



Antolini® | quartz

GENERAL TECHNICAL GUIDELINES

Release AQ2

OVERVIEW

This manual contains important recommendations for **Antolini | quartz®** slabs manufacture, and specifically for countertops fabrication. It includes integrations and technical advice but it is not meant to supersede and / or replace standard industry practices.

Please direct any questions about these recommendations to your local Antolini | quartz® distributor.

Antolini | quartz® Production Manual

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This manual supersedes all previous manuals. Content is subject to change at any time without notice.

Antolini | quartz® is a registered trademark of Antolini Luigi S.p.A.

Note: This manual is not for general distribution, but Antolini encourages distribution to any workers involved in the cutting, grinding or sanding of Antolini | quartz® products.

GENERAL INFORMATION

Applications

Antolini | quartz is ideal for a wide range of interior applications, both commercial and residential, such as kitchen countertops, bar tops, vanities, interior cladding and furniture pieces.

Antolini | quartz is not suitable for exterior use, or any areas exposed to direct sunlight, UV radiation or excessive heat.

Dimensions

Antolini | quartz is available in two sizes, L and XL and relevant sizes are detailed here below:

- L Size 55" x 120" (141 cm * 307 cm)
- XL Size 63" x 125" ¼" (160 cm * 318 cm)

Slabs available in 2 cm (3/4") and 3 cm (1 ¼") thickness.

Note: please check Antolini | quartz distributor for available colours in all sizes and thicknesses.

Slab dimensions are only used as reference for storage and transportation and each slab should be inspected prior to cutting. Maximum width and length usability may vary after pre-cutting inspection.

If the slab proves to be unsuitable **it should be exchanged for another one prior to starting the fabrication process.**

A.1 SAFETY GUIDELINES



SILICA DUST WARNING:

Grinding/cutting/drilling of quartz products can generate dust (Crystalline Silica) containing chemicals known to cause serious or fatal injury or illness, such as respiratory or other disease, and cancer. When inhaled, crystalline silica may cause silicosis, a fibrosis of the lungs. Silicosis can lead to disability, increased risk of tuberculosis, and death. Moreover, exposure to silica dust generated by grinding, cutting or drilling of quartz products may cause abrasion of the cornea or irritation of the eyes or the skin.



Prior to processing the Antolini | quartz® products, all distributors, resellers and installers (collectively, “resellers”) must read all applicable warnings (including the Materials Safety Data Sheet on Page 15) provide to their employees, stone fabricators and contractors (“workers” or “stone fabricators”) training and adequate information about the potential adverse health effects of Crystalline Silica exposure and best practices to reduce Crystalline Silica exposure. Failure to do so may result in serious personal injury or death. Antolini is not responsible for any damages or losses derived from reseller’s failure to comply with these instructions and to enforce compliance with industry best practices by its stone fabricators.

FOLLOW AND ENFORCE THE FOLLOWING INSTRUCTIONS TO ENSURE WORKERS’ SAFETY:

- Ensure proper ventilation in the work areas.
- Display warning signs in all work areas and other unprotected adjacent areas, warning workers about the dangers of Crystalline Silica and the risks of handling without required protective equipment.
- Provide workers with training that includes information about health effects, work practices and protective equipment for crystalline silica.
- Require workers to wear a properly-fitted, NIOSH-approved dust mask or respirator (e.g. N-95) in accordance with applicable government regulations and manufacturer instructions to further limit respirable silica exposures in all areas with a “Hazardous Dust” sign. Make sure the workers are using them correctly and check back from time to time to insure that they are actually using them. Warn your workers that paper masks are NOT an effective protection against exposure.
- Require workers to wear long-sleeved clothing, gloves and safety goggles or glasses.


