



D-3.2.1-15

**Manufacturer's instructions
for handling glass**

AGC

Manufacturers instructions for handling glass

These instructions are intended for all buyers of glass produced and supplied from the production plants of the company AGC Flat Glass Czech a.s., a member of the AGC Group, its processing plants and distribution companies of the AGC Group in the Czech and Slovak Republics. **The basic objective of the instructions is to establish, among other things, the principles for the safe handling of glass and thus minimize the risk of accidents, incidents, near misses, operational accidents or other unexpected events.**

The specific conditions for ensuring the safe handling of glass, resulting primarily from the basic principles of handling glass and AGC Standards, as well as from the scope of performed activities, are directly dependent on the degree of used mechanization and other means used in handling glass.

Handling must be performed according to the local conditions and situation. To prepare the own operating instructions, risk analyses and the basic principles of safe work contained in the relevant regulations of the company AGC Flat Glass Czech a.s., its production plants and the entire production and distribution network are also given.

1. Handling of glass:

- placing flat glass in packaging,
- unloading flat glass from packaging,
- loading and unloading of packaged glass,
- manual carrying of glass panes,
- handling with the panes during manual processing.

2. Handling units:

Definition – a load consisting of items or packaging that are fixed by one or more means, adapted for handling, transportation, stacking and storage, and they retain their shape as a unit.

A. Wooden

A1. ENDCAP (EC)

For packaging of cut glass of (1/2 DLF) formats

Specifications			
Max. length of the glass (mm)	Max. height of the glass (mm)	Max. net weight of the glass (kg)	Max. weight of the glass packaging (kg)
2,750	1,605	2,000	55



Detachable wooden frame of a modular type protecting the glass block around its entire perimeter. It has vertical strength strapping with a steel strap.

A2. ENDCAP max. 2.4 t

For packing glass of DLF format

Specifications			
Max. length of the glass (mm)	Max. height of the glass (mm)	Max. net weight of the glass (kg)	Max. weight of the glass packaging (kg)
3,210	2,640	2,400	60



A3. SLEEVE ENDCAP - E23, E25

For packing glass of cut formats

Specifications			
Max. length of the glass (mm)	Max. height of the glass (mm)	Max. net weight of the glass (kg)	Max. weight of the glass packaging (kg)
2,750	1,650	1,000	30

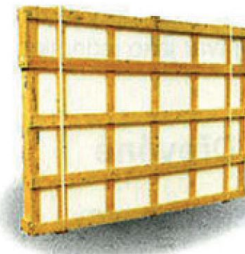


It consists of 2 sleeve supporting sides and a bottom. The sides are horizontally strapped with a steel strap. It can also be equipped with a top cover.

A4. GAPPED CRATE (JOINT)

For packing cut glass and glass of DLF format

Specifications			
Max. length of the glass (mm)	Max. height of the glass (mm)	Max. net weight of the glass (kg)	Max. weight of the glass packaging (kg)
4,350	2,520	2,340	120



Non-detachable protective all-wood cover protecting the glass block around the entire perimeter and sides. The crate is self-supporting. For higher safety, it has an additional strapping with a steel strap.

A5. WOODEN STAND, GAPPED SOLOLITE CRATE

For packing glass of smaller and bigger formats

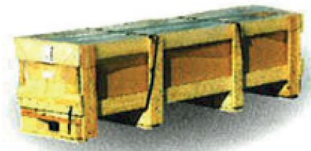
Specifications			
Max. length of the glass (mm)	Max. height of the glass (mm)	Max. net weight of the glass (kg)	Max. weight of the glass packaging (kg)
6,000	3,210	2000	100+-10%



Disposable packaging intended for the transportation of insulating, cured and cut glass, which consists of a loading surface, a support board, a securing sleeve, feet, front part, a crate frame and a steel strap.

