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Dr. Gunther Voswinckel
President ITA

Dear colleagues from the Tube and Pipe industry,
dear readers of the ITAtube Journal,

Due to the corona pandemic, we, the International Tube Association, have been quite active organizing several webinars in 2020 and 2021 for our tube and pipe industry. For the first time we organized the ITA net Forum2020 which was established to substitute the cancelled tube show Tube 2020 in Düsseldorf. These events successfully helped to keep the exchange of our industry ongoing.

With our tube market reviews we also participated in some webinars organized by other well reputed organisations.

Anyhow during the corona pandemic, we did not publish new editions of our ITAtube Journal.

In many regions of the world, the corona pandemic has been brought partly under control. In 2021, we witnessed an impressive restart of the industry including our tube and pipe industry. Still challenges, such as turbulent supply chains, booming energy and material cost as well as shortages of qualified labour must be mastered.

We have taken this mood of optimism as an opportunity to publish a special October 2021 edition of the ITAtube Journal to reflect the present market developments.

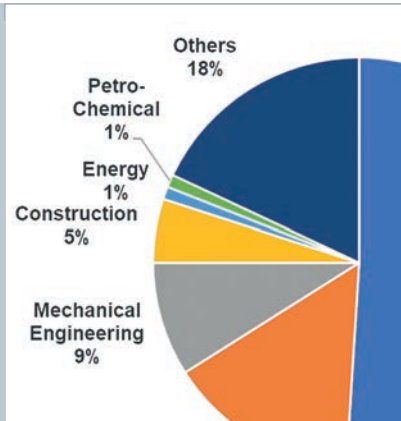
It is a good signal, that personal contacts and -exchange are revived, tube shows in China and the USA and other personal events bear witness to this.

This December/January 2021/22 and in May 2022 for the next Tube Düsseldorf trade show from 9th to 13th of May 2022, we will publish the next issues of the ITAtube Journal in the format you are accustomed to.

Yours faithfully

Dr. Gunther Voswinckel

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*Dr. Gunther Voswinckel, VOSCO GmbH:
Factors influencing the current situation*

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Preview: Tube 2022



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- Publisher of ITAtube Journal with information on latest market development
- Host of regular conferences on tube & pipe industry
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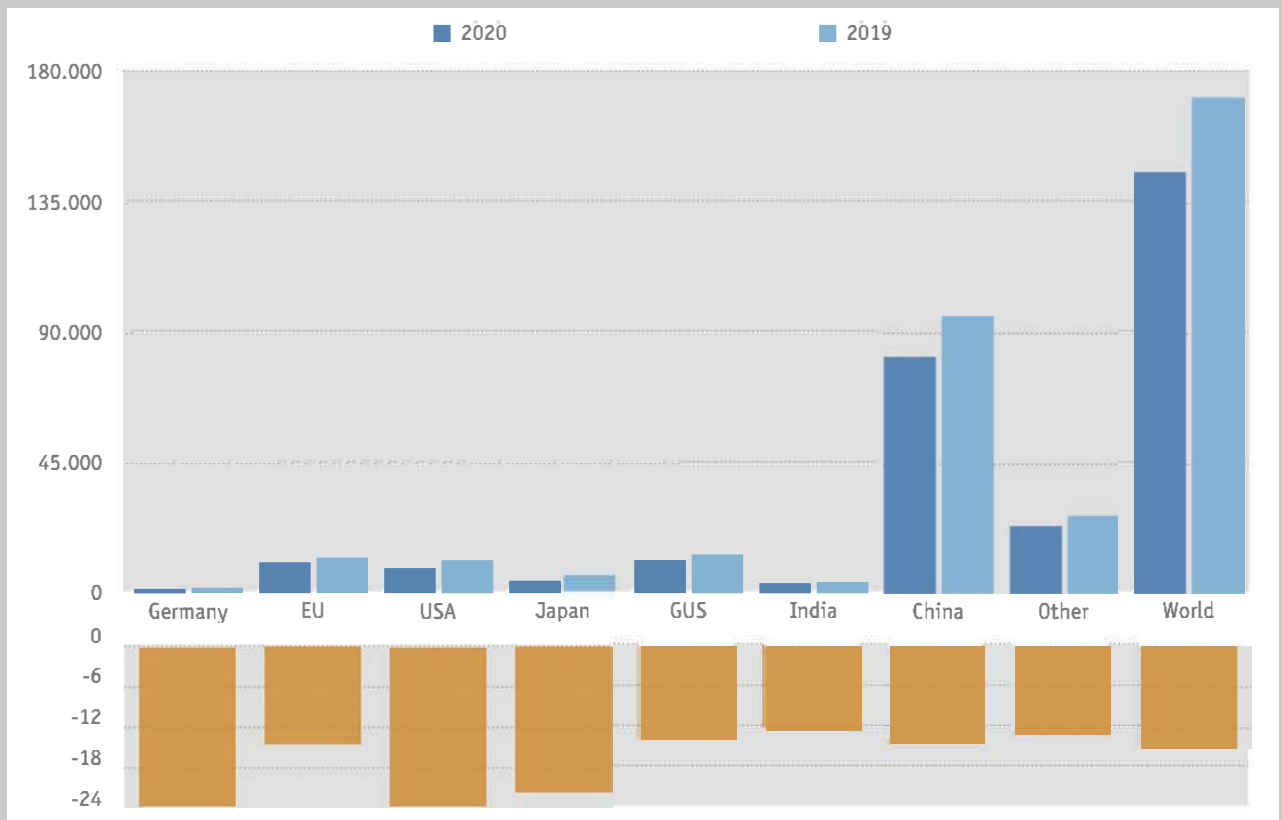
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World Steel Tube Production – Review

In 2020, 145.7 million tonnes of steel pipes were produced. Compared to the previous year 2019, this represents a decrease of 15.1%. The production of seamless tubes decreased by 9.8 % to 38.9 Mio tons; the decrease in the USA was particularly significant at 39.2%.

Germany, with a loss of 30.2%, displayed a negative result in the seamless tubes market, and a minus of 9.8% in total productions. Chinese steel tube producers produced 82 million metric tons, a minus of 14.6%, the production in the USA fell by 23.6% to 9.0 tons.

Total in Tto.

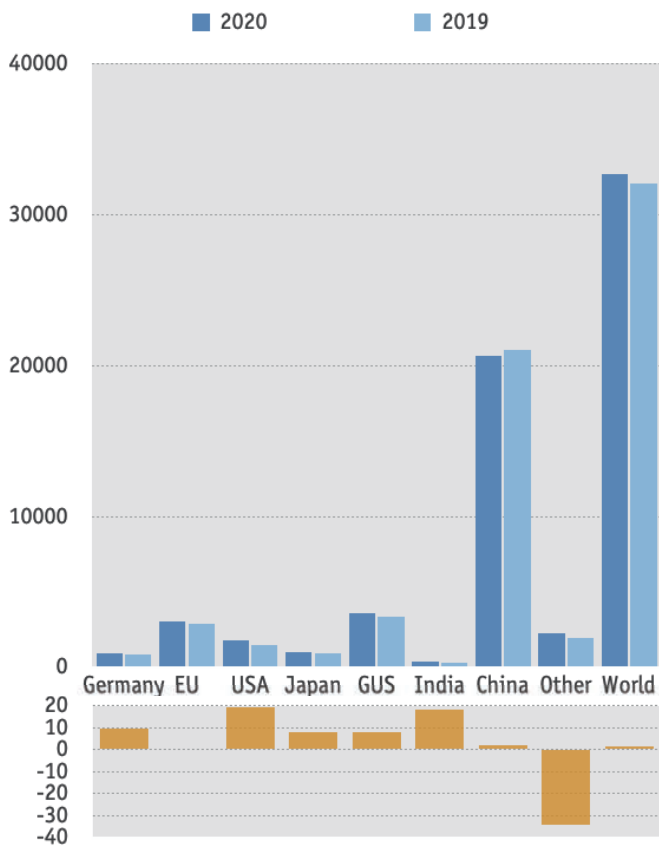


Region/ country	seamless tubes			welded tubes <406			welded tubes >406			welded tubes			TOTAL		
	2020	2019	in %	2020	2019	in %	2020	2019	in %	2020	2019	in %	2020	2019	in %
Germany	759	1.087	-30,2	694	830	-16,4	311	391	-20,5	1.005	1.221	-17,7	1.764	2.308	-23,6
EU	2.725	3.542	-23,1	7.398	8.220	-10,0	731	928	-21,2	8.129	9.148	-11,1	10.854	12.690	-14,5
USA	1.349	2.219	-39,2	6.520	7.892	-17,4	1.198	1.762	-32,0	7.718	9.654	-20,1	9.067	11.873	-23,6
Japan	999	1.330	-24,9	2.920	3.300	-11,5	607	1.137	-46,6	3.527	4.437	-20,5	4.526	5.767	-21,5
GUS	3.794	4.465	-15,0	6.359	6.248	1,8	1.685	3.038	-44,5	8.044	9.286	-13,4	11.838	13.751	-13,9
India	480	600	-20,0	1.600	1.600	0,0	1.600	2.000	-20,0	3.200	3.600	-11,1	3.680	4.200	-12,4
China	27.000	28.000	-3,6	49.000	60.000	-18,3	6.000	8.000	-25,0	55.000	68.000	-19,1	82.000	96.000	-14,6
Other	2.603	3.036	-14,3	17.209	18.845	-8,7	3.927	4.554	-13,8	21.136	24.332	-13,1	23.739	27.368	-13,3
World	38.950	43.192	-9,8	91.006	106.919	-14,9	15.748	21.538	-26,9	106.754	128.457	-16,9	145.704	171.649	-15,1

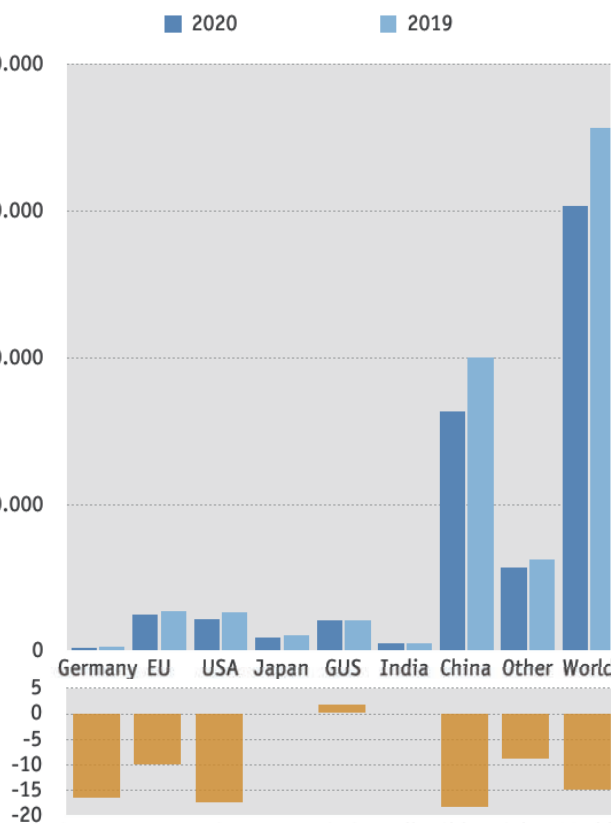
Wirtschaftsvereinigung Stahlrohre e.V.

figures include estimations

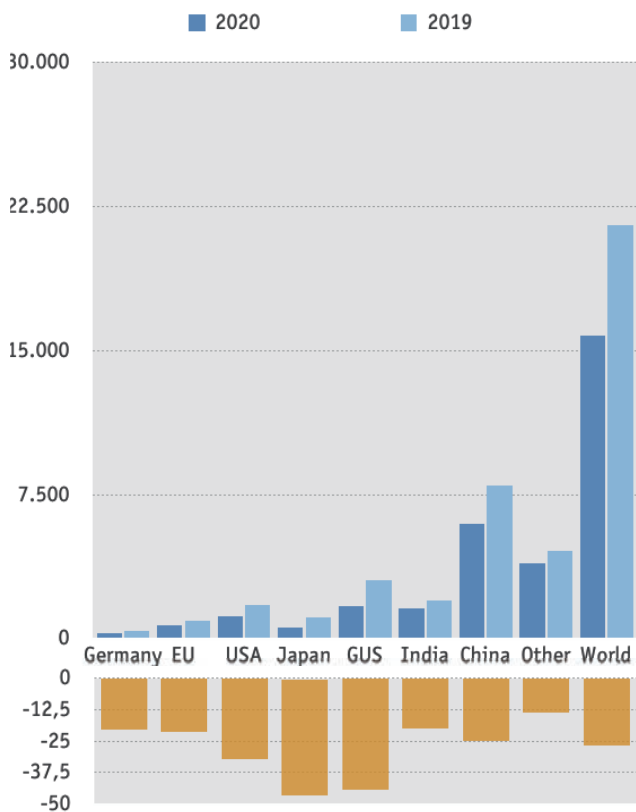
Seamless tubes in Tto.