- Require workers to wear personal protective equipment also during machinery cleaning and maintenance operations.
- Use dust control systems and check that dust intake, filtration and expulsion systems are functioning properly.
- Use only wet technology tools in order to prevent airborne dust particles.
- Check that the work area is clean at the end of each shift.
- Do not dry-sweep silica dust. Pre-wet or use a HEPA vacuum.
- Conduct periodical air monitoring to measure worker exposures.
- Make available shower facilities and require showering after work. Require workers to remove contaminated clothing after use, store in sealable container until cleaned, and wash contaminated clothing separately from other laundry.
- Do not clean work clothes, equipment and floors using compressed air. Perform cleaning operations only with a suitable vacuum cleaner.
- Place signs and instruct workers on the need to thoroughly wash hands and face before eating, drinking and smoking.
- Enforce eating, drinking and smoking permits only in expressly designated areas with no risk of exposure to hazardous dust.
- Workers shall be subjected to clinical tests as set out by local regulations.
- In case of emergency, institute **EMERGENCY FIRST AID PROCEDURES**:
 - *Esposizione agli occhi*: Eye exposure: In case of contact with eyes, flush eyes with large amounts of water for 15 minutes, lifting the lids occasionally. If irritation persists, seek medical attention.
 - *Inhalation*: In case of inhalation, move subject to fresh air. Drink water to clear throat and blow nose to evacuate material. If irritation or soreness persists, seek medical attention.
 - *Ingestion*: Do not swallow or take internally. If accidental swallowing occurs, drink lots of water. This material is not hazardous when small quantities are ingested.

IT IS THE RESPONSIBILITY OF THE RESELLER/EMPLOYER TO MAINTAIN A WORK PLACE FREE FROM HEALTH RISKS AND ENVIRONMENTALLY FRIENDLY.

For further information, refer to the following organizations:

- International Labor Organization (<http://ilo.org/safework/info>)
- Occupational Safety & Health Administration (www.osha.gov)
- European Network for Silica (<http://www.nepsi.eu/good-practice-guide.aspx>)

WARNING! The warnings, cautions, and notices discussed in this instruction manual cannot cover all possible conditions and situations that may occur. Common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

 **WARNING** THE FOLLOWING STATEMENT IS REQUIRED BY THE STATE OF CALIFORNIA. IT WILL BE THE RESELLER'S RESPONSIBILITY TO ENSURE COMPLIANCE WITH PROP.65 PROVISIONS. This product contains crystalline silica (airborne particles of respirable size) which is known by the State of California to cause cancer. Prior to use, read the Material Safety Data Sheet (MSDS) information and product instructions.

FAILURE TO ADHERE TO OUR WARNINGS, AND OTHER INSTRUCTIONS MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH. ANTOLINI LUIGI & C. DISCLAIMS ANY AND ALL LIABILITY IF THE RESELLER/FABBRICATOR FAIL TO ADHERE TO THE RECOMMENDATIONS AND WARNING IN THESE INSTRUCTIONS.

A.2 General procedures for safety

Antolini has always been extremely attentive to occupational safety. This is why we ask all our distributors, as well as fabricators and installers to ensure the highest level of commitment as regards occupational safety and environmental protection, through compliance and respect of all laws and regulations on workers' health safeguard and protection.

Here are some general (yet not exhaustive) safety guidelines that our distributor are required to follow and ensure are followed by fabricators and their employees when handling the **Antolini | quartz® products:**

- Maintain a clean and tidy work environment. Untidy work areas facilitate the occurrence of accidents.
- Keep work areas dry, well-ventilated and well-lit.
- Ensure that children and visitors are kept at a safe distance from the work areas.
- Don't overreach. Keep proper footing and balance at all times
- Maintain a first aid kit always adequately supplied in the work areas.
- Read operating tool literature to be advised of hazards, applications, maintenance and limitations.

- Use the appropriate tools. Do not use equipment or supplied tools improperly for functions for which they were not designed. Do not use improvised tools.
- Maintain tools in top condition. Keep tools clean for best and safest performance.
- All electrical tools must be equipped with a Ground Fault Circuit Interrupter (GFCI) and comply with the local regulations in force.
- If necessary, use clamps and or a vise to secure work, thus freeing both hands to safely operate tools.
- Do not wear loose clothing, neckties, rings, bracelets or other jewels that may get caught in moving parts.

