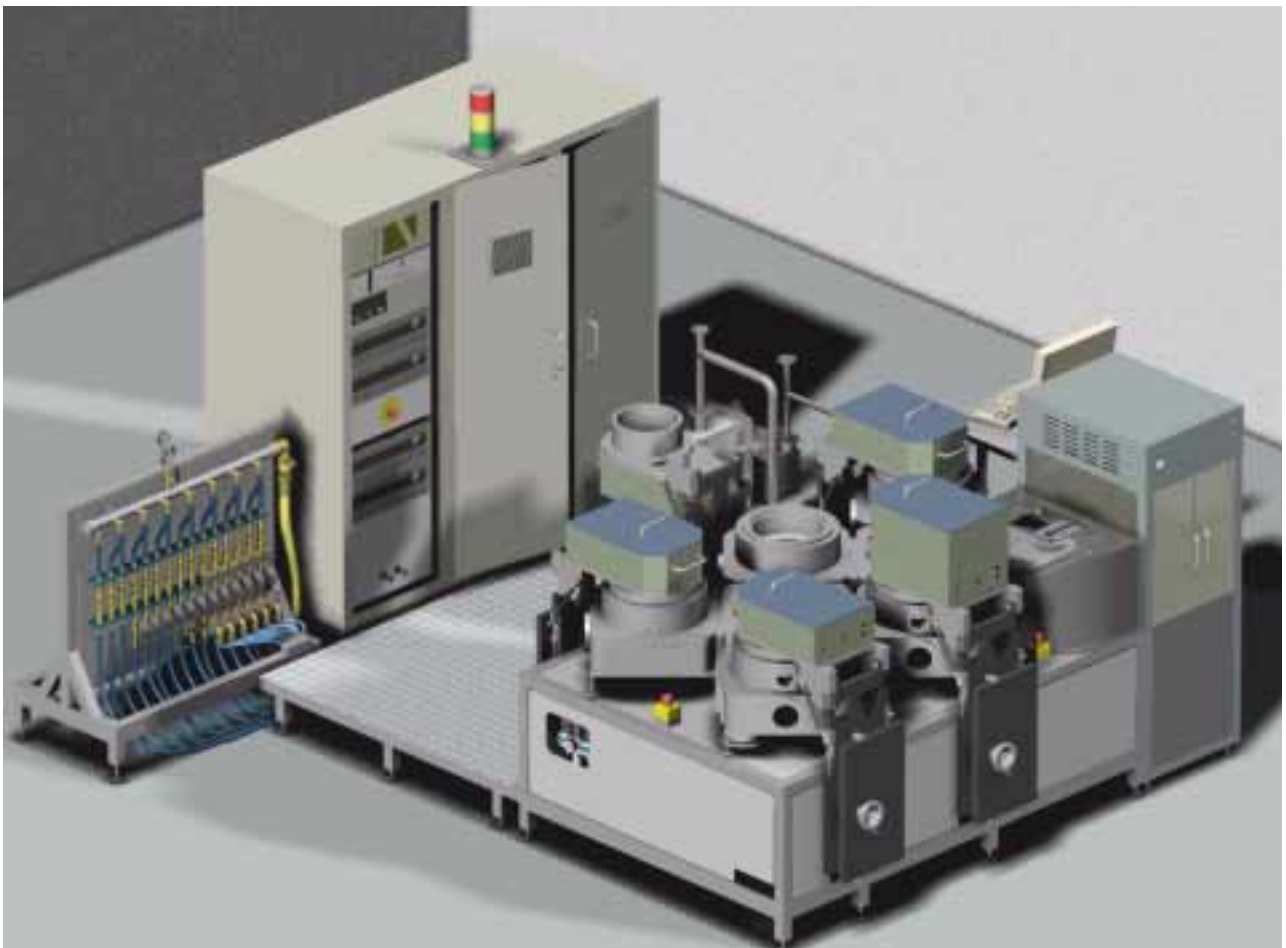


# Wave 2-5-x

## Operation manual



**MEMEX**  
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### **For your safety**

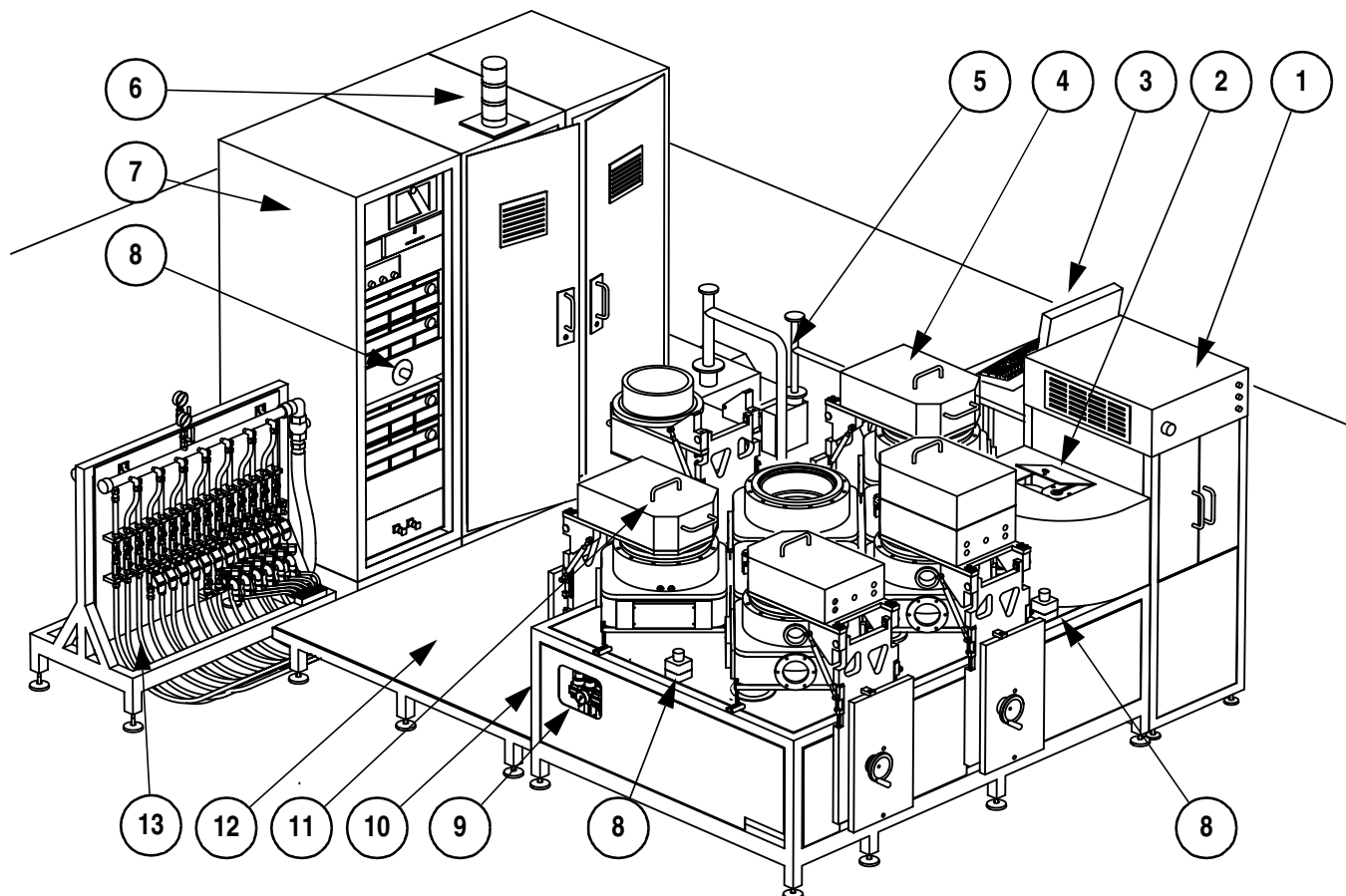
Read this operation manual, especially *Safety guidelines* on page 2-1 before operating the *Wave 2-5-x*.

# Introduction

The *Wave 2-5-x* is a stand-alone batch system to apply thin films onto a substrates. The machine uses a modular design and be can set up with at most 30 stations.

The *Wave 2-5-x* has 5 sputter stations and 2 handling units.

## Overall view



- 1 Load / Unload Station (OEM device)
- 2 Load lock
- 3 Console display
- 4 Sputter source (type RF)
- 5 Pre-vacuum pumps
- 6 Indicator light
- 7 Control cabinet with power supplies
- 8 Emergency push button
- 9 Air/vacuum gauges
- 10 Frame
- 11 Source, type DC or PDC
- 12 Platform
- 13 Water supply and supply of compressed air.