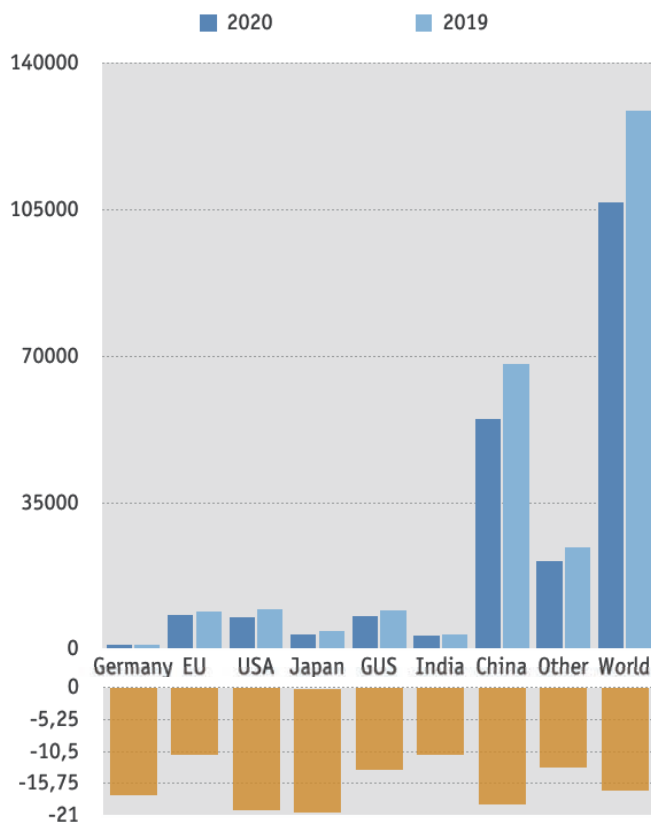
Welded tubes <406 in Tto.



Welded tubes >406 in Tto.



Welded tubes in Tto.



Dr. Gunther Voswinckel, VOSCO GmbH

World Tube & Pipe Market: Factors influencing the current situation

Dr. Gunther Voswinckel – Update as per October 2021

Welcome back to ITA's regular presentation of the main worldwide economic factors influencing the tube and pipe industry.

In this article we discuss several economic consequences for the tube and pipe industry, arising from the unusual situation caused by Covid 19. In many regions of the world, the corona pandemic has been brought partly under control. In the latter months of 2021, we witnessed an impressive restart of the industry. The demand for energy is booming whereas the supply chains are seriously disrupted. International expenditure programs, established to counteract the economic consequences of the pandemic, flooded the markets with money. And so after a long period of financial stability, we now see signs of upcoming inflation.

After a disastrous 2020, characterized by shrinking market demand, some tube and pipe producers closed their production facilities. By contrast, 2021 has been defined by increased demand, followed by an enormous price and cost rally combined with deficits in the supply chains. It would seem that the price and cost surges peaked this fall 2021, although supply

chains, energy costs and the sourcing of qualified labour still present challenges. However, the market in principle provides enough tube and pipe producing capacity to serve the demand, and so will likely calm down as soon as demand and supply can be balanced again.

Still, energy costs will remain challenging for high energy consuming industries like the steel tube and pipe industry. Strategic measures for our industry are consequently quite demanding. Lean and agile organizations with flexible, customer-orientated production facilities are the best answer to demanding and volatile market requirements. Agile digital solutions in the spirit of "Industry 4.0" offer further opportunities to stay successful.

The International Tube Association organized several well attended webinars in 2020 and 2021 as well as the virtual fair ITA netForum 2020 to substitute the cancelled TUBE Düsseldorf 2020 to keep the exchange of our industry ongoing. This September 2021 new technologies were successfully presented at the FABTECH exhibition in Chicago. The ITA was also present with a booth to serve its members.

We are also looking forward for great exchange of our industry at our world largest tube and pipe show "Tube Düsseldorf" in May 2022.

The year 2020 was disastrous for the tube and pipe industry. World tube production fell by 15% (Fig.1), with the USA (-24%) and Japan (-21%) the worst hit.

The smallest decline was reported for seamless pipes at -10%. Much higher production cutbacks were reported for welded pipes >16", with losses of up to 27%. Line pipe projects were postponed or stopped altogether, due to the pandemic.

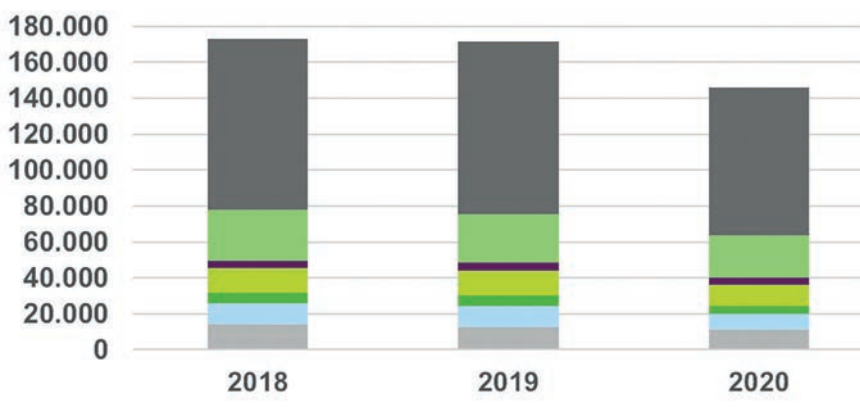


Figure 1: World production Steel Tubes and Pipes
Source: ITATube Journal/Wirtschaftsvereinigung Stahlrohr

Many supply chains were disrupted and in consequence some production facilities were shut down. Pipe and tube prices went down by 4% in the first 3 quarters of 2020, stabilizing in the 4th quarter 2020 due to an increase in tube and pipe demand.

In 2021 the industry had an impressive restart, led by China and followed by other regions, particularly the USA and Europe. As a consequence, the need for energy supplies such as oil and gas ballooned, with direct implications for energy prices.

The West Texas Intermediate (WTI) crude oil price boomed from November 2020 by 220%, climbing to 76 US\$/barrel (Fig. 2). Experts from Goldman Sachs even forecast a crude oil price of 80-90 US\$/barrel by end of 2021.

The European Brent oil price developed along the same lines.

Increased demand from Asia has also created a boom in gas prices. The demand for Liquified Petroleum Gas (LPG) especially from the USA is enormous. US LPG supplies were even rechannelled from Europe to Asia serving the high-priced demand. European gas prices have gone up by anything up to 320% in recent months.

This has had a considerable effect on the number of oil and gas rigs in operation: Since the number of new oil and gas rigs itself is directly linked to the price of these commodities (Fig.2), the recent price boom means the number of oil and gas rigs has significantly increased since October 2020. In the US, the rig count as per September 17th, 2021 is 512, which is an increase of 266 rigs since September 10th, 2010 (257 rigs). In the same period, Canada increased its number of rigs by 101 from 90 to 191 rigs and internationally the number of rigs increased by 56 from 721 to 777 rigs.

The consumption of OCTG tubes and pipes is, as shown in our previous articles, dependant on the number of rigs, as well as the depth of drilling and the capacity of the rigs. Therefore, the demand for OCTG tubes and pipes is booming as well, leading to significant price increases for our industry (Fig.3).

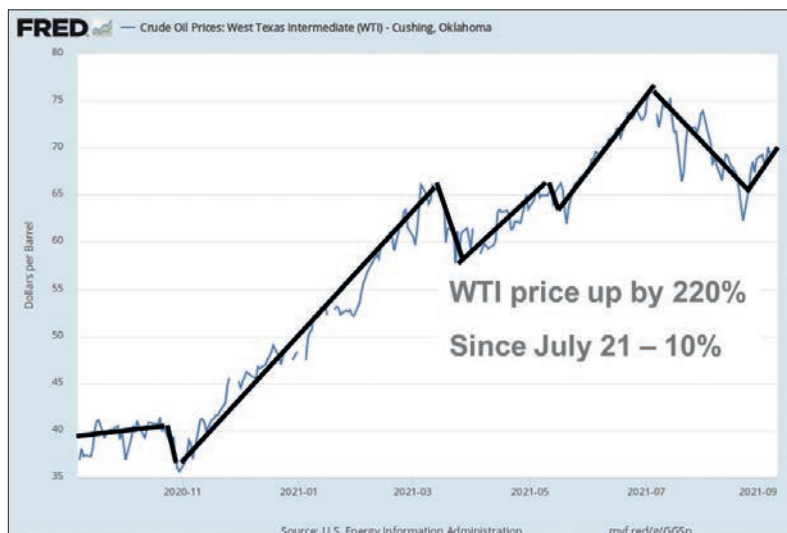


Figure 2: Oil price WTI development 1 year up to September 2021

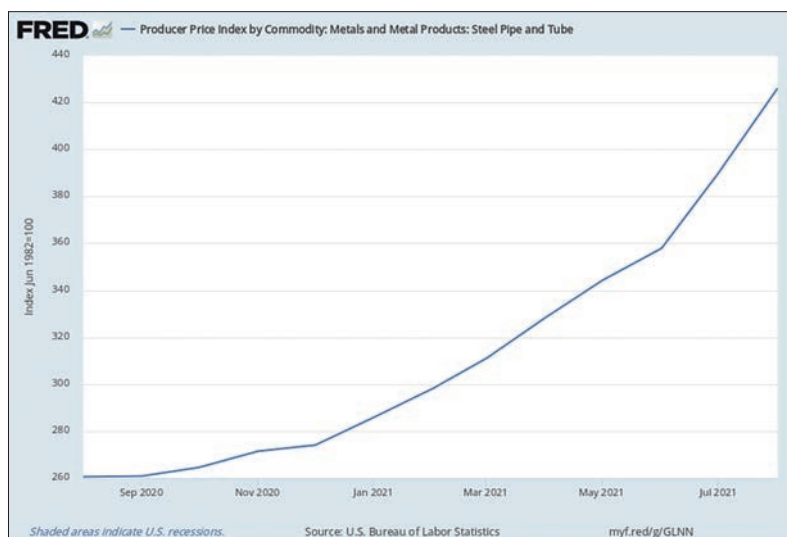


Figure 3: Pipes and tubes Producer Price Index as per July 31, 2021

The big question right now is how sustainable are these high oil and gas prices and the associated high consumption of OCTG tubes and pipes? We should bear in mind that, besides the revitalisation of the industry across the world, we must also consider effects such as political intervention and speculation currently driving prices. This includes, for example, supply shortages planned by OPEC and other oil- and gas-producing countries and market speculations, which led to almost empty gas reserves in Europe, since importers were speculating on falling gas producer prices.

Either way, it's to be assumed that as soon as the supply and demand ecosystem regains its balance, prices will calm down again, with consequences for the OCTG tube and pipe demand. In addition, line pipe projects, which were virtually non-existent in 2020, are now

restarting in 2021 with related positive effects on the demand for line pipes >16".

Other relevant markets for tubes and pipes (Fig.4 & 5) are not currently experiencing such spectacular volatility but are nonetheless displaying positive trends.

The automotive market, after a difficult year 2020 with production cuts of about 15-25%, is now recovering in 2021 to pre-pandemic levels. 2022 is even expected to bring a revival of pre-corona growth rates (Fig.5). But major supply chain turbulences are creating a few dark clouds on the horizon. Automotive steel customers within exist-

ing annual frame contracts are for the time being reducing their volumes procured, to an extent that could affect the operation and influence the market. This September 2021 carmakers requested about 30% less steel than in typical months.

The present tendency of large automotive producers such as Ford, General Motors or VW to follow the Tesla model has prompted investments of billions of dollars in electric vehicles and digitalization of cars.

As far as suppliers in our industry are concerned, it remains to be seen how the current high prices for tubes and pipes impact the upcoming frame contract negotiations for 2022. It's possible that price escalation clauses or shorter contract duration times may offer a solution.

The market segment mechanical engineering, representing about 9% of the total tube and pipe market, lost about 12% of its volume in 2020. 2021 so far has not been able to compensate for such losses, and it's expected that pre-pandemic levels will only be reached again in 2022. Some investments in mechanical engineering products are still delayed due to uncertainties within consequences due to the corona pandemic.

Another attractive market for tube and pipe producers is the civil construction market, representing about 5% of the world tube production. The impact of the pandemic on this market segment was much less severe in 2020. Some regions, such as the USA, managed to avoid negative growth altogether. The construction market is steadily growing along with GDP growth, and it's expected that 2021 and 2022 will see expansion continue at a moderate level of 3-4%.

All market segments nonetheless still suffer from supply chain challenges, rising costs and reduced availability of qualified manpower. The problems in supply chains, especially from remote Far East sources, have prompted businesses and industries to buy local. Shipping costs are booming as well, and containers represent a serious bottle neck. The USA in consequence forecast an increase in local supply of about 10-12% (approx. 443 billion US\$).

