



HNRS 450

Reach Stacker



## Advanced Technology Excellent Truck Quality

With multiple advantages, the truck has high safety / high efficiency / high precision and high stability performances. Integrated operating system ensure the truck highly productive .

### Hydraulic system of DM450 Reach Stacker

World class Linde hydraulic company is the famous hydraulic solution supplier which supplys the high-quality/high precision / high reliability hydraulic products.

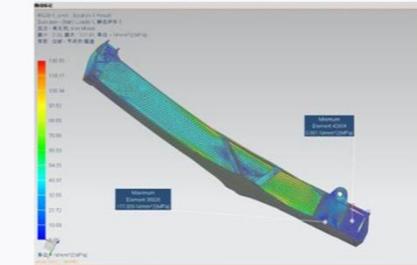
DM450 is equipped with Linde pump and control valve, these parts are specially developed for reach stacker, with load sense control circuit saving energy, precise control, low resistance and long life time, this excellent hydraulic system fully support truck excellent performance.

Intelligent hydraulic oil cooler can ensure the stable oil temperature and avoid the tremendous changing of the oil, prolong the oil lifetime to save money.

## Advanced Technology Excellent Truck Quality



### Rigorous design process



FEM analysis supported design provides high strength of chassis and boom, make whole truck stable and robust.

### Core technology



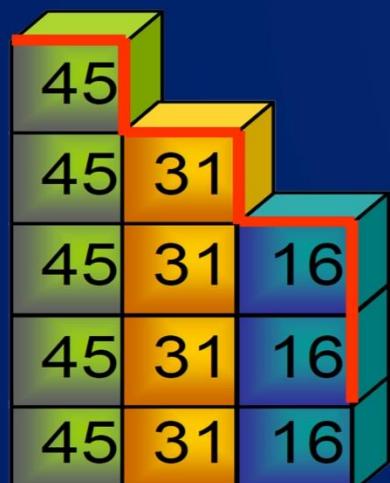
- Dynamic anti-tip over protection
- Load sense hydraulic system
- Vertical lifting function
- Errors automatic detection and real data showing technology
- Anti-collision protection for spreader and boom
- Full Can-bus communication
- Movable cabin
- Separate brake tank
- Pressurized hydraulic tank

### Full Can-bus Control System

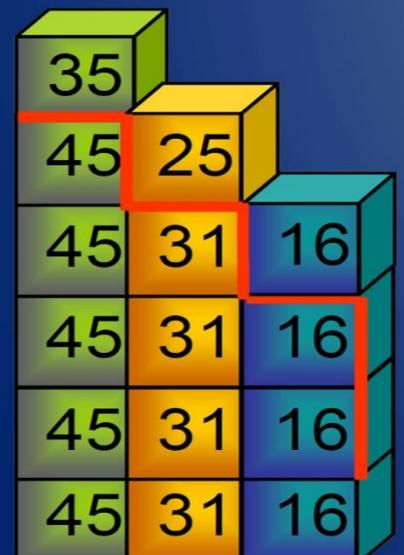
DM450 reach stacker is equipped with full Can-bus control system. The engine/ transmission/ electric system/ hydraulic system/ loading safety system/ spreader system are all integrated in the Can-bus system, all devices are monitored at real time. Parker control units ensure the system reliable and flexible.

## Stacking Experience Creating Excellence

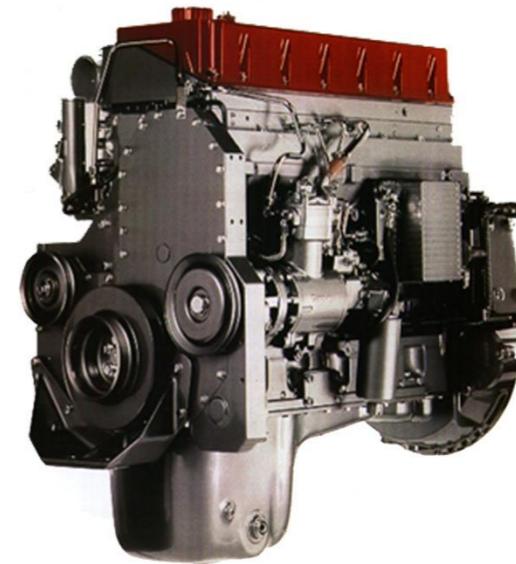
5high 9'6" containers



6high 8'6" containers



## High Quality Powerful Engine



Equipped with Cummins engine, with full electrical control system to ensure economic fuel consumption

