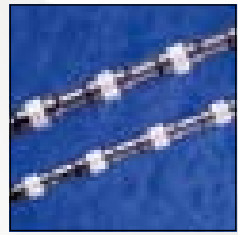




**DIAMOND WIRES OF DIABÜ®**





## DIABÜ® Diamond Wire

### Components of the diamond wire

The diamond wire consists of

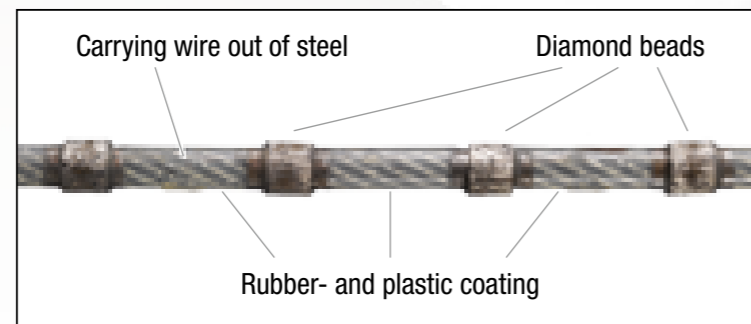
- a carrying wire out of steel
- diamond beads
- a rubber or plastic coating

The steel wire works as a carrier for the beads and the rubber or plastic coating. For this we only use special high load open twisted wires, whose engineered structure ensures a perfect wire rotation with appropriate pre-twisting.

The beads equipped with a diamond mantle segment carry out the actual cutting work. The base of these beads is a cobalt alloy, which has already proved its performance on our segments for diamond circular saws. This base has been modified in order to achieve optimum free cutting and long life characteristics for the wire saw. Embedded into this metal alloy is a diamond quality, which was chosen specifically for the use on diamond wire due to its extreme fractural strength and high quality crystal structure.

The rubber or plastic coating protects the carrier wire from corrosion and from the grinding effect of the material to be sawn. It is also responsible for the fixed sit of the diamond beads on the wire.

The use of new developed plastics or elastomer and their subsequent treatment techniques guarantee the high resistance to aging, the necessary wear and abrasive resistance and the indispensable wire flexibility even under extreme conditions of application.



We also provide the products for joining the wire.

The components of our **Repair Kit** are:

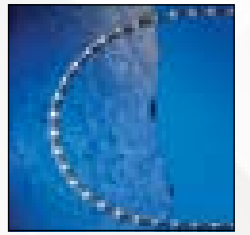
- Hydraulic handheld press
- Pneumatic press
- Pressing tools for hydraulic and pneumatic press
- Wire cutter
- Compressed air grinder
- Brass brush
- Connectors for steel wire for dia. 4 and 5 mm



## DIABÜ® Diamond Wire *DIAPERL*®

The diamond wire is a relative new member of the diamond tool industry. In the middle of the eighties it was first used for the quarrying of soft types of granite in quarries.

Due to constant development the diamond wire can be used for quarrying all sorts of granite and marble materials. Its field of application has expanded beyond the use in quarries, too. It is used more and more on stationary machines for block shaping, processing and on contour wire saws. Nowadays, block processing has reached a new technology level; the multi wire system (up to 100 wires on one machine).



### Advantages with the use of wire saw technology

The diamond wire gives a whole lot of advantages compared to the conventional methods of granite quarrying. Some of them are:

- High cutting speed
- High yield of material due to small cut
- Reduction in cutting-to-size of blocks due to its good pre-cut shape
- High cutting flexibility, all types of cuts are possible
- Significant reductions of noise level

Economical advantages as well as its flexible application possibilities have led to it, that diamond wires are also used on wire block saws. The following outstanding advantages compared to alternative processing methods can be mentioned:

- High cutting accuracy
- Low reworking costs
- High cutting flexibility
- Low investment costs
- High application flexibility
- Significant reduction of noise level
- Easy tool change

The diamond wire is not only useful for the rough processing of blocks. It can (and increasingly is) also be used for the production of complicated profiles in the field of monument design as well as of decorative objects for the construction industry.



As crucial advantages can be mentioned:

- Economical production of demanding objects
- Very high flexibility
- Very high profile accuracy
- Very high quality surface finish

In this connection our *DIAPERL*® wire saws distinguish themselves by exceptional high quality surface finish. Through this the reworking costs can be reduced quite significantly.

*DIAPERL*® saw wires are especially used for multi wire saws and contour wire saws. A field of application where diamond wire has been showing its advantages for some time is the reconstruction of buildings and churches.





## DIABÜ® Diamond Wire *DIAPERL*® for Multi Wire Saws

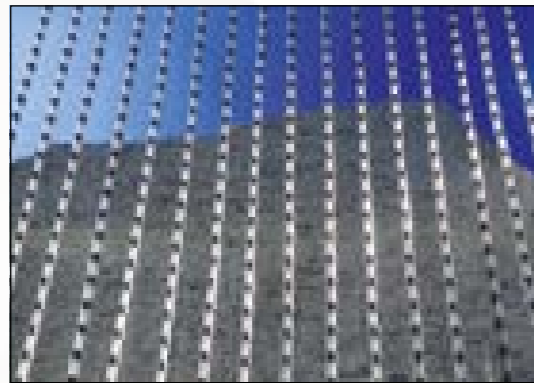


DIAPERL® Multiwires refer to steep increasing demand of quality wires required for multi wire machines.

