

CROWN

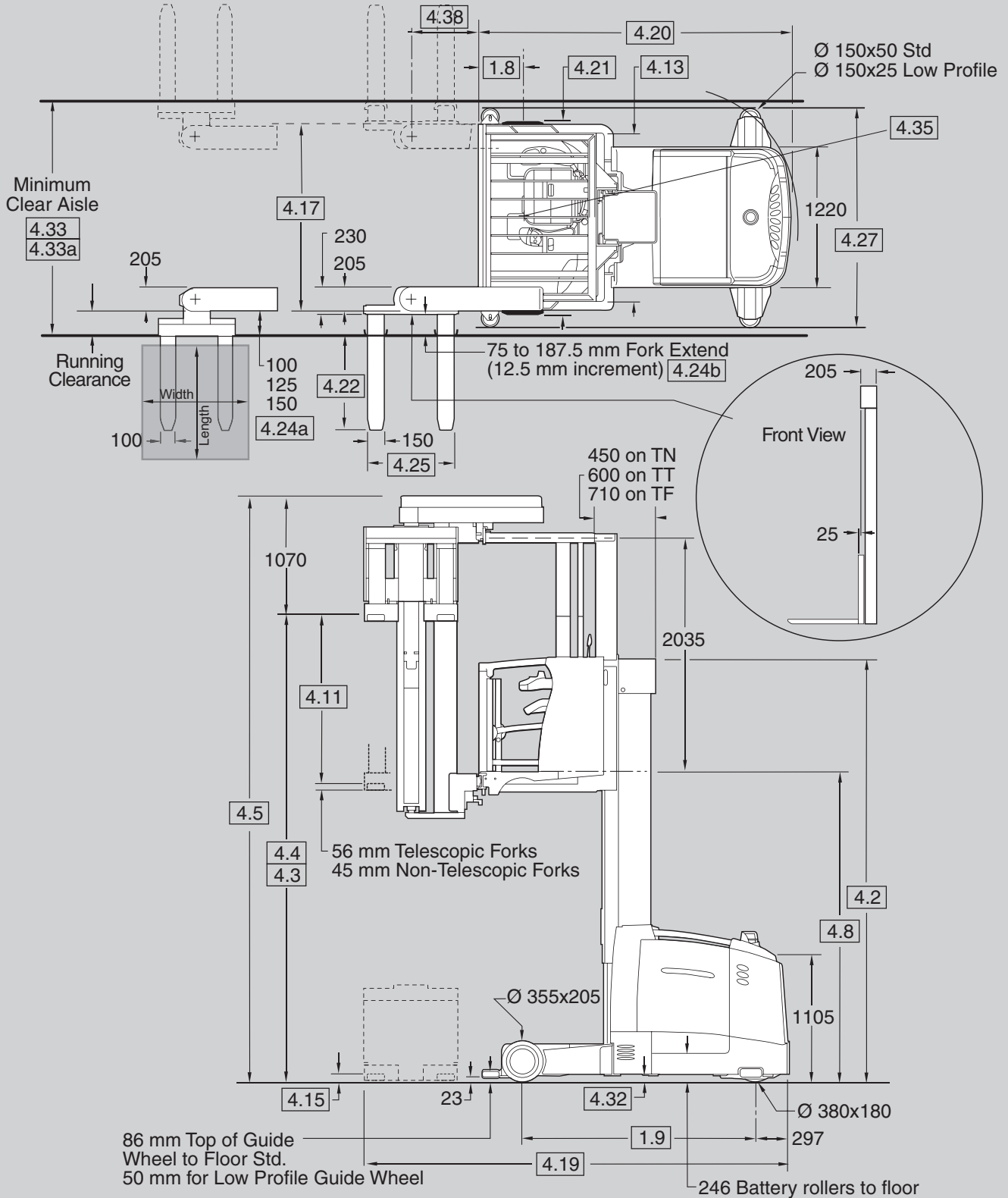
TSP 6500/7000 SERIES

Specifications

Turret Trucks



	Non-Telescopic Forks	Telescopic Forks
Minimum Clear Aisle	4.33a Load Length + 205 + Fork Carriage Offset + Running Clearance + Running Clearance	4.33 Load Length + 230 + Running Clearance + Running Clearance
Running Clearance	Forks Carriage Offset	Fork Extend + 25



