

# 1 Product overview

## Planetary gearbox with output shaft - 8GP



	8GP30	8GP40	8GP45	8GP50	8GP55	8GP60 / 8GP70
Class	Economy	Standard				Premium
Size	040, 060, 080, 120	040, 060, 080, 120	067, 089, 121	050, 070, 090, 120, 155	60, 80, 120	070, 090, 115, 142, 190
Tooth type	Straight					Straight/Helical
Degree of protection	IP54				IP65	
Backlash [arcmin]:						
1-stage	≤8 - ≤15	≤7 - ≤15	≤8 - ≤12	≤8 - ≤15	≤8 - ≤12	≤1 - ≤3
2-stage	≤12 - ≤19	≤12 - ≤19	≤12 - ≤15	≤12 - ≤19	≤12 - ≤15	≤1 - ≤5
3-stage	---	≤14 - ≤22	≤14 - ≤18	---	---	---
Gear ratio:						
1-stage	5, 10	3 - 10	3 - 10	3 - 10	3 - 10	3 - 10
2-stage	25	9 - 100	9 - 100	9 - 100	9 - 100	12 - 100
3-stage	---	60 - 512	60 - 512	---	---	---
Rated output torque [Nm]	5 - 172	5 - 260	15 - 260	5 - 460	15 - 260	27 - 1,800
Radial load 20,000 h [N] <sup>1)</sup>	200 - 1,750	200 - 1,750	900 - 2,950	800 - 5,200	3200 - 6,000	3200 - 21,000
Axial load 20,000 h [N] <sup>1)</sup>	200 - 2,500	200 - 2,500	1,000 - 2,500	1,000 - 7,000	4,400 - 8,000	4,400 - 21,000
Smooth shaft	---	Optional-ly available	Optional-ly available	Optional-ly available	Standard	Standard
Keyed shaft	Standard	Standard	Standard	Standard	Optional-ly available	Optional-ly available
Toothed shaft	---	---	---	---	---	Optional-ly available

1) Refers to the center of the output shaft. Values refer to drive shaft speed  $n_2 = 100$  rpm and application factor  $K_A = 1$  as well as S1 operation for electrical machines and  $T = 30^\circ\text{C}$ . Depends on the diameter of the respective motor shaft.

Angular planetary gearbox - 8GA



	8GA40	8GA45	8GA50	8GA55	8GA60	8GA75
Class	Standard				Premium	
Size	040, 060, 080, 120	067, 089, 121	050, 070, 090, 120	064, 090, 110	070, 090, 115, 142	070, 090, 115, 142
Tooth type	Straight				Spiral bevel	
Degree of protection	IP54				IP65	
Backlash [arcmin]:						
1-stage	≤12 - ≤21	≤12 - ≤14	≤12 - ≤21	≤12 - ≤17	≤5	≤5
2-stage	≤16 - ≤25	≤16 - ≤18	≤16 - ≤25	≤14 - ≤19	≤7	---
3-stage	≤18 - ≤28	≤18 - ≤20	---	---	---	---
Gear ratio:						
1-stage	3 - 10	3 - 10	3 - 10	3 - 10	4 - 10	4 - 10
2-stage	9 - 100	9 - 100	9 - 100	9 - 100	16 - 100	---
3-stage	60 - 512	60 - 512	---	---	---	---
Rated output torque [Nm]	4.5 - 260	38 - 260	4.5 - 195	14 - 260	22 - 800	22 - 800
Radial load 20,000 h [N] <sup>1)</sup>	200 - 1,750	900 - 2,950	800 - 2,500	550 - 2,400	3,200 - 11,400	3,200 - 11,400
Axial load 20,000 h [N] <sup>1)</sup>	200 - 2,500	1,000 - 2,500	1,000 - 4,000	1,200 - 3,300	4,300 - 15,000	4,300 - 15,000
Smooth shaft	Optional-ly available	Optional-ly available	Optional-ly available	---	Standard	---
Keyed shaft	Standard	Standard	Standard	---	Optional-ly available	---
Hollow shaft (one side)	---	---	---	---	---	Standard
Hollow shaft (both sides)	---	---	---	---	---	Optional-ly available
Drive flange	---	---	---	Standard	---	---
Direction of rotation						

