

PRECISION PLANETARY GEARBOX

WRL



- **Quiet operation**
Helical gears are used to achieve smooth and quiet operation.
- **High precision**
The backlash is less than 3 arcmin and the positioning is accurate.
- **High rigidity & torque**The use of integral ball bearings greatly improves the rigidity and torque.
- **Methods of flange and connector**
It can be installed on any motor in the world.
- **No grease leakage**
The use of grease with high viscosity which is not easy to separate effectively prevents the grease leakage.
- **Convenient maintenance**
No need to replace the grease in the product life period , and the installation is more convenient.

Model Selection of Speed Reducers

WRL TYPE

WRL 090

10

S1

P1

Motor

Reducer Model

WRL050, WRL070, WRL090, WRL120,
WRL155, WRL205, WRL235

Output Shaft Keyway

S1: (Solid Output Shaft No Keyway)
S2: Standard (Keyway)
S3: Output for holes

Motor Model

Motor Manufacturer & Model

Ratio

1-stage: 3, 4, 5, 6, 7, 8, 9, 10
2-stage: 15, 20, 25, 30, 35, 40, 45, 50,
60, 70, 80, 90, 100

Backlash Grade

P0: High precision backlash
P1: Precision backlash
P2: Standard backlash

Model Example: WRL090-100-S2-P1/Panasonic MSMJ 082S1A

WINMAN WRL Serisi Helisel Dişli Planet Redüktör / WRL Series Helical Gear Planetary Gearbox

WRL Reducer Specifications

Specs	Unit	Stage	Ratio	WRL050	WRL070	WRL090	WRL120	WRL155	WRL 205	WRL 235	
Rated Output Torque / T _{2N}	Nm	1	3	20	55	130	208	342	588	1140	
			4	19	50	140	290	542	1050	1700	
			5	22	60	160	330	650	1200	2000	
			6	20	55	150	310	600	1100	1900	
			7	19	50	140	300	550	1100	1800	
			8	17	45	120	260	500	1000	1600	
			9	14	40	100	230	450	900	1500	
			10	14	40	100	230	450	900	1500	
			2	15	20	55	130	208	342	588	1140
				20	19	50	140	290	542	1050	1700
		25		22	60	160	330	650	1200	2000	
		30		20	55	150	310	600	1100	1900	
		35		19	50	140	300	550	1100	1800	
		40		17	45	120	260	500	1000	1600	
		45		14	40	100	230	450	900	1500	
		50		22	60	160	330	650	1200	2000	
		60		20	55	150	310	600	1100	1900	
		70		19	50	140	300	550	1100	1800	
		80	17	45	120	260	500	1000	1600		
		90	14	40	100	230	450	900	1500		
100	14	40	100	230	450	900	1500				
Max. Output Torque / T _{2NOT} ¹	Nm	1,2	3~100	3Times of Nominal Output Torque							
Rated Input Speed / Π _{1N}	rpm	1,2	3~100	5000	5000	4000	4000	3000	3000	2000	
Max. Input Speed / Π _{1B}	rpm	1,2	3~100	10000	10000	8000	8000	6000	6000	4000	
Precision Backlash P1	arcmin	1	3~10	≤2	≤2	≤2	≤2	≤2	≤2	≤2	
		2	15~100	≤4	≤4	≤4	≤4	≤4	≤4	≤4	
Standard Backlash P2	arcmin	1	3~10	≤4	≤4	≤4	≤4	≤4	≤4	≤4	
		2	15~100	≤6	≤6	≤6	≤6	≤6	≤6	≤6	
Torsional Rigidity	Nm/arcmin	1,2	3~100	3	7	14	25	50	145	225	
Max. Radial Force / F _{2B} ²	N	1,2	3~100	680	1260	2880	6000	8200	12800	27800	
Max. Axial Force / F _{2A1B} ²	N	1,2	3~100	330	625	1250	2400	3890	6100	15000	
Max. Axial Force / F _{2A1B} ²	N	1,2	3~100	370	760	1580	3360	4660	7250	18500	
Service Life	hr	1,2	3~100	20000h							
Efficiency / η	%	1	3~10	≥97%							
		2	15~100	≥94%							
Weight	kg	1	3~10	0.5	1.2	3.5	7.8	14.5	30	50	
		2	15~100	0.8	1.4	4.1	9	17.5	33	63	
Operating Temperature	°C	1,2	3~100	(-15°C ~ +90°C)							
Lubrication		1,2	3~100	(Synthetic Grease)							
Protection Class		1,2	3~100	IP65							
Mounting Position		1,2	3~100	(Any Direction)							
Noise Level(n1=3000rpm, No load)	dB(A)	1,2	3~100	≤56	≤58	≤60	≤63	≤65	≤67	≤70	

