







Product Portfolio



The backbone of Lean manufacturing



Index

Lean Dolly Type I	
Lean Dolly Type II	5
Lean Dolly Type III	
Lean Dolly Type V	7
Lean Dolly Type VII	8
Lean Dolly Type VIIC with elevated deck	9
Lean Dolly 600 x 800 mm	10
Lean Adaptor Pallet	11
Lean Pallet Size Dolly	12
Mini Lean Pallet Size Dolly	13
Lean Pallet Size Dolly with elevated deck	14
Lean Shelf Wagon	15
Lean Shelf Wagon Flow Rack	16
Lean Taxi Wagon	17
Lean Taxiliner	18
Lean CarryMore® E-frame System 1000	19
Lean CarryMore [®] E-frame System 1500	20
LiftLiner TwinLift	21
ElephantBoard® and Daughter Cart for the LiftLiner	22
Accessories – Wheel overview	23
Accessories - Safety and ergonomics	24
Accessories – Dirt prevention	25
Accessories – Connecting devices	26
Visimore® – Asset Management	27
Our Customers	28

Keep things rolling with Lean Logistics

Benefits

- Improve work flow
- Reduce handling costs
- Enable reduction of stock level
- Reduce need for floor space
- Improve ergonomics
- Fast and safe truck loading



Lean Dolly Type I















TECHNICAL SPECIFICATION	
External dimensions	600 x 400 x 162 mm
Tare weight with CPD wheels, no corners	6,5 kg
Wheel size	100 mm wheels
Wheel configuration	2 fixed & 2 swivel
Wheel material	CPD, rubber or PU
Maximum Load capacity - CPD – standard and ESD - Rubber – standard and ESD - PU – standard and ESD	250 kg 250 kg 250 kg
Surface treatment	Blue zinc plated acc. to EN-ISO2081
Safe stacking	up to 15 units (1950 mm)
Compatibility with Lean Adaptor Pallets	- Next Generation (DOS1696 & DOS1725) - Type III (DOS1405)

OPTIONS

- Total brake on 1 or 2 swivel wheels
- RFID and Tracking compatibility
- Corner supports
- ESD compatibility

ALSO AVAILABLE IN ISO- AND US-DIMENSIONS

- 600 x 500 mm
- 24" x 15"
- 24" x 22.5"

DESIGNED TO CARRY SLC'S AND TRAYS

- 1 stack of 600 x 400 mm
- 2 stacks of 300 x 400 mm
- 4 stacks of 300 x 200 mm

- Ergonomic handle
- Strapping device
- Oil dripping pan

Lean Dolly Type II















TECHNICAL SPECIFICATION	
External dimensions	600 x 400 x 162 mm
Tare weight with CPD wheels, no corners	7,0 kg
Wheel size	100 mm wheels
Wheel configuration	4 swivel
Wheel material	CPD, rubber or PU
Maximum Load capacity: - CPD – standard and ESD - Rubber – standard and ESD - PU – standard and ESD	250 kg 250 kg 250 kg
Surface treatment	Blue zinc plated acc. to EN-ISO2081
Safe stacking	up to 15 units (1950 mm)
Compatibility with Lean Adaptor Pallets	- Next Generation (DOS1696 & DOS1725) - Type III (DOS1405)

OPTIONS

- Total brake on 1 or 2 swivel wheels
- RFID and Tracking compatibility
- Corner supports
- ESD compatibility

ALSO AVAILABLE IN ISO- AND US-DIMENSIONS

- 600 x 500 mm
- 24" x 15"
- 24" x 22.5"

DESIGNED TO CARRY SLC'S AND TRAYS

- 1 stack of 600 x 400 mm
- 2 stacks of 300 x 400 mm
- 4 stacks of 300 x 200 mm

- Ergonomic handle
- Strapping device
- Oil dripping pan

Lean Dolly Type III





TECHNICAL SPECIFICATION	
External dimensions	400 x 400 x 178,5 mm
Tare weight with CPD wheels	6 kg
Wheel size	100 mm wheels
Wheel configuration	2 fixed & 2 swivel or 4 swivel
Wheel material	CPD, rubber or PU
Maximum Load capacity: - CPD – standard and ESD - Rubber – standard and ESD - PU – standard and ESD	160 kg 160 kg 160 kg
Surface treatment	Blue zinc plated acc. to EN-ISO2081
Safe stacking	up to 8 units (1200 mm)
Compatibility with Lean Adaptor Pallets	- Next Generation (DOS1696 & DOS1725) - Type III (DOS1405)

OPTIONS

- Total brake on 1 or 2 swivel wheels
- RFID & Tracking compatibility
- ESD compatibility

