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H18-23XM-12EC

8500 - 9000 KG

EMPTY CONTAINER HANDLERS

THE SOLUTION TO YOUR APPLICATION NEEDS

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BUILT ON EXPERIENCE

The H18-23XM-12EC series benefit from Hyster's long experience in designing and building high-stacking empty container handlers.

These EC handling machines offer fastest handling, reliable proven components, and give an excellent return on your investment.

Increased handling flexibility is provided by the empty container handling spreader, featuring 'reefer correction' as standard, and a choice of several different container engagement systems, for fast handling of single or double containers.

This will ensure that Hyster continues to meet your needs for increased productivity and lowest cost of ownership.


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H18-23XM-12EC

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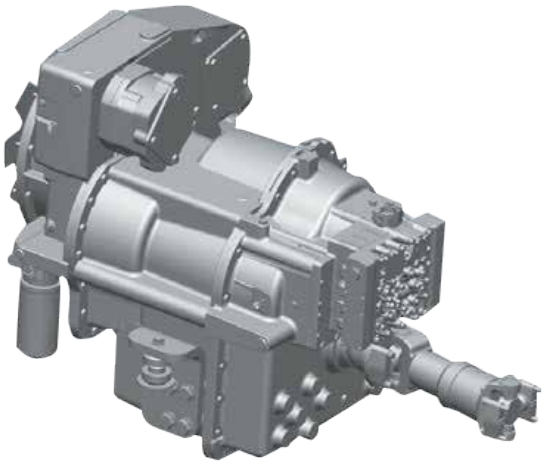
EXTRA VALUE FEATURES

THE H18-23XM-12EC RANGE OFFERS IMPRESSIVE EXTRA VALUE, IN AN ALL-IN-ONE PACKAGE:

- Lifting speeds are class leading: The practical 4- mode average speed (with the 172kW / 230hp Stage IIIA engine) is a fantastic 0.52 m/sec, and this even when handling double containers.
- The unique Hyster '1 to 4' lift ratio mast contributes to the high lift speeds, and features short and stable lift cylinders.
- Design team of Hyster BTDC managed to design one of the most stable empty container handling machines in the market by balancing the machine moment vs. load moment. The optional available 4.345 mm wide axle vs. the standard 4.120 mm wide axle provides even more side stability if required.
- Rear-mounted cab for a more comfortable viewing angle during high stacking of containers.
- Hyster 'Vista' cab is state of the art in driver comfort, ergonomics, low noise and visibility. The noise level is just 70dB(A) Leq at driver's ear and air conditioning is available as an option. The cab tilts for easy service access.
- The 6.7 litre Cummins diesel engine conforms to the latest EU emissions regulations for NRMM (Non-Road Mobile Machinery).
- The 3-speed auto-shift transmission has a protective lock-out on forward-reverse shifting.
- Strong and wide drive axle with oil immersed (wet) disc brakes.
- Engine and transmission protection systems.
- Tropical cooling package is standard - up tp 50°C for normal operation and up to 45°C for heavy duty operation.
- The Hyster ECH side-lift container spreader comes standard with 'reefer correction' and a choice of several 'container engagement' systems allowing it to handle all common container sizes. LED indicator lights, on the spreader and in the cab roof are standard equipment, informing the operator at any time about spreader status.
- Large 14.00 x 24 tyres as standard, for improved tyre life and lower running costs.

STRENGTH & DURABILITY

- The frame is immensely strong with 16 mm thick frame members and massive front axle supports. The tilt cylinder anchors are tied directly into the rear frame.
- The drive axles with 4.120 or optional 4.345 mm provides stability and durability; whilst the oil immersed (wet) disc brakes reduce maintenance requirements.
- The hydrodynamic 3-speed transmission is controlled by APC200, providing automatically soft gear shifting, a protective forward-reverse shifting lock-out and a transmission protective device.
- The Hyster 'sandwich' type steer axle, with a single cylinder and non-adjustable tie rods is renowned for its long life and low maintenance.
- Large 14.00 x 24 wheels on all models, offer long tyre life for low running costs.



POWER & PERFORMANCE

CLEAN ENGINE POWER IS PROVIDED BY THE 6.7 LITRE 6-CYLINDER CUMMINS QSB6 INDUSTRIAL DIESEL ENGINE, WITH TURBOCHARGER AND CHARGE AIR COOLER.

- Different engine configurations ensure that the exhaust emissions conform to the Stage IIIA or Stage IIIB emissions standard for NRMM (Non-Road Mobile Machinery).
- The industrial rating offers extra durability for long periods of peak power operation.
- Engine protection system features initial engine derating and finally engine stop function.
- Equipped with a two-stage heavy-duty air filter, plus a maintenance-free cyclonic pre-cleaner, suitable for dusty operating environments.
- Fuel tank 323 litres (4.000 mm wheel base) or 367 litres (4.500 mm wheel base) allowing a 3-shift operation without re-fill.
- Anti-corrosive (aluminized steel) exhaust system.

STAGE IIIB ENGINE:

For use mainly within EU (European Union) countries, trucks with Stage IIIB diesel engines have significantly reduced exhaust gas emissions. Also by applying Hyster Intelligent Design criteria, these trucks are not only cleaner running but also more economical, achieving up to a 15% fuel saving.

- Available with all H18-23XM-12EC models, the new Stage IIIB compliant Cummins QSB6.7L, 6-cylinder 6.7 litre industrial diesel engine with variable turbo and intercooler has a maximum performance of 172 kW / 230 Hp at 1800 rpm and a maximum torque of 949 Nm at 1400 rpm.
- The cooling on demand system only uses power if needed and furthermore saves on overall fuel consumption.
- The transmission available as standard with the engine is the TE 17 series, featuring 3-speeds with APC200 "Softshift" automatic gear shifting, protective forward-reverse shifting lock-out and transmission protection system. Also fitted is a separate transmission oil cooler and audible alarm when in reverse gear.

STAGE IIIA ENGINES:

This diesel engine conforms to Stage IIIA emission standards and will be supplied into markets where the NRMM (Non Road Mobile Machinery) Stage IIIB legislation does not apply.

