

# STAINLESS INDIA



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## Stunning visual effect of sculpture enhances driving experience



**Day & night view of the Sculpture "xcube25w"**

As you speed by the Mondeal Business Park on the Sarkej-Gandhinagar Highway in Ahmedabad, you will see a tall and slim stainless steel sculpture which also seems to be moving on its own.

This stunning effect is even more intensive at night time, when the cubes are illuminated from the inside. The result is, lights of different sizes and heights flash up in different directions while passing the sculpture. The sculpture is fabricated in

such a way that when the wind blows, the whole sculpture starts swaying.

Clearly, this sculpture invites you to come more often to this locality to enjoy a wonderful and elevating driving experience.

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This sculpture which is highlighting the entrance to the business park was designed in this vibrant and sparkling manner to give an idea of the character of business opportunities available for them inside the park.

This sculpture is meant to be very easily recognizable, especially to those driving past. It has several open box sections made from stainless steel sheets (304) differing in sizes and located at different heights, lined up on slim stainless steel pipes. By repetition, layering and overlapping the positions of the boxes, a visual moving effect is created for people in a moving car. The result is, people in a car feel that not only they are moving, but the sculpture is also moving on its own.

The charm of an elegant, silent and stationary sculpture is in the contrast between the stiff appearance of stainless steel parts on the one side and the visual

effect of movement on those passing by on the other side.

Concept and design by German Architect and Artist Mr. Hartmut Wurster, Country Head in India of Blocher Blocher Partners, a company for architecture and design, founded in Germany and with clients all over the world. They operate in all fields of architecture, interiors and design. He can be contacted at: BLOCHER BLOCHER INDIA PVT. LTD, C-37, Connaught Place, Atma Ram House, 110001 New Delhi, India, Mobile number : +91 9909004649, [hartmut.wurster@blocherblocher.com](mailto:hartmut.wurster@blocherblocher.com).

Without the wholehearted cooperation of the developer H.N. Safal and his Chairman Mr Uday Vora, this beautiful sculpture could not have been presented to the people of Ahmedabad.

The sculpture is fabricated and installed by the Sunrise Group, Ahmedabad,



**Artist Hartmut Wurster**

Gujarat, who are well known for the architectural work in stainless steel. They have used about 1 ton of 1.5 mm thickness stainless steel sheets in matt finish. The sculpture is 20 feet high and 3.6 feet wide.

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## Stainless Steel Drainage



**Stainless Steel drain is visible**



**The area after being covered with tiles**

Drainage is a big problem in any city. Frequent digging on the roads and footpaths causes big problem to citizens. The foul smell from the drainage is a nuisance and municipal authorities find it difficult to overcome this perennial problem. The same problem is faced in residential areas also.

Fabrica of Sunrise group have found a way to overcome this problem by laying a concealed drain in stainless steel. They, along with the help of the German architect Mr. Hartmut Wurster from Blocher Blocher India, who is responsible for the whole project of the Mondeal Retail Park, have undertaken this work on behalf of HN Safal, a leading real estate developer in Ahmedabad.

The stainless steel drainage is covering a length of 230 meters and has a depth of 120 mm. Three tonnes of SS 304 grade sheets of 1.5 mm thickness in matt finish was used for this work. Stainless steel has been selected by the builder by keeping in view the long life and rust free nature of the material. Since this drainage is meant only for rainwater discharge, and considering the inherent smooth surface of stainless steel, it was felt that 120mm depth of the drain is sufficient to take care of the flow.

The stainless steel drain is placed just below the floor surface and is fully covered with tiles and seamlessly merges with the rest of the flooring in the area. Instead of an eyesore, the

concealed drain gives a beautiful look to the area. The walk way area is so neat and clean that it becomes difficult to imagine that there is drainage underneath. The image of the place Mondeal Retail Park located in the area SG Highway in Ahmedabad gives a clear view of this hygienic drainage work done by M/s Fabrica.

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## Chimpanzee Sanctuary : Where Strength Meets Style



Innovation in zoo enclosure design is a key feature of the recently completed \$7.5 million makeover of the Chimpanzee Sanctuary at Sydney's Taronga Zoo.

The project brief was to create a chimpanzee habitat akin to their native home that would encourage social interaction and allow the zoo's primate keepers to manage animal husbandry and the group's changing demographic. The enclosure's transparency and the ability to withstand the chimpanzee's remarkable strength and intelligence were essential.

ASSDA member Ronstan Tensile Architecture was contracted by the builder, the Lipman Group, to be the specialist contractor for the technical design and installation of a mesh enclosure and non-climbable wall. Ronstan's unique capability in tensile architecture and their technical expertise were a natural fit for this challenging project designed by Jackson Teece Architects.

The Sanctuary features the mesh separation paddock (similar to an aviary), at one end of the main exhibit.



