

Center.steel Solutions



Center.steel

A large part of production starts with cutting of bar material into workpieces of dimensions suitable for further processing. In a modern production process, therefore, the cutting process represents a basic activity for all subsequent processing steps. The Center.Steel solutions deal with this extensive task and enable substantial reduction of labour costs. The compact, solid overall concept of the Center.Steel devices enables the plant to create a definite process from order receipt up to the cut-up workpiece sorted out according to the order.

Center.Steel provides you with a compact, highly productive sawing device for a fully automatic process including individual sorting. The scope of demands for the arrangement of the device series corresponds to practical application during a flexible and modern production. In the process of sawing, labour costs must be reduced and relocated to the following process steps. The Center.Steel solutions result in reduction of labour costs for programming and loading of feeding containers as well as changing of sorting boxes at the device outlet. In an ideal case, after the 30-minute loading period, the device is able to work totally unmanned for several hours; thus the labour costs for the workpiece can be reduced substantially.

As a stand-alone device or as a fully integrated part of the process, Center.Steel is a solution to your task. In connection with work preparation, equipment lists and sawing programs are created in the office and transmitted by means of a computer to the machine control. The interactive system on the screen gives feeding instructions to the machine operator. Thanks to different communication levels between the operator and the device, the Center.Steel solutions can promptly be adjusted to the environment. The Center.Steel devices offer all options beginning from direct input of all data on the control to a permanent remote maintenance system.



Center.Steel
Achievable productivity

Workflow

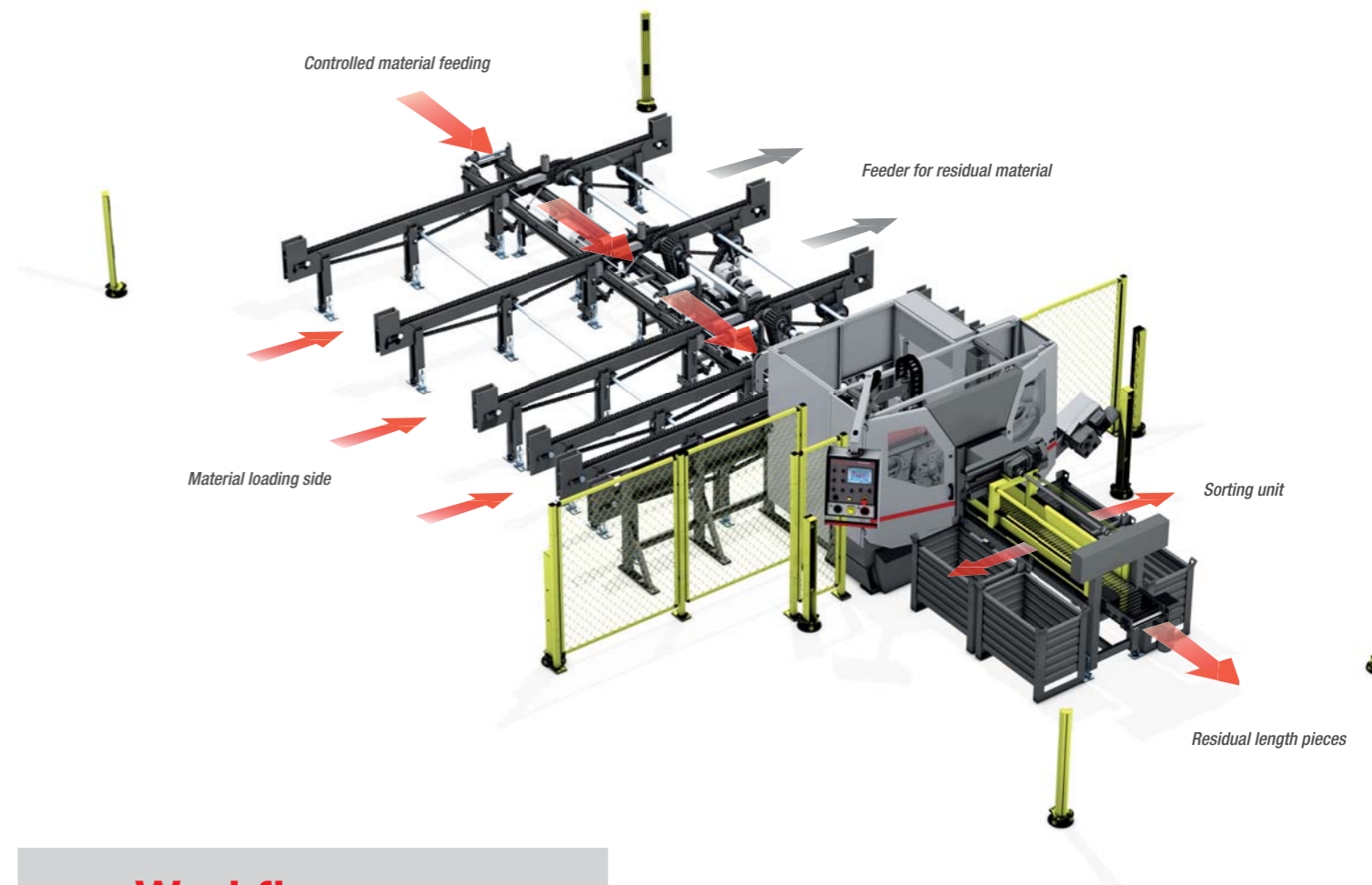
Fully automatic operation depends on a sawing program. In the stand-alone operation, programming of the device can be executed on the machine directly. In this operating mode, loading of the feeding container is also executed step by step according to the programmed requirements. If the program is directly transmitted to the device via an Ethernet connection or USB interface, the control starts-up a dialog with the operator, requiring for every material position loaded a return safety message regarding the dimensions and quantity of the bars. This subsequently provides for a smooth, fully automatic running. The bar material will



