



USER MANUAL WEIGHT TROLLEY

Experience an improved work environment by using a weight trolley, and avoid heavy lifts and moves of weights when testing lifting equipment.

USER MANUAL

WEIGHT TROLLEY

Our Weight Trolley is designed as a practical and ergonomic tool for manlift inspections in the nursing and healthcare industries and similar applications.

The Weight Trolley makes the inspection job far easier, as it entirely prevents any heavy lifting, while making it possible to conduct tests with different loads with equipment simple readjustments.

The basic operation of the Weight Trolley is rather simple, but to be able to safely use it, you are required to have read and understood the User Manual and to have become thoroughly acquainted with the proper handling of and driving with the heavy load blocks.

WARNING



WARNING! Make sure that you have read and understood this User Manual in its entirety before using the Weight Trolley.

WARNING! The Weight Trolley and its accessories are specialist equipment manufactured for professional use only, which may only be used and operated by personnel who have received special instructions in its safe and proper use.

WARNING! Always use the required personal protective equipment when handling the Weight Trolley and its accessories.

WARNING! The Weight Trolley is exclusively intended for transportation of securely fastened original load blocks. Never use the Weight Trolley with other load blocks than the ones it is delivered with or are custom-made for the purpose by the manufacturer.

WARNING! Never try to modify or alter the Weight Trolley to any other application than the one described in the User Manual. In case of any such modification or customisation of application, any and all warranties and liabilities shall lapse.

SAFETY

WARNING! The Weight Trolley may only be used by specially trained personnel.

Make sure that the Trolley is safe enough to use before using it.
Check the following items:





- That the anti-tip bracket at the front of the Weight Trolley is properly mounted and that both thumb screws are tightened
- That the tyres and wheel rims are intact
- That the wheels are firmly attached
- That the battery packs are properly fastened
- That handles are properly fastened to the Trolley and that all thumb screws are tightened
- That the load blocks are properly placed and locked in position
- That the lifting unit and locking lever are properly assembled and have not suffered from any damage

WARNING! Always replace or repair any defective parts before using the Weight Trolley again.

WARNING! Only use original spare parts or spare parts that are pre-approved by the manufacturer. Use of unoriginal spare parts or unoriginal accessories shall invalidate any and all warranties and liabilities of the manufacturer.

When using the Weight Trolley, always pay attention to any changes in road-holding qualities or function of the weight system and make sure that any damage is fixed before using the Weight Trolley again.

Nombre de poids: No. of weights:		Charge: Load:
12 incl. chariot/trolley		350 kg
11	●	275 kg
10	●	250 kg
9	●	225 kg
8	●	200 kg
7	●	175 kg
6	●	150 kg
5	●	125 kg
4	●	100 kg
3	●	75 kg
2	●	50 kg



Déverrouillé / Unlocked Verrouillé / Locked

ATTENTION:

- **LISEZ** et **COMPRENEZ** le guide de l'utilisateur avant utilisation
- Le chariot ne doit être utilisé que par des professionnels spécialement formés
- **TOUS** les poids doivent être verrouillés avant de déplacer le chariot

WARNING:

- **READ** and **UNDERSTAND** the instructions before operation
- Weight trolley must only be operated by specially trained staff
- **ALL** weights must be **LOCKED** before driving with the trolley

IMMO

IMMO A/S
Friis Hansens Vej 9 - DK-7100 Vejle
+45 7585 8022
hello@immodenmark.dk
immodenmark.dk

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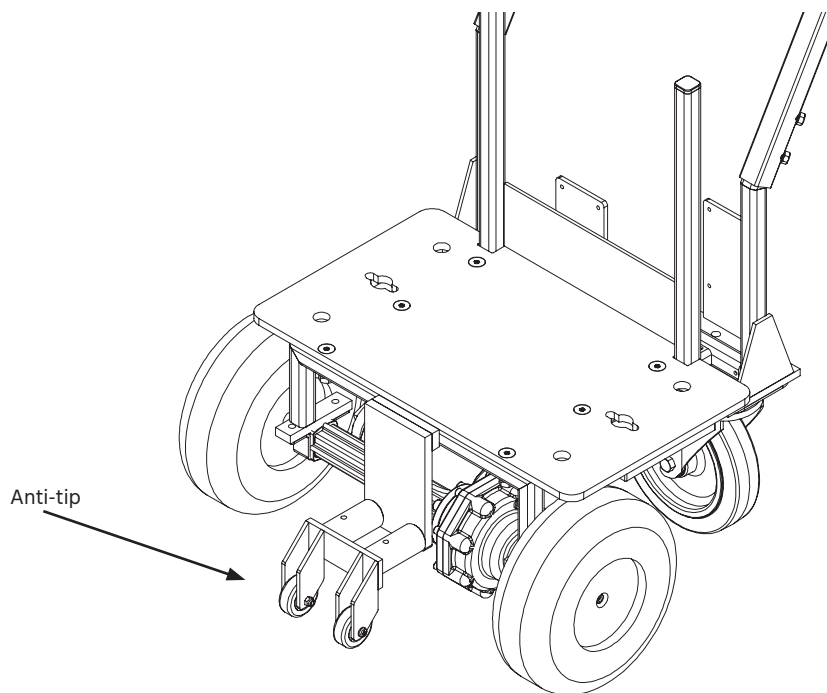
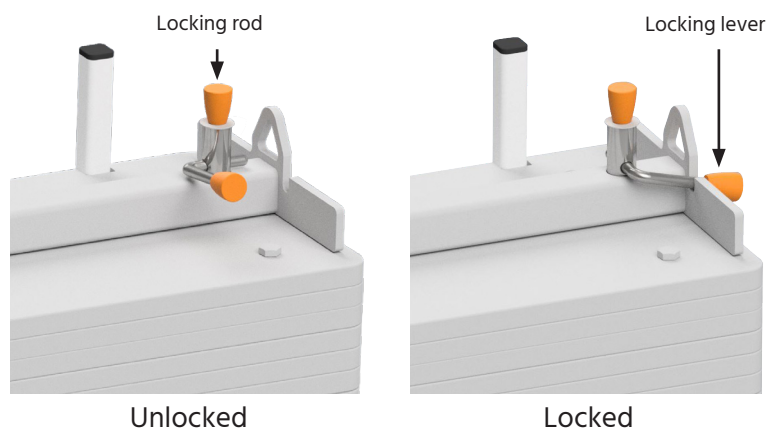
SAFETY WHILE DRIVING

When driving, always keep the locking rods in the lowest position and the locking lever in position "locked" to ensure that the load blocks are securely fastened and cannot move while the Trolley is being used.

