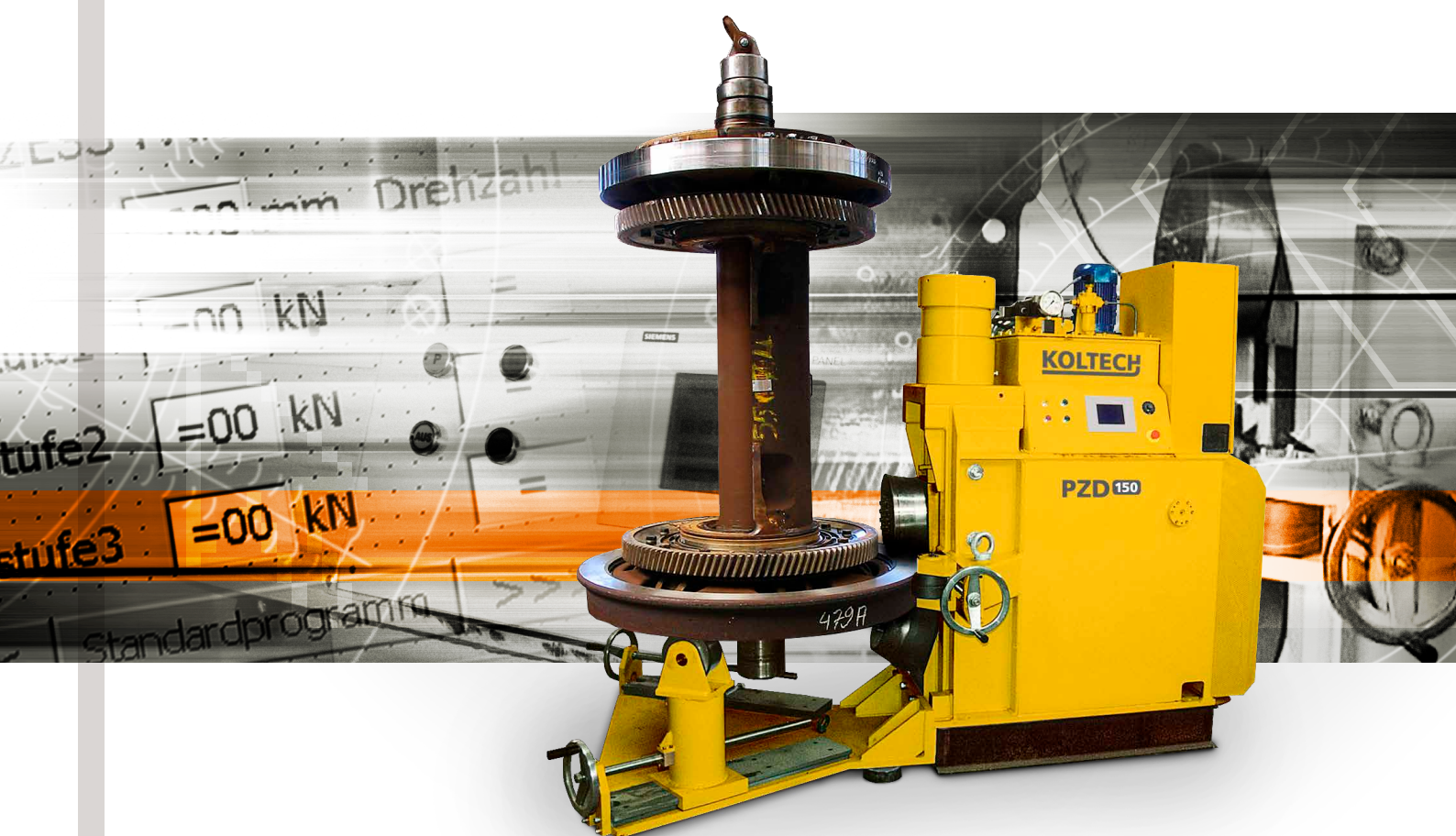


Railway wheelset maintenance
Ring Rolling Machine >>

PZD 150