A non-climbable wall with a removable curtain, allows both spaces to function as one large paddock. This enables introduction of new chimpanzees into the compound and helps manage the apes' complex behaviour patterns.

Ronstan Tensile Architecture's General Manager, Rowan Murray, said the non-climbable wall structure was one of the most challenging design aspects.

"The architect's greatest challenge was to separate the chimpanzees physically, but still have them all in view in the paddock. We had to build a wall that was transparent, had openings of no more than 5mm to avoid chimpanzees putting their fingers in and climbing, and could withstand the strength of chimpanzees" Mr Murray said.

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## BEML - Pioneer in Stainless Steel Metro & Sub-Urban EMU Technology

M/s BEML Ltd is a leading rolling stock manufacturer in the country supplying passenger coaches, Electric Multiple units (EMU's), Railway maintenance vehicles and Track machines to Indian Railways. BEML Ltd., is the only Indian Metro Manufacturing Company and has been supplying stainless steel metro cars to Delhi Metro Rail Corporation (DMRC) and Bangalore Metro Rail Corporation Ltd (BMRCL).

### Standard Gauge (SG) Metro Coaches:

BEML has also the credit of manufacturing country's First Standard Gauge (SG) Metro Rail Car for Delhi Metro. BEML, under the technical collaboration of M/s. Rotem, South Korea, has manufactured and supplied 220 nos. of state-of-the-art BG stainless steel metro cars and 196 nos. of SG stainless steel metro cars to M/s. DMRC, Delhi.

BEML is presently executing the order for supply of 150 nos. of SG stainless steel metro cars for BMRCL, Bangalore. BEML has established infrastructure and skills for manufacture of stainless steel metro cars. BEML has made substantial investments to set-up state-of-the-art metro car manufacturing facility in the Bangalore plant and has also trained about 140 engineers and technicians at M/s. Hyundai Rotem, Korea, to absorb the latest metro manufacturing technology.



*BMRCL Standard Gauge (SG) Metro Car*

### Intermediate Metro Cars for DMRC:

Based on the expertise and experience gained by BEML in manufacturing Stainless Steel Metro cars, BEML received order from DMRC for indigenous design & development of 8 nos. of intermediate metro cars for upgrading existing 4 car train formation to 6 car train formation to enhance passenger carrying capacity. BEML successfully designed & developed the intermediate cars and the so developed cars have been commissioned and put into service at DMRC, Delhi. Based on the satisfactory performance of these cars, DMRC has placed an order for further 136 Nos of intermediate metro cars which has added

a value of Rs. 925 Crores to the company's turnover. With the Indigenous development of Intermediate Metro Cars, BEML has established its technological prowess in the Metro Rail business consistent with quality standards of any Global Player.

**Jaipur Metro:** BEML has also bagged Jaipur Metro order valued at Rs 318 crore. The order is to manufacture, supply, test and commission 10 train sets of four-car each, totaling 40 cars.

**Metro for other cities:** Apart from the above, there are a lot of other upcoming metro projects in the pipeline in the



*Intermediate DMRC Metro Cars in 6-Car Rake Formation*

*Continued on page 6*

## What's cooking: Empty pots & pans drip food for thought Subodh Gupta's London Masterpiece Housed in Saket Mall



Step inside the foyer in front of the Kiran Nadar Museum of Art, Saket and you can't help but be taken aback by what you see and dwarfed in its presence. It's a 36 feet by 36 feet installation, weighing 26 tonnes, and made using stainless steel kitchen utensils - its artist Subodh Gupta's monumental '**Line of Control**'.

Avid art collector Kiran Nadar first saw the piece in London at the Tate Triennial 2009 at Tate Britain, and she says it immediately overwhelmed her. At the centre of a grandiose building was this modern, cutting edge work of art that created a huge stir among the people then, she says. The indelible impact the piece had on her made her acquire it for her personal collection, which she displays at her museum at DLF South Court Mall. The piece- too big to fit inside the actual museum is placed just

outside, and spans almost the entire height and width of the area.

The imposing mushroom shaped cloud form of the installation represents the paradox in Indian reality, says Gupta, who first conceptualized the piece in 2005 but began working on it only in 2006. I am very fascinated by these brilliant utensils. **They are shiny but the emptiness of utensils shows no food. Similarly, one aspect of India may be shining, but another may not,** he says. But the piece has many different layers that bring it together, he adds. Nadar says **it represents the nuclear cloud after Hiroshima, and symbolizes the carnage that can occur.**

Bringing the installation here from London was a herculean task and it took months of preparation. The floor had to

be reinforced from the basement to be able to withstand the weight of the piece, and it took the crew seven long days to complete the actual installation.