H18-23XM-12EC Single container handler:

- Engine performance is 145 kW / 197 Hp at 1800rpm, maximum torque is 931 Nm at 1400 rpm.
- This 145 kW engine is combined with the S.O.H. (Spicer Off-Highway) TE-13 powershift transmission, with 3-speeds with APC200 "Soft-shift" automatic gear shifting, protective forward-reverse shifting lock-out, and transmission protection system. Also fitted is a specific oil cooler and audible alarm when in reverse gear.

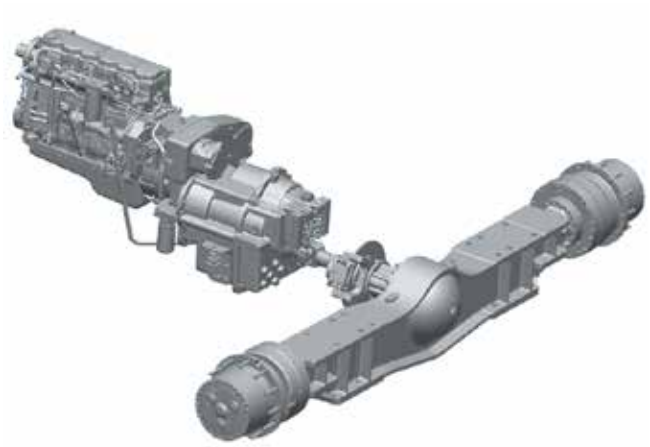
H18XM-12EC single handler, with 7000 and 8500 kg capacity and H22XM-12EC:

- Engine performance is 172 kW / 230 Hp at only 1800 rpm, with maximum torque of 949 Nm at 1400 rpm. Combined with the S.O.H. (Spicer Off-Highway) TE-17 3-speed powershift transmission, also with APC200 "Soft-shift" auto shift, forward reverse lock-out, and transmission protection. Also fitted is a dedicated oil cooler and an audible alarm in reverse.

Optional Stage IIIA power package for H18-23XM-12EC Single container handler:

- The 172 kW engine and TE-17 transmission package, instead of the standard 145 kW and TE-13 combination.

NOTE: A Stage IIIB engine must run on Ultra Low Sulphur Diesel (ULSD) fuel, with a maximum of 15 ppm sulphur content. Diesel fuel with a higher sulphur content than 15 ppm will compromise the emissions performance of the Stage IIIB engine and may result in damage to components.



COOLING:

- The H18-23XM-12EC machines have a tropical cooling system which makes them suitable to work in ambient temperatures up to 50°C in normal application and 45°C in heavy duty application.
- The unique 'side-by-side' 3-piece radiator cooler block for engine (water and intercooler) and transmission is efficient and easy to clean. A 'puller' type fan draws in cleaner air from the top of the machine.
- Cooling on demand, for the brakes and hydraulic system, mounted at the front of the machine, is provided by electrical driven 3-fan system which reduces both noise and power consumption during cooling.

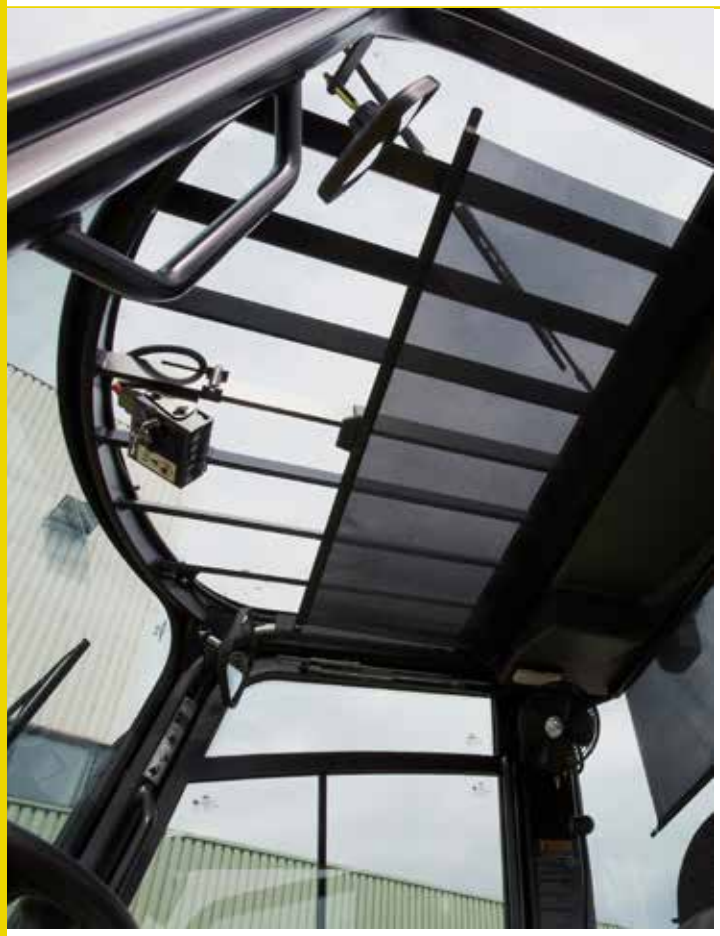
FAST HANDLING:

- Lifting speeds are class leading: The practical 5-mode average lifting speed (with the 172kW / 230hp Stage IIIA engine) is a fantastic 0.52 m/sec. even when handling double containers. Average of five lifting modes:
  Unladen lift speed = 0.55 m/sec.
  Full laden lift speed = 0.52 m/sec.
  70% laden load lift speed = 0.54 m/sec.
  Unladen lowering speed = 0.47 m/sec.
  Laden lowering speed = 0.49 m/sec.
- Travel speeds are very productive too, with a maximum of 25 to 30 km/h. depending on model and engine choice.

ERGONOMIC DESIGN

THE EC SERIES FEATURES THE HYSTER 'VISTA' CAB, WHICH GIVES THE OPTIMUM ERGONOMIC OPERATOR ENVIRONMENT, AND FOCUSES ON MAXIMISING DRIVER COMFORT AND VISIBILITY FOR MAXIMUM PRODUCTIVITY.

