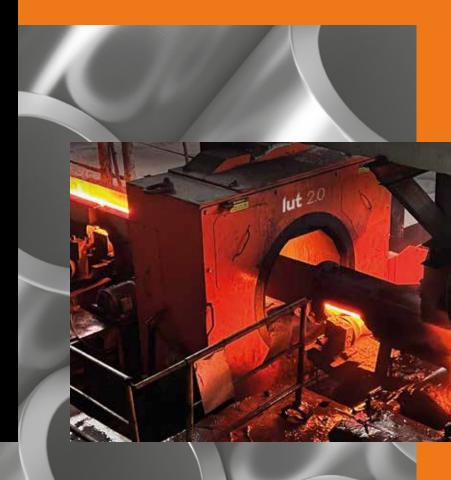
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Foreword



Dr. Gunther Voswinckel President ITA

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

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

Geopolitical turbulences are still permanent companions also this year 2023. While our thoughts and actions over the last 70 years have been shaped by the assumption that international trade strengthens peaceful coexistence in the world, the last 2 years we had to painfully realise that this maxim unfortunately has increasingly limited validity. This painful realisation now has a direct and significant impact on the further strategic orientation of our industry. While quality, delivery time and costs were previously the only decisive factors, geo-political and logistical risk considerations are now increasingly taking centre stage. All sources of supply are being subjected to critical scrutiny, and one can only hope and warn that international trade will not suffer too much as a consequence.

The transition to environmentally friendly and carbon reduced production became a central mission of the industry. The consequences on the cost increases are unevenly distributed across the world. In particular, the regional differences in energy prices will have an impact on the current landscape of the energy-intensive steel and tube industry.

However, disruptive times also always create new opportunities for economic success. New markets such as carbon capture utilisation and storage (CCUS), new networks for hydrogen transportation, electromobility and productivity improvements at production sites as part of the transformation towards more environmentally friendly plants offer opportunities that should be seized.

It is great to see, that our largest industrial event, the Tube Düsseldorf 2024 show, is taking place in only some months and offers our industry again the opportunity to meet and exchange the latest innovations.

We which you all a peaceful holiday season and a successful year 2024 in best health.

Yours faithfully

ITA Team

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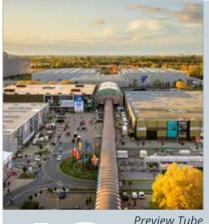
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Review ITA Tube Conference 2023





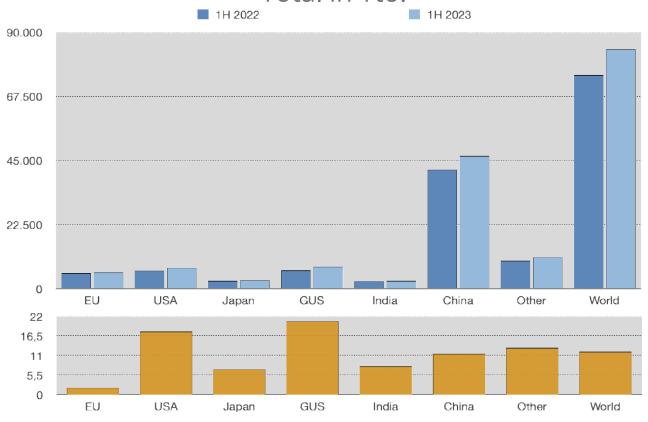
Preview Tube 2024

World Steel Tube Production - Review

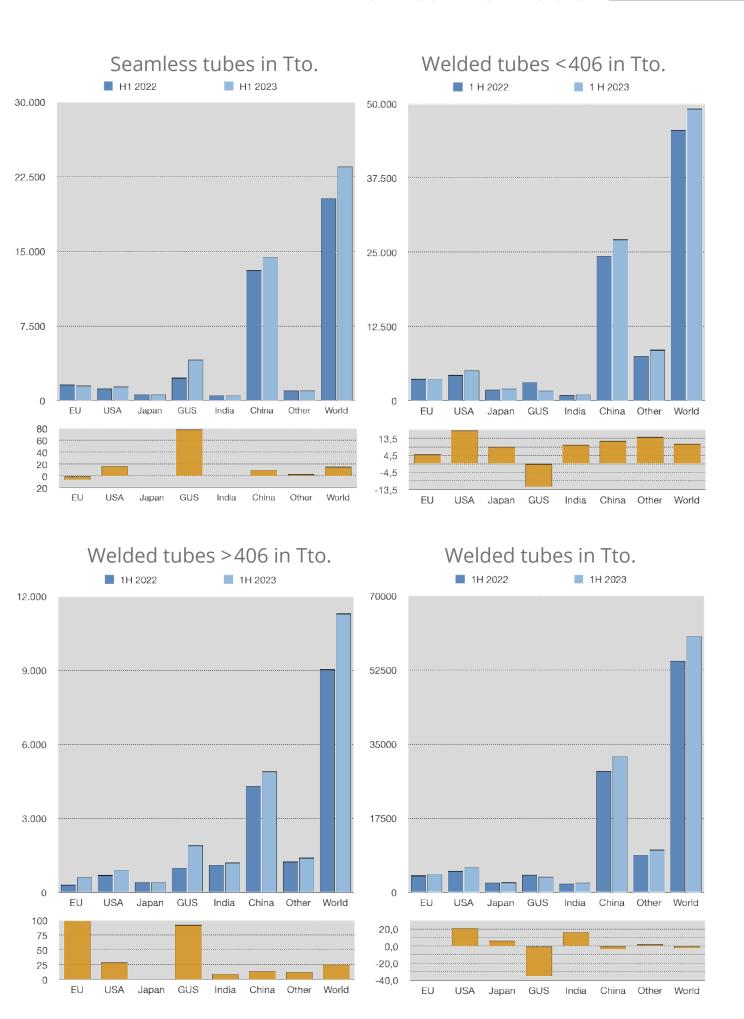
A comparison of growth in the first half of 2022 and 2023 shows global growth of 12.1%. While the USA and the CIS (GUS) states are leading the way, Europe can only grow by 1.8% and thus brings up the rear in terms of global steel production in both comparison periods. However, the growth rates in the individual sectors are also remarkable here. The EU recorded growth

of 100% in welded tubes > 406, while Japan stagnated in this area and the CIS (GUS) states even produced 45.2% less. China's enormous growth figures have now been put into perspective. With overall growth in steel production of 11.5%, a recovery appears to be taking place there too. Growth is being recorded worldwide in all of the areas mentioned.

Total in Tto.



	seamless tubes			welded tubes <406		welded tubes>406			welded tubes			TOTAL			
Region/ country	1H/22	1H/23	in %	1H/22	1H/23	in %	1H/22	1H/23	in %	1H/22	1H/23 i	in %	1H/22	1H/23	in %
EU	1.600	1.500	-6,3	3.700	3.600	-2,7	300	600	100,0	4.000	4.200	5,0	5.600	5.700	1,8
USA	1.200	1.400	16,7	4.300	5.100	18,6	700	900	28,6	5.000	5.900	18,0	6.200	7.300	17,7
Japan	600	600	0,0	1.800	2.000	11,1	400	400	0,0	2.200	2.400	9,1	2.800	3.000	7,1
GUS	2.300	4.100	78,3	3.100	1.700	-45,2	990	1.900	91,9	4.090	3.600	-12,0	6.390	7.700	20,5
India	500	500	0,0	900	1.000	11,1	1.100	1.200	9,1	2.000	2.200	10,0	2.500	2.700	8,0
China	13.100	14.400	9,9	24.300	27.200	11,9	4.300	4.900	14,0	28.600	32.100	12,2	41.700	46.500	11,5
Other	1.000	1.030	3,0	7.500	8.600	14,7	1.250	1.400	12,0	8.750	10.000	14,3	9.750	11.030	13,1
World	20.300	23.530	15 9	45.600	49.200	7 9	9.040	11.300	25.0	54.640	60.500	10 7	74.940	84.030	12.1



ITAtube Journal December 2023

Dr. Gunther Voswinckel, VOSCO GmbH

World Tube & Pipe Market: Factors influencing the current situation

Dr. Gunther Voswinckel - Update as per December 2023

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

The Russian invasion into the Ukraine in 2022 and its consequences are still creating major challenges for the industry. The war between Hamas and Israel recently started October this year is another new conflict threatening the world, since it has the potential to create a wildfire in Middle East with dramatic consequences for the world economy. Increasing tension between the US and China officials create further clouds for free international trade. Political interventions and regulations are increasingly influencing industrial strategies and actions.

The transition to environmentally friendly and carbon reduced production became a central mission of the industry. The consequences on the cost increases are unevenly distributed across the world. Europe is challenged by persistently high energy prices and levies on carbon intensive industries. Regions such as the USA, India, Turkey and China are benefiting from lower energy and industrial producer cost. Inflation is still relatively high and alarms our industry as well. The high level of public debt caused by the expensive measures taken to overcome the various crisis in recent years give rise to fears that the central banks' effectiveness in combating inflation will be limited and that little improvement can therefore be expected in the short term. All these unexpected challenges are difficult to manage.

As always in such disruptive times, we see crisis winners who maximise their

profits - but also crisis losers who must fear for their existence. Due to the dynamics of these developments, it is usually very difficult for the crisis losers to react appropriately. As a result, some regions are looking for suitable political countermeasures to compensate for their cost disadvantages.

Whereas previously only quality, delivery time and costs were decisive, now geopolitical and logistical risk considerations as well as current and future energy costs are increasingly taking centre stage. All sources of supply are being critically scrutinised, and one can only hope and warn that international trade will not suffer too much as a result. In particular, the regional differences in energy prices will have an impact on the current landscape of the energy-intensive steel and tube industry.

However, disruptive times also always create new opportunities for economic success. New markets such as carbon capture utilisation and storage (CCUS), new networks for hydrogen transportation, electromobility and productivity improvements at production sites as part of the transformation towards more environmentally friendly plants offer opportunities that should be seized.

The new conflict in middle east, the war between Hamas and Israel, still does not have significant impact on energy prices for oil and gas, anyhow analysts are concerned about possible upcoming consequences. The present price of natural gas is less than

3 USD/MMBtu, is about 1 USD higher than 2nd quarter 2023, but within the lower 10 years price corridor (Figure 1).

The European industry nowadays depends largely on imported LNG. Despite significant price reductions since January 2023, the present price of LNG of about 15 USD/ MMBtu (Figure 2) is still about 12 USD ore 5-times more expensive than natural gas. Similar effect can be reported from the electrical energy price, which in Europe is about 2-times higher than before the Ukraine war and about 2 - 3 times higher than electrical energy costs in the US or China (Figure 3). Germany, presently having the highest prices for electrical energy has just these days decided to reduce the relevant taxation to the European minimum, which results in a cost reduction of about -15 €/MWh.

Europe has established the ETS (Emission Trading System), to reduce CO2 emission by introducing levies on each tonne of emitted CO2. In addition, the CBAM (Carbon Border Adjustment Mechanism), was introduced as compensating levies on CO2 intensive goods imported from third countries outside of Europe. This system, characterised by punitive tariffs, ensures a certain equalisation of costs within Europe. However, as it raises the overall cost level for goods in Europe, it is leading to cost disadvantages for products that are exported outside of Europe.

In contrast, the USA has introduced an instrument with the introduction of the IRA (Inflation Reduction Act), which provides financial incentives for low-carbon investments. A climate protection package of 369 billion US dollars is providing tax credits for climate saving investments. The US IRA has created a boost of investments, whereas the European levies system did create irritations amongst investors and economic recession.

Therefore, the European energy intensive industry is confronted by a significant cost disadvantage. If no cheaper energy supply sources become available, this disadvantage remain as a major thread for the European energy intensive steel and tubular industry.

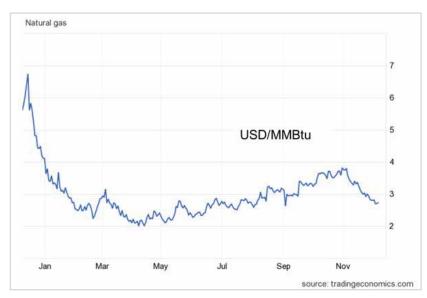


Figure 1: Natural Gas price development 1 year up to 6th of December 2023 (USD/MMBtu)
Source: Trading Economics.com

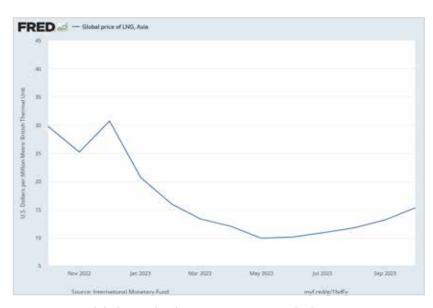


Figure 2: LNG Global Price development 1 year up to Oktober 2023 Source: International Monetary Fund, US Bureau of Labor Statistics

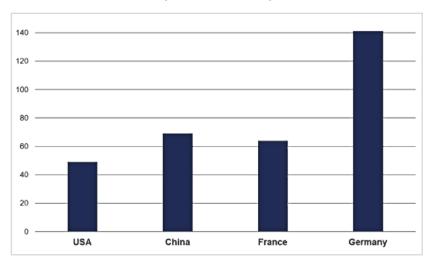


Figure 3: Selected cost of electrical energy as per Oktober 2023 in €/MMh Source: Statista.com

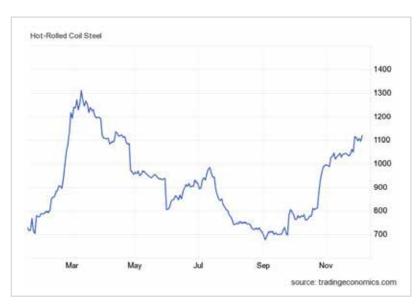


Figure 4: US Hot-Rolled Coil Steel prices 1 Year until December 2023, Source: tradingeconomics.com

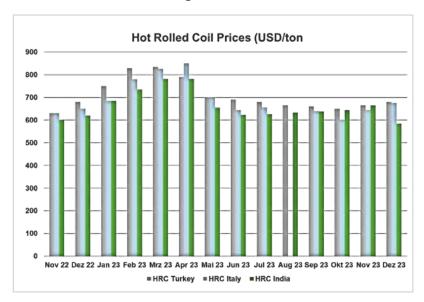


Figure 5: Hot-Rolled Coil Steel prices Turkey, Italy and India 1 Year until December 2023 Source: Kallanish.com

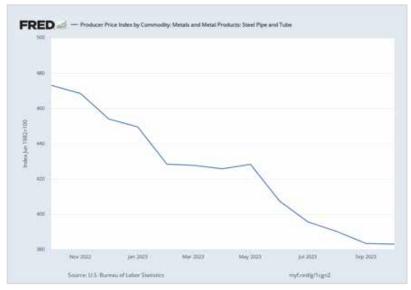


Figure 6: Average Steel Tube and Pipe Price Index Source: US Bureau of Labor Statistics

Pipe manufacturers buy hot-rolled coils, round billets, or plates as input material for their production lines. More than 70 % of the total world pipe production, i.e. about 110 million tonnes/year, are welded tubes and pipes. Welded tube producers are highly dependent on attractive hot rolled coil prices and large OD pipe (pipeline) producers, on plate prices. Average prices for hot-rolled coils in the US came down from March 2023 (ab. 1320 USD/ton) to September 2023 (ab. 700 USD/ton). Since then, the HRC prices strengthened again to prices of about 1.000 USD/ton. Furthermore, tube producers suffer from shortages in the availability of special tube material specifications. In comparison figure 5 shows the Hot Rolled Coil prices from Turkey, Italy and India. The volatility is much less and with about 600 - 700 USD/ton even structural pipes can be processed.

Steel plates are traded now in November 2023 for low grade plates at about 720 -750 USD/ton.

Billet prices, used for seamless tubes are traded for an average of around 475 USD/ton.

In 2023 almost all prices for tubular pre-materials were quite volatile. It remains a challenge to predict the pre-material prices.

After the pipe price rally until 2nd half of 2022 (prices went up by 50%), now since then, the price index for tubular products weakened by about 25% (Figure 6).

Even the booming US demand was reporting fading pipe prices. Until the beginning of October 2022, pipe prices in the US were holding at high levels, but in November fears were being voiced from many regions that demand for pipes is weakening, which had an immediate impact on prices. The decline in pipe demand and its negative impact on prices is now in some regions faster than the decline in prices for the input materials hot-rolled coils, plates and round billets. This challenges some pipe producers since they face margin losses.

Figure 7, shows the price development for two representative tube grades since June 2022:

- P110 OCTG O.D. 5,5" alloyed casing pipes
- S235 non alloyed structural pipe.

The OCTG pipe price for P110, after its hight in October 2022 (ab. 3.900 USD/ton) suffered a price decline of ab. 46% until November 2023 (ab. 2.100 USD/ton). The structural pipe S235 although on a much lower price niveau almost maintained its price level at ab. 800 USD/ton.

The world tube and pipe production after a slight downturn in 2022 of -3,1%, had an impressive recovery in 2023 1st half year extrapolated of about +15% (Figure 8).

