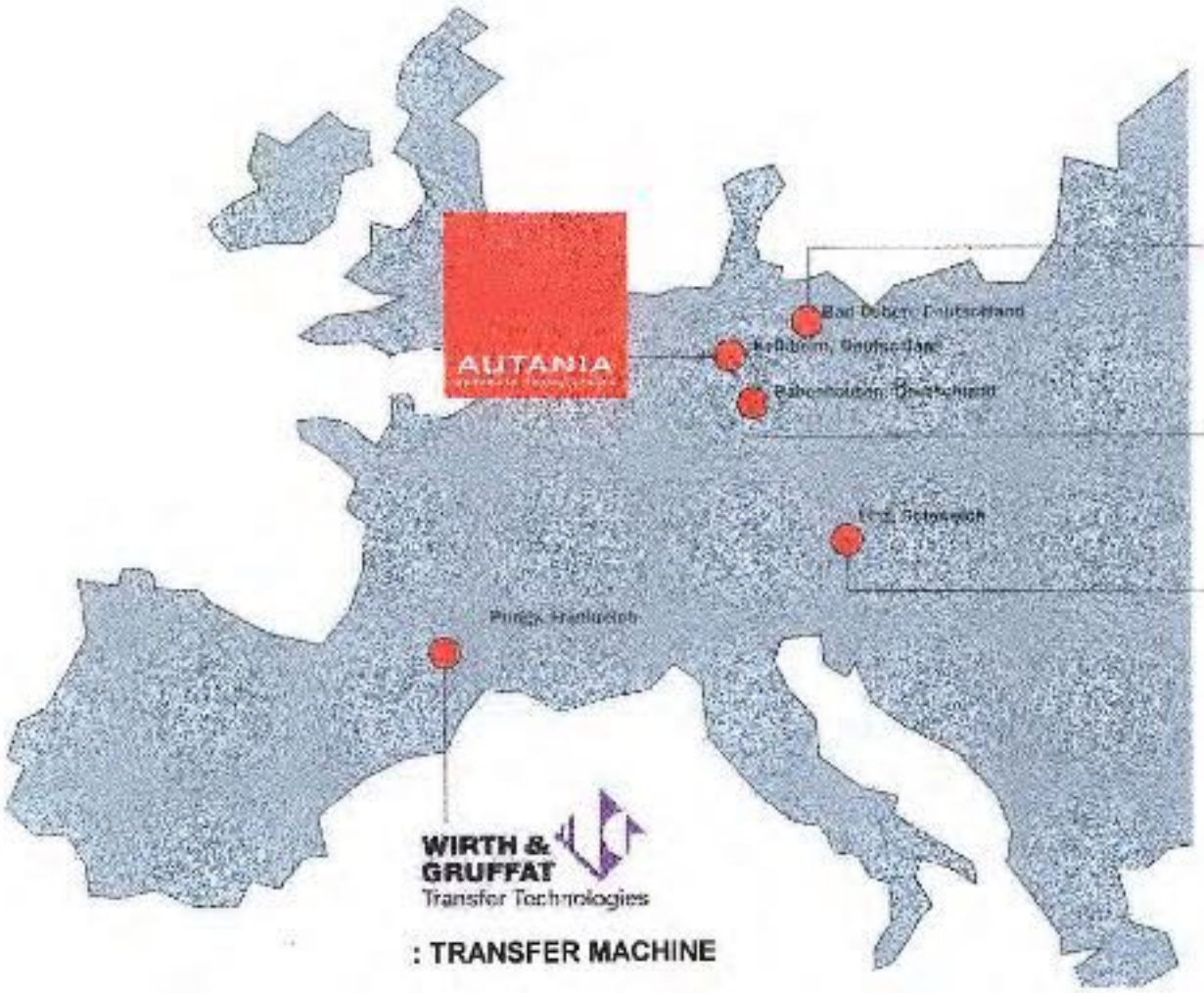
WIRTH GRUFFAT

Transfer Technologies



PROFIROLL **BAD DÜBEN** : ROLLING MACHINE

ELB-SCHLIFF WERKZEUGMASCHINEN GMBH : GRINDING MACHINE

MILLTURN TECHNOLOGY : MACHINING CENTER

WIRTH & GRUFFAT Transfer Technologies

: TRANSFER MACHINE

GROUP TURNOVER 120 Mi € (EXPORT 65%)

EMPLOYEES 750 p.

Company

-WG was established in 1945

-State of the art 10,000 sq. meter manufacturing facility located in Annecy France

-155 employees

-The first transfer machine was built in 1971

-There are over 1,500 machines in service world wide.

-Approximately 250 machines in the US

Industries Served

Automotive
Electrical
Plumbing
Valve
Lock
Small engine
Hydraulic and pneumatic

WIRTH GRUFFAT

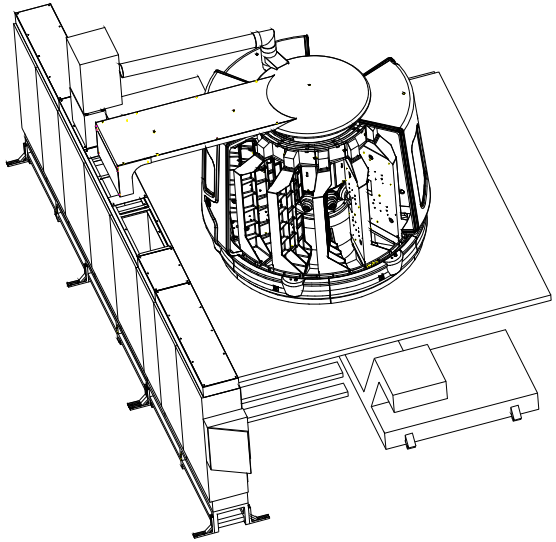
Transturn TT 312
Transturn TT 306

6 and12 Station Precision Transfer Machines

Transturn TT-306 / TT-312

Machine Overview

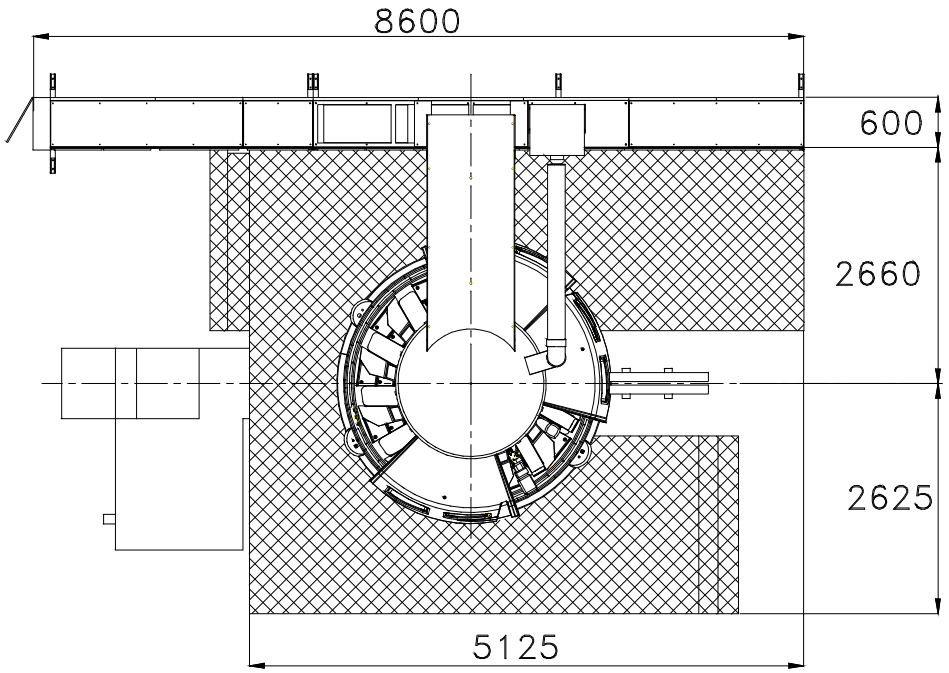
The Transturn TT-312 is a 12 station transfer machine with 11 working stations and 1 loading station. Loading can be either a fully automatic bar loader with a maximum capacity of 42.00 mm diameter or with a 6 axis robot when loading castings or forgings. The index table is equipped with 12 cartridge type electrospindles capable of 6000 RPM and a full C axis. Each spindle is machined with a standard N4° spindle nose for mounting HAINBUCH 32 and 42 collets or a hydraulic 3 jaw chuck.



Each working station can accept two, 2 axis CNC cross slides, one located above the spindle the other located below. All slides are precision linear roller guides which are positioned via ball screw. The Tee slotted slides are designed to accept a variety of standard static tooling systems. Live spindles are mounted on the cross slides to perform operations such as cross drilling, milling and slotting. Both of the slides are mounted in a vertical configuration for optimal chip flow.

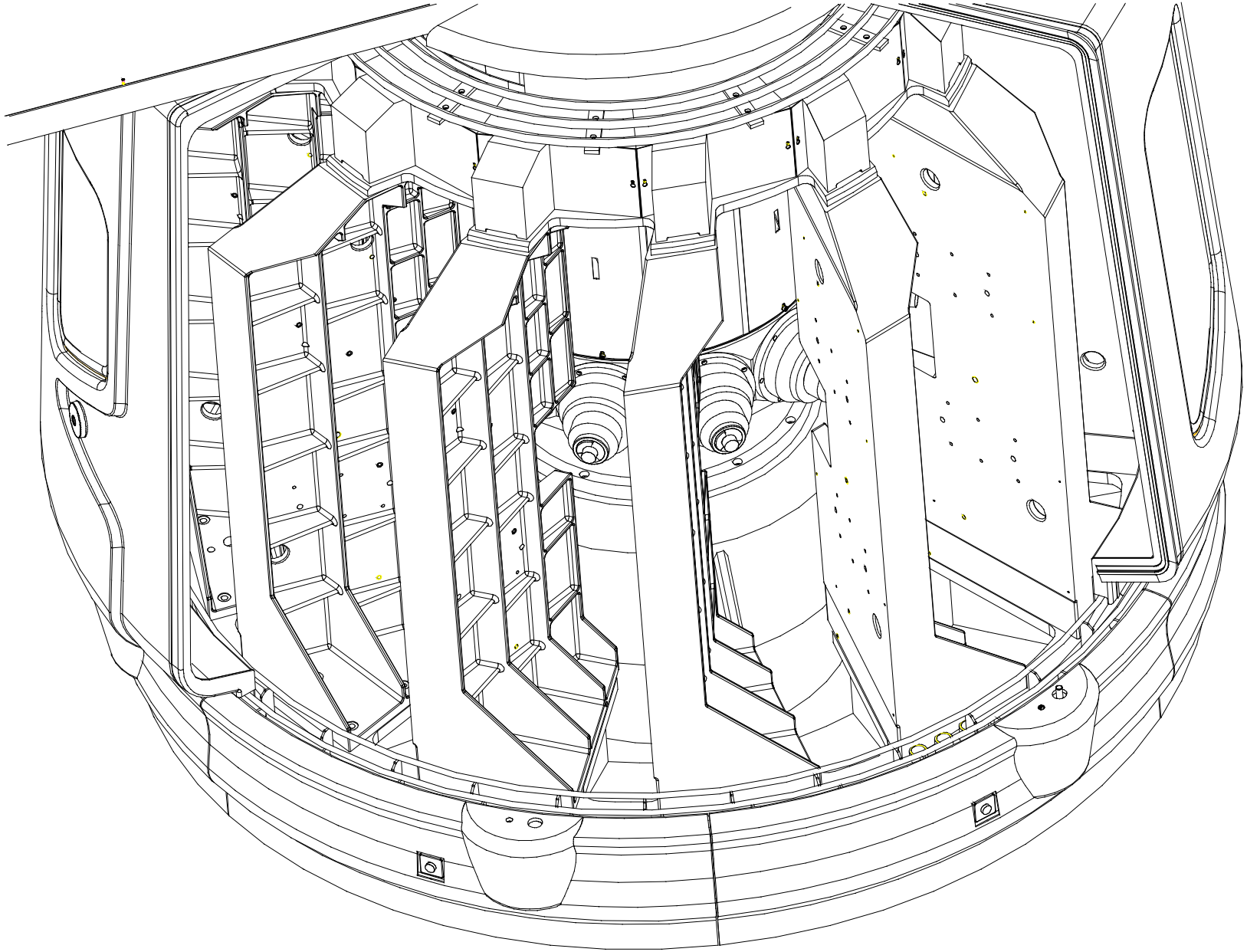
Base Machine Description

-Rigid weldment
-Machine weight 14 metric tons
-11 vertical cross slide supports
-Complete Hydraulic System
-Electrical cabinet
-AC system for the electrical cabinet.
-Chilling unit for spindles.
-16 Sq. meter machine platform.
-Safety rails.
-6 panel telescopic machine enclosure
-Mist collector provision.
-Interior lighting system.
-Machine indicator light.



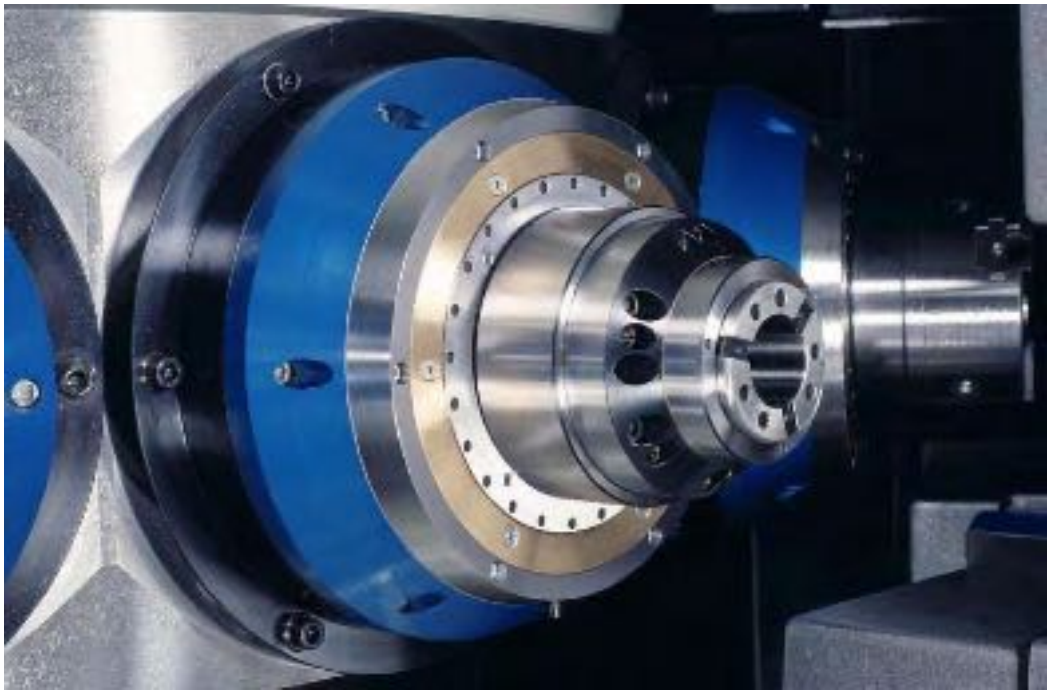
Index Table:

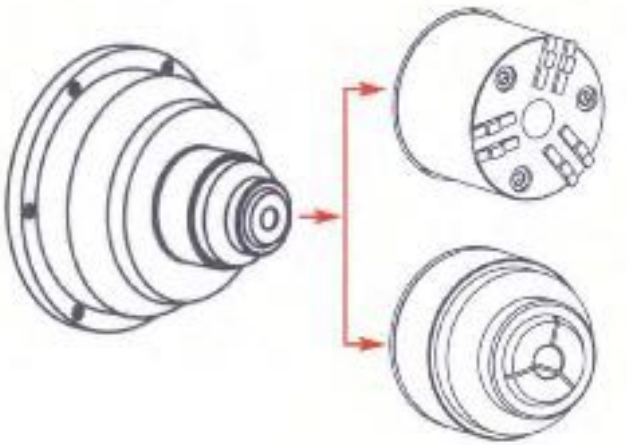
-Indexing and table location via 3 part Hirth coupling.
-Indexing accuracy +/- 3 seconds.
-Repeatability +/- 0.6 seconds (2.2µ on Ø1,500mm)
-Fully programmable 12 divisions or subdivisions.
-Indexing time 1.5 seconds
-Rotary Hydraulic manifold for clamping circuit distribution.
-2 individual pressures can be set at each clamping station.
-Collet flush manifold.
-Complete hydraulic interface.
-Complete electrical interface

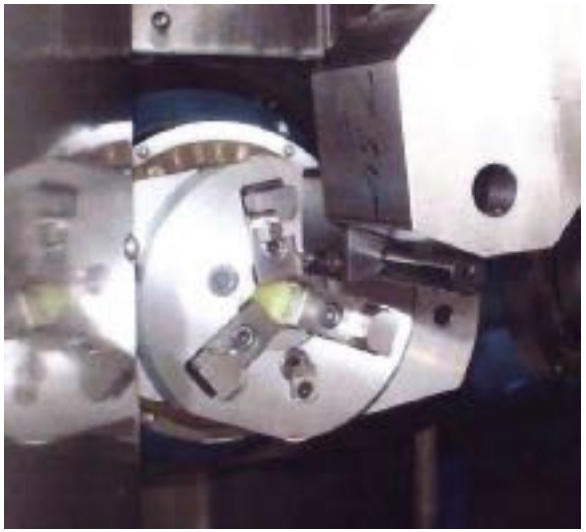


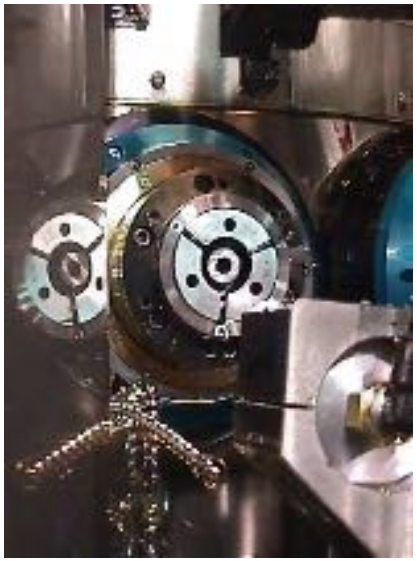
Clamping Table Spindles

-12 individual spindles.
-Each spindle is driven via 10 Kw Bi-directional synchronous motor.
-6000 RPM capability.
-28 Nm torque.
-Acceleration 0 RPM – 6000 RPM , 0.5 seconds
-Fully programmable C axis.
-Indexing accuracy 2.0µ @ Ø40.00
-Each spindle is liquid cooled.
-N4° spindle nose for mounting HAINBUCH 32 and 42 collets or a Hydraulic 3 jaw chuck.





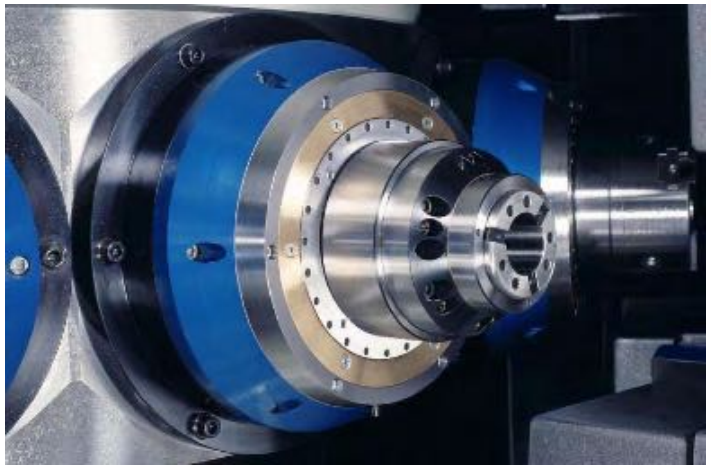


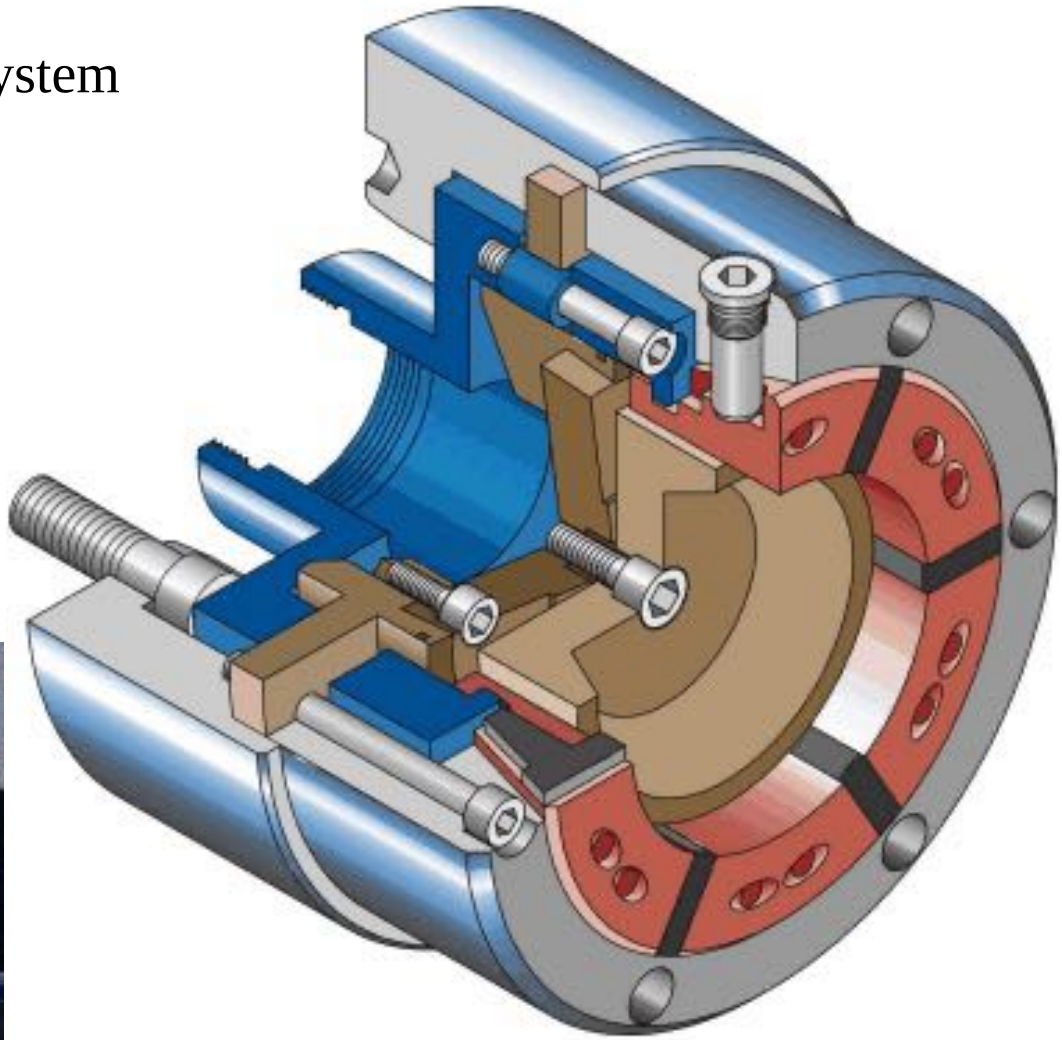


Hainbuch Collet Clamping System

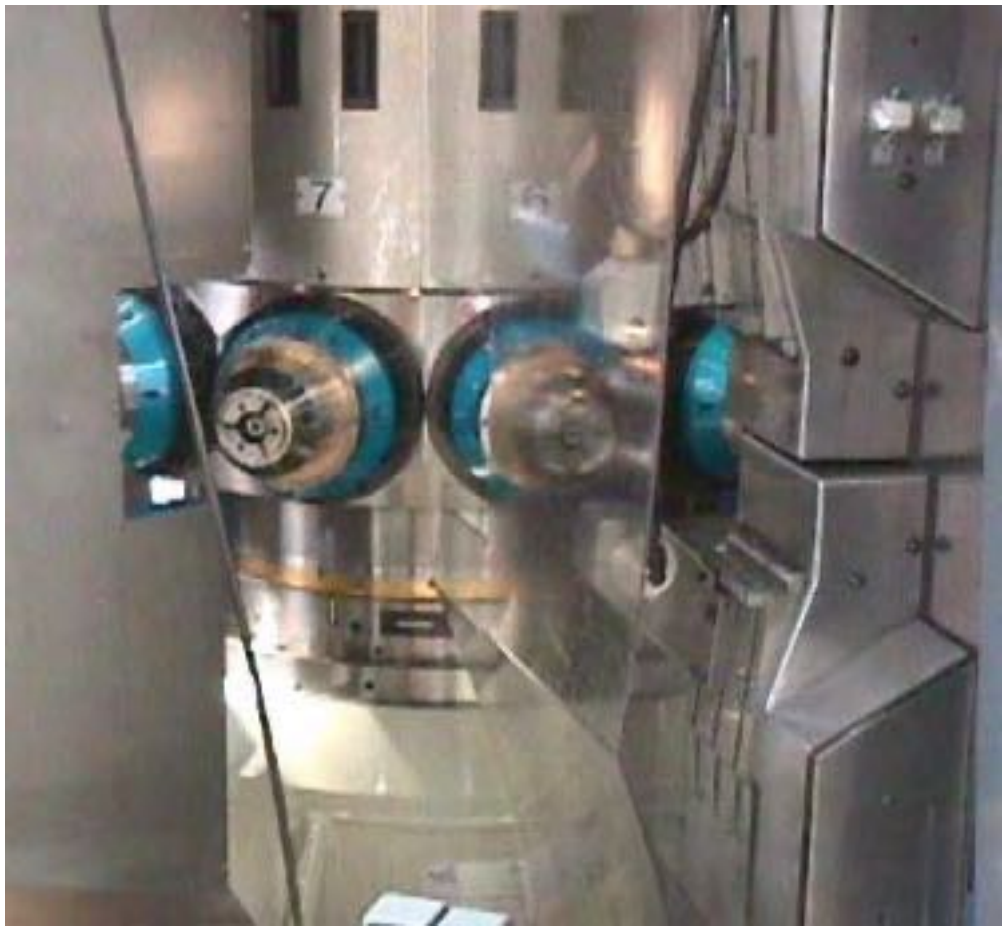
Standard 32 or 42

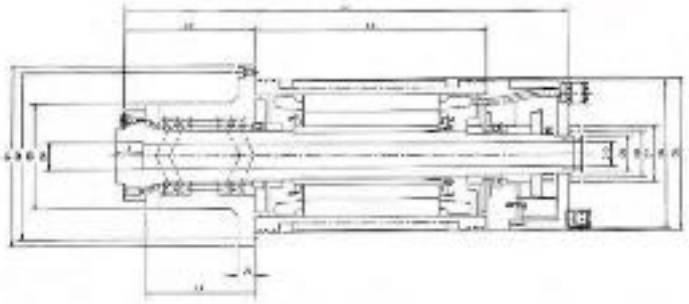
Pull Type Actuation





Motorized Spindle Cartridge





<u>Cross-Slides</u>:

- Numeric controlled: 2 axis slides.
- Stroke: X100 mm x Z100 mm.
- Siemens 1FT6 servomotors.
- Torque of motor axis: 4.3 Nm.
- Z axis thrust: 500 daN.
- Maximum linear speed: 10 m/min/ 400ipm.
- Positioning absolute encoder: 10µ.
- Linear roller guides.
- Ball screws translation .
- Protected by liquid-tight telescopic covers.
- Central lubrication system.
- Complete electrical interface.