DESIGNED TO CARRY SLC'S AND TRAYS

• 1 stack of 400 x 400 mm

- Ergonomic handle
- Strapping device

Lean Dolly Type V





- Type III (DOS1405)









TECHNICAL SPECIFICATION	
External dimensions	604 x 404 x 157 mm
Tare weight with CPD wheels, with corners	7,5 kg
Wheel size	100 mm wheels
Wheel configuration	4 swivel
Wheel material	CPD, rubber or PU
Maximum Load capacity: - CPD – standard and ESD - Rubber– standard and ESD - PU – standard and ESD	250 kg 250 kg 250 kg
Surface treatment	Blue zinc plated acc. to EN-ISO2081
Safe stacking	up to 15 units (1950 mm)
Compatibility with	- Next Generation (DOS1696 & DOS1725)

OPTIONS

- Total brake on 1 or 2 swivel wheels
- RFID & Tracking compatibility
- ESD compatibility

ALSO AVAILABLE IN ISO- AND US-DIMENSIONS

- 600 x 500 mm
- 24" x 15"
- 24" x 22.5"

DESIGNED TO CARRY SLC'S AND TRAYS

- 1 stack of 600 x 400 mm
- 2 stacks of 300 x 400 mm
- 4 stacks of 300 x 200 mm

ACCESSORIES

- Ergonomic handle
- Strapping device
- Oil dripping pan

Lean Adaptor Pallets





TECHNICAL SPECIFICATION	
External dimensions	604 x 404 x 162 (382) mm
Tare weight with CPD wheels, no corners	7 kg
Wheel size	100 mm wheels
Wheel configuration	2 fixed & 2 swivel
Wheel material	CPD, rubber or PU
Maximum Load Capacity: - CPD – standard and ESD - Rubber – standard and ESD - PU – standard and ESD	250 kg 250 kg 250 kg
Maximum Load capacity in tugger train Max amount per tugger train	1000 kg 7–8 units
Surface treatment	Blue zinc plated acc. to EN-ISO2081
Safe stacking	up to 15 units (1955 mm)
Compatibility with Lean Adaptor Pallets	- Next Generation (DOS1696 & DOS1725) - Type III (DOS1405)
Recommended max speed	6 km/h

OPTIONS

- Total brake on 1 or 2 swivel wheels
- RFID & Tracking compatibility
- Corner supports
- Stealth version sliding tow system
- ESD compatibility

ALSO AVAILABLE IN ISO AND US-DIMENSIONS

• 600 x 500 mm, 24" x 15", 24" x 22.5"

DESIGNED TO CARRY SLC'S AND TRAYS

- 1 stack of 600 x 400 mm
- 2 stacks of 300 x 400 mm
- 4 stacks of 300 x 200 mm

- Ergonomic handle
- Strapping device
- Oil dripping pan

Lean Dolly Type VIIC with elevated deck





TECHNICAL SPECIFICATION	
External dimensions	612 x 404 x 683 mm
Tare weight with CPD wheels, no corners	18 kg
Wheel size	100 mm wheels
Wheel configuration	2 fixed & 2 swivel
Wheel material	CPD, rubber or PU
Maximum Load Capacity: - CPD – standard and ESD - Rubber – standard and ESD - PU – standard and ESD	70 kg 70 kg 70 kg
Maximum Load capacity in tugger train Max amount per tugger train	1000 kg 7–8 units
Surface treatment	Blue zinc plated acc. to EN-ISO2081
Safe stacking	up to 3 units (1955 mm)
Compatibility with Lean Adaptor Pallets	- Next Generation (DOS1696 & DOS1725) - Type III (DOS1405)
Recommended max speed	4 km/h







OPTIONS

- Total brake on 1 or 2 swivel wheels
- RFID & Tracking compatibility
- ESD compatibility

