

### Efficiency

For models 14-32, speeds ranging from 500-3000 rpm, reduction ratios between 50-120, the efficiency is 65%-85%.

### Noise

The noise is less than 60dB under rated speed and load.

### Life span

Under normal operation of rated speed and load, when the life span of the flexible bearing is 8000h, the life span of the harmonic reducer is 10000h. During life span test, the temperature rise does not exceed 45 °C.

### High Accuracy

Adopting the most advanced design technology, ANSYS software simulation technology, the design error is reduced to less than 1 micron. WANSHSIN developed its independent intellectual property rights of flexible bearings, cross bearings, flex spline, circular spline. The machine tool used is also the most precise in the industry.

### High Transmission Ratio

Designed according to international standards, the transmission ratio of the one-stage harmonic reducer can reach 1 = 50 - 160. And the structure is simple, with three coaxial basic components to achieve a high reduction ratio.

### Large Load Capacity

The surface contact and large number of the arc-shaped flex spline tooth and circular spline tooth make the harmonic reducer load capacity higher than other transmission forms. Furthermore, application of cross bearings makes the load capacity greatly improved.

### Compact design and Low Weight

Adopting integrated design and high-performance materials, harmonic reducer size and weight can be greatly reduced, compared with ordinary gear devices.

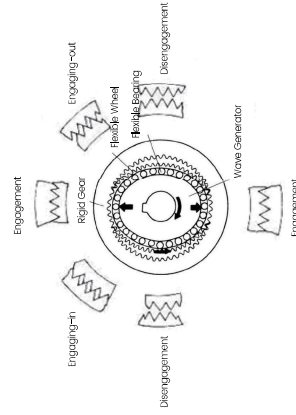
### High Efficiency, Long Serving Life

Due to the use of high-strength, high-performance material as well as the use of advanced surface heat treatment technology and surface coating technology, the surface wear resistance of key components has increased by more than three times, resulting in a greatly increased life span.

### Stable Transmission, Shock-Free, Low-Noise

The key parts have high precision, small deformation, stable and smooth transmission, and high-performance due to the use of advanced 3D simulation design technology and high-precision processing technology. High-performance lubricants are also used, making it free of impact and low noise.

### Operating principle of harmonic reducer

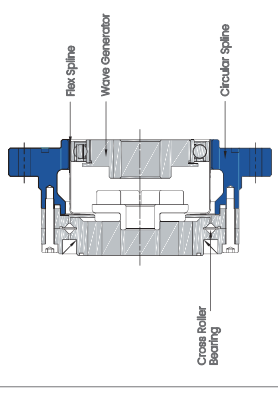


## WCSG-I Series Reducer



WCSG-I series reducer

WCSG-I series flex Spline is a cup-shaped standard structure. The input shaft is connected with the inner hole of the wave generator through the cross-slider coupling. Generally, the circular spline end is fixed and the flex spline is the output end.



