

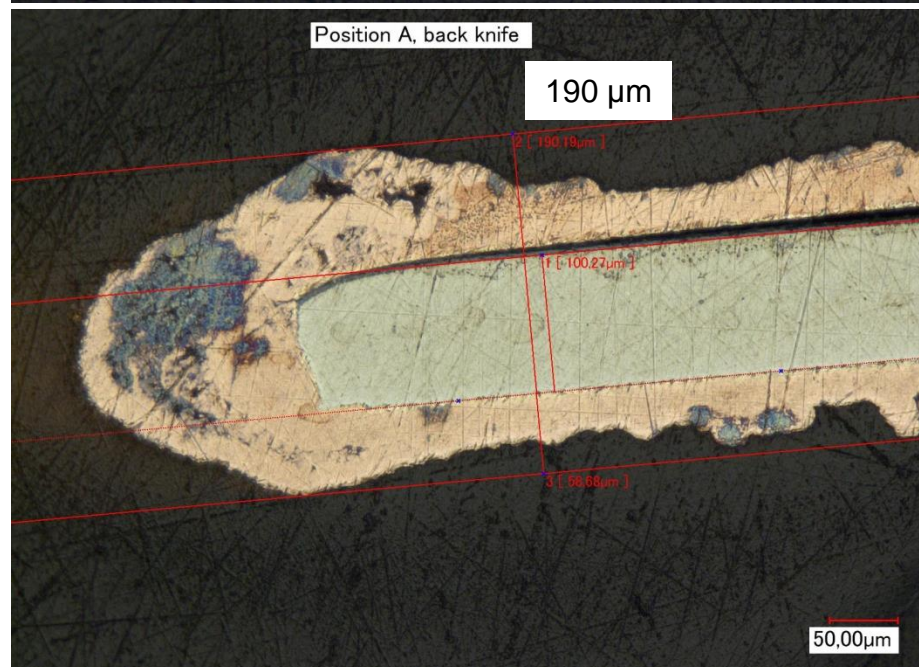
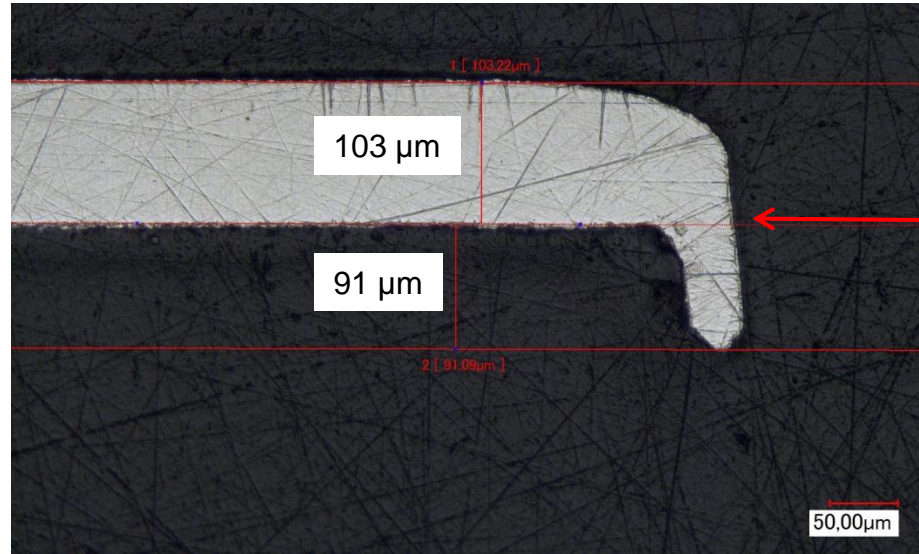
Roebel Cable R&D



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Bruker tapes for punching and coating :

- Problem with punching tool.
- Punched tapes:
E2B-15-T283D – 30 +4 m
E2B-15-T284D – 25 m
- Burr removed at Bruker
- Roebel strands from tape 283D electroplated at Bruker
- No delamination from edge side observed



