

# Field & Power vs. I.R. of Cu Magnet with 30-cm Build or 50-cm O.R.

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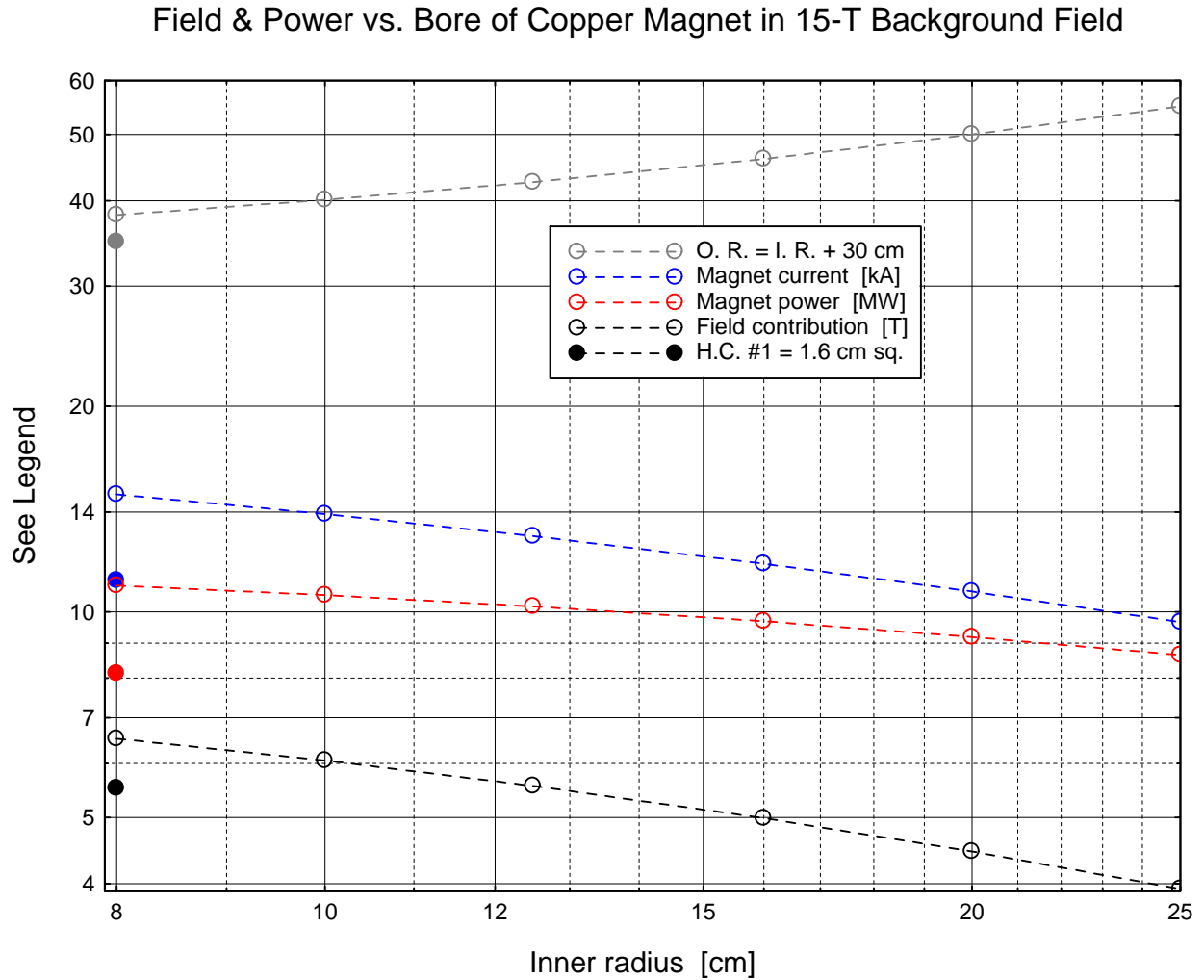


Fig. 1. Outer radius, power, current & field contribution (in 15-T background field) vs. inner radius of magnet with 10 layers (30-cm radial depth) of JHF-like mineral-insulated conductor. In every layer the peak hot-spot temperature is 90 °C at 10 °C inlet temperature, 40-atm water pressure, and three hydraulic passages per layer.

