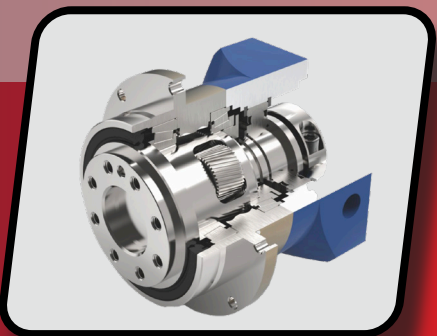
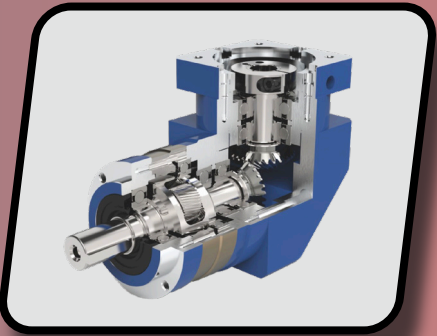
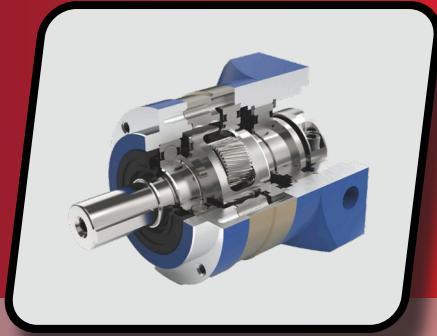


REDUCER HL SERIES



INGENUITY CASTING PRECISION
HELICAL PRODUCTS

V1.2.4

CONTENTS



HL



HLE



HL-Z



HGH



HGH-Z



Low noise

Below 65db.



High input speed

Up to 5000 RPM



Low Backlash

One stage within 3 arcmin,
Two stage with 5 arcmin



High torque

Higher than conventional planetary gearbox



High efficiency

One stage is exceed 97%,
Two stage is exceed 95%



High stability

Using high-strength steel alloy metal
Not just hardening on gear surface, but
hardening entire gear to insure the gear
life time and maintain high accuracy.

PRODUCT APPLICATION

Aerospace, military industries, medical health care, electronic information technology industry, industrial robot, production automation, CNC machine tool manufacturing industry, motor, textile, food, metallurgical, environmental protection engineering, warehouse and logistics industry.

TECHNICAL DATA

Motor type	Stage	Ratio	Torque		Speed		Max force		Backlash	Efficiency	Weight
			Nominal	Max	Nominal	Max	Radial	Axial			
			Nm		RPM		N		Arcmin	%	Kg
HLO70	1	3	35	70	3000	6000	920	630	3	97	1,1
		4	45	90	3000	6000	920	630	3	97	1,1
		5	44	88	3000	6000	920	630	3	97	1,1
		7	40	80	3000	6000	920	630	3	97	1,1
		10	22	44	3000	6000	920	630	3	97	1,1
	2	15	35	70	3000	6000	920	630	5	97	1,6
		16	45	90	3000	6000	920	630	5	97	1,6
		20	45	90	3000	6000	920	630	5	97	1,6
		25	44	88	3000	6000	920	630	5	97	1,6
		28	45	90	3000	6000	920	630	5	97	1,6
		30	35	70	3000	6000	920	630	5	97	1,6
		35	44	88	3000	6000	920	630	5	97	1,6
		40	45	90	3000	6000	920	630	5	97	1,6
		50	44	88	3000	6000	920	630	5	97	1,6
70	40	80	3000	6000	920	630	5	97	1,6		
100	22	44	3000	6000	920	630	5	97	1,6		
HLO90	1	3	100	200	3000	6000	1400	600	3	97	3
		4	110	220	3000	6000	1400	600	3	97	3
		5	105	210	3000	6000	1400	600	3	97	3
		7	100	200	3000	6000	1400	600	3	97	3
		10	50	100	3000	6000	1400	600	3	97	3
	2	15	100	200	3000	6000	1400	600	5	97	4,3
		16	110	220	3000	6000	1400	600	5	97	4,3
		20	110	220	3000	6000	1400	600	5	97	4,3
		25	105	210	3000	6000	1400	600	5	97	4,3
		28	110	220	3000	6000	1400	600	5	97	4,3
		30	100	200	3000	6000	1400	600	5	97	4,3
		35	105	210	3000	6000	1400	600	5	97	4,3
		40	110	220	3000	6000	1400	600	5	97	4,3
		50	105	210	3000	6000	1400	600	5	97	4,3
70	100	200	3000	6000	1400	600	5	97	4,3		
100	50	100	3000	6000	1400	600	5	97	4,3		
HL120	1	3	230	460	3000	6000	3000	2500	3	97	6,8
		4	270	540	3000	6000	3000	2500	3	97	6,8
		5	255	510	3000	6000	3000	2500	3	97	6,8
		7	180	360	3000	6000	3000	2500	3	97	6,8
		10	120	240	3000	6000	3000	2500	3	97	6,8
	2	15	230	460	3000	6000	3000	2500	5	97	10
		16	270	540	3000	6000	3000	2500	5	97	10
		20	270	540	3000	6000	3000	2500	5	97	10
		25	255	510	3000	6000	3000	2500	5	97	10
		28	270	540	3000	6000	3000	2500	5	97	10
		30	230	460	3000	6000	3000	2500	5	97	10
		35	255	510	3000	6000	3000	2500	5	97	10
		40	270	540	3000	6000	3000	2500	5	97	10
		50	255	510	3000	6000	3000	2500	5	97	10
70	180	360	3000	6000	3000	2500	5	97	10		
100	120	240	3000	6000	3000	2500	5	97	10		
HL155	1	3	450	900	2000	4000	5800	4500	3	95	17
		4	580	1160	2000	4000	5800	4500	3	95	17
		5	540	1080	2000	4000	5800	4500	3	95	17
		7	390	780	2000	4000	5800	4500	3	95	17
		10	230	460	2000	4000	5800	4500	3	95	17
	2	15	450	900	2000	4000	5800	4500	5	95	24
		16	580	1160	2000	4000	5800	4500	5	95	24
		20	580	1160	2000	4000	5800	4500	5	95	24
		25	540	1080	2000	4000	5800	4500	5	95	24
		28	580	1160	2000	4000	5800	4500	5	95	24
		30	450	900	2000	4000	5800	4500	5	95	24
		35	540	1080	2000	4000	5800	4500	5	95	24
		40	580	1160	2000	4000	5800	4500	5	95	24
		50	540	1080	2000	4000	5800	4500	5	95	24
70	390	780	2000	4000	5800	4500	5	95	24		
100	230	460	2000	4000	5800	4500	5	95	24		

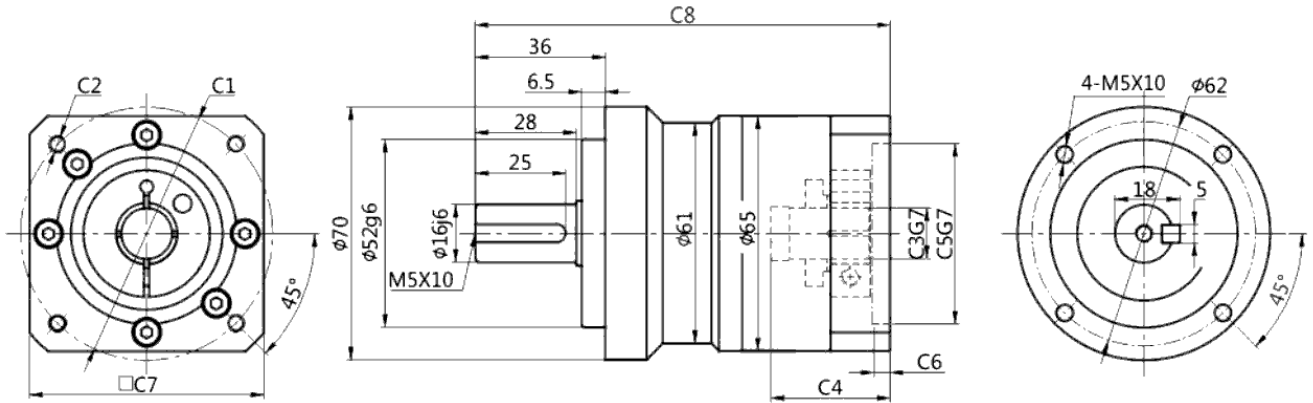
TECHNICAL DATA

Motor type	Stage	Ratio	Torque		Speed		Max force		Backlash	Efficiency	Weight
			Nominal	Max	Nominal	Max	Radial	Axial			
			Nm		RPM		N		Arcmin	%	Kg
HL205	1	3	1000	2000	1500	3000	9500	6800	3	95	31,5
		4	1300	2600	1500	3000	9500	6800	3	95	31,5
		5	1100	2200	1500	3000	9500	6800	3	95	31,5
		7	800	1600	1500	3000	9500	6800	3	95	31,5
		10	460	920	1500	3000	9500	6800	3	95	31,5
	2	15	1000	2000	1500	3000	9500	6800	5	95	37,5
		16	1300	2600	1500	3000	9500	6800	5	95	37,5
		20	1300	2600	1500	3000	9500	6800	5	95	37,5
		25	1100	2200	1500	3000	9500	6800	5	95	37,5
		28	1300	2600	1500	3000	9500	6800	5	95	37,5
		30	1000	2000	1500	3000	9500	6800	5	95	37,5
		35	1100	2200	1500	3000	9500	6800	5	95	37,5
		40	1300	2600	1500	3000	9500	6800	5	95	37,5
		50	1100	2200	1500	3000	9500	6800	5	95	37,5
		70	800	1600	1500	3000	9500	6800	5	95	37,5
100	460	920	1500	3000	9500	6800	5	95	37,5		

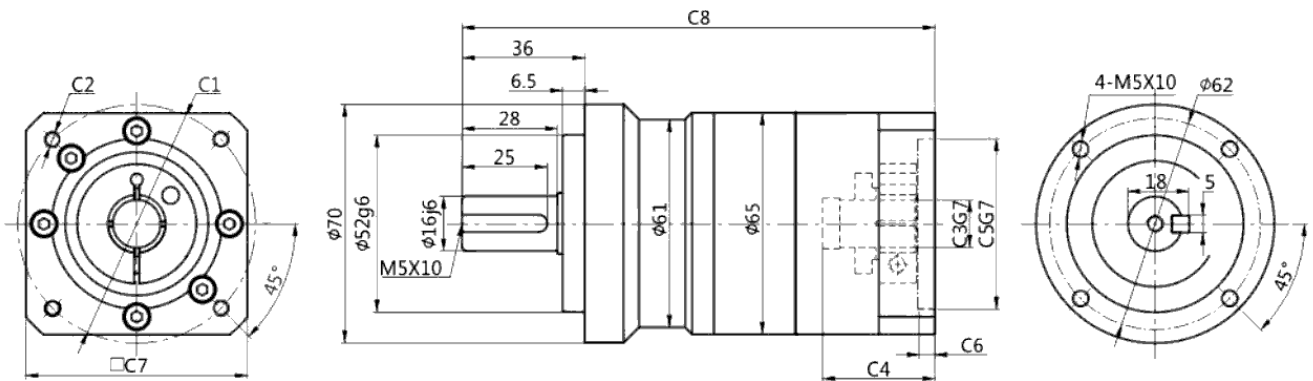
DRAWINGS



HL070-L1



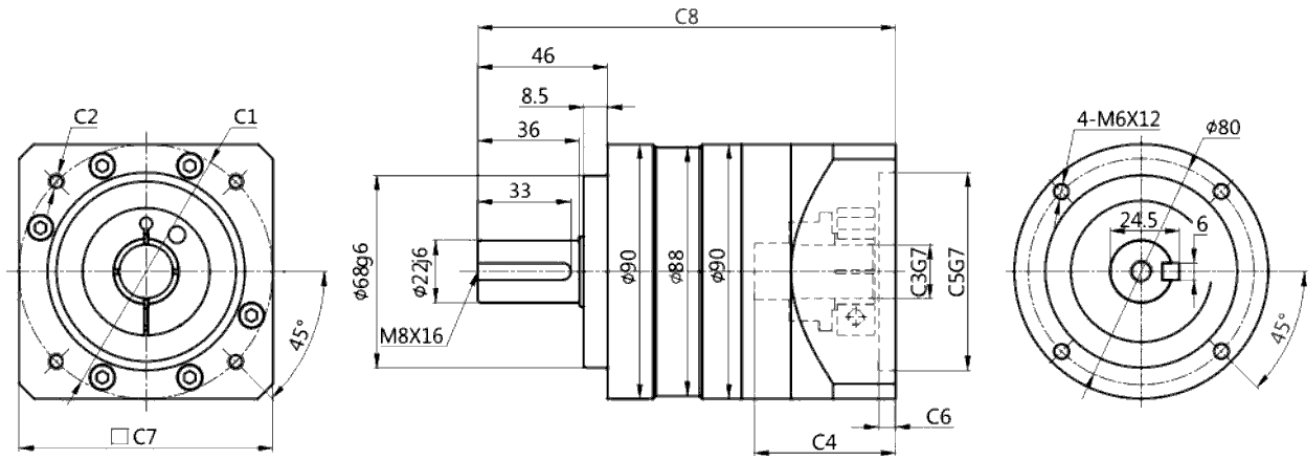
HL070-L2



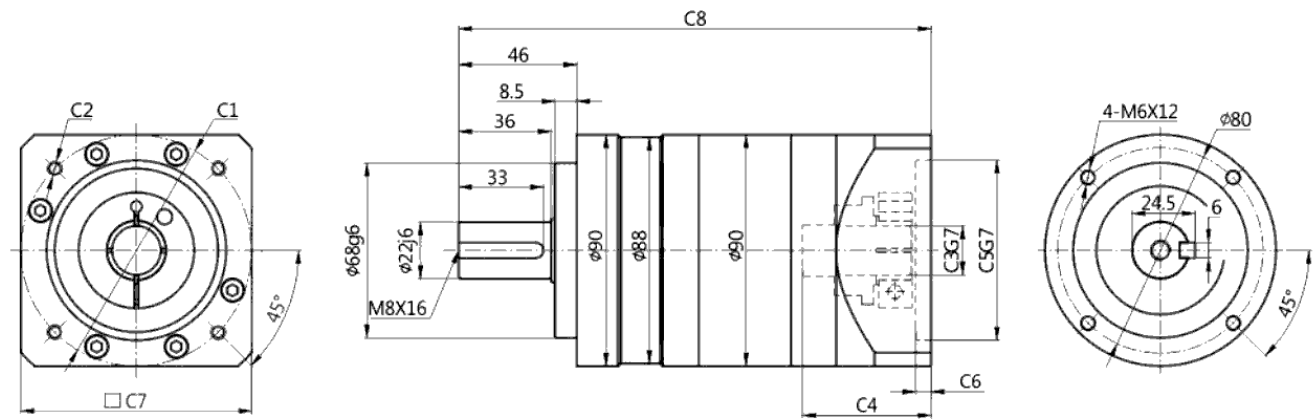
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HL070-L1 (Single)	∅47,14	4-M4	∅8	30	∅38,1	5	65	112
	∅46	4-M4	∅8	30	∅30	5	65	112
	∅45	4-M3	∅8	30	∅30	5	65	112
	∅70	4-M4/4-M5	∅14	33	∅50	5	65	115
HL070-L2 (Double)	∅47,14	4-M4	∅8	30	∅38,1	5	65	136
	∅46	4-M4	∅8	30	∅30	5	65	136
	∅45	4-M3	∅8	30	∅30	5	65	136
	∅70	4-M4/4-M5	∅14	33	∅50	5	65	139

