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Vulcanizing Press Series KLIV®

by **ICE-Trade** ®



Fully automatic ceramic heating system.

Hydro-mechanical system for uniform pressure.

For all types and widths of rubber, PVC/PVR conveyor belts.

For all hot-splicing systems.

The three most crucial requirements for the vulcanizing process are met by KLIV® System. A complete new outlook on vulcanizing techniques.

1. Automatic ceramic heating system.

This system overcomes the major problem of non-uniform temperature distribution inherent in conventional vulcanizing heating systems. It does this in a unique and very simple manner eliminating the need for any temperature control equipment.

2. Hydro-mechanical system for uniform pressure.

The simplest possible method of mechanically tightening tension bolts is used to apply hydraulic pressure. Beam deflection is compensated for by special hydraulic elements thus giving the best possible method of obtaining uniform pressure distribution.

3. The unit construction principle of KLIV®.

All KLIV Vulcanizing presses consist of individual unit assemblies. The number of units depending on the dimensions of the vulcanizing area. These units are considerably lighter and more compact than those of conventional systems, making them portable and easy to assemble. Hence, KLIV vulcanizing presses are available for service anywhere.



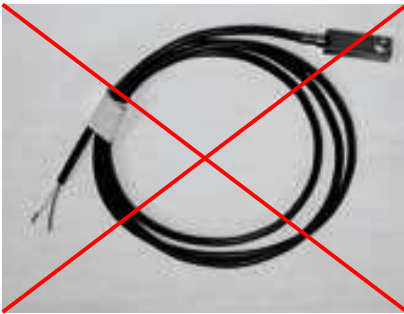
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Most important vulcanizing parameters: Temperature and Pressure.

- KLIV® ceramic heating elements for uniform temperature distribution. Automatically controlled.
- Guaranteed temperature stability: a must for accurate vulcanization:
- No control devices, no control problems.
- The hydraulic pressure is generated mechanically by tightening the traction bolts.
- Pressure distribution by hydraulic elements..
- No need for pumps, clutches, cylinders, hoses and hydraulic lines when using the KLIV® pressure system.



KLIV ® ceramic heating elements for uniform temperature distribution. Automatically controlled. The electrical resistance in the ceramic heating elements increase with temperature rise up to the point when the set temperature has been reached and temperature is maintained. Based on the selection of the ceramic recipe the maximum end temperature is not adjustable.



Guaranteed temperature stability: a must for accurate vulcanization: The KLIV heating/cooling elements not only prevent too high or too low temperatures, but also uneven temperature distribution. The vulcanizing process is always completed exactly according to specification; precise repetition is guaranteed. The temperature cycle of the vulcanizing process can be observed by means of digital thermometers.



No control devices, no control problems. The KLIV heating/cooling elements are self-controlling. There is no need to check and maintain sensitive control devices, thus eliminating common sources of trouble.



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You are not „under pressure” with KLIV



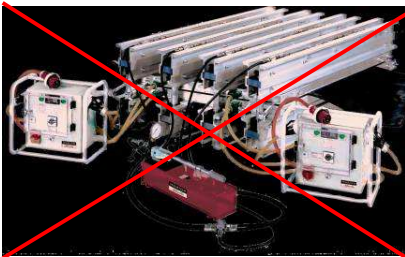
The hydraulic pressure is generated mechanically by tightening the traction bolts.

Though it sounds very simple this system is by far the most reliable. Traction bolts are installed at both ends of the top and bottom pressure traverses. These bolts are tightened simultaneously on each side with a torque multiplier which is driven either manually, or with an electric or pneumatic screw driver. Thus eliminating common sources of trouble.



Pressure distribution by hydraulic elements.

The hydraulic pressure elements are installed on the underside of the top pressure traverses. The mechanically generated hydraulic pressure is distributed uniformly over the whole conveyor belt width. This system is really simple and reliable.



No need for pumps, clutches, cylinders, hoses and hydraulic lines when using the KLIV® pressure system.

Further advantages of the KLIV hydraulic elements: they are corrosion-proof, and resistant to temperature changes and fracture. Furthermore, because of the material they are made of, the elements act as a thermal insulation barrier between the heating and pressure system, thereby minimizing thermal energy loss.

You can keep your “cool” with KLIV® when vulcanizing rubber and PVC conveyor belts.

- Simple current feed.
- Waterproof and maintenance free.
- Integrated cooling by evaporation.
- Uniform pressure by hydraulic elements incorporating deflection compensator.
- Accurate pressure control by visual inspection.
- Heating/pressing sheets for perfect pressure and heat transmission.



