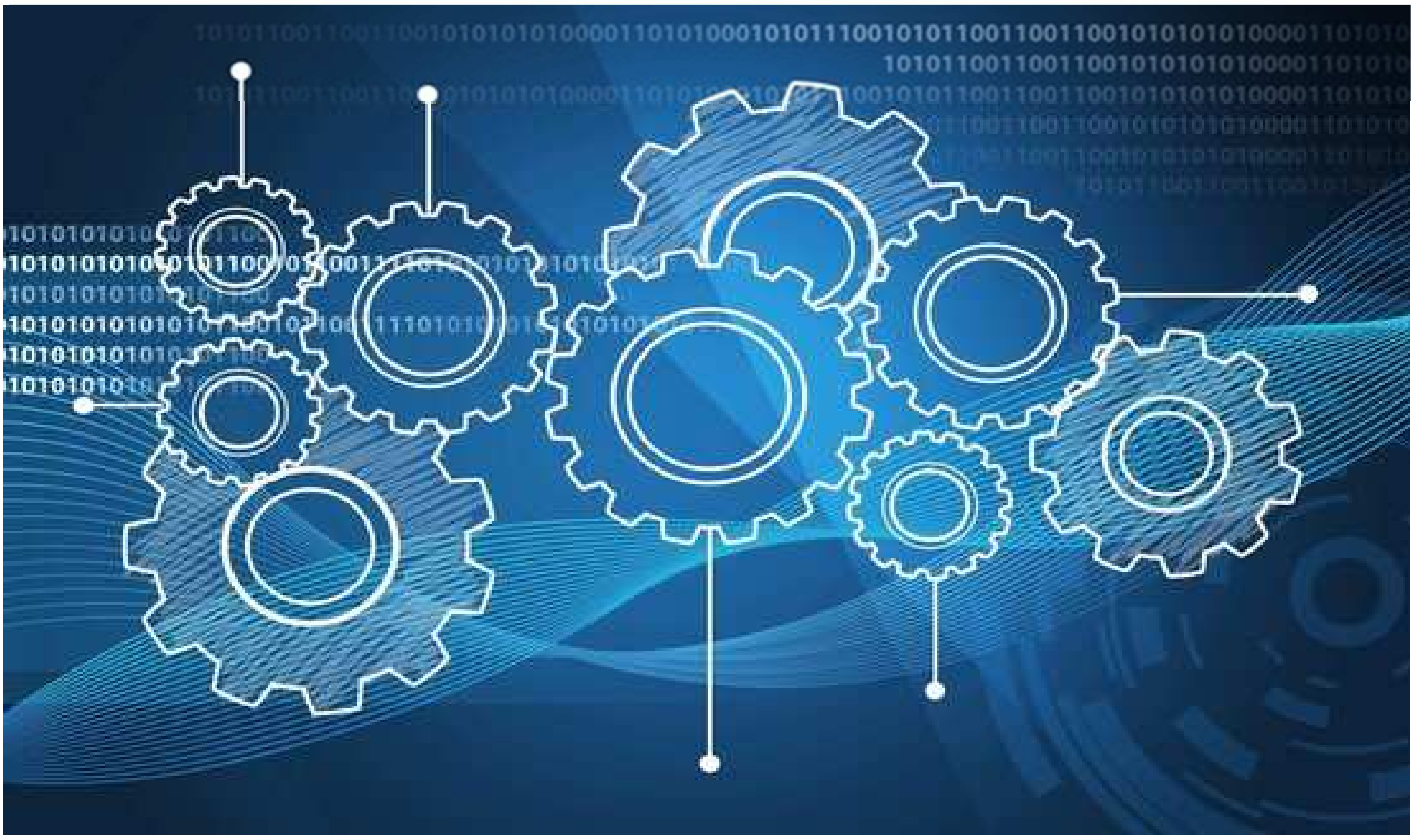
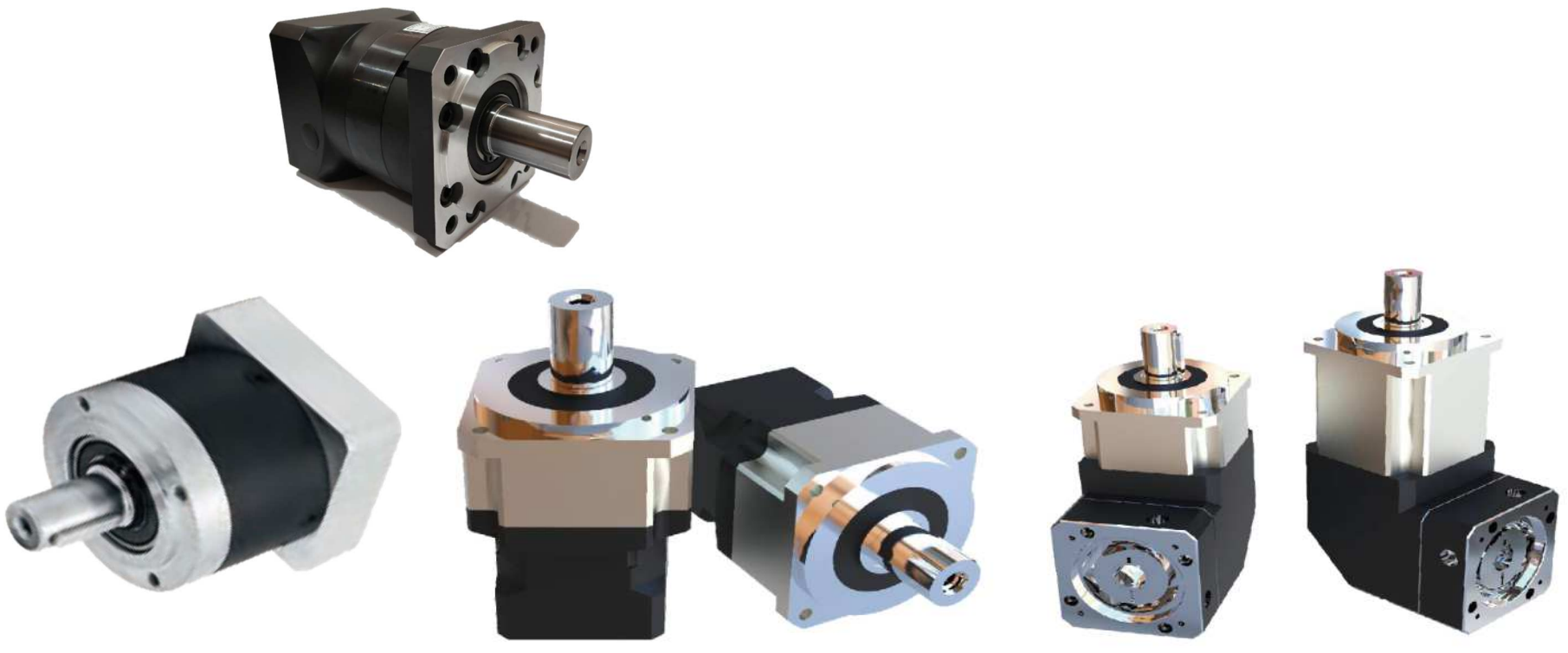
CLINCH



