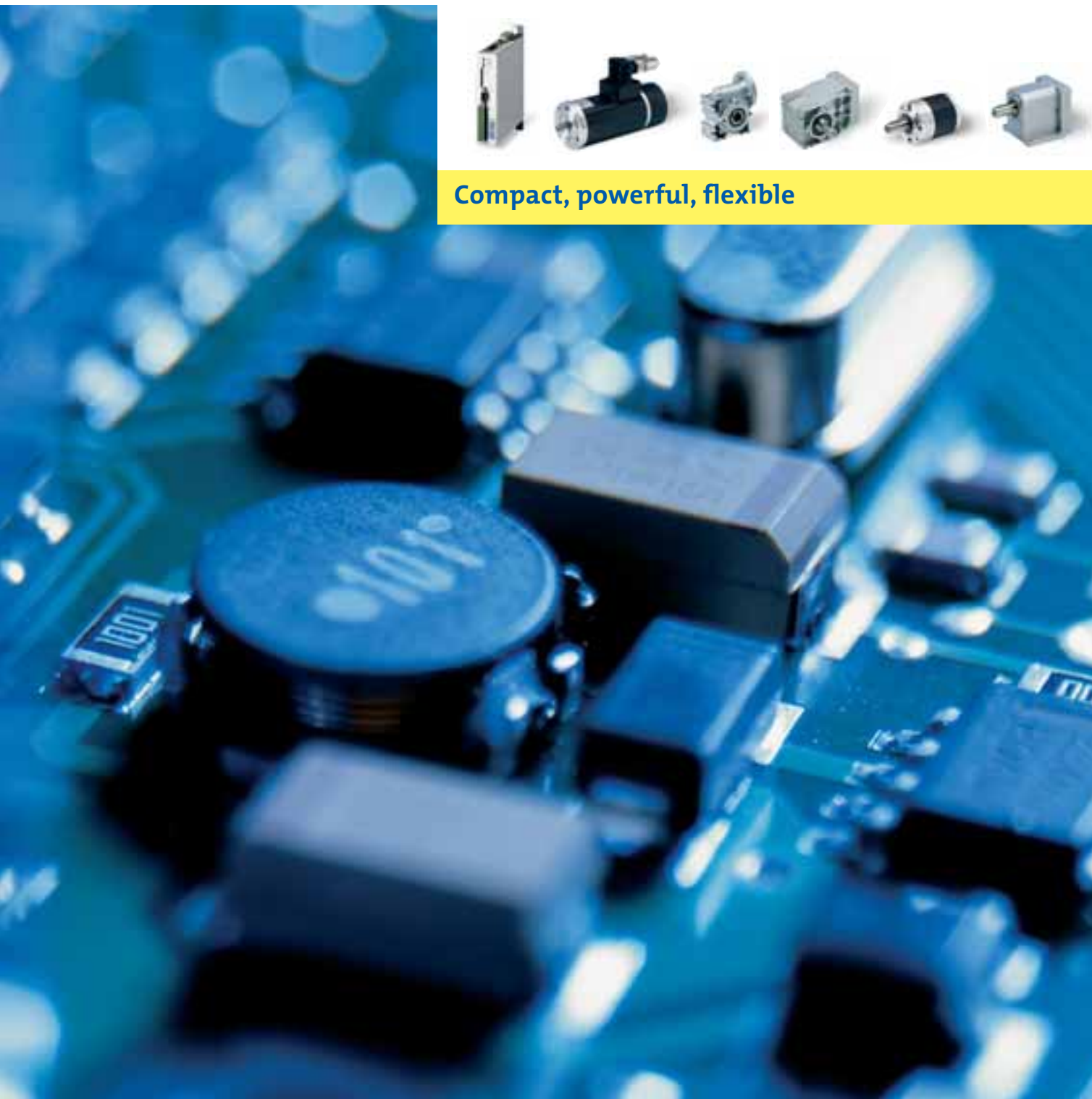


# Servo Drives 930



Compact, powerful, flexible



**Lenze**

# The company | Introducing “Lenze Kleinantriebe”

**It is mechatronic drive systems that today offer innovation in plant and mechanical engineering. As a powerful partner for drive and automation tasks, we offer you complete solutions, focussing on motion functions rather than individual drives. As such, Lenze supports mechatronics as the key technology of the 21st century with the right products and the knowledge of our applications specialists.**

Lenze Kleinantriebe specialises in drive technology for the power range from 12 to 750 Watt. Its product portfolio includes DC permanent-magnet motors as well as asynchronous and synchronous motors that can be combined with worm, bevel, helical or planetary gearboxes. This allows compact, highly dynamic and powerful solutions to be created. The matching intelligent servo inverters, which as mechatronic units can be connected to the motors directly, installed locally in the machine or positioned in control cabinets simply to save space, are also extremely compact – and come with fieldbus link as standard.

Lenze Kleinantriebe's portfolio has a modular structure. As such, individual tasks can be handled with standard components – whether connected directly to the mains or battery-operated. And we have been present in many industrial sectors since 1985 with applications in the fields of materials handling, medical technology, dosing technology, handling and robotics or the print and packaging industry.

Our objective is clearly formulated – to offer you mechatronic solutions that are easy to use and supplied with as much knowledge of your specific machine functions as possible. With drive and automation technology from Lenze you can lean back and relax, safe in the knowledge that not only will your application be handled securely, but that the productivity of your machines and systems will also be increased.

**Please contact us for more information.**



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## Drive selection

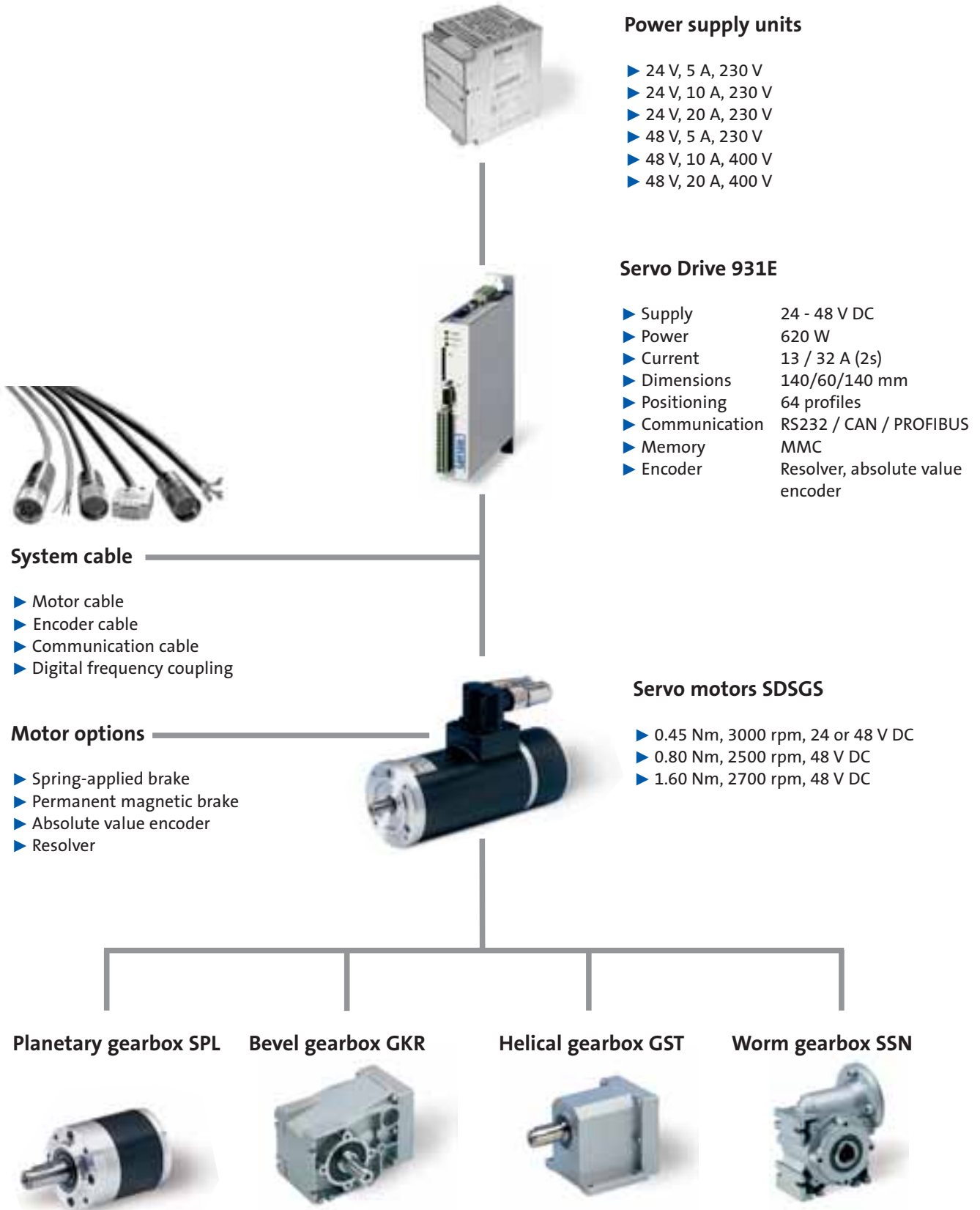
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System overview of Servo Drives 930





## General information

Type code

### Type code Servo Drives 930

**931ECK10 2.0 x.x.x.x.x**

**Product range** \_\_\_\_\_

930

**Size / Power range** \_\_\_\_\_

1 to 600 W

**Design** \_\_\_\_\_

E- Built-in unit for IP 20 control cabinet

**Communication** \_\_\_\_\_

C- CAN bus integrated

P- PROFIBUS integrated

**Voltage class** \_\_\_\_\_

K- Design for extra-low voltage

**Options** \_\_\_\_\_

1- Inputs and outputs

**Installation** \_\_\_\_\_

0- Control cabinet installation

**Hardware version** \_\_\_\_\_

2.0 series, version 2.0

**Software version** \_\_\_\_\_



System cable type code Servo Drives 930

931EKR01UOS

Inverter type

931

Series

E- Built-in unit for IP 20 control cabinet

Type

K- Cable

Application

R- Resolver  
L- Power  
C- CAN bus  
S- Serial  
E- Encoder  
K- Digital frequency coupling  
X- Not described

Length

01- <1 m  
02- 1-2 m  
03- 2-3 m  
04- 3-4 m  
05- 4-5 m  
XX- Not described

Assignment

U- Universal

Cable end 1

O- Open end  
S- Plug  
B- Socket  
X- Not described

Cable end 2

O- Open end  
S- Plug  
B- Socket  
A- Terminating resistor  
X- Not described



## General information

Type code

### Motor series SDS type code

**SDSGSRS056-22**

**Product group** \_\_\_\_\_

S- Small drives

**Type of current** \_\_\_\_\_

D- Three-phase AC current

**Ventilation** \_\_\_\_\_

S- Naturally ventilated

**Design** \_\_\_\_\_

G- Smooth housing

**Type of machine** \_\_\_\_\_

S- Synchronous machine

**Built-on accessories design** \_\_\_\_\_

RS- Resolver

AG- Absolute value encoder

BA- Brake and absolute value encoder

BS- Brake and resolver

**Motor frame size** \_\_\_\_\_

Axis height as per standard, e.g. 056 = IEC56

**Overall length** \_\_\_\_\_

2- M, medium

**Number of pole pairs** \_\_\_\_\_

2- 4 pole





### Type code for geared motors

**SSN40-2GVAR-056C22**

#### Product group

- G- Gearbox
- S- Small drive

#### Product range

- KR- Bevel gearbox
- PL- Planetary gearbox
- SN- Worm gearbox
- ST- Helical gearbox

#### Size

- Helical gearbox -03, 04, 05
- Bevel gearbox -03, 04, 05
- Worm gearbox 31, 40
- Planetary gearbox -52, 62, 81, 12

#### Number of stages

- 1- Single-stage
- 2- Two-stage
- 3- Three-stage

#### Drive-end version

- G- Synchronous motor model line SDS

#### Output-end version

##### Shaft design

- V - solid shaft
- D- Double shaft
- H- Hollow shaft

##### Housing version

- A- Foot and centering
- C- Without foot, with centering

##### Output flange

- L- Round flange with threaded holes
- R- Without flange
- K- Round flange with through hole

#### Motor frame size

Axis height as per standard, e.g. 056 = IEC56

#### Design

- C- Compact motor with Lenze mounting flange
- N- Standard motor with IEC mounting flange

#### Overall length

- 2- M, medium

#### Number of pole pairs

- 2- 4 pole

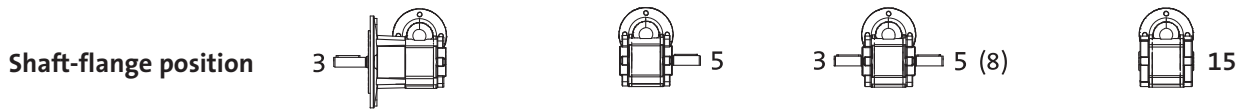
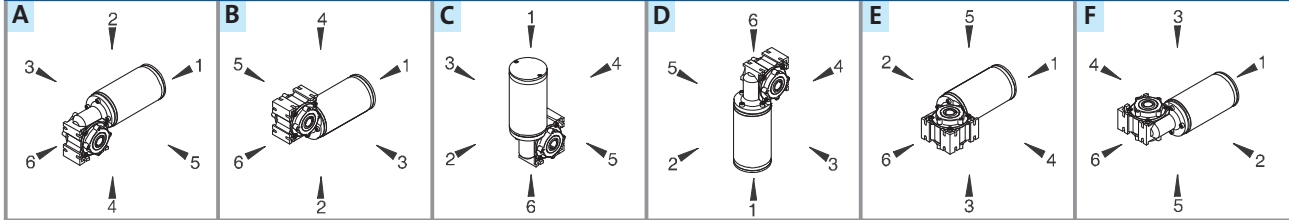


# General information

## Mounting positions

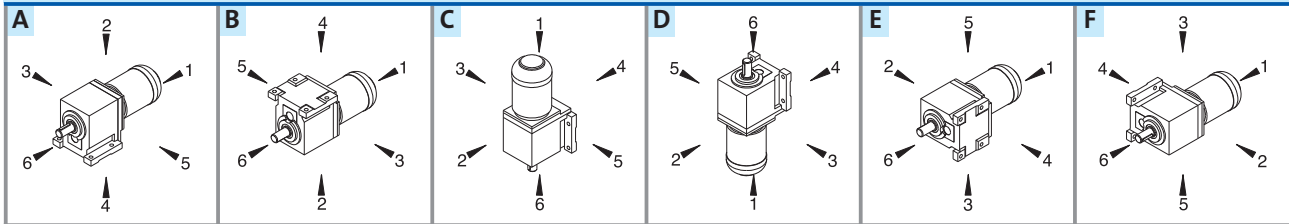
### Mounting position (A-F) and position of the system blocks (1-6)

**SSN□□-1G□□**      Solid shaft: 3, 5, 8      Flange: 3, 5      Electrical connection: 2, 3, 4, 5



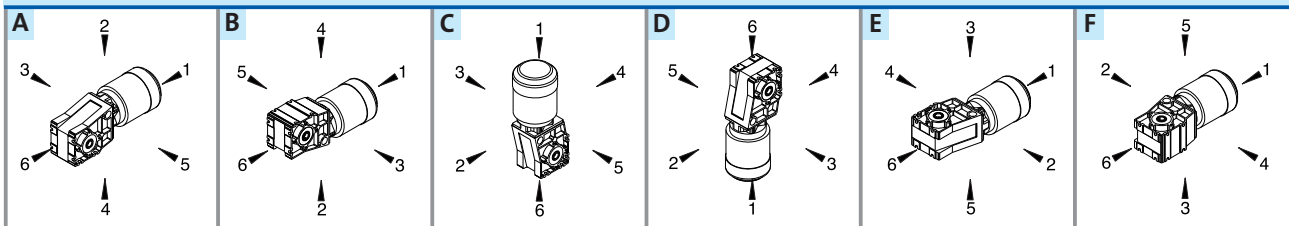
### Helical geared motors GST

**GST□□-□G□□**      Electrical connection: 2, 3, 4, 5



### Helical geared motors GKR

**GKR□□-2G□□**      Solid shaft: 3, 5, 3+5      Flange: 3, 5, 3+5      Electrical connection: 2, 3, 4, 5  
 Hollow shaft: 0      Without flange: 0  
 Hollow shaft with shrink disc: 3, 5





### Designations used in the catalogue:

$\alpha$		Angle of action of radial force	$M_1$	[Nm]	Drive torque
$c$		Load capacity of gearboxes/geared motors	$M_2$	[Nm]	Output torque
$d_w$	[mm]	Pitch-circle diameter of the transmission element	$M_r$	[Nm]	Rated torque
$\cos \varphi$		Power factor of the motor	$M_A$	[Nm]	Starting torque of the motor
$\cos \varphi_N$		Power factor of asynchronous motors	$M_B$	[Nm]	Holding torque of the brake
$F_a$	[N]	Axial force applied	$M_{cont}$	[Nm]	Constant torque
$F_{a perm}$	[N]	Permissible axial force	$M_{stall}$	[Nm]	Stalling torque of the motor
$F_{a Tab}$	[N]	Tabular axial force value	$M_i$		Maximum torque factor
$f_{ch}$	[kHz]	Switching frequency	$M_{max}$	[Nm]	Maximum torque
$f_0$	[Hz]	Field frequency	$M_{perm}$	[Nm]	Permissible torque
$F_I$		Mass acceleration factor	$n_1$	[rpm]	Input speed
$f_{max}$	[Hz]	Maximum frequency set	$n_2$	[rpm]	Output speed
$f_N$	[Hz]	Rated frequency	$n_r$	[rpm]	Rated speed
$F_r$	[N]	Radial force applied	$n_{max}$	[rpm]	Maximum speed
$F_{r Tab}$	[N]	Tabular radial force value	$P_1$	[kW]	Input power
$F_{r perm}$	[N]	Permissible radial force	$P_2$	[kW]	Output power
$f_w$		Additional load factor of the radial force applied	$P_r$	[kW]	Rated power
$f_{\alpha}$		Effective direction factor of the radial force applied	$P_V$	[kW]	Power loss of inverter
$f_z$		Additional radial force factor of the transmission element	$R$	[ $\Omega$ ]	Resistance
$i$		Ratio	$S_r$	[kW]	Output power of inverter
$\varphi$		Ratio step	$TU$	[ $^{\circ}C$ ]	Ambient operating temperature
$\eta$		Mechanical efficiency	$UG$	[V]	DC-bus voltage
$I_0$	[A]	Continuous standstill current	$U_r$	[V]	Rated voltage
$I_A$	[A]	Current at motor start-up	$U_{mains}$	[V]	Mains voltage
$I_{max}$	[A]	Maximum output current	$\hat{U}$	[kV]	Voltage peak
$I_N$	[A]	Rated current	$IP$		International protection code
$I_{mains}$	[A]	Rated mains current	$IEC$		International Electrotechnical Commission
$J_{ext}$	[kgm <sup>2</sup> ]	Moment of inertia of the driven machine reduced to the motor shaft	$DIN$		Deutsches Institut für Normung (German institute governing standards)
$J_{load}$	[kgm <sup>2</sup> ]	Moment of inertia of the machine under load	$VDE$		Verband deutscher Elektrotechniker (Association of German Electrotechnical Engineers)
$J_{mot}$	[kgm <sup>2</sup> ]	Moment of inertia of the motor	$USDA$		United States Department of Agriculture
$J_A$	[kgm <sup>2</sup> ]	Moment of inertia of the drive reduced to the motor shaft	$NEMA$		National Electrical Manufacturers Association
$J_B$	[kgm <sup>2</sup> ]	Moment of inertia of brake	$AC$		Alternating current/voltage
$k$		Application factor (following DIN 3990)	$DC$		Direct current/voltage
$L$	[mH]	Inductance	$EMC$		Electromagnetic compatibility
$m$	[kg]	Mass	$EN$		European standard
$M_0$	[Nm]	Continuous standstill torque	$CE$		Communauté Européene
			$IM$		International Mounting Code



### Technical data on Servo Drives 930

<b>Supply voltage</b>				
Rated voltage	24 V DC		48 V DC	
Permissible range	19.2 V DC - 0% ... 57.6 V DC + 0%			
Supply current at rated power	approximately 13 A			
Max. supply current	approximately 35 A			
Rated power	310 W		620 W	
Efficiency	up to 95%			
PWM frequency (switchable)	10 kHz	20 kHz	10 kHz	20 kHz
Rated output current	0 ... 13 A <sub>eff</sub>	0 ... 10 A <sub>eff</sub>	0 ... 13 A <sub>eff</sub>	0 ... 10 A <sub>eff</sub>
Peak output current for 2 s	32 A <sub>eff</sub>	25 A <sub>eff</sub>	32 A <sub>eff</sub>	25 A <sub>eff</sub>
Rated output voltage	0 ... 14 V <sub>eff</sub>		0 ... 27 V <sub>eff</sub>	
Output frequency	0 ... 200 Hz			
Control voltage <sup>1)</sup>	24 V DC ±20%			
Max. control current	min. 0.25 A (only control section) max. 1.5 A (all outputs connected)			
<b>Switching threshold of brake chopper</b>				
On	approximately 63 V DC			
Off	approximately 60 V DC			
Switching threshold for overvoltage monitoring	approximately 70 V DC			
<b>Internal brake resistor</b>				
Resistance R	17 Ω			
Continuous power P <sub>N</sub>	10 W			
Peak power P <sub>Puls</sub>	200 W for 50 ms			
<b>External brake resistor</b>				
Resistance R	5 Ω			
Continuous power P <sub>N</sub>	10 ... 600 W			
Motor holding brake	24 V / 1 A			
Positioning range	± 2 <sup>19</sup> revolutions			
Storable positions	64			
<b>Scanning times of the control loops</b>				
Current controller	100 μs			
Speed controller	200 μs			
Position controller	400 μs			

<sup>1)</sup> Observe the minimum voltage of the brake!



