



FINAL PROGRAMME

High Tech Die Casting

INTERNATIONAL
CONFERENCE

VIRTUAL EVENT
22-25 JUNE 2021

www.aimnet.it/htdc.htm

Organised by



**ASSOCIAZIONE
ITALIANA DI
METALLURGIA**

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Scope & Committees

scope

Through the years, the HTDC Conference has grown and become a key-event for scientists and researchers from the foundry field of Aluminium, Magnesium and other non-ferrous alloys as well as for experts from the industry. The HTDC Conference series has been steadily growing in quality, impact and participation in the following conferences, organised in 2004, 2006, 2008, 2012 and 2016.

Due to the ongoing pandemic, HTDC Conference will be held completely online, as virtual event in live streaming, on Zoom platform, on 22-25 June 2021.

The HTDC Conference is the meeting point for experts involved in the research activities and development of foundry technologies, processes or materials, as well as those employed by the foundry companies of light and non-ferrous alloys, and who are prepared to share some of their current experiences.

Today, Die Casting production is facing new challenges: from eco-sustainability and efficient energy usage to optimisation of product properties and finishing, from tailored alloys' properties to design of lightweight larger structural components. Only an "open-minded" approach, resulting in a high capability of being innovation-driven, integration-oriented and implementation-ready, will make Die Casting foundries successful in an international market dominated by strong competition.

To sustain the competitiveness in Die Casting production, HTDC Conference will cover these key features:

- innovations, from alloys to processes, from design to applications, which are available to foundries, suppliers, end-users;
- multi-disciplinary integration of concepts, methods and processes;
- implementation, into the industrial context, of new and modern solutions for quality, efficiency, high performance.

HTDC will be an exhaustive Conference focusing on scientific, technical and management innovations in the field of Die Casting, with papers and contributions from a very qualified panel of experts, with both academic and industrial background.

conference chairmen

prof. Franco Bonollo · DTG, Università di Padova, Italy

prof. Giulio Timelli · DTG, Università di Padova, Italy

local organising committee

Federica Bassani · Associazione Italiana di Metallurgia, Italy

Franco Bonollo · DTG, Università di Padova, Italy

Fabrizio Carmagnini · Amafond, Italy

Alberto Fabrizi · DTG, Università di Padova, Italy

Maurizio Grillo · Associazione Italiana di Metallurgia, Italy

Yozen Gyursoy · DTG, Università di Padova, Italy

Federico Mazzolari · Associazione Italiana di Metallurgia, Italy

Zohresadat Noohi · Isfahan University of Technology, Iran

Piero Parona · MotulTech-Baraldi, Italy

Giulia Scampone · DTG, Università di Padova, Italy

Valeria Scarano · Associazione Italiana di Metallurgia, Italy

Silvano Squaratti · Assofond, Italy

Giulio Timelli · DTG, Università di Padova, Italy

Committees

international scientific committee

D. Apelian · UCI, USA
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M. Conserva · Edimet, Italy
M. da Silva · Eurecat, Spain
R. Danko · AGH, Krakow, Poland
M. Di Sabatino · University of Trondheim, Norway
D. Dispinar · Istanbul Technical University, Turkey
A. Fabrizi · DTG, Università di Padova, Italy
G. Flégeau · Favi, France
E. Gariboldi · Politecnico di Milano, Italy
M. Gorny · AGH, Krakow, Poland
N. Gramegna · Enginsoft, Italy
M. Grillo · Associazione Italiana di Metallurgia, Italy
C. Gustavsson · RISE, Sweden
T. Haga · Technical University Osaka, Japan
R. Haghayeghi · Azad University, Iran
A. Jarfors · Jönköping University, Sweden
K.U. Kainer · Helmholtz-Zentrum Geesthacht, Germany
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P. Kapranos · The University of Sheffield, UK
M. Merlin · Università di Ferrara, Italy
R. Molina · Teksid Aluminum, Italy
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G. Muneratti · Foseco Italy
C. Mus · Endurance Overseas, Italy
A. Nofal · CMRDI, Egypt
P. Parona · MotulTech-Baraldi, Italy
A. Pola · Università degli Studi di Brescia, Italy
D. Pullini · CRF FCA, Italy
T.E. Prucha · American Foundry Society, USA
D. Rollez · GB Metall, Belgium
M. Rosso · Politecnico di Torino, Italy
A. Sharma · Malaviya National Inst. of Tech. Jaipur, India
P. Schumacher · University of Leoben, Austria
G. Timelli · DTG, Università di Padova, Italy
D. Ugues · Politecnico di Torino, Italy
M. Vedani · Politecnico di Milano, Italy
I. Vicario Gomez · Tecnalia, Spain
Q. Zhu · General Research Inst. for Non-ferrous Metals, China