Planetary Gearbox



CONTENTS

CLF

CLE

CAF

PLANETARY GEARBOX OPERATION MANUAL

1. Note

1.1 Preparation before installation

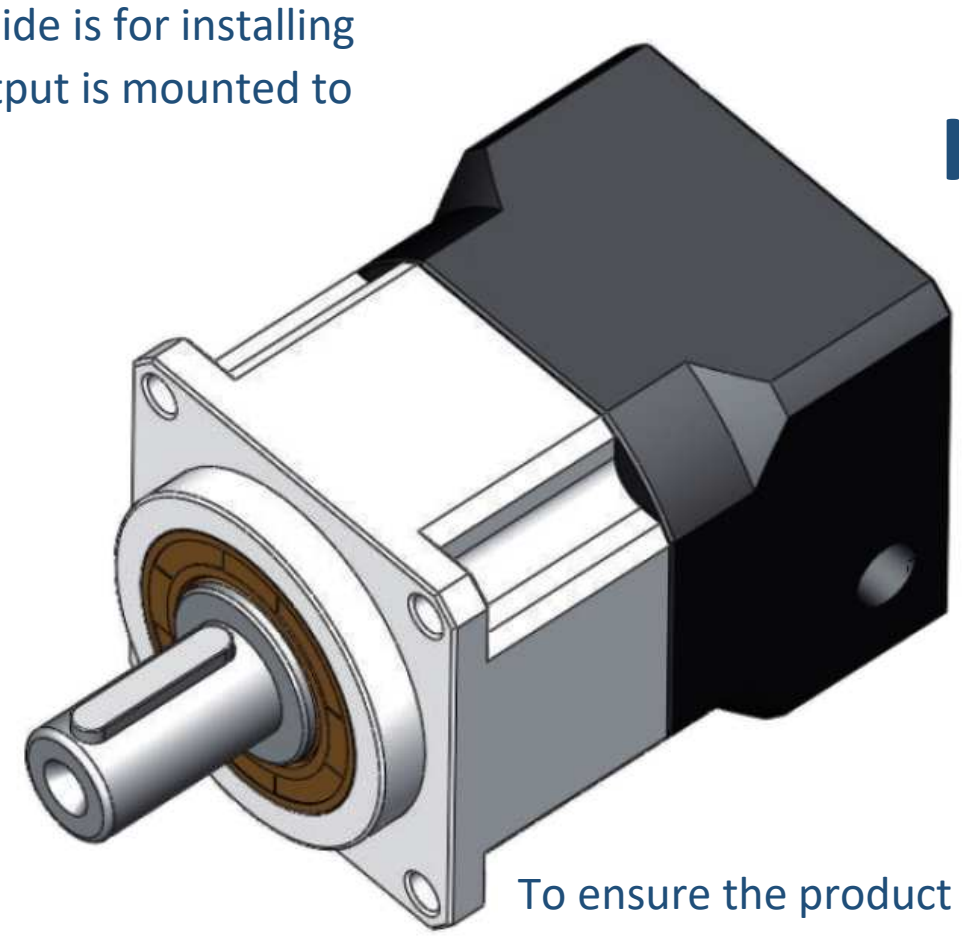
▪ Please read this operation manual before using this gearbox. Any problems caused by inappropriate operation contrary with the manual, or damage caused by natural disasters, or restructure the gearbox without our permission, clinch will not hold any responsibility nor will the gearbox be cover by warranty.	▪ Do not touch any rotating components when the gearbox is running. Ensure that the plugs of the gearbox were inserted after installation. Avoid any small object fall into the gearbox.
▪ Warranty start within one year after purchase the gearbox. Within warranty period, if gearbox damage is not caused by operation error nor by natural disaster, then please send back the gearbox, we should replace the damage.	▪ Handle the gearbox gently during installation, do not knock the gearbox by any tool, to avoid the influence of running accuracy
▪ Installation, disassemble, maintenance on the gearbox, needed to be performing by trained technicians.	▪ Do not disassemble or modify gearbox to prevent injury or equipment damage
▪ According to the application and operation environment, the gearbox temperature might be raising after period of running. Please do not touch the gearbox directly during operation, or right off from operation.	▪ Synthetic lubricant is sealed in gear there is no need to change lubricant.

1.2 Installation environment limitation

▪ Gearbox is designed or manufactured, to be used in the other of mechanical equipment assembly	▪ Avoid Gearbox is used in flammable gas or corrosion gas environment.
▪ Operate temperature is between -10°C to +90°C.	▪ Avoid direct sunlight, dust accumulation
▪ Operate attitude may not be higher than 1000m above sea-level	▪ Avoid water or oil splashed.
▪ Avoid Continuity vibration or hit.	▪ Used in good ventilated Place

2. Gearbox Introduction

As Shown below, the input side is for installing the servo motor and the output is mounted to application equipment.



Input

Output

To ensure the product performance, both the input and output ends must be protected carefully to avoid any damage and cause improper operation.

MODEL SELECTION

CLF 80 – 005 – 1 A

SERIES
CLF: Round Housing with Flange
CAF: Round Housing with Flange
CHE: Round Housing without Flange

FRAME SIZE
40: 40mm
60: 60mm
80: 80mm
86: 86mm
90: 90mm
120: 120mm
160: 160mm

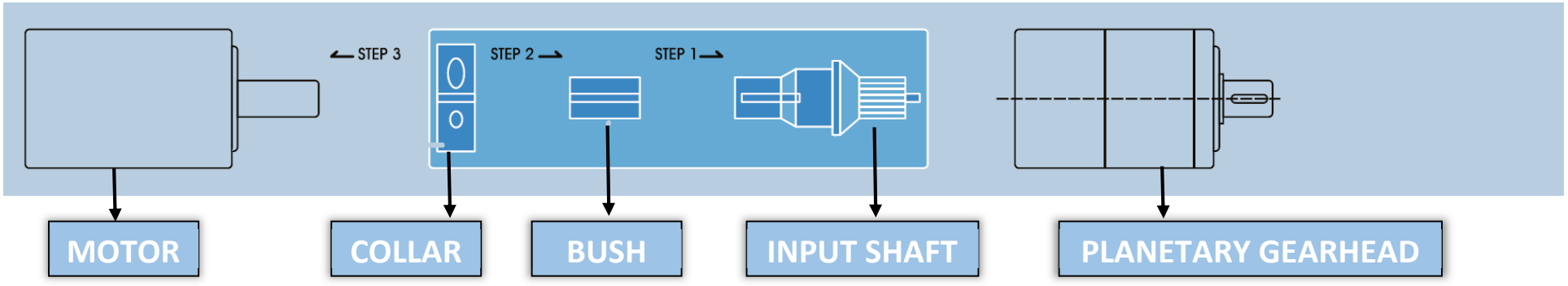
RATIO
003
005
007
010
015
020
025
035
050
070
100

STAGE
1. 3~10
2. 15~70
3. 100

MOTOR MOUNTING

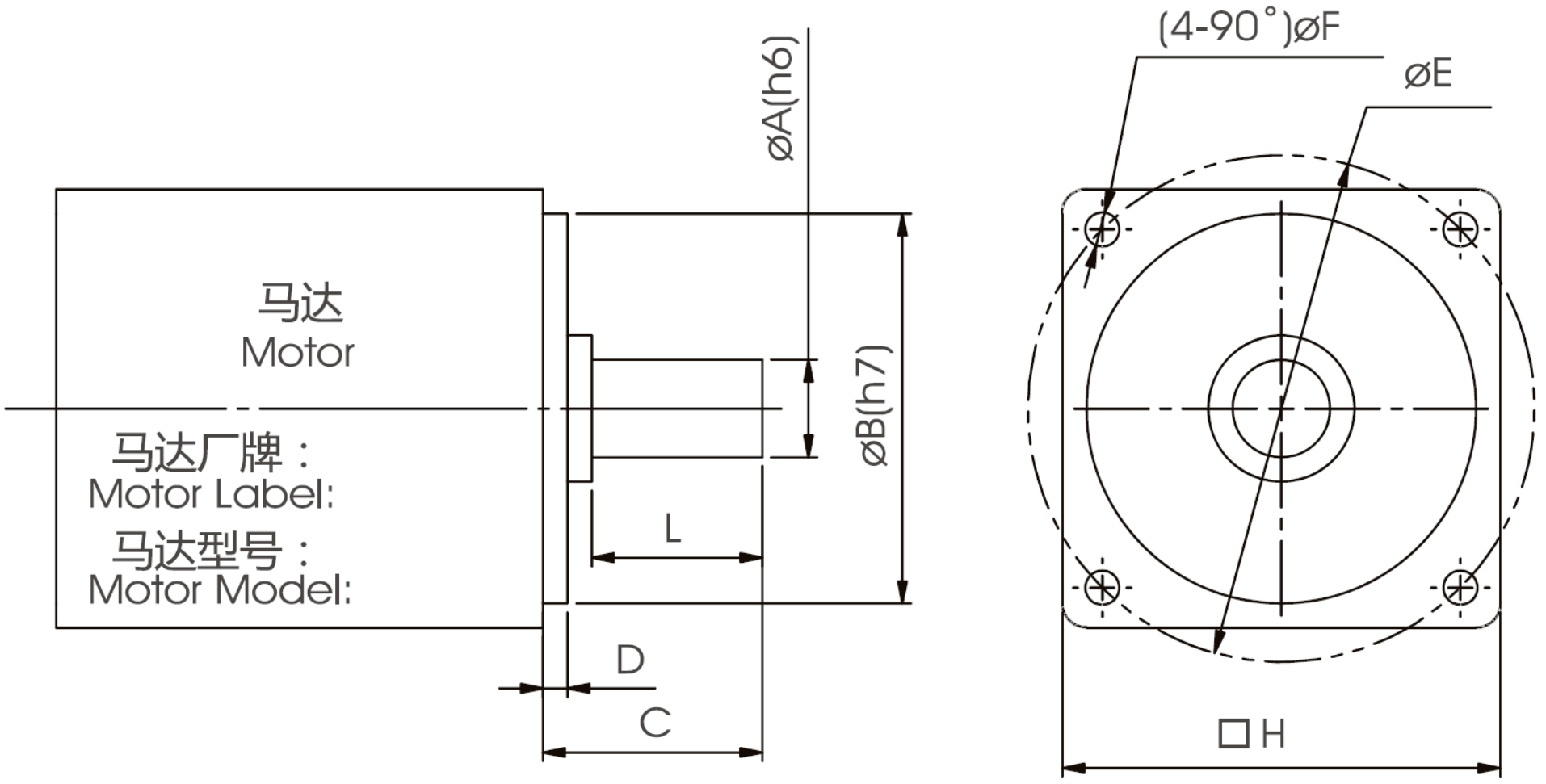
	Input Shaft	Input Step	Input Step Depth	Input PCD	Motor Frame
A	14mm	73mm	6mm	98mm	86mm
B	8mm	30mm	6mm	46mm	40mm
C	14mm	50mm	6mm	70mm	60mm
D	19mm	70mm	6mm	90mm	80mm
E	19mm	70mm	6mm	90mm	90mm
F	22mm	110mm	10mm	145mm	130mm
G	24mm	110mm	10mm	145mm	130mm
H	35mm	114.3mm	10mm	200mm	180mm
I	42mm	180mm	10mm	215mm	200mm
J	48mm	250mm	10mm	300mm	263mm