1) Refers to the center of the output shaft. Values refer to drive shaft speed  $n_2 = 100$  rpm and application factor  $K_A = 1$  as well as S1 operation for electrical machines and  $T = 30^\circ\text{C}$ . Depends on the diameter of the respective motor shaft.

Planetary gearbox with output flange - 8GF



	8GF40	8GF60	8GF70
Class	Standard		Premium
Size	064, 090, 110	064, 090, 110, 140, 200	064, 090, 110, 140, 200
Tooth type	Straight		Helical
Degree of protection	IP54		IP65
Backlash [arcmin]:			
1-stage	≤8 - ≤12	≤1 - ≤3	≤1 - ≤3
2-stage	≤12 - ≤16	≤1 - ≤5	≤1 - ≤5
3-stage	---	---	---
Gear ratio:			
1-stage	3 - 10	4 - 10	4 - 10
2-stage	9 - 100	16 - 100	16 - 100
3-stage	---	---	---
Rated output torque [Nm]	15 - 260	27 - 1,800	27 - 1,800
Radial load 20,000 h [N] <sup>1)</sup>	550 - 2,400	2,400 - 33,000	2,400 - 33,000
Axial load 20,000 h [N] <sup>1)</sup>	1,200 - 3,300	4,300 - 25,000	4,300 - 25,000
Drive flange	Standard	Standard	Standard

1) Refers to the center of the output shaft. Values refer to drive shaft speed  $n_2 = 100$  rpm and application factor  $K_A = 1$  as well as S1 operation for electrical machines and  $T = 30^\circ\text{C}$ . Depends on the diameter of the respective motor shaft.

## 2 8G - Order key

8G e ff . ggg hh iii k l mm

### Gearbox type

- P ... Planetary gearbox with output shaft
- F ... Planetary gearbox with output flange
- A ... Angular planetary gearbox

### Series

- Economy ... **30**
- Standard ... **40, 45, 50, 55**
- Premium ... **60, 70, 75**

### Size

Example: **040, 050, ... 142, 190, 200** see "[Size \(ggg\)](#)" on page 4

### Variants

- ... Standard
  - F ... Food-safe (not available for 8GP30)
  - L ... Low temperature (not available for 8GP30 / 8GA60 / 8GA75)
- see "[Variants \(hh\)](#)" on page 4

### Gear ratio

Example: **003, 004, ... 256, 320, 512** see "[Available gear ratios \(iii\)](#)" on page 5

### Backlash

- S ... Standard
- R ... Reduced backlash (only available for 8GP60 / 8GP70 / 8GF60 / 8GF70)

### Output shaft type

- 0 ... Output flange (8GF40 / 8GA55 with dowel hole and 8GF60 / 8GF70 without dowel hole)
- 5 ... Output flange (8GF60 / 8GF70 with dowel hole)
- 1 ... Smooth shaft (8GAxx / 8GPxx)
- 2 ... Keyed shaft (8GAxx / 8GPxx)
- 4 ... Toothed shaft (8GP60 / 8GP70)
- 6 ... Hollow shaft on one side (8GA75)
- 7 ... Hollow shaft on both sides (8GA75)

### Motor mounting

Example: **L2, V3, ...** see "[Motor mounting \(mm\)](#)" on page 5

### Note:

Order keys only provide information about possible combinations in exceptional cases. Information about possible combinations is available in the CAD configurator under [cad.br-automation.com](http://cad.br-automation.com).

## 2.1 Size (ggg)

The different sizes are distinguished by three numbers (**ggg**) in the model number. The larger these numbers, the larger the flange dimensions and power data of the respective gearbox.

