



RING
TECH



RINGTURN SOFTWARE

AN INSIDE LOOK AT HOW OUR
SOFTWARE WORKS.





**RING
TECH**

AN EXPERT SYSTEM

Definition of The Word “Expert”: having or involving authoritative knowledge.

At Ringtech we made a decision to make wedding band production easy.

To do this we had to tie different fields of expertize into a single integrated package.

We designed the software to be your in house expert.

How do we do this:

By using parametrics the machine can make decisions based on pre-determined logic.

We use predefined material libraries for speeds and feeds.

What does that mean?

You can run any design of ring in any material with one program.

Just push a button to select the material you want to machine

OR add a link to the material library into the program.

Parametric Machining:

Parametric machining is the concept of pre-defined cycles using logic that ensures perfect results every time, with absolutely no chance of a machine crash.

You can select 8 different ways to machine a ring by changing 1 parameter.

You choose your bore type with 1 parameter.

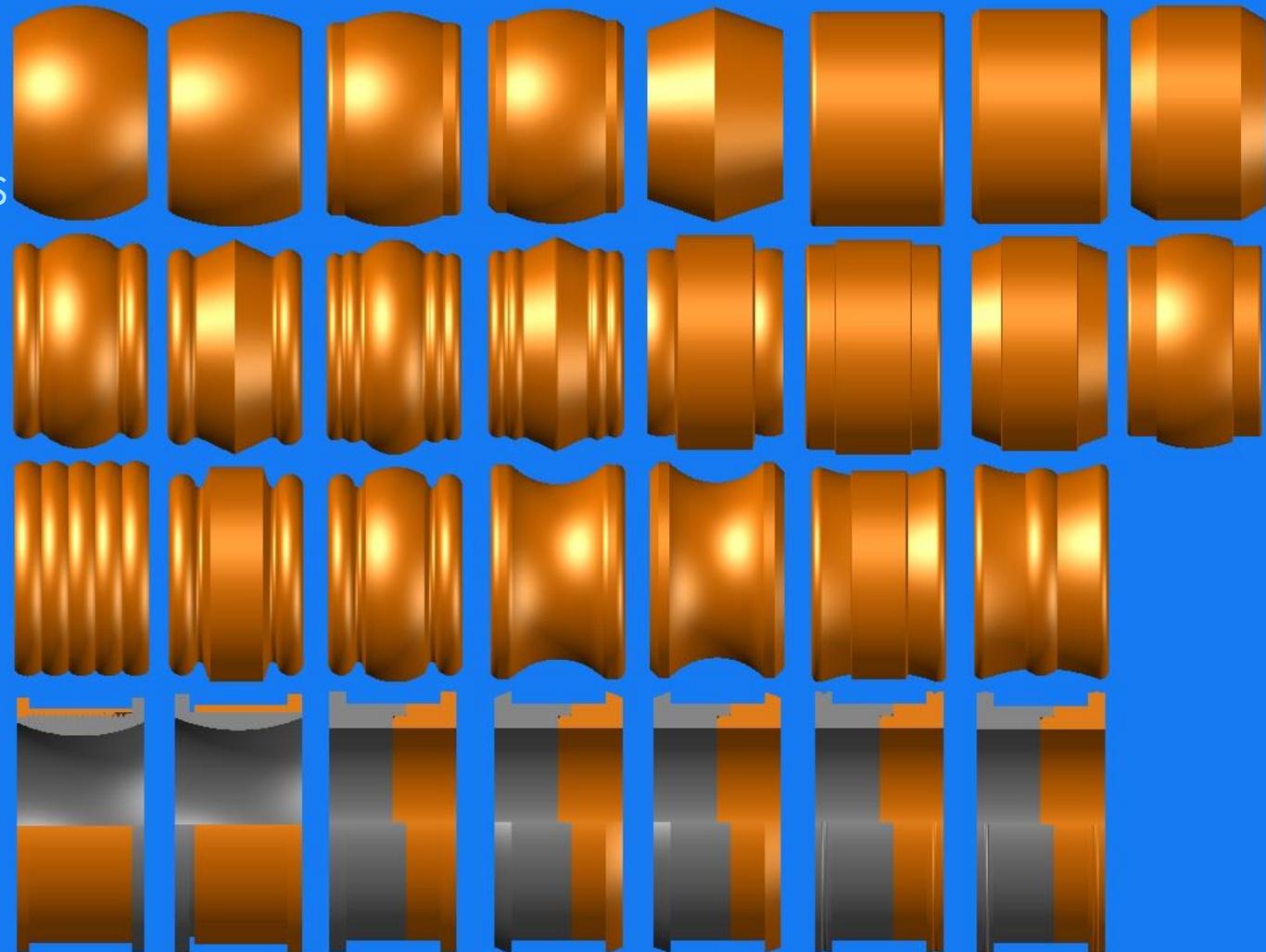
You turn operations on and off with 1 parameter.

