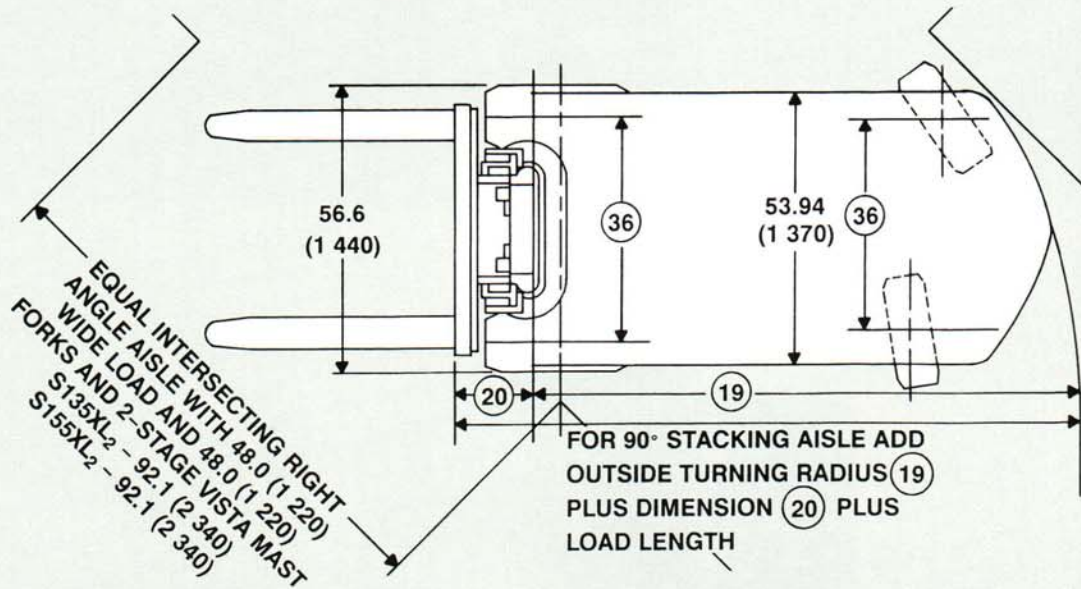


S135-155XL₂ Lift Truck Technical Guide





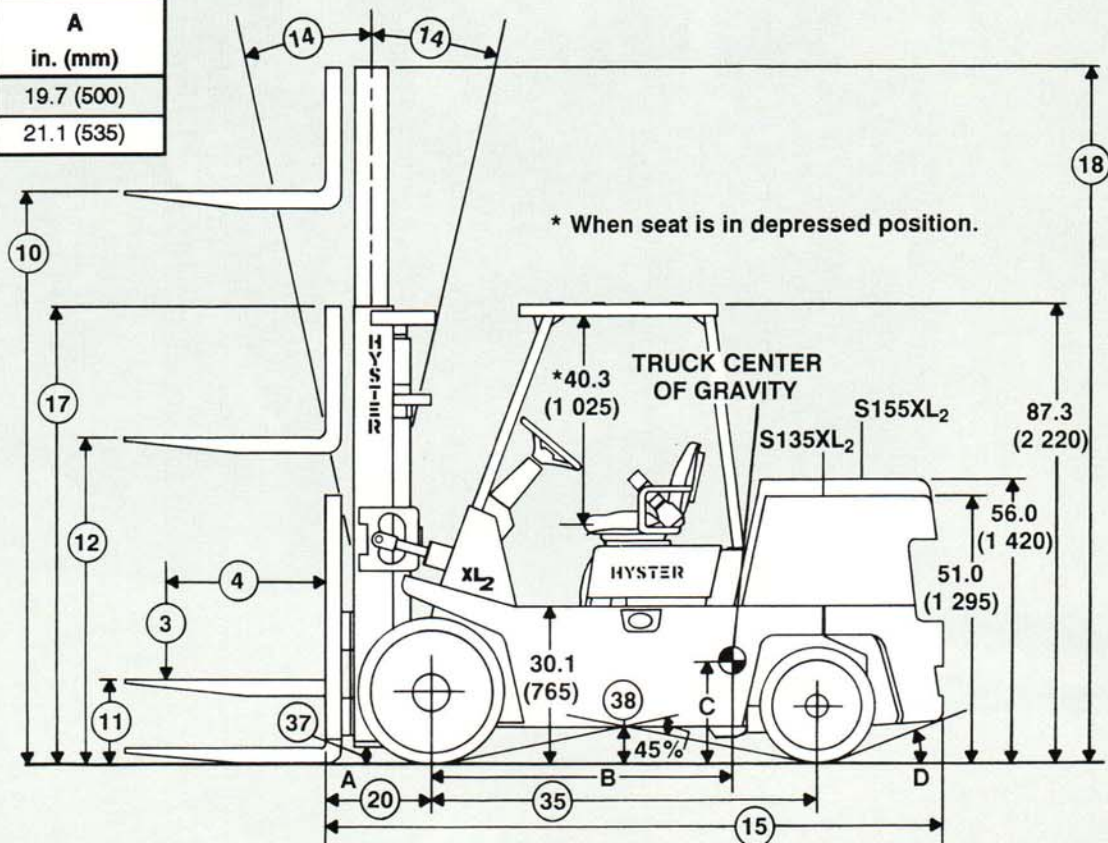
S135-155XL₂ Lift Truck Specifications



MAST	B in. (mm)	C in. (mm)	D
S135XL ₂	41.8 (1 060)	29.35 (745)	42%
S155XL ₂	43.6 (1 105)	34.7 (880)	42%

MODEL	TRUCK CAPACITY lb. (kg)	LOAD CENTER in. (mm)	CENTER of DRIVE AXLE MOMENT in. lb. (cm kg)
S135XL ₂	13,500 (6 000)	24 (600)	598,000 (660 000)
S155XL ₂	15,500 (7 000)	24 (600)	677,350 (777 000)

MAST	A in. (mm)
S135XL ₂	19.7 (500)
S155XL ₂	21.1 (535)



Figures represent U.S. weights and measures, and in parentheses, metric equivalents.
 Circled dimensions correspond to line numbers on the tabulated chart inside Technical Guide.