DESIGNED TO CARRY SLC'S AND TRAYS

- 1 stack of 600 x 400 mm
- 2 stacks of 300 x 400 mm
- 4 stacks of 300 x 200 mm

- Ergonomic handle
- Oil dripping pan

Lean Dolly 600 x 800 mm





TECHNICAL SPECIFICATIONExternal dimensions600 x 806 x 158 (495) mmTare weight with CPD wheels12 kgWheel size100 mm wheelsWheel configuration2 fixed & 3 swivel or 5 swivelWheel materialCPD, rubber or PUMaximum Load Capacity: - CPD - standard and ESD500 kg- Rubber - standard and ESD500 kg- Rubber - standard and ESD500 kg- PU - standard and ESD500 kg- Surface treatmentBlue zinc plated acc. to EN-ISO2081Safe stackingup to 15 units (1955 mm) with towing arm 2,3 mCompatibility with Lean Adaptor Pallets- Next Generation (DOS1696 & DOS1725) - Type III (DOS1405)		
Tare weight with CPD wheels12 kgWheel size100 mm wheelsWheel configuration2 fixed & 3 swivel or 5 swivelWheel materialCPD, rubber or PUMaximum Load Capacity: - CPD - standard and ESD500 kg- Rubber - standard and ESD500 kg- PU - standard and ESD500 kg- PU - standard and ESD500 kg- Sufface treatmentBlue zinc plated acc. to EN-ISO2081Safe stackingup to 15 units (1955 mm) with towing arm 2,3 mCompatibility with Lean Adaptor Pallets- Next Generation (DOS1696 & DOS1725) - Type III (DOS1405)	TECHNICAL SPECIFICATION	
Wheel size100 mm wheelsWheel configuration2 fixed & 3 swivel or 5 swivelWheel materialCPD, rubber or PUMaximum Load Capacity: - CPD - standard and ESD500 kg- Rubber - standard and ESD500 kg- PU - standard and ESD500 kg- PU - standard and ESD500 kgSurface treatmentBlue zinc plated acc. to EN-ISO2081Safe stackingup to 15 units (1955 mm) with towing arm 2,3 mCompatibility with Lean Adaptor Pallets- Next Generation (DOS1696 & DOS1725) - Type III (DOS1405)	External dimensions	600 x 806 x 158 (495) mm
Wheel configuration2 fixed & 3 swivel or 5 swivelWheel materialCPD, rubber or PUMaximum Load Capacity: - CPD - standard and ESD500 kg- Rubber - standard and ESD500 kg- PU - standard and ESD500 kg- PU - standard and ESD500 kgSurface treatment1600 kgSurface treatmentBlue zinc plated acc. to EN-ISO2081Safe stackingup to 15 units (1955 mm) with towing arm 2,3 mCompatibility with Lean Adaptor Pallets- Next Generation (DOS1696 & DOS1725) - Type III (DOS1405)	Tare weight with CPD wheels	12 kg
Wheel materialCPD, rubber or PUMaximum Load Capacity: - CPD - standard and ESD500 kg- Rubber - standard and ESD500 kg- PU - standard and ESD500 kg- PU - standard and ESD500 kgMaximum Load capacity in tugger train1600 kgMax amount per tugger train5-6 unitsSurface treatmentBlue zinc plated acc. to EN-ISO2081Safe stackingup to 15 units (1955 mm) with towing arm 2,3 mCompatibility with Lean Adaptor Pallets- Next Generation (DOS1696 & DOS1725) - Type III (DOS1405)	Wheel size	100 mm wheels
Maximum Load Capacity: - CPD - standard and ESD500 kg- Rubber - standard and ESD500 kg- PU - standard and ESD500 kg- PU - standard and ESD500 kgMaximum Load capacity in tugger train1600 kgMax amount per tugger train5–6 unitsSurface treatmentBlue zinc plated acc. to EN-ISO2081Safe stackingup to 15 units (1955 mm) with towing arm 2,3 mCompatibility with Lean Adaptor Pallets- Next Generation (DOS1696 & DOS1725) - Type III (DOS1405)	Wheel configuration	2 fixed & 3 swivel or 5 swivel
- CPD - standard and ESD500 kg- Rubber - standard and ESD500 kg- PU - standard and ESD500 kgMaximum Load capacity in tugger train1600 kgMax amount per tugger train5-6 unitsSurface treatmentBlue zinc plated acc. to EN-ISO2081Safe stackingup to 15 units (1955 mm) with towing arm 2,3 mCompatibility with Lean Adaptor Pallets- Next Generation (DOS1696 & DOS1725) - Type III (DOS1405)	Wheel material	CPD, rubber or PU
Max amount per tugger train5–6 unitsSurface treatmentBlue zinc plated acc. to EN-ISO2081Safe stackingup to 15 units (1955 mm) with towing arm 2,3 mCompatibility with Lean Adaptor Pallets- Next Generation (DOS1696 & DOS1725) - Type III (DOS1405)	- CPD – standard and ESD - Rubber – standard and ESD	500 kg
Safe stackingup to 15 units (1955 mm) with towing arm 2,3 mCompatibility with Lean Adaptor Pallets- Next Generation (DOS1696 & DOS1725) - Type III (DOS1405)	1 9 000	0
with towing arm 2,3 mCompatibility with Lean Adaptor Pallets- Next Generation (DOS1696 & DOS1725) - Type III (DOS1405)	Surface treatment	Blue zinc plated acc. to EN-ISO2081
Lean Adaptor Pallets - Type III (DOS1405)	Safe stacking	
Recommended may speed 6 km/h		· · · · · · · · · · · · · · · · · · ·
Neconimended max speed	Recommended max speed	6 km/h

