LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
KARYA ILMIAH : PROSIDING

Judul Karya Ilmiah	:	Influence wt.% of SIC and Borax on the Mechanical Propertis of AlSi-Mg-TiB-SiC Composite by the Method of Semi Solid Stir Casting		
Jumlah Penulis	:	5 Orang (E.I. Bhiftime, Natalino F.D.S.G., M.B. Haryono, **Sulardjaka**, Sri Nugroho)		
Status Pengusul	:	Penulis ke-4		
Identitas Prosiding	:	a. Judul Prosiding	:	7th International Conference on Mechanical and Manufacturing Engineering
		b. ISBN/ISSN	:	9780735414990
		c. Thn Terbit, Tempat Pelaks.	:	1–3 August 2016, Jogjakarta, Indonesia
		d. Penerbit/Organiser	:	AIP Publishing
		e. Alamat Repository/Web	:	https://aip.scitation.org/doi/10.1063/1.4981187
		Alamat Artikel	:	https://doc-pak.undip.ac.id/3029/1/AIP_1831_020046_2017.pdf
		f. Terindeks di (jika ada)	:	Scopus

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Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Reviewer		Nilai Rata-rata
	Reviewer I	Reviewer II	
a. Kelengkapan unsur isi prosiding (10%)	3,00	3,00	3,00
b. Ruang lingkup dan kedalaman pembahasan (30%)	7,50	8,00	7,75
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	8,00	8,00	8,00
d. Kelengkapan unsur dan kualitas terbitan/prosiding(30%)	8,00	8,50	8,25
Total = (100%)	**26,50**	**27,50**	**27,00**
Nilai Pengusul = (40% x 27,00)/4 = 2,70			

Semarang, 2 November 2020

Reviewer 2

Ir. Eflita Yohana, M.T., Ph.D.
NIP. 196204281990012001
Unit Kerja : Teknik Mesin FT UNDIP

Reviewer 1

Dr. Agus Suprihanto, S.T, M.T.
NIP. 197108181997021001
Unit Kerja : Teknik Mesin FT UNDIP

LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
KARYA ILMIAH : PROSIDING

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[ ] *Prosiding* Forum Ilmiah Nasional

Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Maksimal Prosiding		Nilai Akhir Yang Diperoleh
	Internasional [30]	Nasional [ ]	
a. Kelengkapan unsur isi prosiding (10%)	3,00		3,00
b. Ruang lingkup dan kedalaman pembahasan (30%)	9,00		7,50
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	9,00		8,00
d. Kelengkapan unsur dan kualitas terbitan/prosiding(30%)	9,00		8,00
Total = (100%)	**30,00**		**26,50**
Nilai Pengusul = (40% x 26,50)/4 = 2,65			

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1. **Kesesuaian dan kelengkapan unsur isi paper:**
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Semarang, 2 November 2020
Reviewer 1

Dr. Agus Suprihanto, S.T, M.T.
NIP. 197108181997021001
Unit kerja : Teknik Mesin FT UNDIP

LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
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		Alamat Artikel	:	https://doc-pak.undip.ac.id/3029/1/AIP_1831_020046_2017.pdf
		f. Terindeks di (jika ada)	:	Scopus

Kategori Publikasi Makalah (beri ✓pada kategori yang tepat) : [√] *Prosiding* Forum Ilmiah Internasional
[ ] *Prosiding* Forum Ilmiah Nasional

Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Maksimal Prosiding		Nilai Akhir Yang Diperoleh
	Internasional [30]	Nasional [ ]	
a. Kelengkapan unsur isi prosiding (10%)	3,00		3,00
b. Ruang lingkup dan kedalaman pembahasan (30%)	9,00		8,00
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	9,00		8,00
d. Kelengkapan unsur dan kualitas terbitan/prosiding(30%)	9,00		8,50
Total = (100%)	**30,00**		**27,50**
Nilai Pengusul = (40% x 27,50)/4 = 2,75			

Catatan Penilaian Paper oleh Reviewer :

