

MAGAZINE OF THE
SCHMIDT + CLEMENS GROUP

update

CREATING.
INNOVATION.
TOGETHER.

EDITION 01 | 2023

05

FACTS AND FIGURES

06

PURCHASING AND LOGISTICS

08

PETROCHEMICALS

12

RESEARCH AND DEVELOPMENT

16

HUMAN RESOURCES

Passion
Innovation
Tradition



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Content

Content and Imprint	02
Foreword Jan Schmidt-Krayer	03
Foreword Chairman of the Advisory Board Lutz Werner	04
Facts and Figures	05
Purchasing and Logistics	06
Petrochemicals	08
Special Products	10
Research and Development	12
Production and Technology Management	14
Human Resources	16



Publisher and Copyright

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Dear Readers,

2022 was a very eventful year. The coronavirus pandemic and disrupted supply chains were one thing, the Russian war of aggression in Ukraine was another. The war led to sanctions and counter-sanctions, culminating in an energy crisis due to our government's totally misguided energy policy. The result was unprecedented cost increases for electricity and gas, which also hit us hard as a company. At the beginning of the year, we set up a crisis team to constantly monitor and assess developments on the energy and commodity markets. Saving energy is the order of the day. We have already converted the heating technology in many places in the plant and gone over to LED lighting as much as possible.

More than ever before, politicians are being called upon to create the framework conditions under which affordable energy is available to German industry. If no immediate counter-measures are taken, many jobs will be at stake, particularly in energy-intensive companies – of which S+C is also one.

Turnover in the group of companies in 2022 was around 322 million Euros, almost six percent higher than in the previous year. The balance sheet total increased from around 183 million Euros to 191 million Euros. The equity ratio is around 53 percent. Due to the above-mentioned difficult framework conditions, the S+C Group's financial result declined significantly.

But the year also had many pleasant events in store for us. After a long time, we were able to meet our business partners in person again for the first time at numerous trade fairs and conferences. This was a nice feeling and a return to more normality. Our Czech subsidiary, S+C ALFANAMETAL, celebrated its 25th anniversary in September.

I am very proud and happy that I was able to attend this festival together with my father, Christoph Schmidt-Krayer.

We were able to complete a particularly successful project for a customer in the Middle East with the help of our service department. In January 2022, we supported the conversion of a methanol plant here with over 400 employees.

A forecast for the 2023 financial year is currently still difficult. We must assume that electricity and gas prices will remain at a high level. Commodity prices are still subject to great fluctuations. Many geopolitical uncertainties remain. However, a comfortable order volume gives us confidence that we will "get off lightly".

My thanks at this point go to our shareholders and the advisory board for the trust placed in the management. I would especially like to thank our customers, who remained loyal to us even in difficult times and continued to focus on quality and service. Passion, innovation and tradition, these three words express well what Schmidt + Clemens stands for. With this passion for high-quality special steel, our colleagues contribute every day towards impressing our business partners with our innovative solutions. The management would like to thank our colleagues for this passion, for their loyalty to the company and for their commitment!

Good luck!



Jan Schmidt-Krayer
Managing Partner/CEO



Dear Sir and Madam,

In 2022, Schmidt + Clemens once again maintained its position as world market leader with spun casting tube systems for the petrochemicals industry, and was also able to expand its leading role in other sectors such as the service field (installation and removal of products at the customer's location).

The framework conditions that the family business had to face in 2022 were more than challenging. First the pandemic, then the highly dramatic political crisis with the resulting shortage of raw materials, with the supply bottlenecks and the problems in global logistics made for consistently difficult business processes and unstable markets. In addition, there were unprecedented cost increases for electricity and natural gas in the energy sector, which hit the German plant particularly hard.

Nevertheless, even in these extremely difficult times, S+C has managed to achieve a good operating result – thanks to untiring efforts and exceptional flexibility on the part of the management team and all colleagues.

Once again, the Spanish facility contributed significantly to this result thanks to an optimum product mix. The plant in the Czech Republic also showed with a positive result. In Malaysia, the new management team was able to report success at the end of 2022 and significantly improve the outlook for 2023. New appointments to the management team were also made in Spain and the Czech Republic. The Advisory Board expresses its full confidence in the new managing directors.

