

CROWN

Specifications

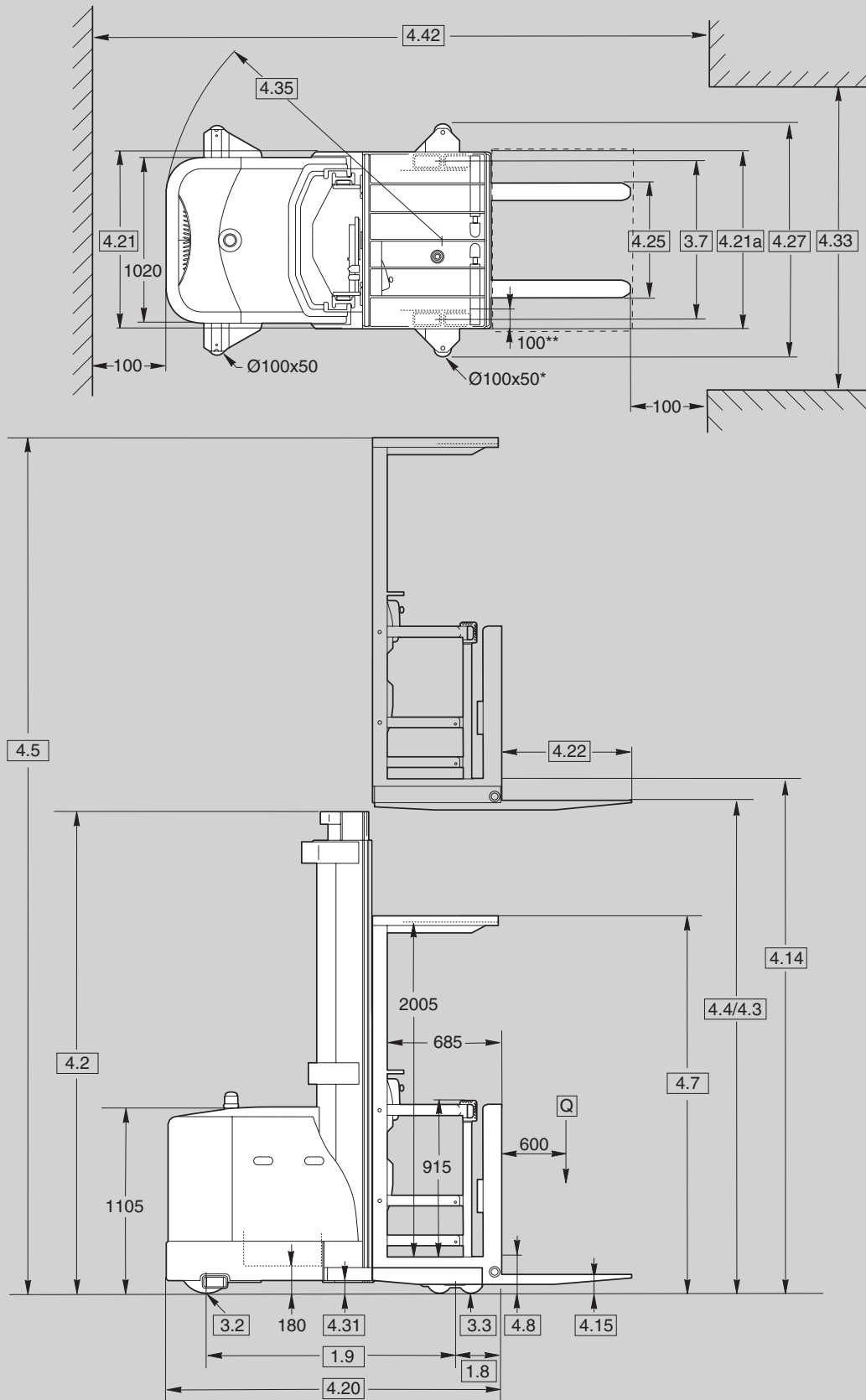
SP 3500 Series

Order Picker

SP 3500

Series





* Ø 65x50 mm, tip mounted if WAGR minus OW (4.27 - 4.21) = 20 mm to 139 mm
 Ø 65x50 mm, side mounted if WAGR minus OW (4.27 - 4.21) = 140 mm to 209 mm
 Ø 100x50 mm, side mounted if WAGR minus OW (4.27 - 4.21) = 210 mm to 590 mm
 WAGR = Width Across Guide Rollers, OW = Overall Width (rear)
 ** 200 mm on SP 3521 if 4.4 > 8840 mm

