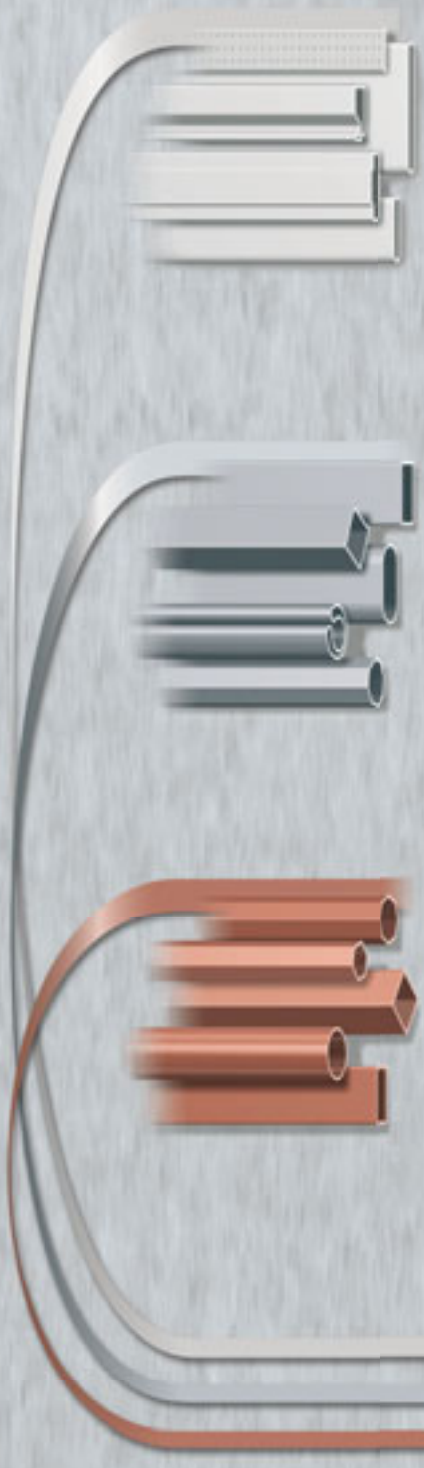
PRODUCT CATALOGUE

TUBE MILLS AND THEIR COMPONENTS



®Attl a spol. s.r.o.
Továrna na stroje

3rd edition

ABOUT THE COMPANY

INTRODUCTION:

The company ATTL a spol. s.r.o. has been in the business since 1920. The design and the quality of products, reflect very high contemporary standard of our designers and technicians. Our company produces among other things tube mills for longitudinally welded tubes and profiles with the following parameters: profile size max. 140 × 140 × 4,5 mm, maximum tube size is ø 159 × 4,5 mm. Production speed while welding is 40 to 140 m/min. Vertical accumulators work at the same speeds, with the strip width from 40 to 580 mm. HF welder has power output 50 to 500 kW. Flying cutoff by shear and rotary blade is our speciality and in both cases it is particularly characterized by a very long tool life. Our CNC packeting can stack finished products up to 12 m in length. Appart from the standard materials, production can be in stainless steel, copper or titanzinc. In these materials the tube can have a diameter up to ø 200 × 1,8 mm. In addition to the standard HF welding, we use TIG, Laser (IPC, Rofin or Trumpf) and Plasma. Our system is modular and the individual sections can be ordered separately.The complete portfolio of our products can be seen at www.attl.cz.

HISTORY

Company founders, brothers Alois and Karel Attl

In 1920, then twenty seven years old Alois Attl opened his own locksmith workshop. Subsequently he was joined by his younger brother Karel. The company grew and by 1932 their products were being exported not only to the European countries, but also to South America. During the Second World War and after the war, the son of the company founder, Karel, was also working at by now well established and prospering business. The company was forcefully nationalized in 1952 and was made part of the National enterprise Stavebni Zavody. Karel Attl senior and junior remained employed in the factory. The son of Karel Attl junior, Ing. Jan Attl, worked as the head of Development in the State company Stavebni Stroje Zlicin. Some two years after the political changes of 1989 he succeeded to have the original factory returned to the family and from the 1st of January 1993, the private company "ATTL a spol. s.r.o. továrna na stroje" is continuing to design and manufacture machinery at the same location of the original 1920 enterprise. The head of the company is Ing. Jan Attl, the third generation of an engineering family. Along with him works his elder brother Karel, son Tomas and other members of the family. The company again pioneers its own design with the main focus on the quality of its products, which forms a long term 'Know-how' of this family business. Today Attl a spol. s.r.o. is well established, prospering firm without a complicated organizational structure. The running of the firm is based on a teamwork and quick communication of professionally expert and creative individuals. One of the marks of success is the award of Gold Medal to the ALDA 32 × 1,8 - 160 at the International Fair of Forming Machinery IMT, Brno.

Locksmith work shop – Praha r. 1925

ALL UNDER ONE ROOF

The main reason to choose Attl a spol. s.r.o. as your supplier of a tube mill or of its parts is the fact, that we offer a selection of all the key components of the longitudinally welded tube and profile mills from our own development, manufacture and supply, including direct service. This principle is our basic marketing strategy.