Tuesday 22 June 2021

conference opening

9.00 ► Welcome Addresses by the Conference Chairmen

Franco Bonollo - University of Padova - DTG, Vicenza, Italy

Giulio Timelli - University of Padova - DTG, Vicenza, Italy

9.15 ► Die Casting: a multi-disciplinary field with open challenges

Panel discussion, chaired by Giulio Timelli

I. Vicario - Tecnalia Research & Innovation, Derio, Spain

C. Mus - Endurance Overseas, Chivasso, Italy

D. Pullini - CRF FCA, Italy

exploitation paths for high pressure die casting

Chairpersons — F. Bonollo, G. Timelli

10.00 ► HTDC_052 Study of the effect of ultrasonic treatment in porosity and mechanical properties of cast parts

M. da Silva, S. Cruz - Eurecat, Centre Tecnològic de Catalunya - Cerdanyola del Vallès, Spain

X. Planta - Ultrason, Cerdanyola del Vallès, Spain

J. Tort, G. Aguirre - Hornos y Metales, Ajalvir, Spain

10.20 ► HTDC_055 Development and testing of a conformal cooling insert made with additive manufacturing technology for HPDC die

R. Molina, L. Tortone, G. Saretto - Teksid Aluminum, Carmagnola, Italy

10.40 ► HTDC_054 Comparison between high-pressure die-cast and rheo-cast aluminium-SiCp MMC; Wear and friction behaviour

E.W. Jarfors, C.K. Jammula - Jönköping University, School of Engineering, Jönköping, Sweden

R. Ghasemi - Husqvarna, Huskvarna, Sweden

11.00 Break

Tuesday 22 June 2021

alloys for high temperature applications

Chairpersons — E.W. Jarfors, F. Bonollo

11.20 ► HTDC_062 Influence of Cu content on high-temperature fatigue of secondary AlSi7Mg(V,Zr) alloys

A. De Mori, G. Timelli, A. Fabrizi - University of Padova, Vicenza, Italy

F. Berto - Norwegian University of Science and Technology, Trondheim, Norway

11.40 ► HTDC_067 Wear behavior of SiC reinforced AZ91 magnesium matrix composites fabricated by high pressure die casting

A.S. Vanli, B.O. Kucukyildirim, A. Akdogan - Yildiz Technical University, Turkey

12.00 ► HTDC_071 Effect of cooling rate of hypereutectic Al-Si alloys on microstructure, mechanical and corrosion behavior

S. Sirin - Sakarya University of Applied Sciences, Sakarya, Turkey

E. Kocaman - Zonguldak Bulent Ecevit University, Zonguldak, Turkey

D. Dispinar - Istanbul Technical University, Istanbul, Turkey

poster session: innovative tools and process

Chairperson — G. Timelli

12.35 ► HTDC_049 Influence of plasma electrolytic oxidation and painting on fatigue performance of AZ60A-T5 wrought magnesium alloy

A. Bernardi, L. Ceschini, C. Martini, A. Morri - Alma Mater Studiorum, University of Bologna, Bologna, Italy

S. Messieri - Ducati Motor Holding, Bologna, Italy

12.40 ► HTDC_083 Study of an automated system for surface defects analysis on die-cast components by using Artificial Intelligence

