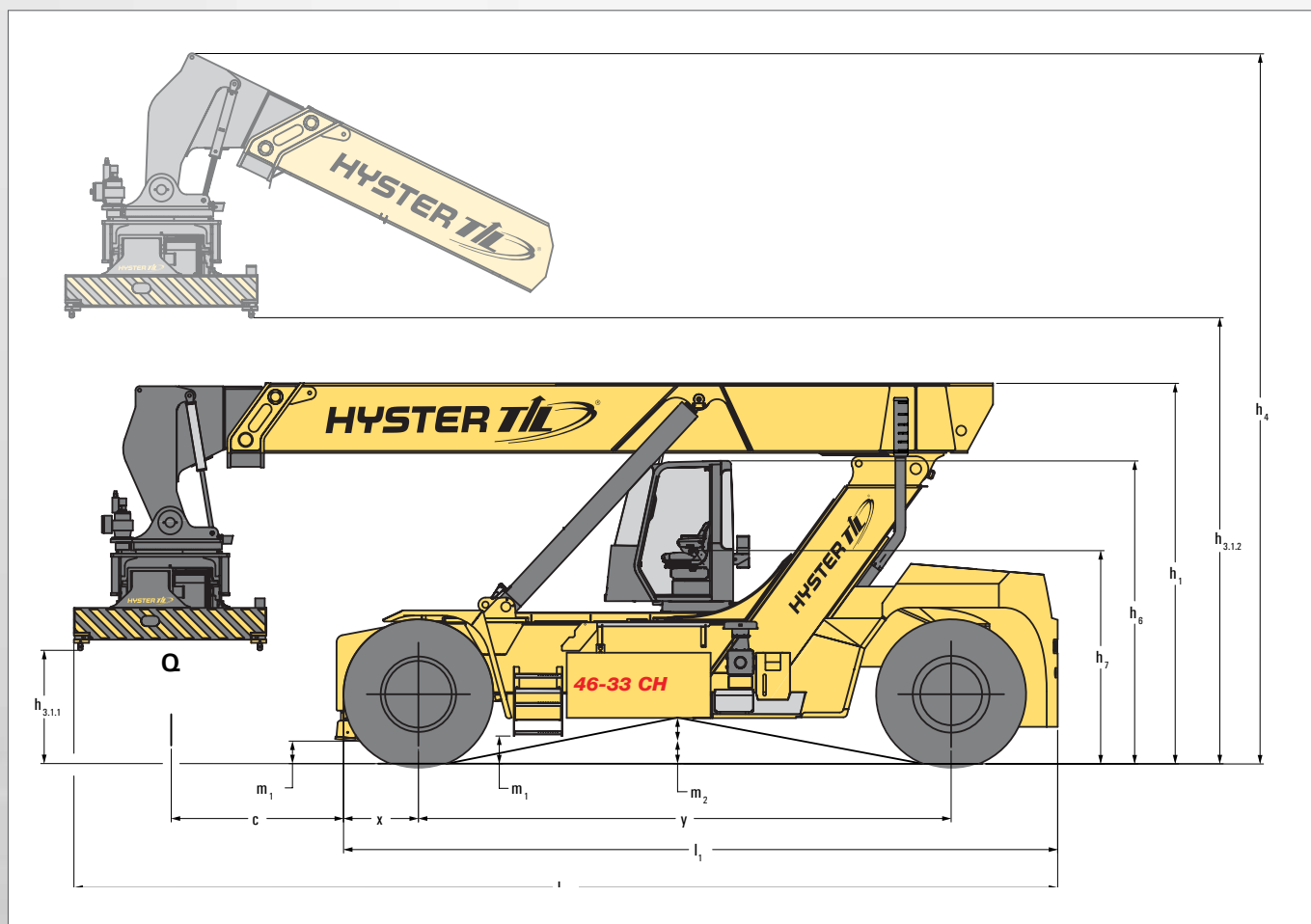




# RS46 SERIES TECHNICAL GUIDE

