



HYDRAULIC PRESSES



Universal hydraulic presses for cold and hot forming

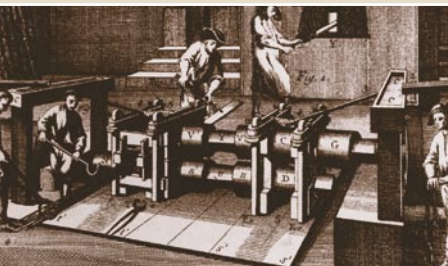
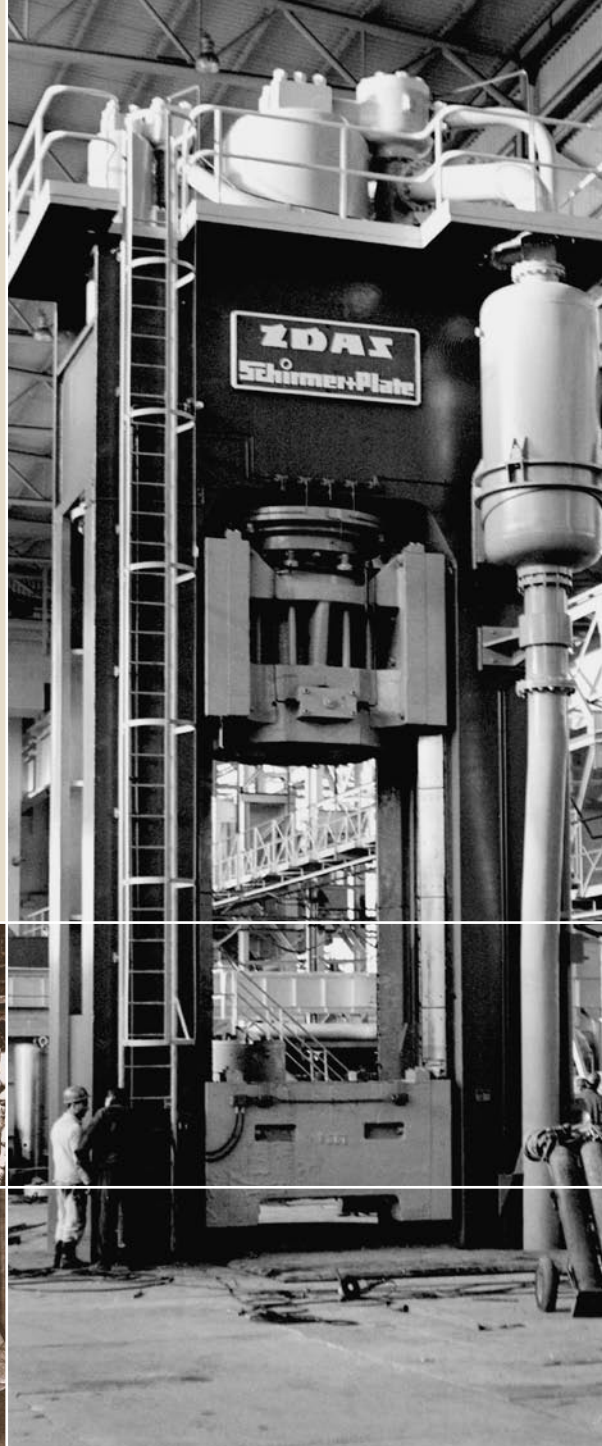
Straightening presses

Special hydraulic presses for solid and sheet-metal forming

ZDAS

ZDAS

ŽDAS, a.s.
Strojírenská 6
591 71 Žďár nad Sázavou
Czech Republic
Phone: +420 566 64 2124
Fax: +420 566 64 2871
e-mail: or@zdas.cz
www.zdas.cz



Half a century tradition in

ŽĎAS Forming Machines

The forming machines have been built by the joint-stock company ŽĎAS for more than half a century. From basic simple types manufactured at the beginning according to the adopted documentation, this line was extended to several specialized groups after having established the company's own development base. Nowadays, ŽĎAS is able to meet all common as well as specific requirements of its customers for press design or parameters.

Thanks to experience of the designing team and up-to-date production plants, the design and implementation of specific unit or special machines are also offered in addition to unified series of single types of forming machines today. It mainly concerns the equipment for mass production of parts for the automotive or consumer industry provided with appropriate mechanization equipment, tooling and all accompanying services.

ŽĎAS ranks among the prominent manufacturers of forming machines, who are also able to design for their customer the equipment according to its special requirements, so-called "tailor-made" equipment. Therefore, a good reference is not only number of equipment supplied in single types, but also tens of production lines and machines designed and supplied according to customers' requirements.

These days, considerable attention is paid to medium repairs and general overhauls of not only the equipment built by us earlier but also the equipment from other manufacturers. Repairs are aimed not only at functional wear of single parts of the presses but also at safety elements necessary to operate the given equipment nowadays. Much of repairs are associated with modernization of the presses, with change of the drives and other parts of the presses to meet requirements of present up-to-date technologies.

Essentially, the forming machines built under the ŽĎAS trademark are divided, according to the drive system, into mechanical and hydraulic presses. Thereat, however, the use for both sheet-metal forming and solid forming is respected. Both types of the machines are paid the same attention in separate specialized teams of specialists then. With respect to the fact that the use of the machines with various drives for production of particular pressings often intersects, a group of ŽĎAS' technological specialists always tries to find an optimum and various-purpose equipment for the particular pressing or blank.



design and manufacture of forming machines

Classification of Hydraulic Presses according to the Technology

Universal presses		CTH, CTC, CTL
Straightening presses		CDN, CDT
Special presses	Railway wheel sets	CDR, CDRA
	Pipe bends	CXT
	Automotive and aircraft industries	CYA, CYAA, CYAB, CTUA, CTV
	Thin-walled hollow bodies	CTP, TYH, CKQ
	Black-lead extrusion presses	CXQ
	Powder metallurgy	CJZ
Press accessories	Tool change device	semi-automatic automatic with run-out tables
	Ejectors, clamps etc.	
Mechanization equipment	Uncoilers, straighteners, feeders, loaders etc.	
Tool-making	Automotive industry Progressive forming Consumer industry Special tools	
Supply of forming lines	Automotive industry Mechanical engineering Metallurgical production Special production	
Reconstruction of hydraulic presses	Sectional repairs General overhauls Modernization	



Hydraulic Press Drive Principles

Principles of the drives of hydraulic presses manufactured by ŽĎAS, a.s. can be divided in two groups, i.e. water-emulsion and oil ones. The water-emulsion principle is mostly used for forging presses and the oil principle, both direct or combined, is used for forming hydraulic presses.

The company deals with the designs of industrial applications being operated with both hydraulic oil and water emulsion.

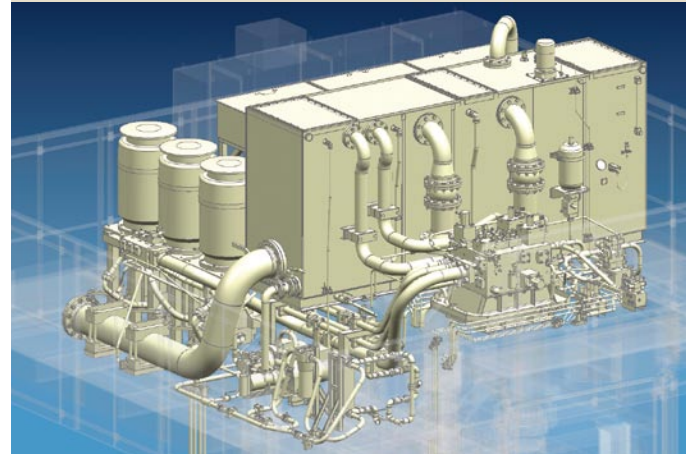
ŽĎAS, a.s. being the prestigious manufacturer of forming machines for various industrial applications holds the unchanging philosophy of delivering its machines as complete and ready for use, including hydraulic, electronic and electric control systems.

The oil and hydraulic elements and hydraulic power units are mostly provided by reputable world manufacturers, such as BOSCH REXROTH, OILGEAR-TOWLER, WEPUKO etc., while the control manifolds and all machine groups are designed and manufactured by ŽĎAS company using PC with the support of SW NX in 3D model.

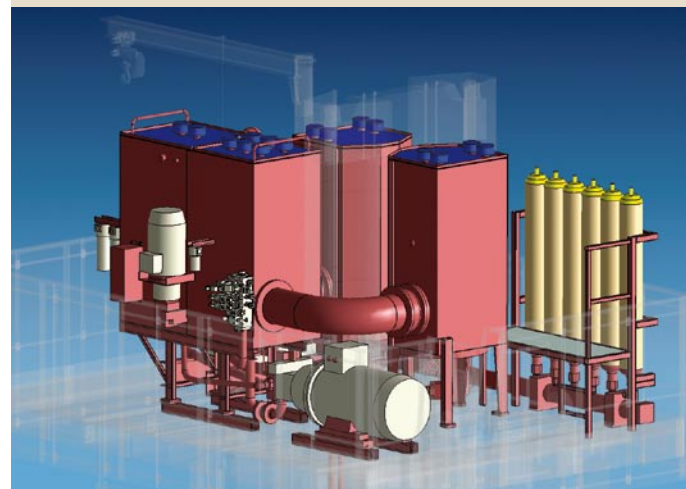
For big hydraulic systems, the accumulator drives are used with a water emulsion (HFA fluid) used as working liquid. The accumulator drives being also called accumulator stations ensure drive even for more presses. The advantage of the above accumulator station is that it is designed for the average consumption of driven presses. The hydraulic-shock problem in the pipe at a long distance of the accumulator station from the presses has been solved by the incorporation of an absorber in this piping. For accumulator drives, the hydraulic control and power elements of the same concept are used as those intended for oil drives. They only differ in the material used and minor design modifications. The great advantage in the development of this element base for water emulsion hydraulics is the fact that the company is furnished with their own forging shop having suitable equipment, thus achieving a high productivity. The presses installed in the forging shop are connected to the central accumulator station and undergo regular machine modernization. Designing departments of ŽĎAS company have had a chance to make sure of new engineering solutions at any time in practice under heavy-duty conditions of a forging shop. In addition to the accumulator station, we can mention as an example the realized projects with accumulator drives, such as CKQ 630/220 press modernization, railway wheel-set line for BONATRANS Bohumín etc.

Two principles of hydraulic drives, i.e. direct and combined, find their application in hydraulic presses with oil drives. The hydraulic drive of the press is selected according to the characteristics of individual technological operations for which the press is intended. The direct hydraulic drive is suitable to be used for sheet metal forming, extrusion, straightening, baling or cutting the scrap, and for iso-static compacting.

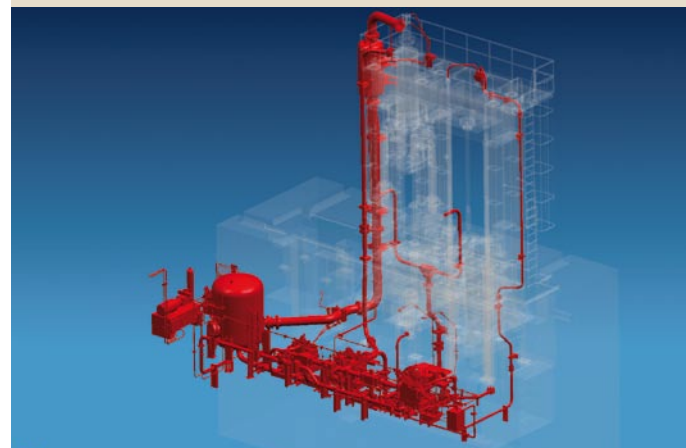
The combined hydraulic drive is used for the technologies requiring a high nominal force of the press at high forming velocities. The combined drive is operating in a way that, in the part of the press nominal force range, the accumulator together with hydraulic power unit delivers the liquid (hydraulic oil) to working hydraulic cylinders. In the final forming phase the accumulator is disconnected and the liquid is delivered by the hydraulic power unit only. The accumulator also ensures the supply of liquid to working hydraulic cylinders when moving back of the press ram. This drive principle is used for CYAA designated presses as well, which are intended for the plastic sheet metal forming technology.