### Technical data on Servo Drives 930

<b>Conformity</b>	CE	Low Voltage Directive 73/23/EEC
<b>Regulations</b>	EN 61800-3	Interference level B
<b>Climatic conditions</b>	Air humidity max. 90% without condensation	
<b>Cooling</b>	Passive cooling via housing surface and rear panel	
<b>Permissible temperature range</b>		
<b>Transport</b>	-25 °C ... +70 °C	
<b>Storage</b>	-25 °C ... +70 °C	
<b>Operation</b>	0 °C ... +50 °C	above +40 °C reduce power by 20 W/°C
<b>Permissible site altitude</b>	0 ... 1000 m amsl	above 1000 m amsl reduce the rated output current by 5%/1000 m
<b>Mounting position</b>	vertical	
<b>Installation clearance</b>		
<b>Above/below</b>	≥ 100 mm	
<b>Lateral</b>	Can be lined up without any clearance	
<b>Monitoring</b>	Overvoltage / undervoltage in DC bus, overcurrent or short circuit of the output stage, temperature of motor and output stage, I <sup>2</sup> t-monitoring of the motor, encoder monitoring	
<b>Enclosure</b>	IP 20	
<b>Inputs</b>	6 digital inputs, 2 analog inputs (can be set via software)	
<b>Outputs</b>	2 digital outputs, 2 analog outputs (can be set via software)	
<b>Bus system</b>	CAN (DS301, DSP402), PROFIBUS	
<b>Memory cards</b>	Multi Media Card	



### X5 inputs and outputs

Pin-no.	Signal	function		Specification	
		Lenze	can alternatively be set via SDC		
1	+AIN0 (DIN0)	Analog input 0 Differential (speed setpoint, current setpoint)	DIN0	Input voltage	-10 V ... +10 V
2	-AIN0 (DIN1)		DIN1	Overvoltage protection	-30 V ... +30 V
3	+AIN1 (DIN2)	Analog input 1 Differential	DIN2	Input impedance	> 20 kΩ
4	-AIN1 (DIN3)		DIN3	Resolution	12 bit
5	+AMON0	Analog monitors Output of internal values (current, speed, etc.)		Offset error	< ± 50 mV
6	+AMON1			Gain error	< 5%
7	GND	Reference potential for pin 1 ... 6, pin 8 ... 16		Limit frequency	~ 1 kHz
8	DIN4	Digital input 4		Output signal	0 V ... 10 V, max. 2 mA
9	DIN5	Digital input 5		Rated voltage	+24 V DC
10	DIN6	Digital input 6		Voltage range	0 ... +30 V DC
11	DIN7	Digital input 7		HIGH signal	> +8 V DC
12	DIN8	Digital input 8		LOW signal	< +4 V DC
13	DIN9	Digital input 9 (controller enable / delete error)		Input impedance	> 4,7 kΩ
14	DOUT0	Digital output 0 (ready for operation)		Operating delay (LOW-HIGH transition)	< 1 ms
15	DOUT1	Digital output 1		Output voltage	0 V / 24 V
16	DOUT2	Digital output 2		LOW signal	0 ... 4 V DC
				HIGH signal	18 V ... 30 V
				Output current	max. 10 mA
				Load impedance	> 2,2 kΩ
				Operating delay (LOW-HIGH transition)	< 1 ms

### Connection plug

Set of connection plugs	Rated current	application / Max. cross-section
X3	Motor connection	16 A / 2.5 mm <sup>2</sup>
X2	Voltage supply	16 A / 2.5 mm <sup>2</sup>
X5	Inputs and outputs	1 A / 1.5 mm <sup>2</sup>

### Motor connection system cables

Motor - servo inverter		
Connection to servo inverter	Length [m]	Connection to motor
X3 (U, V, W, PE)	2.5	socket 6-pole
	5	

Resolver feedback		
Connection to servo inverter	Length [m]	Connection to motor
X7 plug Sub-D, 9-pole	2.5	socket M23 12-pole
	5	

Absolute value encoder feedback		
Connection to servo inverter	Length [m]	Connection to motor
X7 plug Sub-D, 9-pole	2.5	socket M23 12-pole
	5	



## Communication system cables

CAN system cable		
CAN input	Length [m]	CAN output
X4.1 Plug RJ 45	3	X4.2 Plug RJ 45

Serial null modem connection RS232		
Connection to servo inverter	Length [m]	Connection to PC
X1 Socket Sub-D, 9-pole	1.8	socket Sub-D, 9-pole

## Power supply units

Technical data on the power supply units			
Secondary		Primary	
DC 24 V (DC 22.5 ... 28.5 V)	5 A	AC 85 V - 0% ... 264 V + 0% 45 Hz - 0% ... 65 Hz + 0%	approximately 1.6 A (AC 120 V) approximately 0.84 A (AC 230 V)
	10 A		approximately 2.34 A (AC 120 V) approximately 1.2 A (AC 230 V)
	20 A		approximately 4.76 A (AC 120 V) approximately 2.3 A (AC 230 V)
DC 48 V (DC 40 ... 56 V)	5 A	AC 85 V - 0% ... 264 V + 0% 45 Hz - 0% ... 65 Hz + 0%	approximately 2.2 A (AC 120 V) approximately 1.2 A (AC 230 V)
	10 A		3 AC 320 V - 0% ... 575 V + 0% 45 Hz - 0% ... 65 Hz + 0%
	20 A		approximately 3 x 1.2 A (AC 400 V) approximately 3 x 1.0 A (AC 480 V) approximately 3 x 2.3 A (AC 400 V) approximately 3 x 1.9 A (AC 480 V)

## Memory cards

Memory cards (on request)	
Format	Capacity
MMC (Multi Media Card)	64 MB

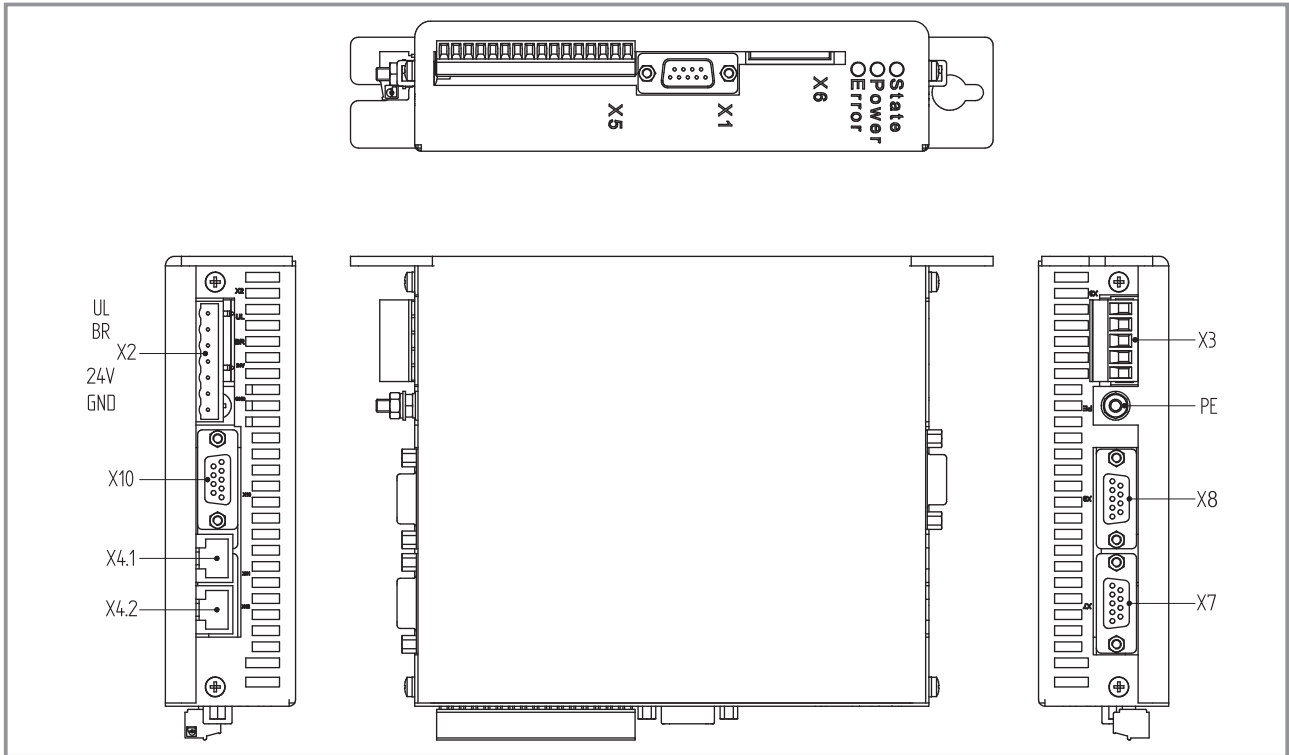
## Interface description key page 16

Pos.	Description	
	931ECK10 CAN-BUS	931EPK10 PROFIBUS
X1	RS232	
X2	Voltage supply	
X3	Motor connection	
X4.1 / X4.2	CAN interface	PROFIBUS interface 1)
X5	Digital inputs and outputs / Analog inputs and outputs	
X6	Slot for multimedia memory card	
X7	Resolver input	
X8	Sin/cos encoder input	
X10	Digital frequency interface	

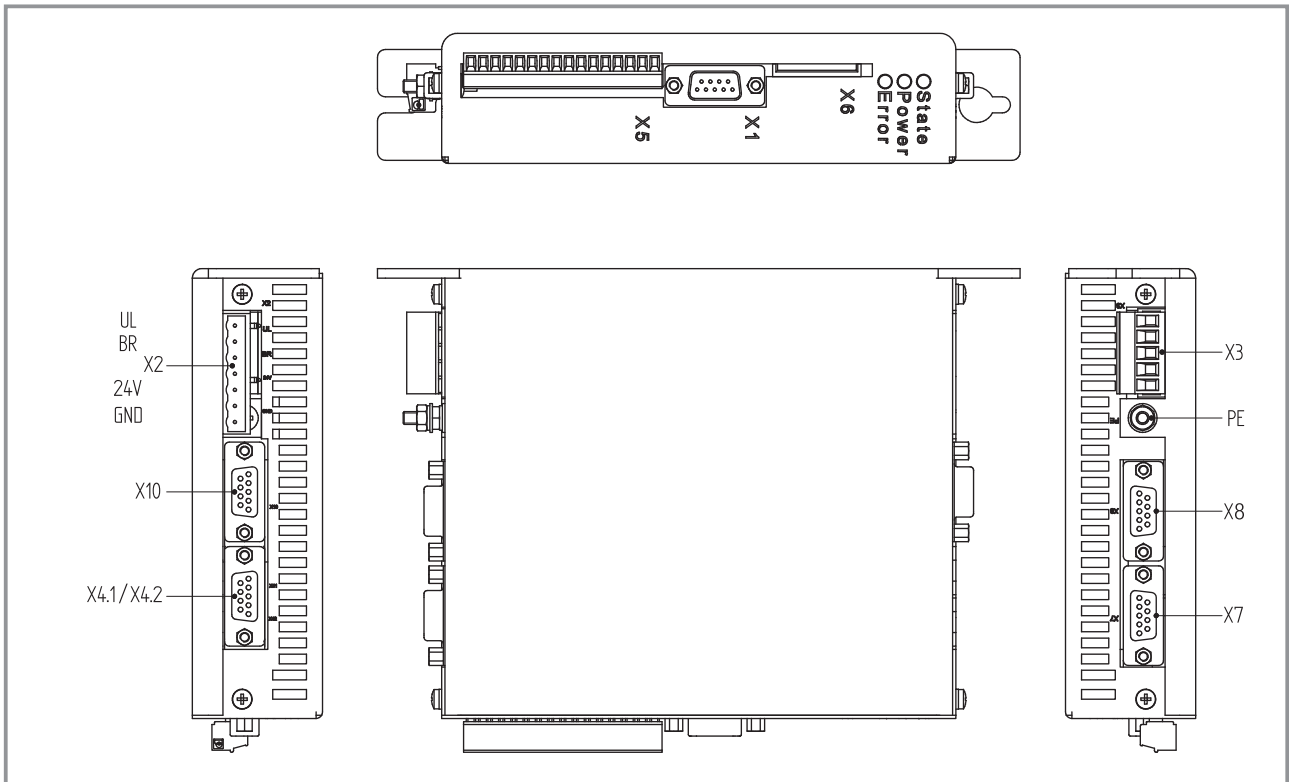
<sup>1)</sup> PROFIBUS plug with Sub-D-9-pole as per IEC61158 / IEC61784



## Interface description



931ECK10 CAN bus communication (see page 15 for key)



931EPK10 PROFIBUS communication (see page 15 for key)





## Technical data on Small Drives Control



The Small Drives Control application allows parameter setting of the servo position controller 931E.

The parameterisation software Lenze Small Drives Control allows optimum adjustment of the servo position controller 931E to the respective application. The parameter setting application offers the following performance features:

- ▶ Parameter setting of the servo position controller 931E
- ▶ Setting of all parameters via PC
- ▶ Display of status and operating values
- ▶ Loading of new firmware versions
- ▶ Loading and saving of parameter sets
- ▶ Printing of parameter sets
- ▶ Offline parameter setting
- ▶ Oscilloscope function
- ▶ Language support: German, English, French
- ▶ Free of charge software available via [www.Lenze.de](http://www.Lenze.de)



## General information

### Motor technology

#### Technical data on servo motors

Motor type	SDSGS__035-22	SDSGS__035-22	SDSGS__047-22	SDSGS__056-22
Rated power	140 W	140 W	210 W	450 W
Rated torque	0.45 Nm	0.45 Nm	0.8 Nm	1.6 Nm
Rated current	8.4 A	4.0 A	6.2 A	12.5 A
Rated voltage	13 V	30 V	30 V	30 V
Rated frequency	100 Hz	100 Hz	83 Hz	90 Hz
Rated speed	3000 rpm	3000 rpm	2500 rpm	2700 rpm
Maximum speed (mech.)	6000 rpm	6000 rpm	6000 rpm	6000 rpm
Standstill torque	0.55 Nm	0.55 Nm	1.0 Nm	1.9 Nm
Continuous standstill current	9.5 A	4.4 A	7.2 A	13.6 A
Maximum current (demagnetisation current)	86 A	40 A	41 A	146 A
Maximum torque (mech.)	3.2 Nm	3.5 Nm	7.4 Nm	13.7 Nm
Speed constant [V/1000 r/min]	3.7 V/1000 rpm	7.5 V/1000 rpm	8.7 V/1000 rpm	8.7 V/1000 rpm
Torque constant [Nm/A]	0.058 Nm/A	0.124 Nm/A	0.14 Nm/A	0.14 Nm/A
R <sub>UV</sub> [Ω]	0.22 W	1.10 W	0.61 W	0.19 W
L phase	0.18 mH	0.585 mH	0.846 mH	0.280 mH
Moment of inertia	0.293 kgcm <sup>2</sup>	0.293kgcm <sup>2</sup>	0.444 kgcm <sup>2</sup>	1.466 kgcm <sup>2</sup>

#### General data and operating conditions

Design	Smooth, round
Type	Flange B14 as per DIN 42948 and IEC 72; Form C
Cooling	Naturally ventilated
Insulation class	F
Winding insulation	max. voltage amplitude 1500 V; du/dt < 5 kV/μs
Permissible temperature range	
Operation	-20 °C ... + 40 °C
Enclosure	IP54 as per DIN EN60034-5
Connection	System connector
Temperature monitoring	KTY 110
Speed feedback	Pancake resolver (size 15) Absolute value encoder

#### Technical data on the spring-applied brake

Spring-applied brake	Assigned motor frame size	Brake voltage	Characteristic torque	Coil power at 20°C
BFK 457-02	SDSGSBS035	24 V	0.5 Nm	6.6 W
BFK 457-03	SDSGSBS047	24 V	1.0 Nm	9 W
BFK 457-04	SDSGSBS056	24 V	2.0 Nm	11.5 W

#### Technical data on the permanent magnetic brake

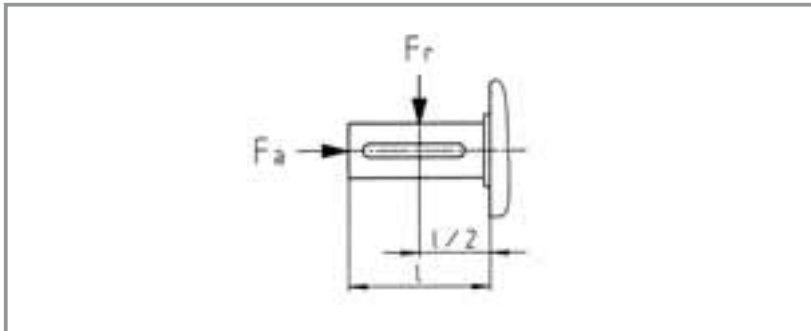
Permanent magnetic brake	Assigned motor frame size	Brake voltage	Characteristic torque	Coil power at 20°C
02.P1.130	SDSGSBS035	24 V	1.0 Nm	10W
03.P1.130	SDSGSBS047	24 V	2.0 Nm	11W
05.P1.130	SDSGSBS056	24 V	4.5 Nm	12W



## Mechanical data

		Motor type		
		SDSGS 035-22	SDSGS 047-22	SDSGS 056-22
Max. radial force $F_r$ at start of journal *)	[N]	250	300	510
Max. radial force $F_r$ at centre of journal *)	[N]	260	350	550
Max. axial force $F_a$ *)	[N]	200	250	420

\*) Forces calculated for bearing life of 20,000 hours



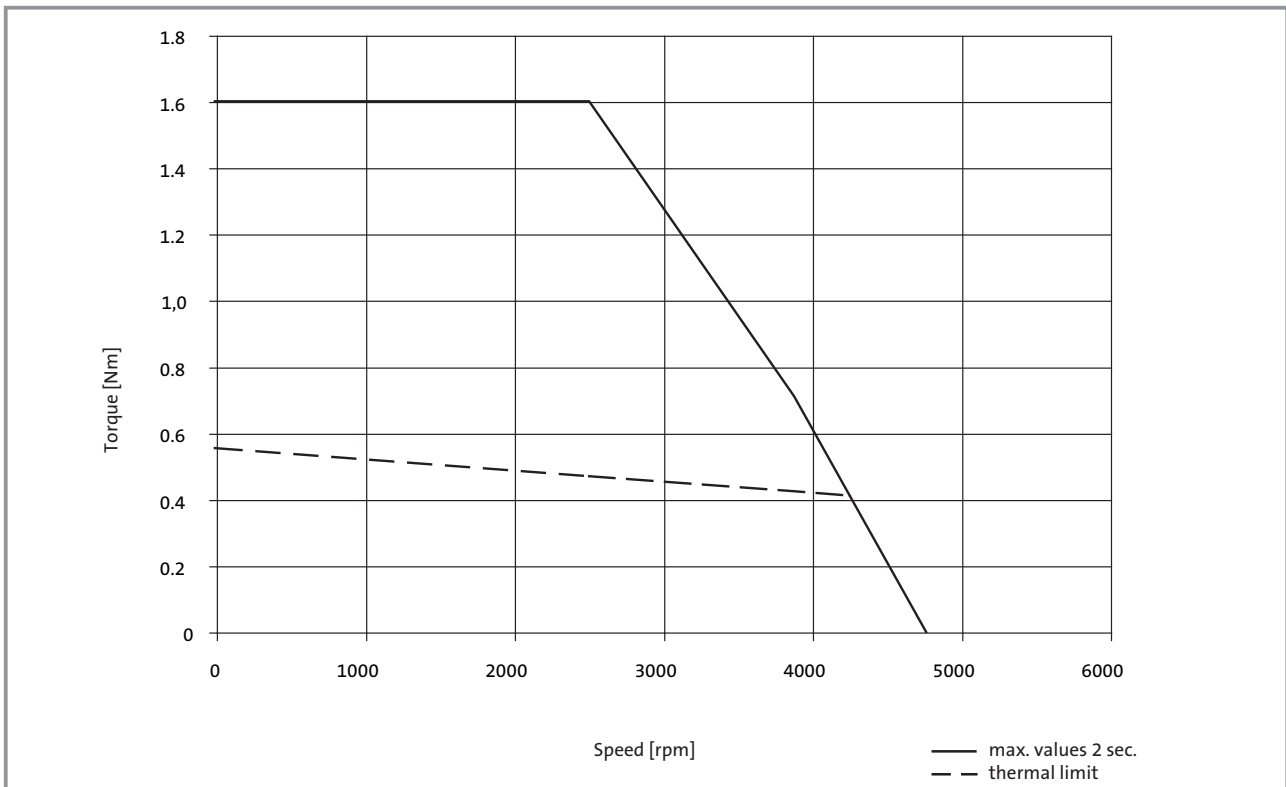
Application points of radial force ( $F_r$ ) and axial force ( $F_a$ )



