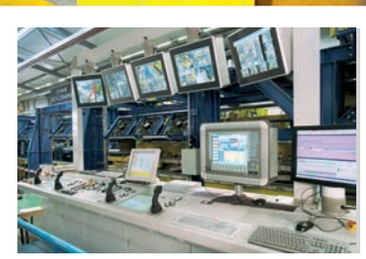
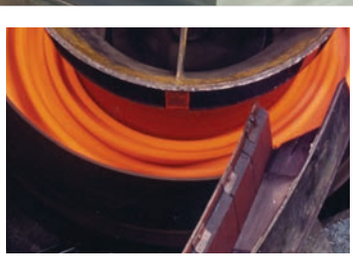
SMS group

EXTRUSION SYSTEMS FOR HEAVY METAL

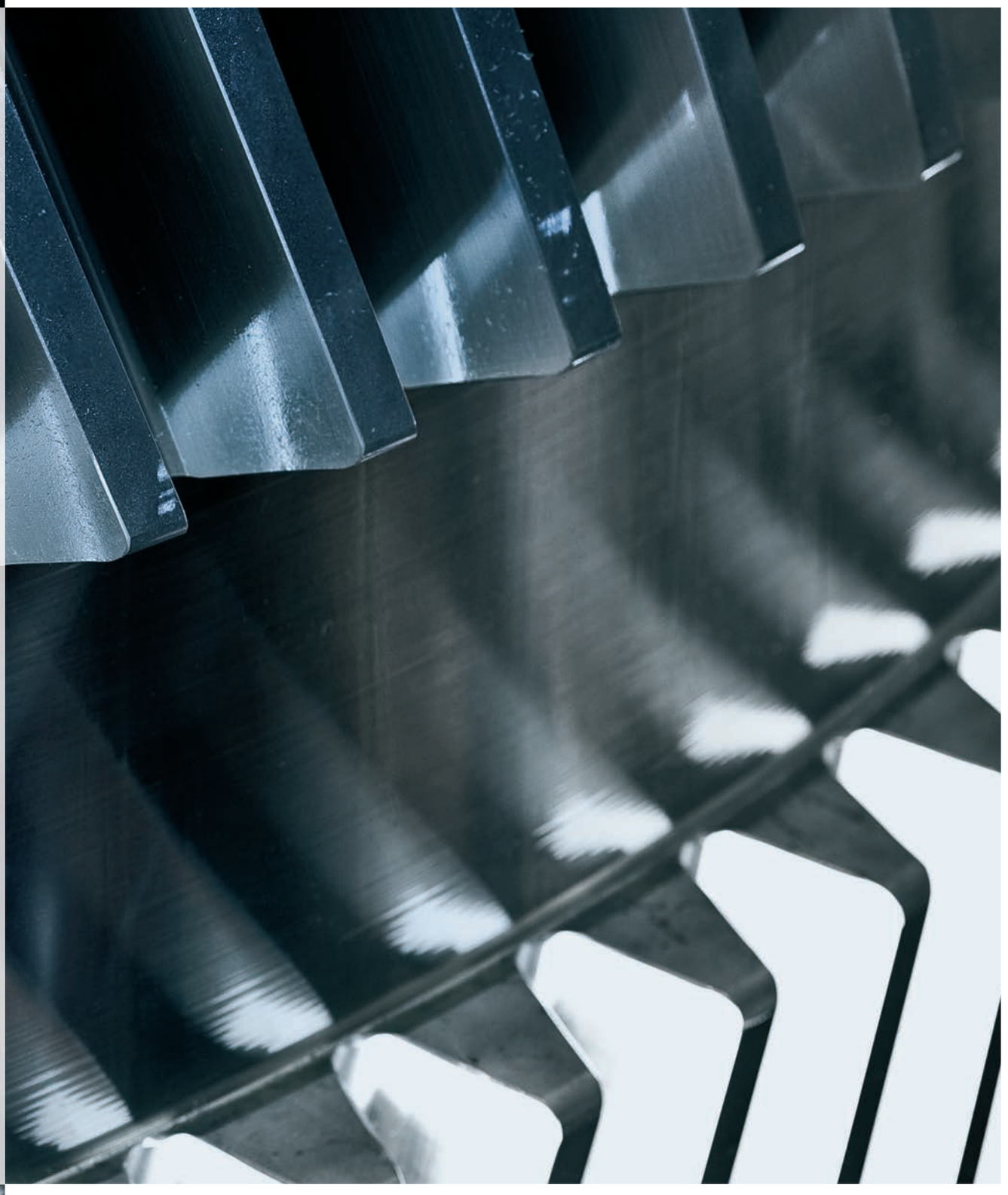
Brand name quality for the highest demands