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Substansi artikel sesuai bidang ilmu penulis pengusul/ke empat yaitu Teknik Mesin dengan bidang keahlian rekayasa material. Unsur isi artikel yang meliputi: Title, Abstract, Introduction, Materials and Methods, Results and Discussions, Conclusion, References telah sesuai dengan petunjuk penulisan yang ada dalam seminar/prosiding. (nilai: 3,00)

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d. Kelengkapan unsur dan kualitas terbitan:
Artikel diterbitkan oleh AIP Conference Proceeding, terindeks Scopus, dengan SJR: 0,165 (2016)), artikel merupakan hasil dari 7th International Conference on Mechanical and Manufacturing Engineering (ICME 2016), diselenggarakan oleh Faculty of Mechanical and Manufacturing Engineering, Universiti Tun Hussein Onn, Malaysia. (nilai: 8,50)

Semarang, 2 November 2020
Reviewer 2

Ir. Eflita Yohana, M.T., Ph.D.
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Document details

AIP Conference Proceedings
Volume 1831, 21 April 2017, Article number 020046
7th International Conference on Mechanical and Manufacturing Engineering, Sustainable Energy Towards Global Synergy, ICME 2016; Jogjakarta; Indonesia; 1 August 2016 through 3 August 2016; Code 127896

Influence wt.% of SiC and borax on the mechanical properties of AlSi-Mg-TiB -SiC composite by the method of semi solid stir casting (Conference Paper)

Bhiftime, E.I.[a], Guterres, N.F.D.S.[b], Haryono, M.B.[c], Sulardjaka[c], Nugroho, S.[c]

[a]Department of Mechanical Engineering, Cenderawasih University, Street Kamwolker, Jayapura, Papua, 99351, Indonesia
[b]Department of Mechanical Engineering, Dili Institute of Technology, Aimutin Street, Dili-Timor Leste, Timor Leste
[c]Department of Mechanical Engineering, University of Diponegoro, Prof. Sudarto, SH Street, Tembalang, Semarang, 50275, Indonesia

Abstract

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SiC particle reinforced metal matrix composites (MMCs) with solid semi stir casting method is becoming popular in recent application (automotive, aerospace). Stirring the semi solid condition is proven to enhance the bond between matrix and reinforcement. The purpose of this study is to investigate the effect of the SiC wt.% and the addition of borax on mechanical properties of composite AlSi-Mg- TiB -SiC and AlSi-Mg- TiB -SiC/Borax. Specimens was tested focusing on the density, porosity, tensile test, impact test microstructure and SEM. AlSi is used as a matrix reinforced by SiC with percentage variations (10, 15, 20 wt.%). Giving wt.% Borax which is the ratio of 1: 4 between wt.% SiC. The addition of 1.5% of TiB gives grain refinement. The use of semi - solid stir casting method is able to increase the absorption of SiC particles into a matrix AlSi evenly. The improved composite presented here can be used as a guideline to make a new composite . © 2017 Author(s).

SciVal Topic Prominence

Topic: Metal Matrix Composites | Powder Metallurgy | Squeeze Casting

Prominence percentile: 99.230

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Bhiftime, E.I.; Department of Mechanical Engineering, Cenderawasih University, Street Kamwolker, Jayapura, Papua, Indonesia; email:irianto.bhiftime@yahoo.com

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7th International Conference on Mechanical and Manufacturing Engineering (ICME2016)
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"Sustainable Energy Towards Global Synergy"

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01st -03rd AUGUST 2016

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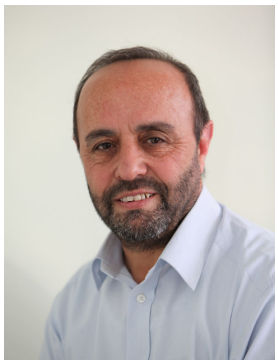

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Conference date: 1-3 August 2016
Location: Jogjakarta, Indonesia
ISBN: 978-0-7354-1499-0
Editors: Ishkrizat Bin Taib, Norzelawati Asmuin and Saliza Azlina binti Osman
Volume number: 1831
Published: Apr 21, 2017

PRELIMINARY

April 2017

Preface: 7th International Conference on Mechanical and Manufacturing Engineering (ICME'16)

