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Materials Handling Solution

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TOVICA®

SMART MOVING, SMART SPACE



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TJ. TAEJIN

SMART MOVING, SMART SPACE

TOVICA[®]

**TOVICA, the luxury brand of materials handling equipments -
It elevates work efficiency and space saving to the maximum.**

TOVICA, the materials handling equipments, developed by TAEJIN ENG. with the aim of world-class level. It is the products line up of smooth movement in a narrow space because of compact design, excellent work convenience and low maintenance cost.

Before

**What is
the Smart Solution?**

After

**The Smart Solution is
TOVICA!**





INNOVATIVE TECHNOLOGY

CONTENTS & TOVICA PRODUCT LINE-UP

Electric Forklift Truck 08~11P

Electric Walkie Stacker - Reach Type	Electric Walkie Stacker - Counterbalanced Type
 <p>TWSR1300</p>	 <p>TWSC1000</p>

Electric Pallet Truck 12~13P | Vehicle Mover 14~15P

Electric Pallet Truck	Vehicle Mover
 <p>TWP2000</p>	 <p>TWP2000-TOW</p>

Stacker 16~18P

Pallet Stacker	Fork Stacker
 <p>TPS230</p>	 <p>TFS230 / 230H</p>  <p>TFS230W / 230WH</p>  <p>TFS800 / 800H</p>

Electric Fork Stacker 19P | Drum Handling Equipment 20~23P

Electric Fork Stacker	Drum Lift	Electric Drum Lift	Electric Drum Picker
 <p>TFSE500 / 500H</p>  <p>TFSE500W / 500WH / 500WH3</p>	 <p>TFS300DL</p>	 <p>TFSE300DL</p>	 <p>TFSE250DP</p>

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Table Lift	Electric Table Lift
 <p>TLT230S</p>  <p>TLT230D / 500D</p>	 <p>TLTE500S</p>  <p>TLTE500D</p>

Table Lift (Fixed Type) 26~28P

Table Lift	Low Platform Table Lift
 <p>TSLT1000S / 2000S / 3000S</p>  <p>TSLT1000D / 2000D / 3000D</p>  <p>TSLT1000SM / 2000SM / 3000SM</p>	 <p>TSLT500L / 1000L</p>

TOVICA
Product Guide



Electric Walkie Stacker - Reach Type

TWSR



Standard



Foldable Foothold(Optional)



TWSR1300(Foldable foothold - Option)

ACPOWER Smooth & powerful AC control system

- **Smooth & silent driving** Easy control AC motor without vibration and noise
- **Highly efficient AC control system** Low power consumption allows economic battery use. So, the cost of battery change is reduced. (reducible approx. USD 1,200 per change)
- **Low maintenance cost** Because there is no need to change brush and repair commutator for AC motor, you can save USD 500 ~ 1,000 in a year, compared to DC motor.
- **Regenerative braking function** Maximization of energy efficiency by transferring generated energy into battery when braking

Multi functional control handle (Gebruder Frei GmbH & Co. Germany)

- Belly switch (reverse the truck direction in emergency)
- Auto speed-down throttle switch
- Turtle speed button



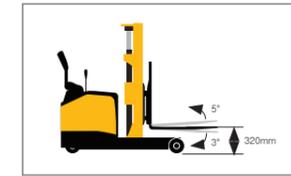
Powerful AC drive unit (ABM Greiffenberger Antriebstechnik GmbH & Co. Germany)

- Powerful AC Motor with high efficiency
- High durability
- AC motor for smooth and silent travel



Safe Works & Excellent Functions

- 1 Safety valve in hydraulic line**
In case of broken hydraulic line of cylinder, the sudden descending of fork is prevented by blocking flow path.
- 2 Main circuit cutoff switch**
In emergency, it disconnects all of the power supplies to the equipment at the same time.
- 3 Belly switch**
Located on the tiller head, it makes an emergency stop after one step moving forward to avoid a jamming accident.
- 4 Automatic deceleration before complete stop**
When the lever is in neutral while moving forward or backward it automatically decelerates until it stops.
- 5 Fork ascending warning alarm**
When fork moving up more than free lift height, warning alarm occurs.
- 6 CURTIS AC Controller**
Excellent fine-motion of drive control and efficient radiation of heat during operating, also minimize vibration and noise.
- 7 Application of shock-absorbing reach cylinder.**
Minimize shaking between the truck and goods for stability of operation.



7 Max. free lift height of 320mm
Possible to move freight without changing overall height.

Fork Tilting(F3° / B5°)
More stable material handling work than mast tilting type.



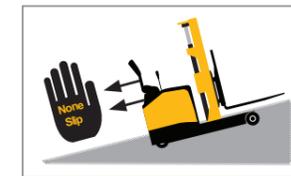
8 Wide front work view
Locating 2 lift cylinders on both sides gives extensive work view.



