

Machinery Equipment



Location: **Krnov, Bruntálská 5, Czech Republic**

Overview of Production Possibilities

VLC 1000 ATC + C – Vertical Lathe



Machine parameters:

Chuck diameter	1 000 mm
Max. diameter of turning	1 100 mm
Max. height of turning	700 mm
Number of tool magazine positions	16
Max. weight of workpiece	3 500 kg
Rotary tool drive (drilling, threading etc.)	

VLC 1200 ATC – Vertical Lathe



Machine parameters:

Chuck diameter	1 250 mm
Max. diameter of turning	1 400 mm
Max. height of turning	1 200 mm
Number of tool magazine positions	12
Max. weight of workpiece	5 000 kg

VLC 1600 ATC + C – Vertical Lathe



Machine parameters:

Chuck diameter 1 600 mm

Max. diameter of turning 800 mm

Max. height of turning 1 350 mm

Number of tool magazine positions 48

Max. weight of workpiece 8 000 kg

Rotary tool drive (drilling, threading etc.)

Lathe - SF 102 CNC



Machine parameters:

Max. circular diameter

- above bed 1 020 mm

- with no central rail 1 280 mm

- above support 676 mm

Max. rotary length 2 000 mm

Width of removable rail 372 mm

Automatic replacement of driven tools 12 pos.

Max. weight of workpiece 3 000 kg

Universal Lathe - SN 71C/2000



Machine parameters:

Circular diameter above bed 710 mm
Circular diameter above support 420 mm
Max. swing diameter in bed gap 960 mm
Distance of centers 2 000 mm
Max. weight of workpiece 1 500 kg

Universal Lathe - SN 50C/1500 CE



Machine parameters:

Circular diameter above bed 500 mm
Circular diameter above support 270 mm
Max. swing diameter in bed gap 700 mm
Distance of centers 1 500 mm
Max. weight of workpiece 300 kg

Flat Grinding Machine - BRH 50/1500 CNC



Machine parameters:

Chuck table 500 x 1 500 mm
Dist. between spindle axis and table surface max. 675 mm
Grinding disc diameter x hole x width 350x127x40-80 mm
Highest width of assembled grinding disc 200 mm
Grinding disc revolutions 1 470 – 1 720 min.-1

Milling Centre - VMCF 1600



Machine parameters:

Bench dimensions 1 900 x 900 mm

Bench-floor distance 1 000 mm

Bench loading capacity 2 000 kg

T-grooves

Width x spacing x number 18x150x6 mm

Spindle taper ISO 50

Spindle revolutions 6 000 rpm

Tool magazine capacity 40

Milling Centre - VMF-1000 CNC



Machine parameters:

Bench dimensions 1 200 x 500 mm

Bench-floor distance 880 mm

Bench loading capacity 800 kg

T-grooves

Width x spacing x number 6x86x5 mm

Spindle revolutions ISO 40

Inner diameter of spindle bearing 70 mm

Spindle revolutions 10 000 rpm

Tool magazine capacity 24+1 pieces

Horizontal Boring Machine - WFT 13 CNC



Machine parameters:

Spindle diameter 130 mm

Scope of revolutions of spindle 10-3 000 rpm

Rotary table dimensions 1 800x2 200 mm

Table to base distance 1 200 mm

Max. weight of workpiece 15 000 kg

Horizontal Boring Machine - WFT MILL CNC



Machine parameters:

Spindle diameter	130 mm
Scope of revolutions of spindle	10-3 000 rpm
Rotary table dimensions	1 800 mm
Table to base distance	1 200 mm
Max. weight of workpiece	15 000 kg

Milling Centre - MCV 1270 POWER



Machine parameters:

Bench dimensions	1.500 x 670 mm
Max. weight of workpiece	1.200 kg
T-grooves	
Width x spacing x number	18x125x5 mm
Spindle revolutions ISO 50	
Spindle revolutions	8.000 speed./min
Travels X/Y/Z	1.270/610/720 mm
Number of tool magazine positions	24 pcs.

