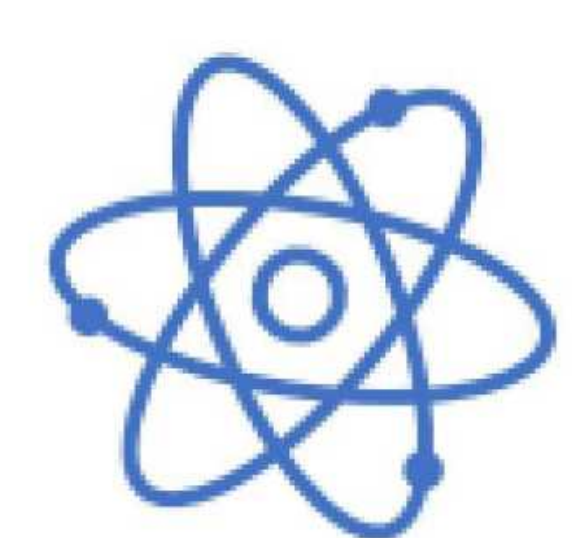
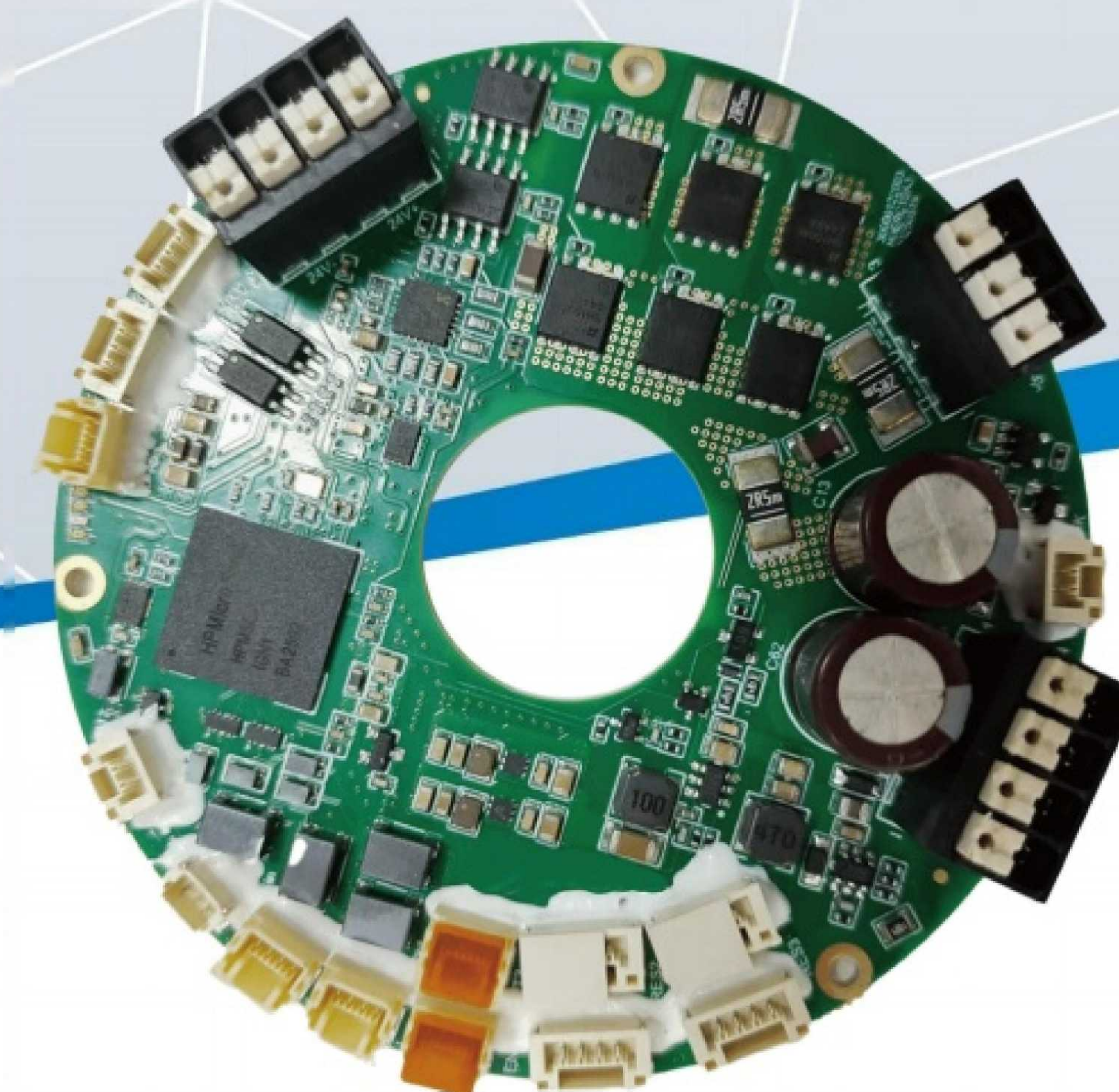


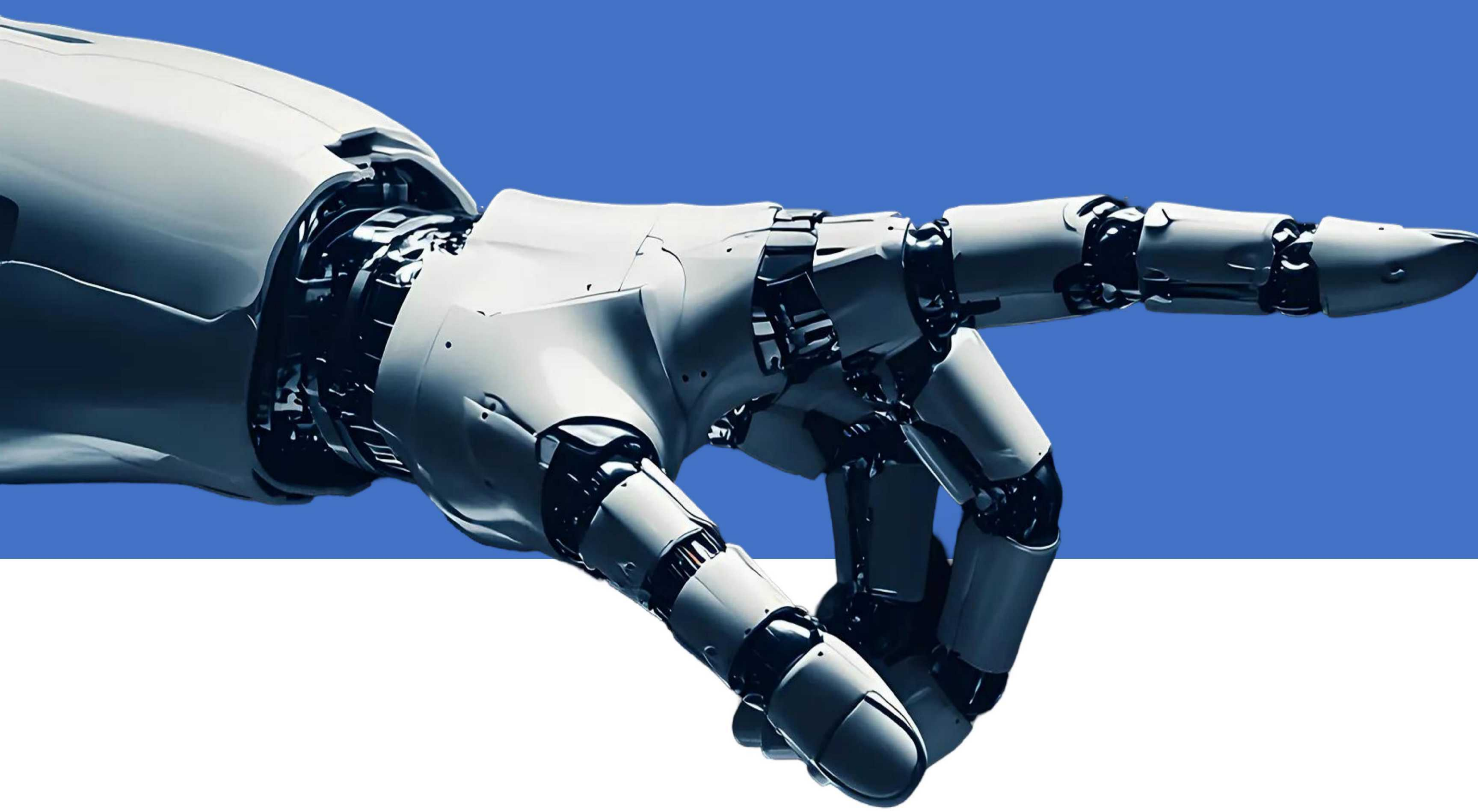


“ Drive silicon-based life
and accelerate super evolution . ”

H0 Joint Module Drive Solutions

EtherCAT[®]





Integrated Sensing and Control, Precision Drive

Powering humanoid robots!

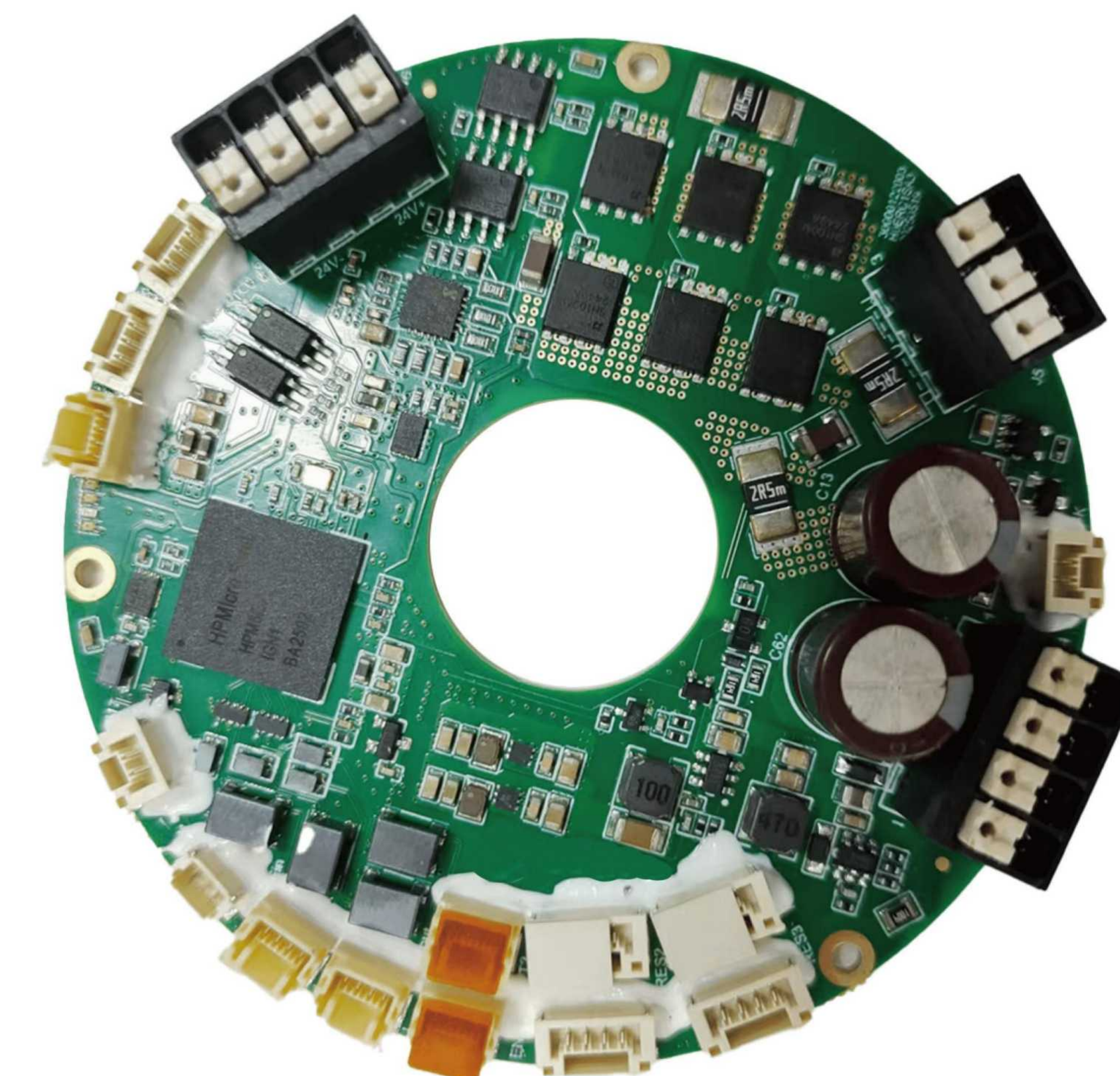


Supports **EtherCAT** and **CAN FD** communication control modes, supports **FoE** function, and enables batch updating of drive parameters and firmware via the communication bus.



Dual Closed-loop Magnetic Encoder Detection Technology

The drive has built-in dual-channel magnetic encoder detection units that synchronously monitor the angles at the input/output ends of the harmonic reducer, with an 18-bit single-turn resolution and single-turn repeat accuracy $\leq 0.01^\circ$, realizing a dual-end synchronous closed-loop detection mechanism.



The new-generation ultra-thin integrated sensing and control **H0 servo drive** provides a breakthrough solution for the design of high-density joint modules! It innovatively adopts an **ultra-thin** integrated architecture. Through the **integrated design** of a highly integrated drive control unit and a dual-channel magnetic grating encoder detection module, it achieves an **ultra-slim 17mm body**. Compared with the traditional separated multi-layer pin-header PCB connection architecture for drives and encoders, the new single-board solution significantly improves system reliability by reducing contact points. The compact structure further compresses the axial space of robot joints, with **height reduced by 35%** and **power density increased by 40%**, meeting the installation requirements of extreme joint space!



200% Instantaneous Overload Capacity

Millisecond-level dynamic response, explosive peak torque output, perfectly matching high-intensity movements such as jumping and running.



Adjustable-voltage Brake Control

Release 24V/16.5W/200ms; holding voltage and release/enable timing adjustable. Fast braking during motion; reduced holding voltage saves energy, lowers heat, extends brake life, ensuring robot safety and reliability.

STO Safety

Dual-channel hardware redundancy + software verification; rapid emergency stop for reliable personnel and machine protection.



Precise Force Control

16-bit high-precision torque feedback, >16kHz acquisition bandwidth; real-time joint load data uploaded to the robot controller via PDO; dynamically adjusts motor output torque for high motion compliance.

Zero-gravity Suspension Algorithm

Built-in precise force-position hybrid control; actively counteracts gravity; enables free movement, operation, and dynamic balance in 3D space.

Naming Rules

—H0 Joint Module Drive System

H0 - E R 010 D48 - J66

① ② ③ ④ ⑤ ⑥

①	Products Series
H0	Series

④	Rated Output Power
002	20W
003	30W
010	100W
020	200W
022	220W
040	400W
075	750W

⑤	Voltage Rating
D48	DC48V

②	Bus Communication Protocol Type
E	EtherCAT 
C	CAN FD
EC	EtherCAT & CAN FD 

⑥	Outer Diameter
J47	47mm
J50	49.5mm
J61	61mm
J66	66mm
J76	76mm

③	Drive Motor Type
R	Rotary Servo Motor

- **DC14V~60V**



	CAN FD	EtherCAT 	EtherCAT  & CAN FD
Power	H0-CR	H0-ER	H0-ECR
20W	H0-CR002D48	-	-
100W	-	H0-ER010D48J47	H0-ECR010D48J50 H0-ECR010D48J66
200W	-	H0-ER020D48J61 H0-ER020D48J66	H0-ECR020D48J50
220W	-	-	H0-ECR022D48J66
400W	-	H0-ER040D48J76	H0-ECR040D48J66

Functional Configuration	EtherCAT 	CAN FD	EtherCAT  & CAN FD
	H0-ER	H0-CR	H0-ECR
I/O	-	-	-
Analog Function	2-Channel Analog Input	-	2-Channel Analog Input
STO	√	-	√
Brake Control	√	-	√

H0-CR Series General Specifications CAN FD

Model	H0-CR010D48	H0-CR040D48	H0-CR075D48
Output Power (W)	100	400	750
Rated Output Current (Arms)	2.5	10	16
Max. Output Current (Arms)	5	30	48
Rated Input Current (Arms)	1.4	9.3	17.4
Main Circuit Power Supply	DC 16~60V		
Regeneration Function	No Standard Built-in Regenerative Resistor		

H0-ER Series General Specifications

EtherCAT[®]

Joint Module Drive Model		H0-ER010D48J47	H0-ER020D48J61	H0-ER020D48J66	H0-ER040D48J76
Output Power (W)	100	200	200	400	
Rated Output Current (Arms)	2.5	5	5	10	
Max. Output Current (Arms)	5	10	10	20	
Rated Input Current (Arms)	1.4	4.6	4.6	9.3	
Main Circuit Power Supply	DC 16~60V				
Regeneration Function	No Standard Built-in Regenerative Resistor				

H0-ECR Series General Specifications

EtherCAT® & CAN FD

Model	H0-ECR010D48J50	H0-ECR010D48J66	H0-ECR020D48J50	H0-ECR022D48J66	H0-ECR040D48J66
Output Power (W)	100	100	200W	220	400
Rated Output Current (Arms)	2.5	2.5	5	5.4	10
Max. Output Current (Arms)	5	5	10	10.8	20
Rated Input Current (Arms)	1.4	1.4	4.6	5.1	9.3
Main Circuit Power Supply	DC 16~60V				
Regeneration Function	No Standard Built-in Regenerative Resistor				

General Rules			Description
General Specifications	Control Mode		48V DC nominal, 60V DC max. (battery power)
			IGBT PWM control, sinusoidal current drive
	Current Loop Bandwidth		≥2500Hz
	Operating Conditions	Operating / Storage Temperature	0 - 50°C ambient air (inside the enclosure)/ -40 ~ +70 °C
		Operating / Storage Humidity	≤90% RH (non-condensing)
		Vibration / Shock Resistance	4.9m/s2/19.6m/s2
		IP Code	IP00
		Pollution Degree	2
		Altitude	<1000m
Position Control Mode	Performance	High-Speed Side Position Closed Loop	High-speed side position feedback: electronic multi-turn with non-volatile memory
		Low-Speed Side Position Closed Loop	Low-speed side position feedback: smoothness guaranteed
	Input Signal	Position Command	Command source: EtherCAT communication (ER model)
	Analog Input Signal	Signal Allocation Changeable	Auxiliary 5 VDC output, 100 mA; 2-channel single-ended analog input (0–5 V): 5 V, GND, CH1+, CH2+; 16-bit, sampling bandwidth > 16 kHz; data via PDO to robot controller
Speed / Torque Control Mode	Performance	Speed Loop Bandwidth	≥ 630 Hz (no load)
	Input Signal	Speed Command Input	Command source: EtherCAT communication (ER model)
		Torque Command Input	

General Rules			Description
Built-in Functions	Protection Functions		Protection: 48 V power short circuit, UVW short circuit, overload, overcurrent, position error, speed error, overvoltage, undervoltage, overtemperature, encoder fault
	Vibration Suppression Function		4 notch filters, each with adaptive tuning
	Communication Function	Background Communication	Tuning interface: UART, DriverStart servo software
		Communication Protocol	EtherCAT: adjustable control loop parameters (loop gain, filter parameters, etc.) via SDO
		Multi-Station Communication	EtherCAT max. slave number: 255
		Function	status display, user parameter setting, monitoring display, alarm trace display, JOG operation, auto-tuning, signal logging (speed/torque command, etc.)
		Other Communication Interfaces	H0-ER020D48J61: RS485/CAN (baud rate configurable, 115200 bps default) Data transparent transmission (PDO between ECAT and RS485/CAN) H0-ER020D48J66 / H0-ER040D48J76: RS485 (baud rate configurable, 115200 bps default)
	Others		Gain adjustment, alarm logging, JOG operation
	Other Requirements	Adjustable Voltage Brake Function	Brake release: 24 V / 16.5 W / 200 ms; holding voltage adjustable; average holding: 7 V / 1.4 W; user-defined brake release and enable timing. Connector type: 1x axial
		Ether CAT Interface	Connector type: 2x axial (ECAT In, ECAT Out). CiA402 compliant, supports CSP / CSV / CST, sync cycle 1 ms
		Analog Sampling Interface	Connector type: 1x axial
		STO Interface	Hardware-blockable locally; connector type: 2x axial
		Vibration Suppression Function (Available)	Vibration suppression function included
Encoder Specification	Specification Type		Hollow rotary, axial structure, single-turn absolute
	Feedback Type		Dual onboard encoders
	Single-Turn Resolution		18bit
	Single-Turn Absolute Accuracy		≤0.02°
	Single-Turn Repeat Positioning Accuracy		≤0.01°
	Max. Supported Speed		≤6000rpm

General Rules			Description
General Specifications	Control Mode		48V DC nominal, 60V DC max. (battery power)
			IGBT PWM control, sinusoidal current drive
	Current Loop Bandwidth		≥2500Hz
	Operating Conditions	Operating / Storage Temperature	0 - 50°C ambient air (inside the enclosure)/ -40 ~ +70 °C
		Operating / Storage Humidity	≤90% RH (non-condensing)
		Vibration / Shock Resistance	4.9m/s2/19.6m/s2
		IP Code	IP00
		Pollution Degree	2
		Altitude	<1000m
Position Control Mode	Performance	High-Speed Side Position Closed Loop	High-speed side position feedback: electronic multi-turn with non-volatile memory
		Low-Speed Side Position Closed Loop	Low-speed side position feedback: smoothness guaranteed
	Input Signal	Position Command	Command source: EtherCAT & CANFD communication (ECR model)
	Analog Input Signal	Signal Allocation Changeable	Auxiliary 5VDC output, 100 mA; 2-channel single-ended analog input (0~5 V): 5 V, GND, CH1+, CH2+; 16-bit, sampling bandwidth > 16 kHz; data via PDO to robot controller
Speed / Torque Control Mode	Performance	Speed Loop Bandwidth	≥ 630 Hz (no load)
	Input Signal	Speed Command Input	Command source: EtherCAT & CANFD communication (ECR model)
		Torque Command Input	

General Rules			Description
Built-in Functions	Protection Functions		48 V power short circuit, UVW short circuit, overload, overcurrent, position error, speed error, overvoltage, undervoltage, overtemperature, encoder fault
	Vibration Suppression Function		4 notch filters, each with adaptive tuning
	Communication Function	Background Communication	Tuning interface: UART, DriverStart servo software
		Communication Protocol	EtherCAT、CAN FD: adjustable control loop parameters (loop gain, filter parameters, etc.) via SDO
		Multi-Station Communication	EtherCAT max. slave number: 255
		Function	status display, user parameter setting, monitoring display, alarm trace display, JOG operation, auto-tuning, signal logging (speed/torque command, etc.)
	Others		Gain adjustment, alarm logging, JOG operation
Other Requirements	Adjustable Voltage Brake Function		Brake release: 24 V / 16.5 W / 200 ms; holding voltage adjustable; average holding: 7 V / 1.4 W; user-defined brake release and enable timing. Connector type: 1x axial
	Ether CAT Interface		Connector type: 2x axial (ECAT In, ECAT Out). CiA402 compliant, supports CSP / CSV / CST, sync cycle 1 ms
	CAN FD Interface		Connector type: 2x axial (CAN1, CAN2). CiA402 compliant, supports CSP / CSV / CST, sync cycle 1 ms
	Analog Sampling Interface		Connector type: 1x axial
	STO Interface		Hardware-blockable locally; connector type: 2x axial
Encoder Specification	Vibration Suppression Function (Available)		Vibration suppression function included
	Specification Type		Hollow rotary, axial structure, single-turn absolute
	Feedback Type		Dual onboard encoders
	Single-Turn Resolution		18bit
	Single-Turn Absolute Accuracy		≤0.02°
	Single-Turn Repeat Positioning Accuracy		≤0.01°
	Max. Supported Speed		≤6000rpm

