

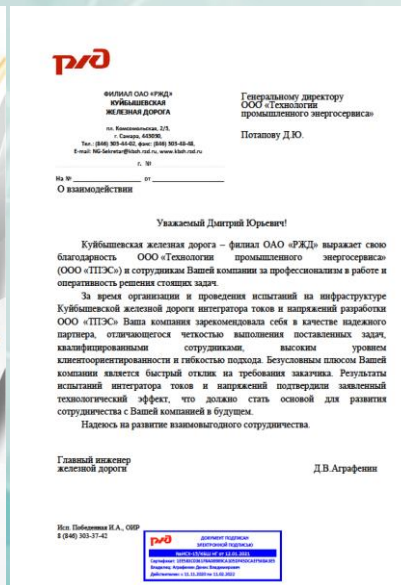
# Industrial Energy Service Technologies LLC



Production of innovative industrial systems to improve the energy efficiency of production processes

Russia Togliatti Samara region

Industrial Energy Service Technologies LLC is an expanding and dynamic company based in Togliatti 2010 . The company is made up of a well-coordinated team of highly qualified specialists. The professional and technical potential of the company in the field of energy efficiency and energy saving means that we are able to combine all of our customers' needs into a single solution. Our experience and in-depth knowledge of various technologies enables quick, efficient, and cost effective project development. To ensure maximum reliability, each project is carried out based on a specially developed methodology, which includes a detailed analysis of the power networks and electrical equipment of the client's enterprise, needs, and purposes. Testing of the supplied equipment is carried out on-site, ensuring the quality of the proposed solutions.





Current and voltage integrator (*CVI*) 0.4 kV;

Current and voltage integrator High-Voltage (*CVI-HV*) 6 kV - 10 kV



Performance indicators for the implementation of *CVI*

- *C*ompensation of reactive energy to a value close to zero, maintaining a consistent power factor of  $\cos \varphi \approx 0.99 - 1$
- *R*eduction in starting and operating currents of all network elements: power cables, motor windings, and the main transformer
- *D*amping of starting currents up to the full spin of the electric motor
- *R*eduction in operating temperatures of electrical conductors and power consumers
- *I*ncrease in dynamic efficiency of power consumers
- *R*eduction of power consumption up, optimization of working conditions of equipment
- *A*bsorption of higher harmonics / suppression of generation of acoustic noise
- *R*eduction in the vibration of electric motors as a function of the gyroscopic moment of the rotor during voltage fluctuations
- *I*ncrease in the service life, safety and reliability of equipment
- *R*eduction of specific current density in networks / reduction of network losses
- *I*ncrease in fire safety and energy security



## APPLICATION OF *CVI* TECHNOLOGY

*T*ransformers and  
asynchronous electric motors

*E*lectric melting and welding  
systems

*I*nduction furnaces

*E*lectric trains and electric  
locomotives

*R*ailway traction substations

*R*ectifier installations of DC  
networks

*E*lectrical networks in general

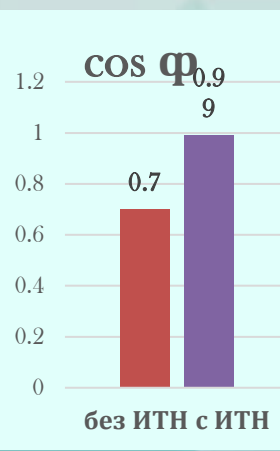
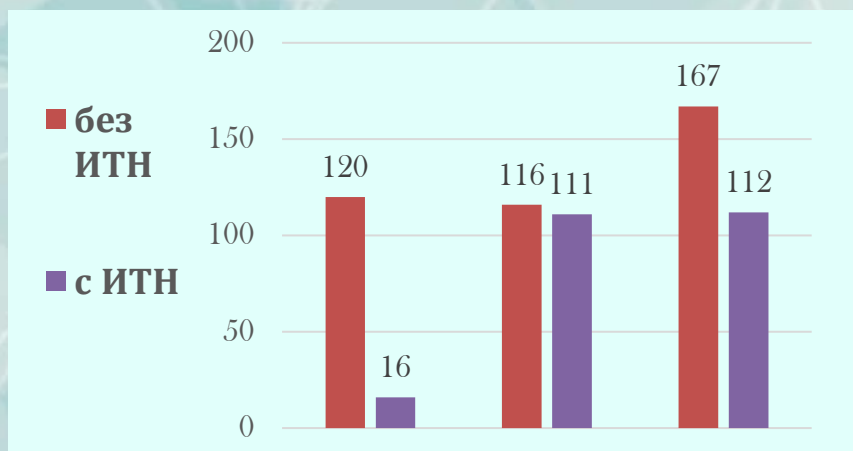
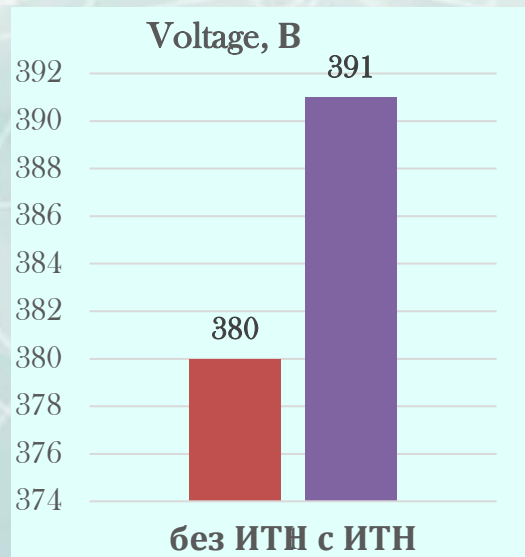
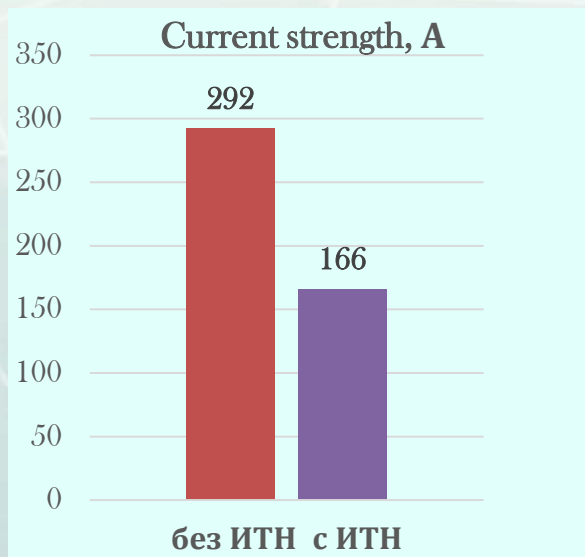
*L*ighting equipment