Even though the focus was on the complex day-to-day business in order to process orders on time, the group's management team also continued to work intensively on the corporate strategy "Ambition 2025". This involved analysing the new global economic and political situation in detail.

As a technology leader in the field of high-quality special steels, S+C is already contributing to sustainable action without neglecting process improvement and efficiency. Sustainability, resource conservation and considerable energy savings to reduce CO₂ emissions have become trailblazing topics. With strong customer orientation and innovative thinking, the company will further strengthen and expand its position as a solutions and service partner.

In view of the current explosive situation and in particular the sharp rise in energy costs in Europe, forecasts for 2023 appear to be extremely difficult. However, the good order volume from 2022 suggests a positive result.

The Advisory Board thanks the entire S+C management team for its forward-looking and dedicated actions. All employees worldwide have had to make many sacrifices in recent months in order to confirm the Schmidt + Clemens Group's familiar image as a reliable partner for our customers, even in these unusual times. The Advisory Board would like to sincerely thank all employees for their loyal support.

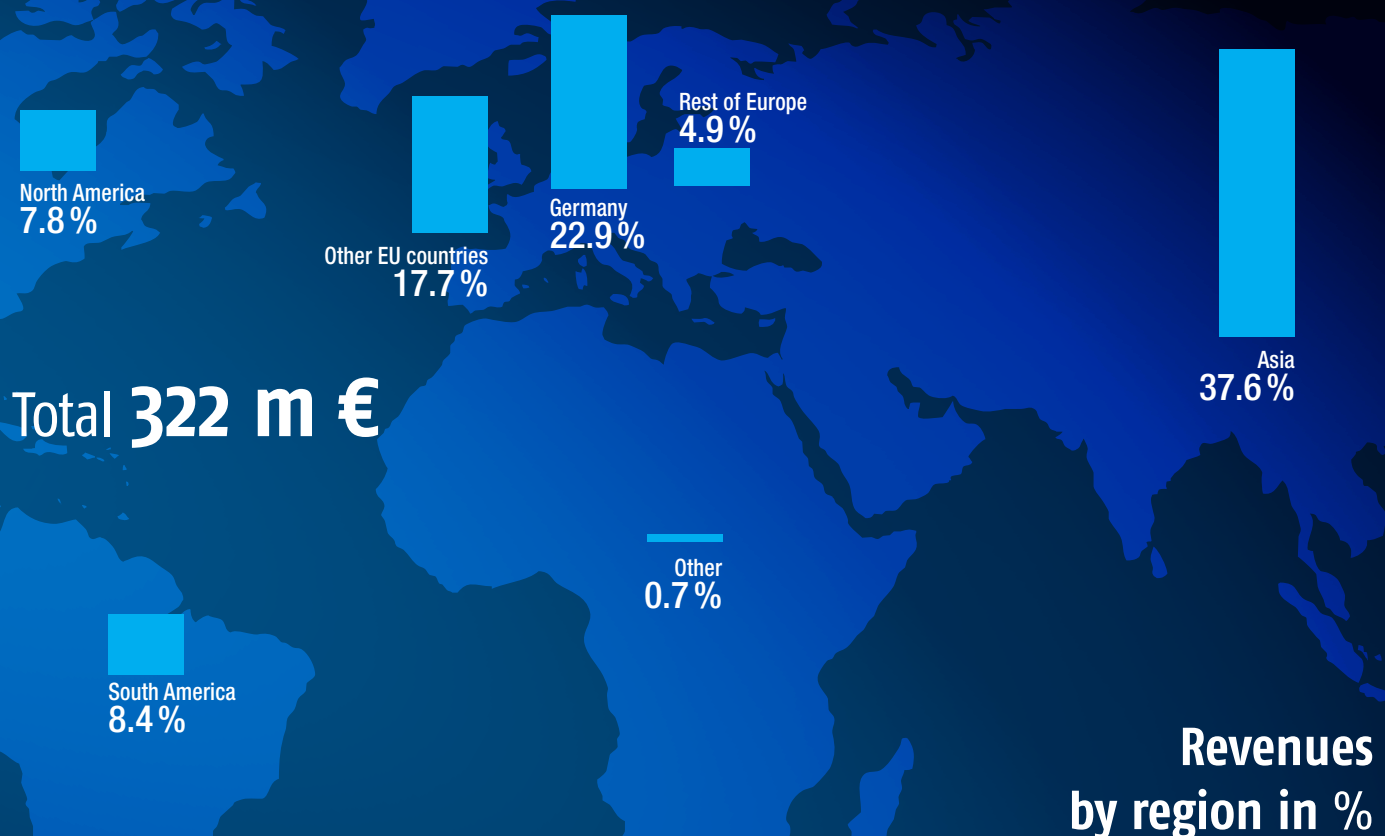
Thanks must also go to S+C's business partners and customers for their ever-trusting co-operation, as well as to the shareholders for their valuable support.