The material is transported transversely to the laser separation unit, where the bar is reloaded onto the driven feed roll-way which transports it to the detection range of the sawing machine. The band saw is also equipped with a precise detection unit based on laser technology, therefore, it not only detects the presence of the bar to be cut, but also determines the material

exclusively be lined up along the feeding axis of the device. Thanks to the applied laser-separation technology, the individual bars can be placed absolutely without any space between them; therefore, the total available loading width can be utilized. Every bar of material loaded means additional unmanned operation time, thus also active reduction of costs for the sawing process. If the feeding container is fully loaded, the central control unit starts the sawing process.

beginning immediately in order to continue with the cut-in length entered in the sawing program or if the material length exceeds the bar length necessary for further process, to execute direct cutting to the length .



Workflow Defined processes

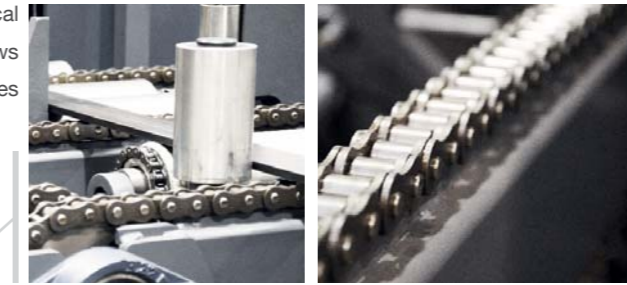
In case of a cut-in, the cut-off piece is put off in the sorting box specified in the program parameters as a waste container. The sawing machine cuts up the loaded material according to the program and in case of residual lengths over 300 mm which are no longer to be processed, the material is put on the residual-piece stand in the feed area. Residual materials shorter than

300 mm are put off in the pertinent sorting box similarly to the cut-offs. The specified sorting of the cut-up pieces is executed by means of the chain belt and a hydraulic shifting unit.



Load- and wear-resistant transverse feeding units on the inlet side with high-efficiency drives

Hydraulically lowered vertical rollers aligned with stop jaws of the vices



Solid, load-resistant transport chains on both sides of the feeding device

The electromechanically moved discharge unit provides the safe sorting directly in the programmed storage boxes



The standard storage boxes provide for uncomplicated handling



High-performance sawing machines of the "Production" series with the fully transformed design



SECURFLEX safety system, combined with grid elements and laser-light barriers



The feeding unit with a chain band features a stable design, so the materials of maximum dimensions can be transported safely





Material feeding

Heavy and robust, yet still flexible at the unloading when it comes to adaptation to the needs and environment. After loading the Center.Steel feeding magazine takes over the entire range of materials handled, occupying thus the prominent position with respect to the savings potential in the sawing process. The maximum loading capacity of the transverse transport units was always designed by means of the predicted highest loading at the 100% exploitation of the feeding unit. This provides for smooth function even in the case of full exploitation in shift operation. The number of transverse transport units is proposed individually according to

material lengths required and the maximum overall loading. The transverse transport units are equipped with high-capacity, high-dimensioned transport chains, including one or, if necessary, more drives. Take-over of bar material from the transverse transport onto the driven roll-way in the feeding axis is executed by means of a hydraulic lifting mechanism of the rollers. All of the rollers are then simultaneously lowered and aligned with the transverse transport chains. The material is reliably separated by means of the integrated laser detection, even if it has been loaded without gaps for exploitation of the entire loading width.