The technology of the multi wire machines replaces more and more the steel grit frame saws.

The reason for this is the extremely higher productivity with diamond saw wires in hard stone and soft stone as well as their easier handling. Moreover this kind of stone processing treats our environment with care by more efficient use of electricity and lower disposal of sludge.

Additionally less cutting thickness increases the use of natural resource stone.



In order to cut more slabs out of the raw blocks, with less material loss, smaller wire diameters will be necessary. The wire construction consists of high tearproof steel wires coated with High-End Thermoplast plastics. The multi wires are delivered closed or endless spliced and manufactured in close tolerances.

DIAPERL® Multiwires are characterized by low vibration sawing. Smooth operation, excellent cutting and surface quality achieve a result of best dimensional accuracy.



## DIABÜ® Multiwire *DIAPERL*®

### Performance

- Quiet running when sawing
- Low vibration sawing
- Very gentle for machines and equipment
- Very gentle for bearings
- Excellent cutting- and surface quality of the slabs
- Excellent dimensional stability of the slabs

### Bead

- Saw beads with diameter 8,5 mm, 7,3 mm and 6,3 mm
- Usable diamond thickness 1,5 mm and 1,15 mm
- High impact-resistant synthetical diamond
- Even wear of the diamond beads
- Development of smaller diameters

### Wire Construction

- High strength and flexible galvanized steel wire
- Reduced bending of the wire
- High abrasion-proof plastic coating
- According to application: 35 – 40 beads per meter
- Endless spliced or crimped joint
- Available plastified and if required with springs also

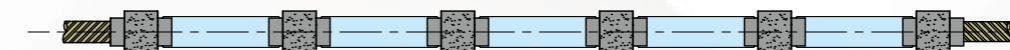
### Guarantee

- Performance guarantee
- Repair Service
- Re-plastifying service

### Product Overview *DIAPERL*® Multiwires

Bead Ø Outside (mm)	Beads No. of (pcs./m)
8,5	35 – 40
7,3	35 – 40
6,3	35 – 40

*DIAPERL*®-Diamond Wire, diameter 6,3 mm, plastified, available with 35 – 40 beads per meter



*DIAPERL*®-Diamond Wire, diameter 7,3 mm, plastified, available with 35 – 40 beads per meter

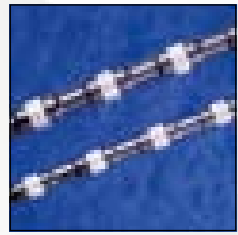


*DIAPERL*®-Diamond Wire, diameter 8,5 mm, plastified, available with 35 – 40 beads per meter



All the mentioned parameters should only be considered as recommendations based on experiences by application of our *DIAPERL*®-wire, but they can be chosen differently depending on machine type, wire type, materials to be cut and other influencing factors.





## DIABÜ® Diamond Wire *DIAPERL*® for Quarry Wire Saws

DIAPERL® quarry wires are vulcanized rubber wires for the professional extraction of granite-, sandstone- and quartzite blocks in quarries.

The vulcanized rubber wires are flexible, but nevertheless very robust due to the extremely good bond of the rubber on the wire litzes and the beads. So also under the hardest conditions rotating of the beads will be avoided. Sludge and water can not get into the litzes and damage the wire.

These DIAPERL® quarry wires have the best characteristics like high productivity and excellent easy cutting. Due to its core wire construction the wire turns are more constant, resulting in high tool life.

### Product Overview *DIAPERL*® Quarrywires

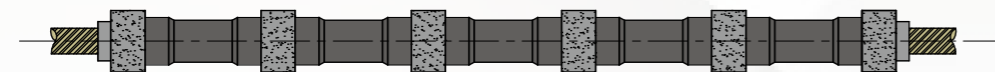
Beads No. of (pcs./m)	Bead Ø Outside (mm)
35	11
40	11

### Cutting performance

Material	m <sup>2</sup> /h
Labrador dark	5,5 – 6,5
Labrador light	4,0 – 6,0
Black Galaxy	4,0 – 6,0
Impala	3,0 – 4,0
Belfast Black	2,5 – 3,0
Juparana	2,0 – 3,0
Grey	ca. 2,5
Rosa Porrinho	ca. 2,5
Dakota Mahagony	ca. 2,0
Travertin	10 – 14
Bej	6,0 – 8,0
Green Marble	3,0 – 4,0
White Marble	ca. 6
Madurai Gold	8 – 12
Visak Blue	5 – 6
Viskont White	4 – 6
Multi Colour Red	3 – 4

m<sup>2</sup>/h can be doubled or tripled for machines of up to 90 KW

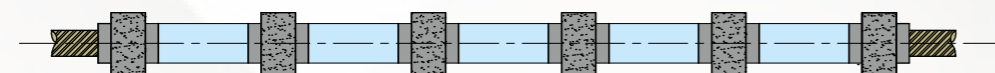
*DIAPERL*®-Diamond Wire, diameter 11 mm, vulcanized, available with 35 or 40 beads per meter



