

LI-ION
ZERO EMISSION



CRSE Series
CRS 4532E

**HIGH-VOLTAGE LITHIUM
BATTERY REACH STACKER**

Load capacity 45,000KG



High-Voltage Lithium CRS4532E Reach Stacker

The Maximal CRSE Series Li-ion Electric Reach Stacker is designed for demanding applications in ports, terminals, railway logistics centers, logistics parks and freight stations.

Powered by CATL high-voltage LFP battery cells, permanent magnet synchronous motors and intelligent control technology, the CRSE Series delivers strong performance, precise operation, zero tailpipe emissions, low noise and reduced energy consumption.



Electric Productivity

High-voltage electric power for every move

- The CRSE Series adopts a high-voltage lithium battery platform and permanent magnet synchronous motor system for fast response, smooth operation and high efficiency. The motor-driven variable pump distributes hydraulic flow on demand, enabling faster response and more precise control.
- From boom lifting and telescoping to spreader movement and travel, multiple functions can be operated simultaneously to reduce waiting time and improve container handling efficiency.

Key Highlights

- **High-voltage Li-ion platform**
Equipped with CATL high-voltage LFP battery cells for safe and reliable heavy-duty operation.
- **Permanent magnet synchronous motor system**
Fast response, smooth acceleration and stepless speed control with no gear-shifting shock.
- **Motor-driven variable pump**
Hydraulic flow is distributed on demand for precise movement and higher energy efficiency.
- **Simultaneous multi-function operation**
Boom lifting, telescoping, spreader movement and travel functions can be coordinated for higher productivity.
- **Energy regeneration**
The drive system recovers part of the braking and deceleration energy back to the battery, helping extend operating time.



Long Endurance & Fast Charging

■ Built to match intensive working schedules

With a high-capacity battery and dual-gun fast charging system, the CRSE Series is designed to support long shifts and high-frequency container handling. Fast charging helps reduce downtime and keeps the machine ready for operation.

■ Battery and Charging Performance



Battery capacity

579.6V / 906Ah

525kWh standard configuration



Operating time

8–10 Hours

For demanding applications



Charging system

Dual-gun

Fast charging



Charging power:

300kW



Charging time

1.8–2 hours



Low-temperature readiness

Standard battery heating system for reliable charging and operation in cold environments



The high-efficiency charging system, combined with the permanent magnet synchronous motor, helps reduce charging loss and overall energy consumption.

Intelligent Dynamic Stability Protection

■ Safer and more controlled heavy-duty handling



- The CRSE Series is equipped with EU CE-certified COBO&B3B6 dynamic torque protection technology, continuously monitoring load, boom angle, boom extension, lifting height and operating conditions. Based on real-time stability limits, the system
- automatically identifies and restricts high-risk movements, helping operators maintain safer and more controlled handling during heavy lifting, stacking, turning and travelling operations.

■ Active Safety Features

• Intelligent Dynamic Stability Protection

Continuously evaluates vehicle stability to help reduce rollover risk.

• Precise weighing system

Provides real-time load data for overload protection and stability control.

• Overload protection

The system gives timely warnings and restricts risky movements when the load approaches or exceeds safe limits.

• Boom vertical lifting technology

The intelligent controller monitors boom parameters in real time and optimizes the lifting path for safer and more stable stacking.

• All-round safety assistance

Standard features include reverse alarm, reverse radar, rear-view camera, load indicator and electronic parking button.



Built for Maximum Uptime

■ Reliable from battery to structure

Designed for long-hour heavy-duty operation in ports, yards and logistics terminals, the CRSE Series combines high-level electrical protection, multi-circuit cooling, robust structural components and comprehensive high-voltage safety design.

The battery, motors, controllers and hydraulic system are engineered to operate reliably in challenging environments, helping reduce downtime and maximize uptime.

Thermal Stability for Continuous Operation

Thermal management is not a standalone feature. It is a key part of long-term reliability. The CRS4532E provides dedicated cooling solutions for the battery, motors, controllers and hydraulic system to maintain stable performance during long-hour, high-load operation.



■ Key Highlights

- **Battery liquid cooling system**

Coolant circulates precisely inside the battery pack, keeping the battery within an optimal working temperature range to slow degradation and extend service life.

- **Motor and controller water cooling**

Cooling airflow is automatically adjusted based on temperature sensor signals to support continuous high-load operation.

