

High adhesive strength HTS wire

2-MP-OW-02S

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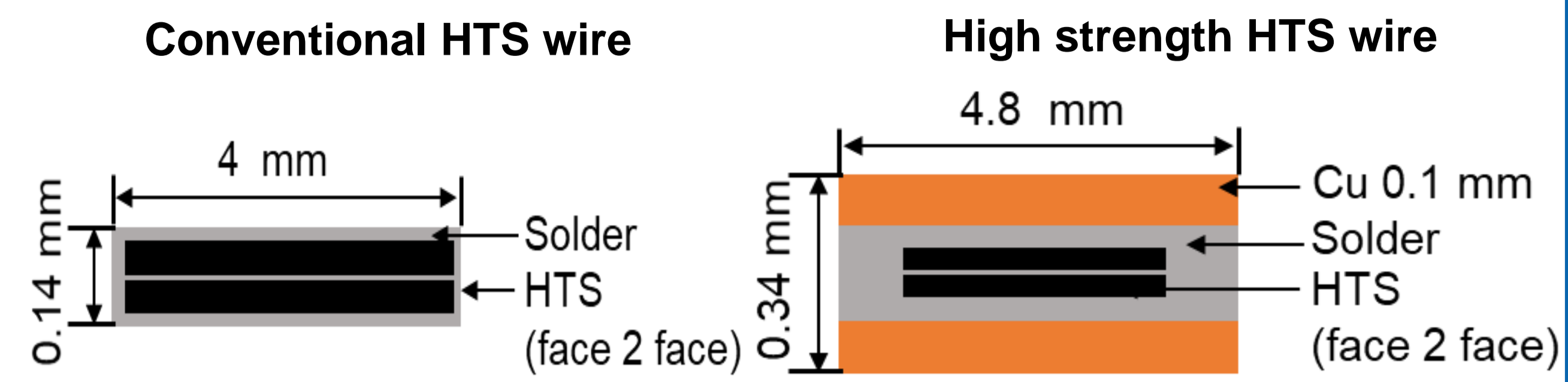
SUMMARY

Reel to reel technique was developed to produce high adhesive strength HTS wire. This wire has higher adhesion (delamination) tensile strength compared to conventional HTS wire. The production technique enables joints (splices) increasing piece length of the wire up to 700 m. This wire can be used as a robust HTS material for cable winding or magnet production.