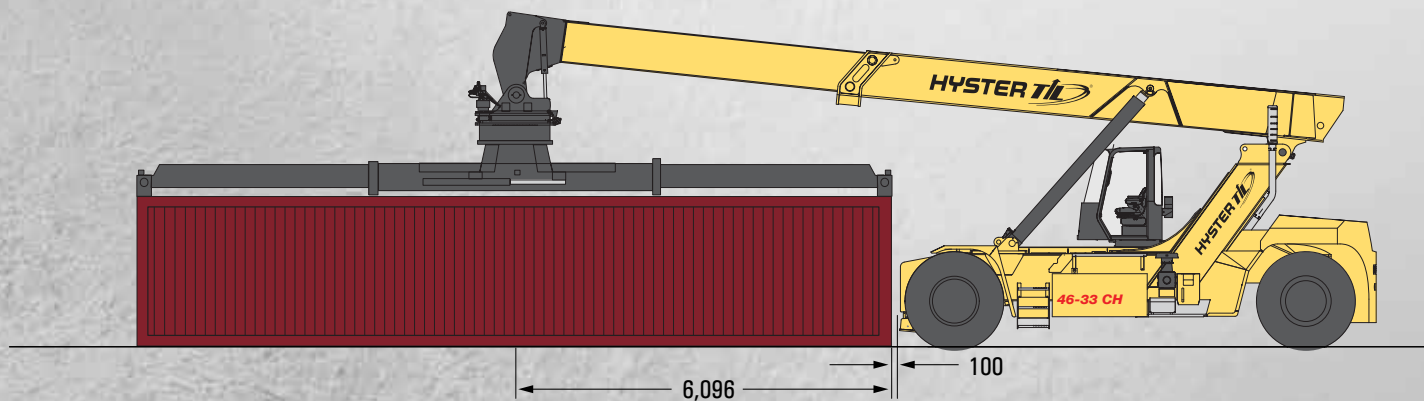
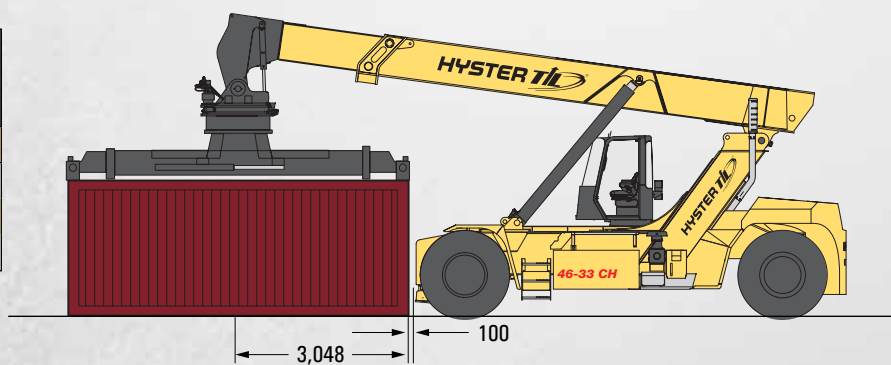