OPTIONS

- Total brake on 1 or 2 swivel wheels
- RFID & Tracking compatibility
- Corner supports
- Draw bar
- ESD compatibility

ALSO AVAILABLE IN ISO-DIMENSIONS

• 600 x 1000 mm

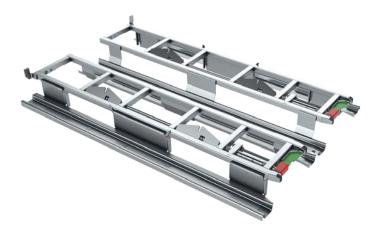
DESIGNED TO CARRY SLC'S AND TRAYS

- 1 stack of 600 x 800 mm
- 2 stack of 600 x 400 mm
- 4 stacks of 300 x 400 mm
- pallets, foldable cages and stillages

- Strapping device
- Multipurpose plywood deck

Lean Adaptor Pallet















TECHNICAL SPECIFICATION	
External dimensions	1210 x 800 x 120 mm
Tare weight	37 kg
Maximum Load capacity	1000 kg
Surface treatment	Blue zinc plated acc. to EN-ISO2081
Safe stacking - loaded in transport - loaded at warehouse - empty	2 units 3 units 15 units

DESIGNED FOR ALL STANDARD LEAN DOLLIES

OPTIONS

- Non-slip features
- RFID & Tracking compatibility
- ESD compatibility

ALSO AVAILABLE IN ISO AND US-DIMENSIONS

- 1200 x 1000 mm
- 48" x 30"
- 48" x 45"

- EasyStrap
- Compatible with industry standard lids

Lean Pallet Size Dolly





TECHNICAL SPECIFICATION	
External dimensions	1200 x 800 x 275 (1017) mm
Tare weight	66 kg
Wheel size	160 mm wheels
Wheel configuration	2 fixed & 2 swivel 4 swivel 2 fixed & 4 swivel
Wheel material	PU and CPD
Maximum Load capacity	1000 kg
Maximum Load capacity in tugger train Max amount per tugger train	4000 kg 6 units
Surface treatment	Blue zinc plated acc. to EN-ISO2081
Safe stacking	up to 6 units (1680 mm) with "draw bar" (2,4 m)
Recommended max speed	6 km/h

COMPATIBLE WITH ALL LEAN DOLLIES, LEAN SHELF WAGON, TAXI WAGON AND TAXILINER.

OPTIONS

- Available with anti slip material or plywood deck
- Integrated strapping device
- ESD compatibility
- Total brake on 1 or 2 swivel wheels
- RFID & Tracking compatibility
- Corner supports
- 360° spinning on 6 wheels
- Catch for towing one or two lines of Lean dollies
- Wheel spacer
- Forklift guide

ALSO AVAILABLE IN ISO- AND US-DIMENSIONS

- 1200 x 1000 mm (72 kg)
- 48" x 45" (77 kg)
- 32" x 30" (53 kg)

DESIGNED TO CARRY SLC'S, PALLETS AND BOXES

- Pallet sizes: Euro, ISO & 48" x 45"
- SLC's in Euro, ISO or US boxes
- Cages and foldable boxes

Mini Lean Pallet Size Dolly













TECHNICAL SPECIFICATION

External dimensions	923 x 600 x 280 (1019) mm
Tare weight	55 kg
Wheel size	160 mm wheels
Wheel configuration	2 fixed & 2 swivel or 4 swivel
Wheel material	PU and CPD
Maximum Load capacity	1000 kg
Maximum Load capacity in tugger train Max amount per tugger train	4000 kg 6 units
Surface treatment	Blue zinc plated acc. to EN-ISO2081
Safe stacking	up to 6 units (1680 mm) with draw bar (2,4 m)
Recommended max speed	6 km/h

COMPATIBLE WITH ALL LEAN DOLLIES, LEAN SHELF WAGON, TAXI WAGON AND TAXILINER.

