



Shanghai TongYi Automation Technology Co., Ltd

TYD Steering Wheel/TCD Differential Wheel
Set/TYC Differential Wheel

Product Selection Guide-20230714

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Directory

1. Company Profile 1

2. TYD Series Steering Wheel 2

3. TYCD Series Differential Drive Wheel Set.....49

4. TYC Series Differential Wheel 55

1. Company Profile

Shanghai TongYi Automation Technology Co., Ltd. was established in November 2014, originating from the Robotics and Intelligent Systems Research Laboratory of Tongji University. The company is headquartered in Shanghai and has production and research centers in Suzhou and Changzhou. The company's mission is to create value for customers and focuses on the research and development of industrial controllers and drive systems, providing complete solutions for industrial automation equipment. The company's main products include low-voltage (DC) servo motors, low-voltage (DC) servo drives, industrial controllers, remote I/O, AGV steering wheel and other independent brand products, serving more than 1000 customers. The products are widely used in mobile robots, heavy-duty AGVs, unmanned forklifts, inspection robots, medical equipment, collaborative robots, servo presses, corrugated packaging and other industries.

The company adheres to the concept of technological innovation and currently has a team of dozens of R&D and industry application engineers. In 2016, the company was selected as one of the "Top 50 Entrepreneurs with the Most Investment Potential in Shanghai", and in 2017, it was selected as a "National High tech Enterprise" and "Academician Expert Workstation" in Shanghai. In 2018, it was awarded the "Excellent Enterprise Award" by the Growth Group of the National Innovation and Entrepreneurship Competition, the "Technology Giant Enterprise in YangPu District, Shanghai", and the "Top 30 Manufacturing New Power Enterprises in China" selected by Yiou.

On a global scale, the demand for industrial controllers, drives, and other automation industries is increasing. We hope to collaborate with global partners to supply and contribute to the development of the global manufacturing industry.

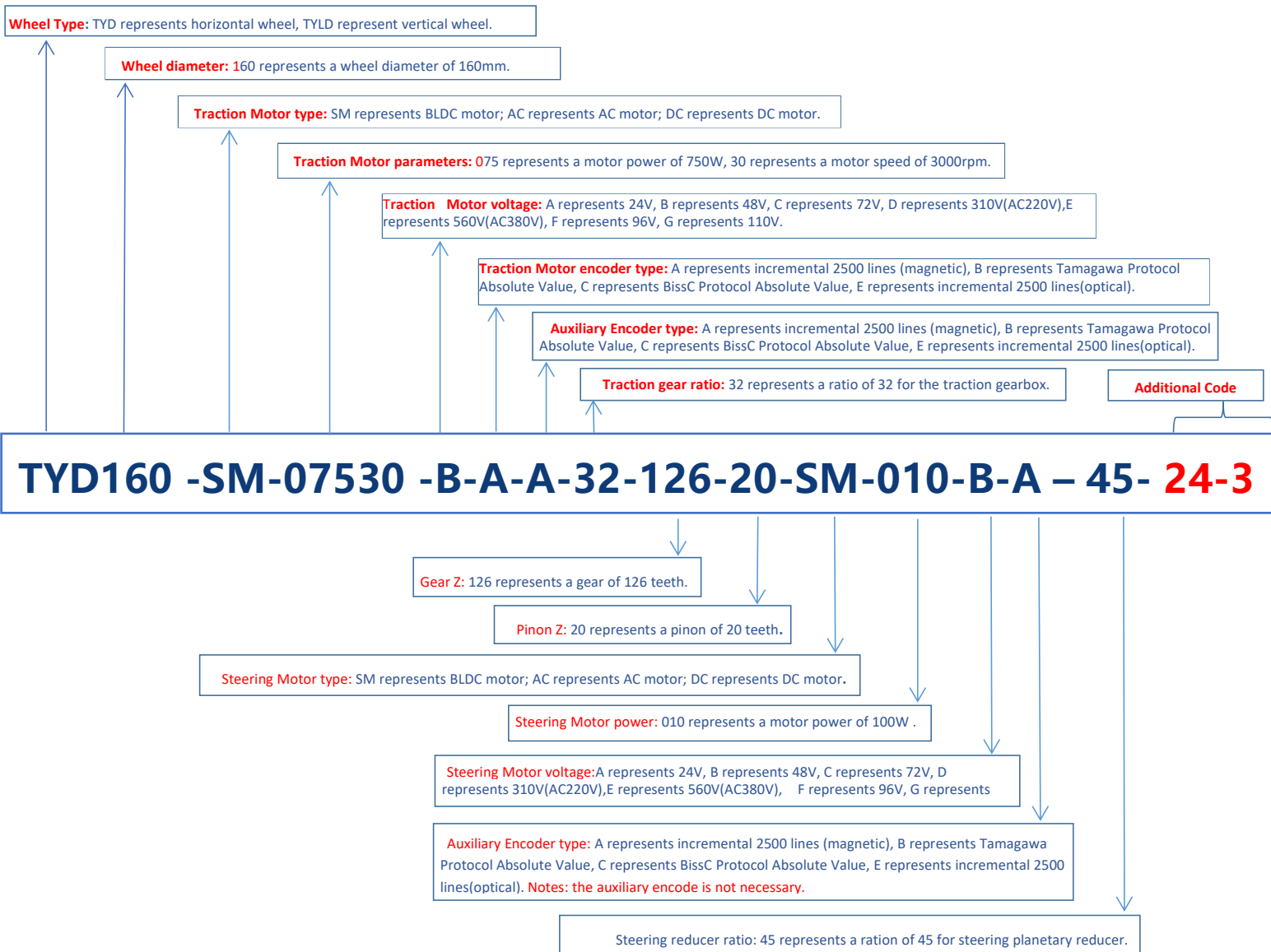
2. TYD Series Steering Wheel



The steering wheel is a mechanical structure that integrates drive motors, steering motors, reducers, and other integrated components. TYD series steering wheel features:

- Standard permanent magnet synchronous servo motor, leading in the AGV market
- The steering motor comes with an encoder and does not require the installation of an external encoder
- Wide power range, up to 20KW
- Traction Motor Supports Dual Encoder, achieves up to PL=D, category 2 functional safety under EN ISO 13849-1

2.1. Steering Wheel Model Definition



Additional code:

1. Brake voltage: 24 represents brake voltage of 24V, if no code represents brake voltage is the same as motor voltage.
2. Intermediate limit sensor: 3 represents the sensor will be installed, no code represents will not installed.

2.2. TYD105 Series Steering Wheel

2.2.1. TYD105 Series Wheel Introduction

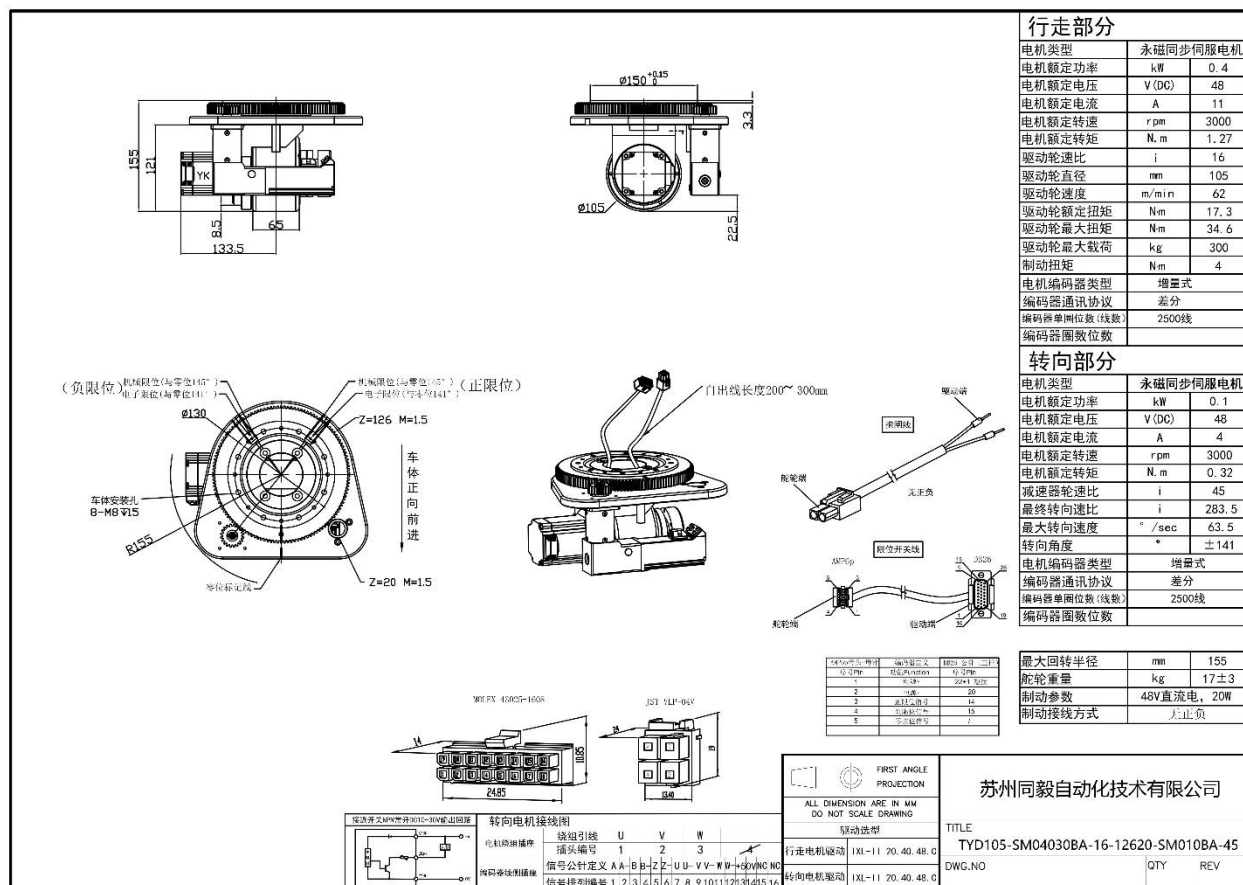
- **Wheel Diameter: 105mm**
- **Max Load: 300KG**
- **Input Voltage Range: 24-560V**
- **Traction Motor Power: 400W**
- **Traction Gear Common Ratio: 16/24/32**
- **Traction Motor Supports Dual Encoder, achieves up to PL=D, category 2 functional safety under EN ISO 13849-1.**

2.2.2. TYD105 Series Common Models

Steering Wheel series			TYD105-SM04030BA-16			TYD105-SM04030BA-24		
			TYD105-SM04030BA-16-12620-SM010BA-45	TYD105-SM04030BA-16-12620-SM010BB-45	TYD105-SM04030BA-16-12620-SM010BC-45	TYD105-SM04030BA-24-12620-SM010BA-45	TYD105-SM04030BA-32-12620-SM010BB-45	TYD105-SM04030BA-32-12620-SM010BC-45
Traction data	Traction Motor	Rated Power(KW)	0.4	0.4	0.4	0.4	0.4	0.4
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	11	11	11	11	11	11
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	1.28	1.28	1.28	1.28	1.28	1.28
		Max Torque(N·m)	2.56	2.56	2.56	2.56	2.56	2.56
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C
	Drive Wheel	Gearbox Ratio(i)	16	16	16	24	24	24
		Diameter(mm)	105	105	105	105	105	105
		Speed(m/min)	61.8	61.8	61.8	41.2	41.2	41.2
		Nominal Torque(N·m)	17.4	17.4	17.4	26.1	26.1	26.1
		Max Torque(N·m)	34.8	34.8	34.8	52.2	52.2	52.2
		Max Load(KG)	300	300	300	300	300	300
		Brake Torque(N·m)	4	4	4	4	4	4
Steering Data	Steering Motor	Rated Power(KW)	0.1	0.1	0.1	0.1	0.1	0.1
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	4	4	4	4	4	4
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	0.32	0.32	0.32	0.32	0.32	0.32
		Max Torque(N·m)	0.64	0.64	0.64	0.64	0.64	0.64
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C
	Slewing bearing & Reducer	Gear Z(n)	126	126	126	126	126	126
		Pinon Z(n)	20	20	20	20	20	20
		Reducer Ratio(i)	45	45	45	45	45	45
		Final Ratio(i)	283.5	283.5	283.5	283.5	283.5	283.5
		Max Steering Speed(°/sec)	63.49	63.49	63.49	63.49	63.49	63.49
		Max Steering Angle(°)	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	155	155	155	155	155	155
		Weight(KG)	17.5	17.5	17.5	17.5	17.5	17.5

Wheel series			TYD105-SM04030BA-32					
			TYD105-SM04030BA-32-12620-SM010BA-45	TYD105-SM04030BA-32-12620-SM010BB-45	TYD105-SM04030BA-32-12620-SM010BC-45			
Traction data	Traction Motor	Rated Power(KW)	0.4	0.4	0.4			
		Battery Voltage(V)	48	48	48			
		Rated Current(A)	11	11	11			
		Rated Speed(rpm)	3000	3000	3000			
		Nominal Torque(N·m)	0.32	0.64	1.28			
		Max Torque(N·m)	0.64	1.28	2.56			
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)			
	Recommended Driver	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C				
	Drive Wheel	Gearbox Ratio(i)	32	32	32			
		Diameter(mm)	105	105	105			
		Speed(m/min)	30.9	30.9	30.9			
		Nominal Torque(N·m)	8.7	17.4	34.8			
		Max Torque(N·m)	17.4	34.8	69.6			
		Max Load(KG)	300	300	300			
Brake Torque(N·m)		4	4	4				
Steering Data	Steering Motor	Rated Power(KW)	0.1	0.1	0.1			
		Battery Voltage(V)	48	48	48			
		Rated Current(A)	4	4	4			
		Rated Speed(rpm)	3000	3000	3000			
		Nominal Torque(N·m)	0.32	0.32	0.32			
		Max Torque(N·m)	0.64	0.64	0.64			
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)			
	Recommended Driver	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C				
	Slewing bearing & Reducer	Gear Z(n)	126	126	126			
		Pinon Z(n)	20	20	20			
		Reducer Ratio(i)	45	45	45			
		Final Ratio(i)	283.5	283.5	283.5			
		Max Steering Speed(°/sec)	63.49	63.49	63.49			
		Max Steering Angle(°)	±120	±120	±120			
Max Turning Radius(mm)		155	155	155				
		Weight(KG)	17	17	17.5			

2.2.3. TYD105 Series Wheel Drawings(Parts)



2.3. TYD125 Series Steering Wheel

2.3.1. TYD125 Series Wheel Introduction

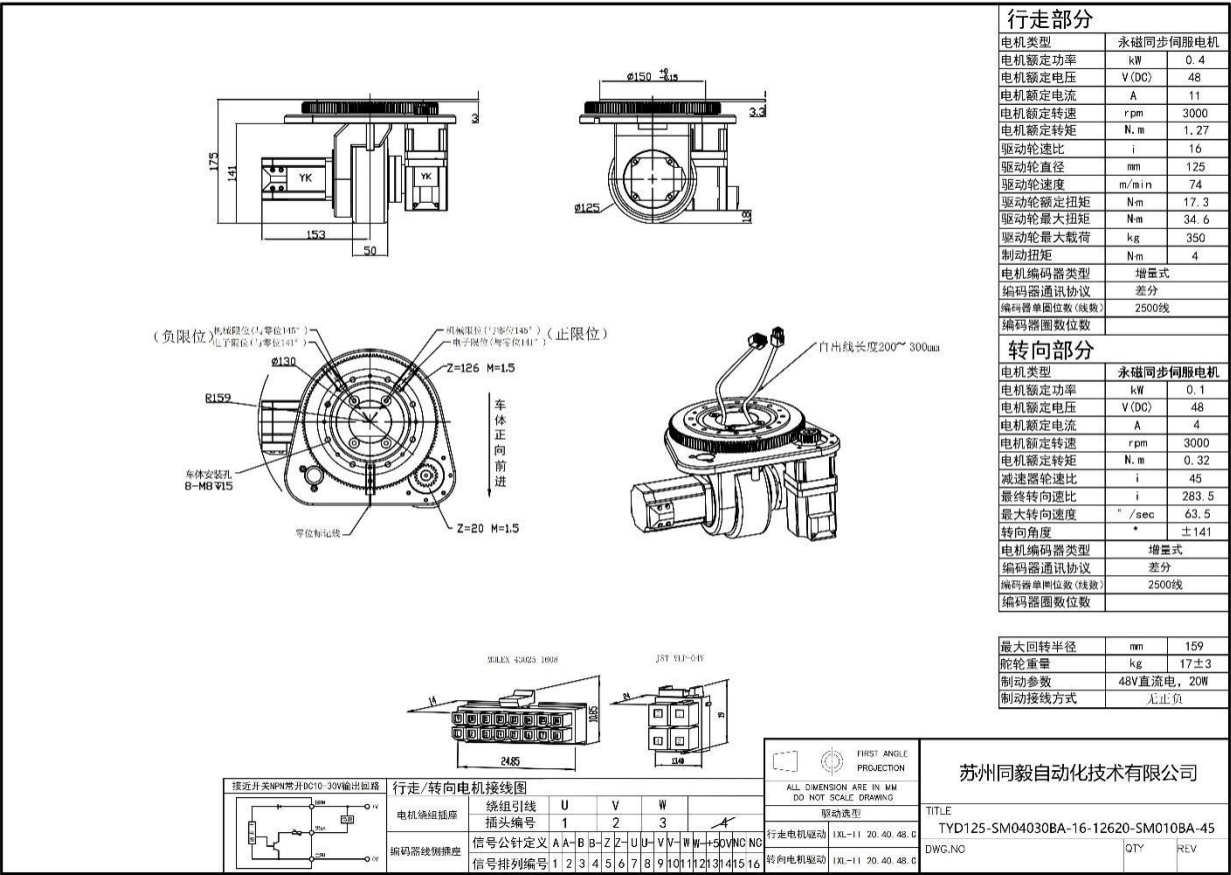
- **Wheel Diameter: 125mm**
- **Max Load: 350KG**
- **Input Voltage Range: 24-560V**
- **Traction Motor Power: 400W**
- **Traction Gear Common Ratio: 16/24/32**
- **Traction Motor Supports Dual Encoder, achieves up to PL=D, category 2 functional safety under EN ISO 13849-1**

2.3.2. TYD125 Series Common Models

Wheel series			TYD125-SM04030BA-16			TYD125-SM04030AA-16		
			TYD125-SM04030BA-16-12620-SM010BA-45	TYD125-SM04030BA-16-12620-SM010BB-45	TYD125-SM04030BA-16-12620-SM010BC-45	TYD125-SM04030AA-16-12620-SM010AA-45	TYD125-SM04030AA-16-12620-SM010AB-45	TYD125-SM04030AA-16-12620-SM010AC-45
Traction data	Traction Motor	Rated Power(KW)	0.4	0.4	0.4	0.4	0.4	0.4
		Battery Voltage(V)	48	48	48	24	24	24
		Rated Current(A)	11	11	11	20	20	20
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	1.28	1.28	1.28	1.28	1.28	1.28
		Max Torque(N·m)	2.56	2.56	2.56	2.56	2.56	2.56
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C
	Drive Wheel	Gearbox Ratio(i)	16	16	16	16	16	16
		Diameter(mm)	125	125	125	125	125	125
		Speed(m/min)	73.59	73.59	73.59	73.59	73.59	73.59
		Nominal Torque(N·m)	17.408	17.408	17.408	17.408	17.408	17.408
		Max Torque(N·m)	34.816	34.816	34.816	34.816	34.816	34.816
		Max Load(KG)	350	350	350	350	350	350
		Brake Torque(N·m)	4	4	4	4	4	4
Steering Data	Steering Motor	Rated Power(KW)	0.1	0.1	0.1	0.1	0.1	0.1
		Battery Voltage(V)	48	48	48	24	24	24
		Rated Current(A)	4	4	4	7	7	7
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	0.32	0.32	0.32	0.32	0.32	0.32
		Max Torque(N·m)	0.64	0.64	0.64	0.64	0.64	0.64
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C
	Slewing bearing & Reducer	Gear Z(n)	126	126	126	126	126	126
		Pinon Z(n)	20	20	20	20	20	20
		Reducer Ratio(i)	45	45	45	45	45	45
		Final Ratio(i)	283.5	283.5	283.5	283.5	283.5	283.5
		Max Steering Speed("/sec)	63.49	63.49	63.49	63.49	63.49	63.49
		Max Steering Angle(")	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	135/160	135/160	135/160	160	160	160
		Weight(KG)	17.5	17.5	17.5	17.5	17.5	17.5

Wheel series			TYD125-SM04030BA-24			TYD125-SM04030BA-32		
			TYD125-SM04030BA-24-12620-SM010BA-4S	TYD125-SM04030BA-24-12620-SM010BB-4S	TYD125-SM04030BA-24-12620-SM010BC-4S	TYD125-SM04030BA-32-12620-SM010BA-4S	TYD125-SM04030BA-32-12620-SM010BB-4S	TYD125-SM04030BA-32-12620-SM010BC-4S
Traction data	Traction Motor	Rated Power(KW)	0.4	0.4	0.4	0.4	0.4	0.4
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	11	11	11	11	11	11
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N-m)	1.28	1.28	1.28	1.28	1.28	1.28
		Max Torque(N-m)	2.56	2.56	2.56	2.56	2.56	2.56
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C
	Drive Wheel	Gearbox Ratio(i)	24	24	24	32	32	32
		Diameter(mm)	125	125	125	125	125	125
		Speed(m/min)	49.06	49.06	49.06	36.80	36.80	36.80
		Nominal Torque(N-m)	26.112	26.112	26.112	34.816	34.816	34.816
		Max Torque(N-m)	52.224	52.224	52.224	69.632	69.632	69.632
		Max Load(KG)	350	350	350	350	350	350
		Brake Torque(N-m)	4	4	4	4	4	4
Steering Data	Steering Motor	Rated Power(KW)	0.1	0.1	0.1	0.1	0.1	0.1
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	4	4	4	4	4	4
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N-m)	0.32	0.32	0.32	0.32	0.32	0.32
		Max Torque(N-m)	0.64	0.64	0.64	0.64	0.64	0.64
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C
	Slewing bearing & Reducer	Gear Z(n)	126	126	126	126	126	126
		Pinon Z(n)	20	20	20	20	20	20
		Reducer Ratio(i)	45	45	45	45	45	45
		Final Ratio(i)	283.5	283.5	283.5	283.5	283.5	283.5
		Max Steering Speed("/sec)	63.49	63.49	63.49	63.49	63.49	63.49
		Max Steering Angle(")	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	135/160	135/160	135/160	135/160	135/160	135/160
		Weight(KG)	17.5	17.5	17.5	17.5	17.5	17.5

2.3.3. TYD125 Series Wheel Drawings(Parts)



2.4. TYLD150 Series Vertical Steering Wheel

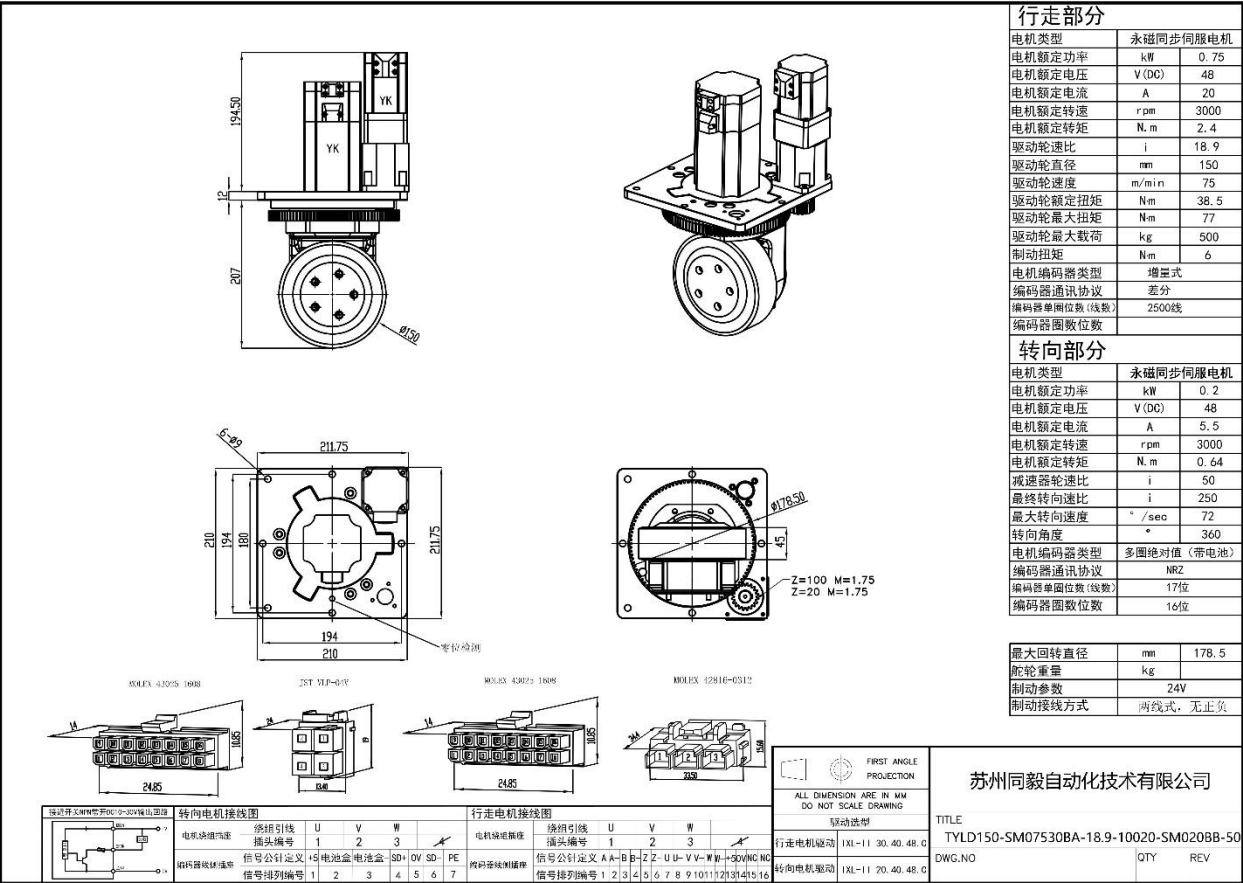
2.4.1. TYLD150 Series Vertical Wheel Introduction

- **Wheel Diameter: 150mm**
- **Max Load: 500KG**
- **Input Voltage Range: 24-560V**
- **Traction Motor Power: 400~750W**
- **Traction Gear Ratio: 18.9**
- **Traction Motor Supports Dual Encoder, achieves up to PL=D, category 2 functional safety under EN ISO 13849-1**

2.4.2. TYLD150 Series Common Models

Wheel series			TYLD150-SM07530BA-18.9			TYLD150-SM07530AA-18.9		
			TYLD150-SM07530BA-18.9-10020-SM020BA-50	TYLD150-SM07530BA-18.9-10020-SM020BB-50	TYLD150-SM07530BA-18.9-10020-SM020BC-50	TYLD150-SM07530AA-18.9-10020-SM020AA-50	TYLD150-SM07530AA-18.9-10020-SM020AB-50	TYLD150-SM07530AA-18.9-10020-SM020AC-50
Traction data	Traction Motor	Rated Power(KW)	0.75	0.75	0.75	0.75	0.75	0.75
		Battery Voltage(V)	48	48	48	24	24	24
		Rated Current(A)	20	20	20	37	37	37
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N-m)	2.39	2.39	2.39	2.39	2.39	2.39
		Max Torque(N-m)	4.78	4.78	4.78	4.78	4.78	4.78
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 30.160.48.C	IxLII 30.160.48.C	IxLII 30.160.48.C	IxLII 30.160.48.C	IxLII 30.160.48.C	IxLII 30.160.48.C
	Drive Wheel	Gearbox Ratio(i)	18.9	18.9	18.9	18.9	18.9	18.9
		Diameter(mm)	150	150	150	150	150	150
		Speed(m/min)	74.76	74.76	74.76	74.76	74.76	74.76
		Nominal Torque(N-m)	38	38	38	38	38	38
		Max Torque(N-m)	77	77	77	77	77	77
		Max Load(KG)	500	500	500	500	500	500
		Brake Torque(N-m)	6	6	6	6	6	6
		Rated Power(KW)	0.2	0.2	0.2	0.2	0.2	0.2
Steering Data	Steering Motor	Battery Voltage(V)	48	48	48	24	24	24
		Rated Current(A)	1	6	6	20	20	20
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N-m)	0.32	0.32	0.32	0.32	0.32	0.32
		Max Torque(N-m)	0.64	0.64	0.64	0.64	0.64	0.64
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C
	Slewing bearing & Reducer	Gear Z(n)	100	100	100	100	100	100
		Pinon Z(n)	20	20	20	20	20	20
		Reducer Ratio(i)	50	50	50	50	50	50
		Final Ratio(i)	250	250	250	250	250	250
		Max Steering	72.00	72.00	72.00	72.00	72.00	72.00
		Max Steering Angle(°)	360	360	360	360	360	360
		Max Turning	178.5	178.5	178.5	178.5	178.5	178.5
		Weight(KG)	25	25	25	25	25	25

2.4.3. TYLD150 Series Vertical Wheel Drawings(Parts)



2.5. TYD150 Series Steering Wheel

2.5.1. TYD150 Series Wheel Introduction

- Wheel Diameter: 150mm
- Max Load: 600KG
- Input Voltage Range: 24-560V
- Traction Motor Power: 400~1000W
- Traction Gear Common Ratio: 20/32
- Traction Motor Supports Dual Encoder, achieves up to PL=D, category 2 functional safety under EN ISO 13849-1

2.6. TYD160 Series Steering Wheel

2.6.1. TYD160 Series Wheel Introduction

- **Wheel Diameter: 160mm**
- **Max Load: 350KG/800KG/1000KG**
- **Input Voltage Range: 24-560V**
- **Traction Motor Power: 400~1000W**
- **Traction Gear Common Ratio: 20/32**
- **Traction Motor Supports Dual Encoder, achieves up to PL=D, category 2 functional safety under EN ISO 13849-1**

2.6.2. TYD160 Series Common Models

Wheel series			TYD160-SM04030BA-20-126			TYD160-SM04030AA-20-126		
			TYD160-SM04030BA-20-12620-SM020BA-10	TYD160-SM04030BA-20-12620-SM020BB-10	TYD160-SM04030BA-20-12620-SM020BC-10	TYD160-SM04030AA-20-12620-SM020AA-10	TYD160-SM04030AA-20-12620-SM020AB-10	TYD160-SM04030AA-20-12620-SM020AC-10
Traction data	Traction Motor	Rated Power(KW)	0.4	0.4	0.4	0.4	0.4	0.4
		Battery Voltage(V)	48	48	48	24	24	24
		Rated Current(A)	11	11	11	20	20	20
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	1.27	1.27	1.27	1.27	1.27	1.27
		Max Torque(N·m)	2.54	2.54	2.54	2.54	2.54	2.54
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C
	Drive Wheel	Gearbox Ratio(i)	20	20	20	20	20	20
		Diameter(mm)	160	160	160	160	160	160
		Speed(m/min)	75.36	75.36	75.36	75.36	75.36	75.36
		Nominal Torque(N·m)	21.59	21.59	21.59	21.59	21.59	21.59
		Max Torque(N·m)	43.18	43.18	43.18	43.18	43.18	43.18
		Max Load(KG)	350	350	350	350	350	350
Steering Data	Steering Motor	Brake Torque(N·m)	6	6	6	6	6	6
		Rated Power(KW)	0.2	0.2	0.2	0.2	0.2	0.2
		Battery Voltage(V)	48	48	48	24	24	24
		Rated Current(A)	6	6	6	11	11	11
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	0.64	0.64	0.64	0.64	0.64	0.64
		Max Torque(N·m)	1.28	1.28	1.28	1.28	1.28	1.28
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C
	Slewing bearing & Reducer	Gear Z(n)	126	126	126	126	126	126
		Pinon Z(n)	20	20	20	20	20	20
		Reducer Ratio(i)	10	10	10	10	10	10
		Final Ratio(i)	63	63	63	63	63	63
		Max Steering Speed(°/sec)	285.71	285.71	285.71	285.71	285.71	285.71
		Max Steering Angle(°)	±141	±141	±141	±141	±141	±141
		Max Turning Radius(mm)	155	155	155	155	155	155
		Weight(KG)	21	21	21	21	21	21

