

HarmonicDrive®

Quick Connect® Servo Gearheads



Permanent Precision, Excellent Backlash Stability

- Harmonic Drive® or Harmonic Planetary® gearheads
 - Zero backlash and low backlash versions
 - Ratios: 3:1 - 160:1
 - Peak Torque: 3.9 N•m - 3940 N•m
 - Sizes: 40mm - 230mm
 - Output Configurations:
Hollow Shaft, Flange, Keyed Shaft, Smooth Shaft

Harmonic Drive® Quick Connect® Gearhead Product Line

HarmonicPlanetary®
HPGP High Torque Series
(Peak torque 12Nm to 3940Nm)



Size	Outline Dimension (mm)	Reduction ratio	Backlash		Motor power
			Standard	Reduced	
11	□40	5, 21, 37, 45	≤ 3 arc-min	n/a	10W~200W
14, 20, 32	□60, □90, □120	5, 11, 15, 21, 33, 45	≤ 3 arc-min	≤ 1 arc-min	30W~4kW
50	□170		≤ 3 arc-min	≤ 1 arc-min	500W~10kW
65	□230	4, 5, 12, 15, 20, 25	≤ 3 arc-min	≤ 1 arc-min	1.3kW~15kW

HarmonicPlanetary®
HPG Standard Series
(Peak torque 5Nm to 3200Nm)



Size	Outline Dimension (mm)	Reduction ratio	Backlash		Motor power
			Standard	Reduced	
11	□40	5, 9, 21, 37, 45	≤ 3 arc-min	n/a	10W~100W
14, 20, 32	□60, □90, □120	3, 5, 11, 15, 21, 33, 45	≤ 3 arc-min	≤ 1 arc-min	30W~3.5kW
50	□170		≤ 3 arc-min	≤ 1 arc-min	500W~10kW
65	□230	4, 5, 12, 15, 20, 25, 40, 50	≤ 3 arc-min	≤ 1 arc-min	1.3kW~15kW

HarmonicPlanetary®
HPG Helical Series
(Peak torque 5Nm to 4000Nm)



Size	Outline Dimension (mm)	Reduction ratio	Backlash		Motor power
			Standard	Reduced	
11	□40	4, 5, 6, 7, 8, 9, 10	≤ 3 arc-min	n/a	10W ~ 100W
14	□60	3, 4, 5, 6, 7, 8, 9, 10	≤ 3 arc-min	≤ 1 arc-min	30W ~ 3.5kW
20	□90		≤ 3 arc-min	≤ 1 arc-min	500W ~ 10kW
32	□120		≤ 3 arc-min	≤ 1 arc-min	1.3kW ~ 15kW

HarmonicPlanetary®
HPG Right Angle Series
(Peak torque 150Nm to 2400Nm)



Size	Outline Dimension (mm)	Reduction ratio	Backlash	Motor power
			Standard	
32, 50	□120, □170	5, 11, 15, 21, 33, 45	≤ 3 arc-min	500W~8kW
65	□230	5, 12, 15, 20, 25, 40, 50	≤ 3 arc-min	2kW~8kW

HarmonicDrive®
CSG-GH High Torque Series
(Peak torque 230Nm to 2419Nm)
Zero-Backlash



Size	Outline Dimension (mm)	Reduction ratio	Repeatability (arc sec) ^{*1}	Transmission Accuracy (arc min)	Motor power
14	□60	50, 80, 100	±10	1.5	30W~100W
20	□90	50, 80, 100, 120, 160	±8	1.0	100W~400W
32	□120		±6		300W~1.5kW
45	□170		±5		450W~2kW
65	□230	80, 100, 120, 160	±4		850W~5kW

HarmonicDrive®
CSF-GH Standard Series
(Peak torque 18Nm to 2630Nm)
Zero-Backlash



Size	Outline Dimension (mm)	Reduction ratio	Repeatability (arc sec) ^{*1}	Transmission Accuracy (arc min)	Motor power
14	□60	50, 80, 100	±10	1.5	30W~100W
20	□90	50, 80, 100, 120, 160	±8	1.0	100W~200W
32	□120		±6		300W~1kW
45	□170		±5		450W~2kW
65	□230	80, 100, 120, 160	±4		850W~5kW

HarmonicPlanetary®
HPN Standard Series
(Peak torque 9Nm to 752Nm)



Size	Outline Dimension (mm)	Reduction ratio	Backlash		Motor power
			One stage	Two stage	
11	□42	4, 5, 7, 10, 15, 20, 25, 30, 35, 40, 45, 50	≤ 5 arc-min	≤ 7 arc-min	30W ~ 150W
14	□60				100W ~ 600W
20	□90				200W ~ 2kW
32	□115				400W ~ 7kW
40	□142				500W ~ 7.5kW

HarmonicPlanetary®
HPN-L Face-Mount Series
(Peak torque 9Nm to 752Nm)

NEW!



Size	Outline Dimension (mm)	Reduction ratio	Backlash		Motor power
			One stage	Two stage	
11	Ø50	4, 5, 7, 10, 15, 20, 25, 30, 35, 40, 45, 50	≤ 5 arc-min	≤ 7 arc-min	30W ~ 150W
14	Ø70				100W ~ 600W
20	Ø90				200W ~ 2kW
32	Ø120				400W ~ 7kW
40	Ø155				500W ~ 7.5kW

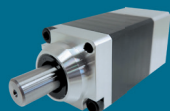
HarmonicPlanetary®
HPN Right Angle Series
(Peak torque 9Nm to 752Nm)

NEW!



