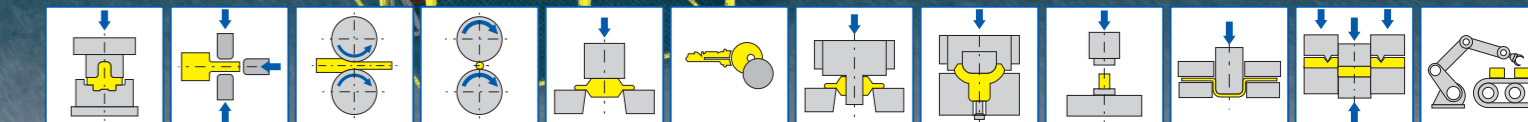


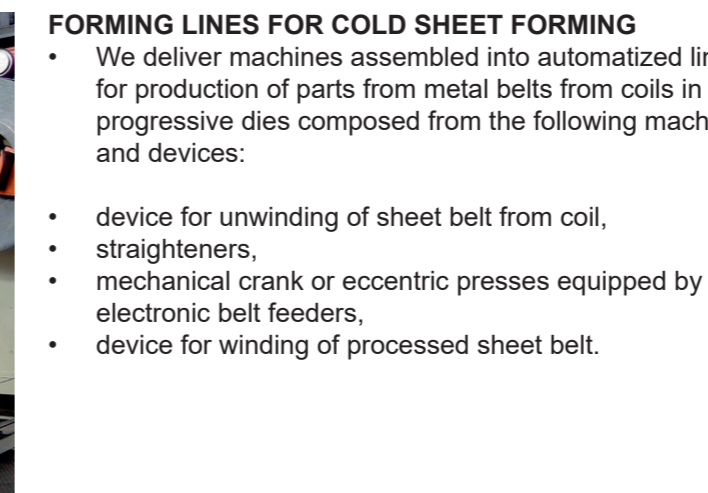
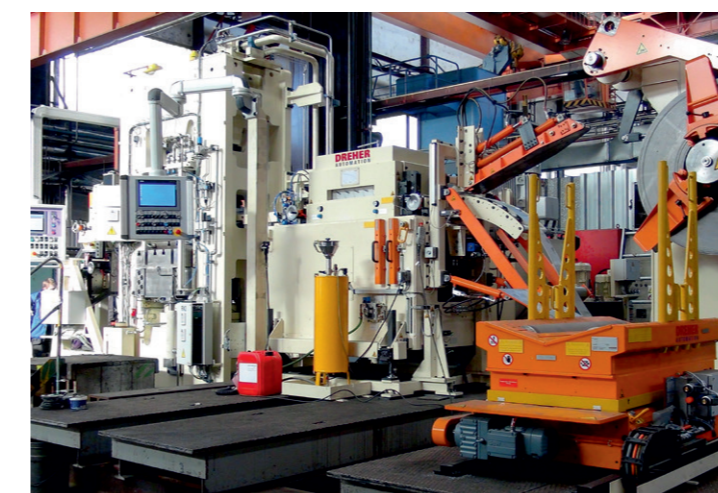
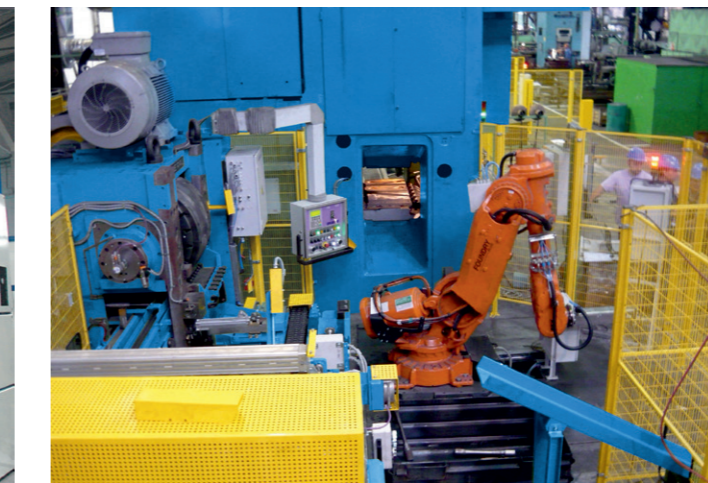
**FORMING LINES AND SYSTEMS**

We deliver machines assembled into forming lines and systems for the manufacture of semi-finished products of parts by methods of hot forming or for production of parts by cold forming from sheet belts by punching, bending and shallow drawing in progressive dies.