Sincerely,

Lutz Werner

Chairman of the Advisory Board





2022: Facts and Figures

637

Germany

231

Spain

104

Malaysia

112

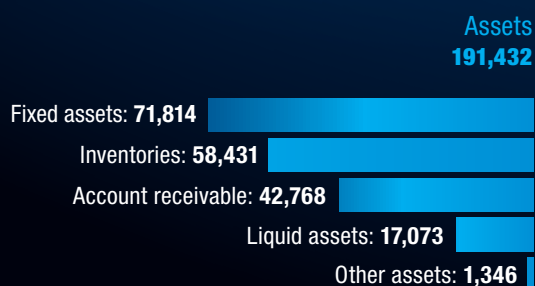
Czech Republic

3

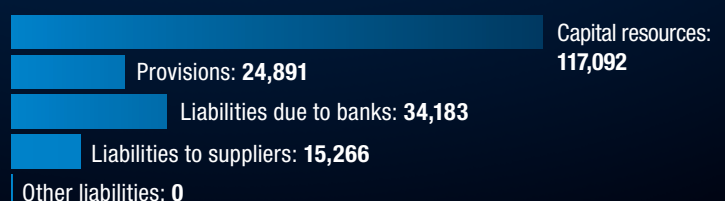
Others

1,087

S+C Employees



Liabilities
191,432



**Consolidated Financial Statement
for the S+C Group in T€**

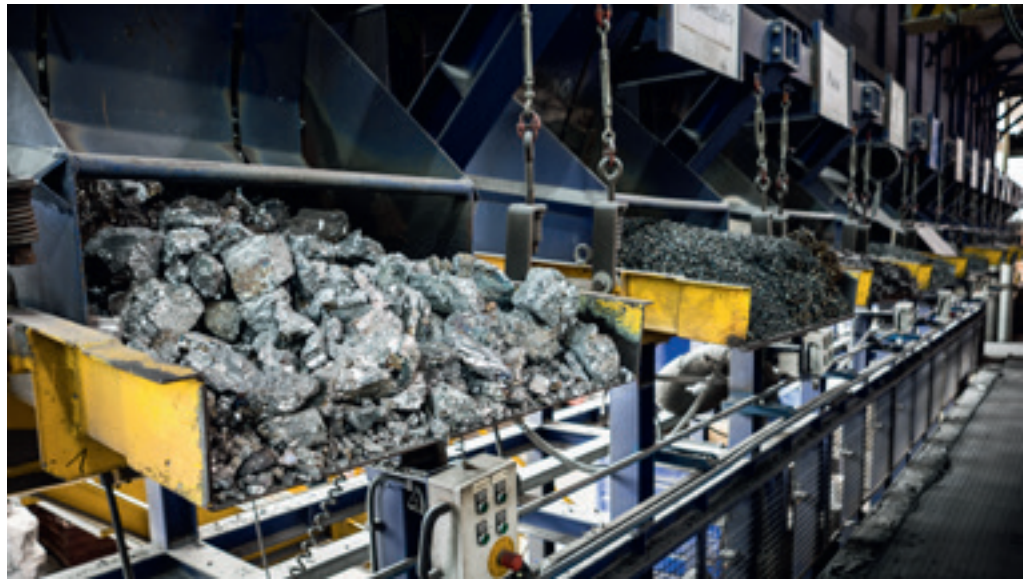
2022

TIME OF CHALLENGES AND SOLUTIONS



"In the 2022 financial year, Purchasing and Logistics focused on ensuring the availability of all raw materials and foundry auxiliary materials required for production."