## Defined purpose of *Wave 2-5-x*

The *Wave 2-5-x* is to be applied and used exclusively in the following areas of application:

- To sputter metallic or semi-metallic particles on a PC substrate (CD-RW and DVD production).
- Develop recipes for the before mentioned purpose.

### Operating conditions

The *Wave 2-5-x* must only be operated in a clean room of class 100.

Other technical operating conditions and the ambient conditions are contained in section *Technical data* on page 1-3. and must be observed strictly when operating the machine.

### Proper use

Proper use also includes observation of these operating instructions, adherence to the personnel qualifications and the inspection and maintenance conditions.

## Known misuses

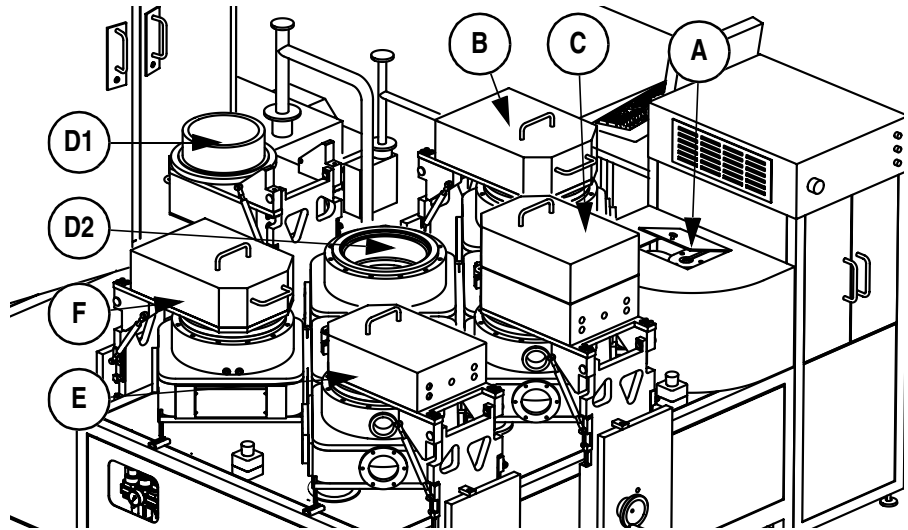
The *Wave 2-5-x* is (among others) not intended to be used:

- with process parameters outside the limits set by the manufacturer;
- with substrates other than polycarbonates (e.g. glass substrates).

Such use is considered improper and is strictly forbidden.

# Assembly groups

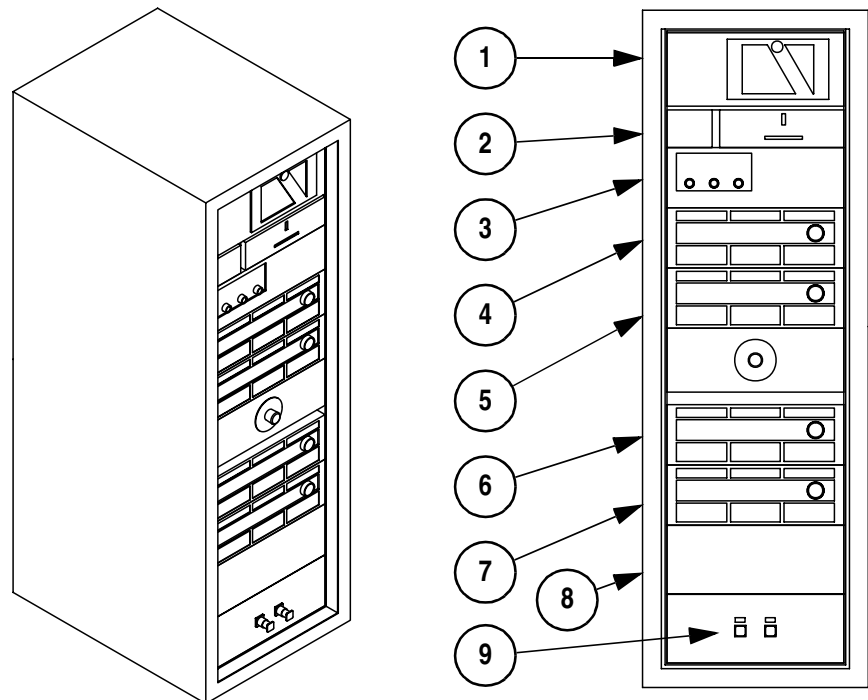
## Processing units



The *Wave 2-5-x* maintains the following processing units. The identification corresponds to the screen interface at the operator console.

