

**General Terms and Conditions of Sale****Q4Glass sp. z o.o.****valid from 30-08-2023****1. General provisions**

1.1 These General Terms and Conditions of Sale, hereinafter referred to as "GCS", set out the rules of cooperation between the Parties in the supply of products offered by Q4Glass sp. z o.o. with its registered office in Koszalin, (hereinafter referred to as "**Supplier**") for entities doing business (hereinafter referred to as the "**Customer**").

1.2 The General Terms and Conditions of Sale form an integral part of any offer, pricing, supply agreement or cooperation agreement to which the Supplier is a party and the subject matter of which is the supply of goods offered by the Supplier.

1.3 The undertaking of cooperation and in particular placing an order, sending an inquiry or concluding a contract shall constitute an approval by the Customer of GCS.

1.4 Should the contract provide for otherwise, the provisions thereof shall have priority in case of conflict with the provisions of GCS.

**2. Orders, deadlines**

2.1 The manufacturing of a product by the Supplier is based on the order in writing sent to the Supplier by e-mail or fax to the contact address indicated by the Supplier. An order must contain: specifically defined products, dimensions, their number and the completion date as expected by the Customer. The absence of expected completion date shall be deemed to be an acceptance of the deadline indicated by the "Supplier". The contract shall include a statement of acceptance of the provisions of GCS.

2.2 Within 3 working days, the Supplier shall send to the Customer the order confirmation along with the deadline, and should the conditions in the order as set out by the Customer be impossible to be performed, the Supplier shall communicate this fact within the aforementioned period and shall propose its own conditions of the contract. In the absence of order confirmation within the above deadline shall not be considered a tacit acceptance of the terms of the contract.

2.3 The Supplier may refuse to accept an order for whatever reason.

2.4 An order placed by the Customer, confirmed by the Supplier shall constitute a contract and shall be for the Supplier the basis for placing order for raw and other materials necessary as are necessary to manufacture the ordered products.

2.5 Any changes by the Customer of the terms of the contract confirmed by the Supplier shall require the express written approval by the Supplier. If this is the case, determination of new terms shall be considered a placement of a new order in accordance with paragraph 2.2

2.6 The terms and detailed conditions of performance of individual orders are defined on the written order confirmation by the Supplier.

2.7 The conclusion of the contract of sale shall take place when the Parties agree on all the terms of the contract and when they are confirmed by the Supplier. The scope of the contract provides for an order being confirmed by the Supplier.

2.8 In the absence of approval of specific conditions of the contract sent by the Supplier in the order confirmation, the Customer shall be obliged to immediately communicate this fact to the Supplier (not later than within 24 hours). Failure to notify shall constitute acceptance of additional conditions specified in the confirmation.

2.9 The Supplier undertakes to manufacture the products in accordance with the confirmed order, standards applicable in Poland as well as reference documents.

2.10 For orders in DXF and DWG design formats, as manufacturing dimensions the Supplier shall assume actual dimensions as measured on drawings. The Supplier does not recognise the dimensions recorded "manually – in the alternative" describing a given dimension. The Customer shall be obliged to verify the drawings for compliance of the actual dimension with the descriptive dimension. The Supplier shall not be liable for any errors resulting therefrom.

2.11 For orders in non-design formats such as PDF or JPG, descriptive dimensions shall apply.

2.12 Despite accepting the order, the Supplier shall be released from any obligations, if due to reasons beyond its control and especially due to "force majeure, acts or omissions of the Customer or third parties (e.g. the suppliers of raw materials) the manufacture or delivery of the product is impossible or excessively difficult. The Supplier undertakes to inform the Customer immediately upon determining the cause preventing the performance of the contract.

2.13 Periodic lack of availability of raw materials necessary for the manufacture of the products by the suppliers with whom the Supplier cooperates, may give rise to extend the deadline established by the Supplier for the manufacture of the products, which the Supplier shall communicate to the Customer. If said extension exceeds 120 days, the Customer shall be entitled to withdraw from the contract by making an appropriate statement within 7 days of exceeding the above-named period.

2.14 Ordering the products by batch can cause a significant increase of waste above the amount adopted for the preparation of quotation, resulting in the relative increase in the final price, which the Customer accepts should he/she decide on such method of order. In order to plan the production accordingly and limit the increase in the price associated with an increase in the amount of waste, the Customer should provide the Supplier with preliminary orders for all products, along with the specification of all the forms and categorised by partial orders.

