

HIWIN®

Motion Control & Systems



DATORKER®

Strain wave gearbox

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DATORKER® strain wave gearboxes

General information

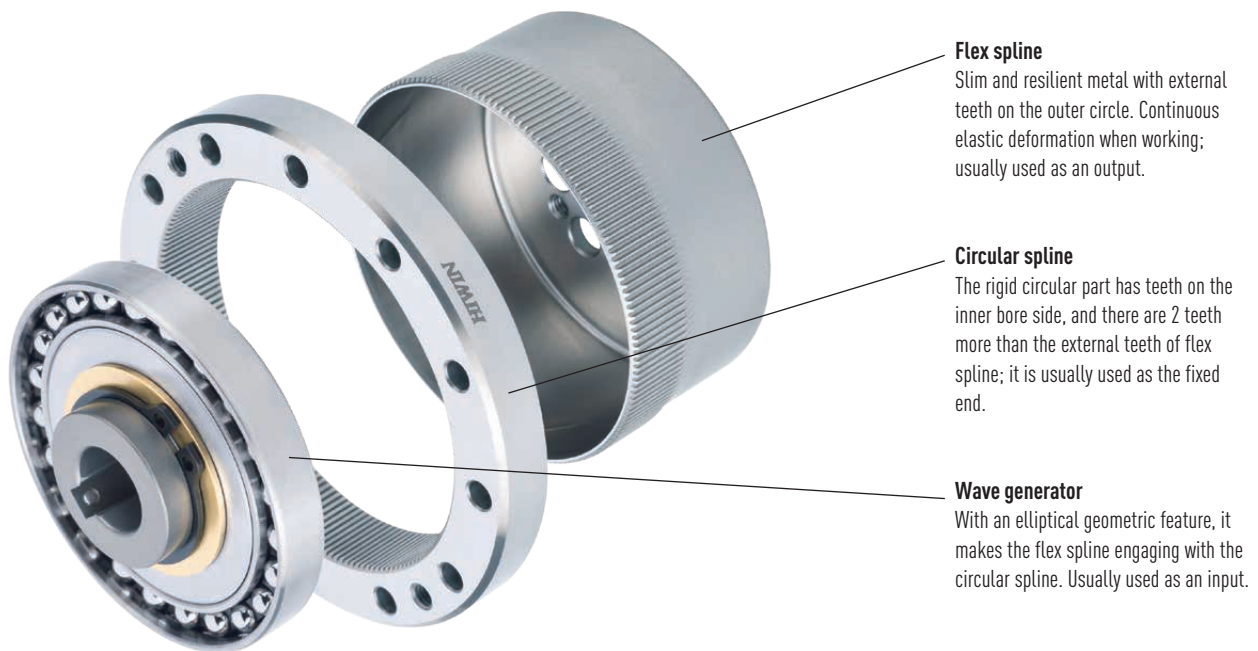
1. General information

1.1 Characteristics DATORKER® strain wave gearboxes

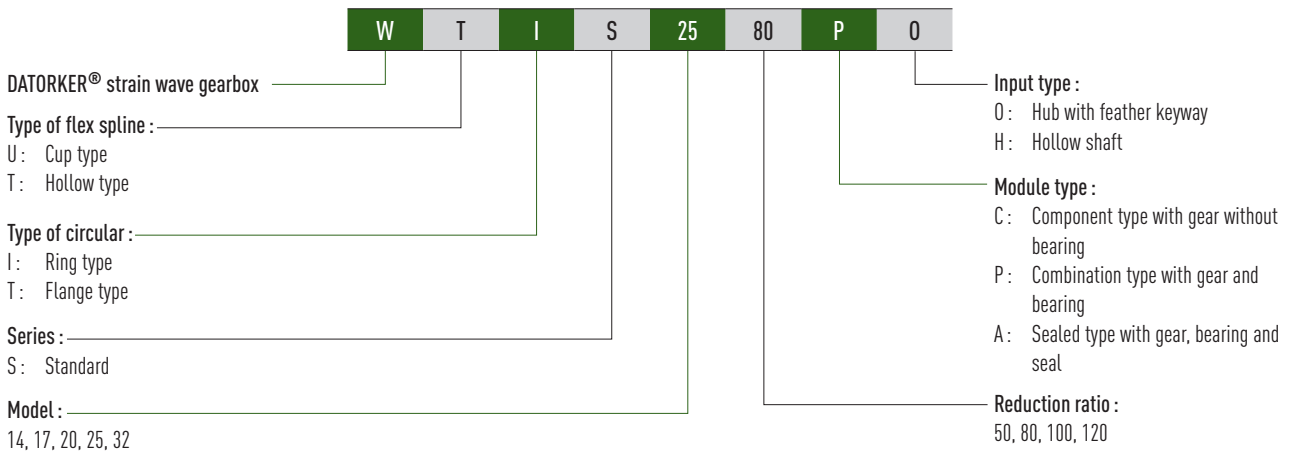
DATORKER® strain wave gearboxes has the characteristics of high precision, high efficiency, high torsional rigidity and low starting torque. It is widely used in robots, automation equipment, semiconductor equipment, machine tools and other industries.