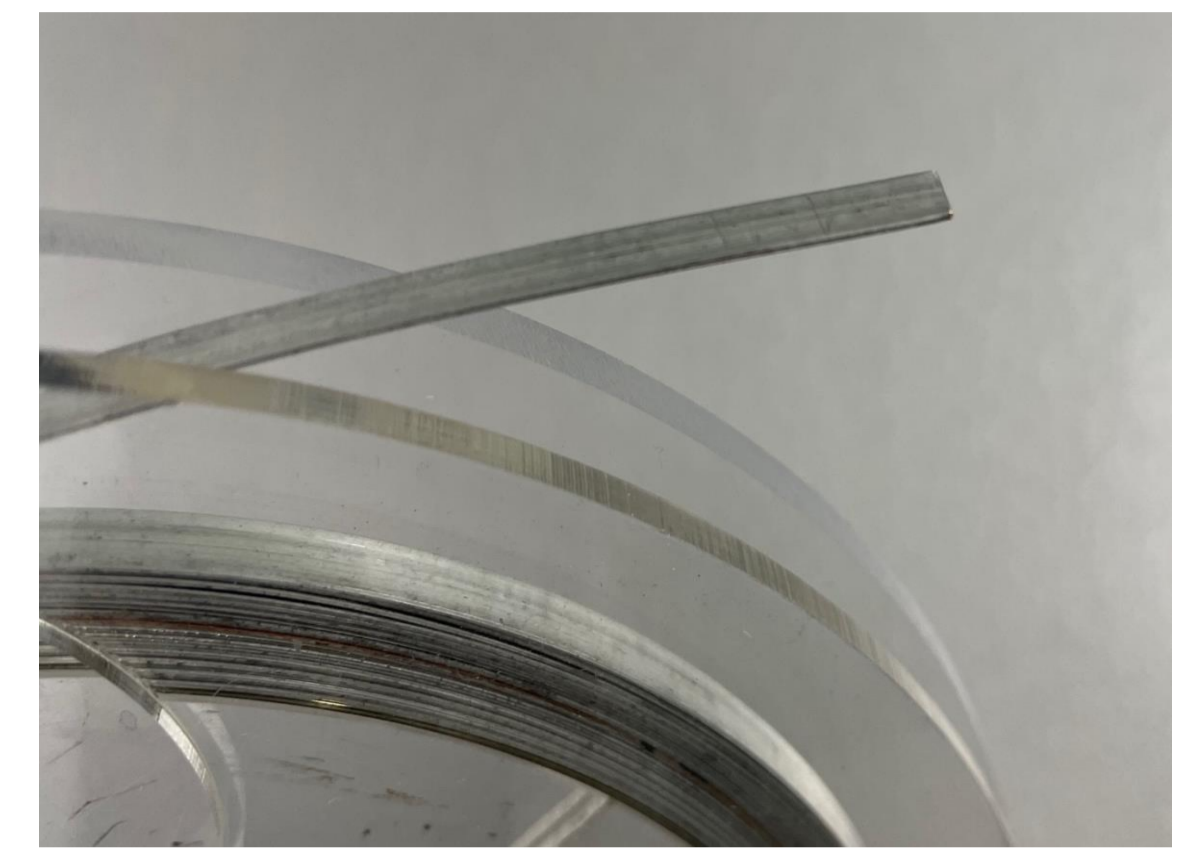
TECHNICAL SPECIFICATION

| Property (Wire/Joint) | High strength HTS wire | Conventional HTS wire |
|--|------------------------|-----------------------|
| Width, mm | 4.8 | 4 |
| Length, m | up to 700 | up to 300 |
| Thickness, mm | 0.34/0.51 | 0.14/0.21 |
| Critical current, A | 300 | 200 |
| Minimum bending diameter @ 95% I _c , mm | 8/30 | 10/25 |
| Minimum diameter for 30° twist @ 95% I _c , mm | 10 | 15/25 |
| Maximum tensile force @ 300 K, MPa | 300/140 | 350 |
| Minimum delamination strength @ 300 K, MPa | 11 | 7 |
| Electrical resistance of joint @ 77 K, nOhm | <30 | 30 |