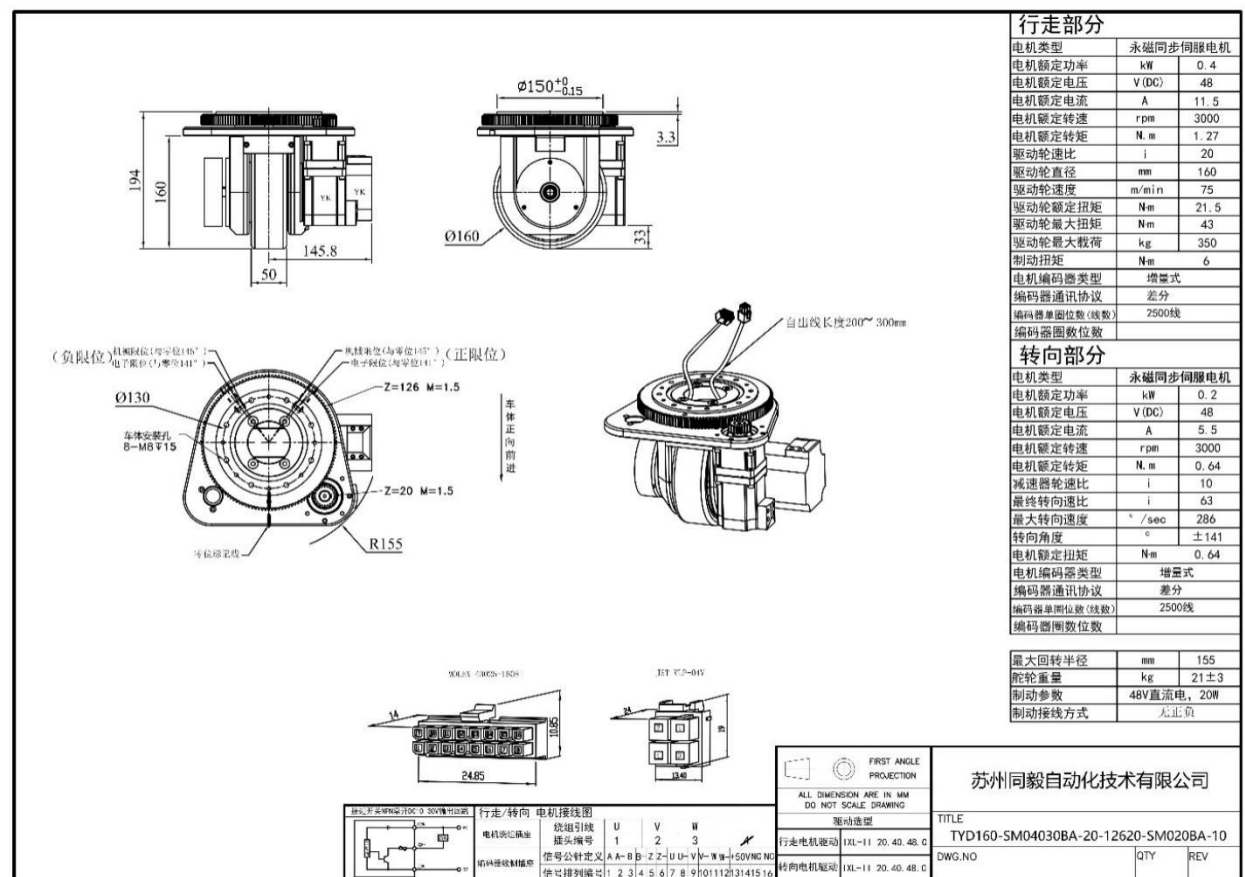
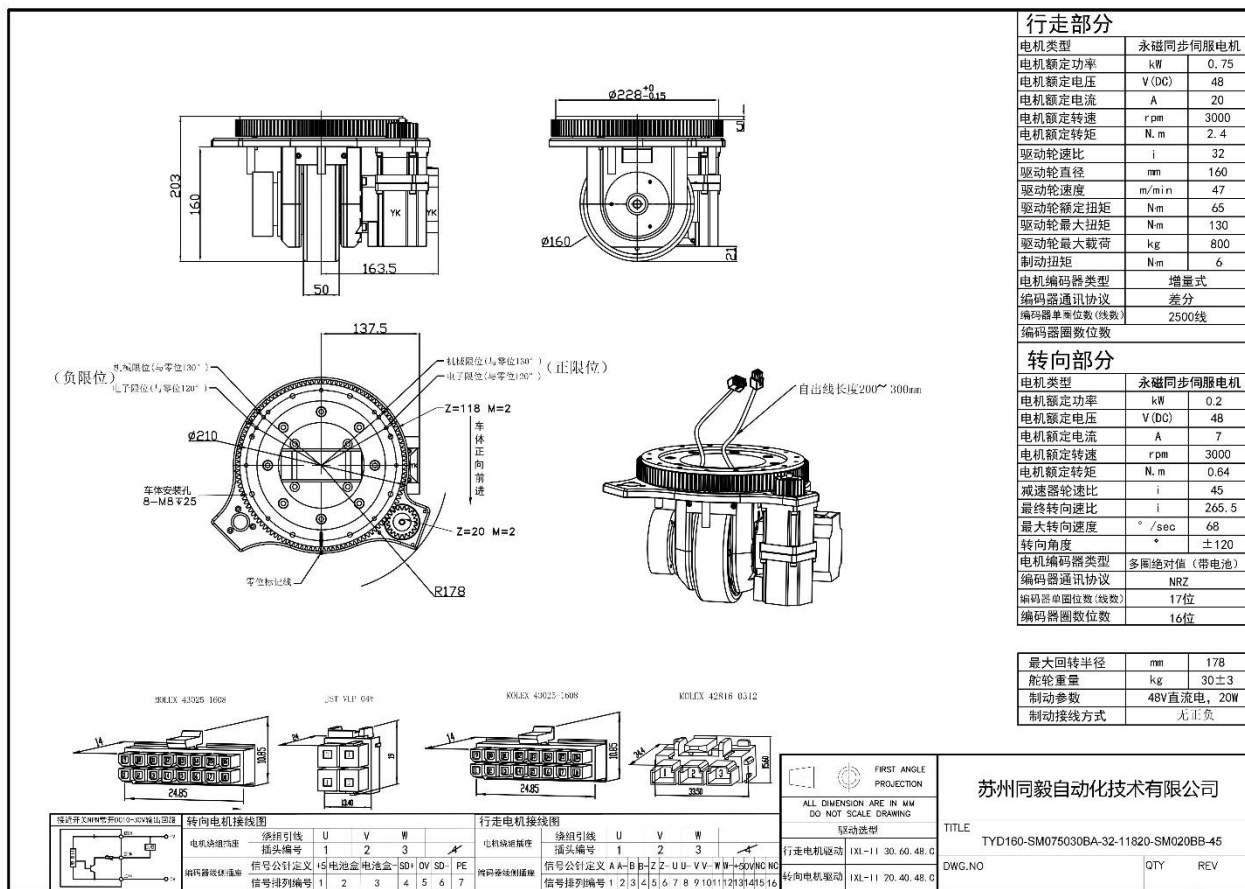
Wheel series			TYD160-SM04030BA-32-126			TYD160-SM07530BA-20-118		
			TYD160-SM04030BA-32-12620-SM020BA-10	TYD160-SM04030BA-32-12620-SM020BA-10	TYD160-SM04030BA-32-12620-SM020BA-10	TYD160-SM07530BA-20-11820-SM010BA-45	TYD160-SM07530BA-20-11820-SM010BB-45	TYD160-SM07530BA-20-11820-SM010BC-45
Traction data	Traction Motor	Rated Power(KW)	0.4	0.4	0.4	0.75	0.75	0.75
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	11	11	11	20	20	20
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N-m)	1.27	1.27	1.27	2.39	2.39	2.39
		Max Torque(N-m)	2.54	2.54	2.54	4.78	4.78	4.78
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C	IxLII30.60.48.C	IxLII30.60.48.C	IxLII30.60.48.C
	Drive Wheel	Gearbox Ratio(i)	32	32	32	20	20	20
		Diameter(mm)	160	160	160	160	160	160
		Speed(m/min)	47.1	47.1	47.10	75.36	75.36	75.36
		Nominal Torque(N-m)	34.544	34.544	34.544	40.63	40.63	40.63
		Max Torque(N-m)	69.09	69.09	69.088	81.26	81.26	81.26
		Max Load(KG)	350	350	350	800	800	800
		Brake Torque(N-m)	6	6	6	6	6	6
Steering Data	Steering Motor	Rated Power(KW)	0.2	0.2	0.2	0.1	0.1	0.1
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	6	6	6	4	4	4
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N-m)	0.64	0.64	0.64	0.32	0.32	0.32
		Max Torque(N-m)	1.28	1.28	1.28	0.64	0.64	0.64
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C
	Slewing bearing & Reducer	Gear Z(n)	126	126	126	118	118	118
		Pinon Z(n)	20	20	20	20	20	20
		Reducer Ratio(i)	10	10	10	45	45	45
		Final Ratio(i)	63	63	63	265.5	265.5	265.5
		Max Steering Speed(*°/sec)	285.71	285.71	285.71	67.80	67.80	67.80
		Max Steering Angle(°)	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	155	155	155	178	178	178
		Weight(KG)	21±3	21±3	21±3	21±3	21±3	21±3

Wheel series			TYD160-SM07530BA-32-118			TYD160-SM07530AA-32-118		
			TYD160-SM07530BA-32-11820-SM010BA-45	TYD160-SM07530BA-32-11820-SM010BB-45	TYD160-SM07530BA-32-11820-SM010BC-45	TYD160-SM07530AA-32-11820-SM010AA-45	TYD160-SM07530AA-32-11820-SM010AB-45	TYD160-SM07530AA-32-11820-SM010AC-45
Traction data	Traction Motor	Rated Power(KW)	0.75	0.75	0.75	0.75	0.75	0.75
		Battery Voltage(V)	48	48	48	24	24	24
		Rated Current(A)	20	20	20	37	37	37
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N-m)	2.39	2.39	2.39	2.39	2.39	2.39
		Max Torque(N-m)	4.78	4.78	4.78	4.78	4.78	4.78
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII30.60.48.C	IxLII30.60.48.C	IxLII30.60.48.C	IxLII50.100.48.C	IxLII50.100.48.C	IxLII50.100.48.C
	Drive Wheel	Gearbox Ratio(i)	32	32	32	32	32	32
		Diameter(mm)	160	160	160	160	160	160
		Speed(m/min)	47.1	47.1	47.10	47.10	47.1	47.1
		Nominal Torque(N-m)	65.008	65.008	65.008	65.008	65.008	65.008
		Max Torque(N-m)	130.02	130.02	130.016	130.016	130.02	130.02
		Max Load(KG)	800	800	800	800	800	800
		Brake Torque(N-m)	6	6	6	6	6	6
Steering Data	Steering Motor	Rated Power(KW)	0.1	0.1	0.1	0.1	0.1	0.1
		Battery Voltage(V)	48	48	48	24	24	24
		Rated Current(A)	4	4	4	7	7	7
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N-m)	0.32	0.32	0.32	0.32	0.32	0.32
		Max Torque(N-m)	0.64	0.64	0.64	0.64	0.64	0.64
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C
	Slewing bearing & Reducer	Gear Z(n)	118	118	118	118	118	118
		Pinon Z(n)	20	20	20	20	20	20
		Reducer Ratio(i)	45	45	45	45	45	45
		Final Ratio(i)	265.5	265.5	265.5	265.5	265.5	265.5
		Max Steering	67.80	67.80	67.80	67.80	67.80	67.80
		Max Steering Angle(°)	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	178	178	178	178	178	178
		Weight(KG)	21±3	21±3	21±3	21±3	21±3	21±3

Wheel series			TYD160-SM10030BA-20-118			TYD160-SM10030BA-32-118		
			TYD160-SM10030BA-20-11820-SM0108A-45	TYD160-SM10030BA-20-11820-SM0108B-45	TYD160-SM10030BA-20-11820-SM0108C-45	TYD160-SM10030BA-32-11820-SM0108A-45	TYD160-SM10030BA-32-11820-SM0108B-45	TYD160-SM10030BA-32-11820-SM0108C-45
Traction data	Traction Motor	Rated Power(KW)	1	1	1	1	1	1
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	27	27	27	27	27	27
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	3.2	3.2	3.2	3.2	3.2	3.2
		Max Torque(N·m)	6.4	6.4	6.4	6.4	6.4	6.4
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII30.60.48.C	IxLII30.60.48.C	IxLII30.60.48.C	IxLII30.60.48.C	IxLII30.60.48.C	IxLII30.60.48.C
	Drive Wheel	Gearbox Ratio(i)	20	20	20	32	32	32
		Diameter(mm)	160	160	160	160	160	160
		Speed(m/min)	75.36	75.36	75.36	47.10	47.1	47.1
		Nominal Torque(N·m)	54.4	54.4	54.4	87.04	87.04	87.04
		Max Torque(N·m)	108.80	108.80	108.8	174.08	174.08	174.08
		Max Load(KG)	800	800	800	800	800	800
		Brake Torque(N·m)	6	6	6	6	6	6
Steering Data	Steering Motor	Rated Power(KW)	0.1	0.1	0.1	0.1	0.1	0.1
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	4	4	4	4	4	4
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	0.32	0.32	0.32	0.32	0.32	0.32
		Max Torque(N·m)	0.64	0.64	0.64	0.64	0.64	0.64
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C
	Slewing bearing & Reducer	Gear Z(n)	118	118	118	118	118	118
		Pinon Z(n)	20	20	20	20	20	20
		Reducer Ratio(i)	45	45	45	45	45	45
		Final Ratio(i)	265.5	265.5	265.5	265.5	265.5	265.5
		Max Steering Speed(°/sec)	67.80	67.80	67.80	67.80	67.80	67.80
		Max Steering Angle(°)	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	198	198	198	198	198	198
		Weight(KG)	21±3	21±3	21±3	21±3	21±3	21±3

Wheel series			TYD160-SM10030BA-20-118-LK80			TYD160-SM10030BA-32-118-LK80		
			TYD160-SM10030BA-20-11820-SM0208A-45-LK80	TYD160-SM10030BA-20-11820-SM0208B-45-LK80	TYD160-SM10030BA-20-11820-SM0208C-45-LK80	TYD160-SM10030BA-32-11820-SM0208A-45-LK80	TYD160-SM10030BA-32-11820-SM0208B-45-LK80	TYD160-SM10030BA-32-11820-SM0208C-45-LK80
Traction data	Traction Motor	Rated Power(KW)	1	1	1	1	1	1
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	27	27	27	27	27	27
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	3.2	3.2	3.2	3.2	3.2	3.2
		Max Torque(N·m)	6.4	6.4	6.4	6.4	6.4	6.4
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C
	Drive Wheel	Gearbox Ratio(i)	20	20	20	32	32	32
		Diameter(mm)	160	160	160	160	160	160
		Speed(m/min)	75.36	75.36	75.36	47.1	47.1	47.1
		Nominal Torque(N·m)	54.4	54.4	54.4	87.04	87.04	87.04
		Max Torque(N·m)	108.8	108.8	108.8	174.08	174.08	174.08
		Max Load(KG)	1000	1000	1000	1000	1000	1000
		Brake Torque(N·m)	6	6	6	6	6	6
Steering Data	Steering Motor	Rated Power(KW)	0.2	0.2	0.2	0.2	0.2	0.2
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	7	7	7	7	7	7
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	0.32	0.32	0.32	0.32	0.32	0.32
		Max Torque(N·m)	0.64	0.64	0.64	0.64	0.64	0.64
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C
	Slewing bearing & Reducer	Gear Z(n)	118	118	118	118	118	118
		Pinon Z(n)	20	20	20	20	20	20
		Reducer Ratio(i)	45	45	45	45	45	45
		Final Ratio(i)	265.5	265.5	265.5	265.5	265.5	265.5
		Max Steering Speed(°/sec)	67.80	67.80	67.80	67.80	67.80	67.80
		Max Steering Angle(°)	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	198	198	198	198	198	198
		Weight(KG)	21±3	21±3	21±3	21±3	21±3	21±3

2.6.3. TYD160 Series Wheel Drawings(Parts)



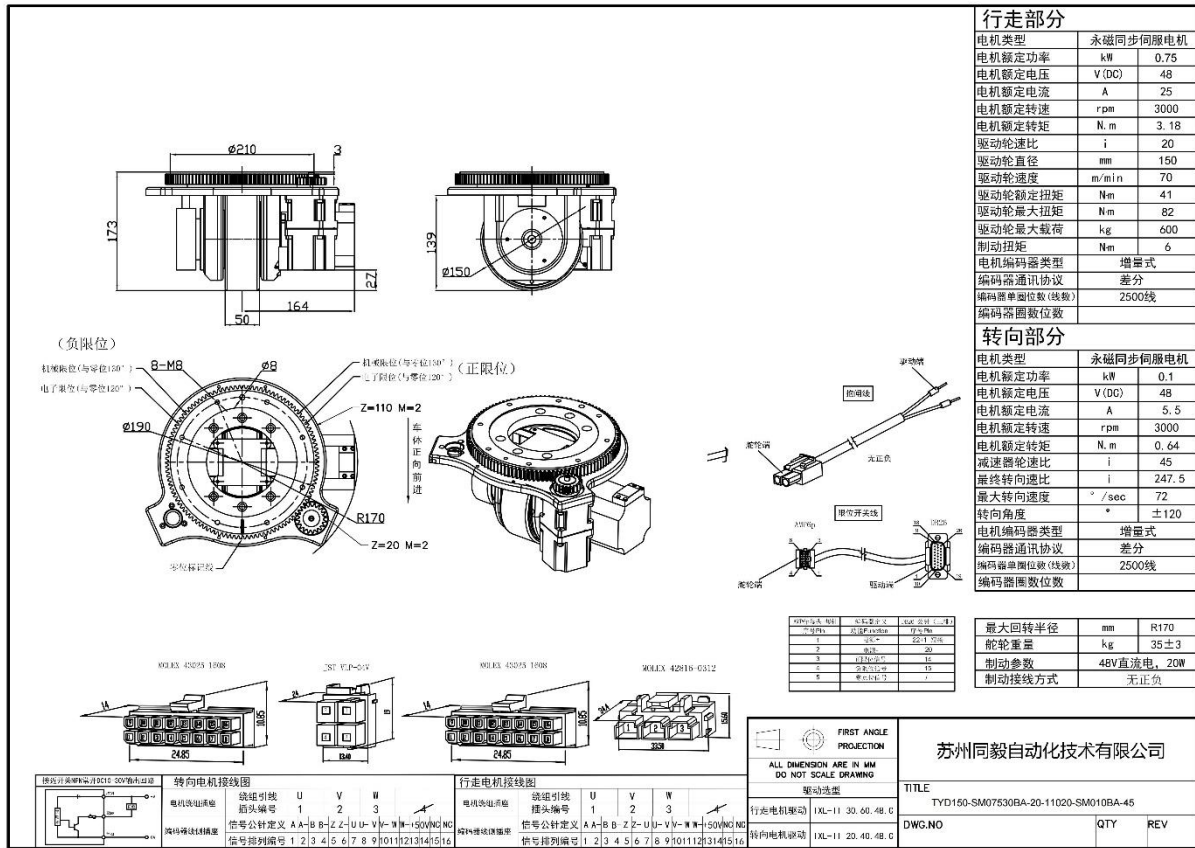
2.6.4. TYD150 Series Common Models

Wheel series			TYD150-SM04030BA-20		TYD150-SM04030BA-32		TYD150-SM07530BA-20	
			TYD150-SM04030BA-20-11020-SM010BA-10	TYD150-SM04030BA-20-11020-SM010BB-10	TYD150-SM04030BA-32-11020-SM010BA-10	TYD150-SM04030BA-32-11020-SM010BB-10	TYD150-SM07530BA-20-11020-SM010BA-45	TYD150-SM07530BA-20-11020-SM010BB-45
Traction data	Traction Motor	Rated Power(KW)	0.4	0.4	0.4	0.4	0.75	0.75
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	11	11	11	11	20	20
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	1.27	1.27	1.27	1.27	2.39	2.39
		Max Torque(N·m)	2.54	2.54	2.54	2.54	4.78	4.78
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C
	Drive Wheel	Gearbox Ratio(i)	20	20	32	32	20	20
		Diameter(mm)	150	150	150	150	150	150
		Speed(m/min)	70.65	70.65	44.15625	44.15625	70.65	70.65
		Nominal Torque(N·m)	21.59	21.59	34.544	34.544	40.63	40.63
		Max Torque(N·m)	43.18	43.18	69.09	69.09	81.26	81.26
		Max Load(KG)	600	600	600	600	600	600
		Brake Torque(N·m)	6	6	6	6	6	6
Steering Data	Steering Motor	Rated Power(KW)	0.1	0.1	0.1	0.1	0.1	0.1
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	6	6	6	6	4	4
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	0.64	0.64	0.64	0.64	0.32	0.32
		Max Torque(N·m)	1.28	1.28	1.28	1.28	0.64	0.64
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder (NRZ Mode)	Incremental Encoder(2500 lines)	Absolute Encoder (NRZ Mode)	Incremental Encoder(2500 lines)	Absolute Encoder (NRZ Mode)
		Recommended Driver	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C
	Slewing bearing & Reducer	Gear Z(n)	110	110	110	110	110	110
		Pinon Z(n)	20	20	20	20	20	20
		Reducer Ratio(i)	10	10	10	10	45	45
		Final Ratio(i)	55	55	55	55	247.5	247.5
		Max Steering Speed(°/sec)	327.27	327.27	327.27	327.27	72.73	72.73
		Max Steering Angle(°)	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	170	170	170	170	178	178
		Weight(KG)	21±3	21±3	21±3	21±3	21±3	21±3

Wheel series			TYD150-SM07530BA-32		TYD150-SM10030BA-20		TYD150-SM10030BA-32	
			TYD150-SM07530BA-32-11020-SM010BA-45	TYD150-SM07530BA-32-11020-SM010BB-45	TYD150-SM10030BA-20-11020-SM010BA-45	TYD150-SM10030BA-20-11020-SM010BB-45	TYD150-SM10030BA-32-11020-SM010BA-45	TYD150-SM10030BA-32-11020-SM010BB-45
Traction data	Traction Motor	Rated Power(KW)	0.75	0.75	1	1	1	1
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	20	20	27	27	27	27
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	2.39	2.39	3.2	3.2	3.2	3.2
		Max Torque(N·m)	4.78	4.78	6.4	6.4	6.4	6.4
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C
	Drive Wheel	Gearbox Ratio(i)	32	32	20	20	32	32
		Diameter(mm)	150	150	150	150	150	150
		Speed(m/min)	44.15625	44.15625	70.65	70.65	44.15625	44.15625
		Nominal Torque(N·m)	65.008	65.008	54.4	54.4	87.04	87.04
		Max Torque(N·m)	130.02	130.02	108.8	108.8	174.08	174.08
		Max Load(KG)	600	600	600	600	600	600
		Brake Torque(N·m)	6	6	6	6	6	6
Steering Data	Steering Motor	Rated Power(KW)	0.1	0.1	0.1	0.1	0.1	0.1
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	4	4	4	4	4	4
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	0.32	0.32	0.32	0.32	0.32	0.32
		Max Torque(N·m)	0.64	0.64	0.64	0.64	0.64	0.64
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder (NRZ Mode)	Incremental Encoder(2500 lines)	Absolute Encoder (NRZ Mode)	Incremental Encoder(2500 lines)	Absolute Encoder (NRZ Mode)
		Recommended Driver	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C
	Slewing bearing & Reducer	Gear Z(n)	110	110	110	110	110	110
		Pinon Z(n)	20	20	20	20	20	20
		Reducer Ratio(i)	45	45	45	45	45	45
		Final Ratio(i)	247.5	247.5	247.5	247.5	247.5	247.5
		Max Steering Speed(°/sec)	72.73	72.73	72.73	72.73	72.73	72.73
		Max Steering Angle(°)	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	178	178	185	185	185	185

Weight(KG)	21±3	21±3	21±3	21±3	21±3	21±3
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2.6.5. TYD150 Series Steering Wheel Drawings(Parts)



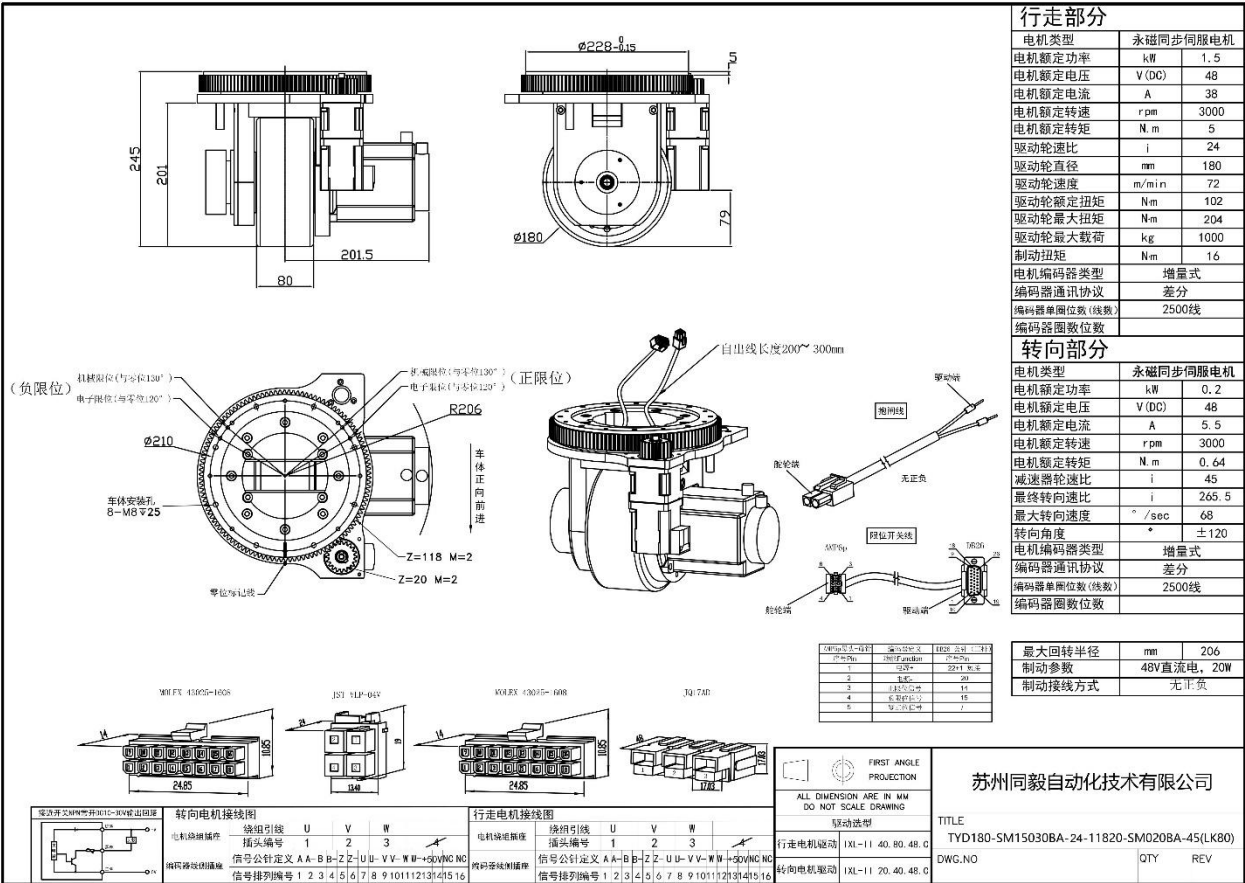
2.7. TYD180 Series Steering Wheel

2.7.1. TYD180 Series Wheel Introduction

- Wheel Diameter: 180mm
- Max Load: 1000KG
- Input Voltage Range: 24-560V
- Traction Motor Power: 1500W
- Traction Gear Common Ratio: 24
- Traction Motor Supports Dual Encoder, achieves up to PL=D, category 2 functional safety under EN ISO 13849-1

Wheel series			TYD180-SM15030BA-24-118					
			TYD180-SM15030BA-24-11820-SM020BA-45	TYD180-SM15030BA-24-11820-SM020BB-45	TYD180-SM15030BA-24-11820-SM020BC-45			
Traction data	Traction Motor	Rated Power(KW)	1.5	1.5	1.5			
		Battery Voltage(V)	48	48	48			
		Rated Current(A)	24	24	24			
		Rated Speed(rpm)	3000	3000	3000			
		Nominal Torque(N·m)	4.77	4.77	4.77			
		Max Torque(N·m)	9.54	9.54	9.54			
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)			
		Recommended Driver	IxLII 40.80.48.C	IxLII 40.80.48.C	IxLII 40.80.48.C			
	Drive Wheel	Gearbox Ratio(i)	24	24	24			
		Diameter(mm)	180	180	180			
		Speed(m/min)	70.65	70.65	70.65			
		Nominal Torque(N·m)	97.308	97.308	97.308			
		Max Torque(N·m)	194.62	194.62	194.616			
		Max Load(KG)	1000	1000	1000			
Brake Torque(N·m)		6	6	6				
Steering Data	Steering Motor	Rated Power(KW)	0.2	0.2	0.2			
		Battery Voltage(V)	48	48	48			
		Rated Current(A)	7	7	7			
		Rated Speed(rpm)	3000	3000	3000			
		Nominal Torque(N·m)	0.32	0.32	0.32			
		Max Torque(N·m)	0.64	0.64	0.64			
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)			
		Recommended Driver	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C			
	Slewing bearing &Reducer	Gear Z(n)	118	118	118			
		Pinon Z(n)	20	20	20			
		Reducer Ratio(i)	45	45	45			
		Final Ratio(i)	265.5	265.5	265.5			
		Max Steering Speed(°/sec)	67.80	67.80	67.80			
		Max Steering Angle(°)	±120	±120	±120			
Max Turning Radius(mm)		178	178	178				
	Weight(KG)	25±3	25±3	25±3				

2.7.3. TYD180 Series Steering Wheel Drawings(Parts)



2.8. TYD200 Series Steering Wheel

2.8.1. TYD200 Series Wheel Introduction

- **Wheel Diameter: 200mm**
- **Max Load: 1000KG/1500KG**
- **Input Voltage Range: 24-560V**
- **Traction Motor Power: 750W~3000W**
- **Traction Gear Common Ratio: 24/32/50**
- **Traction Motor Supports Dual Encoder, achieves up to PL=D, category 2 functional safety under EN ISO 13849-1**