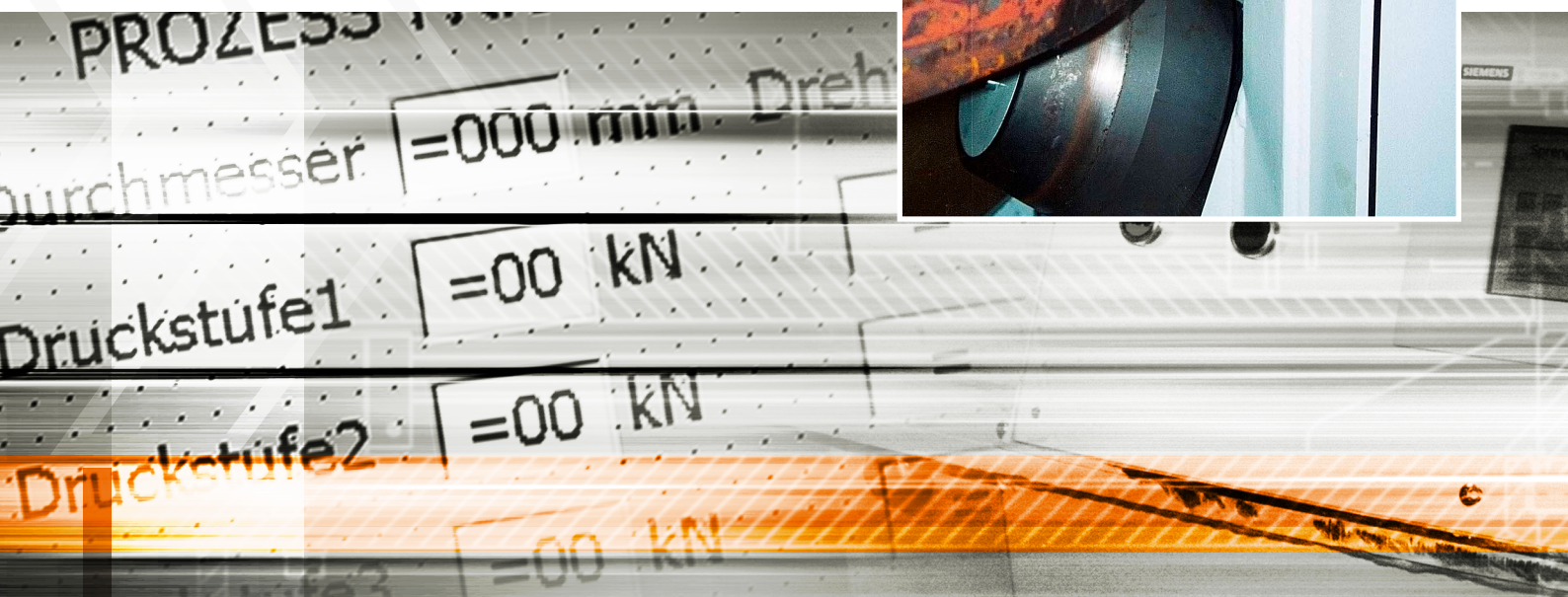
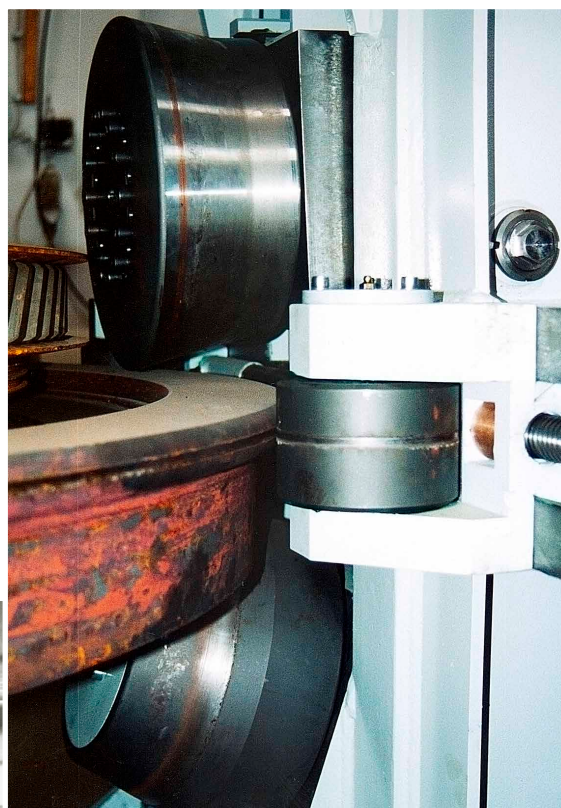


easy to learn,
easy to use,
easy to maintain...