A strong believer that art needs to be accessible to everybody, Nadar says she hopes people are intrigued to look at the piece carefully and react to it positively. But love it or hate it, it's a piece that is impossible to ignore. "May be we get more footfall at the museum with this work as well," she says. Roobina Karoode, director, KNMA, says that in installations like this, public participation adds to the experience of the artwork, "When people circumambulate, or look up at it, they become participants and not just spectators. She says she plans to collect public response to the piece, to gauge how different people react to it.

(Excerpted from *Sunday Times of India, New Delhi / Gurgaon April 22, 2012*)



**Stainless Steel AC EMU for Indian Railways**

country for cities. Viz., Ahmedabad, Pune, Kanpur, Lucknow, Bhopal, Ludhiana, Kochi, Chandigarh etc., which amount to a total requirement of about 1500 Metro cars over the next few years.

**Material of Construction:** The stainless steel metro coach carbody is constructed with cold rolled stainless steel of grade SUS301L in different cold rolled tempers of low tensile (LT), special tensile (ST), deadlite tensile (DLT) & high tensile (HT). Almost all parts of the carbody structure except bolster and center sill is constructed with stainless steel. Around 10 MT of stainless steel is used for the car body construction. These Metro cars are unpainted with side wall skin of special dull finish stainless steel sheet to provide the required aesthetics for the unpainted exterior. Apart from the carbody, SS has been used for seats, hand holds, grab poles, bracketories & battery box.

**Electric Multiple Units (EMUs) for IR:** As a proactive step in extending the benefits of stainless steel metro technology for other coaching stock of Indian Railways, BEML took up the challenging task of re-designing the existing corten steel EMU coach body with more modern stainless steel carbody design. The innovative design was well taken by RDSO and a developmental order for design, development & manufacture of 18 nos. of stainless steel EMUs is placed by Indian Railways. The first rake of 9 cars designed & developed by BEML is

cleared by RDSO and RITES and is ready for dispatch to Eastern Railways. The new design of stainless steel EMU (SS EMU) has been evolved for the first time in the country to replace the existing conventional corten steel EMUs which are more prone to corrosion. Designing the carbody with Stainless steel has resulted in cars which are modern, clean and aesthetically appealing and more importantly un-painted coaches, which causes environmental hazards.

**A/C and non-Air Conditioned EMUs:** The design of stainless steel carbody has been developed not only to cater for the present requirement of non-air conditioned EMUs but also to cater for future requirement of air conditioned EMUs. The exteriors of the conventional EMU has been totally re-designed ensuring better aesthetics, more durability and easier maintenance. The conventional steel structure front end of the Motor coach has been replaced with the innovatively designed FRP cab mask and cab skirt which provide a modern aesthetic appeal to the coach. Indian Railways plan to gradually replace the existing corrosion-prone corten steel EMUs with stainless steel EMUs in Calcutta, Mumbai, Chennai and Delhi. BEML foresees a huge business potential for the newly developed Stainless Steel EMUs.

**State-of-the-art Facilities:** To cater to the fast growing need of stainless steel metro cars and stainless steel

EMUs for Indian railways, BEML has earmarked the manufacturing facility at Bangalore Complex for manufacturing state-of-the-art SS Metro cars and SS EMUs and the facilities are being continuously upgraded to meet the required capacity and standards.

**Stainless Steel Wagons:** BEML has also developed a prototype stainless steel 100T wagon, jointly with M/s Steel Authority of India Ltd (SAIL) for the first time in the country. These wagons have been gaining significance over conventional mild steel wagons because of less corrosion, less fuel consumption in empty running, less abrasion, throughput enhancement and reduction in turnaround time of wagon due to fewer detentions etc. As Indian Railways (IR) are expanding their freight transportation facilities in a very big way and have taken up the project to construct Dedicated Multimodal High Axle Load Freight Corridor with computerised control on the Golden Quadrilateral routes linking the metropolitan regions of New Delhi, Kolkata, Mumbai and Chennai, stainless steel 100T wagons with higher pay load capacities find a major place in Freight corridor network.

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## SS 316L Retention Tanks for Processing Waste in Railway Coach Toilets



