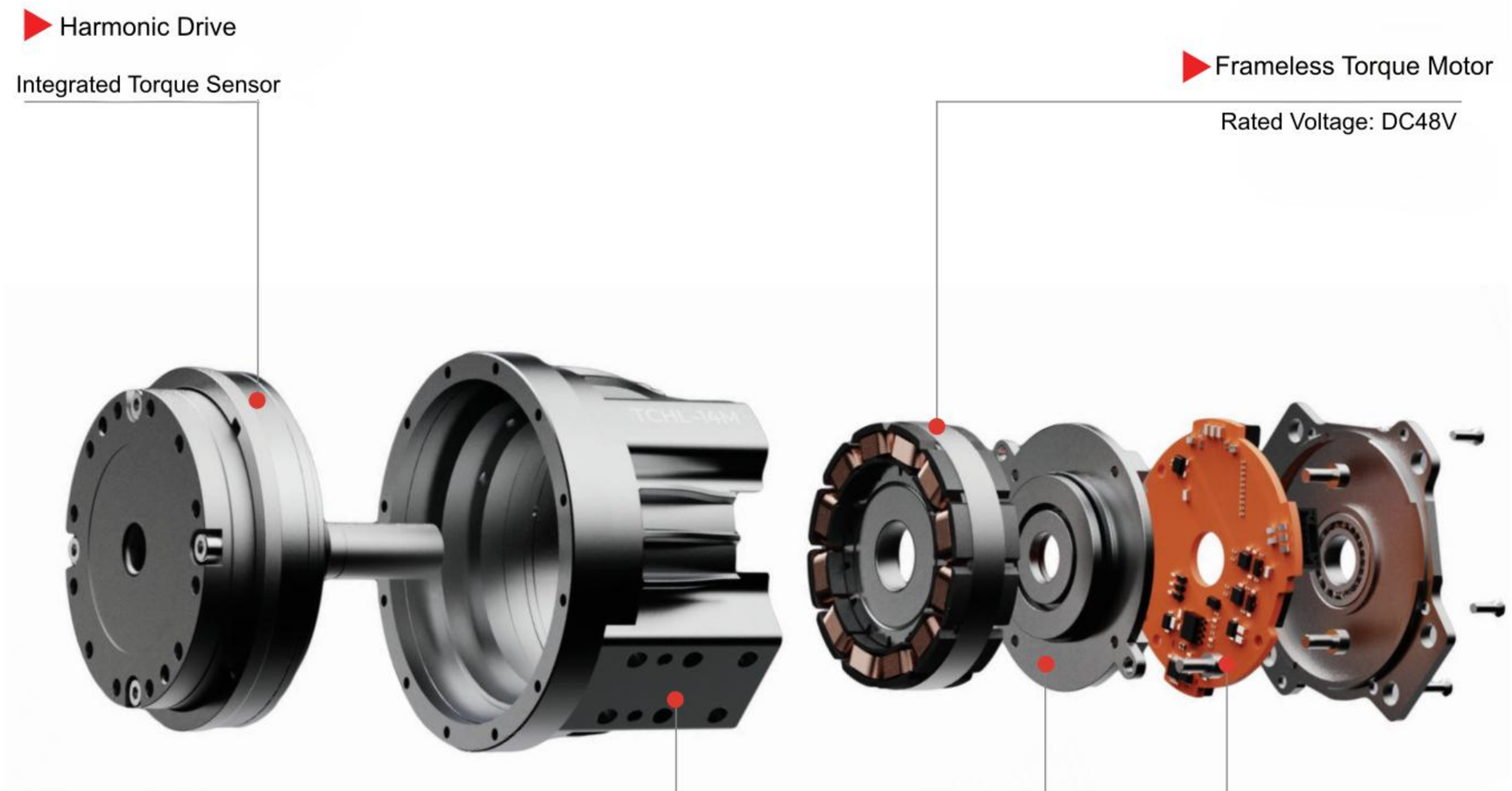
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Suzhou Honpine Precision Industry Co., Ltd.

Integrated Joint Module Selection Guide



PRODUCT CATALOG

Page 1. Product Catalog Description

Page 2. Model Number Definition

Page 3. TCHL-11 Hollow Bore： ø 8----Dimension： Ø52x57----Torque range： 3.6-7.7N·m

Page 4. TCHL-14 Hollow Bore： ø 10----Dimension： Ø65x55(With brakeØ65x67)----Torque range： 4.5-9.5N·m

Page 5. TCHL-17 Hollow Bore： ø 12----Dimension： Ø77x76(With brakeØ77x86.5)----Torque range： 20-48N·m

Page 6. TCHL-20 Hollow Bore： ø 15----Dimension： Ø87x77.5(With brakeØ87x90)----Torque range： 31-61N·m

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Page 9. Cable Wiring Definition

P/N Interpretation

TCHL- 20- XXX –FL-DC48-X05/B05– HISE/HISC-M/TM

Series	
TCHL	Lightweight

Harmonic Drive Model
11
14
17
20
25
32

Gear Ratio
101
Other ratios to be developed in the future

Motor Type	
FL	Frameless Torque Motor
DC48V	DC48V

Modification Code
M: Standard Model H: Standard Model
TM: With Torque Sensor TH: With Torque Sensor
SP: Custom Code

