

谐波减速机性能参数

TECHNICAL DATA

CSF型 CSF Series

CSF系列谐波减速机，柔轮为杯形标准筒结构，输入轴通过十字联轴节与波发生器内孔配合，并通过平键连接，具有一定的自调心性。

The strain wave reducer of CSF series have a standard cup-shaped flexspline, the input shaft is matched with the inner hole of wave generator through Oldham's coupling which has a function of certain self-alignment.

参数表 Rated Parameters

型号 Model	速比 Reduction ratio	输入2000rpm时的 额定转矩N/m Rated torque @ 2000 r/min (N·m)	启停容许的 峰值扭矩N/m Permissible peak torque of starting/stopping (N·m)	平均负载转矩的 容许最大值N/m Permissible max. value of ave. load torque (N·m)	瞬间容许最大 转矩N/m Instantaneous permissible max. torque (N·m)	容许最高输入 转速rpm (脂润滑) Permissible max. input rotational speed (r/min)	容许平均输入 转速rpm Permissible ave. input rotational speed (r/min)	转动惯量 $\times 10^4 \text{kgm}^2$ Inertia moment ($\times 10^4 \text{kgm}^2$)	设计 寿命h Life in design (h)
14	50	5.4	18	6.9	35	8500	3500	0.033	10000
	80	7.8	23	11	47				
	100	7.8	28	11	54				
17	50	16	34	26	70	7300	3500	0.079	10000
	80	22	43	27	87				
	100	24	54	39	108				
20	50	25	56	34	98	6500	3500	0.193	10000
	80	34	74	47	127				
	100	40	82	49	147				
	120	40	87	49	147				
25	50	39	98	55	186	5600	3500	0.413	10000
	80	63	137	87	255				
	100	67	157	108	284				
	120	67	167	108	304				
32	50	76	216	108	382	4800	3500	1.690	10000
	80	118	304	167	568				
	100	137	333	216	647				
	120	137	353	216	686				

传动精度 Transmission accuracy

单位 unite: arc-min

速比 Reduction ratio	型号 Model	14	17	20	25	32
50		1.8	1.8	1.5	1.5	1.5
80以上 80 or more		1.5	1.5	1.2	1.2	1.2

回程误差 Lost motion

单位 unite: arc-min

速比 Reduction ratio	型号 Model	14	17	20	25	32
50		2.0	2.0	2.0	2.0	2.0
80以上 80 or more		1.0	1.0	1.0	1.0	1.0