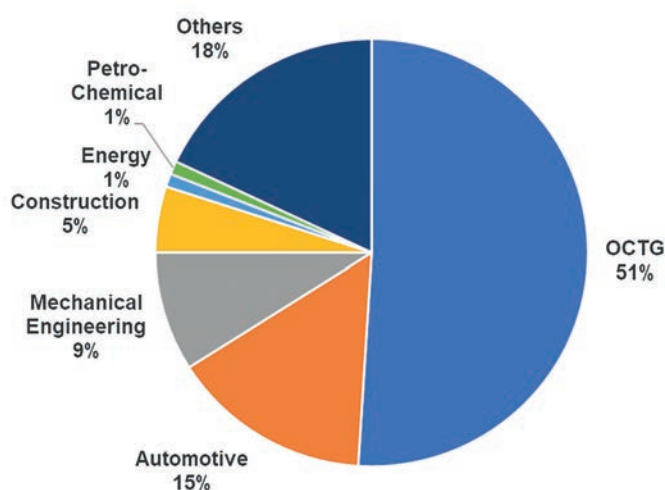


Figure 4: Steel tube and pipe markets
Source: ITATube Journal/Wirtschaftsvereinigung Stahlrohr

Market Segment	2019	2020	2021	2022
Automotive				
USA	-2,8	-14,3	20,1	5,1
EU	-5,2	-21,1	20,5	8,0
D	-11,2	-24,4	20,2	12,3
Mechanical Engineering				
USA	-1,1	-8,9	10,9	5,0
EU	-0,6	-12,1	9,4	4,2
D	-2,8	-13,6	9,3	3,7
Civil Construction				
USA	-2,3	2,3	3,4	3,9
EU	0,9	-5,5	4,6	4,0
D	3,5	2,3	3,4	3,9
Chemical				
USA	-0,2	-3,9	3,6	3,0
EU	-1,2	-2,7	7,0	2,7
D	-3,1	-1,1	8	-0,5

Figure 5: Market segment expectations
Source: FERI 2/2021

If we look at hot rolled coil prices (Fig.6), we see a major challenge for ERW pipes. Since September 2020 the prices have gone up by about 314%, from 450 US\$/ton to a peak of about 1400 US\$/ton in August 2021. Since then, prices have fallen again to about 1225 US\$/ton in September 2021. Last week of September, prices of about 950 US\$/ton were reported.

Such volatile HRC prices are extremely difficult to cope with, since price escalation clauses are uncommon in the carbon steel tube business. Price escalation clauses are mainly associated with stainless steel tube production, due to the frequent volatility of raw material costs. Some tube and pipe producers even decided to halt production due to the unmanageable raw material costs.

The prices for scrap and iron ore went up as well, but these prices have also begun to fall again in recent weeks (Fig.7).

Driven by the prices for energy, cars and raw materials, inflation is on the rise (Fig.8). In the USA this year the inflation rate reached 5.5% (target 2%). Even if the inflation rate is adjusted for energy and food prices, as some economists like to do, the rate is still a hefty 3.8%. This is the biggest increase since June 1992. The US central bank is now even considering restricting its loose monetary policy.

Even in Europe forecasts anticipate an inflation rate over 4% by the end of 2021, driven mainly by the cost of energy.

Energy costs may rise still further due to regional political interventions to prevent climate change. If these measures are not introduced in an internationally balanced way, some European regions may even risk the destruction of their high energy consuming industries to lose them to other lower-cost regions. It is common knowledge that the industry tends to settle in regions with reasonable energy costs.

Availability of qualified labour is another challenge for our industry. During the pandemic, countries adopted different approaches to protect employees from financial hardship. Some European countries kept the employees in employment, but paid

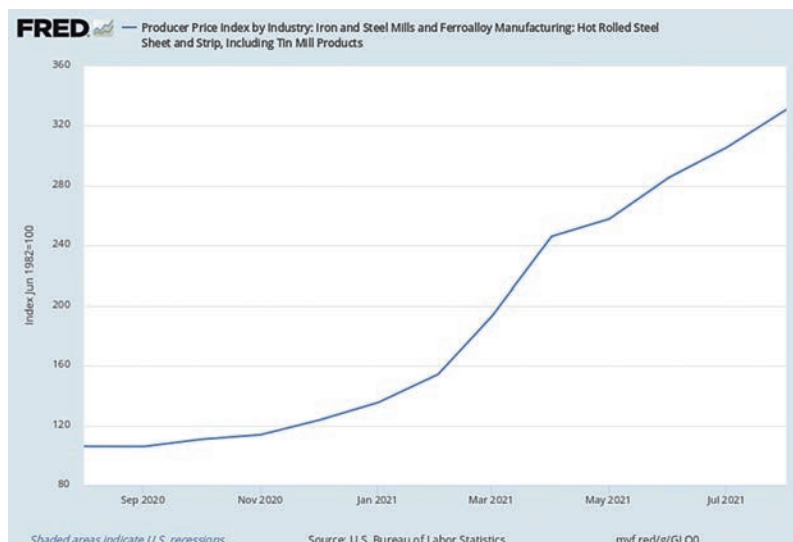


Figure 6: Hot rolled coil Price Index

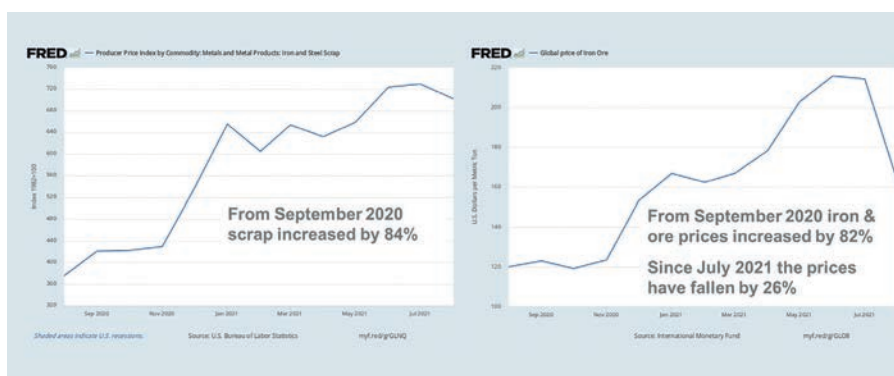


Figure 7: Scrap and iron ore Price Index

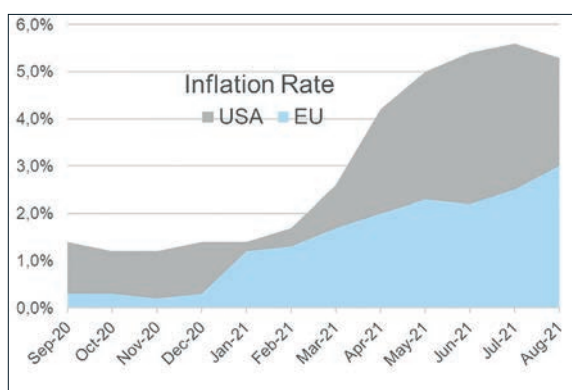


Figure 8: Inflation is coming



compensation for short-time working so that the employers had no cost for the reduced working hours of employees (even 0% working was possible). When the workload of the companies recovered, short-time working regimes were abandoned, and the employees came back to work.

Other countries, like the USA, followed a different model to avoid financial hardship. The companies laid off employees and the

unemployed got direct payment as compensation. When the industry recovered in 2021 and the workload increased, many companies were faced with difficulties re-hiring those they had fired, since they were still receiving unemployment compensation. However, with most compensation schemes winding up in September 2021, it can be expected that reemployment will improve, and with it, the availability of qualified labour.

In general, there is enough production capacity to serve even the increased demand for tubes and pipes for all market segments. Raw material prices for the steel as well as the tube and pipe industry would seem to have peaked in August/September this year.

Energy costs, however, may remain high or even climb further if market interventions (e.g. OPEC plus) or political measures to prevent climate change are not introduced in a balanced way. This effect may also push inflation rates still higher, with possible consequences being the migration of high energy consuming industries to lower-cost regions. Nonetheless, if the balance of supply and demand within the tubes and pipes industry can be restored, price volatility can be expected to calm down.

All these steel tube and pipe markets can be subdivided into commodity volume markets and the market segments with high-tech requirements. For high-tech requirements, the decisive factors are the steel quality and the tube plant infrastructure. The steel quality for many high-tech steel tube and pipe applications is demanding with regard to chemistry and homogeneity. The availability of such steel qualities, with the relevant uniformity and quantities for welded tubes and pipes, as steel strip and plates or as billets for seamless tubes and pipes is limited, sometimes creating a significant hurdle for the supply of tubes and pipes into such high-tech markets.

On the other hand, tube plant infrastructure with respect to tube mills and finishing lines as well as applied quality assurance systems also plays a significant role. Growing importance can be attributed to agile management strategies regarding customer benefit, process and product quality enhancement by applying "Industry 4.0" measures.

With an eye to the return to something like normal, it should be noted that plant builders and technology suppliers alike may find interesting business opportunities in this new market segment. Some technology suppliers have already reacted and enhanced their product portfolio with the addition of digital solutions.

Some interesting applications of "Industry 4.0" in the tube and pipe industry were presented by various companies at the ITA netForum 2020 which was organized to substitute the cancelled TUBE 2020 in Düsseldorf. It is good to realize, that besides the virtual exchange in our industry, such as the webinars organized by the International Tube Association (ITA) now again hybrid or even personal events for industrial exchange take place. Increasing interest for technological exchange for the tube and pipe industry for example was identified during the well-attended FABTECH exhibition in Chicago/USA this September 2021.

We are looking forward meeting tube producers as well as suppliers to the tube and pipe industry at our leading industrial exhibition, the Tube Düsseldorf in May 2022.

Dr. Gunther Voswinckel

VOSCO Management Consultancy GmbH

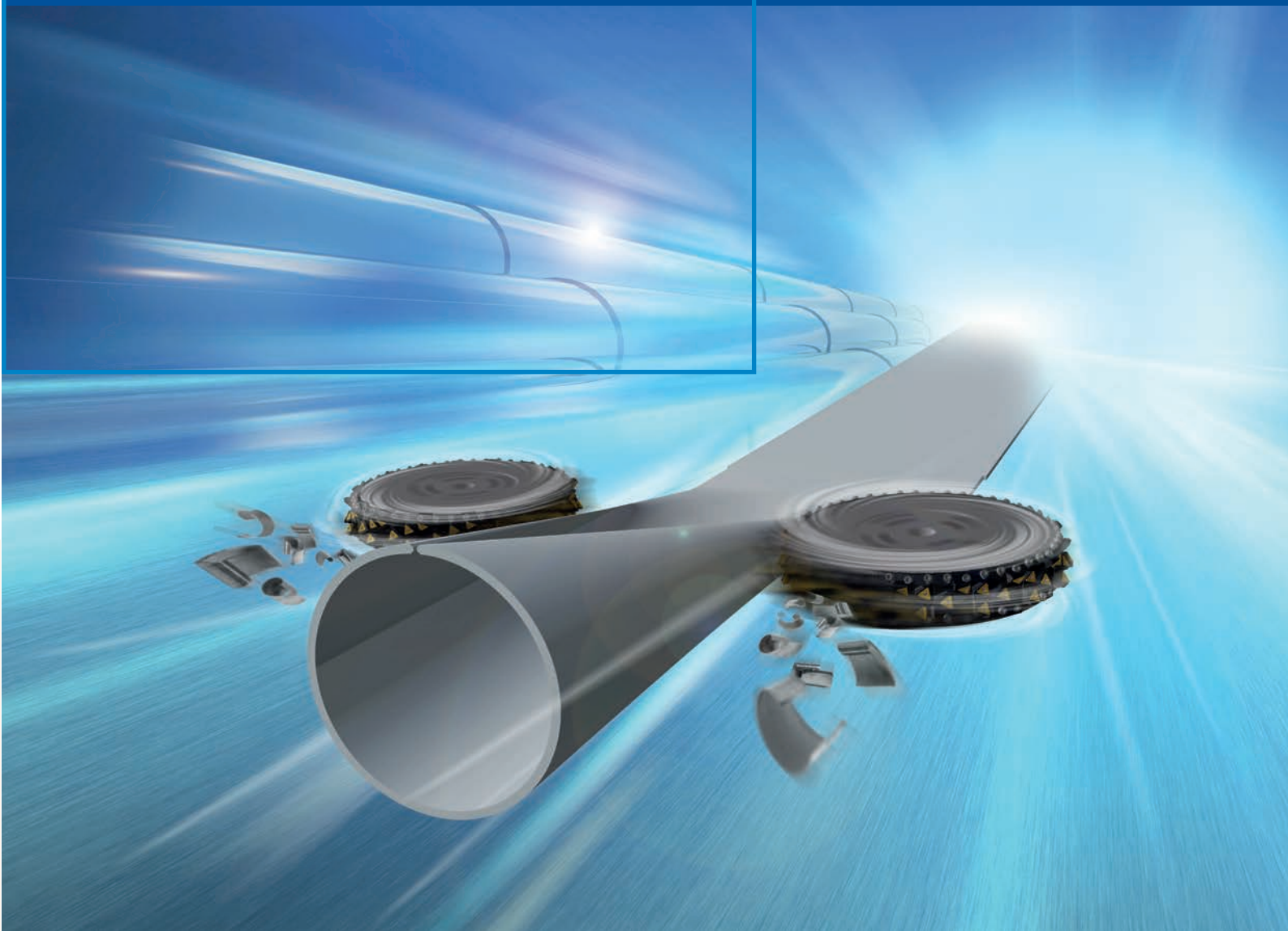
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- Boehlerit offers an unrivalled diversity of products and the full range of cutting and machining solutions for the production of pipes.
- Other industries also draw on our decades of experience and know-how in very special machining processes, for example in the case of plate edge machining.

NAKATA MFG.Co. Ltd.