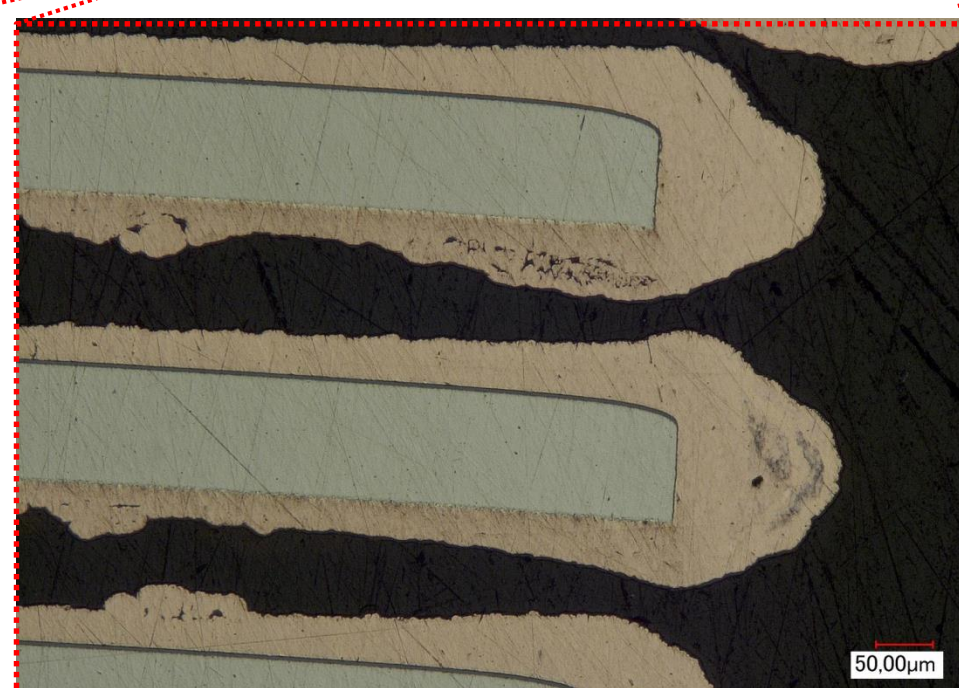
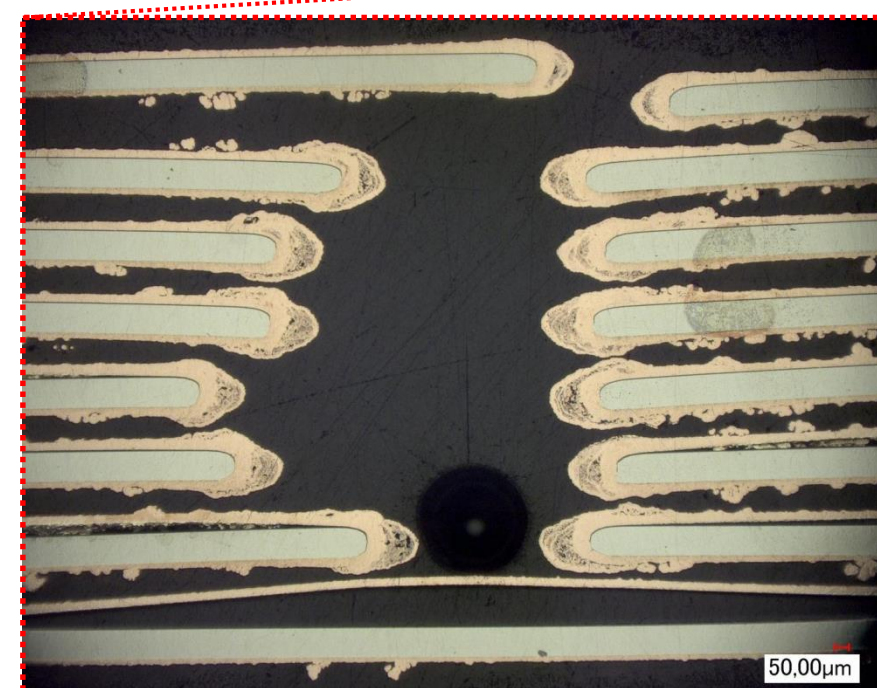
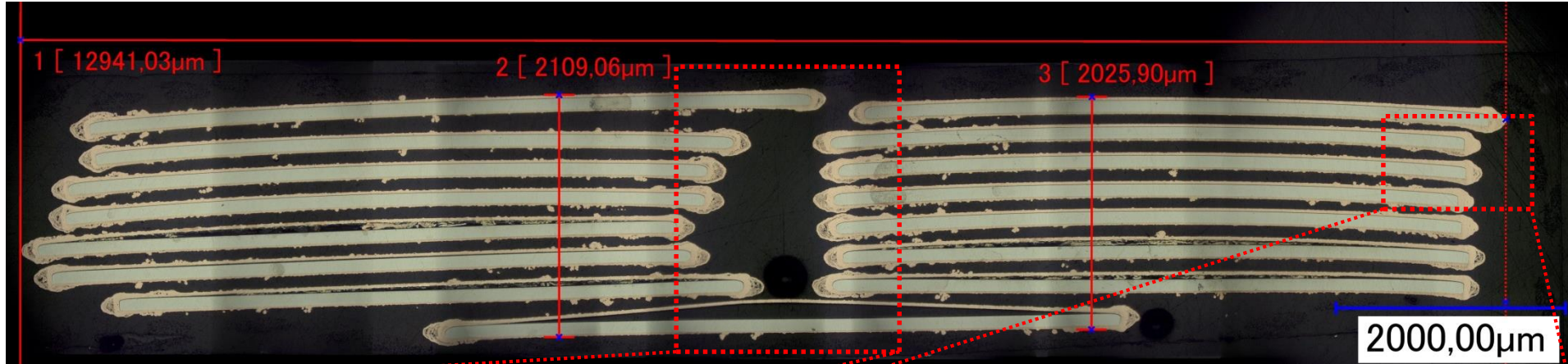
Roebel cable for FRESCA (2 m):