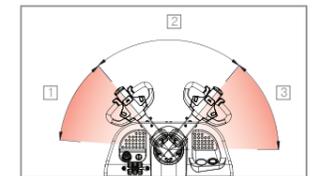
9 Application of a mast for 1.5 ton class forklift truck
It is feasible for stable lifting work without shaking, bending owing to the reinforced mast.



10 Max wide backrest (980mm)
Protection of loaded freight and safe travel.



11 Anti-rollback system
Controller generates reverse torque to prevent backward slipping on slope.



12 Automatic deceleration while cornering
When it turns at an extreme corner (1, 3 sections), the driving speed is decelerated to 1/2 automatically.

Model		TWSR1300	Drawings	
A1	Mast Type	Telescopic		
B1	Load Capacity	kg 1300		
B2	Load Center	mm 500		
B3	Lift Height	mm 2500		
B4	Reach Stroke	mm 488		
B6	Free Lift Height	mm 320		
B5	Fork Tilt (F°/B°)	deg 3 / 5		
B7	Lift Speed	with Load		mm/sec 80
		without Load		mm/sec 100
B8	Travel Speed	with Load		km/hr 4.7
		without Load		km/hr 4.8
B9	Gradeability (with Load)	%(deg) 8 (4.6)		
B10	Turning Radius	mm 1600(*1665)		
C1	Overall Length	mm 2130(*2202)		
C2	Overall Width	mm 1050		
C3	Height (mast extended/retracted)	mm 3402 / 1838		
C4	Service Weight (including battery)	kg 1765(*1785)		
C5	Fork Dimensions (W x L x H)	mm 100 x 900 x 35		
C6	Fork Spread (Max./Min.)	mm 702 / 220		
D1	Motor	Drive	AC 15V / 1.5kw	
		Lift	DC 24V / 2.2kw	
D2	Type of Control	Drive	MOSFET, Inverter	
		Lift	Magnet Relay	
D3	Battery	24V, 215Ah / 5Hr		
D4	Charger (external)	Input	AC Single phase 220V, 60HZ	
		Output	DC 24V, 30A	

※(*Foldable foothold mounting), foothold size : 425 x 488mm

Electric Walkie Stacker - Counterbalanced Type TWSC



(Foldable Foothold - Option)



Standard



Foldable foothold(Optional)



TWSC1000

ACPOWER Smooth & powerful AC control system

- **Smooth & silent driving** Easy control AC motor without vibration and noise
- **Highly efficient AC control system** Low power consumption allows economic battery use. So, the cost of battery change is reduced. (reducible approx. USD 1,200 per change)
- **Low maintenance cost** Because there is no need to change brush and repair commutator for AC motor, you can save USD 500 ~ 1,000 in a year, compared to DC motor.
- **Regenerative braking function** Maximization of energy efficiency by transferring generated energy into battery when braking

Multi functional control handle (Gebruder Frei GmbH & Co. Germany)

- Belly switch (reverse the truck direction in emergency)
- Auto speed-down throttle switch
- Turtle speed button



Powerful AC drive unit (ABM Greiffenberger Antriebstechnik GmbH & Co. Germany)

- Powerful AC Motor with high efficiency
- High durability
- AC motor for smooth and silent travel



Safe Works & Excellent Functions

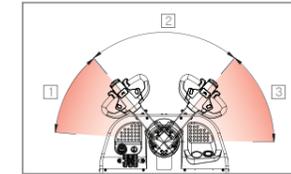
- 1 Safety valve in hydraulic line**
In case of broken hydraulic line of cylinder, the sudden descending of fork is prevented by blocking flow path.
- 2 Belly switch**
Located on the tiller head, it makes an emergency stop after one step moving forward to avoid a jamming accident.
- 3 Automatic deceleration before complete stop**
When the lever is in neutral while moving forward or backward it automatically decelerates until it stops.
- 4 Fork ascending warning alarm**
When fork moving up more than free lift height, warning alarm occurs.
- 5 CURTIS AC Controller**
Excellent fine-motion of drive control and efficient radiation of heat during operating, also minimize vibration and noise.



- 6 Anti-rollback system**
Controller generates reverse torque to prevent backward slipping on slope.



- 7 Wide front work view**
Locating 2 lift cylinders on both sides gives extensive work view.



- 8 Automatic deceleration while cornering**
When it turns at an extreme corner (1, 3 sections), the driving speed is decelerated to 1/2 automatically.



- 9 Main circuit cutoff switch**
In emergency, it disconnects the all of the power supply to the equipment at the same time.



- 10 Storage space**
To keep tool boxes and other things in work.