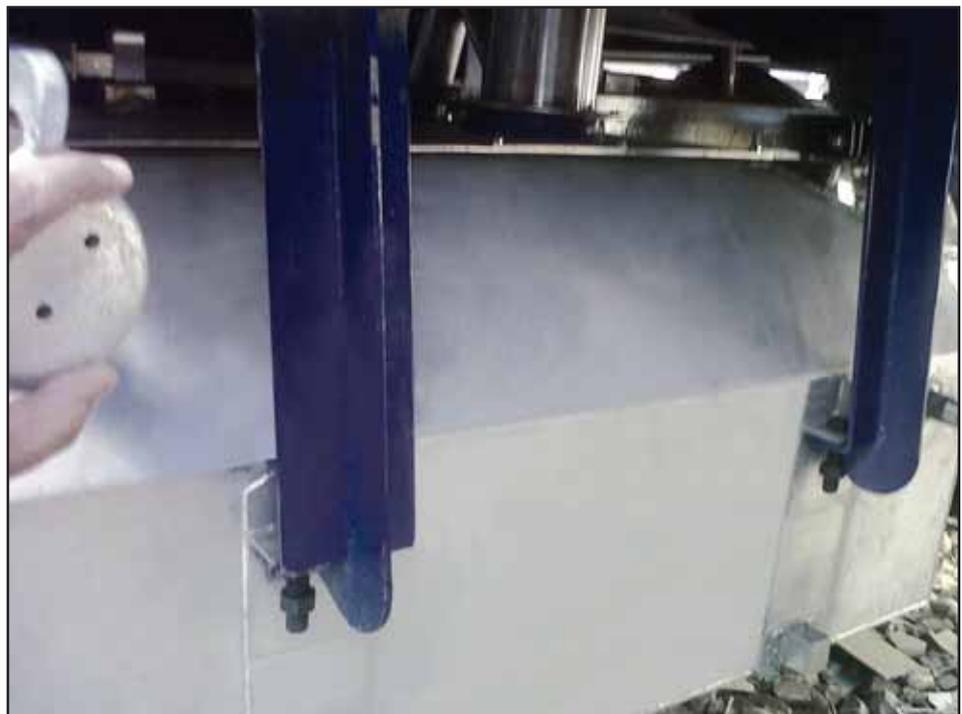
The Indian Railways are taking steps to improve cleanliness and hygiene in and around Railway stations and along the tracks throughout the Rail system. Important among the measures to keep the Railway stations clean is the introduction of modular type Retention-Tank system in railway coaches.

Toilets currently used on passenger coaches of Indian Railways are of the flush type in which waste and water is discharged directly on the tracks without any treatment. This makes the environment unhygienic, besides resulting in corrosion of track fittings. In a train moving at high speed, this discharge is the main reason for corrosion of the underside of coaches. Repair & maintenance of such undersides of coaches becomes most unpleasant.

This recently developed Retention Tank system of the Indian Railways uses bacteria to treat waste. These bacteria live on human waste and also regenerate themselves. It is thus a continuous cycle of processing human waste without any intervention. The anaerobic (living in the absence of free oxygen) bacteria inside the Retention Tanks consume waste material and convert it into water and gas.

The water is passed through a chlorine tank and made free from pathogen (an agent that causes disease) and discharged as clean water. The gas generated in the process is released into the atmosphere through a small vent provided at the top of the coach.

Human waste and the bacteria used in this system create an extremely corrosive environment and ordinary mild steel will not be able to withstand service for any length of time. Hence, highly corrosion resistant stainless steel grade 316L 16.00/ 18.00% chromium, 10.00/14.00% nickel and 2-3% molybdenum is used for the tanks and fittings of bio-toilets. Limiting the level of carbon to 0.030% (maximum) in SS 316L enhances the weldability and fabrication properties making it an ideal material for success of the Retention Tanks over the life of the coach.



On Railway Board's directives, these Retention Tanks have been on trial runs on a few long distance trains on a trial basis and their performance has been monitored and reviewed periodically. On the basis of the encouraging results, induction of about 2,500 more toilets has been recommended in the Rail budget 2012.

The Indian Railways regularly use more than 40,000 coaches for passenger service. Thus, if this design of Retention

Tanks becomes successful, the Indian Railways could have a requirement of over 100,000 Retention Tanks which would translate into a huge market potential of high grade stainless steel for this new application over a period of time.

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## Styling Steel - the 3M way

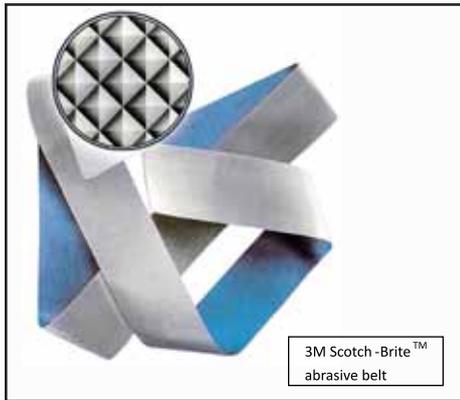
Stainless steel offers a unique opportunity to builders, engineering industry and architects due to the inbuilt advantages of the metal – Non corrosive, easy to use and availability. What makes the metal so unique is the metal's property which does not require any surface protection. This depicts the true nature of the metal and its character.

3M is known for its solutions pertaining to surface modification and has a wide

range of solutions to offer. 3M in India has been involved in developing and implementing various abrasive solutions for stainless steel fabrication over the last 20 years. These solutions start from cutting of metal to finish generation on stainless steel, offering value to customers who use it.

