

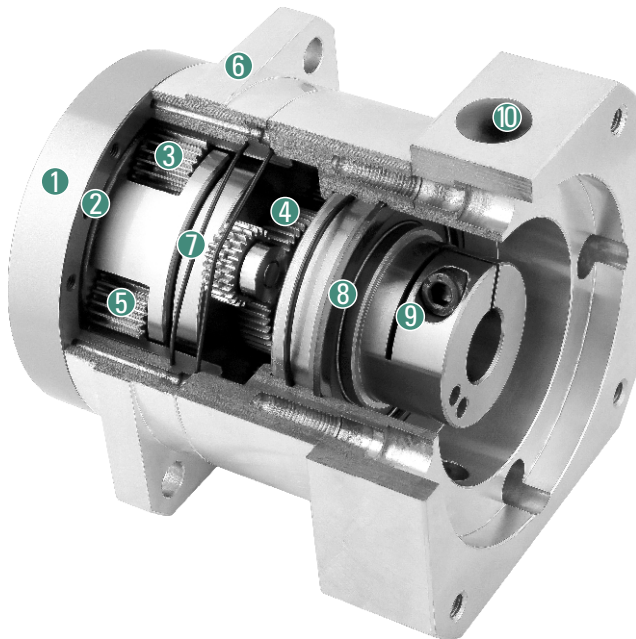


HIGH PRECISION PLANETARY GEAR BOX

HPG/HYPG/HRS/AGV Series

HPG/HYPG SERIES GEAR BOX

Sectional Drawing



- ① Output shaft
- ② Output shaft front bearing
- ③ Planetary gear
- ④ Sun Gear
- ⑤ Full needle bearing
- ⑥ Front cover
- ⑦ Output shaft rear bearing
- ⑧ Oil seal
- ⑨ Coupling
- ⑩ Rear cover

Type And Model Number

HPG/HYPG Reducers				Servo Motor			
<u>32</u>	<u>HPG/HYPG</u>	<u>21</u>	<u>()</u>	<u>(S)</u>	-	<u>1000</u>	<u>T1</u>
①	②	③	④	⑤		⑥	⑦

① Gear head frame size: 20, 32, 50

② Gear head series code: HPG: High torque type HYPG: Standard torque type

Gear ratio

③ Single stage: 5

Two stages: 11, 15, 21, 33, 45

④ Backlash

Output load is $\pm 3\%$ of the rated output torque

Reducer Type No	Stage	Standard Type	Standard Type
20ZPG	1	3 arc-min	1 arc-min
	2	5 arc-min	3 arc-min
32ZPG	1	3 arc-min	1 arc-min
	2	5 arc-min	3 arc-min
50ZPG	1	3 arc-min	1 arc-min
	2	5 arc-min	3 arc-min

Input shaft type

S: Overall Locking (Omission)(Regardless whether the motor with keyway can use it)

⑤ S1: Locking with locking ring (Omission)(Regardless whether the motor with keyway can use it)

S2: Locking with keyway (Input shaft with key)

A: Other type (Please contact with us)

⑥ Applicable servo motor power (W)

⑦ Model of servo motor

PRODUCT SPECIFICATIONS

HPG/HYPG

HRS

AGV

P04

HPG Reducer Performance Data

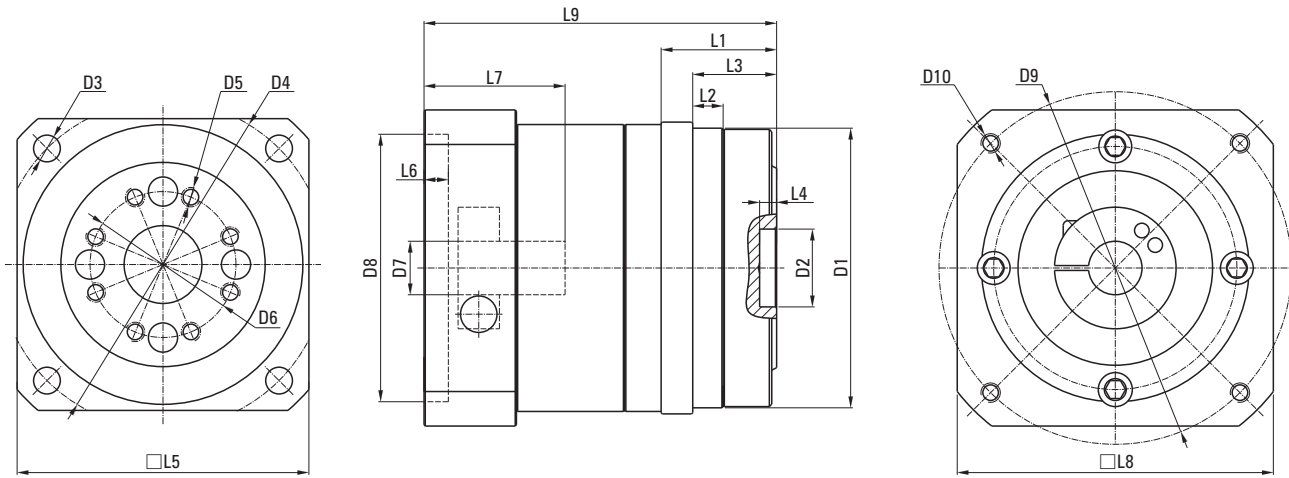
Specifications		Stage Number	Reduction Ratio	20ZPG	32ZPG	50ZPG
Rated output torque	Nm	1	5	50	150	380
			11	59	160	450
		2	15	70	220	460
			21	78	240	490
			33	72	200	620
			45	98	280	640
Instantaneous maximum torque	Nm	1,2		2 times rated output torque		
Recommended input speed	rpm	1,2	5~45	3000	3000	2000
Maximum input speed	rpm	1,2	5~45	6000	6000	4500
Precision back lash	arcmin	1,2	5~45	≤1	≤1	≤1
Standard back lash	arcmin	1,2	5~45	≤3	≤3	≤3
Torsional rigidity	Nm/arcmin	1,2	5~45	0.55	2.2	14
Life	hr	1,2	5~45	20000		
Efficiency	%	1	5	≥97		
		2	11~45	≥94		
Weight	Kg	1	5	1.2	3.0	10
		2	11~45	1.5	3.7	12
Ambient temperature	°C	1,2	11~45	-10°C~+90°C		
lubrication		1,2	11~45	Lifetime lubrication		
Protection grade		1,2	11~45	IP65		
Installation direction		1,2	11~45	Any direction		
Noise value	dB (A)	1,2	11~45	≤63	≤65	≤72
The moment of inertia	Nm	1	5	0.16	0.80	4.90
			11	0.17	1.00	4.00
		2	15	0.15	0.74	3.50
			21	0.071	0.35	1.60
			33	0.029	0.17	0.72
			45	0.022	0.12	0.50