SP 3511 / 3521 Models Specifications

General Information	1.1	Manufacturer	Crown Equipment Corporation						
	1.2	Type			SP 3511-1.25	SP 3511-1.25	SP 3521-1.25	SP 3521-1.25	
					TL	TT	TL	TT	
	1.3	Power	electric						
	1.4	Operator Type	order picker						
	1.5	Load Capacity*		Q	t	1.25			
	1.6	Load Centre		c	mm	600			
	1.8	Load Distance		x	mm	245	295	245	295
	1.9	Wheel Base		y	mm	1410	1385	1410	1385
Weights	2.1	Weight	less battery		kg	see table 3 and 4			
	2.2	Axle Load	w. load, front / rear		kg	see table 3 and 4			
	2.3	Axle Load	w.o. load, front / rear		kg	see table 3 and 4			
Tyres	3.1	Tyres Type				polyurethane			
	3.2	Tyres	front		mm	Ø 330 x 140			
	3.3	Tyres	rear		mm	Ø 150 x 70 **			
	3.5	Wheels	number (x=driven) front/rear			1x/4			
	3.6	Track Width	front	b10	mm	centre			
	3.7	Track Width	rear	b11	mm	see table 3 and 4			
	Dimensions	4.2	Mast	collapsed height		mm	see table 3 and 4		
4.3		Free Lift			mm	see table 3 and 4			
4.4		Lift Height			mm	see table 3 and 4			
4.5		Mast	extended height		mm	see table 3 and 4			
4.7		Overhead Guard Height			mm	2325			
4.8		Operator Stand Height	lowered		mm	240			
4.14		Operator Stand Height	raised		mm	see table 3 and 4			
4.15		Fork Height	lowered		mm	75			
4.20		Headlength		l2	mm	1895	1920	1895	1920
4.21		Overall Width	front / rear	b1/b2	mm	1020 / see table 3 and 4			
4.21a		Overall Width	operator platform	b9	mm	see table 3 and 4			
4.22		Fork Dimension	standard	thxwxl	mm	50 x 100 x 1145			
			optional length		mm	760/915/990/1070/1220/1370/1525/1830/2135			
4.25		Width Across Forks	min. - max.	b5	mm	610 - 760			
4.27		Width Across Guide Rollers	in 6.5 mm increments	b6	mm	see table 3 and 4			
4.31	Ground Clearance	with load below mast	m1	mm	50				
4.33	Working Aisle Width	minimum	Ast	mm	see table 3 and 4				
4.35	Turning Radius		Wa	mm	1755	1730	1755	1730	
4.42	Transfer Aisle Width***	1000 x 1200 traverse	Ast3	mm	3540	3560	3540	3560	
		800 x 1200 traverse	Ast3	mm	3360	3380	3360	3380	
Perform.	5.1	Travel Speed	w./w.o. load		km/h	see table 1			
	5.2	Lift Speed	w./w.o. load		m/s	0.14/0.23	0.13/0.20	0.23/0.41	0.22/0.36
	5.3	Lowering Speed	w./w.o. load		m/s	0.19/0.20	0.19/0.20	0.38/0.41	0.38/0.41
	5.10	Service Brake				electro-magnetic, regenerative			
Motors	6.1	Traction Motor	60 min. rating		kW	3.9			
	6.2	Lift Motor	15% on time		kW	2.5		2 x 2.5	
	6.3	Max. Battery Box Size		lxwxh	mm	360 x 920 x 790			
	6.4	Battery Voltage	nominal capacity K5		V/Ah	24V / 500-800			
	6.5	Battery Weight	minimum		kg	690			
	8.1	Type of Controller	drive			AC traction			

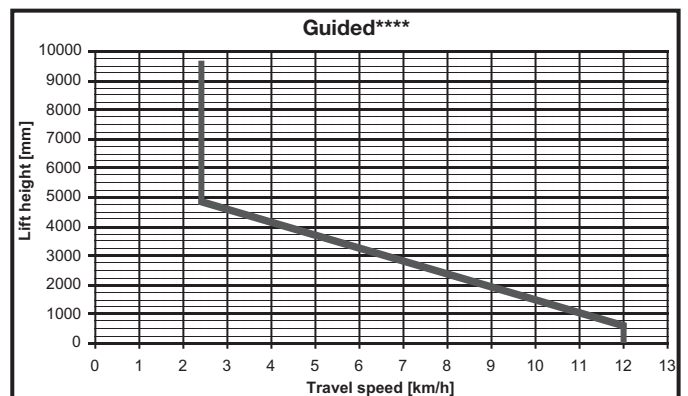
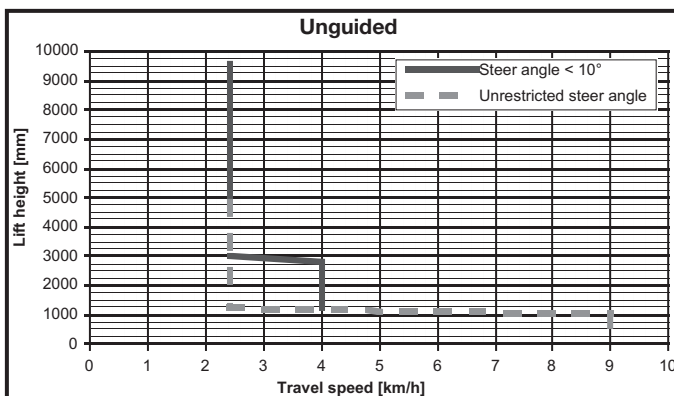
* Capacity may be subject to derating if longer load centre (fork length) or wider platform width is required; see table 3 and 4, rated capacity @ max. lift height [4.4]