2.15 For non-standard glass (manufactured by glassworks for the purposes presented by the project Customer), the Customer shall be obliged to accurately provide, for the purpose of quotation, information on the quantities of all the planned orders including the final date of placement thereof. Increasing the amount of eventually ordered products may result in the need for additional orders of raw materials, which may in turn result in an increase in the costs and the final price indicated in the quotation, as well as may result in significant prolongation of the lead-time. Reducing the amount of eventually ordered products (i.e. order for the less amount of glass relative to the amount initially taken into account in the preparation of quotation) may result in charging the Customer with the cost of raw materials purchased specifically for the purpose of implementation of the project presented by the Customer. The cost of raw materials will not be charged if the Supplier is capable of using the ordered raw material for other projects within two months of ordering the raw materials. In case of doubt, the parties acknowledge that the reduction in the quantity of the eventually ordered products takes place if, at the date declared by the Customer, no order is placed for the products at least in the amount declared by the Customer.

2.16 For additional costs connected with the situations described in paragraphs 2.14 and 2.15, the Supplier may provide summary thereof as a supplement to quotation. No objection from the Customer within 24 hours of receipt of the supplement, shall be treated by the parties as the acceptance of the conditions specified therein regarding the price increase and the obligation to cover the costs specified therein without any reservations.

2.17 The release of the goods takes place upon payment by the Customer of full amount, unless the Parties decide otherwise, taking into account the security of the claims offered by the Customer. In case of early release, the Supplier reserves the ownership of the goods sold until full payment of the agreed price, unless the Parties decide otherwise.

2.18 In the event of a breach by the Customer of the contract, including in particular the payment date, the credit limit calculated including the value of the order placed, the Supplier shall have the right: to refuse to accept the order, withhold the delivery or release of the ordered batch of products until the outstanding amounts are settled by the Customer. The Supplier shall not be liable for any extension of the term of the contract resulting from the above-named reasons. In the case where a confirmed order cannot be completed or completion thereof is difficult for the above-named reasons, the Supplier shall be entitled to withdraw from the contract for reasons attributable to the Customer by making an appropriate statement within 30 days of becoming aware of causing the breach.

### **3. Prices, offers**

3.1 All prices shown in the price lists and offers of the Supplier are net prices. To the prices, an appropriate VAT rate should be added.

3.2 The invoices will be calculated in the currency in accordance with the applicable price list for individual Customers or object-oriented or trade offer, and for products not included in the above, they shall require the agreement between the Parties prior to the order being confirmed by the Supplier.

3.3 The Supplier shall issue to the Customer a VAT invoice no later than 7 days from the date of delivery. The Supplier shall indicate on the invoice the date and method of payment as specified in the offer or the price list.

3.4 In the event of delays in the payments of invoices, the Supplier shall have the right to change the delivery schedule for a given Customer, as well as suspend or refuse to perform the contract until the outstanding payments will have been settled, without any consequences or claims on the part of the Customer.

3.5 The credit limit must be understood as the sum of required and not required receivables, and for new orders, also

as the order value. For the credit limit, the value of the receivables plus VAT due, shall be assumed. In any case, the Supplier shall have the right to unilaterally change the assigned due date and credit limit or revoke it.

3.6 Unless the Parties agree otherwise, in the case of orders processed with the credit limit specified by the Supplier, it is necessary to grant the Customer the security of payment as agreed with the Seller. Referring the order for implementation by the Supplier takes place not earlier than after the agreed security was granted by the Customer. The delay in the grant of appropriate security increases the agreed deadline.

3.7 Failing to make the advance payment will be treated as cancellation of the order by the Customer. If such is the case, the offers submitted to the Customer in respect of that order shall cease to be binding.

3.8 The prepayment or advance payment may be offset by the Supplier against the contractual penalty, which the Customer is liable to pay in the amount of agreed prepayment or advance payment in case of cancellation of the contract or delay in receipt for the reasons attributable to the Customer. In the case of outstanding liabilities, the prepayment or advance prepayment shall be first and foremost applied towards thereof.

