

WAE

 Series planetary gearbox

PRODUCT FEATURES

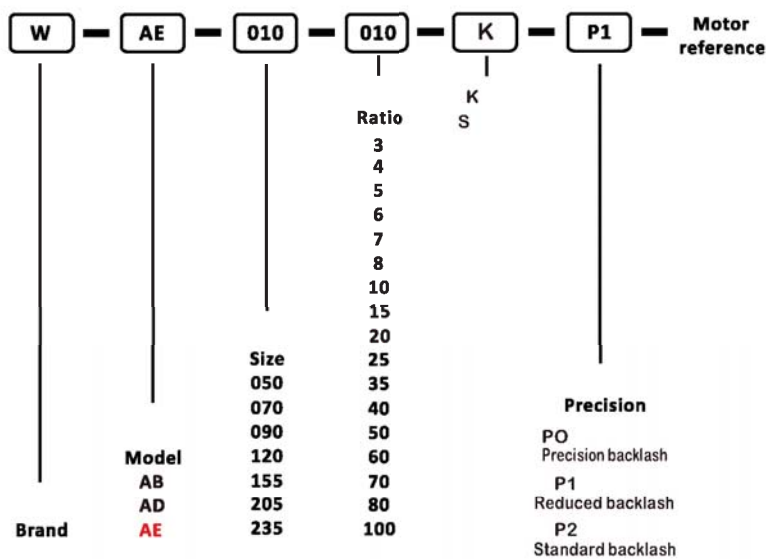
- » Planetary arm bracket and output shaft are one-piece constructed to ensure maximum torsional rigidity.
- » The gears adopt the full-needle design, in order to broaden the contact area and to increase the structure rigidity and the output torque.
- » The mild-steel gears' hardness of adopting surface hardening technology is HRC62, so that the abrasion resistance and impact toughness can achieve best.
- » Because adopting high technology to design the tooth profiles, the best gear tooth profiles are obtained and the noise is reduced.
- » In case to gain power transmission, the maximum clamping force and zero backlash (ultra-precision) are obtained by adopting double-locked method between the gearbox input side and the motor shaft.



INDICATION FOR MODEL

SELECTION

GENERAL NOTICES



- Type, model and torque
- Ratio or output speed
- Working conditions and connection methods
- Quantity and installed machine name
- Input mode and input speed
- Motor brand model or flange and motor shaft size

PLANETARY GEARBOX

● Performance

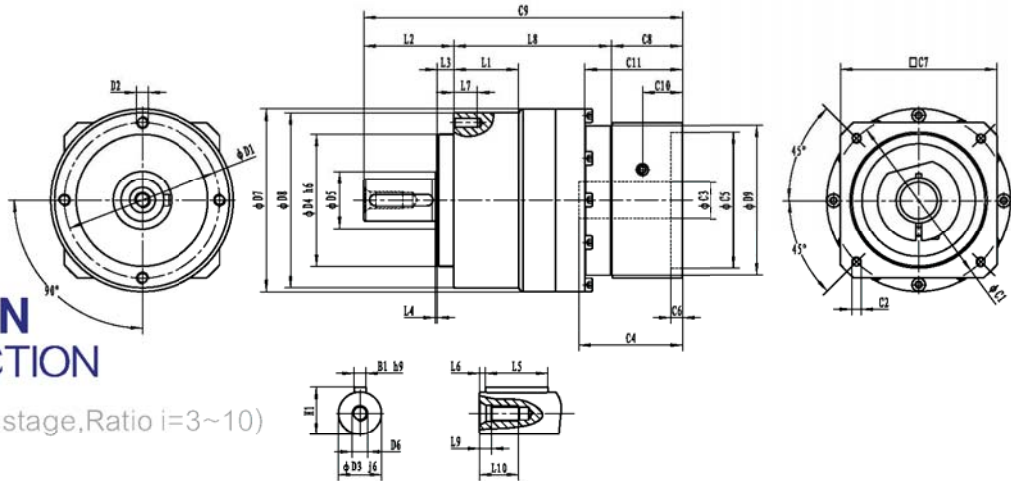
Specification		Stage	Ratio	WAE050	WAE070	WAE090	WAE120	WAE155	WAE205	WAE235				
Rated output torque T_{2N}	Nm	1	3	20	55	130	208	342	588	1140				
			4	19	50	140	290	542	1050	1700				
			5	22	60	160	330	650	1200	2000				
			6	20	55	150	310	600	1100	1900				
		2	7	19	50	140	300	550	1100	1800				
			8	17	45	120	260	500	1000	1600				
			10	14	40	100	230	450	900	1500				
			15	20	55	130	208	342	588	1140				
	20		19	50	140	290	542	1050	1700					
	25		22	60	160	330	650	1200	2000					
	30		20	55	150	310	600	1100	1900					
	35		19	50	140	300	550	1100	1800					
	Emergency stop torque T_{2NOT}	Nm	1,2	3~100	Triple rated output torque									
				Rated input speed n_{1N}	rpm	1,2	3~100	5000	5000	4000	4000	3000	3000	2000
				Maximum input speed n_{1B}		1,2	3~100	10000	10000	8000	8000	6000	6000	4000
				Precision backlash P_0	arcmin	1	3~10	-	≤2	≤2	≤2	≤2	≤2	≤2
-						-	-	-	-	-	-	-	-	
Reduced backlash P_1	arcmin	1	3~10	-	≤3	≤3	≤3	≤3	≤3	≤3				
		2	15~100	-	≤5	≤5	≤5	≤5	≤5	≤5				
Standard backlash P_2	arcmin	1	3~10	≤5	≤5	≤5	≤5	≤5	≤5	≤5				
		2	15~100	≤8	≤8	≤8	≤8	≤8	≤8	≤8				
Torsional rigidity		1,2	3~100	3	7	14	25	50	145	225				
Allowable radial force F_{2aB}	N	1,2	3~100	780	1530	3250	6700	9400	14500	50000				
Allowable axial force F_{2aB}	N	1,2	3~100	390	765	1625	3350	4700	7250	25000				
Lifespan	hr	1,2	3~100	20000										
Efficiency	%	1	3~10	≥97%										
		2	15~100	≥94%										
Weight	kg	1	3~10	0.6	1.4	3.7	8	16	36	53				
		2	15~100	0.7	1.6	4.2	8.9	17	37	54				
Working temperature	°C	1,2	3~100	-10°C ~ 90°C										
Lubricating		1,2	Synthetic lubricating grease											
IP Grade		1,2	3~100	IP65										
Installation direction		1,2	3~100	In any direction										
Noise value ($n_1=3000\text{rpm, off load}$)	dB(A)	1,2	3~100	≤56	≤58	≤60	≤63	≤65	≤67	≤70				