Features DATORKER® strain wave gearboxes

- Compact and light weight – Easy for user to assemble and work with
- High accuracy – Provides stable repeatability and positioning
- Improved lubricating properties
- High torque – Widely use in automation and inspection equipment
- Wide reduction ratio – Various choices available under same model



1.2 Order code DATORKER® strain wave gearboxes



1.3 Type/Function

WUT Type

- Combination type (P) with gear and bearing
- Input shaft with fether keyway
- Whitstand axial and radial load



WUI Type

- Component type (C) with gear without bearing
- Input shaft with fether keyway
- Self-assembly of parts required: flex spline and circular spline ar not screwed together



WTI Type

- Combination type (P) with gear and bearing
- Input hollow shaft design
- Whitstand axial and radial load



WTI Type

- Sealed type (A) with gear, bearing and seal
- Input hollow shaft design
- Withstand axial and radial load
- Completely sealed design
- User friendly design



DATORKER® strain wave gearboxes

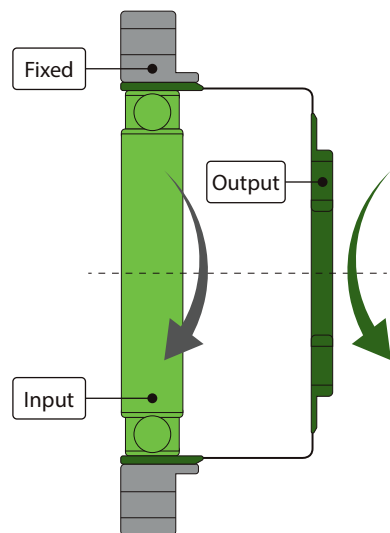
General information

1.4 Technical data

1.4.1 Specification Table

Table 1.1 Specification Table							
Model	Reduction Ratio	Rated torque at input 2000 r/min	Peak torque at start / stop	Permissible max. of value of average load torque	Permissible impact torque	Permissible maximum input speed	Permissible average input speed
		Nm	Nm	Nm	Nm	r/min	r/min
14	50	5.4	18.0	6.9	35.0	8,500	3,500
	80	7.8	23.0	11.0	47.0		
	100	7.8	28.0	11.0	54.0		
17	50	16.0	34.0	26.0	70.0	7,300	3,500
	80	22.0	43.0	27.0	87.0		
	100	24.0	54.0	39.0	108.0		
	120	24.0	54.0	39.0	86.0		
20	50	25.0	56.0	34.0	98.0	6,500	3,500
	80	34.0	74.0	47.0	127.0		
	100	40.0	82.0	49.0	147.0		
	120	40.0	87.0	49.0	147.0		
25	50	39.0	98.0	55.0	186.0	5,600	3,500
	80	63.0	137.0	87.0	255.0		
	100	67.0	157.0	108.0	284.0		
	120	67.0	167.0	108.0	304.0		
32	50	76.0	216.0	108.0	382.0	4,800	3,500
	80	118.0	304.0	167.0	568.0		
	100	137.0	333.0	216.0	647.0		
	120	137.0	353.0	216.0	686.0		