CONNECTION OF MOTOR & GEARHEAD



- After the collar, the bush, and the input – shaft is securely assembled with the motor, please join the parts with the planetary gearhead cautiously with a slight clockwise and /or counter-clockwise motion, until the planetary gearhead engages the input-shaft.
- Under normal usage and loading. Our products come with a one-year or 20000 hour limited warranty, whichever comes first

FILL IN DATA MOTOR



SPECIFICATION

Motor Shaft Dia.	Flange Dia.	Motor shaft Length	Flange Height	P.C.D of Bore	Bore Dia.	Motor Flange Square	Actual Length of Motor Shaft	Backlash
ØA(h6)	ØB(h7)	C	D	ØE	ØF	H	L	Arc/min

- Planetary Gearheads are produced under strictly exclusive pairing process to ensure accuracy and lifespan

PRODUCT OVERVIEW

Product features

Precision planetary gear reducer is new-generation of product developed by our company, with a compromise of advance technology both at home and abroad, its main features are as follows:

1. Low noise: Under 65db
2. Low Backlash: Backlash is under 3 arcmin. Backlash for 2-stage speed reduction is within 5 arcmin
3. High Efficiency: Efficiency for 1-stage model exceeds 95%, for 2-stage speed reduction is within 5 arcmin
4. High Input Speed: Input speed allows for up to 8000 RPM
5. High Torque: Higher torque output than that of conventional planetary gear reducer.
6. High Stability: Employs high tensile strength alloy steel. Gear hardening is made for the entire gear instead of only surface hardening, which extends gear service life and maintain high accuracy as new after a long period of operation.
7. High Speed Reduction Ratio: The gear reducer is a modular design. The planetary gearbox can be connected. Speed reduction ratio is over 1/1000.

Precision usage

Precision planetary gear reducer is widely used in the following domain:

1. Aerospace, military industry
2. Medical health, electronic information industry.
3. Industrial robots, Production automation, CNC machine tool manufacturing industry.
4. Motor, textile, printing, food, metallurgical, environmental protection engineering, warehouse logistics industry.

CLF

GEARBOX PERFORMANCE INFORMATION

Specification		Stage	Ratio	CLF80/CLF86
Rated Output Torque	Nm	1	**3**	**104**
			4	130
			5	130
			7	120
			8	120
			10	104
		2	12	104
			15	104
			16	130
			20	130
			25	104
			32	120
			35	120
			40	104
			64	104
		3	80~1000	104
Maximum output torque T2B	Nm	1,2,3	3~1000	Three times the rated output torque
Rated input speed	rpm	1,2,3	3~1000	3600
Maximum input speed	rpm	1,2,3	3~1000	6000
Backlash	arcmin	1	3~10	<=10
		2	12~64	<=12
		3	80~1000	<=14
Torsional rigidity	Nm/arcmin	1,2,3	3~1000	7.2
Allowable Radial force	N	1,2,3	3~1000	1750
Allowable Axial force	N	1,2,3	3~1000	875
Useful life	hr	1,2,3	3~1000	50000*
Efficiency	%	1	3~10	≥97%
		2	12~64	≥94%
		3	80~1000	≥90%
Weight	Kg	1	3~10	2.5
		2	12~64	2.9
		3	80~1000	3.3
Temperature	°C	1,2,3	3~1000	-10°C~ +90°C
Lubricating		1,2,3	3~1000	Synthetic Grease
Protection Level		1,2,3	3~1000	IP64
Installation direction		1,2,3	3~1000	Any direction
Noise Value	dB	1,2,3	3~1000	≤ 65

MOVMENT OF INERTIA

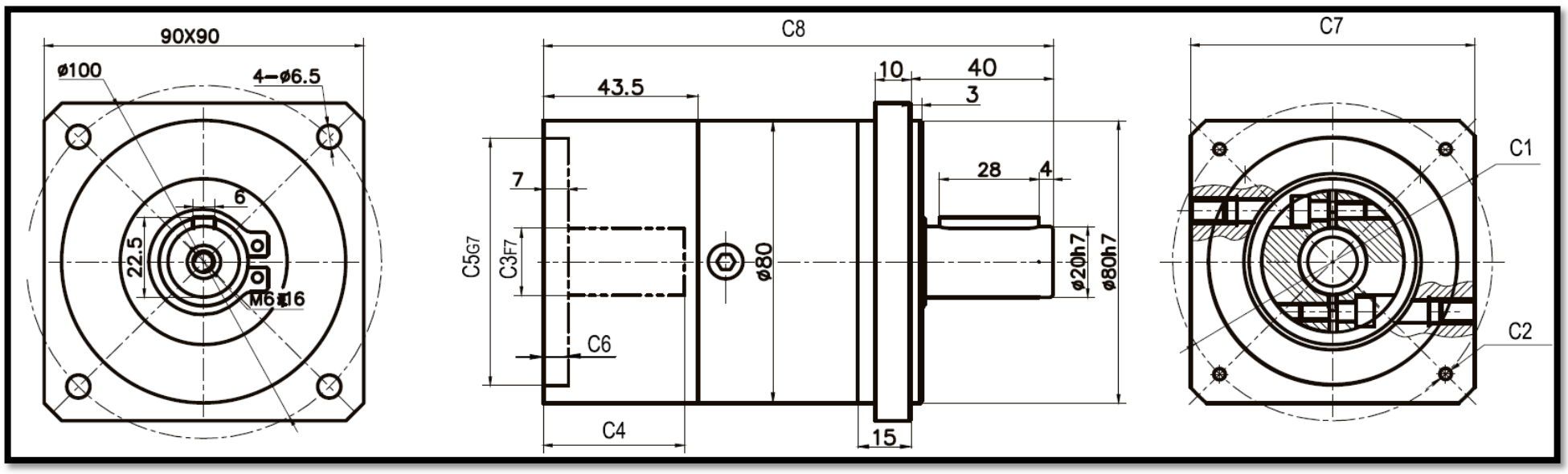
Specification		Stage	Ratio	CLF80
Rated Output Torque	Nm	1	**3**	**3.48**
			4	3.31
			5	3.28
			7	3.27
			8	3.26
			10	3.26
		2	12	3.28
			15	3.28
			16	3.28
			20	3.28
			25	3.26
			32	3.28
			35	3.26
			40	3.26
			64	3.26
		3	80~1000	3.26

