



UNIVERSITY OF NIŠ  
FACULTY OF MECHANICAL ENGINEERING  
Department for Production, IT and Management



# **34<sup>th</sup> INTERNATIONAL CONFERENCE ON PRODUCTION ENGINEERING**

## **PROCEEDINGS**



Sponsor General

Ministry of Education and Science, Republic of Serbia

September 28-30 2011,  
Niš  
Serbia

PROCEEDINGS OF THE 34<sup>th</sup> INTERNATIONAL CONFERENCE ON PRODUCTION  
ENGINEERING NIŠ, 2011.

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*Izdavač:* Univerzitet u Nišu, Mašinski  
fakultet u Nišu  
Aleksandra Medvedeva br 14  
18000 Niš  
Srbija

*Publisher:* UNIVERSITY OF NIŠ,  
FACULTY OF MECHANICAL  
ENGINEERING IN NIŠ  
Aleksandra Medvedeva br 14  
18000 Niš  
Serbia

*Za izdavača:*  
*For publisher:*

Prof.dr Vlastimir NIKOLIĆ, dekan fakulteta

*Glavni i odgovorni urednik:*  
*Editor:*

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*Tehnička obrada:*  
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*Rukopis predat u štampu:*  
*Manuscript submitted for publication:*  
*Izdanje:*  
*Printing:*  
*Tiraž:*  
*Circulation:*

20.09.2011. godine  
Septembar 20.2011  
prvo  
1<sup>st</sup>  
150

*Štampa:*  
*Printed by:*

UNIGRAF – X – COPY  
18000 Niš, Vojvode Putnika

ISBN: 978 – 86 – 6055 – 019 – 6



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Izdavanje zbornika radova, organizovanje i održavanje 34 Međunarodne konferencije proizvodnog mašinstva Srbije pomogao je pokrovitelj  
**Ministarstvo prosvete i nauke Republike Srbije**  
Finansing of the Proceedings was sponsored by the **Ministry of Education and Science of the Republic of Serbia**

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34<sup>th</sup> INTERNATIONAL CONFERENCE ON  
PRODUCTION ENGINEERING  
29. - 30. September 2011, Niš, Serbia  
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## SELECTION OF THE WELDING TECHNOLOGY OF RELIABLE ASSEMBLIES USING GMAW PROCESS

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**Abstract:** In this paper it will be given a procedure of determination of optimized shielded gas welding technology of the high reliable assemble built-up of the massive pipes on plate. Determination of welding regime, besides of welding method choosing, welding joint and welding groove, filler metal and welding equipment, calculating of energy-technological parameters, implies preliminary estimate of the base metal weldability. That estimate can be resumed as evaluation of resistance to cracks in the base metal during welding procedure, as well as determining prior and the follow-up thermal treatment of base metal if needed.

**Key words:** weldability, welding technology, preheating, GMA welding, cracks.

### 1. INTRODUCTION

In this paper is exposed only a part of results of determination of welding technology for reliable assembly to be used in Cern research installment in Switzerland. According to Figure 1a, the central pipe (position 1) should be welded for the plate (position 2),

with previously prepared groove according to detail "A" (Figure 1b). After that, it is also necessary to weld the two cut pipes (position 3) with the circular joint to the pipe detail "B" (Figure 1c), as well as longitudinally to the pipe along the two generator lines according the detail "C" (Figure 1d). Here we consider technology of welding of central pipe for plate wall only.

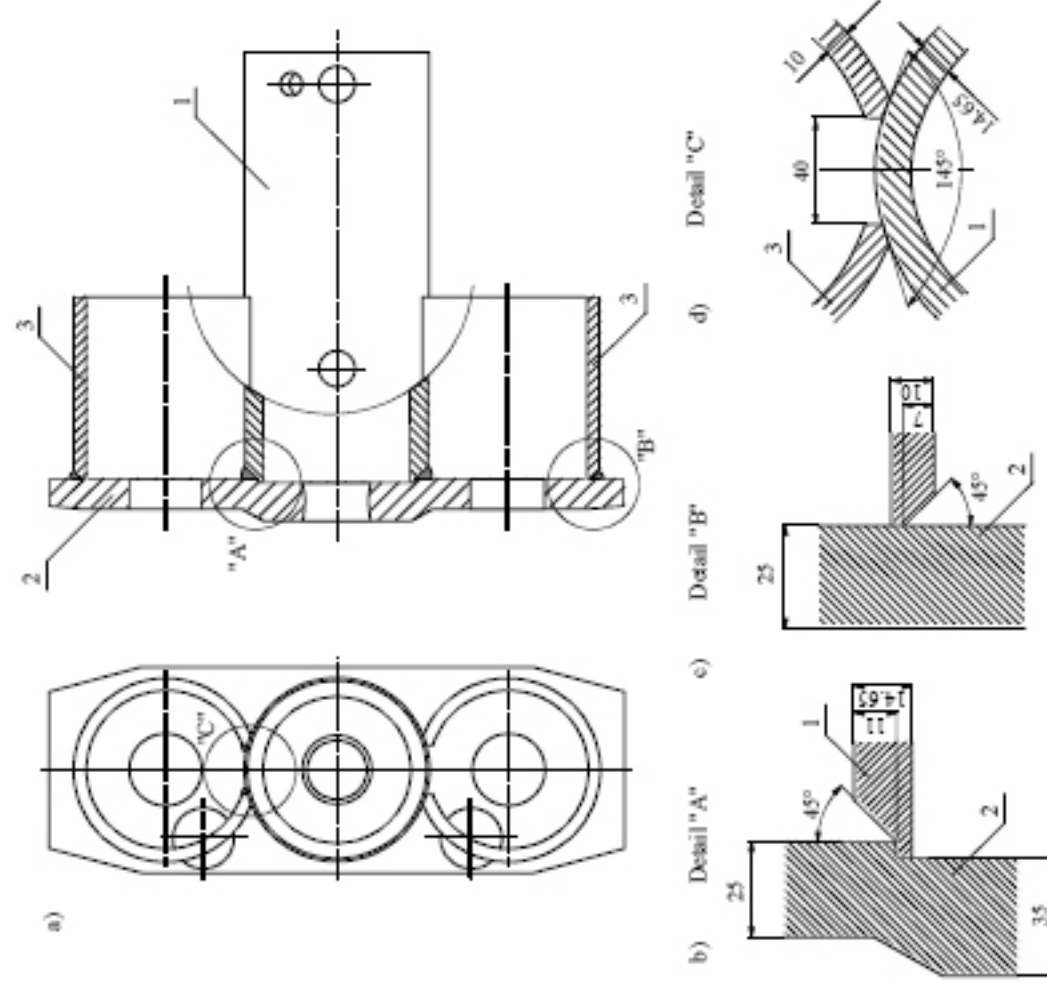


Figure 1. Welding of the central and peripheral pipes to the plate (a) and appearance of the individual grooves (b, c, d)





