

GENERAL COMMERCIAL TERMS TECHNISTONE, a.s.

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PART III/4

TECHNICAL MANUAL FOR FABRICATION SHOPS

INSTRUCTION FOR PROFESSIONAL FABRICATION OF ENGINEERED STONE

Technistone[®]

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1. Characteristic of Material

Engineered stone Technistone®

Technistone® is produced from high-quality natural raw materials (quartz, granite), mirror and glass granulates, from a small amount of color pigments, quality polyester resin and selected additional ingredients for ensuring high durability, resistance, consistency, and required design. More than 90% of the product mass is formed by natural components.

2. Basic Recommendations

2.1. Storage

Technistone® material is recommended for interior use only, therefore it is necessary to store this material in roofed places, which protect slabs against atmospheric influences (e.g. UV-light).

2.2. Realization

If you got the order (kitchen worktop, vanity top) which needs more than one slab (303x140, 300x132 cm), it is necessary to check the color shade of these slabs for comparison. It is necessary to take into account also different color of light (sun, artificial light, etc.). As first engineered stone producer Technistone® offers the customer sophisticated method of precise shade evaluation of each slab to enable comfort handling and fabrication. Each slab has own color shade mark consisting from three numbers. Marking is printed in slabs bar code sticker.

If the order is only for one slab, we recommend checking the quality of the surface in horizontal position - when the slab lies on the table for cutting.

2.3. Cutting operations

Table for cutting operations has to be fixed and absolutely straight. Please, every time check the table before you start working, any roughness could cause slippage of the slab during the manufacturing.

Cutting disc has to be sufficiently sharp, i.e. the whole segments of diamond disc have to be exposed. In the case, when segments are smooth, it is necessary to regenerate the disc in some abrasive material (e.g. sandstone).

Figure 1: Regeneration of disc in abrasive material



3. Machines and operations recommended for fabrication shops

3.1. Bridge saw

- sufficient cooling by water is necessary
- centered diamond cutting disc of saw is essential
- cutting speed recommended at about 30 m/sec (max 38 m/sec) according to diamond cutting disc type
- **use diamond cutting disc with medium hardness, do not use high hardness types (the slab may crack!)**
- **cutting with auxiliary cuts, these cuts minimize the possibility of cracking (see below)**

Figure 2: Bridge saw



Linear cutting speed adjustment (necessary to adjust according to used saw type and other conditions):

- TS product line: Granite, Crystals with grain over 2,5 mm
 - ✓ thickness 10 mm: up to 2 m/min
 - ✓ thickness 20 mm: up to 1,8 m/min
 - ✓ thickness 30 mm: up to 1 m/min
- TS product line: Mirror, Sand, Crystals with grain up to 2,5 mm
 - ✓ thickness 10 mm: up to 1,6 m/min
 - ✓ thickness 20 mm: up to 1,5 m/min
 - ✓ thickness 30 mm: up to 0,8 m/min

Cut outs (hole) cutting speed adjustment (necessary to adjust according to used saw type and other conditions):

- ✓ thickness 10 mm: up to 1 m/min
- ✓ thickness 20 mm: up to 0,9 m/min
- ✓ thickness 30 mm: up to 0,5 m/min
- ✓ start with lower revolutions and subsequently increase the speed

3.2. CNC machine

- follow instruction of CNC machine producer for engineered stone or granite working
- individual adjustment according to the used material, cutting, grinding and drilling
- sufficient cooling by water is necessary

Figure 3: CNC machine



3.3. Hand working

- sufficient cooling by water (very important)
- edges polishing adjust according to quality of the cut edge, start with the tool of class from 60 to 220, finish with the tool of class from 800 to 1500
- careful and safe handling (wet conditions!) with the manual grinding machine
- drilling without impact!
- do not clean product with strong, not recommended chemicals
- proper light conditions for inspection process

Figure 4: Hand working



4. How to avoid slabs cracking

Choice of suitable disc for bridge saw and CNC machine is very important. **It is necessary to use diamond cutting disc with medium hardness**, high hardness types may cause slabs cracking.

We recommend cutting with auxiliary cuts at slab margins. For internal cuts it is necessary to do these auxiliary cuts every time! These auxiliary cuts minimize the possibility of cracking (see Figure 5).

It is necessary to check continuously the quality of cutting disc, exposed segments of cutting disc must not be smooth!

