COREWISE PTY LTD

Automatic Core Saws

Operating and Safety Manual

Contents

The Core Cutting Blade

The core cutting blade is made to strict engineering design and very high quality. It is specifically designed for the purpose of cutting rock and will not tolerate any misuse or improper operation. It is perfectly balanced which is paramount in its performance, but because of the need to be perfect in this regard, it is very fragile.

These following rules must be strictly adhered to:

(a) Never, under any circumstances, cut anything without a continuous flow of water onto the blade and into the cut. Failure to observe this will cause the blade to overheat (blue), lose tension (become wobbly), and possibly fail risking severe personal injury.
(b) Never under any circumstances cut anything that the blade has not been designed to cut.
(c) Never slam core into the blade; always have a smooth entry.
(d) Never stall the blade into the rock.
(e) Never hit the blade sideways.

Observing these simple rules regarding the use of the blade will help keep the job safe and greatly extend the life of the blade.

The life of the blade can be greatly increased by ensuring the proper conditions exist for the blade. These conditions include: proper operator training, correct water flows, correct blade speed, and the correct selection of the blade to suit the ground being cut.

Dynamics G-Ex manufactures blades to strict formulas and are designed to perform within specific parameters. These include: water flows, 8 - 11 litres/ minute and peripheral blade speed. Dynamics G-Ex blades are designed to have optimum performance at a peripheral blade speed of 3,000 metres (9,900 feet) per minute.

Recommendation Guide ✓✓ Highly Recommended ✓ Recommended *(Not for continual use)* ✕ Not Recommended	Type 1 Tuff, Shale, gypsum, Clay, Potash, Talc, Soft Sandstone, Calcite and Soft Sandstone	Type 2 Marble, Schist, Limonite, Weathered Granite, Siliceous Schist, Serpentine, and Phylites	Type 3 Siliceous Volcanics, Hard Schist, Hard Limestone, Gneiss, Besalt, Andesite, Pegmatite	Type 4 Quartzite, Rhyolite, Tonalite, and Aplite	Type 5 Chert, Quartz, Red Granite, Jasperlite, Strongly Silicified, Glassy Highly Altered, Intrusives and Volcanics
Discoverer® - CBLDS Medium-Soft Abrasive	✓✓	✓✓	✕	✕	✕
Discoverer® - CBLDS Very Hard	✕	✓	✓✓	✓✓	✕
Discoverer® - CBLDS Ultra Hard	✕	✕	✕	✓	✓✓

Safety

Safety is paramount in any operation and is unfortunately often overlooked in core cutting operations. At this point, it cannot be stressed hard enough that flesh and bone are no match for a high powered core cutting machine spinning at high speeds, with a blade containing the hardest known cutting material.

These following rules must be strictly adhered to:

(1) No person shall operate a diamond cutting saw without proper instruction and authorisation on the use of and the procedures involved with the operation of the saw.

(2) Under no circumstances should a diamond core cutting machine be operated whilst under the influence of alcohol or drugs, including prescription drugs.

(3) **Personal Protective Equipment** - personal protective safety equipment must be worn whilst using a diamond core cutting machine. This includes safety goggles, ear muffs/plugs, tight fitting waterproof apron, steel toe rubber boots, plus any other relative site safety equipment. Gloves can be worn but must be the tight fitting pink household type. All other types of gloves can easily be caught in the blade.

(4) **Pre-start Checks** - as in the safe operation of any machine it is imperative that the responsible operator performs a pre-start check. Failure to observe this simple safety procedure represents a serious breach of mine regulations and will lead to disciplinary action. Never assume that a pre-start check has been performed. It is a simple task that takes only a few minutes. If you are not sure then redo the pre-start check. Remember that it is designed to protect you.

Personal Protective Equipment

Personal protective equipment must be worn whilst using or in the vicinity of a diamond core cutting machine. Special attention should be made to hearing and eye protection.

Diamond core cutting machines are extremely loud and failure to use **approved hearing protection** will result in hearing loss. **Eye protection** must also be worn in the vicinity of a diamond core cutting machine. The blade of the machine is spinning at nearly 3000 rpm and any small chip of rock flying at this speed can cause serious damage to unprotected eyes.

It is also important that the operator is protected from the spray of the water. The light mist that is present can easily cause an operator to get chilly; extra attention should be paid to this during the winter months.