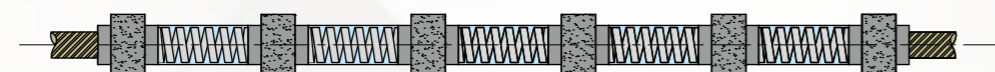
*DIAPERL*®-Diamond Wire, diameter 11 mm, vulcanized with springs, available with 35 or 40 beads per meter



*DIAPERL*®-Diamond Wire, diameter 11 mm, plastified, available with 35 or 40 beads per meter



*DIAPERL*®-Diamond Wire, diameter 11 mm, plastified with springs, available with 35 or 40 beads per meter

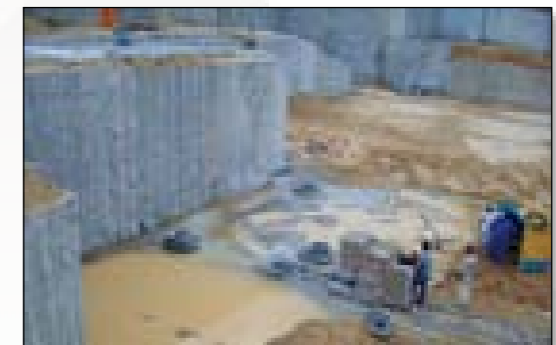
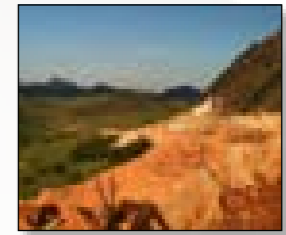


All the mentioned parameters should only be considered as recommendations based on experiences by application of our *DIAPERL*®-wire, but they can be chosen differently depending on machine type, wire type, materials to be cut and other influencing factors.

## The new generation of DIABÜ® Diamond Wires: *DIAPERL-HELIX*®

### Advantages of *DIAPERL-HELIX*®

- Vulcanized injection-moulding diamond saw wire
- Strong bond between rubber, bead and core wire
- Vulcanized wires improve the safety
- No rotating of beads
- Improved wire construction
- More robust core wire with high tear strength
- Very good wire flexibility and constant wire rotation
- Excellent easy cutting characteristics
- High productivity
- Improved and equal wear by Helix structure
- Improved sludge- and water transport when cutting
- Flexible but robust
- Bead diameter 11 mm, 40 beads per meter





## DIABÜ® Diamond Wire *DIAPERL*® for Block Saws

### Down feed

Toolpart width	Lowering (cm/h)		
	Kind of Granite		
	soft	medium	hard
2,0 – 2,5 m	approx. 70	approx. 50	approx. 45
2,5 – 3,0 m	approx. 60	approx. 45	approx. 35
3,0 – 3,5 m	approx. 45	approx. 40	approx. 30

### Cutting performance

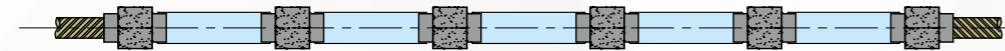
Kind of Granite	m <sup>2</sup> /h
soft (class I+II)	1,4 – 1,8
medium (class III)	1,0 – 1,4
hard (class IV+V)	0,9 – 1,2



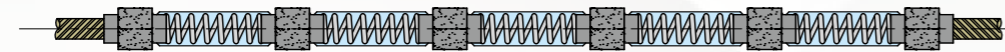
### *DIAPERL*® plastified

Beads No. of (pcs./m)	Bead Ø Outside (mm)	Diamond layer Length (mm)
35 – 40	7,3	6
35 – 40	8,5	6
35 – 40	11	6

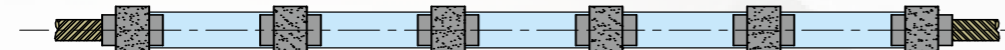
Diameter 7,3 mm, plastified, available with 35 – 40 beads per meter



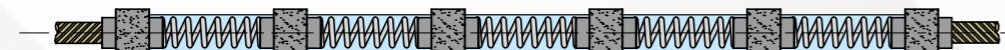
Diameter 7,3 mm, plastified, with springs, available with 35 – 40 beads per meter



Diameter 8,5 mm, plastified, available with 35 – 40 beads per meter



Diameter 8,5 mm, plastified, with springs, available with 35 – 40 beads per meter