CLF

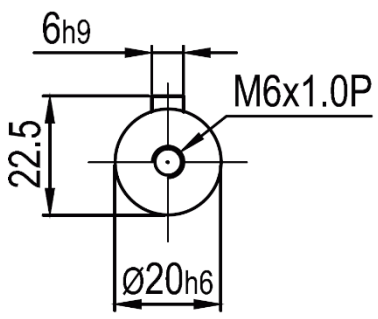
OUTLINE DIMENSION SHEET

CLF80/CLF86

OUTPUT **INPUT**



20MM OUTPUT DIAMETER



MODEL NO.	C1	C2	C3	C4	C5	C6	C7	C8
CLF86-□□□-1A	Ø98	4-M5 x15	Ø14	41.5	Ø73	10	86	143.5
CLF80-□□□-1C	Ø70	4-M4 x10	Ø14	32	Ø50	4.5	80	134
CLF80-□□□-2C	Ø70	4-M4 x10	Ø14	32	Ø50	4.5	80	152.5
CLF80-□□□-1D	Ø90	4-M4 x10	Ø19	41.5	Ø70	10	80	143.5
CLF80-□□□-2D	Ø90	4-M5 x15	Ø19	41.5	Ø70	10	80	162

CLE

GEARBOX PERFORMANCE INFORMATION

Specification		Stage	Ratio	CLE80
Rated Output Torque	**Nm**	**1**	**3**	**104**
			4	130
			5	130
			7	120
			8	120
			10	104
		2	12	104
			15	104
			16	130
			20	130
			25	104
			32	120
			35	120
			40	104
			64	104
		3	80~1000	104
Maximum output torque T2B	Nm	1,2,3	3~1000	Three times the rated output torque
Rated input speed	rpm	1,2,3	3~1000	3600
Maximum input speed	rpm	1,2,3	3~1000	6000
Backlash	arcmin	1	3~10	<=10
		2	12~64	<=12
		3	80~1000	<=14
Torsional rigidity	Nm/arcmin	1,2,3	3~1000	7.2
Allowable Radial force	N	1,2,3	3~1000	1750
Allowable Axial force	N	1,2,3	3~1000	875
Useful life	hr	1,2,3	3~1000	50000*
Efficiency	%	1	3~10	≥97%
		2	12~64	≥94%
		3	80~1000	≥90%
Weight	Kg	1	3~10	2.4
		2	12~64	2.8
		3	80~1000	3.2
Temperature	°C	1,2,3	3~1000	-10°C~ +90°C
Lubricating		1,2,3	3~1000	Synthetic Grease
Protection Level		1,2,3	3~1000	IP64
Installation direction		1,2,3	3~1000	Any direction
Noise Value	dB	1,2,3	3~1000	≤ 65

MOVMENT OF INERTIA

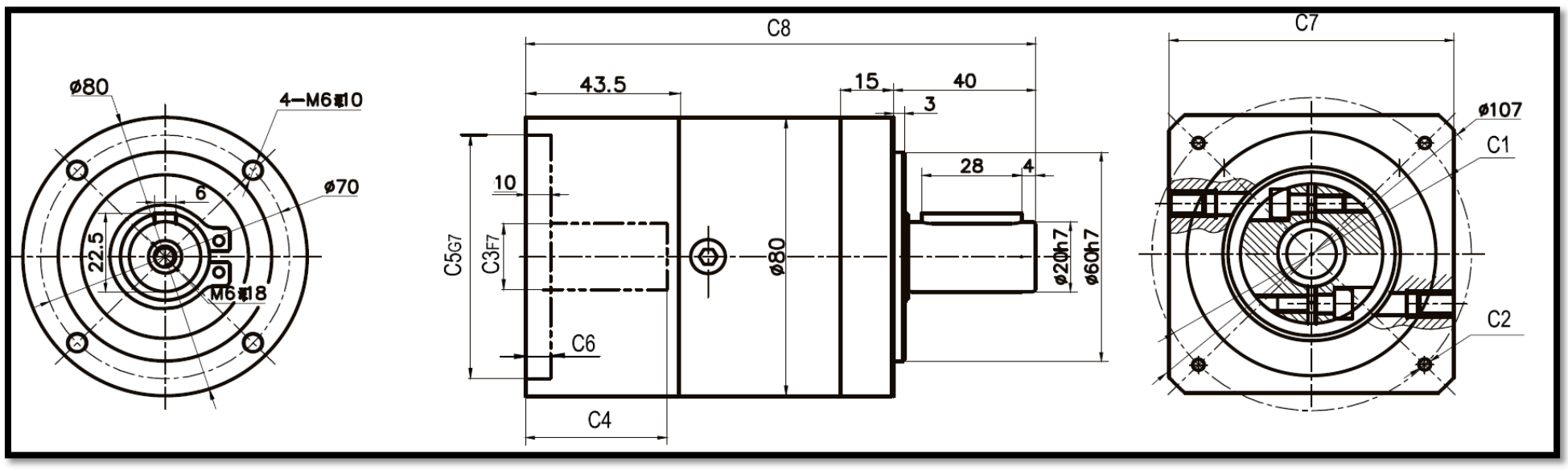
Specification		Stage	Ratio	CLF80
Rated Output Torque	**Nm**	**1**	**3**	**3.48**
			4	3.31
			5	3.28
			7	3.27
			8	3.26
			10	3.26
		2	12	3.28
			15	3.28
			16	3.28
			20	3.28
			25	3.26
			32	3.28
			35	3.26
			40	3.26
			64	3.26
		3	80~1000	3.26

CLE

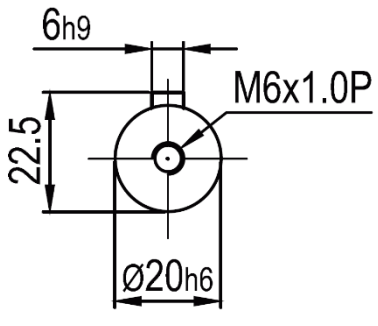
OUTLINE DIMENSION SHEET

CLE80/CLE86

OUTPUT **INPUT**



20MM OUTPUT DIAMETER



MODEL NO.	C1	C2	C3	C4	C5	C6	C7	C8
CLE86-□□□-1A	Ø98	4-M5 x15	Ø14	41.5	Ø73	10	86	143.5
CLE80-□□□-1C	Ø70	4-M4 x10	Ø14	32	Ø50	4.5	80	134
CLE80-□□□-2C	Ø70	4-M4 x10	Ø14	32	Ø50	4.5	80	152.5
CLE80-□□□-1D	Ø90	4-M4 x10	Ø19	41.5	Ø70	10	80	143.5
CLE80-□□□-2D	Ø90	4-M5 x15	Ø19	41.5	Ø70	10	80	162

CAF

GEARBOX PERFORMANCE INFORMATION

Specification		Stage	Ratio	CAF40	CAF60	CAF90	CAF120	CAF160
Rated Output Torque	**Nm**	**1**	3	14	39	104	208	423
			4	12	50	130	215	542
			5	14	50	130	215	542
			7	12	40	120	208	500
			8	10	40	120	208	500
			10	9	39	104	160	423
		2	12	14	39	104	215	423
			15	14	39	104	215	423
			20	12	50	130	208	542
			25	14	50	130	215	542
			30	-	-	104	215	500
			35	14	50	120	215	500
			40	14	50	120	215	500
			50	-	-	104	215	423
			70	-	-	104	215	423
			100	9	39	104	208	423
Maximum output torque T2B	Nm	1,2	3~100	Three times the rated output torque				
Rated input speed	rpm	1,2	3~100	450	4000	3600	3000	2500
Maximum input speed	rpm	1,2	3~100	800	6000	6000	4800	3600
Backlash	arcmin	1	3~10	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8
		2	12~100	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10
Torsional rigidity	Nm/arcmin	1,2	3~100	0.8	2.2	7.2	14.5	65.5
Allowable Radial force	N	1,2	3~100	300	680	1750	3080	6520
Allowable Axial force	N	1,2	3~100	150	340	875	1540	3260
Useful life	hr	1,2	3~100	50000*				
Efficiency	%	1	3~10	≥97%				
		2	12~100	≥94%				
Weight	Kg	1	3~10	0.7	1.7	3.6	8.2	18.2
		2	12~100	1.0	2.4	5.0	11.4	24.9
Temperature	°C	1,2	3~100	-10°C~ +90°C				
Lubricating		1,2	3~100	Synthetic Grease				
Protection Level		1,2	3~100	IP64				
Installation direction		1,2	3~100	Any direction				
Noise Value	dB	1,2	3~100	≤ 62	≤ 65	≤ 65	≤ 65	≤ 65