Model		TWSC1000		Drawings		
A1	Mast Type	Telescopic				
B1	Load Capacity	kg	1000			
B2	Load Center	mm	500			
B3	Lift Height	mm	2500			
B4	Free Lift Height	mm	60			
B5	Fork Tilt (F°/B°)	deg	3° / 7°			
B6	Lift Speed	with Load	mm/sec			90
		without Load	mm/sec			125
B7	Travel Speed	with Load	km/hr			4.3
		without Load	km/hr			5.1
B8	Gradeability (with Load)	% (deg)	5 (2.8)			
B9	Turning Radius	mm	1350(*1430)			
C1	Overall Length	mm	2395(*2479)			
C2	Overall Width	mm	944			
C3	Height (mast extended/retracted)	mm	3399 / 1828			
C4	Service Weight (including battery)	kg	1980(*2000)			
C5	Fork Dimensions (W x L x H)	mm	900 x 100 x 35			
C6	Fork Spread (Max./Min.)	mm	700 / 220			
D1	Motor	Drive	AC 15V / 1.5kw			
		Lift	DC 24V / 2.2kw			
D2	Type of Control	Drive	MOSFET, Inverter			
		Lift	Magnet Relay			
D3	Battery	24V, 215Ah / 5Hr				
D4	Charger (external)	Input	AC Single Phase 220V, 60Hz			
		Output	DC 24V, 30A			

※(*Foldable foothold mousting), foothold size: 425 x 488mm

Electric Pallet Truck

TWP



Standard



Foldable foothold(Option)



TWP2000(Foldable Foothold)

ACPOWER Smooth & powerful AC control system

- **Smooth & silent driving** Easy control AC motor without vibration and noise
- **Highly efficient AC control system** Low power consumption allows economic battery use. So, the cost of battery change is reduced. (reducible approx. USD 1,200 per change)
- **Low maintenance cost** Because there is no need to change brush and repair commutator for AC motor, you can save USD 500 ~ 1,000 in a year, compared to DC motor.
- **Regenerative braking function** Maximization of energy efficiency by transferring generated energy into battery when braking

Multi functional control handle (Gebruder Frei GmbH & Co. Germany)

- Belly switch (reverse the truck direction in emergency)
- Auto speed-down throttle switch
- Turtle speed button



Powerful AC drive unit (ABM Greiffenberger Antriebstechnik GmbH & Co. Germany)

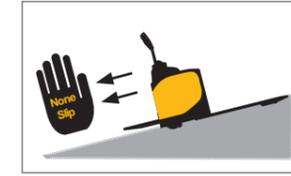
- Powerful AC Motor with high efficiency
- High durability
- AC motor for smooth and silent travel



Safe Works & Excellent Functions

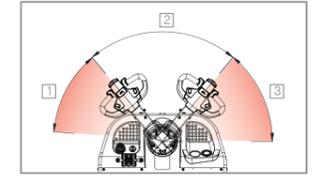
1 Belly switch

Located on the tiller head, it makes an emergency stop after one step moving forward to avoid a jamming accident.



2 Automatic deceleration before complete stop

When the lever is in neutral while moving forward or backward it automatically decelerates until it stops.



7 Automatic deceleration at corner driving

When it turns at an extreme corner (1, 3 sections), the driving speed is decelerated to 1/2 automatically.

3 Wide view for front work

As it is a compact body, operator can work watching for ends.

6 Anti-rollback system

Controller generates reverse torque to prevent backward slipping on slope.

4 Shock absorbing type auxiliary castor

It minimizes shaking when driving on irregular road surface.



8 Safety key

Individual key to prevents theft.



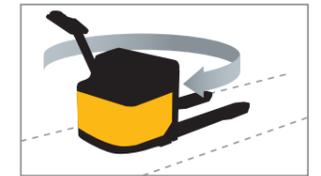
9 Main circuit cutoff switch

In emergency, it disconnects all of the power supplies to the equipment at the same time.



10 Turtle speed button

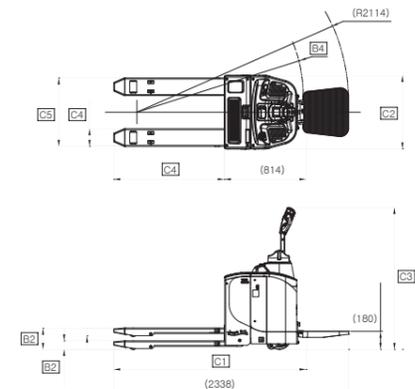
Slow speed selection in travel.



11 Min. turning radius among same classes

Maximized work efficiency in a narrow space

Model		TWP2000	Drawings
B1	Load Capacity	kg	2000
B2	Fork Height (lift / lowered)	mm	210 / 85
B3	Travel Speed (with load / without load)	km/h	5.3 / 5.4
B4	Turning Radius	mm	1637(*1698)
B5	Gradeability (with Load)	%(°)	8.4(4.8)
C1	Overall Length (tiller arm stood straight up)	mm	1821(*1914)
C2	Overall Width	mm	730
C3	Overall Height (tiller arm stood straight up)	mm	1278(*1411)
C4	Fork Dimensions (W x L x H)	mm	175 x 1100 x 74
C5	Fork Spread (Max.)	mm	680
C6	Service Weight (with battery)	kg	520(*540)
D1	Motor	Drive	AC 15V / 1.5kw
		Lift	DC 24V / 2.2kw
D2	Battery		24V, 185Ah / 5Hr
D3	Charger (external)	Input	AC Single Phase 220V, 60Hz
		Output	DC 24V, 30A