MANUFACTURER (Attl a spol. s.r.o. Továrna na stroje)		TUBE MILL		CUSTOMER = „YOU“
TRADITION, TECHNICAL SOPHISTICATION		ENERGY EFFICIENT STRIP ACCUMULATOR		CUSTOM MADE MACHINE = EFFICIENT PERFORMANCE
OUR OWN, WELL PROVEN DESIGNS		OUR OWN KNOW-HOW FOR SIZING SECTION		DIRECT SUPPLY = SIMPLICITY
CONTINUAL, INTESIVE DEVELOPMENT		RELIABLE AND HIGHLY EFIICIENT HFR WELDER		LOW ENERGY REQUIREMENT = LOW RUNNING COSTS
FLEXIBILITY, FAST RESPONSE		FLYING CUTOFF COMBI SHEAR/SAW IN ONE		HIGH OUTPUT, QUALITY PRODUCTION = MARKET SUCCESS
DEDICATION TO OUR CUSTOMERS		CNC PACKETING OF TUBES AND PROFILES		COMPREHENSIVE SERVICE = LOW DOWN TIME
NUMEROUS GOOD REFERENCES		SPARE PARTS, FAST SERVICE		ADVANTAGEOUS RATIO: COST/PRODUCTION OUTPUT = FAST RETURN
FAVORABLE PRICE		**QUALITY MACHINE**		**YOUR HIGH PROFIT**

Apart from the tube mills and individually available mill components mentioned above, we shall gladly work out a proposal according to your specific requirements.

CONTENTS

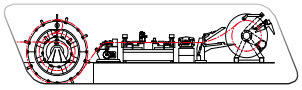
TUBE MILL TYPES

Meaning of the model number: SP 2 - 15/250/100/80/3PB

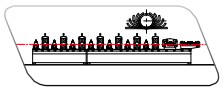
model	strip thickness max. (mm)	number of forming stands	strip width max. (mm)	power input incl. welding max. (kW)	mill speed max. (m/min.)	number of drive units
SP, OP, SPL, LC, SPS	0,5 - 4,5	12 - 18	20 - 580	50 - 1200	15 - 140	3 -16

MILL COMPONENTS

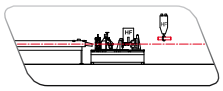
STRIP PREPARATION SECTION



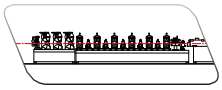
FORMING SECTION



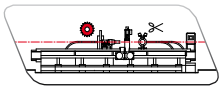
WELDING SECTION



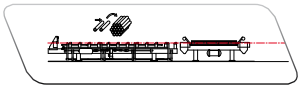
SIZING SECTION



FLYING CUTOFF FOR TUBES AND PROFILES



BUNDLING SECTION



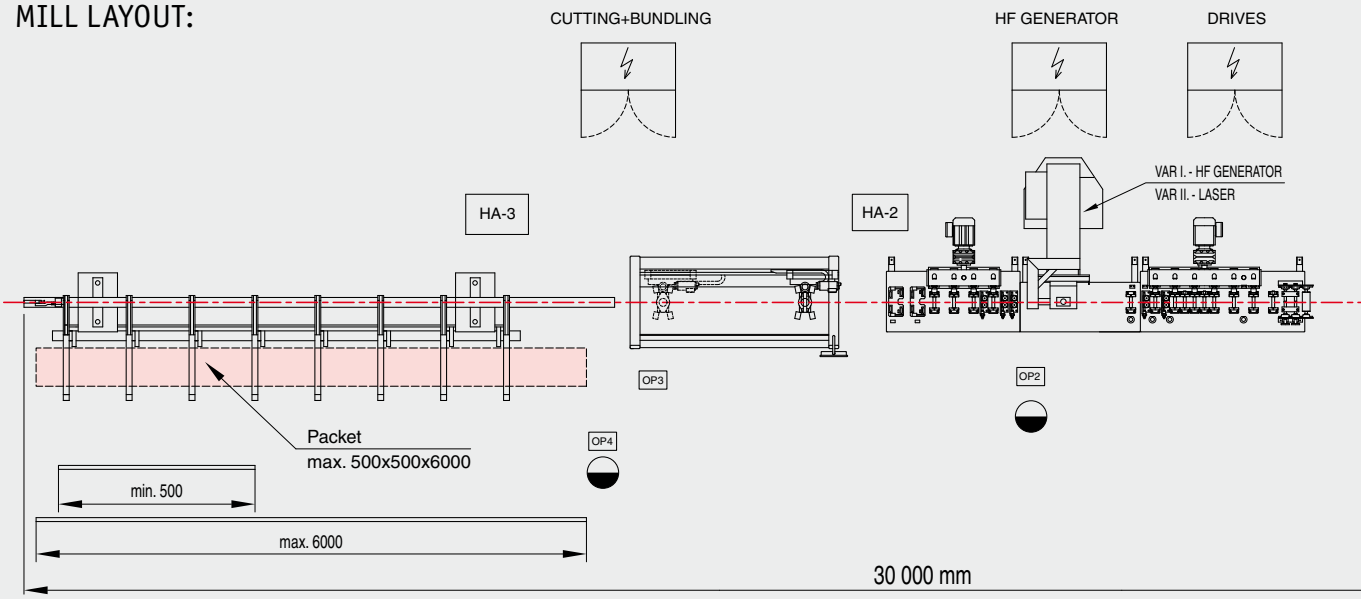
Glossary of terms used:

RVS	= System for a quick change of forming and intermediate stands by ones already pre-set with sizing rolls for a different profile.
RVS-UC	= System for forming square and rectangle profiles before welding.
RVS-TR	= System for forming a tube before welding.
Sizing rolls	= Forming rolls placed in forming and intermediate stands.
IRC	= Incremental rotational sensor (impulse counter) to measure the length of profiles.
Straightening cylinders	= System similar in principle to the straightening machine, to restore the mechanical properties of the entry strip.