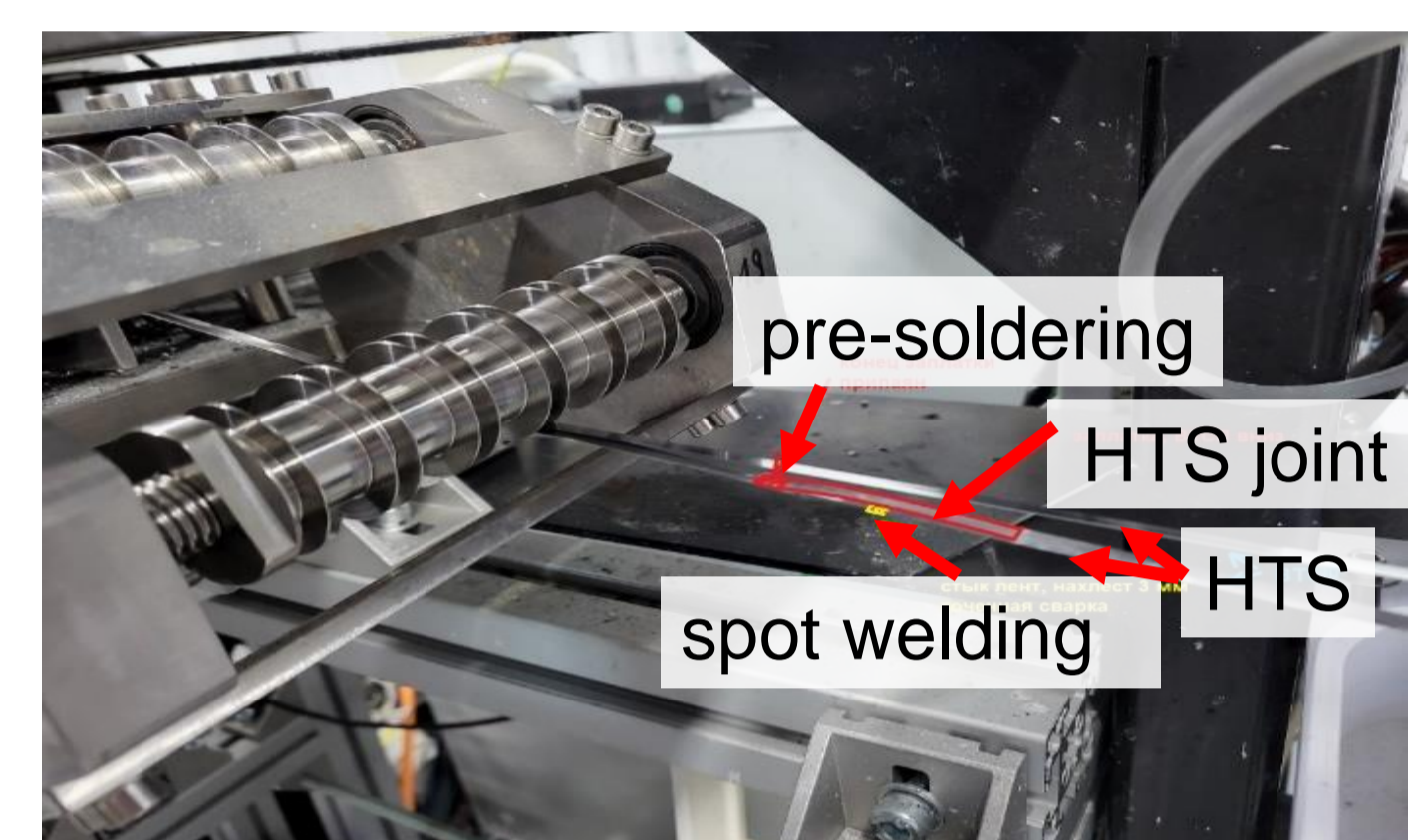
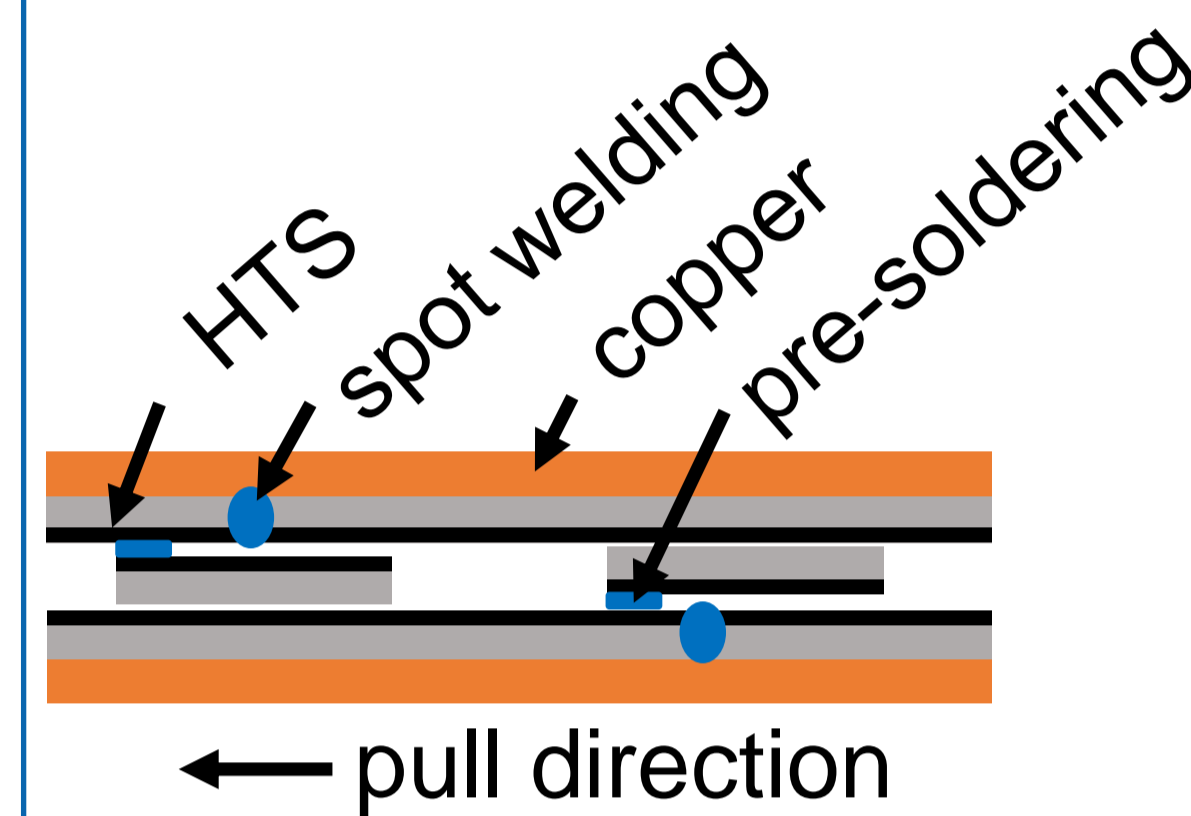
ARCHITECTURE AND APPEARANCE