3.9 In the absence of timely payment, the Customer agrees to pay interest as agreed under additional terms, and in the absence of arrangements, the maximum interest as permitted by law against the monies for delay (Art. 481 § 2<sup>1</sup> of the Civil Code), as well as any costs of debt collection as commissioned by the Supplier.

3.10 The Parties have jointly agreed on the following valuation methods:

3.10.1 the minimum product calculation surface is 0.6m<sup>2</sup>, for smaller surfaces the price as per 0.4m<sup>2</sup> is used,

3.10.2 for shapes other than rectangular, and with the unit surface of more than 4m<sup>2</sup>, additional charges apply as specified in the price list or offer,

3.10.3 for non-rectangular shapes, the surface and circumference of the figure are calculated as the surface of a rectangle circumscribed around this figure.

3.10.4 applying the surcharges associated with shape shall not exclude the application of surcharges connected with surface,

3.10.5 the price calculations include waste from glass cutting of up to 15%, in the event that the Supplier finds in the order more waste from cutting, both for the full as well as for the partial orders, the Supplier shall have the right to suspend the processing of the order and make a new pricing for a given order with regard to the appropriate amount of glass cutting waste,

3.10.6 in the event of additional orders for painted glass, there are new process of forms.

#### **4. Deliveries, carriage, racks**

4.1 Both quality and quantity acceptance of products takes place at the place of delivery, i.e. at the Customer's registered office or at a construction site, and for the EXW formula on the Supplier's premises.

4.2 Each delivery batch is evidenced by a bill of lading, with the specification which shall form the basis for the quantitative and qualitative acceptance of the goods and racks.

4.3 A batch of delivered goods shall be deemed to have been accepted without any objections in terms of quantity and without any visible damage upon signing of the bill of lading by the Customer's assigned representative. The Customer shall be obliged to indicate the person authorised to sign the documents of receipt of goods. Failure to indicate the person authorised to receive the goods or in the event of any other doubts, it is deemed that any person signing the above-named documents at the Customer's registered office or at any other place of receipt of goods, shall be considered to be a duly authorised representative of the Customer.

4.4 The quantitative deficiency of the delivery in relation to the bill of lading or any visible damage to the goods must be reported at the time such batch of products is handed over by making an appropriate entry in the bill of lading.

4.5 The quality acceptance of delivered batch of products should be carried out while the batch of products is being accepted, possibly at a later date if during the acceptance it was not possible for objective reasons; however, no later than prior to the installation or within 21 days from the date of delivery.

4.6 The Supplier's liability for loss or damage to delivered goods expires for the EXW formula upon loading thereof onto the means of transport, and for the DDU formula at the moment, when the unloading by the Customer is scheduled to commence.

4.7 The Customer must secure the appropriate conditions for the storage of goods, i.a. store the goods in covered, dry and well-ventilated places, not exposed directly to sunlight. In the event that the goods are secured by the Supplier

with a foil packing, the Customer shall be obliged to remove it within 7 days from the date of delivery. The Supplier shall not be held responsible for damage caused by improper storage of products.

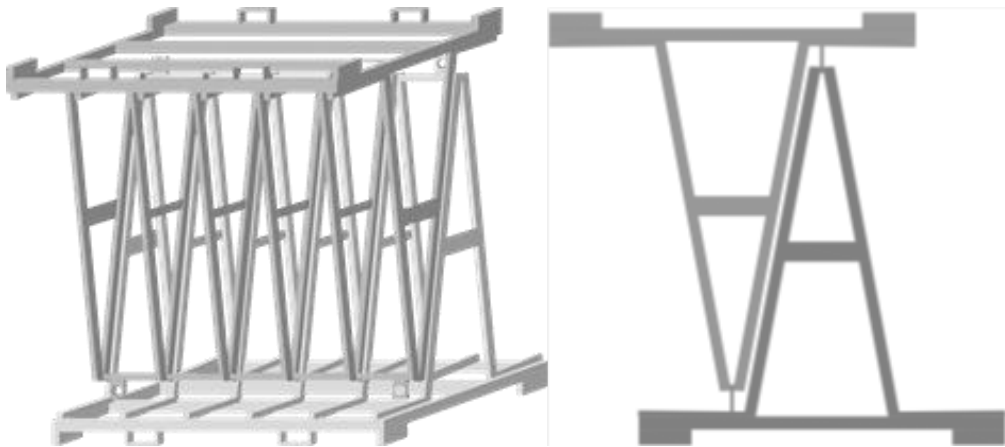
4.8 Confirmation of the receipt of goods by the Customer marked on the bill of lading, shall also be deemed the receipt of racks.

