ENGEL ELEKTROANTRIEBE

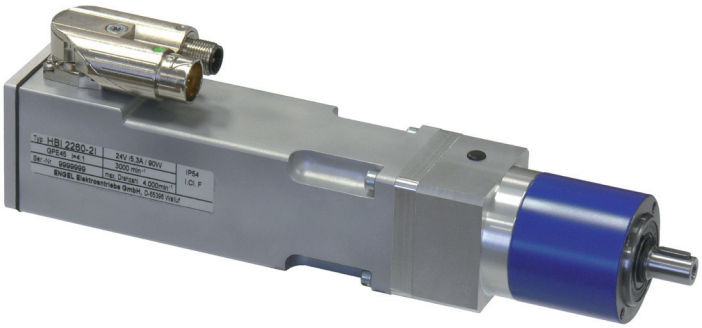
HBI 22 - GPK 45

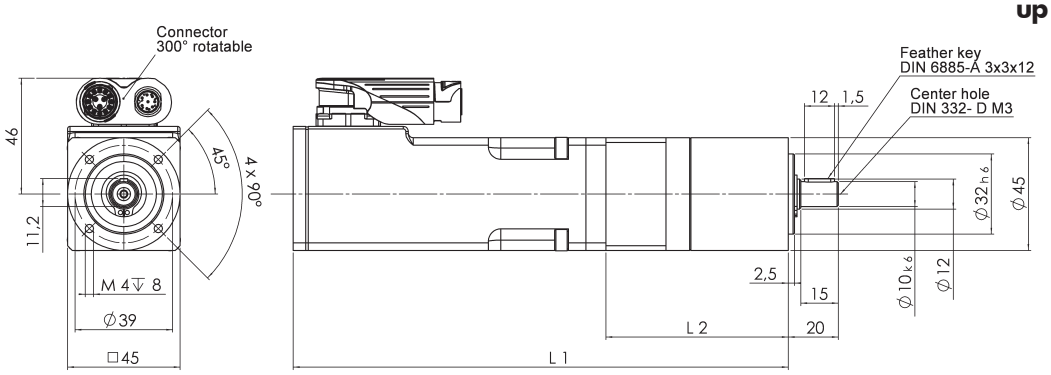
Integrated Synchronous Servo Drive

with planetary gear

positioning capability
with linear hall sensor system
with or without parking brake

Planetary gear series GPK 45
up to 20 Nm peak torque





Type	Gear Ratio	Dimension L1 *) **)	Dimension L2 **)
HBI2230-GPK45	4 :1 - 7:1(1-stage)	199	74
HBI2230-GPK45	9 :1 - 49:1(1-stage)	213	88
HBI2260-GPK45	4 :1 - 7:1(1-stage)	229	74
HBI2260-GPK45	9 :1 - 49:1(2-stage)	243	88

*) Designs with parking brake respectively 32 mm longer.
**) Shorter designs with teethed motorshaft on request.

type	HBI 22 - GPK 45
series	-
operation acc. to standards VDE 0530	S1
isolation acc. to standards VDE 0530	F
protection acc. to standards VDE 0530	IP 54
kind of connection	flange connector
rotating direction	reversible
bearing (motor and gear box)	ball bearing
gear box	not self-locking
for detailed motor data please refer to data sheet HBI 22	

Motor design:

The HBI 22 - GPK 45 are composed of brushless synchronous servo motors with concentrated winding systems and integrated electronics and a flange-mounted planetary gear. These compact and powerful drives are well suited for peripheral applications in single or multi axes systems operating at selective 24VDC or 48VDC.

The HBI's are operated either by analogue/digital signals or via the CAN interface.

The rotor position is evaluated through a linear hall sensor system. The sinusoidal motor current feed leads to smooth and constant torque development.

The drive's configuration is done via RS232 and a clear and simple to use PC-Software „DserV".

Other gear ratios and special designs on request.

Gearbox design:

The planetary gear GPK 45 splits the torque to be transmitted into three symmetrical parts. In conjunction with the one-piece gear housing and with the combination of output bearing and centring flange it leads to a very compact design.

The connection to the motor shaft is done via a clamping hub and offers easy possibilities of interchanging.