Direct drive



Combined drive



Accumulator drive



Reference

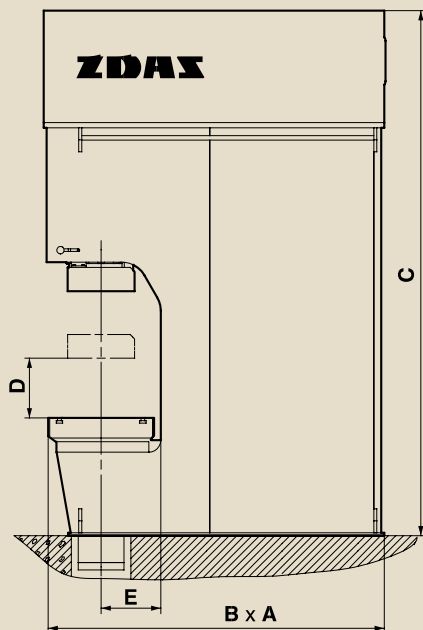
ŽDAS, a.s. has built 23 pieces of universal hydraulic presses with open "C" frame (CTL, CTC) by the year 2006.

Hydraulic Universal Presses

The presses are designed for all common, hot, warm and cold, solid and sheet metal forming operations. They are suitable for applications, where it is necessary to access the press workspace from three sides, e. g for mechanical and maintenance works. This is advantageous mainly for the attendance itself as well as for direct manipulation with bulky parts.

The CTC presses are of a vertical design with welded C-shaped frame. Located in the frame upper part is a double-acting press cylinder with the prefill valve. The press slide is provided with locking mechanism at the upper position. The drive including the tank is located on the press frame. The drive bottom creates an oil tight tank. The control system ensures press control, diagnostics and signalling for other co-operating equipment.

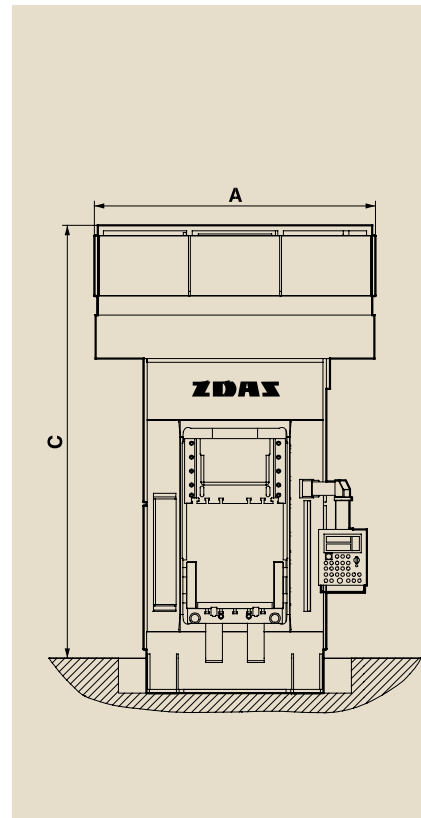
A wide range of customers' requirements made ŽDAS' developers design a unit construction, which parameters and range of technological possibilities enable not only to deliver a wide range of presses but also build the lines with full mechanization equipment.



Basic technical parameters

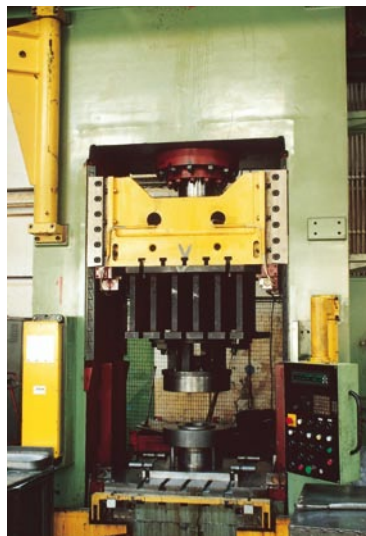
		CTC 250	CTC 400	
Rated force		kN	2 500	4 000
Shut height	D	mm	400	500
Stroke		mm	450	500
Gap	E	mm	400	450
Approach speed		mm.s ⁻¹	170	190
Working speed max.		mm.s ⁻¹	20	44
Working speed min.		mm.s ⁻¹	6	8
Reverse speed		mm.s ⁻¹	100	110
Clamping surface of the slide		mm	750 x 450	800 x 630
Clamping surface of the table		mm	900 x 630	1 120 x 800
Holder force		kN	100	160
Holder stroke		mm	320	400
Lower ejector force		kN	1 000	1 250
Lower ejector stroke		mm	250	320
Main motor power		kW	25	35
Press ground plan	B x A	mm	900 x 2 300	1 120 x 2 700
Press height	C	mm	3 300	3 600





Reference

ŽDAS, a.s. has built 57 pieces of sheet-metal and solid forming hydraulic presses (CRU, CTP, CTH) by the year 2006.

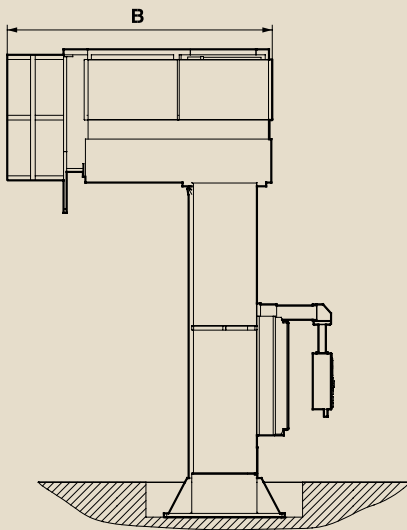


Hydraulic Universal Presses

These presses are designed for universal use for both solid and sheet metal forming. High rigidity of the frame enables to carry out a wide range of forming operations. At the option of the customer, the basic equipment can be extended, above all in connection with the particular technology. If requested, the presses can be provided with the upper and lower ejectors, automatic tool change device, clamps and other devices from the optional equipment. Advantage of the hydraulic presses is the fact that the forming speed can be changed depending on the path in the course of the process.

The presses are of a vertical closed box-type design with welded frame. Located in the upper crossbeam is the double-acting press cylinder with the prefill valve. The press slide is guided along the sliding adjustable guide and is provided with locking mechanism at the upper position. The press drive can be located on the press frame or outside the press, depending on its size. The press can be completed with mechanization equipment and other progressive elements.

Basic technical parameters



		CTH 250	CTH 400	CTH 630	CTH 1000
Rated force	kN	2 500	4 000	6 300	10 000
Reverse force	kN	300	590	960	1 500
Shut height	mm	800	1 000	1 250	1 250
Stroke	mm	800	1 000	1 250	1 600
Approach speed	mm.s ⁻¹	400	400	400	400
Working speed max.	mm.s ⁻¹	70	66	63	56
Working speed min.	mm.s ⁻¹	20	16	11	9
Reverse speed	mm.s ⁻¹	426	469	410	369
Clamping surface of the table	mm	1 000 x 1 250	1 250 x 1 600	1 600 x 2 000	1 600 x 2 500
Clamping surface of the slide	mm	1 000 x 1 250	1 250 x 1 600	1 600 x 2 000	1 600 x 2 500
Holder force	kN	1 000	1 250	1 600	2 000
Holder stroke	mm	320	400	500	630
Upper ejector force	kN	100	160	200	250
Upper ejector stroke	mm	330	400	450	500
Main motor power	kW	55	75	75	95
Press ground plan A x B	mm	3 920 x 3 000	4 200 x 3 400	4 400 x 3 600	4 800 x 4 000
Press height C	mm	5 600	6 500	7 850	10 200

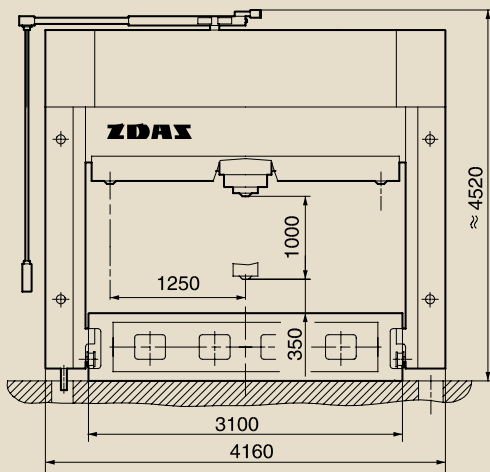
Use for high technology

The CTH hydraulic universal presses are made in a number of modifications with various shut height, stroke and forming speed. Their design is derived from a successful series of the CRU presses. An example of use of these presses in series manufacture is the line for gear pump bodies or the line for long hollow bodies and railway bumpers. The railway wagon bumpers rank among the most stressed parts, therefore ŽDAS has designed and tested the technology eliminating problems of welding single parts and, thanks to high forming level, essentially enhancing the material mechanical properties.



The CDN gantry straightening press is designed to hot and cold straighten the shafts, steel castings, weldments, rolled products, open-die forgings and flat parts of sheet. Fitted with special tools and aids, it is also suitable for other works, such as pressing-in/out the bearings, bushes, shrink rings in simple as well as spatially structured and bulky parts.

The press consists of two parts – the press itself and working table. The press frame travels along the rail surfaces located in the guide on the table side. The frame itself is welded of castings and sheets. The table and travel guide can be extended by length module of the basic part. The control system of the press enables to admeasure the straightening tool path including the preselection.



Basic technical parameters

		CDN 400
Rated force	kN	4 000
Stroke	mm	1 000
Approach speed	mm.s ⁻¹	42
Working speed min.	mm.s ⁻¹	1
Reverse speed	mm.s ⁻¹	30÷40
Clamping surface of the table	C1	mm
		3 000 x 3 100
Clamping surface of the table	C2	mm
		6 000 x 3 100
Clamping surface of the table	C3	mm
		9 000 x 3 100
Frame travelling speed	mm.s ⁻¹	100
Working cylinder travelling speed	mm.s ⁻¹	50
Main motor power	kW	12
Press height	mm	4 520



Reference

ŽDAS, a.s. has built 164 pieces of gantry straightening presses (CDN) by the year 2006.

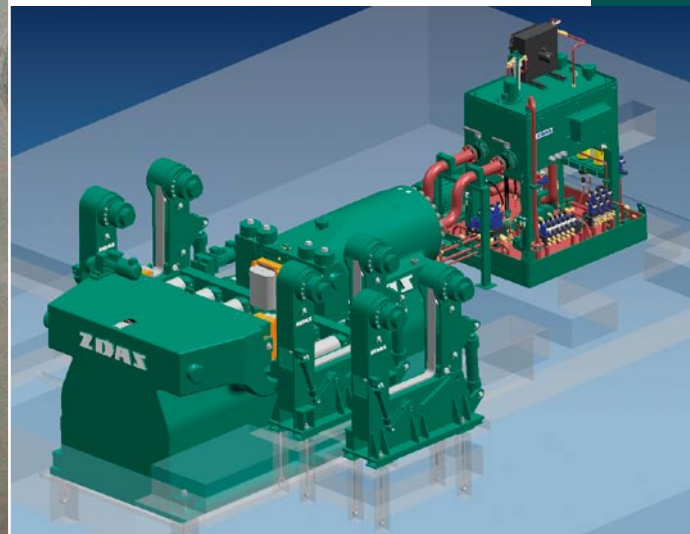
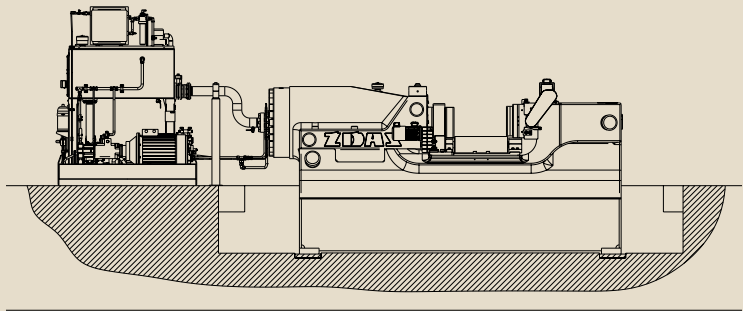
Bar Straightening Press

The CDT 1000 hydraulic straightening press is designed to cold straighten rounds and squares according to technological purpose of the press. The press consists of the working cylinder attached to the press frame. The bars straightened move by means of entry and exit conveyers that encircle the working cylinder piston. The section straightened leans against adjustable rests. For manipulation (rotation) with the sections straightened, chain manipulators on both press sides are intended. A pair of chain manipulators at the entry side serves to handle short sections. For travel of the section straightened, driven rollers in the press and between the chain manipulators are intended. The press and chain manipulators are driven by hydraulic drive located behind the working cylinder. The conveyers and rests are driven by electric gearboxes. The control system ensures press control and operation as well as failure state diagnostics.