4.9 Delivery of goods to the Customer shall not include unloading. Unloading and risk associated therewith shall be borne by the Customer. It is possible for the Supplier to have the unloading done by a third party, in which case you should ask for separate delivery conditions and make the necessary arrangements.

4.10 As under the terms of EXW formula, the Customer must return the racks to the Supplier's registered office by the date indicated on the waybill, and in the absence of such deadline in accordance with the General Conditions of Sale.

4.11 If the Customer fails to collect the ordered goods by the deadline set by the Supplier or refuses to collect them, the Supplier shall, after 14 days from the agreed date of receipt, be entitled to withdraw from the contract by submitting a notice to the Customer within 30 days of arising of the conditions for withdrawal. The Supplier can then require the Customer to pay the penalty in the amount of the agreed contract value. Regardless of the reserved contractual penalty, the Supplier may demand reimbursement of storage costs of products for the period preceding the withdrawal and where arrangements have been made to collect the products at a later date. The costs of storage of the aforementioned products are set at 0.2% of the contract value per day, calculated against the gross amount. Counted as from the subsequent day on which the goods were to be collected. If the Supplier, based on the Customer's declaration, orders raw materials and the Customer fails to place, within the declared period, orders for the quantities indicated in the initial order, the Supplier may then require the Customer to pay a contractual penalty in the amount equivalent to 2 times the price of raw materials ordered in accordance with the Customer's initial order.

4.12 As under the DDU delivery terms, the racks on which the goods were supplied shall be stored at the Customer's registered office or at the construction site for no longer than 21 days or in accordance with the notation on the waybill. Prior to the expiry of that period, the Customer must notify the Supplier that the racks are ready to be collected while indicating a specific (not later than 21 days after delivery) date (working day between 8.00 – 15.00) and the location. In the case of proper and timely notification of the racks being ready for collection, the obligation to collect the racks rests with the Supplier. In this case, the Customer shall be obliged to make available and prepare the racks for collection at its registered office or at such other agreed location as e.g. construction site. Racks to be put together in "pairs" as shown in the drawings below:



The loading of racks shall be the responsibility of the Customer. In the absence of proper and timely notification or in the event of improper preparation of the racks to be collected, on such date as specified in the notification, the Customer shall be required, i.a. to:

4.12.1 deliver the racks to the Supplier at its own expense and risk within the next 7 days,

4.12.2 pay a penalty in the amount of PLN 25 net for each of the racks, separately for each day of delay in return of the racks, while the penalty shall not exceed PLN 5000.

4.13 In the absence of a proper and timely notification or in the event of improper preparation of racks for collection on such date as specified in the notification, the Supplier shall have the right to consider the rack lost, which shall result in the Customer being charged with the amount indicated under section 4.19 hereof. In case of return of the rack, the Supplier may, at its discretion:

4.13.1 accept the rack and cancel the charge while charging penalties for late return of the rack (section 4.12.2)

4.13.2 accept the rack, cancel the charge and waive the contractual penalty for late return of the rack



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4.14 On each bill of lading, the Supplier shall specify the number and type of racks (L, A, B) and their stock number.

4.15 For the DDU deliveries, the Supplier reserves the right to select the method of transportation and packaging of the products.

4.16 By accepting the racks the Customer assumes the obligation to take care of them. Using the racks without a written consent of the Supplier is prohibited and irrespective of any damage, shall entitle the Supplier to charge a penalty in the net amount of PLN 1500 for each of the racks separately.

4.17 Should the rack be destroyed or lost, the Customer shall reimburse the Supplier the net amount of PLN 2500 for a rack with weight capacity up to 2000kg and PLN 4500 for a rack with weight capacity above 2000kg.

4.18 In the event of any special requirements for packaging and conditions of delivery, the Supplier reserves the right to charge additional costs in this respect.

