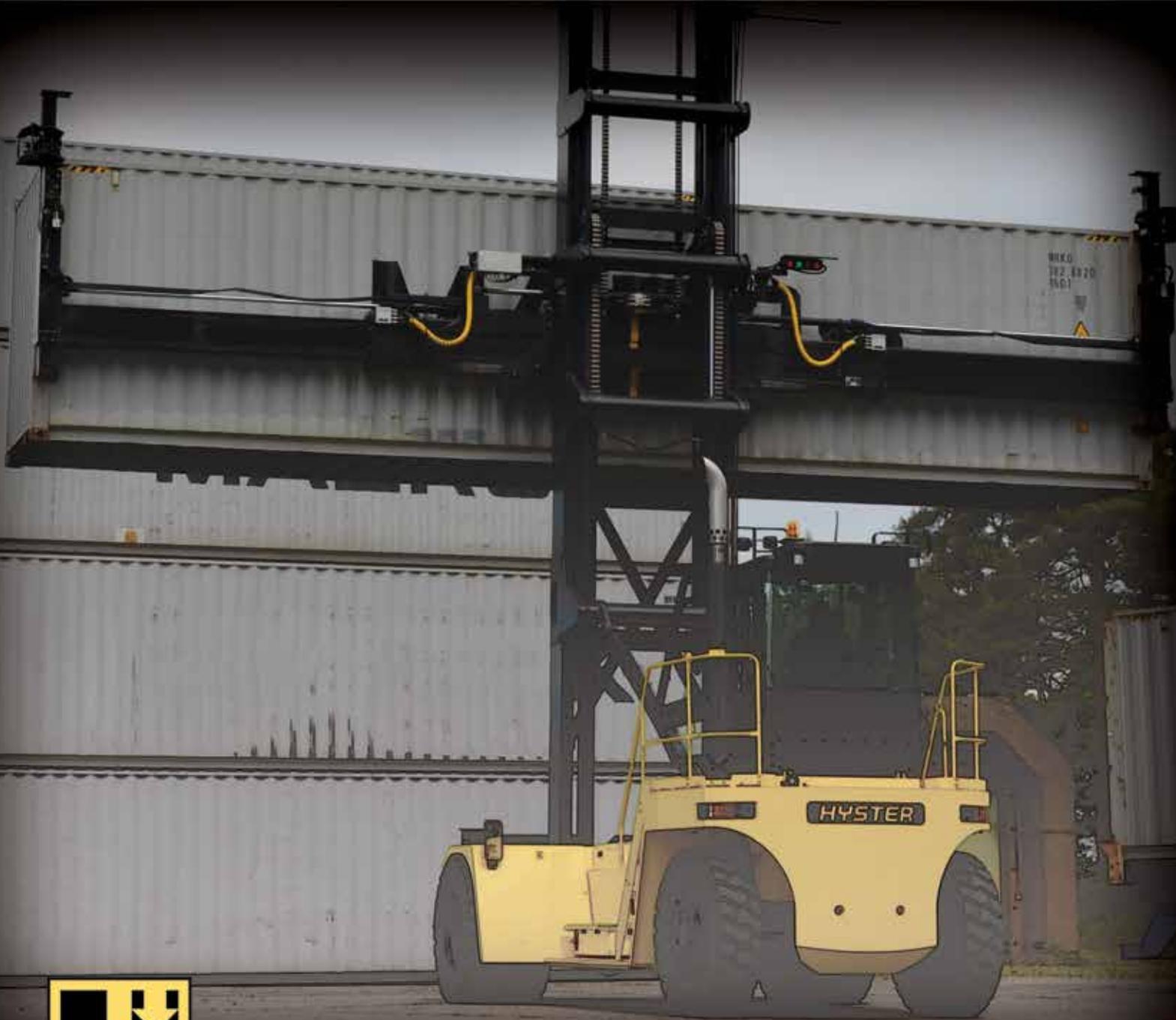


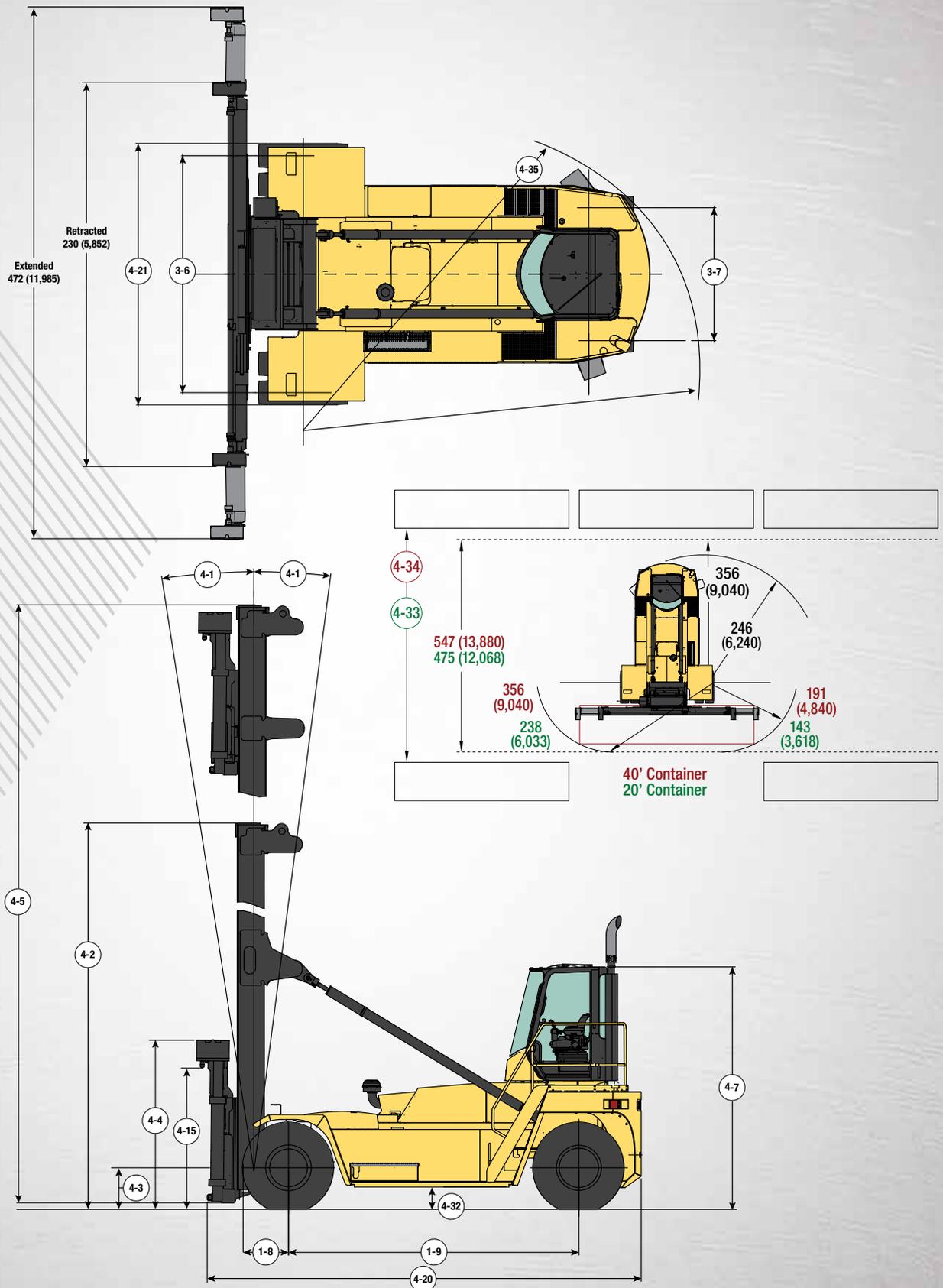
H450-500HD-EC SERIES



**STRONG PARTNERS.
TOUGH TRUCKS.™**

TECHNICAL GUIDE
Masted Empty Container Handler

H450-500HD-EC DIMENSIONS



Circled dimensions correspond to the line numbers on the tabulated chart inside the Technical Guide. Dimensions are in inches (millimeters).

