

# High Rigidity Planetary Gearbox Catalog



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## WANSHSIN SEIKOU (HUNAN) CO., LTD

WANSHSIN was founded in 2009 in Dongguan Guangdong, and moved its headquarters to Changsha Hunan in 2014. At present, WANSHSIN has two manufacturing bases in Dongguan and Hunan, and three technology innovation platforms of Hunan Enterprise Technology Center, Hunan Provincial Engineering Technology Research Center of Reducers and Changsha Technology Innovation Center. WANSHSIN has also established three R&D centers in Japan, Shenzhen and Hunan headquarters to lead the high-quality development of the industry with innovation.

WANSHSIN is a professional gearbox and gear motor manufacturer and intelligent automation complete solution provider, integrating R&D, production, sales and service. WANSHSIN ranks the First in this industry in Hunan Province and the Tenth in China. Products include gear reducer, gear motor and controller (servo driver, inverter, etc). They are widely used in lithium battery industry, automated production lines, robots, automobile manufacturing, engineering machinery, warehousing and logistics, metallurgy chemicals, ceramics, animal husbandry and other industries. WANSHSIN has gradually become a reliable long-term partner of those leading enterprises of relevant industries.

**3**

R&D Center

**5**

Production Base

**40+**

Countries

**700+**

Global Staff

**80,000**

Annual Quantities

## Advantages



### Heat Treatment Process

The internal gear adopts a nitriding heat treatment process, which maximizes the material performance and significantly improves the surface hardness, while retaining the core toughness



### Production Management

Adopts the ISO9001 management system to ensure temperature rise, noise, lifespan, efficiency and other indicators in mass production products



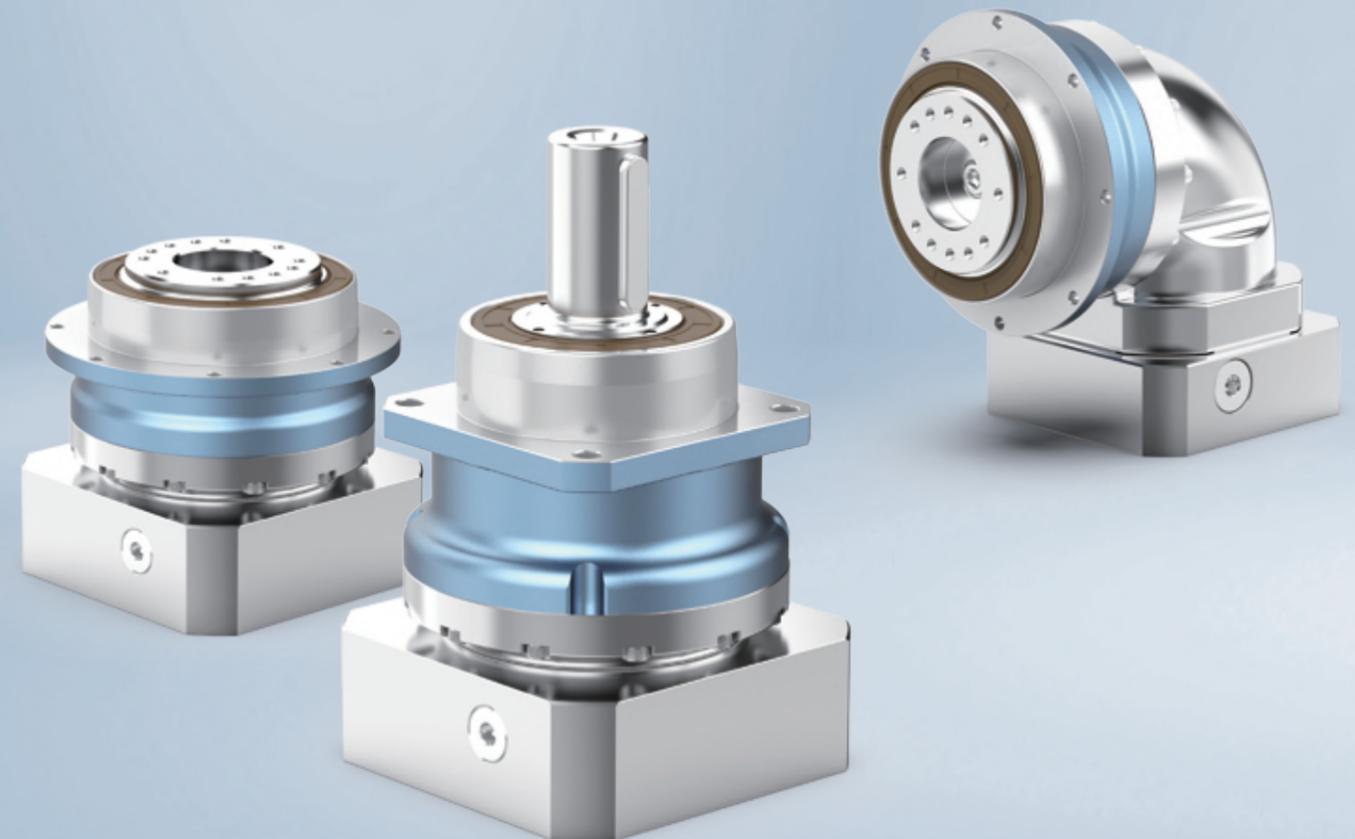
### Precision Control

High precision gear processing machine tool + imported CNC lathe, combined with special cutting tools and processing technology to ensure stable control of backlash within the standard



### Fast Delivery

We have more than 80 thousands spare parts in stock to ensure fast delivery



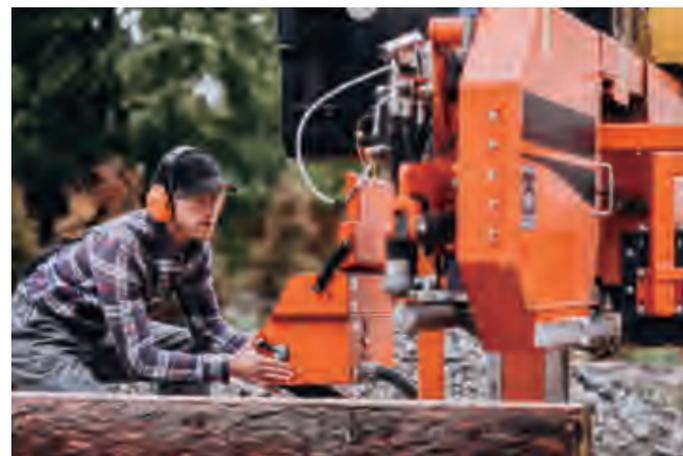
# Applications

Machine tool, equipment, automation, AGV, vehicle Industry

The translation positioning, crank connecting rod, multi connecting rod, driving wheel, stirring and other mechanisms in these industry fields have high requirements for positioning accuracy, impact resistance, rotational inertia, and accuracy maintenance performance. Our products are widely used in these mechanisms, making them more resistant to impact loads and have a longer accuracy life.



Laser Cutting Equipment



Flying Saw Equipment



Automotive Welding Equipment



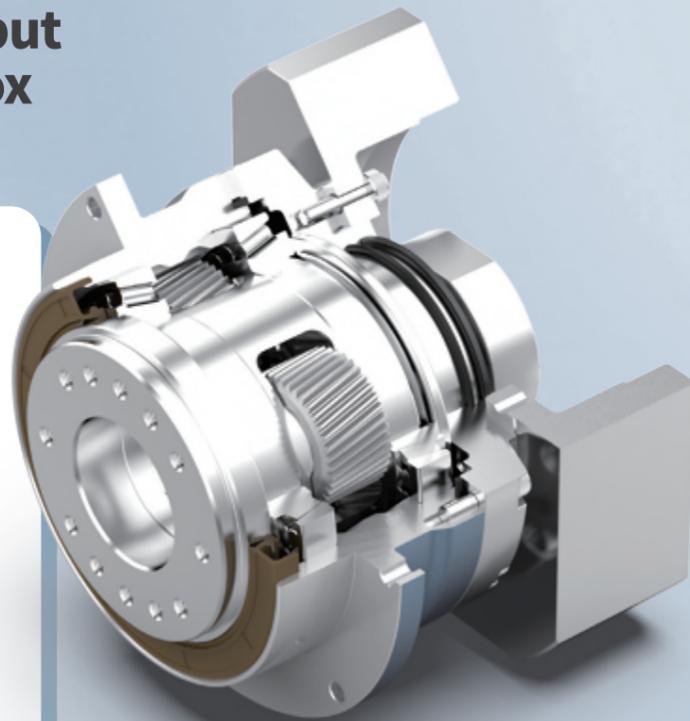
Robots

## High rigidity flange output helical planetary gearbox

WTH Series

### Product Features

- ◆ Significantly enhances overall rigidity, vibration resistance, and load-bearing capacity in any direction.
  - ◆ Installation dimensions are consistent with industry-standard products, improving versatility.
  - ◆ Annular gear undergoes a surface nitriding process to ensure superior precision throughout their entire lifespan.
  - ◆ Compact size, with higher power density
- ※ Suitable for high positioning accuracy, high dynamic periodic operation, and compact axial space conditions.



## High rigidity shaft output helical planetary gearbox

WSH Series

### Product Features

- ◆ Significantly enhances overall rigidity, vibration resistance, and load-bearing capacity in any direction.
  - ◆ Annular gear undergoes a special process to ensure superior precision throughout their entire lifespan.
  - ◆ WSH Series frame 100 and above feature a double-support-structure for the output shaft bearing, offering superior span length and overturning moment capability.
  - ◆ Compact size, with higher power density
- ※ Suitable for high positioning accuracy, high dynamic periodic operation, and compact radial space conditions.

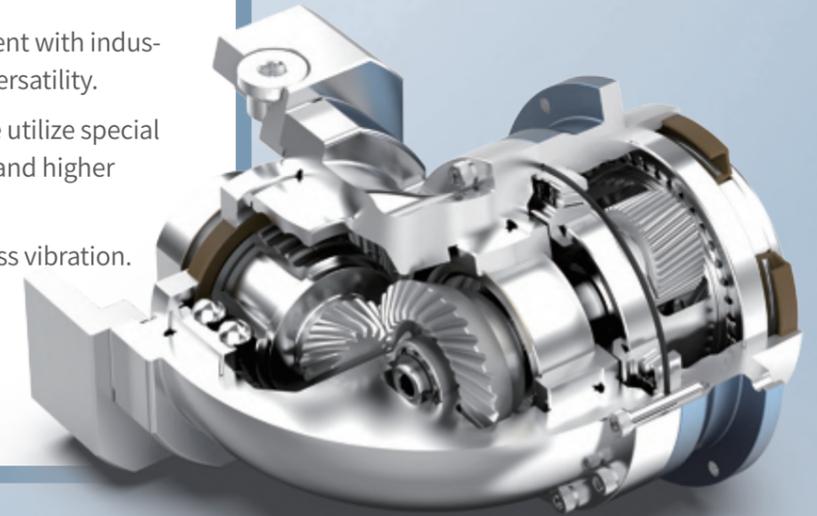


## High rigidity flange output helical planetary gearbox

WTHR Series

### Product Features

- ◆ Installation dimensions are consistent with industry-standard products, improving versatility.
  - ◆ Spiral bevel gears at the input stage utilize special processes, resulting in lower noise and higher backlash.
  - ◆ Higher speeds, more stable, with less vibration.
- ※ Suitable for high positioning accuracy, high dynamic periodic operation, and compact axial space conditions.

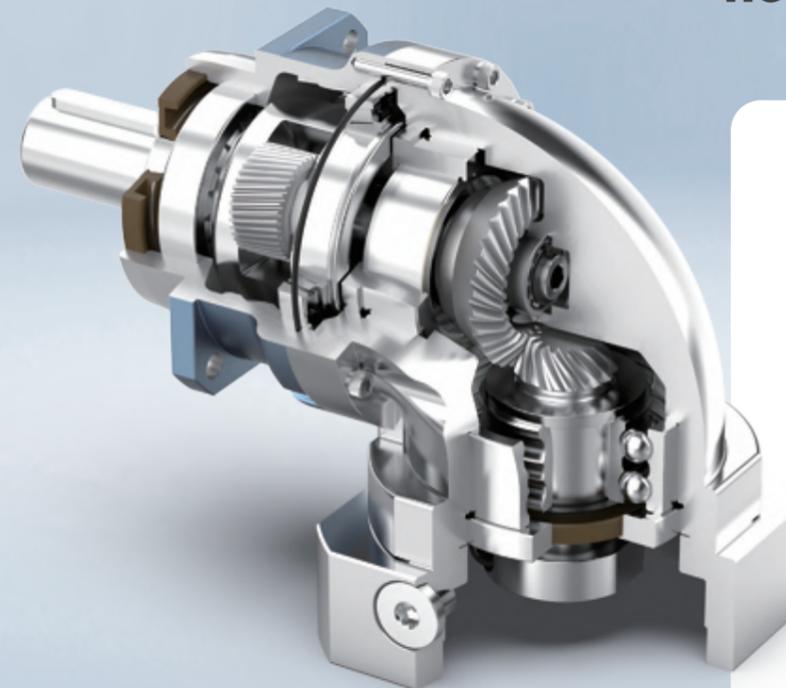


## High rigidity shaft output helical planetary gearbox

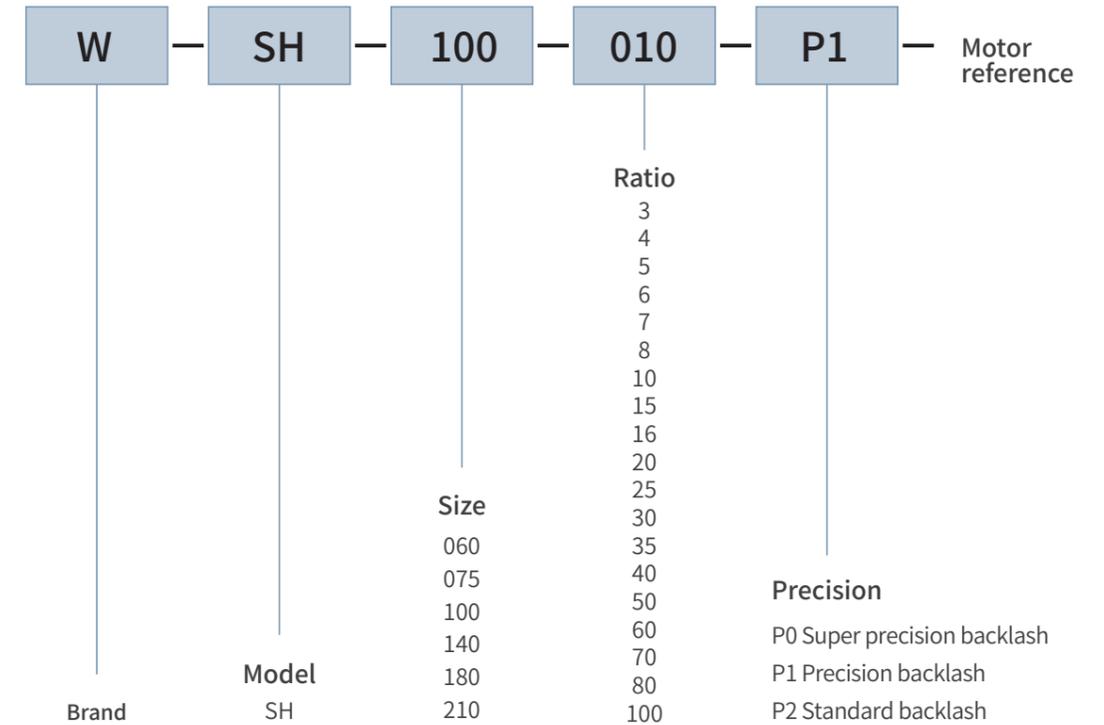
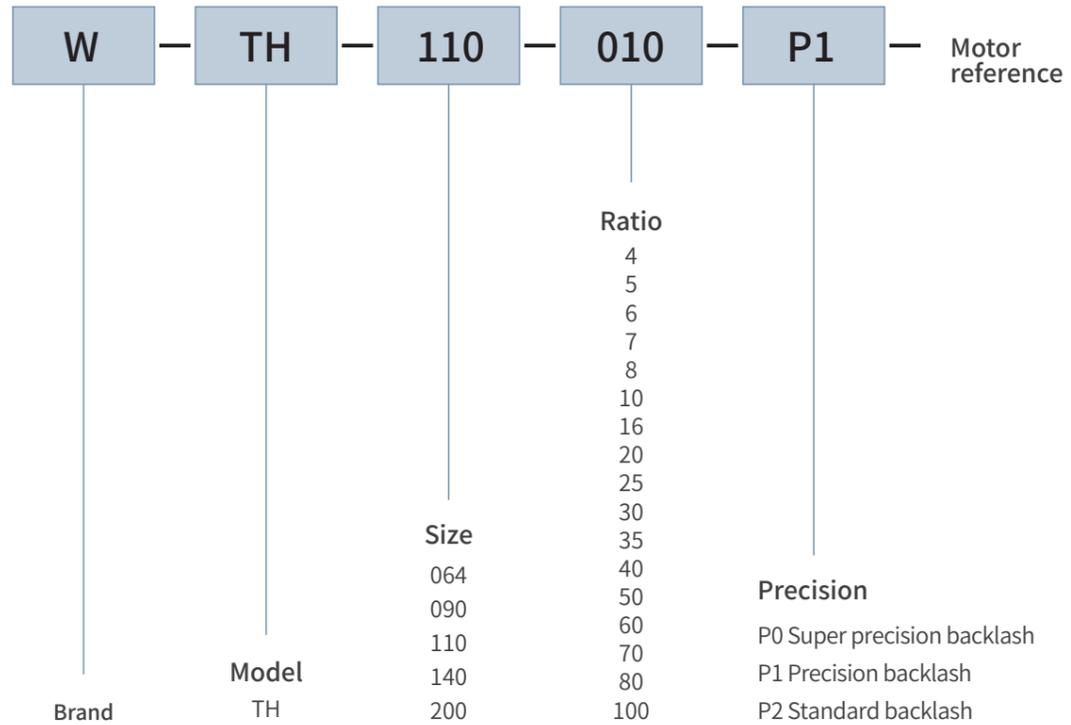
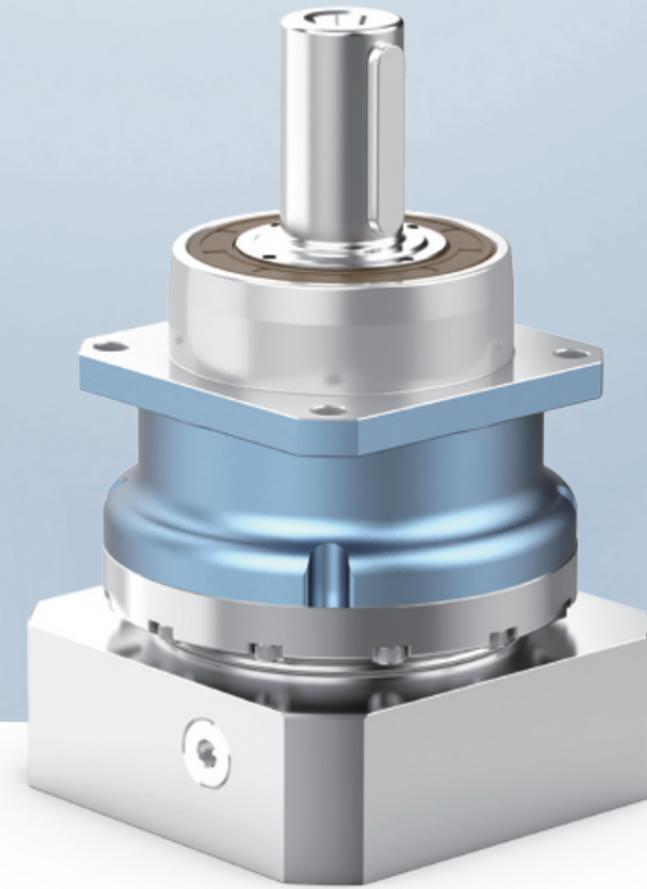
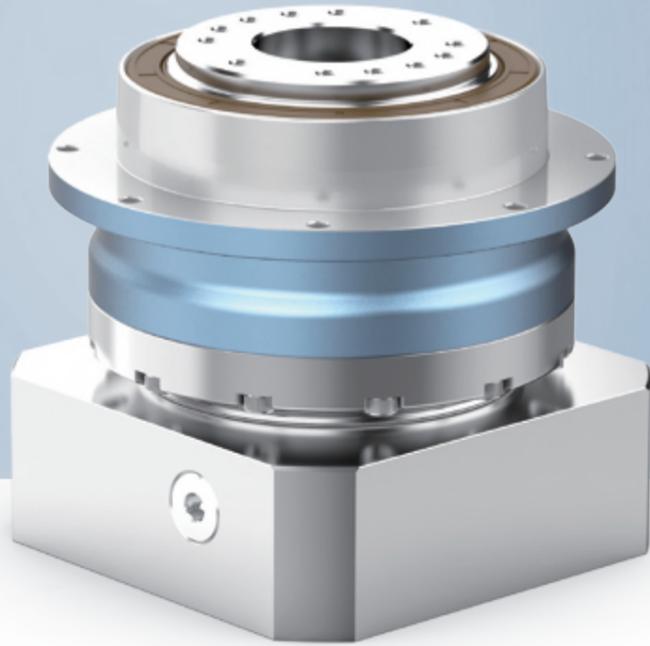
WSHR Series

### Product Features

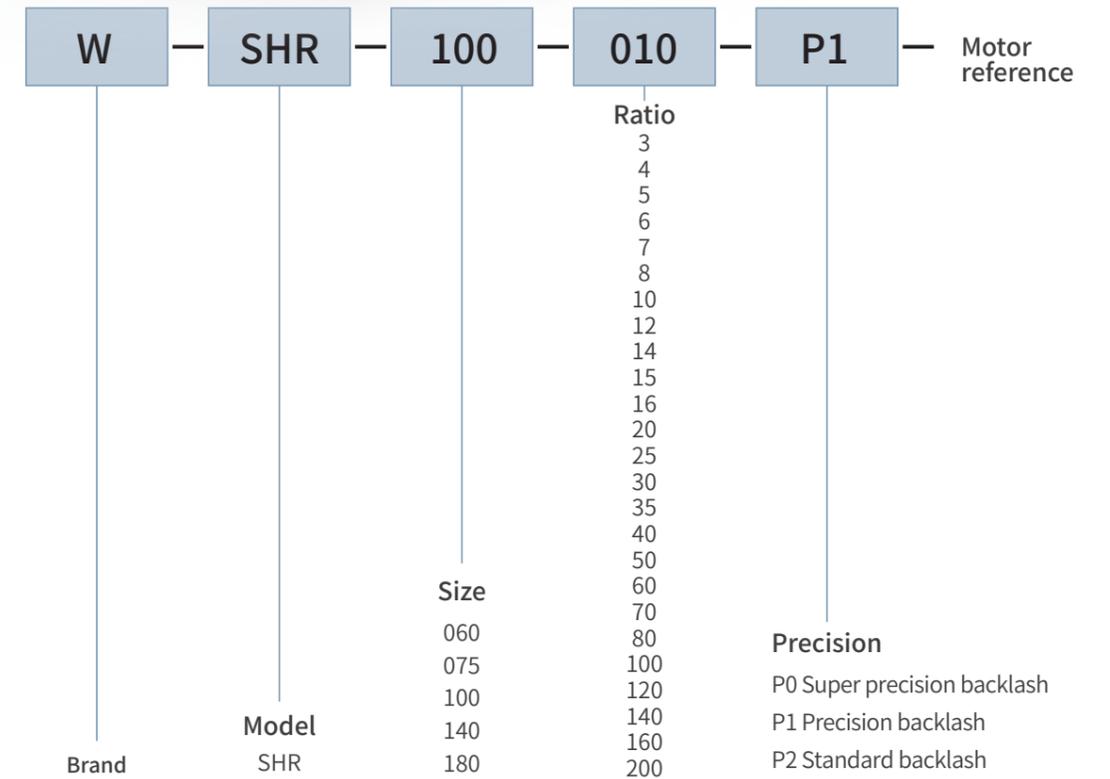
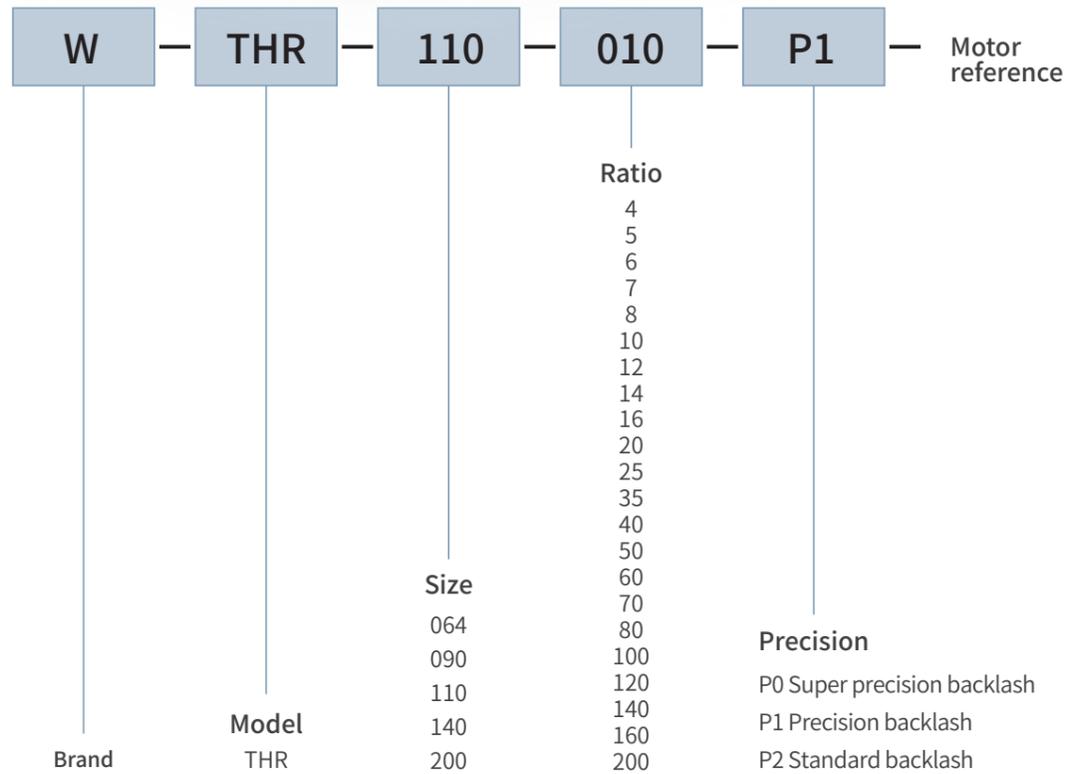
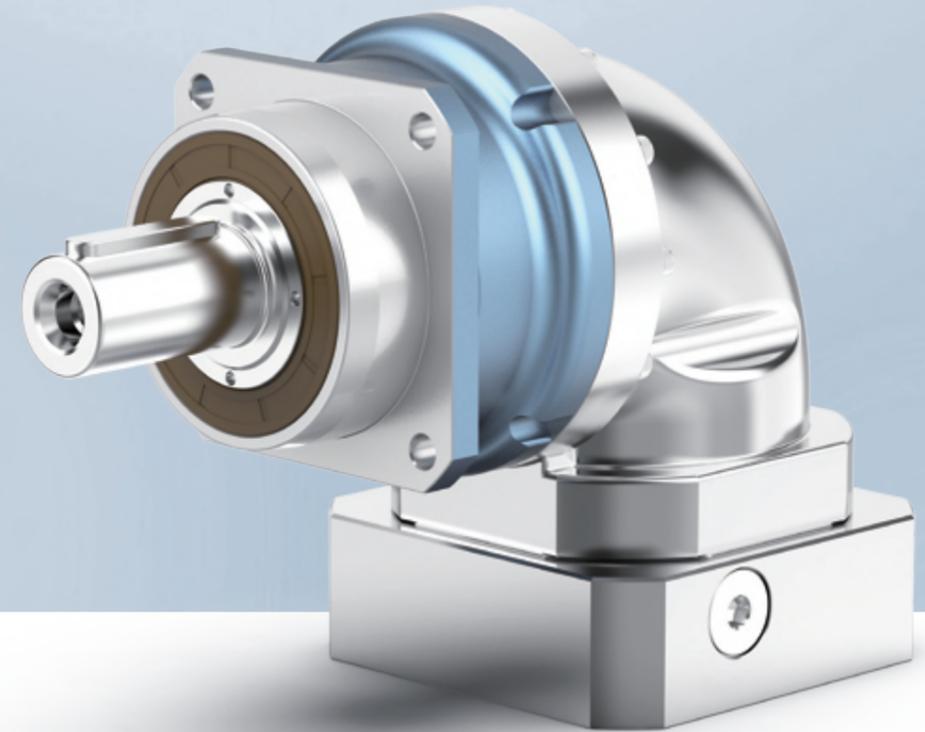
- ◆ Significantly enhances overall rigidity, vibration resistance, and load-bearing capacity in any direction.
  - ◆ Utilizes an entirely new production process for superior precision.
  - ◆ Compact size, with higher power density
- ※ Suitable for high positioning accuracy, high dynamic periodic operation, and compact axial space conditions.



