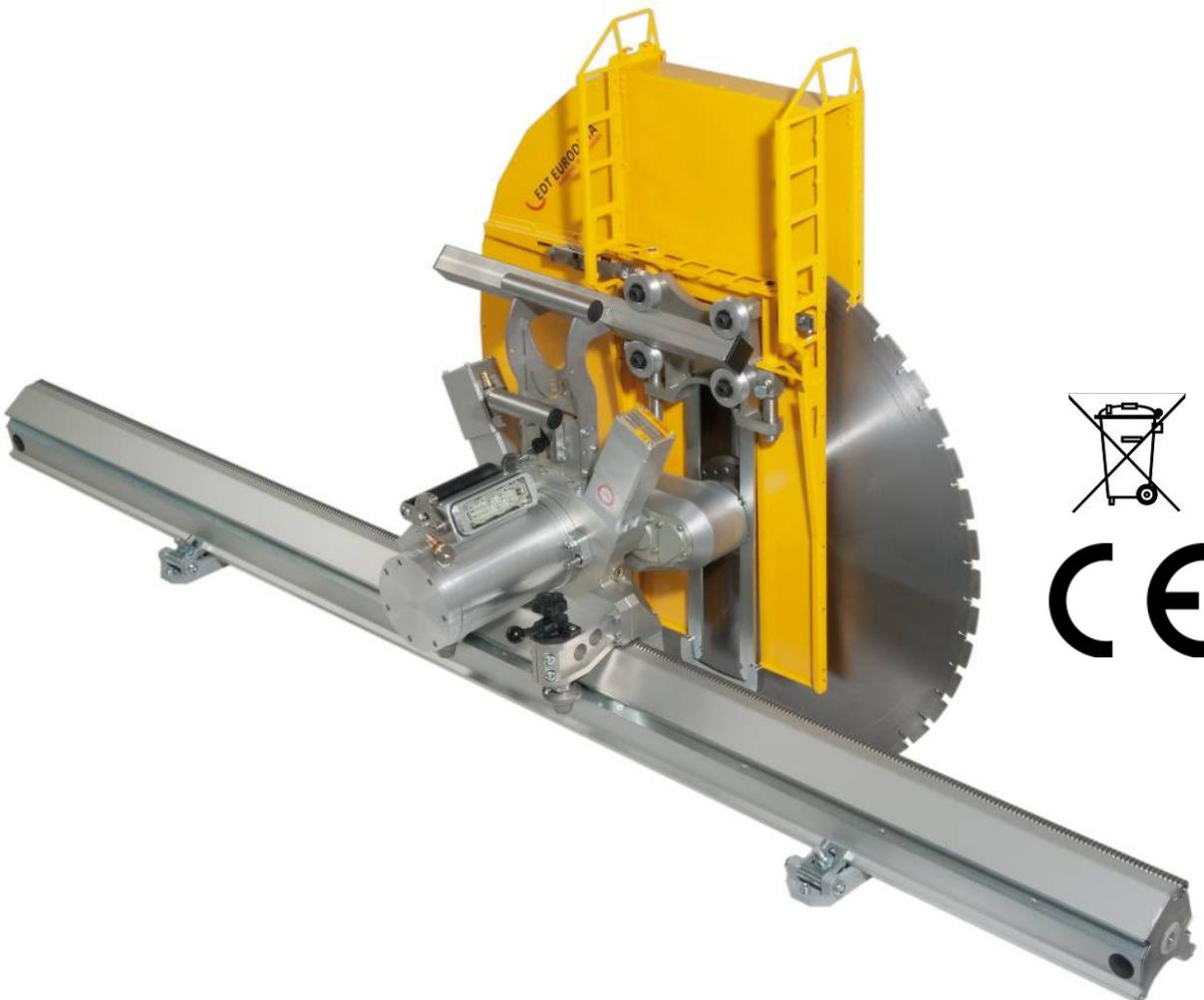


# User Manual

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## <sup>saw</sup> tornado SB321



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## 1 INTRODUCTION

This user manual is intended for the operators and maintenance personnel of this machine. The manual is not intended to replace correct training in operating the machine. We recommend training by qualified employees of EDT EURODIMA GMBH or by one of our authorized dealers.



**All persons employed in the operation, maintenance and/or repair of this machine must read and understand these instructions completely.**

Please direct inquiries to the manufacturer or an authorized dealer.



**Please observe our safety features and safety precautions which are highlighted by that sign at the respective locations in the manual.**

The saw system is equipped with safety features; however, various dangers can result from errors and misuse. Anyone involved in the setup, start-up, operation or maintenance of the machine must read and observe the safety precautions.