WARNING! The Weight Trolley has a relatively high centre of gravity, which is why it is important not to make forceful manoeuvres and changes of direction while driving.

Drive carefully and always watch out for any obstacles so that you can stop and rectify them in good time.

WARNING! Never drive without the anti-slip bracket fitted.



YOUR FIRST DRIVE

The first time you use the Weight Trolley, choose the lowest speed possible and drive in a place with plenty of open space. It is first once you have become fully acquainted with the basic operation and manoeuvrability of the Weight Trolley that you should use the Weight Trolley in your day-to-day work.

OPERATION

The Weight Trolley is operated on a daily basis solely with the speeder box installed on the handle. The speeder box contains buttons for start/stop, speed pre-selection as well as a throttle lever that determines the direction of motion and speed of the Trolley.

PRIOR TO THE DRIVE

Make sure that the batteries are charged; the charger is supposed to light green when they are. Disconnect the charger from the power socket and then disconnect the charging plug from the control box. **(B)**

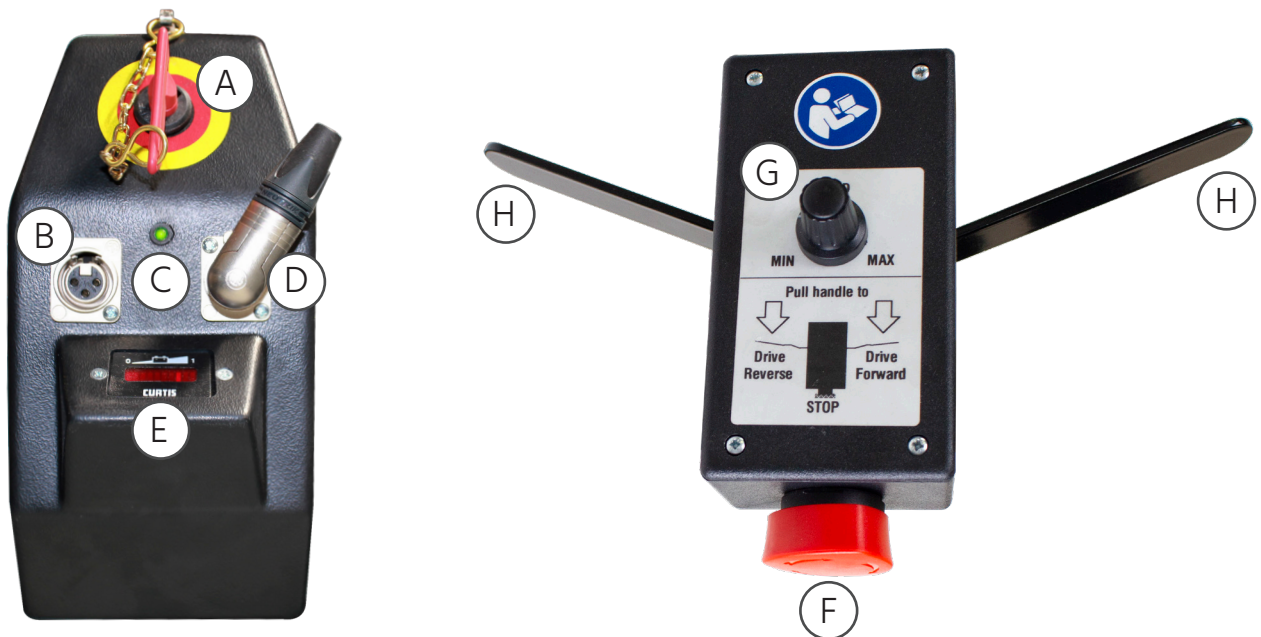
Note: The Weight Trolley will not start unless the charger is disconnected prior to start-up. Make sure that the parking brake is not disengaged.

Note: If the automatic parking brake is disengaged prior to start-up, the Weight Trolley will not start. Check that the load blocks are properly placed and locked in position.

Insert the key into the main switch on the control box **(A)** and then turn the switch clockwise 90°. Turn the stop button **(F)** on the speeder box clockwise a bit to release it. The battery gauge **(E)** and the green LED **(C)** on the speeder box will light.

Select your desired driving speed using the adjustment knob **(G)** on top of the speeder box.

WARNING! If you are not entirely familiar with the manoeuvrability of the Weight Trolley, select the lowest speed possible.



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Friis Hansens Vej 9 - DK-7100 Vejle
+45 7585 8022
hello@immodenmark.dk
immodenmark.dk

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Hold on tight to the handle with both hands and set off by turning the throttle lever **(H)** to the right to drive forward and to the left in order to reverse, respectively.

The Weight Trolley will accelerate once the throttle lever is activated and will decelerate once the throttle lever is released.

WARNING! Be aware that the Weight Trolley will not come to a halt at the same moment as the throttle lever is released, but will decelerate slowly to a halt. This is necessary to prevent the Trolley from tipping over and requires the operator to pay close attention to any obstacles ahead in order to be able to reduce the speed in good time.

AFTER THE DRIVE

If the Weight Trolley needs to remain immobile for a short period of time during the inspection of, e.g. a lift, you should turn it off by activating the red stop button **(F)** on the speeder box. Once the stop button is activated, the throttle lever disengages, and the control is placed in stand-by position, where only the brake is active.

Every time you leave the Weight Trolley, park it, turn the main switch on the control box and take out the key. Never leave the Weight Trolley with the key in.

Always set the Weight Trolley to charge after use so that the batteries are fully charged for the next round.

Automatic Parking Brake

The Weight Trolley is equipped with an automatic parking brake that releases as soon as the throttle lever is engaged and brakes again shortly after the Weight Trolley comes to a complete halt.

WARNING! Do not release the handle of the Weight Trolley until the Weight Trolley comes to a complete halt and the brake is engaged.

If you need to manoeuvre the Weight Trolley without using the motor, you can disengage the automatic brake using the red tilting handle at the end of the motor. Hold on tight to the Weight Trolley and tilt the handle forward to disengage the brake.

WARNING! Do not let go of the Weight Trolley while the brake is disengaged.

WARNING! Do not leave the Weight Trolley without engaging the brake.