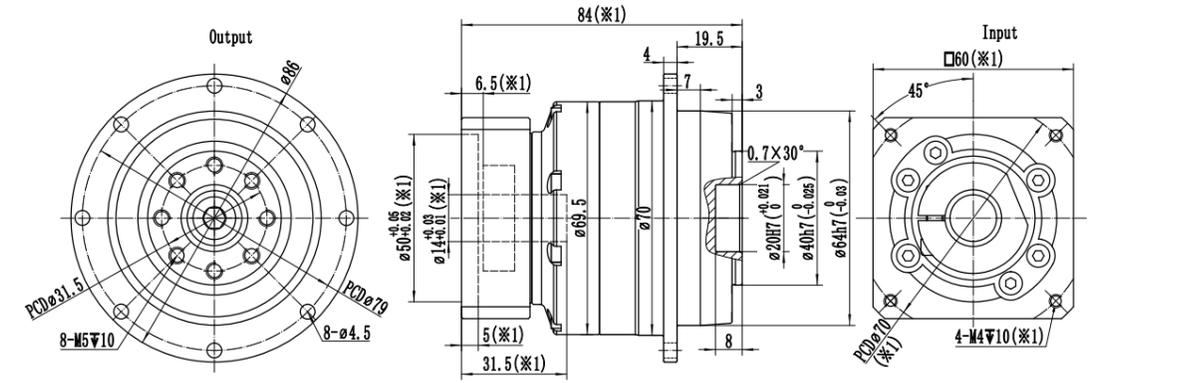
# Model No.



# Model No.

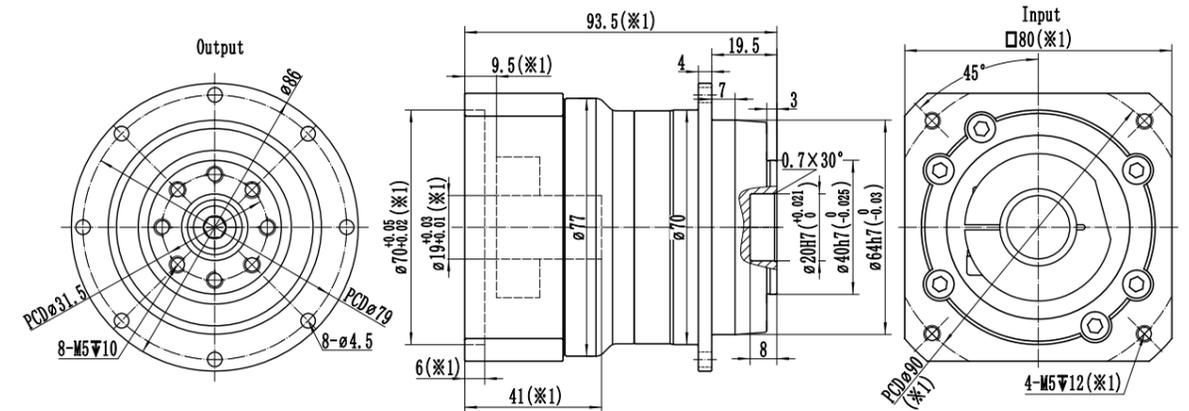


Specification	Unit	WTH064-1-Stage						
Ratio		4	5	6	7	8	10	
Rated Output Torque $T_{2N}$	Nm	55	60	55	50	40	35	
Emergency stop Torque $T_{2NOT}$	Nm	3 times rated output torque(allow 1000 times)/3 Times $T_{2N}$						
Rated Input Speed $n_{1N}$	rpm	3300	3300	3300	4000	4000	4000	
Max Input Speed $n_{1B}$	rpm	6000	6000	6000	6000	6000	6000	
No Load Running Torque ( $n_1=3000\text{rpm}$ , $20^\circ\text{C}$ running)	Nm	0.55	0.45	0.45	0.33	0.27	0.27	
Max Backlash	arcmin	$P_0 \leq 1.5 / P_1 \leq 3 / P_2 \leq 5$						
Torsional rigidity	Nm/arcmin	13						
Max Tilting Moment $M_{2K}$	Nm	130						
Allowable Radial Force $F_{2R}$	N	2500						
Allowable Axle Force $F_{2A}$	N	2000						
Service Life	h	20000						
Efficient	%	$\geq 97$						
Applicable Ambient Temperature	$^\circ\text{C}$	$-20^\circ\text{C} \sim +40^\circ\text{C}$						
Weight	kg	1.5						
Protection class		IP65						
Lubrication		Synthetic Lubricating Oil						
Noise	dB(A)	$\leq 58$						
Rotational inertia $J_1$	$\leq 14$	kg.cm <sup>2</sup>	0.22	0.2	0.18	0.18	0.18	0.18
	$\leq 19$		0.55	0.5	0.45	0.45	0.45	0.45



Motor shaft diameter (mm)

Max. 14(※2)  
Input shaft  
bore diameter



Max. 19(※2)  
Input shaft  
bore diameter

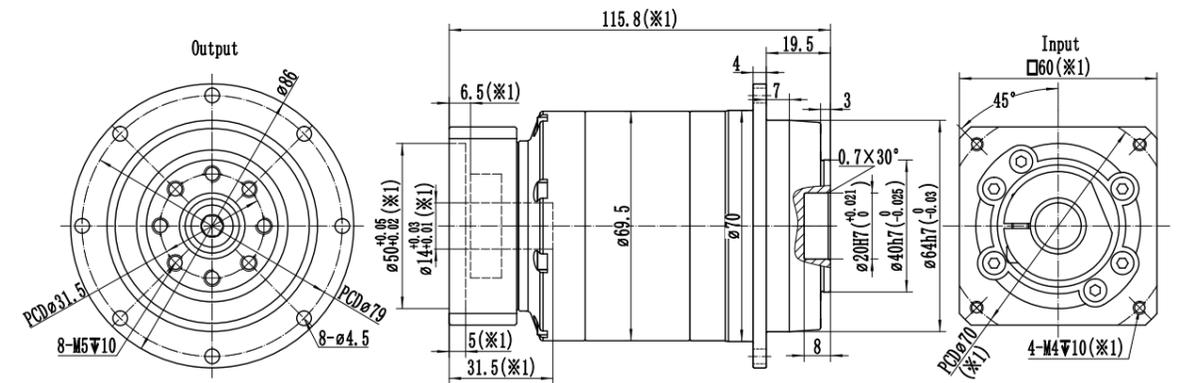
※1: Dimensions will vary with the motor size.

※2: If the motor shaft diameter is small, a bushing may be used, which has a mini thickness of 1mm.

※ Please notify if a keyway is needed for the gearbox input shaft bore.

Specification	Unit	WTH064-2-Stage											
Ratio		16	20	25	30	35	40	50	60	70	80	100	
Rated Output Torque T <sub>2N</sub>	Nm	55	55	60	55	50	55	60	55	50	40	35	
Emergency stop Torque T <sub>2NOT</sub>	Nm	3 times rated output torque(allow 1000 times)/3 Times T <sub>2N</sub>											
Rated Input Speed n <sub>1N</sub>	rpm	3500	3500	3500	3500	3500	4000	4000	4000	4000	4000	4000	
Max Input Speed n <sub>1B</sub>	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
No Load Running Torque (n <sub>1</sub> =3000rpm, 20°C running)	Nm	0.45	0.32	0.32	0.32	0.32	0.2	0.2	0.2	0.2	0.16	0.16	
Max Backlash	arcmin	P0≤3 / P1≤5 / P2≤8											
Torsional rigidity	Nm/arcmin	13											
Max Tilting Moment M <sub>2K</sub>	Nm	130											
Allowable Radial Force F <sub>2R</sub>	N	2500											
Allowable Axle Force F <sub>2A</sub>	N	2000											
Service Life	h	20000											
Efficient	%	≥95											
Applicable Ambient Temperature	°C	-20°C~+40°C											
Weight	kg	2.1											
Protection class		IP65											
Lubrication		Synthetic Lubricating Oil											
Noise	dB(A)	≤58											
Rotational inertia J1	≤8	kg.cm <sup>2</sup>	0.12	0.1	0.1	0.1	0.1	0.08	0.08	0.08	0.08	0.08	0.08
	≤14		0.22	0.17	0.17	0.17	0.17	0.15	0.15	0.15	0.15	0.15	0.15

Motor shaft diameter (mm)

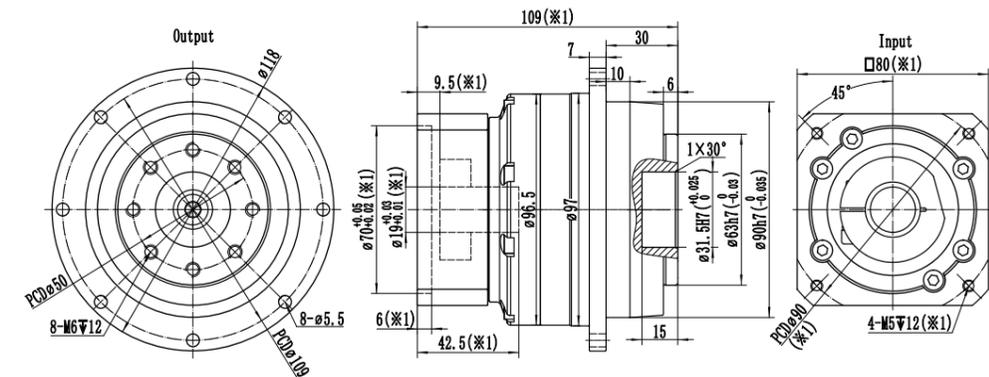


Max. 14(※2)  
Input shaft  
bore diameter

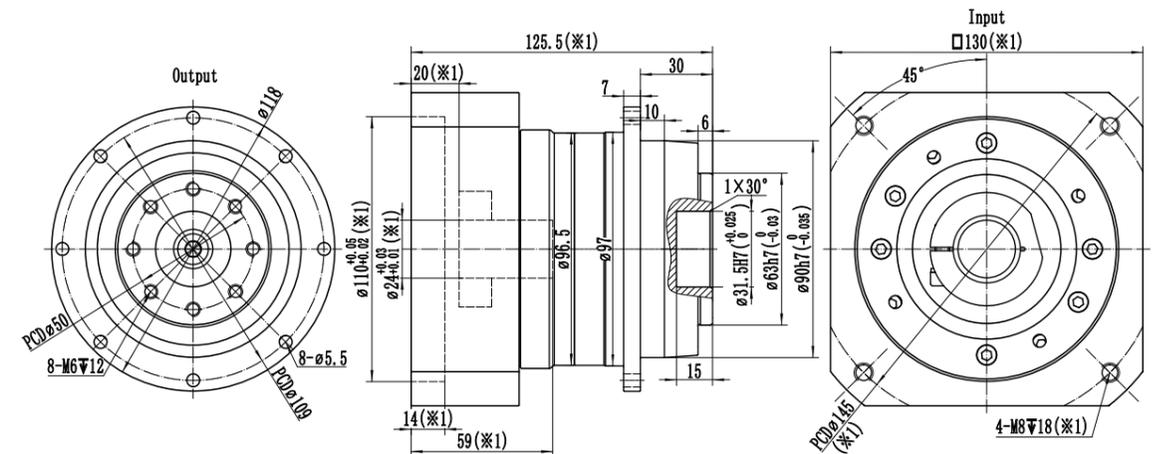
- ※1: Dimensions will vary with the motor size.
- ※2: If the motor shaft diameter is small, a bushing may be used, which has a mini. thickness of 1mm.
- ※ Please notify if a keyway is needed for the gearbox input shaft bore.

Specification	Unit	WTH090-1-Stage						
		4	5	6	7	8	10	
Ratio		4	5	6	7	8	10	
Rated Output Torque T <sub>2N</sub>	Nm	150	160	150	140	100	90	
Emergency stop Torque T <sub>2NOT</sub>	Nm	3 times rated output torque(allow 1000 times)/3 Times T <sub>2N</sub>						
Rated Input Speed n <sub>1N</sub>	rpm	3300	3300	3300	4000	4000	4000	
Max Input Speed n <sub>1B</sub>	rpm	6000	6000	6000	6000	6000	6000	
No Load Running Torque (n <sub>1</sub> =3000rpm,20°C running)	Nm	1.1	0.75	0.75	0.6	0.5	0.5	
Max Backlash	arcmin	P0≤1.5 / P1≤3 / P2≤5						
Torsional rigidity	Nm/arcmin	31						
Max Tilting Moment M <sub>2K</sub>	Nm	280						
Allowable Radial Force F <sub>2R</sub>	N	4800						
Allowable Axle Force F <sub>2A</sub>	N	3500						
Service Life	h	20000						
Efficient	%	≥97						
Applicable Ambient Temperature	°C	-20°C~+40°C						
Weight	kg	3.8						
Protection class		IP65						
Lubrication		Synthetic Lubricating Oil						
Noise	dB(A)	≤60						
Rotational inertia J1	≤19	kg.cm <sup>2</sup>	0.85	0.75	0.65	0.65	0.65	0.65
	≤24		2.1	2	1.9	1.9	1.9	1.9

Motor shaft diameter (mm)



Max. 19(※2)  
Input shaft  
bore diameter



Max. 24(※2)  
Input shaft  
bore diameter

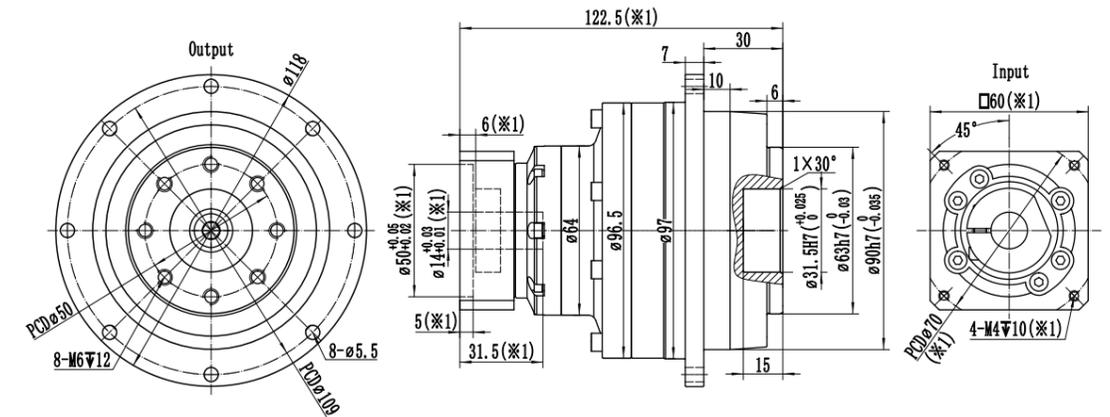
※1: Dimensions will vary with the motor size.

※2: If the motor shaft diameter is small, a bushing may be used, which has a mini. thickness of 1mm.

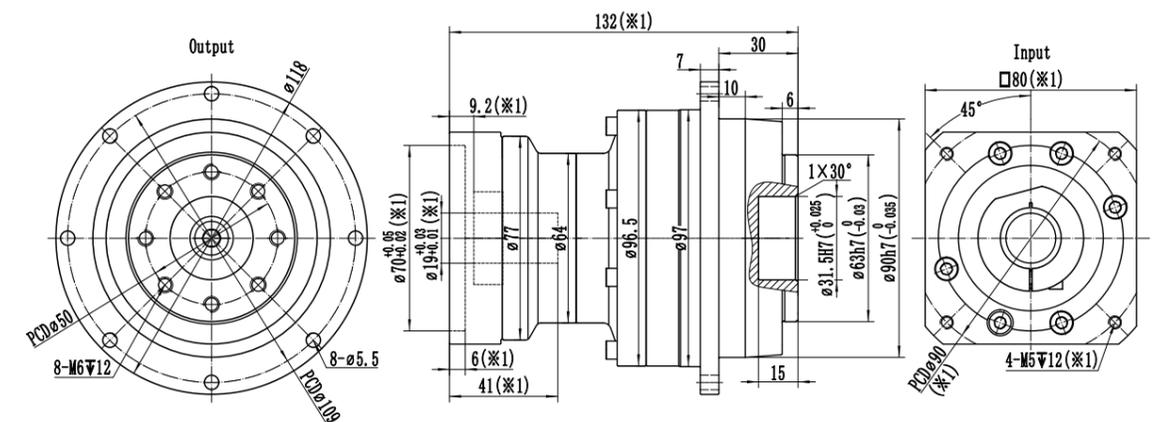
※ Please notify if a keyway is needed for the gearbox input shaft bore.

Specification	Unit	WTH090-2-Stage											
		16	20	25	30	35	40	50	60	70	80	100	
Ratio		16	20	25	30	35	40	50	60	70	80	100	
Rated Output Torque T <sub>2N</sub>	Nm	150	150	160	150	140	150	160	150	140	100	90	
Emergency stop Torque T <sub>2NOT</sub>	Nm	3 times rated output torque(allow 1000 times)/3 Times T <sub>2N</sub>											
Rated Input Speed n <sub>1N</sub>	rpm	3500	3500	3500	3500	3500	4000	4000	4000	4000	4000	4000	
Max Input Speed n <sub>1B</sub>	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
No Load Running Torque (n <sub>1</sub> =3000rpm,20°C running)	Nm	0.7	0.5	0.5	0.5	0.5	0.35	0.35	0.35	0.35	0.3	0.3	
Max Backlash	arcmin	P0≤3 / P1≤5 / P2≤8											
Torsional rigidity	Nm/arcmin	31											
Max Tilting Moment M <sub>2K</sub>	Nm	280											
Allowable Radial Force F <sub>2R</sub>	N	4800											
Allowable Axle Force F <sub>2A</sub>	N	3500											
Service Life	h	20000											
Efficient	%	≥95											
Applicable Ambient Temperature	°C	-20°C~+40°C											
Weight	kg	4.4											
Protection class		IP65											
Lubrication		Synthetic Lubricating Oil											
Noise	dB(A)	≤60											
Rotational inertia J1	≤14	kg.cm <sup>2</sup>	0.22	0.19	0.19	0.19	0.19	0.16	0.16	0.16	0.16	0.16	0.16
	≤19		0.7	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5

Motor shaft diameter (mm)



Max. 14(※2)  
Input shaft  
bore diameter



Max. 19(※2)  
Input shaft  
bore diameter

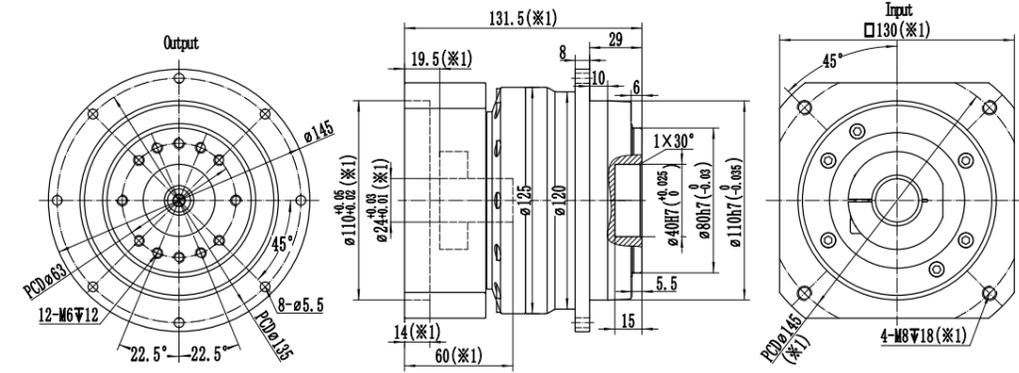
※1: Dimensions will vary with the motor size.

※2: If the motor shaft diameter is small, a bushing may be used, which has a mini thickness of 1mm.

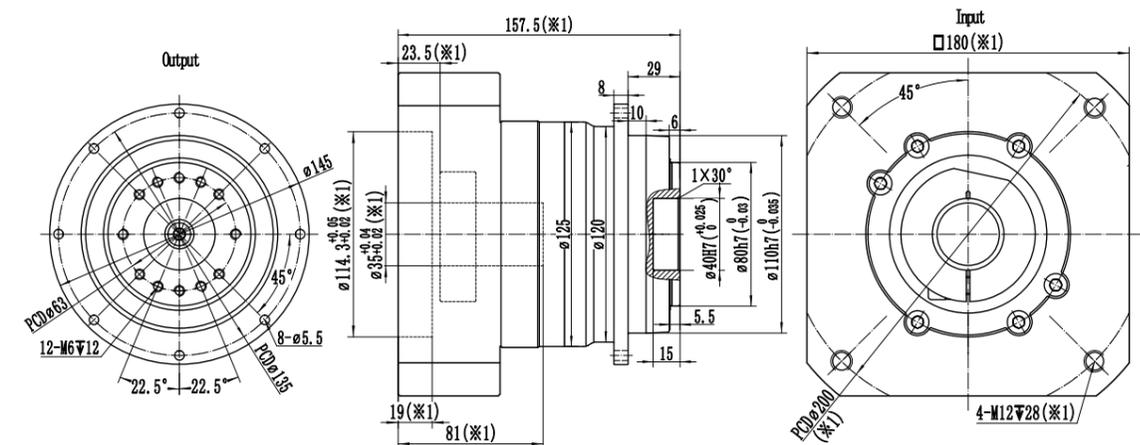
※ Please notify if a keyway is needed for the gearbox input shaft bore.

Specification	Unit	WTH110-1-Stage						
Ratio		4	5	6	7	8	10	
Rated Output Torque $T_{2N}$	Nm	330	330	310	300	230	200	
Emergency stop Torque $T_{2NOT}$	Nm	3 times rated output torque(allow 1000 times)/3 Times $T_{2N}$						
Rated Input Speed $n_{1N}$	rpm	2800	2800	2800	3300	3300	3300	
Max Input Speed $n_{1B}$	rpm	5000	5000	5000	5000	5000	5000	
No Load Running Torque ( $n_1=3000\text{rpm}, 20^\circ\text{C}$ running)	Nm	2	1.5	1.5	1.3	1	1	
Max Backlash	arcmin	$P_0 \leq 1.5 / P_1 \leq 3 / P_2 \leq 5$						
Torsional rigidity	Nm/arcmin	82						
Max Tilting Moment $M_{2K}$	Nm	510						
Allowable Radial Force $F_{2R}$	N	7800						
Allowable Axle Force $F_{2A}$	N	6000						
Service Life	h	20000						
Efficient	%	$\geq 97$						
Applicable Ambient Temperature	$^\circ\text{C}$	$-20^\circ\text{C} \sim +40^\circ\text{C}$						
Weight	kg	6.1						
Protection class		IP65						
Lubrication		Synthetic Lubricating Oil						
Noise	dB(A)	$\leq 63$						
Rotational inertia $J_1$	$\leq 19$	kg.cm <sup>2</sup>	2.5	2	1.5	1.5	1.5	1.5
	$\leq 24$		3	2.5	2	2	2	2
	$\leq 28$		3.5	3	2.5	2.5	2.5	2.5
	$\leq 35$		10	9.5	9	9	9	9

Motor shaft diameter (mm)



Max. 24(※2)  
Input shaft  
bore diameter

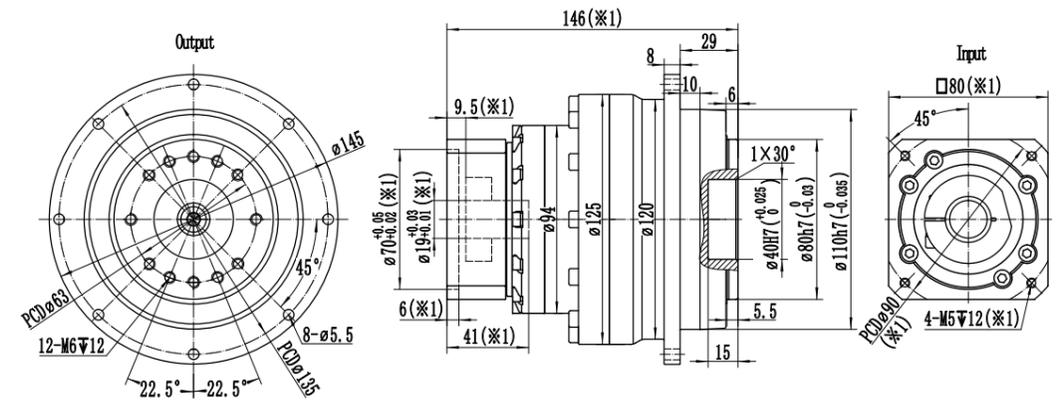


Max. 35(※2)  
Input shaft  
bore diameter

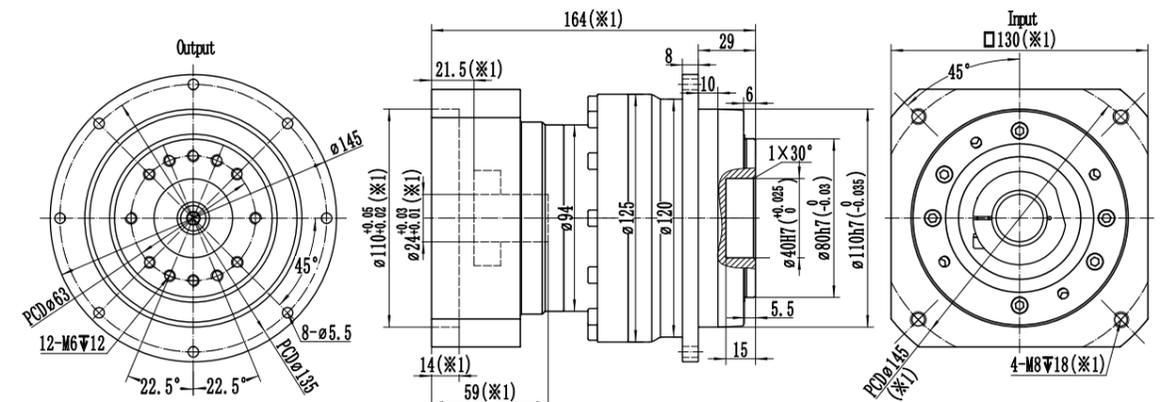
※1: Dimensions will vary with the motor size.  
 ※2: If the motor shaft diameter is small, a bushing may be used, which has a mini thickness of 1mm.  
 ※ Please notify if a keyway is needed for the gearbox input shaft bore.

Specification	Unit	WTH110-2-Stage											
		16	20	25	30	35	40	50	60	70	80	100	
Ratio		16	20	25	30	35	40	50	60	70	80	100	
Rated Output Torque $T_{2N}$	Nm	330	330	330	310	300	330	330	310	300	230	200	
Emergency stop Torque $T_{2NOT}$	Nm	3 times rated output torque(allow 1000 times)/3 Times $T_{2N}$											
Rated Input Speed $n_{1N}$	rpm	3300	3300	3300	3300	3300	3800	3800	3800	3800	3800	3800	
Max Input Speed $n_{1B}$	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
No Load Running Torque ( $n_1=3000\text{rpm}, 20^\circ\text{C}$ running)	Nm	0.95	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.5	0.5	
Max Backlash	arcmin	$P_0 \leq 3 / P_1 \leq 5 / P_2 \leq 8$											
Torsional rigidity	Nm/arcmin	82											
Max Tilting Moment $M_{2K}$	Nm	510											
Allowable Radial Force $F_{2R}$	N	7800											
Allowable Axle Force $F_{2A}$	N	6000											
Service Life	h	20000											
Efficient	%	$\geq 95$											
Applicable Ambient Temperature	$^\circ\text{C}$	$-20^\circ\text{C} \sim +40^\circ\text{C}$											
Weight	kg	6.8											
Protection class		IP65											
Lubrication		Synthetic Lubricating Oil											
Noise	dB(A)	$\leq 61$											
Rotational inertia $J_1$	$\leq 19$	kg.cm <sup>2</sup>	0.85	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6
	$\leq 24$		2.1	1.9	1.9	1.9	1.9	1.85	1.85	1.85	1.85	1.85	1.85

Motor shaft diameter (mm)



Max. 19(※2)  
Input shaft  
bore diameter



Max. 24(※2)  
Input shaft  
bore diameter

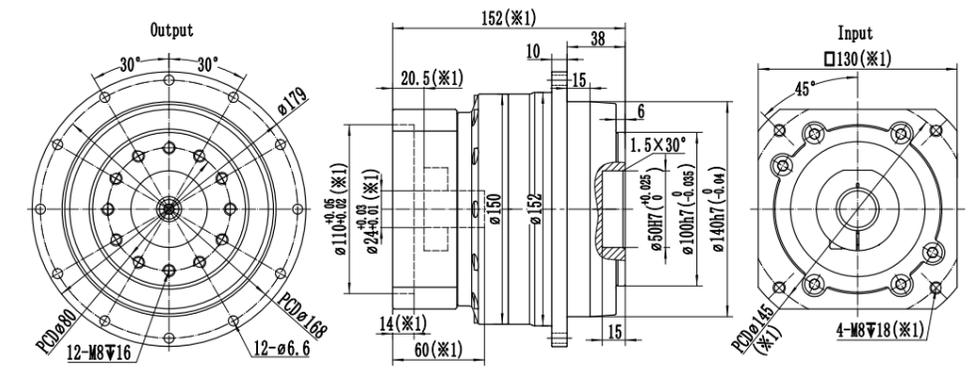
※1: Dimensions will vary with the motor size.

※2: If the motor shaft diameter is small, a bushing may be used, which has a mini. thickness of 1mm.