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Simple current feed

Each KLIV® heating/pressing element is equipped with plug and connecting cable. Connection to the power system is made by means of terminal boxes which are equipped with overload protection. Phase control is standard.



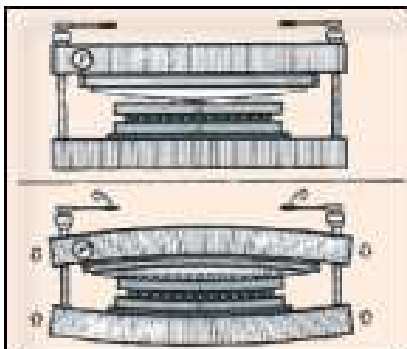
Waterproof and maintenance free

KLIV® heating elements are welded at the ends; thus being absolutely waterproof. They do not require any checks or servicing, provide maximum performance reliability. Should, however, one heating element fail to work, it can easily be replaced by a spare element. When using conventional presses even a minor electrical defect can result in a total breakdown of the complete press.



Integrated cooling by evaporation.

All KLIV heating/cooling elements have cooling channels into which water is metered. The evaporation of water into steam results in a very effective cooling. In 10 to 15 minutes the press is cooled down to below 100° C using a surprisingly small amount of water. Alternatively, the cooling channels can be equipped with hose couplings to be connected to the water mains for quickest possible cooling.



Uniform pressure by hydraulic elements incorporating deflection compensator.

The shape of this slightly curved compensator corresponds exactly to the deflection of the traverses at nominal pressure. A perfectly uniform pressure over the total belt width is guaranteed. The pressure is equally distributed from the center to the edges; thus, avoiding splice defects caused by pressure fluctuations. The same applies to pressure as applies to temperature—uniformity over the total vulcanizing surface.



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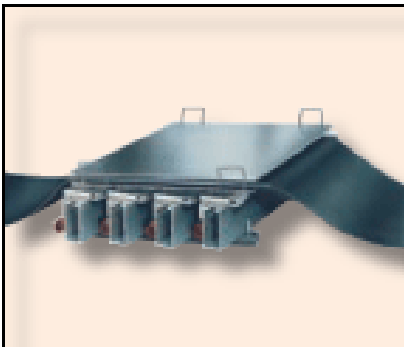
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Accurate pressure control by visual inspection
Each KLIV pressure traverse is equipped with a gauge for precise control of the pressure development. The traction bolts at each end are to be tightened uniformly and simultaneously until the needle of the gauge has reached the “green” mark.



Heating/pressing sheets for perfect pressure and heat transmission

There is a variety of KLIV heating/pressing plates available for all possible splices as regards width, length and area. Bore holes are provided for digital thermometers to monitor temperature.

Thanks to a standardized and simple design that offers a wide range to choose from :

- KLIV®-Module
- KLIV®-Combi
- KLIV® Repair press
- KLIV®-Cycon Module, and
- KLIV® - Ex I M2 EEx dl - ATEX, for underground

KLIV Module functional and economical

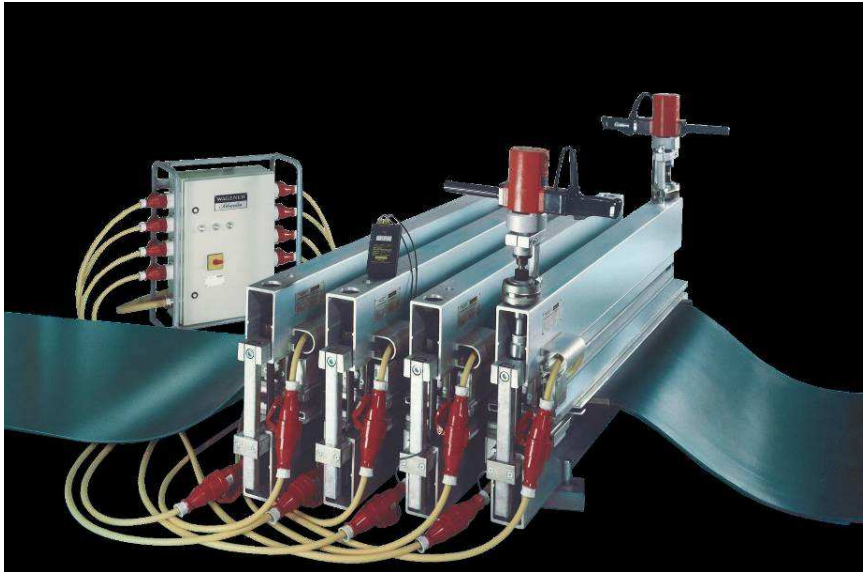
Available press sizes for conveyor belt widths from 400 – 1400 mm (16” – 54”):