HYPG Reducer Performance Data

Specifications		Stage Number	Reduction Ratio	20ZDPG	32ZDPG	50ZDPG
Rated output torque	Nm	1	5	38	120	290
			11	46	160	340
		2	15	58	170	400
			21	58	190	450
			33	70	200	470
			45	73	240	560
Instantaneous maximum torque	Nm	1,2		2 times rated output torque		
Recommended input speed	rpm	1,2	5~45	3000	3000	2000
Maximum input speed	rpm	1,2	5~45	6000	6000	4500
Precision back lash	arcmin	1,2	5~45	≤1	≤1	≤1
Standard back lash	arcmin	1,2	5~45	≤3	≤3	≤3
Torsional rigidity	Nm/arcmin	1,2	5~45	0.55	2.2	14
Life	hr	1,2	5~45	20000		
Efficiency	%	1	5	≥97		
		2	11~45	≥94		
Weight	Kg	1	5	1.2	3.0	10
		2	11~45	1.5	3.7	12
Ambient temperature	°C	1,2	11~45	-10°C~+90°C		
lubrication		1,2	11~45	Lifetime lubrication		
Protection grade		1,2	11~45	IP65		
Installation direction		1,2	11~45	Any direction		
Noise value	dB (A)	1,2	11~45	≤63	≤65	≤72
The moment of inertia	Nm	1	5	0.17	0.73	4.8
			11	0.15	0.78	3.3
		2	15	0.14	0.62	2.9
			21	0.069	0.34	1.6
			33	0.023	0.12	0.6
			45	0.022	0.11	0.6

HPG DIMENSIONS (SINGLE STAGE, RATIO I=5, TWO STAGE I=11-45)