A glance at NAKATA newly developed “ODF” forming technology:

NAKATA Mfg. Co., Ltd. (NKT) proudly announce hereby that two of 24” size ODF (Orbital Die Forming) line shall be supplied in year 2021 and 2022 in a series, to two different customers in Asian region. One of them is actually running three NKT lines already in their factory, those are equipped with NKT originally developed “FFX” forming system by 24”, 8” and 2” sizes, however, with referring to their next future plan of expanding the product range with far thin WT, much larger D/t ratio than 100, which is typically required and evaluated among stainless steel pipe producers, they’ve decided to install NKT ODF line. ODF, by its nature of rotating die which connected in series and circulate through the mill on two endless tracks, shall provide the benefit with our customers who’s planning to produce pipes by thin WT with high-strength material, those are still unable or unstable to fabricate as commercial products by any of other mill lines.



30” ODF forming section line



30” ODF “hybrid” pipe welding line

Thanks to above said strip edge holding feature by ODF endlessly rotating die-set, NKT has ever supplied 30" ODF which is capable to roll form the pipe from both of sheet and coil mother material, this is evaluated as "hybrid forming" process style production line.

Further to above ODF technology application in "BD : forming section", another application had studied and this had been adapted in "SQ : welding section" as well, which would ideally suit in laser welding pipe line.

This welding line consisting of ODF-BD (forming stands) + ODF-SQ (welding stand) had been supplied with laser welding and this shows un-comparably stable and consistent strip edge facing condition against conventional two-roll style welding stands and as result, this have implemented speed up of the capable weld speed up to 40m/min. as pilot case with WT 1.0mm pipe.

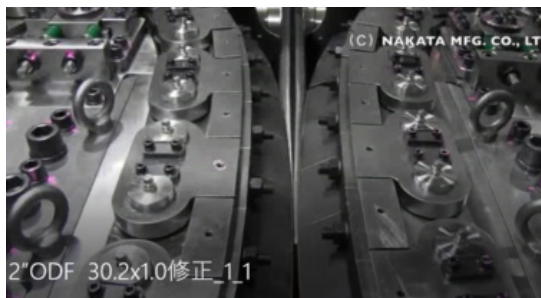
Through this ODF-SQ technology development process, NKT had many tests in the shop and it's confirmed that strip edges are constrained quite stably at ODF-SQ position, showing quite small "fluctuation" even by running around speed 40m/min.

Please find below test measurement result and comparison picture for edge facing condition between conventional SQ stand (left) and ODF-SQ unit (right)

NKT keeps developing the new design which is to adapt in hardware and in software for machines, with pursuing the unique, only-one technology, and believes this will provide the benefit to our customers towards the future.



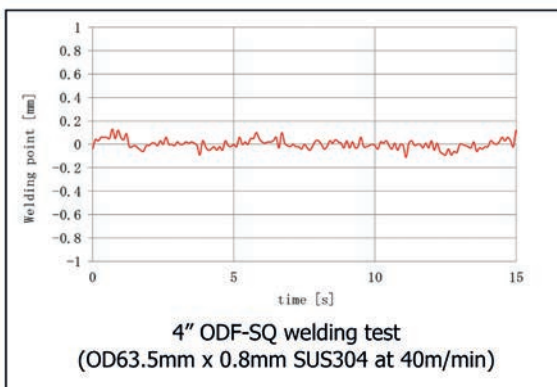
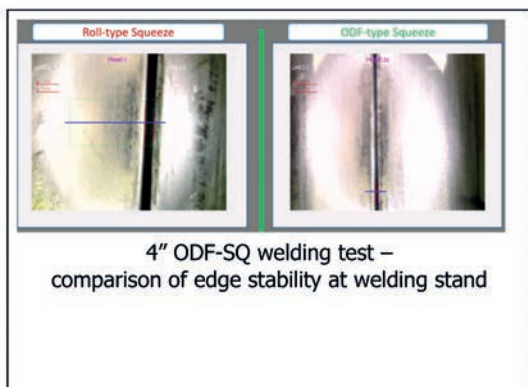
30" ODF strip in forming process



2" ODF-SQ for Laser welding line



4" ODF-SQ welding test



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SMS group

Thirty percent increase in productivity in seamless tube production – SMS group announces next generation of PQF® plants

The fourth generation of PQF® plants – applicable both as a new plant and upgrade solution – is characterized by a considerable cost reduction per ton of tube and substantially higher profitability for tube producers, who are able to gain a significant competitive edge as a result. Achieving such a high production capacity and plant performance in the manufacture of high-quality PQF® tubes has not been possible until now.

“In the productivity of PQF® (premium quality finishing) plants for the production of seamless tubes this represents a quantum

leap.” says Thomas Maßmann, Executive Vice President Center of Competence Long Products at SMS group. “As market and technology leader and inventor of PQF® technology, we have succeeded in achieving a 30 percent increase in output with the fourth generation of PQF® plants. This is not only possible with new plants – existing PQF® plants can also fully benefit from this with a low-investment upgrade.”

New market opportunities & economic benefits

For the plant owner, the increase in productivity certainly has positive effects. Here are two possible scenarios: (A) 30 percent higher production capacity with the same production time and manpower means an increase from 500,000 to 650,000 tons per year. This creates new opportunities for sales and a fast return on investment. (B) The performance enhancement is used to produce the same quantity of PQF® tubes in less time than before. Due to the minimal time required, working shifts and human resources can be adapted accordingly. Depending on the market situation and capacity utilization, plant owners can either produce more tonnage or a set target tonnage in a shorter time using the same manpower. In both cases, cost efficiency is higher and tube producers can respond adequately to volatile market and price situations.

In terms of their lifecycle assessment and sustainability, plant owners also benefit from the fourth generation of PQF® plants. As one would otherwise expect, the total amount of energy required does not increase in direct relation to the growth in production. On the contrary, less energy is required per ton of tube produced. This mainly results from the fact that the energy consumption of the sec-



The 4th generation 7-inch PQF® is able to roll 200 tubes per hour.



Thomas Maßmann,
Executive Vice President Center
of Competence Long Products,
SMS group

ondary operating facilities and administrative facilities remains constant with the increase in production.

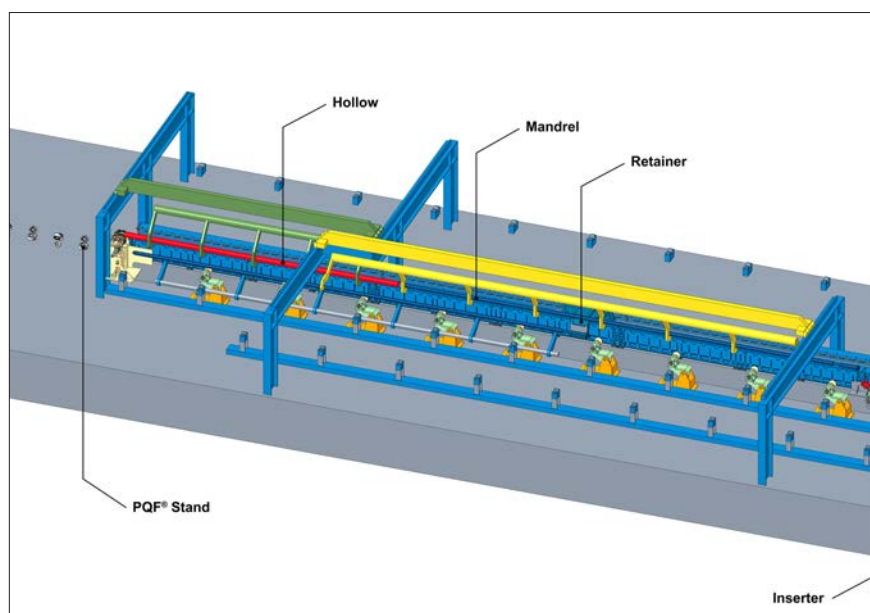
PQF® – the benchmark of tomorrow

Around 40 million tons of seamless tubes are produced worldwide every year, around half of them in high-grade PQF® quality. The main customer is the oil and gas industry, using OCTG tubes preferably manufactured with PQF® technology. The reason: As the conditions for extracting fossil energy deposits become more and more extreme, the tubes must meet correspondingly high quality and load requirements. Structural tubes are another area of application for high-quality PQF® tubes. Here, further market shares can be gained through reduced manufacturing costs. Likewise, existing, old equipment for seamless tubes can be replaced by state-of-the-art, digitalized PQF® plants of the fourth generation, as conventional seamless tube lines cannot viably compete with the high-precision PQF® quality nor with the new productivity boost.

Significant five-second reduction in cycle time

The main innovations include the arrangement of a quick entry side with the inline insertion of the mandrel in the pierced billet.

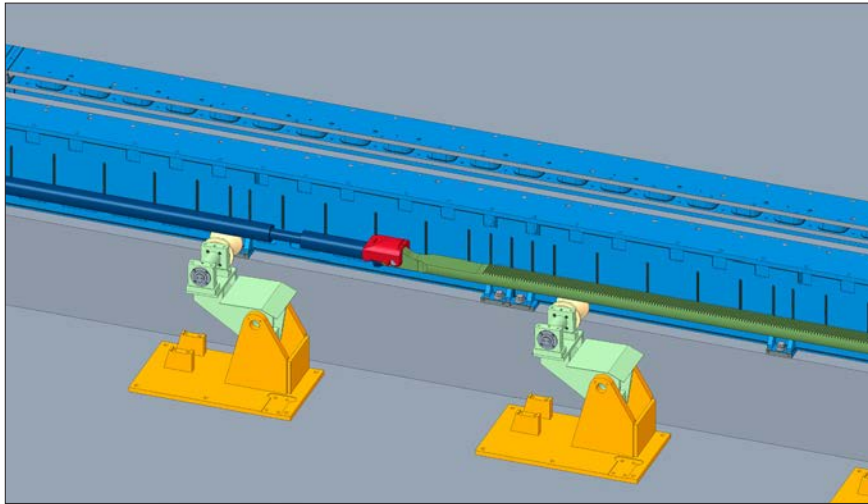
In conjunction with the highly efficient configuration of the retaining system, the cycle times are reduced by between four and five seconds. This means that a cycle time of around 20 seconds per tube – and even up to a peak of 18 seconds – is now possi-



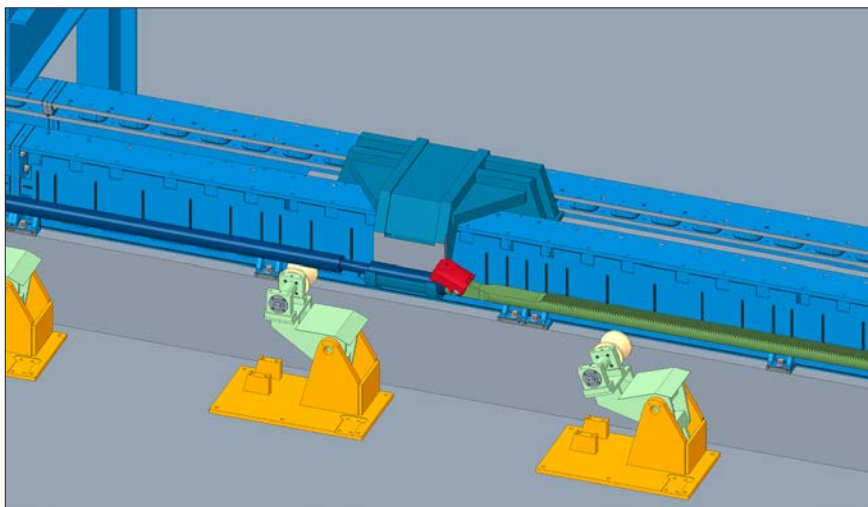
*The quick entry side:
one of the 4th generation's main innovations*

ble instead of a cycle time of 24 seconds. A 7-inch PQF® is therefore able, for example, to roll 200 tubes per hour; a 10 ¾-inch PQF® can achieve 150 tubes per hour.

Another new feature is the chocks design in the PQF® rolling mill helping to simplify roll assembly and dismantling. The roll and shaft are separate from each other and are no longer made of one part. This reduces tool costs considerably and reduces the necessary operating stands inventory. A special, newly developed grooved profile between the roll and shaft replaces the previous cylindrical coupling ensures reliable torque transmission.



The inserter guides the mandrel.



The inserter hands over the mandrel to the retainer.



*View of the entry side of a PQF® plant:
inserter (front right in the picture)
and retainer (rear centered in the picture)*

Higher speed also means higher productivity

But how does this effect quality? The consistently high quality and precision levels of PQF® tubes are ensured by the rolling technologies and performance module from SMS group. These include the advanced, digital inline technologies as part of Industry 4.0: For example, the CaliView® measuring system, developed by SMS group, enables the fast inline calibration of all longitudinal rolling mills and thus guarantees perfect alignment of the pass line. Equipped with the LASUS® Multiscan and SecControl® systems, the wall thicknesses of the tubes produced can be individually measured and controlled. Furthermore, CARTA® neo supports process engineers with the monitoring, analysis, and intelligent control of all quality parameters.

Applies equally for new plants and upgrades: Faster return on investment with stable investment expenditure

With regard to new plants, the investment in a fourth-generation PQF® remains the same. Additional investments are only required for some equipment areas in the line, because furnace and saw capacities, for example, need to be increased. Even in the case of an upgrade, the financial outlays are manageable. These mainly concern adjustments to the cycle times and capacity extensions in the peripheral line equipment.