Machine Control

- Siemens 840D

- PCU 50 communications interface.

- Windows NT operating system

- Siemens OP010 operator control panel.

- 10.4” color screen.

- Hand held control with LCD display.

- Siemens 611D numeric converters.

- Control configuration is capable of operating 60 axes.

Various Loading Systems

5 Axis Robot

Bar feed capability
to 66mm diameter

Operational Sequence Rotor

Est. Cycle time: 18.3 Seconds

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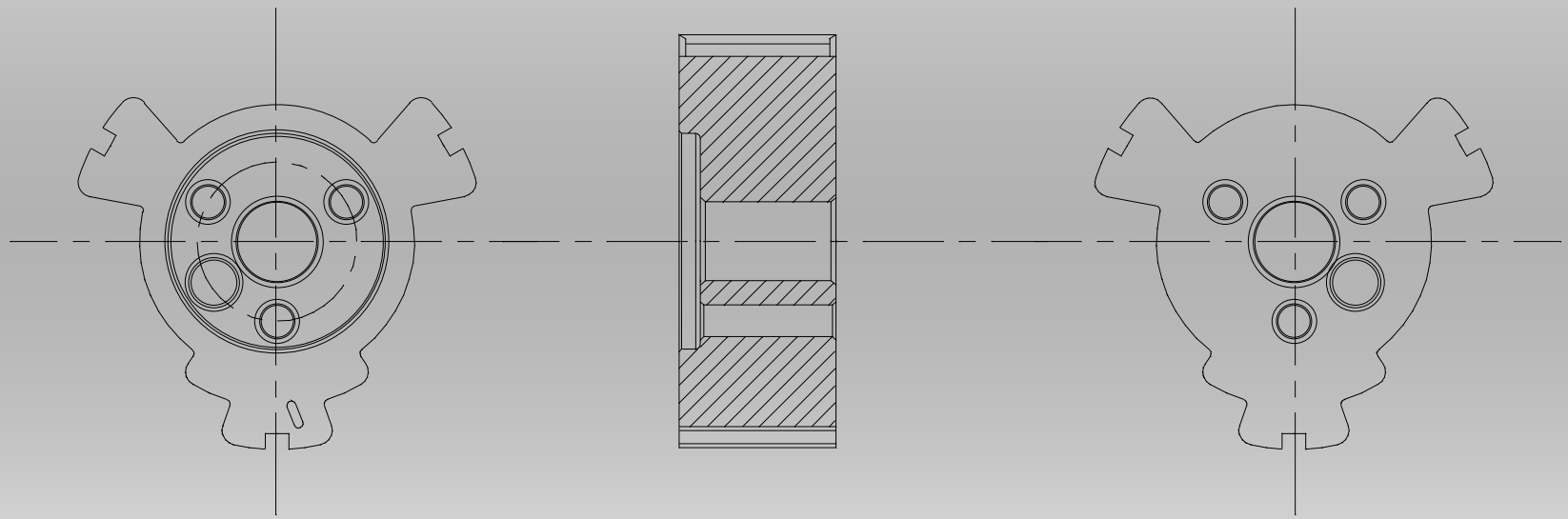

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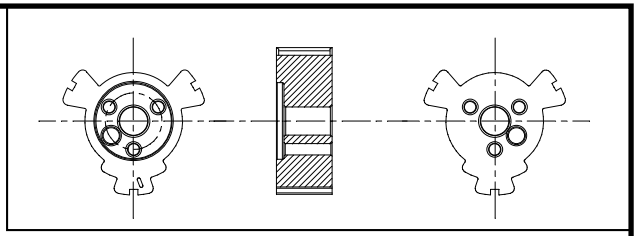
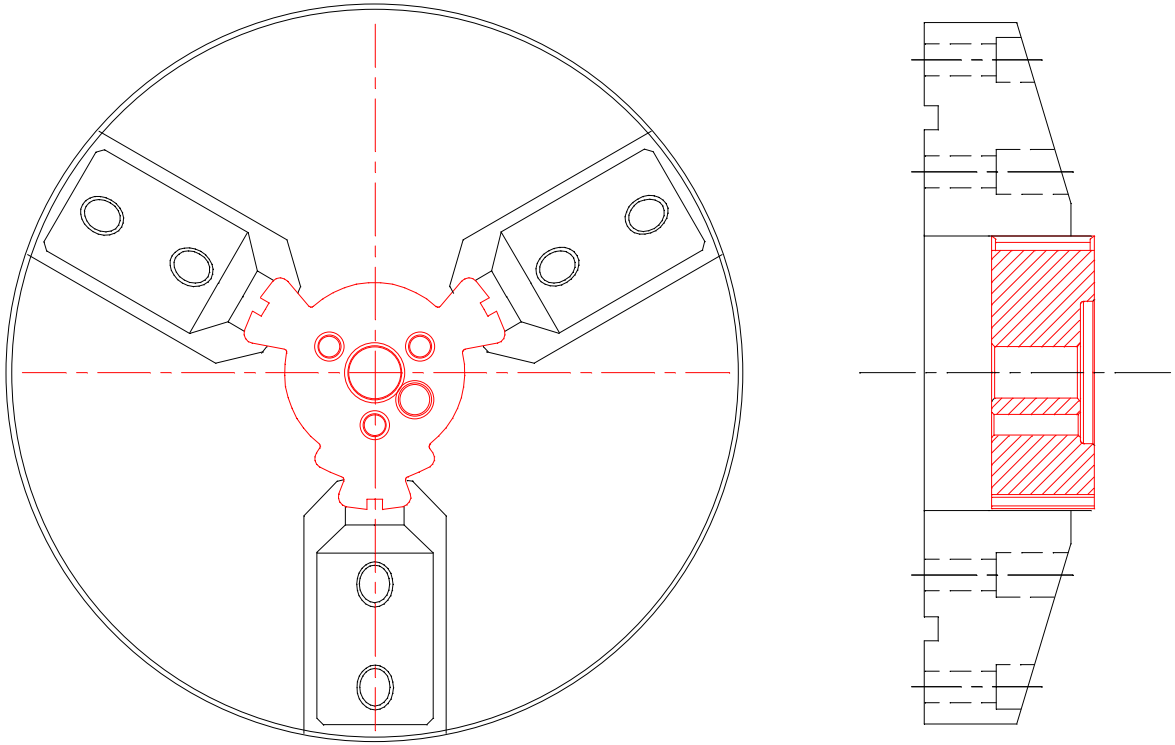


3 Jaw Self Centering Chucks

Robot Load /Unload Station 1



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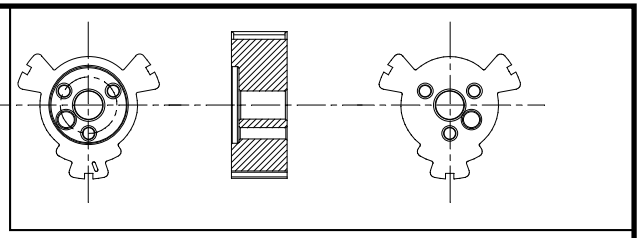
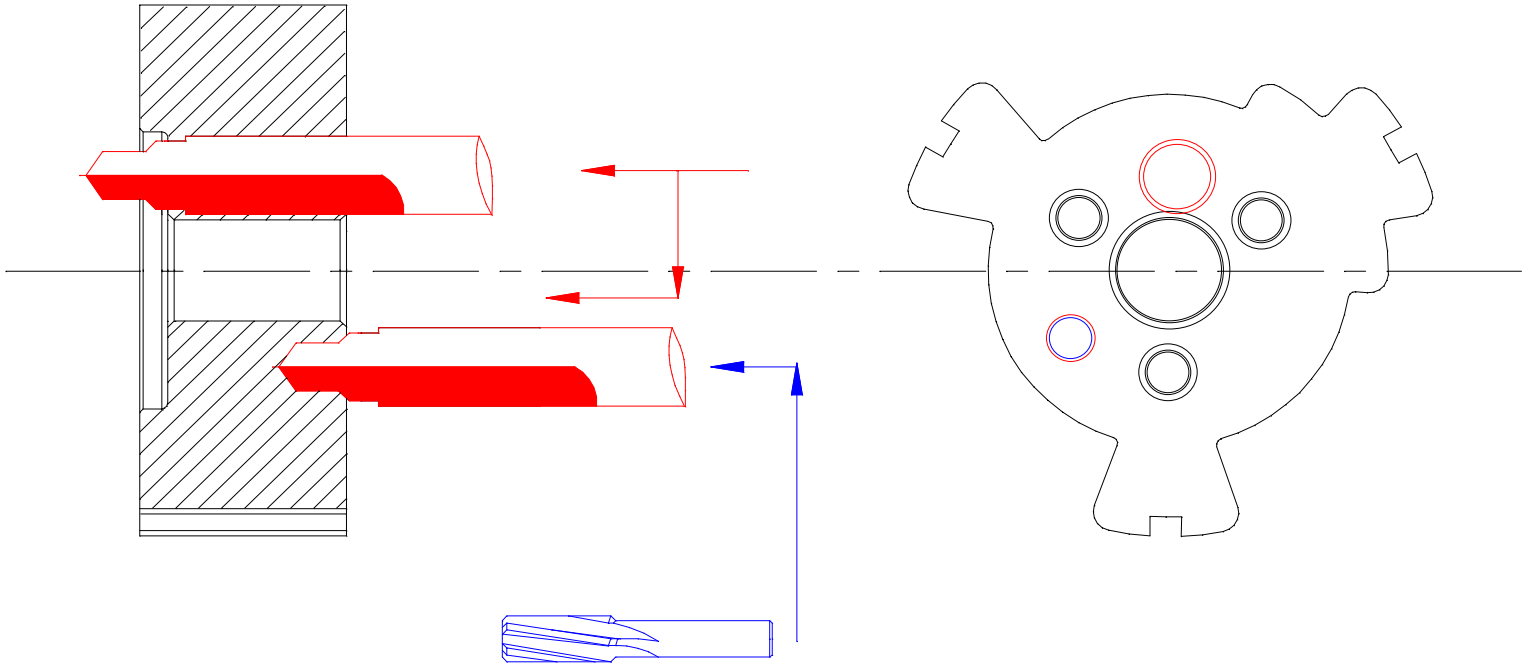




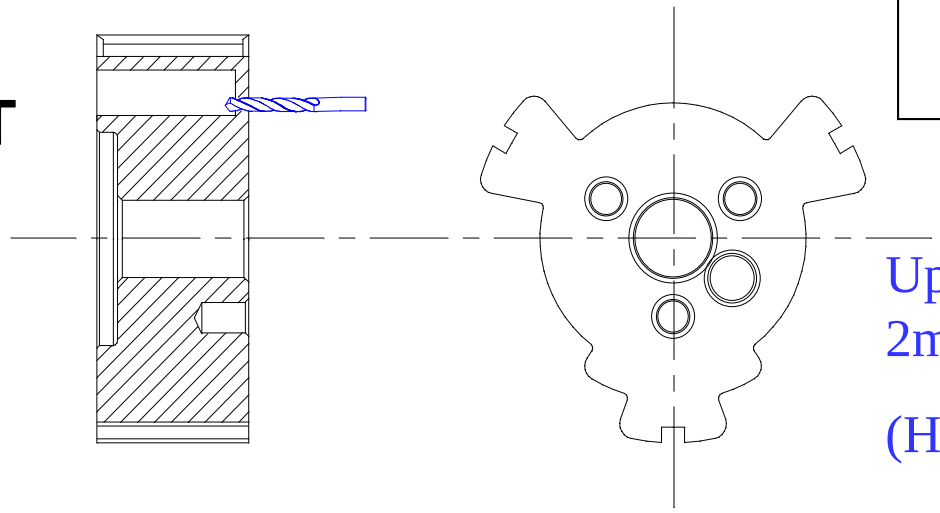
Station 2

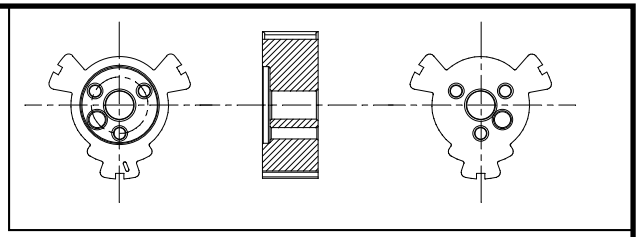
Upper – Drill / Chamfer Ø 3.8 and Finish Ø 10x6.4 (H- Driven Spindle)

Lower – Ream Ø 4 mm # 15 (H-Driven Spindle)

WIRTH GRUFFAT

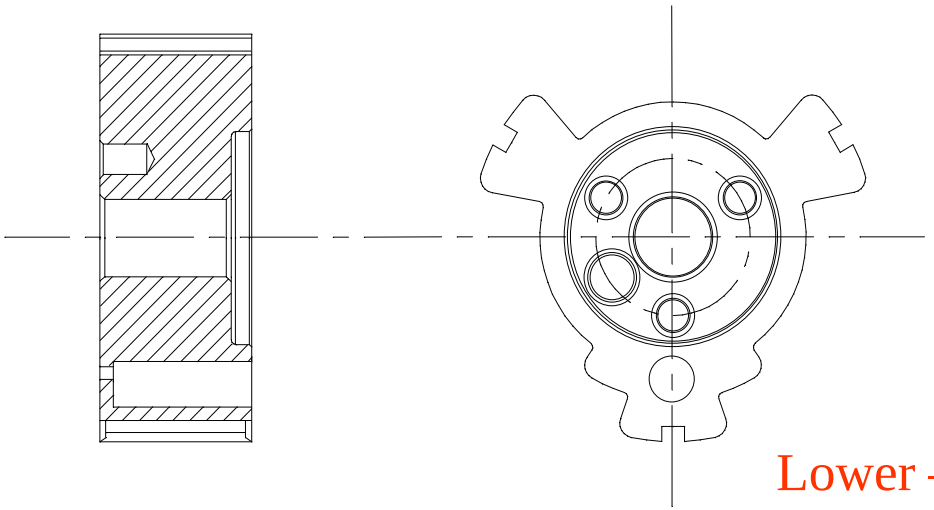
Station 3





Upper – Drill thru Ø 2mm # 15

(H. Driven Spindle)



Lower – Invert Part 180º

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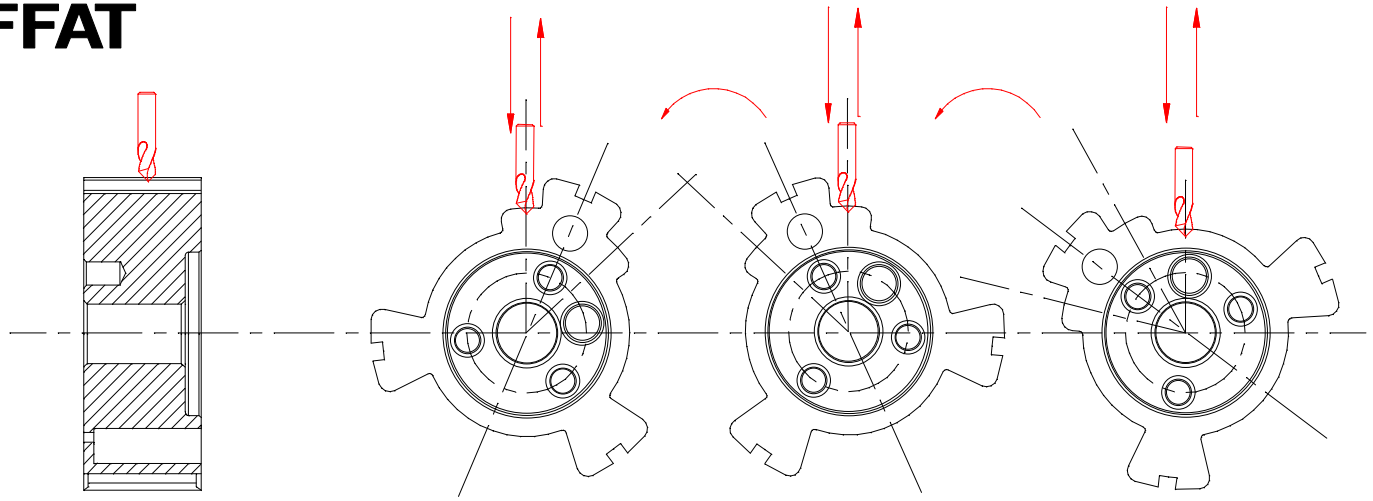
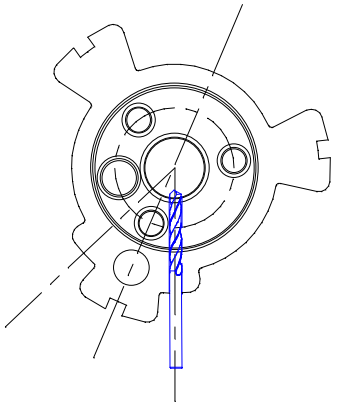




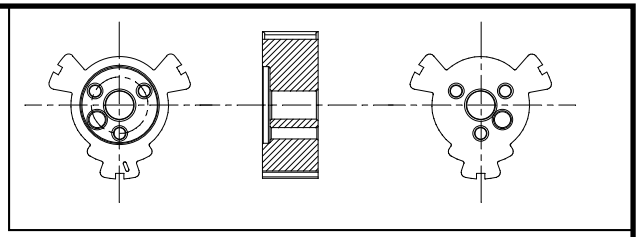
Station 4

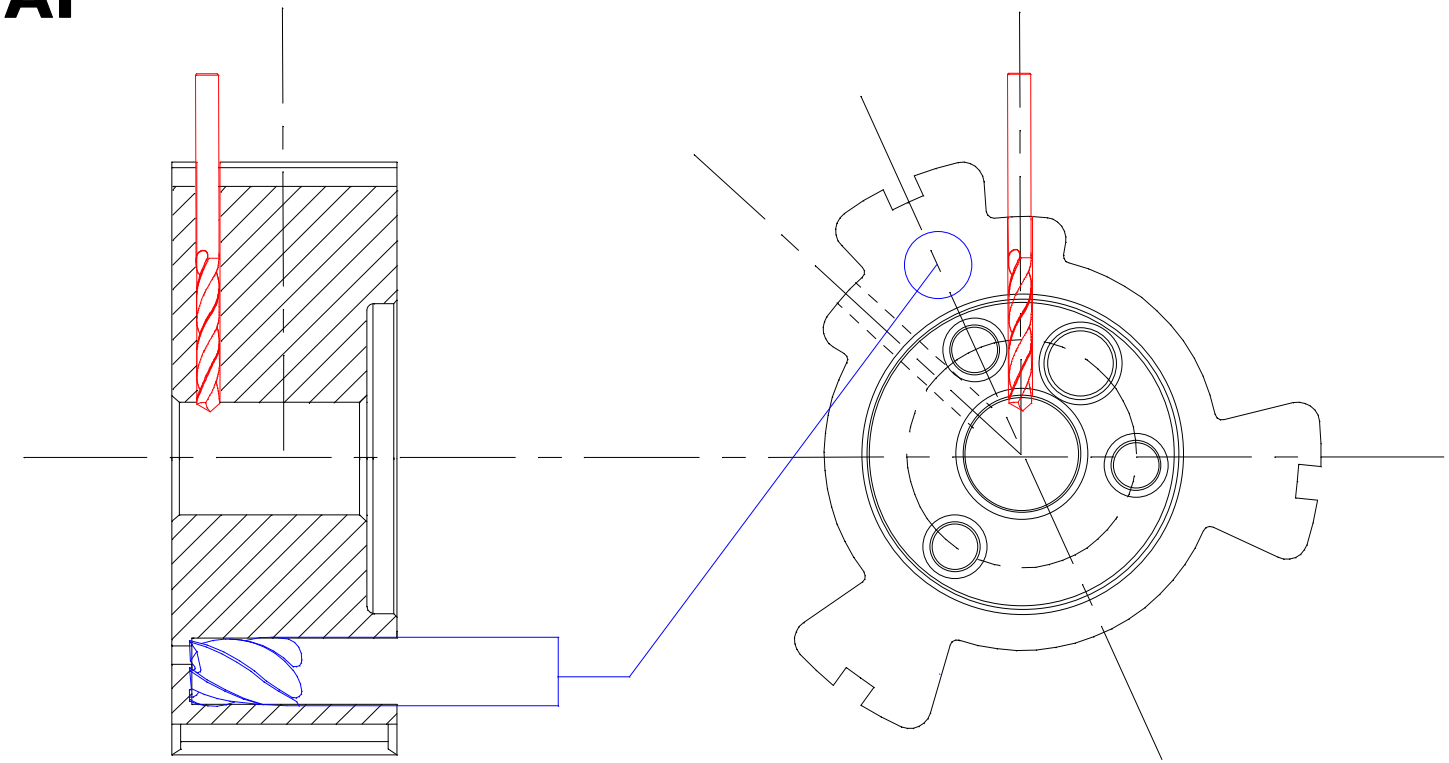
Upper – Center Drill 2x for Ø 4.5, 1x for Ø5 # 100,64,46