### 8GP

Gearbox series	1-stage <sup>1)</sup>	2-stage <sup>1)</sup>	3-stage <sup>1)</sup>
8GP30	040, 060, 080, 120	040, 060, 080, 120	---
8GP40	040, 060, 080, 120	040, 060, 080, 120	040, 060, 080, 120
8GP45	067, 089, 121	067, 089, 121	067, 089, 121
8GP50	050, 070, 090, 120.155	050, 070, 090, 120.155	---
8GP55	060, 080, 120	060, 080, 120	---
8GP60	070, 090, 115, 142, 190	070, 090, 115, 142, 190	---
8GP70	070, 090, 115, 142, 190	070, 090, 115, 142, 190	---

### 8GF

Gearbox series	1-stage <sup>1)</sup>	2-stage <sup>1)</sup>	3-stage <sup>1)</sup>
8GF40	064, 090, 110	064, 090, 110	---
8GF60	064, 090, 110, 140, 200	064, 090, 110, 140, 200	---
8GF70	064, 090, 110, 140, 200	064, 090, 110, 140, 200	---

### 8GA

Gearbox series	1-stage <sup>1)</sup>	2-stage <sup>1)</sup>	3-stage <sup>1)</sup>
8GA40	040, 060, 080, 120	040, 060, 080, 120	040, 060, 080, 120
8GA45	067, 089, 121	067, 089, 121	067, 089, 121
8GA50	050, 070, 090, 120	050, 070, 090, 120	---
8GA55	064, 090, 110	064, 090, 110	---
8GA60	070, 090, 115	070, 090, 115, 142	---
8GA75	070, 090, 115.142	---	---

1) **1-stage, 2-stage or 3-stage:** Defined by the selected gear ratio.

## 2.2 Variants (hh)

The different variants are distinguished by two numbers (**hh**) in the model number.

Design code	Variant	Availability
--	<b>Standard</b>	All gearboxes
-F	<b>Food-grade lubrication</b> H1-compliant Same properties as standard lubrication	Not available for 8GP30
-L	<b>Low-temperature lubrication</b> $T_{min} = -40^{\circ}\text{C}$ Optimal operating temperature: Maximum 50°C	Not available for 8GP30 / 8GA60 / 8GA75

## 2.3 Available gear ratios (iii)

The code (iii) in the model number contains the gear ratio.

### 8GP

Gearbox series	1-stage	2-stage	3-stage
8GP30	005, 010	025	---
8GP40	003, 004, 005, 007, 008, 010	009, 012, 015, 016, 020, 025, 032, 040, 064, 100	060, 080, 120, 160, 200, 256, 320, 512
8GP45	003, 004, 005, 007, 008, 010	009, 012, 015, 016, 020, 025, 032, 040, 064, 100	060, 080, 120, 160, 200, 256, 320, 512
8GP50	003, 004, 005, 007, 008, 010	009, 012, 015, 016, 020, 025, 032, 040, 064, 100	---
8GP50-155	004, 005, 010	016, 020, 025, 040, 050, 100	---
8GP55	003, 004, 005, 007, 008, 010	009, 012, 015, 016, 020, 025, 032, 040, 064, 100	---
8GP60	003, 004, 005, 007, 008, 010	012, 015, 016, 020, 025, 032, 040, 064, 100	---
8GP70	003, 004, 005, 007, 010	012, 015, 016, 020, 025, 035, 040, 050, 070, 100	---

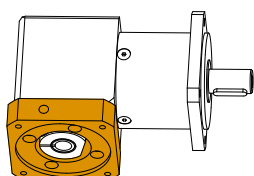
### 8GF

Gearbox series	1-stage	2-stage	3-stage
8GF40	003, 004, 005, 007, 008, 010	009, 012, 015, 016, 020, 025, 032, 040, 064, 100	---
8GF60	004, 005, 007, 008, 010	016, 020, 025, 032, 040, 050, 064, 100	---
8GF70	004, 005, 007, 010	016, 020, 025, 035, 040, 050, 070, 100	---

