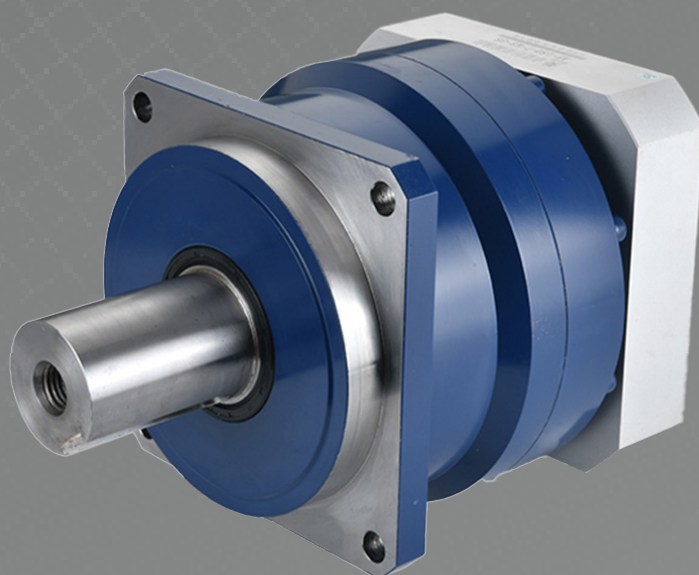
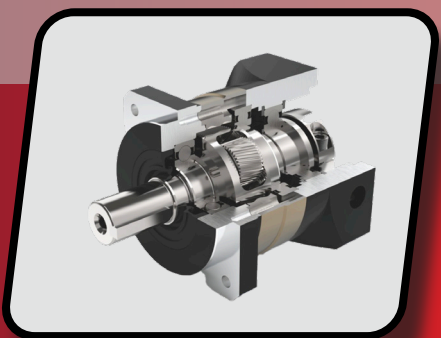
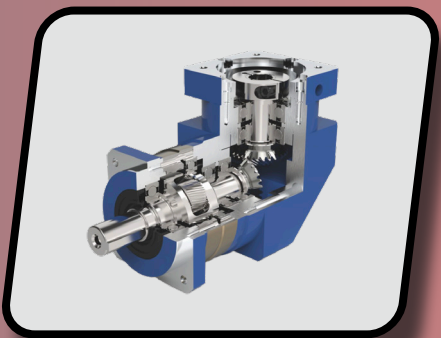
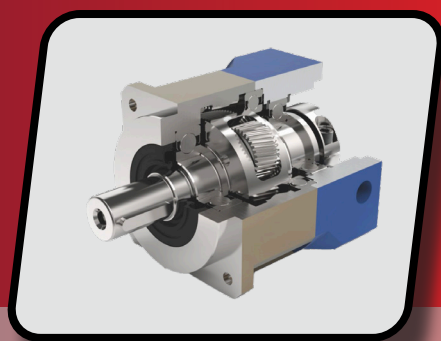


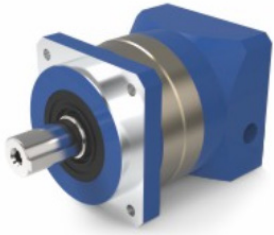
REDUCER HF SERIES



INGENUITY CASTING PRECISION
HELICAL PRODUCTS

V1.2.5

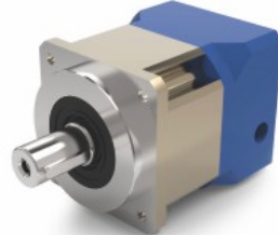
CONTENTS



HF



HLF



HXF



HF-Z



Low noise

Below 65db.



High input speed

Up to 5000 RPM



Low Backlash

One stage within 3 armin,
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.

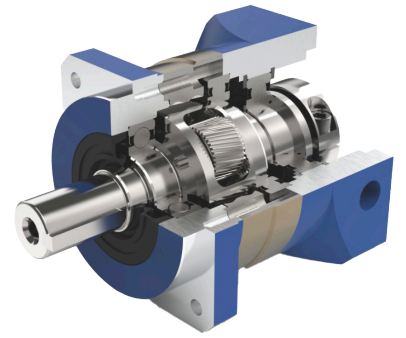
TECHNICAL DATA

Motor type	Stage	Ratio	Torque		Speed		Max force		Backlash	Efficiency	Weight
			Nominal	Max	Nominal	Max	Radial	Axial			
			Nm		RPM		N		Arcmin	%	Kg
HF060	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		
HF090	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		
HF115	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		
HF140	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		

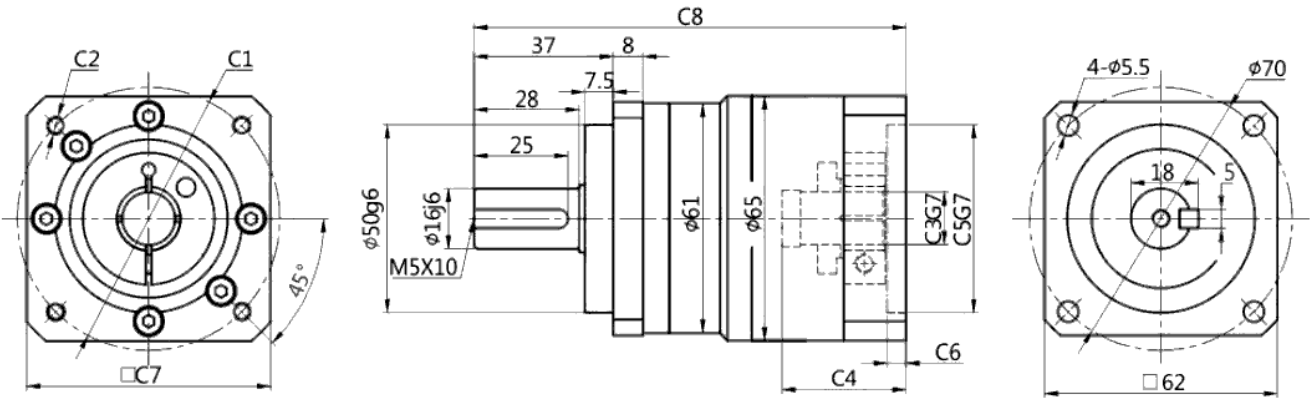
TECHNICAL DATA

Motor type	Stage	Ratio	Torque		Speed		Max force		Backlash	Efficiency	Weight
			Nominal	Max	Nominal	Max	Radial	Axial			
			Nm		RPM		N		Arcmin	%	Kg
HF180	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		