- **TMS intelligent temperature control**

Cooling capacity is dynamically adjusted according to battery temperature and working intensity.

- **Independent hydraulic oil cooling system**

A dedicated hydraulic cooling circuit ensures stable long-term operation and helps extend the service life of hydraulic components.

High-level Electrical Protection

The CRSE Series features a comprehensive electrical safety system designed for high-voltage lithium battery equipment, helping protect operators, service personnel and the machine itself.



■ Key Highlights

- **Real-time insulation monitoring**

Continuously monitors the insulation status of the high-voltage system.

- **Equipotential bonding protection**

Helps reduce electromagnetic interference, data abnormality, arcing and partial discharge risks.

- **High-voltage interlock protection**

Automatically disconnects the high-voltage circuit when a connector is not properly engaged.

- **MSD maintenance disconnect**

The high-voltage circuit can be disconnected by removing the MSD during maintenance.

- **Intelligent charging cut-off**

Charging automatically stops when the preset battery threshold is reached, helping prevent overcharging.

- **High protection rating**

The vehicle reaches IPX4 water protection, key electrical components reach IP56, and the battery system reaches IP67, supporting operation in rain, dust and demanding outdoor environments.



Robust Structure and Safety Protection

The CRSE Series follows Maximal's high standards for machine reliability, with key structural components designed for long-term heavy-duty use.



Key Highlights

- High-strength frame and telescopic boom**
 Manufactured with high-standard welding processes and strict weld inspection for long-term structural reliability.
- Extended wheelbase design**
 Improves vehicle stability and provides stronger support for heavy-load handling.

- CATL LFP battery cells**
 International-brand battery cells provide reliable quality, safety and service support.
- Automatic fire protection**
 Aerosol automatic fire extinguishing devices are installed near high-heat areas, with a handheld fire extinguisher provided inside the cabin for additional safety.

Operator-Centered Comfort

Designed around the operator

- The CRSE Series features a redesigned cabin focused on long-shift, high-frequency operation. Wide visibility, clear instrumentation, a comfortable seat and integrated controls help operators stay focused, comfortable and in control.

Operator Comfort Highlights

- Wide-visibility cabin**

Large curved glass provides excellent front and overhead visibility for safer stacking, picking and travelling.

- Adjustable comfortable seat**

Helps reduce fatigue during long working hours, with a standard operator seat switch for enhanced safety.

- Color LCD display**

Vehicle status, load information, alarms and key operating data are clearly displayed for easy reading.

- Adjustable steering column**

Allows the operator to set a more natural and comfortable driving posture.

- Integrated multifunction joystick**

Main operating functions are within easy reach for smoother and more responsive control.

- Practical convenience features**

USB charger, front/rear/top wipers, widened access steps and dual large brake pedals improve everyday usability and safety.



Easy Serviceability

Easier maintenance, more controlled operating cost

The CRSE Series features a service-friendly layout with easier access to key components and clearly separated systems, helping reduce maintenance time and lower lifecycle operating costs.