CERTIFICATION: These Hyster® lift trucks meet design specifications of Part II ANSI B56.1-1969, as required by OSHA Section 1910.178(a)(2) and also comply with Part III ANSI B56.1-revision in effect at time of manufacture. Certification of compliance with the applicable ANSI standards appears on the lift truck. Performance specifications are for a truck equipped as described under Standard Equipment on this Technical Guide. Performance specifications are affected by the condition of the vehicle and how it is equipped, as well as by the nature, condition of the operating area, proper service and maintenance of the vehicle. If these specifications are critical, the proposed application should be discussed with your dealer.

H450HD-EC SPECIFICATIONS

		Units		English		Metric		
GENERAL	1-1	Description		English		Metric		
		Manufacturer		HYSTER		HYSTER		
	1-2	Model designation, Empty Container Handler Truck		H450HD-EC Single 5/6-high		H450HD-EC Single 6/7-high		
	1-5	Rated load capacity		lbs	kg	18,739	8500	
	1-6	Load center		in	mm	48	1220	
WEIGHTS	1-8	Load distance		in	mm	53	1340	
	1-9	Wheelbase		in	mm	177	4500	
	2-1	Total truck weight without load		lbs	kg	76,024	34,484	
	2-2a	Axle loading with load		front	lbs	kg	80,749	36,627
	2-2b			rear	lbs	kg	14,017	6358
WHEELS	2-3a	Axle loading without load		front	lbs	kg	51,046	23,154
	2-3b			rear	lbs	kg	24,978	11,330
	3-1	Tire type		Pneumatic		Pneumatic		
	3-2	Tire size		front	14.00 x 24-24PR		14.00 x 24-24PR	
	3-3			rear	14.00 x 24-24PR		14.00 x 24-24PR	
DIMENSIONS	3-6	Track width		front	in	mm	129	3280
	3-7			rear	in	mm	83	2108
	4-1	Mast tilt, forward / back		degrees		4 / 3		
	4-2	Height of mast lowered		in	mm	374	9492	
	4-4	Container stacking				5 x 9'6" / 6 x 8'6"		
	4-4	Lift height under Twistlocks - max lift		in	mm	634	16,117	
	4-5	Height extended (top of spreader)		in	mm	642	16,317	
	4-7	Height to top of operator compartment		in	mm	152	3872	
	4-15	Height below spreader, lowered (MPS / PPS)		in	mm	90 / 90	2,280 / 2,280	
	4-19	Overall length		in	mm	364	9245	
	4-20	Length to load face		in	mm	268	6807	
	4-21	Overall width over drive tires		in	mm	162	4112	
	4-23a	Spreader				ISO 20' - 40'		
	4-23b	Pile slope				Mechanical +/-3°		
	4-30	Side shift movement (each direction)		in	mm	24	600	
	4-31	Ground clearance, under mast with load		in	mm	12	310	
	4-32	Ground clearance, center of wheelbase		in	mm	16	411	
	4-33	Min. aisle width for 20' container (incl 10% clearance)		in	mm	439	11,147	
	4-34	Min. aisle width for 40' container (incl 10% clearance)		in	mm	600	15,246	
	4-35	Outside turning radius		in	mm	246	6240	
	5-10	Service brake				Oil immersed (wet) disc		
5-11	Park brake				Spring apply, dry disc			
8-8	Fuel tank capacity		gal	liter	92.5	350		
PERFORMANCE			WITH CUMMINS QSB 6.7L TIER 4 FINAL ENGINE					
PERFORMANCE	5-1a	Travel speed		with load	mph	km/h	16	25
	5-1b			without load	mph	km/h	16	25
	5-2a	Lifting speed		with load	ft/min	m/s	114	0.58
	5-2b			without load	ft/min	m/s	126	0.64
	5-3a	Lowering speed		with load	ft/min	m/s	98	0.50
	5-3b			without load	ft/min	m/s	98	0.50
	5-5	Drawbar pull - 1 mph (1.6 km/h)		lbs	kN	36,869	164	36,869
	5-6	Drawbar pull - max		lbs	kN	45,411	202	45,411
	5-7	Gradeability no load/rated load - 1 mph (1.6 km/h)				34/33	34/33	34/33
	5-8	Gradeability no load/rated load - max				44/33	44/33	44/33
	PERFORMANCE			WITH CUMMINS QSB 6.7L TIER 3 ENGINE				
	PERFORMANCE	5-1a	Travel speed		with load	mph	km/h	16
5-1b				without load	mph	km/h	16	25
5-2a		Lifting speed		with load	ft/min	m/s	114	0.58
5-2b				without load	ft/min	m/s	126	0.64
5-3a		Lowering speed		with load	ft/min	m/s	98	0.50
5-3b				without load	ft/min	m/s	98	0.50
5-5		Drawbar pull - 1 mph (1.6 km/h)		lbs	kN	36,869	164	36,869
5-6		Drawbar pull - max		lbs	kN	45,411	202	45,411
5-7	Gradeability no load/rated load - 1 mph (1.6 km/h)				34/33	34/33	34/33	
5-8	Gradeability no load/rated load - max				44/33	44/33	44/33	