Cable Exit Method	
HISE	Ethercat
HISC	CANFD

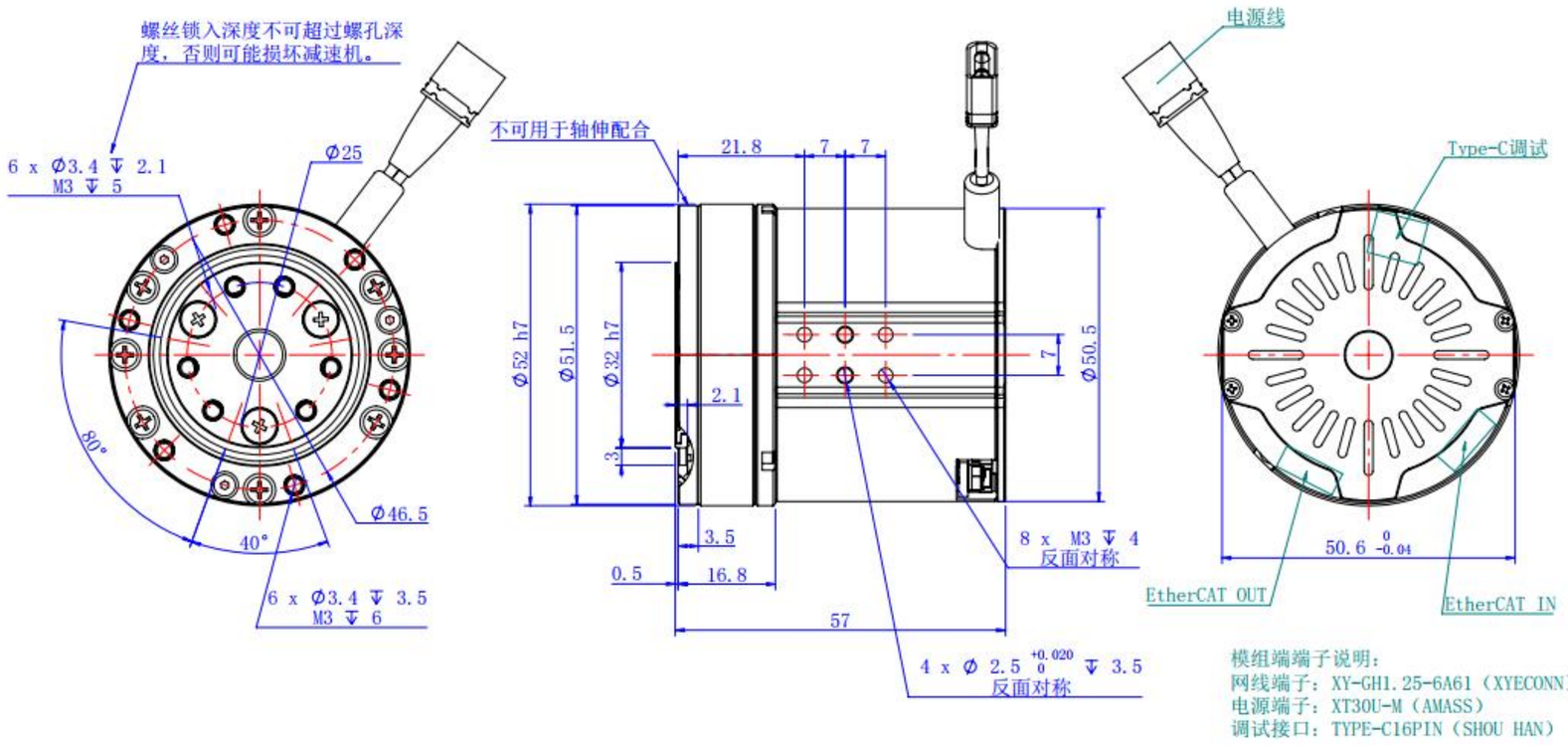
Encoder Communication Type	
X/B	X: Without Brake B: With Brake
05	Dual Encoder, Single-Turn Absolute, 17-bit

Important Precautions:

①Never operate with overvoltage or overload.
②Never disassemble the motor without authorization.
③Ensure installation within the effective thread depth.
④Avoid stalling or emergency braking at high speeds.
⑤Do not hot-plug the motor while it is powered.

The information provided in this product manual is intended solely as a general description and feature introduction. We reserve the right to make changes without prior notice due to product improvements or other reasons. We appreciate your understanding.

Dimensions without Brake and Torque Sensor:

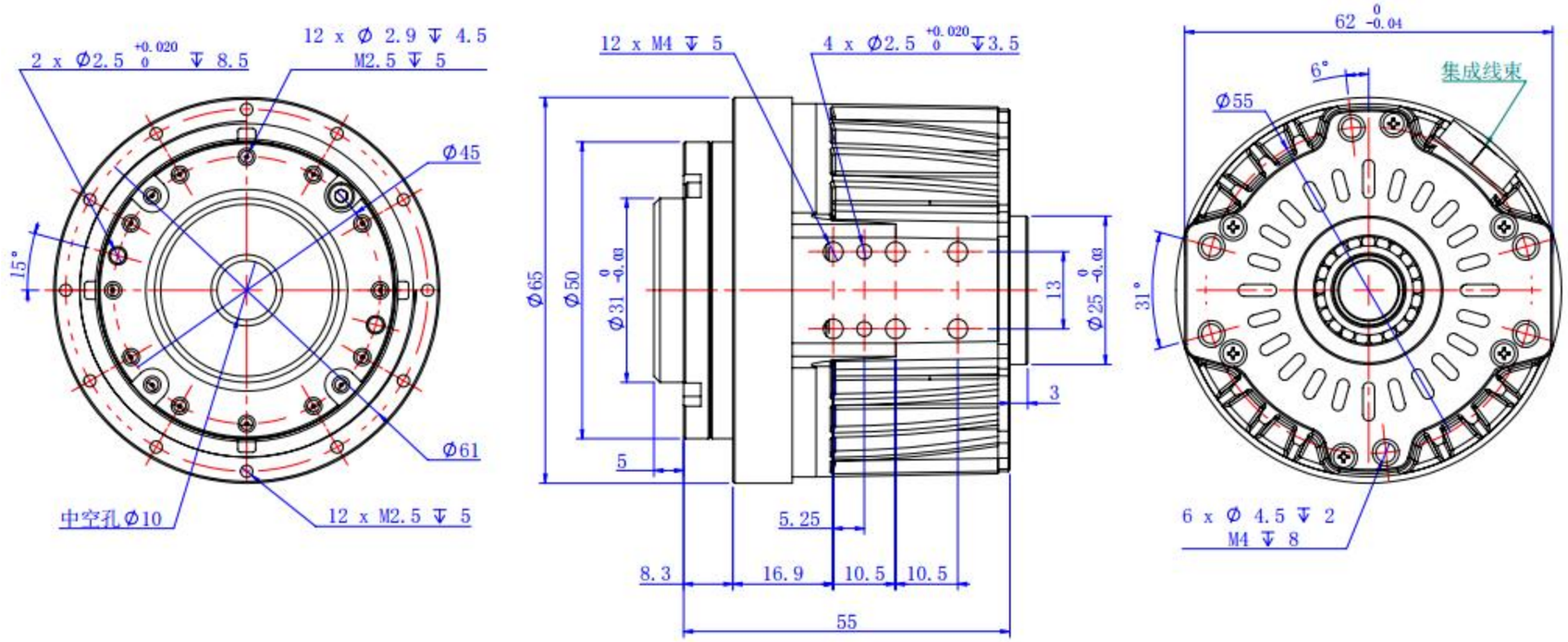


Item	Unit	Parameter		
Gear Ratio	-	51	81	101
Rated Output Torque	N·m	3.6	5.1	5.3
Maximum Average Load Torque	N·m	4.8	7.7	7.7
Starting/Stopping Torque	N·m	12	16	19
Peak Instantaneous Output Torque	N·m	12.5	20	25
Rated Output Speed	RPM	60	37.5	30
Peak Output Speed	RPM	80	50	40
Rated Voltage	V	DC 48V		
Output Moment of Inertia	Kg·m^2	0.012	0.030	0.048
Allowable Tilting Moment	N·m	25		
Torque Sensor	-	Without		
Brake	-	Without		
Transmission Accuracy	Arcsec	≤60		
Encoder	bit	Dual Encoder Single-Turn Absolute, 17-bit		
Drive Board Communication Protocol	-	Ethercat、CANFD		
Protection Grade	-	IP54，IP65 customizable		
Outline Dimensions Diameter x Height	mm	Ø52x57		
Hollow Bore Diameter	mm	Ø8		
Weight	Kg	0.37		
Operating Ambient Temperature	℃	-20℃~50℃		

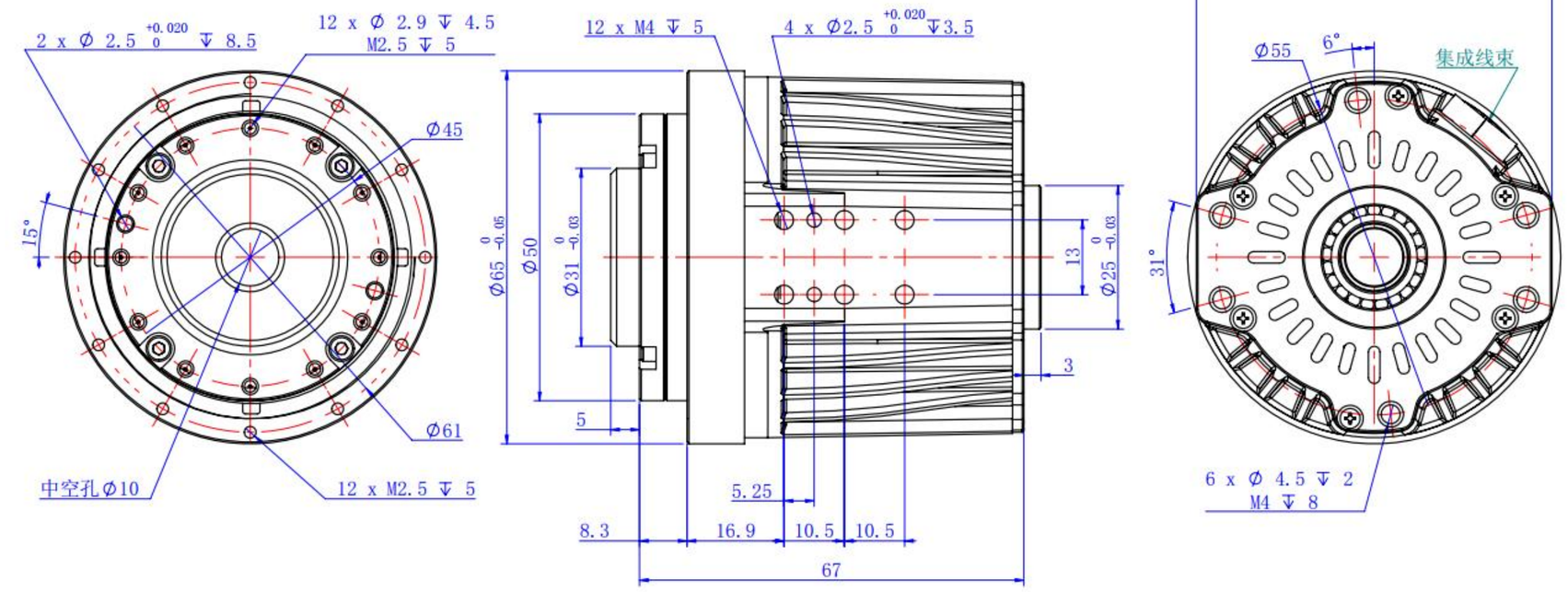
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TCHL-14

Dimensions without Brake (same as with Torque Sensor):