4.19 The Customer shall be obliged to secure and ensure efficient unloading of the products within max. 2 hours of arrival to the place of destination. The Supplier shall have the right to claim from the Customer the payment of a contractual penalty in the amount of PLN 150 for each additional hour of waiting for unloading or extended unloading time due to reasons attributable to the Customer.

The unloading obligation of the Supplier shall be understood as unloading of the racks from the vehicle and placing them on the ground at the vehicle side. The obligation to unload shall not include:

- unloading of the vehicle in several locations (places)
- moving the racks after they were placed on the ground for the first time
- carrying racks over obstacles that prevent a rack from being placed at the vehicle side
- placing racks on lifts and other elements
- other handling or manipulation going beyond the area near the vehicle side

The Customer shall be obliged to provide the possibility of entry and exit to the place of delivery of combinations of vehicles with a GVW of 40 tons, unless agreed otherwise.

4.20 Unless the Parties agree otherwise, the payment of any contractual penalty does not exclude the obligation to return the racks.

## **5. Warranty, guarantee, complaints**

5.1 The Supplier does not carry out any statistical calculations. The glass construction must be confirmed by a qualified constructor, as any claims associated therewith must not be the basis for any claims against the Supplier.

5.2 The Supplier shall be liable under the warranty for physical defects in products only where their properties do not meet the applicable standards and parameters resulting from the reference documents.

5.3 Should the Customer find any defects in the delivered products which are within the warranty scope and term, the Supplier upon evaluation thereof and acceptance of the complaint, undertakes at its own discretion, to provide products free of defects at the time agreed with the Customer or to reduce the selling price if the replacement thereof is impossible or objectively difficult. All other rights under the warranty are excluded pursuant to Art. 558 of the Civil Code.

5.4 The complaint must be submitted in writing no later than 3 days from the date of the defects being detected, in a form as per section 5.6 of GCS, under pain of losing the warranty rights. The Supplier shall inform the Customer in writing of the complaint being acknowledged or denied, or of the requirement to furnish further documents or to perform an inspection, while no information about the acknowledgement cannot be regarded as a tacit recognition of the Customer's claims as justified.

5.5 The Customer is obliged to include in the complaint the following: type of products, their number, order number, reason for complaint as well as the relevant photographic documentation confirming the occurrence of a defect. Any claims regarding cracks or other defects that may arise as a result of mechanical damage to the product, and detected once the goods have been handed over to the Customer, shall not be acknowledged unless the Customer can prove that the defect arose due to the fault of the Supplier.

5.7 The Supplier reserves the right to assess the validity of the inspection and agrees the deadline with the Customer. The Parties duly agree that the cost of the inspection by the Supplier's representative shall depend on the distance of the inspection site from the Supplier's registered office, calculated via Google Maps, and it is: up to 200 - PLN 800 net; over 200 km up to 400 km - PLN 1,300 net; over 400 km - PLN 2300 net. Within 14 days of the date of inspection, the Supplier shall notify the Customer in writing of its decision regarding the acceptance or refusal to accept the complaint. In case of gross abuse of contractual terms related to complaints (for example: failure to submit a photographic documentation, in spite of being called to do so, complaints related to defects, which the Customer should identify as not being subject to complaint, faulty complaint notification resulting from lack of basic knowledge





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of the product being advertised), the Supplier shall have the right to charge to the Customer the handling costs of the complaint.

5.8 The Parties exclude the Supplier's responsibility towards the Customer for any damages caused to third parties by the products manufactured by the Supplier, the Customer is also obliged to release the Provider from any claims by third parties towards the Supplier under the liability for a dangerous product.

5.9 The Supplier shall not be liable for any aesthetic defects in manufactured and delivered products and in particular hue as well as other physical properties of the products delivered with the subsequent delivery, which, due to the ingredients used and the passage of time may be different from the products supplied under the previous deliveries as well as for any mechanical, chemical and other damage caused by external factors, as well as defects arisen during or after installation thereof; for any damage caused by the use of products contrary to their purpose and for usability and suitability of the products for the purposes as intended by the Customer, for any damage due to improper storage of products and product defects resulting from the combination of products with other items. The Customer shall be required to thoroughly check the products prior to their mounting, including by placing the product in its final location and its thorough visual inspection under different lighting conditions, under pain of losing the opportunity to rely on their defects if a finally mounted product has a defect the detection of which was impossible by the above-named means.