**Non-observance of these safety precautions may result in**

- **the injury or death of the operator or third persons**
- **damage to the machine and other assets**
- **damage to the building**
- **inefficient operation of the wall saw**

## 2 EU DECLARATION OF COMPLIANCE

**Manufacturer:** EDT EURODIMA GMBH  
Lagerstraße 6  
A-5071 Wals bei Salzburg



**Description:** Electric wall saw 32 kW

**Type:** **SB321 tornado**

We herewith confirm that the design and construction of the aforementioned machine complies with the following EU guidelines:

**Machine Guideline 98/37/EC, 98/79/EC**  
**Guideline - Electromagnetic Compatibility (EMC) 89/336/EC**  
**Low Voltage Guideline 73/23/EC, 93/68/EC**

### The following harmonized standards were applied

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- a.) **with regard to machine guidelines:**  
DIN EN 60204-1:1998  
DIN EN 61023-1:2001  
DIN EN 50144-1:1999  
DIN EN 50144-2:2000
- b.) **with regard to electromagnetic compatibility:**  
**Interference emission:**  
DIN EN 55014-1:2000-A1 :2001-VDE 0875 Part 14-1  
DIN EN 61000-3-2:2000  
DIN EN 61000-3-3:1995-Cor 1:1997+A1 :2001  
**Interference immunity:**  
DIN EN 55014-2:1997-A1 :2001-VDE 0875 Part 14-2
- c.) **with regard to the low voltage guidelines:**  
EN 61022-1:2001

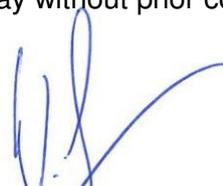
### The following documentation is completely included in the user manual

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Description of precautions to prevent machine-related dangers  
Operator instructions for the machine

This declaration is no longer valid if the machine is modified in any way without prior consultation with us and without our prior approval.

Wals, 30<sup>th</sup> March 2010

  
\_\_\_\_\_  
Dipl.-Ing. Wolfgang Stangassinger  
Managing Director

### 3 INTENDED USE

The eurodima wall saw, braxx SB321 tornado series, must only be used in conjunction with the braxx control BC321 control unit with remote control, and the necessary cables and water hoses.



#### Important safety note

**The eurodima machines may not be used in conjunction with other brands of machines unless recommended or approved by EDT EURODIMA GMBH. Non-observance will void the warranty and any product liability.**

Any other use of the machine is deemed to be improper use! The manufacturer assumes no liability for any resulting damage. The user has sole liability.

### 4 GENERAL NOTES

#### 4.1 Function

- The SB321 tornado is a wall saw driven by a variable-speed high-cycle motor.
- The motor rpm is progressively adjustable with the BC321 control unit. The swivel arm and the advance are regulated by the remote control on the control unit.
- Horizontal and vertical wall cuts, floor cuts, ceiling cuts and flush cuts can be done with only minor assembly and operation steps.
- The maximum wall thickness is 0,7 m (Ø 1600 mm / 64").

#### 4.2 Scope of application

The SB321 tornado electric wall saw cuts concrete, reinforced concrete, masonry walls and natural stone.

### 5 SAFETY



#### Warning

**Check the compatibility of the voltage and the frequency with the data on the rating plate prior to use. Repairs must be carried out only by qualified personnel.**

The following must be observed:

- ambient and operating conditions contained in the catalogue, the user manual, the rating plate and other product information
- the applicable accident prevention regulations
- proper use of tools
- use of personal safety equipment.

## 5.1 General safety precautions

- Keep your work area tidy, e.g. completely extend cables and hoses. An untidy workplace can cause accidents.
- Ensure good lighting.
- Use the wall saw only for the purposes and work it was designed for.
- Observe the maintenance regulations.
- Clean the wall saw after every use.
- Do not leave any tools attached to the machine.
- Check the condition and function prior to every use.
- Do not operate the wall saw if it is damaged or if operating elements do not function properly.
- The voltage must correspond with the data on the rating plate.
- Keep electric cables and plug connections dry and clean.
- For safety reasons press the emergency stop button when changing a tool or de-installing the wall saw.
- Use only approved extension cords with an adequate rating.
- Always unplug the wall saw prior to cleaning.
- When unplugging, always pull on the plug, never on the cable.

## 5.2 Securing the building site

The building site must be secured in coordination with the contractor. The general public must not be allowed on the building site.

### Clearances:

From the side of the cut: 3 m  
 In the direction of the cut - radial from the saw blade: 8 m

## 5.3 Prohibited uses

Must not be operated:

- In rooms where there is an explosion hazard
- Near flammable materials
- With materials containing asbestos, aluminum and magnesium as well as highly flammable materials

## 5.4 Hazards

- Noise
- Dust
- Never stand in the travel direction of the saw blade.

## 5.5 Protective clothing



Wear suitable protective clothing. Do not wear wide clothing or jewelry that could be caught in moving parts. Wear a helmet, safety glasses, work gloves, safety boots, ear protectors and a hair net for long hair. Wear a dust mask when working in enclosed areas. Provide sufficient fresh-air supply.