SMS group

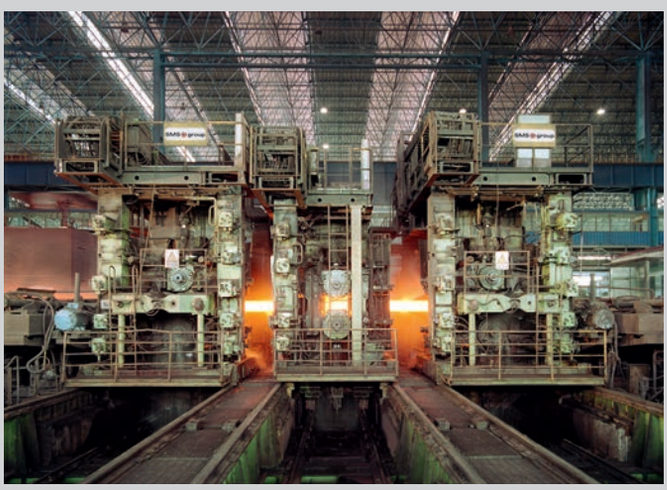
THE SMS GROUP IS A GROUP OF GLOBALLY OPERATING COMPANIES IN PLANT AND MACHINERY CONSTRUCTION FOR STEEL AND NON-FERROUS METALS PROCESSING. WE COVER EVERYTHING FROM PIG IRON PRODUCTION TO METALLURGICAL PLANT, ROLLING MILLS TO STRIP PROCESSING LINES, TUBE MILLS TO THERMAL TECHNOLOGY – COMPLETE WITH ELECTRICS AND AUTOMATION AS WELL AS SERVICE.



PRODUCT RANGE

IRON MAKING

TUBE AND PIPE PLANTS

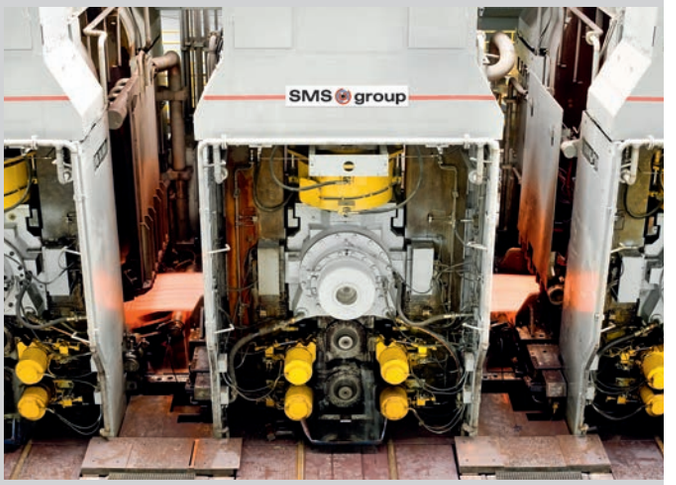


LONG PRODUCTS PLANTS

ELECTRICAL AND AUTOMATION SYSTEMS

PRODUCTION

METALLURGY PLANTS AND
ENVIRONMENTAL TECHNOLOGY



FLAT ROLLING PLANTS

STRIP PROCESSING LINES AND
FURNACE TECHNOLOGY

FORGING PLANTS

TECHNICAL SERVICE

SMS group

EXTRUSION AND TUBE PRESSES FOR HEAVY METAL

Economic, high-quality production

Unique worldwide – Schloemann extrusion presses from SMS group! SMS is the only manufacturer globally who offers all extrusion methods for all materials and alloys including all ancillary systems and automation systems. SMS group has well over 70 years of experience in heavy metal extrusion presses. The presses are used for producing sections, bars, strips, wires, tubes and hollow sections from copper and copper alloys. These products are used in the construction, automotive, fitting, installation and electrical industries.

Furthermore, the heavy metal press technology is used in highly specialized extrusion systems for extruding zirconium, silver and gold alloys as well as for extruding the light metal titanium. Also, high-alloyed special steels are extruded as sections and seamless tubes for use in the offshore field, power plant construction and the chemical industry.

SPECIALLY PRODUCED FOR CUSTOM REQUIREMENTS

Heavy metal extrusion presses are usually separate machines that are precisely attuned to the specific application case by SMS group. However, all share the FEM-optimized, prestressed press frames in classical Schloemann drawing lamellae / caisson construction with great rigidity for a long useful life and optimal product quality.

All heavy metal presses from SMS group also offer an optimal material flow – depending on whether the products are extruded in coiled or straight form or a combination of the two extrusion methods is applied. The best reproducible product quality with maximum use of the input material and fully automated tool handling ensures excellent productivity. Intelligent control systems from SMS group complete the extrusion press technology. This includes a thought-out human / machine interface, tool management, billet report, linkage to the production control computer and sensible technology software.