Optimal cutting speed is marked by the producer of cutting disc, **it is necessary to take into account also thickness of the slab** (recommended cutting speeds see section 3).

Figure 5: Demonstration of auxiliary cuts (red marked)

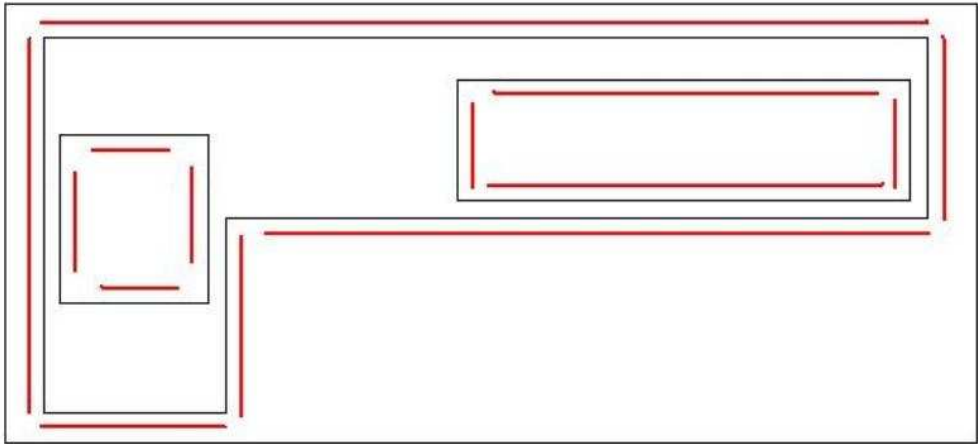
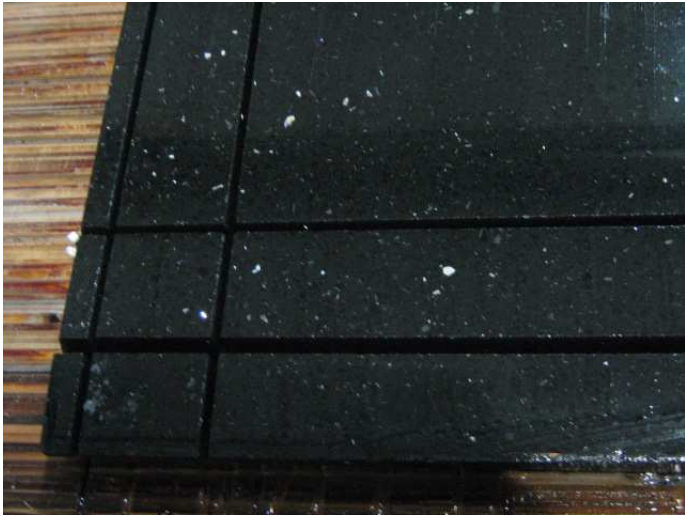


Figure 6: Demonstration of machined slab



5. Important warnings

- ✓ Technistone® material is recommended for interior use only, therefore it is necessary to store this material in roofed places, which protect slabs against atmospheric influences (e.g. UV-light).
- ✓ For protection against slabs bending it is necessary to keep conditions of storing, which are described in GCT – part I (vertical position, wooden lathes,..).
- ✓ For eventual subsequent claim it is necessary to keep with the slab also the bar code sticker, which is situated every time on shorter side of the slab (there are information about lot number and color shade code etc.). For effective claim solving it is necessary to provide photo of claimed defect, photo of the whole slab and photo of bar code sticker. More information see GCT – part II (Complaint Rules of company Technistone).
- ✓ **Producer of Technistone® material is not responsible for any consequences deriving from infringement of these regulations and described warnings!**

6. Recommended sealants and adhesives

6.1. Technistone silicone sealant

At the installation the producer recommends to use the following jointing materials. If silicone sealant is used it is necessary to use a neutral type only!

Neutral silicone sealant Technistone is single – component sealant executed in the form of solid paste. As the paste is extruded out of the package, it turns vulcanized into a silicone rubber by air humidity. Vulcanization starts on the surface and penetrates the mass; the speed of this process depends on the relative air humidity. As per decrees by the Health Ministry of the Czech Republic, Technistone sealant can be used in direct contact with foodstuffs and meals. The sealant shades are based on Technistone color range (see in the table below).