# TESTS IN THE COMPRESSOR STATION OF THE MECHANIZED HILL OF THE ORENBURG STATION

*(CVI) 0.4 kV*

Equipment: the compressor is equipped with an electric motor DASK-132-12 UHL4, with a capacity of 132 kW, 500 rp/m





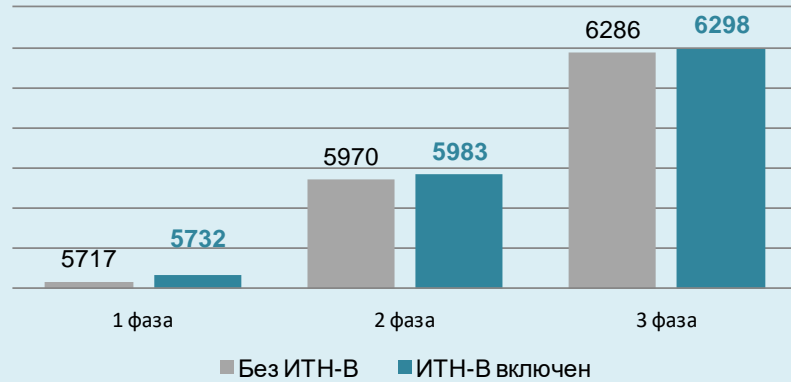
## Current and voltage integrator High-Voltage (*CVI-HV*) 6 kV - 10 kV

Current and voltage integrator High-Voltage (CVI-HV) contains a compensating device for currents, voltages and a power transformer. The compensating device is made in the form of three chokes connected into a single circuit through capacitors, the transformer is made high-voltage, while the transformer is connected from the high-voltage side with a supply network between the high-voltage equipment and the motor at the same time, and the low-voltage part of the transformer is connected to the chokes of the compensating device between the capacitors. The compensating device is connected to the low-voltage part of the transformer according to the star/triangle scheme, the connection of the high-voltage part of the transformer is made according to the star/triangle scheme.

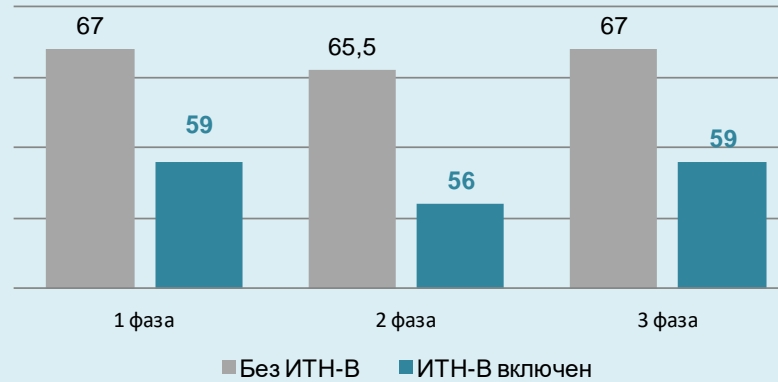


Test data of the *CVI-HV 6 kV* prototype conducted on the electric motor of the centrifugal network pump with a nominal power of 800 kW, 1500 rp/m