S135XL₂ Lift Truck Specifications

G E N E R A L	1	Manufacturer		Hyster Company	Hyster Company
	2	Model		S135XL ₂ (GM Gas / LPG)	S135XL ₂ (Perkins Diesel)
	3	Capacity, rated	lb. (kg)	13,500 (6 000)	13,500 (6 000)
	4	Load center	in. (mm)	24 (600)	24 (600)
	5	Power type		Gas - LPG	Diesel
	6	Operator type		Sit	Sit
	7	Tire type, front/rear		Solid / Solid	Solid / Solid
	8	Wheels, front/rear (X=driven)		2X / 2	2X / 2
D I M E N S I O N S	10	2-stg. LFL (TOF)	in. (mm)	134.0 (3 405)	134.0 (3 405)
	11	Limited free-lift (TOF)	in. (mm)	6.5 (165)	6.5 (165)
	12	Opt. 3-Stg. full free-lift (TOF) with/w/o LBE	in. (mm)	42.5 (1 050) / 37.5 (952)	42.5 (1 050) / 37.5 (952)
	13	Forks, width/thickness	in. (mm)	6.0 (150) / 2.5 (60)	6.0 (150) / 2.5 (60)
	14	Tilt angle, forward/backward	°	6 / 10	6 / 10
	15	Length to face of forks	in. (mm)	115.3 (2 930)	115.3 (2 930)
	16	Width, standard tires	in. (mm)	56.6 (1 440)	56.6 (1 440)
	17	Height, std. mast lowered	in. (mm)	106.0 (2 690)	106.0 (2 690)
	18	Height, std. mast ext. with/w/o LBE	in. (mm)	182.0 (4 625) / 180.0 (4 570)	182.0 (4 625) / 180.0 (4 570)
	19	Turning radius, minimum outside	in. (mm)	101.8 (2 585)	101.8 (2 585)
	20	Center of wheel to face of forks	in. (mm)	19.7 (500)	19.7 (500)
	22	Aisle width (Add ld. lgth. for 90° stack)	in. (mm)	121.5 (3 085)	121.5 (3 085)
P E R F O R M †	23	Stability (Comply with ANSI?)		YES	YES
	24	Travel speed, man./pwrshftmax. fwd.	mph (km/h)	13.0 (20.9) / 14.6 (23.5)	12.5 (20.1) / 13.5 (21.7)
	25	Lift speed, std. mast empty/loading	ft/min (m/s)	84.0 (0.43) / 79.0 (0.40)	84.0 (0.43) / 79.0 (0.40)
		Opt. 3-stg. FFL mast empty/loading	ft/min (m/s)	80.0 (0.41) / 73.0 (0.37)	80.0 (0.41) / 73.0 (0.37)
	26	Lowering, std. mast empty/loading	ft/min (m/s)	88.0 (0.45) / 108.0 (0.55)	88.0 (0.45) / 108.0 (0.55)
		Opt. 3-stg. FFL mast empty/loading	ft/min (m/s)	77.0 (0.39) / 110.0 (0.56)	77.0 (0.39) / 110.0 (0.56)
	27	Drawbar pull, Powershift, max./1 mph	lb. (kN)	8,595 (38 235) / 8,945 (39 800)	8,945 (39 800) / 8,430 (37 495)
		LPG data (this line only)	lb. (kN)	7,735 (34 405) / 8,065 (35 875)	NA
†	28	Gradeability max., manual/pwrshft (1 mph) r/nl	%	27 / 27 28 / 27	23 / 27 26 / 27
		LPG data (this line only) r/nl	%	24 / 27 25 / 27	NA
W T	30	Total approximate weight	lb. (kg)	18,815 (8 535)	18,815 (8 535)
	31	Axle loading, static, rated load frt./rear	lb. (kg)	29,250 (13 265) / 3,225 (1 465)	29,250 (13 265) / 3,225 (1 465)
W H L S & T I R E S	32	Number tires front/rear		2 / 2	2 / 2
	33	Size of tires, front		28 x 12 x 22	28 x 12 x 22
	34	Size of tires, rear		22 x 8 x 16	22 x 8 x 16
	35	Wheelbase	in. (mm)	72.0 (1 830)	72.0 (1 830)
	36	Tread, center of tires front/rear	in. (mm)	44.6 (1 135) / 46.9 (1 190)	44.6 (1 135) / 46.9 (1 190)
	37	Ground clearance, no load lowest pt.	in. (mm)	3.5 (90)	3.5 (90)
	38	Ground clearance, no load ctr. whlbs.	in. (mm)	7.2 (185)	7.2 (185)
	39	Brakes, method of control, service/parking		Hydraulic / Mechanical	Hydraulic / Mechanical
	40	Brakes, method of operation, service/parking		Foot / Hand	Foot / Hand
D R I V E T R A I N	42	Battery, volts/cold cranking amps	V (amps)	12 / 335	12 / 670 ††
	46	Engine make/model		GM V6-4.3L	Perkins 1004-4
	47	Output per SAE standards	Gas \ LPG ps (kW)	93.8 (70.0) / 87.4 (65.4)	82.5 (61.5) / NA
	48	Governed speed, no load	rpm	2,500	2,500
	49	Cycle/no. cyl./displacement	cu. in.	4 / 6 / 262.0	4 / 4 / 244.0
	51	Clutch type (Powershift)		Oil Clutch / Torque Converter	Oil Clutch / Torque Converter
	52	Gear change type (Powershift)		Foot / Hand	Foot / Hand
	53	No. speeds, forward/reverse		3 / 3 2 / 2	3 / 3 2 / 2
	54	Transmission type		Manual / Powershift	Manual / Powershift
	55	Relief pressure for attachments	psi (kPa)	2,250 (15 500)	2,250 (15 500)

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.