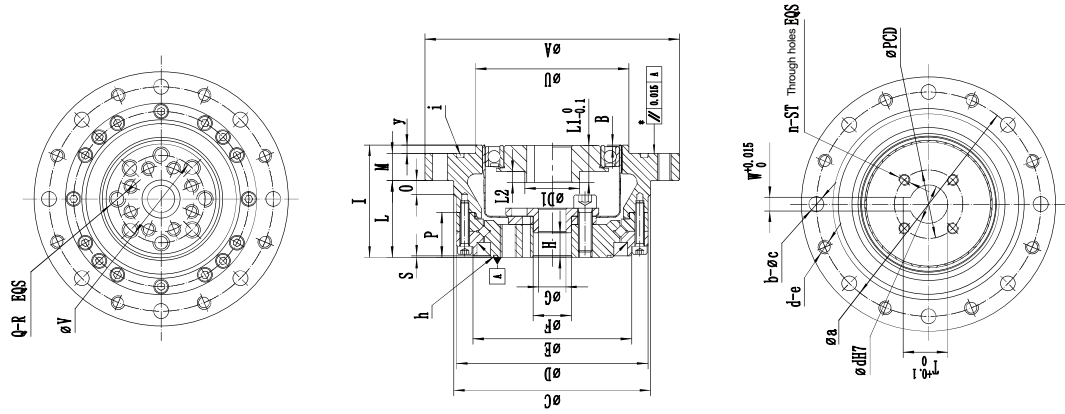
WCSG-I Series Features

1. WCSG series: high torque
2. Cup-shaped standard structure
3. Compact and simple design
4. No backlash, input- output coaxial
5. High positioning and rotation accuracy

### WCSG-I Series Performance Parameter

Model	Ratio	Rated torque at input speed 2000r/min N·m	Allowable maximum starting chopping torque N·m	Allowable maximum torque N·m	Instantaneous allowable maximum torque N·m	Allowable maximum speed /r/min	Allowable average speed /r/min	Backlash arc-sec	Life span hrs
14	50	6.3	21	8	42			15	10000
	80	9	27	13	55		3500	15	15000
	100	9	33	13	63			15	15000
17	50	19	40	31	82			15	10000
	80	26	50	32	102		3500	15	15000
	100	28	63	46	129			15	15000
20	50	30	66	40	115			15	10000
	80	40	87	55	149		3500	15	15000
	100	47	97	58	172			15	15000
25	50	46	114	65	218			15	10000
	80	74	160	102	299		3500	15	15000
	100	78	184	126	332			15	15000
32	50	89	253	126	448			15	10000
	80	138	356	196	665		3500	15	15000
	100	160	370	253	757			15	15000
	120	180	413	253	803			15	15000

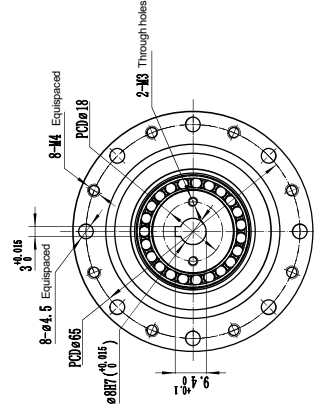
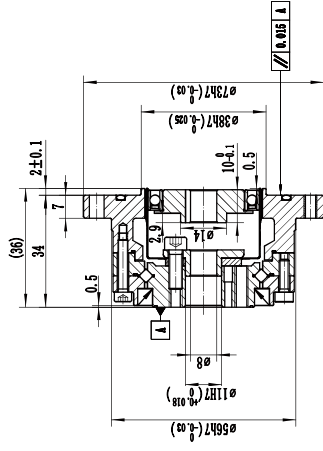
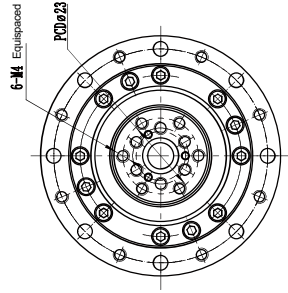
### WCSG-I Series Dimensional Drawing



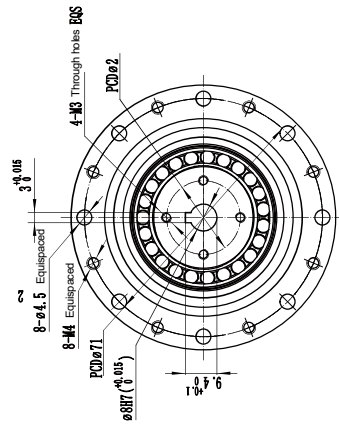
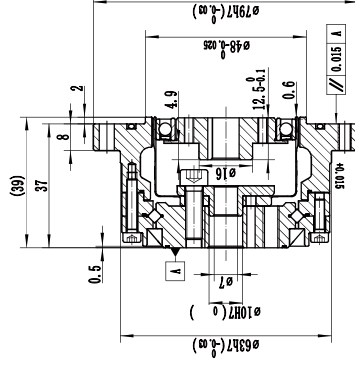
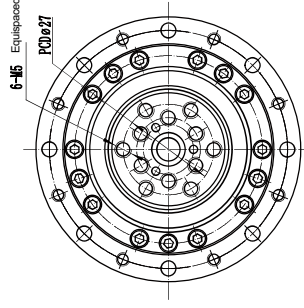
### WCSG-I Series Dimension

