

Aerospace & Defence Manufacturing Summit

ADMS 2015

Souvenir



July 2015



स्वावलंबन की ओर गतिमान राष्ट्र के संवाहक PROPELLING INDIA TOWARDS SELF - RELIANCE

परिकल्पना एवं विकास द्वारा
Designed & Developed by



उत्पादन द्वारा
Manufactured by



**भारत डायनामिक्स लिमिटेड
BHARAT DYNAMICS LIMITED**

(भारत सरकार का उपक्रम) (Govt. of India Enterprise)
कंचनबाग, हैदराबाद - 50058, भारत, टेली-फैक्स +91-24340712
ई-मेल : bdbdl@ap.nic.in संपर्क करें : <http://bdl.ap.nic.in>
Kanchanbagh, Hyderabad - 500 058, India. Tele-Fax : +91-24340712
email : bdbdl@ap.nic.in, Visit us at : <http://bdl.ap.nic.in>



SMART CONNECTIVITY FOR ENVIRONMENTS WHERE FAILURE IS NOT AN OPTION

Success in today's challenging avionics environment demands a holistic approach to system integration. At TE Connectivity, we understand complex system protocols, key electrical parameter requirements, and overall mechanical performance requirements under extremely rugged conditions. Whether they are high performance wire and cables, sensors, relays & contactors, connectors, or light weight heat shrink components & braids, we provide the broadest range of connectivity for harsh environments.

For more information, contact us at manjunathh@te.com
Connect with us at te.com/MilAero

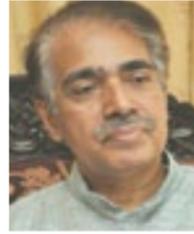


EVERY CONNECTION COUNTS



National Advisory Committee

Dr. C.G.Krishnadas Nair
Former Chairman , HAL
President , SIATI.



Dr. C.G.Krishnadas Nair

Dr. K.Tamilmani
Director General, (Aeronautical Systems)
DRDO



Dr. K.Tamilmani

Shri. N. Shyam Chetty
Director,
National Aerospace Laboratories



Shri. N. Shyam Chetty

Shri. R. Kaveri Renganathan,
CEO,HAL (Bangalore Complex)



Shri. R. Kaveri Renganathan



Lt Gen(Dr) V. J.Sundaram

Lt Gen(Dr) V. J.Sundaram,
PVSM,AVSM,VSM (Retd)
Former Director, DRDL and RCI



Dr. Kota Harinarayana

Dr. Kota Harinarayana
Former Programme Director - LCA
Aeronautical Development Agency, DRDO

Dr. Prahlada
Former Distinguished Scientist &
CC R & D DRDO



Dr. Prahlada



AVM. Ajith Lamba (Retd)

Air Vice Marshal Ajith Lamba (Retd)
Head of Safran, Bangalore



Col. H. S. Shankar

Dr. A.R.Upadhya
Former Director, NAL

Col. H. S. Shankar,
Chairman & Managing Director,
Alpha Design Technologies Limited

Air Cmde. Ravish Malhotra (Retd.)
COO & Head, Dynamatic Technologies Ltd



Dr. A.R.Upadhya



Air Cmde. Ravish Malhotra



Air Cmde. Joseph Varkey

Air Cmdr. Joseph Varkey (Retd.)
Secretary General , SIATI

Executive Committee



Shri. R. Sundaram
CEO
Aerospace Engineers



D.R Subramanyam
Director
SLN Technologies Pvt Ltd



Shri. Venkata Subramanian
CEO
Systems Aids



Shri. Naresh Palta
CEO (A&D)
Maini Group



Shri. Venugopal Menon
Senior Executive Officer
SIATI



Shri. Mueen Ahamadulla Khan
Honorary Secretary
AeSI Bangalore



Mr. Sunny Jerome
Managing Editor
Aeromag Asia

डॉ. एस. क्रिस्टोफर

सचिव रक्षा अनुसंधान तथा विकास विभाग एवं महानिदेशक डी आर डी ओ

Dr. S. Christopher

Secretary Department of Defence R&D and DG DRDO



भारत सरकार
रक्षा मंत्रालय
रक्षा अनुसंधान तथा विकास विभाग
डी आर डी ओ भवन, नई दिल्ली-110 011

Government of India
Ministry of Defence
Department of Defence Research & Development
DRDO Bhawan, New Delhi-110 011



Message

I am happy to know that Society of Indian Aerospace Technologies and Industries (SIATI) and AeroMag Asia are jointly organizing second edition of Aerospace and Defense Manufacturing Summit – ADMS 2015 at Bangalore.

2. The Aerospace sector of India is on the verge of a great growth and the Prime Minister's initiative of "Make in India" is going to be the booster rocket. Manufacturing in India should definitely be the one which the whole world should look forward to.

3. I am sure the Summit will see the deliberations of many relevant points by the best brains of the country for promoting the Indian manufacturing industry with the latest technology.

I wish the ADMS 2015 a great success.

New Delhi

17 July 2015

(Dr. S. Christopher)

डॉ. के. तमिलमणि
Dr. K. Tamilmani
विशिष्ट वैज्ञानिक
DISTINGUISHED SCIENTIST
महानिदेशक - वैमानिकीय प्रणाली
DIRECTOR GENERAL - AERONAUTICAL SYSTEMS



भारत सरकार - रक्षा मंत्रालय
Government of India - Ministry of Defence
रक्षा अनुसंधान तथा विकास संगठन
Defence Research & Development Organisation
डेयर कैम्पस, पो.बॉ.सं. 9366
DARE Campus, Post Box No. 9366
बैंगलोर / Bangalore - 560 093

No. DG(Aero)/Sectt/DG-DO/2/013

Date: 13th July 2015



MESSAGE

There are few parallels to the manner in which Aerospace and Defence (A&D) ecosystem and manufacturing competence have influenced the way countries are perceived worldwide. Our continuous national efforts, over past few decades, spearheaded by painstaking efforts of various Government agencies in conjunction with Private Industries, have started bearing fruits and garnered international attention. Our achievements in military aviation and capability to address the complete segment of Tejas-LCA, UAVs and Helicopters is noteworthy notwithstanding the high degree of complexity, stringent performance, safety standards and reliability. We have witnessed successful strides taken by India's private industry manufacturing giants venturing into the high technology A&D domain. Indian defence industry also has an opportunity to leverage India's globally acknowledged IT and design expertise to occupy a high value niche in the technologically complex aerospace and defence value chain. Indian manufacturing industry is all set to get a major boost with 'Make-in-India' call of our Prime Minister being co-ordinated by the Raksha Mantri. Improvement of quality and production, timely delivery are the key buzz words. Synergy, Cooperation and Integrated working are essential in driving productivity improvements and win-win scenario for all stakeholders.

I am glad that the Aerospace & Defence Manufacturing Summit - 2015 jointly organized by Society of Indian Aerospace Technologies and Industries and Aeromag (Asia) aims as the premium forum to bring together leading manufacturers and solution providers to throw open opportunities for Indian SMEs and MSMEs to manufacture products developed by DRDO besides offering them marketing assistance. I understand that key aspects and issues related to manufacturing and engineering best practices and their application to business drivers for innovation and growth are being addressed. I am sure that focused discussions on cutting edge technology, strategy for implementation of solutions with incentives as per new government initiatives would benefit all forward thinking aerospace and defence companies aspiring to stay ahead.

I wish the event a grand success.

भारत डायनामिक्स लिमिटेड
(भारत सरकार का उद्यम-रक्षा मंत्रालय)
Bharat Dynamics Limited
(A Govt. of India Enterprise - Min. of Defence)
CIN : U24292TG1970GOI001353



वी. उदय भास्कर
अध्यक्ष एवं प्रबंध निदेशक

V. Udaya Bhaskar
Chairman & Managing Director

कंचनबाग, हैदराबाद- 500 058, भारत.
Kanchanbagh, Hyderabad-500 058. India
फोन : Phone : 0091-40-24340352
फैक्स : Fax : 0091-40-24340660

Date: 14 July 2015



MESSAGE

I take this opportunity to commend Society of Indian Aerospace Technologies & Industries (SIATI) and AEROMAG Asia for the initiative to organise AEROSPACE & DEFENCE MANUFACTURING SUMMIT (ADMS-2015) on 24 - 25 July 2015.

I understand that companies in Public & Private sectors, Design agencies and also companies from abroad are planning to show case their products, capabilities and technology at this summit. I am confident that ADMS will facilitate Scientists, Engineers and Industry Experts to deliberate, discuss and exchange ideas towards technological advancement contributing to industry growth on the whole.

I congratulate the Organising Committee for the initiative and wish ADMS-2015 a grand success.



Dr. C.G. Krishnadas Nair

Former Chairman, HAL,
Hony. President,
Society of Indian Aerospace Technologies & Industries
AeSI Building, Suranjandas Road
Off: Old Madras Road, Bangalore – 560 075
Tel: 91-80-25275262/25219951; Fax: 91-80-25292440
E-mail: cgkn@siati.org; Website: www.siati.org



July 20, 2015

MESSAGE

On the occasion of the Aerospace and Defence Manufacturing Summit 2015 I, President of SIATI, extend a warm welcome to all the participants.

This edition of the ADMS is focusing attention on the role of Indian and Overseas OEMs industries in the 'Make in India' mission to enhance the contribution of the manufacturing sector to the GDP and creation of business for all the partners. Particular emphasis is being made on the advance technology & products roadmap projected by MoD, taking into account for the next 10-15 years' requirements and the need for collaborative synergetical efforts. Special session by experts on achieving manufacturing excellence through quality and productivity improvement and use of advanced & emerging process technologies, automation, IT tools and techniques are included.

I hope that ADMS-2015 will provide an excellent platform for private industries and foreign OEMs to deliberate on the forecast of advanced technology and product requirements by the MoD and make plans for co-operations among themselves and with the Defense PSUs and DRDO to build mutually rewarding partnership. I wish all the participants excellent deliberations and networking for the vibrant growth of the manufacturing sector for aerospace and defense towards fulfilment of our mission 'Make in India'.


(DR.CG.KRISHNADAS NAIR)

With Best Compliments



HINDUSTAN
GROUP OF INSTITUTIONS
CHENNAI, INDIA

Aviation | Management | Engineering | Applied Sciences | Architecture | Humanities | Fashion Design



Regd. & Admn. Office: No. 40, GST Road, St. Thomas Mount, Chennai - 600 016,
Tamilnadu, India. Ph: +91 44 2234 2155 / 0980 / 1389 / 2508 Fax: +91 44 2234 2170
email: hetc@vsnl.com www.hindustan.ac.in

BDL ramping up production capabilities



Bharat Dynamics Limited (BDL), a Government of India Enterprise under the Ministry of Defence was established in Hyderabad in the year 1970 to be a manufacturing base for guided missiles and allied defence equipment. Nurtured by a pool of talented engineers drawn from DRDO and aerospace industries, BDL began its journey by producing the 1st Generation Anti-Tank Guided Missile (ATGM) - the French SS11B1.

On successful completion of the SS11B1 project, BDL embarked on production of 2nd generation ATGMs – the French Milan - 2 and Russian Konkurs. These projects were taken up under licence production with technical collaboration from M/s. Euromissile, France and M/s. KBP, Tula, Russia respectively.

These products covered a broad spectrum of the requirements of the Indian Army's infantry and mechanized infantry forces. The productionization process at BDL with a phase-wise transfer-of-technology, laying emphasis on indigenization, has enabled its engineers to gain deep insight into the design concepts and system engineering of BDL has been working closely with the user as well as the OEM in the upgradation of ATGMs to the class of tandem warhead ATGMs. Milan - 2 has been upgraded to Milan - 2T with a tandem warhead to defeat the ERA fitted to modern battle tanks. Similarly, Konkurs ATGM has been upgraded to Konkurs - M ATGM with a tandem warhead, with a similar advantage. This has led to providing more teeth to the soldier on the battlefield and

mechanized infantry forces.

The lead taken by the Nation to develop indigenous, sophisticated and contemporary missiles through the Integrated Guided Missile Development Programme (IGMDP), gave BDL an opportunity to be closely involved in the programme, wherein it was identified as the Prime Production Agency. This opened up a plethora of opportunities to assimilate advanced manufacturing and programme management technologies and skills. BDL rose to the needs of the Concurrent Engineering Approach adopted by DRDO in IGMDP, to become an important and competent partner in these projects.

BDL is proud to be the lead integrator of the Akash Weapon System. The Indian Army had placed orders worth ` 14,180 crore on BDL, during the year 2011 for the supply of the Akash Weapon System. AWS has been inducted into the Indian Army. It was a historic moment for BDL, when, the AWS was inducted into the Indian Army. CMD, BDL, at a glittering ceremony held at New Delhi on 05 May, 2015, handed over the "symbolic key" of the Akash Weapon System to the Chief of Army Staff General who, thereafter, handed over the same to the Director General, Army Air Defence, marking the induction of AWS into the Indian Army.

Akash has been developed by the Defence Research and Development Organisation and is being manufactured by BDL with 96% of material sourced in Akash Missile is a Surface to Air Missile with the capability to engage aerial threats up to the maximum range of 25 km and upto an altitude of 18 km. The versatile and wholly indigenous weapon system, the Akash SAM, will be the mainstay for the Air Defence of the Nation up to 2030s and beyond. With the productionization of Akash, India joins an elite club of only a few countries in the world, capable of producing Surface-to-Air Missiles. BDL, a Miniratna Category - I Public Sector Enterprise, is amongst a few industries in the world having capabilities to produce state-of-the-art guided weapon systems. The Company is poised to enter new avenues of manufacturing, covering a wide range of weapon systems such as Surface-to-Air Missiles, Air Defence Systems, Heavy Weight Torpedoes,



Air-to-Air Missiles etc., making it a world-class defence equipment manufacturer. BDL has also entered into the area of refurbishment and life extension of missiles. The major manufacturing divisions of the company have ISO 9001 : 2008 certification.

Presently, BDL has three manufacturing units. The first unit is co-located with its Corporate Office at Hyderabad, the second one in Medak District of Telangana and the third unit, which is dedicated exclusively to the manufacture of underwater weapons, is at Visakhapatnam in Andhra Pradesh. Most of the products of the company are single shot devices, which call for utmost reliability. Quality Policies have been laid out to achieve this objective with emphasis on ensuring quality right from basic input levels till the realization of the final product. All three Units have been certified with ISO 14001:2004 certificate related to Environmental Management System.

Milan Division of BDL has been certified with AS 9100C certificate related to Aerospace Quality Management System. The Akash Division has been certified with ISO 9001: 2008 certificate related to Quality Management System. The Electronics Lab of Bhanur Unit has been accredited with ISO / IEC 17025:2005 (NABL) Certification in the discipline of Electro-Technical calibration. BDL has plans in place to ramp-up its production capabilities to meet the ever growing demands of the Armed Forces.

The fourth manufacturing unit of the company is being set up in Amravati district, Maharashtra. BDL plans to produce Very Short Range Air Defence Missile (VSHORAD) at its new unit. The foundation stone for the unit was laid by Her Excellency Smt Pratibha Devisingh Patil, the then Hon'ble President of India, on 11 Dec 2011. The unit is spread over an area of about 530 acres. The fifth unit is being set up at Ibrahimpatnam in Telangana. The Company plans to set up a Surface to Air Missile Defence Project at the new unit. The unit is spread over an area of about 630 acres.

Led by luminaries like Dr Krishna Menon, Dr Raja Ramanna, Air Vice Marshal Dastur and a host of other brilliant scientists and engineers in the past, the Company is presently headed by Shri V. Udaya Bhaskar, Chairman and Managing Director. The quest for technological excellence has been the guiding principle of the organization and living up to the sobriquet, 'THE FORCE BEHIND PEACE'.

MILAN - 2T (ATGM)



Application:

- Milan - 2T is a man portable (Infantry) second generation ATGM, to destroy Tanks fitted with Explosive Reactive Armour, moving and stationery targets.

FLAME

Application:



- Fagot Launcher Adapted to Milan Equipment (FLAME) is a cost - effective launcher for operation of MILAN Missile.

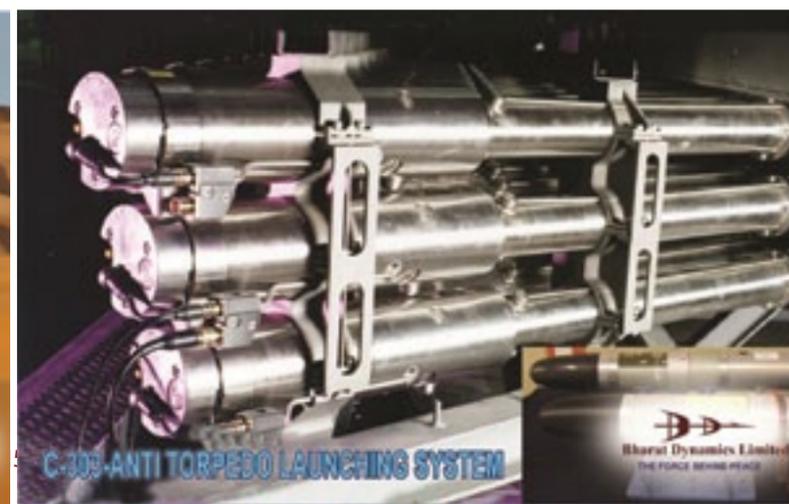
KONKURS-M (ATGM)



Application:

- Konkurs – M is a Second Generation, mechanized infantry ATGM, to destroy armoured vehicle equipped with Explosive Reactive Armour, moving and stationary targets.
- A higher homologue of Konkurs missile with improved warhead penetration.

INVAR (3 UBK 20) (ATGM)



Application:

- Invar is a mechanized infantry weapon fired from the gun barrel of T90S Main Battle Tank to destroy armoured vehicles equipped with Explosive Reactive Armour.

AKASH



Application:

- Akash is an all-weather, Area Air Defence Weapon System for defending vulnerable areas / points against penetrating targets at low, medium and high altitudes. The system can engage multiple threats simultaneously.

LIGHT WEIGHT TORPEDO (TAL)



Role: Light weight anti-submarine
 Launching Platform: Ship / Helicopter

COUNTER MEASURES DISPENSING



SYSTEM (CMDS)

- A state-of-the-art Chaff and Flare Dispensing System.
- Provides self protection to the aircraft against Radar Guided and heat seeking missiles launched from air or ground.

BHARAT DYNAMICS LIMITED
 For further details please contact:
 GM (Business Development)
 BHARAT DYNAMICS LIMITED
 Kanchanbagh, Hyderabad - 500 058
 Telangana, INDIA.
 Telefax: 91 40 24340712
 Email: bdbdl@ap.nic.in

Helping Leverage Technology for Engineering Excellence...

<p>SIEMENS</p> <ul style="list-style-type: none"> NX CAD NX CAM NX CAE Tecnomatix Teamcenter 	<p>Altair</p> <p>CAE Suite of Solutions</p> <ul style="list-style-type: none"> HyperWorks 	<p>Stratasys</p> <p>3D Printing Technologies</p> <ul style="list-style-type: none"> Idea Series Design Series Production Series 	<p>Engineering Services :</p> <p>We provide Engineering services at every stage of Product Life cycle Management starting from Concept Design, 3D Modeling and validation, Product design analysis and simulation, product design optimization to Interactive 3D Technical Documentation. We provide services on all the leading CAD and CAE software</p>
<p>SLM SOLUTIONS</p> <p>Metal 3D Printing Technologies</p> <ul style="list-style-type: none"> SLM[®] 125 HL SLM[®] 280 HL SLM[®] 500 H 	<p>esi</p> <p>get it right[®]</p> <p>Casting & Welding Simulation Solution</p> <ul style="list-style-type: none"> QuikCAST ProCAST Sysweld 	<p>MathWorks</p> <ul style="list-style-type: none"> MATLAB SIMULINK 	<p>DesignTech</p> <p>Technology For Designing The Future</p> <p>DesignTech Systems Ltd. 6, Commerce Centre, Rambaug Colony, Paud Road, Pune - 411 038, India T : +91-20-41311200/1 F : +91-20-41311233 E : info@designtechsys.com W : www.designtechsys.com</p>



MORE LETHAL
 with BEL's Avionic Systems.