Dimensional Drawing



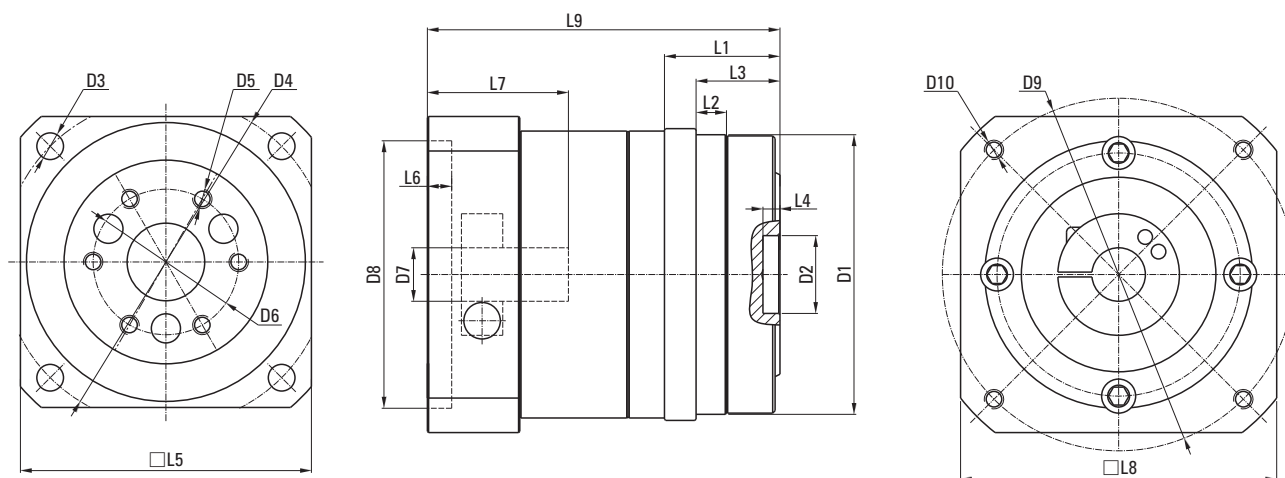
Dimensional Table

Unit: mm

Type	20ZPG	32ZPG	50ZPG
D1 Mounting boss	Φ85h7	Φ115h7	Φ165h7
D2 Install the check	Φ24H7	Φ32H7	Φ47H7
D3 flange mounting through hole	4-Φ9	4-Φ11	4-Φ14
D4 Installation through holes are circular	Φ105	Φ135	Φ190
D5 Threaded mounting holes	8-M6×10	8-M8×12	8-M12×20
D6 Threaded holes are distributed round	Φ45	Φ60	Φ90
D7 Input coupling hole	Φ14~Φ19	Φ22	Φ35
D8 Input lip	Φ70	Φ110	Φ114.3
D9 Distribution circle of threaded hole	Φ90	Φ145	Φ200
4-D10 Gasket threaded hole	M6×10	M8×12	M12×20
L1 Flange face to face length	37	47.5	69
L2 Boss length	8	12.5	12
L3 Output flange thickness	27	34.5	53
Depth of L4 stop	5	7	7
L5 Flange width	□90	□120	□170
L6 Gasket rabbet depth	5	8	10
L7 Coupling depth	41	58	81
L8 Gasket width	100	130	176
L9 Reducer length	First level	96	120
	Second level	113	145

HYPG DIMENSIONS (SINGLE STAGE, RATIO I=5, TWO STAGE I=11-45)

Dimensional Drawing



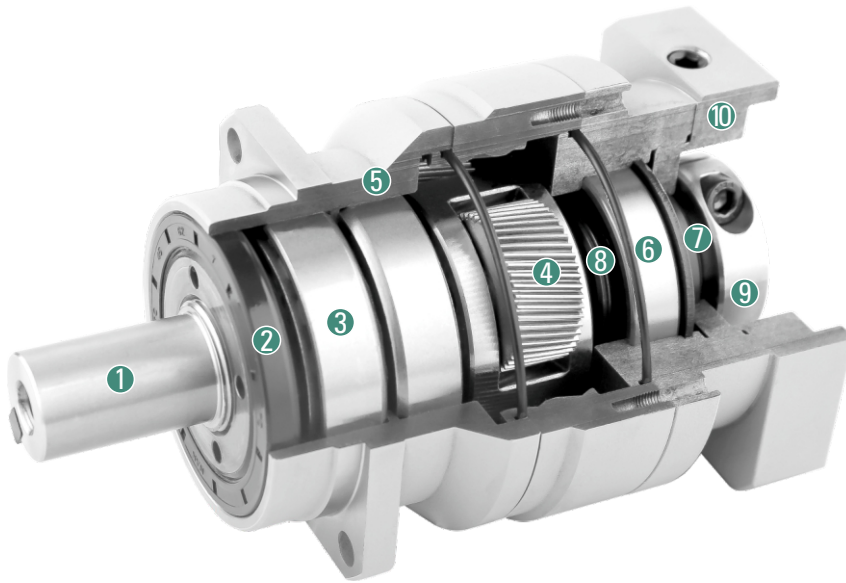
Dimensional Table

Unit: mm

Type	20ZDPG	32ZDPG	50ZDPG	
D1 Mounting boss	Φ85h7	Φ115h7	Φ165h7	
D2 Install the check	Φ24H7	Φ32H7	Φ47H7	
D3 flange mounting through hole	4-Φ9	4-Φ11	4-Φ14	
D4 Installation through holes are circular	Φ105	Φ135	Φ190	
D5 Threaded mounting holes	6-M6×10	6-M8×12	14-M8×12	
D6 Threaded holes are distributed round	Φ45	Φ60	Φ100	
D7 Input coupling hole	Φ14~Φ19	Φ22	Φ35	
D8 Input lip	Φ70	Φ110	Φ114.3	
D9 Distribution circle of threaded hole	Φ90	Φ145	Φ200	
4-D10 Gasket threaded hole	M6×10	M8×12	M12×20	
L1 Flange face to face length	37	47.5	69	
L2 Boss length	8	12.5	12	
L3 Output flange thickness	27	34.5	53	
Depth of L4 stop	5	7	7	
L5 Flange width	□90	□120	□170	
L6 Gasket rabbet depth	5	8	10	
L7 Coupling depth	41	58	81	
L8 Gasket width	100	130	176	
LL9 Reducer length	First level	96	120	192
	Second level	113	145	213

HRS SERIES GEAR BOX

Sectional Drawing



- ① Output shaft
- ② Oil seal
- ③ Output shaft bearing
- ④ Planetary gear
- ⑤ Front cover
- ⑥ Coupling bearing
- ⑦ Oil seal
- ⑧ Coupling
- ⑨ Lock ring
- ⑩ Rear cover

Type And Model Number

HRS Reducers				Servo Motor		
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060 HRS 10 () (S) - 400 T1
 ① ② ③ ④ ⑤ ⑥ ⑦

① Gear head frame size: 060

② Gear head series code: HRSre mounting flange series

Gear ratio

③ Single stage: 3, 4, 5, 6, 7, 8, 9, 10

Single stage: 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100

Amount of backlash, (P07)

④ Standard type P1 (Omission), high precision P0

Precision (The load of output shaft is $\pm 3\%$ of allowable output torque)

Input shaft type

S: Overall Locking (Omission)(Regardless whether the motor with keyway can use it)

⑤ S1: Locking with locking ring (Omission)(Regardless whether the motor with keyway can use it)

S2: Locking with keyway (Input shaft with key)

A: Other type (Please contact with us)

⑥ Applicable servo motor power (W)

