

VL Series

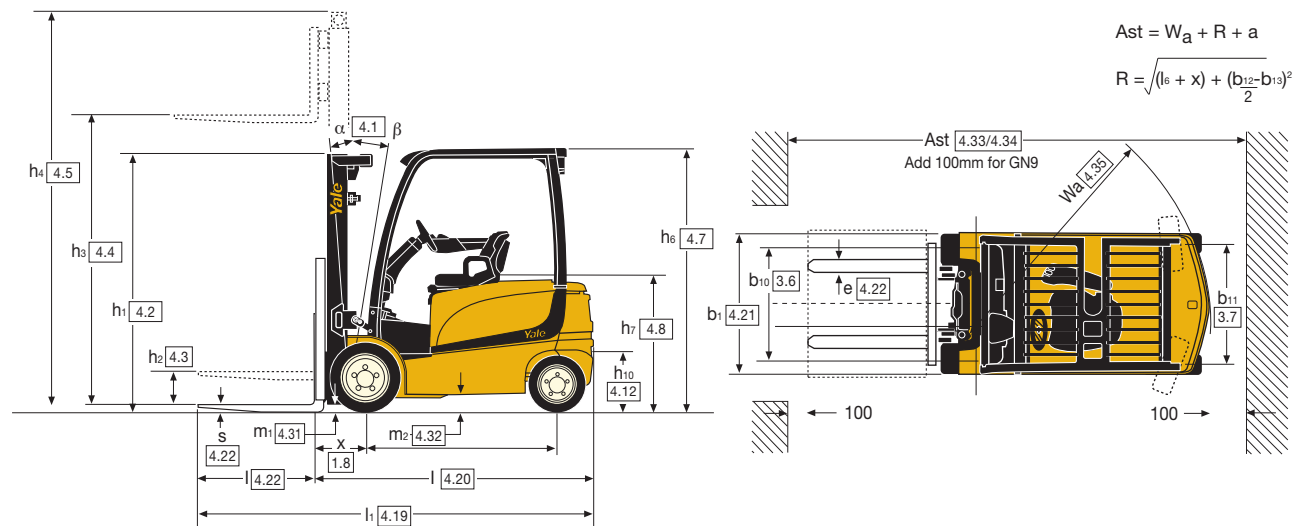
Electric Forklift Trucks with AC Technology

2,200kg, 2,500kg, 3,000kg and 3,500kg



- HiP and eLo performance settings
- YaleStop automatic park brake
- Lowest whole body vibration (WBV) levels
- Continuous stability enhancement (CSE)
- Oil-immersed brakes
- CANbus technology

Truck Dimensions



ERP22 VL, 25 VL SWB, 25 VL LWB mast details and capacity ratings (kg) - Supercushion tyres

Model					ERP 22 VL							ERP 25 VL SWB							ERP 25 VL LWB						
Tyres					23x10-12							23x10-12							23x10-12						
Width across tyres					1173mm							1173mm							1173mm						
Masts	OAH	FFH	MFH	Tilt	Forks						Forks			Integral Sideshift			Forks			Integral Sideshift					
					Load Centre			Load Centre			Load Centre			Load Centre			Load Centre			Load Centre					
	h1	h2+s	h3+s	h4	F	B	500	600	700	500	600	700	500	600	700	500	600	700	500	600	700	500	600	700	
2 Stage LFL (V)	2195	140	3390	3956	5	5	2200	2000	1900	2200	2000	1830	2500	2270	2140	2490	2250	2060	2500	2270	2170	2500	2270	2090	
	2395	140	3790	4356	5	5	2200	2000	1900	2200	2000	1820	2500	2270	2130	2490	2250	2050	2500	2270	2170	2500	2270	2090	
	2745	140	4330	4896	5	5	2200	2000	1890	2200	1990	1810	2500	2270	2120	2470	2240	2040	2500	2270	2160	2500	2270	2080	
	2995	140	4830	5396	5	5	2200	2000	1880	2190	1980	1800	2480	2250	2090	2440	2210	2010	2500	2270	2150	2500	2270	2070	
2 Stage FFL (F)	2195	1625	3400	3966	5	5	2200	2000	1900	2200	2000	1830	2500	2270	2140	2500	2260	2060	2500	2270	2170	2500	2270	2090	
	2395	1825	3800	4366	5	5	2200	2000	1890	2200	2000	1820	2500	2270	2130	2490	2250	2050	2500	2270	2160	2500	2270	2090	
	2745	2175	4420	4986	5	5	2200	2000	1880	2200	1990	1810	2500	2270	2120	2480	2240	2040	2500	2270	2150	2500	2270	2070	
3 Stage FFL (E)	2145	1595	4950	5496	5	5	2200	2000	1870	2180	1970	1790	2440	2210	2060	2400	2170	1980	2500	2270	2140	2500	2250	2060	
	2395	1845	5550	6096	5	5	2110	1920	1780	2070	1870	1700	2310	2100	1930	2250	2030	1850	2410	2190	2050	2380	2150	1960	
	2595	2045	6000	6546	5	5	2020	1830	1700	1980	1790	1630	2210	2000	1840	2150	1940	1770	2310	2100	1960	2290	2070	1890	