3M's art of styling steel - process of finish generation, involves use of products developed specifically for stainless steel

like Cubitron™ – mainly used for grinding, it helps improve the grinding efficiency by cutting fast and cutting cool. Trizact™ a patented micro-replication technology which reproduces consistent finish after every use and Scotch-Brite™ non-woven products for a providing a matchless legendary hair line or satin finish. These solutions come in forms like discs, wheels and belts.

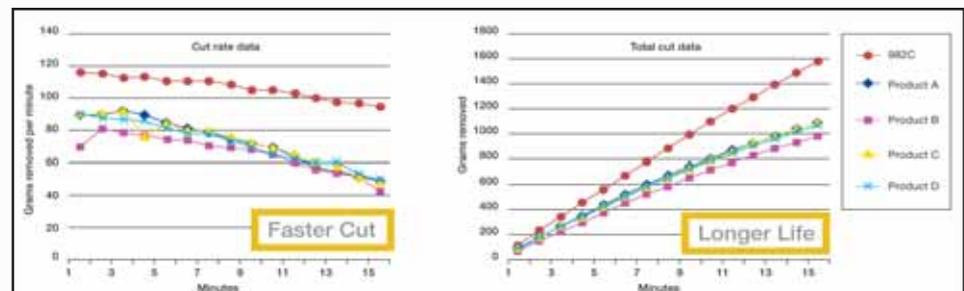
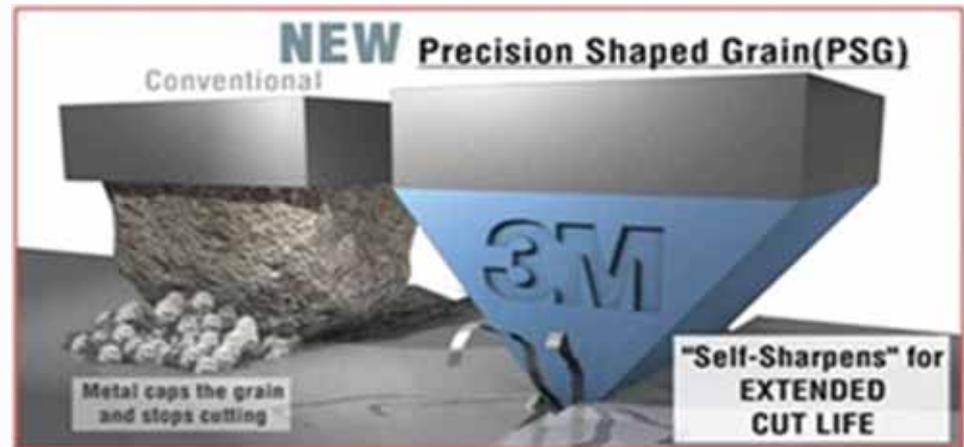


Different combinations of above products helps achieve different hairline or matt finishes and even helps restore the finish post the fabrication process. The process of finish generation includes 4 simple steps – weld grinding, blending, setting the grain, and final finishing. Using the above process sequence and choosing the right abrasive and tool helps achieve the desired finish.

Adding to the above, the advantages of cool cutting, no contamination of base material, higher productivity, consistent and uniform finish helps improve the productivity for stainless steel fabricators along with reduced rejects and reworks on this extremely sensitive metal. This is innovation at work.

Keeping up the tradition of INNOVATION, 3M is proud to unleash the latest buzz word in the field of abrasives i.e, Cubitron™ II. Cubitron™ II grains are made out of ceramic aluminium oxide and developed using Precession Shaped Grains (PSG) technology – an abrasive mineral that not only cuts faster but also lasts longer....a unique combination never experienced in abrasive industry before!!!

Unlike the conventional abrasive grains, Cubitron™ II are triangle shaped and with the PSG technology the mineral fractures



3M Cubitron™ II performance charts

and break away during operation which provides a constant cutting edge throughout the life span of the mineral thus providing faster cut rate, longer life, cool cutting and superior operator comfort.

Imagine as a user the world of opportunities it opens up to the user!!!

In today's environment, most of the metal working users are challenged with availability of skilled labour, increasing

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## A Common Facility Center to Serve Stainless Steel Fabrication Cluster to Come Up in Salem District, Tamil Nadu

There are about 900 small sized steel products fabrication units in Salem district in Tamil Nadu with a turnover of about 625 crore/annum and employing about 12,000 people. They fabricate products like window grills, truss work and parts for washing machines and hydro-extractor and tumble drier parts for the textile and garments sector. They also cater to machinery for the chemical and food processing industries, dairy equipment, automotive components, building and construction products etc. These units are engaged in welding, sheet cutting and shearing of mild steel.

These units have seen very little growth in the last few years and their profits dwindling, threatening the jobs of 12,000 workers.