† **Note:** Performance specifications are for truck equipped as described under **Standard Equipment** in this Technical Guide. Performance specifications are affected by the condition of the vehicle and how it is equipped, as well as by the nature and condition of the operating area. If these specifications are critical, the proposed application should be discussed with your dealer.

†† Two batteries are required.



S155XL₂ Lift Truck Specifications

GENERAL	1	Manufacturer		Hyster Company	Hyster Company
	2	Model		S155XL ₂ (GM Gas / LPG)	S155XL ₂ (Perkins Diesel)
	3	Capacity, rated	lb. (kg)	15,000 (7 000)	15,000 (7 000)
	4	Load center	in. (mm)	24 (600)	24 (600)
	5	Power type		Gas - LPG	Diesel
	6	Operator type		Sit	Sit
	7	Tire type, front/rear		Solid / Solid	Solid / Solid
	8	Wheels, front/rear (X=driven)		2X / 2	2X / 2
DIMENSIONS	10	2-stg. LFL (TOF)	in. (mm)	134.0 (3 405)	134.0 (3 405)
	11	Limited free-lift (TOF)	in. (mm)	6.5 (165)	6.5 (165)
	12	Opt. 3-Stg. full free-lift (TOF) with/w/o LBE	in. (mm)	42.5 (1 050) / 37.5 (952)	42.5 (1 050) / 37.5 (952)
	13	Forks, width/thickness	in. (mm)	6.0 (150) / 2.5 (60)	6.0 (150) / 2.5 (60)
	14	Tilt angle, forward/backward	°	6 / 10	6 / 10
	15	Length to face of forks	in. (mm)	115.3 (2 930)	115.3 (2 930)
	16	Width, standard tires	in. (mm)	56.6 (1 440)	56.6 (1 440)
	17	Height, std. mast lowered	in. (mm)	106.0 (2 690)	106.0 (2 690)
	18	Height, std. mast ext. with/w/o LBE	in. (mm)	182.0 (4 625) / 180.0 (4 570)	182.0 (4 625) / 180.0 (4 570)
	19	Turning radius, minimum outside	in. (mm)	101.8 (2 585)	101.8 (2 585)
PERFORMANCE	20	Center of wheel to face of forks	in. (mm)	19.7 (500)	19.7 (500)
	22	Aisle width (Add ld. lgth. for 90° stack)	in. (mm)	121.5 (3 085)	121.5 (3 085)
	23	Stability (Comply with ANSI?)		YES	YES
	24	Travel speed, man./pwrshftmax. fwd.	mph (km/h)	13.0 (20.9) / 14.6 (23.5)	12.5 (20.1) / 13.5 (21.7)
	25	Lift speed, std. mast empty/loaded	ft/min (m/s)	84.0 (0.43) / 79.0 (0.40)	84.0 (0.43) / 79.0 (0.40)
	26	Opt. 3-stg. FFL mast empty/loaded	ft/min (m/s)	80.0 (0.41) / 73.0 (0.37)	80.0 (0.41) / 73.0 (0.37)
	27	Lowering, std. mast empty/loaded	ft/min (m/s)	88.0 (0.45) / 108.0 (0.55)	88.0 (0.45) / 108.0 (0.55)
	28	Opt. 3-stg. FFL mast empty/loaded	ft/min (m/s)	77.0 (0.39) / 110.0 (0.56)	77.0 (0.39) / 110.0 (0.56)
WHEELS & TIRES	29	Drawbar pull, Powershift, max./1 mph	lb. (kN)	8,530 (37 955) / 8,885 (39 520)	7,345 (32 670) / 8,365 (37 205)
	30	LPG data (this line only)	lb. (kN)	7,675 (34 160) / 8,000 (35 585)	NA
	31	Gradeability max., manual/pwrshft (1 mph) r/nl	%	24 / 24 25 / 24	20 / 24 23 / 24
	32	LPG data (this line only) r/nl	%	21 / 24 22 / 24	NA
DRIVE TRAIN	33	Total approximate weight	lb. (kg)	20,425 (9 265)	20,425 (9 265)
	34	Axle loading, static, rated load frt./rear	lb. (kg)	32,630 (14 800) / 3,455 (1 570)	32,630 (14 800) / 3,455 (1 570)
	35	Number tires front/rear		2 / 2	2 / 2
	36	Size of tires, front		28 x 12 x 22	28 x 12 x 22
	37	Size of tires, rear		22 x 8 x 16	22 x 8 x 16
	38	Wheelbase	in. (mm)	72.0 (1 830)	72.0 (1 830)
	39	Tread, center of tires front/rear	in. (mm)	44.6 (1 135) / 46.9 (1 190)	44.6 (1 135) / 46.9 (1 190)
	40	Ground clearance, no load lowest pt.	in. (mm)	3.5 (90)	3.5 (90)
DRIVE TRAIN	41	Ground clearance, no load ctr. whlbs.	in. (mm)	7.2 (185)	7.2 (185)
	42	Brakes, method of control, service/parking		Hydraulic / Mechanical	Hydraulic / Mechanical
	43	Brakes, method of operation, service/parking		Foot / Hand	Foot / Hand
	44	Battery, volts/cold cranking amps	V (amps)	12 / 335	12 / 670 ††
	45	Engine make/model		GM V6-4.3L	Perkins 1004-4
	46	Output per SAE standards Gas \ LPG ps (kW)		93.8 (70.0) / 87.4 (65.4)	82.5 (61.5) / NA
	47	Governed speed, no load	rpm	2,500	2,500
	48	Cycle/no. cyl./displacement	cu. in.	4 / 6 / 262.0	4 / 4 / 244.0
RELIEF PRESSURE	49	Clutch type (Powershift)		Oil Clutch / Torque Converter	Oil Clutch / Torque Converter
	50	Gear change type (Powershift)		Foot / Hand	Foot / Hand
	51	No. speeds, forward/reverse		3 / 3 2 / 2	3 / 3 2 / 2
	52	Transmission type		Manual / Powershift	Manual / Powershift
	53	Relief pressure for attachments	psi (kPa)	2,250 (15 500)	2,250 (15 500)