ERP30 VL, ERP35 VL mast details and capacity ratings (kg) - Supercushion tyres

Model					ERP 30 VL							ERP 35 VL						
Tyres					23x10-12							23x10-12						
Width across tyres					1173mm							1173mm						
Masts	OAH	FFH	MFH	Tilt	Forks			Integral Sideshift			Forks			Integral Sideshift				
					Load Centre			Load Centre			Load Centre			Load Centre				
	h1	h2+s	h3+s	h4	F	B	500	600	700	500	600	700	500	600	700	500	600	700
2 Stage LFL (V)	2195	145	3200	3861	5	5	3000	2720	2550	2960	2680	2440	3500	3130	2680	3440	3110	2680
	2395	145	3600	4261	5	5	3000	2720	2540	2950	2670	2440	3500	3130	2680	3430	3100	2680
	2745	145	4100	4761	5	5	3000	2720	2530	2940	2660	2430	3500	3130	2680	3420	3090	2680
	2995	145	4600	5261	5	5	2920	2650	2460	2850	2580	2360	3410	3090	2680	3330	3010	2680
2 Stage FFL (F)	2195	1535	3205	3862	5	5	3000	2720	2550	2960	2680	2440	3500	3130	2680	3440	3110	2680
	2595	1935	3905	4562	5	5	3000	2720	2530	2940	2660	2430	3500	3130	2680	3420	3090	2680
	2845	2185	4405	5062	5	5	2960	2680	2500	2900	2620	2390	3450	3130	2680	3370	3050	2680
3 Stage FFL (E)	2145	1500	4610	5252	5	5	2970	2690	2500	2900	2620	2390	3460	3130	2680	3370	3050	2680
	2295	1650	4910	5552	5	5	2900	2630	2440	2830	2560	2340	3400	3080	2680	3300	2980	2680
	2395	1750	5210	5852	5	5	2840	2570	2380	2760	2500	2280	3320 *	3010 *	2680 *	3220 *	2920 *	2660 *
	2645	2000	5810	6452	5	5	2690	2440	2250	2600	2350	2150	3170 *	2870 *	2640 *	3060 *	2760 *	2520 *

All capacities calculated with 1000mm long forks and are less load backrest.
 * Wide Tread Required