Mine regulations state that steel toe safety boots must be worn at all times on any mine or exploration site. During core cutting operation, it is recommended that **rubber steel toe boots** be worn to prevent the operator's feet becoming wet. The type of boots worn should also have good tread to prevent the operator slipping in the wet conditions. Gloves can also be worn, but it must be stressed that only the **tight fitting household type gloves** should be worn. Loose fitting gloves can easily be caught in the blade.

Minimum Personal Protective Equipment

Hearing Protection

Earmuffs

Eye Protection

Safety Glasses

Hand Protection

Vinyl Gloves

Foot Protection

Steel Caps

Clothing

No Loose Sleeves

Additional Recommendations

Rubber Boots

Ensures Dry Feet

Rubber Apron

Prevents Wet Clothing

Face Shield

Extra Protection

Detailed Procedure Prestart

(1) Ensure work area is clean
(2) Lubricate pusher chain belt if fitted
(3) Inspect blade for wear
(4) Turn water on
(5) Check if drain pipe is securely fitted and waste is directed away from work area
(6) Turn power on at mains
(7) Ensure blade guards to be down and locked
(8) Wear proper PPE
(9) With a grease gun, apply grease to the nipples located on the left and right sides of the machine, as well as to the bearings on the blade shaft assembly.

Start Up

1. Pull emergency stop button on control panel
2. Press start button on control panel
3. Press emergency stop button to ensure machine stops
4. With a foreign object, trip the proximity switch
5. If machine fails to stop, cease operation immediately, tag machine and report fault
6. Repairs are to be carried out by qualified personnel only

Cutting Core

1. Load core into V-core holder; the machine will hold 3 V-core holders
2. Place V-core holder into automatic feed slot, ensure the lugs are furthest away from the blade
3. Remove V-core holder from right side of machine, and repeat steps 1 and 2

Shutting Down

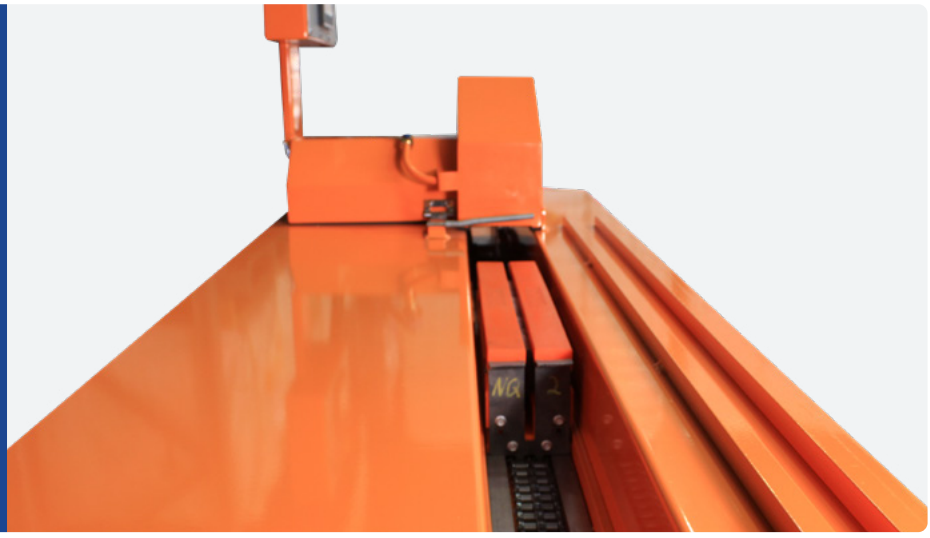
1. Check all core and V-core holders are removed from the machine
2. Turn the feed switch to the off position
3. Push the stop button
4. Turn off mains
5. Turn water off