THOUGHT-OUT SYSTEM CONCEPTS AND COMPREHENSIVE SERVICE

SMS group develops persuasive concepts for new systems, modernization and conversions. Like the systems, SMS group's employees are at work worldwide – consequently, extrusion press operators will always find a contact partner near them. Comprehensive consultation, reliable support during the operation and joint work on improvements come naturally to SMS group.

ADVANTAGES AT A GLANCE

- Extrusion processes for all materials and alloys
- Optimal product quality
- Optimized tool use
- High productivity
- Stable process guidance

PORTFOLIO

Superior concepts – from billet to wire coil

SMS group builds complete systems from billet preparation and the extrusion press to the adjustment and post-processing units. System operators benefit from our comprehensive knowledge and receive a maximum degree of production safety.

All Schloemann heavy-metal extrusion presses have superior concept for their auxiliary units. Linear billet loaders with optimized drives and tong systems permit rapid loading processes with greatest reliability. A multiple-axis manipulator, for example, takes on the handling of the loose pressure disc. In association with modern separation units, reliable circulating systems for pressure discs and tools, and automated tool exchange systems, this provides high production safety with the greatest possible flexibility.

CONTROL AND

RAW MATERIAL

Blocks or bars made of copper / copper alloy / zirconium, silver or gold alloys, titanium

PREPARATION

- Bar / block storage
- Block saw
- Billet heating

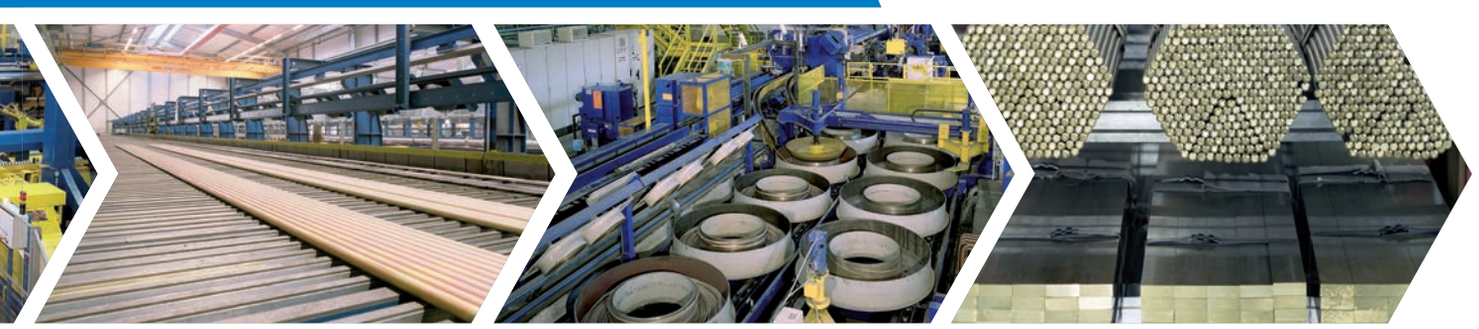
EXTRUSION PRESSES

- Direct extrusion press
- Indirect extrusion press
- Pump room / basement
- Extrusion path
- Four-fold section puller

CONSULTATION AND SERVICE –

SMS group customizes the run-out systems for the heavy-metal extrusion presses to the client's needs: Specialized individual components are intelligently combined for this purpose. This results in a convincing overall concept with which the system operator can meet current and future market demands in an ideal way.

AUTOMATION



COOLING

- Cold table
- Water cooling basin
- Run-out conveyor with hot saw
- Ventilators for strand cooling

POST-PROCESSING AND TRANSPORT

- Saw roller bed
- Lower part saw
- Cross transport, heating system and collection unit
- Bar pickling unit
- Reel
- Bundling and transportation systems

PRODUCTS

- Section
- Bars
- Strips
- Wires
- Tubes
- Hollow sections

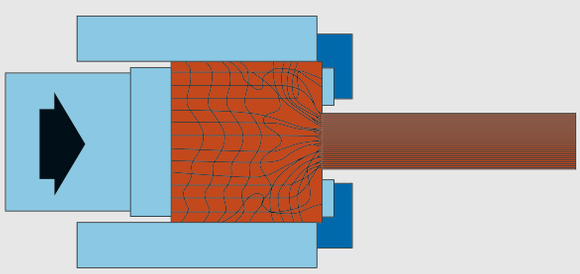
FOR THE ENTIRE SYSTEM LIFE

DIRECT AND INDIRECT EXTRUSION METHODS

The right technology for every product

Reliable, easy-to-maintain construction with high availability and output is characteristic for heavy metal extrusion and tube extrusion systems. The array of models includes direct and indirect extrusion presses as well as tube presses. The direct extrusion presses for heavy metal combine a proven press concept with economics. The indirect technology enables extrusion pressing of long extrusion billets and, in this way, achieves increased productivity with optimal product quality.