A.3 When fabricating the Antolini | quartz® products wear at least the following protective equipment:

- Hair covering to contain long hair
- Safety helmet when handling and transporting
- A NIOSH-approved respirator
- Steel-capped safety shoes
- Safety glasses or other eye protection, certified and approved by the competent authorities
- Earplugs or headphones when working in noisy areas
- Gloves for protection against chemicals or potentially sharp materials
- In wet areas, aprons and steel-capped rubber boots in addition to the above listed equipment.

REFER TO SECTION 1. TO LIMIT RISK OF EXPOSURE TO SILICA DUST.

A.4 Transportation

It is the responsibility of the Driver to ensure that the load is within the legal carrying capacity of the vehicle. Antolini shall not be deemed responsible in case of a load exceeding capacity.

It is the responsibility of the Driver to ensure that the load is fully supported and safely secured to the vehicle prior to leaving the premises.

A.5 Handling

The slabs are best loaded/unloaded from a container or truck with a forklift or lifting device (crane) suitable for handling. Owing to the considerable weight of the material to be handled, always wear safety shoes and gloves when handling slabs.



Keep a safe distance when handling/lifting the slabs.

A.6 Visual Inspection and check of the slabs

Performing a visual inspection for defects is essential when working with Antolini | quartz materials and should be a standard practice before cutting.

The following slab inspection steps could be a guide:

- Hairline cracks
- Slab-to-slab color match
- Color consistency within the sheet
- Quartz pattern irregularity
- Thickness tolerance +/- 1/16" (1.5mm)
- Warpage: length 1/8" (+/-3 mm), width 1/16" (1.5 mm)
- Irregular spots
- Inconsistent gloss levels
- Face side pits/voids/blemishes

Note: Antolini will not accept any claims for any of the above if the slab has already been modified and/or fabricated. The Fabricator is responsible for determining if the slabs are fit for use. If they are not, they should be exchanged before the slabs are cut or modified in any way.

Length warp should be checked using a full-length straight-edge when the slab is placed horizontally.

A.7 Storage

Store slabs in a sheltered area in a way that prevents warping. Use at least two support beams to hold the slabs in place and place the slabs vertically on a suitable H frame/rail.

There should be no more than 20 slabs to each rack/rail with the slabs face-to-face or back-to-back. Slabs must be bound with straps at all times, to minimize expansion and maintain flatness.

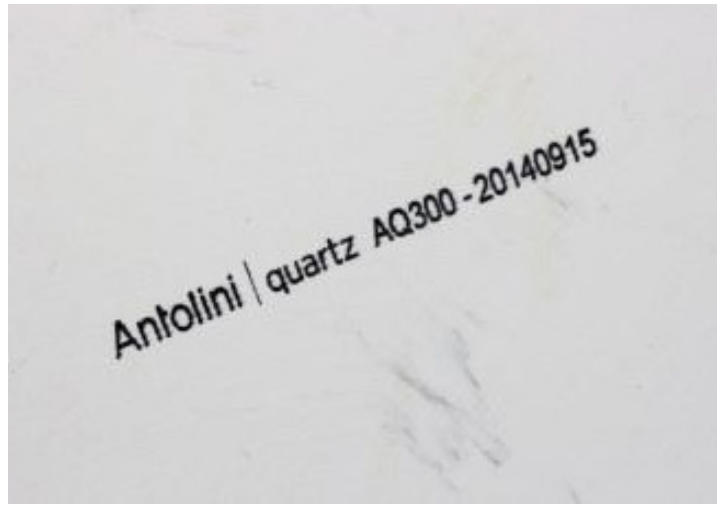
Polished slabs should never be stored outdoors, as UV rays can permanently damage the internal structure of the slabs. Storage temperatures should not exceed about 50°C.