Anyhow substantial regional differences are reported. CIS (+77%), the strong growth most likely due to compensation of imported pipes by local production. Remarkable is that contrary to the trend, the production of welded tubes < 406 mm OD was suffering by - 24% (Figure 9). USA (+18%) with strong growth in all dimensional segments driven by the strong economic situation (Figure 10). China representing more than 50% of the world tube production had a further gain of 13%, which is by far more than the overall economic growth in China (Figure 11). Just India had a downturn of 22% (Figure 12) which may be explained that the tube production in the second half of 2023 will be much higher than the production in the first 6 months of 2023. Similar effect was reported in previous years.

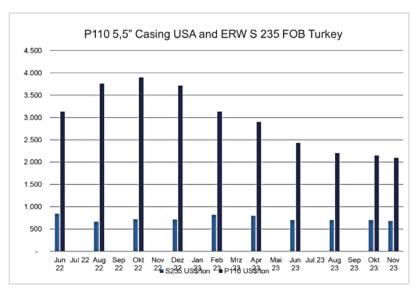


Figure 7: Representative Steel Tube and Pipe Prices (OCTG – P110 USA and Structural S235 Turkey)

Source: Kallanish.com

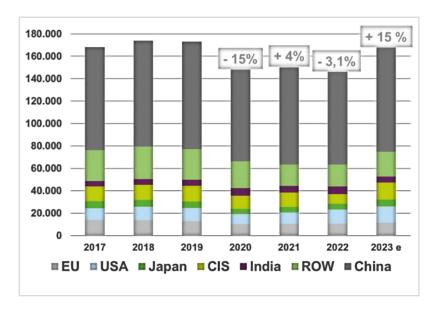


Figure 8: World Tube and Pipe Production 2017 – 2023 extrapolated 1st half year.

Source: Wirtschaftsvereinigung Stahlrohre e.V.

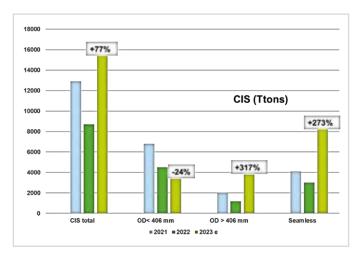


Figure 9: CIS - Tube and Pipe Production 2020 – 2023e Source: Wirtschaftsvereinigung Stahlrohre e.V.

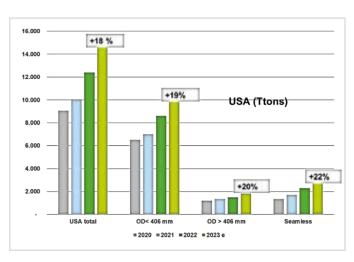


Figure 10: USA - Tube and Pipe Production 2020 – 2023e Source: Wirtschaftsvereinigung Stahlrohre e.V.

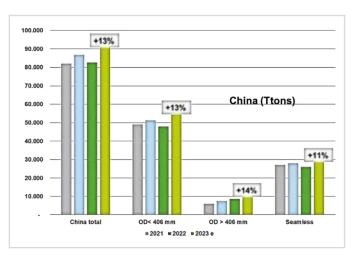


Figure 11: China - Tube and Pipe Production 2020 – 2023e , Source: Wirtschaftsvereinigung Stahlrohre e.V.

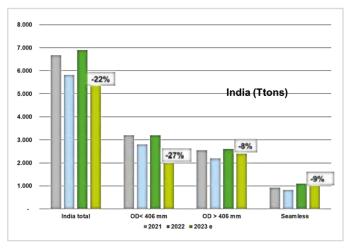


Figure 12: India - Tube and Pipe Production 2020 – 2023e Source: Wirtschaftsvereinigung Stahlrohre e.V.

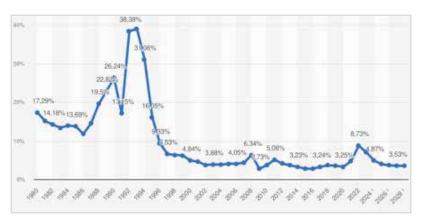


Figure 13: World inflation 1980 to 2028 projected Source: IMF/Statista.com

Europe has lost a significant amount of its production capacities this second half of 2023 due to Vallourec´s shut down of their major European production facilities, whose capacities need to be replaced by others as far as technically possible. Some tube customers do have problems for adequate replacement.

Inflation rate, which was considered as a major thread to economic growth seems to calm down in most parts of the world. The affords of the central banks, especially these of the US FED, has stopped the galloping inflation and reversed the trend. Due to the high indebtedness of the central banks, however, it must be feared that the target inflation of 2% will not be reached for some time yet (Figure 13).

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Besides the inflation rate, the producer price index is another important parameter for the economic efficiency, as it reflects the costs of the manufacturing industry. As Figure 14 shows, these costs vary greatly from region to region. Europe and the USA have aligned to a similar level due to the falling energy costs in Europe. China's cost situation is still particularly advantageous with an advantage versus Europe and the USA of about 25%. Japan as well has an advantageous situation in comparison to the USA and Europe of about 16%. Labour unions in the USA and Europe are currently concluding their wage rounds with significant wage increases, meaning that further increases in producer prices are expected. In Europe, the high energy prices must also be taken into account if these cannot be significantly reduced in the short term.

The major driver of the tube and pipe industry is the OCTG market representing about 51% of the world tube and pipe production. The consumption of OCTG tubes directly relates with the oil price (see previous tube market reviews). OPEC+ during the past months have tried to keep the oil price at a minimum level of 90 USD/Bbl. by voluntary supply cuts of Saudi Arabia and Russia. The USA on the other hand tried to balance the possible supply shortages by additional own supplies and cancelling Venezuela's oil embargo. These measures kept the Oil price mostly under 80 USD/ Bbl. (Figure 15). Therefore, under normal conditions, the World Bank projects the oil price to stay at maximum of 90 USD/Bbl. in 2023. In 2024 the projection is even lower at about 80 USD/Bbl., as global economic slows and if e.g. Venezuela will restart their idled equipment that remains in place across the country's oil fields. This projection only applies if the war between Israel and Hamas remains local.

World Bank on the other hand sees significant influence on the oil price if the Hamas-Israel war would escalate into a Middle East wide conflict disrupting the oil supplies.

Oil prices could soar to a record high of more than \$150 a barrel if the war between

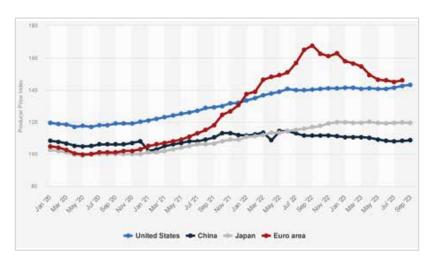


Figure 14: Growth rate of the producer price index in selected countries January 2020 to September 2013
Source: Trading Economics/Statista.com

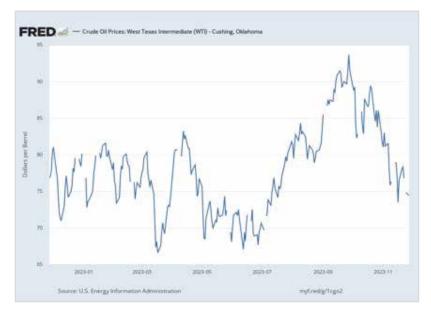


Figure 15: Oil price WTI development 1 year up to 27th of November 2023 (US\$/Bbl)

Source: US Energy Information Administration

Israel and Hamas leads to a repeat of the full-scale conflict in the Middle East as witnessed 50 years ago, the World Bank has warned. In the first major assessment of the economic risks of an escalation of the war beyond Gaza's borders, the World Bank said there was a risk of the cost of crude entering "uncharted waters".

A scenario comparable to the Arab oil boycott against the West in 1973 would lead to supply bottlenecks that would cause the price to rise from around 90 dollars to between 140 and 157 USD/Bbl. The previ-

ous inflation-adjusted record price was 147 USD/Bbl. in 2008.

"The latest conflict in the Middle East follows the biggest shock to commodity markets since the 1970s - Russia's war with Ukraine," said Indermit Gill, chief economist at the World Bank. "This had a disruptive impact on the global economy that continues today.

"Policy makers will need to be vigilant. If the conflict escalates, the global economy will face a double energy shock for the first

US Rig Count by Major Basins

1200
1000
800
400
200
2018 2019 2020 2021 2022 2023

Cana Woodford DJ-Niobrara Eagle Ford Haynesville Marcelus Permian Williston Others

Figure 16: US Total Rig Count 5 years up to November 2023 Source: OilPrice.com

time in decades - not only from the war in Ukraine, but also from the war in Middle East."

In its assessment, the bank explained that the war between Israel and Hamas has so far had little impact on prices. Oil prices have risen only by around 6 per cent.

However, three alternative paths for oil prices have also been outlined:

A "minor disruption" scenario in which global oil supply would be reduced by 500,000 to 2 million Bbl./day, roughly equivalent to the decline during the Libyan civil war in 2011. The oil price would rise to a range of 93 to 102 USD/Bbl.

A "medium disruption" scenario, roughly equivalent to the Iraq war in 2003, in which global oil supply would be reduced by 3 to 5 million Bbl./day. Oil prices would initially rise by 21% to 35% to between 109 and \$121 USD/Bbl.

The scenario of a "major disruption" - comparable to the measures taken during the 1973 Yom Kippur War - in which the global oil supply would shrink by 6 to 8 million Bbl./day, leading to a price increase of 56 % to 75 % to 140 to 157 USD/Bbl.

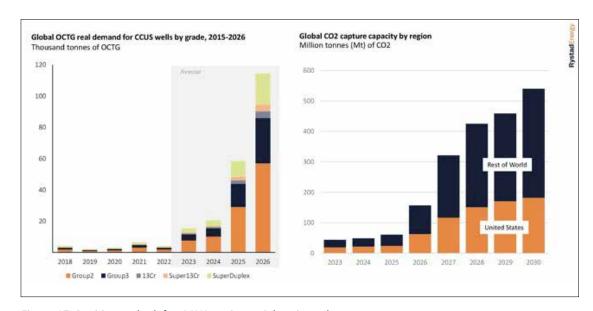


Figure 17: Positive outlook for CCUS projects, tightening tube supply in high alloy tubulars
Source: Rystad Energy.com

The 1973 oil embargo led to a sudden four-fold increase in crude oil prices and ushered in the higher inflation and rising unemployment that ended the long postwar boom in the global economy.

The USA to soften the inflation and to sacrifice the crude oil demand enlarged its crude oil production almost linear from 12 Mio. Bbl./day in September 2023 to 13,4 Mio. Bbl./day in November 2023 (+12%) by increasing the number of drilling rigs.

The number of US drilling rigs was enlarged to about 800 by December 2022 (Figure 16). In 2023 due to declining oil prices, the number of rigs was reduced again to 618 rigs. Of these 618 rigs, 496 are dedicated for the extraction of oil and 118 for gas. Furthermore, the USA has relieved the oil export sanctions on Venezuela. Nevertheless, the US oil exports have reached a new all-time high with about 5,5 million Bbl./day.

Efforts to reduce dependence on fossil fuels can hardly be successful in the short term and can only contribute to decoupling in the medium term. For our pipe industry, however, this means that high energy prices can be expected in the future as well - prices around 80-90 USD/Bbl. are most probable. The investments to secure the energy supply will keep the demand and prices for tubular products high.

Another driving factor is the record high global LNG export rate. Katar, the USA and Australia have record high LNG production. Consequently, the demand for OCTG products remain high and it eases the energy crisis especially in Europe to compensate the stopped Russian pipeline gas supplies.

Carbon Capture Utilisation and Storage (CCUS) is an upcoming interesting market for higher alloyed tubes. In CO2 capture and sequestration, carbon dioxide is separated from combustion gases and then stored indefinitely in deep underground layers of rock without a container. For deep drilling and transportation of CO2 into these deep underground layers of rock, increasing volumes tubes and pipes

are required. USA, China and Middle East are the centres for developing following this technology (Figure 17). CCUS refers to a suite of technologies that can play an important and diverse role in meeting global energy and climate goals.

In addition to exploration activities, the need to build new pipeline routes has also increased since the ban on Russian pipelines to Europe and the strategy towards hydrogen to replace natural gas. In the wake of the attacks on the Northstream pipelines, which released very large quantities of methane as an environmental load, it can be expected that the safety standards for pipelines will become even more demanding. Globally a large quantity of pipelines is planned or announced to be built in the coming years up to 2027 Globally a large quantity of pipelines is planned or announced to be built in the coming years up to 2027

A new market for hydrogen pipelines is upcoming (Figure 18). Particularly the US and Europe expect major growth in this segment. This development offers manufacturers of large-diameter pipes > 406 mm OD opportunities for interesting future business.

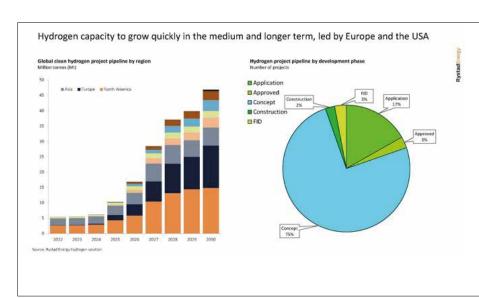


Figure 18: Global planned and announced hydrogen pipeline projects (2022-2030) Source: Rystad Energy.com

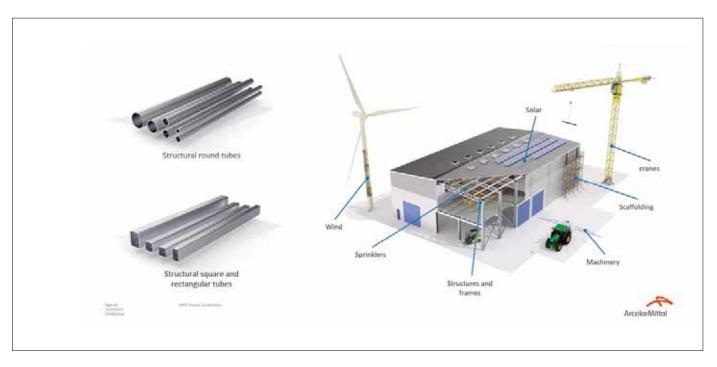


Figure 19: Low-carbon emission tubes in sustainable engineering Source: ArcelorMittal

The global construction market with about 5% of the global tube market presents another opportunity for pipe manufacturers with growth potential. Figure 19 shows a variety of applications for structural tubes.

The market penetration of structural tubes is quite unevenly distributed in the world and the growth pattern is greatly dependent on the regional GDP growth. Present high interest rates and cost increases due to inflation are temporary slowing down the market potentials. In mid-term anyhow this market segment will offer further interesting opportunities.

North America and parts of Asia are widely using tubular products for structural buildings. Europe on the other hand still designs mostly with standard concrete or steel structures. A recent study published by Global Construction Perspective and Oxford Economics, entitled "Global Construction 2030", forecasts an 85% growth in global construction output to 15.5 trillion by 2030, with three countries, China, USA and India, leading the way and accounting for 57% of global growth alone. Europe, on the other hand, will reduce its pace of invest-

ment. There is room for additional production capacity for structural tubes, especially in India, to follow the market trend. The tube industry needs to further promote the benefits of tube applications and showcase the architectural perspectives.

Tubular profiles are an ideal choice when visible structures are desired due to their varied shapes and closed cross-sections combined with smooth sides. Best mechanical properties and the possibility to bridge large spans are further highlights of tube profiles. Besides round shaped structural tubes, rectangular profiles are dominating architectural applications. Such profiles are normally cold rolled and formed in so-called turks-heads. In this process great attention must be given to the metallurgical properties of the edges. Normally unalloyed steel is applied, anyhow alloyed steels with its improved material properties should also be considered. Regarding the CO2 footprint tubular profiles are of great advantage, since the applied steel can be produced from metal scrab in electric arc furnaces driven by green electrical energy.

The automotive market, which accounts for around 15% of the global pipe market. With most car manufacturers and many of their suppliers now reporting that their production capacity is either no longer constrained by semiconductor shortages, overall car

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sales figures are rising - with global deliveries expected to reach 85.5 million units by the end of the year.

As the macroeconomic outlook for the automotive industry deteriorates, a modest return to growth in new car sales of private and commercial vehicles is expected over the next two years. ABI Research forecasts global vehicle sales growth of 5.1% in 2023 and 3.6% in 2024. Furthermore, car manufacturers can expect sales to exceed the 90 million units level again in 2025 (Figure 20).

In terms of regional growth in vehicle sales, the following chart summarises this findings. The forecasts for 2023 are much more favourable for car manufacturers. Sales in North America will increase by 6%, in Western Europe by 6.2% and in the Asia-Pacific region by 4.3%.

According to IHS, the recovery process in the volume markets of Europe and North America anyhow will take longer. Future growth will primarily take place in Asia, particularly in China. However, China could increasingly become a sales problem for the western automotive industry due to the American decoupling tendencies and the strengthening local car industry in China.