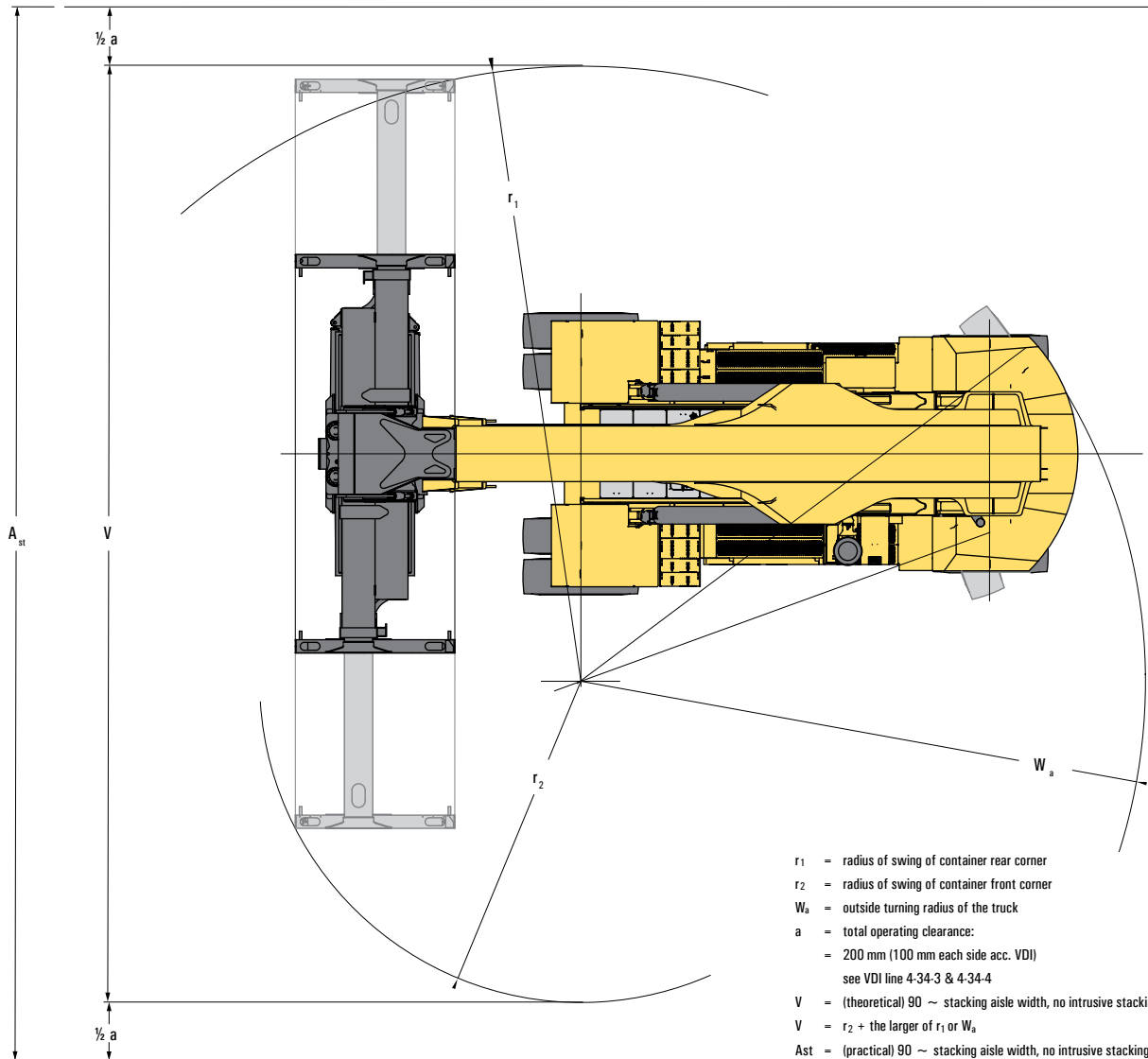
## > TRUCK DIMENSIONS



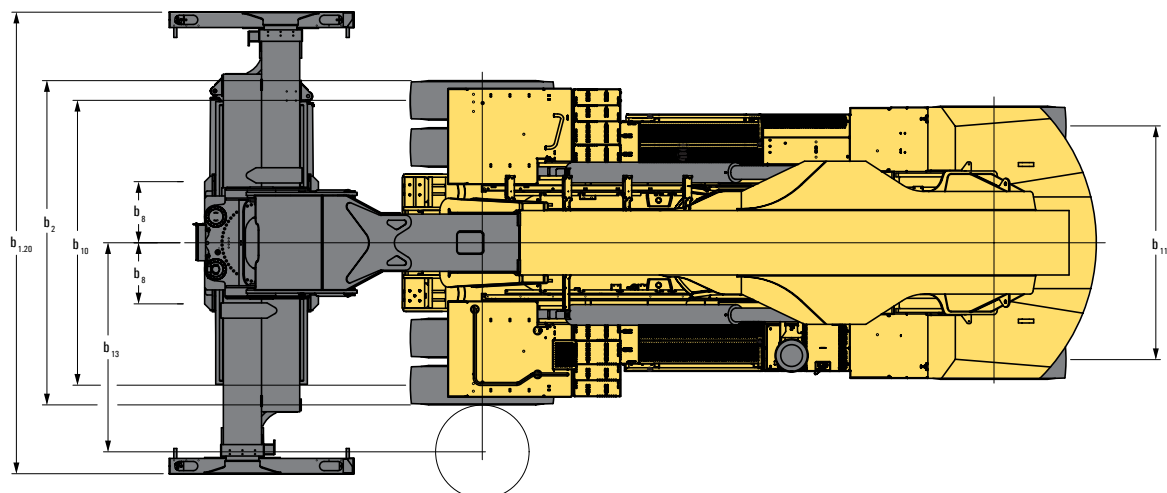
### MAXIMUM CAPACITY CONTAINER PICKING END TO END

