X-Band BOC Cavity Manufacturing sequence

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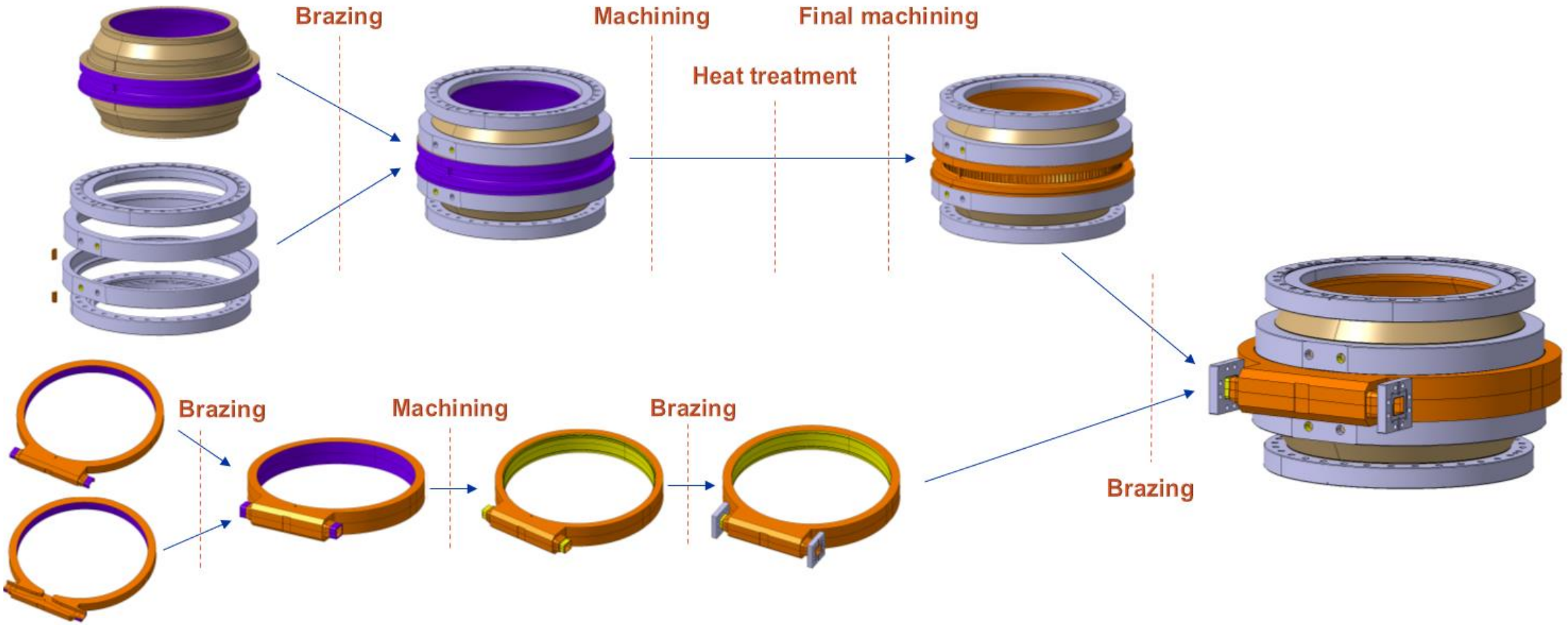
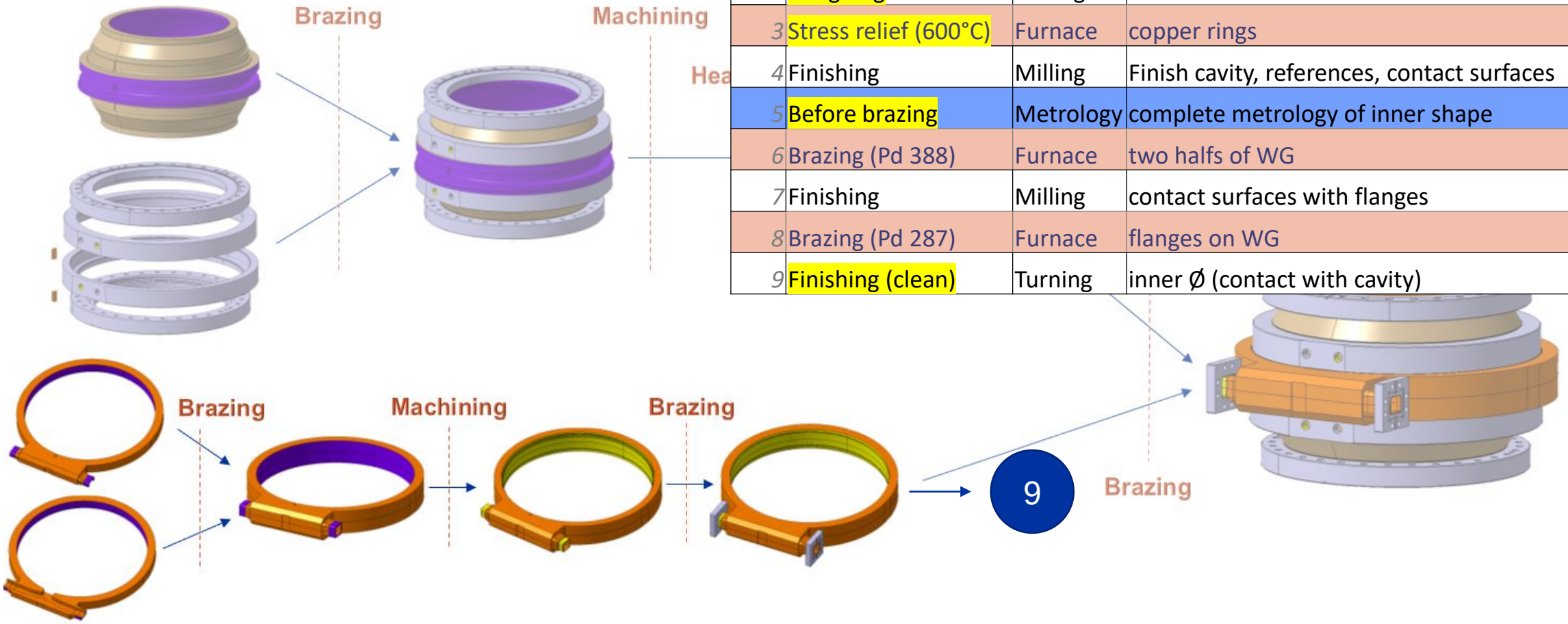
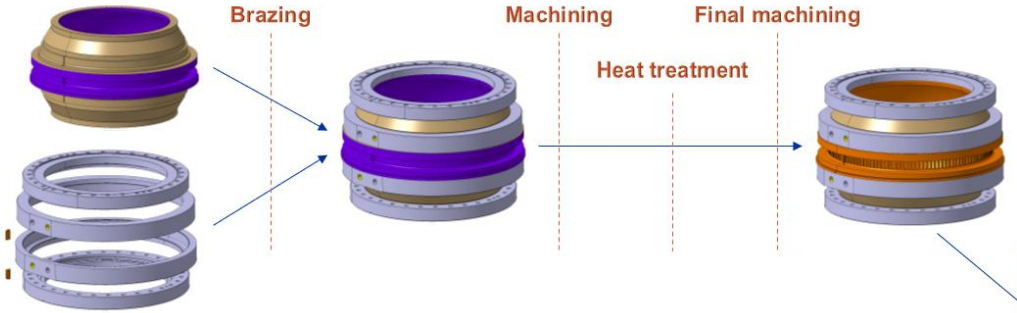
E.Berthomé: *Design review - Fabrication sequence*
2022-04-06