2.8.2. TYD200 Series Common Models

Wheel series			TYD200-SM07530BA-50-118			TYD200-SM10030BA-50-98		
			TYD200-SM07530BA-50-11820-SM020BA-45	TYD200-SM07530BA-50-11820-SM020BB-45	TYD200-SM07530BA-50-11820-SM020BC-45	TYD200-SM10030BA-50-9814-SM040BA-45	TYD200-SM10030BA-50-9814-SM040BB-45	TYD200-SM10030BA-50-9814-SM040BC-45
Traction data	Traction Motor	Rated Power(KW)	0.75	0.75	0.75	1	1	1
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	22	22	22	29	29	29
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	2.4	2.4	2.4	3.2	3.2	3.2
		Max Torque(N·m)	4.8	4.8	4.8	6.4	6.4	6.4
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII30.60.48.C	IxLII30.60.48.C	IxLII30.60.48.C	IxLII30.60.48.C	IxLII30.60.48.C	IxLII30.60.48.C
	Drive Wheel	Gearbox Ratio(i)	50	50	50	50	50	50
		Diameter(mm)	200	200	200	200	200	200
		Speed(m/min)	37.68	37.68	37.68	37.68	37.68	37.68
		Nominal Torque(N·m)	102.0	102.0	102.0	136.0	136.0	136.0
		Max Torque(N·m)	204.0	204.0	204.0	272.0	272.0	272.0
		Max Load(KG)	1000	1000	1000	1500	1500	1500
		Brake Torque(N·m)	16	16	16	16	16	16
Steering Data	Steering Motor	Rated Power(KW)	0.2	0.2	0.2	0.4	0.4	0.4
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	7	7	7	11	11	11
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	0.64	0.64	0.64	1.28	1.28	1.28
		Max Torque(N·m)	1.28	1.28	1.28	2.56	2.56	2.56
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C
	Slewing bearing & Reducer	Gear Z(n)	118	118	118	98	98	98
		Pinon Z(n)	20	20	20	14	14	14
		Reducer Ratio(i)	45	45	45	45	45	45
		Final Ratio(i)	265.5	265.5	265.5	220.5	220.5	220.5
		Max Steering Speed(°/sec)	67.80	67.80	67.80	57.14	57.14	57.14
		Max Steering Angle(°)	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	212	212	212	212	212	212
		Weight(KG)	43±3	43±3	43±3	43±3	43±3	43±3

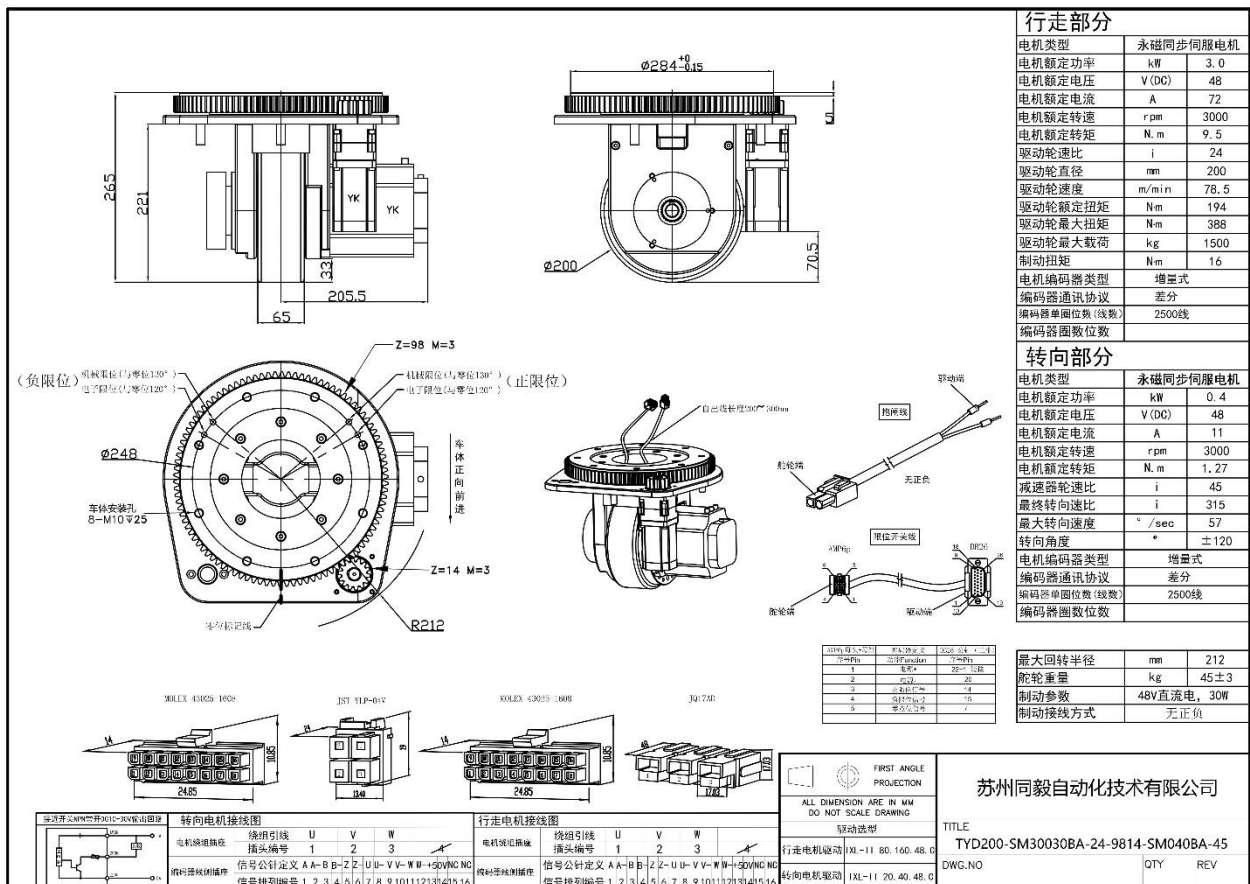
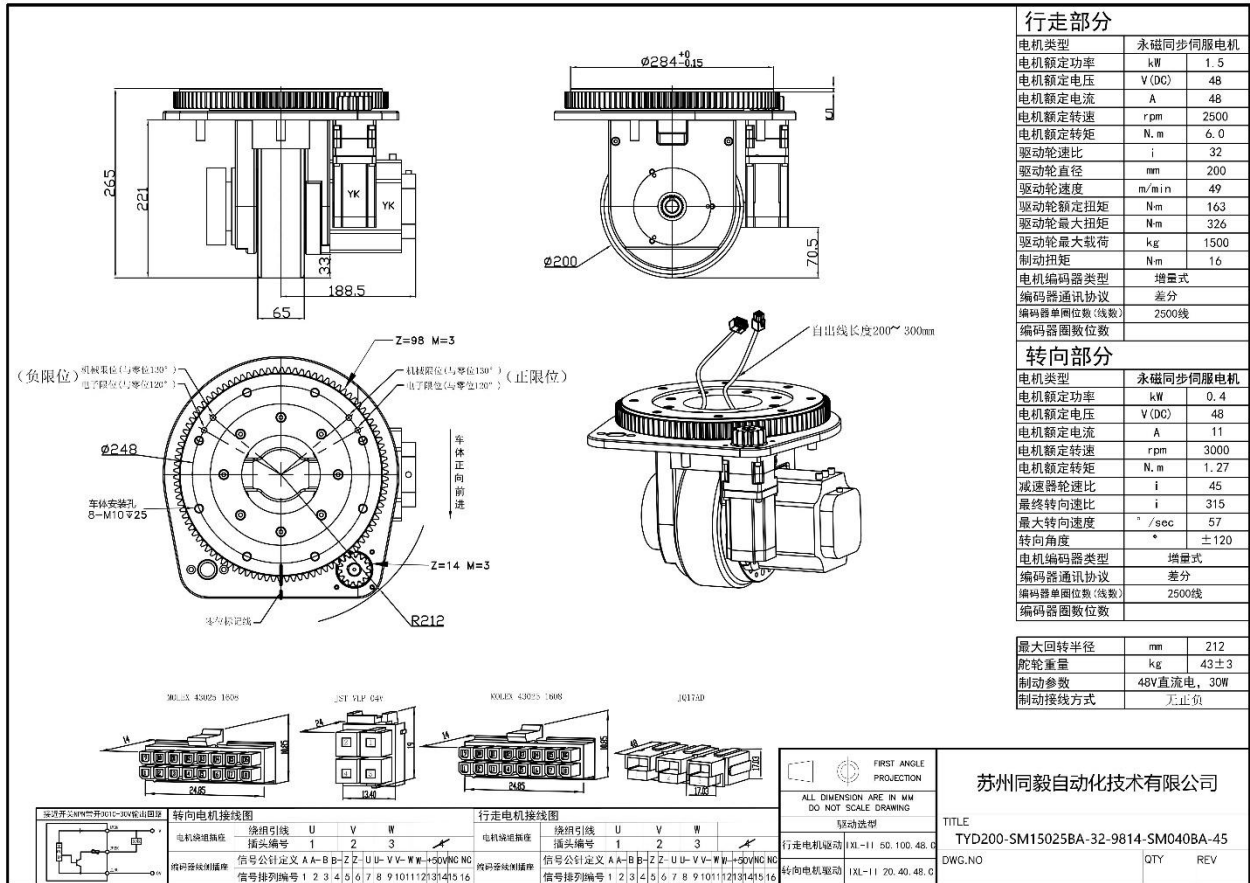
Wheel series			TYD200-SM10020BA-24-118			TYD200-SM10020AA-24-118		
			TYD200-SM10020BA-24-11820-SM020BA-45	TYD200-SM10020BA-24-11820-SM020BB-45	TYD200-SM10020BA-24-11820-SM020BC-45	TYD200-SM10020AA-24-11820-SM020AA-45	TYD200-SM10020AA-24-11820-SM020AB-45	TYD200-SM10020AA-24-11820-SM020AC-45
Traction data	Traction Motor	Rated Power(KW)	1	1	1	1	1	1
		Battery Voltage(V)	48	48	48	24	24	24
		Rated Current(A)	29	29	29	57	57	57
		Rated Speed(rpm)	2000	2000	2000	2000	2000	2000
		Nominal Torque(N-m)	4.77	4.77	4.77	4.77	4.77	4.77
		Max Torque(N-m)	9.54	9.54	9.54	9.54	9.54	9.54
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 40.80.48.C	IxLII 40.80.48.C	IxLII 40.80.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C
	Drive Wheel	Gearbox Ratio(i)	24	24	24	24	24	24
		Diameter(mm)	200	200	200	200	200	200
		Speed(m/min)	52.33	52.33	52.33	52.33	52.33	52.33
		Nominal Torque(N-m)	97.3	97.3	97.3	97.3	97.3	97.3
		Max Torque(N-m)	194.6	194.6	194.6	194.6	194.6	194.6
		Max Load(KG)	1000	1000	1000	1000	1000	1000
		Brake Torque(N-m)	16	16	16	16	16	16
Steering Data	Steering Motor	Rated Power(KW)	0.2	0.2	0.2	0.2	0.2	0.2
		Battery Voltage(V)	48	48	48	24	24	24
		Rated Current(A)	7	7	7	11	11	11
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N-m)	1.28	1.28	1.28	1.28	1.28	1.28
		Max Torque(N-m)	2.56	2.56	2.56	2.56	2.56	2.56
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C
	Slewing bearing & Reducer	Gear Z(n)	118	118	118	118	118	118
		Pinon Z(n)	20	20	20	20	20	20
		Reducer Ratio(i)	45	45	45	45	45	45
		Final Ratio(i)	265.5	265.5	265.5	265.5	265.5	265.5
		Max Steering Speed("/sec)	67.80	67.80	67.80	67.80	67.80	67.80
		Max Steering Angle(")	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	212	212	212	212	212	212
		Weight(KG)	43±3	43±3	43±3	43±3	43±3	43±3

Wheel series			TYD200-SM10020BA-32-118			TYD200-SM15030BA-24-98		
			TYD200-SM10020BA-32-11820-SM020BA-45	TYD200-SM10020BA-32-11820-SM020BB-45	TYD200-SM10020BA-32-11820-SM020BC-45	TYD200-SM15030BA-24-9814-SM040BA-45	TYD200-SM15030BA-24-9814-SM040BB-45	TYD200-SM15030BA-24-9814-SM040BC-45
Traction data	Traction Motor	Rated Power(KW)	1	1	1	1.5	1.5	1.5
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	29	29	29	39	39	39
		Rated Speed(rpm)	2000	2000	2000	3000	3000	3000
		Nominal Torque(N-m)	4.77	4.77	4.77	4.77	4.77	4.77
		Max Torque(N-m)	9.54	9.54	9.54	9.54	9.54	9.54
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 40.80.48.C	IxLII 40.80.48.C	IxLII 40.80.48.C
	Drive Wheel	Gearbox Ratio(i)	32	32	32	24	24	24
		Diameter(mm)	200	200	200	200	200	200
		Speed(m/min)	39.25	39.25	39.25	78.50	78.50	78.50
		Nominal Torque(N-m)	129.7	129.7	129.7	97.3	97.3	97.3
		Max Torque(N-m)	259.5	259.5	259.5	194.6	194.6	194.6
		Max Load(KG)	1000	1000	1000	1500	1500	1500
		Brake Torque(N-m)	16	16	16	16	16	16
Steering Data	Steering Motor	Rated Power(KW)	0.2	0.2	0.2	0.4	0.4	0.4
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	7	7	7	11	11	11
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N-m)	1.28	1.28	1.28	1.28	1.28	1.28
		Max Torque(N-m)	2.56	2.56	2.56	2.56	2.56	2.56
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C
	Slewing bearing & Reducer	Gear Z(n)	118	118	118	98	98	98
		Pinon Z(n)	20	20	20	14	14	14
		Reducer Ratio(i)	45	45	45	45	45	45
		Final Ratio(i)	265.5	265.5	265.5	220.5	220.5	220.5
		Max Steering Speed("/sec)	67.80	67.80	67.80	57.14	57.14	57.14
		Max Steering Angle(")	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	212	212	212	212	212	212
		Weight(KG)	43±3	43±3	43±3	43±3	43±3	43±3

Wheel series			TYD200-SM15030BA-32-98			TYD200-SM15025BA-24-98		
			TYD200-SM15030BA-32-9814-SM040BA-45	TYD200-SM15030BA-32-9814-SM040BB-45	TYD200-SM15030BA-32-9814-SM040BC-45	TYD200-SM15025BA-24-9814-SM040BA-45	TYD200-SM15025BA-24-9814-SM040BB-45	TYD200-SM15025BA-24-9814-SM040BC-45
Traction data	Traction Motor	Rated Power(KW)	1.5	1.5	1.5	1.5	1.5	1.5
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	39	39	39	39	39	39
		Rated Speed(rpm)	3000	3000	3000	2500	2500	2500
		Nominal Torque(N·m)	4.77	4.77	4.77	6	6	6
		Max Torque(N·m)	9.54	9.54	9.54	12	12	12
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 40.80.48.C	IxLII 40.80.48.C	IxLII 40.80.48.C	IxLII 40.80.48.C	IxLII 40.80.48.C	IxLII 40.80.48.C
	Drive Wheel	Gearbox Ratio(i)	32	32	32	24	24	24
		Diameter(mm)	200	200	200	200	200	200
		Speed(m/min)	58.88	58.88	58.88	65.42	65.42	65.42
		Nominal Torque(N·m)	129.7	129.7	129.7	122.4	122.4	122.4
		Max Torque(N·m)	259.5	259.5	259.5	244.8	244.8	244.8
		Max Load(KG)	1500	1500	1500	1500	1500	1500
		Brake Torque(N·m)	16	16	16	16	16	16
Steering Data	Steering Motor	Rated Power(KW)	0.4	0.4	0.4	0.4	0.4	0.4
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	11	11	11	11	11	11
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	1.28	1.28	1.28	1.28	1.28	1.28
		Max Torque(N·m)	2.56	2.56	2.56	2.56	2.56	2.56
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C
	Slewing bearing & Reducer	Gear Z(n)	98	98	98	98	98	98
		Pinon Z(n)	14	14	14	14	14	14
		Reducer Ratio(i)	45	45	45	45	45	45
		Final Ratio(i)	220.5	220.5	220.5	220.5	220.5	220.5
		Max Steering Speed("/sec)	57.14	57.14	57.14	57.14	57.14	57.14
		Max Steering Angle(")	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	212	212	212	212	212	212
		Weight(KG)	43±3	43±3	43±3	43±3	43±3	43±3

Wheel series			TYD200-SM15025BA-32-98			TYD200-SM30030BA-24-98		
			TYD200-SM15025BA-32-9814-SM040BA-45	TYD200-SM15025BA-32-9814-SM040BB-45	TYD200-SM15025BA-32-9814-SM040BC-45	TYD200-SM30030BA-24-9814-SM040BA-45	TYD200-SM30030BA-24-9814-SM040BB-45	TYD200-SM30030BA-24-9814-SM040BC-45
Traction data	Traction Motor	Rated Power(KW)	1.5	1.5	1.5	3	1.5	1.5
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	39	39	39	72	72	72
		Rated Speed(rpm)	2500	2500	2500	3000	3000	3000
		Nominal Torque(N·m)	6	6	6	9.5	9.5	9.5
		Max Torque(N·m)	12	12	12	19	19	19
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 40.80.48.C	IxLII 40.80.48.C	IxLII 40.80.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C
	Drive Wheel	Gearbox Ratio(i)	32	32	32	24	24	24
		Diameter(mm)	200	200	200	200	200	200
		Speed(m/min)	49.06	49.06	49.06	78.50	78.50	78.50
		Nominal Torque(N·m)	163.2	163.2	163.2	193.8	193.8	193.8
		Max Torque(N·m)	326.4	326.4	326.4	387.6	387.6	387.6
		Max Load(KG)	1500	1500	1500	1500	1500	1500
		Brake Torque(N·m)	16	16	16	16	16	16
Steering Data	Steering Motor	Rated Power(KW)	0.4	0.4	0.4	0.4	0.4	0.4
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	11	11	11	11	11	11
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	1.28	1.28	1.28	1.28	1.28	1.28
		Max Torque(N·m)	2.56	2.56	2.56	2.56	2.56	2.56
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C
	Slewing bearing & Reducer	Gear Z(n)	98	98	98	98	98	98
		Pinon Z(n)	14	14	14	14	14	14
		Reducer Ratio(i)	45	45	45	45	45	45
		Final Ratio(i)	220.5	220.5	220.5	220.5	220.5	220.5
		Max Steering Speed("/sec)	57.14	57.14	57.14	57.14	57.14	57.14
		Max Steering Angle(")	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	212	212	212	212	212	212
		Weight(KG)	43±3	43±3	43±3	43±3	43±3	43±3

2.8.3. TYD200 Series Steering Wheel Drawings(Parts)



2.9. TYD210 Series Steering Wheel

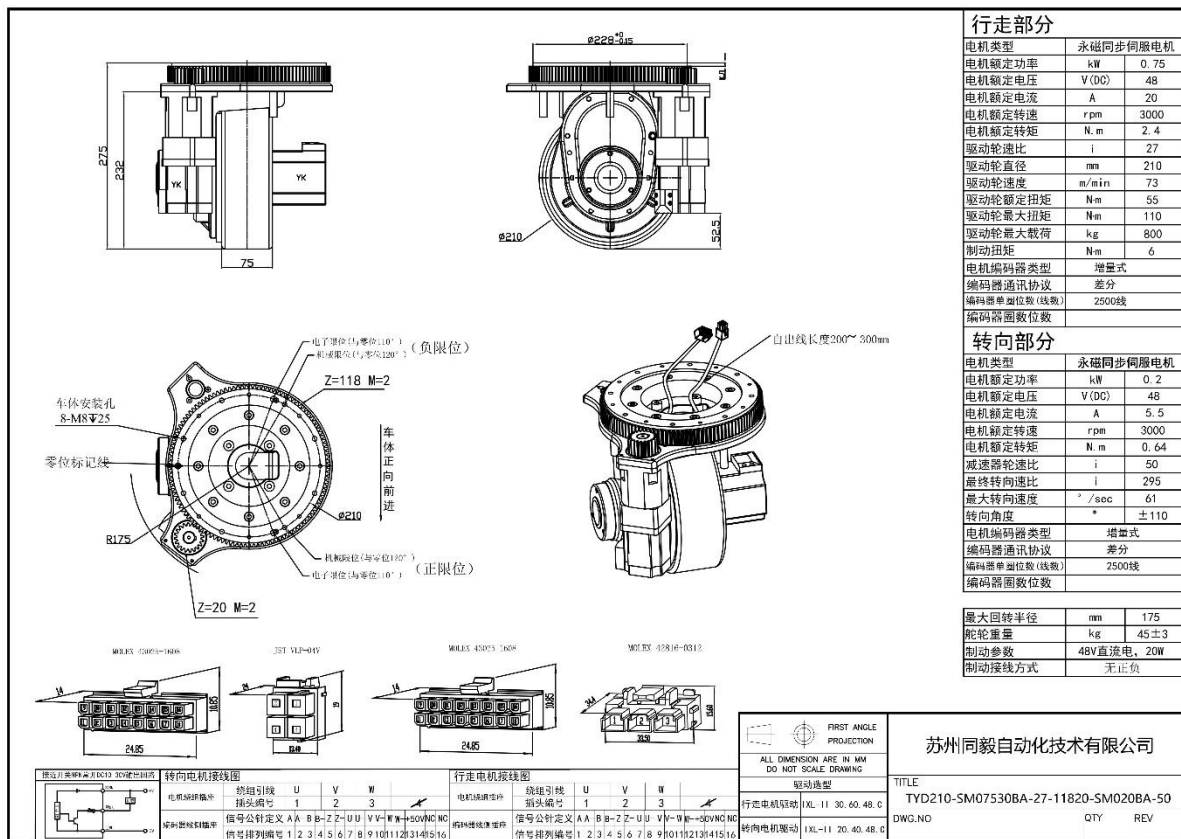
2.9.1. TYD210 Series Steering Wheel

- **Wheel Diameter: 210mm**
- **Max Load: 800KG**
- **Input Voltage Range: 24-560V**
- **Traction Motor Power: 750W/1000W**
- **Traction Gear Common Ratio: 24/27/44**
- **Traction Motor Supports Dual Encoder, achieves up to PL=D, category 2 functional safety under EN ISO 13849-1**

2.9.2. TYD210 Series Common Models

Wheel series			TYD210-SM075030BA-27			TYD210-SM075030AA-27		
			TYD210-SM075030BA-27-11820-SM020BA-50	TYD210-SM075030BA-27-11820-SM020BB-50	TYD210-SM075030BA-27-11820-SM020BC-50	TYD210-SM075030AA-27-11820-SM020AA-50	TYD210-SM075030AA-27-11820-SM020AB-50	TYD200-SM075030AA-27-11820-SM020AC-50
Traction data	Traction Motor	Rated Power(KW)	0.75	0.75	0.75	0.75	0.75	0.75
		Battery Voltage(V)	48	48	48	24	24	24
		Rated Current(A)	20	20	20	37	37	37
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	2.39	2.39	2.39	2.39	2.39	2.39
		Max Torque(N·m)	4.78	4.78	4.78	4.78	4.78	4.78
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C
	Drive Wheel	Gearbox Ratio(i)	27	27	27	27	27	27
		Diameter(mm)	210	210	210	210	210	210
		Speed(m/min)	73.27	73.27	73.27	73.27	73.27	73.27
		Nominal Torque(N·m)	54.9	54.9	54.9	54.9	54.9	54.9
		Max Torque(N·m)	109.7	109.7	109.7	109.7	109.7	109.7
		Max Load(KG)	800	800	800	800	800	800
		Brake Torque(N·m)	6	6	6	6	6	6
Steering Data	Steering Motor	Rated Power(KW)	0.2	0.2	0.2	0.2	0.2	0.2
		Battery Voltage(V)	48	48	48	24	24	24
		Rated Current(A)	6	6	6	11	11	11
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	0.64	0.64	0.64	0.64	0.64	0.64
		Max Torque(N·m)	1.28	1.28	1.28	1.28	1.28	1.28
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C
	Slewing bearing & Reducer	Gear Z(n)	118	118	118	118	118	118
		Pinon Z(n)	20	20	20	20	20	20
		Reducer Ratio(i)	50	50	50	50	50	50
		Final Ratio(i)	295	295	295	295	295	295
		Max Steering Speed(°/sec)	61.02	61.02	61.02	61.02	61.02	61.02
		Max Steering Angle(°)	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	175	175	175	175	175	175
		Weight(KG)	45±3	45±3	45±3	45±3	45±3	45±3

2.9.3. TYD210 Series Steering Wheel Drawings(Parts)



2.10. TYSD210 Series Dual Differential Steering Wheel

2.10.1. TYSD210 Series Wheel Introduction

- Wheel Diameter: 210mm(Dual Differential Wheel)
- Max Load: 2000KG
- Input Voltage Range: 24-560V
- Traction Motor Power: 1000W~1500W
- Traction Gear Common Ratio: 24
- Traction Motor Supports Dual Encoder, achieves up to PL=D, category 2 functional safety under EN ISO 13849-1

2.10.2. TYSD210 Series Common Models

行走部分

电机类型	永磁同步伺服电机
电机额定功率	kW 1.5
电机额定电压	V(DC) 48
电机额定电流	A 39
电机额定转速	rpm 3000
电机额定转矩	N.m 4.77
驱动轮速比	i 24
驱动轮直径	mm 210
驱动轮速度	m/min 82
驱动轮额定扭矩	N.m 97
驱动轮最大扭矩	N.m 194
驱动轮最大载荷	kg 2000
电机编码器类型	增量式
编码器通讯协议	差分
编码器单圈位数(线数)	2500线
编码器圈数位数	

转向部分

电机类型	永磁同步伺服电机
电机额定功率	kW 0.4
电机额定电压	V(DC) 48
电机额定电流	A 11
电机额定转速	rpm 3000
电机额定转矩	N.m 1.27
减速器速比	i 45
最终转向速比	i 255
最大转向速度	° /sec 70
转向角度	° ±120
电机编码器类型	增量式
编码器通讯协议	差分
编码器单圈位数(线数)	2500线
编码器圈数位数	

WJLEX 4302S-1E08 JST VLF-04V WJLEX 4302S-1908 JQ17AD

WJLEX 4302S-1E08 JST VLF-04V WJLEX 4302S-1908 JQ17AD

行走电机接线图		转向电机接线图	
电机绕组接法	绕阻引线 插头编号 U 1 V 2 W 3	电机绕组接法	绕阻引线 插头编号 U 1 V 2 W 3
信号公针定义	AA-B-B-Z-Z-U-U-V-V-W-W-50V-GND-NC	信号公针定义	AA-B-B-Z-Z-U-U-V-V-W-W-50V-GND-NC
信号排列编号	1 2 3 4 5 6 7 8 9 10 11 12 3H 4H 5H 6H	信号排列编号	1 2 3 4 5 6 7 8 9 10 11 12 3H 4H 5H 6H

最大回转半径	mm	412.5
舵轮重量	kg	
制动参数		
制动接线方式	无正负	

苏州同毅自动化技术有限公司	
TITLE	TYSD210-SM15030BA-24-10218-SM040BA-45
DWG.NO	QTY REV

2.11. TYD220 Series Steering Wheel

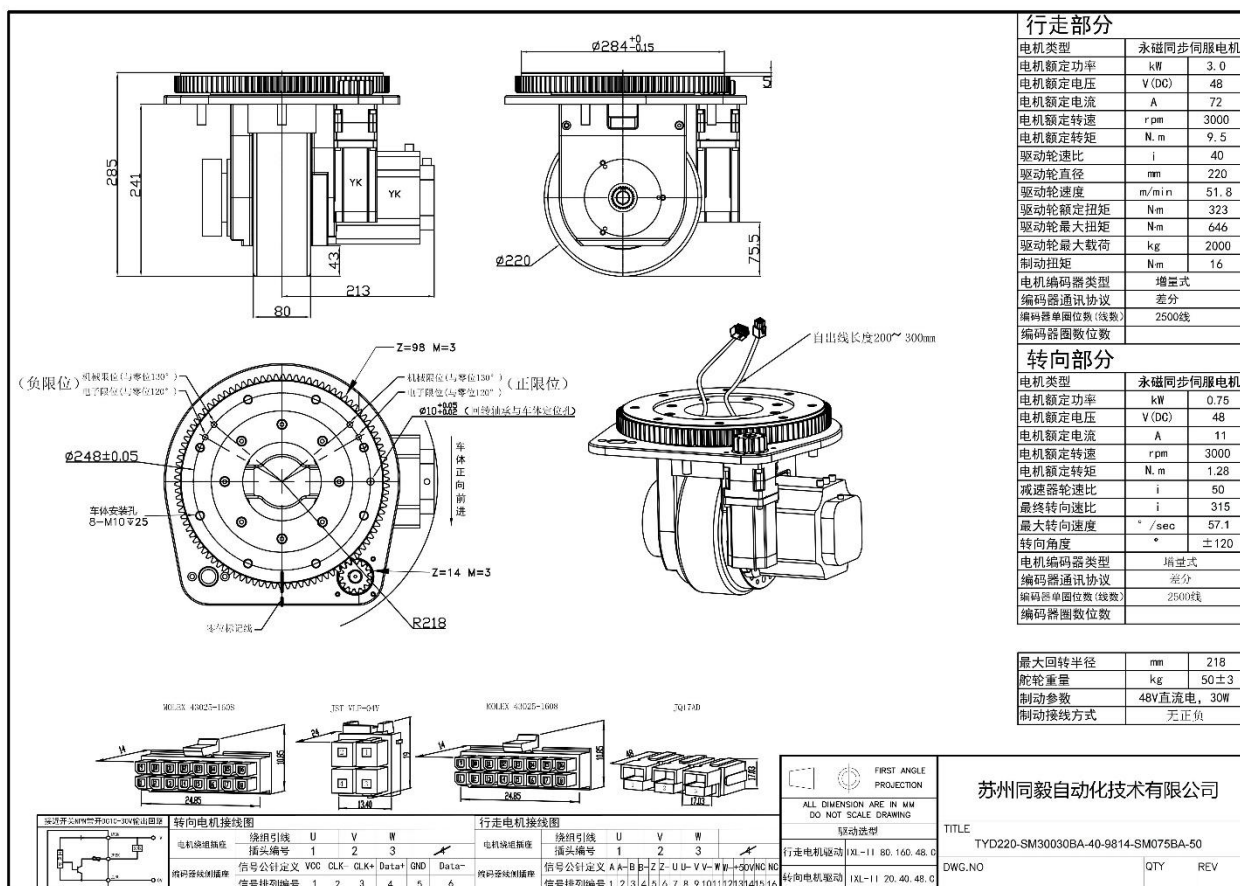
2.11.1. TYD220 Steering Wheel Introduction

- **Wheel Diameter: 220mm**
- **Max Load: 2000KG**
- **Input Voltage Range: 24-560V**
- **Traction Motor Power: 1000W~3000W**
- **Traction Gear Common Ratio: 40**
- **Traction Motor Supports Dual Encoder, achieves up to PL=D, category 2 functional safety under EN ISO 13849-1**