⑦ Model of servo motor

PRODUCT SPECIFICATIONS

HPG/HYPG

HRS

AGV

P08

Reducer Performance Data

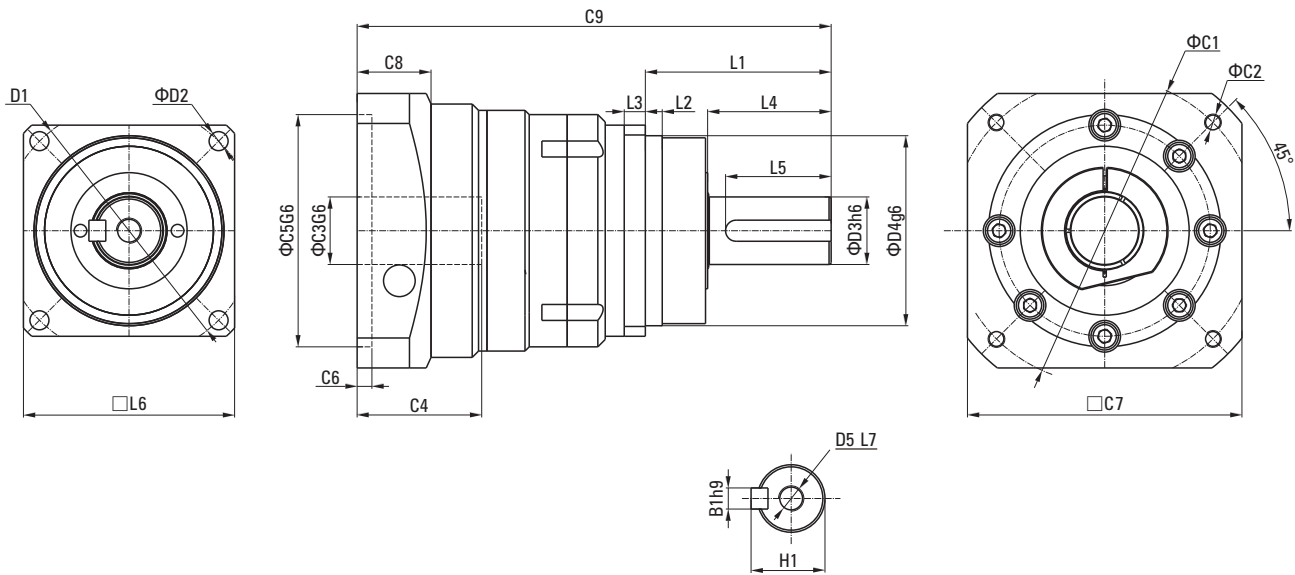
Specifications		Stage Number	Reduction Ratio	060ZRS	075ZRS	100ZRS	140ZRS	
Rated output torque	Nm	1	3	55	130	208	342	
			4	50	140	190	542	
			5	60	160	330	650	
			6	55	150	310	600	
			7	50	140	300	550	
			8	45	120	260	500	
			9	40	100	230	450	
			10	40	100	230	450	
			2	15	-	130	208	342
				20	-	140	290	542
		25		-	160	330	650	
		30		-	150	310	600	
		35		-	140	300	550	
		40		-	120	260	500	
		45		-	100	230	450	
		50		-	160	330	650	
		60		-	150	310	600	
		70	-	140	300	550		
		80	-	120	260	500		
90	-	100	230	450				
100	-	100	230	450				
Scram torque	Nm	1,2	3~100	3 times rated output torque				
Rated input speed	rpm	1,2	3~100	3000	3000	3000	2000	
Maximum input speed	rpm	1,2	3~100	6000	6000	6000	4000	
Precision back lash	arcmin	1	3~10	≤1	≤1	≤1	≤1	
		2	15~100	-	≤3	≤3	≤3	
Standard back lash	arcmin	1	3~10	≤3	≤3	≤3	≤3	
		2	15~100	-	≤5	≤5	≤5	
Torsional rigidity	Nm/arcmin	1,2	3~100	7	14	25	50	
Allowable radial force	N	1,2	3~100	3000	4300	7000	10000	
Allowable axial force	N	1,2	3~100	2700	3900	6300	9000	
Life	hr	1,2	3~100	20000				
Efficiency	%	1	3~10	≥97				
		2	15~100	≥94				
Weight	Kg	1	3~10	1.3	3.7	7.8	14.5	
		2	15~100	-	4.1	9	17.5	
Working temperature	°C	-	-	-10°C~+90°C				
Lubrication way		-	-	Synthetic grease				
Protection grade		-	-	IP65				
Installation direction		1,2	3~100	Any direction				
Noise value	dB (A)	1,2	3~100	≤58	≤60	≤63	≤67	

Moment Of Inertia Of The Reducer

Specifications		Stage Number	Reduction Ratio	060ZRS	075ZRS	100ZRS	140ZRS	
The moment of inertia	Kg·cm ²	1	3	0.22	1.20	5.2	20	
			4	0.17	0.95	4.0	15	
			5	0.16	0.86	3.6	13	
			6	0.15	0.82	3.3	13	
			7	0.14	0.79	3.1	12	
			8	0.14	0.77	3.0	12	
			9	0.14	0.76	3.0	11	
			10	0.14	0.75	3.0	11	
			2	15	-	0.72	2.8	11
				20	-	0.72	2.8	11
		25		-	0.71	2.8	11	
		30		-	0.70	2.7	10	
		35		-	0.71	2.7	11	
		40		-	0.69	2.7	10	
		45		-	0.71	2.7	11	
		50		-	0.69	2.7	10	
		60		-	0.69	2.7	10	
		70		-	0.69	2.7	10	
		80	-	0.69	2.7	10		
		90	-	0.69	2.7	10		
100	-	0.69	2.7	10				