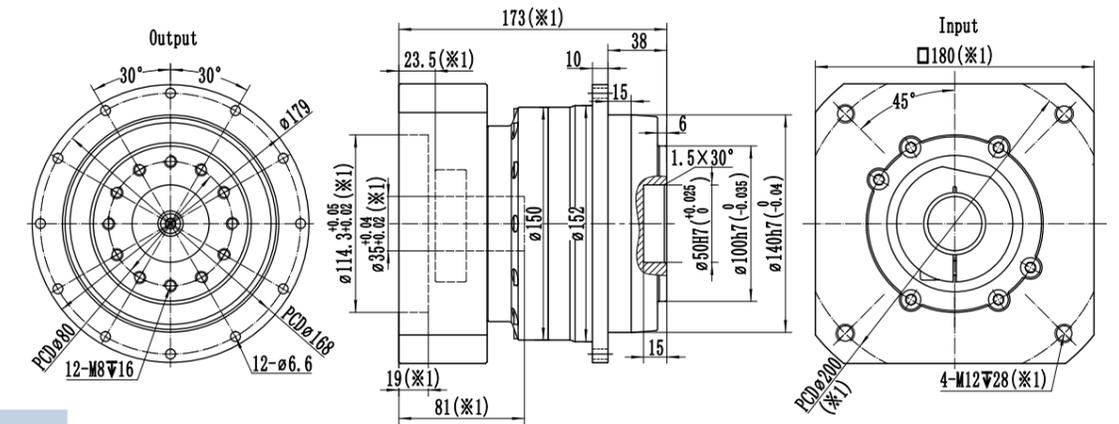
※ Please notify if a keyway is needed for the gearbox input shaft bore.

Specification	Unit	WTH140-1-Stage						
Ratio		4	5	6	7	8	10	
Rated Output Torque T <sub>2N</sub>	Nm	650	650	600	550	450	400	
Emergency stop Torque T <sub>2NOT</sub>	Nm	3 times rated output torque(allow 1000 times)/3 Times T <sub>2N</sub>						
Rated Input Speed n <sub>1N</sub>	rpm	2500	2500	2500	3000	3000	3000	
Max Input Speed n <sub>1B</sub>	rpm	4500	4500	4500	4500	4500	4500	
No Load Running Torque (n <sub>1</sub> =3000rpm,20°C running)	Nm	3.6	2.8	2.8	2	1.35	1.35	
Max Backlash	arcmin	P0≤1.5 / P1≤3 / P2≤5						
Torsional rigidity	Nm/arcmin	155						
Max Tilting Moment M <sub>2K</sub>	Nm	1350						
Allowable Radial Force F <sub>2R</sub>	N	13000						
Allowable Axle Force F <sub>2A</sub>	N	11000						
Service Life	h	20000						
Efficient	%	≥97						
Applicable Ambient Temperature	°C	-20°C~+40°C						
Weight	kg	14.5						
Protection class		IP65						
Lubrication		Synthetic Lubricating Oil						
Noise	dB(A)	≤65						
Rotational inertia J <sub>1</sub>	≤24	kg.cm <sup>2</sup>	7	5.5	4.5	4.5	4.5	4.5
	≤28		8	6.5	5.5	5.5	5.5	5.5
	≤35		11.5	10	9	9	9	9
	≤42		24	23	22	22	22	22

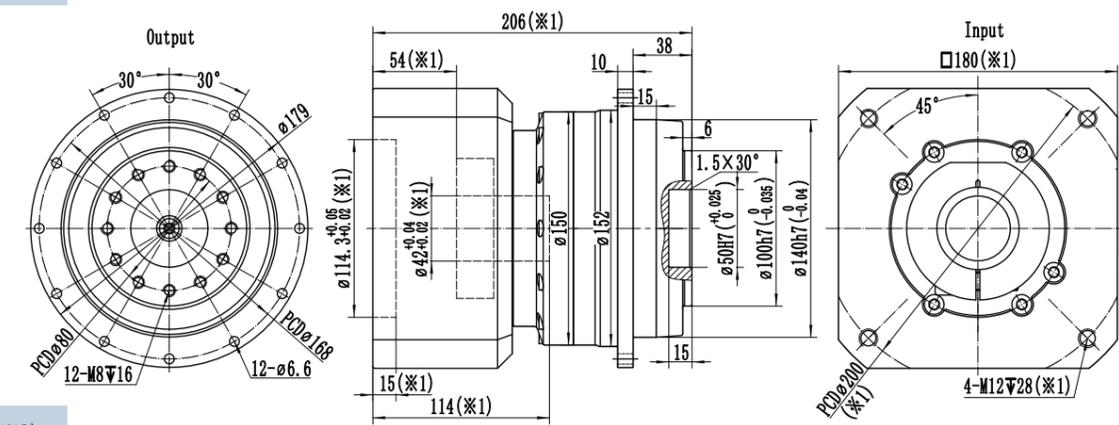
Motor shaft diameter (mm)



Max. 24(※2)  
Input shaft  
bore diameter



Max. 35(※2)  
Input shaft  
bore diameter

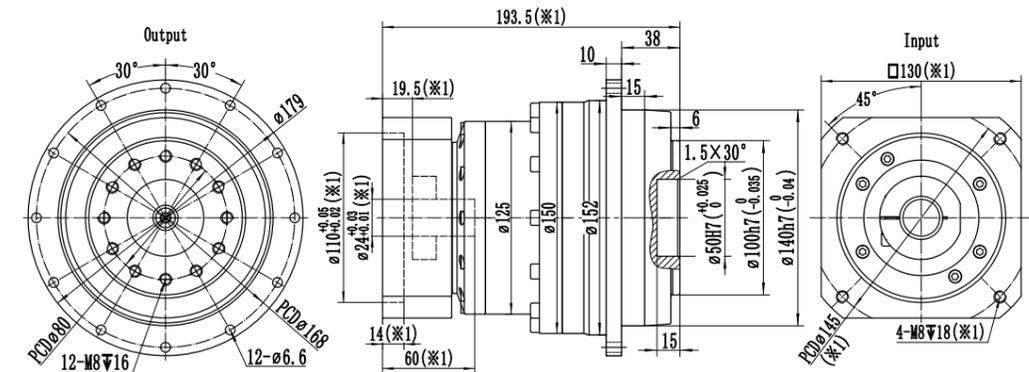


Max. 42(※2)  
Input shaft  
bore diameter

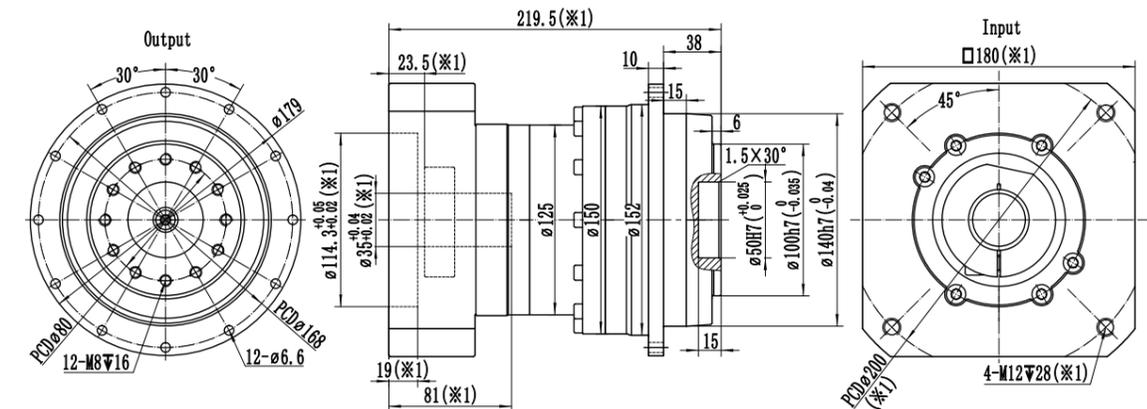
※1: Dimensions will vary with the motor size.  
 ※2: If the motor shaft diameter is small, a bushing may be used, which has a mini thickness of 1mm.  
 ※ Please notify if a keyway is needed for the gearbox input shaft bore.

Specification	Unit	WTH140-2-Stage											
		16	20	25	30	35	40	50	60	70	80	100	
Ratio		16	20	25	30	35	40	50	60	70	80	100	
Rated Output Torque $T_{2N}$	Nm	650	650	650	600	550	650	650	600	550	450	400	
Emergency stop Torque $T_{2NOT}$	Nm	3 times rated output torque(allow 1000 times)/3 Times $T_{2N}$											
Rated Input Speed $n_{1N}$	rpm	3000	3000	3000	3000	3000	3300	3300	3300	3300	3300	3300	
Max Input Speed $n_{1B}$	rpm	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	
No Load Running Torque ( $n_1=3000\text{rpm}, 20^\circ\text{C}$ running)	Nm	1.5	1.3	1.3	1.3	1.3	1.1	1.1	1.1	1.1	0.95	0.95	
Max Backlash	arcmin	$P_0 \leq 3 / P_1 \leq 5 / P_2 \leq 8$											
Torsional rigidity	Nm/arcmin	155											
Max Tilting Moment $M_{2K}$	Nm	1350											
Allowable Radial Force $F_{2R}$	N	13000											
Allowable Axle Force $F_{2A}$	N	11000											
Service Life	h	20000											
Efficient	%	$\geq 95$											
Applicable Ambient Temperature	$^\circ\text{C}$	$-20^\circ\text{C} \sim +40^\circ\text{C}$											
Weight	kg	16.5											
Protection class		IP65											
Lubrication		Synthetic Lubricating Oil											
Noise	dB(A)	$\leq 63$											
Rotational inertia $J_1$	$\leq 19$	kg.cm <sup>2</sup>	3.2	2.3	2.3	2.3	2.3	1.4	1.4	1.4	1.4	1.4	1.4
	$\leq 24$		3.7	2.8	2.8	2.8	2.8	1.9	1.9	1.9	1.9	1.9	1.9
	$\leq 28$		4.2	3.3	3.3	3.3	3.3	2.4	2.4	2.4	2.4	2.4	2.4
	$\leq 35$		10	9.3	9.3	9.3	9.3	8.5	8.5	8.5	8.5	8.5	8.5

Motor shaft diameter (mm)



Max. 24(※2)  
Input shaft  
bore diameter



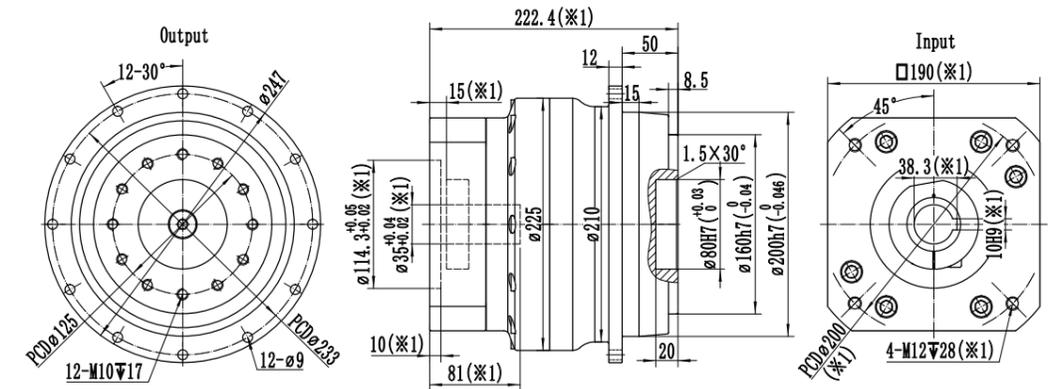
Max. 35(※2)  
Input shaft  
bore diameter

※1: Dimensions will vary with the motor size.

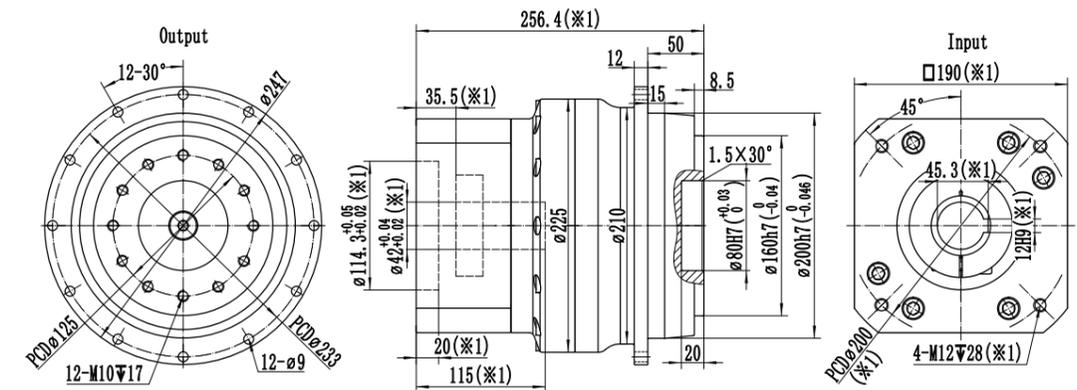
※2: If the motor shaft diameter is small, a bushing may be used, which has a mini thickness of 1mm.

※ Please notify if a keyway is needed for the gearbox input shaft bore.

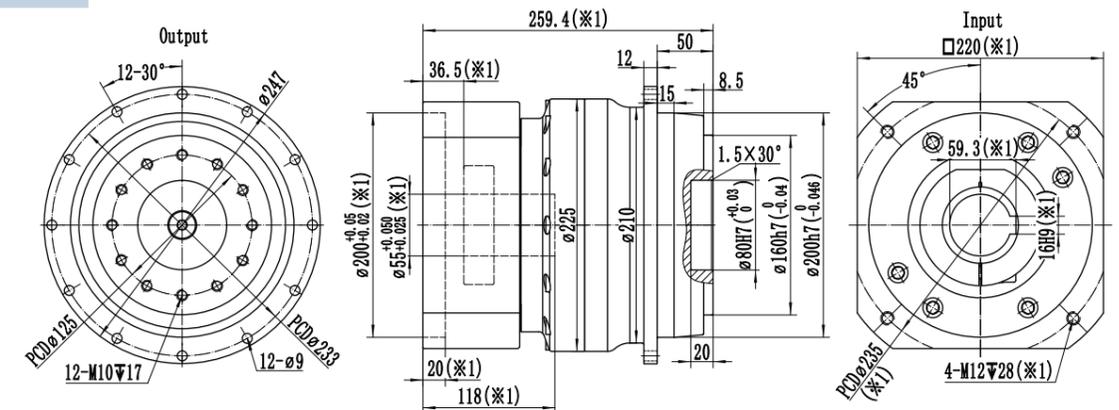
Specification	Unit	WTH200-1-Stage						
Ratio		4	5	6	7	8	10	
Rated Output Torque T <sub>2N</sub>	Nm	2000	2050	1950	1700	1450	1350	
Emergency stop Torque T <sub>2NOT</sub>	Nm	3 times rated output torque(allow 1000 times)/3 Times T <sub>2N</sub>						
Rated Input Speed n <sub>1N</sub>	rpm	1500	1500	1500	2000	2000	2000	
Max Input Speed n <sub>1B</sub>	rpm	3000	3000	3000	3000	3000	3000	
No Load Running Torque (n <sub>1</sub> =3000rpm,20°C running)	Nm	8.1	6.1	6.1	4.5	3	3	
Max Backlash	arcmin	P0≤1.5 / P1≤3 / P2≤5						
Torsional rigidity	Nm/arcmin	650						
Max Tilting Moment M <sub>2K</sub>	Nm	3400						
Allowable Radial Force F <sub>2R</sub>	N	26000						
Allowable Axle Force F <sub>2A</sub>	N	21000						
Service Life	h	20000						
Efficient	%	≥97						
Applicable Ambient Temperature	°C	-20°C~+40°C						
Weight	kg	41						
Protection class		IP65						
Lubrication		Synthetic Lubricating Oil						
Noise	dB(A)	≤66						
Rotational inertia J1	≤35	kg.cm <sup>2</sup>	37	30	22	19	12	12
	≤42		48	41	33	30	23	23
	≤55		70	61	53	50	43	43
	≤65		98	89	81	78	71	71



Max. 35(※2)  
Input shaft  
bore diameter



Max. 42(※2)  
Input shaft  
bore diameter



Max. 55(※2)  
Input shaft  
bore diameter

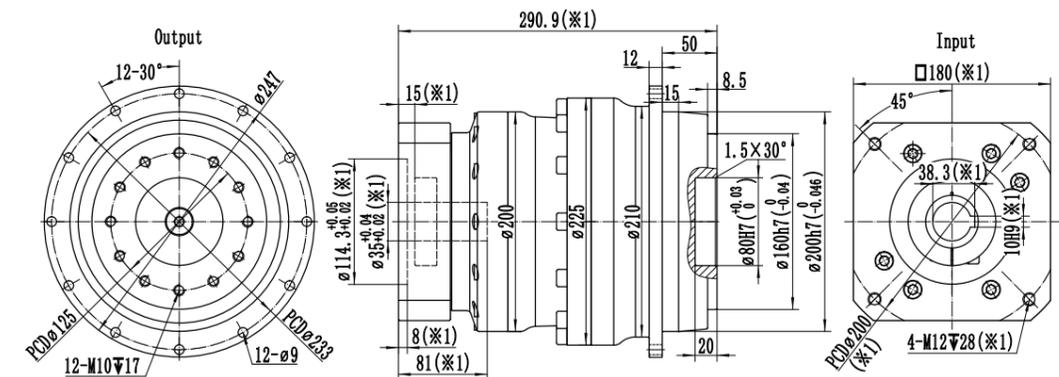
Motor shaft diameter (mm)

※1: Dimensions will vary with the motor size.

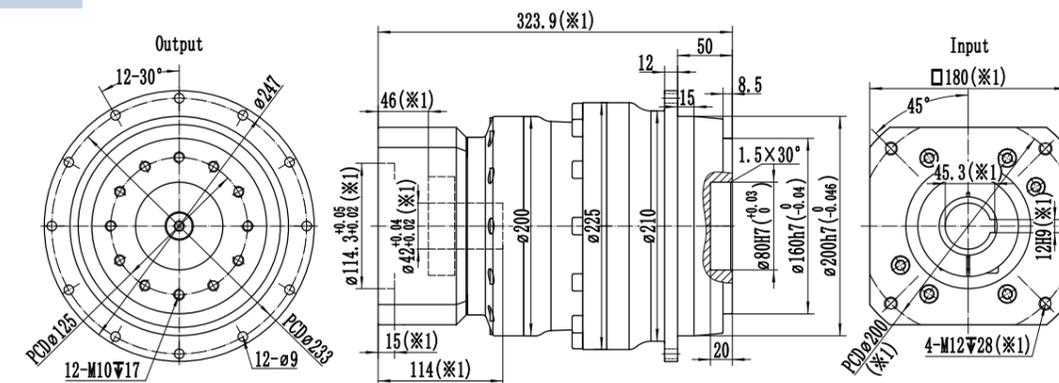
※2: If the motor shaft diameter is small, a bushing may be used, which has a mini thickness of 1mm.

※ WTH200 gearbox: Default keyway on input shaft. Please notify if not needed.

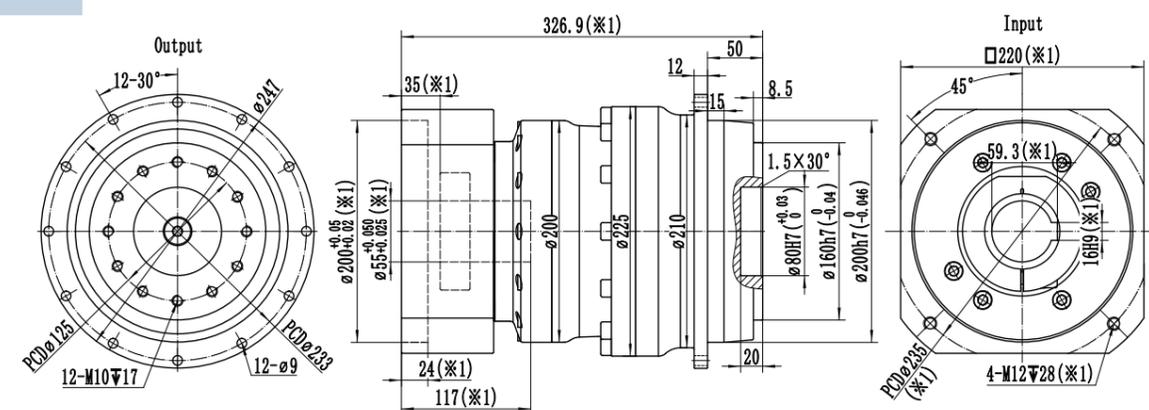
Specification	Unit	WTH200-2-Stage											
Ratio		16	20	25	30	35	40	50	60	70	80	100	
Rated Output Torque $T_{2N}$	Nm	2000	2000	2050	1950	1700	2000	2050	1950	1700	1450	1350	
Emergency stop Torque $T_{2NOT}$	Nm	3 times rated output torque(allow 1000 times)/3 Times $T_{2N}$											
Rated Input Speed $n_{1N}$	rpm	2000	2000	2000	2000	2000	2500	2500	2500	2500	2500	2500	
Max Input Speed $n_{1B}$	rpm	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	
No Load Running Torque ( $n_1=3000\text{rpm}, 20^\circ\text{C}$ running)	Nm	4.3	2.85	2.85	2.85	2.85	2.3	2.3	2.3	2.3	2.15	2.15	
Max Backlash	arcmin	$P_0 \leq 3 / P_1 \leq 5 / P_2 \leq 8$											
Torsional rigidity	Nm/arcmin	650											
Max Tilting Moment $M_{2K}$	Nm	3400											
Allowable Radial Force $F_{2R}$	N	26000											
Allowable Axle Force $F_{2A}$	N	21000											
Service Life	h	20000											
Efficient	%	$\geq 95$											
Applicable Ambient Temperature	$^\circ\text{C}$	$-20^\circ\text{C} \sim +40^\circ\text{C}$											
Weight	kg	49											
Protection class		IP65											
Lubrication		Synthetic Lubricating Oil											
Noise	dB(A)	$\leq 66$											
Rotational inertia $J_1$	$\leq 28$	kg.cm <sup>2</sup>	13.5	8.5	8.5	8.5	8.5	7.5	7.5	7.5	7.5	7.5	7.5
	$\leq 35$		16	11	11	11	11	10	10	10	10	10	10
	$\leq 42$		27	22	22	22	22	17	17	17	17	16	16
	$\leq 55$		41	36	36	36	36	31	31	31	31	30	30



Max. 35(※2)  
Input shaft  
bore diameter



Max. 42(※2)  
Input shaft  
bore diameter



Max. 55(※2)  
Input shaft  
bore diameter

Motor shaft diameter (mm)

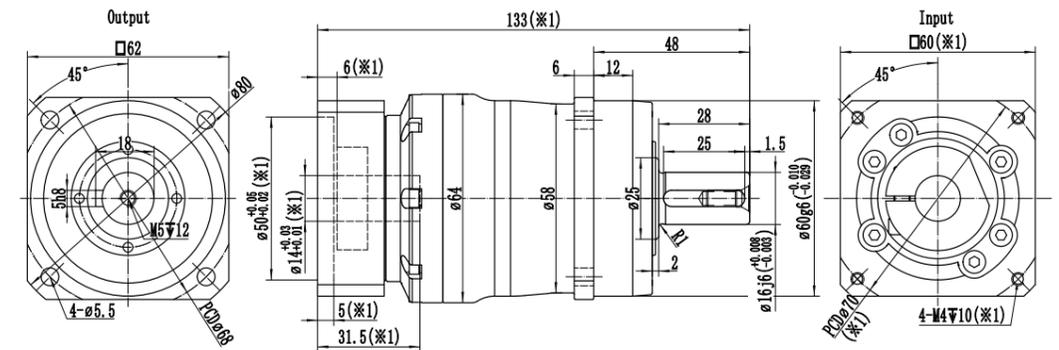
※1: Dimensions will vary with the motor size.

※2: If the motor shaft diameter is small, a bushing may be used, which has a mini thickness of 1mm.

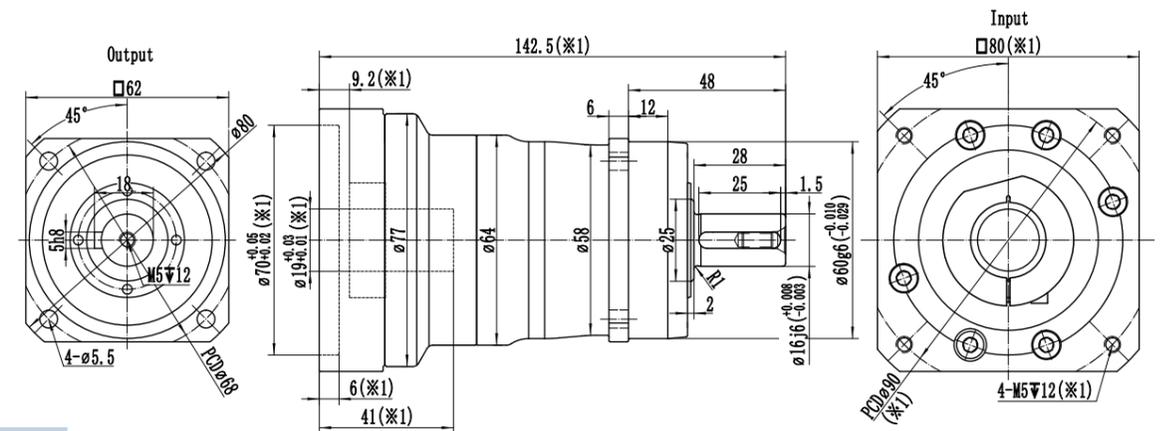
※ WTH200 gearbox: Default keyway on input shaft. Please notify if not needed.

Specification	Unit	WSH060-1-Stage							
		3	4	5	6	7	8	10	
Ratio		3	4	5	6	7	8	10	
Rated Output Torque T <sub>2N</sub>	Nm	50	55	60	55	50	40	35	
Emergency stop Torque T <sub>2NOT</sub>	Nm	3 times rated output torque(allow 1000 times)/3 Times T <sub>2N</sub>							
Rated Input Speed n <sub>1N</sub>	rpm	3300	3300	3300	3300	4000	4000	4000	
Max Input Speed n <sub>1B</sub>	rpm	6000	6000	6000	6000	6000	6000	6000	
No Load Running Torque (n <sub>1</sub> =3000rpm,20°C running)	Nm	0.6	0.5	0.4	0.4	0.3	0.25	0.25	
Max Backlash	arcmin	P0≤1.5 / P1≤3 / P2≤5							
Torsional rigidity	Nm/arcmin	7							
Max Tilting Moment M <sub>2K</sub>	Nm	160							
Allowable Radial Force F <sub>2R</sub>	N	3000							
Allowable Axle Force F <sub>2A</sub>	N	2400							
Service Life	h	20000							
Efficient	%	≥97							
Applicable Ambient Temperature	°C	-20°C~+40°C							
Weight	kg	1.6							
Protection class		IP65							
Lubrication		Synthetic Lubricating Oil							
Noise	dB(A)	≤58							
Rotational inertia J1	≤14	kg.cm <sup>2</sup>	0.28	0.22	0.2	0.18	0.18	0.18	0.18
	≤19		0.61	0.55	0.5	0.45	0.45	0.45	0.45

Motor shaft diameter (mm)



Max. 14(※2)  
Input shaft  
bore diameter



Max. 19(※2)  
Input shaft  
bore diameter

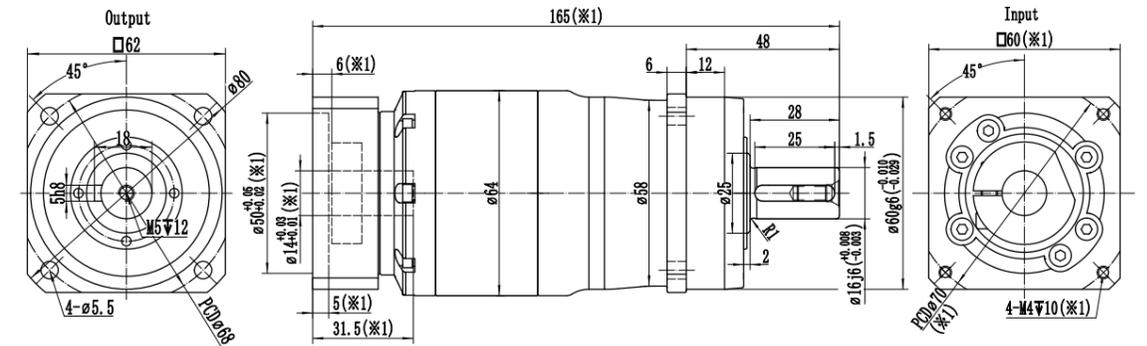
※1: Dimensions will vary with the motor size.

※2: If the motor shaft diameter is small, a bushing may be used, which has a mini thickness of 1mm.

※ Please notify if a keyway is needed for the gearbox input shaft bore.