MODEL	20'	40'
	kg	kg
RS46-29	32,000	14,000
RS46-33	35,000	16,000





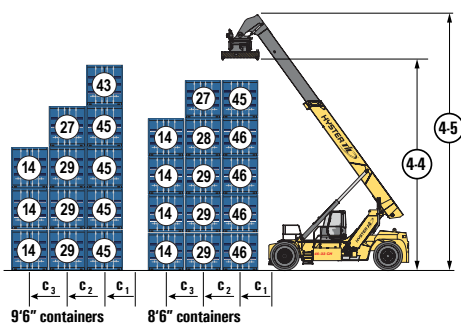
- $r_1$  = radius of swing of container rear corner
- $r_2$  = radius of swing of container front corner
- $W_a$  = outside turning radius of the truck
- $a$  = total operating clearance:  
= 200 mm (100 mm each side acc. VDI)  
see VDI line 4-34-3 & 4-34-4
- $V$  = (theoretical) 90 ~ stacking aisle width, no intrusive stacking
- $V$  =  $r_2$  + the larger of  $r_1$  or  $W_a$
- $A_{st}$  = (practical) 90 ~ stacking aisle width, no intrusive stacking and with clearance
- $A_{st}$  =  $V + a$



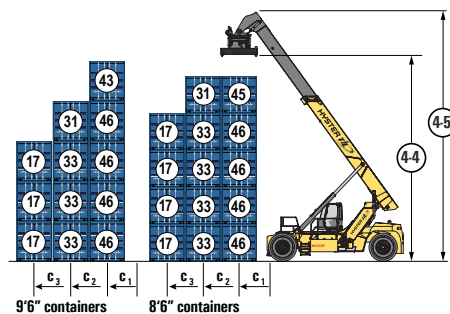
## > RATED CAPACITIES AND STACKING HEIGHTS

(shown in 1,000 kg.)

### RS 46-29 CH CONTAINER SPREADER



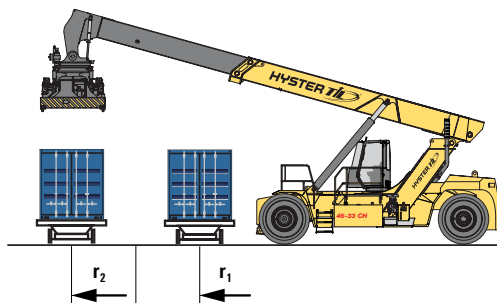
### RS 46-33 CH CONTAINER SPREADER



c1	c2	c3
1865mm	3815mm	6315mm

Note: All load centres c1, c2, c3 are taken from the front face of the (front) Tyres, deduct 100mm for load centres taken from the front face of the stabiliser.

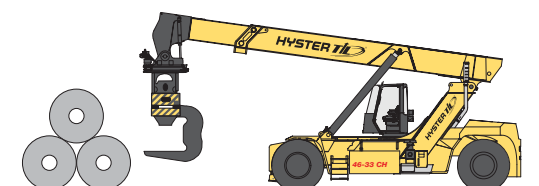
### HANDLING IN SECOND RAIL



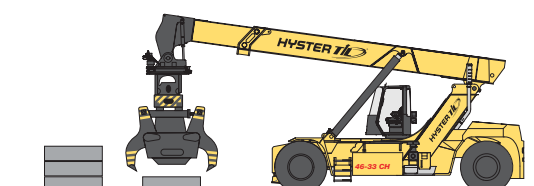
r1	r2
1865mm	6315mm

### RS 46 FOR STEEL LOAD HANDLING

#### RS 46 FOR COIL HANDLING



#### RS 46 FOR SLAB HANDLING



Note:  
Special Attachments : Please get in touch with our Sales & Application team for more details.