## 5.6 Safety equipment



**Operation without safety equipment is prohibited!  
Do not undertake any modifications to the machine that impair the  
safety equipment.**

Do not remove or modify any safety equipment. Check the safety equipment prior to cutting.

## 5.7 Emergency measures

In case of an emergency, switch off the machine with the emergency stop button on the remote control. Operation may continue only after the malfunction has been repaired.

## 5.8 Approved operators



**Youths under the age of 16 and untrained persons must not operate  
the machine! Unless under the supervision of qualified personnel for  
training purposes.**

**The owner of the machine must provide the operator with the user manual and ensure that he has read and understood it. Only then may he operate the machine.**

Areas of responsibility for the various activities with the machine must be clearly defined and observed. There must not be any unclear responsibilities since this can adversely affect user safety. The owner must ensure that only authorized personnel work on the machine. The owner is liable towards third persons within the work area.

## 5.9 Storage and transport

The storage area must be dry, clean and frost-free. During transport the machine must be secured against sliding and tipping.

## 6 TECHNICAL DATA

	SI -Standards	USA / CDN
Rated voltage	400 V	460 V
Current consumption	16 - 63 A	14 - 55 A
Power	32 KW	43 hp
Frequency	1000 Hz	
Speed	0 – 1140 U/min	0 – 1140 rpm
Protection class	IP 56	
Cutting speed	2 - 60 m/sec	
Cooling medium	water	
Weight	35,8 kg	78.6 lbs

## 7 SETUP

### 7.1 Preparations at the workplace

**Warnings and safety precautions:**

Before using the wall saw read the chapter Safety and follow the instructions.

**Energy supply:**

Ensure that the power supply at the construction site is properly fuse-protected.

### 7.2 Extension cords

Use only approved extension cords of adequate ladder cross-section.

**Eurostandard plug in compliance with EN 60309 or UL/CSA 50 A / 480 V**

### 7.3 Cooling water



The cooling water supply must be provided and the water hoses assembled prior to start-up.

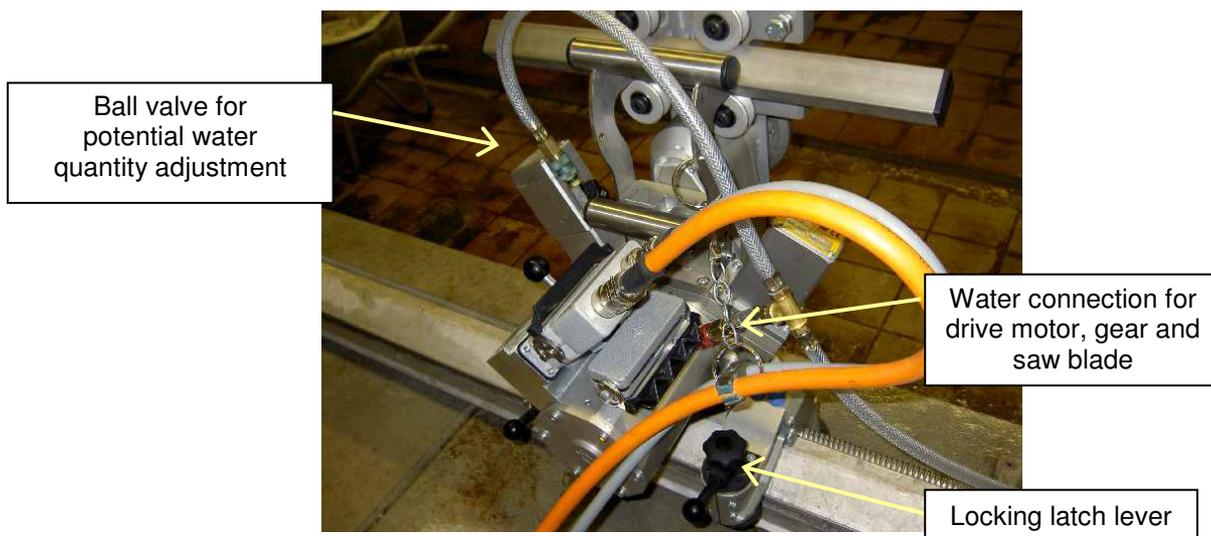
**Minimum water pressure: 2 bar**  
**Maximum water pressure: 5.5 bar**  
**Cooling water throughput: 4 – 9.5 l/min**

Use only clean tap water in order to prevent damage to the wall saw and powerbox. After cooling the powerbox, the cooling water is fed to the wall saw through the water hose marked in red.

The cooling water of the drive motor emerges via the blade flange cooling the saw blade and binding the cutting dust. The motor and gear temperature vary according to the temperature of the cooling water and the water pressure.