### Field & Power vs. Bore of Copper Magnet in 15-T Background Field

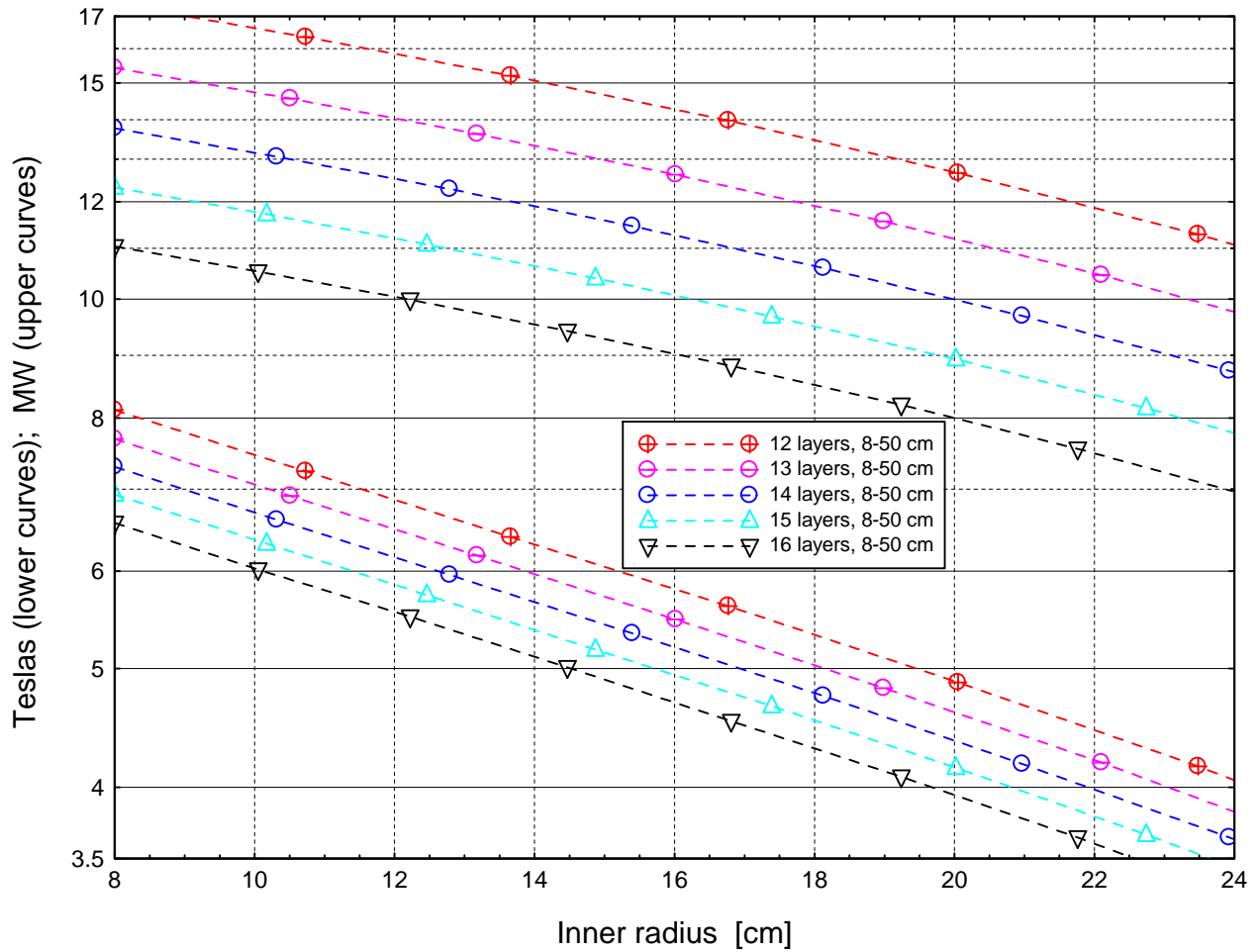


Fig. 2. Power & field contribution (in 15-T background field) vs. inner radius of 50-cm-O.R. magnet of JHF-like mineral-insulated conductor. In every layer the peak hot-spot temperature is 90 °C with an inlet temperature of 10 °C inlet temperature, a water-pressure drop of 40 atmospheres, and three hydraulic passages per layer.