* (*Foldable foothold mounting), Foothold size (W x L) : 425 x 488mm

Vehicle Mover

Vehicle Mover

TWP-TOW



TWP2000-TOW



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Multi functional control handle (Gebruder Frei GmbH & Co. Germany)

- Belly switch (reverse the truck direction in emergency)
- Auto speed-down throttle switch
- Turtle speed button



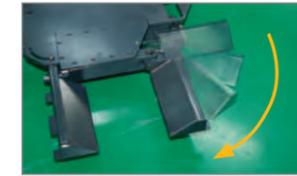
Powerful AC drive unit (ABM Greiffenberger Antriebstechnik GmbH & Co. Germany)

- Powerful AC Motor with high efficiency
- High durability
- AC motor for smooth and silent travel

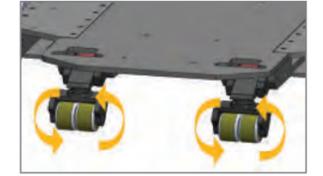


Characteristics of Vehicle Mover

- 1 Patent of vehicle mover equipment (Patent No.10-1519473)
- 2 Vehicle moving for all sedan, RV, SUV and 1-ton truck
- 3 Foldable tire holder helps space saving in its operation or parking.
- 4 Convenient for bad road surface because this vehicle mover lift up the car from the ground.
- 5 All function is controlled at the tiller.
- 6 CURTIS AC Controller
Excellent fine-motion of drive control and efficient radiation of heat during operating, also minimize vibration and noise.



7 Foldable tire holder
Smooth tire clamping and minimized space for equipment moving and parking.



8 360° Rotating load wheel
Easy to change direction while vehicle is moving (Wheels are fixed when fork descending.)



9 Moving of wheelless automobile Cross member supports automobile



10 Convenient tool storage box
It helps keeping binding rope and required tools in safe.

Safety devices considering safe working environment

- 1 Main circuit cutoff switch
In emergency, it disconnects all of the power supplies to the equipment at the same time.
- 2 Belly switch
Locating on tiller head, it gives emergency stop after one step moving forward to avoid the jammed accident.
- 3 Automatic deceleration at corner driving
When it turns at an extreme corner (1, 3 sections), the driving speed is decelerated to 1/2 automatically.
- 4 Automatic deceleration before complete stop
When the lever is at neutral in forward or backward moving, it stops after automatic deceleration without sudden stop.
- 5 Overload prevention to power pack
When fork goes up in max, the cut-off of an input current prevents the overload to power pack.

Model		TWP2000-TOW		Drawings
B1	Load Capacity (Load capacity of axle of loadwheel)	kg	1700	
B2	Tractive Force	kg	3400	
B3	Fork Table Height (Max./Min.)	mm	230 / 135	
B4	Travel Speed (with / without load)	km/h	5.3 / 5.4	
B5	Turning Radius	mm	2438	
B6	Gradeability (with Load)	%(deg)	6 (3.5°)	
C1	Overall Length (tiller arm stood straight up)	mm	2542	
C2	Overall Width (Tire holder folding / unfolding)	mm	1110 / 1892	
C3	Overall Height (tiller arm stood straight up)	mm	1278	
C4	Wheel base	mm	2260	
C5	Drive wheel (D x T)	mm	ø230 x 70	
C6	Load wheel (D x T)	mm	ø83 x 60	
C7	Service Weight (including battery)	kg	790	
D1	Motor	Drive	kw	
		Lift	kw	DC 24V / 2.2kw
D2	Controller	Drive	MOSFET, Inverter	
		Lift	Magnet Relay	
D3	Battery		24V, 135Ah / 5Hr	
D4	Charger (external)	Input	AC Single Phase 220V / 60Hz	
		Output	DC 24V / 30Hz	

* Option : High capacity battery

Stacker

Pallet Stacker

TPS



TPS230

Stacker

Fork Stacker

TFS



TFS230/230H



TFS230W



Work by TFS230W for standard pallet (1100 x 1100mm)

Applicable for the loading of less than 230kgs using table and fork

- Less worker's fatigue, Improved productivity and prevention of muscular skeletal disease.
- Minimum ground clearance of table and small turning radius.
- Lift up & down : electro hydraulic Travel : manually driven



Main circuit cutoff switch Acrylic screen for operator protection Foot protection cover Table use Fork use Safety Certificate

Model		TPS230		Drawings	
A1	Lift	Lift cyl. & Roller chain			
B1	Load Capacity	kg	230		
B2	Table Lift Height (Max./Min.)	mm	1500 / 90		
B3	Fork Lift Height (Max./Min.)	mm	1490 / 80		
C1	Overall Length (including handle)	mm	1170		
C2	Overall Width	mm	605		
C3	Overall Height	mm	1830		
C4	Table Size (W x L)	mm	586 x 700		
C5	Fork Spread	mm	572		
C6	Service Weight (including battery)	kg	140		
D1	Hydraulic Motor	kw	0.75		
D2	Battery	12V, 80Ah / 20Hr			
D3	Charger (external)	Input	AC Single Phase 220V, 60Hz		
		Output	DC 12V, 16A		