However, the tendency to further reduce the weight of vehicles supports the trend towards the use of tubular products. The transition to electromobility can also support the use of tubular components, as the additional weight of the batteries must be compensated for as far as possible. The automotive industry offers many attractive applications for tubular products.

The greatest potential for the use of tubular products is seen in the vehicle frame, followed by the chassis and powertrain. Tube manufacturers will endeavour to enter new vehicle series with larger quantities in order to further expand their presence in the light vehicle industry.

Overall, the automotive industry faces the challenge of the transition to electromobility and the question of how it can continue to serve markets in which electromobility

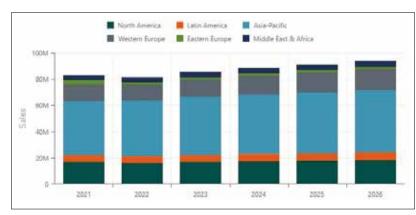


Figure 20: Global vehicle sales volume 2021-2026 (million units) Source: ABI Research (MD-MOBI-108)

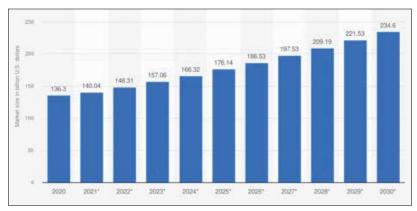


Figure 21: The Global construction equipment Market in USD (2020-2030) Source: Statista.com/GlobeNewswire/Precedence Research

cannot be introduced due to restrictions in the availability of electrical energy. Car manufacturers must therefore pursue all drive technologies to avoid losing major market potential. Environmentally friendly combustion technologies will continue to have their place. Political institutions, such as those in Europe, on the other hand, are setting deadlines to ban combustion technologies including green fuels. In this area of conflict, the automotive industry, including its suppliers of tube products, must find suitable business approaches.

The mechanical engineering market segment, which accounts for around 9% of world pipe production, has developed well in line with global GDP in recent years (Figure 21). During the financial- and corona crisis, the market was characterised by higher volatility with sharper declines and quick recoveries. In 2022, the current further recovery was slowed

down by geopolitical circumstances. Asia, and China in particular, although increasingly reaching self-sufficiency are still the largest markets for machinery purchases. It remains noteworthy that the Chinese industry has taken the global lead in machinery sales since the Corona crisis.

Here, the decoupling intentions of the USA must be observed since this may become a game changer for the worldwide mechanical engineering industry. The USA and Europe continue to be significant sales regions as well. This market segment certainly has the greatest variety of tube products. Cylinder-, ball bearing- and turned part tubes, to name just a few prominent representatives of this market segment, certainly show interesting prospects for tube producers.

Most tube and pipe producers were able to report strongly improved economic figures in 2022. However, for European pipe producers, the persistently higher energy cost and the additional CO¬¬2 levies agreed to be imposed by the European Community represent major challenges. Confidence in being able to compete on the world market in the future with these additional costs is dwindling among some tube producers. Some tube producers even reduce their engagement in Europe as a consequence hereto.

New upcoming market segments such as carbon capture utilization and storage as well as hydrogen pipelines will start requiring larger tonnages of alloyed tubes and pipes in 2025 and thereafter. 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 early 2023. Still markets are nervous with potential for further volatility.

Further challenge may be imposed, if political measures to prevent climate change are not introduced in a balanced way, 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 is restored, price volatility can be expected to calm down.

Geopolitical turbulences are increasingly taking effect on market developments and consequently strategic planning including risk management becomes more demanding.

The transition towards environmentally friendly tube production to produce carbon reduced tubes and pipes became increasingly a major task for the industry. Tube and pipe producers are converting their production facilities from gas to electricity. Simultaneously they improve their productivity, flexibility and customer service. Innovative instruments such as Artificial Intelligence (AI) and Industry 4.0 are introduced in this context.

Many technology suppliers have already reacted and enhanced their product portfolio with the addition of environmentally friendly and digital solutions.

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ArcelorMittal

ArcelorMittal launches the industry's first low-carbon emission steel tubes, with a CO2 emissions reduction of up to 75%

The tubular solution aims to help companies in the construction, agriculture, and energy sectors in their decarbonisation journey to achieve the climate goals outlined in the Paris Agreement and the European Green Deal.

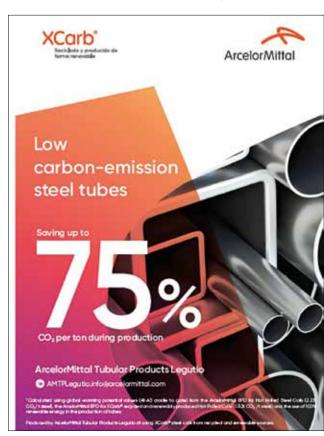
ArcelorMittal, the world's leading steel and mining company, announced in July of this year the launch of new, low carbon-emissions steel tubes; This new solution, made of XCarb® recycled and renewably produced steel, has up to 75% less CO2 equivalent - one of the highest CO2 emissions reductions rates in the steel tube industry. Using XCarb® recycled and renewably produced steel tubes allows customers to reduce the global CO2 footprint of their projects, products, and finished goods to meet their own decarbonisation targets and align with the Paris climate goals and the European Green Deal.

Steel tubes are widely used in various structural applications such as building frames and sprinklers, solar structures, windmills, scaffolding, or machinery. ArcelorMittal Europe -Tubular Products is the largest producer of steel tubes, manufactured at its 15 sites in Europe. stands at the side of its customers to take part in this transformation.

ArcelorMittal Europe – Tubular Products is now able to produce and offer the first low-carbon emissions hollow structural sections using XCarb® recycled and renewably produced steel. This label is applied to steels produced in an electric arc furnace (EAF) using high levels of scrap and 100 percent renewable electricity. The electricity used comes from renewable sources such as wind and solar and is supplied via a recognised Guarantee of Origin (GoO) scheme.

To calculate the total CO2 impact of its low-carbon emission steel tubes, customers can use the figures reported in the Environmental Product Declaration (EPD). EPDs are publicly accessible documents based on a Life Cycle assessment methodology and independently certified by a third party.

Commenting on the launch, Tanja Mantere, (Chief Executive officer of Tubular Products) said: "With this new tubes we are realizing our vision as the leading provider of low-carbon tubular solutions. Our pioneer-



ing initiatives towards a more sustainable steel and tube manufacturing industry are actions we can all be proud of. At Arcelor-Mittal Europe -Tubular Products, we continue to support our customers in further



driving the industry's sustainability into the future".

ArcelorMIttal believes that steel has a critical role to play in helping society to decarbonise. As the world's leading steel company, we have a significant responsibility to innovate, implement and navigate a successful pathway toward a cleaner steelmaking industry.

About ArcelorMittal Europe – Tubular Products

ArcelorMittal Europe - Tubular Products is a pan-European producer and leading global supplier of pipes and tubes. With manufacturing operations in six countries, 15 strategically located production sites, and a robust distribution network, we deliver our comprehensive range of tubular products across Europe and major international markets.

Active in many sectors like energy, construction, automotive, mechanical engineering, yellow and green goods, and agriculture, we offer an extensive portfolio of tubular solutions that cover the full

spectrum of customer needs. ArcelorMittal Europe -Tubular Products stands at the forefront of the industry, offering one of the widest ranges of steel solutions available. Our product range includes seamless and small welded tubes (including precision and CDW), complemented by various processes and finishing options such as ERW, HFI, galvanized, coated laser cutting, and tube bending.

For more information about ArcelorMittal Europe Tubular Products, please visit https://tubulareurope.arcelormittal.com/

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ITAtube Journal December 2023

Boehlerit GmbH & Co KG

WeCare - lived sustainability of the sister companies Leitz, Boehlerit and Bilz entered its second round with great success



The employees of the three Brucklacher Group companies - Leitz, Boehlerit and Bilz - have written another successful chapter in the history of sustainability with great commitment, enthusiasm and fantastic contributions as part of the WeCare Action Weeks 2023. It is part of the self-image of the three sister companies and their workforces to conserve resources, treat the environment responsibly and do

their bit for society. The employees once again demonstrated this in an impressive way with a wide range of activities

WeCare is a global initiative of the companies Leitz, Bilz and Boehlerit, which brings together the worldwide activities of the Brucklacher Group in the areas of society, social affairs and culture as well as species, nature and environmental protection, some of which have existed for decades. (Photo: Leitz/Boehlerit/Bilz)

during the second WeCare Action Weeks that recently took place.

The global WeCare initiative bundles the family-owned company's local activities in the areas of humanitarian and social commitment as well as species, nature and environmental protection, some of which have existed there for decades. In order to bring the momentum of WeCare and the team spirit to life for the workforce, the WeCare Action Weeks have been held annually at the Brucklacher Group's locations worldwide since 2022. This year's action weeks far exceeded expectations.

Joint successes during the WeCare Action Weeks 2023

In 33 countries, 1,900 employees volunteered more than 4,300 hours in the service of a good cause. Among other things, 3.3 tons of donations in kind were collected around the globe, 99 liters of blood were donated, 3,700 m² of flowering areas were created and 2,430 trees were planted. Other projects of the successful initiative included the construction of 240 insect hotels, nesting boxes and feeders for birds and small wild animals as well as the establishment of 8 additional bee colonies on the company premises. In addition, 1.8 tons of CO2 were saved by traveling to work without a car and by eating meatless meals. In addition, many helping hands removed 2.5 tons of waste from the environment and waterways. In total, we succeeded in generating donations and financial contributions of around € 83,000, which were used to support local and national organizations and projects. As a result, around 50 social and charitable institutions received donations.

22

Living the corporate philosophy

The shareholder and the management of Leitz, Boehlerit and Bilz were impressed by the enormous employee participation in the second WeCare Action Weeks and the worldwide enthusiasm in the implementation of the heart projects.

Dr. Cornelia Brucklacher, Chairwoman of the Supervisory Board and shareholder, sums up her self-image as a family business owner and her enthusiasm for the WeCare campaign weeks as follows: "As a family business, we take responsibility in society and feel that we share responsibility for the sustainable development of our environment across generations. We continuously express this worldwide through our actions and numerous activities. Sustainability is therefore a core component of our corporate philosophy. The extraordinary commitment and exemplary actions of our employees fill me with great joy, gratitude and pride. Together, they have once again left a very special mark on their environment in 2023 as part of WeCare."



Removing garbage from the environment and water was once again an integral part of the global WeCare initiative. (Photos: Leitz/Boe-hlerit/Bilz)

SCX Synchro Tapping Chuck Ingel ber shaping We Care E

Collections and donations were once again made for people in need as well as charitable organizations. (Photos: Leitz/Boehlerit/Bilz)

Boehlerit GmbH & Co. KG

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Boehlerit GmbH & Co KG

Boehlerit Oberkochen celebrates its 25th company anniversary

At the end of June, the carbide pioneer Boehlerit from Kapfenberg/Austria celebrated the 25th anniversary of its German production company in Oberkochen. As part of the celebrations, a tribute was also paid to long-serving employees.

Cutting material and tool specialist Boehlerit ensures process reliability and efficiency worldwide with cutting materials, semi-finished products and precision tools as well as tool systems for milling, turning, drilling and forming. The company, which was founded in 1932 and has been family-run since 1991, is part of the Brucklacher Group, which Boehlerit forms together with the two other legally independent sister groups - Leitz and Bilz. The Boehlerit Group employs over 800 people worldwide at three production sites and international sales companies.

The Oberkochen production site, which specialises in the manufacture of high-qual-

ity wear products, celebrated its 25th anniversary on 30 June 2023 with its workforce and numerous invited guests. The high technical requirements and the tight deadlines of the tool manufacturer Leitz from Oberkochen to deliver profile tools for hard machining express in a maximum of five days led to the establishment of the carbide production in Oberkochen in 1998. Boehlerit has now had one of its production sites in Oberkochen for a quarter of a century and has built up an outstanding reputation for its high-quality products.

The anniversary celebration took place in the festively decorated Ölweihersaal at the Leitz company and gave the guests the opportunity to experience the history and development of the company at first hand. The Sales Manager of Boehlerit Germany, Mr Thomas Renfordt, welcomed the guests. In his subsequent speech, the Managing Director of Boehlerit, Mr Johann Werl from Kapfenberg, emphasised the significance of the anniversary and highlighted historical





aspects. At the same time, he underlined Boehlerit's future viability in his outlook. The company plans to further expand its position in the market and offer new innovative solutions for the industry. With a strong team and a clear vision, Boehlerit is ready to successfully shape the next 25 years.

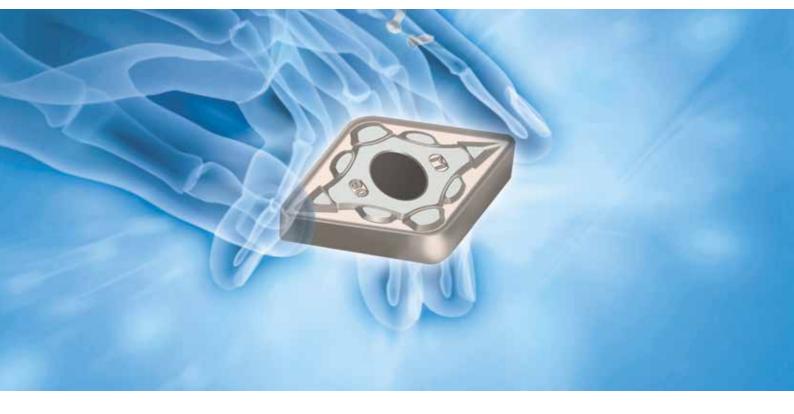
The Chairwoman of the Supervisory Board and shareholder, Dr Cornelia Brucklacher, expressed her sincere thanks to all those who are or have been involved in the success of Boehlerit in Oberkochen to date and wished the company continued success and innovative strength. Further words of welcome were spoken by Mr. Jürgen Köppel, Managing Director of the Leitz company, Mr. Michael Voss, Managing Director of the Bilz company and the Mayor of Oberkochen, Peter Traub. In his remarks,

the mayor emphasised the importance of the company for the local economy and acknowledged its contribution to the creation of jobs and the promotion of industry in the region.

One of the highlights of the celebration was the honouring of the long-serving and deserving employees who have been working in Oberkochen since the subsidiary was established. The long-serving employees Viktor Heck, Siegfried Hübenthal, Alexander Kling, Andreas Kölzer, Georg Kuss, Kai Lippik, Roswitha Müller, Viktor Pister, Wolfgang Prickler, Rainer Rösgen, Hans-Peter Röttinger and Bernd Sauter received a personal award and were recognised for their many years of loyalty to the company.

Boehlerit GmbH & Co KG

Boehlerit - Your partner for machining of titanium materials



The BCS10T inserts from Boehlerit for machining of titanium materials enable cutting data to be adjusted by around 25%. In practice, tool life increases of up to 40% are achieved.

More and more high-performance materials such as Inconel, Hastelloy, Waspaloy or titanium are being used to replace traditional materials in many technical areas. These special materials are mainly used in the aerospace and automotive industries or in medical technology. However, they are considered difficult to machined and require special tools and inserts for turning and milling. Boehlerit has been successfully active in corresponding high-tech areas for many years. With the BCS10T (ISO-S10) grade, Boehlerit offers an excellent solution for turning of titanium materials. Until now, mainly uncoated K10 inserts have been used for machining of titanium materials. For the development of the BCS10T, a

selected K10 fine grain substrate was also chosen as carbide. This carbide substrate is particularly temperature-stable and has a low tendency to plastic deformation. In addition, Boehlerit uses a special coating a 3 µm thin TiB2 layer, which is deposited using the latest PVD processes, making it even more temperature and oxidation resistant and with a low tendency to stick. A factor that is essential for machining of titanium materials. Boehlerit's engineers have also developed a special chip former MT (medium titanium), which is used in the BCS10T grade. With a sharp cutting edge, this chipforming geometry ensures reliable chip breaking for medium and light roughing. For smaller ISO plates, the MT chipbreaker can be used in a feed range of 0.2 - 0.45 mm/rev. The combination of carbide, coating and chipbreaker MT in the grade BCS10T leads in practice to an increase in tool life of up to 40 %.

These groundbreaking developments are particularly suitable for use in special niches to machine unalloyed titanium grades such as Ti (ASTM1-11), α -alloys or α + β -alloys (e.g. Ti-6Al-4V) with a high degree of reliability. In addition to further innovations in the areas of carbides and coatings, the experts of Boehlerit in Kapfenberg are increasingly working on the development of new geometries for machining of special materials.

The company

As a carbide pioneer, the Boehlerit Group is one of the world's leading manufacturers of wear protection solutions and cutting tools for machining metal and composite materials. With cutting materials, semi-finished products, precision tools and tool systems for milling, turning, grooving and forming,

the family-owned company has been ensuring process reliability and efficiency worldwide since 1932. Around 800 employees offer customers comprehensive knowhow in all aspects of metallurgy in order to be able to realise process-optimised manufacturing technologies, the highest quality and an edge in tool productivity. With three production sites in Europe and Asia, international subsidiaries and a network of sales partners, the carbide and tool specialist has a global presence. Together with its two legally independent sister companies Leitz and Bilz, the Boehlerit Group forms the globally active Brucklacher Group, in which over 4,000 employees generate an annual turnover of around 450 million euros.

