

# TZBOT

ZHEJIANG TONGZHU TECHNOLOGY

## 同筑科技

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ZHEJIANG TONGZHU TECHNOLOGY

我们将理念付诸实践

We Put Our Ideas Into Practice

ZHEJIANG TONG ZHU TECHNOLOGY CO.,LTD

Add:No.398 Jiulong Avenue,Silver Lake Street ,Fuyang District,  
Hangzhou, Zhejiang Province,China

Web:www.tongzhutech.com

Tel:+8619957899036/+8618957156180

Fax:0571-86685369

Email:ivy@tongzhutech.com/lijiafang@tongzhutech.com



针对物料搬运行业的驱动轮一体化解决方案  
Drive wheel integration solution for  
the material handling industry



- ➔ Innovation 创新
- ➔ High Efficiency 高效能
- ➔ High reliability 高可靠性
- ➔ Compact 紧凑

▶ 选型步骤/Selection step

▶▶ 一站式服务/ONE STOP SERVICE

▶ **Quality service:**  
**优质的服务:**

We always target our customer's needs. From product design, production to after-sales service, we have close communication and cooperation with customers, constantly changing and adjusting until we provide stable and reliable products and the best solutions.

Customers provide the vehicle load, speed, environment, control requirements of agv and so on.

Provide preliminary selection and drive solutions

Communicate with customers and determine plans

▶ **Stable and reliable products:**  
**稳定可靠的产品:**

Adhering to the advanced design concept, and adopting efficient design and analysis tools, we insist on strict production and assembly process. We always keep close cooperation with domestic AGV leading enterprises. Tongzhu Technology is committed to researching and developing the most stable and reliable products.

PLC or embedded motion control card



Drive control scheme



▶ **Areas of concentration**  
**专注的领域:**

We are dedicated to the R&D and manufacturing of drive units in the material handling industry. Whether it is used for traction, lift or steering systems, we always provide optional solutions for our customers.

▶ **Quality solutions**  
**优质的解决方案:**

The driving unit is the core business of Tongzhu Technology. We customize products with specific requirements for our customers. Cooperating with the world famous driver manufacturers, such as AMC, Roboteq, etc., Tongzhu Tech is able to provide integrated solutions.

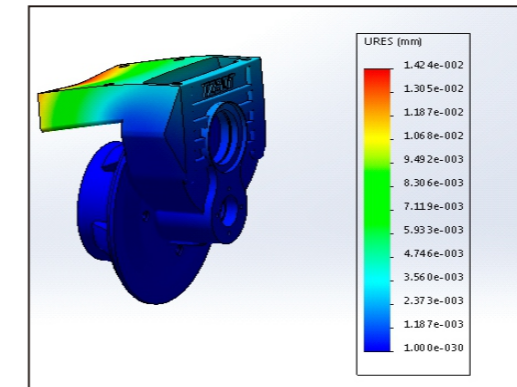
专注实现优质产品，服务成就客户梦想。

Focusing on achieving quality products, servicing to achieve customers' dream.



**CORE OF TONGZHOU TECHNOLOGY**

**我们的核心**

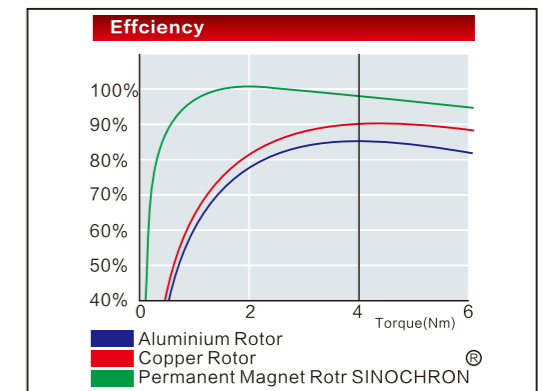


Advanced design concept  
先进的设计理念:

The latest CAD software and simulation tools are used to make a comprehensive analysis of the calculation of gears, the force and vibration of components.

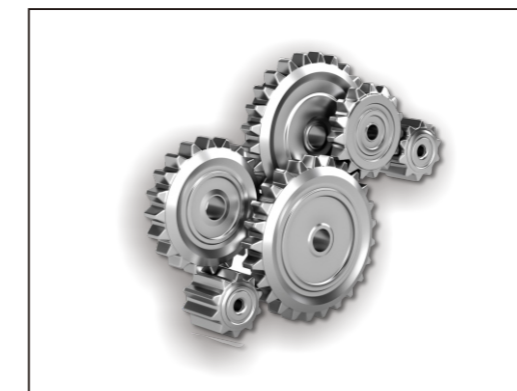
Perfect process flow  
完善的工艺流程

In strict accordance with the provisions of DIN ISO9001:2008, the process flow is procedurally regulated and continuously improved.



Strict quality testing  
严格的质量检测

The use of high precision three-coordinate measuring instruments, pressure test benches, vibration test benches, carrying out a strict factory inspection of the drive wheels to ensure the lowest failure rate.