Model Symbol	14	17	20	25	32
φA h6	73	79	93	107	138
L1	10	12.5	13.5	14.5	16
φCh7	56	63	72	86	113
φD	55	62	70	85	112
φE	31	38	45	58	78
φFH7	11	10	14	20	26
φG	8	7	10	15	20
H	9.4	9.5	9	12	15.2
I	36	39	41	49	60
B	0.5±0.2	0.6±0.2	0.6±0.2	0.7±0.2	0.9±0.2
φD1	14	16	20	22	30
L	27	29	28	36	45
M	7	8	10	10	12
Y	2	2	3	3	3
O	3.5	3.5	4.5	4.5	4.5
P	16.5	16.5	16.5	18.5	22.5
S	0.5	0.5	0.5	0.5	1
φdh7	8	8	14	14	19
φUH7	38	48	56	67	90
φv	23	27	32	42	55
Q	6	6	8	8	8
R	M4×8	M5×10	M6×9	M8×12	M10×15
T	9.4	9.4	16.3	16.3	21.8
W(+0.015,0)	3	3	5	5	6
φa	65	71	82	96	125
b	8	8	8	10	12
c	4.5	4.5	5.5	5.5	6.6
d	8	8	8	10	12
e	M4	M4	M5	M5	M6
h	27.5×0.53	33×0.8	40×1	52×1	68×2
i	47×2	53×2	64×2	77×2	100×1.8
L2	2.9	4.9	4.1	5.4	4.1
n	2	4	4	4	4
ST	M3	M3	M4	M4	M5
PCC	18	22	25	32	36
Weight(Kg)	0.51	0.66	0.95	1.48	3.18