Basic technical parameters

CDT 1000

Rated force	kN	10 000
Press opening	mm	800
Maximum stroke	mm	850
Approach speed	mm.s ⁻¹	100
Working speed (at 10 000 kN)	mm.s ⁻¹	2÷5
Rest spacing	mm	500÷2 200
Sections straightened – round	mm	90÷400
– squares	mm	90÷400
– length min./max.	mm	1 700÷7 000
Material moving speed min./max.	m.s ⁻¹	0÷0,5
Total power input	kVA	110
Working overpressure max.	MPa	25



Reference

CDT 1000 straightening press – SSK
Von Schaeuwen, Germany

CDR

Presses designed to mount and dismount railway wheel sets

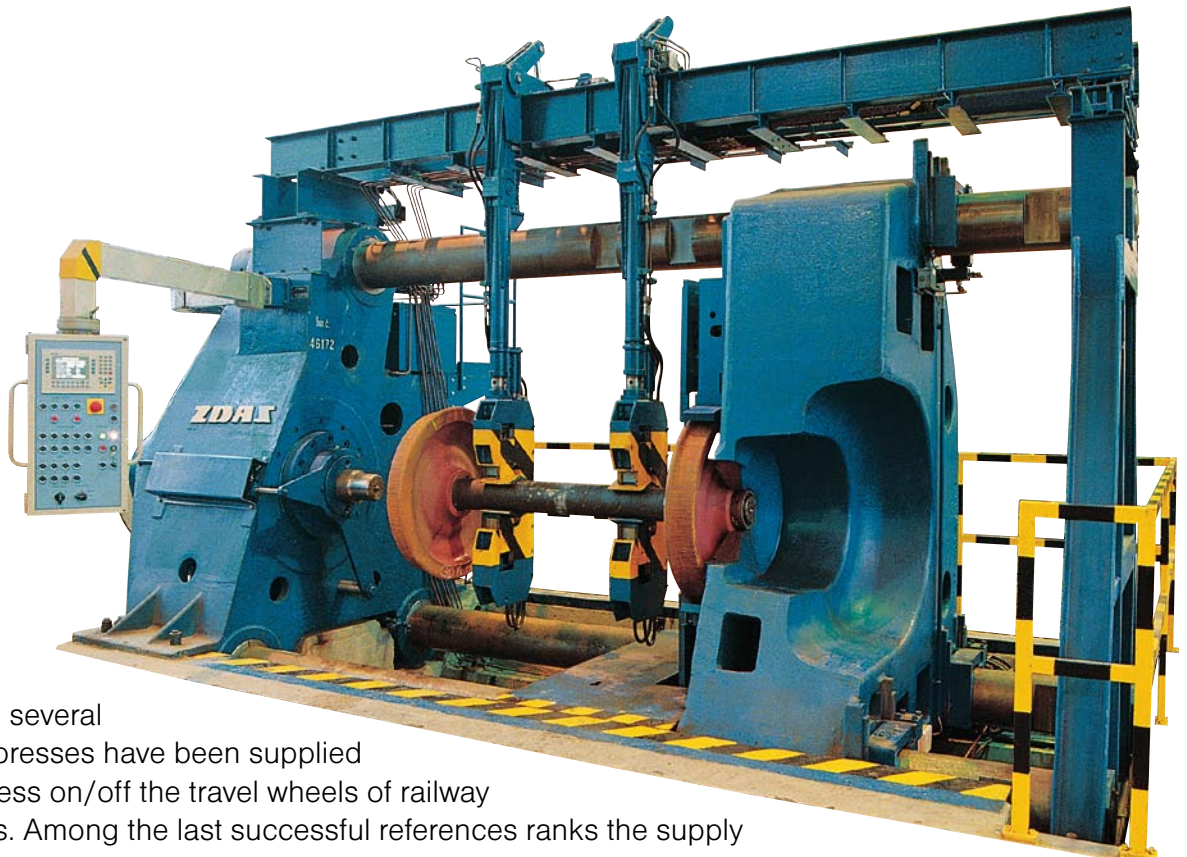
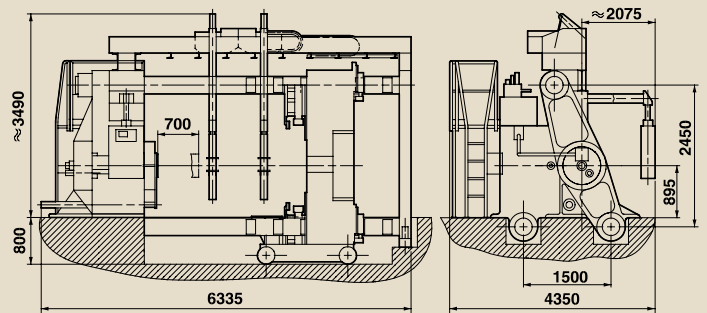
The CDR press is designed to cold press on/off the railway wheel sets with guide bushes. The equipment enables to mount and dismount the wheel sets for engines and railway wagons, while recording the pressing force course depending on the pressing length. After the pressing has been completed, a protocol is printed in order to file the process.

The press is of a horizontal three-column design that avoids press thwarting due to eccentric action of the force and guarantees exact perpendicularity between the wheel pressed and the pin. The press cylinder leans against the supporting traverse, which wheels travel along two beams. Pressing force is taken up by the supporting traverse in locking positions given in advance depending on the type of the wheel set.

Basic technical parameters

CDR 500

Rated force	kN	5 000
Stroke	mm	700
Approach speed	mm.s ⁻¹	25
Working speed max.	mm.s ⁻¹	0,5÷3
Reverse speed	mm.s ⁻¹	95
Supporting traverse travel speed	mm.s ⁻¹	30
Daylight between columns	mm	2 450
Wheel set length max.	mm	2 500
Car travel speed	mm.s ⁻¹	52
Centring device clamping force	kN	30
Diameter clamped by the centring device max.	mm	1 450
Diameter clamped in suspensions max.	mm	220
Weight of wheel set max.	kg	1 200
Main motor power	kW	15
Press ground plan	mm	6 350 x 4 350
Press height	mm	4 290



Reference:

For needs of railway wagon repair shops, several CDR 500 hydraulic presses have been supplied that serve to cold press on/off the travel wheels of railway engines and wagons. Among the last successful references ranks the supply of this equipment to one of the prominent Chinese manufacturers of railway engines and wagons in a town of Qingdao.

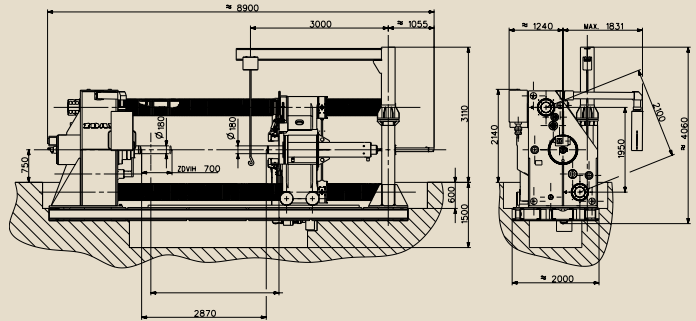
Presses designed to assemble railway wheel sets

CDRA

The CDRA hydraulic press is designed to assemble railway wheel sets, to cold press without guide bushes with axle rotation. The equipment also enables to press on the parts between the wheels. In addition to the pressing-on, the equipment enables the pressing-off as well as the check of pressed-on joints. The press is of a horizontal column design. The press cylinder located in a fixed traverse acts with selected force via the parts pressed against the supporting transverse. The traverse moves along the threaded anchors to given admeasured position. Located on the supporting traverse is the hydraulic centring device for wheels while located on the rear traverse is the hydraulic centring device for axles. The control system ensures press control and operation as well as failure state diagnostics.

Basic technical parameters

		CDRA 500
Rated force	kN	5 000
Stroke	mm	700
Approach speed	mm.s ⁻¹	25
Working speed max.	mm.s ⁻¹	0,5÷3
Reverse speed	mm.s ⁻¹	95
Supporting traverse travel speed	mm.s ⁻¹	30
Daylight between columns	mm	2 100
Wheel set length max.	mm	2 650
Centring device clamping force	kN	30
Wheel diameter max. (tread)	mm	1 250
Weight of wheel set max.	kg	3 500
Main motor power	kW	15
Press ground plan	mm	8 900 x 2 000
Press height	mm	3 100



Reference

For Bonatrans Bohumín, a prominent Czech manufacturer of railway wheels, the CDRA 500 press has been supplied.

The press for hot forming the pipe bends of blanks prepared in advance. It is designed to press the bends of the following pipes:

26,9 x 2,3 31,8 x 2,6 33,7 x 2,6 38,0 x 2,6 42,5 x 2,6 44,5 x 2,6 48,3 x 2,6 51,0 x 2,6 57,0 x 2,9 60,3 x 2,9 70,0 x 2,9 76,1 x 2,9

Machine design

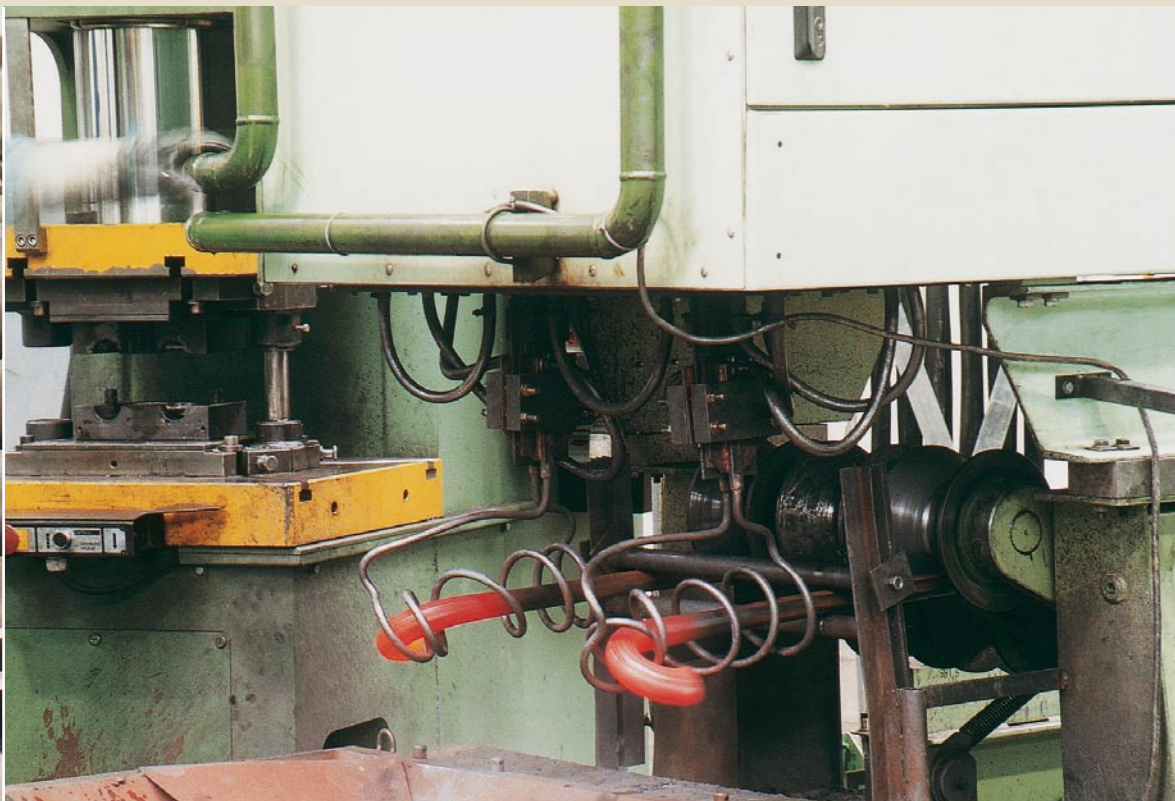
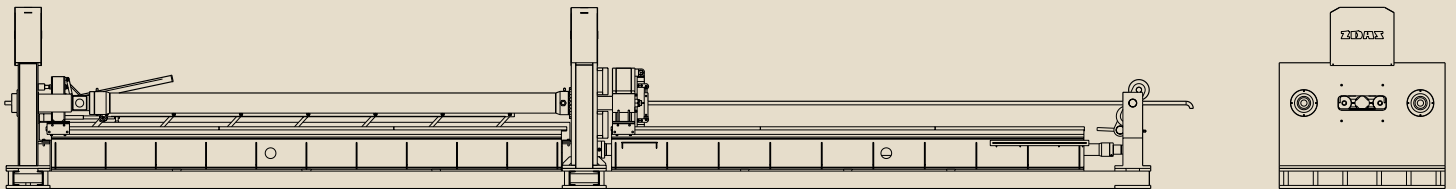
Fastened on the frame of the CXT hydraulic press are three cross beams. Located in the entry and middle cross beams is the drawing bar clamping unit. Located on the exit cross beam are the adjustable back-up pulleys. Between the cross beams, cars move along the rails and displace the blanks along the drawing bar. The cars are driven by hydraulic cylinders located in the cross beams. To prevent the drawing bars from deflection when forming small pipe bends, the press is provided with a supporting table and supporting bar.