A.8 Color Match

Being Antolini | quartz materials the result of a complex processing of natural minerals, it is essential to perform a careful check of the slabs for color variations before fabrication, in order to ascertain that possible color variations are acceptable for the final product to be fabricated.

- Complete jobs from the same batch number, visually inspecting to confirm color consistency. Since the slabs are 93% natural quartz each slab is unique and must be checked for shade and quartz distribution.



- Always do a visual color match under similar lighting conditions as found at the installation site before cutting. We do not recommend mixing different batch numbers.

Quartz Pattern Irregularities

Antolini | quartz may display random pattern (mixture) distribution throughout each slab. If any irregular distribution of particles is apparent in the slab, the fabricator must determine if the slab is suitable for the installation. If unsuitable, the slab should be exchanged prior to cutting.

B. FABRICATION INSTRUCTIONS

B.1 Tools and Safety Equipment

Fabricators should employ the below list of essential tools and safety equipment to safely and efficiently produce quality finished products.

Basic Tools

- Bridge saw
- Electric/pneumatic polisher (variable speed preferred)
- Diamond grinding wheel
- Diamond polishing pad
- Grinding stone
- Core bits
- Diamond contour blade
- Wet profiling machine (edge router)
- Stone cards/dollies
- A-Frame/storage racks
- Fabrication stands
- Air compressor
- Seaming clamps
- Water source

Advanced Tools

- Water jet
- CNC (Computer Numerical Control)
- Automated profiler
- Diamond saw

Basic Safety Equipment

- First-aid kit
- Safety glasses
- Dust masks
- Work gloves
- Aprons
- Ear plugs
- Dust extraction system, approved and certified by the control agencies

B.2 Packing for Transport

When transporting fabricated pieces consider the product's weight and fragility. Brace all cutouts to avoid flexing of seams and corners.

Transport Antolini | quartz surfaces with sections touching face-to-face or back-to-back.

Do not allow any parts to slide around during transportation. Make sure the face is always protected and not touching metal, the back of another slab, etc.

B.3 Racking for Transport

Good racking is essential for getting the product to the site in good condition. Many rack designs have been made for stone slab transportation devices. Some prefer to have a removable "A" frame that they can hoist off the delivery vehicle.

The slabs should be securely fastened to the rack by straps. Always protect the straps from being damaged or cut by the edge of the slabs.

At least two people should be available on the delivery vehicle to transport the product on-site.

All racking should have a protective layer between the rack and the material. This will help prevent scratching or other surface damage during storage or transit.

B.4 Basic Fabrication Guidelines

Follow these guidelines to ensure a high quality product:

- Do not change the original surface finish of the slabs by re-polishing, honing, or otherwise altering the factory finish. To avoid overheating the slab, use only water-cooled tools for cutting, drilling, and polishing Antolini | quartz materials.
- Do not cut square corners (cross cut) as this will create stress points in the slab and may result in cracking and breaking.
- When cutting an inside corner, always use a core bit to avoid damaging the corner area with the cutting disc.
- Any internal angled corner must be radiused.

B.5 Polishing Edge Profiles

Granite or marble diamond polishing pads should be used to progressively polish edge profiles. Antolini | quartz recommends the use of premium quality pads and plenty of water for best polishing results.

Recommended manual polishing process for Antolini | quartz:

- Polished finish 100, 200, 400, 500-800, 1500-2000, 2000-3000-grit diamond pad.

These recommendations are a guideline for achieving a polish comparable to the factory surface polish. The type of tools, diamond pads, and fabrication techniques will affect actual polishing results.

When polishing the edge profile, use water-cooled tools. Dry-polishing the edge profile may cause overheating, leaving the edge prone to chipping. Excessive heat undermines the physical structure of the slab, and although not visible to the naked eye, micro-fissures may form, leading to chipping upon impact, discoloration and an uneven polish.

B.6 Mitered Edges

- Mitered edges should be cut at a 45° angle to ensure maximum strength. The joint should be clean, flush, and parallel.
- Mitered edges have the greatest area of weakness and therefore are most prone to chipping. We recommend beveled edge profile.