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.

† **Note:** Performance specifications are for truck equipped as described under **Standard Equipment** in this Technical Guide. Performance specifications are affected by the condition of the vehicle and how it is equipped, as well as by the nature and condition of the operating area. If these specifications are critical, the proposed application should be discussed with your dealer.

†† Two batteries are required.



S135-155XL₂ Mast & Performance Specifications

S135-155XL ₂ MAST DIMENSIONS				in.		mm			
Maximum Fork Height † (Top of Forks)		Overall Lowered Height		Overall Extended Height				* Free-Lift (TOF) Without Load Backrest Ext.	
				With Load Backrest Ext.		Without Load Backrest Ext.			
2-STAGE LIMITED FREE-LIFT (LFL) VISTA									
94.5	(2 400)	86.5	(2 195)	143.0	(3 630)	140.5	(3 570)	6.5	(165)
134.0	(3 405)	106.0	(2 690)	182.0	(4 625)	180.0	(4 570)	6.5	(165)
173.5	(4 405)	126.0	(3 200)	221.5	(5 625)	219.5	(5 575)	6.5	(165)
3-STAGE FULL FREE-LIFT (FFL) VISTA									
144.0	(3 655)	85.5	(2 170)	192.0	(4 875)	187.0	(4 750)	42.5	(1 080)
181.0	(4 595)	98.0	(2 490)	229.5	(5 830)	224.5	(5 700)	55.0	(1 395)
220.0	(5 605)	111.5	(2 830)	268.5	(6 825)	263.5	(6 695)	68.0	(1 725)

† Lift heights over 182.5" (4 635 mm) maximum fork height and all 3-stage FFL VISTA masts require reduced capacity and restricted back tilt.