Equipped with turbocharger to improve the truck power and engine efficiency

Strong power to meet various working condition

Comply with EU stage III gas emission standard

Full lubrication performance to ensure the low noise level

The electric engine protection system shutdown the engine to avoid the damage when low lub-oil pressure / high temperature

## Spacious Driving Environment



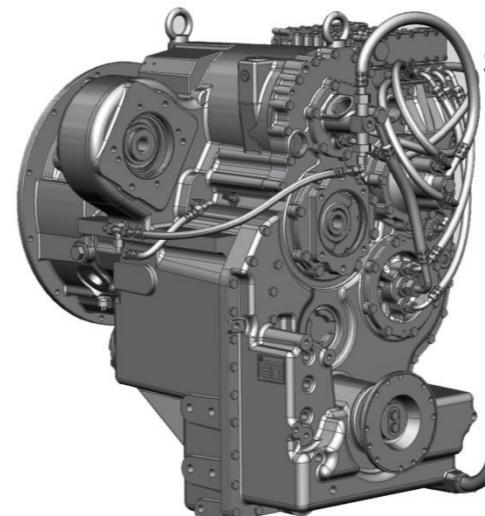
- The cabin adopts the latest ergonomic design, simple & elegant, spacious & comfortable.
- Equipped with large-color display for easy reading the real status of the truck.
- Firm cabin design to ensure the safety and comfort of the operator. Good tightness, the doors & windows can be opened & closed easily and firmly.
- Equipped with multi-function joystick, All the control are at your fingertips.
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- Equipped with Air-Conditioner with heating function to suit working in all climates.

## Touch-sensitive / High resolution Color Display



A reliable color display shows the lifting weight/ boom angle/ lifting height/ main pressure/ engine status / oil level/ error codes etc. all important information. The quick responding controller helps the operation high efficiency.

## The Automatic Transmission



- ◆ ZF automatic transmission
- ◆ Auto-gear transmission with 5 forwards / 3 reverse speed, makes the truck operation smooth and good economic performance
- ◆ Minimum maintenance, long life time
- ◆ Inching function ensure the accurate approaching performance
- ◆ Reversing interlock, speed controlled downshift protection