- Chipping is most common where adhesive is not evenly distributed throughout the joint.
- Do not cut edges at less than 45°

B.7 Adhesives

100% clear silicone and other clear, certified, tested and suitable adhesives should be used to secure the countertops to the cabinets, substrate, or to secure backsplashes to the wall.

Epoxies, liquid nails, construction adhesive, and other non-flexible adhesives do not compensate for thermal expansion. Antolini does not warrant any claims for cracks that are the result of tops being bonded to the base cabinets with non-flexible adhesives.

Follow adhesive manufacturer's instructions and observe good stone working and safety practices at all times.

B.8 Joints

In order to achieve a minimally visible seam, the adhesive used must be pigmented/colored to a color similar to that of the material being installed. Color paste pigments can be mixed with the adhesive to achieve a color match.

B.9 Laminations/Double Edges

When laminating, it is important to make sure that the lamination piece is the full length of the top piece and cut at 45° on the corners. If this cannot be done and a joining of the lamination pieces is unavoidable, the joint must be cut at 45°. The use of a mitered end cut reduces stress on the material that may cause stress fractures.

The lamination strip should be cut from the same slab as the counter top surface material to ensure a color match.

- Use a state-of-the-art seam setter tool to make seams as narrow and inconspicuous as possible.
- All seam surfaces should be smooth and free of debris.
- Grooves should be created in surfaces to be joined to allow space for glue.

- Extra glue should be placed at all corners and around joints.
- Seam locations should be carefully planned to minimize visibility.
- Antolini does not recommend the surface polishing of seams.
- Never install mechanical fasteners (screws, nails, etc.).

B.10 Joint Positions Seam over dishwasher (not recommended)

- In a case where a seam must be located over a dishwasher, the use of a full deck-isolated support is required. This will allow proper support for the area as well as allowances for thermal movement.

General notes

On seams areas grind notches or grooves on the surfaces to be bonded together.

Antolini | quartz is nonporous and will not absorb the adhesive – these notches provide anchorage points for the adhesive within the joint.

If further construction work is to be performed at the job site after the installation of the surface is complete, ensure that the Antolini | quartz surface is properly protected by covering the entire top with corrugated cardboard or another protective material.

Please make your customer aware that any successive contractors or users do not use the new countertop as a workbench, a stepping or a standing platform, and that if any solvents or adhesives are used, any accidental spills be removed immediately.

We strongly recommend that your customer confirm, in writing, their satisfaction with the material and workmanship at the end of the job in order to cover you against damages caused by others.

C. Care

Because Antolini | quartz® is non-porous, thorough cleansing with a damp cloth and mild detergent is all that's needed. Repeating this simple cleaning operations once a week, your surface shall maintain that clean, clear by new look.

C.1 Stains

Stubborn stains and residues of materials can be easily removed with neutral non-abrasive household cleaners, damp cloths, sponges, and other non-abrasive pads. In case of sticky material, it can be quickly removed with a plastic putty knife.

C.2 Cleaning Products to Avoid

Any non-neutral cleaning product can potentially damage your Antolini | quartz® surface, but, in case of accidental exposure to such products potential damages can be neutralized by immediately cleaning the surface with water and wiping it with a damp cloth.

C.3 Heat Resistance

While Antolini | quartz® is quite heat resistant, placing hot pads or trivets between hot cookware and your Antolini | quartz® surface is essential to prevent damage caused by rapid, extreme temperature fluctuations.

C.4 Do not expose Antolini | quartz® to shock or extreme stress. Using cutting boards, hot pads, non-abrasive chemicals are an easy way to always keep your Antolini | quartz® surface clean, clear, and as new.

D. MATERIAL SAFETY DATA SHEET

Product Information

Description: Engineered quartz slabs

Composition:

Component	Composition%
Crushed silica quartz, glass, mirror, granite, and other natural stone	≥88
Polyester resin and pigments	balance

Potential Side Effects

Antolini | quartz slabs in finished form do not present any health hazard to users.