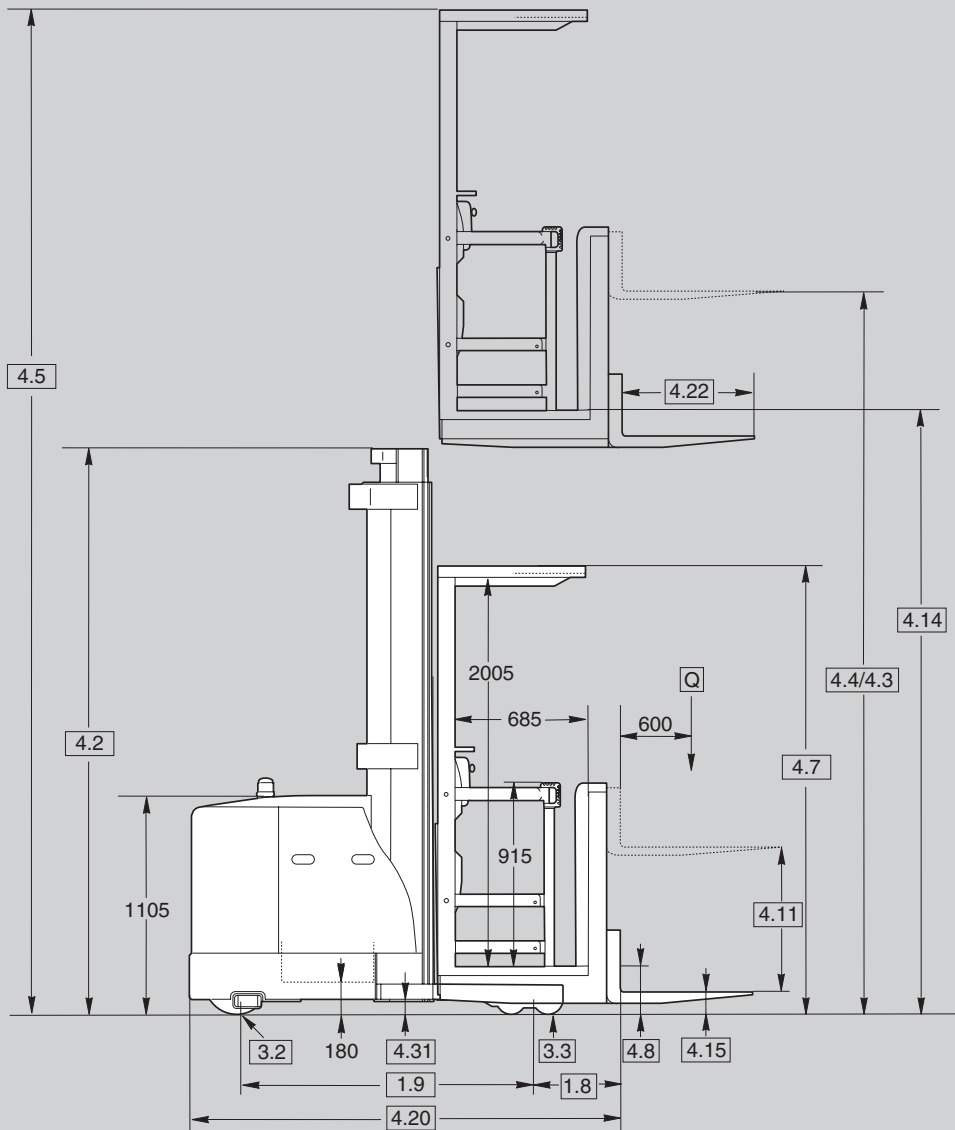
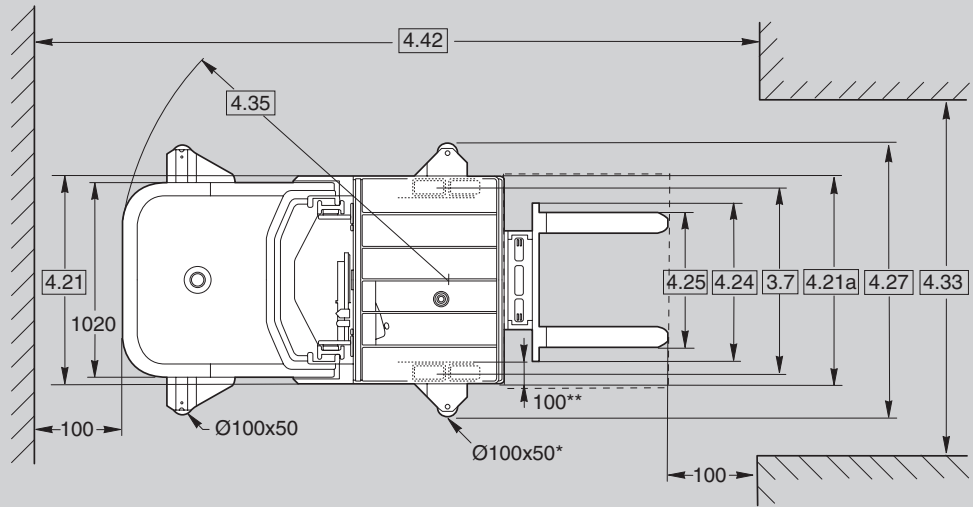
** Ø 150 x 110 mm on SP 3521 if [4.4] > 8840 mm

