

INTRODUCTION OF FSD



FSD-I

FSD

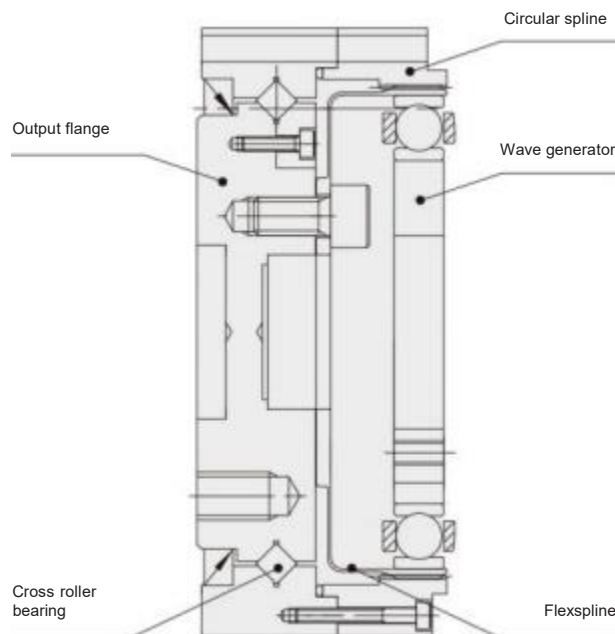
This miniaturized product was developed according to the marketing demand.

Compare with FSS series that with the same torque capacity, FSD series is more compact and thin-walled. smaller size.

■ Application

- Industrial Robot
- Service Robots
- Printed Circuit Manufacturing
- Metal Machine Tools Equipment
- Wood Light Metal, Plastic Machine Tools

Unit type structure of FSD



FSD-I

TECHNICAL DATA OF FSD

Rating table of FSD

Model	Reduction ratio	Rated torque at input 2000r/min		Permissible peak torque at start/stop		Permissible max. value of ave.load torque		Instantaneous permissible max. torque		Permissible max. input rotational speed (Grease lubricant)	Permissible ave. input rotational speed (Grease lubricant)	Backlash	Weight	Design life
		N·m	Kgf·m	N·m	Kgf·m	N·m	Kgf·m	N·m	Kgf·m	r/min	r/min	Arc Sec	kg	Hour
14	50	3.7	0.38	12	1.2	4.8	0.49	24	2.4	8500	3500	≤20	0.37	9000
	80	5.4	0.55	16	1.6	7.7	0.79	35	3.6					10000
	100	5.4	0.55	19	1.9	7.7	0.79	35	3.6					10000
17	50	11	1.1	23	2.3	18	1.8	48	4.9	7300	3500	≤20	0.46	9000
	80	15	1.5	29	3	19	1.9	61	6.2					10000
	100	16	1.6	37	3.8	27	2.8	71	7.2					10000
20	50	17	1.7	39	4	24	2.4	69	7	6500	3500	≤20	0.65	9000
	80	24	2.4	51	5.2	33	3.4	89	9.1					10000
	100	28	2.9	57	5.8	34	3.5	95	9.7					10000
25	50	27	2.8	69	7	38	3.9	127	13	5600	3500	≤20	1.2	9000
	80	44	4.5	96	9.8	60	6.1	179	18					10000
	100	47	4.8	110	11	75	7.6	184	19					10000
32	50	53	5.4	151	15	75	7.6	268	27	4800	3500	≤20	2.4	9000
	80	83	8.5	213	22	117	12	398	41					10000
	100	96	9.8	233	24	151	15	420	43					10000