General Information	1.1	Manufacturer	Crown Equipment Corporation					
	1.2	Model			TSP 6500-1.0	TSP 6500-1.25	TSP 6500-1.5	
					TN / TF / TT	TN / TF / TT	TN / TF / TT	
	1.3	Power	electric		Volt	48		
	1.4	Operator Type				standing / seated		
	1.5	Load Capacity *		Q	t	1.0	1.25	1.5
	1.6	Load Centre		c	mm	600		
	1.8	Load Distance	TN-TF / TT	x	mm	386 / 411		
	1.9	Wheel Base		y	mm	see table 3		
Tyres	2.1	Weight	less battery min./max.		kg	6580 - 8395		
	3.1	Tyre Type	front / rear			Polyurethane / Vulkollan		
	3.2	Tyres	front		mm	Ø 355 x 205		
	3.3		rear		mm	Ø 406 x 170		
	3.4	Additional Wheels	guide rollers std. / low profile		mm	Ø 150 x 50 / Ø 150 x 25		
	3.5	Wheels	no. (x=driven) front/rear			2 / 1x		
Dimensions	3.6	Track Width	front	b10	mm	1015 - 1625		
	4.2	Mast	collapsed height	h1	mm	see table 1		
	4.3	Free Lift	main mast	h2	mm	see table 1		
	4.4	Lift Height	lift + aux. lift	h3	mm	see table 1		
	4.5	Mast	extended height	h4	mm	see table 1		
	4.8	Operator Stand Height	lowered / raised	h7	mm	460 / h4 – 2415 mm		
	4.11	Auxiliary Lift		h9	mm	1750		
	4.13	Cabin Width			mm	1220 / 1320 / 1475		
	4.15	Lowered Fork Height		h13	mm	75		
	4.17	Traverse Frame Width			mm	see table 4		
	4.19	Overall Length		l1	mm	see table 3		
	4.20	Headlength		l2	mm	see table 3		
	4.21	Overall Width	front / rear	b1/b2	mm	1220 to 1839 / 1220		
	4.22	Fork Dimension	non-telescopic	thxwxl	mm	45 x 100 x 760/915/950/1070/1150/1220		
			telescopic	thxwxl	mm	56 x 150x 915/950/1070/1150/1220/1370		
	4.24b	Fork Extension	telescopic	b8	mm	75 to 187.5 mm in 12.5 mm increments		
	4.25	Outside Fork Spread	(standard)	b5	mm	see table 4		
	4.27	Width Across Guide Rollers	optional avail. in 6.35 mm increments	b6	mm	32 to 222 mm wider than 4.21 load wheel OAW		
	4.32	Ground Clearance	centre wheelbase	m2		46		
	4.33	Clear Aisle Width	telescopic forks	Ast	mm	see drawing		
4.33a	Clear Aisle Width	non telescopic forks	Ast		see drawing			
4.34a	Intersecting Aisle				see table 3			
4.35	Turning Radius		Wa	mm	see table 3			
4.38	Load Handler Length	standard	l8		585 / 685			
		optional avail. in 75 mm increments	l8		760 to 1370			
Performance	5.1	Travel Speed	forks first – seat in any position	w./w.o. load	km/h	9.6 / 10.4		
			power unit first – seat forward facing	w./w.o. load	km/h	9.6 / 9.6		
			power unit first – side facing	w./w.o. load	km/h	11.2 / 12.0		
	5.2	Lift Speed	main mast TN	w./w.o. load	m/s	0.43 / 0.48	0.43 / 0.48	0.41 / 0.48
			main mast TF	w./w.o. load	m/s	0.39 / 0.45	0.39 / 0.45	0.38 / 0.45
			main mast TT	w./w.o. load	m/s	0.38 / 0.41	0.38 / 0.41	0.36 / 0.41
	5.2a	Lift Speed Auxiliary Mast	auxiliary mast	w./w.o. load	m/s	0.41 / 0.41		
	5.3	Lower Speed	main mast TN / TF / TT	w./w.o. load	m/s	0.45 / 0.45		
	5.3a	Lower Speed	auxiliary mast	w./w.o. load	m/s	0.41 / 0.33		
		Speed Pivot			sec	6 - 10		
	Speed Traverse			cm/s	10 - 30			
5.10	Brake				mechanically applied, electrically released			
Motors	6.1	Traction Motor	60 min. rating		kW	7.3		
	6.2	Lift Motor	30% on time		kW	23		
	6.3	Max. Battery Box Size			mm	see table 2		
	6.4	Battery Voltage	nominal capacity K5		V/Ah	775	900, 980, 1395	980, 1395
			Battery Compartment	code		AA	A, B, C	B, C
	6.5	Battery Weight	minimum		kg	see table 2		
8.1	Type of Control				AC traction and AC lift			