General Rules			Description
General Specifications	Control Mode		48V DC nominal, 60V DC max. (battery power)
			IGBT PWM control, sinusoidal current drive
	Current Loop Bandwidth		≥2500Hz
	Operating Conditions	Operating / Storage Temperature	-10~50°C ambient air (inside the enclosure)/ -20 ~ +70 °C
		Operating / Storage Humidity	≤ 90% RH (non-condensing)
		Vibration / Shock Resistance	4.9m/s2/19.6m/s2
		IP Code	IP54
		Pollution Degree	2
		Altitude	< 1000m
Position Control Mode	Performance	High-Speed Side Position Closed Loop	High-speed side position feedback: electronic multi-turn with non-volatile memory
	Input Signal	Position Command	Command source: CANFD communication (CR model)
Speed / Torque Control Mode	Performance	Speed Loop Bandwidth	≥ 630 Hz (no load)
	Input Signal	Speed Command Input	Command source: CANFD communication (CR model)
		Torque Command Input	

General Rules			Description
Built-in Functions	Protection Functions		48 V power short circuit, UVW short circuit, overload, overcurrent, position error, speed error, overvoltage, undervoltage, overtemperature, encoder fault
	Vibration Suppression Function		4 notch filters, each with adaptive tuning
	Communication Function	Background Communication	Tuning interface: UART , DriverStart servo software
		Communication Protocol	CAN FD: adjustable control loop parameters (loop gain, filter parameters, etc.) via SDO
		Function	user parameter setting, monitoring display, alarm trace display, JOG operation, auto-tuning, signal logging (speed/torque command, etc.)
	Others		Gain adjustment, alarm logging, JOG operation
Other Requirements	Adjustable Voltage Brake Function		Brake release: 24 V / 16.5 W / 200 ms; holding voltage adjustable; average holding: 7 V / 1.4 W; user-defined brake release and enable timing. Connector type: 1x axial
	CAN FD Interface		Connector type: 2x axial (CANFD In , CANFD Out). CiA402 compliant, supports CSP / CSV / CST , sync cycle 1 ms
	Vibration Suppression Function (Available)		Vibration suppression function included
Encoder Specification	Specification Type		Hollow rotary, axial structure, single-turn absolute
	Feedback Type		Absolute position encoder
	Encoder Resolution		±0.01mm
	Encoder Positioning Accuracy		±0.01mm
	Encoder Data Update Rate		>1kHz

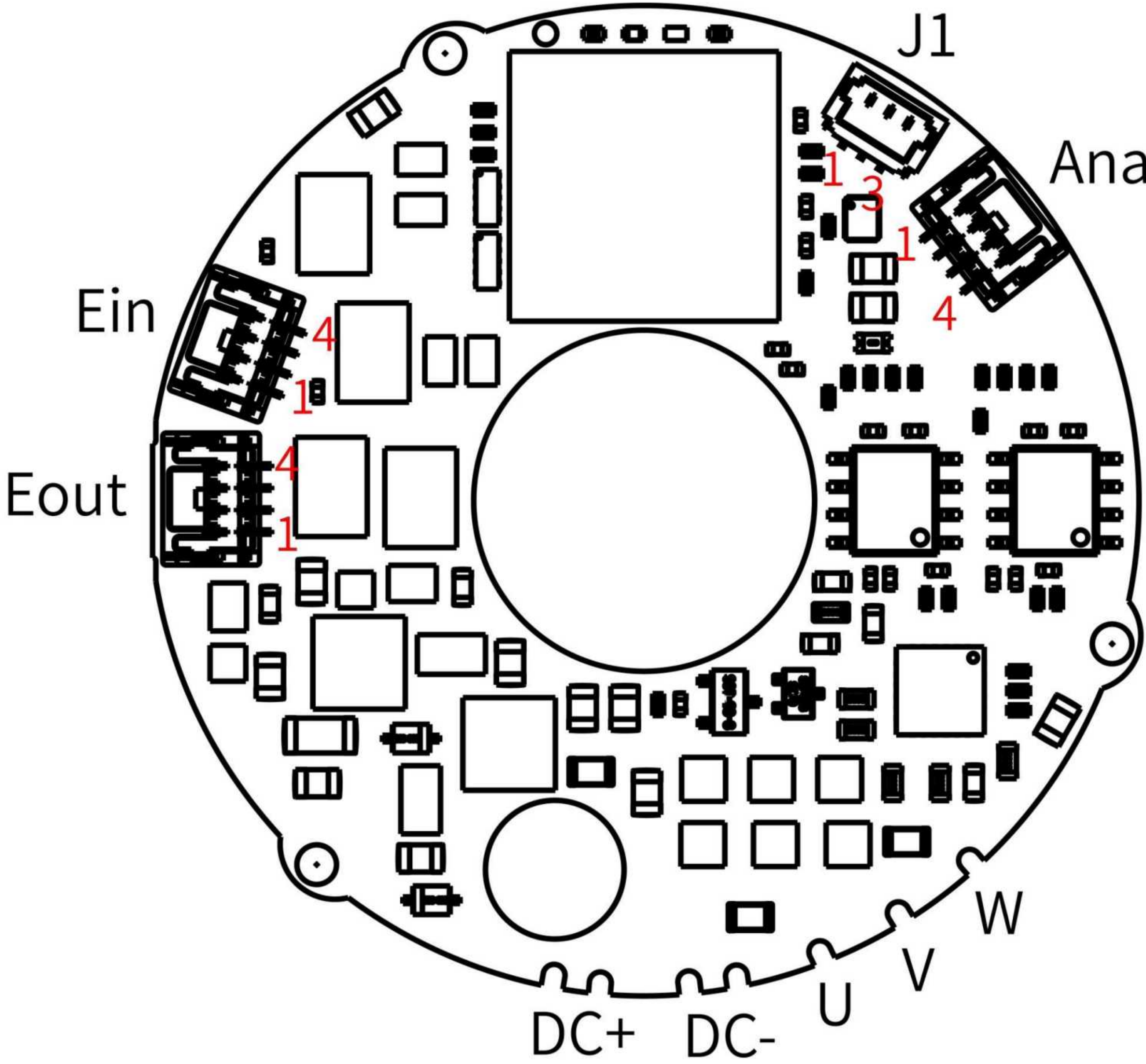
J1 Debug Interface		
Interface Type	Pin	Signal
A1002H-3P	1	UART_RX
	2	GND
	3	UART_TX

EtherCAT Communication Interface				
Interface Type	Ein(IN)		Eout(OUT)	
	Pin	Signal	Pin	Signal
A1002 HP-4P	1	TX+	1	TX+
	2	TX-	2	TX-
	3	RX+	3	RX+
	4	RX-	4	RX-

Bus Input		
Interface Type	Pin	Signal
Castellated Pad	1	DC+
	2	DC+
	3	DC-
	4	DC-

Ana AI Analog Input		
Interface Type	Pin	Signal
A1002HP-4P	1	AI2
	2	AI1
	3	GND
	4	P5V

H0-ER010D48J47



Motor Output		
Interface Type	Pin	Signal
Castellated Pad	1	U
	2	V
	3	W

J1 Debug Interface		
Interface Type	Pin	Signal
A1002H-3P	1	UART_RX
	2	GND
	3	UART_TX

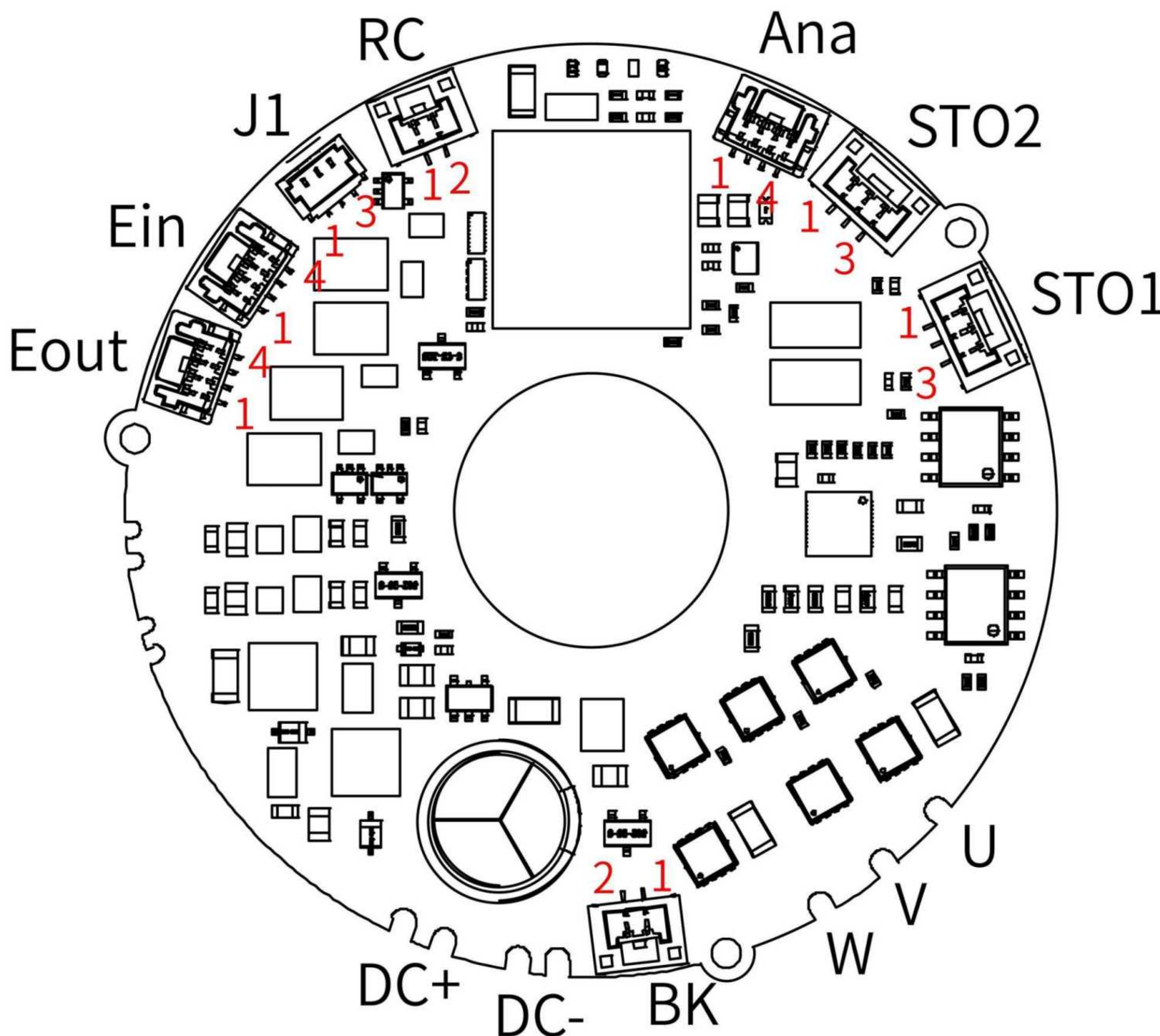
EtherCAT Communication Interface				
Interface Type	Ein(IN)		Eout(OUT)	
	Pin	Signal	Pin	Signal
A1002 HP-4P	1	TX+	1	TX+
	2	TX-	2	TX-
	3	RX+	3	RX+
	4	RX-	4	RX-

RC RS485/CAN Interface		
Interface Type	Pin	Signal
A1257H-2P	1	RS485+/CANH
	2	RS485-/CANL
Note: The RC interface is for joint sensor use.		

BK Brake Interface		
Interface Type	Pin	Signal
A1257H-2P	1	BK+
	2	BK-

STO Terminal				
Interface Type	STO1		STO2	
	Pin	Signal	Pin	Signal
A1257 H-3P	1	STO1+	1	STO1+
	2	STO_GND	2	STO_GND
	3	STO2+	3	STO2+

H0-ER020D48J61



Ana AI Analog Input		
Interface Type	Pin	Signal
A1002HP-4P	1	AI2
	2	AI1
	3	GND
	4	P5V

Bus Input		
Interface Type	Pin	Signal
Castellated Pad	1	DC+
	2	DC+
	3	DC-
	4	DC-

Motor Output		
Interface Type	Pin	Signal
Castellated Pad	1	U
	2	V
	3	W

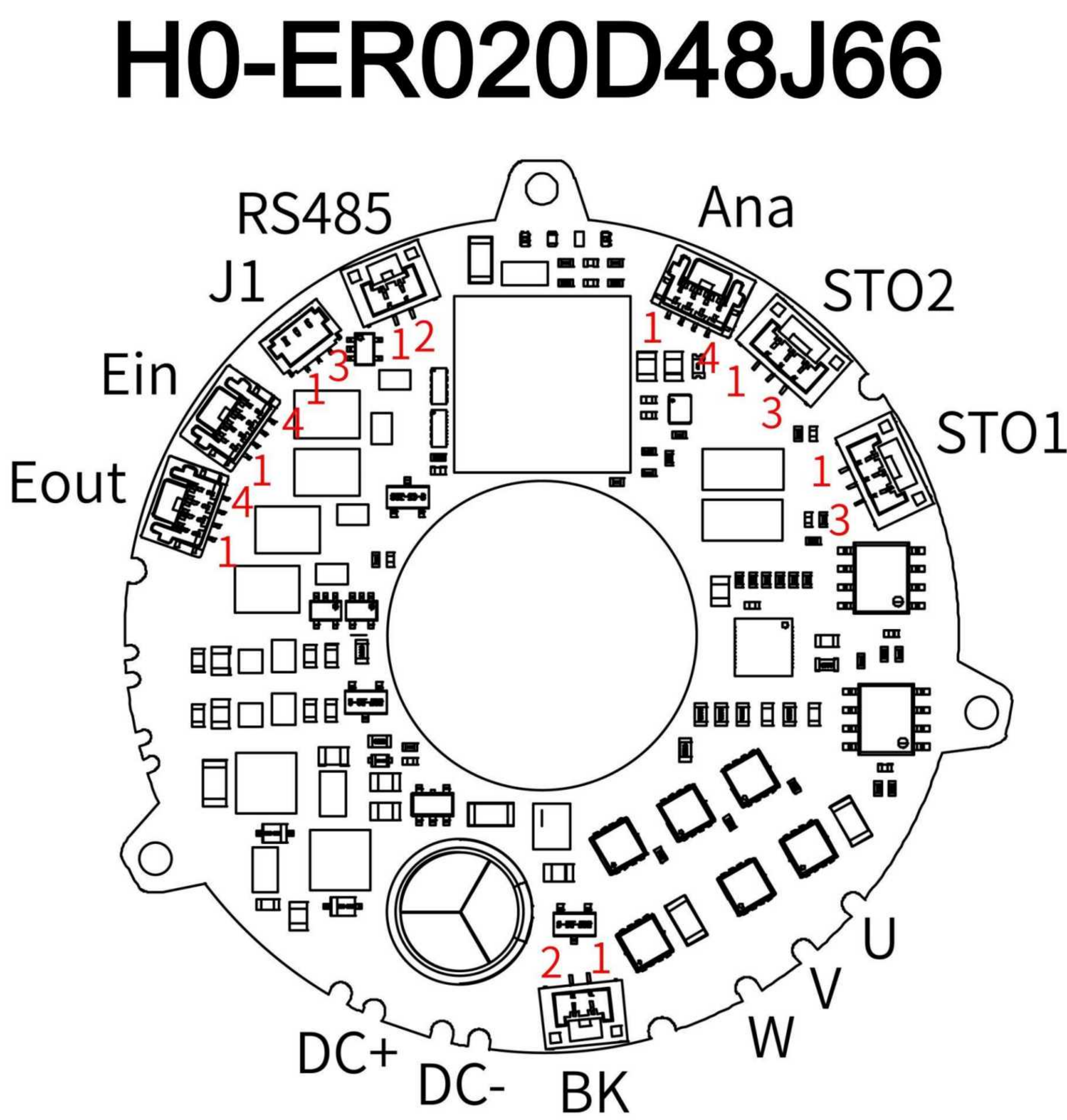
J1 Debug Interface		
Interface Type	Pin	Signal
A1002H-3P	1	UART_RX
	2	GND
	3	UART_TX

EtherCAT Communication Interface				
Interface Type	Ein(IN)		Eout(OUT)	
	Pin	Signal	Pin	Signal
A1002 HP-4P	1	TX+	1	TX+
	2	TX-	2	TX-
	3	RX+	3	RX+
	4	RX-	4	RX-

RS485 Interface		
Interface Type	Pin	Signal
A1257H-2P	1	RS485+
	2	RS485-
Note: The RS485 interface is for joint sensor use.		

BK Brake Interface		
Interface Type	Pin	Signal
A1257H-2P	1	BK+
	2	BK-

STO Terminal				
Interface Type	STO1		STO2	
	Pin	Signal	Pin	Signal
A1257 H-3P	1	STO1+	1	STO1+
	2	STO_GND	2	STO_GND
	3	STO2+	3	STO2+



Ana AI Analog Input		
Interface Type	Pin	Signal
A1002HP-4P	1	AI2
	2	AI1
	3	GND
	4	P5V

Bus Input		
Interface Type	Pin	Signal
Castellated Pad	1	DC+
	2	DC+
	3	DC-
	4	DC-

Motor Output		
Interface Type	Pin	Signal
Castellated Pad	1	U
	2	V
	3	W

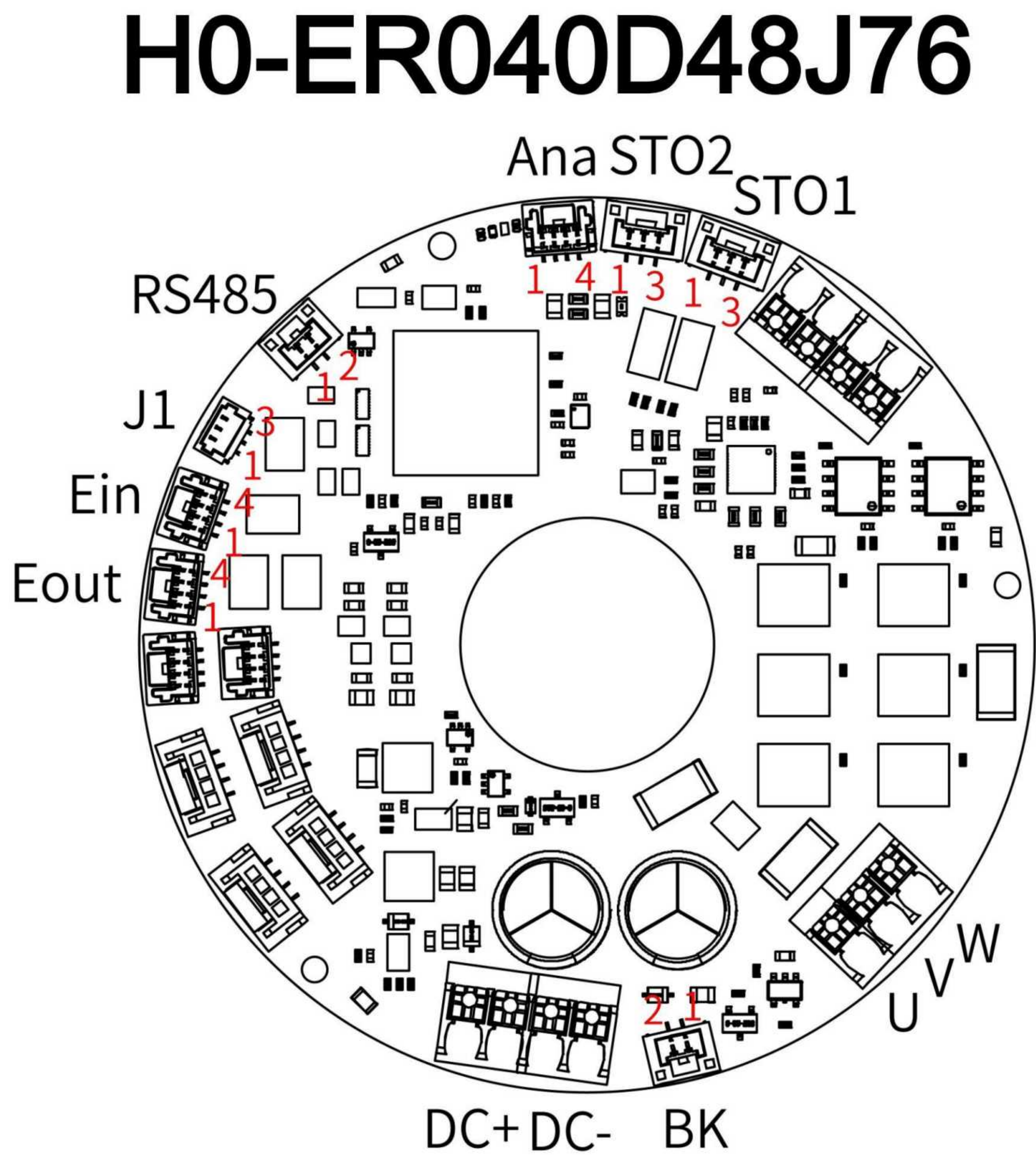
J1 Debug Interface		
Interface Type	Pin	Signal
A1002H-3P	1	UART_RX
	2	GND
	3	UART_TX

EtherCAT Communication Interface				
Interface Type	Ein(IN)		Eout(OUT)	
	Pin	Signal	Pin	Signal
A1002 HP-4P	1	TX+	1	TX+
	2	TX-	2	TX-
	3	RX+	3	RX+
	4	RX-	4	RX-

Bus Input		
Interface Type	Pin	Signal
Push-in Terminal	1	DC+
	2	DC+
	3	DC-
	4	DC-

BK Brake Interface		
Interface Type	Pin	Signal
A1257H-2P	1	BK+
	2	BK-

STO Terminal				
Interface Type	STO1		STO2	
	Pin	Signal	Pin	Signal
A1257 H-3P	1	STO1+	1	STO1+
	2	STO_GND	2	STO_GND
	3	STO2+	3	STO2+



RS485 Interface		
Interface Type	Pin	Signal
A1257H-2P	1	RS485+
	2	RS485-
Note: The RS485 interface is for joint sensor use.		