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Bültmann GmbH

Efficient completion in the tube mill sector



Whether welded or seamless tubes - BÜLT-MANN finishing lines are the optimal addition for both products.

The highly productive lines, which can be operated with very little manpower due to their high degree of automation, are equipped with state-of-the-art BÜLTMANN components in the areas of oiling, pointing, drawing, straightening, cutting, chamfering, NDT-testing and packaging. Quality "Made in Germany" machinery and know-how from 50 years of experience are a guarantee for highest product quality, which is necessary to supply e.g. the automotive sector.

BÜLTMANN finishing lines are individually tailored to the respective customer requirements and conditions on site and are designed to meet the performance requirements.

Tube size ranges from 5 - 250 mm can be covered with the modular components. Combined with state-of-the-art, user-friendly control and visualization systems, the lines guarantee success in modern tube production and also meet increasing quality requirements.

The entire production process can of course be tracked and documented with practice-oriented "Industry 4.0 intelligence".

Please contact us for further information.



Bültmann GmbH

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info@bueltmann.com www.bueltmann.com Inductotherm Heating & Welding Ltd

Angle Ring Goes Digital with the Radyne TDi Induction Power Convertor.

Inductotherm Heating & Welding are pleased to announce the completion of commissioning at Angle Ring - Tipton of a new 560kW Radyne TDi Power Convertor on their largest induction bending machine. Angle Ring specialises in bending and curving metal and alloys, including intricate curved sections, bars and tube to improve the metal fabrication process, with the largest bending line accommodating 36 inch pipe. The TDi range of induction power converters offer a wide selection of power and frequency combinations with digital controls. They incorporate the latest technology ensuring the highest efficiency, flexibility, and operational reliability suitable for the most challenging climatic and industrial environments.

Radyne is the leading brand in the design and manufacture of high quality, accredited induction solutions, covering a wide range of induction heating and coating of pipe (both offshore and onshore) throughout the oil and gas sector. Their induction systems can also be found in Wire production facilities and are utilized globally in a variety of heating applications.

Established in 1951 by Frank Barnshaw, Angle Ring celebrates over 70 years in business as one of the largest metal and alloy bending companies in the world. As a third generation, family-owned business, Angle Ring take great pride in offering a high quality, personal service to all their customers. They are proud to offer the UK's largest steel bending range from their single site production facility in Tipton, West Midlands, and are a key part of the supply chain for a wide range of key industry sectors in the UK and abroad.

This new installation was to replace an existing Radyne converter installed over 20



years ago and bolsters the already strong relationship between Inductotherm Heating & Welding and Angle Ring, as well as their continued utilisation of Induction Technology spanning back to the 1990's.

Daniel Barnshaw, Managing Director at Angle Ring comments: "We are thrilled to announce the successful commissioning of the new 560kW Radyne TDi Power Converter. This state-of-the-art digital induction power converter marks a significant milestone for our company as we continue to embrace the latest technological advancements in metal bending and fabrication."

"Angle Ring has been a trusted partner of Inductotherm Heating & Welding for decades, and this installation further strengthens our longstanding relationship. The Radyne TDi range offers efficiency, flexibility, and operational reliability, making it ideal for our demanding industrial environment and enhancing our capabilities to enable us to deliver even more intricate curved sections, bars, and tubes."

"We are committed to being at the forefront of our industry, and this investment in advanced induction technology demonstrates our dedication to delivering innovative solutions to our clients. We look forward to leveraging the capabilities of the Radyne TDi Power Convertor to further expand our reach and meet the evolving needs of our customers in the UK and abroad."

Steve Short, Sales Manager at Inductotherm Heating & Welding comments: "The Inductotherm team have been particularly pleased to deliver and commission the new Radyne convertor to the customer, in a very short lead time. Building long-term relationships with our customers is one of the key factors to our success within our industry, in addition to proving energy efficient, cutting edge engineering equipment and solutions.

The Inductotherm Heating & Welding service and spares departments will continue to provide Angle Ring with the same

level of support during the life of all their Radyne induction heating systems and as our systems are built to last, we look forward to another 20 years of continued rapport."

Inductotherm Group offers advanced technology for the engineering, manufacturing and service of thermal processing equipment used in the melting, heating, heat treating, forging, galvanizing, coating, cutting and welding of metals. Bringing together 40 companies with 38 manufacturing facilities located in 23 countries, Inductotherm Group delivers innovative products throughout the world. Customers rely on Inductotherm, Banyard, Inductoheat, Thermatool, Radyne, Consarc and other trusted brands in the Inductotherm Group to provide outstanding equipment and services.

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+++TheITAonsocialmedia.LikeonFacebook. Link up on LinkedIn. Connect on Google+. Use our platforms to further your business connections. Get networking! +++ KOCKS Measure + Inspect GmbH & Co. KG

New generation of laser-based measuring systems - KOCKS and LAP announce far-reaching strategic

alliance

KOCKS Measure + Inspect GmbH & Co. KG and LAP Measurement Technology GmbH have announced a far-reaching strategic cooperation. The cooperation includes the joint development and marketing of the latest generation of laser-based measuring systems. Under the name "4D EAGLE S", the companies will present a hybrid measuring device offering bar steel producers a comprehensive profile measurement and surface inspection solution.

The 4D EAGLE S uses advanced laser technology to accurately detect and classify various rolling defects. At the same time, the complete contour of the long products is measured. Users can access state-of-theart software tools for the detailed analysis of the collected data on the surface and profile. "The teams in rolling mills benefit from far-reaching transparency and the opportunity to optimize process and product quality sustainably," states Fabian Beck, Director Global Sales at LAP Measurement Technology.

The two partners are pooling their extensive know-how as part of the cooperation. LAP has been leading in the field of laser measurement systems for the steel industry for decades. KOCKS, contributes its expertise as a specialist in 3-roll technology for precise special bar quality production. "Thanks to the synergies we have tapped, the 4D EAGLE S measuring device comprehensively meets the high requirements of modern rolling mills and stands out from existing solutions," emphasizes Dr.-Ing. Santino Keusemann, General Manager



The 4D EAGLE S comes as a comprehensive solution for surface inspection and profile measurement.

of KOCKS Measure + Inspect GmbH & Co KG. Two initial systems were successfully installed at a well-known German steel producer even before the official market launch.

More information: www.4d-eagle-s.com

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kmi@kocks.de https://www.kocks.de

Magnetic Analysis Corporation

Magnetic Analysis Corp. Announces
New CEO

Magnetic Analysis Corp., a global leader in instruments and systems for the non-destructive testing of metals, is pleased to announce the appointment of Daniel Lawrence as President and Chief Executive Officer effective November 6th, 2023. Just the fifth leader in MAC's 95-year history, Dan will succeed President Dudley Boden, who announced his intent to retire in June, 2024. Dudley will remain a Director of MAC and will assist in the transition.

Dan comes to MAC from his current role as General Manager of the Optical Components Business of MKS Instruments in Franklin, MA. Previously, Dan was a Vice President and General Manager of the Stellite, Conforma Clad and Advanced Materials Systems businesses within Kennametal and spent a decade as a Division Vice President and Business Unit Manager for the Precitech and TMC business units within AMETEK. Early in his career, Dan received management and executive training at both Danaher and GE. Dan received his BS and MS in Chemical Engineering from Clarkson University, studied law at Boston University and received an MBA from Southern New Hampshire University.

Robert Gould, Chairman of the Board of Directors, commented, "Dan comes to MAC at an exciting time. We emerged from the pandemic stronger than we were at the start and currently enjoy one of the largest order books in our company's history. We are confident that Dan can help us build on our solid foundations and accelerate our growth. At the same time, I would like to express our grateful appreciation for the steady stewardship that Dudley Boden has provided as President over the past seven years and the contributions he has made over his entire 22- year career at MAC."

Magnetic Analysis Corporation (MAC®), headquartered in Elmsford, NY, USA, with manufacturing facilities in Boardman,



Daniel Lawrence, President & CEO, Magnetic Analysis Corp.

OH and Östersund, Sweden, has been advancing the science and technology of non-destructive testing for 95 years. MAC is recognized as a premium source for eddy current, electromagnetic, flux leakage and ultrasonic inspection systems for testing metals. Dedicated to a production-oriented approach, MAC offers individual instruments as well as automated systems that incorporate materials handling and controls. With over 40 Field Engineers and Representatives, based in 25 countries, MAC partners with its customers to ensure superior technology, reliability and a thorough understanding of the customer's product, specifications, and in-plant conditions.

Magnetic Analysis Corporation

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info@mac-ndt.com www.mac-ndt.com ASMAG-Anlagenplanung und Sondermaschinenbau GmbH

ASMAG continuous growth course: acquisition of a German traditional company strengthens position in the industry

The Austrian specialist in mechanical engineering, ASMAG, aquires the German company REIKA, thus pushing forward with its expansion course.

The family-owned company ASMAG, located in Scharnstein, Upper Austria, is taking over the German REIKA. The acquisition represents a significant step in ASMAG's expansion strategy and opens up exciting possibilities for the future. By integrating REIKA's products into the existing portfolio of the ASMAG Group, a broader range can now be offered to shared customers. This contributes to consolidating the market position and aligns perfectly with the "everything from a single source" strategy.

Johann Vielhaber, founder and owner of the ASMAG Group, is pleased with the success of this takeover: "The acquisition of REIKA is a significant achievement for ASMAG. We value the know-how that the company brings with its over 100 years of existence and are convinced that this will further strengthen our position as a leading company in the industry."

Over 100 years of existence

REIKA was founded in 1906 as "Maschinenfabrik Reinery". From the beginning, machines and technologies for tube processing were developed for ever faster, more precise, and efficient production processes. Today, REIKA is among the leading manufacturers of turnkey tube processing systems.

The ASMAG Group

The ASMAG Group, headquartered in the Almtal valley, is an innovative corporate

group primarily engaged in mechanical and plant engineering for the metal industry. With locations in Austria, Germany, Italy, and the USA, the internationally active ASMAG Group is among the industry's leading providers.



f.l.t.r.: Wolfgang Hoffmann, Hans-Jörg Braun, Johann Vielhaber, Andreas Grund, Frank Stolpmann, Johannes Sieberer-Kefer

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Generating the real Digital Twin of long products

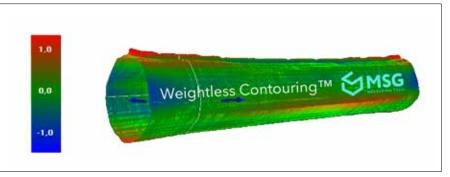


Figure 1: Weightless contouring™

MSG has developed a groundbreaking technology for objective contour scanning of long products, the so-called Weightless Contouring $^{\text{TM}}$.

The combination of MSG's 2D profiling systems together with its EP and US patented straightness and twist measurement device, which continuously and objectively determines the straightness curve of long products in the weightless state, lead to the real Digital Twin (Figure 1).

1. Geometric requirements for straightness and twis

Straightness and twist are playing an important role in the manufacture of semi-finished products. Their requirements are defined jointly by manufacturers and users of long products in standardization committees.

In the field of manufacturing straightness is

of great importance to ensure problem-free downstream processes.

In the field of application, the area of use plays a key role. For example, ERW welded tubes (e.g., according to ASTM A513 or DIN EN 10305-5) with excessive deviations in their straightness and/or twist must be joined with increased effort in building constructions.

LSAW or SSAW welded large-diameter pipes (according to API 5L) are also examined for joining processes, especially regarding bent ends. A pipe that is too much deformed can only be integrated into a pipeline in the field with a great deal of effort.

Drill pipes should also have good straightness so that less friction is generated on the pipe surface during rotation due to centrifugal forces. Excessive resistance forces could also lead to breakage, for example.

Products deviating from the ideal contour that are used at high rotation speeds, e.g. in turbines, would lead to centrifugal forces and thus to vibrations that are harmful to the process.

In summary, it can be said that straighter bar products require less effort in further proceedings.

2. Definition of straightness and twisting in the state of the art

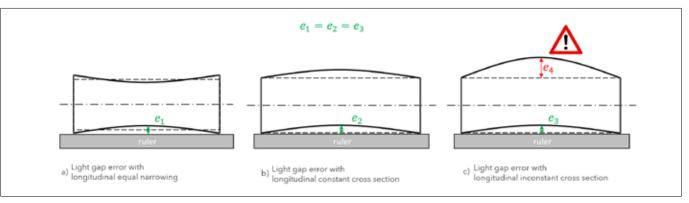


Figure 2: Ambiguity during straightness check acc. DIN EN 10305-5

In DIN EN ISO 12780-1, straightness is defined as the "deviation of a point on the straightness profile from the reference straight line". But at which points should straightness be measured on a free-form product such as an ERW squared tube? Or where should the reference line be placed?

DIN EN 10305-5, for example, specifies that the light gap of the concave bent side of a square tube is to be evaluated in relation to a ruler (reference).

However, this approach to straightness assessment is ambiguous. This is based due to the fact that in almost all standardization papers, cross-sectional defects (roundness, radii, perpendicularity) are considered separately from longitudinal defects (straightness or twist).

To understand this ambiguity Figure 2 presents three pipe segments with an identical concave straightness deviation on the same side (e1 = e2 = e3). Tube a) is concave on the opposite side with the same oddity. According to the standard, the product might be be labeled with an error e1 even though it has none. In case b), the concave bent side is measured with the straightness error e2. Since the opposite side is convexly bent with the same deflection, the tube is actually odd. Even more ambiguous would be case c), where the product on the convex bent side might be specified as still OK, but it would no longer be straight on the opposite side due to a cross-sectional deviation (within the cross-sectional tolerance).

In summary, it should be noted that an assessment of the straightness of e.g. ERW pipes due to longitudinal variances in the cross-sectional geometry is ambiguous!

3. Weightless Contouring™ - The concept

In order to solve the ambiguity described above, it may seem obvious to use state-of-the-art profiling measurement systems. The color representations of a contour of the profiled pipe are well known on the market.

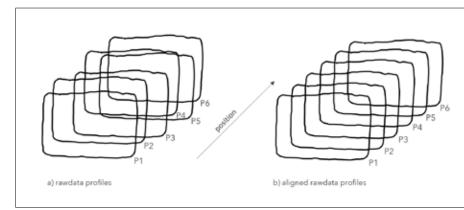


Figure 3: State of the art profiling technology

These are also the right tool for analyzing the quality of the 2D cross-section profile However, it is important to know that all individual 2D profiles (Figure 3 a; P1, P2, P3...) are recorded independently of location. Due to transport movements in the transverse direction, they have no local connection. For better visualization, they are mathematically aligned with each other in the software (Figure 3 b). The image derived from this correctly describes the individual 2D profiles, but by no means the actual contour of the pipe. This pseudo-contour is often incorrectly referred to as a "digital twin". However, it does not contain the longitudinal contour parts like straightness and twist.

For this reason, MSG has established for the first time that only a combination of 2D profiling systems and MSG's EP and US patented straightness and twist measurement, which continuously and objectively determines the straightness of profiled bar products in the weightless state, describes a true contour measurement: So-called Weightless Contouring™.

4. Added values through Weightless contouring™

The advantages of objective, unambiguous contouring of bar products can be divided into two main areas.

Firstly, MSG now provides the market with a digitization process that enables maximum objective and uniform quality certification of semi-finished products

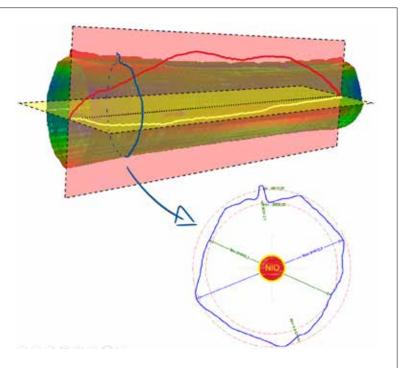


Figure 4: Straightness and cross-shape results based on Weightless Contouring™

along the supply chain.

Furthermore, Weightless Contouring™ forms the basis for process optimization. Increasing efficiencies during tube production can only run stable if the underlying measurement data is objective and beyond doubt.

In current projects, MSG displays the straightness and cross-shape results based on Weightless Contouring™ (Figure 4) on monitors alongside the production line so that the operator can see the influence of his manipulations directly on the geometry-producing and straightness-correcting machineries.

5. How Weightless contouring™ works in detail

In preparation for the Tube and Wire show 2024 in Düsseldorf, the topic of Weightless Contouring™ will be explained in detail on the MSG LinkedIN profile as part of a campaign. Be part of it and follow us!

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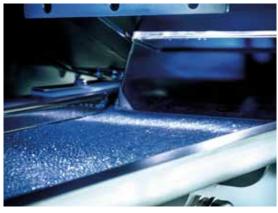
SIKORA AG

SIKORA at Fakuma 2023

Live material tests and precise tube, hose and pipe measurements

At Fakuma from October 17 to 21, 2023, in Friedrichshafen, SIKORA presented trendsetting solutions for quality control in the hose, tube and pipe as well as plastics industry. The trade show appearance is in line with the motto "Ideas, Passion, Future", which SIKORA has developed for its 50th anniversary. Visitors can get convinced by the innovative products and inform themselves about future developments in discussions with the SIKORA experts.