Ambient temperature: max. +45°C

**At temperatures under -5° C, the cooling water must be preheated or antifreeze must be added.**



Water hose at saw's end



Connect red piece of tube



Connect green piece of tube

#### **7.4 Clarification and security in the workplace**

Approval of the building supervisor for sawing and planning the cut-outs. Affix the necessary supports, barriers and warnings for third persons.

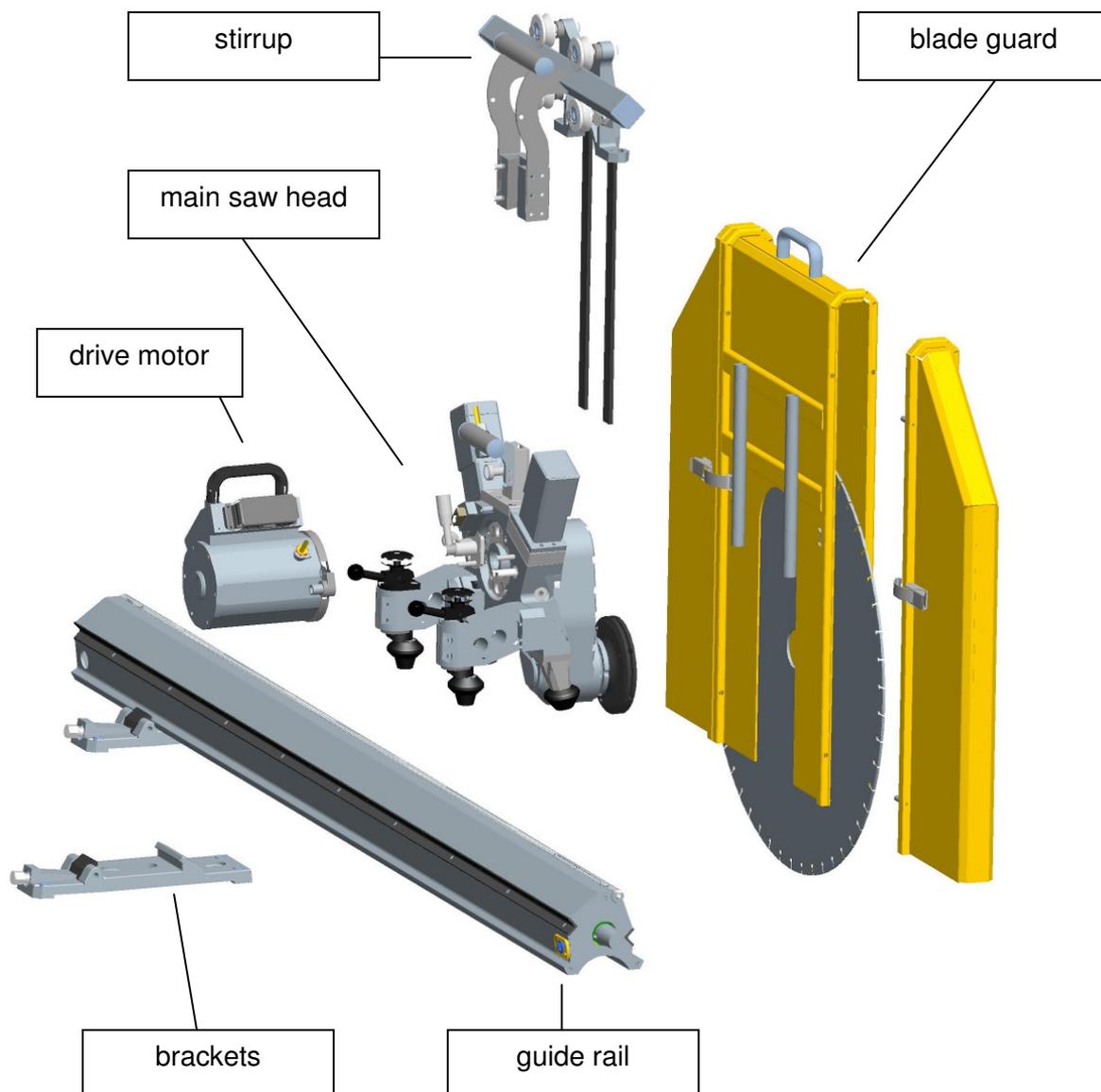
#### **7.5 Marking the cutting line and fixtures**

Generally the contractor marks the parts to be cut out. The parts to be cut out must be in keeping with the circumstances, e.g. weight of the concrete blocks, handling, floor load.