Efficient after-sales service  
高效的售后服务

Providing efficient and high-quality services to customers is the basis of our continuous development and sustained success. Serve with all our heart, do our best to establish a business philosophy for our customer.

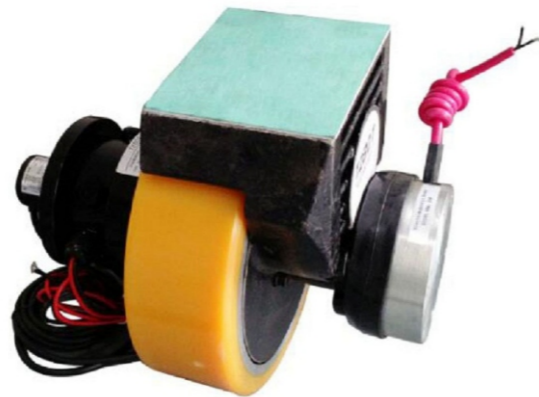


## Horizontal Drive Wheel (TZ09-TZ18)

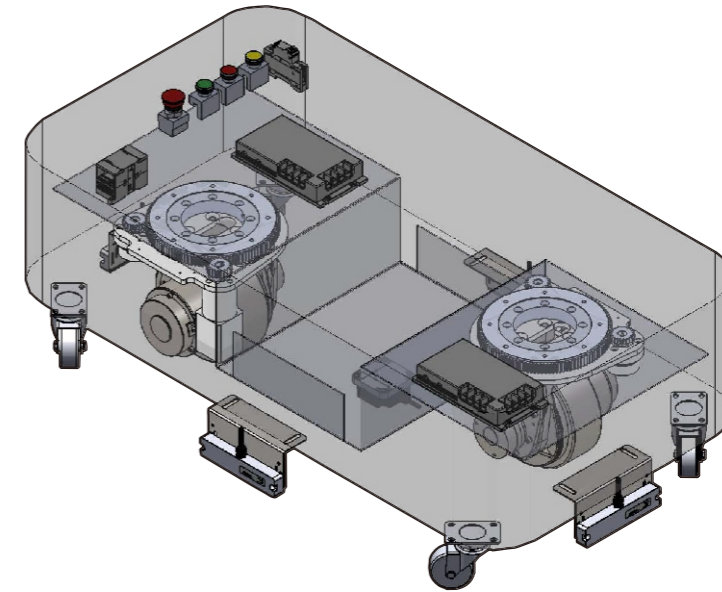


The driving wheel is the core component of AGV (Automatic Navigation Vehicle), which is mainly used in various types of AGV vehicles, electric stackers, tractors, or other industrial automatic navigation vehicles. Driving and steering of driving wheels through transmission mechanisms such as motors and reduction gears, driving vehicles for precise walking and direction control.

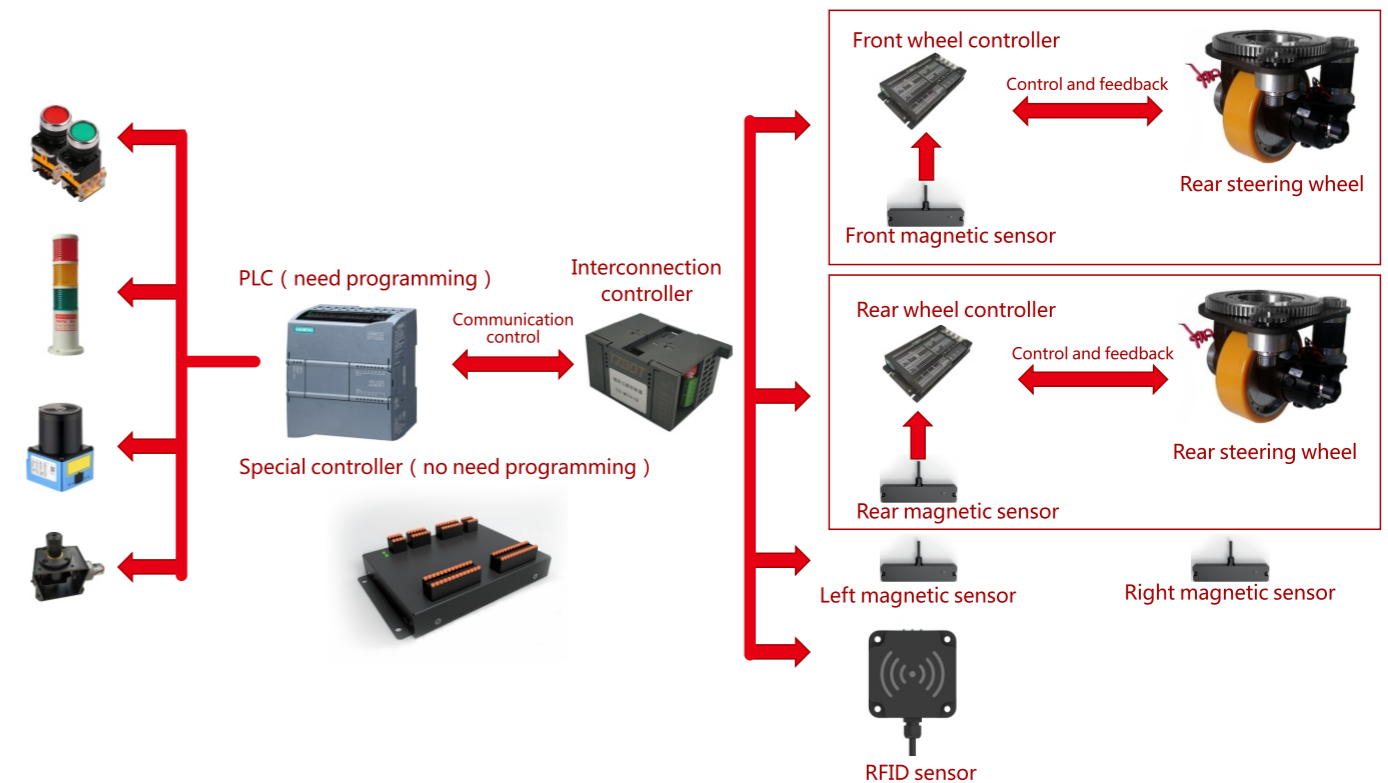
The product has the characteristics of reliable performance, convenient installation, and simple maintenance. It provides customers with reliable solutions in terms of high load, high torque, and high speed.