The PURITY SCANNER ADVANCED is used for inspection and sorting of plastic material.

Inspection and sorting of plastic material

How to reliably sort plastic material is demonstrated by the modularly developed PURITY SCANNER ADVANCED. In addition to optical 25 µm high-resolution cameras, which detect black specks and discolorations, an X-ray camera ensures the detection of metallic contamination. Depending on the material and requirements, the customer decides how many and which camera types are used. Common systems on the market have a maximum of two optical cameras. By using a third camera in the SIKORA system, a significantly higher detection rate is achieved, so that more contamination are detected. The interaction of reliable detection and intelligent sorting ensures highest material quality. At the same time, production processes are optimized, which contributes to a cost-efficient and sustainable production.

Live material tests

At the SIKORA booth, visitors could automatically inspect and analyze small quantities of crystalline and amorphous pellets, flakes or test plates for contamination with the inspection and analysis system PURITY CONCEPT V. The system is suitable for reproducible laboratory applications and detects black and colored contamination from a size of 50 µm as well as discolorations. Analysis takes less than a minute, including test certificate and HSV color chart of the detected color deviations. The system thus contributes to increased product and quality reliability. Visitors can see the system's performance live at the booth and are invited to bring samples to be tested free of charge.

Measurement of tubes and pipes by means of millimeter wave technology



At the SIKORA booth, visitors could have small quantities of pellets, flakes or test plates inspected for impurities with the inspection and analysis system PURITY CONCEPT V.

In the area of extrusion, SIKORA presented the CENTERWAVE 6000/250 for the measurement of tubes in the diameter range from 32 to 250 mm during production based on millimeter wave technology. All dimensions of the tube, such as the diameter and the wall thickness, are determined and visualized in real time over 360 degrees of the pipe circumference. The measurement data obtained enables automatic control of the minimum wall thickness, taking into account the standard deviation of the extrusion line. This allows potential savings to be exploited to the maximum. In the line, the system enables gapless, reliable quality control as well as automatic control. The model is characterized by its simple operation. At the push of a button, the operator immediately receives continuous and precise measured values, without presetting the product parameters, without the influence of a coupling medium and without any calibration. The exhibited CENTERWAVE is only one model out of a comprehensive product family offered by SIKORA for the measurement of different product diameters from 32 to 3,200 mm.

Measurement of tubes and hoses by means of X-ray technology for single-layer and multi-layer applications.

For more than 30 years SIKORA has been offering X-ray technologies for quality con-

trol and enables manufacturers a reliable inline quality control of stranded products. How to reliably measure different layers of tubes and hoses during the extrusion process is demonstrated at the SIKORA booth by the X-ray measuring system X-RAY 6000 PRO in combination with the processor system ECOCONTROL 6000. At the 22" monitor the measuring values are displayed numerically as well as graphically as trend and statistical data. By default, the wall thickness is displayed at eight measuring points. In addition, an intelligent physical evaluation model determines the minimum wall thickness, i.e., the available value, which optimally supports the user in controlling the process. The physical model also allows the wall thickness to be visualized over the entire circumference of the tube or hose at any point. The user selects how many points and at which position the values are to be displayed. The processor system is also used for automatic control of the line speed and extruder rpm. It thus guarantees the compliance with the given specifications as well as highest performance for a maximum of process optimization and productivity. The X-RAY 6000 PRO can be used for product diameters from 0.65 to 270 mm.

For products where a single layer meas-

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At Fakuma, SIKORA presented the CENTERWAVE 6000/250 for the measurement of tubes with diameters from 32 to 250 mm.

urement is required, SIKORA presents the X-RAY 6000 PURE to the Fakuma visitors. Also using X-ray technology, the device measures single-layer products as well as the total wall thickness of multi-layer products and covers with two models product diameters from 6 to 110 mm. The measured values are visualized on a 15" display; if required, automatic control to minimum wall thickness is also possible. Ensuring quality while saving material leads to a significant increase in productivity and also contributes to save CO2 and thus to protect the environment.

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SMS group GmbH

SMS group signs MoU with PT Gunung Raja Paksi Tbk to drive green steel development initiatives in Indonesia



Declared goal is to reduce the environmental impact of steel production

As part of their partnership, SMS group and PT Gunung Raja Paksi Tbk co-hosted a two-day 'Focus Group Discussion (FGD)' event in Jakarta, Indonesia. Under the banner of 'Green Steel in the Digital Age: A Focus Group Exploring Carbon Footprint Reduction,' this ground-breaking event brought together key stakeholders in the Indonesian steel industry.

The event saw the signing of a memorandum of understanding (MoU) between SMS and GRP, symbolizing their commitment to advancing sustainable steel industry procedures and processes through digital solutions.

Argo Sangkaeng, President Director of GRP, expressed his enthusiasm for the collaboration, stating, "We are very enthusiastic about hosting this FGD event with SMS, and we believe that this collaboration will bring positive changes to the Indonesian steel industry. We hope to explore innovative and sustainable solutions that will help reduce the environmental impact of steel production."

Eminent speakers at the event included Tim Kleier, Head of Green Steel at SMS, who

shared insights into pioneering decarbonization strategies and the implications of the Carbon Border Adjustment Mechanism (CBAM) for the industry, emphasizing the pathway toward a greener and more sustainable steel sector. Lis Soares, Head of Energy Management at SMS, explored strategies for quantifying and mitigating carbon emissions in steel production while navigating the complex landscape of carbon taxes. Additionally, Bernhard Steenken, Co-Chief Sales Officer India & Asia Pacific at SMS group, elucidated green technologies aimed at curtailing carbon emissions in steel production. He went on to say, "We are delighted to participate in this Focus Group Discussion together with GRP. We believe that this collaboration will have a significant positive impact on the steel industry in Indonesia. This event provides a valuable opportunity to explore innovative and sustainable solutions that will help reduce the environmental impact of steel production."

Over the course of the two-day event, this initiative served as a pivotal platform for exchanging of knowledge and experience among stakeholders who share a deep commitment to environmental concerns. It will strengthen collaboration among industry players, fostering united efforts to reduce the domestic steel sector's carbon footprint.

SMS group GmbH

SMS group to build new electric arc furnace for SSAB for fossil-free steel production

SMS group to build new electric arc furnace for SSAB for fossil-free steel production

- SMS group and SSAB are paving the way for a cleaner, more efficient, and environmentally friendly steel industry in Sweden
- SSAB will use an AC-EAF as part of its plan to decarbonize its steelmaking production process
- The new 190-ton EAF will be one of the largest installations in the world
 SMS group has secured the contract from Nordic steelmaker SSAB to engineer, deliver and construct a new electric arc furnace (EAF) for steelmaking at SSAB's site in Oxelösund, Sweden.

The scope of supply includes a 190-ton Alternate Current-Electric Arc Furnace (AC-EAF) capable of processing various raw materials, including fossil-free Direct Reduced Iron (DRI) or Hot Briquetted Iron (HBI), and scrap. With an upper shell diameter of 9.3 meters, the new EAF is one of the largest installations in

the world for similar applications, and it will help SSAB to scale up the decarbonization of its production processes.

SSAB is revolutionizing steelmaking with two unique steels with virtually zero fossil carbon emissions: SSAB Fossil-free and SSAB Zero.

SSAB Zero is based on recycled steel and SSAB Fossil-free is based on sponge iron reduced with hydrogen instead of coke coal. Both are heated in EAFs powered by fossil-free electricity and other fossil-free fuels. SSAB's ambition is to be a virtually fossil-free company in around 2030.

SMS will supply all automated features including the slag handling and Eccentric Bottom Tapping (EBT) operations, the advanced electrode control X-Pact® SynReg, which, together with advanced robotics applications, such as the X-Pact® Sampler, ensure operational safety as well as better precision and productivity without human intervention.





Groundbreaking ceremony held at SSAB Oxelösund, Sweden, on November 28 with the Prime Minister of Sweden – Ulf Kristersson. Photo: Henrik Hansson

The automation system for the new plant is setup in the X-Pact® Plug & Work test center from SMS in Germany, connected with a virtual process and production simulation. This concept of integration testing allows for a shorter ramp-up, high product quality and a stable production environment. During the X-Pact® Plug & Work integration test, SMS experts will provide training for SSAB's personnel.

The implemented process control and automation ensures a reliable "tap-to-tap time" (t-t-t), resulting in lower energy consumption and high production efficiency. The new EAF will produce high-quality liquid steel, facil-

itating SSAB's smooth transition from the integrated route to the electric route without significant disruptions. Side-wall burners, lime/carbon injectors and off-gas analyzers guarantee optimized chemical energy utilization.

The scope of supply further includes an unparalleled yard management system for plant-wide raw material handling with efficient tracking and noise reduction thanks to an exceptionally large number of special containers. The project also represents an extension order to the Manufacturing Execution System (MES), which is currently been implemented at SSAB by SMS.

In addition, SMS group's digital twin for SSAB, which includes Genius CM and DataXpert, will provide the digital representation of the EAF and serve as a central interface for predictive maintenance.

"The collaboration between both companies represents a pioneering step towards a sustainable and environmentally conscious steel industry. By integrating innovative technologies and using fossil-free materials, the companies are demonstrating their commitment to reducing CO2 emissions and leading the industry towards a greener future," said Olaf Stalfort, Chief Sales Officer Region Europe for SMS group.

SMS group GmbH

SMS group and Steel Authority of India Limited (SAIL) join forces to decarbonize steel production in India

- SMS group and SAIL have signed a memorandum of understanding (MoU) for developing processes to decarbonize steel production in SAIL's plants
- This objective aligns with India's ambitious goal of achieving net zero emissions from industrial processes such as steel production by 2070

SMS group and SAIL (Steel Authority of India

Limited), a Maharatna PSU, have drawn up a memorandum of understanding to work together on sustainable steel production and decarbonization efforts. The MoU signifies their commitment to drive developments focused on implementing long-term sustainable steelmaking practices, with a particular emphasis on decarbonizing steel production in SAIL's integrated steel plants across India.

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This partnership aims at addressing the challenges of reducing carbon emissions and making the steel industry more environmentally friendly. In this respect, SMS will provide its technological expertise for design and engineering activities, equipment supplies, and technical assistance for erection and commissioning projects at SAIL's facilities across India.

The signing of the MoU took place at SAIL's Management Training Institute (MTI) at Ranchi, Jharkhand on August 3, 2023, a significant event that marks a milestone in the collaboration between SMS group and SAIL. It is a positive step towards fostering innovation and sustainability in the steel sector, and it highlights the commitment of both organizations to contribute to India's environmental and economic goals.

"We are very proud to team up with a public sector enterprise responsible for steel production in India, and we look forward to collaborating in future," said Mr. Marco Asquini, CEO, APAC & MEA Region of SMS group. "This is a significant milestone for the decarbonization of the Indian steel industry and aligns perfectly with our mission #turningmetalsgreen".

Shri Saumya Tokdar, CGM of SAIL's Bhilai Steel Plant, said: "SAIL is actively looking for solutions to facilitate the transition to green steel production, and thus contribute to a sustainable future. We are delighted to reaffirm our partnership with SMS group and intend to take this association ahead with a deeper collaboration to access better technologies and processes to reduce our carbon footprint in a meaningful and consistent way."



Marco Asquini and Shri Saumya Tokdar showing solidarity in their decarbonization objectives at the MoU signing ceremony held in Ranchi.



Experts from SMS group and SAIL during the MoU signing ceremony.

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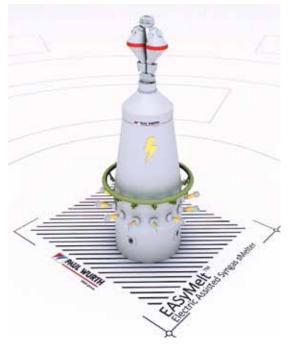
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SMS group GmbH

SMS group and Tata Steel join forces to showcase decarbonization technology on industrial scale



T.V. Narendran (left) CEO, Tata Steel and Burkhard Dahmen (right) CEO, SMS group, celebrate the signature of the MoU with their delegations at the METEC trade fair in Düsseldorf, Germany



Paul Wurth EASyMelt technology

- SMS group and Tata Steel have signed a memorandum of understanding (MoU) to make arrangements for conducting a joint industrial demonstration of SMS's innovative EASyMelt technology
- EASyMelt (Electric-Assisted Syngas smelter) technology is a cutting-edge metallurgical solution that can be implemented in existing integrated steel plants
- The objective is to cut CO2 emissions by more than 50 percent from the blast furnace's baseline operation
- The EASyMelt concept will be implemented at Tata Steel's blast furnace E in Jamshedpur, India.

SMS group and Tata Steel have signed a memorandum of understanding (MoU) to make arrangements for conducting a joint industrial demonstration of SMS's innovative EASyMelt technology at Tata's blast furnace E in Jamshedpur, India. The signing took place at the prestigious METEC trade fair, marking a significant milestone in the partnership between SMS and the steel giant Tata Steel.

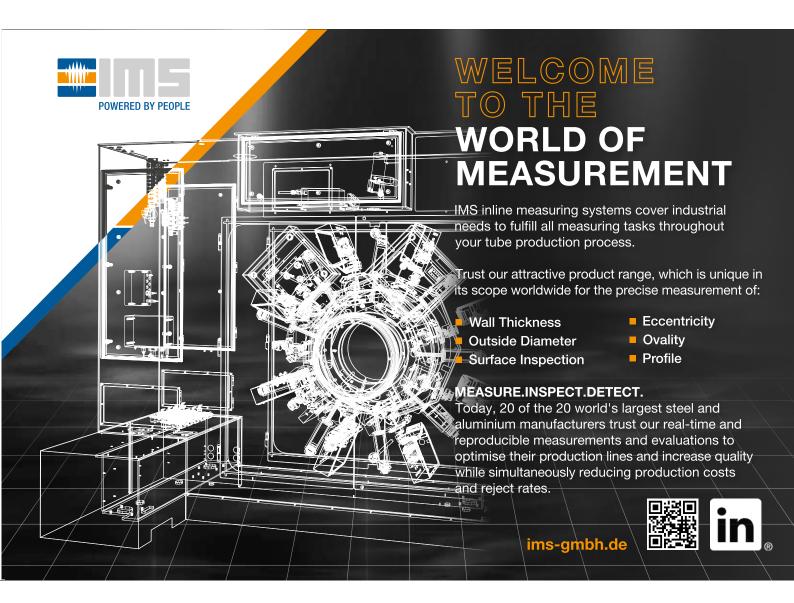
Both parties already signed a MoU in November 2022 to jointly explore opportunities for decarbonizing steel production and have now identified EASyMelt as a key CO2 emission-reduction technology to be implemented at Tata's steelworks. The main objective of this demonstration project will be to cut CO2 emissions in a first intermediate step by more than 50 percent from the blast furnace's baseline operation.

The EASyMelt (Electric-Assisted Syngas smelter) technology, developed by SMS group company Paul Wurth, is a cutting-edge metallurgical solution that can be implemented in existing integrated steel plants and used to accelerate decarbonization. The core of the technology utilizes blast furnace top gas recycling for syngas production by reforming the coke oven gas. The resulting

syngas is then injected at both shaft and tuyere level, whereby a plasma torch system is used to further heat the gas injected at tuyere level.

"We are very proud to team up with a major steel producer like Tata Steel, and look forward to our future interactions as well as the possibility of achieving a first joint reference for our EASyMelt technology," said Burkhard Dahmen, CEO of SMS group. "This will represent a significant milestone for the decarbonization of existing blast furnace plants worldwide and thus also a significant milestone in the global transformation of steel making."

T. V. Narendran, CEO and Managing Director of Tata Steel, said: "Tata Steel is actively looking for solutions to facilitate the transition to green steel production, and thus contribute to a sustainable future. Further, India being the second largest steel producer in the world also places a huge responsibility on large manufacturers like Tata Steel to lead the country's decarbonization journey. We are delighted to reaffirm our partnership with SMS group and intend to take this association ahead with a deeper collaboration to access better technologies and processes to reduce our carbon footprint in a meaningful and consistent way."



Tecnar Automation Ltée

Mastering seamless tube quality: How laser-ultrasonics reshapes non-contact hot tube measurement

Introduction

In an ever-evolving economy, tube and pipe manufacturers are facing unprecedented pressure from increasing client expectation, fierce competition, and intricate, unstable supply chains and rapidly rising inflation. Internal pressure is also considerable as companies constantly look for ways to reduce costs, improve quality control and increase productivity.

Early insight changes everything To counter this unpredictability, manufacturers must accurately control product characteristics and quality from the first production stages. Consider, for instance, the importance of the earlier detection of uneven heating in billets, unavoidable tool wear or of drifts in roll-stand settings. Each mill variable has an impact on the characteristics of the finished product. In the harsh environment of these mills, unpredictability lurks at every step of the production line. Knowing about the performance at each stage of the process is crucial to controlling output quality and loss reduction. The challenge is to do so online and in real time when the tubes and pipes are hot and being formed.