## RS 46-29, RS 46-33, CONTAINER HANDLERS



GENERAL	1-1	Manufacturer			HYSTER-TIL		HYSTER-TIL	
	1-2	Model designation			RS 46-29 CH		RS 46-33 CH	
	1-3	Powertrain / drivetrain			Diesel		Diesel	
	1-4	Operator type			Seated		Seated	
	1-5-1	Load capacity at load centre distance c <sub>1</sub> without/with stabiliser (1)	Q <sub>1</sub>	kg	46,000	n/a	46,000	n/a
	1-5-2	Load capacity at load centre distance c <sub>2</sub> without/with stabiliser (1)	Q <sub>2</sub>	kg	29,000	n/a	33,000	n/a
	1-5-3	Load capacity at load centre distance c <sub>3</sub> without/with stabiliser (1)	Q <sub>3</sub>	kg	14,000	n/a	17,000	n/a
	1-6-1	Load centre distance c <sub>1</sub> (2)	c <sub>1</sub>	mm	1,865		1,865	
	1-6-2	Load centre distance c <sub>2</sub> (2)	c <sub>2</sub>	mm	3,815		3,815	
	1-6-3	Load centre distance c <sub>3</sub> (2)	c <sub>3</sub>	mm	6,315		6,315	
	1-8	Load distance, ctr of drive axle to face of front Tyres/front of stabiliser	x	mm	835	n/a	835	n/a
	1-9	Wheelbase	y	mm	6,200		6,200	
	1-10	Stacking height at first row (number x container height)		#	5 x 9' 6"		5 x 9' 6"	
WEIGHT	2-1	Service weight		kg	68,500		72,200	
	2-2-1	Axle loading with load, front / rear at c <sub>1</sub>		kg	101,350	13,150	101,100	17,100
	2-3-1	Axle loading without load, front / rear at c <sub>1</sub>		kg	35,300	33,200	35,000	37,200
WHEELS	3-1	Tyre type			Pneumatic		Pneumatic	
	3-2	Tyre size, front			18.00-25 40PR		18.00-25 40PR	
	3-3	Tyre size, rear			18.00-25 40PR		18.00-25 40PR	
	3-5	Wheels, number front / rear (X = driven wheels)			x4 / 2		x4 / 2	
	3-6	Tread, front	b <sub>10</sub>	mm	3,703		3,703	
	3-7	Tread, rear	b <sub>11</sub>	mm	3,060		3,060	
DIMENSIONS	4-1	Boom angle minimum / maximum		(°)	0 / 59		0 / 59	
	4-2	Height of boom lowered	h <sub>1</sub>	mm	4,700		4,700	
	4-4-1	Lift height at load centre c <sub>1</sub> (3)	h <sub>3.1</sub>	mm	15,260		15,260	
	4-4-2	Lift height at load centre c <sub>2</sub> (3)	h <sub>3.2</sub>	mm	13,850		13,850	
	4-5	Height, boom extended	h <sub>4</sub>	mm	18,110		18,110	
	4-7	Height of overhead guard (cabin)	h <sub>6</sub>	mm	3,720		3,720	
	4-8	Seat height to SIP (4)	h <sub>7</sub>	mm	2,555		2,555	
	4-15	Height under Twistlock - lowered (3)	h <sub>13</sub>	mm	1,345		1,345	
	4-19	Overall length	l <sub>1</sub>	mm	8,360		8,360	
	4-20	Overall length including boom retracted	l <sub>2</sub>	mm	11,873		11,873	
	4-21-2	Overall width across all of truck	b <sub>2</sub>	mm	4,200		4,200	
	4-21-3	Overall width across spreader 20'	b <sub>1.20</sub>	mm	6,100		6,100	
	4-21-4	Overall width across spreader 40'	b <sub>1.40</sub>	mm	12,200		12,200	
	4-31	Ground clearance, lowest point	m <sub>1</sub>	mm	285		285	
	4-32	Ground clearance, centre or wheelbase	m <sub>2</sub>	mm	437		437	
	4-34-3	Aisle width: 20' container (5)	Ast <sub>20</sub>	mm	12,639		12,639	
	4-34-4	Aisle width: 40' container (5)	Ast <sub>40</sub>	mm	14,403		14,403	
	4-35	Outside turning radius	W <sub>a</sub>	mm	8,420		8,420	
PERFORMANCE		PERFORMANCE CUMMINS QSM11 224KW STAGE IIIA ENGINE - TE 27						
	5-1	Travel speed with / without load		km/h	20	23	20	23
	5-2	Lifting speed with / without load		m/s	0.25	0.48	0.25	0.48
	5-3	Lowering speed with / without load		m/s	0.46	0.45	0.46	0.45
	5-7	Gradeability - 1.6 km/h, with / without load (6)		%	22	36	22	36
		PERFORMANCE CUMMINS QSM11 250KW STAGE IIIA ENGINE - TE 32						
	5-1	Travel speed with / without load		km/h	21	23	21	23
	5-2	Lifting speed with / without load		m/s	0.28	0.48	0.28	0.48
	5-3	Lowering speed with / without load		m/s	0.46	0.45	0.46	0.45
	5-7	Gradeability - 1.6 km/h, with / without load (6)		%	26	35	25	35