Empowering the Nation's Defence Forces

www.bel-india.com

BEL's unflinching R&D commitment and excellence in providing the defence forces with state-of-the-art products and systems has established it as a leader in hi-tech defence electronics.

- Radars & Weapon Systems
- Communication Systems
- Electronic Warfare Systems & Avionics
- Network Centric Systems
- Naval Systems
- Electro Optics
- Tank Electronics
- Civilian Products



Policies, procedures being formulated to boost indigenization: Dr. Satheesh Reddy



Dr G Satheesh Reddy, Distinguished Scientist, DRDO recently took over as Scientific Advisor to Defence Minister. The eminent Missile Scientist has made pioneering contributions to Navigation and Avionics technologies. He steered many Defence Projects and Programmes as Director of Research Centre Imarat (RCI) and provided necessary thrust to the development of critical technologies.

Dr Satheesh graduated from JNTU, Anantapur and received his MS & Doctorate from JNTU, Hyderabad. He is a renowned Fellow of many leading professional academies/societies – FNAE, FRIN (London), FAeSI, FRAeS (UK), FSSWR, FIET (UK), FIE, FAPAS, FIETE in the country and abroad. He holds the distinction of being awarded Full Member Diploma of the Academy of Navigation & Motion Control, Russia and is an Associate Fellow of American Institute of Aeronautics & Astronautics, USA. He is an Honorary Fellow of Computer Society of India and also Honorary Member of ACDOS, India.

Dr Satheesh received the prestigious Indian Science Congress Association Homi J. Bhabha Memorial Award, DRDO Young Scientist Award and Agni Award for Excellence in Self Reliance from the Hon'ble Prime Minister. For his outstanding contributions to Aerospace engineering, he has been conferred with many prominent awards like DrBiren Roy Space Science & Design Award, Rocketry & Related technologies Award, Scientist of the Year Award, FAPCCI Outstanding Engineering Award, B V Baliga Memorial Award and Vikram Award for realization of Systems for National importance.

Dr Satheesh Reddy shared his thoughts on wide-ranging issues in this exclusive interview.

How do you see your new role as Scientific Advisor to Defence Minister?

Today, when the country is geared up for rapid technological developments with increased R&D content and higher industry participation, the Scientific Advisor has a definite role to play in much needed transformation towards achieving self-reliance in the defence technologies. As emphasized by our Hon'ble Prime Minister and Hon'ble Raksha Mantri, the large imports have to be brought down gradually and the indigenous development & production need to ramp up.

Now the contributions of SA to RM will go beyond DRDO and wide technological participation in planning and policy finalization.

This transformation has to be achieved by bringing in a balance between the public sector and the private industry in defence production. It is also of prime importance to play a bridging role among the three stakeholders - the armed forces, DRDO & industry to bring in greater synergy. A greater impetus will be imparted to the Design and Make in India concept.

What needs to be done to further boost indigenization in defence and aerospace sector in India?

The technologies (systems and sub-systems) being imported and the capability to be built within the country to indigenize them is clearly known. Firstly, policies and procedures are being formulated to boost indigenization. Towards achieving self-reliance in the defence technologies, the first step is identifying the technologies and products being imported for the present day needs.

These systems can be produced in India through technology transfers, joint ventures and through Make in India by the foreign players. Also, the R&D

efforts will be channelized by joint collaborations with academia, industry and harnessing the strength of R&D institutes to design and develop products within the country.

Particularly speaking about the Aeronautics sector, the manufacturing houses have to be encouraged towards augmenting the infrastructure and to establish the advanced processes. India has already started witnessing change as the leading companies are establishing advanced manufacturing facilities and supplying to the global aerospace industries. These industries need to produce various components, spare parts, sub-systems and systems required by the country reducing the import content to a large extent. The demand for aerospace spares is going to increase with the increasing MRO facilities coming all over the country.

How do you see the future Roles of R&D institutes, Public and Private Industries?

It is evident from a closer look at the current scenario that R&D institutes are engaged more in Development than in Research and the public sector is fully into production and with the private industries being the suppliers of components and sub-systems. Now, the roles are getting redefined; R&D institutes will concentrate largely on Research and the public sector units will be roped in for development and subsequent production, playing a vital role as lead integrators.

The private sector will also carry out R&D in specified areas and produce the sub-systems and systems. This will also enable such industries to transform

their capabilities to the level of lead integrators.

Today, the private sector already started playing a major role. In last 10 years, the private industries have graduated from mere component producers to a challenging role of developing the state-of-the-art sub systems and systems.

For instance, more than 70% of the supplies for Akash missile system are coming from a conglomerate of private industries. Hence, it is evident that the private industry is going through transformation to handle greater challenges.

In my view, redefining the roles of the three sectors will bring in more synergy between R&D organizations, DPSUs and private industries.

Could you share your thoughts on human resource base in defence and aerospace sector and how it can be harnessed?

For any organisation, basic strength comes from its human resources for fulfillment of various goals and objectives and the HR has very important role to play in defence sector, where the domain knowledge base is specific to technologies. Country is today void of universities and institutes with curriculum related to the defence science and technologies. The students after completing their graduation with the basic engineering backgrounds like electronics, mechanical, metallurgy, electrical etc straightaway start working on the defence technologies without any formal knowledge and training in these areas. It is essential to design the curriculum with subjects related to the defence and incorporate them in the syllabus of leading institutes in the country to nurture the knowledge base and skill sets.

The second aspect is that the best talent needs to be attracted towards Defence whether it is DRDO or DPSUs or defence related Industries. With concentrated efforts in last few years, many graduates from IITs, NITs and other reputed academic institutes have joined DRDO. The youngsters also need to be encouraged to become entrepreneurs with innovative ideas.

Could you share your thoughts on cutting edge and futuristic technologies?

As our Hon'ble Prime Minister envisaged, India needs to focus on the futuristic technologies to become future world leader. Till now we have been concentrating on many of the technologies which are denied to us. Now, it is time to identify the futuristic technologies for the next 10-20years and take a lead in the R&D of these technologies. There is a driving need to establish focused research centres in the specific technologies at R&D centres and academic institutes. State of the art infrastructure need to be established at these centres and funded.

Innovations at Small and Medium Scale industries should be encouraged and supported. The country needs to have innovative manufacturing institutes with public and private partnership. Also, these technologies must be devised for ultimate exports to earn valuable foreign exchange for the country. Bio-sensors, Photonics, NEMS, MEMS, high energy materials, futuristic power supplies, stealth technologies, advanced materials, high power computing are few such identified areas to be driven with greater pace.



You have led the R&D in Avionics for Defence applications. Can you explain what kind of a role RCI plays in these endeavors?

Research Centre Imarat (RCI) is an Avionics Laboratory with a mandate to design and develop advanced Avionics technologies. The laboratory has successfully developed Systems and Sub-systems in critical areas of Navigation, Control Actuation Systems, Power Supplies, Imaging Seekers, RF Seekers, Onboard Computers, Radomes, Antennas and many other related systems. It is a technology hub with state-of-the-art environmental tests and simulation facilities. It has successfully designed and developed Avionics Systems for various Defence applications of the country. RCI nurtured many industries by providing facilities to become leading aerospace manufacturing firms.

As a leading expert, please share with us what are our capabilities in the areas of navigation, control and guidance?

RCI has successfully designed and developed many of the Avionics technologies and the industries are able to produce them in numbers. In the inertial sensors and systems area, RCI started from scratch and today we have developed varieties of Navigation Systems with modern algorithms, calibration and testing mechanisms, integration and interface. Miniaturized system weighing just about 150gram is a reality today which was weighing about 50kg, years ago. During this journey, all the sensors and systems available with the advanced nations, whether it is DTG, FOG, RLG, high accuracy Accelerometers, Hybrid Navigation Systems and modern Algorithms, all have been made indigenously for various applications. RCI houses an advanced Navigation and Embedded Computers laboratory which is at par with any world class facility.

In the field of control actuation systems, we are self sufficient. As a matter of fact several types of actuation systems like hydraulic, electro mechanical & pneumatic actuation systems and the guidance algorithms and simulation technologies also have been developed. The state of the art guidance schemes developed by RCI are flying many of our missile systems today.

Could you also throw light on R&D carried out by your team in the area of Seekers?

Our main thrust is now to develop RF Seekers this year along with MMW seeker development. RF Seeker for specific application is in advanced stage of development, getting ready for trials and I am sure by next year, these Seekers will enter into Production. IIR seeker is an established technology and we are able to use in many of our applications. Now, our concentration is on miniaturization and cost effective solutions. We are working on systems like Integrated Avionics as a single package by reducing the weight and size of all the systems. These are some of the advanced technology areas. Lot of work has been initiated in the areas of futuristic sensors, batteries, AESA seekers, multi mode seekers for applications in advanced missile systems.

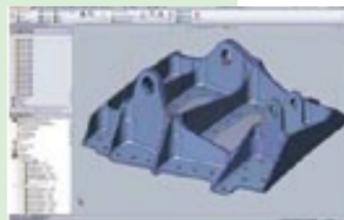


SolidCAM – The leaders in integrated CAM



Founded in 1984, SolidCAM has over 29 years of expertise in CAM development and applications.

The integration strategy of SolidCAM, in the major 3D mainstream CAD systems, SolidWorks and Inventor, has created major growth and established SolidCAM as the leaders in Integrated CAM. SolidCAM has the Certified Gold-Product status from SolidWorks since 2003 and provides seamless, single-window integration and full associativity to the SolidWorks design model. SolidCAM is a Consistent Growth Leader and has been named by CIMdata as the fastest growing CAM vendor worldwide, five out of the past eight years.



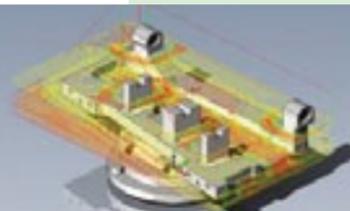
Our Advantages: Providing a powerful, easy-to-use, complete, integrated CAD/CAM solution that supports the complete range of major manufacturing applications including IMachining 2D, IMachining 3D, 2.5D Milling, High Speed Surface Milling, 3D Milling/High-Speed Machining, Multi-Sided Indexial 4/5-Axes Milling, Simultaneous 5-Axes Milling, Turning, Advanced Mill-Turn, Wire EDM and Solid Probe.

SolidCAM's Unique Revolutionary Patented Machining Technology – IMachining 2D & 3D:

SolidCAM's unique, revolutionary IMachining technology saves 70% in CNC machining time & more and extends tool life dramatically. The patented IMachining Technology Wizard provides a reliable partner in automatically determining speeds and feeds and other machining parameters. IMachining provides unbelievable savings and increased efficiency in your milling CNC operations, translating into profits and success. All of SolidCAM's customers worldwide, who are using IMachining enjoy immense savings!

Our Sales & Support Network: Along with our worldwide direct sales and support teams from our many international SolidCAM offices, SolidCAM has a worldwide CAM distributor network in 50 countries, providing the best technical support and post-processor customization.

Our Customers: SolidCAM's large user base, with more than 19,000 seats, includes customers in the mechanical manufacturing, electronics, medical, consumer products, machine design, automotive and aerospace industries, and in mould, tool & die and rapid prototyping shops. SolidCAM customers include small Job Shops, medium-size Engineering and Manufacturing. Companies, large Aerospace and Automotive companies and technical education institutions.



Alpha Design Technologies

- Technology Focus
- Joint Venture and Collaboration Approach
- Local Production and Offsets
- Indigenous R&D and Co-development
- System Integration
- Technical / Warranty Support

unlocking potential...



Eurotherm – Providing multi generations of productions

Eurotherm.
by Schneider Electric

Eurotherm by Schneider Electric proudly celebrated its 50th birthday this year. During the last 50 years, Eurotherm has created many world first innovations that enabled different manufacturing industries to grow and exploit best-in-class technology.

The Aerospace and Defense industry has been a special focus for Eurotherm due to the strict requirements for precision control and secure or tamper resistant data storage. Eurotherm has provided multiple generations of products into this high-tech industry and today supports over 65% of European Nadcap sites, plus many other global sites worldwide through a variety of solutions that help solve accreditation challenges.

The presence in India was initially through TCS (Turnbull Control Systems) formed nearly 30 years ago in 1989 and was quickly followed by dedicated Eurotherm operations based in Chennai. Eurotherm India continues to provide local support to key manufacturing industries through the supply, installation, optimisation and servicing of precise control instrumentation, secure data recording devices and specialized power controllers. To ensure that products meet the requirements of the industry, Eurotherm employs dedicated experts in heat treatment processing. These key individuals are located in Europe, Asia and the US. A recent quote from Kevin Robinson (UK Heat Treatment Business Manager) sums up the Eurotherm view about the Heat Treat industry, "What I love about heat treating is that it's all about taking materials and components, sometimes ordinary, sometimes extraordinary, and making them perform at their best." By focusing on solutions that help suppliers meet strict Aerospace standards, Eurotherm enables businesses to consistently meet and exceed Heat Treatment requirements.

Evaluating non-conformance reports by the PRI (Performance Review Institute) – the audit body for Nadcap (public documents available from eAuditNet.com) and using the Eurotherm knowledge gained from extensive experience and field calibration, the following 5 key areas, if done well, maximize audit success:

- SAT Management • TUS Documentation • Calibration Management
 - Thermocouple Management • Heat Treatment Cycle Performance
- Recent developments include;
- Cloud technology to provide a full paperless calibration system with seamless access to password protected records.
 - Auto reporting from TUS Recorders aids documentation accuracy along with secure data transfer to the reporting system, and field prompts eliminate report errors.
 - Thermocouple, TUS and SAT management is simply achieved by integrating batch details (including thermocouple serial number information) with each Heat Treatment Cycle through the use of programmable paperless chart recorder technology.

MK1 Temperature Controller: Initially designed in one of the founder's garages, this is the product that launched Eurotherm. It was the first solid state controller, using emerging technologies to exploit the industrial market and designed for more accurate control.

Chessell Recorders: The industry leading 301 Chessell Chart Recorder features modular design circuit boards and electro-mechanics. Customers liked this product because it was reliable and easy to service and understand.

Power Controllers Built in France: The first range to be designed in the UK but built in France, they marked the start of what is now a hugely successful global power market.

EPowerTM Controller Launch: The advanced EPowerTM power controller minimises energy costs and maximises process performance.

nanodacTM recorder controller launches: An industry first; a hybrid recorder with PID control in one compact device with advanced multi-loop control function. The nanodacTM product won the Automation Equipment category at the Mesures Technology Awards in 2011.

Litel Infrared Systems – a DSIR certified company

Litel Infrared Systems Pvt. Ltd., Pune, specialises in high intensity (up to 5 MW/m²) thermal heat simulation systems. These systems are already in use by test labs in ISRO and VSSC for all types of aerospace applications. The company's activities include design and production of cutting edge heat sources, their controls, automation and complex data acquisition systems.

Other application include: infrared heating for vacuum, thermoforming of composite materials, infrared heat systems for adhesive and coating curing. Litel IR is a DSIR (Department of Scientific and Industrial Research of Govt. of India) certified company owing to original engineering research in the field of aerospace programmes.

Product Range offered by Litel Infrared Systems Pvt. Ltd.:

Spot Curing (Automobile Touch Up - Paint Baking) , Thermoforming , Thermal Simulation Equipment , Web Dryers
Technical Textile Web Dryers, Surface Finishing (drying/paint curing/ powder coat curing), Digital SCR Power Controllers
Non-contact Temperature Sensors, Thermal Imagers, Heat Flux Sensors, Paper Coating Drying.



Hindustan University – Going places



Hindustan University is one of the most sought after University in Tamil Nadu reputed for its highly qualified and experienced faculty, excellent infrastructure facilities for curricular and co-curricular activities, sports and recreation facilities and also for the academic excellence which is being maintained right from its inception.

Started in the year 1985 as Hindustan College of Engineering, it was later elevated to the status of a UNIVERSITY by the University Grant Commission, Govt. of India under Section 3 of the UGC Act, 1956 with the name HINDUSTAN INSTITUTE OF TECHNOLOGY AND SCIENCE (HITS) in the year 2008. The University continuously invests in cutting edge technology and research facilities. There are over 8000 students pursuing their studies in various programs at UG & PG and Research. Under the guidance and stewardship of our Chancellor, Dr. Mrs. Elizabeth Verghese, the University has many firsts to its credit.

Some of the key achievements in the recent past include:

CENCON - the Centre for Clean Energy and Nano Convergence was recently inaugurated by Dr. A.P.J. Abdul Kalam, Former President of India. With this the University has the capability to train students in Nano Technology thereby offering opportunities in creating new features and functions which in turn will help in providing solutions to many long-standing medical, social and environmental issues. Considering the tremendous scope and application of Nanotechnology the university is proud to be among the first centres to offer courses in this specialisation.

The Centre for Defence Technology Studies, at the University was recently inaugurated by the French Ambassador to India. As part of this centre, India's first ever 2 Year MBA Defence Technology Program in the Private sector is being offered for students. The University has entered into a unique collaborative agreement with Cranfield University, through which it will offer the latest in defence programs at the Centre for Defence Technology Studies (CDTS) at Chennai. With the view to offering the latest and the most advanced in Missile Technology, Hindustan University has recently inked a tripartite agreement with Cranfield University of the UK and MBDA for the joint development and delivery of academic and vocational training programmes in this vital sector. The new developments at MBDA include intelligent warheads, modular systems, and new propulsion technologies among others. They are all designed to meet new customer requirements regarding new terms of engagement, new platforms and threats, among others. These programmes would be delivered at the "Global Class room" at the Padur campus of Hindustan University as well as at the Shrivenham campus in the UK of Cranfield University and selected manufacturing locations of MBDA.

The University has an active student exchange programme with university across the globe. In fact this is a regular affair with MBA / MCA students participating in International Summer Programs, Internships and project work every year. Korean students have enlisted in the engineering department as part of the exchange program. Also, in a commendable achievement, three student achievers from the Hindustan University won the first place in NASA Environmentally Responsible Aviation (ERA) project during May 2012 in Non-US Category in Washington. This year the University has entered into collaborative agreement with 11 International Universities such KTH Royal Institute of Technology, Sweden; Moscow Aviation Institute, Russia; Yildiz Technical University, Turkey; Hochschule Ostwestfalen-Lippe – University of Applied Sciences, Germany; University of Information Technology & Management, Poland; University of Technology Berlin; Jeonju University, Korea; University of Alabama in Huntsville, USA; Logos – Woosuk University, Korea; University of Warwick, UK; Hansei University, Korea.

The University has signed several collaborative agreements with the industry for customized training and placement of students. Collaborative agreements with companies such as Toyota and Volkswagen are a couple of feathers in the institutions cap in addition to many more. The School of Physical Education at the University creates a unique learning environment in sport education which features the following key elements: problem solving, teamwork, interaction with students from within the country and abroad, good interpersonal skills and above all true sportsmanship. The School of Physical Education prides itself on providing quality services to its athletes to enable them to be well-rounded both on and off the sporting field. These services include elite coaching, sport science, sports medicine, sports psychology and career, education and professional development. A large number of students are given admission every year under Sports Quota Scholarship Scheme.

The Horse Riding Club on campus makes it the only university in Chennai to offer this unique sport. In addition, there are cultural associations, a photographic club and a music club, each of which arranges Programs and competitions with the help of the students' academic council. Apart from offering Engineering and Management courses in all streams of specialization, Hindustan is a pioneer in Aeronautics, Aero-Maintenance and also Aviation Management. Fully appreciating the holistic background of the Hindustan Group of Institutions in the field of Aeronautical and Aviation Engineering, the Technology Information, Forecasting And Assessment Council (TIFAC), an arm of the Department of Science & Technology (DST), Government of India has instituted a Centre Of Relevance & Excellence (CORE) in the area of Aircraft Maintenance. The recent Star News national B-school award for industry related curriculum in MBA Aviation management has been a glowing recognition of the university's overall strength in this area.