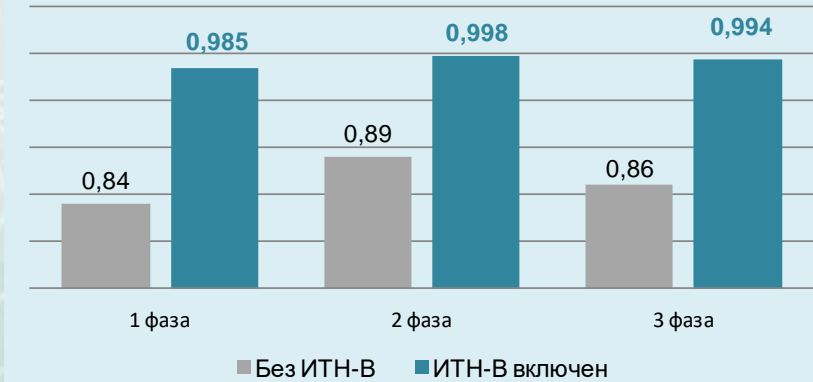
Напряжение, В



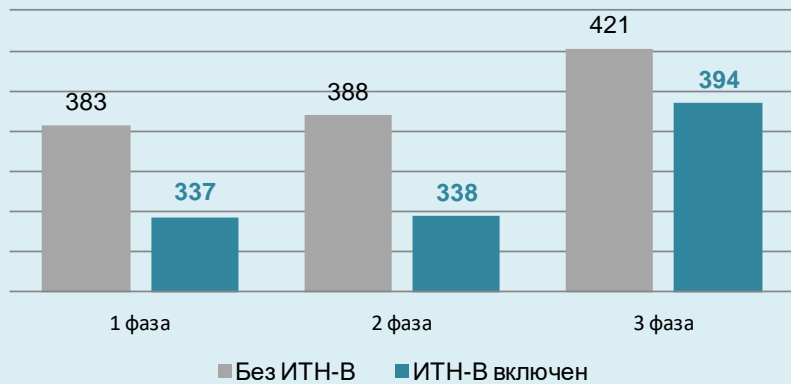
Ток, А



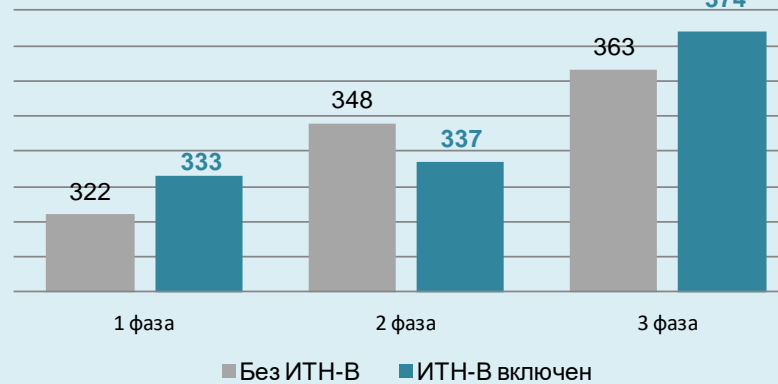
Cos φ



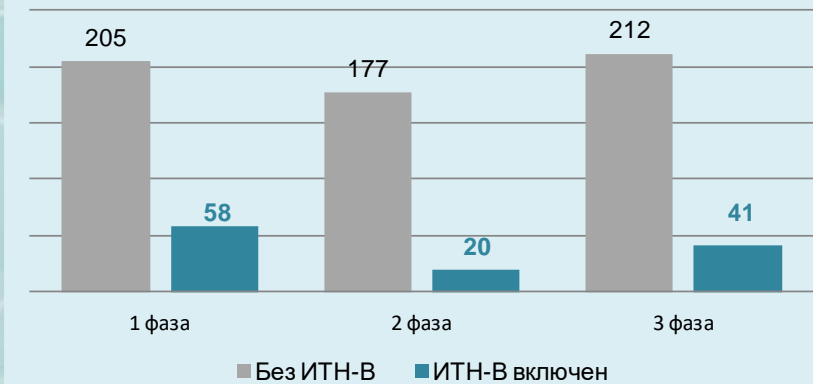
Полная мощность, КВА



Активная мощность, КВ



Реактивная мощность, Квар





## *PROJECTS*

- At the request of the Kuibyshev Railway and JSC “Russian Railways”, performance tests of our equipment are carried out at their facilities.
- In May 2020, the company entered into an agreement with JSC “Russian Railways”, represented by A.M. Khramtsov, Head of the South Ural Railway, with the purpose of establishing a long-term and mutually beneficial relationship in the following areas:
  - - increasing the energy efficiency of production processes
  - - application of innovative production technologies
- The currents and voltages integrator is included in the register of innovative products of PJSC “GAZPROM”.





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Thank you for your  
attention!