## Double Steering Wheel AGV Solution



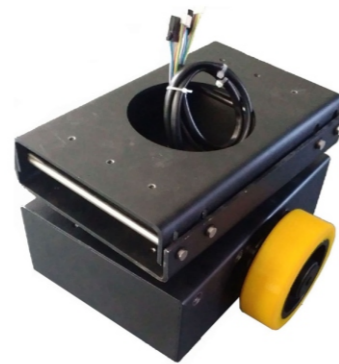
### Control System



## Differential Drive Wheel (TZCS series)

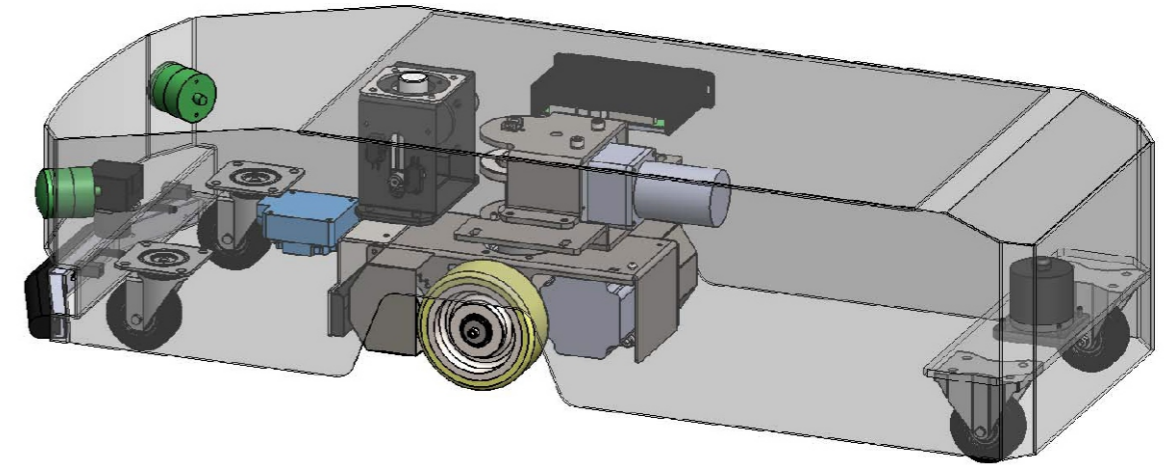


The maximum load of this product is 3 tons, it can be used in heavy load application such as parking AGV etc.