The forming is carried out when hot, the blanks are reheated by induction heating. The press is lubricated manually with grease.

Basic technical parameters

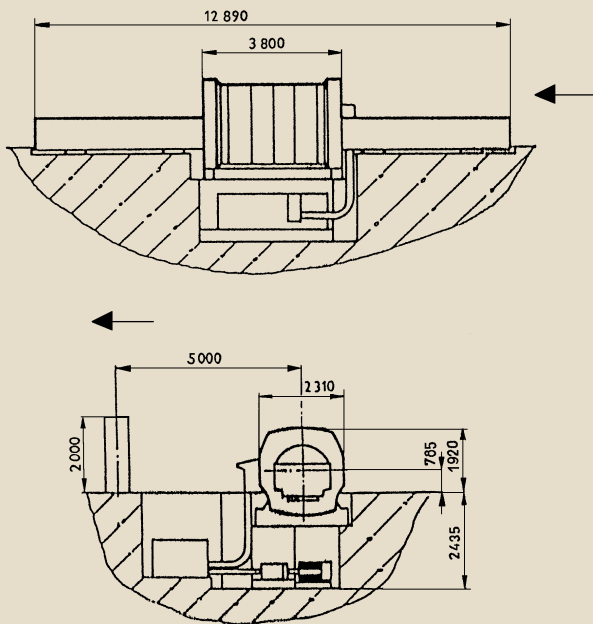
CXT 120

Rated force	kN	1 200
Working stroke	mm	5 000
Working speed	mm.s ⁻¹	2÷84
Working speed at max. force	mm.s ⁻¹	40
Reverse speed	mm.s ⁻¹	800
Auxiliary car force	kN	68
Auxiliary car stroke	mm	5 500
Auxiliary car speed	mm.s ⁻¹	800
Auxiliary car reverse speed	mm.s ⁻¹	800
Jaw opening	mm	160
Clamping force	kN	50
Working overpressure	MPa	32



Tunnel Bladder Presses

The CTV tunnel bladder presses were developed by ŽĎAS for piece and trial production of pressings for aircraft industry and for production of pressings for prototypes in automotive industry. The pressings are made in such a way that half moulds made of easy-machinable material are placed on the run-out table, then the sheet blanks are placed on these moulds. The table runs into the tunnel frame of the press. The pressings are formed to final shape with high-pressure liquid acting on them via a rubber wall of the pressure bladder. A two-sided table enables to prepare the second pressing cycle in the course of the working operation.



Basic technical parameters

		CTV 16000
Rated force	MN	160
Working pressure in the bladder	MPa	35
Table size – width x length	mm	1 050 x 2 980
Depth max.	mm	240
Main motor power	kW	85
Press ground plan	mm	5 320 x 12 900
Press height	mm	4 360

Reference

Among others, the CTV presses have been supplied to the Czech companies Letov Prague, Kovovýroba Hoffmann Ostrožská Nová Ves, Škoda Auto Mladá Boleslav and Let Kunovice and to the company PZL Swidnik in Poland.



The CYA hydraulic press is designed to make insulating pads of car bodies and/or it can be used for other pressing operations according to technological possibilities of the equipment. The press is designed for hot work. For this reason, the bolster and platen are heat-insulated from the press frame and the front and rear sides of the slide are covered with movable covers during the working operation. The press is accommodated for tool heating.

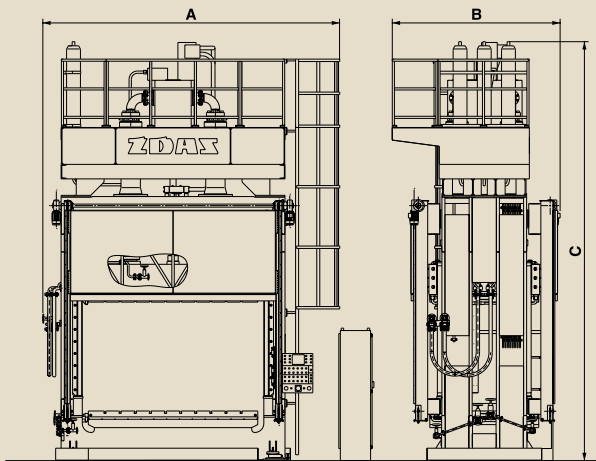
Machine design

The basic part of the press is an O-shaped frame. In the upper part of the press frame, there is a space for main cylinders of the press. Created in the middle part of the frame is a guide of the slide with the gibs that transfer horizontal component force induced during the pressing operation from the slide to the frame columns. The gibs are fastened to the frame using screws. Play is taken up in the guide. Screwed to the press frame is the bolster with T-slots intended to clamp the tools and/or the press is provided with a run-out table.

The gibs serving to guide the slide are provided with oil grooves. The slide bottom surface is provided with T-slots to clamp the upper tool half. The press is provided with hydraulic locking mechanism enabling to lock the slide mechanically including the tool upper half.

Working liquid is delivered by the hydraulic drive located in the upper part of the press frame on the press platform that avoids oil leak outside the press in case of assembly and repairs of the press drive. Leaks from the platform are led to some places above the floor, from where they are drained. Continuous sensing of the slide path is ensured by the sensor located in the press workspace.

The press is provided with movable protective and heat-insulating covers on the front and rear sides.



Basic technical parameters

			CYA 500
Rated force	kN		5 000
Stroke	mm		1 600
Shut height	mm		200
Approach speed	mm.s ⁻¹		600
Working speed max.	mm.s ⁻¹		11
Working speed min.	mm.s ⁻¹		1 ÷ 7
Reverse speed	mm.s ⁻¹		600
Clamping surface of the slide a stolu	mm		2 800 x 1 800
Main motor power	kW		55
Press ground plan	A x B	mm	4 600 x 2 800
Press height	C	mm	6 930

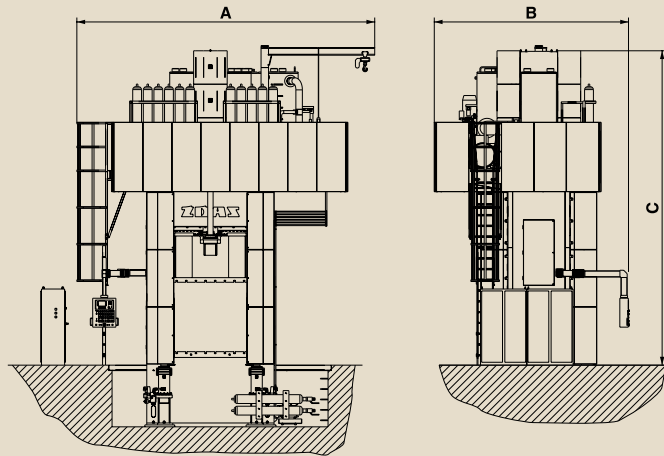


Reference

For the company Rieter Choceň, Czech Republic, ŽDAS has supplied the CYA 500 press designed to make internal pads of the car bodies.

Plastic Cover Making Presses

The equipment designed to hot press the parts for the automotive industry. The CYAA 1800 press is of a vertical design with the welded frame. The frame upper part homes 2 working cylinders and 2 return ones. Position of the slide is sensed by the continuous position sensor. The slide moves along the adjustable X guide. The press is provided with locking mechanism of the slide. The synchronizing cylinders ensure parallelism of run of the slide. They are located in the lower part of the press frame. The press workspace is accommodated to heating of tools and bolster and platen of the frame and slide. Main part of the press drive is located on the press frame upper surface. The press drive is of an oil, combined type. The press is lubricated with grease from the total loss lubrication system. The control system ensures the press control, diagnostics and signalling for other co-operating equipment.



Basic technical parameters

		CYAA 1800
Rated forming force	kN	18 000
Stroke	mm	1 550
Shut height	mm	250
Approach speed	mm.s ⁻¹	800
Working speed max.	mm.s ⁻¹	10
Working speed (at 90% rated force)	mm.s ⁻¹	80
Clamping surface of the slide	mm	1 800 x 2 000
Clamping surface of the table	mm	1 800 x 2 000
Main electric motor power	kW	230
Press ground plan	A x B mm	7 800 x 5 050
Press height	C mm	8 300



Reference

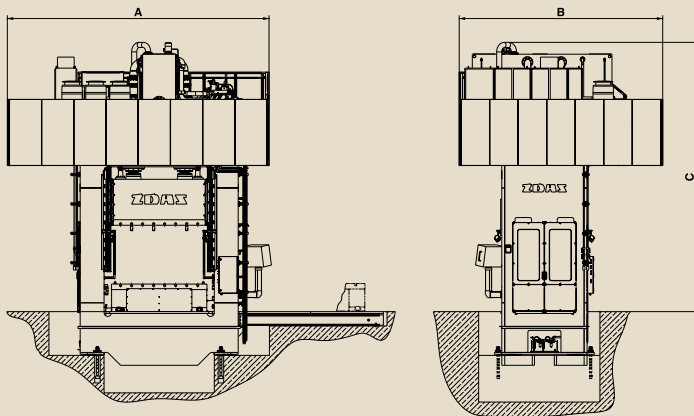
For the company Rieter Choceň, Czech Republic, ŽDAS has supplied the CYAA 1800 press designed to make car bottom covers from plastic.

CYAB

Car Body Stiffener Making Presses

The CYAB hydraulic press is designed to press safety stiffeners of car bodies and/or it can be used for other pressing operations according to technological possibilities of the equipment. The pressing takes place when hot.

The press is of a vertical welded design. Located in the press frame upper part are four differential working cylinders. The slide is guided along the octagonal square guide and its position is sensed continuously. The slide is locked in the upper position. The press is provided with safety screens and covers. The press is lubricated from oil circulation lubricating system. The hydraulic drive is located on the press platform. Located on the press platform are also the press switchboards.



Basic technical parameters

		CYAB 400	CYAB 800
Rated forming force	kN	4 000	8 000
Stroke	mm	1 000	1 100
Shut height	mm	500	500
Approach speed	mm.s ⁻¹	620	700
Working speed max.	mm.s ⁻¹	1÷25	1÷20
Working speed (at 50% rated force)	mm.s ⁻¹	60	90 (25% j. s.)
Reverse speed max.	mm.s ⁻¹	400	700
Clamping surface of the slide	mm	1 500 x 2 600	1 500 x 2 600
Clamping surface of the table	mm	1 500 x 2 600	1 500 x 2 600
Total power input	kW	150	245
Press ground plan A x B	mm	6 900 x 5 800	7 200 x 5 600
Press height	C mm	6 600	7 350

Reference

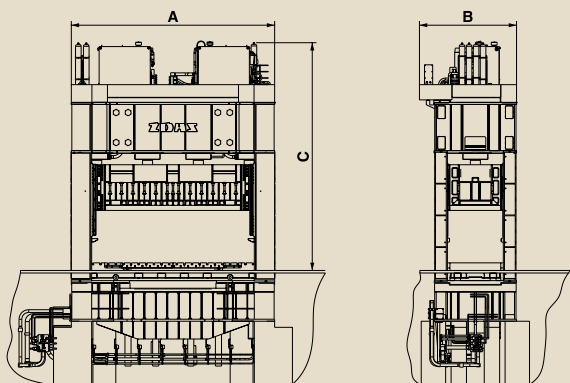
For the company Benteler, Czech Republic, ŽDAS has supplied two CYAB 400 presses and one CYAB 800 press, all designed to press safety stiffeners of the car bodies. All these presses are integrated in automatic production lines with the maximum possible level of mechanization and automation of the production processes.