The Salem District Small Scale and Tiny Industries Association (SADISSTIA) led by Er. Kandasamy Mariappan has taken the initiative to help these units switch to fabricating stainless steel instead of mild steel which could lead to enhanced growth of these units and also assure the jobs of 12,000 workers and hopefully increase employment opportunities in these units.

With inputs from Salem Steel Plant (SAIL), JSW Steel Works Ltd (Salem), The Indian Stainless Steel Development Association (ISSDA), Mr. C.C.Sampath, Sreevatsa Stainless Steel Fabricators



*The Vice-Chancellor of Periyar University Dr K Muthuchelian, being felicitated at the Inaugural Session of "Opportunities for the Stainless Steel" by Mr. Ramesh R. Gopal, Executive Director of ISSDA on 20th April 2012 in Salem. Shri Kandasamy Mariappan, President, SADISSTIA, is seen on the left.*

(P) Ltd., Periyar University (Salem) and various educational and financial institutions, SADISSTIA is planning to set up an integrated Common Facility Centre (CFC) which would provide equipment's with upgraded technologies like laser profile cutting, shearing and power pressing, deep draw press related to utensils like kitchen ware and auto components and other facilities such as tool room and testing laboratory etc. SADISSTIA is expecting significant financial support for its efforts from governments at different levels, including the Centre, through the Ministry of MSME, Govt. of India under their Micro

& Small Enterprises - Cluster Development Programme (MSE-CDP) scheme.

SADISSTIA had very encouraging response to this initiative and a successful meeting of stake-holders was held in Salem on April 20, 2012 at Periyar University (see photo).

From the stainless steel market development point of view, this initiative of SADISSTIA is fully in line with the efforts of ISSDA to make stainless steel products available in smaller towns and cities of the country.

## Outokumpu India Gets 'Oceantex 2012 Leadership and Excellence Award'



*Mr. Sudhir Vasudeva, CMD, ONGC conferring Oceantex 2012 Leadership & Excellence award to Mr. Yatinder Pal Suri, Country Head, Outokumpu India, while Mr. S. Hajara, CMD, Shipping Corporation of India applauds.*

In February 2012, Outokumpu India was awarded the Oceantex 2012 Leadership and Excellence Award for Innovations in the oil and gas sector. The world is talking increasingly about sustainability and new grades of stainless steel are being recommended or specified in the hydrocarbon sector worldwide to prevent corrosion and ensure a much longer maintenance free operation cycle.

Outokumpu India has been aggressively promoting the use of duplex stainless steel in the sector by sharing the success stories of new innovative applications, educated and enlightened the sector participants. This important work has been noticed and appreciated by the industry.

**Yatinder Suri**, head of Outokumpu India, comments - This award is a direct reflection of the success we achieved in reaching across to the various segments of the oil and gas, namely EPC companies, specifiers, engineering consultants and project owners. This has been possible through perfect understanding of the opportunities by our cross functional team.

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The structural complexity of the non-climbable wall required 3D modelling to analyse design configurations and ensure structural integrity. Test panels of the non-climbable wall were fabricated and assessed in the chimpanzees' temporary enclosure to determine which would offer the safest containment of the site and minimise visibility.

Mr Murray said the primary structure for the wall consists of a Ronstan supplied tensile cable net that supports semi-transparent perforated stainless steel panels.

"Most materials can be damaged, but the durability of stainless steel panels of certain perforation proved to be the right solution and important in the development of the overall design," he said.

The non-climbable wall had been designed with wall panels clamped directly to the enclosure mesh face. In a collaborative effort, we changed this to an independent cable net structure to remove the risk of having the final wall shape differ from that modelled, and in doing so, avoided the risk of panel geometry differing from the complex 10 degree incline necessary for non-climbability. This also ensured uniform set out and fixing methods, more consistent panel shapes and allowed the panel geometry to drive the wall structure rather than this being determined by other elements."

ASSDA member, Locker Group, supplied the grade 304 stainless steel panels, which were perforated to 50%. A black painted finish was applied before installation.

With stringent performance characteristics to adhere to, including long-term corrosion resistance and aesthetics, Carl Stahl X-Tend stainless steel mesh was specified for the separation enclosure and the removable curtain within the non-climbable wall. The stainless steel mesh was blackened using an electrolytic process to increase transparency of the enclosure.

Trevor Williams, Lead Consultant of Jackson Teece and Project Architect for the development, said materials selection was critical in delivering the aesthetic appeal and longevity of the enclosure.

"We spoke with Ronstan Tensile Architecture for technical design advice in the early stages of the project. There were various other types of meshes that were a possibility but, being a dynamic structure, alternate materials were far too rigid and not as flexible as the Carl Stahl X-Tend stainless steel mesh. I don't think we could have achieved this outcome with any other mesh," Mr Williams said.