A6. CRATE FOR MACHINING

Specifications			
Max. length of the glass (mm)	Max. height of the glass (mm)	Max. net weight of the glass (kg)	Max. weight of the glass packaging (kg)
3,000	1,500	1,000	70



Disposable packaging intended for the transportation of products from the processing of furniture glass (mirrors, float and ornamental glass, etc.) consisting of a pallet base, three walls, a removable front part, without a lid and including chipboard.

A7. "A" AND "L" PALLETS FOR MACHINING

Specifications			
Max. length of the glass (mm)	Max. height of the glass (mm)	Max. net weight of the glass (kg)	Max. weight of the glass packaging (kg)
3,000	1,300	800	50



Disposable packaging intended for the transportation of products from the processing of furniture glass (mirrors, float and ornamental glass, etc.) consisting of a pallet base, back support for "L" pallets and a middle support for "A" pallets.

A8. Woden A-STAND

Technické údaje			
Max. délka skla (mm)	Max. výška skla (mm)	Max. netto váha skla (kg)	Max. váha obalu skla (kg)
6000	2900	2000	230



Disposable packaging intended for the transportation of products consisting of a pallet base and a middle support.

A9. "EUROPALETTE" FOR MACHINING

Specifications			
Max. length of the glass (mm)	Max. height of the glass (mm)	Max. net weight of the glass (kg)	Max. weight of the glass packaging (kg)
1,200	1,000	500	20



Ordinary "europallette", but without a marking. Disposable packaging intended for the transportation of products from the processing of furniture glass (mirrors, float and ornamental glass, etc.).

The goods are stored in cartons (blanks) and strapped to the pallet.

B. Metal

B1. SIMPLE PALETTE, AutoMotiv PALETTE

For transportation of cut glass formats, automotive blanks

Specifications			
Max. length of the glass (mm)	Max. height of the glass (mm)	Max. net weight of the glass (kg)	Max. weight of the glass packaging (kg)
2,200	1,450	2,400	200



There are 2 basic types of pallets of different structure, each type has several variants:

- Simple palette** - a detachable metal pallet with wooden elements.
- AutoMotiv palette** - the pallet has perpendicular extension support rods on both sides (it is possible to remove the glass from any designated side). The glass is secured with retractable wedges.

B2. Metal “L” STAND

For transportation of glass of PLF and DLF formats

Specifications			
Max. length of the glass (mm)	Max. height of the glass (mm)	Max. net weight of the glass (kg)	Max. weight of the glass packaging (kg)
6,100	Max. 3,300	2,700	1,500



All-metal structure of type “A” or “L”. The stands can be handled with a lifting device of corresponding tonnage.

B3. ALL-METAL STRUCTURE STANDS

Specifications			
Max. length of the glass (mm)	Max. height of the glass (mm)	Max. net weight of the glass (kg)	Max. weight of the glass packaging (kg)
5,000	3,210	2,000	100



All-metal, non-detachable structure of type “A” for storage and transportation of glass products.

B4. SPECIALS

Specifications			
Max. length of the glass (mm)	Max. height of the glass (mm)	Max. net weight of the glass (kg)	Max. weight of the glass packaging (kg)
3,200	1,750	1,500	100



All-metal stand structure firmly connected to the loading surface of the delivery low-floor type of vehicle.

B5. "JL" STAND FOR MACHINING

Specifications			
Max. length of the glass (mm)	Max. height of the glass (mm)	Max. net weight of the glass (kg)	Max. weight of the glass packaging (kg)
1,550	620	1,200	130



Returnable metal stand for the transportation of products from the processing of furniture glass (mirrors, float and ornamental glass, etc.). Two types differing in length (1,250 or 1,550 mm). They have an "L" shaped profile, where the bottom and work rest are made of plywood.

B6. "ST" STAND FOR MACHINING

Specifications			
Max. length of the glass (mm)	Max. height of the glass (mm)	Max. net weight of the glass (kg)	Max. weight of the glass packaging (kg)
1,600	1,400	1,700	150



Returnable metal stand of profile "L" for the transportation of products from the processing of furniture glass (mirrors, float and ornamental glass, etc.). The bottom and work rest are fitted with rubber.