OPTIONS

- Available with anti slip material or plywood deck
- Integrated strapping device
- ESD compatibility
- Total brake on 1 or 2 swivel wheels
- RFID & Tracking compatibility
- Corner supports
- Catch for towing one or two lines of Lean dollies
- Wheel spacer

ALSO AVAILABLE IN US-DIMENSIONS

• 32" x 30"

DESIGNED TO CARRY SLC'S, PALLETS AND BOXES

- Pallet sizes: 800 x 600 mm or 32" x 30"
- Cages and foldable boxes

Lean Pallet Size Dolly with elevated deck









C E

TECHNICAL SPECIFICATION	
External dimensions	1200 x 800 x 600 mm
Tare weight	89 kg
Wheel size	160 mm wheels
Wheel configuration	2 fixed & 2 swivel 4 swivel 2 fixed & 4 swivel
Wheel material	PU and PA
Maximum Load capacity	1000 kg
Maximum Load capacity in tugger train Max amount per tugger train	4000 kg 6 units
Surface treatment	Blue zinc plated acc. to EN-ISO2081
Safe stacking	up to 1680 mm (2,4 m with handle)
Recommended max speed	6 km/h

COMPATIBLE WITH ALL LEAN DOLLIES, LEAN SHELF WAGON, TAXI WAGON AND TAXILINER.

OPTIONS

- Available with anti slip material or plywood deck
- Integrated strapping device
- ESD compatibility
- Total brake on 1 or 2 swivel wheels
- RFID & Tracking compatibility
- Corner supports
- 360° spinning on 6 wheels
- Catch for towing one or two lines of Lean dollies
- Wheel spacer
- Forklift guide

ALSO AVAILABLE IN ISO- AND US-DIMENSIONS

- 1200 x 1000 mm (97 kg)
- 48" x 45" (90 kg)

DESIGNED TO CARRY SLC'S, PALLETS AND BOXES

- Pallet sizes: Euro, ISO & 48" x 45"
- SLC's in Euro, ISO or US boxes
- Cages and foldable boxes

Lean Shelf Wagon







TECHNICAL SPECIFICATION	
External dimensions	1260 x 806 x 1680 mm
Tare weight (2 shelves + floor)	113 kg
Wheel size	160 mm wheels
Wheel configuration	2 fixed and 2 swivel
Wheel material	PU and CPD
Surface treatment	Blue zinc plated acc. to EN-ISO2081
Maximum Load capacity	Per Shelf: 150 kg or 250 kg (heavy-duty) Per Unit: 450 kg or 800 kg (heavy-duty)
Max amount in tugger trains	6 units
Recommended max speed	6 km/h

COMPATIBLE WITH ALL LEAN DOLLIES, LEAN SHELF WAGON, TAXI WAGON AND TAXILINER.







CE

EURO

OPTIONS

- ESD compatibility
- Total brake on 1 or 2 swivel wheels
- RFID & Tracking compatibility
- 6 wheel option for 360° spinning
- Catch for towing one or two lines of Lean dollies
- Wheel spacer
- Forklift guide

DESIGNED TO CARRY SLC'S AND TRAYS AND OTHER BOXES

ACCESSORIES

• Transport & non-contamination cover

Lean Shelf Wagon Flow Rack













TECHNICAL SPECIFICATIONS	
External dimensions	1300 x 806 x 1680 mm
Tare weight	70–75 kg
Wheel size	160 mm wheels
Wheel configuration	2 fixed and 2 swivel
Wheel material	PU and CPD
Maximum Load capacity	Per shelf: 150 kg Per unit: 450 kg
Surface treatment	Blue zinc plated acc. to EN-ISO2081
Recommended max speed	6 km/h

OPTIONS

- Integrated strapping device
- ESD compatibility
- Total brake on 1 or 2 swivel wheels
- RFID & Tracking compatibility
- 6 wheel option for 360° spinning

DESIGNED TO CARRY SLC'S AND TRAYS AND OTHER BOXES

Lean Taxi Wagon





TECHNICAL SPECIFICATION	2 Bay Version	3 Bay Version
External dimensions	1456 x 1425 x 725 mm	1908 x 1425 x 725 mm
Length including the draw bar	1835 mm	2287 mm
Space between dividers	410 mm	410 mm
Maximum Load capacity	500 kg	750 kg
Tare weight	147 kg	175 kg
Maximum Train load	2250 kg	2250 kg
Maximum speed	6 km/h	6 km/h
Min. turning circle	3570 mm	4100 mm
Ramp elevation for Dollies	70 mm	72 mm
Ground clearance	38 mm	40 mm
Steering system	Reverse draw bar	Reverse draw bar
Surface treatment	Powder coating	Powder coating

COMPATIBLE WITH ALL LEAN PALLET SIZE DOLLY AND LEAN SHELF WAGON.