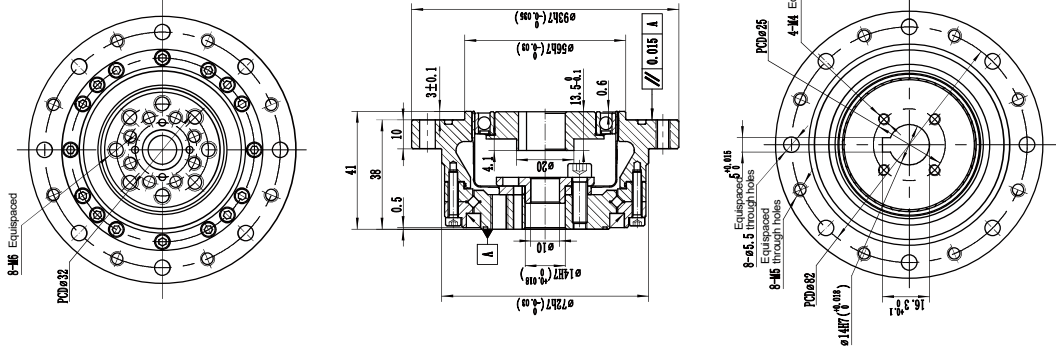
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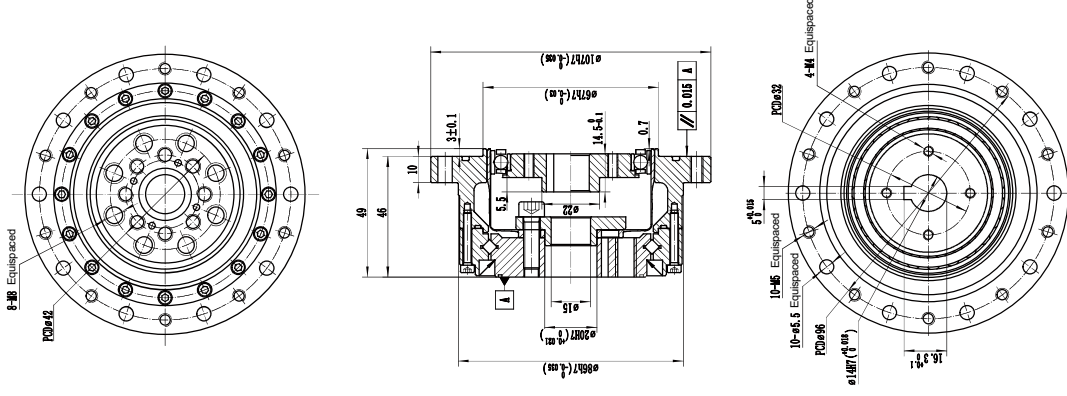
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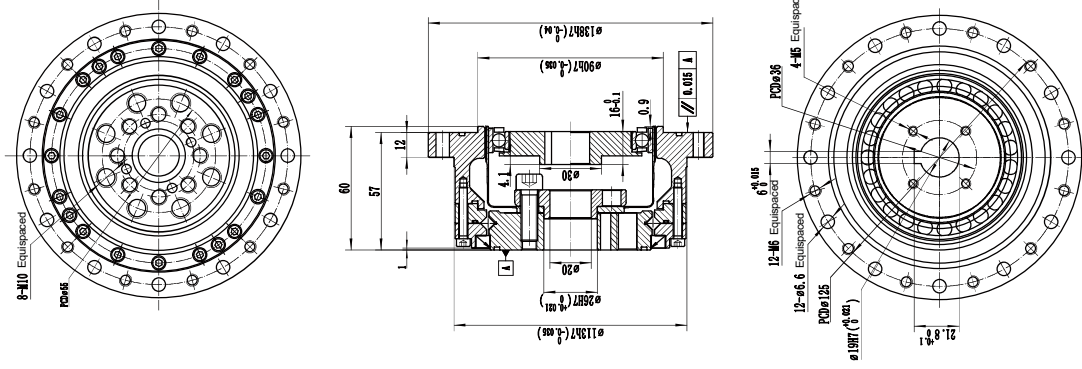
WCSG-20-XXX-I



WCSG-25-XXX-I



WCSG-32-XXX-I

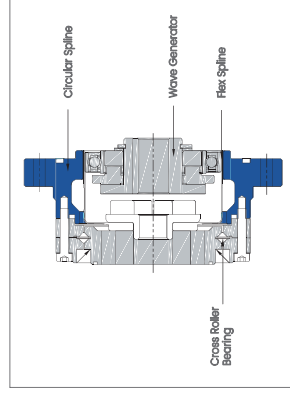


WCSG-II Series Reducer



WCSG-II series reducer

WCSG-II series flex Spline is a cup-shaped standard structure. The input shaft is connected with the inner hole of the wave generator through the cross-slider coupling. Generally, the circular spline end is fixed and the flex Spline is the output end.