Field & Power vs. Bore of Cu Magnet with 12 Layers from 8 cm to 50 cm

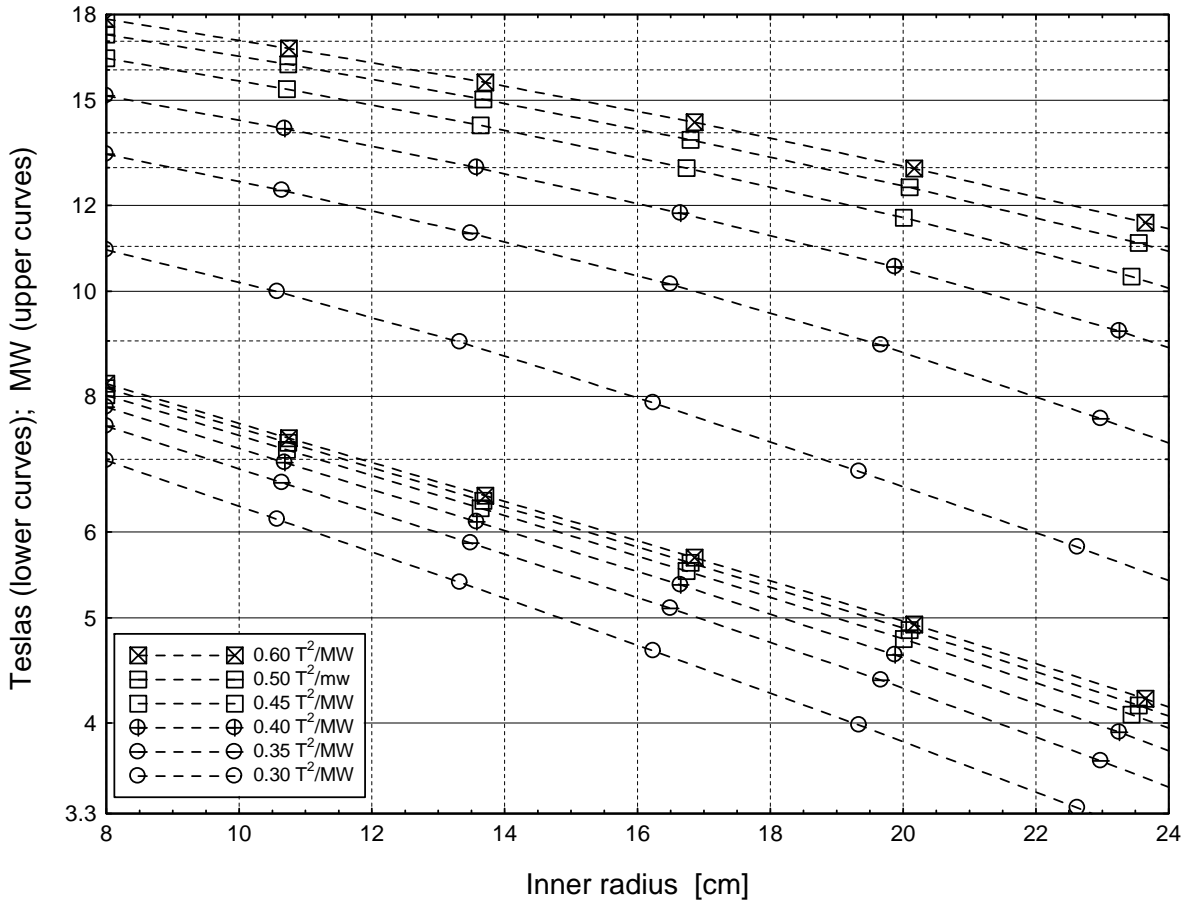


Fig. 3. Power & field contribution (in 15-T background field) vs. inner radius of the most-efficient 50-cm-O.R. magnet of JHF-like mineral-insulated conductor. In each layer the peak hot-spot temperature is 90 °C or less with an inlet temperature of 10 °C, a water-pressure drop of 40 atmospheres, and three hydraulic passages per layer. Emphasizing efficiency instead of maximum possible field saves considerable power with only modest sacrifice in field.