G. Cavaliere, Y. Borgianni - Free University of Bozen, Bolzano, Italy

C. Schäfer - Alupress, Bressanone, Italy

12.45 ► HTDC_084 Selection of innovative material for HPDC dies

B. Baldin, G. Timelli - University of Padova, Vicenza, Italy

D. Grassivaro - Form, Legnano, Italy

12.50 ► HTDC_086 Suction system from the self-induced mold cavity (Venturi)

E. Tonolli - TF, Villa Carcina, Italy

13.00 Break

Tuesday 22 June 2021

new generation of alloys

Chairpersons _ M. da Silva, A. Pola

14.20 ► HTDC_064 Effect of Li addition on mechanical properties of Al-Si-Mg alloy

O. Özeydin, A.Y. Kaya, E. Armakan - Cevher Wheels, zmir, Turkey

14.40 ► HTDC_025 New hyper-eutectic zinc alloy for hot chamber die-casting application

D. Rollez - Grillo Werke AG, Duisburg, Germany

L. Montesano, A. Pola - University Brescia, Brescia, Italy

M. Schlotterbeck - Oskar Frech GmbH, Schorndorf, Germany

15.00 Break

die casting with engineered solutions

Chairpersons _ M. da Silva, A. Pola

15.20 ► HTDC_020 Advanced PVD coatings for protection of moulds and dies

P.Eh. Hovsepian, A.P. Ehasarian - National HIPIMS Technology Centre, Sheffield Hallam University, Sheffield, UK

15.40 ► HTDC_061 Blister formation in chrome plated die cast zinc parts

C. Mangos, L. Kallien - Aalen University of Applied Sciences, Aalen, Germany

16.00 ► HTDC_077 Numerical simulation of the effects of a Phase Change Material (PCM) on solidification path of gravity sand cast Al-Cu alloy

Z. Noohi, B. Niroumand - Isfahan University of Technology, Isfahan, Iran

G. Timelli - Università di Padova, Vicenza, Italy

16.30 End of the first day

A BMW model M clutch bell

Why not simulate the full HPD process?

Con NovaFlow&Solid niente più scuse per non simulare l'intero processo di pressocolata.

Wednesday 23 June 2021

design and applications of diecast components

Chairpersons — N. Gramegna, P. Parona

09.00 ► HTDC_044 Design of castings and dies for HPDC with the help of optimization software
D. Grassivaro - FORM, Legnaro, Italy

09.20 ► HTDC_065 Design and analysis of various cooling conditions of an aluminum wheel mold
O. Özyaydin, Y. Çatal, A.Y. Kaya - Cevher Wheels, Izmir, Turkey

9.40 ► HTDC_008 Characterization of microstructural and mechanical properties of high-pressure die-cast EN AC 46000 alloy
M. Tocci, L. Montesano, A. Pola - University of Brescia, Brescia, Italy
S. Ferri - Ghial, Castegnato, Italy

10.00 Break

innovative solutions for die casting

Chairpersons — G. Timelli, O. Özyaydin

10.20 ► HTDC_041 A Milkrun system for guiding forklifts ladle to supply holding furnaces
A. De Salvo - EDiM, Villasanta, Italy
P. Catterina - Visitrak Worldwide LLC, Prevalle, Italy

10.40 ► HTDC_042 New developments in HPDC foundry digitalization oriented to process control and ZDM
N. Gramegna - EnginSoft, Padova, Italy
A. Salata - RDS Moulding Technology, Torreglia, Italy

11.00 ► HTDC_003 Micro spray technologies for an efficient die spraying in HPDC
M. Lutz - Wollin GmbH, Lorch, Germany

11.20 ► HTDC_043 A new approach to die lubrication optimization
L. Baraldi, P. Parona, C. Raone - Motultech Baraldi, Bologna, Italy

11.40 ► HTDC_021 Application of artificial intelligence in diecasting process for predictive maintenance and efficiency improvement
L. Metelli - Gefond, Milano, Italy

12.00 ► HTDC_006 Trim technology and trim process: state of the art and future developments and applications
P. Claus - Tecnopres, Chieri, Italy