## POWERTRAINS

GENERAL	1-1	Manufacturer			HYSTER-TIL	HYSTER-TIL
	1-2	Model designation			RS46 CH	RS46 CH
	1-3	Powertrain / drivetrain			Diesel	Diesel

ENGINE	7-1	Engine manufacturer / model			Cummins / QSM11	Cummins / QSM11
	7-1a	EPA / CE Tier compliance			Tier 3 / Stage IIIA	Tier 3 / Stage IIIA
	7-2	Engine power output according to ISO 1585		kW	224	250
	7-2-1	Engine power output - peak		kW	224	272
	7-3	Rated speed		rpm	2,100	2,100
	7-3-1	Engine torque @rpm (1/min)		N-m	1,424 @ 1000	1,674 @ 900
	7-4	Number of cylinders / displacement		# / cm3	6 / 10,800	6 / 10,800
		Turbocharger		Type	Wastegate, water cooled	Wastegate, water cooled
	7-8	Alternator output		Amps	120	120
	7-10	Battery voltage, rated capacity		V / Ah	24 / 130	24 / 130

DRIVE	8-1	Drive control / transmission		Type / #	Hydrodynamic Transmission	Hydrodynamic Transmission
	8-2	Transmission manufacturer / type		Type / #	Spicer Off-Highway / TE-27	Spicer Off-Highway / TE-32
	8-4	Transmission speeds forward / backward		#	4 / 4	4 / 4
	8-5	Coupling		Type	Torque Converter	Torque Converter
	8-6	Wheel drive / drive axle manufacturer / type		Type / #	Axletech PRC7545 / Kessler D102	Axletech PRC7545 / Kessler D102
	8-11	Service brake		Type	Oil immersed (wet) disc	Oil immersed (wet) disc
	8-12	Parking brake		Type	Spring applied, dry disc on drive axle	Spring applied, dry disc on drive axle

SPREADER	9-1	Spreader manufacturer			TIL / Elme (optional)	TIL / Elme (optional)
	9-3	Size of containers		feet (')	ISO 20' - 40'	ISO 20' - 40'
	9-4	Side shift	b <sub>8</sub>	mm	+ 800 / - 800	+ 800 / - 800
	9-6-1	Rotation angle, without override		°	+ 12 / - 12	+ 12 / - 12
	9-6-2	Rotation angle, with override		°	+ 185 / - 95	+ 185 / - 95

MISC	10-1	Operating pressure for attachments		bar	140	140
	10-2	Oil volume for attachments		l/min	70 to 110	70 to 110
	10-3	Hydraulic oil tank, capacity		l	625	625
	10-4	Fuel tank capacity		l	830	830
	10-5	Steering design			Hydrostatic	Hydrostatic
	10-6	Number of steering rotation			6	6
	10-7	Sound pressure level at driver's seat (7)	Lpaz	dB(A)	75	75
	10-7-1	Sound power level during the workcycle	Lwaz	dB	109	109