V. Driven Spindle

Lower – Drill Ø 4.5 # 46 (V. Inverted Driven Spindle

WIRTH GRUFFAT



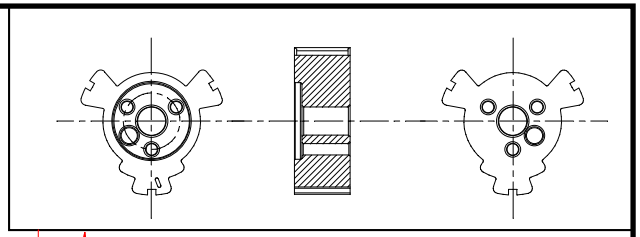


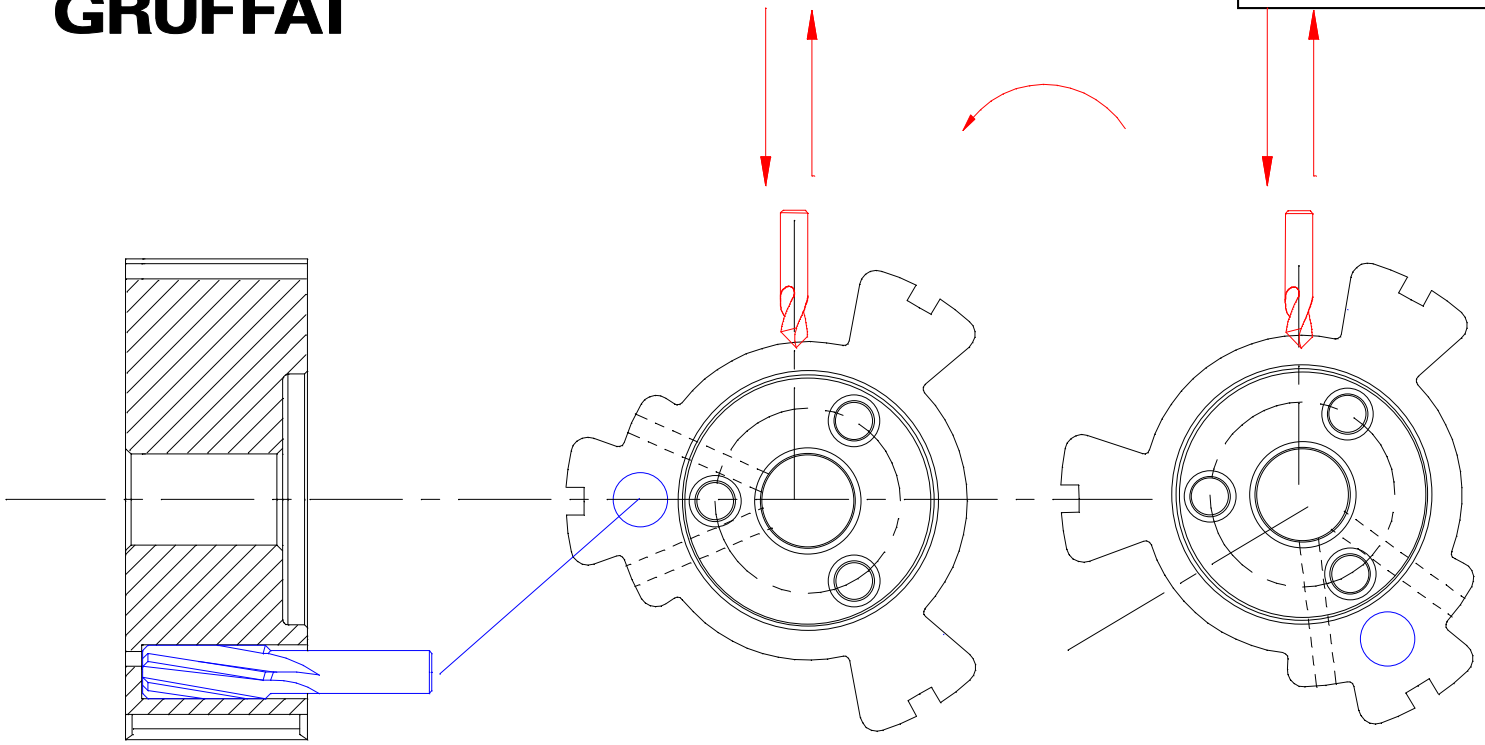
Station 5

Upper – Drill Ø 4.5 # 64 (V. Driven Spindle)

Lower – Drill Ø 11.1 # 69 (H. Driven Spindle)

WIRTH GRUFFAT



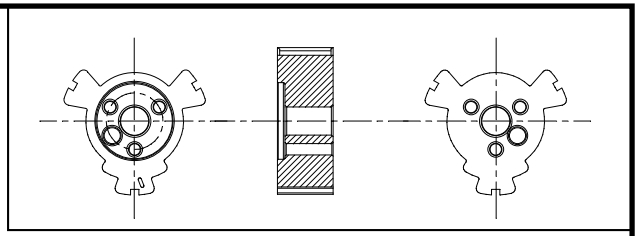


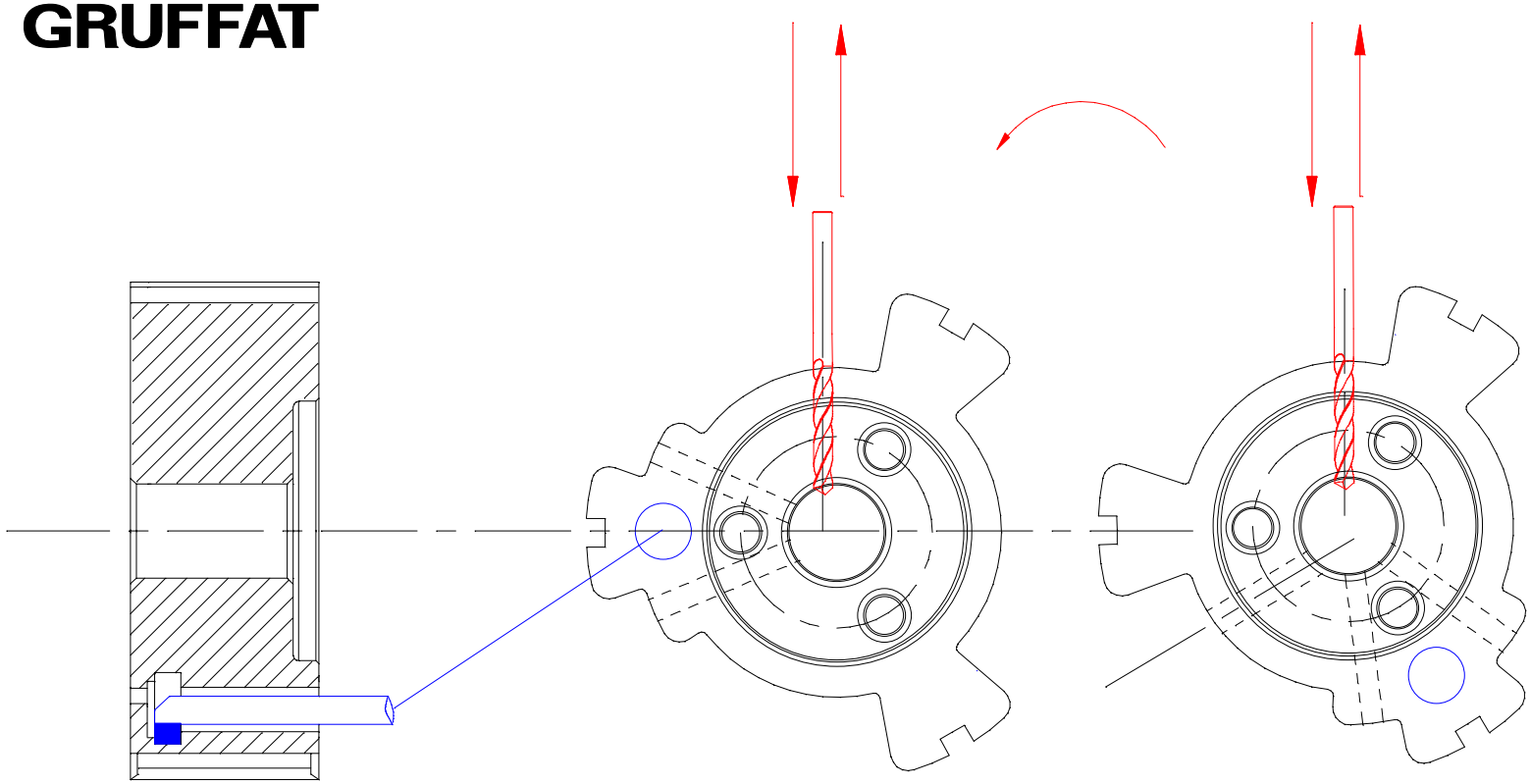
Station 6

Upper – Center Drill 2x # 48,50 (V. Driven Spindle)

Lower – Ream Ø 11.3 #69 (H. Driven Spindle)

WIRTH GRUFFAT



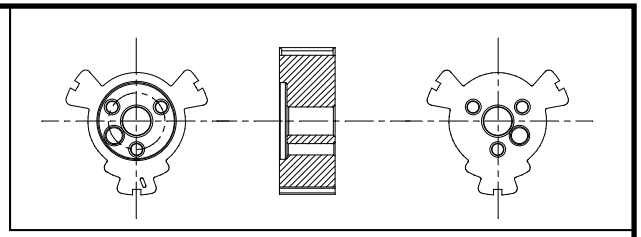


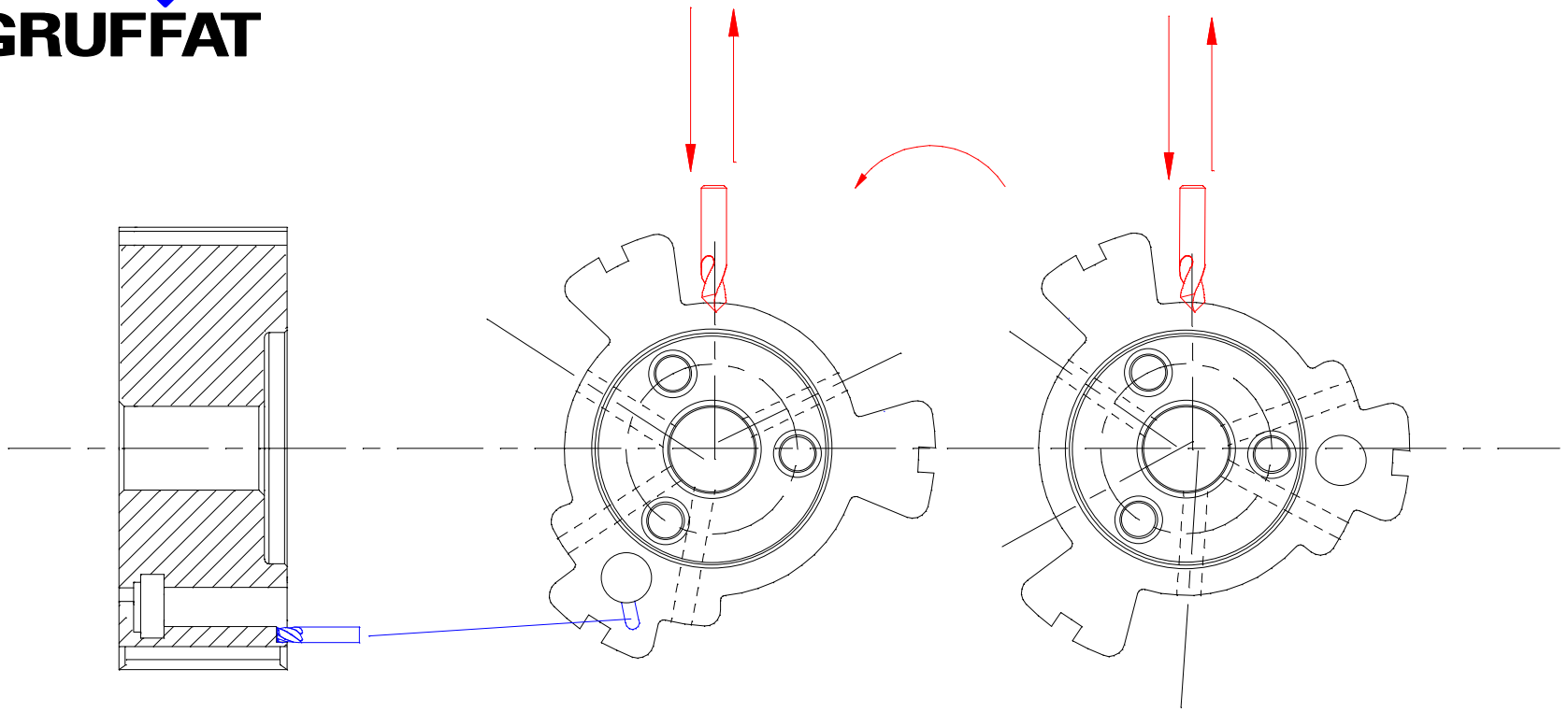
Station 7

Upper – Drill 2x Ø 4.5 # 48, 50 (V. Driven Spindle)

Lower – Recess Ø 13 # (H. Driven recessing Unit)

WIRTH GRUFFAT



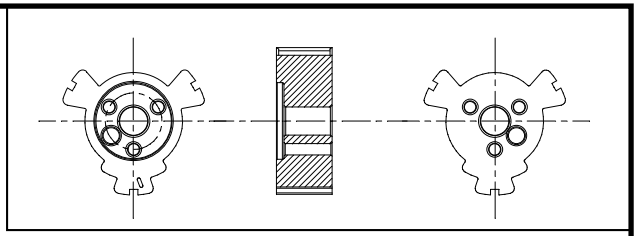


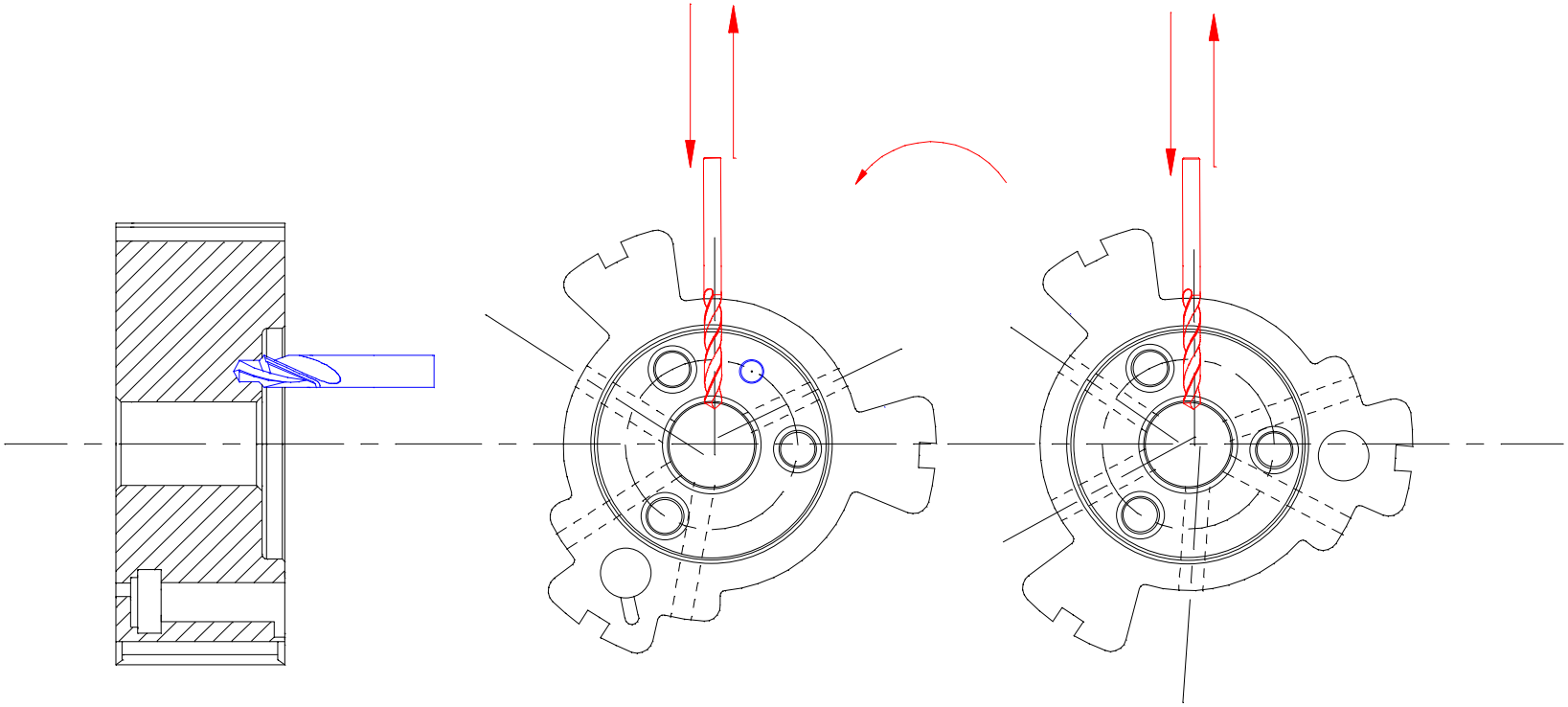
Station 8

Upper – Center Drill 2x # 60,61 (V. Driven Spindle)

Lower – Mill 2mm Slot # 66 (H. Driven Spindle)

WIRTH GRUFFAT



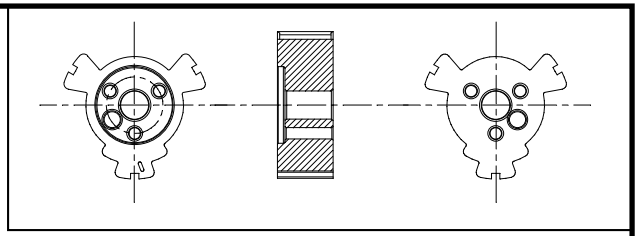


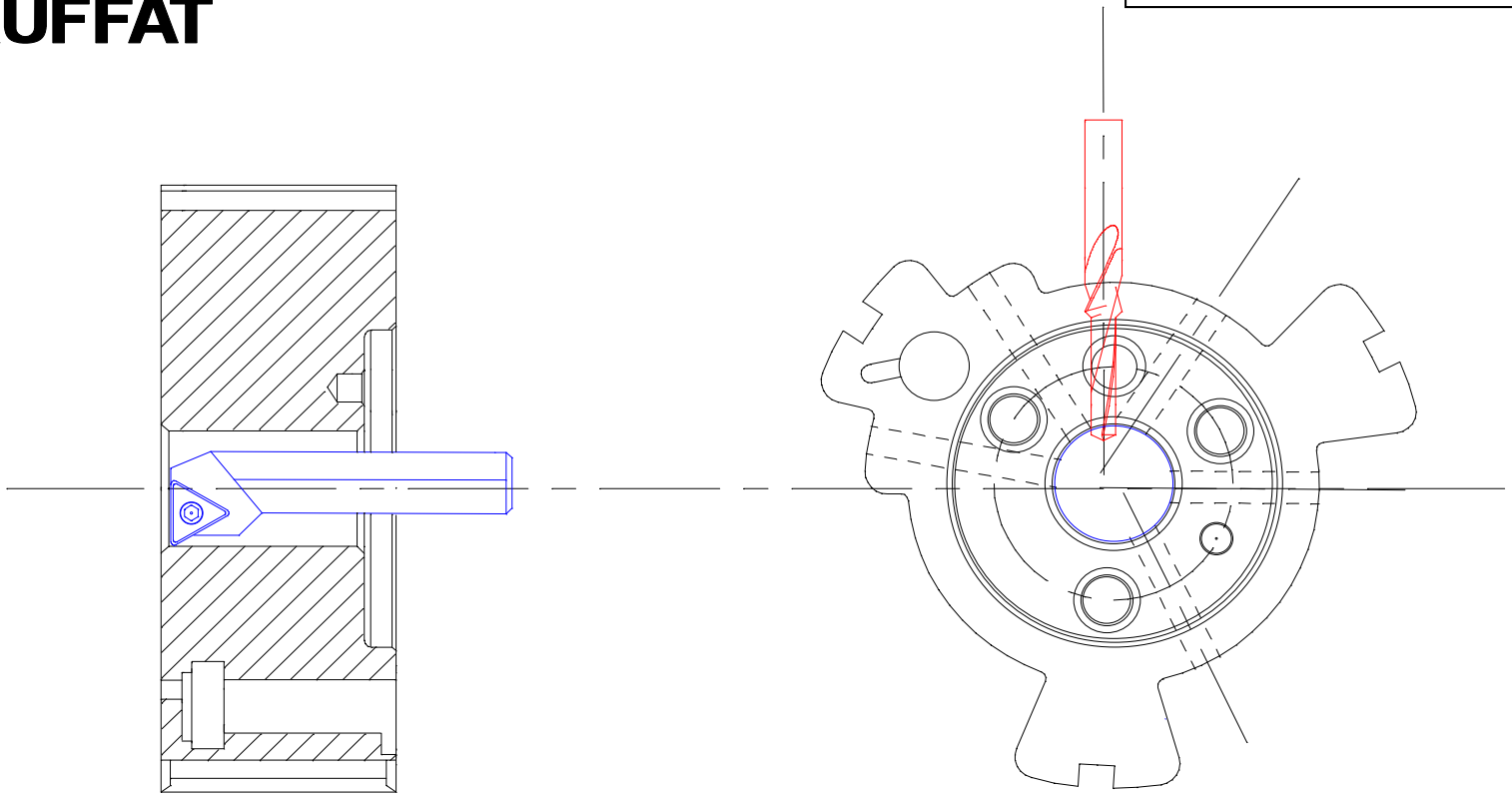
Station 9

Upper – Drill 2x Ø 4.5 #60,61 (V. Driven Spindle)

Lower – Drill/Chamfer Ø 4.5 # 75 (H. Driven Spindle)

WIRTH GRUFFAT



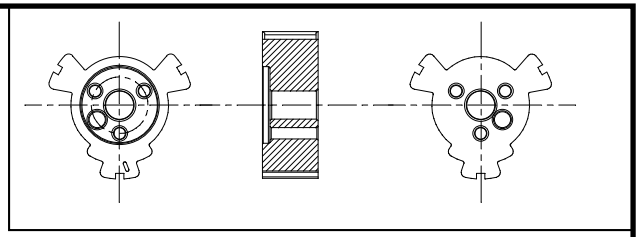


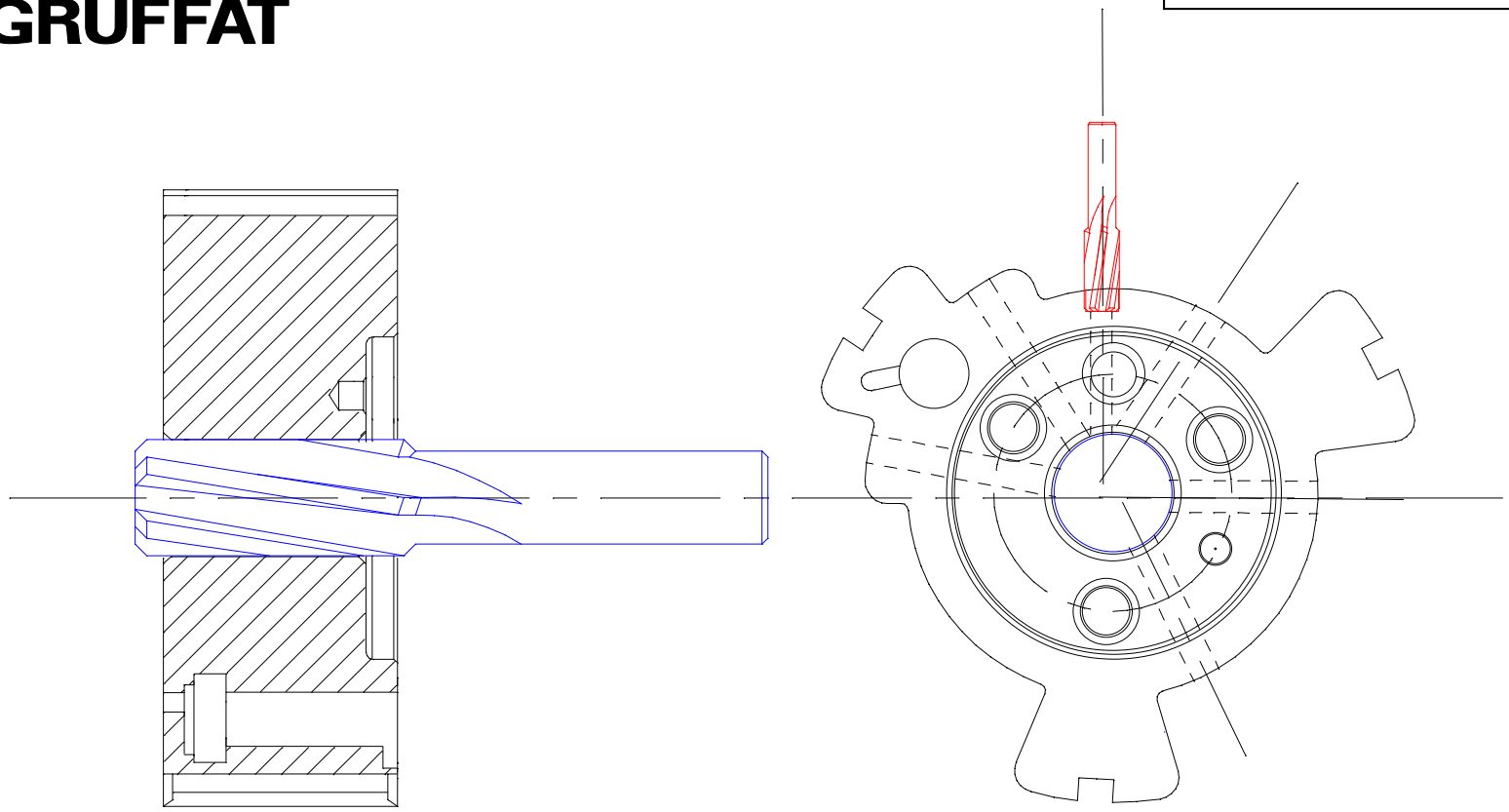
Station 10

Upper – Stepdrill # 98/100 (V. Driven Spindle)