Dust and powder generated from fabrication and installation may cause irritation to skin, eyes, nose, and airways. Use adequate ventilation systems in the fabrication work areas to minimize constant inhalation of flying dust and powder. Use vacuum cleaning equipment, dust pick/up systems, and protection masks.

Massive inhalation of crystalline silica may cause pulmonary diseases such as bronchitis, emphysema, and other pulmonary diseases, including silicosis.



WARNING Only cut, grind and sand the product using wet production methods.

First Aid Measures

In the event of any unwanted contact with powder and dust, please follow these guidelines:

- Skin: Wash exposed skin with soap and water. Remove exposed clothing.
- Eyes: Wash hands thoroughly first. Flush eyes with plenty of water.
- Dizziness: Take the affected person to a fresh air or well-ventilated area.
- Ingestion: Seek medical attention.

Fire Fighting Measures

- The product is hardly flammable.
- Extinguishing method: Use standard extinguishers.
- Firemen protection: Standard equipment.
- Explosion: No explosion danger.

Preventive Measures/Personal Protection

Cutting, Sanding, and Polishing

- Use safety goggles, face and neck protection, as well as dusk masks.
- Use dusk extraction equipment.
- Use dust vacuum cleaning equipment.

Slabs and Countertops Handling

- Handle in an adequately marked area away from frequent foot traffic.
- Mechanize the handling of heavy or complex pieces.

Physical & Chemical Properties

Physical appearance:	Multi-colored engineered quartz stone
Odor:	Odorless
pH:	N/A
Moisture Absorption:	0,06%
Density:	$\frac{3}{4}$ " inch thickness = 151.95 lb/ft (50 kg/mq)

Technical Properties

Durability		
Mohs Hardness Scale	Quartz = 7	Diamond = 10 (highest)
Resistenza all'Urto	No fracture	
Resistenza ad Alta Temperatura	No effect	

Strength	
Flexural Strength	4,382 psi (308.1 kg/cm)
Compressive Strength	30,400 psi (2,137.8 kg/cm)

Stain Resistance	
Stain Resistance	No effect
Wear and Cleanability	Pass
Resistenza a Sostanze Chimiche	No traces of growth

Chemical Resistance	
Resistance to Household Chemical	Pass
Resistance to Chemical Substances	Not affected

Safety and Health	
Surface Burning	Class A rated
Volatile Organic Compounds (VOCs)	7.01 mg/kg
Benzene Toluene Ethylbenzene Xylene (BTEX)	Benzene and Xylene = Not detected Toluene = 5.45 mg/kg Ethylbenzene = 1.20 mg/kg
Styrene	Not detected

Stability and Reactivity

Chemical Stability	Stable
Conditions to Avoid	Outdoor, sun and rain
Materials/Chemical to Avoid	Hydrofluoric acid
Hazardous Decomposition Products	Upon decomposition, hydrocarbons, carbon dioxide, carbon monoxide fumes and water may be released.

Toxicological Information

The powder generated in the manufacturing process contains silica (SiO₂).

Prolonged and massive inhalation of crystalline silica may cause pulmonary fibrosis, and pneumoconiosis and silicosis, as well as a worsening of other pulmonary diseases (bronchitis, emphysema, etc...).

The main symptoms of silicosis is the loss of pulmonary capacity. People with silicosis have a greater risk of getting lung cancer.

Environmental Information

Ecotoxicity	No detrimental environmental impact is known
Mobility	Not volatile
Persistence/Degradability	Insoluble in aquatic environment No biodegradable data is available

Waste Disposal Considerations

Any waste shall be disposed in an appropriate and approved waste disposal facility. Discard and dispose in accordance with federal, state, and local laws and regulations.

Antolini | quartz slabs are not classified as hazardous waste.

Other Information

This Material Safety Data Sheet does not replace the technical specifications.

Nothing expressed herein can be interpreted or construed as a warranty or other implicit condition (legal or any other kind).



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