## 7.6 Wall saw setup

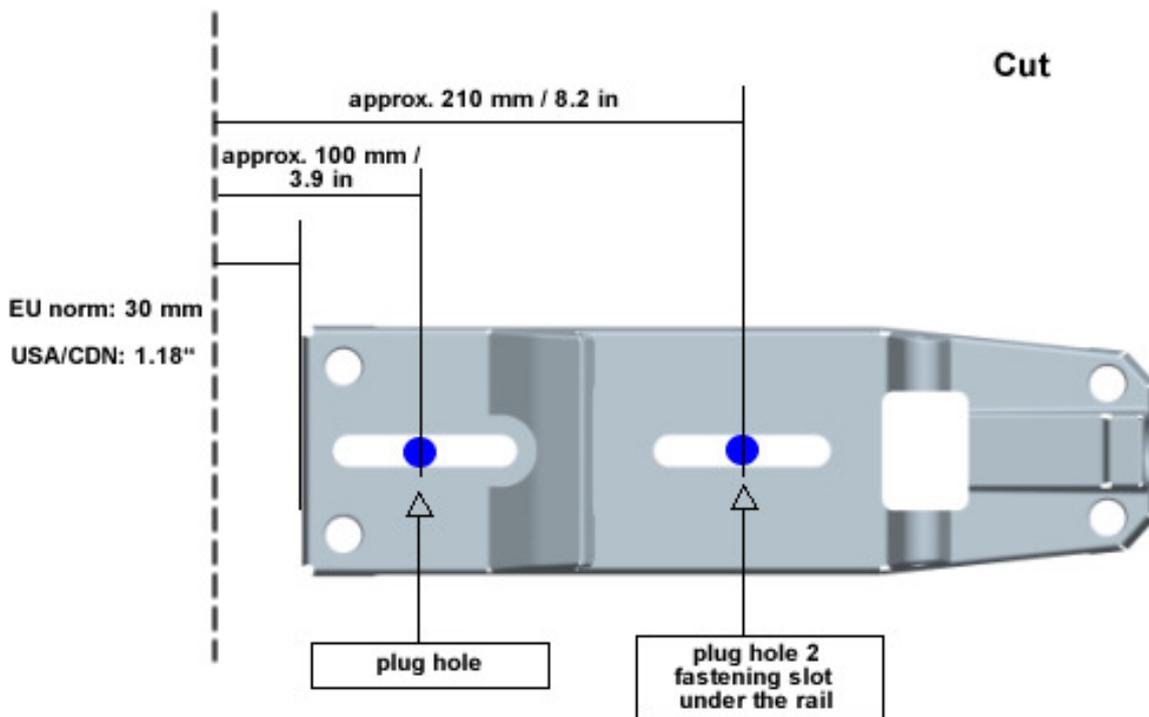
The wall saw system comprises the following components:

- main saw head with integrated advance and swivel motor.
- drive motor with safety coupling.
- blade cover with stirrup
- guide rail with fastening brackets and limit stop.
- BC321 control unit
- electric cable package
- water hose package for cooling the drive motor and the saw blade



## 7.7 Mounting the rails

- Each guide rail must be securely fastened to the floor by means of at least two fastening brackets.
- The metal anchors must sit firmly.
- The anchors must be flush with the surface of the concrete.
- Always blow out the dust after drilling the holes for the anchors.
- Fasten by means of M12 drive-in anchors (hole diameter 15 mm) or M12 masonry anchors (hole diameter 20 mm).
- Always use guide rail limit stops!
- The following parts are required:
  - M12 drive-in anchors (hole diameter 15 or 16 mm)
  - or M12 masonry anchors (hole diameter 20 mm)
  - washers according to DIN 7349
  - bolts M12x30, 8.8 galvanised
- The distance between the saw blade and the front edge of the support brackets is 30 mm (EU norm) or 1.3" (USA/CDN version).
- Always affix at the ends of the guide rails limit stops.



The following rail lengths are available:

EU norm	0,30 m	0,65 m	1,30 m	1,95 m	2,30 m	3,0 m
USA/CDN version	1'2"	2'	4'4"	6'6"	7'8"	9'11"

## 7.8 Guide rail extension

Longer cuts are made with interlocked guide rails. The rails are centred using a centring pin and centring bushing. The guide rail join must be in the middle of the support bracket.



**Set up the rails only by hand or with a soft-faced hammer!  
Never let the saw touch the limit stops –  
danger of breaking.**

## 7.9 Mounting the wall saw

Place the main saw head with attached drive motor on the guide rail, lock on and secure.

### Free-from-play locking

There must be no play and no jamming between the rollers and the guide rails in order to achieve a straight and clean cut. This is achieved by turning the eccentric bolts.

## 7.10 Assembly / changing the saw blade

### 7.10.1 Normal cutting

- Attach the saw blade to the blade flange using the mounting flange and the bolt M 12x1,5 x 30 (fine thread), bolt M 12x1,5 x 40 (US version)
- Use only saw blades whose hole diameter matches the flange. (Europe version H60, US version 1")
- The machine is only suitable for sawing with blade diameters up to Ø 1600 mm / Ø 64".
- For perfect centering of the saw blade, the saw blade hole must match the centering collar of the blade flange. Do not use saw blades with worn holes. Damaged flanges must be replaced.
- Use saw blades approved for a cutting speed of at least 60 m/sec.
- Use only saw blades whose intended use is known:
  - concrete, masonry, reinforced concrete, natural stone
  - dimension
  - approved cutting speed

### 7.10.2 Flush cutting

(see also section 8.5.3)

- Use only original EDT EURODIMA diamond tools.
- The diamond saw blade must be firmly tightened using 6 flat head bolts, tightening torque ca. 7 Nm.
- Flat head Allen bolt M8x16 – A2-70 – DIN 7991 (Nirosta 1,4301).
- The reference diameter for the mounting bolts is 110 mm (US 4.3") / 130 mm (US 5.1").

