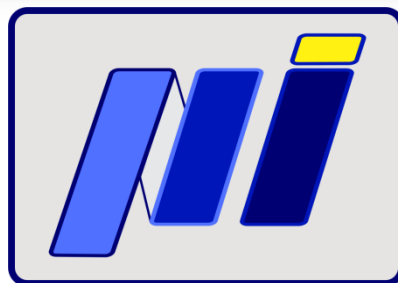




**NORTH Protection Ltd**  
Member of NORTH Group  
**Activities Presentation**

# The Members of NORTH Group



# NORTH Group Activity Area

## South Eastern Europe



# **Regional Partners**

**Institute “Mihajlo Pupin”, IMP Automatika Ltd, Belgrade, Serbia**

**Logging Electronics Ltd, Skopje, Macedonia**

**VibRoTeh Ltd, Zagreb, Croatia**

**DIT Ltd, Tuzla, Bosnia and Herzegovina**

**Mega Techno Ltd, Budapest, Hungary, EU**

**Turboinstitute Ltd, Ljubljana, Slovenia, EU**

# **Global Partners**

**NORTH Instruments LLC, Roswell, Georgia, USA**

**MC-monitoring SA, Givisiez, CH**

**STI Vibration Monitoring Inc., League City, Texas, USA**

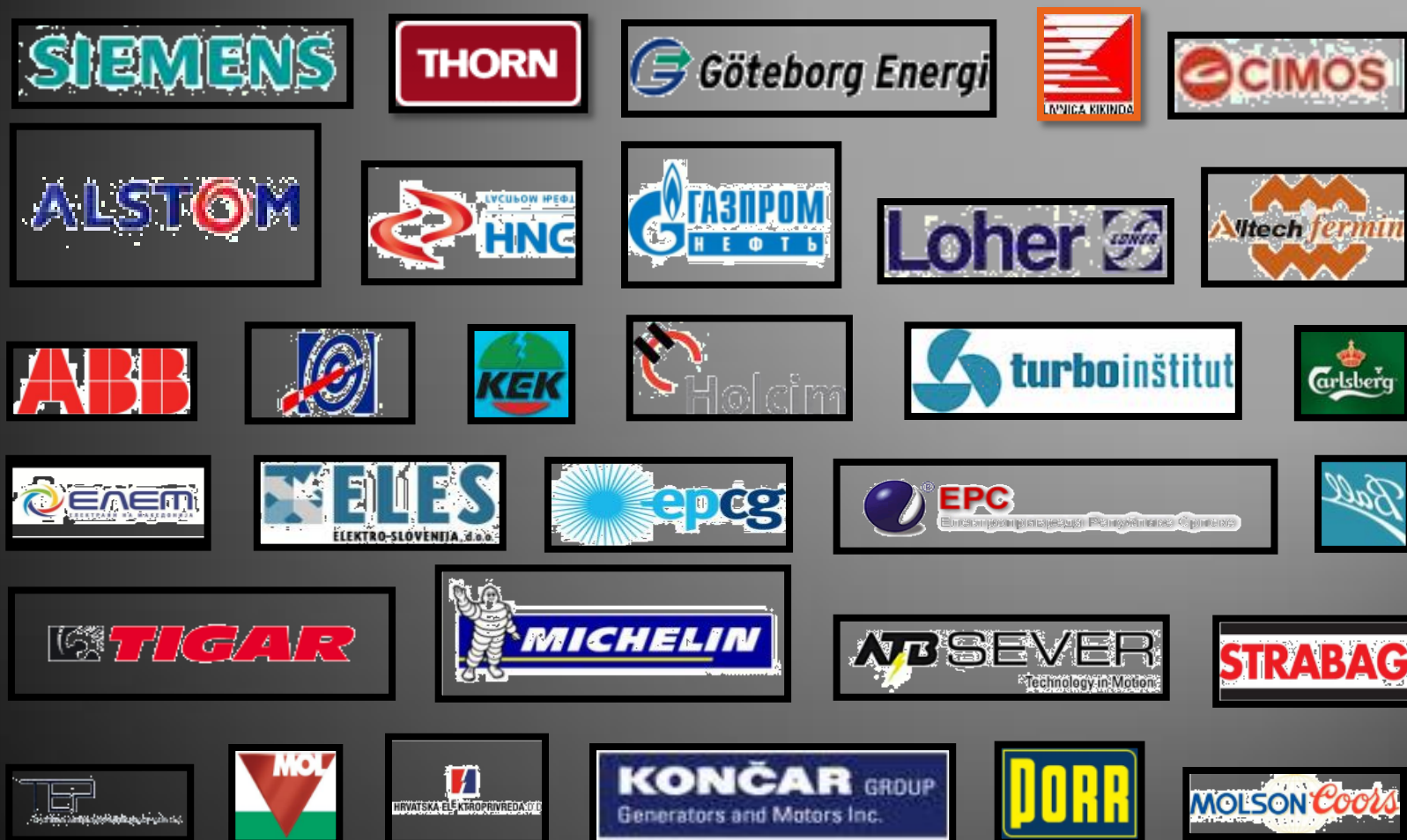
**Spectrum Instruments Ltd, Brighton, ON, Canada**

**Shanghai Sirui On-line Monitoring Technology Co., Ltd, Shanghai, CN**

**ARS – Advanced Reliability Services, Singapore, SG**

**EC Systems AMS Sp. z o.o. , Krakow, PL**

# Major Clients of NORTH Group



# Structure of NORTH Protection Ltd



## **NORTH Measuring Division**

Special Measuring Instruments Production

Measuring/Test Devices Repair

Calibration Devices Production

Industrial Electronic Devices Production

## **NORTH CMS and NORTH Automation Division**

SCADA/DCS Systems Installations

Industrial Protective Systems Assembling

CMS Assembling and Commissioning

CMS Maintenance and Repair

# **NORTH Protection Ltd**

Member of NORTH Group

## **The Activities**

**Production of Special Measuring Devices,  
Monitoring/Protective Systems Assembly,  
Commissioning and Repair**

## **Entities**

**NORTH Measuring Division**

**NORTH CMS Division**

**NORTH Automation Division**

# **NORTH Protection Ltd**

Member of the NORTH Group



## **The Activities**

**Special Measuring Instruments Production**  
**Measurement/Test Devices Repair**  
**Calibration Devices Production**  
**Industrial Electronic Devices Producti**

# **NORTH Measuring Division**

## **Products Line**

**Human Vibration Meter Calibrator**  
**Accelerometer Simulator**  
**Multi-Sensor Simulator**  
**IEPE Sensor Checker**  
**TEDS Interface and Editor**  
**Proximity Probe Checker**  
**Portable Dynamic Signal Analyzer**  
**USB Portable Sound/Vibration Analyzer**  
**Signal Conditioner for Proximity Probes**  
**Signal Conditioner for IEPE Sensors**  
**Multichannel Tuning Monitor for Proximity Probes**

