■ Introduction

Shanghai Zhenhua Heavy Industry Co., Ltd. (ZPMC) is a famous heavy-duty equipment manufacturer, and a state company listed on A and B shares in Shanghai Stock Exchange. The major shareholder is China Communication Construction Co., Ltd. (CCCC), which is one of top 500 companies in the world.

ZPMC headquarters is located in Shanghai. ZPMC also has 8 production bases located in Shanghai, Nantong and Jiangyin, with total area of 6670 hectares and 10 kilometer coastline, including heavy-duty dock of 3.7 kilometer. ZPMC is the largest heavy-duty equipment manufacturer in the world and owns 28 transportation ships of capacity from 60,000 DWT to 100,000 DWT, delivering products to all over the world.

ZPMC has the world first-class equipment R & D and manufacturing team of port logistics. Its reach stacker has many advantages including high efficiency, high reliability, easy operation, comfortable driving, good looking, strong mobility. ZPMC combines the advantages of excellent R & D, comprehensive quality management system, domestic and foreign intensive marketing service network. It aims to build world-class port products and international ZPMC brand.

■ 高端配置 High-level configuration

发动机 Engine

- 选用VOLVO1151或CUMMINS欧III排放标准发动机；
- VOLVO1151 or CUMMINS (Euro III emission standard)；
- 发轮增压，全电控电喷系统，中置水冷
- Turbin charger, full electronic control injection system, central water cooling;
- 具有低油耗、高水温和低水位警示保护功能
- Warning protection function of low oil temperature, high water temperature and low water level;
- 动力强劲，可靠性高，油耗低
- Strong power, high reliability, low fuel consumption.

驱动桥 Driving axle

- 采用德国KESSLER或美国ATI品牌
- Germany KESSLER or America ATI;
- 双主减速器、差速器、半轴、轮边减速器、盘式行车制动器、驻车制动器和差速锁
- Including the main reducer, differential, axle, wheel reducer, driving disc brake, parking brake and lock;
- 重载型驱动桥，该桥设计合理桥壳强度高、承载能力大、充分考虑各种复杂恶劣工况下冲击载荷造成的应力影响。安全可靠。使用寿命长
- Heavy duty type, reasonable design, high strength shell, strong loading capacity, fully considering the influence of stress impact load caused by the complex and harsh conditions, high reliability, long service life.
Transmission gearbox
- Using American Dana brand: American Dana
- Using hydraulic torque converter and gearbox, fixed shaft type, helical gear transmission
- Forward and backward gears, auto/manual shift, forward/reverse anti-reverse-rotation device

Spreader
- ZPMC ZDI450 spreader, strong safety protection function, twistlock interlock function, mechanical anti-unhook device, anti-sway function, automatic locking function
- Fits all 20-40ft international standard containers: Applying to 20’-40’ container
- Spreader horizontal rotation +195° ~ -105°, side shift distance ± 800mm
- External telescopic cylinder, easy maintenance

Electric control system
- CAN bus system, all kinds of signals transmitted by data, long distance transmission, accurate data, high reliability
- CAN system,各种信号以数据方式传播，传输距离远，数据准确，稳定可靠
- Using German IFM controller, IFM controller from German

Hydraulic system
- Use load sensitive electric proportional control valve and the variable piston pump to control booming and telescopic movements of the boom, good micro motion performance, energy saving and low consumption
- Independent brake system and hydraulic system, avoid inter contamination
- Automatic air emission system, avoid air entering into the hydraulic system, prolong the service life of elements

Frame and boom
- Use advanced design method to optimize the motion and dynamic design of the frame and boom, reasonable cylinder hinge point arrangement
- High-quality steel, high flexural torsional strength, good rigidity
- Non-destructive test of each welding seam
➤ 动态防倾翻保护 Dynamic rollover protective system
采用智能控制技术，通过对比行驶和臂架下伸工况下的实际速度与极限速度，发出倾翻预警。
Intelligent control system; send rollover warning according to the comparison between the actual speed and limit speed of driving and booming down; at the same time limit the speed of the engine and cylinder main valves; combine these two aspects to reach the aim of dynamic rollover protection and safe driving.

➤ 吊具旋转防碰撞 Anti-collision of rotary spreader
智能控制吊具与臂架姿态，有效防止吊具与车架、臂架的碰撞，避免误操作引起的安全事故，并大量减轻了操作者劳动强度。
Intelligent control of spreader and boom to prevent the collision between the spreader, frame and boom, prevent accident because of misoperation, greatly reduce the labor intensity of the operator.