5.10 Moreover, the Customer acknowledges and accepts the following circumstances pertaining to the properties of the supplied products which must not be the basis for any claims:

5.10.1 due to the fact that the enamel glass is installed mainly as façade cladding with opaque background at the back and if you plan to use the ordered glass in the manner allowing its viewing as translucent, it is necessary to clearly notify the Supplier accordingly at the moment of order placement, failing which the product features inherent therewith (e.g. the irregularities connected with light penetration, discoloration, streaks) shall be deemed acceptable for the Customer,

5.10.2 for glass painted using the screen print technique, there is a technological margin of 3-4 mm on each edge of the form,

5.10.3 for a glass of the same type, with the selective coating for tempered and non-tempered types in particular, differences in shades of colour are allowed.

5.11 In case of delay in the order delivery, the Customer shall be entitled to charge the Supplier with contractual penalty in the amount of 0.2% of the net value of the remaining part of the contract for each day of delay; however, not more than 10% of the net value of the remaining part of the order. If the delay exceeds the period of 45 days, the Customer instead of being entitled to charge contractual penalty, shall be entitled to withdraw from the contract and to receive a refund of any prepayments and advances as well as to liquidated damages in the amount of 5% of the net value of the remaining part of the order. In order to be effective, the notice of withdrawal, must be preceded by a notice requesting performance of the contract with an additional 30-day deadline to the Supplier after expiry of the period referred to in sentence 2.

5.12 Any liability for damages of the Supplier, including the liability resulting from the contractual penalties due to the Customer, shall be limited solely to cover the losses of the Customer being directly connected with defectiveness of the product and as the upper limit of the liability, the order value shall be assumed by the Parties.

## **6. Final provisions**

6.1 The parties agree that any claims of the Customer arising from the agreement towards the Supplier must not be assigned without prior consent of the Supplier, in writing under pain of nullity.

6.2 The parties agree, that the deduction of any amounts due to the Customer made against the amounts due to the Supplier may refer to the uncontested amounts only (as acknowledged in the statement by the Supplier made in writing under pain of nullity) or established by a final court judgment.

6.3 Any contractual penalties reserved in favour of the Supplier shall not preclude the seeking by the Supplier of compensation transferring the amount thereof upon general terms in the event of such damage (loss or lost profits). The Customer assumes extended responsibility for any risk-based contractual penalties, on the basis of Art. 473 of the Civil Code.

6.4 Any amendments and additions to the General Conditions of Sale can be made unilaterally by the Supplier; however, they shall become binding for the Customer (for subsequent contracts) at the time of service of the amendment notice in such a manner as to make becoming familiar with the content of the new General Terms and Conditions of Sale possible - for example, by reference to the Supplier's website. For individual contracts, General Conditions of Sale in force at the time of order placement shall apply. Any changes to the provisions of the General Conditions of Sale after placing an order shall be possible only in the form of an additional agreement between the Parties in writing under pain of nullity.



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6.5 To all matters not settled in these Terms and Conditions of Sale, the applicable written agreements between the Parties shall apply as well as the relevant provisions of the Polish law.

6.6 Any disputes arising out of contracts concluded under these General Terms and Conditions of Sale shall be settled by the court competent for the registered office of the Supplier. The Parties shall endeavour to reach an amicable settlement of any disputes.

Appendices:

Appendix No. 1 General warranty conditions for Q4Glass products

Appendix No. 2 Specific properties of glass

Appendix No. 3 Visual assessment of the quality of Q4Glass glass products



Appendix No. 1

## **GENERAL TERMS AND CONDITIONS OF WARRANTY for Q4Glass sp. z o.o. products**

### **1. Scope of warranty for individual products**

#### **1.1 Tempered glass (ESG):**

Scope of warranty: Indefinite warranty for glass parameters concerning safety, defragging, mechanical strength

Standard: PN-EN 12150

#### **1.2 Tempered glass, enamelled (ESG):**

Scope of warranty: 5 years mechanical strength of screen print.

Standard: PN-EN 12150

Remarks: Not applicable to glass with non-slip layer.

#### **1.3 Heat strengthened glass (TVG):**

Scope of warranty: Indefinite warranty on glass parameters concerning safety, mechanical and thermal strength (resulting from the temperature difference between on the glass surface).