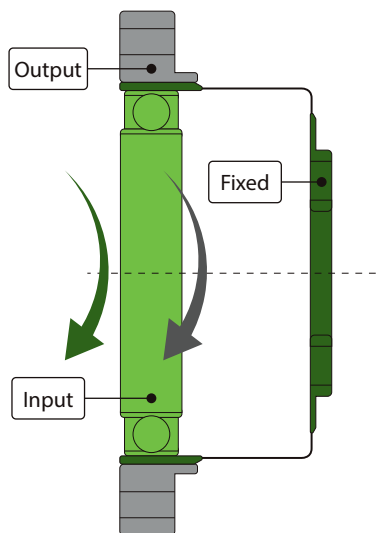
1.4.2 Reduction ratio and rotation direction



Input and Output with reverse direction rotation

$$\text{Effective reduction ratio} = \frac{-1}{R}$$

(R = Reduction ratio from Datasheet)



Input and Output with the same direction rotation

$$\text{Effective reduction ratio} = \frac{1}{R+1}$$

2. WUI-CO

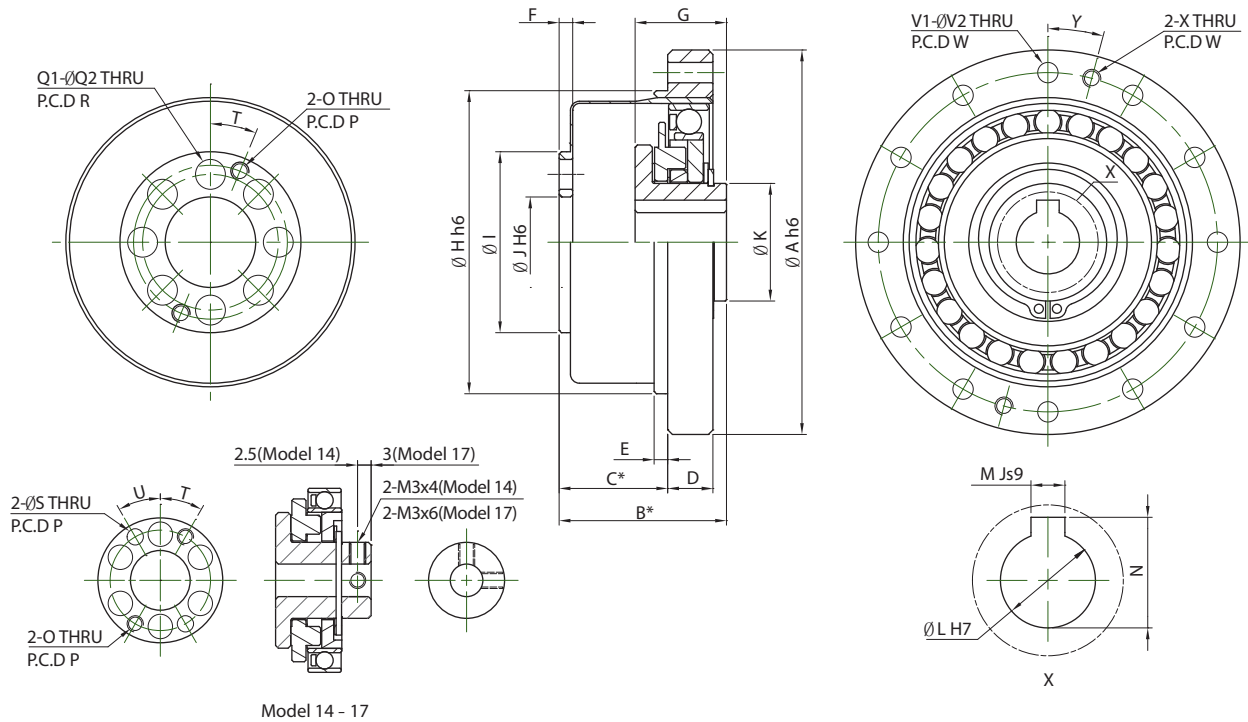


Table 2.1 Dimensions of WUI-CO strain wave gearboxes

Model	14	17	20	25	32
ØA h6	50.0	60.0	70.0	85.0	110.0
B ¹⁾	28.5 ^{-0.8}	32.5 ^{-0.9}	33.5 ^{-1.0}	37.0 ^{-1.0}	44.0 ^{-1.1}
C ¹⁾	17.5 ^{+0.4}	20.0 ^{+0.5}	21.5 ^{+0.6}	24.0 ^{+0.6}	28.0 ^{+0.6}
D	6.0	6.5	7.5	10.0	14.0
E	2.0	2.5	3.0	3.0	3.0