MOVMENT OF INERTIA

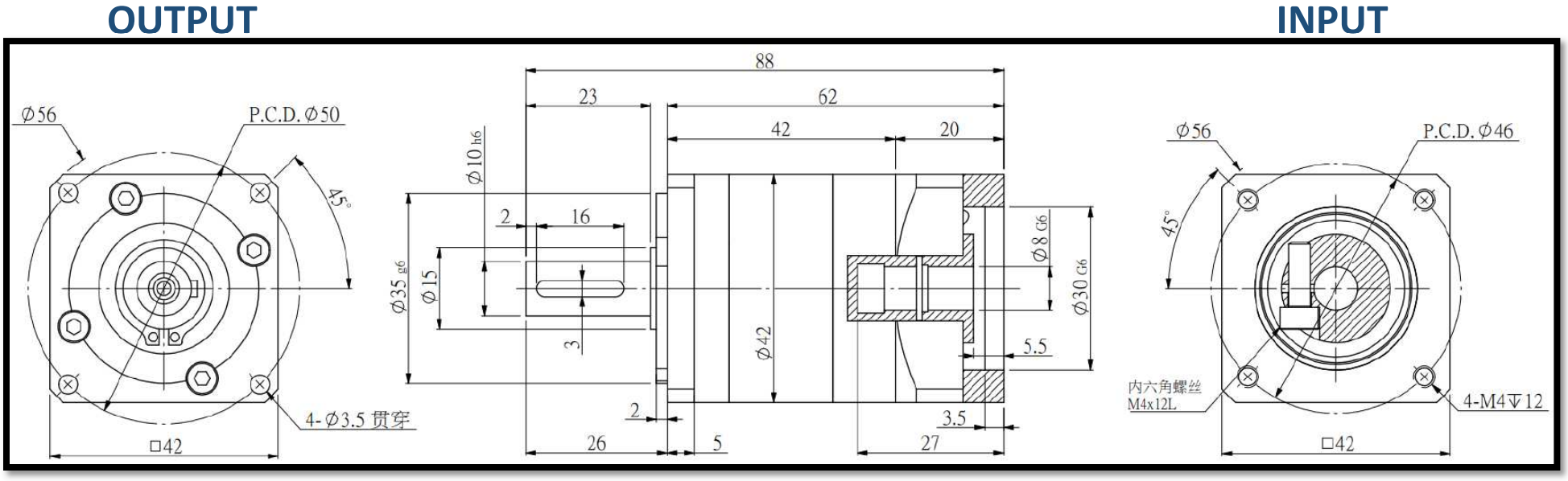
Specification	Stage	Ratio	CAF40	CAF60	CAF90	CAF120	CAF160
Rated Output Torque **Kg.cm2**	**1**	**3**	**0.16**	**0.63**	**3.48**	**12.84**	**36.72**
		4	0.16	0.60	3.31	12.22	34.63
		5	0.16	0.59	3.28	12.10	34.24
		7	**0.16**	0.59	3.27	12.05	34.07
		8	0.16	0.59	3.26	12.03	34.02
		10	0.16	0.59	3.26	12.03	34.02
	2	12	**0.16**	0.59	3.28	12.10	34.24
		15	0.16	0.59	3.28	12.10	34.24
		20	0.16	0.59	3.28	12.10	34.24
		25	**0.16**	0.59	3.28	12.10	34.24
		30	-	-	3.26	12.03	34.02
		35	0.16	0.59	3.28	12.10	34.24
		40	**0.16**	0.59	3.26	12.03	34.02
		50	**-**	-	3.26	12.03	34.02
		70	-	-	3.26	12.03	34.02
		100	0.16	0.59	3.26	12.03	34.02