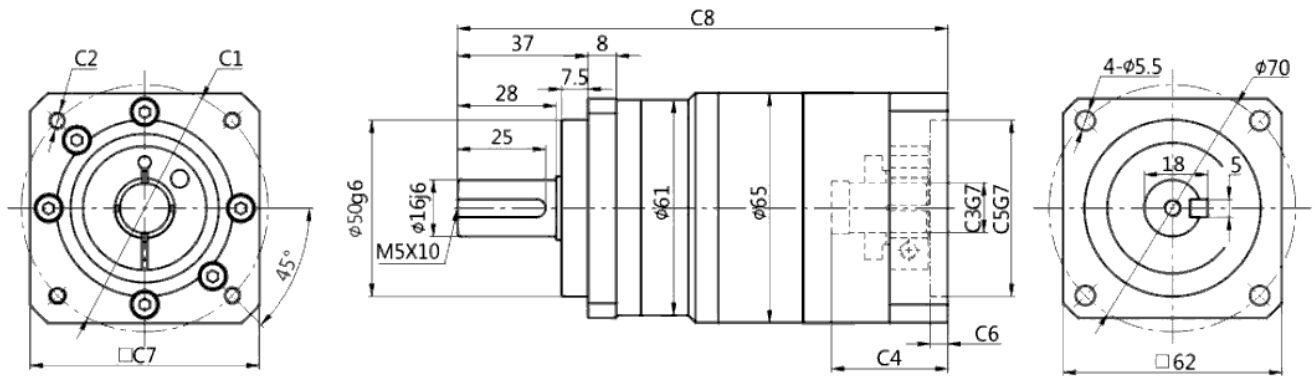
DRAWINGS



HF060-L1



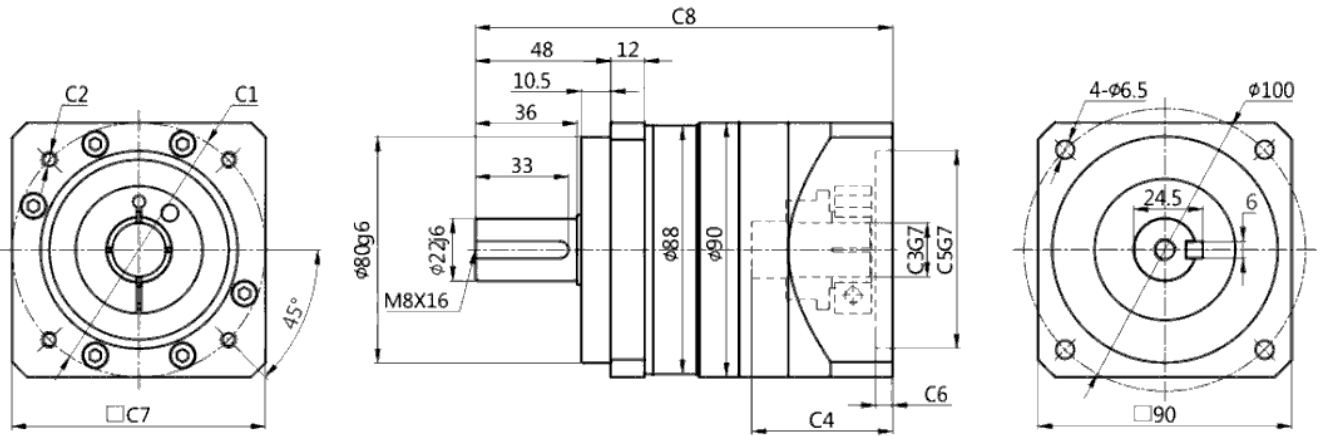
HF060-L2



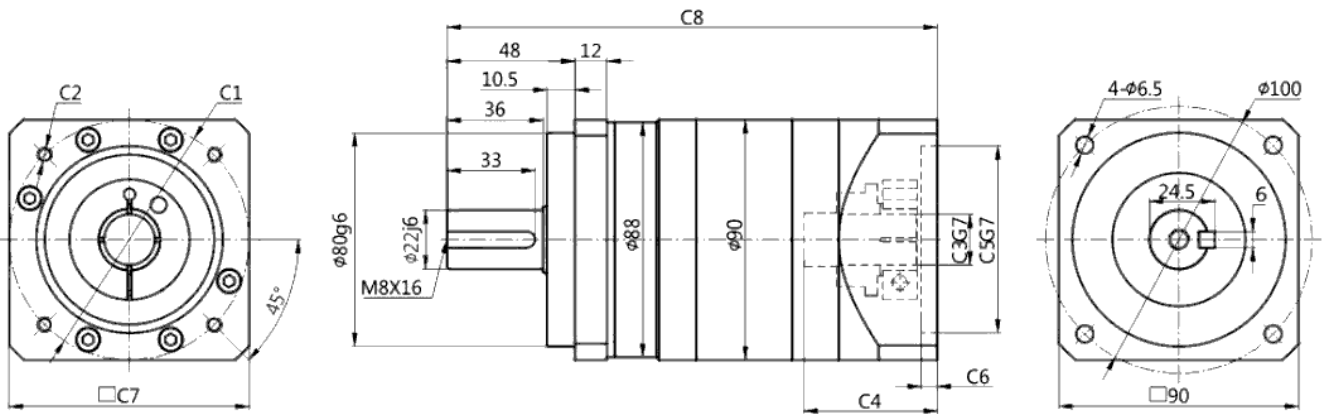
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HF060-L1 (Single)	$\phi 47,14$	4-M4	$\phi 8$	30	$\phi 38,1$	5	65	112
	$\phi 46$	4-M4	$\phi 8$	30	$\phi 30$	5	65	112
	$\phi 45$	4-M3	$\phi 8$	30	$\phi 30$	5	65	112
	$\phi 70$	4-M4/4-M5	$\phi 14$	33	$\phi 50$	5	65	115
HF060-L2 (Double)	$\phi 47,14$	4-M4	$\phi 8$	30	$\phi 38,1$	5	65	136
	$\phi 46$	4-M4	$\phi 8$	30	$\phi 30$	5	65	136
	$\phi 45$	4-M3	$\phi 8$	30	$\phi 30$	5	65	136
	$\phi 70$	4-M4/4-M5	$\phi 14$	33	$\phi 50$	5	65	139

DRAWINGS

HF090-L1



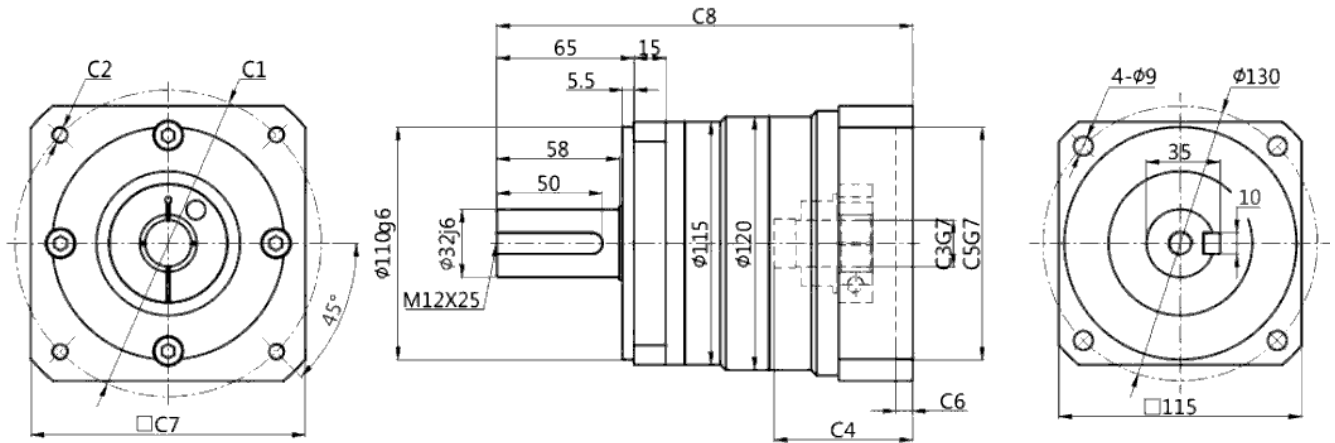
HF090-L2



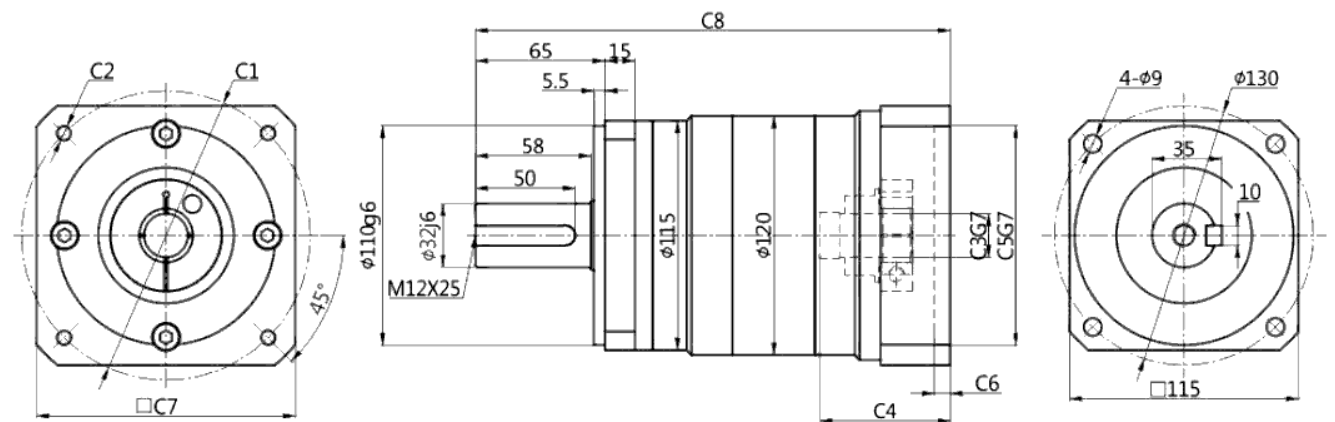
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HF090-L1 (Single)	$\phi 98,4$	4-M6/4-M5	$\phi 14/\phi 19$	50	$\phi 73$	6	90	148
	$\phi 90$	4-M5/4-M6	$\phi 19$	50	$\phi 70$	6	90	148
	$\phi 115$	4-M8	$\phi 19/\phi 22$	62	$\phi 95$	8	110	160
	$\phi 130$	4-M8	$\phi 19/\phi 22$	62	$\phi 95$	8	110	160
	$\phi 145$	4-M8	$\phi 19/\phi 22/\phi 24$	65,5	$\phi 110$	14	130	163,5
HF090-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

HF115-L1



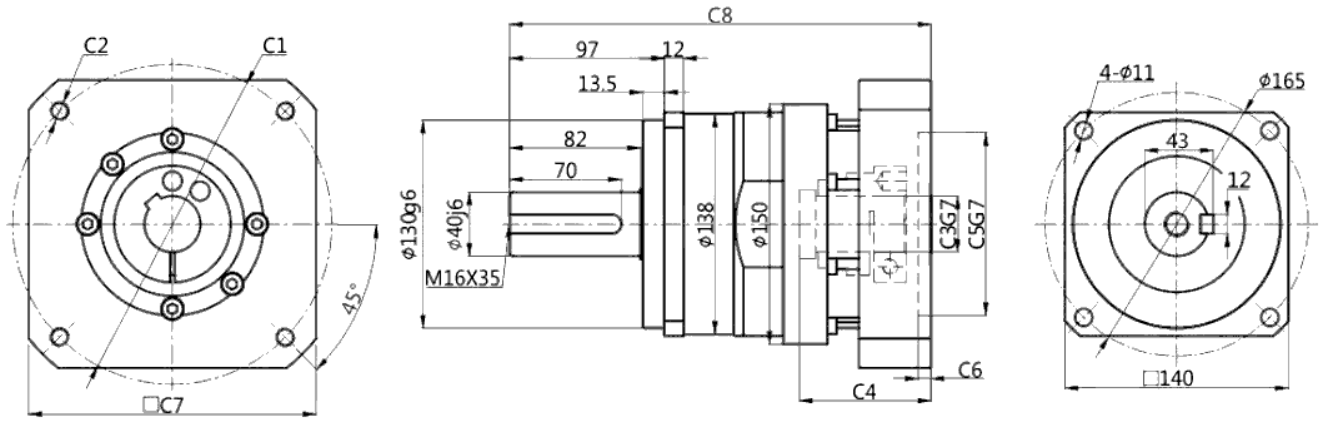
HF115-L2



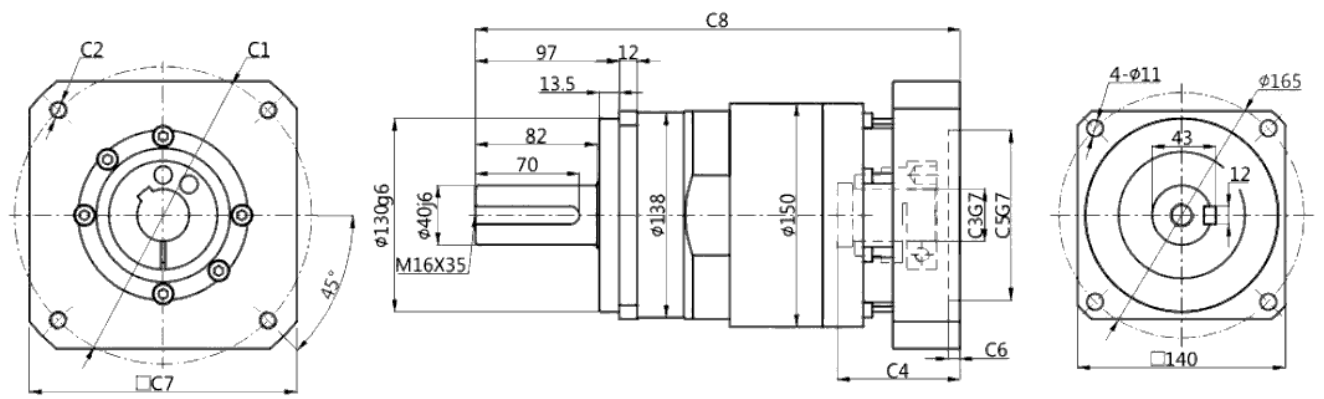
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HF115-L1 (Single)	$\phi 115$	4-M8/4-M6	$\phi 19/\phi 22/\phi 24$	62,5	$\phi 95$	8	130	194
	$\phi 130$	4-M8	$\phi 19/\phi 22/\phi 24$	62,5	$\phi 95$	8	130	194
	$\phi 145$	4-M8	$\phi 19/\phi 22/\phi 24$	65,5	$\phi 110$	8	130	197
HF115-L2 (Double)	$\phi 90$	4-M5/4-M6	$\phi 19$	57,5	$\phi 70$	6	130	230,5
	$\phi 115$	4-M8/4-M6	$\phi 19/\phi 22/\phi 24$	62,5	$\phi 95$	8	130	235,5
	$\phi 130$	4-M8	$\phi 19/\phi 22/\phi 24$	62,5	$\phi 95$	8	130	235,5
	$\phi 145$	4-M8	$\phi 19/\phi 22/\phi 24$	65,5	$\phi 110$	8	130	238,5