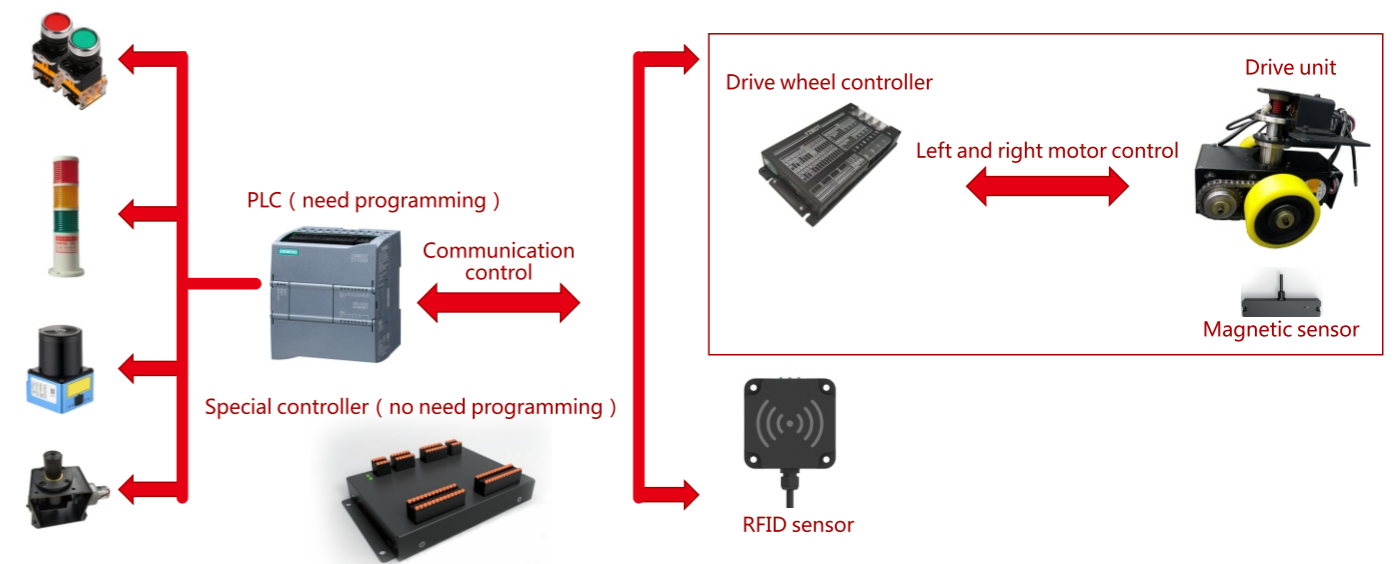


The driving unit realizes the running and steering of the driving wheels through the speed difference between the two motors. The smart middle connection design can be adaptively adjusted according to the ground environment. The built-in drive wheel lifting system can lift the drive wheels to a certain height, which is convenient for AGV vehicles to move when power is off.

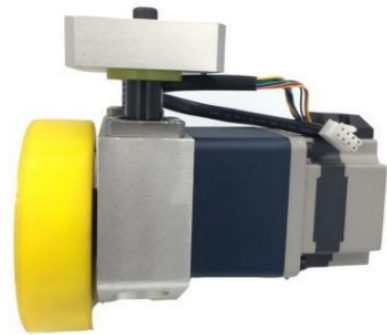
## Unidirectional Lurking AGV Solution



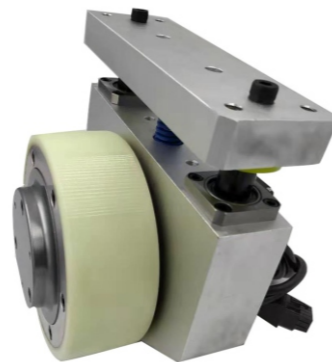
## Control system



## Single Drive Wheel (TZDL series)

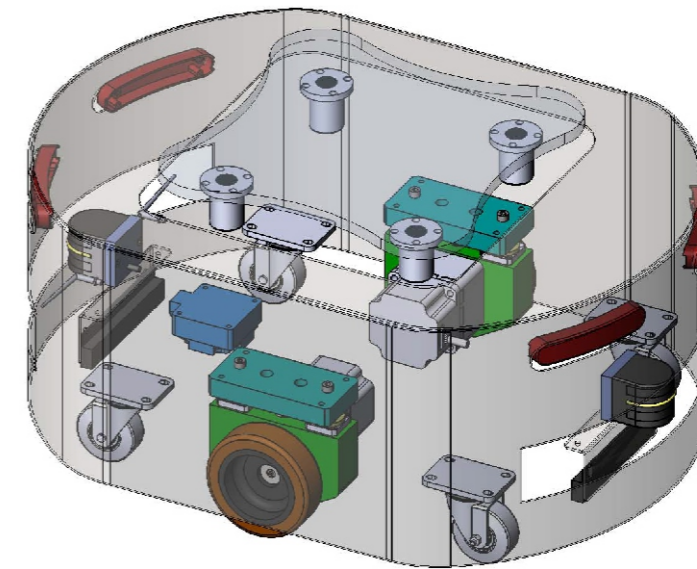


This product has the characteristics of small size and flexible installation. High-precision motors can meet the needs of different small AGVs.

