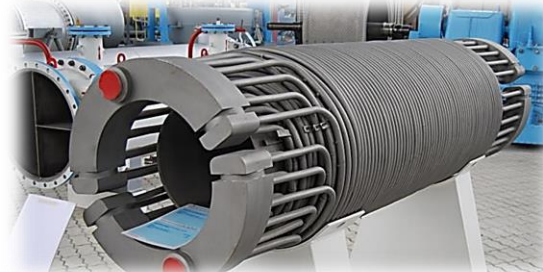


SMNPO - ENGINEERING

MANUFACTURING CAPABILITIES

BLANKING FACILITIES



PATTERN CUTTING OF METAL-ROLL

Cold severing and welding grooves

Guillotine	– 13 articles
Cut thickness	– 1-30 mm
Maximum cut width	– 6610 mm
Edge planer	– 3 articles
Planning length	– 4000-10000 mm
Maximum thickness	– 50 mm
Edge-milling machine	– 2 articles
Milling length	– 12000 mm
Maximum thickness	– 300 mm

Thermal severing

2 Messer Grischeim computer-controlled gas-cutting plants. Maximum dimensions of cut billets are 2800x12000, maximum thickness is 300mm.

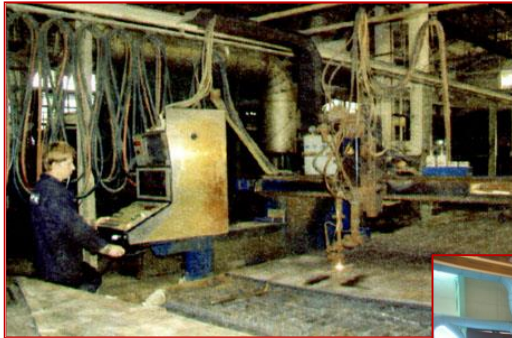
- Bystronic Bystar 4020 metal laser pattern cutting machine for accurate dimensional blanking from 25 mm carbon, stainless steel, as well as from non-ferrous metals and alloys of max 12 mm thickness. Platform dimension: 4000x2000 mm.

- automatic plasma-cutting machine;

- treated sheets maximum dimensions are 2800x12000, maximum thickness is 60 mm;

- ACШ-70 three-cut plant – 12 articles;

- 2 ACШ-70 plants, rehabilitated for plasma cutting.



Messer computer-controlled gas-cutting plant



Bystronic Bystar 4020 metal laser pattern cutting machine

PIPES BENDING AND WINDING OF CYLINDRICAL COILS

1. Cold bending at pipe bending machine

Diameter max diameter min	Minimum bending radius	Maximum bending radius	Maximum bending angle	Pipe bending machine model
Ø76x4 Ø 25x2	R91 R30	R300	200°	УРБ-703 Japan
Ø 190,7x5,3 Ø 165x11	R190	R900	200°	УРБ-506 Japan
Ø 219 Ø 125	R1600 R750	No limit	No limit	HTL-4 Japan

2. Thermal bending at HFC heating machines

Diameter max diameter min	Minimum bending radius	Maximum bending radius	Maximum bending angle	Pipe bending machine model
Ø76 Ø 219	1,5D _H . 1,5D _H .	No limit	180°	KM3 52-012
Ø 76 Ø 325	114÷200 490 ÷ 1137	2000	183°	SRB300 Germany
Ø 219 Ø 530	330 ÷ 657 800 ÷ 1860	4000	183°	SRBM600 Germany



Pipes bending at HFC heating machines

FLANGES PRODUCTION

1. Thermal bending at flanging machine

Max section of bend flange	Material	Flange diameter		
		Minimum inner	Maximum inner	Maximum outer
90x90	ст.3, ст.20, X18H10T, 09Г2С, X17H13M2Т	260	1800	2050
140x150	ст.3, ст.20	600	1800	2050
110x120	X18H10T, X17H13M2Т	600	180	2050
140x170	ст.3, ст.20, X18H10T, X17H13M2Т	260	2400	2740