DRAWINGS

HL090-L1



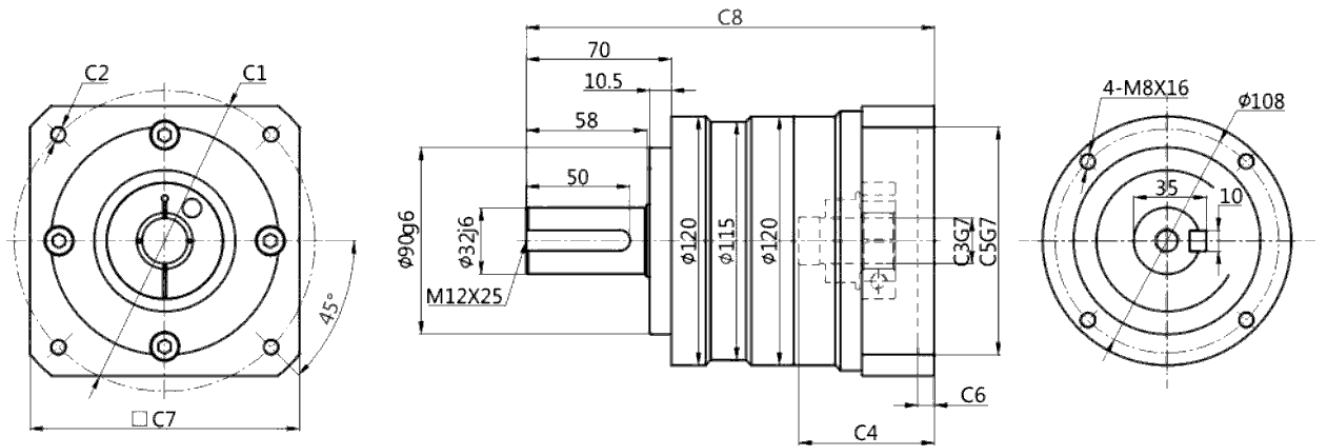
HL090-L2



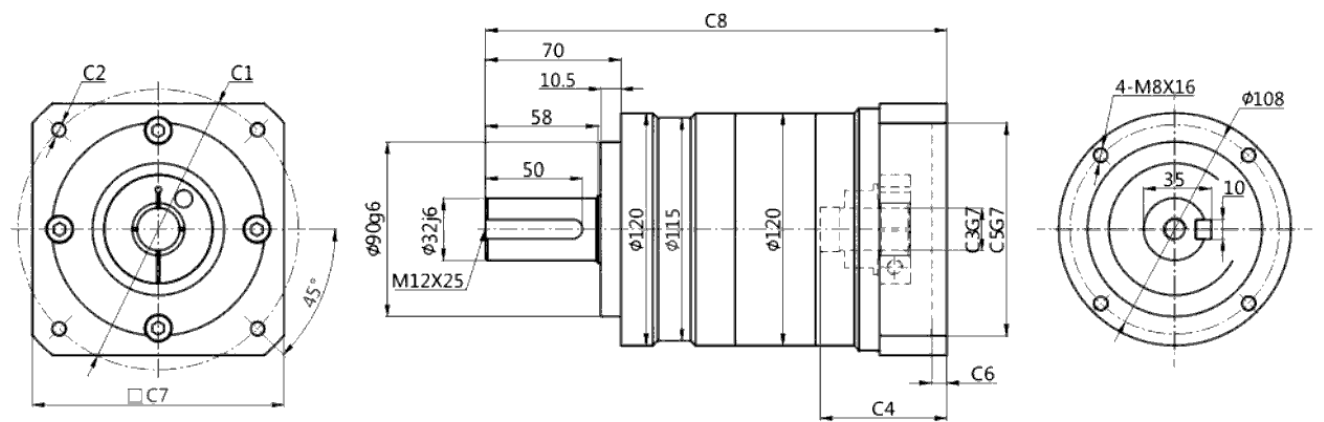
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HL090-L1 (Single)	$\phi 98,4$	4-M6/4-M5	$\phi 14/\phi 19$	50	$\phi 73$	6	90	148
	$\phi 90$	4-M5/4-M6	$\phi 19$	50	$\phi 70$	6	90	148
	$\phi 115$	4-M8	$\phi 19/\phi 22$	62	$\phi 95$	8	110	160
	$\phi 130$	4-M8	$\phi 19/\phi 22$	62	$\phi 95$	8	110	160
	$\phi 145$	4-M8	$\phi 19/\phi 22/\phi 24$	65,5	$\phi 110$	14	130	163,5
HL090-L2 (Double)	$\phi 70$	4-M4/4-M5	$\phi 14$	38,5	$\phi 50$	5	65	175
	$\phi 98,4$	4-M6/4-M5	$\phi 14/\phi 19$	50	$\phi 73$	6	90	184
	$\phi 90$	4-M5/4-M6	$\phi 19$	50	$\phi 70$	6	90	184
	$\phi 115$	4-M8	$\phi 19/\phi 22$	62	$\phi 95$	8	110	196
	$\phi 130$	4-M8	$\phi 19/\phi 22$	62	$\phi 95$	8	110	196
	$\phi 145$	4-M8	$\phi 19/\phi 22$	65,5	$\phi 110$	14	130	199,5

DRAWINGS

HL120-L1



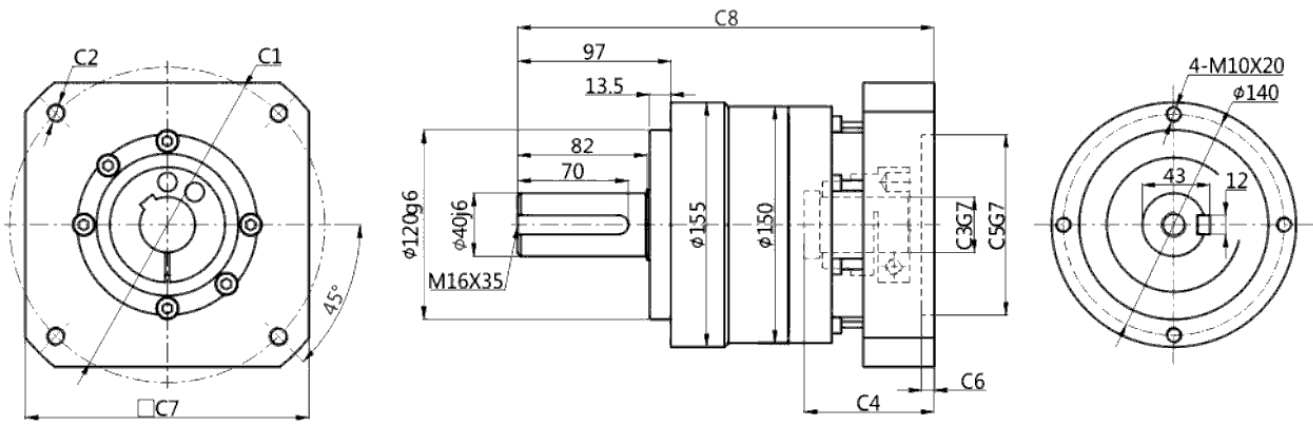
HL120-L2



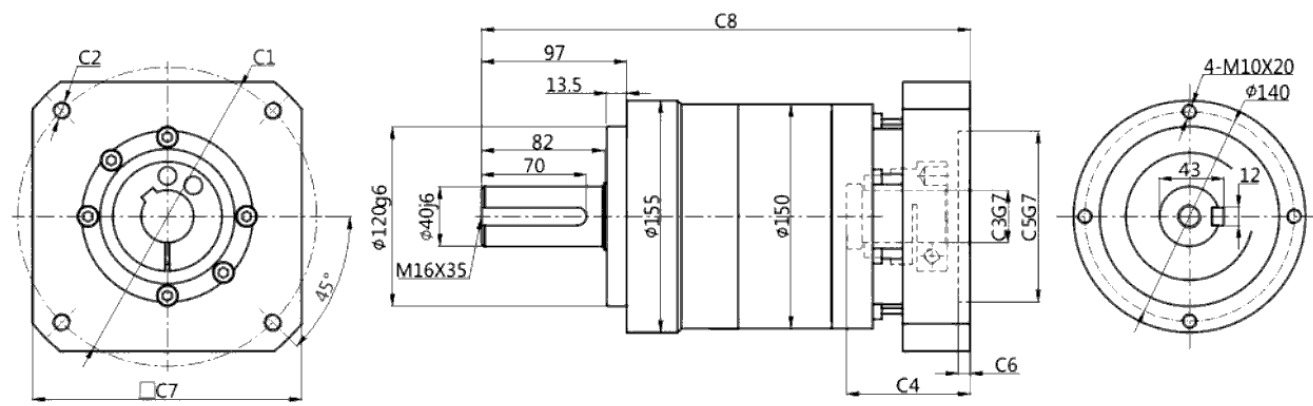
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HL120-L1 (Single)	ø115	4-M8/4-M6	ø19/ø22/ø24	62,5	ø95	8	130	194
	ø130	4-M8	ø19/ø22/ø24	62,5	ø95	8	130	194
	ø145	4-M8	ø19/ø22/ø24	65,5	ø110	8	130	197
HL120-L2 (Double)	ø90	4-M5/4-M6	ø19	57,5	ø70	6	130	230,5
	ø115	4-M8/4-M6	ø19/ø22/ø24	62,5	ø95	8	130	235,5
	ø130	4-M8	ø19/ø22/ø24	62,5	ø95	8	130	235,5
	ø145	4-M8	ø19/ø22/ø24	65,5	ø110	8	130	238,5

DRAWINGS

HL155-L1



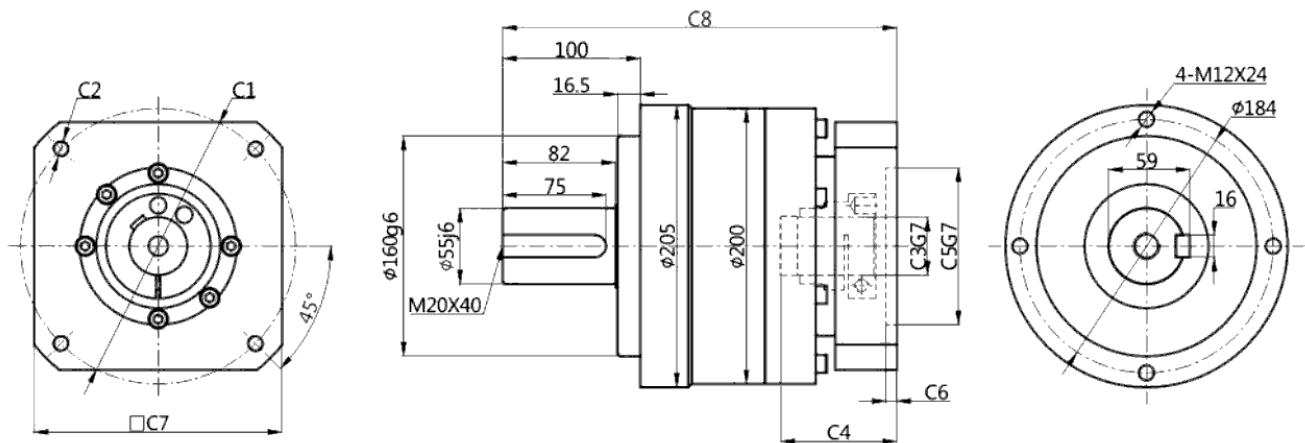
HL155-L2



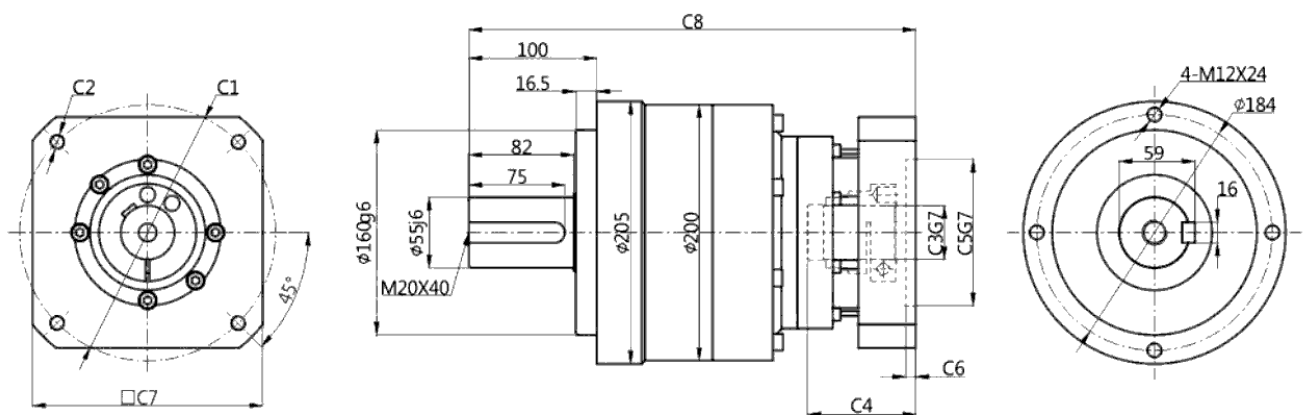
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HL155-L1 (Single)	ø115	4-M8/4-M6	ø22/ø24	67,5	ø95	8	115	249
	ø145	4-M8	ø22/ø24	72,5	ø110	8	130	254
	ø200	4-M12	ø35/ø38/ø42	82,5	ø114,3	8	180	264
	ø200	4-M12	ø35/ø42	117	ø114,3	8	180	296,5
HL155-L2 (Double)	ø215	4-M12	ø38/ø42	87,5	ø180	8	200	269
	ø115	4-M8/4-M6	ø22/ø24	67,5	ø95	6	115	311,5
	ø145	4-M8	ø22/ø24	72,5	ø110	8	130	316,5
	ø200	4-M12	ø35	82,5	ø114,3	8	180	326,5