Compact press modules with integrated pressure and heating/cooling elements, for assembly into complete press units. The maximum weight of the heaviest component is only approx. 75 kg (165lbs.). The ideal equipment for the vulcanizing of small and medium widths up to 1400 mm (54”). Particularly convenient and extremely economical to operate.



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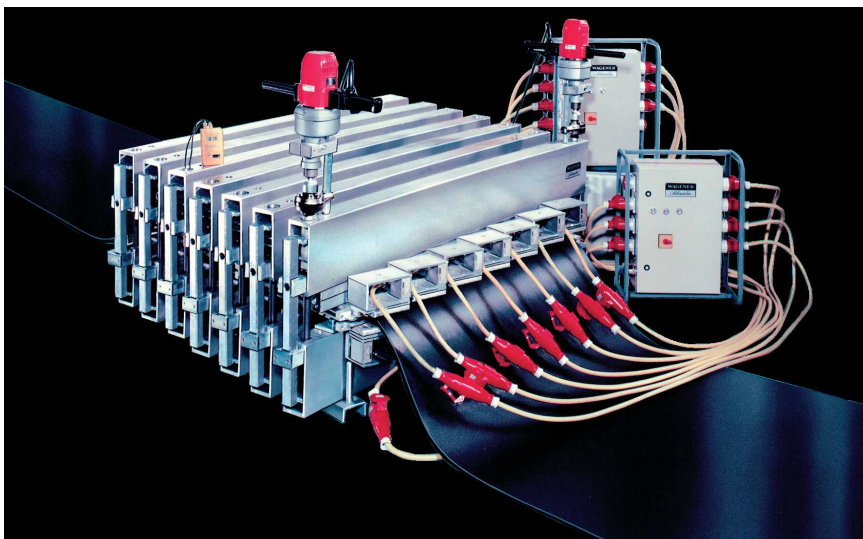


KLIV ® Modul

KLIV COMBI

Available press sizes for all conveyor belt widths, particularly above 1400 mm (54")

Pressure traverses, heating/cooling elements and, depending on traverse length, the pressure elements of this system are designed as subassemblies. Hence all press components are easy to handle even when a belt width of up to 3200 mm (126") is to be spliced. Any combination as regards length and width of the vulcanizing area is feasible. KLIV Combi is the optimum unit construction system.



KLIV ® Combi



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KLIV® Repair-Press - for all conveyor belts, especially wider than 1400 mm (54").

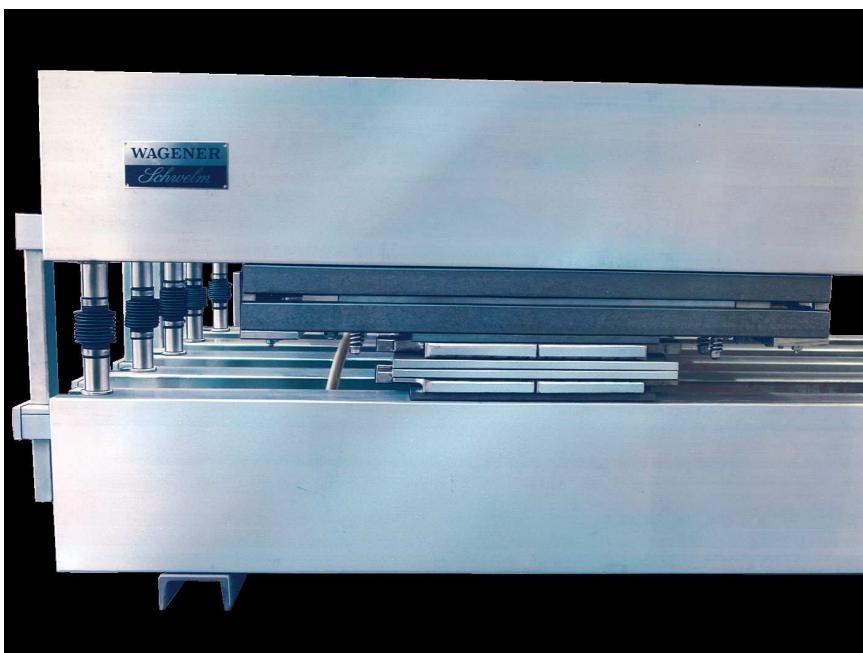
Portable KLIV Repair Presses for the cure of

- belt damages lengthwise
- rips
- edge repairs



KLIV® Repair

As the bottom heating platens are very difficult to reach underneath the belt in order to control the temperature, the KLIV® heating platens, with their system designed temperature limit, are especially suitable. 400 mm wide heating platens in lengths of 1000, 1500 or 2000 mm ensure a uniform temperature distribution.