Transmission accuracy

unit: arc min

Type Reduction ratio	14	17	20	25	32
above 50	1.5	1.5	1.5	1	1

Hysteresis loss

unit: arc min

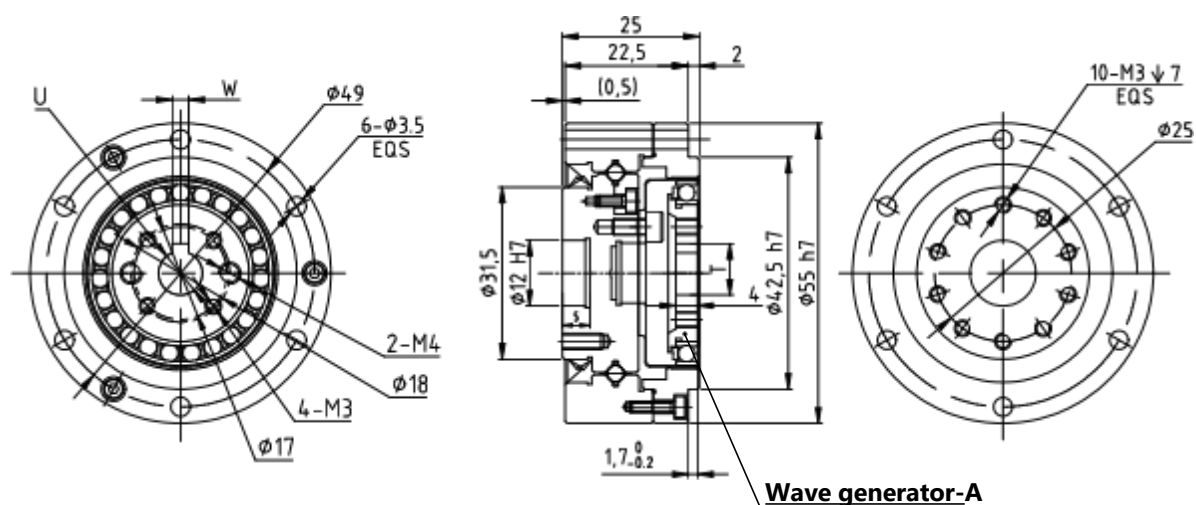
Type Reduction ratio	14	17	20	25	32
50	2.5	2	2	2	2
above 80	1	1	1	1	1

Torsional stiffness

Project		Type Unit	14	17	20	25	32
T1		N·m	2	3.9	7	14	29
T2		N·m	6.9	12	25	48	108
Reduction ratio 50	K1	× 10 ⁴ N·m/rad	0.29	0.67	1.1	2	4.7
	K2	× 10 ⁴ N·m/rad	0.37	0.88	1.3	2.7	6.1
	K3	× 10 ⁴ N·m/rad	0.47	1.2	2	3.7	8.4
Reduction ratio above 80	K1	× 10 ⁴ N·m/rad	0.4	0.84	1.3	2.7	6.1
	K2	× 10 ⁴ N·m/rad	0.44	0.94	1.7	3.7	7.8
	K3	× 10 ⁴ N·m/rad	0.61	1.3	2.5	4.7	11

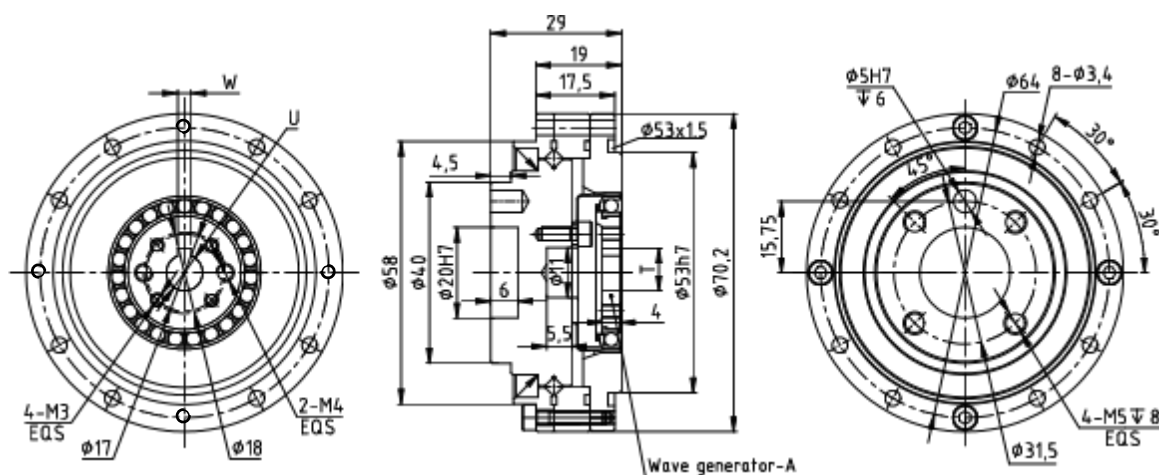
OUTLINE DRAWING

FSD-14-XX-U-I



Model	U	T	W
Wave generator - A $\phi 6$	$\phi 6$ H7	$7^{+0.1}_0$	2P9/JS9
Wave generator - A $\phi 8$	$\phi 8$ H7	$9.4^{+0.1}_0$	3P9/JS9
Wave generator - A $\phi 11$	$\phi 11$ H7		