最大齿隙量 Max. backlash quantity

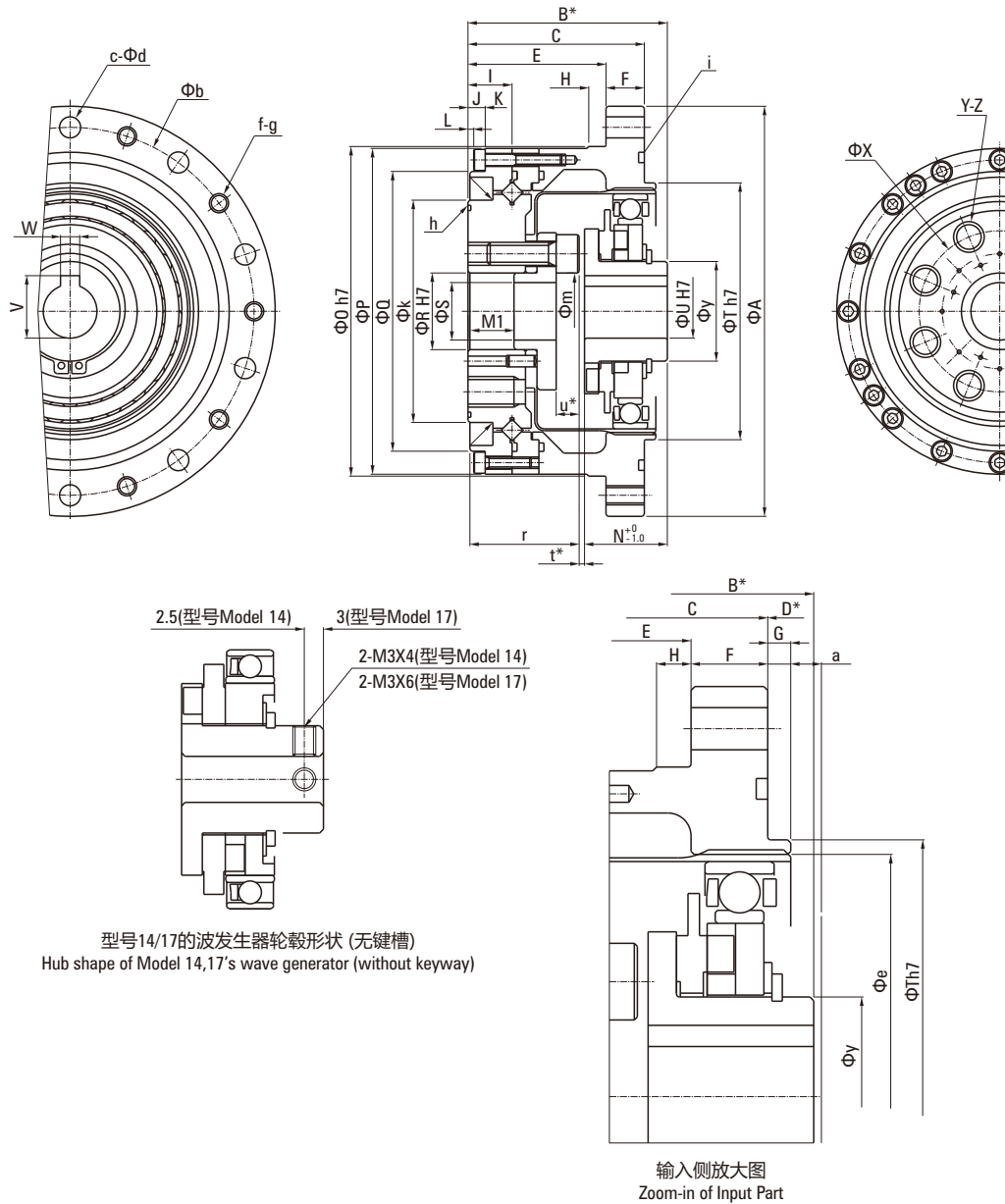
单位 Unit: arc-sec

速比 Reduction ratio	型号 Model	14	17	20	25	32
50		60	60	36	36	36
80		40	40	32	32	32
100		35	35	35	30	30
120		-	-	-	28	28

● 扭转刚度 Torsional rigidity

符号 Symbol	型号 Model	14	17	20	25	32
T_1	N·m	2.00	3.90	7.00	14.0	29.0
T_2	N·m	6.90	12.0	25.0	48.0	108
速比50 Reduction ratio 50	$K_1 (\times 10^4 \text{ N·m/rad})$	0.34	0.81	1.30	2.50	5.40
	$K_2 (\times 10^4 \text{ N·m/rad})$	0.47	1.10	1.80	3.40	7.80
	$K_3 (\times 10^4 \text{ N·m/rad})$	0.57	1.30	2.30	4.40	9.80
	$\theta_1 (\text{arc min})$	2.00	1.70	1.80	1.90	1.90
	$\theta_2 (\text{arc min})$	5.60	4.20	5.30	5.40	5.40
速比80以上 Reduction ratio 80 or more	$K_1 (\times 10^4 \text{ N·m/rad})$	0.47	1.00	1.60	3.10	6.70
	$K_2 (\times 10^4 \text{ N·m/rad})$	0.61	1.40	2.50	5.00	11.0
	$K_3 (\times 10^4 \text{ N·m/rad})$	0.71	1.60	2.90	5.70	12.0
	$\theta_1 (\text{arc min})$	1.40	1.30	1.50	1.50	1.50
	$\theta_2 (\text{arc min})$	4.20	3.30	3.90	3.80	4.00

■ 外形图 Outline drawing



Note: The engagement length of bolt should be less than the depth of internal thread. ΦS represent the shape of the through hole which leads to the inside of the product. The shape of the output flange will be different according to different models of reducers. For details of dimensions, please confirm the delivered outline drawing with reducer.