Horizontal Boring Machine - WFC 10 CNC



Machine parameters:

Bench dimensions	1.250 x 1.400 mm
Max. weight of workpiece	3.000 kg
T-grooves	
Width x spacing x number	18x86x9 mm
Spindle revolutions ISO 50	
Spindle revolutions	3.000 speed/min
Travels X/Y/Z	2.000/1.250/1.250 mm
Number of tool magazine positions	24 pcs.

Installation Work



High-pressure Test Room

High-pressure test room is a workplace in which prescribed pressure and hydrostatic tests on valves and fittings are performed. Unlike traditional test stand (pressure up to approx. 200 bar), this high-pressure equipment enables achieving the desired high test pressures



Parameters required:

- Pressure water testing (up to 650 bar)
- Air low pressure testing (up to 6 bar)
- Nitrogen high-pressure testing (up to 250 bar)
- Valve clearance range DN 2" - 28"
- Required strength – reactive force 450 tons

Nondestructive Testing Equipment



RTG :

Nondestructive tests are used to find out and identify internal defects in semi-finished products as well as parts after welding.

Paint Shop



Paint shop consists of two main parts:

- 1) Combined spray and dry equipment
- 2) Combined preparation room

The paint shop is used to apply a paint on the valves and fittings surfaces. Spray booths are equipped with an efficient exhaust and ventilation technology. Heating of air is direct; polluted air is exhausted through floor channels with a subsequent filtration and outlet via the chimney above the building roof. Combined preparation room is used to mask the parts which must not be sprayed or painted, e.g. to avoid blocking of valve flow.

Presentation of the welding shop options

Welding in a plasma arc – Method 15 – PTA



Control system:

KSK –PPC 250 PTM –5 controlled axes

Positioner capacity 600 kg

Max. turning diameter 1 200 mm

The length of welded-on workpiece
max. 600 mm

1 200 mm to diameter 150 mm

Description of function:

The welded workpiece is fixed on the rotary positioner, which can then be tilted into the working position. The entire process of welding works in an automatic cycle, CNC control system controls the movements of the torch, tilting and rotating of the table and all the welding parameters. The machine can weld with filler material in the powder form or in the form of a full or cored wire. The energy source is a plasma arc generated in a special torch. This arc is pushed toward the welded surface by means of plasma gas, where the basic and filler material are melted. The entire process is protected by an inert protective gas.

Submerged arc welding – Method 121



Control system:

KSK –SAO 327 + ESAB PEK

– 4 controlled axes

Welding current source:

ESAB LAF 631 + weld. head A2

Positioner capacity 1 250 kg

Turning diameter 1 800 mm

The length of welded components
max. 2 000 mm

Description of function:

The welded workpiece is fixed on the rotary positioner, as needed, this workpiece can be supported by supported a support roll. The rotation of workpieces takes place in the horizontal axis. The welding torch moves above the place of welding using the support, whose movement is secured by digitally controlled servo drives. The control system allows computer-controlled corrections of the torch in 3 axes. The machine can be weld under flux with filler material in the form of full or cored wire with diameters of 1.6 to 4.0mm.

Welding of internal welds in rotating workpieces (in the pipe) – Method 135



Control system:

KSK –SA 207 –2 controlled axes

Positioner capacity 3,500kg with support

Turning diameter 1 800 mm

The length of the weld. Workpieces

max. 1 350 mm

Description of function:

The welded workpiece is fixed on the rotary positioner, as needed, this workpiece can be supported by a support roll. The rotation of workpieces takes place in the horizontal axis. The welding torch is inserted into the interior space by a controlled support. The control system controls the rotation of the positioner, positioning of the torch on the X axis and controls the parameters of the welding source. The machine can weld by the technology of arc welding in a protective atmosphere with filler material in the form of full or cored wire with diameters from 0.8 to 1.2mm.

Welding in a deep hole – Method 135



Control system

KSK – NAO 4.3-2 – 4 controlled axes

Positioner capacity 500 kg

Turning diameter 1 200 mm

Max. height of workpieces 800 mm

Maximum depth for a weld deposit

400 mm

Description of function:

The welded workpiece is fixed on the rotary positioner, which can then be tilted into the working position. Workpieces are welded at a vertical or inclined axis of rotation. The welding torch is inserted into the interior space by a digitally controlled support. The entire process of welding works in an automatic cycle, CNC control system controls the movements of the torch, tilting and rotating of the table and all the welding parameters. The machine can weld by the technology of arc welding in a protective atmosphere – MIG/MAG with filler material in the form of full or cored wire with diameters from 1.0 to 2.4mm.