Specification	Unit	WSH060-2-Stage												
Ratio		15	16	20	25	30	35	40	50	60	70	80	100	
Rated Output Torque T <sub>2N</sub>	Nm	50	55	55	60	55	50	55	60	55	50	40	35	
Emergency stop Torque T <sub>2NOT</sub>	Nm	3 times rated output torque(allow 1000 times)/3 Times T <sub>2N</sub>												
Rated Input Speed n <sub>1N</sub>	rpm	3500	3500	3500	3500	3500	3500	4000	4000	4000	4000	4000	4000	
Max Input Speed n <sub>1B</sub>	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
No Load Running Torque (n <sub>1</sub> =3000rpm,20°C running)	Nm	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.16	0.16	
Max Backlash	arcmin	P0≤3 / P1≤5 / P2≤8												
Torsional rigidity	Nm/arcmin	7												
Max Tilting Moment M <sub>2K</sub>	Nm	160												
Allowable Radial Force F <sub>2R</sub>	N	3000												
Allowable Axle Force F <sub>2A</sub>	N	2400												
Service Life	h	20000												
Efficient	%	≥95												
Applicable Ambient Temperature	°C	-20°C~+40°C												
Weight	kg	2.2												
Protection class		IP65												
Lubrication		Synthetic Lubricating Oil												
Noise	dB(A)	≤58												
Rotational inertia J1	≤8	kg.cm <sup>2</sup>	0.12	0.12	0.1	0.1	0.1	0.1	0.08	0.08	0.08	0.08	0.08	0.08
	≤14		0.22	0.22	0.17	0.17	0.17	0.17	0.15	0.15	0.15	0.15	0.15	0.15

Motor shaft diameter (mm)



Max. 14(※2)  
Input shaft  
bore diameter

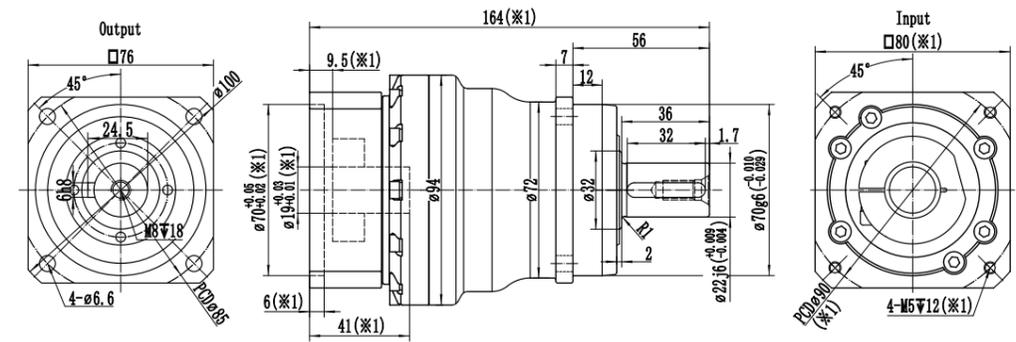
※1: Dimensions will vary with the motor size.

※2: If the motor shaft diameter is small, a bushing may be used, which has a mini. thickness of 1mm.

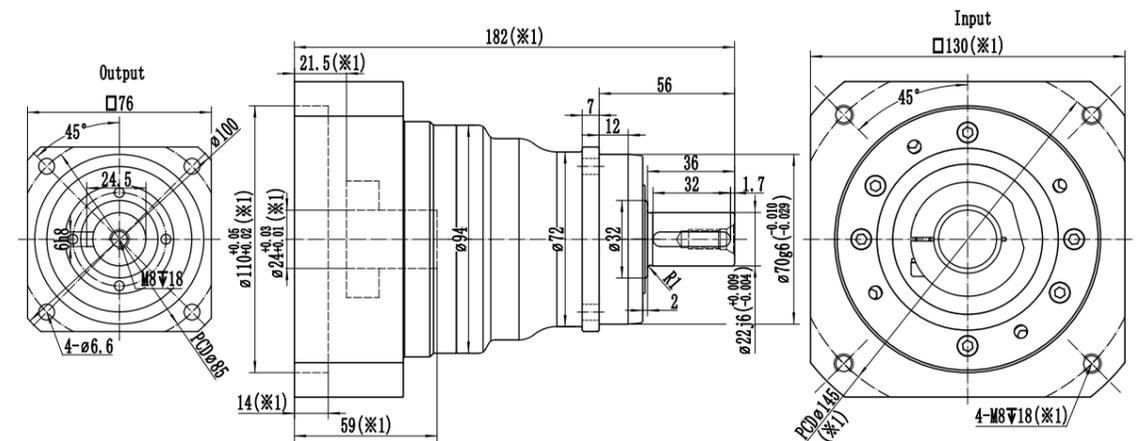
※ Please notify if a keyway is needed for the gearbox input shaft bore.

Specification	Unit	WSH075-1-Stage							
		3	4	5	6	7	8	10	
Ratio		3	4	5	6	7	8	10	
Rated Output Torque $T_{2N}$	Nm	130	150	160	150	140	100	90	
Emergency stop Torque $T_{2NOT}$	Nm	3 times rated output torque(allow 1000 times)/3 Times $T_{2N}$							
Rated Input Speed $n_{1N}$	rpm	3300	3300	3300	3300	4000	4000	4000	
Max Input Speed $n_{1B}$	rpm	6000	6000	6000	6000	6000	6000	6000	
No Load Running Torque ( $n_1=3000\text{rpm}, 20^\circ\text{C}$ running)	Nm	1.2	1	0.7	0.7	0.6	0.5	0.5	
Max Backlash	arcmin	$P_0 \leq 1.5 / P_1 \leq 3 / P_2 \leq 5$							
Torsional rigidity	Nm/arcmin	14							
Max Tilting Moment $M_{2K}$	Nm	270							
Allowable Radial Force $F_{2R}$	N	4500							
Allowable Axle Force $F_{2A}$	N	3350							
Service Life	h	20000							
Efficient	%	$\geq 97$							
Applicable Ambient Temperature	$^\circ\text{C}$	$-20^\circ\text{C} \sim +40^\circ\text{C}$							
Weight	kg	4							
Protection class		IP65							
Lubrication		Synthetic Lubricating Oil							
Noise	dB(A)	$\leq 60$							
Rotational inertia $J_1$	$\leq 19$	kg.cm <sup>2</sup>	1	0.8	0.7	0.6	0.6	0.6	0.6
	$\leq 24$		2.2	2	1.9	1.8	1.8	1.8	1.8

Motor shaft diameter (mm)



Max. 19(※2)  
Input shaft  
bore diameter



Max. 24(※2)  
Input shaft  
bore diameter

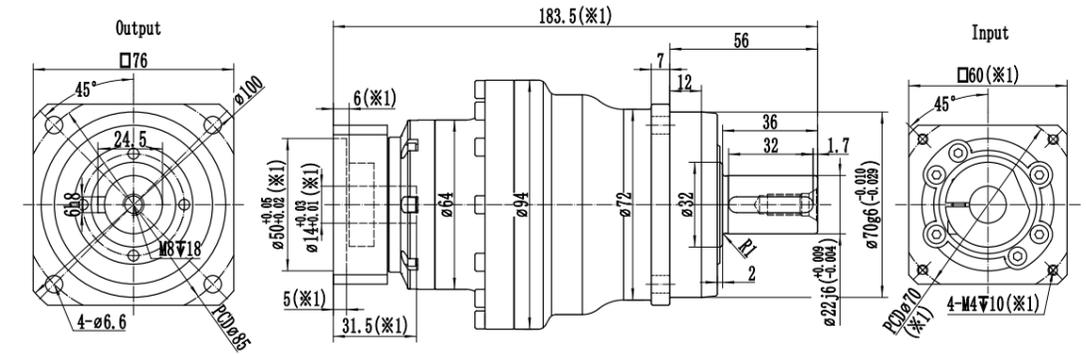
※1: Dimensions will vary with the motor size.

※2: If the motor shaft diameter is small, a bushing may be used, which has a mini thickness of 1mm.

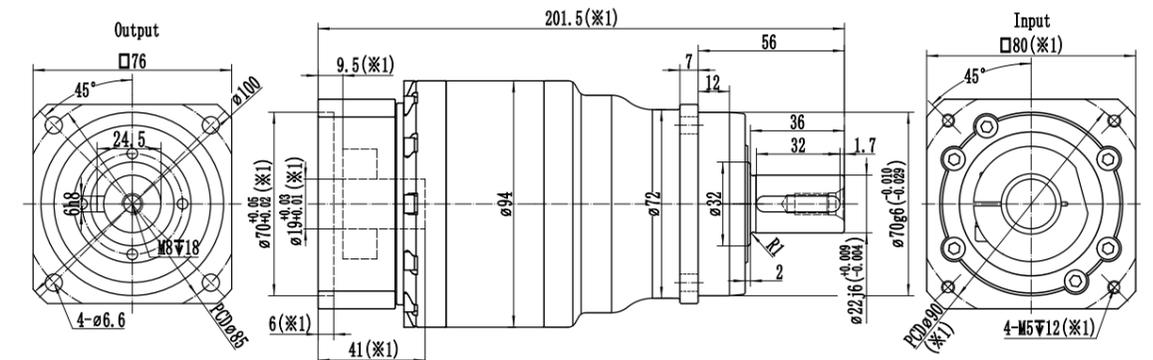
※ Please notify if a keyway is needed for the gearbox input shaft bore.

Specification	Unit	WSH075-2-Stage												
		15	16	20	25	30	35	40	50	60	70	80	100	
Ratio		15	16	20	25	30	35	40	50	60	70	80	100	
Rated Output Torque T <sub>2N</sub>	Nm	130	150	150	160	150	140	150	160	150	140	100	90	
Emergency stop Torque T <sub>2NOT</sub>	Nm	3 times rated output torque(allow 1000 times)/3 Times T <sub>2N</sub>												
Rated Input Speed n <sub>1N</sub>	rpm	3500	3500	3500	3500	3500	3500	4000	4000	4000	4000	4000	4000	
Max Input Speed n <sub>1B</sub>	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
No Load Running Torque (n <sub>1</sub> =3000rpm,20°C running)	Nm	0.7	0.7	0.5	0.5	0.5	0.5	0.35	0.35	0.35	0.35	0.3	0.3	
Max Backlash	arcmin	P0≤3 / P1≤5 / P2≤8												
rigidity	Nm/arcmin	14												
Max Tilting Moment M <sub>2K</sub>	Nm	270												
Allowable Radial Force F <sub>2R</sub>	N	4500												
Allowable Axle Force F <sub>2A</sub>	N	3350												
Service Life	h	20000												
Efficient	%	≥95												
Applicable Ambient Temperature	°C	-20°C~+40°C												
Weight	kg	4.6												
Protection class		IP65												
Lubrication		Synthetic Lubricating Oil												
Noise	dB(A)	≤60												
Rotational inertia J <sub>1</sub>	≤14	kg.cm <sup>2</sup>	0.22	0.22	0.19	0.19	0.19	0.19	0.16	0.16	0.16	0.16	0.16	0.16
	≤19		0.7	0.7	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5

Motor shaft diameter (mm)



Max. 14(※2)  
Input shaft  
bore diameter



Max. 19(※2)  
Input shaft  
bore diameter

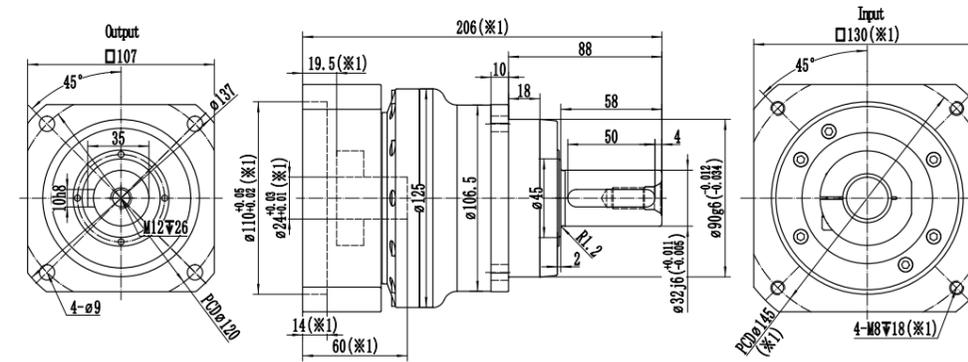
※1: Dimensions will vary with the motor size.

※2: If the motor shaft diameter is small, a bushing may be used, which has a mini thickness of 1mm.

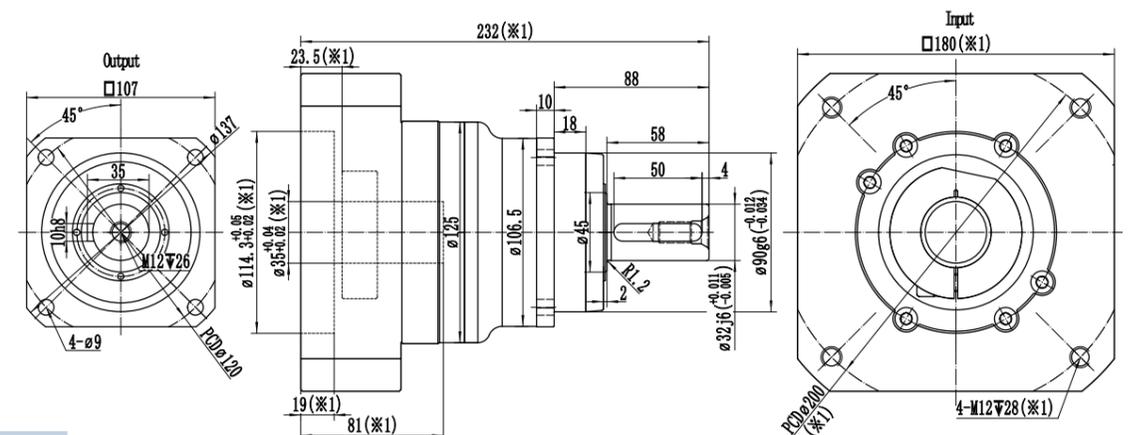
※ Please notify if a keyway is needed for the gearbox input shaft bore.

Specification	Unit	WSH100-1-Stage							
		3	4	5	6	7	8	10	
Ratio		3	4	5	6	7	8	10	
Rated Output Torque T <sub>2N</sub>	Nm	230	330	330	310	300	230	200	
Emergency stop Torque T <sub>2NOT</sub>	Nm	3 times rated output torque(allow 1000 times)/3 Times T <sub>2N</sub>							
Rated Input Speed n <sub>1N</sub>	rpm	2800	2800	2800	2800	3300	3300	3300	
Max Input Speed n <sub>1B</sub>	rpm	5000	5000	5000	5000	5000	5000	5000	
No Load Running Torque (n <sub>1</sub> =3000rpm,20°C running)	Nm	2.3	1.9	1.4	1.4	1.2	0.95	0.95	
Max Backlash	arcmin	P0≤1.5 / P1≤3 / P2≤5							
Torsional rigidity	Nm/arcmin	32							
Max Tilting Moment M <sub>2K</sub>	Nm	670							
Allowable Radial Force F <sub>2R</sub>	N	8500							
Allowable Axle Force F <sub>2A</sub>	N	7000							
Service Life	h	20000							
Efficient	%	≥97							
Applicable Ambient Temperature	°C	-20°C~+40°C							
Weight	kg	6.4							
Protection class		IP65							
Lubrication		Synthetic Lubricating Oil							
Noise	dB(A)	≤63							
Rotational inertia J1	≤19	kg.cm <sup>2</sup>	3.5	2.5	2	1.5	1.5	1.5	1.5
	≤24		4	3	2.5	2	2	2	2
	≤28		4.5	3.5	3	2.5	2.5	2.5	2.5
	≤35		11.5	10	9.5	9	9	9	9

Motor shaft diameter (mm)



Max. 24(※2)  
Input shaft  
bore diameter

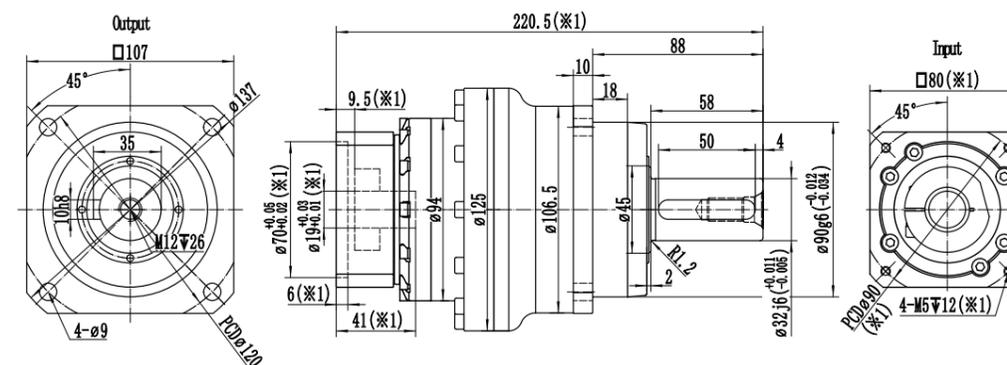


Max. 35(※2)  
Input shaft  
bore diameter

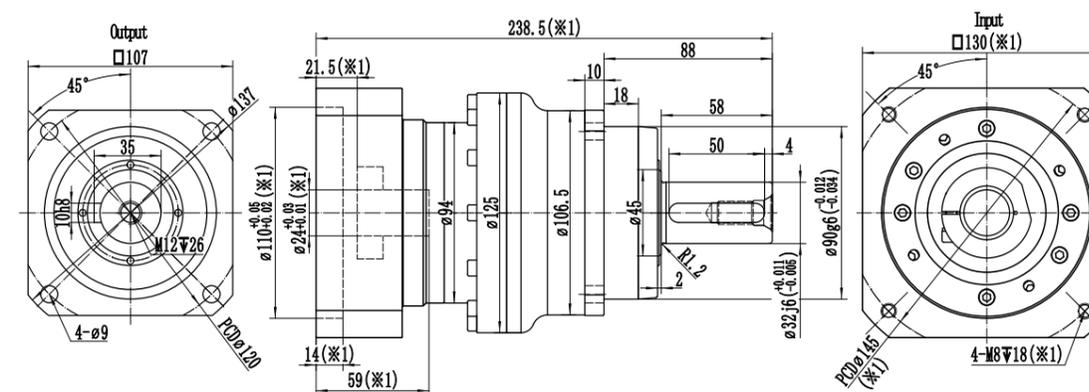
※1: Dimensions will vary with the motor size.  
 ※2: If the motor shaft diameter is small, a bushing may be used, which has a mini thickness of 1mm.  
 ※ Please notify if a keyway is needed for the gearbox input shaft bore.

Specification	Unit	WSH100-2-Stage												
Ratio		15	16	20	25	30	35	40	50	60	70	80	100	
Rated Output Torque T <sub>2N</sub>	Nm	230	330	330	330	310	300	330	330	310	300	230	200	
Emergency stop Torque T <sub>2NOT</sub>	Nm	3 times rated output torque(allow 1000 times)/3 Times T <sub>2N</sub>												
Rated Input Speed n <sub>1N</sub>	rpm	3300	3300	3300	3300	3300	3300	3800	3800	3800	3800	3800	3800	
Max Input Speed n <sub>1B</sub>	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
No Load Running Torque (n <sub>1</sub> =3000rpm,20°C running)	Nm	0.95	0.95	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.5	0.5	
Max Backlash	arcmin	P0≤3 / P1≤5 / P2≤8												
Torsional rigidity	Nm/arcmin	32												
Max Tilting Moment M <sub>2K</sub>	Nm	670												
Allowable Radial Force F <sub>2R</sub>	N	8500												
Allowable Axle Force F <sub>2A</sub>	N	7000												
Service Life	h	20000												
Efficient	%	≥95												
Applicable Ambient Temperature	°C	-20°C~+40°C												
Weight	kg	7.1												
Protection class		IP65												
Lubrication		Synthetic Lubricating Oil												
Noise	dB(A)	≤61												
Rotational inertia J1	≤19	kg.cm <sup>2</sup>	0.85	0.85	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6
	≤24		2.1	2.1	1.9	1.9	1.9	1.9	1.85	1.85	1.85	1.85	1.85	1.85

Motor shaft diameter (mm)



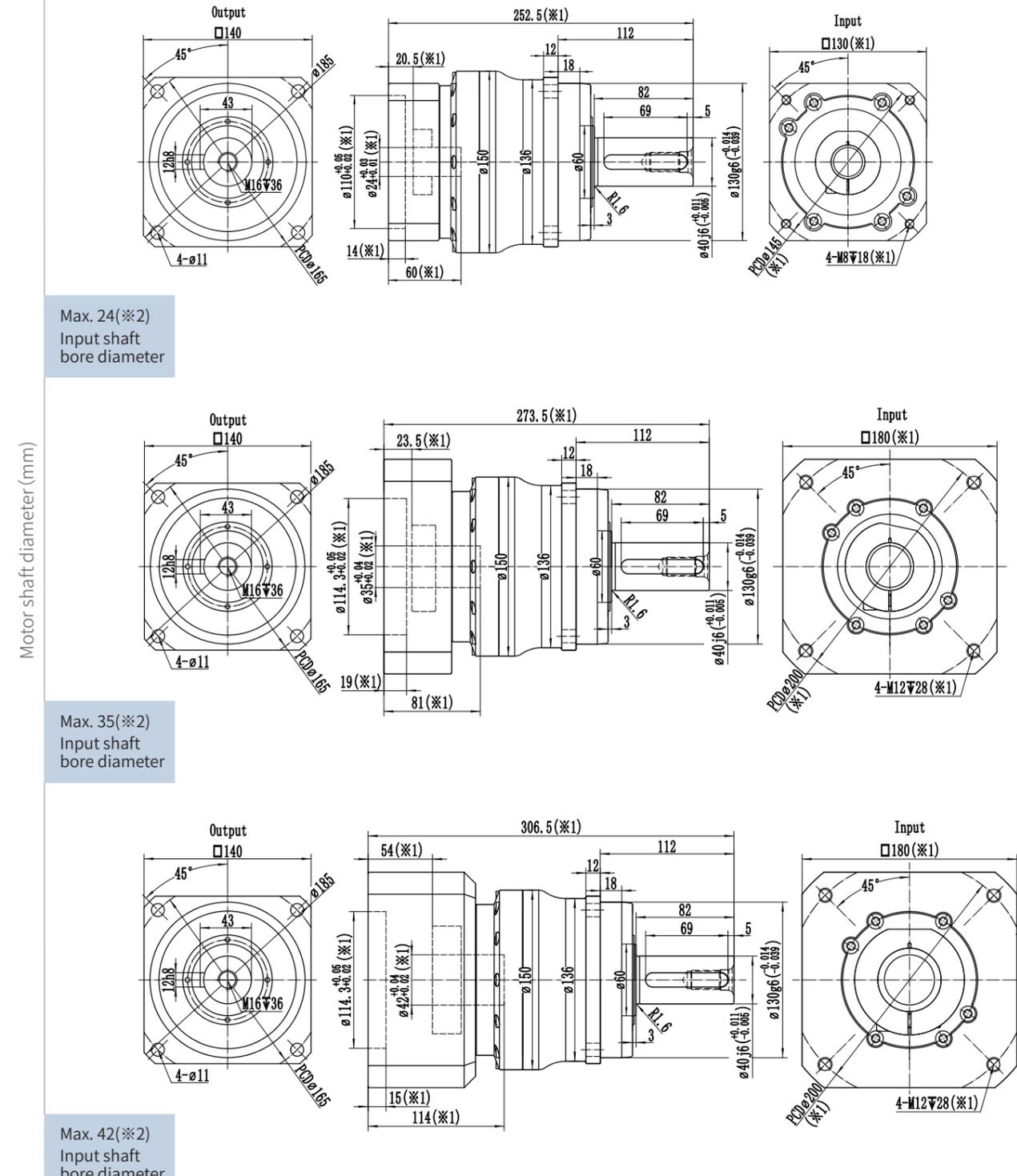
Max. 19(※2)  
Input shaft  
bore diameter



Max. 24(※2)  
Input shaft  
bore diameter

※1: Dimensions will vary with the motor size.  
 ※2: If the motor shaft diameter is small, a bushing may be used, which has a mini thickness of 1mm.  
 ※ Please notify if a keyway is needed for the gearbox input shaft bore.

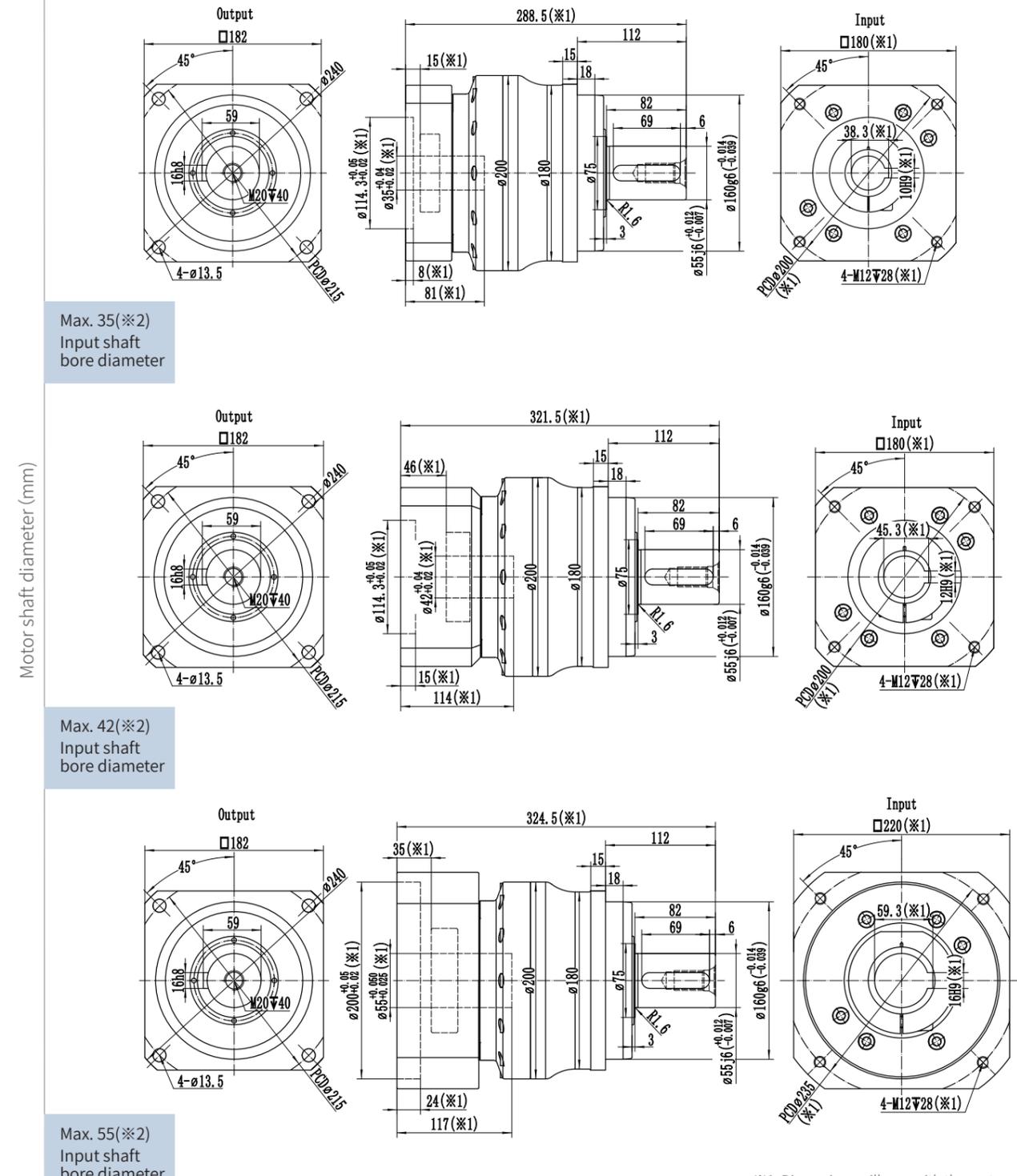
Specification	Unit	WSH140-1-Stage							
Ratio		3	4	5	6	7	8	10	
Rated Output Torque $T_{2N}$	Nm	400	650	650	600	550	450	400	
Emergency stop Torque $T_{2NOT}$	Nm	3 times rated output torque(allow 1000 times)/3 Times $T_{2N}$							
Rated Input Speed $n_{1N}$	rpm	2500	2500	2500	2500	3000	3000	3000	
Max Input Speed $n_{1B}$	rpm	4500	4500	4500	4500	4500	4500	4500	
No Load Running Torque ( $n_1=3000\text{rpm}, 20^\circ\text{C}$ running)	Nm	4.3	3.4	2.6	2.6	1.9	1.3	1.3	
Max Backlash	arcmin	$P_0 \leq 1.5 / P_1 \leq 3 / P_2 \leq 5$							
Torsional rigidity	Nm/arcmin	60							
Max Tilting Moment $M_{2K}$	Nm	1630							
Allowable Radial Force $F_{2R}$	N	16000							
Allowable Axle Force $F_{2A}$	N	12000							
Service Life	h	20000							
Efficient	%	$\geq 97$							
Applicable Ambient Temperature	$^\circ\text{C}$	$-20^\circ\text{C} \sim +40^\circ\text{C}$							
Weight	kg	15.1							
Protection class		IP65							
Lubrication		Synthetic Lubricating Oil							
Noise	dB(A)	$\leq 65$							
Rotational inertia J1	$\leq 24$	kg.cm <sup>2</sup>	9.5	7	5.5	4.5	4.5	4.5	4.5
	$\leq 28$		10.5	8	6.5	5.5	5.5	5.5	5.5
	$\leq 35$		14.5	11.5	10	9	9	9	9
	$\leq 42$		26	24	23	22	22	22	22



※1: Dimensions will vary with the motor size.  
 ※2: If the motor shaft diameter is small, a bushing may be used, which has a mini. thickness of 1mm.  
 ※ Please notify if a keyway is needed for the gearbox input shaft bore.

