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STAINLESS INDIA

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Stainless Steel Recreating the Energy and Spirit of the Nation

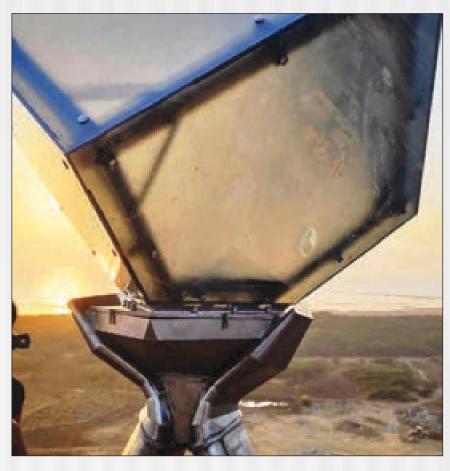


National Salt Satyagraha Memorial has been opened and dedicated to the nation on Mahatma Gandhi's 71st death anniversary on 30th January 2019. Located at Dandi in Navsari district of Gujarat, the memorial consists of beautiful

works of art that describes the methodology of the Satyagraha (Upholding the truth) and highlights India's achievement of freedom from the British colonial rule by peaceful resistance.

The 'National Salt Satyagraha Memorial' is conceived as an experiential journey, recreating the spirit and the energy of the 1930 Dandi March led by Mahatma Gandhi and 80 of his fellow "Marchers", taking the visitors to the Monument step-by-step in order to visualise and understand the historic Salt March and the methodology of Satyagraha, which finally set the stage for India's Independence from the British colonial rule. This project, endorsed by the Ministry of Culture, Government of India is advised by a High Level Dandi Memorial Committee (HLDMC), with IIT Bombay as a Design Coordination Agency. The memorial aims to serve as a reminder of the great sacrifices made by the people of the nation for the cause of freedom. It is a tribute to the Satyagrahis led by Gandhi Ji, who worked for India's freedom and is expected to be a major attraction for the tourists.

The highlight of the main memorial are two





stainless steel arms 40 metres in height with a salt crystal on top. They are lit by LED Lights and the pathway towards it depicts the Dandi March route through 24 spaces, representing 24 halts and having visuals of the journey.

The arms are a stylised hand raised up in the sky, holding at the top a simulated salt crystal. The Aframe has been built in quality Duplex Stainless Steel Grade 2205. The monument is situated near sea and demands not only a highly corrosion resistant material but also requires better mechanical properties to give structural stability against loading conditions. Duplex stainless steel perfectly fulfilled all these requirements. The span between the two legs of A frame is 35 meters and its total weight is 50 tons. The main frame made in 12mm thick and 220 mm diameter seamless round SS tubes is cladded using SS plates of varying thicknesses of 12 mm to 25 mm from bottom to top as per the structural design. On the top of the two joining hands assembly clad by 6.0 mm thick plates. All plates have been laser cut to precision and fabricated in one piece. For Crystal, 100 by 100 hollow section cube framing, covered by using 18 mm toughened laminated glass, has been put to represent a salt crystal which will glow at night with special light effects.



This project has been executed by Central Public Works Department for Ministry of Culture, Government of India. Major responsibility of project design was given to IIT Bombay. The main contractor of entire project is Ganesh Corporation, Navsari. The fabrication and Erection has been done by Geeta Industries, Ahmedabad.

Another important part of the National Salt Satyagraha Memorial is the Solar Park. The 41 Solar Trees are completely made in stainless steel. It makes this memorial a net zero-energy project where all the energy required is produced in the memorial itself. It produces energy during the day and exports the extra energy to the electricity grid. During the night, it imports the energy required back from the grid. This system ensures the availability of electricity without the need to install and maintain expensive batteries. The trees reflect the ethos of self-sufficiency imbibed by Mahatma Gandhi.

Each tree having 12 branches are bent in such a position, bending degree of solar panel of North-South facing, to ensure that it is always facing the sun and harness the sun energy to its fullest. Each tree consists of 12 branches made in 316L grade stainless steel in 6 mm thick and 100 mm



diameter seamless round pipes. Each leaf frame fabricated by 50X50X6 mm SS 316 grade is fitted with a solar panel on frames made in 316 grade stainless steel. These panels are supported by 25x25 mm square box frames. Nearly 70 tons of stainless steel has been used for this monumental solar tree project.