F	2.4	3.0	3.0	3.0	3.2
G	17.6 ^{-0.1}	19.5 ^{-0.1}	20.1 ^{-0.1}	20.2 ^{-0.1}	22.0 ^{-0.1}
ØH h6	38.0	48.0	54.0	67.0	90.0
ØI	23.0	27.2	32.0	40.0	52.0
J H6	11.0	10.0	16.0	20.0	26.0
ØK	14.0	18.0	21.0	26.0	26.0
ØL H7	6.0	8.0	9.0	11.0	14.0
M Js9	-	-	3.0	4.0	5.0
N	-	-	10.4 ^{+0.1}	12.0 ^{+0.1}	16.3 ^{+0.1}
O	M3	M3	M3	M4	M5
P (P.C.D)	18.5	21.5	27.0	34.0	45.0
Q1	6.0	6.0	8.0	8.0	8.0
ØQ2	4.5	5.5	5.5	6.6	9.0
R (P.C.D)	17.0	19.0	24.0	30.0	40.0
S	3.0 ^{+0.015}	3.0 ^{+0.015}	-	-	-
T (Degree)	30°	30°	22.5°	22.5°	22.5°
U (Degree)	30°	30°	-	-	-
V1	6.0	12.0	12.0	12.0	12.0
ØV2	3.5	3.5	3.5	4.5	5.5
W (P.C.D)	44.0	54.0	62.0	75.0	100.0
X	M3	M3	M3	M4	M5
Y (Degree)	30°	15°	15°	15°	15°