H500HD-EC SPECIFICATIONS

		Units		English	Metric	English	Metric	
GENERAL	1-1	Description		HYSTER		HYSTER		
	1-2	Manufacturer		H500HD-EC		H500HD-EC		
		Model designation, Empty Container Handler Truck		Single 6/7-high		Single 7/8-high		
	1-5	Rated load capacity	lbs kg	20,000	9072	19,842	9000	
	1-6	Load center	in mm	48	1220	48	1220	
1-8	Load distance	in mm	53	1340	53	1340		
1-9	Wheelbase	in mm	177	4500	177	4500		
WEIGHTS	2-1	Total truck weight without load		lbs kg	81,990	37,190	81,065	
	2-2a	Axle loading with load	front	lbs kg	83,042	37,667	81,947	
	2-2b		rear	lbs kg	18,949	8595	18,960	
	2-3a	Axle loading without load	front	lbs kg	51,343	23,289	50,818	
	2-3b		rear	lbs kg	30,646	13,901	30,247	
WHEELS	3-1	Tire type		Pneumatic		Pneumatic		
	3-2	Tire size	front	14.00 x 24-24PR		14.00 x 24-24PR		
	3-3		rear	14.00 x 24-24PR		14.00 x 24-24PR		
	3-6	Track width	front	in mm	129	3280	138	
	3-7		rear	in mm	83	2108	83	
DIMENSIONS	4-1	Mast tilt, forward / back		degrees		4 / 3		
	4-2	Height of mast lowered		in mm	425	10,792	474	
	4-4	Container stacking		6 x 9'6" / 7 x 8'6"		7 x 9'6" / 8 x 8'6"		
	4-4	Lift height under Twistlocks - max lift	in mm	737	18,717	837	21,281	
	4-5	Height extended (top of spreader)	in mm	745	18,917	846	21,485	
	4-7	Height to top of operator compartment	in mm	152	3872	152	3872	
	4-15	Height below spreader, lowered (MPS / PPS)	in mm	90 / 90	2,280 / 2,280	90 / 90	2,280 / 2,280	
	4-19	Overall length	in mm	364	9245	364	9245	
	4-20	Length to load face	in mm	268	6807	268	6807	
	4-21	Overall width over drive tires	in mm	162	4112	171	4337	
	4-23a	Spreader		ISO 20' - 40'		ISO 20' - 40'		
	4-23b	Pile slope		Mechanical +/-3°		Mechanical +/-3°		
	4-30	Side shift movement (each direction)	in mm	24	600	24	600	
	4-31	Ground clearance, under mast with load	in mm	12	310	12	310	
	4-32	Ground clearance, center of wheelbase	in mm	16	411	16	411	
	4-33	Min. aisle width for 20' container (incl 10% clearance)	in mm	439	11,147	439	11,147	
	4-34	Min. aisle width for 40' container (incl 10% clearance)	in mm	600	15,246	600	15,246	
	4-35	Outside turning radius	in mm	246	6240	246	6240	