If you attempt to switch on the control, while the brake is disengaged, the green LED **(C)** will flash, and the Weight Trolley will not be able to start. Engage the brake by tilting the handle back and then possibly switch on or off the control to reset it.

WARNING! If the Weight Trolley or weight system is damaged during the use of the Weight Trolley, immediately bring the Weight Trolley to a halt and refrain from using it until the damage has been rectified.

WARNING! The Weight Trolley's electronic operating systems are equipped with a large number of safety features which are intended to prevent accidents. If you nevertheless experience, while driving, that the Trolley does not function as intended, immediately bring the Trolley to a halt and have it inspected by a person trained for this.

WEIGHT SYSTEM

The Weight Trolley is equipped with a fixed weight holder, a number of weights as well as a lifting unit with a built-in locking system.

The Weight Trolley can be used with a different number of load blocks, and the overall weight is computed by placing the weights on the individual parts together, as displayed in the drawing on the right.

For example, a weight of 175 kg is calculated, as follows:

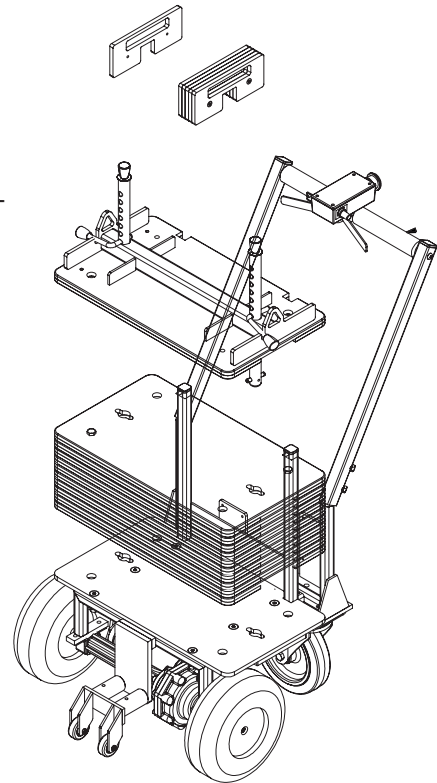
1 lifting unit + 1 25-kg top load block	25 kg
6 load blocks at 25 kg each	150 kg
In total:	175 kg

The load blocks locked underneath the lifting unit can be supplemented with between 1 and 25 kg of 1-kg and 5-kg adjustment load blocks, which are fitted on top of the lifting unit if an "oblique" total weight is used, e.g. in connection with inspections of overload protection.

Note that 1-kg and 5-kg adjustment weights are accessories that are purchased separately.

If, for example, your required weight is 190 kg, it is possible to add 3 5-kg adjustment weights on top of the lifting unit:

3 adjustment weight at 5 kg each	15 kg
1 lifting unit + 1 25-kg top load block	25 kg
6 load blocks at 25 kg each	150 kg
In total:	190 kg



To achieve the maximum weight – the total weight, the weight of the Weight Trolley itself, 75 kg, is counted as part of the weight.

For all other settings than the total weight that include the Weight Trolley, the weight can be calculated as:

Weight [kg] = hole number * 25 (+ sum total of adjustment weights, if any)

A diagram with the weight settings for the current configuration that the Trolley has been delivered with is placed at the top load block. Always use the topmost load block and always place it at the top whether any of the other load blocks of the Weight Trolley are used or not.

A detailed overview of the various configurations and matching weight settings can be found at the back of this Manual.

WARNING! Only use the weight system when the weights are placed on the weight holder and the lifting unit is not being pulled. If the weight system is operated while the weights are being lifted from the weight holder, the weights could fall down and cause serious personal injuries!

Once the Weight Trolley is properly placed underneath the lift that is about to be tested, turn off the motor by activating the red stop button on the speeder box.

Then set the desired load weight using the two locking rods that can be moved vertically through the stack of load blocks. The locking rods are equipped with numbers next to the respective holes in order to allow for easy adjustment.

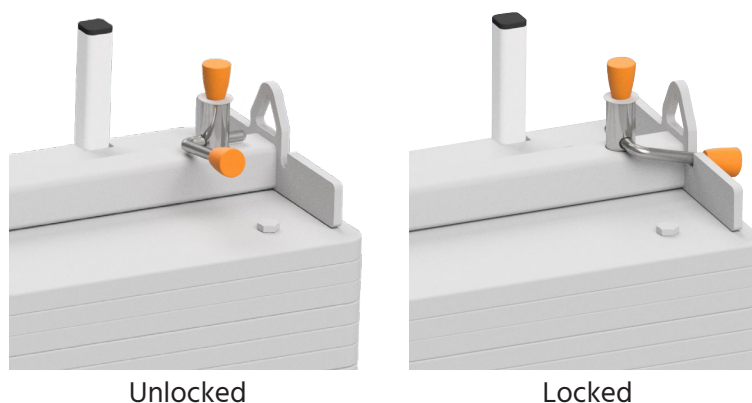
Start by turning the two locking levers to position "Unlocked".

Lift one of the two locking levers up to the hole that fits the desired weight setting, then insert the locking lever into the hole.

Turn the locking rod and the locking lever around to make it possible to place the locking handle into the notch again, in position "Locked".

Repeat the same procedure for the opposite rod.

Make sure that the two locking rods are placed at the same height and hole.



LIFTING LOAD BLOCKS

Attach suitable lifting straps between the two lifting eyes on the lifting unit and the corresponding attachment points on the lift's lifting unit.

Lift the load blocks carefully approx. 10 mm free off the weight holder using the lift and check that the selected number of load blocks are moving up on both sides.

If the interval is set aslant, you will see how the lowermost load block hangs on one side. Lower the load blocks in place again and repeat the setting procedure above.

If the load blocks follow correctly on both sides, you can lift to the height required for carrying out the test.

WARNING! Make sure that there is no one underneath or in the immediate vicinity of the lift and weights to prevent them from any hazards if the lift and its fastening fails and falls.

LOWERING LOAD BLOCKS

WARNING! – CRUSH HAZARD! When the load blocks are being lowered, there is a risk of getting caught between the load blocks, which are hanging in the air, and the Weight Trolley.

Begin by carefully lowering the load blocks so that the guideways that are at the back of the load blocks follow the two steering rods on the Weight Trolley. Possibly push the steering rods against the load blocks by pressing the trolley slightly against the hanging load blocks. Then lower the load blocks carefully into place, while paying close attention to the fact that they are lying flush on top of the rest of the load blocks or the Weight Trolley.