EXTRUDING AND TUBE EXTRUDING FOR THE DIRECT EXTRUSION PROCESS

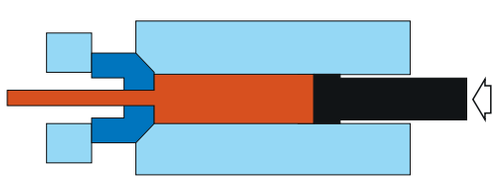


Preferred fields of use are:

- Varied product mix with small lot sizes
- The production of copper products with low-oxide surfaces using the underwater extrusion method
- Large section circumference
- Asymmetrical section profile
- Multi-strand extrusion

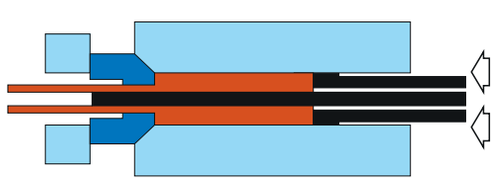
DIRECT EXTRUSION

The full sections, bars, strips and wires are extruded from solid billets.



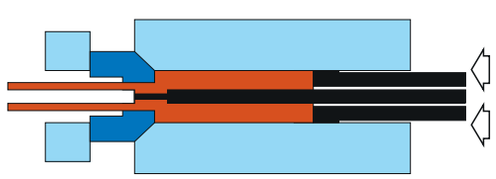
DIRECT TUBE EXTRUSION OVER A MOVING MANDREL

The tubes and hollow sections are made from hollow or solid billets (solid billets perforated in the extruder) and extruded over a moving mandrel.



DIRECT TUBE EXTRUSION OVER A FIXED MANDREL

The tubes and hollow sections are made from hollow or solid billets (solid billets perforated in the extruder) and extruded over a fixed mandrel.

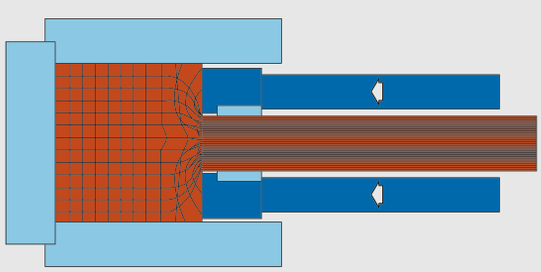


EXTRUDING AND TUBE EXTRUDING FOR INDIRECT EXTRUSION PROCESS

This method is preferred for brass materials whose friction in the receiver during direct extrusion is avoided with the indirect extrusion method.

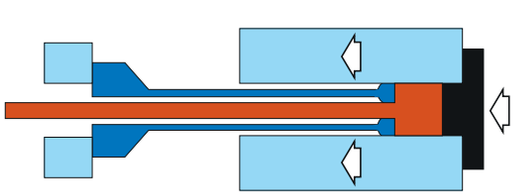
This results in the following advantages:

- Longer input billets
- Greater extrusion speed for many materials
- Thinner biscuits
- More uniform structure along the strand length
- Thinner sections
- Narrower tolerances from the beginning to the end of the strand



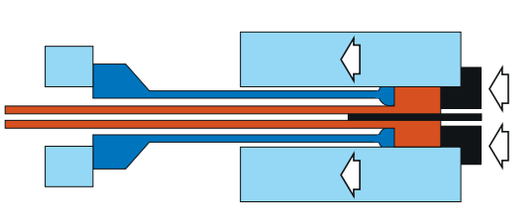
INDIRECT EXTRUSION

The full sections, bars, strips and wires are extruded from solid billets with a closed receiver through the matrix, which is arranged at a cutter.



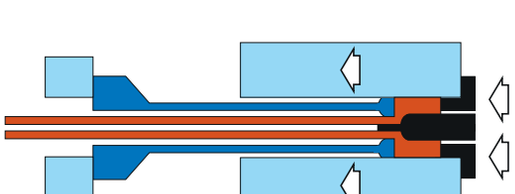
INDIRECT TUBE EXTRUSION OVER A MOVING MANDREL

The tubes and hollow sections are made from hollow or solid billets (solid billets perforated in the extruder) and extruded over a moving mandrel through the matrix, which is arranged at a cutter.



INDIRECT TUBE EXTRUSION OVER A FIXED MANDREL

The tubes and hollow sections are made from hollow or solid billets (solid billets perforated in the extruder) and extruded over a fixed mandrel through the matrix, which is arranged at a cutter.