- A Load Lock
- B DC sputter
- C RF sputter
- D PDC sputter (opened view; D1: source, D2: process chamber)
- E PDC sputter
- F PDC sputter

## Electric cabinet

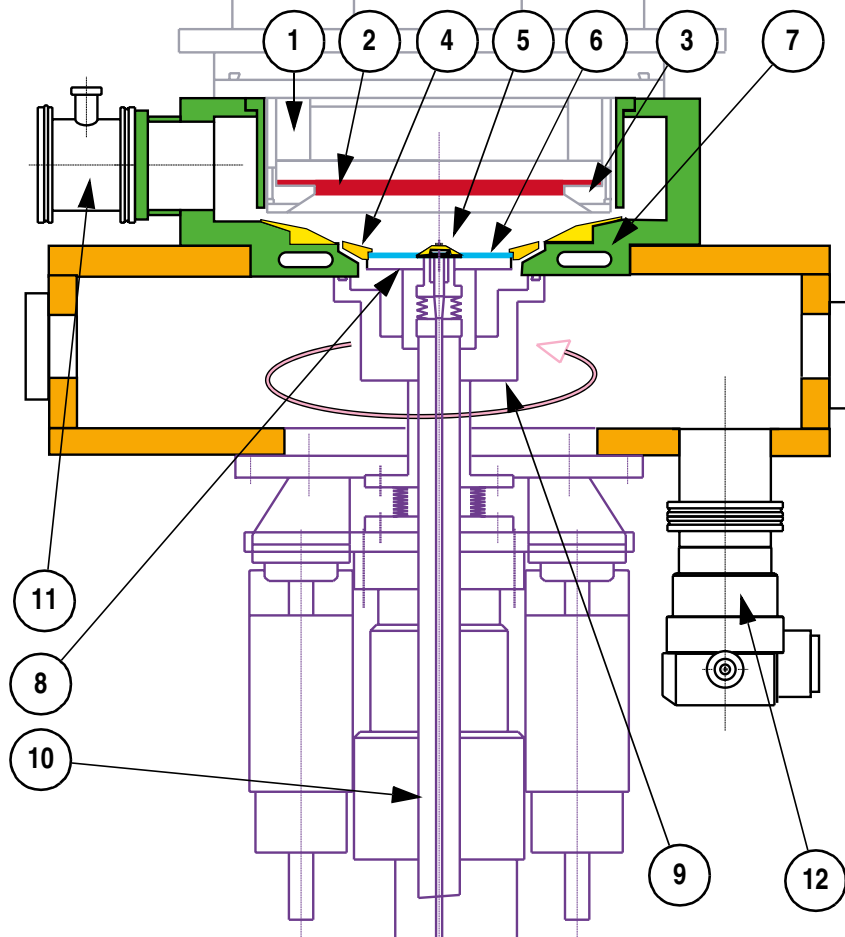


The accessible part of the control cabinet hosts the following devices:

# Process description

## Process chamber

The process chamber is similar for all sputter source types.



- 1 Target support with water cooling
- 2 Target
- 3 Target clamp ring
- 4 Outer mask
- 5 Inner mask
- 6 Substrate
- 7 Process flange with water cooling
- 8 Chuck for substrate
- 9 Sealing bowl
- 10 Lifting device
- 11 Vent
- 12 Turbo pump for process chamber