## 7.11 Saw blade diamond test

Check saw blades for visible damage, e.g.: blue color, friction points, striae, deformation and cracks

7.12 Mounting the blade cover



**Only operate the wall saw with the blade cover attached.**

The size of the blade cover must match the diameter of the saw blade.



protective cap on saw's side



mount protective cap



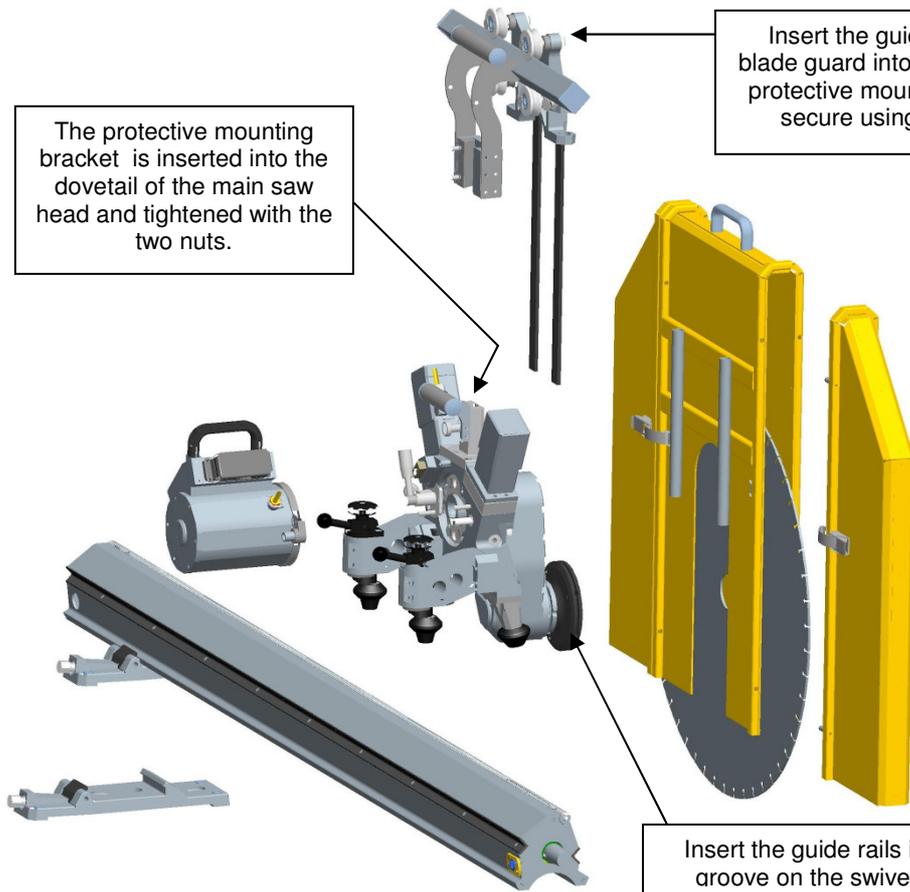
mount protective cap



fix protective cap

The protective mounting bracket is inserted into the dovetail of the main saw head and tightened with the two nuts.

Insert the guide pipes on the blade guard into the holes into the protective mounting bracket and secure using both screws.



Insert the guide rails into the groove on the swivel head

### 7.13 Electrical connection



The specifications for the electrical connection are located on the rating plate and in the user manual.

Always observe the correct sequence:



At start-up first connect the motor cable and the remote control, then connect the mains plug.

Please note: After switching off the machine, first disconnect the mains plug, then the motor cable and the remote control.

The electrical connection between the BC321 and the drive motor must be carried out according to the BC321 user manual. The karabiner at the motor end of the cable must be hooked onto the main saw head in order to ensure that the cable remains tension-free.



connecting plug Tornado



plug cable A-80



cable A-80 securing



link strain relief



Entirely connected tornado

All the plugs are coded and each is designed differently to prevent confusion. Never attempt to connect a plug with force!

Secure all the plugs prior to starting up the wall saw. Always close the protective caps after removing the connecting cables in order to keep electrical connections clean.

Bent or broken connection pins must be immediately replaced with new ones. Electric repairs may only be carried out by EDT EURODIMA GMBH or its authorized dealers.

### 7.14 Electrical remote control

Installation and handling are described in the user manual for the control units.