Once the pull on the load blocks is completely removed, it is possible to readjust to a different weight, if any, and then repeat the lifting/lowering procedure.

Once the test is complete and the load blocks are lowered into place for the last time, remove the lifting straps and adjust the weight setting so that the locking rods reach all the way to the bottom through the stack of load blocks. Place the locking pawl in the next hole above the lifting unit and fasten it there. This locks the stack of load blocks to the Weight Trolley, which thereby prevents it from falling if the Weight Trolley tips over by accident.

WARNING! Always lock the weight system firmly to the Weight Trolley, as described above, when you use the Weight Trolley.

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Friis Hansens Vej 9 - DK-7100 Vejle
+45 7585 8022
hello@immodenmark.dk
immodenmark.dk

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CHARGING

Only charge the Weight Trolley in a dry and frost-free environment with good ventilation. A reduction in driving distance can be expected if the Weight Trolley is charged at temperatures below 10°C.

WARNING! Explosive gas may form, under certain circumstances, during charging. Never charge the Weight Trolley close to any sources of ignition. Provide good ventilation.

WARNING! Only use the supplied charger or, alternatively, a manufacturer-approved charger. Use of other chargers may ruin the electrical systems, with a corresponding risk of explosion or fire.

CHARGING:

1. Switch the Weight Trolley off before starting charging. The Weight Trolley will not start while the charger is plugged.
2. Connect the charger to the connector on the control box.
3. Insert the charger into the socket and switch it on.
4. Once the charger is connected, the lamp on the charger will first flash **RED**. Once the batteries are charged 80%, the lamp will flash **YELLOW**. Once the charging is complete, the lamp will flash **GREEN**. The Trolley is now ready for use. Once the batteries are fully charged, the charger will continue charging, but with a very weak current. This is why it is always an advantage to have the Weight Trolley connected to the charger when it is not in use.
5. It normally takes between 4 and 6 hours to fully charge the batteries.
6. If the batteries are completely discharged, it takes between 8 and 16 hours to fully charge them again. Do not allow the batteries to discharge completely, as this significantly reduces their life span.
7. If you do not intend to use the Weight Trolley a long period of time, leave it with the charger connected!
8. The batteries can be charged outside the Weight Trolley using a special charger adapter. Contact your dealer for more information.

Section 4 to 6 apply to the supplied standard charger, type Mascot 2140. Indications and charging times can be different if chargers different from the standard charger are used. Always read the instructions for use that come with the specific charger.

IMPORTANT:

The batteries are maintenance-free.

The batteries will slowly lose power if the Weight Trolley is unused. The loss amounts to 10 to 20% of the charge er month, depending on climate conditions and the state of the batteries.

Therefore **REMEMBER** to always switch off the power and connect the charger.

TRANSPORTING THE WEIGHT TROLLEY

The Weight Trolley is designed to be transported in a regular service lorry or van.

Use a suitable driving ramp to get the Weight Trolley in and out of the vehicle. Abide by the maximum gradient requirements; cf. the technical data on page 23.

WARNING! Keep the Weight Trolley securely fastened during transportation.

WARNING! Always place the Weight Trolley against a solid wall or the like so that it cannot roll or move ahead during braking.

The Weight Trolley is heavy and has a high centre of gravity. It is therefore of supreme importance to securely fasten the Weight Trolley during transportation. The Trolley can be fastened using the anchor-age points that are solidly fastened to the chassis of the vehicle and that can withstand the load, also during braking and acceleration. The optimal angle of the securing straps is 45 ° to 90 ° in relation to the bottom of the vehicle.

Use solid securing straps which are appropriate for fastening to the vehicle's anchorage points and which have a hook at the end that can be inserted through the lifting eyes in the Weight Trolley's lifting unit.

Tighten the securing straps so that the load is evenly distributed and that the Weight Trolley cannot move during transportation.

WARNING! Check the securing straps prior to every use. There may not be any visible signs of wear or other defects. Always replace any defective securing straps before transportation.

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Friis Hansens Vej 9 - DK-7100 Vejle
+45 7585 8022
hello@immodenmark.dk
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MAINTENANCE

The Weight Trolley is best cleaned with water with mild detergent and a firmly wrung cloth.

Do not use solvents or detergents that contain abrasive particles, as this can cause damage to the surfaces of the Weight Trolley and the weights.

Avoid cleaning with running water and be particularly careful not to get any water into the electrical parts.

In addition to the cleaning, the maintenance of the Weight Trolley primarily consists of checking the tyres and wheel rims, making sure that all screw and bolted joints are tightened as well as inspecting the individual parts for damage and wear.

Replace all worn-out or damaged parts before you use the Weight Trolley again.

Get in touch with IMMO or your dealer if you want to purchase spare parts or would like to get assistance with maintenance and repairs.

You may be asked to provide your Weight Trolley's item serial number. The plate with the number is either placed at the back of the chassis frame or at the back of the control box.

SERVICE

WARNING! The Weight Trolley may only be serviced by a technically skilled and trained service technician.

WARNING! The intervention of unskilled persons in the electrical installations of the Weight Trolley is associated with mortal danger.

WARNING! A short-circuit of the batteries can lead to an explosion and mortal danger.

WARNING! Always disconnect the batteries before engaging in any work on the motor and the rest of the electrical parts.

WARNING! Only use original spare parts supplied by IMMO or by a supplier approved by IMMO.

TROUBLESHOOTING

WARNING! Defective parts must be replaced or repaired before using the weight trolley again.

WARNING! Always remove weights before troubleshooting and repair.

WARNING! Use only original spare parts or spare parts that are preapproved by the manufacturer. Using unoriginal spare parts or unoriginal accessories will cause any guarantee and liability to lapse.

WARNING! Read and understand the instruction manual of the weight trolley before you try to troubleshoot on it. The instruction manual contains important information about safe operation and use of the weight trolley.

WARNING! There is greater danger associated with the use of the weight trolley if the operating system is disassembled during repair. Use extra vigilance.

WARNING! The batteries must only be replaced by trained personnel.

WARNING! The batteries contain large amounts of energy. Short circuit or damage of the batteries may cause explosion and danger to life.

WARNING! Handle the batteries carefully. Please be careful not to damage corners or let the packing get in contact with sharp or pointed objects.

WARNING! If the batteries are damaged and you come in contact with the gelatinous acid in the batteries, you must immediately remove any contaminated clothing and wash your skin thoroughly with soap. At subsequent eczema or rash, please seek medical attention. If the acid comes in contact with your eyes, rinse immediately with water and seek medical attention.