**FORMING MACHINES ŠMERAL**

Šmeral Brno is a leading global supplier of forming machines, such as presses and hammers for hot die forging or forging rolls. Our company also offers cross wedge rolling machines for steel and aluminum alloys. Supply of turn-key forming lines automated by robots or transfers is the basis of our production program. Overhauls and modernisation of any forming machine represent an important segment.



**FORMING LINES FOR HOT VOLUME FORMING**

We deliver machines assembled into forming lines with manual operation, operation by robots or transfer automats. Lines process blocks or bars and consist from the following machines and devices:

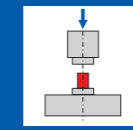
- induction or gas heating furnaces,
- interoperable slides and conveyors,
- cross wedge rolling machines for the manufacture of semi-finished products for further processing by forging,
- mechanical crank forging presses with die holders and handling equipment,
- mechanical crank presses for trimming of burrs,
- robots, transfer automats and automatized systems for dies cavities treating.

**FORMING LINES FOR COLD SHEET FORMING**

We deliver machines assembled into automatized lines for production of parts from metal belts from coils in progressive dies composed from the following machines and devices:

- device for unwinding of sheet belt from coil,
- straighteners,
- mechanical crank or eccentric presses equipped by electronic belt feeders,
- device for winding of processed sheet belt.

A special branch are deliveries of automatized lines for cross wedge rolling of accurate semi-finished products of rotary shapes parts (such as shafts for cars gears) for further chip removing processing.



**PNEUMATIC-HYDRAULIC DROP HAMMERS**

are designed for die forging of forging tools or machine parts in one or several blows.

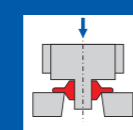
The ram stroke and the impact energy can be programmed for several consecutive blows. Drop hammers are suitable for forging all kinds of die forgings including elongated flat forgings such as wrenches, chisels, knives, scissors, pliers, levers, connecting rods etc. in serial and mass production.



Parameter		KHZ 2A	KHZ 4A	KHZ 8A	KHZ 16A
Nominal forming energy	kJ	20	40	80	160
The spanning measures in holders	mm	286×440	300×570	342×670	460×1000
Smallest total height of dies	mm	250	350	400	500
The stroke of ram	mm	400	500	600	800
Total installed Output	kW	30	55	110	160
Machine dimensions h×w×l	m	3,7×2,3×1,7	4,5×3×2,3	5,2×3,5×2,9	6,3×4,6×3,8



KHZ 8A



**ECCENTRIC PRESSES**

are presses with adjustable ram stroke and with the "C" shaped frame. The machines are designed for trimming of forgings and also for punching, bending, or other operations pressing plants. It is mostly used when processing the strips of sheet or the coil.

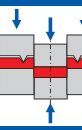


Standard = hydraulic clutch, brake and balancing, the machine does not need compressed air. The adjustment is driven by electric motors.

Parameter		S 160	S 250	S 400
Nominal forming force	kN	1 600	2 500	4 000
Shut height	mm	500	600	600
Overhang	mm	400	500	500
Bed Area	mm	1200×800	1400×1000	1400×1000
Ram Area	mm	850×520	1000×650	1000×650
Zdvih beranu	mm	20-160	30-200	250
Počet zdvihů	min <sup>-1</sup>	40/60	50	40
Přestavování beranu	mm	100	125	125
Total installed Output	kW	23	25	30
Machine dimensions h×w×l	m	3,3×1,4×2,5	3,9×1,6×2,9	4,0×1,6×3,0