Applicable for light loading of less than 230kgs in narrow space

- Adjustable fork spread (138 ~ 632mm)
- Descending and Ascending : Electro hydraulic
- Travel : manually driven



Main circuit cutoff switch Acrylic screen for operator protection Foot protection cover Safety Certificate

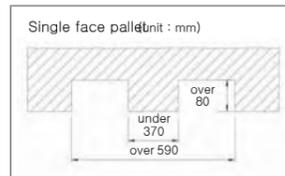


Model		TFS230	TFS230H	TFS230W	TFS230WH	Drawings			
A1	Lift	Single	Telescopic	Single	Telescopic				
B1	Load Capacity	kg						230	
B2	Fork Lift Height (Max./Min.)	mm	1500 / 40	2500 / 40	1500 / 50			2500 / 50	
C1	Overall Length(including rear wheel)	mm	1125		1475				
C2	Overall Width	mm	789		1289				
C3	Overall Height (Min./Max. of fork height)	mm	1920 / 1920	1770 / 3050	1920 / 1920			1770 / 3050	
C4	Fork Spread (Min./Max.)	mm	632 / 138						
C5	Fork Length	mm	650		1000				
C6	Wheel Size (Front / Rear)	mm	ø 76 / ø 150						
C7	Service Weight (including battery)	kg	175	225	190			240	
D1	Hydraulic Motor	kw	0.75						
D2	Battery	12V, 80Ah / 20Hr							
D3	Charger (external)	Input	AC Single Phase 220V, 60Hz						
		Output	DC 12V, 16A						

Stacker
Fork Stacker
TFS



TFS800
(for single face pallet)



Applicable for heavy loading of less than 800kgs in narrow space

- Adjustable fork spread (220 ~ 580mm)
- Tiller handle suitable for heavy loading
- Safe lift up and down with parking brake
- Fork up & down : electro hydraulic ■ Travel : manually driven



Main circuit cutoff switch Acrylic screen for operator protection Parking brake

Model	TFS800	TFS800H	Drawings
A1 Mast Type	Single	Telescopic	
B1 Load Capacity	kg	800	
B2 Fork Lift Height (Max. / Min.)	mm	1500 / 85	
C1 Overall Length (tiller arm stood straight up)	mm	1494	
C2 Overall Width	mm	686	
C3 Overall Height (Min. / Max. of fork height)	mm	1940/1940	
C4 Fork Spread (Min. / Max.)	mm	618 / 218	
C5 Fork Length	mm	900	
C6 Wheel Size (Front / Rear)	mm	ø76 / ø150	
C7 Service Weight (including battery)	kg	250	
D1 Hydraulic Motor	kw	0.8	
D2 Battery	12V, 100Ah / 20Hr		
D3 Charger (external)	Input	AC Single Phase 220V, 60Hz	
	Output	DC 12V, 16A	

Electric Fork Stacker
Electric Fork Stacker
TFSE



TFSE500WH



Work by TFSE500W for standard pallet (1100 x 1100mm)



TFSE500

Motor-driven type, instead of Forklift truck, applicable for heavy loading of less than 500kgs in narrow space

- Descending speed control valve controls fork down speed according to work conditions.
- Fork up and down Electro hydraulic ■ Traveling : motor-driven
- Fork up and down by wireless remote controller (optional item)



Automatic 1/2 deceleration valve while cornering (1, 3 sections) Fork down speed control valve & Main circuit cutoff switch Shock absorbing auxiliary caster (shaking prevention in travel) Multi-functional tiller head (FREI Co. in Germany) Safety certificate

Model	TFSE500	TFSE500H	TFSE500H3	TFSE500W	TFSE500WH	TFSE500WH3	Drawings
A1 Mast Type	Single	Telescopic	Telescopic	Single	Telescopic	Telescopic	
B1 Load Capacity	kg	500					
B2 Fork Lift Height (Max. / Min.)	mm	1500 / 45	2500 / 45	3000 / 45	1500 / 45	2500 / 45	
C1 Overall Length (including Drive wheel)	mm	1500			1710		
C2 Overall Width	mm	900			1320		
C3 Overall Height (Min. / Max. of fork height)	mm	2060/2060	1855/3090	2105/3590	2060/2060	1855/3090	
C4 Fork Spread (Min. / Max.)	mm	675 / 168			900 / 168		
C5 Fork Size (W / L / H)	mm	75 / 800 / 45			75 / 1000 / 45		
C6 Wheel Size(Drive/Absorption)	mm	ø186 / ø150					
C7 Service Weight (including battery)	kg	320	370	405	330	380	
D1 Motor	Drive	0.35 (24V)					
	Lift	2.2 (24V)					
D2 Battery	12V, 65Ah / 5Hr (2ea)						
D3 Charger (external)	Input	AC Single Phase 220V, 60Hz					
	Output	DC 24V, 8A					