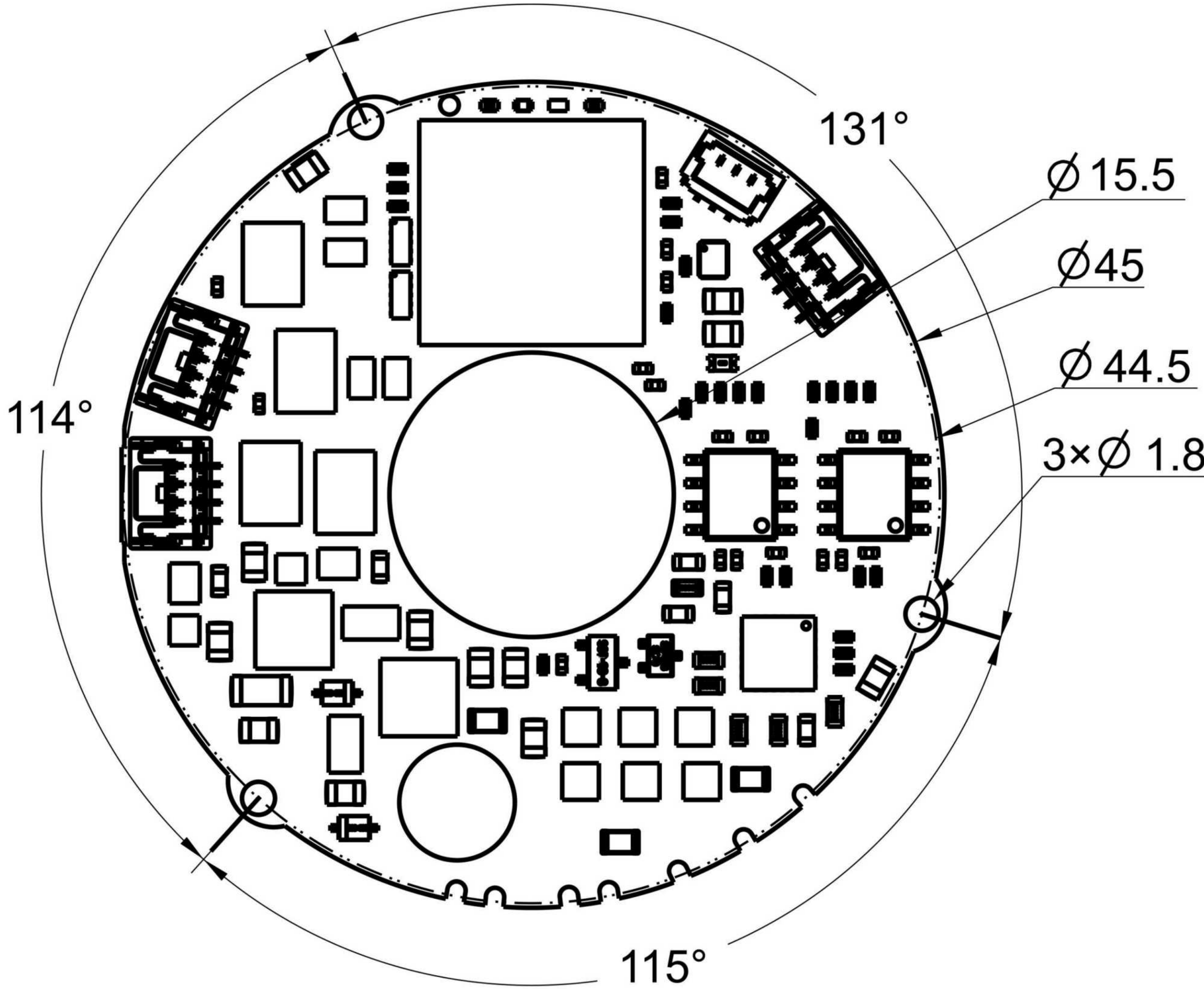
Ana AI Analog Input		
Interface Type	Pin	Signal
A1002HP-4P	1	AI2
	2	AI1
	3	GND
	4	P5V

Motor Output		
Interface Type	Pin	Signal
Push-in Terminal	1	U
	2	V
	3	W

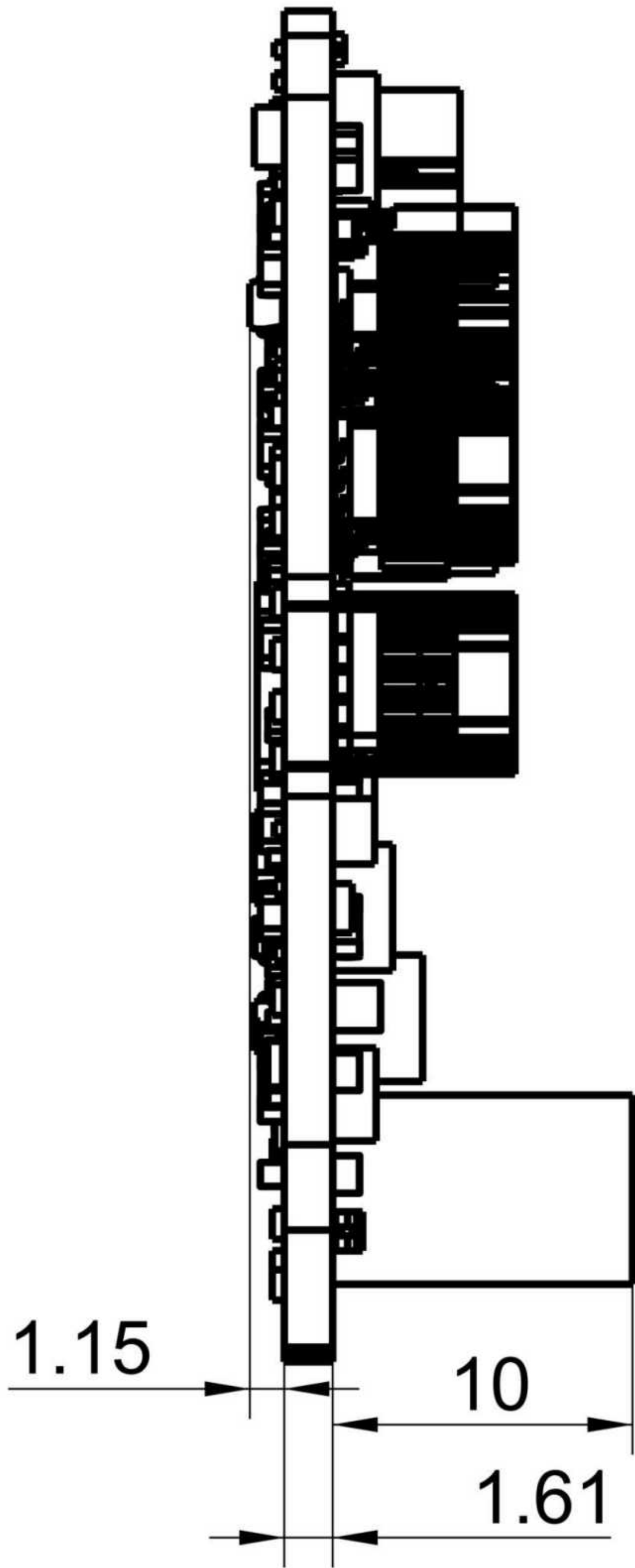
Board Model	H0-ER010D48J47		H0-ER020D48J61	
Power	100W		200W	
Magnet Inner Ring Model	CN128A32B-27.2-15		MU128-15-29-1.1	
Magnet Outer Ring Model	CN200A32B-42-29		MU200-25-44.5-1.4	
Ring Type	Small	Large	Small	Large
Recommended Installation Distance (mm) (Distance from Magnet to Sensing Chip Surface)	0.35±0.15	0.6±0.2	0.35±0.15	0.6±0.2
Sensing Chip Thickness (Typ.)	0.9mm			

H0-ER010D48J47 EtherCAT

Weight 0.015 KG



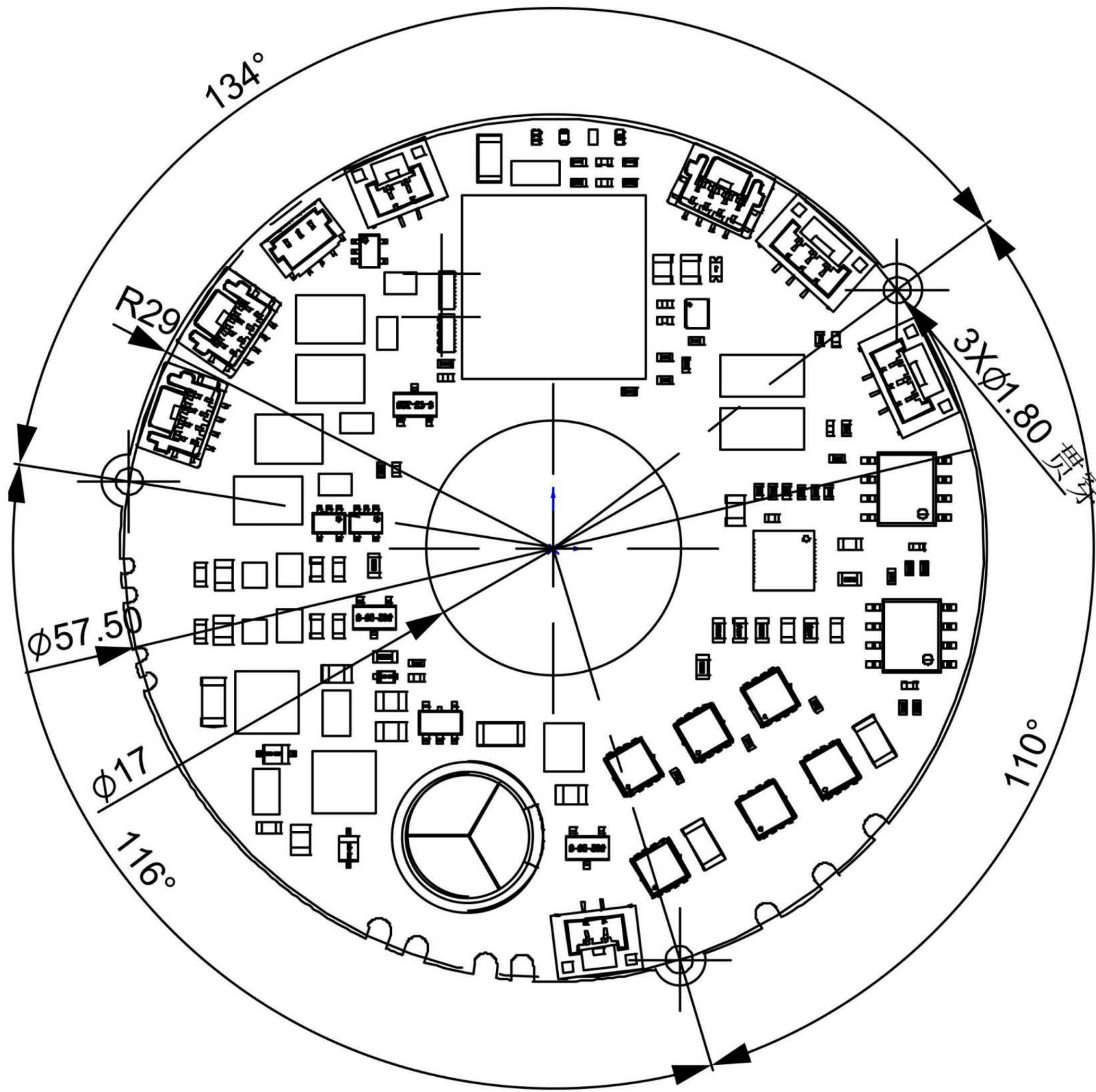
Front View



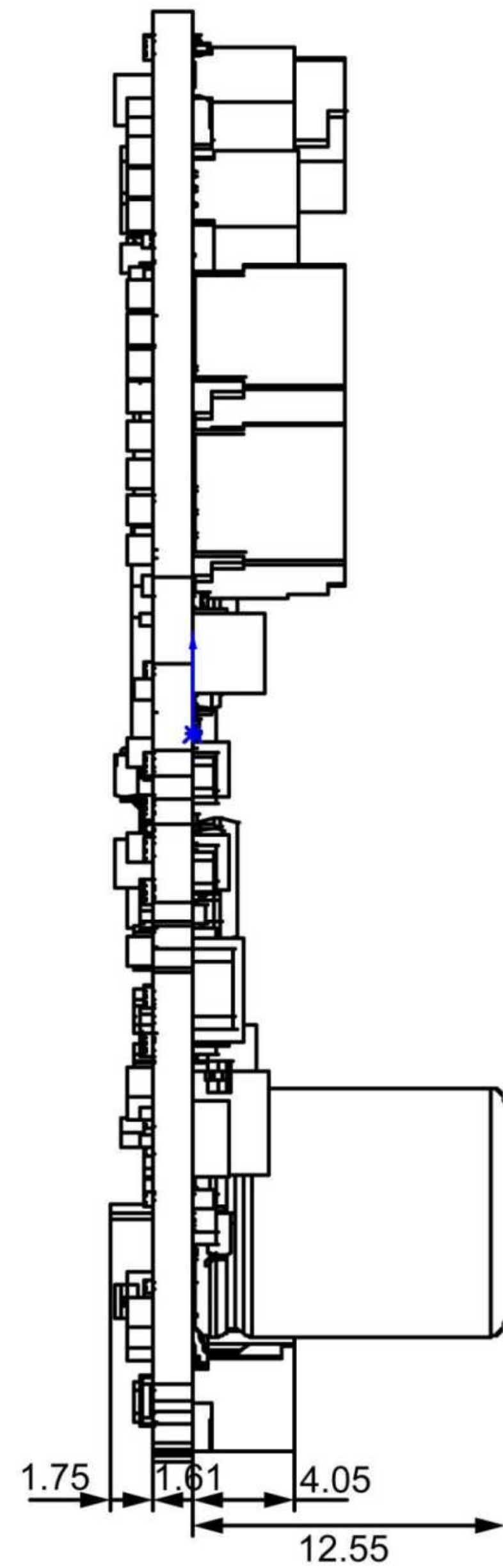
Left View

H0-ER020D48J61 EtherCAT

Weight 0.023 KG



Front View

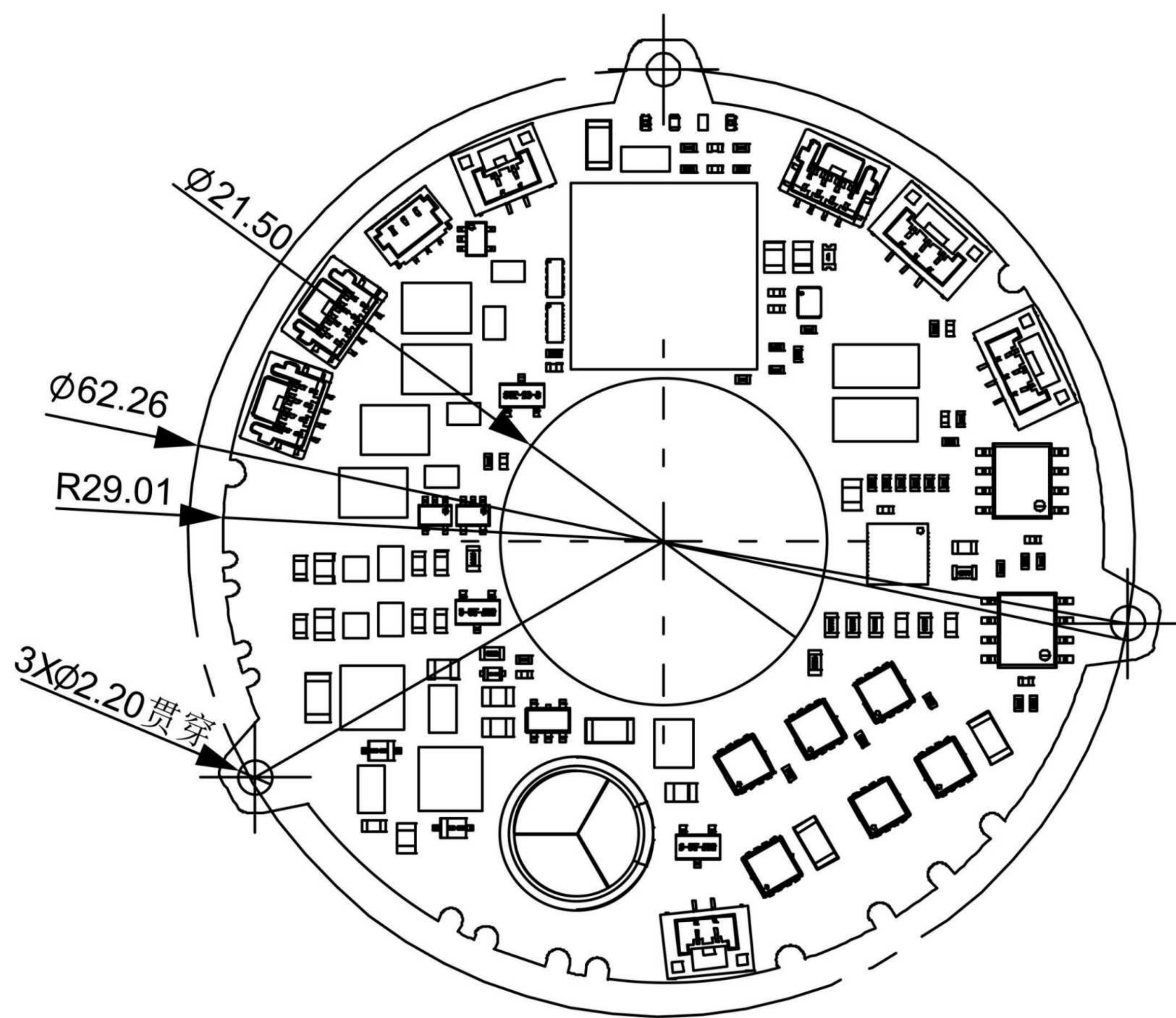


Left View

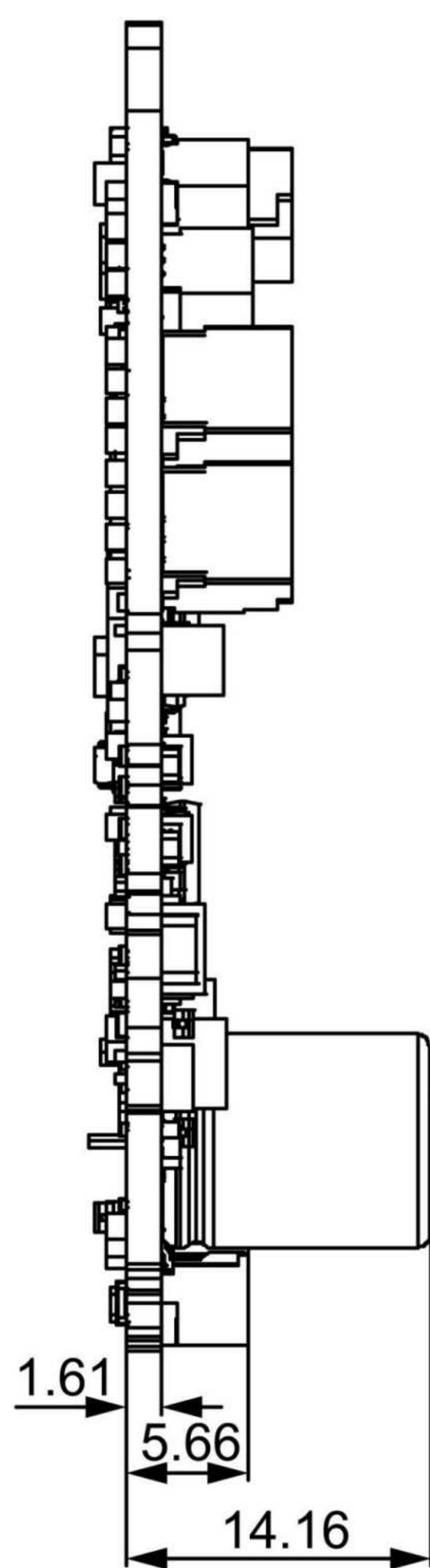
Board Model	H0-ER020D48J66		H0-ER040D48J76	
Power	200W		400W	
Magnet Inner Ring Model	MU150-18-34-1.1		MU150-18-34-1.1	
Magnet Outer Ring Model	MU128-38-56-1.1		MU128-38-56-1.1	
Ring Type	Small	Large	Small	Large
Recommended Installation Distance (mm) (Distance from Magnet to Sensing Chip Surface)	0.5±0.2	0.35±0.15	0.5±0.2	0.35±0.15
Sensing Chip Thickness (Typ.)	0.9mm			