CAF

OUTLINE DIMENSION SHEET

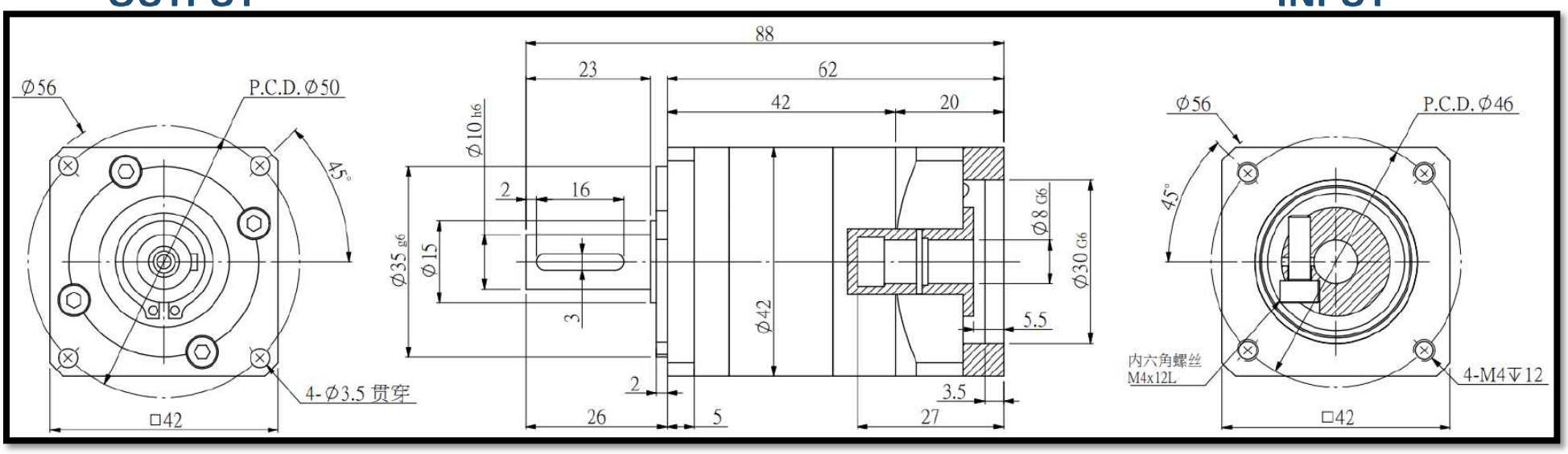
CAF40-□□□-1-B

OUTPUT

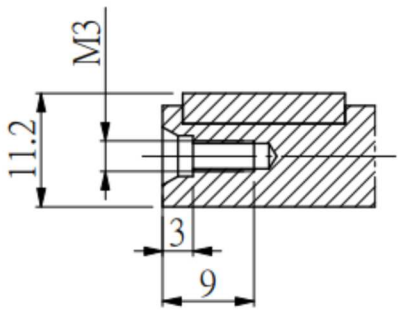


CAF40-□□□-2-B

OUTPUT



10MM OUTPUT DIAMETER

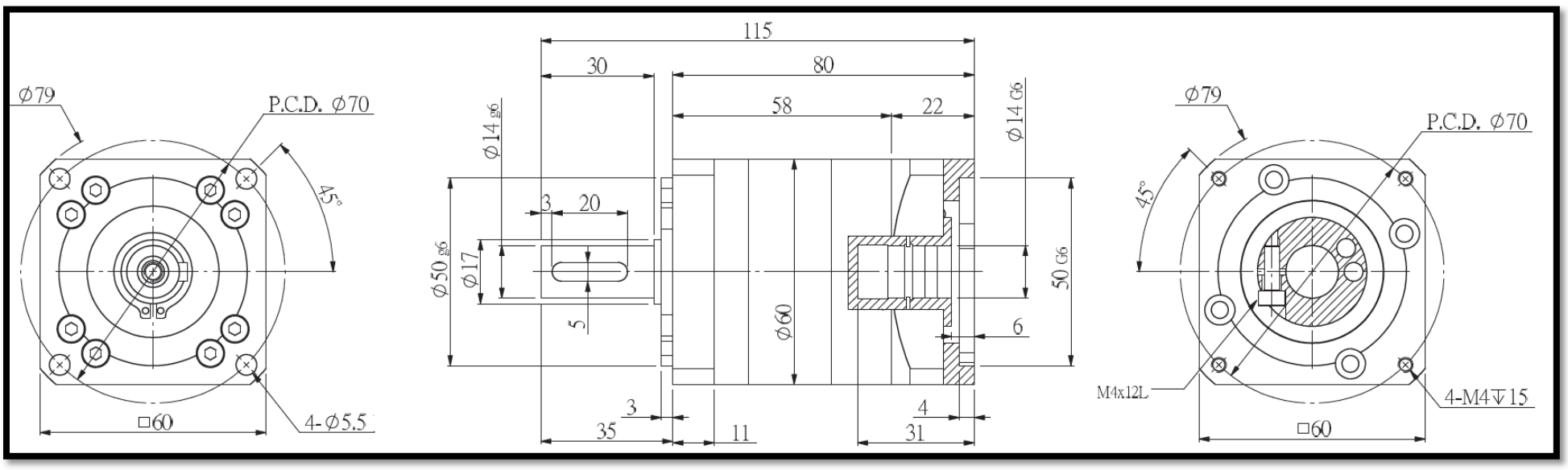


CAF

OUTLINE DIMENSION SHEET

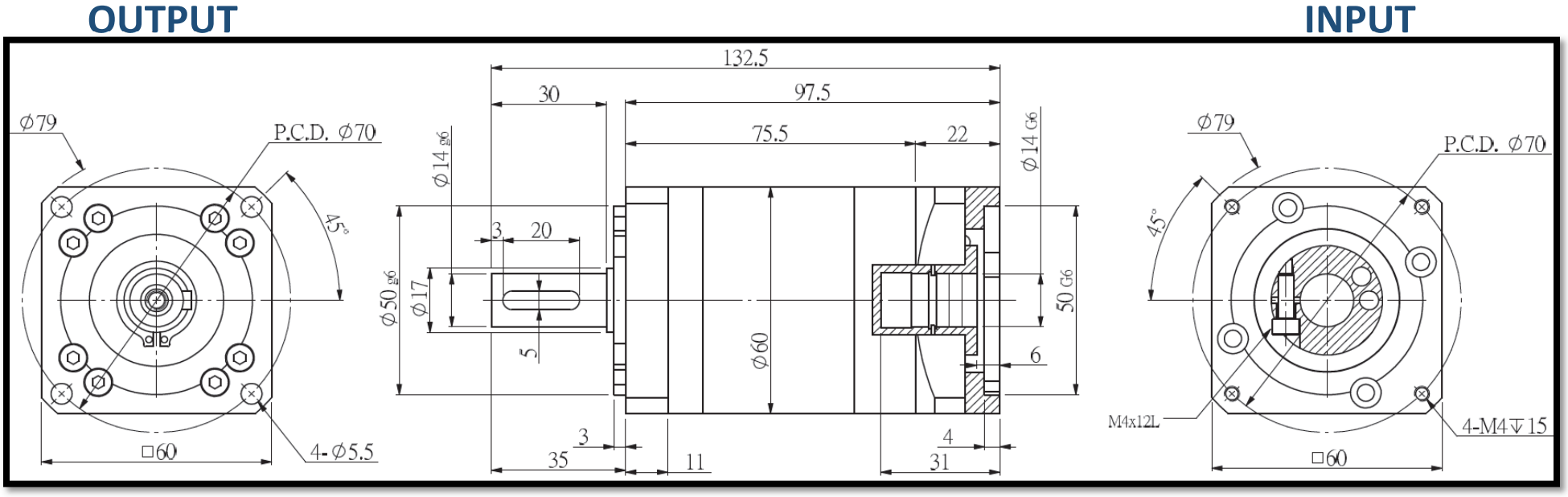
CAF60-□□□-1-C

OUTPUT **INPUT**

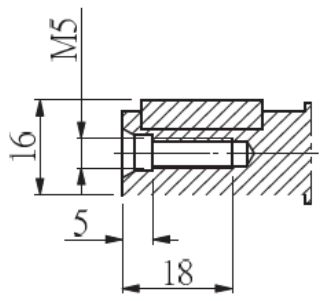


CAF60-□□□-2-C

OUTPUT **INPUT**



14MM OUTPUT DIAMETER

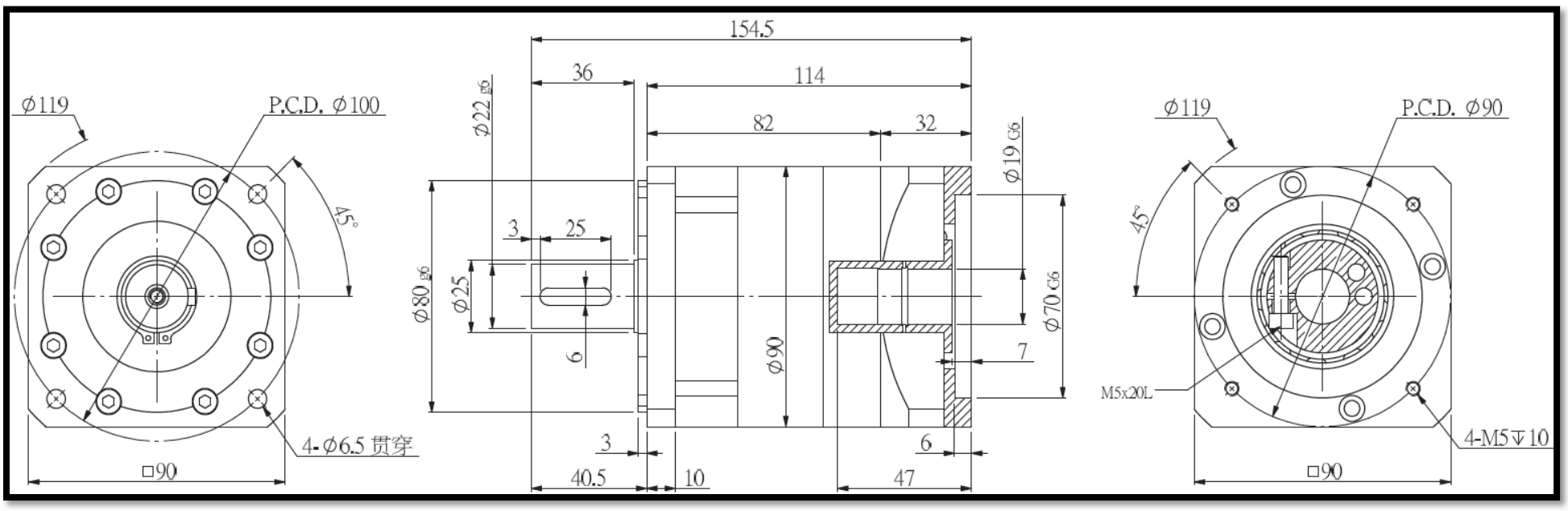


CAF

OUTLINE DIMENSION SHEET

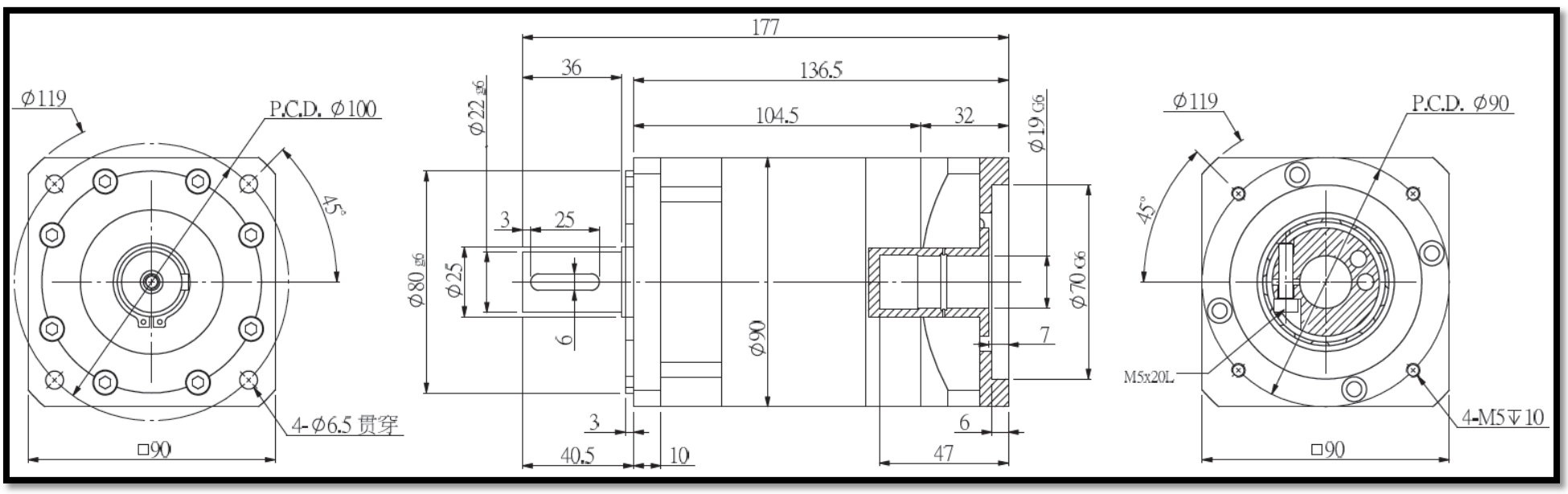
CAF90-□□□-1-E

OUTPUT **INPUT**

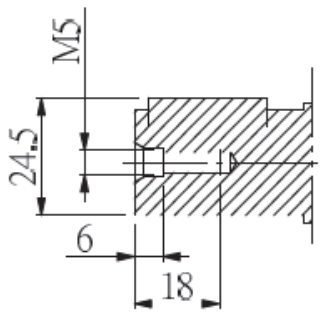


CAF90-□□□-2-E

OUTPUT **INPUT**



22MM OUTPUT DIAMETER

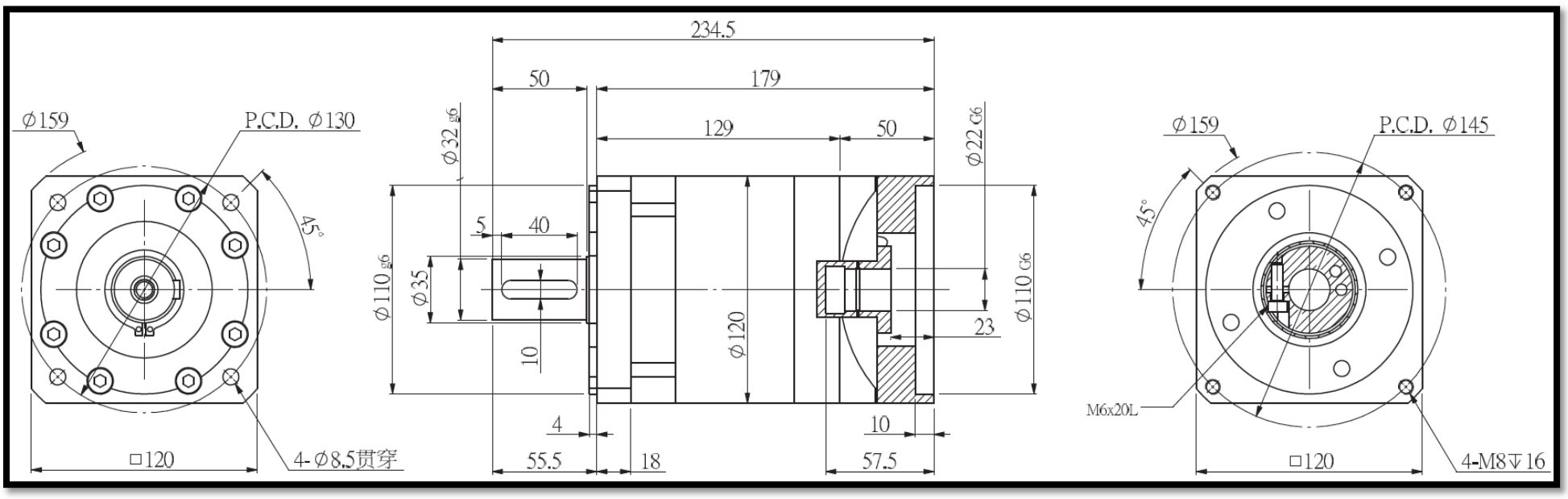


CAF

OUTLINE DIMENSION SHEET