You do not have to repost or regenerate a program.

Simply change a couple of parametric values and the program is ready to run.

Design Flexibility

We created multiple turned cross sections for wedding bands.



With this parametric approach to programming you can have an unlimited range of design variations.

* Samples shown use a 6mm ring width.

Design Flexibility

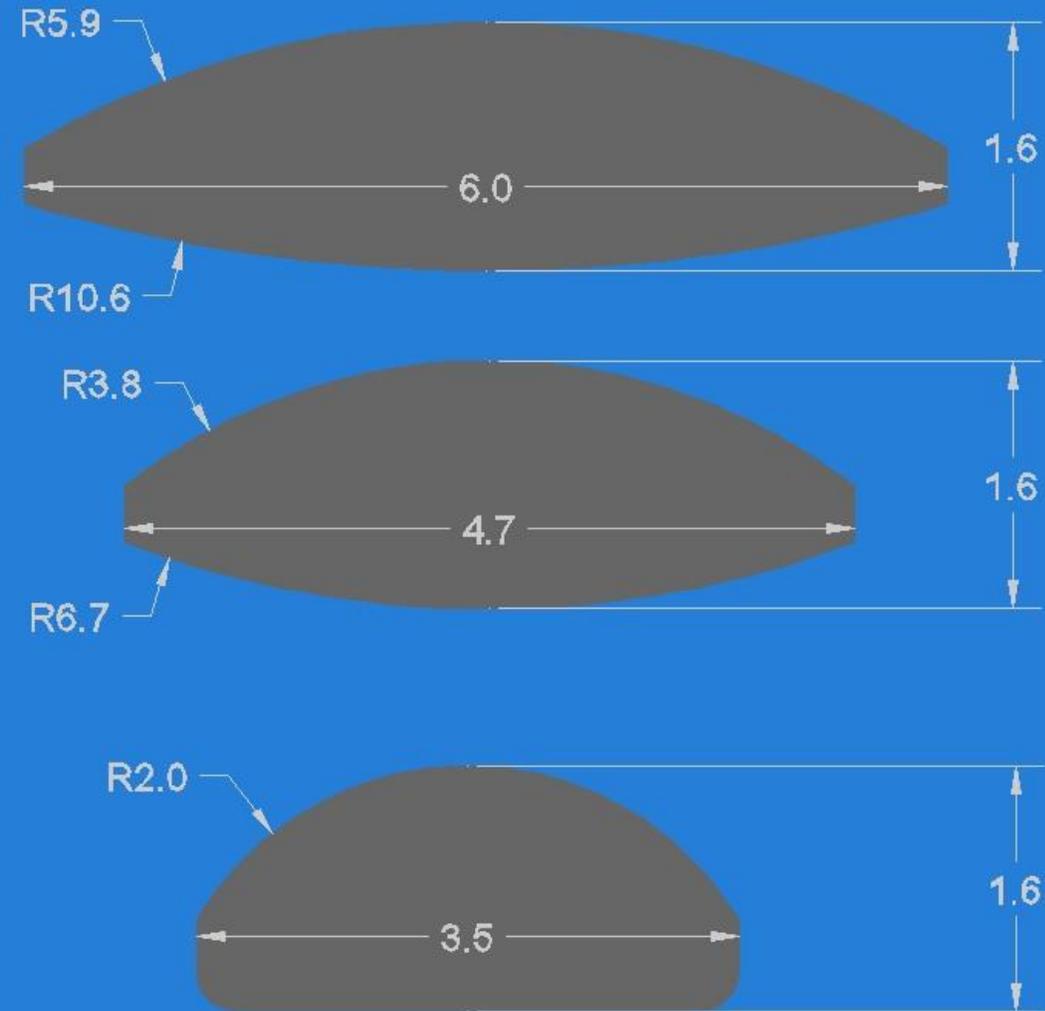
Lets start with a simple domed band.