Hand Welding - Methods 111, 141, 135

There are available methods of shielded arc welding or coated electrode welding for operations requiring the use of manual methods. The welding equipment also includes several tilting rotary positioners with a loading capacity of 25-1000 kg.

Parameters welding sources:

Producer and type	Welding Methods	Welding electric current at 60%
KEMMPI PS 3500	111, 141, 135	300 A
ESAB Origo C340 PRO	135	250 A
MEZ WTU 315	111	320 A

Electric Furnace



There are available chamber electric furnaces to provide pre-heat process and heat treatment. The furnaces are equipped with digital controls which allow controlling of heat. Digital or paper record belong to the furnaces equipment of the heat treatment. Local preheating and other technological heating are ensured by gas burners.

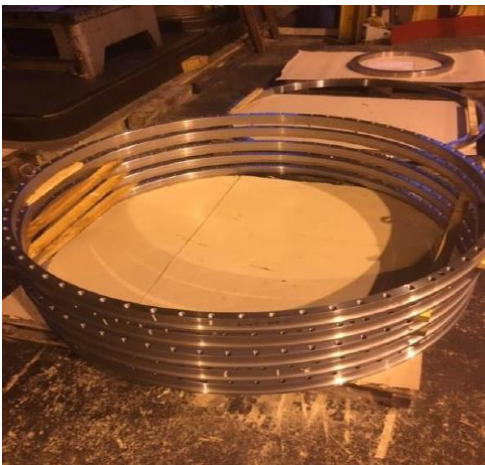
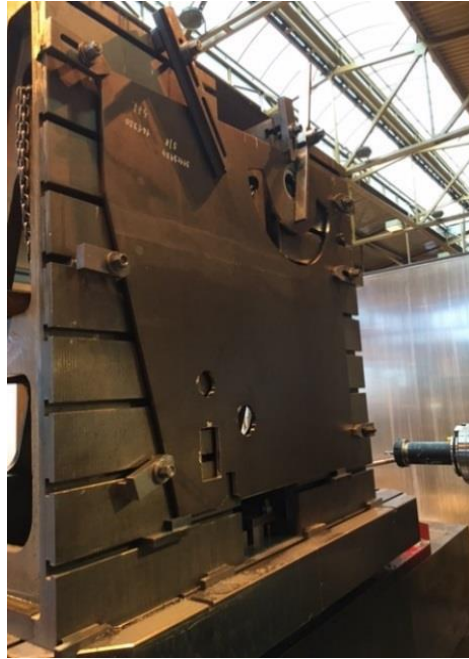
Parameters furnace :

Producer and type	Dimensions Space (w x h x d)	Max. temperature
LAC VKNC 3000/85	1300x1100x2000 mm	850°C
LAC KNCH 1700/85	1000x900x1700 mm	850°C
LAC PP 270/85	600x600x750 mm	850°C

Handling with weldments

- There is available the overhead crane with loading capacity of 8 tons for handling in the welding area.
- Internal transportation is provided by using of forklifts with loading capacities up to 5 tons.