Tecnar Lut 2.0 SPS at Baotou, China





The good news is that there are hot production line optimization tools to help achieve these goals.

Gamma ray gauges have long been a mainstay in the tube industry, but their prevalence is marked by unremitting constraints. Gamma ray emitting sources, such as the radioactive isotope Cs-137, are subject to increasingly stringent regulations for their acquisition and replacement, making this technology even more difficult to manage. What's more, geopolitical factors constantly threaten supply to and embargoes, currently the case in some countries. As the industry grapples with these limitations, a proven, viable technology is earning widespread attention: laser-ultrasonics. Tecnar's Lut 2.0 is at the forefront of this technological transition. This non-contact gauge is designed to measure the key online characteristics of hot tubes and pipes during manufacturing, such as wall thickness (WT), eccentricity, temperature, and length. The Lut 2.0 may be used from billet piercing outlet to sizing mill outlet. By monitoring key tube characteristics and using its innovative algorithms, the system automatically tracks slow drifts in production and their cause before they deviate from finished product specifications. All of this means that operators receive early insights so they can pre-emptively fine-tune parameters and implement corrective measures on time, optimizing production and quality.

How the Lut 2.0 achieves this:

Operating in tandem with the plant network, the Lut 2.0 requires a minimal set

of inputs: the tube's nominal WT, nominal outer diameter, and alloy type. With this information, the gauge automatically sets the precise position of the measuring probe, plus the proper speed-of-sound chart from the integrated database tailored to the alloy and measured temperature. From there, the intelligent algorithm is set up to process and interpret the recorded laser-ultrasonic waveform, uncovering any WT or eccentricity anomalies. As the Lut 2.0 deciphers each tube's story and tracks drifts in long production runs, it synergizes human experience and machine precision.

Real-time data:

Real-time information is crucial for monitoring dynamic processes. Lut 2.0 collects highly accurate real-time data essential for tracking batch trends and progressing potential WT and eccentricity deviations. These may be caused by uneven heating of the billet, by inaccurate roll-stand settings or by tool wear. Using the detailed automated analysis of a tube sequence's WT profile, the Lut 2.0 identifies and tracks the source of deviation. Operators then receive the results in a comprehensive and intuitive user interface.

User-friendly interface (UI):

Organized in an intuitive architecture, the information is presented in the form of tables or graphs by a user-centric interface (UI) based on a powerful software platform. The UI displays information such as pipe identification and characteristics, illustrations of pipe radial and longitudinal profiles and batch history in Windows or

in the same screen, as the user prefers. Easy-to-interpret visuals deliver valuable information at a glance. Its intuitive design minimizes the learning curve so that users can easily use the software's various powerful features. In addition, an easy-to-navigate dashboard allows plant operators and managers to quickly access the information, providing them with a gateway to agile decision-making.

Historical data, batch trend and deviation tracking:

Lut 2.0 stores historical data from all the tubes measured, enabling users to compare current results with past records. With just a couple of clicks, operators and managers can view the history display to monitor batch fluctuations and deviations over time. This feature allows them to observe developing patterns, identify anomalies and make informed decisions based on accurate historical data. It's particularly useful to identify the cause of the observed drift before it falls out of tolerance.

Wall thickness monitoring:

Wall thickness (WT) is one of the key pa-

rameters in seamless tube making. Radial and longitudinal profiles are displayed to quickly provide information on heating or piercing eccentricity, tool wear and mandrel fatigue or heavy ends lengths. This ensures that deviations or inconsistencies are promptly identified so that operators can take corrective action to maintain product quality and minimize waste.

Roll-stand settings:

Roll-stand settings play a vital role in seamless tube manufacturing. Using the Lut 2.0 high-resolution radial WT profile display, operators can discern minute details originating from setting discrepancies between even and odd roll-stands. This provides a proactive approach to reducing waste and increasing quality consistency. User roles and access:

Different users have different needs. The Lut 2.0 offers each user type role-based access and custom displays. It ensures that everyone has access to data and functionalities presented in a way that's relevant to their particular tasks and responsibilities. Managers can focus on the production



Lut 2.0 user type role-based access and customized display

performance while operators can concentrate on individual tube profiles. Such functionalities foster optimal engagement and utilization.

Conclusion

The noncontact laser-ultrasonics technology (Lut) emerges as a reliable option when the time comes to replace aging gammaray-based gauges or to add new ones to a seamless tube production line. For more than a decade, gauges such as Tecnar's Lut 2.0 have been successfully measuring the key online characteristics of hot tubes and pipes to reshape the landscape of hot seamless tube production. Their intuitive user interface (UI) is a powerful platform that empowers plant operators and managers to make informed decisions based on accurate data to optimize their hot seamless tube production processes.

By presenting user-friendly and visually engaging real-time data, these gauges provide plant operators and managers with detailed information on each individual tube, as well as an advanced toolset to track

batch trends. Such tools have been shown to help them promptly address issues such as wall thickness deviation and eccentricity stemming from uneven heating, piercing, mandrel fatigue or roll setting inaccuracies. The Lut 2.0 gauge can really enhance process control and overall operational efficiency by helping to elevate quality consistency, lower costs and improve productivity. In essence, these gauges are more than just tools: they're key assets for manufacturing excellence and increased profitability.

Tecnar Automation Ltée

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The closure of the tube mills in Mülheim and Düsseldorf marks the end of an era.

Prof. Dr. Horst A. Wessel (1983-2008 Head of the Mannesmann Archives)

After the Vallourec production site in Düsseldorf-Reisholz had already been closed in the summer of 2020 due to the collapse of sales markets, the last tube was rolled at the tube rolling mill in Mülheim-Ruhr in August 2023 and at the plug mill and pilger mill in Düsseldorf-Rath in October 2023. The generally deteriorating general conditions and, in particular, the crises in the oil and gas industry, which dominates the business, combined with large overcapacities on the global pipe market had prompted the French company to take this decision. Europipe's large-diameter pipe mill and Salzgitter's plate rolling mill and some ancillary operations (pipe bending mill and Eupec PipeCoatings) remain in Mülheim. In Düsseldorf, the steel pipe industry is history. The Mannesmann embankment, the Mannesmann high-rise used by the NRW Ministry of Economics and the former headquarters of Mannesmann, now the NRW House of History, are

still reminders of the steel pipe industry that dominated the city and the state for more than a century.

Düsseldorf, an important tube location for more than one and a half century, still adorned itself with the epithet "tube city" in the 1980s. In 1860 Albert Poensgen had moved the first steel tube factory on the continent, together with the workforce and their families, from the Eifel mountains to Düsseldorf-Oberbilk, thus setting in motion a development that was unique in the world. At one time there were twelve steel tube mills in Düsseldorf and its immediate surroundings, not counting the tube drawing mills. The peak was reached in 1899 with the Reisholz tube works founded by Heinrich Ehrhardt and the Mannesmann tube works in Rath, both seamless tube works, but operating according to different processes. The national, European and world tube associations had their head-



Mandrel Mill Mülheim/Ruhr

quarters in the Stahlhof in Breitestraße in Düsseldorf. All steel pipes sold in the German Empire were calculated using the Düsseldorf-Grafenberg freight base. Nowhere in the world has there ever been such a concentration of steel tube mills. In addition, there were the manufacturers of primary material, of pipe joints (Fittingwerke Inden and Woeste), the machine factories, the plant constructors, the installation trade as well as the trade.

For Mülheim and especially for Düsseldorf, the steel industry has been of extraordinary importance. In both cases, industrialisation had only begun with it. In Rath, the workforce initially consisted mainly of local residents for whom the inherited piece of land was no longer enough to secure their own and their family's existence. They found regular and better-paid employment in the steel tube factory, while continuing to farm as a sideline. Today's Düsseldorf would be inconceivable without the steel pipe industry. The backward provincial town, which mourned long-gone times as a residence and could no longer even afford its beloved theatre, developed into a potent economic metropolis with high urban quality within a few decades after the Poensgen-Werke relocated. Even its importance as a trade fair and exhibition city is largely due to this.

The important pioneers Poensgen, Thyssen, Ehrhardt and Mannesmann have left their mark on the development, as have the employees they have recruited, trained and formed into a team. These people - sometimes in competition with each other - have also made great and unique achievements. Mülheim was once the largest gas tube plant in Germany; it was here that the first continuous production for longitudinally welded steel tubes according to the Fretz-Moon process went into operation in 1932 and a few years later two radial rolling mills according to Röckner for seamless large-diameter tubes. In the spring of 1966, the world's first continuously operating rolling mill for seamless steel tubes was the Mecca not only of tube experts. The rolling mills were controlled with the help of room-filling magnetic drum crushers (Siemens 3003 with punch card machine). In 1972, after



Plug Mill Düsseldorf/Rath

the "wedding of the year" and the founding of the Mannesmannröhren-Werke (new), a second tube continuous rolling mill was added. RK 1 ran its last rolling shift in the summer of 1992 and, fundamentally modernised, went back into operation in 1995 in Belo Horizonte/Brazil - where Vallourec now concentrates oilfield tube production.

In 1926, Reisholz supplied a seamless rolled boiler shot for the large GESOLEI exhibition, which was transported to the exhibition by a wagon pulled by four horses. Huge steam and oil pressure vessels as well as turbine shafts and bridge pylons weighing several tonnes were part of the production



Pilger Mill Düsseldorf/Rath



Pilger Mill Tube Düsseldorf/Rath

programme for decades. A highlight was undoubtedly the production of the reactor pressure vessel for the first German ship to run on atomic energy, the "Otto Hahn", in 1967. A Reisholz tube was needed to salvage the damaged Russian nuclear submarine "Kursk". Since 1964, the factory had one of the most modern pipe push bench facilities with a 400 kN piercing press.

The list of pioneering achievements of the Mannesmannröhren-Werk in Rath (1997 V&M, 2013 Vallourec) is even longer. It

was built in 1899 as the largest and most modern Mannesmannröhren plant; and it remained the largest and most efficient Mannesmannröhren plant to the end. Modern Hollerith calculating machines had already been used here years before the First World War. In 1923, a pilger rolling mill was built that rolled the largest seamless steel tubes in the world, with up to 711 mm O.D.. The flywheel that supplied the power for the rolling process had a diameter of 13 metres. With the Rather pipes, which from the second half of the 1930s were also produced in another plant in Rath using the faster plug-rolling method, it is even possible to drill "around the corner" if, for example, the protection of nature makes this necessary. They were used to drill the deepest hole in the world in 1987. In 1990, steel pipes were wound onto a drum like a hose during the laying of a sea pipeline. Mannesmann Stahlbau Hohlprofile (MSH) allows for technically and visually outstanding constructions of high-rise buildings.

The extraordinary importance of these plants is demonstrated not least by the visits of prominent politicians. Among others, the Italian Prime Minister and the Spanish Ambassador visited the Reisholz plant; in Mülheim the Federal Chancellors Brandt and Schmidt as well as the King of Jordan and the Chinese Prime Minister; in Rath Federal Chancellor Schmidt and Federal President Scheel. People who had rendered outstanding services to the factory were awarded the "pipe knot" at the carnival session organised by the works council in the Philipshalle. Certainly unusual was the stay of the artist Anatol (Herzfeld) in the Rath factory in 1960. He not only forged a bell for a Düsseldorf school there, but also documented the pilgrim rolling mill and its workforce in large format. It is to be hoped that this painting will be preserved for posterity, as will some of the buildings, plants, products and historic rolling mills, some of which are listed. The historical text and picture documents are already in the Mannesmann archive, which belongs to Salzgitter.

Rath had more than 5,300 employees at the end of the 1960s. Many of them had

restarted their factory, which had been largely destroyed during the Second World War, with spare parts salvaged from the rubble and initially worked without roofs or glazed windows. In Mülheim and in Rath, thousands of commercial and industrial apprentices, not infrequently several generations of one family, started their careers and developed into excellent skilled workers. They were and are rightly proud of this training. They have thus acquired good career opportunities to be successful in and outside the Group. For all of them, but also for the cities affected, it was a shock to learn that the factories would close and about 2,400 employees would lose their jobs where they had done exceptional work. Many of them have already been

placed in new jobs with the support of the company. The management is endeavouring to ensure that the "employees, executives and managers accompany the closure of many years of seamless steel pipe production 'with their heads held high'."

The closure of the Vallourec Works this December 2023.

Vilson Gegic, Chairman of the General Works Council of Vallourec

After a long fight to save their jobs, for the 2400 employees and their families at the sites, the Mannesmann/Vallourec era will come to an end on 31 December 2023.

Düsseldorf and Mülheim will lose well-paid jobs protected by collective labour agreements.

In heavy industry, with its tough working conditions, there has always been a balance for employees, resulting in fair pay and good working conditions.

Employer representatives, the trade union and works councils have always stood together for this.

It is difficult to say goodbye. Now it's a matter of finding our colleagues well-paid jobs with good working conditions.

We are confident that we will succeed in this task - not least thanks to the job fairs organised by Vallourec. Nevertheless, the cohesion of the workforce as a large family will be lost: processing steel and rolling tubes together was and remains something special!

Glück Auf Vilson Gegic



ITA Tube Conference 2023

Opportunities for the Tube Industry in turbulent times



ITA held the biannual tube conference on May 11th and 12th 2023 in Düsseldorf, Germany. The conference was personally and remotely attended by international experts contributing to the excellent, informative exchange. The format was split into thematical sessions allowing speakers to present their paper followed by panel discussions related to the theme.

ITA officers with extensive experience and expertise guided through the sessions to make up for a satisfying experience.

Welcome and market session:

Steel tubes are a building block for economic development and their consumption depends on the economy's strength. Some regional bright spots, such as the USA and India, dominate tube demand. Apart from these regions, the macroeconomic picture does not give much cause for optimism for growth in 2023.

This was reflected in the three papers given in this session

- Macroeconomic and international Tube and Pipe market outlook by Dr. Gunther Voswinckel; ITA president
- Carbon reduced tubes by Frank Harms, general manager German steel tube association
- Hot rolled coil market by Emanuele Norsa, editor Kallanish commodities

Such papers reflected and underlined the dependence of the tube and pipe market on local conditions like energy prices, sanctions, etc.

OCTG sessions

OCTG products are still the key driver for the tube industry, which accounts for around 51% of global tube production. After the corona crisis, industrial production picked up, leading to a sharp increase in energy consumption since 2021, so supply could hardly meet demand. Second, geopolitical sanctions led to a massive drop in Russian production, resulting in speculative price increases. The corona shutdown in

Shanghai at the end of March 2022 briefly eased the price front as energy demand fell noticeably.

But with no signs that oil and gas producers will increase supply, energy market prices will remain strong.

The presented papers concentrated on energy efficient production. Presenters of papers and participants to the open panel discussions were:

- Mr. Donald Gibeaut, ITA vice president/ products manager Ajax Tocco
- Mrs. Ekaterina Bezlepkina, manager sales Nakata MFG
- Mr. Christian Haferkamp, head of technical sales, SMS group
- Mr. Federico Raggio, managing director CGM Cigiemme

Automotive Session

The automotive tube market, which accounts for about 15% of the global tube market, is relatively stable and reliable. Following the decline in global automotive production in 2020 and supply chain challenges in 2021, the market will continue to grow and offers many interesting tube applications.

Future growth will mainly take place in Asia, especially in China. However due to US decoupling trends, China could increasingly become a sales problem for the Western automotive industry.

However, the trend to further reduce the weight of vehicles supports the use of tubular products. The greatest potential for tubular products is seen in the vehicle frame, followed by the chassis and the power train. Tube manufacturers will have to enter new vehicle series with larger volumes to expand their presence in the light vehicle industry. Market demand and innovative production technologies will further strengthen the application of tubes in the automotive industry.

The wide variety of potential applications was underlined in the presented papers. Presenters of papers and participants to the open panel discussions were:



- Mr. Albert Sedlmaier, ITA vice president, CEO data M sheet
- Mr. Sebastian Gaiser, technical sales manager, Wafios
- Dr. Thomas Säuberlich, head of engineering automotive, Benteler Steel Tube
- Dr. Tilman Traub, head of innovation, Dreistern

Structural piping session:

As architectural challenges can be supported, there is a huge opportunity to increase the market for structural pipes (actually about 5% of the world tube and pipe market). Modern buildings and skyscrapers use steel structures to a large extent as construction is faster and cheaper. However, fire protection of the steel structure is a challenge that has to be overcome. Structural piping is also beneficial in constructing equipment and machines like agricultural machines, trucks, cranes, etc. Moreover, welding and painting the structure is much faster and econimical. Ideas to further increase the advantage and use of structural pipes in the construction of buildings and machines were discussed during the presentation and later in the panel discussion. Presenters of papers and participants to the open panel discussions were:

- Mr. Mitsuru Nakata, ITA chairman, CEO Nakata MFG
- Mr. Adrian Alecu, head of strategy and business development Arcelor Mittal tubular
- Mr. Erwin Bauer, key account Kloeckner Metals
- Mr. Christian Haferkamp, head of technical sales, SMS group

Mechanical/precision piping session:
There is a good opportunity to increase the market for mechanical tubing and precision piping (actually about 9% of the world tube and pipe market) by replacing solid bars and wire rods for bearings, bushes, piston rods, cams, etc. The mechanical tubing and precision pipes need good concentricity and precise diameter/wall-thickness. In the presentations and the following panel discussions technical advantages and commercial benefits for the replacement of solid bars/ wire rod by mechanical tubing or precision piping. Presenter of the paper was:

- Mr. Matthias Kramer, CEO and owner MSG Maschinenbau

Dr. Gunther Voswinckel presented the latest gadget developed by ITA, the Buyers Guide. This tool will enable potential customers to identify qualified providers for different materials, machines, services related to the tube and pipe industry. The day was rounded up in interesting talks during the conference dinner.