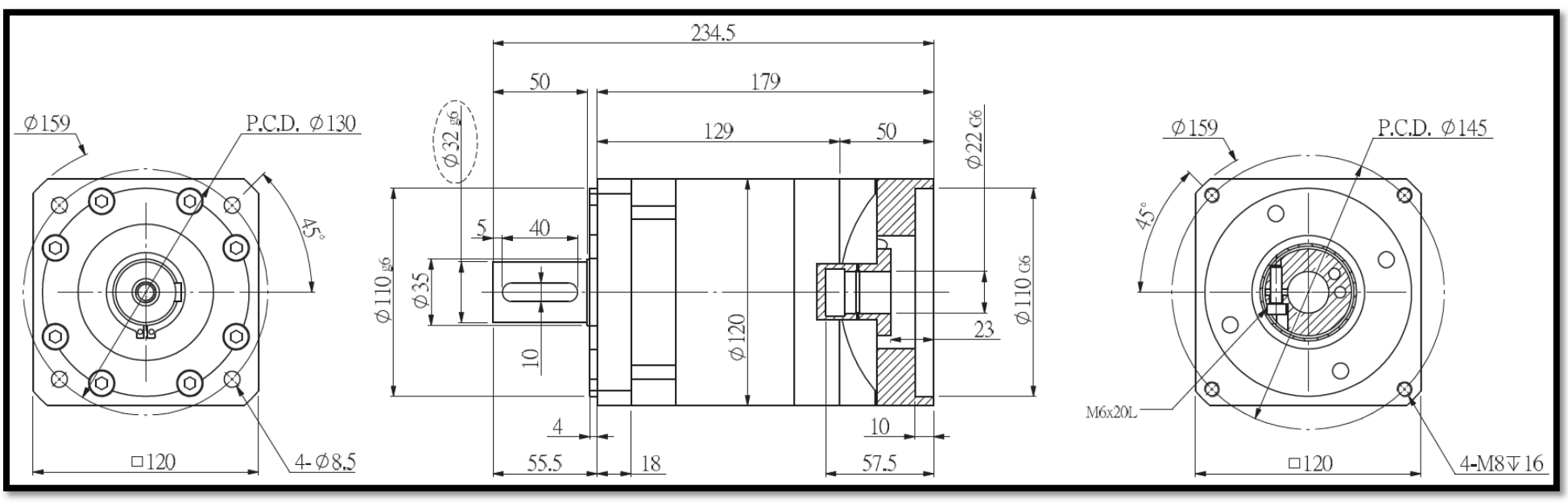
CAF120-□□□-1-□

OUTPUT **INPUT**

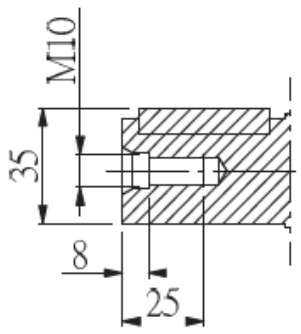


CAF120-□□□-2-□

OUTPUT **INPUT**



32MM OUTPUT DIAMETER

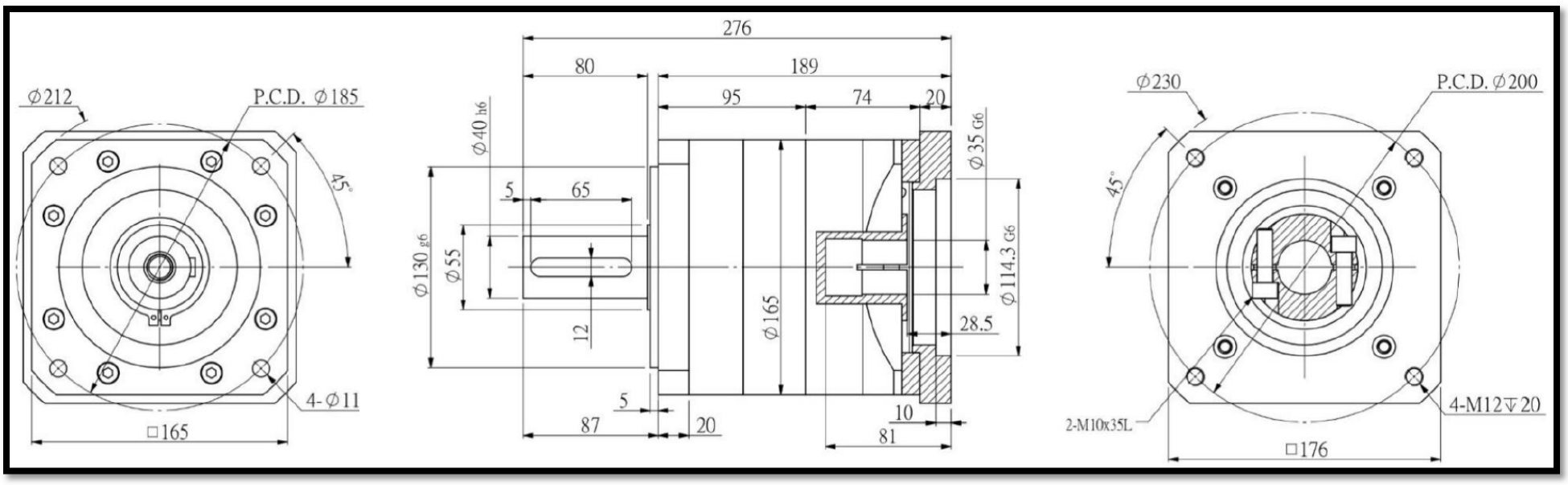


CAF

OUTLINE DIMENSION SHEET

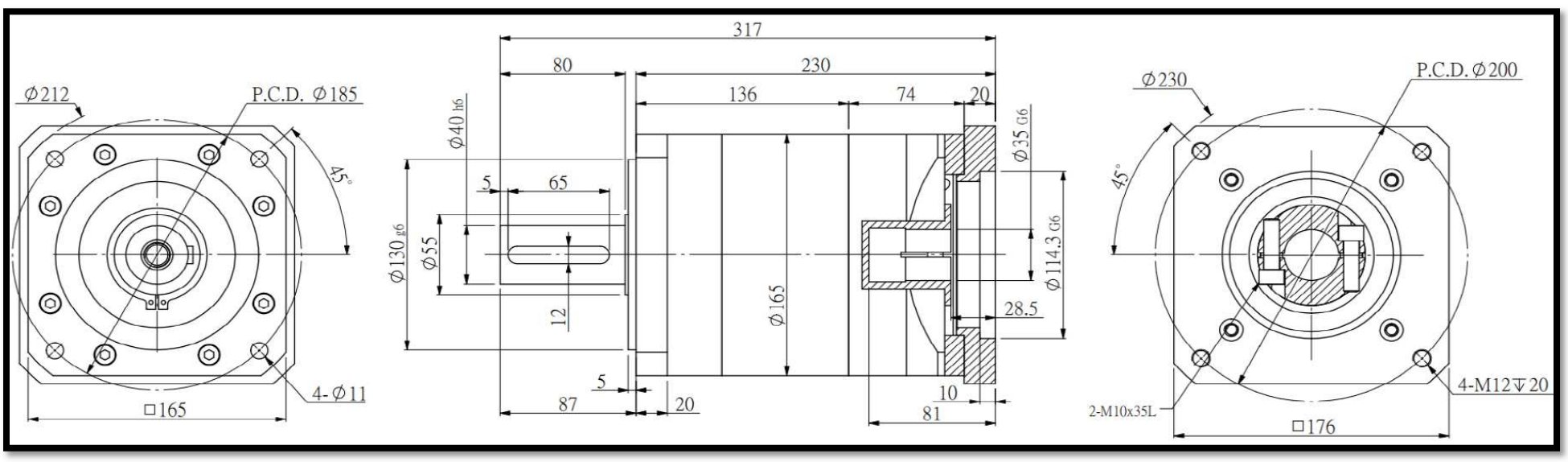
CAF160-□□□-1-□

OUTPUT **INPUT**

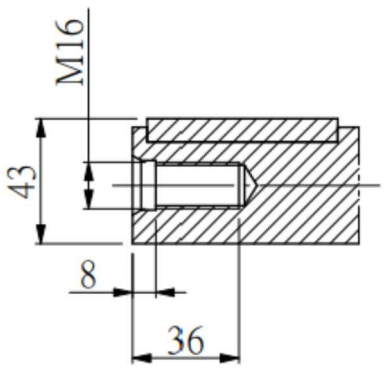


CAF160-□□□-2-□

OUTPUT **INPUT**



40MM OUTPUT DIAMETER

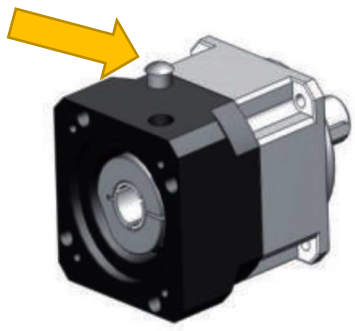


PLANETARY GEARBOX WITH MOTOR MOUNTING INSTRUCTION

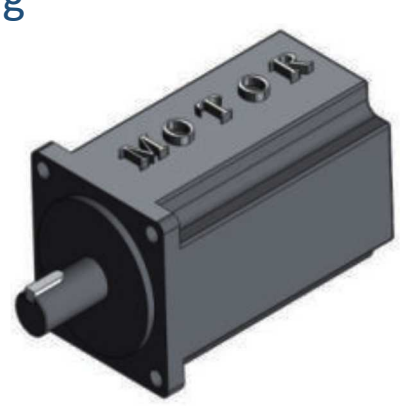
FOR GENERAL TYPE

1. Check the motor and gearbox size. Clean the mounting surface

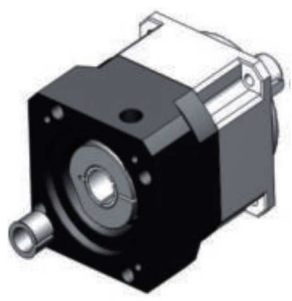
2. Take off the plug from the bracket. Revolve the set collar until the bolt is aligned with the hole.



