



GBX planetary gearbox

Presentation

In many cases the axis controller requires the use of a planetary gearbox for adjustment of speed of rotation and torque; the accuracy required by the application must be maintained.

To meet these requirements, Schneider Electric has decided to use the Neugart GBX planetary gearbox which are specially tuned to the Lexium integrated drives. This gearing features lifetime lubrication. The GBX planetary gearboxes are easy to install and operate.

The GBX planetary gearboxes – depending on the power of the Lexium integrated drives – are available in three sizes (GBX 40, GBX 60, GBX 80) and with five reduction ratios (3:1 ... 40:1) (see table below).

The values for the continuous torque and the peak torque at standstill which are available at the output shaft, are calculated by multiplying the motor characteristics with the gear ratio and the efficiency of the gearing (0.96 or 0.94 depending on the reduction ratio).

The following table shows the suitable GBX planetary gearbox for the Lexium integrated drives.

Assignment of integrated drive system and GBX planetary gearbox					
Type of integrated drive	Reduction ratio				
	3:1	5:1	8:1	16:1	40:1
ILA1•571T	GBX 60	GBX 60	GBX 60	GBX 60	GBX 60
ILA1•571P	GBX 60	GBX 60	GBX 60	GBX 60	GBX 60
ILA1•572T	GBX 60	GBX 60	GBX 60	GBX 60	GBX 60
ILA1•572P	GBX 60	GBX 60	GBX 60	GBX 60	GBX 60
ILA2•571T	GBX 60	GBX 60	GBX 60	GBX 60	GBX 60
ILA2•571P	GBX 60	GBX 60	GBX 60	GBX 60	GBX 60
ILA2•572T	GBX 60	GBX 60	GBX 60	GBX 60	GBX 60
ILA2•572P	GBX 60	GBX 60	GBX 60	GBX 60	GBX 60
ILE1•661P	GBX 40	GBX 40	GBX 40	GBX 60	GBX 60
ILE2•661P	GBX 40	GBX 40	GBX 40	GBX 60	GBX 60
ILE2•662P	GBX 40	GBX 40	GBX 40	GBX 60	GBX 60
ILS1•571P	GBX 60	GBX 60	GBX 60	–	–
ILS1•572P	GBX 60	GBX 60	GBX 60	–	–
ILS1•573P	GBX 60	GBX 60	GBX 60	–	–
ILS1•851P	GBX 80	GBX 80	GBX 80	–	–
ILS1•852P	GBX 80	GBX 80	GBX 80	–	–
ILS1•853P	GBX 80	GBX 80	GBX 80	–	–
ILS1•573T	GBX 80	GBX 80	GBX 80	–	–
ILS2•571P	GBX 60	GBX 60	GBX 60	–	–
ILS2•572P	GBX 60	GBX 60	GBX 60	–	–
ILS2•573P	GBX 60	GBX 60	GBX 60	–	–
ILS2•851P	GBX 80	GBX 80	GBX 80	–	–
ILS2•852P	GBX 80	GBX 80	GBX 80	–	–
ILS2•853P	GBX 80	GBX 80	GBX 80	–	–
ILS2•573T	GBX 80	GBX 80	GBX 80	–	–

GBX 60

For these combinations, you must check that the application will not exceed the maximum output torque of the gearbox, see page 4/114.

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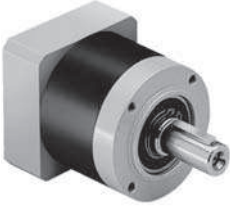
Characteristics					
Type			GBX 40	GBX 60	GBX 80
Version			Planetary gearbox with straight teeth		
Backlash	3:1 ... 8:1	arcmin	< 24	< 16	< 9
	16:1 ... 40:1		< 28	< 20	< 14
Torsional rigidity	3:1 ... 8:1	Nm/ arcmin	1	2.3	6
	16:1 ... 40:1		1.1	2.5	6.5
Noise level (1)		dB(A)	55	58	60
Casing			Black anodized aluminium		
Shaft material			C 45		
Shaft output dust and dump protection			IP 54		
Lubrication			Lubricated life		
Average service life (2)		h	30,000		
Mounting position			Any position		
Operating temperature		°C	-25 ... +90		
Efficiency	3:1 ... 8:1		0.96		
	16:1 ... 40:1		0.94		
Maximum permitted radial force (2) (3)	L _{10h} = 10,000 h	N	200	500	950
	L _{10h} = 30,000 h	N	160	340	650
Maximum permitted axial force (2)	L _{10h} = 10,000 h	N	200	600	1200
	L _{10h} = 30,000 h	N	160	450	900
Moment of inertia of gearbox	3:1	kgcm ²	0.031	0.135	0.77
	5:1	kgcm ²	0.019	0.078	0.45
	8:1	kgcm ²	0.017	0.065	0.39
	16:1	kgcm ²	0.022	0.088	0.5
	40:1	kgcm ²	0.016	0.064	0.39
Continuous output torque (2)	3:1	Nm	11	28	85
	5:1	Nm	14	40	110
	8:1	Nm	6	18	50
	16:1	Nm	20	44	120
	40:1	Nm	18	40	110
Maximum output torque (2)	3:1	Nm	17.6	45	136
	5:1	Nm	22	64	176
	8:1	Nm	10	29	80
	16:1	Nm	32	70	192
	40:1	Nm	29	64	176

(1) Value measured at a distance of 1 m, at no-load for a servo motor speed of 3000 rpm and a reduction ratio of 5:1.