ROTATIONAL INERTIA OF REDUCER

Specification	Unit	Stage	Ratio	WAE050	WAE070	WAE090	WAE120	WAE155	WAE205	WAE235
Rotational inertia J1	kg · cm ²	1	3	0.03	0.16	0.61	3.25	9.21	28.98	69.61
			4	0.03	0.14	0.48	2.74	7.54	23.67	54.37
			5	0.03	0.13	0.47	2.71	7.42	23.29	53.27
			6	0.03	0.13	0.45	2.65	7.25	22.75	51.72
			7	0.03	0.13	0.45	2.62	7.14	22.48	50.97
			8	0.03	0.13	0.44	2.58	7.07	22.59	50.84
		2	10	0.03	0.13	0.44	2.57	7.03	22.51	50.56
			15	0.03	0.03	0.13	0.47	2.71	7.42	23.29
			20	0.03	0.03	0.13	0.47	2.71	7.42	23.29
			25	0.03	0.03	0.13	0.47	2.71	7.42	23.29
			30	0.03	0.03	0.13	0.47	2.71	7.42	23.29
			35	0.03	0.03	0.13	0.47	2.71	7.42	23.29
			40	0.03	0.03	0.13	0.47	2.71	7.42	23.29
			50	0.03	0.03	0.13	0.44	2.57	7.03	22.51
			60	0.03	0.03	0.13	0.44	2.57	7.03	22.51
			70	0.03	0.03	0.13	0.44	2.57	7.03	22.51
			80	0.03	0.03	0.13	0.44	2.57	7.03	22.51
			100	0.03	0.03	0.13	0.44	2.57	7.03	22.51

1. Ratio ($i=N_{in}/N_{out}$)2. Maximum acceleration torque T_{2B} =60% of T_{2NT}

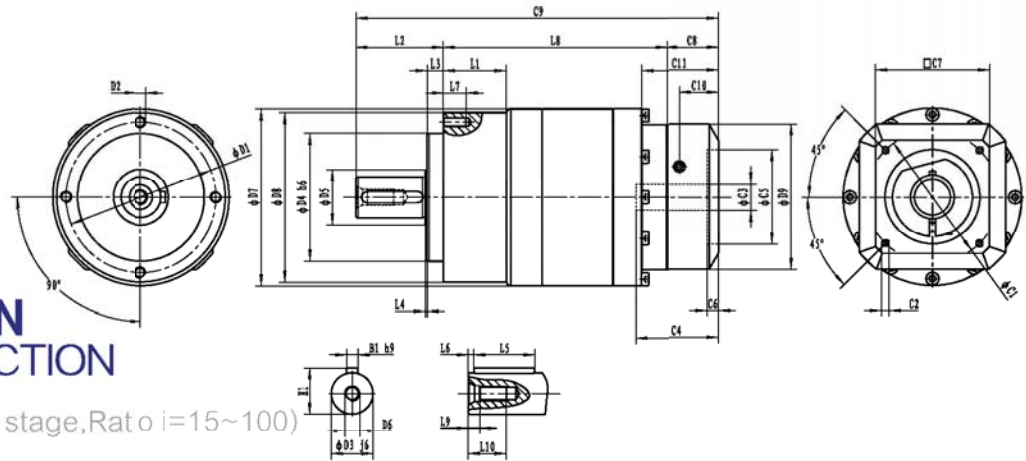
3. Output speed 100rpm, acting on the center of the output shaft