Bulky Part Making Presses

The equipment is designed to cold press the parts for the automotive industry. The CTUA 2500 press is of a vertical design with the anchored frame. Located in the frame upper part are four working cylinders with synchronization of motion of the outer cylinders. Position of the slide is sensed by two continuous position sensors. The slide moves along the square adjustable guide. The press is provided with a locking mechanism to lock the slide in the upper position. The main part of the press drive is located on the top surface of the press frame. The press is provided with the upper ejector and lower holder-ejector. The press is lubricated from the oil circulation lubricating system. The control system ensures the press control, diagnostics and signalling for other co-operating equipment.

Basic technical parameters

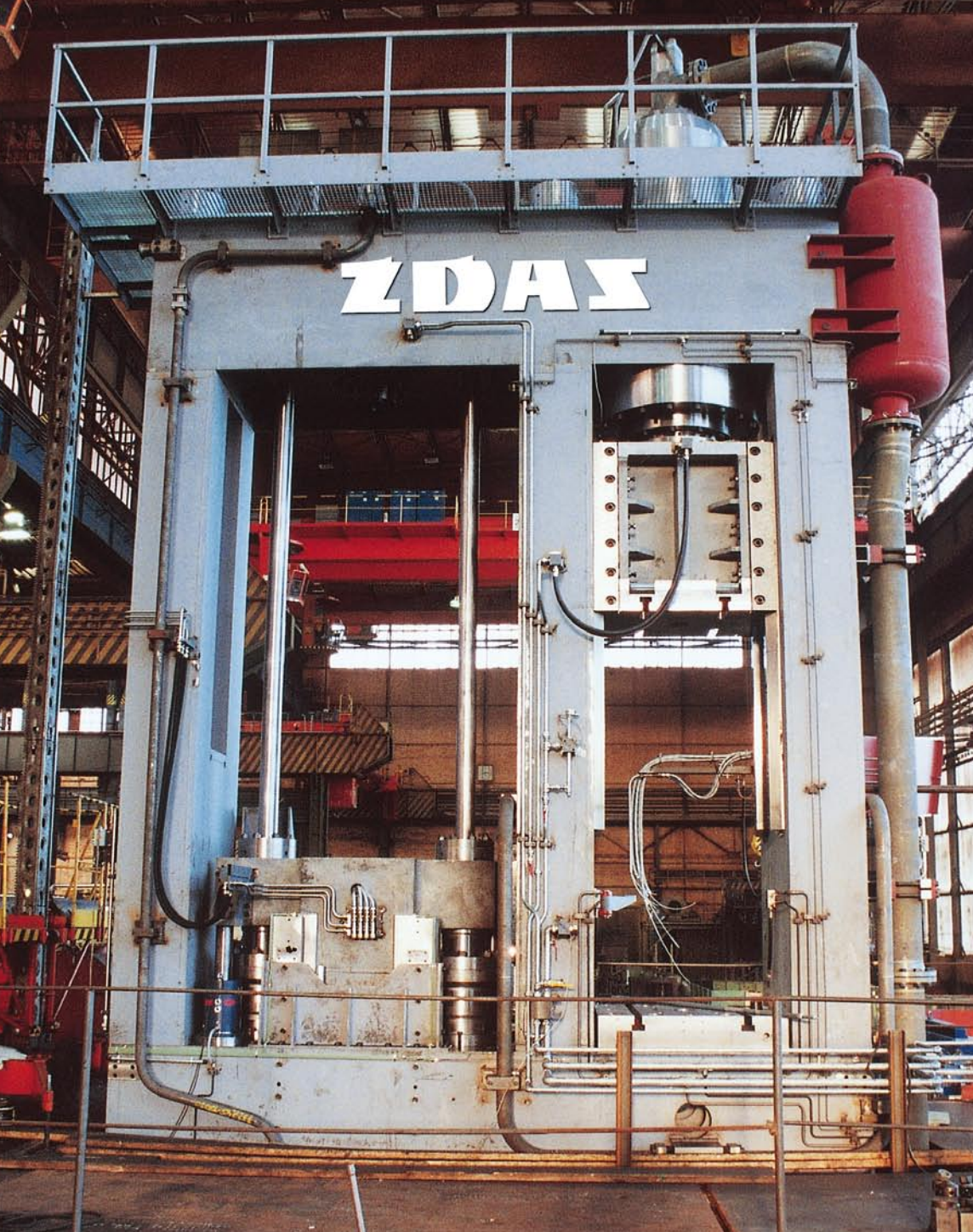


		CTUA 2500
Rated force	kN	25 000
Stroke	mm	1 000
Shut height	mm	1 100
Approach speed	mm.s ⁻¹	300
Working speed max.	mm.s ⁻¹	16
Working speed (13 350 kN)	mm.s ⁻¹	31
Clamping surface of the slide	mm	2 000 x 8 000/2 250 x 5 300
Clamping surface of the table	mm	2 000 x 8 000/2 250 x 5 300
Force of the lower holder/ejector	kN	4 000
Stroke of the lower holder/ejector	mm	300
Upper ejector force	kN	380
Upper ejector stroke	mm	250
Main electric motor power	kW	200
Press ground plan	A x B mm	8 100 x 2 300
Press height	C mm	9 400

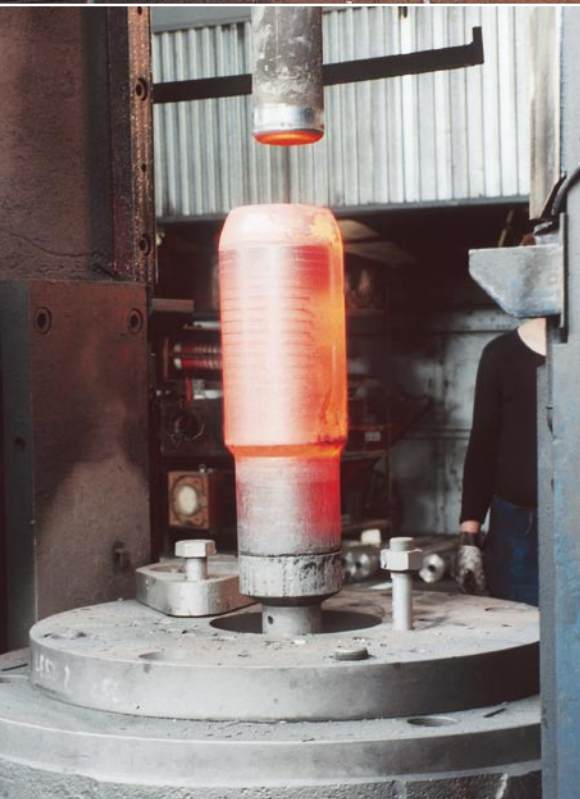
Reference

The CTUA press has been supplied to the company Gedia Nowa Sol in Poland, to cold press the car parts.





Reference
Czech Republic,
India, Pakistan,
Slovakia, Egypt



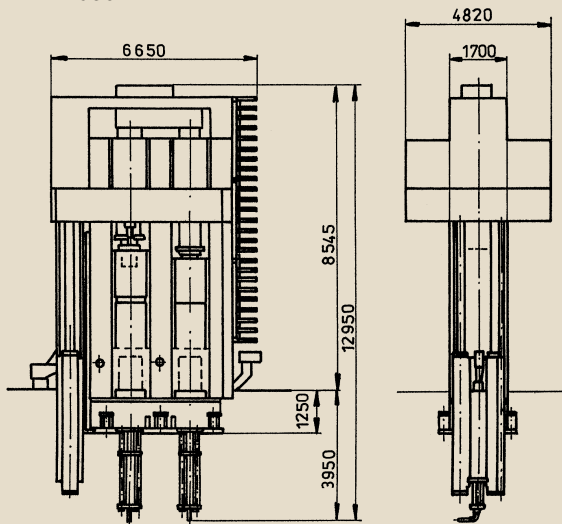
Automatic Transfer Press

It replaces three separate unit presses. The hollow bodies are made through progressive upsetting, piercing and drawing operations. The mechanization equipment handles the forgings between single working stations. The tools are lubricated using the equipment of the company Acheson. By way of optimum harmonizing all three working stations of the press, low energy demand of the whole equipment is attained. The press is provided with a direct oil drive.

Hydraulic Two-Position Press

The press is designed for heat piercing and drawing of long hollow rotation bodies. The press is a part of the line equipped with mechanisation equipment that ensures handling the forgings. The tools are lubricated using the equipment of the renowned companies. The press is driven from the central accumulator station.

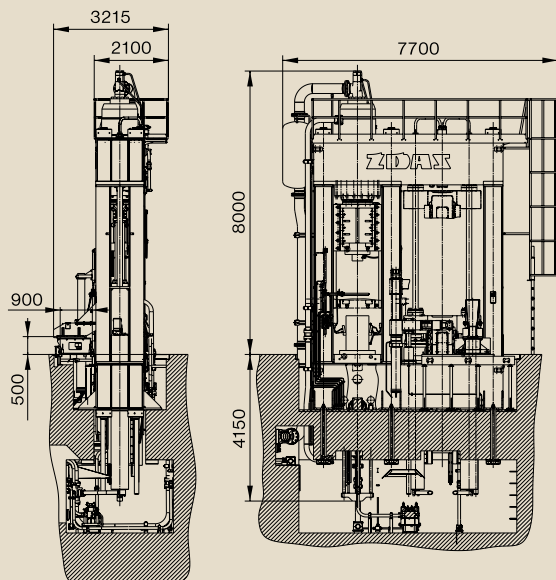
TYH 630



Basic technical parameters

			TYH 630	CKQ 1000/335
I. Upsetting station				
Forming force	1 st stage	kN	3 150	-
	2 nd stage	kN	4 000	-
Return force		kN	850	-
Stroke of the slide		mm	1 250	-
Stroke of the ejector		mm	1 250	-
Pressing speed		mm.s ⁻¹	160	-
II. Piercing station				
Forming force	Piercing slide	kN	6 300	10 000
	Stripping slide	kN	3 000	-
Ejecting force		kN	360	950 (by 150 mm/s)
Stroke of the piercing slide		mm	2 100	1 600
Stroke of the stripping slide		mm	1 300	-
Stroke of the ejector		mm	1 250	950
Maximum pressing speed		mm.s ⁻¹	100	165 (7900 kN)
III. Drawing station				
Drawing force	1 st stage	kN	2 000	3 350
	2 nd stage	kN	2 600	-
Return force		kN	600	1 100 (by 50 mm/s)
Maximum pressing speed		mm.s ⁻¹	400	400 (2 720 kN)
Installed capacity		kW	900	central accumulator station

CKQ 1000/335



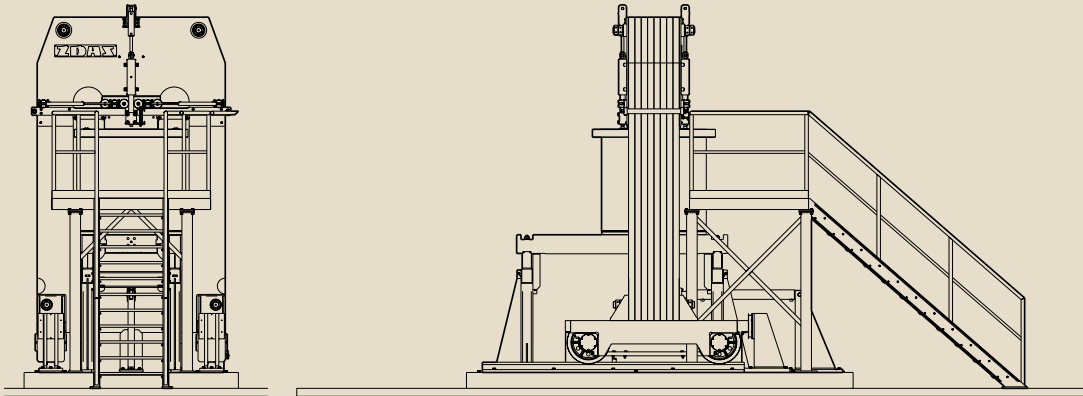
CJZ

Isostatic Presses for Cold Powder Compaction

The CJZ press is designed to make pressings by the technology of powder metallurgy. It processes, for example, metals, carbides, ceramics etc. Material processing with the help of high pressures is enabled by the intensifier drive that ensures the reaching of final pressure for any product complexity. The press is provided with a vertical working chamber with the removable top cover. The press control enables the exact setup and record of the pressure cycle.