We have these variables:

- Ring Size
- Ring Width
- Ring Thickness
- Dome Radius
- Bore Type, and Shape.

Keeping the width and thickness constant, changes in the comfort fit radius allow a change in the dome radius.

Changing the ring bore type allows for a smaller dome radius.



Design Flexibility

As you change one variable the design follows or stretches to keep the other variables Intact.

Change the thickness, and the dome changes its radius.

If you want to maintain a specific radius then the edge thickness changes.

We can program the system to suit your needs, not force you to change to our needs.*

*(Radii can be controlled by entering the actual dome and comfort fit radii or by side thickness)

Design Flexibility

Here is an example of a more complex design and the changes that allow variations in the design.

Using the same width and thickness we can adjust the edge width and or the edge height to alter the shape of the ring.

The dome arc will adjust to fit the other variables.



Screen Inputs

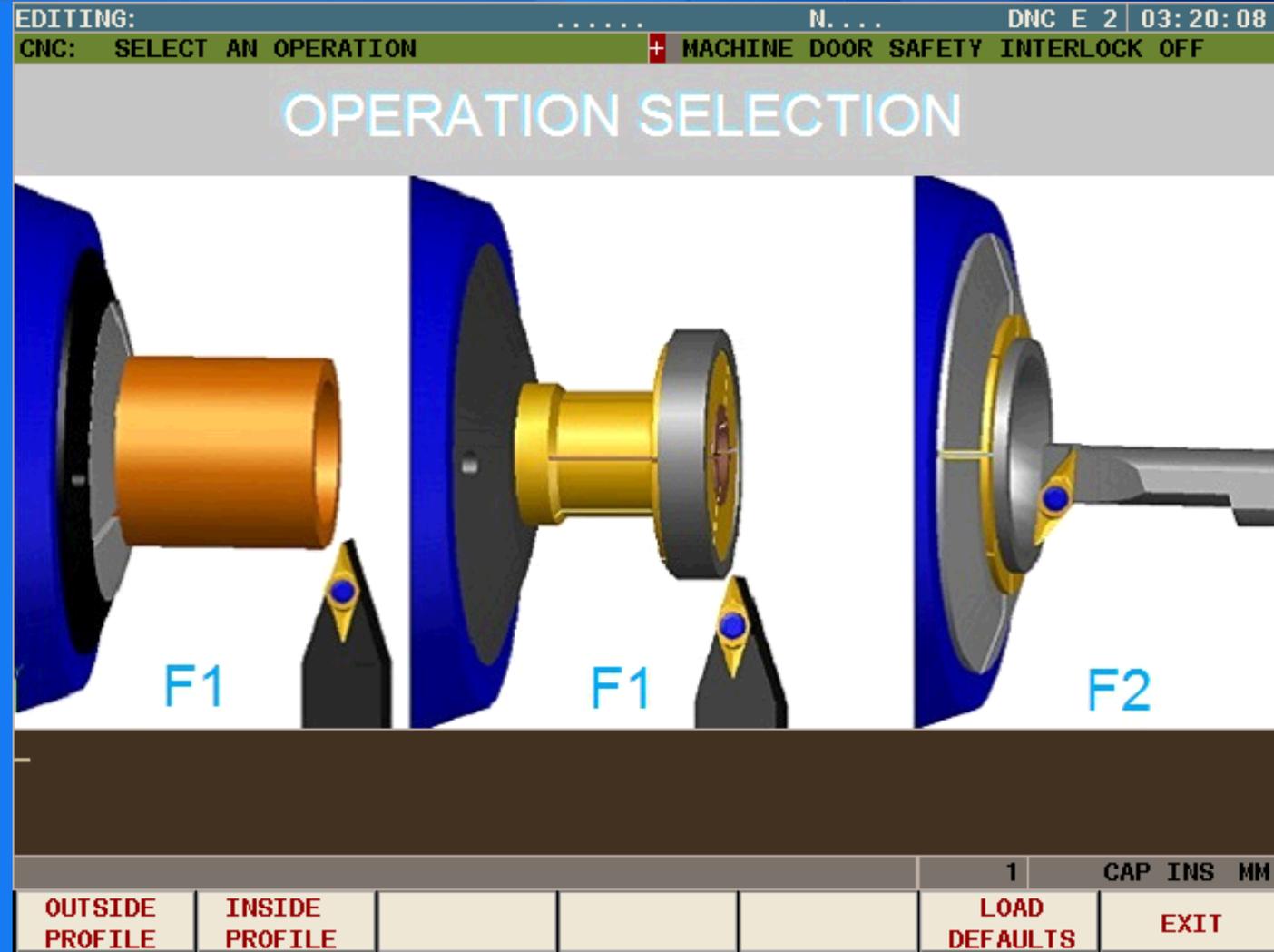
Each step in creating a new program requires a question to be answered.