B7. "GITTERBOX"

Specifications			
Max. length of the glass (mm)	Max. height of the glass (mm)	Max. net weight of the glass (kg)	Max. weight of the glass packaging (kg)
1,150	780	1,100	100



Returnable all-metal packaging for the transportation of products from the processing of furniture glass (mirrors, float and ornamental glass, etc.). The fillings of the sides and front part are made of metal mesh, at the bottom there is a solid floor.

B8. "MR" STAND FOR MACHINING

Specifications			
Max. length of the glass (mm)	Max. height of the glass (mm)	Max. net weight of the glass (kg)	Max. weight of the glass packaging (kg)
2,300	600	3,000	322



Returnable metal stand of profile "L" for the transportation of products from the processing of furniture glass (mirrors, float and ornamental glass, etc.). The bottom and work rest are fitted with rubber.

B9. 13T METAL STAND

Specifications			
Max. length of the glass (mm)	Max. height of the glass (mm)	Max. net weight of the glass (kg)	Max. weight of the glass packaging (kg)
3,210	2,550	13,000	322



These are two "A" profiles connected by inserted rods. These parts can be disassembled. In contrast to the "PTF" stand, it is equipped with straps and rods and is transported on the loading area of trucks.

B10. "FREISEN" METAL STAND

Specifications			
Max. length of the glass (mm)	Max. height of the glass (mm)	Max. net weight of the glass (kg)	Max. weight of the glass packaging (kg)
300	85	2,000	150



It is a metal stand of type "A" of an all-metal welded structure. These stands are intended only for shipping for one customer (Freisen) and are also their property.

B11. RETURNABLE METAL FOLDING STAND

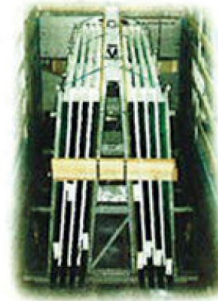
Specifications			
Max. length of the glass (mm)	Max. height of the glass (mm)	Max. net weight of the glass (kg)	Max. weight of the glass packaging (kg)
3,750	1,880	3,000	97



Returnable metal packaging intended for the transportation of ornamental glass.

B12. TRANSPORT METAL FOLDING STAND (SPECIAL)

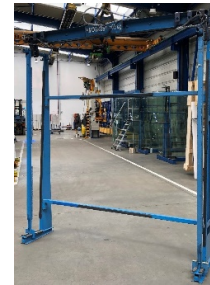
Specifications			
Max. length of the glass (mm)	Max. height of the glass (mm)	Max. net weight of the glass (kg)	Max. weight of the glass packaging (kg)
3,210	2,550	13,000	322



Two-element 13-ton transport “A” stand intended for the transportation of loose glass blocks, which are loaded on the stand on the loading surface of the vehicle.

B13. METAL SHIPPING STAND CL3 +

Specifications			
Max. length of the glass (mm)	Max. height of the glass (mm)	Max. net weight of the glass (kg)	Max. weight of the glass packaging (kg)
2,250	2,500	3,000	61.8



Metal, single-sided transport stand intended for the transportation of loose fire glass blocks, returnable/non-returnable.

B14. METAL SHIPPING STAND 3,500X2, 970X800

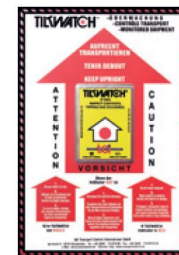
Specifications			
Max. length of the glass (mm)	Max. height of the glass (mm)	Max. net weight of the glass (kg)	Max. weight of the glass packaging (kg)
6,000	3,210	3,000	300



All-metal structure of type "A". The stands can be handled with a lifting device of corresponding tonnage.

Note:

The so-called "TILTWATCH" labels, which can be placed randomly on some wooden packaging, are used as a check for the customer's and supplier's needs to ensure that the packaging is handled correctly. If the correct handling is not observed (e.g. wrong rotation, handled angle, etc.), the target on the label will turn red.