AIP Conference Proceedings **1831**, 010001 (2017); https://doi.org/10.1063/1.4981141

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April 2017

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April 2017

Effect of synthetic material on angle dependency of flame spread behavior over combined fabric

B. R. Mohd Azahari, M. Suzuki, W. Masuda, B. S. Hamidon, B. S. Azwan, B. M. Akmal Nizam, H. Mohd Faisal, and B. K. Amir

AIP Conference Proceedings **1831**, 020014 (2017); https://doi.org/10.1063/1.4981155

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April 2017

Torsion vehicle model test for automotive vehicle

M. K. Mohd Nor, C. S. Ho, and N. Ma'at

AIP Conference Proceedings **1831**, 020015 (2017); https://doi.org/10.1063/1.4981156

SHOW ABSTRACT

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Effect of thread angle on flame spread behaviour over combined fabric of kenaf/polyester

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E. I. Bhiftime, Natalino F. D. S Guterres, M. B. Haryono, Sulardjaka, and Sri Nugroho

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Influence wt.% of SiC and Borax on the Mechanical Properties of AlSi-Mg-TiB-SiC Composite by the Method of Semi Solid Stir Casting

E.I. Bhiftime[1,a)], Natalino F.D.S Guterres[2,b)], M.B. Haryono[3], Sulardjaka[3] and Sri Nugroho[3]

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Abstract. SiC particle reinforced metal matrix composites (MMCs) with solid semi stir casting method is becoming popular in recent application (automotive, aerospace). Stirring the semi solid condition is proven to enhance the bond between matrix and reinforcement. The purpose of this study is to investigate the effect of the SiC wt.% and the addition of borax on mechanical properties of composite AlSi-Mg-TiB-SiC and AlSi-Mg-TiB-SiC/Borax. Specimens was tested focusing on the density, porosity, tensile test, impact test microstructure and SEM. AlSi is used as a matrix reinforced by SiC with percentage variations (10, 15, 20 wt.%). Giving wt.% Borax which is the ratio of 1: 4 between wt.% SiC. The addition of 1.5% of TiB gives grain refinement. The use of semi-solid stir casting method is able to increase the absorption of SiC particles into a matrix AlSi evenly. The improved composite presented here can be used as a guideline to make a new composite.

INTRODUCTION

Development of Metal Matrix Composites (MMCs) in science and technology, is a very important demand recently. Al-Si alloys have an important role in the field of aluminum foundry alloys. These materials have been widely used in the manufacture of automotive production, aircraft, aerospace manufacture of goods and the construction industry, due to the resilience of the material is very good. Composite material easy to weld, high corrosion resistant and has superior properties more [1]. Application of composite ranges from automotive, aviation, defense and others. AMC material on some of the components is required to be applied to high voltage, such as in the automotive field is a component of the drive shaft and the piston, the aviation sector is as helicopter blades and the field of defense, namely as track shoes from the tank [2].

Making MMCs combines aluminum alloy A356/Al7Si as a matrix with ceramic particles carbied silicon (SiC) as a reinforcement. Titanium alloy additions boron (TiB) as a grain refiner, because these properties can increase the strength and toughness of a material [3]. The use of SiC as reinforcement due to have good mechanical properties, namely, a density of 3.2 g/cm^3, a yield strength of 600 MPa, hardness Knop 2480 (HB 2170) and the elastic modulus of 400 GPa, and does not cause oxidation on metal. Alloy A356 has advantages such as light weight (density of 2.7 g / cm3), tensile strength of 172 MPa and resistant to corrosion however, has a low hardness that is,

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The Feasibility Study on Fabrication Customized Orthotic Insole using Fused Deposition Modelling (FDM)