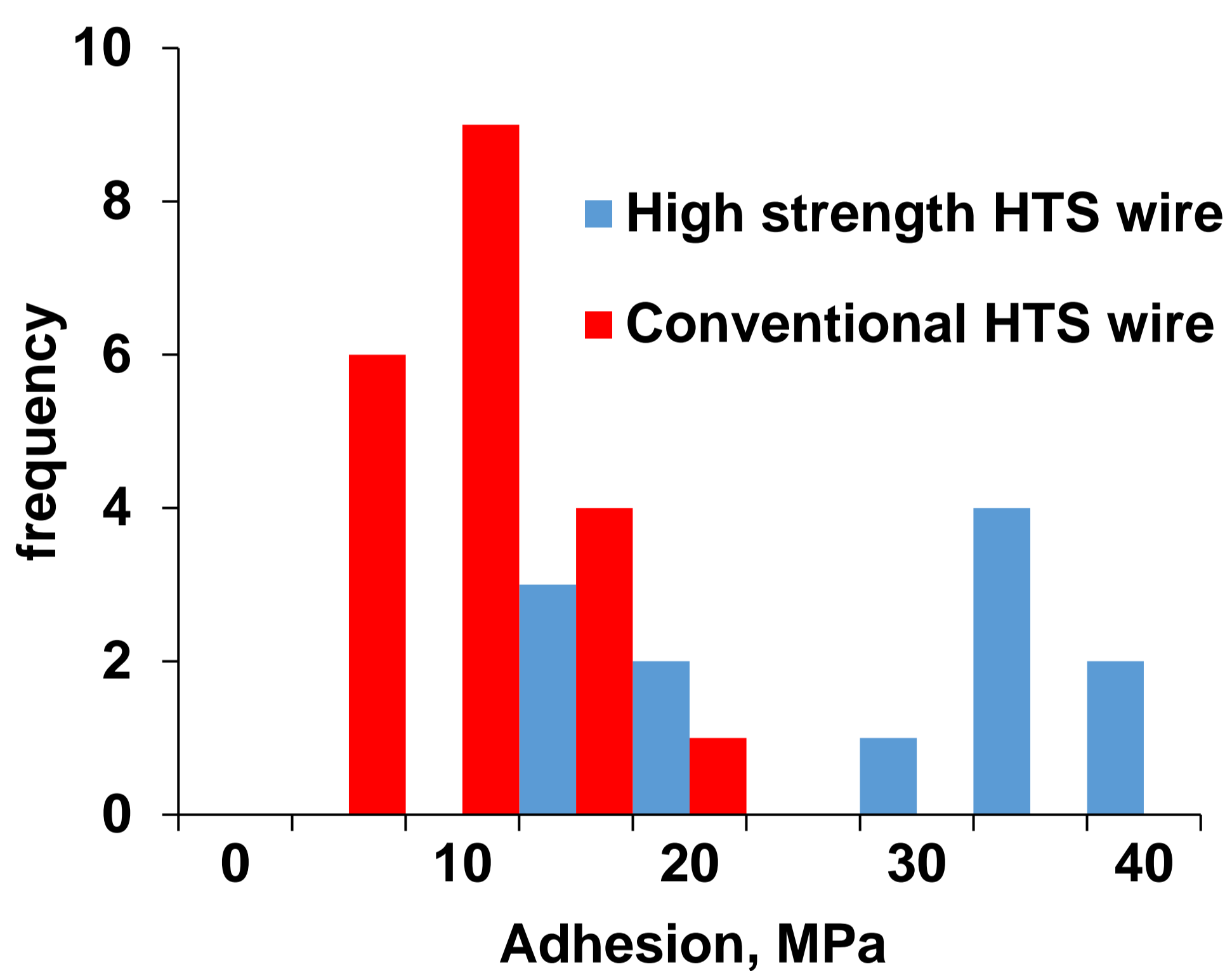
| Superconductor | 4 mm S-innovations |
|--------------------|--------------------|
| Substrate | Ni alloy 38 μm |
| HTS (YBCO) | 2,5 μm |
| Silver (face/back) | 2/1 μm |
| Copper (per side) | 20 μm |
| Solder (per side) | 10 μm |