# **NORTH Measuring Division**

## **Special Measuring and Test Equipment**

### **Equipment for Installation, Commissioning and Maintenance of Condition Monitoring Systems (CMS)**

**MSS-1010 Multi-Sensor Simulator**

**MSC-1015 Multi Signal Calibrator**

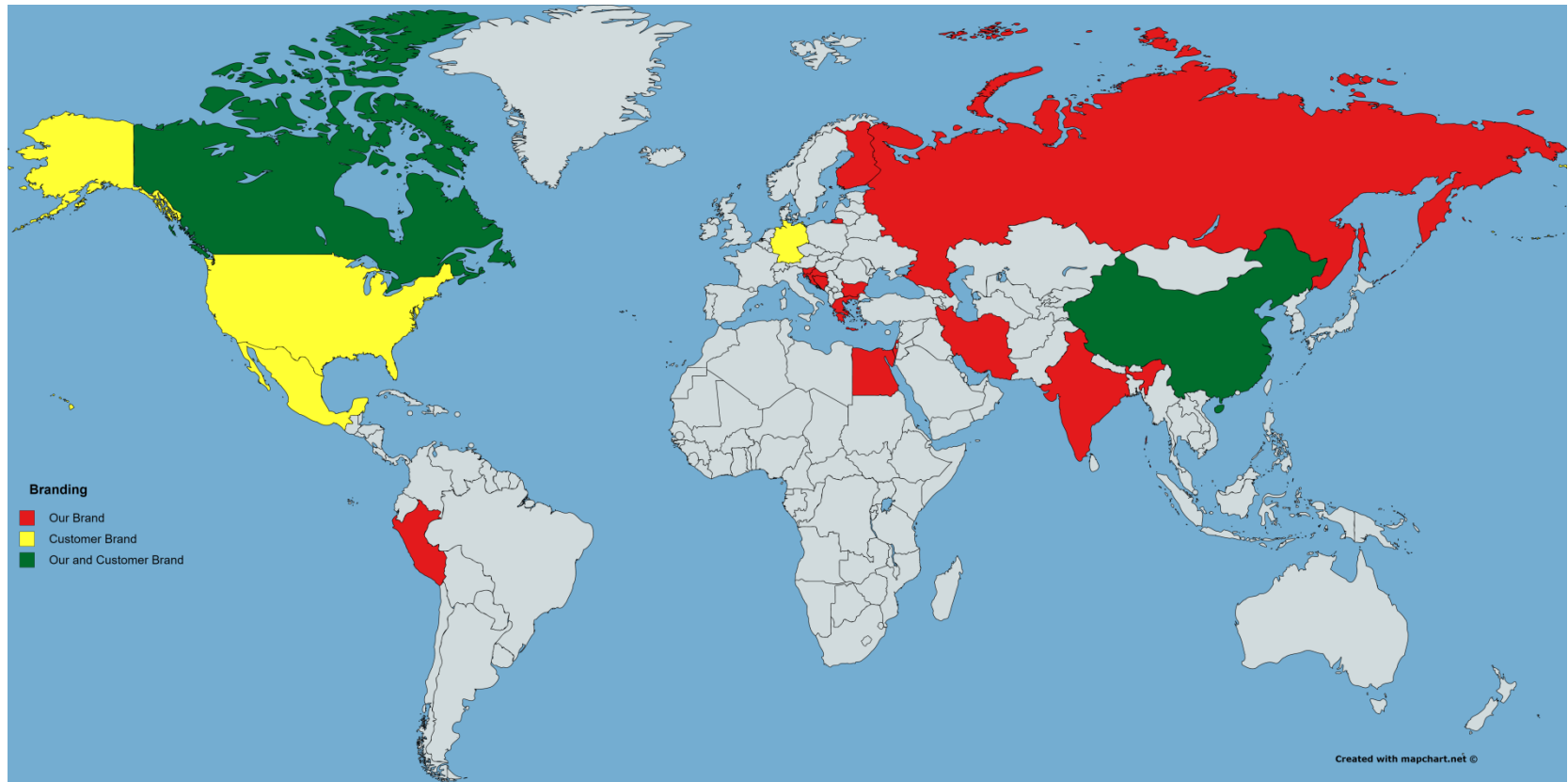
**SC-100 IEPE Sensor Checker**

**PC-100 Proximity Probe Checker**

# NORTH Protection Ltd

NORTH Measuring Division

Overview of global market



# MSS-1010

## Multi-Sensor Simulator





# NORTH Measuring Division

## Latest Products



# MSC-1015

## Multi Signal Calibrator







# PCA 1015-NP

## Multi Sensor Calibrator

(Branded by Vibro-China Ltd, China)



# PC-100

## Proximity Probe Checker











# PC-100

## Proximity Checker

(Branded by Spectrum Instruments Ltd, Canada)



# SC-100

## IEPE Sensor Checker







# RSS-100

## Rotor Speed Simulator



# NORTH Protection Ltd.



## The Activities

**SCADA/DCS Systems Installations**  
**Industrial Protective Systems Assembling**  
**CMS Assembling and Commissioning**  
**CMS Maintenance and Repair**

# **Electric Power Industry of Serbia**

“Termoelektrane Nikola Tesla”

Obrenovac, RS

“Kolubara A” TPP, A5 Unit, 110 MW

## **Condition Monitoring/Protection Systems for Smoke Fans**











# **Electric Power Industry of Serbia**

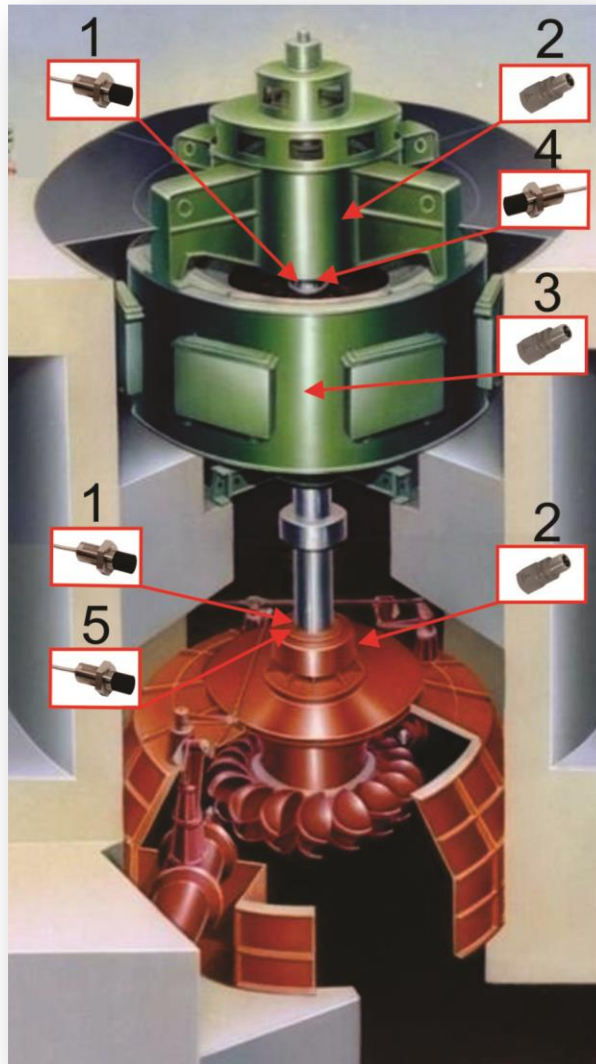
“HE Đerdap” Kladovo, RS

“Vlasinske HE”