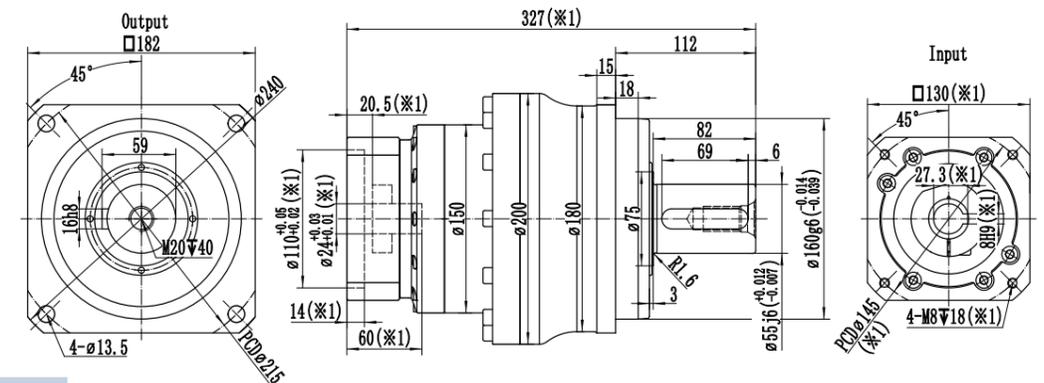


Specification	Unit	WSH180-1-Stage							
		3	4	5	6	7	8	10	
Ratio		3	4	5	6	7	8	10	
Rated Output Torque $T_{2N}$	Nm	1000	1400	1400	1100	1000	850	760	
Emergency stop Torque $T_{2NOT}$	Nm	3 times rated output torque(allow 1000 times)/3 Times $T_{2N}$							
Rated Input Speed $n_{1N}$	rpm	2000	2000	2000	2000	2500	2500	2500	
Max Input Speed $n_{1B}$	rpm	3500	3500	3500	3500	3500	3500	3500	
No Load Running Torque ( $n_1=3000\text{rpm}, 20^\circ\text{C}$ running)	Nm	7.2	5.7	4.3	4.3	3.2	2.15	2.15	
Max Backlash	arcmin	$P_0 \leq 1.5 / P_1 \leq 3 / P_2 \leq 5$							
Torsional rigidity	Nm/arcmin	175							
Max Tilting Moment $M_{2K}$	Nm	3200							
Allowable Radial Force $F_{2R}$	N	23000							
Allowable Axle Force $F_{2A}$	N	19000							
Service Life	h	20000							
Efficient	%	$\geq 97$							
Applicable Ambient Temperature	$^\circ\text{C}$	$-20^\circ\text{C} \sim +40^\circ\text{C}$							
Weight	kg	30							
Protection class		IP65							
Lubrication		Synthetic Lubricating Oil							
Noise	dB(A)	$\leq 66$							
Rotational inertia $J_1$	$\leq 28$	kg.cm <sup>2</sup>	-	-	-	-	-	-	-
	$\leq 35$		52	25	20	16	14	12	12
	$\leq 42$		52	36	31	27	25	23	23
	$\leq 55$		66	50	45	40	38	36	36

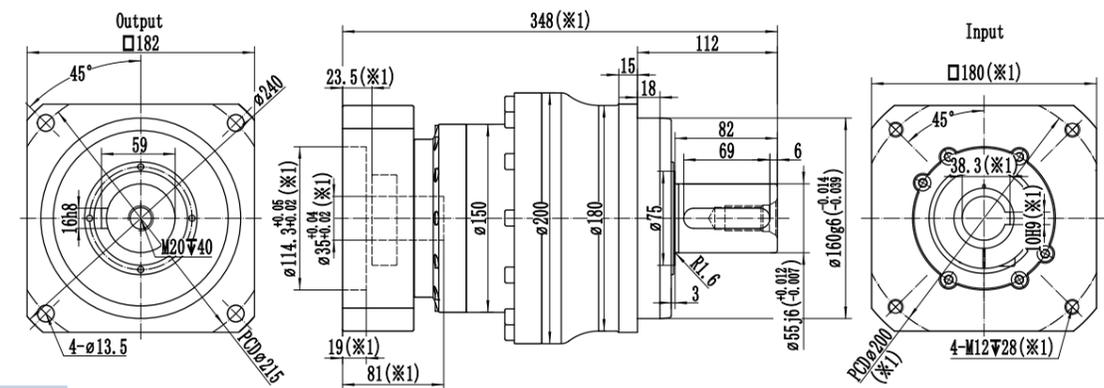


Specification	Unit	WSH180-2-Stage												
Ratio		15	16	20	25	30	35	40	50	60	70	80	100	
Rated Output Torque $T_{2N}$	Nm	1000	1400	1400	1400	1100	1100	1400	1400	1100	1000	850	760	
Emergency stop Torque $T_{2NOT}$	Nm	3 times rated output torque(allow 1000 times)/3 Times $T_{2N}$												
Rated Input Speed $n_{1N}$	rpm	2500	2500	2500	2500	2500	2500	3000	3000	3000	3000	3000	3000	
Max Input Speed $n_{1B}$	rpm	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	
No Load Running Torque ( $n_1=3000\text{rpm}, 20^\circ\text{C}$ running)	Nm	2.6	2.6	1.7	1.7	1.7	1.7	1.4	1.4	1.4	1.4	1.3	1.3	
Max Backlash	arcmin	$P_0 \leq 3 / P_1 \leq 5 / P_2 \leq 8$												
Torsional rigidity	Nm/arcmin	175												
Max Tilting Moment $M_{2K}$	Nm	3200												
Allowable Radial Force $F_{2R}$	N	23000												
Allowable Axle Force $F_{2A}$	N	19000												
Service Life	h	20000												
Efficient	%	$\geq 95$												
Applicable Ambient Temperature	$^\circ\text{C}$	$-20^\circ\text{C} \sim +40^\circ\text{C}$												
Weight	kg	35												
Protection class		IP65												
Lubrication		Synthetic Lubricating Oil												
Noise	dB(A)	$\leq 65$												
Rotational inertia $J_1$	$\leq 24$	kg.cm <sup>2</sup>	6	6	5	5	5	5	4	4	4	4	4	4
	$\leq 28$		6.5	6.5	5.5	5.5	5.5	5.5	4.5	4.5	4.5	4.5	4.5	4.5
	$\leq 35$		8	8	7	7	7	7	6	6	6	6	6	6
	$\leq 42$		20	20	19	19	19	19	18	18	18	18	18	18

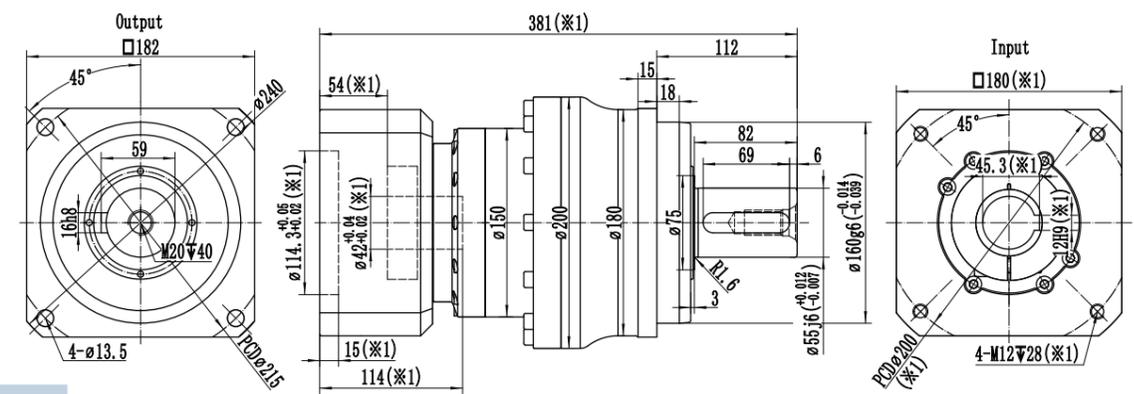
Motor shaft diameter (mm)



Max. 24(※2)  
Input shaft  
bore diameter



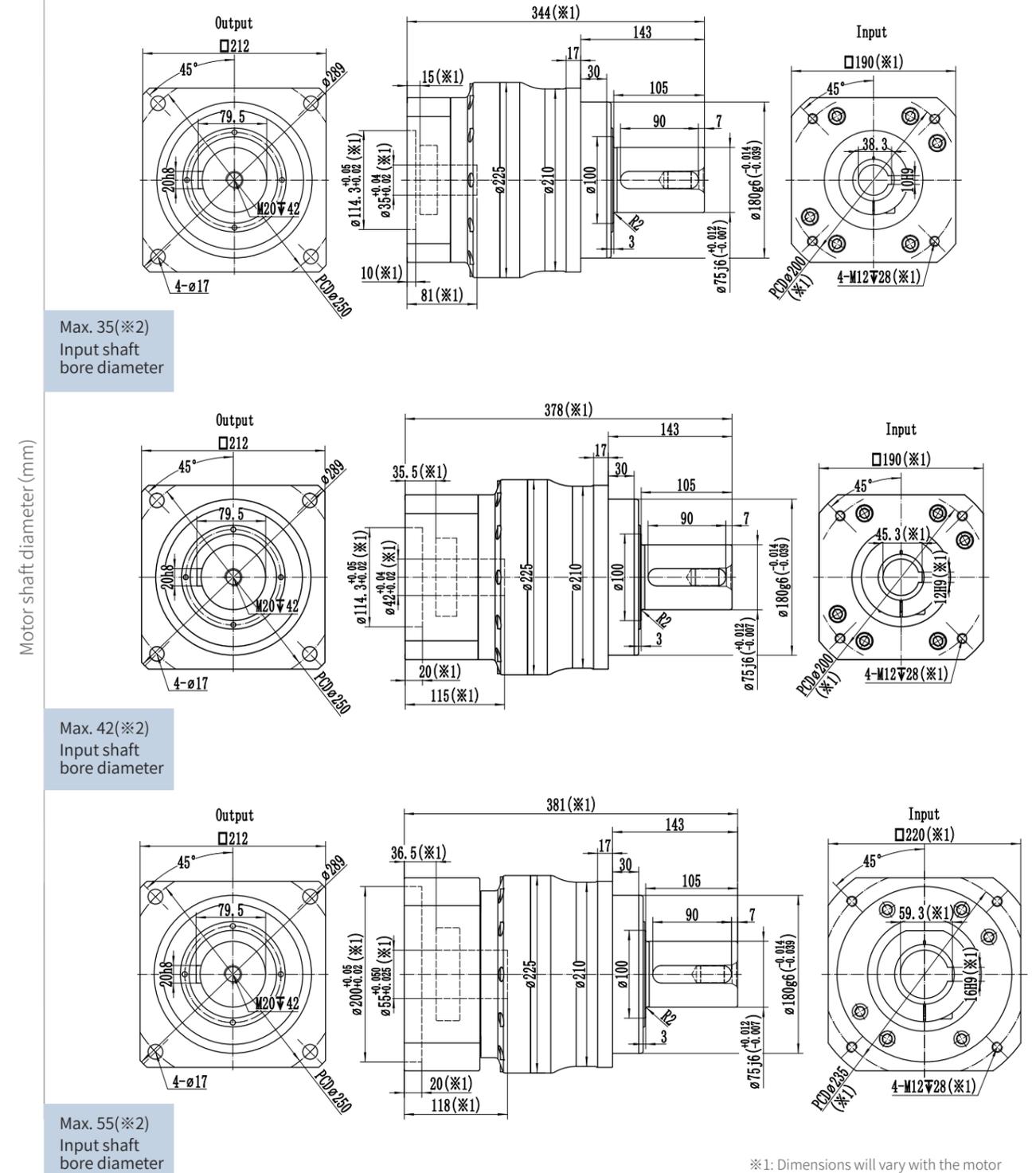
Max. 35(※2)  
Input shaft  
bore diameter



Max. 42(※2)  
Input shaft  
bore diameter

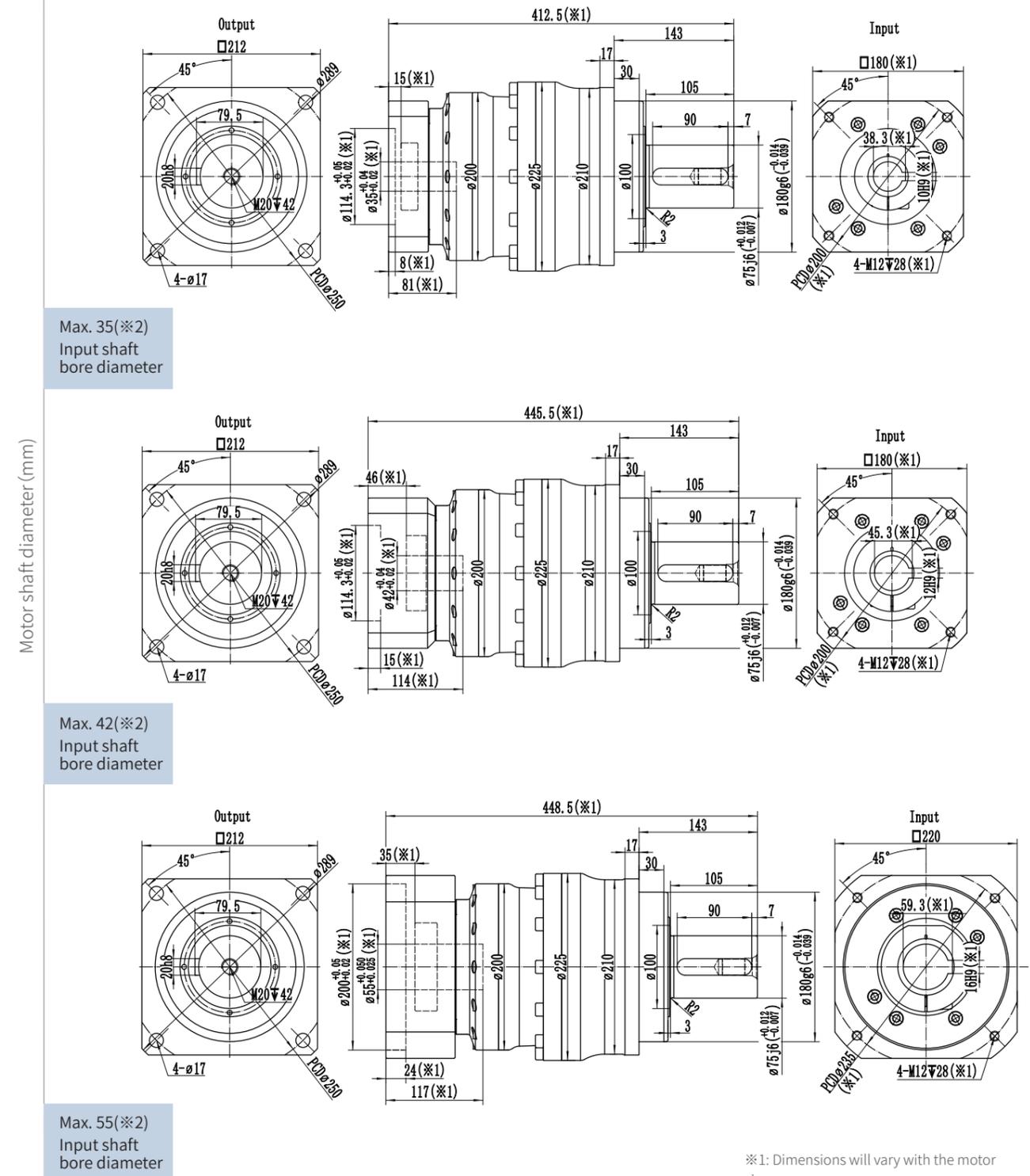
※1: Dimensions will vary with the motor size.  
 ※2: If the motor shaft diameter is small, a bushing may be used, which has a mini thickness of 1mm.  
 ※ WSH180 gearbox: Default keyway on input shaft. Please notify if not needed.

Specification	Unit	WSH210-1级/1-Stage							
		3	4	5	6	7	8	10	
Ratio		3	4	5	6	7	8	10	
Rated Output Torque T <sub>2N</sub>	Nm	1800	2400	2400	1950	1700	1450	1350	
Emergency stop Torque T <sub>2NOT</sub>	Nm	3 times rated output torque(allow 1000 times)/3 Times T <sub>2N</sub>							
Rated Input Speed n <sub>1N</sub>	rpm	1500	1500	1500	1500	2000	2000	2000	
Max Input Speed n <sub>1B</sub>	rpm	3000	3000	3000	3000	3000	3000	3000	
No Load Running Torque (n <sub>1</sub> =3000rpm,20°C running)	Nm	9.55	7.65	5.7	5.7	4.2	2.85	2.85	
Max Backlash	arcmin	P0≤1.5 / P1≤3 / P2≤5							
Torsional rigidity	Nm/arcmin	410							
Max Tilting Moment M <sub>2K</sub>	Nm	5300							
Allowable Radial Force F <sub>2R</sub>	N	30000							
Allowable Axle Force F <sub>2A</sub>	N	24000							
Service Life	h	20000							
Efficient	%	≥97							
Applicable Ambient Temperature	°C	-20°C~+40°C							
Weight	kg	50							
Protection class		IP65							
Lubrication		Synthetic Lubricating Oil							
Noise	dB(A)	≤66							
Rotational inertia J1	≤42	kg.cm <sup>2</sup>	80	58	51	43	40	33	33
	≤55		105	80	71	63	60	53	53
	≤65		133	108	99	91	88	81	81



※1: Dimensions will vary with the motor size.  
 ※2: If the motor shaft diameter is small, a bushing may be used, which has a mini thickness of 1mm.  
 ※ WSH210 gearbox: Default keyway on input shaft. Please notify if not needed.

Specification	Unit	WSH210-2-Stage												
		15	16	20	25	30	35	40	50	60	70	80	100	
Ratio		15	16	20	25	30	35	40	50	60	70	80	100	
Rated Output Torque $T_{2N}$	Nm	1800	2400	2400	2400	1950	1700	2400	2400	1950	1700	1450	1350	
Emergency stop Torque $T_{2NOT}$	Nm	3 times rated output torque(allow 1000 times)/3 Times $T_{2N}$												
Rated Input Speed $n_{1N}$	rpm	2000	2000	2000	2000	2000	2000	2500	2500	2500	2500	2500	2500	
Max Input Speed $n_{1B}$	rpm	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	
No Load Running Torque ( $n_1=3000\text{rpm}, 20^\circ\text{C}$ running)	Nm	4.3	4.3	2.85	2.85	2.85	2.85	2.3	2.3	2.3	2.3	2.15	2.15	
Max Backlash	arcmin	$P_0 \leq 3 / P_1 \leq 5 / P_2 \leq 8$												
Torsional rigidity	Nm/arcmin	410												
Max Tilting Moment $M_{2K}$	Nm	5300												
Allowable Radial Force $F_{2R}$	N	30000												
Allowable Axle Force $F_{2A}$	N	24000												
Service Life	h	20000												
Efficient	%	$\geq 95$												
Applicable Ambient Temperature	$^\circ\text{C}$	$-20^\circ\text{C} \sim +40^\circ\text{C}$												
Weight	kg	57												
Protection class		IP65												
Lubrication		Synthetic Lubricating Oil												
Noise	dB(A)	$\leq 66$												
Rotational inertia $J_1$	$\leq 35$	kg.cm <sup>2</sup>	18	18	13	13	13	13	10	10	10	10	10	10
	$\leq 42$		29	29	24	24	24	24	19	19	19	19	19	19
	$\leq 55$		43	43	38	38	38	38	33	33	33	33	33	33



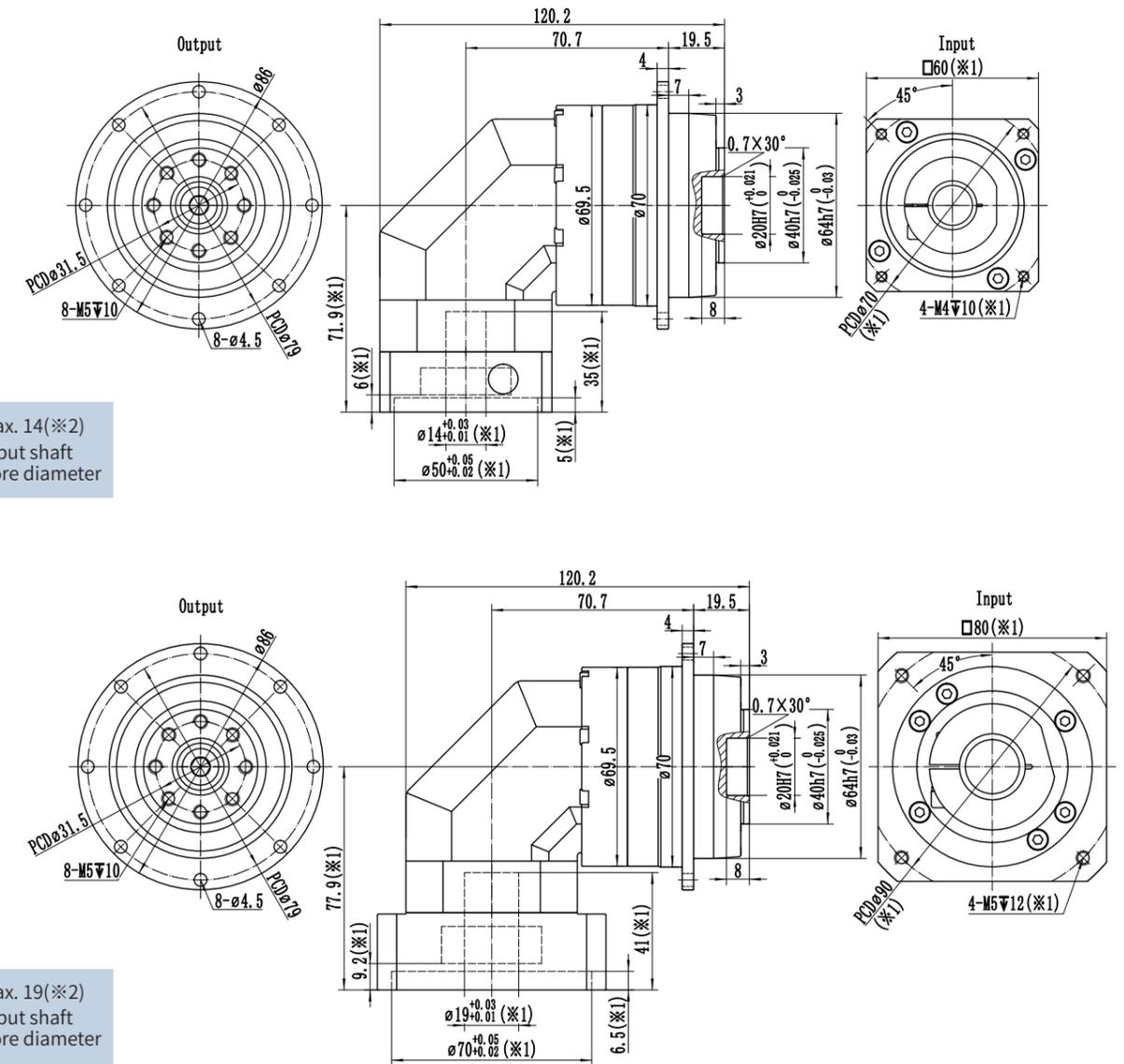
※1: Dimensions will vary with the motor size.  
 ※2: If the motor shaft diameter is small, a bushing may be used, which has a mini thickness of 1mm.  
 ※ WSH210 gearbox: Default keyway on input shaft. Please notify if not needed.

Specification	Unit	WTHR064-1-Stage										
		4	5	6	7	8	10	12	14	16	20	
Ratio		4	5	6	7	8	10	12	14	16	20	
Rated Output Torque $T_{2N}$	Nm	55	60	55	50	55	60	55	50	40	35	
Emergency stop Torque $T_{2NOT}$	Nm	3 times rated output torque(allow 1000 times)/3 Times $T_{2N}$										
Rated Input Speed $n_{1N}$	rpm	3300	3300	3300	3300	4000	4000	4000	4000	4000	4000	
Max Input Speed $n_{1B}$	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
No Load Running Torque ( $n_1=3000\text{rpm}, 20^\circ\text{C}$ running)	Nm	0.65	0.55	0.55	0.55	0.45	0.4	0.4	0.4	0.35	0.35	
Max Backlash	arcmin	$P1 \leq 4 / P2 \leq 6$										
Torsional rigidity	Nm/arcmin	13										
Max Tilting Moment $M_{2K}$	Nm	130										
Allowable Radial Force $F_{2R}$	N	2500										
Allowable Axle Force $F_{2A}$	N	2000										
Service Life	h	20000										
Efficient	%	$\geq 95$										
Applicable Ambient Temperature	$^\circ\text{C}$	$-20^\circ\text{C} \sim +40^\circ\text{C}$										
Weight	kg	2.2										
Protection class		IP65										
Lubrication		Synthetic Lubricating Oil										
Noise	dB(A)	$\leq 63$										
Rotational inertia $J_1$	$\leq 14$	kg.cm <sup>2</sup>	0.42	0.4	0.38	0.38	0.33	0.31	0.31	0.31	0.31	0.31
	$\leq 19$		0.75	0.7	0.65	0.65	0.68	0.63	0.58	0.58	0.58	0.58

Motor shaft diameter(mm)

Max. 14(※2)  
Input shaft  
bore diameter

Max. 19(※2)  
Input shaft  
bore diameter



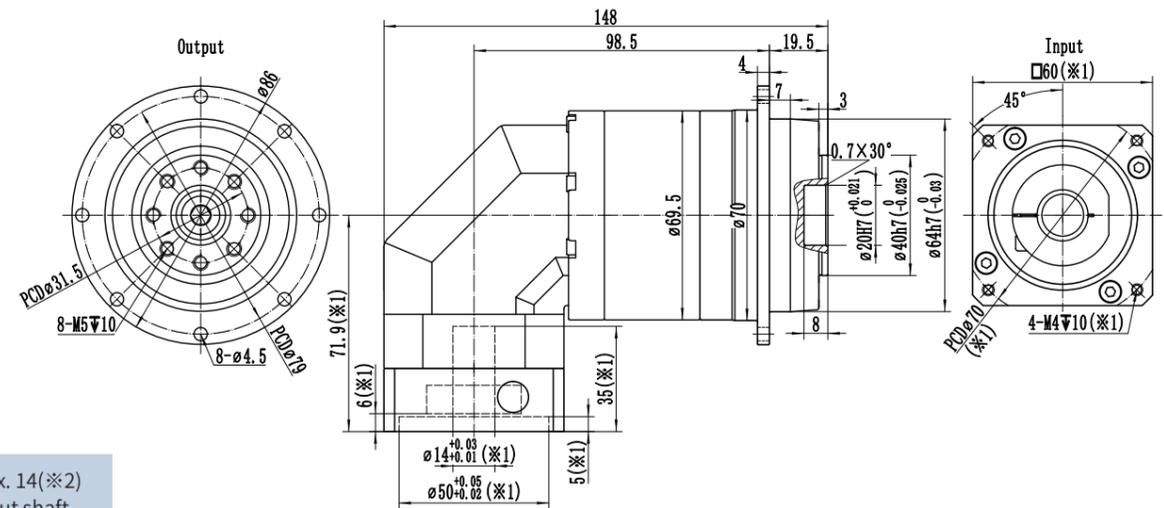
※1: Dimensions will vary with the motor size.

※2: If the motor shaft diameter is small, a bushing may be used, which has a mini thickness of 1mm.

※ Please notify if a keyway is needed for the gearbox input shaft bore.