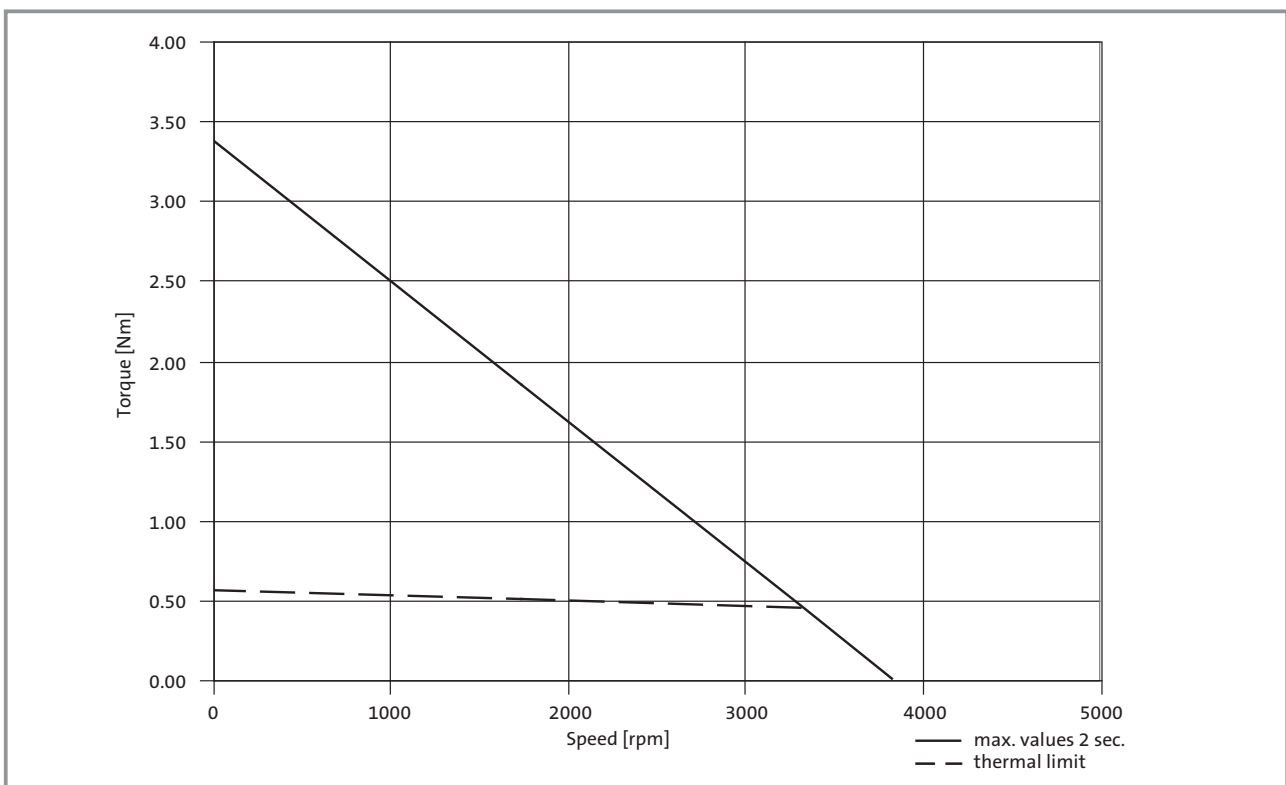
## General information

### Motor technology

Characteristics of SDGSR035-22 with 931E  
24 V 0.45 Nm 3000 rpm 140 W

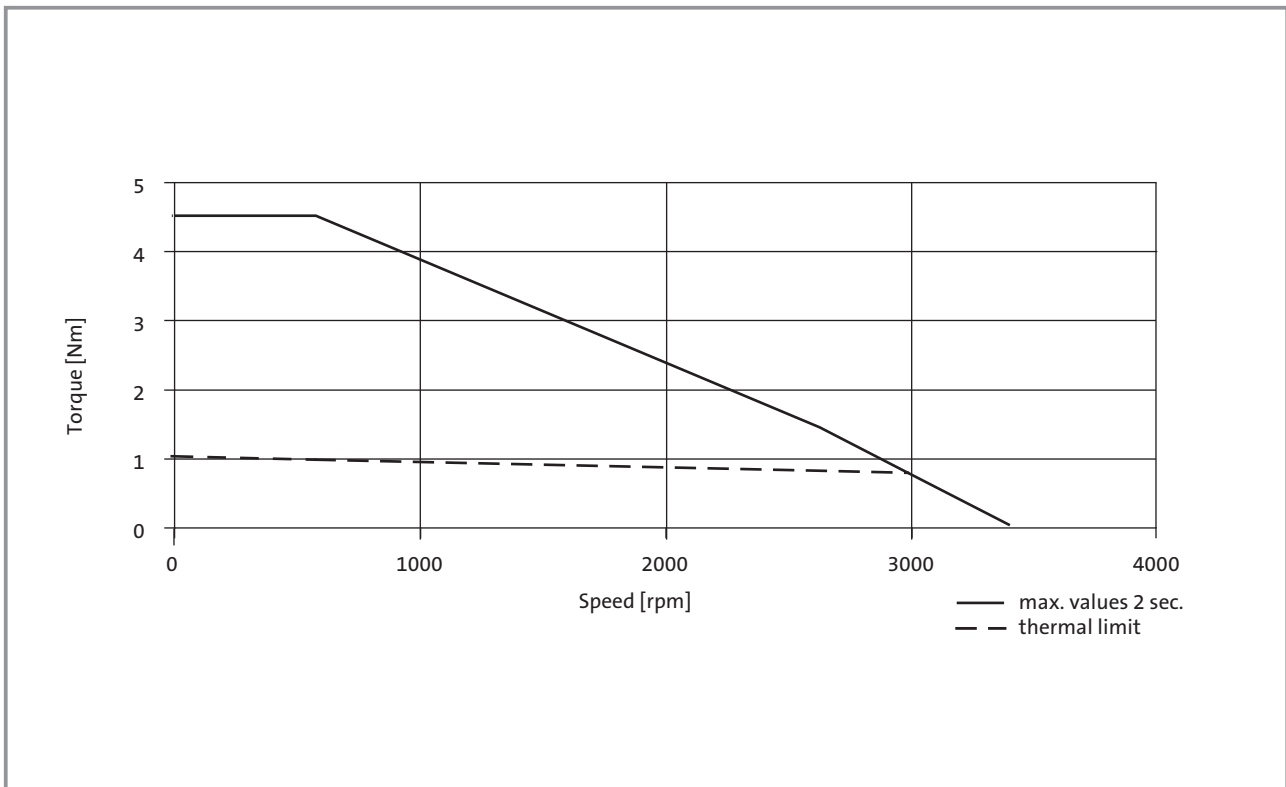


Characteristics of SDGSR035-22 with 931E  
48 V 0.45 Nm 3000 rpm 140 W

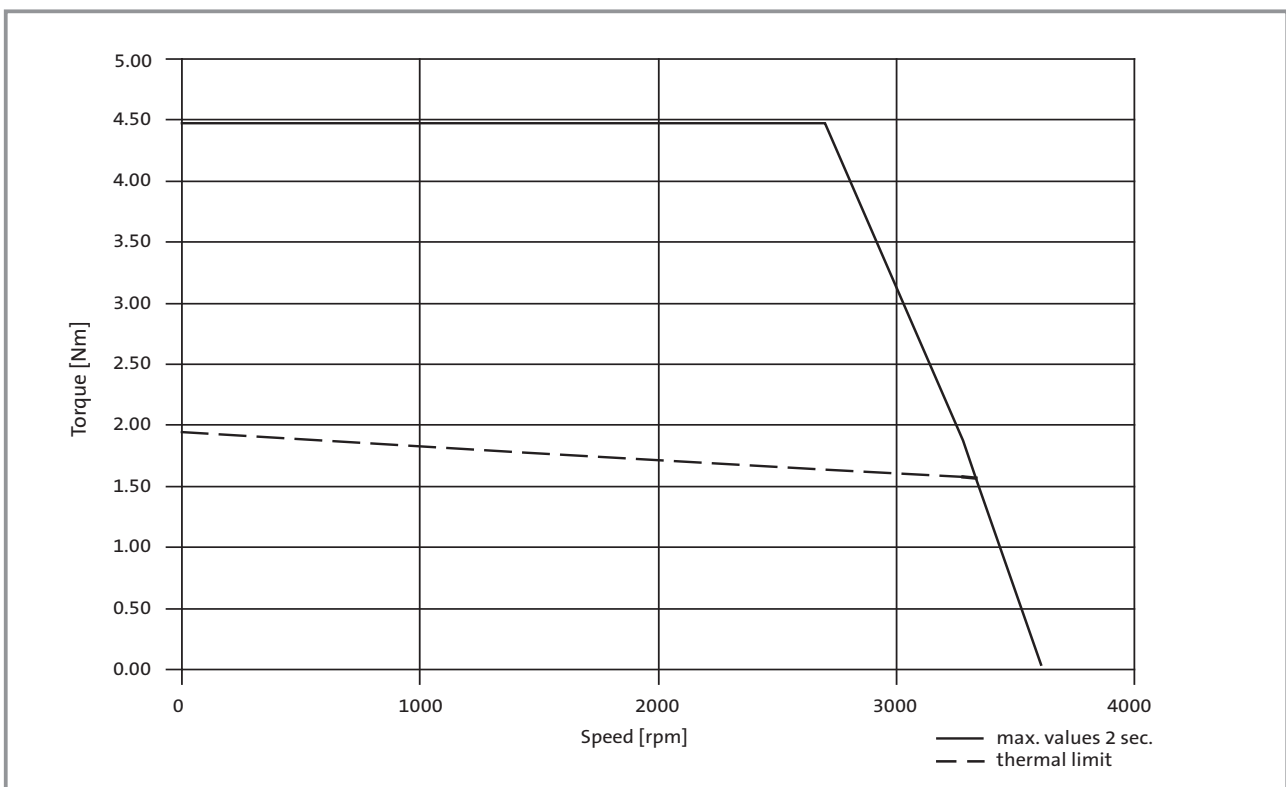




Characteristics of SDSGSRS047-22 with 931E  
48 V 0.8 Nm 2500 rpm 210 W



Characteristics of SDSGSRS056-22 with 931E  
48 V 1.6 Nm 2700 rpm 450 W





## Drive selection

### Servo Drives 930

#### Selection table type 931E□K10

P <sub>N</sub> W	Description	Design	Controller type	Selection Please mark as appropriate
620	24-48V DC, 13A, max. 35A Digital frequency coupling, digital and analog inputs/outputs Resolver and absolute value encoder feedback Brake control PC interface RS232	CAN bus	931ECK10	
620	24-48V DC, 13A, max. 35A Digital frequency coupling, digital and analog inputs/outputs Resolver and absolute value encoder feedback Brake control PC interface RS232	PROFIBUS	931EPK10	

#### Servo Drives accessories

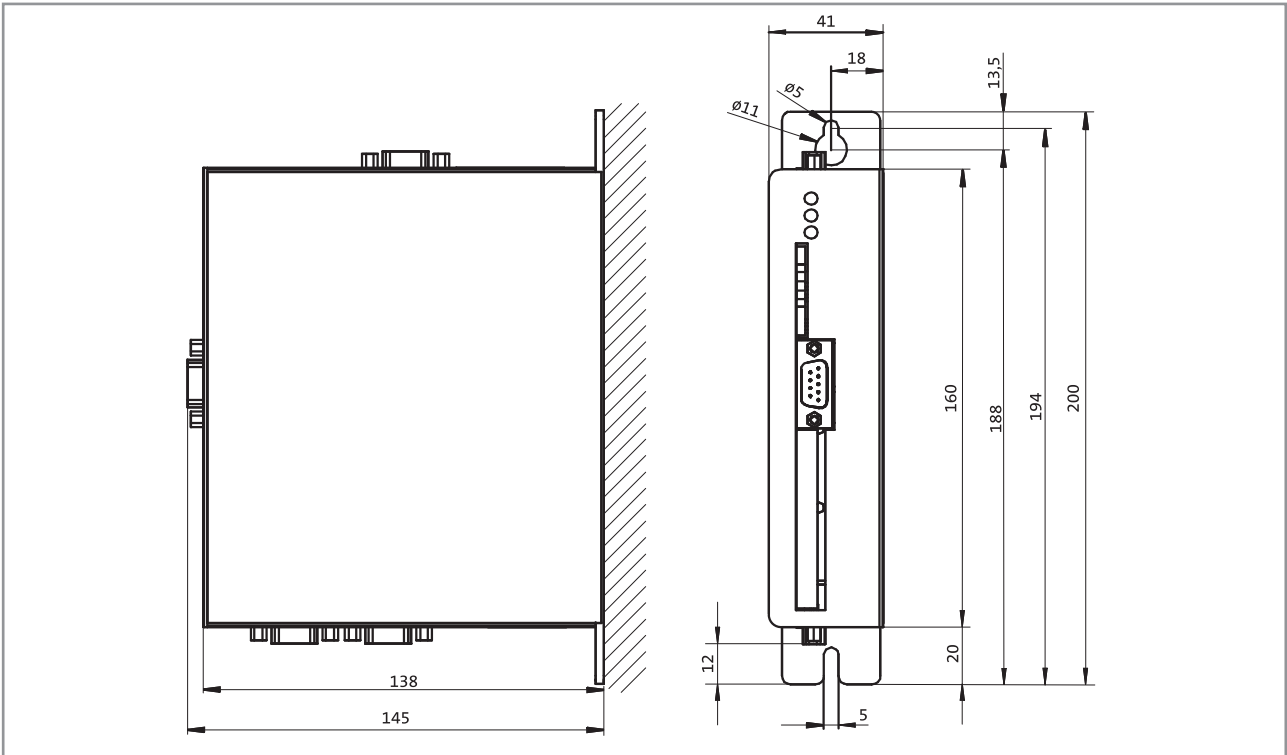
Servo Drives accessories		Selection Please mark as appropriate
System cable	931EKL03UBO (motor connection 2.5 m)	
	931EKL05UBO (motor connection 5 m)	
	931EKR03UBS (resolver connection 2.5 m)	
	931EKR05UBS (resolver connection 5 m)	
	931EKE03UBS (absolute value encoder connection 2.5 m)	
	931EKE05UBS (absolute value encoder connection 5 m)	
	931EKE03USS (digital frequency connection 3 m)	
	931EKC03USS (CAN plug/plug 3 m)	
	931EKS02UBB (PC connection RS232)	
Memory card	MMC-64 MB	
CAN resistor	931EKC01UX (resistor)	
Power supply unit	24 V/5 A, 230 V/50 Hz (control voltage)	
	24 V/10 A, 230 V/50 Hz	
	24 V/20 A, 230 V/50 Hz	
	48 V/5 A, 230 V/50 Hz	
	48 V/10 A, 400 V/50 Hz	
	48 V/20 A, 400 V/50 Hz	

See page 6 for type code.

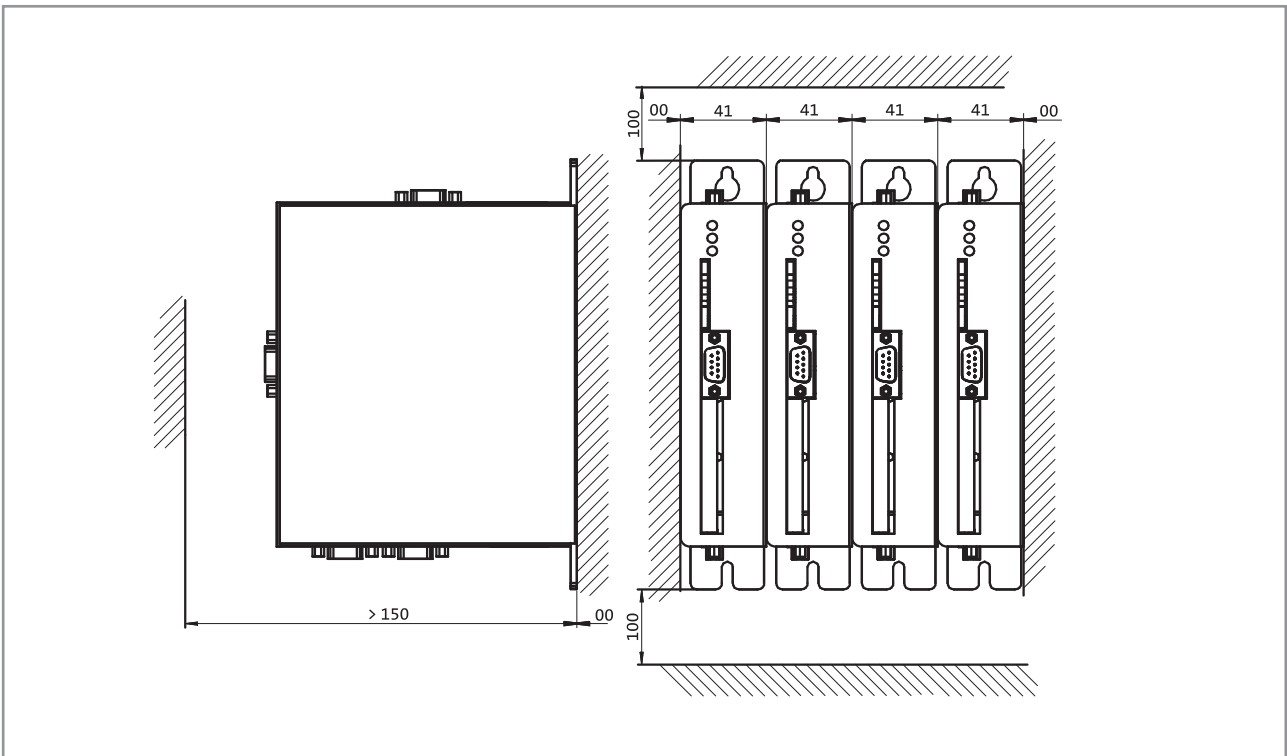
See page 10 for mounting position.



Dimensions



Clearance





## Drive selection

### SDSGS servo motors

#### Selection table for type SDSGS□□□□□-22

Supply voltage V DC V	P <sub>N</sub> W	Rated data		Design A-side	Motor type	Selection Please mark as appropriate
		n <sub>2</sub> rpm	M <sub>2</sub> Nm			
24	140	3000	0.45	IEC56 B14 C80	SDSGS□□035-22	
48	140	3000	0.45	IEC56 B14 C80	SDSGS□□035-22	
48	210	2500	0.80	IEC56 B14 C80	SDSGS□□047-22	
48	210	2500	0.80	IEC63 B14 C90	SDSGS□□047-22	
48	450	2700	1.60	IEC63 B14 C90	SDSGS□□056-22	

#### Additional ordering details

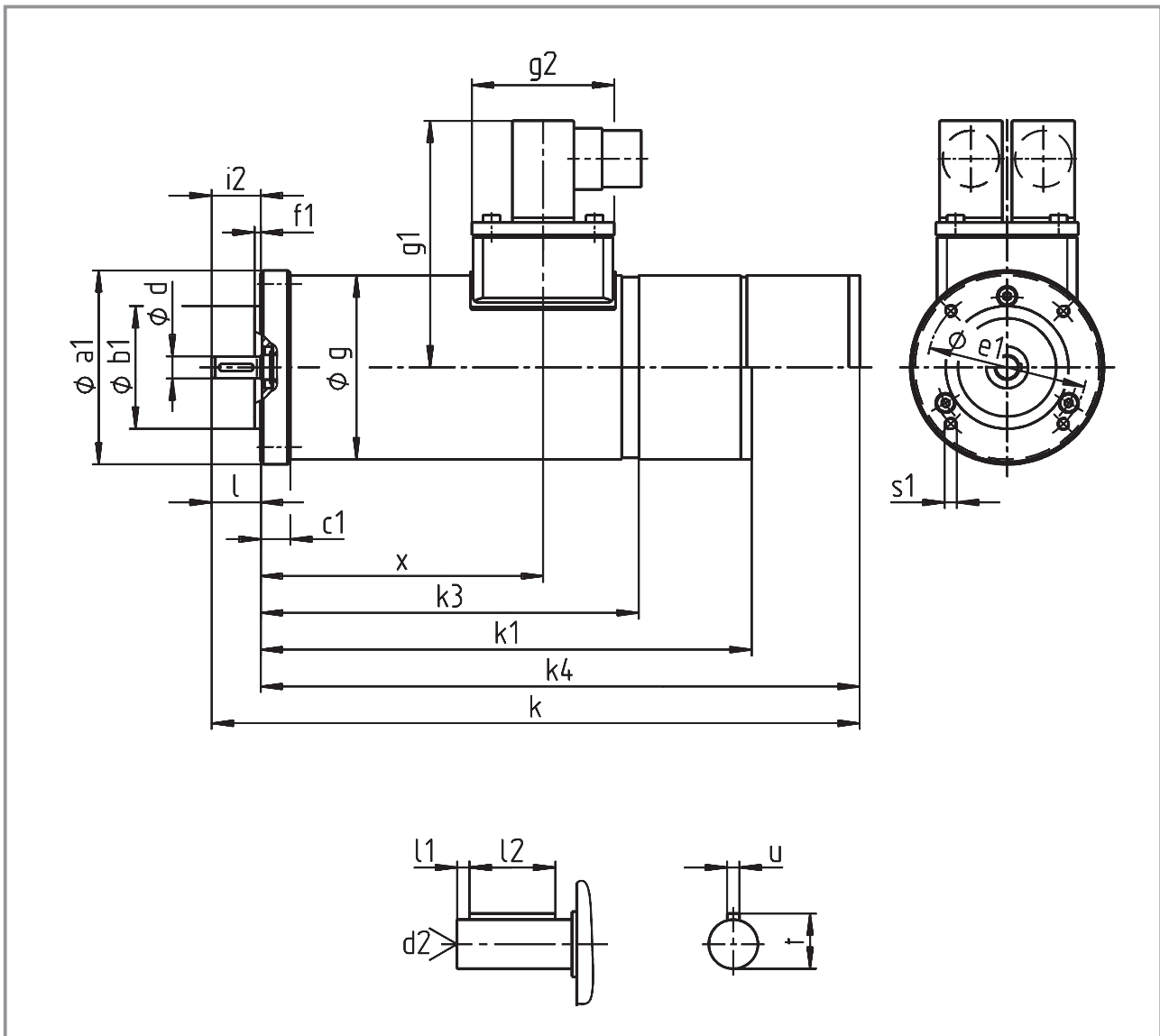
Enclosure	IP54	
	IP55	
Design of B-side	with resolver	
	with spring-applied brake and resolver	
	with permanent magnetic brake and resolver	
	with single-turn absolute value encoder	
	with multi-turn absolute value encoder	
	with spring-applied brake and single-turn absolute value encoder (not possible with motor frame size 035)	
	with spring-applied brake and multi-turn absolute value encoder (not possible with motor frame size 035)	
	with permanent magnetic brake and single-turn absolute value encoder	
with permanent magnetic brake and multi-turn absolute value encoder		
Position of electrical connection		2

See page 8 for type code.  
See page 10 for mounting position.





Dimensions of type SDSGS□□□□□-22



Motor type	Size	a <sub>1</sub>	b <sub>1</sub> j <sub>7</sub>	c <sub>1</sub>	d k <sub>6</sub>	d <sub>2</sub>	e <sub>1</sub>	f <sub>1</sub>	g	g <sub>1</sub>	g <sub>2</sub>	i <sub>2</sub>	k BS*	RS*	k <sub>1</sub> AG*
SDSGS□□035-22	IEC56C80	79	50	12	9	M3	65	2.5	65	95	58	20	224	169	180
SDSGS□□047-22	IEC56C80	79	50	12	9	M3	65	2.5	75	101	58	20	253	189	200
SDSGS□□047-22	IEC63C90	89	60	12	11	M4	75	2.5	75	101	58	23	256	189	200
SDSGS□□056-22	IEC63C90	89	60	12	11	M4	75	2.5	85	106	58	23	271	196	207

Motor type	Size	k <sub>3</sub>	BS*	k <sub>4</sub>	BA*	l	l <sub>1</sub>	l <sub>2</sub>	s <sub>1</sub>	r	u	x	Weight approx. kg
SDSGS□□035-22	IEC56C80	138	204	225	20	3	14	M5	10.2	3	95	1.9-2.9	
SDSGS□□047-22	IEC56C80	156	233	244	20	3	14	M5	10.2	3	115	3.0-4.0	
SDSGS□□047-22	IEC63C90	156	233	244	23	3	18	M5	12.5	4	115	3.0-4.0	
SDSGS□□056-22	IEC63C90	163	248	260	23	3	18	M5	12.5	4	120	4.0-5.5	

Dimensions in mm

\* see Page 8



# Drive selection

## Servo worm geared motors SSN

Selection table for type SSN31-1G□□□-035C22

Motor type	P <sub>N</sub> W	Supply voltage for Servo Drive = 24 or 48 V DC			i	Selection of Please mark as appropriate
		n <sub>2</sub> rpm	M <sub>2</sub> Nm	c		
SDSGS□□-035-22	140	600	1.91	7.32	5	
		429	2.61	5.35	7	
		300	3.47	4.04	10	
		200	5.00	3.20	15	
		150	6.21	2.42	20	
		120	6.86	2.04	25	
		100	7.97	1.88	30	
		79	9.75	1.64	38	
		60	10.35	1.26	50	
		55	12.87	1.17	55	
		40	11.00	0.91	75	
		30	11.00	0.64	100	

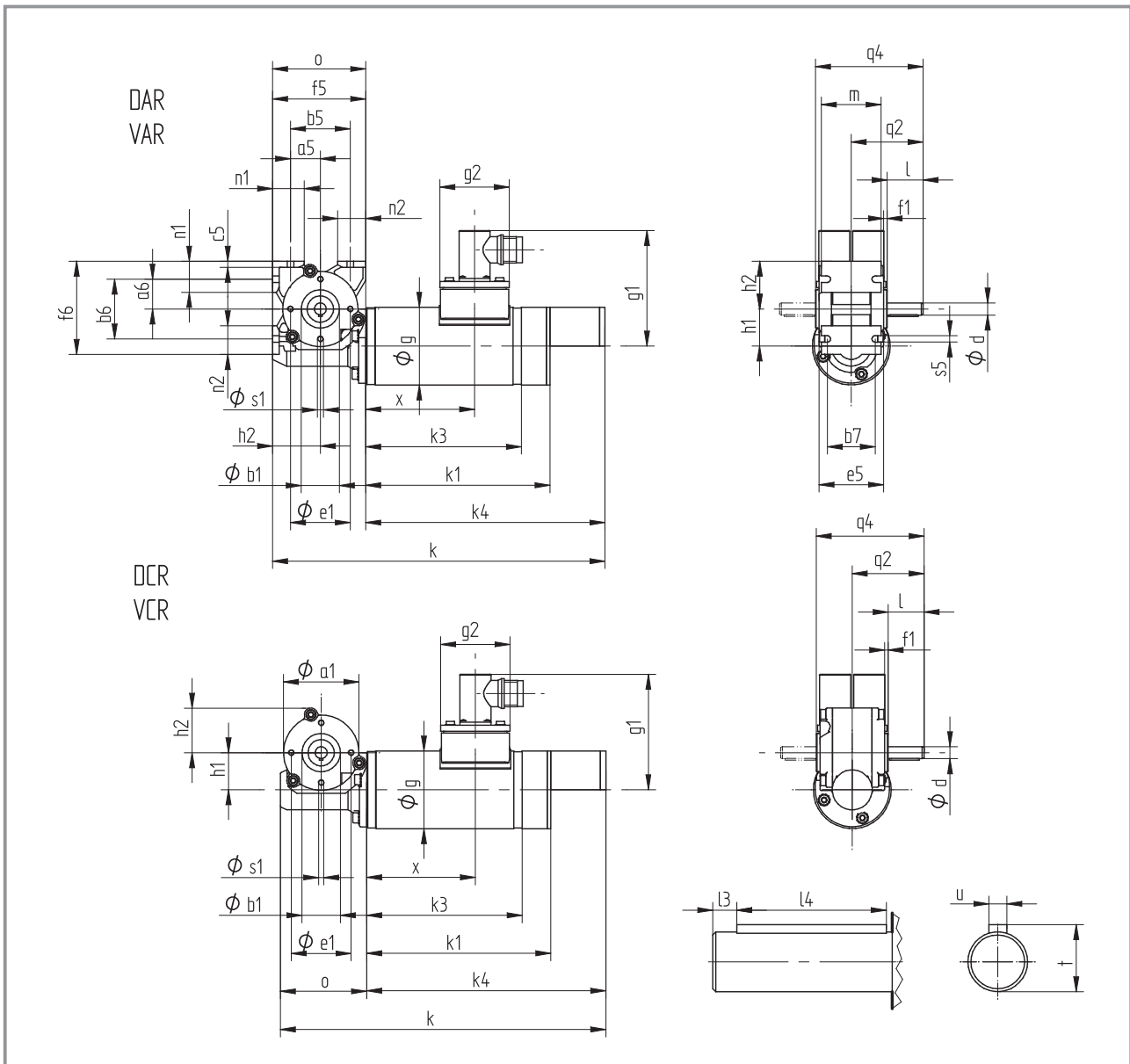
### Additional ordering details

Enclosure	IP54	
	IP55	
Design of B-side	with resolver	
	with spring-applied brake and resolver	
	with permanent magnetic brake and resolver	
	with single-turn absolute value encoder	
	with multi-turn absolute value encoder	
	with permanent magnetic brake and single-turn absolute value encoder	
Gearbox design	with permanent magnetic brake and multi-turn absolute value encoder	
	VAR	
	DAR	
	VAL	
	HAR	
	VCR	
	DCR	
	VCL	
Output flange diameter	HCR	
	100 mm	
	118.5 mm	
Shaft diameter	120 mm	
	10 mm	
Shaft position on version VAR/VCR	12 mm	
		3 5
Flange/shaft position on version VAL/VCL		3 5
Mounting position		A B C D E F
Position of electrical connection		2 3 4 5

See page 9 for type code.  
See page 10 for mounting position.