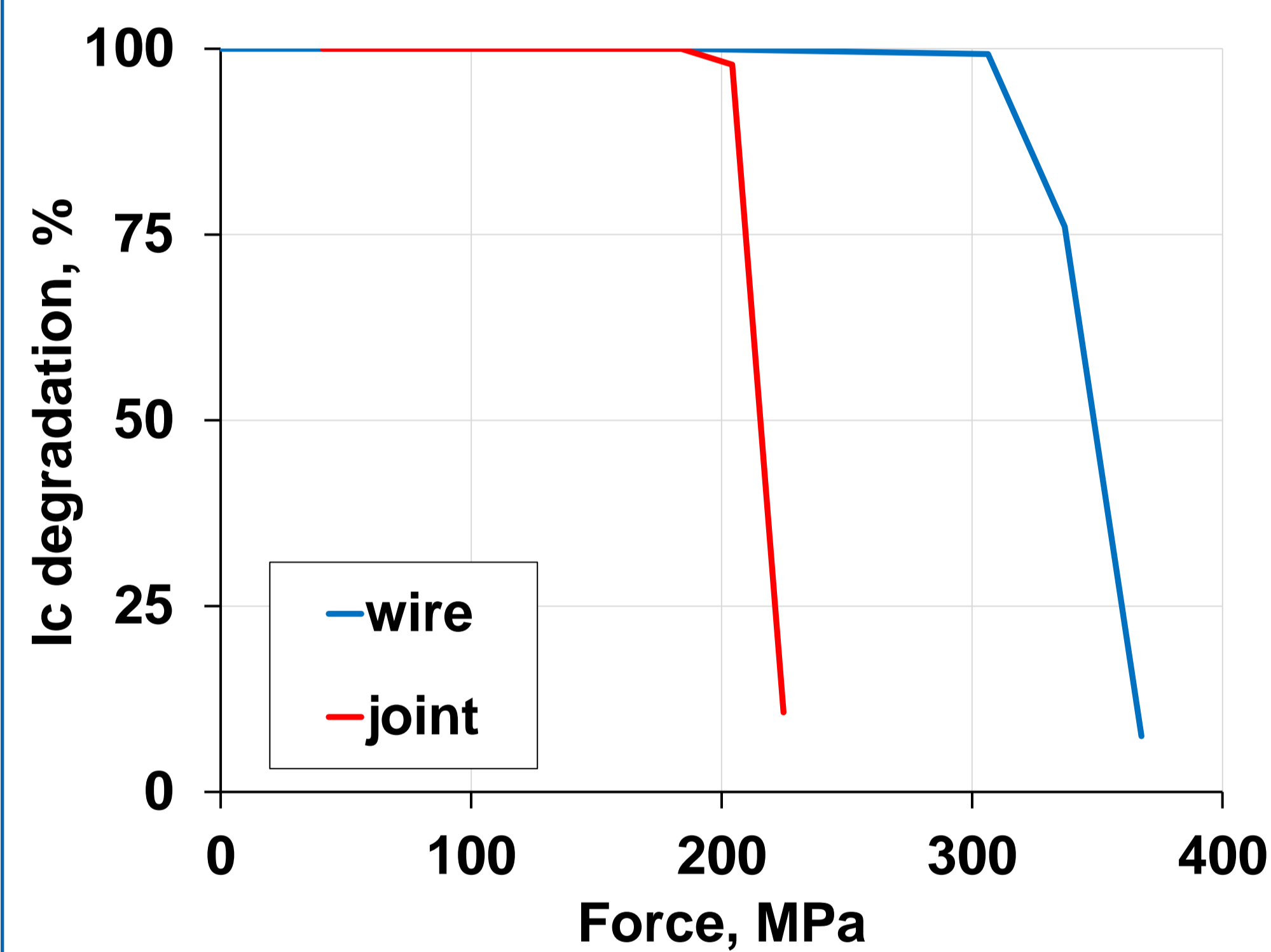
PRODUCTION PROCESS