DIRECT EXTRUSION AND TUBE EXTRUSION SYSTEMS

Economic with varied products

Extrusion presses from SMS group are distinguished by a reliable, maintenance-friendly construction with high availability and output. SMS group continues to develop this technology and, in this way, meets the high demands and special wishes of system operators. The array of models includes tube extruders in short-stoke construction as front loaders with centered billet clamping as well as the conventional construction as back loader. The extrusion press can be carried out with an inside or a rear nozzle unit – SMS group will fine-tune this precisely to the specific application.

CONSTRUCTED FOR A LONG USEFUL LIFE AND PRECISE WORK

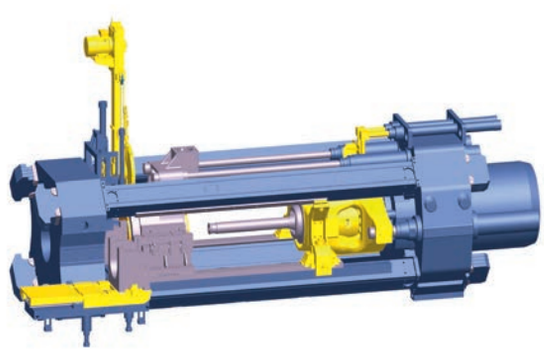
The prestressed press frame is particularly rigid and has a low longitudinal expansion. The columns are built in a durable lamellae construction. Guide pathways are mounted on the caisson. They are shaped and aligned toward the extrusion center to ensure favorable force transmission and guidance precision of the movable press parts. A linear, wear-free guidance system for the punch and receiver ensures a reproducible product quality. Costly follow-up adjustment work is not required. Handling of all manipulation functions, such as billet loading, tool exchange and pressure disc handling, is automated. The specially developed separation units guarantee a seamless automatic disc circulation.

SPECIAL SOLUTIONS FOR TUBE PRESSES

SMS group offers different solutions for the nozzle unit specifically for tube presses:

- Inside nozzle unit with differential cylinder – with hydraulic position regulaton during extrusion over the fixed mandrel
- Nozzle unit located in the moving beam with adjustable guides
- Outside nozzle unit in compact construction.

Each nozzle unit has an automated mandrel rotation unit and internal mandrel cooling to ensure a high retention time of the mandrels. Furthermore, SMS group offers varied solutions for automatic mandrel lubrication and the mandrel exchange unit.



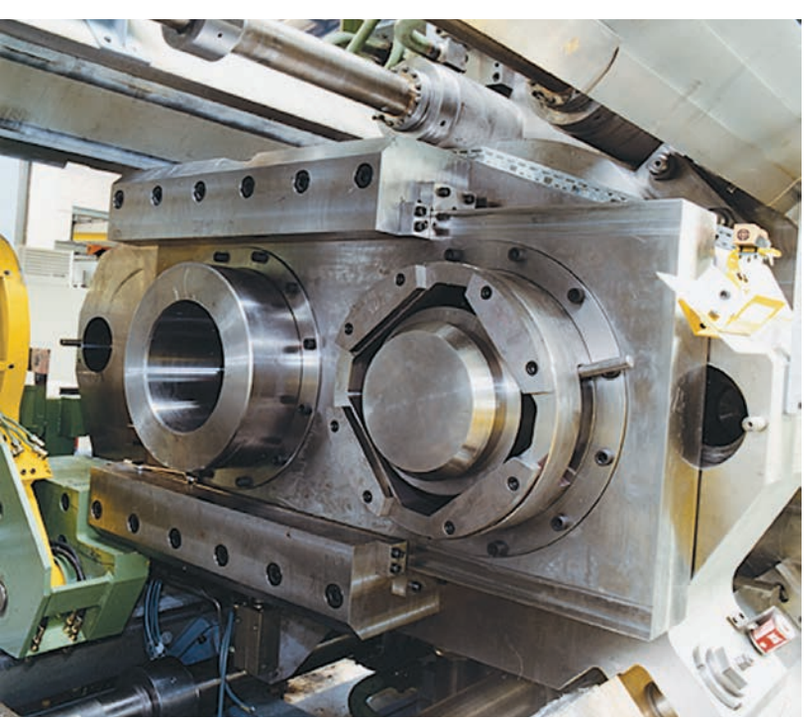
Extrusion and tube press for copper and copper alloys