"The stainless steel will have a longer life in the aggressive south-facing coastal environment. The blackened mesh has a fantastic form and from an architectural point of view, has achieved an organic appearance."

Ronstan Tensile Architecture's contribution to the project, including the tensile mesh enclosure and non-climbable wall, cost about \$1.2 million and took 16 weeks to construct.

Mr Murray said the stainless steel demonstrates a great mix of strength

and transparency, and the end tensile result is very forgiving.

"Achieving the architectural intent involved complex modelling and finite analysis of the mesh form to ensure the surrounding structures could be designed to support the enclosure loads. Ronstan is absolutely rapt with the state-of-the-art structure," he said.

The paddock was completely re-landscaped and the impressive exhibit also now features several climbing platforms at varying heights of up to 12 metres, and a 180 kilogram hammock for the chimpanzees to enjoy.

The 17 lucky Taronga Zoo chimpanzees moved in to their renovated home in late September 2011.

#### QUANTITIES AND GRADES OF STAINLESS STEEL USED

- **Mesh enclosure** 770m<sup>2</sup> of 3mm Ø x 60mm blackened stainless steel, grade 316 Carl Stahl X-Tend mesh.
- **Non-climbable wall facade** 140m<sup>2</sup> of grade 304 stainless steel perforated to 50%, with a black painted finish.
- **Cables** 1x19 construction 8mm, 12mm and 22mm diameter, grade 316 stainless steel cables. The stainless steel cable end fittings and components were polished and passivated prior to installation.

*Images courtesy of Ronstan Tensile Architecture. Image courtesy of Taronga Zoo. This article was written by the Australian Stainless Steel Development Association (ASSDA)*

Continued from page 8

cost of labour, increasing cost of goods, shortage of power and many more. Possibly, Cubitron™ II may be a solution to few of the challenges here.

A typical Cubitron™ II performance is 3-4 times the cut rate and at least 2-3 times the life of conventional abrasive solutions. A conventional grinding and finishing application typically done in two steps by grinding Disc and fibre Disc at a metal fabricator work place can be replaced by a single Cubitron™ II 982C

fibre disc along with advantages like better finish. With the use of Cubitron™ II fibre disc for grinding application the other benefits apart from process step reduction are reduction in power consumption, improving the overall productivity and reducing the cost of production.

Cubitron™ II products currently are available in fibre disc form (982C & 987C), Belts (984F) and Roloc™ (984F) and in various grades and sizes.



*Precision shaped grain technology (PSG) designed by 3M*

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## Outokumpu gets the first CARES certificate for stainless rebar

Outokumpu has become the first stainless reinforcing steel producer to be granted by CARES (Certification Authority for Reinforcing Steels) a certificate for Sustainable Reinforcing Steel. The award was given to Outokumpu's production unit in Sheffield, UK in February 2012.



To achieve CARES Sustainable Reinforcing Steel certification, a producer's quality and environmental management systems are assessed, as well as the company's social responsibility and sustainable sourcing practices.

Stainless steel has excellent properties enabling more sustainable solutions for the built environment. Green building systems are becoming more common and these schemes evolve towards more stringent requirements. Furthermore, customers and designers are increasingly asking for material and suppliers' sustainability credentials.

CARES helps to communicate the exceptional sustainability performance of Outokumpu stainless steel reinforcement bar and contributes to the establishment of ever more sustainable construction. The CARES certification allows Outokumpu to offer stainless steel to a wider range of green specified building projects.

The CARES Sustainable Reinforcing Steel certification scheme meets the requirements of British Standard BS 8902:2009 as well as a number of private and public sector sustainability initiatives.

(Source: Press release by Outokumpu dated 08 March 2012, 22:00)

## World Stainless Steel Production Uptrend in the Year 2011

Preliminary figures released by the International Stainless Steel Forum (ISSF) indicates that stainless steel production grew by 3.3% in 2011. Total production was 32.1 million metric tonnes (Mt), a new record for a single year.

Although there was some destocking noted during the third quarter of 2011, this was partially compensated during the final three months of the year. The increase in 2011 production comes on top of a 25% increase in 2010 which followed the economic crisis of 2008/2009. The recovery of the industry proves that a century after its discovery and

commercialisation, stainless steel still has enormous potential for growth.

Not all of the stainless producing regions of the world have developed at the same pace in 2011. Excluding China, production in the Asia region declined by 2.7% to 8.8 Mt during 2011. In Taiwan, China production declined by 20.6%. Production in Japan declined by 5.3% to 3.2 Mt. By comparison, Korea (+5.3%) and India (+7.0%) increased their production of stainless during the year.

China has remained the driving force in stainless steel production with growth of 11.9% in 2011. The country produced

12.6 Mt of stainless during the year. Including China, Asian production now accounts for 66.5% of all the stainless steel produced in the world.