### 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.

- (1) Load capacities shown with mechanical pile slope (MPS) spreader. Deduction for using powered pile slope spreader is approx. 900 kg
- (2) From face of front Tyres.
- (3) With Mechanical Pile Slope (MPS). For optional Powered Pile Slope (PPS) function: deduct 310 mm.
- (4) Full suspension seat in depressed position.
- (5) Spreader at 8.0 m high, central above front axle; container 0 mm in front of Tyres; includes 100 mm clearance.
- (6) Gradeability figures provided for comparison of tractive performance, but are not intended to endorse the operation of vehicle on the stated inclines.
- (7) Add 2 dB(A) for option with additional cab fan.

All capacities are according to EN1459.

All specifications and capacities are valid for trucks equipped with a Hyster TIL container handling spreader for handling ISO containers.

### NOTICE:

Care must be exercised when handling elevated loads. 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.

*NOTE: Specifications, unless otherwise listed, are for a standard truck without optional equipment.*

Specification data is based on VDI 2198.

## STANDARD AND OPTIONAL EQUIPMENT



PERFORMANCE	STD	OPT
Cummins QSM11 diesel engine rated 224 kW Stage IIIA wastegate turbocharger, water cooled	X	
Cummins QSM11 diesel engine rated 250 kW Stage IIIA wastegate turbocharger, water cooled		X
Hibernate Idle	X	
Hydraulically driven on-demand cooling fan	X	
120 amp alternator	X	
Powertrain protection system	X	
Spicer Off-Highway TE-27 4-speed auto-shifting transmission	X	
Spicer Off-Highway TE-32 4-speed auto-shifting transmission		X
Axletech PRC7545 drive axle with wet disc brakes	X	
Kessler D102 drive axle with wet disc brakes		X
DRIVE	STD	OPT
Traction speed limiter when carrying container (adjustable)	X	
Traction speed limiter - unconditional (adjustable)		X
Steer axle with full stroke steer cylinder for tight turning radius		X
Steer axle with reduced stroke steer cylinder for longer Tyre life	X	
Premium E4 Pneumatic bias ply Tyres	X	
Premium Slick bias ply Tyres		X
Premium Slick radial Tyres		X
18.00-25 40PR drive and steer Tyres	X	
LIFT	STD	OPT
On-demand load sensing hydraulic system	X	
Automatic throttle-up when lifting (in neutral or inching)	X	
2-stage boom for 5-high 1st row stacking	X	
6-high 1st row stacking		X
3B6 load moment Indicator with monochrome display		X
3B6 load moment Indicator with color display	X	
High speed hoist system - below 10 tons	X	
Hydraulic system temperature protection		X
Container weighing system SOLAS compliant		X
HANDLING	STD	OPT
TIL Spreader with rotation (CH models)	X	
Elme 817 Spreader with rotation (CH models)		X
Mechanical Pile Slope	X	
Powered dampening (for Elme Spreader)		X
4 lifting eyes located on end beam corners	X	
4 lifting eyes located under centre beam of spreader		X
Container guides - located outside near twistlocks		X
Rotation stops with override	X	
VISIBILITY	STD	OPT
External wide angle mirrors mounted on rear of front fenders	X	
External wide angle mirrors mounted on top of front fenders	X	
Rear view camera system		X
Halogen work lights	X	
LED work lights		X
High Performance LED work lights		X
LED twistlock indicator lights	X	
LED stop/tail/brake lights	X	
Turn signals, hazard & marker lights (LED)	X	
SUPPLEMENTAL	STD	OPT
Literature package	X	
Operator's manual	X	
Warranty: 12 months / 2,000 hours manufacturer's warranty	X	
CE Certification		X