HRS DIMENSIONS (SINGLE STAGE I=3-10)

Dimensional Drawing



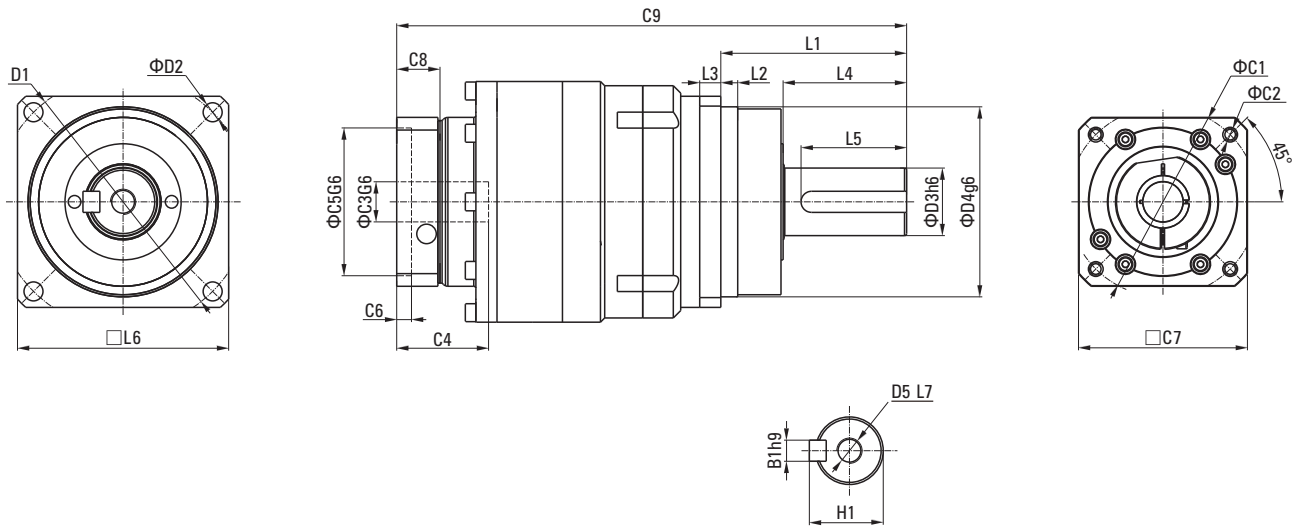
Dimensional Table

Unit: mm

Size	060ZRS	075ZRS	100ZRS	140ZRS
D1	68	85	120	165
D2	5.5	7.5	9	11
D3 ^{h6}	16	22	32	40
D4 ^{g6}	60	70	90	130
D5	M5×0.8P	M8×1.25P	M12×1.75P	M16×2P
L1	48	56	88	112
L2	11	6	8	10
L3	6	7	10	12
L4	28	34.7	58	82
L5	25	31	50	70
L6	60	75	100	140
L7	15	19	28	36
C1	70	100	145	165
C2	M5×0.8P	M6×1P	M8×1.25P	M10×1.5P
C3 ^{g6}	≤14/≤16	≤19/≤24	≤32	≤38
C4	35	40.5	51	60
C5 ^{g6}	50	80	110	130
C6	8	4	5	6
C7	60	90	130	142
C8	19.5	17.5	20	22.5
C9	96.5	167.5	224.5	295.5
B1 ^{h9}	5	6	10	12
H1	18	24.5	35	43

HRS DIMENSIONS (TWO STAGE I=15-100)