Author: Michael Wilms,
Chief Expert Tube Technology,
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Donald Gibeaut

Progress in inline seam annealing for small-diameter tube, pipe producers

Developments in a critical normalizing application have spillover effects throughout the industry

By Donald Gibeaut

Countless applications use metal tubing, but reusing tubes isn't a common practice. After it's affixed, attached, fastened, or installed, that's usually the end of it. However, a growing practice for a few downhole applications in the oil industry is the use and reuse of small-diameter coiled steel tubes.

The purposes are nothing new. Well operators do frequent visual inspections, dropping a length of tubing outfitted with a camera into the well's borehole. They also use lengths of tubing to drop tools into wells to carry out various maintenance tasks, inject nitrogen or treatment chemicals to promote flow, and open or close valves to connect or isolate sections of the well. Tubing is also used for cleanout operations and to run electrical cables to machines such as submersible pumps.

Conventional operations involve a series of tubing lengths up to 48 ft. joined with couplings. Needless to say, this is cumbersome and labor-intensive, both in the insertion and retraction phases. Much faster is the practice of using an extremely long length of coiled tubing.

Making a long tube and annealing it so that it can withstand repeated coiling and uncoiling is straightforward in principle. However, as with most tube or pipe operations, this sort of thing needs great care. These days, a length of coiled tubing for downhole operations can run nearly seven miles. Nobody wants to make a mile (or six) of tubing destined for the scrap heap because something went wrong.

Making a Supple, Forgiving Material

Uncoil it and use it. Coil it up and move it to the next well. Uncoil it and use it. This can't last forever. Every time steel changes shape, it undergoes stress. In this case, the metal can undergo only so many cycles of coiling and uncoiling until it becomes too fatigued

to withstand any more deformations; eventually, splits will appear. Making this tube is an expensive proposition; getting the longest service life from it is a matter of proper heat treating, annealing, or normalizing.

Any sheet, plate, bar, or billet of metal looks like a homogenous, continuous mass. However, it's not that simple. When steel is heated, the atoms of iron take on a specific structure. If the processing temperature is less than 1,674 degrees F, it takes on a body-centered cubic structure. (Imagine the eight corners of a cube—eight evenly spaced iron atoms—with one more point in the center.) At higher processing temperatures, depending on the percentage of carbon, it undergoes a transformation to a face-centered cubic structure, which has 14 iron atoms.

Depending on the temperature, one of these two microstructures appears all throughout the steel, one cubic shape after another, forming a lattice. A vast lattice makes up a grain of the steel. As the metal remains at critical temperature, the grains grow until they come into contact with other grains, which is where grain boundaries form.

Grain growth is halted by cooling the steel rapidly. Cooling it sooner rather than later results in relatively small grains, which are associated with hardness and strength; the downside is that hardness equates to brittleness. Cooling it later allows the grains to grow larger, which results in a softer material that forms more easily than a fine-grained material.

So, the steelmaking process is a matter of controlling the processing temperature and the amount of time it spends at that temperature, and then cooling it rapidly. These steps, along with adding a bit of carbon while it's molten—usually less than 2% by weight—and some other elements determine the steel's properties.

More and More Heat.

When a long, narrow strip of this material is fed into a tube mill, the process starts over

where the two edges meet to make the weld seam. The weld heat is introduced to the steel by an induction coil that surrounds the OD and an impeder that directs the flow of current on the ID. The metal along the two edges becomes red hot, nearly returning it to the state it was in back at the steel mill. The tube then is doused with coolant to achieve the rapid cooling necessary for profitable production rates.

Throughout most of the tube profile, the microstructure is unchanged. The weld heat isn't distributed throughout the rest of the metal (the parent material), so it doesn't get hot enough to change appreciably. The weld heat is concentrated along the weld seam and in the area immediately adjacent to it, where it becomes red-hot and undergoes rapid cooling. In the heat-affected zone (HAZ), the area near the weld seam, the grains had little time to grow, so the material has a fine grain structure. The material in the HAZ is more brittle than the material elsewhere around the circumference. This is why anyone who bend tubes and pipes always tries to align the weld seam with the neutral axis of the bend.

On a tube intended to be coiled and uncoiled (bent and straightened) repeatedly, any fractures—which occur between grains along the grain boundaries—will develop in the HAZ long before they develop in the parent material.

Heating the material again, and cooling it slowly as it was cooled at the steel mill, is the key to starting over and allowing the

grains to grow until they return to normal size. Reducing the severity of the grain size differential, or eliminating it altogether, is an annealing process commonly known as normalizing.

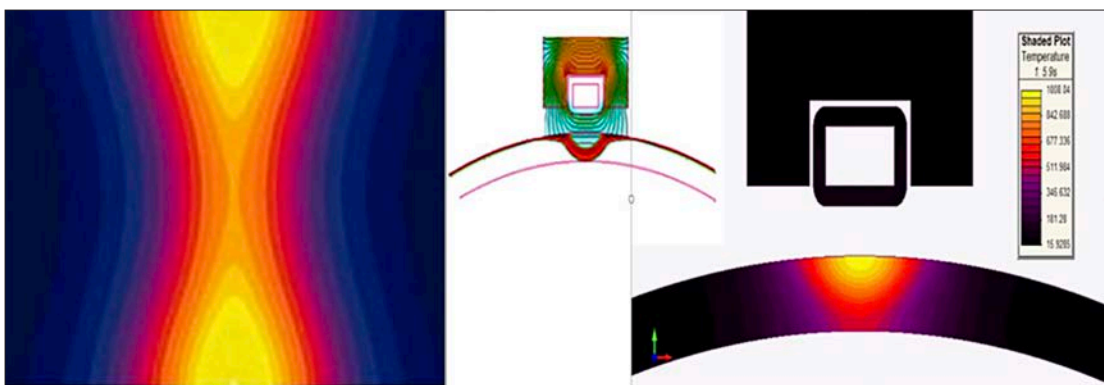
Understanding the Heat Profile.

It's worth noting that the heating process used for welding and the heating process used for normalizing are fundamentally different processes. Although both rely on induction, welding applies heat via the induction coil (on the OD) and by use of the impeder (at the ID); normalizing uses an OD inductor only. Because of this difference, the heat profile is different. In welding, the heated area through the cross section takes the shape of an hour-glass; normalizing creates a heat profile in the shape of a letter U.

Matching the Normalizing Process to the Tube and the HAZ

On large diameters of tube or pipe, a common practice is to seam-anneal the material by heating it only in and near the HAZ. Using induction heating—the same process that makes the weld on most weld mills—to focus the heat along the weld seam isn't difficult. After locating and orienting the inductors appropriately, it's a matter of matching the heat to the line speed to carry out the necessary amount of annealing to soften and normalize the material in the weld HAZ.

On small diameters, it's common to anneal the entire circumference. This wastes quite a bit of the energy when the target area that



Caption: A high-frequency induction heat-affected zone typically looks like an hourglass (left). This results from heat generated at the OD by the induction coil and at the ID by the impeder. Because normalizing can't access the ID, the sole heat source is at the OD, and the normalizing heat profile is shaped like a letter U.

requires normalized is only the weld HAZ, but it's difficult to heat more of the tube without distortion. However, the traditional way isn't the only way; several years ago, research and a field implementation proved that it is possible to normalize just the HAZ on tubes that measure less than 2 in. diameter with controlled distortion.

Doing so efficiently and effectively hinges on three main factors: the distance between the inductors and the tube's surface, the alignment of the weld seam and the inductors, and tracking the weld seam to maintain the alignment.

Keeping the Proper Coupling Distance. Using induction heating efficiently is a matter of keeping the induction coils as close to the surface as possible, and the standoff distance in this application ideally is not more than 0.200 or 0.300 in. If the standoff distance is greater than 0.300 in., the efficiency drops exponentially.

The problem with keeping a minimal standoff distance is that a variation or disturbance on the mill can decrease the gap, which risks creating a short circuit where the tube makes contact with the inductor. Considering the amount of electrical power in this application, a short-circuit is a potential disaster for the tubing and the induction coil. Ceramic standoff wheels can help to prevent contact. Still, the wheels are just single points of contact spaced along the induction coil's length, so

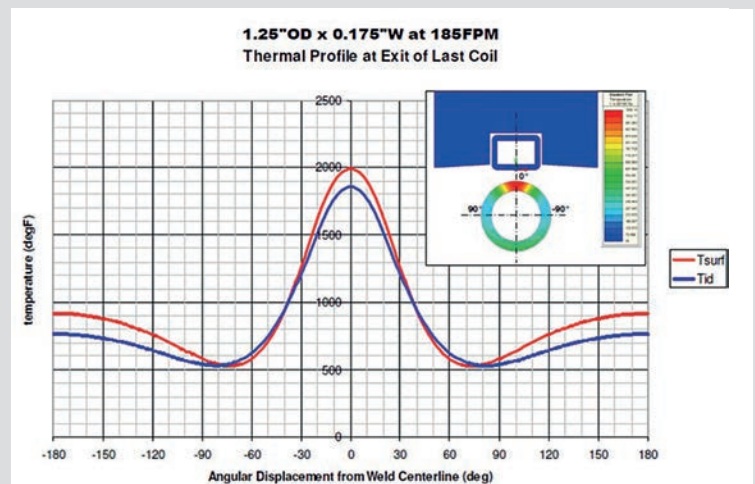
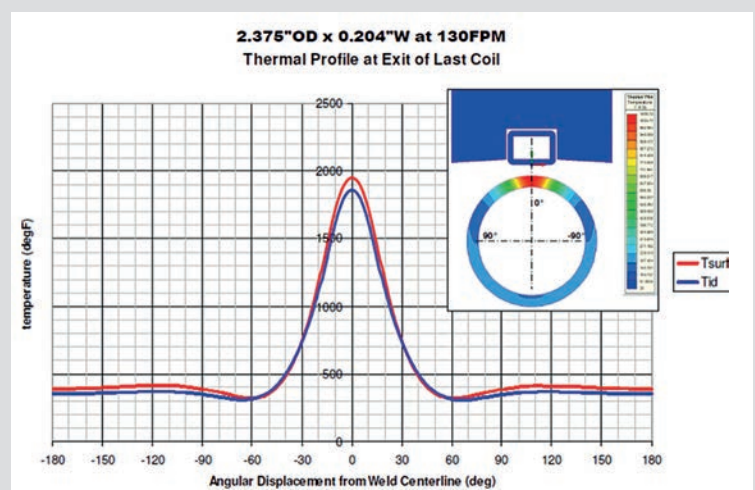
maintaining the proper standoff distance is still challenging on smaller diameters.

Another problem is that the induction process generates magnetic lines of flux that create vertical forces called Lorentz forces. Research has shown that magnetic lifting forces can exert nearly 90 lbs. of upward force on predominately 2.0-in.-dia. and smaller tubes. This wreaks havoc on the tube's dimensional consistency, leading to a distorted tube and adding to the possibility of short circuit between the induction coil and the tube.

Seam Width.

Typically, a single inductor of a specified width is used for a range of tubing sizes. Knowing the width of the weld HAZ is necessary to design induction coils that work as efficiently as possible. They have to cover enough of the tube's circumference to normalize the entire width of the HAZ to the ID of the tube. Still, if there is too much overlap between the weld HAZ and the inductor width, electrical energy waste

Caption: As annotated on these charts, angular displacement refers to the heat distribution of an annealing line and the resulting heat-affected zone. The center of the chart, at 0 degrees, represents the weld seam center, which is the center of the annealing coil placement. The heat distributions vary, so to be effective, a normalizing system must be designed to capture the widest heat profile of the pipe to be produced on this mill.



increases. In addition, on smaller diameters, excessive overlap causes heat to saturate the tube's circumference, increasing the steel's elasticity and rendering it more susceptible to distortion.

Finite element analysis (FEA) can determine the width of the HAZ in the annealing process, but this is too big a tool to use for every project. In addition, developing an FEA is a time-consuming and expensive process. A slightly less exact method, but a much faster one, is to cut and etch an as-welded tube sample to determine the actual width of the HAZ. A heat distribution profile graph of the normalizing process then can be produced that allows the prediction of the seam annealing HAZ.

Seam Tracking.

A third element in induction efficiency is maintaining the inductors' location relative to the seam. Ideally, the weld seam and the inductors are perfectly aligned, centered at the 12 o'clock position, but the seam does tend to wander left and right as the tube moves through the mill. In most cases, the seam deflects less than +/- 7.5 degrees, so an orbital coil positioner that moves a total of 15 degrees covers the typical deflection.

Big Reels Keep on Turning

Quite a bit of engineering goes into making very long lengths of tubing and doing so efficiently.

First, these tubes don't have a single wall thickness. The first section down the hole has the lightest wall; subsequent sections have heavier walls to provide more strength to support the increasing amount of weight.

Second, while the process could use full-body annealing, this is too wasteful. In some common tube applications—say, a few hundred lengths of 20 ft. each—a full-body anneal would make sense because setting up a custom-made inline normalizing system with a seam tracker and an orbital unit is an engineering-, capital-, and time-intensive undertaking at best. For a small contract, the return on investment isn't likely to materialize. However, for a program that involves making hundreds or thousands of flexible steel lines that run for miles, the full-body

anneal wastes far too much energy, and a custom annealing line can be justified.