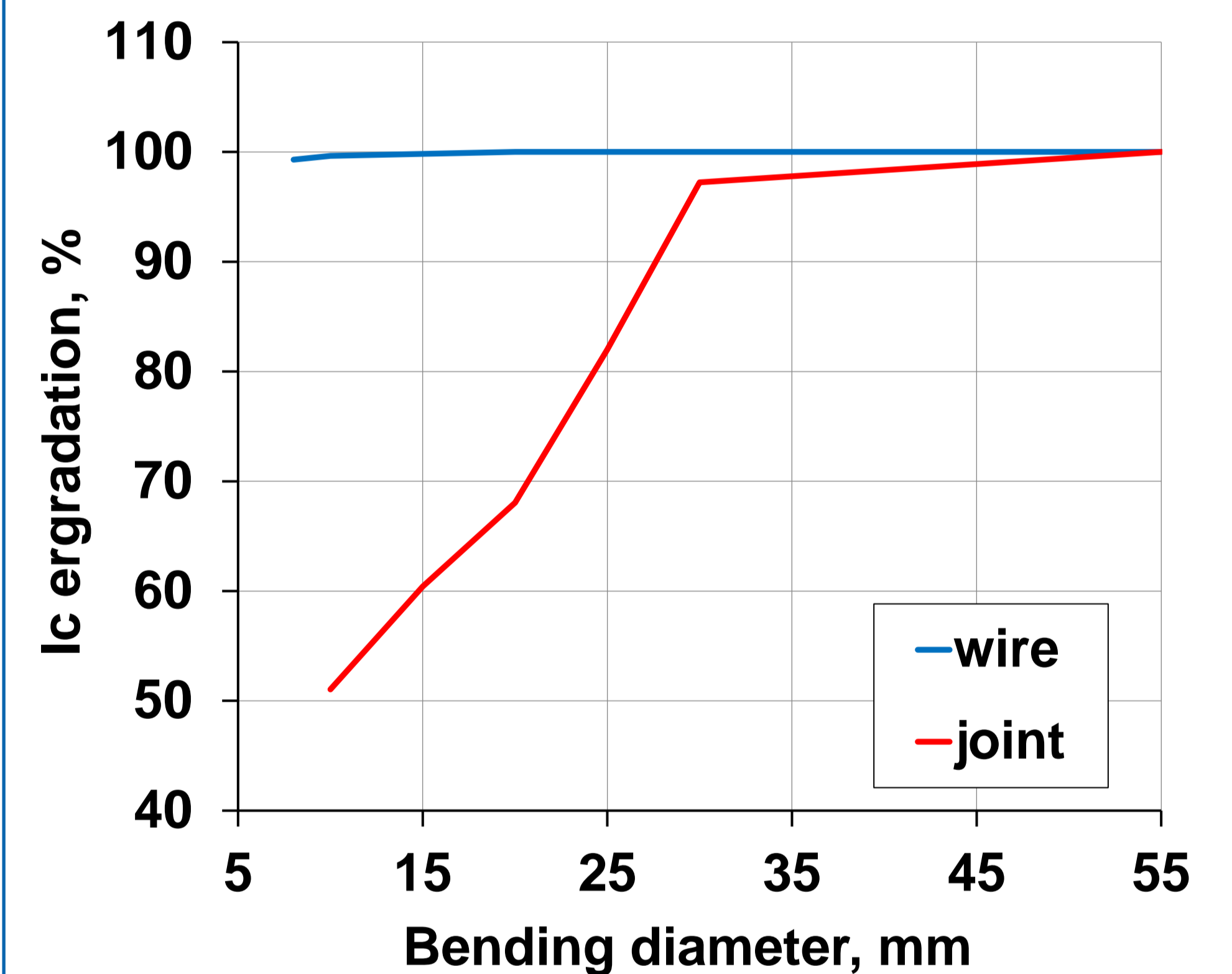
ADHESION



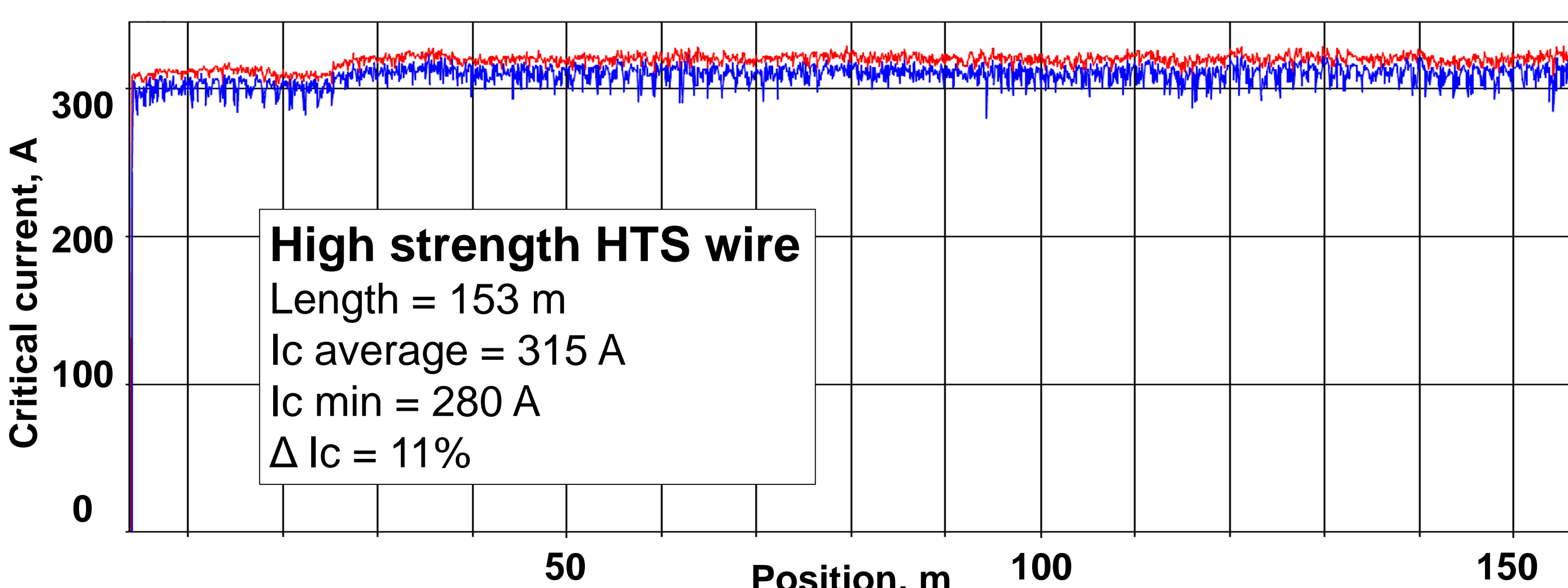