### 8GA

Gearbox series	1-stage	2-stage	3-stage
8GA40	003, 004, 005, 007, 008, 010	009, 012, 015, 016, 020, 025, 032, 040, 064, 100	060, 080, 120, 160, 200, 256, 320, 512
8GA45	003, 004, 005, 007, 008, 010	009, 012, 015, 016, 020, 025, 032, 040, 064, 100	060, 080, 120, 160, 200, 256, 320, 512
8GA50	003, 004, 005, 007, 008, 010	009, 012, 015, 016, 020, 025, 032, 040, 064, 100	---
8GA55	003, 004, 005, 007, 008, 010	009, 012, 015, 016, 020, 025, 032, 040, 064, 100	---
8GA60	004, 005, 008, 010	016, 020, 025, 032, 040, 064, 100	---
8GA75	004, 005, 008, 010	---	---

## 2.4 Motor mounting (mm)



The code (mm) for the suitable mounting flange – for motor mounting – must be determined from the following table.

		1st character	2nd character
8LVA		V	Motor size (1, 2, 3)
8LS	8LSAA	J	3
	8LSA5A/8LSC5A	L	5
	8LSA5B/8LSC5B	O	5
	8LSA5C/8LSC5C	O	5
	8LSA76/77/78 and 8LSC76/77/78	Q	7
	8LSA85/8LSA86	M	8
	All other 8LSA / 8LSC	L	Motor size (2, 3, 4, 5, 6, 7, 8)
	8LSN	N	Motor size (4, 5)
8JSA		J	Motor size (2, 3, 4, 5, 6, 7)
80MP		P	Flange size (D, F, H) <sup>1)</sup>

- 1) D = Flange 56 = Nema 23  
 F = Flange 60 = Nema 23  
 H = Flange 86 = Nema 34

# 3 Motor-Gearbox combinations

The possible combinations of B&R gearboxes with B&R motors are listed in the following tables.

## 3.1 Standard planetary gearbox

Size	8LSA			8LSA / 8LSC							8LV			8JS							8SLN		80M			
	2	A	3	4		5					5	6	1	2	3	2	3	4	5	6	7	4	5	PD	PF	PH
Motor code	L2	J3	L3	L4		L5					O5	L6 L7 Q7	V1	V2	V3	J2	J3	J4	J5	J6	J7	N4	N5	PD	PF	PH
Length	*	*	*	3-4	5-6	3-4	5-6	7	A	B/C	*	3	2-3	3	*	*	*	*	*	*	*	*	max	max	max	
Gearbox type/ratio																										
8GP40	040	X										X			X								X	X		
	060	X	X	6									X	X	X	X	4						X	X	X	
	080		X	X	X	C							X	X		X	X	4				5			X	
	120			X	X	X	X	X	X	C	O						X	X	X			X	8			X
8GP45	067	X	X	6									X	X	X	X	4						X	X	X	
	089		X	X	X	C							X	X		X	X	4				5			X	
	121			X	X	X	X	X	X	C	O						X	X	X			X	8			X
8GP50	050	X										X			X								X	X		
	070	X	X	6									X	X	X	X	4						X	X	X	
	090		X	X	X	C							X	X		X	X	4				5			X	
	120			X	X	X	X	X	X	C	O						X	X	X			X	8			X
	155				X	X	X	X	X	X	X	X					X	X	X	X	X	X	X			
8GP55	060	X	X	6									X	X	X	X	4						X	X	X	
	080		X	X	X	C							X	X		X	X	4				5			X	
	120			X	X	X	X	X	X	C	O						X	X	X			X	8			X
8GA40	040	X										X			4								X	X		
	060	X	4	4									X	X	X	X							X	X	O	
	080		X	X	C	O							X	X		X	X					4			X	
	120			X	X	X	X	C	O	O							X	X				X	6			X
8GA45	067	X	4	4									X		X	X							X	X	O	
	089		X	X	C	O							X	X		X	X					4			X	
	121			X	X	X	X	C	O	O						X	X					X	6			X
8GA50	050	X										X			4								X	X		
	070	X	4	4									X		X	X							X	X	O	
	090		X	X	C	O							X	X		X	X					4			X	
	120			X	X	X	X	C	O	O							X	X				X	6			X
8GA55	064	X	4	4									X		X	X							X	X	O	
	090		X	X	C	O							X	X		X	X					4			X	
	110			X	X	X	X	C	O	O						X	X					X	6			X
8GF40	064	X	X	6									X	X	X	X	4						X	X	X	
	090		X	X	X	C							X	X		X	X	4				5			X	
	110			X	X	X	X	X	X	C	O						X	X	X			X	8			X