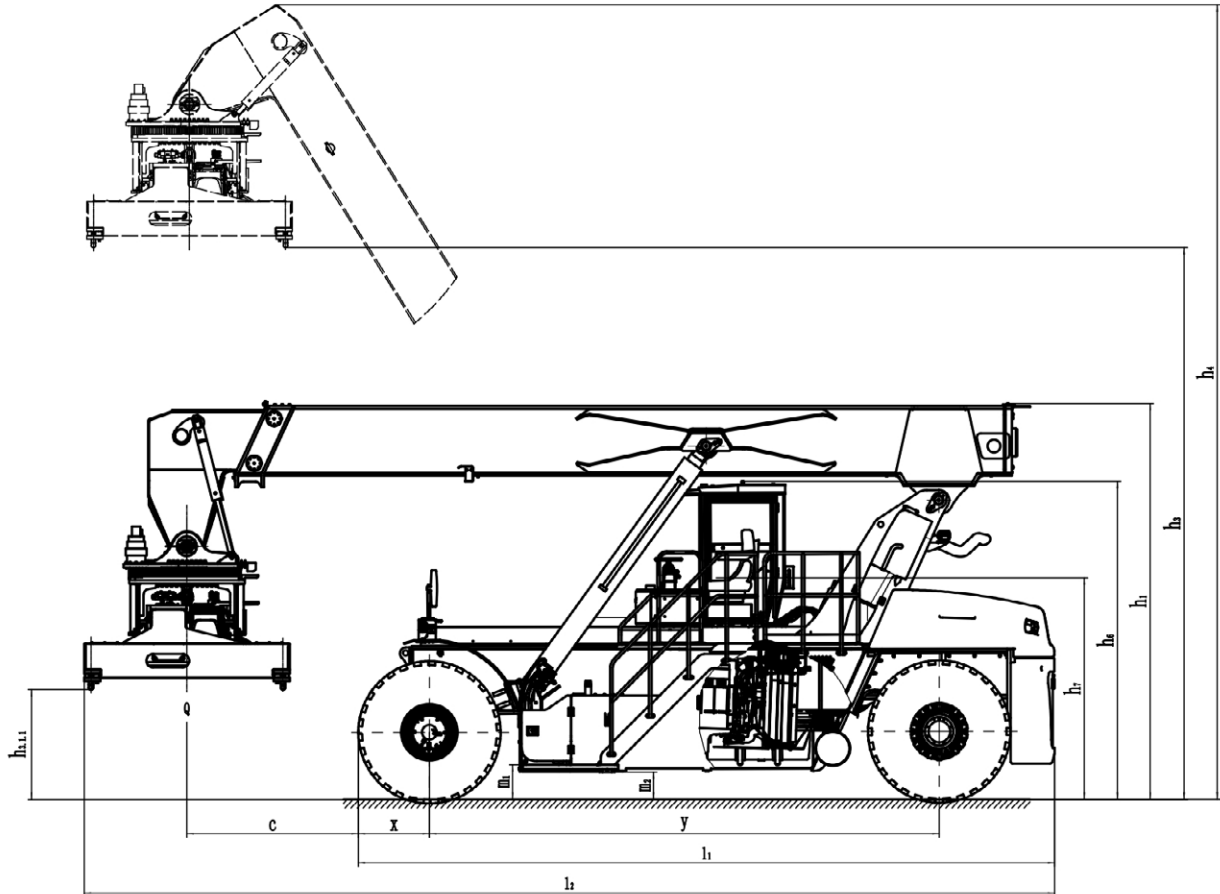
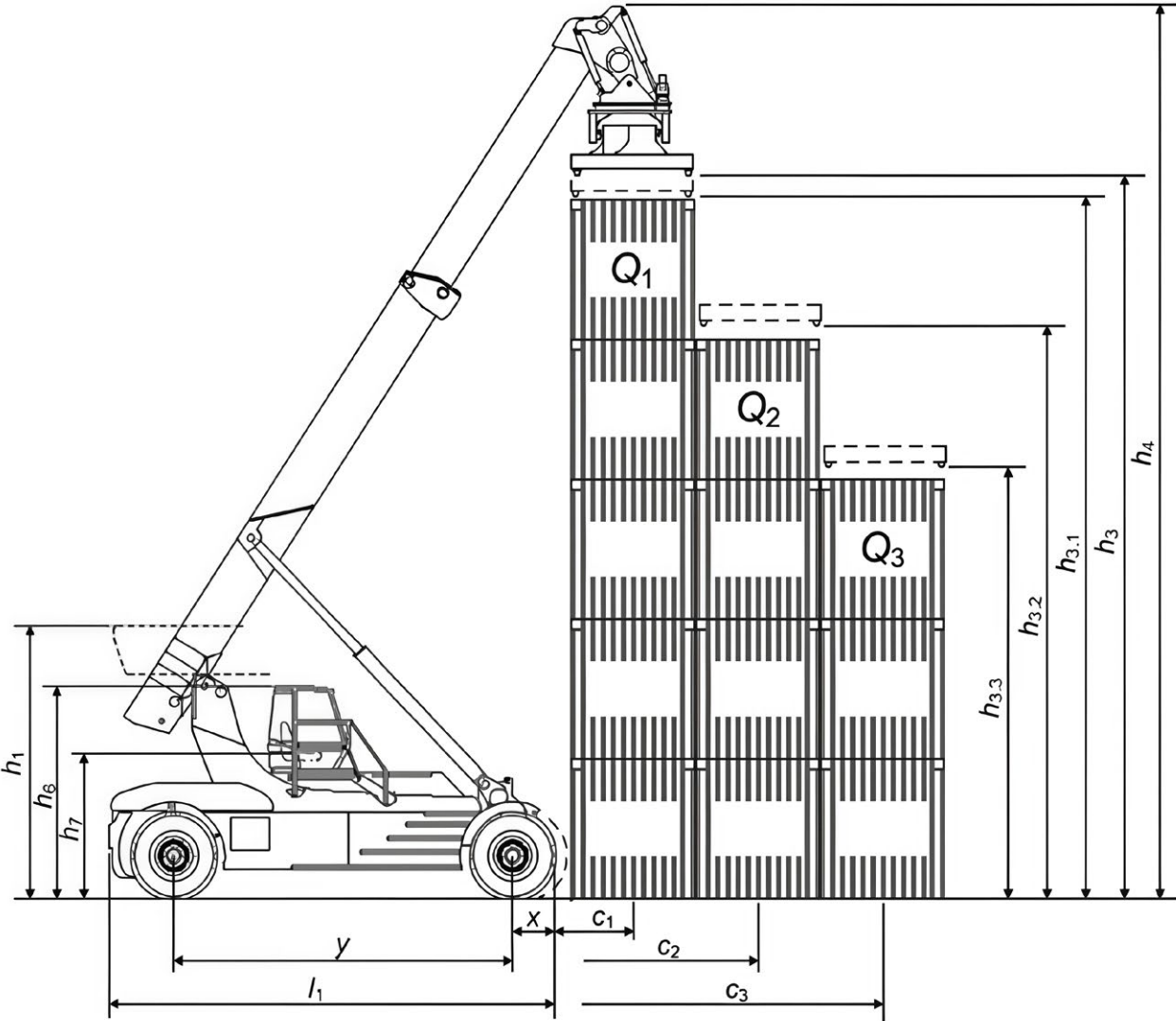