TUBE MILL

Tr ø 32 x 1,8 mm

MILL LAYOUT:



Technical parameters:

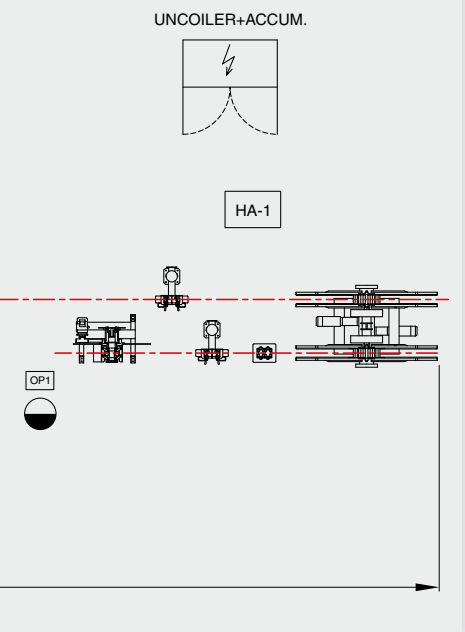
Line speed max.	100	m/min
Service lengths	0,5÷4,5	m
Length tolerance at 25 m/min	±0,5	mm
Production lengths	4,3÷8,0	m
Length tolerance at 60 m/min.	±1,5	mm
Power Input for strip preparation section	30	kW
Installed Power Input for forming section	80	kW
HF welder power input	100	kW
Flying cutoff and HA power input	60	kW
Total installed power input approx.	300	kW
Approximate mill dimensions- length × width × height	30 × 6 × 3	m

Characteristics of entry material:

Material according to EN: S235JRG1, S275JR, S355JR. Stainless steel; Aluminium - according to the customer requirements.

Strip width	30÷120	mm
Strip thickness	0,4÷1,8	mm
Breaking limit Rm max.	560	MPa
Yield point Re max.	430	MPa
Ductility A_{80} min.	18	%
Coil specifications:		
Inner diameter min./max.	508 / 610	mm
Outer diameter min./max.	1400 / 1800	mm
Coil weight max./min.	1000 / 500	kg

SP 1,8 – 12/120/300/100/2PB



Mill characteristic:

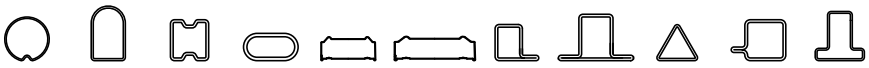
Small, simple tube/profile mill particularly suitable for final user of the profiles/tubes, since it can produce precise, short, so called service lengths. High quality HF welder makes it possible to weld with practically no inner bead, which is particularly suitable for furniture makers and car industry. The mill is also suitable for application with laser welding.

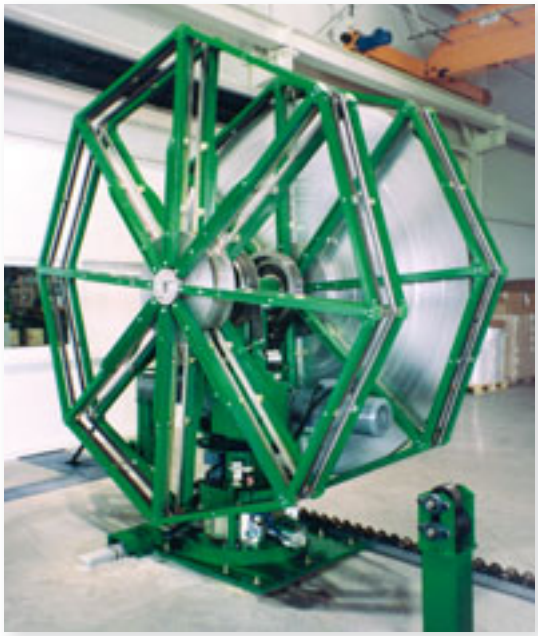
Sample range of products:

All profiles and tubes according to EN and GOST: EN 10305-3; EN 10305-5; EN 10219-1(2); EN 10255; GOST 10707; GOST 8645; GOST 8639; GOST 10704; GOST 1387.