DRAWINGS

HF140-L1



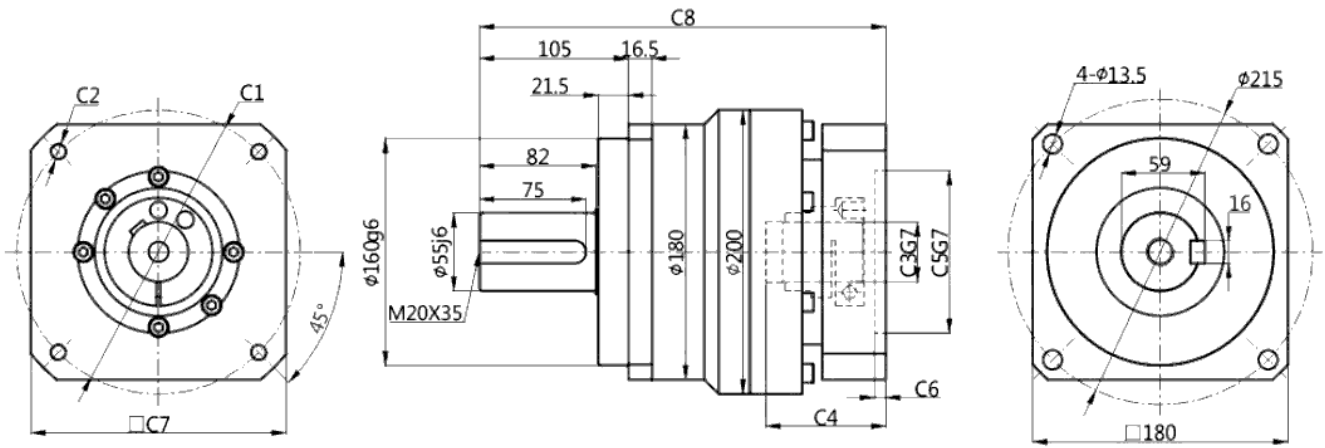
HF140-L2



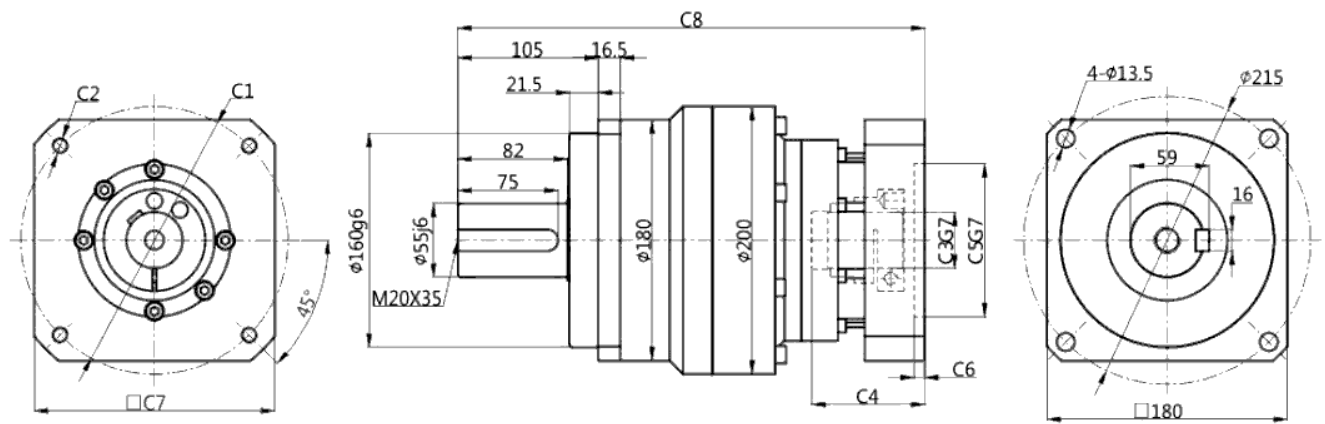
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HF140-L1 (Single)	ø115	4-M8/4-M6	ø22/ø24	67,5	ø95	8	115	249
	ø145	4-M8	ø22/ø24	72,5	ø110	8	130	254
	ø200	4-M12	ø35/ø38/ø42	82,5	ø114,3	8	180	264
	ø200	4-M12	ø35/ø42	117	ø114,3	8	180	296,5
HF140-L2 (Double)	ø115	4-M8/4-M6	ø22/ø24	67,5	ø95	6	115	311,5
	ø145	4-M8	ø22/ø24	72,5	ø110	8	130	316,5
	ø200	4-M12	ø35	82,5	ø114,3	8	180	326,5

DRAWINGS

HF180-L1



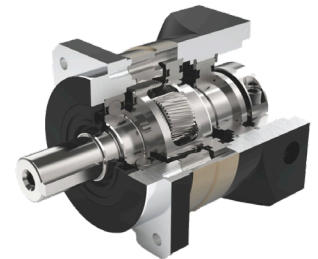
HF180-L2



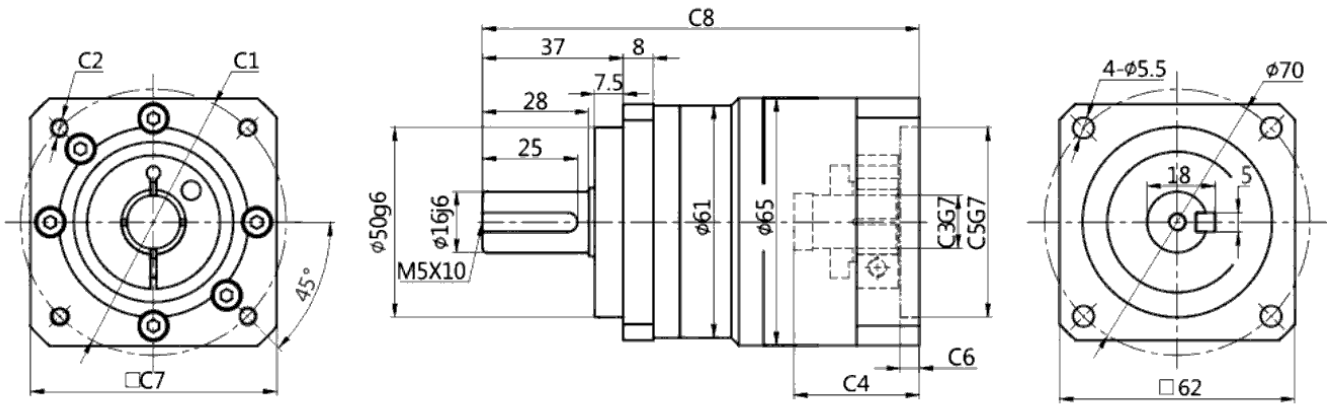
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HF180-L1 (Single)	ø200	4-M12	ø35/ø38/ø42	82,5	ø114,3	8	180	286,5
	ø200	4-M12	ø35/ø42	117	ø114,3	8	180	319
	ø215	4-M12	ø38/ø42	87,5	ø180	8	200	291,5
HF180-L2 (Double)	ø115	4-M8/4-M6	ø22/ø24	67,5	ø95	8	115	334,5
	ø145	4-M8	ø22/ø24	72,5	ø110	8	130	339,5
	ø200	4-M12	ø35/ø38/ø42	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
HLF060	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
HLF090	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

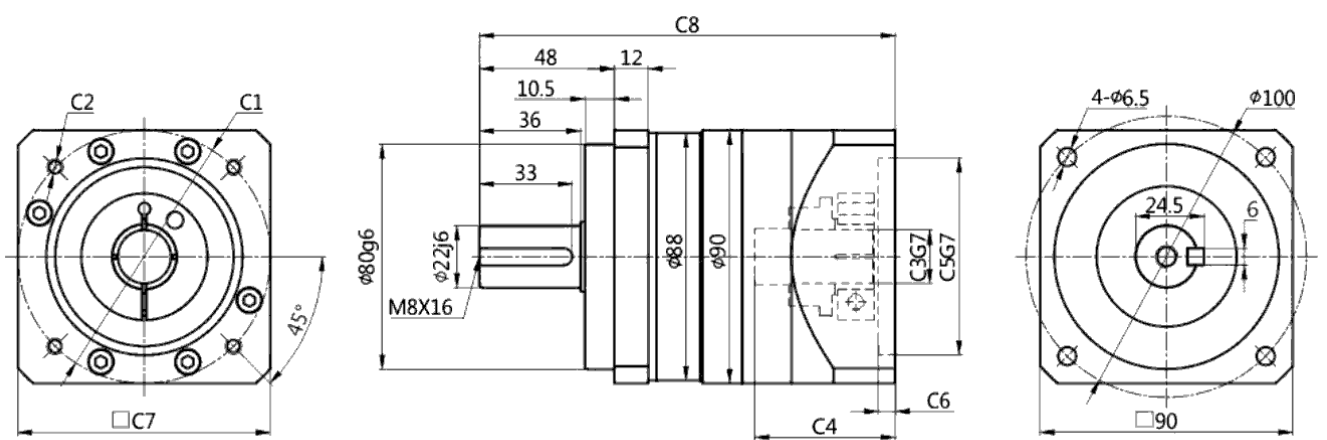
DRAWINGS



HLF060-L1



HLF090-L1

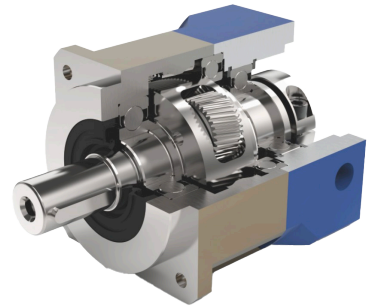


Stage	C1	C2	C3	C4	C5	C6	C7	C8
HLF060-L1 (Single)	φ70	4-M4/4-M5	φ14	33	φ50	5	65	115
HLF090-L1 (Single)	φ90	4-M5/4-M6	φ19	50	φ70	6	90	148
	φ145	4-M8	φ19/φ22/φ24	65,5	φ110	14	130	163,5