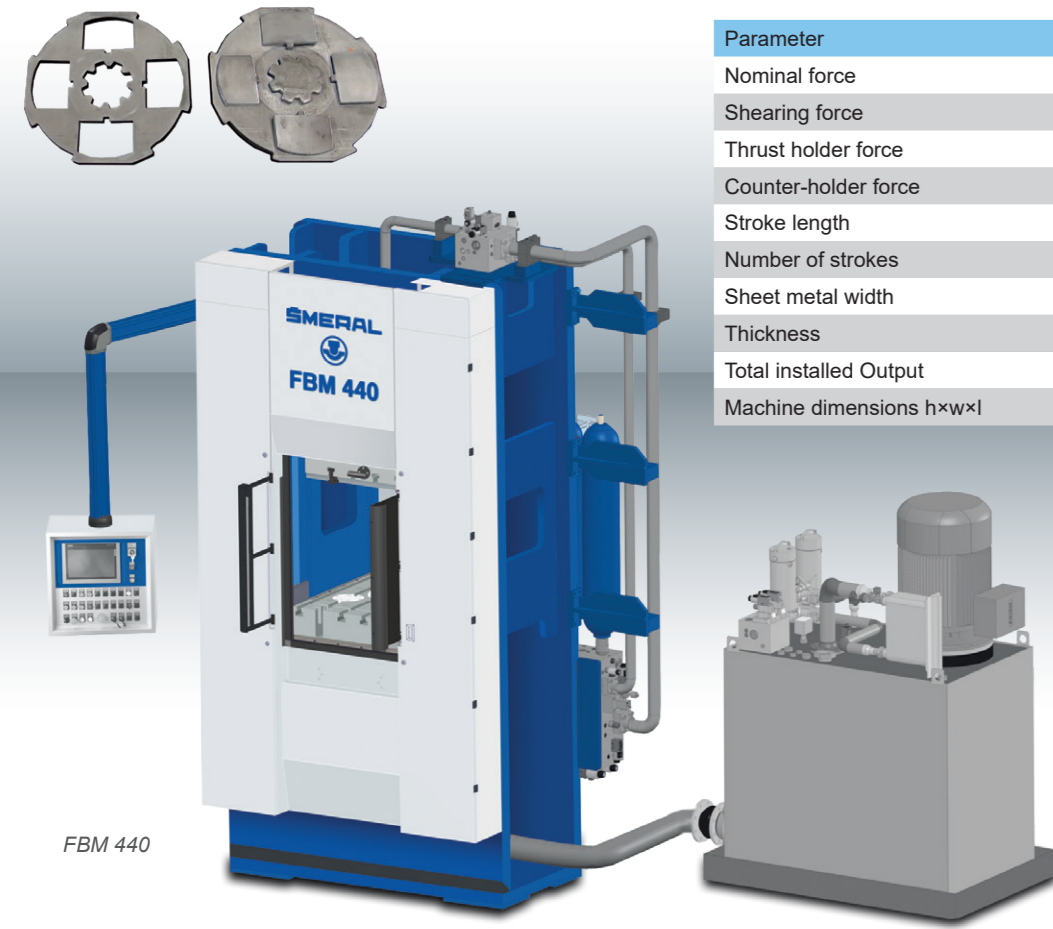


S 160



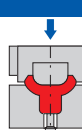
**FINE BLANKING PRESSES**

are hydraulic presses with backpressure for precise cutting of sheet metal parts. As opposed to regular cutting, two additional forces (retainers) are involved. This results in high-quality cutting and precise dimensions. Components that have a high waste ratio and require many finishing operations, such as reaming, grinding, or broaching, are good candidates for precision cutting.



FBM 440

Parameter		FBM 440	FBM 630
Nominal force	kN	4 400	6 300
Shearing force	kN	1400-4100	2000-6000
Thrust holder force	kN	200-2000	300-3000
Counter-holder force	kN	100-1000	100-2000
Stroke length	mm	150-230	150-230
Number of strokes	min <sup>-1</sup>	30	25
Sheet metal width	mm	8-300	8-350
Thickness	mm	1-7	1-16
Total installed Output	kW	95	130
Machine dimensions h×w×l	m	4,2×2,4×0,9	5,0×3,0×1,5



**HYDRAULIC PRESSES**

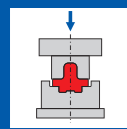
are designed for cold forming of sheet metal parts, for trimming of flashes and for usage in other fields.