Tube diameter (mm)	Square profile (mm)	Wall thickness (mm)	Rectangle profile (mm)	Wall thickness (mm)
10	8 × 8	0,4 ÷ 1,0	10 × 6	0,4 ÷ 1,0
12,8	10 × 10	0,4 ÷ 1,0	15 × 5	0,4 ÷ 1,2
14	10 × 10	1,0 ÷ 1,4		
16	12 × 12	0,5 ÷ 1,5	15 × 10	0,5 ÷ 1,5
18	14 × 14			
19	15 × 15		20 × 10	0,5 ÷ 1,5
20	16 × 16	0,5 ÷ 1,6	25 × 10	0,5 ÷ 1,6
22	18 × 18		20 × 15 25 × 10	
24 25	18 × 18 20 × 20		25 × 15 30 × 10	
26	20 × 20	0,6 ÷ 1,6	25 × 15 30 × 10	0,6 ÷ 1,6
32	25 × 25	0,8 ÷ 1,8	30 × 20	0,8 ÷ 1,8
			35 × 15 40 × 10	

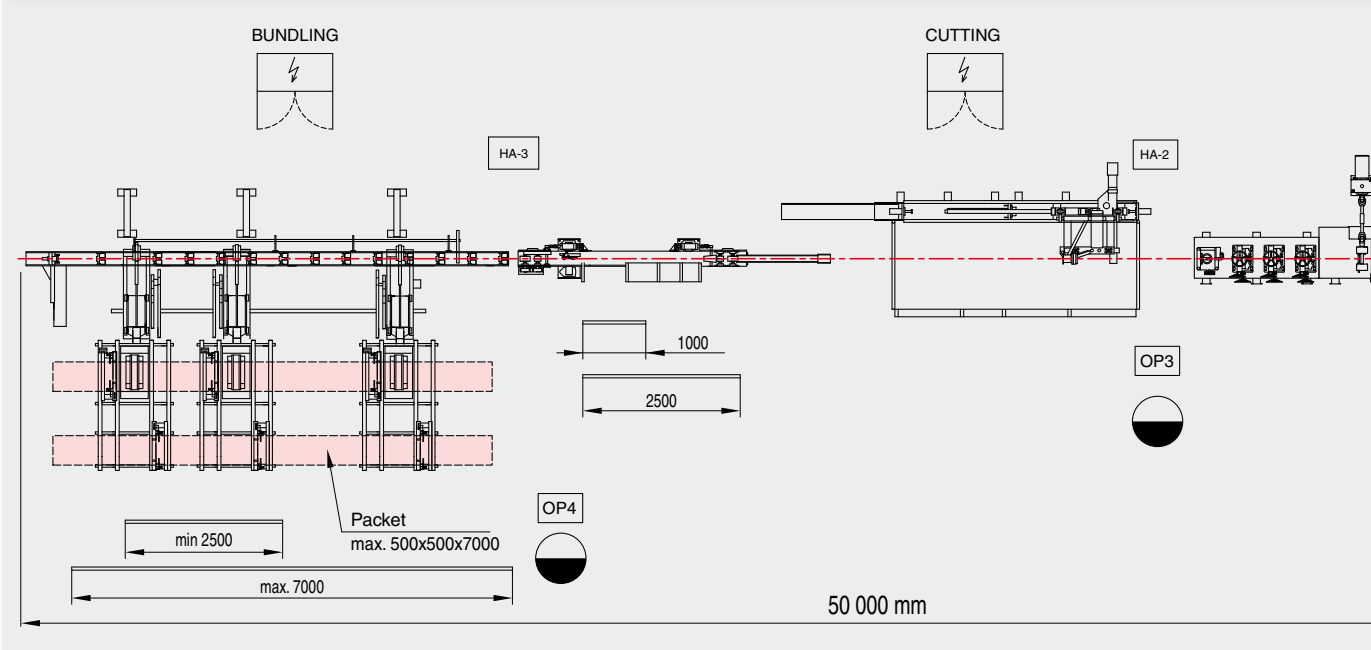
Possibility to produce other profiles:





TUBE MILL

Tr ø 42 x 2,4 mm



Mill characteristic:

Production line featuring top quality HF welder, high output cold saw cutting and CNC bundling AUT 8000 for packeting of finished products . The mill can be altered by installing vertical accumulator VAK 160 enabling continuous production and bundling AUT 12000 for profile lengths up to 12 m. The mill has the ability to produce short, service lengths of products as well. Advantageous modification is fitting RVS system, which enables quick change of a product type.

Technical parameters:

Line speed max.	140	m/min
Service lengths	1,0 ÷ 2,5	m
Length tolerance at 25 m/min	±0,5	mm
Production lengths	2,5 ÷ 7,0	m
Length tolerance at 60 m/min	±1,5	mm
Power input for strip preparation section	40	kW
Installed power input for forming section	80 ÷ 100	kW
HF welder power input	150 ÷ 250	kW
Flying cutoff and HA power input	60 ÷ 80	kW
Total installed power input approximately	400	kW
Approximate mill dimensions- length × width × height	50 × 8 × 3	m

Characteristics of entry material:

Material according to EN: S235JRG1, S275JR, S355JR. Stainless steel; Aluminium; Galvanized steel - according to the customer requirements.