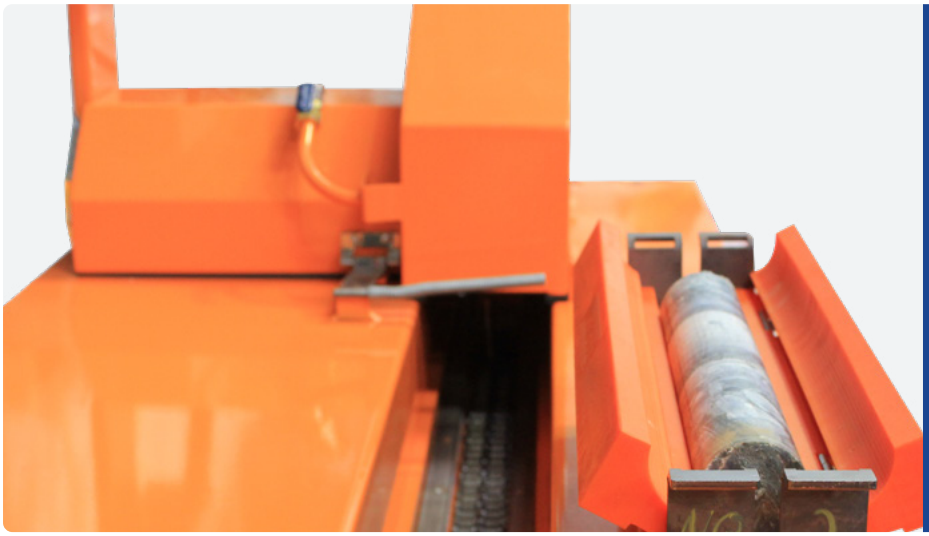
End of Shift

1. Wash down machine with a broom or brush
2. Wash out V-core holders
3. Clean all debris from floor area
4. If your machine is fitted with a chain belt, start saw, turn feed switch to forward, and allow feed chain one complete revolution, spraying the chain with a suitable lubricant
5. Turn feed switch to off and shut the saw down

Blade cover housing with lock down latches and water tap

V-Core Holder

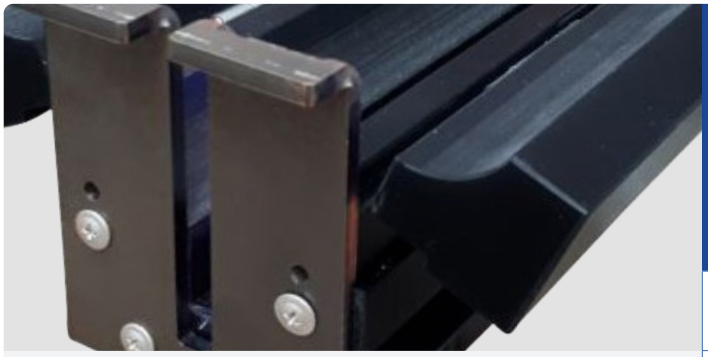




Core Guides/ Core Boats in automatic feed slot

Options and Spare Parts

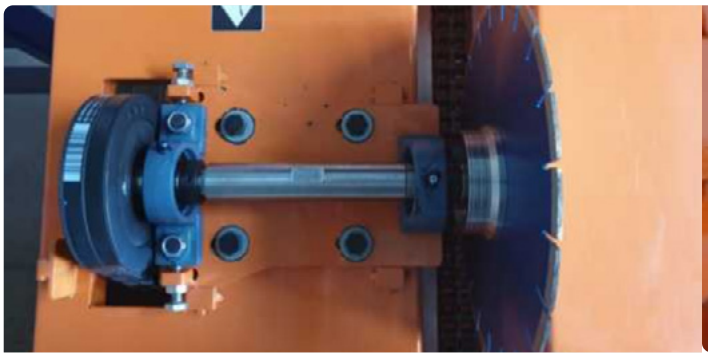
Water Recycling Tank	
DYNOATNK	Corewise Automatic Recirculation including Pump