12.20 ► HTDC_002 HPDC process optimization through thermographic monitoring of the die
S. Bellucco - Marposh, Bentivoglio, Italy

12.50 Break

Wednesday 23 June 2021

the potential for new process & advanced tooling

Chairpersons — E. Fracchia, A. Fortini

- 14.00 ▶ HTDC_015 Alternative alloying concepts of hot work tool steels for application in die casting**
P. Niederhofer, F. van Soest, M. Gürçan, H.-G. Krull, T. Schneiders - Deutsche Edelstahlwerke Specialty Steel GmbH & Co. KG, Witten, Germany
- 14.20 ▶ HTDC_011 A new hot-work tool steel for die casting molds with the highest surface requirements**
E. Meurisse, I. Schruff - Kind & Co., Wiehl, Germany
- 14.40 ▶ HTDC_005 AM process simulation to optimise diecasting tooling**
N. Gramegna, D. Boscolo, G. Scarpa - EnginSoft, Padova, Italy
N. Nardo, F. Bonollo - Università di Padova - DTG, Padova, Italy
- 15.00 ▶ HTDC_060 Hollow structural die cast parts using salt cores**
L. Kallien, M. Becker, T. Weidler - Aalen University of Applied Sciences, Aalen, Germany

15.30 Break

applications: the challenge for materials & processes

Chairperson — R. Haghayeghi, R. Pirovano

- 15.50 ▶ HTDC_001 Residual stress analysis applied to HPDC aluminium components: a case study**
E. Fracchia, F.S. Gobber, M. Rosso - Polytechnic of Turin - Turin, Italy
Y. Kobayashi - Sinto Blastec Company Peening Center, Toyokawa, Japan
C. Mus - Endurance Overseas, Chivasso, Italy
- 16.10 ▶ HTDC_066 Evaluation of fracture toughness in HPDC aluminum alloys to estimate crashworthiness in automotive parts**
D. Frómeta, A. Lara, S. Parareda, J. Tarhouni - Eurecat Centre Tecnològic de Catalunya, Manresa, Spain
D. Casellas - Luleå University of Technology, Luleå, Sweden
- 16.30 ▶ HTDC_048 Save the weight with 2MM LPDC parts using casting simulation**
C. Viscardi - Ecotre Valente, Brescia, Italy

17.00 End of the second day

SILVAL

PRIMARY ALLOYS FROM RECYCLING



Raffmetal, European leader in the recycled aluminium sector for over 40 years, offers the innovative SILVAL range of primary aluminium alloys with performance **equal to primary aluminium alloys produced from bauxite**. The use of recycled aluminium, compared to production from bauxite, enables a reduction in the energy consumption and carbon footprint of our customers' castings.

Raffmetal's know-how allows the application of the most advanced technological solutions in the **treatment and selection of scrap**, in addition to the **strict control of the production process** that guarantees a constant high quality.

CARBON FOOTPRINT OF DIFFERENT PRIMARY ALUMINIUM ALLOYS PRODUCTIONS*

(kg CO₂eq/kg Al)



Raffmetal SILVAL high recycling and low carbon alloys are designed to help our customers to achieve sustainability goals and to meet the demands of increasingly environmentally conscious consumers.

For more information and customised alloys please contact: specialalloys@raffmetal.it