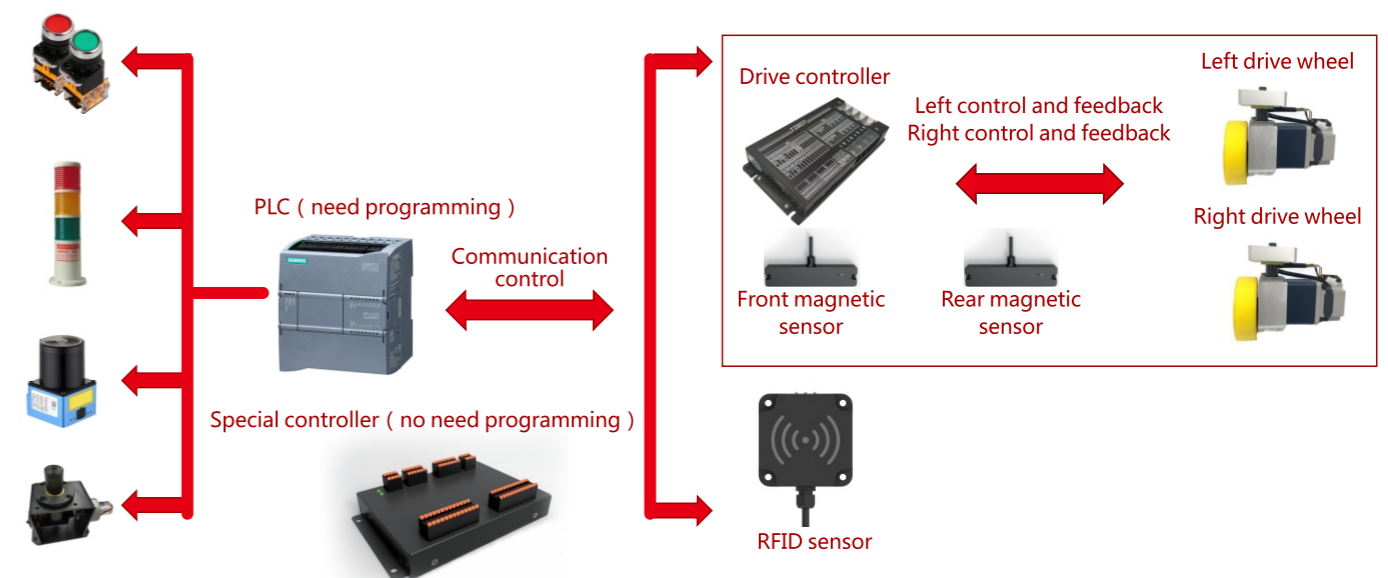


The planetary reduction wheel adopts a planetary structure and integrated design, and the servo motor is designed inside the planetary wheel. It has the characteristics of compact structure, high transmission efficiency, light noise, and precise control.

## Lifting AGV Solution



## Control system



## Horizontal Drive Wheel Parameters

Model/ Parameters	TZ09- D075	TZ10- D05S02	TZ09- D065S01	TZ18- D08S02	TZ18- D11S02	TZ18- DA15S02	TZ18- DA22S04
<b>Traction Data</b>							
Rated Power	750w	500W	650W	800W	1100W	1500W	2200W
Rated Voltage	24V	24V	48V	48V	48V	48V	48V
Rated Current	41A	25A	20A	20A	27A	20A	54A
Rated Speed	2650A	2800rpm	3000rpm	3000rpm	3000rpm	3000rpm	3320rpm
Rated Torque	2.98Nm	1.7Nm	2.34Nm	2.6Nm	3.5Nm	4.8Nm	6.3Nm
Gear Ratio	24.68i	32.19i	24.68i	34.14i	34.14i	34.14i	34.14i
Wheel Diameter	210mm	220mm	210mm	250mm	250mm	250mm	250mm
Brake Torque	6Nm	8Nm	6Nm	8Nm	8Nm	8Nm	8Nm
Encoder	Opitonal	Opitonal	Opitonal	Opitonal	Opitonal	Opitonal	Opitonal
Traction Capacity	800kg	600kg	700kg	800kg	1000kg	1500kg	2000kg
<b>Steering Data</b>							
Rated Power	---	200W	120W	200W	200W	200W	400W
Rated Voltage	---	24V	48V	48V	48V	48V	48V
Rated Current	---	11A	3.3A	5.5A	5.5A	5.5A	11A
Rated Speed	---	3000rpm	3000rpm	3000rpm	3000rpm	3000rpm	3000rpm
Rated Torque	---	0.64Nm	0.45Nm	0.64Nm	0.64Nm	0.64Nm	1.27Nm
Total Ratio	---	200i	228i	200i	200i	200i	200i
Encoder	---	Opitonal	Opitonal	Opitonal	Opitonal	Opitonal	Opitonal

## Differential Drive Wheel Parameters

Model/ Parameters	TZCS-100-30	TZCS-200-30	TZCS-750-25	TZCS- 100-30-TS	TZCS- 200-30-TS
Rated Power	100W	200W	750W	100W	200W
Rated Voltage	24V	24V	48V	24V	24V
Rated Current	6A	9.6A	22A	6A	9.6A
Rated Speed	3000rpm	3000rpm	3000rpm	3000rpm	3000rpm
Rated Torque	0.4Nm	0.65Nm	2.39Nm	0.4Nm	0.64Nm
Gear Ratio	30i	30i	25i	30i	30i
Wheel Diameter	130mm	130mm	180mm	130mm	130mm
Maximum load	300kg	300kg	2000kg	300kg	300kg
Traction Capacity	400kg	700Kg	2000kg	400kg	700kg