The College has also entered into 'Memorandum of Understanding' with various foreign Governments and Organizations from Bhutan, Rwanda, Kenya and Oman, among others, for training and technical consultancies. The college focuses on quality training in academics along with holistic personality development and a research attitude. Hindustan students time-and-again prove their mettle in several national contests and were even commended by NASA and other reputed organizations for their innovative and successful projects like aircraft design.

E.I.S. Electronics (India) Pvt Ltd

E.I.S. Electronics (India) is a joint venture set up in Kanpur, India, to manufacture harnesses for aerospace and defence applications. Jointly promoted by MKU, India and E.I.S. Electronics GmbH, this Indo German Joint Venture, has a modern, state of the art production facility equipped with air conditioned workshops, fully equipped electrical testing laboratory, trained manpower and 100% power back up for uninterrupted supply.

E.I.S. Electronics is supplying Electrical Cable harnesses to Aerospace and Defence Industry. Production was commenced in April 2013 after inspection and necessary approval by Diehl Air Cabin, the Tier 1 contractor for Airbus. Since then E.I.S. India has been making harnesses for Airbus 320 and 380. Till date we have done serial production of over 23 type types of harnesses for various applications of Airbus. The latest in this series are harnesses for Airbus 350, the latest wide bodied aircraft from Airbus which will be going into production soon.

At E. I. S. Electronics GmbH, we also make harnesses for space applications and a host of other applications. Amongst others we manufacture looms for Ariane launchers, satellites, ground stations, locomotives and helicopters. It is a matter of pride for us that our customers rate us highly for performance and product quality. The facility in Germany is certified according to EN 9100, EASA 21G, EASA 145. EIS India is certified according to AS9100C. DGCA certifications are also planned. The facility is registered in India with both HAL and 1BRD in India. The staff is well trained to German and international standards.



"Sinteneering Innovations"

The Future in metal Manufacturing

Intech DMLS Private Limited set up in early 2014 is one of the pioneers in the metal additive manufacturing space in India and are currently operating a full-fledged facility at Bangalore. This facility in Bangalore is the largest service bureau offering Metal Additive Manufacturing as a service. We are primarily working with established companies in the Aerospace and Defense areas, General Engineering and companies specializing in the manufacture of Tools and Dies primarily used in the plastic and Die cast industries. Intech has successfully executed several projects in the above said verticals. At Intech we use the Direct Metal Laser Sintering (DMLS) process technology, which allows for manufacturing complex shapes, reduced weight, lattice and bionic structures and reduced manufacturing time and improves the quality of components. The materials used here are similar to their counterparts in traditional manufacturing such as Titanium, Nickel, Steel and Aluminum alloys.

Intech offers a complete solution from concept design to the delivery of a fully functional component. We have the largest installation of commercially available EOS DMLS 3D printers in India and fully equipped design office, machine shop, in house testing equipment like CMM etc. and post processing facility. Hence with all these in- house capabilities we are poised very well to offer an end to end service in the Additive Manufacturing space. We are an ISO 9001:2008 & currently undergoing the process for becoming an AS 9100C company. We are currently in the process of setting up a Technology driven Innovation and Engineering Design Centre. We are currently working with the leading aerospace company in India and partnering them in the development of very critical components that form the core of their manufacturing. In this project we have successfully reduced the lead time for the development of these components from more than 2 years to as few as 4 to 5 months. In addition we are also working with leading Defence laboratories in the development of not only prototypes but also fully functional parts.

At Intech we push the limits of industry practices in Metal Additive Manufacturing, exploring new ways to ensure the highest quality in building both fully functional parts and also in rapid prototyping.

It is our continuous endeavour to push the industry boundary to ensure we are abreast with the latest technologies in Metal additive manufacturing and management strategies in order to keep Intech and our customers at the forefront of our industry. In today's globalised market, we enable our customers to maximize quality levels and reduce component delivery times while at the same time ensuring competitive pricing.



Intech is part of a reputed manufacturing group having experience of more than 30 years in the casting industry and also in the manufacture of actuators used in the Oil and Gas industry apart from the development of software products used by Global Valve manufacturers.



TIME SAVINGS
70%
... AND MORE!

The Revolution in CNC-Machining!



The unique, patented iMachining module of SolidCAM, the leading CAM software, integrated with SolidWorks and Autodesk Inventor, provides unbelievable savings and increased efficiency in your CNC milling operations, translating into profits and success for SolidCAM customers worldwide.

- iMachining saves 70% and more in CNC machining time
- iMachining extends cutting tool life dramatically
- The unique iMachining Technology Wizard, provides optimal feeds and speeds, taking into account the toolpath, stock and tool material and machine specifications.



iMachining 2D | iMachining 3D | 2.5D Milling | 3D High-Speed Machining | High Speed Surface Machining | Indexial Multi-Sided Milling | Sim. 5x Milling | Turning | Advanced Mill-Turn | Solid Probe

www.solidcam.com



SolidCAM
iMachining – The Revolution in CAM!

SolidCAM Software India Pvt Ltd

Contact Person: Mr. Arun Kumar

Telephone: +91-80- 26678933, Telefax: +91-80- 26678933, Mobile: +91 – 9902826699

New Office: G. L Towers, # 15/1, 3rd Floor, 2nd Main Road, 7th Cross, N.R.Colony, Bangalore-560 019 | India

Email : arun.kumar@solidcam.com

Web: www.solidcam.com

Making every connection count



Innovative Solutions from TE Connectivity

For more than 50 years, TE Connectivity has provided engineered electronic components for consumer and industrial products, network solutions and systems for telecommunications and energy markets, undersea telecommunication systems and specialty products.

When it comes to commercial aerospace industry -- which the company has been serving since 1941--TE Connectivity focuses heavily on solving challenging aircraft design problems and delivering increasingly lighter weight solutions for customer applications.

TE Connectivity serves several commercial aerospace markets including, business jets, commercial transports, general aviation aircraft, regional aircraft and very light jets. Looking specifically at its Global Aerospace, Defense and Marine business, TE Connectivity focuses on bringing to life the promise of commercial



Mr. Earle Olson
Business Development Manager
TE Connectivity

off-the-shelf (COTS) along with size, weight and power (SWaP) by accessing its engineering and design resources for solutions that work in harsh environments, improving upon the customers' end products and striving to deliver an extraordinary customer experience in the process.

"TE Connectivity is a fantastic place to work with products and solutions that are critical connectivity components within our customer's end-products -- products and solutions that enhance virtually all aspects of our daily lives," says, Earle Olson, Global Aerospace, Defense and Marine, Business Development Manager-High Speed / Bandwidth Solutions. TE Connectivity has launched several new innovations, including its Rugged Fiber Optic Termini, which is inclusive of the new PRO BEAM EB16 expanded beam size 16 termini for peak performance in rugged fiber optic systems that are "built to survive".

Also new from the company is the re-introduction of the Mil Qualified field tactical interface of M83526/20 and /21 and the CeeLok FAS-X High Bandwidth interconnect system for matched impedance. The CeeLok FAS-X connector meets military and aerospace markets' 10 Gbps requirements that are linked to the emergent trend of increased performance demand, while reducing size, weight and power consumption in new designs and upgrades. Of the many industries TE Connectivity caters to, the Aerospace Defense and Marine business unit exists within its Industrial Solutions group. "This group provides products and solutions for rugged applications in Aerospace, Defense and Marine market segments," explains Olson. The product solutions Olson refers to include electrical interconnects, wire and cable, relays, contactors, mil circular and rectangular connectors, sealed harness assemblies, "inside-the-box" and board-to-board applications.

TE Connectivity also recently acquired the SEACON Group, including Seacon Phoenix, which came after it acquired L.L.Rowe Company and DEUTSCH. The addition of Measurement Specialties and AST makes TE one of the biggest providers of Sensor solutions.

SYNERGISTIX – Investing heavily in developing internal processes

SYNERGISTIX INDIA PRIVATE LIMITED is one of the professionally managed companies focusing on sales/marketing, logistics, distribution and technical services.

The company is managed by a team having several decades of experience in the defined functions. The company's key strength is the ability to sell concepts, solutions and living up to the expectations of customers.

The company is system-driven and has invested heavily in developing internal processes that would enable it to deliver services to its customers/Principals most efficiently. What's more, it's been doing this for over a decade now with 80% plus customers retained!

The company's businesses address the value chain for customers and service providers through application expertise to logistics and delivery. It has built up a significant customer base over a decade, spanning diverse applications in: Plastics & Polymers, Lubricants, Water & Environment, Electronics, Aerospace & Defence, Medical/Pharmaceuticals and this list is growing (both in public and private sector).

A few of the company's esteemed principals include:

- NuSil Technology, USA – Speciality silicones., Epoxy Technology, USA – Speciality Epoxy resins, Akzo Nobel, Netherlands – Polymer additives and peroxides, Valerus Speciality Chemicals – Speciality plasticizers, Songwon Industrial Co Ltd., Korea – Antioxidants and polymer Stabilizers.



Every product is a promise

For all its sophisticated attributes, today's modern product is, at its core, a promise.

A promise that it will perform properly, not fail unexpectedly, and maybe even exceed the expectations of its designers and users. ANSYS helps power these promises with the most robust, accurate and flexible simulation platform available.

To help you see every possibility and keep every promise.

Realize Your Product Promise™

ANSYS

To learn more about how leading companies are leveraging simulation as a competitive advantage, visit: www.ansys.com/promise

PRS Permacel – Forging ahead

PRS Permacel was started in the early sixties as the 'PERMACEL' division of Johnson & Johnson Ltd. It's first company in India to introduce the technology of self adhesive tapes and labels in India. It's also a pioneer and leader in the self-adhesive tapes & label business in India.



The current product range of insulation products covers: Self Adhesive Specialty & LT/HT Tapes, Self Amalgamating tapes, sleeves, Thermal Insulation Products and placards.

PRS Permacel are leaders in manufacturing pressure sensitive adhesive based electrical insulation tapes from Class A to Class H temperature class. The company has developed self-amalgamating tapes with a very highly flexible and high di-electric strength. These self-fusing tapes once again are available for various classes of application including class 180°C (Class H) insulation. Electrical and Thermal insulation in sleeve form is one more challenging area where Permacel offers diverse solutions.

PRS Permacel has a range of thermal insulating products, which can withstand temperature up to 1300°C and are available in various forms. The company's removable & reusable insulation has been well appreciated in industry.

The company has an extensive R&D and laboratory facility, which can design and develop newer insulating materials for your specific requirements. Very recently, it has introduced a range of products for low temperature insulation, specially designed for Chilled lines. The trials have yielded satisfactory results in industry. The range has been also customised for Indian Navy & the company is in the advanced stages of undertaking trials under guidance from concerned designers.

The company has thus developed capabilities to cater to the thermal insulation needs of industry from sub zero (-5 deg C) to 1300 deg C. The company has developed special grade thermal FR fabrics & laminates for Indian Aerospace. These are in use for last over two decades. In association with different project teams of VSSC (Vikram Sarabhai Space Centre), the company has developed many more customised thermal insulation materials for various projects including the "Space recovery capsule", "Chandrayaan" & "Mars Mission"

The company has indigenised many thermal insulation products for different units of HAL (Hindustan Aeronautics Limited) & BRDs (Base Repair Depots) of Air Force for OE as well as maintenance applications involving protection of hoses, cables etc from exposure to high temperatures.

PRS Permacel range of insulation products are approved by many large user groups such as VSSC, ISRO, RCMA, RDSO, Indian Navy, DGCA, BHEL and CPRI to name a few.

R R Founders expands capacity



R.R. Founders is one of the leading jobbing Aluminium foundries in South India located at Hoskote, about 30kms from Bangalore. The company produces premium quality aluminium castings catering to the needs of leading industries in India and abroad utilising both sand and gravity die casting methods. R.R. Founders is an ISO 9001:2008 certified company. The company will also be getting AS9001 Certification by September end 2015.

Recently the company has modernised its facility for an installed capacity of 300 MT per annum in weight range of 0.15 kgs to 300 kgs. The company manufactures castings conforming to IS,BS, DIN & ASTM Standards. Sand castings are produced on semi automated loop lines using both green sand machine moulding and hand moulding using Continuous sand mixer using Furan Sand and Gravity die castings are produced using Universal Gravity Die Casting machines. The company also has well-equipped Core Shop producing cores in Furan, Cold Box and Hot Box processes.

The company has state-of-the-art quality control equipment such as Spectrometer for checking chemical composition, Density Index Equipment for checking the melt quality and Simulation Software, supported by qualified personnel for delivering quality castings. The company supplies aluminium castings to customers in India & abroad for use in various applications such as Vacuum Pumps, Blowers, Automotive, Heat Exchangers, Fluid Transfer Devices, Earth Moving Equipments, and parts to Indian Railways.

The company offers following casting method to cater to customer need:

Sand Casting Process – offering higher flexibility and low tooling costs for weights up to 300 kgs and lengths up to three metres.

Gravity Die Casting Process – for producing high volumes with better mechanical properties and strength with lesser wall thickness for weight up to 75 kgs. However, the company can produce heavier parts with this process depending upon the shape and quantities.

Good news for MSMEs!

Helping MSMEs grow SIDBI



We fund green/energy efficiency projects at competitive rates with the help of our international partners.

Under Growth Capital and Equity Assistance for MSMEs [GEMS] we provide risk/venture capital for start ups/early/growth stage MSMEs as equity/mezannine finance based on the strength of the business model and/or management.

We finance service sector projects like IT/ITES, logistics and franchise arrangements etc. based on cash flows/ underlying assets.

We also help quicker realisation of receivables through cost effective discounting under Receivable Finance Scheme.



SMS SIDBI <SPACE> C1 CITY to 575758 or log on to www.sidbi.in
Budding / new entrepreneurs may also visit www.smallIB.in

Cost-effective manufacture of engine components for Airbus A320neo

As an aircraft takes to the skies, both cost and safety pressures become significant driving forces, a market driven by weight & lead time reduction with added complexities day by day. New materials and technologies that are suitable for series production have an important role to play in this industry for reasons that include cost, weight and function. Because of this, both manufacturers and suppliers are testing the performance capabilities of Additive Manufacturing processes, by which components are produced when a powder is hardened, layer by layer, using a laser. The advantages associated with this process include increased design freedom as well as a wide range of useable raw materials, from extremely light, fire resistant/flame retardant plastics to a variety of metals.

MTU Aero Engines, Germany's leading engine manufacturer, took a strategic step-by-step approach towards the use of Additive Manufacturing. The company currently uses seven EOS machines.

"About ten years ago, we began with the manufacture of tools and development components," says Dr. Karl-Heinz Dusel, Director of Rapid Technologies at MTU. "In order to optimise capacity utilisation and implement our phased plan, we went in search of further areas where we could apply the technology". The principal challenge consisted of cost and safety considerations on the one hand, and the pursuit of strategic innovation on the other.

Solution:

"At the beginning of the second phase we started to produce raw components, which replaced existing parts. The bore-scope bosses for the low-pressure turbines of the A320neo-GTFs fell into this category", explains Karl-Heinz Dusel. In the past, the borescope bosses were cast, or milled from a solid, but the low-pressure turbines for the A320neo's Geared Turbo Fan are the first turbines to be serially equipped with borescope bosses produced using Additive Manufacturing. Above all, it was the cost advantages of the EOS technology that were the decisive factor, both in the production itself and in the development stages. These small add-on components allow technicians to check the condition of turbine blades inside the engine using endoscopes. The parts are riveted to the turbine housing to create an opening for the endoscope, which in the aerospace sector is termed a borescope. Heat resistance and durability are the key characteristics of the nickel based alloy achieving the best results demanded by the component, but difficult to machine.

Fortunately, a problem like this is easily overcome with Additive Manufacturing. The entire manufacturing process is underpinned by a control system specifically developed by MTU. Online monitoring captures each individual production step and layer. In addition, new quality assurance procedures were introduced, such as optical tomography. The German Federal Aviation Authority even certified the EOS machines.

Results:

The strategic approach paid off for MTU, as did the close and positive collaboration with EOS preparations for the series production of the borescope bosses have begun. 16 parts per job are envisaged, totalling up to 2,000 parts per year. The savings in percentage terms, compared to previously established processes, is expected to be in double figures and quality is already at a high level. MTU and EOS are working together to further optimise the finishing for the component, especially the smooth surfaces, with the aim of achieving perfection in the structural mechanics. For Dusel, the advantages are clear: "The EOS technology is characterized by its virtually unlimited design freedom and the significantly shortened development, production and delivery times. In addition, development and production costs are drastically reduced. Components of lighter weight and greater complexity can be made a reality and production requires less material and minimal tools".

MTU sees a lot of potential for the manufacture of further series components for aero engine construction, such as for bearing housings or the blades for turbines – both of which need to meet the highest demands in terms of safety and reliability. MTU's aim: Within 15 years a significant proportion of components should be manufactured using industrial 3D printing. The EOS technology thus contributes to the competitiveness of the company, which is active in one of the most demanding sectors in the world.

India, where the technology has ramped up with Make in India drive and strategic industries starting to look manufacturing in more efficient easier way to reduce complexities & cost; additive manufacturing has the right answer to make what is impossible in an economical way.



EOS Additive Manufacturing Technology

Founded in 1989 and headquartered in Germany, EOS is the technology and market leader for design-driven integrated e-Manufacturing solutions for Additive Manufacturing (AM).

As an industrial manufacturing process it allows the fast and flexible production of high-end parts based on 3D CAD data at a repeatable industry level of quality. The disruptive technology paves the way for a paradigm shift in product design and manufacturing. It accelerates product development, offers freedom of design, optimizes part structures, and enables lattice structures as well as functional integration. As such, it creates significant competitive advantages for its customers.

EOS Additive Manufacturing enables the production of components layer by layer from materials supplied as fine powder. A wide range of metals and polymers are available to meet different application needs.

Plastic Laser Sintering Technology



EOS GmbH India Branch Office (Electro Optical Systems)
36, Sivananda Nagar, Kolathur | Chennai-600099, India
Phone +91 44 3964 8000 | Fax +91 44 3964 8099 | www.eos.info



Simpleware 3D image visualisation, analysis and model generation software



It is becoming increasingly common to use 3D image data, acquired from sources such as magnetic resonance imaging (MRI) and computed tomography (CT), to generate high-quality models for use in design and simulation applications. This method has many applications for the Aerospace and Defence industries, including the non-destructive evaluation and reverse engineering of parts, materials characterisation, and Additive Manufacturing (AM). Simpleware Ltd. (Exeter, UK) have developed software and services that make it straightforward to go from 3D images to robust models suitable for inspecting defects, carrying out quantitative analysis, and exporting finite element (FE) and computational fluid dynamics (CFD) meshes for simulation of physical properties.

These techniques are based on proprietary algorithms and approaches to image-based modelling that allow models to be created directly from images, and that can also be used to work with and modify computer-aided design (CAD) geometries. For example, scans of aerospace parts can be rapidly converted into a 3D model and inspected for defects, or measured and analysed in order to characterise their structure; this approach is also effective for reverse engineering legacy parts that no longer have a CAD model.

Military applications include the analysis of parts, and studies of the interaction between the human body and CAD-designed equipment such as helmets, enabling examination of head impact.

Simpleware is the industry leader in terms of its software's meshing capabilities, which ensure very robust surface and volumetric meshes with conforming interfaces and shared nodes, reducing the need for manual fixing after export to simulation programs. The quality of Simpleware's meshes also means that files generated for AM are guaranteed watertight, even with multiple parts.