Strip width	40 ÷ 160	mm
Strip thickness	0,5 ÷ 2,4	mm
Breaking limit Rm max.	560	MPa
Yield point Re max.	430	MPa
Ductility A_{80} min.	18	%
Coil specificatioins:		
Inner diameter min./max.	508 / 610	mm
Outer diameter min./max.	1 400 / 1 800	mm
Coil weight max./min.	2 000 / 1 200	kg

SP 2,4 – 14/160/400/140/14PB

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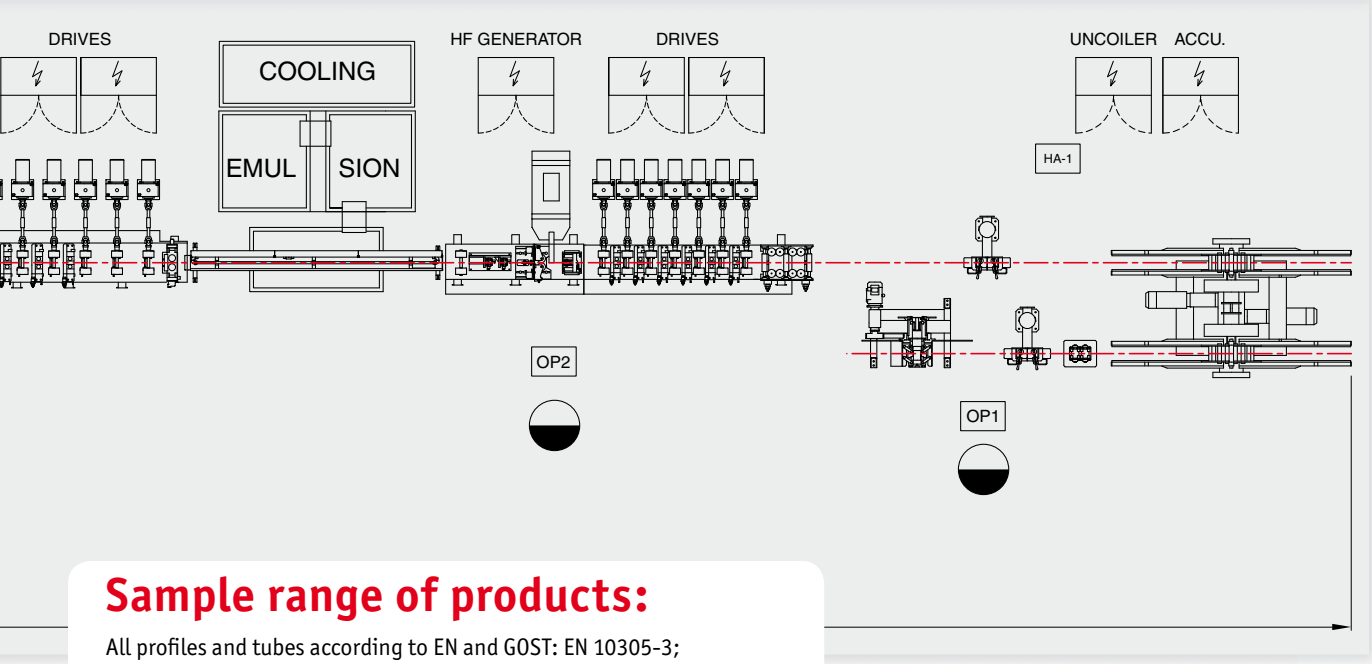


Sample range of products:

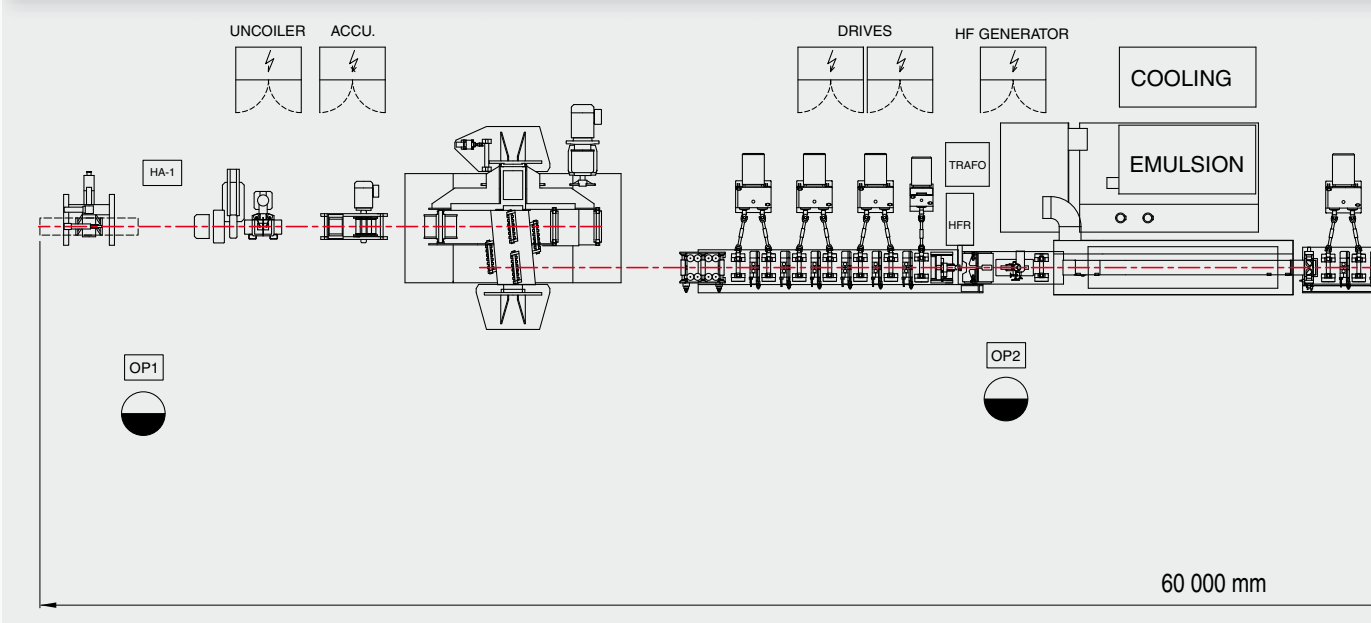
All profiles and tubes according to EN and GOST: EN 10305-3; EN 10305-5; EN 10219-1(2); EN 10255; GOST 10707; GOST 8645; GOST 8639; GOST 10704; GOST 1387.