Specification	Unit	WTHR064-2-Stage											
Ratio		25	35	40	50	60	70	80	100	120	140	160	200
Rated Output Torque T <sub>2N</sub>	Nm	60	50	55	60	55	50	55	60	55	50	40	35
Emergency stop Torque T <sub>2NOT</sub>	Nm	3 times rated output torque(allow 1000 times)/3 Times T <sub>2N</sub>											
Rated Input Speed n <sub>1N</sub>	rpm	3300	3300	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000
Max Input Speed n <sub>1B</sub>	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
No Load Running Torque (n <sub>1</sub> =3000rpm,20°C running)	Nm	0.5	0.5	0.4	0.4	0.4	0.4	0.35	0.35	0.35	0.35	0.3	0.3
Max Backlash	arcmin	P1≤7 / P2≤9											
Torsional rigidity	Nm/arcmin	13											
Max Tilting Moment M <sub>2K</sub>	Nm	130											
Allowable Radial Force F <sub>2R</sub>	N	2500											
Allowable Axle Force F <sub>2A</sub>	N	2000											
Service Life	h	20000											
Efficient	%	≥92											
Applicable Ambient Temperature	°C	-20°C~+40°C											
Weight	kg	2.8											
Protection class		IP65											
Lubrication		Synthetic Lubricating Oil											
Noise	dB(A)	≤63											
Rotational inertia J1	≤8	kg.cm <sup>2</sup>	0.3	0.3	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
	≤14		0.37	0.37	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28

Motor shaft diameter (mm)



Max. 14(※2)  
Input shaft  
bore diameter

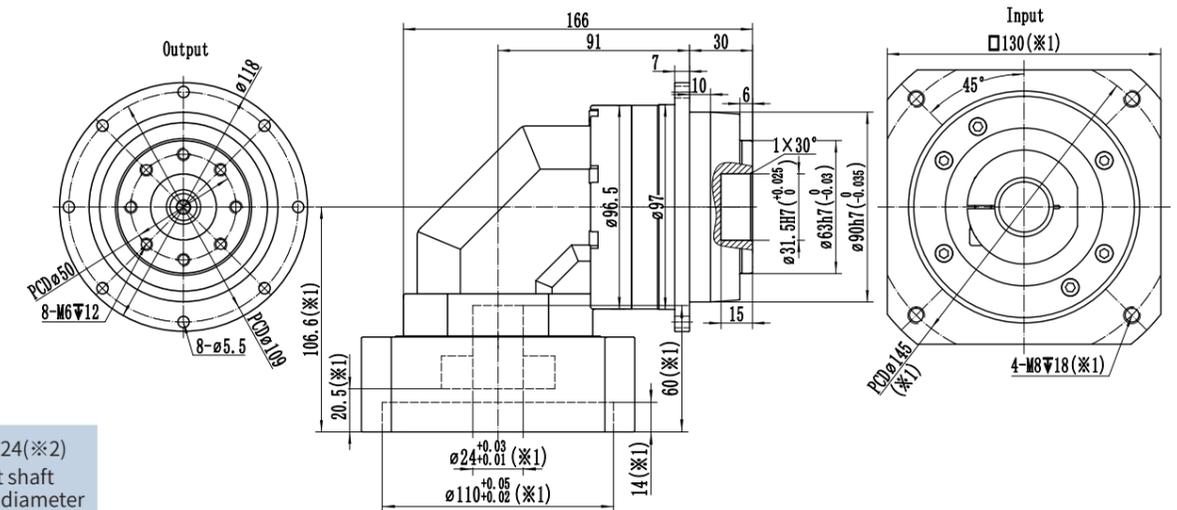
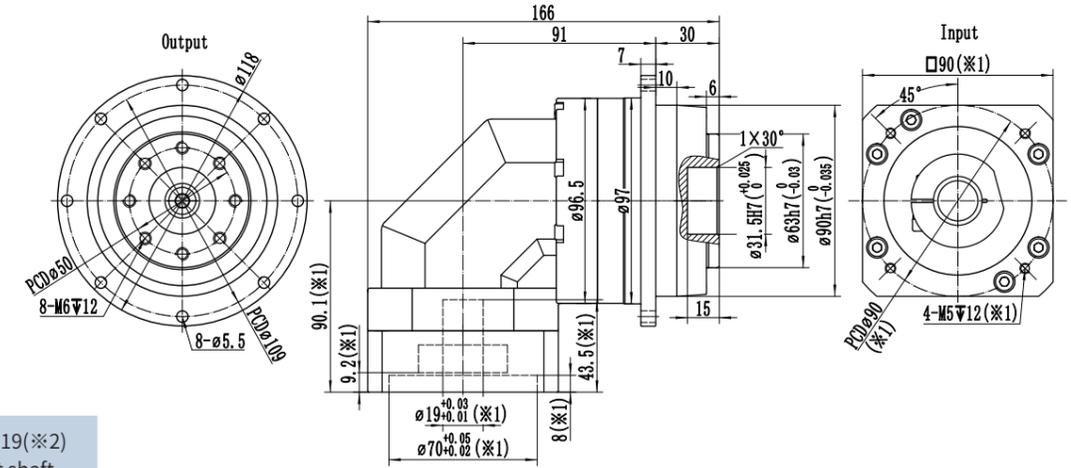
※1: Dimensions will vary with the motor size.

※2: If the motor shaft diameter is small, a bushing may be used, which has a mini thickness of 1mm.

※ Please notify if a keyway is needed for the gearbox input shaft bore.

Specification	Unit	WTHR090-1-Stage										
		4	5	6	7	8	10	12	14	16	20	
Ratio		4	5	6	7	8	10	12	14	16	20	
Rated Output Torque $T_{2N}$	Nm	150	160	150	140	150	160	150	140	100	90	
Emergency stop Torque $T_{2NOT}$	Nm	3 times rated output torque(allow 1000 times)/3 Times $T_{2N}$										
Rated Input Speed $n_{1N}$	rpm	3300	3300	3300	3300	4000	4000	4000	4000	4000	4000	
Max Input Speed $n_{1B}$	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
No Load Running Torque ( $n_1=3000\text{rpm}, 20^\circ\text{C}$ running)	Nm	1.2	0.95	0.95	0.95	0.85	0.8	0.8	0.8	0.7	0.7	
Max Backlash	arcmin	$P1 \leq 4 / P2 \leq 6$										
Torsional rigidity	Nm/arcmin	31										
Max Tilting Moment $M_{2K}$	Nm	280										
Allowable Radial Force $F_{2R}$	N	4800										
Allowable Axle Force $F_{2A}$	N	3500										
Service Life	h	20000										
Efficient	%	$\geq 95$										
Applicable Ambient Temperature	$^\circ\text{C}$	$-20^\circ\text{C} \sim +40^\circ\text{C}$										
Weight	kg	6.5										
Protection class		IP65										
Lubrication		Synthetic Lubricating Oil										
Noise	dB(A)	$\leq 65$										
Rotational inertia $J_1$	$\leq 19$	kg.cm <sup>2</sup>	2.5	2.4	2.3	2.3	2	1.9	1.8	1.8	1.8	1.8
	$\leq 24$		3.7	3.6	3.5	3.5	3.2	3.1	3	3	3	3

Motor shaft diameter (mm)



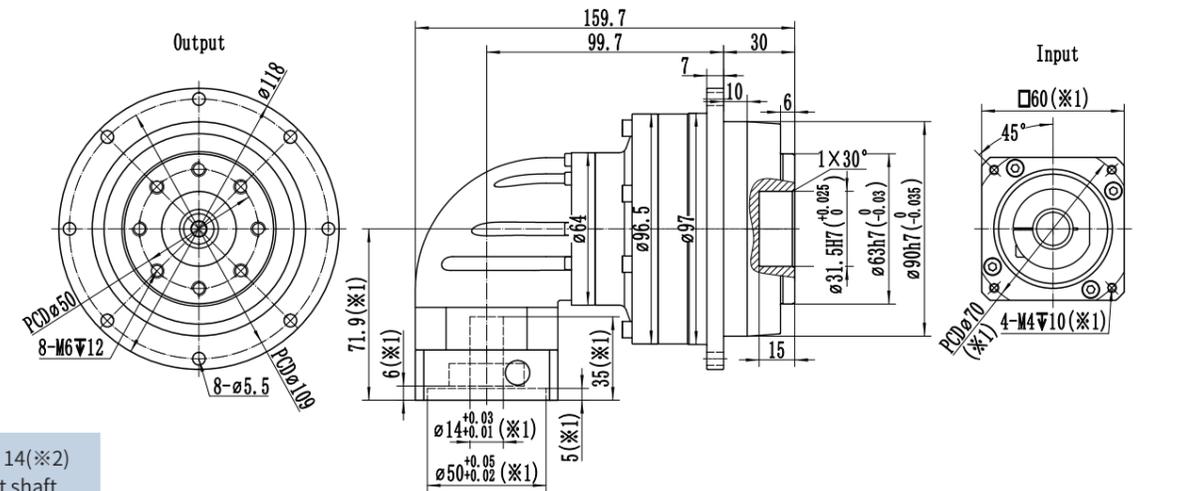
※1: Dimensions will vary with the motor size.

※2: If the motor shaft diameter is small, a bushing may be used, which has a mini thickness of 1mm.

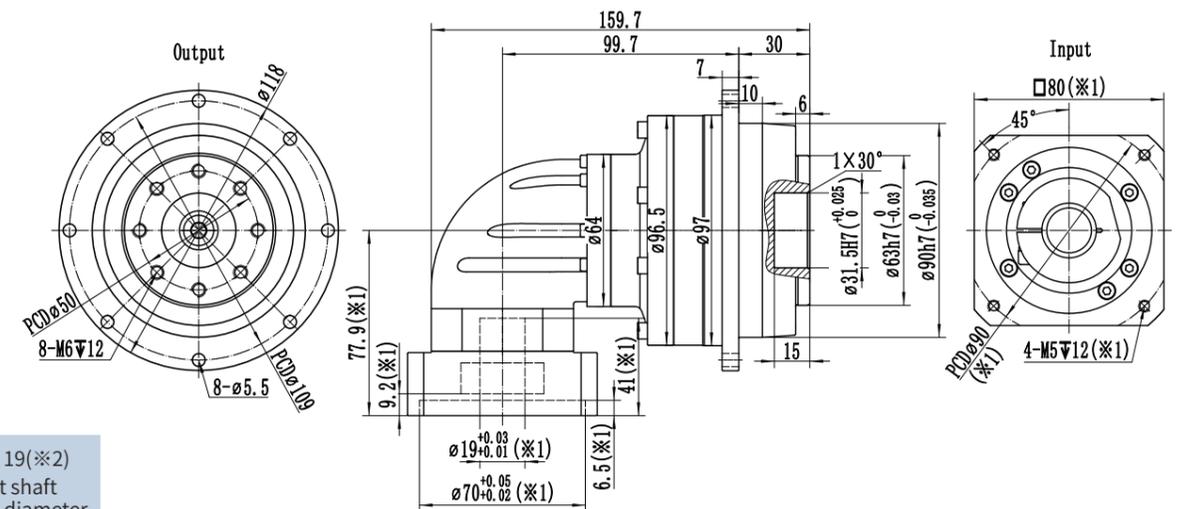
※ Please notify if a keyway is needed for the gearbox input shaft bore.

Specification	Unit	WTHR090-2-Stage												
Ratio		25	35	40	50	60	70	80	100	120	140	160	200	
Rated Output Torque T <sub>2N</sub>	Nm	160	140	150	160	150	140	150	160	150	140	100	90	
Emergency stop Torque T <sub>2NOT</sub>	Nm	3 times rated output torque(allow 1000 times)/3 Times T <sub>2N</sub>												
Rated Input Speed n <sub>1N</sub>	rpm	3300	3300	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	
Max Input Speed n <sub>1B</sub>	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
No Load Running Torque (n <sub>1</sub> =3000rpm,20°C running)	Nm	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.35	0.35	
Max Backlash	arcmin	P1≤7 / P2≤9												
Torsional rigidity	Nm/arcmin	31												
Max Tilting Moment M <sub>2K</sub>	Nm	280												
Allowable Radial Force F <sub>2R</sub>	N	4800												
Allowable Axle Force F <sub>2A</sub>	N	3500												
Service Life	h	20000												
Efficient	%	≥92												
Applicable Ambient Temperature	°C	-20°C~+40°C												
Weight	kg	5.1												
Protection class		IP65												
Lubrication		Synthetic Lubricating Oil												
Noise	dB(A)	≤63												
Rotational inertia J <sub>1</sub>	≤14	kg.cm <sup>2</sup>	0.45	0.45	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	
	≤19		0.8	0.8	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	

Motor shaft diameter (mm)



Max. 14(※2)  
Input shaft  
bore diameter



Max. 19(※2)  
Input shaft  
bore diameter

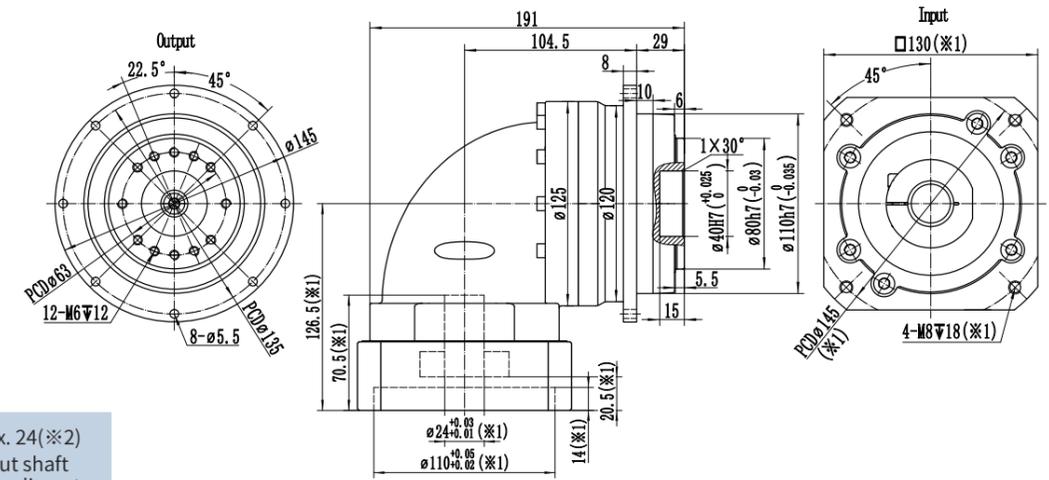
※1: Dimensions will vary with the motor size.

※2: If the motor shaft diameter is small, a bushing may be used, which has a mini thickness of 1mm.

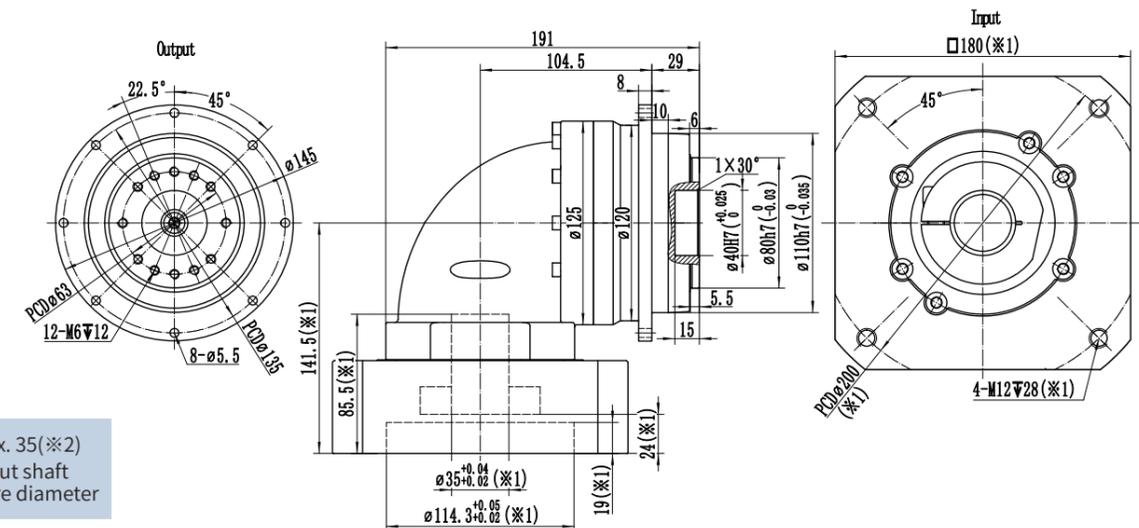
※ Please notify if a keyway is needed for the gearbox input shaft bore.

Specification	Unit	WTHR110-1-Stage										
Ratio		4	5	6	7	8	10	12	14	16	20	
Rated Output Torque $T_{2N}$	Nm	330	330	310	300	330	330	310	300	230	200	
Emergency stop Torque $T_{2NOT}$	Nm	3 times rated output torque(allow 1000 times)/3 Times $T_{2N}$										
Rated Input Speed $n_{1N}$	rpm	2800	2800	2800	3300	3300	3300	3300	3300	3300	3300	
Max Input Speed $n_{1B}$	rpm	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	
No Load Running Torque ( $n_1=3000\text{rpm}, 20^\circ\text{C}$ running)	Nm	2.3	1.9	1.9	1.9	1.6	1.55	1.55	1.55	1.4	1.4	
Max Backlash	arcmin	$P1 \leq 4 / P2 \leq 6$										
Torsional rigidity	Nm/arcmin	82										
Max Tilting Moment $M_{2K}$	Nm	510										
Allowable Radial Force $F_{2R}$	N	7800										
Allowable Axle Force $F_{2A}$	N	6000										
Service Life	h	20000										
Efficient	%	$\geq 95$										
Applicable Ambient Temperature	$^\circ\text{C}$	$-20^\circ\text{C} \sim +40^\circ\text{C}$										
Weight	kg	11.3										
Protection class		IP65										
Lubrication		Synthetic Lubricating Oil										
Noise	dB(A)	$\leq 68$										
Rotational inertia $J_1$	$\leq 19$	kg.cm <sup>2</sup>	5.9	5.4	4.9	4.9	4.4	4.3	4.2	4.2	4.2	4.2
	$\leq 24$		6.4	5.9	5.4	5.4	4.9	4.8	4.7	4.7	4.7	4.7
	$\leq 28$		6.9	6.4	5.9	5.9	5.4	5.3	5.2	5.2	5.2	5.2
	$\leq 35$		13.4	12.9	12.4	12.4	11.5	11.2	11	11	11	11

Motor shaft diameter (mm)



Max. 24(※2)  
Input shaft  
bore diameter

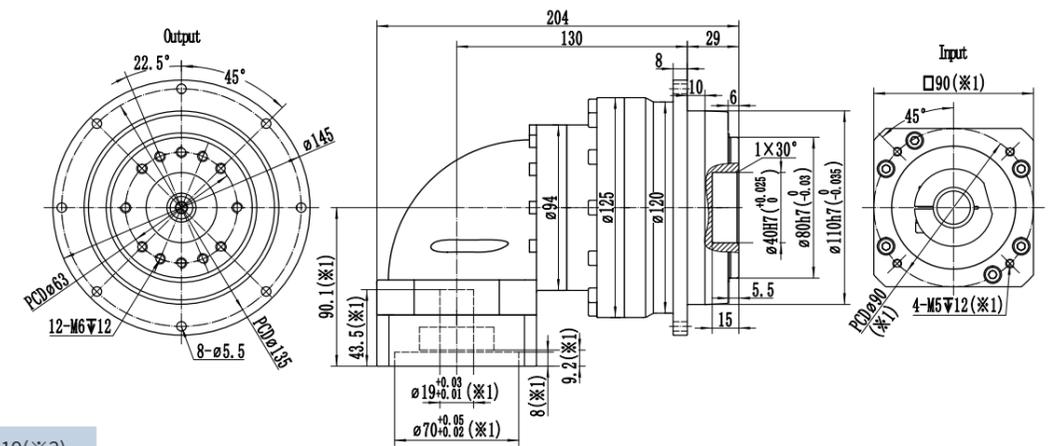


Max. 35(※2)  
Input shaft  
bore diameter

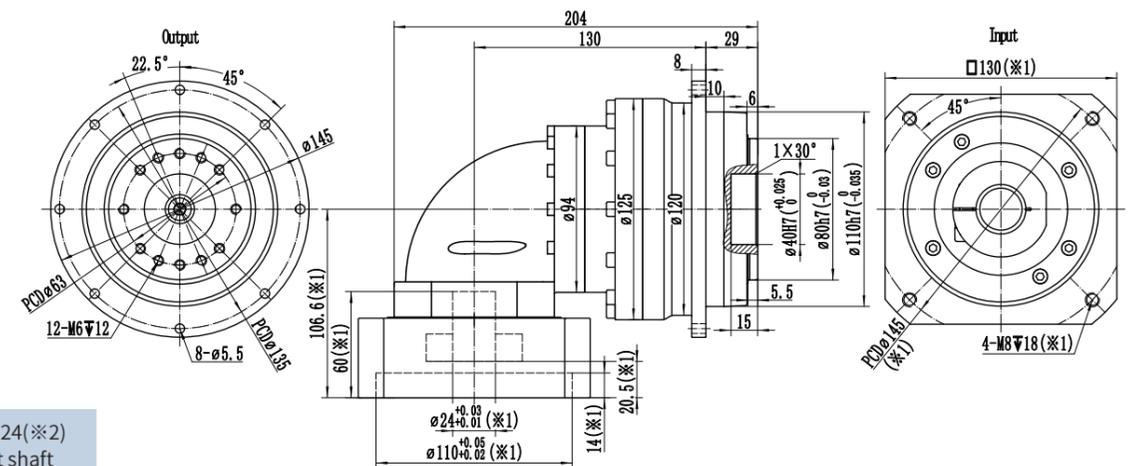
※1: Dimensions will vary with the motor size.  
 ※2: If the motor shaft diameter is small, a bushing may be used, which has a mini thickness of 1mm.  
 ※ Please notify if a keyway is needed for the gearbox input shaft bore.

Specification	Unit	WTHR110-2-Stage											
		25	35	40	50	60	70	80	100	120	140	160	200
Ratio		25	35	40	50	60	70	80	100	120	140	160	200
Rated Output Torque T <sub>2N</sub>	Nm	330	300	330	330	310	300	330	330	310	300	230	200
Emergency stop Torque T <sub>2NOT</sub>	Nm	3 times rated output torque(allow 1000 times)/3 Times T <sub>2N</sub>											
Rated Input Speed n <sub>1N</sub>	rpm	3300	3300	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000
Max Input Speed n <sub>1B</sub>	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
No Load Running Torque (n <sub>1</sub> =3000rpm,20°C running)	Nm	1	1	0.85	0.85	0.85	0.85	0.75	0.75	0.75	0.75	0.7	0.7
Max Backlash	arcmin	P1≤7 / P2≤9											
Torsional rigidity	Nm/arcmin	82											
Max Tilting Moment M <sub>2K</sub>	Nm	510											
Allowable Radial Force F <sub>2R</sub>	N	7800											
Allowable Axle Force F <sub>2A</sub>	N	6000											
Service Life	h	20000											
Efficient	%	≥92											
Applicable Ambient Temperature	°C	-20°C~+40°C											
Weight	kg	9.5											
Protection class		IP65											
Lubrication		Synthetic Lubricating Oil											
Noise	dB(A)	≤65											
Rotational inertia J <sub>1</sub>	≤19	kg.cm <sup>2</sup>	2.5	2.5	2	2	2	2	2	2	2	2	2
	≤24		3.7	3.7	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2

Motor shaft diameter (mm)



Max. 19(※2)  
Input shaft  
bore diameter



Max. 24(※2)  
Input shaft  
bore diameter

※1: Dimensions will vary with the motor size.

※2: If the motor shaft diameter is small, a bushing may be used, which has a mini. thickness of 1mm.

※ Please notify if a keyway is needed for the gearbox input shaft bore.

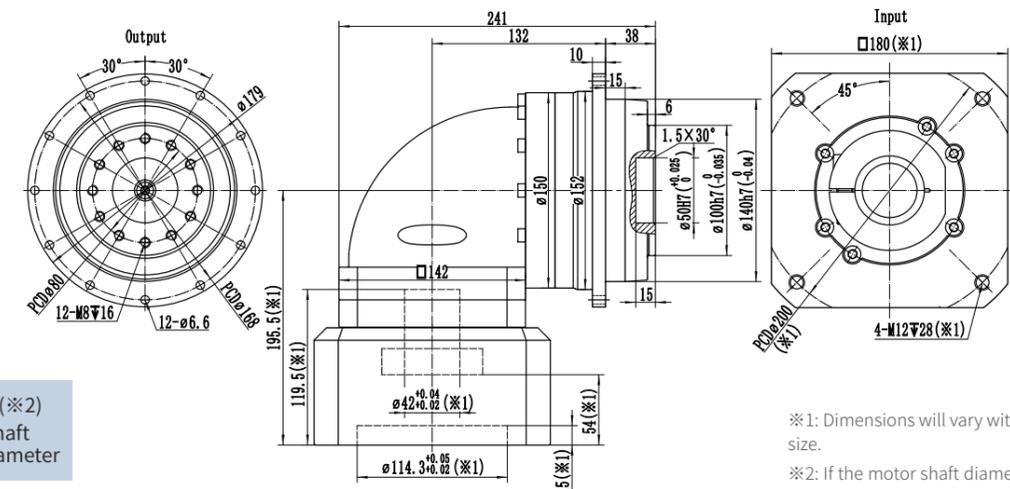
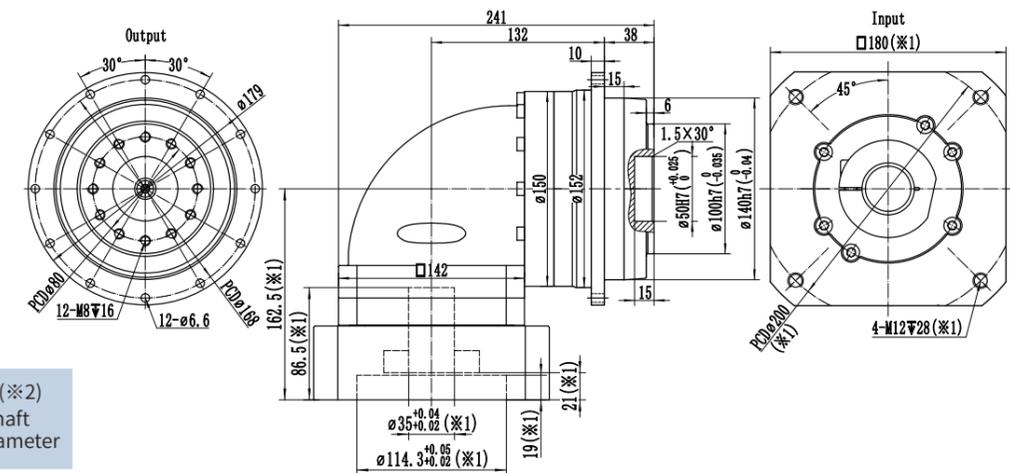
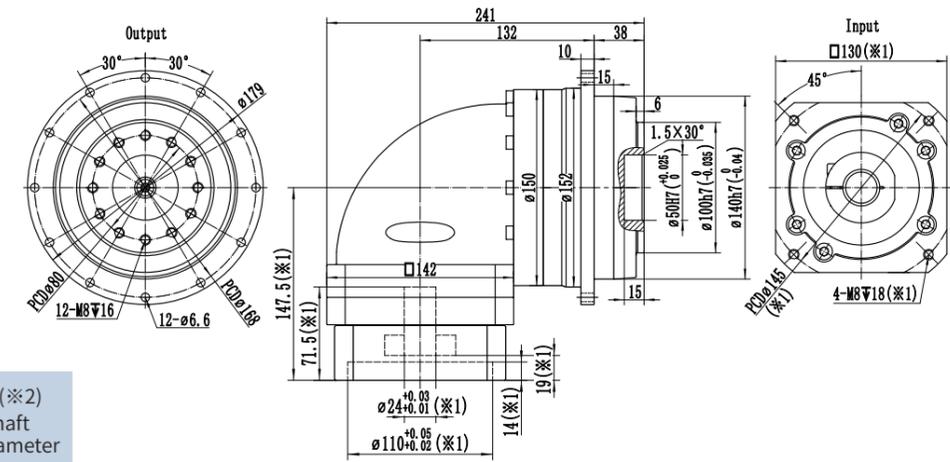
Specification	Unit	WTHR140-1-Stage										
Ratio		4	5	6	7	8	10	12	14	16	20	
Rated Output Torque $T_{2N}$	Nm	650	650	600	550	650	650	600	550	450	400	
Emergency stop Torque $T_{2NOT}$	Nm	3 times rated output torque(allow 1000 times)/3 Times $T_{2N}$										
Rated Input Speed $n_{1N}$	rpm	2300	2300	2300	2300	2800	2800	2800	2800	2800	2800	
Max Input Speed $n_{1B}$	rpm	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	
No Load Running Torque ( $n_1=3000\text{rpm}, 20^\circ\text{C}$ running)	Nm	4.4	3.6	3.6	3.6	3.1	3	3	3	2.9	2.9	
Max Backlash	arcmin	$P1 \leq 4 / P2 \leq 6$										
Torsional rigidity	Nm/arcmin	155										
Max Tilting Moment $M_{2K}$	Nm	1350										
Allowable Radial Force $F_{2R}$	N	13000										
Allowable Axle Force $F_{2A}$	N	11000										
Service Life	h	20000										
Efficient	%	$\geq 95$										
Applicable Ambient Temperature	$^\circ\text{C}$	$-20^\circ\text{C} \sim +40^\circ\text{C}$										
Weight	kg	23										
Protection class		IP65										
Lubrication		Synthetic Lubricating Oil										
Noise	dB(A)	$\leq 70$										
Rotational inertia $J_1$	$\leq 24$	kg.cm <sup>2</sup>	19	17.5	16.5	16.5	15.3	15	14.8	14.8	14.8	14.8
	$\leq 28$		20	18.5	17.5	17.5	16.3	16	15.8	15.8	15.8	15.8
	$\leq 35$		23.5	22	21	21	19.8	19.5	19.3	19.3	19.3	19.3
	$\leq 42$		36	35	34	34	32.8	32.5	32.3	32.3	32.3	32.3

Motor shaft diameter (mm)

Max. 24(※2)  
Input shaft  
bore diameter

Max. 35(※2)  
Input shaft  
bore diameter

Max. 42(※2)  
Input shaft  
bore diameter



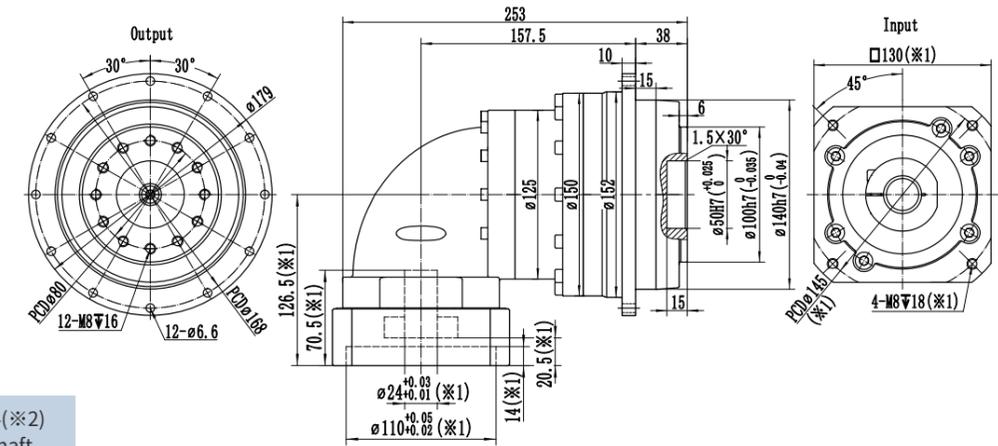
※1: Dimensions will vary with the motor size.