DRAWINGS

HL205-L1



HL205-L2



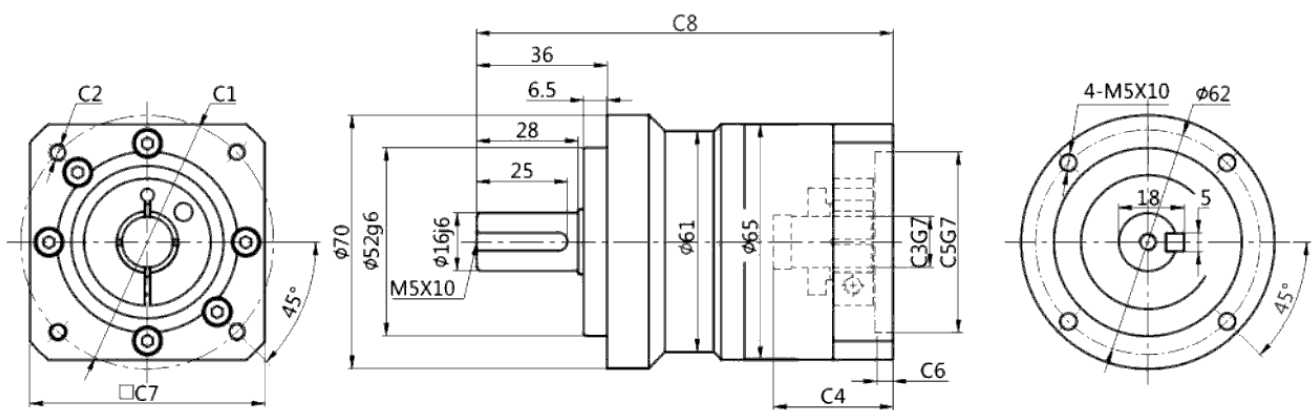
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HL205-L1 (Single)	ø200	4-M12	ø35/ø38/ø42	82,5	ø114,3	8	180	286,5
	ø200	4-M12	ø35/ø42	117	ø114,3	8	180	319
	ø215	4-M12	ø38/ø42	87,5	ø180	8	200	291,5
HL205-L2 (Double)	ø115	4-M8/4-M6	ø22/ø24	67,5	ø95	8	115	334,5
	ø145	4-M8	ø22/ø24	72,5	ø110	8	130	339,5
	ø200	4-M12	ø35/ø38/ø42	82,5	ø114,3	6	180	349,5
	ø200	4-M12	ø35/ø42	117	ø114,3	8	180	382
	ø215	4-M12	ø38/ø42	87,5	ø180	8	200	354,5

Motor type	Stage	Ratio	Torque		Speed		Max force		Backlash	Efficiency	Weight
			Nominal	Max	Nominal	Max	Radial	Axial			
			Nm		RPM		N		Arcmin	%	Kg
HLE070	1	3	35	70	3000	6000	920	630	3	97	1,1
		4	45	90	3000	6000	920	630	3	97	1,1
		5	44	88	3000	6000	920	630	3	97	1,1
		7	40	80	3000	6000	920	630	3	97	1,1
		10	22	44	3000	6000	920	630	3	97	1,1
HLE090	1	3	100	200	3000	6000	1400	600	3	97	3,0
		4	110	220	3000	6000	1400	600	3	97	3,0
		5	105	210	3000	6000	1400	600	3	97	3,0
		7	100	200	3000	6000	1400	600	3	97	3,0
		10	50	100	3000	6000	1400	600	3	97	3,0

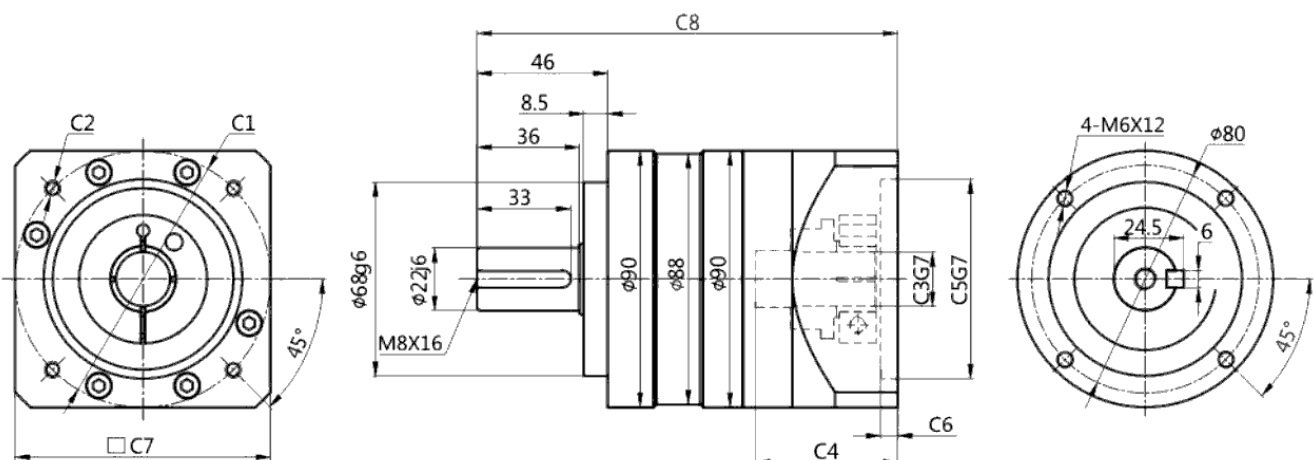
DRAWINGS



HLE070-L1



HLE090-L1



Stage	C1	C2	C3	C4	C5	C6	C7	C8
HLE070L1 (Single)	ø70	4-M4/4-M5	ø14	33	ø50	5	65	115
HLE090-L1 (Single)	ø90	4-M5/4-M6	ø19	50	ø70	6	90	148
	ø145	4-M8	ø19/ø22/ø24	65,5	ø110	14	130	163,5

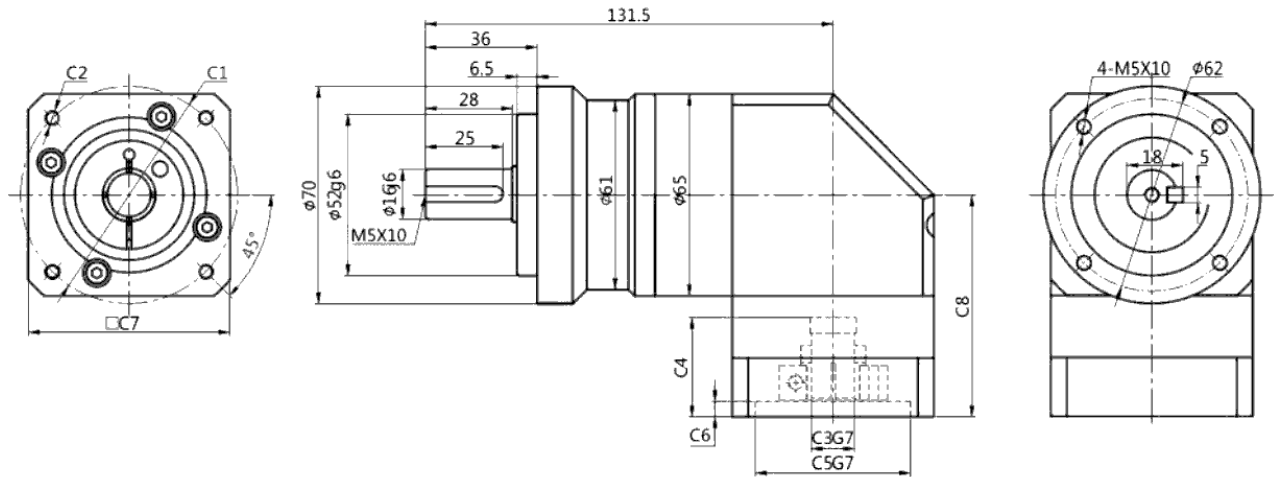
TECHNICAL DATA

Motor type	Stage	Ratio	Torque		Speed		Max force		Backlash	Efficiency	Weight
			Nominal	Max	Nominal	Max	Radial	Axial			
			Nm	RPM	N	Arcmin	%	Kg			
HL-Z070	1	3	35	70	3000	6000	920	630	3	95	2,1
		4	45	90	3000	6000	920	630	3	95	2,1
		5	44	88	3000	6000	920	630	3	95	2,1
		7	40	80	3000	6000	920	630	3	95	2,1
		10	22	44	3000	6000	920	630	3	95	2,1
	2	15	35	70	3000	6000	920	630	5	95	2,6
		16	45	90	3000	6000	920	630	5	95	2,6
		20	45	90	3000	6000	920	630	5	95	2,6
		25	44	88	3000	6000	920	630	5	95	2,6
		28	45	90	3000	6000	920	630	5	95	2,6
		30	35	70	3000	6000	920	630	5	95	2,6
		35	44	88	3000	6000	920	630	5	95	2,6
		40	45	90	3000	6000	920	630	5	95	2,6
		50	44	88	3000	6000	920	630	5	95	2,6
70	40	80	3000	6000	920	630	5	95	2,6		
100	22	44	3000	6000	920	630	5	95	2,6		
HL-Z090	1	3	100	200	3000	6000	1400	600	3	95	5,6
		4	110	220	3000	6000	1400	600	3	95	5,6
		5	105	210	3000	6000	1400	600	3	95	5,6
		7	100	200	3000	6000	1400	600	3	95	5,6
		10	50	100	3000	6000	1400	600	3	95	5,6
	2	15	100	200	3000	6000	1400	600	5	95	6,6
		16	110	220	3000	6000	1400	600	5	95	6,6
		20	110	220	3000	6000	1400	600	5	95	6,6
		25	105	210	3000	6000	1400	600	5	95	6,6
		28	110	220	3000	6000	1400	600	5	95	6,6
		30	100	200	3000	6000	1400	600	5	95	6,6
		35	105	210	3000	6000	1400	600	5	95	6,6
		40	110	220	3000	6000	1400	600	5	95	6,6
		50	105	210	3000	6000	1400	600	5	95	6,6
70	100	200	3000	6000	1400	600	5	95	6,6		
100	50	100	3000	6000	1400	600	5	95	6,6		
HL-Z120	1	3	230	460	3000	6000	3000	2500	3	93	11
		4	270	540	3000	6000	3000	2500	3	93	11
		5	255	510	3000	6000	3000	2500	3	93	11
		7	180	360	3000	6000	3000	2500	3	93	11
		10	120	240	3000	6000	3000	2500	3	93	11
	2	15	230	460	3000	6000	3000	2500	5	93	14
		16	270	540	3000	6000	3000	2500	5	93	14
		20	270	540	3000	6000	3000	2500	5	93	14
		25	255	510	3000	6000	3000	2500	5	93	14
		28	270	540	3000	6000	3000	2500	5	93	14
		30	230	460	3000	6000	3000	2500	5	93	14
		35	255	510	3000	6000	3000	2500	5	93	14
		40	270	540	3000	6000	3000	2500	5	93	14
		50	255	510	3000	6000	3000	2500	5	93	14
70	180	360	3000	6000	3000	2500	5	93	14		
100	120	240	3000	6000	3000	2500	5	93	14		
HL-Z155	1	3	450	900	2000	4000	5800	4500	3	93	24
		4	580	1160	2000	4000	5800	4500	3	93	24
		5	540	1080	2000	4000	5800	4500	3	93	24
		7	390	780	2000	4000	5800	4500	3	93	24
		10	230	460	2000	4000	5800	4500	3	93	24
	2	15	450	900	2000	4000	5800	4500	5	93	30
		16	580	1160	2000	4000	5800	4500	5	93	30
		20	580	1160	2000	4000	5800	4500	5	93	30
		25	540	1080	2000	4000	5800	4500	5	93	30
		28	580	1160	2000	4000	5800	4500	5	93	30
		30	450	900	2000	4000	5800	4500	5	93	30
		35	540	1080	2000	4000	5800	4500	5	93	30
		40	580	1160	2000	4000	5800	4500	5	93	30
		50	540	1080	2000	4000	5800	4500	5	93	30
70	390	780	2000	4000	5800	4500	5	93	30		
100	230	460	2000	4000	5800	4500	5	93	30		
HL-Z205	1	3	1000	2000	1500	3000	9500	6800	3	93	39
		4	1300	2600	1500	3000	9500	6800	3	93	39
		5	1100	2200	1500	3000	9500	6800	3	93	39
		7	800	1600	1500	3000	9500	6800	3	93	39
		10	460	920	1500	3000	9500	6800	3	93	39
	2	15	1000	2000	1500	3000	9500	6800	5	93	45
		16	1300	2600	1500	3000	9500	6800	5	93	45
		20	1300	2600	1500	3000	9500	6800	5	93	45
		25	1100	2200	1500	3000	9500	6800	5	93	45
		28	1300	2600	1500	3000	9500	6800	5	93	45
		30	1000	2000	1500	3000	9500	6800	5	93	45
		35	1100	2200	1500	3000	9500	6800	5	93	45
		40	1300	2600	1500	3000	9500	6800	5	93	45
		50	1100	2200	1500	3000	9500	6800	5	93	45
70	800	1600	1500	3000	9500	6800	5	93	45		
100	460	920	1500	3000	9500	6800	5	93	45		