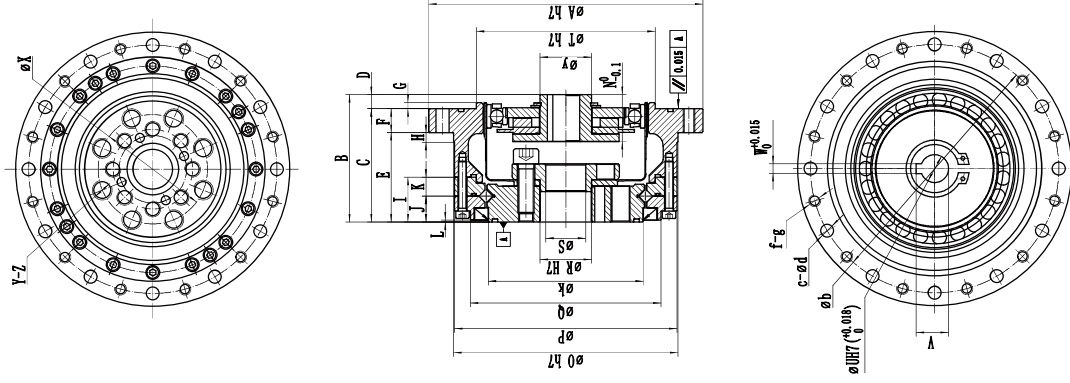
WCSG-II Series Features

1. WCSG series: high torque
2. Cup-shaped standard structure
3. Compact and simple design
4. No backlash, input- output coaxial
5. High positioning and rotation accuracy

WCSG-II Series Performance Parameter

Model	Ratio	Rated torque at 2000/min N·m	Allowable maximum starting & stopping torque N·m	Allowable maximum torque at average load N·m	Inconsistent allowable maximum torque N·m	Allowable maximum input speed r/min	Average input speed r/min	Backlash arc-sec	Lifespan hrs
14	50	6.3	21	8	42	8000	3500	15	10000
	80	9	27	13	55			15	15000
	100	9	33	13	63			15	15000
17	50	19	40	31	82	7000	3500	15	10000
	80	26	50	32	102			15	15000
	100	28	63	46	129			15	15000
20	50	30	66	40	115	6000	3500	15	10000
	80	40	87	55	149			15	15000
	100	47	97	58	172			15	15000
25	50	46	114	65	218	5500	3500	15	10000
	80	74	160	102	299			15	15000
	100	78	184	126	332			15	15000
32	50	89	196	126	356	4600	3600	15	10000
	80	138	356	196	665			15	15000
	100	160	370	253	757			15	15000
120	160	413	253	803			15	15000	

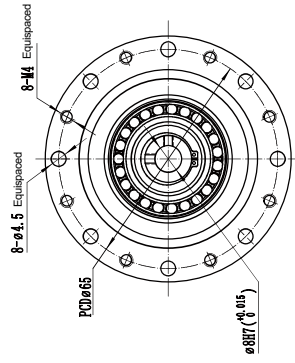
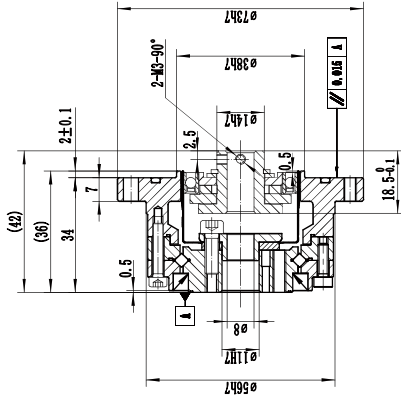
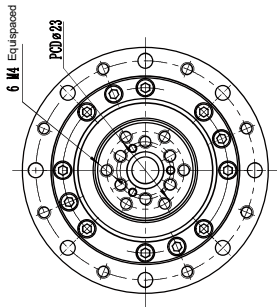
WCSG-II Series Dimensional Drawing



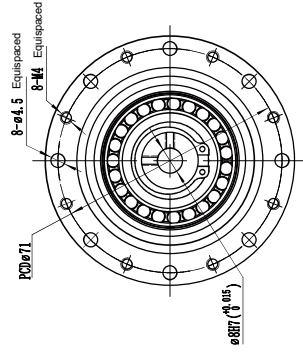
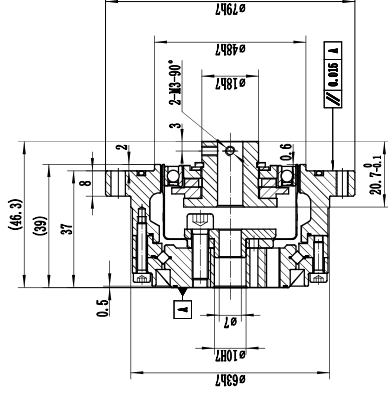
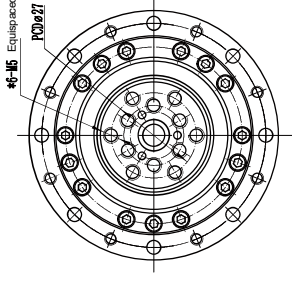
WCSG-II Series Dimension