Basic technical parameters

	Working pressure	Workspace		Power input	Pressurizing time	Workspace volume
	MPa	Diameter mm	Depth mm	kW	min.	dm ³
CJZ 4/0103	400	150	325	23	1,5	5,7
CJZ 4/0205	400	250	500	23	3,5	24,5
CJZ 4/0210	400	250	1 000	40	4,3	50,0
CJZ 4/0405	400	400	500	40	5,5	62,8
CJZ 4/0410	400	400	1 000	60	7,5	125,5
CJZ 2/0410	200	400	1 000	60	3,5	125,5
CJZ 2/0420	200	400	2 000	60	4,5	251,0
CJZ 2/0610	200	630	1 000	60	5,5	311,0
CJZ 2/0620	200	630	2 000	60	8,5	622,0
CJZ 1/1010	100	1 000	1 000	60	3,5	785,0
CJZ 1/1020	100	1 000	2 000	60	7,0	1 570,0



Reference

The CJZ presses have been supplied to the Institute of Nuclear Fuels and to the company Keravit Šenov in the Czech Republic.



Isostatic Food-processing Presses

To be able to process food with high pressure, a technology was developed ensuring good preservation of food quality. This technology prolongs food shelf life, preserves sensory and nutritive properties, vitamins and antimutagenic properties and finds its use in the pharmacy, as well.

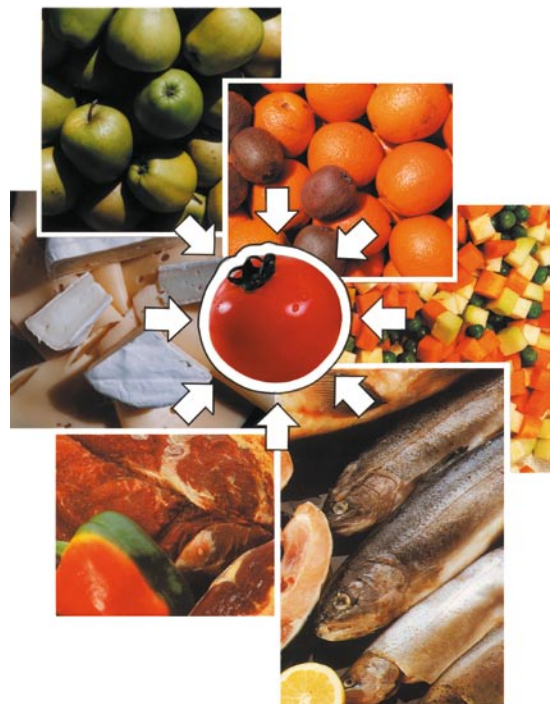
The equipment consists of a high-pressure cylindrical chamber, into which a container with food is inserted. After having closed the top cover, the chamber runs into a closed frame and after the pressurizing the food is exposed to high-pressure environment for necessary period of time. The equipment is protected by several independent elements and material fully complies with all food processing standards.

Basic technical parameters

		CYX 6/0103	CYX 6/0308	CYX 6/0310	CYX 6/0408	CYX 6/0410
Working pressure	MPa	600	600	600	600	600
Workspace diameter	mm	70	300	300	400	400
Workspace depth	mm	320	800	1000	500	1000
Power input	kW	7,5	60	60	60	60
Pressurizing time	min.	0,5	3	3,5	5	6
Workspace volume	dm ³	1,2	56	70	100	125

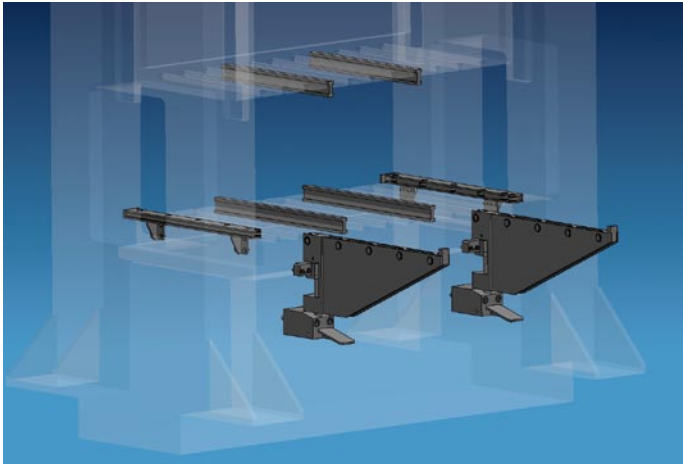
Reference

The presses designed to process the food with omnidirectional pressure have been supplied to the Food Research Institute Prague and to the company Beskyd Fryčovice in the Czech Republic.

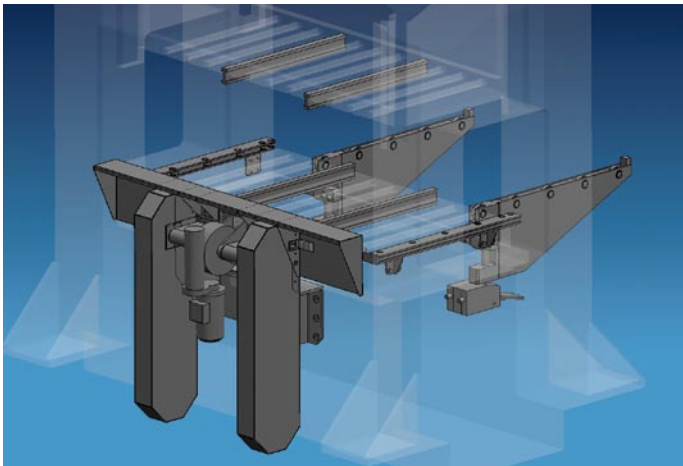


Accessories

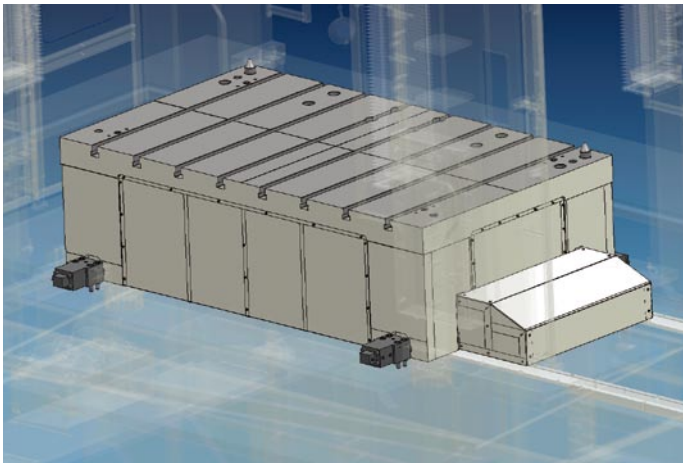
Tool change system – used to reduce a physical hard work necessary for manual tool change, to reduce the change time and particularly to ensure safety of work in tool changing.



Semi-automatic tool change system – used for small tool change. The tool clamped in the working space by hydraulic clamps is unclamped by push button in changing and the clamps are removed manually. Then the tool on the T-bar is hydraulically lifted and manually pushed towards the suspension or swivel brackets of the press.



Automatic tool change system – used for bigger and heavier tools. After finishing the pressing operation when the press is switched to the mode “Tool change”, the whole change cycle is performed quite automatically. After unclamping and hydraulic lifting, the tool (set of tools) is pushed by means of motor out of the press and placed either on the brackets or travelling table. In the reverse sequence, the tool ready for use is moved from the other table into the working space of the press.



Presses can also be equipped with **travelling tables** which move on rails during tool changing and carry the tools in the required direction.

Lower holder – ejector – used to hold a stamping during drawing and to push it out of the tool lower part. The holder-ejector is located in the press frame under the table plate. For presses of TP series, it is located under each working position.

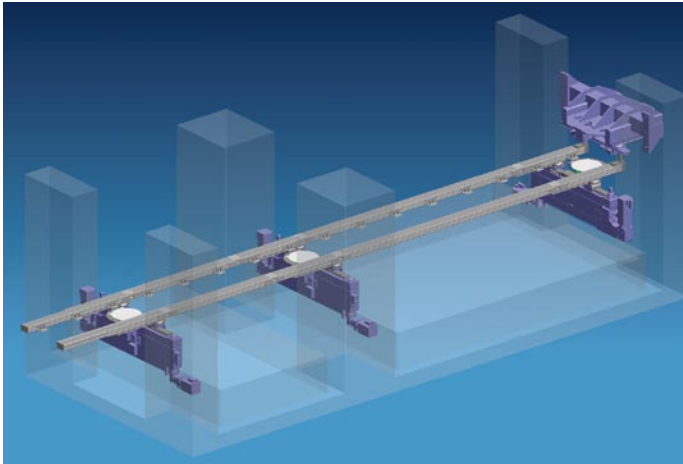
Upper holder – ejector – used to hold a stamping during drawing and to push it out of the tool upper part.

Tool clamps on the slide and table – used for quick and safe clamping of tools



Mechanization equipment

ZDAS



3D Transfer Feeders

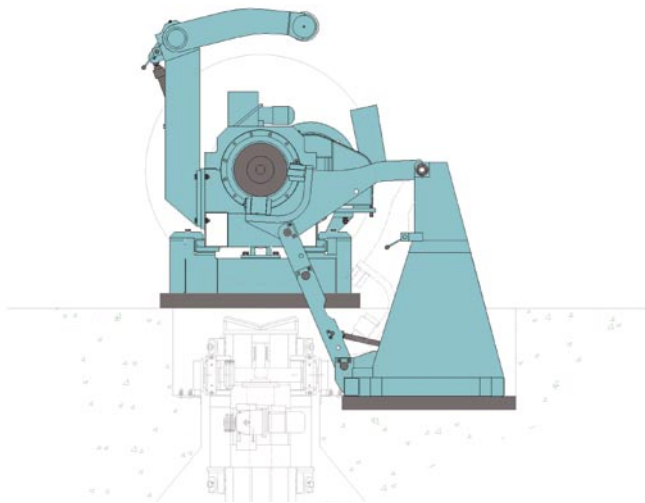
They are used most often along with transfer presses or for progressive pressing at several individual presses. Transfer feeders are electronically controlled and electrically driven. Transfer motion is performed in three axes and the stamping is taken away, transferred and loaded between individual working positions.

Feeders

Used to exactly feed the material into the forming tool. Available in the spring collet and roller versions.

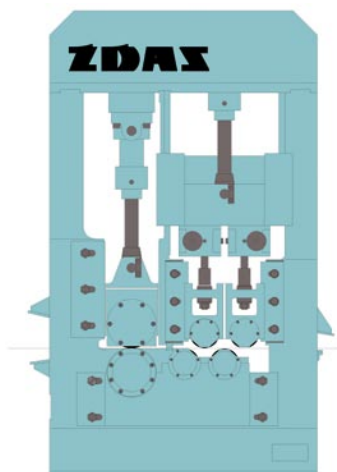
Blank loaders

In case of technological requirement, having a blank as the input material, the blank loader is suitable mechanization equipment. Blanks placed in stacks are taken by the magnet or vacuum-cup and loaded mostly in combination with the transfer feeder into the first working position of the press.



Decoilers

Designed to decoil the strip of sheet inwards the line. The decoilers together with other mechanization equipment form the automated forming workplace. According to the structural design they can be divided into single-mandrel decoilers with coil-car and double-mandrel ones.