DESIGNED TO CARRY

- 600 x 400 mm Dollies
- Also ISO and US sized Dollies

BENEFITS

- Ideal for logistic flows where the sequence cannot be controlled
- Reduce handling costs
- Enables the delivery of multiple article numbers in one delivery sequence
- Improve ergonomics
- Fast and safe internal transport
- Excellent tracking and steering stability

OPTIONS

- Non-slip feature for the ramps
- Double locking device
- Additional floor guidance
- ESD compatibility
- RFID & Tracking compatibility
- 600 x 800 Lean Dollies compatibility

Lean Taxiliner





TECHNICAL SPECIFICATION	3 Bay Version	4 Bay version
External dimensions	2031 x 1425 x 725 mm	2496 x 1430 x 725 mm
Length including the draw bar	2540 mm	3001 mm
Space between dividers	410 mm	410 mm
Maximum Load capacity	750 kg	750 kg
Tare weight	215 kg	282 kg
Maximum Train load	2250 kg	2250 kg
Maximum speed	15 km/h	12 km/h
Min. turning circle	3800 mm	4350 mm
Ramp elevation for Dollies	72 mm	80 mm
Ground clearance	40 mm	38 mm
Steering system SpurTrak™	All wheel Steer	All wheel Steer
Surface treatment	Powder coating	Powder coating

COMPATIBLE WITH ALL LEAN PALLET SIZE DOLLY AND LEAN SHELF WAGON.

DESIGNED TO CARRY

- 600 x 400 mm Dollies
- Also ISO and US sized Dollies

BENEFITS

- Ideal for logistic flows where the sequence cannot be controlled
- Reduce handling costs
- Enables the delivery of multiple article numbers in one delivery sequence
- Improve ergonomics
- Fast and safe internal transport
- Excellent tracking and steering stability

OPTIONS

- Non-slip feature for the ramps
- Double locking device
- Additional floor guidance
- ESD compatibility
- RFID & Tracking compatibility
- 600 x 800 mm Dollies compatibility

Lean CarryMore® E-frame System 1000

K.HARTWALL Logistics Efficiency through Innovation



TECHNICAL SPECIFICATION LEAN CARRYMORE® MOTHER CART 1000	
External dimensions	2549 x 1091 x 380 mm
Tare weight	200 kg
Steering system	Center-steer: 2 fixed center wheels and spring loaded swivel wheel at front back. All wheels are high payload polyurethane wheels
Maximum Load Capacity	at 8 km/h 1000 kg • at 11 km/h 1000 kg • at 16 km/h 850 kg
Surface treatment	Powder coating
Train configuration	Can include up to 5–6 units

TECHNICAL SPECIFICATION LEAN CARRYMORE® DAUGHTER CART 1000		
External dimensions	1248 x 989 x 302 mm / 1248 x 1189 x 382 mm	
Height with the handle	1016 mm / 1096 mm	
Tare weight	46 kg / 60 kg	
Wheel type	2 fixed and 2 swivel or 4 swivel	
Wheel material	PA	
Surface treatment	Blue zinc plated	

BENEFITS

- Eliminate the need for forklifts and reduce the risk of accidents at manufacturing and assembly lines
- Lower maintenance costs
- Reduce overall operator costs
- Require only one operator making multiple deliveries on one route trip
- Enable to carry smaller and kitted loads in addition to pallet units in the same train
- Faster delivery rates takes seconds to unload

CarryMore[®] mother cart 1000 is designed to hold:

- One Daughter cart 1200 x 800 mm or
- One Daughter cart 1200 x 1000 mm or
- Customized carts measuring up to 1625 x 1270 mm



Lean CarryMore[®] E-frame System 1500

K.HARTWALL Logistics Efficiency through Innovation



TECHNICAL SPECIFICATION LEAN CARRY MORE® MOTHER CART 1500	
External dimensions	2866 x 1214 x 430 mm
Tare weight	266 kg
Steering system	Quad-steer: 4 fixed wheels. The design is based on the Tight Turn technology™ for impressively tight and precise turning radius capability. All wheels are high payload polyurethane wheels
Maximum Load Capacity	at 8 km/h 1500 kg • at 11 km/h 1100 kg • at 16 km/h 750 kg
Surface treatment	Powder coating
Train configuration	Can include up to 5–6 units

TECHNICAL SPECIFICATION LEAN CARRY MORE® DAUGHTER CART 1500		
External dimensions	1248 x 989 x 302 mm / 1248 x 1189 x 382 mm	
Height with the handle	1016 mm / 1096 mm	
Tare weight	46 kg / 60 kg	
Wheel type	2 fixed & 2 swivel or 4 swivel	
Wheel material	PA	
Surface treatment	Blue zinc plated	