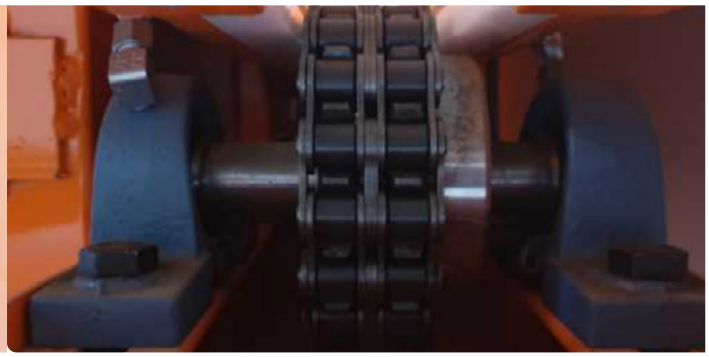


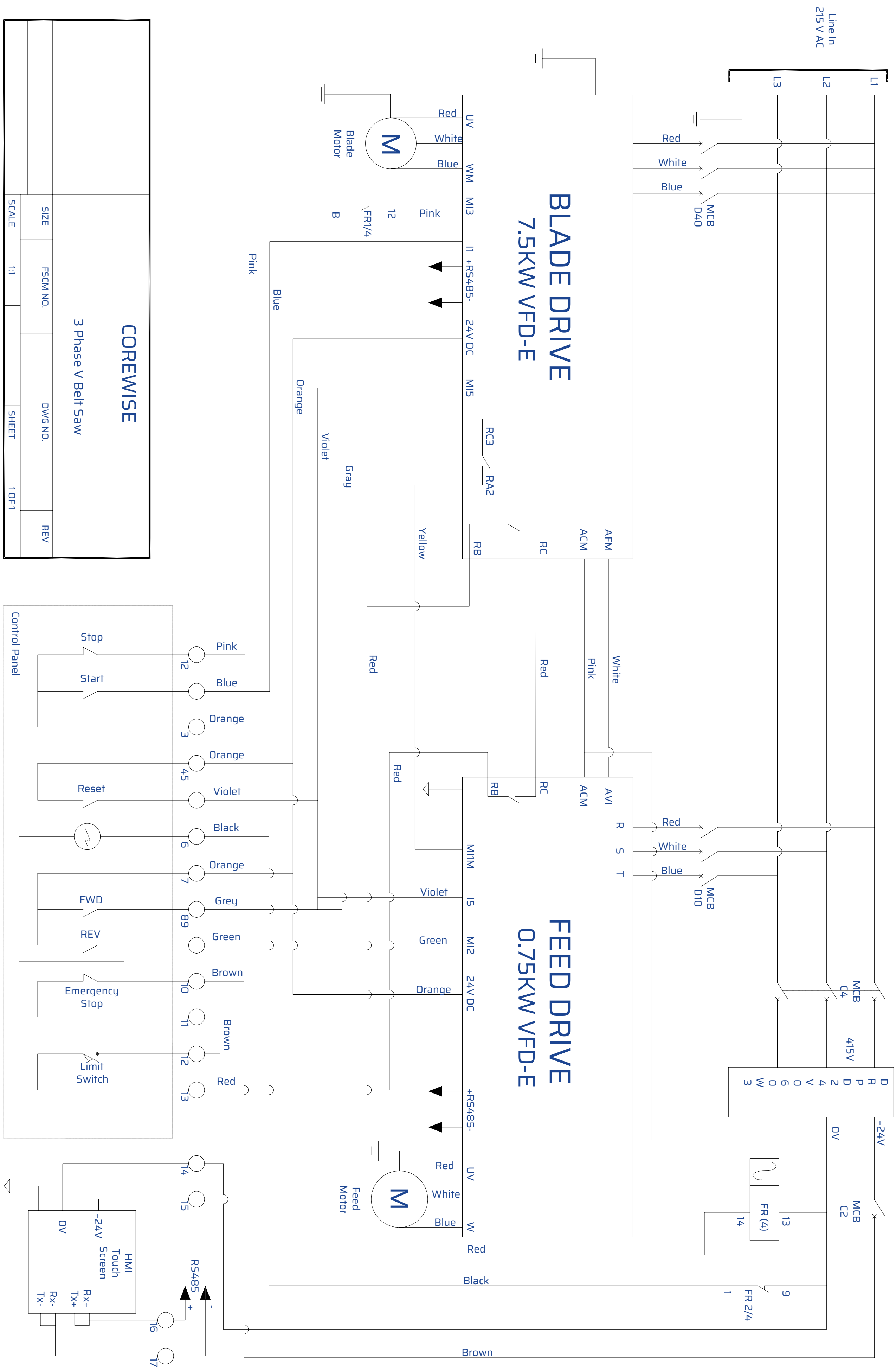
Core Holders	
BKNCGP-H	Discoverer Plastic Broken Core Guide - HQ (63.5mm) Light Blue
BKNCGP-N2	Discoverer Plastic Broken Core Guide - NQ2 (50.7mm) Orange
BKNCGP-LT	Discoverer Plastic Broken Core Guide - LTK60/NQ3 (45.1mm) Dark Green
BKNCGP-P	Discoverer Plastic Broken Core Guide - PQ (85mm)
BKNCGP-N	Discoverer Plastic Broken Core Guide - NQ (47.6mm)
BKNCGP-H3	Discoverer Plastic Broken Core Guide - HQ3 (61.1mm)
AUTCGP-P	Discoverer Plastic Open Top Core Guide – PQ (85mm)
AUTVCGP-N	Plastic V-Core Guide HQ/NQ/NQ2