Reducer Rotary Inertia

Specs	Unit	Stage	Ratio	WRL050	WRL070	WRL090	WRL120	WRL155	WRL 205	WRL 235
Moment of Inertia	kg.cm ²	1	3	0.03	0.16	0.61	3.25	9.21	28.98	69.61
			4	0.03	0.14	0.48	2.74	7.54	23.67	54.37
			5	0.03	0.13	0.47	2.71	7.42	23.29	53.27
			6	0.03	0.13	0.45	2.65	7.25	22.75	51.72
			7	0.03	0.13	0.45	2.62	7.14	22.48	50.97
		2	8	0.03	0.13	0.44	2.58	7.07	22.59	50.84
			9	0.03	0.13	0.44	2.57	7.04	22.53	50.63
			10	0.03	0.13	0.44	2.57	7.03	22.51	50.56
			12~40	0.03	0.03	0.13	0.47	2.71	7.42	23.29
			50~100	0.03	0.03	0.13	0.44	2.57	7.03	22.51

- Ratio (i=Nin/Nout)
- Output revolutions 100rpm, acting on the output shaft center position.
- The Max. acceleration torque T2B=60% of T2NOT, continuous operation, service life is 10000hrs.

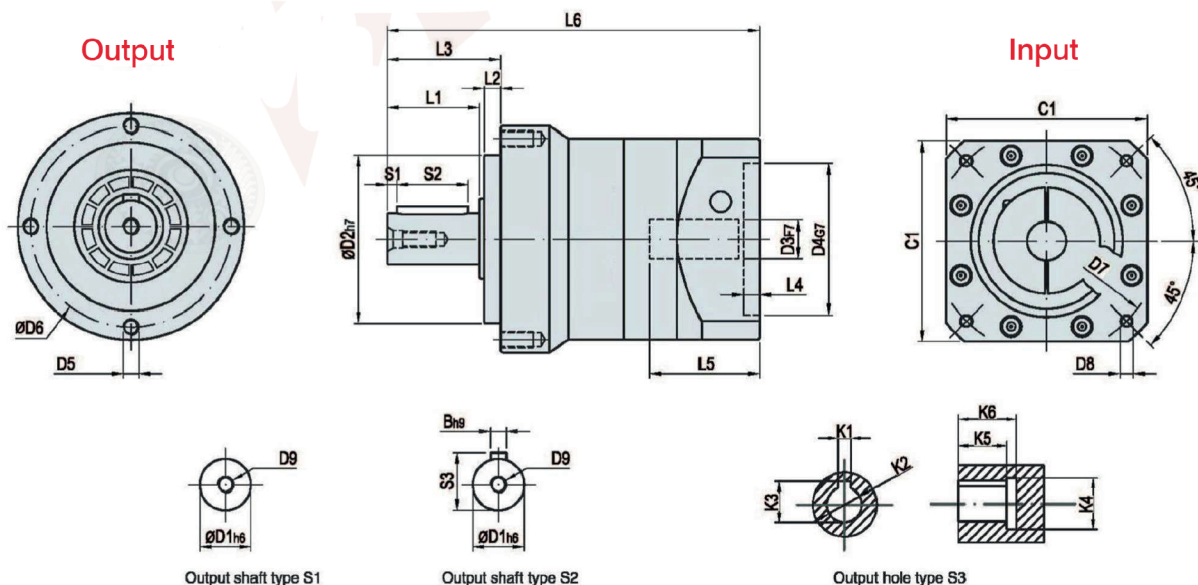
MODEL: WRL

1-Stage

Ratio: 3, 4, 5, 6, 7, 8, 9, 10



Dimensions:



Unit:mm

Size	WRL 070-L1	WRL 090-L1	WRL 120-L1	WRL 156-L1	WRL 205-L1	WRL 235-L1
D1	φ 16	φ 22	φ 32	φ 40	φ 55	φ 75
D2	φ 52	φ 68	φ 90	φ 120	φ 160	φ 180
D3	φ 14 (φ 11-14)	φ 19 (φ 16-24)	φ 22 (φ 19-35)	φ 24 (φ 22-35)	φ 35 (φ 35-φ 42)	φ 42 (φ 35-55)
D4	φ 50 (φ 50-70)	φ 70 (φ 70-φ 110)	φ 110 (φ 114.3)	φ 110 (φ 114.3)	φ 114.3 (φ 114.3-200)	φ 180 (φ 114.3-200)
D5	4-M5X10L	4-M6X12L	4-M8X16L	4-M10X20L	4-M12X22L	4-M16X28L
D6	φ 62	φ 80	φ 108	φ 140	φ 184	φ 210
D7	φ 70 (φ 70-90)	φ 90 (φ 90-145)	φ 145 (φ 145-200)	φ 145 (φ 145-200)	φ 200 (φ 200-235)	φ 215 (φ 200-235)
D8	4-M5 (M4-M6)	4-M6 (M5-M8)	4-M8 (M8-M12)	4-M8 (M8-M12)	4-M12	4-M12
D9	M5X0.8P	M8X1.25P	M12X1.75P	M16X2P	M20X2.5P	M20X2.5P
L1	28.5	36.5	51	79	82	105
L2	5	6	9	12	15	18
L3	35	44	62	94	100	126
L4	5	7-8	6-11	8-11	7-10	8-15
L5	34 (≤44)	44 (≤60)	64.5 (≤81.5)	72.5 (≤82)	85 (≤120)	109 (≤119)
L6	115 (115-125)	146 (146-162)	201 (201-218)	251.5 (251.5-261)	284 (284-319)	358 (358-368)
C1	65 (65-80)	90 (90-130)	130 (130-180)	150 (150-180)	180 (180-220)	200 (200-220)
S1	3	4	5	5	6	7
S2	22	28	40	65	70	90
S3	18	24.5	35	43	59	79.5
B	5	6	10	12	16	20
K1	4	6	8	10	14	18
K2	φ 11	φ 22	φ 28	φ 38	φ 50	φ 60
K3	12.8	24.5	31.3	41.3	53.8	64.4
K4	φ 16	φ 32	φ 38	φ 48	φ 60	φ 72
K5	15	20	27	35	43	60
K6	18	24	32	40	50	65

Note 1: Inside of () is the optional range of sizes, outside of () is the standard sizes.

Note 2: The reducer output shaft size and length can be customized for customers.

Note 3: The input size can be changed according to the servomotor or stepper motor of each brand.

