

MILLING (and HAPTIC MILLING) ATTACHMENT FOR OPTOFORM 40 and OPTOFORM 80

ENGINEERING SPECIFICATION

The Optoform Haptic Milling Attachment is designed as an accessory for the Optoform 40 and Optoform 80 ultra-precision lathes.

This device may be ordered with new lathes or retrofitted to existing Optoform 40 and Optoform 80 machines (see notes on “Retrofits” below).

DESCRIPTION OF THE MILLING ATTACHMENT

The MILL includes both a CNC controlled positioning C-axis / work spindle and a turbine milling spindle with the necessary hardware and software controls.

This provides the user the capability to CNC mill “free-form shapes” (which would include for example IOL haptics) in the work piece from a part program.

The work spindle can be changed from spindle mode to positioning mode through the use of a M code in the controller.

The turbine spindle can be started and stopped through the use of a second M code.

The turbine spindle RPM is set by manually adjusting an air supply regulator that is provided with this attachment.

The turbine spindle is provided with a vertical adjustment for setting the height of the turbine spindle to coincide with the work spindle height.

REQUIRED COMPONENTS INCLUDE

C axis encoder retrofit to the existing SP-75L work spindle.

Air turbine spindle mounted in one tool location in a dual tool holder (second tool in this holder is still usable as part of the gang-tooling system during lathing operations).

Upgraded 8 axis motion control card (4 axes standard on Optoform 40).

Special operation software (machine control).

Design software.

Air preparation components and controls (solenoid, filter, regulator, and lubricator)

RETROFITS

Retrofits can be made to Optoform 40 and 80 machine models.

Retrofits are not offered for Optoform 50 and Optoform 30 (which have been discontinued models for several years) since this would not be cost effective.

Retrofits to Optoform 40 & 80 can be done “in the field”.

They involve changes to internal electronics, wiring, software, processing power and the addition of the Mill hardware and tooling.

All Optoform 40 & 80 machines in recent years have been built with the Precitech SP-75L spindle. Earlier models of the Optoform 80 with Westwind spindles will require spindle and spindle drive upgrades, and may not be cost effective.

The very early Optoform 40 models were not built with the SP-75L spindles, and these would require extensive upgrades to support the Milling attachment.

In summary, we recommend that customers with the Optoform 40s and 80s with SP-75L spindles **ONLY** consider purchasing the **RETROFIT-KITS (Part # A13275-01-R)** necessary to support the **MILLING ATTACHMENT (Part # A13275-01)**.

TECHNICAL SPECIFICATIONS

C Axis Encoded SP-75 Spindle

Encoder lines per revolution	5000
C-axis resolution	6.48 arc seconds
Maximum RPM in positioning mode	2,000. RPM

Air Turbine Spindle

Body diameter	22.8 mm OD
Collet clamping	Manual
(1) Collet Provided	0.125 inch diameter
Maximum RPM	120,000. RPM
Other collet sizes available	0.5 mm to 4.0 mm in 0.1 mm increments 3/32 inch, 1/8 inch sizes
Largest wheel / mill size	0.24 inch diameter
Air supply pressure required	42-71 psi
Air consumption (maximum)	2.83 scfm
Spindle Power Rating	22 watts
Spindle Drive	Pneumatic Air Turbine

TECHNICAL QUESTIONS or ORDERS maybe directed to:

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