Tube diameter (mm)	Square profile (mm)	Wall thickness (mm)	Rectangle (mm)	Wall thickness (mm)
12,8	10 × 10	1,0 ÷ 1,4	15 × 5	0,5 ÷ 1,2
14		1,0 ÷ 1,4		
16	12 × 12	0,6 ÷ 1,5	15 × 10	0,5 ÷ 1,5
18	14 × 14	0,6 ÷ 1,8		
20	15 × 15	0,6 ÷ 2,0	20 × 10	0,6 ÷ 2,0
21	16 × 16		25 × 10	
22	18 × 18		20 × 15	
24 25	18 × 18 20 × 20	0,6 ÷ 2,4	25 × 15 30 × 10	1,0 ÷ 2,4
26 26,9	20 × 20		25 × 15 30 × 10	
32 33 33,7	25 × 25	0,8 ÷ 2,4	30 × 20 35 × 15 40 × 10	
38	30 × 30	1,2 ÷ 2,4	35 × 25 40 × 20 45 × 15	1,2 ÷ 2,4
42,5	32 × 32		40 × 25 45 × 20 50 × 15	

Possibility to produce other profiles:

TUBE MILL

Tr ø 76 x 3,2 mm



Mill characteristic:

Most common production mill with the outstanding VAK accumulator, HF welding generator, ability to cut the products by interchangeable cold saw or by shearing, packeting final products from 6 to 12 m by using CNC AUT 8000 or CNC AUT 12000. The mill can be advantageously modified by adding the RVS system for quick change of a product type. As standard, the mill is equipped with ET-S longitudinal weld quality control unit, using eddy currents. If using galvanized material, additional galvanizing of the weld can be ordered.

Technical parameters:

Line speed max.	80 ÷ 120	m/min
Service length	1,0 ÷ 2,5	m
Length tolerance at 25 m/min	±0,5	mm
Production lengths	3,0 ÷ 8,0	m
Length tolerance at 60 m/min	±1,5	mm
Power input for strip preparation section	50	kW
Power input for forming section	100 ÷ 140	kW
HF welder power input	150 ÷ 300	kW
Flying cutoff and HA power input	60 ÷ 90	kW
Total installed power input approx.	500	kW
Approximate mill dimensions- length × width × height	60 × 8 × 3	m

Characteristics of entry material:

Material according to EN: S235JRG1, S275JR, S355JR. Stainless steel; aluminum; Galvanized steel - according to the customer requirements.

Strip width	50 ÷ 250	mm
Strip thickness	0,8 ÷ 3,0	mm
Breaking limit Rm max.	560	MPa
Yield point Re max.	430	MPa
Ductility A_{80} min.	18	%
Coil specifications:		
Inner diameter min./max.	508 / 610	mm
Outer diametermin./max.	1 400 / 1 800	mm
Coil weight max./min.	3 000 / 1 800	kg

SP 3,2 – 15/250/500/120/9PB

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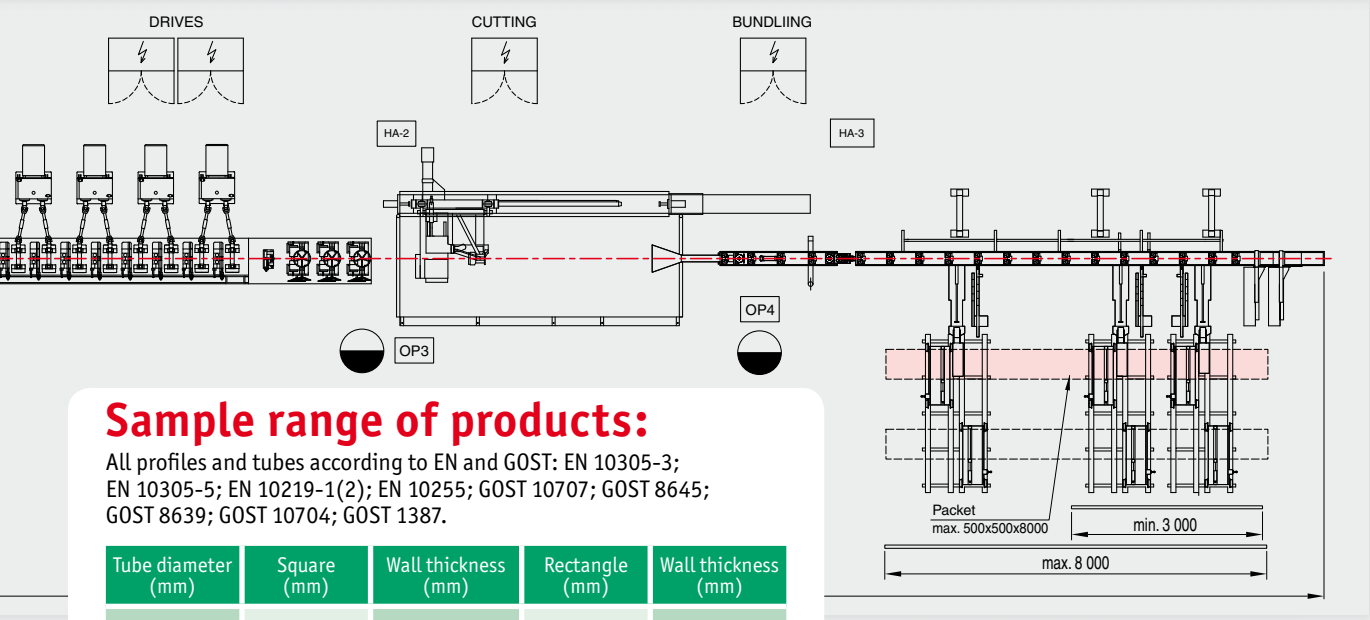