VDI 2198 - General Specifications

		Yale		Yale		Yale		Yale				
Characteristics	1.1	Manufacturer	Yale		Yale		Yale		Yale			
	1.2	Model designation	ERP 22 VL SWB		ERP 22 VL SWB		ERP 25 VL SWB		ERP 25 VL SWB			
		Model -Manufacturers designation	Value		Productivity		Value		Productivity			
	1.3	Power: battery, diesel, LPG, electric mains	Battery		Battery		Battery		Battery			
	1.4	Operation: manual, pedestrian, stand, seat, order picker	Seat		Seat		Seat		Seat			
	1.5	Load capacity	Q (kg)	2200	2200	2200	2500	2500	2500	2500		
	1.6	Load centre	c (mm)	500	500	500	500	500	500	500		
	1.8	Load distance	x (mm)	404	404	404	404	404	404	404		
	1.9	Wheelbase	y (mm)	1606	1606	1606	1606	1606	1606	1606		
Weights	2.1	Unladen weight (max. battery)	kg	4465	4465	4465	4465	4465	4465	4465		
	2.2	Axle loading laden, front/rear (max. battery)	kg	5651	1014	5651	1014	6120	845	6120	845	
				2212	2253	2212	2253	2212	2253	2212	2253	
2.3	Axle loading unladen, front/rear (max. battery)	kg	2212	2253	2212	2253	2212	2253	2212	2253		
Wheels & Tyres	3.1	Tyres: L=pneumatic,V=cushion SE=supercushion	SE		SE		SE		SE			
	3.2	Tyre size, front	23 x 10 - 12		23 x 10 - 12		23 x 10 - 12		23 x 10 - 12			
	3.3	Tyre size, rear	18 x 7 - 8		18 x 7 - 8		18 x 7 - 8		18 x 7 - 8			
	3.5	Number of wheels, front/rear (X = driven)	2X	2	2X	2	2X	2	2X	2		
	3.6	Track width, front.	b ₁₀ (mm)	938	1054	938	1054	938	1054	938	1054	
	3.7	Track width, rear	b ₁₁ (mm)	992		992		992		992		
	Dimensions	4.1	Mast tilt, forward α /back β	degrees	5	5	5	5	5	5	5	5
4.2		Height of mast, lowered	h ₁ (mm)	2192		2192		2192		2192		
4.3		Free lift ▼	h ₂ (mm)	100		100		100		100		
4.4		Lift height ▼	h ₃ (mm)	3350		3350		3350		3350		
4.5		Height of mast, extended +	h ₄ (mm)	3960		3960		3960		3960		
4.7		Height to top of overhead guard ○	h ₆ (mm)	2193		2193		2193		2193		
4.8		Seat height ✕ ○	h ₇ (mm)	1007		1007		1007		1007		
4.12		Towing coupling height	h ₁₀ (mm)	262		262		262		262		
4.19		Overall length	l ₁ (mm)	3321		3321		3321		3321		
4.20		Length to face of forks	l ₂ (mm)	2321		2321		2321		2321		
4.21		Overall width	b ₁ /b ₂ (mm)	1173	1289	1173	1289	1173	1289	1173	1289	
4.22		Fork dimensions	s/e/l (mm)	40	100	1000	40	100	1000	40	100	1000
4.23		Fork carriage DIN 15173. Class, A/B		2A		2A		2A		2A		
4.24		Fork carriage width ▶	b ₃ (mm)	1067		1067		1067		1067		
4.31		Ground clearance under mast, laden	m ₁ (mm)	98		98		98		98		
4.32		Ground clearance at centre of wheelbase	m ₂ (mm)	137		137		137		137		
4.33		Aisle width with pallets 1 000mm x 1 200mm wide	Ast (mm)	3598		3598		3598		3598		
4.34		Aisle width with pallets 800mm x 1 200mm long	Ast (mm)	3751		3751		3751		3751		
4.35		Outer turning radius	Wa (mm)	1931		1931		1931		1931		
4.36	Inner turning radius	b ₁₃ (mm)	173		173		173		173			
Performance	5.1	Travel speed with/without load	km/h	18.0	18.0	21.0	21.0	18.0	18.0	21.0	21.0	
	5.2	Lifting speed with/without load	m/sec	0.40	0.63	0.52	0.72	0.38	0.63	0.49	0.72	
	5.3	Lowering speed with/without load	m/sec	0.57	0.51	0.57	0.51	0.57	0.51	0.57	0.51	
	5.5	Drawbar pull with/without load, 60 minute rating	N	5468	5773	6015	6235	5591	5726	6037	6185	
	5.6	Maximum drawbar pull with/without load, 5 minute rating	N	18045	19052	19849	20576	18451	18897	19927	20409	
	5.7	Gradeability with/without load, 30 minute rating	%	10	14	11	16	9	13	10	14	
	5.8	Maximum gradeability with/without load, 5 minute rating	%	26	39	28	42	24	35	26	38	
	5.9	Acceleration time with/without load	sec	4.42	4.11	4.04	3.71	4.45	4.11	4.04	3.71	
	5.10	Service brake		Hydraulic		Hydraulic		Hydraulic		Hydraulic		
	Motor	6.1	Drive motor output, (S2 60 minute rating)	kW	2x 10.0		2x 10.0		2x 10.0		2x 10.0	
6.2		Lifting motor, (S3 15% rating)	kW	16.0		24.0		16.0		24.0		
6.3		Battery DIN 43531/35/36 A, B, C, no		43536A		43536A		43536A		43536A		
6.4		Battery voltage/capacity at 5hr rate	V/Ah	80	560	80	560	80	560	80	560	
6.5		Battery weight (min/max)	kg	1480	1635	1480	1635	1480	1635	1480	1635	
6.6		Energy consumption in accordance with VDI cycle	kWh/h	6.68		7.51		7.00		7.87		
Other	8.1	Drive control		AC electronic		AC electronic		AC electronic		AC electronic		
	8.2	Working pressure for attachments	bar	155		155		155		155		
	8.3	Oil flow for attachments, manual hydraulics †	l/min	20-40		20-40		20-40		20-40		
	8.4	Average noise level at operator's ear ★	dB (A)	67		68		67		68		
	8.5	Towing coupling type		Pin		Pin		Pin		Pin		