➤ 臂架垂直升降技术 Boom vertical hoisting and descending technology
通过智能控制实时检测臂架参数，自动计算并调整臂架姿态，确保吊装垂直地上升和下降，使堆码作业更安全，大幅提高作业效率。
Intelligent control the parameters of the boom at any time, automatic calculate and adjust the boom to ensure vertical hoisting and lowering, ensure safe stacking operation and improve efficiency.

➤ 整机自动防火技术 Automatic fire protection technology
高压液氮自动灭火，自动触发，与机械触发，绿色环保，对环境无害；对人体无窒息、无毒害作用；气体灭火介质，火后清洁方便。
Automatic fire extinguishing by high pressure liquid nitrogen, auto trigger, mechanical trigger, environmental protection; no asphyxia and toxic effects on the human body; gas fire extinguishing medium, easy clean after fire.

➤ 高效操控技术 Efficient operation technology
集中式操作手柄具有卓越的微动性能，轻松实现毫米级精度掌控；吊具各动作均采用比例控制，
Excellent micro motion performance of centralized operation handle, easy to realize millimeter accuracy control; proportional control of spreader movements, man-machine unification control experience; multi-action linkage design, high operation speed, high operation efficiency.
# REACH STACKER

<table>
<thead>
<tr>
<th>Spec.</th>
<th>ZHRS45</th>
<th>ZHRS45</th>
<th>Spec.</th>
<th>ZHRS45</th>
<th>ZHRS45</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine</td>
<td>VOLVO TAD1151 VE</td>
<td>VOLVO TAD1151 VE</td>
<td>Max. hoist height</td>
<td>15110 mm</td>
<td>15100 mm</td>
</tr>
<tr>
<td>Transmission gearbox</td>
<td>DANA 15.5HR36432</td>
<td>DANA 15.5HR36432</td>
<td>Max. hoisting speed</td>
<td>420/250 mm (empty /load)</td>
<td>400/250 mm (empty /load)</td>
</tr>
<tr>
<td>Driving axle</td>
<td>ATI or Kessler D102 PL341</td>
<td>ATI or Kessler D106 PL341</td>
<td>Max. descending speed</td>
<td>360/300 mm (empty /load)</td>
<td>360/300 mm (empty /load)</td>
</tr>
<tr>
<td>Spreader</td>
<td>ZPMC ZDJ450</td>
<td>ZPMC ZDJ450</td>
<td>Max. travel speed</td>
<td>25/21 mm (empty /load)</td>
<td>20/16 mm (empty /load)</td>
</tr>
<tr>
<td>Wheel</td>
<td>18.00-25 40PR</td>
<td>21.00-35 36PR</td>
<td>Gradeability</td>
<td>39/32 % (empty /load)</td>
<td>26/18 % (empty /load)</td>
</tr>
<tr>
<td>Rated load</td>
<td>45 t</td>
<td>45 t</td>
<td>Overall weight</td>
<td>72 t</td>
<td>96 t</td>
</tr>
<tr>
<td>Length</td>
<td>11258 mm</td>
<td>13260 mm</td>
<td>Wheel distance</td>
<td>3030/2790 (front/rear)</td>
<td>3060/3120 (front /rear)</td>
</tr>
<tr>
<td>Wheel base</td>
<td>6000 mm</td>
<td>8000 mm</td>
<td>Min. turning radius</td>
<td>8000mm (outer wheel)</td>
<td>10500mm (outer wheel)</td>
</tr>
<tr>
<td>Height</td>
<td>4770 mm</td>
<td>5232 mm</td>
<td>Cab noise</td>
<td>≤70dB</td>
<td>≤70dB</td>
</tr>
<tr>
<td>Min. ground clearance</td>
<td>350 mm</td>
<td>400 mm</td>
<td>Hydraulic Working pressure</td>
<td>260 bar</td>
<td>260 bar</td>
</tr>
<tr>
<td>Width (with spreader)</td>
<td>6042-12175 mm</td>
<td>6050-12180 mm</td>
<td>Emission standard</td>
<td>Euro III</td>
<td>Euro III</td>
</tr>
</tbody>
</table>
上海振华重工（集团）股份有限公司
SHANGHAI ZHENHUA HEAVY INDUSTRIES CO., LTD.