2. Cold bending at section bending machines

max section of bend flange	Material	Flange diameter		Machine model
		Minimum inner	Maximum inner	
110x110 50x50	ст.3, X18H10T, 09Г2С	1200	1500	THL-4 Асано-Сетка Japan
200x30 140x14	- / -	1250	2300	- / -
100x30	- / -		1250	XZP 120/15 Czechoslovakia



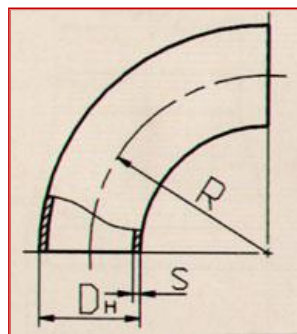
PRODUCTION OF COMPENSATORS, CYLINDRICAL COILS AND SEMI-PIPES AT "HUASLER" BENDING MACHINE

Shape designation	Figure	Parameters, mm							
		R	d	Smin	Smax	Dmin	Dmax	H	A
Compensators		14		3	-	740	3000		
		14		4	-	740	3000		
		22		4	-	800	3000		
		22		3	-	1100	3000		
		22		4	-	1100	3000		
Pipe			76			580	3000		
			89			800	3000		
			102			1000	3000		
Semi-pipe		10		3		450	3000		
		19,7		3		520	3000		
		38,8		4		520	3000		
		54		4		790	3000		
		57,7		5		800	3000		
		74,4		6		1100	3000		

PRODUCTION OF STAMP-WELDED CONNECTING PARTS OF PIPELINES

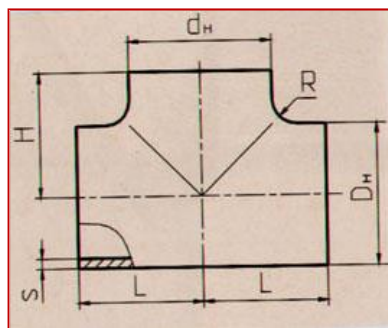
Carbon and stainless steel pipe bends as to GOST 17375-83

	D, mm	R, mm	S, mm
from	57	100	4
to	1220	1800	30



Stamp-welded straight tees as to GOST 17376-83

	D, mm	L, mm	H, mm	R, mm	S, mm
from	57	50	50	10	4
to	1420				40



Stamp-welded sheet concentric reduction, Specifications TY 102-488-95

	D, mm	d, mm	H, mm	S, mm
from	219	108	140	6
to	530	325	500	16

Stamp-welded unequal tees as to GOST 17376-83

	D	d_H	L	H	R	S
from	89	57	80	65	14	6
to	1020	720	650	650	70	30

Pipe concentric reduction GOST 17378-83

	D	d	H	S
from	38	25	40	2;3;5
to	219	159	180	6;8;12

Заглушки

	D	S
from	32	3
to	1420	40



PIPES BENDING AND WINDING OF CYLINDRICAL COILS

Coils production

Pipe diameter _{max} Pipe diameter _{min}	Minimum bending radius	Maximum bending radius	Model of shape bending machine
∅159 ∅ 25	290	1500	HPR-16 "Hausler", Switzeland
∅ 89 ∅ 25	175	625	HPR-23 "Hausler", Switzeland



PRODUCTION OF SHELLS

1. By rolling at sheet-bending machines

D of tongue roll	Min diameter of rolling	Shell length	Shell wall thickness	Notes
80	98	280	6 ÷ 18	4-roll
120	200	1200	max 8	3-roll
150	180	1200	max 6	
180	150	1200	max 5	
360	400	2500	25	«Hausler» 4-roll
200	230	2000	6 ÷ 14	«Hausler» 4-roll
290	325	2000	17 ÷ 32	
920	1000	3000	max 10 At length 3000	Hausler 4-roll
425	720	4000	20	ИВВДК-20x4000 3-roll Germany
750	1300	8000	32	XZM 800032 Czechoslovakia



2. By stamping of semi-shells with diameter from Ø57 to Ø 1390, thickness from 3 to 100