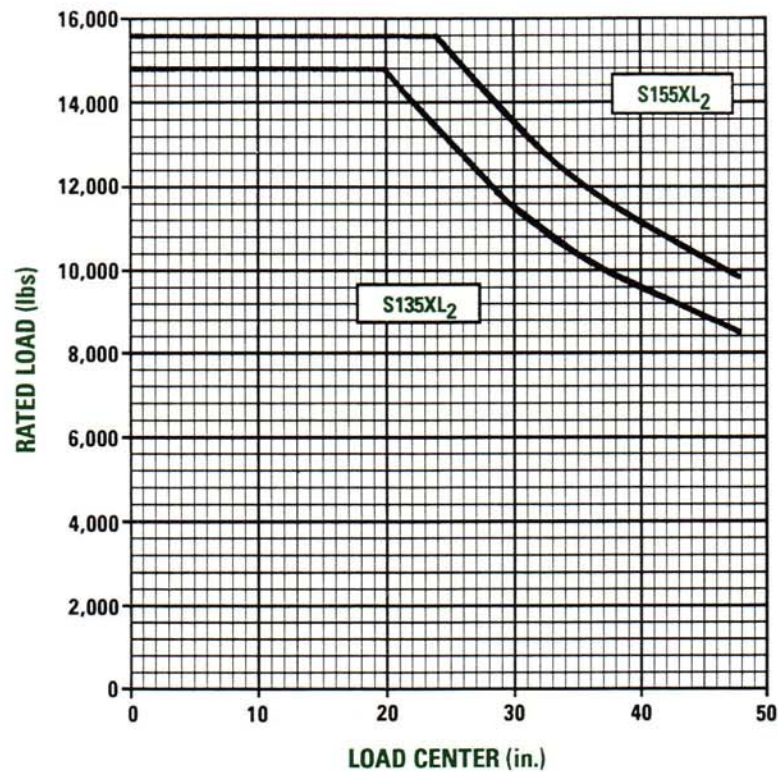
* If load backrest extension is used on the 2-stage LFL or the 3-stage FFL, subtract 5.0" (130 mm).

PERFORMANCE NOTE: Performance specifications are for truck described under Standard Equipment on back of Technical Guide. Performance 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. If these specifications are critical, the proposed application should be discussed with your dealer.							
LIFTING-LOWERING		ft/min	m/s	RATED LOAD			
		MAST TYPE	NO LOAD (All Models)	S135XL ₂		S155XL ₂	
LIFTING	2-Stage LFL VISTA		84.0 0.43	79.0	0.40	79.0	0.40
	3-Stage FFL VISTA		80.0 0.41	73.0	0.37	73.0	0.37
LOWERING	2-Stage LFL VISTA		88.0 0.45	108.0	0.55	110.0	0.56
	3-Stage FFL VISTA		77.0 0.39	110.0	0.56	111.0	0.57