The A frame and Solar trees made in stainless steels are reminder of the fact that stainless steel will always remain a preferred choice of material for its unmatched corrosion resistance, strength and sustainability. It certainly represents the timeless energy and spirit of Dandi march envisioned by the father of the nation Mahatma Gandhi and tribute to Stainless Steel for bringing that spirit to life.

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Stainless Steel for Smart Cities and Sustainable Buildings & Infrastructure



Lighting Of The Ceremonial Lamp.

Stainless steel, by its special characteristics, is an ideal material for use in smart cities and developing sustainable infrastructure. Owing to its corrosion resistance and longer maintenance free life, along with an unmatchable aesthetic appeal, the metal stands apart from other materials

a Ventures Ltd.

Ms Catherine Houska, Consultant, Nickel Institute

In keeping with the demand for sustainable infrastructural development in the country, ISSDA aims to sensitize users, designers and manufacturers about the wide range of stainless-steel applications and bring out best global practices on the subject.

A full day seminar was held at Ahmedabad, which was selected in the first list of smart cities under the Smart Cities Mission by the Government of India.

ISSDA in association with Nickel Institute organized a full day seminar on "Stainless Steel for Smart Cities and Sustainable Buildings and Infrastructure" on 7thDecember 2018 at Ahmedabad. The programme was also supported by Raajratna Ventures limited. Ahmedabad is one of the first cities listed among Smart Cities mission in Gujarat. As one of the most dynamic economic models in India, Gujarat has a number of projects lined up across its cites like Smart City projects in Ahmedabad, Gandhinagar, Rajkot, Surat, Vadodara, and Dahod; Metro project in Ahmedabad, Gandhinagar, and Surat, and CEZ (Coastal Economic Zone)



ISSDA Publication
"Stainless Steel in Architecture, Building & Construction"
released on the event

project in Kachch, Saurashtra, and Suryapur. These infrastructural projects employ stainless steel in various applications due to its inherent resistance to corrosion even in saline environment, and better strength to hold the structures in adverse calamities. A considerable coastline of 1600 km in Gujarat further underlines the importance of using stainless steel in infrastructure.



Mr. Juerg Schweizer handing over memento to Mr. Bimal Kachroo

During the seminar, detailed sessions on stainless steel usage for urban infrastructure, sustainable transit building systems, water management, Architecture, Building and Construction segment, waste recycling, and sanitation were organized. In the event, Shri Baldev Singh, General Manager, Indian Railways Stations Development Corporation, presented his views on new railway stations building programme and need for a maintenance free sustainable infrastructure. This seminar also brought experts, both national and international, to discuss the best practices on this subject and suggested a way forward to building sustainable urban infrastructure. Global experts like Ms. Catherine Houska and David Butler of the Nickel Institute, represented the international stainless-steel fraternity by bringing in examples and suggestions on the

way forward to building sustainable urban infrastructure. ISSDA released a book titled 'Stainless Steel in Architecture, Building and Construction' on the occasion, which gives useful information and case studies on stainless steel applications.



Mr. M. Ramdas, General Manager, SAIL



Mr. Kenny Lim, Stainless Structural Asia Pte Ltd.



Dr. David Nicholas, Nickel Institute

More than 90 participants from various Government bodies like Gujarat Water Supply and Sewerage Board, Gujarat State Road Transport Corporation, IRSDC, National High Speed Rail Corporation Limited, Architects, builders and stainless steel companies attended the seminar.

Workshop on "Life Enhancement of Civil Structures With Cost Effective Stainless Steel Reinforcement Bars in Coastal Regions"

ISSDA (Indian Stainless Steel Development Association) conducted a knowledge sharing Workshop on "Life Enhancement of Civil Structures With Cost Effective Stainless Steel Reinforcement Bars in Coastal Regions" held at Palm Beach Hotel, Visakhapatnam on 15th September 2018.