3. Remove the key from the motor shaft. Mounting the balance key if necessary.

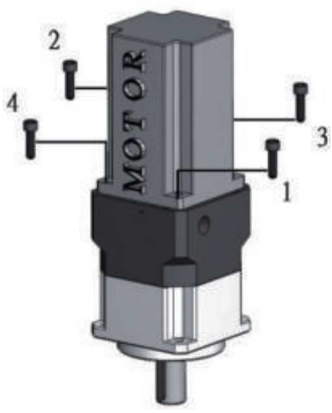


4. Make sure the motor shaft size. Choose right bushing if necessary

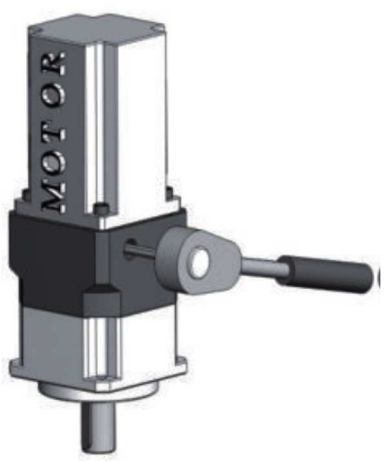


As installing on flatted shaft, be sure to align The collet gap over The flat and the set Collar bolt perpendicular To the flat

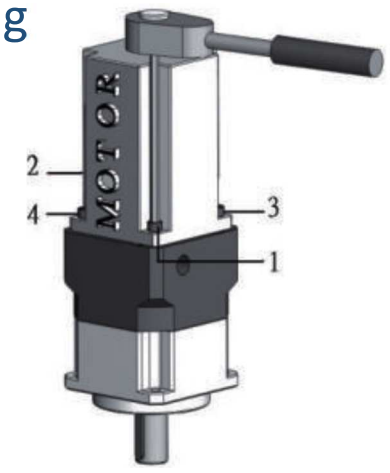
5. Tighten the mounting Bolts in 1~4 order with Torque wrench to 5% specfied torque.



6. Install gearbox and motor vertically. Tighten the set Collar bolt with Torque wrench to specified torque.



7. Tighten the mounting Bolts in 1~4 order with torque wrench to specified torque.



8. Put the plug back