These questions are always in the same order.

Question 1

What type of program do you want to create.

1. Outside Profile [F1]
2. Inside Profile [F2]



RING TECH

PROGRAM GENERATION

Screen Inputs

Next you pick a design family

Question 2

What type of design family do you want to use?

This screen show a graphical view of the different designs.

Just select the F key that matches your choice.

The screenshot shows a software interface for selecting a design family. At the top, it displays 'EDITING: N...' and 'DNC E 2 | 03:20:32'. Below this, a green bar contains 'CNC: SELECT A DESIGN STYLE' and a red cross icon followed by 'MACHINE DOOR SAFETY INTERLOCK OFF'. The main area is divided into six panels, each showing a set of ring designs:

- F1:** Three designs with a smooth, rounded top edge.
- F2:** Three designs with a series of vertical ridges or grooves.
- F3:** Three designs with a flat top edge and a slightly curved side.
- F4:** Four designs with a series of vertical ridges or grooves, similar to F2 but with a different profile.
- F5:** Four designs with a series of vertical ridges or grooves, similar to F2 but with a different profile.
- F6:** An empty panel.

At the bottom, there is a navigation bar with the following options: 'DOMED PROFILES +', 'RAD-EDGE PROFILES +', 'BASIC PROFILES +', 'FLAT EDGE+', '2 PIECE SHELLS +', '1', 'CAP INS MM', and 'BACK'.

Screen Inputs

The machine has multiple built in routines to make machining decisions easy.

Question 3

What type of machining operation do you want to do?

The screens are easy to understand
Just select the F key that matches your choice.

* This value can be changed in any program

EDITING: N.... DNC E 2 | 03:21:22
 CNC: CONCAVE CENTER RING + MACHINE DOOR SAFETY INTERLOCK OFF

MACHINING STRATEGY

T21 (R0.40)	T22 (R0.20)	T21 (R0.40)	T22 (R0.20)
P134=1	P134=2	P134=3	P134=4
T21 (R0.40)	T22 (R0.20)	T21 & T22	T23 (R0.20)
P134=5	P134=6	P134=7	P134=8

					1	CAP INS MM
LARGE RAD	SMALL RAD	LARGE RAD	SMALL RAD	LARGE RAD	SMALL RAD	ROUGHING
1 PASS	1 PASS	2 PASS	2 PASS	ROUGHING	ROUGHING	2 TOOLS

Screen Inputs

Next you pick a specific design

Question 4

What type of specific design do you want to do?

This screen shows a graphical view of the different designs with variations.

Just select the F key that matches your choice. [F1-F6]

EDITING: N.... DNC E 2 03:20:57
 CNC: SELECT A DOMED STYLE + MACHINE DOOR SAFETY INTERLOCK OFF

F1 F2 F3

F4 F5 F6

					1	CAP INS MM
SIMPLE DOMED	BULLNOSE	FLAT EDGE PROFILE	CONCAVE CENTER	CONCAVE + FLAT	CONCAVE + RADIUS	BACK

Screen Inputs

A new screen will ask you a series of questions related to its specific design

Questions 5-6-7

- 5 Ring Size (with choice of input)
- 6 Ring Width
- 7 Ring Thickness

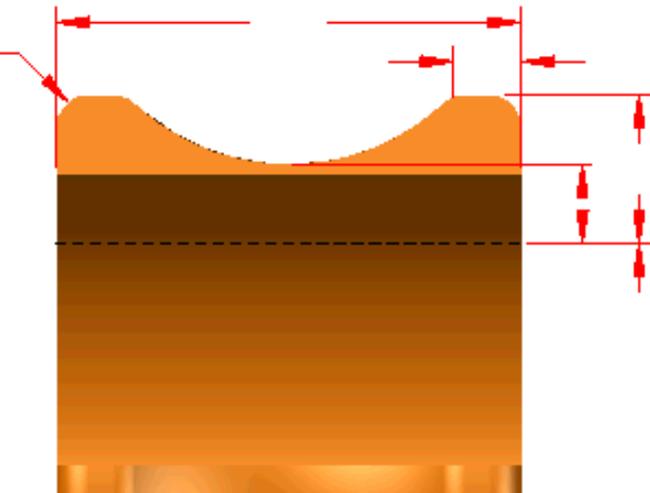
All ring designs have the same basic parameters.