Lower – Turn Ø16.17 # 81

WIRTH GRUFFAT



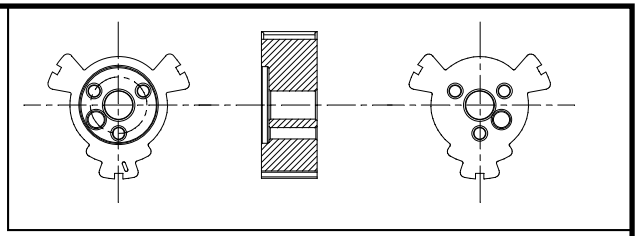


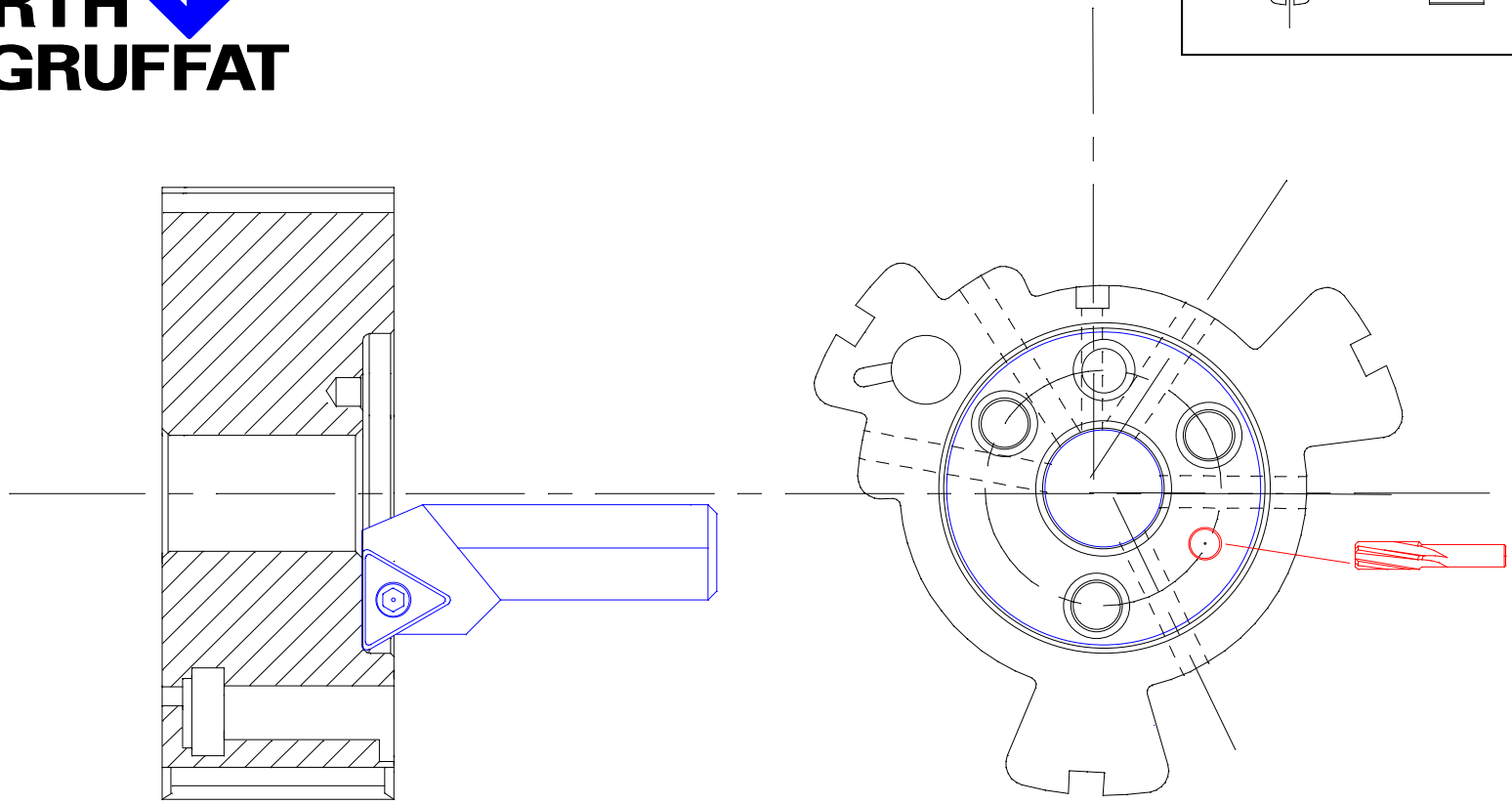
Station 11

Upper – Ream Step Ø 5.48 #100 (V. Driven Spindle)

Lower – Ream Ø 16.17 # 81

WIRTH GRUFFAT





Station 12

Upper – Ream Ø 4.67 #75 (H. Driven Spindle)

Lower – Finish Turn Datum “A”

Operational Sequence Rotor

Est. Cycle time: 18.3 Seconds

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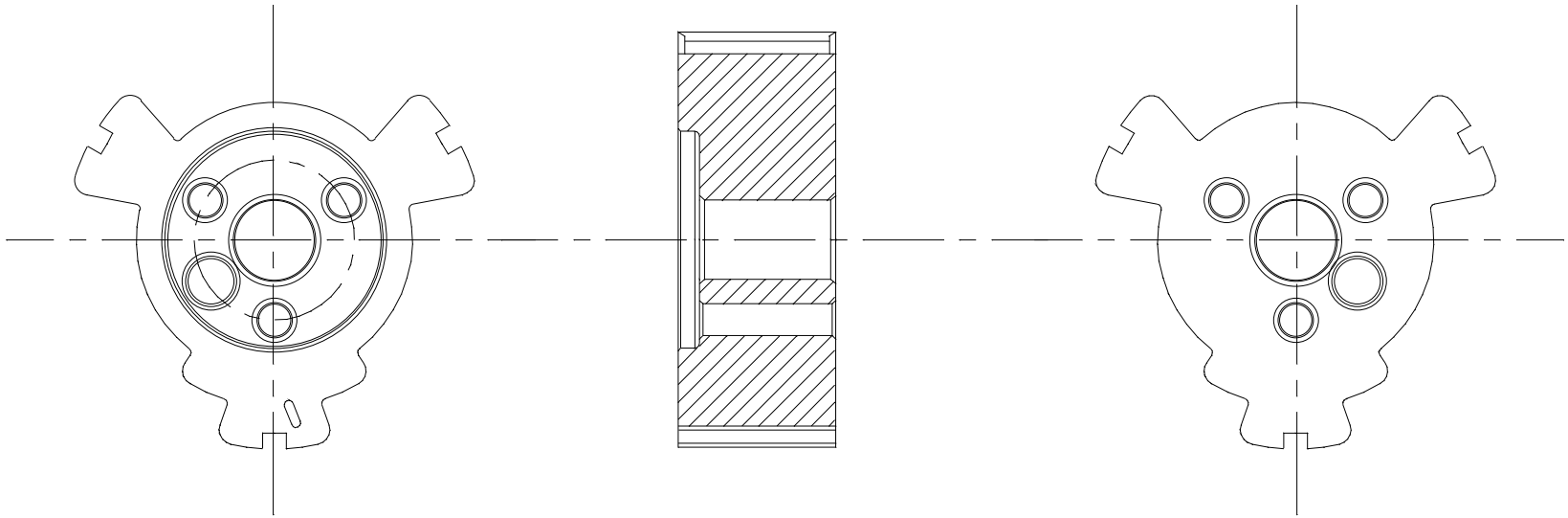
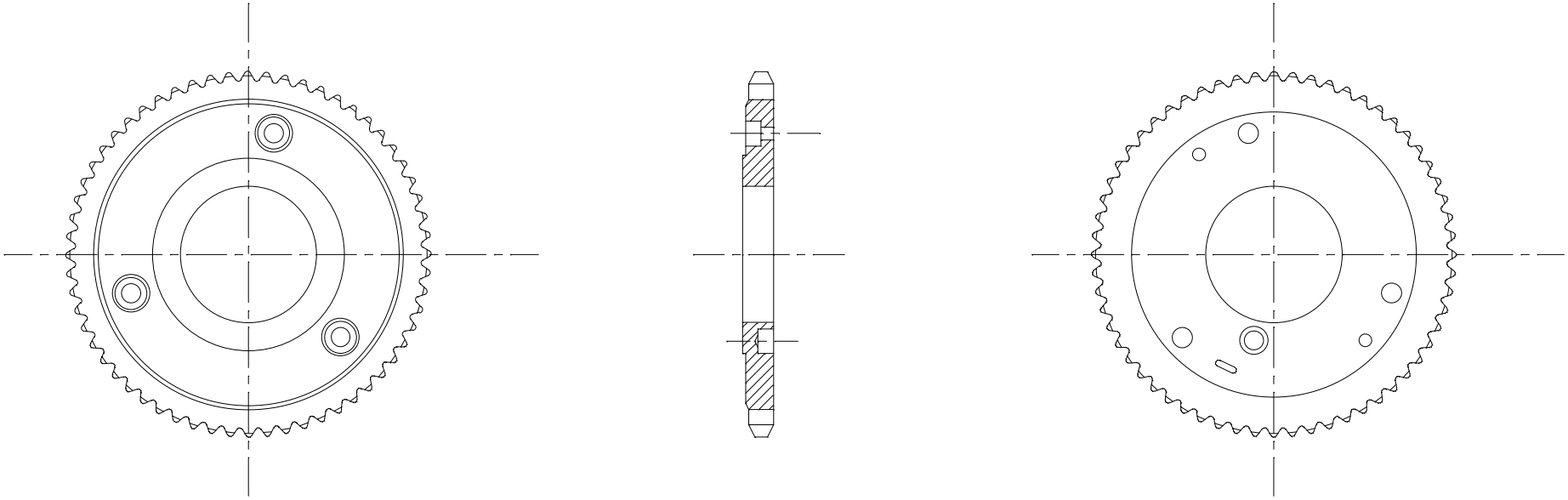


Operational Sequence Sprocket

WIRTH GRUFFAT

Est. Cycle time: 16 Seconds



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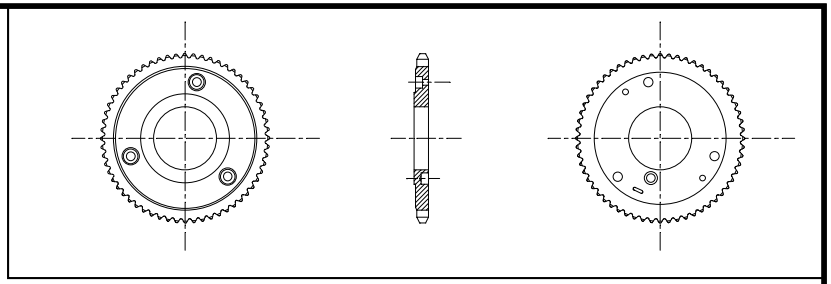
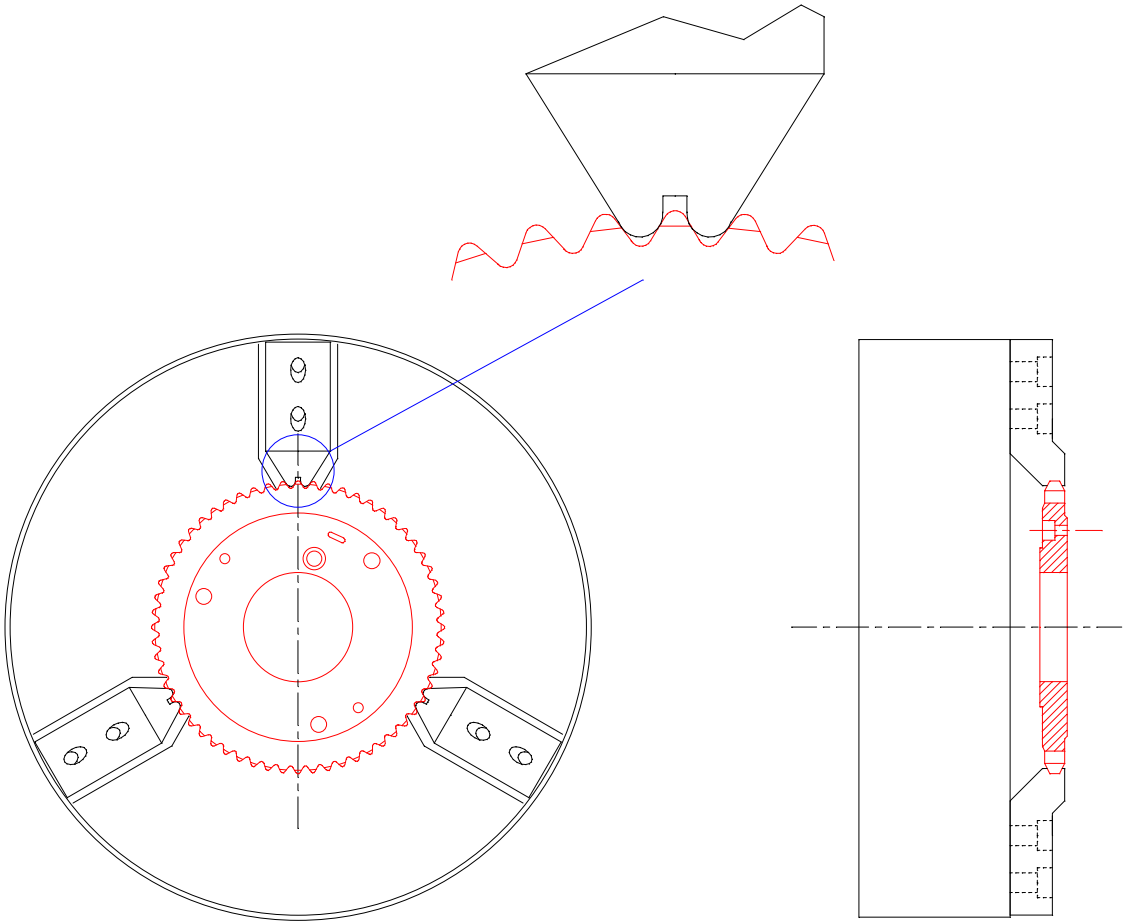


3 Jaw Self Centering
Hydraulic Chucks

Clamp Over Ball Dim on
Gear Tooth Form

Locate on Datum “A”



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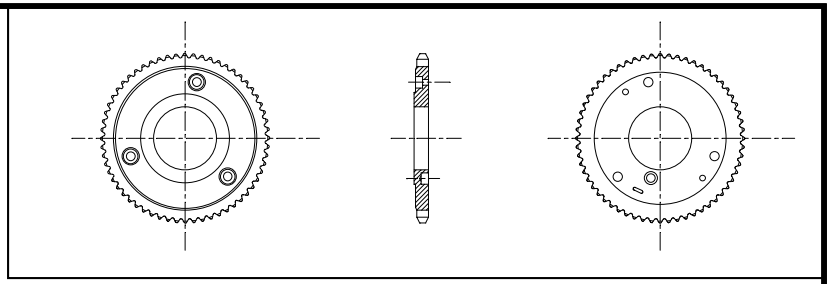
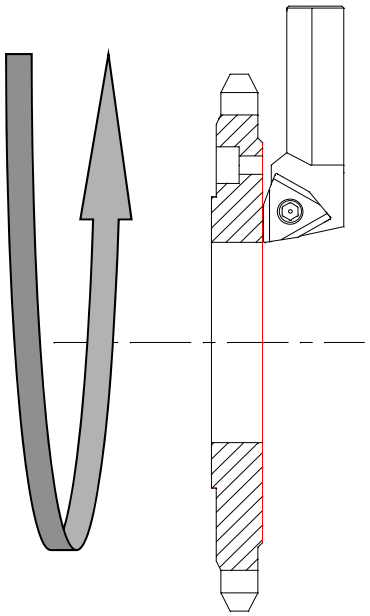
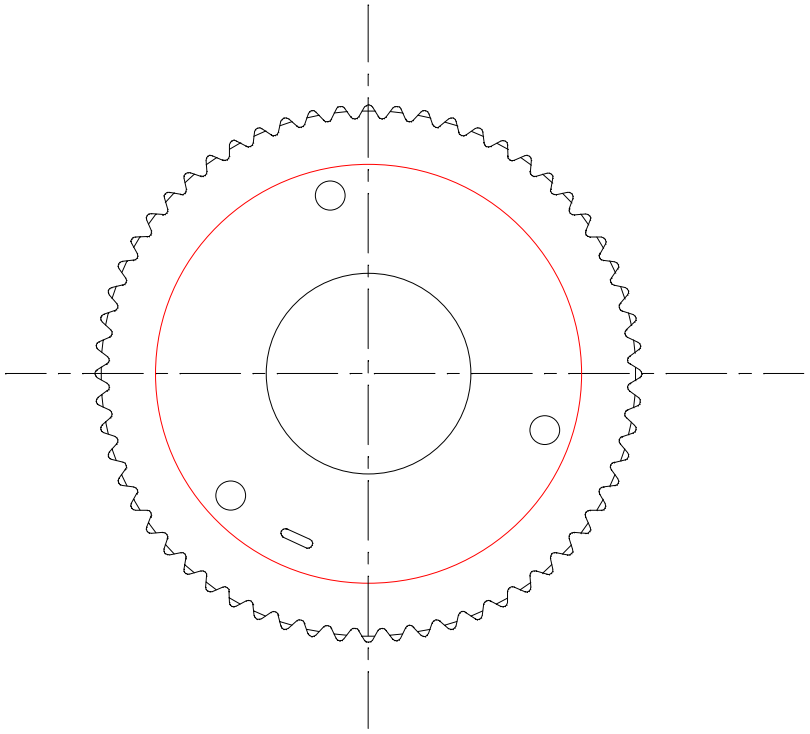




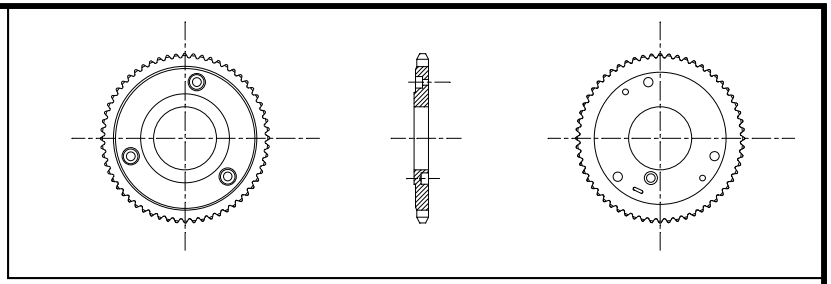


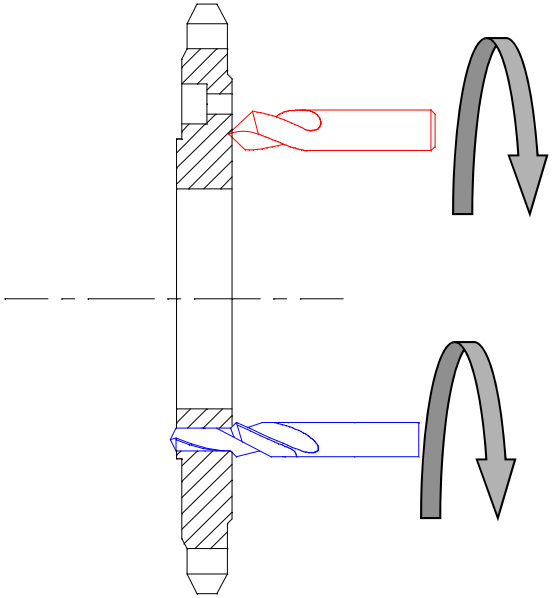
Station 2

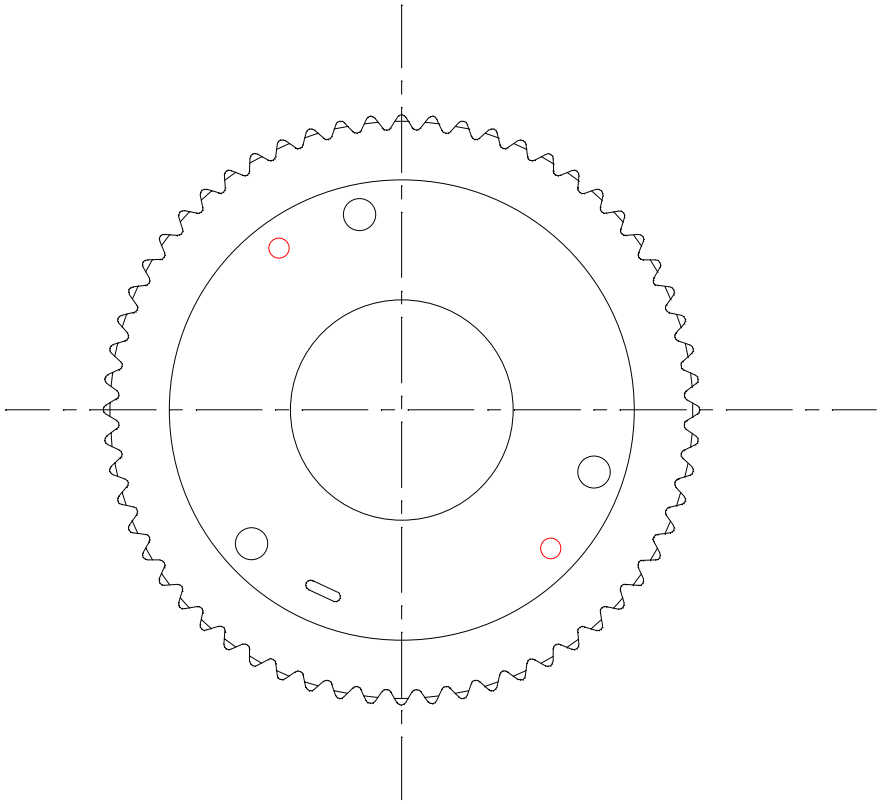
Upper - Turn Face opposite Datum “A”

Lower - open

WIRTH GRUFFAT





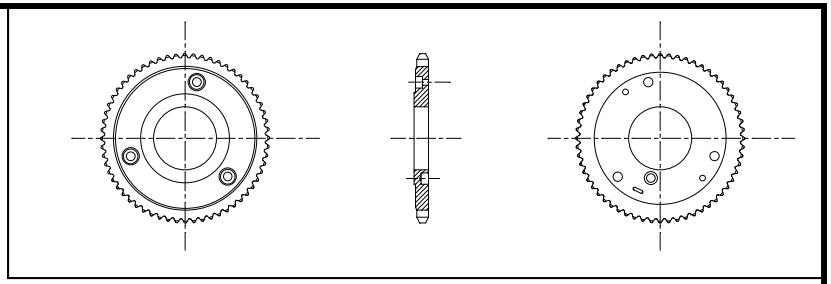


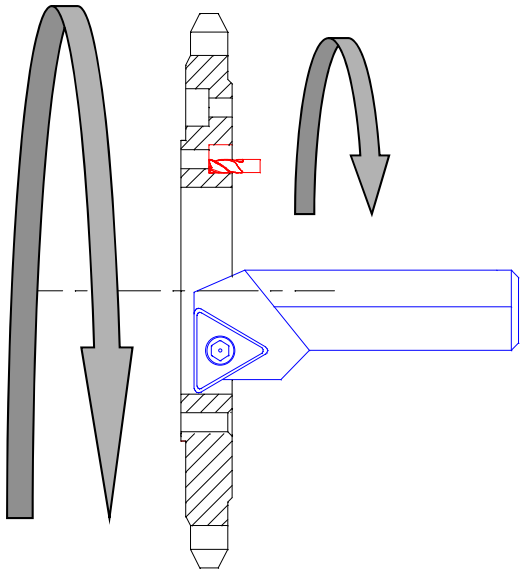
Station 3

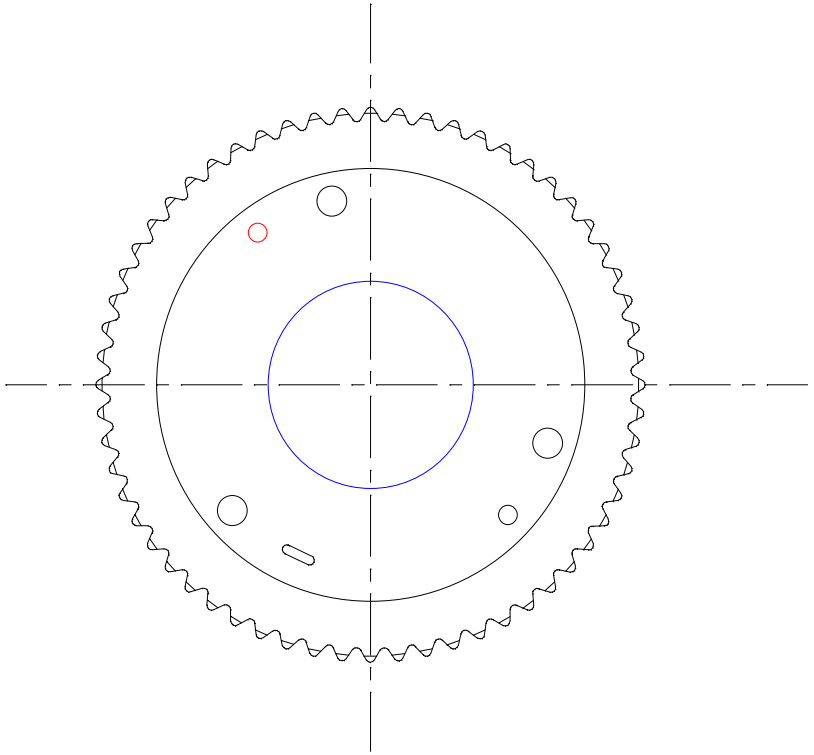
Upper – Center Drill 2 X (H. Driven Spindle)