WARNING! Old or defective batteries must be collected and recycled in accordance with rules stipulated by the local environmental authorities. Any spillage from old or defective batteries must be collected and handled in accordance with rules stipulated by the local environmental authorities.

The electrical system of the weight trolley consists of several interconnected components, which all are important to ensure a safe and unproblematic day-to-day operation. However, even the best system is not 100% fail-safe, therefore interruptions may of course take place. Due to the high security level of the systems, most errors will have the result that the weight trolley cannot run, and therefore the motor control has a built-in simple diagnostic system.

The diagnostic system basically communicates by a flashing green LED on the control box placed on the weight trolley.

In normal mode where the weight trolley is ready to run, or runs, the green LED will light permanently.

In error mode, the green LED will flash in a sequential pattern consisting of a long pause, a number of flashes, a short pause and another number of flashes. The sequence repeats itself until the error is corrected or the power is turned off.

IMMO A/S
Friis Hansens Vej 9 - DK-7100 Vejle
+45 7585 8022
hello@immodenmark.dk
immodenmark.dk

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LIST OF ERROR CODES

The two numbers of flashes mentioned in the above sequence indicate the first and the second digit of the error code respectively. For example, the following sequence •••• will indicate error code 1.4.

Error code	Text	Explanation	Possible source of error
0.0	LED off	No power, or control circuit defective	1: Main switch turned off 2: Stop button enabled 3: Battery not connected or discharged 4: Charger connected 5: Main fuse blown
1.1	Thermal fault	Under- or over-temperature	1: Temperature >80°C or below -10°C 2: Too high load 3: Motion in extreme temperature 4: Automatic brake does not release.
1.2	Throttle fault	Error on accelerator arm potentiometer	1: Defective wire connection between accelerator box and control box 2: Defective accelerator potentiometer
1.3	Speed pot fault	Error on potentiometer for motion speed	1: Defective wire connection between accelerator box and control box 2: Defective speed potentiometer
1.4	Undervoltage fault	Battery voltage too low	1: Battery voltage below 17V 2: Bad connection between battery and motor control
1.5	Overvoltage fault	Battery voltage too high	1: Battery voltage above 31V 2: Attempting to run with charger connected (3: Bad connection to the battery)
2.1	Main Off Fault	Control for main relay defective	1: Main relay in motor control does not respond as expected.
2.2	Motor stalled	Motor is blocked	1: Motor is blocked
2.3	Main fault	Main relay defective	1: Main relay in motor control does not respond as expected.
2.4	Main On Fault	Control for main relay defective	1: Main relay in motor control does not respond as expected.
3.1	Wirering fault	HPD error > 10 sec.	1: Accelerator is constantly enabled 2: Error on accelerator wire 3: Error on accelerator potentiometer
3.2	Brake On fault	Error on brake system	1: Brake manually disconnected 2: Brake output permanently enabled 3: Brake solenoid coil disconnected
3.3	Precharge fault	Error on brake system	1: Brake output short-circuited 2: Brake output defective
3.4	Brake Off fault	Error on brake system	1: Brake output disconnected 2: Brake solenoid coil short-circuited
3.5	HPD fault	Accelerator arm enabled at start-up	1: Accelerator arm not in neutral position 2: Error on accelerator potentiometer

Error code	Text	Explanation	Possible source of error
4.1	Current sense fault	Power measurement outside secure area	1: Short-circuit in motor or motor wiring 2: Error on motor control
4.2	Hardware failsafe	Unexpected behaviour from the motor control	1: Motor control defective 2: Motor coal worn down 3: Motor defective
4.3	EEPROM Checksum fault	Error in motor control memory	1: Motor control defective or wrongly programmed
4.4	Motor open	Motor disconnected	1: Motor or motor wiring disconnected 2: Motor coal worn down
4.5	Battery disconnect fault	Battery disconnected	1: Battery disconnected 2: Bad connection at the battery or plug connections to battery

ADDITIONAL INFORMATION ABOUT TROUBLESHOOTING AND REPAIRING

The above defects are described in detail below. Repair requires technical knowledge of electricity and electrical engineering and availability of basic measuring equipment and tools.

The electrical system of the weight trolley is powered by 24V DC supplied from two batteries in the battery box. The system can operate smoothly at tensions between 18 and 28 V depending on the charging level of the batteries. When the following text indicates that 24V must be measured, is it the battery voltage, which is expected to be present. Any voltage between 18 and 28V is therefore OK.

If not otherwise stated at the individual measurement, voltage is always measured in relation to B-, please note that there is no connection between the battery and the trolley's chassis / frame.

Diagram and component list can be found at the end of this instruction.

0.0: NO LIGHTS IN LED

Check the following:

That the battery is properly placed in the holder so that the red plug at the back is pushed completely together. That the large red key on the front of the control box is inserted and turned to the right to mechanical stop.

There should now be light in the battery meter; if not, the battery is completely discharged, defective or the fuse in the battery pack is blown. Disassemble the battery pack and check battery and fuse.

If there is light in the battery meter but not in the green LED of the control box, please check that:

- The red stop button (belly switch) on the accelerator box is triggered
- The voltage on the motor control terminals for B+ and B- must be 18-26V, depending on the battery's state of charge
- The voltage of terminal 5 and 7 on the large connector J1 on the motor control, U1, measured in relation to B-, must be at minimum 18V (current battery voltage)
- The connection to the green LED.

If none of the above helps and the weight trolley will not run, the motor control is defective and must be replaced.

1.1: THERMAL FAULT

The actual motor control has a built-in temperature gauge that prevents operation under extreme temperature conditions, where either the battery or motor control could be damaged. The temperature gauge also prevents operation if the motor control during a long period has been heavily overloaded so that it gets too warm. This overload situation may of course also be due to actual use under too high load but it can also be caused by a mechanical defect of motor, brake or gear, resulting in using extra power to make the trolley run.

Start by placing the weight trolley on blocks and check motor, gear and brake.

The brake must give a clear click when the weight trolley is set in motion and also some seconds after stopping it. When the motion is stopped and the brake is enabled, it must be possible to rotate one of the wheels and via the differential gear the opposite wheel should rotate in the opposite direction without appreciable resistance or noise from the gearbox. If an attempt is made to rotate both wheels in the same direction, there must be so much resistance that it is practically impossible.