- The large windows, fitted with tinted safety glass, offer excellent all-round visibility. This is further enhanced by a filtered fresh air inlet, sliding windows, an effective heater and defrosters, wipers with washers on front, top and rear screens, especially in poor weather conditions.
- Optional air-conditioning is integrated into the heating and ventilation system, with manual temperature control or climate control. Sunshade screens are fitted on the top and rear windows.
- The joystick gives intuitive control of mast lift, tilt and spreader functions: Sideshift, Telescope 20'-40', Optional PPS, Twistlocks unlocking (locking is automatic).
- Full-suspension, fully adjustable driver's seat with a high backrest, seat belt, seat switch for park brake warning buzzer and operator presence system.
- Map reading light, extra air circulation fan are also optional.
- Adjustable steering column, power assisted steering and lever controls, push-button parking brake and conveniently positioned instruments.
- Responsive, fully hydraulic brakes and automotive type pedal layout further contribute to driver comfort.
- Rear view mirrors inside the cab, and extra rear view mirrors on the front fenders.
- The comprehensively equipped operator's cab, mounted on isolators, has an insulated twin layer floor to help achieve low noise levels. The noise level is just 70dB(A) Leq at driver's ear if the truck is equipped with stage IIIB engine, 74dB(AB) if with stage IIIA engine.



OUTSTANDING VISIBILITY

- The operator compartment is mounted at the rear of the machine, for a comfortable viewing angle during high stacking of containers.
- Available on both the 5/6-high stackers (H16XM-12EC, 4.0 m wheelbase) and the 6/7-high stackers (H18-22.00XM-12EC, 4.5m wheelbase) where the cab is an extra 0.5m to the rear.
- Operator visibility during high stacking from the rearmounted cab position, is also enhanced by the curved front window, the strong yet slim-line cab construction, the 'wave pattern' overhead guard, plus wipers on the front, top and rear screen (with double blade at the front).
- The ultra-wide mast (1260mm between inner channels) adds to the excellent overall visibility.
- The lift cylinders are also uniquely rear-mounted (behind the mast channels) for optimum visibility.
- Indicator lights for the container engagement functions are mounted on the spreader and also conveniently placed in the cab's roof.
- The 'state of the art' Hyster 'Vista' cab is available with air conditioning and sliding sunshade screens on the top and rear window.
- Rear view mirrors inside the cab, and extra rear view mirrors on the front fenders are available.
- The truck is equipped with a comprehensive set of road and work lights and an orange strobe light.

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UNIQUE '1 TO 4' HYSTER 'VISTA' MAST

- Ultra-wide mast construction, for torsional rigidity and also excellent visibility (distance of 1260 mm in between the inner mast channels).
- This stable Hyster 'Vista' mast has a unique '1 to 4' lift ratio. On these EC trucks with their extremely high lift heights, the Hyster '1 to 4' design results in halving the length of the lift cylinders, thereby offering excellent durability of the cylinder bearings and seals.
- The tilt cylinders are high-mounted on the mast for added rigidity and truck stability.
- A hydraulic accumulator in the hoist system, to cushion the load carried, is standard equipment.


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SPREADER CHARACTERISTICS

HYSTER ECH SIDE-LIFT 20'-40' TELESCOPIC SPREADER CHARACTERISTICS:

- Low profile main beam, with the horizontal telescoping beams sliding inside each other (not stacked on top of each other). This design results in excellent forward visibility towards the spreader's engagement points, particularly at high lift heights.
- Sideshift movement is a generous +/- 600 mm (1200 mm total) for operational flexibility and provides for 'reefer correction' possibility.
- Spreader 'Articulation': Ample mechanical sideways articulation, by the 225 mm floating (up/down) movement of the spreader vertical end beams. Facilitates handling of containers on / from a sloping surface.
- 2 LED work lights on the spreader, pointing to the engagement heads, 2 LED work lights, integrated into the vertical end beams, pointing to container bottom or trailer chassis while loading.

COMPREHENSIVE INDICATION AND SUPPORT SYSTEMS:

- LED Indicator lights (red, 2x orange and green) to signal spreader engagement, are on the spreader and in the cab.

  Orange left-hand = landed,
  Green = locked,
  Red = unlocked,
  Orange right-hand = landed.

  The lights panel in the cab roof also has a blue light signalling the mast lift interrupt function.

- Mast over-lowering interrupt prevents further lowering of the mast when the spreader is landed on a container. The function is signalled by a blue warning light in the cab. To eliminate slacking of the header hoses, cables and liftchains and to reduce shocks on the spreader.

FOR TWISTLOCKS VERSIONS ONLY (586TB, 588TB AND 589TB):

- Automatic locking. Automatically turns the (Vertical) twistlocks to the locked position when the spreader is properly landed on the container(s). Unlocking is always done manually by a switch in the cab.
- Twistlocks interlock (mechanical) to help prevent;

  a. Picking-up a container on less than two corners,
  b. Unlocking when carrying a container.

- Lift interrupt cuts the lift mode if the twistlocks are not in a fully 'closed' / 'open' position. The function is signalled by a blue warning light in the cab.
- Container counter on the spreader, recording the number of containers locked. This facility helps to measure productivity and to schedule periodic maintenance.

CONTAINER ENGAGEMENT SYSTEMS

THE ECH SIDE-LIFT 20'-40' TELESCOPIC SPREADER IS AVAILABLE WITH A CHOICE OF THREE 'CONTAINER ENGAGEMENT' SYSTEMS, TO SUIT INDIVIDUAL USER REQUIREMENTS:

TO HANDLE SINGLE CONTAINERS:

1.0 THE 586TB VERTICAL TWISTLOCKS WITH REMOVABLE BLOCK FOR 8' UP TO 2.550 MM DEEP ISO CONTAINERS.

- Automatic twistlocks locking, Indicator lights, Twistlocks interlock function, Lift interrupt function, Container-counter.

1.1 THE 588TB VERTICAL TWISTLOCKS FOR STANDARD ISO CONTAINERS

- Automatic twistlocks locking, Indicator lights, Twistlocks interlock function, Lift interrupt function, Container-counter.

1.2 THE 589 VERTICAL TWISTLOCKS WITH MOVABLE HEAD FOR ISO 8' UP TO 2.600 MM WIDE "CPC" (CELLULAR PALLET-WIDE CONTAINERS).