* Capacity derating is dependant upon combination of load centre, overall width, 180° traverse/fork extend, battery compartment size, lift height, and travel speed.

General Information	1.1	Manufacturer	Crown Equipment Corporation					
	1.2	Model				TSP 7000-1.0	TSP 7000-1.25	TSP 7000-1.5
						TN / TF / TT	TN / TF / TT	TN / TF / TT
	1.3	Power	electric		Volt	80		
	1.4	Operator Type				standing / seated		
	1.5	Load Capacity *		Q	t	1.0	1.25	1.5
	1.6	Load Centre		c	mm	600		
	1.8	Load Distance	TN-TF / TT	x	mm	386 / 411		
	1.9	Wheel Base		y	mm	see table 3		
Tyres	2.1	Weight	less battery min./max.		kg	6580 - 9390		
	3.1	Tyre Type	front / rear			Polyurethane / Vulkollan		
	3.2	Tyres	front		mm	Ø 355 x 205		
	3.3		rear		mm	Ø 406 x 170		
	3.4	Additional Wheels	guide rollers std. / low profile		mm	Ø 150 x 50 / Ø 150 x 25		
	3.5	Wheels	no. (x=driven) front/rear			2 / 1x		
Dimensions	3.6	Track Width	front	b10	mm	1015 - 1625		
	4.2	Mast	collapsed height	h1	mm	see table 1		
	4.3	Free Lift	main mast	h2	mm	see table 1		
	4.4	Lift Height	lift + aux. lift	h3	mm	see table 1		
	4.5	Mast	extended height	h4	mm	see table 1		
	4.8	Operator Stand Height	lowered / raised	h7	mm	460 / h4 – 2415 mm		
	4.11	Auxiliary Lift		h9	mm	1750		
	4.13	Cabin Width			mm	1220 / 1320 / 1475		
	4.15	Lowered Fork Height		h13	mm	75		
	4.17	Traverse Frame Width			mm	see table 4		
	4.19	Overall Length		l1	mm	see table 3		
	4.20	Headlength		l2	mm	see table 3		
	4.21	Overall Width	front / rear	b1/b2	mm	1220 to 1839 / 1220		
	4.22	Fork Dimension	non-telescopic	thxwxl	mm	45 x 100 x 760/915/950/1070/1150/1220		
			telescopic	thxwxl	mm	56 x 150x 915/950/1070/1150/1220/1370		
	4.24b	Fork Extension	telescopic	b8	mm	75 to 187.5 mm in 12.5 mm increments		
	4.25	Outside Fork Spread	(standard)	b5	mm	see table 4		
	4.27	Width Across Guide Rollers	optional avail. in 6.35 mm increments	b6	mm	32 to 222 mm wider than 4.21 load wheel OAW		
	4.32	Ground Clearance	centre wheelbase	m2		46		
	4.33	Clear Aisle Width	telescopic forks	Ast	mm	see drawing		
4.33a	Clear Aisle Width	non telescopic forks	Ast		see drawing			
4.34a	Intersecting Aisle				see table 3			
4.35	Turning Radius		Wa	mm	see table 3			
4.38	Load Handler Length	standard	l8		585 / 685			
		optional avail. in 75 mm increments	l8		760 to 1370			
Performance	5.1	Travel Speed	forks first – seat in any position	w./w.o. load	km/h	9.6 / 10.4		
			power unit first – seat forward facing	w./w.o. load	km/h	9.6 / 9.6		
			power unit first – side facing	w./w.o. load	km/h	11.2 / 12.0		
	5.2	Lift Speed	main mast TN	w./w.o. load	m/s	0.59 / 0.61	0.59 / 0.61	0.58 / 0.61
			main mast TF	w./w.o. load	m/s	0.56 / 0.56	0.56 / 0.56	0.53 / 0.56
			main mast TT	w./w.o. load	m/s	0.51 / 0.52	0.51 / 0.52	0.50 / 0.52
	5.2a	Lift Speed Auxiliary Mast	auxiliary mast	w./w.o. load	m/s	0.41 / 0.41		
	5.3	Lower Speed	main mast TN / TF / TT	w./w.o. load	m/s	0.45 / 0.45		
	5.3a	Lower Speed	auxiliary mast	w./w.o. load	m/s	0.41 / 0.33		
		Speed Pivot			sec	6 - 10		
	Speed Traverse			cm/s	10 - 30			
5.10	Brake				mechanically applied, electrically released			
Motors	6.1	Traction Motor	60 min. rating		kW	7.3		
	6.2	Lift Motor	30% on time		kW	23		
	6.3	Max. Battery Box Size			mm	see table 2		
	6.4	Battery Voltage	nominal capacity K5		V/Ah	465	465, 620, 775	620, 775, 930
			Battery Compartment	code		A	A, B, C	B, C, D
	6.5	Battery Weight	minimum		kg	see table 2		
8.1	Type of Control				AC traction and AC lift			