For the second day of the conference the visit to BENTELER Steel Tube GmbH, Dinslaken was scheduled. BENTELER presented their organization and gave a guided tour through their high performance CPE push bench plant. Such tour left the participants impressed, eagerly looking forward to the next ITA tube conference, scheduled for 2025.

Gerhard Kulessa ITA Chairman Technical Management Committee The next ITA Tube Conference will take place in spring 2025. We will inform you as soon as possible.

Global Steel Summit Dubai 2023

Global Steel Summit in Dubai 23.-24-November 2023



23 - 24 Nov 2023 Dubai

With more than 400 delegates, the "Global Steel Summit" was a very successful event. Delegates from around the world, Middle East, Africa, India, China, Europe and many more regions were attending the prestigious event and enjoying the networking opportunities provided. Many interesting presentations gave the event a special flavour. The organizers Thaiseer Jaffar and Ahmed Shaik and their team did a great job.

The International Tube Association, represented by his President Dr. Gunther Voswinckel provided a well-received presentation on the global tube market and discussing the challenges and opportunities this market is offering to our industry. Middle East as one of the demanding regions for OCTG products and construction pipes was addressed. It seems, that local tube producers are increasingly improving their capabilities to successfully participate in the middle east tube market.

We will meet and are looking forward to see many of our colleagues from the tube industry at TUBE Düsseldorf 2024 show as exhibitors of visitors.



Dr. Gunther Voswinckel, president of ITA



Thaiseer Jaffar and Dr. Gunther Voswinckel from the organizing committee.



Ahmed Shaik and Dr. Gunther Voswinckel from the organizing committee

Tube Eurasia 2023

Great premiere in Istanbul: wire and Tube Eurasia celebrate successful first event

With 210 exhibitors on a total area of 8,000 square metres, the premiere of the joint trade fair appearance of Wire TECH Istanbul, Tube & Steel Istanbul and wire and Tube Eurasia came to a successful end after four days full of great expectations.

Together with Tüyap, the organiser of the two Turkish trade fairs for wire, cable, tubes and pipes, the newcomers wire and Tube Eurasia went to the starting line for the first time.

In total, more than 10,000 top customers from Turkey and neighbouring countries took the opportunity to find out about innovations and trends in the industries from the players in these key technologies at the Tüyap Fair Convention and Congress Center.

"A promising start to the premiere in Istanbul," said Bernd Jablonowski, Executive Director of Messe Düsseldorf GmbH. "A positively charged atmosphere in the exhibition halls right from the start - that makes you want more. The four days of the fair in Istanbul have shown that Turkey is a supra-regional hub for the wire, cable, tube and pipe industries," said Jablonowski.

In 2025, wire and Tube Eurasia will present themselves together for the second time with concentrated technology competence at the Istanbul location. From here, there are short trade routes to the neighbouring countries and Asia, which means that the most important target countries are addressed.

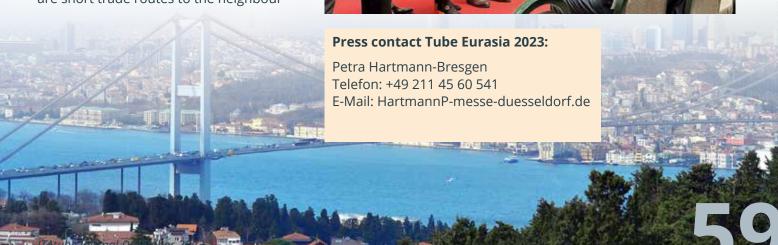
In just five months of preparation, the Messe Düsseldorf team and the Turkish organiser Tüyap have succeeded in organising a compact industry platform for Turkey and the surrounding regions that reflects the market of the wire, cable, tube and pipe industries.

With wire and Tube Eurasia, the global network of satellites in Messe Düsseldorf's wire, Tube & Flow Technologies portfolio continues to grow.



24 - 27 May 2023 Istanbul





MFTFC 2023

Top results, top-level talks and top atmosphere at the Bright World of Metals in Düsseldorf



12 - 16 June 2023 Düsseldorf

Exhibitors report numerous successful business deals; 78 per cent of visitors plan concrete investment

- Trade fair quartet scores points with 69 per cent international attendance including strong overseas participation (31 per cent)
- Global energy transition topics characterise GIFA, METEC, THERMPROCESS and NEWCAST

After five eventful trade fair days GIFA, METEC, THERMPROCESS and NEWCAST have clearly exceeded expectations. 63,300 visitors from 114 countries – 58 % of them being decision makers – travelled to the Bright World of Metals in Düsseldorf. Around 2,200 exhibitors from 56 countries presented the power of the metallurgical industry and set forward-looking impulses with their machines, plants and solutions. Sustainability and Artificial Intelligence were much-discussed topics in the twelve exhibition halls of the four world-leading trade fairs.

Investment, also in challenging times for the global economy, spontaneously successful business deals as well as a vivid exchange amongst all parties involved characterised the dynamic atmosphere on the entire fairgrounds. 78 % of visitors are planning concrete investment over the next two years.

"Especially in times of sustainable change it is as important as ever to be present here in Düsseldorf and in direct exchange with industry players in order to demonstrate strength in a forward-looking market environment. With their international appeal and high-quality trade audience GIFA, METEC, THERMPROCESS and NEWCAST provided excellent opportunities to do so," says Bernd Jablonowski, Executive Direc-

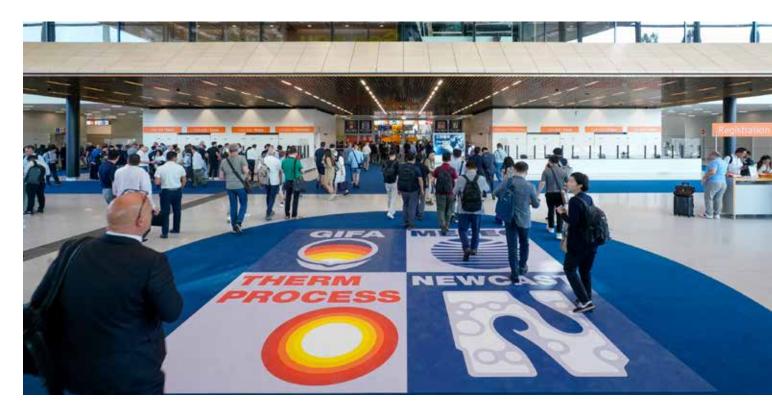
tor at Messe Düsseldorf, summing up the results of the trade fairs.

GIFA, METEC, THERMPROCESS and NEWCAST proved again even more internationality in terms of both exhibitors and visitors: 76 % of the exhibiting companies came from abroad. For visitors this percentage stood at 69 % with a large share from Asia and overseas. "Trade fair at last!" was a sentence frequently heard in the halls, because after four years the international community was able to network again face to face. This underlines the very positive mood in the exhibition halls.

"GIFA, METEC, THERMPROCESS and NEWCAST are covering almost the entire international market," says Malte Seifert, Director Messe Düsseldorf. The demand for European metallurgy and foundry technology is especially high overseas – and here particularly in India, the USA and China. This is also reflected by the international ranking of countries: here India and the growing market Turkey rank first – followed by Italy, China and France. "This high international attendance on both the exhibitors' and visitors' part is a key guarantee for the success of the Bright World of Metals making this trade fair quartet so unique. For metal and foundry professionals from all over the world GIFA, METEC, THERMPRO-CESS and NEWCAST are an absolute 'must'," adds Seifert.

Industrial transformation as a 'signpost'

Current market developments, enormous challenges such as (skilled) labour shortage, extremely high energy costs that are putting a special burden on German companies, but also the opportunities that the energy transition is bringing – there was a plethora of dominating topics featured at the Bright World of Metals. Possible



solutions such as the introduction of an internationally competitive electricity price for industry, for example, were discussed on the first day of the trade fair in a toplevel talk between the leading minds in the industry and Mona Neubaur, Minister of Economy, Industry, Climate Protection, and Energy in North Rhine-Westphalia. These topics also determined the lecture programme of the forums and conferences accompanying the trade fairs. The need for digitalisation and the use of Artificial Intelligence, the will to achieve sustainability as well as changed manufacturing processes are all an expression of the transformation in the energy-intensive industries.

Many ideas and trending themes for a sustainable future

The strategic focus of the Bright World of Metals on the four key subjects sustainability, digitalisation, circular economy and new production technologies determined activities in the exhibition halls and at the side events – such as the conferences and many ecoMetals formats.

Some 20 metallurgical industry players participated in Messe Düsseldorf's ecoMetals campaign. Since 2011 Messe Düsseldorf has already actively supported changing the image of energy-intensive industries towards more sustainability. The fact that the exhibitors at GIFA, METEC, THERMPRO-

CESS and NEWCAST are not only innovative, but are also increasingly producing in an energy-efficient and resource-saving manner, could be experienced live at the ecoMetals Trails.

The opportunities and chances on the path towards a green transformation were also discussed at the ecoMetals Forum in hall 9. The Forum was organised by VDMA Metallurgy and Messe Düsseldorf for the first time with great success.

In addition to numerous lectures and expert panels on the live stages in the exhibition halls, interviews were broadcast live from the ecoMetals TV studio on all days of the trade fair, giving the trends additional reach through digital live streams.

The next Bright World of Metals comprising the leading trade fairs GIFA, METEC, THER-MPROCESS and NEWCAST will feature on the agenda in 2027; the exact dates will be announced over the next few months.

Messe Düsseldorf GmbH

Press Team GIFA-METEC-THERMPROCESS-NEWCAST 2023

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Tube China 2023

Tube China 2023, has concluded successfully!



14-16 June 2023

As the flagship event in the tube and pipe industry, the 10th China International Tube and Pipe Exhibition (Tube China) came to a successful close on June 16th at the Shanghai New International Expo Centre. As a part of Messe Düsseldorf's global series of tube exhibitions, Tube China has presented a high-level industry feast, that perfectly integrated innovation technologies and new Shanghai products, benefiting China's pipe industry and its upstream and downstream sectors.

332 Industry Giants Bring Innovative Products

The three-day exhibition attracted 332 exhibitors from 14 countries and regions, a 30% increase compared to the previous edition. Among them were renowned international brands from Germany, Canada, Italy, Austria, France, Japan, South Korea, and other countries, enhancing the international character of the exhibition. This provided domestic buyers with the opportunity to procure cutting-edge products and technologies, as well as to gain insights into advanced production concepts and solutions without leaving the country.

Exhibitors Get Positive Results

Mr. Chen Mingwei, Sales Manager of Wafios Shanghai gave positive feedback about the event: "As the first exhibition for the tube and pipe industry after the pandemic, my overall impression is that the number of visitors and exhibitors have increased substantially. It has been three years since we last participated in such an event, and there are several new trends that we are now aware of. In general, the exhibitors have a really comprehensive range of products on display. The scale and participation levels are even better than before. I am very grateful to the exhibitors for providing us with such a great display platform, and for giving us the chance to meet new clients and make new friends. I hope Tube China gets better with each year that passes by. "Mr. Li BinHeng, Deputy General Manager, Inductotherm Group

China, also expressed his recognition of Tube China: "We have been participating in Tube China since its first edition in 2014. As a professional display platform, Tube China not only promotes the development of the entire industry, but also reveals the latest industry trends and cutting-edge technologies to visitors. I am very impressed by the level of professionalism of the visitors and several delegation groups we met this year. The outcome of the exhibition has greatly exceeded our expectations. "

Under the dual circulation, industries embrace new opportunities

The domestic and international dual circulation mutually promotes each other, making Tube China an attractive "dual-directional journey" where suppliers and buyers, producers and consumers, investors and innovative projects all participate in this grand event. Leveraging the Tube China platform, they explore new cooperation opportunities.

Overseas buyers have fully returned, and a lot of professional visitors have come to the exhibition site for visiting and purchasing. According to statistics, the total number of visits to this exhibition reached a historic high of 22,365, including numerous overseas buyers from 53 countries and regions such as the United States, Japan, South Korea, Singapore, Brazil, Russia, India, Thailand, Vietnam, Albania, China Taiwan, and Hong Kong. The organizers have made great efforts to create a professional platform that integrates brand showcasing, efficient procurement, and technical exchanges, covering the entire industry chain. With a focus on the Chinese market and extending its reach to Asia market, this platform is dedicated to promoting the industry's economic recovery in China and information exchange with international.

China International Steel Tube & Pipe Summit

The concurrent "China International Steel Tube Summit" held during Tube China 2023 has received extensive attention from the industry.

The event invites prominent local and foreign industry experts and professionals to exchange views on industry hot topics and advanced technologies, share opinions, and explore the latest trends! Representatives from ITA International Tube Association, China Steel Construction Society Steel Pipe Branch, as well as renowned companies such as SMS Group, JFE Steel, CITIC Special Steel, Jiuli Special Material, Neotiss Welded Pipe, Shanghai Boiler Works, Chengde Special Steel, Baosteel, and Baowu, delivered impressive speeches.

Heat treatment Technology Seminar

Another professional seminar "Heat Treatment Technology Seminar" was held during the exhibition too, where they collectively explored the heat treatment processes and technologies used in pipe manufacturing. Companies such as Inductotherm Group, HANDUK R-FECO, and EFD showcased their latest heat treatment technologies and equipment during the conference.

As a "barometer" for the development of international tube and pipe industry, Tube China has been held successfully for ten times, and has won a high reputation from the industry insiders. In the future, we will continue to uphold the concept of "global integration, shared development" and devote ourselves to building a one-stop platform that connects domestic and international trade exchanges.

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shi@mds.cn

China International Steel Tube Pipe Summit June 2023

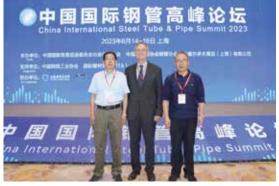
Parallel to the well-established tube show "TUBE China 2023" in Shanghai, the Association of Steel Tube Products, CSCS, organized a well-respected conference with more than 200 attendants from the international tube industry. The opening remarks were presented by Mr Su Changyong, Vice Secretary General of the China Iron and Steel Association.

The conference covered many relevant topics regarding actual tube market trends and innovative technological solutions for the tube industry.

Our President, Dr. Gunther Voswinckel, was invited to present the Keynote about the global tube and pipe market.

The conference as well as the tube show offered numerous opportunities to present latest innovations and intensive exchange within the industry.





Mr Zheng Guiying (Director General) and Mr. Zhuang Gang (Senior Consultant) of Chinese Association for Steel Tube and Pipe Products CSCS together with Dr. Gunther Voswinckel.

Tube Middle East Africa 2023

Convincing premiere for wire and Tube Middle East Africa in Cairo



02 - 04 Sept 2023 Cairo A successful appearance for Messe Düsseldorf's four new foreign satellites in Cairo: from 2 to 4 September, wire and Tube Middle East Africa, together with GIFA and METEC Middle East Africa, presented themselves for the first time at the Egyptian trade fair METAL & STEEL EGYPT at the Egypt International Exhibition Center in Cairo/Egypt.

The regions of Egypt, the Middle East and North Africa offered many first-time exhibitors the opportunity to invest in these growth markets. 383 exhibitors from 19 countries took the opportunity to show their colors in Cairo. In addition to local companies, exhibitors from the UK, France, Austria, Belgium, Turkey, Spain, Switzerland, Morocco, the USA and Germany, among others, also came to Egypt.

The Egyptian trade fair organizer AGEX (Arabian German Exhibitions & Publishing Ltd) has already been holding its METAL & STEEL EGYPT trade fair since 2010.

The cooperation with Messe Düsseldorf results in valuable synergies for all sectors involved.

There was noticeable interest in the exhibition halls right from the start of the five trade fairs. Over 7,000 professionals (around 10% international) traveled to Cairo over three days to network and find out about trends and innovations from the industries and discover the latest machinery, equipment, products and services from the metal and steel industry and the wire, cable, tube, foundry and metallurgy sectors.

There will be another edition of the trade fairs in the first half of 2025. At that time, the five industry players will once again present themselves in Cairo. The exact date will be found with the regional organizer and in consideration of all satellites of the metal trade fair portfolio made by Messe Düsseldorf.