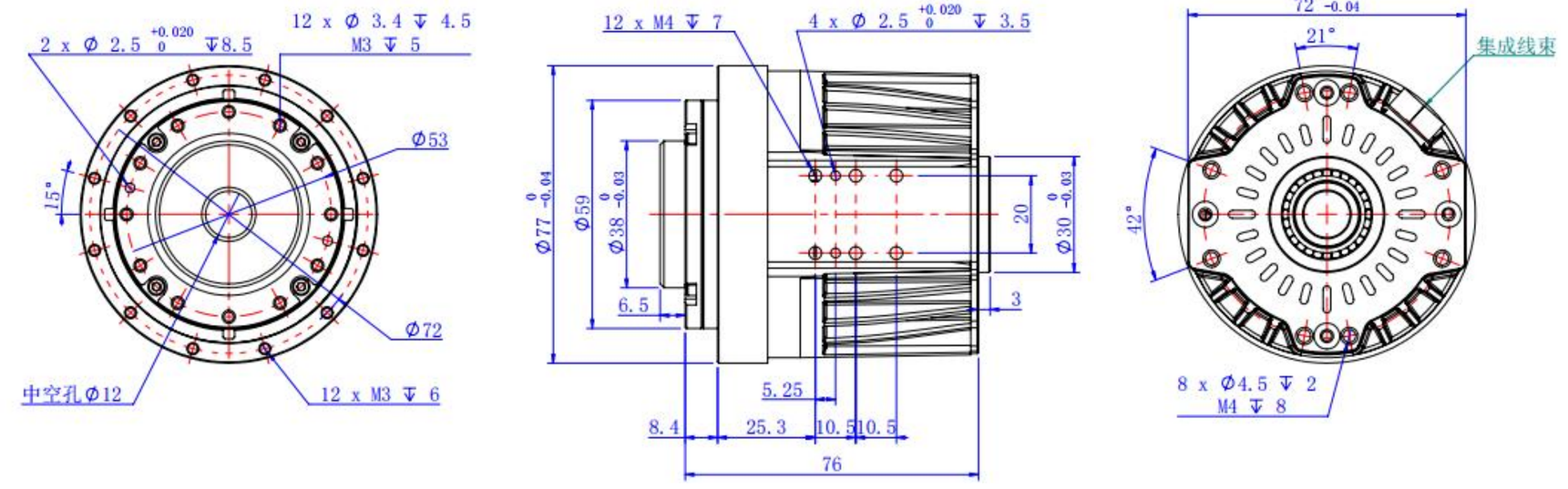


Dimensions with Brake (same as with Torque Sensor):

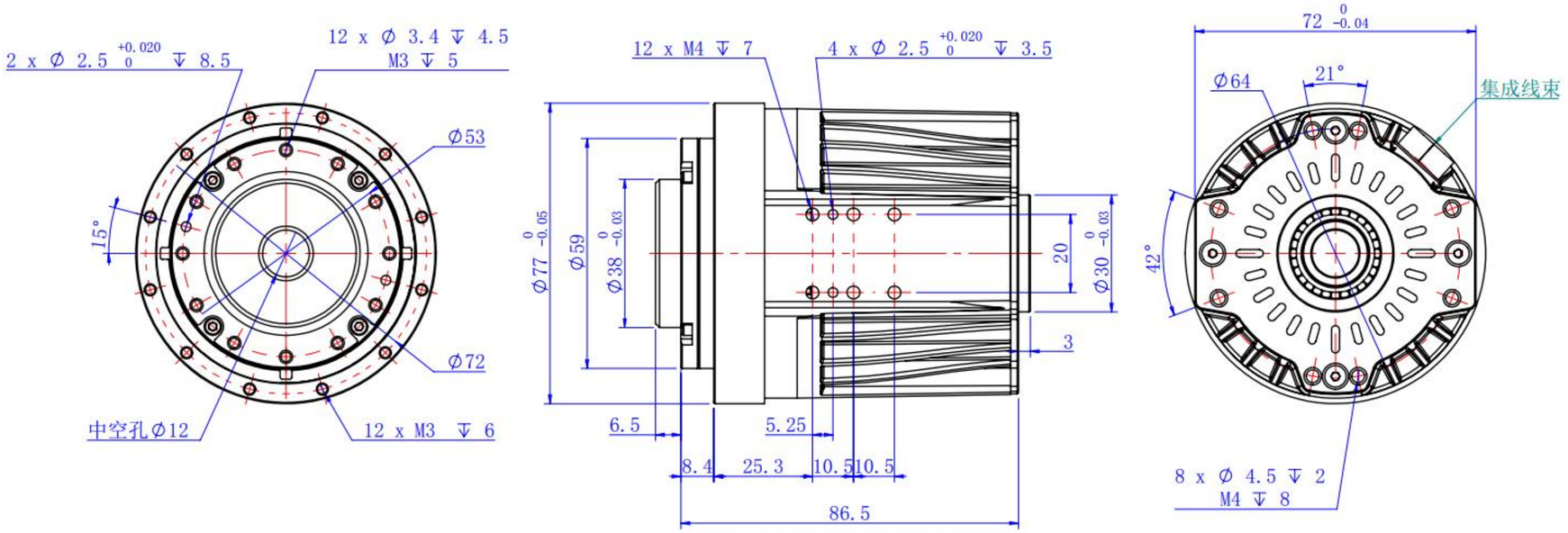


Item	Unit	Parameter		
Gear Ratio	-	51	81	101
Rated Output Torque	N·m	4.5	6.5	6.5
Maximum Average Load Torque	N·m	6	8	9.5
Starting/Stopping Torque	N·m	15	19	24
Peak Instantaneous Output Torque	N·m	19	30	36
Rated Output Speed	RPM	58.8	37	39.7
Peak Output Speed	RPM	78.4	49.3	39.6
Rated Voltage	V	DC48V		
Output Moment of Inertia	Kg·m^2	0.025	0.064	0.100
Allowable Tilting Moment	N·m	30		
Torque Sensor	-	optional		
Brake	-	optional		
Transmission Accuracy	Arcsec	≤60		
Encoder	bit	Dual Encoder Single-Turn Absolute, 17-bit		
Drive Board Communication Protocol	-	Ethercat、CANFD		
Protection Grade	-	IP54，IP65 customizable		
Outline Dimensions Diameter x Height	mm	Ø65x55 with brake Ø65x67		
Hollow Bore Diameter	mm	Ø10		
Weight	Kg	0.45 (with brake 0.55)		
Operating Ambient Temperature	℃	-20℃~50℃		

Dimensions without Brake (same as with Torque Sensor):



Dimensions with Brake (same as with Torque Sensor):