“Vrla 1” HPP, 1A, 1B, 1C and 1D Units

## **Condition Monitoring/Protection Systems for Hydro Turbine Generator Sets**



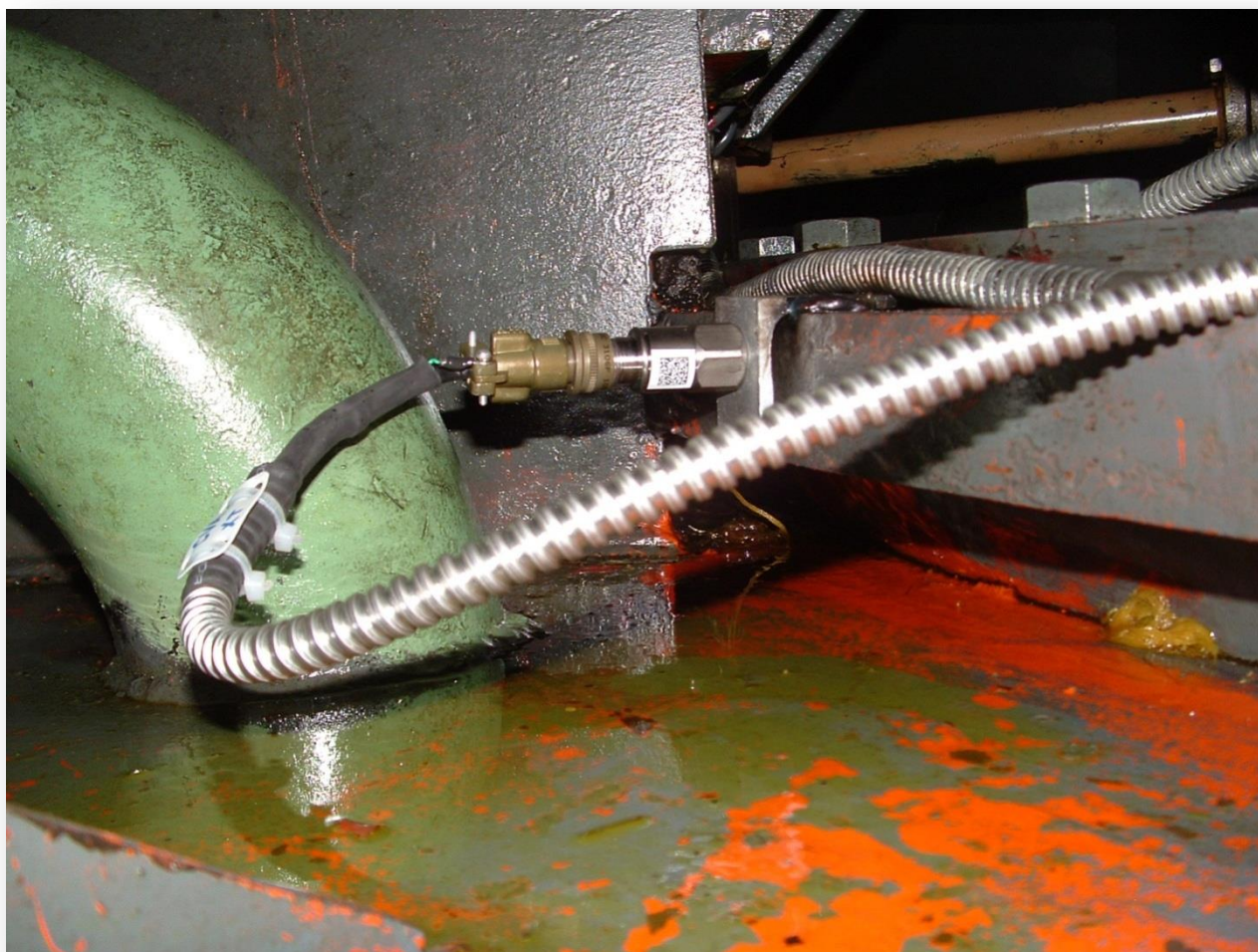


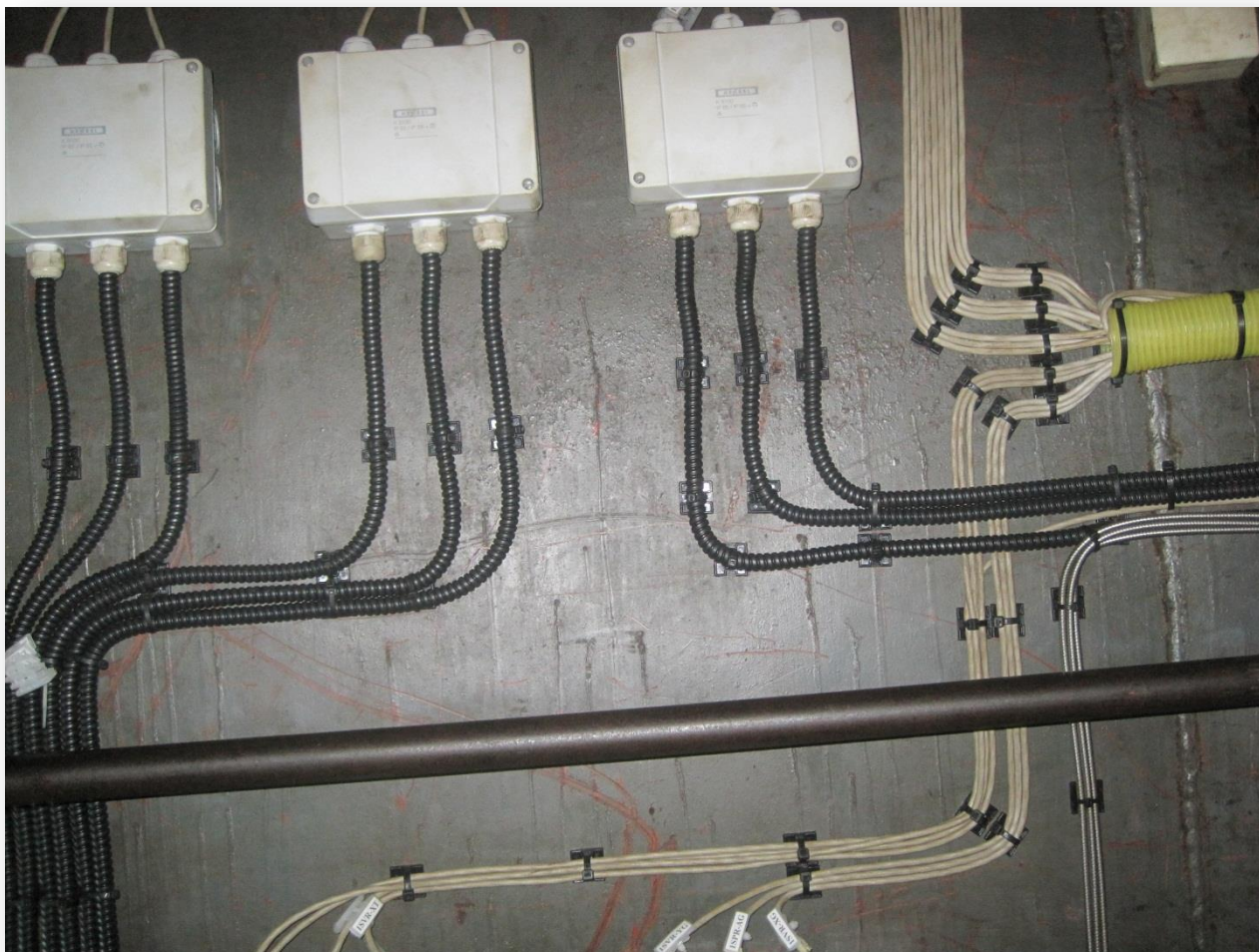
## Legend

1. Measurement Line of Relative Shaft Vibration, ISO 7919-5
2. Measurement Line of Absolute Bearing Housing Vibration, ISO 10816-5
3. Measurement Line of Absolute Stator Core Vibration
4. Measurement Line of Rotor Axial Position
5. Measurement Line of Rotation Speed and Key Phasor











# **Electric Power Industry of Serbia**

“HE Djerdap” Kladovo, RS

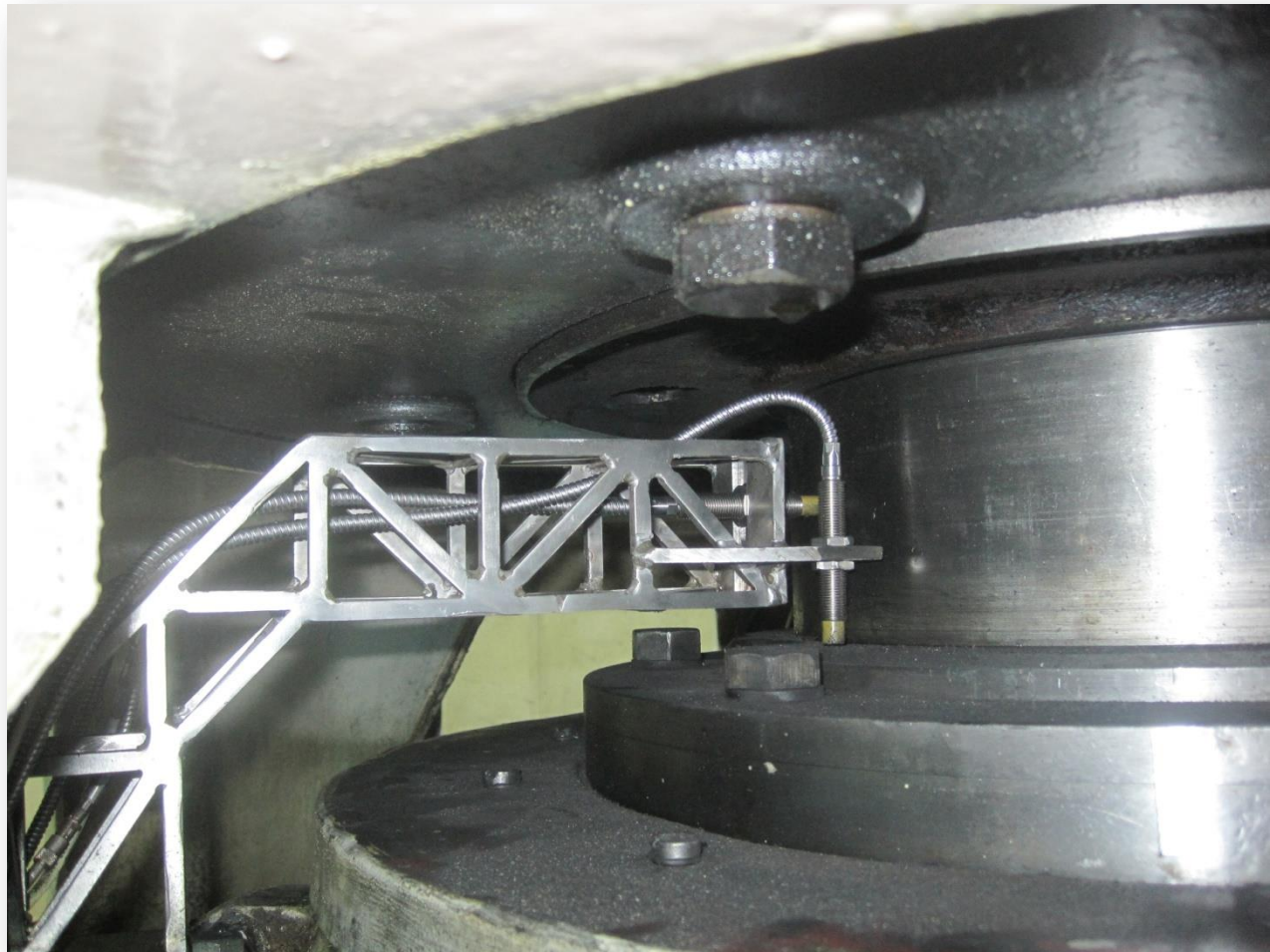
“Vlasinske HE”