Diameter 11 mm, plastified, available with 35 – 40 beads per meter



Diameter 11 mm, plastified, with springs, available with 35 – 40 beads per meter



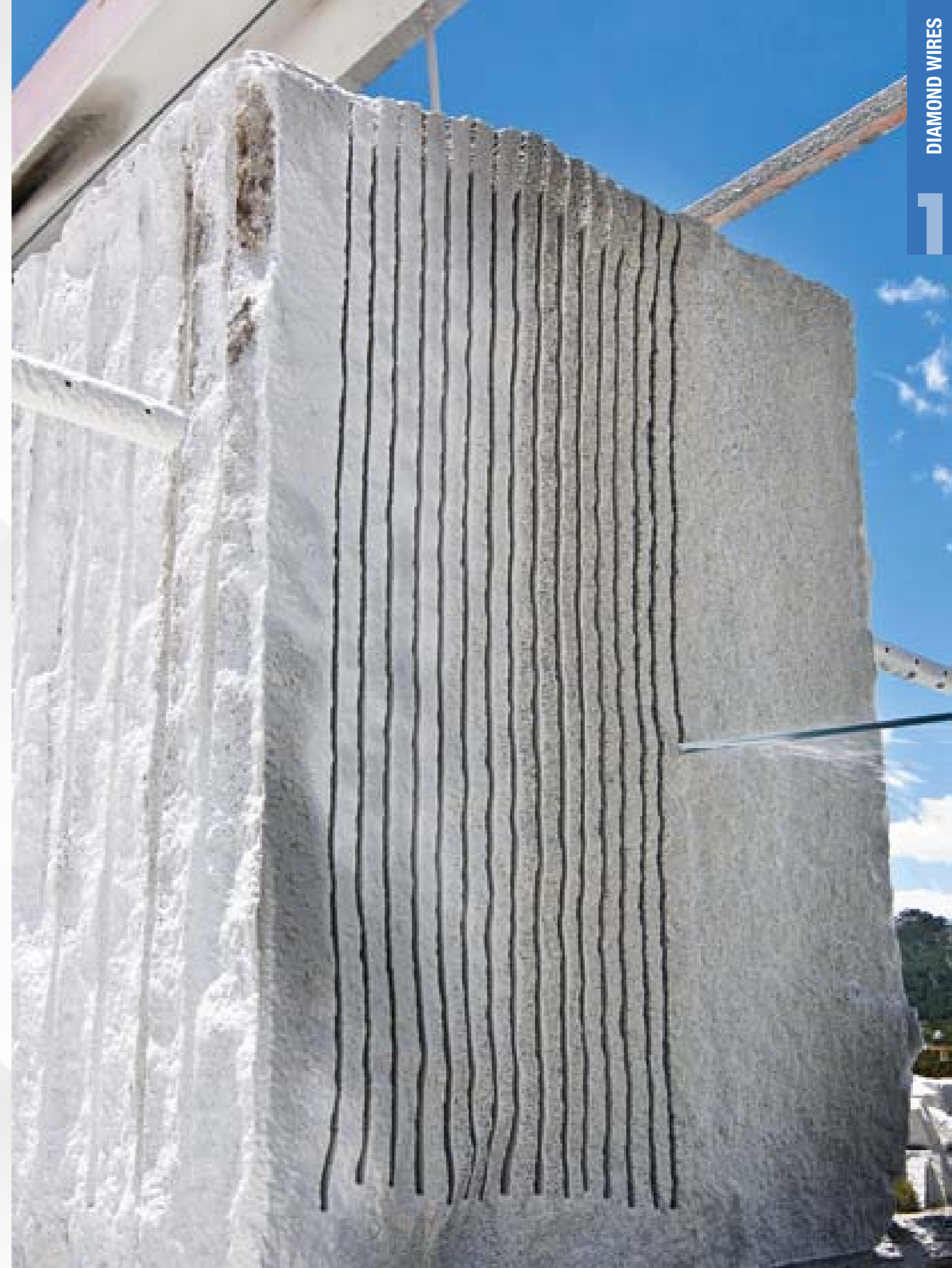
Diameter 11 mm, GT, plastified, available with 35 – 40 beads per meter



Diameter 11 mm, GT, plastified, with springs, available with 35 – 40 beads per meter



All the mentioned parameters should only be considered as recommendations based on experiences by application of our *DIAPERL*®-wire, but they can be chosen differently depending on machine type, wire type, materials to be cut and other influencing factors.





## DIABÜ® Diamond Wire *DIAPERL*® for Contour Wire Saws

### Cutting performance

Kind of Granite	m <sup>2</sup> /h
soft (class I-II)	0,5 – 0,6
medium (class III)	0,35 – 0,5
hard (class IV+V)	0,2 – 0,3



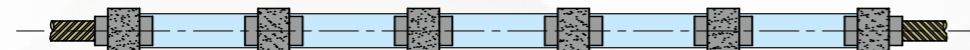
### *DIAPERL*® plastified

Beads No. of (pcs./m)	Bead Ø Outside (mm)	Diamond layer Length (mm)
35 – 40	8,5	6
35 – 40	11	6

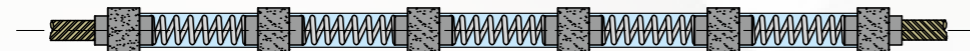
### *DIAPERL*® vulcanized

Beads No. of (pcs./m)	Bead Ø Outside (mm)	Diamond layer Length (mm)
35 – 40	8,5	6
35 – 40	11	6

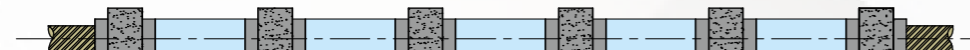
Diameter 8,5 mm, plastified, available with 35 – 40 beads per meter



Diameter 8,5 mm, plastified, with springs, available with 35 – 40 beads per meter