KLIV® Repair



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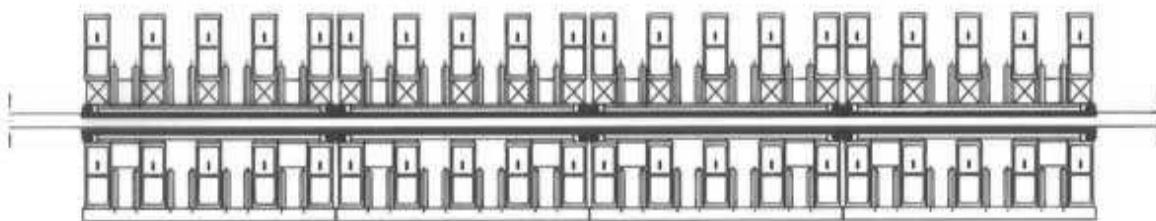
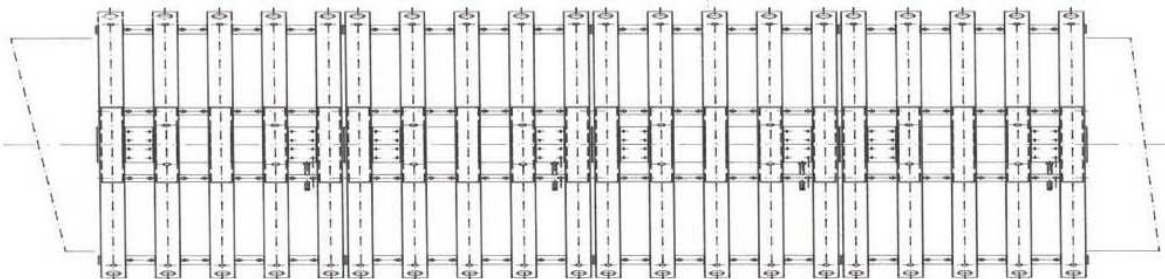
The heating platens are provided with cooling channels to enable fast cooling and minimize downtimes. After the cure, the cooling channels are either connected to the water tanks or direct to the water mains.

Short hydro-mechanical pressure elements, which are arranged on a frame in small units, are used together with light aluminum tubular profiles in order to achieve the necessary pressure. Neither pumps nor hose connections are required! The traction bolt units at both sides of each traverse are simply tightened by using torque multipliers.

Heating platens can be arranged as required over the entire belt width.

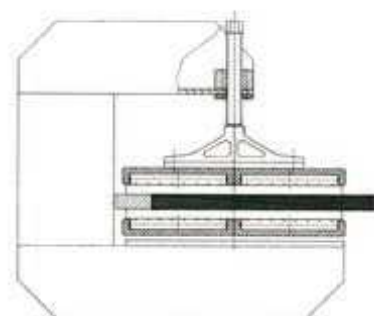
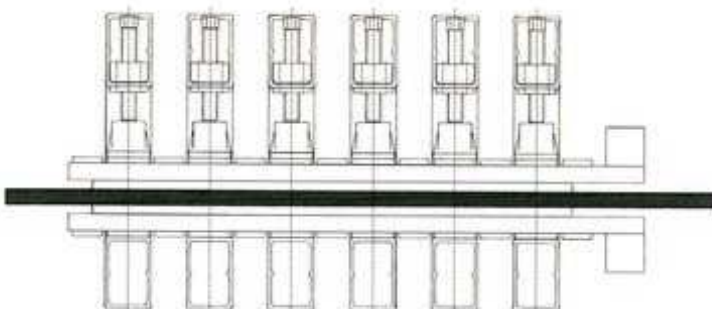
KLIV® Repair-Press, the all-purpose press:

Based on the modular construction, these presses can be extended to any desired length.