3. Loading, transportation and unloading of packaging

Warning for drivers - transportation and unloading of the packaging!

1. Upon arrival at the manufacturer's premises, the driver announces his presence at the designated place and, after the necessary actions, prepares his vehicle for loading - he drives it to the designated place, and proceeds according to the type of the load. After full loading, he checks the securing of the load and fixes it. He then prepares the vehicle for departure.

All activities in shipment halls will be performed by the driver properly equipped with personal protective equipment, which are at least: hard closed shoes, protective clothing with long sleeves and trousers, safety helmet, goggles, work gloves and a yellow warning (signal) vest.

2. Furthermore, the driver transports the load to the destination - this does not affect the responsibility for the load during transportation.
3. At the destination, the driver reports his arrival to the customer's unloading staff. He then drives the vehicle at the unloading point designated by the unloading staff and prepares it for unloading (he opens the vehicle and lowers the sides if necessary). He then follows the unloading orders, but in no case participates in the unloading of the load himself. After unloading and completing the necessary actions, he prepares the vehicle for departure (lifts and secures the sides and closes the vehicle).

The driver only transports the specified load. The driver is not involved in loading, moving or loading (except for Article 4.2.5 of this document).

3.1 Wooden packaging (crates, endcaps, wooden A-STAND)

Wooden packaging is transported as follows:

- on transport “A” stands that are adapted for this purpose. It is a steel structure designed and manufactured to suit the safe storage of glass in wooden packaging on vehicles, and is already used for packaging with at least one dimension exceeding 1,800 mm. Prior to transportation, the driver shall secure the “A” transport stand with the load using straps with regard to transport safety. “A” stands are part of the vehicle for which the carrier is responsible.
- in containers
- in bulk in a truck

LOADING

When loading, the driver ensures the following:

- After driving the vehicle for loading and opening the vehicle, the driver deflects the bellows to the stop, so that in no case does the loading surface move and the goods cannot fall. Then he prepares the required number of transport “A” stands, including anti-slip mats (must always be used when loading any goods in the packaging). In case of a stand without stabilizing feet, it is secured with spacer bars and, in the case of a non-welded stand; he checks the correct seating and securing of the pivots with cotter pins. In case of a stand with stabilizing feet, it is necessary that these feet are placed alternately on the individual parts of the stand (i.e. crosswise from the left and right sides); the driver checks the locking of the pivots with cotter pins and ensures the correct spacing of the stands. The driver determines how he wants to load the transported goods - he is responsible for the distribution of the goods with regard to its weight and axle load. **This is where the driver’s participation in loading ends; loading is only provided by the supplier’s shipment staff!**

He then leaves the loading area and leaves it to the supplier’s staff to load the wooden packaging according to internal regulations, who secure the load with steel or Kevlar straps. At the end of loading, the driver checks and secures the load to the vehicle with straps, closes the vehicle and leaves the loading site.

- For wooden packaging with dimensions smaller than 1,000 mm in height, the ordinary transport “A” stands are not used, but the EC itself or the crates are secured with a steel strap and clamping straps into compact blocks on the vehicle floor.
- As further fixation, it is also possible to use: a) nailing the boards to the floor of the vehicle at the feet of the stand “A” for bulk wooden packaging; b) nailing the brake prisms to the floor of the semi-trailer; c) metal plates bolted to the “Omega profiles”; d) securing eyes, or another way according to the type of vehicle and its equipment.
- Before loading into the container, the shipment staff checks that the container is seated on the semi-trailer pivots. It is the driver's responsibility to secure the semi-trailer on which the container must be extended to prevent it from falling. Without these conditions, the staff must not start loading. The loading of the EC into the container is performed by the shipment staff using a bridge crane without further assistance from the driver.