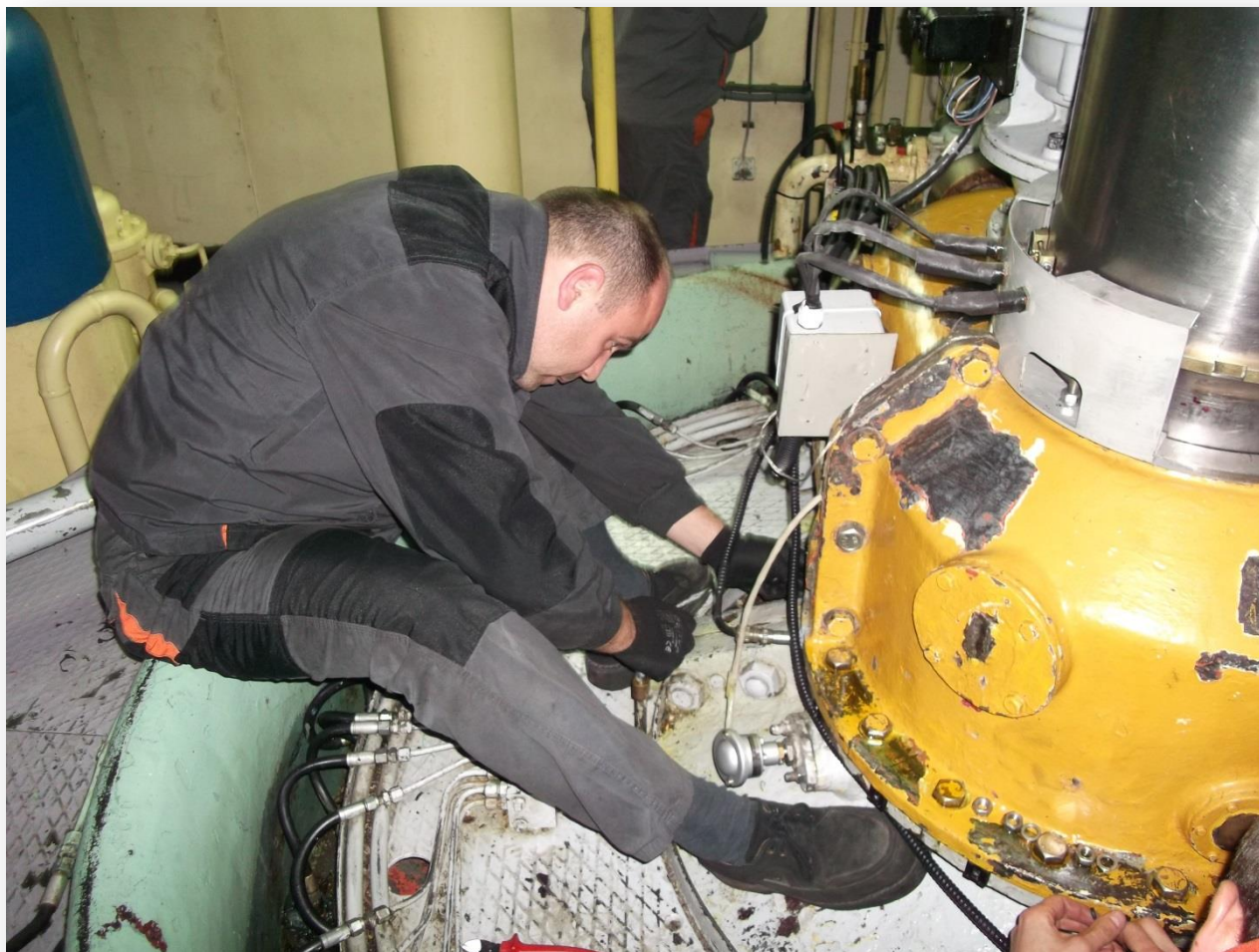
“Vrla 2” HPP, 2A and 2B Units

## **Condition Monitoring/Protection Systems for Hydro Turbine Generator Sets**











# **Electric Power Industry of Serbia**

“Drinsko-limske HE” B. Basta, RS

“Elektromorava” Cacak

“Ovčar Banja” HPP, A1 and A2 Units

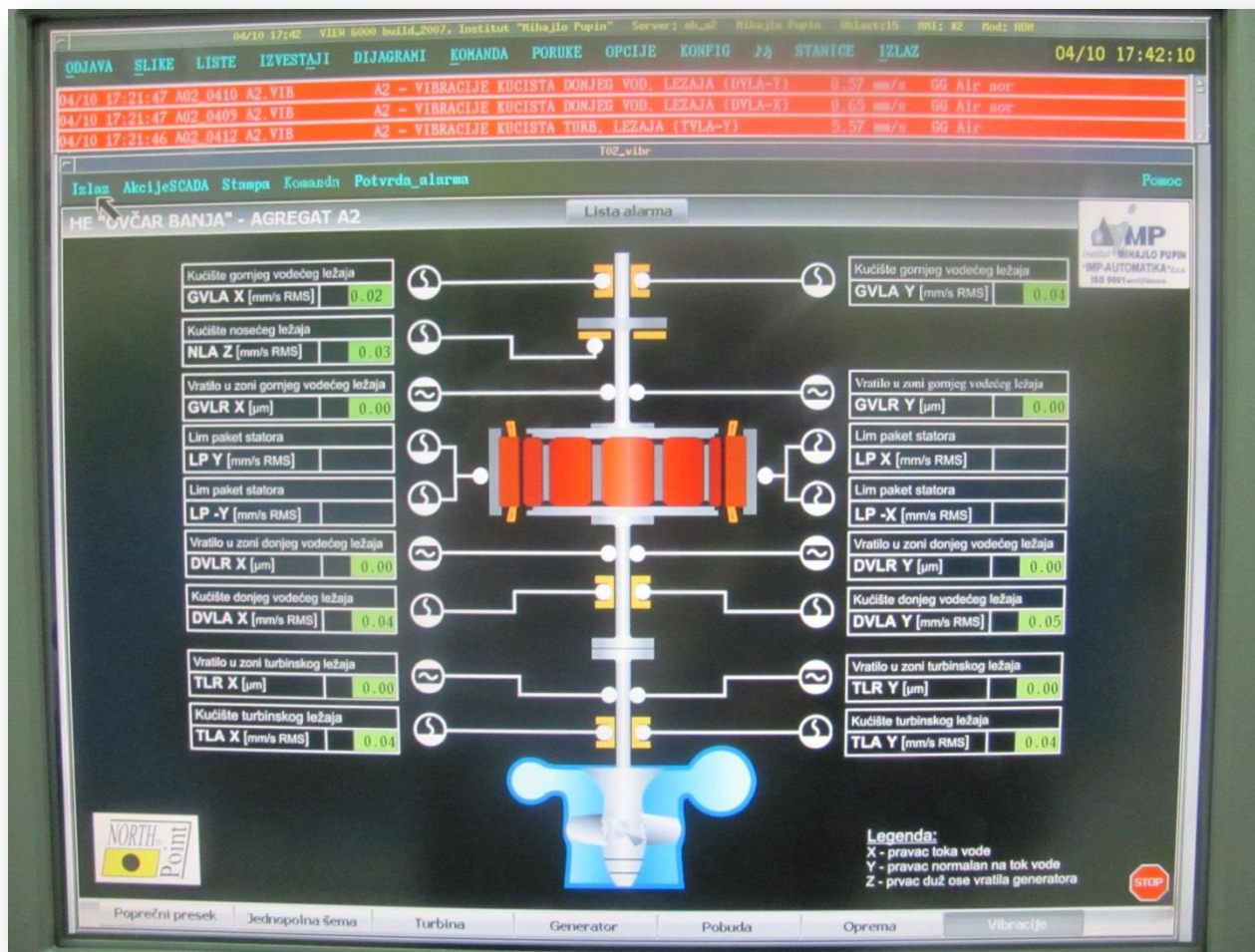
## **Condition Monitoring/Protection Systems for Hydro Turbine Generator Sets**