	5-10	Service brake			Oil immersed (wet) disc		Oil immersed (wet) disc	
	5-11	Park brake			Spring apply, dry disc		Spring apply, dry disc	
	8-8	Fuel tank capacity	gal liter	92.5	350	92.5	350	
PERFORMANCE		WITH CUMMINS QSB 6.7L TIER 4 FINAL ENGINE						
5-1a	Travel speed	with load	mph km/h	16	25	16	25	
5-1b		without load	mph km/h	16	25	16	25	
5-2a	Lifting speed	with load	ft/min m/s	114	0.58	114	0.58	
5-2b		without load	ft/min m/s	126	0.64	126	0.64	
5-3a	Lowering speed	with load	ft/min m/s	98	0.50	98	0.50	
5-3b		without load	ft/min m/s	98	0.50	98	0.50	
5-5	Drawbar pull - 1 mph (1.6 km/h)	lbs kN	37,093	165	37,093	165		
5-6	Drawbar pull - max	lbs kN	45,636	203	45,636	203		
5-7	Gradeability no load/rated load - 1 mph (1.6 km/h)	%	39/34	39/34	39/34	39/34		
5-8	Gradeability no load/rated load - max	%	51/34	51/34	51/34	51/34		
PERFORMANCE		WITH CUMMINS QSB 6.7L TIER 3 ENGINE						
5-1a	Travel speed	with load	mph km/h	16	25	16	25	
5-1b		without load	mph km/h	16	25	16	25	
5-2a	Lifting speed	with load	ft/min m/s	114	0.58	114	0.58	
5-2b		without load	ft/min m/s	126	0.64	126	0.64	
5-3a	Lowering speed	with load	ft/min m/s	98	0.50	98	0.50	
5-3b		without load	ft/min m/s	98	0.50	98	0.50	
5-5	Drawbar pull - 1 mph (1.6 km/h)	lbs kN	37,093	165	37,093	165		
5-6	Drawbar pull - max	lbs kN	45,636	203	45,636	203		
5-7	Gradeability no load/rated load - 1 mph (1.6 km/h)	%	39/34	39/34	39/34	39/34		
5-8	Gradeability no load/rated load - max	%	51/34	51/34	51/34	51/34		

H450-500HD-EC SPECIFICATIONS

H450-500HD-EC MAST DIMENSIONS								
Container stacking			5-High x 9'6" 6-High x 8'6"		6-High x 9'6" 7-High x 8'6"		7-High x 9'6" ¹ 8-High x 8'6" ¹	
			English	Metric	English	Metric	English	Metric
4-2	Height of mast, lowered	in mm	374	9492	425	10,792	474	12,052
4-3	Free lift	in mm	0	0	0	0	0	0
4-4	Height under Twistlocks - max lift	in mm	634	16,117	737	18,717	837	21,281
4-5	Height to top of spreader - max lift	in mm	642	16,317	745	18,917	846	21,485
4-15	Height under twistlocks, lowered	in mm	89	2254	89	2254	89	2254

¹ 7/8-high stacking requires wide drive axle (171" overall width).