Automatic twistlocks locking, Indicator lights, Twistlocks interlock function, Lift interrupt function, Container-counter.

FOR HANDLING DOUBLE AND SINGLE CONTAINERS:

To meet the actual ISO 3691-1 Norm, who requires a maximum speed of 10km/h for unlocked container handling, the 584L series is equipped with sensors to fulfill the task.

2.0 584LA HOOKS AND SIDE-CLAMPS

- Hooks with additional Side-clamps, for one or two containers. Clamping function is non-automatic. The spreader does not recognize if a container is laden. No speed limitation is applied. This spreader is for those countries who does not need to meet the ISO 3691-1 Norm.

2.1 584LB HOOKS AND SIDE-CLAMPS

- Hooks with additional Side-clamps, for one or two containers. Clamping function is non-automatic. The spreader does recognize if a container is laden. Speed limitation 10 km/h is always applied.

2.2 584LD HOOKS AND SIDE-CLAMPS

- Hooks with additional Side-clamps, for one or two containers. Clamping function is non-automatic. The spreader does recognize if one or two containers is (are) laden. Speed limitation 10 km/h is applied as long the side clamps are not in locked position.

2.3 584LF HOOKS AND SIDE-CLAMPS

- Hooks with additional Side-clamps, for one or two containers. Clamping function is non-automatic. The spreader does recognize if 1 or 2 containers is (are) laden. Speed limitation 10 km/h is applied as long the side clamps are not in locked position. For handling one 45' container, the hook is hydraulically raised and locked into the container casting to allow maximum travel speed.

- Clamps protrude 320 mm on each side of spreader. 584LA – 584LD not suitable for 45' container(s).

3.0 582LA DOUBLE HORIZONTAL TWISTLOCKS

- Spreader sides are 'flush' with container(s), allows entry into tightly spaced container block stacks.
- Suitable for 45' containers with 40' ISO pockets.
- Manual locking of four twistlocks, Twistlocks interlock function, Lift interrupt function, Container counter.
  PPS (Powered Pile Slope) function PPS is a hydraulic powered sideways articulation of the ECH spreader, of +/- 6° in addition to the standard mechanical articulation.

OPTIONAL:
PPS (POWERED PILE SLOPE) FUNCTION

- The PPS is a hydraulic powered sideways articulation of the ECH spreader, of +/- 6 degrees (in addition to the standard mechanical articulation).

OTHER FEATURES

HIGH PERFORMANCE HYDRAULICS

- Efficient and well-sized hydraulic components result in the fastest lifting speed: a tremendous 52 cm/sec. under full load. And this can be achieved with the smallest Stage IIIA engine power (145 kW) available, providing excellent fuel efficiency.
- An hydraulic accumulator in the hoist system cushions shocks caused by the vertical movement of the spreader and container(s), and helps to reduce dynamic peak loading on the lift chains.
- Hydraulic oil tank with generous 400 litre capacity.
- Triple hydraulic oil cooler with ample capacity, mounted at the front of the machine.
- Leak-free O-ring face hydraulic fittings.

BRAKES

- Service brake: front, oil-immersed (wet) disc brakes. Large oil cooler and a separate 10 micron brake oil filter. The brake system is fully hydraulic and charged by an accumulator (no air system).
- Parking brake: spring actuated and hydraulically released, on the driveline, automatically applied when pressure falls below 50 bar. The transmission is disengaged when the parking brake is applied.

WHEELS

- Large 14.00 x 24 size tyres are fitted for improved tyre life and lower running costs. Bias pneumatic lug tread tyres are standard. Options: radial pneumatic lug tread tyres, or solid (pneumatic shaped) lug tread tyres.
- Note: an hydraulic accumulator in hoist system, which acts to cushion the load, is fitted with all tyre choices.

ELECTRICAL SYSTEM

- 70 A alternator (Stage IIIA engine) 120 A alternator (Stage IIIB), 24 V system / 102 Ah Battery (20 hr).
- Battery master switch.
- 'CANbus' connection in the cab, for engine, transmission, and instrument cluster.

OTHER FEATURES

LIGHTS

A complete light kit is fitted:

- 4 front work lights (to 20' and 40' position) on the cab,
- 2 front drive lights on the front fenders,
- 2 rear work/drive lights on the cab,
- 2 combination tail & stop & rear driving lights,
- 4 direction indicators with hazard switch.
- Orange strobe light on the cab
- 4 work lights on the Hyster ECH spreader.

INSTRUMENTS / ACCESSORIES

- Warning lights: engine oil pressure, transmission oil pressure, transmission oil temperature, battery discharge indicator, low brake oil pressure, parking brake on.
- Gauges: engine coolant temperature, fuel, transmission oil temperature, voltmeter, engine oil pressure.
- Other indicators: hour meter, low brake pressure buzzer, combination key-type ignition/starter switch with starter lock out, reverse warning alarm.

EASE OF SERVICING

The hydraulic oil tank features a gauge for oil level as well as magnetic drain plugs.
The rearwards tilting cab is electrically powered.
In combination with a forward opening spring assisted engine hood and two quickly removable (lightweight polyester) covers over the hydraulics, this provides truly excellent access for service work.

STANDARD EQUIPMENT HIGHLIGHTS

- Tyres 14.00 x 24, Bias ply (diagonal) pneumatics.
- Wide drive axle 4.120 m overall width.
- Oil-immersed (wet) disc brakes.
- Tropical cooling (of powertrain and hydraulic system) for up to 50° C. ambient.
- Different engine configurations ensure that the exhaust emissions conform to the Stage IIIA or Stage IIIB emissions standard for NRMM (Non-Road Mobile Machinery).
- Engine and transmission protection systems.
- Aluminized steel anti-corrosive exhaust system.
- Autoshift transmission, also with forward-reverse shifting protection.
- Joystick for intuitive control of mast and spreader functions.
- Full-suspension seat with a height-adjustable backrest, two inside mirrors, two mirrors outside.
- Rearwards tilting cab for service access.
- Hyster ultra-wide 'Vista' lift mast with '1 to 4' lift ratio.
- High mounted tilt cylinders.
- Hydraulic accumulator in the hoist system, acting as load shock absorber.
- EC spreader with 'reefer correction' function, by +/- 600 mm side shift.