Just enter the value you want.

*These values can be changed later.

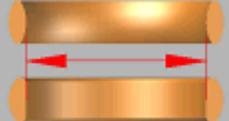
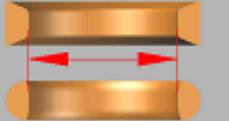
EDITING: N.... DNC E 2 | 03:21:45
 CNC: CONCAVE CENTER RING MACHINE DOOR SAFETY INTERLOCK OFF

CONCAVE CENTER



Ring Size	A	
Ring Width	B	5.05000
Ring Thickness	C	1.60000
Center Thickness	D	1.40000
Flat Width	E	1.25000
Edge Break Type		1
Outside Edge Break	F	0.10000

Select the dimension style required.
 US, UK, Asia, Diameter in mm's, Circumference.

					1	CAP INS MM
US SIZE	UK SIZE	ASIA SIZE	MM SIZE	CIRCUMFERENCE		

Screen Inputs

Designs that require more information prompt you for these inputs. Specific information related to the questions are shown at the bottom of the screen.

Questions **8-9-10-11**

- 8** Center Thickness
- 9** Flat Width
- 10** Edge Break Type
- 11** Size Of The Edge Break

Just enter the value you want.

*These values can be changed later.

EDITING: N.... DNC E 2 03:23:32
 CNC: CONCAVE CENTER RING + MACHINE DOOR SAFETY INTERLOCK OFF

CONCAVE CENTER

Ring Size	A	11
Ring Width	B	6.50000
Ring Thickness	C	1.80000
Center Thickness	D	1.30000
Flat Width	E	1.25000
Edge Break Type		1
Outside Edge Break	F	0.10000

Enter the flat width on the side of the ring.

Flat width ? : 1.25_ 1 CAP INS MM

Internal Profile Choices

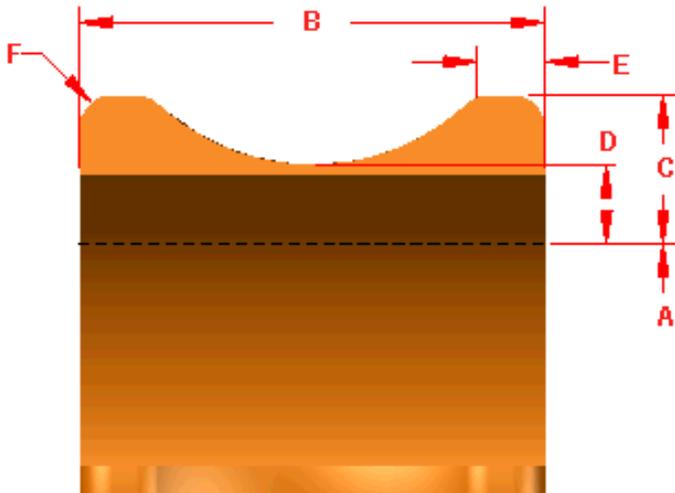
After answering the basic questions that provide information about this ring, you are prompted to select a bore type. Then you are asked specific questions related to the bore type chosen.

There are 7 choices:

1. Comfort Fit
2. Modified Comfort Fit
3. Straight Bore
4. Angle Edge Bore
5. Reverse Radius
6. Reverse Straight
7. No Bore

EDITING: N.... DNC E 2 | 03:24:20
 CNC: CONCAVE CENTER RING MACHINE DOOR SAFETY INTERLOCK OFF

CONCAVE CENTER



Ring Size	A	11
Ring Width	B	6.50000
Ring Thickness	C	1.80000
Center Thickness	D	1.30000
Flat Width	E	1.25000
Edge Break Type		1
Outside Edge Break	F	0.50000

Comfort Fit Modified CF Flat Chamfered / Radiused Angle Reverse Arc Reverse Flat

1 CAP INS MM

COMFORT FIT	MODIFIED COMFORT	STRAIGHT BORE	ANGLED EDGE	REVERSE RADIUS	REVERSE STRAIGHT	NO BORE
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Internal Profile Choices

Any bore type can be applied to any profile design.
Each bore type has parametric variations.