Sample range of products:

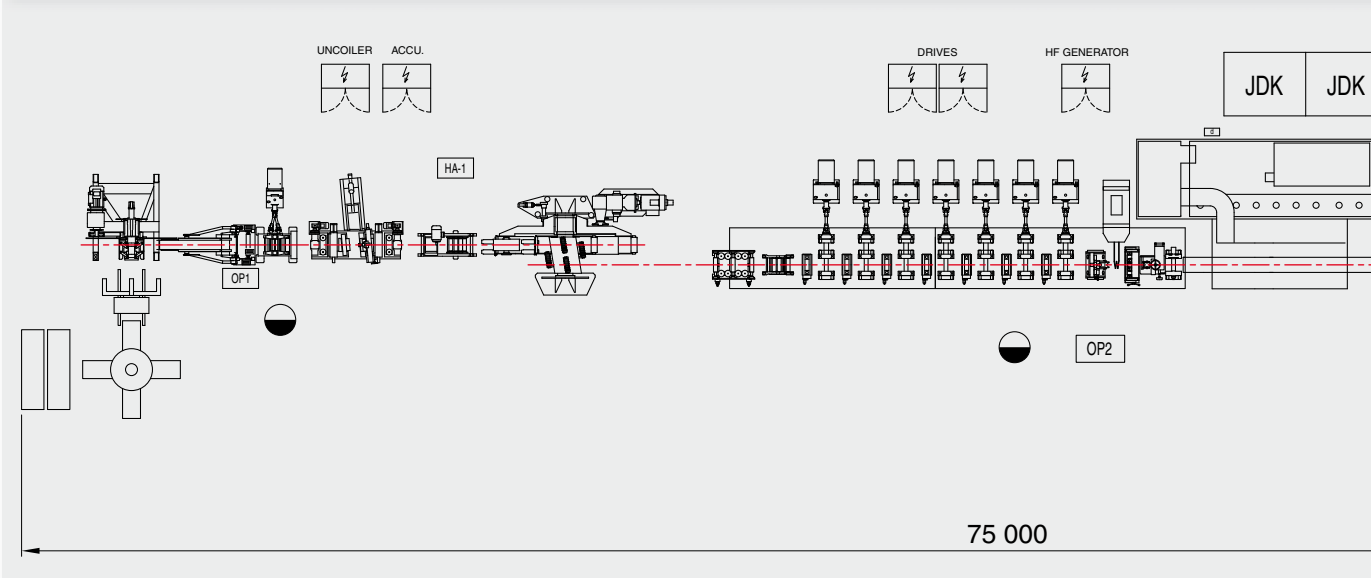
All profiles and tubes according to EN and GOST: EN 10305-3; EN 10305-5; EN 10219-1(2); EN 10255; GOST 10707; GOST 8645; GOST 8639; GOST 10704; GOST 1387.

Tube diameter (mm)	Square (mm)	Wall thickness (mm)	Rectangle (mm)	Wall thickness (mm)
18	14 × 14	0,8 ÷ 1,5		
20	15 × 15	0,8 ÷ 1,8	20 × 10	0,8 ÷ 1,8
21	16 × 16		25 × 10	
22	18 × 18	0,8 ÷ 2,0	20 × 15 25 × 10	0,8 ÷ 2,0
24 25	18 × 18 20 × 20	1,0 ÷ 2,0	25 × 15 30 × 10	1,0 ÷ 2,0
26 26,7	20 × 20	1,0 ÷ 2,2	25 × 15 30 × 10	1,0 ÷ 2,2
32 33,7	25 × 25	1,0 ÷ 2,4	30 × 20	1,0 ÷ 2,4
38	30 × 30	1,0 ÷ 3,0	35 × 25 40 × 20 45 × 15	1,0 ÷ 3,0
42,5	32 × 32		40 × 25 45 × 20 50 × 15	
45 48,3	35 × 35		40 × 30 45 × 25 50 × 20	
50 51	40 × 40		50 × 30 45 × 35 60 × 20	
57 60,3	45 × 45	1,2 ÷ 3,2	45 × 40 50 × 40 60 × 30	1,2 ÷ 3,2
63,5	50 × 50		60 × 40 70 × 30	
76	60 × 60	1,4 ÷ 3,2	70 × 50 80 × 40	1,4 ÷ 3,2

Possibility to produce other profiles:

TUBE MILL

Tr ø 102 x 4 mm



Mill characteristic:

Able to produce relatively widest range of profiles and tubes. Special design feature of the sizing section enables production of precise tubes. Application of ALDA-Combi flying cutoff offers effective cutting either by rotary saw or by shear and in this way it increases the mill productivity by up to 40 %, according to the actual production results. The mill includes system RVS for quick change of a product type. The standard equipment includes top of the line HF welder with the power output of 350 kW and the system ET-S for longitudinal weld quality control.