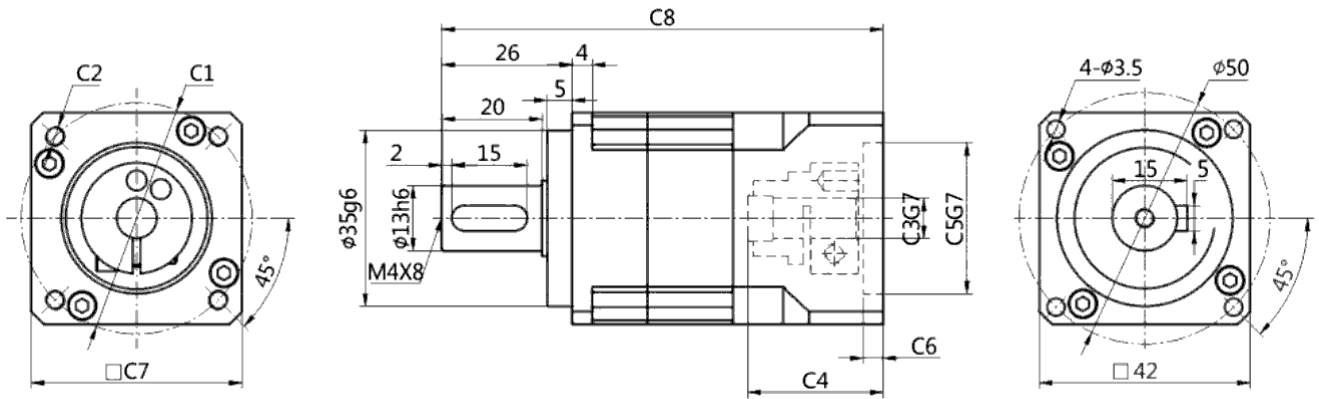
TECHNICAL DATA

Motor type	Stage	Ratio	Torque		Speed		Max force		Backlash	Efficiency	Weight
			Nominal	Max	Nominal	Max	Radial	Axial			
			Nm		RPM		N		Arcmin	%	Kg
HXF042	1	4	20	40	3000	6000	700	380	3	97	0,8
		5	20	40	3000	6000	700	380	3	97	0,8
		7	19	38	3000	6000	700	380	3	97	0,8
		10	14	28	3000	6000	700	380	3	97	0,8
	2	16	20	40	3000	6000	700	380	5	97	1,3
		20	20	40	3000	6000	700	380	5	97	1,3
		25	20	40	3000	6000	700	380	5	97	1,3
		28	20	40	3000	6000	700	380	5	97	1,3
		35	20	40	3000	6000	700	380	5	97	1,3
		40	20	40	3000	6000	700	380	5	97	1,3
HXF060	1	3	55	110	3000	6000	1500	760	3	97	1,5
		4	65	130	3000	6000	1500	760	3	97	1,5
		5	60	120	3000	6000	1500	760	3	97	1,5
		7	50	100	3000	6000	1500	760	3	97	1,5
	2	10	42	84	3000	6000	1500	760	3	97	1,5
		15	55	110	3000	6000	1500	760	5	97	2,0
		16	65	130	3000	6000	1500	760	5	97	2,0
		20	65	130	3000	6000	1500	760	5	97	2,0
		25	60	120	3000	6000	1500	760	5	97	2,0
		28	65	130	3000	6000	1500	760	5	97	2,0
HXF090	1	3	160	320	3000	6000	3200	1600	3	97	4,0
		4	165	330	3000	6000	3200	1600	3	97	4,0
		5	160	320	3000	6000	3200	1600	3	97	4,0
		7	135	270	3000	6000	3200	1600	3	97	4,0
	2	10	105	210	3000	6000	3200	1600	3	97	4,0
		15	160	320	3000	6000	3200	1600	5	97	5,5
		16	165	330	3000	6000	3200	1600	5	97	5,5
		20	165	330	3000	6000	3200	1600	5	97	5,5
		25	160	320	3000	6000	3200	1600	5	97	5,5
		28	165	330	3000	6000	3200	1600	5	97	5,5
HXF115	1	3	335	670	3000	6000	6700	3300	3	95	8,2
		4	345	690	3000	6000	6700	3300	3	95	8,2
		5	335	670	3000	6000	6700	3300	3	95	8,2
		7	290	580	3000	6000	6700	3300	3	95	8,2
	2	10	255	510	3000	6000	6700	3300	3	95	8,2
		15	335	670	3000	6000	6700	3300	5	95	12
		16	345	690	3000	6000	6700	3300	5	95	12
		20	345	690	3000	6000	6700	3300	5	95	12
		25	335	670	3000	6000	6700	3300	5	95	12
		28	345	690	3000	6000	6700	3300	5	95	12
HXF142	1	3	650	1300	2000	4000	9600	4800	3	95	18
		4	700	1400	2000	4000	9600	4800	3	95	18
		5	650	1300	2000	4000	9600	4800	3	95	18
		7	540	1080	2000	4000	9600	4800	3	95	18
	2	10	455	910	2000	4000	9600	4800	3	95	18
		15	650	1300	2000	4000	9600	4800	5	95	25
		16	700	1400	2000	4000	9600	4800	5	95	25
		20	700	1400	2000	4000	9600	4800	5	95	25
		25	650	1300	2000	4000	9600	4800	5	95	25
		28	700	1400	2000	4000	9600	4800	5	95	25
HXF142	1	3	650	1300	2000	4000	9600	4800	3	95	18
		4	700	1400	2000	4000	9600	4800	3	95	18
		5	650	1300	2000	4000	9600	4800	3	95	18
		7	540	1080	2000	4000	9600	4800	3	95	18
	2	10	455	910	2000	4000	9600	4800	3	95	18
		15	650	1300	2000	4000	9600	4800	5	95	25
		16	700	1400	2000	4000	9600	4800	5	95	25
		20	700	1400	2000	4000	9600	4800	5	95	25
		25	650	1300	2000	4000	9600	4800	5	95	25
		28	700	1400	2000	4000	9600	4800	5	95	25
HXF142	1	3	650	1300	2000	4000	9600	4800	3	95	18
		4	700	1400	2000	4000	9600	4800	3	95	18
		5	650	1300	2000	4000	9600	4800	3	95	18
		7	540	1080	2000	4000	9600	4800	3	95	18
	2	10	455	910	2000	4000	9600	4800	3	95	18
		15	650	1300	2000	4000	9600	4800	5	95	25
		16	700	1400	2000	4000	9600	4800	5	95	25
		20	700	1400	2000	4000	9600	4800	5	95	25
		25	650	1300	2000	4000	9600	4800	5	95	25
		28	700	1400	2000	4000	9600	4800	5	95	25

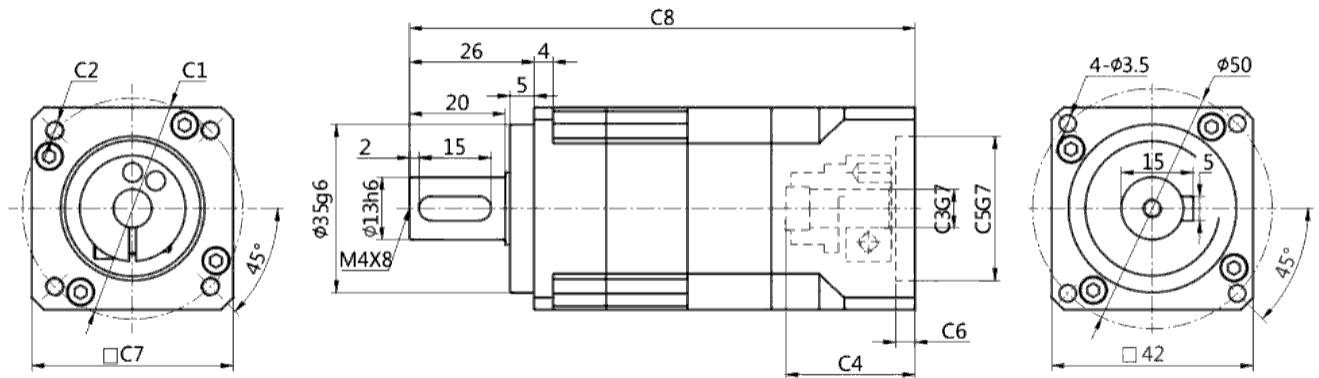
DRAWINGS



HXF042-L1



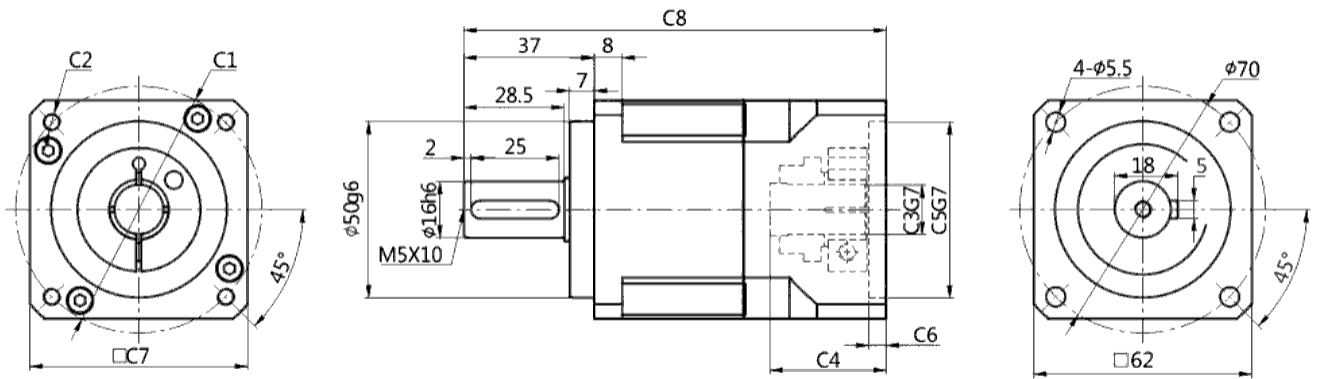
HXF042-L2



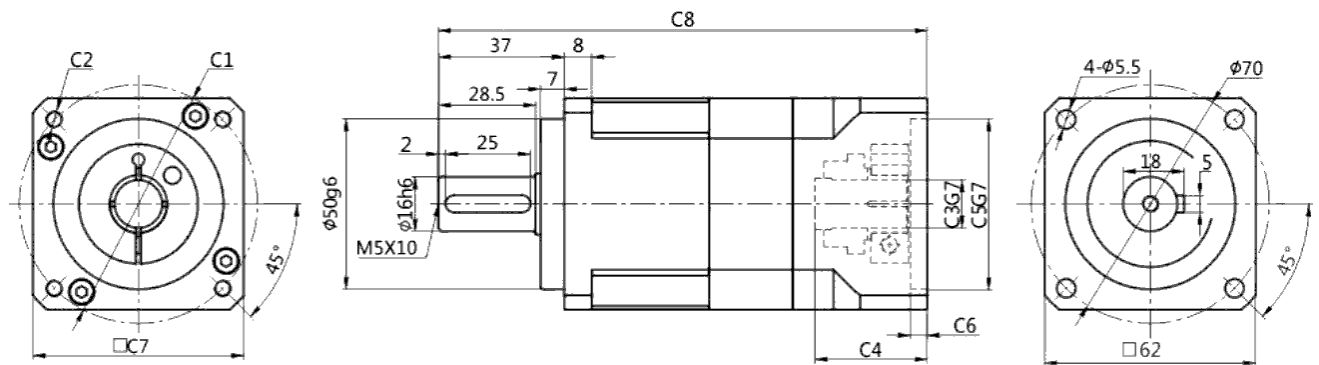
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HXF042-L1	∅46	4-M4	∅8	27	∅30	6	42	88
(Single)	∅45	4-M3	∅8	27	∅30	6	42	88
HXF042-L2	∅46	4-M4	∅8	27	∅30	6	42	105,5
(Double)	∅45	4-M3	∅8	27	∅30	6	42	105,5