Dimensional Drawing



Dimensional Table

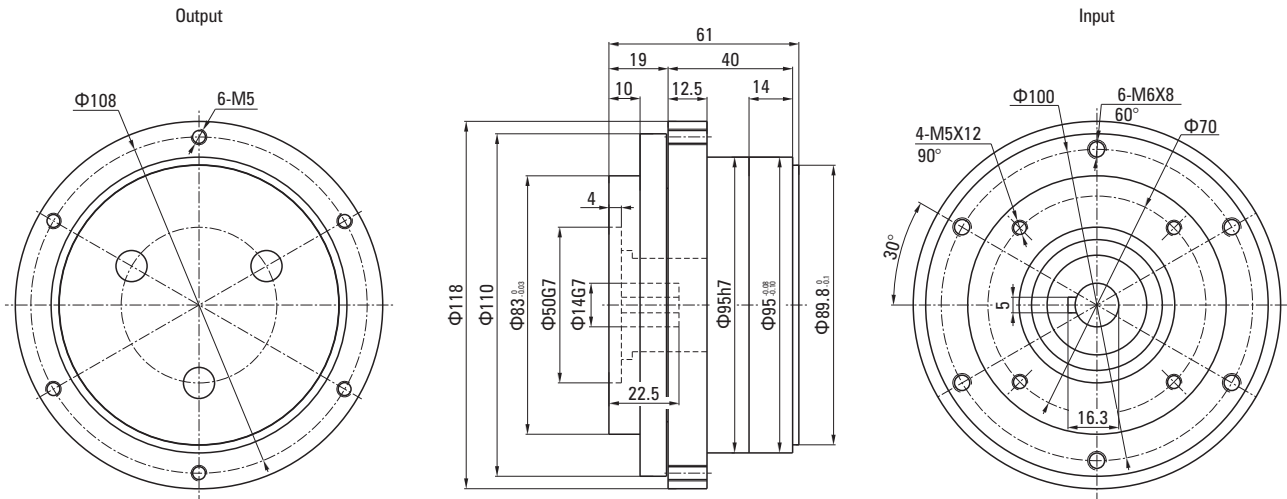
Unit: mm

Size	075ZRS	100ZRS	140ZRS
D1	85	120	165
D2	7.5	9	11
D3 _{H6}	22	32	40
D4 _{g6}	70	90	130
D5	M8×1.25P	M12×1.75P	M16×2P
L1	56	88	112
L2	6	8	10
L3	7	10	12
L4	34.7	58	82
L5	31	50	70
L6	75	100	140
L7	19	28	36
C1	70	100	145
C2	M5×0.8P	M6×1P	M8×1.25P
C3 _{g6}	≤14/≤16	≤19/≤24	≤32
C4	35	40.5	51
C5 _{g6}	50	80	110
C6	8	4	5
C7	60	90	130
C8	19.5	17.5	20
C9	186.5	241	308.5
B1 _{H9}	6	10	12
H1	24.5	35	43

95AGV DIMENSIONS-COMPREHENXIVE PERFORMANCE PARAMETERS OF TRAVELING WHEEL

Dimensional Drawing

● 95AGV



Reducer Performance Data

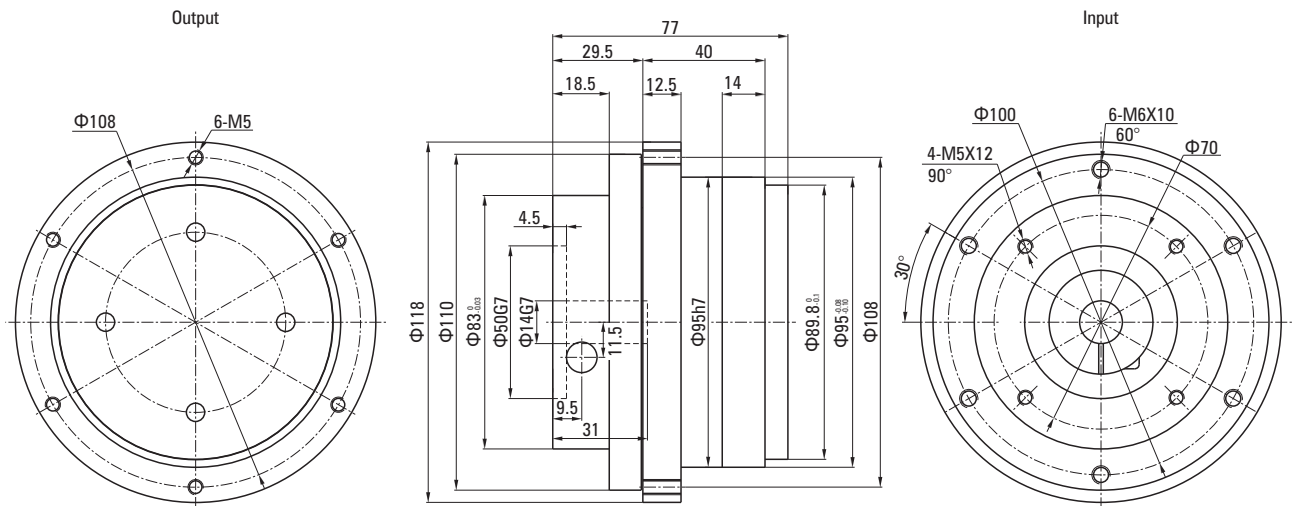
Unit: mm

Reduction Ratio	Recommend	5	6	7	9
Nominal output torque	Nm	60	55	50	40
Maximu acceleration torque	Nm	Rated load-bearing torque*1.8			
Sudden stop torque	Nm	3 time the rated load torque			
Nominal input speed	rpm	3000			
Maximun input speed	rpm	4500			
Backlash	arcmin	≤25			
Maximum radial load	N	3000			
Maximum axial load	N	500			
Noise value Distance 1m (n=3000 rpm, No load)	dB(A)	≤60			
Service life	h	20000			
Efficiency	%	95%			
Use of temperature	°C	-10°C ~ +90°C			
Lubrication	-	Synthetic grease			
Weight	kg	≤3.6			
Rubber wheel specifications (Recommended)	-	150*40 Polyurethane rubber wheel optional			
Stage number	-	1			