Lower – Drill Ø 3.9 2X (H. Driven Spindle)

WIRTH GRUFFAT





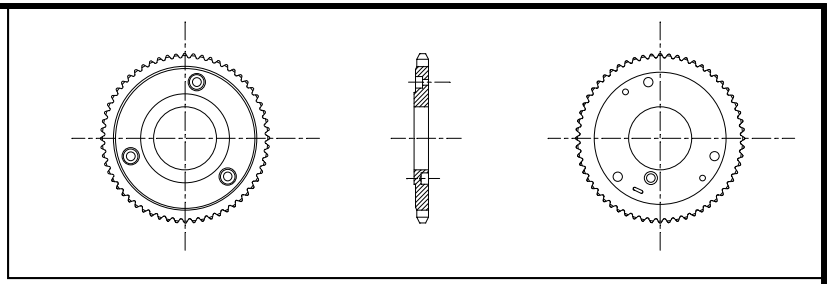


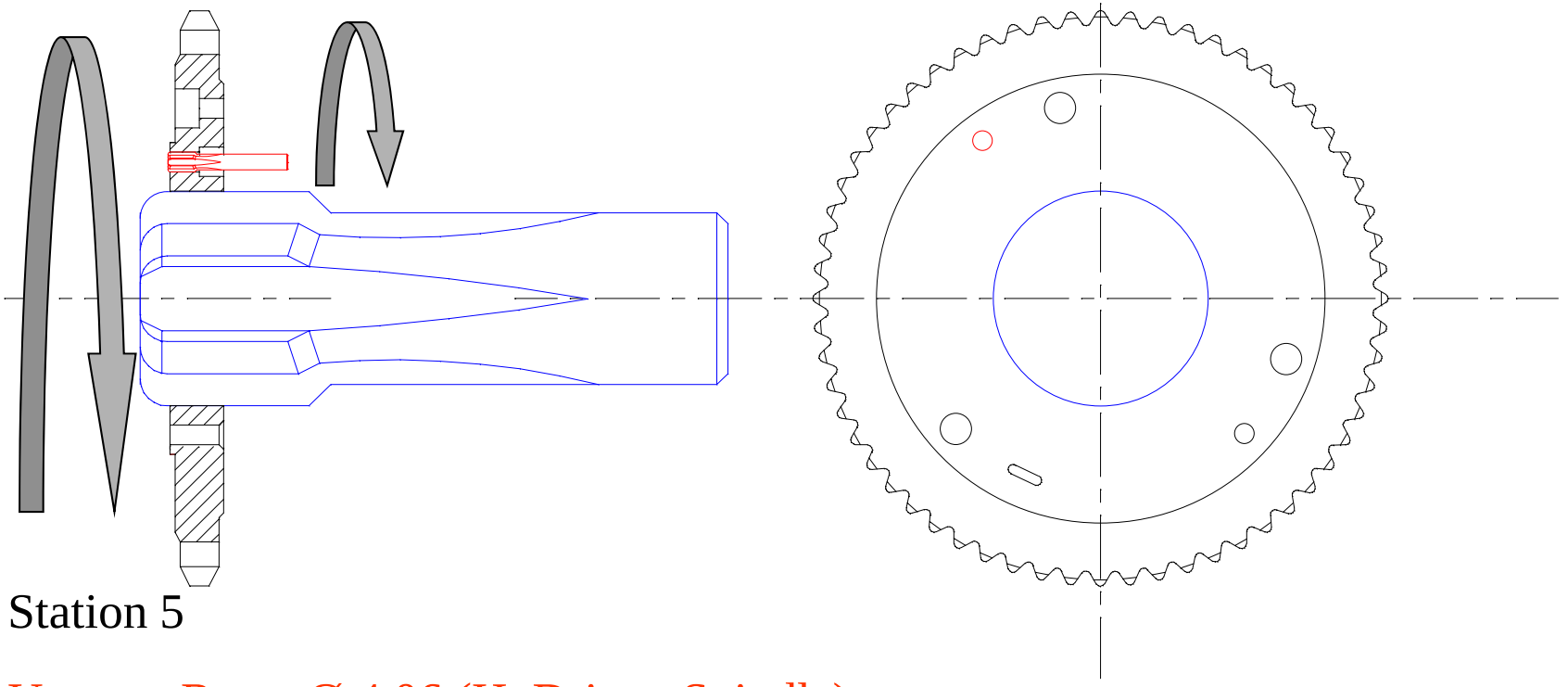
Station 4

Upper – End Mill Ø4.06 (H. Driven)

Lower – Turn Ø 43.02 and Chamfer

WIRTH GRUFFAT



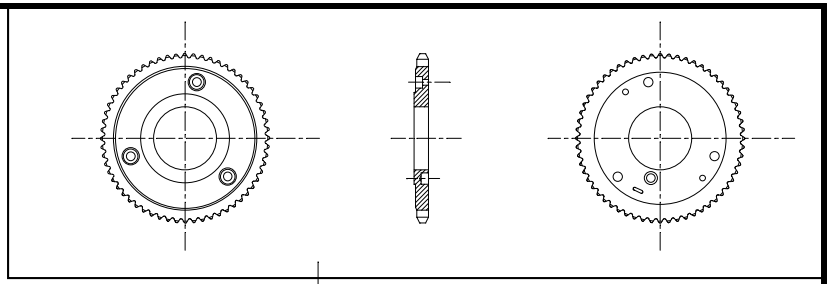


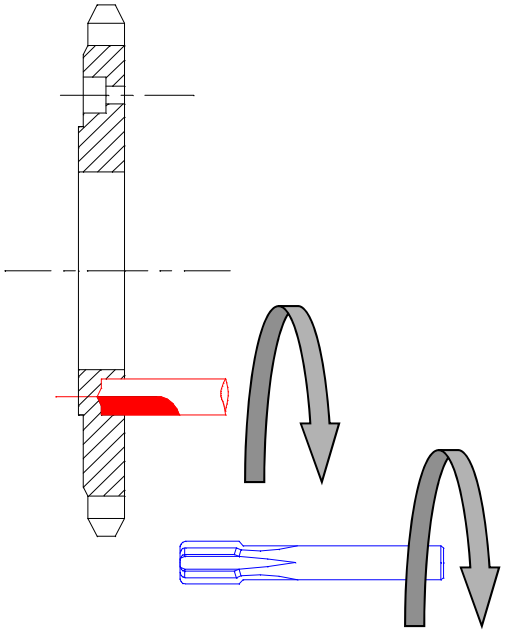
Station 5

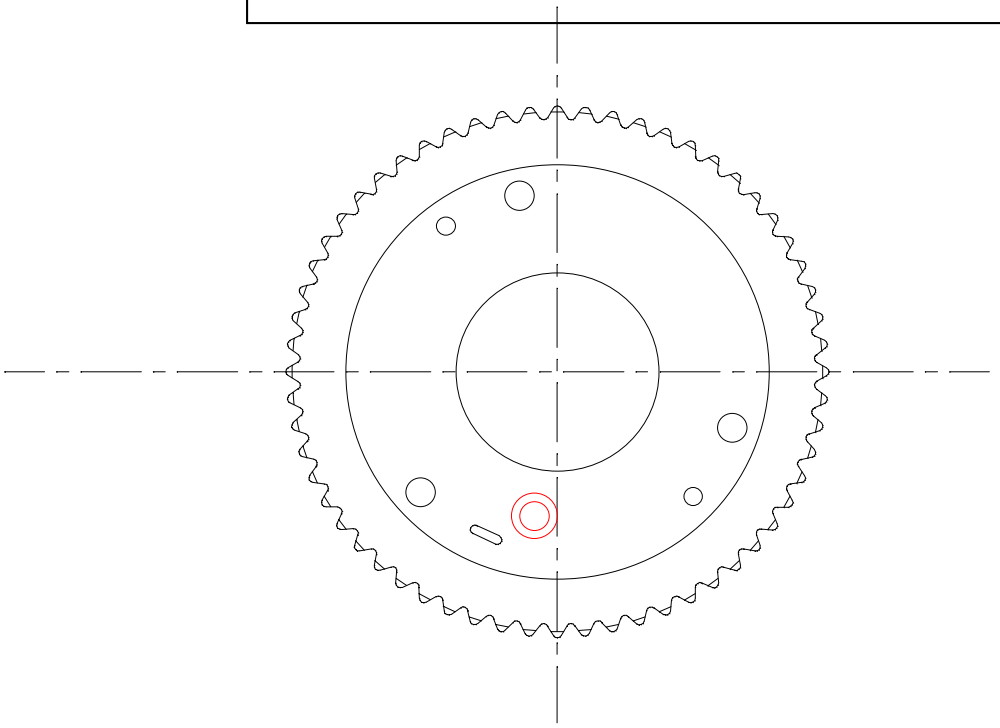
Upper – Ream Ø 4.06 (H. Driven Spindle)

Lower – Ream Ø 43.02

WIRTH GRUFFAT







Station 6

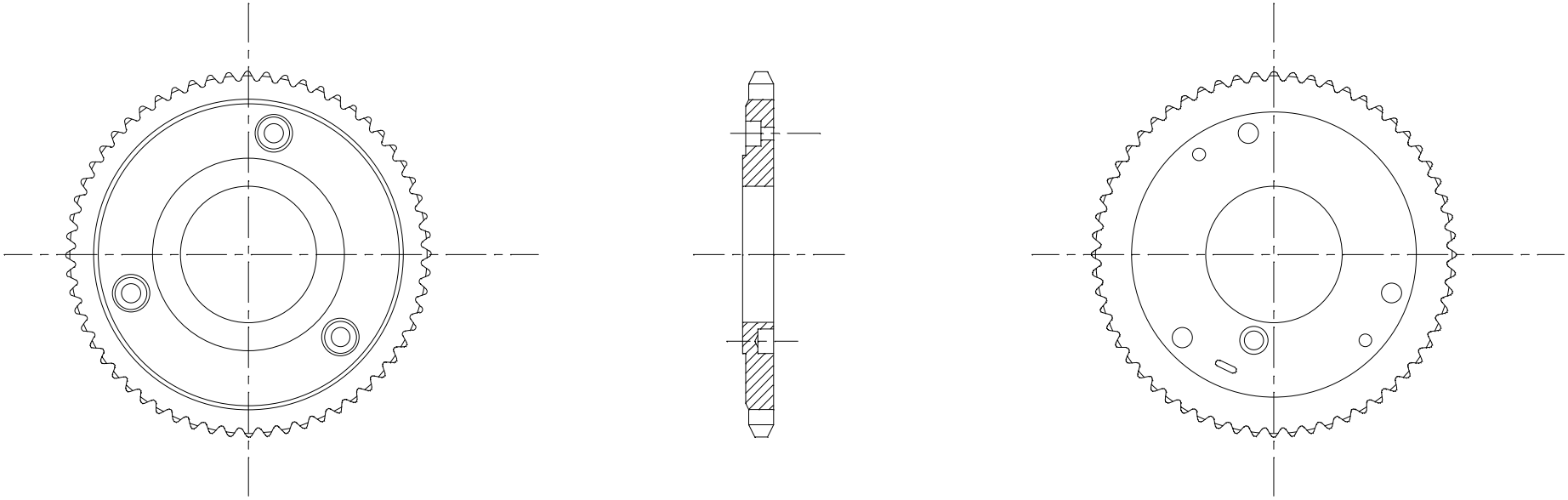
Upper – Rough Ø 9.97 -Special Tool (H. Driven Spindle)

Lower – Ream Ø 9.97 (H Driven Spindle)