Dirk Reimann



Due to the fact that the supply chains have not yet been fully re-established since the coronavirus pandemic, and above all due to geopolitical developments, there was a considerable risk of production disruptions caused by a lack of raw materials. Especially since some of our key raw materials, such as nickel cathodes, come predominantly from regions that run the risk of being hit by sanctions. There it was necessary to build up appropriate alternatives in order to prevent disruptions. So far, S+C has managed to do this successfully – even though some of the work was single sourced for technological reasons. On the cost side however, S+C had to accept significant additional procurement costs in 2022 compared to 2021. For example, the price of low-carbon ferrochrome, an essential raw material for our products, more than tripled over the year.

On the subject of energy, which for S+C means primarily natural gas and electricity, prices have increased tenfold or fivefold compared to previous years. In addition to ensuring availability, the focus was on quality, cost reduction, increasing efficiency, risk management and the implementation of measures to meet all requirements of the Supply Chain Management Obligations Act, i.e. primarily compliance and sustainability. Although this does not apply to S+C, we will nevertheless meet all requirements in 2023. The decision to procure raw materials throughout the S+C Group via the "MetalsHub" electronic platform was a key factor in increasing efficiency and transparency, and in containing cost increases. The procurement of raw materials via this platform has since been implemented in all plants of the S+C Group.

In Logistics, we have also for years been placing all projects throughout the group via our own "Heimdall" electronic platform with great success. Even though issues such as driver shortages, skyrocketing diesel costs as well as supply shortages have in some cases led to significant price increases on the markets, logistics costs for S+C have only increased moderately in 2022, in the low single-digit percentage range. We were able to achieve this while at the same time securing the necessary freight space and capacity.

For 2023, we also expect a very challenging year in procurement and logistics, but we are confident that we will be able to master all challenges to the satisfaction of our production and, above all, our customers.



Dirk Reimann

Head of Central
Purchasing and Logistics

OPTIMISTIC ABOUT THE FUTURE

Positive outlook for the steel and petrochemical industry

"The initially positive development of the markets was severely slowed down at the end of February 2022 following the invasion of Ukraine by Russian troops. The associated rise in commodity prices to an all-time high, the drastic increase in energy prices and the uncertainty regarding the availability of natural gas presented many energy-intensive companies with major challenges."

Dr. Dietlinde Jakobi



Dr. Dietlinde Jakobi

Corporate Director Sales
Petrochemical and Services

Following a sharp decrease in purchasing activities with our customers in the petrochemicals sector in March 2022, many projects were approved in the second half of the year in which S+C was able to participate: These included both orders for new plants and for replacement business, which meant that the expected targets for orders received in 2022 were far exceeded.

Steam crackers in Europe were operated at reduced load or even shut down during the year, and European fertiliser producers curtailed ammonia production or took plants out of operation.

To compensate for the decline in European supply of basic chemicals, gas-rich countries in the Middle East and many countries in Asia have been turning their attention towards petrochemicals during this period. At the same time, the strong growth in domestic demand is forcing countries such as India, South Korea, certain parts of South-East Asia and China to massively increase capacity. The majority of these new plants are in the planning or contract placement phase, and some of these projects are already being implemented.

In North America, petrochemicals companies also faced enormous logistics problems in addition to the challenges posed by high raw material and energy prices, with the result that many activities did not commence until the end of 2022 – driven by urgently-needed maintenance measures on customers' premises and capacity bottlenecks with suppliers.





The topics of sustainability and increasing the efficiency of plants are increasingly coming into focus in the petrochemical industry worldwide, so that S+C technologies such as the patented material Centralloy® HT E, the material Centralloy® 4852 Micro R and the 3D-technology SCOPE® have been able to establish themselves in the replacement business.