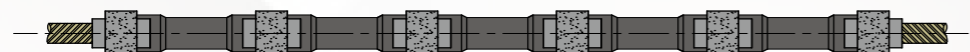
Diameter 11 mm, plastified, available with 35 – 40 beads per meter



Diameter 11 mm, plastified, with springs, available with 35 – 40 beads per meter



Diameter 8,5 mm, vulcanized, available with 35 – 40 beads per meter



Diameter 11 mm, vulcanized, available with 35 – 40 beads per meter

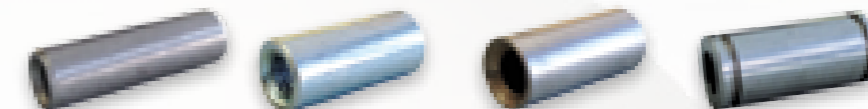


All the mentioned parameters should only be considered as recommendations based on experiences by application of our *DIAPERL*®-wire, but they can be chosen differently depending on machine type, wire type, materials to be cut and other influencing factors.

## Available wire connectors



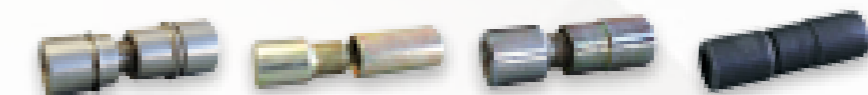
Art.-No.:	00688	01988	00689	01989
Indication:	Ferrule	Ferrule	Ferrule	Ferrule
Size:	Ø 12/8,5 x 15 mm	Ø 9/5 x 25 mm	Ø 9/7 x 13 mm	Ø 8/5 x 25 mm
Material:	Copper	Copper	Copper	Copper
Application:	Block wire saw 11 mm		Block wire saw 8 mm	Block wire saw 11 mm



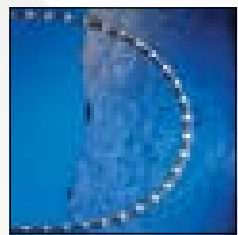
Art.-No.:	01017	02042	02005	00493
Indication:	Ferrule	Ferrule	Ferrule	Ferrule
Size:	Ø 9/5,3 x 30 mm	Ø 9/5 x 20 mm IG	Ø 9/5,1 x 20 mm	Ø 9/5,2 x 20 mm
Material:	Steel	Steel	Steel	Stainless Steel
Application:	Quarry wire	Quarry wire		



Art.-No.:	01002	02271	02208
Indication:	Ferrule	Ferrule	Ferrule
Size:	Ø 8/5,3 x 25 mm	Ø 8/4,2 x 18 mm	Ø 7/4,1 x 18 mm
Material:	Steel	Steel	Steel
Application:	Quarry wire Block wire saw 11mm		multi wire



Art.-No.:	01677	00672	01248	01890
Indication:	Screw cap	Screw cap	Screw cap	Screw cap
Size:	Ø 9,5/5 x 25 mm	Ø 9/5 x 30 mm	Ø 9/5 x 25 mm	Ø 7/4 x 23 mm
Application:	Contour wire	Contour wire	Contour wire	Contour wire



## Connecting of *DIAPERL*<sup>®</sup>-Diamond Wires with hydraulic 10 t press

1. The wire ends have to be cut clean and even. Approx. 15 mm have to be left over to establish a connection.
2. The wire ends have to be deinsulated (approx. 12 – 14 mm, completely clean) and a small sleeve out of the rubber has to be left over.
3. Slip carefully the wire connector over the cleaned and opened wire end. Pre-twist at least once a meter that way so that the core wire threading is turned tighter.
4. The second wire end also has to be inserted into the wire joints. The ends have to be turned back and forth so that at least 10 mm are woven together.
5. First of all press down the 10 mm tool with the hydraulic 10 t press, turn 90 degrees and press a second time. Now keep on pressing with the 8 mm tool and after each press the wire connector has to be turned 90 degrees until it has reached a diameter of 8,5 mm and is pressed round nearly without a burr.

The deinsulation is done best if the wire perimeter has been cut off first with a sharp knife and afterwards the rubber has to be vertically carved in. Now the insulation can carefully be skinned up in one whole with a sharp pliers (if possible not to be torn off, too much rubber would therefore stay on the steel wire).

Now clean the wire ends completely with a soft brass brush. This has to be done best with our compressed air grinder (see our repair kit on page 12). The individual flexes of the steel wire have now to be bent with a small screwdriver. It is necessary to take care of, that the individual flexes will not be damaged or bent off. Again the penetrated rubber between the bent flexes has to be cleaned carefully with a soft brass brush.

After the last press (depending on the used pressure it has to be pressed 6 – 8 times) both wire ends have to be connected linear through the wire connector. Avoid an offset as this would effect the wire life.

### Note

The above mentioned technique is at present the best method to get wire connectors with extreme high strength.

Generally the connection of wire saws is a process which only can be learned after several times.

Should there frequent wire connecting problems occur (wire end pulls out of the wire connector or a breaking off the wires-behind the wire connectors), please look at the two pages "TROUBLE SHOOTING" at the end of this chapter. The most often problems and their cause are listed there together with our solution proposal.