Operational Sequence Sprocket

WIRTH GRUFFAT

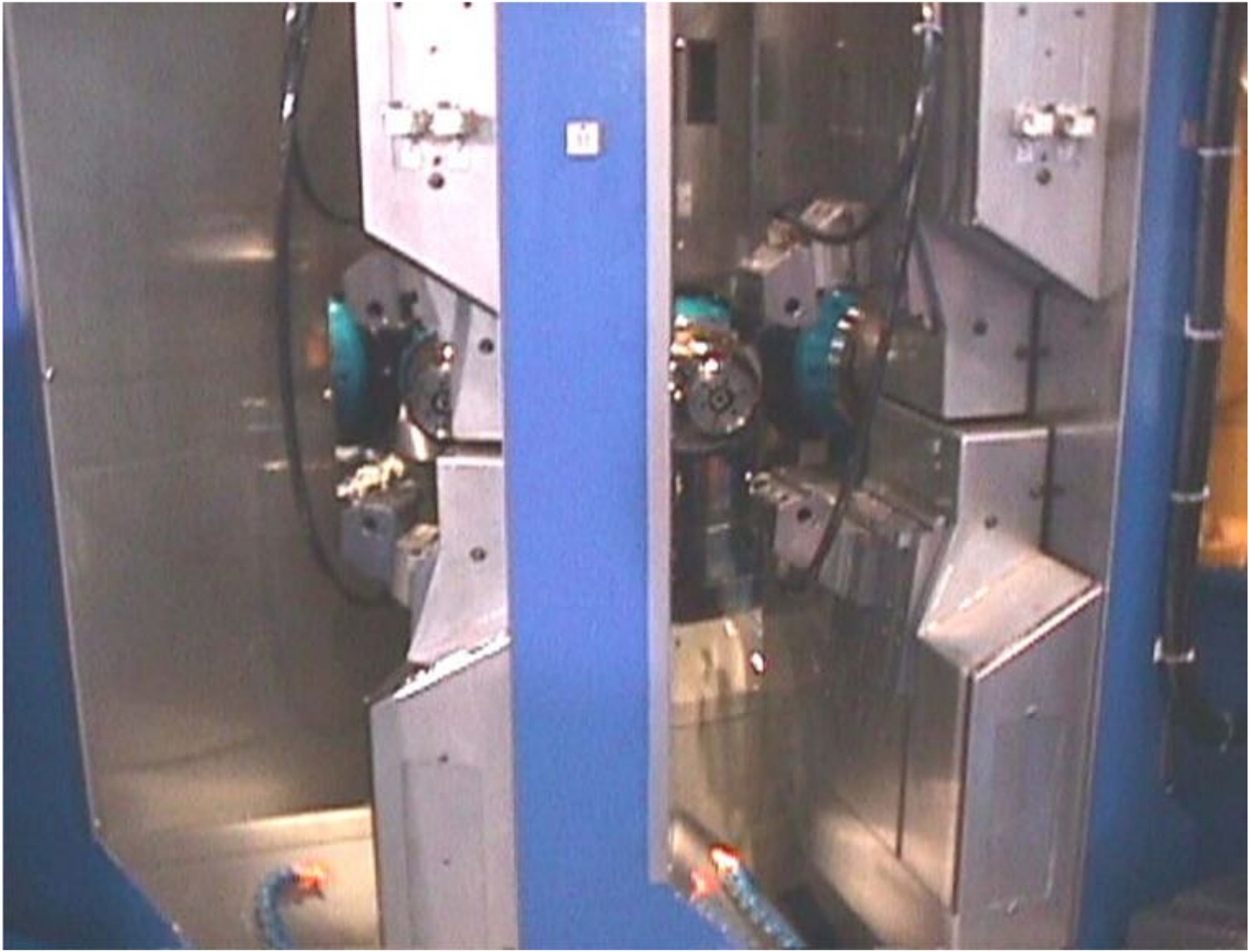
Est. Cycle time: 16 Seconds

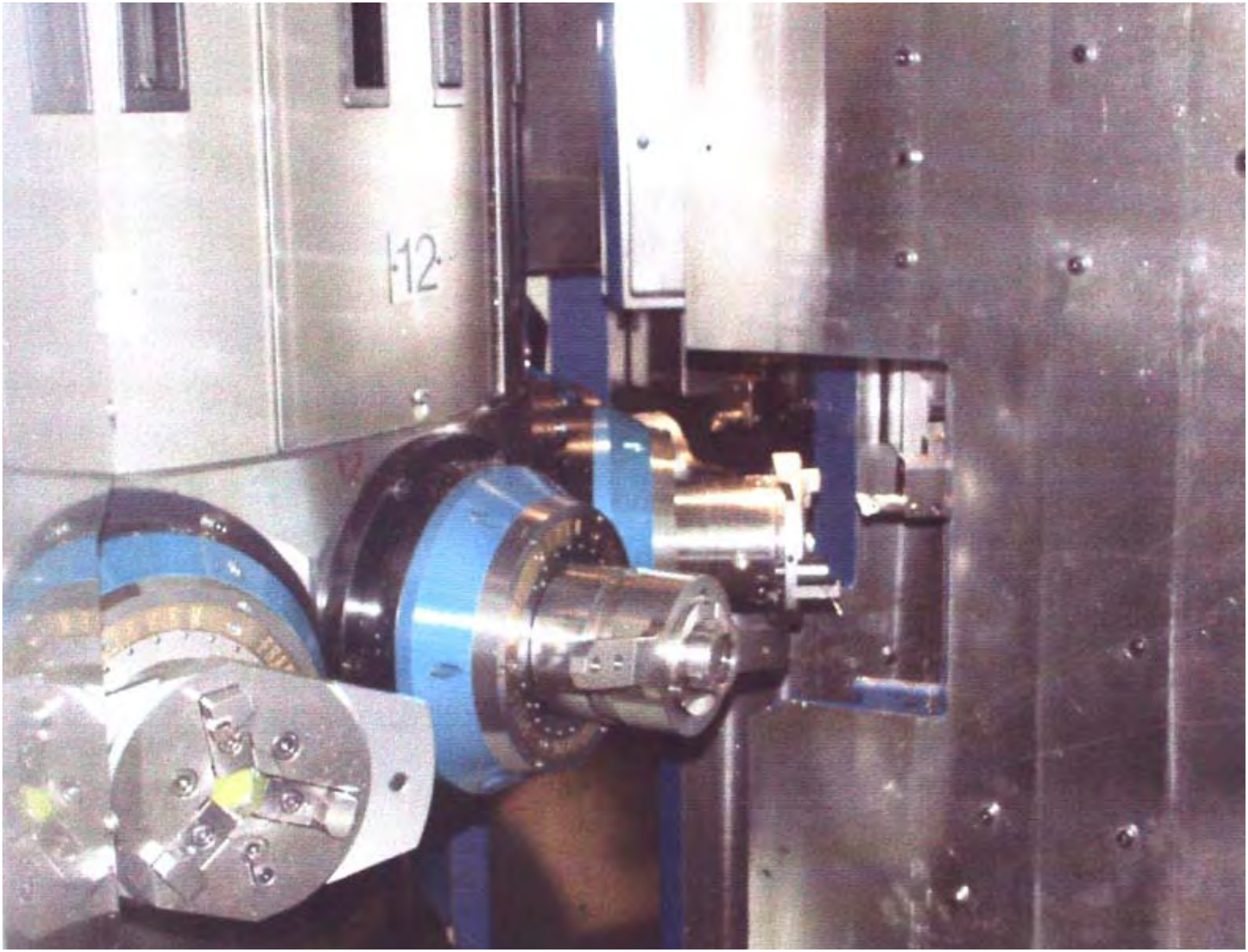


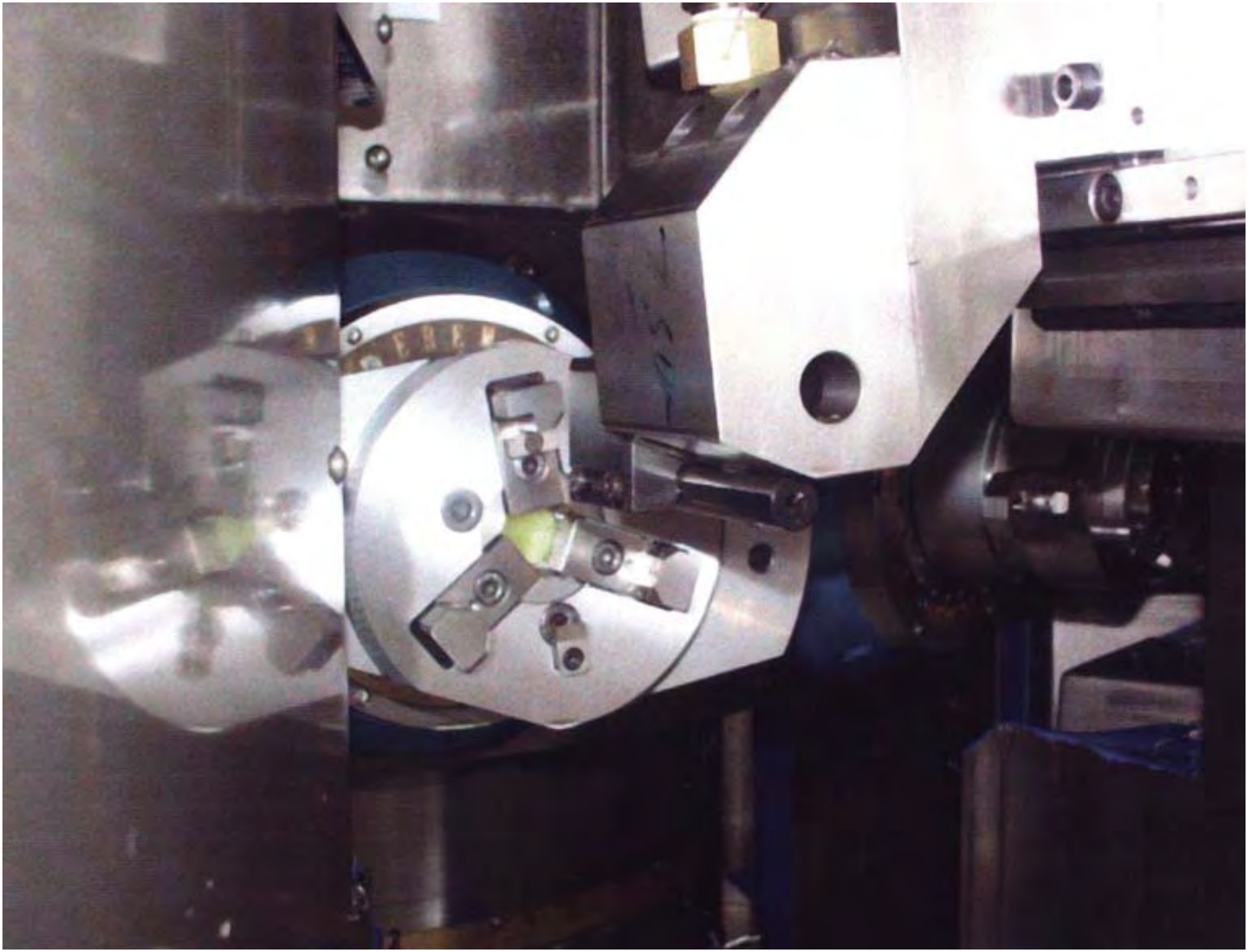
WIRTH GRUFFAT

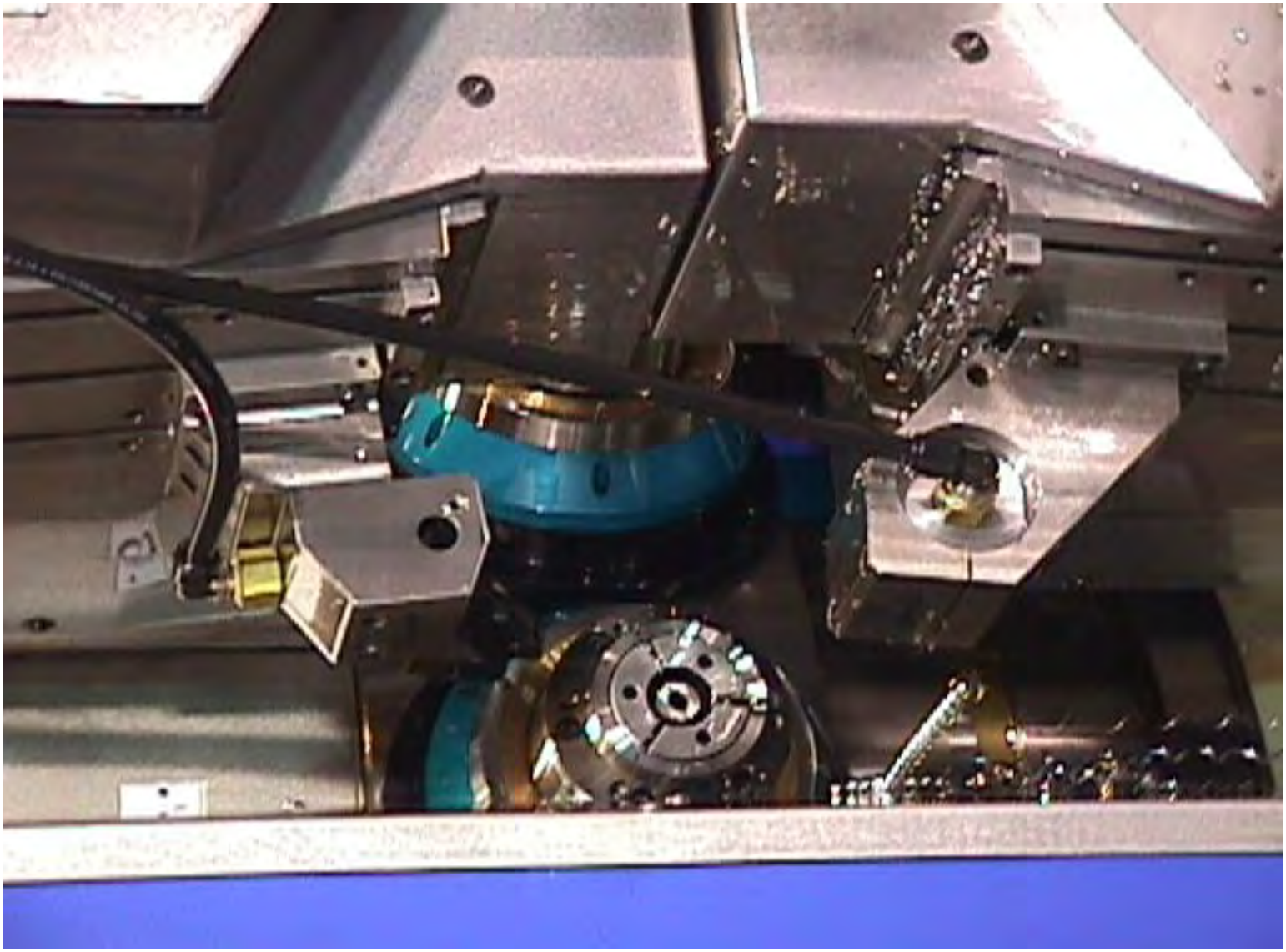
Transturn TT 312
Transturn TT 306

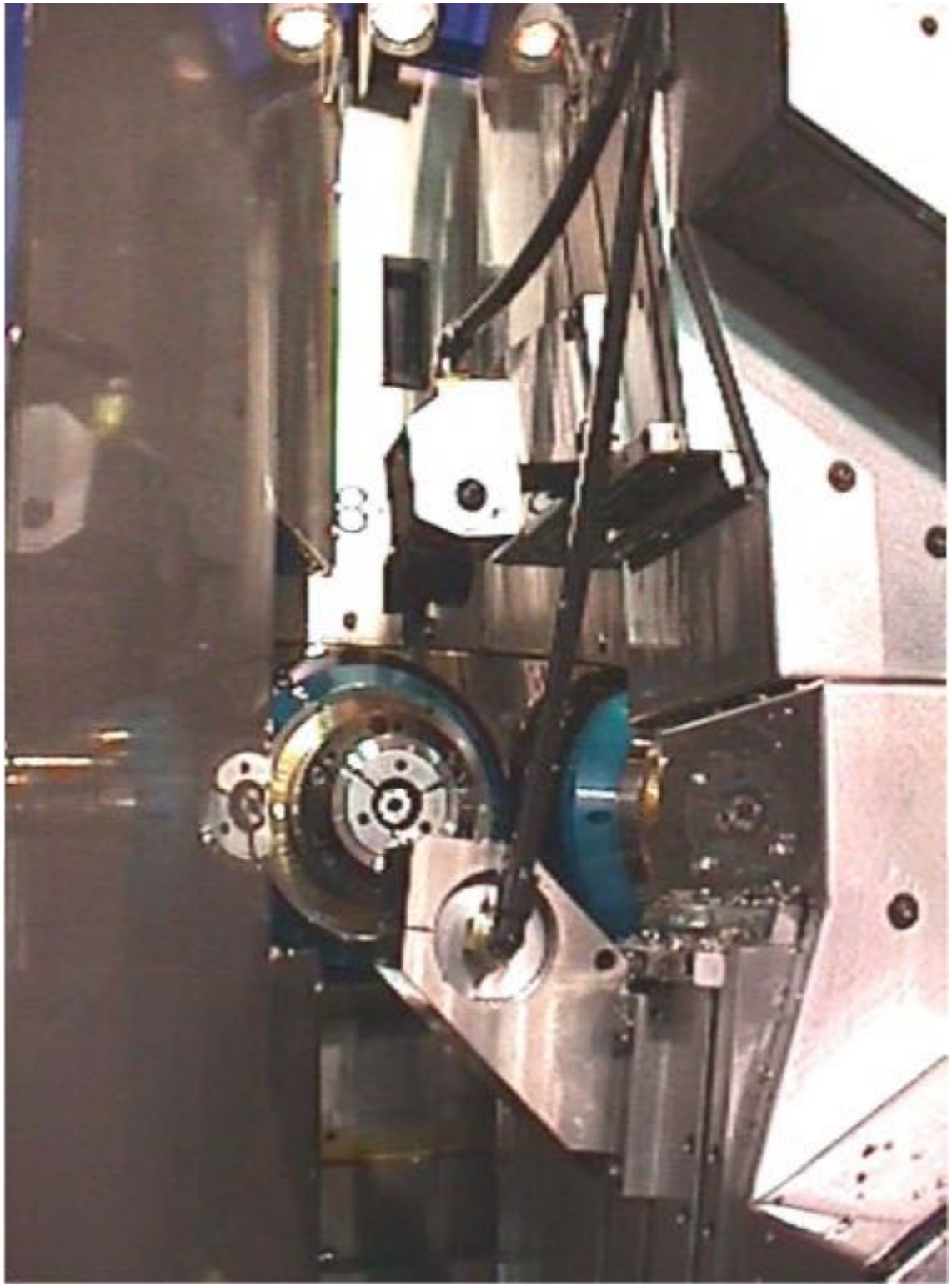
6 and12 Station Precision Transfer Machines



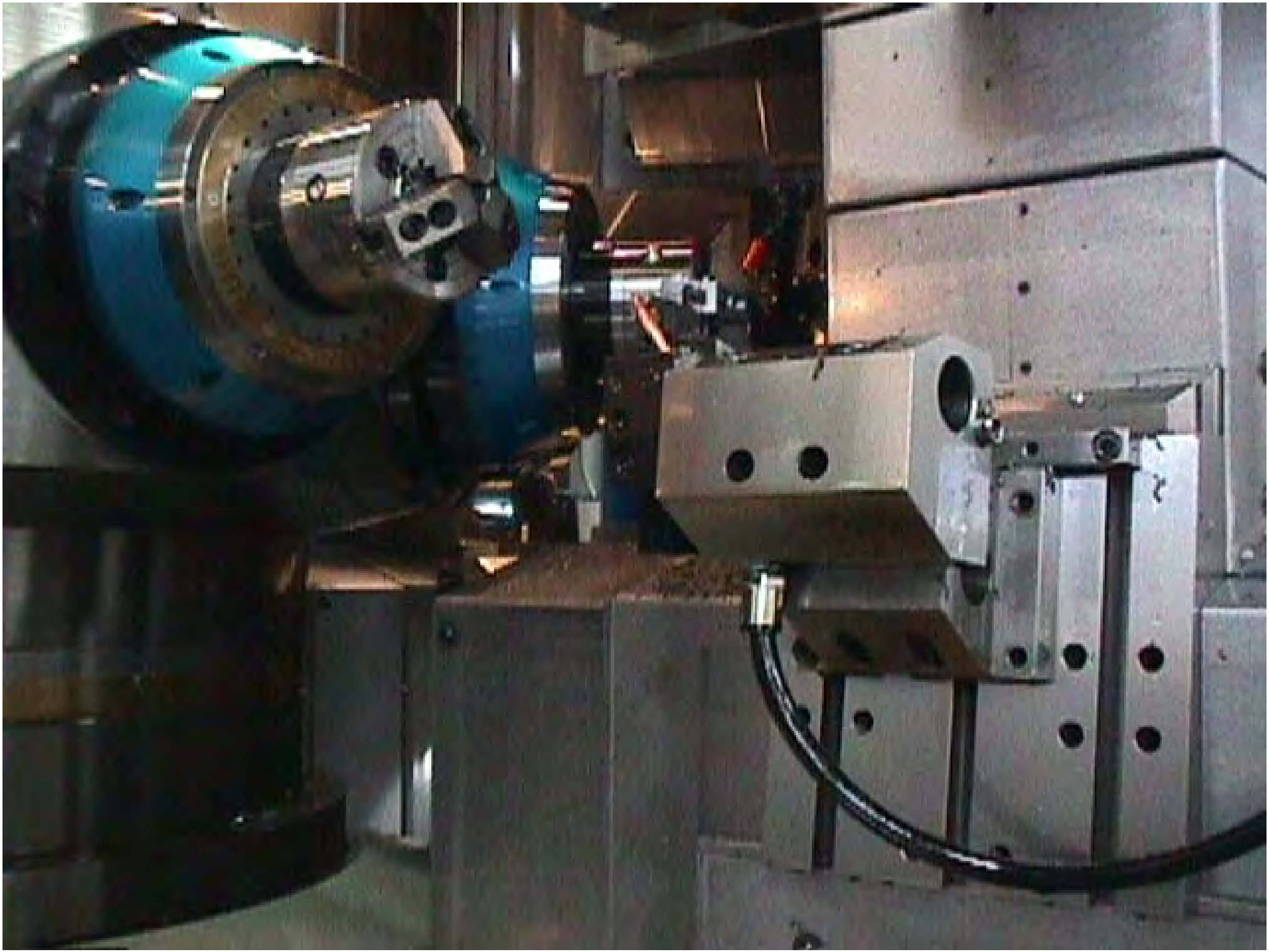

I-12







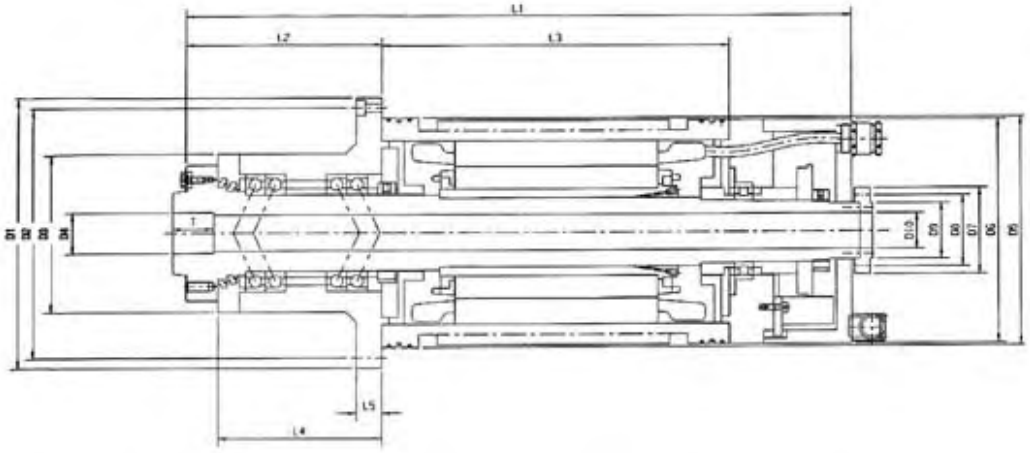

TRANSTEX




ADC
FACOM
FEB 21 2003


FEB 21 2003


FEB 21 2003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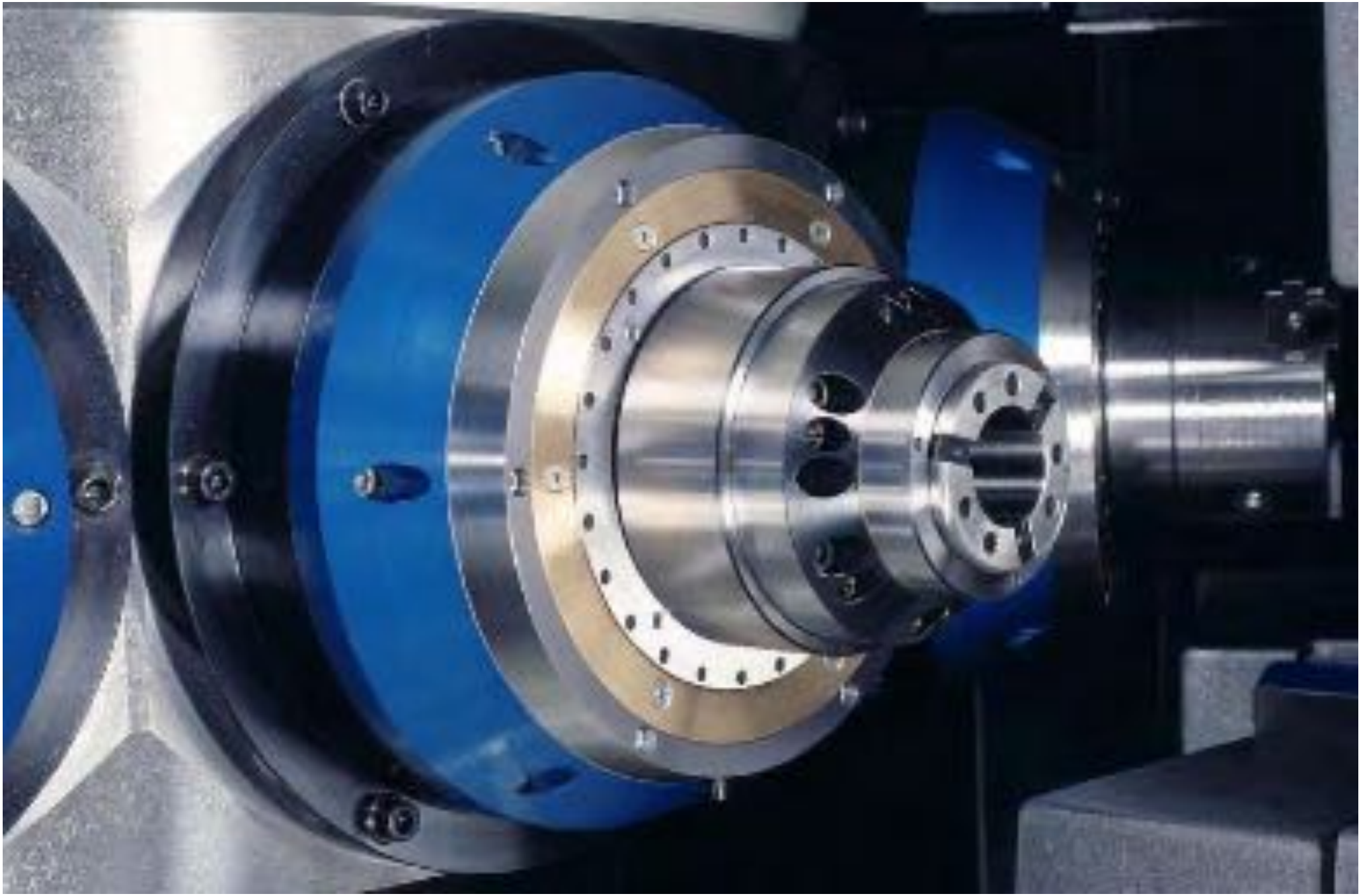
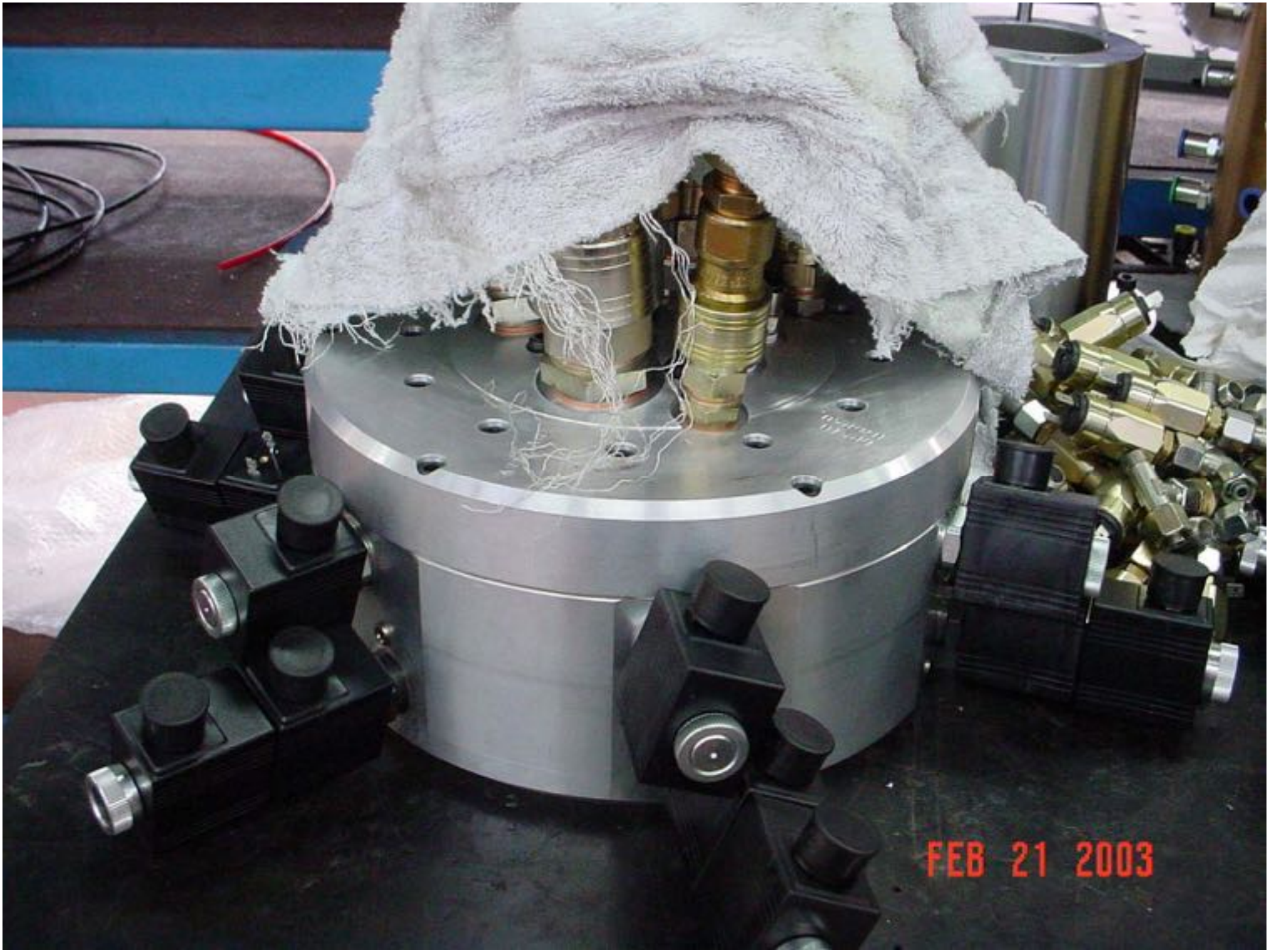
L2
L3
L4
L5

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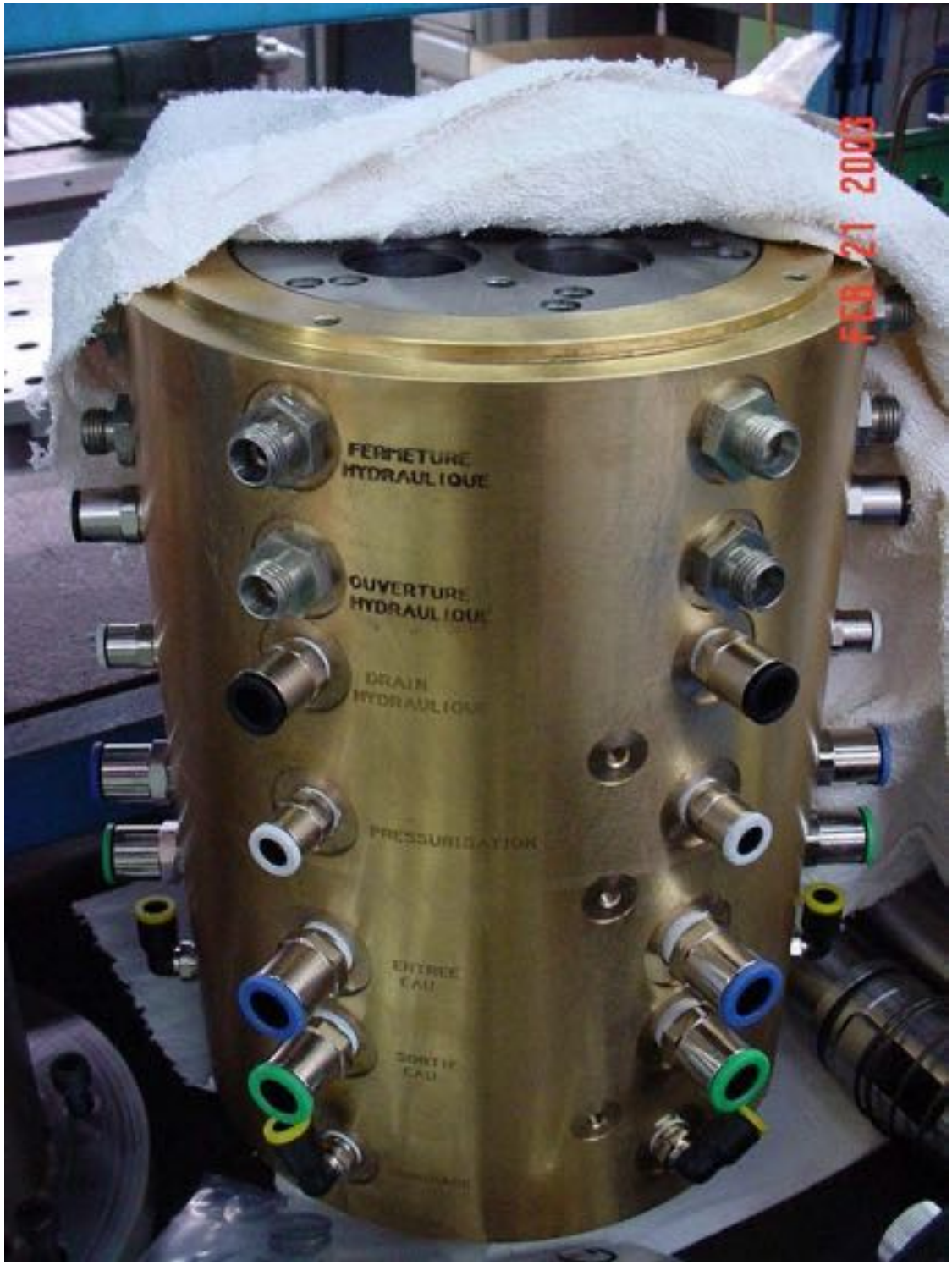
FERMETURE
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OUVERTURE
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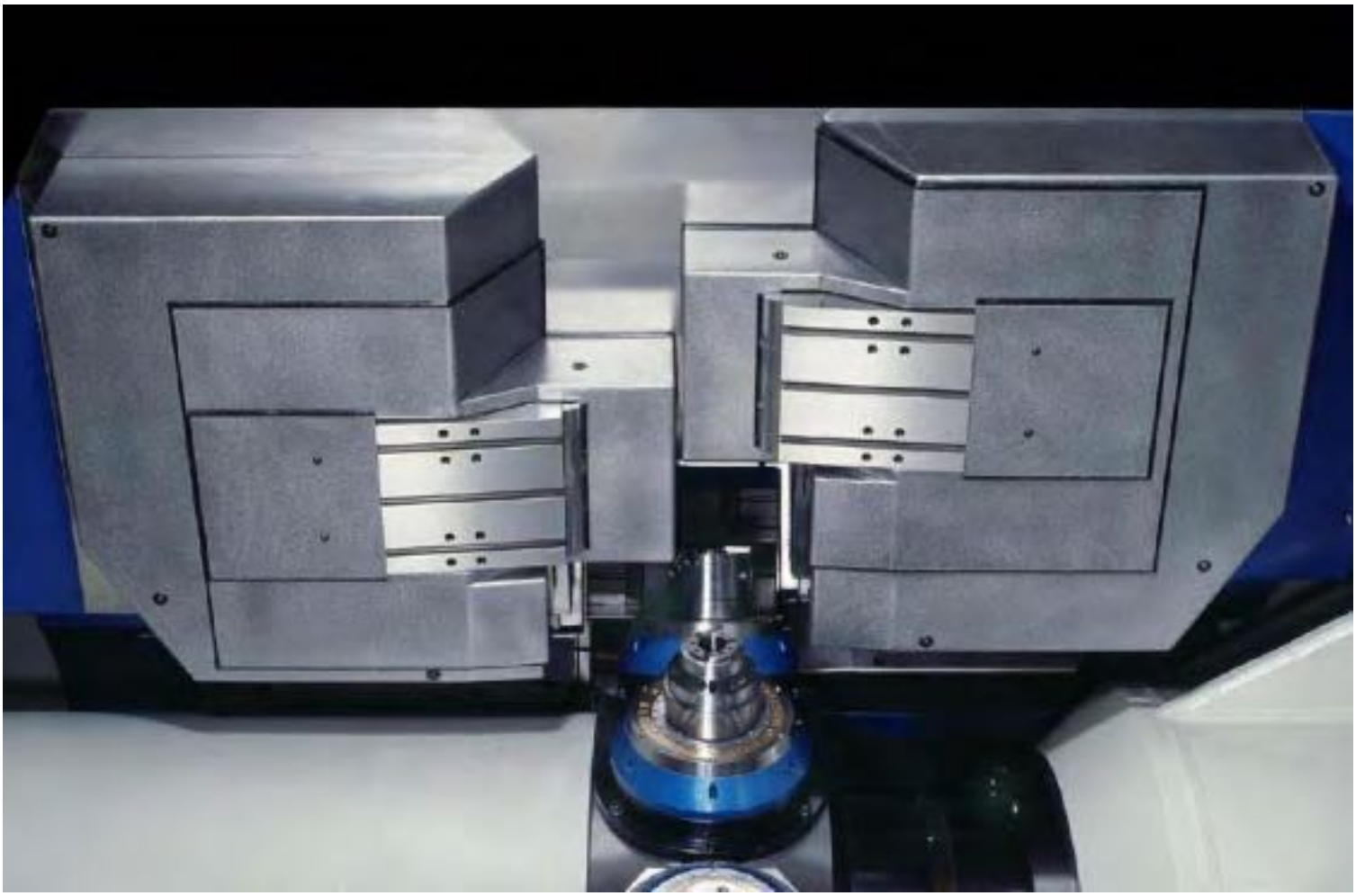