The replacement business in the area of steel production / direct reduction of iron ore also gathered pace in the second half of 2022, with S+C once again being able to secure a large market share through the use of the patented material Centralloy® 60 HT D. The prognosis for direct reduction as a more environmentally friendly process remains good and replacing steel production via this route with a new route using green hydrogen will only become established in the very long term.

Despite the travel restrictions still in place at the beginning of the year due to the Covid 19 situation, numerous projects were successfully completed in the field of "on-site services", which meant that the ambitious goals could be attained in 2022. In addition to the repair or replacement of individual components, complete tube systems were also replaced in plants. In the process, the S+C Services team succeeded in significantly reducing the usual downtimes of the plants. In addition to assignments in Germany and neighbouring countries, orders were also fulfilled in Asia and the Middle East.

Already in the second half of the previous year, there was a clear revival in demand for "on-site services". The first orders have already been received, enabling S+C to look into the future with optimism.

Business division Special Products of the S+C Group

"Another increase in incoming orders was recorded in 2022. The figures were well above the targeted goals, which meant that production capacities were sometimes stretched to their limits."

Dominic Otte

An additional complicating factor was that the effects of the 2021 flood were still being felt, which meant that some orders could not be completely delivered until the end of 2022.

In addition, the focus was on dealing with the drastic increase in energy and raw material costs. Existing orders and supply contracts had to be renegotiated afterwards.

Due to the particularly large order volume at our headquarters in Lindlar and the limited capacities, the new customer business could not be expanded to the extent originally planned. In 2022, the focus was on ensuring the ability to deliver for our long-standing existing customers, taking into account the new cost structure.



Dominic Otte
Managing Director
Production and Engineering/COO



Separation technology

The separation technology department was closed in December 2022. After weighing up all the opportunities and risks, the management decided to close the unit which had already been recording a loss for several years. Existing delivery commitments were of course being fulfilled.

S+C ALFANAMETAL

The completed merger of the two sales units in Germany and the Czech Republic is also developing positively. In particular, the development of the Eastern European markets will remain a challenging task. The first orders from these regions have already been received.

Sales restructuring

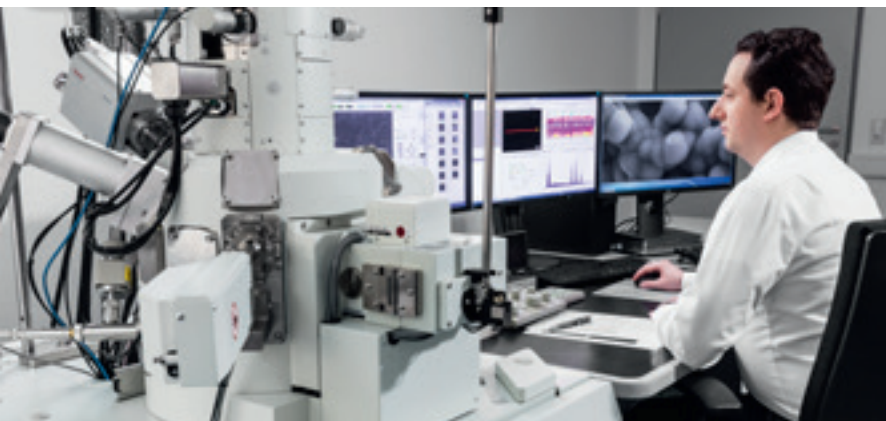
A new sales structure was introduced as early as at the beginning of 2022, with the aim of driving forward internationalisation in the special products field. The main difference is that product responsibility has been changed to a regional responsibility. This new approach allows the sales team to act more efficiently and in a more target-orientated manner. The first positive results are already clearly visible following the easing of the coronavirus situation, particularly in Europe.

Outlook for 2023

The main focus will be on compensating for the separation technology market segment with innovative and future-oriented products. The rapid technical development in the areas of environmental and energy technology will be a central point in the expansion of the special products business unit. The opportunities arising from this must be accompanied by design and material innovations from the development phase through to market readiness.



Research and Development



"Sustainability and efficiency-enhancing technology solutions "Made by S+C" were the focus of the Research and Development Services department. Besides in-house consideration of the life cycle and CO₂ footprint in our own cast product manufacturing, S+C is supporting its customers with newly launched monitoring solutions, metallurgical investigations and targeted materials consulting."