For Edge Repairs:

Rip repair – heating platens with “C”-clamps, -mechanical, -hydraulic





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KLIV-CYCON-Module

The WAGENER Schwelm Vulcanizing press type KLIV-CYCON-MODULE consists of:

- KLIV heating elements with cooling channels
- distributor boxes to connect the heating elements to the electric mains
- pressing sheets for a uniform distribution of temperature and pressure
- hydraulic traverse beams for pressure application



The hydraulic traverse beams are bolted to the heating elements to form modules. Each pair of modules consists of one top and one bottom module part, connected by means of 2 traction bolt units.

Heating System

The heating system consists of multiple heating elements made of aluminum. Each heating element has a built-in electro-ceramic PTC resistor heating system with self-regulating electric control characteristics. Temperature regulation via thermostats, temperature sensors nor additional electric control circuits are required.

Cooling System

Each heating element has built-in channels to conduct cooling media (water or air). The most effective form of cooling is provided by the evaporation of water from an open circuit. Only a small amount of water is required for this, in which case hoses are connected to a plastic tank. It is recommended that the cooling channels are cleaned out with compressed air, as dirt or remaining water from the previous cooling process can affect the cooling process or the heating-up time.



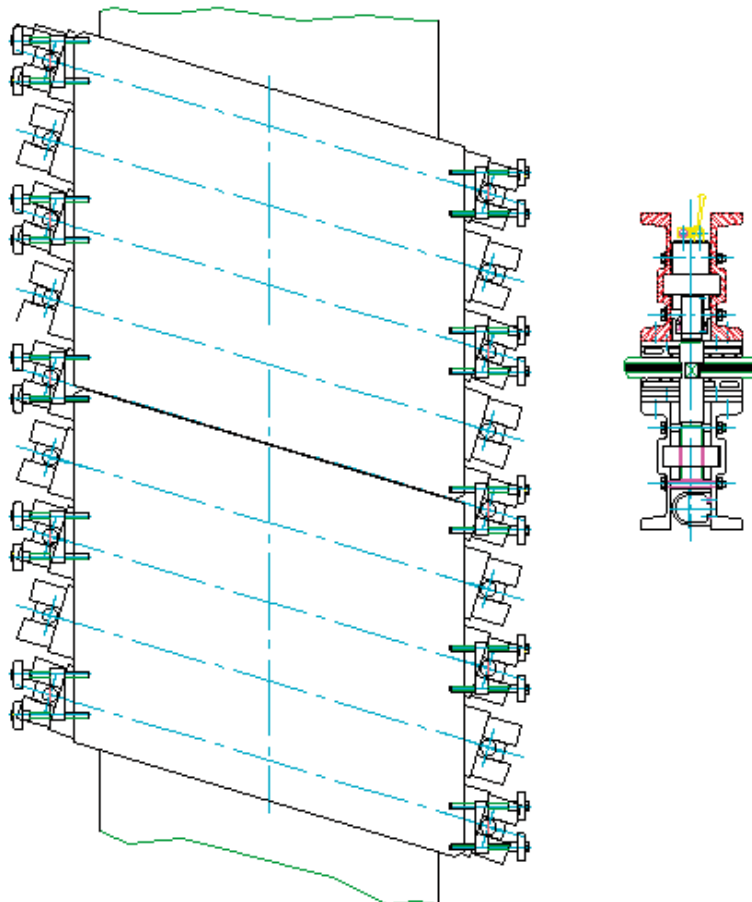
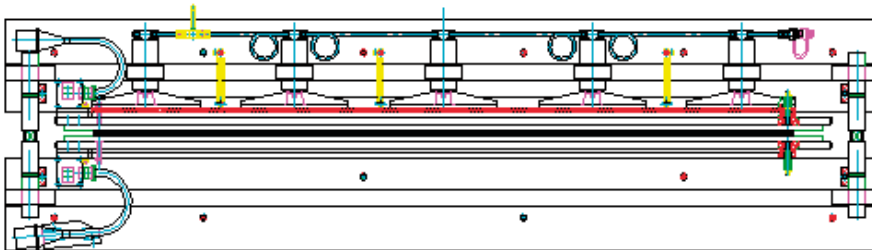
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Pressure System

The hydraulic pressure device of the vulcanizing press type KLIV Cycon module consists of multiple pairs of modules. Each pair of modules consists of a top and bottom module and two traction bolt units, whereby the hydraulic cylinder is located in the top or bottom module according to the type of application. The individual pressure cylinders are connected to each other and are provided with a hydraulic connection at the side of the traverse beam. The modules are hydraulically connected to each other via a hose connector set. The required pressure is applied by means of a hand-operated or motor-driven pump. The pressing sheets are used to distribute the pressure equally.