All toothing parts are made of heat-treated high-strength steel.

The gearbox has a synthetic grease lifetime lubrication.

The planet wheels are equipped with needle bearings.

The output shaft is double-supported by roller bearing which leads to high axial and radial load capabilities.

Through the very robust construction the gearboxes series GPK 45 are well suited for industrial applications.

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HBI 22 - GPK 45

1 nominal voltage	2 nominal speed	3 nominal torque [2]	4 starting torque	5 nominal power [2]	6 nominal current [1]	7 power gear box input	8 nominal speed gear box input	9 ratio gear box	10 efficiency gear box	load limitations gear box: 11 max. power	12 max. continuous torque	13 max. starting torque	14 max. backlash	15 moment of inertia gear box [3]	16 total weight motor + gear box	17 F_R (allow. radial shaft load) [4]	18 F_A (allow. axial shaft load)
VDC	rpm	Nm	Nm	W	ADC	W	rpm	i	%	W	Nm	Nm	◁ min	kgm²	kg	N	N
HBI 2230 - GPK 45																	
24	750	0,65	1,0	51	3,5	53	3000	4 :1	95	550	7	15	20	$0{,}00291 \times 10^{-3}$	1,30	500	200
48					1,8												
24	429	1,1	1,8	51	3,5	53	3000	7 :1	95	315	7	15	20	$0{,}00270 \times 10^{-3}$	1,30	500	200
48					1,8												
24	333	1,4	2,3	48	3,5	53	3000	9 :1	90	350	10	20	25	$0{,}00310 \times 10^{-3}$	1,45	500	200
48					1,8												
24	188	2,4	4,1	48	3,5	53	3000	16 :1	90	275	14	20	25	$0{,}00287 \times 10^{-3}$	1,45	500	200
48					1,8												
24	107	4,3	7,1	48	3,5	53	3000	28 :1	90	155	14	20	25	$0{,}00268 \times 10^{-3}$	1,45	500	200
48					1,8												
24	61	7,5	12	48	3,5	53	3000	49 :1	90	65	10	20	25	$0{,}00268 \times 10^{-3}$	1,45	500	200
48					1,8												
HBI 2260 - GPK 45																	
24	750	1,1	1,7	85	5,3	90	3000	4 :1	95	550	7	15	20	$0{,}00291 \times 10^{-3}$	1,55	500	200
48					2,7												
24	429	1,9	2,9	85	5,3	90	3000	7 :1	95	315	7	15	20	$0{,}00270 \times 10^{-3}$	1,55	500	200
48					2,7												
24	333	2,3	3,8	80	5,3	90	3000	9 :1	90	350	10	20	25	$0{,}00310 \times 10^{-3}$	1,70	500	200
48					2,7												
24	188	4,0	6,7	80	5,3	90	3000	16 :1	90	275	14	20	25	$0{,}00287 \times 10^{-3}$	1,70	500	200
48					2,7												
24	107	7,1	12	80	5,3	90	3000	28 :1	90	155	14	20	25	$0{,}00268 \times 10^{-3}$	1,70	500	200
48					2,7												
24	61	10 [5]	20 [5]	64	4,4 [5]	70	3000	49 :1	90	65	10	20	25	$0{,}00268 \times 10^{-3}$	1,70	500	200
48					2,2 [5]												

Tolerances +/- 10 %.

Columns 3 and 10
Values are valid at operating temperature after run-in period.

Columns 3 and 6
To avoid gearbox overload, it is necessary to limit the motor torque by adjusting the motor current in the integrated electronics (at higher gear ratios).

Columns 4
Values are valid assuming that the drive is loaded with peak torque. For higher ratios it is necessary to limit the peak current in the integrated electronics.

Columns 11, 12 and 13
To avoid gearbox overload do not exceed the mentioned values. For oscillating operation the mentioned limitations must be multiplied by 0,75.

[1] input DC-current

[2] Values are for motor-assembling on a locating face of aluminium of at least 0,15 m² at a thickness of 10 mm or similar metal face.

[3] Values are reduced to motor shaft.

[4] Middle of the shaft-extension.

[5] Motor current must be limited in the integrated electronics to avoid excess of the mentioned value.