Sebastian Klein

The life cycle assessment of a complete harp tube of a steam reformer in the scope of cradle to gate was successfully completed. In the next step, the results will be applied to steam cracker components. This will enable ambitious sustainability targets to be set for the manufacture of S+C products in the future.

The main keys to making CO₂ savings when it comes to the operation of S+C components are their efficiency and durability. For non-destructive condition monitoring of the tubes in the steam cracker, S+C has the Condition Monitoring Tool, which can be used to avoid unscheduled plant shutdowns, and also a Gold Cup reference pyrometer for precise measurements of the tube wall temperatures of components during the operation of petrochemical plants.

The results of 40 extensive material tests on ex-service material help plant operators to evaluate the material condition of the plants and to point out optimisation potentials in the process.

Important findings are published at technical conferences, e.g. the key factor for steam cracker operators of how excessively high sulphur contents in the process gas influence the ageing of the tubes. With this publication, S+C is contributing towards expanding the publicly available process knowledge that plant operators can draw upon in order to improve process safety on the one hand and to increase plant efficiency on the other.

Ambitious sustainability targets are forcing plant operators to develop completely new processes and technologies. For that, the RDS team has been able to contribute its materials expertise in many projects in cooperation with customers, besides providing support in terms of the qualification of suitable materials. The development of new materials for these sustainable processes is also the subject of internal RDS research projects.

In addition to all process and technology optimisations, the right material, customised for the respective area of application, plays an increasingly crucial role. For example, the development of new creep-resistant alloys for steam reformer applications progressed further last year. Novel alloy concepts are also being continuously developed by RDS materials experts.



After the severe restrictions brought about by the coronavirus pandemic, travelling could be resumed and the RDS team was represented at numerous trade fairs and conferences. An overview of techniques for monitoring the performance and the remaining service life of centrifugally-cast tubes in iron ore direct reduction reformers was presented in a well-received paper. More sustainable manufacturing processes and ways to reduce CO₂ emissions in steam reformers are discussed in an article in the October issue of World Fertilizer magazine.



Sebastian Klein

Head of Research
and Development





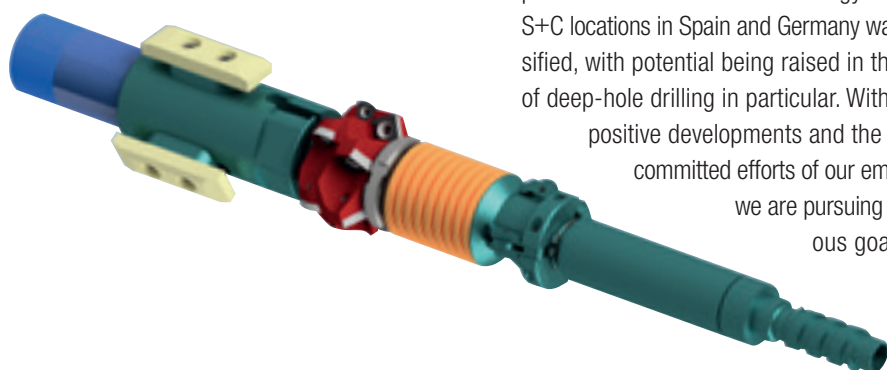
PRODUCTION AND TECHNOLOGY MANAGEMENT

The consistently high volume of orders over the past two years, especially for tube systems with small tube diameters, is also reflected in the focal points of action in production.

For the Lindlar site, this results in an increasing focus on the special challenges associated with the production of small tubes. We master these challenges through close interdisciplinary cooperation, which was formed last year in a team consisting of colleagues from Research and Development Services, Technology Management and Production. On the basis of intensive production data acquisition and processing, we were able to significantly increase production output in terms of performance and quality for small tubes. Here the focus of the developments was on optimising the casting tools (moulds) and the further development of the coatings used in the centrifugal casting process. The transfer of technology between S+C locations in Spain and Germany was intensified, with potential being raised in the area of deep-hole drilling in particular. With these positive developments and the highly committed efforts of our employees, we are pursuing ambitious goals for 2023.