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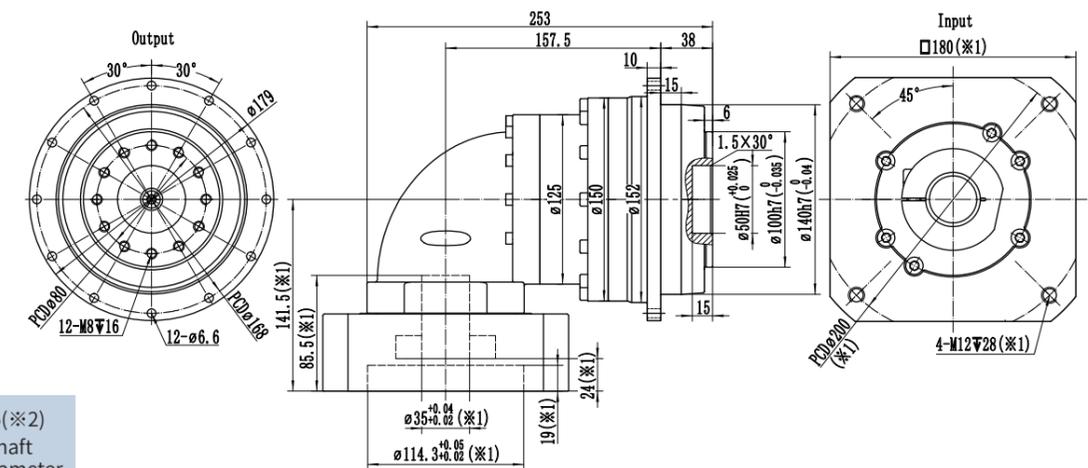
※ Please notify if a keyway is needed for the gearbox input shaft bore.

Specification	Unit	WTHR140-2-Stage												
Ratio		25	35	40	50	60	70	80	100	120	140	160	200	
Rated Output Torque T <sub>2N</sub>	Nm	650	550	650	650	600	550	650	650	600	500	450	400	
Emergency stop Torque T <sub>2NOT</sub>	Nm	3 times rated output torque(allow 1000 times)/3 Times T <sub>2N</sub>												
Rated Input Speed n <sub>1N</sub>	rpm	2800	2800	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300	
Max Input Speed n <sub>1B</sub>	rpm	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	
No Load Running Torque (n <sub>1</sub> =3000rpm,20°C running)	Nm	2	2	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.7	1.6	1.6	
Max Backlash	arcmin	P1≤7 / P2≤9												
Torsional rigidity	Nm/arcmin	155												
Max Tilting Moment M <sub>2K</sub>	Nm	1350												
Allowable Radial Force F <sub>2R</sub>	N	13000												
Allowable Axle Force F <sub>2A</sub>	N	11000												
Service Life	h	20000												
Efficient	%	≥92												
Applicable Ambient Temperature	°C	-20°C~+40°C												
Weight	kg	21.7												
Protection class		IP65												
Lubrication		Synthetic Lubricating Oil												
Noise	dB(A)	≤68												
Rotational inertia J <sub>1</sub>	≤19	kg.cm <sup>2</sup>	5.5	5.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
	≤24		6	6	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
	≤28		6.5	6.5	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
	≤35		13	13	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3

Motor shaft diameter (mm)



Max. 24(※2)  
Input shaft  
bore diameter



Max. 35(※2)  
Input shaft  
bore diameter

※1: Dimensions will vary with the motor size.  
 ※2: If the motor shaft diameter is small, a bushing may be used, which has a mini thickness of 1mm.  
 ※ Please notify if a keyway is needed for the gearbox input shaft bore.

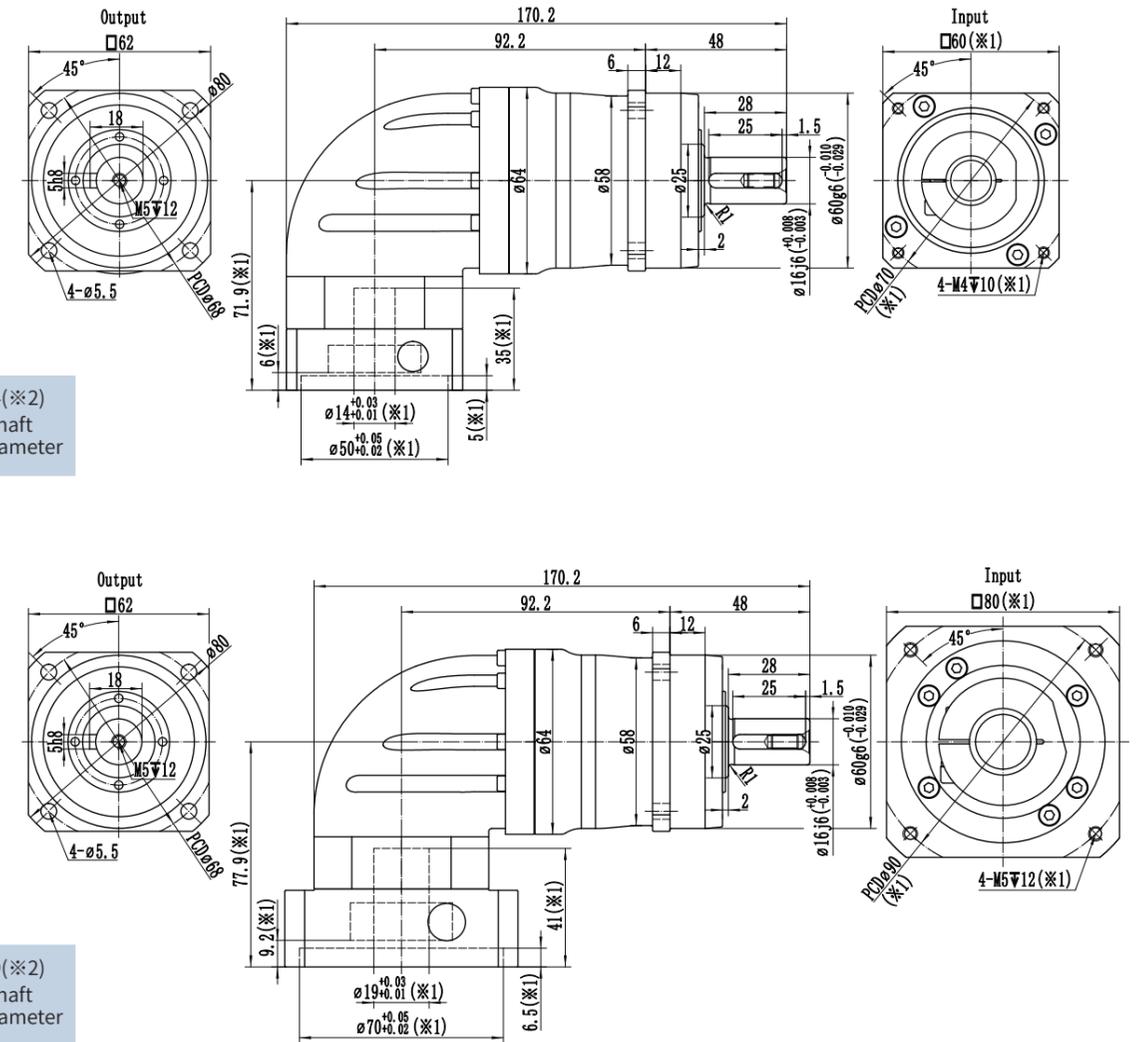


Specification	Unit	WSHR060-1-Stage											
		3	4	5	6	7	8	10	12	14	16	20	
Ratio		3	4	5	6	7	8	10	12	14	16	20	
Rated Output Torque T <sub>2N</sub>	Nm	50	55	60	55	50	55	60	55	50	40	35	
Emergency stop Torque T <sub>2NOT</sub>	Nm	3 times rated output torque(allow 1000 times)/3 Times T <sub>2N</sub>											
Rated Input Speed n <sub>1N</sub>	rpm	3300	3300	3300	3300	4000	4000	4000	4000	4000	4000	4000	
Max Input Speed n <sub>1B</sub>	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
No Load Running Torque (n <sub>1</sub> =3000rpm,20°C running)	Nm	0.7	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.35	0.35	
Max Backlash	arcmin	P1≤4 / P2≤6											
Torsional rigidity	Nm/arcmin	7											
Max Tilting Moment M <sub>2k</sub>	Nm	160											
Allowable Radial Force F <sub>2R</sub>	N	3000											
Allowable Axle Force F <sub>2A</sub>	N	2400											
Service Life	h	20000											
Efficient	%	≥95											
Applicable Ambient Temperature	°C	-20°C~+40°C											
Weight	kg	2.2											
Protection class		IP65											
Lubrication		Synthetic Lubricating Oil											
Noise	dB(A)	≤63											
Rotational inertia J <sub>1</sub>	≤14	kg.cm <sup>2</sup>	0.48	0.42	0.4	0.38	0.38	0.35	0.33	0.31	0.31	0.31	0.31
	≤19		0.81	0.75	0.7	0.65	0.65	0.68	0.63	0.58	0.58	0.58	0.58

Motor shaft diameter (mm)

Max. 14(※2)  
Input shaft  
bore diameter

Max. 19(※2)  
Input shaft  
bore diameter



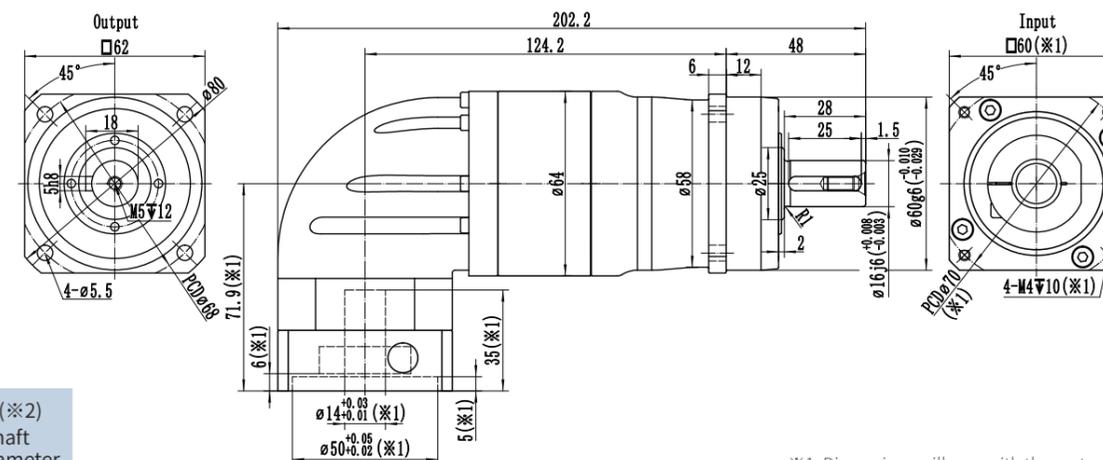
※1: Dimensions will vary with the motor size.

※2: If the motor shaft diameter is small, a bushing may be used, which has a mini thickness of 1mm.

※ Please notify if a keyway is needed for the gearbox input shaft bore.

Specification	Unit	WSHR060-2-Stage														
Ratio		15	25	30	35	40	50	60	70	80	100	120	140	160	200	
Rated Output Torque T <sub>2N</sub>	Nm	50	60	50	50	55	60	55	50	55	60	55	50	40	35	
Emergency stop Torque T <sub>2NOT</sub>	Nm	3 times rated output torque(allow 1000 times)/3 Times T <sub>2N</sub>														
Rated Input Speed n <sub>1N</sub>	rpm	3300	3300	3300	3300	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	
Max Input Speed n <sub>1B</sub>	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
No Load Running Torque (n <sub>1</sub> =3000rpm,20°C running)	Nm	0.5	0.5	0.45	0.5	0.4	0.4	0.4	0.4	0.35	0.35	0.35	0.35	0.3	0.3	
Max Backlash	arcmin	P1≤7 / P2≤9														
Torsional rigidity	Nm/arcmin	7														
Max Tilting Moment M <sub>2k</sub>	Nm	160														
Allowable Radial Force F <sub>2R</sub>	N	3000														
Allowable Axle Force F <sub>2A</sub>	N	2400														
Service Life	h	20000														
Efficient	%	≥92														
Applicable Ambient Temperature	°C	-20°C~+40°C														
Weight	kg	2.8														
Protection class		IP65														
Lubrication		Synthetic Lubricating Oil														
Noise	dB(A)	≤63														
Rotational inertia J1	≤8	kg.cm <sup>2</sup>	0.32	0.3	0.23	0.3	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
	≤14		0.42	0.37	0.3	0.37	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28

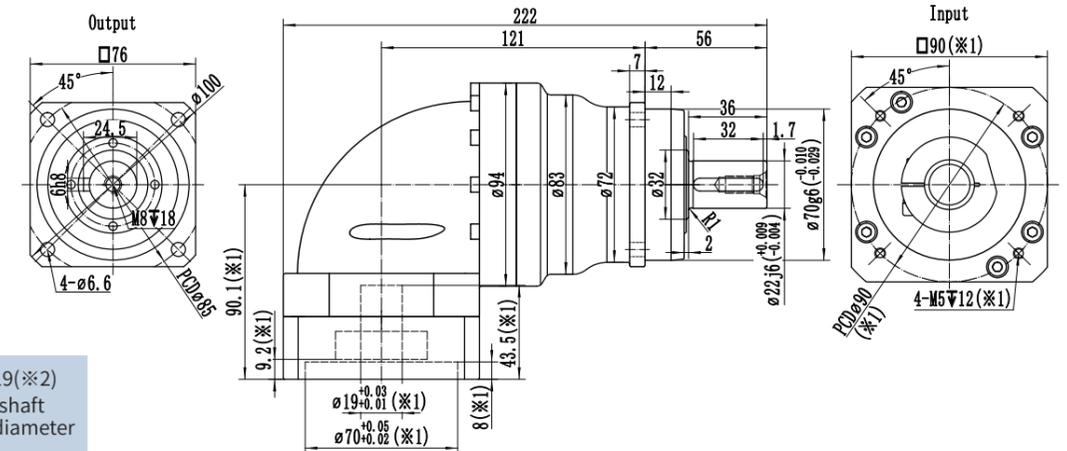
Motor shaft diameter (mm)



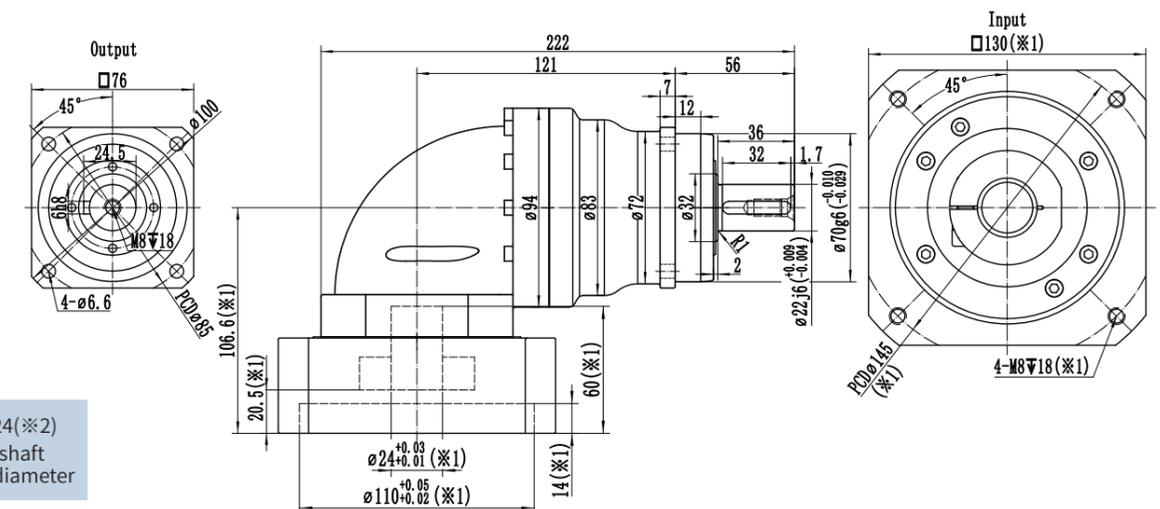
※1: Dimensions will vary with the motor size.  
 ※2: If the motor shaft diameter is small, a bushing may be used, which has a mini thickness of 1mm.  
 ※ Please notify if a keyway is needed for the gearbox input shaft bore.

Specification	Unit	WSHR075-1-Stage											
		3	4	5	6	7	8	10	12	14	16	20	
Ratio		3	4	5	6	7	8	10	12	14	16	20	
Rated Output Torque T <sub>2N</sub>	Nm	130	150	160	150	140	150	160	150	140	100	90	
Emergency stop Torque T <sub>2NOT</sub>	Nm	3 times rated output torque(allow 1000 times)/3 Times T <sub>2N</sub>											
Rated Input Speed n <sub>1N</sub>	rpm	3300	3300	3300	3300	4000	4000	4000	4000	4000	4000	4000	
Max Input Speed n <sub>1B</sub>	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
No Load Running Torque (n <sub>1</sub> =3000rpm,20°C running)	Nm	1.35	1.15	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.7	0.7	
Max Backlash	arcmin	P1≤4 / P2≤6											
Torsional rigidity	Nm/arcmin	14											
Max Tilting Moment M <sub>2k</sub>	Nm	270											
Allowable Radial Force F <sub>2R</sub>	N	4500											
Allowable Axle Force F <sub>2A</sub>	N	3350											
Service Life	h	20000											
Efficient	%	≥95											
Applicable Ambient Temperature	°C	-20°C~+40°C											
Weight	kg	6.7											
Protection class		IP65											
Lubrication		Synthetic Lubricating Oil											
Noise	dB(A)	≤65											
Rotational inertia J <sub>1</sub>	≤19	kg.cm <sup>2</sup>	2.7	2.5	2.4	2.3	2.3	2	1.9	1.8	1.8	1.8	1.8
	≤24		3.9	3.7	3.6	3.5	3.5	3.2	3.1	3	3	3	3

Motor shaft diameter (mm)



Max. 19(※2)  
Input shaft  
bore diameter



Max. 24(※2)  
Input shaft  
bore diameter

※1: Dimensions will vary with the motor size.

※2: If the motor shaft diameter is small, a bushing may be used, which has a mini thickness of 1mm.

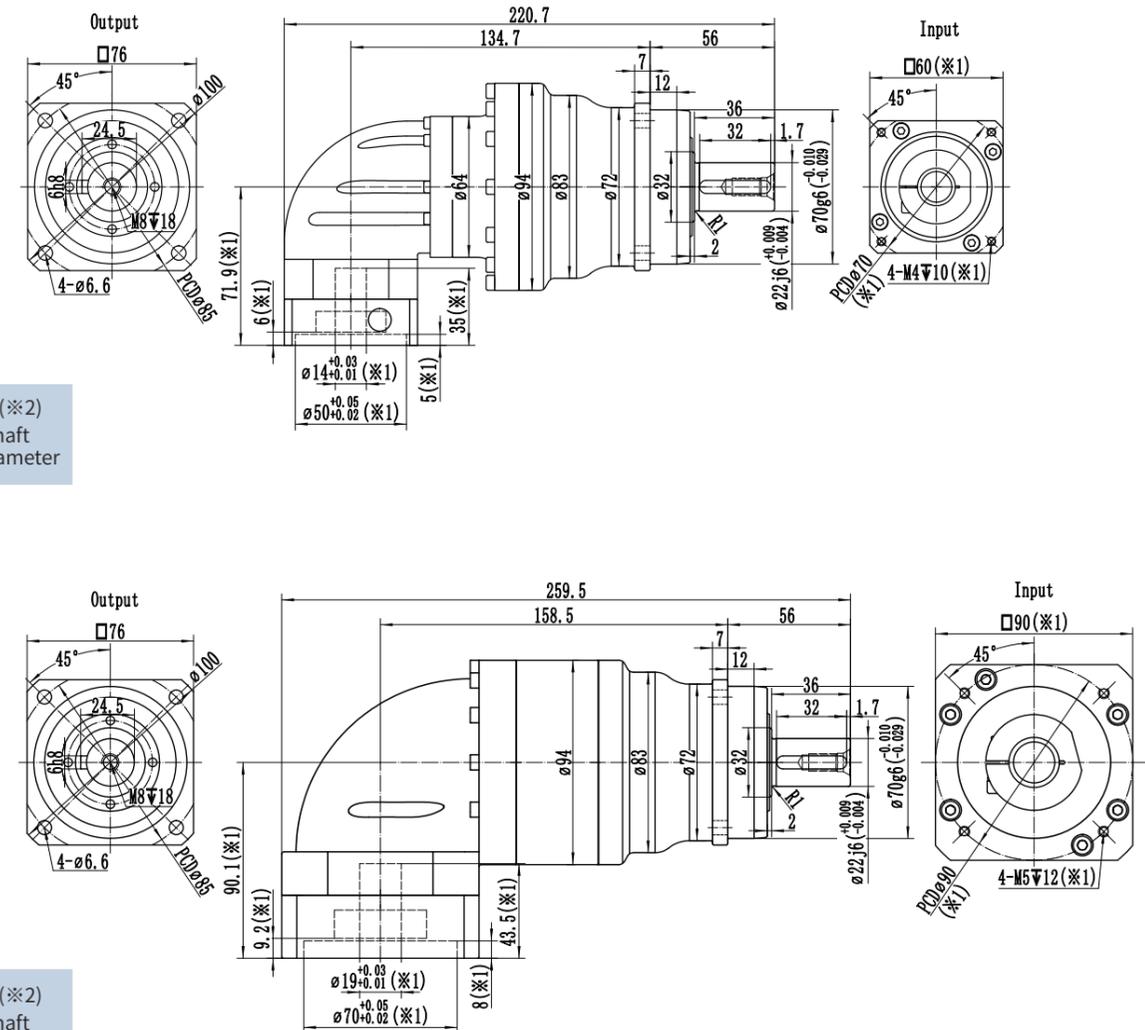
※ Please notify if a keyway is needed for the gearbox input shaft bore.

Specification	Unit	WSHR075-2-Stage													
Ratio		15	25	30	35	40	50	60	70	80	100	120	140	160	200
Rated Output Torque T <sub>2N</sub>	Nm	130	160	130	140	150	160	150	140	150	160	150	140	100	90
Emergency stop Torque T <sub>2NOT</sub>	Nm	3 times rated output torque(allow 1000 times)/3 Times T <sub>2N</sub>													
Rated Input Speed n <sub>1N</sub>	rpm	3300	3300	3300	3300	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000
Max Input Speed n <sub>1B</sub>	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
No Load Running Torque (n <sub>1</sub> =3000rpm,20°C running)	Nm	0.9	0.9	0.8	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.65	0.65
Max Backlash	arcmin	P1≤7 / P2≤9													
Torsional rigidity	Nm/arcmin	14													
Max Tilting Moment M <sub>2k</sub>	Nm	270													
Allowable Radial Force F <sub>2R</sub>	N	4500													
Allowable Axle Force F <sub>2A</sub>	N	3350													
Service Life	h	20000													
Efficient	%	≥92													
Applicable Ambient Temperature	°C	-20°C~+40°C													
Weight	kg	7.3													
Protection class		IP65													
Lubrication		Synthetic Lubricating Oil													
Noise	dB(A)	≤65													
Rotational inertia J1	≤14	kg.cm <sup>2</sup>	0.45	0.45	0.35	0.45	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
	≤19		2.4	2.3	1.8	2.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7

Motor shaft diameter (mm)

Max. 14(※2)  
Input shaft  
bore diameter

Max. 19(※2)  
Input shaft  
bore diameter



※1: Dimensions will vary with the motor size.  
 ※2: If the motor shaft diameter is small, a bushing may be used, which has a mini. thickness of 1mm.  
 ※ Please notify if a keyway is needed for the gearbox input shaft bore.





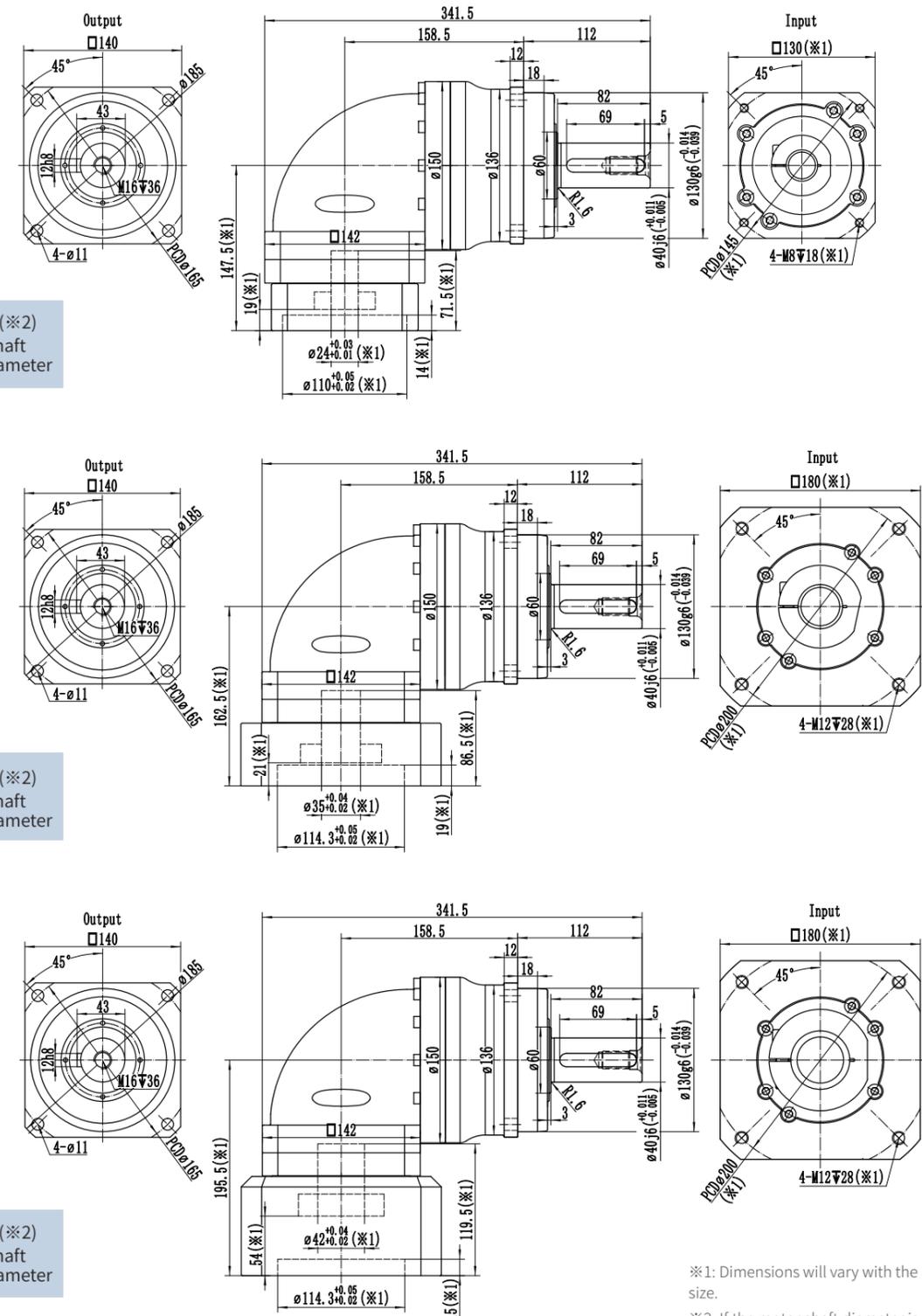
Specification	Unit	WSHR140-1-Stage											
Ratio		3	4	5	6	7	8	10	12	14	16	20	
Rated Output Torque T <sub>2N</sub>	Nm	400	650	650	600	550	650	650	600	550	450	400	
Emergency stop Torque T <sub>2NOT</sub>	Nm	3 times rated output torque(allow 1000 times)/3 Times T <sub>2N</sub>											
Rated Input Speed n <sub>1N</sub>	rpm	2300	2300	2300	2300	2300	2800	2800	2800	2800	2800	2800	
Max Input Speed n <sub>1B</sub>	rpm	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	
No Load Running Torque (n <sub>1</sub> =3000rpm,20°C running)	Nm	5.2	4.3	3.5	3.5	3.5	3	3	3	3	2.9	2.9	
Max Backlash	arcmin	P1≤4 / P2≤6											
Torsional rigidity	Nm/arcmin	60											
Max Tilting Moment M <sub>2k</sub>	Nm	1630											
Allowable Radial Force F <sub>2R</sub>	N	16000											
Allowable Axle Force F <sub>2A</sub>	N	12000											
Service Life	h	20000											
Efficient	%	≥95											
Applicable Ambient Temperature	°C	-20°C~+40°C											
Weight	kg	23.6											
Protection class		IP65											
Lubrication		Synthetic Lubricating Oil											
Noise	dB(A)	≤70											
Rotational inertia J <sub>1</sub>	≤24	kg.cm <sup>2</sup>	21.5	19	17.5	16.5	16.5	15.3	15	14.8	14.8	14.8	14.8
	≤28		22.5	20	18.5	17.5	17.5	16.3	16	15.8	15.8	15.8	15.8
	≤35		26.5	23.5	22	21	21	19.8	19.5	19.3	19.3	19.3	19.3
	≤42		38	36	35	34	34	32.8	32.5	32.3	32.3	32.3	32.3