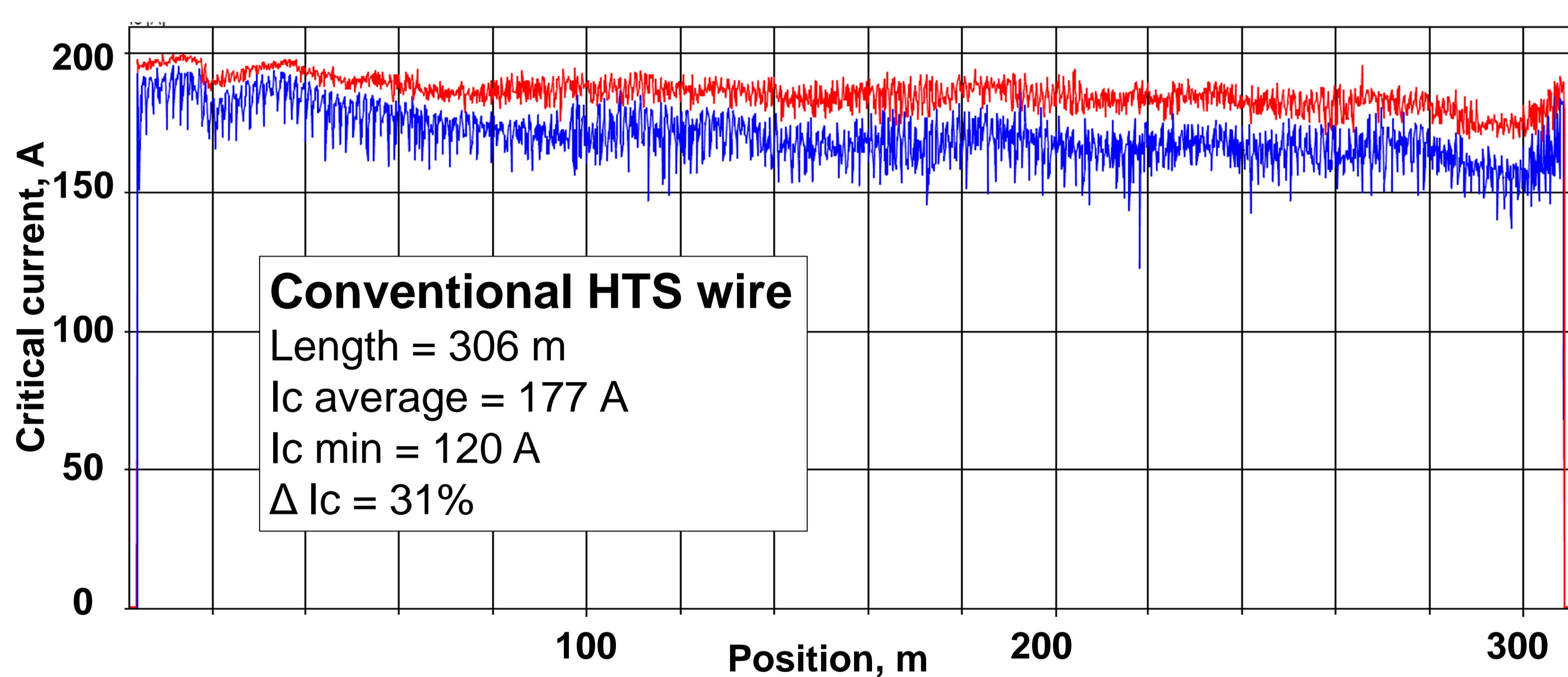
TENSILE FORCE