DRAWINGS

HXF060-L1



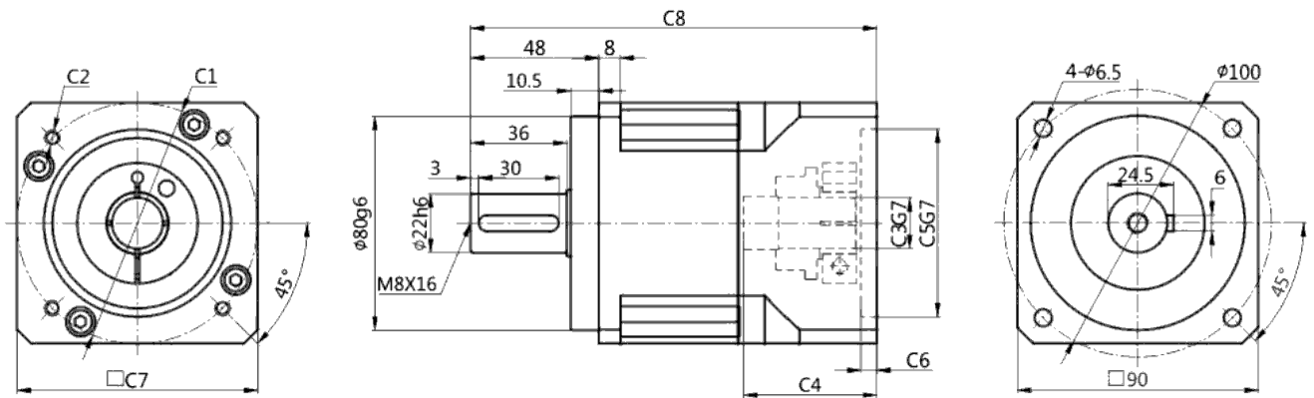
HXF060-L2



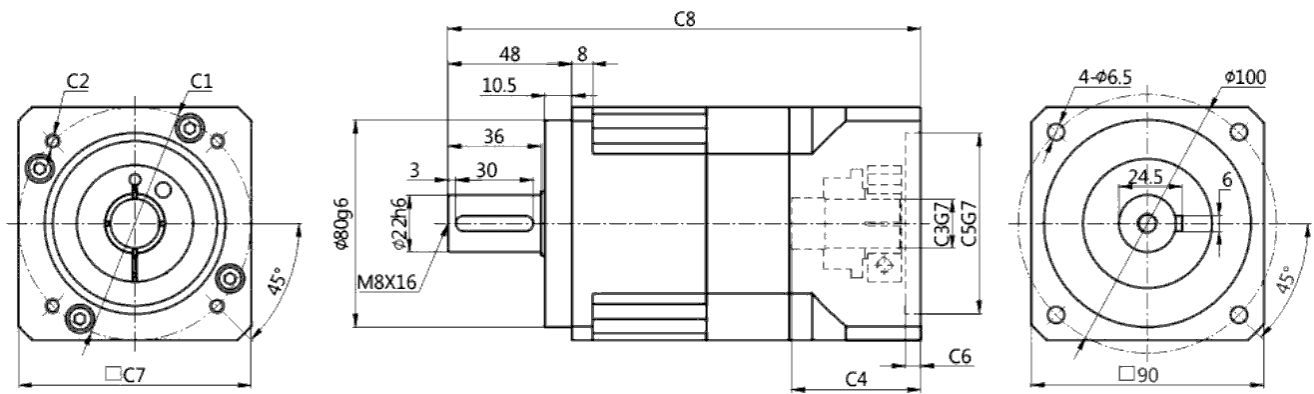
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HXF060-L1 (Single)	$\phi 70$	4-M4/4-M5	$\phi 14$	33	$\phi 50$	5	62	120
HXF060-L2 (Double)	$\phi 70$	4-M4/4-M5	$\phi 14$	33	$\phi 50$	5	62	143,5

DRAWINGS

HXF090-L1



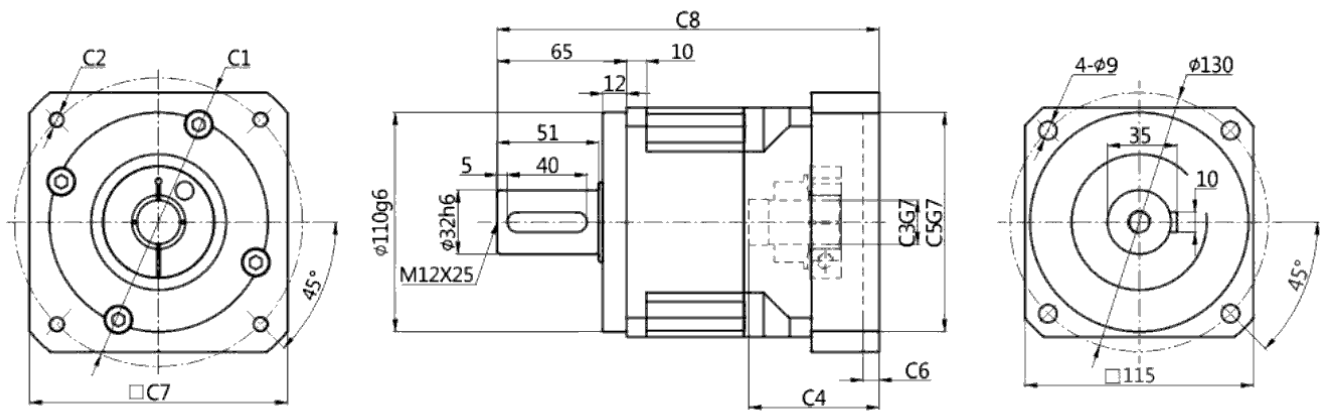
HXF090-L2



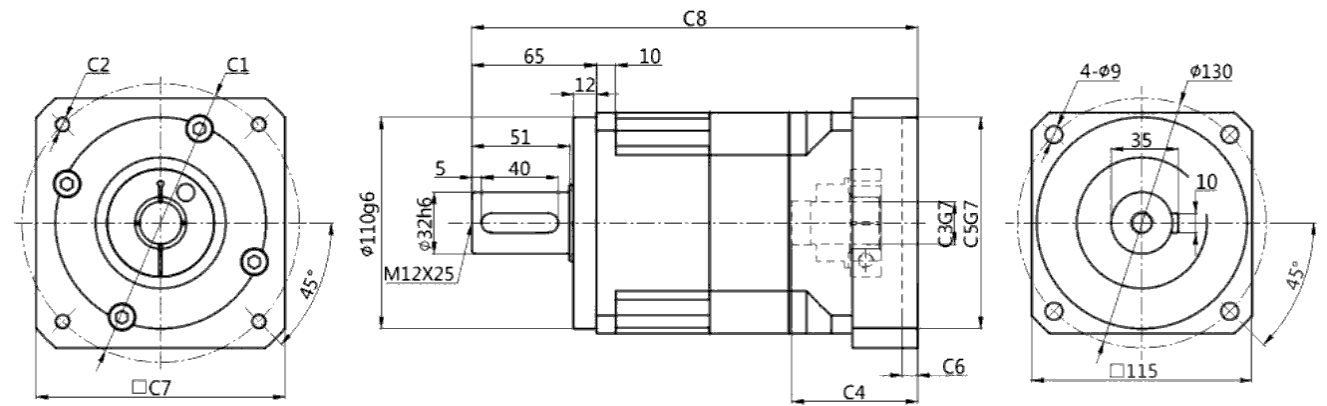
Stage	C1	C2	C3	C4	C5	C6	C7	C8
XF090-L1 (Single)	ø98,4	4-M6/4-M5	ø 14/ ø19	50	ø73	6	90	152
	ø90	4-M5/4-M6	ø19	50	ø70	6	90	152
	ø115	4-M8	ø19/ø22	62	ø95	8	110	164
	ø130	4-M8	ø19/ø22	62	ø95	8	110	164
	ø145	4-M8	ø19/ø22/ø24	65,5	ø110	8	130	167,5
XF090-L2 (Double)	ø70	4-M4/4-M5	ø14	38,5	ø50	5	65	174
	ø98,4	4-M6/4-M5	ø14/ø19	50	ø73	6	90	181
	ø90	4-M5/4-M6	ø19	50	ø70	6	90	183
	ø115	4-M8	ø19/ø22	62	ø95	8	110	195
	ø130	4-M8	ø19/ø22	62	ø95	8	110	195
ø145	4-M8	ø19/ø22	65,5	ø110	8	130	198,5	