For more information see web sites: www.technistone.eu

Review of color shades of neutral silicone sealant Technistone:

Shade of the color	Usage
1. transparent	universal using
2. white	Crystal Polar White, Crystal Diamond, Crystal Quartz White, Starlight White, Translucent Snow White
3. black	Starlight Black, Gobi Black, Crystal Pure Black
4. grey	Starlight Grey, Gobi Grey
5. brown	Taurus Brown Pearl
6. beige	Crystal Royal, Crystal Dark Shell
7. red	Starlight Ruby

6.2. Recommended adhesives

6.2.1. Akemi - Color Spectrum Bonding System MIXBOND

AKEMI Color Spectrum Bonding System MIXBOND is a complete color system consisting of 15 different colored MIXBOND adhesives. Applied directly or mixed with each other, any desired color shade can be exactly color-matched.

AKEMI Color Spectrum Bonding System MIXBOND are 2-component polyester-based adhesives.

Applied directly or mixed with each other, any desired color shade can be exactly color-matched. Easy application: dosing ratio 10:1 (adhesive : hardener) measured by the length of the lines of the material pressed out.

Adhesive shades are based on Technistone color range (see in the table below).

For more information see: www.akemi.de

Production Group (Commercial Names)	Color Code	2200	1110	1300	1500	2020	1000	1210	1400	1100	1910	1730	1610	1740	1810	1820	
	Material	Transparent	White	Yellow	Blue	Brown	Black	Red	Green	White	Khaki	Beige	Cream	Beige	Grey	Grey	
MIRRORS (Fresh, Starlight, Translucent, Venetian)	Fresh Brown						2	4									
	Fresh Green	x															
	Fresh Orange	3		3				2									
	Fresh Red			1				6									
	Starlight Black						x										
	Starlight Brown					5	3										
	Starlight Desert	7				1				1				3			
	Starlight Green	6					0,5		2	0,5							
	Starlight Grey					0,5	1				1					4	
	Starlight Red	5					2			4							
	Starlight Ruby	4						0,5	10								
	Starlight Sand	8					0,5				0,5	5		2			
	Translucent Ice	12									0,5						3
	Translucent Onyx	15		0,5			1					1,5			3		
	Translucent Snow White				0,5						10						
Please note: All ratios are measured in cm, x denotes a 100% color match.																	

Production Group (Commercial Names)	Color Code	2200	1110	1300	1500	2020	1000	1210	1400	1100	1910	1730	1610	1740	1810	1820
	Material	Transparent	White	Yellow	Blue	Brown	Black	Red	Green	White	Khaki	Beige	Cream	Beige	Grey	Grey
GRANITE (Taurus, Karpat, Sonora, Classic)	Sonora			1		0,5				1		3		6		
	Taurus Brown Pearl	5				5	4				2			1		
	Taurus Gold					0,5					1,5	0,5		4		
	Taurus						9				1					1
Please note: All ratios are measured in cm, x denotes a 100% color match.																

Production Group (Commercial Names)	Color Code	2200	1110	1300	1500	2020	1000	1210	1400	1100	1910	1730	1610	1740	1810	1820
	Material	Transparent	White	Yellow	Blue	Brown	Black	Red	Green	White	Khaki	Beige	Cream	Beige	Grey	Grey
CRYSTAL (Crystal, Classic)	Crystal Creme Beige										1,5	3				
	Crystal Diamond									5						0,5
	Crystal Polar White				0,5					10						
	Crystal Royal		2			0,5							4			
	Crystal Quartz White									5					0,5	0,5
	Crystal Sahara						0,5				3		3			
Please note: All ratios are measured in cm, x denotes a 100% color match.																

Production Group (Commercial Names)	Color Code	2200	1110	1300	1500	2020	1000	1210	1400	1100	1910	1730	1610	1740	1810	1820
	Material	Transparent	White	Yellow	Blue	Brown	Black	Red	Green	White	Khaki	Beige	Cream	Beige	Grey	Grey
SAND (Gobi, Elegance)	Elegance Concrete Grey						2				6				1	4
	Elegance Dark Grey					1	3				3					
	Elegance Prairie	10		6					3	0,5						
	Gobi Black						12									0,5
	Gobi Brown					3	5	1			1					
	Gobi Grey						3				2					4
Please note: All ratios are measured in cm, x denotes a 100% color match.																