Standard: PN-EN 1863

Remarks: Not applicable to glass with non-slip layer.

#### **1.4 Multiple-walled, laminated and tempered glass (VSG and VSG/ESG):**

Scope of warranty: 5-year adhesion warranty (except for marginal strip of 50 mm from the edge of the glass and the hole edges).

Standard: PN-EN 12543

Remarks: When installed in an environment with high humidity, the strip width not covered by the warranty is 100 mm

#### **1.5 Insulating glass:**

Scope of warranty: 5-year tightness warranty, does not apply to insulating glass with ornamental glass, and the glass shapes other than those referred to under the PN-EN 1279 standard.

Standard: PN-EN 1279

#### **1.6 Glass subjected to Heat Soak Test (HST):**

Scope of warranty: Indefinite warranty for increased mechanical resistance of glass exposed to heat.

Standard: PN-EN 14179

### **2. General remarks:**

2.1 The warranty is valid upon delivery of glass to the Customer.

2.2 The warranty covers the Q4Glass products used in civil engineering for their intended purpose, whose assembly has been carried out in accordance with the principles of proper installation.

2.3 The warranty expires if the goods have been processed, altered or damaged.

2.4 All defects must be reported immediately; however, no later than 3 days from the date of being detected, in accordance with section 5 of the General Terms and Conditions of Sale.





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2.5 Liability of Q4Glass is limited only to the delivery of products free of defects, with the exclusion of all other costs. The Customer is obliged to return claimed goods.

2.6 Any deviation from these rules must be agreed with Q4Glass sp. z o.o. and be in writing.

2.7 The services of glass processing are neither covered by the warranty or are subject to a process of assessment of compliance with any reference documents. Q4Glass does not assume any responsibility for the materials entrusted for possible mechanical defects (cracks, scratches, etc.).

2.8 Properties of glass as shown under Appendix 3. Specific properties of insulating glass or other phenomena considered as natural are not subject of warranty.



## **Specific properties of single or double insulated glass**

**Specific properties of glass and insulated glass structure have a significant impact on the properties of insulated glass which are not subject to the warranty because they are not considered defects.**

### **1. Anisotropy of tempered glass**

In the glass which has undergone a thermal tempering process a phenomena of anisotropy may occur. Different stress areas cause birefringence of light rays which as a result of polarisation are seen as a spectral colours in the form of rings and clouds, this phenomenon cannot be influenced.

### **2. Glass breaking**

The glass is a brittle material created by super cooling of fluid as a result of which it has its own residual stress. These characteristics cause it to be a material that cannot be unnoticeably deformed and when elasticity limit is exceeded it immediately breaks. Residual stresses of float glass are characterised by high uniformity and negligible initial value. If during processing there were tensions within the glass, it would not be possible to cut or machine it. The breaking of glass is therefore solely due to external mechanical or thermal factors, rather than its treatment.

### **3. Interference symptoms**

Optical interference occurs due to overlapping of two or more light waves while coming together at one point. They can be seen in the form of weaker or stronger coloured zones and are referred to as the "rainbow effect". In insulated glass made of float glass there may be interference in the form of the spectrum colours. This effect is enhanced by parallelism of glass surface. Symptoms of interference are created by chance and cannot be influenced.

### **4. Colour deviations**

Own colour of glass depends on the following: composition of mixture, raw materials used, process of glass manufacture and glass thickness. Colour deviations may occur particularly when ordering additional windows or glass, after some time. Even if they are ordered with the same manufacturer, colour deviation may occur which might originate from the changes in the material itself as well as from the changes introduced in the technology of glass production. Particularly in insulated glass with the thermal transmittance coefficient of  $U_g = 1.1$  which is a standard today, differences in the colour of the low-emissivity coating may occur. Therefore, when ordering windows, this fact should be taken into account. If we decide not to replace all of the windows in the building, then at least all of the windows on a given wall should be replaced, within the same order. In this way we will avoid the effect of different glass colours in adjacent windows. If, however, after some time, it will be necessary to replace, e.g. one window pane, no one will be able to guarantee identical colour.