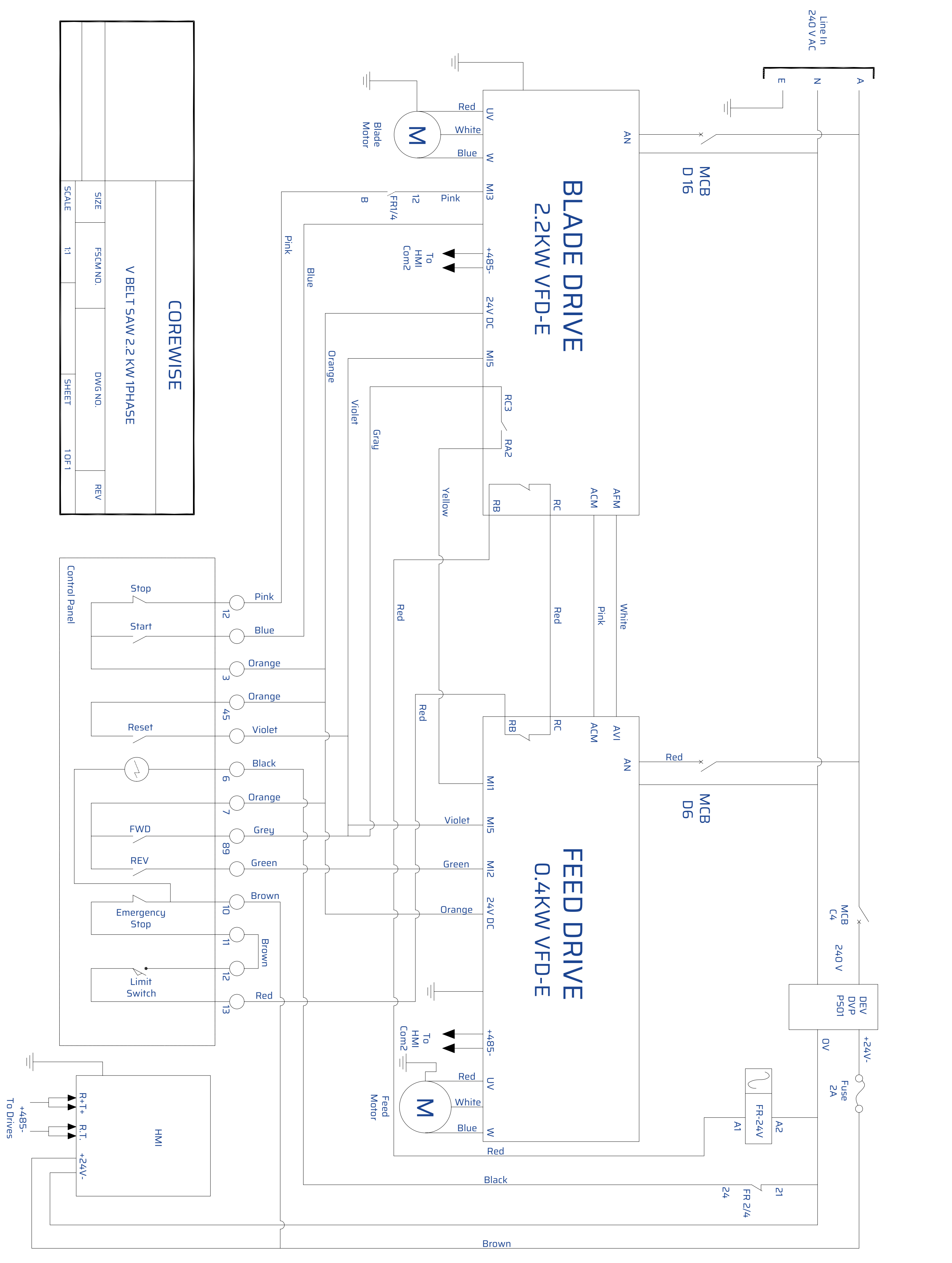
Options and Spare Parts

Spare Parts	
GSBA27	Spare Belt for the 3 Phase Automatic Core Saw Unit
GSBA28	Spare Belt for the Single Phase Automatic Core Saw Unit
GSBA20	Blade Shaft Assembly for all Automatic Core Saw Units
GSBA210	Spare Chain for the Single Phase Automatic Core Saw Unit
GSBA29	Spare Chain for the 3 Phase Automatic Core Saw Unit






COREWISE
3 Phase V Belt Saw
SIZE
FSCM NO.
DWG NO.
REV
SCALE
1:1
SHEET
1 OF 1
BLADE DRIVE
7.5KW VFD-E
FEED DRIVE
0.75KW VFD-E
Line In
215 V AC
L1
L2
L3
MCB
D40
MCB
D10
MCB
C4
MCB
C2
415V
0V
+24V
Blade
Motor
Feed
Motor
M
Control Panel
Stop
Start
Reset
FWD
REV
Emergency
Stop
Limit
Switch
HMI
Touch
Screen
RS485
FR (4)
FR 2/4
FR1/4


Line In 240 V AC
MCB D16
MCB D6
MCB C4
240 V
BLADE DRIVE
2.2KW VFD-E
FEED DRIVE
0.4KW VFD-E
Blade Motor
Feed Motor
To HMI Com2
DEV DVP PS01
Fuse 2A
FR-24V
Control Panel
Stop
Start
Reset
FWD
REV
Emergency Stop
Limit Switch
HMI
To Drives +485-
COREWISE
V BELT SAW 2.2 KW 1PHASE
SIZE
FSCM NO.
DWG NO.
REV
SCALE 1:1
SHEET 1 OF 1

SAW APPLICATION CHART

MATRIX

HARDER

SEGMENT

SOFTER

SOFTER

FORMATION

HARDER

MORE ABASIVE

LESS ABASIVE

SERIES	CONDITION
CORECUT 3	SOFT CORE
	ABRASIVE, COARSE
	GRAINED SEDIMENTARY
	FORMATION