*** Assumes 400 mm clearance

**** Power unit direction

Table 1 Travel Speed (km/h) with/without load





* Ø 65x50 mm, tip mounted if WAGR minus OW ([4.27] - [4.21]) = 20 mm to 139 mm
 Ø 65x50 mm, side mounted if WAGR minus OW ([4.27] - [4.21]) = 140 mm to 209 mm
 Ø 100x50 mm, side mounted if WAGR minus OW ([4.27] - [4.21]) = 210 mm to 590 mm
 WAGR = Width Across Guide Rollers, OW = Overall Width (rear)
 ** 200 mm on SP 3522 if [4.4] > 9145 mm

SP 3512 / 3522 Models Specifications

General Information	1.1	Manufacturer	Crown Equipment Corporation						
	1.2	Type			SP 3512-1.0	SP 3512-1.0	SP 3522-1.0	SP 3522-1.0	
					TL	TT	TL	TT	
	1.3	Power	electric						
	1.4	Operator Type	order picker						
	1.5	Load Capacity*	Q	t	1.0				
	1.6	Load Centre	c	mm	600				
	1.8	Load Distance	x	mm	470	520	470	520	
	1.9	Wheel Base	y	mm	1410	1385	1410	1385	
Weight	2.1	Weight	less battery	kg	see table 5 and 6				
	2.2	Axle Load	w. load, front / rear	kg	see table 5 and 6				
	2.3	Axle Load	w.o. load, front / rear	kg	see table 5 and 6				
Tyres	3.1	Tyres Type			polyurethane				
	3.2	Tyres	front	mm	Ø 330 x 140				
	3.3	Tyres	rear	mm	Ø 150 x 70 **				
	3.5	Wheels (x-driven)	number (x=driven) front/rear		1x/4				
	3.6	Track Width	front	b10	mm	centre			
	3.7	Track Width	rear	b11	mm	see table 5 and 6			
	Dimensions	4.2	Mast	collapsed height	h1	mm	see table 5 and 6		
4.3		Free Lift		h2	mm	see table 5 and 6			
4.4		Lift Height		h3	mm	see table 5 and 6			
4.5		Mast	extended height	h4	mm	see table 5 and 6			
4.7		Overhead Guard Height		h6	mm	2325			
4.8		Operator Stand Height	lowered	h7	mm	240			
4.11		Additional Lift		h9	mm	760			
4.14		Operator Stand Height	raised	h12	mm	see table 5 and 6			
4.15		Fork Height	lowered	h13		65			
4.20		Headlength		l2	mm	2120	2145	2120	2145
4.21		Overall Width	front / rear	b1/b2	mm	1020 / see table 5 and 6			
4.21a		Overall Width	operator platform	b9	mm	see table 5 and 6			
4.22		Fork Dimension	standard	thxwxl	mm	40 x 100 x 1145			
			optional length		mm	760 / 915 / 990 / 1070 / 1220			
4.24		Fork Carriage Width		b3	mm	880			
4.25		Width Across Forks	min. - max.	b5	mm	200 - 840			
4.27		Width Across Guide Rollers	in 6.5 mm increments	b6	mm	see table 5 and 6			
4.31	Ground Clearance	with load below mast	m1	mm	50				
4.33	Working Aisle Width	minimum	Ast	mm	see table 5 and 6				
4.35	Turning Radius		Wa	mm	1755	1730	1755	1730	
4.42	Transfer Aisle Width***	1000 x 1200 traverse	Ast3	mm	3750	3770	3750	3770	
		800 x 1200 traverse	Ast3	mm	3560	3580	3560	3580	
Perform.	5.1	Travel Speed	w./w.o. load	km/h	see table 2				
	5.2	Lift Speed	w./w.o. load	m/s	0.14/0.26	0.13/0.20	0.23/0.41	0.22/0.36	
	5.3	Lowering Speed	w./w.o. load	m/s	0.19/0.20	0.19/0.20	0.38/0.41	0.38/0.41	
	5.10	Service Brake			electro-magnetic, regenerative				
Motors	6.1	Traction Motor	60 min. rating	kW	3.9				
	6.2	Lift Motor	15% on time	kW	2.5	2 x 2.5			
	6.3	Max. Battery Box Size		lxwxh	mm	360 x 920 x 790			
	6.4	Battery Voltage	nominal capacity K5	V/Ah	24V / 500-800				
	6.5	Battery Weight	minimum	kg	690				
	8.1	Type of Controller	drive			AC traction			