★ L_{PA2}, measured according to the test cycles and based on the weighting values contained in EN12053.

† Maximum flow set through dash display.

▼ Bottom of forks.

✕ Full Suspension specified. Compressed condition, add 40mm for nominal position.

+ Without load backrest.

▶ Add 28mm with load backrest.

Yale		Yale		Yale		Yale		Yale		Yale		1.1												
ERP 25 VL LWB		ERP 25 VL LWB		ERP 30 VL LWB		ERP 30 VL LWB		ERP 35 VL LWB		ERP 35 VL LWB		1.2												
Value		Productivity		Value		Productivity		Value		Productivity														
Battery		Battery		Battery		Battery		Battery		Battery		1.3												
Seat		Seat		Seat		Seat		Seat		Seat		1.4												
2500		2500		3000		3000		3500		3500		1.5												
500		500		500		500		500		500		1.6												
404		404		416		416		416		416		1.8												
1750		1750		1750		1750		1750		1750		1.9												
4876		4876		4910		4910		5225		5225		2.1												
6195		1181		6195		1181		7006		904		7006		904		7714		1011		7714		1011		2.2
2403		2473		2403		2473		2443		2467		2443		2467		2391		2834		2391		2834		2.3
SE		SE		SE		SE		SE		SE		SE		3.1										
23 x 10 - 12		23 x 10 - 12		23 x 10 - 12		23 x 10 - 12		23 x 10 - 12		23 x 10 - 12		23 x 10 - 12		3.2										
18 x 7 - 8		18 x 7 - 8		18 x 7 - 8		18 x 7 - 8		18 x 7 - 8		18 x 7 - 8		18 x 7 - 8		3.3										
2X		2		2X		2		2X		2		2X		2		3.5								
938		1054		938		1054		938		1054		938		1054		3.6								
992		992		992		992		992		992		992		3.7										
5		5		5		5		5		5		5		4.1										
2192		2192		2192		2192		2192		2192		2192		4.2										
100		100		100		100		100		100		100		4.3										
3350		3350		3155		3155		3155		3155		3155		4.4										
3960		3960		3865		3865		3865		3865		3865		4.5										
2193		2 193		2 193		2 193		2 193		2 193		2 193		4.7										
1007		1007		1007		1007		1007		1007		1007		4.8										
262		262		262		262		262		262		262		4.12										
3465		3465		3465		3465		3465		3555		3555		4.19										
2465		2465		2465		2465		2465		2555		2555		4.20										
1173		1289		1173		1289		1173		1289		1173		1289		4.21								
40		100		1000		40		100		1000		50		120		1000		50		120		1000		4.22
2A		2A		3A		3A		3A		3A		3A		4.23										
1067		1067		1067		1067		1067		1067		1067		4.24										
98		98		98		98		98		98		98		4.31										
137		137		137		137		137		137		137		4.32										
3736		3736		3747		3747		3747		3813		3813		4.33										
3891		3891		3903		3903		3903		3969		3969		4.34										
2073		2073		2073		2073		2073		2139		2139		4.35										
189		189		189		189		189		189		189		4.36										
18.0		18.0		21.0		21.0		17.0		18.0		19.5		21.0		16.0		18.0		18.0		21.0		5.1
0.38		0.63		0.49		0.72		0.33		0.59		0.42		0.63		0.31		0.59		0.37		0.63		5.2
0.57		0.51		0.57		0.51		0.56		0.46		0.56		0.46		0.58		0.46		0.58		0.46		5.3
5591		5726		6037		6185		5441		5588		5877		6035		5478		5720		5918		6177		5.5
18451		18897		19927		20409		17956		18441		19393		19916		18076		18875		19522		20385		5.6
9		13		10		14		8		12		9		13		7		12		8		13		5.7
24		35		26		38		22		34		24		37		20		32		22		35		5.8
4.45		4.11		4.04		3.71		4.56		4.18		4.14		3.78		4.60		4.23		4.19		3.83		5.9
Hydraulic		Hydraulic		Hydraulic		Hydraulic		Hydraulic		Hydraulic		Hydraulic		Hydraulic		Hydraulic		Hydraulic		Hydraulic		Hydraulic		5.10
2x 10.0		2x 10.0		2x 10.0		2x 10.0		2x 10.0		2x 10.0		2x 10.0		2x 10.0		2x 10.0		2x 10.0		2x 10.0		2x 10.0		6.1
16.0		16.0		24.0		24.0		16.0		16.0		24.0		24.0		16.0		16.0		24.0		24.0		6.2
43536A		43536A		43536A		43536A		43536A		43536A		43536A		43536A		43536A		43536A		43536A		43536A		6.3
80		700		80		700		80		700		80		700		80		700		80		700		6.4
1770		1956		1770		1956		1770		1956		1770		1956		1770		1956		1770		1956		6.5
7.89		7.89		8.86		8.86		8.66		8.66		9.74		9.74		10.03		10.03		11.28		11.28		6.6
AC electronic		AC electronic		AC electronic		AC electronic		AC electronic		AC electronic		AC electronic		AC electronic		AC electronic		AC electronic		AC electronic		AC electronic		8.1
155		155		155		155		155		155		155		155		155		155		155		155		8.2
20-40		20-40		20-40		20-40		20-40		20-40		20-40		20-40		20-40		20-40		20-40		20-40		8.3
67		67		68		68		67		67		68		68		67		67		68		68		8.4
Pin		Pin		Pin		Pin		Pin		Pin		Pin		Pin		Pin		Pin		Pin		Pin		8.5