(2) Values given for an output shaft speed of 100 rpm in S1 mode (cyclic ratio = 1) on electrical machines for an ambient temperature of 30 °C.

(3) Force applied at mid-distance from the output shaft.

References



GBX ●●● planetary gearbox

Size	Reduction ratio	Reference (1)	Weight
			kg
GBX 40	3:1, 5:1, 8:1	GBX 040 ●●● ●●● ●L	0.350
GBX 60	3:1, 5:1, 8:1	GBX 060 ●●● ●●● ●L	0.900
	16:1, 40:1	GBX 060 ●●● ●●● ●L	1.100
GBX 80	3:1, 5:1, 8:1	GBX 080 ●●● ●●● ●L	2.100
	16:1, 40:1	GBX 080 ●●● ●●● ●L	2.600

(1) To order a GBX planetary gearbox, complete each reference above with:

		GBX	●●●	●●●	●●●	●	L
Size	Diameter of the housing (2)	40 mm	040				
		60 mm	060				
		80 mm	080				
Reduction ratio		3:1		003			
		5:1		005			
		8:1		008			
		16:1		016			
		40:1		040			
Associated integrated drive	Type	ILA●●57			A57		
		ILE●●66			E66		
		ILS●●57			S57		
		ILS●●85			S85		
	Motor length (3)	1				1	
	2				2		
	3				3		
Integrated drive system adaptation							L

(2) See table of combinations with Lexium integrated drive on page 4/113.

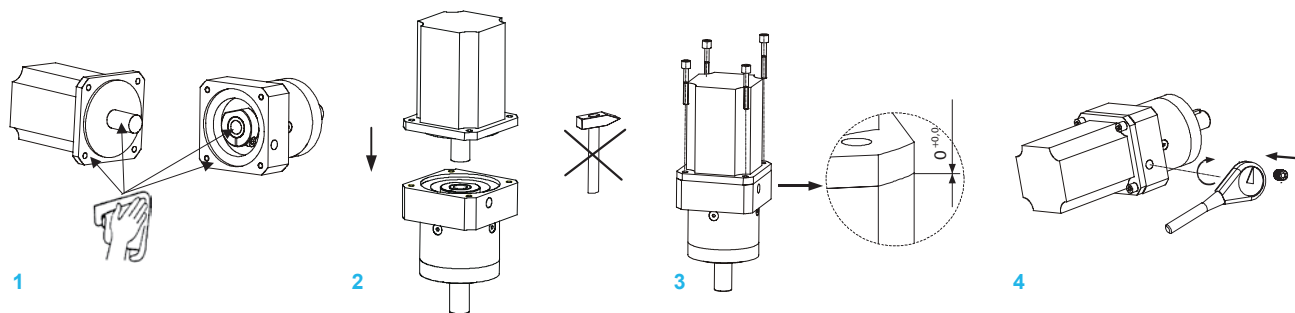
(3) See reference of the corresponding integrated drive system for possible motor lengths.

Mounting recommendations

Special tools are not required for mounting the GBX planetary gear to the integrated drive system. Note the following requirements:

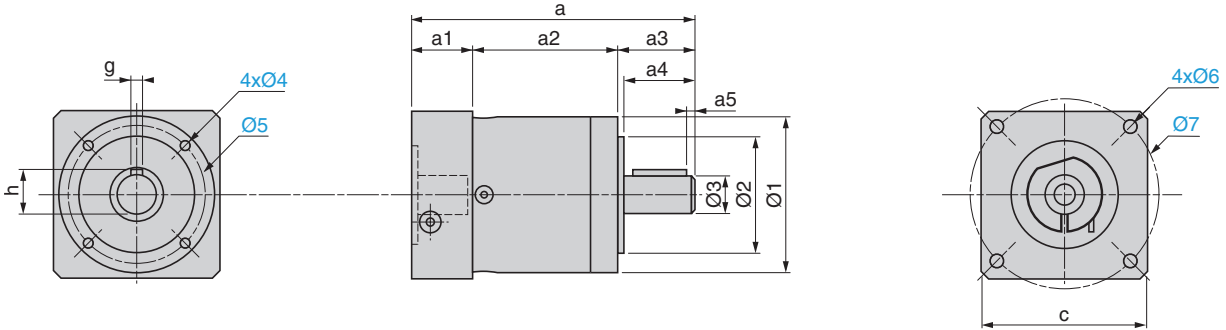
- 1 Clean grease off contact areas and seals.
- 2 If possible, mount the motor in a vertical position. Fit motor into gearing.
- 3 Motor flange must be in contact with gearing flange. Tighten screws crosswise.
- 4 Tighten clamping ring with torque spanner.

More information can be found in the instructions supplied with the product.



GBX planetary gearboxes

Mounting at motor side



	c	a	a1	a2	a3	a4	a5	h	g	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7
GBX 040 003/005/008	40	93.5	28.5	39	26	23	2.5	11.2	3	40	26 h7	10 h7	M4 x 6	34	M4 x 10	46
GBX 060 003/005/008	60	106.5	24.5	47	35	30	2.5	16	5	60	40 h7	14 h7	M5 x 8	52	M5 x 12	63
GBX 060 016/040	60	118.5	24.5	59.5	35	30	2.5	16	5	60	40 h7	14 h7	M5 x 8	52	M5 x 12	63
GBX 080 003/005/008	90	134	33.5	60.5	40	36	4	22.5	6	80	60 h7	20 h7	M6 x 10	70	M6 x 15	100
GBX 080 016/040	90	151	33.5	77.5	40	36	4	22.5	6	80	60 h7	20 h7	M6 x 10	70	M6 x 15	100