One permanent bottleneck in the mechanical workshop is the machining of static castings. The area includes two boring machines, two milling machines and one end-finishing machine.

One boring machine from 1997 has already had considerable technical problems. This resulted in very high maintenance costs and long downtimes for the boring machine. In order to find a long-term solution here that will also meet the high machining demands of the future, the decision was taken to invest in a new boring machine. In order to be able to use synergies within the group as much as possible, the decision was taken to purchase a boring machine from the manufacturer Fermat. S+C is already successfully using three boring machines from the Czech machine builder throughout the group. The investment volume is 0.5 million Euros. The machine was designed with traversing paths similar to those of the previous model, but with enlarged table dimensions to create greater flexibility in production. This was a necessary step to significantly optimise materials planning for assembly.



Another focus of investment in the reporting year was on deep-hole drilling. For years, the installed capacity in this production segment has not matched that of primary production. This resulted in outsourcing with corresponding commercial and planning risks.

As early as 2021, the Production and Technology Management departments launched the multi-stage project "Deep Hole Drilling Capacity Expansion". The aim here was to align production capacity in machining with that of primary production via technological and organisational measures.

Technological approaches here concern the machinery as well as the tools used. New tube feeders were designed for three spindles at the headquarters in Lindlar in order to decouple the systems from the limited availability of the indoor cranes and thus reduce handling-related non-productive times. With respect to tools,

investigations into material-specific and process-specific cutting forces gave rise to new tool concepts. This enabled the available drive power to be transformed into cutting power as efficiently as possible, thereby contributing towards a significant increase in productivity.

In addition, the course was set in 2022 for an expansion and rejuvenation of the machinery.

In 2022, the international production meeting of the S+C Group was again held at the headquarters. The aim of this event is to ensure international technology transfer. In this way, we achieve a uniformly high quality standard within the group and continuously increase productivity across all locations. At all locations, the topic of sustainability plays a significant role for those in charge of production. In its corporate strategy "Ambition 2025", S+C has defined its purpose as helping to use the Earth's resources more sustainably. This cor-

porate purpose also sets a high benchmark for our own actions. Topics such as energy efficiency, social responsibility, family-friendly working conditions and CO₂ reduction are therefore also issues that are discussed and debated within management team.



HUMAN RESOURCES



"As of 31st December 2022, the Schmidt + Clemens Group employed 1,087 people worldwide, 637 of them at the company's headquarters in Germany. The apprenticeship ratio was increased to 6.6 percent in the reporting year and thus remains at a high level. We are currently training a total of 42 apprentices and students at our headquarters."

Sonja Fischer



The past financial year 2022 was influenced by the effects of the COVID 19 pandemic in the first half of the year. Thanks to already well-established protective measures and the now experienced handling of our adapted operating procedures, it was possible to ensure that operations ran smoothly at all our locations.

The growth of the past two years, the large order volume and the positive forecasts for the coming years were decisive in terms of the initiative aimed at increasing the shifts from 15 to 18 in tube production at our headquarters. Besides a significant increase in capacity, the focus was on developing an employee-friendly shift model. When it came to implementing the shift plan structure, the relevant departmental heads, the Works Council and an external consultant together took into account the social perspectives of the employees concerned, along with the occupational science recommendations. The challenge for the Human Resources department was to ensure that the demand for skilled workers resulting from the new shift model was met. In addition to traditional recruiting channels, advertisements were also placed on social media for the first time. The combination of both methods resulted in an increased volume of applications and contributed to the possible launch of the new shift model at the beginning of the current financial year.

Over the past year, we once again had an enthusiastic presence at various career and training fairs. Our company was represented twice at the career day for family-owned companies, giving us representation at a national level. Fascinating discussions and a lively exchange with our co-exhibitors showed how important it is to make personal contact with interested applicants.

A new image film was also produced as part of the social media campaign. With the release of the film in December 2022, we were able to take another important step in our employer branding.