CORECUT 2	MEDIUM CORE
	MEDIUM FINE
	GRAIN GRANITE, BASALT
	GABRO & PORPHYRY
CORECUT 1	2 - 3 H.P. MACHINE
	EXTREMELY HARD CORE
	EXTREMELY FINE GRAIN
	CHERT & IRON STONE

RECOMMENDED PERIPHERAL SPEED

3,000 metres / 9,900 feet per minute

Automatic Core Saw
Pre-start Check

Personal Protective Equipment		Check		Check
Eye Protection	Clean		Secure	
Ear Protection	Clean		Secure	
Rubber Apron	Not Torn		Check	
Rubber Safety Boots	Not Leaking		Good Tread	
Gloves	Correct Type		Good Fit	

Housekeeping		Check		Check
Clear of Tripping Hazards	No Debris		No Hoses etc	
Machine Clean	No Debris		Clean	
Tray's Positioned Correctly	Clearly Marked		Orientation	
Log Sheet Ready	Clearly Marked		Correctly Marked	

Machine Checks		Check		Check
Blade Guard	Down		Locked	
Proximity Switch	Trip Lever		Stops Machine	
Electrical Cable	Not Exposed		Not Frayed	
Grease Nipples	Apply Grease		Splash Shield	
Water Hoses	Secure		Working	
Chain Lubricated	Chain		Shaft	
Emergency Stop Button	Pulled Out		Works	
Drain Pipe securely fitted and waste is directed away from Work Area	Secure		Direction	

Blade		Check		Check
Blade	Clean		Secure	
Blade	No Cracks		Visual Check	
Flange	Correct Size		Tight	
Segments	None Missing		Sharp	
Waterflow	Onto Blade		Correct Volume	