FSD-14-P-XX-U-I

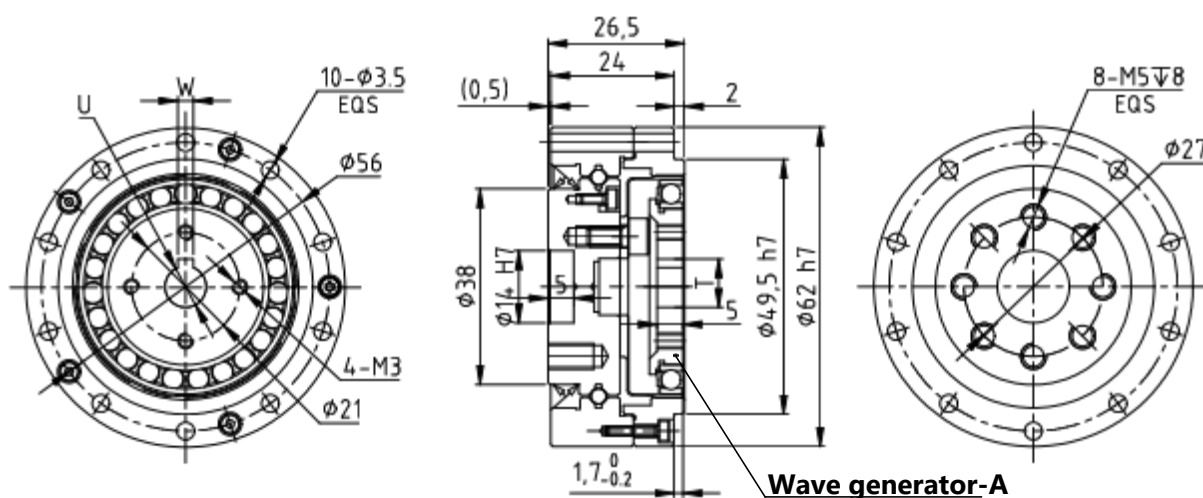


Model	U	T	W
Wave generator - A $\phi 6$	$\phi 6$ H7	$7^{+0.1}_0$	2P9/JS9
Wave generator - A $\phi 8$	$\phi 8$ H7	$9.4^{+0.1}_0$	3P9/JS9
Wave generator - A $\phi 11$	$\phi 11$ H7		

Model	Reduction ratio	Rated torque at input 2000r/min		Permissible peak torque at start/stop		Permissible max. value of ave. load torque		Instantaneous permissible max. torque		Permissible max. input rotational speed	Permissible ave. input rotational speed	Backlash	Weight	Design life
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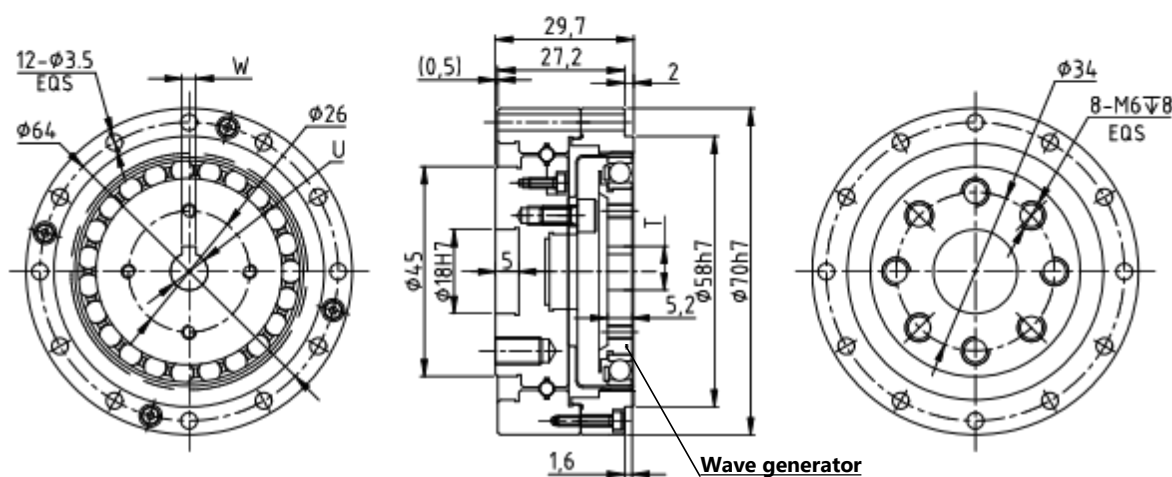
OUTLINE DRAWING

FSD-17-XX-U-I



Model	U	T	W
Wave generator - A φ8	φ8H7	9.4 ^{+0.1}	3P9/JS9
Wave generator - A φ15	φ15H7		