DIMENSION SINGLE SECTION

● Dimension(single stage,Ratio i=3~10)

Dimension	WAE050	WAE070	WAE090	WAE120	WAE155	WAE205	WAE235
D1	44	62	80	108	140	184	210
D2	M4*0.7P	M5*0.8P	M6*1.0P	M8*1.25P	M10*1.5P	M12*1.75P	M16*2.0P
D3 j6	12	16	22	32	40	55	75
D4 g6	35	52	68	90	120	160	180
D5	14.5	18	30	40	50	70	85
D6	M4*0.7P	M5*0.8P	M8*1.25P	M12*1.75P	M16*2.0P	M20*2.5P	M20*2.5P
D7	53	64	94	125	150	200	225
D8	50	70	90	120	155	205	235
D9	40	51	77	98	125	160	190
L1	13.5	20.5	33.5	38	50	52	63
L2	24.5	36	46	70	97	100	126
L3	4	6.5	8	17	15	15	18
L4	1	1	1	1.5	3	3	3
L5	14	25	32	40	63	70	90
L6	2	2	3	5	5	6	7
L7	8	10	12	16	20	22	28
L8	46	63.5	80.5	97	124.5	136.5	164.5
L9	2.1	4.8	7.2	10	12	15	15
L10	10	12.5	19	28	36	42	42
C1	46	70	90	145	200	200	235
C2	M4*0.7P	M4*0.7P	M5*0.8P	M8*1.25P	M12*1.75P	M12*1.75P	M12*1.75P
C3	≤5/≤8	≤14/≤16	≤19/≤24	≤28	≤35/≤42	≤42	≤42/≤55
C4	26	35	46.5	67	81	114	117
C5	30	50	70	110	114.3	114.3	200
C6	3.5	3.5	6	14	19	24	20
C7	48	60	80	130	180	180	220
C8	16	46	30	45.5	57.5	81.5	87.5
C9	86	122.5	156.5	212.5	279	318	377
C10	10.7	10.5	14.5	25.5	32	43.5	49.5
C11	25.5	36.5	43.5	65.5	83	111	116.5
B1 h9	4	5	6	10	12	16	20
H1	13.5	18	24.5	35	43	59	79.5



DIMENSION DOUBLE SECTION

- Dimension(double stage,Rat o i=15~100)

Dimension	WAE050	WAE070	WAE090	WAE120	WAE155	WAE205	WAE235
D1	44	62	80	108	140	184	210
D2	M4*0.7P	M5*0.8P	M6*1.0P	M8*1.25P	M10*1.5P	M12*1.75P	M16*2.0P
D3 j6	12	16	22	32	40	55	75
D4 g6	35	52	68	90	120	160	180
D5	14.5	18	30	40	50	70	85
D6	M4*0.7P	M5*0.8P	M8*1.25P	M12*1.75P	M16*2.0P	M20*2.5P	M20*2.5P
D7	53	64	94	125	150	200	225
D8	50	70	90	120	155	205	235
D9	40	51	77	98	125	160	190
L1	13.5	20.5	33.5	38	50	52	63
L2	24.5	36	46	70	97	100	126
L3	4	6.5	8	17	15	15	18
L4	1	1	1	1.5	3	3	3
L5	14	25	32	40	63	70	90
L6	2	2	3	5	5	6	7
L7	8	10	12	16	20	22	28
L8	67	95.5	118	142	185.5	205	240.5
L9	2.1	4.8	7.2	10	12	15	15
L10	10	12.5	19	28	36	42	42
C1	46	70	90	145	145	200	200
C2	M4*0.7P	M4*0.7P	M5*0.8P	M8*1.25P	M8*1.25P	M12*1.75P	M12*1.75P
C3	≤5/≤8	≤14/≤16	≤16/≤19	≤19/≤24	≤24/≤28	≤35	≤42
C4	26	35	46.5	67	66	80	114
C5	30	50	70	110	110	114.3	114.3
C6	3.5	3.5	6	14	10	9	24
C7	48	60	80	130	130	180	180
C8	16	48	30	45.5	42.5	47.5	81.5
C9	107	154.5	194	257.5	325	352.5	441.5
C10	10.7	10.5	14.5	25.5	27	22.5	43.5
C11	25.5	36.5	41.5	65.5	68	77	111
B1 h9	4	5	6	10	12	16	20
H1	13.5	18	24.5	35	43	59	79.5