H0-ER020D48J66 EtherCAT

Weight 0.023 KG



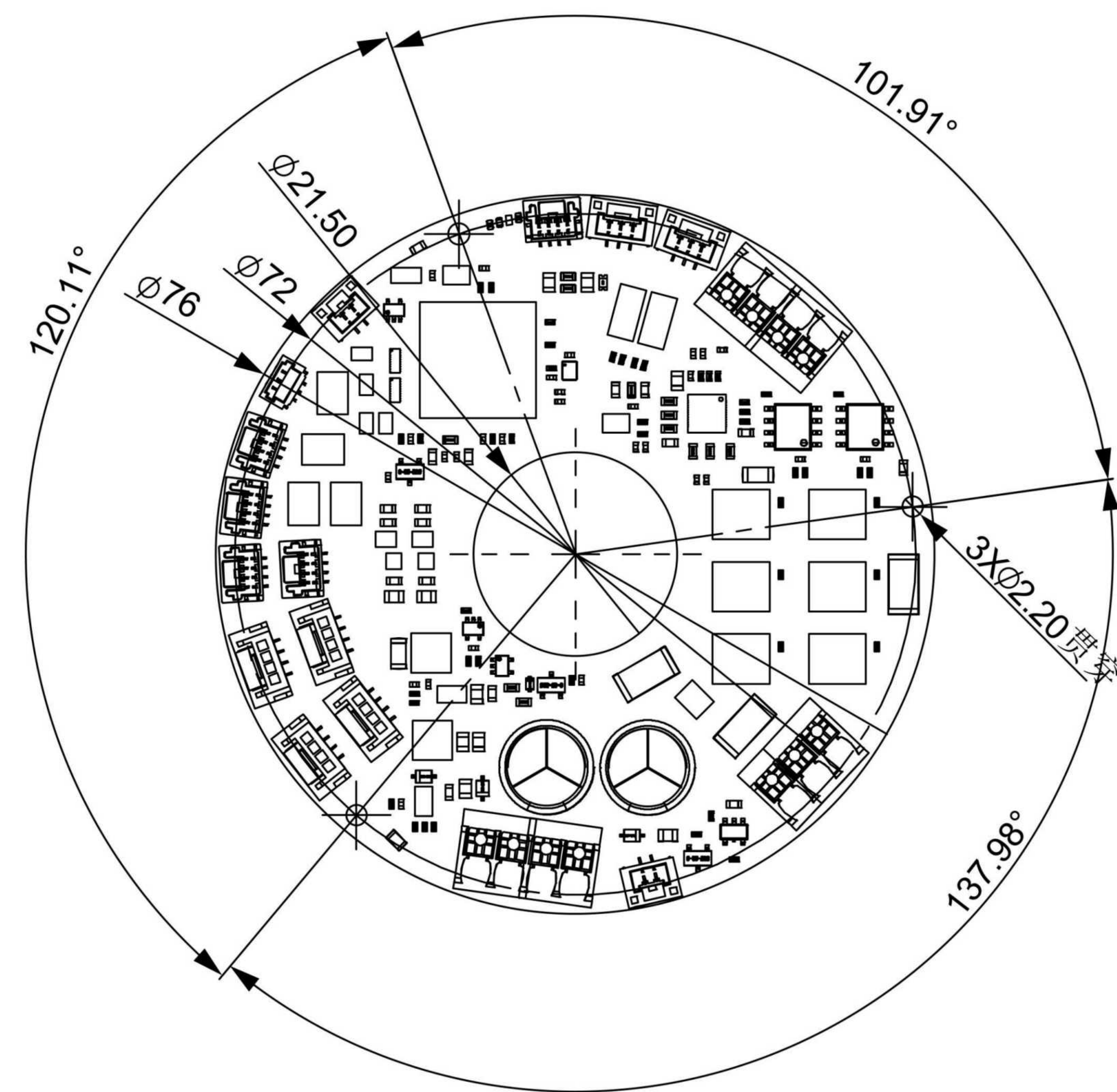
Front View



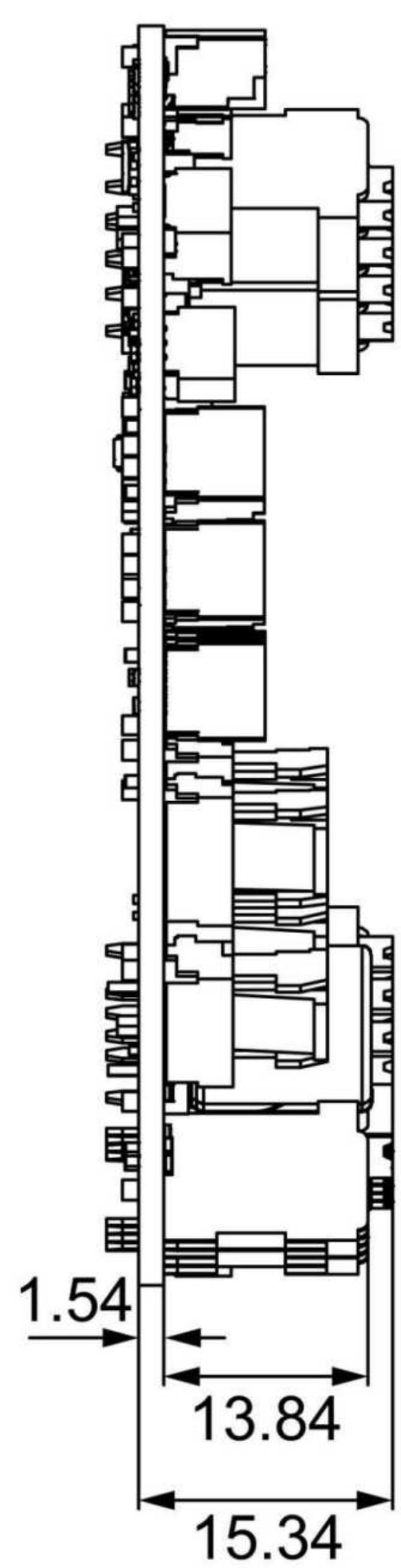
Left View

H0-ER040D48J76 EtherCAT

Weight 0.040 KG

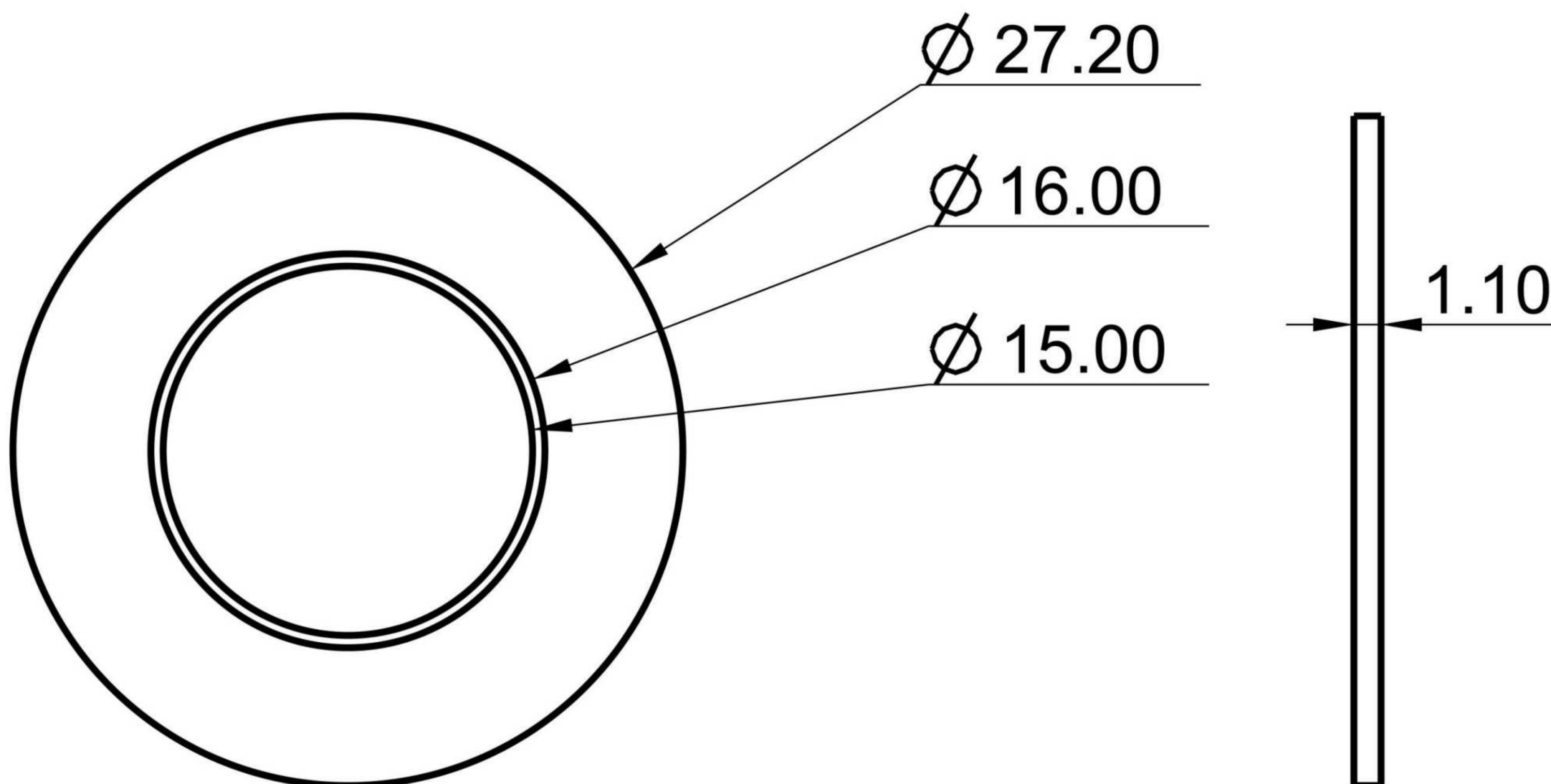


Front View

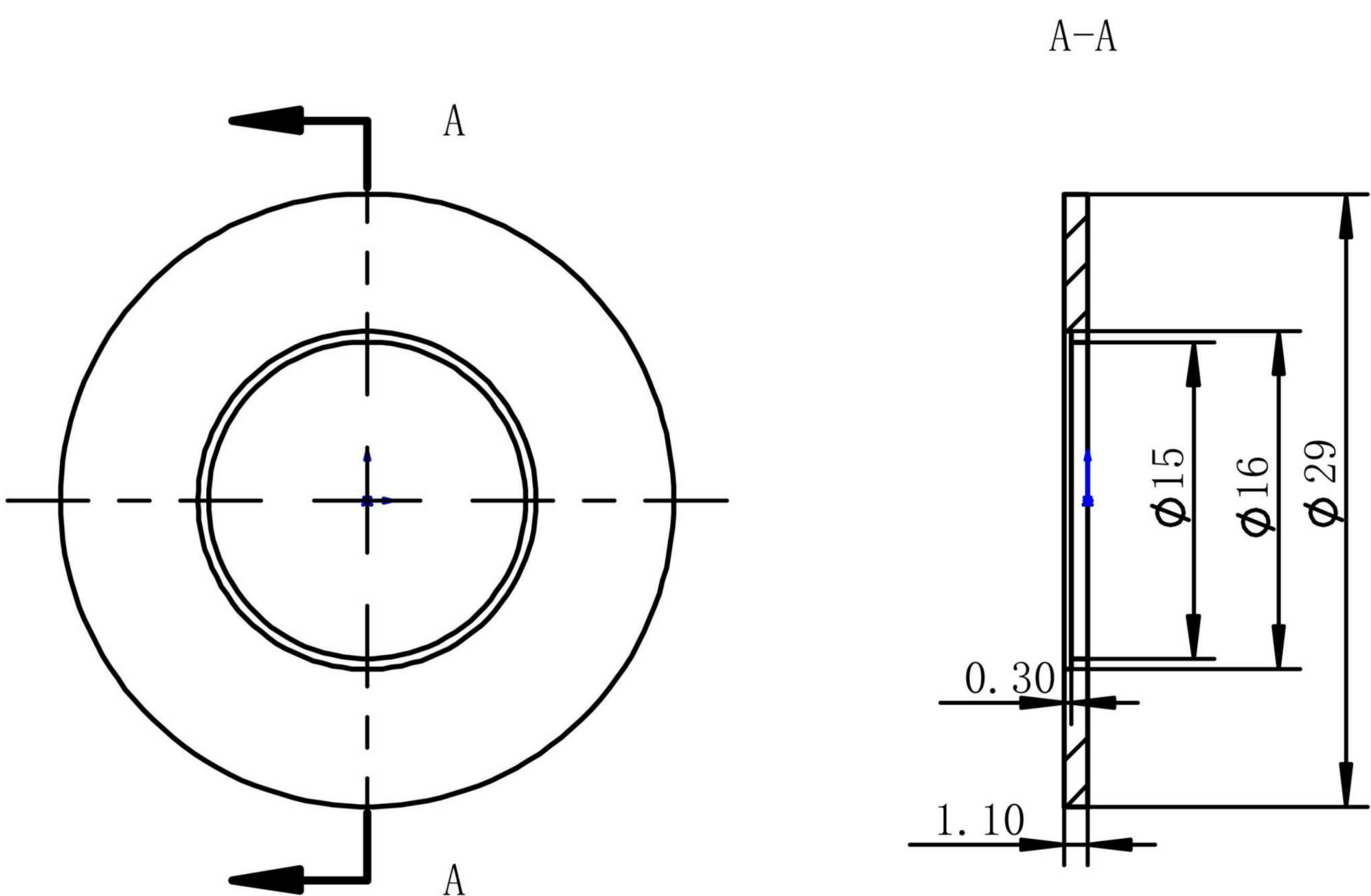


Left View

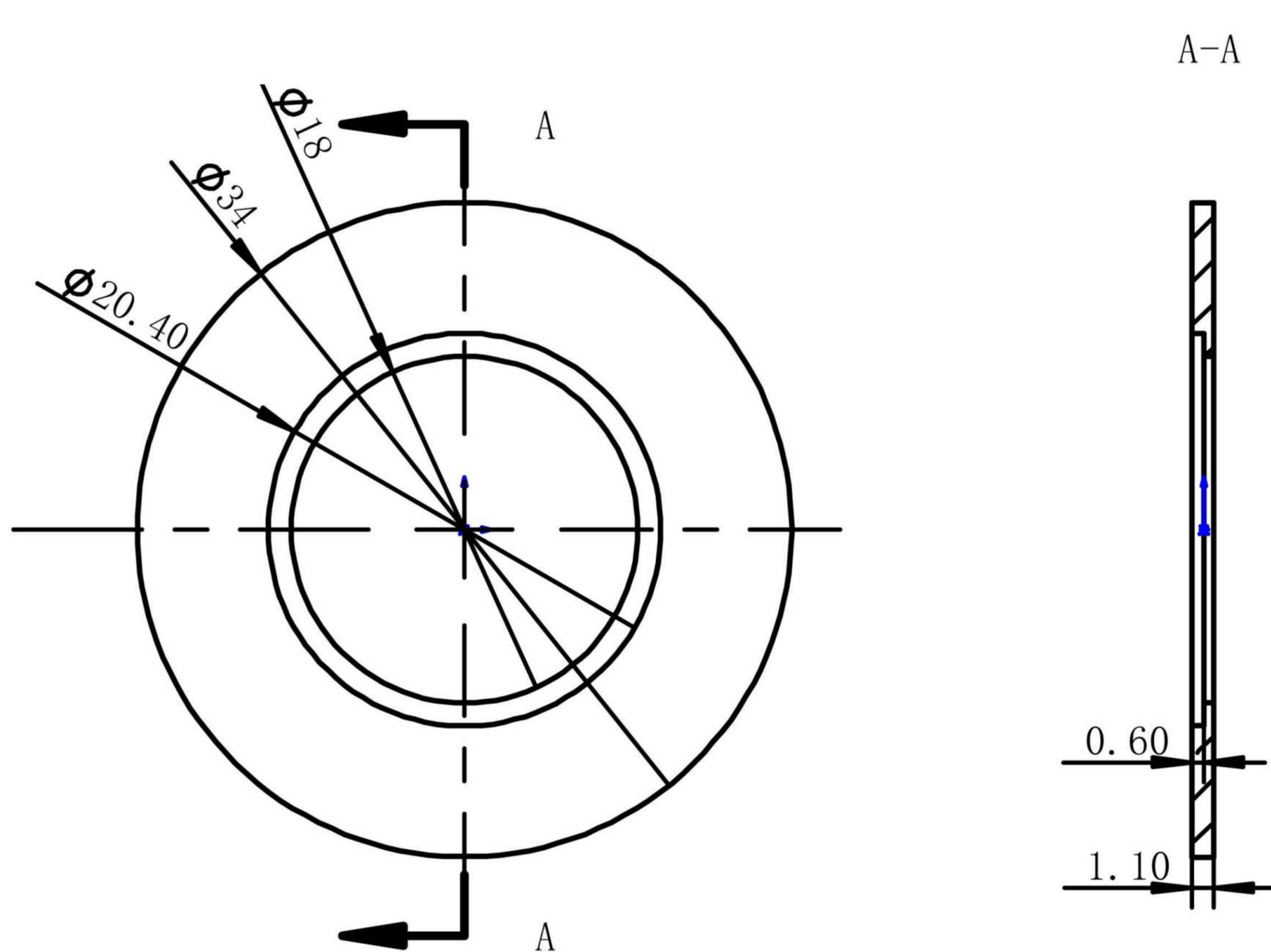
CN128A32B-27.2-15
(H0-ER010D48J47 Magnet Inner Ring)



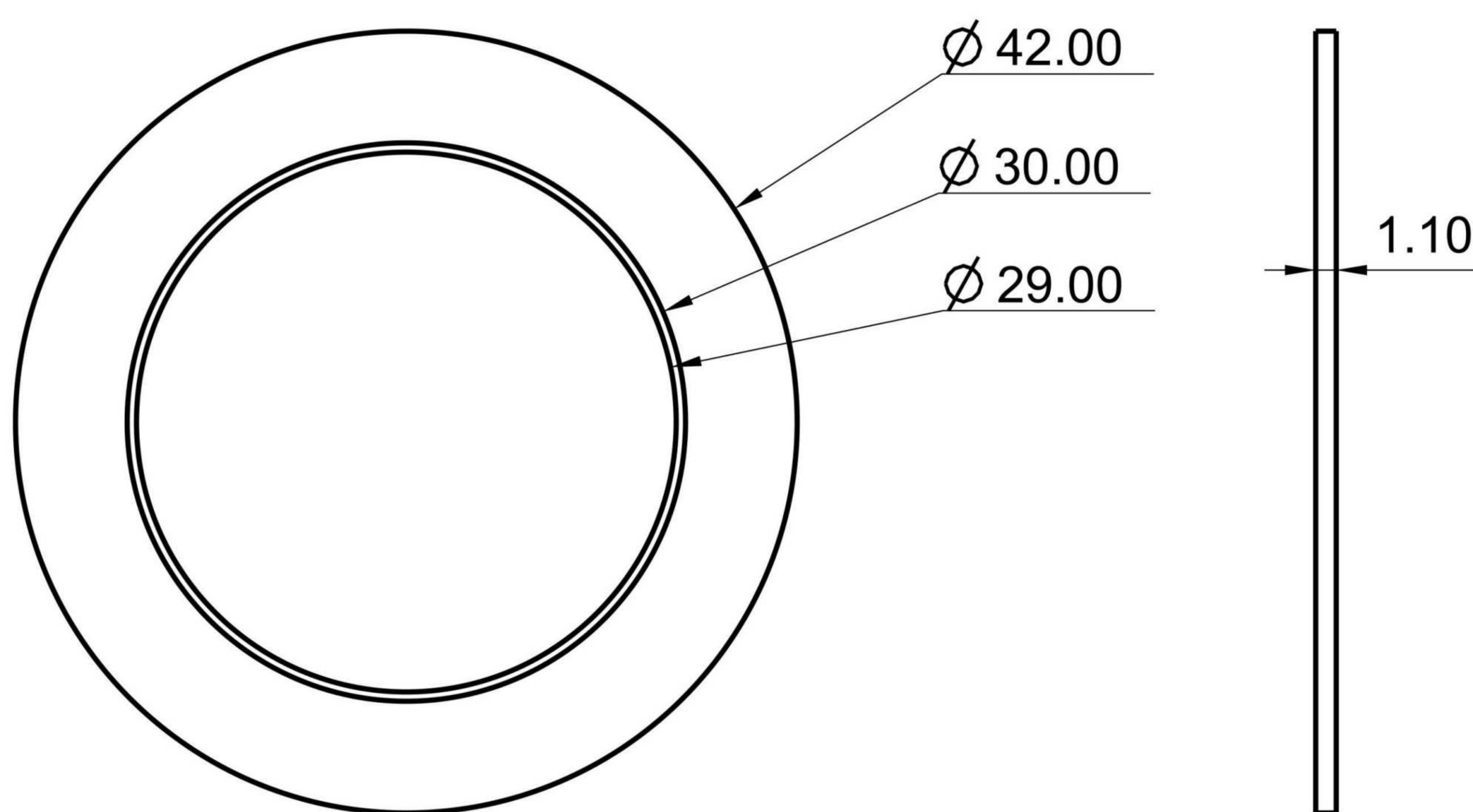
MU128-15-29-1.1
(H0-ER020D48J61 Magnet Inner Ring)



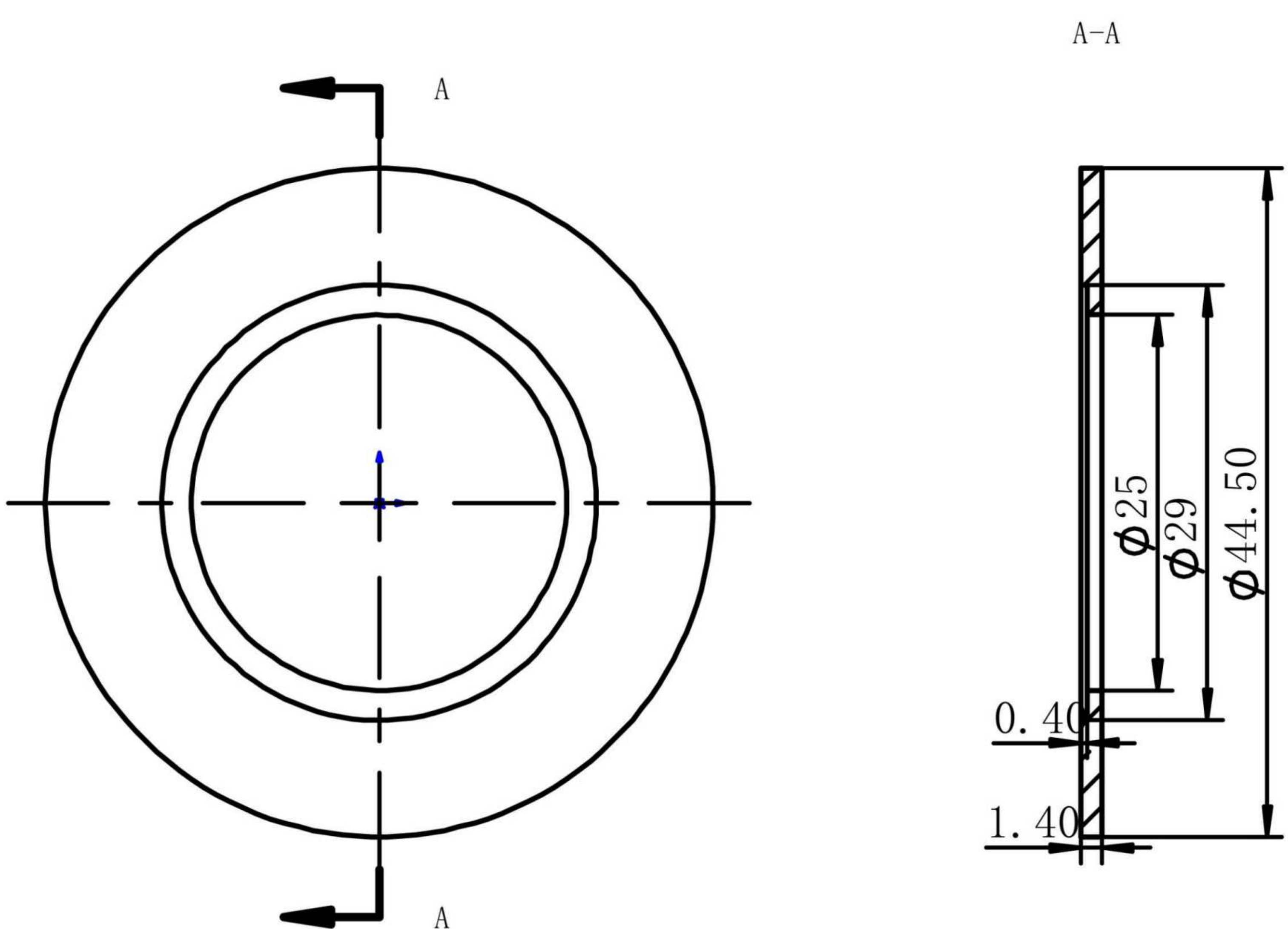
MU150-18-34-1.1 (H0-ER020D48J66,
H0-ER040D48J76 Magnet Inner Ring)



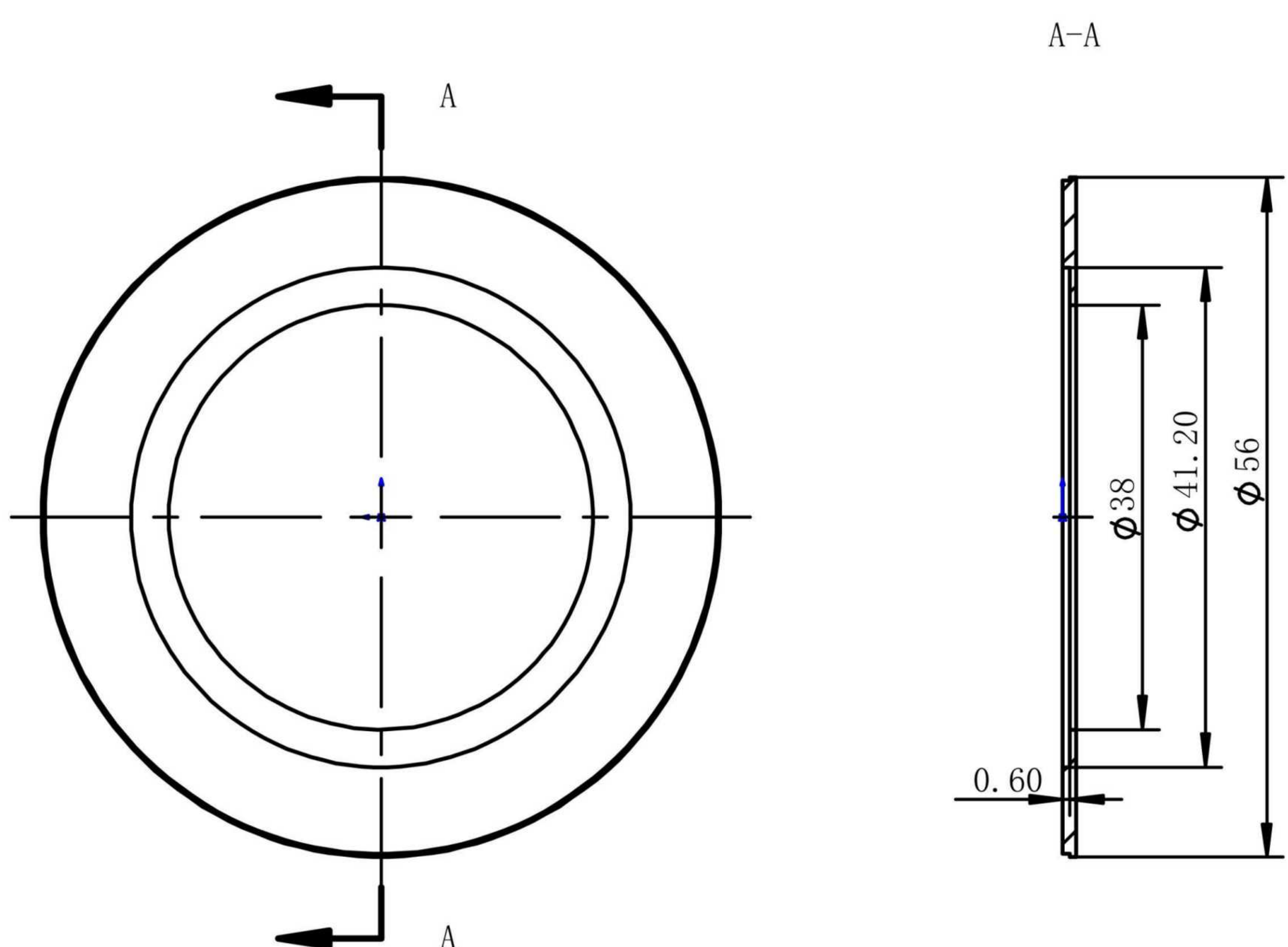
CN200A32B-42-29
(H0-ER010D48J47 Magnet Outer Ring)