### Dimensions for type SSN31-1G□□□-035C22



Geared motor	a <sub>1</sub>	a <sub>5</sub>	a <sub>6</sub>	b <sub>1</sub> h <sub>8</sub>	b <sub>5</sub>	b <sub>6</sub>	b <sub>7</sub>	c <sub>5</sub>	d h <sub>6</sub>	e <sub>1</sub>	e <sub>5</sub>	f <sub>1</sub>	f <sub>5</sub>	f <sub>6</sub>	g	g <sub>1</sub>	g <sub>2</sub>	h <sub>1</sub>	h <sub>2</sub>	k k <sub>BS*</sub>
SSN31-1GVAR-035C22	63	25	25	32	50	50	40	5	10	50	54	2.5	78	78	65	95	58	31	40	278
SSN31-1GVAR-035C22	63	25	25	32	50	50	40	5	12	50	54	2.5	78	78	65	95	58	31	40	278
SSN31-1GVCR-035C22	63	-	-	32	-	-	-	-	10	50	54	2.5	-	-	65	95	58	31	37.5	272
SSN31-1GVCR-035C22	63	-	-	32	-	-	-	-	12	50	54	2.5	-	-	65	95	58	31	37.5	272

Geared motor	k <sub>1</sub> RS*	k <sub>1</sub> AG*	k <sub>3</sub>	k <sub>4</sub> BS*	k <sub>4</sub> BA*	l	l <sub>3</sub>	l <sub>4</sub>	m	n <sub>1</sub>	n <sub>2</sub>	o	q <sub>2</sub>	q <sub>4</sub>	s <sub>1</sub>	s <sub>5</sub>	t	u	x	Weight
SSN31-1GVAR-035C22	164.5	176	134	200	220.5	30	4	25	50	26	24	78	60	90	M5	5.5	11.2	3	91	2.6-3.7
SSN31-1GVAR-035C22	164.5	176	134	200	220.5	40	4	28	50	26	24	78	70	100	M5	5.5	13.5	4	91	2.6-3.7
SSN31-1GVCR-035C22	164.5	176	134	200	220.5	30	4	25	-	-	-	72	60	90	M5	-	11.2	3	91	2.6-3.7
SSN31-1GVCR-035C22	164.5	176	134	200	220.5	40	4	28	-	-	-	72	70	100	M5	-	13.5	4	91	2.6-3.7

Dimensions in mm

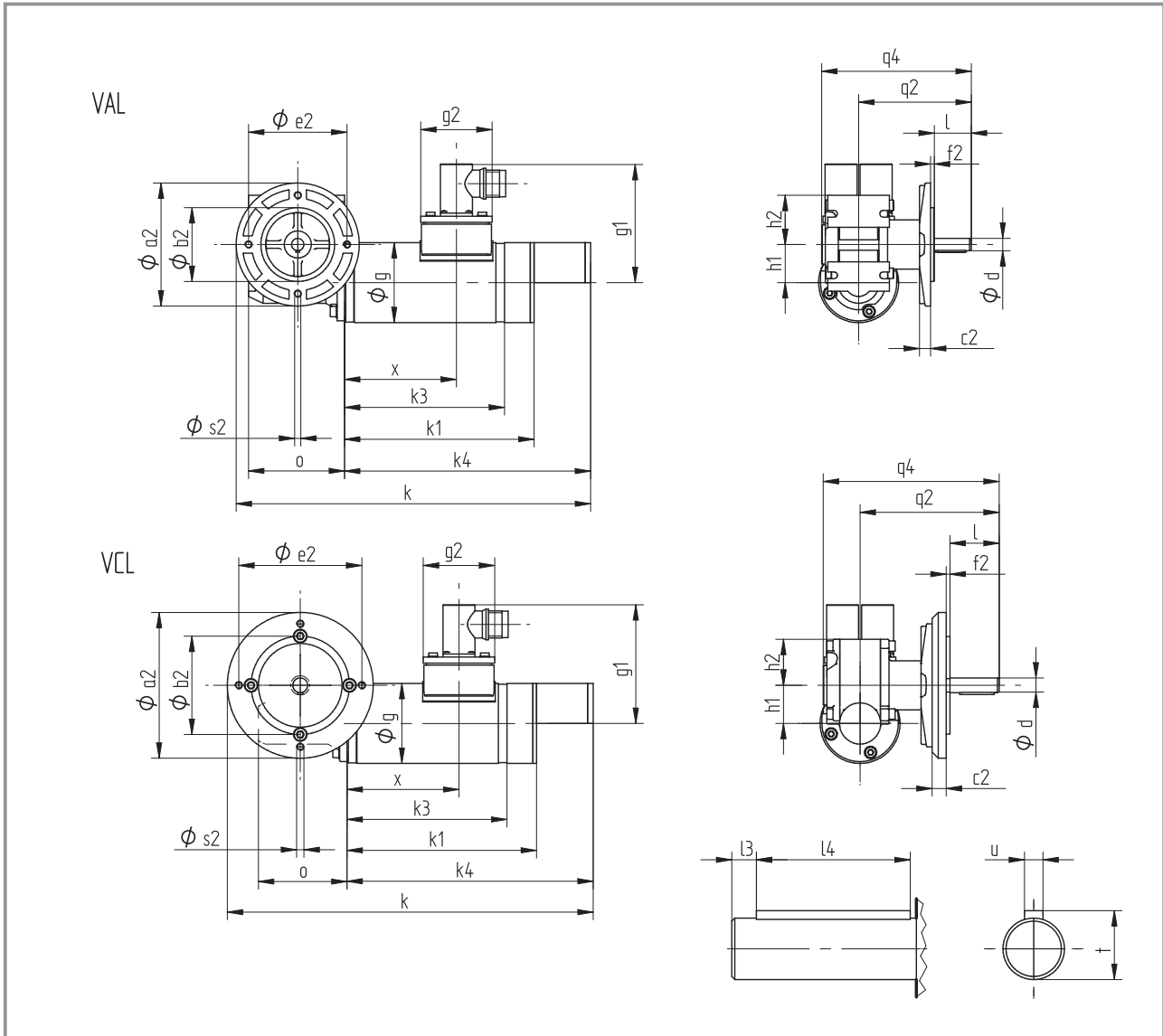
\* see Page 8



# Drive selection

## Servo worm geared motors SSN

### Dimensions for type SSN31-1G□□□-035C22



Geared motor	a <sub>2</sub>	b <sub>2</sub> j7	c <sub>2</sub>	d h6	e <sub>2</sub>	f <sub>2</sub>	g	g <sub>1</sub>	g <sub>2</sub>	h <sub>1</sub>	h <sub>2</sub>	k BS*	k <sub>1</sub> RS*
SSN31-1GVAL-035C22	100	60	9	10	80	3	65	95	58	31	40	288	164.5
SSN31-1GVAL-035C22	120	80	9	12	100	3	65	95	58	31	40	298	164.5
SSN31-1GVCL-035C22	100	60	9	10	80	3	65	95	58	31	37.5	288	164.5
SSN31-1GVCL-035C22	118.5	80	11.5	12	100	3	65	95	58	31	37.5	298	164.5

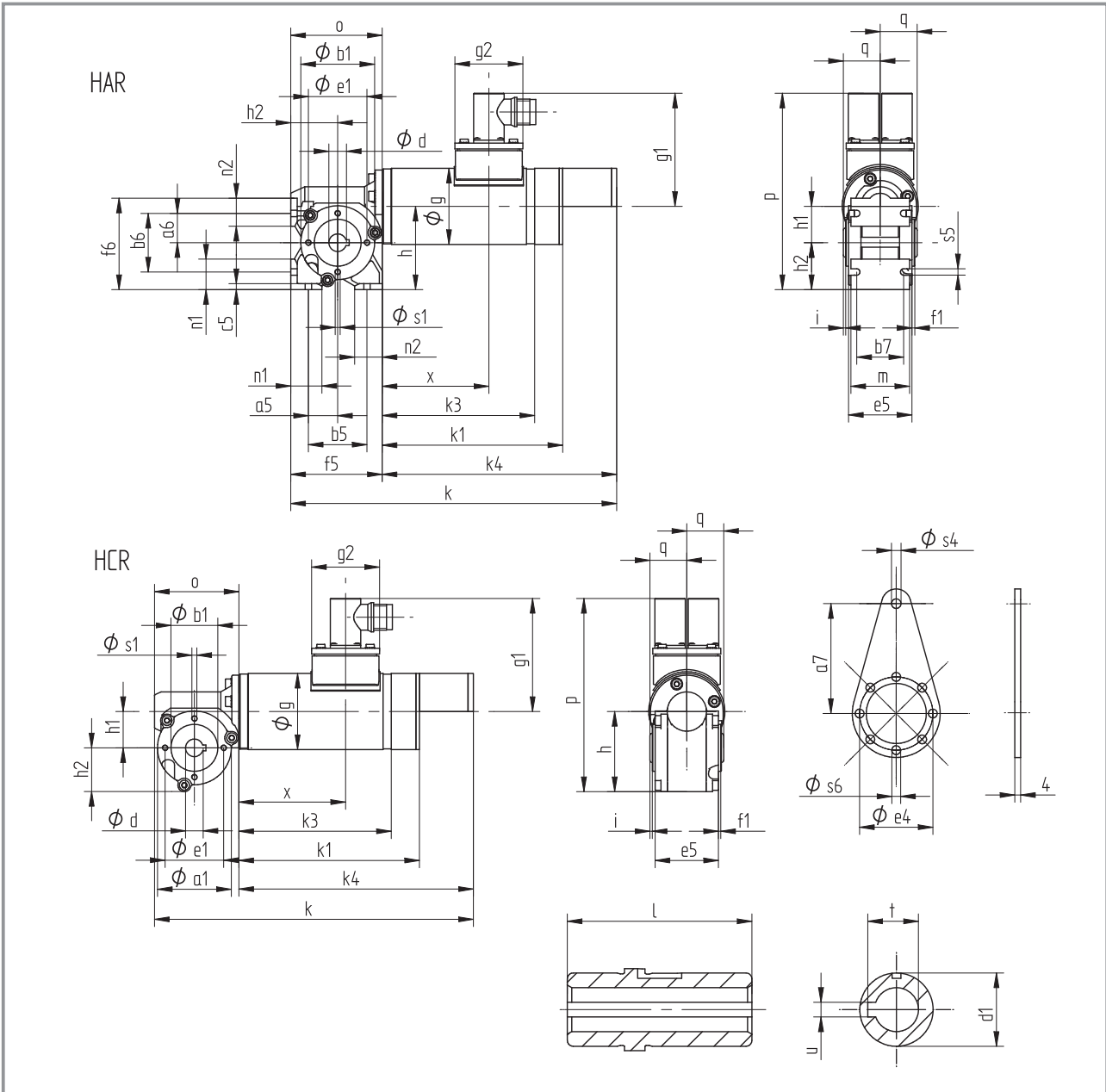
Geared motor	k <sub>1</sub> AG*	k <sub>3</sub>	k <sub>4</sub> BS*	k <sub>4</sub> BA*	l	l <sub>3</sub>	l <sub>4</sub>	o	q <sub>2</sub>	q <sub>4</sub>	s <sub>2</sub>	t	u	x	Weight
SSN31-1GVAL-035C22	176	134	200	220.5	30	4	25	78	91.5	121.5	M6	11.2	3	91	2.6-3.7
SSN31-1GVAL-035C22	176	134	200	220.5	40	4	28	78	101.5	131.5	M6	13.5	4	91	2.6-3.7
SSN31-1GVCL-035C22	176	134	200	220.5	30	4	25	72	91.5	121.5	M6	11.2	3	91	2.6-3.7
SSN31-1GVCL-035C22	176	134	200	220.5	40	4	28	72	113	143	M6	13.5	4	91	2.6-3.7

Dimensions in mm

\* see Page 8



### Dimensions for type SSN31-1G□□□-035C22



Geared motor	a <sub>1</sub>	a <sub>5</sub>	a <sub>6</sub>	a <sub>7</sub>	b <sub>1</sub> h <sub>8</sub>	b <sub>5</sub>	b <sub>6</sub>	b <sub>7</sub>	c <sub>5</sub>	d h <sub>7</sub>	d <sub>1</sub>	e <sub>1</sub>	e <sub>4</sub>	e <sub>5</sub>	f <sub>1</sub>	f <sub>5</sub>	f <sub>6</sub>	g	g <sub>1</sub>	g <sub>2</sub>	h	h <sub>1</sub>	h <sub>2</sub>
SSN31-1GHAR-035C22	63	25	25	75	40	50	50	40	5	15	25	50	50	54	2.5	78	78	65	95	58	71	31	40
SSN31-1GHCR-035C22	63	-	-	75	40	-	-	-	-	15	25	50	50	54	2.5	-	-	65	95	58	68.5	31	37.5

Geared motor	i	k BS*	k <sub>1</sub> RS*	k <sub>1</sub> AG*	k <sub>3</sub>	k <sub>4</sub> BS*	k <sub>4</sub> BA*	l	m	n <sub>1</sub>	n <sub>2</sub>	o	p	q	s <sub>1</sub>	s <sub>4</sub>	s <sub>5</sub>	s <sub>6</sub>	t	u	x	Weight
SSN31-1GHAR-035C22	2	278	164.5	176	134	200	220.5	63	50	26	24	78	166	27	M5	6.5	5.5	6	17.3	5	91	2.6-3.7
SSN31-1GHCR-035C22	2	272	164.5	176	134	200	220.5	63	-	-	-	72	163.5	27	M5	6.5	-	6	17.3	5	91	2.6-3.7

Dimensions in mm

\* see Page 8



## Drive selection

### Servo worm geared motors SSN

Selection table for type SSN40-1G□□□-047C22

Motor type	P <sub>N</sub> W	Supply voltage for Servo Drive = 48 V DC			i	Selection of Please mark as appropriate
		n <sub>2</sub> rpm	M <sub>2</sub> Nm	c		
SDSGS□□-047-22	210	368	4.57	7.66	6.75	
		250	6.48	5.40	10	
		167	8.88	3.72	15	
		125	11.36	2.99	20	
		100	12.80	2.27	25	
		83	14.88	2.42	30	
		63	17.92	1.90	40	
		50	21.60	1.48	50	
		42	18.24	1.75	60	
		31	23.96	0.96	80	

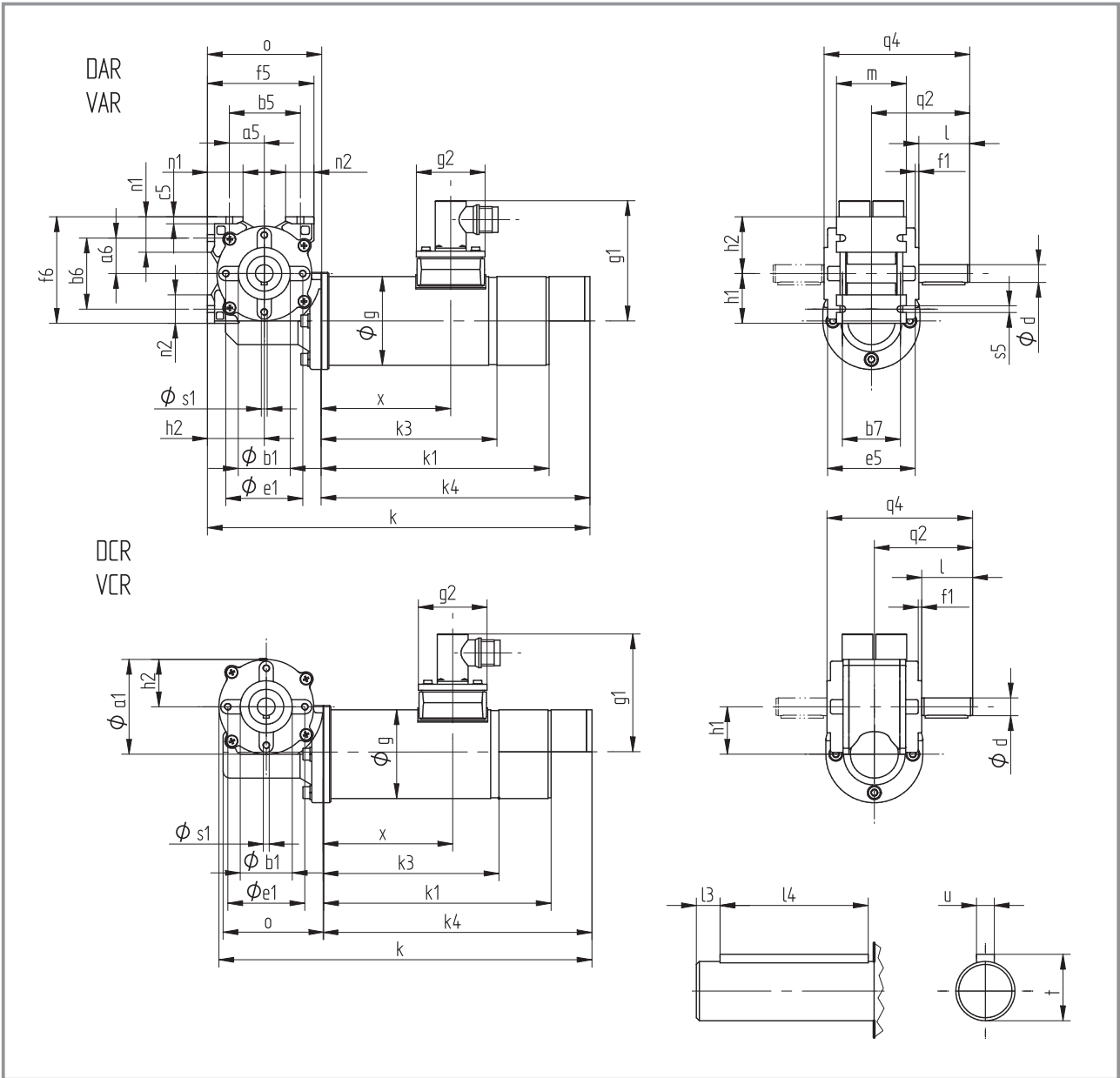
### Additional ordering details

Enclosure	IP54	
	IP55	
Design of B-side	with resolver	
	with spring-applied brake and resolver	
	with permanent magnetic brake and resolver	
	with single-turn absolute value encoder	
	with multi-turn absolute value encoder	
	with spring-applied brake and single-turn absolute value encoder	
	with spring-applied brake and multi-turn absolute value encoder	
	with permanent magnetic brake and single-turn absolute value encoder	
with permanent magnetic brake and multi-turn absolute value encoder		
Gearbox design	VAR	
	DAR	
	VAL	
	HAR	
	VCR	
	DCR	
	VCL	
	HCR	
Shaft position on version VAR/VCR		3 5
Flange/shaft position on version VAL/VCL		3 5
Mounting position		A B C D E F
Position of electrical connection		2 3 4 5

See page 9 for type code.  
See page 10 for mounting position.



### Dimensions for type SSN40-1G□□□-047C22



Geared motor	a <sub>1</sub>	a <sub>5</sub>	a <sub>6</sub>	b <sub>1</sub> h <sub>10</sub>	b <sub>5</sub>	b <sub>6</sub>	b <sub>7</sub>	c <sub>5</sub>	d h <sub>6</sub>	e <sub>1</sub>	e <sub>5</sub>	f <sub>1</sub>	f <sub>5</sub>	f <sub>6</sub>	g	g <sub>1</sub>	g <sub>2</sub>	h <sub>1</sub>	h <sub>2</sub>	k BS*
SSN40-1GVAR-047C22	77	30	30	44	60	60	50	6	15	65	80	2	90	90	75	101	58	40	48	323
SSN40-1GVCR-047C22	77	-	-	44	-	-	-	-	15	65	80	2	-	-	75	101	58	40	40	315

Geared motor	k <sub>1</sub> RS*	k <sub>1</sub> AG*	k <sub>3</sub>	k <sub>4</sub> BS*	k <sub>4</sub> BA*	l	l <sub>3</sub>	l <sub>4</sub>	m	n <sub>1</sub>	n <sub>2</sub>	o	q <sub>2</sub>	q <sub>4</sub>	s <sub>1</sub>	s <sub>5</sub>	t	u	x	Weight
SSN40-1GVAR-047C22	183	194.5	150.5	227	238.5	43	4	36	59	30	24	96	83	123	M6	5.5	17	5	109.5	4.5-5.8
SSN40-1GVCR-047C22	183	194.5	150.5	227	238.5	43	4	36	-	-	-	88	83	123	M6	-	17	5	109.5	4.5-5.8

Dimensions in mm

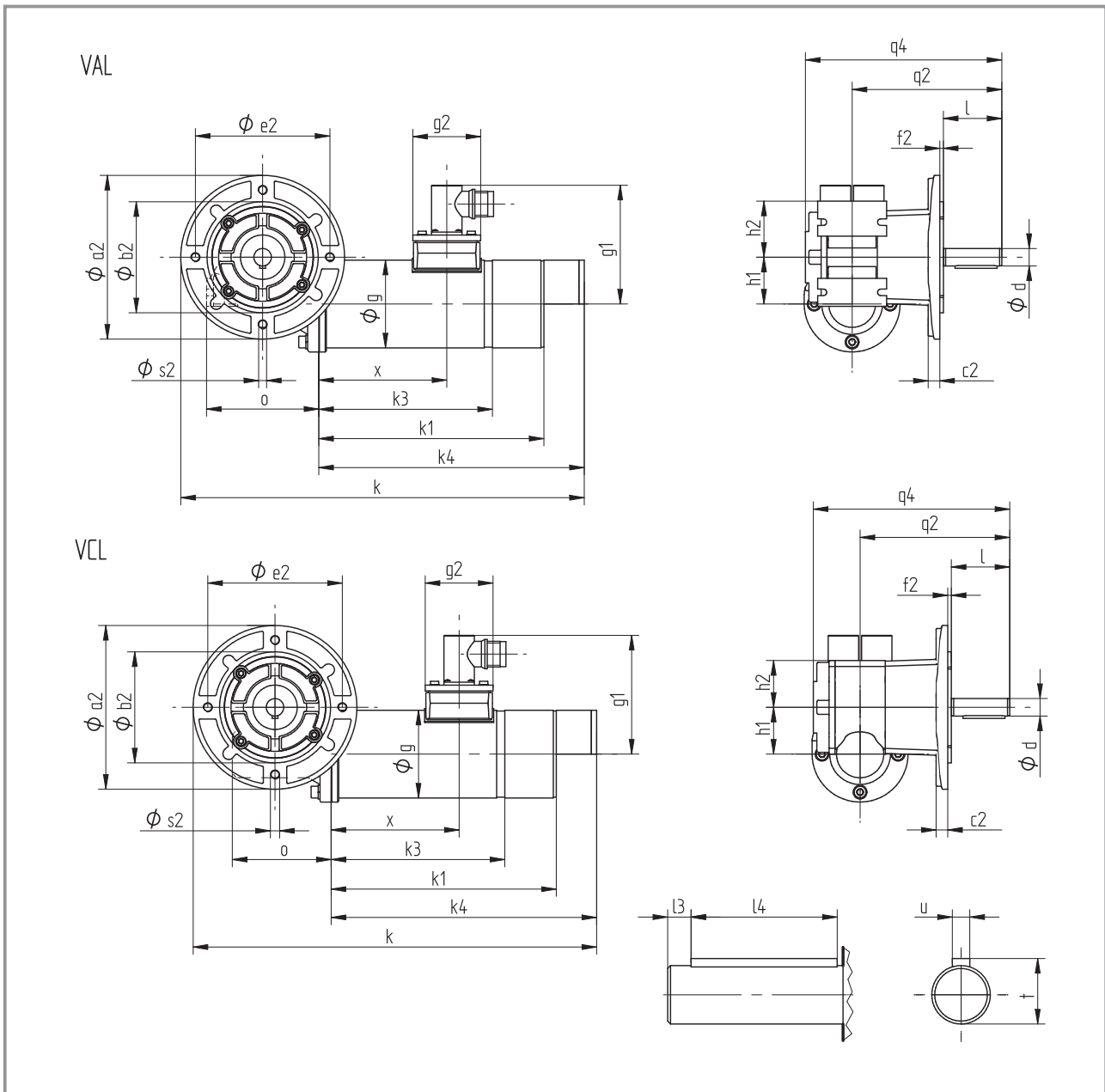
\* see Page 8



# Drive selection

## Servo worm geared motors SSN

### Dimensions for type SSN40-1G□□□-047C22



Geared motor	a <sub>2</sub>	b <sub>2</sub> j7	c <sub>2</sub>	d h6	e <sub>2</sub>	f <sub>2</sub>	g	g <sub>1</sub>	g <sub>2</sub>	h <sub>1</sub>	h <sub>2</sub>	k BS*	k <sub>1</sub> RS*
SSN40-1GVAL-047C22	140	95	10	15	115	3	75	101	58	40	48	345	183
SSN40-1GVCL-047C22	140	95	10	15	115	3	75	101	58	40	40	345	183

Geared motor	k <sub>1</sub> AG*	k <sub>3</sub>	k <sub>4</sub> BS*	k <sub>4</sub> BA*	l	l <sub>3</sub>	l <sub>4</sub>	o	q <sub>2</sub>	q <sub>4</sub>	s <sub>2</sub>	t	u	x	Weight
SSN40-1GVAL-047C22	194.5	150.5	227	238.5	50	4	36	96	128	168	M8	17	5	109.5	4.5-5.8
SSN40-1GVCL-047C22	194.5	150.5	227	238.5	50	4	36	88	128	168	M8	17	5	109.5	4.5-5.8