Third, when developing a normalizing system that anneals several diameters and wall thicknesses, the smallest sizes get more heat saturation around the circumference, thus increasing the metal's plasticity. The Lorentz forces come into play and can cause some distortion.

These forces can be countered by using a larger number of smaller inductors. In a properly designed system using this principle, the total amount of heat the inductors generate is the same, but each generates less magnetic flux, thereby generating less vertical force, thereby reducing the distortion.

Using these inductors, known as twin series inductors, allows the use of additional steel standoff wheels, which are placed between the inductors. In other words, whereas a conventional system has ceramic standoff wheels, this system has those and two additional modes of protection against short circuits: less vertical lift from the magnetic flux, and additional guide wheels located between the induction stations.

Depending on the level of expertise and the time put into designing such a system, two competing normalizing lines can differ quite a bit in their layouts. For example, a conventional system designed more or less along traditional principles might use four separate induction stations. In contrast, a more sophisticated, updated approach can result in a system that does the same amount of work with just three induction stations, conserving floor space and energy. This equates to less equipment on a smaller footprint operating more efficiently.

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Donald is also Chairman of the board of the ITA, International Tube Association for North and South America. Donald also serves advisory board of directors for the TPA, Tube and Pipe Association.

Ends well, all's well

Also in the figurative sense referring to the ends of tubes or, in this case, to the "leading" end. Preparing the leading tube end for the subsequent drawing process is an important operation at the beginning of the drawing of precision tubes.

This work step is perfectly covered by the latest generation of BÜLTMANN tube pointing machines.

The combined tube pointing machine, type HAM/PH, has been specifically developed to handle the increased requirements associated with the pointing of tubes. Due to the combination of both proven pointing methods - folding tag forming and push-pointing - integrated in one machine it is possible to point tubes with small wall thickness as well

as tubes with a larger one (ratio > 1:10) in one working station.

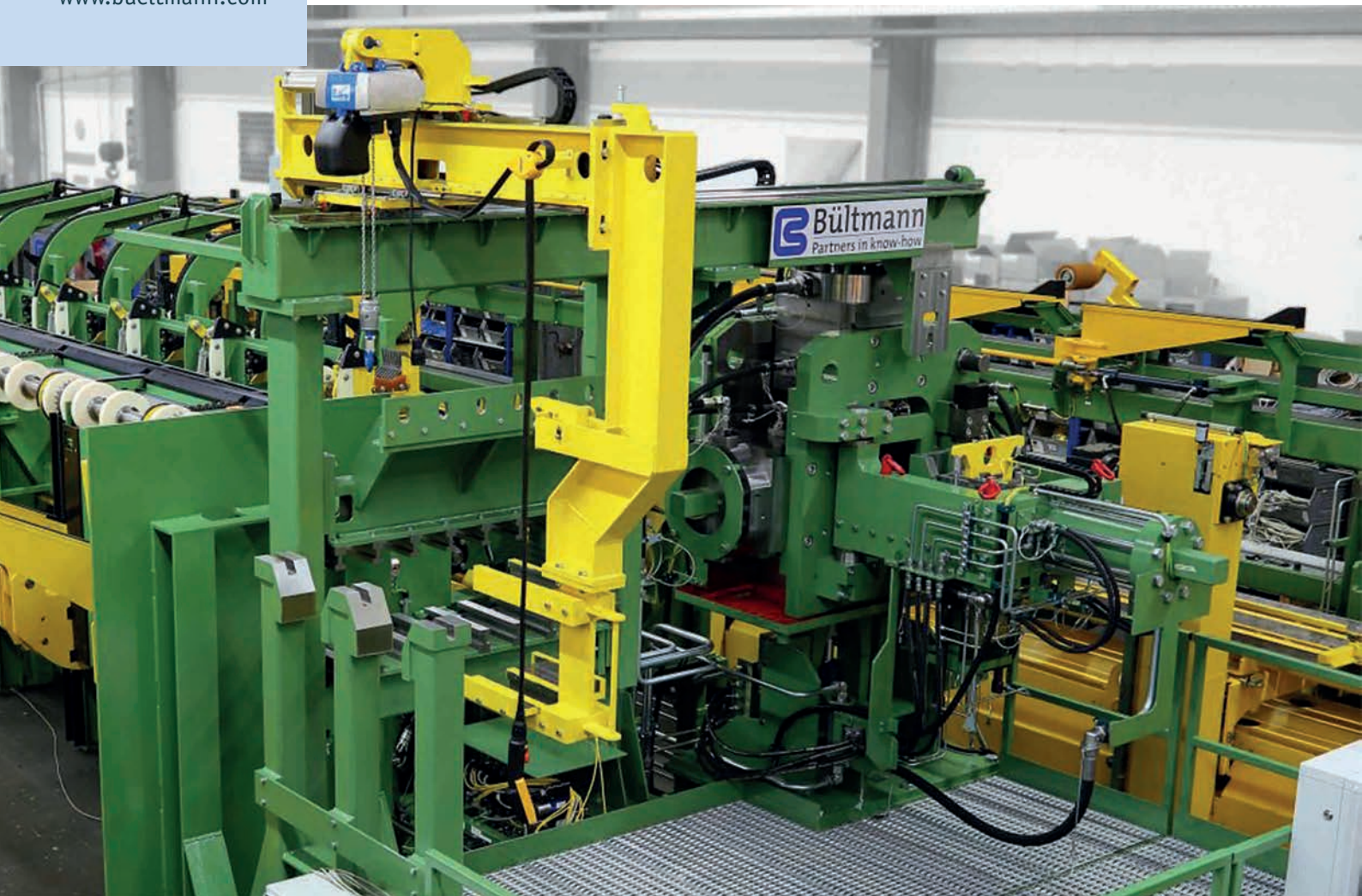
As this machine type requires very little space it is perfectly suited to retrofitting into an existing line. Furthermore the simple technical concept offers considerable cost benefits as only one machine for this application has to be purchased instead of two.

Moreover, the ingenious design of the push-pointer modules makes it possible to retrofit on site already existing folding tag machines with this add-on, so that a "state-of-the-art" pointing system can be used with a low investment.

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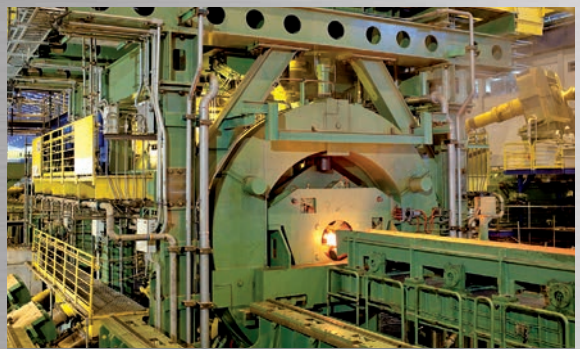
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Whatever your methods – whether conventional or state-of-the-art, computer-aided forming with full data capture – you can always rely on the right solution from SMS group. Our range covers everything from high-grade precision tubes to OCTG / linepipes. As a result, you benefit from high cost-effectiveness, narrow product tolerances, and a broad field of application.

Even more: all this substantially boosts your competitive edge. Let's add value along the entire value chain, together.

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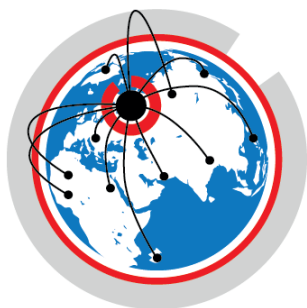
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24/7/365 Remote support with sms group's service on electrical and automation systems



After all, customers do not expect only holistic, efficient and future-viable automation solutions, but just as well proficient consultation and immediate support at any point in the lifecycle of their production equipment. That is why X-Pact® Service is represented across the globe and always within easy reach for SMS group's customers.

The automation system is the beating heart of any production facility. It controls the production processes, assures smoothness of operation and generates data and reports critical for the performance of the plant. An automation system that does not work properly may result in costly downtimes, poor customer satisfaction and financial losses. Immediate and reliable technical support by an expert team and state-of-the-art automation systems are indispensable for companies to remain competitive.

With its X-Pact® Service, SMS group supports its customers along the complete process chain – even beyond the commissioning of the customer's plant. This guarantees high availability and stability of the automation systems in the long run.

“In addition to a full host of individual services, our customers may also choose from our range of full-line service packages. Under these customized service agreements, we guarantee reliable and efficient operation of our customer's facilities on a long-term basis and in close relationship with our customers as partners. ‘Always ready to support you, promptly and reliably – the world over’, this is the motto of X-Pact® Service,” says Ralf Mackenbach, Vice President Services, Center of Excellence Electrics and Automation of SMS group.

Service for automation systems over the complete lifecycle

In order to achieve a continuous high level of economic efficiency and Overall Equipment

Effectiveness (OEE), downtimes need to be kept as low as absolutely possible. From an X-Pact® Service agreement, the customer may benefit in numerous ways, for example by:

- A 24/7/365 hotline
- A service expert who is familiar with the customer's system
- remote support via the X-Pact® Service portal
- Expert know-how available worldwide

The customer's staff can call on us for individual expert support on their automation system 24/7 on 365 days of the year. They will benefit from SMS group's unparalleled know-how and expertise in plant automation.

The SMS service experts know all technical details and have a deep understanding of the factors that may affect the automation system and the production process at the customer's facility. The customer can avail himself of a permanent point of contact with expert knowledge and a global service network - over the complete lifecycle of their automation systems. Even today, SMS group's international branches in China, India, Russia and the U.S.A. support customers in their respective regions directly with electrical and automation service.

X-Pact® Service Portal – our platform for expert diagnostics

Whenever required and requested by the customer, the automation experts can promptly log in on the customer's plant and equipment via the common X-Pact® Service Portal and even invite specialists from other disciplines to join in. This makes it possible to solve many issues right away, reducing overall costs and boosting performance. No effortful, time-consuming troubleshooting, but proficient support by experts and efficient just-in-time cooperation. Even before the repercussions of the COVID-19 pandemic, this type of digital solutions in place at SMS



For more information on the X-Pact® Service portfolio, please visit: www.sms-group.com/x-pact-service

Remote services: far away, but yet close by

Interview

Remote support is used not only to resolve urgent issues, but also to perform scheduled maintenance activities.

group, including remote support services, had proved highly successful and efficient.

The X-Pact® Service Portal uses SSL (Secure Socket Layer) technology with 128 bit encryption. Highly efficient firewall and singleport technologies guarantee high security of the Internet connection. A relay server, operating as facility gateway, organizes the equipment behind the gateway. Additionally, it is possible to admit other specialist department to the interactive process.

The customer sets up the connection, and without his permission it is impossible for the service specialists to access the plant system. The connection is stopped as soon as the support mission ends. Without a new service request, any external access to the customer's network is precluded.

The benefits at a glance:

- Front-end software with Point2Point encryption assures secure data exchange
- Prompt support in trouble shooting and during scheduled service activities
- The customer has full connection authority
- Full traceability of all service activities
- Transparent workflow
- Access exclusively for authorized specialist users

Proven service modules can be combined into a comprehensive service package.

Mr. Mackenbach, in which way has the service on electrical and automation systems changed due to the COVID-19 pandemic?

Ralf Mackenbach: Even before the pandemic, we had made intensive use of remote support as an option to assist our customers promptly and effectively in their daily production routines. In order to guarantee utmost safety of our customers and employees during these extraordinary times, we decided to expand our remote activities even further.

Especially, minor revamps that had originally been planned to be performed on site were increasingly handled remotely. I can't think of a project where this did not work out fine. At the same time, we have been able to reduce travelling to an absolute minimum.

In concrete terms, how does remote support work?

Helmut Beckmann-Lenneper: Let me give you some examples. A German customer called our 24/7 service hotline one day before Christmas 2020 because there was an issue with a hot strip mill. The rolling of certain strip thicknesses was instable, even leading to production stops. The customer granted our technician remote access to the system. The technician first checked the diagnostics records of the strips concerned. He quickly found that the values measured by

one of the position encoders of the screw-down system for the roll gap adjustment were not plausible. As an immediate measure, the encoder was deactivated.

Production was resumed and no problem occurred. During the next regular maintenance stop, the defective encoder was replaced with a new one. All steps of that service mission were documented in our CRM system. This means that other service technicians can now access the case and view the findings. In December 2020, we received another hotline call from a customer in America. His plant had automatically stopped all of sudden (emergency stop). Our technician checked the log files and other available data via remote access. He quickly came to the conclusion that there were communica-

tion problems within the internal network systems. He recommended that the customer should replace a network switch – and, indeed, this solved the problem.

Does this mean that in most cases you use remote support to help customers in emergency situations?

Helmut Beckmann-Lenneper: Oh no, we use the possibility of remote access also for scheduled service measures and during commissionings. Just recently we received a request from a Turkish customer who wanted to have additional sensors installed in its plant. In this case, we planned the necessary expansion of the hardware of the fieldbus system jointly with the customer, the customer installed the new hardware and then

*In the test center
Ralf Mackenbach (left), Vice President Services, Electrics and Automation
of SMS group, and Helmut Beckmann-Lenneper, Head of Execution Services,
Electrics and Automation of SMS group.*



our experts integrated the new signals into the automation system via remote access. And now, with the restrictions in connection with the pandemic, we have been implementing even more complex revamps in this way. This has avoided quite some travelling, and we have been able to support our customers in implementing the measures as planned.