In addition, Simpleware's software allows lattice structures to be added to parts, which reduce weight and preserve strength prior to AM; this approach offers many advantages for optimising the design of manufactured components. Researchers and analysts working with very complex material samples, such as alloys and composites, can also use the software to calculate effective material properties using finite element-based homogenisation techniques. By taking advantage of these software developments, it is possible for those working in the Aerospace and Defence industries to do more with 3D images from scans. Accurate geometries can be obtained and analysed, enabling a rapid transition from scans through to comprehensive characterisation and virtual testing and prototyping of parts, materials and equipment that interacts with the human body.

Dicronite – Dry lubrication coating

Dicronite dry lubrication coating is today a proven technology for most of the critical application at severe working conditions.

Thin film Dicronite dry lubrication reduces friction and wear with an extremely low coefficient of friction (0.030) in a very thin film (0.5 microns) that is extremely stable under a wide temperature range (cryogenic to +650 C), under ambient to high vacuum conditions and has Load carrying capacity of 3,50,000 psi.

Common applications include bearings, valves, shafts, fittings, connectors and fasteners, linear, sliding and rotating components, and latching and locking mechanisms. Dicronite dry lubrication is compliant with SAE-AMS2530, biocompatible per ISO-10993, RoHS compliant and is applied by facilities that hold SAE-AS9100/ISO-9001 quality certifications and also NADCAP accreditations.

When applied at near ambient temperatures, Dicronite dry lubrication is generally inert, unaffected by oils and solvents and provide best results.



Mr.S.M.Kanakaraj
Director
Dicronite India Pvt. Ltd

This is widely used across many industries in order to:

- *Increase service life and performance through friction and wear reduction
- *Enable faster assembly and permit disassembly/maintenance by eliminating seizing and galling
- *Lubricate in vacuum or high/low temperature situations
- *Extend service intervals and provide backup or co-lubrication with oils and greases.

Dicronite Dry lubrication coating Technology is worth a solution for the long pending problem of improving life of components and a handy tool for engineers' right from design stage.

AEROSPACE ENGINEERS™

Manufacturers of Precision Metallic & Non Metallic Parts
(AN AS9100C CERTIFIED COMPANY)



Shri R.Sundaram , Founder and CEO of Aerospace Engineers receiving the DRDO Technology Award from Hon'ble Prime Minister of India Shri.Narendra Modi in the Presence of Hon'ble Minister of Finance Shri Arun Jaitley, Minister of State Shri Rao Inderjit Singh.



AEROSPACE ENGINEERS

"THE SALEM AEROPARK",
NH-7, Ammapalayam Village, Mallur,
Salem- 636 203, TamilNadu, India.
Ph : +91-427 - 2422232,332.
Fax : +91-427 - 2422432.

USA
#8916, Fox Hollow Trail,
Irving, Texas 75063.
Ph# 972 - 444 - 9394,
Fax# 877 - 3742936.

E-mail :
ceo@thesalemaeropark.com |mktg@thesalemaeropark.com
aeropolymers@gmail.com

ELASTOMERIC ENGINEERS (An AS 9100C COMPANY)

ELASTOMER ENCLAVE
NH-7, BY PASS ROAD,
SEELANAICKENPATTY,
SALEM-636 201
MOB:+91 93444 22805

E-mail:
elastomeric@thesalemaeropark.com
Working towards
Nadcap & NABL
Certification

BEST RUN IN ERP-SAP ACE AWARD

POWERED BY



www.thesalemaeropark.com



“A gentleman made of modular components”

Friendly and likeable. Invisible when not needed. On call round the clock. The butler of the future – called “Care-O-bot® 4” – was developed by the Fraunhofer IPA in Stuttgart, and celebrates its world premiere at the SCHUNK Expert Days on Service Robotics. The modular design of Care-O-bot® 4 allows diverse configurations and application scenarios.

“Its high degree of standardization makes Care-O-bot® 4 a milestone in the field of mobile service robots,” emphasized Henrik A. Schunk, managing partner of SCHUNK GmbH & CO. KG in Lauffen am Neckar. Both the arm joints and the 1-finger hand of the Care-O-bot® 4 are taken from SCHUNK’s standardized modules for mobile gripping systems.

“Since service robot solutions are generally used in mobile applications, the components have to be lightweight and energy-efficient,” Schunk said. “Mobile gripping systems from SCHUNK are designed exactly for such scenarios. The components can be used both in industrial applications and in measuring and testing applications, as well as in assistance systems that support people in everyday life.”

Agile, modular, and affordable:

While the predecessors of the Care-O-bot® 4 focused on object detection or safe navigation, an important step has now been taken in the direction of commercialization.

“The fourth Care-O-bot® generation is not only more agile, more flexible and more charming than its predecessors, but also features more affordable construction principles,” said project manager Ulrich Reiser, team leader at the Fraunhofer IPA. The majority of the interior consists of folded sheet metal constructions, which can be manufactured cost-effectively even in small quantities.

Cost-optimized modular solutions:

The modular concept allows diverse configurations. It is possible, for example, to eliminate one or both arms. Standardized SCHUNK Powerball ERB modules with a compact spherical form that facilitates integration are used as arm joints. The entire electronic control and regulation circuitry of these components are integrated in the joint drives. Position, speed, and torque can be flexibly regulated. Since the supply lines for the gripper and tools are completely within the arms, there are no interfering cables on the peripheral devices.

Integrated intelligence, universal communication interfaces, and cable technology for data transfer and power supply allow their use as single modules or as completely pre-configured SCHUNK Powerball lightweight arms for easy integration in higher level units, such as Care-O-bot® 4. For portable use, the modules operate by a 24 V DC power supply or even rechargeable batteries for complete mobility. The consistent lightweight construction and torque motors ensure low energy consumption. That lowers energy costs, provides for longer work periods when using rechargeable batteries and also allows the use of small-format batteries.

Different versions can be implemented:

The costly ball joints of the Care-O-bot® 4 in the neck and hips, as well as many sensors, are optional. If the application only requires the serving of beverages, it would be possible to replace one hand with a tray or to only use the mobile base as a serving and transport cart. Individual adaptation to specific tasks creates economical solutions. One of the primary concerns of the development engineers was user-friendly handling, because most people are intimidated by robots, especially if they are hard to use and program. An easily accessible interaction area on the head allows intuitive operation of the Care-O-bot® 4 and can be used in either sitting or standing position. Of course, interaction with the robot by means of words or gestures is also possible through the means of cameras and microphones for recognition of specific people through by their speech and gestures.

The robot responds with gestures such as nodding or shaking of the head to signal whether it has understood. Light effects and a laser pointer in the hand of the Care-O-bot® 4 also enable the exchange of information.

Successful symbiosis of design and engineering :

“Care-O-bot® 4 is a successful symbiosis of design and engineering, of function and emotion that quickly moves the user to interaction,” said Andreas Haug, managing director of the Stuttgart-based design studio Phoenix Design, which was involved in the development process. With its streamlined design, the two arms and head help make the robot resemble a human being. An overly human appearance was not desired, however, because that would give the user “false expectations” according to Ulrich Reiser. Only the “inner values” are human: it always maintains a discreet distance, clearly indicates what it has understood and what it is about to do, has a command of simple gestures, and can even show emotions. Social behavior, as has been demonstrated in studies, is indispensable for acceptance by future users. While Care-O-bot® 3 was a butler, its successor is a gentleman.



Meistermacher. Made in Germany.



www.gb.schunk.com/stationaryworkholding

Peter Büchsler,
Master – Milling and Clamping Technology

J. Lehmann

Jens Lehmann, German Goalkeeper legend, brand ambassador of SCHUNK, the family-owned company since 2012, represents precise gripping and concentrated, safe holding.

German champion
with Borussia Dortmund 2002

English champion
with Arsenal London 2004



Superior Clamping and Gripping

SCHUNK stationary Workholding More than 5,000 Components for your Workholding

SCHUNK stationary workholding.

The modular system for combinations to create a very exact connection between the machine table and the workpiece. Set-up costs are reduced to nearly zero. For higher productivity in your machining center.



5-sided workpiece machining
in one set-up
MAGNOS
Square pole technology



VERO-S
Quick-change pallet system.
90% lower set-up costs.



KONTEC
Mechanical clamping systems.
Universal talent for every
application.



TANDEM
Clamping force block.
0.02 mm clamping repeat accuracy.

Sustained growth for Aero Metals Alliance (AMA)



Paris Airshow 2013 heralded an announcement that five leading aerospace metals distribution businesses; Amari Aerospace, Gould Alloys, Service Centre Aero (SCA), Sunshine Metals and Wilsons were to be the founding members of a new, globally focused aerospace metals organisation; Aero Metals Alliance (AMA).

The new organisation was created to meet the demands of a global aerospace manufacturing industry and provide a refined structure that enabled a pooling of resources and technical 'know how' to cover the entire range of customer requirements, through a coordinated effort with worldwide reach.

The goal was to provide a virtual 'one-stop shopping' model and the Alliance was specifically established to focus on customers that prefer to trade with large international organisations.

Now, after two years of significant growth and investment, the five

founding companies have been joined by a sixth, Progressive Alloy Steels Unlimited (PASU) headquartered in Hartsville, South Carolina, but the primary objective that provided the foundation of AMA remains as it was when launched; to provide materials and supply chain management services to the world's leading aerospace companies and currently operates from 14 Service Centres in six countries throughout the Americas, Europe and Asia Pacific.

This enables the business to aggregate demand across a single supply chain on behalf of the world's leading OEMs whilst at the same time providing a truly responsive local service to meet the needs of individual sub-contractors anywhere in the world.

The intention to grow the Alliance by strategic acquisition and organic growth remains a fixed goal and the business continues to consider introducing partners that can add value to the global aerospace industry. This is perfectly illustrated by Sunshine Metals new facility in Davisville West Virginia that will soon be offering "near Net Shape" machining to their normal portfolio of services. With strategically placed Service Centres in the UK, France, Germany, the United States and China, AMA offers total supply chain management systems tailored to customers Aerospace and Defense needs.

Services:

- Processing facilities
- Logistics Expertise
- Export
- Packaging
- Testing
- Billet preparation

Processing:

Each of the AMA sites is equipped with the latest technology to meet the specific needs of customers. Just some of the services available include:

- Cutting • Shape cutting • Milling • Surfacing
- Drilling • Guillotining • Waterjet cutting
- USI testing • Heat treating or re-tempering
- Near net shape machining

Products:

AMA businesses are able to offer a wide range of materials from British, American and German specifications to customer specific grades such as MSRR (Rolls Royce) and ABS/AIMS (Airbus/ GKN) and many others.

- Aluminium Plate, Sheet, Bar and Tube • Copper Alloys • Copper, Brass and Bronze • Nickel Alloys • Steel Plate, Sheet, Bar and Tube
- Titanium Plate, Sheet, Bar and Tube

Each member business within the Alliance is an autonomous entity and has the opportunity to offer the product range, skills, expertise and capabilities of the others, thereby strengthening each in their respective markets.

Reflecting on two years of almost exponential growth in the business, Lynda Burns the Senior Vice President and Chief Operating Officer for AMA said; "The foundation of the Alliance was to create a shared Marketing Resource, not a management function. The formation of an Alliance has enabled us to improve our business through increased sales and greater visibility in the aerospace market(s)

which we serve" Lynda continued; "The creation of the AMA was not a merger of the existing businesses, now, 2 years on, each has retained their unique and individual identities; the names have remained the same as before, staff have stayed 'in place' and operational sites have remained as they were prior to the announcement. Notable exceptions are Wilsons and Gould Alloys in the UK which have had to move to newer, larger facilities to cope with increased demand.

"The acquisition of PASU, the establishment of a new warehouse in Northern France and a soon-to-be opened office in India will add to our global reach and service offer capability"

"As I stated when AMA was announced, we have various locations for each of the defined teams; for example, IT is based in the US and UK - I did not expect this to be changed and indeed, it has not. At the time of the announcement, I stressed that we intended to remain lean and did not want to create a 'corporate' style. As I believe that all too often these changes can lead to increased costs and burdensome bureaucracy but without any tangible benefit to the customer. I am pleased to report that our goal to remain lean has been achieved"

"When announcing the formation of the Alliance I pledged there was to be no effect on staff levels, which there has not, local management have remained autonomous regarding head count and the Alliance does not affect any of the member Companies on a local operational, day-to-day basis"

One of the most obvious questions posed at the time of the announcement was; "Who will be representing AMA to the customers?" and on this Lynda Burns was clear;

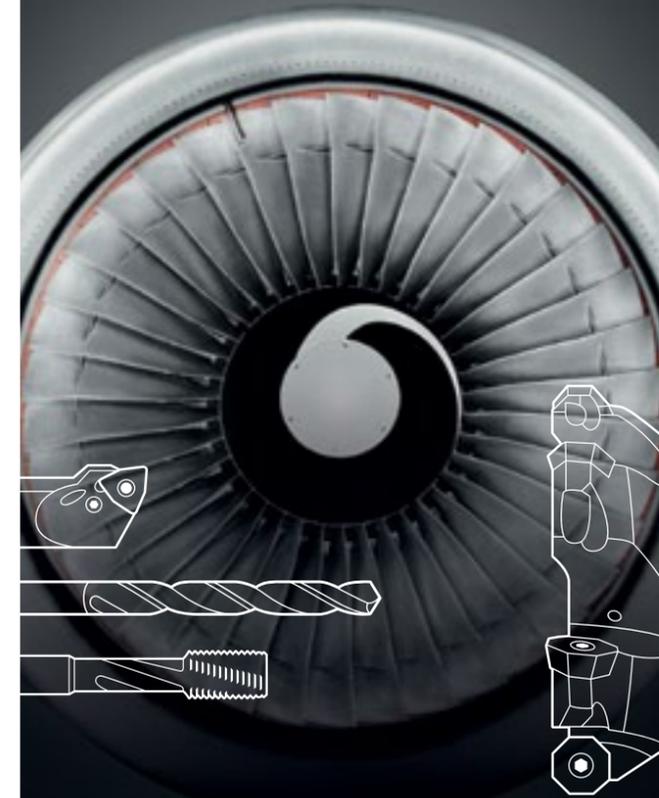
"All of us. Where it makes sense, we will combine our resources to win additional business and, as required, we will appoint dedicated personnel to meet with OEMs and identify customers where contracts will be better and more efficiently served by a single entity, (AMA), rather than individual operating businesses".

For all day-to-day orders, it is very much as before the announcement with local businesses maintaining continuity with their customers, however, where opportunities have arisen for new/additional business that a single Service Centre cannot fulfill on its own, the logic for using the Alliance has proven invaluable.

Healthy competition between the individual businesses has always been encouraged and this has been maintained under the umbrella of the Alliance and delivered benefits to customers. The customer always wants choice and the Alliance has not prevented this.

One of the fundamental reasons for the formation of the Alliance was to create an organisation with a coordinated global reach and, 2 years on; this appears to have found favour with multi-national customers – in short, the system works.

Fully integrated precision



Higher volumes, shorter production periods and an ever-growing pressure to keep costs low. In today's aerospace industry, suppliers are encountering ever-increasing demands. Fortunately, with Walter, Walter Titex and Walter Prototyp, a solution's at hand. As professional high-tech tools and operating solutions developed by competence leaders, they yield valuable results throughout the complete machining process. From an increase in productivity of up to 100%, highest machining reliability and extremely long service lives to an innovative chipping process, minimal component costs and a broad range of applications – tailored to the specific needs of your business, of course. This is how we define efficiency – fully integrated into our client's processes.

S.S. Enterprises

- SEMINAR BAGS & SCHOOL BAGS
- AS PER SPECIFICATIONS CORPORATE GIFTS,
- GIFTING SOLUTIONS & GENERAL SUPPLIERS

Contact Us:

Rajashree Jain

Mfrs of: B-6, Shree Maruthi Complex, 8th Cross,
Malleswaram, Bangalore-560003
Mob: 9845587594
Ph: 080-23347488
E-mail: raj_bag_ss@yahoo.com



Walter Tools India Pvt. Ltd.
Pune, India · +91 (20) 3045 7300
service.in@walter-tools.com
www.walter-tools.com

SIDBI to promote MSMEs

Small Industries Development Bank of India (SIDBI), established in April 1990, works for the development of Industry in the Micro, Small and Medium Enterprises Sector (MSMEs) and is coordinating the functions of other institutions engaged in similar activities.

Since its inception, SIDBI has been assisting the MSMEs through suitable schemes tailored to meet the requirement of setting up of new projects, expansion, diversification, modernisation and rehabilitation of existing units.

DOMAIN OF SERVICE

The MSME sector occupies an important place and its contribution in terms of generation of employment, output, and exports is quite significant. For the purpose of defining MSMEs in India, the original purchase value of the plant and machinery installed in a unit has been adopted as the sole criterion. The ceiling on investment in plant and machinery has undergone periodical change, after the introduction of this concept. The present caps are as under:

Enterprise Category	Manufacturing (Original Investment in P&M)	Services (Original Investment in Equipment)
Micro	Up to Rupees 25 lakh	Up to Rupees 10 lakh
Small	Upto Rupees 500 lakh	Upto Rupees 200 lakh
Medium	Upto Rupees 1000 lakh	Upto Rupees 500 lakh

CHANNELS OF ASSISTANCE

- SIDBI's financial assistance to SME sector has three major dimensions:
- Indirect assistance to primary lending institutions (PLIs)
- Direct assistance to SME and Service Sector units through its network of branches
- Development and Support Services

DIRECT CREDIT SCHEME

- Eligible borrowers:** New or existing MSME and Service Sector units.
- Nature of assistance:** Term Loan and other forms of assistance such as, Bill discounting, Inland letter of Credit, Foreign Letter of Credit, Bank Guarantee, quasi-equity and equity support, etc.
- Purpose:** Setting up of a new MSME unit / service sector unit and expansion / diversification / modernisation / technology Upgradation / quality certification of existing units.

For undertaking various marketing related activities.

Acquisition of additional machinery / equipment Service sector projects relating to Hotels, Resorts, Hospitals (health care), Multiplexes, Entertainment / Amusement segments, other tourism related activities, etc.

Other stand alone service sector projects with project cost upto Rupees 75 crore promoted by existing companies / groups in the areas like organised retailing, logistics, IT/ITES, travel operators, construction contractors, franchisees / dealers of oil companies / telecom / auto / service-products companies, fashion / design houses, infrastructure support service, courier services, etc.

- Minimum Loan amount - Generally Rupees 50 lakh or above.
- Minimum Promoters contribution - 33% - New Projects, 25% - Others
- Period of Loan - Min - 6 months; Max - 8 to 10 Years
- Moratorium - Need based - generally not exceeding 18 months
- Upfront fee - Generally 1%
- Rate of Interest - Based on rating and tenure of loan

SCHEME FOR ENERGY SAVING PROJECTS IN MSME SECTOR

Objectives: The overall objective of the Scheme is to reduce the emission of greenhouse gases, especially Carbon Dioxide (CO₂) and thus to contribute towards climate change mitigation.

Specifically, the scheme seeks to

- Increase investments of MSME in energy saving plant and machinery to reduce energy consumption &
- Increase the contribution of MSME to ecologically sustainable economic development and

Eligibility: New / existing MSME units, as per the definition of the MSMED Act, shall be eligible for assistance under the scheme.

Existing units should have satisfactory track record of past performance and sound financial position and should not be in default to institutions/banks. The projects which will be eligible for finance under the Scheme will be energy saving projects which are to be screened as per the Energy Saving Equipment list / activity list.

Units should have minimum investment grade rating as per extant Loan Policy. Sectors such as the arms industry, narcotics industry or any unlawful businesses are categorized as non eligible business and shall not be eligible for finance under this Scheme. Similarly, such projects which may result in larger negative social and environmental impact would also not be eligible under the Line of Credit.

Special Feature: Reduction in interest rate by 50 bps than the corresponding interest rate applicable to MSME borrowers

Other conditions: As applicable under DIRECT CREDIT SCHEME from time to time RECEIVABLE

FINANCING SCHEME

Eligible borrowers: Limits are sanctioned by SIDBI to well-established industrial units using components / parts / sub-assemblies / accessories / services, manufactured/provided by MSMEs. Either Seller or Purchaser needs to qualify as MSME.