TECHNICAL DETAILS OF THE DIRECT EXTRUSION PRESSES													
Nominal extrusion pressure MN	8	10	12,5	16	20	22,5	25	28	31,5	35,5	40	45	50
Receiver ø (mm)	100 to 160	110 to 180	125 to 200	140 to 225	160 to 250	170 to 265	180 to 280	190 to 300	200 to 315	212 to 335	224 to 355	240 to 375	250 to 400
Max. billet lenght (mm)	450	500	560	630	710	750	800	800	900	900	1,000	1,000	1,120
Max. section circum-ference ø (mm)	125	140	160	180	200	212	225	235	250	250	280	305	320
Max. extrusion speed (mm/s)	52	42	48	45	50	46	49	53	46	50	51	46	48
Drive power (kW)	400	400	530	660	900	900	1,080	1,250	1,250	1,500	1,750	1,750	2,000

Smaller and larger extrusion systems on request. Changes during the course of further development reserved.

INDIRECT EXTRUSION AND TUBE EXTRUSION SYSTEMS

High productivity and quality along the entire system



Efficient and economic: Indirect extrusion has become established in the manufacture of wires, bars and sections made of brass and special brass. SMS group also offers system operators extrusion systems with high availability and maximum output even for this type of application. Indirect extruders have the same advantages in construction as direct extrusion and tube extrusion systems, for example, prestressed press frames, a flat guidance system and an automated handling system.

CLEAN EXTRUSION PROCESS INCREASES OUTPUT

Using the 2-cylinder method, the biscuit and scale are reliably disposed in the extruder. The broaching cutter on the cutter slider removes the scale from the receiver after each extrusion cycle. The combination tools, which can be use for many alloys, are even more productive. In the process, the scale is collected in the scale chamber during extrusion and disposed in the extruder after extrusion. This variant increases output by 1.2- to 1.4-fold compared with a 2-cylinder variant.

AUTOMATED TOOL HANDLING

The indirect extrusion and tube extrusion systems are automated to a high degree. Plug removal and tool handling are fully automated and seamless. This includes separation, cleaning and portioning as well as introduction and removal of tools from the preheating oven.

GUARANTEED QUALITY DUE TO UNIFORM TEMPERATURES

Billet receivers must be able to withstand the greatest stress. The zone-heated and cooled billet receivers of SMS group guarantee uniform axial and radial temperature profiles even with long extrusion times and short input billets – the prerequisites for good production results.

TECHNICAL DETAILS OF INDIRECT EXTRUSION PRESSES										
Nominal extrusion pressure MN	16/ 18	18/ 20	20/ 22,5	22,5/ 25	25/ 28	28/ 31,5	31,5/ 35,5	35,5/ 40	40/ 45	45/ 50
Receiver ø (mm)	180 to 265	190 to 280	200 to 300	212 to 315	224 to 335	235 to 355	250 to 375	265 to 400	280 to 425	300 to 450
Max. billet length (mm)	1,180	1,220	1,230	1,320	1,400	1,600	1,800	2,000	2,200	2,400
Max. section circum-ference ø (mm)	155	165	175	185	200	215	230	245	260	280
Max. extrusion speed (mm / s)	51/46	55/50	51/46	54/49	59/53	52/46	55/50	56/51	51/46	53/48
Drive power (kW)	720	900	1,080	1,080	1,250	1,250	1,500	1,750	1,750	2,000

Smaller and larger extrusion systems on request. Changes during the course of further development reserved.

RUN-OUT UNITS
For gentle material handling

SMS group offers client-specific run-out systems from heavy-metal extruding that can be combined from a multitude of specialized individual components. This includes multiple coilers, coil transport units with cooling systems, straight run-out systems with multiple pullers, cooling tables for tubes and bars, and saws. SMS group will adapt the proven solution to special systems for extruding titanium, zirconium and highly alloyed special steels.

LOW OPERATING AND MAINTENANCE COSTS

All systems from SMS group emphasize gentle material treatment. This guarantees a high quality of the extrusion press products. The extensive automation ensures low maintenance costs. Overall, system operators benefit from high material utilization. The high availability of the overall system with low maintenance costs also increases profitability.

PORTFOLIO OVERVIEW

SMS group provides run-out units for all extrusion processes:

- Extrusion of sections, bars and tubes in straight sections
- Extrusion of round and sectional wire on reels
- Extrusions of strips on strip winders
- Dry press for copper alloys (e.g. brass)
- Underwater extrusion presses for copper

COMPLETE PACKAGE FOR STRAIGHT LENGTHS

The run-out path is designed for gentle reception of sensitive extrusion products made of copper alloys such as brass. It has transport conveyors that are powered and can be lowered and a disc table extending between the conveyors. To achieve a low-oxide product surface and optimal structural consistency especially for copper products, SMS group offers a water cooling basin that can be raised with an optimized cooling system in the run-out area.