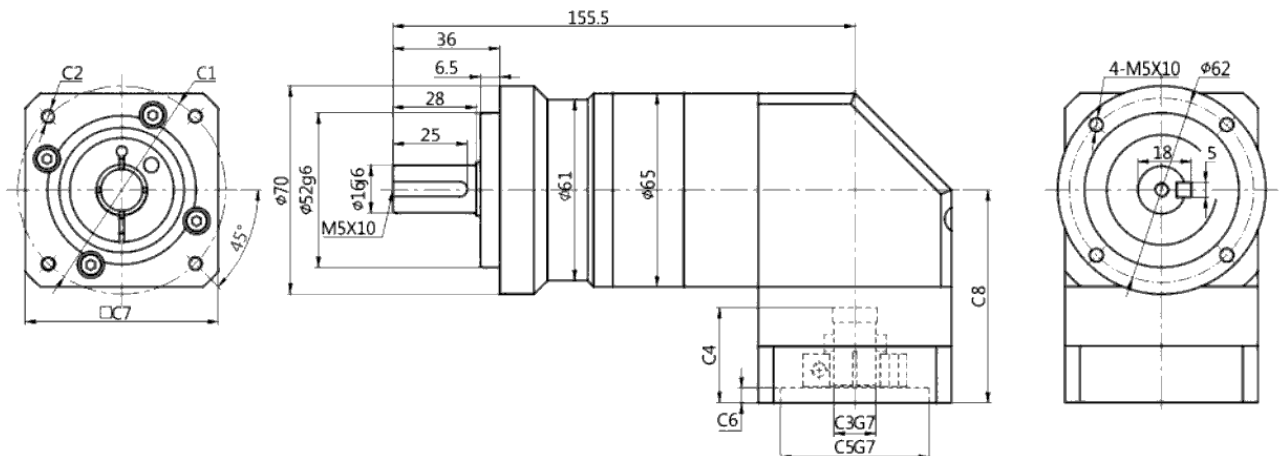
DRAWINGS



HL-Z070-L1



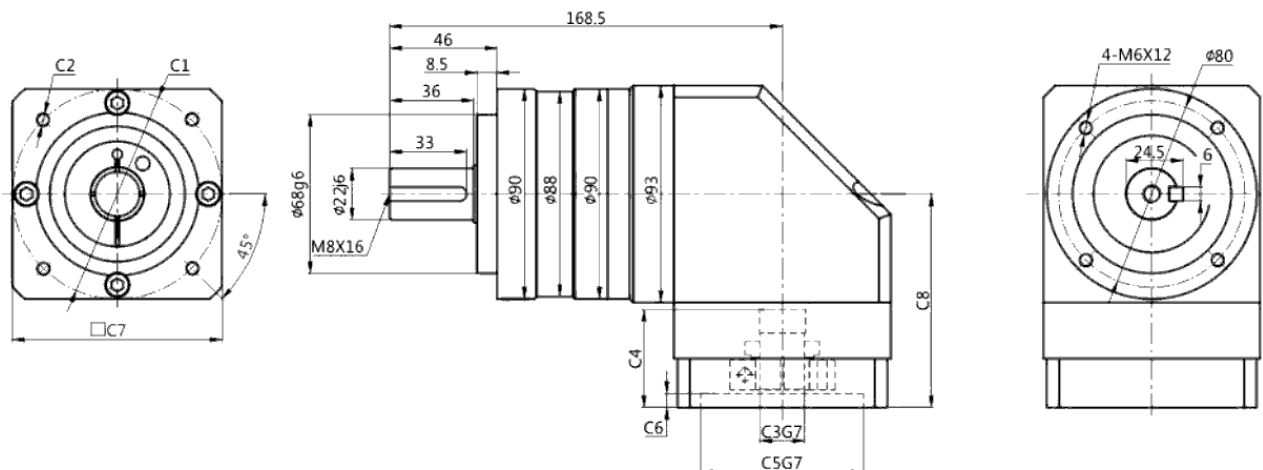
HL-Z070-L2



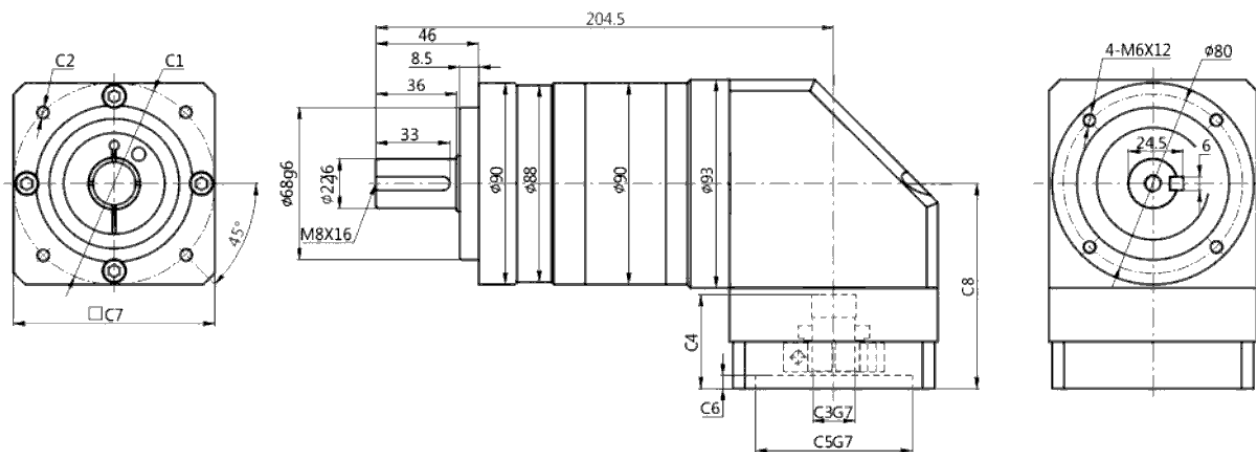
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HL-Z070-L1 (Single)	$\phi 70$	4-M4/4-M5	$\phi 14$	32	$\phi 50$	5	65	71,5
HL-Z070-L2 (Double)	$\phi 70$	4-M4/4-M5	$\phi 14$	32	$\phi 50$	5	65	71,5

DRAWINGS

HL-Z090-L1



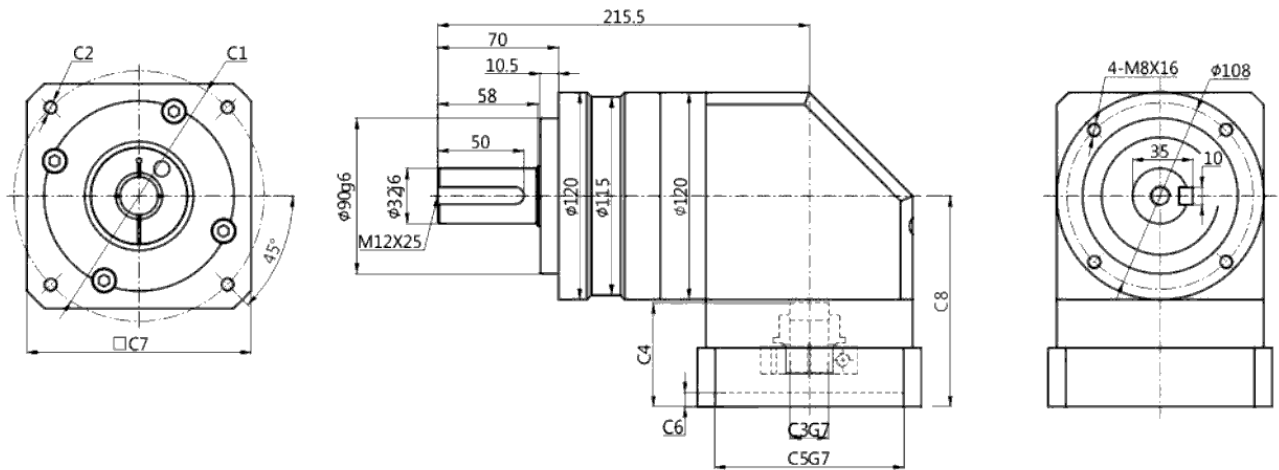
HL-Z090-L2



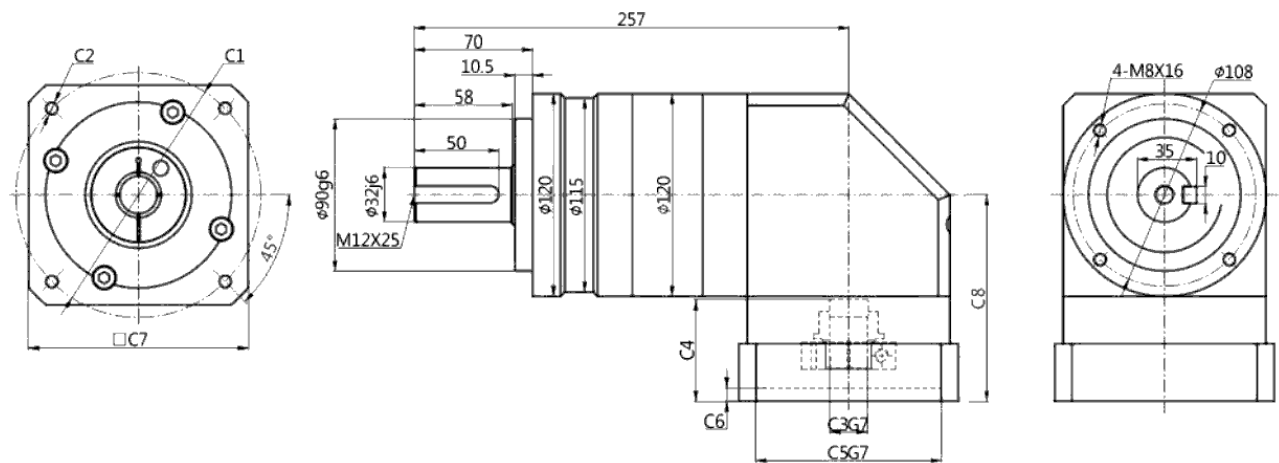
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HL-Z090-L1 (Single)	ø98,4	4-M6/4-M5	ø 14/ ø19	42	ø73	6	90	91,5
	ø90	4-M5/4-M6	ø19	42	ø70	6	90	91,5
	ø115	4-M8	ø19/ø22	54	ø95	8	110	103,5
	ø130	4-M8	ø19/ø22	54	ø95	8	110	103,5
HL-Z090-L2 (Double)	ø98,4	4-M6/4-M5	ø14/ø19	42	ø73	6	90	91,5
	ø90	4-M5/4-M6	ø19	42	ø70	6	90	91,5
	ø115	4-M8	ø19/ø22	54	ø95	8	110	103,5
	ø130	4-M8	ø19/ø22	54	ø95	8	110	103,5
	ø145	4-M8	ø19/ø22	57,5	ø110	8	130	107

DRAWINGS

HL-Z120-L1



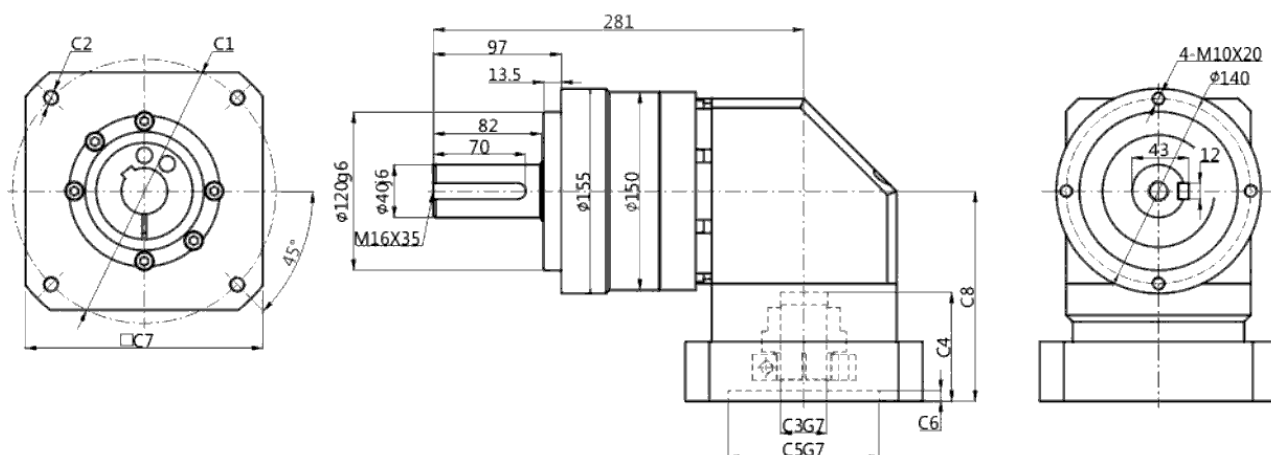
HL-Z120-L2



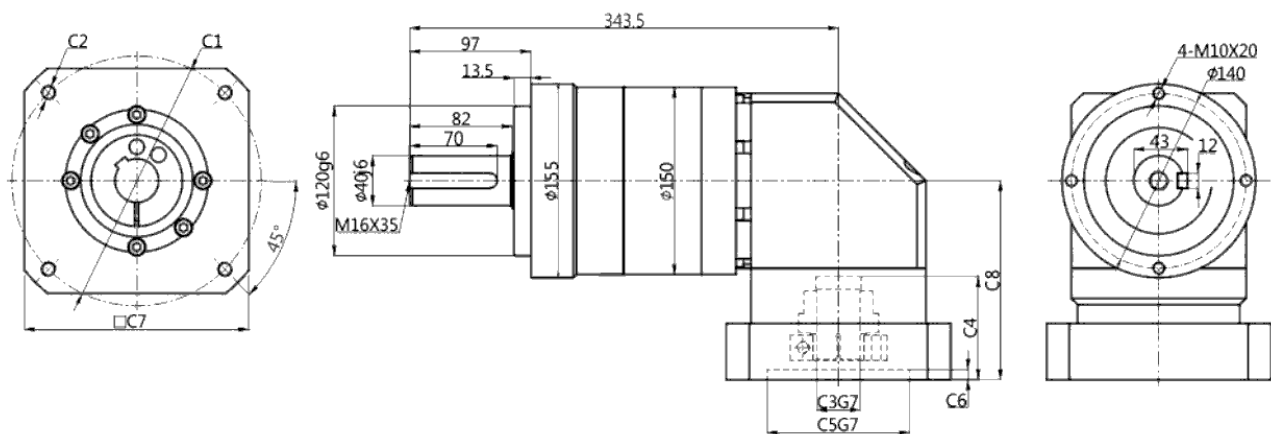
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HL-Z155-L1 (Single)	∅115	4-M8/4-M6	∅22/∅24	57	∅95	8	130	119
	∅130	4-M8	∅22/∅24	57	∅95	8	130	119
	∅145	4-M8	∅22/∅24	60	∅110	8	130	122
HL-Z155-L2 (Double)	∅115	4-M8/4-M6	∅22/∅24	57	∅95	6	130	119
	∅130	4-M8	∅22/∅24	57	∅95	8	130	119
	∅145	4-M8	∅22/∅24	60	∅110	8	130	122