Examples of parts processed in the framework of cooperation



List of machinery

Title	Type	quantity	Machining parameters	Precision	Max. workpiece weight
Turret lathe	RC 80	2	up to diam. 500 x 1.120 mm	0,1 mm	0,5 t
Centre lathe	SU 63	1	up to diam. 500 x 1.000 mm	0,05 mm	0,5 t
	SN 50A	1	up to diam. 500 x 1.000 mm	0,1 mm	0,5 t
	SN 50 C	1	up to diam. 500 x 1.500 mm	0,05 mm	0,5 t
	SU 50	2	up to diam. 500 x 1.500 mm	0,1 mm	0,5 t
	SUS 80	1	up to diam. 500 x 1.500 mm	0,05 mm	0,5 t
	SU 125	1	up to diam. 1.250 x 2.000 mm	0,1 mm	3 t
	SN 71 C	1	up to diam. 500 x 2.000 mm	0,05 mm	0,5 t
Semi-automatic lathe	SF 102 CNC	1	up to diam. 676-1.020 x 2.000 mm	0,05 mm	3 t
Milling machine	FU 315	1	table dimension 500 x 1.500 mm, Hub 400 mm	0,1 mm	0,5 t
	FA 3 AV	1	table dimension 250 x 1.250 mm, Hub 400 mm	0,1 mm	0,5 t
Drill	VR 4	2	drilling holes up to diameter 50 mm	0,1 mm	1 t
	VR 32	1	drilling holes up to diameter 30 mm	0,1 mm	0,5 t
	VR 6	1	drilling holes up to diameter 70 mm	0,1 mm	3 t
Horizontal milling machine	W75	1	rotary table 950 x 950 mm, longitudinal travel of table 950 mm	0,1 mm	3t
	WFC 10 CNC	1	X/Y/Z = 1.250/1.250/1.250 mm, turntable 1.000 x 1.120 mm,	0,05 mm	3t
	WFT 13 CNC	1	X/Y/Z = 3.500/2.000/1.200 mm, turntable 1.800 x 2.200 mm,	0,05 mm	15 t
Vertical lathe	WFT 13 MILL	1	X/Y/Z = 3.000/2.000/1.500 mm, carousel table diameter Ø 1.800 mm	0,05 mm	5 t
	VLC 1600 ATC+C	1	up to diameter of 1.800 mm, 900 mm stroke + drilling	0,05 mm	8 t
	VLC 1200	1	up to diameter of 1.350 mm, 900 mm stroke	0,05 mm	5 t
	VLC 1000 ATC+C	1	up to diameter of 1.150 mm, 900 mm stroke + drilling	0,05 mm	3,5 t
Machining center	SKJ 8J F	1	up to diameter of 800 mm, 630 mm stroke	0,1 mm	2 t
	VMF 1000 CNC	1	X/Y/Z = 1.000/600/570 mm, Table 1.300 x 600 mm	0,05 mm	0,8 t
	MCV 1270 POWER	1	X/Y/Z = 1.270/610/720 mm, Table 1.500 x 670 mm	0,05 mm	1,2 t
	VMFC 1600 CNC	1	X/Y/Z = 1.600/900/850 mm, Table 1.900 x 900 mm	0,05 mm	2 t
Shaper	ST350	1	shaping grooves and lines	0,1 mm	0,5 t
Drill press		3	drilling small diameters	0,1 mm	0,3 t
Grinder	BPH 20/800	1	table dimension 200 x 800 mm	0,02 mm	0,2 t
	BRH 50/1500 CNC	1	table dimension 500 x 1.500 mm	0,02 mm	0,3 t
Testing equipment	up to PN 400 - testing the strength and impermeability of valves (water, air)				
		1	- HP 265 Gemax (DN 50-300, PN 0,6-100 MPa – flange)		0,5 t
		1	- KU Klaus Union (DN 50-300, PN 0,6-100 MPa – welding)		0,3 t
		1	- YFB-300 Zengxin (DN 50-300, PN 0,6-42 MPa – flange)		0,5 t
		1	- YFB-600 Zengxin (DN 300-600, PN 0,6-16 MPa – flange)		1 t
Welding unit		1	- TZS-H 800 (DN 300-800, do PN 400 MPa – flange, welding)		3 t
	KEMPPPI PS 350	1	MMA method 111,135,141		0,025 - 1 t
	MEZa WTU 315	1	MMA method 111		0,025 - 1 t
	ESAB C340 PRO	1	MMA method 135		0,025 - 1 t
Automatic welder	SA 207	1	welding internal welds in rotation workpieces up to dia. 1.800 mm and 1.350 mm long		3,5t
	SAO 327	1	Circumf of submerged arc welding to dia.1.800 mm, workpieces 2.000 mm long		1,25 t
	PPC 250 PTM	1	PTA welding method up to a diameter of 1.200 mm, 600 mm stroke		0,6 t
	NAO 4	1	welding in a deep hole up to dia. 1 200 mm, 400 mm deep		0,5 t