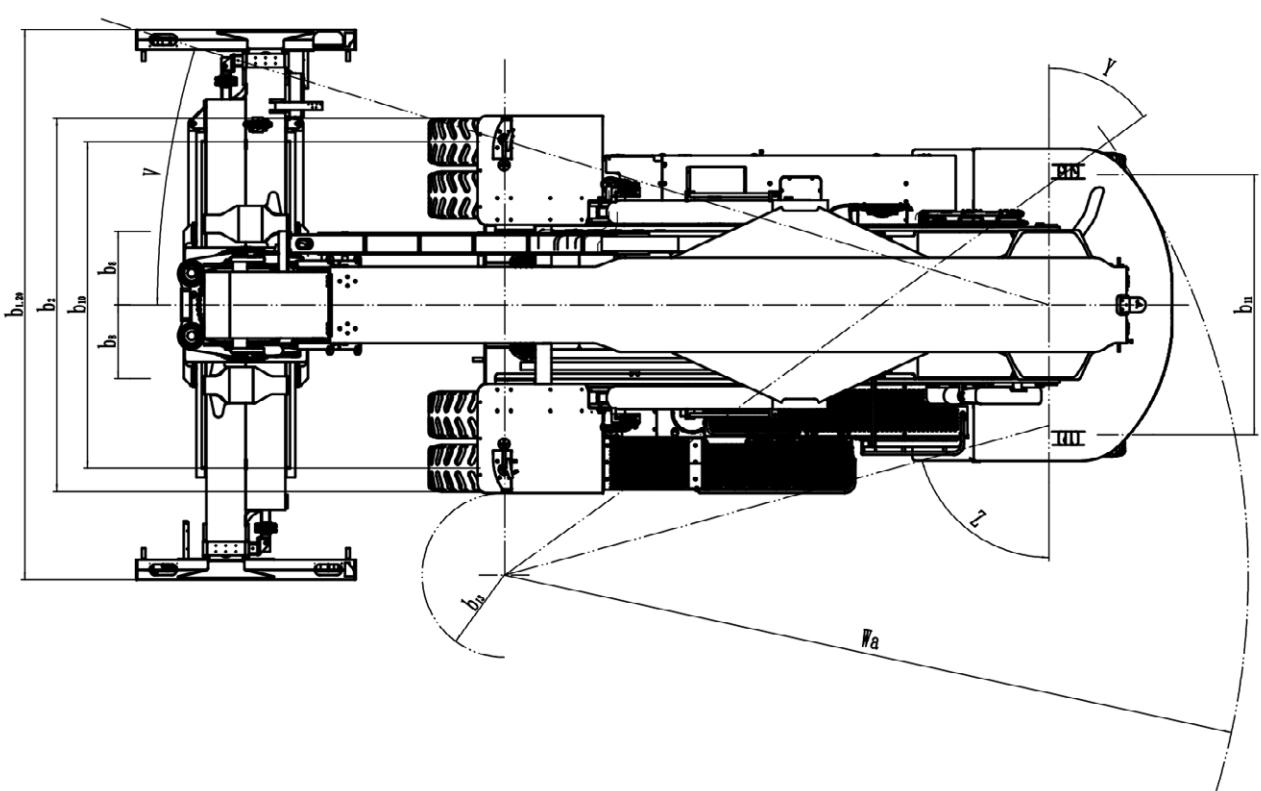
Serviceability Highlights