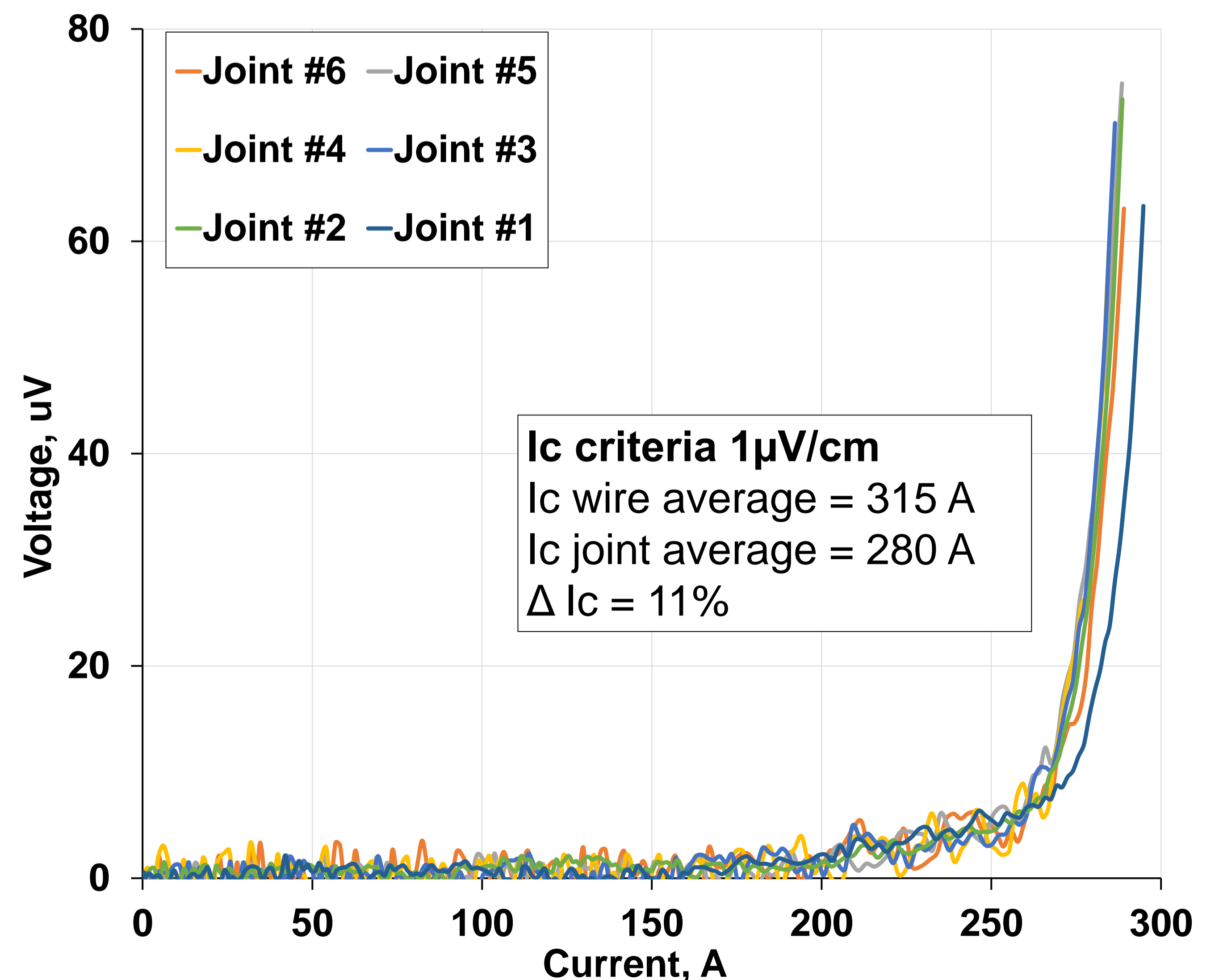
BENDING DIAMETER



REEL TO REEL PRODUCTION



CRITICAL CURRENT AND JOINT RESISTANCE



AKNOWLEDGEMENT

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