DRAWINGS

HL-Z155-L1



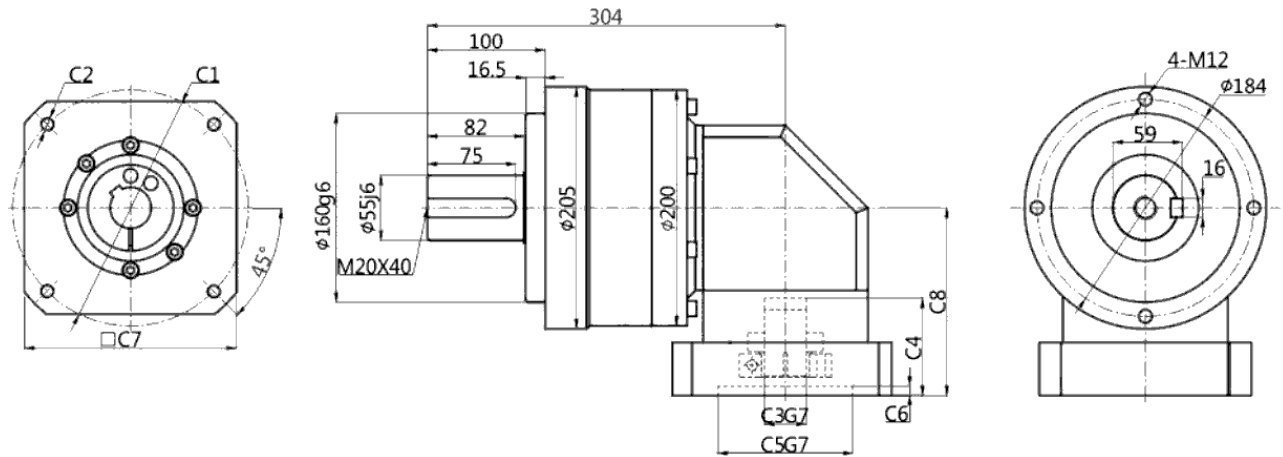
HL-Z155-L2



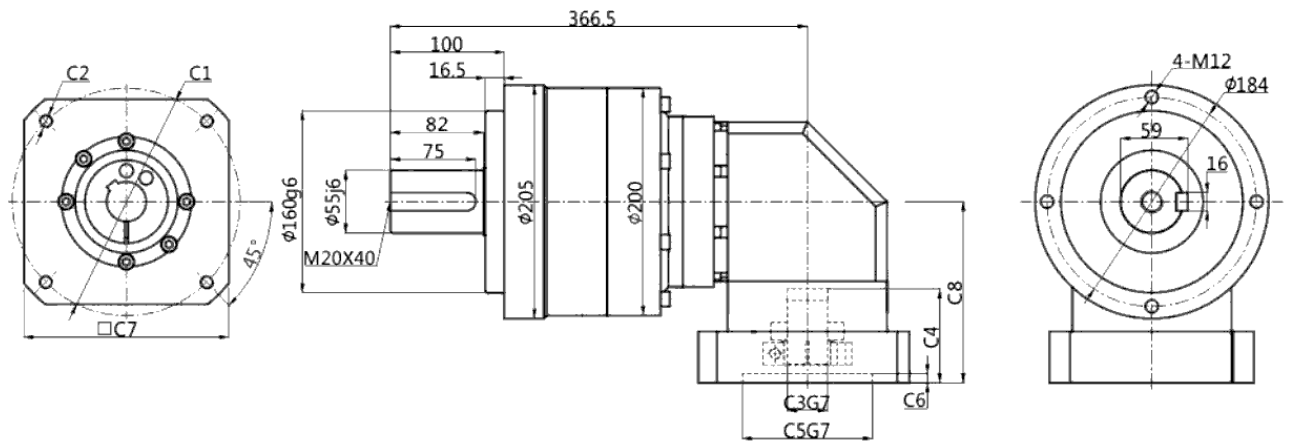
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HL-Z155-L1 (Single)	ø115	4-M8/4-M6	ø22/ø24	67,5	ø95	8	115	144
	ø145	4-M8	ø22/ø24	72,5	ø110	8	130	149
	ø200	4-M12	ø35/ø42	82,5	ø114,3	8	180	159
	ø200	4-M12	ø35/ø42	117	ø114,3	8	180	191,5
HL-Z155-L2 (Double)	ø115	4-M8/4-M6	ø22/ø24	67,5	ø95	6	115	144
	ø145	4-M8	ø22/ø24	72,5	ø110	8	130	149
	ø200	4-M12	ø35/ø42	82,5	ø114,3	8	180	159
	ø200	4-M12	ø35/ø42	117	ø114,3	8	180	191,5

DRAWINGS

HL-Z205-L1



HL-Z205-L2



Stage	C1	C2	C3	C4	C5	C6	C7	C8
HL-Z205-L1 (Single)	ø200	4-M12	ø35/ø42	82,5	ø114,3	8	180	159
	ø200	4-M12	ø35/ø42	117	ø114,3	8	180	191,5
	ø215	4-M12	ø42	87,5	ø180	8	200	164
HL-Z205-L2 (Double)	ø115	4-M8/4-M6	ø22/ø24	67,5	ø95	6	115	144
	ø145	4-M8	ø22/ø24	72,5	ø110	8	130	149
	ø200	4-M12	ø35/ø42	82,5	ø114,3	8	180	159
	ø200	4-M12	ø35/ø42	117	ø114,3	8	180	191,5
	ø215	4-M12	ø42	87,5	ø180	8	200	164

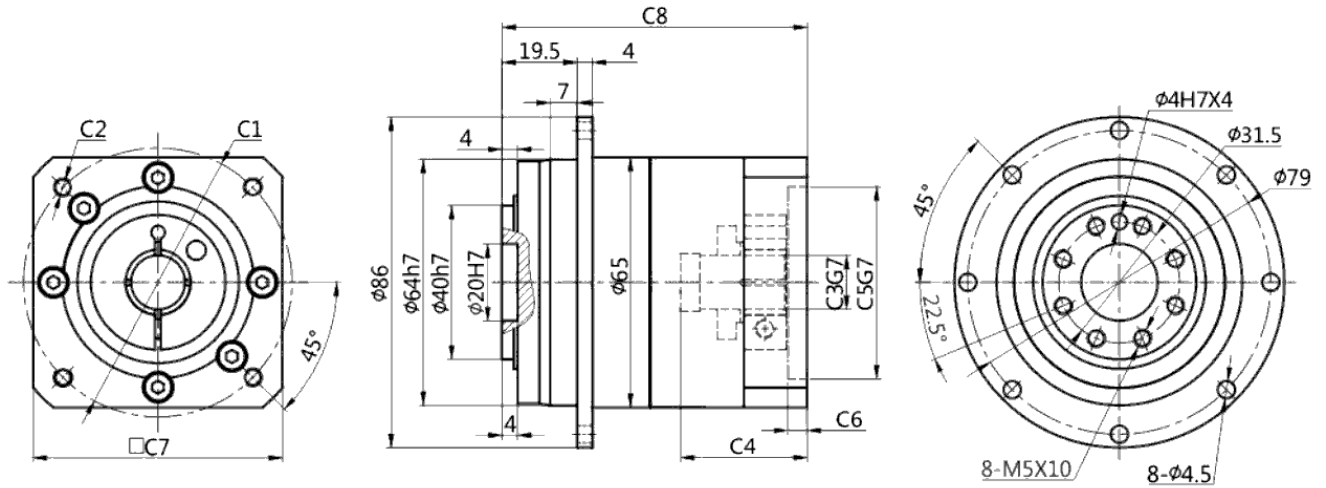
TECHNICAL DATA

Motor type	Stage	Ratio	Torque		Speed		Max force		Backlash	Efficiency	Weight
			Nominal	Max	Nominal	Max	Radial	Axial			
							RPM		N	Arcmin	%
HGH064	1	4	45	90	3000	6000	550	375	3	97	1,2
		5	44	88	3000	6000	550	375	3	97	1,2
		7	40	80	3000	6000	550	375	3	97	1,2
		10	22	44	3000	6000	550	375	3	97	1,2
	2	16	45	90	3000	6000	550	375	5	97	1,7
		20	45	90	3000	6000	550	375	5	97	1,7
		25	44	88	3000	6000	550	375	5	97	1,7
		28	45	90	3000	6000	550	375	5	97	1,7
		35	44	88	3000	6000	550	375	5	97	1,7
		40	45	90	3000	6000	550	375	5	97	1,7
HGH090	1	4	150	300	3000	6000	4000	3000	3	97	3,8
		5	140	280	3000	6000	4000	3000	3	97	3,8
		7	100	200	3000	6000	4000	3000	3	97	3,8
		10	50	100	3000	6000	4000	3000	3	97	3,8
	2	16	150	300	3000	6000	4000	3000	5	97	5,1
		20	150	300	3000	6000	4000	3000	5	97	5,1
		25	140	280	3000	6000	4000	3000	5	97	5,1
		28	150	300	3000	6000	4000	3000	5	97	5,1
		35	140	280	3000	6000	4000	3000	5	97	5,1
		40	150	300	3000	6000	4000	3000	5	97	5,1
HGH110	1	4	270	540	3000	6000	7800	7000	3	97	7
		5	255	510	3000	6000	7800	7000	3	97	7
		7	180	360	3000	6000	7800	7000	3	97	7
		10	120	240	3000	6000	7800	7000	3	97	7
	2	16	270	540	3000	6000	7800	7000	5	97	7
		20	270	540	3000	6000	7800	7000	5	97	10,5
		25	255	510	3000	6000	7800	7000	5	97	10,5
		28	270	540	3000	6000	7800	7000	5	97	10,5
		35	255	510	3000	6000	7800	7000	5	97	10,5
		40	270	540	3000	6000	7800	7000	5	97	10,5
HGH140	1	4	580	1160	2000	4000	10000	8000	3	95	14,5
		5	540	1080	2000	4000	10000	8000	3	95	14,5
		7	390	780	2000	4000	10000	8000	3	95	14,5
		10	230	460	2000	4000	10000	8000	3	95	14,5
	2	16	580	1160	2000	4000	10000	8000	5	95	22
		20	580	1160	2000	4000	10000	8000	5	95	22
		25	540	1080	2000	4000	10000	8000	5	95	22
		28	580	1160	2000	4000	10000	8000	5	95	22
		35	540	1080	2000	4000	10000	8000	5	95	22
		40	580	1160	2000	4000	10000	8000	5	95	22
HGH200	1	4	1300	2600	1500	3000	16000	13000	3	95	36
		5	1100	2200	1500	3000	16000	13000	3	95	36
		7	800	1600	1500	3000	16000	13000	3	95	36
		10	460	920	1500	3000	16000	13000	3	95	36
	2	16	1300	2600	1500	3000	16000	13000	5	95	42
		20	1300	2600	1500	3000	16000	13000	5	95	42
		25	1100	2200	1500	3000	16000	13000	5	95	42
		28	1300	2600	1500	3000	16000	13000	5	95	42
		35	1100	2200	1500	3000	16000	13000	5	95	42
		40	1300	2600	1500	3000	16000	13000	5	95	42
HGH200	1	50	1100	2200	1500	3000	16000	13000	5	95	42
		70	800	1600	1500	3000	16000	13000	5	95	42
	2	100	460	920	1500	3000	16000	13000	5	95	42

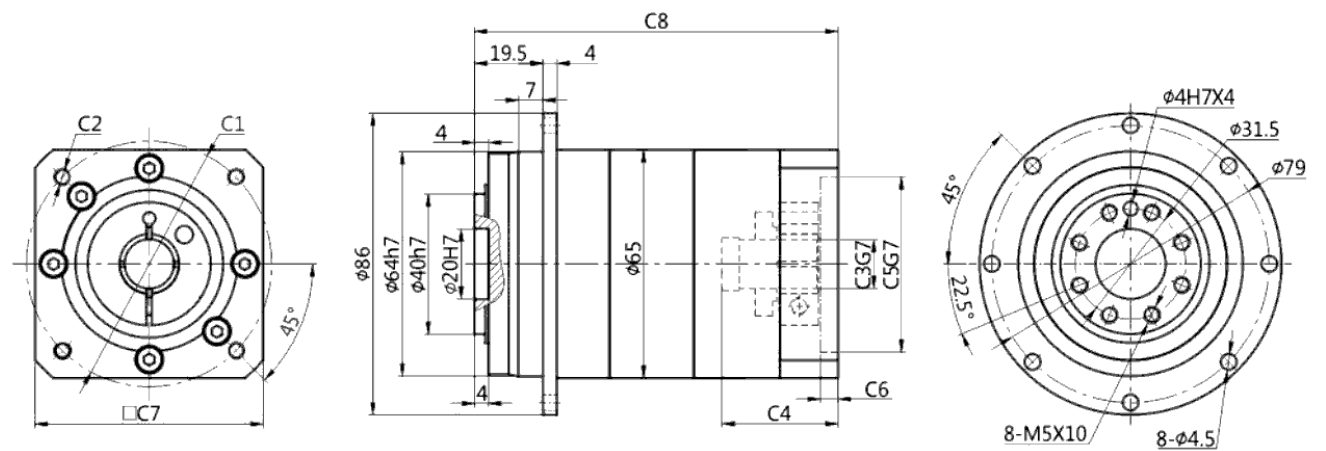
DRAWINGS



HGH064-L1



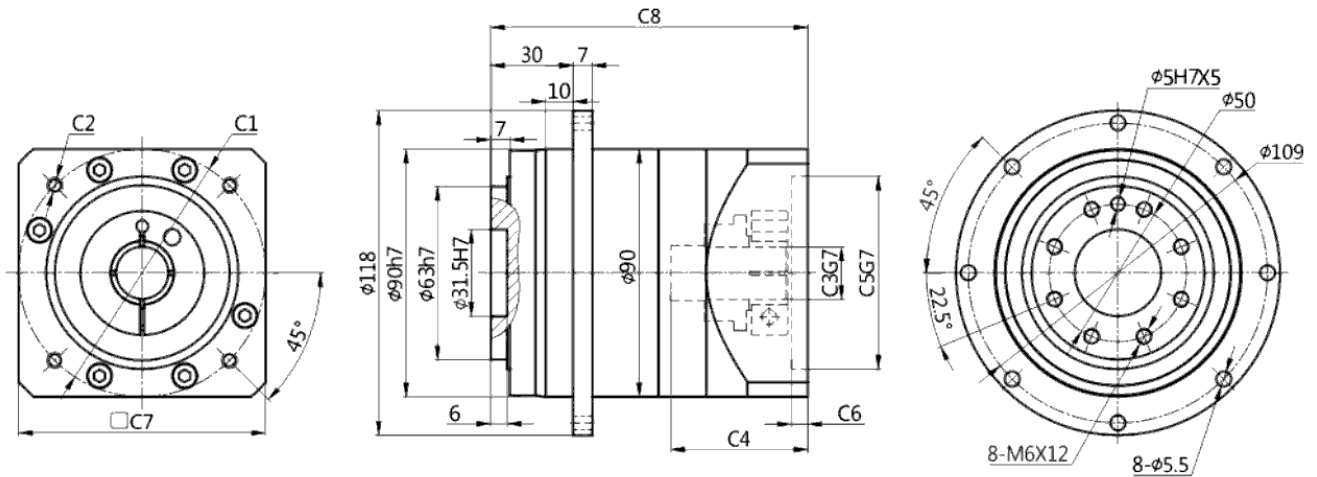
HGH064-L2



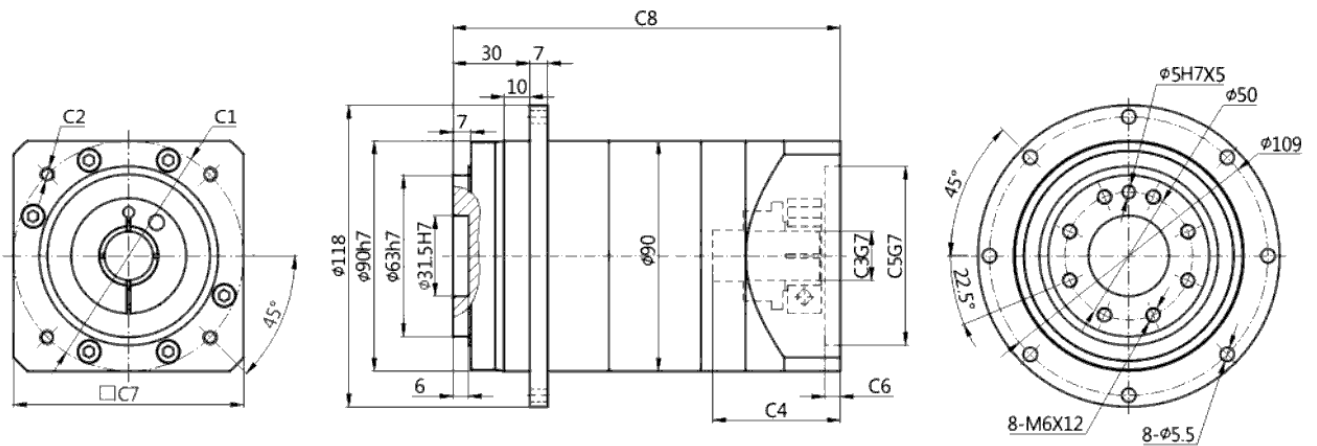
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HGH064-L1 (Single)	ø47,14	4-M4	ø8	30	ø38,1	5	65	76,5
	ø46	4-M4	ø8	30	ø30	5	65	76,5
	ø45	4-M3	ø8	30	ø30	5	65	76,5
	ø70	4-M4/4-M5	ø14	33	ø50	5	65	79,5
HGH064-L2 (Double)	ø47,14	4-M4	ø8	30	ø38,1	5	65	100,5
	ø46	4-M4	ø8	30	ø30	5	65	100,5
	ø45	4-M3	ø8	30	ø30	5	65	100,5
	ø70	4-M4/4-M5	ø14	33	ø50	5	65	103,5