What is the focus of the modernizations that you perform with your service team?

Ralf Mackenbach: We are active in both software updates and hardware upgrades of a wide range of different automation systems. We plan modernizations for all types of automation systems in line with the requirements of our customers and with short installation and commissioning times, always with a view to an optimal combination of remote and on-site service.

Helmut Beckmann-Lenneper: For 25 years, SMS group has used the modular X-Pact®-ProBAS automation system as standard for the basic automation and the technological controls in rolling mills. We upgrade X-Pact®-ProBAS to the latest hardware generation in one to two days, independent of the year in which the existing system was first commissioned. After completion of such an upgrade, production can be immediately restarted at 100 percent.

Which customers can benefit from the remote service?

Ralf Mackenbach: The use of the 24/7 hotline and the possibility to call on SMS group experts - 24/7 - for assistance are available free of charge to customers who have concluded a corresponding service agreement. We usually conclude one- to three-year contracts with our customers. These contracts also form the legal basis for the implementation of our remote services. The contracts cover the access rights for on-call assistance and the agreed number of hours for cost-free service activities, and they may even include additional X-Pact® Service modules. Also the conditions for planned and unplanned on-site assignments are defined. Basically, every new plant and

equipment that we supply comes complete with the technical features enabling the use of our remote support service. Currently, we have far more than 100 active connections in place worldwide with our customers.

Internally, we use the X-Pact® Service portal as early as during the engineering phase, the Plug & Work integration tests and during commissioning. Within the global network of SMS group, both software experts and technologists from our development and engineering departments are available to assist our customers.

What digital tools are available to the X-Pact® Service experts?

For many years, SMS group has pursued a digitalization strategy that has seen the successful use of the X-Pact® Service portal during commissionings and in the after-sales service. During the past year, we have enhanced the communication possibilities significantly as well as the digital functionalities of the portal. We now use AR goggles for the direct exchange of information about the facility with the customer's specialist personnel per chat function, audio, video or whiteboards securely connected via the X-Pact® Service portal. In addition, a mobile version of the X-Pact® Service portal enables staff at the customer's facility to send out a service call directly from their smartphones. Further mobile applications are to come soon.

What role does your team play in the implementation of Equipment-as-a-Service projects?

Electrical and automation systems and their specified performance play a significant part in Equipment-as-a-Service (EaaS) models. Consequently, also our X-Pact® Service experts get involved here, as our remote service is critical to the successful optimization and the resulting high performance level of production equipment operated as EaaS.

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Confidence in difficult times between industrial partners

After 33 successful years of operation in the workshop the largest and most renowned steel pipe manufacturers in Slovakia – Zelezarny Podbrezova - the Reika cut-off line, producing since 1988, is now replaced by a new Model 243 finishing line.

The state-of-the-art model 243 cut-off machine is part of a finishing line and a

compact solution for high-speed cutting and simultaneous inside and outside chamfering of precision steel tubes with a diameter range of 50 - 190 mm and a wall thickness range from 1 to 25 mm. By integrating the complete tube transport system, length optimizing will be automated including flexible cutting with internal and external chamfering of the tube to tubes ready for shipment to the market.

Cutting and chamfering in one single step, extremely precise and with minimum material losses. Due to the special Reika clean cutting technology, the precision tubes are processed without contamination and damage to the tube surface with enormous cost savings as an extra benefit for the customer. The model 243 high-speed cut-off center is working with ultimate precision and to the lowest tooling costs.

The final acceptance of the complete line was achieved within short time, even under the pandemic conditions. These difficult circumstances were new for supplier and customer but the frequent video conferences and finally, the personal commissioning with Reika staff on site strengthened the partnership and relations on both sides.



In addition, the reduced energy cost provided by low power and compressed air consumption pay special contribution to the low item costs. Minimized emission values help to achieve a good CO2 balance of the manufacturing companies, already significantly focused, and must be considered as an essential decision feature for companies.

A complete presentation of all advantages and machine features can be found on our website at <https://www.reika.de/anlagen-fuer-rohr-stabhersteller/trennanlagen/abstechmaschinen> incl. demonstration material.

Reika GmbH & Co KG

Tiegelstrasse 3
58093 Hagen
Germany

Tel: +492331969 00x30

Fax: +492331969 096

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www.reika.de

SIKORA AG

SIKORA opens new subsidiary in Poland

SIKORA POLAND with headquarters in Lodz

SIKORA AG, manufacturer and supplier of innovative measuring, control, inspection, analysis and sorting systems, has expanded its presence in Europe by establishing the new subsidiary SIKORA POLAND, in Lodz, Poland. The new office brings SIKORA's world-wide presence to 15 subsidiaries.

Dr. Jörg Wissdorf, member of the board at SIKORA, explains the decision to open the subsidiary with the great potential that the Polish market offers in the areas of tube and hose as well as plastics. "For example, there are many hose and tube manufacturers in the field of building services, infrastructure as well as automotive and industrial applications, which focus on innovative measuring technologies for best product quality, optimal processes and highest economic efficiency. These manufacturers will significantly benefit from our local customer proximity through timely and efficient support in the local language."

Director of the subsidiary SIKORA POLAND is Jacek Lewandowski. Lewandowski has many years of sales experience in different industrial sectors, among others in measurement technology. The graduated engineer with a master's degree in management and organ-



*Jacek Lewandowski
Director SIKORA POLAND*

ization is initially the contact person for customers in the hose and tube industry.

In addition to Poland, Jacek Lewandowski is also responsible for the Baltic States Estonia, Latvia and Lithuania as well as the southeast European countries of Bosnia and Herzegovina, Bulgaria, Croatia, Kosovo, North Macedonia, Montenegro, Serbia, Slovakia, and Slovenia.

Contact SIKORA POLAND

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28307 Bremen
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sales@sikora.net

www.sikora.net

Danieli S.p.A.

Commercial Metals Company breaks ground on MIDA micro mill in Mesa, Arizona

One of the most efficient and green steel producing facilities in the world to produce both steel rebar and merchant products

Supplied by Danieli, this MIDA QLP micro mill will be the first in the world capable of producing both steel rebar and merchant products with high yield strengths and maximum uptime.

It will melt local scrap by the innovative Danieli Digimelter (Q-One, Zero Bucket, Q-Melt) and operate in endless casting-rolling mode with an output of 500,000 tpy of long products, namely 350,000 tpy of rebar and 150,000 tpy of small merchant sections.

Arizona 2 MIDA micro mill will have the capability to directly connect to renewable energy sources that will make it the first mill ready to operate in a hybrid mode in North America.

Plant commissioning is scheduled for 2023.

CMC, a pioneer in endless casting-rolling, has been operating two Danieli MIDA micro mills, in Mesa (Arizona) and Durant (Oklahoma), USA.

About Commercial Metals Company

Commercial Metals Company and its subsidiaries manufacture, recycle and fabricate steel and metal products, related materials and services through a network of facilities that includes seven electric arc furnace ("EAF") mini mills, two EAF micro mills, a rerolling mill, steel fabrication and processing plants, construction-related product warehouses, and metal recycling facilities in the U.S. and Poland.

Danieli S.p.A.

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33042 Buttrio (UD)
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www.danieli.com

On September 21, 2021, Commercial Metals Company (CMC) leadership, local officials and Danieli representatives celebrated the ground-breaking of the new Arizona 2 micro mill at CMC Steel Arizona in Mesa, Arizona, USA.



Boehlerit GmbH & Co. KG

Boehlerit made an important contribution at the EuroSkills 2021 in Graz



From 22 to 26 September 2021, the European Skills Championships took place in Premstätten near Graz. This outstanding event focused on top performances by young, highly talented professionals coming from a wide range of professions. About 400 participants from all over Europe competed against each other and showed top performances. Around 30,000 visitors were on hand on the three exciting days of competition and watched the young professionals enthusiastically. Initiated in order to counteract the shortage of skilled workers, which has grown in the meantime, this challenge was taken

up on a European level and in this way the vocational training is excellently upgraded.

The Austrian carbide and tool specialist Boehlerit is also feeling the shortage of skilled workers at the forefront and, as a "bronze sponsor" at the EuroSkills, made an important financial contribution to ensuring that there will also be outstandingly trained people in the future. As part of the sponsoring activity, each participant in the CNC turning and CNC milling skills was presented with a tool voucher in recognition of their top performance.

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Messe Düsseldorf

VALVE WORLD EXPO 2022 receives great support from the industry

Good registration status one and a half years before the start of the trade fair: VALVE WORLD EXPO 2022 receives great support from the industry

Everything at the beginning and at full speed: since March 2021, registrations for the 12th International Valve Trade Fair & Conference, VALVE WORLD EXPO, have been underway in Düsseldorf.

From Nov. 29 to Dec. 1, 2022, many key players in the industry as well as medium-sized companies will showcase innovative valves and fittings here - from gigantic ball valves for use in the oil and gas industry to tiny, delicate valves used in microbiology or medical technology.



They all have one thing in common - they regulate flow rates, separate different media from each other or stop liquid and gas spills. As a result, they play an indispensable role in almost every branch of industry.

Around one and a half years before the start of the trade fair, 170 companies from 21 countries have already registered. These

include innovation drivers such as AUMA Riester, SAMSON, Pecos Valves, Zwick Armaturen, Hörbiger Flow Control, AVA Armaturenvertrieb Alms, Ari Armaturen, Galperti Engineering & Flow Control Spa and Kitz CO Ltd.



*Daniel Ryfisch, Project Director
wire, Tube & Flow Technologies
at Messe Düsseldorf*

“The fact that many industry players have already committed to their leading Düsseldorf trade fair at this early stage is both an incentive and motivation for us to be able to successfully stage VALVE WORLD EXPO 2022,” says a delighted Daniel Ryfisch, Project Director wire, Tube & Flow Technologies at Messe Düsseldorf.

Parallel to the trade fair, the VALVE WORLD Conference will once again be held in the visually and technically new benchmark exhibition hall 1, planned and organized by KCI.

Further information to trade fair and accompanying conference is in the Internet portal under www.valveworldexpo.com.

Press contact

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E-Mail: HartmannP@messe-duesseldorf.de



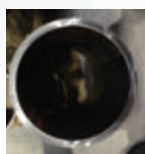
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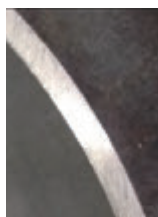


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Thick D/t product sample
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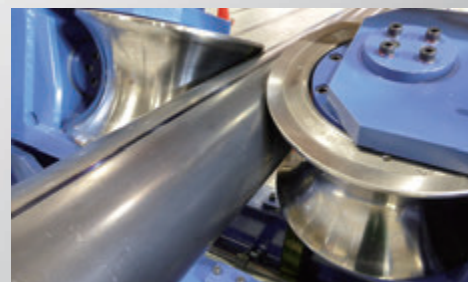


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<http://www.nakata-mfg.com>

ITAnetForum December 2020

TUBE 2020 was planned to take place in Düsseldorf in December 2020. However, due to the Corona pandemic, the fair had to be cancelled.

The International Tube Association has therefore decided at short notice to set up a virtual trade show, the ITAnetForum, as a replacement event for Tube 2020 and to offer it to our industry.

A key purpose of the International Tube Association is to encourage exchange and so here the ITA offered colleagues and businesses throughout our business sector a portal with services which enable and enhance contacts. This was a virtual support for all since personal contacts were clearly out of the question at that time.

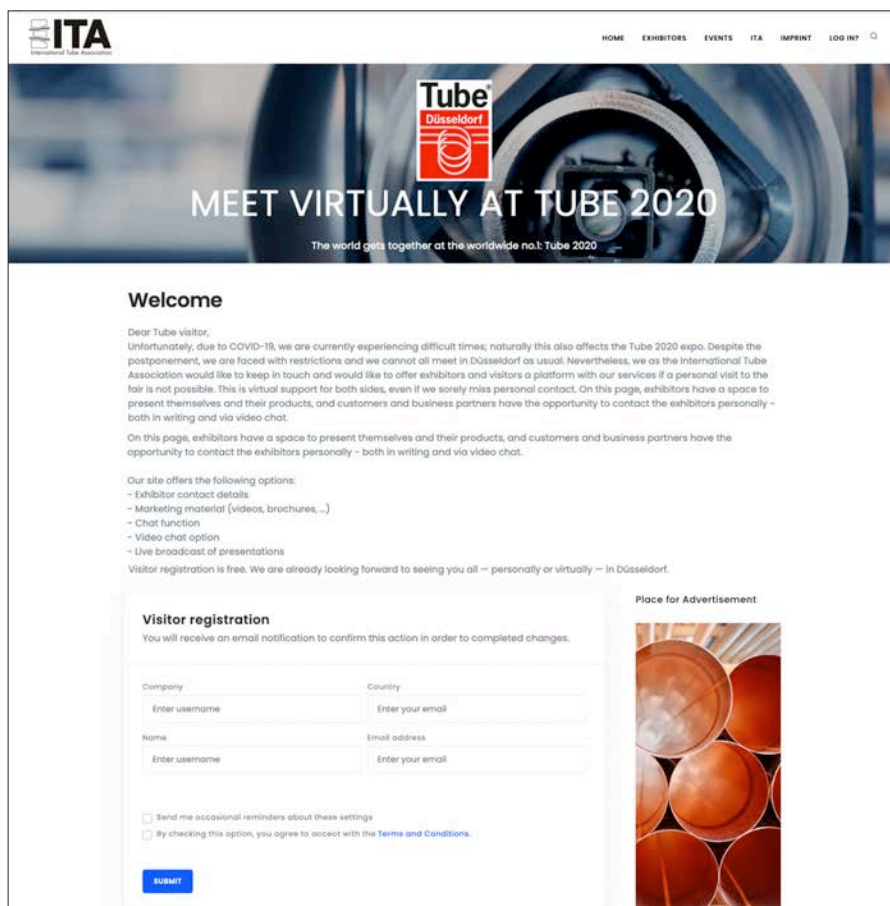
With over 1000 visitors per day, this virtual event was certainly a good success for our



goal of maintaining communication within our industry.