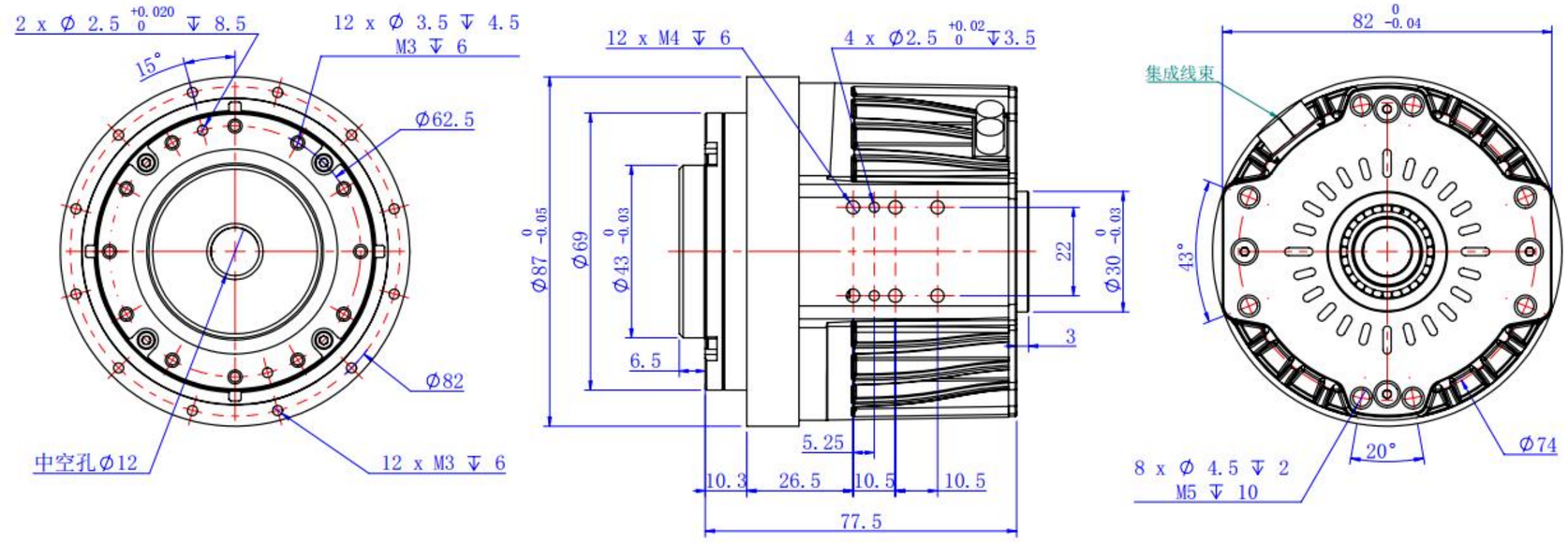


Item	Unit	Parameter		
Gear Ratio	-	51	81	101
Rated Output Torque	N·m	20	28	29
Maximum Average Load Torque	N·m	32	33	48
Starting/Stopping Torque	N·m	42	53	67
Peak Instantaneous Output Torque	N·m	86	107	136
Rated Output Speed	RPM	58.8	37	29.7
Peak Output Speed	RPM	78.4	49.3	39.6
Rated Voltage	V	DC 48V		
Output Moment of Inertia	Kg·m^2	0.115	0.289	0.450
Allowable Tilting Moment	N·m	93		
Torque Sensor	-	optional		
Brake	-	optional		
Transmission Accuracy	Arcsec	≤60		
Encoder	bit	Dual Encoder Single-Turn Absolute, 17-bit		
Drive Board Communication Protocol	-	Ethercat、CANFD		
Protection Grade	-	IP54，IP65 customizable		
Outline Dimensions Diameter x Height	mm	Ø77x76 with brake Ø77x86.5		
Hollow Bore Diameter	mm	Ø12		
Weight	Kg	0.93 (with brake 1.05)		
Operating Ambient Temperature	℃	-20℃~50℃		

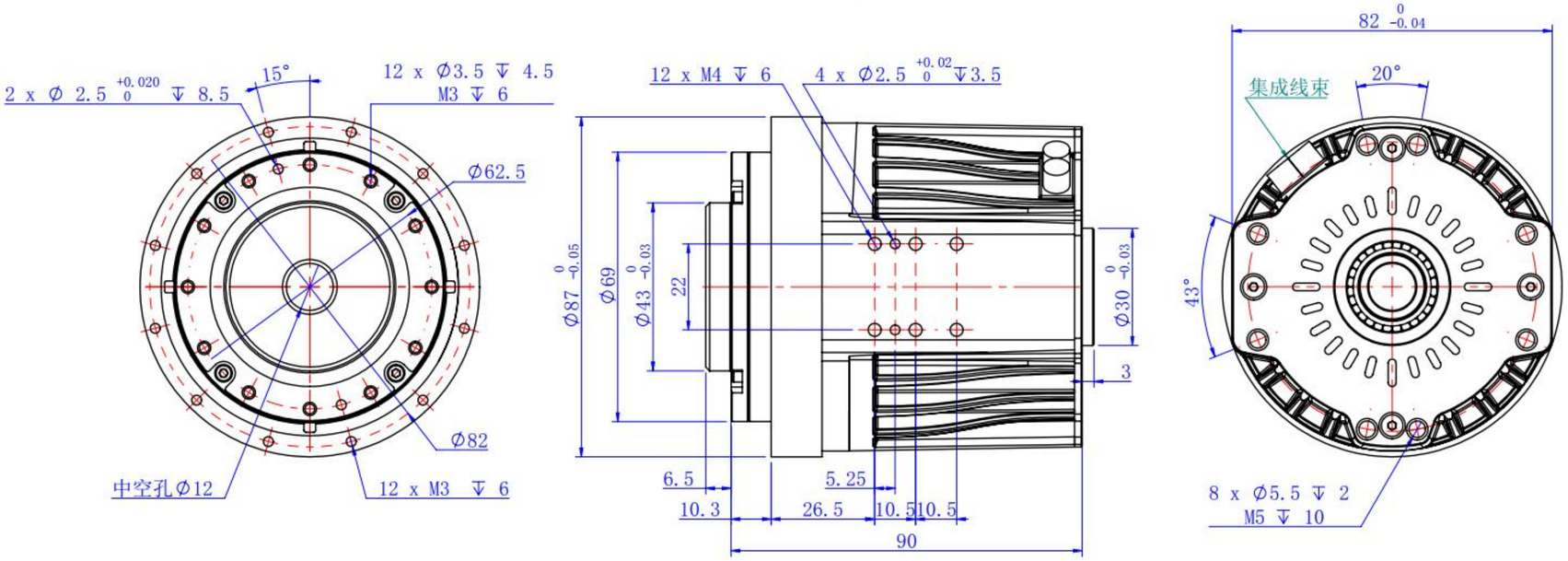
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TCHL-20