Dr. P Srinivasan, Senior Principal Scientist, CSIR- Structural Engineering Research Centre

The question and answer session was very interactive and the questions raised by the participants were mainly on availability of SS Rebars in India and their cost effectiveness with respect to the existing practices being followed by structural engineers to combat corrosion in the civil structures. The speakers cleared their doubts with practical examples. The interaction between the participants during the dinner time also was excellent with forging relations among each other.

Participants have expressed their pleasure in arranging such programs as the awareness of Stainless Steel rebars in India is minimal. They felt such programs should be conducted frequently and across the country on various aspects of using SS in various applications in ABC sector.

They also requested ISSDA to continue taking lead in propagating the use of Stainless Steel in the country by conducting such interactive sessions quite frequently across the nation on different aspects of usage of Stainless Steel.



Mr. Jagan Somu, Advisor (Corporate Affairs) Sunflag Iron & Steel



A glimpse of the audience

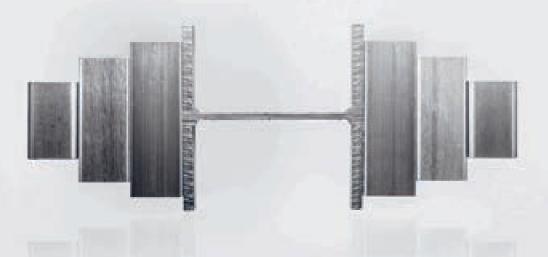
ISSDA support to Fabricator Training Programmes

ISSDA has been doing various workshops and training people doing fabrication in stainless steels. Today, training is needed to the small fabricators, in many of the major cities of India, doing fabrication of products such as handrails, chairs, tables, utility items, doors and windows, cladding etc in order to improve their product quality and productivity to match the international standards. Stainless steels can be fabricated by methods similar to those used for carbon steels and other common metals. However, changes may be necessary to the extent that they differ in yield strength, rate of work hardening and welding and finishing practices. It is very important that right fabrication practices are adopted while dealing with

stainless steel. Also time to time a person working or dealing on shop floor should have proper knowledge on basics of stainless steels. In continuity to our previous knowledge sharing at the fabricators training programmes organized by Jindal stainless and supported by other organizations we were successful in imparting knowledge to fabricators in stainless steel and best fabrication practices at Rajkot and Hapur.

These programmes were open and attended by fabricators dealing in both stainless steel and mild steel. In these programs, ISSDA emphasized on basics of stainless steel, right practices of fabrication and discussed their technical concerns.

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Transforming Rice Mill Industry: The Stainless Way



Mr. Anil Gupta, Jyoti Inox Pvt. Ltd. holding a stainless steel elevator bucket.

Rice milling is the oldest and the largest agro processing industry of the country. The impact of urbanization and population growth has resulted in an ever-increasing demand for food. When 60% of Indian population finds rice as their primary staple food on daily basis, it becomes more challenging not to just meet the demand but to maintain the quality and consistent production using modern and sustainable techniques for processing and packaging. Being the second largest producer of rice in the world, India also exports large quantity of processed rice all over the world.

Today, Rice mill across India has increasingly started using stainless steels to improve the quality of product as well as maintenance free longer service life of its equipment. Issues of corrosion and disruption due to frequent maintenance and replacements were hampering the production cycle putting pressure on industry against the rising demand. In addition contamination was huge challenge. Consequently, Rice Mill Industry was always looking up to an alternative material which could offer not only corrosion resistant but hygiene also. Although stainless steels were well known

material for food processing related applications, but rice mill industry was fully not aware of the true engineering properties of this material. In the late 90's, when production and availability of stainless steel in India picked up, some of the enterprising rice mill equipment manufacturers came forward to experiment with Stainless steels in their effort to improve the service life of the equipment's and add value and quality to rice processing. City of Karnal, situated in state of Haryana, has been the hub of rice mill equipment manufacturing activities since beginning.