Comments

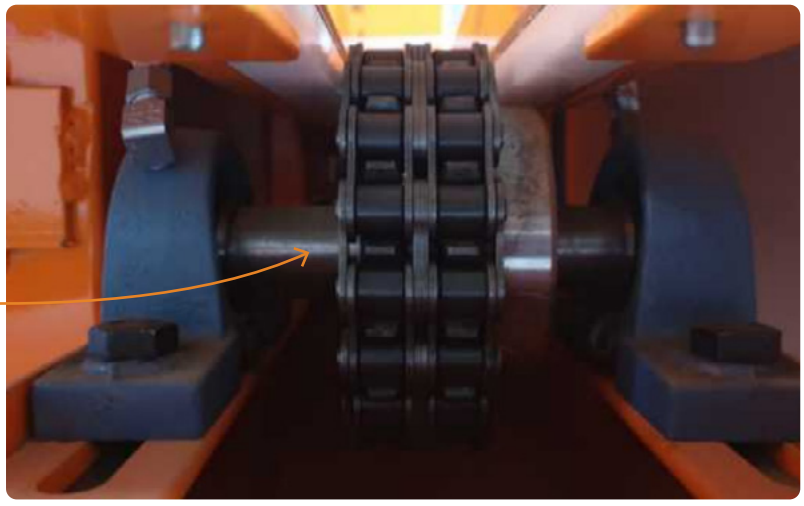
Operator's Signature: _____ Date: _____
Supervisor's Signature: _____ Date: _____

How to

All panels shown as described in the following procedures

Change Chain Belt

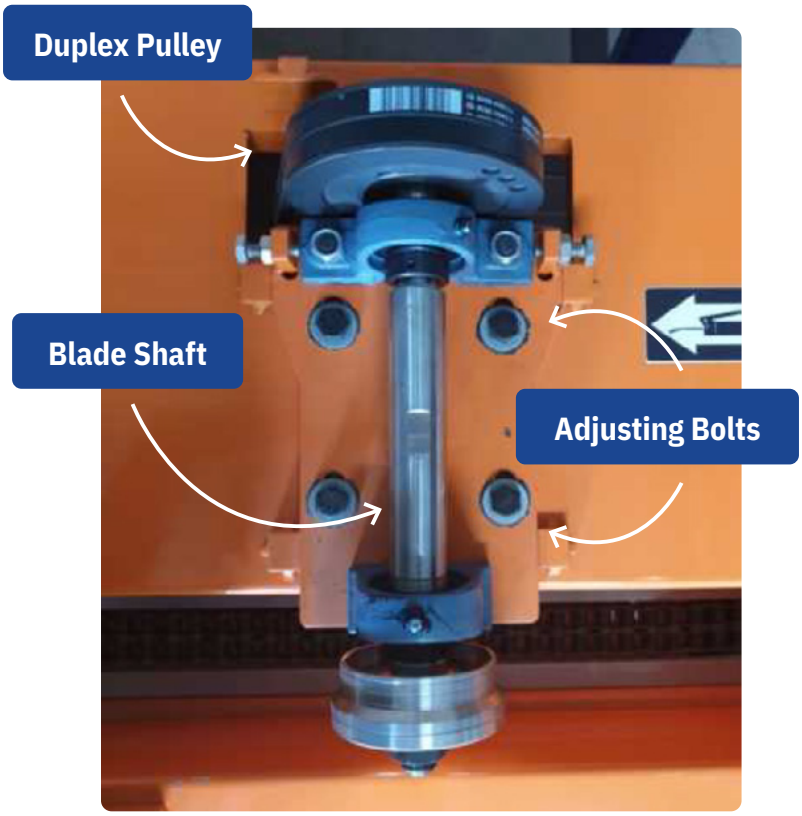
1. Remove left and front panels
2. Loosen left pillar blocks and tensioners
3. Find chain link (always facing front panel) and remove
4. Remove chain
5. Refit new chain
6. Tension chain until it supports its own weight
7. Tighten the 4 pillar bolts
8. Refit panels