Dimensions without Brake (same as with Torque Sensor):



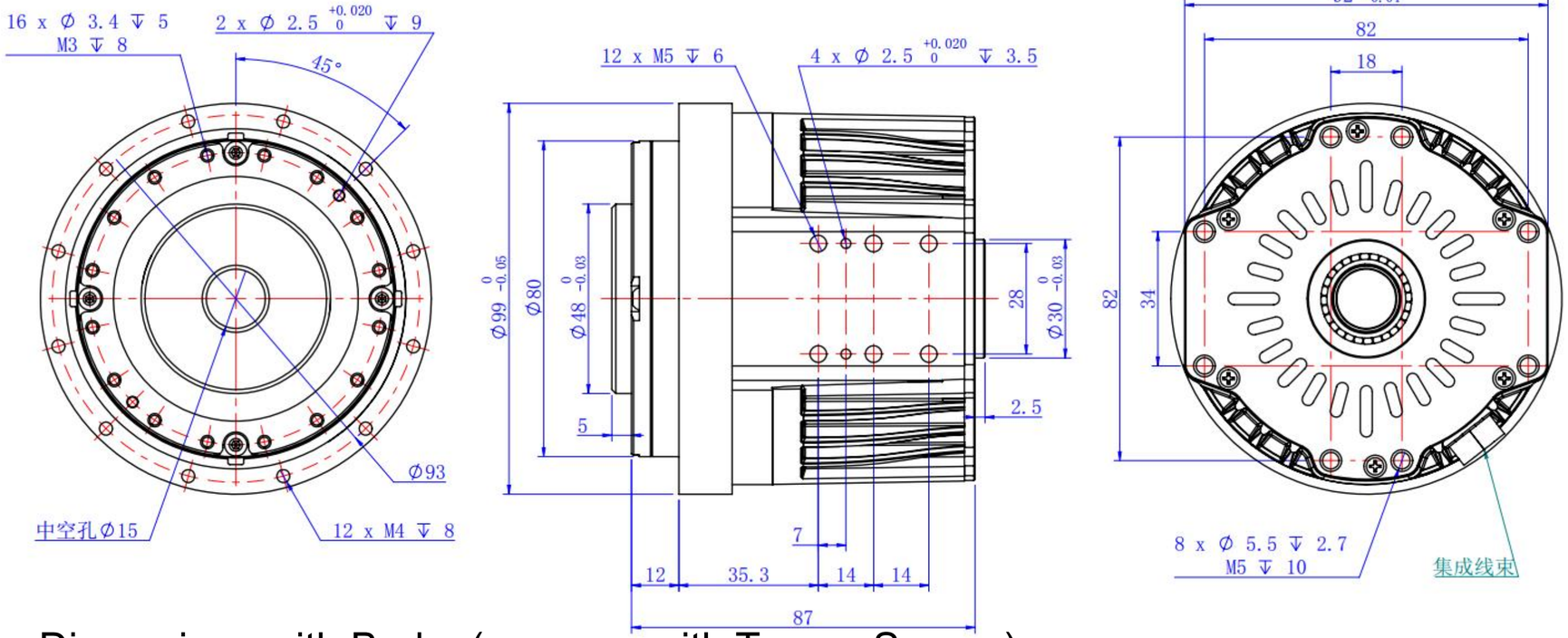
Dimensions with Brake (same as with Torque Sensor):



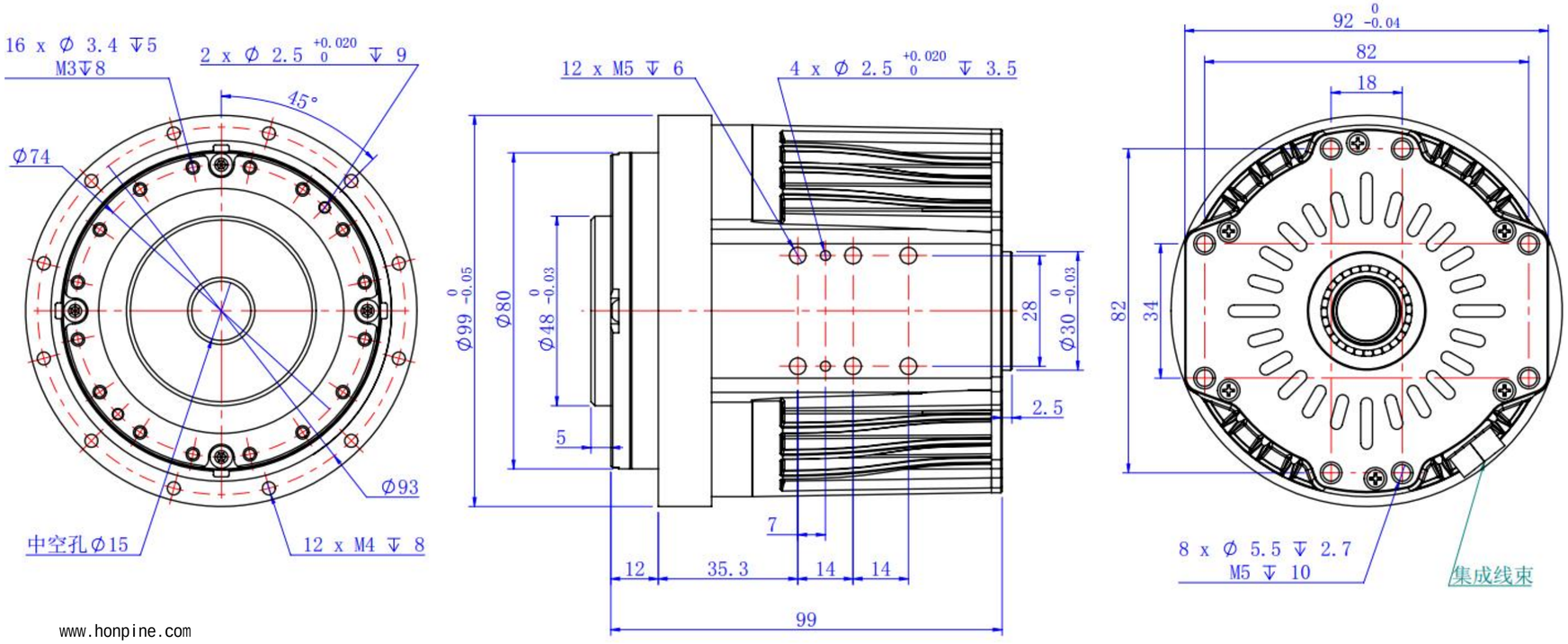
Item	Unit	Parameter		
Gear Ratio	-	51	81	101
Rated Output Torque	N·m	31	42	49
Maximum Average Load Torque	N·m	35	56	61
Starting/Stopping Torque	N·m	69	91	102
Peak Instantaneous Output Torque	N·m	105	157	181
Rated Output Speed	RPM	28.8	37	29.7
Peak Output Speed	RPM	78.4	49.3	39.6
Rated Voltage	V	DC 48V		
Output Moment of Inertia	Kg·m^2	0.178	0.450	0.700
Allowable Tilting Moment	N·m	120		
Torque Sensor	-	optional		
Brake	-	optional		
Transmission Accuracy	Arcsec	≤60		
Encoder	bit	Dual Encoder Single-Turn Absolute, 17-bit		
Drive Board Communication Protocol	-	Ethercat、CANFD		
Protection Grade	-	IP54，IP65 customizable		
Outline Dimensions Diameter x Height	mm	Ø87x77.5 with brake Ø87x90		
Hollow Bore Diameter	mm	Ø12		
Weight	Kg	1.28 (with brake 1.45)		
Operating Ambient Temperature	℃	-20℃~50℃		