APPEARANCE	STD	OPT
Hyster yellow paint base truck and spreader	X	
Special paint base truck and spreader		X
ERGONOMICS	STD	OPT
Powered partial-sliding cabin, including additional mirrors on top of fenders	X	
Powered full-sliding cabin, including additional steps and handrails		X
Isolated mounting for low noise and vibration	X	
Coat hook	X	
Front, top and rear wipers	X	
Front and rear window defrosters	X	
Left side handrails, stairway and cabin door	X	
RH side door	X	
Right side handrails and stairway	X	
Stair lights		X
Multifunction display panel	X	
Seat-side joystick hydraulic control	X	
Steering wheel spinner knob	X	
Directional control lever	X	
Interior wide angle mirrors	X	
Telescoping & tilting steering column	X	
Recirculation fan	X	
DC/DC converter 24 volt/12 volt with socket		X
2nd 12 volt socket		X
Accessory mounting post		X
Rear locking console in cab		X
Heated top window		X
"H"-pattern front wiper		X
Air conditioning	X	
Sun shades on top and rear	X	
Radio preparation set-up (wiring, two speakers and antenna)		X
Reading light		X
Operator presence system	X	
Mechanical suspension seat		X
Air suspension seat	X	
Low backrest	X	
High backrest		X
Cloth seat cover	X	
Vinyl seat cover		X
Seat heating		X
2-point high visibility seatbelt	X	
3-point high visibility seatbelt		X
OPERATION	STD	OPT
Electric air horn 112 dB	X	
Visible alarm - Amber strobe light, key switch activated	X	
Audible alarm - reverse direction activated 82-102 dB(A), self-adjusting	X	
Forward motion alarm		X
Seatbelt interlock for engine start		X
Seatbelt indicator light on top of cab		X
Tyre pressure monitoring system		X
Lockable battery disconnect switch	X	
Battery jump start connection (NATO plug)		X
Adjustable automatic "empty seat" engine shutdown	X	
Trainer seat		X
Non-locking fuel cap		X
Lockable fuel cap	X	
Hyster Tracker wireless asset management - monitoring		X
Hyster Tracker wireless asset management - access / verification		X
Auto greasing system for basic truck & outer boom		X
Auto greasing system for inner boom and spreader		X
24 volt electrical system	X	
Engine block heater 220 volt		X
Steer wheel lug nut protection		X
Engine compartment light		X

# STRONG PARTNERS. TOUGH TRUCKS™

FOR DEMANDING OPERATIONS, EVERYWHERE.

## About Hyster

Hyster® supplies a complete range of warehousing equipment, IC and electric counterbalanced trucks, container handlers and reach stackers. Their network of highly trained dealers provides expert, responsive local support by way of cost-effective finance packages and effectively managed maintenance programs to ensure that the customer gets the best possible value for money. Their aim is to offer a complete partnership capable of responding to the full spectrum of material handling needs – whether professional consultancy on fleet management, fully qualified service support, or reliable parts supply.

## About TIL

TIL Limited – a leading provider of infrastructure equipment in India since 1944 – has an exclusive partnership with Hyster-Yale Group, Inc. for marketing a comprehensive range of high capacity forklift trucks, empty & laden container handlers and reach stackers to customers in India, Nepal and Bhutan, duly supported by an integrated after-sales support. The partnership between Hyster® and TIL represents the synergy between two leading companies with complementary strategic visions and product technologies, reinforced by a shared commitment to enhance customer profitability.



## Cutting Edge Technology

TIL's state-of-the-art manufacturing facilities located in Kamarhaty and Kharagpur, West Bengal, include fully equipped machine shops, fabrication and assembly shops, finishing bays and test beds. The research & development center has the latest CAD / CAM facilities and engineering software. The modern structural fabrication shop is equipped with automatic machines and the processes conform to ISO 3834, AWS D14.3 & others. At TIL, quality is engineered to predetermined process parameters. TIL is committed to setting higher & higher benchmarks in product quality. This commitment is reflected in the ISO 9001 Certification from Bureau Veritas Quality International.

## 24X7 Service. Anytime, Anywhere.

The 24X7 product support service offered by TIL – right from the installation and commissioning of equipment to the maintenance, repair works and training of operators for the efficient functioning of equipment – helps the customer to reduce equipment downtime and enhance productivity.

The HYSTER TIL® ReachStacker has become a preferred choice of customers by virtue of its exemplary uptime, superior handling speed, outstanding maneuverability and unrestricted stacking capabilities.

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