* Capacity derating is dependant upon combination of load centre, overall width, 180° traverse/fork extend, battery compartment size, lift height, and travel speed.

TSP 6500 / 7000 Series

Specifications

Table 1 – Mast chart

		4.2		4.3			4.4	4.5	TSP 6500 / 7000					
		Collapsed Height		Free Lift			Lift Height	Extd. Height	1.0	1.25	1.5			
		TN/TF	TT	TN	TF	TT	TN/TF/TT		TSP 6500 Battery Compt. AA	TSP 6500 TSP 7000	TSP 6500 Battery Compt. B / C			
									TSP 7000 Battery Compt. A	Battery Compt. A / B / C	TSP 7000 Battery Compt. B / C / D			
		h1	h1	h2	h2	h2	h3 + h9	h4	b1	b1	b1			
mm	mm	mm	mm	mm	mm	mm	OAW min	OAW min	B	C	D	OAW min		
		3000		1825			4900	5970	1220	1220	•	•	•	1220
		3175		1825	2105		5255	6325	1220	1220	•	•	•	1220
		3330		1825	2260		5560	6630	1220	1220	•	•	•	1220
		3480	2925	1825	2415	1850	5865	6935	1220	1220	•	•	•	1220
		3635	3025	1825	2565	1955	6170	7240	1220	1220	•	•	•	1220
		3785	3125	1825	2720	2055	6475	7545	1220	1220	•	•	•	1220
		3940	3230	1825	2870	2155	6780	7850	1220	1220	•	•	•	1220
		4090	3330	1825	3025	2260	7085	8155	1220	1220	•	•	•	1220
		4245	3430	1825	3175	2360	7390	8460	1220	1220	•	•	•	1220
		4395	3535	1825	3325	2460	7695	8765	1220	1220	•	•	•	1220
		4550	3635	1825	3480	2565	8000	9070	1220	1220	•	•	•	1220
		4700	3735	1825	3630	2665	8305	9375	1220	1220	•	•	•	1220
		4855	3840	1825	3785	2765	8610	9680	1245	1220	•	•	•	1220
		5005	3940	1825	3935	2870	8915	9985	1270	1220	•	•	•	1220
		5160	4040	1825	4090	2970	9220	10290	1295	1245	•	•	•	1220
		5310	4140	1825	4240	3070	9525	10595	1320	1270	•	•	•	1220
		5465	4245	1825	4395	3175	9830	10900	1345	1320	•	•	•	1245
		5615	4345	1825	4545	3275	10135	11205	1370	1345	•	•	•	1270
		5770	4445	1825	4695	3375	10435	11510		1395	•	•	•	1295
		5920	4550	1825	4850	3475	10740	11815		1420	•	•	•	1320
		6075	4650	1825	5000	3580	11045	12120		1475	•	•	•	1370
		6225	4750	1825	5155	3680	11350	12425		1525	•	•	•	1395
		6380	4855	1825	5305	3780	11655	12730		1575	•	•	•	1420
		6530	4955	1825		3885	11960	13035			•	•	•	1475
		6685	5055	1825		3985	12265	13335			•	•	•	1500
		6835	5160	1825		4085	12570	13640			•	•	•	1550
			5260			4190	12875	13945				•	•	1550
			5360			4290	13180	14250				•	•	1575
			5465			4390	13485	14555				•	•	1600
			5665			4595	13790	14860				•	•	1600
			5770			4695	14095	15165				•	•	1600
			5870			4800	14400	15470				•	•	1600
			5970			4900	14705	15775				•	•	1600
			6075			5000	15010	16080				•	•	1600
			6175			5105	15315	16385				•	•	1625
			6380			5305	15620	16690				•	•	1625
			6480			5410	15925	16995				•	•	1650
			6580			5510	16230	17300				•	•	1675
			6685			5610	16535	17605				•	•	1675
			6785			5715	16840	17910				•	•	1700
			6885			5815	17145	18215				•	•	1725