TCHL-25

Dimensions without Brake (same as with Torque Sensor):

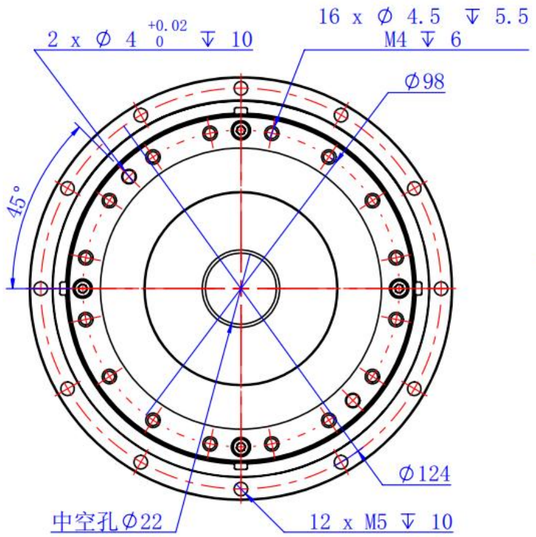


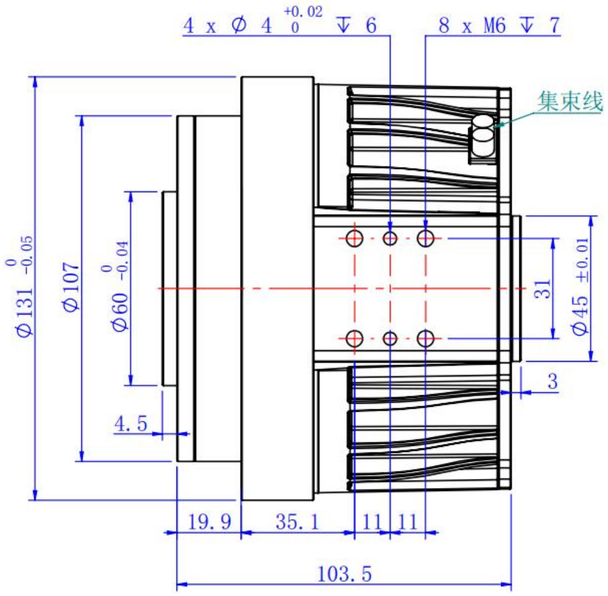
Dimensions with Brake (same as with Torque Sensor):

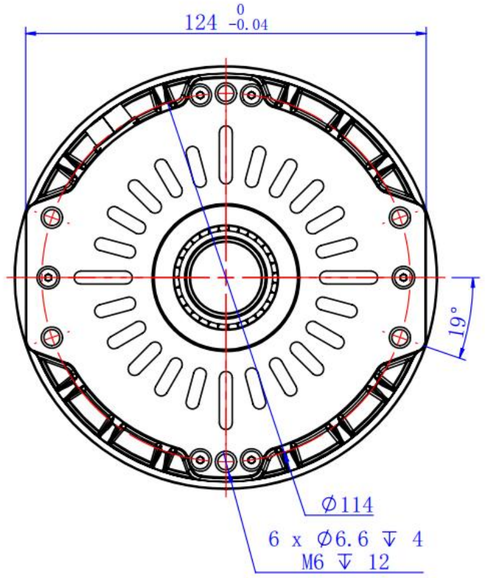


Item	Unit	Parameter		
Gear Ratio	-	81	101	121
Rated Output Torque	N·m	78	83	83
Maximum Average Load Torque	N·m	107	133	133
Starting/Stopping Torque	N·m	169	194	206
Peak Instantaneous Output Torque	N·m	283	351	375
Rated Output Speed	RPM	37	29.7	24.7
Peak Output Speed	RPM	49.3	39.6	33
Rated Voltage	V	DC 48V		
Output Moment of Inertia	Kg·m^2	1.222	1.900	2.727
Allowable Tilting Moment	N·m	150		
Torque Sensor	-	optional		
Brake	-	optional		
Transmission Accuracy	Arcsec	≤60		
Encoder	bit	Dual Encoder Single-Turn Absolute, 17-bit		
Drive Board Communication Protocol	-	Ethercat、CANFD		
Protection Grade	-	IP54，IP65 customizable		
Outline Dimensions Diameter x Height	mm	Ø99x87 with brake Ø99x99		
Hollow Bore Diameter	mm	Ø15		
Weight	Kg	1.85 (with brake 2.1)		
Operating Ambient Temperature	℃	-20℃~50℃		