## Single Drive Wheel Parameters

Model/ Parameters	TZDL-60-50	TZDL-100-30	TZDL-200-30	TZDL- 100-30PT	TZDL- 200-30PT
Rated Power	60W	100W	200W	100W	200W
Rated Voltage	24V	24V	24V	24V	24V
Rated Current	3.2A	6A	12A	6A	10.9A
Rated Speed	3000rpm	3000rpm	3000rpm	3000rpm	3000rpm
Rated Torque	0.19Nm	0.4Nm	0.637Nm	0.4Nm	0.637Nm
Gear Ratio	50i	30i	30i	30i	30i
Wheel Diameter	100mm	135mm	160mm	135mm	160mm
Maximum load	50kg	150kg	150kg	150kg	150kg
Traction Capacity	80kg	200Kg	350kg	200kg	350kg

## Vertical Drive wheel (TZ12 series)



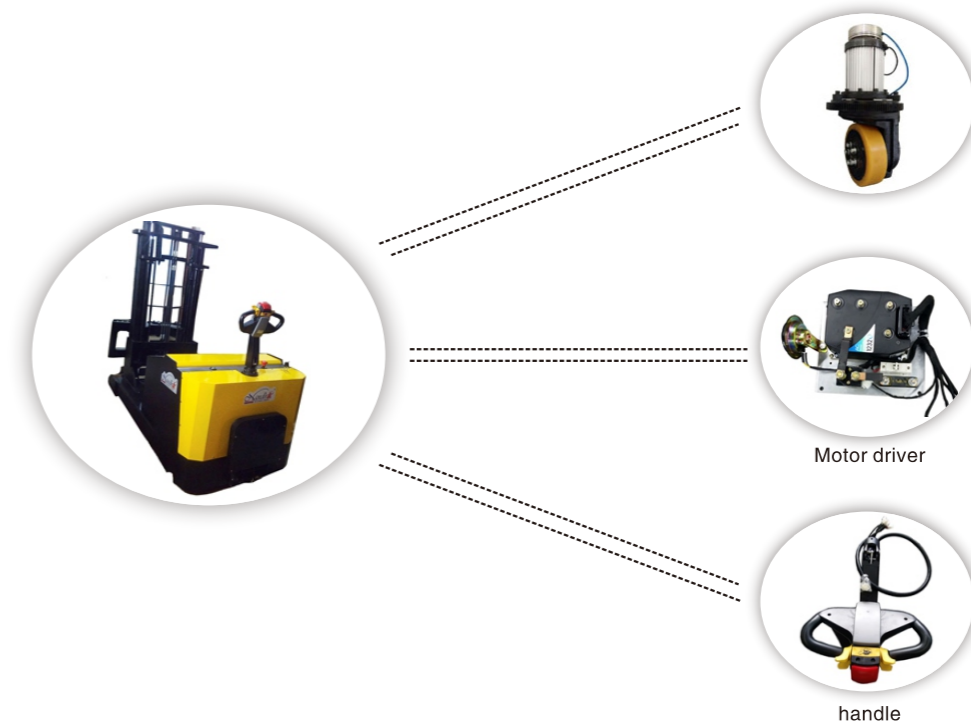
This product is a highly integrated product of electromechanical integration, including a walking and steering transmission mechanism, a braking mechanism, a support bearing mechanism, and a limit mechanism, which facilitates the steering and steering control of the steering wheel.



The product has the characteristics of reliable performance, convenient installation, and simple maintenance. It provides customers with reliable solutions in terms of high load, high torque, and high speed.

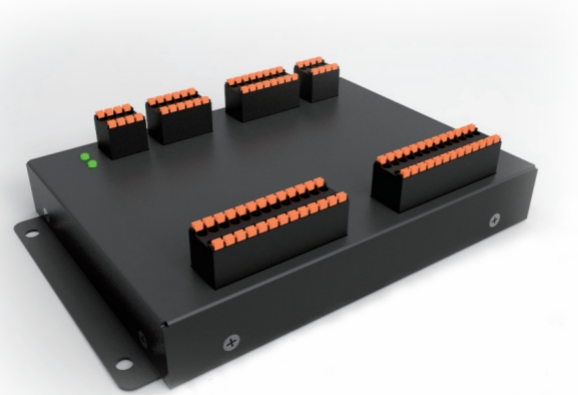
## Forklift AGV Solution

The solution uses the horizontal drive wheel and Curtis controller. The handle is used to control the forward, backward and steering of the vehicle. This solution is mainly used in electric forklifts and stackers