DRAWINGS

HXF115-L1



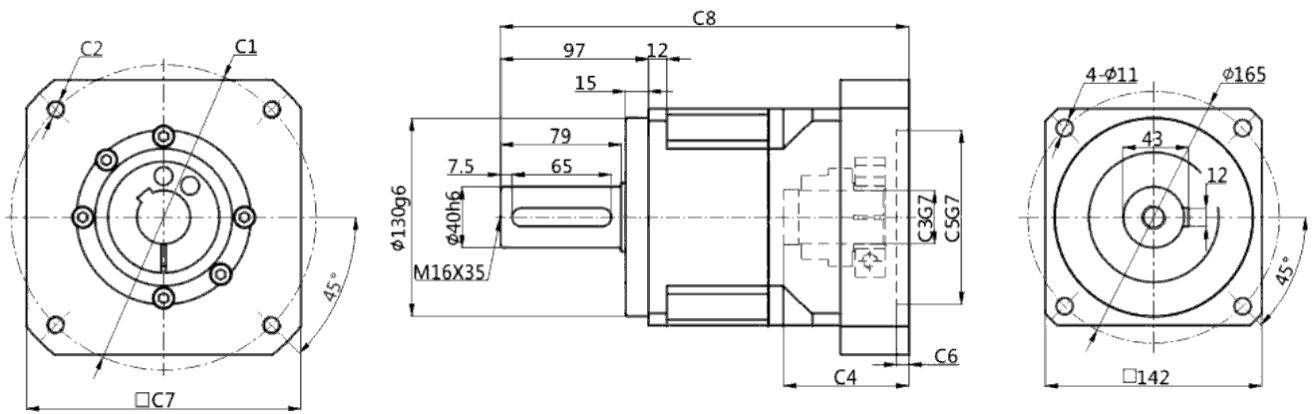
HXF115-L2



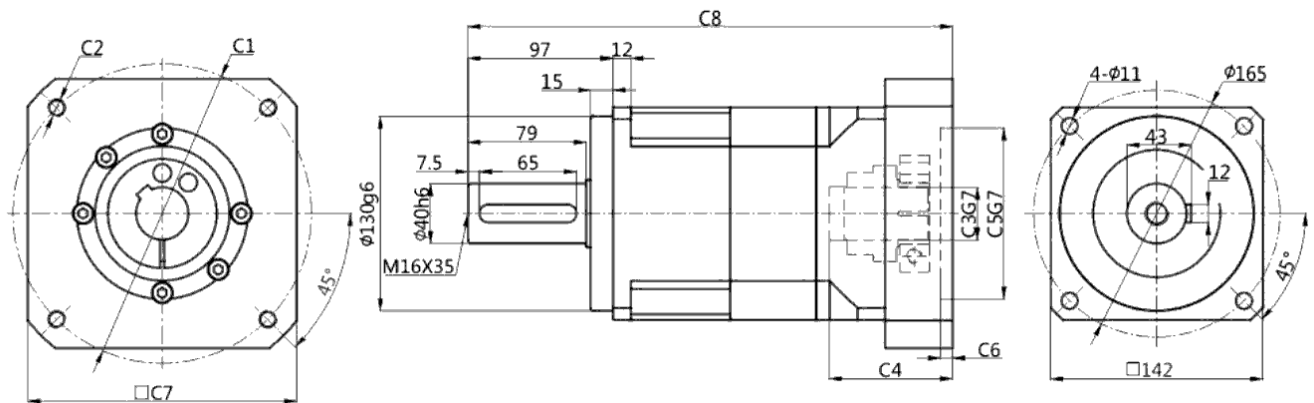
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HXF115-L1 (Single)	φ115	4-M8/4-M6	φ19/φ22/φ24	62,5	φ95	8	130	189
	φ130	4-M8	φ19/φ22/φ24	62,5	φ95	8	130	189
	φ145	4-M8	φ19/φ22/φ24	62,5	φ110	8	130	192
HXF115-L2 (Double)	φ90	4-M5/4-M6	φ19	57,5	φ70	6	130	224,5
	φ115	4-M8/4-M6	φ19/φ22/φ24	62,5	φ95	8	130	229,5
	φ130	4-M8	φ19/φ22/φ24	62,5	φ95	8	130	229,5
	φ145	4-M8	φ19/φ22/φ24	65,5	φ110	8	130	232,5

DRAWINGS

HXF142-L1



HXF142-L2



Stage	C1	C2	C3	C4	C5	C6	C7	C8
HXF142-L1 (Single)	ø200	4-M12	ø35/ø38/ø42	82,5	ø114,3	8	180	268
	ø200	4-M12	ø35/ø42	117	ø114,3	8	180	300,5
	ø215	4-M12	ø38/ø42	87,5	ø180	8	200	273
HXF142-L2 (Double)	ø115	4-M8/4-M6	ø22/ø24	67,5	ø95	8	115	309,5
	ø145	4-M8	ø22/ø24	72,5	ø110	8	130	314,5
	ø200	4-M12	ø35	82,5	ø114,3	6	180	324,5

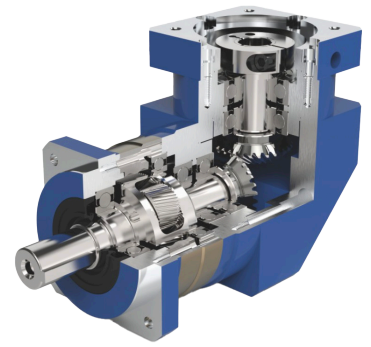
TECHNICAL DATA

Motor type	Stage	Ratio	Torque		Speed		Max force		Backlash	Efficiency	Weight
			Nominal	Max	Nominal	Max	Radial	Axial			
			Nm		RPM		N		Arcmin	%	Kg
HF-Z042	1	4	20	40	3000	6000	700	380	3	95	1,1
		5	20	40	3000	6000	700	380	3	95	1,1
		7	19	38	3000	6000	700	380	3	95	1,1
		10	14	28	3000	6000	700	380	3	95	1,1
		16	20	40	3000	6000	700	380	5	95	1,8
	2	20	20	40	3000	6000	700	380	5	95	1,8
		25	20	40	3000	6000	700	380	5	95	1,8
		28	20	40	3000	6000	700	380	5	95	1,8
		35	20	40	3000	6000	700	380	5	95	1,8
		40	20	40	3000	6000	700	380	5	95	1,8
HF-Z060	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
HF-Z90	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
HF-Z115	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
HF-Z140	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
HF-Z140	2	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	

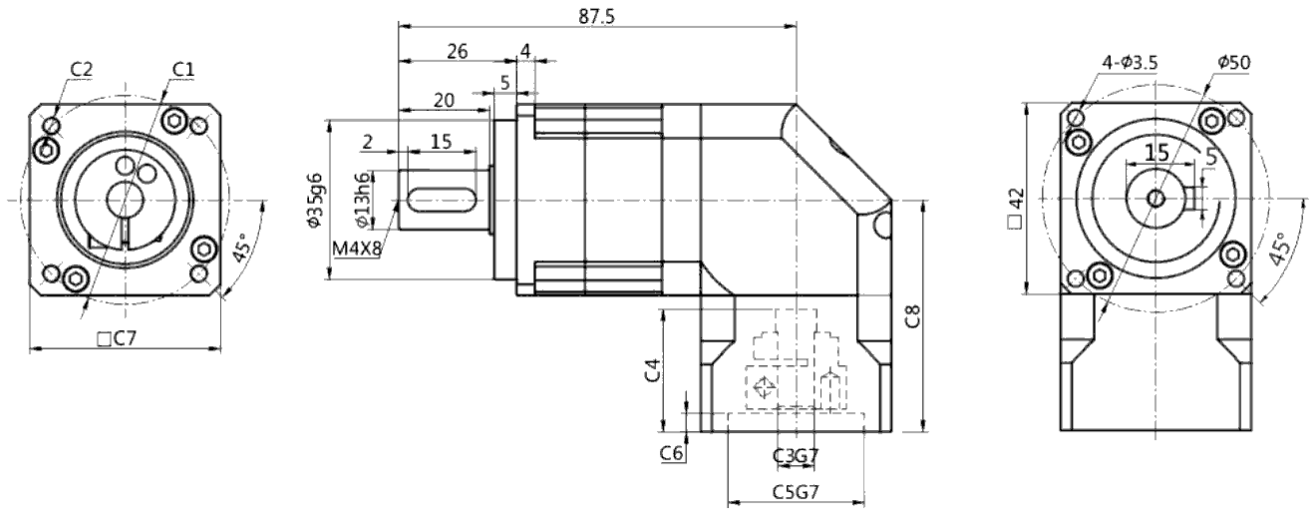
TECHNICAL DATA

Mo- tor type	Stage	Ratio	Torque		Speed		Max force		Backlash	Efficiency	Weight
			Nominal	Max	Nominal	Max	Radial	Axial			
			Nm		RPM		N		Arcmin	%	Kg
HF-Z180	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	