Levellers

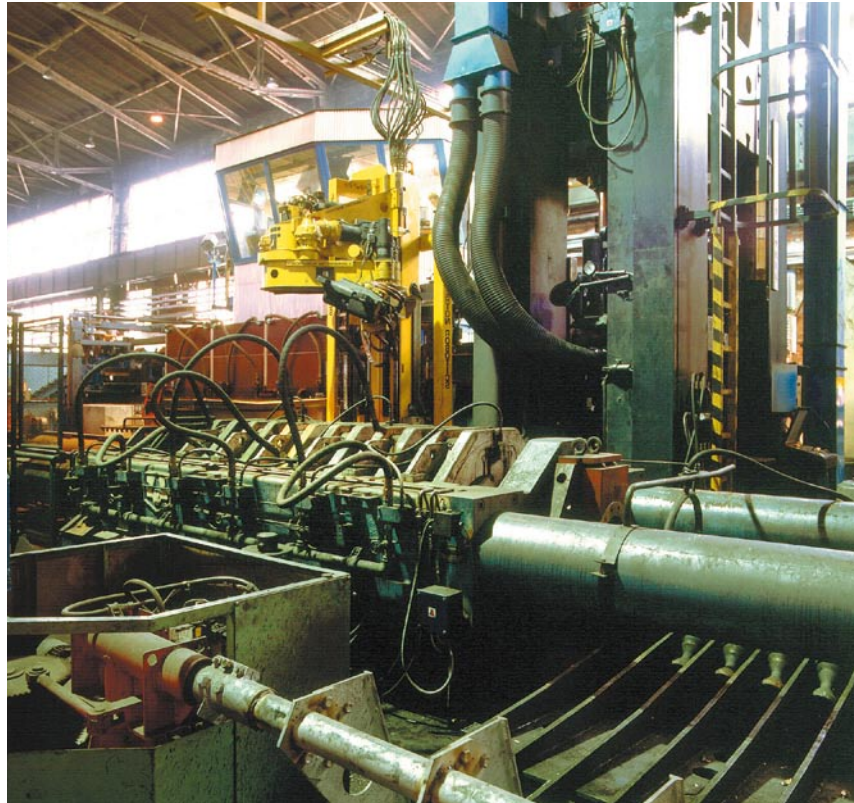
Designed to level the incoming material. According to the structural design they can be divided into:

- levellers
- feed levellers (used to level and simultaneously feed the material in the press cycle into the tool)
- levellers with transfer table and scraper (for greater material thickness)

ŽĐAS realized lines examples

Steel Cylinder Making Line

The steel pressure cylinder making line ranks among the special equipment made at ŽĐAS, a. s. It consists of the 18 MN vertical piercing press and 2,5 MN horizontal drawing press. The presses are designed for hot making pressure cylinder blanks and compared to the common presses, big demands are placed on them especially in light of value of working strokes, working speed and pressing accuracy. The pressing line consists of the reheating furnace, descaler, piercing press, drawing presses, hydraulic drive, robot, lubricating device, electrical package and other supplementary equipment and accessories. The line makes pressure cylinders of various sizes.



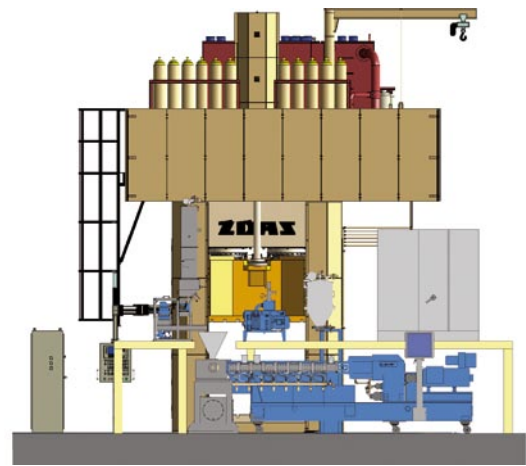
Line with the CKQ 1000/335 Two-station Press

At the line entry, the reheated blanks are loaded into the CKAS 400 press by means of the manipulator. Here, the blank is upset. From the CKAS 400 press, the blank is loaded by the manipulator into the second station – piercing. The piercing is done in the CKQ 1000/335 press. It is a combined piercing and drawing press. After having been pierced, the blank is gripped by the manipulator and loaded into the last station – drawing. The pressing is placed on the chute being an exit of the line. The tools are lubricated using the equipment from the company Acheson. The presses are driven from the central accumulator station running on water emulsion as working liquid.



Line with the CYAA Press

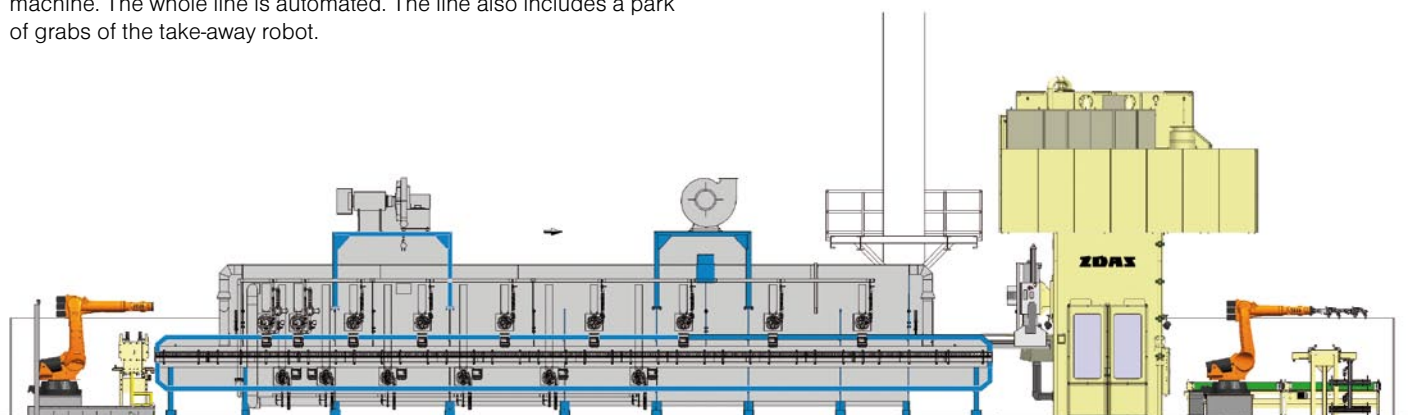
The CYAA 1800 hydraulic press is a part of the production line intended to make plastic covers of car bottoms. The technology of this type requests high accuracy of slide parallelism against the bolster during pressing. Therefore the press is provided with the slide motion synchronization by four synchronizing cylinders. In addition to the press, the production line consists of the plastificator. In the plastificator, a mixture of plastic and glass fibres is created being transported along the conveyor to the press then. The blank is loaded manually by the operator. The plastificator enables to make the mixture even of recycled material. After having loaded the plastic into the tool, the pressing itself is carried out. The plastic is cooled in the tool. After having been pressed, the product is removed and further finished.



Lines with the CYAB Presses

In 2002, ŽDAS supplied to the company Benteler CR, k. s. Chrástava a pair of CYAB 400 presses. The presses serve as parts of the production line to hot form high-strength stiffeners. The entry part consists of two frames to load single-purpose pallets of entry material – sheet-steel blanks. The blanks are taken away from the pallets by robot and loaded into the stamping device. After having stamped the needed data, the blanks are placed onto the entry conveyor of the furnace. After having been reheated, the blanks are loaded by robot into the CYAB 400 presses. Here, the pressing itself takes place. After the stiffener has been pressed, the blanks are taken away and loaded into a pallet or piercing press. The blanks can be loaded into both presses or each of the presses can work separately.

In 2005, ŽDAS supplied to the company Benteler Automotive s.r.o. Rumburk the CYAB 800 hydraulic press as a part of the production line to hot form high-strength stiffeners. The entry part consists of two safety stations serving to load single-purpose pallets of entry material. The blanks are taken away by the entry robot and loaded into the stamping device. From the stamping device, they are placed onto the entry conveyor to the furnace. After having been reheated, the blanks are taken away by the manipulator and loaded into the press. After having been pressed, the pressings are taken away by robot and placed onto the belt conveyers or directly into the air-blast machine. The whole line is automated. The line also includes a park of grabs of the take-away robot.



Reconstruction of Hydraulic Presses



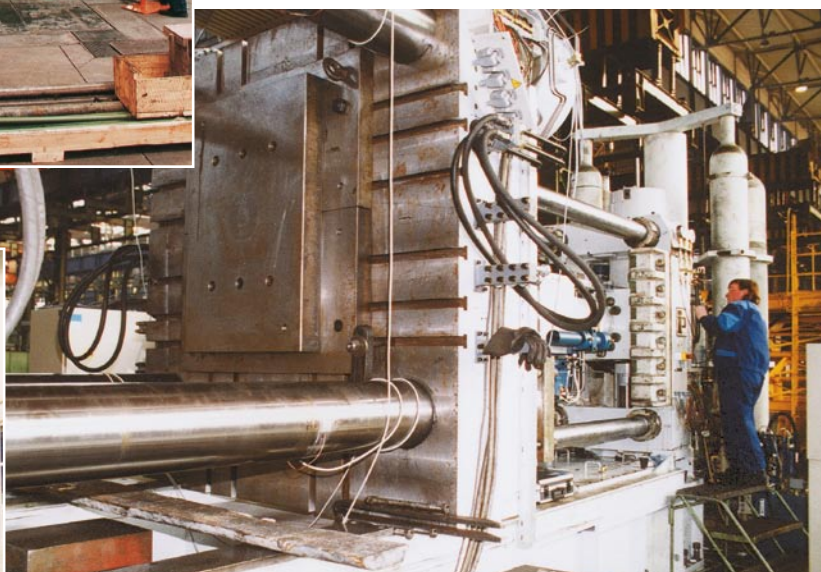
Sectional repairs and general overhauls of the hydraulic presses are mostly induced by costly maintenance of the existing equipment, its low capacity and high requirements for operational ecology. Based on these facts, these presses are mostly subjected to general overhauls that include:

- repair of active mechanical parts of the presses (working cylinders, slide, guide on the frame, table)
- replacement of all seals
- new electronic system with all fault diagnostics and single operation programming
- reconstruction and renewal of the hydraulic systems

Basic elements of the reconstructions and renewals of the hydraulic systems:

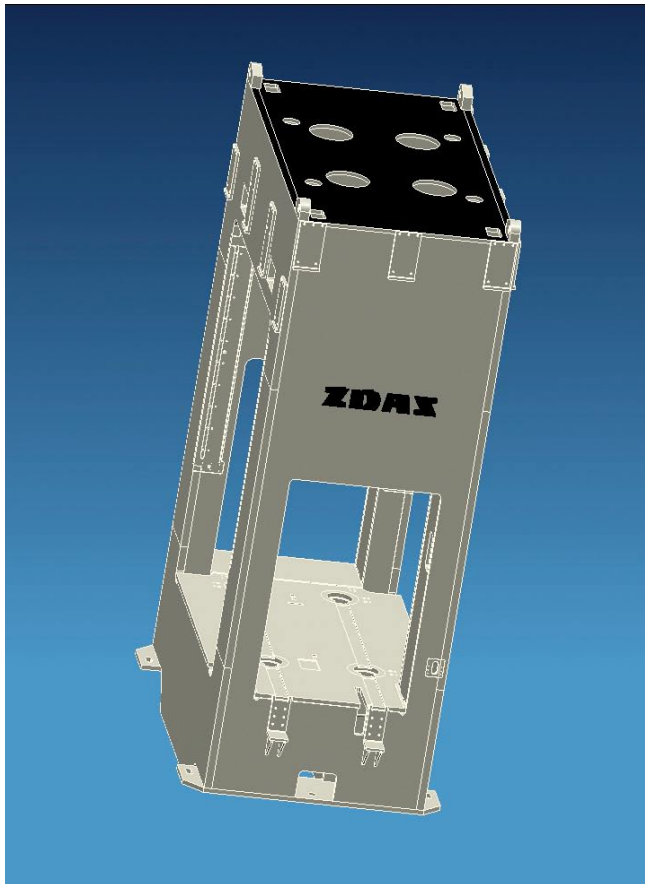
- hydraulic control manifolds built on the basis of common catalogue components or using built-in and built-on logic proportional valves
- pump units of various versions and sizes for working pressures up to 40 MPa
- tanks and low-pressure vessels with complete accessories including visual electric level meters and automatic level control for one or two tanks
- optimised recharging of high-pressure liquid accumulators
- high-pressure hand- and hydraulically-operated valves
- complete low-pressure and high-pressure piping systems

Testing laboratory of ŽDAS, a. s. is in possession of an internationally recognized certified quality system according to ČSN EN ISO 9001:2000 and carries out press parameters measurement and checking. Each measurement is completed by a report.