CYS 320

The press can be produced in a four-post, welded, eventually welded and anchored design.

Parameter		CYS 320	CYS 500	CYS 800	CYS 1000
Pressing Force	kN	3 200	5 000	8 000	10 000
Return Force	kN	1960	2500	3 000	4 000
Stroke	mm	200	400	600	800
Shut height	mm	560	650	720	800
Bed Area	mm	2000×1010	2200×1100	2350×1150	2450×1200
Ram Area	mm	2000×1010	2200×1100	2350×1150	2450×1200
Total installed Output	kW	30	50	80	120
Machine dimensions h×w×l	m	5,0×4,0×2,0	6,2×4,5×2,5	6,8×4,6×2,8	7,5×5,0×3,2



**VERTICAL FORGING PRESSES** are used for production of precise die forgings with utilization in the automotive industry, building industry and related fields. It is suitable for hot and semi-hot forging with forming forces, with high stiffness and extensive diagnostics, including modern, precise and solid fixtures and other comprehensive equipment.



LZK 4000

Parameter		LZK 1000	LZK 1600	LZK 2500	LZK 3150	LZK 4000	LZK 6500
Nominal forming force	kN	10 000	16 000	25 000	31 500	40 000	65 000
Shut height	mm	620	760	905	1000	1000	1150
Passage	mm	1040	1230	1410	1580	1580	1960
Bad area	mm	1000×950	1180×1120	1340×1400	1520×1580	1520×1600	1900×1950
Ram area	mm	968×750	1138×920	1320×1100	1450×1450	1440×1500	1660×1960
Ram stroke	mm	220	280	320	360	380	450
Ram adjustment	mm	10	10	10	20	20	15
Number of strokes	min <sup>-1</sup>	100	85	65	65	60	40
Total installed Output	kW	55	75	130	160	200	400
Machine dimensions h×w×l	m	4,8×2,5×3,2	5,9×2,5×3,0	6,7×4,0×4,0	6,5×4,6×4,3	9,2×4,7×4,6	7,7×7,3×6,3

The machine frame can be produced as a casting or a weld.  
Standard = hydraulic ram adjustment, pneumatic ejectors.

Parameter		LMZ 1000	LMZ 1600	LMZ 2500	LMZ 4000	LMZ 6500
Nominal forming force	kN	10 000	16 000	25 000	40 000	65 000
Shut height	mm	660	800	910	1100	1250
Passage	mm	1120	1290	1470	1850	2300
Bad area	mm	1080×950	1240×1150	1400×1400	1800×1700	2200×2000
Ram area	mm	1010×850	1160×1035	1350×1250	1550×1700	2100×1890
Ram stroke	mm	220	270	320	380	450
Ram adjustment	mm	10	10	10	20	20
Number of strokes	min <sup>-1</sup>	100	85	70	60	45
Total installed Output	kW	55	75	130	200	400
Machine dimensions h×w×l	m	5,1×2,3×3,0	6,5×3,2×3,7	6,7×4,4×4,0	8,1×5,2×5,4	10,4×7,0×6,0

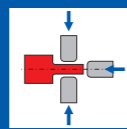


LMZ 1600



SKL 8000

Parameter		SKL 1600	SKL 2500	SKL 4000	SKL 6500	SKL 8000
Nominal forming force	kN	16 000	25 000	40 000	65 000	80 000
Shut height	mm	800	860	1100	1150	1250
Passage	mm	1600	1940	1950	2300	2500
Bad area	mm	1500×1500	1900×1700	1850×1850	2200×2200	2400×2400
Ram area	mm	1400×1200	1700×1500	1700×1700	2100×2100	2200×2200
Ram stroke	mm	270	340	380	450	500
Ram adjustment	mm	16	16	20	20	20
Number of strokes	min <sup>-1</sup>	85	70	60	45	40
Total installed Output	kW	90	160	200	415	500
Machine dimensions h×w×l	m	4,0×4,0×6,0	5,5×5,5×8,0	7,0×7,0×8,0	7,5×7,5×10,0	8,0×8,0×13,0



**HORIZONTAL FORGING PRESSES** are mechanical horizontal presses equipped with ramming and camping ram. During the simultaneous action, the required shape of the forging is produced in several operations on the bar or slug blank. The presses are designed for hot forging for series and mass production especially for the automotive industry, construction and related fields.