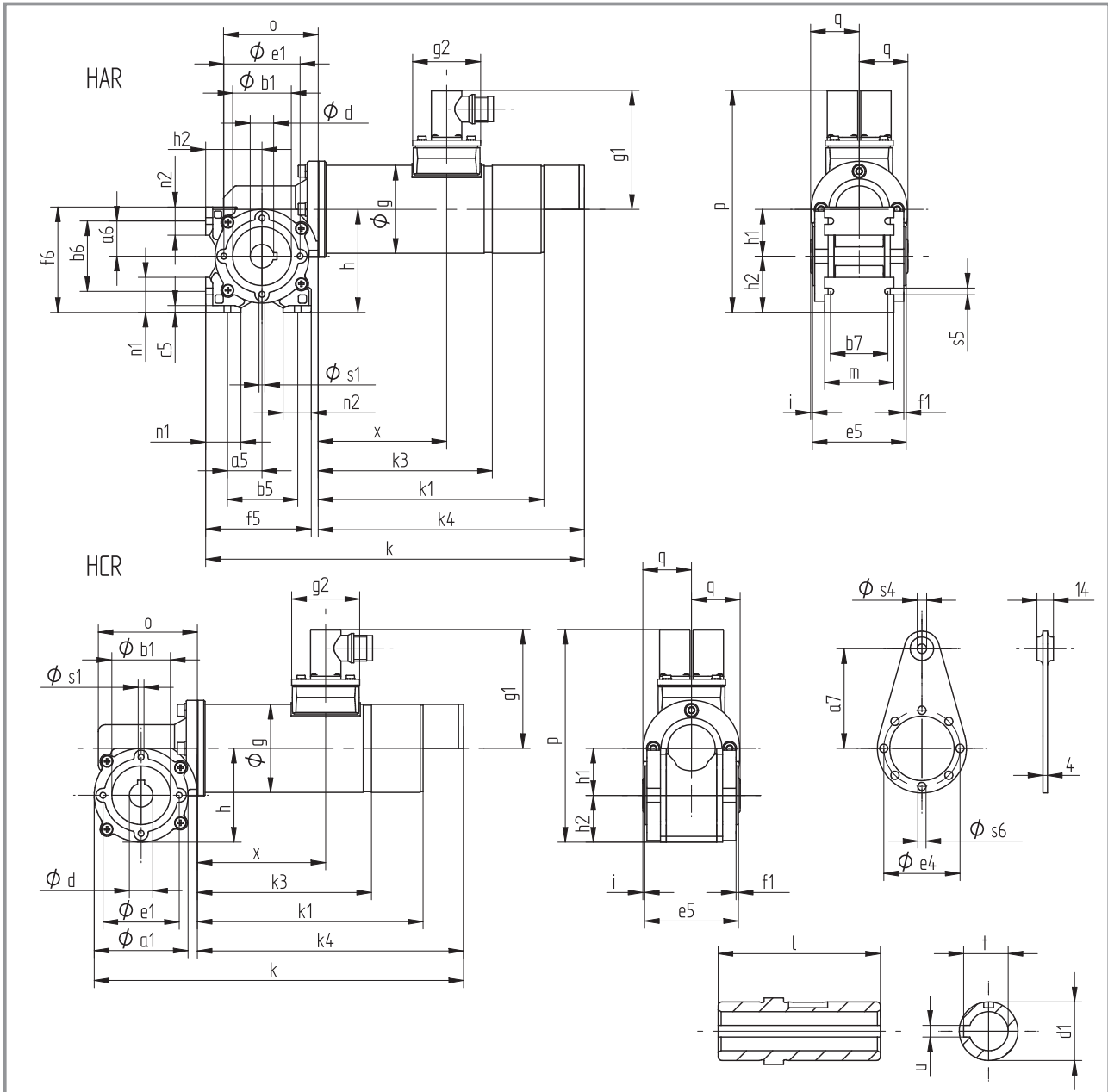
Dimensions in mm

\* see Page 8





### Dimensions for type SSN40-1G□□□-047C22



Geared motor	a <sub>1</sub>	a <sub>5</sub>	a <sub>6</sub>	a <sub>7</sub>	b <sub>1</sub> h8	b <sub>5</sub>	b <sub>6</sub>	b <sub>7</sub>	c <sub>5</sub>	d H7	d <sub>1</sub>	e <sub>1</sub>	e <sub>4</sub>	e <sub>5</sub>	f <sub>1</sub>	f <sub>5</sub>	f <sub>6</sub>	g	g <sub>1</sub>	g <sub>2</sub>	h	h <sub>1</sub>	h <sub>2</sub>
SSN40-1GHAR-047C22	77	30	30	85	50	60	60	50	6	20	30	65	65	80	2	90	90	75	101	58	88	40	48
SSN40-1GHCR-047C22	77	-	-	85	50	-	-	-	-	20	30	65	65	80	2	-	-	75	101	58	80	40	40

Geared motor	i	k BS*	k <sub>1</sub> RS*	k <sub>1</sub> AG*	k <sub>3</sub>	k <sub>4</sub> BS*	k <sub>4</sub> BA*	l	m	n <sub>1</sub>	n <sub>2</sub>	o	p	q	s <sub>1</sub>	s <sub>4</sub>	s <sub>5</sub>	s <sub>6</sub>	t	u	x	Weight
SSN40-1GHAR-047C22	1.5	323	183	194.5	150.5	227	238.5	83	59	30	24	96	189	41.5	M6	8	5.5	7	22.8	6	109.5	4.5-5.8
SSN40-1GHCR-047C22	1.5	315	183	194.5	150.5	227	238.5	83	-	-	-	88	181	41.5	M6	8	-	7	22.8	6	109.5	4.5-5.8

Dimensions in mm

\* see Page 8



## Drive selection

### Planetary geared servo motors SPL

Selection table for type SPL52-□GVCR-035N22

Motor type	P <sub>N</sub> W	Supply voltage for Servo Drive = 24 or 48 V DC			i 1-stage	Selection of Please mark as appropriate
		n <sub>2</sub> rpm	M <sub>2</sub> Nm	c		
SDSGS□□-035-22	140	811	1.33	3.00	3.70	
		444	2.43	1.65	6.75	
					<b>i 2-stage</b>	
		218	4.63	2.59	13.73	
		120	8.44	1.42	25.01	
		66	15.38	0.78	45.56	
					<b>i 3-stage</b>	
		59	16.03	1.56	50.89	
		32	25.00	0.86	92.70	

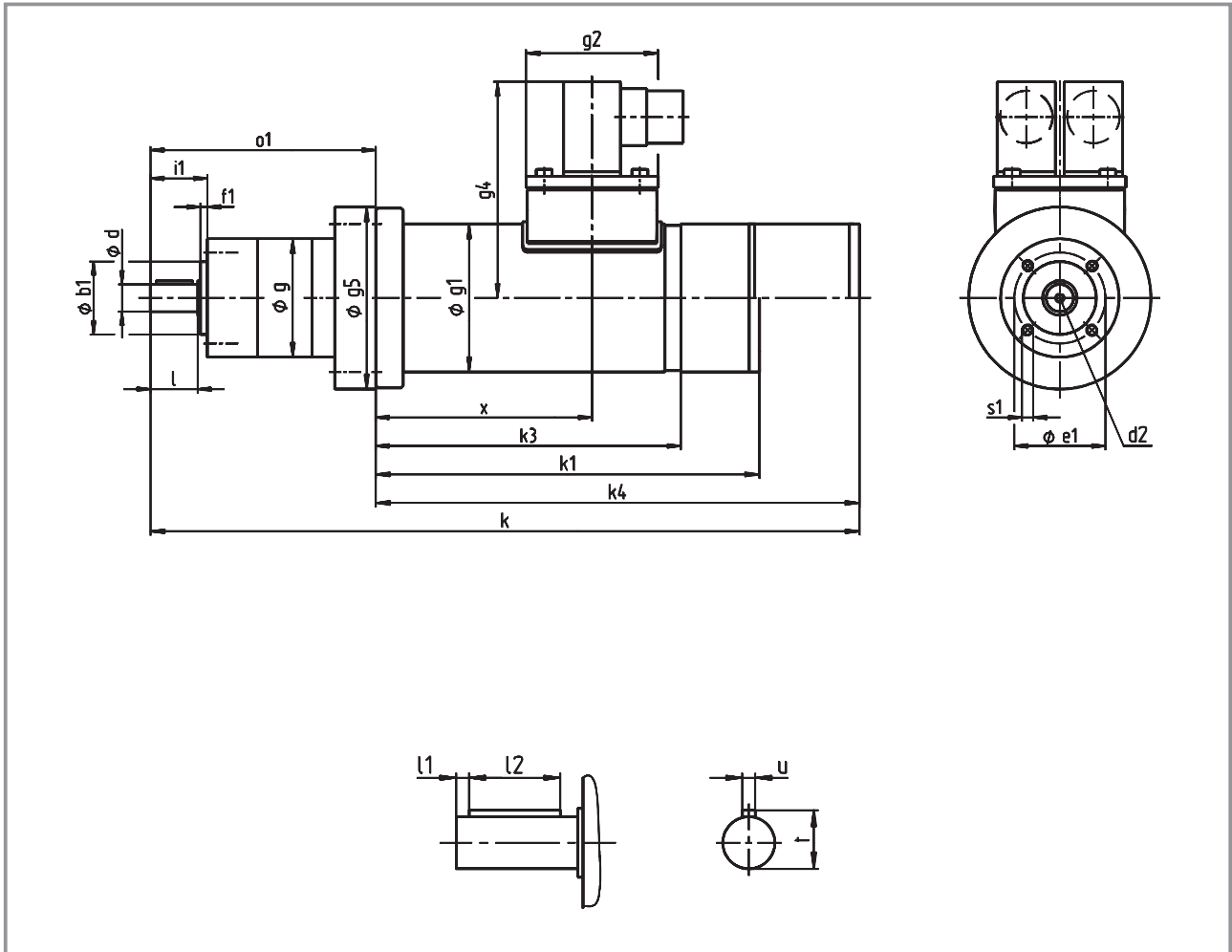
### Additional ordering details

Enclosure	IP54	
	IP55	
Design of B-side	with resolver	
	with spring-applied brake and resolver	
	with permanent magnetic brake and resolver	
	with single-turn absolute value encoder	
	with multi-turn absolute value encoder	
	with permanent magnetic brake and single-turn absolute value encoder	
Position of electrical connection	with permanent magnetic brake and multi-turn absolute value encoder	
		2

See page 9 for type code.  
See page 10 for mounting position.



Dimensions for type SPL52-□GVCR-035N22



Geared motor	Ratio i	b <sub>1</sub> h8	d h7	d <sub>2</sub>	e <sub>1</sub>	f <sub>1</sub>	g	g <sub>1</sub>	g <sub>2</sub>	g <sub>4</sub>	g <sub>5</sub>	i <sub>1</sub>	k BS*
SPL52-□GVCR-035N22	3.7;6.7	32	12	M4	40	3	52	65	58	95	80	25	303
	14 ... 46												317
	51 ... 93												331

Geared motor	Ratio i	k <sub>1</sub> RS*	k <sub>1</sub> AG*	k <sub>3</sub>	k <sub>4</sub> BS*	k <sub>4</sub> BA*	l	l <sub>1</sub>	l <sub>2</sub>	o <sub>1</sub>	s <sub>1</sub>	t	u	x	Weight
SPL52-□GVCR-035N22	3.7;6.7	169	180	138	204	225	20.8	2.5	16	99	M5x10	13.5	4	95	2.6-3.6
	14 ... 46									113					2.8-3.8
	51 ... 93									127					3.0-4.0

Dimensions in mm

\* see Page 8



## Drive selection

### Planetary geared servo motors SPL

Selection table for type SPL62-□GVCR-035N22

Motor type	P <sub>N</sub> W	Supply voltage for Servo Drive = 24 or 48 V DC			i 1-stage	Selection of Please mark as appropriate	
		n <sub>2</sub> rpm	M <sub>2</sub> Nm	c			
SDSGS□□-035-22	140	811	1.33	6.01	3.70		
		444	2.43	3.29	6.75		
						<b>i 2-stage</b>	
		218	4.63	5.40	13.73		
		120	8.44	2.96	25.01		
		86	11.80	2.12	34.97		
		66	15.38	1.63	45.56		
						<b>i 3-stage</b>	
		59	16.03	3.12	50.89		
		42	22.42	2.23	71.16		
		30	31.34	1.60	99.50		
		24	39.05	1.28	123.97		

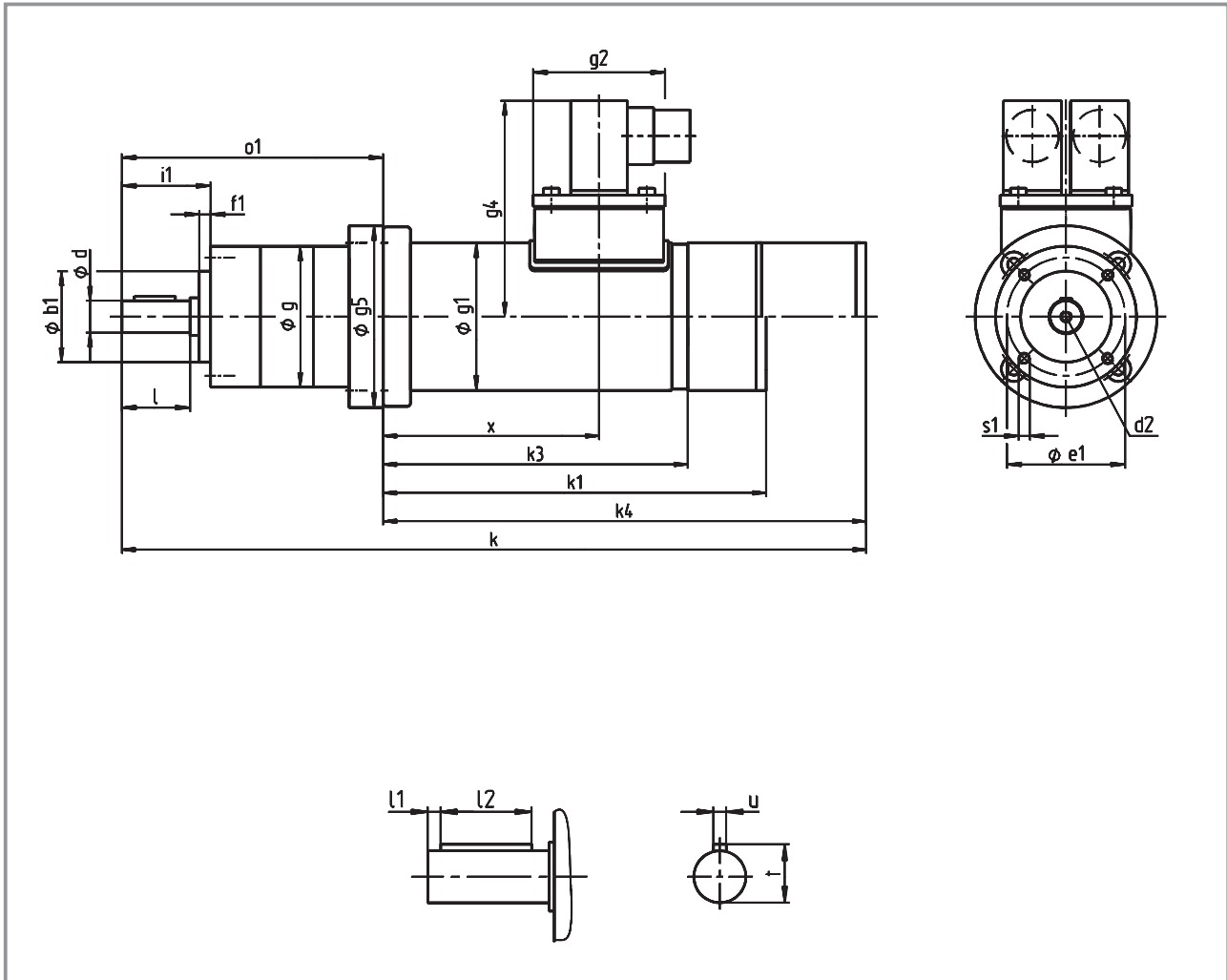
#### Additional ordering details

Enclosure	IP54	
	IP55	
Design of B-side	with resolver	
	with spring-applied brake and resolver	
	with permanent magnetic brake and resolver	
	with single-turn absolute value encoder	
	with multi-turn absolute value encoder	
	with permanent magnetic brake and single-turn absolute value encoder	
	with permanent magnetic brake and multi-turn absolute value encoder	
Position of electrical connection		2

See page 9 for type code.  
See page 10 for mounting position.



Dimensions for type SPL62-□GVCR-035N22



Geared motor	Ratio i	b <sub>1</sub> j7	d h7	d <sub>2</sub>	e <sub>1</sub>	f <sub>1</sub>	g	g <sub>1</sub>	g <sub>2</sub>	g <sub>4</sub>	g <sub>5</sub>	i <sub>1</sub>	k BS*
SPL62-□GVCR-035N22	3.7;6.7	40	14	M5	52	5	62	65	58	95	80	39	340
	14 ... 46												356
	51 ... 124												372

Geared motor	Ratio i	k <sub>1</sub> RS*	k <sub>1</sub> AG*	k <sub>3</sub>	k <sub>4</sub> BS*	k <sub>4</sub> BA*	l	l <sub>1</sub>	l <sub>2</sub>	o <sub>1</sub>	s <sub>1</sub>	t	u	x	Weight
SPL62-□GVCR-035N22	3.7;6.7	169	180	138	204	225	30	5.5	18	115	M5x10	16	5	95	2.8-3.8
	14 ... 46									131					3.2-4.2
	51 ... 124									147					3.6-4.6

Dimensions in mm

\* see Page 8



## Drive selection

### Planetary geared servo motors SPL

Selection table for type SPL62-□GVCR-047N22

Motor type	P <sub>N</sub> W	Supply voltage for Servo Drive = 48 V DC			i 1-stage	Selection of Please mark as appropriate
		n <sub>2</sub> rpm	M <sub>2</sub> Nm	c		
SDSGS□□-047-22	210	676	2.37	3.38	3.70	
		370	4.32	1.85	6.75	
					<b>i 2-stage</b>	
		182	8.24	3.03	13.73	
		100	15.01	1.67	25.01	
		72	20.98	1.19	34.97	
		55	25.00	0.91	45.56	
					<b>i 3-stage</b>	
		49	28.50	1.75	50.89	
35	39.85	1.25	71.16			

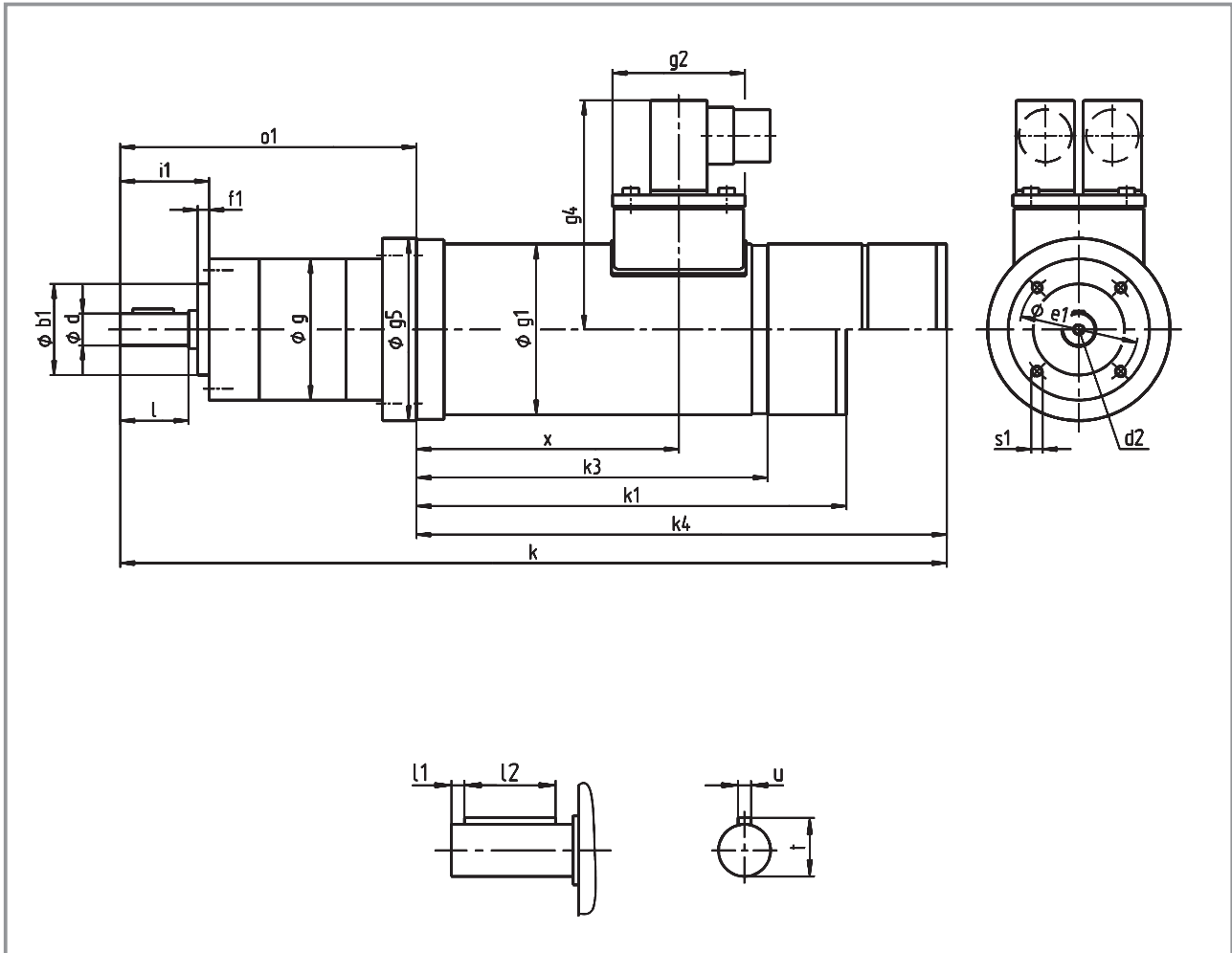
### Additional ordering details

Enclosure	IP54	
	IP55	
Design of B-side	with resolver	
	with spring-applied brake and resolver	
	with permanent magnetic brake and resolver	
	with single-turn absolute value encoder	
	with multi-turn absolute value encoder	
	with spring-applied brake and single-turn absolute value encoder	
	with spring-applied brake and multi-turn absolute value encoder	
	with permanent magnetic brake and single-turn absolute value encoder	
with permanent magnetic brake and multi-turn absolute value encoder		
Position of electrical connection		2

See page 9 for type code.  
See page 10 for mounting position.