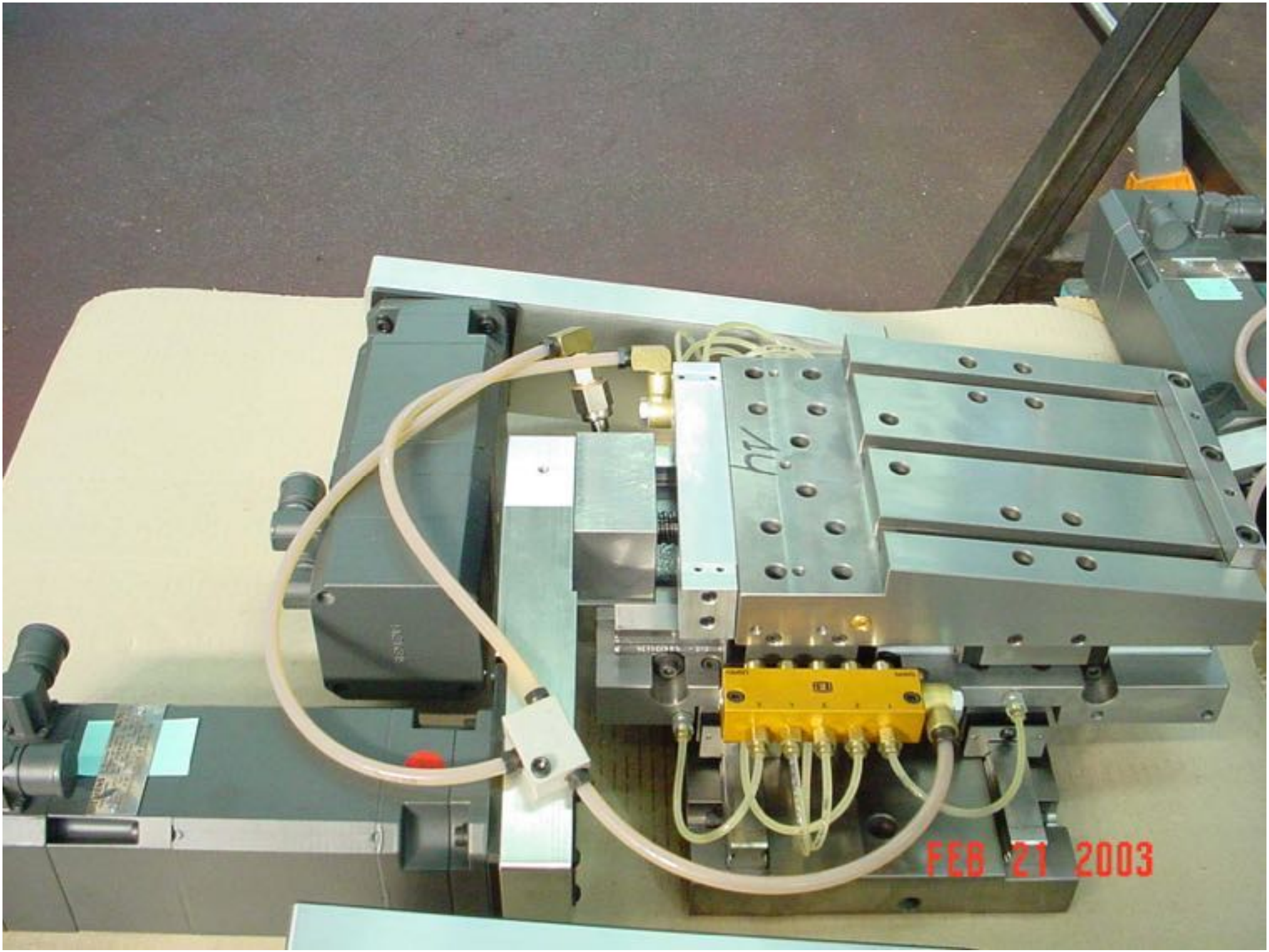
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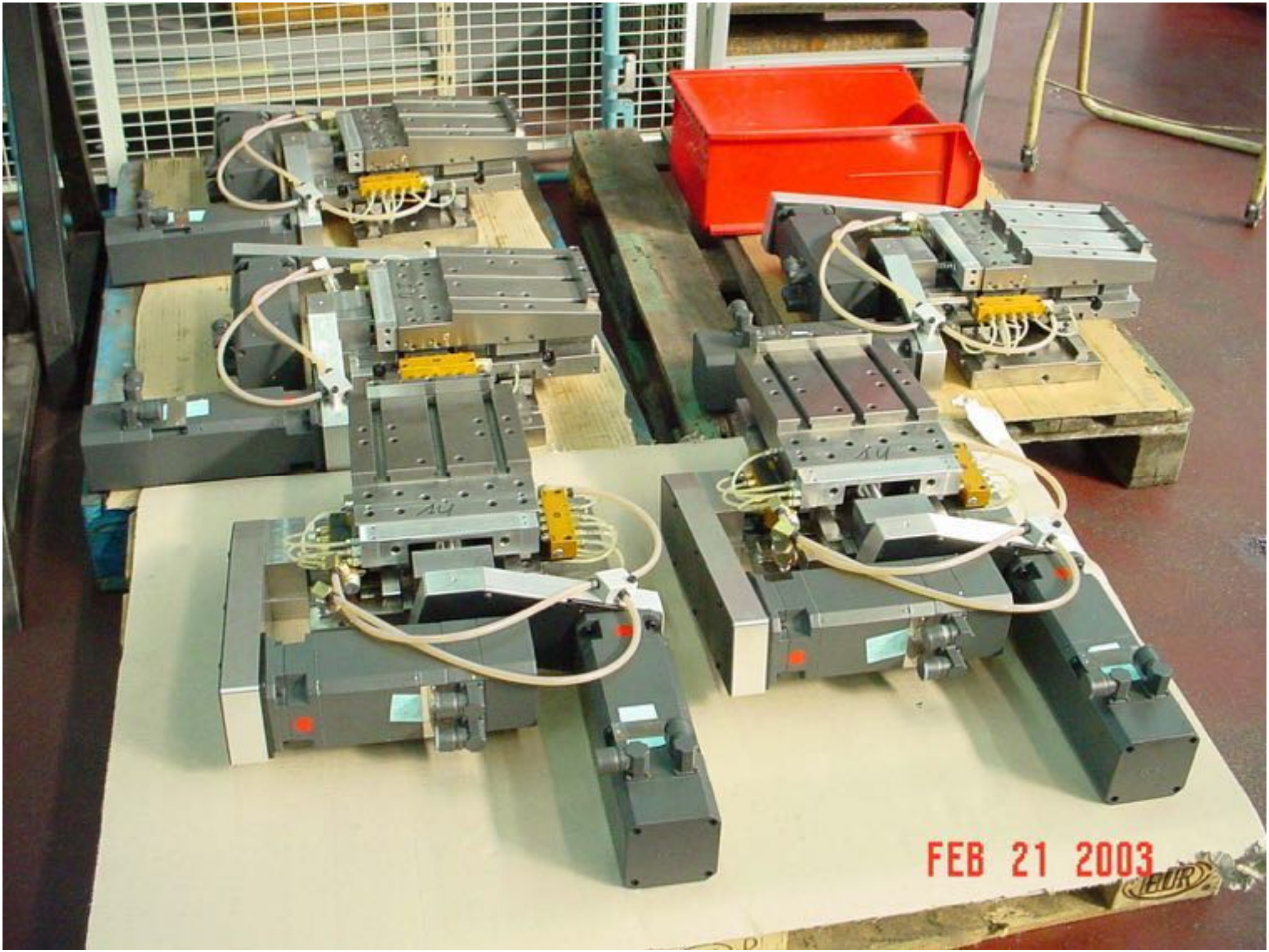
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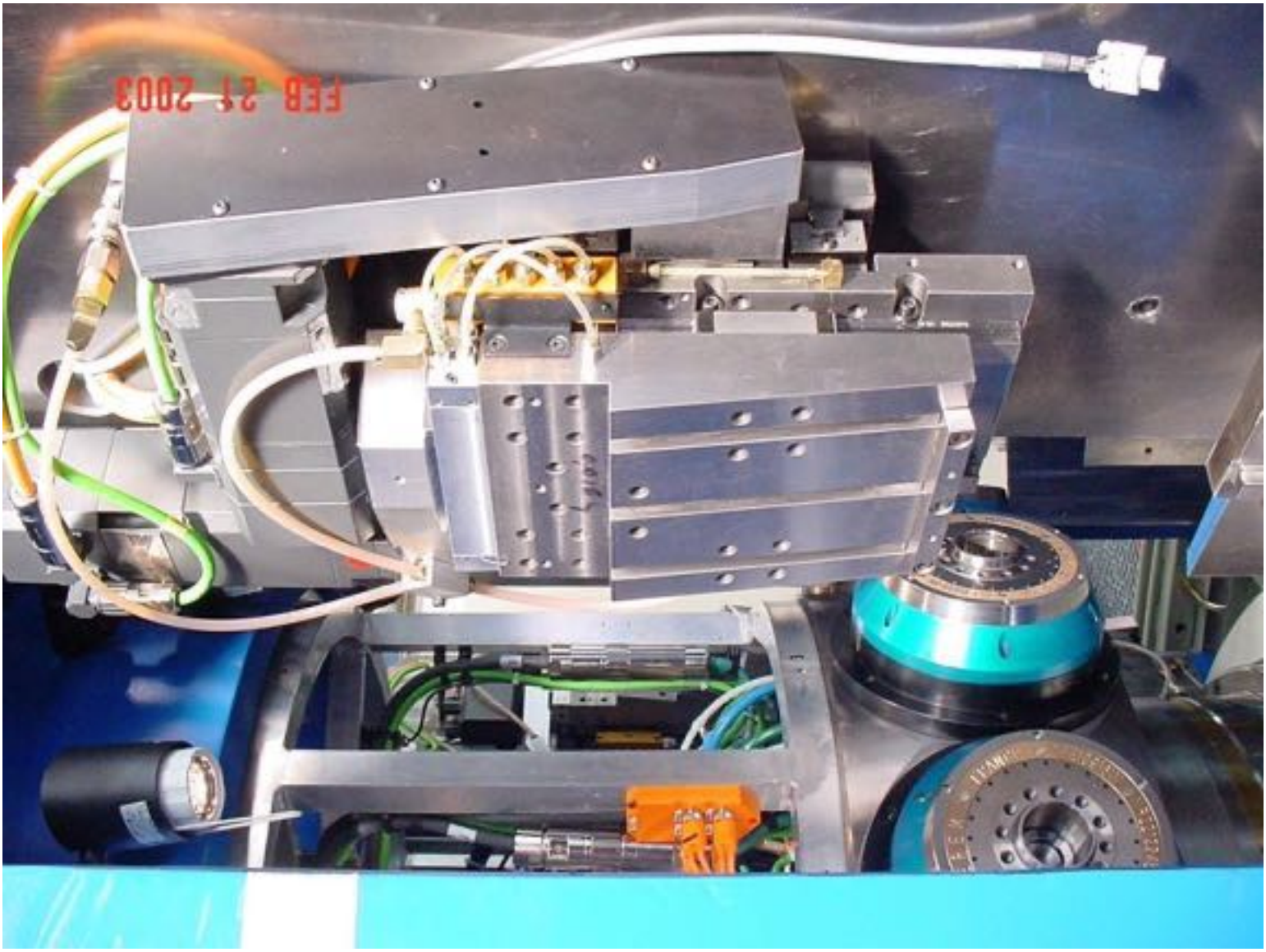
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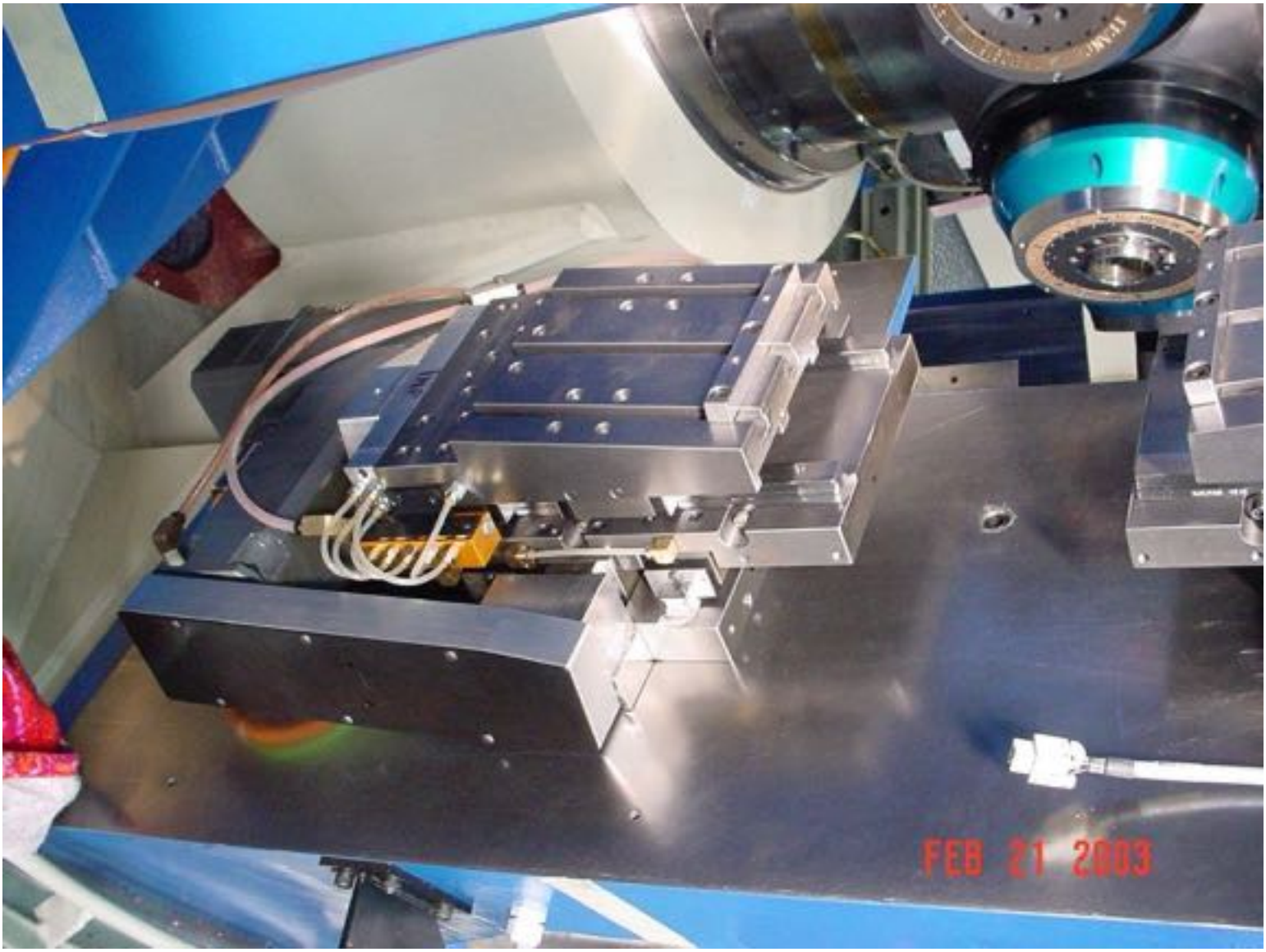
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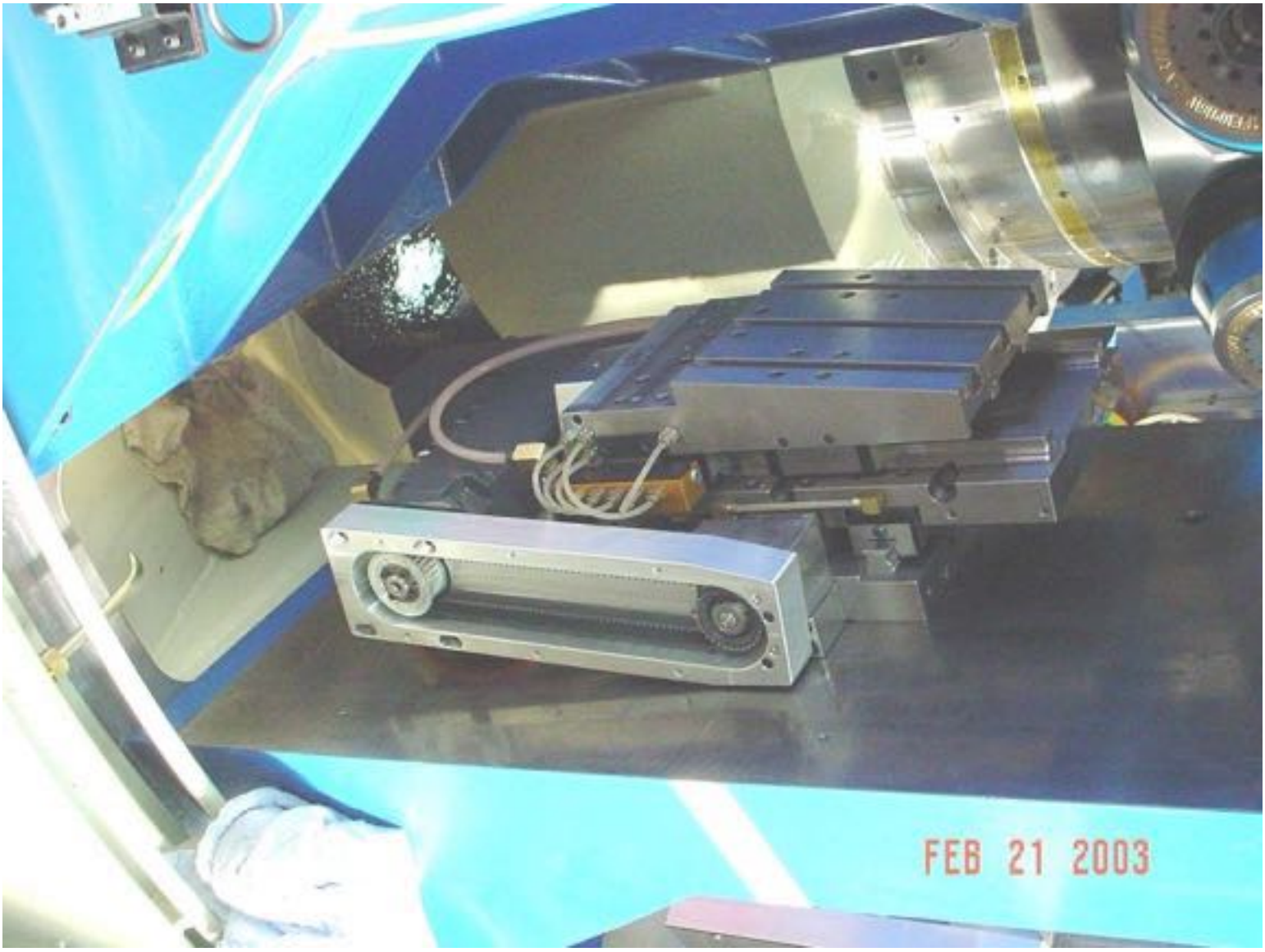
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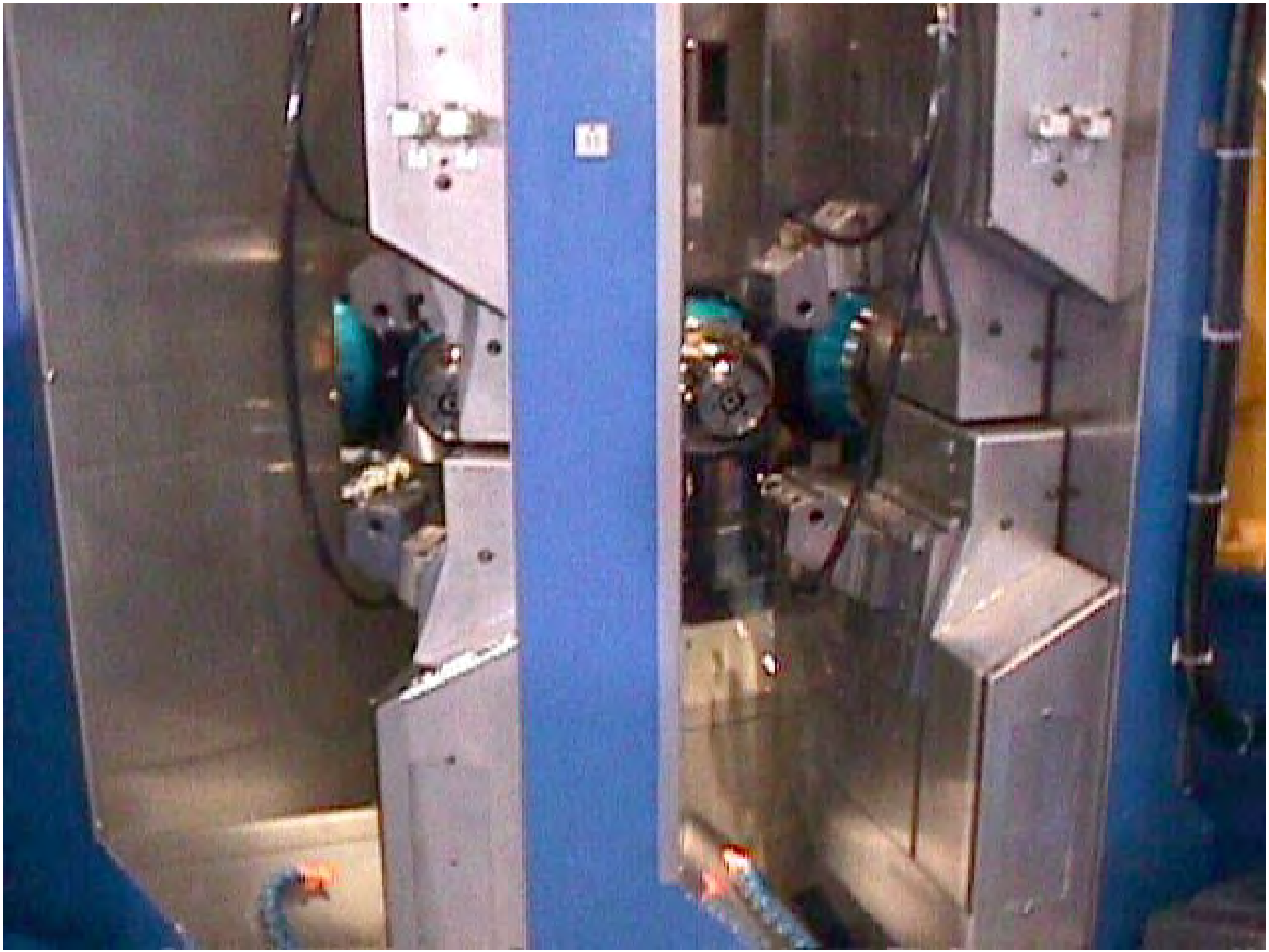