OPTIONAL EQUIPMENT

- Extra Stage IIIA power package for H16-XM-12EC Single container handlers only: 172 kW / 230 Hp engine & TE-17 transmission, instead of standard 145 kW / 197 Hp engine & TE-13.
- Tyres 14.00 x 24: Radial pneumatics, or (Pneumatic Shaped) Solids.
- Extra Wide drive axle 4.345 mm overall width.
- Spare wheel (complete tyre and rim).
- Automatic greasing system.
- Mud flaps on the rear fenders.
- Wheel nut protection rings, on the steer wheels.
- Special colour(s) RAL paint.
- Travel Speed Limiter, with / without load to a maximum speed of 10, 16 or 20 km/h.
- Storage box (for container locks) on the running board, right-hand side.
- Tyre Saver Front Axle greatly extends tyre life and gives major operational tyre cost savings.
- Engine pre-heater (electric, 220V).

IN-CAB / OPERATOR CONVENIENCE ITEMS:

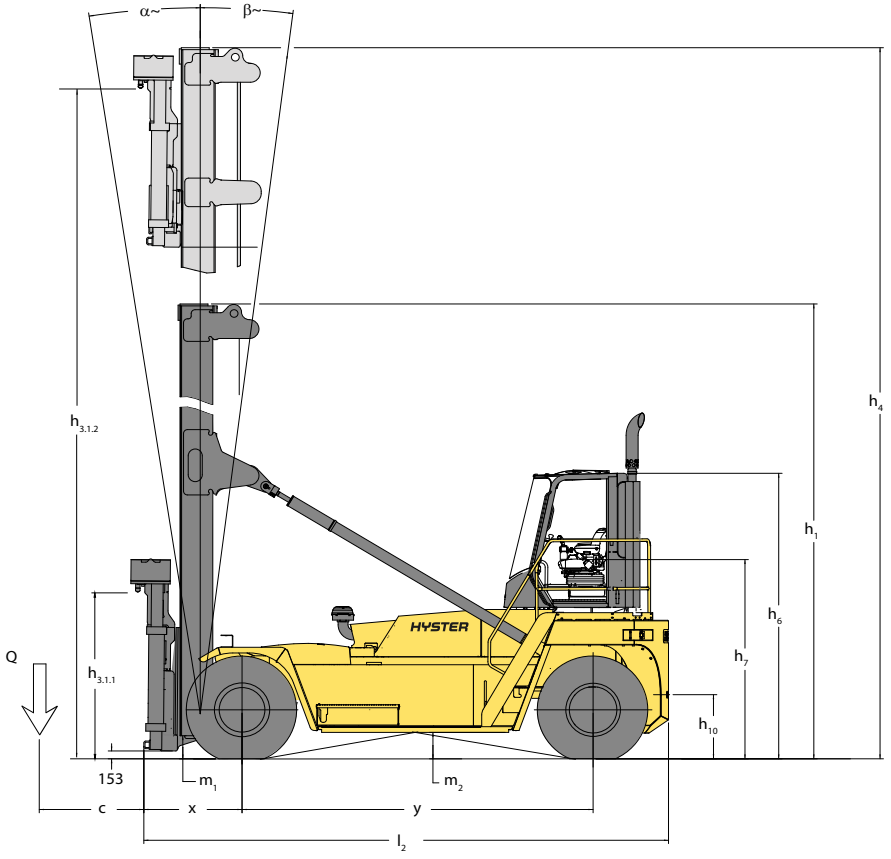
- Air-conditioning system is integrated into the heating and ventilation system. It is available with either manual temperature control or climate control. Sunshade screens are fitted on the top and rear windows.
- Reading light.
- Top and rear sunscreens for non-airconditioning equipped cab.
- Air suspended seat, instead of mechanically suspended seat.
- Deluxe air suspended seat, instead of mechanically suspended seat. Also available with seat heating.
- Trainer seat (small extra seat cushion).
- Support stand with mounting plate, to fit computer terminal or communication equipment.
- Converter: 24 Volt DC to 12 Volt DC.
- H.I.D. ('High Intensity Discharge' xenon) work lights, (4 x on the cab and 1 x on the rear of the cab), instead of standard Halogen lights.
- 4 drive lights instead two on front fenders.

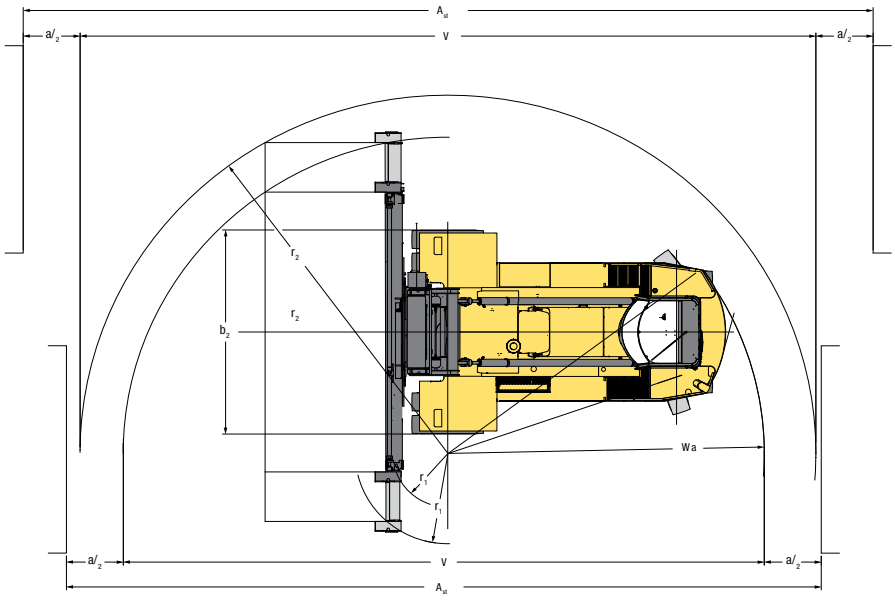
ON THE ECH SPREADER:

- Three types of container engagement systems. See Spreader Characteristics.
- 30' Stop (electro-hydraulic) of the telescopic movement.
- 'Powered Pile Slope' (PPS) function. For full details see Spreader Characteristics.
- Only for 'Vertical Twistlocks': Spreader heads with hydraulic forward Reach / Retract function. To also handle some approx. 2.45 - 2.60 m wide "CPC" (Cellular Palletwide Containers).