POWERTRAINS								
1-3	Power type			Diesel		Diesel		
7-1	Engine Manufacturer / model			Cummins QSB 6.7L		Cummins QSB 6.7L		
	EPA Tier Compliance			Tier 4 Final		Tier 3		
7-2	Engine power output - Rated	hp kW	220	164	220	164		
	Engine power output - Peak	hp kW	230	172	230	172		
7-3	Governed speed	rpm	2000		2000			
7-4	Number of cylinders / displacement	# / liters	6 / 6.7		6 / 6.7			
7-5	Engine torque - Max	lb-ft N-m	700	949	700	949		
	Turbocharger	Type	Water-Cooled Variable Geometry		Wastegate Turbo			
7-9	Alternator output	Amps	120		120			
8-0	Transmission Manufacturer / model		ZF 5WG 211		ZF 5WG 211			
8-1	Transmission type & speeds		Powershift 5F / 3R		Powershift 5F / 3R			
	Drive Axle Manufacturer / model		AxleTech PRC 1756		AxleTech PRC 1756			

FEATURES AND OPTIONS

ENGINE – TIER 4 FINAL

Cummins QSB 6-cylinder diesel engine delivers 220 hp rated (230 hp peak) and 700 lb-ft of maximum torque. EPA Tier 4 Final compliant engine features cooled exhaust gas recirculation (EGR) technology with selective catalytic reduction (SCR) and an integrated diesel exhaust fluid (DEF) delivery system. A 2-stage diesel oxidation catalyst (DOC) is also included for particulate matter (PM) reduction. Innovative selectable ECO performance modes offer excellent fuel economy and maximum productivity providing up to 22% fuel consumption³ reduction over Tier 3 baseline engines.

Hibernate idle saves fuel by lowering engine speed when functions are not being used.⁴ Also includes:

- Water-cooled variable geometry turbocharger
- 120 amp alternator
- Automatic throttle-up on hoist enables engine to run in most efficient rpm range.
- Standard diffuser for exhaust temperature reduction

OPTIONAL ENGINE – TIER 3 (limited availability for US and Canada):

Cummins QSB 6-cyl. diesel engine delivers rated 220 hp (230 hp peak) and 700 lb-ft of maximum torque. EPA Tier 3 compliant. Also includes:

- Wastegate Turbo
- 120 amp alternator

CONTAINER ATTACHMENT

Equipped with Hyster® model 586 spreader featuring twistlock pockets in the standard ISO position. Features removable blocks and 24" of sideshift; 3 degrees of mechanical pile slope; 2 twistlocks to engage corner castings with 1 lifting eye in each of the two corners.

- Optional Powered Pile Slope allows the operator to control horizontal orientation of the spreader hydraulically by raising/lowering either the right or left side of the spreader up to 6 degrees.
- Electronic Twistlock Position indicator with LED signals and audible tone inside the cab

HYDRAULIC SYSTEM

Hyster on-demand load-sensing hydraulic system introduces an efficient way to meet hydraulic load demands:

- Based on Variable Displacement Pump (VDP) technology
- Pump is only active when oil is needed.
- Less heat is produced, helping oil and filters last longer. Hoses, seals, and components also wear less and last longer.
- Engine runs quieter and at lower speeds, extending life of major components.
- Leak free O-Ring Face Seal (ORFS) fittings standard throughout the truck.
- Capable of more oil displacement even at low engine speeds.

ELECTRICAL SYSTEM

- Sealed Deutsch connectors
- CANbus system for easy diagnostics of engine, transmission and hydraulics

OPERATOR AREA

- Ergonomically designed hydraulic controls and direction control lever are within easy reach.
- Angled floor plate and pedals are positioned for operator comfort.
- Telescopic, tilt steer column.
- Several air suspension seat options are available
- Optional light groups aid visibility in low-lighted areas. Light kits featuring innovative High Intensity Discharge - Xenon (HID) and halogen technology are available to choose from.