Symbol	Model	14	17	20	25	32
φA		73	79	93	107	138
B		42	46.3	46.3	53.5	64.1
C		34	37	38	46	57
D		8	8.3	8.8	7.5	7.1
E		27	29	28	36	45
F		7	8	10	10	12
G		2	2	3	3	3
H		3.5	3.5	5	4.5	4.5
I		16.5	16.5	16.5	18.5	22.5
J		4.5	4.5	4	4.5	5.5
K		12	12	12.5	14	17
L		0.5	0.5	0.5	0.5	1
M		9.4	9.5	9	12	15.2
N		18.5	20.7	21.5	21.6	23.6
φO h7		56	63	72	86	113
φP		55	62	70	85	112
φQ		42.5	48.5	58	73	96
φR H7		11	10	14	20	26
φS		8	7	10	15	20
φT h7		38	48	56	67	90
φU H7		8	8	14	14	14
V		-	-	16.3 <sub>(H7)</sub>	16.3 <sub>(H7)</sub>	16.3 <sub>(H7)</sub>
W(0.015,0)		-	-	5	5	5
X		23	27	32	42	55
Y		6	6	8	8	8
Z		M4*8	M5*10	M5*9	M6*12	M10*15
φb		65	71	82	96	125
c		8	8	8	10	12
φd		4.5	4.5	5.5	5.5	6.6
g		M4	M4	M5	M5	M6
f		8	8	8	10	12
i		47x2	53x2	64x2	77x2	100x1.3
φk		31	38	45	58	78
φY		14	18	21	26	26
Weight (Kg)		0.52	0.68	0.98	1.5	3.2

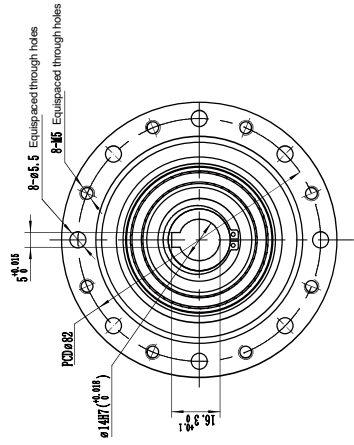
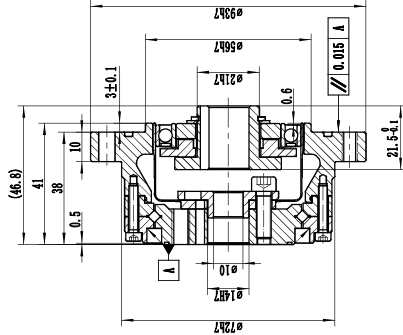
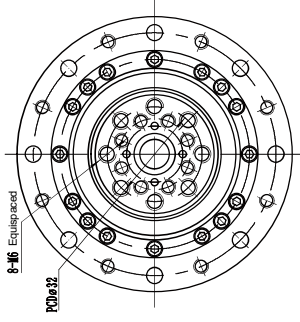
WCSG-14-XXX-II



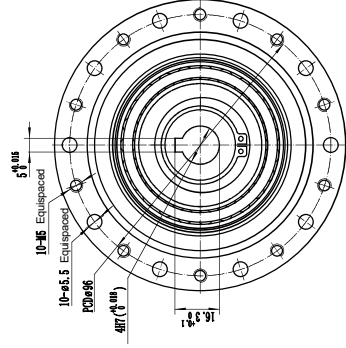
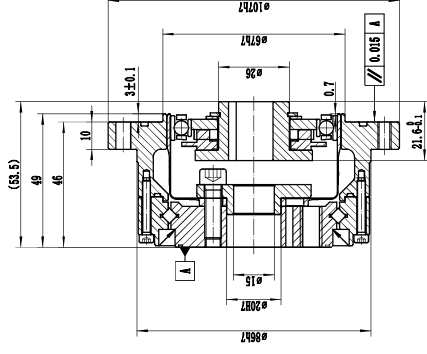
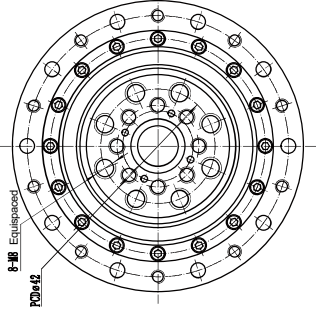
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WCSG-20-XXX-II

