Cable machine designed and constructed: main parts - belt cable pulling device and two carousels, each carousel contains four coils as sc. tape containers

Produced superconducting cable: eight SuperPower SCS4050-AP tapes of length 50m, lc from 146 to 169 A (Σ 1240 A), sc. layer oriented inward, 40 m long cable in one run, speed 6 m/hour, cable consists of two layers wound in the same direction, cable core - Cu tube, outer diameter 6.35 mm

The dependences of the tape voltages on dc current flowing in the tape for cable and solenoid as well. Fitting and extrapolation of these dependences to the criteria 1 µV/cm for four tapes are shown in insert

Voltsages measured on individual tapes in dependence on cable or solenoid current. Curves without points represent average value from eight tape voltages

Conclusion
- cabling machine for CORC® cable production was constructed
- 40m of CORC® cable produced with Cu tube as a cable core
- two layers, each containing 4 SuperPower tapes wound in one run
- solenoid with 4x20 turns and φ out/in = 18/12 cm was made
- no tape damage occurred neither at cable nor solenoid production
- solenoid critical current reached 1360A/66K (0.63T) ~ 111A/mm²

Temperature dependence of solenoid critical current

<table>
<thead>
<tr>
<th>Temperature [K]</th>
<th>77</th>
<th>72</th>
<th>68</th>
<th>66</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical current [A]</td>
<td>622</td>
<td>948</td>
<td>1273</td>
<td>1359</td>
</tr>
<tr>
<td>Solenoid Magnetic field [T]</td>
<td>0.29</td>
<td>0.44</td>
<td>0.59</td>
<td>0.63</td>
</tr>
</tbody>
</table>

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