95 AGV DIMENSIONS

Dimensional Drawing

- 95AGV



Reducer Performance Data

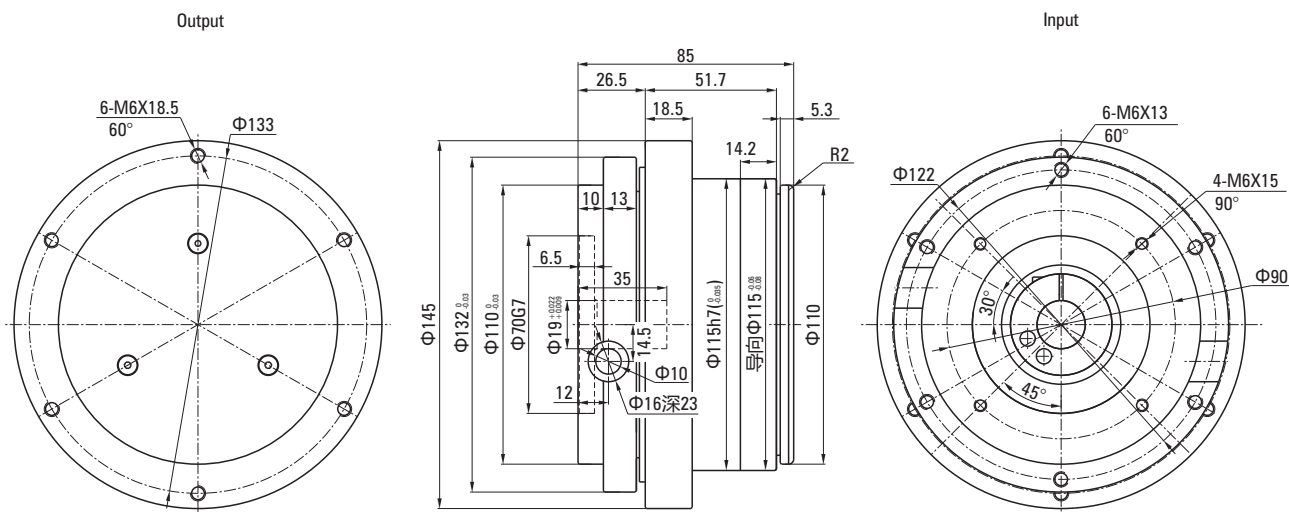
Unit: mm

Reduction Ratio	Recommend	12	15	16	20
Nominal output torque	Nm	55	50	75	70
Maximum acceleration torque	Nm	Rated load-bearing torque*1.8			
Sudden stop torque	Nm	3 time the rated load torque			
Nominal input speed	rpm	3000			
Maximum input speed	rpm	4500			
Backlash	arcmin	≤ 25			
Maximum radial load	N	3000			
Maximum axial load	N	500			
Noise value Distance 1m (n=3000 rpm, No load)	dB(A)	≤ 60			
Service life	h	20000			
Efficiency	%	92%			
Use of temperature	$^\circ\text{C}$	$-10^\circ\text{C} \sim +90^\circ\text{C}$			
Lubrication	-	Synthetic grease			
Weight	kg	≤ 4.5			
Rubber wheel specifications (Recommended)	-	150*40 Polyurethane rubber wheel optional			
Stage number	-	2			