³ Based on fuel consumption testing conducted in July of 2014. Actual results may vary based on duty cycle and application specific and weather conditions.

⁴ Requires ultra-low sulfur diesel fuel and low-ash engine oil.

STANDARD EQUIPMENT

- 6/7-high x 9'6" stacking 2-stage mast
- Hyster® 586 spreader with 3 degrees mechanical pile slope
- Tier 4 Final Cummins QSB 6.7L featuring cooled EGR with SCR integrated DEF delivery system, two-stage DOC and exhaust temperature diffuser
- Viscous, on-demand cooling fan
- Integrated heavy duty intake pre-cleaner with dual element filter
- ZF 5-speed WG 211 auto-shifting transmission
- AxleTech PRC 1756 planetary drive axle with wet disc brakes
- Powertrain protection system for engine and transmission - high temperature or low oil pressure
- 92.5 gallon fuel tank
- 70 gallon hydraulic tank
- 10 gallon DEF tank
- CANbus electrical control system for engine, transmission and hydraulics
- 14.00 x 24-24PR bias pneumatic drive and steer tires
- Directional control lever with direction change interlock system
- Mast tilt: 4° forward / 3° back
- Mechanical mast tilt indicator
- Enclosed operator compartment with: seatside joystick hydraulic control; multifunction display panel; interior wide angle mirrors; telescoping and tilting steering column; steering wheel with spinner knob; floor mat; isolated mounting for low noise and vibration; 24-12V DC converter; front (single blade), top and rear wipers; heater
- Mechanical, full suspension cloth seat with integrated, adjustable armrest and seat belt
- Operator restraint system
- Operator presence system
- Left and right-hand side stairway and handrails
- Exterior mirrors mounted on front fenders
- Electric air horn (112 dBA)
- 24V electrical system
- Halogen light kit includes:
 - Front: 4 halogen work lights on fenders; 4 halogen work lights on top of cab
 - Rear: 2 halogen work lights; 2 LED stop/tail/back-up lights
 - Spreader: 2 LED lights illuminating the twistlocks
- Turn signals
- Visible alarm - amber strobe light - key switch activated
- Audible - reverse direction activated
- Non-locking fuel cap
- Lockable battery disconnect switch
- Hydraulic accumulator - lift circuit
- Steer wheel lug protection
- Electronic twistlock position indicator with LED signals and audible tone
- Anti-slack chain system with lift/lower interrupt
- Operator's manual

OPTIONAL EQUIPMENT

- Tier 3 Cummins QSB 6.7L engine
- Masts for 5/6 and 7/8-high empty container handling
- Spreader with 6 degrees powered pile slope
- Automatic greasing systems for chassis, mast and spreader
- Wide drive axle (171" overall width)
- Various treaded, slick and radial tires
- Air conditioning
- Various inside cabin options including but not limited to:
 - Reading lights, top and rear sun shades
 - Trainer seat, accessory mounting post, radio preparation kit
 - Heated top window, rear locking console (not available with trainer seat)
- Various seat options including:
 - Mechanical full-suspension vinyl seat
 - Air ride full suspension cloth or vinyl seat with high backrest
 - Deluxe air ride full suspension cloth seats with/without heated cushions
- 2 and 3-point high visibility seat belts
- High Intensity Discharge (HID) xenon and LED lights
- Traction speed limiter - unconditional; adjustable from 6-15 mph (preset to 12 mph)
- Empty seat engine shutdown - adjustable from 3-15 minutes (factory preset to 15 minutes)
- Spreaders with vertical twist locks and hydraulically adjustable heads
- Automatic tilting cab for use when high stacking (required with 6/7 high or 7/8 high stacking) with on/off switch
- Locking fuel cap

Special attachments, equipment or accessories not listed above may be available through Applications Engineering for specific application requirements.



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5/2016 Litho in U.S.A.

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