When the motor accelerator arm is enabled, the brake must release, and the motor should start running. There should be no other noise from the brake apart from the click when it changes from braked to released. If the brake makes noise or gets hot after a short time of motion, the brake is defective or misaligned.

At deceleration the brake should normally not engage before the wheels have come to a standstill. It is not a service brake but solely a parking brake. All other braking is done by means of the motor.

If there is no error on the brake, the motor or the motor control may be defective or the trolley may have been operated at too high load. Wait for the motor control to cool down and try normal motion again.

1.2: THROTTLE FAULT

The motor control itself has different security-related features that continuously monitor all primary components. Error code 1.2 appears if there is a mismatch in the signals coming back from the potentiometer on the accelerator arm. The error is either a defective potentiometer, or a defective wire connection between motor control or potentiometer.

Check with a voltmeter that there is approx. 4.5V on pin 1(+) and approx. 0.5V on pin 3 (-) on accelerator arm potentiometer P2. Make sure that there is 2.5V on pin 2 (+) when the accelerator arm is in neutral position. The same should be measured at pin 1 in the large connector J1 on the motor control, U1. Check the yellow, red and green wire in the spiral cable, the plug connection, as well as the wiring connectors from the plug at the front of the control box and to the motor control, U1.

1.3: SPEED POT FAULT

Make sure that the voltage is approx. 0.5V on red (-) and approx. 4,5V on yellow (+). On the middle pin, the orange wire, the voltage must vary from 0.5-4.5V when the potentiometer is rotated from minimum to maximum. Also make sure that the voltage on J1-9 on the motor control U1 varies when the potentiometer is rotated.

If the voltage is correct on the two outer pins but does not vary on the middle pin when the potentiometer is rotated, the potentiometer is defective or there is an error on the three wire connections.

Check the yellow, red and green wire in the spiral cable, the plug connection, as well as the wiring connectors from the plug at the front of the control box and to the motor control, U1.

1.4: UNDERVOLTAGE FAULT

The motor control displays this error if the battery voltage comes down below 17V. If you have a second battery that works, try first to switch to that one. If it helps, the first battery needs recharging or replacement.

Troubleshooting with only one battery available:

Read off the battery meter. If it flashes in the left side, the battery is discharged and must be charged for a minimum of 12 hours. If necessary, check that the batteries are charged by measuring in the rear of the connector on the battery box and make sure that the voltage increases 1-2V when the charger is connected. If the voltage does not increase when the charger is connected, make sure that the charger works and that the wiring connectors from the charger connector on the front of the control box are OK. The wiring connectors can be checked by measuring on pin 1 (+) and 2 (-) in the charger connector; here, the voltage must be the same as measured directly on the battery.

If the battery voltage after 12 hours of charging is still below 17V, the batteries in the battery box are defective and must be replaced.

1.5: OVERVOLTAGE FAULT

The battery voltage is too high.

The error occurs either if attempting to run with the charger connected or if there is a bad/loose connection in the wiring between the battery and the motor control, which provides short-duration voltage peaks during operation.

Check that all connections from the battery to the motor control are solid and intact.

Check the plug connection between the battery box and weight trolley.

Check the connections inside the battery box.

Verify that the connection from charger connector X1, pin 3 to the motor control J1, pin 6 is intact. This connection tells the motor control that the charger is connected, and prevents motion in this situation.

2.1: MAIN OFF FAULT, 2.3: MAIN FAULT, 2.4: MAIN ON FAULT

The safety relay in the motor control does not work as it should, and the control does, therefore, allow for motion.

Check that the battery voltage is between 18 and 26V. If the battery voltage is OK, disconnect the battery and replace the motor control.

2.2: MOTOR STALLED

The motor control believes that the motor is blocked.

Turn off the main power switch. Block up the weight trolley, turn on the main power switch and try to let it run.

Check the motor, gear and brake as described under error code 1.1 and replace any defective parts.

3.1: HPD ERROR > 10 SEC, 3.5 HPD FAULT

At start-up the motor control undertakes a self-test of the entire security system and the external components in the control circuit during the first seconds.

During this time, the control expects that the accelerator arm is in neutral. If the accelerator is kept enabled while switching on the main switch or triggering the red stop button, this is indicated this as error 3.1.

Of course, it may can also be an error on the accelerator potentiometer or the wiring to it. This error must be found and repaired as described point 1.2 Throttle fault

3.2: BRAKE ON FAULT

The motor control detects that the connection to the solenoid coil or the brake solenoid coil itself is disconnected.

This error generally occurs because the brake is released manually. Make sure that the brake is not released manually.

Check that the small switch at the brake handle is enabled/disabled when the handle is moved.

Check the wiring connection between the connector J3 on the motor control and the brake.

If the brake disconnects as soon as the power to the motor control is turned on, the outlet on the motor control is defective. Turn off the power and replace the motor control.

3.3: PRECHARGE FAULT, 3.4: BRAKE OFF FAULT

This error generally occurs at overloading of the brake outlet on the motor control.

Check the wire connection to the brake, if this is ok, the brake is defective and must be replaced.

4.1: CURRENT SENSE FAULT

The error occurs if the motor control detects an extremely high power consumption. Either because the measuring circuit has been overloaded and is damaged (typically after a short-circuit of the motor outlet) or because the motor is short-circuited.

Block up the weight trolley up and set the brake handle to release the brake.
Disconnect the motor wiring from the control.

Switch on the control. Check to see if the error display disappears, or if it is replaced by another error. In this case, the control must be expected to be OK.

Check to see if the motor can be rotated by holding one wheel while rotating the other. If the motor provides great resistance when rotating the wheel, the motor might be short-circuited. You may short-circuit the two disconnected motor wires briefly (motor braking), and see if there is a change. If the motor is OK, there must be markedly clear difference whether or not it is rotated with disconnected or short-circuited motor wires.

Otherwise, the motor must be replaced.

4.2: HARDWARE FAILSAFE

The error typically occurs during operation if motor or motor control have an error.

Check motor coal, and replace any worn out coal.

Check motor and control as described in 4.1.

4.3: EEPROM CHESKSUM FAULT

Disconnect power, wait 30 seconds and then turn on the power again. If this does not help, then turn off the power switch and replace the motor control.

4.4: MOTOR OPEN

The motor control sees the motor as disconnected.

Check the wire connections to the motor.

Check motor coal, and replace any worn out coal.