UNLOADING

Instructions before unloading:

- **Unloading goods from the truck on uneven or sloping roads or area is forbidden (there is a risk of the crates falling)!!!**

- **The principle applies for the entire period of unloading or releasing - no one is allowed to stand or move near the unloading in front of the unloaded wooden packaging (always from the side)!!!**
- After driving the vehicle for unloading (opening the vehicle and possibly lowering the sides), the driver deflects the bellows to the stop, so that in no case does the loading surface move and the goods fall. He then, if possible, checks that the pivots in the lower part of the stand are correctly seated and secured; then he loosens the straps so as to prevent the eventual suspension of the load after cutting the steel straps (which are used to form a monolithic block of wooden packaging on the transport stand "A"). However, they are not yet being cut.
- If there is no risk of the load collapsing, the driver removes the straps from the load and leaves the truck. This is where the driver's activity ends and further handling is provided by the customer's unloading staff!
- Before removing the load from the transport stand "A", both sides must be secured with a support (wooden beam) against unwanted movement.
- Then the unloading staff, properly equipped with the prescribed PPE, cut the securing steel straps. These straps are cut exclusively so that the employee stands sideways facing the sides of the packaging, never in front of the packaged glass, where there is a risk of injury from being hit by the steel strap or being buried by falling glass. No other persons may stand in the dangerous area!
- Subsequently, the packages are unloaded by means of a crane or forklift truck, alternately from one side and from the other side one by one. It is not necessary to lower the sides when unloading with a crane. During the entire unloading, both sides of the glass container to be handled must be secured against unwanted movement.
- After the vehicle is opened, the EC is unloaded from the container using a crane. The unloading staff first checks the condition of the load. They then secure the loaded EC from both inside sides with prisms and then cut the straps on one side to secure the EC. **When cutting the strap, pay attention to the ejection of the end - there is a risk of hitting the body!!!** After removing the securing prisms from one side of the load, the EC is flipped over to the other side (standing slightly at an angle to the other half of the load) and gradually unloaded from the side of the container to the centre. After unloading one side of the container, the other side continues in a similar manner from the centre to the side of the container. After unloading one row, the second and other rows are unloaded in the same way.

Following these principles guarantees safe unloading of goods in wooden packaging.

3.2 Metal pallets

- Metal pallets must be secured against movement during transportation after loading.
- Before unloading, the driver removes the securing straps and has the pallets unloaded. The pallets must not be unscrewed or the locking wedge removed on the vehicle (depending on the type of pallets).
- The pallets are always unloaded with a forklift by the bottom of the pallet. The glass must not be removed from the pallet which is on the body of the vehicle. The pallets must always be on the ground.

3.3 13t stands

- 1,850–2,550 × 3,210 (3,600 mm) glass is transported on 131 racks.
- The driver opens the rear part of the truck (inenloader) and loads the goods by reversing.
- Before unloading, the driver lowers the platform to the ground, opens the rear part and leaves the stand at the unloading site.
- From the unloaded platform, the 13t stand is unloaded using a special transmitter suspended from a crane, which is equipped with a micro lift and a micro travel. The glass must be secured during this handling (locking segment, securing straps, etc.). The glass blocks are handled by a transfer frame suspended from a crane.
- Transport, using a classic semi-trailer with built-in steel “Omega U-profiles”, takes place in such a way that the driver releases the bellows to the stop after driving the vehicle for loading (opening the vehicle) to prevent movement of the loading area and the possibility of falling, then releases the stands “A” for handling and prepares the metal plates with screws. **This is where the driver’s participation in loading ends, which is further ensured only by the supplier’s shipment staff!!!** The set of 13t stands is unloaded from a truck by means of a special transmitter suspended on a crane equipped with a micro lift and a micro travel. The glass blocks must remain secured with vertical locking bars. The glass blocks themselves are handled using a transfer frame or special straps suspended on a crane.

3.4 “A” and “L” stands

The PLF and DLF glass is transported on these stands. The driver opens the rear part of the truck (inenloader) and loads the goods by reversing. Then he seals the stand against contamination with the inner floor and after lifting the stand to the transport position he secures the glass with the locking system of the inenloader (e.g. pressure plates, hydropush, airpush ...).