* Capacity may be subject to derating if longer load centre (fork length) or wider platform width is required; see table 5 and 6, rated capacity @ max. lift height [4.4]

** Ø 150 x 110 mm on SP 3522 if [4.4] > 9145 mm

*** Assumes 400 mm clearance

**** Power unit direction

Table 2 Travel Speed (km/h) with/without load

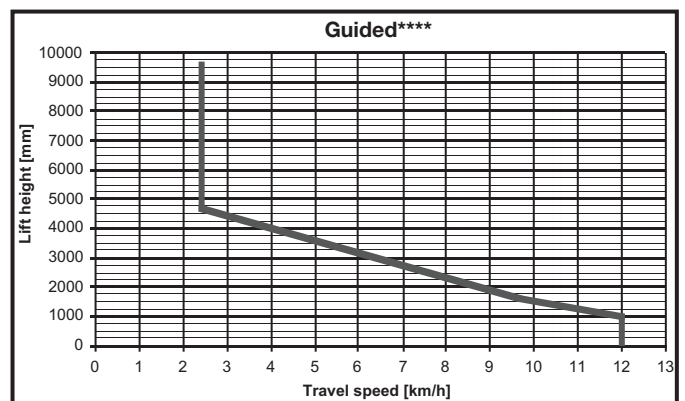
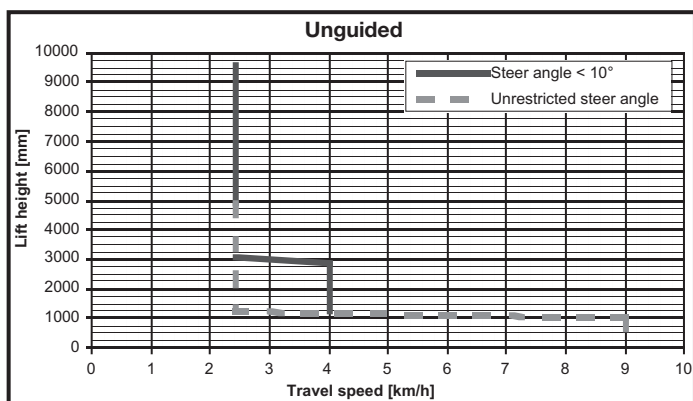


Table 3					SP 3511 & SP 3521								
					TL					TT			
1.5	Rated Capacity	@ max lift height h3		kg	1250	1250	1250	1250	1250	1250	1250	1250	1250
2.1	Weight SP 3511 / 3521	less battery		kg	2414	2440	2500	2630	2690	2675	2715	2800	
2.2	Axle Load	w. load, front		kg	1180	1195	1225	1295	1325	1225	1245	1285	
2.2	Axle Load	w. load, rear		kg	3175	3185	3215	3275	3305	3390	3410	3455	
2.3	Axle Load	w.o. load, front		kg	1860	1870	1900	1975	2005	1955	1975	2015	
2.3	Axle Load	w.o. load, rear		kg	1245	1260	1290	1345	1375	1410	1430	1475	
3.7	Track Width	rear	b11	mm	970								
4.2	Mast	collapsed height	h1	mm	2325	2415	2720	3025	3330	2325	2415	2720	
4.3	Free Lift		h2	mm	75	115	115	115	115	75	165	470	
4.4	Lift Height		h3	mm	3455	3760	4370	4930	5435	4955	5335	6095	
4.5	Mast	extended height	h4	mm	5700	6010	6615	7175	7685	7225	7610	8370	
4.14	Operator Stand Height	raised	h12	mm	3620	3925	4535	5095	5600	5120	5500	6260	
4.21	Overall Width	rear	b2	mm	1070								
4.21a	Overall Width	operator platform		mm	1070								
4.27	Width Across Guide Rollers	in 6.5 mm increments	b6	mm	1089 - 1660								
4.33	Working Aisle Width	minimum	Ast	mm	1270								