LKL 250

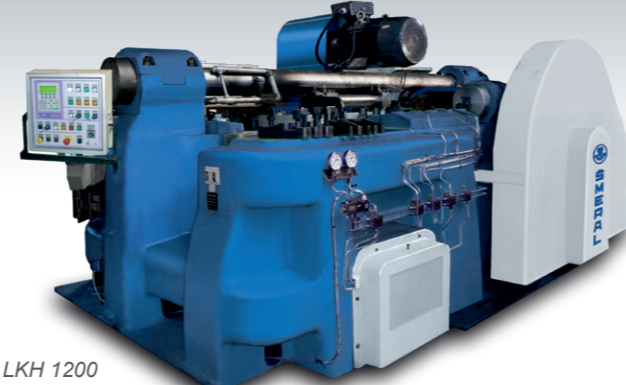
Presses LKL - the dividing plane of the clamping dies is horizontal.

Parameter		LKL 250	LKL 400	LKL 630
Nominal forming force	kN	2 500	4 000	6 300
Maximal diameter of forged bar	mm	50	65	90
Stroke of upsetting ram	mm	220	270	330
Working stroke of upsetting ram	mm	140	180	220
Stroke of clamping ram	mm	95	115	140
Number of strokes of ram	min <sup>-1</sup>	63	50	40
Total installed Output	kW	18,5	30	40
Machine dimensions h×w×l	m	2,6×2,2×3,3	2,6×4,8×2,1	3,4×2,5×5,0



Presses LKH - the dividing plane of the clamping dies is situated vertically.

Parameter		LKH 500	LKH 800	LKH 1200
Nominal forming force	kN	5 000	8 000	12 000
Maximal diameter of forged bar	mm	75	100	150
Stroke of upsetting ram	mm	300	380	500
Working stroke of upsetting ram	mm	200	250	318
Stroke of clamping ram	mm	129,5	159	215
Number of strokes of ram	min <sup>-1</sup>	45	35	27
Total installed Output	kW	30	45	75
Machine dimensions h×w×l	m	3,4×4,1×2,2	3,1×4,1×5,5	4,5×4,1×6,4



LKH 1200



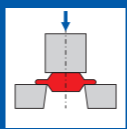
**TOGGLE STAMPING PRESSES** are mechanical vertical presses with upper or lower drive and with placing of shafts in the stand in the direction from left to right. The presses are designed for cold forming, for stamping parts made of sheet metal or bars or for calibrating to achieve the exact dimensions of the parts.



LLR 1000

Standard = upper drive.

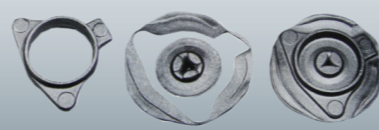
Parameter		LLR 400	LLR 630	LLR 1000	LLR 2000
Nominal forming force	kN	4 000	6 300	10 000	20 000
Shut height	mm	450	1232	630	700
Passage	mm	500	1100	920	1120
Bed area	mm	500×596	1080×1000	900×1000	1100×1100
Ram area	mm	344×400	840×650	670×650	850×850
Ram stroke	mm	90	250	140	150
Ram adjusting	mm	15	20	15	15
Number of strokes	min <sup>-1</sup>	55	60	36	32
Total installed Output	kW	11	37	37	75
Machine dimensions h×w×l	m	3,0×1,8×1,8	4,9×2,9×3,8	2,7×2,2×4,2	4,1×3,7×6,7



**TRIMMING PRESSES** are designed for both hot and cold trimming of burrs of die forgings, as well as for calibration operations and for cold processing of sheet (cutting operations, punching operation, shallow towing operations using pneumatic bottom gripper). Trimming presses find use in forge shops and in pressing plants.