MU200-25-44.5-1.4
(H0-ER020D48J61 Magnet Outer Ring)



MU128-38-56-1.1 (H0-ER020D48J66,
H0-ER040D48J76 Magnet Outer Ring)



J1 Debug Interface		
Interface Type	Pin	Signal
A1002H-3P	1	UART_RX
	2	GND
	3	UART_TX

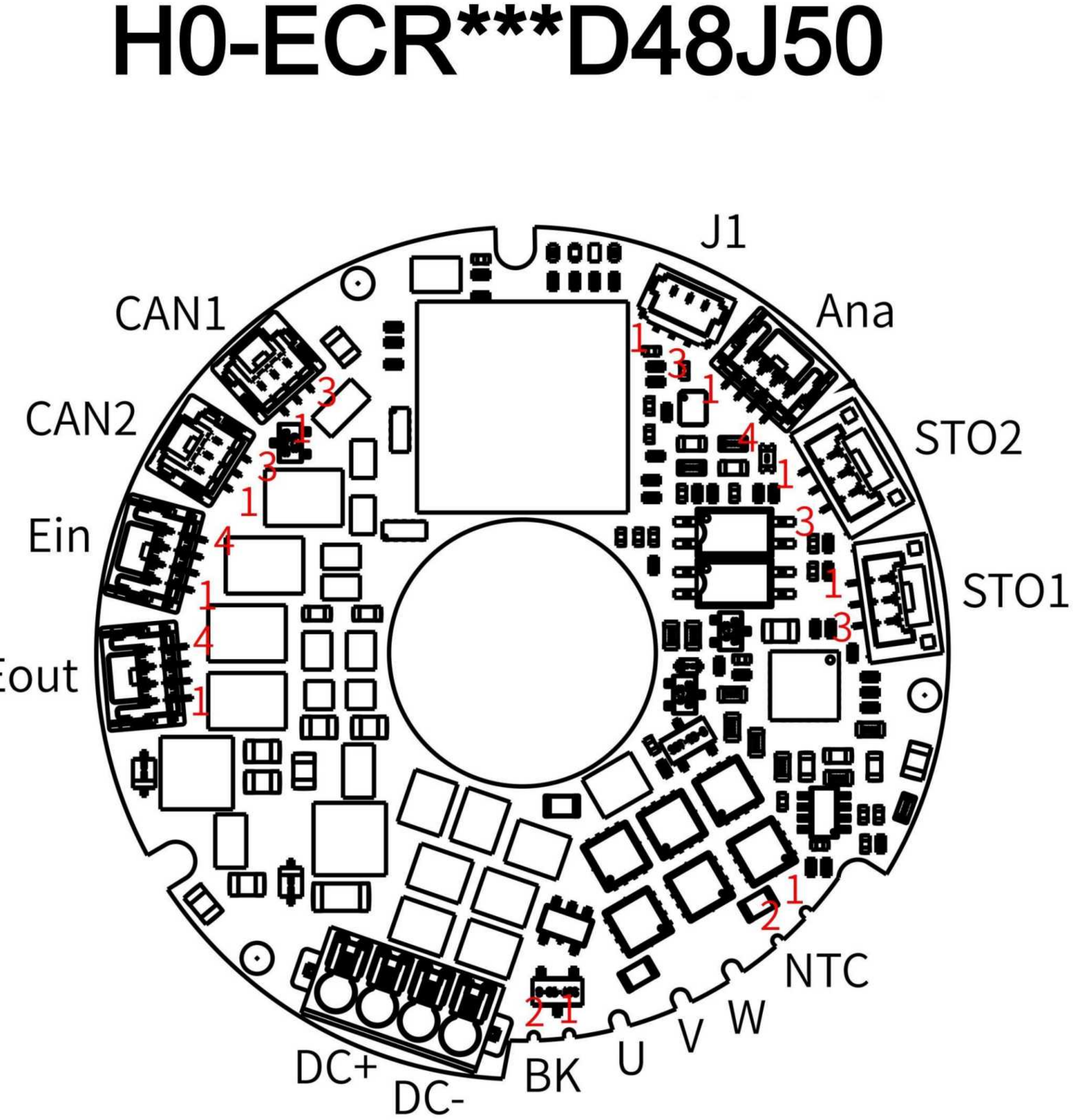
CAN FD Communication Interface				
Interface Type	CAN1		CAN2	
	Pin	Signal	Pin	Signal
A1002 HP-3P	1	CANH	1	CANH
	2	CANL	2	CANL
	3	GND	3	GND

EtherCAT Communication Interface				
Interface Type	Ein(IN)		Eout(OUT)	
	Pin	Signal	Pin	Signal
A1002 HP-4P	1	TX+	1	TX+
	2	TX-	2	TX-
	3	RX+	3	RX+
	4	RX-	4	RX-

NTC Temperature Sensor Interface		
Interface Type	Pin	Signal
Castellated Pad	1	NTC+
	2	NTC-

BK Brake Interface		
Interface Type	Pin	Signal
Castellated Pad	1	BK+
	2	BK-

Motor Output		
Interface Type	Pin	Signal
Castellated Pad	1	U
	2	V
	3	W



Ana AI Analog Input		
Interface Type	Pin	Signal
A1002HP-4P	1	AI2
	2	AI1
	3	GND
	4	P5V

Bus Input		
Interface Type	Pin	Signal
Push-in Terminal	1	DC+
	2	DC+
	3	DC-
	4	DC-

STO Terminal				
Interface Type	STO1		STO2	
	Pin	Signal	Pin	Signal
A1257 H-3P	1	STO1+	1	STO1+
	2	STO_GND	2	STO_GND
	3	STO2+	3	STO2+

J1 Debug Interface		
Interface Type	Pin	Signal
A1002H-3P	1	UART_RX
	2	GND
	3	UART_TX

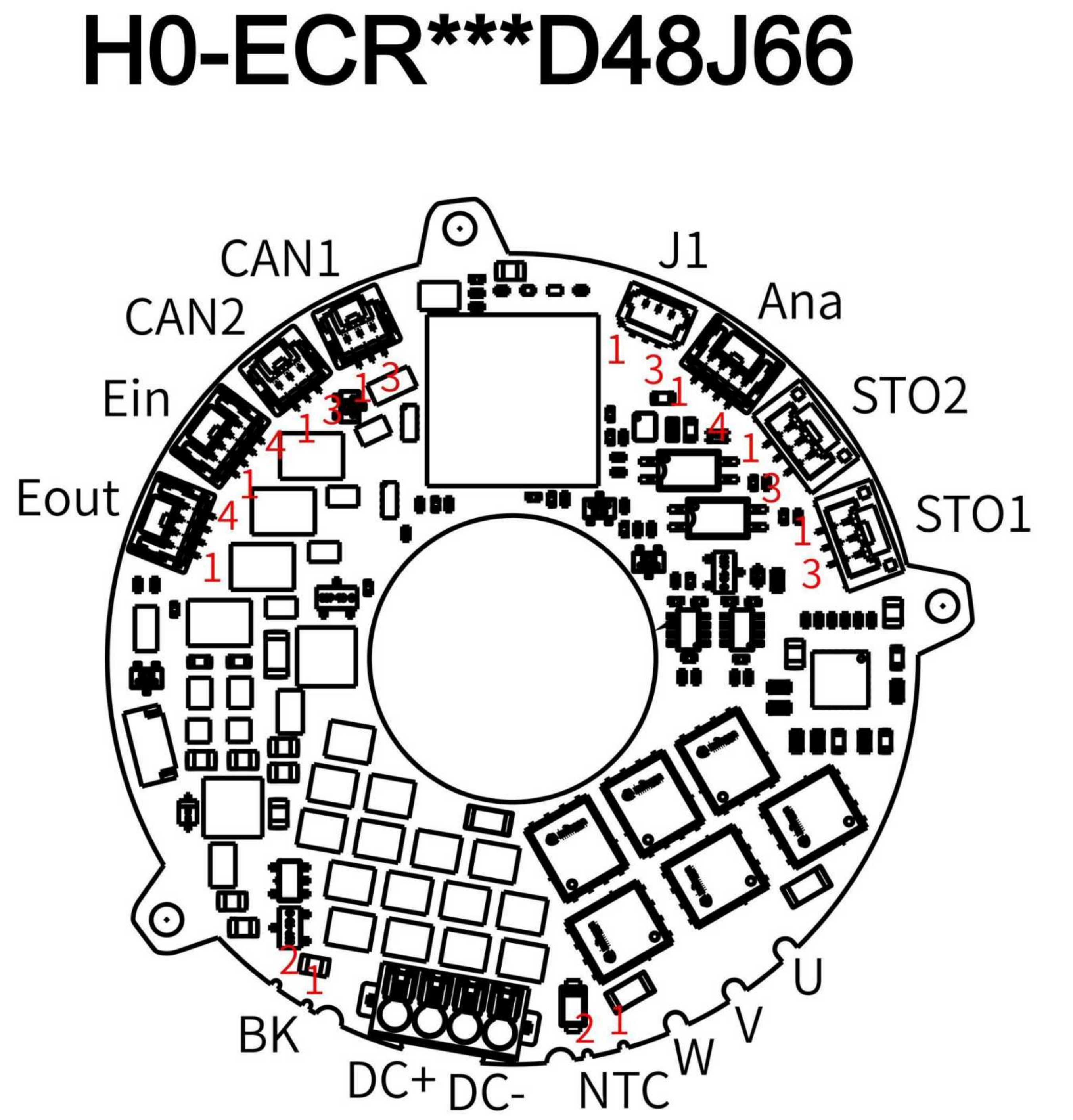
CAN FD Communication Interface				
Interface Type	CAN1		CAN2	
	Pin	Signal	Pin	Signal
A1002 HP-3P	1	CANH	1	CANH
	2	CANL	2	CANL
	3	GND	3	GND

EtherCAT Communication Interface				
Interface Type	Ein(IN)		Eout(OUT)	
	Pin	Signal	Pin	Signal
A1002 HP-4P	1	TX+	1	TX+
	2	TX-	2	TX-
	3	RX+	3	RX+
	4	RX-	4	RX-

NTC Temperature Sensor Interface		
Interface Type	Pin	Signal
Castellated Pad	1	NTC+
	2	NTC-

BK Brake Interface		
Interface Type	Pin	Signal
Castellated Pad	1	BK+
	2	BK-

Motor Output		
Interface Type	Pin	Signal
Castellated Pad	1	U
	2	V
	3	W



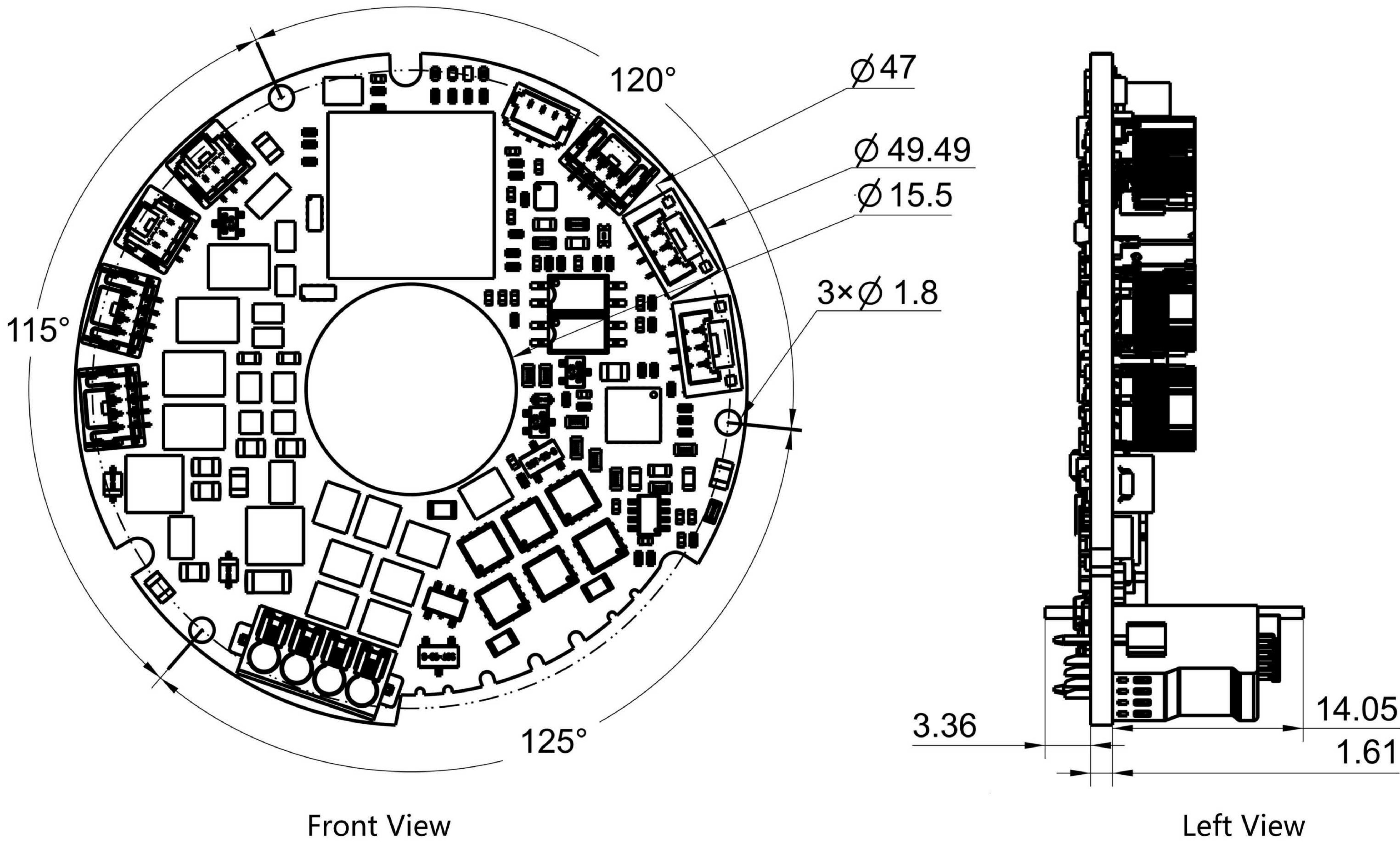
Ana AI Analog Input		
Interface Type	Pin	Signal
A1002HP-4P	1	AI2
	2	AI1
	3	GND
	4	P5V

Bus Input		
Interface Type	Pin	Signal
Push-in Terminal	1	DC+
	2	DC+
	3	DC-
	4	DC-

STO Terminal				
Interface Type	STO1		STO2	
	Pin	Signal	Pin	Signal
A1257 H-3P	1	STO1+	1	STO1+
	2	STO_GND	2	STO_GND
	3	STO2+	3	STO2+

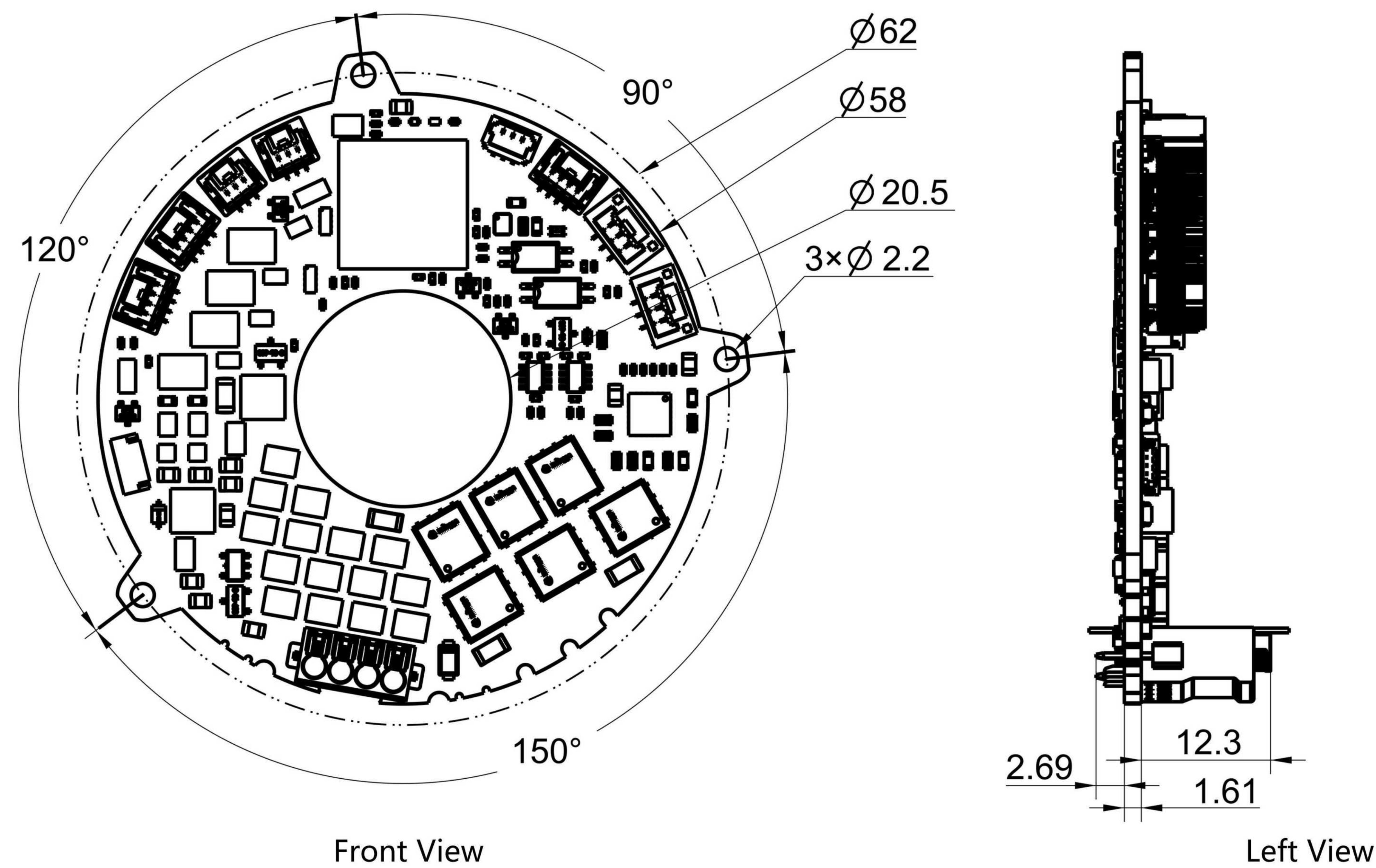
Board Model	H0-ECR010D48J50		H0-ECR020D48J50	
Power	100W		200W	
Magnet Inner Ring Model	HUT128A32-15-29-1.1		HUT128A32-15-29-1.1	
Magnet Outer Ring Model	SAW200A32-30.5-42.5-1.1		SAW200A32-30.5-42.5-1.1	
Ring Type	Small	Large	Small	Large
Recommended Installation Distance (mm) (Distance from Magnet to Sensing Chip Surface)	0.35±0.15	0.6±0.2	0.35±0.15	0.6±0.2
Sensing Chip Thickness (Typ.)	0.9mm			

H0-ECR010D48J50、H0-ECR020D48J50

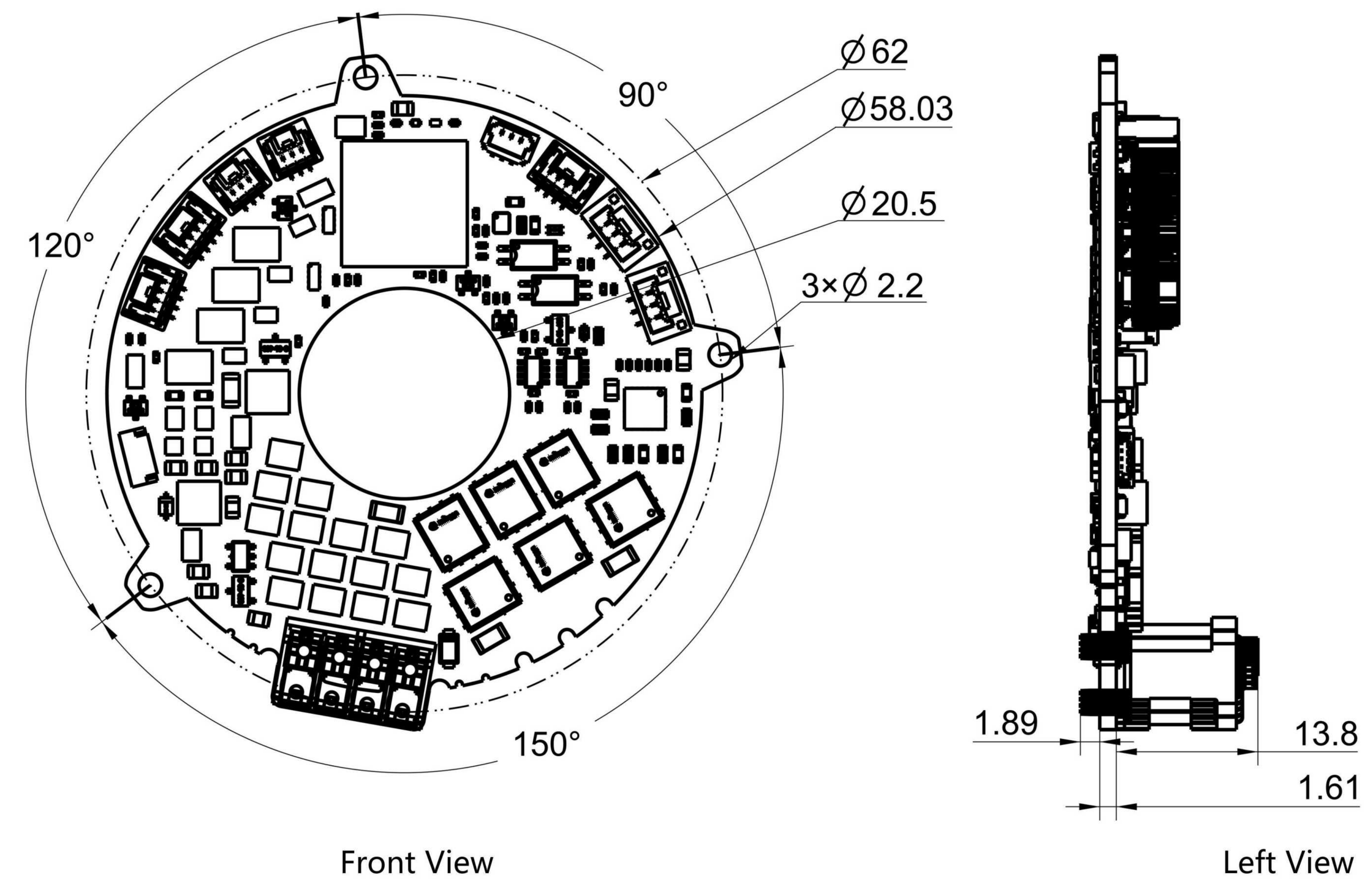


Board Model	H0-ECR010D48J66		H0-ECR022D48J66		H0-ECR040D48J66	
Power	100W		220W		400W	
Magnet Inner Ring Model	MU150-18-34-1.1		MU150-18-34-1.1		MU150-18-34-1.1	
Magnet Outer Ring Model	MU128-38-56-1.1		MU128-38-56-1.1		MU128-38-56-1.1	
Ring Type	Small	Large	Small	Large	Small	Large
Recommended Installation Distance (mm) (Distance from Magnet to Sensing Chip Surface)	0.5±0.2	0.35±0.15	0.5±0.2	0.35±0.15	0.5±0.2	0.35±0.15
Sensing Chip Thickness (Typ.)	0.9mm					