Table 4					SP 3521							
					TT							
1.5	Rated Capacity *	@ max lift height h3		kg	1025	950	850	750	650	550		
2.1	Weight SP 3521	less battery		kg	2990	3070	3115	3225	3295	3490		
2.2	Axle Load	w. load, front/rear		kg	1385/3545	1415/3595	1440/3615	1490/3675	1515/3720	1590/3840		
2.3	Axle Load	w.o. load, front/rear		kg	2115/1565	2145/1615	2170/1635	2220/1695	2250/1735	2325/1855		
3.7	Track Width	rear	b11	mm	1120	1270	1270	1320	1425	1325		
4.2	Mast	collapsed height	h1	mm	3025	3175	3330	3630	3785	3935		
4.3	Free Lift		h2	mm	775	925	1080	1385	1535	1690		
4.4	Lift Height		h3	mm	7010	7470	7925	8380	8840	9295		
4.5	Mast	extended height	h4	mm	9285	9740	10200	10655	11112	11570		
4.14	Operator Stand Height	raised	h12	mm	7175	7635	8090	8550	9005	9465		
4.21	Overall Width	rear	b2	mm	1220	1370	1370	1420	1525	1525		
4.21a	Overall Width	operator platform		mm	1220	1370	1370	1370	1525	1525		
4.27	Width Across Guide Rollers	in 6.5 mm increments	b6	mm	1239-1810	1389-1960	1389-1960	1439-2010	1544-2115	1544-2115		
4.33	Working Aisle Width	minimum	Ast	mm	1420	1570	1570	1620	1725	1725		

Table 5					SP 3512 & SP 3522							
					TL					TT		
1.5	Rated Capacity **	@ max lift height h3		kg	1000	1000	1000	1000	1000	1000	1000	825
2.1	Weight SP 3512 / 3522	less battery		kg	2485	2515	2575	2705	2765	2750	2790	2870
2.2	Axle Load	w. load, front		kg	1080	1095	1125	1200	1230	1130	1150	1190
2.2	Axle Load	w. load, rear		kg	3095	3110	3140	3195	3225	3310	3330	3370
2.3	Axle Load	w.o. load, front		kg	1840	1855	1885	1960	1990	1940	1960	2000
2.3	Axle Load	w.o. load, rear		kg	1335	1350	1380	1435	1465	1500	1520	1560
3.7	Track Width	rear	b11	mm	970	970	970	970	970	970	970	1120
4.2	Mast	collapsed height	h1	mm	2325	2415	2720	3025	3330	2325	2415	2720
4.3	Free Lift		h2	mm	835	875	875	875	875	835	925	1230
4.4	Lift Height	total lift	h3+h9	mm	4215	4520	5130	5690	6200	5715	6095	6860
4.5	Mast	extended height	h4	mm	5700	6010	6615	7175	7685	7225	7610	8370
4.11	Additional Lift		h9	mm	760							
4.14	Operator Stand Height	raised	h12	mm	3620	3925	4535	5095	5600	5120	5500	6260
4.21	Overall Width	rear	b2	mm	1070							
4.21a	Overall Width	operator platform		mm	1070							
4.27	Width Across Guide Rollers	in 6.5 mm increments	b6	mm	1089-1660							
4.33	Working Aisle Width	minimum	Ast	mm	1270							

Table 6					SP 3522						
					TT						
1.5	Rated Capacity **	@ max lift height h3		kg	650	550	500	450	350		
2.1	Weight SP 3522	less battery		kg	3065	3145	3190	3300	3370		
2.2	Axle Load	w. load, front/rear		kg	1290/3465	1320/3515	1345/3535	1395/3595	1425/3635		
2.3	Axle Load	w.o. load, front/rear		kg	2100/1655	2135/1700	2155/1725	2205/1785	2235/1825		
3.7	Track Width	rear	b11	mm	1270	1270	1320	1425	1425		
4.2	Mast	collapsed height	h1	mm	3025	3175	3330	3635	3785		
4.3	Free Lift		h2	mm	1535	1685	1840	2145	2295		
4.4	Lift Height	total lift	h3+h9	mm	7770	8230	8685	9145	9600		
4.5	Mast	extended height	h4	mm	9285	9740	10200	10655	11112		
4.11	Additional Lift		h9	mm	760						
4.14	Operator Stand Height	raised	h12	mm	7175	7635	8090	8550	9005		
4.21	Overall Width	rear	b2	mm	1370	1370	1420	1525	1525		
4.21a	Overall Width	operator platform		mm	1370	1370	1370	1525	1525		
4.27	Width Across Guide Rollers	in 6.5 mm increments	b6	mm	1389-1960	1389-1960	1439-2010	1544-2115	1544-2115		
4.33	Working Aisle Width	minimum	Ast	mm	1570	1570	1620	1725	1725		

