

# R&D System WT\_1-40T/p-R&D BT for Intense Pulsed Magnetic Fields

for evaluation tests in material sciences,  
bio-medical and technical applications:



## Work Principle:

a plasma type fast ( $<1\mu\text{s}$ ) HV switch releases a stored electrical energy from a HV capacitor into the low inductance solenoid. A respective very high and short current generates a uniform magnetic field inside a solenoid. HV circuit is designed for reaching very high magnetic fields up to 40 Tesla in a single pulse. 5 to 40 T values are in demand for various R&D tasks.

This single pulse EM system provides same high magnetic fields at a fraction of costs of repeats systems of the same kind.

## Pulse Controls:

Current and magnetic field sensors with the BNC output on the front panel and PC scope.

## El connection:

208-240 VAC, one phase, 50-60 Hz, 300 w during capacitor charging

## Size, Weight, Enclosure Material:

60 cm wide x 40 cm high x 53 cm deep,  
polished stainless-steel, weight 42 kg,

*Other types of solenoid chambers and custom designed EM systems can be made on request.*

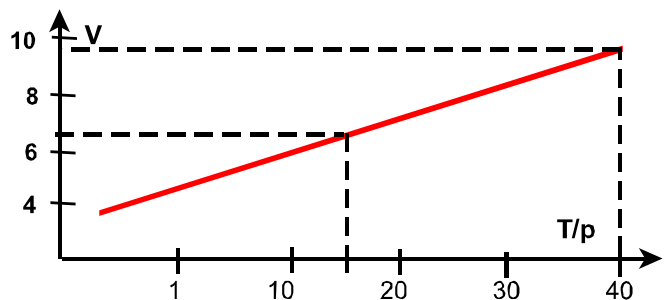
## Main features:

- uniform pulsed magnetic fields **up to 40 Tesla** / pulse as a function of a dialed voltage (Chart).
- pulsed currents range **up to a few 10's kA** as a function of a capacitor charging voltage,
- the first half-pulse period is ca.  **$10\mu\text{s}$  ( $10^{-5}\text{s}$ )** releases up to 80% of a stored electrical energy into the low inductance solenoid chamber for samples,

## The system operation:

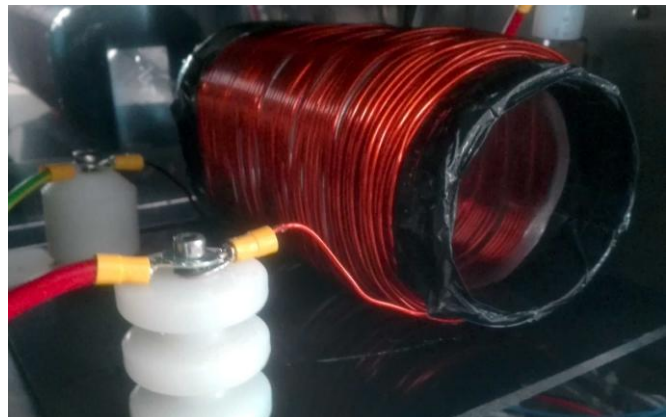
- After HV is on, to press the green button for charging the storage capacitor to a voltage as per the chart below to get a desired strength of magnetic field in Tesla.
- Press the red button to produce a single pulse.

## Voltmeter chart V > Tesla/pulse:



## Magnetic chamber:

- low inductance rectangular solenoid 10x10cm, 20 cm long from a thick glass (or quartz). It is located behind the front door. The door is locked each time automatically when HV is put on. The system is magnetically sealed and safe to use.



*This R&D system uses our established HV platform for 1000J/p Pulsed Light systems.*

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