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Abstract. There are many important roles of the orthotic insoles, such as for the convenience purpose of diabetic patient's foot problem, and also to enhance athlete's performance in sports. Therefore, highly customised insoles were in demand, where it has to be fabricated by moulding plaster of Paris on the person's leg to customise the insole. The main purpose of the paper is to study the ability to implement additive manufacturing technology in the fabrication process of customised orthotics insole. The recent invention of flexible material (Filaflex) in Fused Deposition Modelling is the most significant reason that makes this fabrication process possible. By implementing a new approach to the 3D scanning of the foot, we produced the computer-aided drafting (CAD) drawing which was able to modify to desired shape and dimension. After the editing has been completed, the file was converted to Stereolithography format file (STL) as to enable it to be printed using Makerware or any other related software by sending command (G-code) to Flashforge 3D printer. The printed insole was tested its fit, form and function (also known as 3F). In the end, printed insole performs the function test which measures the plantar pressure of the foot compared with bare foot. The results show that the insole distributes pressure well throughout the foot surface, in which it reduced the peak pressure to half from 218KPa to 109KPa. Hence, it is concluded that the method proposed in this paper can produce a functional insole so that it can be the alternative way to make customised orthotic insoles.

INTRODUCTION

Foot provides a biomechanical movement for the human body to move from one point to another. Preponderance role of foot in supporting the body weight is highly exposed to many infections and injuries which affect the shapes and functions of foots [1]. This exposure may cause foot pains which are due to injuries and in some cases foot pronation at birth, during childhood [2]. Moreover, foot pains also due to obesity [3] and also found mostly among diabetic patients [4]. Other than being a solution for foot pains, the orthotic insole is used for improvement in many cases, such as for dancers [5], athletes; golf players [6], runners and much more [7].

There were studies done regarding orthotics which is known as artificial support device that incorporates for recovery process of structure and function of bones in human body. This study concentrates on customised orthotic insole where it helps to rehab the bone functions by pressure reduction on the foot surface [8]. Thus, the primary functions of the customised insole are to provide support, bedding (cushioning) and improvement on problems like foot pronation and flatfoot [9].

The mechanical part which is the fabrication methods of the customised orthotic insoles is considered first. Traditionally, the process of fabricating customised insole is painfully time-consuming where plaster based

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Investigation of 1-Dimensional Ultrasonic Vibration Compliance Mechanism Based on Finite Element Analysis

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Abstract. The conventional milling has many difficulties in the processing of hard and brittle material. Hence, ultrasonic vibration assisted milling (UVAM) was proposed to overcome this problem. The objective of this research is to study the behavior of compliance mechanism (CM) as the critical part affect the performance of the UVAM. The design of the CM was investigated and focuses on 1-Dimensional. Experimental result was obtained from a portable laser digital vibrometer. While the 1-Dimensional value such as safety factor, deformation of hinges and stress analysis are obtained from finite elements simulation. Finally, the findings help to find the best design judging from the most travelled distance of the piezoelectric actuators. In addition, this paper would provide a clear picture the behavior of the CM embedded in the UVAM, which can provide good data and to improve the machining on reducing tool wear, and lower cutting force on the workpiece surface roughness.

INTRODUCTION

Ultrasonic Vibration Assisted Milling (UVAM) is an advanced machining process that combines ultrasonic vibration as supporting mechanism in milling process. The ultrasonic vibration is introduced in any one of the tool, workpiece and working medium in conventional, hence called UVAM [1], [2]. UVAM method is an effective way of cutting process over CM in term of cutting force, surface roughness, tool wear and so on, to machine difficult-to-cut material such as Ni- and Ti-based super alloys, hardened steels and tungsten carbides [1], [3], [4].

The disparity of UVAM from ordinary micro -milling is that the work piece is clamped on the ultrasonic vibration surface rather than on a stationary workstation as shown in Fig. 1. The vibration or motion can be linear 1-Dimensional UVAM or elliptical 2-Dimensional UVAM. In most vibration assisted machining, an ultrasonic generator or function generator is utilized to provide the ultrasonic parameter such as frequency, amplitude and signal pattern to excite the vibration. UVAM uses a forced vibration with small amplitude typically range 10 to 25 µm and discrete frequency of 20 to 40 kHz in order to generate a gap between the tool and workpiece [5].

The optimal piezoelectric actuator is it has significant features such as low voltage operations, high block force and high working resonance frequency. At a certain combination of cutting speed, tool frequency and amplitude, the tool periodically loses contact with the workpiece, reducing cutting forces and hence producing thinner chip [3], [4].

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