Table 2 – Batteries

			TSP 6500					TSP 7000				
			1.0	1.25	1.25 / 1.5			1.0/1.25	1.25 / 1.5		1.5	
	compartment size		AA	A	B	C		A	B	C	D	
		Ampere hours	Ah	700-775	840-900	980	1120	1260-1395	420-465	560-620	700-775	840-930
		cells accord. to DIN43536		5 PzS	6 PzS	7 PzS	8 PzS	9 PzS	3 PzS	4 PzS	5 PzS	6 PzS
		voltage	V	48	48	48	48	48	80	80	80	80
		cell layout		B	B	B	B	A	A	A	A	A
6.3	Battery Compartment	length max	mm	1130*	1130*	1130*	1130*		1130*	1130*	1130*	1130*
		length recommended	mm	1035	1035	1035	1035	1130*	1035	1035	1035	1035
		width max	mm	543	627	714	857		627	714	857	1024
		height	mm	787	787	787	787		787	787	787	787
		battery box		-	-	-	-	-	single	single	single	single
6.5	Battery Weight	minimum	kg	1065	1245	1425	1610		1245	1480	1770	2070

* Contact Crown for detailed drawings

Table 3 – Intersecting Aisle Dimension

				TSP 6500 / TSP 7000						
6.3	Battery Compartment			AA	A	B	C	D	TN / TF mast	
1.9	Wheel Base	TN / TF		1950	2035	2120	2265	2435		
4.20	Head Length	TN / TF		2635	2720	2805	2950	3115		
4.35	Turning Radius	TN / TF		2250	2335	2420	2565	2735		
4.19	Overall Length	TN / TF	TN / TF	3600	3685	3770	3915	4080		
4.34a	Intersecting Aisle*	1200 mm load width	800 mm load length	LH 585	3947	4032	4117	4262		4432
		1200 mm load width	1200 mm load length		4132	4217	4302	4447		4617
		800 mm load width	1200 mm load length		4071	4156	4241	4386		4556
4.19	Overall Length	TN / TF		LH 685	3700	3785	3870	4015		4180
4.34a	Intersecting Aisle*	1200 mm load width	800 mm load length		4039	4124	4209	4354		4524
		1200 mm load width	1200 mm load length		4225	4310	4395	4540	4710	
		800 mm load width	1200 mm load length	4168	4253	4338	4483	4653		
1.9	Wheel Base	TT		2040	2125	2210	2355	2525	TT mast	
4.20	Head Length	TT		2750	2835	2920	3065	3230		
4.35	Turning Radius	TT		2340	2425	2510	2655	2825		
4.19	Overall Length	TT		LH 585	3715	3800	3885	4030		4195
4.34a	Intersecting Aisle*	1200 mm load width	800 mm load length		4059	4144	4229	4374		4544
		1200 mm load width	1200 mm load length		4245	4330	4415	4560		4730
		800 mm load width	1200 mm load length	4185	4270	4355	4500	4670		
4.19	Overall Length	TT		LH 685	3815	3900	3985	4130		4295
4.34a	Intersecting Aisle*	1200 mm load width	800 mm load length		4152	4237	4322	4467		4637
		1200 mm load width	1200 mm load length		4339	4424	4509	4654		4824
		800 mm load width	1200 mm load length	4283	4368	4453	4598	4768		