# **Electric Power Industry of Serbia**

“Drinsko-limske HE” B. Basta, RS

“Elektromorava” Cacak

“Medjuvrsje” HPP , A1 and A2 Units

## **Condition Monitoring/Protection Systems for Hydro Turbine Generator Sets**

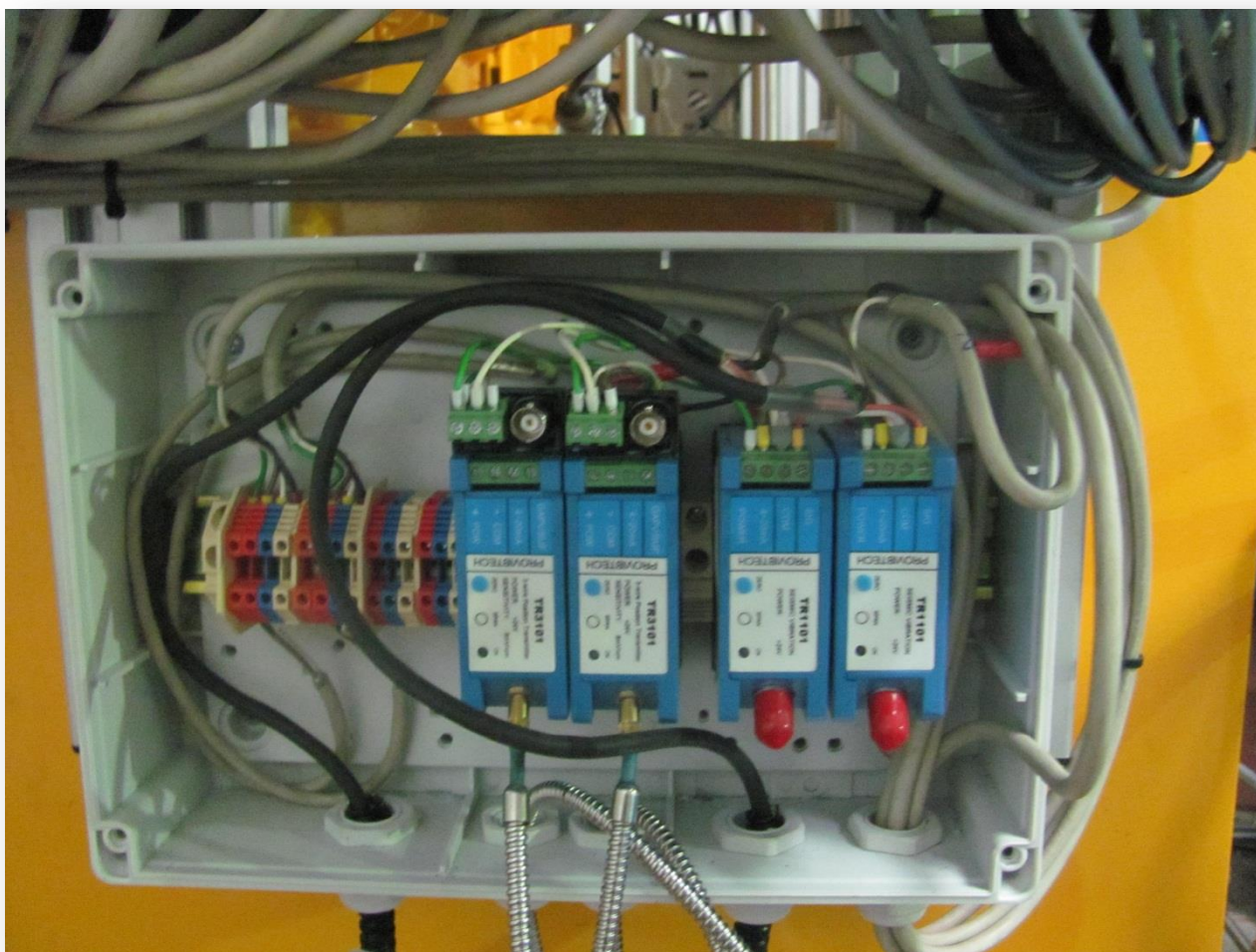


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NORTH Point Ltd., Parent Company of the NORTH Group











# **Electric Power Industry of Serbia**

“HE Djerdap” Kladovo, RS

“Vlasinske HE” Surdulica

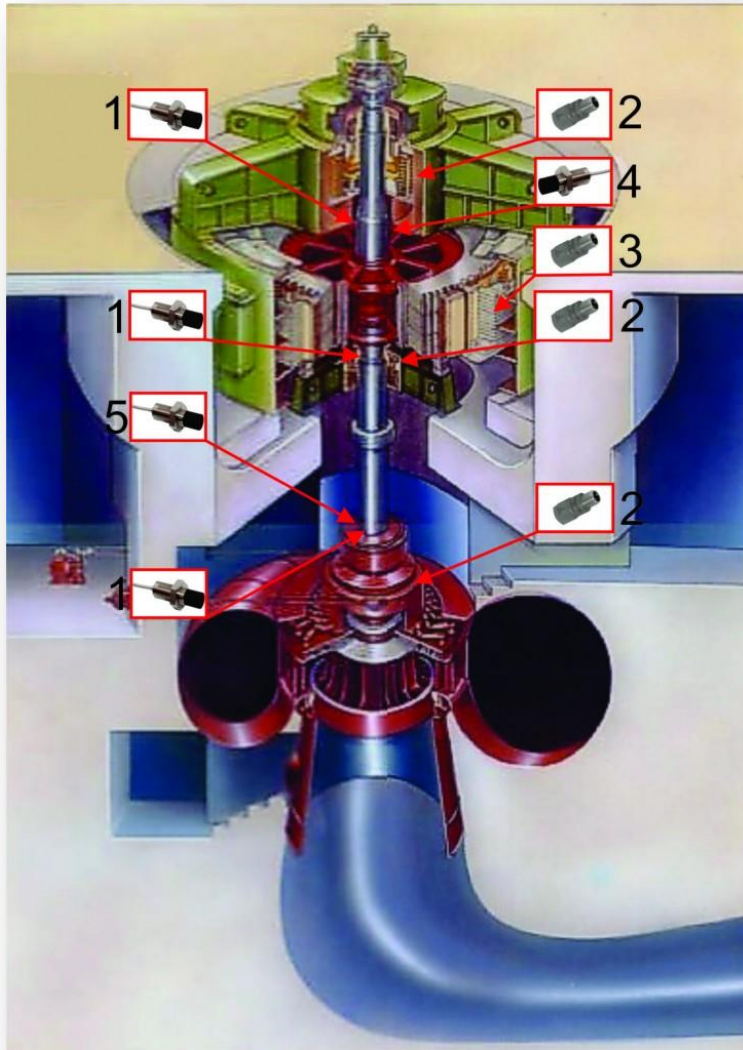
“Vrla 4” HPP, 4A and 4B Units

## **Condition Monitoring/Protection Systems for Hydro Turbine Generator Sets**



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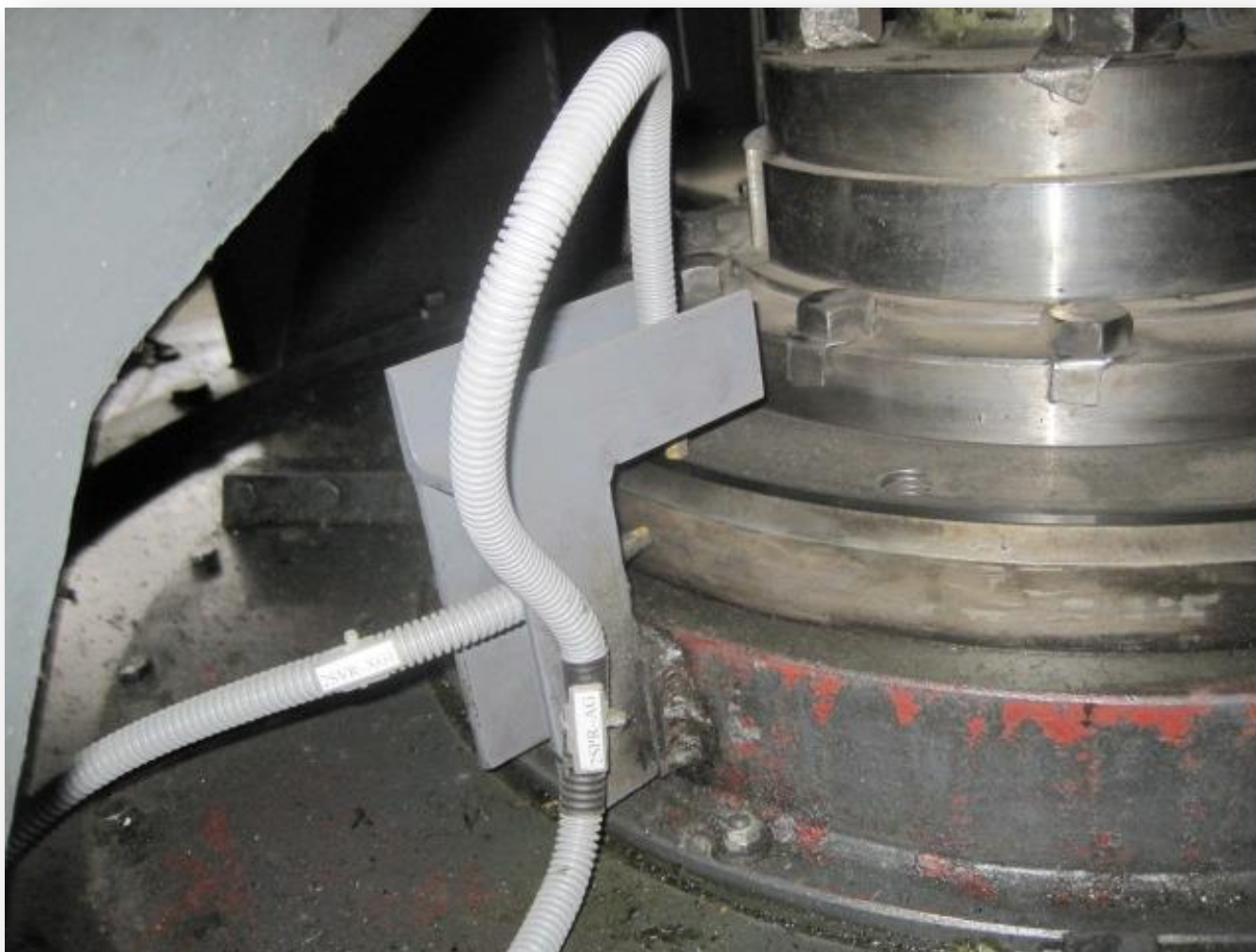