2.11.2. TYD220 Series Common Models

Wheel series			TYD220-SM30030BA-40					
			TYD220-SM30030BA-40-9814-SM040BA-45	TYD220-SM30030BA-40-9814-SM040BB-45	TYD220-SM30030BA-40-9814-SM040BC-45	TYD220-SM30030BA-40-9814-SM075BA-50	TYD220-SM30030BA-40-9814-SM075BB-50	TYD220-SM30030BA-40-9814-SM075BC-50
Traction data	Traction Motor	Rated Power(KW)	3	3	3	3	3	3
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	72	72	72	72	72	72
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N-m)	9.5	9.5	9.5	9.5	9.5	9.5
		Max Torque(N-m)	19	19	19	19	19	19
		Encoder Type	Incremental Encoder(2500)	Incremental Encoder(2500)	Incremental Encoder(2500 lines)	Incremental Encoder(2500)	Incremental Encoder(2500)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 80.160.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C
	Drive Wheel	Gearbox Ratio(i)	40	40	40	40	40	40
		Diameter(mm)	220	220	220	220	220	220
		Speed(m/min)	51.81	51.81	51.81	51.81	51.81	51.81
		Nominal Torque(N-m)	323.0	323.0	323.0	323.0	323.0	323.0
		Max Torque(N-m)	646.0	646.0	646.0	646.0	646.0	646.0
		Max Load(KG)	2000	2000	2000	2000	2000	2000
		Brake Torque(N-m)	16	16	16	16	16	16
		Rated Power(KW)	0.4	0.4	0.4	0.75	0.75	0.75
Steering Data	Steering Motor	Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	11	11	11	20	20	20
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N-m)	1.28	1.28	1.28	2.38	2.38	2.38
		Max Torque(N-m)	2.56	2.56	2.56	4.76	4.76	4.76
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C
	Slewing bearing & Reducer	Gear Z(n)	98	98	98	98	98	98
		Pinon Z(n)	14	14	14	14	14	14
		Reducer Ratio(i)	45	45	45	50	50	50
		Final Ratio(i)	220.5	220.5	220.5	245	245	245
		Max Steering Speed(°/sec)	57.14	57.14	57.14	51.43	51.43	51.43
		Max Steering Angle(°)	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	212	212	212	212	212	212
		Weight(KG)	50	50	50	50	50	50

2.11.3. TYD220 Series Steering Wheel Drawings(Parts)



2.12. TYLD230 Series Vertical Steering Wheel

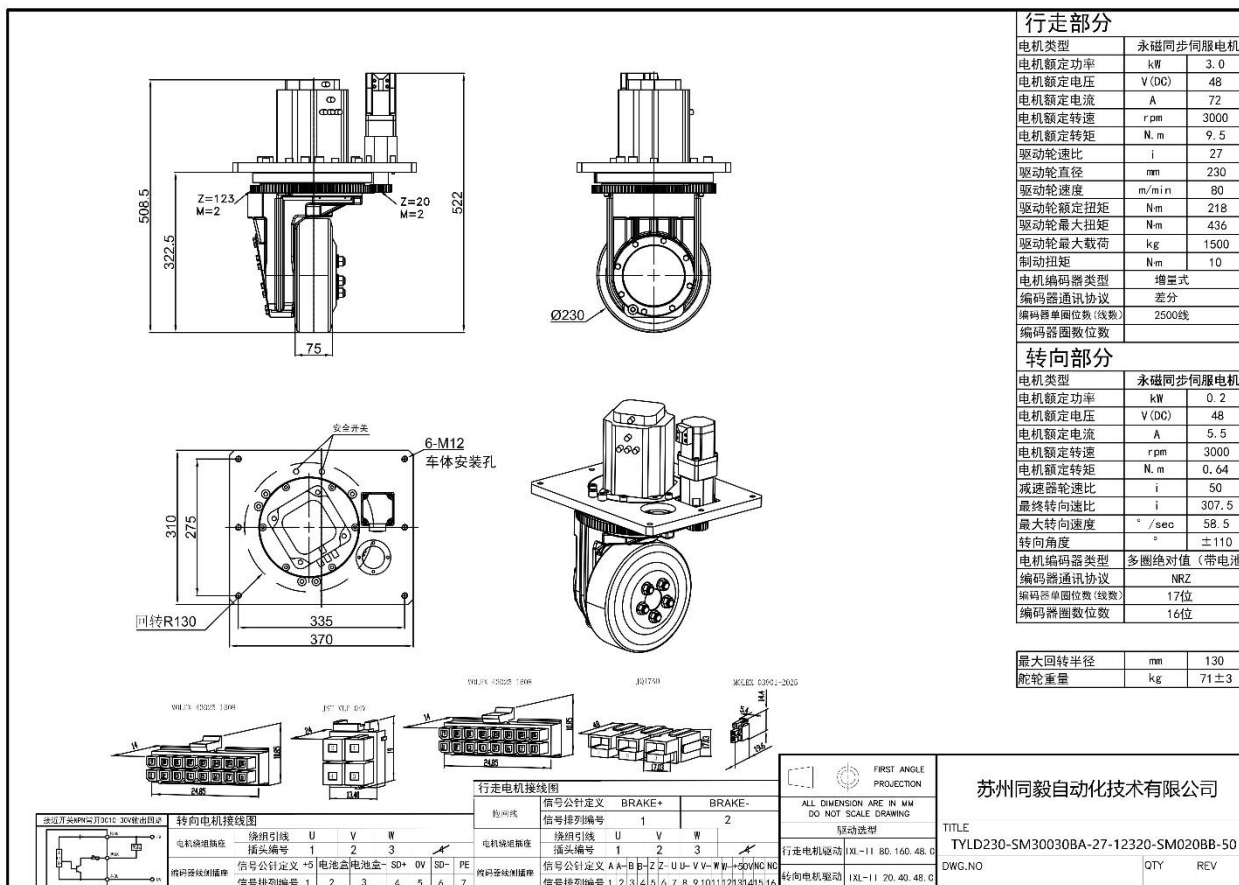
2.12.1. TYLD230 Vertical Steering Wheel Introduction

- **Wheel Diameter: 230mm**
- **Max Load: 1500KG**
- **Input Voltage Range: 24-560V**
- **Traction Motor Power: 1000W~3000W**
- **Traction Gear Common Ratio: 22/27**
- **Traction Motor Supports Dual Encoder, achieves up to PL=D, category 2 functional safety under EN ISO 13849-1**

2.12.2. TYLD230 Series Common Models

Wheel series			TYLD230-SM30030BA-22			TYD230-SM30030BA-27		
			TYLD230-SM30030BA-22-12320-SM020BA-50	TYLD230-SM30030BA-22-12320-SM020BB-50	TYLD230-SM30030BA-22-12320-SM020BC-50	TYLD230-SM30030BA-22-12320-SM020BA-50	TYLD230-SM30030BA-22-12320-SM020BB-50	TYLD230-SM30030BA-22-12320-SM040BC-50
Traction data	Traction Motor	Rated Power(KW)	3	3	3	3	3	3
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	72	72	72	72	72	72
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	9.5	9.5	9.5	9.5	9.5	9.5
		Max Torque(N·m)	19	19	19	19	19	19
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
	Recommended Driver	IxLII 80.160.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C	
	Drive Wheel	Gearbox Ratio(i)	22	22	22	27	27	27
		Diameter(mm)	230	230	230	230	230	230
		Speed(m/min)	98.48	98.48	98.48	80.24	80.24	80.24
		Nominal Torque(N·m)	146.3	146.3	146.3	179.6	179.6	179.6
		Max Torque(N·m)	292.6	292.6	292.6	359.1	359.1	359.1
		Max Load(KG)	1500	1500	1500	1500	1500	1500
Brake Torque(N·m)		16	16	16	16	16	16	
Steering Data	Steering Motor	Rated Power(KW)	0.4	0.4	0.4	0.4	0.4	0.4
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	11	11	11	11	11	11
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	1.28	1.28	1.28	1.28	1.28	1.28
		Max Torque(N·m)	2.56	2.56	2.56	2.56	2.56	2.56
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
	Recommended Driver	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	
	Slewing bearing & Reducer	Gear Z(n)	123	123	123	123	123	123
		Pinon Z(n)	20	20	20	20	20	20
		Reducer Ratio(i)	50	50	50	50	50	50
		Final Ratio(i)	307.5	307.5	307.5	307.5	307.5	307.5
		Max Steering Speed(°/sec)	58.54	58.54	58.54	58.54	58.54	58.54
		Max Steering Angle(°)	360	360	360	360	360	360
Max Turning Radius(mm)		130	130	130	130	130	130	
	Weight(KG)	80±3	80±3	80±3	80±3	80±3	80±3	

2.12.3. TYLD230 Series Steering Wheel Drawings(Parts)



2.13. TYSD230 Series Dual Differential Steering Wheel

2.13.1. TYSD230 Dual Differential Steering Wheel Introduction

- **Wheel Diameter: 230mm(dual Differential Wheel)**
- **Max Load: 2000KG**
- **Input Voltage Range: 24-560V**
- **Traction Motor Power: 1000W~3000W**
- **Traction Gear Common Ratio: 24**
- **Traction Motor Supports Dual Encoder, achieves up to PL=D, category 2 functional safety under EN ISO 13849-1**

2.13.2. TYSD230 Series Common Models

Wheel Series			TYSD230-SM15030BA-24					
			TYSD230-SM15030BA-24-10218-SM040BA-50					
Traction data	Traction Motor	Rated Power(KW)	1500					
		Battery Voltage(V)	48					
		Rated Current(A)	39					
		Rated Speed(rpm)	3000					
		Nominal Torque(N-m)	4.77					
		Max Torque(N-m)	9.54					
		Encoder Type	Incremental Encoder(2500 lines)					
		Recommended Driver	IxLII 40.80.48.C					
	Drive Wheel	Gearbox Ratio(i)	24					
		Diameter(mm)	230					
		Speed(m/min)	90.28					
		Nominal Torque(N-m)	97.31					
		Max Torque(N-m)	194.62					
		Max Load(KG)	2000					
		Brake Torque(N-m)	16					
Steering Data	Steering Motor	Rated Power(KW)	0.4					
		Battery Voltage(V)	48					
		Rated Current(A)	11					
		Rated Speed(rpm)	3000					
		Nominal Torque(N-m)	1.28					
		Max Torque(N-m)	2.56					
		Encoder Type	Incremental Encoder(2500 lines)					
		Recommended Driver	IxLII 20.40.48.C					
	Slewing bearing & Reducer	Gear Z(n)	102					
		Pinon Z(n)	18					
		Reducer Ratio(i)	50					
		Final Ratio(i)	255					
		Max Steering Speed("/sec)	63.53					
		Max Steering Angle(°)	±120					
		Max Turning Radius(mm)	207					
		Weight(KG)	45±3					

2.14. TYD250 Series Steering Wheel

2.14.1. TYD250 Series Wheel Introduction

- **Wheel Diameter: 250mm**
- **Max Load: 1000KG/1500KG**
- **Input Voltage Range: 24-560V**
- **Traction Motor Power: 1000W~3000W**
- **Traction Gear Common Ratio: 24/31.5/32/50**
- **Traction Motor Supports Dual Encoder, achieves up to PL=D, category 2 functional safety under EN ISO 13849-1**

2.14.2. TYD250 Series Common Models

Wheel series			TYD250-SM07530BA-50-118			TYD250-SM10030BA-50-98		
			TYD250-SM07530BA-50-11820-SM020BA-45	TYD250-SM07530BA-50-11820-SM020BB-45	TYD250-SM07530BA-50-11820-SM020BC-45	TYD250-SM10030BA-50-9814-SM040BA-45	TYD250-SM10030BA-50-9814-SM040BB-45	TYD250-SM10030BA-50-9814-SM040BC-45
Traction data	Traction Motor	Rated Power(KW)	0.75	0.75	0.75	1	1	1
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	22	22	22	29	29	29
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	2.4	2.4	2.4	3.2	3.2	3.2
		Max Torque(N·m)	4.8	4.8	4.8	6.4	6.4	6.4
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 30.60.48.C	IxLII30.60.48.C	IxLII30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C
	Drive Wheel	Gearbox Ratio(i)	50	50	50	50	50	50
		Diameter(mm)	250	250	250	250	250	250
		Speed(m/min)	47.10	47.10	47.10	47.10	47.10	47.10
		Nominal Torque(N·m)	102.0	102.0	102.0	136.0	136.0	136.0
		Max Torque(N·m)	204.0	204.0	204.0	272.0	272.0	272.0
		Max Load(KG)	1000	1000	1000	1500	1500	1500
		Brake Torque(N·m)	16	16	16	16	16	16
Steering Data	Steering Motor	Rated Power(KW)	0.2	0.2	0.2	0.4	0.4	0.4
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	7	7	7	11	11	11
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	0.64	0.64	0.64	1.28	1.28	1.28
		Max Torque(N·m)	1.28	1.28	1.28	2.56	2.56	2.56
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C
	Slewing bearing & Reducer	Gear Z(n)	118	118	118	98	98	98
		Pinon Z(n)	20	20	20	14	14	14
		Reducer Ratio(i)	45	45	45	45	45	45
		Final Ratio(i)	265.5	265.5	265.5	220.5	220.5	220.5
		Max Steering Speed(°/sec)	67.80	67.80	67.80	57.14	57.14	57.14
		Max Steering Angle(°)	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	212	212	212	212	212	212
		Weight(KG)	43±3	43±3	43±3	43±3	43±3	43±3

Wheel series			TYD250-SM10020BA-24-118			TYD250-SM10020AA-24-118		
			TYD250-SM10020BA-24-11820-SM020BA-45	TYD250-SM10020BA-24-11820-SM020BB-45	TYD250-SM10020BA-24-11820-SM020BC-45	TYD250-SM10020AA-24-11820-SM020AA-45	TYD250-SM10020AA-24-11820-SM020AB-45	TYD250-SM10020AA-24-11820-SM020AC-45
Traction data	Traction Motor	Rated Power(KW)	1	1	1	1	1	1
		Battery Voltage(V)	48	48	48	24	24	24
		Rated Current(A)	29	29	29	57	57	57
		Rated Speed(rpm)	2000	2000	2000	2000	2000	2000
		Nominal Torque(N-m)	4.77	4.77	4.77	4.77	4.77	4.77
		Max Torque(N-m)	9.54	9.54	9.54	9.54	9.54	9.54
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C
	Drive Wheel	Gearbox Ratio(i)	24	24	24	24	24	24
		Diameter(mm)	250	250	250	250	250	250
		Speed(m/min)	65.42	65.42	65.42	65.42	65.42	65.42
		Nominal Torque(N-m)	97.3	97.3	97.3	97.3	97.3	97.3
		Max Torque(N-m)	194.6	194.6	194.6	194.6	194.6	194.6
		Max Load(KG)	1000	1000	1000	1000	1000	1000
		Brake Torque(N-m)	16	16	16	16	16	16
Steering Data	Steering Motor	Rated Power(KW)	0.2	0.2	0.2	0.2	0.2	0.2
		Battery Voltage(V)	48	48	48	24	24	24
		Rated Current(A)	7	7	7	11	11	11
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N-m)	0.64	0.64	0.64	0.64	0.64	0.64
		Max Torque(N-m)	1.28	1.28	1.28	1.28	1.28	1.28
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C
	Slewing bearing & Reducer	Gear Z(n)	118	118	118	118	118	118
		Pinon Z(n)	20	20	20	20	20	20
		Reducer Ratio(i)	45	45	45	45	45	45
		Final Ratio(i)	265.5	265.5	265.5	265.5	265.5	265.5
		Max Steering Speed("/sec)	67.80	67.80	67.80	67.80	67.80	67.80
		Max Steering Angle(°)	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	212	212	212	212	212	212
		Weight(KG)	43±3	43±3	43±3	43±3	43±3	43±3

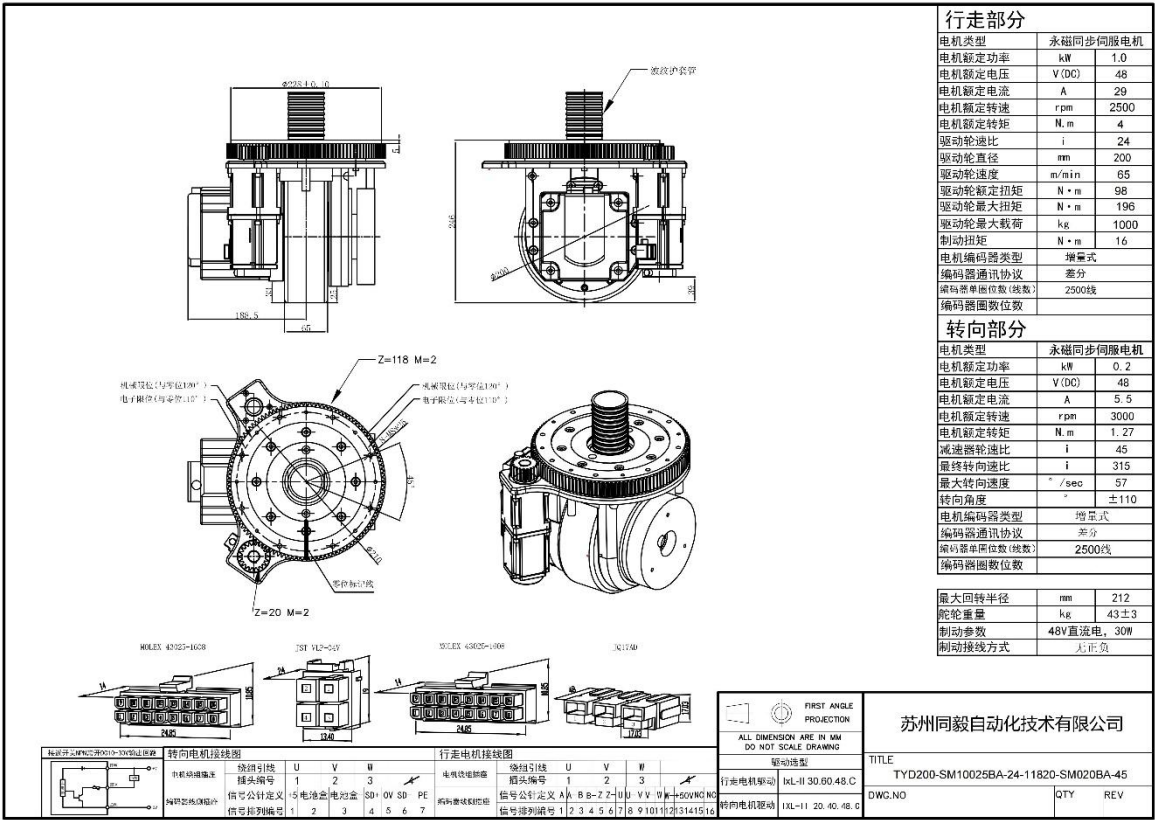
Wheel series			TYD250-SM10020BA-32-118			TYD250-SM15030BA-24-98		
			TYD250-SM10020BA-32-11820-SM020BA-45	TYD250-SM10020BA-32-11820-SM020BB-45	TYD250-SM10020BA-32-11820-SM020BC-45	TYD250-SM15030BA-24-9814-SM040BA-45	TYD250-SM15030BA-24-9814-SM040BB-45	TYD250-SM15030BA-24-9814-SM040BC-45
Traction data	Traction Motor	Rated Power(KW)	1	1	1	1.5	1.5	1.5
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	29	29	29	39	39	39
		Rated Speed(rpm)	2000	2000	2000	3000	3000	3000
		Nominal Torque(N-m)	4.77	4.77	4.77	4.77	4.77	4.77
		Max Torque(N-m)	9.54	9.54	9.54	9.54	9.54	9.54
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII30.60.48.C	IxLII30.60.48.C	IxLII30.60.48.C	IxLII40.80.48.C	IxLII40.80.48.C	IxLII40.80.48.C
	Drive Wheel	Gearbox Ratio(i)	32	32	32	24	24	24
		Diameter(mm)	250	250	250	250	250	250
		Speed(m/min)	49.06	49.06	49.06	98.13	98.13	98.13
		Nominal Torque(N-m)	129.7	129.7	129.7	97.3	97.3	97.3
		Max Torque(N-m)	259.5	259.5	259.5	194.6	194.6	194.6
		Max Load(KG)	1000	1000	1000	1500	1500	1500
		Brake Torque(N-m)	16	16	16	16	16	16
Steering Data	Steering Motor	Rated Power(KW)	0.2	0.2	0.2	0.4	0.4	0.4
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	7	7	7	11	11	11
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N-m)	0.64	0.64	0.64	1.28	1.28	1.28
		Max Torque(N-m)	1.28	1.28	1.28	2.56	2.56	2.56
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C
	Slewing bearing & Reducer	Gear Z(n)	118	118	118	98	98	98
		Pinon Z(n)	20	20	20	14	14	14
		Reducer Ratio(i)	45	45	45	45	45	45
		Final Ratio(i)	265.5	265.5	265.5	220.5	220.5	220.5
		Max Steering Speed("/sec)	67.80	67.80	67.80	57.14	57.14	57.14
		Max Steering Angle(°)	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	212	212	212	212	212	212
		Weight(KG)	43±3	43±3	43±3	43±3	43±3	43±3

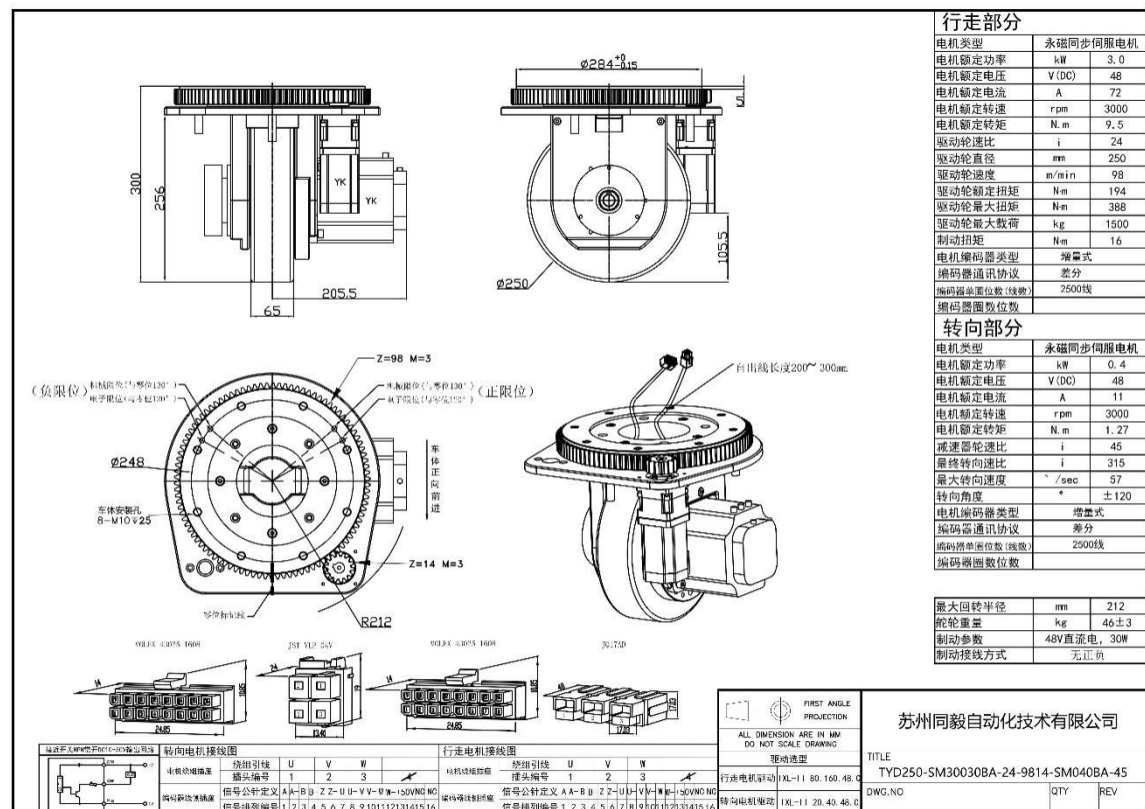
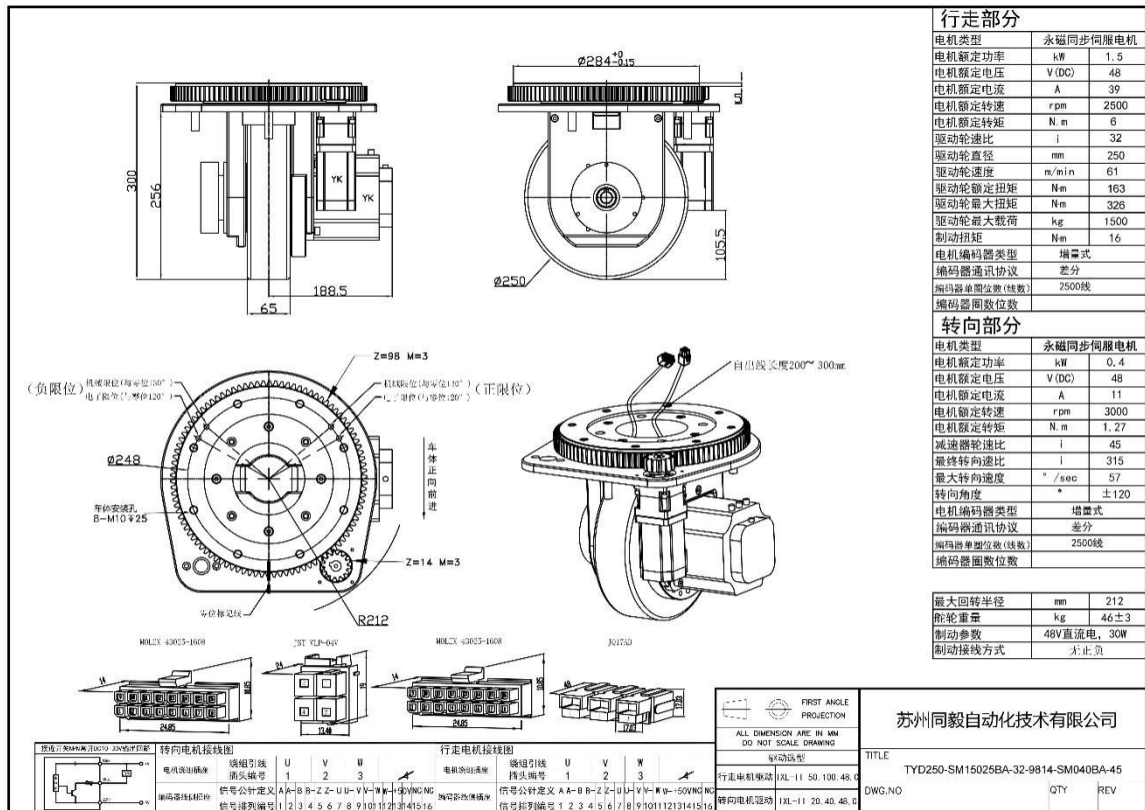
Wheel series			TYD250-SM15030BA-32-98			TYD250-SM15025BA-24-98		
			TYD250-SM15030BA-24-9814-SM040BA-45	TYD250-SM15030BA-24-9814-SM040BB-45	TYD250-SM15030BA-24-9814-SM040BC-45	TYD250-SM15025BA-24-9814-SM040BA-45	TYD250-SM15025BA-24-9814-SM040BB-45	TYD250-SM15025BA-24-9814-SM040BC-45
Traction data	Traction Motor	Rated Power(KW)	1.5	1.5	1.5	1.5	1.5	1.5
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	39	39	39	39	39	39
		Rated Speed(rpm)	3000	3000	3000	2500	2500	2500
		Nominal Torque(N-m)	4.77	4.77	4.77	6	6	6
		Max Torque(N-m)	9.54	9.54	9.54	12	12	12
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 40.80.48.C	IxLII 40.80.48.C	IxLII 40.80.48.C	IxLII 40.80.48.C	IxLII 40.80.48.C	IxLII 40.80.48.C
	Drive Wheel	Gearbox Ratio(i)	32	32	32	24	24	24
		Diameter(mm)	250	250	250	250	250	250
		Speed(m/min)	73.59	73.59	73.59	81.77	81.77	81.77
		Nominal Torque(N-m)	129.7	129.7	129.7	122.4	122.4	122.4
		Max Torque(N-m)	259.5	259.5	259.5	244.8	244.8	244.8
		Max Load(KG)	1500	1500	1500	1500	1500	1500
		Brake Torque(N-m)	16	16	16	16	16	16
Steering Data	Steering Motor	Rated Power(KW)	0.4	0.4	0.4	0.4	0.4	0.4
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	11	11	11	11	11	11
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N-m)	1.28	1.28	1.28	1.28	1.28	1.28
		Max Torque(N-m)	2.56	2.56	2.56	2.56	2.56	2.56
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C
	Slewing bearing & Reducer	Gear Z(n)	98	98	98	98	98	98
		Pinon Z(n)	14	14	14	14	14	14
		Reducer Ratio(i)	45	45	45	45	45	45
		Final Ratio(i)	220.5	220.5	220.5	220.5	220.5	220.5
		Max Steering Speed("/sec)	57.14	57.14	57.14	57.14	57.14	57.14
		Max Steering Angle(°)	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	212	212	212	212	212	212
		Weight(KG)	43±3	43±3	43±3	43±3	43±3	43±3

Wheel series			TYD250-SM15025BA-32-98			TYD250-SM30030BA-24-98		
			TYD250-SM15025BA-24-9814-SM040BA-45	TYD250-SM15025BA-24-9814-SM040BB-45	TYD250-SM15025BA-24-9814-SM040BC-45	TYD250-SM30030BA-24-9814-SM040BA-45	TYD250-SM30030BA-24-9814-SM040BB-45	TYD250-SM30030BA-24-9814-SM040BC-45
Traction data	Traction Motor	Rated Power(KW)	1.5	1.5	1.5	3	1.5	1.5
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	39	39	39	72	72	72
		Rated Speed(rpm)	2500	2500	2500	3000	3000	3000
		Nominal Torque(N-m)	6	6	6	9.5	9.5	9.5
		Max Torque(N-m)	12	12	12	19	19	19
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 40.80.48.C	IxLII 40.80.48.C	IxLII 40.80.48.C	IxLII80.160.48.C	IxLII80.160.48.C	IxLII80.160.48.C
	Drive Wheel	Gearbox Ratio(i)	32	32	32	24	24	24
		Diameter(mm)	250	250	250	250	250	250
		Speed(m/min)	61.33	61.33	61.33	98.13	98.13	98.13
		Nominal Torque(N-m)	163.2	163.2	163.2	193.8	193.8	193.8
		Max Torque(N-m)	326.4	326.4	326.4	387.6	387.6	387.6
		Max Load(KG)	1500	1500	1500	1500	1500	1500
		Brake Torque(N-m)	16	16	16	16	16	16
Steering Data	Steering Motor	Rated Power(KW)	0.4	0.4	0.4	0.4	0.4	0.4
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	11	11	11	11	11	11
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N-m)	1.28	1.28	1.28	1.28	1.28	1.28
		Max Torque(N-m)	2.56	2.56	2.56	2.56	2.56	2.56
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C	IxLII20.40.48.C
	Slewing bearing & Reducer	Gear Z(n)	98	98	98	98	98	98
		Pinon Z(n)	14	14	14	14	14	14
		Reducer Ratio(i)	45	45	45	45	45	45
		Final Ratio(i)	220.5	220.5	220.5	220.5	220.5	220.5
		Max Steering Speed("/sec)	57.14	57.14	57.14	57.14	57.14	57.14
		Max Steering Angle(°)	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	212	212	212	212	212	212
		Weight(KG)	43±3	43±3	43±3	43±3	43±3	43±3