Drum Lift

TFS300DL



TFS300DL

Applied to move drum less than 230kgs and transfer contents of drum into a container

- Holding a drum with drum clamp and rotating (360degree) it up and down with the wheel to transfer contents into a container
- Drum up and down : electro hydraulic ■ Travel : manually driven



Convenient drum clamp (rotating 360 degree)



Acrylic screen for operator protection



Main circuit cutoff switch



Foot protection cover



Safety certificate

Model	TFS300DL		Drawings	
A1	Travel	Manually driven		
A2	Mast Type	Single		
B1	Load Capacity	kg 230		
B2	Drum Lift Height	mm 1610		
B3	Available Drum Size	mm ø 600, 900		
C1	Overall Length	mm 1420		
C2	Overall Width (including rotating wheel)	mm 1045		
C3	Overall Height (not including drum)	mm 2140		
C4	Wheel Size (Front / Rear)	mm ø250 / ø150		
C5	Service Weight (including battery)	kg 210		
D1	Hydraulic Motor	kw 0.75		
D2	Battery	12V, 80Ah / 20Hr		
D3	Charger (external)	Input		AC Single Phase 220V, 60Hz
		Output		DC 12V, 16A

Electric Drum Lift

TFSE300DL



TFSE300DL

Motor-driven Type, Applied to move heavy drum less than 300kgs for long travel and transfer contents of drum into a container

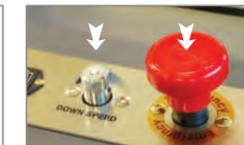
- Holding a drum with drum clamp and rotating (360degree) it up and down with the wheel to transfer contents into a container
- Speed control valve controls drum down speed .
- Drum up and down : electro hydraulic ■ Travel : Electrically driven
- Automatic deceleration at corner driving



Convenient drum clamp (rotating 360 degree)



Multi-functional tiller head (FREI Co. in Germany)



Drum down speed control valve & Main circuit cutoff switch



Shock absorbing auxiliary caster (shaking prevention in travel)



Model	TFSE300DL		Drawings	
A1	Travel	Electrically driven		
A2	Mast Type	Single		
B1	Load Capacity	kg 300		
B2	Drum Lift Height	mm 1470		
B3	Available Drum Size	mm ø 600, 900		
C1	Overall Length	mm 1610		
C2	Overall Width (including rotating wheel)	mm 1077		
C3	Overall Height (not including drum)	mm 2060		
C4	Wheel Size(Drive/Absorption/Fixed)	mm ø186 / ø150 / ø250		
C5	Service Weight (including battery)	kg 380		
D1	Hydraulic Motor	Drive		kw 0.35 (24V)
		Lift		kw 2.0 (24V)
D2	Battery	12V, 65Ah / 5Hr (2ea)		
D3	Charger (external)	Input		AC Single Phase 220V, 60Hz
		Output		DC 24V, 8A

Electric Drum Picker

TFSE250DP



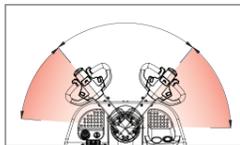
TFSE250DP

Automatically mechanical beak grip & release type drum picker, No need of additional clamping work

- Adequate for mid/long travel with beak grip for upper side of drum (steel and plastic)
- Comparing attachments of forklift truck, this compact size allows it work in narrow work space comparing.
- Drum up and down : electro hydraulic ■ Travel : Electrically driven



Multi-functional tiller head (FREI Co. in Germany)



Automatic deceleration while cornering



Auto grip by spring tension and streamline shape design



Shock absorbing auxiliary caster (shaking prevention in travel)



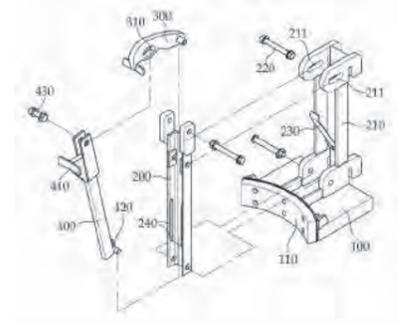
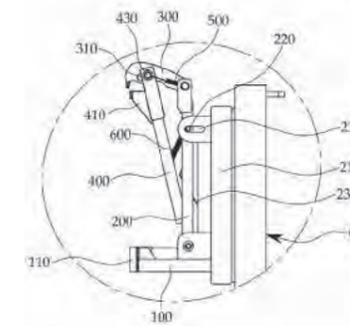
Model		TFSE250DP		Drawings		
A1	Mast Type	Single				
B1	Load Capacity	kg	250			
B2	Drum Lift Height (bottom of drum)	mm	1270			
B3	Available drum (Steel, PE) size	mm	ø600 x 900L			
C1	Overall Length	mm	1032			
C2	Overall Width	mm	767			
C3	Overall Height	mm	2010			
C4	Turning Radius	mm	920			
C5	Wheel Size (Drive / Fixed)	mm	ø186 / ø83			
D1	Service Weight (including battery)	kg	645			
D2	Motor	Drive	kw			0.35 (24V)
		Lift	kw			2.0 (24V)
Battery		12V, 65Ah / 5Hr (2ea)				
D3	Charger (external)	Input	AC Single Phase 220V, 60Hz			
		Output	DC 24V, 8A			