Baraldi




THE **NEXT** RELEASE

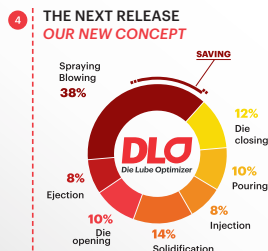
HPDC DIE LUBRICANTS OPTIMIZATION



4 STEPS FOR THE BEST RESULTS

THE RIGHT AMOUNT OF DIE LUBRICANT APPLIED IN THE SHORTEST TIME POSSIBLE

- 1** DIE SURFACE TEMPERATURE MONITORING

- 2** DIE LUBRICATION CYCLE ANALYSIS

- 3** RANGE OF OPTIMIZER DIE LUBRICANTS




Thursday 24 June 2021

casting defects & molten metal treatments

Chairpersons — E. Gariboldi, M. Merlin

- 9.00 ▶ HTDC_026 Correlation between melt quality and machinability of Al9Si3Cu HPDC alloy**
H. Kalkan - Mercedes, Istanbul, Turkey
D. Dispinar - Istanbul Technical University, Istanbul, Turkey
- 9.20 ▶ HTDC_073 Investigation of porosity formation in controlled solidified AlSi10Mg**
S. Sirin, A. Demir - Sakarya Uygulamalı Bilimler Üniversitesi, Sakarya, Turkey
E. Kocaman - Zonguldak Bülent Ecevit Üniversitesi, Zonguldak, Turkey
- 9.40 ▶ HTDC_075 Investigations into the aluminium rotary degassing process become SMARTT - the basis for Foundry 4.0**
K. Berndt, R. Simon - Vesuvius, Borken, Germany
G. Muneratti - Vesuvius, Vermezzo, Italy
- 10.00 ▶ HTDC_087 New primary grade Al alloys with high recycled content and low carbon footprint**
P. Gamberini, R. Zambelli - Raffmetal, Casto, Italy
- 10.20 ▶ HTDC_082 Using casting process simulation to improve castings' environmental footprint**
H. Fransson - NovaCast Systems, Ronneby, Sweden

10.40 Break

from microstructure to performance

Chairperson — D. Dispinar

- 11.00 ▶ HTDC_050 Temperature and microstructural-condition dependence for thermal diffusivity and electrical conductivity of a casting Al-Si-Cu-Mg alloy**
R. Wang, M.C. Poletti - Graz University of Technology, Graz, Austria
B. Stauder, R. Fernández Gutiérrez - Nemak Linz GmbH, Linz, Austria
C. Confalonieri, E. Gariboldi - Politecnico di Milano, Italy
- 11.20 ▶ HTDC_051 Effects of bismuth on the characteristics of eutectic Si particles in Na-modified A356 alloys**
Ö. Gürsoy, G. Timelli - University of Padova, Vicenza, Italy
- 11.40 ▶ HTDC_053 Fatigue properties and microstructural analysis of diecast AlSi11Cu2(Fe) alloy: effect of surface finishing**
M. Merlin, D. Benasciutti, L. Lattanzi, A. Fortini - University of Ferrara, Ferrara, Italy
G. Timelli - University of Padova, Vicenza, Italy

Thursday 24 June 2021

poster session: alloying additions and casting defects for high-performance castings

Chairpersons — B. Baldin, G. Timelli

- 12.10 ► HTDC_034 Role of metal quality and porosity formation in low pressure die casting of A356: Experimental observations
D. Dispinar - Istanbul Technical University, Istanbul, Turkey
M. Colak - Bayburt University, Bayburt, Turkey
A. Nordmark, F. Syvertsen - SINTEF Materials and Chemistry, Trondheim, Norway
- 12.15 ► HTDC_029 Development of bifilm index for the assessment of melt quality and its use in LPDC casting of wheels
Y. Sagnak, A. Kaya - Cevher Wheels, Izmir, Turkey
D. Dispinar - Istanbul Technical University, Istanbul, Turkey
- 12.20 ► HTDC_085 Formation and distribution of oxide-related defects in gravity AISi7Cu0.5Mg alloy castings
G. Scampone, G. Timelli - University of Padova, Vicenza, Italy
R. Pirovano, S. Mascetti - XC Engineering, Italy
- 12.25 ► HTDC_027 The effect of bifilm size, location and orientation on the tensile properties of A356 alloys
Ö. Kesen, O. Aydin, S. Temel, F. Tezer, H. Sahin, M. Atik, D. Dispinar - Istanbul Technical University, Istanbul, Turkey
Ö. Gürsoy - University of Padova, Vicenza, Italy
- 12.30 ► HTDC_028 Assessment of grain refiner quality and its effect on melt cleanliness
Ö. Gürsoy - University of Padova, Vicenza, Italy
D. Dispinar - Istanbul Technical University, Istanbul, Turkey