Before unloading, the driver opens the rear part and visually checks the condition of the goods. Then he releases the locking system, lowers the stand to the ground and leaves the stand at the unloading site. The glass is assembled in individual blocks by means of a frame suspended on a crane, which must be equipped with a micro lift and a micro travel and stored in a designated place. After unloading one side, the glass blocks are unloaded from the other side in the same way.

Any change in the mode of transportation will be resolved individually by an amendment to these instructions.

4. Handling of the lifting equipment or motor vehicles

4.1 Risk analysis

When loading, unloading and reloading the handling units (i.e. metal pallets, crates, endcaps) the risk of injury is low, but due to the probable nature of the accident (falling crates, collision between two transport units, etc.) the consequence of such an accident would be serious, probably with the qualification of a serious occupational accident.

Possible sources of injury can be, in particular:

- being hit by a falling packaging that has slipped out of the lashing device of the lifting device,
- being hit by the packaging not secured against tipping over,
- being hit between the packages, for example during manual handling,

- cutting when moving from the stand to the storage screens and when handling the board from the screen to the cutting line,
- being hit by a vehicle, being caught by a crate not secured by a solid support, the effect of dominoes.

4.2 Principles of safe work

4.2.1 CRATES

- The crates are handled “upright” and it is only allowed for crates with proper stability; manual handling may only be performed by workers over 18 years of age; the number of workers designated for handling the crates depends on the local situation and the extent of handling, in general it is possible to set the load per worker at max. 15-30 kg in men and max. 50 kg at a maximum interval of 30 minutes per shift,
- the crates are handled only in the position in which they were loaded - they are not tipped over!
- When handling with a lifting device (LD), the lashing ropes of the LD must be laid behind the upper side tilt of the crate; only one crate can be handled.
- When handling the motor truck (MT) the forks must be suitably adjusted with regard to the width of the crate and inserted as far as possible under the crate (pay attention to the protruding tips of the arms!!!) and in the transport position of the LD only completely closed.
- When unpacking the glass from the crate, the procedure is as follows: the crate is supported on a solid structure or an auxiliary stand at an angle of 6-8°, the securing straps and the lid are removed and the individual panes are removed.

4.2.2 ENDCAPS (EC)

- This type of packaging is adapted for handling by a lifting device (LD) or a motor truck (MT) equipped with an additional device (suspension frame); in each case, one EC is handled at a time, which is moved beyond the upper, designated part of the packaging.
- **It is forbidden to manipulate the EC in which the strapping (lock) is removed or broken;** the glass may fall (“spill”).
- Unpacking glass from the EC: The EC rests on a support surface of a solid structure with an inclination of 6-8° or an auxiliary stand A at the same angle. If this structure is not available, the EC support must be secured at an angle of 6-8° and the EC must be lined with a wedge to prevent the EC, possibly unpacked glass, from falling.
- For the sleeve EC, the horizontal straps are further cut and removed and both sleeve sides are removed. If the EC is equipped with an upper cover plate or cover boards, then the vertical straps are cut and removed and the upper cover is removed.
- For the conventional EC, remove the carrier straps, remove the top cover and slide out the two sides, then carefully remove the nails and remove the side board on the bottom trough.
- The individual panes of glass are taken away.

4.2.3 METAL PALLETS

- Before any handling of the loaded pallet, it must be checked or the glass must be secured against unwanted movement.
- A pallet which has been found to be defective, endangering its stability or restricting the possibility of securing the glass, must be discarded immediately and the loaded glass reloaded without delay.
- Only pallets that are undamaged and intended for stacking can be stacked, while the maximum load capacity marked on the pallet must not be exceeded during stacking. .
- Handle the pallets only with a forklift.
- Metal pallets of the “L” type must be stored on a firm, level surface before unpacking, and when cutting the strap, it is necessary to stand only on the side of the pallet.
- Metal pallets with perpendicular extension bars must be placed on an inclined base at an angle of 6-8° before removing the locking extension wedge (from the side of removing the glass, it is sufficient to line both feet with one long prism, 7–10 cm high). Only then the wedges and bars can be extended.
- The glass must not be removed from the pallet on the body of the car. The pallets must always be on the ground.