Field & Conductor Size vs. I.R. of 10-MW Magnet with O.R.– I.R. = 30 cm

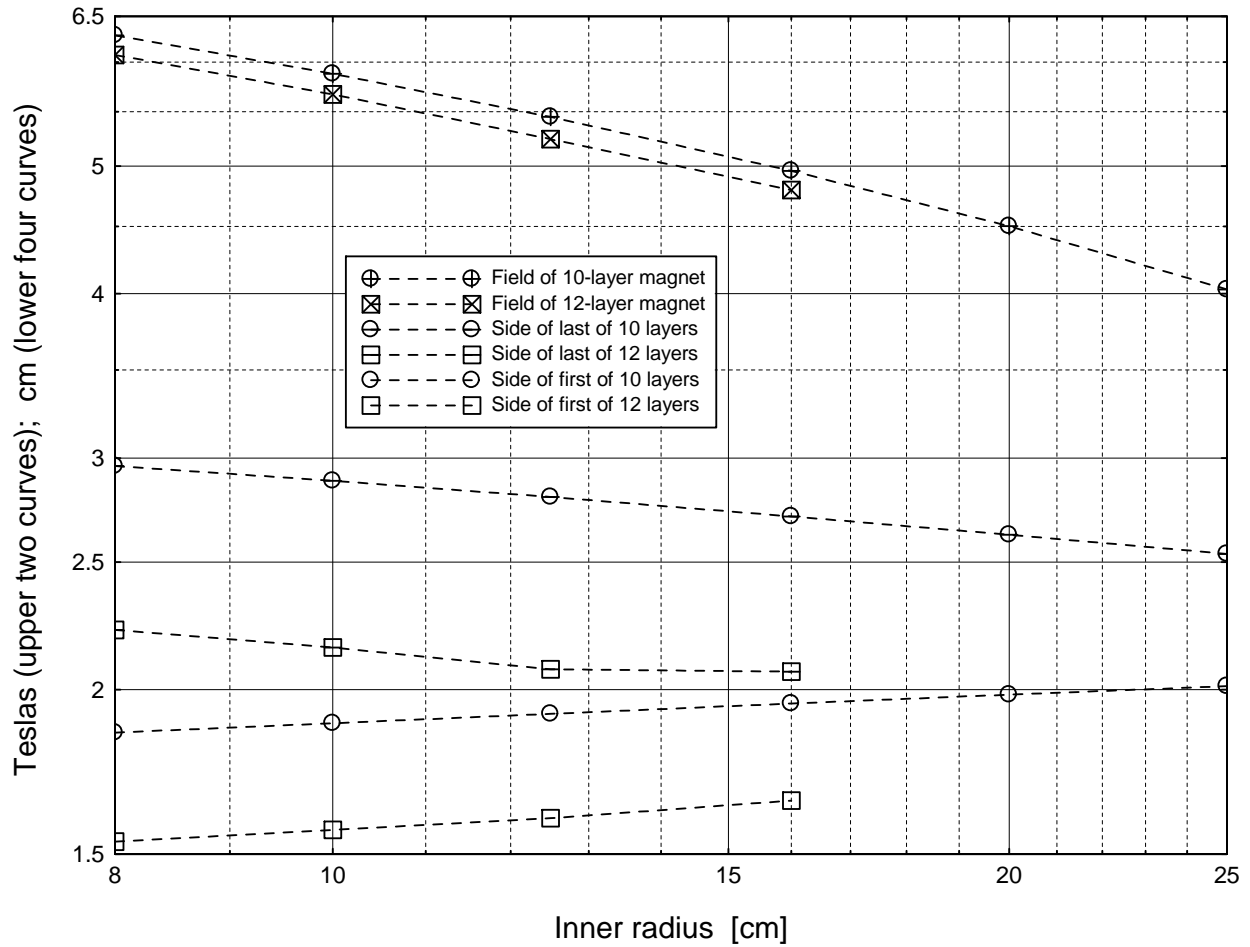


Fig. 4. Power & field contribution (in 15-T background field) vs. inner radius of the most-efficient 10-MW magnet with 30-cm radial depth of windings of JHF-like mineral-insulated conductor. In each layer the peak hot-spot temperature is 90 °C or less with an inlet temperature of 10 °C, a water-pressure drop of 40 atmospheres, and three hydraulic passages per layer.