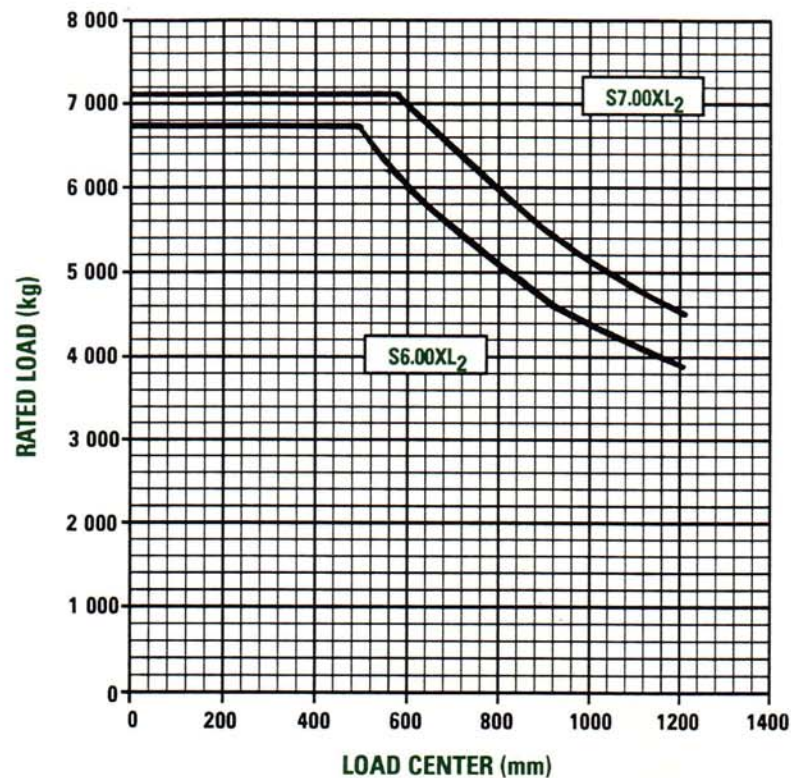


S135-155XL₂ Rated Capacity Charts

Rated Capacity with Standard Carriage



Rated Capacity with Standard Carriage





Standard Features & Options

CAPACITY

S135XL2: 13,500 (6 000kg) at 24" (600 mm) load center.

S155XL2: 15,500 (7 000kg) at 24" (600 mm) load center.

Rated capacities are for a truck equipped with:

- 2-Stage LFL VISTA® mast up to 182.5 (4 635 mm) maximum fork height. 48" (1 220 mm) carriage and 48" to 72" (1 220 to 1 830 mm) forks as required, and load backrest extension.

STANDARD EQUIPMENT

Complete S135-155XL₂ trucks are equipped with a GM V6-4.3L gasoline engine; powershift transmission; 134" (3 405 mm) 2-stage LFL VISTA mast with 6 degree forward tilt and 10 degrees back tilt; 48" (1 220 mm) hook-type carriage; load backrest extension, 48" (1 220 mm) forks; MONOTROL® pedal; 2-function valve; operator's overhead guard; operator restraint system; operating manual; and UL Classification G.

Optional equipment includes GM V6-4.3L LPG engine; Perkins 1004-4 diesel engine; 3-stage FFL VISTA mast; tilt angles; three-speed fully reversing transmission; UL Classification LP, D, GS, DS and LPS; lug tread tires; 3- and 4-function control valve and hose groups with solenoid actuated 5-function; steer column direction control lever; cloth semi-suspension seat; overhead exhaust (gas/LPG); head lights, brake/tail lights and rear drive light; back-up alarm; and flashing light.

MASTS

Two-stage limited free-lift is standard. Two- or three-stage full free-lift VISTA masts are also available. Masts feature nested-channel design and full-radius, angled load rollers.

CARRIAGES

Hook-type carriages have an overall width of 48.0" (1 220 mm) without load backrest extension (LBE), or 49.3" (1 250 mm) with LBE. S135-155XL₂ trucks feature ITA Class IV Mounting. Minimum inside-to-inside fork spacing is 0.12" (3 mm). Maximum outside-to-outside spacing is 43.8" (1 110 mm).

FORKS

S135-155XL₂ trucks feature 2.5 x 6.0 x 48 to 72" (60 x 150 x 1 220 - 1 830 mm) pallet forks. Polished and tapered forks are also available.

ENGINES

Standard GM V6-4.3L engine includes 4 cycle; 6 cylinders; 262 cu.in. (4 300 cm³) displacement; 4.00" (102 mm) bore; 3.48" (88 mm) stroke; electronic governor, heavy-duty dry air cleaner with pre-cleaner; dust proof starter;

electronic fuel injection; serpentine belt auxiliary drive; 12 volt electrical system with Microprocessor Spark Timing System (MSTS). Maximum torque is 212 ft.-lbs. (287 N·m) at 1600 rpm's with gasoline engine.