The puller guides the extrusion strands during dry and wet extrusion and pulls them from the counter base area. One multiple strand puller has four independently operating carriages for dry extruding. In the next step, the strand displacer moves the extrusion-hot strands laterally on the disc table before the walking beams carry them on. The cold table with walking and fixed beams in narrow beam spacing supports the extrusion strands in the process.

Furthermore, SMS group provides units for lateral and longitudinal transportation of tubes to the cropping, lubricating and sharpening stations. The saw, with a suctioning unit for filings, crops and divides the extrusion strand packages into finished lengths. The finished extrusion products move on receiving conveyors that can be lowered to a collector trough. Subsequently, the ready-made products are cooled ultra-rapidly.

Apart from the standard units, SMS group offers its clients customized special embodiments of these units.

ADDITIONAL UNITS FOR WIRES

SMS group provides wire reel systems in two embodiments for extruding wires.

- For dry receiving of copper alloys (e.g. brass) as single and multiple reels, with and without protection trays.
- For wet receiving of copper and dry receiving of copper alloys, as single or multiple reels.

The overall package is completed by units for air and/or water cooling of the wire coils as well as for transporting and collecting.

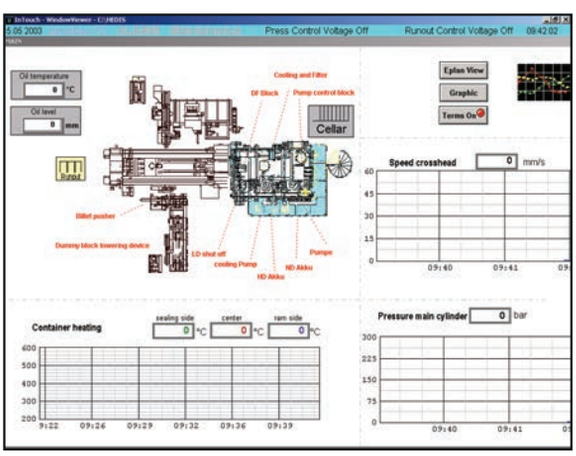
ADDITIONAL UNITS FOR STRIPS

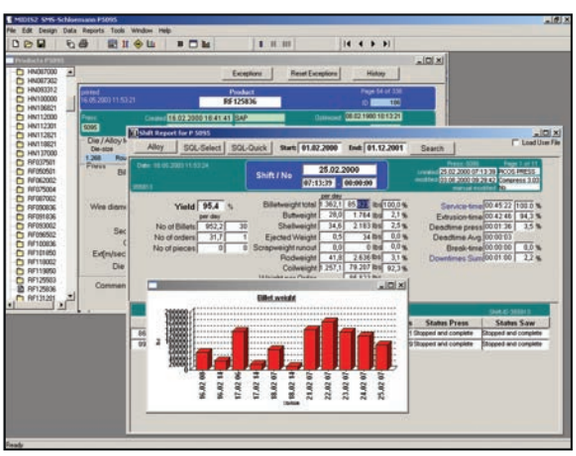
A strip winder including a collector unit provides faultless strips when extruding strips.

AUTOMATION

Simulate, control and analyze smarter

Using an information-based process control, system operators raise product quality and profitability to an optimal level. Systems from SMS group have a modular structure and, depending on need, can be expanded in several phases. They are user-friendly and, at the same time, provide comprehensive information. As a result, the extrusion system operator has a homogeneous IT environment that supplies him comfortably with current data for production and quality management.



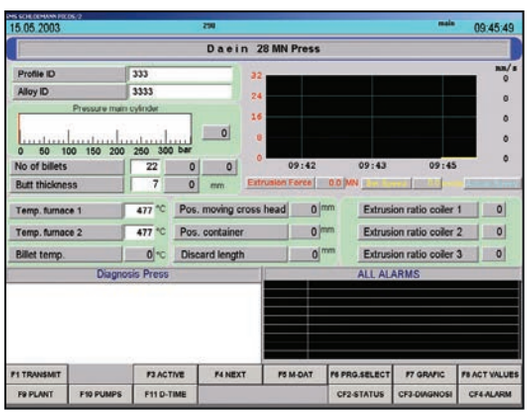


PICOS.NET – PERFECT CONTROL OF THE PRESSES

Operators monitor and control the entire process with the human-machine interface PICOS.NET (Process Information and Control System). The tool visualizes the production and specifies the required process parameters. It displays the actual values, includes an alarm function and supplies diagnoses when a malfunction occurs during the course of production. PICOS.NET coordinates the control of individual system areas. Special functions are integrated depending on the application – e.g. billet length optimization and billet protocol. This system has set the global standard for press control for many years.