The synergy with metallurgy and foundrytechnology at co-located exhibitions

Over three days, some 254 exhibitors from 27 countries demonstrated their technology, machinery, and innovations across multiple application sectors from automotive, building and construction, energy and gas, to users from metal and steel plants. wire and Tube Southeast Asia successfully presented a comprehensive platform for 6,350 trade visitors with 24 percent coming from overseas. Together with visitors for GIFA and METEC Southeast Asia, international visitors hailed from neighbouring Malaysia, Vietnam, Singapore, Philippines, as well as China and India, among others. On the local front, there were also 54 visiting groups representing the key target sectors across wire and cable manufacturers, iron and steel and non-ferrous metal industry and from upstream supplier industries. These included Bangkok Cable, Thai Summit Cable & Parts, The Siam Industrial Wire, Alphacast, PV Casting and Machine, TMT Steel Public and many others.

"While this year saw a more focused group of visitors, what truly stood out was the depth of engagement and the quality of discussions on the show floor. It was evident that participants came with clear objectives and a genuine interest in collaboration. The value of these interactions and the potential for lasting business relationships cannot be understated. We remain committed to providing a platform for meaningful exchanges for the industries we serve," said Gernot Ringling, Managing Director, Messe Düsseldorf Asia.

As a first-time visitor, Professor Dr. Suchatvee Suwansawat, former President of the Council of Engineers, Thailand, was deeply impressed by the international representation, particularly from Europe, and the extensive display of machinery and solutions on offer. "Witnessing such global interest from the exhibitors, right here in Bangkok, with a vast range of machines,

products, and solutions, also highlights how fortunate the Thai and regional industries are to be able to experience such exhibitions. This is not just a sourcing ground; it is also a unique opportunity for the local industry to learn, share, and embrace best practices."

Reflecting a similar standpoint was Thai exhibitor Pine-Pacific Corporation, one of Thailand's leading suppliers of both raw materials and equipment for the foundry industry, who remarked that this was also a good opportunity for the local industry to meet and network with an international audience. 1 According to Itthinai Yingsiri, Managing Director, "for local companies, here you can explore more target groups and gain access to potential customers from other countries or from the Southeast Asian region without even having to travel abroad."

Beyond showcasing innovations and solutions, the exhibitions were also about knowledge-sharing. The four co-located exhibitions included concurrent events such as conferences, technical presentations, and business matching activities. One standout was the 2-day international conference titled 'Towards a Sustainable Future - Transforming Challenges into Opportunities', jointly organised by Messe Düsseldorf Asia and the International Wire and Machinery Association (IWMA). Key topics revolved around sustainable growth and environmental responsibility, resonating with the region's efforts towards economic growth paired with decarbonisation.

Commenting on some key takeaways from the conference, Don Neville, Chairman, IWMA, said he was very interested by some of the common challenges presented by the speakers. "Not just within this region but with other parts of the world too, despite the unique characteristics of each



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region, there are still fundamental common denominators – and that is something worth communicating and sharing in a conference setting such as this. The different regional perspectives on sustainability challenges are very important in shaping discussions," he said.

On the same note, Nava Chantanasurakon, Chairman, The Federation of Thai Industries – Iron and Steel Industry Club, and Keynote Speaker, stated that the conference was timely as Thailand is well on the way to moving modern energy and reducing CO2 emissions up the agenda, and to improve the production process for low-carbon manufacturing.

Bernd Lohmüller, Managing Director of Maschinenfabrik Niehoff, a leading supplier of machinery for the non-ferrous, wire, and cable industry, also offered his perspective on the conference. He shared, 'Positioning the conference on the show floor was a good addition and significantly enhanced the visitor experience. The content presented was insightful, especially the contribution from the Thai presenters who offered deep local insights. Discussions around CO2 emissions reduction and energy efficiency also resonated deeply, as lowering CO2 emissions invariably leads to reduced production costs. Overall, the concept of the conference greatly enriched the exhibitions."

For Maillefer Extrusion, one of the world's leaders in wire, cable, pipe and tube production technologies, and also an industry forerunner on sustainability, according

to Henri Hackman, Sales Manager, Asia Pacific, "being able to promote the values of sustainability for now and in the future is very important to us, so we look forward to the opportunity of collaborations such as this at the next edition." 2 Both companies – Niehoff and Maillefer – together with FMS Force Measuring Systems AG, and Metalube Group, were among the line-up of IWMA member presentations as part of the conference programme on the second day.

Southeast Asia's growing demand

Amid rapid urbanisation, infrastructure development, and increasing internet penetration in Southeast Asia, the demand for wire, cable, tube, and pipes have been on upward trajectory. Notably, in 2022, the Asia-Pacific region held the largest revenue share in the wire and cables industry, with over 37 percent market share. With infrastructure development being the focal point for Southeast Asia on the back of the pandemic, the region continues to solidify its global significance. Wire and Tube, and GIFA and METEC Southeast Asia 2023 presented a timely opportunity for businesses in the relevant sectors to strengthen their foothold in the region.

wire and Tube Southeast Asia Press contact in Germany:

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boehlerit

Know-how in the field of tube machining



- 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.

Preview

Tube 2024

The Who's Who of the international wire, cable, tube & pipe industries in Düsseldorf: Who will be exhibiting in April 2024?



15-19 April 2024 Düsseldorf

The sector looks to Düsseldorf with anticipation, where the global No. 1 trade fairs for the wire, cable, tube & pipe industries will be staged from 15 to 19 April 2024.

With immediate effect all exhibiting firms are live at www.wire-tradefair.com, Exhibitors & Products 2024 and www.tube-tradefair.com, Exhibitors & Products 2024 presenting their products and trends on the Internet portals.

What makes it special: #Sustainability and #Energy Efficiency are even more in focus than in 2022. Daily ecoMetal trails touring visitors of exhibitors' novel, clean producTrend forums, expert meetings and themed pavilions for stainless steel, hydrogen, other regenerative energy carriers, separating and cutting, plastic pipes & tubes and finished products for Fastener & Spring Making Technologies will be in focus.

Community building comes care of the daily After-Work Chill Meetings in the outdoor spaces and entrance Nord - here exhibitors can also meet their customers after trade fair hours over drinks and tasty Düsseldorf canapés.



Ranges on display at Tube 2024

Tube also enjoys excellent booking levels. So far, 768 exhibitors from 49 countries have registered. They will occupy a total of 49,600 square metres' exhibition space in Halls 1 to 7.1.

#Tube 2024 presents the entire process chain of the tube & pipe industry – in a focused and compact array: machinery and equipment for manufacturing pipes and tubes, finishing and processing of pipes & tubes as well as raw materials, plastic pipes, tube products and accessories, used machinery, tools for process engineering, auxiliaries, sensor technology, control, measuring and testing technology all form part of the extensive ranges. This line-up is complemented by tube & pipe, pipeline, OCTG technology and profile trading.

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TAtube Journal Dece

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International satellites in booming markets of the future

Over a time span of almost 40 years wire and Tube Düsseldorf have developed into the leading trade fairs for their industries – now also "giving birth" to satellite events on the #Wire, #Cable and #Tubes & Pipes themes. In their regions, they are the market leaders and drivers for the local industries and boast high growth potential. Satellites in Turkey, Egypt, Mexico, China, Thailand and India now already form an integral part of the growing portfolio of the Metal and Flow Technologies made by Messe Düsseldorf.



Tube 2024

ITA at Tube Düsseldorf

We are looking forward to welcome you at our booth in **Hall 1 F70**. Please **safe the date** for the following program on **Thursday, April 18th:**

10.30 am – 2 pm ITA Tube Forum

3 pm - 4 pm ITA Annual General Meeting (AGM)
Afterwards meet & greet at ITA booth / booth party

We would also like to inform you about further program items at Tube Düsseldorf in which the ITA is involved.

ITA Tube Forum 2024 Opportunities for the Tube Industry in turbulent times

The ITA Tube Forum will address the key steel tube industry trends that will impact international tube and pipe markets. In addition, our panel of international experts will share their market assessments and offer strategies for success in a market characterized by volatility and uncertainty.

Focus areas and topics:

- Global overview of the pipe market: regional pipe markets, supply, demand and price trends
- Focus topics on the most important pipe market segments: OCTG, Automotive, Structural Piping and Mechanical Piping
- Energy costs: Effects of rising energy costs on production
- Overcapacity: Analysis of longer-term global market trends
- End consumer demand: impact of rising costs, inflation, supply chain risks and technical and technological innovations
- Energy transition: Challenges of sustainable decarbonization of the steel industry
- Market trends and what innovative measures pipe manufacturers can take in response: How can plant manufacturers support with their innovations?

This event is free of charge and already included in your trade fair ticket.

Date: April 18, 2024

Venue: Hall 1, Stand 1.A.47

Contact: Cornelia Buesing, info@itatube.org

High Potential Days

Your next career opportunity. Discover exciting lectures, job trails and much more!

The diversity and momentum of both trade fairs, wire & Tube, make them the central hub for growing business with a sustainable focus. After all, topics such as ecoMetals and the use and transportation of hydrogen also occupy the players in both sectors - and require smart newcomers. You yourself have the chance to make a big difference, because wires, cables and/or pipes are important elements in a wide range of industries.

By taking part in the High Potential Job Trail, you have the chance to get the best industry overview at our world's leading trade fairs as well as valuable meetings with potential employers. Here, our exhibitors have the opportunity to present their companies up close - with digitally supported tours.

Discover our exciting jobs on our job walls on site and online in the future and don't miss the lecture programme on the forum stages from Thursday 2 pm in Hall 1 (A47) and Friday all day in Hall 1 and Hall 6 (G07)

Contact: Cornelia Buesing, info@itatube.org

ecoMetals: Pioneers of sustainability Developed for the pioneers of sustainable responsibility.

ecoMetals will once again turn wire and Tube into a place of action. Trade fair visitors will encounter innovative strategies of sustainable responsibility here and conduct inspiring discussions with experts at eye level. You can recognise the excellent innovations by the ecoMetals logo: Products, processes and technologies in harmony with nature. Discover the sustainable innovations of our exhibitors up close with new, digitally supported tours.

Contact: Cornelia Buesing, info@itatube.org

Recruit talents:

Make your company number one for tomorrow's experts!



Ahead of the competition: Demonstrate why employees with high potential cannot ignore your company!

In the "war for talents", it's all about convincing the **best experts of today and tomorrow** to join you. As the unchallenged global trade fair champions, wire and Tube are the perfect events to awe smart "newcomer minds" using the right measures! This will not affect your core business negatively, because the High Potential Days focus on **Thursday afternoon** and the customarily less busy **Friday of the trade fair as the main day of action.**





Young professionals:

Be the first to recruit young talents with extraordinary potential and initial job experience who demonstrate above-average competence.

Students and trainees:

This fascinating target group, too, needs to be contacted as early as possible to best position your company. This is not just about making your industry and expertise appealing: Issues like sustainability, opportunities for further development and promotions are very important, too.

Visitors looking to improve their career:

Experts with several years of professional experience are also welcome at the High Potential Days, because potential is not a question of age.

Use your platform at the world's leading trade fairs wire & Tube as a top company at the High Potential Days 2024!

Make the most of our offer to position yourself as an employer at wire & Tube – with great benefits with attractive terms:

O Valuable first get-together meetings:

We recommend that you assign at least one HR representative as well as one trainee or high potential available on the Friday of the trade fair to act as a contact persons for young talents.

O High potential job trails:

Present your company close-up – with digitally supported tours that stop by your trade fair booth.

O Live job wall:

Offer attractive prospects for joining your company and career opportunities on site on a live job wall, as well as on an exclusive job wall on our trade fair web pages.

O Top lecture programme:

You can look forward to lectures about employer branding and brands and managing applicants, among other topics.

O Integration with trade fair communication measures and visible distinction through the "High Potential Days" logo, offline and online.

O Your plus for recruiting:

Promote the High Potential Days during all your recruiting activities as a special opportunity to get to know each other personally – from the vacancy notice to your career website.

€ 499.00 plus VAT

Does that sound exciting? Get in touch!

Your contact person: Aylin Çelik

Phone: +49 211 4560-7769

E-mail: CelikA@messe-duesseldorf.de



Tube events

Events for Business, Technology, Education and Networking

Diary of world class tube events

Janua	ry 2024	
08 - 11	Steel Fab	steelfabme.com
April 2	.024	
15 - 19	Tube Düsseldorf	tube.de
May 2	024	
06 - 09	OTC	otcnet.org
13 - 17	IFAT	ifat.de
June 2	024	
10 - 14	ACHEMA	achema.de
Septer	mber 2024	
03 - 05	Stainless Steel World Asia	stainless-steel-world-asia.com
22 - 25	Tube China	tubechina.net
Octob	er 2024	
03 - 05	Tubotech	tubotech.com
15 - 17	FABTech	fabtechexpo.com
	Euroblech	euroblech.com
Nover	nber 2024	
06 - 07	Stainless Steel World Duplex	stainless-steel-world-duplex.com
11 - 14	ADIPEC	adipec.com
27 - 29		
	Tube India	tube-india.com
	nber 2024	tube-india.com
Decen 03 - 05	nber 2024 Valve World Expo	tube-india.com valveworldexpo.com
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Decen 03 - 05 spring	valve World Expo 2025 e Conference	valveworldexpo.com
Decen 03 - 05 spring ITA Tub April 2 09 - 12	valve World Expo 2025 e Conference 025 Tube Eurasia	valveworldexpo.com
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KALLANISH EVENTS



08 February - Istanbul

What's driving the global scrap market? A look into trade, policy, technology & energy. Delving into global steel market megatrends – where will this decade take us? Where are scrap prices heading in 2024? Steel Scrap 2024 will provide steel participants from the whole supply chain with a unique opportunity to come together and discuss global scrap, DRI and HBI market trends.

Asia Steel Markets 2024

27-28 March - Ho Chi Minh City

ASM24 returns to Vietnam for its 8th installment. Topics include Asia in the global steel market, investment and demand growth, trade in a turbulent world, steel input cost, future trends and market outlook. Join us to hear about Asian steel sector prospects for 2024, as well as share experiences and latest industry developments.

Europe Steel Markets 2024

June - Milan

With a line-up of expert speakers and a stimulating, topical and interactive programme, this event will present networking opportunities galore! Maximise your awareness of the current uncertain climate and forecast what impact this will have on your business.

Flat Steel 2024

October - Istanbul

Bringing together a plethora of esteemed speakers with fellow senior leaders from the industry, uniting to discuss the current global challenges and opportunities for the international flat steel industry.

Email: sales@kallanish.com to book

ITA Inside

Media Plan 2024

2024 Digital Marketing

deadline: 5 work days prior next month

January ITA Buyer's Guide

deadline: 18.01.24, presentation: Tube Düsseldorf 2024

February ITA Newsletter

deadline: 25.01.2024 preview Tube Düsseldorf publication: February 2024

April ITA Tube Journal 1/24

deadline: 07.03.2024,

publication: April 2024 (before Tube)

Tube Düsseldorf 2024

ITA at Tube Düsseldorf

Wall of Fame (15.-19.04.24)

deadline: 15.02.24

Booth party sponsoring package (18.04.24)

deadline: 15.02.24

ITA Tube Forum (18.04.24)

package by Messe Düsseldorf GmbH

High potential days (18./19.04.24) package by Messe Düsseldorf GmbH

ecoMetals (15.-19.04.24)

package by Messe Düsseldorf GmbH

June ITA Tube Journal 2/24

deadline: 30.05.2024

review Tube Düsseldorf 24 / preview Tube China 24

publication: June 2024

October ITA Tube Journal 3/24

deadline: 03.10.2024

review Tube China 24 / preview Tube India 24

publication: 24.10.2024

If you are interested in our offers or have any questions, please get in touch with us. We will be happy to provide you with detailed information and advice on the individual points.

Cornelia Buesing, info@itatube.org

Do not miss that chance: Advertising in the next ITAtube Journal

"There is one rule for the industrialist and that is: Make the best quality of goods possible at the lowest cost possible (...)"

Henry Ford.

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Inside front cover	€ 1,200.00	€ 1,150.00	€ 1,100.00
Inside back cover	€ 1,200.00	€ 1,150.00	€ 1,100.00
Front page	€ 2,000.00	€ 1,900.00	€ 1,800.00
Outside back cove	r€1,500.00	€ 1,450.00	€ 1,400.00

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Full page	€ 1,600.00	€ 1,520.00	€ 1,440.00
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Quarter page	€ 600.00	€ 570.00	€ 540.00
Double page	€ 3,000.00	€ 2,850.00	€ 2,700.00
Inside front cover	€ 2,400.00	€ 1,900.00	€ 2,200.00
Inside back cover	€ 1,800.00	€ 1,710.00	€ 2,220.00
Front page	€ 4,000.00	€ 2,280.00	€ 3,600.00
Outside back cove	r€3,000.00	€ 1,900.00	€ 2,800.00



ITA Inside

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Imprint

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7. March 2024

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- Preview Tube China 2024
- Preview Tube India 2024



- ITA well respected since 1979
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- sole globally active association of tube & pipe engineers from across the industry (supply and manufacture), related services and universities.
- global technical and market information platform supporting innovation and growth within the tube industry

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ITAyour global tube platform





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