Mr. Anil Gupta, one of the pioneers, who was first to introduce stainless steels in rice mill equipment, started with first substitution of mild steel made "elevator bucket" into stainless steel. These elevator buckets were facing problem of abrasion and corrosion and therefore, the average life of mild steel made buckets was only 6 months. By converting it into stainless steel, a four times higher average life of 2.5 years was achieved. This made a huge difference in operational efficiency and quality of the machinery. This was the turning point in the use of stainless steel in rice mill



equipment usage in the country. When asked about the further development Mr. Gupta said "Riding on the success of elevator buckets in stainless steels our company started exploring possibilities of using stainless steel into complete machinery chain and calculate the advantage of life cycle costing. At first, we decided to start manufacturing parts of Drier and Parboiling machine into Stainless steel. So we started developing some spare parts and explained to millers about the advantages of converting Stainless steels." He further added "We have already earned good trust and faith in recommending stainless steels for elevator bucket and initially we received small orders of changing some critical parts from mild steel to stainless steels. In 2007, we received first order of complete machine i.e. Parboiling and Drier made of Stainless Steel. This was to help the millers to concentrate on developing their business forgetting the issues of wear, tear and maintenance. I am happy to tell you that today we have case studies of 12 to 13 years, where the machines made in stainless steel doesn't require any spare parts, repair or any alteration over these long years. We further took initiatives to change Air ducts, Platforms and Dry Paddy storage bins into Stainless Steel offering less wear and tear compared to other competing material"

The pioneer work done by Mr Gupta and his company, Jyoti Group, paved the way for other manufacturer to come forward and start using stainless steel for equipment manufacturing for rice mills. Though the initial success was limited but it could not have expanded due to active involvement of domestic stainless steel producers like,

Jindal Stainless & Steel Authority of India and associations like ISSDA, who were instrumental in providing technical knowledge in grade selection and application based requirements such as durability, corrosion, wear, oxidation etc. With ever increasing demand for processed rice and growth in exports, it is more likely that rice mill industry will completely switch over to stainless steels in coming times.

About Jyoti Group:

Today Jyoti group have very big product and fabrication unit around 30000 sq, meters and equipped with modern German and Japanese CNC or robotic machine to deliver the exact accuracy in fabrication. They are supplying the machine through out of India and exporting to Bangladesh, SriLanka, Nigeria and Ghana, and all the big rice exporters purchasing Jyoti parboiling and drier machine, like India Gate, Kohinoor, GRM, Double Chabbi, Galaxy and Maharani. From one small initiative of converting M.S elevator bucket into Stainless Steel bucket then into complete plant and Machine into Stainless steel, the companies have consumption of more 400 Tones of Stainless steel in a month.

For further details contact Mr. Anil Gupta Jyoti Inox Private Limited, Taraori,Karnal SonkraRoad,Taraori Distt.Karnal 09991916777 jyotiinox@gmail.com

Seminar on Stainless Steel for Sustainable Buildings & Infrastructure



Mr. Saurav Chaki, Jt.Secretary, Urban Development & Municipal Affairs, Govt. of West Bengal Mr. Sushim Banerjee, DG, INSDAG Mr. Rohit Kumar, ED, ISSDA



Mr. Purushottam Reddy, Outokumpu



Mr. Tushar Patil, Stalatube

Indian Stainless Steel Development Association (ISSDA) and Nickel Institute, in association with INSDAG and Steel Scenario organized an evening Seminar on "Stainless Steel for Sustainable Buildings & Infrastructure" on 8th March 2019 at Hotel Pride Plaza, New Town, Kolkata. About 65 professionals like Practicing Architects, Builders, Design Engineers, academicians from this field, members from Industry and Dealers of Stainless Steel also participated in the Seminar.

Joint Secretary, Urban Development & Municipal Affairs, Govt. of West Bengal was the Chief Guest. Many Senior Engineers from West Bengal PWD and CPWD attended the Seminar

The seminar updated on how Stainless Steel can help in giving a Sustainable Solution in making a long-lasting maintenance free and cost-effective Infrastructure in the hustle and bustle of a big coastal city like Kolkata.

Overall the workshop was very well appreciated by the group of audience and they look forward to such workshops in the future also.



Section of audience

Stainless Steel Bus Shelters Providing Clean and Green Environment

Government of Odisha and the Bhubaneswar Municipal Corporation (BMC) have executed plans to give a facelift to the city of Bhubaneshwar during Hockey Men's world cup 2018. Different measures were taken to improve the infrastructure, transportation and ambience of the city under which one of the project was to install state-of-the art bus queue shelters (BQS) under Bhubaneswar City Bus Modernisation Project. Capital Region Urban Transport (CRUT) installed state-of-the art bus queue shelters under Bhubaneswar City Bus Modernisation Project.