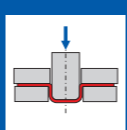


LDO 800



LKOA 200

Parameter		LKOA 200	LDO 315	LDO 500	LDO 800	LDO 1250	LDO 1600
Nominal forming force	kN	2 000	3 150	5 000	8 000	12 500	16 000
Shut height	mm	585	600	680	880	1000	1000
Passage	mm	1420	1400	1600	1900	2500	2530
Bed area	mm	1415×1000	1380×950	1580×1100	1870×1300	2420×1600	2450×1660
Ram area	mm	1200×800	1300×950	1480×1100	1745×1300	2350×1580	2380×1640
Ram adjustment	mm	100	140	160	180	180	180
Ram stroke	mm	210	200	250	320	360	380
Number of the strokes	min <sup>-1</sup>	55	44	38	32	30	28
Total installed Output	kW	15	30	47	55	90	132
Machine dimensions h×w×l	m	4,2×2,4×2,5	5,4×3,2×2,5	6,1×3,5×2,9	7,2×3,5×3,3	9,1×4,5×4,5	9,1×4,5×4,5



**CRANK PRESSES** are mechanical two-point drawing presses with large tables and rams. They are designed for all operations of forming of metal strips, metal sheets or coils (precision cutting, bending, space drawing and also for progressive forming of small parts).

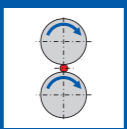


LKT 250

LKT = frames of "O" shape  
LDC = frames of "C" shape



Parameter		LKT 250	LDC 160	LDC 250	LDC 400
Nominal forming force	kN	2 500	1 600	2 500	4 000
Shut height	mm	760	500	550	600
Passage	mm	1600	1600	2000	2000
Bed area	mm	1600×1200	2000×780	2450×880	2450×880
Ram area	mm	1560×990	1550×630	1990×700	2200×700
Ram adjustment	mm	125	100	120	120
Ram stroke	mm	250	160	200	200
Number of the strokes	min <sup>-1</sup>	25	45	38	32
Total installed Output	kW	36	17,5	35	45
Machine dimensions h×w×l	m	3,3×1,4×2,5	3,6×2,4×2,3	4,0×2,9×2,7	4,0×3,0×3,0



**CROSS WEDGE ROLLING MACHINES** are suitable for making semi-finished products for subsequent forging in die forging machines or for producing complex rolled products in the shape of fitted shafts for the gearboxes of automobiles and other similar components. The machines process semi-finished products in the shape of a rotary cylinder, especially made of steel and aluminum alloys.

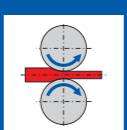


ULS 100 RB

Rolling of steel and non-ferrous metals.

Parameter		ULS 70 RB	ULS 100 RB	ULS 160 RB
Diameter of processed semi-products	mm	40 + 70	40 + 100	50 + 160
Max. semi-product length	mm	300	500	500
Maximum rolled piece length	mm	550	900	750
Diameter of working rollers	mm	700	1000	1000
Width of working rollers	mm	700	1000	800
Number of revolutions of working cylinders	min <sup>-1</sup>	5 + 13	5 + 10	5 + 10
Total installed Output	kW	106	210	230
Machine dimensions h×w×l	m	3,3×3,9×2,3	3,7×4,1×2,6	3,4×5,3×2,6

Dimensions in basic construction, without crane.



**FORGING ROLLS**  
Forging rolls are machines used for hot forming with special manipulators.



Special machine KV 70 – doubled with robotic manipulation.

Parameter		KV 80	KV 120
Max. diameter of tool	mm	580	840
Max. entering diameter of semi-product	mm	80	120
Clamping Diameter of Tools	mm	440	600
Clamping Width of Tools	mm	700	700
Max. length of Rolling	mm	600	1200
Rolls adjustment	mm	30	20
Machine dimensions h×w×l	m	1,9×4,6×1,3	1,5×5,6×2,3