Wheel series			TYD250-SM30030BA-31.5			TYD250-SM20020AA-31.5		
			TYD250-SM30030BA-31.5-11820-SM020BA-50	TYD250-SM30030BA-31.5-11820-SM020BB-50	TYD250-SM30030BA-31.5-11820-SM020BC-50	TYD250-SM20020AA-31.5-11820-SM020AA-50	TYD250-SM20020AA-31.5-11820-SM020AB-50	TYD250-SM20020AA-31.5-11820-SM020AC-50
Traction data	Traction Motor	Rated Power(KW)	3	3	3	2	2	2
		Battery Voltage(V)	48	48	48	24	24	24
		Rated Current(A)	39	39	39	79	79	79
		Rated Speed(rpm)	3000	3000	3000	2000	2000	2000
		Nominal Torque(N·m)	9.5	9.5	9.5	9.5	9.5	9.5
		Max Torque(N·m)	19	19	19	19	19	19
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 80.160.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C
	Drive Wheel	Gearbox Ratio(i)	31.5	31.5	31.5	31.5	31.5	31.5
		Diameter(mm)	250	250	250	250	250	250
		Speed(m/min)	74.76	74.76	74.76	49.84	49.84	49.84
		Nominal Torque(N·m)	254.36	254.36	254.36	254.36	254.36	254.36
		Max Torque(N·m)	508.725	508.725	508.725	508.73	508.73	508.73
		Max Load(KG)	1000	1000	1000	1000	1000	1000
		Brake Torque(N·m)	16	16	16	16	16	16
Steering Data	Steering Motor	Rated Power(KW)	0.2	0.2	0.2	0.2	0.2	0.2
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	11	11	11	11	11	11
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	0.64	0.64	0.64	0.64	0.64	0.64
		Max Torque(N·m)	1.28	1.28	1.28	1.28	1.28	1.28
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C
	Slewing bearing & Reducer	Gear Z(n)	118	118	118	118	118	118
		Pinon Z(n)	20	20	20	20	20	20
		Reducer Ratio(i)	45	45	45	45	45	45
		Final Ratio(i)	265.5	265.5	265.5	265.5	265.5	265.5
		Max Steering Speed(°/sec)	67.80	67.80	67.80	67.80	67.80	67.80
		Max Steering Angle(°)	128.57	128.57	128.57	128.5714286	128.5714286	128.5714286
		Max Turning Radius(mm)	181	181	181	181	181	181
		Weight(KG)	48±3	48±3	48±3	48±3	48±3	48±3

2.14.3. TYD250 Series Steering Wheel Drawings(Parts)





2.15. TYD260 Series Steering Wheel

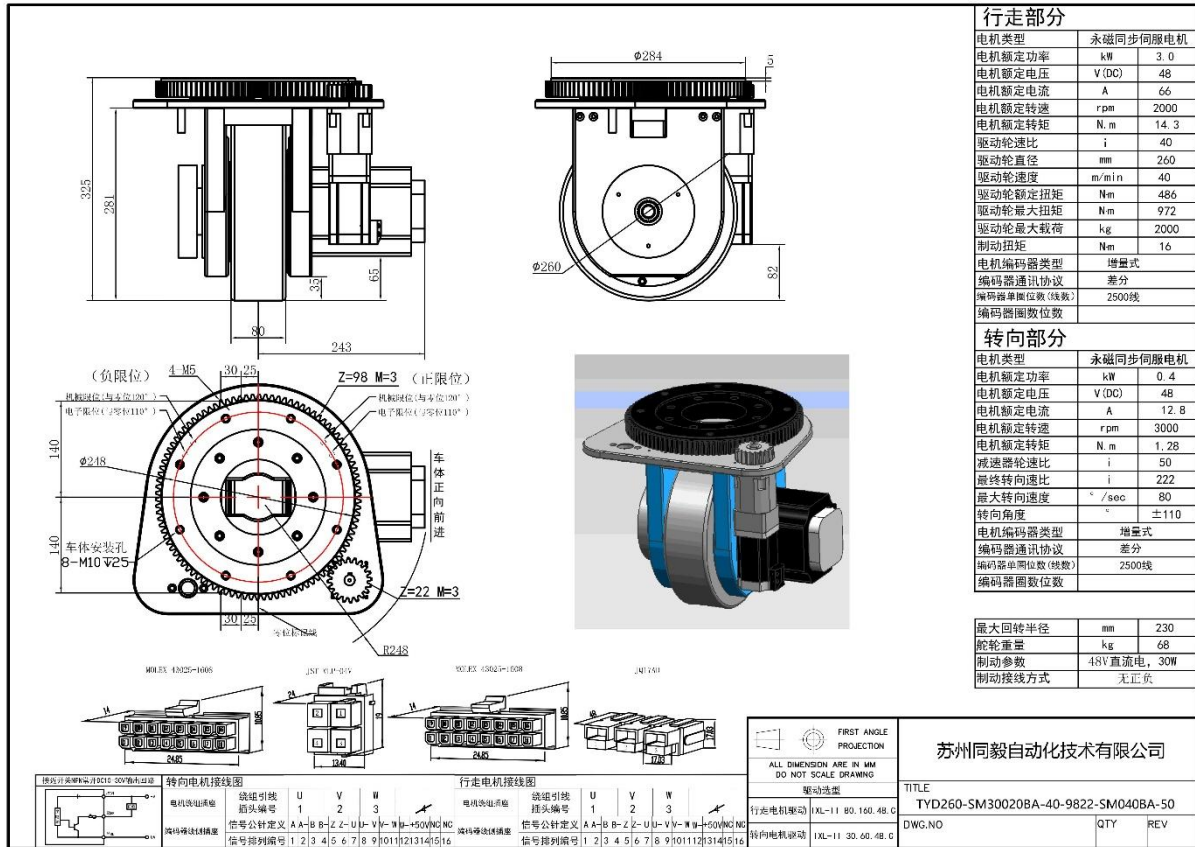
2.15.1. TYD260 Series Wheel Introduction

- **Wheel Diameter: 260mm**
- **Max Load: 2000KG**
- **Input Voltage Range: 24-560V**
- **Traction Motor Power: 1000W~3000W**
- **Traction Gear Common Ratio: 40**
- **Traction Motor Supports Dual Encoder, achieves up to PL=D, category 2 functional safety under EN ISO 13849-1**

2.15.2. TYD260 Series Common Models

Wheel series			TYD260-SM30030BA-40			TYD260-SM30020BA-40		
			TYD260-SM30030BA-24-9814-SM040BA-50	TYD260-SM30030BA-24-9814-SM040BB-50	TYD260-SM30030BA-24-9814-SM040BC-50	TYD260-SM30020BA-24-9814-SM040BA-50	TYD260-SM30020BA-24-9814-SM040BB-50	TYD260-SM30020BA-24-9814-SM040BC-50
Traction data	Traction Motor	Rated Power(KW)	3	3	3	3	3	3
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	72	72	72	66	66	66
		Rated Speed(rpm)	3000	3000	3000	2000	2000	2000
		Nominal Torque(N·m)	9.5	9.5	9.5	14.3	14.3	14.3
		Max Torque(N·m)	19	19	19	28.6	28.6	28.6
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 80.160.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C
	Drive Wheel	Gearbox Ratio(i)	40	40	40	40	40	40
		Diameter(mm)	260	260	260	260	260	260
		Speed(m/min)	61.23	61.23	61.23	40.82	40.82	40.82
		Nominal Torque(N·m)	323	323	323	486.20	486.20	486.20
		Max Torque(N·m)	646	646	646	972.4	972.4	972.4
		Max Load(KG)	2000	2000	2000	2000	2000	2000
		Brake Torque(N·m)	16	16	16	16	16	16
Steering Data	Steering Motor	Rated Power(KW)	0.4	0.4	0.4	0.75	0.75	0.75
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	11	11	11	11	11	11
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	1.28	1.28	1.28	1.28	1.28	1.28
		Max Torque(N·m)	2.56	2.56	2.56	2.56	2.56	2.56
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C	IxLII 20.40.48.C
	Slewing bearing & Reducer	Gear Z(n)	98	98	98	98	98	98
		Pinon Z(n)	22	22	22	22	22	22
		Reducer Ratio(i)	50	50	50	50	50	50
		Final Ratio(i)	245	245	245	245	245	245
		Max Steering Speed(°/sec)	80.82	80.82	80.82	80.82	80.82	80.82
		Max Steering Angle(°)	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	212	212	212	212	212	212
		Weight(KG)	50	50	50	50	50	50

2.15.3. TYD260 Series Steering Wheel Drawings(Parts)



2.16. TYD280 Series Steering Wheel

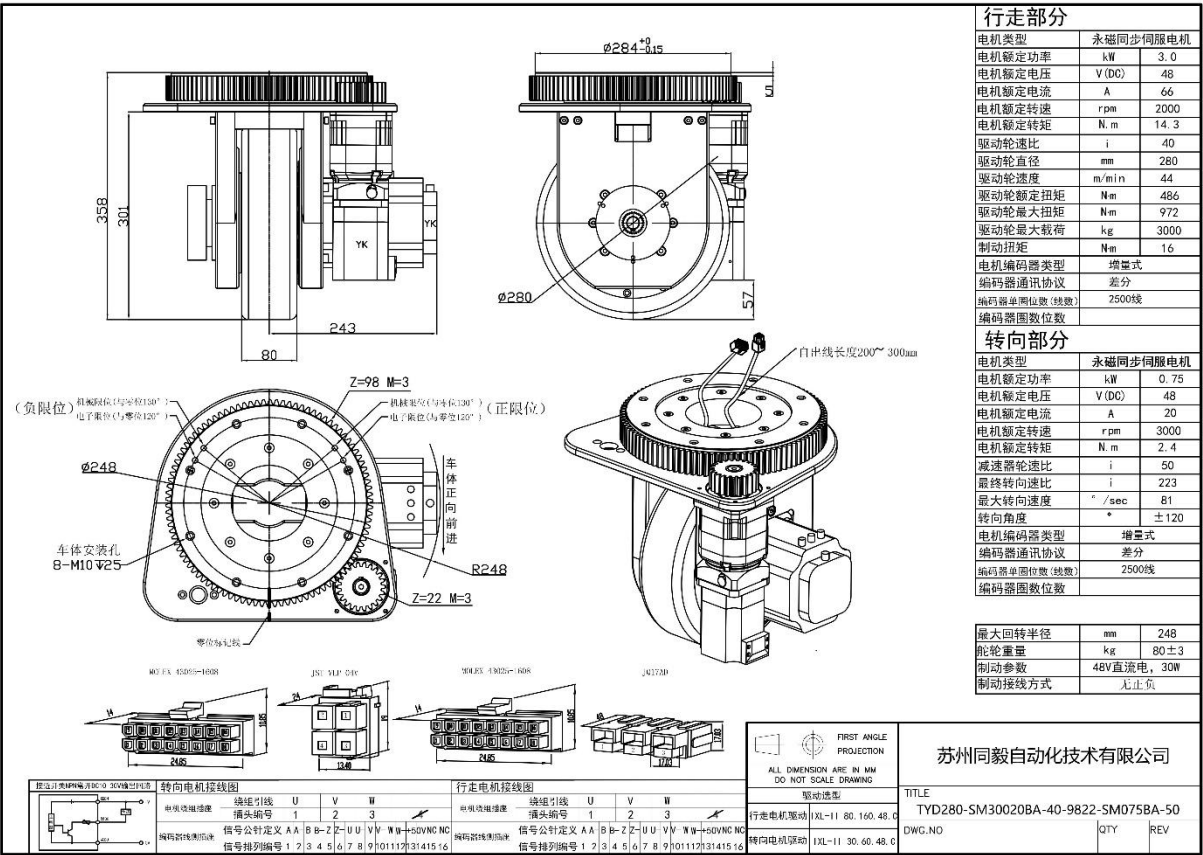
2.16.1. TYD280 Series Wheel Introduction

- Wheel Diameter: 280mm
- Max Load: 3000KG
- Input Voltage Range: 24-560V
- Traction Motor Power: 1000W~3000W
- Traction Gear Common Ratio: 40
- Traction Motor Supports Dual Encoder, achieves up to PL=D, category 2 functional safety under EN ISO 13849-1

2.16.2. TYD280 Series Common Models

Wheel series			TYD280-SM30030BA-40			TYD280-SM30020BA-40		
			TYD280-SM30030BA-40-9822-SM075BA-50	TYD280-SM30030BA-40-9822-SM075BB-50	TYD280-SM130030BA-40-9822-SM075BC-50	TYD280-SM30020BA-40-9822-SM075BA-50	TYD280-SM30020BA-40-9822-SM075BB-50	TYD280-SM30020BA-40-9822-SM075BC-50
Traction data	Traction Motor	Rated Power(KW)	3	3	3	3	3	3
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	72	72	72	66	66	66
		Rated Speed(rpm)	3000	3000	3000	2000	2000	2000
		Nominal Torque(N-m)	9.5	9.5	9.5	14.3	14.3	14.3
		Max Torque(N-m)	19	19	19	28.6	28.6	28.6
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 80.160.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C
	Drive Wheel	Gearbox Ratio(i)	40	40	40	40	40	40
		Diameter(mm)	280	280	280	280	280	280
		Speed(m/min)	65.94	65.94	65.94	43.96	43.96	43.96
		Nominal Torque(N-m)	323.00	323.00	323.00	486.20	486.20	486.20
		Max Torque(N-m)	646.00	646.00	646.00	972.40	972.40	972.40
		Max Load(KG)	3000	3000	3000	3000	3000	3000
		Brake Torque(N-m)	16	16	16	16	16	16
Steering Data	Steering Motor	Rated Power(KW)	0.75	0.75	0.75	0.75	0.75	0.75
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	20	20	20	20	20	20
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N-m)	2.39	2.39	2.39	2.39	2.39	2.39
		Max Torque(N-m)	4.78	4.78	4.78	4.78	4.78	4.78
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C
	Slewing bearing & Reducer	Gear Z(n)	98	98	98	98	98	98
		Pinon Z(n)	22	22	22	22	22	22
		Reducer Ratio(i)	50	50	50	50	50	50
		Final Ratio(i)	245.00	245.00	245.00	245.00	245.00	245.00
		Max Steering Speed(°/sec)	80.82	80.82	80.82	80.82	80.82	80.82
		Max Steering Angle(°)	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	238	238	238	248	248	248
		Weight(KG)	80±3	80±3	80±3	80±3	80±3	80±3

2.16.3. TYD280 Series Steering Wheel Drawings(Parts)



2.17. TYLD300 Series Vertical Steering Wheel

2.17.1. TYLD300 Series Vertical Wheel Introduction

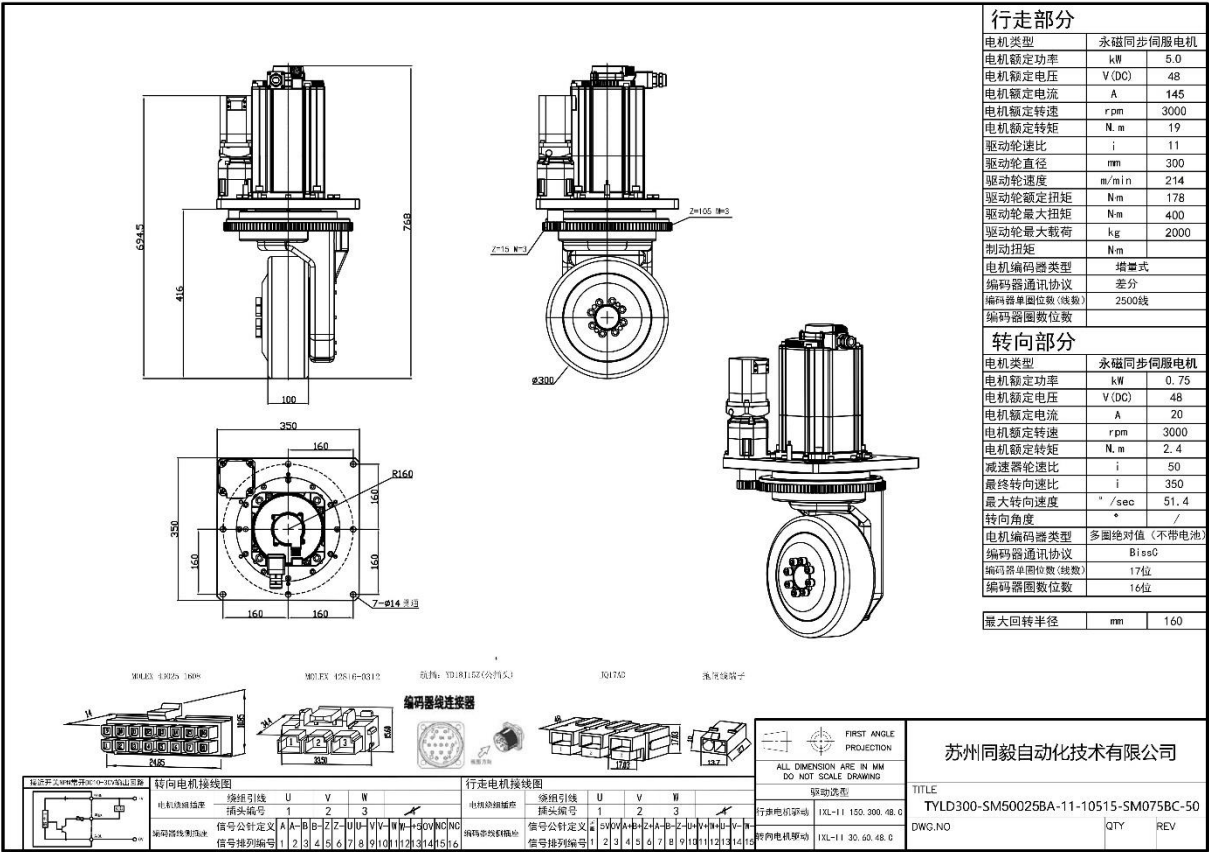
- **Wheel Diameter: 300mm**
- **Max Load: 2000KG**
- **Input Voltage Range: 24-560V**
- **Traction Motor Power: 4000W/5000W**
- **Traction Motor Gear Common Ratio: 11/22**
- **Traction Motor Supports Dual Encoder, achieves up to PL=D, category 2 functional safety under EN ISO 13849-1**

2.17.2. TYLD300 Series Common Models

Wheel series			TYLD300-SM40020BA-11			TYLD300-SM40020BA-22		
			TYLD300-SM40020BA-11-10515-SM075BA-50	TYLD300-SM40020BA-11-10515-SM075BB-50	TYLD300-SM40020BA-11-10515-SM075BC-50	TYLD300-SM40020BA-22-10515-SM075BA-50	TYLD300-SM40020BA-22-10515-SM075BB-50	TYLD300-SM40020BA-22-10515-SM075BC-50
Traction data	Traction Motor	Rated Power(KW)	4	4	4	4	4	4
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	95	95	95	95	95	95
		Rated Speed(rpm)	2000	2000	2000	2000	2000	2000
		Nominal Torque(N-m)	19.5	19.5	19.5	19.5	19.5	19.5
		Max Torque(N-m)	39	39	39	39	39	39
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 100.200.48.C	IxLII 100.200.48.C	IxLII 100.200.48.C	IxLII 100.200.48.C	IxLII 100.200.48.C	IxLII 100.200.48.C
	Drive Wheel	Gearbox Ratio(i)	11	11	11	22	22	22
		Diameter(mm)	300	300	300	300	300	300
		Speed(m/min)	171.27	171.27	171.27	85.64	85.64	85.64
		Nominal Torque(N-m)	182.33	182.33	182.33	364.65	364.65	364.65
		Max Torque(N-m)	364.65	364.65	364.65	729.30	729.30	729.30
		Max Load(KG)	2000	2000	2000	2000	2000	2000
		Brake Torque(N-m)	30	30	30	30	30	30
Steering Data	Steering Motor	Rated Power(KW)	0.75	0.75	0.75	0.75	0.75	0.75
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	20	20	20	20	20	20
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N-m)	2.39	2.39	2.39	2.39	2.39	2.39
		Max Torque(N-m)	4.78	4.78	4.78	4.78	4.78	4.78
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C
	Slewing bearing & Reducer	Gear Z(n)	105	105	105	105	105	105
		Pinon Z(n)	15	15	15	15	15	15
		Reducer Ratio(i)	50	50	50	50	50	50
		Final Ratio(i)	262.50	262.50	262.50	262.50	262.50	262.50
		Max Steering	51.43	51.43	51.43	51.43	51.43	51.43
		Max Steering Angle(°)	360	360	360	360	360	360
		Max Turning	320	320	320	320	320	320
	Weight(KG)		95±3	95±3	95±3	95±3	95±3	95±3

Wheel series			TYLD300-SM50025BA-11			TYLD300-SM50025BA-22		
			TYLD300-SM50025BA-11-10515-SM075BA-50	TYLD300-SM50025BA-11-10515-SM075BB-50	TYLD300-SM50025BA-11-10515-SM075BC-50	TYLD300-SM50025BA-22-10515-SM075BA-50	TYLD300-SM50025BA-22-10515-SM075BB-50	TYLD300-SM50025BA-22-10515-SM075BC-50
Traction data	Traction Motor	Rated Power(KW)	5	5	5	5	5	5
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	120	120	120	120	120	120
		Rated Speed(rpm)	2500	2500	2500	2500	2500	2500
		Nominal Torque(N-m)	19.5	19.5	19.5	19.5	19.5	19.5
		Max Torque(N-m)	39	39	39	39	39	39
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 150.300.48.C	IxLII 150.300.48.C	IxLII 150.300.48.C	IxLII 150.300.48.C	IxLII 150.300.48.C	IxLII 150.300.48.C
	Drive Wheel	Gearbox Ratio(i)	11	11	11	22	22	22
		Diameter(mm)	300	300	300	300	300	300
		Speed(m/min)	214.09	214.09	214.09	107.05	107.05	107.05
		Nominal Torque(N-m)	182.33	182.33	182.33	364.65	364.65	364.65
		Max Torque(N-m)	364.65	364.65	364.65	729.30	729.30	729.30
		Max Load(KG)	2000	2000	2000	2000	2000	2000
		Brake Torque(N-m)	30	30	30	30	30	30
Steering Data	Steering Motor	Rated Power(KW)	0.75	0.75	0.75	0.75	0.75	0.75
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	20	20	20	20	20	20
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N-m)	2.39	2.39	2.39	2.39	2.39	2.39
		Max Torque(N-m)	4.78	4.78	4.78	4.78	4.78	4.78
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C
	Slewing bearing & Reducer	Gear Z(n)	105	105	105	105	105	105
		Pinon Z(n)	15	15	15	15	15	15
		Reducer Ratio(i)	50	50	50	50	50	50
		Final Ratio(i)	262.50	262.50	262.50	262.50	262.50	262.50
		Max Steering Speed(°/sec)	51.43	51.43	51.43	51.43	51.43	51.43
		Max Steering Angle(°)	360	360	360	360	360	360
		Max Turning Radius(mm)	320	320	320	320	320	320
		Weight(KG)	95±3	95±3	95±3	95±3	95±3	95±3

2.17.3. TYLD300 Series Steering Wheel Drawings(Parts)



2.18. TYD300 Series Vertical Steering Wheel

2.18.1. TYD300 Series Steering Wheel Introduction

- **Wheel Diameter: 300mm**
- **Max Load: 3000KG/3500KG**
- **Input Voltage Range: 24-560V**
- **Traction Motor Power: 3000W/4000W/5000W**
- **Traction Gear Common Ratio: 40/60**
- **Traction Motor Supports Dual Encoder, achieves up to PL=D, category 2 functional safety under EN ISO 13849-1**

2.18.2. TYD300 Series Common Models

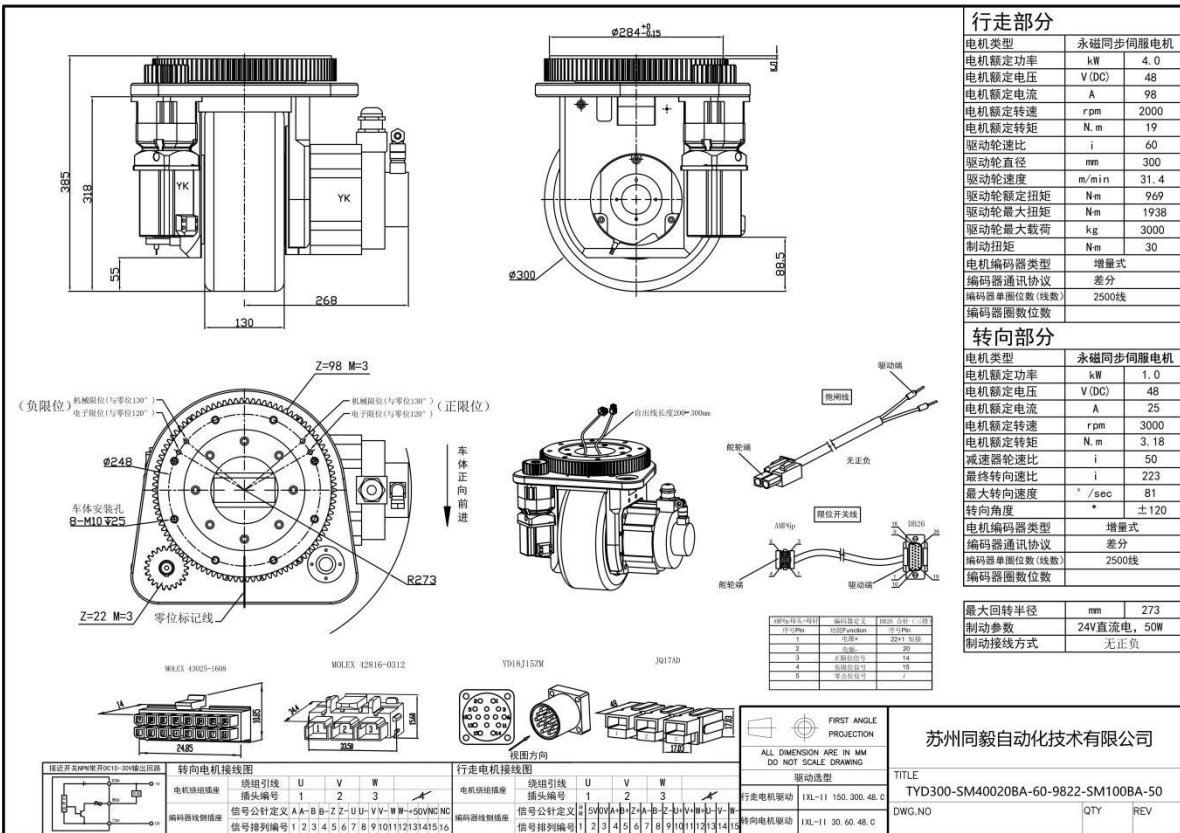
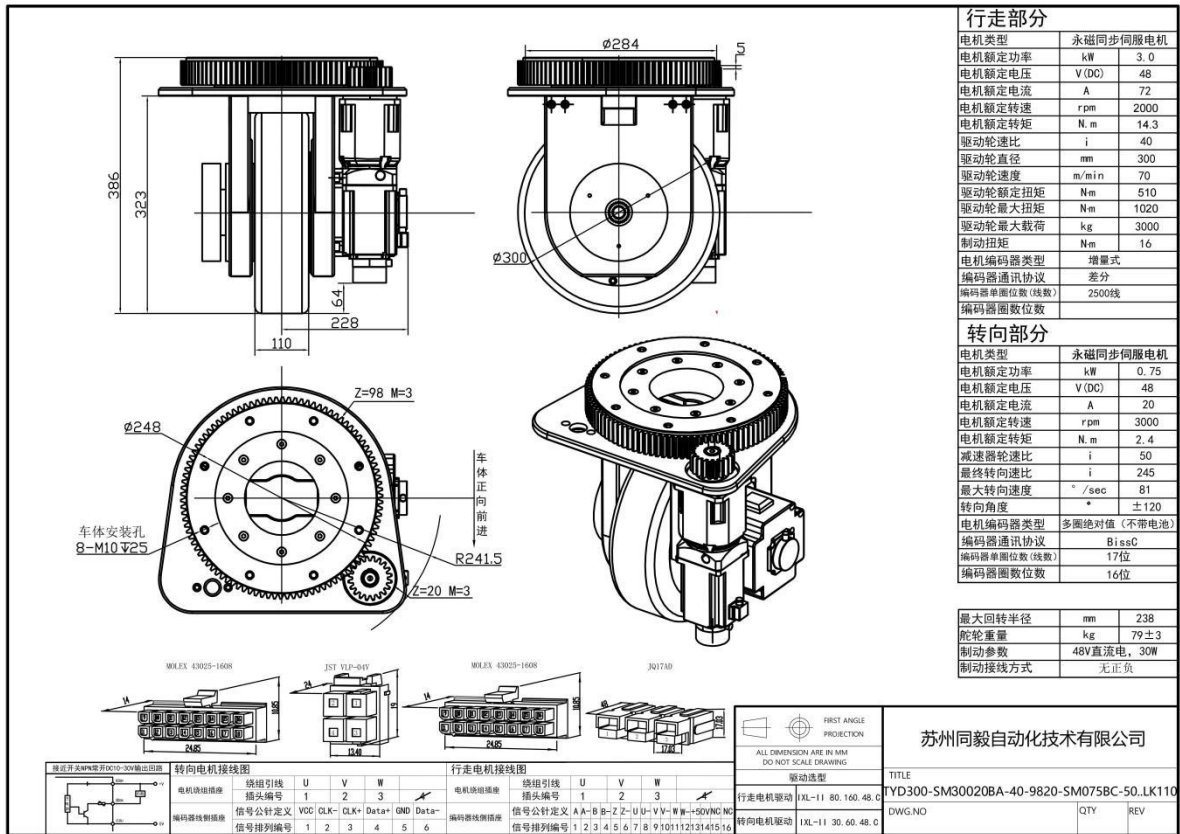
Wheel series			TYD300-SM30030BA-40			TYD300-SM30020BA-40		
			TYD300-SM30030BA-40-9822-SM075BA-50	TYD300-SM30030BA-40-9822-SM075BB-50	TYD300-SM130030BA-40-9822-SM075BC-50	TYD300-SM30020BA-40-9822-SM075BA-50	TYD300-SM30020BA-40-9822-SM075BB-50	TYD300-SM30020BA-40-9822-SM075BC-50
Traction data	Traction Motor	Rated Power(KW)	3	3	3	3	3	3
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	72	72	72	66	66	66
		Rated Speed(rpm)	3000	3000	3000	2000	2000	2000
		Nominal Torque(N·m)	9.5	9.5	9.5	14.3	14.3	14.3
		Max Torque(N·m)	19	19	19	28.6	28.6	28.6
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 80.160.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C	IxLII 80.160.48.C
	Drive Wheel	Gearbox Ratio(i)	40	40	40	40	40	40
		Diameter(mm)	300	300	300	300	300	300
		Speed(m/min)	70.65	70.65	70.65	47.10	47.10	47.10
		Nominal Torque(N·m)	323.00	323.00	323.00	486.20	486.20	486.20
		Max Torque(N·m)	646.00	646.00	646.00	972.40	972.40	972.40
		Max Load(KG)	3000	3000	3000	3000	3000	3000
		Brake Torque(N·m)	16	16	16	16	16	16
Steering Data	Steering Motor	Rated Power(KW)	0.75	0.75	0.75	0.75	0.75	0.75
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	20	20	20	20	20	20
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	2.39	2.39	2.39	2.39	2.39	2.39
		Max Torque(N·m)	4.78	4.78	4.78	4.78	4.78	4.78
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C
	Slewing bearing & Reducer	Gear Z(n)	98	98	98	98	98	98
		Pinon Z(n)	22	22	22	22	22	22
		Reducer Ratio(i)	50	50	50	50	50	50
		Final Ratio(i)	245.00	245.00	245.00	245.00	245.00	245.00
		Max Steering Speed(°/sec)	80.82	80.82	80.82	80.82	80.82	80.82
		Max Steering Angle(°)	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	238	238	238	248	248	248
		Weight(KG)	80±3	80±3	80±3	80±3	80±3	80±3