DRAWINGS

HGH090-L1



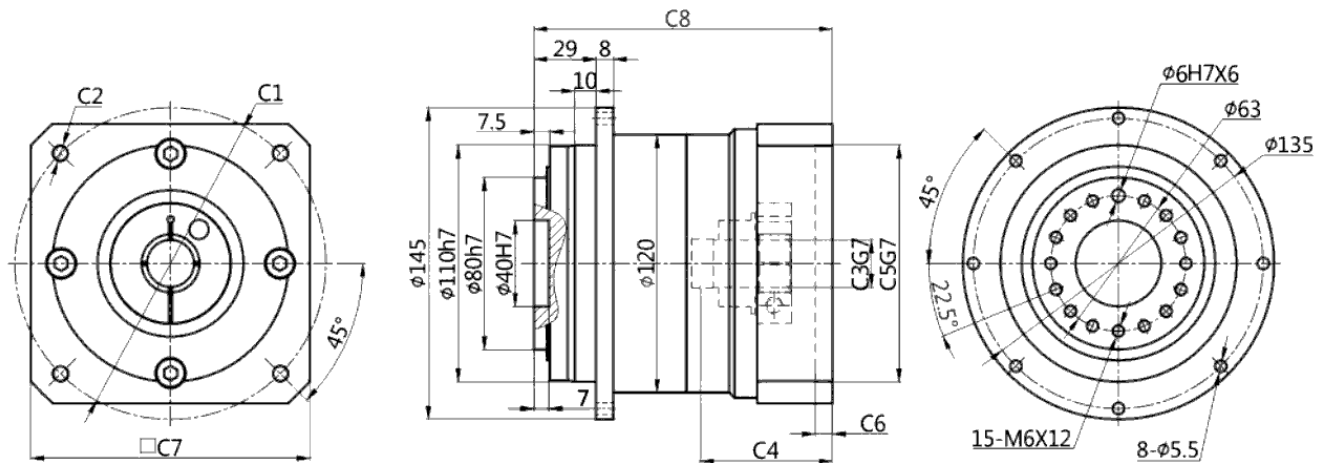
HGH090-L2



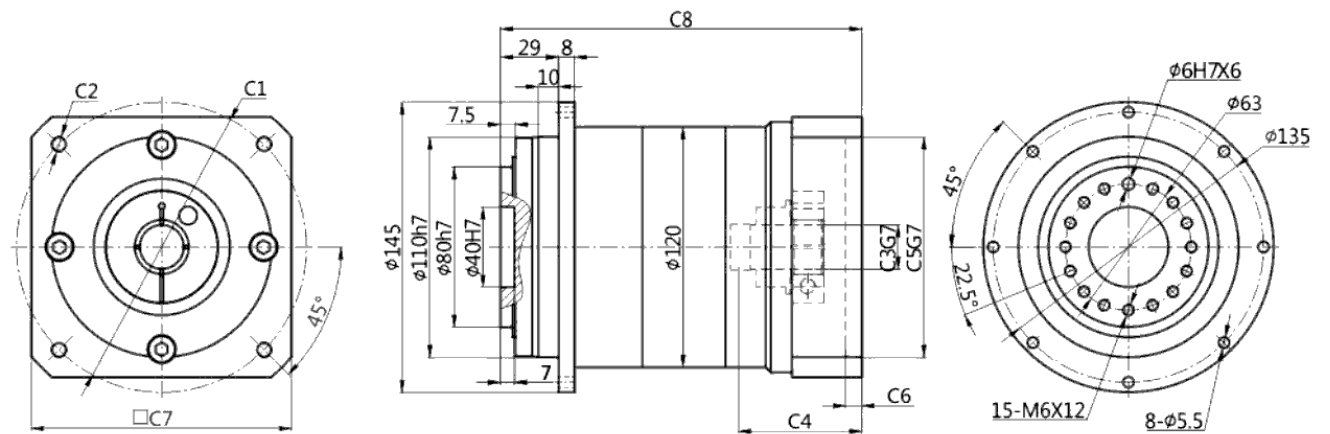
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HGH090-L1 (Single)	ø98,4	4-M6/4-M5	ø 14/ ø19	50	ø73	6	90	115,5
	ø90	4-M5/4-M6	ø19	50	ø70	6	90	115,5
	ø115	4-M8	ø19/ø22	62	ø95	8	110	127,5
	ø130	4-M8	ø19/ø22	62	ø95	8	110	127,5
	ø145	4-M8	ø19/ø22/ø24	65,5	ø110	14	130	131
HGH090-L2 (Double)	ø70	4-M4/4-M5	ø14	38,5	ø50	5	65	142,5
	ø98,4	4-M6/4-M5	ø14/ø19	50	ø73	6	90	151,5
	ø90	4-M5/4-M6	ø19	50	ø70	6	90	151,5
	ø115	4-M8	ø19/ø22	62	ø95	8	110	163,5
	ø130	4-M8	ø19/ø22	62	ø95	8	110	163,5
ø145	4-M8	ø19/ø22/ø24	65,5	ø110	14	130	167	

DRAWINGS

HGH110-L1



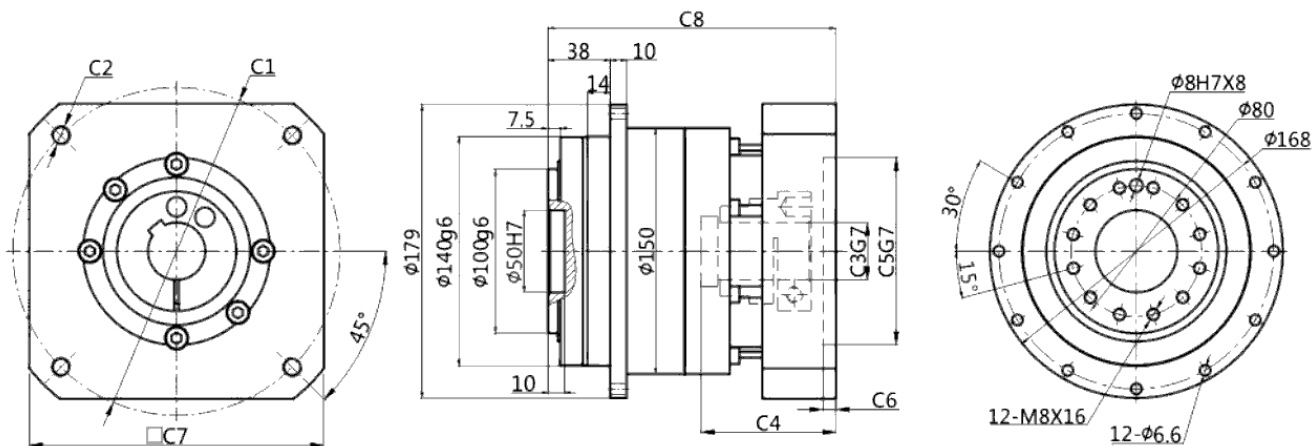
HGH110-L2



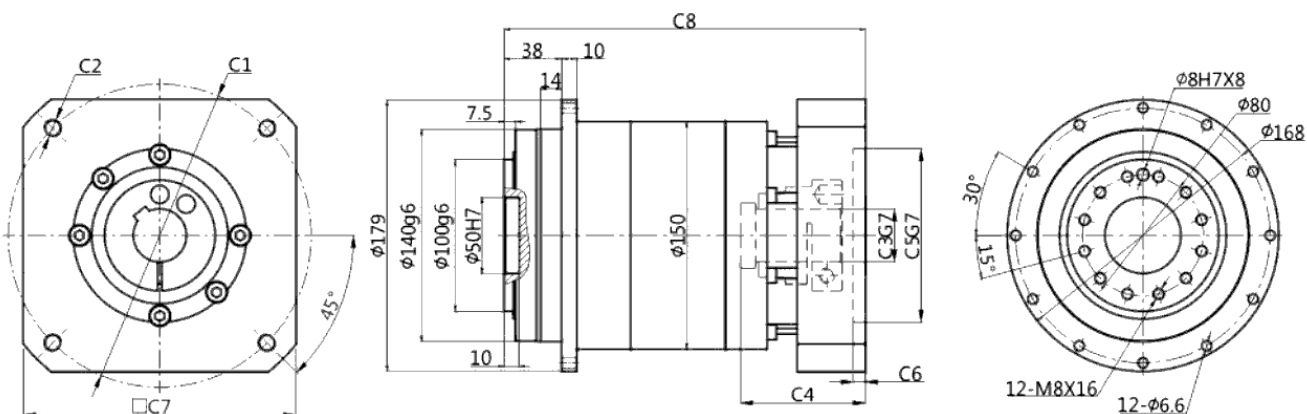
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HGH110-L1 (Single)	ø115	4-M8/4-M6	ø19/ø22/ø24	62,5	ø95	8	130	136
	ø130	4-M8	ø19/ø22/ø24	62,5	ø95	8	130	136
	ø145	4-M8	ø19/ø22/ø24	65,5	ø110	8	130	139
HGH110-L2 (Double)	ø90	4-M5/4-M6	ø19	57,5	ø70	6	130	172,5
	ø115	4-M8/4-M6	ø19/ø22/ø24	62,5	ø95	8	130	172,5
	ø130	4-M8	ø19/ø22/ø24	62,5	ø95	8	130	172,5
	ø145	4-M8	ø19/ø22/ø24	65,5	ø110	8	130	180,5

DRAWINGS

HGH140-L1



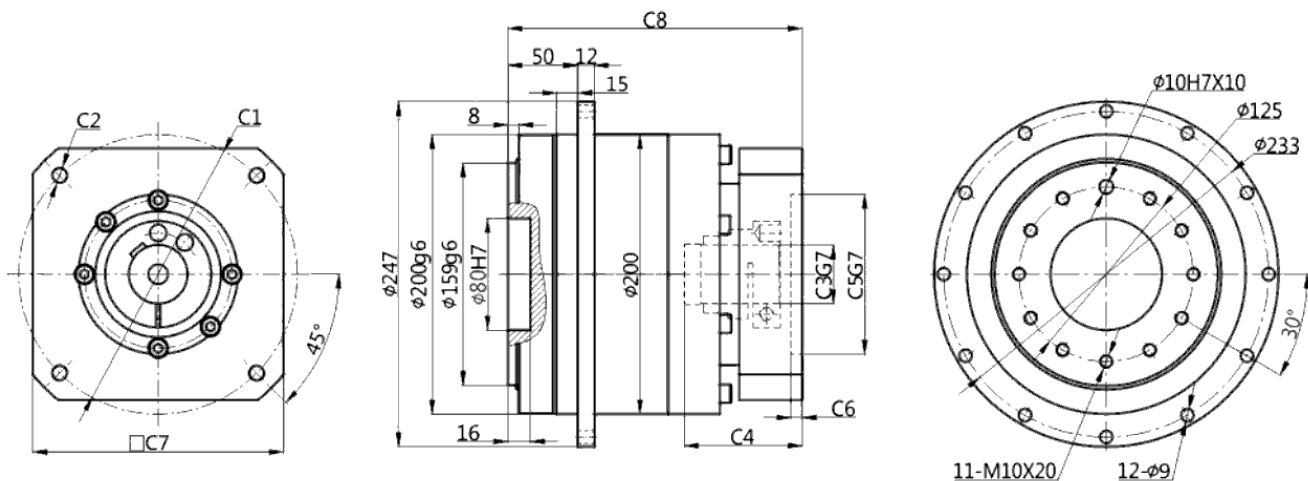
HGH140-L2



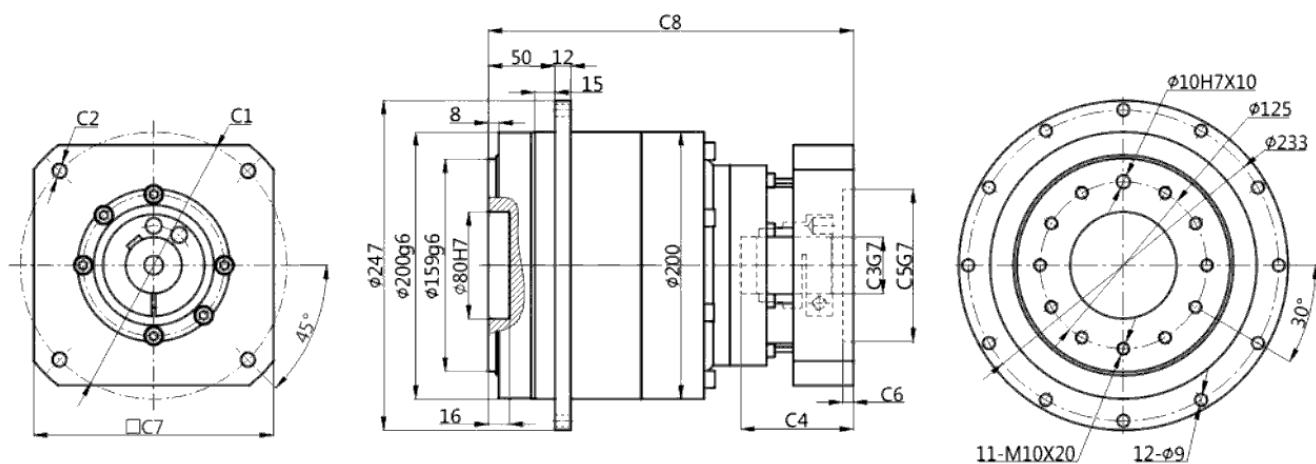
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HGH140-L1 (Single)	ø115	4-M8/4-M6	ø22/ø24	67,5	ø95	8	115	161
	ø145	4-M8	ø22/ø24	72,5	ø110	8	130	166
	ø200	4-M12	ø35/ø38/ø42	62,5	ø114,3	8	180	176
	ø200	4-M12	ø35/ø42	117	ø114,3	8	180	208,5
HGH140-L1 (Double)	ø215	4-M12	ø38/ø42	87,5	ø180	8	300	181
	ø115	4-M8/4-M6	ø22/ø24	67,5	ø95	8	115	223,5
	ø145	4-M8	ø22/ø24	72,5	ø110	8	130	228,5
	ø200	4-M12	ø35	82,5	ø114,3	8	180	238,5

