

COST 526 - 'Automatic Process Optimization in Materials Technology' – (APOMAT)
Final Report – 31 July 2005
Summary sheet

Project Code	CZ2
Title	Optimization of Forging Characteristics of Metal in Mushy State
Project Leader	
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Main collaborators involved	Jaroslav Horsky

Funding Situation (for the whole project)

Amount of money received specifically for COST	45 kEuros
Other resources partially used for the project	kEuros

International Collaboration (mention group and type of work done in collaboration during the whole project)

University of Ljubljana, Prof. Sarler. Using of mushy state characteristic in continuous casting simulations.

University of Krakow, Prof. Pietrzyk. Collaboration in computational software, optimization strategy, simulation of forging process.

Industry participation (mention name of companies and work done in collaboration during the whole project)

Nova Hut (Mittal Steel), Ostrava
 Steelworks Trinec
 Vitkovice Ostrava

Meetings, visits, exchange of scientists, short term scientific missions (mention main events during the whole project)

Petr Kotrbacek, short term scientific mission

Location, date

University of Krakow, September 2004

Main Outcome of the project (mention only the major points)

Experimental equipment which enables investigation of behaviour of steel in mushy state was developed. A set of tests was run to get forging characteristics. Constitutive equations were formulated. Numerical simulation of basic forging processes using FEM was performed. Influence of major parameters was clarified and then strategy of optimized forging process was formulated.

Publications, related to this project

Published

Řídký, R. – Petruška, J. – Horský, J. – Kotrbáček, P.: Experimental Study of Semi-solid Steel Deformation, Engineering Mechanics 2003, May 12-15, Svatka, Czech Republic, ISBN:80-86246-18-3.

Petruška, J. – Řídký, R. – Horský, J. – Kotrbáček, P.: Identification of Semisolid Steel Behaviour, 20 th Danubia- Adria symposium on Experimental Methods in Solid Mechanics, September 24-27, Gyor, Hungary, ISBN: 963-9058-20-3.

Zmudzki, A. – Pietrzyk, –M. Kotrbacek, P. – Horsky, J.: Various Plastometric Tests for Semi Solid Materials and Their Numerical Simulations, 10th International Conference Metal Forming 2004, September 19-22, 2004, Krakow, Poland, ISBN 3-937057-08-0, ISSN 1619-9529.

Horský, J.- Kotrbáček, P. - Petruška, J. - Řídký, R.: Experimental Study of Semi-solid steel deformation, International Journal of Forming Processes, Vol. 8- No. 1/2005, p. 63 – 75, ISSN 1292-7775, ISBN 2-7462-1163-7, Lavoisier, 2005.

Submitted for publication

Kotrbáček, P. - Horský, J. - Raudenský, M.: EXPERIMENTAL STUDY OF SEMI-SOLID STEEL DEFORMATION, 4th International Symposium THER TECH FORM 2005, TÁLE – The Low Tatras, Slovakia, 05th – 08th September, 2005

In preparation

Will you continue the actual cooperation with your partners after the end of the action?

X
Yes

No

Would you participate in a possible "spin-off" action continuing the present one?

X
Yes

No

Will you continue your present work/collaboration with another European action?

X
Yes

No