Motor shaft diameter (mm)

Max. 24(※2)  
Input shaft  
bore diameter

Max. 35(※2)  
Input shaft  
bore diameter

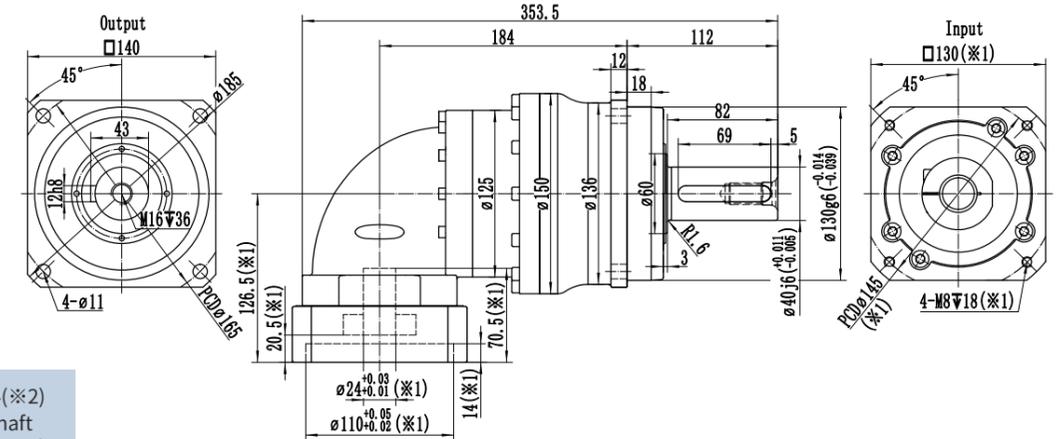
Max. 42(※2)  
Input shaft  
bore diameter



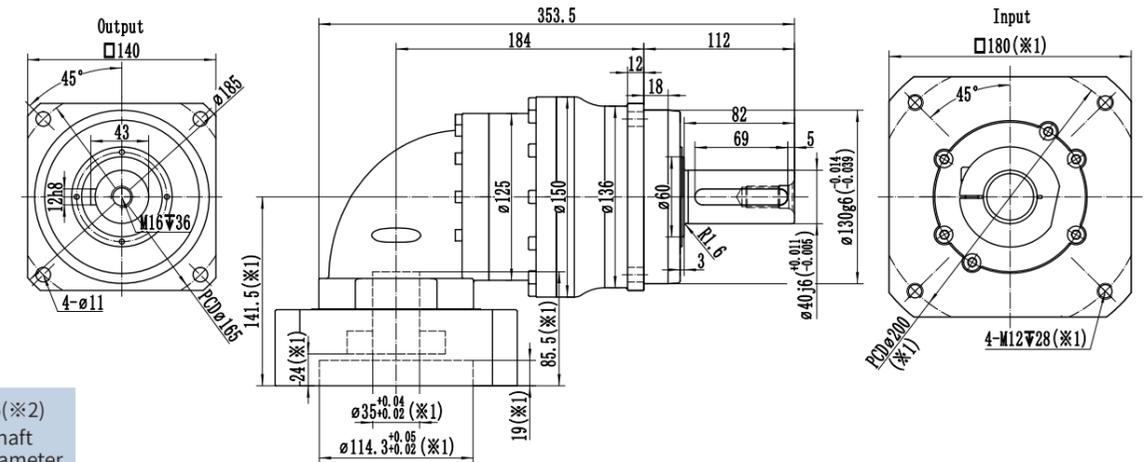
※1: Dimensions will vary with the motor size.  
 ※2: If the motor shaft diameter is small, a bushing may be used, which has a mini thickness of 1mm.  
 ※ Please notify if a keyway is needed for the gearbox input shaft bore.

Specification	Unit	WSHR140-2-Stage														
Ratio		15	25	30	35	40	50	60	70	80	100	120	140	160	200	
Rated Output Torque T <sub>2N</sub>	Nm	400	650	400	550	650	650	600	550	650	650	600	550	450	400	
Emergency stop Torque T <sub>2NOT</sub>	Nm	3 times rated output torque(allow 1000 times)/3 Times T <sub>2N</sub>														
Rated Input Speed n <sub>1N</sub>	rpm	2800	2800	2800	2800	3300	3300	3300	3300	3300	3300	3300	3300	3300	3300	
Max Input Speed n <sub>1B</sub>	rpm	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	
No Load Running Torque (n <sub>1</sub> =3000rpm,20°C running)	Nm	2	2	1.8	2	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.7	1.6	1.6	
Max Backlash	arcmin	P1≤7 / P2≤9														
Torsional rigidity	Nm/arcmin	60														
Max Tilting Moment M <sub>2k</sub>	Nm	1630														
Allowable Radial Force F <sub>2R</sub>	N	16000														
Allowable Axle Force F <sub>2A</sub>	N	12000														
Service Life	h	20000														
Efficient	%	≥92														
Applicable Ambient Temperature	°C	-20°C~+40°C														
Weight	kg	22.3														
Protection class		IP65														
Lubrication		Synthetic Lubricating Oil														
Noise	dB(A)	≤68														
Rotational inertia J <sub>1</sub>	≤19	kg.cm <sup>2</sup>	5.8	5.5	4.7	5.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
	≤24		6.3	6	5	6	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
	≤28		6.8	6.5	5.6	6.5	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
	≤35		13.3	13	11.5	13	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3

Motor shaft diameter (mm)



Max. 24(※2)  
Input shaft  
bore diameter

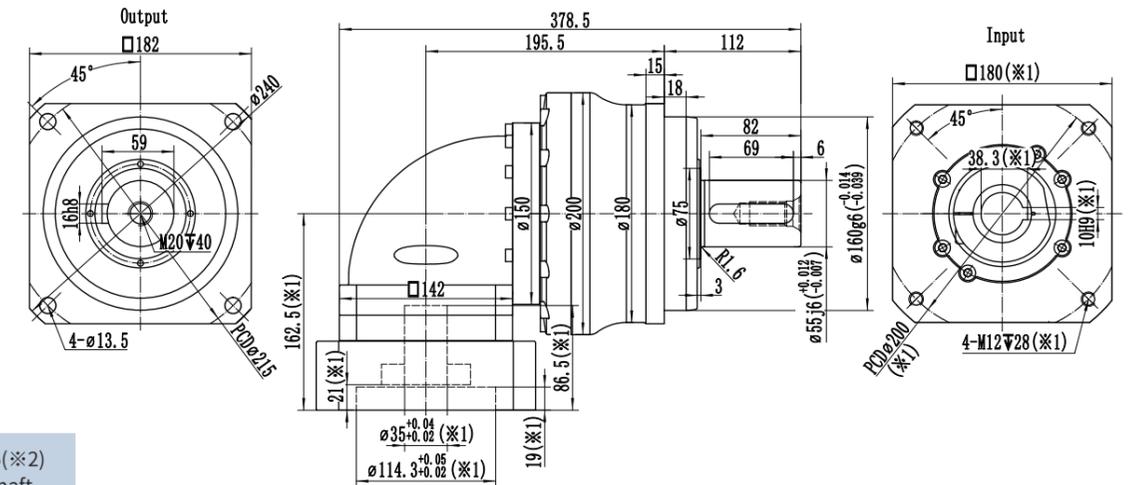


Max. 35(※2)  
Input shaft  
bore diameter

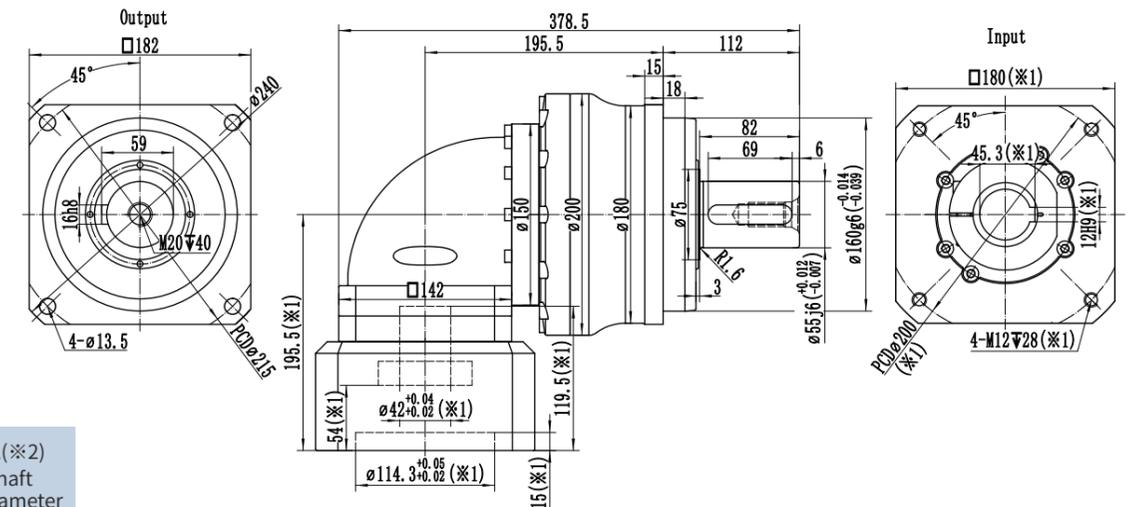
※1: Dimensions will vary with the motor size.  
 ※2: If the motor shaft diameter is small, a bushing may be used, which has a mini. thickness of 1mm.  
 ※ Please notify if a keyway is needed for the gearbox input shaft bore.

Specification	Unit	WSHR180-1-Stage										
		3	4	5	6	7	8	10	12	14	16	20
Ratio		3	4	5	6	7	8	10	12	14	16	20
Rated Output Torque T <sub>2N</sub>	Nm	1000	1400	1400	1100	1000	1400	1400	1100	1000	850	760
Emergency stop Torque T <sub>2NOT</sub>	Nm	3 times rated output torque(allow 1000 times)/3 Times T <sub>2N</sub>										
Rated Input Speed n <sub>1N</sub>	rpm	2000	2000	2000	2000	2000	2500	2500	2500	2500	2500	2500
Max Input Speed n <sub>1B</sub>	rpm	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500
No Load Running Torque (n <sub>1</sub> =3000rpm,20°C running)	Nm	8.6	7.1	5.7	5.7	4.6	4	4	4	4	3.9	3.9
Max Backlash	arcmin	P1≤4 / P2≤6										
Torsional rigidity	Nm/arcmin	175										
Max Tilting Moment M <sub>2k</sub>	Nm	3200										
Allowable Radial Force F <sub>2R</sub>	N	23000										
Allowable Axle Force F <sub>2A</sub>	N	19000										
Service Life	h	20000										
Efficient	%	≥95										
Applicable Ambient Temperature	°C	-20°C~+40°C										
Weight	kg	40.5										
Protection class		IP65										
Lubrication		Synthetic Lubricating Oil										
Noise	dB(A)	≤72										
Rotational inertia J <sub>1</sub>	≤28	-	-	-	-	-	-	-	-	-	-	-
	≤35	58	42	37	33	31	29	28.5	28.5	28.5	28.5	28.5
	≤42	69	53	48	44	42	40	39.5	39.5	39.5	39.5	39.5
	≤55	-	-	-	-	-	-	-	-	-	-	-

Motor shaft diameter (mm)



Max. 35(※2)  
Input shaft  
bore diameter



Max. 42(※2)  
Input shaft  
bore diameter

※1: Dimensions will vary with the motor size.

※2: If the motor shaft diameter is small, a bushing may be used, which has a mini. thickness of 1mm.

※ WSHR180 gearbox: Default keyway on input shaft. Please notify if not needed.

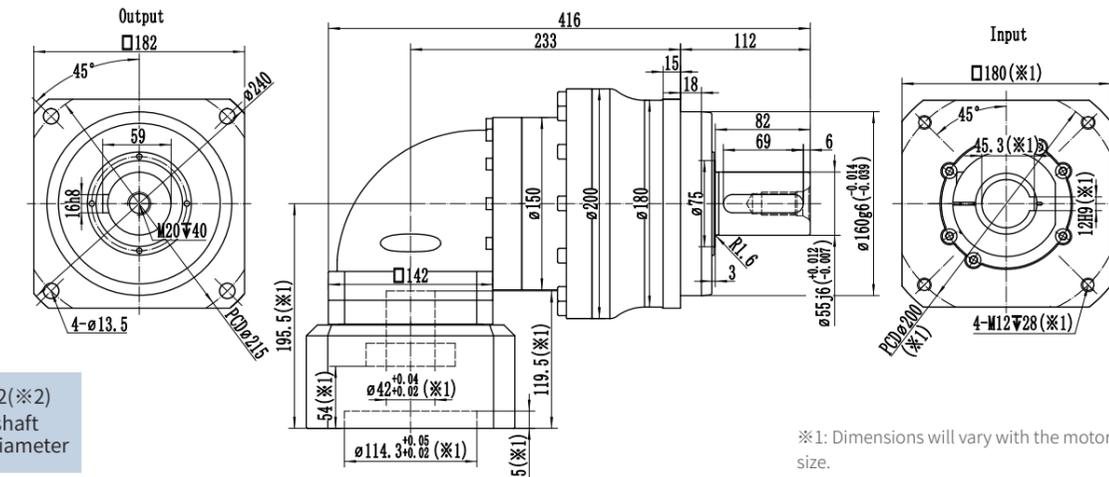
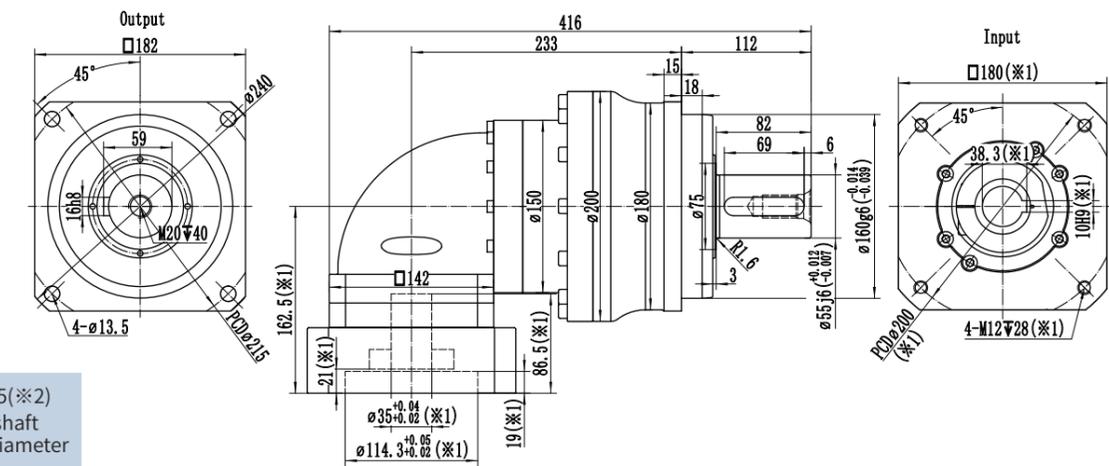
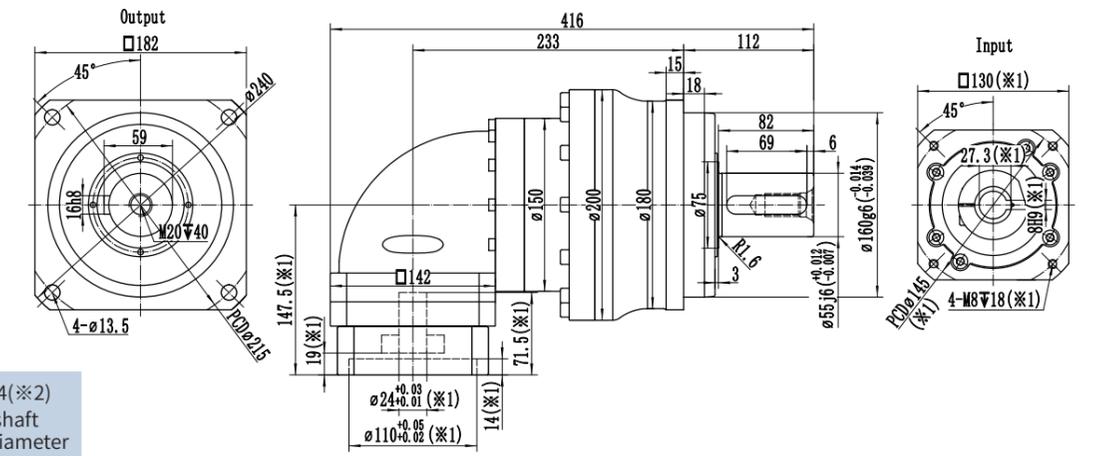
Specification	Unit	WSHR180-2-Stage													
Ratio		15	25	30	35	40	50	60	70	80	100	120	140	160	200
Rated Output Torque T <sub>2N</sub>	Nm	1000	1400	1000	1000	1400	1400	1100	1000	1400	1400	1100	1000	850	760
Emergency stop Torque T <sub>2NOT</sub>	Nm	3 times rated output torque(allow 1000 times)/3 Times T <sub>2N</sub>													
Rated Input Speed n <sub>1N</sub>	rpm	2300	2300	2800	2300	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800
Max Input Speed n <sub>1B</sub>	rpm	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500
No Load Running Torque (n <sub>1</sub> =3000rpm,20°C running)	Nm	3.7	3.7	3.3	3.7	3.3	3.3	3.3	3.3	3.1	3.1	3.1	3.1	3	3
Max Backlash	arcmin	P1≤7 / P2≤9													
Torsional rigidity	Nm/arcmin	175													
Max Tilting Moment M <sub>2k</sub>	Nm	3200													
Allowable Radial Force F <sub>2R</sub>	N	23000													
Allowable Axle Force F <sub>2A</sub>	N	19000													
Service Life	h	20000													
Efficient	%	≥92													
Applicable Ambient Temperature	°C	-20°C~+40°C													
Weight	kg	43.5													
Protection class		IP65													
Lubrication		Synthetic Lubricating Oil													
Noise	dB(A)	≤70													
Rotational inertia J <sub>1</sub>	≤24	17.5	16.8	15.3	16.8	15	15	15	15	15	15	15	15	15	15
	≤28	18.5	17.8	16.3	17.8	16	16	16	16	16	16	16	16	16	16
	≤35	22	21.3	19.8	21.3	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5
	≤42	35	34.3	32.8	34.3	32.5	32.5	32.5	32.5	32.5	32.5	32.5	32.5	32.5	32.5

Motor shaft diameter (mm)

Max. 24(※2)  
Input shaft  
bore diameter

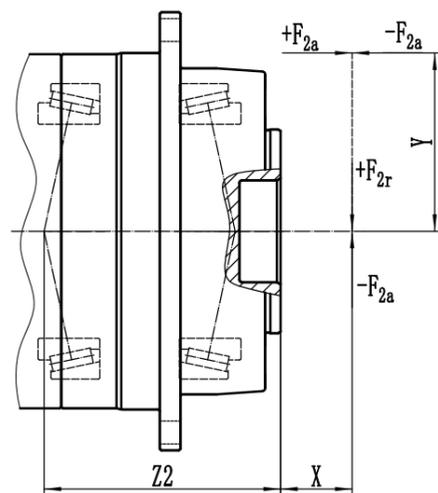
Max. 35(※2)  
Input shaft  
bore diameter

Max. 42(※2)  
Input shaft  
bore diameter

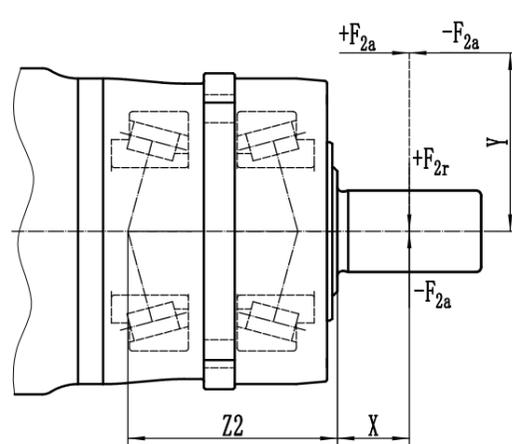


※1: Dimensions will vary with the motor size.  
 ※2: If the motor shaft diameter is small, a bushing may be used, which has a mini thickness of 1mm.  
 ※ WSHR180 gearbox: Default keyway on input shaft. Please notify if not needed.

## WTH Series Bearing Load Diagram



## WSH Series Bearing Load Diagram



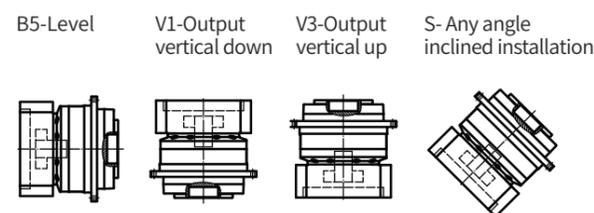
$$\text{Max Tilting Moment } M_{2K} = \frac{F_{2a} \cdot Y + F_{2r} \cdot (X + Z_2)}{1000}$$

$M_{2K} : (\text{Nm})$   
 $F_{2a}, F_{2r} : (\text{N})$   
 $X, Y, Z_2 : (\text{mm})$

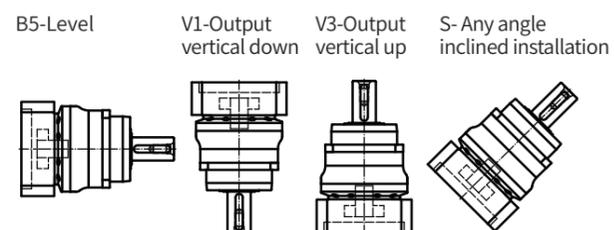
WSH & WSHR	60	75	100	140	180	210
Z2 (mm)	38.8	45.2	85.8	104.7	120.6	146.5
WTH & WTHR	64	90	110	140	200	
Z2 (mm)	46	63.3	69.4	86.2	129.9	

Note: Output speed 100rpm

## WTH Installation Location



## WSH Installation Location

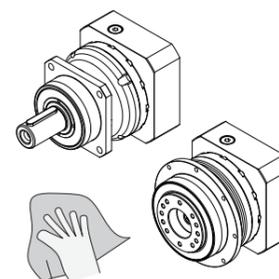


The installation position relates to the oil volume only, provided for reference only, not obligatory when ordering!

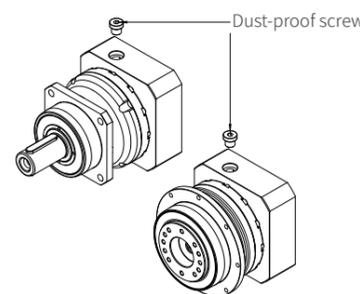
## Please comply with the following requirements when installation

The dimension of the adapter on the planetary gearbox differs depending on the servo motor, so please make sure to install the servo motor specified at the time of purchase. The output shaft of the servo motor may be coated with rust inhibitor, etc.

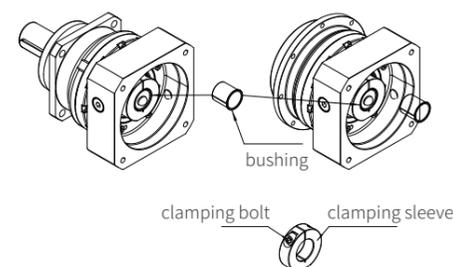
- 1 Wipe the rust inhibitor, oil, and other substances off the motor shaft mounting surface.



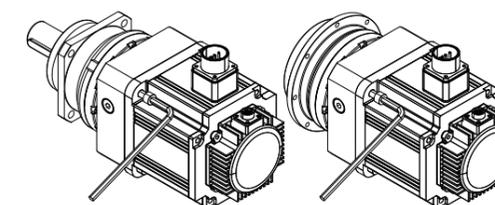
- 2 Remove the plug



- 3 Rotate the input shaft to align the head of the clamping bolt with the plug hole, and please confirm that the clamping bolt is in a relaxed state. Place the reducer vertically in a flat place, with the motor installation surface of the reducer facing upwards. (If there is a bushing, please install it according to the diagram)



- 4 Please slowly insert the motor shaft into the input shaft to avoid impact, and confirm that the motor flange surface is tightly attached to the reducer flange surface. Tighten the motor mounting bolts according to the specified tightening torque. (Refer to Table 3)



- 5 Use tools such as torque wrench to tighten the clamping bolt of the input shaft according to the specified tightening torque (Refer to Table 3)

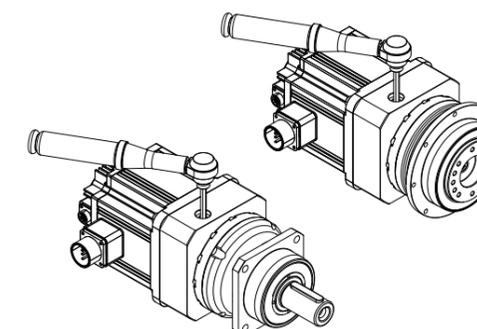
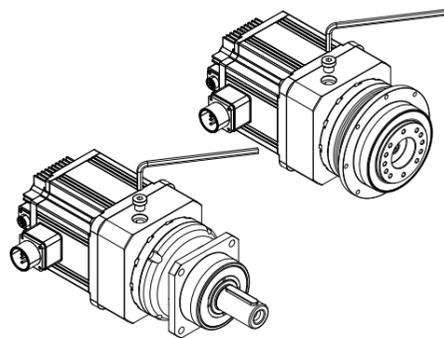


Table 3 Bolt tightening torque

Bolt size	M3	M4	M5	M6	M8	M10	M12	M16
Motor mounting bolts	N·m	1.0	2.5	5.1	8.7	21	42	134
	kgf·m	0.11	0.26	0.52	0.89	2.1	4.3	14
Clamping bolt	N·m	1.9	4.3	8.7	15	36	71	-
	kgf·m	0.18	0.44	0.89	1.5	3.7	7.2	-

## 6 Install the plug and complete the task



### Installation and Setup

- Avoid using in places that come into direct contact with rainwater. (If you need to use it outdoors or in places that come into contact with dust or water droplets, please consult with Wanshsin in advance.)
- Please set it in an environment of 0-40 °C.
- Please install it on a sturdy and vibration free surface, and firmly secure it with bolts, etc.
- During installation, it should be ensured that it is easy to maintain and inspect.

### Install to the output flange (flange type only)

- When installing device components, etc. onto the output flange, please use tools such as torque wrenches. Tighten according to the specified tightening torque.

Bolt size		M3	M4	M5	M6	M8	M10	M12	M16	M20
Clamping bolt	N·m	1.9	4.3	8.7	15	36	71	125	310	603
	kgf·m	0.18	0.44	0.89	1.5	3.7	7.2	13	32	62

※ Recommended bolt strength classification above grade 12.9

### Output shaft side connection

- When installing a gear, pulley, sprocket, etc. on the output flange type, please use a flanged installation design, embed it into the output flange's protruding part. Please be careful not to apply excessive thrust load during installation.
- When installing a coupling, sprocket, etc. on the output shaft type, please be careful not to apply excessive thrust load during installation. Do not forcefully strike the output shaft during embedding, otherwise it cause damage to the bearings and the interior of the gearbox.
- Pls. be noted that excessive clearance between shafts and keys in coupling and other parts can lead to sintering.
- Please accurately center when connecting.

### Precautions before starting the machine

- It can be used directly after arrival as lubricating oil has been added according to the specified amount.
- When running for the first time, please confirm the steering of the output shaft first, and then gradually increase the load.

### Precautions during operation

- Please be careful not to overload.
- The speed of the output shaft must not exceed the specified speed.
- When the following situations occur, please stop the machine for inspection.
  1. The temperature suddenly began to rise.
  2. Suddenly, there was a loud noise.
  3. The speed suddenly began to become unstable.
- The possible reasons are as follows, please handle them promptly.
  1. Is it in an overload state?
  2. Are there any damages to the bearings, gears, and transmission surfaces?
  3. Are there any abnormalities in the machine connection conditions?

### Lubricant

- The lubricating oil cannot be replaced

### Daily Inspection

- Is there any abnormal increase in the temperature of the gearbox casing during operation? (Maximum not greater than 90 °C)
- Are there any abnormal noises in bearings, gears, and other parts?
- Is there any abnormal vibration in the gearbox? (When such abnormalities occur, please stop the machine immediately and contact our company.)
- Is there any lubricating oil leakage?( When there is a grease leak, please contact with Wanshsin)

### Regular Inspection

- Is there an overload state and abnormal rotation?
- Is there any looseness in the installation bolts of the pulley, sprocket, and reducer?
- Inspection and maintenance of main components. (When abnormal phenomena occur, please stop the machine immediately, and contact with Wanshsin)