12.40 Break

poster session: alloying additions for high-performance castings

Chairperson — G. Scampone

- 14.00 ► HTDC_035 Effect of cerium addition on A356
F. Tezer, D. Dispinar - Istanbul Technical University, Istanbul, Turkey
- 14.05 ► HTDC_036 Effect of erbium addition on microstructure and mechanical properties of A356
H. Sahin, D. Dispinar - Istanbul Technical University, Istanbul, Turkey
- 14.10 ► HTDC_037 The effects of molybdenum edition on mechanical properties and microstructure in A356 aluminum
M. Atik, D. Dispinar - Istanbul Technical University, Istanbul, Turkey

Thursday 24 June 2021

intelligent process for quality & economical sustainability

Chairpersons _ E. Fracchia, G. Timelli

- 14.20 ► **HTDC_076 Layout and optimization of a complex 3D temperature control systems to increase the efficiency of an innovative high speed casting cell**
W. Sokolowski, R. Aspacher, N. Clauss - Oskar Frech, Germany
G. Hartmann, H. Rockmann, H. Bramann - MAGMA, Aachen, Germany
- 14.40 ► **HTDC_017 The realization of two R&D projects to transform a raw casting into a finished component**
R. Pederzoli - Meccanica Pi.Erre, Brescia, Italy
- 15.00 ► **HTDC_031 Applications of automotive lean production tools on casting industry**
Ü. Ayyildiz - Prometal Hafif Metaller Döküm San., Bursa, Turkey
- 15.20 Break
- 15.40 ► **HTDC_080 The new biocide regulations: their impact and innovative sustainable solutions**
U. Schmidt-Freytag, A. Kelly - Henkel, Germany
- 16.00 ► **HTDC_056 Adaptive motion technology and off line programming for surfacing finishing solutions**
G. Cassanmagnago - ABB, Sesto S. Giovanni, Italy
- 16.20 ► **HTDC_012 An investigation on effect of rotary degassing-ultrasonic method on high pressure die casting products**
R. Haghighyeghi - Volvo Truck North America, USA
- 16.50 End of the third day



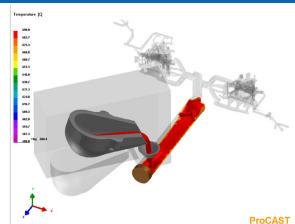
METALLURGY & PROCESS SPECIALISTS

**ECOTRE VALENTE IS TOGHETER WITH
FOUNDRIES, DIE MAKERS & DESIGNERS**

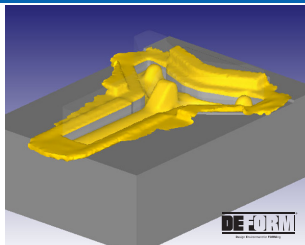
- ◆ Training Courses
- ◆ Simulation Services
- ◆ Software Simulation QuikCAST Light, QuikCAST, ProCAST and DEFORM
- ◆ Washing Plants TECNOFIRMA
- ◆ Robotic Automation SIMAC