Drum Picker and Drum Handling Equipments

Automatic grip by Electric drum picker



Patent of Electric drum picker



Drum handling equipments



Drum lift



Electric drum lift



Electric drum picker

Table Lift

Table Lift - Movable Type

TLT



TLT230S



TLT230D/TLT500D

Table Lift

Electric Table Lift - Movable Type

TLTE



TLTE500S



TLTE500D

Applied for repeated up & down of various materials

- Less worker's fatigue, Improved productivity and prevention of muscular skeletal disease.
- Table up & down : eletro hydraulic ■ Travel : manually driven



Main circuit cutoff switch



Foot protection cover



Safety certificate



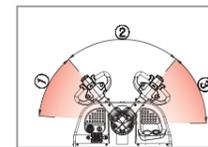
Model		TLT230S	TLT230D	TLT500D	Drawings
A1	Type	Single	Double	Double	
B1	Load Capacity	kg	230	230 / 500	
B2	Table Lift Height (Max. / Min.)	mm	920 / 310	1350 / 390	
C1	Overall Length (including handle)	mm	1350		
C2	Overall Width	mm	550	600	
C3	Overall Height (including handle)	mm	1110		
C4	Table Size (W x L)	mm	550 x 950	600 x 1000	
C5	Service Weight (including battery)	kg	110	125 / 170	
D1	Hydraulic Motor	kw	0.75		
D2	Battery	12V, 80Ah / 20Hr			
D3	Charger (external)	Type	Internal	External	
		Input	AC Single Phase 220V, 60Hz		
		Output	DC 12V, 16A		

Motor-driven table lift applied for less than 500kgs and long travel

- Less worker's fatigue, Improved productivity and prevention of muscular skeletal disease
- Speed control valve contols table down speed according to work conditions
- Travel up & down : electro hydraulic ■ Travel : motor-driven (adequate for the move of heavy materials)



Multi-functional tiller head (FREI Co. in Germany)



Automatic 1/2 deceleration at corner (1, 3 sections)



Table down speed control valve & Main circuit cutoff switch



Shock absorbing auxiliary caster (shaking prevention in travel)



Model		TLTE500S	TLTE500D	Drawings	
A1	Lift	Single	Double		
B1	Load Capacity	kg	500		
B2	Table Lift Height (Max. / Min.)	mm	1050 / 450 / 1800 / 500		
C1	Overall Length (including handle)	mm	1755		
C2	Overall Width	mm	680		
C3	Overall Height (including handle)	mm	1200		
C4	Table Size (W x L)	mm	650 x 1200		
C5	Service Weight (including battery)	kg	320 / 360		
D1	Motor	Drive	kw		0.35 (24V)
		Lift	kw		2.2 (24V)
D2	Battery	12V, 65Ah / 5Hr (2ea)			
D3	Charger (external)	Input	AC Single Phase 220V, 60Hz		
		Output	DC 24V, 8A		

Table Lift

Table Lift - Fixed Type

TSLT



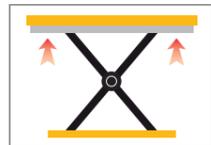
TSLT1000S/2000S/3000S



TSLT1000D/2000D/3000D

Applied for repeated up & down work at special work line including cutting & bending

- Less worker's fatigue, Improved productivity
- In case of broken hydraulic line of cylinder, the sudden descending of fork is prevented by blocking flow path.
- Safety bar at the bottom of table makes table stop when table meets any object when descending.
- Down speed control (optional item)



Safety bar (Prevention of safety accident)



Safety valve for descending (double arm model)



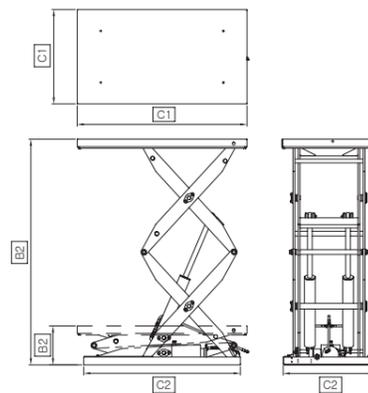
Hand switch (standard)



Foot switch (option)