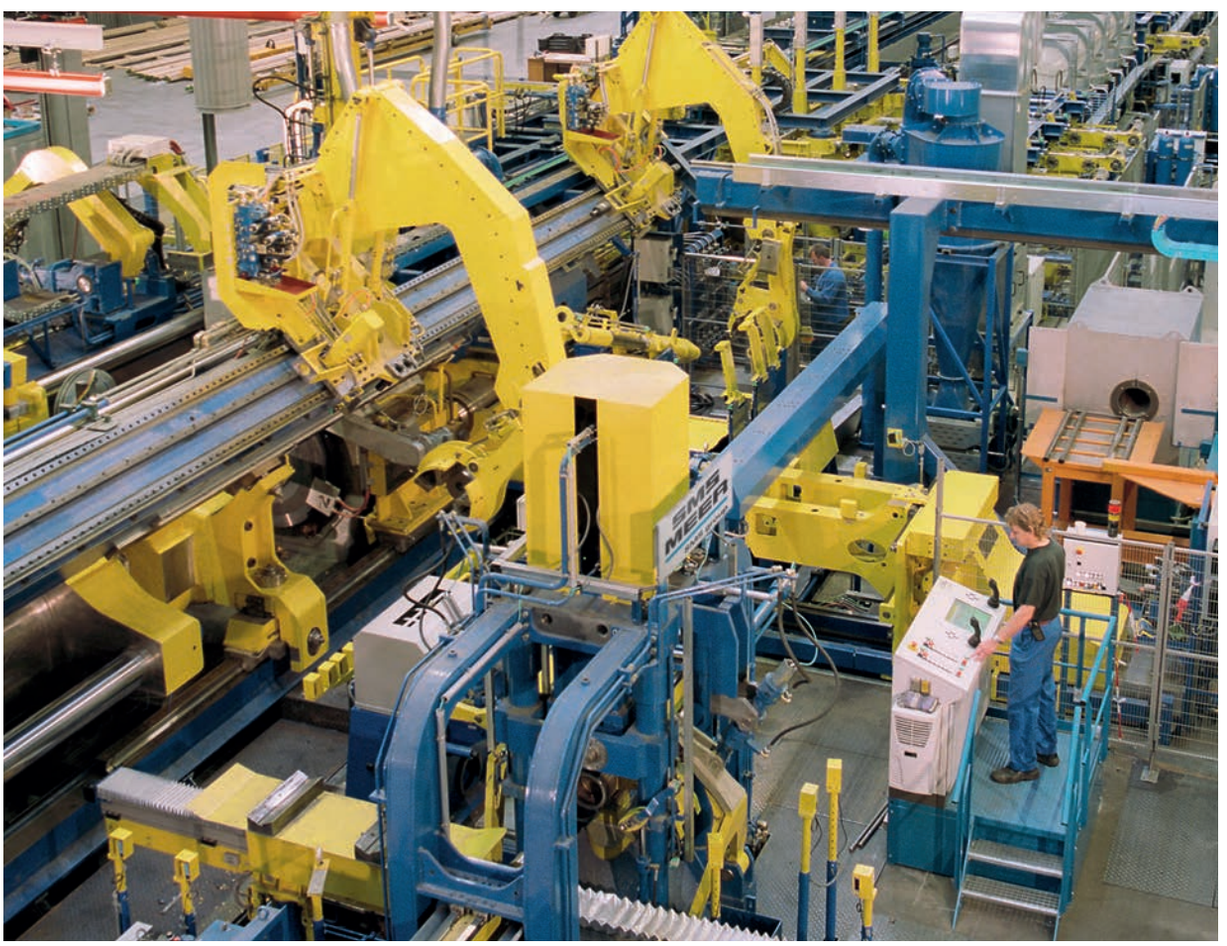
MIDIS – TRANSPARENT PRODUCTION PLANNING AT ALL TIMES

MIDIS (Management Information Diagnostic Indication System) serves production planning and forms the interface between the client-side production system (HOST) and the machine-proximate PICOS.NET systems. In the process, the system accepts extrusion orders, supplements them with optimized process parameters and delivers them to the machine. Then MIDIS stores the operating data that are reported back and transparently displays them in billet-, order-, shift-, monthly- or annual protocols.



HEDIS – MAINTENANCE SYSTEM FOR MODERN EXTRUSION SYSTEMS

HEDIS (Hydraulic Electric Diagnostic and Information System) supports maintenance and meets the complex needs of modern extrusion systems. This software has a visualization system that issues animated hydraulic plans, detailed information for each component, wiring diagrams and error messages. It is user friendly and coupled to the programm-able control. Wiring diagrams as well as photographic and written information, which is supplemented by the maintenance personnel, are available with a click of the mouse.



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