4.2.4 ALL-METAL STRUCTURE STANDS

- The glass is fixed to the stands with securing rods or strap and the stand is fixed with straps to the loading surface of the vehicle.
- Handling is carried out with a fork lift truck or suspension using steel ropes (crane, modified forklift truck) only with structurally intact stands, while the stands must not be tilted or lifted at an angle during handling.

4.2.5 SPECIALS

- The glass is fixed to the stand by securing rods or strap and the stand is firmly connected to the loading surface of the vehicle.
- The glass is individually removed from the stand directly from the vehicle - usually this type of handling is performed by the driver and the assistant (according to the size and weight of the transported glass formats).
- The vehicle must be placed on a horizontal surface during unpacking or packaging (maintaining the position of the glass on the stand in relation to the road or the warehouse floor), then carefully remove the straps or bars so that the glass is always secured against unwanted movement.
- Exceptions apply to this type of packaging when loading and unloading products - the individual pieces of glass are loaded directly on the stands located on the vehicle. A trained driver can also take part in these activities.

5. General principles applicable to the specified handling units

- 5.1. All handling units must be placed on a permanently paved, level, horizontal and drained surface free of cracks and ridges; the load-bearing capacity of the base must correspond to the weight of the considered quantity stored per m² - the load-bearing capacity must be marked.
- 5.2 Metal pallets must always be placed on the base with all supporting (corner) elements.
- 5.3 The handling units must be placed carefully to prevent damage.
- 5.4 Movable handling of the handling units (shearing, pushing, and pulling) is prohibited.
- 5.5 Only units designed for this purpose may be stacked, of the same type, undamaged, only metal pallets.
- 5.6 The storage of crates and the EC is only permitted on anchored supports provided for this purpose; it is forbidden to place the units on the supporting pillars of structures or on the walls of buildings.
- 5.7 The last unit in a stored row must always be secured against tipping over.
- 5.8 When handling the stack of handling units, the stack must be cohesive and its height must not exceed 2m (according to ČSN 26 9030).
- 5.9 When handling packaging (pallets), handling equipment of appropriate load capacity must be used.
- 5.10 The handling unit must be complete and undamaged (solid) - according to the technical documents.
- 5.11 The transport of bulk glass panes without adequate securing is prohibited.

6. Manual handling of glass and shards

6.1 Risk analysis

This activity is associated with the highest frequency of occupational accidents, the source of which are the following ones:

- being hit by shards during breaking (cracking) of the transported board,
- being hit by falling panes,
- being hit by shards flying off after falling and breaking the pane,
- possible displacement of the glass and its breaking due to unprofessional removal of the boards with an ordinary EC,
- hitting the pane while walking or otherwise moving,
- being hit by the sharp edges of glass when not using personal protective equipment,
- hitting a dropped saber from a bundle of glass.

6.2 Principles of safe work

The place of removal of the glass from the package or container must meet the following conditions:

- flat handling surface, paved, without dirt,
- sufficient direct lighting to perform a visual inspection of each panel taken,
- sufficient free space for the removal and relocation of the pane, according to the dimensions of the pane of glass,

- the shortest possible handling distance from the place of removal and the place of placing/storage of glass panes (avoidance of unnecessary handling of the glass),

and further:

- a) the packaging must be secured against unwanted movement when removing the glass,
- b) when removing the panes from the packaging in a vertical position, the inclination of the package must be secured at an angle of 6-8° (or 96-98°) in order to prevent the pane from falling off the packaging unintentionally,
- c) if the removal of the panes from the packaging is interrupted, the remaining panes must be secured against unintentional falling; handling the packaging without securing the glass against falling is prohibited,
- d) before removing each pane, a visual inspection of its integrity must be performed,
- e) if it is necessary to dispose of a cracked pane, it is necessary to proceed with the removal of shards and possible trimming/alignment of parts of the pane from above; picking up shards from below is prohibited,
- f) if several panes are cracked in succession, the panes of more than 1 m² must be removed by two workers (each from one side of the packaging),
- g) the worker may perform or otherwise manipulate only one pane of glass at a time and, if possible, use handling equipment intended for manual handling of glass (e.g. hand suction cups, self-supporting pliers, etc.),
- h) before commencing the transportation or other handling, the worker must check that no object or protrusion can be caught on the route or place in question,
- i) the maximum dimension of the pane carried by one person depends on its weight, in general this is governed by the valid legal regulation, which states that:
 - men can carry regularly 15-30 kg and max. 50 kg for an 8-hour shift only in case of good gripping possibilities, while in the total amount they can transfer max. 10,000 kg for an 8-hour shift,
 - women can regularly carry 5-15 kg and max. 20 kg for an 8-hour shift only in case of good gripping possibilities, while in the total amount they can transfer max. 6,500 kg in an 8-hour shift,

(1 m² of 4 mm thick glass weighs approx. 10 kg; the pane should have a maximum area of 1 m² while maintaining the weight limit),

- j) the transported pane must be held by the upper edge, the pane up to 1 m² is carried diagonally in front of you (in the direction of walking), carrying the pane by the lower edge (in the armpit, on the shoulder or above the head) is strictly forbidden,
- k) manual transfer of panes (without the use of mechanical means) larger than 1 m² over longer distances is prohibited; in case of handling the glass associated with storage on the cutting table and from the table to the packaging, it is necessary to bring the packaging closer to the work table while maintaining the condition of sufficient free space for the necessary handling of the glass pane, always handle the glass so that one hand holds the glass from the top and the other from the bottom and always use the prescribed PPE (cutting gloves).

- l) the storage of the individual panes must, in principle, be performed on a base whose hardness does not cause damage to the glass (e.g. wood, rubber, fibreboard, etc.); the panes must be secured against tipping over,
- m) when storing the panes, it is strictly forbidden to store them outside the designated areas and to leave the stored panes without securing against tipping over,
- n) when placing one pane or other remnants or cracked parts on the stand, the edges must be aligned so that they do not exceed the outline of the stand or the edge of the glass block placed on the stand, or are properly marked so that they are immediately visible,
- o) it is forbidden to place the glass panes on the worker's body, e.g. when counting the panes,
- p) places or cutting tables must be sufficiently distant from each other so as not to endanger workers when handling the panes; it is recommended to separate their location (e.g. placement in boxes),
- q) in addition to the called-in workers, other persons are not allowed to remain in the area of the cutting table,
- r) the surface of the cutting table must be covered with a dark solid fabric or other suitable material to facilitate visual inspection of the cleanliness of the surface (small fragments),
- s) shards and glass waste must be deposited in shard transport containers; the dumping of glass in these containers and their overfilling is strictly prohibited,
- t) the removal of shards from the floor must be ensured at regular intervals during the work shift; shards in the operator's area or in the profile of traffic routes must be removed immediately after their occurrence,
- u) when handling glass, personal protective equipment must be used with regard to the assessment of the degree of risk when handling glass; when handling shards it is always necessary to use safety goggles and other prescribed personal protective equipment,
- v) in outdoor areas, it is forbidden to manually handle sheet glass with an area of more than 1 m² in wind speeds of more than 8 m/s and temperatures lower than -5°C.

7. Final provisions

The above-mentioned methods of handling, transport and storage of glass are recommended!

The publisher of the instructions is aware that the methods of handling glass, handling equipment and handling technology are different at particular production plants, distribution companies and individual customers.

Photographs of individual types of handling units are only for information and the publisher is aware of any differences.

Introduction to normal activities and knowledge of instructions by individual employees and their application is the exclusive responsibility of customers.



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AGC Flat Glass Czech a. s., člen AGC Group, Sklářská 450, 416 74 Teplice, www.agc-yourglass.com

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