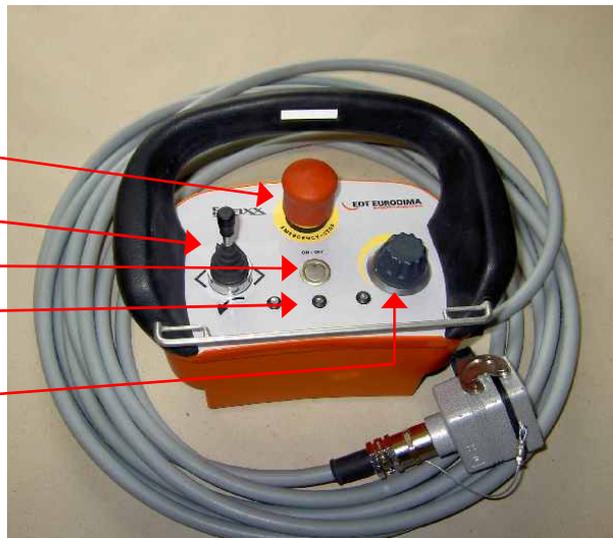
remote control with emergency stop

4-way gear lever

motor On-Off

3x LED control green-yellow-red

potentiometer



eye to hook in for abdominal or shoulder belt





remote control with abdominal belt



remote control on abdominal belt



control unit with attached remote control



remote control retainer



remote control connection



## 8 SAFETY CHECKS, OPERATING AND SAWING

### 8.1 Pre-start check

Read and observe the user manual and the safety precautions prior to operation.



**Nonobservance of the instructions may result in the uncontrolled start-up of the machine or damage to the machine. EDT EURODIMA GMBH is not liable for damage caused in this way.**

**The machine may only be switched on if all the electrical connections and cooling water hoses have been properly connected.**

- The safety equipment must be checked
- All bolts and nuts must be tight
- The saw drive must be correctly mounted on the rail and locked.
- The blade cover must be in place.
- The remote control, electric supply cables and water must be connected.
- All control knobs on the remote control and the control unit must be set to zero.



**Only operate the wall saw if the blade cover is attached.  
Do not touch any movable parts of the machine during start-up → risk of injury.**

**Do not operate the machine with damaged parts or if the controls are not functioning properly. Defects in the wall saw must be repaired by EDT EURODIMA or an authorised dealer**

### 8.2 Operating temperatures

The motor and gear temperature vary according to the temperature of the cooling water and the water pressure. Therefore the surface temperature of the swivel arm can reach 75 °C. The water coming from the blade flange must be lukewarm. This means that the machine is being adequately cooled.

### 8.3 Safety coupling

A safety coupling is located between the drive motor and the main saw head in order to prevent damage to the gears. Sudden jamming of the saw blade induces unpredictable forces that can damage the machine.

## 8.4 Saw blade speeds

Saw blade Ø [mm/inch]	Potentiometer- settings [%]	Saw blade segment width [mm]	Saw blade segment width [inch]
700 / 28	100	5,0	0.19
800 / 32	90	5,0 / 4,7	0.19 / 0.18
1000 / 40	80	4,7 / 4,4	0.18 / 0.17
1200 / 48	70	4,4 / 4,1	0.17 / 0.16
1600 / 64	50	4,1	0.16

- The optimum cutting speed (circumferential speed) of the saw blades depends on various factors such as: the quality of the concrete, the aggregates and the proportion of reinforcing steel.
- Observe the speeds and cutting depths recommended in the user manual and on the rating plate.
- When sawing hard concrete reduce the circumferential speed or rpm.
- The rate of advance can be increased with abrasive concrete.
- Reduce the rate of advance if cutting concrete with a large proportion of reinforcing steel.



**In case of critical or hazardous situations press the EMERGENCY STOP button immediately.**

## 8.5 Practical tips



**Observe the direction of motion of the saw blade!**

### 8.5.1 Guide cut

- The first cut is the guide cut.
- Depending on whether the background is hard, soft or masonry, the feed depth should be between 2 and 15 cm.
- Saw blade diameter 700 mm / 28"; saw blade width: : 5,0 mm / 0.19"
- Do not make the first cut at maximum advance rate; this could cause an untrue cut.
- Steel wedges must be used to secure a cut block.

### 8.5.2 Additional cuts

Here, too, the feed depth depends largely on the material and is between 5 - 10 cm / 2 - 4". The saw blade diameter 800 - 1600 mm / 32 - 64"; saw blade segment width: 5.0 mm / 4.1 mm / 0.19 - 0.16"

Always work using the progressive cutting method! A higher advance rate is better than too much feed depth which causes dulling of the segments. Always cut with the swivel arm pulling.