Optional GM v6-4.6L LPG engine includes IMPCO carburetor; fuel filter; hydrostatic relief valve; solenoid valve; vaporizer and regulator.

ICC 43.5 lb. capacity (19.7 kg) LPG tank includes fuel gauge; relief valve; and manual shut-off valve. Maximum torque is 201 ft.-lbs. (273 N·m) at 1400 rpm's with LPG engine.

Optional Perkins 1004-4 (4.0L) diesel engine includes 4 cycle; 4 cylinders; 243 cu.in. (4 000 cm³) displacement; 3.94" (100 mm) bore; 5.00" stroke; direct injection, distributor-type fuel injection with built-in governor; automatic advance and retard mechanism; gear driven water pump; cold-starting aid; and key actuated start/stop solenoid. Maximum torque is 205ft.-lbs. (278 N·m) at 1500 rpm's.

Optional Perkins 1004-4 diesel engine is equipped with the Quadram combustion system.

This system provides a more thorough fuel/air mixture for efficient combustion, improving economy, while providing the power and performance required for a diesel application.

Either engine includes a 15 PSI (10.3 mPa) cooling system; heavy-duty, 3.75"-thick (95 mm) core, tube and fin radiator; pusher-type fan; bypass thermostat; and conveniently, located recovery reservoir.

Overhead exhaust is standard with diesel engine, optional with gas/LPG trucks.

TRANSMISSION/DRIVE TRAIN

Hyster Company designed and built, two-speed, fully-reversing powershift transmission is built for rugged duty cycles. Transmission and torque converter provide exceptional tractive and travel speed performance. Inching valve allows for precise operator control. Oil cooler in radiator reduces transmission temperature and clutch wear.

Three speed, fully-reversing manual transmission is optional.

Smooth tread 28" x 12" x 22" tires are standard. Lug tread tires are also available.

BRAKES

Non-asbestos service brakes are self-adjusting and self-energizing. Combination inching and service brake pedal provides smooth efficient inching control. Hydraulic power-assist reduces operator effort needed to apply brakes.

STEERING SYSTEM

S135-155XL₂ hydrostatic power steering system eliminates many wear prone mechanical components found in conventional steering designs. This system provides for manual steering in the event of power failure.

Steering spindles are mounted in tapered roller bearings which provide minimum wear and spindle self-alignment. This eliminates the need for wheel alignment and allows use of fixed length tie rods.

Cast ductile iron steer axle is shaped to protect the tie rods and steer cylinder while tolerating high shock loads.

Lubricant retaining boots and seals shield the steering system from contamination, and reduces the number of lubrication points to only two.

HYDRAULIC SYSTEM

S135-155XL₂ trucks utilize a 3100 PSI (21.4 mPa) lift system that requires 2250 PSI (15.5 mPa) relief pressure for tilt and attachments. The manually-operated main control valve provides precise operator control of hydraulic functions.

Optional 3-, 4-, and 5-function control valve and hose groups are available.

OPERATOR AREA

All instruments are within clear view.

Ergonomically-designed hydraulic levers and high-low range control lever are within easy reach.

Angled floorplate and pedals are positioned for operator comfort. Standard MONOTROL® pedal controls speed and direction, and frees the operator's hands to operate steering and hydraulic levers. Optional direction control lever on the steer column affords fingertip control. Hydraulic power booster reduces brake pedal effort.

14"-diameter (350 mm) steering wheel and column assembly adjusts to five positions for operator comfort and convenience.

Contour-designed, foam-cushion seat or optional semi-suspension seat allows 4 inches of adjustment for operator comfort. Seat belt (including take-up reel) and tubular hip restraints are standard equipment.

Overhead guard consists of strong steel tubing, provides excellent high-stacking visibility.

Optional light packages aid visibility in dimly lit areas.

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