H18-23XM-12EC SPECIFICATIONS

DISTINGUISHING MARKS	1.1	Manufacturer (abbreviation)		HYSTER			HYSTER			HYSTER			HYSTER		
	1.2	Manufacturer's type designation		H18XM-12EC			H18XM-12EC			H22XM-12EC			H23XM-12EC		
	1.3	Drive: electric (battery or mains), diesel, petrol, fuel gas		Diesel			Diesel			Diesel			Diesel		
	1.4	Operator type: hand, pedestrian, standing, seated, orderpicker		Seated			Seated			Seated			Seated		
	1.5	Rated capacity/rated load	Q (t)	8.5			8.5			9.0			9.0		
	1.6	Load centre	c (mm)	1,220			1,220			1,220			1,220		
	1.8	Load distance, centre of drive axle to face of side lift spreader without / with PPS	x (mm)	1,260	1,332		1,260	1,332		1,320	1,392		1,320	1,392	
	1.9	Wheelbase	y (mm)	4,500			4,500			4,500			4,500		
	1.10.1	Stacking height at first row (number x container height, in feet)		6 x 8'6"			7 x 8'6"			2 on 5/7 x 8'6"			2 on 6/8 x 8'6"		
	1.10.2	Stacking height at first row (number x container height, in feet)		5 x 9'6"			6 x 9'6"			2 on 4/6 x 9'6"			2 on 5/7 x 9'6"		
WEIGHTS	2.1	Service weight ●	kg	33,404			34,469			36,354			38,919		
	2.2	Axle loading, laden front / rear	kg	35,323	6,582		36,514	6,456		36,661	8,693		37,751	10,169	
	2.3	Axle loading, unladen front / rear	kg	22,138	11,266		23,329	11,140		22,581	13,773		23,671	15,249	
TYRES / CHASSIS	3.1	Tyres: L = pneumatic, V = cushion, SE = Pneumatic Shape Solid		L			L			L			L		
	3.2	Tyre size, front		14.00 - 24 24PR			14.00 - 24 24PR			14.00 - 24 24PR			14.00 - 24 24PR		
	3.3	Tyre size, rear		14.00 - 24 24PR			14.00 - 24 24PR			14.00 - 24 24PR			14.00 - 24 24PR		
	3.5	Number of wheels, front / rear (X = driven)		x 4 / 2			x 4 / 2			x 4 / 2			x 4 / 2		
	3.6	Tread, front ⇿	b_{10} (mm)	3,280	3,505		3,280	3,505		3,280	3,505		-	3,505	
	3.7	Tread, rear	b_{11} (mm)	2,108			2,108			2,108			2,108		
DIMENSIONS	4.1	Tilt of mast / fork carriage forward / backward	α /β (°)	4	3		4	3		4	3		4	3	
	4.2	Height, mast lowered m	h_1 (mm)	9,492			10,792			9,492			10,792		
	4.3	Free lift	h_2 (mm)	0			0			0			0		
	4.4.1	Lift height at load centre c 1, minimum ✱	$h_{3.1.1}$ (mm)	2,350			2,350			2,426			2,426		
	4.4.2	Lift height at load centre c 1, maximum ✱	$h_{3.1.2}$ (mm)	16,200			18,800			16,276			18,876		
	4.5	Height, mast extended m	h_4 (mm)	16,417			19,017			16,417			19,017		
	4.7	Height of cabin w/o / with airco	h_6 (mm)	3,872	3,905		3,872	3,905		3,872	3,905		3,872	3,905	
	4.7.1	Height of cabin with strobe light / with work lights	h_6 (mm)	4,004	4,063		4,004	4,063		4,004	4,063		4,004	4,063	
	4.7.2	Height of cabin with airco and strobe light	h_6 (mm)	4,078			4,078			4,078			4,078		
	4.8	Seat height relating to SIP £	h_7 (mm)	2,704			2,704			2,704			2,704		
	4.19	Overall length ◆	l_1 (mm)	9,165	9,237		9,165	9,237		9,225	9,297		9,225	9,297	
	4.20	Length to face of side lift spreader w/o / with PPS ⇉	l_2 (mm)	6,727	6,799		6,727	6,799		6,787	6,859		6,787	6,859	
	4.21	Overall width ⇿	b_2 (mm)	4,108	4,333		4,108	4,333		4,108	4,333		-	4,333	
	4.24	Spreader width, retracted/extended	b_3 (mm)	6,084	12,218		6,084	12,218		6,566	12,700		6,566	12,700	
	4.31	Ground clearance, laden, below mast	m_1 (mm)	310			310			310			310		
	4.32	Ground clearance, centre of wheelbase	m_2 (mm)	411			411			411			411		
	4.34.3.1	Aisle width with 20' container without operating clearance	Ast_{20} (mm)	9,984			9,984			10,043			10,043		
	4.34.3.2	Aisle width with 20' container with 200 mm operating clearance	Ast_{20} (mm)	10,184			10,184			10,243			10,243		
	4.34.3.3	Aisle width with 20' container with 10% operating clearance	Ast_{20} (mm)	10,982			10,982			11,047			11,047		
	4.34.4.1	Aisle width with 40' container without operating clearance	Ast_{40} (mm)	13,751			13,751			14,235			14,235		
	4.34.4.2	Aisle width with 40' container with 200 mm operating clearance	Ast_{40} (mm)	13,951			13,951			14,235			14,235		
	4.34.4.3	Aisle width with 40' container with 10% operating clearance	Ast_{40} (mm)	15,126			15,126			15,438			15,438		
	4.35	Turning radius	Wa (mm)	6,240			6,240			6,240			6,240		
	4.36	Internal turning radius ¥	b_{13} (mm)	2,445			2,445			2,445			2,445		
ADDITIONAL DATA	5.1	Travel speed, laden / unladen ◤	km/h	20	25		20	25		20	25		20	25	
	5.1.1	Travel speed, laden & unlocked / unladen	km/h	NA	NA		NA	NA		10	25		10	25	
	5.2	Lift speed, laden / unladen	m/s	0.58	0.64		0.58	0.64		0.58	0.64		0.58	0.64	
	5.2.1	Lift speed, laden with 70% load	m/s	0.61			0.61			0.61			0.61		
	5.3	Lowering speed, laden / unladen	m/s	0.50	0.50		0.50	0.50		0.50	0.50		0.50	0.50	
	5.5	Drawbar pull, laden / unladen	kN	162	164		162	163		162	163		161	163	
	5.5.1	Drawbar pull, laden / unladen	kN	200	203		199	203		199	203		200	203	
	5.7	Gradeability, laden / unladen ✻ †	%	39	34		35	34		35	34		38	33	
	5.7.1	Gradeability, laden / unladen ✖ †	%	51	34		45	34		45	34		49	33	
	5.9	Acceleration time, laden/unladen	s	TBA	TBA		TBA	TBA		TBA	TBA		TBA	TBA	
PERFORMANCE DATA	10.1	Operating pressure for attachments	MPa	22.5			22.5			22.5			22.5		
	10.2	Oil volume for attachments	l/min	100			100			100			100		
	10.3	Hydraulic oil tank, capacity	l	268			268			268			268		
	10.4	Fuel tank, capacity	l	350			350			350			350		
	10.4.1	DEF tank, capacity	l	38			38			38			38		
	10.5	Steering design		Hydraulic power steering			Hydraulic power steering			Hydraulic power steering			Hydraulic power steering		
	10.6	Number of steering rotation		4.4			4.4			4.4			4.4		
	10.7	Sound pressure level at the driver's seat LpAZ ¬	dB (A)	68.3			68.3			68.3			68.3		
	10.7.1	Sound power level during the workcycle LwAZ	dB (A)	NA			NA			NA			NA		