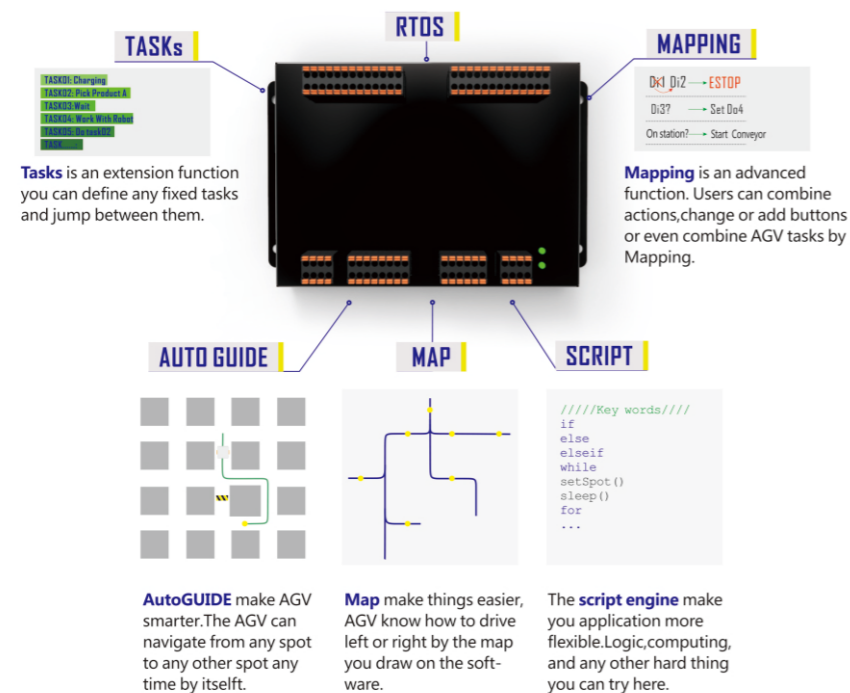
Model/Parameters	TZ12-DA15	TZ12-DA22	TZ12-DA15S02	TZ12-DA25S02
<b>Traction Data</b>				
Rated Power	1500W	2200W	1500W	2500W
Rated Voltage	24V	24V	24V	24V
Rated Current	78A	105A	78A	120A
Rated Speed	2590rpm	3320rpm	2590rpm	3352rpm
Rated Torque	5.5Nm	6.3Nm	5.5Nm	7.1Nm
Gear Ratio	22i	22i	22i	22i
Wheel Diameter	230mm	230mm	230mm	230mm
Traction Capacity	1500kg	2000kg	1500kg	2500kg
<b>Steering Data</b>				
Rated Power	---	---	200W	200W
Rated Voltage	---	---	24V	24V
Rated Current	---	---	13A	13A
Rated Speed	---	---	3000rpm	3000rpm

## AGV Controller



Controller built-in AGV dedicated operating system(RTOS),support Functions:TASKs,Mapping, Auto Guide,Map,Script and so on.

Customer can achieve rapid deployment of different models for different ontology configuration through the software AGVStudio,this greatly reduces the clients development cycle and the cost.

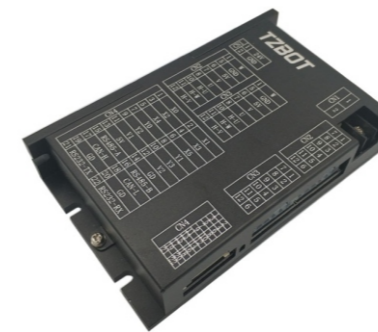


## Driver

Size	218mm × 116mm × 40mm
Output channels	2 outputs
Voltage	DC 18-70V
Power input current	Single 50A ,dual 100A
Max peak output current	Single 100A continuous 2S
Support motor type	DC brushed/brushless and AC asynchronous motor
Max continuous output current	Single way 50A
IO analog voltage control	Control signal NPN signal, speed signal 0-15V analog
Communication control	RS232, RS485, CAN BUS
Brake control	Support 2 brake control



Size	218mm × 116mm × 40mm
Operating mode	Magnetic navigation differential control, A, B motor separate control
Voltage	DC 18-30V
Running speed	Max running speed is 1m/s
Power input current	Single channel rated 13.8A, dual 27.6A
Max peak output current	Single channel maximum 27.6, continuous 3S
On-off level	9Khz
Support motor type	BLDC motor
IO analog voltage control	Control signal NPN signal, speed signal 0-5V analog
RS-232	RS-232 free protocol
RS-485	Two-wire system RS-485 free protocol,Modbus protocol
CAN BUS	CAN BUS 2.0A free protocol HS protocol





## Magnetic Navigation Sensor

Size	L182mmxW40mmxH21.5mm
Precision/Resolution	1mm/0.1mm step
Tap Size Allow	30mm/50mm
Commute Interface	CAN/RS485/RS232
Voltage	DC24V
IP Level	IP54
Detect Distance	20mm-60mm
Response Cycles	4ms,10ms,20ms,100ms
Polar Allows	N/S
Forks Detect	Right,Middle, Left