Loaded without gaps thanks to the state-of-the-art technology



High-performance Production band saw

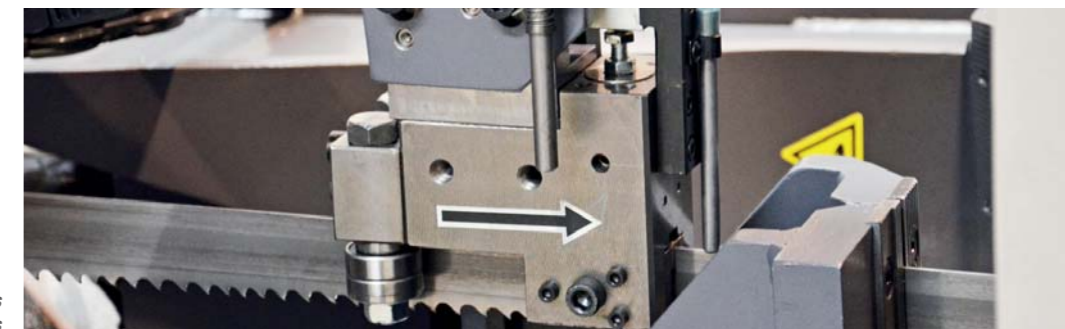
The heart of the sawing device is the band saw of the Production series. The word Production stands for uncompromisingly high-performance sawing machines for application under all conditions as well as maximum productivity. Machines designed for production!

Elimination of vibrations is the secret of the highest possible cutting output. One of the key aspects of designing high-performance machines is therefore the use of vibration-damping materials. Mineral composite materials are purposefully used as a component of the Production series machines. Thanks to

the high oscillation-damping properties, the mineral composite, like polymer concrete, really features markedly shorter oscillation amplitude in comparison with grey cast iron which is also used to damp oscillations; therefore, substantially higher sawing output can be achieved. The mineral composite used is BOMAR's own mixture reflecting decades of experience in the field of polymer concrete.



Massive saw band guides with sensitive sensors



Balancing between the highest cutting outputs and the longest possible service life of the saw band requires permanent monitoring of the saw cutting. While the saw is cutting, the loading of the saw band is detected in real time, and then the cutting pressure and cutting feed adjusted electronically. Thanks to the permanent adjustment of crucial cutting values, it is possible to achieve an ideal course of cutting for the saw band and the highest possible processing output. In addition to the permanent monitoring of cutting, the Production series promptly adapts itself to the currently cut material by means of the Material-class system EPCon I. For every position in the Center.Steel feeding container, the quality class as well as dimensions and shape are taken into account individually and the machine then adjusted fully automatically. Hereat, the machine utilizes an extensive database of values amassed during the past 20 years by experience with more than 50,000 band saw machines in the world market. Still, the operator has the option to enter values of the machine according to the current conditions and, if need be, create further custom material classes.

In order to ensure the production output in relation to the achieved cutting accuracy as well, the machine is equipped with band run control for permanent monitoring of the saw band deviation.

The maximum deviation value saved in the control unit is checked on the saw band directly; if the value is exceeded, the machine is stopped and a corresponding warning issued. Thanks to modern technologies, the options range here from a simple light indicator to an-email or SMS generated automatically by the control and sent to the shift supervisor in charge.

The Production series saws have been designed for application in production; for this reason, they are an ideal core part of fully automatic Center.Steel cutting applications.



Sorting unit

It is only the fully automatic handling on the outlet side that makes the automatic band saw machine into an automated solution. In the Center.Steel solutions, therefore, the same high attention is paid to the outlet side as that paid to the feeding container and band saw machine.



Custom-made solution with a Cartesian robot

During creation of the cutting table, every workpiece can already be assigned to a certain sorting box. With up to 8 sorting boxes and one box for cut-offs and residual pieces as well as the possibility of changing these boxes continuously in operation, the labour costs can also here be reduced. The stable, almost wear-free chain band itself is able to transport bulky cut-up parts to the pertinent sorting station.

The workpiece is stored in the pre-programmed box by means of a hydraulic shifting mechanism. Standard stackable boxes of the dimensions of

800 x 600 mm or 800 x 1200 mm can be used as sorting boxes. Further processing stations, such as a deburring or final processing device, can also be used before sorting out, in which way Center.Steel can be transformed from a standard automated solution to an integrated overall concept. According to the task, robotic arms or Cartesian robotic systems can and are already used.





Safety

The most valuable asset of every plant is its workers. The Center.Steel solutions are often installed in production halls with full operation and a large number of workers. An active protection of co-workers means provision of safety zones which do not limit function of the machine. The BOMAR sawing centres are equipped with the SECURFLEX safety system specifically developed for use in these sawing devices. Essentially, two systems are employed here. The loading and unloading areas are safeguarded by means of laser light barriers; the areas of the device which must not get into any contact with the operator are protected with grid elements. By purposeful use of rigid grids and laser technology, several safety areas have been

created, in order to prevent general shut-down of the device if one of the light barriers has been activated. The concept of safety areas is such that the not affected and thus not switched out areas are separated from any safety risk and do not pose any safety risk.