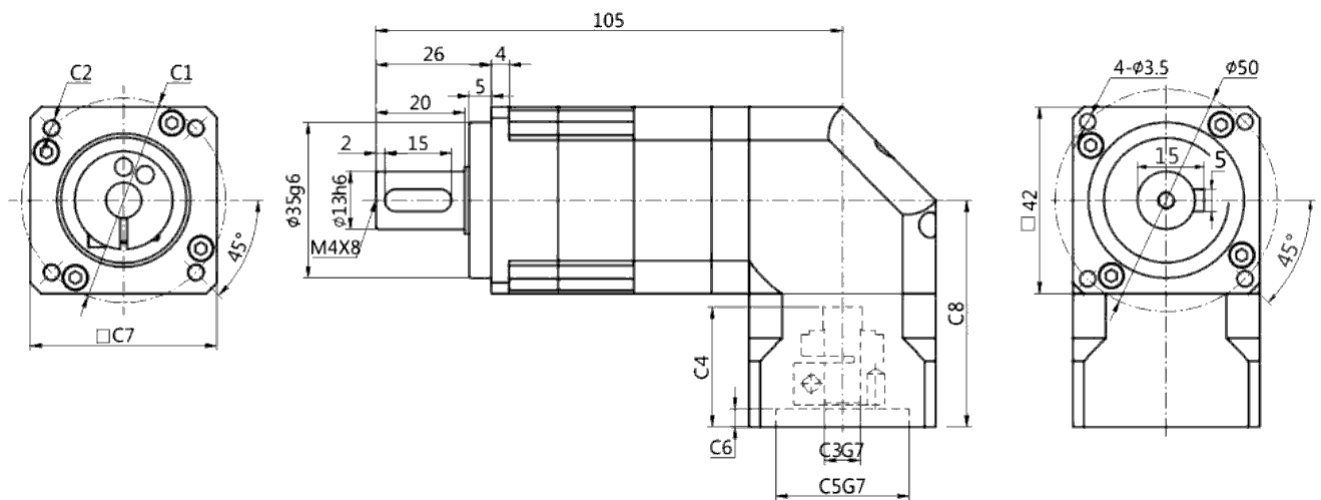
DRAWINGS



HF-Z042-L1



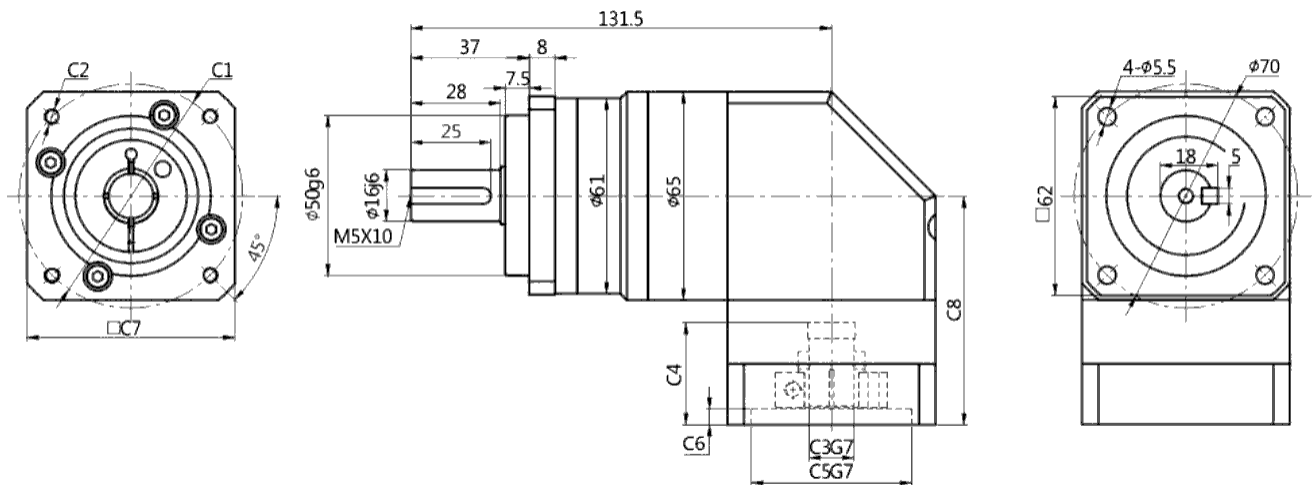
HF-Z042-L2



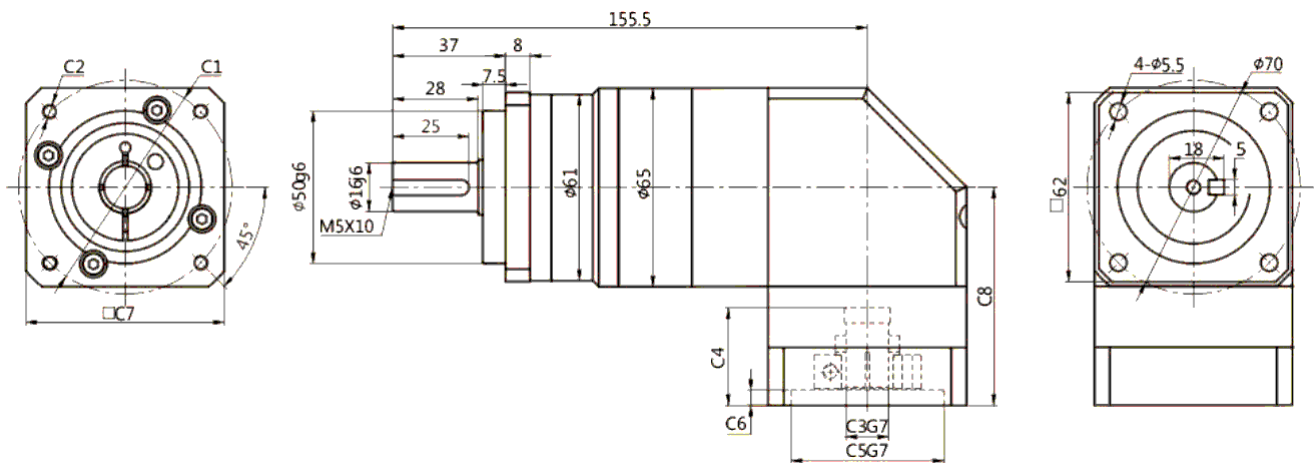
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HF-Z042-L1 (Single)	ø46	4-M4	ø8	27	ø30	6	42	51
	ø45	4-M3	ø8	27	ø30	6	42	51
HF-Z042-L2 (Double)	ø46	4-M4	ø8	27	ø30	6	42	51
	ø45	4-M3	ø8	27	ø30	6	42	51

DRAWINGS

HF-Z060-L1



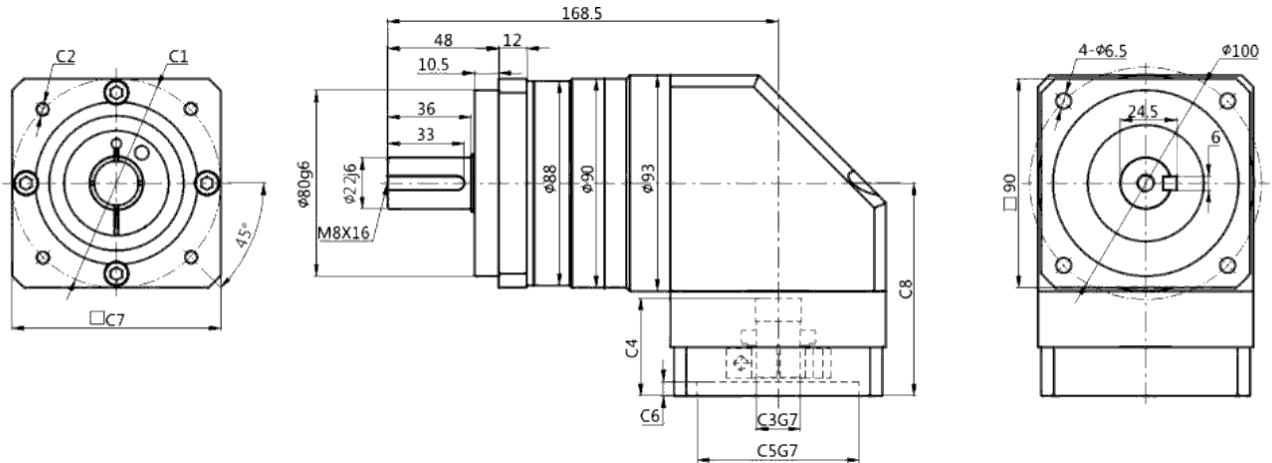
HF-Z060-L2



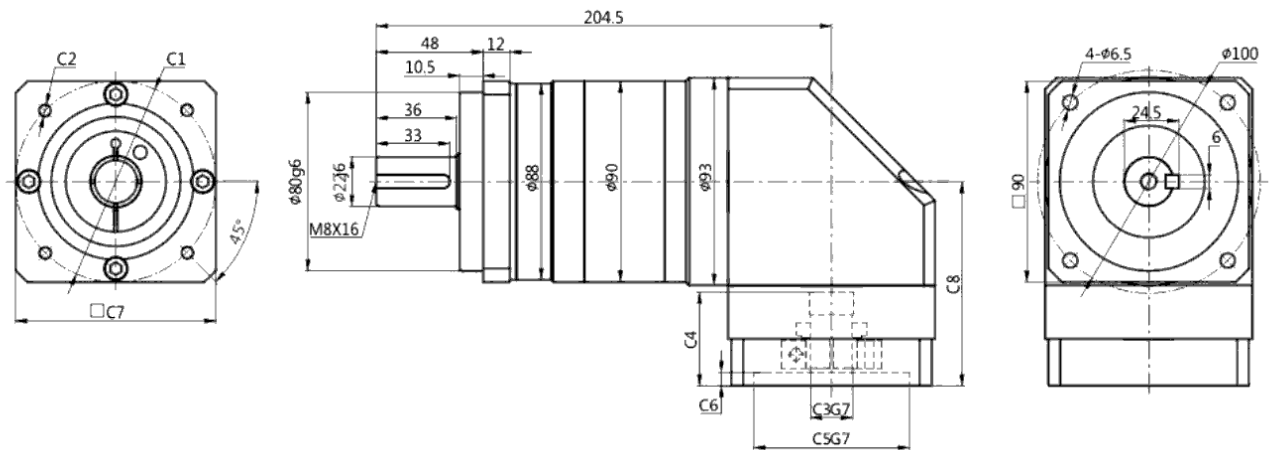
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HF-Z060-L1 (Single)	$\phi 70$	4-M4/4-M5	$\phi 14$	32	$\phi 50$	5	65	71,5
HF-Z060-L2 (Double)	$\phi 70$	4-M4/4M-5	$\phi 14$	32	$\phi 50$	5	65	71,5

DRAWINGS

HF-Z090-L1



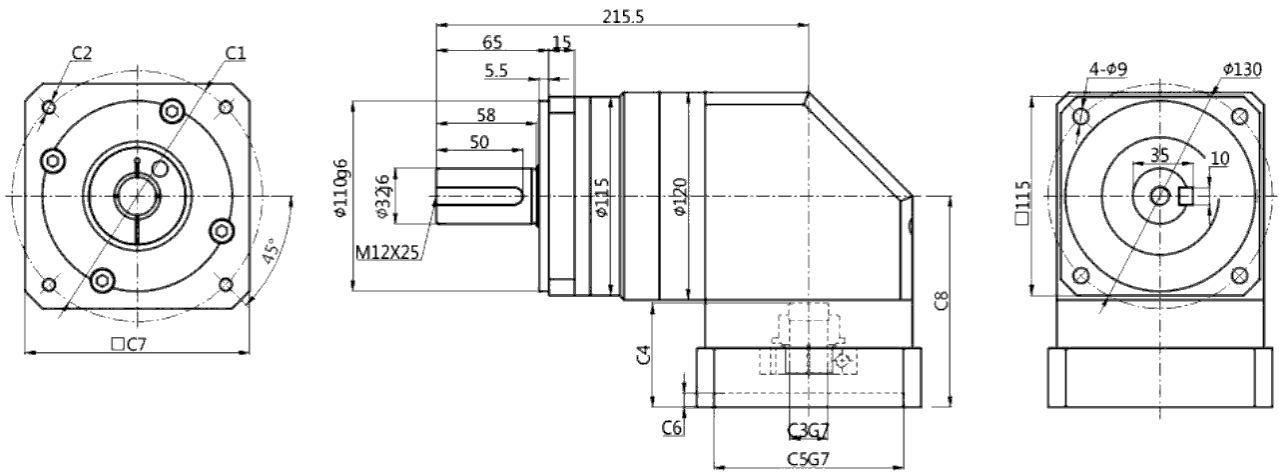
HF-Z090-L2



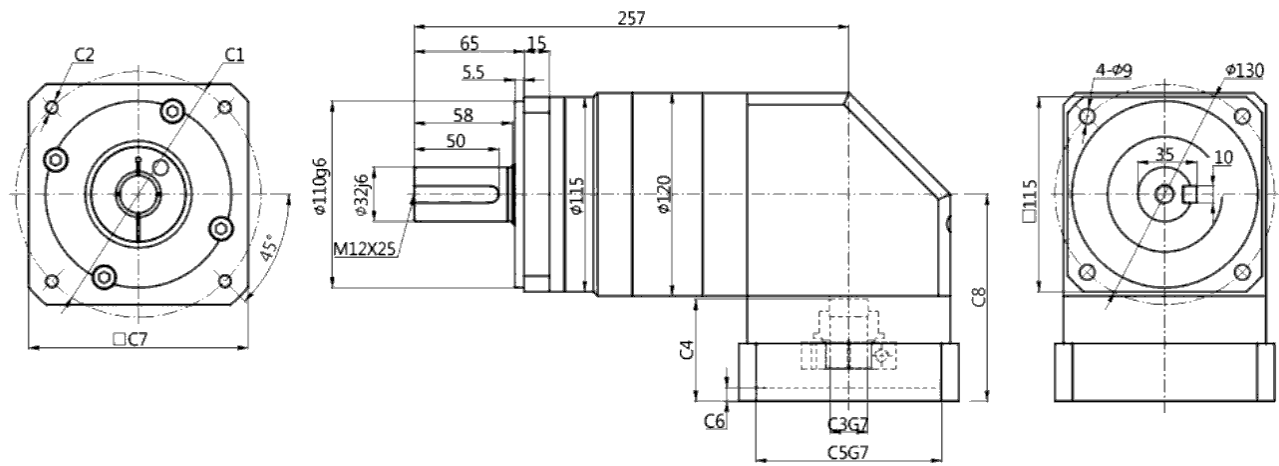
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HF-Z090-L1 (Single)	ø98,4	4-M6/4-M5	ø 14/ ø19	42	ø73	6	90	91,5
	ø90	4-M5/4-M6	ø19	42	ø70	6	90	91,5
	ø115	4-M8	ø19/ø22	54	ø95	8	110	103,5
	ø130	4-M8	ø19/ø22	54	ø95	8	110	103,5
HF-Z090-L2 (Double)	ø98,4	4-M6/4-M5	ø14/ø19	42	ø73	6	90	91,5
	ø90	4-M5/4-M6	ø19	42	ø70	6	90	91,5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