r_1 = radius of swing of container attachment rear corner

r_2 = radius of swing of container front corner

Wa = outside turning radius of the truck

a = total operating clearance, a/2 is operating clearance at each side

a = 10% of V

V = (theoretical) 90 ~ stacking aisle width, no intrusive stacking width clearance

A_{ST} = V + a

A_{ST} = V + 10% of V

NOTES:

Specifications are affected by the condition of the vehicle and how it is equipped, as well as the nature and condition of the operating area. Inform your dealer of the nature and condition of the intended operating area when purchasing your Hyster Truck.

- ● Weights are based on the following specifications: Complete truck with cab, pneumatic tyres, mast and 20' – 40' spreader as specified.
- ⟷ Standard axle / wide axle
- m Unladen with new tyres
- ✱ Spreader, distance from ground to twistlocks.
- £ Full suspension seat in depressed position
- ◆ Including 8' load with MPS / with PPS
- ⇉ Length to load face of attachment with MPS / with PPS
- ¥ Centre of truck to centre of inner turning
- ✻ at 1.6 km/h.
- ◤ Travel speed laden/unladen limited at 25 km/h as factory default
- ✖ at stall.
- † Gradeability figures are provided for comparison of tractive performance, but are not intended to endorse the operation of vehicle on the stated inclines. Follow instructions in the operating manual regarding operation on inclines.
- ¬ Measured according to the test cycles and based on the weighting values contained in EN12053.

NOTICE:

Care must be exercised when handling elevated loads. When the carriage and/or load is elevated, truck stability is reduced. It is important that the mast tilt in either direction is kept to a minimum when loads are elevated.

Operators must be trained and must read, understand and follow the instructions contained in the Operating Manual.

All values are nominal values and they are subject to tolerances. For further information, please contact the manufacturer.

Hyster products are subject to change without notice.

Lift trucks illustrated may feature optional equipment. Values may vary with alternative configurations.

CE Safety:

This truck conforms to the current EU requirements.

H18-23XM-12EC SPECIFICATIONS

H18XM-12EC - 8 500 kg @ 1 220 mm

Stacking Height		Lift Height minimum $h_{3.1.1}$ (mm)	Lift Height maximum $h_{3.1.2}$ (mm)	Height mast lowered h_1 (mm)	Height mast extended h_4 (mm)	Mast tilt (fwd/bwd) (°)	Side Shift b_8 (mm)	Overall Width b_2 (mm)		Rated Capacity (kg)
single										
9' 6"	8' 6"	2,350	16,200	9,492	16,417	4/3	600	4,120	4,345	8,500
5	6									

H18XM-12EC - 8 500 kg @ 1 220 mm

Stacking Height		Lift Height minimum $h_{3.1.1}$ (mm)	Lift Height maximum $h_{3.1.2}$ (mm)	Height mast lowered h_1 (mm)	Height mast extended h_4 (mm)	Mast tilt (fwd/bwd) (°)	Side Shift b_8 (mm)	Overall Width b_2 (mm)		Rated Capacity (kg)
single										
9' 6"	8' 6"	2,350	18,800	10,792	19,017	4/3	600	4,120	4,345	8,500
6	7									

H22XM-12EC - 9 000 kg @ 1 220 mm

Stacking Height		Lift Height minimum $h_{3.1.1}$ (mm)	Lift Height maximum $h_{3.1.2}$ (mm)	Height mast lowered h_1 (mm)	Height mast extended h_4 (mm)	Mast tilt (fwd/bwd) (°)	Side Shift b_8 (mm)	Overall Width b_2 (mm)		Rated Capacity (kg)
single										
double										
9' 6"	8' 6"	2,426	16,276	9,492	16,417	4/3	600	4,120	4,345	9,000
5	6									
6	7									

H23XM-12EC - 9 000 kg @ 1 220 mm

Stacking Height		Lift Height minimum $h_{3.1.1}$ (mm)	Lift Height maximum $h_{3.1.2}$ (mm)	Height mast lowered h_1 (mm)	Height mast extended h_4 (mm)	Mast tilt (fwd/bwd) (°)	Side Shift b_8 (mm)	Overall Width b_2 (mm)	Rated Capacity (kg)
single									
double									
9' 6"	8' 6"	2,426	18,876	10,792	19,017	4/3	600	4,345	9,000
5	6								
6	7								