Grid elements for physical separation of safety areas



Repairs and maintenance

A significant factor is the usability of the sawing device as a starting point of the production. Besides high-quality components, good and particularly regular maintenance is crucial for elimination of production fall-outs.

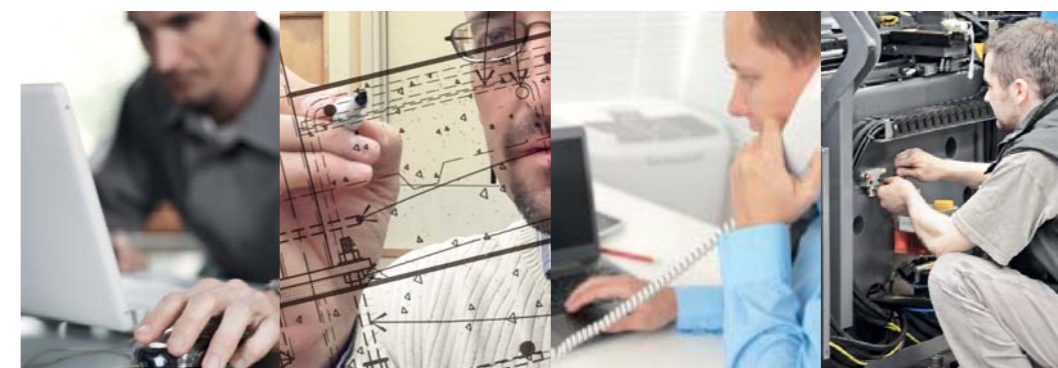
The Center.Steel devices are designed for quick, uncomplicated maintenance and can, if necessary, be extended by additional functions. One of the significant extension modules is the remote maintenance unit, by means of which the BOMAR technicians can evaluate the machine state according to the customer's information and co-ordinate maintenance activities purposefully, or prepare an ideal service mission, which results in substantial reduction of fall-out times.

With devices as Center.Steel, it is unconditionally recommended to conclude a maintenance contract with regular service intervals, executed by qualified and certified BOMAR service technicians. Within service visits planned according to the device exploitation, it is possible to correct the yet minor wrong adjustments in time and recognize emerging defects in advance. Purposeful service missions utilizing the planned shut-down periods enable preventive maintenance of the device and substantial reduction of fall-out times. By inspections of the entire device in regular intervals, stealthily growing shortcomings are almost eliminated.



As the last available service step, BOMAT offers the service of permanent remote monitoring. During operation of the device, data on the state of important sensors and neuralgic points of the machine are continually sent to the central data administration of BOMAR; in case of a deviation, the service technician is informed promptly and can coordinate the necessary maintenance activities. The device depends on permanent monitoring, not on the maintenance intervals

of the service technician. Tiniest deviations are recognized in time and immediately solved in the process of preventive removal of errors.



Certified BOMAR service personnel
in your immediate vicinity



Technical description

CENTER 460

Band saw / Production 500.460 ANC

Maximum material diameter: 460mm
 Maximum material width: 460mm
 Minimum cut-off length: 10mm
 Residual length: 70mm
 Saw band dimension: 5750x41x1.3mm
 Band speed: 20-120 m/min⁻¹
 Feeding length: 750mm
 Drive: 5,5kW

Material feeding device

Max. material length: 6000mm
 Min. material length: 500mm
 Max. material diameter: 460mm
 Loading capacity: 25000kg
 Max. loading width: 2000mm

CENTER 360

Band saw / Production 400.360 ANC

Maximum material diameter: 360mm
 Maximum material width: 360mm
 Minimum cut-off length: 10mm
 Residual length: 70mm
 Saw band dimension: 5520x41x1.3mm
 Band speed: 20-120 m/min⁻¹
 Feeding length: 750mm
 Drive: 4kW

Material feeding device

Max. material length: 6000mm
 Min. material length: 500mm
 Max. material diameter: 360mm
 Loading capacity: 25000kg
 Max. loading width: 2000mm

CENTER 280

Band saw / Production 300.280 ANC

Maximum material diameter: 280mm
 Maximum material width: 280mm
 Minimum cut-off length: 10mm
 Residual length: 70mm
 Saw band dimension: 4400x34x1.3mm
 Band speed: 20-120 m/min⁻¹
 Feeding length: 750mm
 Drive: 3kW

Material feeding device

Max. material length: 6000mm
 Min. material length: 500mm
 Max. material diameter: 280mm
 Loading capacity: 15000kg
 Max. loading width: 2000mm





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