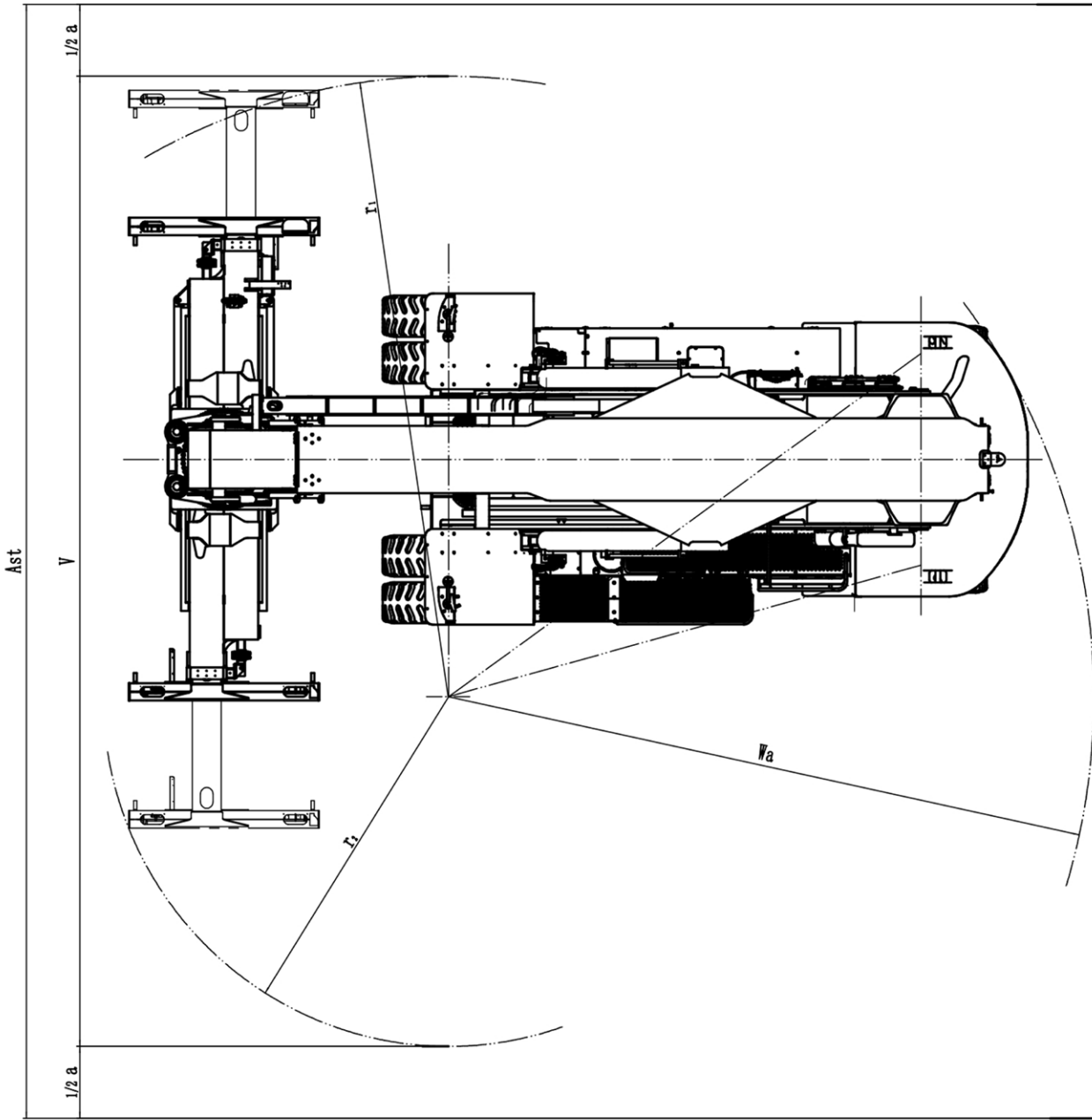
- Movable cabin and large service openings**
Provide easier access to key components for maintenance.
- Independent drive layout**
Travel and hydraulic functions are driven by separate motor systems for clearer system architecture.
- Direct variable pump drive**
The hydraulic motor directly drives the variable pump without a coupling, improving transmission efficiency, reducing noise and lowering maintenance cost.
- Independent brake and hydraulic oil tanks**
Separate oil tank design avoids oil mixing and improves system reliability.
- Safety bypass switch**
Provides additional protection under abnormal conditions, allowing operation to resume only when safety conditions are met.