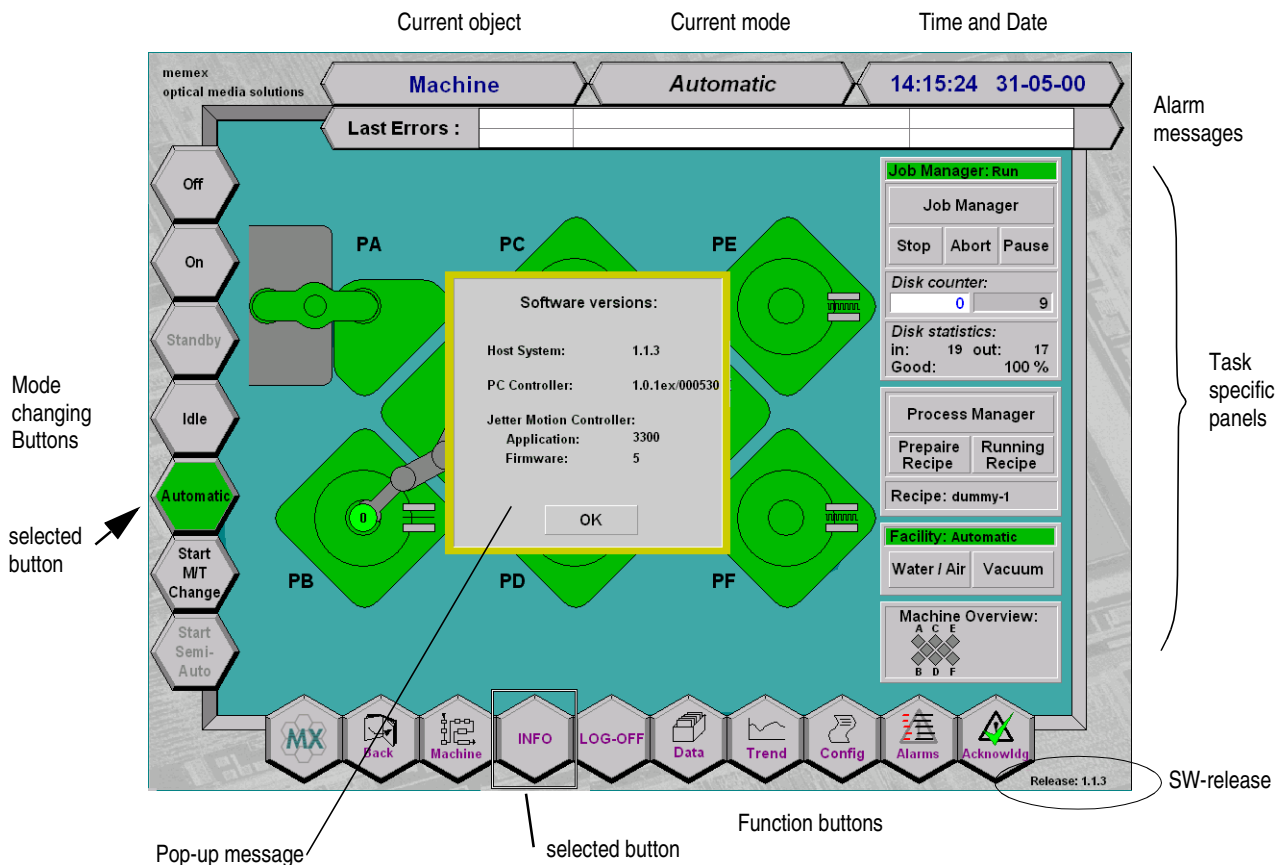
# User interface at the console

The dialogues at the console differ from the probably well known display at personal computers:

- Buttons may have any shape, main buttons are hexagonal.
- Selected elements are surrounded by a red rectangle to give you instant feedback.

## Window layout

The display of the control program at the console uses this layout:



## Selecting an element

To select an element at the screen (e.g. a button, a process unit in the machine layout),

- Move the cursor to that element. The selection is indicated with a red surrounding line (normally a rectangle)

## Activate a button

To 'press' a button on the user-interface,

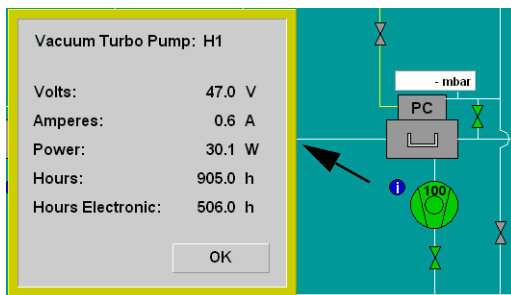
- Select the button
- Press the main mouse button or the main button at the track-ball.

## Software version

The display of the current software version pops up when the lower right corner with the main information is selected.