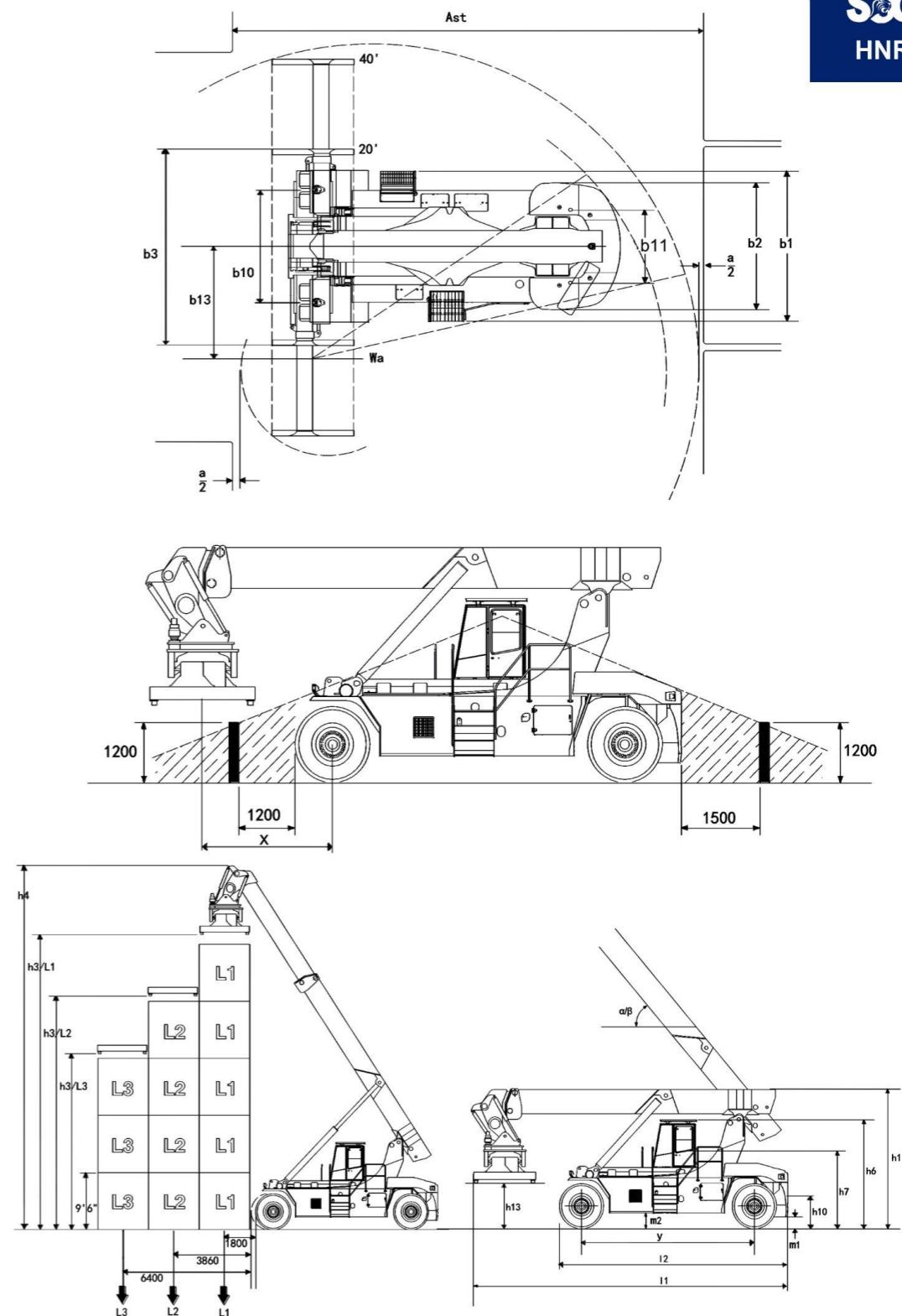
## Heavy Duty Drive Axle

Kessler drive axle, proven quality for heavy duty trucks, wide track, 2-stages reduction gear box, strong axle body optimized for heavy loading condition. wet disk driving brake is free of maintenance.

This drive axle performs under shock load condition ensuring high safety and long life time.



CHARACTERISTICS			TRANSMISSION	
Manufacturer	SOCMA		Transmission Manufacturer	ZF/5WG261 AUTO
Model designation	HNRS45		Transmission type	Auto-shift / Interlock
Power unit: battery, diesel, LP gas, mains power	Diesel		Clutch Type	Torque Converter
Operation: manual, pedestrian, stand-on, seated, order picker	Rider seated		Gear number	5 F / 3 R
Load capacity(L1, L2, L3)	Q (kg)	45000 / 31000 / 16000	TYRES	
Load centre, First row(L1)	c (mm)	1800	Drive wheels	18.00-25 40PR
Load centre, Second row(L2)	c (mm)	3860	Steering wheels	18.00-25 40PR
Load centre, Third row(L3)	c (mm)	6400	Type	Pneumatic
Axle centre to spreader center(L1-1/2 high)	x (mm)	2800 / 2600	Pressure	10 bar
Wheelbase	y (mm)	6400	Quantity, Front/Rear	4 / 2
DIMENSIONS			TANKS CAPACITY	
Boom lift angle, raised/lowered	$\alpha/\beta (°)$	61/ 0	Hydraulic oil tank	800 liter
Height boom lowered	h1 (mm)	4945	Fuel tank	500 liter
Lift height(L1, L2, L3)	h3 (mm)	15900 / 14100 / 11350	DRIVE AXLE	
Height, boom extended	h4 (mm)	19000	Driver axle manufacturer	KESSLER/Germany
Height of cabin	h6 (mm)	3900	Type	D102PL341
Height, operators seat	h7 (mm)	2840	STEER AXLE	
Towing coupling height	h10 (mm)	600	Steering axle manufacturer	KESSLER/Germany
Twistlock height lowered	h13 (mm)	1495	Type	L102
Overall length with spreader	l1 (mm)	11618	Steering	Double action cylinder
Overall length	l2 (mm)	8410	BRAKE SYSTEM	
Overall width	b1/b2 (mm)	4180 / 3400	Service brake: Hydraulic wet-disc	
Width of spreader 20'/40'	b3 (mm)	6050 / 12150	Parking brake: Electric released disc brake, enabled when power off	
Ground clearance minimum	m1 (mm)	345	HYDRAULIC SYSTEM	
Ground clearance, centre of wheelbase	m2 (mm)	300	Twin piston pump	
Stacking aisle 20' container	Ast (mm)	10225	Maximum pressure: 310 bar	
Stacking aisle 40' container	Ast (mm)	13050	Load sensing system	
Turning radius	Wa (mm)	8605	Hydraulic cooler with electric motor	
Minimum pivoting point distance	b13 (mm)	3400	separate brake oil tank	
Wheelspan, Front wheels	b10 (mm)	3030	BOOM	
Wheelspan, Rear wheels	b11 (mm)	2786	2 x Dual action lift cylinders	
WEIGHTS			1 x Dual action extension cylinder	
	UnLaden	Laden	SPREADER	
Weight	kg	71400	Handling ISO 20'-40' containers	
Load on drive axle	kg	36400	2 x damping cylinder	
Load on steering axle	kg	35000	2 x gearbox & brake system	
PERFORMANCES			Type	WLZSP45
	UnLaden	Laden	Rotate degrees	deg
Travelling speed	km/h	25		- 105° / + 195°
Climbing ability	%	30	Sideshift	mm
Tractive force	kN	325		- 800 / + 800
CABIN			TRUCK SAFETIES	
Movable closed cabin			Error display system	
Equiped with Air-conditioner, cooling/heating function			Counting system for containers	
Noise level at driver's ear	dBA	74	Weighing system (Low precision)	
ENGINE			Parking brake enabled when power off	
Brand	Cummins		Seat switch	
Type	QSM 11			
Cylinder number/ Displacement	6 / 10820 cm <sup>3</sup>		SPREADER SAFETIES	
Rated power @ rated speed	250Kw @ 2100 rpm		Locking/unlocking only after correct landing	
Maximum torque	1674NM @ 1500 rpm		Lifting/lowering only when the 4 twistlocks on same position	
Rated current of alternator	150 A		Anticollision rotation limit switch	
Battery	24 V (2 x 12 /150)			