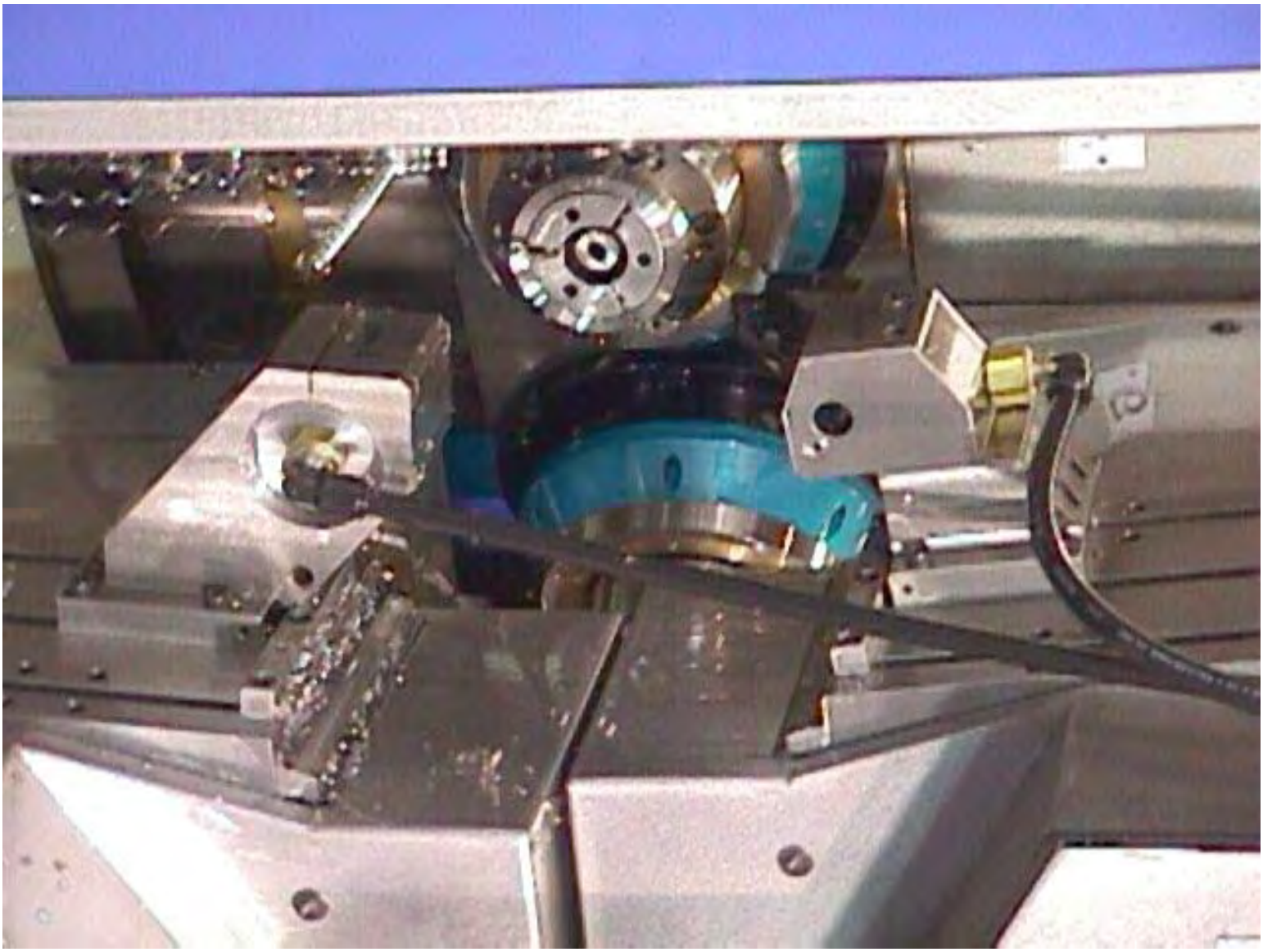

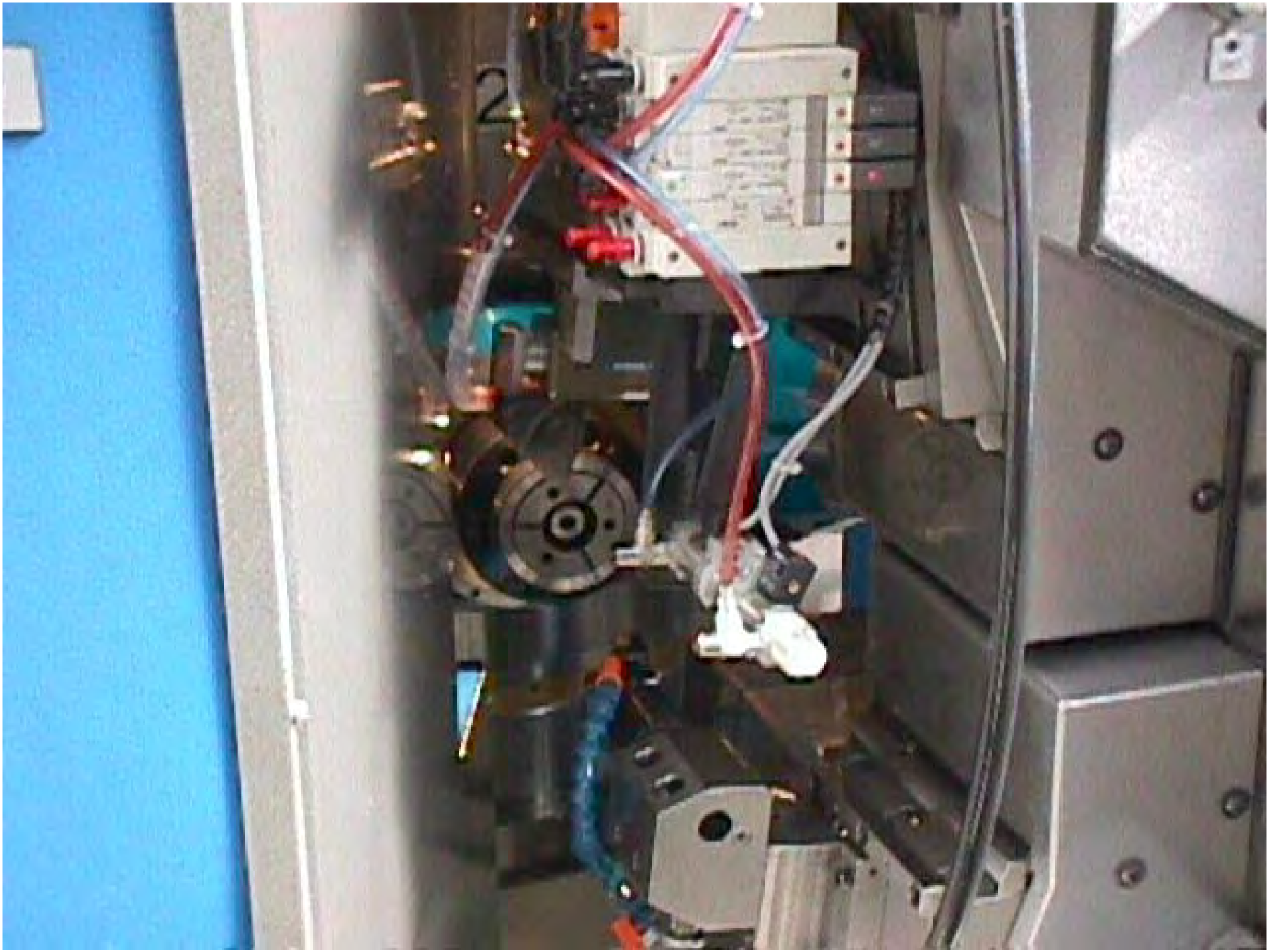

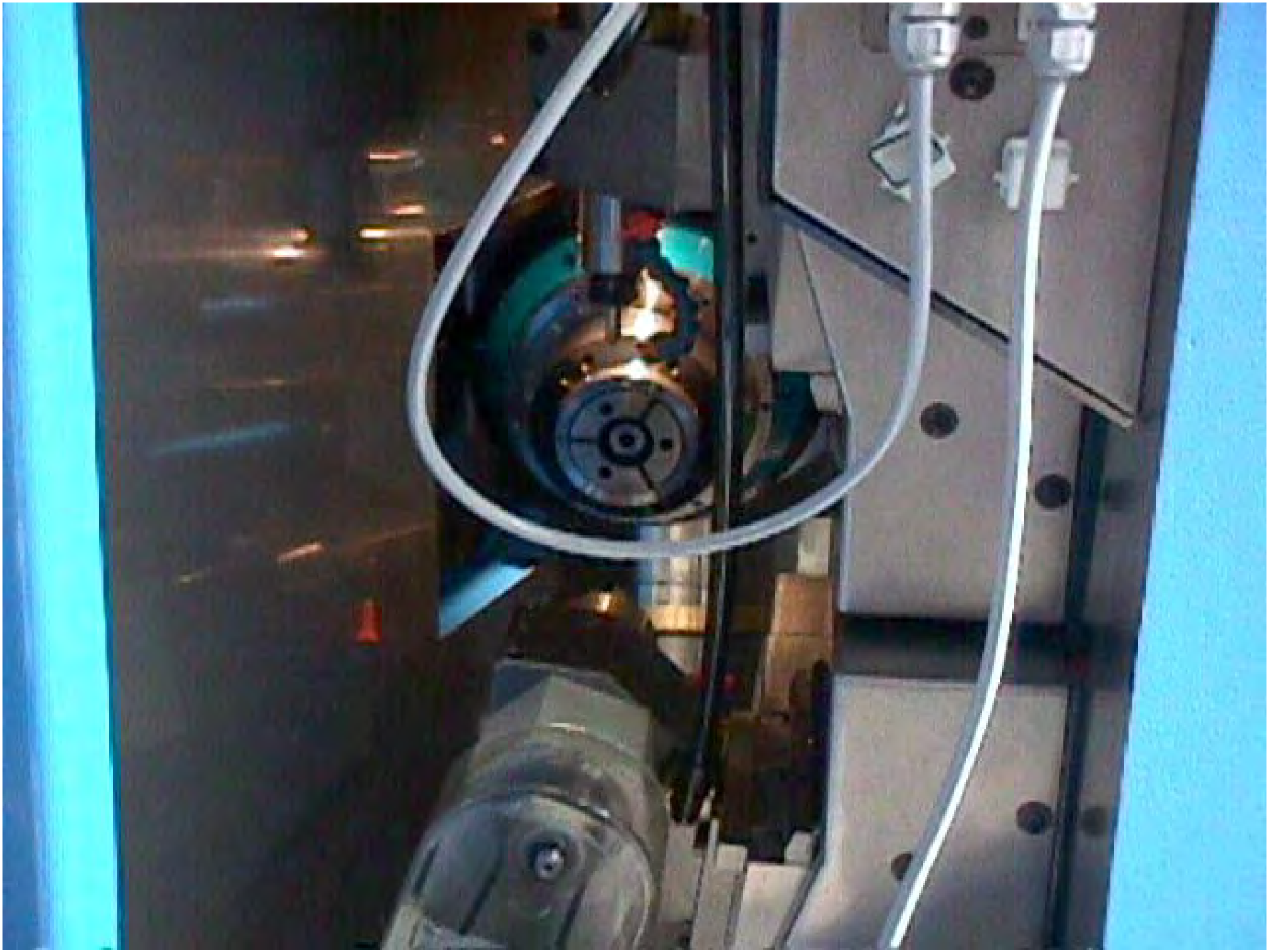

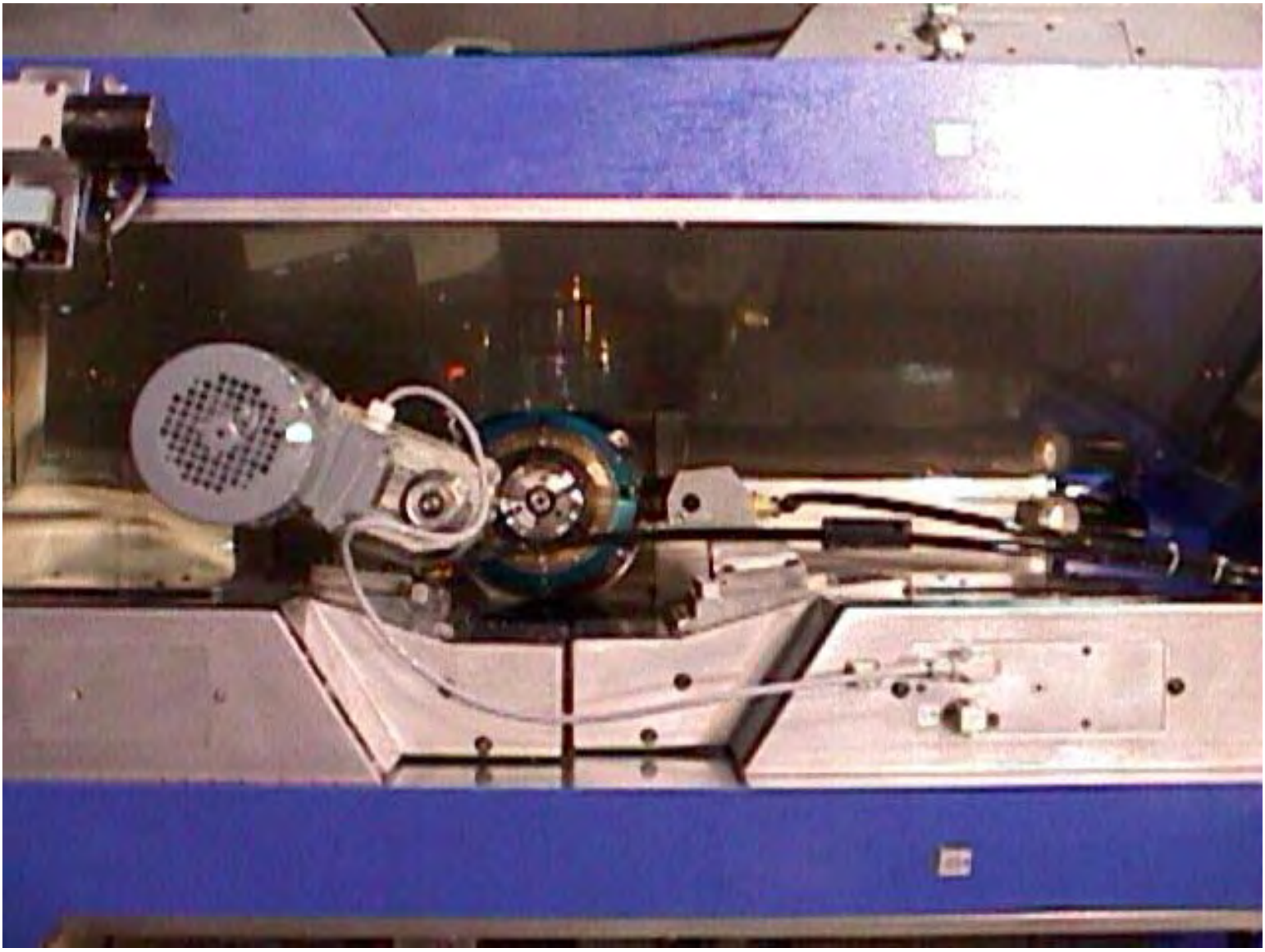

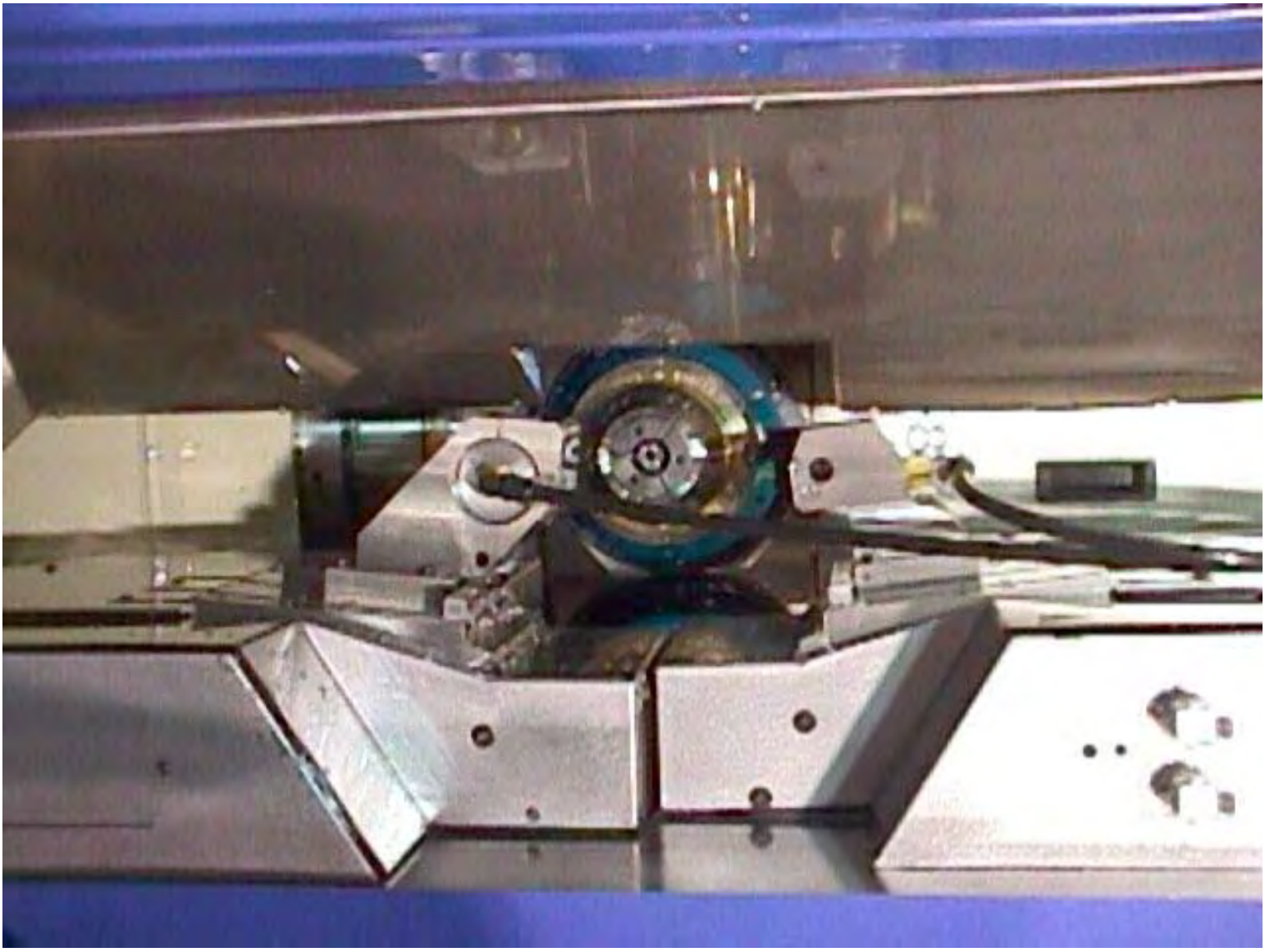

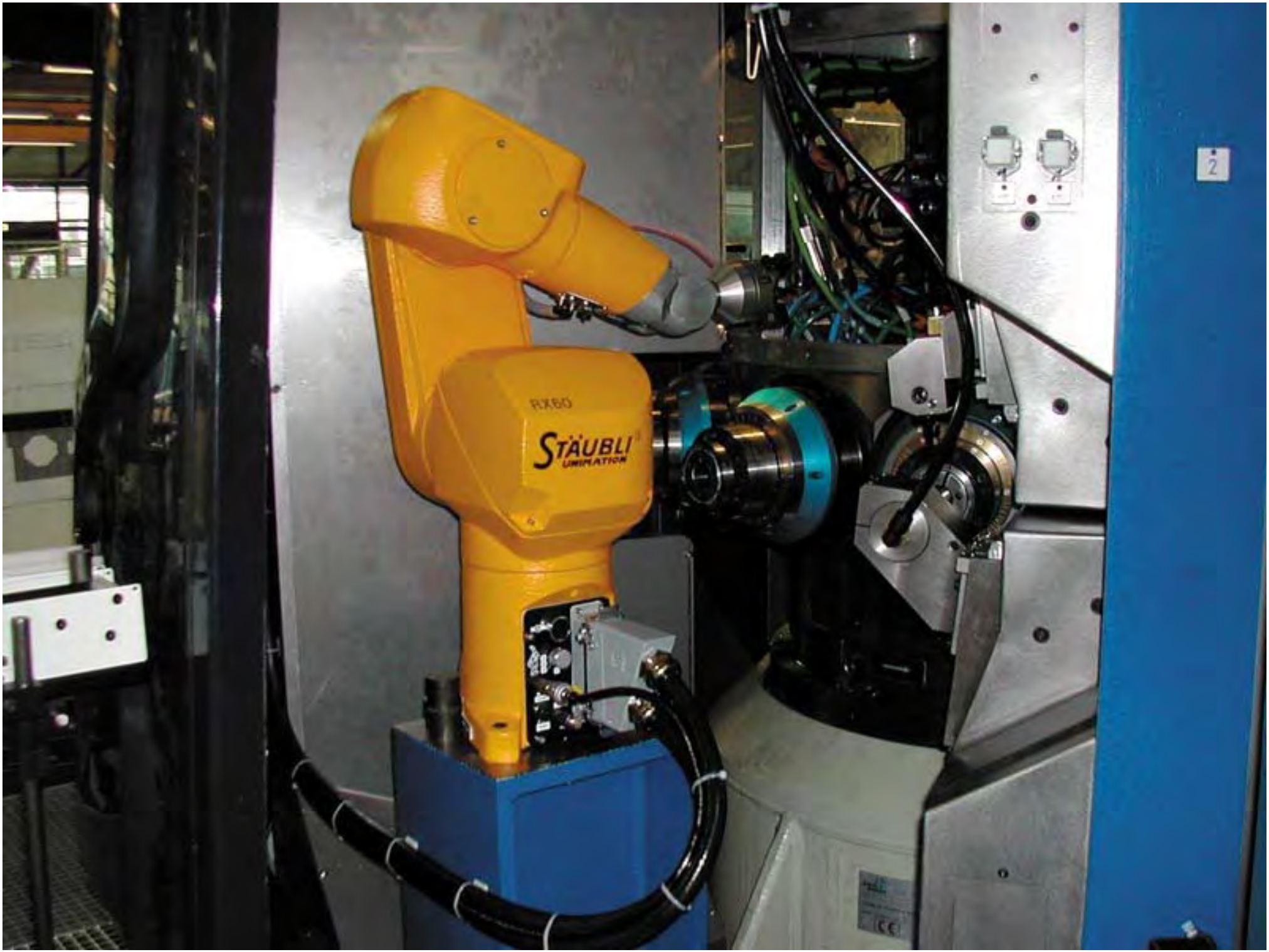
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