HF-Z115-L1



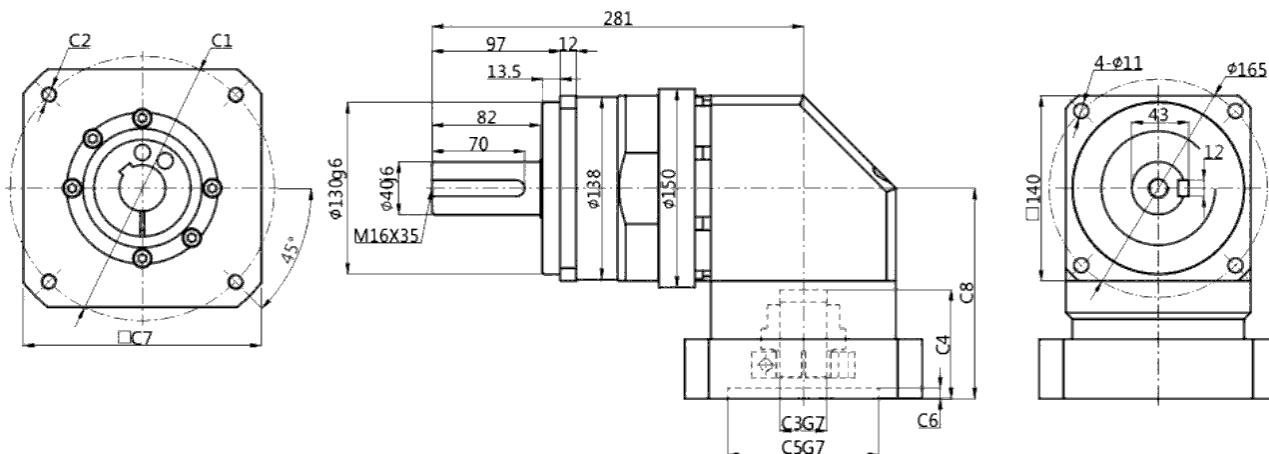
HF-Z115-L2



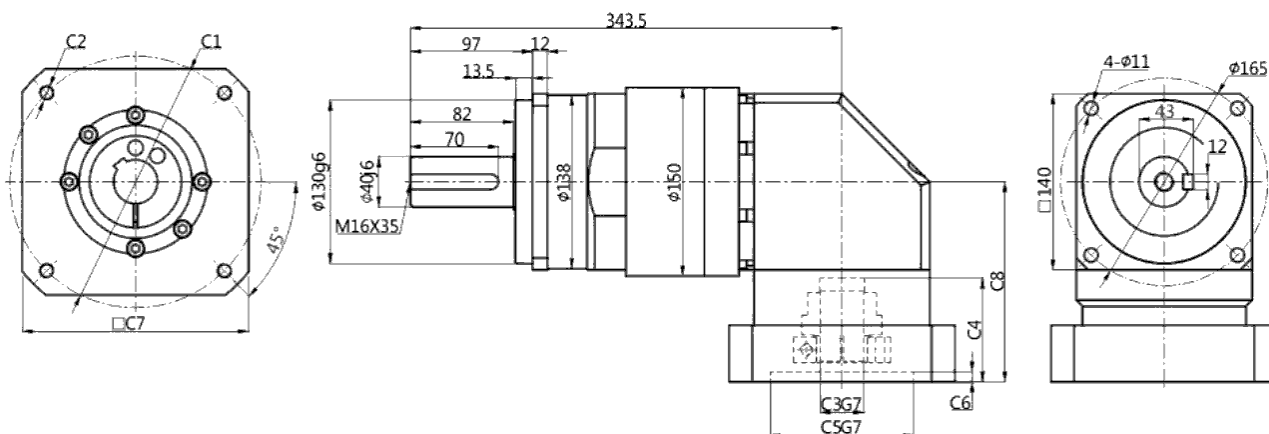
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HF-Z-115-L1 (Single)	$\phi 115$	4-M8/4-M6	$\phi 22/\phi 24$	57	$\phi 95$	8	130	119
	$\phi 130$	4-M8	$\phi 22/\phi 24$	57	$\phi 95$	8	130	119
	$\phi 145$	4-M8	$\phi 22/\phi 24$	60	$\phi 110$	8	130	122
HF-Z-115-L2 (Double)	$\phi 115$	4-M8/4-M6	$\phi 22/\phi 24$	57	$\phi 95$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

HF-Z140-L1



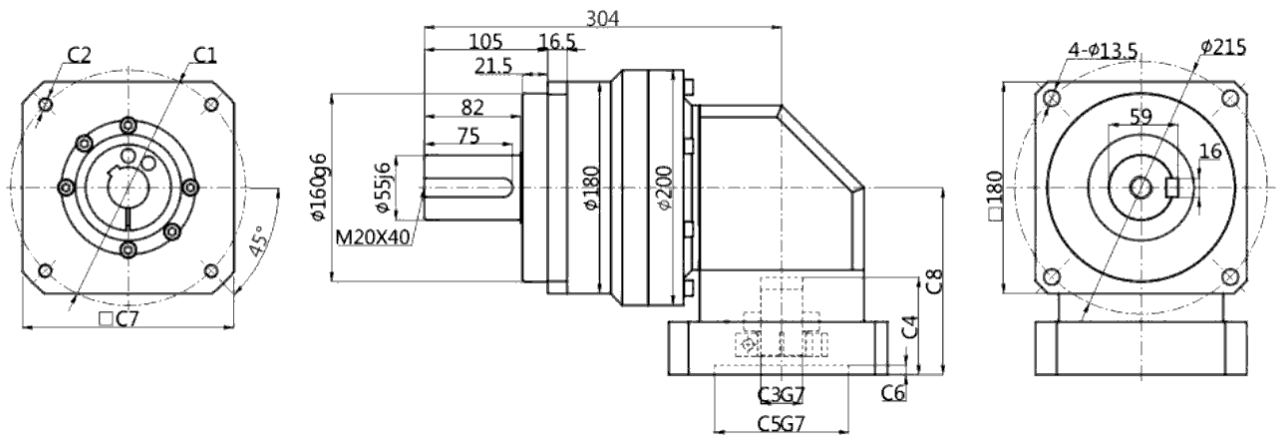
HF-Z140-L2



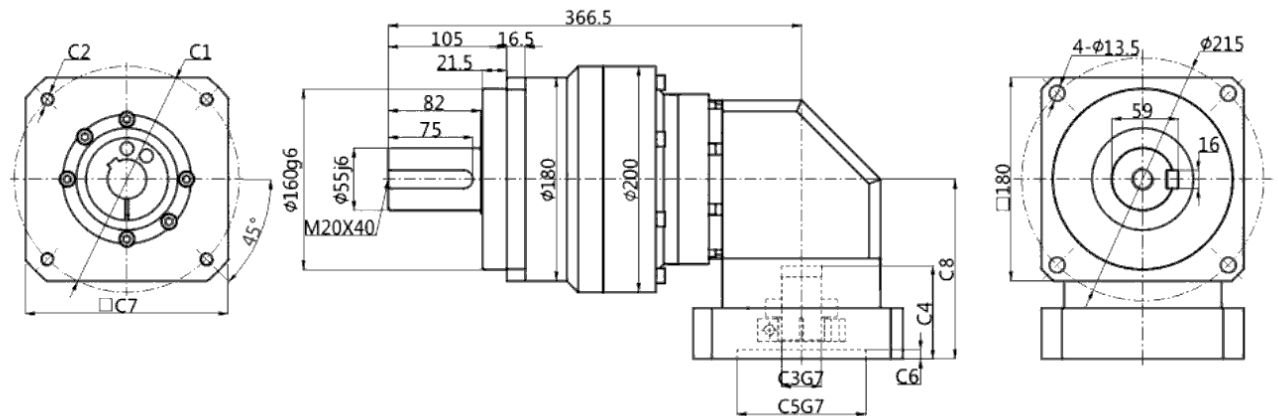
Stage	C1	C2	C3	C4	C5	C6	C7	C8
HF-Z140-L1 (Single)	$\phi 115$	4-M8/4-M6	$\phi 22/\phi 24$	67,5	$\phi 95$	8	115	144
	$\phi 145$	4-M8	$\phi 22/\phi 24$	72,5	$\phi 110$	8	130	149
	$\phi 200$	4-M12	$\phi 35/\phi 42$	82,5	$\phi 114,3$	8	180	159
	$\phi 200$	4-M12	$\phi 34/\phi 42$	117	$\phi 114,3$	8	180	191,5
HF-Z140-L2 (Double)	$\phi 115$	4-M8/4-M6	$\phi 22/\phi 24$	67,5	$\phi 95$	8	115	144
	$\phi 145$	4-M8	$\phi 22/\phi 24$	72,5	$\phi 110$	8	130	149
	$\phi 200$	4-M12	$\phi 35/\phi 42$	82,5	$\phi 114,3$	8	180	159
	$\phi 200$	4-M12	$\phi 35/\phi 42$	117	$\phi 114,3$	8	180	191,5

DRAWINGS

HF-Z180-L1



HF-Z180-L2



Stage	C1	C2	C3	C4	C5	C6	C7	C8
HF-Z180-L1 (Single)	$\phi 200$	4-M12	$\phi 35/\phi 42$	82,5	$\phi 114,3$	8	180	159
	$\phi 200$	4-M12	$\phi 35/\phi 42$	117	$\phi 114,3$	8	180	191,5
	$\phi 215$	4-M12	$\phi 42$	87,5	$\phi 180$	8	200	164
HF-Z180-L2 (Double)	$\phi 115$	4-M8/4-M6	$\phi 22/\phi 24$	67,5	$\phi 95$	8	115	144
	$\phi 145$	4-M8	$\phi 22/\phi 24$	72,5	$\phi 110$	8	130	149
	$\phi 200$	4-M12	$\phi 35/\phi 42$	82,5	$\phi 114,3$	8	180	159
	$\phi 200$	4-M12	$\phi 35/\phi 42$	117	$\phi 114,3$	8	180	191,5
	$\phi 215$	4-M12	$\phi 42$	87,5	$\phi 180$	8	200	164

REDUCER PART NUMBER

HLF **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