尺寸表 Specification Table

符号 Symbol	型号 Model	14	17	20	25	32
ΦA		73	79	93	107	138
B*		41 ⁺⁰ _{-0.9}	45 ⁺⁰ _{-0.9}	45.5 ⁺⁰ _{-1.0}	52 ⁺⁰ _{-1.0}	62 ⁺⁰ _{-1.1}
C		34	37	38	46	57
D*	CSG	7 ⁺⁰ _{-0.4}	8 ⁺⁰ _{-0.4}	7.5 ⁺⁰ _{-0.4}	6 ⁺⁰ _{-0.5}	5 ⁺⁰ _{-0.5}
	CSF	7 ⁺⁰ _{-0.8}	8 ⁺⁰ _{-0.9}	7.5 ⁺⁰ _{-1.0}	6 ⁺⁰ _{-1.0}	5 ⁺⁰ _{-1.1}
E		27	29	28	36	46
F		7	8	10	10	12
G		2	2	3	3	3
H		3.5	4	5	5	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	1.0
M1		9.4	9.5	9	12	15
N(⁺⁰ _{-0.1})	CSG	18.5	20.7	21.5	21.5	23.6
	CSF	17.6	19.5	20.1	20.2	22
ΦO h7		56	63	72	86	113
ΦP		55	62	70	85	112
ΦQ		42.5	49.5	58	73	96
ΦR1 H7		11	10	14	20	26
ΦS		8	7	10	15	20
ΦT h7		38	48	56	67	90
ΦU h7		6	8	12	14	14
V		-	9.4 ^{+0.1} ₊₀	13.8 ^{+0.1} ₊₀	16.3 ^{+0.1} ₊₀	16.3 ^{+0.1} ₊₀
W Js9		-	3	4	5	5
ΦX		23	27	32	42	55
Y		6	6	8	8	8
Z		M4X8	M5X10	M6X9	M8X12	M10X15
a		1	1	1.5	1.5	1.5
Φb		65	71	82	96	125
c	CSG	8	8	8	10	12
	CSF	6	6	6	8	12
Φd		4.5	4.5	5.5	5.5	6.6
Φe		38	45	53	66	86
f	CSG	8	8	8	10	12
	CSF	6	6	6	8	12
g		M4	M4	M5	M5	M6
h		29X0.5	34.5X0.8	40.64X1.14	53.28X0.99	S71:70.5X2
i		48X2	53X2	66X2	78X2	102X2
Φk		31	38	45	58	78
Φm		10	10.5	15.5	20	27
r		21.4	23.5	23	29	37
t*	CSG	1.1	0.8	1	1.4	1.4
	CSF	2	2	2.4	2.8	3
u*	CSG	5.1	5.8	6	7.4	9.4
	CSF	6	7	7.4	8.8	11
Φy		14	18	21	26	26
重量 Wight (kg)		0.52	0.68	0.98	1.5	3.2

• 带*尺寸：B/D/t/u是减速器三大部件柔轮、刚轮、波发生器的轴向连接位置及容许公差。此尺寸重要，严格遵守。
Specification with * mark: The B, D, t, u indicate the mounting positions in the shaft direction and allowance of the three parts--wave generator, flexspline, circular spline.
Strictly follow the requirement of these specifications as they affect the performance and intensity.

• 由于制造方法不同，公差会存在差异。
The dimension tolerances are existing according to different manufacturing methods.

• 产品出货时，波发生器独立包装。
The wave generator is packed separately when the product is delivered.