* 1250 kg @ lift heights [4.4] < 6200 mm

** 1000 kg @ lift heights [4.4] < 6200 mm

Standard Equipment

1. Crown's Access 1 2 3™ Comprehensive System Control
2. Crown manufactured AC traction motor
3. Electronic steering
4. Linear speed control for gradual reduction in speed as platform is raised
5. Two-speed lower with soft start and stop
6. Programmable lift/lower cut outs
7. Intelligent Braking System (IBS)
8. Crown's Information Display
 - PIN code access capable
 - Standard steer wheel position indicator
 - Enhanced steer wheel position indicator (wire guided trucks)
 - Start up and run time diagnostics
 - Hour meters / travel distance / stop watch
 - Battery discharge indicator with lift interrupt
 - 3 selectable traction performance profiles
 - Access 1 2 3 onboard diagnostic with real time troubleshooting capabilities
9. Soft urethane twist grip with "cam grip"
10. 10° angled steering wheel with soft feel spinner
11. Storage compartment
12. Crown's anti-fatigue floor mat
13. Clear visibility platform window
14. Clear visibility mast design
15. Key switch
16. Horn
17. Strobe light
18. Hinged, lift off steel power unit doors
19. SBE 320 battery connector
20. Battery roll out function, with Ø 50 mm battery compartment rollers
21. Top battery access for service
22. Removable steel battery side covers

23. Adjustable battery retainer
24. Emergency power disconnect
25. Egress system
26. Crown's InfoPoint® feature
27. Colour-coded wiring
28. Poly drive tyre and tandem load wheel

Model Specific Standard Equipment

- SP 3511 & 3521**
- Hinged side and rear gates with power inhibit
 - Pin mounted fully forged cantilever forks

- SP 3512 & 3522**
- Hinged side gates with power inhibit
 - Fully forged hook-on ISO Type forks
 - Auxiliary lifting forks with 760 mm lift

- SP 3521 & 3522**
- High speed lift/lower
 - High speed lifting is automatically cut out when forks are 305 mm from max. elevation
 - High speed lowering is automatically cut out when forks are 500 mm from the floor

Optional Equipment

1. Crown wire guidance (broadband technology) operates on all frequencies ranging from 5.2 to 10 kHz without changing components
2. End of aisle control system (wire or rail guidance required)
3. Aisle guide wheels for rail guidance
4. Enhanced steer wheel position indicator (non wire guided trucks)
5. Battery retainer interlock switch
6. Work lights, dome lights and two-speed fans
7. Hand adjustable spotlights
8. Mast mounted spotlights
9. Flashing amber light

10. Audible travel alarm
11. Zone Select key switch
12. Corrosion conditioning
13. Freezer conditioning
14. Custom outside straddle width in 25 mm increments from 1145 mm to 1830 mm (cannot be less than std. outside straddle width [4.21](#))
15. 1070, 1220, 1370, 1525 and 1625 mm wide operator platforms (max. 305 mm greater than outside straddle width [4.21](#))
16. Power source for accessories
17. Wire mesh screen (std. with freezer conditioning)
18. Work Assist™ Accessories
 - Clip pad and hook
 - Plate
 - Pocket
 - Clamp
19. Poly or Vulkollan non-marking drive tyre
20. Vulkollan load wheels

Model Specific Options

- SP 3511 & 3521**
- Pallet clamp for
 - Euro pallet (150 mm centre stringer width)
 - Chep pallet (100 mm centre stringer width)
 - GMA pallet (38 mm centre stringer width)

- SP 3512 & 3522**
- Load-facing operator controls
 - Adjustable backrest (only with load-facing operator controls)

Human Factor

The operator area is designed for maximum visibility and stability for increased operator confidence and comfort. The operator platform features a large window (0.7 m²) for excellent visibility. A Crown designed clear-view mast gives the operator one forward and two peripheral windows for maximum visibility when the platform is lowered. The full free lift mast provides unobstructed

visibility through the window when raised.

A low-profile power unit, low placement of the lower cross brace, and an outer C-channel rail assembly also contribute to excellent visibility.

A soft urethane twist grip is solidly mounted to the truck console to provide excellent stability for the operator during travel, plugging and braking. Controls for raise/lower, horn and emergency disconnect are conveniently located for efficient operation and minimal operator fatigue.

The steering wheel is angled at 10° and recessed to maximize the work area and reduce steer effort. The steering wheel and spinner knob are covered with soft urethane to reduce grip force and insulate against vibration. Control location keeps the operator's posture neutral at all times.

The anti-fatigue floor mat, made of a microcellular composition, absorbs shock and vibration.