¹⁾ B and C is the tolerance and the matching position of axial direction

DATORKER® strain wave gearboxes

WUT-PO

3. WUT-PO

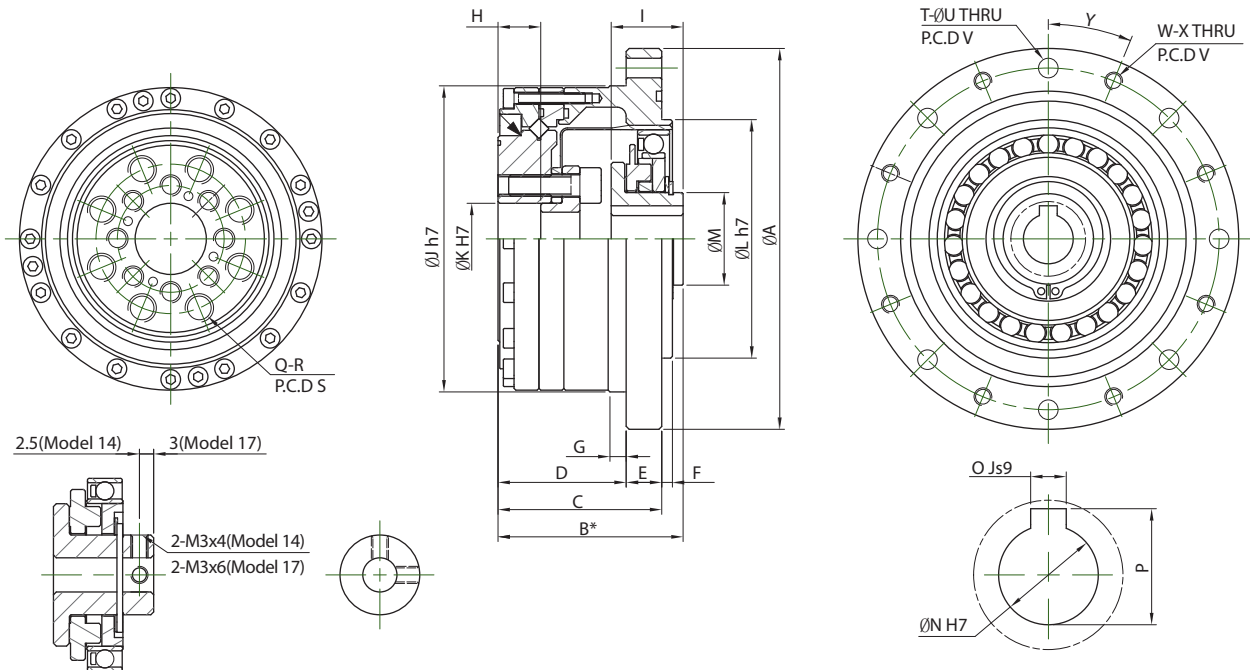


Table 3.1 Dimensions of WUT-PO strain wave gearboxes

Model	14	17	20	25	32
ØA	73.0	79.0	93.0	107.0	138.0
B ¹⁾	41.0 ^{-0.9}	45.0 ^{-0.9}	45.5 ^{-1.0}	52.0 ^{-1.0}	62.0 ^{-1.1}
C	34.0	37.0	38.0	46.0	57.0
D	27.0	29.0	28.0	36.0	45.0
E	7.0	8.0	10.0	10.0	12.0
F	2.0	2.0	3.0	3.0	3.0
G	3.5	4.0	5.0	5.0	5.0
H	9.4	9.5	9.0	12.0	15.0
I	17.6 ^{-0.1}	19.5 ^{-0.1}	20.1 ^{-0.1}	20.2 ^{-0.1}	22.0 ^{-0.1}
ØJ h7	56.0	63.0	72.0	86.0	113.0
ØK H7	11.0	10.0	14.0	20.0	26.0
ØL h7	38.0	48.0	56.0	67.0	90.0
ØM	14.0	18.0	21.0	26.0	26.0
ØN H7	6.0	8.0	12.0	14.0	14.0
O Js9	-	-	4.0	5.0	5.0
P	-	-	13.8 ^{+0.1}	16.3 ^{+0.1}	16.3 ^{+0.1}
Q	6.0	6.0	8.0	8.0	8.0
R	M4 x 8DP	M5 x 10DP	M6 x 9DP	M8 x 12DP	M10 x 15DP
S (P.C.D)	23.0	27.0	32.0	42.0	55.0
T	6.0	6.0	6.0	8.0	12.0
ØU	4.5	4.5	5.5	5.5	6.6
V (P.C.D)	65.0	71.0	82.0	96.0	125.0
W	6.0	6.0	6.0	8.0	12.0
X	M4	M4	M5	M5	M6
Y (Degree)	30°	30°	30°	22.5°	15°

¹⁾ B is the tolerance and the matching position of axial direction.