### Dimensions for type SPL62-□GVCR-047N22



Geared motor	Ratio i	b <sub>1</sub> j7	d h7	d <sub>2</sub>	e <sub>1</sub>	f <sub>1</sub>	g	g <sub>1</sub>	g <sub>2</sub>	g <sub>4</sub>	g <sub>5</sub>	i <sub>1</sub>	k BS*
SPL62-□GVCR-047N22	3.7;6.7	40	14	M5	52	5	62	75	58	101	80	39	348
	14 ... 46												364
	51 ... 71												380

Geared motor	Ratio	k <sub>1</sub> RS*	k <sub>1</sub> AG*	k <sub>3</sub>	k <sub>4</sub> BS*	k <sub>4</sub> BA*	l	l <sub>1</sub>	l <sub>2</sub>	o <sub>1</sub>	s <sub>1</sub>	t	u	x	Weight
SPL62-□GVCR-047N22	3.7;6.7	189	200	156	233	244	30	5.5	18	115	M5x10	16	5	115	3.8-4.8
	14 ... 46									131					4.2-5.2
	51 ... 71									147					4.6-5.6

Dimensions in mm

\* see Page 8



## Drive selection

### Planetary geared servo motors SPL

Selection table for type SPL81-□GVCR-056N22

Motor type	P <sub>N</sub> W	Supply voltage for Servo Drive = 48 V DC			i 1-stage	Selection of Please mark as appropriate	
		n <sub>2</sub> rpm	M <sub>2</sub> Nm	c			
SDSGS□□-056-22	450	730	4.74	4.22	3.700		
		400	8.64	2.31	6.750		
						<b>i 2-stage</b>	
		197	16.48	3.64	13.730		
		108	30.01	2.00	25.010		
		77	41.96	1.43	34.970		
		59	54.67	1.10	45.560		
						<b>i 3-stage</b>	
		53	57.00	2.11	50.890		
		38	79.70	1.51	71.160		
		27	111.44	1.08	99.500		
		22	120.00	0.86	123.970		

#### Additional ordering details

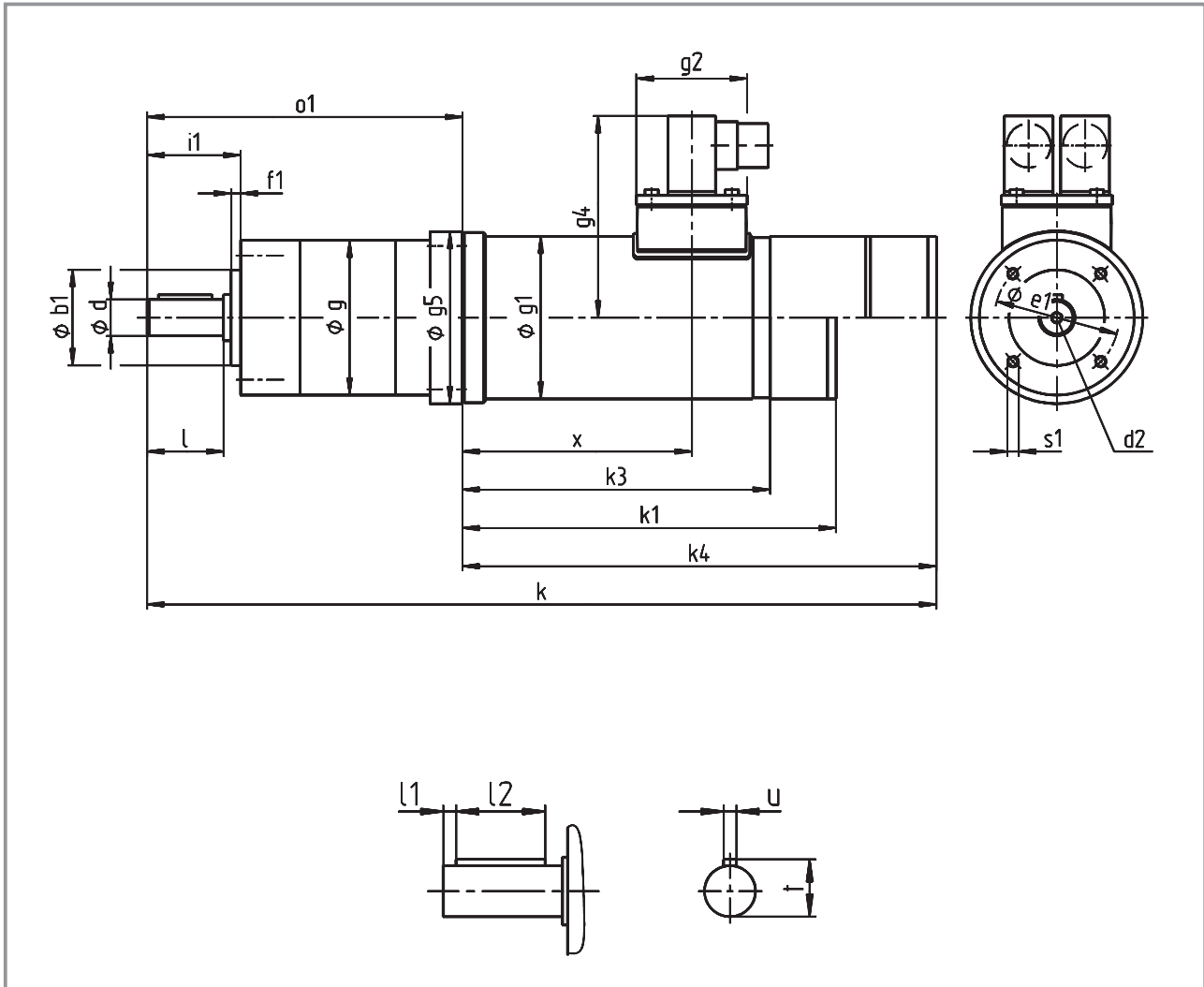
Enclosure	IP54	
	IP55	
Design of B-side	with resolver	
	with spring-applied brake and resolver	
	with permanent magnetic brake and resolver	
	with single-turn absolute value encoder	
	with multi-turn absolute value encoder	
	with spring-applied brake and single-turn absolute value encoder	
	with spring-applied brake and multi-turn absolute value encoder	
	with permanent magnetic brake and single-turn absolute value encoder	
with permanent magnetic brake and multi-turn absolute value encoder		
Position of electrical connection		2

See page 9 for type code.  
See page 10 for mounting position.





Selection table for type SPL81-□GVCR-056N22



Geared motor	Ratio i	b <sub>1</sub> j7	d h7	d <sub>2</sub>	e <sub>1</sub>	f <sub>1</sub>	g	g <sub>1</sub>	g <sub>2</sub>	g <sub>4</sub>	g <sub>5</sub>	i <sub>1</sub>	k BS*
SPL81-□GVCR-056N22	3.7;6.7	50	19	M6	65	5	81	85	58	106	90	49	392
	14 ... 46												413
	51 ... 124												435

Geared motor	Ratio i	k <sub>1</sub> RS*	k <sub>1</sub> AG*	k <sub>3</sub>	k <sub>4</sub> BS*	k <sub>4</sub> BA*	l	l <sub>1</sub>	l <sub>2</sub>	o <sub>1</sub>	s <sub>1</sub>	t	u	x	Weight
SPL81-□GVCR-056N22	3.7;6.7	196	207	163	248	260	40	6	28	144	M6x12	21.5	6	120	6.1-7.6
	14 ... 46									165					6.8-8.3
	51 ... 124									187					7.5-9.0

Dimensions in mm

\* see Page 8



# Drive selection

## Helical geared servo motors GST

Selection table for type GST03-2GV□□-035C22

Motor type	P <sub>N</sub> W	Supply voltage for Servo Drive = 24 or 48 V DC			i	Selection of Please mark as appropriate
		n <sub>2</sub> rpm	M <sub>2</sub> Nm	c		
SDSGS□□-035-22	140	1155.20	1.00	13.37	2.597	
		879.00	1.00	10.85	3.413	
		686.80	2.00	9.01	4.368	
		564.80	2.00	9.59	5.312	
		502.90	3.00	8.93	5.965	
		429.70	3.00	7.96	6.982	
		382.70	3.00	7.68	7.840	
		335.80	4.00	6.74	8.935	
		299.00	4.00	6.46	10.033	
		262.50	5.00	5.87	11.429	
		233.80	6.00	5.59	12.833	
		202.20	6.00	4.99	14.836	
		180.10	7.00	5.28	16.660	
		157.80	8.00	4.75	19.013	
		140.50	9.00	4.45	21.350	
		122.00	11.00	3.95	24.595	
		108.60	12.00	3.52	27.618	
		93.80	14.00	3.04	32.000	
		83.50	16.00	2.71	35.933	
		72.40	18.00	2.35	41.455	
64.40	20.00	2.24	46.550			
56.70	23.00	1.97	52.909			
50.50	26.00	1.75	59.413			

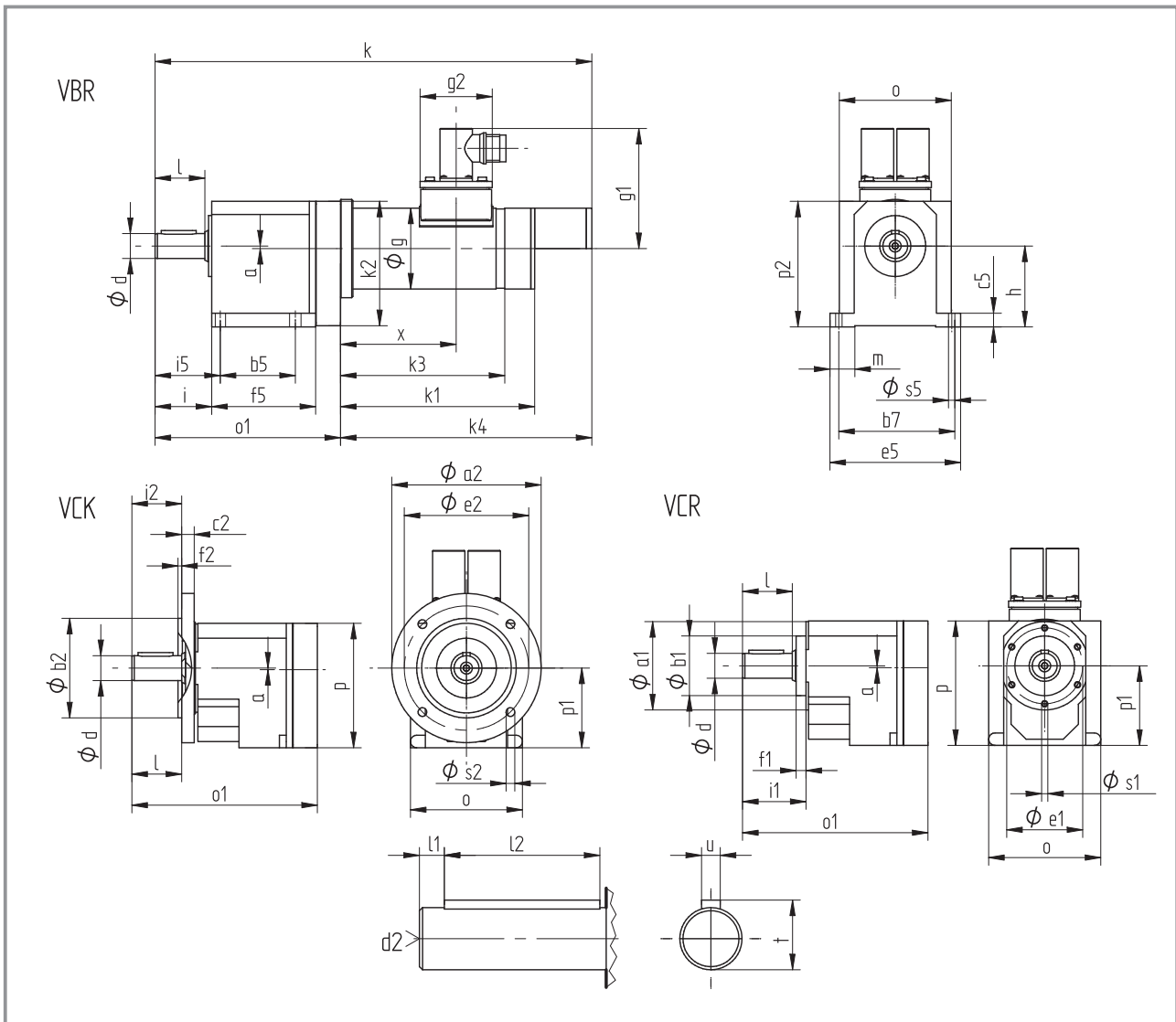
### Additional ordering details

Enclosure	IP54	
	IP55	
Design of B-side	with resolver	
	with spring-applied brake and resolver	
	with permanent magnetic brake and resolver	
	with single-turn absolute value encoder	
	with multi-turn absolute value encoder	
	with permanent magnetic brake and single-turn absolute value encoder	
Gearbox design	VBR	
	VCR	
	VCK	
Output flange diameter	120 mm	
	140 mm	
	160 mm	
Mounting position		A B C D E F
Position of electrical connection		2 3 4 5

See page 9 for type code.  
See page 10 for mounting position.



### Dimensions for type GST03-2GV□□-035C22



Geared motor	a	a <sub>1</sub>	a <sub>2</sub>	b <sub>1</sub> h7	b <sub>2</sub> j7	b <sub>5</sub>	b <sub>7</sub>	c <sub>2</sub>	c <sub>5</sub>	d k6	d <sub>2</sub>	e <sub>1</sub>	e <sub>2</sub>	e <sub>5</sub>	f <sub>1</sub>	f <sub>2</sub>	f <sub>5</sub>	g	g <sub>1</sub>	g <sub>2</sub>	h	i	i <sub>1</sub>	i <sub>2</sub>	i <sub>5</sub>	
GST03-2GV□□-035C22			120	48	80					14	M5		100			3									28	40
	2	71	140	48	95	60	91	10	11	20	M6	61	115	105	8	3	84	65	95	58	65	46	51	40	52	
			160		110									130		3.5										

Geared motor	k BS*	k <sub>1</sub> RS*	k <sub>1</sub> AG*	k <sub>2</sub>	k <sub>3</sub>	k <sub>4</sub> BS*	k <sub>4</sub> BA*	l	l <sub>1</sub>	l <sub>2</sub>	m	o	o <sub>1</sub>	p	p <sub>1</sub>	p <sub>2</sub>	s <sub>1</sub>	s <sub>2</sub>	s <sub>5</sub>	t	u	x	Weight	
GST03-2GV□□-035C22	339.5							28	4	20			137.5					7						
	351.5	166.5	178	100	136	202	222.5	40	5	28	20	90	149.5	100	64	101	M5	9	6.6	22.5	6	93	5.0-6.5	
																		9						

Dimensions in mm

\* see Page 8



## Drive selection

### Helical geared servo motors GST

Selection table for type GST03-2GV□□-047C22

Motor type	P <sub>N</sub> W	Supply voltage for Servo Drive = 48 V DC			i	Selection of Please mark as appropriate
		n <sub>2</sub> rpm	M <sub>2</sub> Nm	c		
SDSGS□□-047-22	210	962.60	2.00	7.52	2.597	
		732.50	3.00	6.10	3.413	
		572.30	3.00	5.07	4.368	
		470.60	4.00	5.39	5.312	
		419.10	5.00	5.02	5.965	
		358.10	5.00	4.48	6.982	
		318.90	6.00	4.32	7.840	
		279.80	7.00	3.79	8.935	
		249.20	8.00	3.63	10.033	
		218.70	9.00	3.30	11.429	
		194.80	10.00	3.15	12.833	
		168.50	11.00	2.81	14.836	
		150.10	13.00	2.97	16.660	
		131.50	15.00	2.67	19.013	
		117.10	16.00	2.50	21.350	
		101.60	19.00	2.22	24.595	
		90.50	21.00	1.98	27.618	
		78.10	25.00	1.71	32.000	
		69.60	28.00	1.52	35.933	
		60.30	32.00	1.32	41.455	
53.70	36.00	1.26	46.550			
47.30	41.00	1.11	52.909			
42.10	45.00	1.00	59.413			

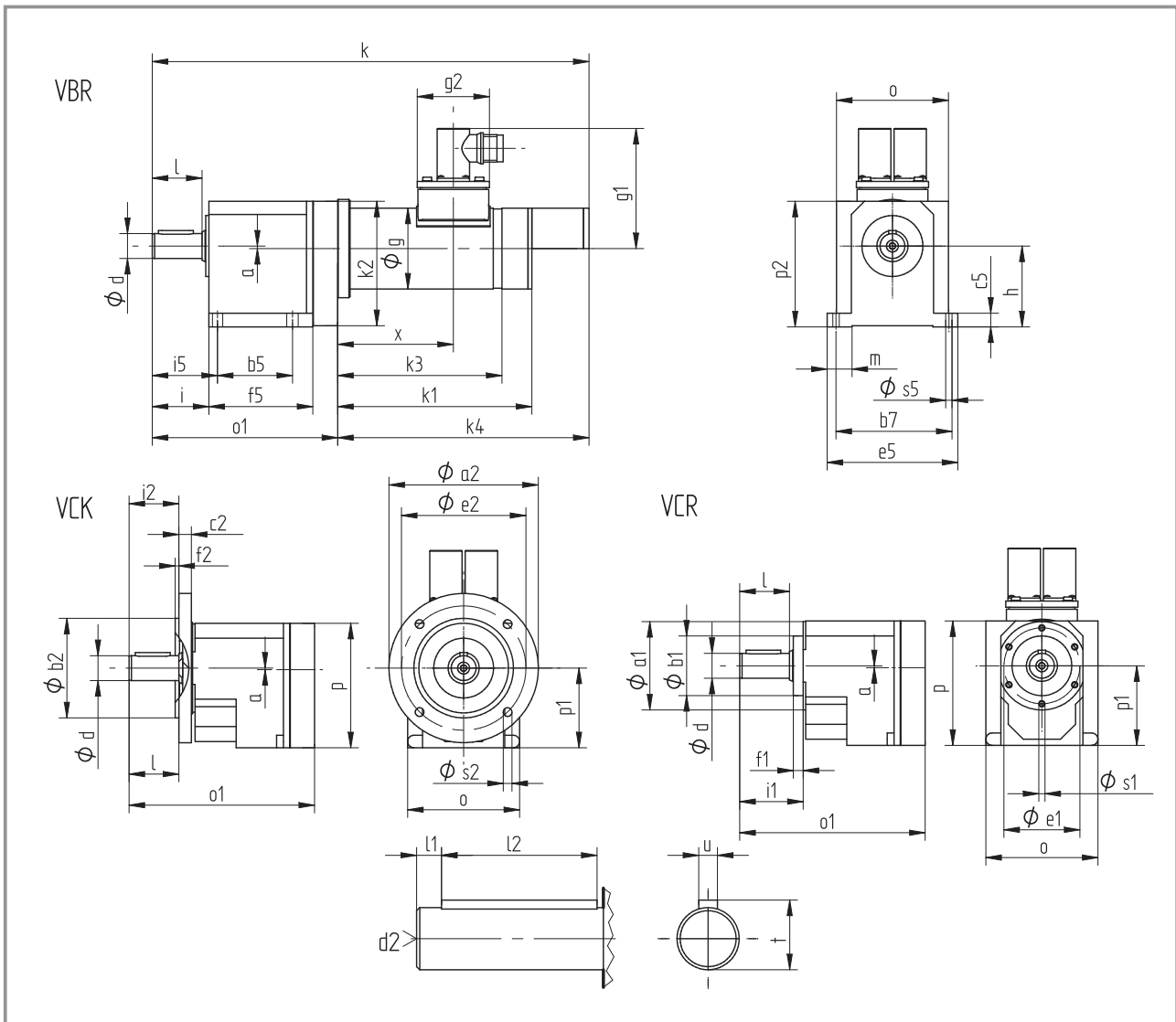
### Additional ordering details

Enclosure	IP54	
	IP55	
Design of B-side	with resolver	
	with spring-applied brake and resolver	
	with permanent magnetic brake and resolver	
	with single-turn absolute value encoder	
	with multi-turn absolute value encoder	
	with spring-applied brake and single-turn absolute value encoder	
	with spring-applied brake and multi-turn absolute value encoder	
	with permanent magnetic brake and single-turn absolute value encoder	
	with permanent magnetic brake and multi-turn absolute value encoder	
Gearbox design	VBR	
	VCR	
	VCK	
Output flange diameter	120 mm	
	140 mm	
	160 mm	
Mounting position		A B C D E F
Position of electrical connection		2 3 4 5

See page 9 for type code.  
See page 10 for mounting position.



### Dimensions for type GST03-2GV□□-047C22



Geared motor	a	a <sub>1</sub>	a <sub>2</sub>	b <sub>1</sub> h7	b <sub>2</sub> j7	b <sub>5</sub>	b <sub>7</sub>	c <sub>2</sub>	c <sub>5</sub>	d	d <sub>2</sub>	e <sub>1</sub>	e <sub>2</sub>	e <sub>5</sub>	f <sub>1</sub>	f <sub>2</sub>	f <sub>5</sub>	g	g <sub>1</sub>	g <sub>2</sub>	h	i	i <sub>1</sub>	i <sub>2</sub>	i <sub>5</sub>	
GST03-2GV□□-047C22			120	48	80					14	M5		100			3									28	40
	2	71	140	48	95	60	91	10	11	20	M6	61	115	105	8	3	84	75	101	58	65	46	51	40	52	
			160		110									130		3.5										

Geared motor	k	k <sub>1</sub> BS*	k <sub>1</sub> RS*	k <sub>1</sub> AG*	k <sub>2</sub>	k <sub>3</sub>	k <sub>4</sub> BS*	k <sub>4</sub> BA*	l	l <sub>1</sub>	l <sub>2</sub>	m	o	o <sub>1</sub>	p	p <sub>1</sub>	p <sub>2</sub>	s <sub>1</sub>	s <sub>2</sub>	s <sub>5</sub>	t	u	x	Weight	
GST03-2GV□□-047C22	372.5								28	4	20			137.5					7						
	384.5	191	202.5	100	158.5	235	246.5	40	5	28	20	90	149.5	100	64	101	M5	9	6.6	22.5	6	117.5	6.0-7.5		
																			9						

Dimensions in mm

\* see Page 8



## Drive selection

### Helical geared servo motors GST

Selection table for type GST04-1GV□□-056C22

Motor type	P <sub>N</sub> W	Supply voltage for Servo Drive = 48 V DC			i	Selection of Please mark as appropriate
		n <sub>2</sub> rpm	M <sub>2</sub> Nm	c		
SDSGS□□-056-22	450	1687.50	3.00	3.83	1.600	
		1318.40	3.00	3.74	2.048	
		1205.40	4.00	3.87	2.240	
		945.00	4.00	3.39	2.857	
		771.40	5.00	2.92	3.500	
		613.60	7.00	2.32	4.400	
		476.40	9.00	1.80	5.667	
		375.90	11.00	1.42	7.182	
	300.00	14.00	1.08	9.000		

### Additional ordering details

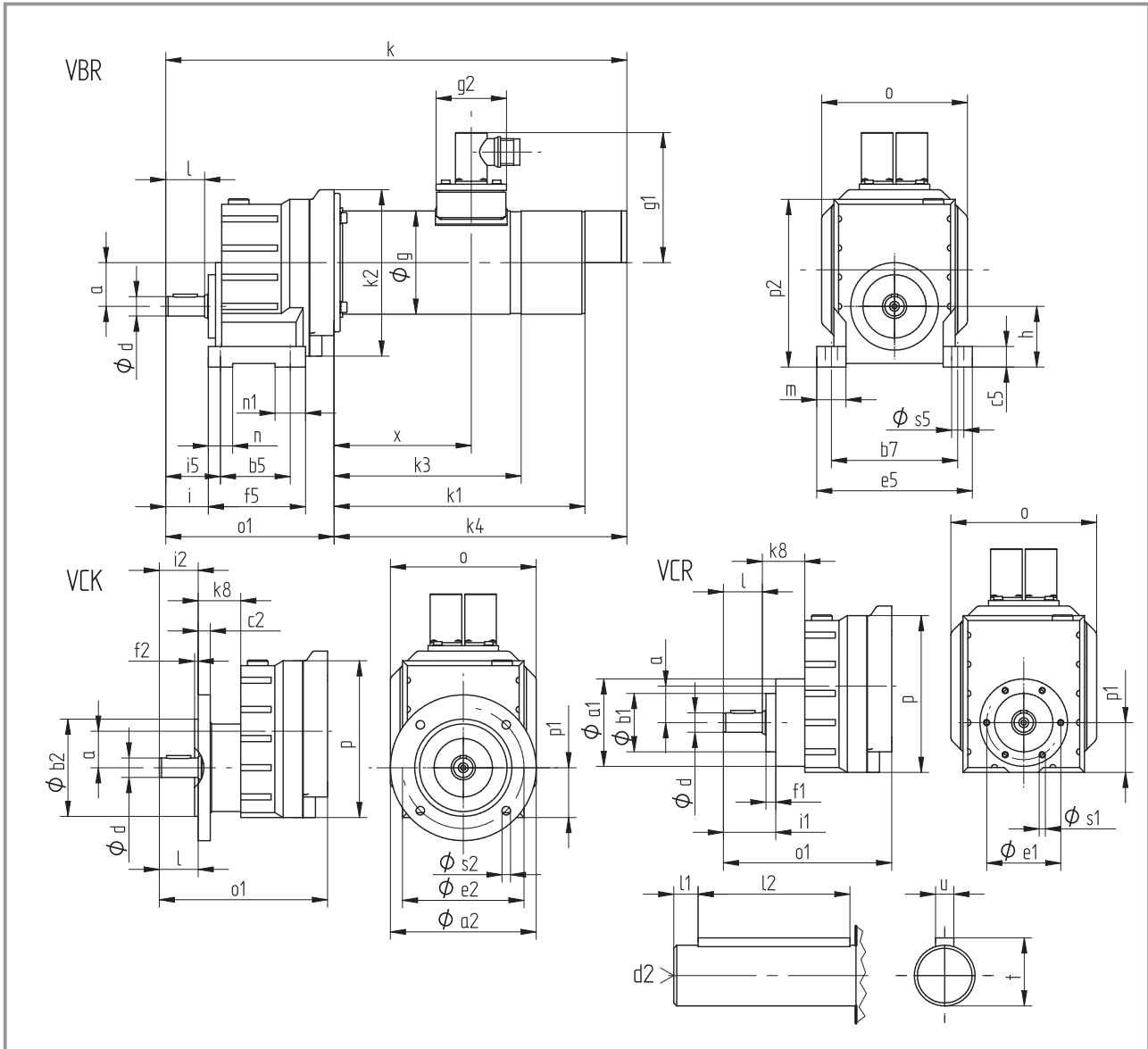
Enclosure	IP54	
	IP55	
Design of B-side	with resolver	
	with spring-applied brake and resolver	
	with permanent magnetic brake and resolver	
	with single-turn absolute value encoder	
	with multi-turn absolute value encoder	
	with spring-applied brake and single-turn absolute value encoder	
	with spring-applied brake and multi-turn absolute value encoder	
	with permanent magnetic brake and single-turn absolute value encoder	
with permanent magnetic brake and multi-turn absolute value encoder		
Gearbox design	VBR	
	VCR	
	VCK	
Output flange diameter	120 mm	
	140 mm	
	160 mm	
Mounting position		A B C D E F
Position of electrical connection		2 3 4 5

See page 9 for type code.

