The High Energy Storage Ring (HESR) for Antiprotons is going to be built at FAIR in Darmstadt on the extended GSI campus. Charged particles (including protons and antiprotons) of 13 Tm magnetic rigidity will be injected into this synchrotron and storage ring. The injection system of the HESR ring is based on 4 UHV 360 mm long ferrite kickers, each kicker having to generate a 25 T.mm integral field, during 500 ns, with rise time and fall time lower than 220 ns. Each kicker is supplied by a 4000A / 40 kV pulser, based on Blumlein topology, with semi-conductor switches. A prototype of the pulser, using water lines instead of conventional coaxial cables, has been developed to feed the UHV kicker. Electric and magnetic measurements are presented, as well as magnetic transient modelling.

**HESR SPECIFICATIONS**

- Nominal current: 4.35 kA
- Nominal voltage: 38 kV
- Line impedance: 8.5 Ω

**CONCEPT**

- **Kicker magnet**
  - Single turn ferrite kicker
  - UHV environment
  - Bakeable at 250°C
  - Four kickers in line / two kickers per chamber
  - Polarity reversal on each kicker
- **UHV Chamber**
  - Bakeable at 250°C, bakeout system integrated
  - Two chambers, designed and supplied by JULICH

**PULSER DESIGN**

- **Structure of the pulser**
  - Nominal current: 4.35 kA
  - Nominal voltage: 38 kV
  - Line impedance: 8.5 Ω

**KICKER DESIGN**

- **Kicker parameters**
  - Yoke length: 360 mm
  - Gap: 92 mm
  - Global field integral (4 kickers): 98 T.mm
  - Field integral quality: +/-0.75%
  - Inductance per kicker: 700 nH
  - Ferrite type: CMD5005

**PROTOTYPE**

- **Kicker in UHV tank**, in final configuration

**MEASUREMENTS**

- Measure at 4 kA (92% of nominal current) / 35.5 kV
- Zoom on flat top: < 5 ns
- Zoom on post pulse ripple: < 1 ns

**CONCLUSIONS**

Encouraging results have been reached at 92% of nominal current on the prototype. Further tests, up to nominal current, will be performed in the next weeks to match HESR requirements at nominal current. Final configuration will use HV coaxial cables. The measurements confirm the relevance and versatility of this concept. It could be considered for many other pulsed applications.