* Intersecting aisle dimensions include 200 mm safety distance according to VDI2198. Please add 300 mm for fast aisle changes

LH = Load handler

Table 4 – Traverse Frame & Fork Spread

4.17	Traverse Frame Width	1220 Cab width	mm	1220	1245	1270	1295		
		1320 Cab width	mm	1320	1345	1370	1395	1420*	1445*
		1475 Cab width	mm	1475	1500	1525	1550	1575*	1600*
		1625 Cab width**	mm	1625	1650	1675	1700	1725	1750
4.25	Outside Fork Spread (standard)	Load Handler Length		Carriage Width	Telescopic		Non-Telescopic		
		585 to 1370 Load Handler	mm	760	550 to 760		380 to 760		
		740 to 1370 Load Handler	mm	1065	850 to 1065		380 to 1065		
		890 to 1370 Load Handler	mm	1370	1155 to 1370		380 to 1370		

* A 50 mm bolt-on platform extension will be added to both sides of the cab/platform

** Actual cab is 1475 mm wide with a 75 mm platform extension

TSP 6500 / 7000 Series

Technical Information

Capacity

TSP 6500-1.0 - 1.25 - 1.5t
TSP 7000-1.0 - 1.25 - 1.5t

Standard Equipment

1. TSP 6500 with 48-volt
TSP 7000 with 80-volt fused electrical system
2. AC lift motors with regenerative lowering system
3. AC traction motors with regenerative brake support system
4. Intelligent Braking System combines the optimum amount of friction and regenerative motor braking
5. Vulkollan non-marking drive tyre
6. Intelligent Steering System slows the travel speed when in a turn and provides smooth, electronic steering
7. Access 1 2 3[®] Comprehensive System Control
 - Fully interactive, four-line display
 - Capacity Data Monitor (CDM)
 - Load weight and fork height indication
 - Battery discharge indicator with lift interrupt
 - Steer angle display
 - Guidance mode display
 - Start-up and run time diagnostics
 - Diagnostic history storage
 - Hour meters include traction motor, hydraulic motor, steer motor, and run time (increments if any of previous three are active).
 - Programmable speed curves and top travel speeds
 - Linear speed control for gradual reduction in speed as platform is raised
 - Programmable lift/lower cutouts with overrides
8. MoveControl™ Seat
 - Fully integrated right and left hand controls
 - Requires only one hand for lift and travel operation
 - 110° seat rotation
 - Independent seat swivel
 - Sit or stand operation
 - 190 mm height adjustment (seat with armrests)
 - Armrest position adjustments
 - Integrated hand sensors
9. MonoLift™ Mast for superior rigidity at height and maximum visibility
10. Heavy-duty power unit
 - Easily removable steel doors and covers
 - Top battery maintenance access
 - Flashing light
- Removable steer wheel cover
- Manual lowering valve located in power unit
- 70 mm diameter battery rollers
- SBE 320 blue battery connector (TSP 6500)
DIN A 320 black battery connector (TSP 7000)
- Colour-coded wiring
- Stabiliser bars for lift height above 13485 mm
11. Heavy-duty platform
 - Sturdy front rail and hinged side gates
 - Sculpted front rail allows in-aisle entry/exit
 - Smooth and blended control of travel, raise/lower, traverse and pivot
 - Anti-fatigue floor mat
 - Operator fan
 - Dual, overhead LED dome lights
 - Dual, adjustable, overhead LED work lights
 - Adjustable rear view mirror
 - Key switch
 - Horn
 - 12-volt accessory outlet, fused, 50 Watts
 - Multiple storage bins
 - Partial overhead Plexiglas shield
12. InfoPoint™ Quick Reference Guide and Maps

Optional Equipment

1. TN Mast:
No free lift in main mast, 1750 mm free lift in auxiliary mast
TF Mast:
Duplex with full free lift in main mast, 1750 mm free lift in auxiliary mast
TT Mast:
Triple stage with full free lift in main mast, 1750 mm free lift in auxiliary mast
2. Wire guidance with 12 km/h top travel speed
3. Rail guidance with 12 km/h top travel speed
4. End-of-aisle control system with programmable stopping features
5. Power unit / Main frame
 - "A", "B", "C" or "D" batteries
 - TSP 7000 with 72 Volt power (2 x 36V) electrical system with SBE 320 gray connectors
 - Split battery roller compartment (required for 72V system)
 - Stabilizer bars for lift heights < 13,485 mm for increase residual capacity
 - Selectable overall width (OAW) in 25 mm increments
 - Non-marking load wheels