Torn wires, in which the wire has been torn off the wire connectors, are mostly the reason of rubber between the flexes or a too low pressing. Remember, remove all rubber before making a connection!

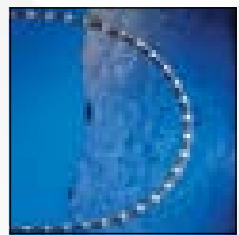
Read operating instructions before using our wires. Take care of all safety measures.

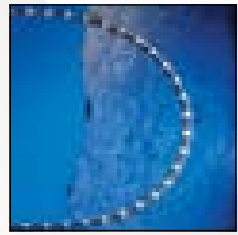


## Precautenary measures and working parameters

### Checking list for the mounting of diamond wires

- Check rotation of the diamond wire ("peg"- or colour marking method).
- Check if there are no obstacles in the danger area of the machine.
- Examine diamond wire before and after sawing for outer visible defaults. Only use wire without bends, cracks and without extreme uneven wear of the beads ( $\pm 0,4$  mm).  
Cut out loose beads or damaged connections with additionally extremely worn beads on the right and left side of the coupling and replace by new connections or repair pieces of wire. The diameter of the beads on the repair pieces has to be smaller or the same as the diameter of the existing beads, in order to avoid a blocking of the wire in the cut.  
Use only repair pieces of the same diamond wire quality.  
For crimping and cutting of diamond wires use only special tools and connectors, which are usually used for diamond wires.
- Pre-twist diamond wire sufficiently. Pre-twist at least once a meter that way, so that the core wire threading is turned tighter. Avoid bends and tight radius when pre-twisting.
- Pre-twist again after each opening or splitting of the wire.
- Check cutting direction of the wire. Run diamond wire only in the cutting direction marked by directional markers on the rubber or plastic coating.
- Check wire tension (parameters please see the following pages).
- Check the fixing of the work piece.
- Install deflection pulleys with sharp workpiece edges and small wrap radius. Guide too long, unguided wires by pressure wheels.  
Secure all deflection, pressure and driving pulley firmly against loosening, in that process deflection and driving pulleys have to be aligned. Break sharp workpiece edges.
- Keep the safety distance to the diamond wire saw during cutting.  
When working in the danger area of the wire saw stop the diamond wire.
- Pay attention to sufficient water supply at the entrance of the wire and in the cut.



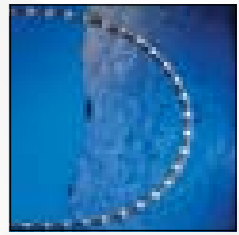


## Trouble Shooting *DIAPERL*<sup>®</sup>-Diamond Wires

Problem	Cause	Solution
<b>Unilateral wear of the wire</b>	Not pretwisted enough	Twist at least once anti-clockwise
	Too much tension on the wire	Reduce down feed
	Distance too short between driving pulley and material	Increase distance
	Pulleys are inclined, the wire is stopped from rotating by flanks of the pulley	Correct alignment of pulleys with wire or guide line
<b>Wire breaks at the connection</b>	Too much tension on the wire	Reduce down feed
	Edges too sharp	Break the edges and install deflection pulleys
	Too much wear at the connection	Increase water supply
	Wrap radius too tight	Install deflection pulleys
<b>Wire breaks behind the connection</b>	Wrong connection technique	Check press and pressing tool
	Too much tension on the wire	Reduce down feed
	Wrap radius too tight	Install pulleys
	Edges too sharp	Break the edges and install pulleys
	Wire connection too long	Install crimp-type repair connection
<b>Wire vibrates strongly</b>	Too much vibration on the traction wire	Check wire for constant diameter and reduce down feed
	Contour wire saws with wire length less than 10 m	Use endless wire
	Tension of the wire too low	Increase down feed
	Edges too sharp	Break the edges and pull through by hand first
	Different diameters on the wire, wire connections too thick	Check wire for constant diameter, check connections
<b>Wire vibrates fast and hard</b>	Not enough deflection pulleys	Install more deflection pulleys
	Wire tension too much	Reduce down feed
	Wrap distances too long	Install more deflection pulleys
	Edges or iron too sharp	Break the edges or install deflection pulleys
<b>Cut is not straight</b>	Number of revolutions too high	Reduce the number of revolutions of the driving pulley
	Not enough deflection pulleys	Install more deflection pulleys with guide line and spirit-level
	Wire tension too low	Increase down feed or tension
	Deflection pulleys are not fixed or correctly aligned when replaced during cutting	Pay attention to precise alignment and fixing of the deflection pulleys when replacing