See page 10 for mounting position.



### Dimensions for type GST04-1GV□□-056C22



Geared motor	a	a <sub>1</sub>	a <sub>2</sub>	b <sub>1</sub> h <sub>7</sub>	b <sub>2</sub> j <sub>7</sub>	b <sub>5</sub>	b <sub>7</sub>	c <sub>2</sub>	c <sub>5</sub>	d	d <sub>2</sub>	e <sub>1</sub>	e <sub>2</sub>	e <sub>5</sub>	f <sub>1</sub>	f <sub>2</sub>	f <sub>5</sub>	g	g <sub>1</sub>	g <sub>2</sub>	h	i	i <sub>1</sub>	i <sub>2</sub>	i <sub>5</sub>	
GST04-1GV□□-047C22	36	72	120	48	80	55	105	10	17	16	M5	61	100	130	8	3	80	75	101	58	50	35	43	32	45	
			140		95								115			3										
			160		110									130		3.5										

Geared motor	k	k <sub>1</sub> BS*	k <sub>1</sub> RS*	k <sub>1</sub> AG*	k <sub>2</sub>	k <sub>3</sub>	k <sub>4</sub> BS*	k <sub>4</sub> BA*	k <sub>8</sub>	l	l <sub>1</sub>	l <sub>2</sub>	m	n	n <sub>1</sub>	o	o <sub>1</sub>	p	p <sub>1</sub>	p <sub>2</sub>	s <sub>1</sub>	s <sub>2</sub>	s <sub>5</sub>	t	u	x	Weight
GST04-1GV□□-047C22	364.5	182	193	129	149	226	237	35	32	6	20	25	20	25	115	138.5	129	41	138	M5	7	9	18	5	103.5	6.5-8.0	
																						9					
																						9					

Dimensions in mm

\* see Page 8



## Drive selection

### Helical geared servo motors GST

Selection table for type GST04-2GV□□-056C22

Motor type	P <sub>N</sub> W	Supply voltage for Servo Drive = 48 V DC			i	Selection of Please mark as appropriate
		n <sub>2</sub> rpm	M <sub>2</sub> Nm	c		
SDSGS□□-056-22	450	913.40	5.00	3.88	2.956	
		810.10	5.00	3.91	3.333	
		666.20	6.00	3.86	4.053	
		590.70	7.00	3.87	4.571	
		520.50	8.00	3.82	5.187	
		461.50	9.00	3.83	5.850	
		421.90	10.00	3.66	6.400	
		383.50	11.00	3.40	7.040	
		337.50	12.00	3.13	8.000	
		299.70	14.00	2.95	9.010	
		273.90	15.00	2.80	9.856	
		241.10	17.00	2.28	11.200	
		214.80	19.00	2.32	12.571	
		189.00	22.00	1.79	14.286	
		175.30	24.00	2.16	15.400	
		154.30	27.00	1.70	17.500	
		139.50	30.00	1.75	19.360	
		122.70	34.00	1.35	22.000	
		108.30	38.00	1.38	24.933	
		95.30	44.00	1.08	28.333	
85.40	49.00	1.10	31.600			
75.20	47.00	0.86	35.909			
68.20	54.00	0.88	39.600			
60.00	52.00	0.75	45.000			

#### Additional ordering details

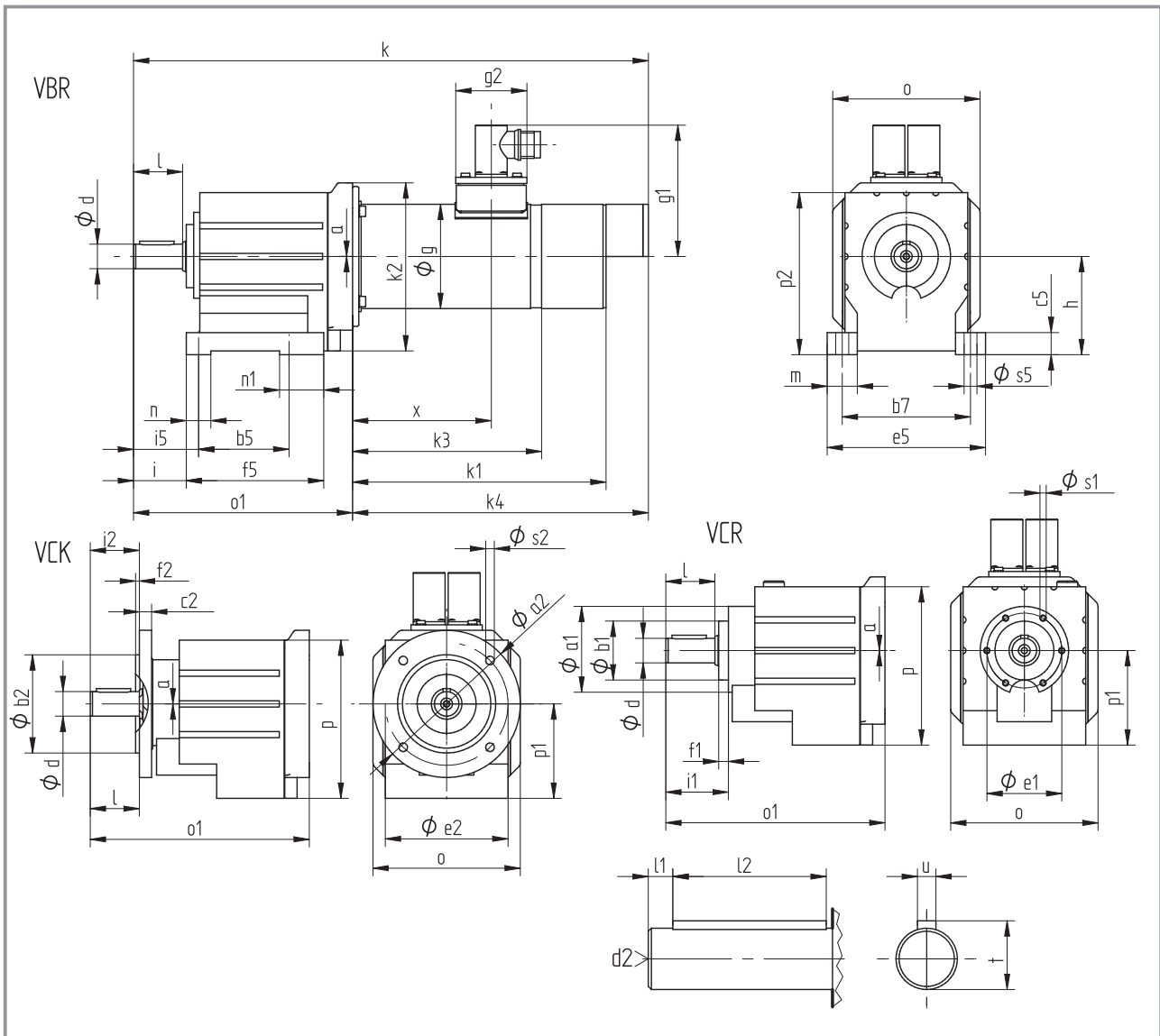
Enclosure	IP54	
	IP55	
Design of B-side	with resolver	
	with spring-applied brake and resolver	
	with permanent magnetic brake and resolver	
	with single-turn absolute value encoder	
	with multi-turn absolute value encoder	
	with spring-applied brake and single-turn absolute value encoder	
	with spring-applied brake and multi-turn absolute value encoder	
	with permanent magnetic brake and single-turn absolute value encoder	
	with permanent magnetic brake and multi-turn absolute value encoder	
Gearbox design	VBR	
	VCR	
	VCK	
Output flange diameter	120 mm	
	140 mm	
	160 mm	
Mounting position		A B C D E F
Position of electrical connection		2 3 4 5

See page 9 for type code.  
See page 10 for mounting position.





### Dimensions for type GST04-2GV□□-056C22



Geared motor	a	a <sub>1</sub>	a <sub>2</sub>	b <sub>1</sub> h7	b <sub>2</sub> j7	b <sub>5</sub>	b <sub>7</sub>	c <sub>2</sub>	c <sub>5</sub>	d	d <sub>2</sub>	e <sub>1</sub>	e <sub>2</sub>	e <sub>5</sub>	f <sub>1</sub>	f <sub>2</sub>	f <sub>5</sub>	g	g <sub>1</sub>	g <sub>2</sub>	h	i	i <sub>1</sub>	i <sub>2</sub>	i <sub>5</sub>	
GST04-2GV□□-056C22	0	72	120	48	80	76	105	10	18	20	M6	61	100	130	8	3	112	85	106	58	80	43	51	40	53	
			140		95								115			3										
			160		110								130			3.5										

Geared motor	k	k <sub>1</sub> BS*	k <sub>1</sub> RS*	k <sub>1</sub> AG*	k <sub>2</sub>	k <sub>3</sub>	k <sub>4</sub> BS*	k <sub>4</sub> BA*	l	l <sub>1</sub>	l <sub>2</sub>	m	n	n <sub>1</sub>	o	o <sub>1</sub>	p	p <sub>1</sub>	p <sub>2</sub>	s <sub>1</sub>	s <sub>2</sub>	s <sub>5</sub>	t	u	x	Weight
GST04-2GV□□-056C22	419.5	188.5	200	129	156	241	252.5	40	5	28	25	20	36	115	178.5	129	77	132	M5	7	9	22.5	6	113	9.5-11	
																					9					
																					9					

Dimensions in mm

\* see Page 8



## Drive selection

### Bevel geared servo motors GKR

Selection table for type GKR03-2G□A□-035C22

Motor type	P <sub>N</sub> W	Supply voltage for Servo Drive = 24 or 48 V DC			i	Selection of Please mark as appropriate
		n <sub>2</sub> rpm	M <sub>2</sub> Nm	c		
SDSGS□□-035-22	140	554.40	2.00	13.83	5.411	
		482.20	3.00	12.41	6.222	
		421.90	3.00	11.51	7.111	
		366.80	3.00	10.30	8.178	
		329.60	4.00	9.51	9.101	
		286.60	4.00	8.27	10.466	
		257.70	5.00	7.44	11.64	
		224.10	6.00	6.47	13.386	
		198.50	6.00	5.73	15.111	
		172.60	7.00	4.98	17.378	
		154.90	8.00	4.47	19.365	
		134.70	10.00	3.89	22.27	
		119.80	11.00	3.92	25.051	
		104.10	12.00	3.41	28.808	
		92.00	14.00	3.01	32.593	
		80.00	16.00	2.62	37.481	
		71.10	18.00	2.49	42.222	
		61.80	21.00	2.17	48.556	
55.70	23.00	1.95	53.889			
48.40	26.00	1.70	61.972			

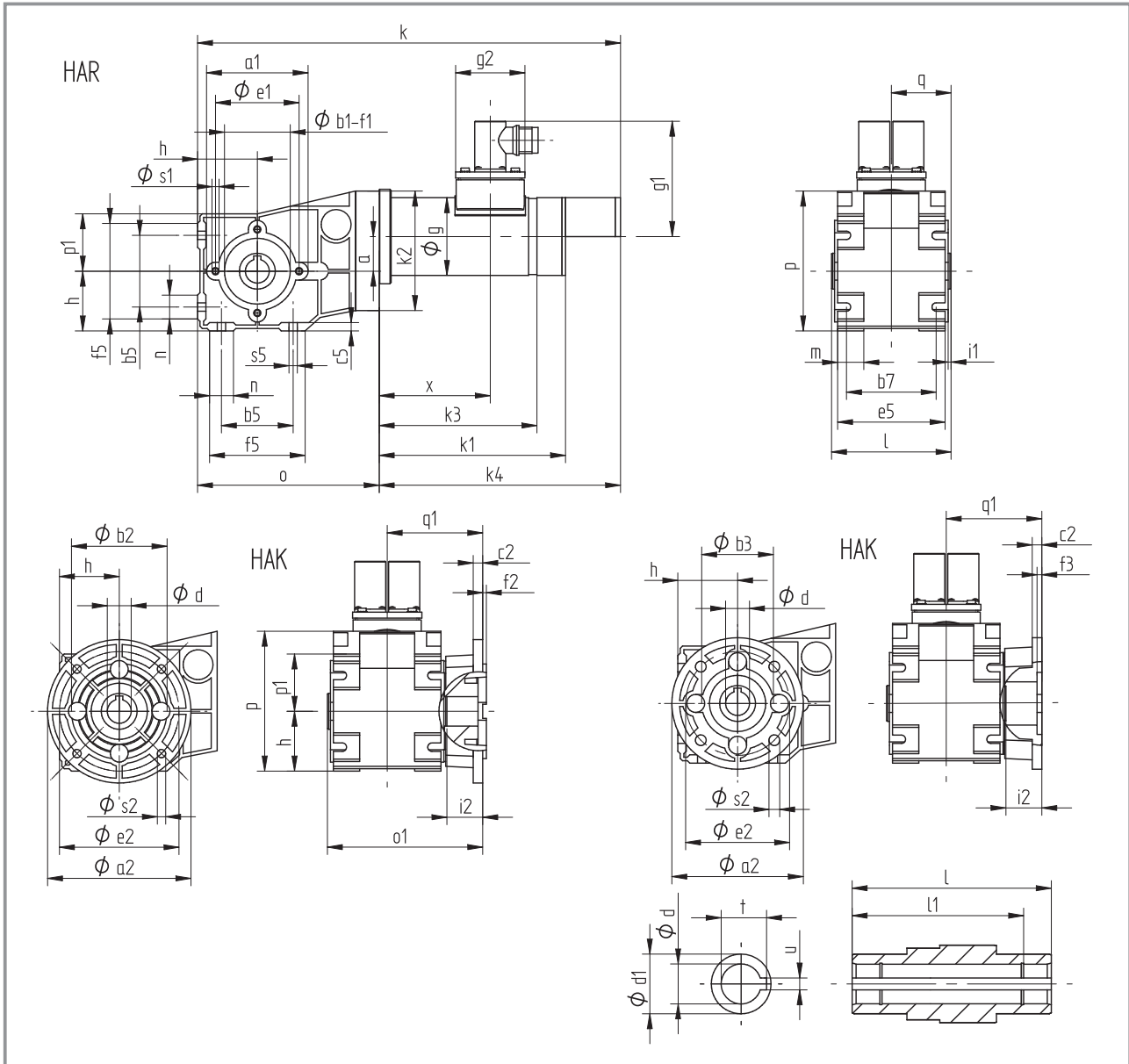
#### Additional ordering details

Enclosure	IP54	
	IP55	
Design of B-side	with resolver	
	with spring-applied brake and resolver	
	with permanent magnetic brake and resolver	
	with single-turn absolute value encoder	
	with multi-turn absolute value encoder	
	with permanent magnetic brake and single-turn absolute value encoder	
	with permanent magnetic brake and multi-turn absolute value encoder	
Gearbox design	VAR	
	VAK	
	HAR	
	HAK	
Output flange diameter	110 mm	
	120 mm	
Hollow shaft bore	18 mm	
	20 mm	
Shaft position on version VAR		3 5 8
Flange-shaft position on version VAK		3 5
Flange position on version HAK		3 5
Mounting position		A B C D E F
Position of electrical connection		2 3 4 5

See page 9 for type code.  
See page 10 for mounting position.



### Dimensions for type GKR03-2G□A□-035C22



Geared motor	a	a <sub>1</sub>	a <sub>2</sub>	b <sub>1</sub> J7	b <sub>2</sub> j7	b <sub>3</sub> H7	b <sub>5</sub>	b <sub>7</sub>	c <sub>2</sub>	c <sub>5</sub>	d H7	d <sub>1</sub>	e <sub>1</sub>	e <sub>2</sub>	e <sub>5</sub>	f <sub>1</sub>	f <sub>2</sub>	f <sub>3</sub>	f <sub>5</sub>	g	g <sub>1</sub>	g <sub>2</sub>	h	i <sub>1</sub>	i <sub>2</sub>	k BS*	
GKR03-2G□A□-035C22	29	84	120	55	80	-	60	75	8	7	18	30	70	100	90	3	3	-	80	65	95	58	50	2.5	30	354	
			110		-	60					20	30						4									

Geared motor	k <sub>1</sub> RS*	k <sub>1</sub> AG*	k <sub>2</sub>	k <sub>3</sub>	k <sub>4</sub> BS*	k <sub>4</sub> BA*	l	l <sub>1</sub>	m	n	o	o <sub>1</sub>	p	p <sub>1</sub>	q	q <sub>1</sub>	s <sub>1</sub>	s <sub>2</sub>	s <sub>5</sub>	t	u	x	Weight
GKR03-2G□A□-035C22	166.5	178	100	136	202	222.5	100	86	22	20	152	130	117	48	50	80	M6	7	6.6	20.8	6	93	5.0-6.5
																		9		22.8	6		

Dimensions in mm

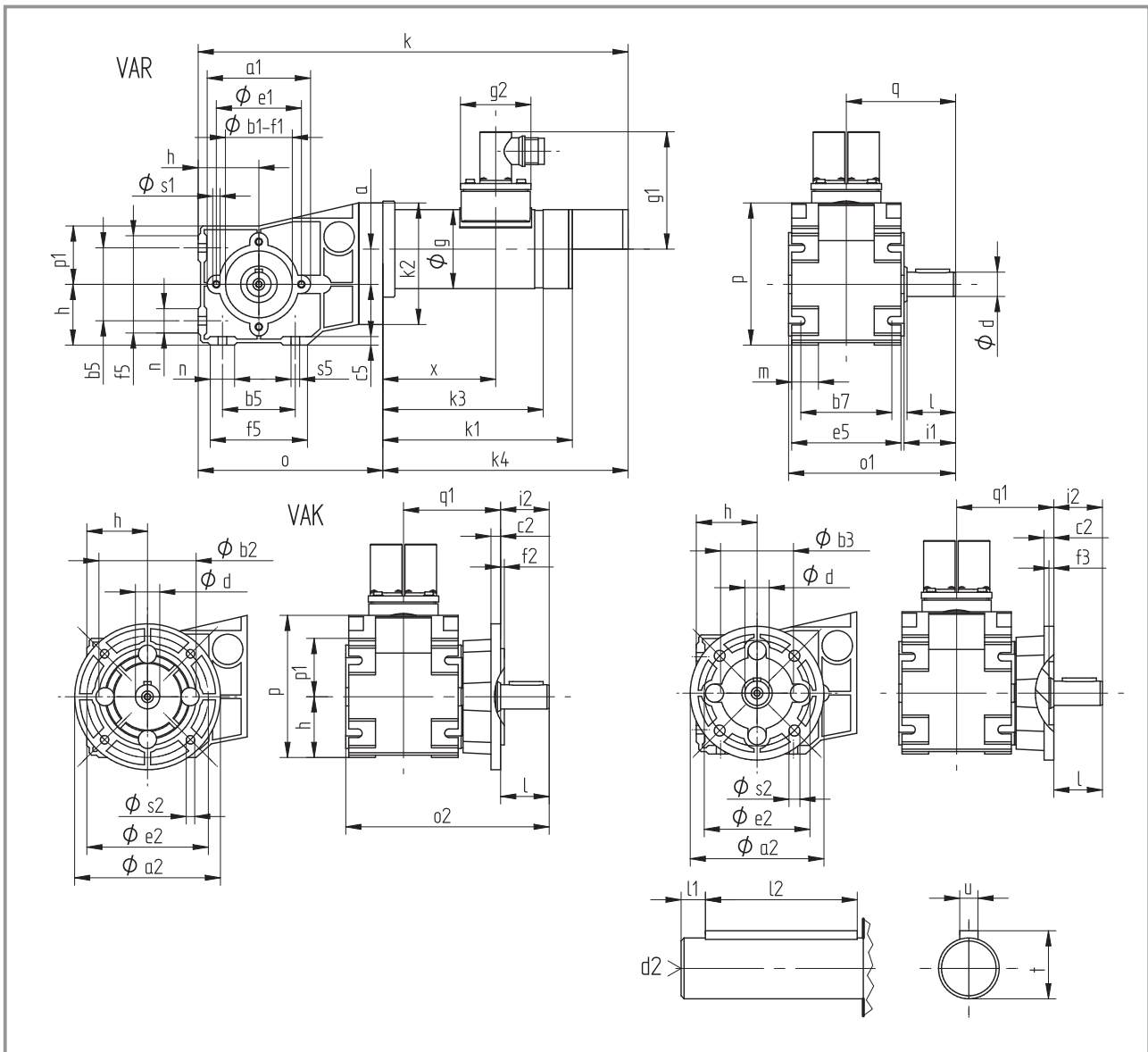
\* see Page 8



# Drive selection

## Bevel geared servo motors GKR

### Dimensions for type GKR03-2GVA□-035C22



Geared motor	a	a <sub>1</sub>	a <sub>2</sub>	b <sub>1</sub> J7	b <sub>2</sub> j7	b <sub>3</sub> H7	b <sub>5</sub>	b <sub>7</sub>	c <sub>2</sub>	c <sub>5</sub>	d	d <sub>2</sub>	e <sub>1</sub>	e <sub>2</sub>	e <sub>5</sub>	f <sub>1</sub>	f <sub>2</sub>	f <sub>3</sub>	f <sub>5</sub>	g	g <sub>1</sub>	g <sub>2</sub>	h	i <sub>1</sub>	i <sub>2</sub>
GKR03-2GVA□-035C22	29	84	120	55	80	-	60	75	8	7	20	M6	70	100	90	2.5	3	-	80	65	95	58	50	42.5	40
			110	-	60									87			4								

Geared motor	k	k <sub>1</sub> RS*	k <sub>1</sub> AG*	k <sub>2</sub>	k <sub>3</sub>	k <sub>4</sub> BS*	k <sub>4</sub> BA*	l	l <sub>1</sub>	l <sub>2</sub>	m	n	o	o <sub>1</sub>	o <sub>2</sub>	p	p <sub>1</sub>	q	q <sub>1</sub>	s <sub>1</sub>	s <sub>2</sub>	s <sub>5</sub>	t	u	x	Weight
GKR03-2GVA□-035C22	354	166.5	178	100	136	202	222.5	40	5	28	22	20	152	138	168	117	48	90	80	M6	7	6.6	22.5	6	93	5.0-6.5
																					9			6		

Dimensions in mm

\* see Page 8





## Drive selection

### Bevel geared servo motors GKR

Selection table for type GKR03-2G□A□-047C22

Motor type	P <sub>N</sub> W	Supply voltage for Servo Drive = 48 V DC			i	Selection of Please mark as appropriate
		n <sub>2</sub> rpm	M <sub>2</sub> Nm	c		
SDSGS□□-047-22	210	462.00	4.00	7.78	5.411	
		401.80	5.00	6.98	6.222	
		351.60	5.00	6.48	7.111	
		305.70	6.00	5.79	8.178	
		274.70	7.00	5.35	9.101	
		238.90	8.00	4.65	10.466	
		214.80	9.00	4.18	11.64	
		186.80	10.00	3.64	13.386	
		165.40	11.00	3.22	15.111	
		143.90	13.00	2.80	17.378	
		129.10	15.00	2.51	19.365	
		112.30	17.00	2.19	22.27	
		99.80	19.00	2.21	25.051	
		86.80	22.00	1.92	28.808	
		76.70	25.00	1.70	32.593	
		66.70	28.00	1.47	37.481	
		59.20	32.00	1.40	42.222	
		51.50	37.00	1.22	48.556	
46.40	41.00	1.10	53.889			
40.30	45.00	0.96	61.972			