**CASTING, FORGED, ROLLED AND EXTRUDED COMPONENTS
WITH ADVANCED TECHNOLOGIES**

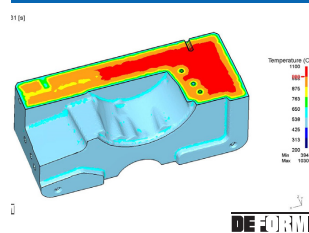
Casting Simulation



Metal Forming Simulation



Heat Treatment Simulation



Friday 25 June 2021

new scenarios for process simulation

Chairpersons — I. Vicario, F. D'Errico

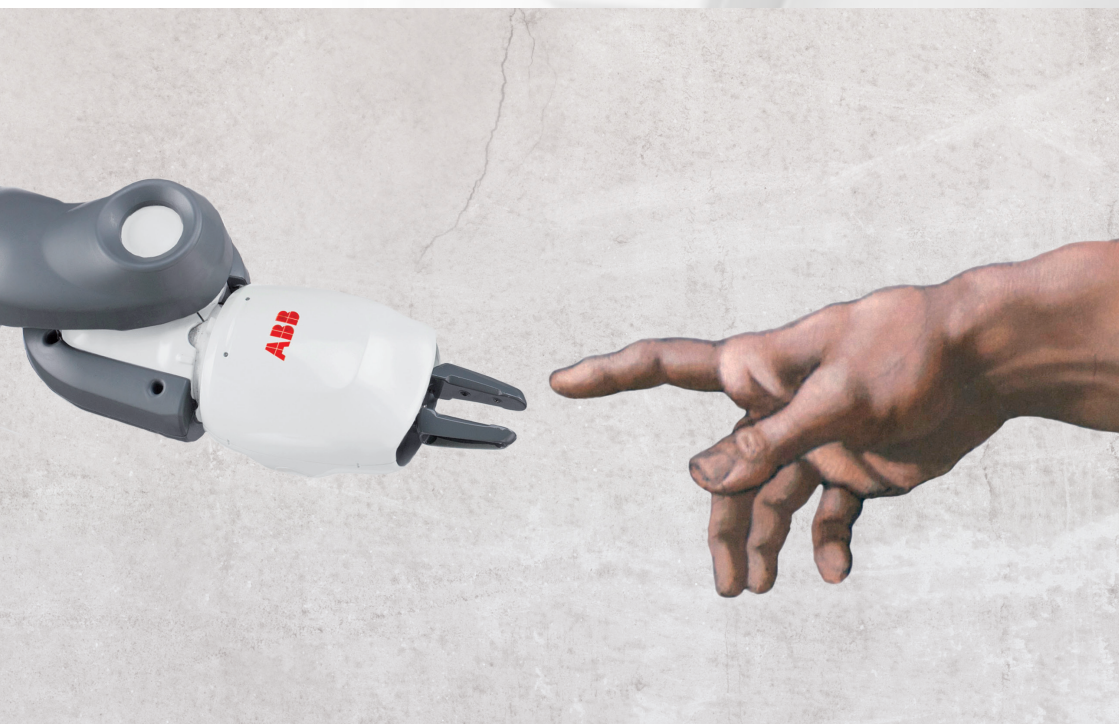
- 9.00 ► **HTDC_016 Integration of casting simulation with virtual dimensional control. Predictive and reliable stress simulation in HPDC**
L. Valente - Ecotre Valente, Brescia, Italy
- 9.20 ► **HTDC_032 Advanced solidification model for multicomponent alloys simulations**
E. Palo - XC Engineering, Cantù, Italy
- 9.40 ► **HTDC_047 Development of a model for the prediction of mechanical properties for Al-Si-Mg castings**
C. Ransenigo, M. Tocci, A. Pola - University of Brescia, Brescia, Italy
C. Viscardi - Ecotre Valente, Brescia, Italy
M. Serafini - Maxion Wheels Italia, Dello, Italy
- 10.00 ► **HTDC_033 Innovative and unconventional simulation approaches in support of the development of lightweight casting processes**
R. Pirovano - XC Engineering, Cantù, Italy

10.20 Break

hpdc supporting eco-sustainability and circular economy

Chairpersons — F. Bonollo, G. Timelli

- 10.40 ► **HTDC_046 Development of a new process to recover aluminium from contaminated granulated or thin complex materials to employ for primary aluminium alloys**
I. Vicario, J. Antoñanzas Gonzalez, L. Yurramendi Sarasola, J.C. Múgica Iraola, A. Abuin Ariceta - Tecnalia Research & Innovation, Derio, Spain
- 11.00 ► **HTDC_058 Eco-sustainable lightweight automotive part manufacturing: GHGs-free die casting of brake leverage prototype made of AZ91D-1.5CaO magnesium alloy**
F. D'Errico, A. Gruttadauria - Politecnico di Milano, Department of Mechanical Engineering, Milan, Italy
G. Perricone, D. Casari - Brembo Breaking Systems, Stezzano, Italy
M. Romeo - Insight, Milan, Italy
- 11.20 ► **FINAL REMARKS AND OFFICIAL CLOSING OF HTDC CONFERENCE**
F. Bonollo, G. Timelli - University of Padova - DTG, Vicenza, Italy



The future of Industry

Il nuovo Rinascimento digitale con la robotica

Nel contesto di trasformazione tecnologica e digitale in atto, ABB accoglie il cambiamento ponendo la collaborazione tra uomo e robot al centro di una nuova fase di rinnovamento e di sviluppo, avviando così il nuovo Rinascimento della «fabbrica del futuro».