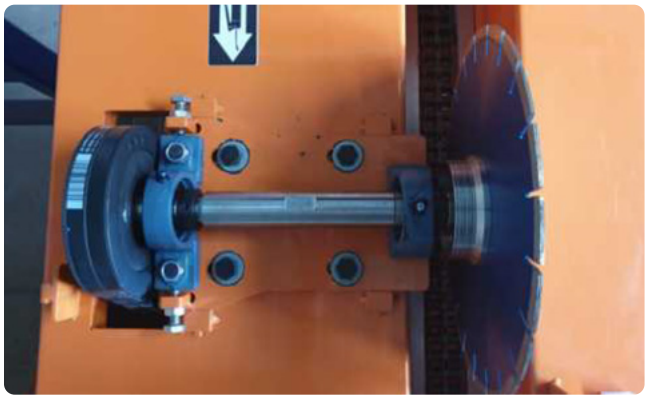


How to

Change the Blade Shaft

1. Remove blade *(see blade replacement)*
2. Remove rear panel
3. Remove 2 drive belts
4. Remove duplex pulley
5. Undo 4 bolts holding shaft housing
6. Loosen 4 adjusting bolts
7. Remove shaft
8. Fit new shaft
9. Refit and lightly tighten the 4 bolts in the shaft housing
10. Fit new blade
11. Slide in Jig or core holder
12. Tighten 4 shaft housing bolts completely
13. Remove jig or core holder
14. Refit pulleys to shaft (Note: Must be aligned with pulley on motor)
15. Fit belts and retension
16. Refit panel



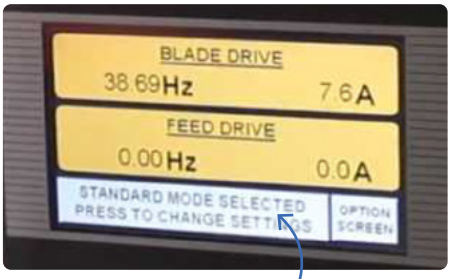


How to

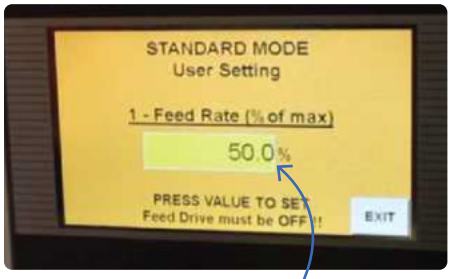
Blade Replacement

1. Unlock blade housing and swing open
2. Loosen and remove blade locking nut
3. Remove washer
4. Remove blade
5. Fit new blade onto the shaft, and ensure that the locating pin is secure to the blade (Note: The directional arrows on blade MUST NOT face front of machine when blade is installed)
6. Fit shaft washer
7. Blade locking nut and tighten securely
8. Close blade housing cover and lock down

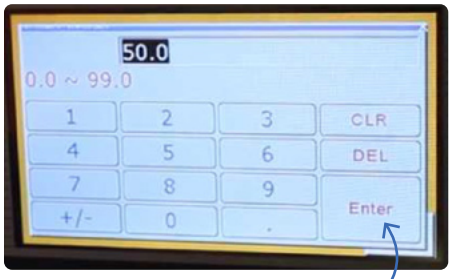
Adjust the Chain Speed



Place finger on ***White Section*** of control panel



This screen will be displayed then place finger on ***Numeric Percentage***



Type speed
(The higher the number, the faster the speed)

Press ***Enter*** once finished

Automatic Core Saw
Specifications

Product Code	**DYNOAUTO** ***(3 PHASE)***	**DYNOAUTOS** ***(SINGLE PHASE)***
Blade Guard Capacity	300 mm	
Max Depth of Cut	Cuts from B to P size core	
Blade Arbour Size	25.4 mm	
Blade Shaft Drive	Two V-Belts	
Blade Guard	Stainless Steel	
Blade Coolant	Water	
Frame	Powder-coated Galvanised Steel	
Weight *(in Kg)*	440	170
Crafted *(in Kg)*	543	259
Dimensions *(in mm)*		
Width	868	
Height	1406	
Length	2048	1638

Power Source

Product Code	**DYNOAUTO** ***(3 PHASE)***	**DYNOAUTOS** ***(SINGLE PHASE)***
Motor	Electric	
Power	7.5 Kw	2.2 Kw
HP	10	3
Voltage	80 - 460	220 - 240
Blade Shaft RPM	2400 @50 Hz, 2509 @60 Hz	
Phase	3	1
Max Load Current	12 Amp	10 Amp
Starter	Variable Speed Drive	
Coolant	Air	