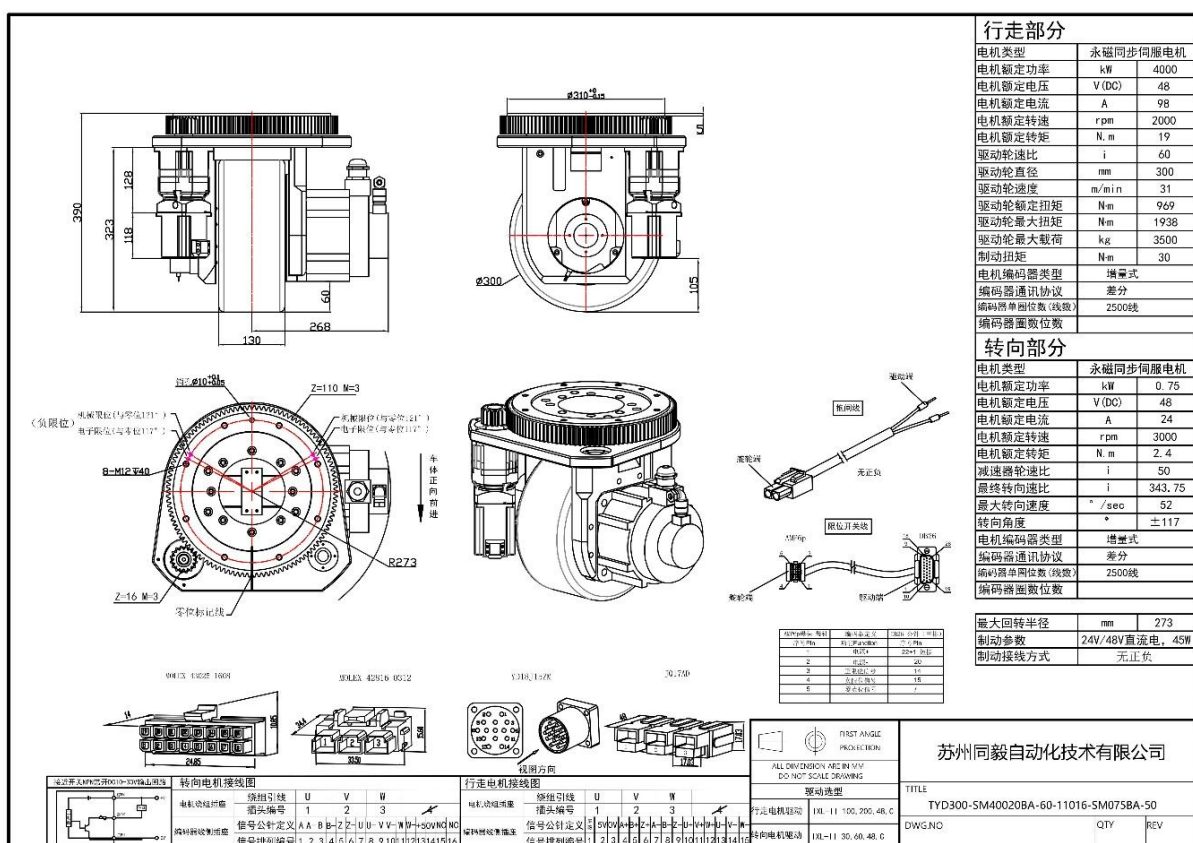
Wheel series			TYD300-SM40020BA-60-98			TYD300-SM50025BA-60-98		
			TYD300-SM40020BA-60-9822-SM075BA-50	TYD300-SM40020BA-40-9822-SM075BB-50	TYD300-SM40020BA-40-9822-SM075BC-50	TYD300-SM50025BA-60-9822-SM075BA-50	TYD300-SM50025BA-40-9822-SM075BB-50	TYD300-SM50025BA-40-9822-SM075BC-50
Traction data	Traction Motor	Rated Power(KW)	4	4	4	5	5	5
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	103	103	103	103	103	103
		Rated Speed(rpm)	2000	2000	2000	2500	2500	2500
		Nominal Torque(N-m)	19.5	19.5	19.5	19.5	19.5	19.5
		Max Torque(N-m)	39	39	39	39	39	39
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 100.200.48.C	IxLII 100.200.48.C	IxLII 100.200.48.C	IxLII 150.300.48.C	IxLII 150.300.48.C	IxLII 150.300.48.C
	Drive Wheel	Gearbox Ratio(i)	60	60	60	60	60	60
		Diameter(mm)	300	300	300	300	300	300
		Speed(m/min)	31.40	31.40	31.40	39.25	39.25	39.25
		Nominal Torque(N-m)	994.50	994.50	994.50	994.50	994.50	994.50
		Max Torque(N-m)	1989.00	1989.00	1989.00	1989.00	1989.00	1989.00
		Max Load(KG)	3000	3000	3000	3000	3000	3000
		Brake Torque(N-m)	16	16	16	16	16	16
Steering Data	Steering Motor	Rated Power(KW)	0.75	0.75	0.75	0.75	0.75	0.75
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	20	20	20	20	20	20
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N-m)	2.39	2.39	2.39	2.39	2.39	2.39
		Max Torque(N-m)	4.78	4.78	4.78	4.78	4.78	4.78
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C
	Slewing bearing & Reducer	Gear Z(n)	98	98	98	98	98	98
		Pinon Z(n)	22	22	22	22	22	22
		Reducer Ratio(i)	50	50	50	50	50	50
		Final Ratio(i)	245.00	245.00	245.00	245.00	245.00	245.00
		Max Steering Speed(°/sec)	80.82	80.82	80.82	80.82	80.82	80.82
		Max Steering Angle(°)	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	292	292	292	292	292	292
		Weight(KG)	95±3	95±3	95±3	95±3	95±3	95±3

Wheel series			TYD300-SM40020BA-60-98			TYD300-SM50025BA-60-98		
			TYD300-SM40020BA-60-9822-SM075BA-50	TYD300-SM40020BA-40-9822-SM075BB-50	TYD300-SM40020BA-40-9822-SM075BC-50	TYD300-SM50025BA-60-9822-SM075BA-50	TYD300-SM50025BA-40-9822-SM075BB-50	TYD300-SM50025BA-40-9822-SM075BC-50
Traction data	Traction Motor	Rated Power(KW)	4	4	4	5	5	5
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	103	103	103	103	103	103
		Rated Speed(rpm)	2000	2000	2000	2500	2500	2500
		Nominal Torque(N-m)	19.5	19.5	19.5	19.5	19.5	19.5
		Max Torque(N-m)	39	39	39	39	39	39
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 100.200.48.C	IxLII 100.200.48.C	IxLII 100.200.48.C	IxLII 150.300.48.C	IxLII 150.300.48.C	IxLII 150.300.48.C
	Drive Wheel	Gearbox Ratio(i)	60	60	60	60	60	60
		Diameter(mm)	300	300	300	300	300	300
		Speed(m/min)	31.40	31.40	31.40	39.25	39.25	39.25
		Nominal Torque(N-m)	994.50	994.50	994.50	994.50	994.50	994.50
		Max Torque(N-m)	1989.00	1989.00	1989.00	1989.00	1989.00	1989.00
		Max Load(KG)	3000	3000	3000	3000	3000	3000
		Brake Torque(N-m)	16	16	16	16	16	16
Steering Data	Steering Motor	Rated Power(kW)	0.75	0.75	0.75	0.75	0.75	0.75
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	20	20	20	20	20	20
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N-m)	2.39	2.39	2.39	2.39	2.39	2.39
		Max Torque(N-m)	4.78	4.78	4.78	4.78	4.78	4.78
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C
	Slewing bearing & Reduc er	Gear Z(n)	98	98	98	98	98	98
		Pinon Z(n)	22	22	22	22	22	22
		Reducer Ratio(i)	50	50	50	50	50	50
		Final Ratio(i)	245.00	245.00	245.00	245.00	245.00	245.00
		Max Steering Speed(°/sec)	80.82	80.82	80.82	80.82	80.82	80.82
		Max Steering Angle(°)	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	292	292	292	292	292	292
		Weight(KG)	95±3	95±3	95±3	95±3	95±3	95±3

Wheel series			TYD300-SM40020BA-60-110			TYD300-SM50025BA-60-110		
			TYD300-SM40020BA-60-11016-SM100BA-50	TYD300-SM40020BA-40-11016-SM100BB-50	TYD300-SM40020BA-40-11016-SM100BC-50	TYD300-SM50025BA-60-11016-SM100BA-5	TYD300-SM50025BA-40-11016-SM100BB-50	TYD300-SM50025BA-40-11016-SM100BC-50
Traction data	Traction Motor	Rated Power(KW)	4	4	4	5	5	5
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	103	103	103	135	135	135
		Rated Speed(rpm)	2000	2000	2000	2500	2500	2500
		Nominal Torque(N-m)	19.5	19.5	19.5	19.5	19.5	19.5
		Max Torque(N-m)	39	39	39	39	39	39
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 100.200.48.C	IxLII 100.200.48.C	IxLII 100.200.48.C	IxLII 150.300.48.C	IxLII 150.300.48.C	IxLII 150.300.48.C
	Drive Wheel	Gearbox Ratio(I)	60	60	60	60	60	60
		Diameter(mm)	300	300	300	300	300	300
		Speed(m/min)	31.40	31.40	31.40	39.25	39.25	39.25
		Nominal Torque(N-m)	994.50	994.50	994.50	994.50	994.50	994.50
		Max Torque(N-m)	1989.00	1989.00	1989.00	1989.00	1989.00	1989.00
		Max Load(KG)	3500	3500	3500	3500	3500	3500
		Brake Torque(N-m)	16	16	16	16	16	16
Steering Data	Steering Motor	Rated Power(KW)	1	1	1	1	1	1
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	20	20	20	20	20	20
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N-m)	3.2	3.2	3.2	3.2	3.2	3.2
		Max Torque(N-m)	6.4	6.4	6.4	6.4	6.4	6.4
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C
	Slewing bearing & Reduc er	Gear Z(n)	98	98	98	98	98	98
		Pinon Z(n)	22	22	22	22	22	22
		Reducer Ratio(I)	50	50	50	50	50	50
		Final Ratio(I)	245.00	245.00	245.00	245.00	245.00	245.00
		Max Steering Speed("/sec)	80.82	80.82	80.82	80.82	80.82	80.82
		Max Steering Angle(")	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	292	292	292	292	292	292
		Weight(KG)	95±3	95±3	95±3	95±3	95±3	95±3

2.18.3. TYD300 Series Steering Wheel Drawings(Parts)





2.19. TYD410 Series Steering Wheel

2.19.1. TYD410 Series Wheel Introduction

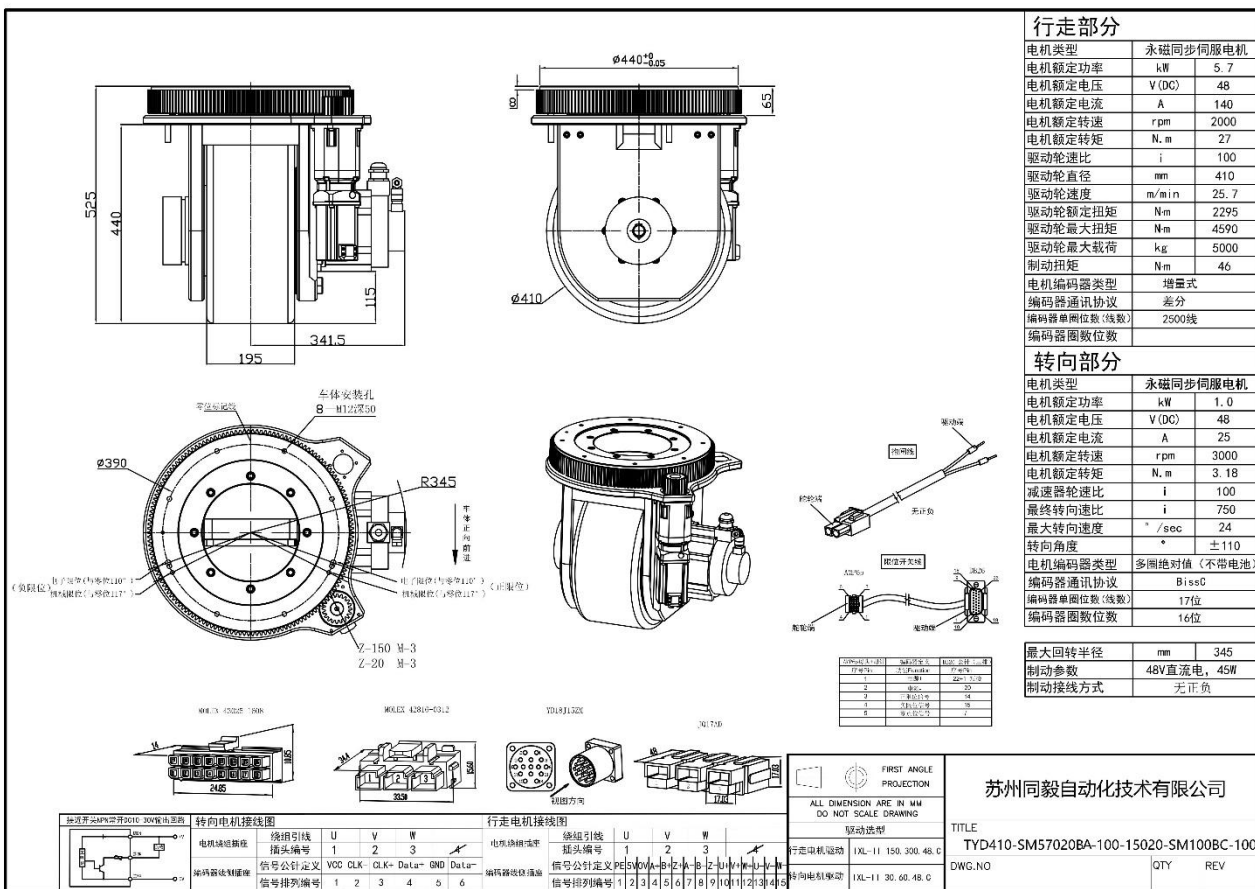
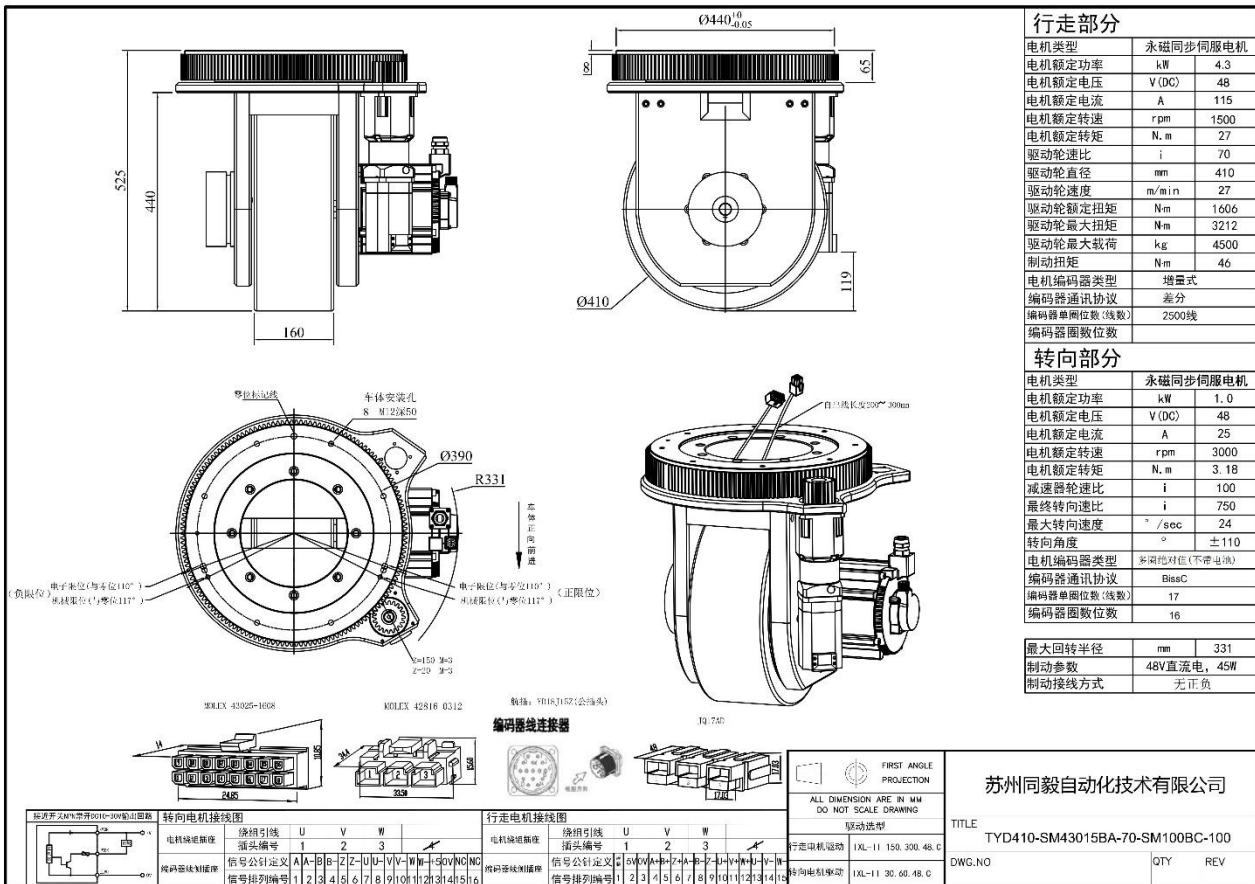
- **Wheel Diameter: 410mm**
- **Max Load: 4500KG**
- **Input Voltage Range: 24-560V**
- **Traction Motor Power: 4300KW/5700KW**
- **Traction Gear Common Ratio: 70/100**
- **Traction Motor Supports Dual Encoder, achieves up to PL=D, category 2 functional safety under EN ISO 13849-1**

2.19.2. TYD410 Series Common Models

Wheel series			TYD410-SM43015BA-70			TYD410-SM57020BA-70		
			TYD410-SM43015BA-70-15020-SM100BA-100	TYD410-SM43015BA-70-15020-SM100BB-100	TYD410-SM43015BA-70-15020-SM100BC-100	TYD410-SM57015BA-70-15020-SM100BA-100	TYD410-SM57015BA-70-15020-SM100BB-100	TYD410-SM57015BA-70-15020-SM100BC-100
Traction data	Traction Motor	Rated Power(KW)	4.3	4.3	4.3	5.7	5.7	5.7
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	120	120	120	135	135	135
		Rated Speed(rpm)	1500	1500	1500	2000	2000	2000
		Nominal Torque(N·m)	27	27	27	27	27	27
		Max Torque(N·m)	54	54	54	54	54	54
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 150.300.48.C	IxLII 150.300.48.C	IxLII 150.300.48.C	IxLII 150.300.48.C	IxLII 150.300.48.C	IxLII 150.300.48.C
	Drive Wheel	Gearbox Ratio(i)	70	70	70	70	70	70
		Diameter(mm)	410	410	410	410	410	410
		Speed(m/min)	27.59	27.59	27.59	36.78	36.78	36.78
		Nominal Torque(N·m)	1606.50	1606.50	1606.50	1606.50	1606.50	1606.50
		Max Torque(N·m)	3213.00	3213.00	3213.00	3213.00	3213.00	3213.00
		Max Load(KG)	4500	4500	4500	4500	4500	4500
		Brake Torque(N·m)	46	46	46	46	46	46
Steering Data	Steering Motor	Rated Power(KW)	1	1	1	1	1	1
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	27	27	27	27	27	27
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	3.2	3.2	3.2	3.2	3.2	3.2
		Max Torque(N·m)	6.4	6.4	6.4	6.4	6.4	6.4
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C
	Slewing bearing & Reducer	Gear Z(n)	150	150	150	150	150	150
		Pinon Z(n)	20	20	20	20	20	20
		Reducer Ratio(i)	100	100	100	100	100	100
		Final Ratio(i)	750.00	750.00	750.00	750.00	750.00	750.00
		Max Steering Speed(*°/sec)	24.00	24.00	24.00	24.00	24.00	24.00
		Max Steering Angle(°)	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	331	331	331	331	331	331
		Weight(KG)	200±3	200±3	200±3	200±3	200±3	200±3

Wheel series			TYD410-SM43015BA-100			TYD410-SM57020BA-100		
			TYD410-SM43015BA-100-15020-SM100BA-100	TYD410-SM43015BA-100-15020-SM100BB-100	TYD410-SM43015BA-100-15020-SM100BC-100	TYD410-SM57015BA-100-15020-SM100BA-100	TYD410-SM57015BA-100-15020-SM100BB-100	TYD410-SM57015BA-100-15020-SM100BC-100
Traction data	Traction Motor	Rated Power(KW)	4.3	4.3	4.3	5.7	5.7	5.7
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	120	120	120	135	135	135
		Rated Speed(rpm)	1500	1500	1500	2000	2000	2000
		Nominal Torque(N·m)	27	27	27	27	27	27
		Max Torque(N·m)	54	54	54	54	54	54
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 150.300.48.C	IxLII 150.300.48.C	IxLII 150.300.48.C	IxLII 150.300.48.C	IxLII 150.300.48.C	IxLII 150.300.48.C
	Drive Wheel	Gearbox Ratio(i)	100	100	100	100	100	100
		Diameter(mm)	410	410	410	410	410	410
		Speed(m/min)	19.31	19.31	19.31	25.75	25.75	25.75
		Nominal Torque(N·m)	2295.00	2295.00	2295.00	2295.00	2295.00	2295.00
		Max Torque(N·m)	4590.00	4590.00	4590.00	4590.00	4590.00	4590.00
		Max Load(KG)	4500	4500	4500	4500	4500	4500
		Brake Torque(N·m)	46	46	46	46	46	46
Steering Data	Steering Motor	Rated Power(KW)	1	1	1	1	1	1
		Battery Voltage(V)	48	48	48	48	48	48
		Rated Current(A)	27	27	27	27	27	27
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N·m)	3.2	3.2	3.2	3.2	3.2	3.2
		Max Torque(N·m)	6.4	6.4	6.4	6.4	6.4	6.4
		Encoder Type	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)	Incremental Encoder(2500 lines)	Absolute Encoder(NRZ Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C	IxLII 30.60.48.C
	Slewing bearing &Reducer	Gear Z(n)	150	150	150	150	150	150
		Pinon Z(n)	20	20	20	20	20	20
		Reducer Ratio(i)	100	100	100	100	100	100
		Final Ratio(i)	750.00	750.00	750.00	750.00	750.00	750.00
		Max Steering	24.00	24.00	24.00	24.00	24.00	24.00
		Max Steering Angle(°)	±120	±120	±120	±120	±120	±120
		Max Turning Radius(mm)	331	331	331	331	331	331
		Weight(KG)	200±3	200±3	200±3	200±3	200±3	200±3

2.19.3. TYD410 Series Steering Wheel Drawings(Parts)



2.20. TYD500 Series Steering Wheel

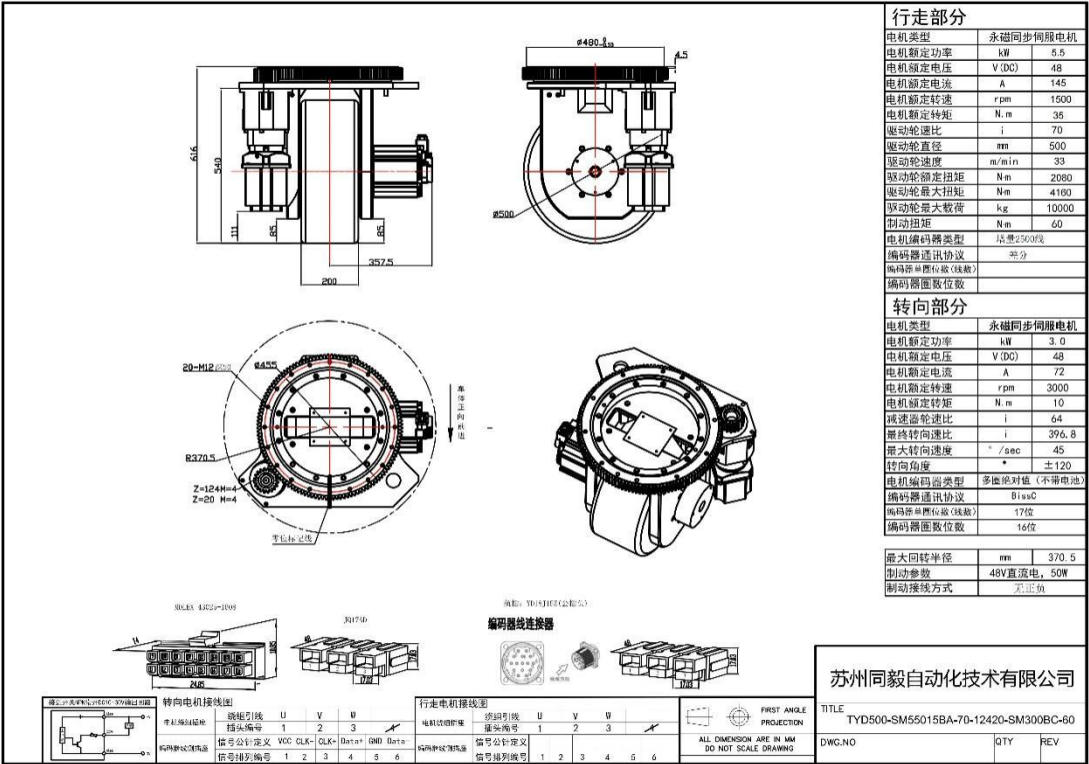
2.20.1. TYD500 Series Wheel Introduction

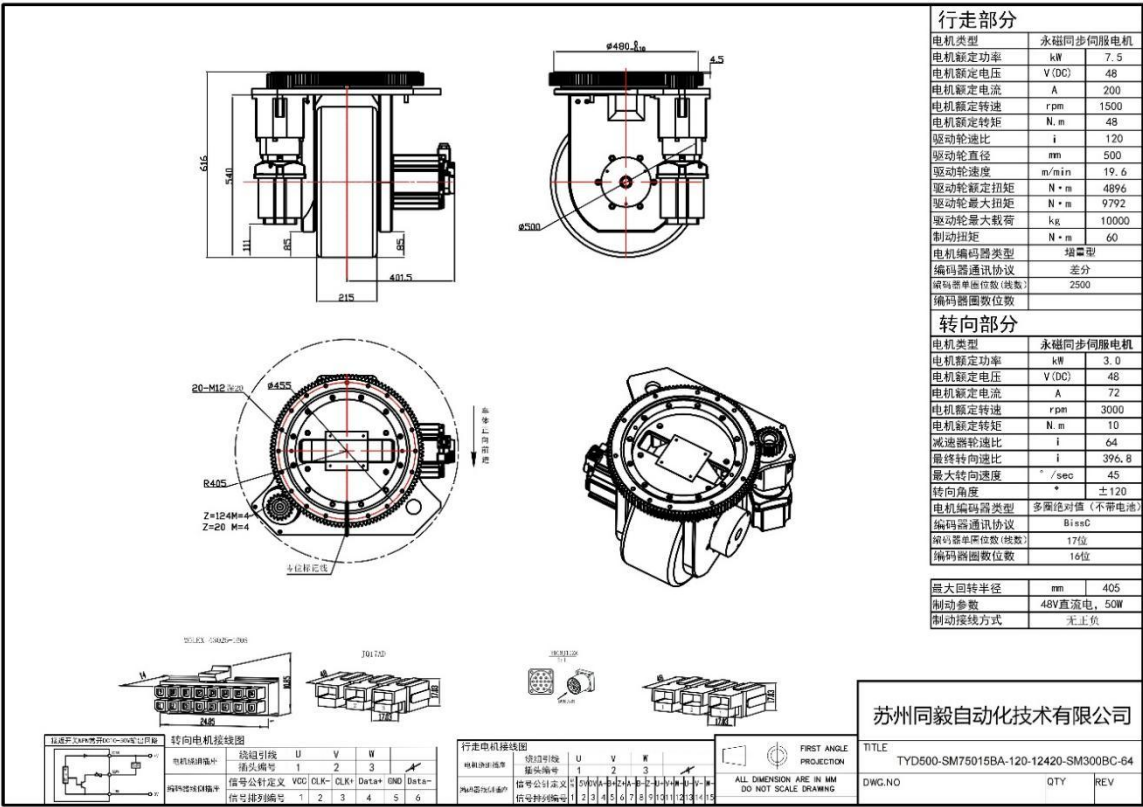
- Wheel Diameter: 500mm
- Max Load: 6000KG/1000KG
- Input Voltage Range: 24-560V
- Traction Motor Power: 5500KW/7500W
- Traction Gear Common Ratio: 70/120
- Traction Motor Supports Dual Encoder, achieves up to PL=D, category 2 functional safety under EN ISO 13849-1

2.20.2. TYD500 Series Common Models

Wheel series			TYD500-SM55015BA-70		TYD500-SM75015-120			
			TYD500-SM55015BA-70-15025-SM150BC-50	TYD500-SM55015BA-70-12420-SM300BC-64	TYD500-SM75015BA-120-15025-SM150BC-50	TYD500-SM75015CA-120-15025-SM150CC-50	TYD500-SM75015BA-120-12420-SM300BC-64	TYD500-SM75015CA-120-12420-SM300CC-64
Traction data	Traction Motor	Rated Power(KW)	5.5	5.5	7.5	7.5	7.5	7.5
		Battery Voltage(V)	48	48	48	72	48	72
		Rated Current(A)	145	145	180	135	180	135
		Rated Speed(rpm)	1500	1500	1500	1500	3000	3000
		Nominal Torque(N-m)	36	36	48	48	48	48
		Max Torque(N-m)	72	72	96	96	96	96
		Encoder Type	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)	Incremental Encoder(2500 lines)
		Recommended Driver	IxLII 150.300.48.C	IxLII 150.300.48.C	IxLII 150.300.48.C	IxLII 150.300.72.C	IxLII 150.300.48.C	IxLII 150.300.72.C
	Drive Wheel	Gearbox Ratio(i)	70	70	120	120	120	120
		Diameter(mm)	500	500	500	500	500	500
		Speed(m/min)	33.64	33.64	19.63	19.63	39.25	39.25
		Nominal Torque(N-m)	2142	2142	4896	4896	4896	4896
		Max Torque(N-m)	4284	4284	9792	9792	9792	9792
		Max Load(KG)	6000	10000	6000	6000	10000	10000
		Brake Torque(N-m)	46	46	46	46	46	46
		Rated Power(KW)	1.5	3	1.5	1.5	3	1.5
Steering Data	Steering Motor	Battery Voltage(V)	48	48	48	72	72	72
		Rated Current(A)	39	72	39	48	39	48
		Rated Speed(rpm)	3000	3000	3000	3000	3000	3000
		Nominal Torque(N-m)	4.77	9.54	9.55	9.55	9.54	9.55
		Max Torque(N-m)	9.54	19.08	19.1	19.1	19.08	19.1
		Encoder Type	Posital Absolute Encoder(BissC Mode)	Posital Absolute Encoder(BissC Mode)	Posital Absolute Encoder(BissC Mode)	Posital Absolute Encoder(BissC Mode)	Posital Absolute Encoder(BissC Mode)	Posital Absolute Encoder(BissC Mode)
		Recommended Driver	IxLII 50.100.48.C	IxLII 50.100.48.C	IxLII 50.100.72.C	IxLII 50.100.72.C	IxLII 50.100.72.C	IxLII 50.100.72.C
	Slewing bearing & Reducer	Gear Z(n)	150	124	150	150	124	124
		Pinon Z(n)	25	20	25	25	20	20
		Reducer Ratio(i)	50	60	50	50	60	60
		Final Ratio(i)	375	372	375	375	372	372
		Max Steering Speed(°/sec)	60.00	48.39	60.00	60.00	48.39	48.39
		Max Steering Angle(°)	±120	±120	±121	±122	±123	±124
		Max Turning Radius(mm)	422	422	422	422	422	422
		Weight(KG)	350±3	350±3	350±3	350±3	350±3	350±3