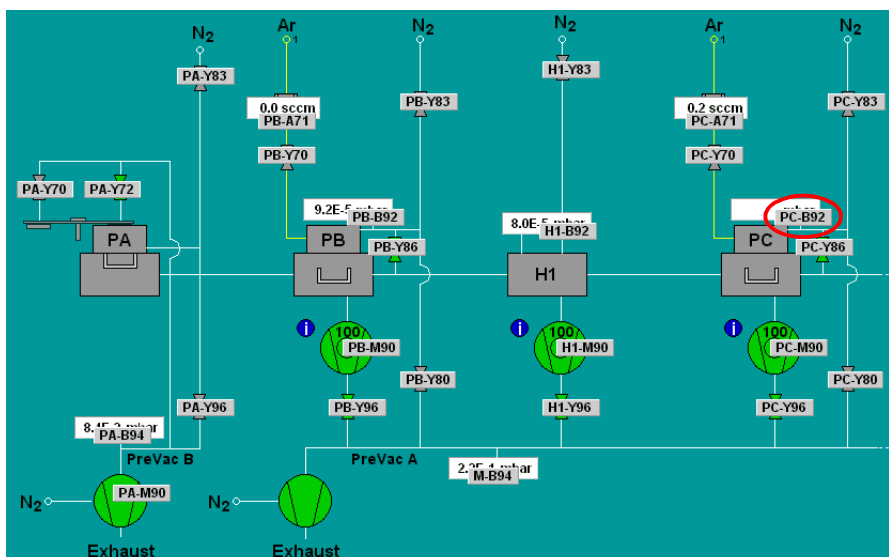
Detail information

Get detailed information about an element by clicking on the blue icon:



Reference information

To identify elements in the scheme, select the **INFO** button at the bottom of the screen and hold its selection.



The resource identifications on the screen correspond to the identifications at the machine and in the electric scheme. The abbreviations are according to electrical standards (for example: A: assembly; B: sensor; R: resistor; Y: magnetic valve).

These elements are documented separately (see *Overview of document set-up* on page 3 in chapter 0, number 6).

Example: element PC-B92:

- PC      Process unit C
- B      Sensor
- 92     Element number 92. Similar numbers are used for the same element on different stations.

# Open a source unit

A source unit must be opened to

- Change a mask
- Change a target
- Remove lost disk

Select the source unit



- At the console select the button **Start Mask/Target Change**.
- Select the processing station from the machine layout.

The machine will be set in idle mode and the selected source unit will be vented.

## Warning



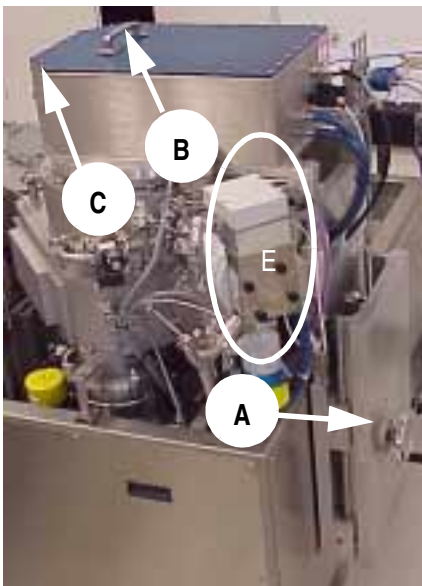
## Danger for your spinal chord

The source units are heavy (about 70 kg). Normally their weight is compensated by gas springs to support your manual force.

Do not swivel the source units, if you notice malfunctioning gas springs! Call for maintenance and repair.

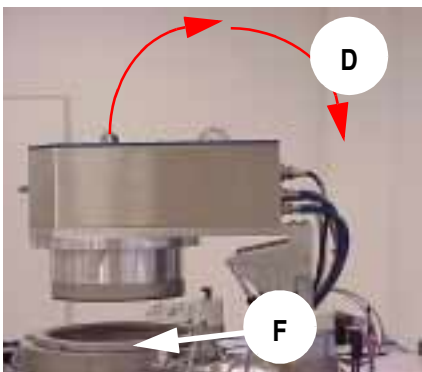
**Note:** Keep your second hand off the area (E) when counteracting. This may damage machine elements.

Open the source unit



To open a source unit, perform the following steps:

- Turn the hand wheel (A) counter clockwise to lift the source unit.
- With the upper handle (B) turn the source unit towards you until the unit is about upright.
- With the other hand take the second handle (C) and swivel the unit completely to the horizontal orientation (D).



Close the source unit

- Lift the source unit back to its horizontal position.
- Lower the unit with the hand wheel turning clockwise until the unit rests on the spacer ring (F).