### **5. Concavity and convexity of glass, optical distortion**

A glass set contains, inside the space between the panes, a certain volume of gas. The output parameters of the sealed gas are affected by: barometric pressure, absolute elevation above sea level as well as air temperature at the time and place of production. When assembling the insulating glass at different heights, with changing temperatures and atmospheric pressure deviations, concave and convex bending of individual panes and thus optical distortion may inevitably occur. This phenomenon indicates a good workmanship of windows and specifically their tightness.

### **6. Condensation of water vapour**

Under specific conditions, on the outer surfaces of insulating glass, both from the inside and from the outside, condensation of water vapour may occur. The occurrence of condensate on the inside is conditioned by: air circulation, humidity, outer and inner temperature as well as the U-value. This concerns particularly the premises where for obvious reasons, water vapour is most abundant, namely: kitchens, bathrooms, laundry rooms. This problem may occur especially where old untight windows were replaced with new ones, much tighter than the previous ones. With particularly good thermal insulation of the system, high humidity and higher air temperature compared to the temperature of the glass, precipitation of condensate on the glass outside surface is possible. This effect occurs particularly in winter and concerns the glass with a very good U-coefficient. In general, this phenomenon is said to indicate high insulation of insulating glass.



Appendix No. 3

## Visual assessment of the quality of Q4Glass glass products

Q4Glass glass products are subject to internal quality control.

The visual assessment of the built-in windows should also take into account the essential functional characteristics of the product.

Permissible glass defects in the field of vision (beyond the 20 mm marginal strip of the product).

Within the marginal strip, loss of glass matter of up to 5 mm and a thickness of up to 10% are acceptable of the glass nominal thickness. Dimensional deviations in the glass corners may be +/- 2.0 mm.

### Acceptable defects for laminated glass products:

Type of defect	Spot defect from 1.0 up to 3.0 mm *	Linear above 30 mm
Glass surface of up to 1 m <sup>2</sup>	1 pc. / m <sup>2</sup>	unacceptable
Glass surface of up to 2 m <sup>2</sup>	2 pcs. / m <sup>2</sup>	unacceptable
Glass surface from 2 up to 8 m <sup>2</sup>	3 pcs. / m <sup>2</sup>	1 pcs. / m <sup>2</sup> over 4 m <sup>2</sup>
Glass surface of above 8 m <sup>2</sup>	4 pcs. / m <sup>2</sup>	2 pcs. / m <sup>2</sup>

### Acceptable defects for coated glass products:

Type of defect	Spot defect from 2.0 up to 3.0 mm	Scratches of up to 75 mm long and above 0.2 mm wide
Glass surface of up to 1 m <sup>2</sup>	1 pcs. / m <sup>2</sup>	provided that their local density is not an apparent disturbance
Glass surface of up to 2 m <sup>2</sup>	1 pcs. / m <sup>2</sup>	
Glass surface from 2 up to 8 m <sup>2</sup>	2 pcs. / m <sup>2</sup>	
Glass surface of above 8 m <sup>2</sup>	2 pcs. / m <sup>2</sup>	

### Acceptable defects for other glass products:

Type of defect	Spot inclusions of foreign bodies larger than 0.5 mm according to PN-EN 572-2	Linear of up to 15 mm long above 0.2 mm ** wide and total length of up to	Closed air bubbles up to 2 mm
Glass surface of up to 1 m <sup>2</sup>	unacceptable	40 mm	2 pcs. / m <sup>2</sup>
Glass surface of up to 2 m <sup>2</sup>	unacceptable	45 mm	3 pcs. / m <sup>2</sup>
Glass surface from 2 up to 8 m <sup>2</sup>	unacceptable	50 mm	5 pcs. / m <sup>2</sup>
Glass surface of above 8 m <sup>2</sup>	unacceptable	50 mm	5 pcs. / m <sup>2</sup>

\* Spot defects smaller than 0.5 mm are not taken into account. Defects of 0.5 - 1.0 mm must not occur in clusters or a minimum of four defects at a distance of up to 200 mm apart (for double-layer glass).

\*\* Hairline scratches are not taken into account.

Visual assessment of quality of glass products is carried out according to the description provided under PN-EN ISO 12543-6, PN EN 1096, PN EN 1096-1.

During the test, the defects visible at a distance of 300 cm for coated glass products and 200 cm for other glass products (windows) are taken into account, against a matte grey screen under natural light.