 Richards Bay 3900	Tel. +27 (0) 35 797 38 05 Fax +27 (0) 35 797 38 19 dtait@sew.co.za

Spain			
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Technical Offices	**Barcelona**	Delegación Barcelona Avenida Francesc Maciá 40-44 Oficina 3.1 E-08206 Sabadell (Barcelona)	Tel. +34 (0) 9 37 16 22 00 Fax +34 (0) 9 37 23 30 07
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	Madrid	Delegación Madrid Gran Via. 48-2° A-D E-28220 Majadahonda (Madrid)	Tel. +34 (0) 9 16 34 22 50 Fax +34 (0) 9 16 34 08 99

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Switzerland			
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Thailand			
Assembly **Sales** **Service**	**Chon Buri**	SEW-EURODRIVE (Thailand) Ltd. Bangpakong Industrial Park 2 700/456, Moo.7, Tambol Donhuaroh Muang District Chon Buri 20000	Tel. +66 (0) 38 21 40 22 Fax +66 (0) 38 21 45 31 sewthailand@sew-eurodrive.co.th
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Turkey			
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Technical Offices	**Ankara**	SEW-EURODRIVE Hareket Sistemleri Sirketi Ehlibeyt Mah. Ceyhun Atif Kansu Cad. 12. Sok. Tepe Apt. No. 7/12 TR-06520 Balgat-Ankara	Tel. +90 (0) 312 286 80 14 Fax +90 (0) 312 286 80 15
	Izmir	SEW-EURODRIVE Hareket Sistemleri Ticaret Ltd. Sirketi 1203/11 Sok. No. 4/613 Hasan Atli Is Merkezi TR-35110 Yenisehir-Izmir	Tel. +90 (0) 232 4 69 62 64 Fax +90 (0) 232 4 33 61 05

Uruguay			
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USA			
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	Philadelphia/PA	SEW-EURODRIVE INC. Pureland Ind. Complex 200 High Hill Road, P.O. Box 481 Bridgeport, New Jersey 08014	Tel. +1 (0) 856 4 67-22 77 Fax +1 (0) 856 8 45-31 79 csbridgeport@seweurodrive.com
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