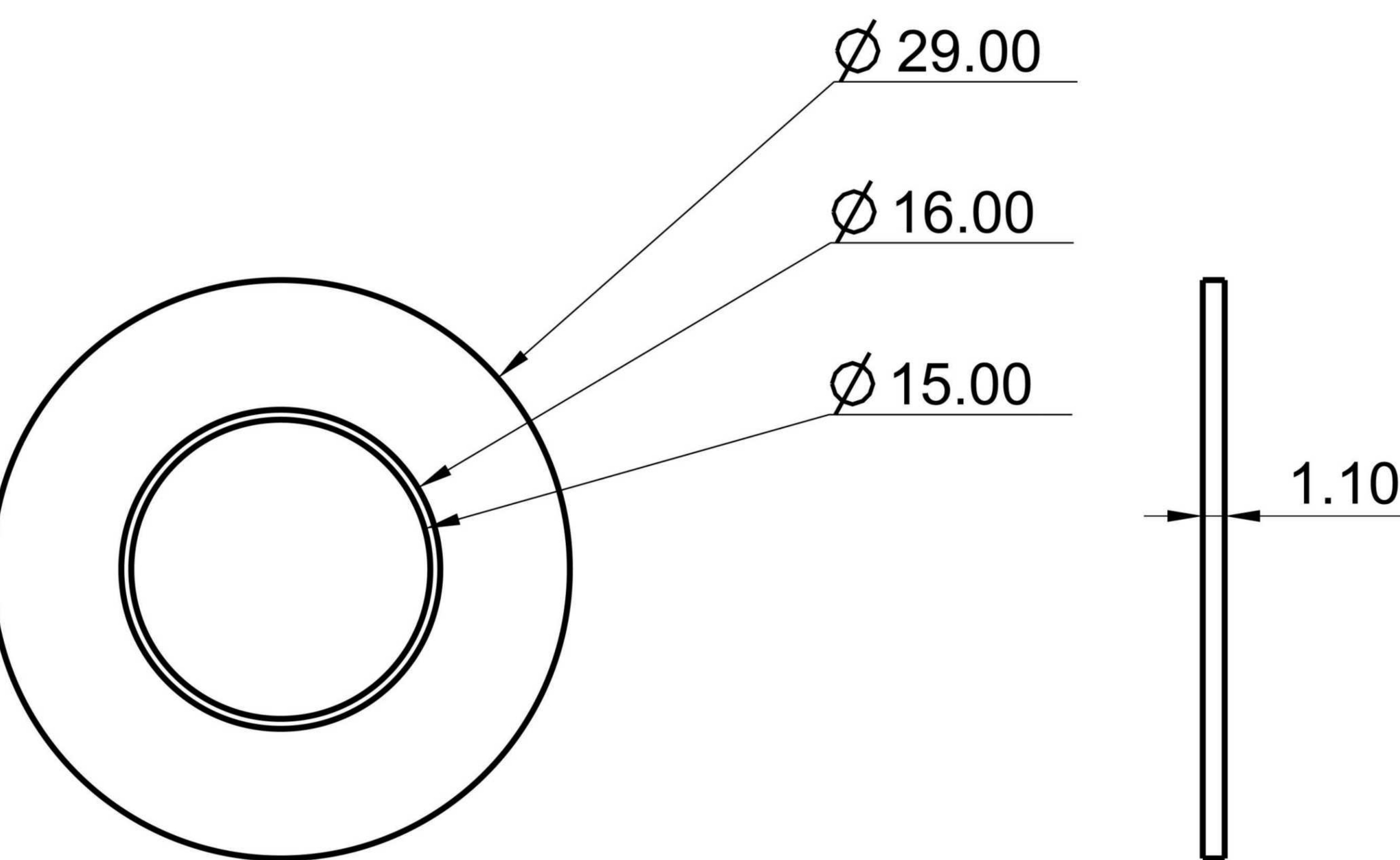
H0-ECR010D48J66、H0-ECR022D48J66



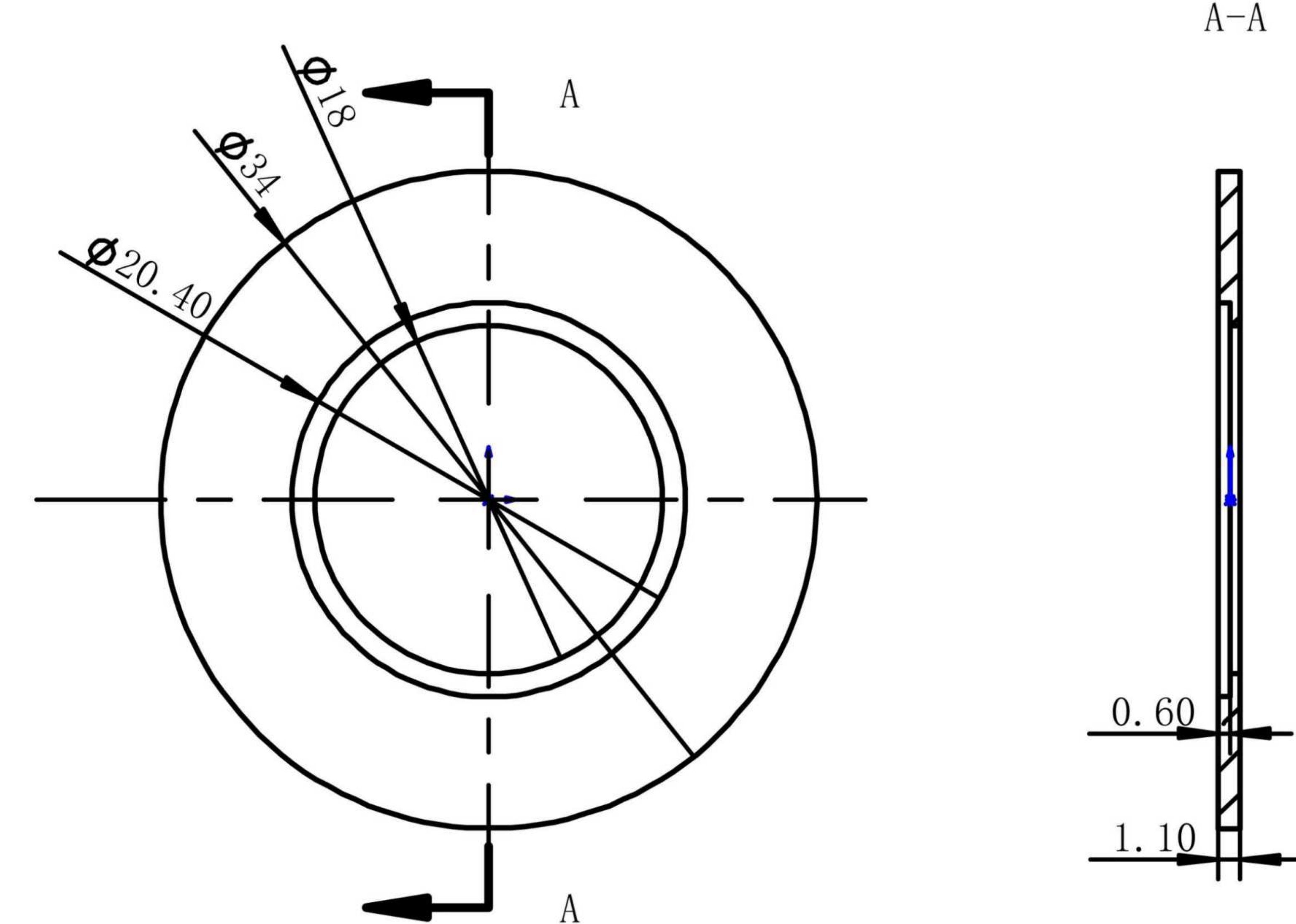
H0-ECR040D48J66



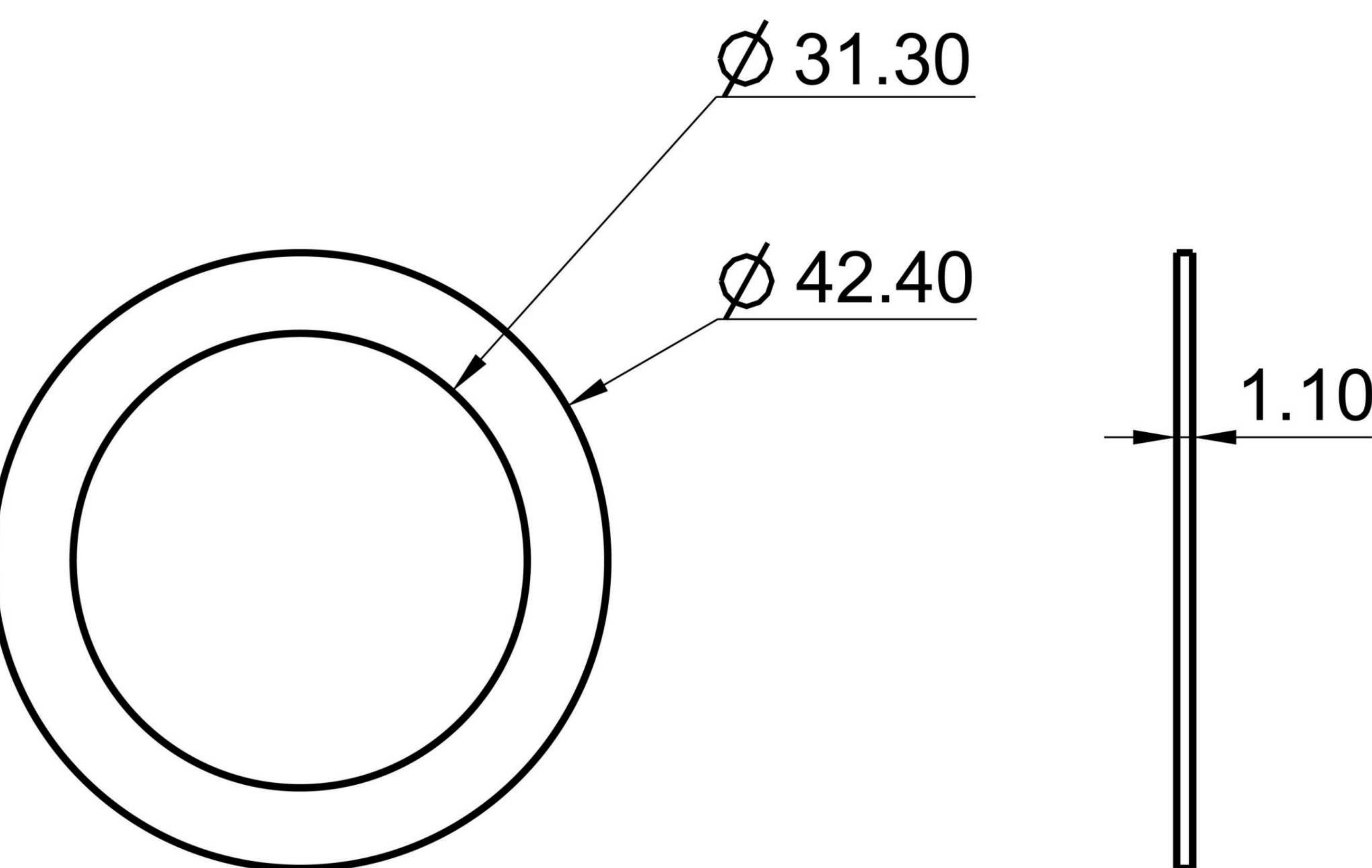
HUT128A32-15-29-1.1 (H0-ECR***D48J50 Magnet Inner Ring)



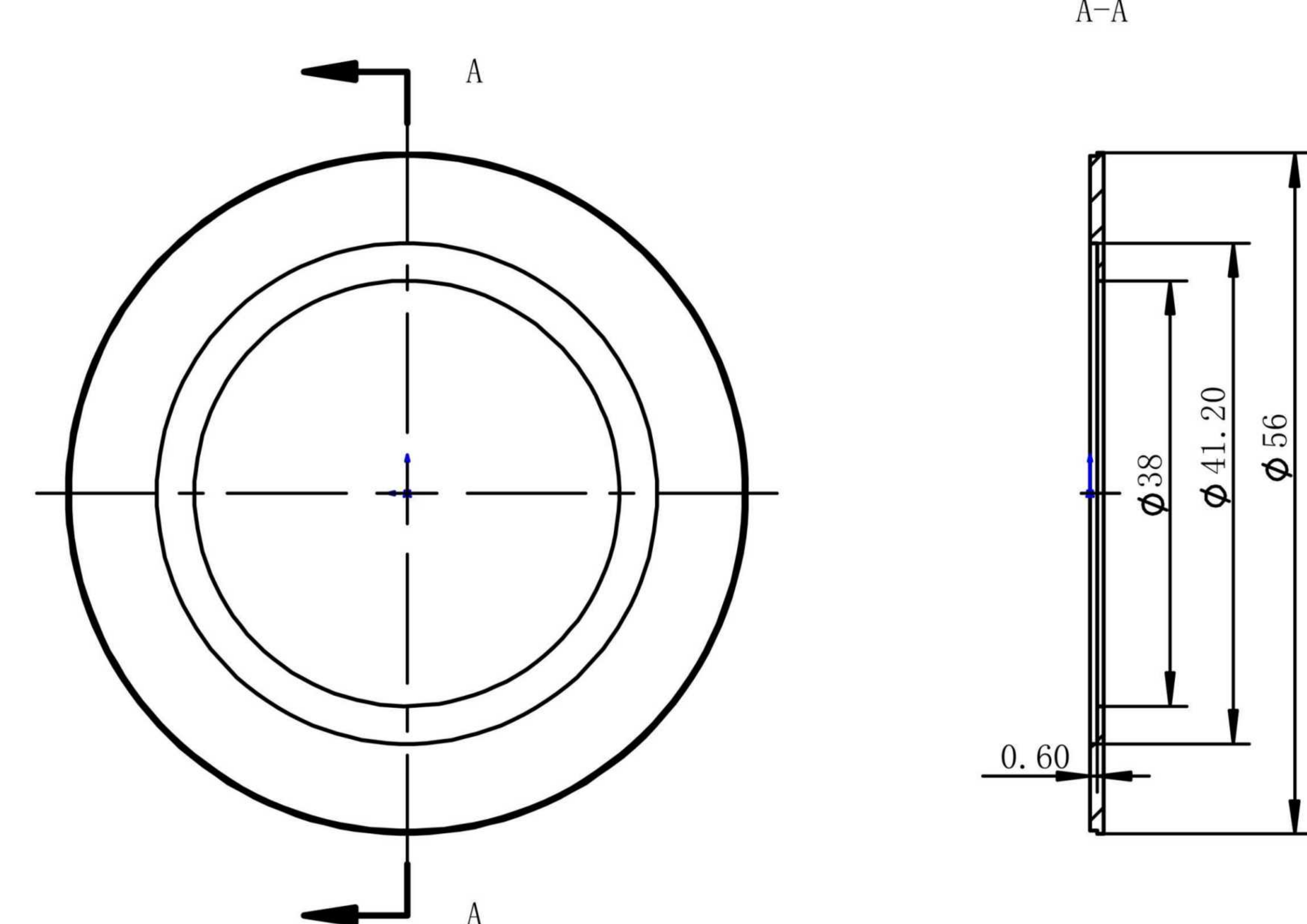
MU150-18-34-1.1 (H0-ECR***D48J66 Magnet Inner Ring)



SAW200A32-30.5-42.5-1.1 (H0-ECR***D48J50 Magnet Outer Ring)



MU128-38-56-1.1 (H0-ECR***D48J66 Magnet Outer Ring)



20W Port Definition

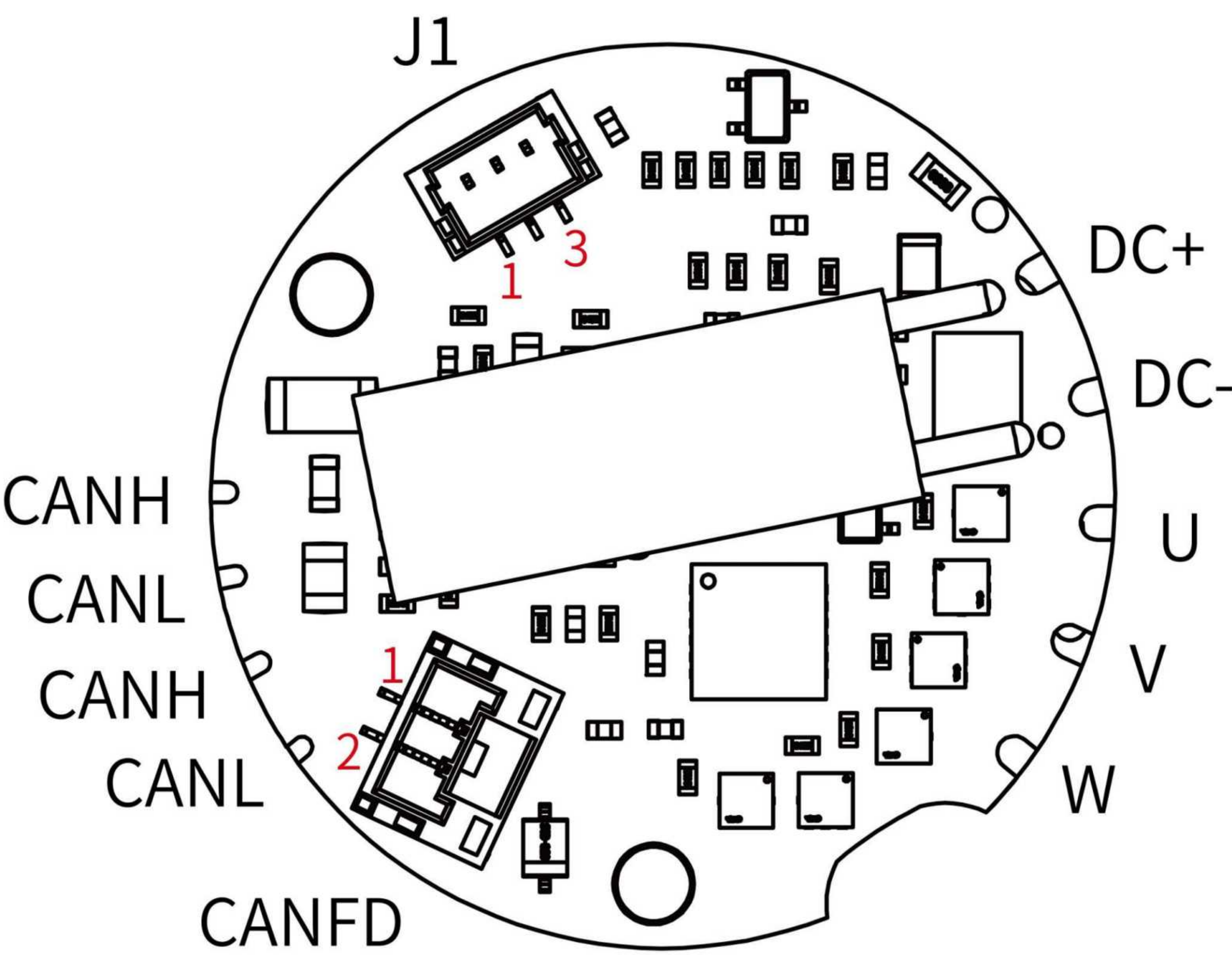
H0-CR002D48

J1 Debug Interface		
Interface Type	Pin	Signal
A1002H-3P	1	UART_RX
	2	GND
	3	UART_TX

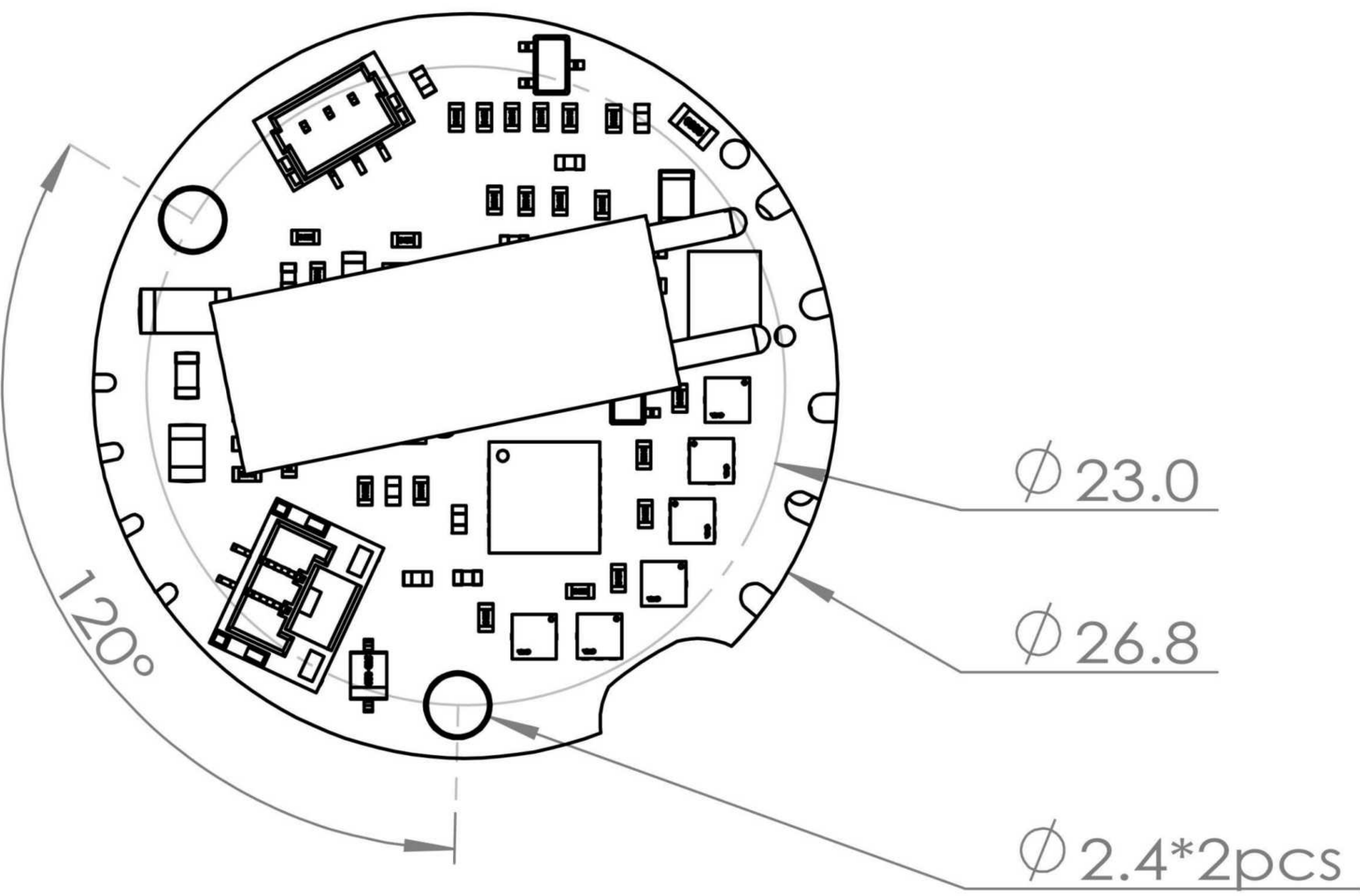
CANFD		
Interface Type	Pin	Signal
A1257H-2P	1	CANH
	2	CANL