6.2.2. ConfiAd adhesives

Confiad methyl methacrylate adhesive (acrylic adhesive) was specially formulated for the solid surface industry. Dosing ratio 10 : 1, supplied in readily dispensable cartridge packages. The whole system provides an unlimited color variety for achieving "seamless" joints in Quartz Engineered Stone.

Confiad offers excellent adhesion to all types of solid surfaces, including engineered stone.

Adhesive shades are based on Technistone color range (see in the table below).

For more information see: www.confriad.com

Production Group (Commercial Names)	Material	Applicable ConfiAd
SLATE SURFACE	Crystal Colorado SL	O-Cream
	Crystal Diamond SL	D-White
	Elegance Cream SL	G-White
	Gobi Black SL	K-Black
	Gobi Grey SL	P-Grey
	Gobi Mahogany SL	Brown
	Taurus Porphyry SL	A-Brown

Production Group (Commercial Names)	Material	Applicable ConfiAd	Material	Applicable ConfiAd
MIRRORS (Fresh, Starlight, Translucent, Venetian)	Fresh Brown	V-Walnut	Starlight Red	M-Bead
	Fresh Green	Leaf	Starlight Ruby	Y-Red
	Fresh Orange	Orange	Starlight Sand	N-Bead
	Fresh Red	A-Red	Starlight Sapphire	I-Blue
	Starlight Aquamarine	D-Leaf	Starlight Violet	Y-Violet
	Starlight Azurite	Z-Violet	Starlight White	C-White
	Starlight Black	P-Onyx	Starlight Yellow	A-Gold
	Starlight Blue	N-White	Translucent Grey	L-Black
	Starlight Brown	I-Walnut	Translucent Ice	Grey
	Starlight Citrine	W-Cream	Translucent Onyx	Translucent
	Starlight Desert	Bead	Translucent Snow White	M-White
	Starlight Emerald	A-Leaf	Venetian Day	M-White
	Starlight Green	N-Leaf	Venetian Night	M-Blue
	Starlight Grey	D-Mist	Venetian Sunset	S-White

Production Group (Commercial Names)	Material	Applicable ConfiAd
GRANITE (Taurus, Karpat, Sonora, Classic)	Classic Beige	P-Cream
	Classic Black	K-Black
	Classic Grey	Y-Grey
	Classic White	M-White
	Sonora	Z-Cream
	Sonora Light	O-Cream
	Taurus	Grey
	Taurus Blue Bahia	Magic
	Taurus Brown Pearl	L-Brown
	Taurus Gold	E-Beige
	Taurus Nordic	T-Blue
	Taurus Porphyry	I-Walnut
	Karpat Arizona	F-Cream

Production Group (Commercial Names)	Material	Applicable ConfiAd
CRYSTAL (Crystal, Classic)	Classic Ice	S-White
	Classic Nevada	A-White
	Crystal Beach	S-Cream
	Crystal Colorado	Z-Cream
	Crystal Cream Beige	J-Beige
	Crystal Dark Shell	S-Cream
	Crystal Diamond	B-White
	Crystal Olivine	S-Leaf
	Crystal Polar White	D-White
	Crystal Quartz White	B-White
	Crystal Rio	B-White
	Crystal Royal	U-Cream
	Crystal Sahara	Q-Ivory
	Crystal Savannah	Q-Sand
	Crystal Topaz	P-Cream

Production Group (Commercial Names)	Material	Applicable ConfiAd
SAND (Gobi, Elegance)	Elegance Concrete Grey	F-Mist
	Elegance Cream	C-White
	Elegance Dark Grey	Z-Brown
	Elegance Prairie	K-Leaf
	Gobi Black	D-Onyx
	Gobi Brown	R-Walnut
	Gobi Grey	U-Mist
	Gobi Mahogany	F-Walnut
	Gobi White	E-Ivory

6.2.1. Plexus adhesives

Plexus adhesives are 2-component methyl methacrylate adhesive (acrylic adhesive). Dosing ratio 10 : 1, supplied in readily dispensable cartridge packages. The whole system provides an unlimited color variety for achieving "seamless" joints in Quartz Engineered Stone.

Plexus adhesives offer excellent adhesion to all types of solid surfaces, including engineered stone.

Adhesive shades are based on Technistone color range (color chart will be released in near future).

For more information see: www.itwplexus.com.