

## A. DETAILS ABOUT YOUR ORGANISATION

### ORGANISATION CONTACT DETAILS

Name of organization*	ICMET-Craiova
Name of department*	R&D
Street name*	Calea Bucuresti
Street number*	144
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City*	Craiova

### CONTACT PERSON

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## B. DETAILS ABOUT YOUR PROJECT or PROJECT IDEA

Title*	<i>Ecological technology for decrease of residual stress in metallic constructions welded using vibratory stress relief equipment (VSR)</i>
Acronym*	VSR

### THEMATIC PRIORITIES MAIN RESEARCH AREAS (MULTIPLE CHOISE)\*

Themes/Activities in ENERGY	Interest in research
Hydrogen and fuel cells	<input type="checkbox"/>
Renewable electricity generation	<input type="checkbox"/>
Renewable fuel production	<input type="checkbox"/>
Renewable for heating and cooling	<input type="checkbox"/>
CO2 capture and storage technologies for zero emission power generation	<input type="checkbox"/>
Clean coal technologies	<input type="checkbox"/>
Smart energy networks	<input type="checkbox"/>
Energy efficiency and savings	X
Knowledge for energy policy making	<input type="checkbox"/>

### PROJECT DESCRIPTION

<b>Abstract*</b>	<p>ICMET have such preoccupation and experience within VSR field, since 1985.</p> <p>The dimensional stabilization by vibration consists in the utilization of the controlled vibrations for reducing the residual stress in metallic constructions welded. This treatment can be applied both to ferrous and non-ferrous parts; it can be applied also during welding, avoiding cracks generation.</p> <p>Actually, the method imposes no limit to the weight of the treated parts. The vibratory stress relief equipment is could by micro-controller which, on the bases of a dedicated software allows:</p> <ul style="list-style-type: none"><li>-vibrator speed change, consequently mechanical vibration frequency change;</li><li>-amplification and processing of the electrical signal given by the acceleration transducer;</li><li>-data presentation of the vibrator speed and current absorbed by the motor, on alphanumeric display, with LCD;</li><li>-identification of the resonance peaks;</li><li>-control of the equipment operation, from the keyboard.</li></ul>
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\* These fields are mandatory

<b>Duration (months)</b>	36
<b>Details about the partner sought and description of the works to be carried by the partner</b>	<p>We wish an European norm drawing up for the technology residual stress decrease of metallic constructions welded using the controlled mechanical vibrations which are output of the actuators: electrodynamic, magnetostrictive, dc or ac motors.</p> <p>So, we are searching for the partners which had the field expertise:</p> <ul style="list-style-type: none"> <li>-vibration &amp; acoustic engineering;</li> <li>-numerical simulations for determining and reducing of internal tensions in welded metallic constructions;</li> <li>-magnetostrictive vibratory stress relief;</li> <li>-3D modeling mechanical vibration for residual stress reduction;</li> <li>-environmental technology;</li> <li>-drop method tests of structure ability to energy absorption;</li> <li>-dynamic, stress &amp; strain analysis of structures;</li> <li>-finite element modeling of vibration stress relief after welding;</li> </ul>
<b>Scientific keywords*</b>	welding, mechanical vibration structure, residual stress, vibratory stress relief.
<b>Partners sought* (please specify the type such as RTD, SMEs, end-user, ....)</b>	RTD, SMEs, users from metallic constructions welded area

The experience of partners that you need\*

Research interest:

- vibration & acoustic engineering;
- numerical simulations for determining and reducing of internal tensions in welded metallic constructions;
- magnetostrictive vibratory stress relief;
- 3D modeling mechanical vibration for residual stress reduction;
- environmental technology;
- drop method tests of structure ability to energy absorption;
- dynamic, stress & strain analysis of structures;
- finite element modeling of vibration stress relief after welding;

I agree with the publication of my data

\* These fields are mandatory