Workstations CAx

ZDAS



Today, if a company wants to keep up with the world standard of advance production components development, it must invest, besides the professional manpower, into the equipment enabling the qualified specialists to incorporate their inventions and ideas to the drawing and other documentation and thus up to the production shops as quickly as possible.

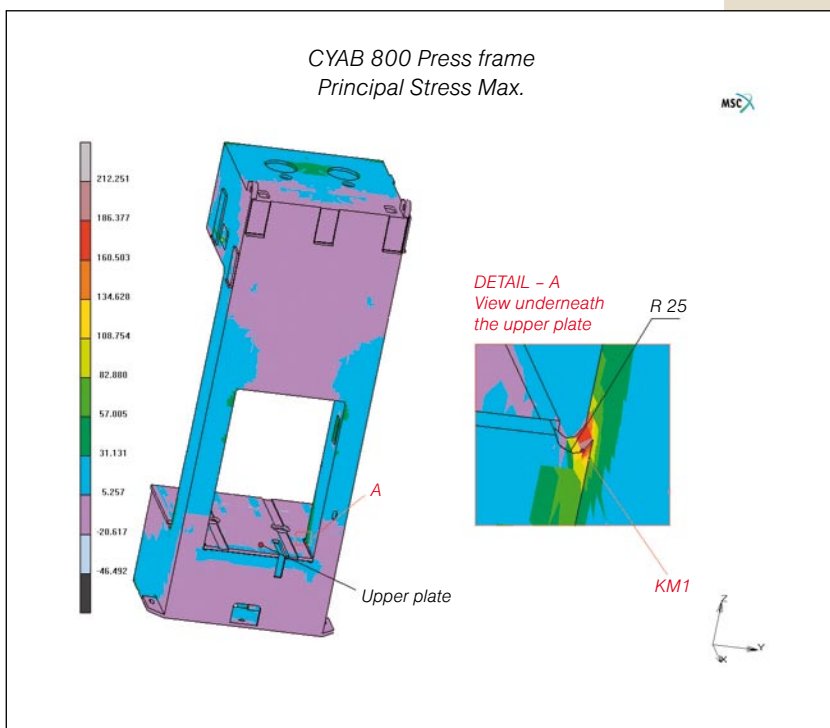
The joint stock company ŽDAS has come up to this measure as far back as at the beginning of the 90th. Graphics workstations have been established according to the needs of the design engineers and the requirements of the customers for the CAD documentation. At present, the company is equipped with 60 CAx workstations 3D software NX and 75 workstations software AutoCAD Mechanical. Orders from the field of the automotive industry have required purchase of the software Catia with 4 workstations in the field of production and design of tooling.

The workstations with the NX system are interconnected. It is possible to cooperate with the software for castings hardening Magma, eventually machine the components in the numerically controlled machines while the program is generated in the software NX CAM or WorkNC, as necessary.

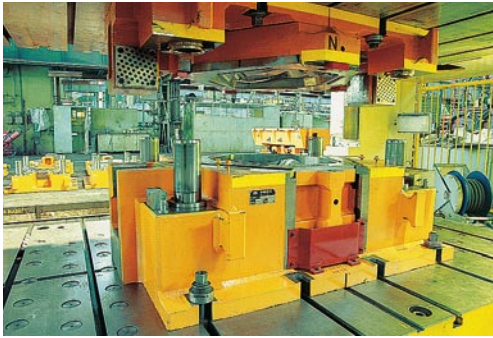
All the workstations are connected to the central network, the file servers are created and the associated data sharing is allowed.

Calculations are performed by the department of Technical Calculations in the software MSC Marc.

The electrical connecting diagrams are designed in the software AutoCAD with the extension ECS CAD.



Tool-making



Automotive industry

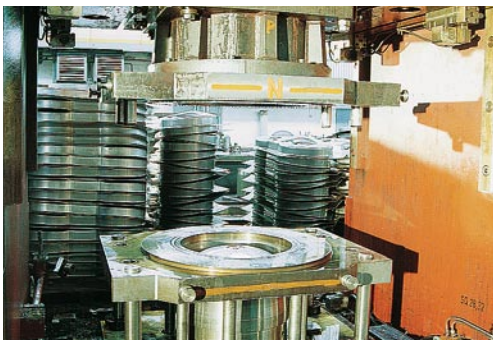
Successful reference deliveries of dies for the leading European automobile manufacturers have proven the abilities of the engineers and workers of ŽĎAS Tooling department and have allowed the entry into this high-specialized field of production, as well.

In addition to tooling for smaller types of stampings, the complete equipment of forming lines for the most complicated parts of car bodies is in particular concerned.



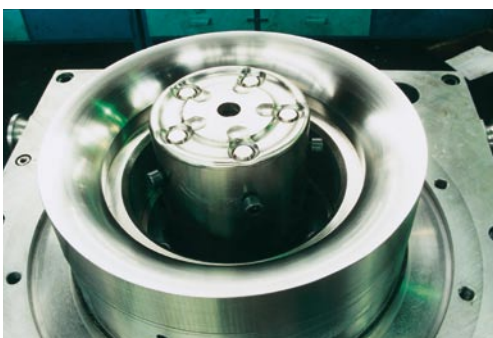
Progressive forming

The joint stock company ŽĎAS ranks among prestigious European forming machine suppliers. Among others, the supplies of automatic transfer presses for the manufacture of parts for the automotive, consumer and electrical industries are concerned. The shape intricacy of stampings and a high number of manufacturing operations require the utilization of brainware in making the appropriate tools.



Consumer industry

At present more than 30 % of parts are manufactured by forming in this branch and this per cent proportion is supposed to be increased in the future. This provides a sufficient space for the development of stamping shops and their partners, i.e. forming-tool-makers. ŽĎAS, a.s. references cover a wide range of products, as from satellite dish bodies through the parts for domestic appliances up to various components for the building industry.

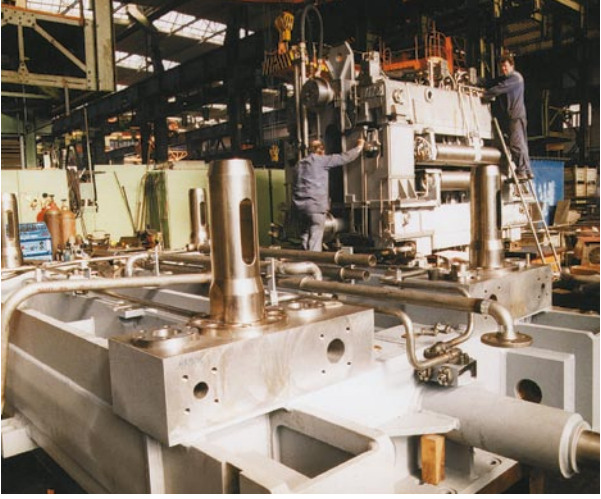


Special Tools

The tool shop has gained a lot of experience also in making of tools for solid and special forming. The product range is completed with prototype tools, measuring and control master jigs. Checking on the 3D measuring workplace ensures the accuracy of jigs.

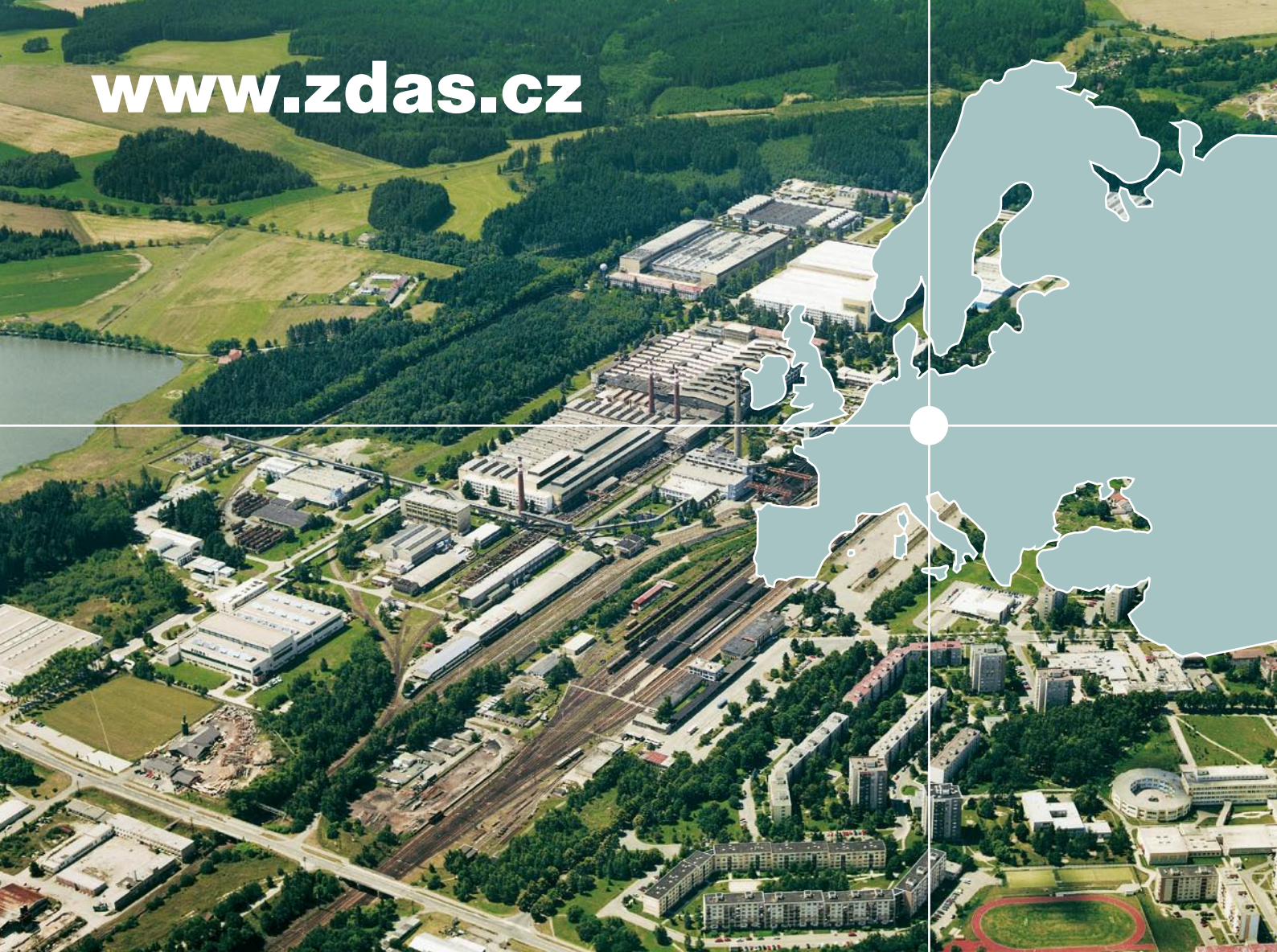
Reference

- Automotive industry tooling – ŠKODA AUTO a.s. Mladá Boleslav, Czech Republic
- Automotive industry progressive dies – SCHULER Cartec Göppingen, Germany
- Europallet moulds – HASELBECK Deggendorf, Germany
- Consumer industry tools – Müller Weingarten Werkzeuge, Germany, Polynorm Grau, Germany
- Set of pressing tools – GEDIA Attendorn, Germany



Engineering production

www.zdas.cz



Manufactured and delivered by ŽĎAS, a.s.:

ROLLING MILLS

- cut-to-length/slitting lines
- straightening lines
- inspection lines
- rolling mill run-out sections
- reconstruction and modernization

FORMING MACHINES

- open-die forging equipment
- mechanical presses
- hydraulic presses
- scrap processing equipment
- reconstruction and modernization

METALLURGY

- steel production
- castings
- forgings
- pattern equipment

TOOLING

- for automotive industry
- for progressive forming
- for consumer industry
- for special production



Contact:

ŽĎAS, a.s.
Strojírenská 6
591 71 Žďár nad Sázavou
Czech Republic
Tel.: +420 566 64 2124
Fax: +420 566 64 2871
e-mail: or@zdas.cz