Purpose: To enable MSME units (including construction / small road operators) selling components, parts, sub-assemblies, services, etc. to medium and large scale units to realise their sale proceeds quickly.

Terms of assistance:

- The period of unexpired usance of the bill not to exceed 90 days while the tenor of the bill not to exceed 120 days.
- The rate of discount under the scheme would be the rate prevailing at the time of discounting of bills by SIDBI.
- The bills shall be drawn by the sellers on the purchasers and shall be accepted by the purchasers for payment on due date to SIDBI.
- The seller would authorise the purchaser to lodge the bills with SIDBI for discounting. Upon discounting the bills, SIDBI will pay the proceeds directly to the seller in respect of the value of the components / parts / sub-assemblies / accessories so bought by the purchaser.
- Facility without bills of exchange / LC backed receivables can also be considered on merits.

CREDIT GUARANTEE FUND TRUST FOR MICRO AND SMALL ENTERPRISES (CGTMSE)

Objective: Availability of bank credit without the hassles of collaterals / third party guarantees would be a major source of support to the first generation entrepreneurs to realise their dream of setting up a unit of their own Micro or Small Enterprise (MSE). Keeping this objective in view, Ministry of Micro, Small & Medium Enterprises (MSME), Government of India launched Credit Guarantee Scheme (CGS) so as to strengthen credit delivery system

and facilitate flow of credit to the MSE sector. To operationalise the scheme, Government of India and SIDBI set up the Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE).

Scope of the scheme: CGTMSE gives guarantees to its member lending institutions (MLIs - All scheduled commercial banks, Select RRBs, SIDBI, NSIC, NEDFI) for their collateral free loans upto Rupees 100 lakh extended to eligible SSI units.

Eligible borrowers: New and existing Micro and Small Enterprises engaged in manufacturing or service activity excluding 'Retail Trade'.

Quantum of credit facility: Fund and non-fund based (Letters of Credit, Bank Guarantee etc.) credit facilities up to Rupees 100 lakh per eligible borrower.

Guarantee Fee & Service Fee: Presently, guarantee/annual service fee is payable @1% p.a. on the credit facility agreed to be covered by the Trust. The fee is to be paid every year till closure of the loan. In this case, maximum of Rupees 100 lakh would be extended as guarantee cover even though, the sanctioned amount exceeds Rupees 100 lakh.

Growth Capital and Equity Assistance for MSMEs (GEMs)

GEMs is given on the strength of business model / management strength and is not dependent on asset cover/collateral.

It could be used to bridge the gap between the two chief sources of finance viz. bank loans (senior debt) and promoter's capital.

SIDBI offers this assistance in form of mezzanine/ convertible instruments, subordinated debt and equity (in deserving cases). This quasi assistance is collateral free, has higher moratorium on repayment and a flexible structuring.

In view of the above, the expected rate of return to SIDBI is higher than that on secured loan assistance.

Need for GEMs for MSMEs

Promoter's financial resources are generally limited and might not meet the growth aspirations of the business. Hence the need for equity/quasi equity type of assistance to enable them to leverage it for

conventional bank/debt funding.

Majority MSMEs are generally not able to raise external equity from Venture Capitalists / PE investors due to various issues viz. valuation complexities, lack of clear exit options, small ticket/deal size, expensive due diligence etc.

Uses of GEMs: Bridging the gap in means of finance for scaling up/expansion/modernization projects.

For intangible investment viz. Marketing/R&D/product development/IPR filing etc.

Working capital margin requirements.

Normal Working capital requirements are not eligible under the scheme.

Eligibility: MSME as per the definition of Government of India (MSMED Act)

SIDBI's existing customers (meeting internal rating criterion)

Units with past 3 years of profitability and 2 years of satisfactory banking credit track record (meeting internal credit rating criterion)

Acceptable external rating from CRISIL, ICRA, D&B, SHERA, etc. would be desirable.

Rate of return: Can be structured in a flexible manner to achieve a return of PLR+3 p.a.%

Others terms: Tenure of assistance could be upto 7 years (with upto 3 years moratorium on principal repayments). Subordinated Debt restricted to 50% of Post project tangible net-worth of the unit.

DER/ DSCR norms as per internal guidelines of SIDBI.

Secured Business Loan for MSME

Purpose of assistance: For any tangible or intangible business needs like capex, servicing new orders, renovation of property/assets, reimbursement against self financed assets acquired in last one year, funding of intangibles, brand building/marketing, R&D, inorganic business growth, any other bonafide business needs, etc.

Expenditure for speculative purposes like investing in stock market, non - business related commodity trading, commercial real estate activity etc. are not covered under the scheme.

Purpose

To take forward this government's initiative and help MSMEs take part in the Government's 'Make in India' campaign, SIDBI has set up "Make in India" Fund, which would help MSMEs engaged in the selected sectors get financial assistance at competitive interest rate. The "MAKE IN INDIA" fund has been set up by allocating an amount of ₹.1000 crore from SIDBI's own funds initially for direct lending.

- 1.1 **Objective of the Fund:**
Focused, Timely and Adequate financial resource for the identified sectors at competitive interest rates
- 1.2 **Coverage and Products:**
 - The Fund would be used for lending and other investment activities for the sectors identified by the Government under "Make in India" initiative.
 - Both term loan and working capital assistance can be covered under the fund.
- 1.3 **Pricing of Loans under the Fund**
 - **Direct Finance:** Since the emphasis is on making available adequate financial resources to the sectors at competitive rates, the rate of interest in respect of direct lending under the fund will be 50 bps lower than the applicable rate across all the schemes of SIDBI.
 - However, maximum interest rate reduction for any case thus will be restricted to only one concession either under "Make in India Fund" or any other concession extended to any scheme.
 - **Indirect (NBFC/Banks) Finance:** No indirect finance proposed under indirect assistance under this fund.
- 1.4 **Upfront / Processing Fee:** The upfront fee/ processing fee under the fund will be levied at upto 1% on the sanctioned amount for term loans, 0.50% for working capital assistance and 0.25% for renewal of working capital. The concession on upfront/processing fees will be valid during FY 2016 (i.e. till March 2016).

2 SCHEME COVERAGE UNDER MAKE IN INDIA FUND:

The grouping of the various sectors could be as under:

General Purpose Term Loan	Asset Backed Scheme and Scheme for Asset Light Assistance to Service Sector	Scheme for facilitating payments to MSMEs in Construction Sector (CRE Exposure)	Infrastructure Financing Scheme with MSME linkages
1	2	3	4
Automobiles, Components, Biotechnology, Defence Manufacturing, machinery, Food Processing, Pharmaceuticals, Renewable Energy, Textiles and garments.	IT and BPM, Media and Entertainment Tourism and Hospitality and Wellness Sectors	Construction	Infrastructure projects, Mining, Oil and Gas Ports, Roads and Highways, Thermal Power, other norms and guidelines would be applicable to the respective schemes under which the assistance has been covered under the Make in India Fund.

3 TAKEOVER OF LOANS FROM BANKS / FIs

Takeover of loan would generally not be permitted but a unit going for expansion can be covered under the "Make in India" Fund with the takeover amount being done at normal SIDBI rates and the expansion project would be covered under the "Make in India" Fund.

- **Eligible Entities :** MSME units having net profit in 2 years out of last 3 years with profits in all the 3 years and No default to any bank/institution.
- **Tenure of loan:** 3-15 years including moratorium of 6 months.
- **Maximum assistance:** Rupees 10 crore subject to following conditions :

above calculation.

Rental criterion: 70% of the available net rentals from the collateral property other than owned by the borrower multiplied by number of years of lock in period of rental agreement or repayment period proposed, whichever is lower.

In case cash accruals from both the above scenarios are considered, loan amount can be summation of both.

Loan to Value criterion: 70% of collateral security in respect of residential and commercial property within municipal/ urban limits and 60% of value of collateral security in respect of industrial property.

For companies with valid SME rating in top 2 grades 110% of value of collateral security in respect of residential and commercial property within municipal/ urban limits and 80% of value of collateral security in respect of industrial property

- **Gross cash accrual criterion :** 60% of gross annual cash accruals as per latest audited financial result to be multiplied by number of years of repayment proposed. In absence of latest audited financials, the quantum will be based on the audited financials of previous year and CA certified latest financials, whichever is least.

If CA certified / provisional results are considered, limit shall be fixed on 50% of the amount arrived based on

Scheme for facilitating payments to MSMEs in Construction Sector (CRE)

Purpose of assistance: Entities in the Commercial Real Estate Sector Term loan assistance (project specific) or Line of credit to multi project entities.

Eligible Entities: Preferably corporate entities in commercial real estate sector. No Line of Credit Assistance to proprietorship concern.

Tenure of loan: For Term Loans, generally upto 3-5 years where revenue is by sale of properties only. In other cases where rentals or sales both are reckoned, repayment period upto 8-10 years could be considered. For Line of Credit repayment period upto 1-3 years with 3 months moratorium considered.

Maximum assistance: Rupees 35 crore for corporate entities and not more than ₹15 crore for proprietorship concerns.

Other Conditions: Land acquisition will not be eligible for term loan assistance though it could form part of the project cost. Solely residential projects not considered for assistance.

Asset Backed Assistance to Service Sector Entities Purpose of assistance

Project Assistance: For setting up new facilities or upgradation / expansion of existing facilities. Along with Capex, assistance could also be given for WC gap / margin money for working capital, intangibles and any other bonafied business expenditure.

Exclusive assistance for equipment: Non project assistance: Non project assistance for WC gap / margin money for working capital, intangibles and any other bonafide business expenditure.

Eligible Entities: Service Sector entities (as defined under MSMED Act / approved by SIDBI) and not in default to Banks / FIs

Tenure of loan: Maximum upto 12 years

Maximum assistance: Rupees 50 crore or Rupees 35 crore based on category of Service Sector of the applicant.

BSB Edge – Keeping customers in front seat of their business



BSB Edge, formerly known as Book Supply Bureau (BSB), has long established itself as one of the leading providers of national and international standards in India. Ever since its inception four decades ago, BSB Edge has steadily grown in stature to become an institution par excellence winning the trust of more than 10,000 customers. An ISO 9001-2008 certified organization, BSB Edge has signed-up with several leading international Standard Developing Organizations (SDOs) to provide an entire gamut of services related to marketing, distribution and training of standards.

The strong relationship that the organization shares with its principals is one of its most valued assets. Precise and timely flow of information from the SDOs has always assisted BSB Edge in keeping the paradigms of the various fields up-to-date.

Standards are the strategic-tools that serve to simplify life while increasing reliability and effectiveness of products and services. BSB Edge makes available internationally published standards to create a definitive impact, providing assurance of objectivity and authenticity to restore confidence, among its stakeholders.

Individuals and organizations from diverse functional areas, research fields and various industries enjoy access to over a million standards and technical documents.

With the ability to deliver on 95% of the standards' requirements from around the globe, BSB Edge is all about having its customers in the front seat of their business and keeping them informed about the latest in their industry.

Interested to be Dicronite Licensee ?
Call 094443 76957



Developed as part of NASA's space exploration program, Dicronite dry lubrication is the trusted dry lubrication technology for the aerospace, plastic molding, medical device, mechanical equipment, semiconductor and food processing industries.

- Key to Dicronite dry lubrication's wide range of applications are its:**
- Ultra-low coefficient of friction, $\mu=0.030$
 - Precision film thickness of 0.5 micron maximum (0.000020 inches)
 - Wide functional temperature span: -188°C to +650°C (up to +1316°C in vacuum)

Based on these key values, Dicronite dry lubrication is proven world-wide for:

- Friction and wear reduction
- Anti-seize/anti-galling
- Plastic mold release



Dicronite India Pvt. Ltd., Chennai | 094443 76957 | raj@dicronite.com

www.dicronite.com

Walter - Engineering Kompetenz



Walter is a highly experienced and committed organisation, pursuing perfection in execution, precise in its thinking with a strong sense of what is practically achievable. With the power of four brands - Walter, Walter Titec, Walter Prototyp & Walter Multiply, the company brings together more than 350 years of experience in cutting tool innovation. The company is globally acclaimed as the "ONE" source for Complete Machining Solutions. Walter offers a complete range of metal cutting tools for turning, milling, drilling and threading. The company's technologically advanced metalworking solutions open up new potential for its customers to enhance their manufacturing productivity and therefore their competitiveness.

As a company with global operations, Walter Group is represented in all the major markets of the world. Walter India is part of Walter AG headquartered at Germany with more than 16,000 customers in over 40 countries.

The brands:

Carbide and PCD insert tooling systems for turning, boring and milling, Solid carbide and HSSE drilling and boring tools, Solid carbide and HSSE threading tools and end mills. The Multi-level service programme (Planning, Production, Logistics, Maintenance & Training).

Number of tools in catalogue: 49,000 :

The company's highly qualified & experienced engineers are the most important factor behind its renowned products and services. With in-depth know-how and experience Walter provides industry-specific solutions to Automotive, Aircraft & Aerospace, Energy, General Engineering & Railway. The company is a single source for Complete Machining Solutions.

The company's focus is to provide high-level engineered solutions to its customers. Walter India's Technology Centre, located at the new head office facility at Pune, spans over 3500 sq. ft. and is equipped with latest machines (5 Axis Machine Center, Multi-tasking Turning Center). The Technology Centre exhibits Walter competencies through LIVE demonstration of the latest from the Machining world. Prototype development, prove-out of new products and Process Optimization solutions along with Technology exchange & specialized training for Customers and Engineers are a few of the major objectives of this new Technology Center. This new facility provides the company with a competitive edge and differentiates Walter from others.

The Technology Center does not stand alone. Together with a Training Center which has a 60-person capacity, Walter India offers a unique combination for the transfer of knowledge and expertise. The theoretical concepts taught in the Training Center with the support of Walter Academy can be proved and demonstrated in practice at the Technology Centre. More than 200 Engineers from various Engineering Institutions have had hands on experience through trainings. Similar initiatives are planned for the budding Engineers.

With over 1000 of new projects & process optimization executed across India, Walter has enabled customers to gain the competitive advantage by providing them with the means to engineer what they envision.

Ultra light weight armor solution for Aircrafts



SAVING LIVES EARNING SMILES

MKUPvt Ltd, a leading manufacturer of ballistic protection solutions, for personnel and platforms, with over 25 years of domain experience has a wide range of lightweight ballistic protection systems and unique patented attachment systems for helicopters. Its ULTRA LIGHT WEIGHT armour solution based on the latest Gen 6 technology, has been developed after extensive R & D efforts and field trials in its labs in India and Germany. It has also developed the innovative Modular SchutzTechnik (MOST), a unique modular armour system for aircrafts.

A technology driven company, MKU spends almost 6-8% of its turnover on R&D. This enables the company to stay ahead of the technology curve. It has a vast library of over 1000 solutions for more than 100 threats covering most of the commonly prevalent threats worldwide.

MKU is a registered NATO supplier since 1993. In the last 25 years, MKU has provided protection solution for more than 200 rotary and fixed wing aircrafts including Mi17, Mi 8, Bell 212 (UH 1D), Super Puma, Sikorsky CH53 & Black Hawk. Helicopters armored by MKU have seen active service in some of the harshest battlefields of the world like Afghanistan.

MKU provides end to end solutions and complete project management. A System House for design, development, production, system integration, maintenance and global sale of ballistic protection solutions for land, naval and air platforms, it uses special patented technologies which have been developed over years of R&D effort. MKU also provides lifecycle support for platform armor.

Ballistic solutions provided by MKU conform to Environmental Standards as per MIL 810 G. The facility is AS 9100 C certified for development and production of Ballistic Protection systems for aircraft, land vehicles, naval vessels and objects against blast waves, splinters and bullets.

MKU has a treasure trove of experience having provided body armour and helmets to more than 1.5 million soldiers and ballistic protection solutions for almost 2000 platforms worldwide. MKU has in its repository, over 1000 protection solutions for more than 100 threats. Its products and solutions are used by over 230 forces spread across 100+ countries including India.



Searock Precision Products Pvt. Ltd

Mission Critical Machined Components and Assemblies
Design, Indigenization, Prototyping & Production



ISO / TS
16949

Rear Tow Hook Assembly



F-R Gearbox



WHAT WE DO

- Manufacture, assemble, test and supply of precision sub-assemblies and assemblies
- Build to print as well as bespoke design and manufacture
- Indigenization of special and mission critical components & assemblies
- Prototypes, Small & Medium batch production – **Several successful defense projects**
- FROM RAW MATERIAL DEVELOPMENT TO ASSEMBLY & TESTING

SERVICES WE OFFER

- Design
- Engineering
- Manufacturing processes
- Raw material substitution
- Development of castings, forgings
- Development of gears & splines
- Heat treatment
- Sourcing of bearings and bought outs
- Assembly of aggregates and gearboxes
- Testing of aggregates and gearboxes

CONTACT : C27, KIADB Industrial Area, Kumbalagodu, Bangalore 74
doss.hari@sarock.in Mob : +91 9844030617



Proudly Celebrating Our 19th Year in Business

Technology inspired innovation to get product designs right the first time

May it be a passengers Aircraft, a chopper, an Air Carrier, fighter planes, or unmanned aerial vehicles such as a drone, Aerospace industry has always emphasized and exercised on bringing in radical as well as incremental innovations that have revolutionized the way of transporting and commuting people, goods, information and military intelligence for national security. Needless to say, they have only one chance to get their designs right. Any design error or flaw could be catastrophic. Aerospace industry has been pioneering and heralding product design innovation thus inspiring other industries to imbibe their dynamism. Let us evaluate some of the hard challenges faced by the Aerospace Industry today:

Some of the pressing challenges that Aerospace industry faces are:

1. Fuel efficiency
2. Cost and time of development
3. Meeting safety requirements
4. Maintaining highest quality standards

Designing Aircrafts and air carriers is extremely complex. Even for designing drone and unmanned aerial vehicles, designing of well embedded mechanical and electronics systems is key, analysis of various forces acting on the carrier including wind, rains, air turbulences need to be very well evaluated under aerodynamic analysis to create a carrier that can withstand the test and deliver the results it is designed to meet.

Not only are the lives of crew members, pilots and passengers dependent on it, but also the goods of high value carried by the goods carrier, information brought in by the drones, and work being carried out by surveillance air carriers are of infinite importance. So there are not just lives at stake, but also national security when it comes to military aircrafts. So they not performing as per standards is not an option. For Nation's most esteemed organization into Aerospace and Defense such as HAL, they have to ensure building a robust product that does not disappoint in performance. They need to adopt advanced technology to build and manage the design and production processes that never fails to achieve desired objectives.

3D Printing has been very widely adopted by Aerospace giants such as Boeing to print Models/parts and products for not just physical product design validation and visualization, but even as end use products. One of the vital criteria to 3D Print the part for final use, is the product strength.

There is no compromising on that front. FDM based technology uses production grade plastic or ABS+ plastic which is a proven material when it comes to building products that withstand heavy loads or forces.

Moreover, Ultem material from Stratasys is a certified aerospace material making it an ideal option to produce the parts in. Especially in case of limited batch productions, the company can save a whole lot of time and costs in building the parts for end use applications. Also the cost of error is low. If the design needs to be amended, then all that needs to be done is to make the necessary changes in the CAD model and print the part.

Producing the part in this takes less than half the time required to build the part through traditional injection molding process. This application, as known as Direct Digital manufacturing, where parts are 3D Printed as a substitute or alternative to the traditionally injection molded parts for end use purpose, have become an instant hit with many of the global Aerospace companies involved in passenger and military air carriers design and manufacturing.