- Various strobe lights
 - Battery retainer switch
6. Platform
 - Extended load handler lengths and carriage widths
 - Telescopic or non-telescopic forks
 - Power source and mounting brackets for WMS terminal
 - Zone select key switch
 7. Environmental packages
 - Rear windshields
 - Freezer conditioning down to -20° C
Low temp freezer conditioning down to -40° C
 - Enclosed cabin – heated
 8. Work Assist[®] Accessories
 - Second work light
 - Clip pad and hook
 - Plate (for RF mount)
 - Adjustable arm mounting system
 9. InfoLink[®] Ready System
 10. InfoLink for Windows[®] Ready System

Optional Infrastructure Equipment

1. Line Driver and Guide Wire
2. EAC Magnets

Electrical

Heavy-duty electrical power system provides unrivalled turret order picking performance. AC lift and traction motors provide excellent low speed control and high speed performance.

All truck functions are monitored and controlled through the Access 1 2 3[®] Comprehensive System Control. Each of the eight micro-processor controlled modules, located throughout the truck, are in constant communication with each other providing an unparalleled degree of control. Long-life, solid-state encoders and Hall effect sensors are utilised where appropriate to sense operating parameters. Only three contactors are needed, greatly reducing wearable items. Colour-coded wiring and Crown's exclusive InfoPoint™ System reduces downtime by providing clear direction for the service technician.

Operator Platform

The multi-patented MoveControl™ Seat provides unprecedented levels of flexibility for the operator. The seat can be positioned at -20, 0, 60 or 90 degrees, whichever is most productive for the operator. The seat bottom and backrest also swivel independently for an added degree of mobility. The seat bottom can be lifted up to

provide a soft backrest for a standing operator. The seat also has 190 mm of height adjustability.

Controls for all operating functions are positioned smartly in the seat armrests. The controls are always positioned consistently for the operator, regardless of seat orientation. Armrests also pivot to permit free movement within the platform. Multi-task controls are arranged so that a wide array of blended functions can occur. The right hand controls travel, main raise and lower and traverse functions, while the left hand controls auxiliary lift/lower and pivot. Hands are sensed using infrared light beams, while feet activate large, flat sensors in the floor.

The spacious floorboard is covered with an anti-fatigue floor mat for optimum comfort. Other operator comforts include a series of Work Assist[®] Accessories such as a fan and two LED work lights that are located in the overhead guard. Other Work Assist Accessories can also be mounted to the vertical Work Assist tube, or either of the tubes built into the overhead guard. Multiple storage compartments provide abundant room for personal items and tools.

The operator's feet and right hand only must be in the proper operating position for the travel and main raise functions to work. For load handler functions, the left hand sensor must also be activated. The gates must also be closed during any powered truck movement. The truck can be stopped by activation of either of two foot-operated, positive-action service brakes or by reversing the traction motor for smooth AC regenerative plugging.

Display

The four-line, alphanumeric display (Access 1) is conveniently mounted on the left upright for easy access. In addition to providing a full diagnostic and calibration interface, the display is capable of continuously displaying:

- Current event codes
- Battery discharge indication
- Steer wheel position
- On/off wire status
- Capacity Data Monitor (CDM)
- Fork height in cm or inches
- Load weight in kg or lbs
- Time of day and date

Interactive buttons, mounted to the face of the display, can be used to interrogate the truck or adjust parameters without the need for a laptop or handset. State-of-the-art diagnostics are standard equipment. Every sensor can be monitored in real time through the display and many of the output drivers can be tested as well.

Power Unit

The heavy-duty power unit was designed to evenly disperse load stresses during pallet retrieval and put away. Steel doors and covers protect the electrical and hydraulic system components from the operating environment and intrusion. All covers can be easily removed with only a few tools. Sturdy skid bars can be easily adjusted and replaced. Stabiliser bars (standard for lift heights >13485 mm) increase capacity at height. Batteries are serviced through the top battery access panel, which pivots easily out of the way. The removable centre section steer tyre skirt simplifies tyre replacement.