## Trouble Shooting *DIAPERL*<sup>®</sup>-Diamond Wires

Problem	Cause	Solution
<b>Wire beads are pushed together</b>	Not enough water, leading to heating up	Supply more water or install more water nozzles with direction into the cut. Do not let water spray from bottom to top
	Sliding of the wire on the driving pulley, leading to heating up	Increase wire tension
	Wire whipping too long after wire break	Prevent wire whipping by pressure wheels or other collecting devices like panels, sheets etc.
	Sudden jamming in the material	Wedge the material
<b>Wire pulls out of the crimped connection</b>	Incorrect adjustment of pliers, not crimped enough	Check adjustment of pliers, crimp 6 – 7 times twisted by 90 degree
	Wire piece too short in the connection	Push crimped part of wire further into the bushings
	Too much wire tension, too much vibration	Reduce down feed
<b>Cutting speed too low</b>	Wire tension too low	Increase down feed
	Wrapping sections in the material too long	Install more deflection pulleys
	Wire polishes	Reduce water supply
	Number of revolutions too high	Reduce number of revolutions
	Not enough deflection pulleys, therefore too long wrapping section	Install more deflection pulleys
	Too much water supply	Reduce water supply
	Wire worn out	Install new wire
<b>Wire polishes</b>	Too much water supply	Reduce water supply
	Wire tension too low	Increase down feed
	Number of revolutions too high	Reduce number of revolutions
	Wrapping in the material too long	Install more deflection pulleys
<b>Excessive wear of the wire</b>	Not enough water supply	Increase water supply or install more water nozzles in the cut
	Number of revolutions too low	Increase number of revolutions
	Rotating or running direction of the wire mixed up	Pay attention to the direction of rotation of the wire
	Wrapping sections in the material too short	Increase the wrap radius in the material
<b>Wire cuts grooves</b>		Sharpen the wire
		Change peripheral speed
		Reduce water supply







## Recommended Parameters DIABÜ® Diamond Wire *DIAPERL*® for Multi Wire Saws

### Lowering

Type of granite	Peripheral speed (m/s)	Lowering (cm/h)
soft (class I+II)	24 – 32	25 – 40
medium (class III)	24 – 30	20 – 30
hard (class IV+V)	22 – 26	15 – 25

## Recommended Parameters DIABÜ® Diamond Wire *DIAPERL*® for Quarry Wire Saws

### Pretwisting

At least 1,5 times anti-clockwise per meter of wire. The twisting has to be done that way, that the strands of the wires are “tightened”.

The diamond wire should be started without any tension for approx. 5 min. So the twisting can spread out regular over the entire wire.

If the wire has been opened due to early ovalization, please retwist it clockwise 1 to 1,5 times per meter.

### Peripheral speed

Type of stone	Peripheral speed
hard	24 – 28 m/s
soft	28 – 40 m/s

During the sharpening process, reduce water supply.

To reduce occurring vibrations of the wire, vary the peripheral speed or the down feed.

### Cutting performance

Material	m <sup>2</sup> /h
Labrador dark	5,5 – 6,5
Labrador light	4,0 – 6,0
Black Galaxy	4,0 – 6,0
Impala	3,0 – 4,0
Belfast Black	2,5 – 3,0
Juparana	2,0 – 3,0
Grey	ca. 2,5
Rosa Porrinho	ca. 2,5
Dakota Mahagony	ca. 2,0
Travertin	10 – 14
Bej	6,0 – 8,0
Green Marble	3,0 – 4,0
White Marble	ca. 6
Madurai Gold	8 – 12
Visak Blue	5 – 6
Viskont White	4 – 6
Multi Colour Red	3 – 4

m<sup>2</sup>/h can be doubled or tripled for machines of up to 90 KW

All the mentioned parameters should only be considered as recommendations based on experiences by application of our *DIAPERL*®-wire, but they can be chosen differently depending on machine type, wire type, materials to be cut and other influencing factors.

## Recommended Parameters DIABÜ® Diamond Wire *DIAPERL*® for Contour Wire Saws

### Pretwisting

At least once per a meter of wire. The twisting has to be done that way, that the strands of the wires are “tightened”.

### Tension

Diameter of wire 5 mm	250 – 350 kg
Diameter of wire 4 mm	160 – 250 kg

### Rotation

Bottom strand	+ 210° up to + 360°
Top strand	+ 120° up to + 270°

### Peripheral speed

Type of granite	Peripheral speed
soft (class I+II)	26 – 32 m/s
medium (class III)	26 – 32 m/s
hard (class IV+V)	26 – 32 m/s

The harder the material to be cut, the lower the peripheral speed. The longer the workpiece length, the lower the peripheral speed.

Cutting hard material with machines without speed control the wire can get blunt. Therefore, start cutting with new wires first in soft stone and always alternate between soft and hard materials, if possible.

All the mentioned parameters should only be considered as recommendations based on experiences by application of our *DIAPERL*®-wire, but they can be chosen differently depending on machine type, wire type, materials to be cut and other influencing factors.



## Recommended Parameters DIABÜ® Diamond Wire *DIAPERL*® for Block Wire Saws

### Pretwisting

At least once a meter of wire. The twisting has to be done that way, that the strands of the wires are "tightened".

### Tension

Diameter of wire 5 mm	250 – 450 kg
Diameter of wire 4 mm	160 – 250 kg

### Rotation

Bottom strand	+ 210° up to + 360°
Top strand	+ 120° up to + 270°

### Peripheral speed

Type of granite	Peripheral speed
soft (class I+II)	26 – 28 m/s
medium (class III)	24 – 26 m/s
hard (class IV+V)	22 – 24 m/s

While using new, not sharpened wires reduce speed to 16 – 18 m/s for approx. 4 – 6 m<sup>2</sup> until wire appears sharp, then increase speed like the a.m. values.