#### Additional ordering details

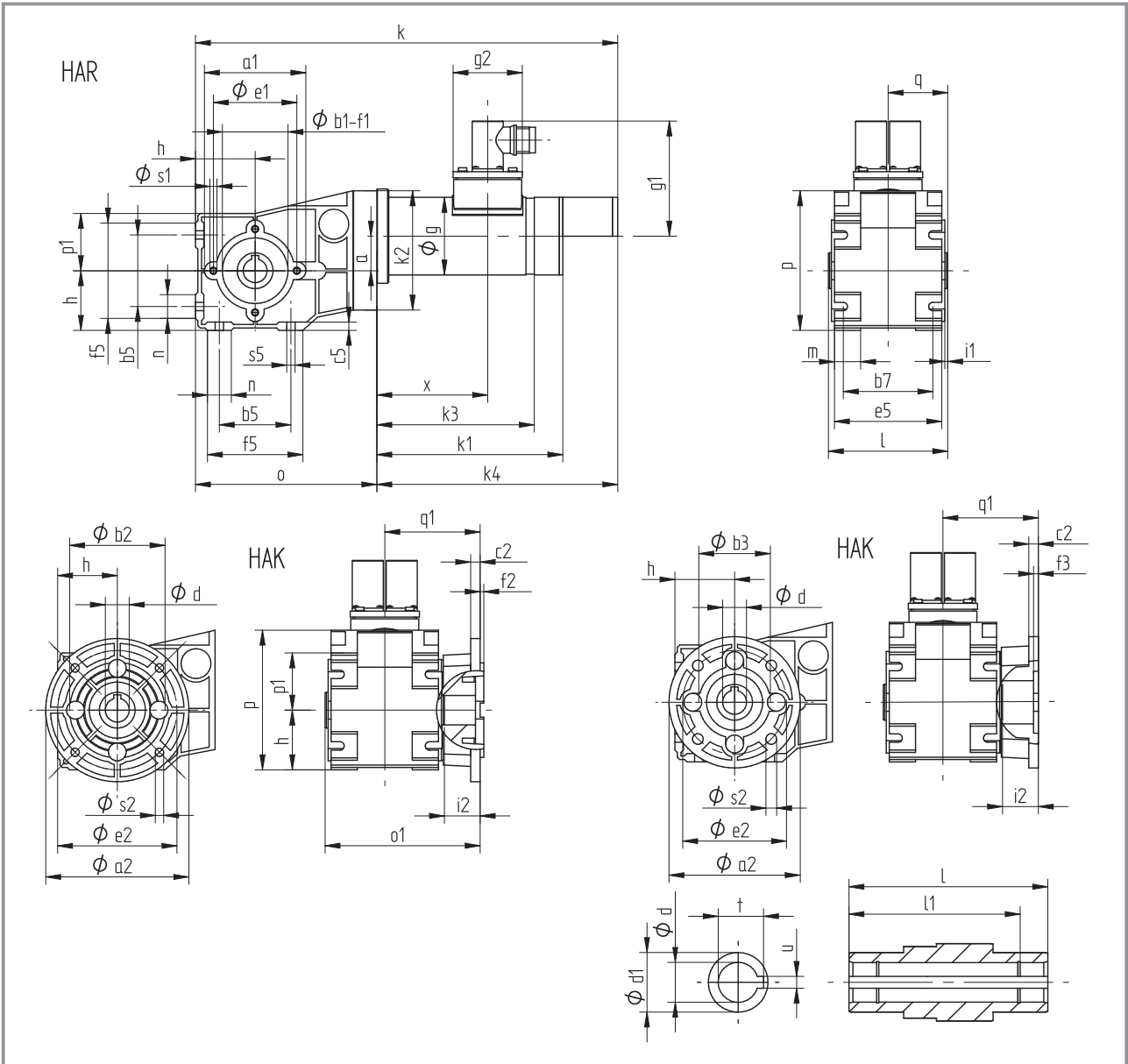
Enclosure	IP54	
	IP55	
Design of B-side	with resolver	
	with spring-applied brake and resolver	
	with permanent magnetic brake and resolver	
	with single-turn absolute value encoder	
	with multi-turn absolute value encoder	
	with spring-applied brake and single-turn absolute value encoder	
	with spring-applied brake and multi-turn absolute value encoder	
	with permanent magnetic brake and single-turn absolute value encoder	
with permanent magnetic brake and multi-turn absolute value encoder		
Gearbox design	VAR	
	VAK	
	HAR	
	HAK	
Output flange diameter	110 mm	
	120 mm	
Hollow shaft bore	18 mm	
	20 mm	
Shaft position on version VAR		3 5 8
Flange-shaft position on version VAK		3 5
Flange position on version HAK		3 5
Mounting position		A B C D E F
Position of electrical connection		2 3 4 5

See page 9 for type code.

See page 10 for mounting position.



Dimensions for type GKR03-2G□A□-047C22



Geared motor	a	a <sub>1</sub>	a <sub>2</sub>	b <sub>1</sub> J7	b <sub>2</sub> j7	b <sub>3</sub> H7	b <sub>5</sub>	b <sub>7</sub>	c <sub>2</sub>	c <sub>5</sub>	d H7	d <sub>1</sub>	e <sub>1</sub>	e <sub>2</sub>	e <sub>5</sub>	f <sub>1</sub>	f <sub>2</sub>	f <sub>3</sub>	f <sub>5</sub>	g	g <sub>1</sub>	g <sub>2</sub>	h	i <sub>1</sub>	i <sub>2</sub>	k BS*
GKR03-2G□A□-047C22	29	84	120	55	80	-	60	75	8	7	18	30	70	100	90	3	3	-	80	75	101	58	50	2.5	30	387
			110		60						20	30		87				4								

Geared motor	k <sub>1</sub> RS*	k <sub>1</sub> AG*	k <sub>2</sub>	k <sub>3</sub>	k <sub>4</sub> BS*	k <sub>4</sub> BA*	l	l <sub>1</sub>	m	n	o	o <sub>1</sub>	p	p <sub>1</sub>	q	q <sub>1</sub>	s <sub>1</sub>	s <sub>2</sub>	s <sub>5</sub>	t	u	x	Weight
GKR03-2G□A□-047C22	191	202.5	100	158.5	235	246.5	100	86	22	20	152	130	117	48	50	80	M6	7	6.6	20.8	6	117.5	6.0-7.5
																		9		22.8	6		

Dimensions in mm

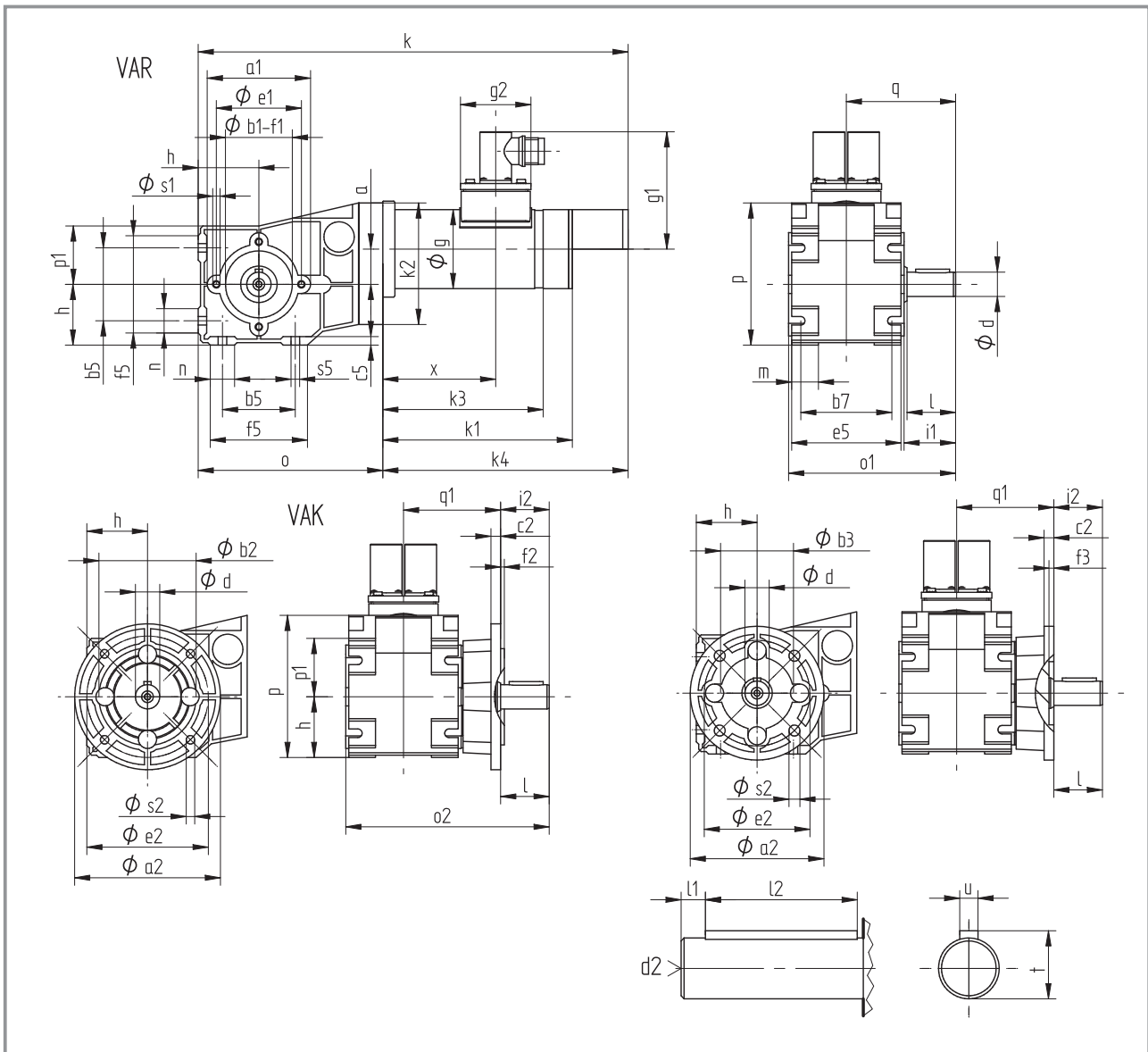
\* see Page 8



# Drive selection

## Bevel geared servo motors GKR

### Dimensions for type GKR03-2GVA□-047C22



Geared motor	a	a <sub>1</sub>	a <sub>2</sub>	b <sub>1</sub> J7	b <sub>2</sub> j7	b <sub>3</sub> H7	b <sub>5</sub>	b <sub>7</sub>	c <sub>2</sub>	c <sub>5</sub>	d	d <sub>2</sub> k6	e <sub>1</sub>	e <sub>2</sub>	e <sub>5</sub>	f <sub>1</sub>	f <sub>2</sub>	f <sub>3</sub>	f <sub>5</sub>	g	g <sub>1</sub>	g <sub>2</sub>	h	i <sub>1</sub>	i <sub>2</sub>
GKR03-2GVA□-047C22	29	84	120	55	80	-	60	75	8	7	20	M6	70	100	90	2.5	3	-	80	75	101	58	50	42.5	40
			110		-	60												4							

Geared motor	k	k <sub>1</sub> BS*	k <sub>1</sub> RS*	k <sub>1</sub> AG*	k <sub>2</sub>	k <sub>3</sub>	k <sub>4</sub> BS*	k <sub>4</sub> BA*	l	l <sub>1</sub>	l <sub>2</sub>	m	n	o	o <sub>1</sub>	o <sub>2</sub>	p	p <sub>1</sub>	q	q <sub>1</sub>	s <sub>1</sub>	s <sub>2</sub>	s <sub>5</sub>	t	u	x	Weight
GKR03-2GVA□-047C22	387	191	202.5	100	158.5	235	246.5	40	5	28	22	20	152	138	168	117	48	90	80	M6	7	6.6	22.5	6	117.5	6.0-7.5	
																						9		6			

Dimensions in mm

\* see Page 8







## Drive selection

### Bevel geared servo motors GKR

Selection table for type GKR04-2G□A□-056C22

Motor type	P <sub>N</sub> W	Supply voltage for Servo Drive = 48 V DC			i	Selection of Please mark as appropriate
		n <sub>2</sub> rpm	M <sub>2</sub> Nm	c		
SDSGS□□-056-22	450	520.70	8.00	3.86	5.185	
		452.80	9.00	3.80	5.963	
		379.70	11.00	3.77	7.111	
		330.20	12.00	3.80	8.178	
		296.70	14.00	3.82	9.101	
		258.00	16.00	3.62	10.466	
		235.80	17.00	3.36	11.449	
		212.60	19.00	3.03	12.698	
		184.90	22.00	2.63	14.603	
		173.60	24.00	2.47	15.556	
		150.90	27.00	2.15	17.889	
		138.10	30.00	1.96	19.556	
		120.10	34.00	1.71	22.489	
		107.20	38.00	1.73	25.185	
		93.20	44.00	1.51	28.963	
		84.60	49.00	1.37	31.919	
		73.60	56.00	1.19	36.707	
67.50	61.00	1.09	40.000			
58.70	70.00	1.03	46.000			

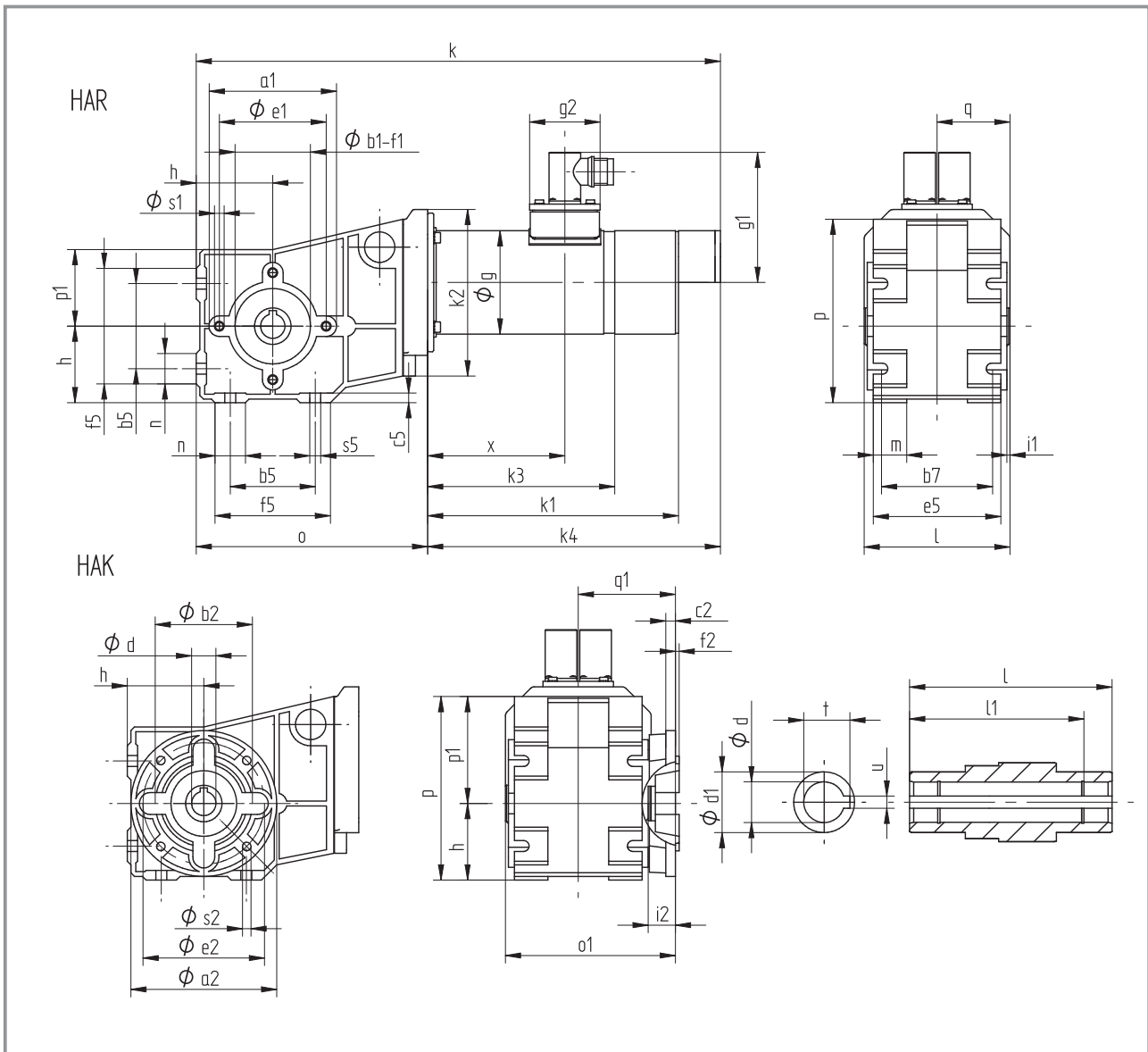
#### Additional ordering details

Enclosure	IP54	
	IP55	
Design of B-side	with resolver	
	with spring-applied brake and resolver	
	with permanent magnetic brake and resolver	
	with single-turn absolute value encoder	
	with multi-turn absolute value encoder	
	with spring-applied brake and single-turn absolute value encoder	
	with spring-applied brake and multi-turn absolute value encoder	
	with permanent magnetic brake and single-turn absolute value encoder	
Gearbox design	VAR	
	VAK	
	HAR	
	HAK	
Output flange diameter	120 mm	
	160 mm	
Hollow shaft bore	20 mm	
	25 mm	
Shaft position on version VAR		3 5 8
Flange-shaft position on version VAK		3 5
Flange position on version HAK		3 5
Mounting position		A B C D E F
Position of electrical connection		2 3 4 5

See page 9 for type code.  
See page 10 for mounting position.



### Dimensions for type GKR04-2GHA□-056C22



Geared motor	a	a <sub>1</sub>	a <sub>2</sub>	b <sub>1</sub> J7	b <sub>2</sub> j7	b <sub>5</sub>	b <sub>7</sub>	c <sub>2</sub>	c <sub>5</sub>	d H7	d <sub>1</sub>	e <sub>1</sub>	e <sub>2</sub>	e <sub>5</sub>	f <sub>1</sub>	f <sub>2</sub>	f <sub>5</sub>	g	g <sub>1</sub>	g <sub>2</sub>	h	i <sub>1</sub>	i <sub>2</sub>
GKR04-2GHA□-056C22	36	104	120	62	80	70	90	8	8	20	30	88	100	105	3	3	95	85	106	58	63	2.5	20
			160		110					25	35		130			3.5							

Geared motor	k	k <sub>1</sub> RS*	k <sub>1</sub> AG*	k <sub>2</sub>	k <sub>3</sub>	k <sub>4</sub> BS*	k <sub>4</sub> BA*	l	l <sub>1</sub>	m	n	o	o <sub>1</sub>	p	p <sub>1</sub>	q	q <sub>1</sub>	s <sub>1</sub>	s <sub>2</sub>	s <sub>5</sub>	t	u	x	Weight
GKR04-2GHA□-056C22	431.5	188.5	200	129	156	241	252.5	120	106	28	25	190.5	140	151	63	60	80	M8	7	9	22.8	6	113	8.5-11
																			9		27	8		

Dimensions in mm

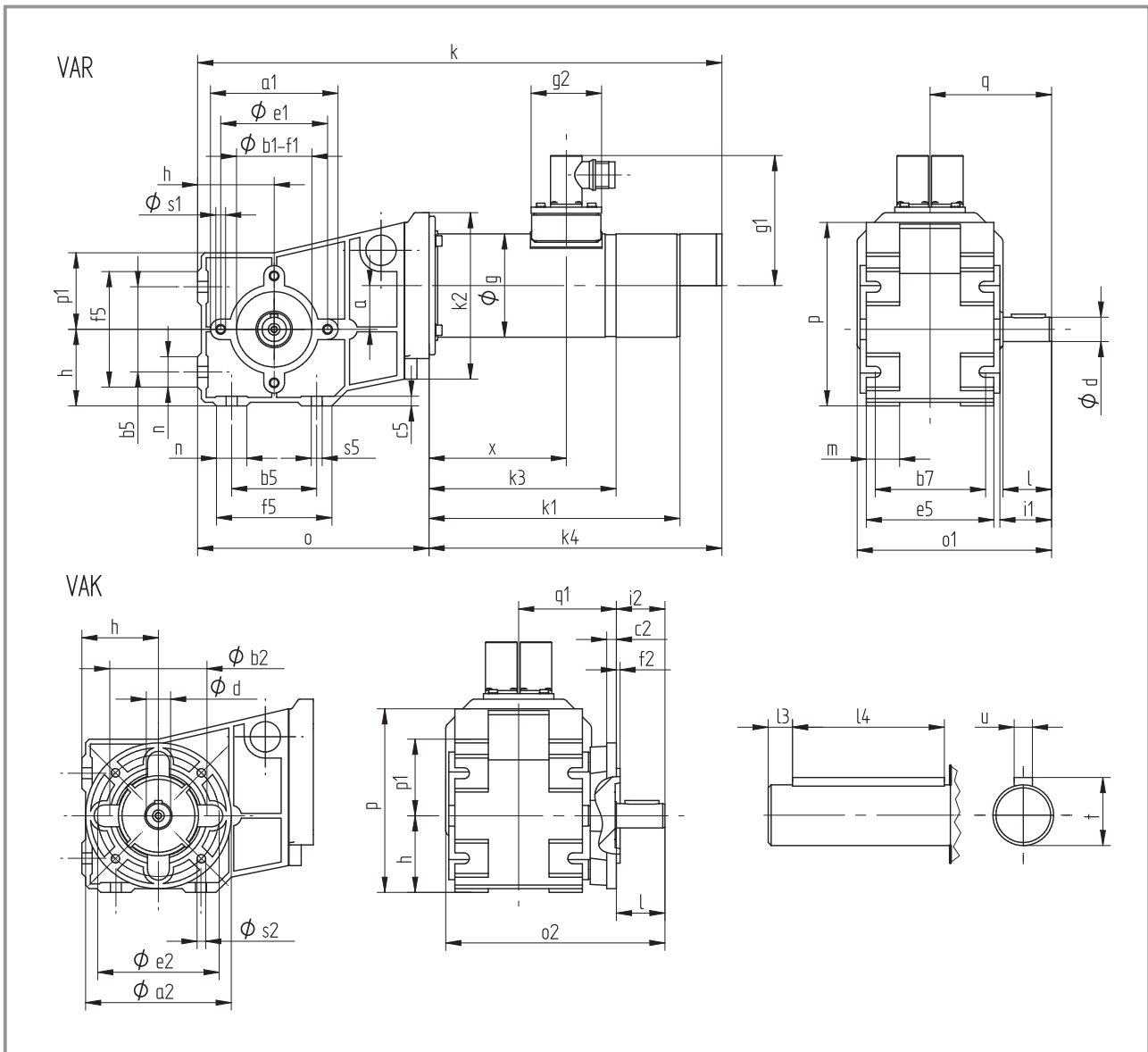
\* see Page 8



# Drive selection

## Bevel geared servo motors GKR

### Dimensions for type GKR04-2GVA□-056C22



Geared motor	a	a <sub>1</sub>	a <sub>2</sub>	b <sub>1</sub> J7	b <sub>2</sub> j7	b <sub>5</sub>	b <sub>7</sub>	c <sub>2</sub>	c <sub>5</sub>	d k6	d <sub>2</sub>	e <sub>1</sub>	e <sub>2</sub>	e <sub>5</sub>	f <sub>1</sub>	f <sub>2</sub>	f <sub>5</sub>	g	g <sub>1</sub>	g <sub>2</sub>	h	i <sub>1</sub>	i <sub>2</sub>	k	k <sub>1</sub> BS*	k <sub>1</sub> RS*	
GKR04-2GVA□-056C22	36	104	120	62	80	70	90	8	8	20	M6	88	100	105	3	3	95	85	106	58	63	42.5	20	431.5	188.5		
			160		110												3.5										

Geared motor	k <sub>1</sub> AG*	k <sub>2</sub>	k <sub>3</sub>	k <sub>4</sub> BS*	k <sub>4</sub> BA*	l	l <sub>1</sub>	l <sub>2</sub>	m	n	o	o <sub>1</sub>	o <sub>2</sub>	p	p <sub>1</sub>	q	q <sub>1</sub>	s <sub>1</sub>	s <sub>2</sub>	s <sub>5</sub>	t	u	x	Weight
GKR04-2GVA□-056C22	200	129	156	241	252.5	40	5	28	28	25	190.5	140	168	151	63	60	80	M8	7	9	22.8	6	113	8.5-11
																			9		27	8		

Dimensions in mm

\* see Page 8

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## **Lenze GmbH & Co KG Kleinantriebe**

Postfach 10 13 52 · D-31763 Hameln

**Site:** Hans-Lenze-Straße 1 · D-32699 Extertal  
**Phone** +49 (0)51 54 82-0 · **Telefax** +49 (0)51 54 82-14 85  
**E-Mail:** Kleinantriebe@Lenze.de · Lenze@Lenze.de

**[www.Lenze.com](http://www.Lenze.com)**