115 AGV DIMENSIONS

Dimensional Drawing

● 115AGV



Reducer Performance Data

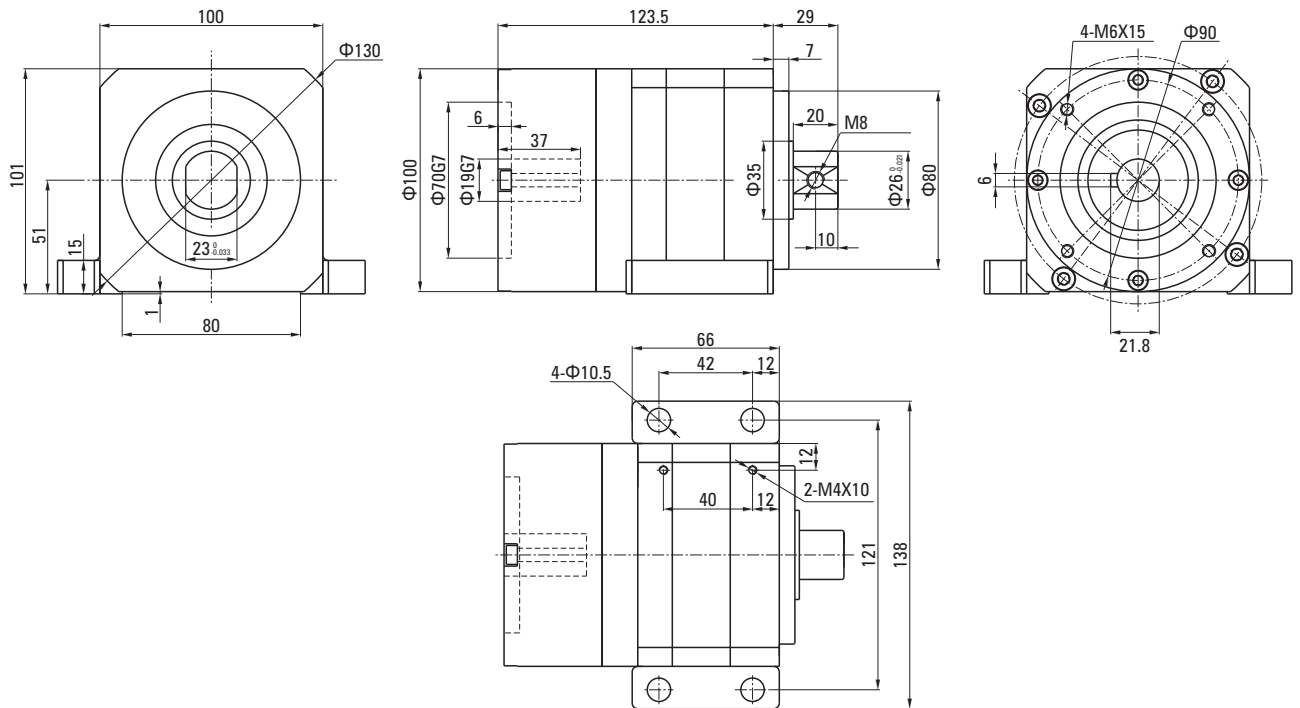
Unit: mm

Reduction Ratio	Recommend	15	18	20	21	30
T2N Nominal output torque	Nm	80	140	100	130	150
Maximu acceleration torque	Nm	Rated load-bearing torque*1.8				
Sudden stop torque	Nm	3 time the rated load torque				
Nominal input speed	rpm	3000				
Maximun input speed	rpm	6000				
Backlash	arcmin	≤25				
Maximum radial load	N	8000				
Maximum axial load	N	2000				
Noise value Distance 1m (n=3000 rpm, No load)	dB(A)	≤63				
Service life	h	20000				
Efficiency	%	92%				
Use of temperature	°C	-10°C ~ +90°C				
Lubrication	-	Synthetic grease				
Weight	kg	≤5				
Rubber wheel specifications (Recommended)	-	180*58.5 Polyurethane rubber wheel optional				
Stage number	-	2				

090 AGV DIMENSIONS

Dimensional Drawing

● 090AGV



Reducer Performance Data

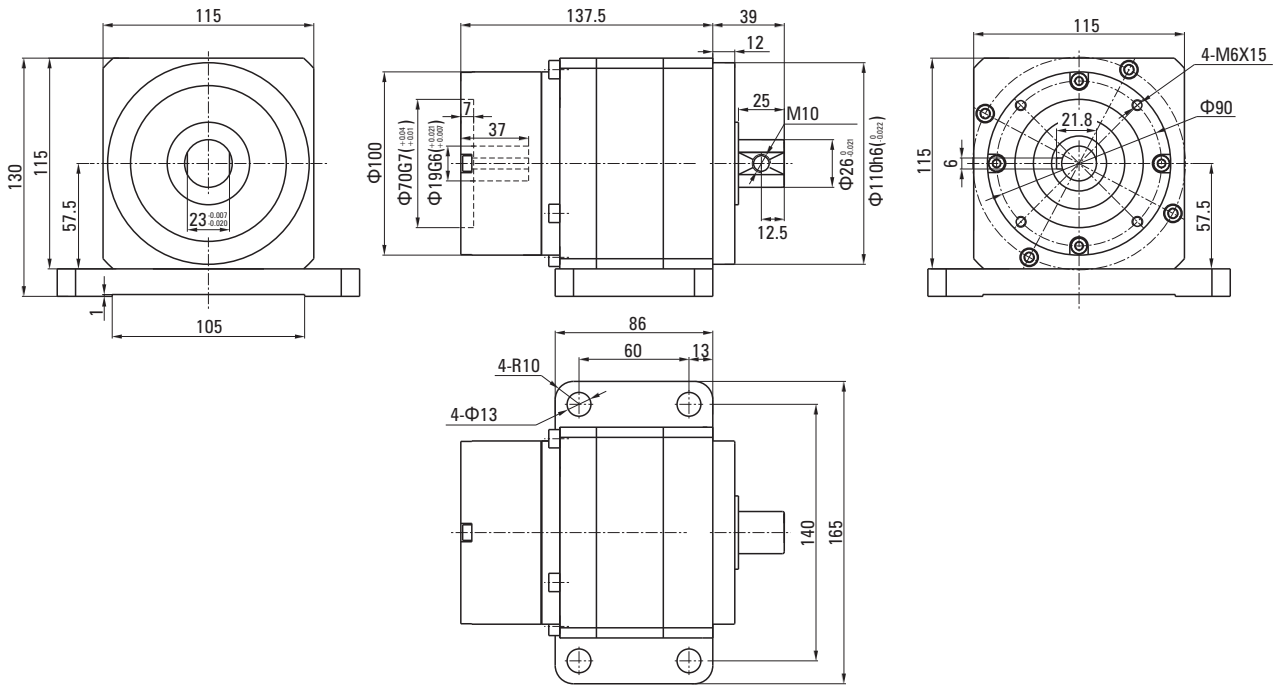
Unit: mm

Reduction Ratio	Recommend	80
Nominal output torque	Nm	180
Sudden stop torque	Nm	3 time the rated load torque
Nominal input speed	rpm	3000
Backlash	arcmin	≤ 25
Maximum radial load	N	8000
Maximum axial load	N	3300
Noise value Distance 1m (n=3000 rpm, No load)	dB(A)	≤ 63
Service life	h	20000
Efficiency	%	92%
Use of temperature	$^{\circ}\text{C}$	$-10^{\circ}\text{C} \sim +90^{\circ}\text{C}$
Lubrication	-	Synthetic grease
Weight	kg	≤ 5
Stage number	-	2

115 AGV DIMENSIONS

Dimensional Drawing

● 115AGV



Reducer Performance Data

Unit: mm

Reduction Ratio	Recommend	80
Nominal output torque	Nm	300
Sudden stop torque	Nm	3 time the rated load torque
Nominal input speed	rpm	3000
Backlash	arcmin	≤ 25
Maximum radial load	N	16000
Maximum axial load	N	3300
Noise value Distance 1m (n=3000 rpm, No load)	dB(A)	≤ 65
Service life	h	20000
Efficiency	%	92%
Use of temperature	$^{\circ}\text{C}$	$-10^{\circ}\text{C} \sim +90^{\circ}\text{C}$
Lubrication	-	Synthetic grease
Weight	kg	≤ 8
Stage number	-	2



HIGH PRECISION PLANETARY GEAR BOX CATALOGUE

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