The harder the material to be cut, the lower peripheral speed has to be chosen. The longer the length of the block, the lower peripheral speed has to be chosen.

Cutting hard material with machines without speed control the wire can get blunt. Therefore, start cutting with new wires first in soft stone and always alternate between soft and hard materials, if possible.

### Cooling

when starting to cut	min. 50 l/min
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With that, the water nozzles should point to that area, where the wire is going to touch the stone first.

during cutting	20 – 30 l/min with 1 bar
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One water nozzle should be positioned at the beginning and the next ones after each 40 cm that way, that the water flow is going directly into the cut. Not enough water increases the wear of the wire. Too much water reduces the cutting performance as well as the rotation of the wire and it can lead to breaking.

### Down feed

Width of workpiece	Lowering (cm/h)		
	Type of Granite		
	soft	medium	hard
2,0 – 2,5 m	ca. 70	ca. 50	ca. 45
2,5 – 3,0 m	ca. 60	ca. 45	ca. 35
3,0 – 3,5 m	ca. 45	ca. 40	ca. 30

The longer the block length, the lower the down feed.

### Cutting performance

The following cutting speeds result from the a.m. down feeds:

Type of granite	Cutting rate (m <sup>2</sup> /h)
soft (class I+II)	1,4 – 1,8
medium (class III)	1,0 – 1,4
hard (class IV+V)	0,9 – 1,2

### Wire slope at the entrance of the cut

7° up to 9° respectively max. 70 mm wire slope for wire block saws



**NEW: DIABÜ® Block Wire Saw – we produce the adequate machine for you.  
Please get in contact with us for more details or a specific offer.**

All the mentioned parameters should only be considered as recommendations based on experiences by application of our DIAPERL®-wire, but they can be chosen differently depending on machine type, wire type, materials to be cut and other influencing factors.



## Diamond Wire *DIAPERL*® Product Overview

Diameter (mm)	Beads No. of (pcs./m)	Use	Design	Coating
6,3	35	Multi Wire Saws	cylindric	plastified
6,3	36	Multi Wire Saws	cylindric	plastified
6,3	38	Multi Wire Saws	cylindric	plastified
6,3	40	Multi Wire Saws	cylindric	plastified
7,3	36	Multi Wire Saws	cylindric	plastified
7,3	38	Multi Wire Saws	cylindric	plastified
7,3	40	Multi Wire Saws	cylindric	plastified
8,5	35	Multi Wire Saws, Block Wire Saws, Contour Saws	cylindric	plastified
8,5	36	Multi Wire Saws, Block Wire Saws, Contour Saws	cylindric	plastified
8,5	40	Multi Wire Saws, Block Wire Saws, Contour Saws	cylindric	plastified
11	35	Block Wire Saws, Contour Saws, Quarry	cylindric	plastified
11	36	Block Wire Saws, Contour Saws, Quarry	cylindric	plastified
11	38	Block Wire Saws, Contour Saws, Quarry	cylindric	plastified
11	40	Block Wire Saws, Contour Saws, Quarry	cylindric	plastified
11	35	Block Wire Saws, Quarry	Step Bead	plastified
11	36	Block Wire Saws, Quarry	Step Bead	plastified
11	38	Block Wire Saws, Quarry	Step Bead	plastified
11	40	Block Wire Saws, Quarry	Step Bead	plastified
7,3	36	Multi Wire Saws, Block Wire Saws	cylindric	plastified with springs
7,3	38	Multi Wire Saws, Block Wire Saws	cylindric	plastified with springs
7,3	40	Multi Wire Saws, Block Wire Saws	cylindric	plastified with springs
8,5	35	Multi Wire Saws, Block Wire Saws, Contour Saws	cylindric	plastified with springs
8,5	36	Multi Wire Saws, Block Wire Saws, Contour Saws	cylindric	plastified with springs
8,5	40	Multi Wire Saws, Block Wire Saws, Contour Saws	cylindric	plastified with springs
11	35	Block Wire Saws, Contour Saws, Quarry	cylindric	plastified with springs
11	36	Block Wire Saws, Contour Saws, Quarry	cylindric	plastified with springs
11	38	Block Wire Saws, Contour Saws, Quarry	cylindric	plastified with springs
11	40	Block Wire Saws, Contour Saws, Quarry	cylindric	plastified with springs
11	35	Block Wire Saws, Quarry	Step Bead	plastified with springs
11	36	Block Wire Saws, Quarry	Step Bead	plastified with springs
11	38	Block Wire Saws, Quarry	Step Bead	plastified with springs
11	40	Block Wire Saws, Quarry	Step Bead	plastified with springs
8,5	35	Contour Saws	cylindric	vulcanized
8,5	40	Contour Saws	cylindric	vulcanized
11	35	Quarry, Contour Saws	cylindric	vulcanized
11	40	Quarry, Contour Saws	cylindric	vulcanized

## Diamond Wire *DIAPERL*® Product Overview

### Imaging of different wire constructions