FDM and Polyjet Technologies from Stratasys based on Additive Manufacturing technology which is a 3D Printing process that build products layer by layer can be used for:-

- *Concept finalization
- *Tooling such as
- *Jigs and fixtures
- *Assembly fixtures
- *Inspection gauges
- *Profile checkers
- *Sand casting pattern
- *Investment casting master pattern reduces the delivery time
- *Composite mandrel
- *Mock up models for wind tunnel testing
- *Urrogate model for fit form and assembly inspection
- *End use interior parts with Ultem material (it is a Certified Aerospace material from Stratasys for Polyjet Machines)

Aerospace engineering is highly intricate, multi-faceted and inter-disciplinary in nature. Moreover, design, development and manufacturing activities are spread out geographically. There is no one facility where the entire design and production is carried out from start to end. There is tremendous amount of design data generated that needs to be managed.

The teams working on different parts of the plane, from diverse locations need to be in sync with each other's designs as finally the parts will be assembled and need to function smoothly and seamlessly when they are connected or co-joined with each other.

This necessitates and highlights the magnanimous importance of effectiveness in concurrent engineering. How can this whole dynamic and re-iterative design and development process work in perfect harmony and synchronized manner while following the well

Role of simulation in fulfilling Govt's 'Make in India' goals for A&D



Mr. Rafiq Somani
Country Manager
ANSYS – India, ASEAN & ANZ

The Indian Government's 'Make in India' campaign is giving India's defense industry a shot in the arm.

India is one of the largest importers of conventional defense equipment and spends about 40% of its total defense budget on capital acquisitions. The Indian government has declared that one of its top-most priorities is to make India self-reliant in defense production.

Indian private companies, many of whom are tying up with global arms firms, are keen to enter defense production. The government, on its part, is working to remove bottlenecks for arms exports as well as streamlining the complicated 'Make' procedure for indigenous R&D, development and production of weapon systems.



Role of simulation in A&D design:

Across the globe, simulation has helped aerospace and defense companies to meet the challenges of fuel efficiency, environmental impact, innovating to support the new space race and designing for affordability in a constrained defense-spending environment.

'Design for affordability' is today's mantra in traditional defense-spending nations. And this is very relevant to emerging nations' race to develop catch-up technology and localize imported military assets.

Engineering simulation technology plays a crucial role in the defense industry, especially as major organizations improve design process efficiency and leverage model-based systems engineering in the drive for affordability. Simulation-based engineering (SBE) tools — such as finite element analysis, computational fluid dynamics and electromagnetics field solvers — are a proven value-added contributor to the product development process in the defense industry.

Numerous studies around the globe have demonstrated cost, schedule and quality impacts that simulation-based engineering (SBE) tools can have on defense programs.

Leading companies around the world leverage the power of simulation software such as ANSYS to develop next-generation aircraft, commercial space vehicles, and unmanned systems like intelligence, surveillance and reconnaissance (ISR) technology. Some of the applications include the use of advanced multifunctional materials, millions of lines of embedded software, model-based systems engineering and multidisciplinary optimization.

While simulation-based engineering is important, it is also important to work on the more crucial aspects of helping the defense community improve processes and providing adequate support and training for engineers and designers who use the tools.

2015 certainly promises to be an exciting period for India's defense industry and the simulation industry has a great opportunity to partner with them to support India's defense goals.

streamlined processes and workflows? The answer to that is Product Lifecycle Management or PLM solutions as it is commonly referred to. PLM helps companies configure ideal workflows, streamlines processes, integrates various systems and software, manages design data in a knowledge bank through archiving it with all the old to the latest and updated design versions making it easier to access and use as per the need.

It also optimizes the use of resources including machines, men efforts, materials, finances etc. to enhance the overall design and manufacturing efficiency.

These solutions include managing crucial functions such as:

- *Systems engineering
- *Product engineering
- *Manufacturing planning and process
- *Supply chain management
- *Program management
- *Service lifecycle management

Together these technologies can help augment product design and processes innovation, build robust air carriers, and attain highest time and cost efficiencies while achieving breakthrough in engineering innovation and excellence.

By **Mr. Santosh Kawade**,

Regional Manager - Karnataka & Kerala, DesignTech Systems Ltd.

ADTL expects to execute huge contracts in current fiscal



"80Mn\$ Export order for versions of TIFCS being exchanged between Elbit & Alpha Design in front of Hon'ble Raksha Mantri Shri Manokar Parikkar on 19 Feb 2015 during Aero India Exhibition"

Country for Army, Navy, Air Force & Para Military Forces on the basis of direct Contracts from MoD.

In addition, Alpha has established strong relationship with key Indian defence organizations like Bharat Electronics Limited (BEL), Hindustan Aeronautics Limited (HAL), Defence Research and Development Organisation (DRDO), Ordnance Factories and with International Customers for Defence Offsets.

The Company has developed a strong management and execution team comprising of several advisors, who are ex-employees of BEL, HAL, DRDO middle level / senior Defence Officers, etc., apart from technical experts from IISc, IITs and corporate executives from private industry.

During FY 2014-15 the Company bagged several orders from Ministry of Defence and International customers and its order book position as on March 31, 2015 is US \$ 312.42 Mn (Rs. 1405.93 Crores). The Company achieved a turnover of US \$ 38.82 Mn (Rs. 231.81 Crores) in FY 14-15 as against US \$ 25.22 Mn (Rs. 150.11 Crores) in FY 13-14, an increase of over 54% over the previous year. The company expects to execute contracts worth US \$ 85.55 Mn (Rs. 342.21 Crores) in FY 15-16

ALPHA is one of the fastest growing Defence Electronics & Avionics design and manufacturing Organisations in the Private Sector.

ALPHA DESIGN TECHNOLOGIES PVT. LTD (ALPHA) is a company organized and existing under the laws of India having its registered office in Bangalore.

The Company has been incorporated under the Companies Act 1956 on 02 - 07 - 2003 (Certificate of Incorporation No. U74140KA2003PTC032191). Alpha has also obtained Industrial Licences (No. DIL-1 (2007) dated 05 March 2007 and No. DIL 97 (2008) dated 20 November 2008) from GOI (approved by MoD) for development / manufacture / supply of almost all types of defence electronics, avionics, simulation, UAVs, AFV equipment & systems.

Over the years, ADTL has developed its expertise in Research & Development, manufacturing, quality assurance, evaluation and system integration for various defence products such as Fighter aircraft / helicopters / UAVs, Avionics equipment including Missile Launch Detection System (MILDS), IFF, Optronics, LRF Based Products, Laser Target Detectors, Thermal Imagers & Fire Control Systems, Navigation, Tactical Communication, Software Defined Radios, Image Conversion, Data & Image Fusion, Radar, RF Seekers, C3I Systems, EW, Simulators, Microwave Components & RF Units for Indian and International markets.

The Company has set up state of the art R&D, manufacturing / production centers at Bangalore and Hyderabad to meet the requirements of Land, Ship and Air borne Defence Systems in the

NRB – A trail blazer in innovative design



Founded in 1965, NRB was the first company to manufacture needle roller bearings in India. For over 40 years NRB has pioneered leading edge bearing technology. Today, over 90% of vehicles on Indian roads run on NRB parts.

Since its inception, NRB has grown to offer a wide range of high-precision friction solutions for all mobility applications. NRB is India's premier wide range bearing manufacturer & is the domestic market leader in needle roller bearings, cylindrical roller bearings and thrust bearings and the first choice for customized ball bearings, tapered bearings and combination bearing solutions. With seven manufacturing plants in India and one in Thailand, NRB is proud to be India's premier bearing manufacturer. NRB is a trailblazer in Innovative design with comprehensive engineering capabilities. In 2000 NRB

ASSL – Bright spot in stainless steel bar industry

Ambica Stainless Steel Limited (ASSL) is one of the most modern Stainless Steel Bright Bar producers in the world. For decades, ASSL has been constantly exceeding expectations of highly demanding stainless steel bar customers in over 60 countries worldwide, and has set new benchmarks into the stainless steel Bright bar industry.

ASSL produces around 60,000 Tons of "Specialty" Stainless Steel grades like 17-ph, Duplex F-51 / 2205, 410, 431, 416, 347, 321, 316L, 316Ti, F6NM, 303, 430F, 1.4122 as per both DIN & ASTM specifications.

ASSL is also the largest producer of 17-4ph Stainless Steel Bars in India. Material in this grade is available in all heat treatment conditions like H1150-D, H-1150, H1075, H1025, H900, Annealed condition, P1070, P960, P930 and P800, conforming to ASTM-A564, AMS-5643R, AMS-5622 and NACE specifications.

The company's specialty 17- 4ph stainless steel bars offer:

1. High Tensile Strength & Toughness
2. High Hardness up to 600 degree F
3. Excellent Corrosion Resistance
4. Good Oxidation Resistance
5. Good Machinability

Equipped with ultra-modern fully-automatic German-made Peeling line & Heat Treatment furnaces all heat treatment furnaces of the company are calibrated to API-6A, and AMS-2750, AMS H-6875 (Class 3 and Class 5) to meet the demanding applications of Aerospace Industry. ASSL undoubtedly produces the highest quality stainless steel bars in India with an excellent machinability and highly uniform mechanical properties.

The company's facility is equipped to process 6,000 tons (per month) of Stainless Steel bars. This makes it one of the largest privately held bright bar companies in India, while keeping it small enough to meet its customer's individual needs. Very recently, the company has successfully migrated to S.A.P. This gives the company a better control over its processes and allows it to control the materials / orders throughout the supply chain in a much more effective manner.

The company's Certifications include – ISO-9001, PED 97/23/EC, Norsok M-650, CE Marking / CPR, TS-16949, AD 2000-Merkblatt W0, ISO-14001, OHSAS 18001 and SA-8000.

Product range

- Bright Round Bars • Cold drawn Hexagons & Squares • Precision Bright Bars (Pump Shaft Quality Bars) • HRAP Flat Bars
- Black Round bars • Round Corner Square (RCS) • Concast Billets & Ingots.

Bright Bars are supplied in sizes ranging from 4 mm – 150 mm in various diameter tolerances like h7, h8, h9, h11 etc as per ISO, ASTM, AFNOR & DIN standards with following features:

- Straightness up to 0.5 mm per meter TIR
- Surface Finish up to Ra value 0.2 µm (12 RMS).



For further details please contact :

Mr Sukesh Agarwal, VP – Sales & Marketing

Contact No: 011-27373365 extn : 208 Mobile: +91 99990 10929,

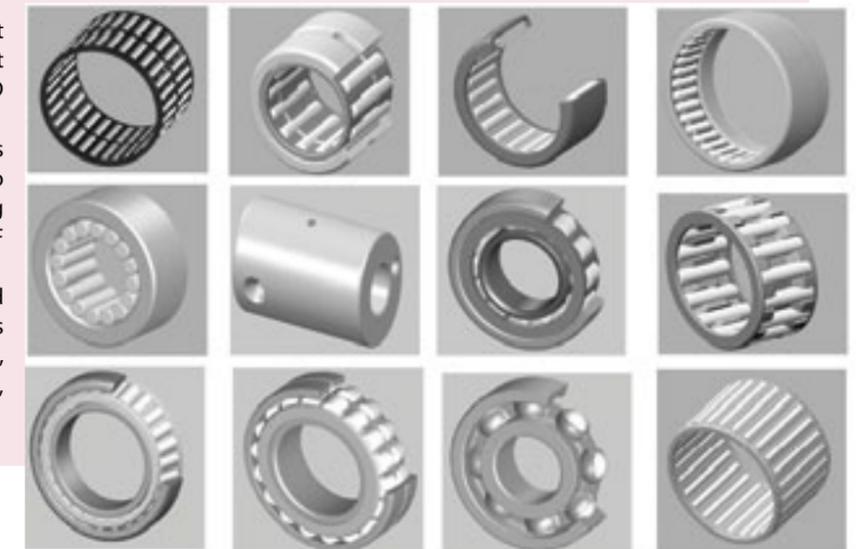
Email: sukesh@assl.co.in ,info@assl.co.in Web page: www.ambicastainless.com

NRB's product range includes :

established an Engineering & design centre at Thane, recognized by the Indian department of science & Technology as a world class R & D facility.

NRB high precision parts are powering vehicles across the globe and NRB is a global supplier to major mobility companies worldwide, including Mercedes, Volvo, Honda, John Deere, Bosch, ZF and Getrag.

Today the company supplies bearings and allied products to customers in 26 countries across five continents, including Germany, Sweden, France, Italy, The Czech Republic, Russia, China, Brazil, Mexico and the USA.



Aerospace Engineers Going from strength to strength



Mr. R. Sundar
CEO
Aerospace Engineers

AEROSPACE ENGINEERS & M/s. ELASTOMERIC ENGINEERS, Salem, Tamil Nadu, an AS9100C certified company, is one of the leading organisations for manufacturing of precision Aeronautical components in India under metallic and non metallic group. The organization has been founded in 1988 to cater to the requirements of Aerospace components manufacturing companies in India and abroad.

The organization manufactures about 60 varieties of Rubber compounds to meet the Global Aviation Standards and these products are approved for global airworthiness. The Inflatable Cockpit Seals are successfully developed for Kiran, LCA, LCA Trainer, Su30MKI and IJT by the organisation. Aerospace Engineers has manufactured about 15,000 parts to meet global aviation requirements with rigorous quality standards which are ratified by authorities.

Centre for Military Airworthiness Certification (CEMILAC) has accorded air worthy clearance for 1124 products, including rubber components, for use on aircraft, helicopters, missiles, Civil

Aviation and other systems. The organization has contributed to Missile Projects like BrahMos, Akash, Agni, Prithvi and also supplied composite components for BrahMos, LRSAM missile for DRDL and also for TAML.

The organization's products:

Lubricating oil pumps, Fuel pumps, Dual pumps, Inflatable Cockpit Seals, Flameproof Seals & Hoses, Oxygen hoses, EMI/EMC Shielding components, Plastic Moulding Components, Composite components, 'P' Clips and clamps, High pressure / Low pressure convoluted hoses, End fittings and Connectors, Hose Assemblies, 'O' rings, Chords, Metal Bonded Components and Vibration Isolators, among others.

Its customers: Hindustan Aeronautics Ltd., Aeronautical Development Agency, Aeronautical Development Establishment, Defence Research and Development Organisation, Defence Research Development Laboratories, BrahMos Aerospace Pvt. Ltd., TATA Advanced Systems, TATA Advanced Materials, Larsen & Toubro Ltd., UTC Aerospace, Honeywell, Vikram Sarabhai Space Centre, Liquid Propulsion Systems Centre and Indian Space Research Organisation.

International customers: Wesco, Meggitt Aerospace, Thomson Aerospace, Eaton, Wipro, Moog, Heico, GE and Liebherr.

Awards / Honours received by Aerospace Engineers

- 2001 – Excellence in Aerospace Indigenisation from Society of Indian Aerospace Technologies and Industries (SIATI) Prestigious award for development of Canopy Seal hose for KIRAN Aircraft.
- 2007 – 2008 – District level Best Industries Award by Chief Minister of Tamil Nadu.
- 2008 – 2009 – State level Best Quality and Export Award by Chief Minister of Tamil Nadu.
- 2011 – Excellence in Aerospace Indigenisation by Society of Indian Aerospace Technologies and Industries (SIATI) for Indigenous Development of Lubrication Oil pump for Helicopters.
- 2014 – National Level Award for Defence Technology Absorption by DRDO, presented by Hon'ble Prime Minister of India.
- 2014 – Excellence in Aerospace Indigenisation from SIATI for the successful development of Canopy Seal hose for SUKHOI-30 Aircraft by Hon'ble Chief Minister of Karnataka.
- 2014 – National Level Award for "SAP BEST RUN AWARD 2014" from Mr. Ravi Chauhan, Managing Director of SAP Indian Subcontinent.
- 2015 – National Level "SKOCH ACHIEVER PLATINUM AWARD 2015" conferred on AEROSPACE ENGINEERS BY Hon'ble Union Minister of State for Finance Mr. Jayant Sinha.



High pressure,
time sensitive,
mission critical.
It's all in a day's work.



Your team depends on you for mission-critical accuracy. And you can depend on the compact Keysight FieldFox spectrum analyzer. At only 6.6 lbs., it ensures peak accuracy without warm-up time and its precise measurements agree with trusted benchtop results. Which means, you'll always be ready to accelerate your team's success.



FieldFox Spectrum Analyzers

- Four models up to 26.5 GHz
- MIL-PRF-28800F Class 2 rugged
- Agrees with benchtop measurements
- ± 0.5 dB amplitude accuracy (full band)

Learn about interference analysis and more with our application note series.
www.keysight.com/find/FF_SA

For more information: Call: 1800 11 2626 (toll free), (0124) 229 2010 or email: tm_india@keysight.com

© Keysight Technologies, Inc. 2014

KEYSIGHT
TECHNOLOGIES
Unlocking Measurement Insights

Agilent's Electronic Measurement Group has become **Keysight Technologies**.

Garg Associates

A pioneer in high-performance wires & cables

Garg Associates Private Limited is a pioneer designer & manufacturer of high performance wires & cables harnessing technologies since 1966. It is founded in 1966 in collaboration with pioneer US cable company and is one of India's leading designer & manufacturer of Fluoropolymer (PTFE, FEP & ETFE) and Polyimide insulated Wires and Cables. This extensive experience has equipped the company to design and manufacture very high quality wires for customer specific needs / applications.



The company is an AS 9100 & ISO 9001-2008 certified firm and it also has quality certifications from LCSO, VSSC, C-DOT and Airworthiness Clearance from CEMILAC.

The company's product range includes:

1. Corona Resistant High Voltage Wires & Cables, Multicore Cables, PTFE Equipment wires – Wrapped & Extruded, ETFE & FEP insulated Equipment Wires, RF Coaxial Cables, Heating Cables, Flat Cables, Thermocouple Cables, Low Noise Cables, PTFE Sleeves

For manufacturing of wires and cables, the company follows standard and guidelines as required by its customers (MIL, AS22759, NEMA, BS and JSS). It has integrated conductor facility in sister concern "Sukriti Vidyut Udyog" located adjacent to our company.

The company's Fluoropolymer Wire and Cables are used in Aerospace, Defence, Navy, Oil & Gas, Communication, Industrial & Electromechanical, Medical & Automobile applications. The company has been exporting its products to Canada, North & South America, Germany, France, the UK, Czech Republic, Russia, Australia, New Zealand, Singapore, and Indonesia, among others, for more than 30 years. Some of the company's esteemed customers are:-

Government Companies: - ISRO, VSSC, SHAR, DRDO, HAL, BEL, BDL, & ECIL etc.

(The company's cables and wire harnesses can also contribute towards your Defence Offset requirements of Government of India).

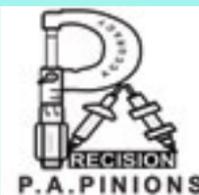
Private Companies: - GE Aviation, Thales Pons, Honeywell, Tata Power SED, Larsen & Toubro Astra Microwave, Bombardier etc.

Applications of the company's wires & cables:

Wiring for Aircraft, Supersonic Vehicles Radar, Navigation and Satellites etc, Electronic Test Equipment, Military Communication Equipment, Airfield Lighting Equipment, Wire & Cables for Weapon Systems e.g. Missiles, Wires & Cables for various Industrial Sensors, Electrical Equipments for Electro-Mechanical Applications, Research Equipments for Aerospace, Space, Navy & Metrology, Electronic Control Equipments for Satellite Launching & Ground Control, Electronic Control Equipment for Atomic Energy, Reactors and Process Control.

PA PINIONS – Supplying parts to industrial giants

PA PINIONS is an ISO 9001-2008 Certified leading mid-size manufacturer and exporter of highly precision micro components from CNC SWISS Type turning for Medical, Automotive, Printers, and Electronics industries, supplying parts to the giants in their respective fields.



Facilities:

- Swiss Type Turning and milling up to Dia. 25mm, both operations (front and back) can be performed in single setup.
- Gear Hobbing of spur gears up to dia 20 mm in materials like Steel and Brass with accuracy up to DIN 7.
- Highly precise Injection moulding of plastic parts with metal inserts and common material used are PPS, Peek, Stanyl, Arnitel, Arnite.
- Highly precise sheet metal & stamping from thickness 0.02mm to 5mm & size 50-60mm length, in materials Stainless Steel, Copper beryllium, Brass etc.
- All moulds and press tools are manufactured in-house employing hi-tech Swiss Tool room machinery.
- All supporting processes like Electroplating, Anodising, Heat Treatment, Polishing, Honing, Centerless grinding are available in-house.