KOLTECH

Application >>

The special-purpose ring rolling machine type **PZD150** is designed for rolling of safety rings in wheelset tyres. It can be used by the repair workshops of railway rolling stock or other workshops for current maintenance of rail vehicles. It refers to standard and driven wheelsets (with gearboxes on the axle). The machine enables to roll the rings of the wheels of various diameters and tyre widths in wide range of speeds and rolling forces.



Working process >>

The operation of this machine is based on rolling of the wheel tyre by means of adequately selected force and the same on clamping the ring and uniform rolling of the tyre along its all circumference. During the process of rolling, the driving roller rotates and at the same time is pressed against the rolled tyre by the hydraulic cylinder.

The correct execution of rolling process of the ring depends on the value of the pressing force, rate of speed and rotary speed of the wheelset, as well as on the heating temperature of the tyre. In the previous solutions, the selection of those parameters and their possible control belonged to the operator and his experience.

In the machine **PZD150** there is a possibility of using standard rolling program according to the pre-set process, determining the values of the pressing forces in particular phases of tyre rolling. This option does not exclude the use of individual settings of those parameters by the operator. The pressing force of the driving roller depends on the pressure of oil, supplying the cylinder; and is adjusted by the proportional valve with integrated electronic system, allowing for free setting of the force within the range determined by the user. In standard execution, the hydraulic elements of **REXROTH** make are used. On Customer's request, there is a possibility of applying the components of other power hydraulics producers as e.g. **HYDAC**.

Control & servicing >>

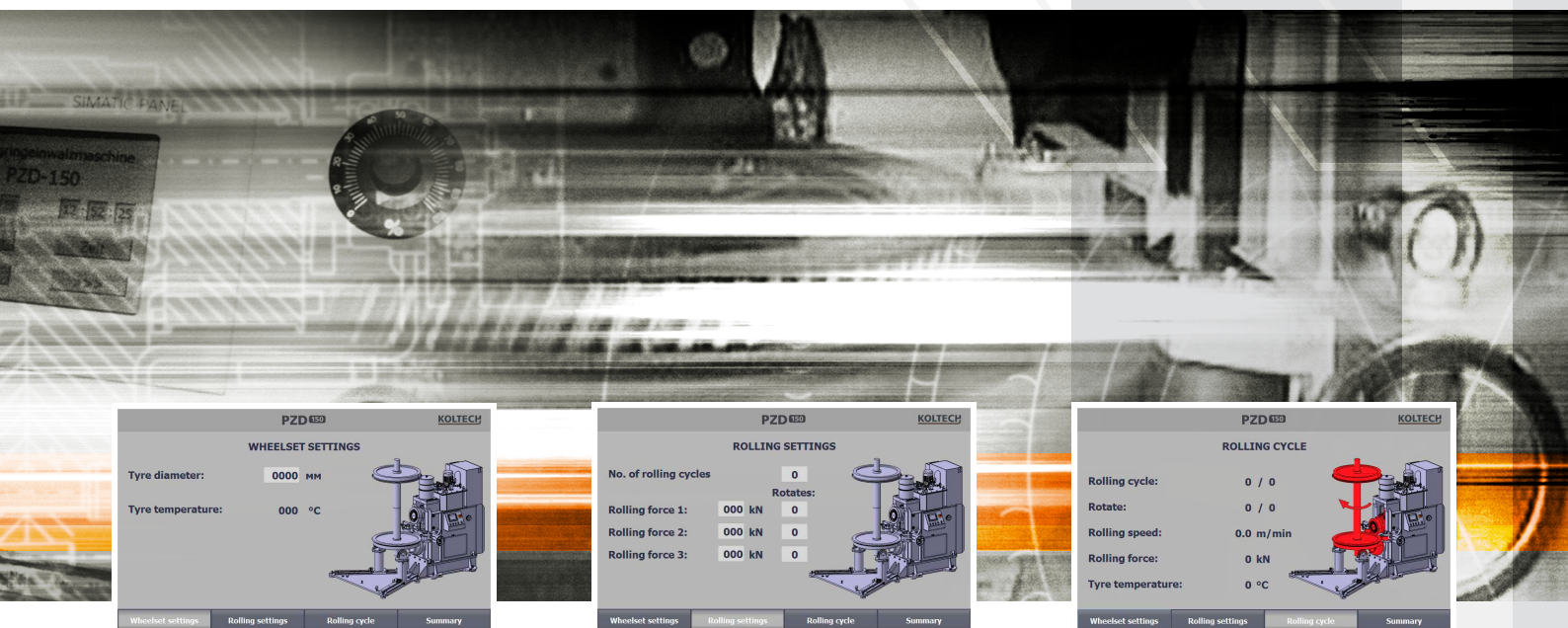
The latest requirements, especially of western European railways, enforce full control of the process of safety ring rolling with the possibility of certificate print out, repeated programming of technological cycle and archiving of data of the applied parameters of the rolling process of particular wheels etc.