CAN Interface		
Interface Type	Pin	Signal
Push-in Terminal	1	CANH
	2	CANL
	3	CANH
	4	CANL

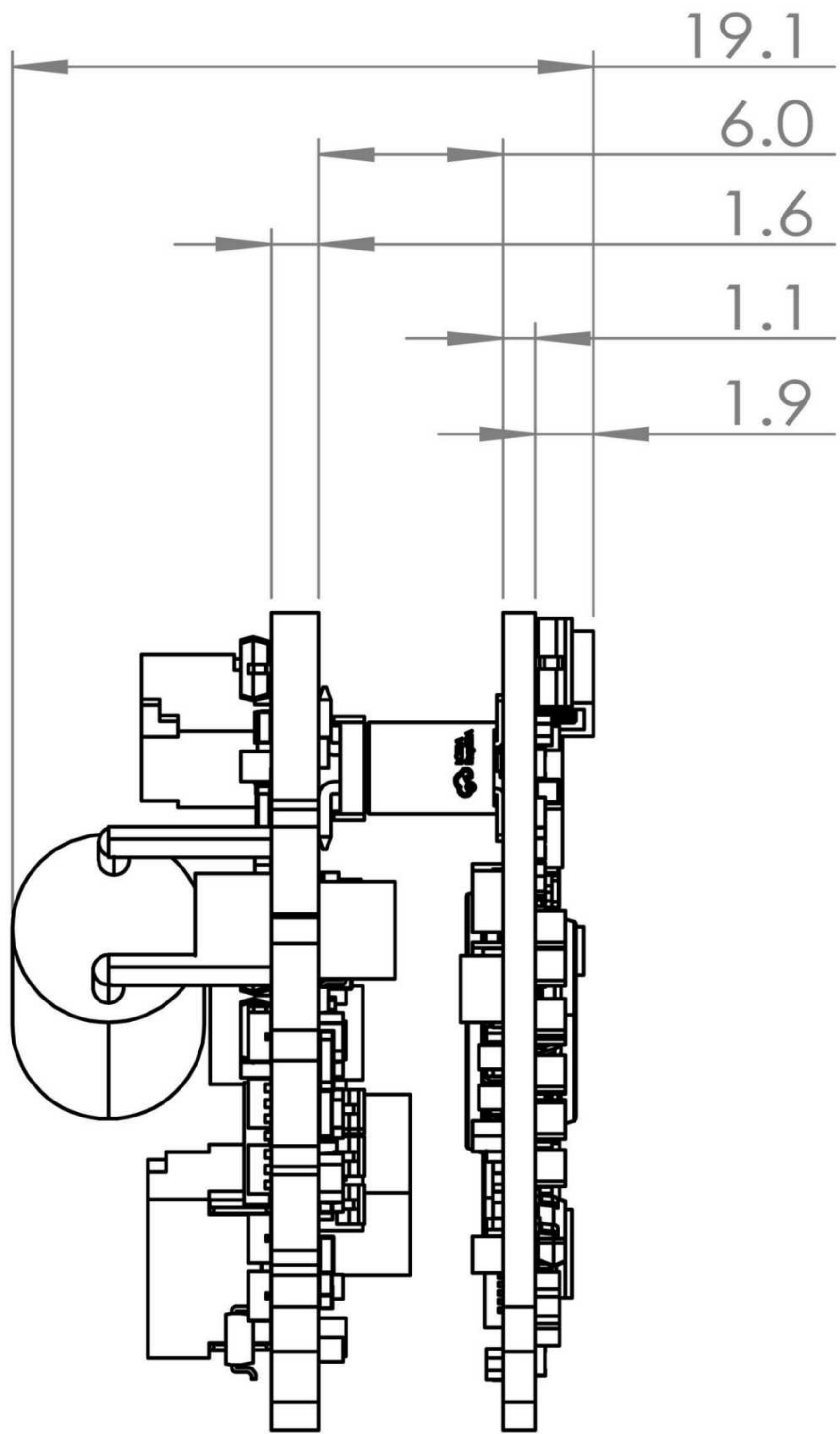
Motor Output		
Interface Type	Pin	Signal
Push-in Terminal	1	U
	2	V
	3	W



Bus Input		
Interface Type	Pin	Signal
Push-in Terminal	1	DC+
	2	DC-



Front View

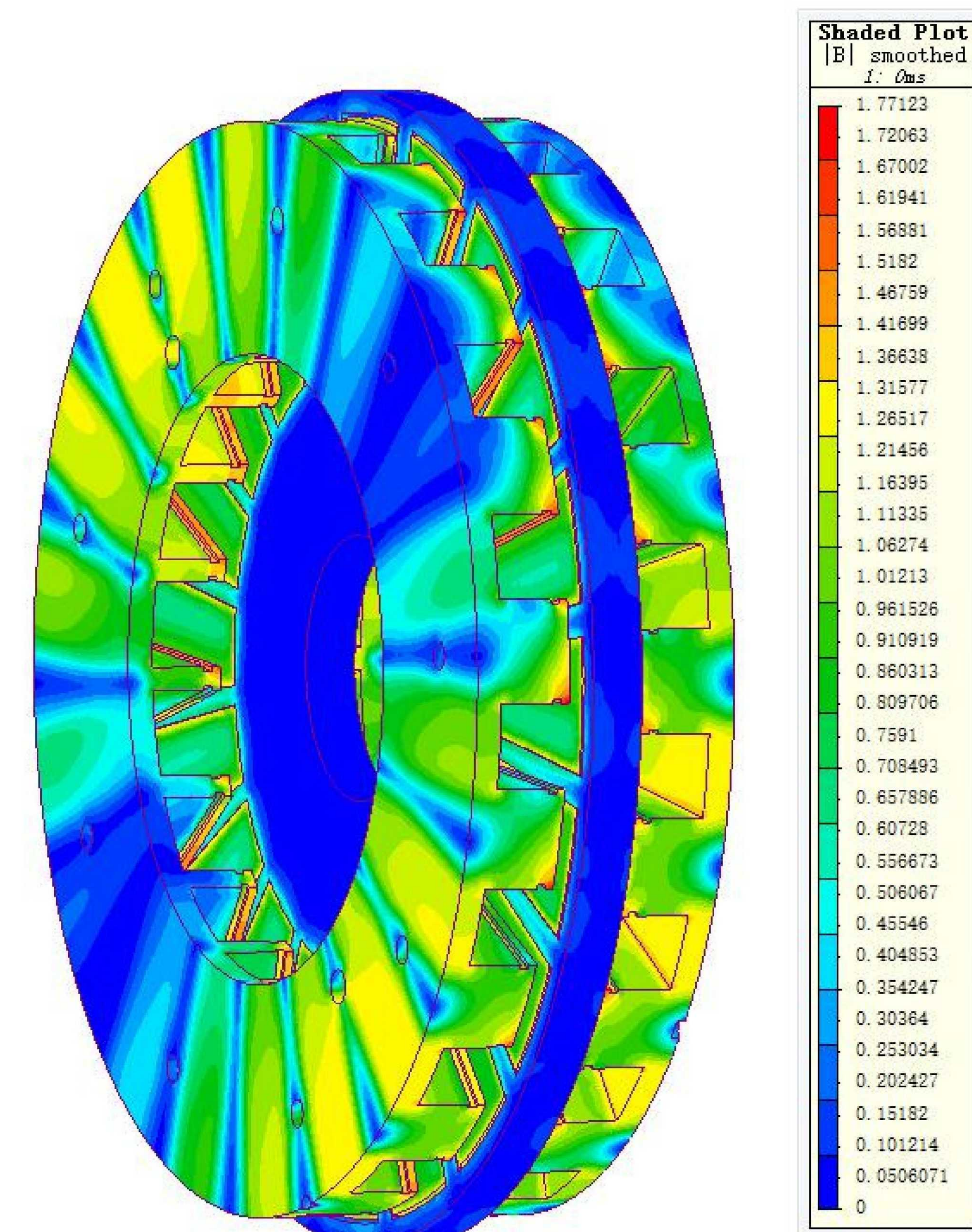
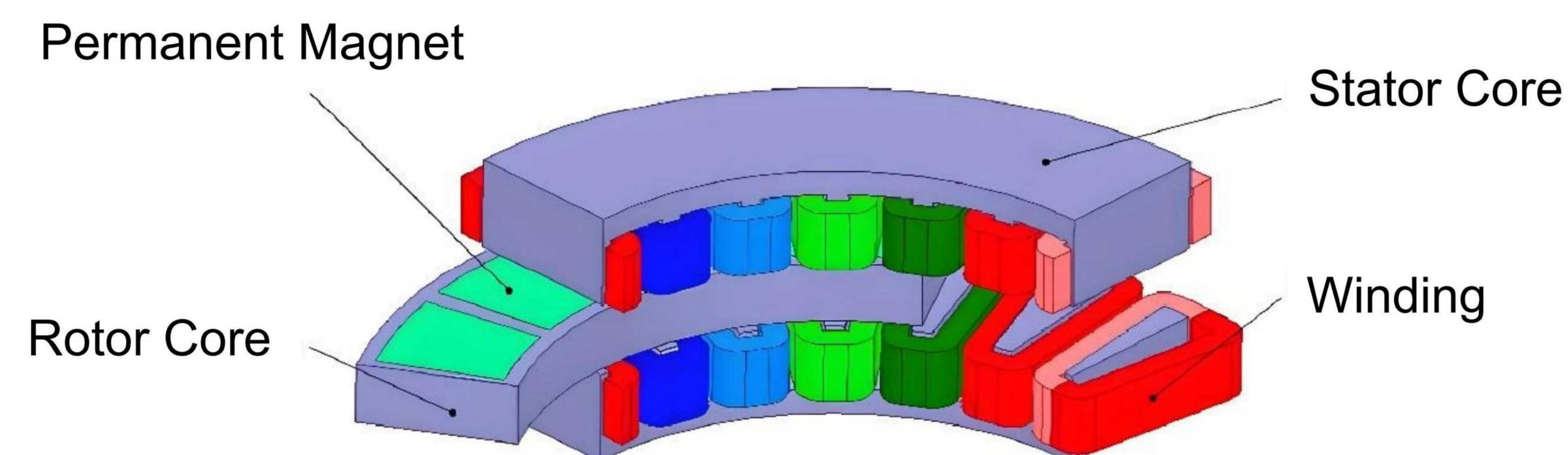


Left View

Axial flux motor is a new type of motor characterized by magnetic flux parallel to the rotation axis, also known as a disc motor or pancake motor. The stator and rotor are arranged in parallel disc form, the main magnetic field flows in the axial direction, the air gap is planar, and the motor is overall flat and disc-shaped.

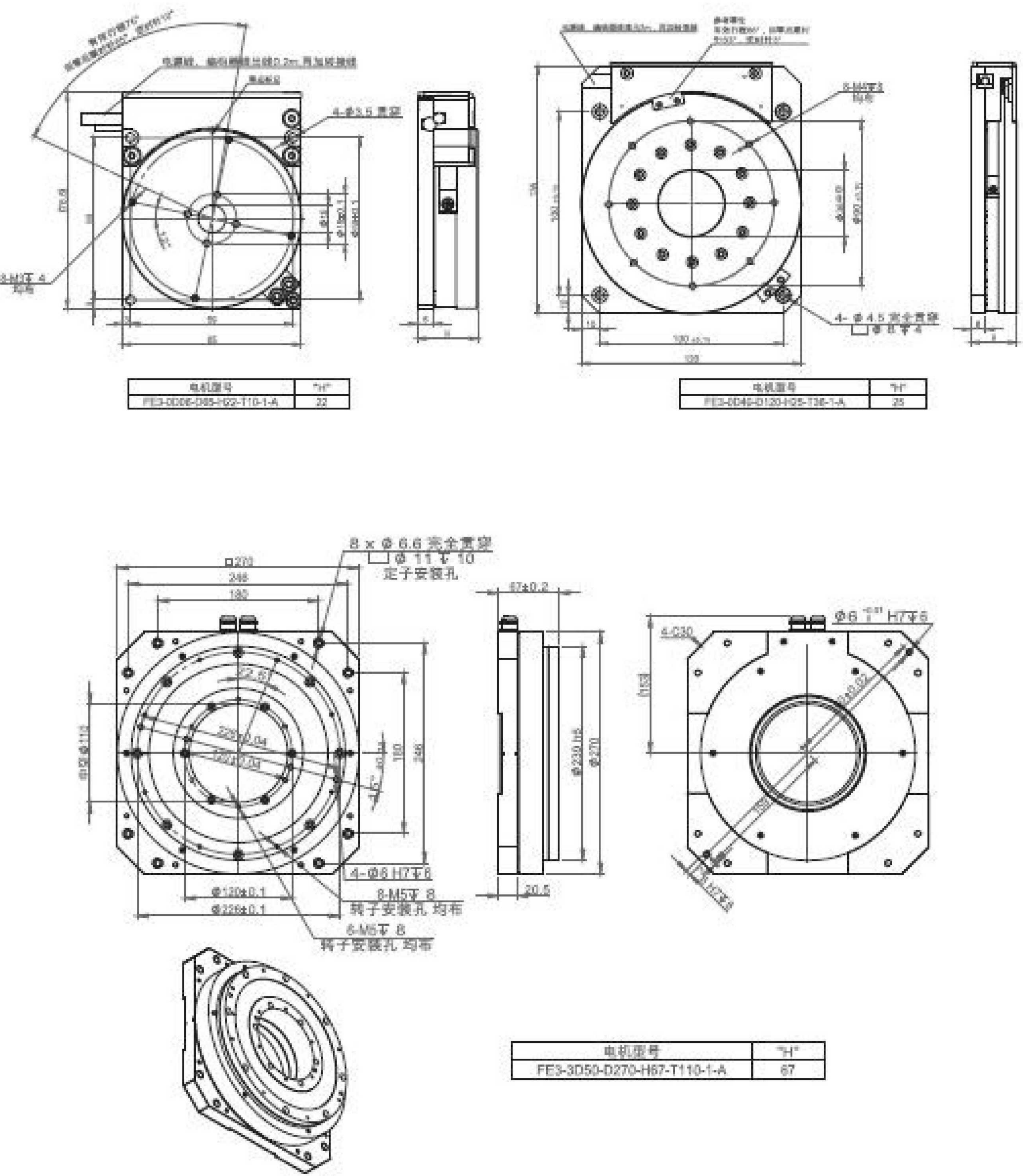
Advantages

- High torque density — typically more than 30% higher than conventional motors;
- Axial dimensions — flexible layout, with volume and weight reduced by 30% – 40%;
- High efficiency and energy saving — no stator yoke losses, wide high-efficiency range, and energy consumption 15% – 25% lower than radial flux motors across different power ranges;
- Low moment of inertia, fast response, smooth operation, and low noise.



Performance Parameters	Symbol	Unit	0D06-D65-H22-T10	0D40-D120-H25-T36	3D50-D270-H67-T110
Operating Voltage	Vdc	V	48	48	310
Continuous Torque (at Tmax)	Tc	Nm	0.062	0.400	6.3
Peak Torque	Tp	Nm	0.46	1.20	18
Max. Speed at Tc	Nmax,Tc	Rpm	160	120	300
Max. Speed at Tp	Nmax,Tp	Rpm	120	80	120
Max. No-load Speed	Nmax,0	Rpm	200	180	300
Encoder (Incremental 1Vpp Sinusoidal Signal)	-	periods/rev	17590	18534	23600
Weight Accuracy	-	arc sec	±3	±3	±3
Positioning Accuracy	-	arc sec	±30 (after compensation)	±30 (after compensation)	±30
Continuous Current (at Tmax)	Ic	Arms	0.6	1.3	2.0
Peak Current (Duration 1s)	Ip	Arms	4.5	3.9	6.0
Torque Constant (25°C, ±5%)	Kt	Nm/Arms	0.103	0.308	3.15
Back EMF Constant	Ke	Vrms/rad/s	0.034	0.103	1.05
Resistance	R	Ω2(p-p)	16.50	15.90	10.40
Inductance	L	mH(p-p)	1.62	2.60	2.83
Number of Pole Pairs	P		12	16	22
Max. Allowable Coil Temperature	Tmax	°C	120	120	120
Motor Mass	-	Kg	0.55	2.00	12.50
Rotor Mass	Mr	Kg	0.20	0.80	4.80
Rotor Moment of Inertia	Jm	Kg*m²	0.0001	0.0020	0.0490
Axial Runout	-	mm	0.050	0.050	0.030
Radial Runout	-	mm	0.050	0.050	0.030
Motor Cable Length (Extendable upon Assembly)	L	M	0.2	3.0	0.2
Minimum Cable Bending Radius	R	mm	37.5	37.5	37.5

FE3 Series Torque Motor



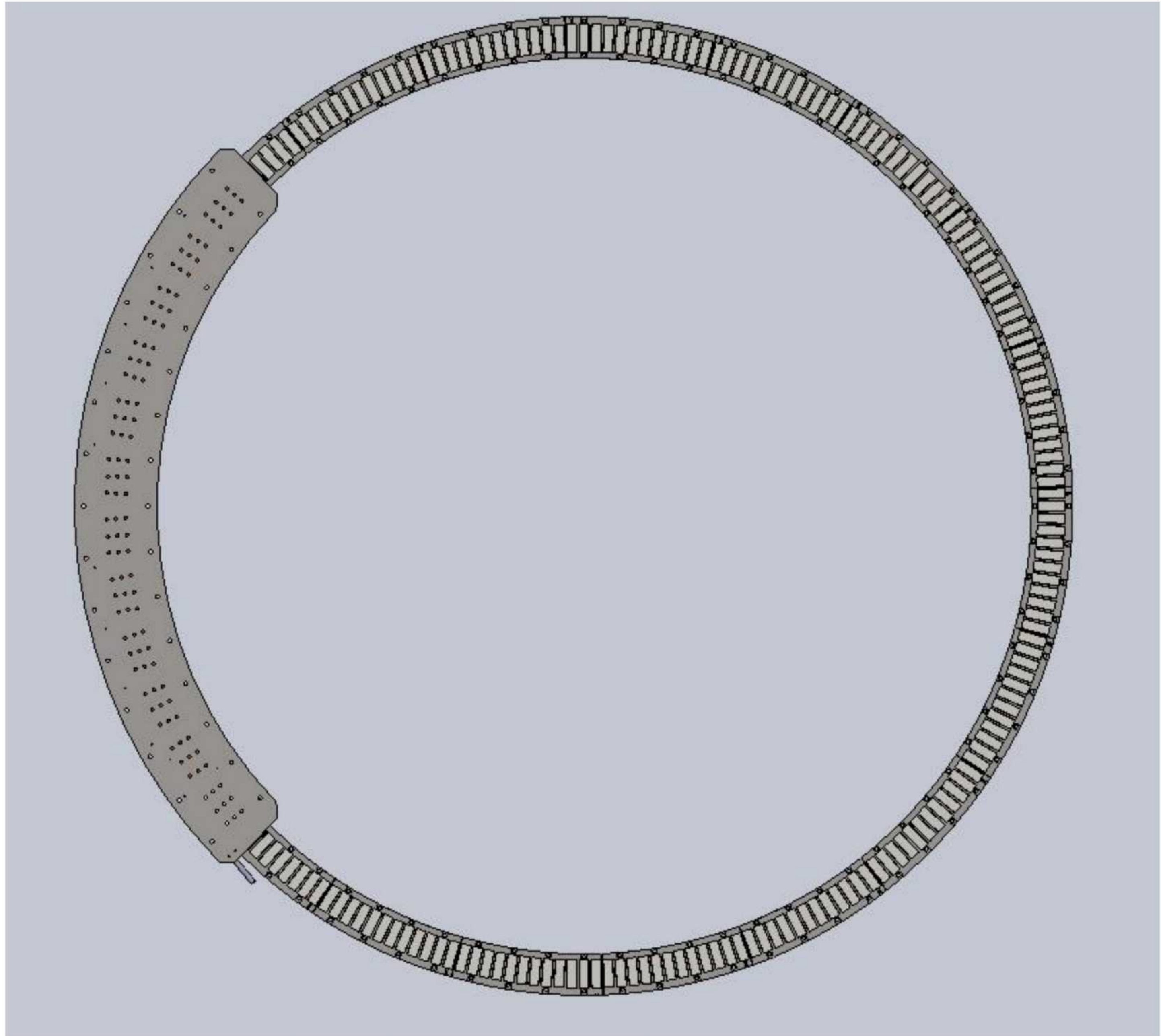
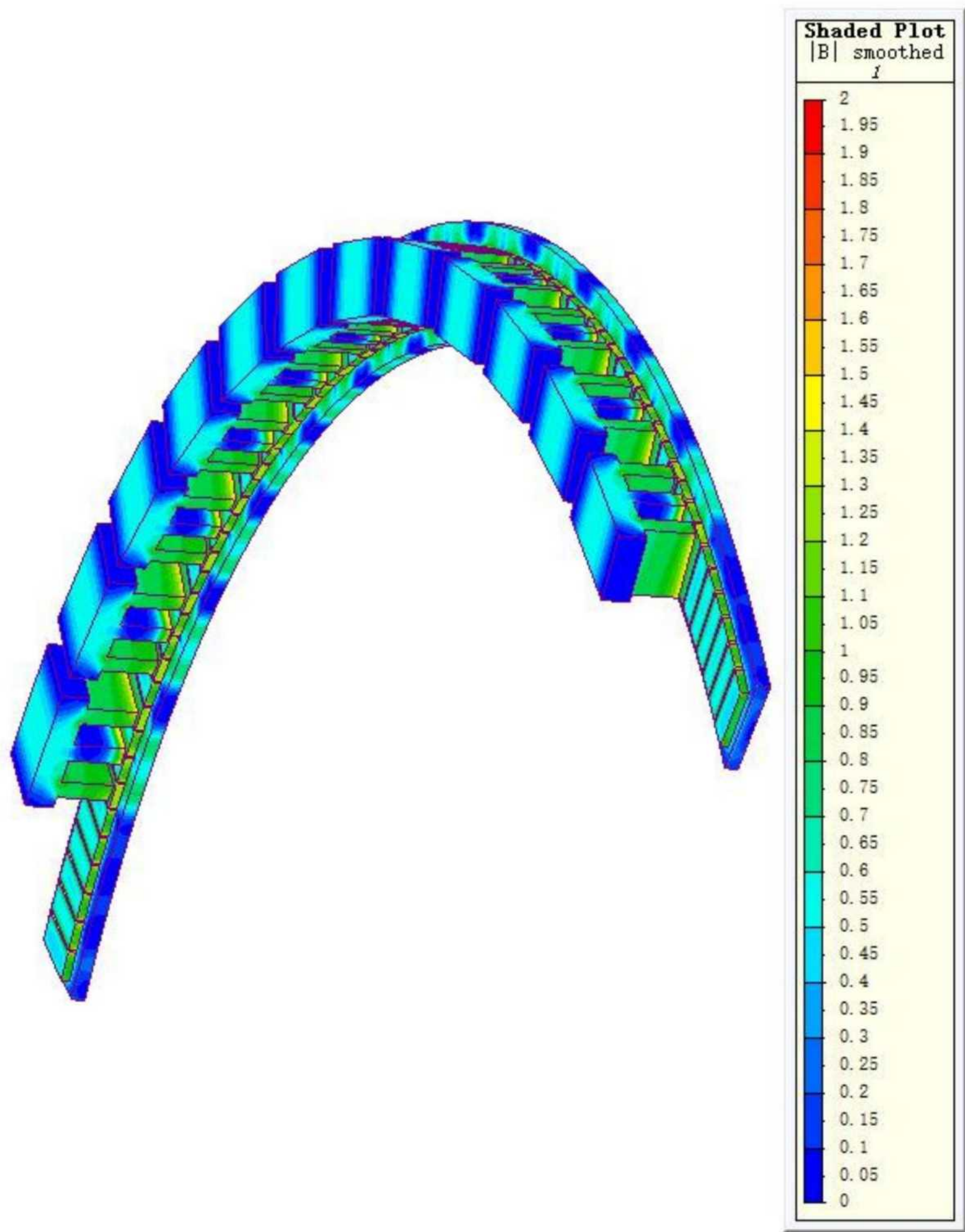
Applications

- 1.Industrial automation: used in precision machine tools, visual inspection, and other high-precision applications, featuring a flat structure and high-precision, high-dynamic torque output. Coreless structures are available, with no cogging force and higher control accuracy.
- 2.Robotics industry: with advantages such as small size, light weight, and high power density, disc motors can be widely used in humanoid robot joint drives, industrial robot joint integration, robot end effectors, etc.