## Legend

- 1. Measurement Line of Relative Shaft Vibration, ISO 7919-5
- 2. Measurement Line of Absolute Bearing Housing Vibration, ISO 10816-5
- 3. Measurement Line of Absolute Stator Core Vibration
- 4. Measurement Line of Rotor Axial Position
- 5. Measurement Line of Rotation Speed and Key Phasor



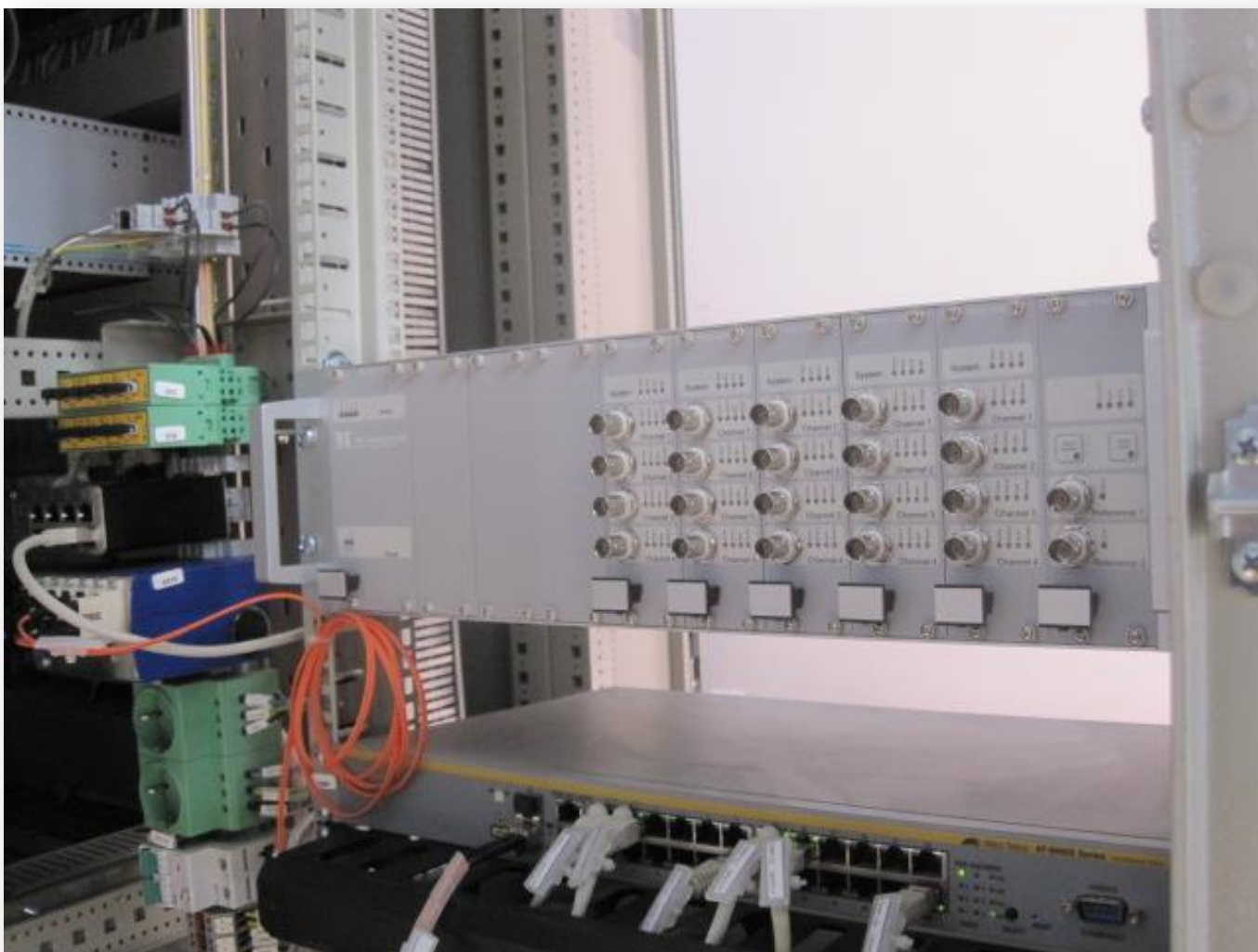