FSD-20-XX-U-I



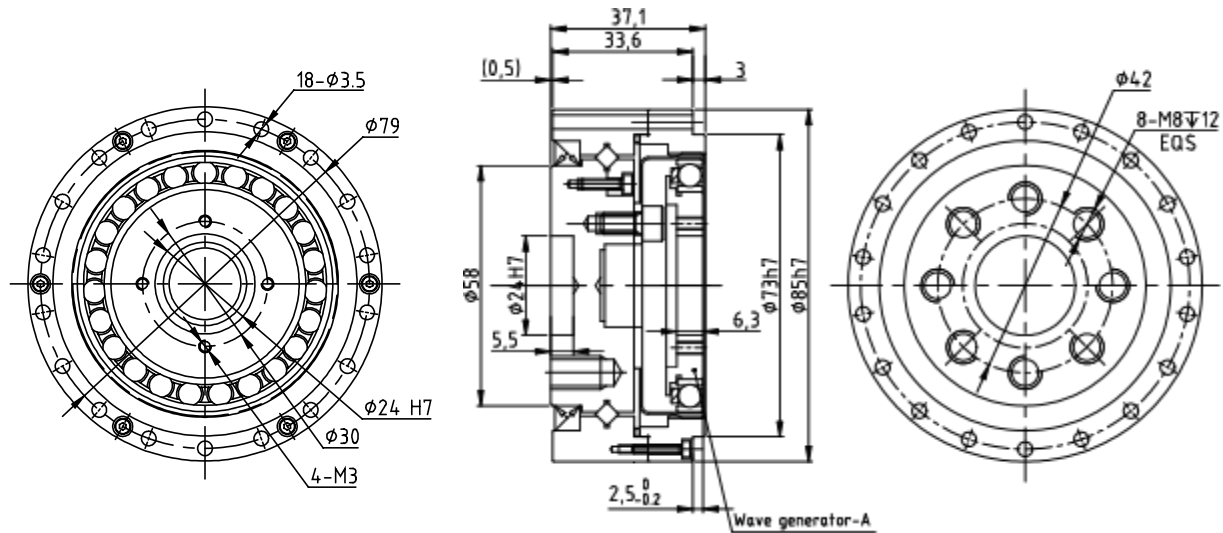
Model	U	T	W
Wave generator - A φ8	φ8H7	9.4 ^{+0.1}	3JS9/P9
Wave generator - A φ20	φ20H7		

Model	Reduction ratio	Rated torque at input 2000r/min		Permissible peak torque at start/stop		Permissible max. value of ave. load torque		Instantaneous permissible max. torque		Permissible max. input rotational speed	Permissible ave. input rotational speed	Backlash	Weight	Design life
		N·m	Kgf·m	N·m	Kgf·m	N·m	Kgf·m	N·m	Kgf·m					
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	100	28	2.9	57	5.8	34	3.5	95	9.7					10000

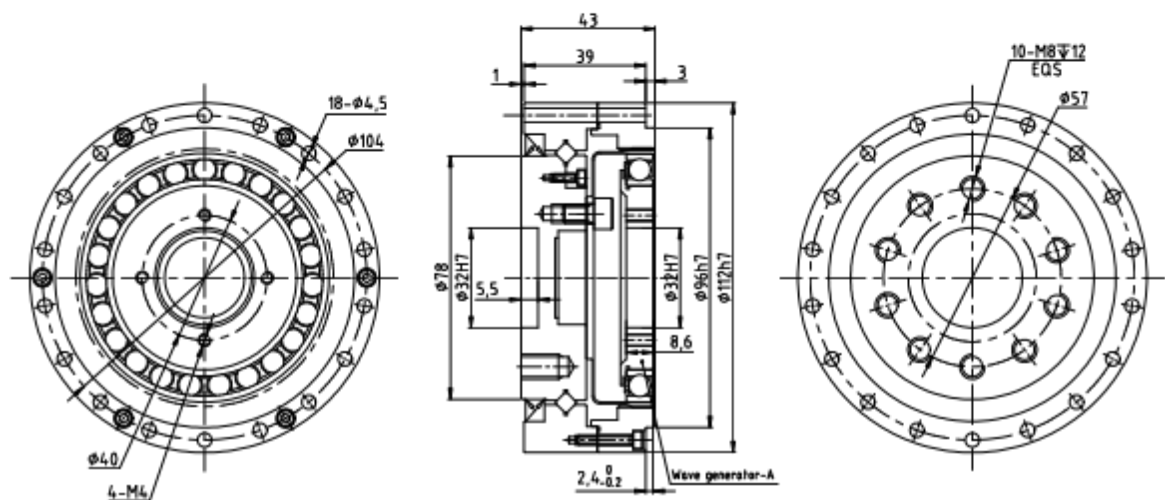
FSD-17-XX-U-I
FSD-20-XX-U-I

OUTLINE DRAWING

FSD-25-XX-U-I



FSD-32-XX-U-I



Model	Reduction ratio	Rated torque at input 2000r/min		Permissible peak torque at start/stop		Permissible max. value of ave. load torque		Instantaneous permissible max. torque		Permissible max. input rotational speed	Permissible ave. input rotational speed	Backlash	Weight	Design life
		N·m	Kgf·m	N·m	Kgf·m	N·m	Kgf·m	N·m	Kgf·m	r/min	r/min	Arc Sec	kg	Hour
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