CRS 4532E Specifications

Distinguishing mark	1.1	Manufacturer		HYM
	1.2	Manufacturer's type designation		CRS4532E
	1.3	Drive: electric(battery or mains, ...), diesel, petrol, fuel gas		Electric
	1.4	Operator type: hand, pedestrian, standing, seated, order-picker		Seated
	1.5	Rated capacity / rated load	Q (t)	45
	1.5.1	Load capacity at load centre distance c1	Q 1 (t)	45
	1.5.2	Load capacity at load centre distance c2	Q 2 (t)	32
	1.5.3	Load capacity at load centre distance c3	Q 3 (t)	15
	1.6.1	Load centre distance 1	c 1 (mm)	1965
	1.6.2	Load centre distance 2	c 2 (mm)	3815
Weight	1.6.3	Load centre distance 3	c 3 (mm)	6315
	1.8	Load distance, centre of drive axle to fork	x (mm)	835
	1.9	Wheelbase	y (mm)	6500
	1.10	Stacking height (number × container height, in feet)		15100
	2.1	Service weight	kg	72000
	2.2	Axle loading, laden front / rear	kg	106000/11000
	2.2.1	Axle loading, laden front / rear at C1	kg	106000/11000
	2.2.2	Axle loading, laden front / rear at C2	kg	96000/8000
	2.2.3	Axle loading, laden front / rear at C3	kg	71000/16000
	2.3	Axle loading, unladen front / rear	kg	37000/35000
Tyres / chassis	3.1	Tyres: Solid rubber, superelastic, pneumatic, polyurethane		Pneumatic
	3.2	Tyre size, front		18.00-25 E-4
	3.3	Tyre size, rear		18.00-25 E-4
	3.5	wheels, number front / rear (× = driven wheels)		2 X 2 / 2
	3.6	Tread, front	b10 (mm)	3030
	3.7	Tread, rear	b11 (mm)	2830
Dimensions	4.1	Tilt of mast / fork carriage, forward / backward	α / β (°)	0 / 58
	4.2	Height, mast lowered	h1 (mm)	4650
	4.3	Free lift	h2 (mm)	15250
	4.4	Lift	h3 (mm)	15250
	4.4.1	Lift height at load centre C 1	h3.1 (mm)	15100
	4.4.2	Lift height at load centre C 2	h3.2 (mm)	14600
	4.4.3	Lift height at load centre C 3	h3.3 (mm)	11600
	4.5	Height, mast extended	h4 (mm)	18000
	4.7	Height of overhead guard(cabin)	h6 (mm)	3650
	4.8	Seat height relating to SIP / stand height	h7 (mm)	2260+SIP
	4.12	Coupling height	h10 (mm)	1000
	4.19	Overall length	l1 (mm)	8700
	4.20	Length to face of forks	l2 (mm)	11900
	4.21	Overall width	b1 (mm)	4200
	4.21.3	Overall width across spreader 20'	b1.20 (mm)	6053
	4.21.4	Overall width across spreader 40'	b1.40 (mm)	12185
	4.28	Reach distance	l4 (mm)	7170
	4.29	Reach, lateral	b7 (mm)	±800
	4.31	Ground clearance, laden, below mast	m1 (mm)	300
	4.32	Ground clearance, centre of wheelbase	m2 (mm)	300
Performance data	4.35	Turning radius	Wa (mm)	9000
	4.35.1	Turning radius with 20' container crossways	Wa20 (mm)	13100
	4.35.2	Turning radius with 40' container crossways	Wa40 (mm)	15350
	4.36	Internal turning radius	b13 (mm)	3750
	5.1	Travel speed, laden / unladen	km/h	14 / 20
	5.1.1	Travel speed, laden / unladen, backwards	km/h	14 / 20
	5.2	Lift speed, laden / unladen	mm/s	260 / 420
	5.3	Lowering speed , laden/unladen	mm/s	300 / 320
	5.4	Reaching speed, laden / unladen	mm/s	260 / 500
	5.4.1	Teleacoping 20'- 40'	s	Extend 16.93 / Retract 15.71
	5.5	Drawbar pull laden/unladen	kN	130
	5.7	Gradeability, laden/unladen	%	13 / 20
	5.10	Service brake		Wet brake