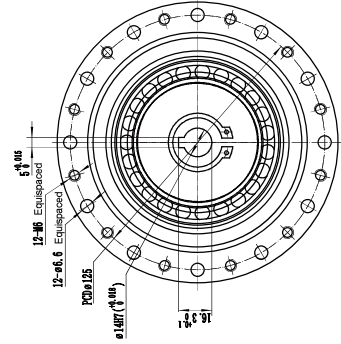
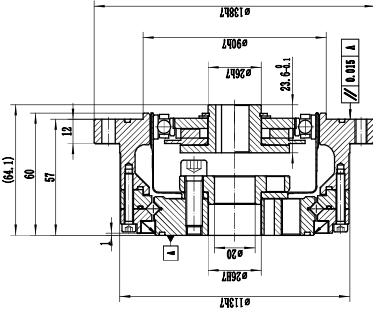
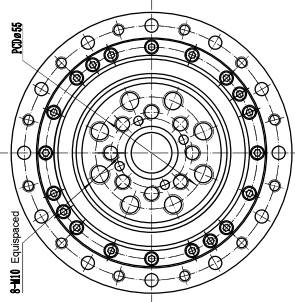


WCSG-25-XXX-II





WCSG-32-XXX-II

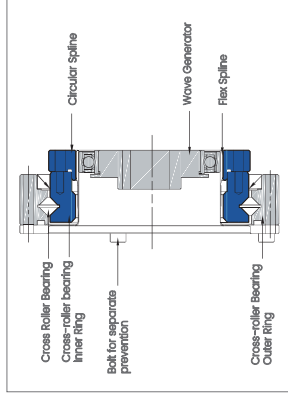


WSHG-I Series Reducer



WSHG-I series reducer

WSHG-I series flex Spine has a hollow top hat type standard structure., whole reducer compact design. The input shaft is connected with the inner hole of the wave generator through the cross-slider coupling coil. It can be used by both connect way, one is fix the flex spline and circular spine output, another one is fix flex spline and circular spine output



WSHG-I Series Features

- 1.Flat Shape, one-piece CAM structure
- 2.Compact, simple design
- 3.No backlash
- 4.Input-output coaxial
- 5.Excellent positioning and rotation accuracy

WSHG-I Series Performance Parameter

Model	Ratio	Rated torque at input speed 2000r/min N·m	Allowable maximum starting & stopping torque N·m	Allowable maximum torque at average load N·m	Instantaneous allowable maximum torque N·m	Allowable maximum input speed r/min	Allowable average input speed r/min	Backlash arc-sec	Lifespan hrs	
14	50	6.3	21	8	42	8000	3500	15	10000	
	80	9	27	13	55					15000
	100	9	33	13	63					15000
17	50	19	40	31	82	7000	3500	15	10000	
	80	26	50	32	102					15000
	100	28	63	46	129					15000
20	50	30	66	40	115	6000	3500	15	10000	
	80	40	87	55	149					15000
	100	47	97	58	172					15000
25	50	46	114	65	218	5500	3500	15	10000	
	80	74	160	102	299					15000
	100	78	184	126	332					15000
32	50	89	253	126	356	4500	3500	15	10000	
	80	138	356	196	448					15000
	100	160	370	253	757					15000
	120	160	413	253	803			15	15000	