Size	Outline Dimension (mm)	Reduction ratio	Backlash		Motor power
			One stage	Two stage	
11	□42	4, 5, 7, 10, 15, 20, 25, 30, 35, 40, 45, 50	≤ 5 arc-min	≤ 7 arc-min	30W ~ 150W
14	□60				100W ~ 600W
20	□90				200W ~ 2kW
32	□115				400W ~ 7kW
40	□142				500W ~ 7.5kW

HarmonicPlanetary®
HP/CP 8 Series



Size	Ratio	Outline Dimension (mm)	Backlash	Motor power
8	5, 16, 25	□ 25	≤30 arc-min	5W ~ 30W

HarmonicPlanetary® Gear Units

HarmonicPlanetary®
HPF Hollow Shaft Series
(Peak torque 100Nm to 220Nm)



Size	Outline Dimension (mm)	Hollow shaft diameter	Reduction ratio	Backlash
25	Ø136	Ø25	11	≤ 3 arc-min
32	Ø167	Ø30		

HarmonicPlanetary®
HPG Input Shaft Series
(Peak torque 3.9Nm to 220Nm)

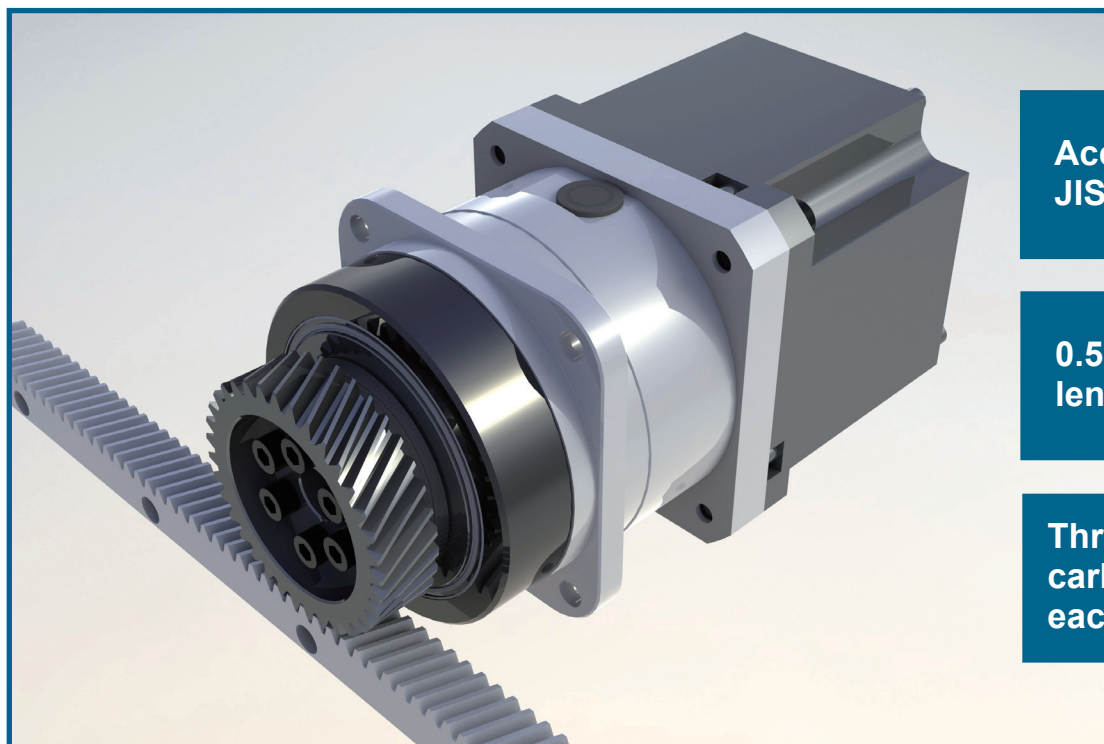


Size	Outline Dimension (mm)	Reduction ratio	Backlash	
			Standard	Reduced
11	□40	5, 9, 21, 37, 45	≤ 3 arc-min	n/a
14, 20, 32	□60, □90, □120	3, 5, 11, 15, 21, 33, 45	≤ 3 arc-min	≤ 1 arc-min
50	□170		≤ 3 arc-min	≤ 1 arc-min
65	□230	4, 5, 12, 15, 20, 25, 40, 50	≤ 3 arc-min	≤ 1 arc-min

HPG Series_{plus} Rack & Pinion

HarmonicPlanetary® HPG Series

The Rack & Pinion and HPG Gearhead **as a Set**



Accuracy Class DIN 6/
JIS Class N5

0.5 and 1.0 meter
length racks

Three choices of
carburized pinions for
each module size of rack

Induction Hardened Helical Gear Rack (Module 2 & 3)

Specifications

Size	Module	Number of pinion gears	Maximum conveying force [N]	Repeated peak torque [Nm]	Momentary peak torque [Nm]	Maximum conveying speed [m/min] * When R = 5
HPG-32A	2	35	8078	300	360	140
		40	7068	300	450	160
		45	6283	300	450	180
HPG-50A	3	31	15484	800	800	124
		35	15259	850	1000	140
		40	13351	850	1000	160



247 Lynnfield Street, Peabody, MA | 800.921.3332 | www.HarmonicDriveGearhead.com

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