As part of the cross-site collaboration, it was again possible to hold an International HR Meeting in October 2022. Eight colleagues from the HR departments met at our site in the Czech Republic. Besides getting to know each other personally, the focus was on an open exchange on the topics of employer attractiveness, alternative ways to recruit staff and the challenges of demographic change, which primarily affects the European locations. There will also be another international meeting of human resources managers from all locations during the current financial year.

Outlook for 2023

The issue of securing skilled labour will continue to challenge us at all locations over the current financial year. Demographic change is already showing its effects today. This means reacting early and further increasing the attractiveness of the family-owned company Schmidt + Clemens as an employer. Awards such as "Leading Employer" or "Germany's Most Desired Employer" by the F.A.Z. Institute in 2022 are a further incentive for us to become even better and to continue our efforts to rank among the top employers.

Sonja Fischer joined our team as the S+C Group's Human Resources Manager in January 2023. Together with colleagues at all our locations, she is tackling the challenges that face us today.

Human resources development

The past year once again saw a wide variety of human resources development measures. This is how the field of human resources and organisational development makes an important contribution towards ensuring the company's long-term success. In total, more than 170 individual and group measures were implemented in the form of external or internal training, coaching, workshops, potential analyses and much more.

An important approach, especially in this day and age, is the various learning formats that allow employees to learn flexibly and on an ad hoc basis. Among other things, we are constantly expanding our SCills with new video content. Topics such as presentation techniques, dealing with conflicts, technical drawing or tutorials on internal company software tools now complement our e-learning, which are freely accessible to all employees as needed. Some modules were integrated into blended learning concepts.

The new Talent Programme is another focus of human resource development. In this way we offer our specialists and managers from a wide range of fields the opportunity to set the course for their own future. With the Talent Programme, we give motivated colleagues the opportunity to develop their skills over the course of a two-year training programme. The programme's content includes topics such as presentation techniques, self and time management, project management and feedback skills. The topic modules are taught in smaller training units and are reinforced by exercises or further deepened through individual coaching.

Outlook for 2023

Without change we cannot move forward, but to bring about change we must actively do something about it. With our corporate strategy "Ambition 2025", we are daring to take the step into change. In human resources development, this meant actively tackling the issue of error culture. Various measures have been derived for this purpose, and these will now be implemented in 2023.



Sonja Fischer
Head of HR S+C Group





Training

During 2022, more than 50,000 Euros were further invested in the future at the S+C Academy. A lathe and a milling machine were purchased to modernise the machining department and further investments were made in a learning robot. In 2022, several specialist worker examinations were again held at the S+C Academy as the examination venue of the Cologne Chamber of Industry and Commerce (IHK), which also reflects the high standard of our facilities. The electronics training area installed in 2021 has now been chosen as the new central examination venue for the Cologne Chamber of Industry and Commerce.

Once again, three S+C apprentices were among the best apprentices in the Cologne Chamber of Industry and Commerce district. One of the apprentices completed his training as the best in the state of North Rhine-Westphalia.

S+C was involved in training collaboration with more than 20 partner companies in the Oberberg district during 2022. The training content of various training modules, such as basic training in metal, welding and pneumatics, is taught in this way. Exam preparation courses were also offered again at the S+C Academy. 78 external apprentices received training support in ten different professions.

Outlook for 2023

Eleven apprentices are expected to successfully complete the Chamber of Industry and Commerce examination in 2023. We are finding that it is becoming increasingly difficult to fill apprenticeship positions. We have already been able to fill two thirds of the training positions for the start of training on 01.09.2023, but the search for foundry mechanics is proving difficult. Our commitment, especially in the career search phase, must be further strengthened. S+C is a modern training company and, thanks to its size, offers people many opportunities to further develop and apply their personal skills even after training.

The training department will continue to expand its presence at schools and institutions, and will rely on modern communication channels to reach young prospective students at an early stage.



**CREATING.
INNOVATION.
TOGETHER.**

**The Schmidt + Clemens Group is your
specialist for high-grade steel.**

Benefit from our spun, static and investment castings. Use our engineering competence and our great experience in plant construction. As variable as your challenges are our materials: We produce components and systems made of high temperature materials, Duplex, Super Duplex, Lean Duplex- and nickel-based alloys on a very high standard.