• Extra Modern Inspection Facility consists of Vision Measuring System, Fischer X Ray Fluorescence Plating thickness tester, Double Flank Gear Tester, Mitutoyo Roughness tester and other Japanese make Hand metrology equipment.

The company has a significant presence in the USA, Europe, Singapore & many more countries.



DATA PATTERNS (INDIA) PRIVATE LIMITED

Data Patterns is a leading Private sector company providing indigenous solutions and systems for Defence and Aerospace markets. Data Patterns offers integrated state of the art electronics solutions in domains of Avionics, Radar, and Electronic Warfare, Sonars, Navigation & control, Missile Electronics, Communication Lasers and Electro-optics. Our solutions ensure today's technology, high reliability & maintainability and lower cost.



Data Patterns has a rich talented manpower of 500+ out of which 250+ Engineers are in R&D. A world class Development and Production facility has been set up with ISO 9001:2008, AS 9100:2009, ISMS 27001:2005 and CEMILAC certifications. Industrial licenses, facilities and processes enable us to handle all offset requirements.



Business Divisions:

Automatic Test Equipment (ATE)
Rugged Military Electronics (RME)

Radar, Electronic Warfare, Avionics, Signal processing & computing Systems, Control & Navigation, RF & Microwave, Automatic Testing and Cockpit Displays



Registered office:

No-19, Arya Gowder Road,
West Mambalam,
Chennai - 600 033
Tel: 91-44-4741 4000
Fax: 91-44-47414444

Bangalore office:

No-216, 3rd and 4th Floor Alfa Centre
Double Road, Indira Nagar 2nd Stage
Bangalore - 560 038.
Tel: 91-80-42424141
Fax: 91-80-42424142

Contact person: Mr. R.Soundararajan, Senior vice President- Sales & Marketing
Email: sundar@datapatterns.co.in Web: datapatternsindia.com

TAAL eyes "Specifications to Build" category in aerospace



Taneja Aerospace & Aviation Limited (TAAL) is a Limited Liability Company incorporated in 1994 and its shares are publicly traded on the Mumbai and the National Stock Exchange of India. TAAL is a member of the US\$500 Million turnover, ISMT Group of Pune. TAAL facilities are located 50 Kms South East of Bangalore in the midst of India Aviation hub. TAAL owns 250 acres of land where it has a self-owned airfield (2286 M long Airstrip).

A well known Aerospace & Aviation Company in private sector; having Manufacturing, MRO and Engineering Design capabilities, it has been having privilege of association with esteemed customers such as DRDO, ISRO, HAL, BEL and ECIL in major indigenous development programs and supporting Navy and IAF in upgrading capabilities of various aircraft over past 20 years of its existence.

TAAL started manufacturing six seater twin piston engine aircraft (P68C) under license from Partenavia, Italy during early 1990's. Subsequently the company added the Thorp 211 aircraft into its product portfolio. The company exported the Thorp airframes to the United States. Subsequently the company manufactured Aircraft Fuselage assembly, Horizontal and vertical Stabilizer of SARAS aircraft. Earlier, TAAL had manufactured HANSA Aircraft Airframes, which is a two seater commercial aircraft. TAAL has supplied Rustom-II Airframe to ADE and in progress of fabricating the second vehicle with reduced weight and improved design. ADE has ordered further airframes to be manufactured.

The company has built a sizeable experience and expertise in areas of Manufacturing & Repair of advanced Composite parts and assemblies, Sheet metal & Machined parts / assemblies and its corresponding tooling. TAAL has diversified in the areas of Avionics integration/ upgrade on Russian and Western origin aircraft, overhaul activities of IAF, Indian Navy and civil aviation customers and offering Customized solutions in Aviation domain. TAAL is perhaps the only company in Indian private sector which has expertise in Interior Refurbishments, manufacturing of Stretchers, Armor Panels and Avionics Integrations. The company has invested in dedicated Manufacturing, Quality and special processes facilities in each of above areas and has obtained approval of CEMILAC for undertaking design and modifications. Quality related certifications in aerospace like AS-9100 C and NADCAP have been obtained.

TAAL has created infrastructure to provide an end to end solutions ranging in category "Print to Build" any aviation product and mid-life upgrade through modifications. TAAL's next destination is to qualify for "Specifications to Build" category in Aerospace.

Pfeiffer Vacuum Setting high standards in vacuum technology

Pfeiffer Vacuum has a passion for perfection, and the customer, this translates to reliable, high technology products, and impeccable service.

For nearly 120 years, the company has been setting standards in vacuum technology. A key milestone was the development of the turbopump at the company in 1958.

With the company's know-how and German engineering, it continues even today to be the technology and market leader in this field. More than 280,000 turbopumps from Pfeiffer Vacuum are in service throughout the world.

Quality is always paramount at Pfeiffer Vacuum, which is endorsed by distinctions like the "R&D 100 Award".

Likewise, the company appreciates needs of customers for service support. For the company, this plays a crucial role in its customer relationships, and it ensures that it offers quick and effective technical services around the world.

These attributes set the company apart, and are perhaps what makes Pfeiffer Vacuum the preferred choice both in Industry & R&D markets. And the company's customer is the reason for its unending quest for perfection.

Products:

The right solution for every application * Vacuum generation * Dry Pumps * Rotary Vane Pumps * Turbo Pumps * Roots Pumps

Vacuum measurement and analysis equipment:

* Measurement & control equipment * Mass spectrometers * Leak detectors * Installation elements

Components:

Valves

System technology:

Leak detection systems * Vacuum pumping systems

Technical Service:

In India since 1995 with a state of the art service centre, Highly trained, knowledgeable, competent personnel. Repairs of all Pfeiffer Vacuum equipment at site/at service centre, AMC facility offered, Critical spares available off the shelf.



Excellence in aerospace manufacture through improvement in productivity & quality



Mr. Gautam Maini

MD

Maini Precision Products Pvt. Ltd.

MAINI GROUP

The Bangalore based Maini group, is engaged in a spread of high precision and innovative engineering products. Maini Precision Products Pvt. Ltd. (MPP) is the Flagship Company created in 1973 for the manufacture of high precision components for the Automotive and Engineering industry, with major focus on export market. In 2005, MPP made its first foray into aerospace sub-contract manufacture and started exporting machined high precision fuel line components to Snecma for their civil programs. Progressively MPP was able to build customer base with major aerospace leaders in North America and Europe.

Combining the strengths developed through the various group companies in early 2009, the aerospace activity of Maini Precision Products Pvt. Ltd. was realigned to form a fully aerospace focused team under MPP - AEROSPACE DIVISION to diversify and grow into wider areas of aerospace like Aircraft Structures, Aircraft Accessories, Engines and Ground Support equipment, ultimately to provide end-to-end one stop shop from Engineering to Product Delivery.

AEROSPACE DIVISION

Starting with manufacture of Precision Aero engine components, we have continuously upgraded our technical capability and progressed up the value chain into manufacture of more complex parts and sub-assemblies. High expertise in Aerospace manufacturing is driven by many senior Technocrats and executed by young professionals.

PRODUCTIVITY IMPROVEMENT

Productivity improvement is a key area of focus in all manufacturing sectors and Aerospace is no different. But Productivity improvement in Aerospace manufacture is challenging. This is mainly on account of:

- i. Low volume of production per set up.
- ii. High Precision requirement demanding high-end Machines & special cutting tools.
- iii. Tooling & Fixtures are essential but low volumes make their cost impact high.
- iv. Depending upon part complexity, multiple set ups are required thus resulting in prolonged approval process.
- v. Maintaining Traceability from Raw material to final product is key aspect in aerospace which calls for additional documentation and procedures.
- vi. Drawing specifications are sacrosanct and products need to be 100% interchangeable as these are sourced world-wide.
- vii. Raw Material and Machines are mostly imported. Hence, it is critical to have productivity improvements to be competitive globally.
- viii. It is a standard practice in automotive to monitor quantitative quality performance in terms of PPM which is being adopted for aerospace. Hence, the internal systems have to be aligned accordingly.

All the points listed above are not new to Aerospace Manufacturing plants but with all these challenges, the key issue is how can one achieve Productivity Improvement which is the only aspect to reduce Cost, while manufacturing to ensure Quality standards, flight safety and OnTime Delivery.

At Maini Precision Products (MPP), we have been placing maximum efforts to continuously improve productivity across all levels and to maintain product and process quality at par with international aerospace standards.

ACTIONS FOR PRODUCTIVITY IMPROVEMENT

- i. Improved lean work flow
- ii. Utilizing appropriate technology
- iii. Organized Machine layout
- iv. Tool Life monitoring & ensuring "RIGHT TOOL for RIGHT JOB"
- v. Constant monitoring of machine conditions
- vi. Strong internal production planning and monitoring systems
- vii. Specialized programming software

ACTIONS FOR CONTINUOUS QUALITY IMPROVEMENT

- i. Robust Integrated Quality Management System
- ii. First Time Right achieved through "DO IT RIGHT" Concept
- iii. Special emphasis on Operator Training, each individual operator monitored through Multiskill Training Charts
- iv. Compliance with international aerospace quality standards as an on-going practice

MSME challenges in developing Aerospace Business in India



V. Swaminathan

Micro small and medium enterprises are a key growth driver in the economy; they contribute to about 8% of the GDP and 40% of the manufacturing output of the country. In addition they employ over 60 million people. In light of Prime Ministers "Make in India" campaign and a push to improve ease of doing business in India, It is important to focus on MSME to make the manufacturing ecosystem in the country investor-friendly.

The challenges faced by MSME range across the value chain from marketing, finance, human resources to supply chain, IT and technology. Since most of the MSME were in the automobile sector adapting to the highly regulated aerospace industry is a major challenge. The most important challenge in making the transition is to understand the material standards and their availability. Unlike auto industry where materials are available locally or provided by customers, enterprises entering the aerospace industry need to firstly understand the

standards and specifications that the material has to comply with, secondly materials can be sourced only from a few approved suppliers in the USA or Europe, this brings with it complexity in terms of customs and license, unfavorable credit terms and logistic overheads. These challenges could be overwhelming for an enterprise entering the sector.

There are good opportunities available in the area of sheet metal fabrication, electrical, plumbing and hardware manufacturing. Sub-assemblies involve more skilled manpower and hence value addition will be high. This area is not developed because of the non-availability of heat treatment facility outside HAL/ ISRO/ NAL/ DRDO, since setting up this facility involves huge cost and require NADCAP approval for exports, even major industrial houses which were focusing on machined parts few years ago are now setting up facility for assembly. They are looking for vendors in sheet metal fabrication. Today ISRO/ HAL and other organizations predominantly import fasteners. With MRO business picking up, there are opportunities for MSME in the area of fastener manufacturing and sheet metal fabrication. Once MSME start manufacturing fasteners that meets international standard, it will be good opportunity. It is important for the government to provide assistance and create a conducive climate for MSME entering the aerospace sector.

A few initiatives that can be taken up to improve the ease of doing business are:

- Providing non-moving aircraft material available with PSU/ DRDO to MSME at subsidized rates. By liquidating the surplus material PSU will be able to lower inventory, Facilities like CMM/ Heat treatment with NADCAP approval available at PSU/ DRDO can be offered to MSME at concessional rate, MSME receiving quality certificate like AS 9100 can be provided with cash award equivalent to the cost obtaining the certification. This will encourage more industries to get AS 9100 approval, Centralized Credit rating for MSME, this will help them to finance their projects easily, Set up institutes to develop skills required for aerospace manufacturing with the help of ISRO/ HAL/ IIT/IISc, Provide subsidy to participate in exhibitions in India and abroad and organize Indian pavilion in Farnborough, Paris and Singapore air shows.

V. Swaminathan is a supply chain specialist more than 30 years of experience in the Indian aerospace industry. He served in Hindustan Aeronautics for 25 years in various capacities. His core areas of expertise include purchase, stores, logistics, outsourcing, contract management, production engineering and business development.

After working with HAL for over 25 years, he founded Surge Engineering Services, where he helps MSME to source aircraft materials/ parts and expand globally. He represents AMI metals, a US base aerospace aluminium distributor along with couple of other companies in India.

Contact Details: Mob: +919449509423, Email: nathan@surgeengg.com, Web: www.surgeengg.com

SUCCESS STORY

As a result of the above concerted actions, we are partnering with major aerospace leaders as manufacturing sub-source in North America and Europe. MPP Aerospace is also progressively moving into higher value chain in terms of technical complexity. The success of efforts is evident from some major recognition achieved by us:

- First private company to receive AS 9100 Rev B during 2006 & Rev C during 2011
- MPP-AERO was awarded as Best Supplier - Lean & Fast 2015 in One GE Supplier Conference in April 2015
- GOLD AWARD under special category for exports excellence for the year 2015 to MPP by Chamber of Commerce & Industry-Karnataka. We were awarded for the same in 2014 too.



Ideal Industries Always striving for excellence



Mr. Ajay Agrawal
Country Manager-India,

IDEAL INDUSTRIES India Pvt Ltd was established in the year 2011 as the subsidiary of Ideal Industries Inc, USA headquartered in Sycamore, Illinois. With manufacturing/development units at Sycamore and DeKalb, Illinois; Sterling, Massachusetts; Ajax, Ontario, Canada and in UK and China; the company aims to meet the demands of the Indian market and look to develop the potential within India.

Operation in India is headed by Mr. Ajay Agrawal (Country Manager) and the company's sales team consists of three sales managers for each business vertical ie Electrical, Networks & Casella along with the regional sales force and one service manager. Other than this; team for support functions of finance, logistics & administration is in place.

The company's product portfolio includes Hand held precision wire strippers & Automatic Wire Stripping Machine for wide range of Mil-Aero grade wires, STP Stripping hand held tool and Machine, Coax Stripping tool, Wire Cutters, Ratchet Cable Cutter, Automatic Cable Cutters and the range of Electrical test and measurement products like Clamp Meter, Digital Multimeter, Ground Non Contact voltage testers and Insulation Tester etc.

A family-owned American company with global reach, it had a humble beginning in 1916. The company's success has been propelled by an unwavering commitment to the industries, tradesmen and communities that depend on them and the IDEAL employees. The company is a trusted leader in the development of dependable products and technology for a number of industries, Defense and Aerospace wire processing, electrical tools, Test & Measurement, Wire connectors for safe and reliable joints in almost each vertical of the industries.

The company office is located in the Industrial hub of North India, Gurgaon and it has the sales presence across the country via distribution network and regional sales force to serve every part of the industry. The businesses which the company believes are best placed to be developed in the Indian market are: Electrical, Network businesses and Casella for OHS. The company's Product range including MIL standard precision wire stripping tools, Wire Termination, Electrical Test & Measuring Instruments and other vertical excelling for Networks testing Certification and OSH monitoring instruments.

The company strives for excellence in everything it does, constantly seeking to evolve and improve its business practices to bring its customers the most exceptional products and services possible. This comprehensive commitment to excellence can be seen in each of its products, services, manufacturing practices and people. The company's ergonomically designed wire processing tools for Defense and Aerospace Industry have been the global standard for almost every loom shop application. Every tool is built to deliver a precise and safe wire stripping operation for wide range of Mil-Grade wires. This commitment to quality and service will continue to spur the success of IDEAL INDUSTRIES, and its family of companies, for generations to come.

Precision Automatic Wire Stripping Machine

MIL-AERO



- Meets requirement of Military Specifications & AS5768
- Pneumatic Precision automatically strips 30AWG-10 AWG
- Accommodates six different wire diameters without switching tool or blade sets
- Controls strip length accurately from 3mm to 16mm
- Individual adjustable strip length for each port
- Replaceable wire guides & blades for maximum flexibility

IDEAL INDUSTRIES India Private Limited
229-230, SPAZEDGE, Tower B, Sector 47,
Sohna Road, Gurgaon - 122001, India
(T):+91 124-4495100/103, Fax +91-124-4495111
Email: indiasales@ideal-industries.in
www.idealind.com

Aero Euro – Delivering engineering solutions to diverse range of sectors

Aero Euro Engineering (India) private limited is a consulting, engineering and management service provider headquartered in Bangalore. It is a joint venture between Punj Lloyd Group (PL Engineering) and GECEI, France. Aero Euro delivers engineering solutions with operations in India and Europe.

Aero Euro has design and delivery solutions a diverse range of sectors including Aerospace, Defence, Transport, Energy, IT & Telecom and General engineering. It offers the engineering services on design and analysis of structure (Primary and Secondary structures, Metals and Composites), embedded electronics and product development services, Electrical expertise for structures, wire harness, Technical publication and IT services.

Mechanical Design/Analysis capabilities:

- Product Design & 3D modeling, Assembly & Simulation, Product Catalogue

Embedded system services: Aero Euro has expertise in the field of electrical and power system

- Product Development – Specification of prototype, Product engineering and Optimization, Firmware and software solutions, Product testing and certifications, Automated testing system development, Virtual prototyping and simulation, Product life cycle support.

Information Technology capabilities: Web technologies, Core Java .Net, .Net frame work & C, C++

Products & Services:

Mechanical Design/Analysis capabilities: Design Services

- Concept Design, Detailed Design, Geometric Dimensioning and Tolerancing, Design for Manufacture & Assembly, Tooling Design and Assembly, Die & Mould Design, Value Engineering, Reverse Engineering, Digital Mock Up, Advance Assembly Modeling, Kinematic Simulation, Interference and Space Analysis

Analysis Services: Structural Stress Analysis, Finite Element Analysis, Fatigue & Damage Tolerance Analysis, Thermal Analysis, CFD Analysis, Repair and Modification Substantiation, Certification Documentation

Management Services: Process planning & Optimization, Manufacturing change management, Vendor Development.

Embedded Services: Hardware Design services: • Digital, Analog & Power electronics, RF systems, Microcontroller board designs, PCB design (PADs, Cadence, allegro), Design for manufacturing and testing, Design for certification requirements- CE,UL etc

Firmware development services:

- Protocols & interfaces: MODBUS, PROFIBUS, LIN, RS232/485, SPI, I2C, CAN, ZigBee, Z-wave and other proprietary protocols, Device drivers, Application development for Lab View and microcontrollers from -TI, Renesas, Atmel, Microchip, ARM etc.



SLN Technologies Pvt. Ltd.

Electronics Systems Design and Manufacturing

Founded in 1995. SLN is specialized in Electronics Systems Design, Development, Testing & Certification and Manufacturing for Aerospace Industry Sector. SLN has been honored with National R&D Awards from Ministry of MSME. Govt. of INDIA, ELCINA- DUN & Bradstreet and ELCINA-EFY.

Products Domain

- Avionics LRUs
- Automated Test Equipments (ATE)
- Software Integration Rigs (SIR)
- Ground Support Equipments ('I', 'O' Level Testers)
- Control Systems
- Instrumentation
- Electronic Modules (SRUs)

Services

- Embedded System Solutions
- Board Design Solutions
- Embedded Software Solutions
- IV&V
- Indigenisation
- Re-Engineering
- Manufacturing

Expertise

- Interfaces: Analog, Discrete, RS 232/422/485, SPILL, MIL1553B, ARINC429, ARINC717, Audio, Video, Ethernet, USB.
- Bus Architectures: PCI, cPCI, VME, VME64X, VPX, PXI, PMC, Custom Bus Architecture.
- Processors: PowerPC, DSP, ARM, FPGA.
- FPGA Design and Development.
- Software: VxWorks, Real Time Linux, LabVIEW.
- Hardware Process: DO 254, DO 160E.
- Software Process: DO178B, DOD2167A, IEEE 12207.