Stainless steel production in the Western Europe/Africa region largely stagnated during 2011 with volume of just under 7.9 Mt. Growth rates of individual countries in the region ranged from -5% to +18%. In the Central and Eastern Europe region, production rose by 14.1% to 0.4 Mt, although volume is almost negligible in a global context. In the Americas, stainless production rose to 2.5 Mt, an increase of 4.7% compared to 2010.

### Stainless crude steel production (in '000 metric tons)

Region	Full Year		Y-o-Y	Full Year		Y-o-Y
	2009	2010	+/- %	2010	2011	+/- %
Western Europe/Africa	6,449	7,878	22.2	7,878	7,875	0.0
Central and Eastern Europe	237	340	43.6	340	387	14.1
The Americas	1,942	2,609	34.4	2,609	2,486	-4.7
Asia (excluding China)	7,472	9,011	20.6	9,011	8,770	-2.7
China	8,805	11,256	27.8	11,256	12,592	12.9
<b>World total</b>	<b>24,904</b>	<b>31,094</b>	<b>24.9</b>	<b>31,094</b>	<b>32,110</b>	<b>3.3</b>

Over the past few years, the stainless steel market has seen major changes in the grades of stainless produced. Chromium-manganese grades have become increasingly important in this time. More recently, production of chromium grades has also increased. Table 3 shows the market share of the three main categories of stainless steel. The data is based on reports from ISSF's stainless steel producing members.

### Stainless steel production by grade (percent of stainless steel production – preliminary estimates)

Grade category	Quarter 1	Quarter 2	Quarter 3	Quarter 4	2011 (p)
Chromium-manganese steels (200 series)	13.4	13.6	13.7	14.4	13.8
Chromium-nickel steels (300 series)	59.5	57.3	58.4	7.6	58.2
Chromium steels (400 series)	27.1	29.1	28.0	28.0	28.0

Source : International Stainless Steel Forum (ISSF)

## Salem Steel Plant wins National Sustainability Award

SAIL, Salem Steel Plant won the prestigious National Sustainability Award for the year 2011 from Indian Institute of Metals (IIM). On 14<sup>th</sup> November, Shri B Vijayaraghavan, GM (Works) received the award from Shri PK Misra, Secretary, Ministry of Steel, at a glittering function during the 49<sup>th</sup> National Metallurgists' Day celebrations held at Hyderabad under the aegis of Govt of India, Ministry of Steel.

SSP has won the second prize among the Secondary Steel Plants / Alloys Steel Plants category for the year 2011. Salem Steel Plant has bagged this award consecutively for the 8<sup>th</sup> time and 15<sup>th</sup> time since inception of this award in the year 1991. The award symbolizes SSP's commitment to quality and the value of its brand, Salem Stainless.

Coinciding with the birthday of Pandit Jawaharlal Nehru, the great architect of modern India, 14<sup>th</sup> November is celebrated as the National Metallurgists' Day as a tribute to the important role played by metallurgists in the industrialisation and economic



**Shri B Vijayaraghavan, GM (Works), Salem Steel Plant (right) receives the award from Shri P K Misra, Secretary, Ministry of Steel, GOI (left)**

development of India. The Ferrous Division of the Indian Institute of Metals has been organising the National Quality Competition since 1991 to encourage and recognise the quality control aspects in the steel sector.

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### **Feedback from Readers!**

The Editor March 16, 2012  
Stainless India  
Gurgaon 122 002

Dear Sir,

At the outset let me convey my good wishes for publishing Stainless India and sending it to engineers and architects throughout the country. It has become a window to the rest of us to appreciate the beauty of this material and the immense opportunity it presents to architects and engineers in their projects.

While Stainless India as the name suggests is primarily a magazine devoted the development of stainless steel in India which unfortunately is not much, the content, in my view, is limited to smaller structures as large structures are seldom done in stainless steel in India due to the cost factor. However, this mindset can be changed provided one is exposed to more and more examples of unique structures and their advantages brought from other parts of the world and included in your magazine. It may somewhat increase the cost of the magazine but will help in promoting the use of stainless steel in India.

Further, it is not clear that how many manufacturers are actually producing structural sections such as beams, tubes, channels, etc. which can be used in greater quantity provided their properties are made available to the engineers preferably in hard copy format. Once stainless steel is viewed as a competitor of Mild Steel, I am sure there will be considerable increase in business. In today's India cost is not such a big issue but the lack of knowledge and the lack of availability are a problem. Although you conduct regular workshops, but these are not as effective as having a handbook and examples to indicate what all has been achieved in stainless steel in recent time.

**Finally, I feel that replacing the hard copy version of Stainless India by soft copy will somewhat diminish people's interest in the material.**

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### **Attention Readers !**

You can receive your personal copy of 'Stainless India' by sending your complete postal address and contact details to:  
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