4.5: BATTERY DISCONNECT FAULT

The motor control experiences short-duration failures in the power supply. Errors typically occur if there is a loose or bad connection at the battery circuit. Check all wires between the battery box, main switch and motor control. Try, if possible, with a second battery or check the wiring connections inside the battery box. Check that the connector between battery box and weight trolley is OK, and that it is firmly attached so that it closes completely when battery box is mounted.

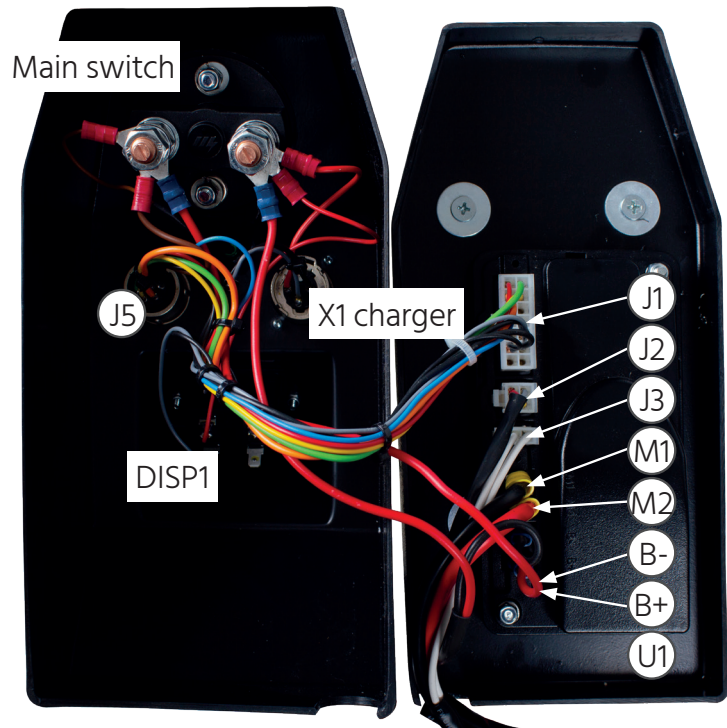
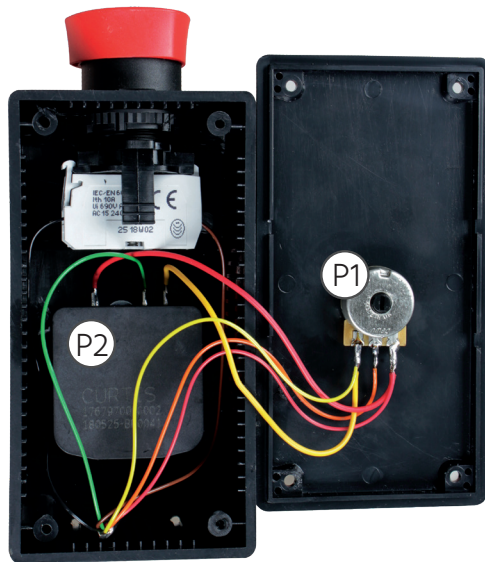
Connectors and wires drawn in/photo

Component placings/photo

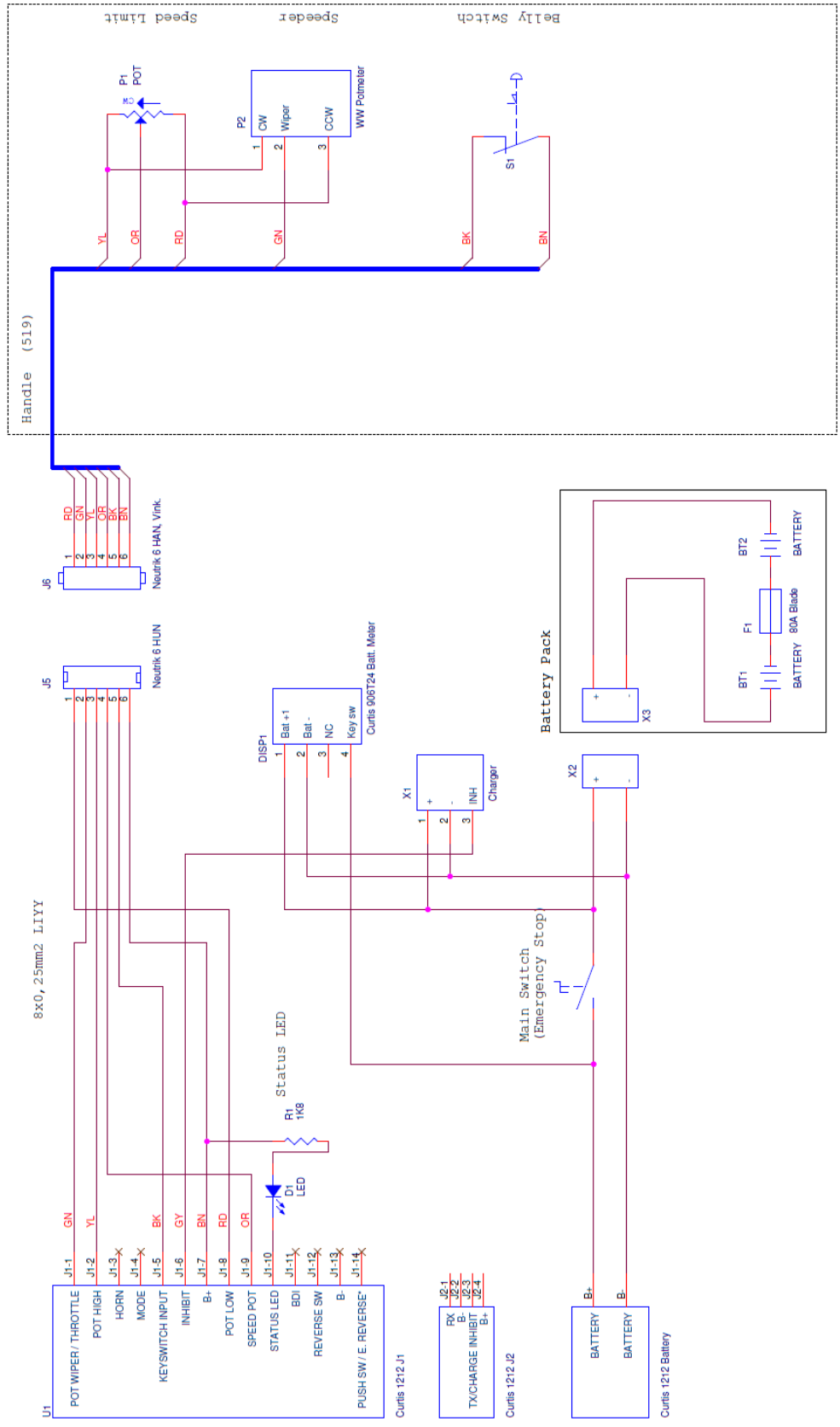
IMMO A/S

Friis Hansens Vej 9 - DK-7100 Vejle
+45 7585 8022
hello@immodenmark.dk
immodenmark.dk