MonoLift™ Mast

Elevated load sway and side bowing are minimised through the use of an exclusive closed cross-section mast construction. Rolled "I-beams" continuously welded to a formed plate create a full length, deep cross-section mast capable of resisting front and side loading equally well. Lift cylinders, hoses, cable and chain within the mast are protected from the operating environment, but are readily accessible for service. Built-in sensors in the primary mast detect chain slack and shut down primary lower, auxiliary lower, pivot and traverse functions. A glass window in the rear of the platform provides additional visibility above staging.

Access 1 2 3®

The Comprehensive Access 1 2 3 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 eight 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.

- Access 1
Interactive Display Module
- Access 2
Hydraulic Control Module
- Access 3
Traction Control Module
- Access 4
Vehicle Control Module
- Access 5
Steering Control Module
- Access 6
Guidance Control Module
- Access 7
Accessory Control Module
- Access 8
Operator Control Module

Simplified Hydraulic System

The hydraulic system has been designed with a simplified approach that incorporates fewer parts, fewer connections and fewer hoses. The mast/outriggers (main frame) can be completely separated from the power unit without disconnecting any hydraulic connections. Not only is it easier to dismantle the truck for transport, but the hydraulic system is isolated from the electrical system so that oil and other contaminants will not affect operation. All hydraulic functions are controlled by only two manifold blocks – one in the main frame, and one in the load handler.

One large AC motor provides plenty of power for main lift, auxiliary lift, traverse, pivot and fork extension. The hydraulic and electrical systems work together to allow excellent control of the load handler for smooth and safe manipulation of loads. Acceleration rates and top functional speeds can be programmed to suit the application.

The regenerative lowering system reclaims energy upon every lower. This improves shift life and requires fewer battery charges. A manual lowering valve, positioned in the power unit, will allow the platform to be lowered from the ground. Forks can be returned to the home position prior to lowering.

Traction System

A massive AC traction motor and associated drive unit provides for unparalleled top travel speeds and the ability to creep the truck a few millimetres for precise pallet placement. Acceleration and deceleration rates can be programmed to fit the application, while direction reversals are smooth and immediate. Many speed selectable programmes can be chosen to maximise safety and productivity.

Many factors such as direction of travel, height of the platform, position of the forks, and whether operating in a guided mode will have an influence on speed. Top travel speed is achieved in the power unit direction with the seat in the 90 degree position. Top speeds will be diminished gradually as the platform is raised.

Intelligent Braking

The patented Intelligent Braking System combines variable regenerative motor braking with a three-step friction brake to optimise safety and comfort for the operator. Operating conditions such as speed of the truck, direction of travel, height and weight on the forks and weight of the truck are taken into account when the brakes are applied. In addition, friction brake use is minimised, which prolongs brake life.

Although the service brake is always available to the operator through two floor pedals, the operator can choose to bring the truck to a controlled stop by reversing the direction of the travel control (plugging).

Intelligent Steering

Full electronic steering provides smooth and easy manoeuvring for the operator. Top travel speed of the truck is decreased when the steered wheel is turned more than ten degrees. Further speed reductions occur as the amount of steering is increased. This intelligent approach provides a maximum degree of safety and comfort for the operator.

Load Handler

The fork carriage pivots 180° permitting pallet handling on either side or front of the truck. Position of the forks is continually monitored to permit safe, smooth and productive operation. Fork handling functions can be blended together for simultaneous operation which greatly improves productivity.

The Auto-Pivot feature will automatically traverse and pivot the forks, all while keeping the pallet centred in the aisle. Fork spread is incrementally adjustable while two choices of forks are available – telescopic or non-telescopic.

Telescopic forks automatically extend during the traverse function or can be manually extended using the standard override button. Programmable height limits are also available for raise and lower. Lower and raise limits can be overridden by the operator, if desired.

Lift cylinder, hydraulic hoses and electrical cables are protected within the profile of the structure or behind removable covers. Vertical side alignment of the auxiliary mast is maintained by rack and pinion gears.

Wheels and Tyres

Large, high-load capacity polyurethane press-on load wheels are 355 mm diameter x 205 mm wide. The Vulkollan® drive tyre is 406 mm diameter x 170 mm wide. Guide wheels for rail guidance are 150 mm diameter x 50 mm wide.

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.