DRAWINGS

HGH200-L1



HGH200-L2



Stage	C1	C2	C3	C4	C5	C6	C7	C8
HGH200-L1 (Single)	ø200	4-M12	ø35/ø38/ø42	82,5	ø114,3	8	180	211
	ø200	4-M12	ø35/ø42	117	ø114,3	8	180	243,5
	ø215	4-M12	ø38/ø42	87,5	ø180	8	200	216
HF-Z140-L2 (Double)	ø115	4-M8/4-M6	ø22/ø24	67,5	ø95	8	115	259
	ø145	4-M12	ø22/ø24	72,5	ø110	8	130	264
	ø200	4-M12	ø35/ø38/ø42	82,5	ø114,3	8	180	274
	ø200	4-M12	ø35/ø42	117	ø114,3	8	180	306,5
	ø215	4-M12	ø38/ø42	87,5	ø180	8	200	279

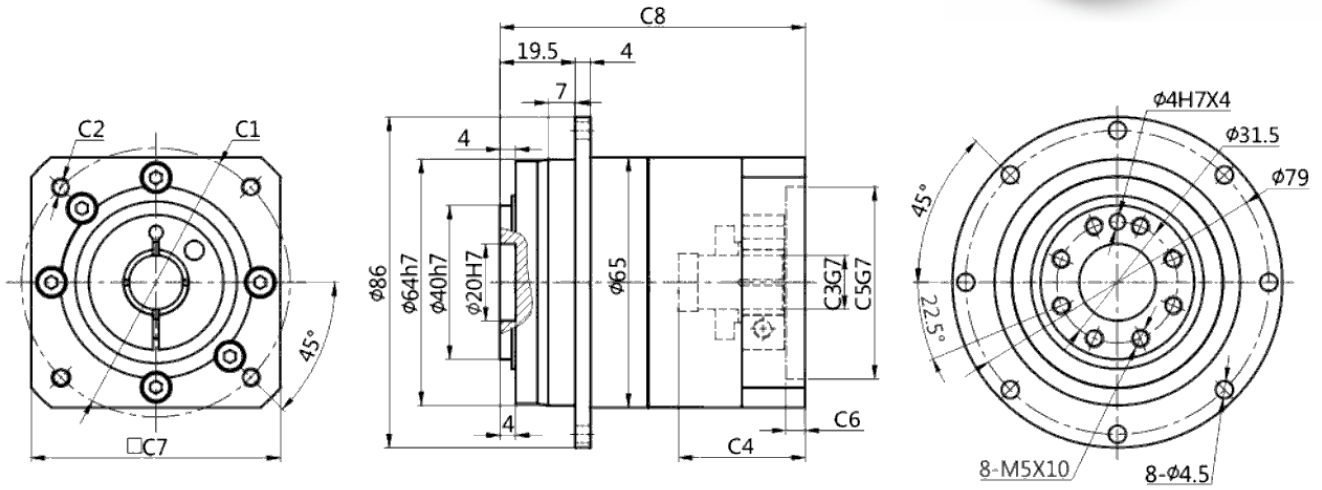
TECHNICAL DATA

Motor type	Stage	Ratio	Torque		Speed		Max force		Backlash	Efficiency	Weight
			Nominal	Max	Nominal	Max	Radial	Axial			
							RPM		N	Arcmin	%
HGH-Z064	1	4	45	90	3000	6000	550	375	3	95	2,3
		5	44	88	3000	6000	550	375	3	95	2,3
		7	40	80	3000	6000	550	375	3	95	2,3
		10	22	44	3000	6000	550	375	3	95	2,3
	2	16	45	90	3000	6000	550	375	5	95	2,8
		20	45	90	3000	6000	550	375	5	95	2,8
		25	44	88	3000	6000	550	375	5	95	2,8
		28	45	90	3000	6000	550	375	5	95	2,8
		35	44	88	3000	6000	550	375	5	95	2,8
		40	45	90	3000	6000	550	375	5	95	2,8
HGH-Z090	1	4	150	300	3000	6000	4000	3000	3	95	6,1
		5	140	280	3000	6000	4000	3000	3	95	6,1
		7	100	200	3000	6000	4000	3000	3	95	6,1
		10	50	100	3000	6000	4000	3000	3	95	6,1
	2	16	150	300	3000	6000	4000	3000	5	95	7,4
		20	150	300	3000	6000	4000	3000	5	95	7,4
		25	140	280	3000	6000	4000	3000	5	95	7,4
		28	150	300	3000	6000	4000	3000	5	95	7,4
		35	140	280	3000	6000	4000	3000	5	95	7,4
		40	150	300	3000	6000	4000	3000	5	95	7,4
HGH-Z110	1	4	270	540	3000	6000	7800	7000	3	95	12
		5	255	510	3000	6000	7800	7000	3	95	12
		7	180	360	3000	6000	7800	7000	3	95	12
		10	120	240	3000	6000	7800	7000	3	95	12
	2	16	270	540	3000	6000	7800	7000	5	95	15
		20	270	540	3000	6000	7800	7000	5	95	15
		25	255	510	3000	6000	7800	7000	5	95	15
		28	270	540	3000	6000	7800	7000	5	95	15
		35	255	510	3000	6000	7800	7000	5	95	15
		40	270	540	3000	6000	7800	7000	5	95	15
HGH-Z140	1	4	580	1160	2000	4000	10000	8000	3	93	24
		5	540	1120	2000	4000	10000	8000	3	93	24
		7	390	780	2000	4000	10000	8000	3	93	24
		10	230	460	2000	4000	10000	8000	3	93	24
	2	16	580	1160	2000	4000	10000	8000	5	93	30
		20	580	1160	2000	4000	10000	8000	5	93	30
		25	540	1120	2000	4000	10000	8000	5	93	30
		28	580	1160	2000	4000	10000	8000	5	93	30
		35	540	1120	2000	4000	10000	8000	5	93	30
		40	580	1160	2000	4000	10000	8000	5	93	30
HGH-Z200	1	4	1300	2600	1500	3000	16000	13000	3	93	43
		5	1100	2200	1500	3000	16000	13000	3	93	43
		7	800	1600	1500	3000	16000	13000	3	93	43
		10	460	920	1500	3000	16000	13000	3	93	43
	2	16	1300	2600	1500	3000	16000	13000	5	93	49
		20	1300	2600	1500	3000	16000	13000	5	93	49
		25	1100	2200	1500	3000	16000	13000	5	93	49
		28	1300	2600	1500	3000	16000	13000	5	93	49
		35	1100	2200	1500	3000	16000	13000	5	93	49
		40	1300	2600	1500	3000	16000	13000	5	93	49
HGH-Z200	1	50	1100	2200	1500	3000	16000	13000	5	93	49
		70	800	1600	1500	3000	16000	13000	5	93	49
		100	460	920	1500	3000	16000	13000	5	93	49
		100	460	920	1500	3000	16000	13000	5	93	49

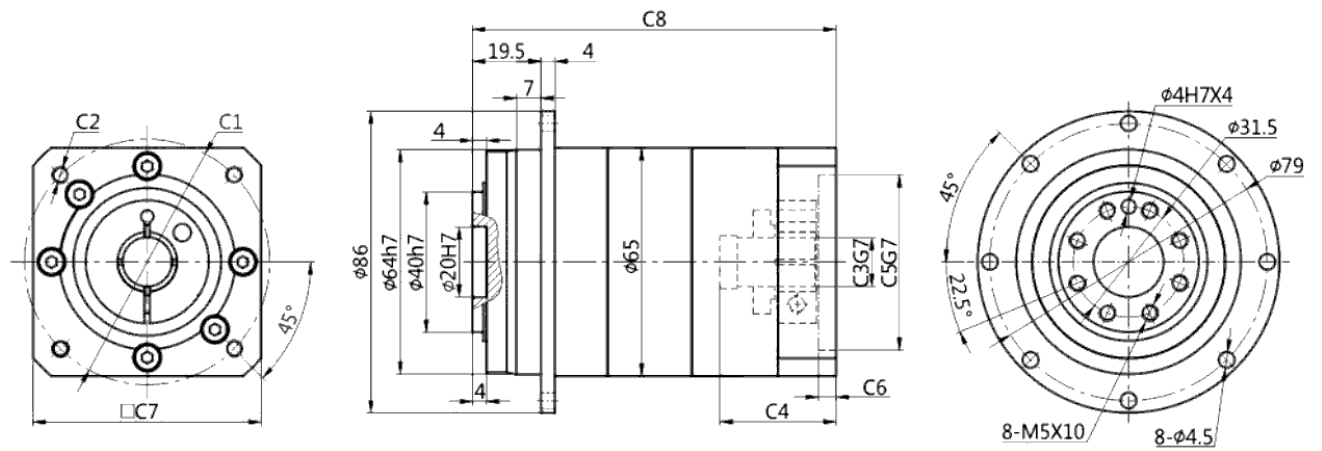
DRAWINGS



HGH-Z064-L1



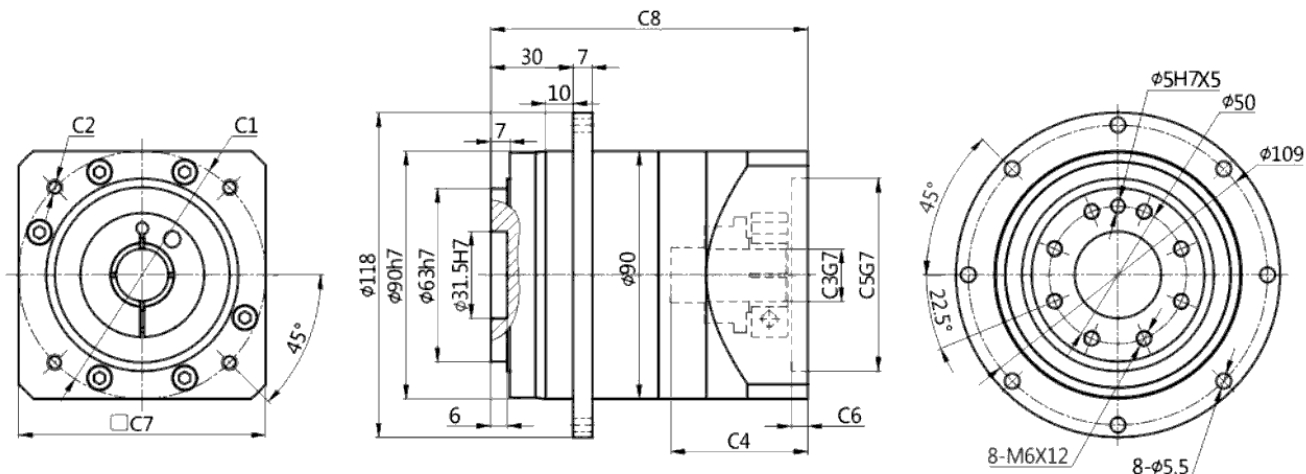
HGH-Z064-L2



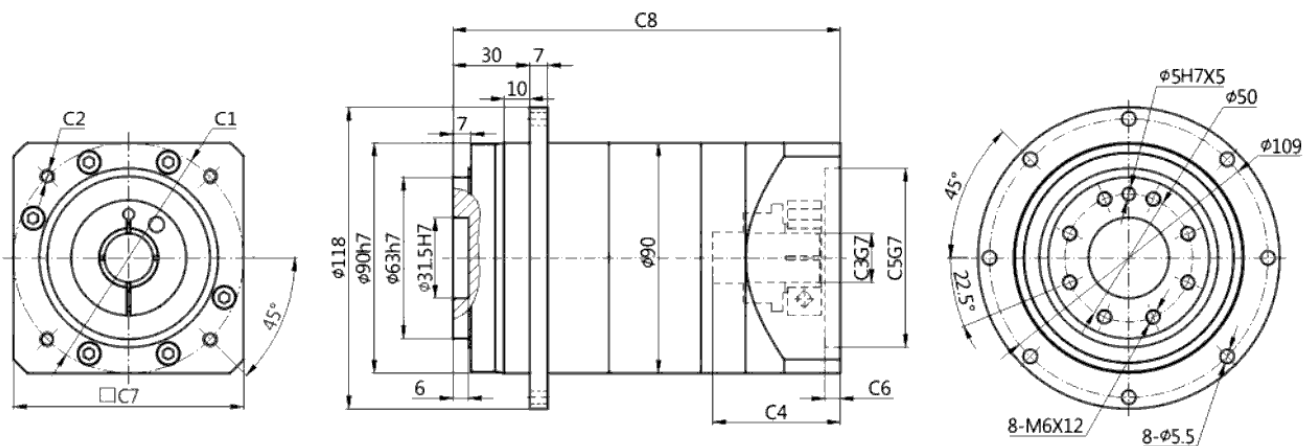
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HGH-Z064-L1 [Single]	ø70	4-M4/4-M5	ø14	32	ø50	5	65	71,5
HGH-Z064-L2 [Double]	ø70	4-M4/4-M5	ø14	32	ø50	5	65	71,5