- Roebel cable:
226 TL, 15
strands
- Punch + Coat
- Assembled
- 2 m long
- 283 D tape



Roebel cable for FRESCA (2 m):

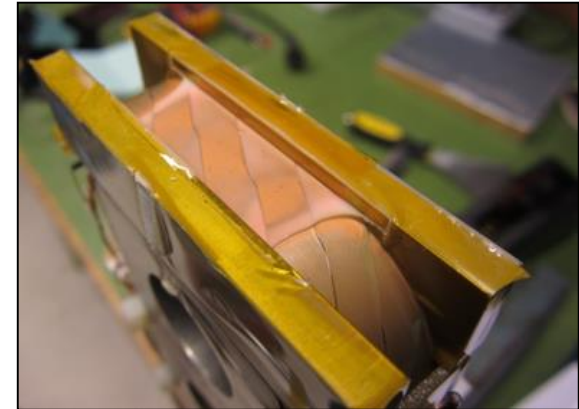


U. Twente + KIT transversal stress experiments:

Roebel cable: 226 TL, 15 strands:

1. SuperPower CC + KIT impregnation
2. SuperPower CC + CERN impregnation
3. Bruker CC + CERN impregnation

1. SuperPower CC + KIT impregnation
2. SuperPower CC + CERN impregnation
3. Bruker CC + KIT impregnation



Old experiment:

- Roebel cable: 126 TL, 10 strands
- SuperPower tape, 20 μm Cu (per site)
- KIT impregnation

Last meeting - list of deliveries:

05-Jun-05 NEEDS of DUMMY and SC Cables						
	Scope	Inst.	When	Dummy Roebel-Cu (m)	SC Roebel (m)	
	Feather 0	CERN	Jul-15	20		
	FeatherM2	CERN	Aug-15	40		
	FeatherM2	CERN	Sep-15	40		
ordered Cu	FeatherM0_2	CERN	Sep-15		6	0.8 thick
Ordered Cu	FeatherM0_3_4_!	CERN	Oct-15		20	0.8 th
	FeatherM2_1A	CERN	Dec-15		30	0.8 th
	FeatherM2_1B	CERN	Dec-15		30	0.8 th
	FeatherM2_1C	CERN	Dec-15		30	0.8 th
	Costheta_1B	CEA	Oct-15	20		1.2 th
	Costheta_1C	CEA	Oct-15	20		1.2 th
	Costheta_1	CEA	Feb-16		20	1.2 th
	Costheta_1	CEA	Feb-16		20	1.2 th
			TOT cable	140	156	
			TOT tape	2100	2340	

- Nothing delivered – we wait for Bruker Cu plated substrate !!!

- Which tape is it and when it will be delivered?

Summary:

Cable dummy deliveries:

- No dummy tape available.

Transverse pressure resistance:

- Decision about impregnation material / type of cable required.
- Bruker tape need to be delivered.

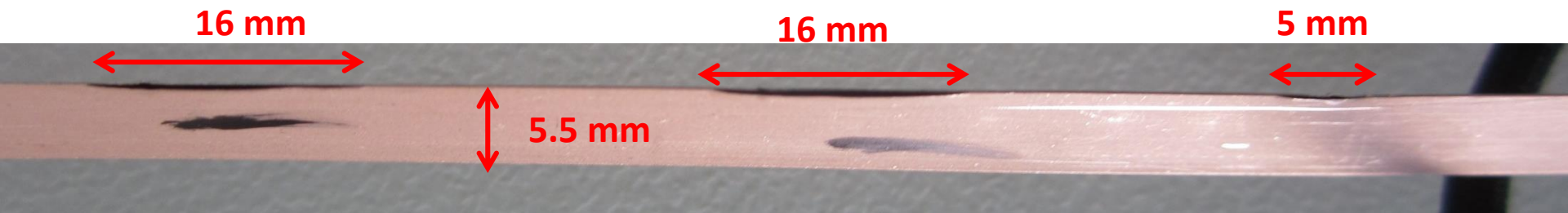
Tape qualification for Roebel cable:

- We need specifications for tapes from other producers for setting-up punching tool (substrate material, thickness, Cu thickness and technique).

Punching of the delivered Bruker tapes:

Bruker tape	Tape length (m)	Defects punching	Number of strands	Ic strand (average, 77K)
254 D	14.1	delamination	2	51.5
255 D	18	delamination	3	52.6
270D-1	13	delamination	2	61.1
270D-2	22.1	delamination	4	56.9
281D	23.2	-	4	62.8

Defect examples:



Cross-section of the Roebel cable:

- Roebel I_c design (sum of all strands at 77 K, s. f.) - 861 A
- Roebel I_c predicted (with s.f., 77 K) – 749 A (13 % s. f. reduction)
- Roebel I_c predicted (with s.f., 77 K) – 603 A (30% s. f. reduction)