The BQS have seating arrangements, stainless dustbins, vertical signage posts and back-lit display signage board with map of Bhubaneswar. GPS based public information system (PIS) mounted on the BQS will show real-time information on buses plying on the routes. The PIS is being linked to the city operations centre for better coordination among users (passengers) and operators. The advertisement display panels are also made of 304 grade stainless steel frames.

Stainless Steel of grade 304 was selected to make these modern bus queue shelters fulfiling the requirements of being maintenance free, aesthetically appealing and robust structure. Built in stainless steel, it will have longer life span and will remain corrosion and vandalism proof.

The ultra modern bus queue shelters have covered shed to protect against rough weather with polycarbonate semi transparent roof cover, stainless steel cycle stand in which the cyclists can place their bikes and use the city bus from the BQS.

For further details contact
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Stainless Steel Dialogue on Sustainable Transit Building Solutions

Indian Stainless Steel Development Association held a special session "Stainless Steel Dialogue on Sustainable Transit Building Solutions" in New Delhi at The Claridges hotel on 18th February, 2019.Mr. S K Lohia, M.D and CEO, Indian Railway Stations Development Corporation (IRSDC) was the keynote speaker.The programme showcased the suitability of stainless steel as a material of choice for transit buildings. The Government decision of immediate makeover of as many as 50 Railway stations was the prime focus of the programe.The Indian Railways comprises a total of 8613 stations. Out of these, more than 1000 stations have the potential to be redeveloped using stainless steel. The event provided opportunity for stainless steel industry to understand the requirement of this strategic sector to enable work out sustainable solutions.



Mr. S. K. Lohia

Interactive sessions were conducted during the programmeon stainless steel usage for modern infrastructure, expanding transit building systems, architecture, railway stations, and airport construction. Managing Director & CEO, Indian Railway Stations Development Corporation, Mr. S K Lohia, who was the chief guest, emphasized the massive potential for stainless steel usage in the development and growth of Indian Railways. Ar. Bimal Kachroo of Holistics Urban Innovations Pvt. Ltd., shared his futuristic perspective and added details to the benefits of stainless steel in architectural projects. Mr. Nagarajan P from Jindal Stainless Limited also presented his experience on stainless steel usage for structural applications in infrastructural projects.



Mr. S.K.Lohia and Mr. Alok Sahay

ISSDA highlighted that stainless steel usage has been the benchmark in several sustainable infrastructural projects worldwide and proposed that all stakeholders take a cue from these international transit hubs. As the front runner in sensitizing stakeholders to the benefits of using sustainable stainless steel-based solutions across sectors, ISSDA brought all stakeholders together through this seminar and discussed various aspects of stainless steel applications for long-lasting and maintenance-free public infrastructure.



Mr. Bimal Kachroo

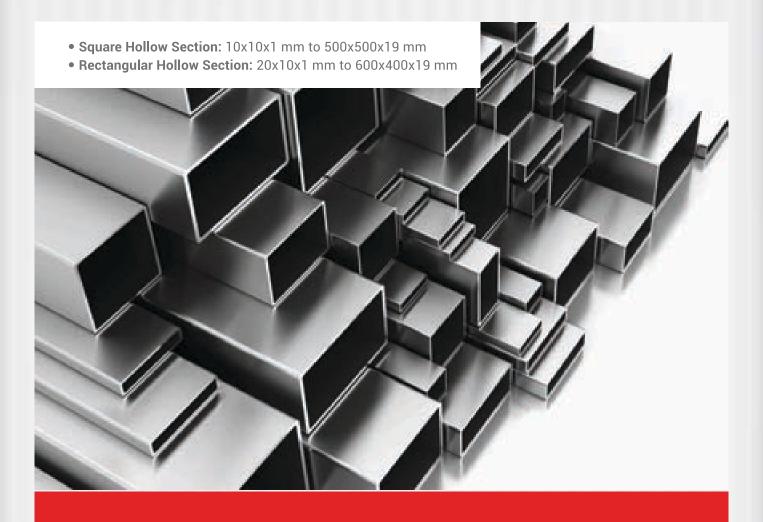
The programme was well attended by 55 plus delegates and speakers from various government organizations and corporates - Indian Railway Station Development Corporation Ltd, RITES, SAIL, Jindal Stainless Ltd., Fabrinox, architects, consultants, structural engineers etc. This event has generated lot of interest on the vision of stainless steel based solutions and follow-up actions are underway to bring it to reality.