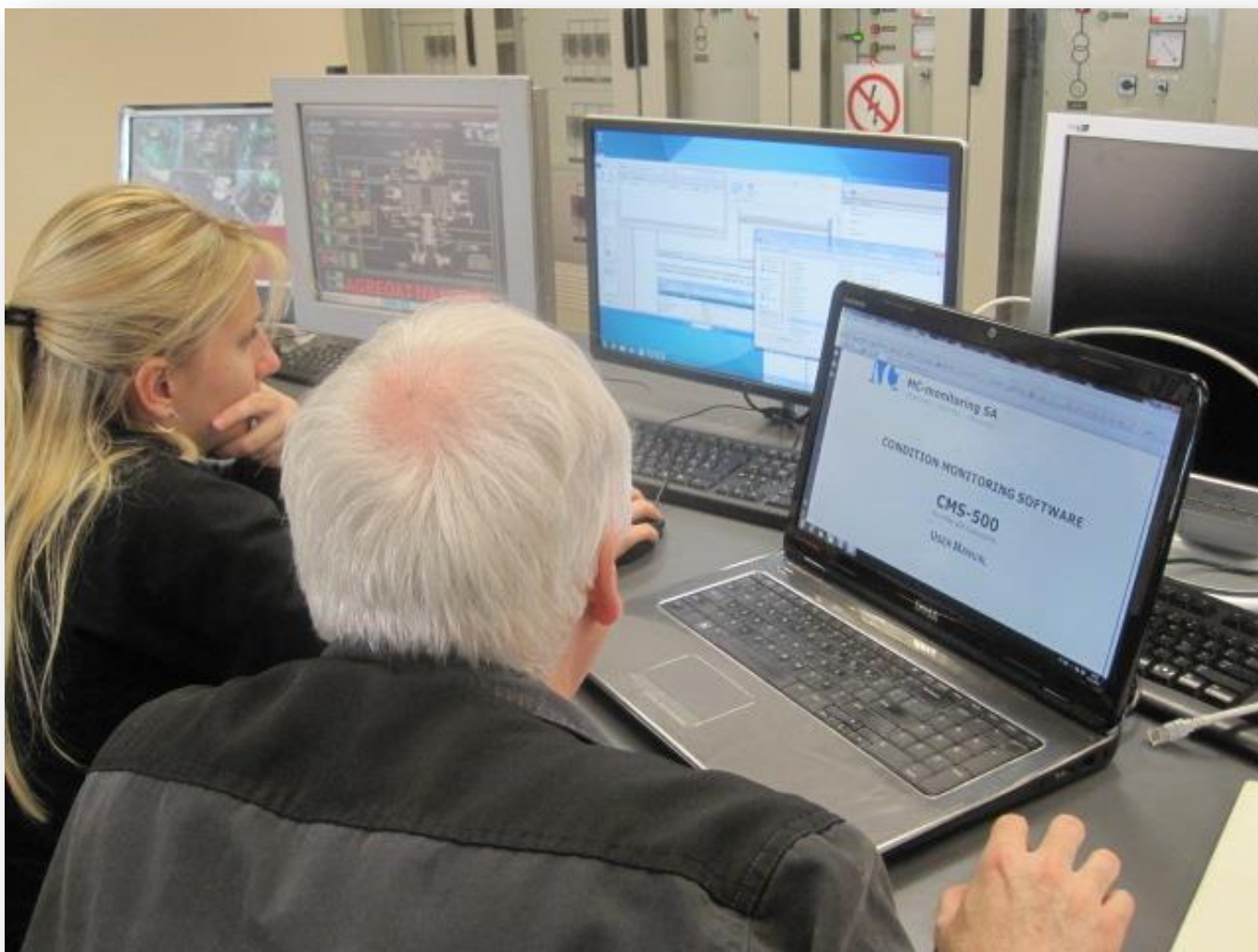








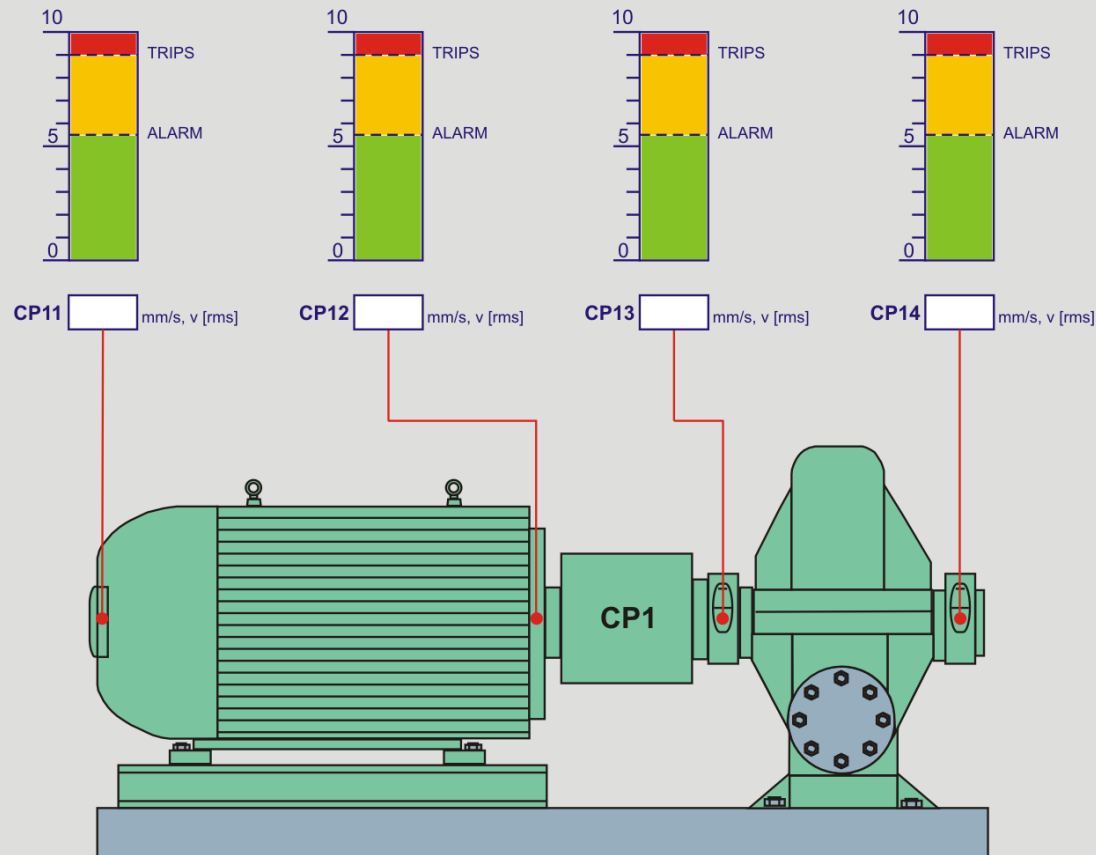






**Public Enterprise**  
“Suboticka toplana” Subotica, RS

**Vibration Protection System  
for  
Pumps and Fans**









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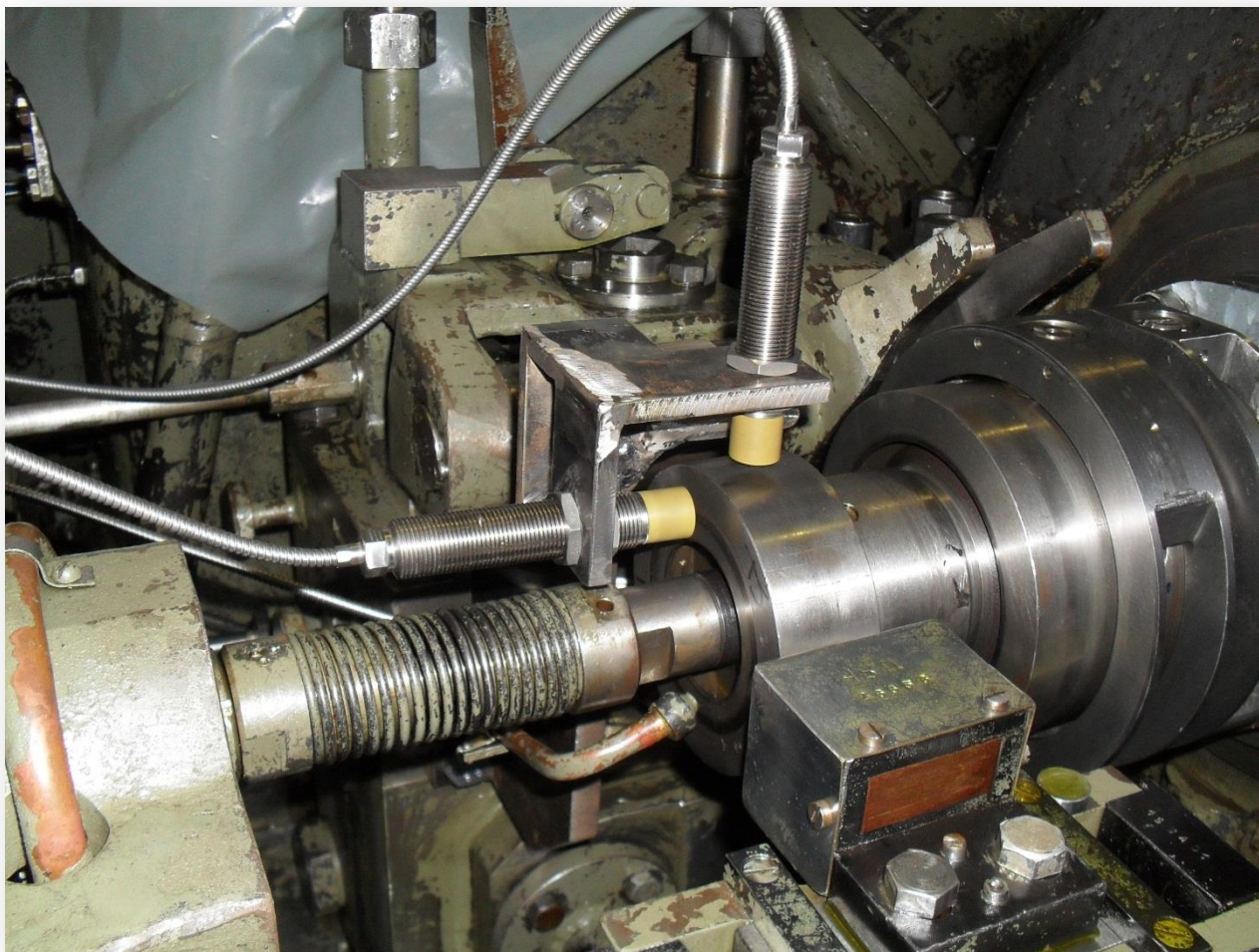
# **Electric Power Industry of Serbia**