- \* All lengths
- 4 Combination only possible with vertical mounting orientation starting with motor length 4
- 5 Combination only possible with vertical mounting orientation starting with motor length 5
- 6 Combination only possible with vertical mounting orientation starting with motor length 6
- 8 Combination only possible with vertical mounting orientation starting with motor length 8
- C Combination possible (8LSA possible with vertical and horizontal mounting orientation / 8LSC only possible with vertical mounting orientation)
- O Combination only possible with vertical mounting orientation
- X Combination possible

### 3.2 Premium planetary gearbox

Size	8LSA			8LSA/8LSC										8JS							8SLN		80M		
	2	A	3	4		5		5		6	7	7	8	8	2	3	2	3	4	5	6	7	4	5	PH
	L2	J3	L3	L4	L5	O5	L6	L7	Q7	L8	M8	V2	V3	J2	J3	J4	J5	J6	J7	N4	N5	PH			
Motor code	*	*	*	3-4	5-6	3-6	7/A	B	C	*	*	*	*	5	6	2-3	3	*	*	*	*	*	*	*	
Length	*	*	*	3-4	5-6	3-6	7/A	B	C	*	*	*	*	5	6	2-3	3	*	*	*	*	*	*	max	
Gearbox type/ratio																									
8GP60	070	X	X	X												X	X	X	X	X				X	
	090		X	X	X	X										X	X		X	X			X	X	
	115			X	X	X	X	X	C							X			X	X	X		X	X	
	142				X	X	X	X	X	X	X	X	X						X	X	X	X	X	X	
	190						X	X	X	X	X	X	X	C	O				X	X	X		X		
8GP70	070	X	X	X												X	X	X	X	X				X	
	090 <sup>1)</sup>	X	X	X	X	X										X	X	X	X	X			X	X	
	090 <sup>2)</sup>	X	X	X	X	C										X	X	X	X	X			6	X	
	115 <sup>1)</sup>		X	X	X	X	X	X	C								X		X	X	X		X	X	
	115 <sup>2)</sup>		X	X	X	X	X	C								X	X		X	X			X	8	
	142 <sup>1)</sup>				X	X	X	X	X	X	X	X	X						X	X	X		X	X	
	142 <sup>2)</sup>			X	X	X	X	X	C	X	X					X			X	X	X		X	X	
	190 <sup>1)</sup>						X	X	X	X	X	X	X	C	O				X	X	X		X		
	190 <sup>2)</sup>				X	X	X	X	X	X	X	X	X						X	X	X		X	X	
8GA60	070	X	X	X												X	X	X	X	X				X	
	090 <sup>1)</sup>	X	X	X	X	X										X	X	X	X	X			X	X	
	090 <sup>2)</sup>	X	X	X	C	O										X	X	X	X	X			4	X	
	115 <sup>1)</sup>		X	X	X	X	X	O	O								X		X	X	X		X	X	
	115 <sup>2)</sup>		X	X	X	X	C	O								X	X		X	X			X	6	
	142 <sup>1)</sup>				X	X	X	X	X	X	X	X	8						X	X	X	X	X	X	
	142 <sup>2)</sup>			X	X	X	X	X	C	X	X					X			X	X	X		X	X	
8GA75	070 <sup>1)</sup>	X	X	X												X	X	X	X	X				X	
	090 <sup>1)</sup>		X	X	X	X										X	X		X	X			X	X	
	115 <sup>1)</sup>			X	X	X	X	O	O							X			X	X	X		X	X	
	142 <sup>1)</sup>				X	X	X	X	X	X	X	8							X	X	X	X	X	X	