You can select “No Bore” if no boring is required.



Next Operation Selection

After answering the questions based on the profile description, you are asked if you want to add other operations:

1. Add Grooving
2. Add Drilling
3. Add a Mill Design
4. Add Stone Milling
5. Add Facet Milling
6. External CAD CAM program
7. End Program

00:15:43

GNC: SELECT THE NEXT OPERATION

F1 F2 F3 F4 F5 F6

					15	
ADD GROOVING	ADD DRILLING	ADD A MILL DESIGN	ADD STONE MILLING	ADD FACET MILLING	EXTERNAL CADCAM SUB	END PROGRAM

Next Operation Selection

An explanation of each selection shows how complex ring designs can become.

Each new operation can be added to a profile.

Operations can be stacked on top of each other.

An example could be this:

2 stone grooves are added that are on the edge of the ring.

Then drilling can be added to drill in to the grooves for stones.

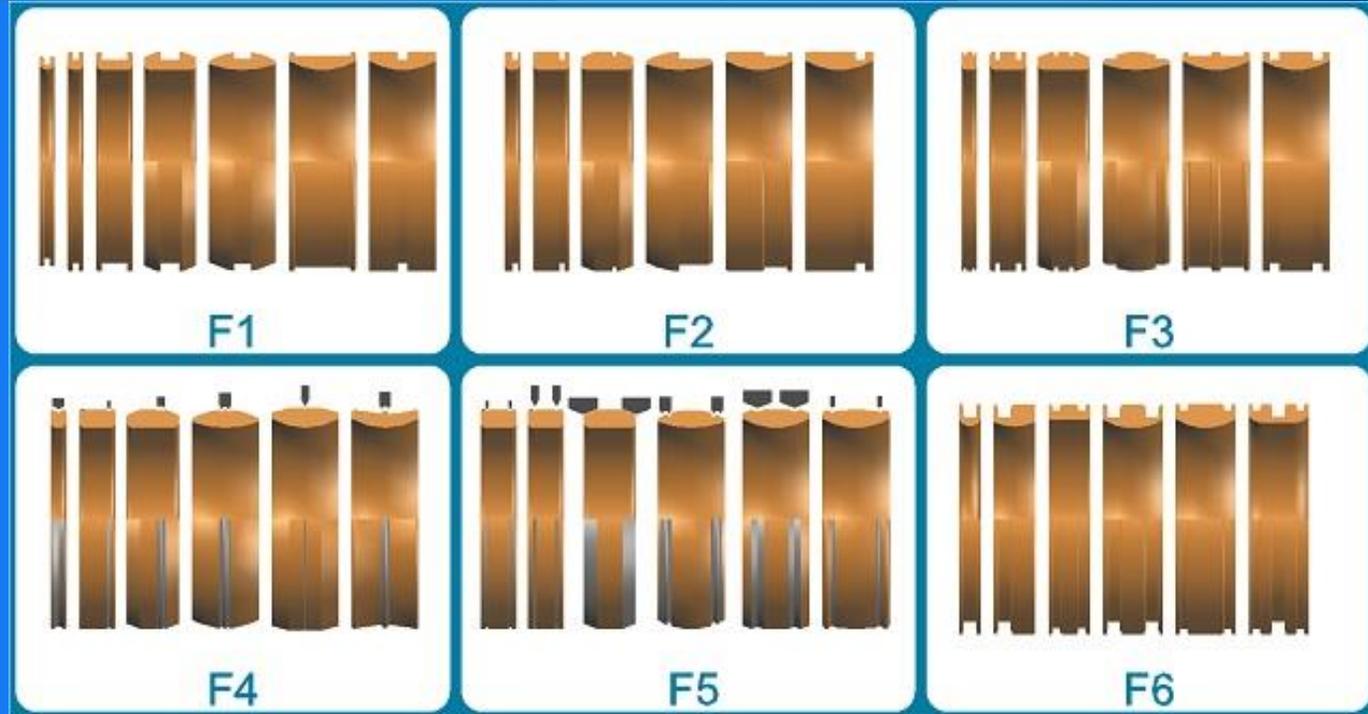
Then a mill design can be added down the center of the ring.