## RFID Sensor



Size	L82mmxW82mmxH36.5mm
Detect Distance	MAX 70mm(tag sizes will influence)
Detect Speed	MAX 2m/s
Standard	ISO15693
Interface	CAN/RS485/RS232
Voltage	DC24V
IP Level	IP54

## Obstacle sensor



Size	76.3mm x 50mm x 50mm
Detect distance	0.05-5m
Examination range	270°
Angle accuracy	0.5°
Light source	Infrared laser (905nm)
Working distance at 10% reflectivity	2m
Response time	Typical value 50ms
Number of channels	64
Voltage	DC10 - 36V
Current consumption	60mA typical

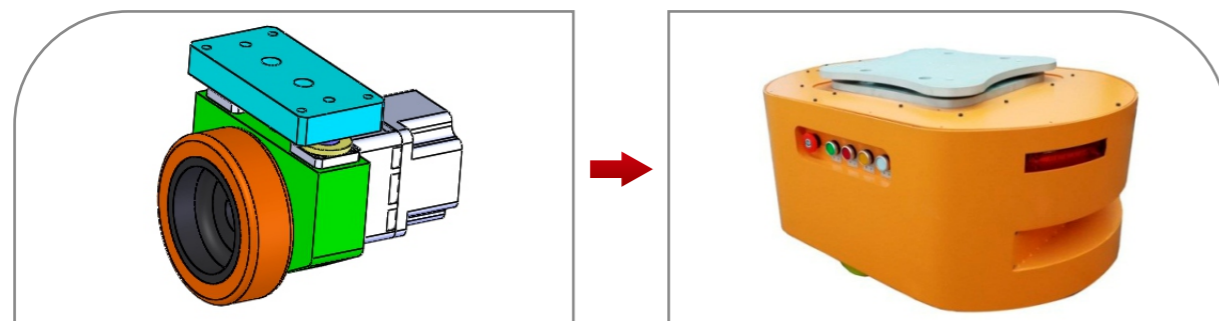
## Auxiliary interconnect module

Dual steering wheel motion control.  
Dual steering wheel load balance control.  
Support multiple control methods ( RS232,RS485 ) .

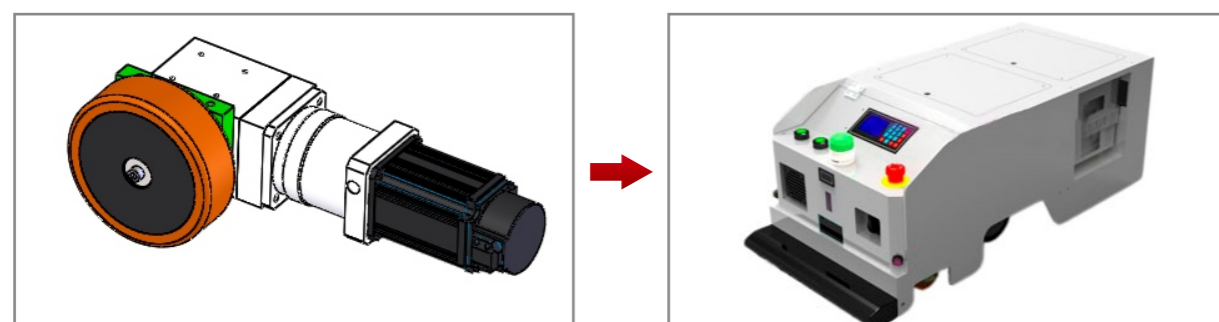


## Customized service ( 定制化服务 )

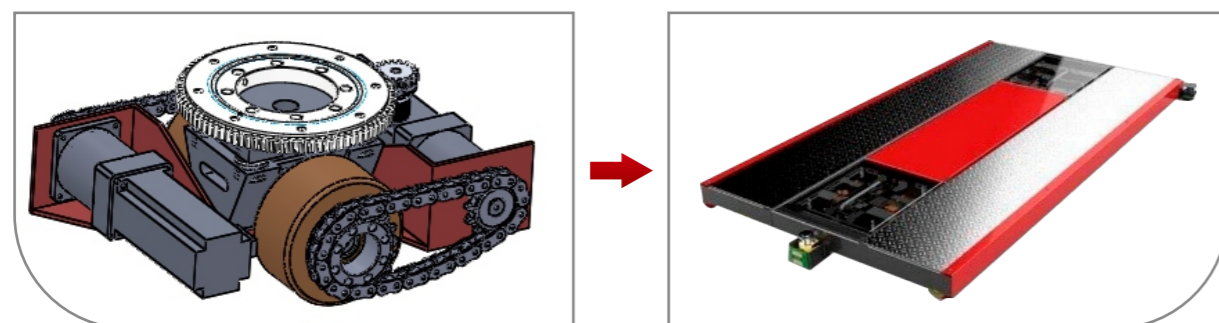
Warehousing Logistics AGV



Different load AGV



Automatic parking robot



## Application ( 应用 )



Automotive industry



Tire industry



Warehousing logistics



Paper industry



Factory handling



Hospital