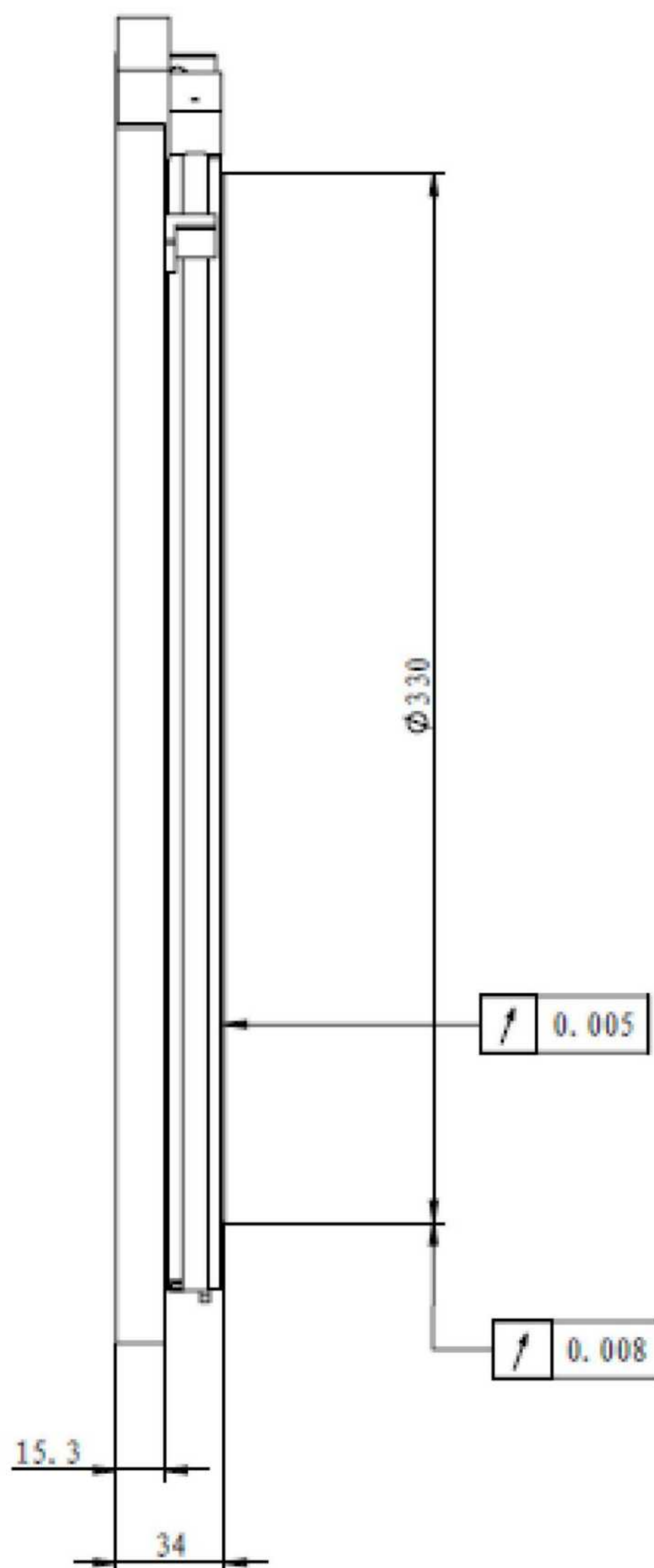
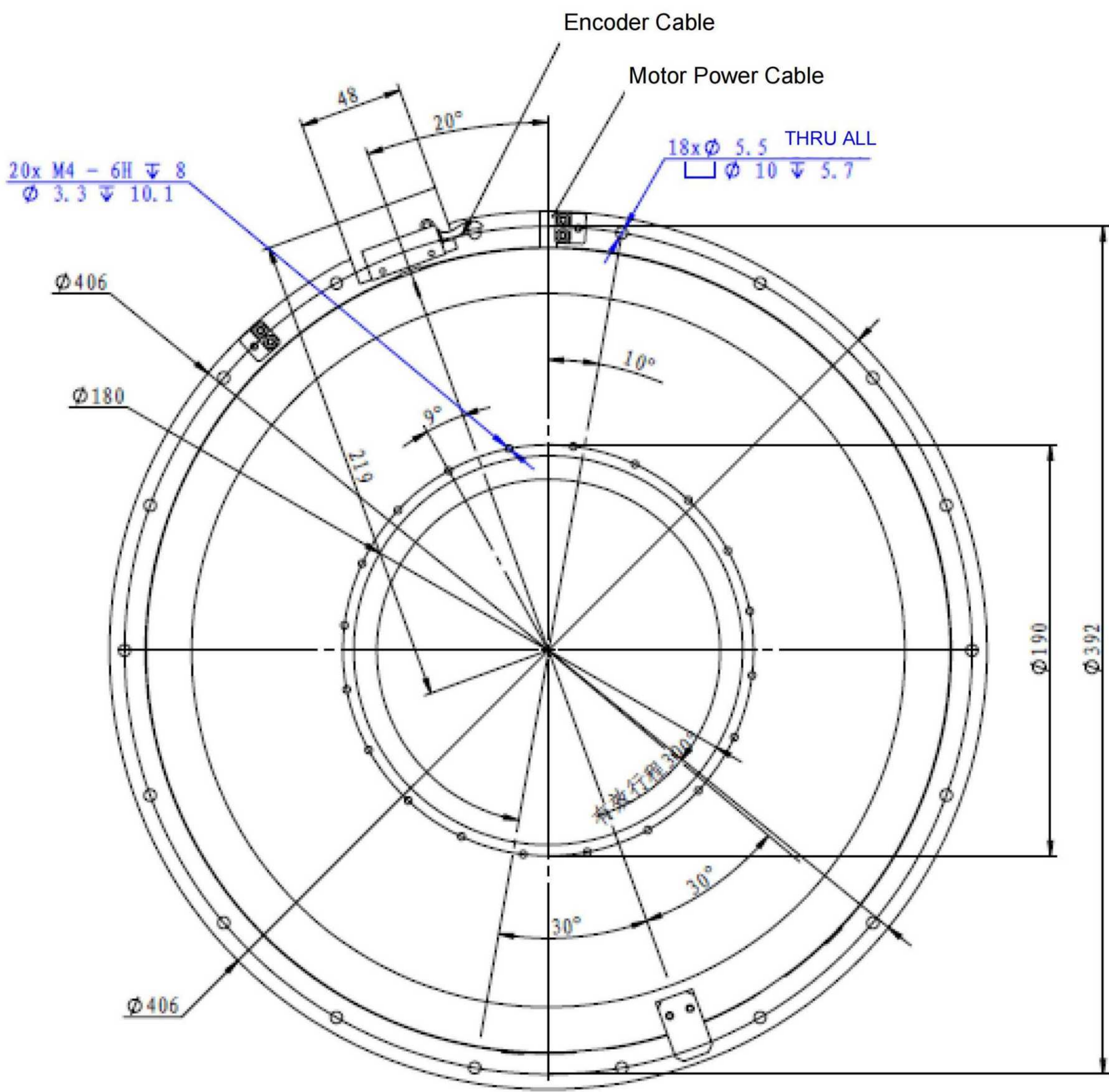
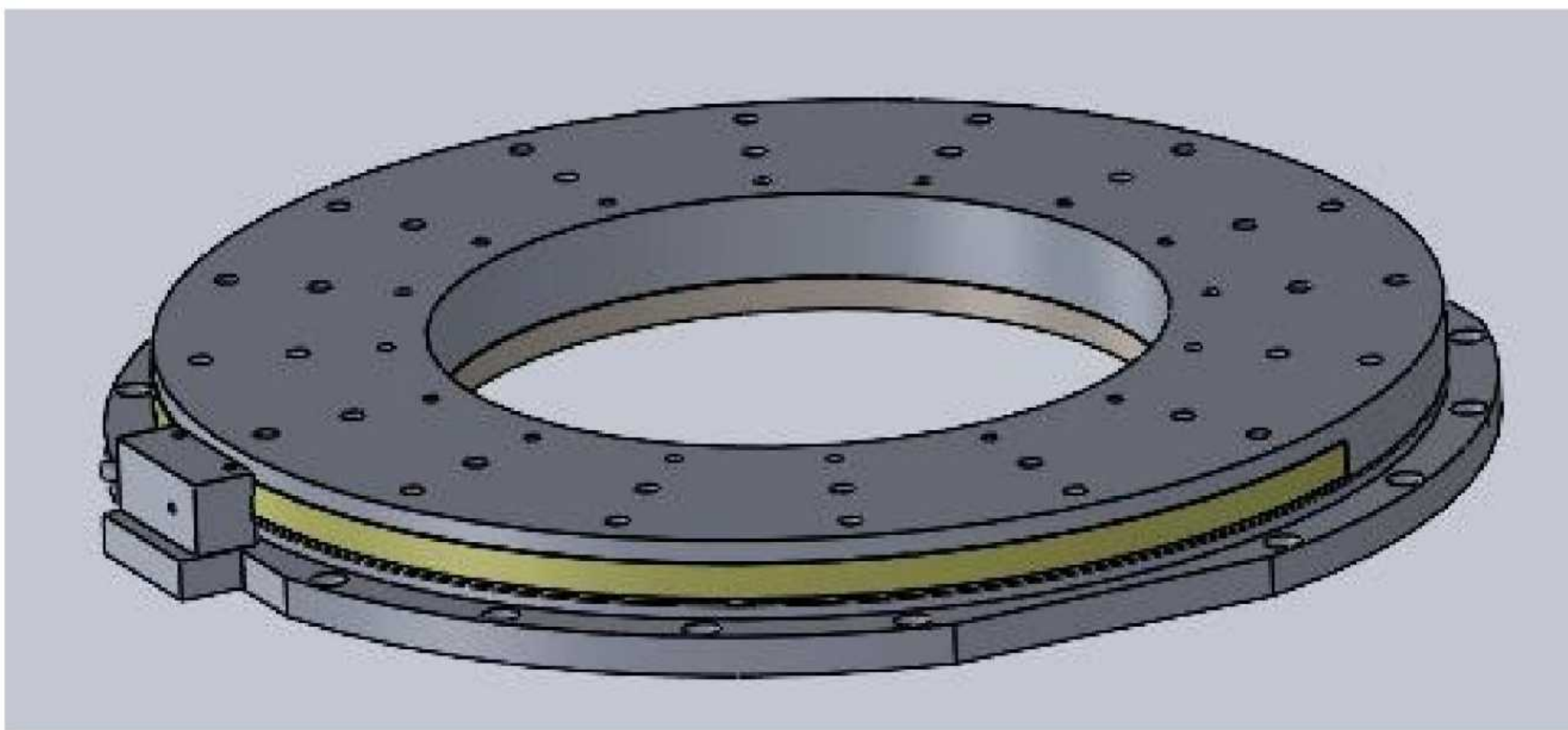
Rated Performance Table	Symbol	Unit	Value
Operating Voltage	Vdc	V	310
Continuous Current	Ic	Arms	8.4
Peak Current	Ic	Arms	16.8
Continuous Torque	Tc	Nm	980
Peak Torque	Tp	Nm	1960
Max. Speed (at Tc)	Nmax	Rpm	20
Torque Constant (at 25° C ±5%)	Tf	N/Arms	116.67
Back EMF Constant (at 25° C ±5%)	Te	Vrms/rad/s	38.89
Resistance (at 25° C ±5%)	R	Ω (p-p)	5.3
Inductance (at 25° C ±5%)	L	mH (p-p)	25
Number of Pole Pairs	p	/	120
Max. Allowable Coil Temperature	Tmax	°C	120
Air Gap	—	mm	1.5
Mover Weight	—	Kg	41.2
Stator Weight	—	Kg	28.8

Applications

Medical equipment: can be applied to MRI imaging equipment, surgical robots, prosthetics and exoskeletons, etc. Suitable for quiet, smooth, and precise drive applications.



Rated Performance Table	Symbol	Unit	Value
Continuous Torque (at Tmax)	Tc	Nm	20
Peak Torque	Tp	Nm	60
Max. Speed (220Vac)	Nmax	Rpm	250
Resolution (1Vpp)	-	x lines / 300°	486965
Repeatability	-	arc sec	±2
Positioning Accuracy	-	arc sec	±25
Electrical Specifications			
Continuous Current (at Tmax)	Ic	/	2.2
Peak Current (Duration 1s)	Ip	/	6.6
Torque Constant (at 25°C, ±5%)	Tf	/	9
Back EMF Constant (at 25°C, ±5%)	Te	/	3
Number of Pole Pairs	p	/	16
Resistance (at 25°C ±5%)	R	Ω(p-p)	14
Inductance (at 25°C ±5%)	L	mH(p-p)	4.2
Max. Allowable Coil Temperature	Tmax	°C	120
Mechanical Specifications			
Motor Weight	/	KG	12.5
Mover Weight	Mc	KG	6
Stator Inertia	Jm	Kg*m²	0.064
Axial Runout	/	mm	0.005
Radial Runout	/	mm	0.008



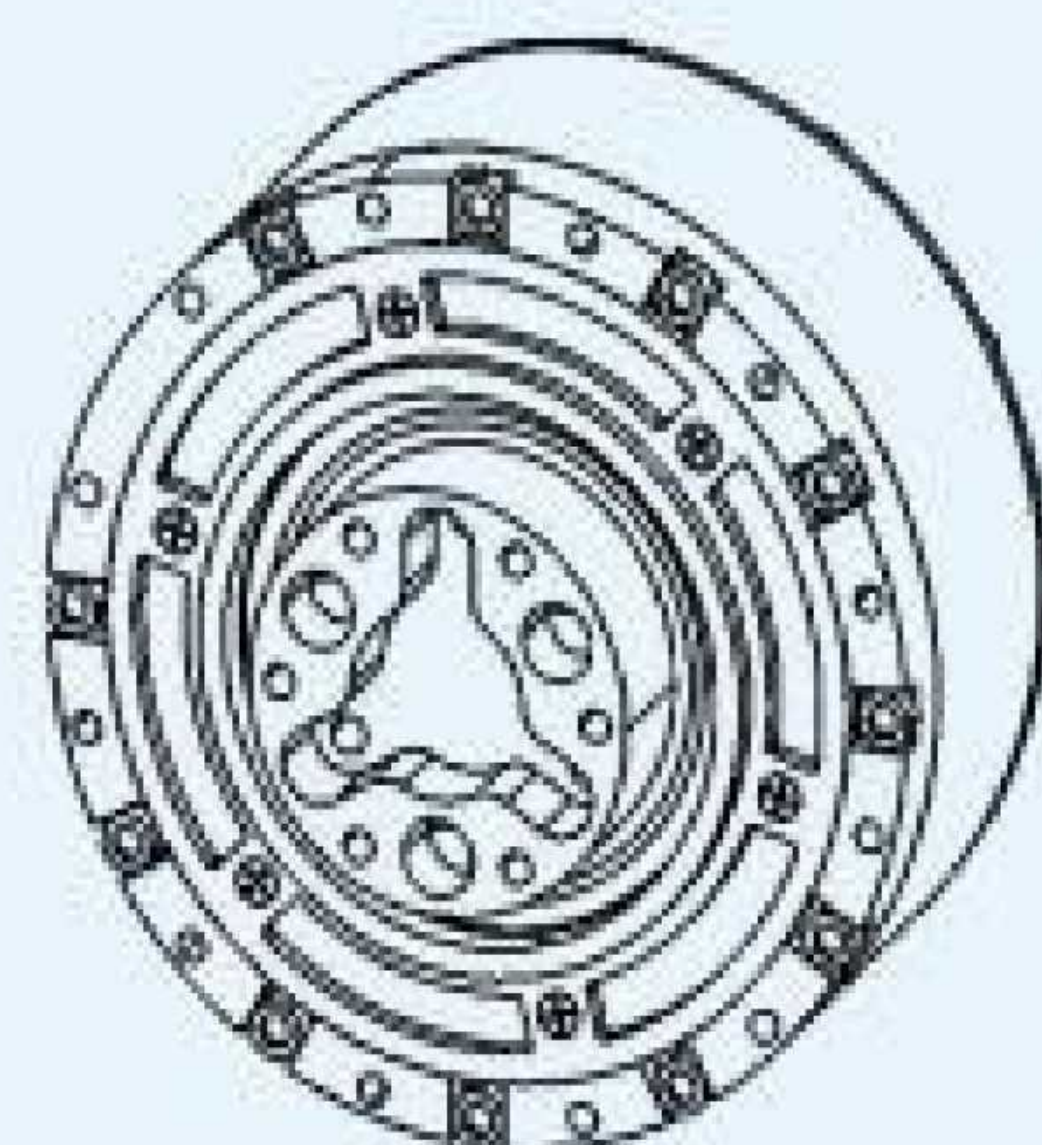
Applications
Semiconductor industry: flat large-bore disc motors, applied in wafer dicing and inspection industries, featuring a large center bore, flat structure, and small-angle operating conditions.

300W
Joint
Module



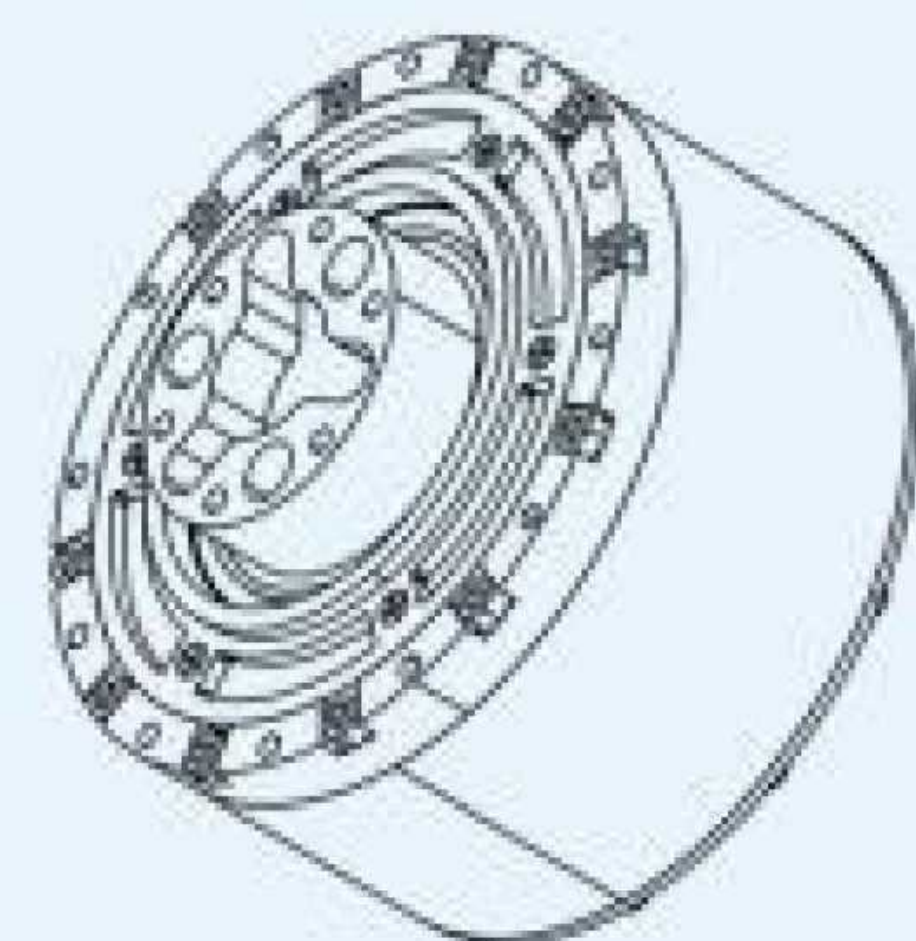
Parameters	Rated Power	Rated Voltage	Rated Torque	Maximum Torque	Rated Current	Rated Speed	Insulation Class	Protection Method	Weight
	W	V	Nm	Nm	Arms	min-1	/	/	Kg
	300	DC48	18	35	9.8	160	F	Totally enclosed self-cooled	about 0.598

660W
Joint
Module



Parameters	Rated Power	Rated Voltage	Rated Torque	Maximum Torque	Rated Current	Rated Speed	Insulation Class	Protection Method	Weight
	W	V	Nm	Nm	Arms	min-1	/	/	Kg
	660	DC48	80	165	29	80	F	Totally enclosed self-cooled	about 2.1

1000W
Joint
Module



Parameters	Rated Power	Rated Voltage	Rated Torque	Maximum Torque	Rated Current	Rated Speed	Insulation Class	Protection Method	Weight
	W	V	Nm	Nm	Arms	min-1	/	/	Kg
	1000	DC48	120	250	39	80	F	Totally enclosed self-cooled	about 2.3



628W Frameless Torque Motor

Parameters		
Rated Power	W	628
Rated Voltage	V	DC48
Rated Speed	min-1	3000
Rated Torque	Nm	2
Rated Current	Arms	24. 7
Stator Outer Diameter	mm	94
Rotor Inner Diameter	mm	44. 5
Stator Height	mm	19. 2
Torque Constant	Nm/A	0. 081

1000W Frameless Torque Motor

Parameters		
Rated Power	W	1000
Rated Voltage	V	DC48
Rated Speed	min-1	1600
Rated Torque	Nm	7. 5
Rated Current	Arms	39
Stator Outer Diameter	mm	112
Rotor Inner Diameter	mm	65
Stator Height	mm	30
Torque Constant	Nm/A	0. 192