POWERTRAINS AND SPREADERS

DESIGNATION	1.1	Manufacturer (abbreviation)		HYSTER
	1.2	Manufacturer's type designation		H18-23XM-12EC
	1.3	Drive: electric (battery or mains), diesel, petrol, fuel gas		Diesel
POWER UNIT	7.1	Engine manufacturer / type		Cummins / QSB 6.7
	7.2	Engine output according to ISO 1585	kW / min^{-1}	168 / 2,000
	7.2.1	Max. engine power according to ISO 1585	kW / min^{-1}	168 / 2,000
	7.3	Rated speed	min^{-1}	2,000
	7.3.1	Torque at 1/min	Nm / min^{-1}	949 / 1,500
	7.4	Number of cylinders / displacement	(-)/cm^3	6 / 6,690
	7.5.1	Fuel consumtion according to VDI cycle	l/h	On request
	7.5.2	Alternator	A	120
	7.10	Battery voltage/nominal capacity	(V)/(Ah)	24 / 102
DRIVE TRAIN	8.1	Type of drive unit		Torque Converter
	8.2	Transmission manufacturer / type		ZF / 5WG211
	8.6	Wheel drive / drive axle manufacturer / type		Axle Tech / PRC1756W3H
	8.4	Service brake		Oil immersed disc
	8.5	Parking brake		Dry disc on drive axle
SPREADER	9.1	Manufacturer / type		ELME 588TB
	9.1.1	Pile slope spreader; mechanically	(mm)	+/- 225
	9.1.2	Pile slope spreader; hydraulically powered (optional)	(°)	+/- 6
	9.3	Size of containers	feet (')	20 & 40
	9.4	Side shift	b_8 (mm)	+/- 600
	9.4.1	Telescoping time, extend / retract	s	12 / 12

The Hyster Empty Container Handlers range H18-23XM-12EC consists of following models:

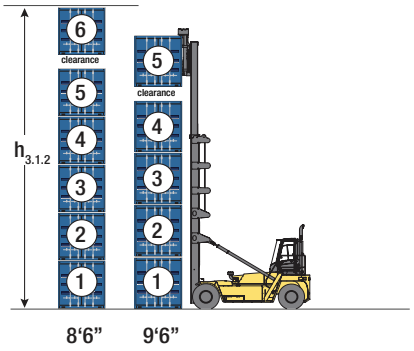
- H18XM-12EC Empty Container Handler, maximum 8500 kg, stacking 6 x 8’6” high or 5 x 9’6” high single containers.
- H18XM-12EC Empty Container Handler, maximum 8500 kg, stacking 7 x 8’6” high or 6 x 9’6” high single containers.
- H22XM-12EC Empty Container Handler, maximum 9000 kg, stacking ‘2 on 5/7’ x 8’6” high or ‘2 on 4/6’ x 9’6” high double containers, and also: 6 x 8’6” high or 5 x 9’6” high single containers.
- H23XM-12EC Empty Container Handler, maximum 9000 kg, stacking ‘2 on 6/8’ x 8’6” high or ‘2 on 5/7’ x 9’6” high double containers, and also: 7 x 8’6” high or 6 x 9’6” high single containers.

All capacities are according to ISO 10525.

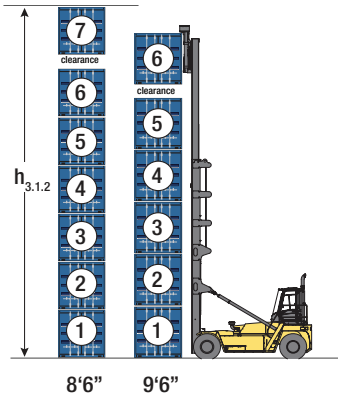
Warning: Care must be exercised when handling elevated loads. When the spreader and/or load is elevated, truck stability is reduced. It is important that mast tilt be kept in back-tilted position or maximum in vertical position when mast / loads are elevated. Operators must be trained and adhere to the instructions contained in the Operating Manual.

LIFT HEIGHT TO HANDLE 8’6” - 9’6” HIGH CONTAINERS

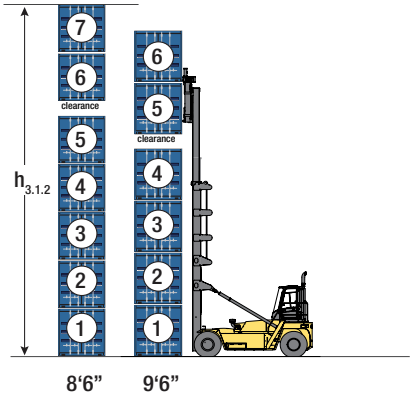
H18XM-12EC - 8.500 kg @ 1.220 mm



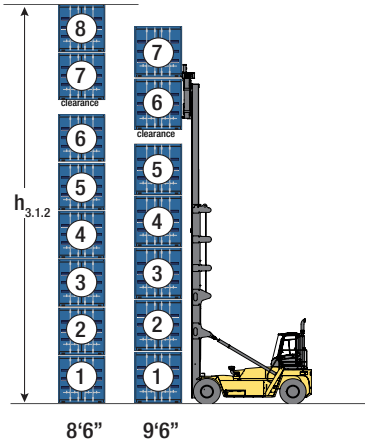
H18XM-12EC - 8.500 kg @ 1.220 mm



H22XM-12EC - 9.000 kg @ 1.220 mm



H23XM-12EC - 9.000 kg @ 1.220 mm



$b_{1.20}$	load width	20’ or 6096 mm
$b_{1.40}$	load width	40’ or 12192 mm
l_6	load length	8’ or 2438,4 mm
W_a	outer turning radius of the truck	
a	10% of $b_{1.20}$ or $b_{1.40}$	

$$Ast\ 20 = Wa + \sqrt{\left(X + C + \frac{l_6}{2}\right)^2 + \left(\frac{b_1}{2} - b_{13}\right)^2} + a$$

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