IMMO  **KEEP
MOVING**



ELECTRICAL DIAGRAM



IMMO A/S
 Friis Hansensvej 9
 DK 7100 Vejle
 +45 7585 8022

- WT = White = Hvid
- BN = Brown = Brun
- GN = Green = Grøn
- YL = Yellow = Gul
- GI = Gray = Grå
- PK = Pink = Lysrød
- BU = Blue = Blå
- RD = Red = Rød
- BK = Black = Sort
- VI = Violet = Lilla
- OR = Orange = Orange

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IMMO A/S
 Friis Hansens Vej 9 - DK-7100 Vejle
 +45 7585 8022
 hello@immodenmark.dk
 immodenmark.dk



BATTERY REPLACEMENT

WARNING! The batteries may only be replaced by trained personnel.

WARNING! The batteries store large amounts of power. A short-circuit or damage to the batteries can lead to an explosion and mortal danger.

WARNING! Handle the batteries with due care. Be careful not to bump into corners and do not allow the pack to get into contact with sharp or pointed objects.

WARNING! If the batteries are punctured and you are exposed to the gelatinous acid in the batteries, immediately take off any contaminated clothes and wash your skin thoroughly with soap. Search medical attention in case of a subsequent eczema or rash.

If the acid gets into your eyes, immediately rinse them with water and seek medical attention.

WARNING! Collect and recycle end-of-life or defective batteries in accordance with the rules laid down by the local environmental authorities. Collect and dispose of any spills from defective batteries in accordance with the rules laid down by the local environmental authorities.

Make sure that the operating system is off before you initiate the replacement of the batteries.

Dismantle the battery pack from the holder.

Open the battery pack by removing the four screws at the edge.

Replace the two batteries in the battery pack with new batteries of the same size, voltage and capacity.

Make sure that all wires are reassembled correctly; pay particular attention to polarity, + and -.

WARNING! Watch out not to short-circuit the two pins of the connector or possibly unprotected battery poles.

WARNING! Never connect two batteries directly to each other – this can lead to an explosion or mortal danger.

Fit back the cover of the battery pack and screw back the four screws again.

Make sure that the batteries are fully charged before using the Weight Trolley.

FUSE REPLACEMENT

WARNING! Replace the fuse only once. If the fuse pops out again immediately after replacement, there is a fault in the electrical system, and the Weight Trolley needs to go in for repairs.

WARNING! Only replace a defective fuse with a new one of the same type and rated current [A/AMP]. Mounting a stronger fuse will circumvent one of the Weight Trolley's safety features and may lead to fire or explosion.

1. Dismantle the battery pack and keep it aside, just like when you replace the batteries.
2. Dismantle the protective cover of the fuse holder.
3. Replace the fuse with an equivalent fuse.
4. Fit back the protective cover to the fuse holder.
5. Assemble the battery pack.
6. Fit back the battery pack and take out the Weight Trolley for a test drive.

If the fuse pops out again immediately after replacement, there is a fault in the electrical system, and the Weight Trolley needs to go in for repairs. Contact IMMO or your dealer.

TECHNICAL DATA

Weight trolley # 100901			
Measurements	H: 1200 mm, W: 600 mm, L: 800 mm	Increase capacity	10°
Weight, empty trolley without blocks	75 kg	Engine power	450 W
Batteries	9 Ah	Max total weight	400 kg
Charger - charging time	2,5 A – 4 hours	Weight tolerance, uncalibrated	2%
Driving distance per charge	6 km	Anti-tip	Yes
Speed	0 – 6 km/h	Run time environment	-10/+40°C, 10-90% RH, non-condensing

The Weight Trolley has been developed and manufactured in accordance with the Machinery Directive 2006/42/EC.

IMMO A/S
Friis Hansens Vej 9 - DK-7100 Vejle
+45 7585 8022
hello@immodenmark.dk
immodenmark.dk

IMMO  **KEEP
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WEIGHT CONFIGURATIONS

Hole number	Total weight incl. weight trolley (kg.)							
	Empty trolley, 75 kg.							Empty trolley 125 kg
	250	275	300	325	350	375	400	550
18	-	-	-	-	-	-	-	550
17	-	-	-	-	-	-	-	425
16	-	-	-	-	-	-	-	400
15	-	-	-	-	-	-	-	375
14	-	-	-	-	-	-	400	350
13	-	-	-	-	-	375	325	325
12	-	-	-	-	350	300	300	300
11	-	-	-	325	275	275	275	275
10	-	-	300	250	250	250	250	250
9	-	275	225	225	225	225	225	225
8	250	200	200	200	200	200	200	200
7	175	175	175	175	175	175	175	175
6	150	150	150	150	150	150	150	150
5	125	125	125	125	125	125	125	125
4	100	100	100	100	100	100	100	100
3	75	75	75	75	75	75	75	75
2	50	50	50	50	50	50	50	50
	7 load blocks + trolley	8 load blocks + trolley	9 load blocks + trolley	10 load blocks + trolley	11 load blocks + trolley	12 load blocks + trolley	13 load blocks + trolley	17 load blocks + trolley

DECLARATION OF CONFORMITY

IMMO A/S
Friis Hansens Vej 9
DK-7100 Vejle

Hereby declares that our product:
Weight Trolley, type number 100901

has been designed in accordance with relevant parts of the Machinery Directive 2006/42/EC

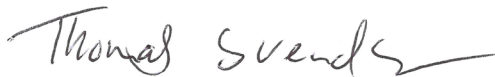
has been tested and approved in accordance with the following harmonised standards:

- EN 61000-6-1
- EN 61000-6-2
- EN 61000-6-3
- EN 61000-6-4
- EN 61439-2

Test conducted and approval granted by:

Bolls ApS
Gadekæret 11F
DK-3660 Stenløse

Vejle, 2 February 2017



Thomas Svendsen
Approval Manager