Grooving Operations

There are 6 grooving choices:

1. Single groove in the center of the ring
2. Offset groove anywhere on the ring
3. Double groove symmetrical on the ring
4. Single form groove anywhere on the ring
5. Double form groove symmetrical on the ring
6. Stone groove anywhere on the ring



All of these choices can be added to any ring.

To create 3 grooves use a single groove and a double groove.

The possibilities are endless, you design the rings you want, flexibility is your key.

Drilling Operations

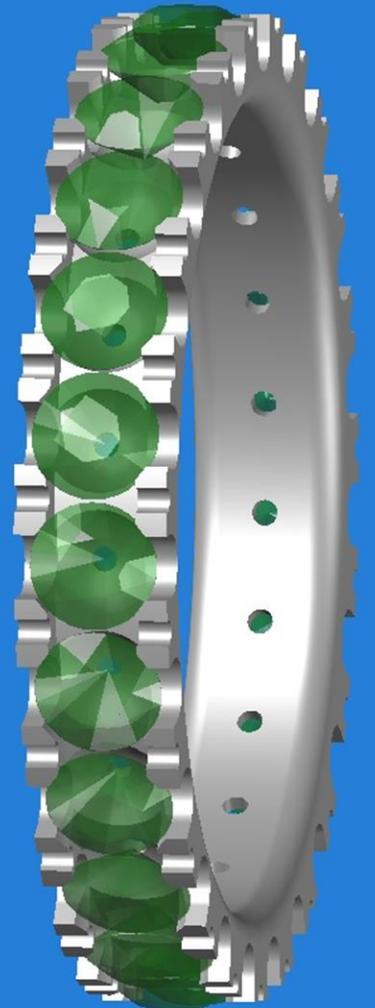
The drilling operation choice provides a fast easy way to program multiple drilled holes.

- Drill 32 holes in each of 2 grooves for full channel set rings.
- Drill 6 holes around the profile of a ring anywhere across it's width
- Drill a single hole for a bezel set stone
- Drill hole patterns for pave' style rings

All of these choices can be added to any ring shape.

The possibilities are endless, you design the rings you want, flexibility is your key.

The ring shown can be produced by using the single groove operation and a milled slot routine with a drilling operation



Mill Design Operations

The milling designs built into the software cover the basic popular designs:

1. Greek Key
2. Single Curves
3. Infinity Curves
4. Boxes
5. Link Designs



All of these choice can be added to any ring.

The possibilities are endless, you design the rings you want, flexibility is your key.

Stone Pockets

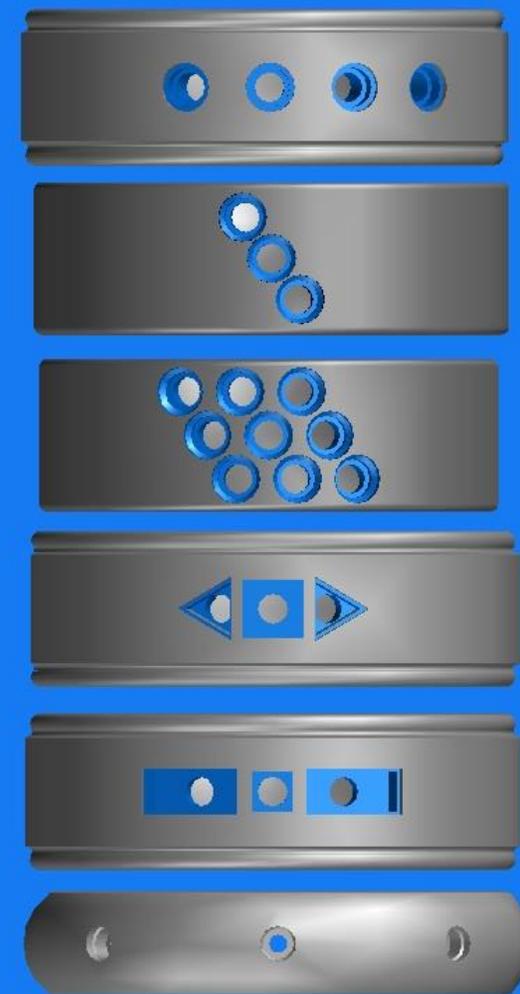
The stone pocket designs built into the software allow a vast range of design choices:

We can produce stone pockets with these shapes:

- Round (Brilliants)
- Square (Princess) & at 45°
- Baguettes
- Trillion (in 4 directions)
- Channel Set (any number of stones, any stone size)

All of these choices can be added to any ring shape.