The brake pedal has a low-profile design and is flush with the floor mat when depressed. Heavy-duty side gates, with three horizontal and one vertical support rail, communicate security to the operator. For additional safety, cut-out switches disengage truck operation when gates are raised. Two work lights, two dome lights and a two-speed fan are optional. Power-on key prevents unauthorised operation of the truck; start position initialises truck self-test. The information display panel provides concise, clear feedback for the operator during truck operation.

Access 1 2 3™

The Access 1 2 3 Comprehensive System Control is a modular communications and control system. It monitors all on-board sensors, makes decisions based on the sensor readings, and subsequently,

controls all system movements safely and smoothly. All five modules are in constant communication with each other via a CAN (Control Area Network) bus so that real-time information is accessible to the system at all times.

- Interactive Display Module
- Traction Control Module
- Vehicle Control Module
- Steering Control Module
- Guidance Control Module (optional)

The display module provides concise, clear feedback for the operator. The display includes a full featured on-board service tool so service engineers can actively view inputs and outputs during truck operation. No laptop or service terminal is required.

Truck performance specifications (maximum travel speed, coast, plugging, acceleration, travel speed at height, and low speed lowering) are adjustable using Access 1 2 3. This enables customising truck performance to meet specific application or operator requirements.

Drive System

Crown has applied the latest generation AC drive system, enhanced with Access 1 2 3 technology. A Crown manufactured drive unit uses spiral bevel and helical gears from motor to drive wheel axle. Fixed, mounted drive motor does not rotate minimising wear on electrical cables. Crown's AC Drive system dramatically improves travel speeds, acceleration and deceleration, thus increasing productivity. The standard linear speed control provides smooth travel speed transition as lift heights change and increases productivity.

Intelligent Braking System (IBS)

Crown's patented Intelligent Braking System combines motor braking with optimum amounts of friction braking. The appropriate level of braking is applied dependent upon platform height, direction of travel, and truck weight. Braking force is automatically reduced as height increases and speed decreases. Optimum braking for the right elevation gives operators more confidence and better control, while eliminating abrupt stops and reducing platform sway. Braking can also be accomplished by proportional plugging which permits the operator to control the rate of deceleration when extended stopping distance is preferred.

Steering

Standard on the SP 3500 Series is electronic steering that is microprocessor based. Steering wheel rotation provides smooth, operator feedback. Steer effort is minimal, lock to lock is 4.5 turns. Drive wheel rotates a full 180° for maximum manoeuvrability. Auto centring drive tyre for trucks equipped with rail guidance.

Hydraulics

Heavy-duty motors and gear pumps are assembled into an integral unit. Crown manufactured solenoid type manifolds with built-in check and relief valves. Two-speed lowering with proportional soft-start is standard on all models. Low-speed lowering is adjustable. Soft-start lowering feature reduces the harshness at the beginning and end of the lowering cycle. Maximum lowering speed is regulated by a pressure compensating flow control valve.

Velocity fuses are used in all cylinders to stop lowering should the speed exceed a preset value due to a line rupture. A hydraulic accumulator is used to cushion raise and lower functions. Manual lowering control allows lowering of platform from ground level. Oil reservoir is designed with a 100 mesh screen at the fill location, a suction strainer, spin-on type 10 micron return line filter and a magnetic drain plug.

Mast Assembly

High visibility two- and three-stage masts feature nested rail design with lift cylinders positioned behind mast rails. Three-stage mast has a low centre cylinder for free lift. Routing of hoses and cables optimises visibility through mast. Built-in sensors detect chain slack and shut down primary lower function. Exclusive staging bumpers virtually eliminate platform impact as the mast stages. Negative rail drop allows shimming of mast rollers without major disassembly.

Power Unit

Power unit is fabricated from heavy-gauge steel. Lower skirt is 230 mm high and 20 mm thick for component protection. Rugged steel doors suspended on heavy-duty hinges protect power unit components. Doors swing wide or can be lifted off for unrestricted service access. Battery side covers are all steel. An optional battery retainer interlock switch is available. Top battery cover allows access for service.

Wheels and Tyres

Polyurethane drive tyre is 330 mm diameter x 140 mm wide with 200 mm hub diameter. Tandem polyurethane load wheels are 150 mm diameter x 70 mm wide (110 mm wide for lift heights above 8.8 m). Optional polyurethane aisle guide wheels are 50 mm wide with a 100 or 65 mm diameter.

Forks

40 or 50 mm thick x 100 mm wide forged steel with Fork Tip Indicators. Standard length is 1145 mm. Optional lengths available.

Safety Shield

Safety glass to protect operator from chains and moving parts while in his normal operating position. Optional wire mesh shield (standard on freezer conditioning).

Safety Regulations

Conforms to European safety standards. Dimensions and performance data given may vary due to manufacturing tolerances. Performance is based on an average size vehicle and is affected by weight, condition of truck, how it is equipped and the conditions of the operating area. Crown products and specifications are subject to change without notice.