Because of the above, the new product line of rolling machines **PZD150** is equipped with the latest solution, used by the leading producers of the technical devices and machine tools, such as the control system based on the programmable controller of **SIEMENS** make.

Process parameters are set by means of touch panel of **SIEMENS** make with LCD display. The parameters during rolling are displayed currently on the screen. The operator's communication with the machine is carried out in a dialogue mode. Such a solution allows for adaptation of the technological process and interface to the individual needs of the user, meeting the requirements of HMI philosophy (Human Machine – Interface).

Together with the cycles of technological process, subsequent screens appear on the display:

- general – date, time,
- informative – data on producer and material of tyres, number of wheelset and operator etc.,
- selection – determination of rolling parameters,



The rolling process can be carried out gradually i.e. for subsequent rotations of the wheelset the pressing force of the roller is increased. The rolling speed is set infinitely variably by the operator by means of potentiometer from the operator's panel. Because of the fact that the heating temperature of the wheelset tyre is an essential element of the rolling process, it is controlled continuously by means of in built optical pyrometer and its value is displayed on the screen of the touch panel during the process.

- standard program – it is possible to store the cycle of standard parameters,
- control – visualisation of parameters such as temperature of tyre, pressing force of roller, phase of cycle, consumption of current of main drive during rolling,
- print out – enables the print out of rolling certificate.

Apart from it, on the display, messages of the diagnostic system can appear and other information on the current servicing of the machine. All control system conforms to the requirements of the CE certificate.

The ring rolling machine is equipped with a database allowing archiving data, and a printer for printing reports.

Mechanical construction

The steel body is the basic element, carrying the loads of rolling process. It is welded, ribbed, ensuring high rigidity of entire system. On the body, the hydraulic feeder is installed together with the cylinder as well as electrical cabinet and control panel. In the front part of the body, the rollers are located: the permanent supporting one and two side shiftable ones, locating the wheelset in working position.

To the front wall of the body, there is steel plate attached with a system of shiftable rollers, supporting the wheelset.

The servo motor and driving roller, mounted on the driving shaft, are installed on hinged arm, forming a rolling driving unit. The servo motor consists of an angle-planetary gear and AC driving motor, controlled by inverter. The motor is provided with constant torque in all ranges of speeds. Such a compact solution of the driving system minimises the defects and considerably cuts the servicing time.

Wide range of spacing adjustment of supporting and side rollers allows for their optimum setting, depending on the diameter of the wheel.

Technical specification



» Parameters	
Wheelset diameter	500 – 1700 mm
Rolling force (adjustable every 5 kN)	150 kN – 600 kN
Rolling speed (infinitely variable)	up to 6 m/min
Installed power	15 kW
Main drive motor	9,2 kW/400V
Hydraulic pump motor	3 kW/400V
» Overall dimensions	
Length	3240 mm
Width	2030 mm
Height	2220 mm
Weight	40 kN



The applied solutions in the machine allow for:

- optimum selection of process parameters, depending on the requirements of the wheelset producers,
- setting of standard process for particular type of wheelset,
- uniform pressing along the entire circumference of tyre,
- continuity of process for subsequent steps of rolling,
- printing of certificate, containing the process parameters for particular tyres,
- archiving of data and rolling parameters of particular wheels (up to 40 wheelsets) on external PC.

Optional equipment of ring rolling machine PZD150:

- complex supply of accompanying devices such as stationary jib crane, flame or induction heater.

- ISO 9001: 2015
- ISO 14001: 2015
- ISO 45001: 2018