2.20.3. TYD500 Series Steering Wheel Drawings(Parts)





2.21. TYD550 Series Steering Wheel

2.21.1. TYD550 Series Wheel Introduction

- Wheel Diameter: 550mm
- Max Load: 15000KG
- Input Voltage Range: 24-560V
- Traction Motor Power: 15KW/20KW
- Traction Gear Common Ratio: 40/120
- Traction Motor Supports Dual Encoder, achieves up to PL=D, category 2 functional safety under EN ISO 13849-1

2.21.2. TYD550 Series Common Models

行走部分

电机类型	永磁同步伺服电机
电机额定功率	kW 20
电机额定电压	V(DC) 96
电机额定电流	A 225
电机额定转速	r/min 2000
电机额定转矩	N.m 96
驱动轮速比	i 40
驱动轮直径	mm 550
驱动轮速度	m/min 86
驱动轮额定扭矩	N.m 3247
驱动轮最大扭矩	N.m 6494
驱动轮最大载荷	kg 15000
制动扭矩	N.m 200
电机编码器类型	增量式
编码器通讯协议	差分
编码器单圈位数(线数)	2500线
编码器圈数位数	

转向部分

电机类型	永磁同步伺服电机
电机额定功率	kW 3.0
电机额定电压	V(DC) 96
电机额定电流	A 43
电机额定转速	r/min 2000
电机额定转矩	N.m 14.3
减速器轮速比	i 100
最终转向速比	i 565
最大转向速度	°/SEC 21
转向角度	* 110
电机编码器类型	多圈绝对值(不带电池)
编码器通讯协议	BissC
编码器单圈位数(线数)	17位
编码器圈数位数	16位

尺寸	单位	范围	公差
L	mm	100-150	+0/-0.5
H	mm	100-150	+0/-0.5
D	mm	100-150	+0/-0.5
E	mm	100-150	+0/-0.5
F	mm	100-150	+0/-0.5
G	mm	100-150	+0/-0.5

行走电机接线图

信号线 U V W 接地 GND

电源 U V W 接地 GND

信号线 U V W 接地 GND

电源 U V W 接地 GND

转向电机接线图

信号线 U V W 接地 GND

电源 U V W 接地 GND

信号线 U V W 接地 GND

电源 U V W 接地 GND

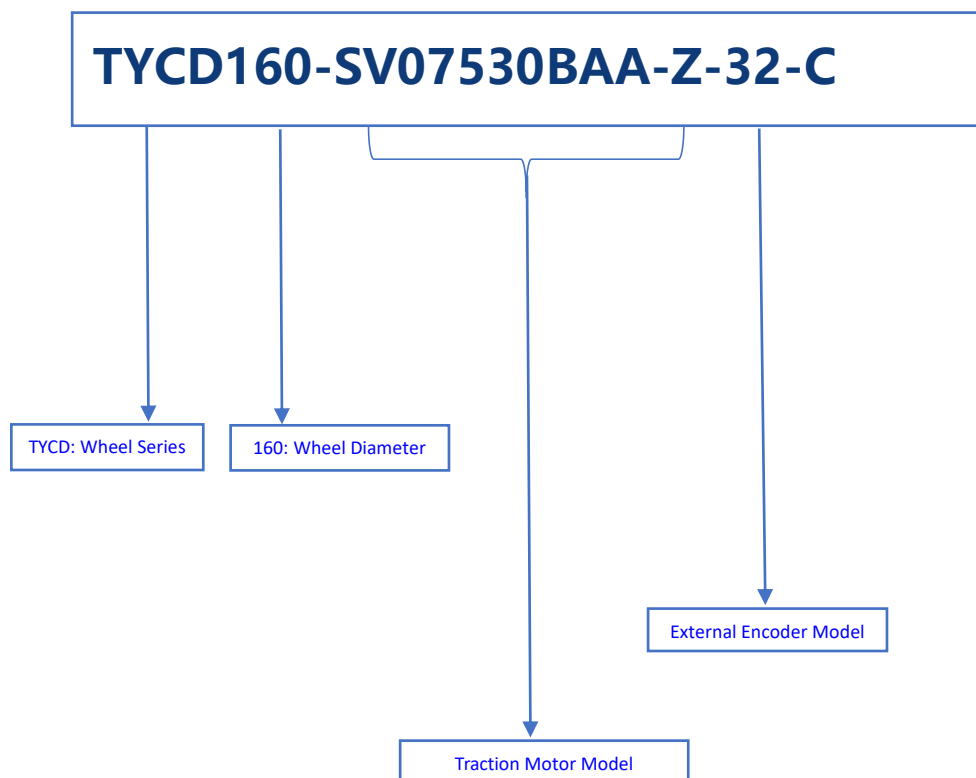
3. TYCD Series Differential Drive Wheel Set



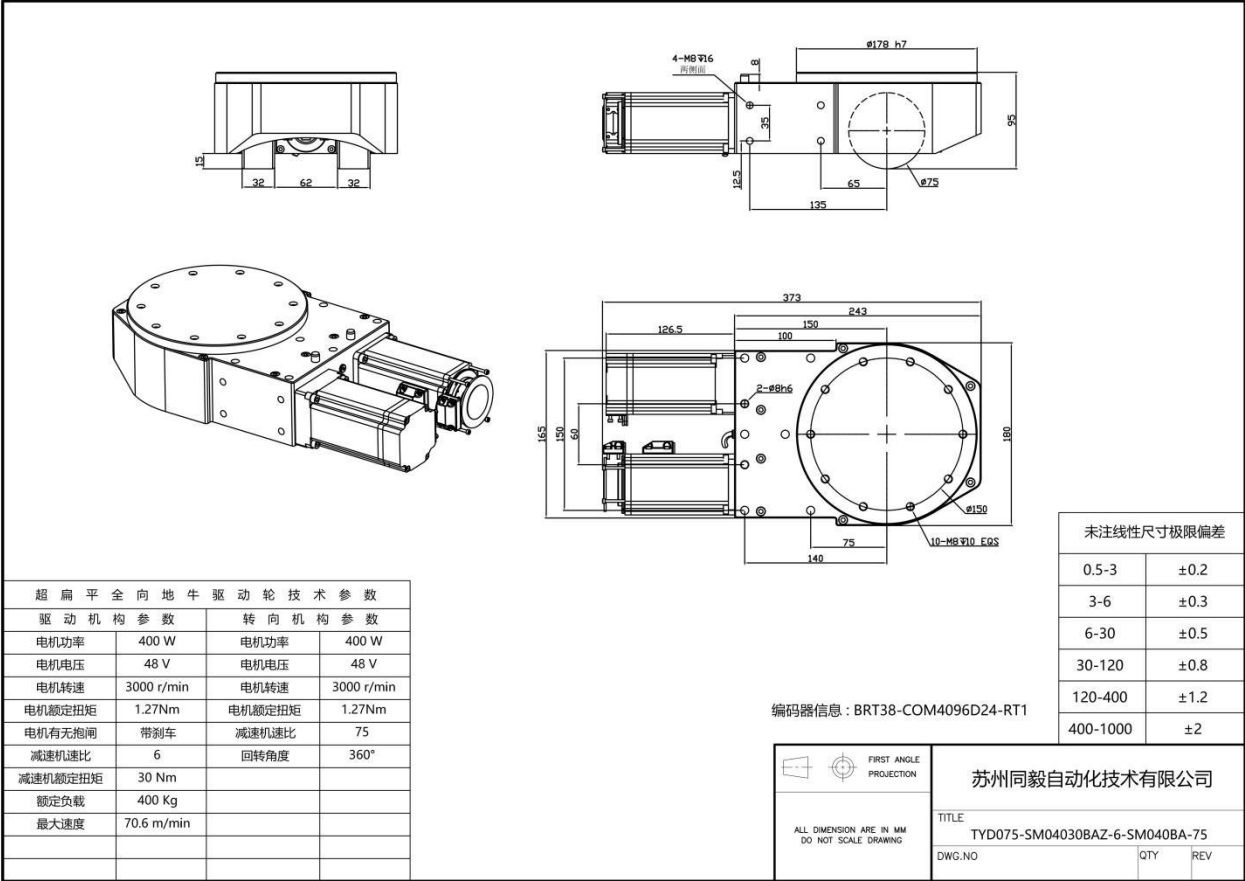
Characteristics:

- Low height and high load-bearing capacity
- Equipped with external encoder and limit switch
- Equipped with a driver and rich application experience
- Traction Motor Supports Dual Encoder, achieves up to PL=D, category 2 functional safety under EN ISO 13849-1