Grazie all'integrazione di strumenti digitali e tecnologie collaborative di automazione, la robotica di ABB oggi è in grado di offrire soluzioni innovative ancora più semplici e flessibili che rivoluzionano l'industria manifatturiera e introducono un nuovo modo di lavorare, ancora più efficiente.



General information

HTDC Conference will be held completely online, on 22-25 June 2021, as virtual event in live streaming, on Zoom platform. Zoom is compatible with Windows, macOS, iOS, Android, Chrome OS, and Linux. For a better usage of Zoom, we recommend using the desktop client or the mobile app (both with free download).

language

The official language of the Conference will be English.

proceedings

Full papers will be published, after peer-review, on La Metallurgia Italiana – International Journal of the Italian Association for Metallurgy, on Nov-Dec 2021 issue and on February 2022 issue.

registration

ONLINE REGISTRATION

It is possible to register and pay by credit card online at the following link: [REGISTER ONLINE](#)

REGISTRATION FORM

Complete and return the registration form to met@aimnet.it [DOWNLOAD REGISTRATION FORM](#)

conference registration fees

EARLY REGISTRATION FEES (by June 4, 2021)

	Delegate	Speaker/Chairperson Scientific Committee Member
AIM members	Eur 180,00	Eur 150,00
NON members *	Eur 290,00	Eur 260,00
Students	Eur 140,00 (VAT included)	

STANDARD REGISTRATION FEES (after June 4, 2021)

	Delegate	Speaker/Chairperson Scientific Committee Member
AIM members	Eur 230,00	Eur 150,00
NON members *	Eur 340,00	Eur 260,00
Students	Eur 190,00 (VAT included)	

All above registration fees are revenue stamp included.

SOCI JUNIOR AIM:

La partecipazione per i Soci Junior AIM è gratuita se fatta entro il 4 giugno. Dopo tale data, sarà richiesto un contributo pari a € 50.

conference registration fees include

- Admittance to technical sessions
- (*) The NON members registration fees include AIM membership for the second half of 2021 and the year 2022.

payment and remittance

- by **bank transfer**, to the order of Associazione Italiana Di Metallurgia – AIM at “Intesa Sanpaolo S.p.A.”, branch no. 5500 – FIL ACCENTRATA TER S, Cod. IBAN IT14P0306909606100000145117, Swift code: BCITITMM
The transfer order must specify the name of the participant and the reference “HTDC”.
A copy of the transfer order must be sent to aim, together with the registration form.
- by **credit card** online: www.aimnet.it/htdc.htm

speakers registration

Registration for speakers is due by April 23, 2021. Speakers failing to register or to pay by the deadline will not be included in the program and their paper will not be published. We consider one speaker (presenter) for paper, co-authors must register as delegate.

SPEAKERS CANCELLATION AND REFUND POLICY

A refund, less 20% deduction for administrative costs, will be issued for written cancellations received before April 23, 2021. For speakers who notify their cancellation after April 23, 2021 or will not attend the Conference, a charge of 100% of the Conference fee will be withheld. Their papers will be published anyway.

cancellation and refund policy

A refund, less 20% deduction for administrative costs, will be issued for written cancellations received by June 4, 2021. For attendees who notify their cancellation after June 4, 2021 or will not attend the Conference, a charge of 100% of the Conference fee will be withheld.

organising secretariat



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NOTE OF THE PROGRAMME

This programme is not definitive and it may be slightly modified: title and authors, cancelled or added papers, chairperson, timetable or duration, etc. Possible changes in the programme will be communicated before the beginning of the Conference.



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