### 8.5.3 Flush cutting

- When flush cutting, move across the entire length without the blade turning; the saw blade must always be able to be freely moved by hand. If the saw blade rubs at one spot, the guide rail must be moved, otherwise the saw blade will be damaged.
- When flush cutting, the saw blade is covered by a blade cover which is open on one side



**The bristle strip of the blade cover must be close to the surface parallel to the cut.**

### 8.6 Ending the cutting process

- Always exit the cut with a moving saw blade.
- Shut off the saw blade.
- Raise the swivel arm of the saw head (twelve o'clock position).



**The drive motor must continue to be cooled for at least 10 minutes after finishing a cut or prior to an extended interruption in cutting, otherwise the motor will be damaged.**

**The cooling water must be drained from the machine after cutting work has ended.**

### 8.7 Sharpening the saw blade

The saw blade can be sharpened as follows while cutting concrete:

- Insert the saw blade ca. 5 mm / 0.2" into the material (not reinforcing steel)
- Reduce the speed somewhat
- High rate of advance
- Cut length ca. 1 m / 3'
- With a rotating blade, make 2 - 3 cuts into a sand-lime brick or an abrasive brick.

### 8.8 Sawdust sludge

Sawdust sludge can cause irritation of the skin and eyes. Wear protective clothing, safety glasses and safety gloves.

#### **Waste disposal**

When disposing of the sawdust sludge, observe the national and local regulations and the provisions of law.

## 9 SERVICE AND MAINTENANCE

We recommend an annual inspection of the wall saw by EDT EURODIMIA or an authorized dealer.

### 9.1 Safety checks

The electrical and mechanical safety of the wall saw and its accessories must be inspected at the intervals set out in and according to the national regulations.

### 9.2 Maintenance

The transmission oil must be changed after every 150 hours of operation. Oil quality: Syntheso D320EP (polyglycol-based synthetic oil); Quantity: 0.4 l (13.5 oz); oil supplier: KLUEBER compulsory! Clean and lubricate the moving parts of the wall saw after use with oil spray.

Every 150 hours of wall saw operation, bring the motor to the EDT EURODIMIA service. There, replacements of the cooling system and of the hybrid bearings are to be done.

### 9.3 Daily cleaning

- We recommend cleaning the wall saw with water after every use.
- Attention! Do not use a steam jet cleaner.
- Keep the rail clean. If the concrete sludge is difficult to remove, clean the rail and the toothed rack with a brass wire brush.
- The bolts of the toothed rack must be checked regularly to ensure that they are tight.
- It is particularly important that the centering holes in the side covers and in the toothed rack (connecting the rails) are kept completely free of concrete sludge.
- The blade cover is generally maintenance-free. It is only necessary to check that the plug connection remains clean.

### 9.4 Guide rollers

The rollers must be manually rotating; otherwise, the bearings must be exchanged. The eccentric bolts at the back lock must be greased once a week minimum (lubricating nipple). The saw must sit play-free on the guide rail, without jamming.

### 9.5 Safety clutch

In order to protect the gear when clamping, a safety clutch (rated break point) is mounted between drive motor and gear. This clutch must be replaced after breaking.

**Always keep safety clutches in reserve!**



Safety sleeve

## 10 TROUBLE SHOOTING



**Do not operate the machine with damaged parts or if the controls are not functioning properly.  
Defects at the wall saw must be repaired by EDT EURODIMA or an authorized dealer.**

Problem	Cause
The machine will not run even though all the connections are in place	<ul style="list-style-type: none"> <li>- Ensure that the emergency stop button on the remote control or the BC321 is unlocked</li> <li>- Incorrect supply voltage</li> <li>- One phase missing</li> <li>- Damaged cable or plug</li> <li>- Emergency Stop pressed</li> <li>- Extension cord gauge too small</li> <li>- Damp plug connections (short circuit)</li> </ul>
Machine stops during operation	<ul style="list-style-type: none"> <li>- Not enough cooling water</li> <li>- Supply voltage fluctuations</li> <li>- Motor temperature too high due to motor overload</li> </ul>
Drive motor turns, saw blade does not turn	<ul style="list-style-type: none"> <li>- Safety coupling</li> </ul>

## 11 LIABILITY AND WARRANTY

Unauthorized modifications and changes to the machine as well as non-observance of the operating instructions void the manufacturer's liability for resulting damage.

We only warrant error-free operation for original replacement parts manufactured by EDT EURODIMA GMBH. Any guarantees and warranty become void if machines or machine parts have been opened. This warranty is valid on condition that the machine is used, handled, maintained and cleaned according to the operating instructions.

Claims under the warranty will be recognized up to 12 months from the date of purchase (invoice date).

The warranty includes the repair or replacement of defective parts free of charge. Parts subject to normal wear are excluded from this warranty.

EDT EURODIMA is not liable for direct, indirect or consequential damage from defects, loss or expenses in connection with or resulting from the unsuitability of the device for a specific purpose. Implied assurances of use or suitability for a specific purpose are expressly excluded.