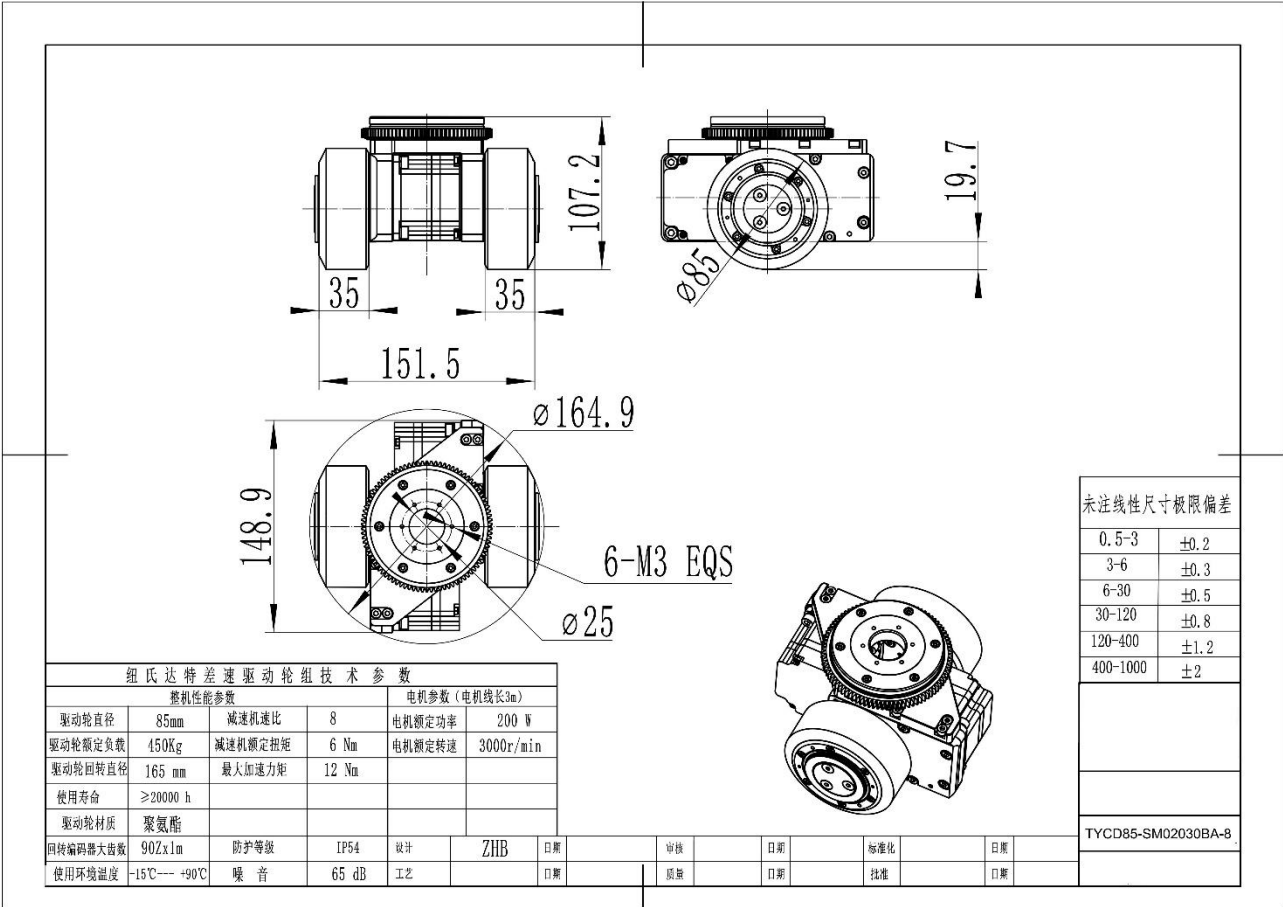
3.1. Wheel Set Model Definition



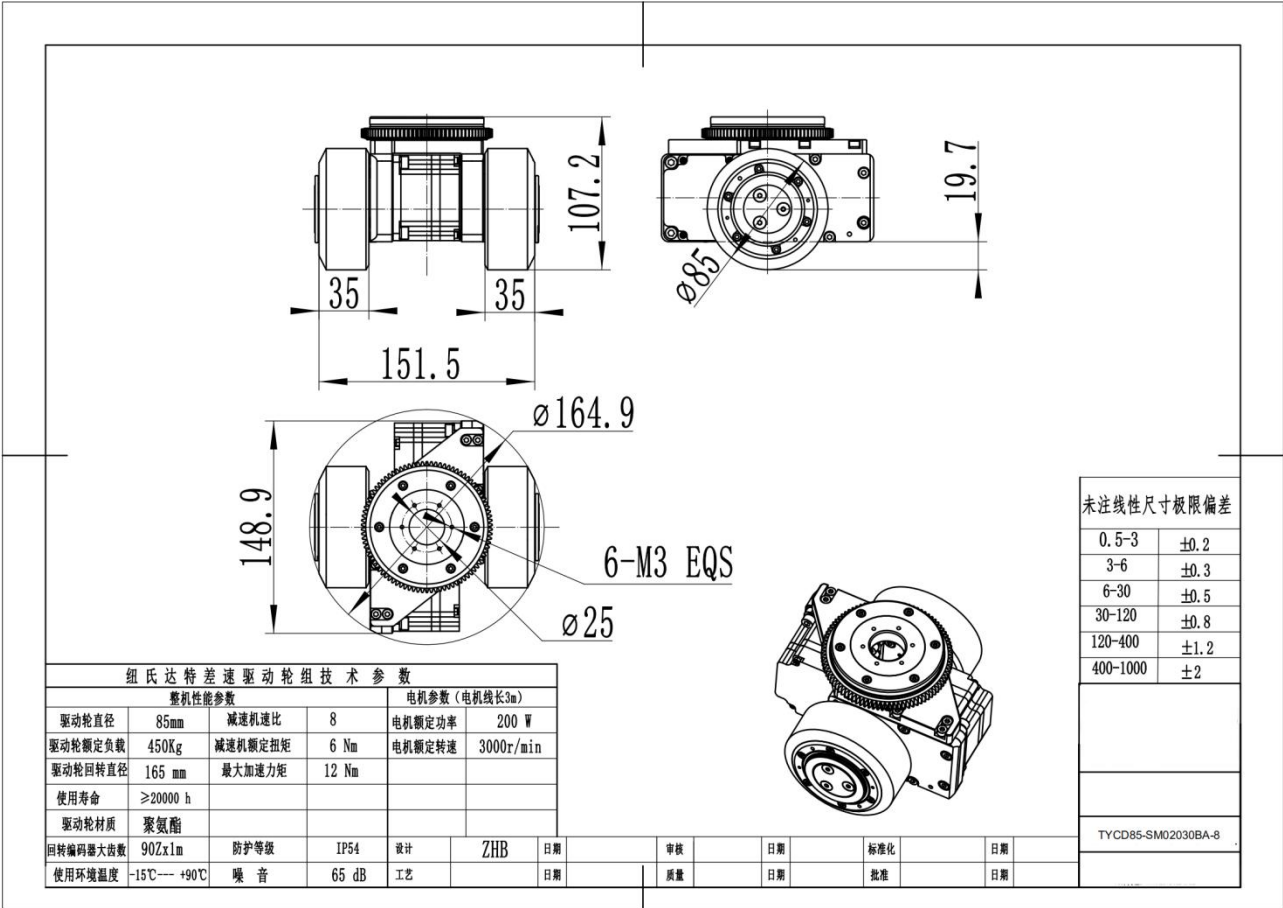
3.2. TYD075 Drive Wheel Set



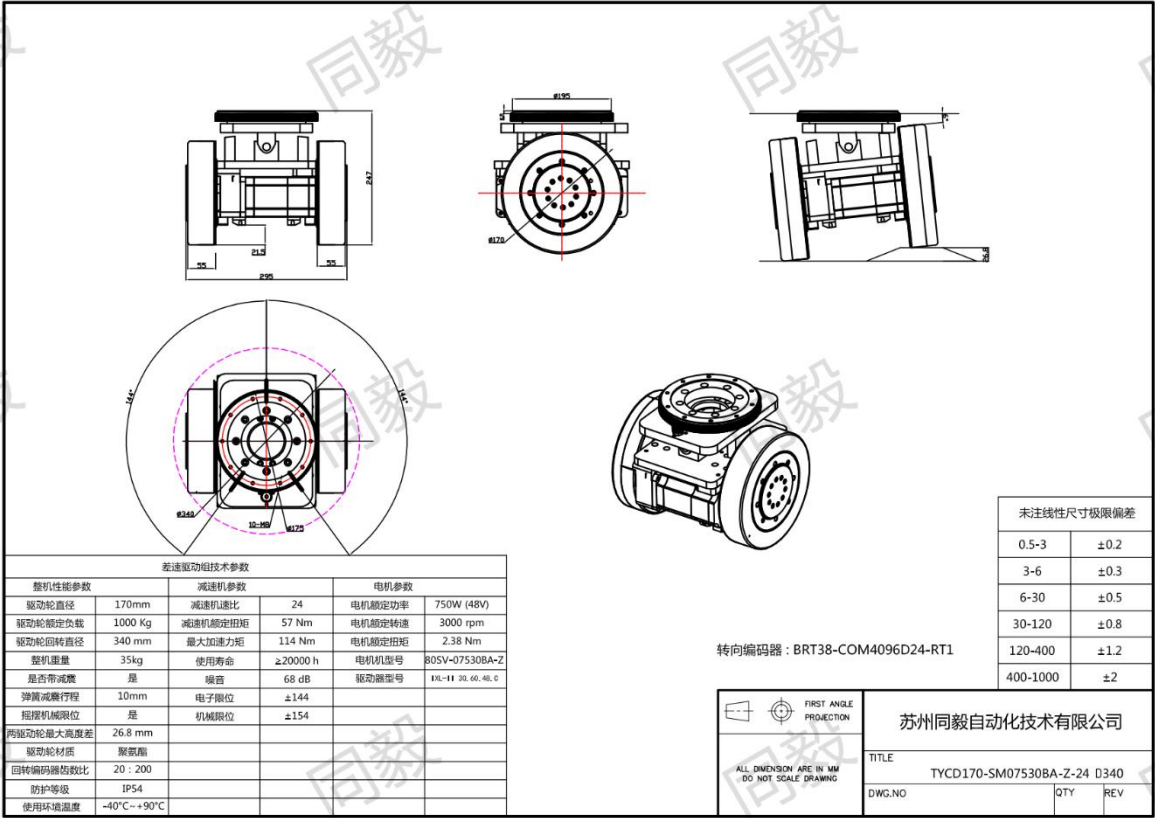
3.3. TYC085 Drive Wheel Set



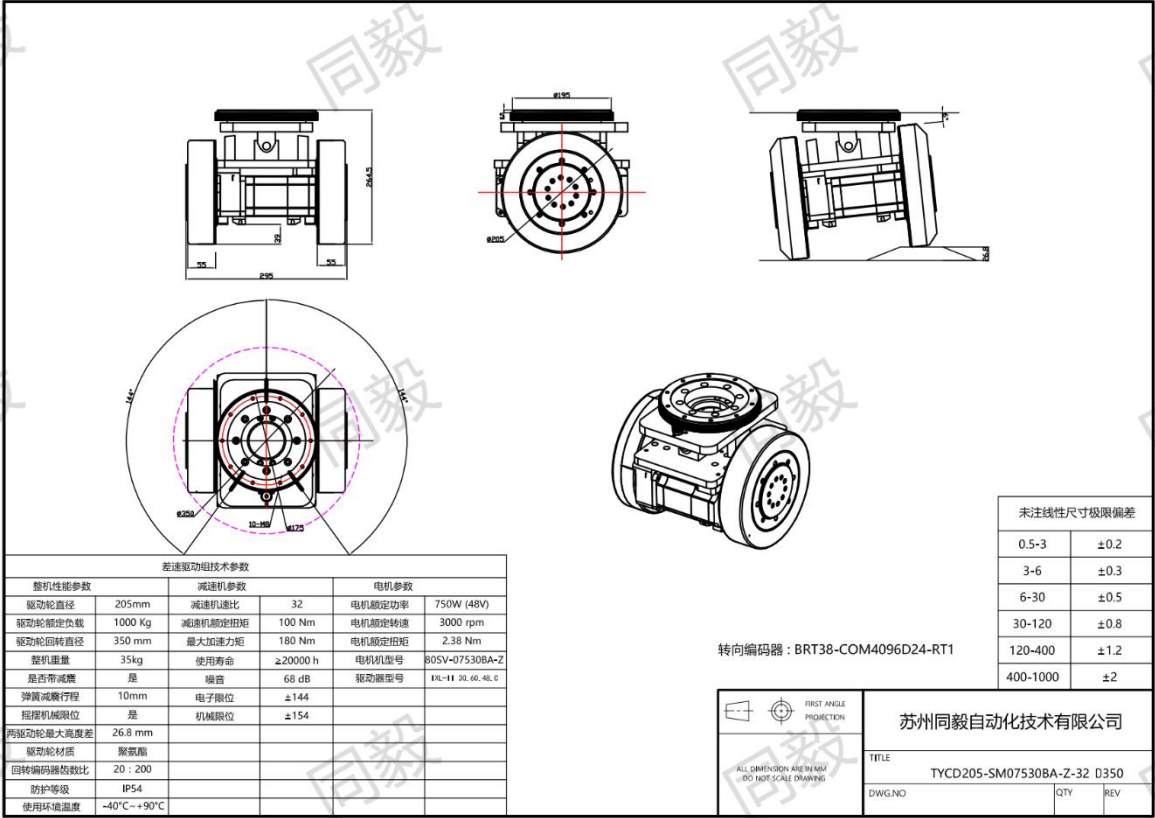
3.4. TYCD105 Drive Wheel Set



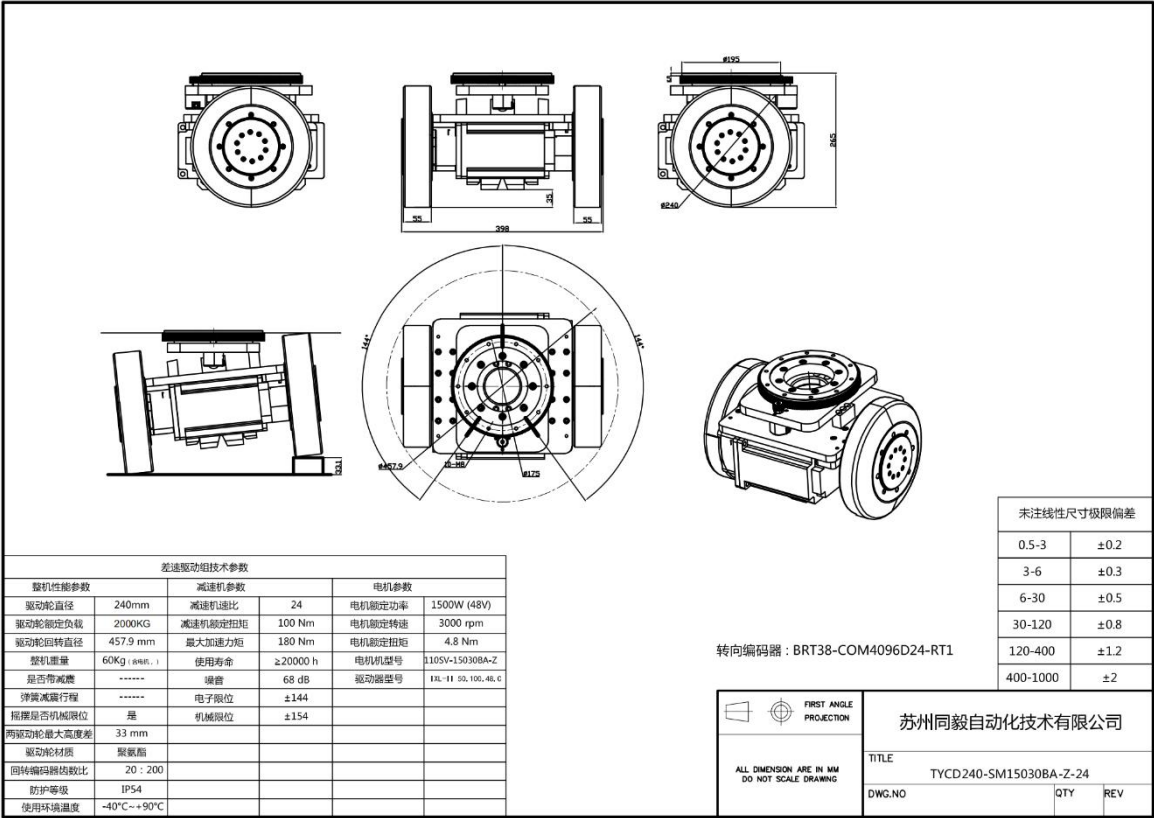
3.5. TYCD170 Drive Wheel Set



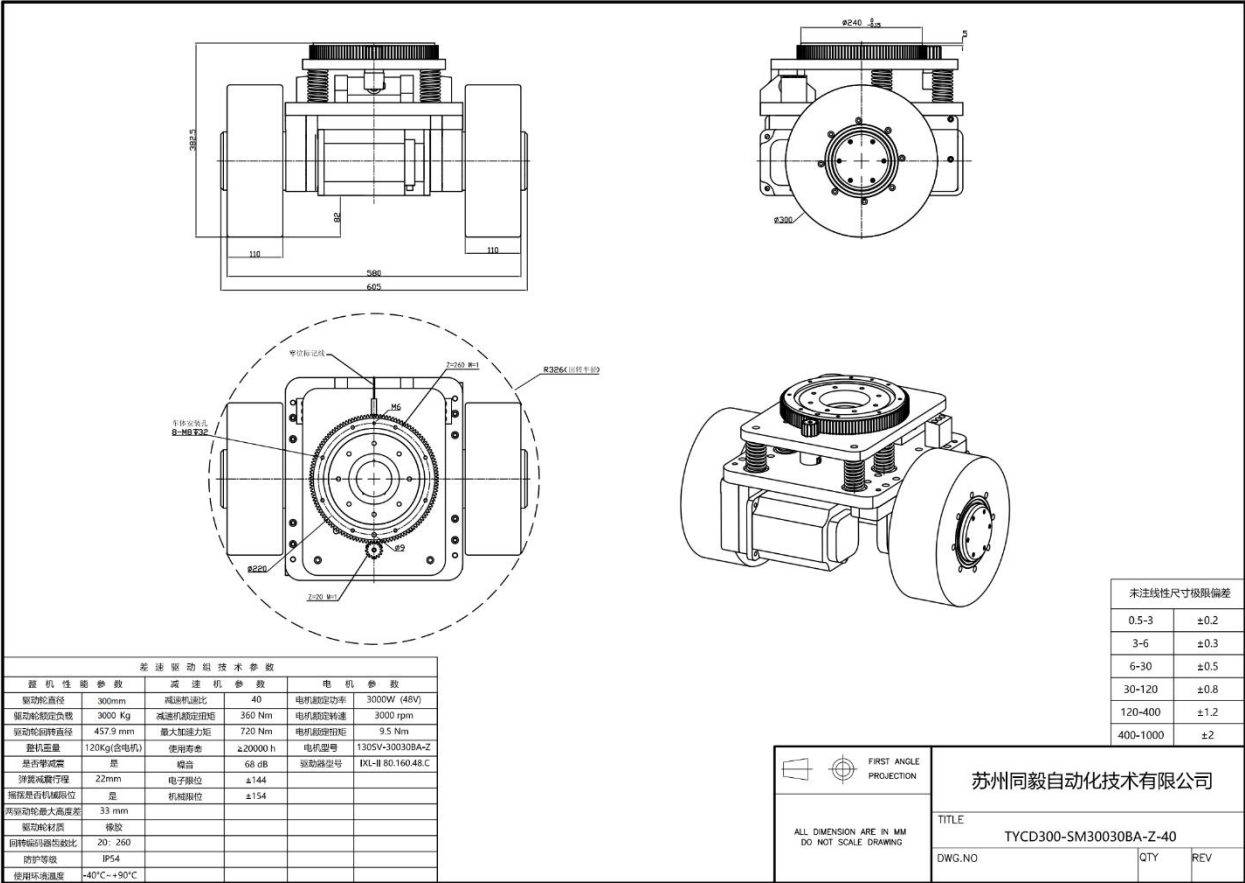
3.6. TYCD205 Drive Wheel Set



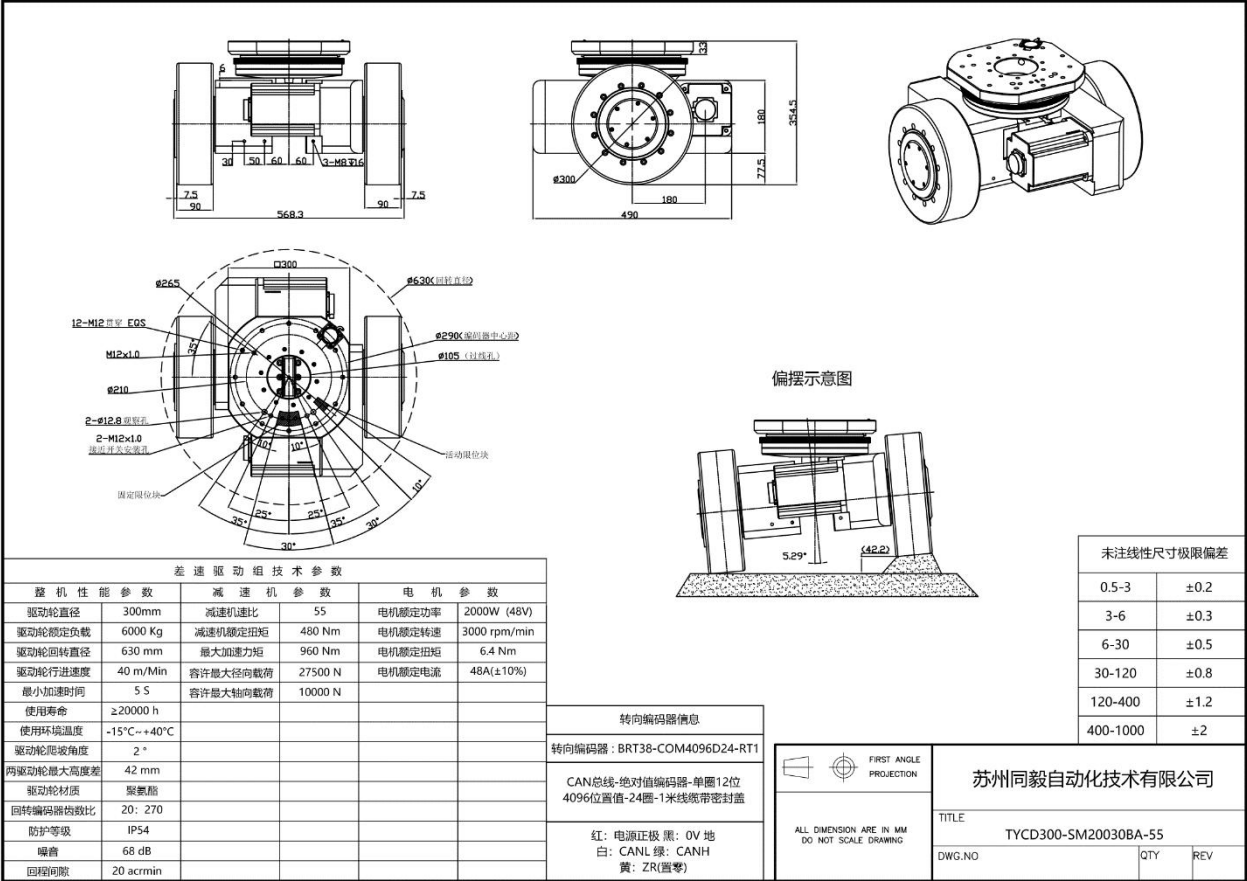
3.7. TYCD240 Drive Wheel Set



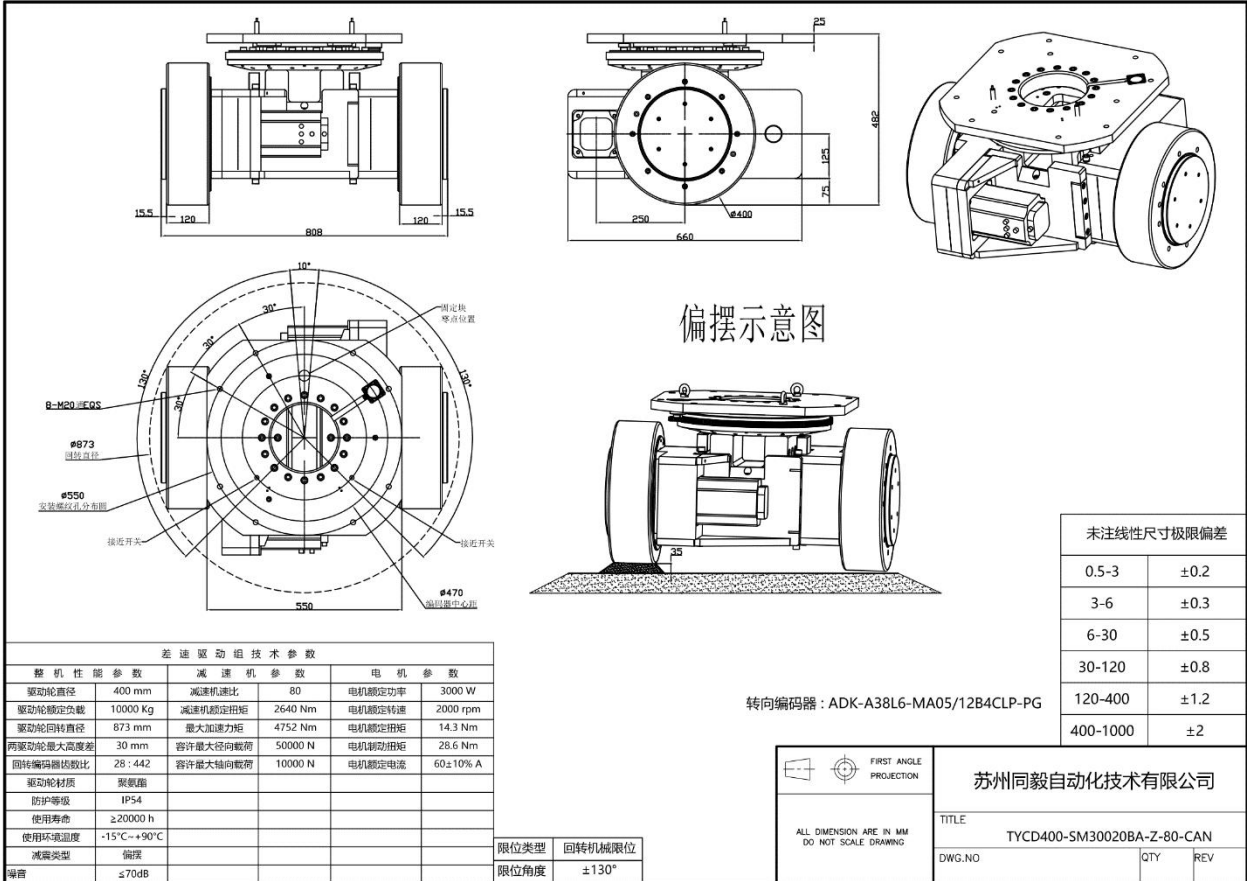
3.8. TYCD300 Drive Wheel Set-3T



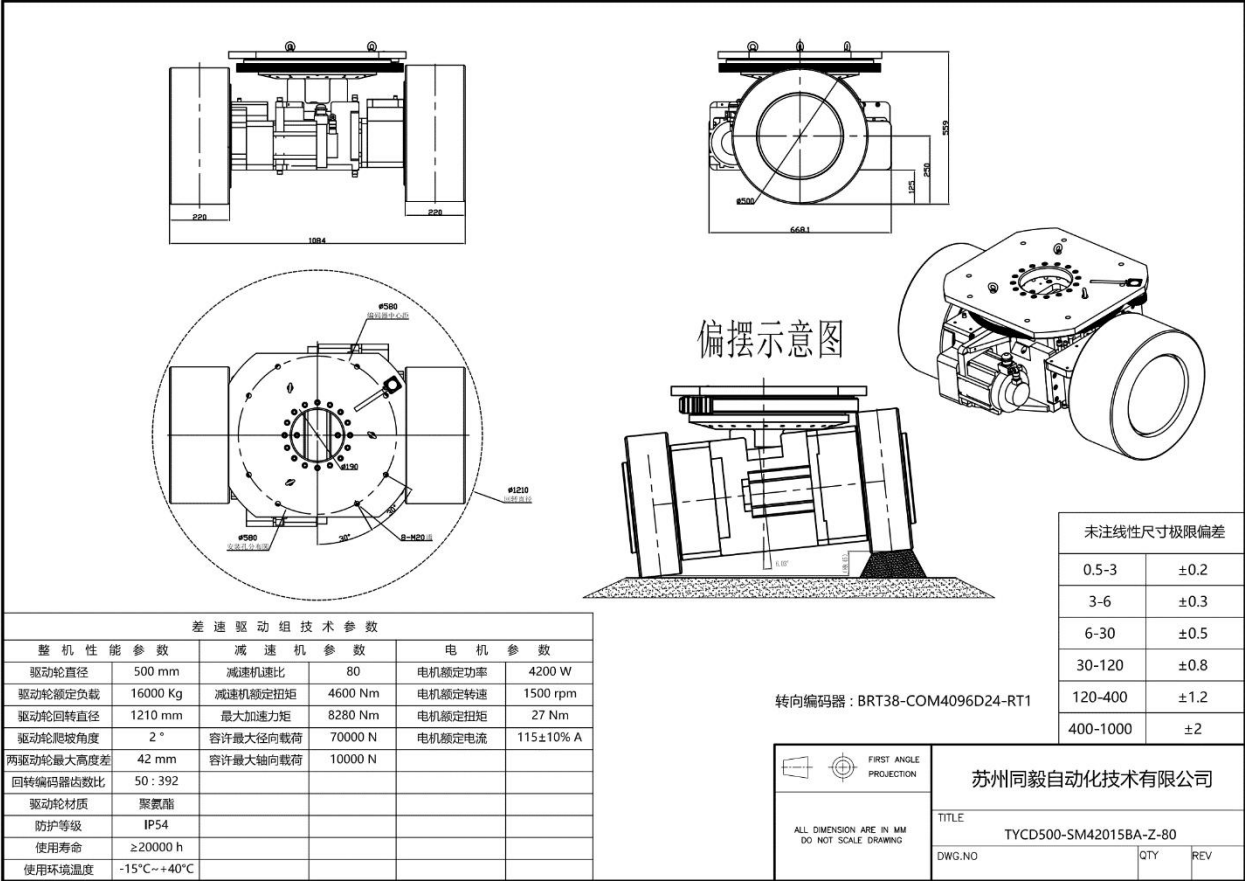
3.9. TYCD300 Drive Wheel Set-6T



3.10. TYCD400 Drive Wheel Set-10T



3.11. TYCD500 Drive Wheel Set-16T

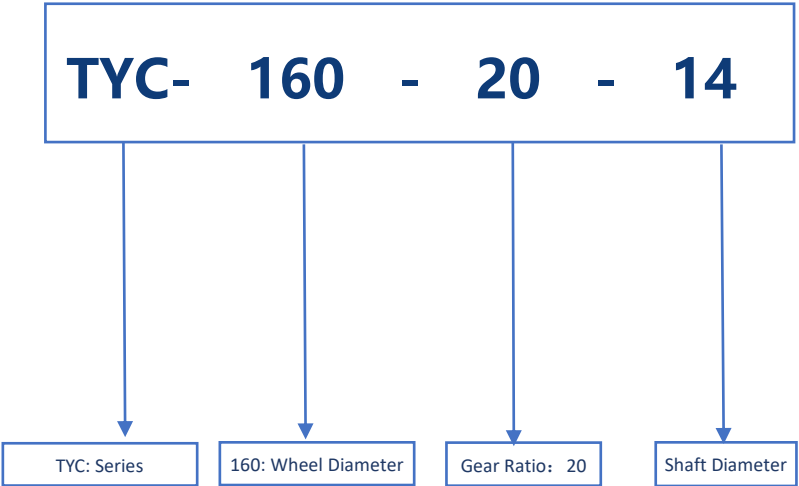


4. TYC Series Differential Wheel



- Wheel Diameter: 105/125/160/200/220/280/300/410/500
- Compact structure
- Directly connected to the motor
- Easy to assemble
- Traction Motor Supports Dual Encoder, achieves up to PL=D, category 2 functional safety under EN ISO 13849-1

4.1. TYC Series Differential Wheel Model Definition



4.2. TYC Series Differential Wheel Model

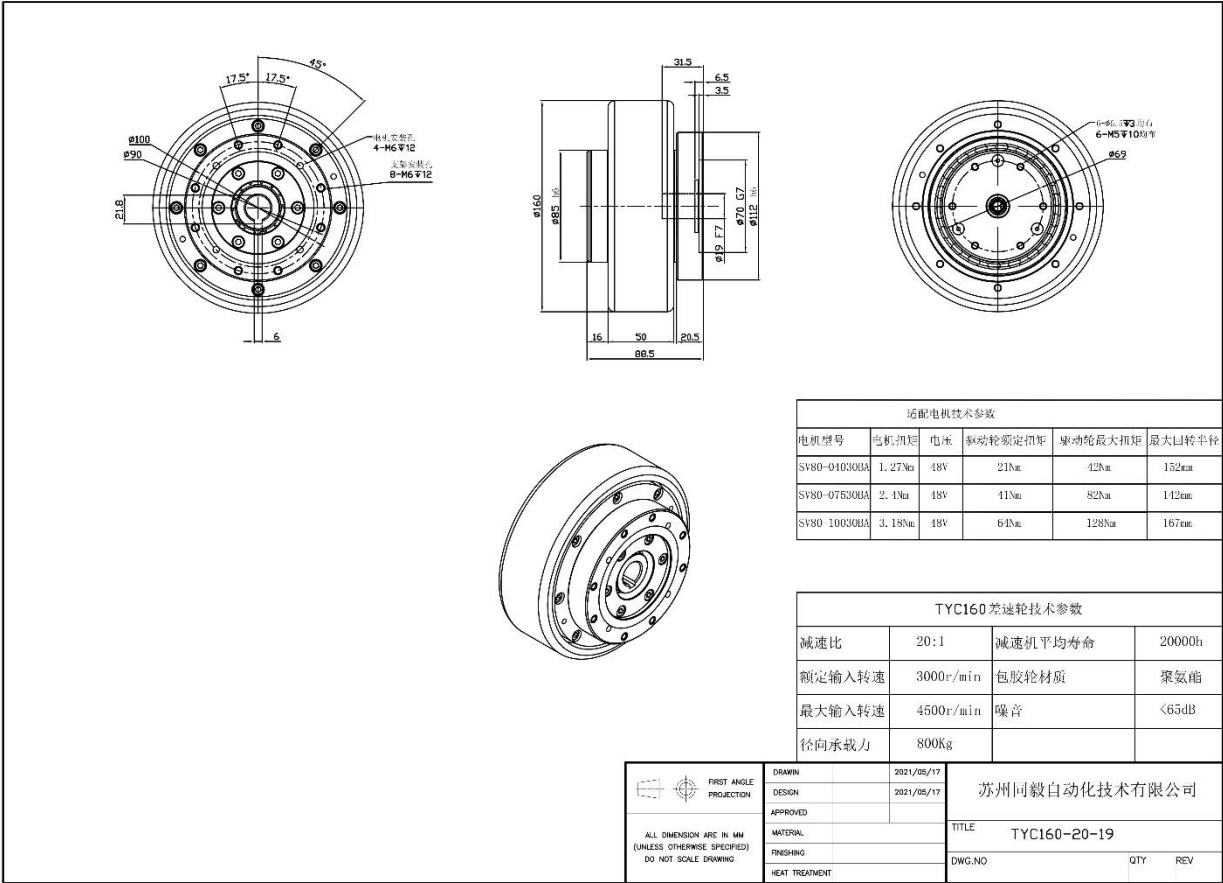
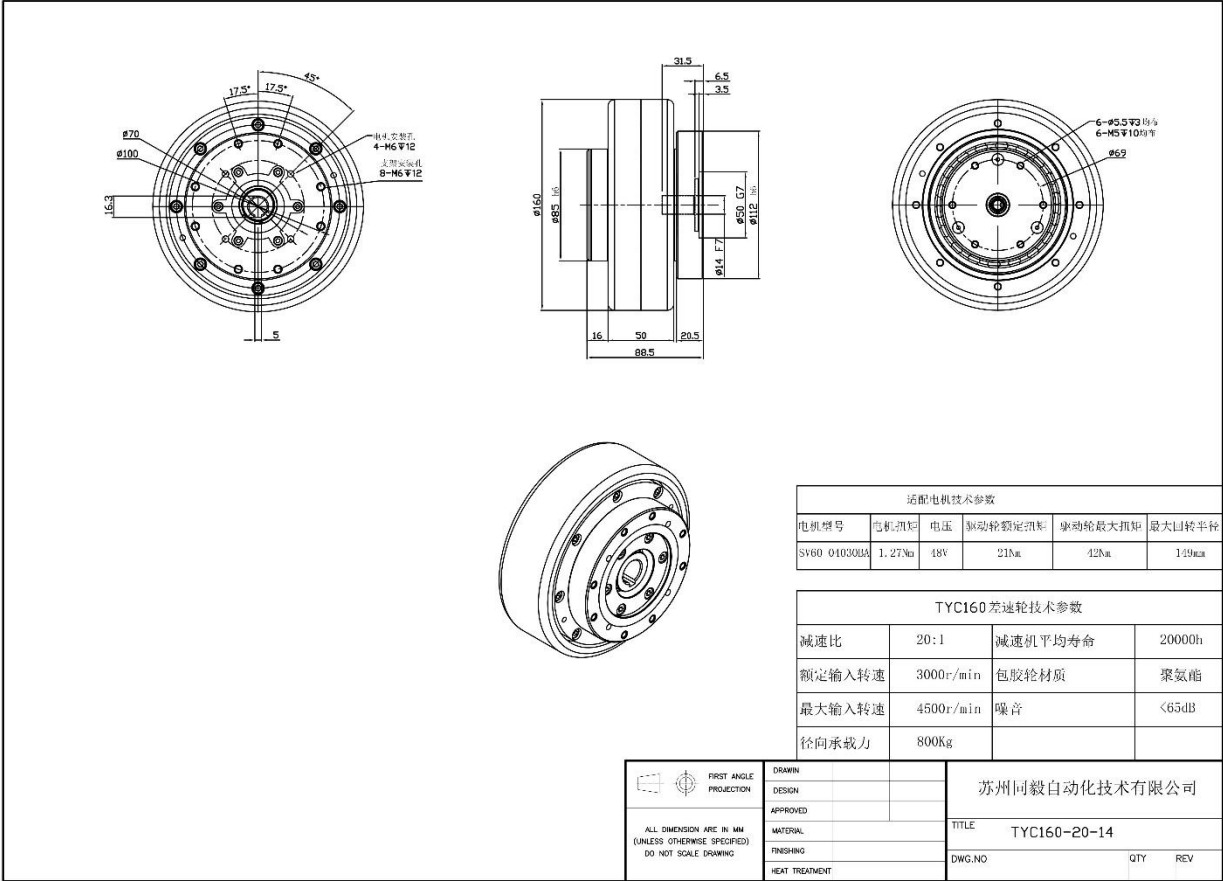
Model	TYC125-16-14	TYC150-24-14	TYC160-16-19	TYC160-20-14	TYC160-20-19
Diameter(mm)	125	150	160	160	160
Ratio(i)	16	16	16	20	20
Radial Load (KG)	350	350	800	800	800
Nominal Output Torque (N·m)	30	30	160	160	160
Max Output Torque (N·m)	60	60	320	320	320
Gear Life (Hours)	2000	2000	20000	20000	20000
Rated Input Speed (rpm)	3000	3000	3000	3000	3000
Max Input Speed (rpm)	4500	4500	4500	4500	4500
Noise (db)	65	65	65	65	65
Motor Power	100W~400W	100W~400W	400W/600W	400W/600W	400W~1000W

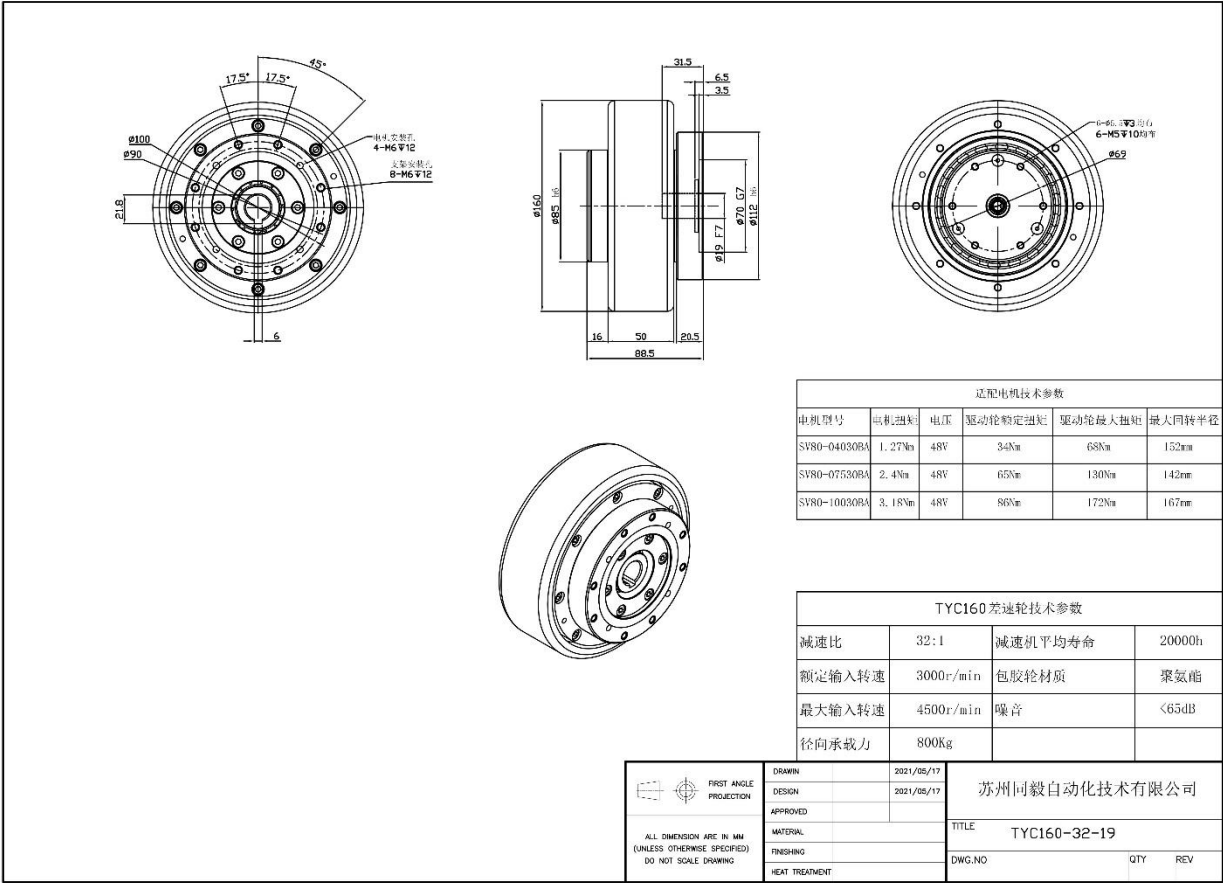
Model	TYC160-32-19	TYC160-40-19	TYC200-24-22	TYC220-40-22	TYC280-40-22
Diameter(mm)	160	160	200	220	280
Ratio(i)	32	40	24	40	40
Radial Load (KG)	800	800	1300	2000	3000
Nominal Output Torque (N·m)	160	160	220	400	600
Max Output Torque (N·m)	320	320	440	800	1200
Gear Life (Hours)	20000	20000	2000	2000	2000
Rated Input Speed (rpm)	3000	3000	3000	3000	3000
Max Input Speed (rpm)	4500	4500	4500	4500	4500
Noise (db)	65	65	65	65	65
Motor Power	400W~1000W	400W~1000W	1000W~3000W	1000W~3000W	1000W~3000W

4.3. TYC125 Series Wheel Drawings(Parts)

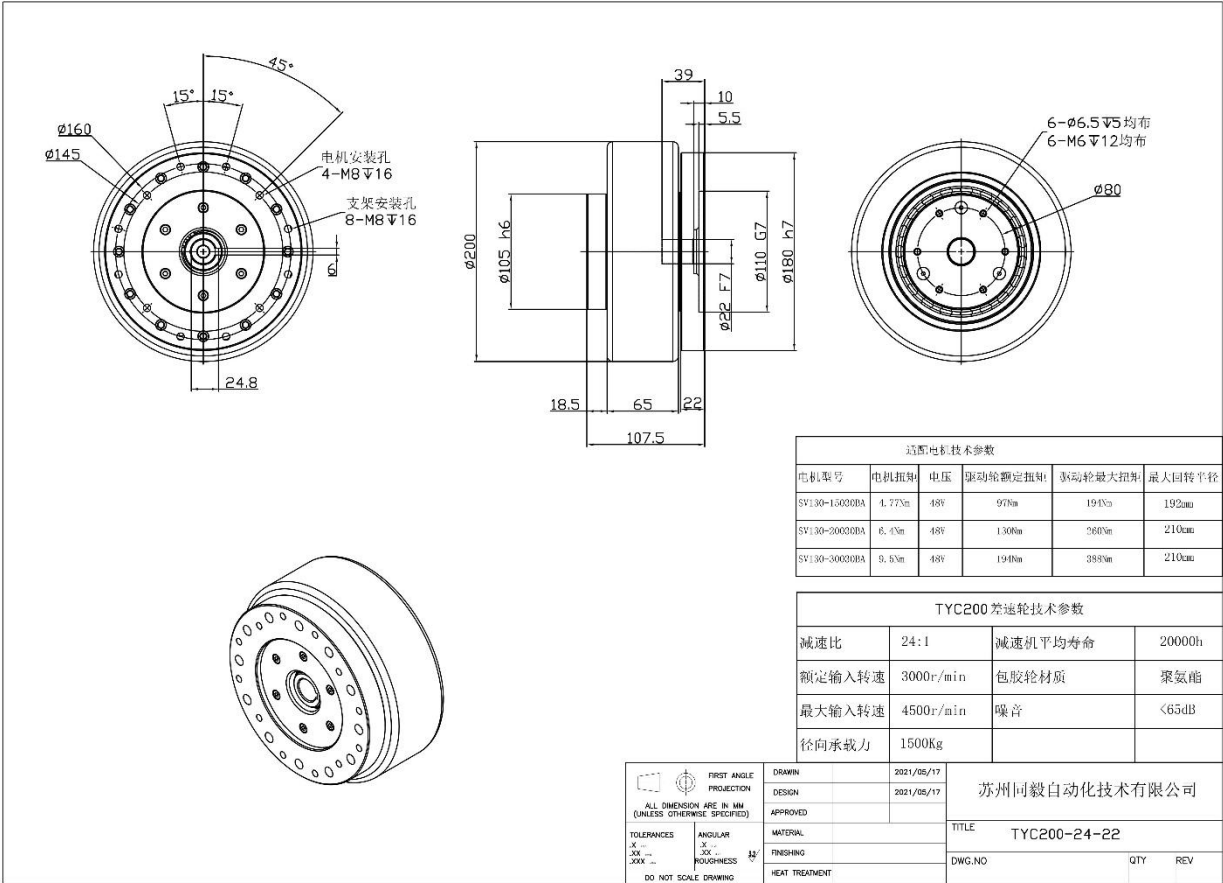


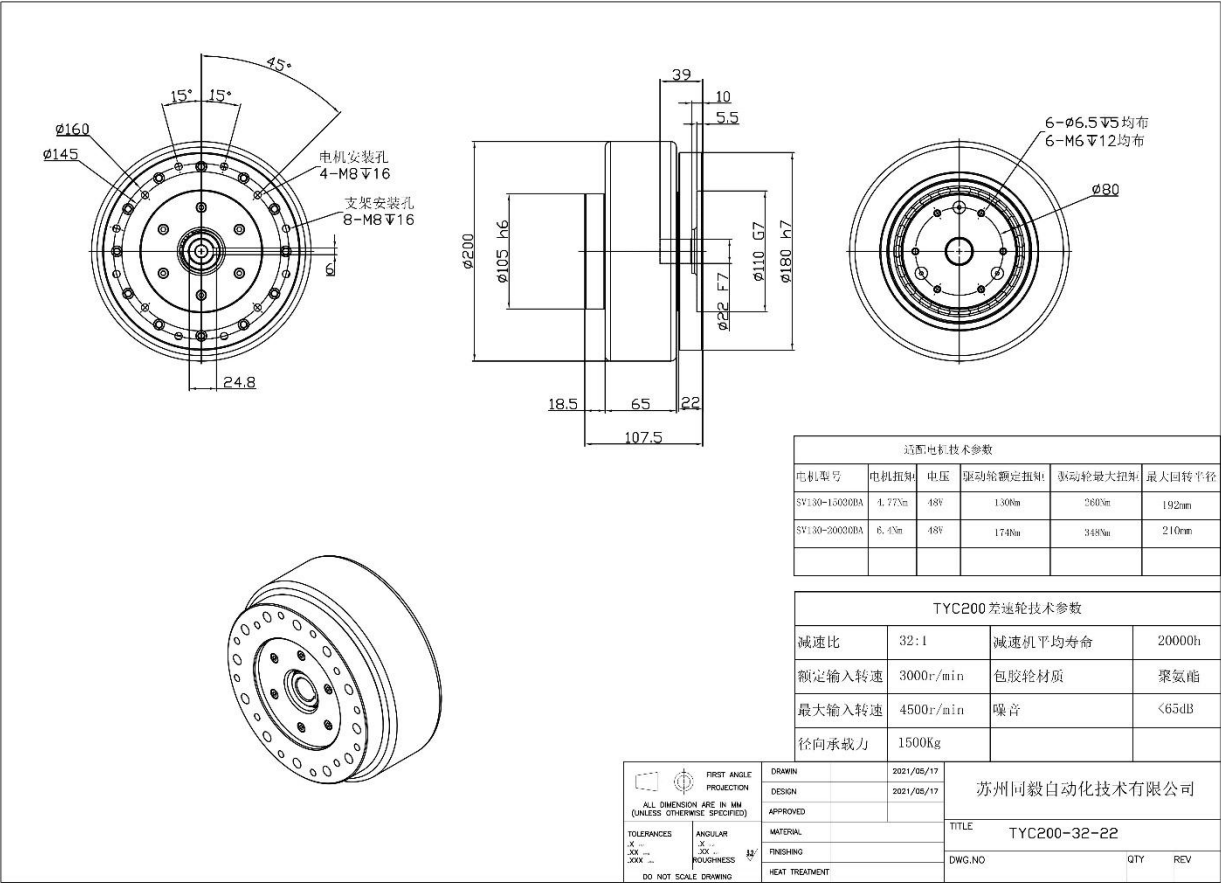
4.5. TYC160 Series Wheel Drawings(Parts)



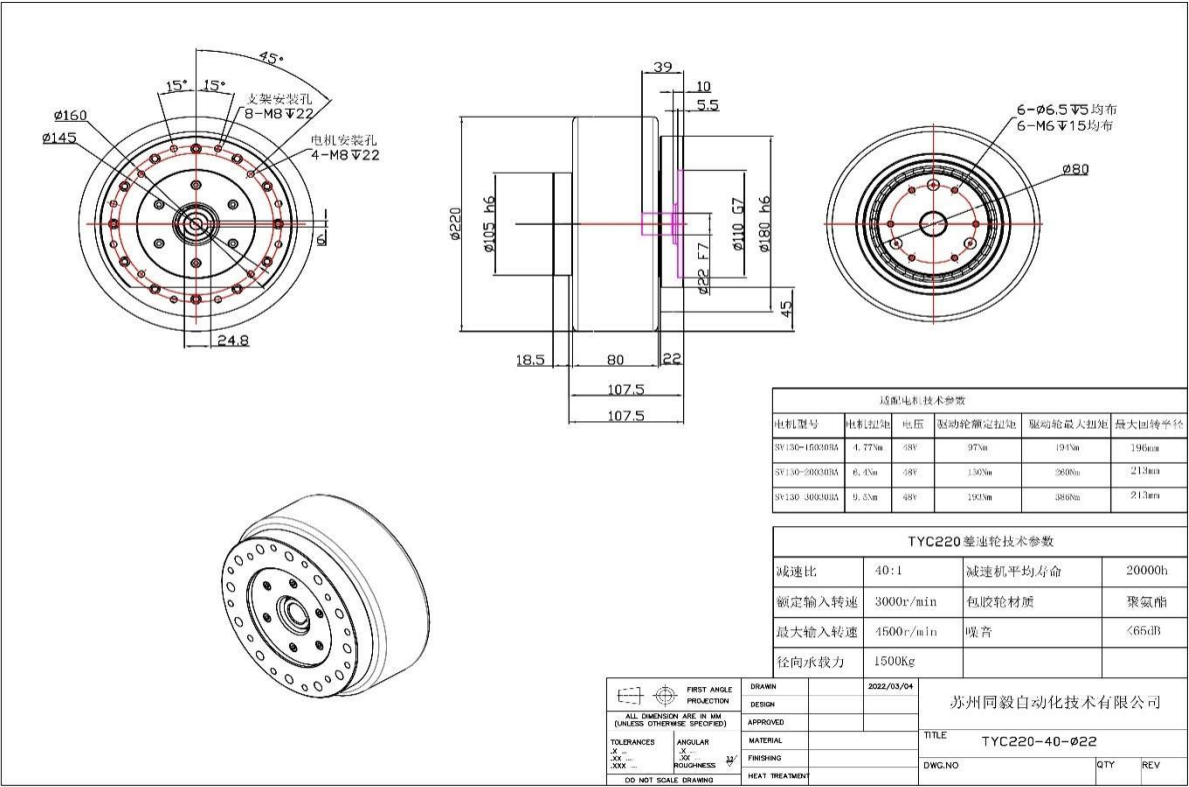


4.6. TYC200 Series Wheel Drawings(Parts)





4.7. TYC200 Series Wheel Drawings(Parts)



TYC280 差速器图纸 (部分)