Waveguide manufacturing sequence			
No.	**Stage**	**Process**	**Description**
1	Roughing	Waterjet	ring profile (2 mm allowance)
2	Roughing	Milling	1 mm allowance
3	Stress relief (600°C)	Furnace	copper rings
4	Finishing	Milling	Finish cavity, references, contact surfaces
5	Before brazing	Metrology	complete metrology of inner shape
6	Brazing (Pd 388)	Furnace	two halfs of WG
7	Finishing	Milling	contact surfaces with flanges
8	Brazing (Pd 287)	Furnace	flanges on WG
9	Finishing (clean)	Turning	inner Ø (contact with cavity)



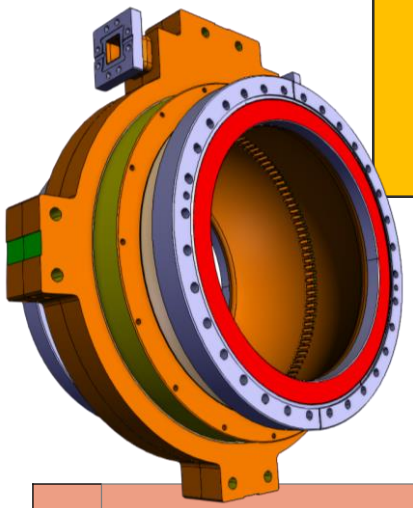


Flanges:
1. Roughing
2. Stress relief
3. Finished before brazing without surface and holes

Stress relief at 250°C

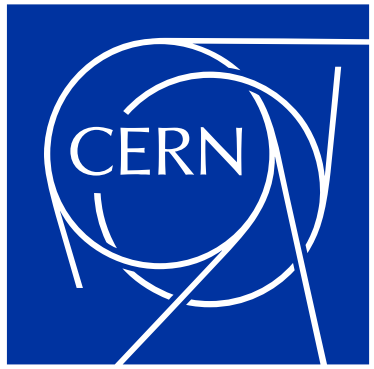
To be confirmed after visit at PSI

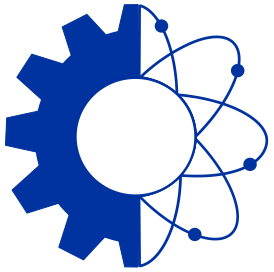
Stress relief at 600°C



Cavity manufacturing sequence

No.	Stage	Process	Description
1	Roughing	Turning	inside + outside shape (1 mm alowance)
2	Roughing	Milling	external groove (1 mm alowance)
3	Finishing	Turning	finish of contact surfaces for 1° brasing
4	Brazing (Pd 287)	Furnace	stainless steel flanges + cooling rings (820°C)
5	Finishing	Milling	external groove + openings
6	Finishing	Turning	contact surfaces on flanges and cooling rings
7	Semi-finishing	Turning	cavity surface (0.5 mm alowance, precise)
8	Semi-finish	Metrology	to confirm the precision of turning
9	Finishing	Milling	radius of internal openings
10	Finishing	Turning	brazing diameter diameter for waveguide
11	Finishing	Turning	internal cavity shape (from one side)
12	Before final brazing	Metrology	complete metrology
13	Brazing (Ag 272)	Furnace	complete waveguide with square flanges (790°C)
14	After final brazing	Metrology	final metrology





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