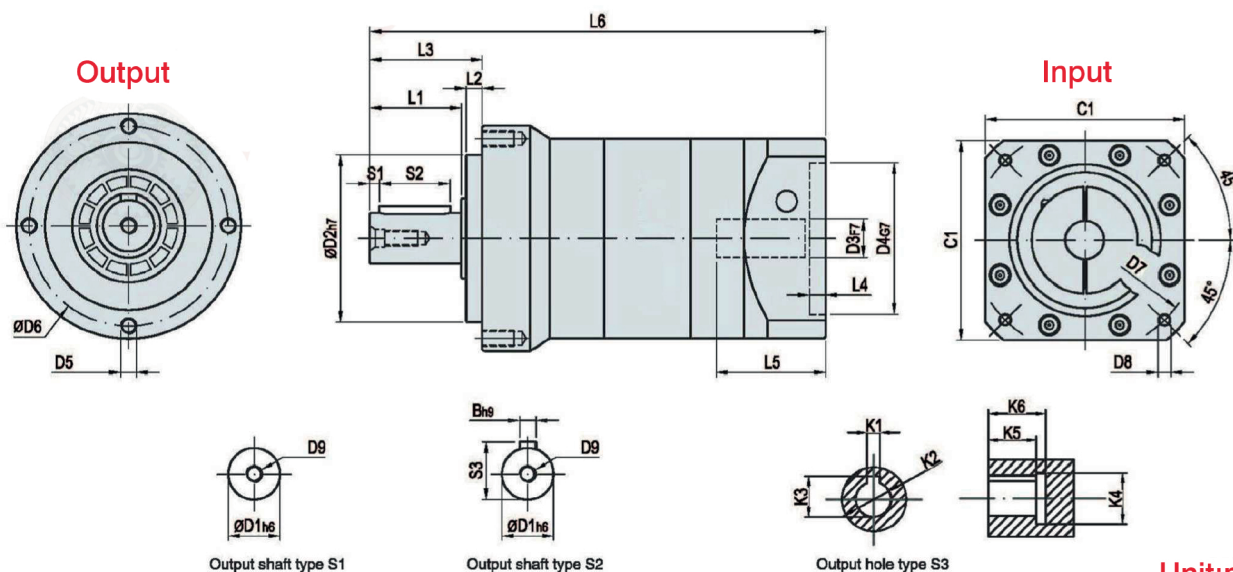
MODEL: WRL

2-Stage

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



Dimensions:



Unit:mm

Size	WRL 070-L1	WRL 090-L2	WRL 120-L2	WRL 156-L2	WRL 205-L2	WRL 235-L2
D1	φ 16	φ 22	φ 32	φ 40	φ 55	φ 75
D2	φ 52	φ 68	φ 90	φ 120	φ 160	φ 180
D3	φ 14 (φ 11-14)	φ 19 (φ 11-19)	φ 22 (φ 16-24)	φ 24 (φ 19-35)	φ 35 (φ 22-35)	φ 42 (φ 35-42)
D4	φ 50	φ 70 (φ 50-φ 80)	φ 110 (φ 70-φ 110)	φ 110 (φ 114.3)	φ 110 (φ 114.3)	φ 180 (φ 114.3-200)
D5	4-M5X10L	4-M6X12L	4-M8X16L	4-M10X20L	4-M12X22L	4-M16X28L
D6	φ 62	φ 80	φ 108	φ 140	φ 184	φ 210
D7	φ 70	φ 90 (φ 70-100)	φ 145 (φ 90-145)	φ 145 (φ 145-200)	φ 145 (φ 145-200)	φ 215 (φ 200-235)
D8	4-M5 (M4)	4-M6 (M4-M6)	4-M8 (M5-M8)	4-M8 (M8-M12)	4-M8 (M8-M12)	4-M12
D9	M5X0.8P	M8X1.25P	M12X1.75P	M16X2P	M20X2.5P	M20X2.5P
L1	28.5	36.5	51	79	82	105
L2	5	6	9	12	15	18
L3	35	44	62	94	100	126
L4	5	5	8 (7-8)	11 (6-11)	8 (8-11)	8 (7-10)
L5	34	34 (≤44)	44 (≤60)	64.5 (≤81.5)	72.5 (≤82)	85 (≤120)
L6	142	172.5 (162.5-172.5)	230.5 (214.5-230.5)	286 (286-303)	340 (330.5-340)	407 (402-437)
C1	65	80 (65-86)	130 (90-130)	130 (130-180)	150 (150-180)	200 (180-220)
S1	3	4	5	5	6	7
S2	22	28	40	65	70	90
S3	18	24.5	35	43	59	79.5
B	5	6	10	12	16	20
K1	4	6	8	10	14	18
K2	φ 11	φ 22	φ 28	φ 38	φ 50	φ 60
K3	12.8	24.5	31.3	41.3	53.8	64.4
K4	φ 16	φ 32	φ 38	φ 48	φ 60	φ 72
K5	15	20	27	35	43	60
K6	18	24	32	40	50	65

Note 1: Inside of () is the optional range of sizes, outside of () is the standard sizes.

Note 2: The reducer output shaft size and length can be customized for customers.

Note 3: The input size can be changed according to the servomotor or stepper motor of each brand.