Characteristics

Weights

Wheels & Tyres

Dimensions

Performance

Motor

Other

○ h6 subject to +/- 5 mm tolerance.
Add 20mm with cab option.
Add 104mm for battery side removal option.
Add 124mm for battery side removal with cab option.

Specification Sheet based on trucks with: Standard seat, overhead guard, standard carriage, 1000 mm forks with load backrest, eLo setting with DIN battery configuration. 2 stage LFL mast :- ERP20-25VL - 3390 mm, ERP30-35VL - 3200 mm.

VL Series

Models: 22VL, 25VL SWB and LWB, 30VL and 35VL

The VL series is available in two configurations – Value & Productivity. With enhanced performance characteristics, the Productivity configuration has been designed to operate in intensive, high productivity applications with long runs and high lifts as an effective alternative to an engine-powered truck.

For example, in comparison to the Value configuration, top speed (laden) has been increased to up to 21 km/h with faster acceleration, and lifting speeds have been increased by 27%.

AC Technology

Yale AC technology Class H traction motors are suitable for the most arduous applications. Smooth forward and reverse directional changes provide seamless driving action. In the high-performance or 'HiP' setting, AC technology provides increased acceleration, even when fully laden and on gradients. As well as improving performance, AC technology reduces maintenance and allows service intervals of 1000 hours for most components.

Brakes

The truck is equipped with oil immersed brakes and YaleStop™ an automatic park brake spring applied, electro magnetically released park brake. The park brake is automatically set by the control system, so that the brake is always set whenever the truck is not moving, and no traction has been requested. Moreover the park brake provides controllability on ramp applications.

When the footbrake is applied the intelligent control system uses 'e-Boost' which increases the strength of the 'autoregen' function of the traction motors. This also decreases the amount of work executed by the oil immersed disc brakes resulting in reduced wear on the brakes.

Steering

A 16kW (Value) or 24kW (Productivity) AC motor drives a pump which provides oil pressure for the hydraulic pump and for steering, eliminating the need for a separate steering motor and pump. The steering column is infinitely adjustable in a range of 26°. During cornering the speed of the drive motors is continuously adjusted independently by the traction controller ensuring smooth operation.