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WORLD STAINLESS STEEL PRODUCTION UP BY 5.5% IN 2018

Preliminary figures released by the International Stainless Steel Forum (ISSF) shows that worldwide stainless steel crude steel production increased by 5.5% in the the year 2018 compared to 2017. Total production for year 2018 was 50.7 million metric tons (mmt). There are big differences in the performance of the individual regions. The growth rates of the individual stainless producing countries in Asia showed variations ranging from plus 7.3% in India, to minus -14% in Taiwan. Asia continues to be the growth centre with overall growth in Asia at 3.2%.

China increased its stainless steel production by 3.6% in the year 2018 to 26.7 mmt. The country now accounts for around 52% of the world's stainless steel production. This compares to the year 2010, when China's market share was at about 36%.

Production in the western Europe region showed an increase of approx 5%. However, overall production in Europe remained almost stagnant at 7.4 mmt.

Output in the USA logged a gain of 2% to around 2.8 mmt in the reported year.

| Region | Coarter | | | | . Total | 40.76 |
|-----------------------------|---------|--------|--------|--------|---------|-------|
| | 1.9918 | 2(201) | 3/2016 | 4/2018 | 2018 | YET. |
| Europe | 23014 | 1,925 | 1,702 | 1,748 | 7,386 | 0.1% |
| OSA | 798 | 725 | 741 | 624 | 2,808 | 2.0% |
| China | 0.530/ | 6,8234 | 7,1894 | 6,165 | 26,704 | 3.0% |
| Asia wis China and S. Korea | 2.079 | 2,090 | 2,043 | 1.983 | 8,196 | 2.1% |
| Others | 1,400 | 1,429 | 1.456 | 1,315 | 5,636 | 35.9% |
| Total | 12,710 | 12,987 | 13,132 | 11,827 | 50,729 | 8.8% |
| Regon | Quieter | | | | Total | |
| | 10017 | 2/2017 | 3/2017 | 412017 | 2017 | |
| Europe | 1,560 | 1,902 | 3.665 | 1,630 | 7,377 | |
| USA | 721 | 600 | 660 | 654 | 2,754 | |
| China | 6.125 | 5,920 | 7.070 | 6.652 | 26,774 | |
| Asia w/o China and S. Korea | 1,562 | 1.558 | 1,925 | 2.105 | 8,000 | |
| Others | 845 | 657 | 3,140 | 1.304 | 4,146 | |
| Total | 11,064 | 11,335 | 12,636 | 12,646 | 48,081 | |

Disclaimer

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Tailpiece



Indian Stainless Steel Industry had another year of healthy growth, with melt shop production estimated to be 3.74MT, a growth of over 7%. The consumption was driven by all round growth in construction, infrastructure, transport and consumer durables. A significant development has been almost doubling of LHB

stainless steel coaches manufacture in India during the year. In addition, launch of new generation trains and modernization of Railway Stations opens up new avenues. This is likely to remain a strategic growth sector for stainless steel industry.

The turmoil in the international market, due to wave of protectionism sweeping the globe, had its impact felt in India. The exports seem to have slowed down and surplus stainless steel from trade war zones trying to find new targets, like growing Indian market. This situation is not likely to change anytime soon, and suitable remedial measures are required. The Government has been sensitized on the trade issues affecting our industry and policy makers have assured suitable safeguard actions, whenever required.

The promotional efforts of ISSDA continued to focus on Architecture, Building and Construction sector. Policy makers were advised on suitable material choices considering unfortunate mishaps in few public bridge structures and need to take long term view on building sustainable public infrastructure. Another development has been including stainless steels pipe and tubes in Quality Control Order, which will help in the growth of this promising industry. Action has also been initiated to formulate an Indian standard for SS pipes & tubes.

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