Cockpit Voice and Flight Data Recorder

Contact: Horizon, 3rd Floor, No.1, Pai Layout, Old Madras Road, Bengaluru - 560016, India
 Phone : +91 80 41718881 / 41718882 Fax : +91 80 41718883; Email : sales@slntech.com; Web: www.slntech.com
 An ISO 9001:2008 Certified Company

Speaker's Profile



Shri V. Udaya Bhaskar
 Chairman & Managing Director
 Bharat Dynamics Limited (BDL)

Shri Varanasi Udaya Bhaskar assumed charge as Chairman & Managing Director of Bharat Dynamics Limited (BDL) on 30 Jan 2015. Prior to his new appointment, he has served as Director (Production) of BDL. He is M.Tech in Polymer Science & Technology from IIT, Delhi. He did B. Tech in Chemical Technology from Harcourt Buttlar Technical Institute, Kanpur with specialization in plastics technology.

He joined BDL in 1990, prior to which, he served in the private sector for about six years. He has rich experience in various fields of Missile Production spanning over 25 years, which included areas like Indigenization, Assembly, Integration and Testing of missiles; Materials Management, Vendor Development, Production Planning and Control etc. He played an instrumental role in establishing the production line for Konkurs - M Anti Tank Guided Missile (ATGM) and has a major contribution towards indigenization of over 90% of Konkurs, Konkurs - M (ATGMs), Launcher etc. He led the ISO core team for Implementation of ISO 9001: 2000 version at BDL Unit at Bhanur. As Director (Production), BDL, Shri Udaya Bhaskar made significant contribution in the areas of Corporate and Strategic Management, Contract and Quality Management and Personnel Management.

He is the recipient of prestigious Raksha Mantri's Innovation Award in Group / Individual Category for the year 2010 - 11 for his distinguished contribution in establishing Ballistic Evaluation Method using T-72 fixed firing stand for indigenisation of explosive charges of Invar Missiles. He is keen on academics and keeps abreast with the latest developments in the field of missile technology. He has presented technical papers at various forums and has many value-based articles published to his credit.



Mr. Joe Ajay.A.
 Key Account Manager
 EOS

M.Tech in Mechanical Engineering
 Specialized in Engineering Design-University rank Holder

- Contributions in Internal journals on Design & optimization
- Projects carried out:
 - Aerodynamic characterization
 - Analytical & experimental analysis on Heat pipe embedded tool.
 - Design optimization of turbo machinery
- Currently employed as Key Account Manager for Aerospace at EOS



Air Vice Marshal N B Singh
 AVSM, VSM (Retd)

Air Vice Marshal N B Singh AVSM, VSM (Retd) was commissioned in the Aeronautical Engineering (Electronics) stream of the Indian Air Force on 01 January 1979. The Officer has a brilliant academic record of distinction in Electrical Engineering. He is Fellow of Electronics and Telecommunication Engineers (FIETE). In his 35 years of service in the Indian Air Force, he has held many important appointments.

During his tenure as Senior Technical Officer of a Radar Unit, he successfully carried out a modification to improve the operational efficiency of the equipment. In 2003 the officer was tasked to upgrade the French make High Power Radar. The task was completed in record time and in excellent manner. His outstanding contributions and services beyond call of duty were recognized and the officer was awarded 'Vishishtha Seva Medal' by the President of India on 26 Jan 2006. He also held the appointment of Assistant Chief of Air Staff (Signals & Information Technology), Commanded ADGES Maintenance Standard Establishment (AMSE) and Master Control Centre and excelled in all the fields. In his tenure at Air Headquarters as Assistant Chief of Air Staff (Signals & Information Technology) the pan India gigabyte communication network project 'AFNET' was conceptualized, steered and dedicated to the nation by Raksha Mantri on 14 September 2010.

He also has been part of planning group to conduct Air Force level exercise "Iron Fist 13" and the same was witnessed and appreciated by President, Prime Minister and other dignitaries where IAF demonstrated its fire power in net centric environment. For his distinguished services of highest order, the officer was awarded Ati Vishishtha Seva Medal by the President of India on 26 Jan 2013. Air Vice Marshal (Retd) Shri N B Singh joined Bharat Dynamics Limited, as Director (Technical), on 01 Apr 2014.



Mr. V. Gurudatta Prasad

Mr. V. Gurudatta Prasad is graduated in Mechanical Engineering from Bangalore University and did M.Tech in Industrial Engineering and Management from J.N.T.U, Hyderabad and did Post Graduate Diploma in Computer Science from Central University, Hyderabad.

Joined with M/s Nagarjuna Coated Tubes as GET(Production) and subsequently joined with M/s Hyderabad Allwyn Ltd., Hyderabad, before joining in BDL in 1986. Started carrier with Production Department and worked in various Departments such as PED, SEG, CP, Assembly and worked as Head Milan Division.

As a Divisional Head of Milan, he has established all facilities for production of Milan 2T Anti-Tank missile by indigenizing the test equipments, Machines and Jigs & Fixture which were validated by Germany. Milan-2T Production completed, using above facilities with highest quality and reliability.

He acquired rich experience in Indigenisation of Missile Components, assemblies and developed vendors to meet the defence Standards. He was awarded for excellent contribution for phase-IV indigenization of Milan Components along with Cash Prize of Rs.10,000/- which was highest reward at that time. He worked as Unit Head of BDL-Bhanur & Presently working as GM-OSD at BDL corporate Office.



Dr. C. Rangayanayakulu, ADA

Dr. C. Rangayanayakulu ,Outstanding Scientist/Scientist 'H',Group Director (GS-ECS), Aeronautical Development Agency graduated Bachelors of Engineering (B.E), Mechanical Engineering from Andhra University, Vizag, India in 1985. He got Masters of Engineering (M.E) in Refrigeration and Air-conditioning from Bharthiar University, Coimbatore, India in 1987, Doctor of Philosophy (Ph.D) in Compact Heat Exchangers from Indian Institute of Technology (IIT), Chennai, India in 1995. Post Doctoral Fellowship from Alexander von Humboldt foundation, Germany in 2002. Working Experience: Between 1987 to 1995 in HAL: Involved in design and Development of Environmental Control System (Air-conditioning and Pressurization) for Light Combat Aircraft (LCA).

Since 1995 in ADA: Presently working as Scientist 'H/ Outstanding Scientist' & Group Director(GS-ECS) in ADA and involved in design, development and flight qualification of Compact Heat Exchangers and development of Mechanical Systems for LCA and new Aircraft programmes.

Awards:

Alexander von Humboldt foundation, Germany granted Post Doctoral

Fellowship in 2001-2002 and re-visit research programs in 2007, 2008, 2011 & 2015. . Recipient of Prestigious "Sir C.V.Raman Young Scientist Karnataka State Award" in 2004 for contribution to Aerospace Science.. "ADA Excellence Award" for Design, Development and Ground Testing of ECS for the year 1999.

Paper publications: Author of more than 65 technical papers on Compact Heat Exchangers and Aircraft Environmental Control Systems in International Journals and Conferences.

Advisory Committee Member: Vice President of Indian Society of Heat and Mass Transfer, Member of Several Advisory committees in academic institutions like VTU, PESIT and Dhayanandh Sagar universities.



Mr. Srinivas Duvvuri
Director
Airbus

Srinivas is with Airbus since 2014 to lead and support the development of partnerships and international co-operation programs with India and South Asia. His career was built with diversified global corporations in the aerospace, energy, transportation and marine sectors in customer facing, business development, operational and regional management roles in the South Asia and Middle East regions.

He started with Larsen & Toubro as a Graduate Engineer Trainee, and progressed to HAL and BEML covering application engineering, sales and international marketing. He later moved to General Electric, United Technologies, and Rolls-Royce in the aircraft engines and aero-derivative gas turbines and associated services businesses for flight, energy and marine propulsion. His current experience evolved from Bombardier for urban mass transportation, regional air connectivity, until he joined Airbus India last year to further build the company's international cooperation programs with India and South Asia.

He has a B.Sc. in Mechanical Engineering from Regional Engineering College (now NIT) Rourkela .



R. Vivekanandah
Vice-President
Titan

30 years of experience in manufacturing, projects, product development and business development.

Responsible for creating automation movement in Titan and establishing automation business unit at Titan that caters to automotive, medical and other engineering industry.

Currently, holds position as Associate Vice-President and Business Head of Precision Engineering Division comprising Automation Business and Precision Component Manufacturing business for aerospace industry.



Mr. Peter Sherwin
CEng MIMM, Global Digital Marketing
Manager, Eurotherm

Mr. Peter Sherwin has spent the last 25 years in the Heat Treatment Industry and has managed Heat Treat Facilities in the UK and India prior to joining Eurotherm in North America in 2007. He holds a Materials Engineering degree from Nottingham University, UK and an MBA from Henley Management College, London, UK.

He is a Chartered Engineer and a Professional member of the Institute Materials, Minerals and Mining. He recently updated "Temperature Control in Heat Treating" in the ASM Handbook Vol. 4B: Steel Heat Treating Technologies and has presented at numerous events during 2014 on the subjects of AMS2750 and CQ19.



Mr. Rahul Patni
Aero Metals Alliance

Rahul Patni is a Business Development Manager for the Aero Metals Alliance.

He has worked in aerospace metals distribution in the UK, USA and India for over a decade.

AERONAUTICAL DEVELOPMENT AGENCY

Bangalore, India
(Ministry of Defence, Govt. of India)



LCA AIRFORCE PROGRAM



LCA AIRFORCE FIGHTER (Mk 1)



LCA AIRFORCE TRAINER (MK 1)

LCA NAVY PROGRAM



LCA NAVY TRAINER (MK 1)

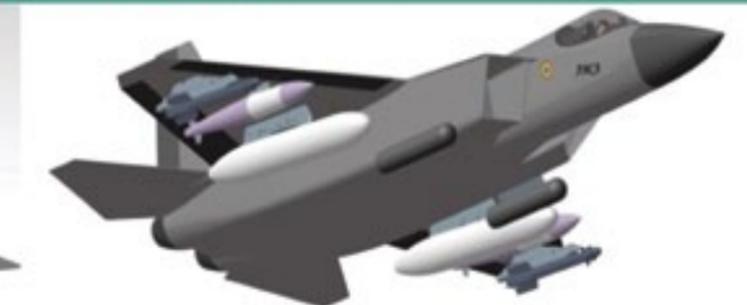


LCA NAVY FIGHTER (Mk 1)

ADA FUTURE PROGRAM



ADVANCE MEDIUM COMBAT AIRCRAFT
(STEALTH CONFIGURATION)



ADVANCE MEDIUM COMBAT AIRCRAFT
(NON-STEALTH CONFIGURATION)



ADA
AERONAUTICAL DEVELOPMENT AGENCY
Ministry of Defence
Govt. of India
P B No. 1718, Vimanapura Post
Bangalore - 560017, India
Ph : +91 80 2508 7250
Fax : +91 08 2523 5992
www.ada.gov.in



List of Exhibitors - ADMS 2015



1. M/s BSB Edge Private Limited

No.1 ,BSB Business Centre
KR Colony , Domlur Layout
Bangalore – 560071
Tel +91 80 25351255
E-mail: blr@bsbedge.com

2. NRB Bearings Limited

Dhannur,15 Sir. P.M. Road,
Fort,Mumbai 400-001,Maharashtra
Tel : 91 22 22664160/22664998
E-mail : gagan.mathur@nrb.co.in

3. Ideal Industries indiaptvt Ltd

229 - 230, Spazedge,
Tower B, Sector 47,Sohna Road,
Gurgaon, 122001,Haryana
Tel: +91-124-4495103
E-mail: atul.agnihotri@ideal-industries.in

4. Ambica stainless steel Ltd

A-1/1 Wazirpur industrial area,
Near Fir station building in wazirpur
Delhi – INDIA Pin: 110052
Tel: +91- 011-27373365,8470088870
E-mail : nandakumar@assl.co.in

5. PRS Permcel Private Limited

#5, II Floor, Ankur Plaza
52 G N Chetty Road
T Nagar - Chennai - 600017
Contact Number : 044 28155551

6. Dicronite India Pvt. Ltd.

G2, No.7, III street, Kanniga colony,
Nanganallur,Chennai - 600 061.
Mob: 094443 76957
Tel : +91 44 2224 5829
E-mail : raj@dicronite.com

7. PA PINIONS

Kasauli Road
Dharampur-173209 , H.P
Tel : +91- 1792- 264751
E-mail : marketing@microshaftsandgears.com

8. MKU pvt. Ltd.

13, Gandhi Gram, G.T.Road, Kanpur,
Uttar Pradesh 208007

9. E.I.S. Electronics (India) Pvt. Ltd.

118-E, Shyam Nagar, Kanpur-208015. U.P.,
Tel.: +91 (512) 3026700

10. Eurotherm India Private Limited.

Tamarai Tech Park, SP Plot# 16-19 & 20A
Thiru-vi-ka Industrial Estate, Inner Ring Road, Guindy
Chennai - 600 032
Tel: +91 44 42240000
E-mail: info.eurotherm.in@schneider-electric.com
Web: www.eurotherm.in

11. Aerospace Engineers

"The Salem Aeropark",
National Highway 7, Ammapalayam Village,
Mallur, Salem - 636 203. Tamil Nadu, INDIA.
Tek: 91-427-2422232
E-mail: ceo@thesalemaeropark.com

12. RR Founders

#120, Kambalipura Gate, Shidlagatta road, Hasigala Post,
Hosakote 562 114.
Tel: +91 80 27971216
E Mail : sbellubbi@rrfounders.com

13. Walter Tools India Pvt. Ltd.

India Land Industrial Park, S No. 234, 235 & 245,
Hinjewadi, Phase I, Pune 411 057
Tel: +91 20 30457300
E-mail: service.in@walter-tools.com

14. Taneja Aerospace Aviation Limited.

Belagondapally,ThallyRoad,Denkanikottai Taluk
Krishnagiri Dist. – 635 114
Tamilnadu
Tel: +91-04347-233506
E-mail:ceo@taal.co.in

15. DesignTech Systems Ltd.

147, Emerald Tower,
KHB Colony, 5th main,
5th Block, Koramangala,
Bangalore-95
Tel: 080 4198 4720 / 41984721 / 41984724 / 41984725

16. SolidCAM Software India Pvt Ltd.

New Office: # 15/1, 3rd Floor, 2nd Main Road,
7th Cross, N.R.Colony, Bangalore-560 019 | India
Tel: +91-80- 26678933, Telefax: +91-80- 26678933
Mob : +91 – 9902826699
E-mail : arun.kumar@solidcam.com
Web:www.solidcam.com

17. Pfeiffer Vacuum (India) Private Limited

25/5, Nicholson Road,
Tarbund, Secunderabad: - 500009.
Tel : - 040 – 27750014, 27750103
Email: pvin@pfeiffer-vacuum.in

18. Litel Infrared Systems Pvt. Ltd.

J-284,MIDC, Bhosari, Pune 411 026, India.
Phone No:+91 020 66300643
E-mail: sales@litelir.com
Web: www.litel.in

20. Data Patterns (India) Pvt Ltd

No-216, 3rd and 4th Floor Alfa Centre
Double Road, Indira Nagar 2nd Stage
Bangalore – 560 038,
Karnataka
Tel: 91-80-42424141
E-mail: soundar@datapatterns.co.in
Web: datapatternsindia.com

21. Synergistix India Pvt.Ltd.

4th Floor, Kaba Plaza, 57, L.B.Road, Adyar
Chennai – 600020 , Tamilnadu
Tel : 044 -4211 4825
E-mail: mail@synergistixindia.com

22. Aeronautical Development Establishment (ADE)

Defence Research and Development Organization
Ministry of Defence, New Thippasandra Post
Bangalore-560075
Karnataka
Tel:+91-80-25283404/25057005

22. Aeronautical Development Agency (ADA)

Post Box 1718,
Vimanapura Post Office ,
Bangalore-560017
Tel: +91-80-25234170/25087100

23. Hindustan Aeronautics Ltd.

Corporate Office, P.B.No.5150
15/1, Cubbon Road, Bangalore – 560 001
Tel:+91-80- - 22320701

24. Maini Group

No 5A, Bommasandra Industrial Area
Off.hosur road
AnekalTaluk,Bangalore- 560099
Tel: +91-80-40724705
E-mail:gkm@mainimail.com

25. EOS GmbH India branch Office

36, Sivananda Nagar,
Kolathur, Chennai-600099
Te: +91-44-39648000
E:joeajay.alphonse@eos.info

26. Searock Precision Products Pvt. Ltd

C27, KIADB Industrial Area Kumbalgodu, Bangalore 74
Mob: +91 9844030617
E-mail: doss.hari@searock.in

27. AeroEuro Engineering

1st Floor, MFAR Silverline Business Tech Park
180, EPIP Zone, Whitefield, Bengaluru 560 066 India
Tel : +91-80 67465000
E-mail :- Pradeep.mishra@aeroeuro.in
Web: www.aeroeuro.in

28. Simpleware Ltd.

Bradinch Hall, Castle Street, Exeter, Devon, EX4 3PL, UK
Mob: +91(0)95714 90995
E-mail:y.agarwal@simpleware.com

29. ALPHA DESIGN TECHNOLOGIES PVT LTD

No. 09, Service Road, HAL II Stage, Indira Nagar
Bangalore - 560 008, India
Tel: +91-80-4255 6956

30. Garg Associates Private Limited

D-3, Meerut Road Industrial Area 3, Ghaziabad
Uttar Pradesh 201003
Tel:+91--120 2712128
Email:- E-mail:sales@gargasso.com
Website:- www.gargasso.com

31. Concepts NREC India PvtLtd

No. 17, 7th Main, Indiranagar 2nd Stage
Bangalore 560038
E-mail: gopakumar@concepts-nrec.com

32. Hindustan University

Post Box No.1, Rajiv Gandhi Salai (OMR) Padur, Chennai 603103.
Tel:+ 91-44-27474395
E-mail -training@hindustanuniv.ac.in

33. ANSYS Software Pvt Ltd.

Koramangala, Bangalore-560034, INDIA.
Board: + 91 80 67722500
E-mail: info-india@ansys.com
Web: www.ansys.com

34. Aero Metals Alliance

25 high Street, Cobham,Surrey
KT11 3DK, United Kingdom

35. Intech DMLS Private Ltd

B-117,3rd main Road,Peenya Industrial Area
2nd stage,Bangalore- 560058, Karnataka
Tel:+91-80-41474668
E-mail: raghu.m@intech-dmls.in
Web: www.intech-dmls.in

36. Bharat Dynamics Limited

Kanchanbagh, Hyderabad dist ,
Telangana-500058
Tel:+91-40-24340712
E-mail:bdbdl@ap.nic.in

37. Mahindra Aerospace

Plot No. 251 P, 252 to 264 & 265 P
Narasapura Industrial Area, Kolar Taluk, Bangalore, Karnataka 563133
Tel: +91 81522 80500;
E-mail:aerostructures@mahindraaerospace.com
Web: www.mahindraaerospace.com

38. Mayflower Language Services (P) Ltd.

No.87/26, Sarfarazi, 1st floor
Richmond Road, Bangalore- 560025
Mob: +91-9538080004, Tel: +91-80-22101888
E-mail: anilkumar@mayflowerlanguages.com
Web:www.mayflowerlanguages.com

★ Register for Third edition of ★
Aerospace & Defence Manufacturing Summit

ADMS 2016

Date : 1,2 July

Venue : HAL Convention Centre
Bangalore.



★
★
www.aeromag.in

The fastest way to Heat Treat audit success



AS FOUND
RESULTS



Our Products help you meet the AMS2750E Heat Treatment standard



Probes, PID Controllers, Data Management System, Chart Recorder,
TUS Recorder and Software, EPower advanced power control



eurotherm.in/ams2750e

Eurotherm

by Schneider Electric



www.aerometalsalliance.com



The way forward... for the aerospace industry



Together we are stronger

An alliance of six world-class metal suppliers, united to create a unique offering that brings together product ranges, processing capabilities and services that will enhance the supply chain for customers, *wherever they are in the world.*

AMARI
AEROSPACE

GOULD ALLOYS

FASU

SCA

SUNSHINE
METALS

wilsons