The participating companies each had their own virtual booth where they could present their products and services. The presentations, films and brochures presented live or as recorded versions to the visitors were actively used. The companies could hold interactive web conferences, or the visitors could communicate directly with the exhibitors' specialists via chat rooms. Certainly, individual appointments could also be arranged for the parties.

The positive reactions to the ITAnetForum were quite encouraging and we are right now evaluating how such a virtual show may be used as a supplement to future tube trade fairs or as platform for other business support and contacts within our industry.



FABTECH 2021

FABTECH 2021 Makes In-Person Return

CHICAGO (September 28, 2021) – As the first large-scale B2B and manufacturing trade show to be held at Chicago's McCormick Place since the onset of the COVID-19 pandemic, FABTECH 2021 brought two years' worth of groundbreaking innovations

Three exhibit halls hosted close to 1,000 exhibitors (including 93 new exhibitors), demonstrating over 400 new products and highlighting emerging trends and technologies. As the first event in two years for many industry professionals, energy was high, and sales activity was robust on the busy exhibit floor throughout each day.

From September 13-16, North America's largest metal forming, fabricating, welding, and finishing event welcomed over 24,000 attendees from across the United States with long-awaited opportunities to experience product evaluation, in-person networking, education, and collaborative discussions on critical topics impacting the industry today.

"It felt fantastic" to get back to in-person interactions. Again, the turnout was impressive, delivering a post-pandemic environment. With a few twists, though, I would guess and say 99.5% of the attendees and exhibitors wore the mask as requested. In addition, hand sanitizer was utilized in every booth. Most people were adapting to the "New Normal" and trying to get back to some normalcy. We shared a booth with our MESSE partners as pictured. Tube Dusseldorf is the next big international Tube show that we believe the FABTECH 2021 success will help promote.

Donald Gibeaut,
ITA (International Tube Association
Chairman for North and South America)



Donald Gibeaut, ITA
(International Tube Association
Chairman for North and South
America)



ITA Webinar Indian Chapter

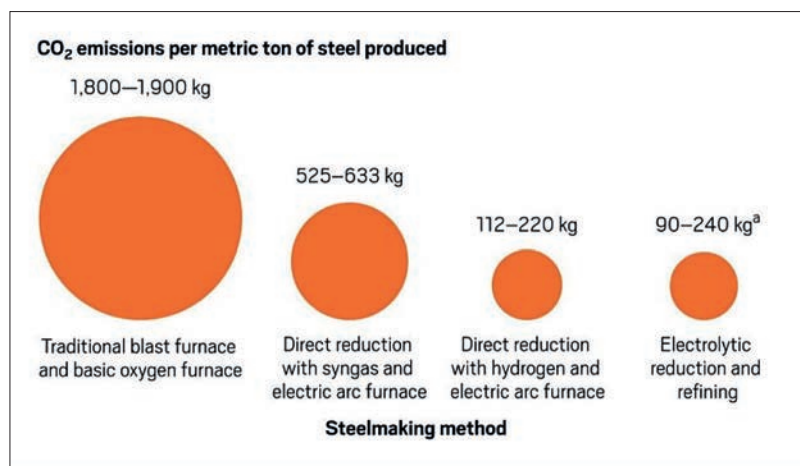
The Indian Chapter of the ITA has organized a webinar about advanced technologies and various applications and of green hydrogen gas this August 27th, 2021.

A plenum of more than 150 specialists were following very interesting presentations from some leading Indian companies and institutions. Topics like the acceleration of green hydrogen in India as well as hydrogen applications in the steel and tube industry were presented and discussed.

Impressively this webinar could demonstrate that India, as one of the fastest developing countries takes multiple approaches to accelerate green hydrogen technologies.

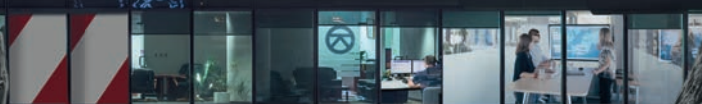


HIGHLIGHTS



Source: IESA

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Metal-Expo'2021 offers new business opportunities



Metal-Expo'2021 International Industrial Exhibition will be held on November 9-12 at Expocentre Fairgrounds, Moscow, Russia. The forum for steel producers changed the venue and expanded: more than 500 leading steel companies are expected to exhibit in the event on more than 30k sqm of exhibition space.

The exhibition will be held in spacious halls 2, 3, and 8, Expocentre Fairgrounds. The event will bring together leading ferrous and non-ferrous producers, the most state-of-the-art equipment manufacturers and suppliers, and providers of innovative solutions and technologies for the steel industry and metalworking. Expocentre Fairgrounds will allow the event to regain its pre-pandemic level and offer new business opportunities to its exhibitors and visitors.

Leading steel producers, engineering companies, tube and pipes manufacturers, hardware manufacturers, non-ferrous producers, steel products suppliers and steel service centers among them MMK, TMK, Severstal, OMK, NLMK, Metalloinvest, Novostal-M, UMMC, Zagorsk Pipe Plant, Industrial Metallurgical Holding, TEMPO, Uraltrubprom, Nizhny Volzhsky Pipe Plant, Ashinskiy Metallurgical Works, Electrostal Metallurgical Plant, Zlatoust Metallurgical Works, Aluminium Metallurg Rus, VSMPO-AVISMA, Akron Holding, MMK-Metiz, Severstal-Metiz and many more will arrange massive expositions at Metal-Expo'2021.

Expocentre is located in the center of Moscow, in its business area. The Fairgrounds can boast

convenient transport accessibility with the Metro station located right next to the exhibition complex. Many international steel and engineering companies keen on developing cooperation with Russian partners confirmed their participation in the event, among them ArcelorMittal, Marcegaglia, Danieli, ThyssenKrupp, Mannesmann Stainless Tubes, SMS group, Vernet Behringer, Gertnergroup, Terex Deutschland, Amada, RHI, TENOVA, FAGOR, Fivesgroup, CentraVis, Byelorussian Steel Works, NKMZ, Dneprotyazhmash, Aktobe Rail and Section Works, Tashkent Steel Works and many more.

"The steel market has been very busy this year (price volatility, carbon control, changes in export supplies, steeping competition etc.) making steel companies rearrange business and industrial processes, adapt to new conditions, find new niches for investments and develop new sales markets. Russian steel companies openly face the challenges confirming their statuses as the most efficient in the global steel industry. It is very important under the current conditions that Metal-Expo'2021 offers all the steel market players a good opportunity to get together and discuss the most pressing problems of the global steel industry. The hard-driving program of the exhibition offers its participants the most pressing topics for discussion and an opportunity to exchange the best practices of implementation of innovative projects, as well as development and promotion of new types of steel products. In my belief, the initiatives and concept approaches suggested during the event will stimulate further growth of the steel and steel-related industries", states D. Manturov, The Minister of Industry and Trade of the Russian Federation in his welcome address to Metal-Expo'2021 exhibitors and visitors.

Favorable world market structure helps increase investments in developing and implementing new low-carbon technologies. Many steel companies have announced ambitious investment projects in 2021.



Thus, NLMK group builds an HBI complex at Stoylensk Mining and Dressing Plant, while Metalloinvest constructs one of the biggest and the most modern HBI plants in the world. HBI is in high demand now in Russia and globally for due to it CO₂ emissions are reduced twice as compared to traditional methods. Vyksa commissions Ekolant steel complex to operate using iron direct reduction method on iron ore pellets and natural gas. A new rails and beams mill by Nov-ostal-M will be commissioned in Balakovo, Zagorsk Pipe Plant is setting up production of seamless pipes near Moscow, TMK is launching production of stainless rolled flats near Vologda while MMK builds a new blast furnace #11. Implementations of the projects to be presented at Metal-Expo'2021 ensure further development of the regions and the whole Russian economy creating thousands of new jobs. Thus, the exhibition will show a mighty potential of the Russian steel industry and its new projects.

Leading industrial unions and scientific and research institutions will organize own events during Metal-Expo'2021, among them a meeting of the Coordination Council for the Steel Industry by the Ministry of Industry and Trade of the Russian Federation which delegates will discuss the current domestic steel market structure and the most pressing problems of the Russian steel industry.

Winners of contests for The Main Event in the Russian Steel Industry'2021, The Best Russian Stock and Steel Warehouse'2021, The Best Russian Sales Network'2021, The Best Russian Steel Service Center'2021, a contest among young scientists etc will be awarded at Metal-Expo'2021. The most prominent achievements in the ferrous and non-ferrous industries, manufacture of modern equipments for the steel industry and metalworking will be awarded Metal-Expo gold and silver medals.

Metal-Expo'2021 program includes more than 50 conferences, seminars, roundtables, and presentations covering all the segments of the steel industry including using modern materials and equipment in the ferrous and non-ferrous industries, use of secondary resources, standardization of reinforced rolled stock, use of galvanized and pre-coated rolled products, manufacture of new types of steel products for the automotive industry, medicine etc.

Steel market participants and their subcontractors will be arranging meetings during the four days Metal-Expo'2021 to discuss and find solutions to their problems and sign cooperation contracts. Metal-Expo is one of few Russian exhibitions attended by steel company leaders, top-managers and decision-makers.

Welcome to Metal-Expo'2021, the 27th International Industrial Exhibition, November 9-12, Halls 2,3,8, Expocentre Fairgrounds, Moscow Russia!

<https://www.metal-expo.ru/en>

Tube 2022

A lot of movement in the wire, cable, tube and pipe industry:
wire 2022 and Tube 2022 experience a
lot of tailwind from their industries



Since March 2021, companies wishing to present their machinery, equipment, services and products at the world's leading trade fairs wire and Tube, which will be held in Düsseldorf from May 9 to 13, 2022, have been able to register with Messe Düsseldorf.

It is already clear that the industries are committed to the No. 1 trade fairs. The response is good and the wire and Tube project team is confident that both trade fairs will once again present themselves as the international industry events in 2022.

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Fax: +49 (0)211/4560-87 541
E-Mail: HartmannP@messe-duesseldorf.de



Planning for both trade shows will begin on June 30, 2021, which is also the official registration deadline for interested companies. Old exhibitors who would like to book their traditional space again should register before the registration deadline.

“Personal dialog with our exhibitors is what defines us as Messe Düsseldorf,” Daniel Ryfisch, Project Director of the world’s leading trade fairs wire, Tube and VALVE WORLD EXPO and their international satellites in China, Thailand, Brazil, Russia and India.

He is looking forward to walking through well-filled exhibition halls again next year and welcoming guests from all over the world. The wire 2022 will take place in exhibition halls 9 to 17, the Tube in halls 1 to 7a.



Diary of world class tube events

November 2021

9 - 12 Nov 2021	METAL EXPO Moscow, Russia	www.metal-expo.ru/en
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15 - 18 Nov 2021	ADIPEC Abu Dhabi, UAE	www.adippec.com
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November - December 2021

30 Nov 2021 2. Dec 2021	Stainless Steel World Maastricht, NL	stainless-steel-world-event.com
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January 2022

10 - 13 Jan 2022	Steel Fab Sharjah, UAE	steelfabme.com
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February 2022

1 - 4 Feb 2022	SPE Offshore Europe Aberdeen, UK	www.spe-aberdeen.org
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March 2022

21 - 23 March 2022	Stainless Steel World Middle East Masqat, Oman	
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April 2022

4 - 8 April 2022	ACHEMA Frankfurt, Germany	www.achema.de
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18 - 21 April 2022	NEFTEGAZ Moscow, Russia	neftegaz-online.com
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May 2022

9 - 13
May 2022

Tube
Düsseldorf, Germany

www.tube.de



May - June 2022

30 May -
5 June 2022

IFAT
Munich, Germany

www.ifat.de



14 - 15
June 2022

Stainless Steel World Asia
Singapore

stainless-steel-world-asia.com



September 2022

26 - 29
Sept 2022

Tube China
Shanghai, China

www.tubechina.net



October 2022

Oct 2022

OTC
Houston, USA

2022.otcnet.org



5 - 7
Oct 2022

Tube South East Asia
Bangkok, Thailand

tube-southeastasia.com



5 - 7
Oct 2022

Tube South East Asia
Bangkok, Thailand

tube-southeastasia.com



25 - 27
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November 2022

23 - 25
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- Review 2021
- Preview Tube 2022
- Preview Tube China 2022
- Preview Tube India 2022
- Review MetalExpo 2021

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