Electric-engine	6.1	Drive Motor Rating, S9, Non-periodic variable load duty	kW	280
	6.2	Lift motor rating at S2 60min	kW	2*85
	6.3	Battery according to DIN 43531/35/36 A, B, C, no		CTAL L302C11 × 15
	6.4	Battery voltage/nominal capacity k5	V/Ah or kWh	579V/906Ah
	6.5	Battery weight	kg	5150
Drive / lift mechanism	8.1	Type of drive unit		Mechanical
	8.2	Manufacturer / type		Xuzhou Meritor Axle Co., Ltd
	8.6	Wheel drive / drive axle manufacturer / type		Drive axle/AT1/XPRC7545W4S717A
	8.11	Service brake		XPRC7545W4S717A
Spreader	8.12	Parking brake		XPRC7545W4S717A
	9.1	Manufacturer/type		HYM 918
	9.3	Size of containers	feet(')	20 / 40
	9.4	Side thrust	mm	± 800
Additional	9.6	Rotation angle	°	-195 / 105
	10.3	Hydraulic oil tank , capacity	l	700
	10.7	Sound pressure level at the driver's seat	dB (A)	70
	10.9	Localised work illumination		Foda
	10.10	Electronic control, fault indication		COBO





Maximal CRS4532E CONFIGURATION

PERFORMANCE	STD	OPT
280Kw Permanent Magnet Synchronous Drive Motor	●	
2 x 85Kw Permanent Magnet Synchronous Pump Motor	●	
Lithium Battery 579.6V/906Ah 525KWh	●	
Globe 4G for Lithium Battery	●	
GB charger with 2 charging ports		●
High Voltage Controller	●	
MERITOR drive axle with wet braking	●	
Cooling system (Motor, Controllers, Hydraulic oil, Battery)	●	
Fleet management system		●
DRIVE	STD	OPT
Speed limiter(Automatically limit the truck's driving speed based on the boom extension distance/lifting height/load weight)	●	
Accelerator pedal	●	
Double brake pedals	●	
Four drive pneumatic tires: 18.00-25-40PR	●	
Two steering pneumatic tire: 18.00-25-40PR	●	
Spreader	STD	OPT
CANBus spreader (HYM 918)	●	
CANBus spreader (ELME 817)		●
Safety	STD	OPT
Weighing device & overload warning (accuracy error 1-1.5%)	●	
Dynamic anti-tipping protection	●	
Dynamic torque safety protection system	●	
High Voltage Interlock (HVIL)	●	
Automatic fire extinguishing system	●	
Reversing camera option(1*camera 1*display)	●	
Reversing radar (4*radar) with warning system (audible alarm)	●	
Ergonomics	STD	OPT
Built-in wide Angle mirror	●	
External wide Angle mirror	●	
Spreader lock indicator light	●	
2 front LED working light & 1 Rear LED working light	●	
2 rear LED light package with Rear Brake / Tail / Back-up Lights with turn signals.	●	
1 rear strobe light	●	
Parking brake Lamp	●	
Suspension seat with armrests & seat belt & seat switch	●	
Three-stage adjustable steering column	●	
Manual sliding cab	●	
Closed cabin	●	
Front, top, and rear windshield wipers	●	
Top sun visor	●	
7 inch color HD LCD display, multi-function color-screen combination instrument	●	
Joystick with ceramic button	●	
Emergency window breaker hammer	●	
Industrial heating and cooling air conditioner	●	
USB Port	●	
APPEARANCE	STD	OPT
Maximal parchment paint base truck	●	
SUPPLEMENTAL	STD	OPT
Literature package	●	
Operator's manual	●	
Warranty: 14 Months / 2,000 hours parts manufacturer's warranty 5 years/10,000 hours	●	



CE



ISO 14001



ISO 9001

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