4. WTI-PH

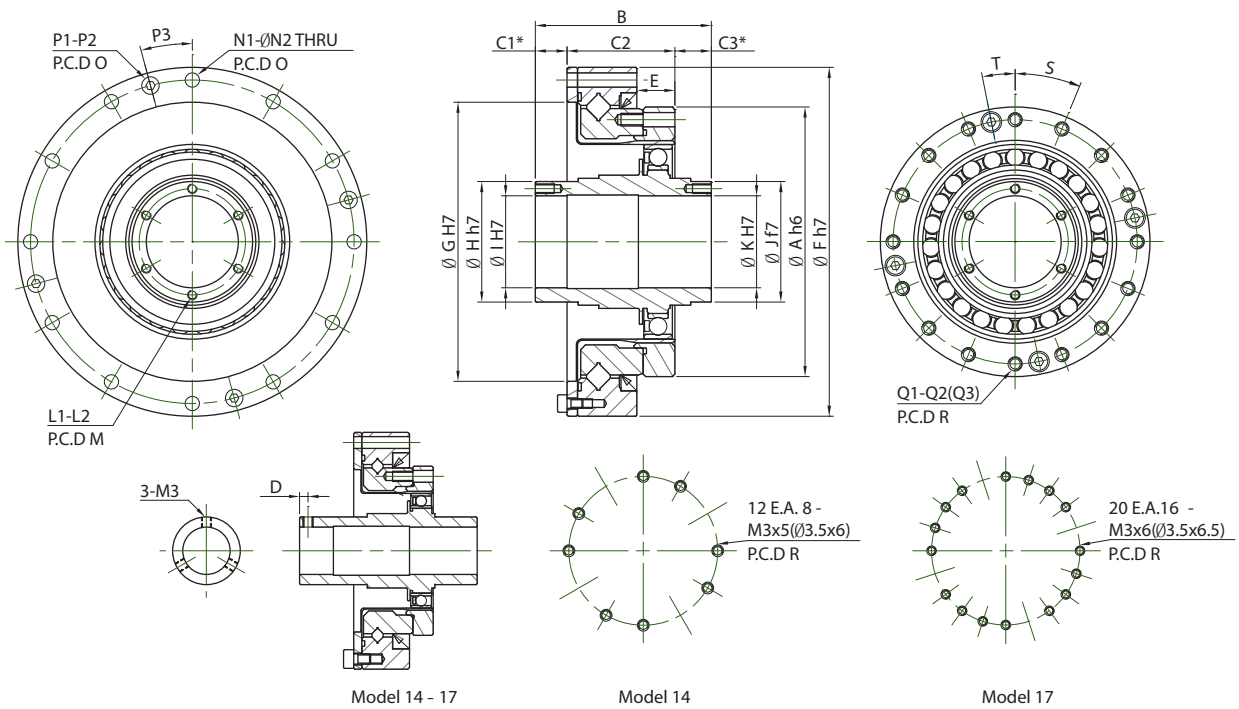


Table 4.1 Dimensions of WTI-PH strain wave gearboxes

Model	14	17	20	25	32
ØA h6	50.0	60.0	70.0	85.0	110.0
B	52.5 ^{-0.1}	56.5 ^{-0.1}	51.5 ^{-0.1}	52.0 ^{-1.0}	62.0 ^{-1.1}
C1 ¹⁾	16.0 ^{+0.8}	16.0 ^{+0.9}	9.5 ^{+1.0}	10.0 ^{+1.1}	12.0 ^{+1.1}
C2	23.5	26.5	29.0	34.0	42.0
C3 ¹⁾	13.0	14.0	13.0	11.5	11.5
D	2.5	2.5	—	—	—
E	7.0	7.5	8.5	12.0	15.0
ØF h7	70.0	80.0	90.0	110.0	142.0
ØG H7	48.0	60.0	70.0	88.0	114.0
ØH h7	20.0	25.0	30.0	38.0	45.0
ØI H7	14.0	19.0	21.0	29.0	36.0
ØJ f7	20.0	25.0	30.0	38.0	45.0
ØK H7	14.0	19.0	21.0	29.0	36.0
L1	3.0	3.0	2x6	2x6	2x6
L2	M3	M3	M3 x DP6	M3 x DP6	M3 x DP6
M (P.C.D)	—	—	25.5	33.5	40.5
N1	8.0	12.0	12.0	12.0	12.0
ØN2	3.5	3.5	3.5	4.5	5.5
O (P.C.D)	64.0	74.0	84.0	102.0	132.0
P1	2.0	4.0	4.0	4.0	4.0
P2	M3	M3	M3	M3	M4
P3 (Degree)	22.5°	15°	15°	15°	15°
Q1	12 E.A. 8	20 E.A. 16	16.0	16.0	16.0
Q2	M3 x 5DP	M3 x 6DP	M3 x 6DP	M4 x 7DP	M5 x 8DP
Q3	Ø3.5 x 6DP	Ø3.5 x 6.5DP	Ø3.5 x 7.5DP	Ø4.5 x 10DP	Ø5.5 x 14DP
ØR	44.0	54.0	62.0	77.0	100.0
S (Degree)	30°	18°	22.5°	22.5°	22.5°
T (Degree)	30°	18°	11.25°	11.25°	11.25°

¹⁾ C1, C3 is the tolerance and the matching position of axial direction.