8GF60	064	X	X	X												X	X	X	X	X				X	
	090 <sup>1)</sup>	X	X	X	X	X										X	X	X	X	X			X	X	
	090 <sup>2)</sup>	X	X	X	X	C										X	X	X	X	X			6	X	
	110 <sup>1)</sup>		X	X	X	X	X	X	C								X		X	X	X		X	X	
	110 <sup>2)</sup>		X	X	X	X	X	C								X	X		X	X			X	8	
	140 <sup>1)</sup>				X	X	X	X	X	X	X	X							X	X	X	X	X	X	
	140 <sup>2)</sup>			X	X	X	X	X	C	X	X					X			X	X	X		X	X	
	200 <sup>1)</sup>						X	X	X	X	X	X	X	C	O				X	X	X		X		
200 <sup>2)</sup>				X	X	X	X	X	X	X	X	4	O	O				X	X	X	X	X	X		
8GF70	064	X	X	X												X	X	X	X	X				X	
	090 <sup>1)</sup>	X	X	X	X	X										X	X	X	X	X			X	X	
	090 <sup>2)</sup>	X	X	X	X	C										X	X	X	X	X			6	X	
	110 <sup>1)</sup>		X	X	X	X	X	X	C								X		X	X	X		X	X	
	110 <sup>2)</sup>		X	X	X	X	X	C								X	X		X	X			X	8	
	140 <sup>1)</sup>				X	X	X	X	X	X	X	X							X	X	X		X	X	
	140 <sup>2)</sup>			X	X	X	X	X	C	X	X					X			X	X	X		X	X	
200 <sup>1)</sup>						X	X	X	X	X	X	X	C	O				X	X	X		X			
200 <sup>2)</sup>				X	X	X	X	X	X	X	X	4	O	O				X	X	X	X	X	X		

- 1) 1-stage
- 2) 2-stage
- \* All lengths
- 4 Combination only possible with vertical mounting orientation starting with motor length 4
- 6 Combination only possible with vertical mounting orientation starting with motor length 6
- 8 Combination only possible with vertical mounting orientation starting with motor length 8
- C Combination possible (8LSA possible with vertical and horizontal mounting orientation / 8LSC only possible with vertical mounting orientation)
- O Combination only possible with vertical mounting orientation
- X Combination possible

### 3.3 Economy planetary gearbox

Size	8LSA			8LSA/8LSC						8LV			8JS				80M		
	2	A	3	4	5					1	2	3	2	3	4	5	PD	PF	PH
Motor code	L2	J3	L3	L4		L5				V1	V2	V3	J2	J3	J4	J5	PD	PF	PH
Length	*	*	*	3/4	5/6	3/4	5/6	7	A	3	2/3	3	*	*	*	*	max	max	max
Gearbox type/ratio																			
8GP30	040	X								X			X				X	X	
	060	X	X	6							X		X	X			X	X	X
	080		X	X	X	C					X	X		X	X				X
	120			X	X	X	X	X	X	C					X	X			

- \* All lengths
- 6 Combination only possible with vertical mounting orientation starting with motor length 6
- C Combination possible (8LSA possible with vertical and horizontal mounting orientation / 8LSC only possible with vertical mounting orientation)
- O Combination only possible with vertical mounting orientation
- X Combination possible