DRAWINGS

HGH-Z090-L1



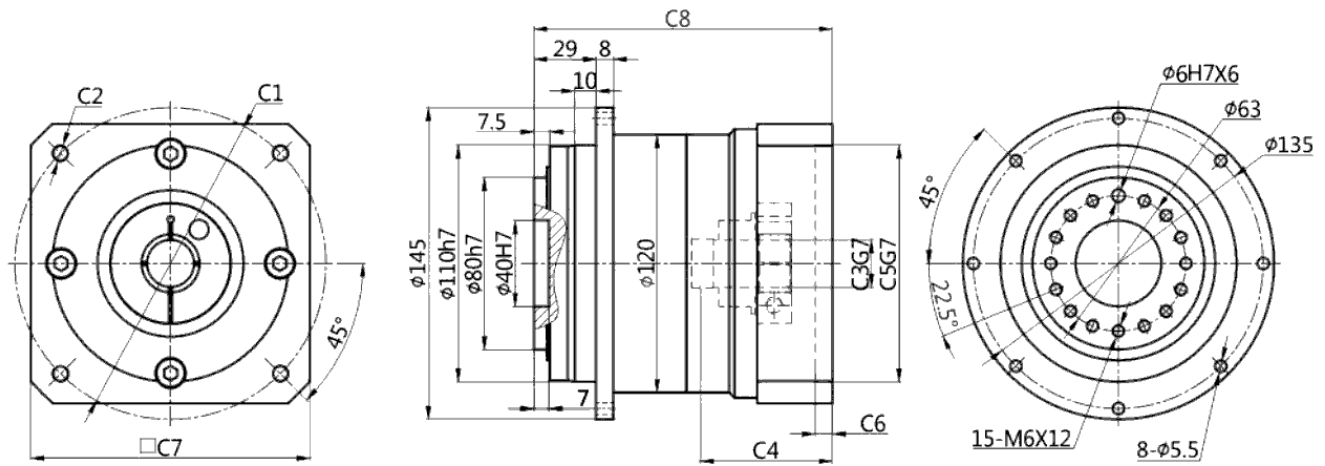
HGH-Z090-L2



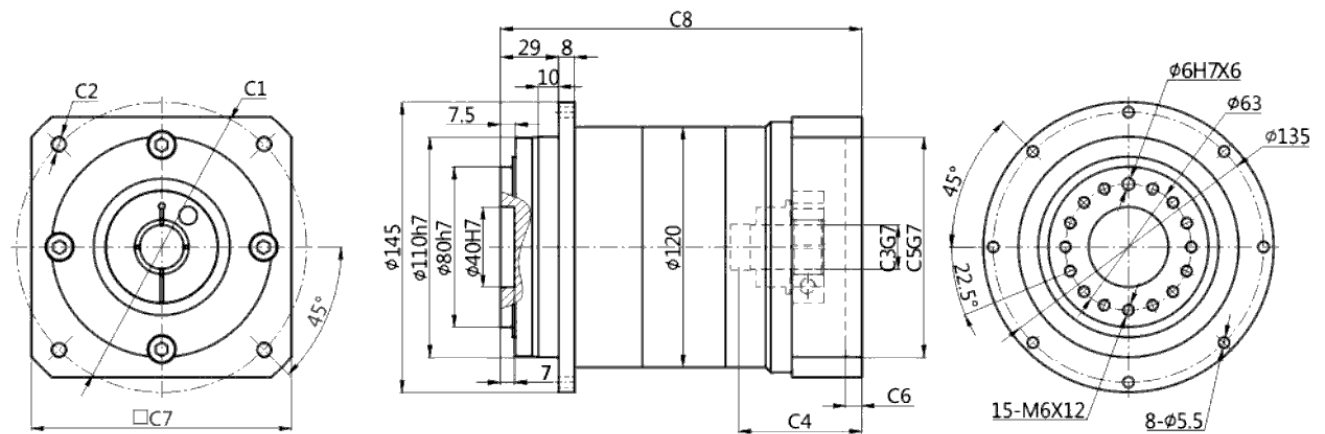
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HGH-Z090-L1 (Single)	ø98,4	4-M6/4-M5	ø 14/ ø19	42	ø73	6	90	91,5
	ø90	4-M5/4-M6	ø19	42	ø70	6	90	91,5
	ø115	4-M8	ø19/ø22	54	ø95	8	110	103,5
	ø130	4-M8	ø19/ø22	54	ø95	8	110	103,5
	ø145	4-M8	ø19/ø22	57,5	ø110	8	130	107
HGH-Z090-L2 (Double)	ø98,4	4-M6/4-M5	ø14/ø19	42	ø73	6	90	91,5
	ø90	4-M5/4-M6	ø19	42	ø70	6	90	91,5
	ø115	4-M8	ø19/ø22	54	ø95	8	110	103,5
	ø130	4-M8	ø19/ø22	54	ø95	8	110	103,5
	ø145	4-M8	ø19/ø22	57,5	ø110	8	130	107

DRAWINGS

HGH-Z110-L1



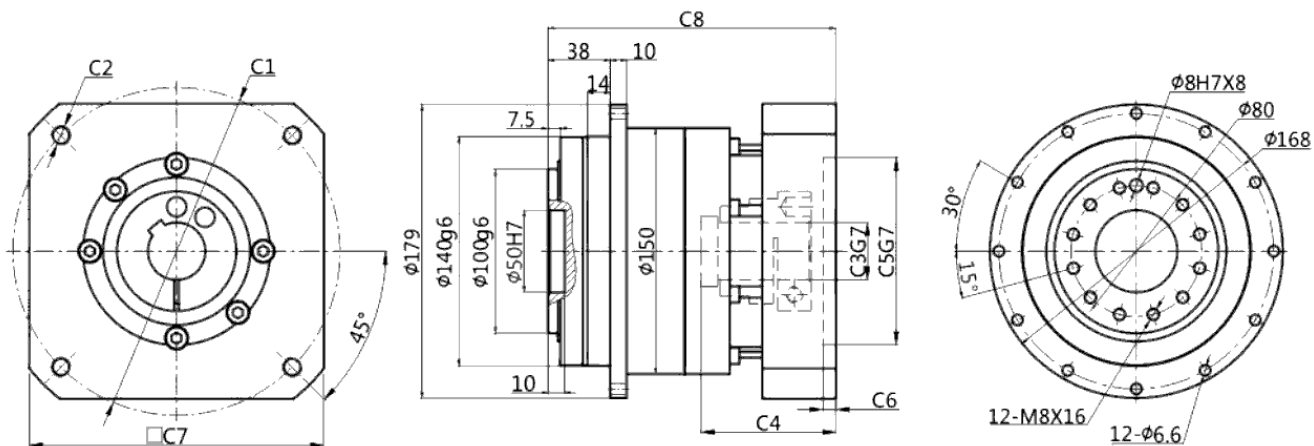
HGH-Z110-L2



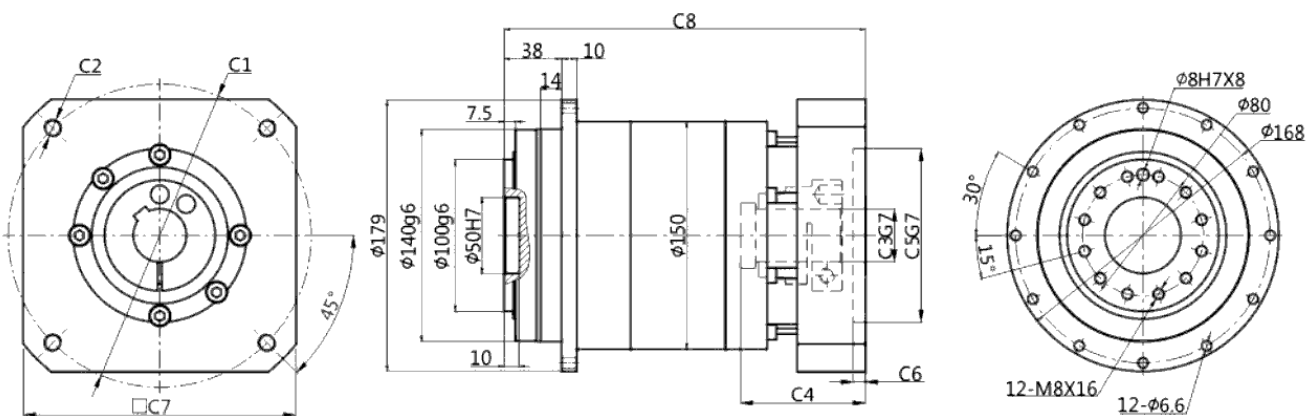
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HGH-Z110-L1 (Single)	$\phi 115$	4-M8/4-M6	$\phi 22/\phi 24$	57	$\phi 95$	8	130	119
	$\phi 130$	4-M8	$\phi 22/\phi 24$	57	$\phi 95$	8	130	119
	$\phi 145$	4-M8	$\phi 22/\phi 24$	60	$\phi 110$	8	130	122
HGH-Z110-L2 (Double)	$\phi 115$	4-M8/4-M6	$\phi 22/\phi 24$	57	$\phi 95$	8	130	119
	$\phi 130$	4-M8	$\phi 22/\phi 24$	57	$\phi 95$	8	130	119
	$\phi 145$	4-M8	$\phi 22/\phi 24$	60	$\phi 110$	8	130	122

DRAWINGS

HGH-Z140-L1



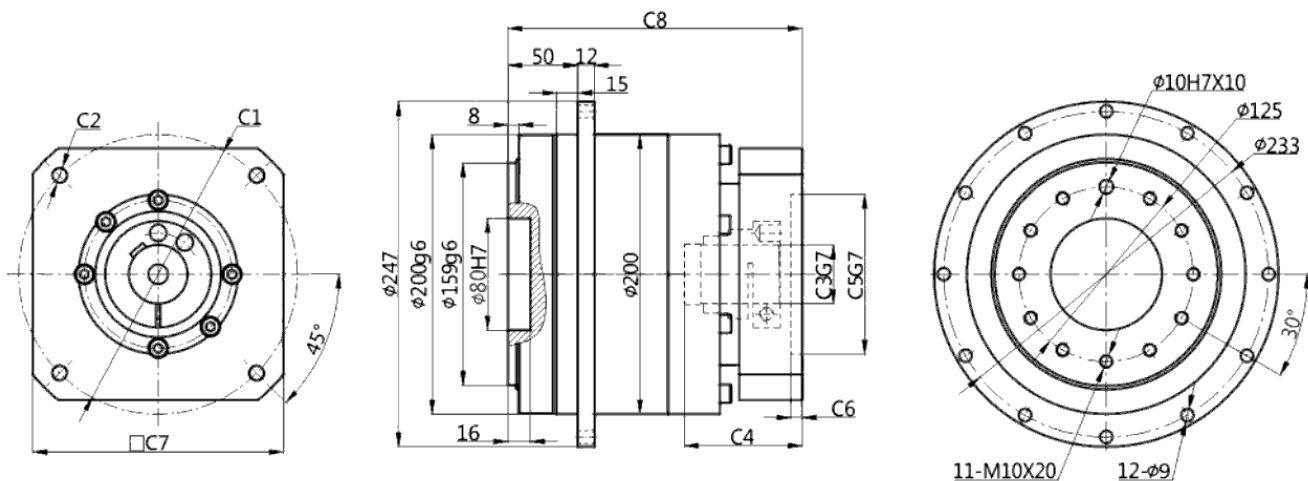
HGH-Z140-L2



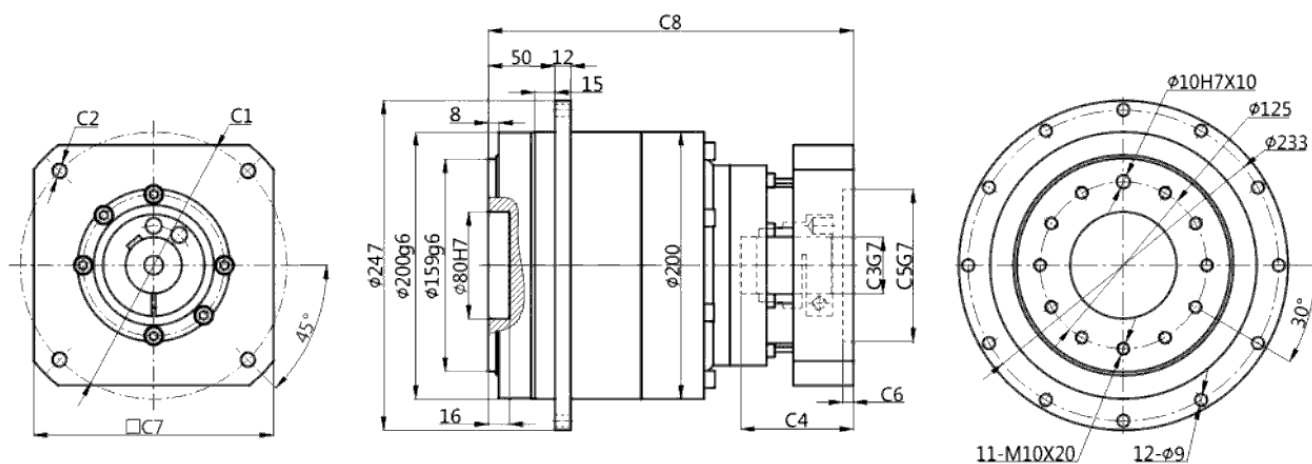
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HGH-Z140-L1 (Single)	ø115	4-M8/4-M6	ø22/ø24	67,5	ø95	8	115	144
	ø145	4-M8	ø22/ø24	72,5	ø110	8	130	149
	ø200	4-M12	ø35/ø42	82,5	ø114,3	8	180	159
	ø200	4-M12	ø35/ø42	117	ø114,3	8	180	191,5
HGH-Z140-L2 (Double)	ø115	4-M8/4-M6	ø22/ø24	67,5	ø95	8	115	144
	ø145	4-M8	ø22/ø24	72,5	ø110	8	130	149
	ø200	4-M12	ø35/ø42	82,5	ø114,3	8	180	159
	ø200	4-M12	ø35/ø42	117	ø114,3	8	180	191,5

DRAWINGS

HGH-Z200-L1



HGH-Z200-L2



Stage	C1	C2	C3	C4	C5	C6	C7	C8
HGH-Z200-L1 (Single)	φ200	4-M12	φ35/φ42	82,5	φ114,3	8	180	159
	φ200	4-M12	φ35/φ42	117	φ114,3	8	180	191,5
	φ215	4-M12	φ42	87,5	φ180	8	200	164
HGH-Z200-L2 (Double)	φ115	4-M8/4-M6	φ22/φ24	67,5	φ95	8	115	144
	φ145	4-M8	φ22/φ24	72,5	φ110	8	130	149
	φ200	4-M12	φ35/φ42	82,5	φ114,3	8	180	159
	φ200	4-M12	φ35/φ42	117	φ114,3	8	180	191,5
	φ215	4-M12	φ42	87,5	φ180	8	200	164

REDUCER PART NUMBER

HLE **090** - **20** - **0** **0** **0** - **X**

1 2 3 4 5 6 7 8

- | | | | |
|---|--------------------------------------|---|--|
| 1 Type :
S = Straight
H = Helical
Z = Harmonic | 3 Size (0,60, 0,90, 120...) | 5 Output shaft :
O = Plain
K = Hollow | 7 Keyway :
O = No
K = Keyway |
| 2 Model :
LE, LF, LS, LX ... | 4 Ratio (03, 05, 07, 10, 25, 100...) | 6 Angle :
O = 0° Angle
Z = 90° Angle | 8 Motor type :
N23, N34, ADM85, ARS115... |

In accordance with our policy of continual product improvement, A2V reserves the right to amend the specification of these products without prior notification