Dimensions same as with Brake and Torque Sensor:

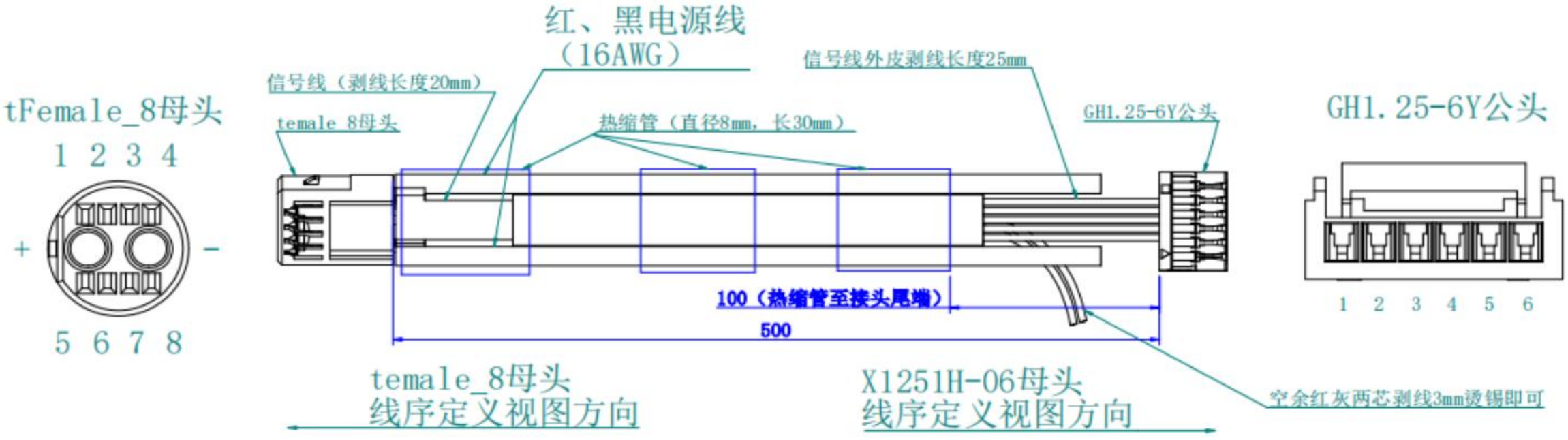






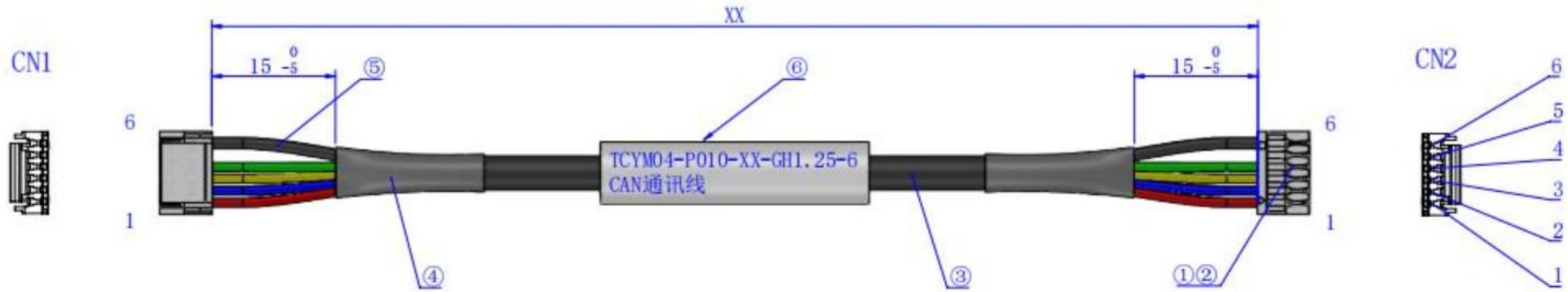
Item	Unit	Parameter		
Gear Ratio	-	81	101	121
Rated Output Torque	N·m	145	169	169
Maximum Average Load Torque	N·m	206	267	267
Starting/Stopping Torque	N·m	375	411	436
Peak Instantaneous Output Torque	N·m	701	799	847
Rated Output Speed	RPM	37	29.7	24.7
Peak Output Speed	RPM	49.3	39.6	33
Rated Voltage	V	DC48V		
Output Moment of Inertia	Kg·m^2	3.859	6.000	8.612
Allowable Tilting Moment	N·m	210		
Torque Sensor	-	optional		
Brake	-	optional		
Transmission Accuracy	Arcsec	≤60		
Encoder	bit	Dual Encoder Single-Turn Absolute, 17-bit		
Drive Board Communication Protocol	-	Ethercat、CANFD		
Protection Grade	-	IP54，IP65 customizable		
Outline Dimensions Diameter x Height	mm	Ø131x103.5 same as with brake		
Hollow Bore Diameter	mm	Ø22		
Weight	Kg	3.3 （with brake 3.6）		
Operating Ambient Temperature	℃	-20℃~50℃		

Cable Wiring Definition-Ethercat



tFemale Connector Pinout	Pin Assignment	Color	X1251H-06 Pinout
1	TX+	Blue	1
2	TX-	Brown	2
3	RX+	Yellow	3
4	RX-	Green	4
5	Rs485+	Red	
6	Rs485-	Gray	
7	NC (Not Connected)	-	5
8	PE	Metal shield	6
+	48V	Red (power wire)	
-	0V	Black (power wire)	

Cable Wiring Definition-CAN



GH1.25 Pinout	Pin Assignment	Color
1	CAN-L	Red
2	CAN-H	Blue
3		Yellow
4		Green
5	NC	
6	PE	Black