Safety certificate



Model	TSLT1000S	TSLT2000S	TSLT3000S	TSLT230D	TSLT1000D	TSLT2000D	TSLT3000D		
A1	Single			Double					
B1	Load Capacity	kg	1000	2000	3000	230	1000	2000	3000
B2	Table Lift Height (Max. / Min.)	mm	1050 / 250	1100 / 270	1200 / 300	1280 / 300	1800 / 370	2100 / 400	2400 / 470
C1	Table Size (W x L)	mm	1100 x 1800	1100 x 2000	1100 x 2300	550 x 1120	1100 x 1800	1100 x 2000	1100 x 2300
C2	Base size	mm	880 x 1250	930 x 1500	994 x 1660	550 x 1120	880 x 1250	930 x 1500	994 x 1660
C3	Service Weight	kg	280	410	530	120	410	550	650
D1	Hydraulic Motor	kw	1.5 (3 phase) / 1.8 (single phase)		2.2	0.75	1.5 (3 phase) / 1.8 (single phase)		2.2
D2	Power		AC 380V / 220V (single phase, 3 phase)		AC 380V / 220V (3 phase)	AC 220V single phase	AC 380V / 220V (single phase, 3 phase)		AC 380V / 220V (3 phase)

Table Lift

Table Lift - Fixed Type

TSLT-M



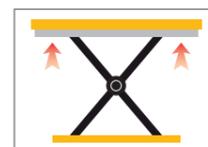
TSLT1000SM (Caster-on)



TSLT1000SM (Caster-off)

Basic model with heavy load caster for the easy material moving (No need of fork lift or hoist)

- 'Caster-on' to move and 'Caster-off' to fix by its own hydraulic power (patent 10-1101761)
- In 'Caster-on' position, lift table moves to other position without load
- Applied for repeated up & down at special work line including cutting & bending
- Less worker's fatigue, Improved productivity
- Safety bar at the bottom of table makes table stop when table meets any object when descending



Safety bar (Prevention of safety accident)



Hand switch (standard)



Foot switch (option)



Caster-off



Caster-on

Model	TSLT1000SM	TSLT2000SM	TSLT3000SM	Drawings		
A1	Single					
B1	Load Capacity	kg	1000		2000	3000
B2	Table Lift Height (Max. / Min.)	mm	1050 / 250		1100 / 270	1200 / 300
C1	Table Size (W x L)	mm	1100 x 1800		1100 x 2000	1100 x 2300
C2	Base size	mm	880 x 1250		930 x 1500	994 x 1660
C3	Wheel Base (W x L)	mm	1030 x 1125		1080 x 1275	1145 x 1435
C4	Service Weight	kg	295		425	545
D1	Hydraulic Motor	kw	1.5 (3 phase) / 1.8 (single phase)		2.2	
D2	Power		AC 380V / 220V (single phase, 3 phase)		AC 380V / 220V (3 phase)	

Table Lift

Low Platform Table Lift - Fixed Type

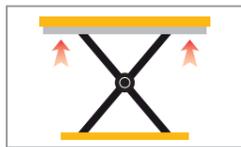
TSLT-L



TSLT500L/1000L

Low Platform makes cart directly to go on table

- For special work line, less worker's fatigue, improved productivity
- Cart can go on the table from the ground directly (minimum table height 80mm)
- Safety bar at the bottom of table makes table stop when table meets any object when descending.



Safety bar (Prevention of safety accident)



Hand switch (standard)



Foot switch (option)



Model		TSLT500L	TSLT1000L	Drawings	
A1	Lift	Single			
B1	Load Capacity	kg	500		1000
B2	Table Lift Height (Max. / Min.)	mm	800 / 80		900 / 85
C1	Table Size (W x L)	mm	700 x 1000		900 x 1200
C2	Base size	mm	488 x 938		600 x 1122
C3	Service Weight	kg	110		200
D1	Hydraulic Motor	kw	1.5 (3 phase) / 1.8 (single phase)		
D2	Power	AC 380V / 220V (single phase, 3 phase)			

TOVICA

Main components



Powerful AC Drive Unit (for TWSR, TWSC, TWP, TWP-TOW)

- Functions and quality acknowledged German ABM company's Drive Unit
- AC motor without brush and commutator
- All-in-one : Motor- Brake- Gear box- Wheel
- Powerful AC motor (1.2kw, 1.5kw)



Proven AC Controller (for TWSR, TWSC, TOP, TWP-TOW)

- Excellent fine-motion of driving control
- High efficiency
- Efficient radiation of heating
- Minimize vibration and noise



High-strength integral tiller head (for TWSR, TWSC, TWP, TWP-TOW, TLTE, TFSE)

- Forward, backward, up, down, low speed driving, horn, reverse driving emergency button to prevent sandwiching of driver
- Excellent tiller head of German FREI GmbH for the convenient operation (the awarded product in Focus safety 2007)
- All buttons can be controlled by a hand easily.



Descending safety valve (All models except TSLT- S/M/L)

Alarm for fork ascending (TWSR, TWSC)

Main circuit cutoff switch (All models)

Down speed control valve (TFSE, TLTE)

Shock absorbing auxiliary castor (TFSE, TLTE)

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Advanced Management

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