BENEFITS

- Eliminate the need for forklifts and reduce the risk of accidents at manufacturing and assembly lines
- Lower maintenance costs
- Reduce overall operator costs
- Require only one operator making multiple deliveries on one route trip
- Enable to carry smaller and kitted loads in addition to pallet units in the same train
- Faster delivery rates takes seconds to unload

CarryMore® mother cart 1500 is designed to hold:

- One Daughter cart 1200 x 800 mm or
- One Daughter cart 1200 x 1000 mm or
- Customized carts measuring up to 1625 x 1270 mm



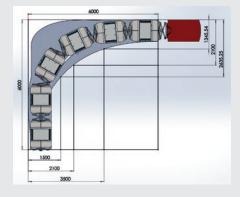
LiftLiner TwinLift

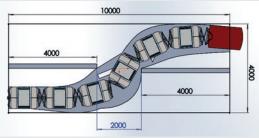


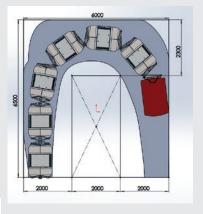


TECHNICAL SPECIFICATION

External dimensions	820 x 600 mm, 1200 x 800 mm or 1200 x 1000
Working load capacity	1000 kg per loading bay
Tare weight	160 kg
Wheel material	Polyurethane wheels
Wheel size	200 mm
Height lowered/lifted	290/350 mm
Lifting range	60 mm
Overall length	1600 mm
Overall width	1000 mm
Maximum train load	6000 kg
Maximum speed	16 km/h
U turn radius with 3 Twins (6 loading bays)	ca 4500 mm
Ground clearance	0/60 mm
Maximum slope	10 degrees
Maximum length of the train	3 TwinLift Liftliners
Coupling system	Crossbar system with spherical coupling







ElephantBoard[®] and Daughter Cart for the LiftLiner

K.HARTWALL Logistics Efficiency through Innovation



TECHNICAL SPECIFICATION E	ELEPHANTBOARD (4 SHELVES)
External dimensions	1450 x 820 x 1810 mm
Maximum Load capacity	500–1000 kg
Shelf material	Heavy-duty
Number of shelves	1–4
Distance between shelves	365 mm
Tare weight	65 kg
Wheel type	2 swivel and 2 fixed
Wheel material	Heavy-duty polyurethane wheels
Wheel size	200 mm
Surface treatment	Blue Zinc Plated

TECHNICAL SPECIFICATION DAUGHTER CART

External dimensions	1240 x 840 x 318 mm (EURO) 1240 x 1040 x 318 mm (ISO)
Maximum Load capacity	1000 kg
Tare weight	29 kg
Wheel type	2 fixed and 2 swivel or 4 swivel
Wheel material	Polyamide wheels
Wheel size	200 mm
Surface treatment	Blue Zink Plated

Also available in ISO size.

BENEFITS WHEN USED WITH THE LIFTLINER

- Very compact and agile tugger train Enables a forklift-free production environment
- Requires only one operator making multiple deliveries on one trip
- Reduce overall operating costs
- Fast and safe (un)loading
- Loading/unloading from either side at point of delivery
- No sequencing needed allows a more flexible supply of the production line
- Very ergonomic, safe and user-friendly solution

Accessories – Wheel overview



Ø 100 MM WHEELS



CPD WHEEL



RUBBER WHEEL



POLYURETHANE WHEEL



ESD RUBBER WHEEL



ESD HYBRID WHEEL NON-MARKING



ESD POLYURETHANE WHEEL



All our wheels are equipped with ball • bearings to ensure

- lower rolling resistance
- lower noise
- long life span
- Very high load capacity and qualityThe wheels are designed to be used also in a tugger train



CLEAN WHEEL



Accessories – Safety and ergonomics



MULTIPURPOSE DECK FOR 600 X 800 MM LEAN DOLLIES

TECHNICAL SPECIFICATION	
External dimensions	598 x 798 mm
Material	Coated plywood
Max. load	500 kg
Supplied	Ready to use

DESIGN

• Compatible with 600 x 800 Lean Dollies

BENEFITS

• Provides a close deck for smaller packages

K.HARTWALL Logistics Efficiency through Innovation

- Easy to use
- Equipped with two ergonomic handles





EASY STRAP FOR LEAN ADAPTOR PALLET

TECHNICAL SPECIFICATION	
External dimensions	470 (L) x 405 (W) x 900 (H) mm
Surface treatment	Blue zinc plating
Weight	5 kg
Wheel type and size	CPD 100 mm
Supplied	Ready to use

DESIGN

• Both for 600 x 400 and 600 x 800 Lean Dollies

BENEFITS

• Ergonomic and safe way to move the dollies

TECHNICAL SPECIFICATION	
Modular length	2300 – 3800 mm
Material	Textile with metal hook
Max. load to be tripped	1000 kg = max. load to be distributed on one or more Adaptor Pallets
Max. load by stacking	1000 kg in total
Supplied	Ready to use and to be attached to the Adaptor Pallet.