The possibilities are endless, you design the rings you want, flexibility is your key.



Faceting Operations

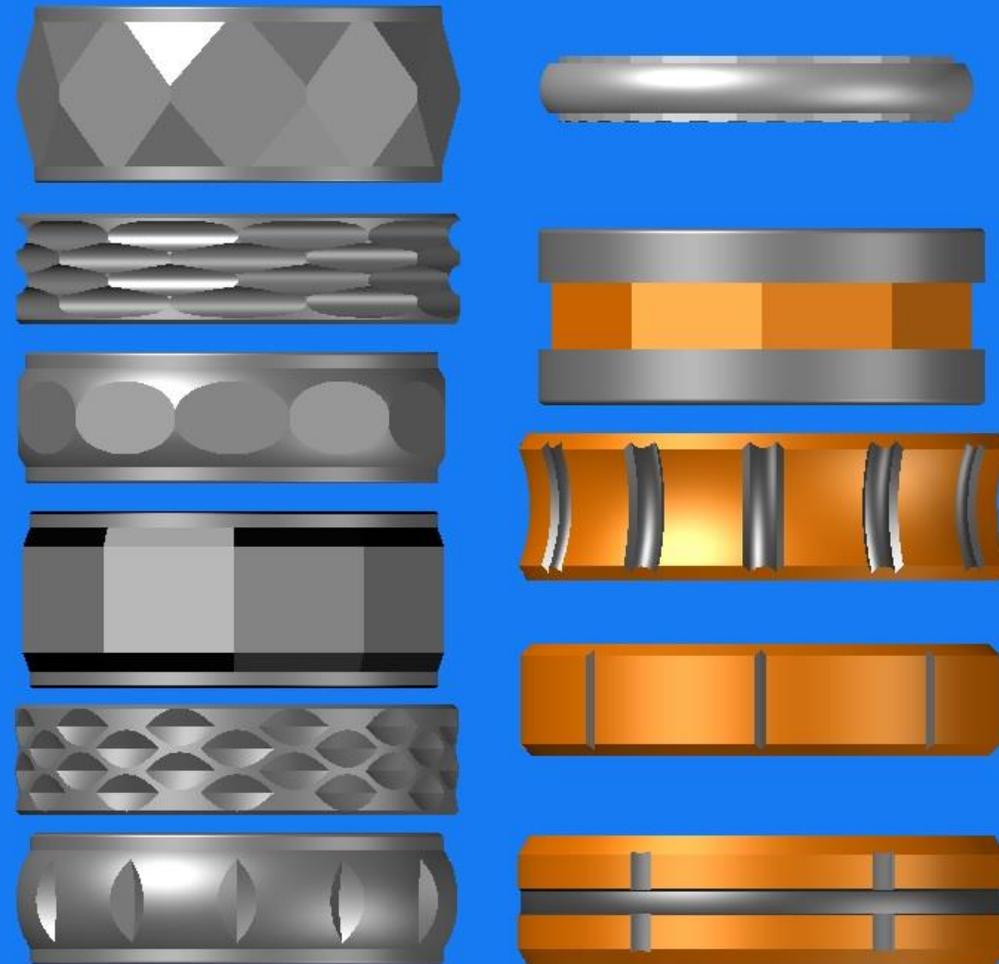
The facet cutting operations are simple cycles that automate plunge cutting facets

Faceting can be done with 4 types of operations:

1. Plunge Cut from the side
2. Plunge Cut from the face
3. Profile Cut from the side
4. Flat Cuts across The top

Using different form tools allows many designs to be created.

The possibilities are endless, you design the rings you want, flexibility is your key.



RING TECH

CAD-CAM GENERATED PROGRAMS

Using a CAD-CAM system for programs

The FAGOR control is a stand alone CNC machine controller and can have standard G code programs loaded into it, so that you can create custom designs.

These programs can use multiple tools thanks to the 18 position tool changer available on the RTL-4000



The possibilities are endless, you design the rings you want, flexibility is your key.



CONCLUSION

Thank you for reviewing this information

At Ringtech we are always striving for new ideas, designs and machining concepts to keep our valued customers on the leading edge of technology.

This brief overview of the software covers some of the features available.

There are so many variations of ring shapes and designs that can be created, that it would be impossible to show every permutation.

If you have not already visited our website please take a look.

www.Ringtech.com