“Panonske elektrane” Novi Sad, RS

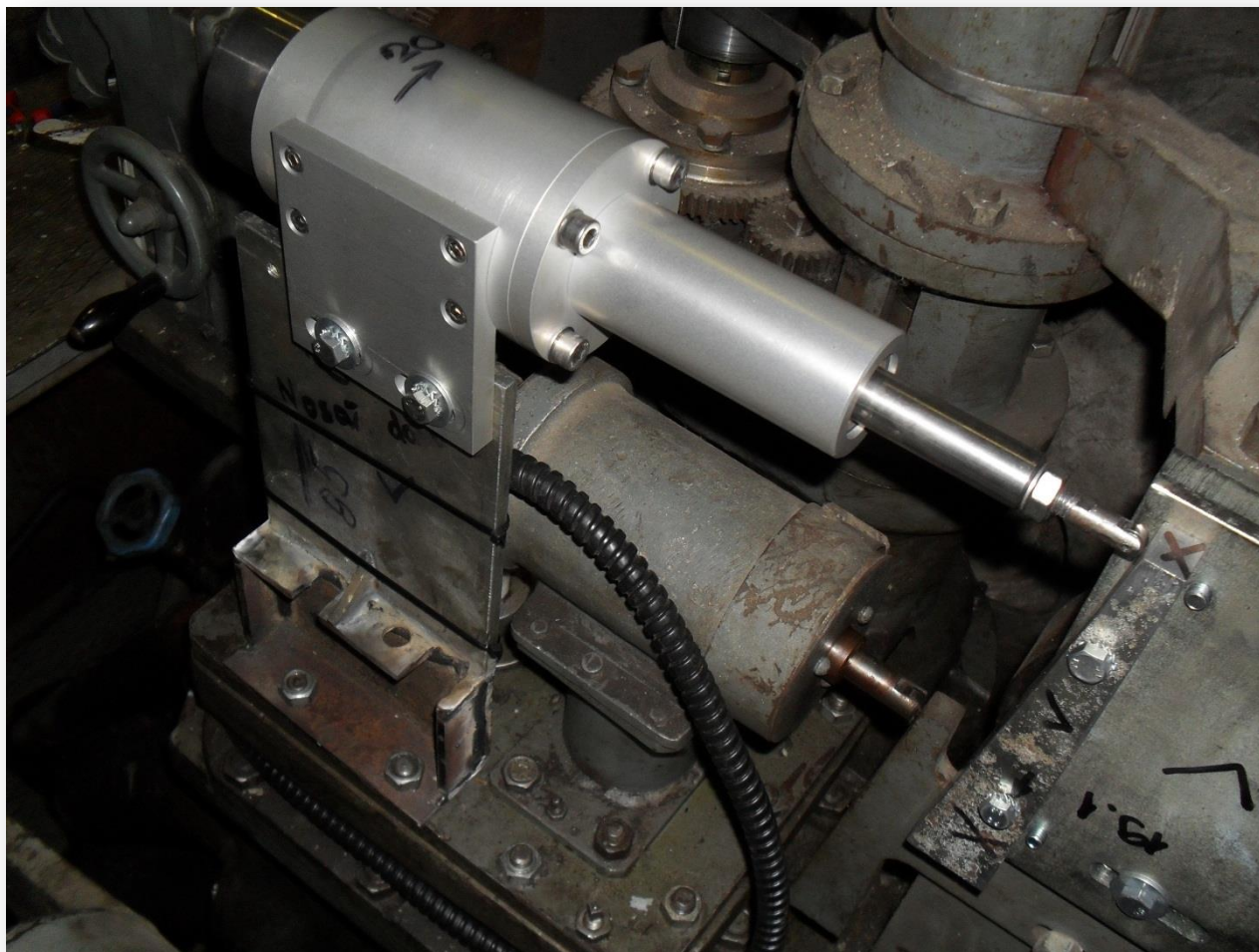
“TE-TO Novi Sad” TPP

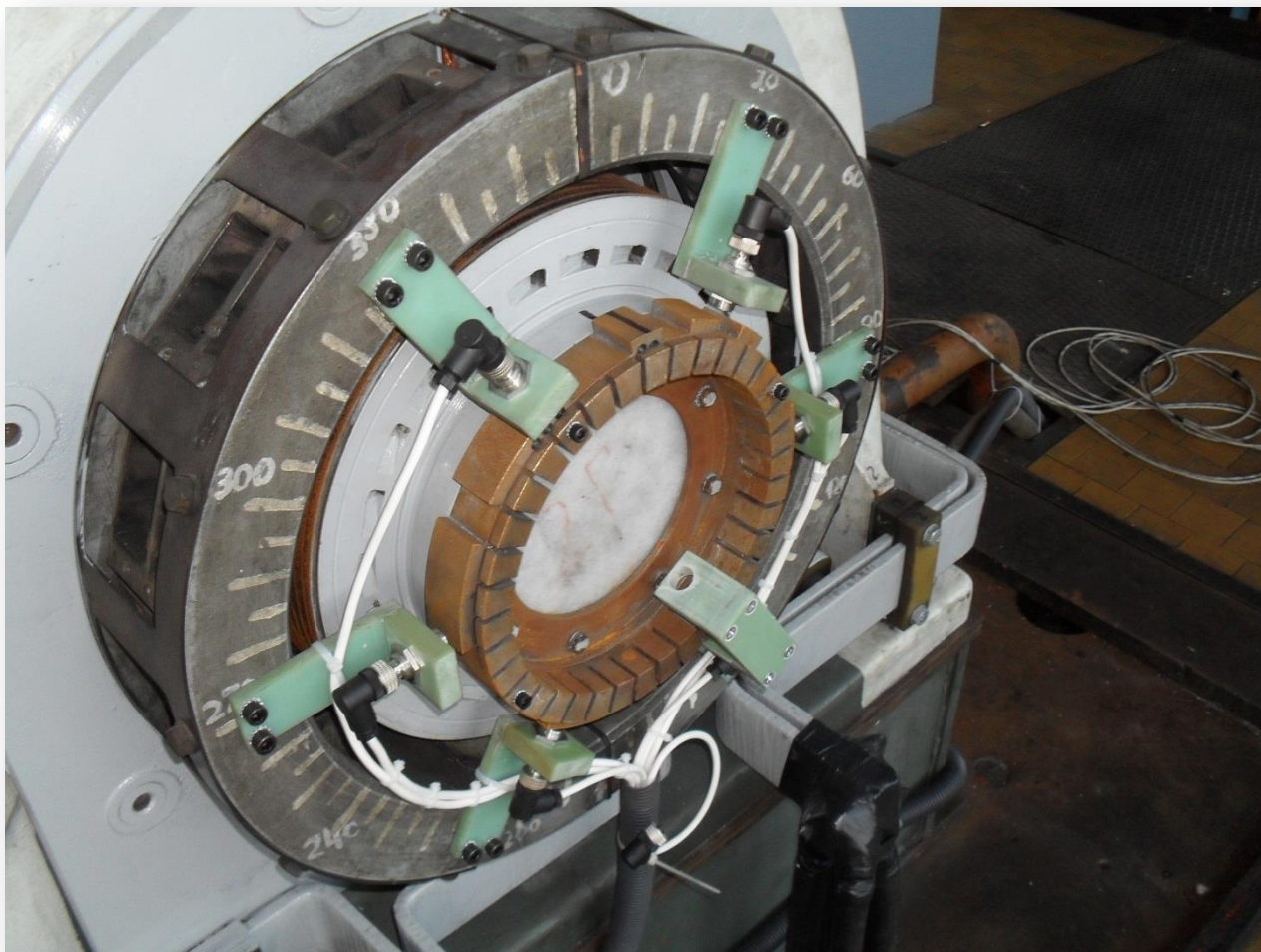
## **Condition Monitoring/Protection System for Thermal Expansion**











**Public Enterprise “Novosadska toplana”**

Toplana “Zapad” Novi Sad, RS

**Vibration Protection/Diagnostic System  
for  
Pumps and Fans**

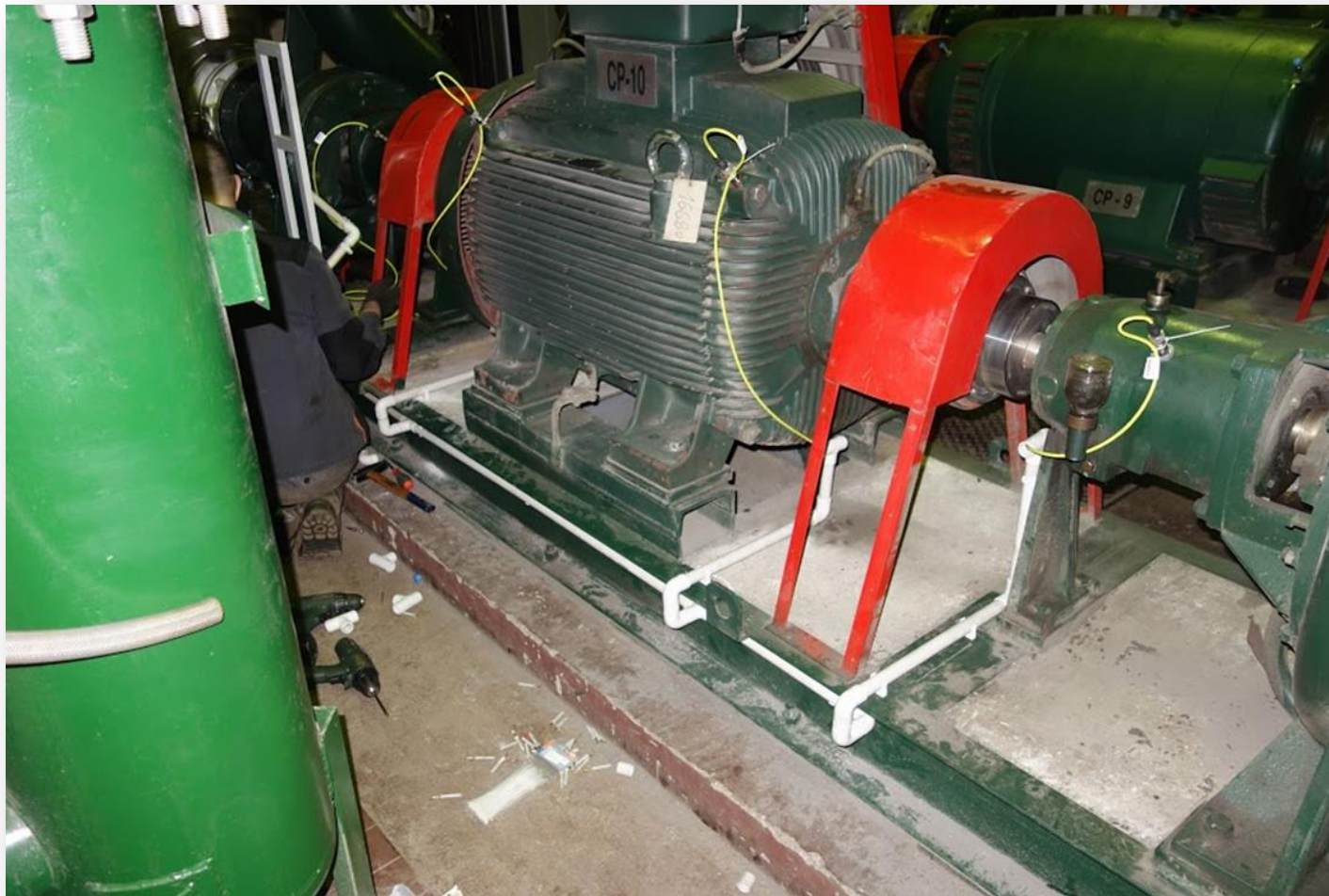


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# Thank You for Your Attention!



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