To be used in connection with the Lean Adaptor Pallet and secure the transported boxes.

DESIGN

- Adjustable length
- Directly attached to the Lean Adaptor Pallet

BENEFITS

- Safer transportation •
- Easy to attach •
- Reusable

Accessories – Dirt prevention



COVER FOR LEAN SHELF WAGON

806 x 1260 x 1680 mm
PVC (polyvinyl chloride)
Delivered as complete kit for 1 unit
Delivered ready for use and to be attached to the Adaptor Pallet

Designed for closed transportation of the Lean Shelf Wagon between warehouses or from for example unloading areas outside to inside. The cover is very easy to flip over and open as well as closing.

DESIGN

- Access from both long and short sides if needed
- Easy manual handling due to Velcro-closing

K.HARTWALL Logistics Efficiency through Innovation

• Flip-up and attach sides for less space consuming handling

BENEFITS

- Weather protection
- Protection against contamination
- Transport safety under truck transportation
- Internal transport safety
- Easy manual handling
- Space friendly solution



DRIPPING PAN FOR 600 X 400 MM LEAN DOLLIES

TECHNICAL SPECIFICATION	
External dimensions	604 x 404 mm
Material	PVC (Polyvinyl chloride)
Supplied	Ready to use

Designed to be placed between the Dolly and the packages transported.

BENEFITS

- Prevents liquid dripping from boxes on the floor
- Prevents accidents
- The solution stays stackable while being attached with the dripping pan

Accessories – Connecting devices

K.HARTWALL Logistics Efficiency through Innovation



TOW TRACTOR DRAW BAR

TECHNICAL SPECIFICATION	
Max. load on the draw bar	6000 kg
Max. load on the pin	2000 kg
Compatible with	Lean Dolly 600 x 500 mm Lean Dolly 600 x 400 mm Lean Dolly 600 x 800 mm Lean Dolly 600 x 1000 mm Lean Pallet Size Dolly Lean Shelf Wagon
Surface treatment	Blue zinc plated
Supplied	Assembled ready to mount on the tugger

DESIGN

For the tractor types: Jungheinrich EZS350 and Linde P30/P50. It can also be adjusted for other tractor types.

BENEFITS

• Enable towing of all Lean Dollies in various combinations.

TOW TRACTOR BALL COUPLER

TECHNICAL SPECIFICATION	
Max. load on the ball coupler	6 300 kg
Compatible with	E-Frame Quad Steer E-Frame Center Steer
Material	Steel
Design	Hitch ball

DESIGN

For the tractor types: Jungheinrich EZS350 and Linde P30/P50. It can also be adjusted for other tractor types.

BENEFITS

• Enable towing of all Lean Dollies in various combinations.



visimpre

Asset Management

K.HARTWALL Logistics Efficiency through Innovation



GAIN MORE VISIBILITY OF YOUR ASSETS

Save costs with Visimore[®]Asset Management System. Know exactly how many units are in use and where they are. Manage your assets and make every of them work for you!

Visimore[®] is a complete solution including monitoring and analytics, data management and sensor technology.



EASY-TO-INSTALL SENSORS AND CLOUD-BASED DATA

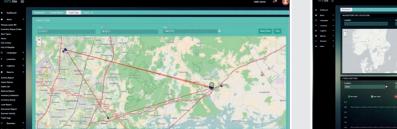
Visimore[®] is a truly new way to proactively manage the assets in your supply chain. It provides KPI's that ensure optimal usage of your load carriers to drive performance improvements. This industry specific solution has been designed to be configurable to address your business requirements with the least amount of disruption to your current operations. It will provide high definition visibility to your assets while simultaneously collecting valuable supply chain information.

OPTIONS

- Secure operations by minimising asset out of stock
- Optimise your fleet size
- Increase utilisation rate
- Minimise asset losses
- Increase quality of historical data on assets



- Visimore[®] tags are added to your assets
- DC network is easy to set up in a matter of hours.
- Assets are tracked both inside your DC with the network and outside by using a mobile application.
- This high quality and timely data is translated into meaningful business intelligence helping you managing your assets.











contact-khw@k-hartwall.com www.k-hartwall.com