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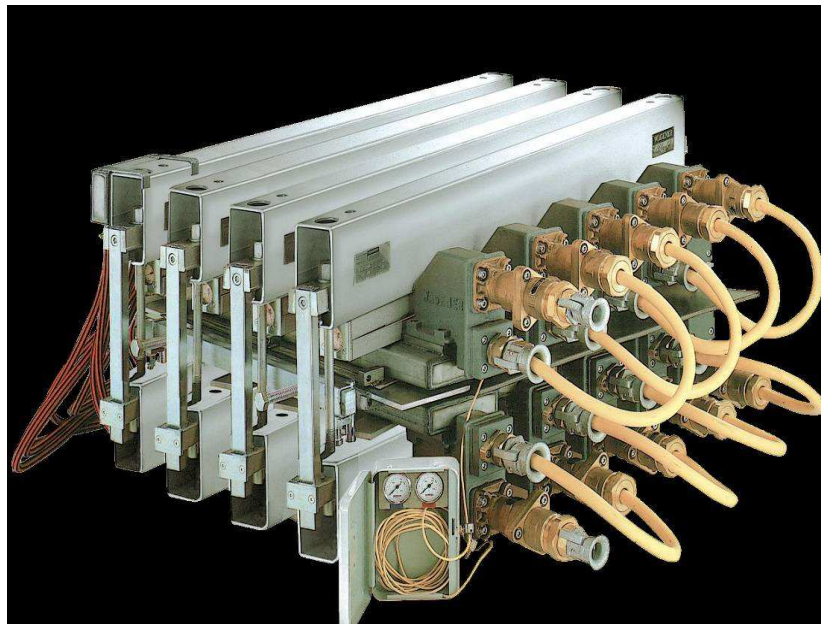
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KLIV® - Ex I M2 EEx dl – ATEX, highlight for underground vulcanization:

A special design of the KLIV Combi System for use underground:

- Approved and authorized according to the European Standard 94/9EG dated March 23, 1994 (ATEX).
- In accordance with the material specifications of the European Standard EN 50014 and EN 50018.
- Ex I M2 EEx dl according to Design Test Certificate BVS 03 ATEX E322.
- Certified for 500 – 1100 volts. None adjustable end temperature ensured by the ceramic heating system.



Flameproof heating element.

Each heating element has a stainless steel casing and is equipped with a FLP twin-plug. This system does not require any additional electric distribution device.



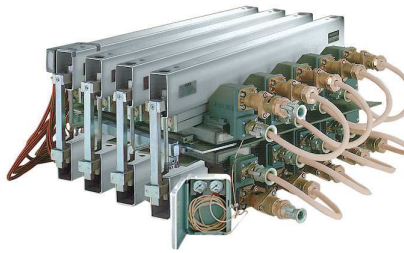
Pressure traverses of high-strength material.

To comply with underground requirements steel traverses are used for underground operations. Thanks to the availability of high-strength materials it is now possible to keep the weight of the traverses low. Transportation and handling is feasible without any auxiliary means.



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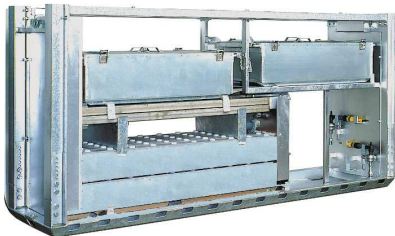
Flameproof vulcanizing press.

Only one power supply cable each up to 100 Amps is required for connecting top and bottom press to the electric mains.
All heating elements are interconnected in parallel.



Special pneumatic turbo screwdriver with torque multiplier.

To apply the hydraulic pressure to the traverses. Alternatively, the hydraulic pressure can be applied by means of a ratchet in connection with the torque multiplier.



Special container. For trouble free underground transport

KLIV® -presses can be supplied in special containers, the size of which fits all known underground transportation systems (e.g. monorail and track haulage means).



Remote thermometers.

A remote thermometer facilitates monitoring the temperature development.

For the safe splicing of all types of conveyor belts underground:

- solid-woven conveyor belts of PVC and PVG
- multi-ply rubber conveyor belts
- steelcord rubber conveyor belts.

Wagener Schwelm

..... the safety of a good splice.

Please contact us if you need further information.