## ► Standard Equipment

- Air conditioner
- Movable closed cabin
- Hydraulic-three position adjusted seat with wide range of height adjustment
- Proportional hydraulic function lever enabling precise load positioning with automatic anti-stall function
- Adjustable angle and height steering wheel
- Effortless hydrostatic power steering with Flow amplification valve
  
- Engine intake air cleaner with integrated safety element
- High performance hydraulic filters preserving maximum purity of oil for long life of all hydraulic components
- Power on-demand working hydraulics , oil supply by twin-pump installation
- Overload safety device ; measures load weight and position
- Comprehensive head-up display ; monitors all key components including fuel gauge , clock , hour meter and control lamps , lamps for all important truck functions , and goods load weight display
- Central master warning light
- Modern diesel engine with electronically controlled single-rail fuel injection system complete EUR tired 3 emission regulations
- Heavy-duty automatic 5-speed electronic auto-shift transmission with integrated safety protection ; downshift , forward/reverse interlock
- Robust double hub reduction drive axle , incorporating oil bath type wet disc brake
- 5 high stacking boom(6 high 8'6"containers)
- Abundant storage space for writing , materials , beverage cans etc.
- Pneumatic tyres
- Rotation 105 degrees/195 degrees
- Sideshift 800mm+/-
- Road lighting with boom support mounted reverse lights and audible warning
- Front mudguard mounted working lights 2 pairs
- Boom support mounted rear working lights
- Boom mounted working lights 2 pairs
- Reverse driving mirrors-chassis mounted
- Interior rearview mirror
- Battery isolator switch

## ► Optional Equipment

- Hydraulically driven, forward moving cabin
- Cabin pre-heat system-fuel burning or electrical central greasing system-chassis , chassis & boom , chassis boom & spreader
- Additional seat
- Vertical lift
- Electrical socket in cab-12 volt
- Heated reverse driving mirrors
- Panoramic interior
- Radio with compact disc unit and speakers
- Spreader mounted working lights 2 or 4
- Rotating beacon or flashing beacon
- Sun blind - front and top
- Fire extinguisher(2kg)
- Engine coolant heater
- Hydraulic tank heater
- Brake tank heater
- Counterweight mounted camera with color monitor
- Handrails-on steps left & right, on chassis top right
- Customized paintwork
- Auto fire suppression system