The Yale VL features a state-of-the-art extended steer-axle that has increased articulation of the steer wheels, allowing it to turn in smaller spaces than a conventional 4-wheel steer-axle.

Performance modes

Performance of the truck can be tailored via the enhanced overhead display, with 4 performance modes available to suit the requirements of the application or the preferences of the driver. For maximum speed and acceleration, choose mode 4, or for more delicate maneuvering and extended battery life, mode 1 is ideal. Your service technician can alter the top speed and acceleration of mode 4, with modes 1, 2 and 3 being automatically adjusted as percentages of setting 4.

'eLo' and 'HiP' Settings

Yale VL trucks feature an 'eLo' energy saving setting which provides exceptional energy efficient performance when required for continuous operation over longer periods without recharging the battery. The 'HiP' high performance setting (accessible via the dash display with a service password) changes the torque curve characteristics of the motor to give the truck increased torque, faster acceleration and increased speed on a grade for the most demanding applications whilst maintaining the same top speed as the 'eLo' setting. 'eLo' provides maximum battery autonomy.

Improved ergonomics

The VL is designed for optimum operator comfort.

The overhead guard mounted grab handle, seat armrest (hinged) and very low step height provide class leading three point entry and exit to the operator module. The operator is seated in an ergonomically designed position for maximum safety, comfort, visibility and ease of operation. A new full suspension seat provides 80mm of suspension and the lowest WBV levels in the industry. A swivel seat option for a superior reverse driving position is available. Both the mini-lever module and the manual levers have an integrated direction switch. The ergonomically designed gas spring assisted steering column has infinite forward and reverse adjustment through 26°, can be telescopically

adjusted by 75mm. Synchronised steering which further increases operator comfort and operation also features steer column memory tilt (option).

The truck also features generous floor and storage space. The clear footwell allows easy access from both sides of the truck when the optional mini lever module fitted.

Continuous Stability Enhancement (CSE)

This is a mechanical system which uses gravity to optimize the design geometry of the Yale steer axle. It reduces lean by limiting the articulation of the steer axle and does not compromise the trucks ability to operate over poor ground conditions or traverse obstacles. It is also 100% maintenance free.

Masts

A full range of Yale Hi-Vis™ 2 stage LFL and 2 and 3 stage FFL masts are available. Yale Hi-Vis™ masts are designed for maximum visibility, with widely spaced channels, lift chains and main lift cylinders.

Battery

A choice of DIN batteries from 560Ah/620Ah - 700Ah/775Ah (wheelbase dependent) are available. The short wheelbase model (SWB) has a smaller capacity battery and delivers increased maneuverability and reduced stacking aisle dimensions. The long wheelbase model (LWB) provides extra battery space for longer shift life. A battery discharge indicator (BDI) and lift interrupt are standard on all trucks.

Low lifetime costs

Lower service costs are achieved as a result of less maintenance associated with oil immersed brakes, hall effect sensors, electric park brake and CANbus and AC technology. The transmission is sealed for life, eliminating the need for service, an oil change is required at 4000 hours. LED light packages are offered as an option.

Service intervals are 1000 hours for most components and 4000 hours for oil immersed brakes, drive axle, transmission and hydraulic oil.

Auto Regen Braking optimises the shift life of the battery and contributes to an increase in the life of parts.



Options

- Accutouch mini-levers
- Return to set tilt (RTST)
- Foot directional control
- Lighting kits, including LED lights
- Reverse alarm
- Integrated sideshift
- Two battery extraction methods:-
 1. Overhead
 2. Side extraction
- Weather protection



CO.MA.CO S.r.l.
 via XIV Strada 21 - 20020 Cesate (MI) - Italy
 Tel. +39 02 99065169
 info@comacopro.com
 www.comacopro.com



NACCO Materials Handling Limited trading as **Yale Europe Materials Handling**
 Flagship House, Reading Road North, Fleet, Hampshire GU51 4WD, United Kingdom.
 Tel: + 44 (0) 1252 770700 Fax: + 44 (0) 1252 770784
 www.yale-forklifts.eu

Country of Registration: England. Company Registration Number: 02636775



Safety. This truck conforms to the current EU requirements. Specification is subject to change without notice.
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 Truck shown with optional equipment