DATORKER® strain wave gearboxes

WTI-AH

5. WTI-AH

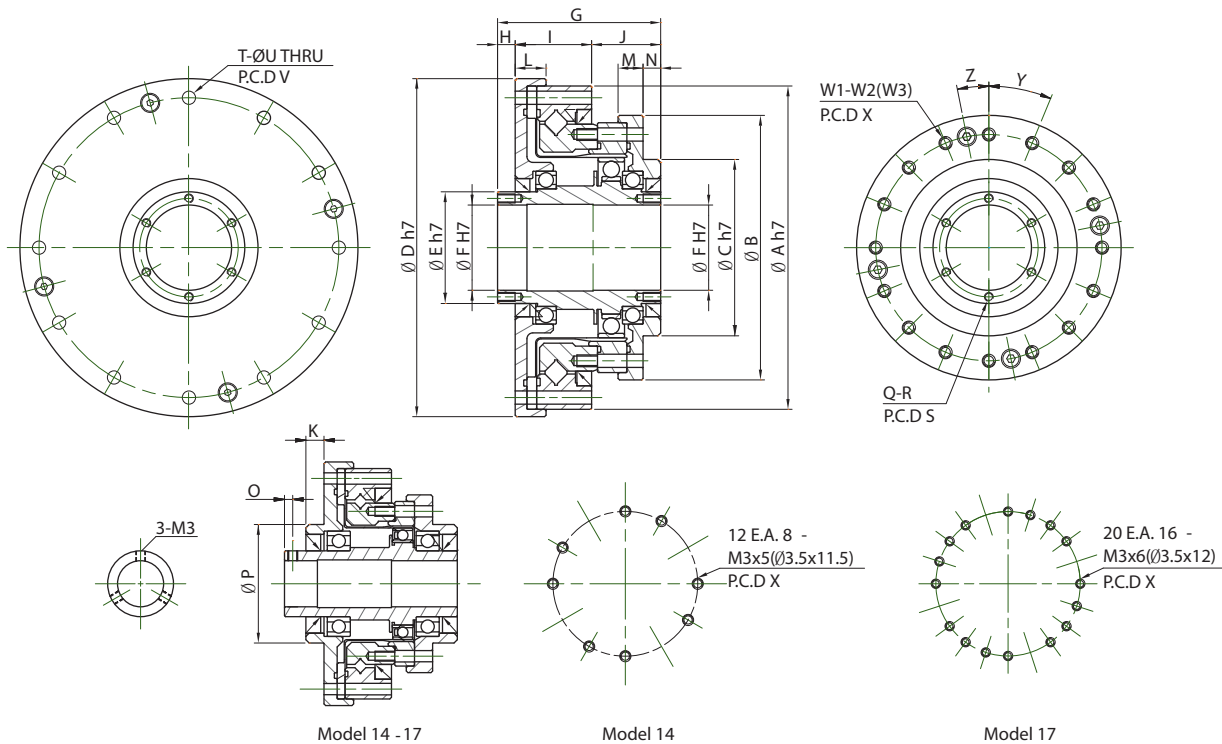


Table 5.1 Dimensions of WTI-AH strain wave gearboxes

Model	14	17	20	25	32
ØA h7	70.0	80.0	90.0	110.0	142.0
ØB	54.0	64.0	75.0	90.0	115.0
ØC h7	36.0	45.0	50.0	60.0	85.0
ØD h7	74.0	84.0	95.0	115.0	147.0
ØE h7	20.0	25.0	30.0	38.0	45.0
ØF H7	14.0	19.0	21.0	29.0	36.0
G	52.5	56.5	51.5	55.5	65.5
H	12.0	12.0	5.0	6.0	7.0
I	20.5	23.0	25.0	26.0	32.0
J	20.0	21.5	21.5	23.5	26.5
K	5.5	5.5	-	-	-
L	9.0	10.0	10.5	10.5	12.0
M	8.0	8.5	9.0	8.5	9.5
N	7.5	8.5	7.0	6.0	5.0
O	2.5	2.5	-	-	-
P	36.0	45.0	-	-	-
Q	3.0	3.0	2x6	2x6	2x6
R	M3	M3	M3 x DP6	M3 x DP6	M3 x DP6
S (P.C.D)	-	-	25.5	33.5	40.5
T	8.0	12.0	12.0	12.0	12.0
ØU	3.5	3.5	3.5	4.5	5.5
V (P.C.D)	64.0	74.0	84.0	102.0	132.0
W1	12 E.A. 8	20 E.A. 16	16.0	16.0	16.0
W2	M3 x 5DP	M3 x 6DP	M3 x 6DP	M4 x 7DP	M5 x 8DP
W3	Ø3.5 x 11.5DP	Ø3.5 x 12DP	Ø3.5 x 13.5DP	Ø4.5 x 15.5DP	Ø5.5 x 20.5DP
X (P.C.D)	44.0	54.0	62.0	77.0	100.0
Y (Degree)	30°	18°	22.5°	22.5°	22.5°
Z (Degree)	30°	18°	11.25°	11.25°	11.25°

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