Technical parameters:

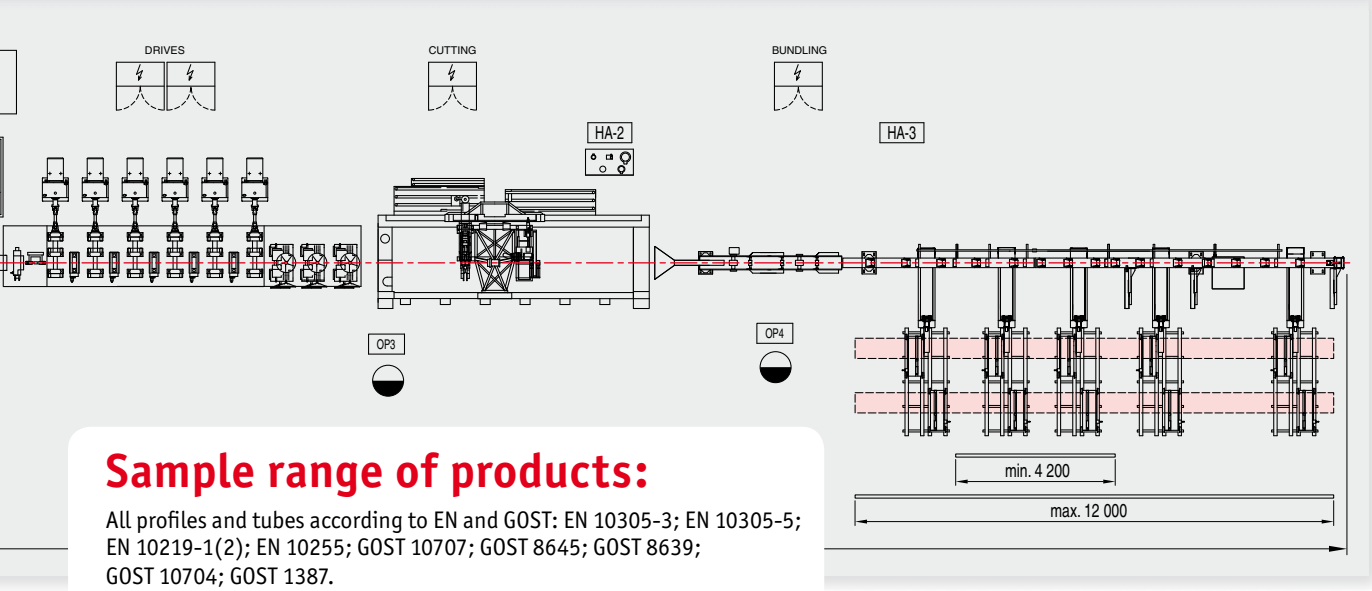
Line speed max.	100	m/min
Production lengths	4,2 ÷ 12	m
Length tolerance at 60 m/min.	±1,6	mm
Power input for strip preparation section	150	kW
Installed power input for forming section	250	kW
HF Welder power input	350	kW
Flying cutoff and HA power input	200	kW
Total installed power input approx.	1 000	kW
Approximate mill dimensions- length × width × height	80 x 10 x 4	m

Characteristics of entry material:

Material according to EN: S235JRG1, S275JR, S355JR. Stainless steel; Aluminium - according to the customer requirements.

Strip width	90 ÷ 320	mm
Strip thickness	1,2 ÷ 4,0	mm
Breaking limit Rm max.	560	MPa
Yield point Re max.	430	MPa
Ductility A_{80} min.	20	%
Coil specifications:		
Inner diameter min./max.	510 / 610	mm
Outer diameter min./max.	1 300 / 1 800	mm
Coil weight max./min.	5 000 / 3 200	kg

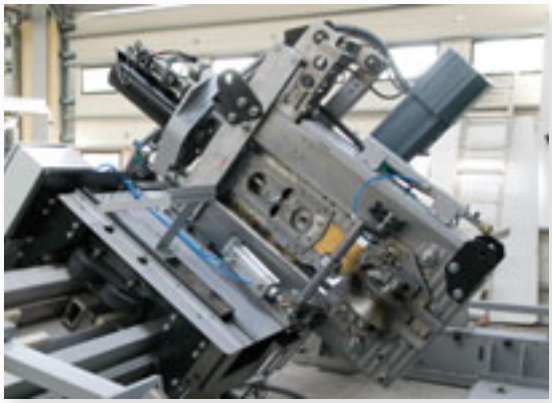
SP 4 – 14/320/1000/100/14PB

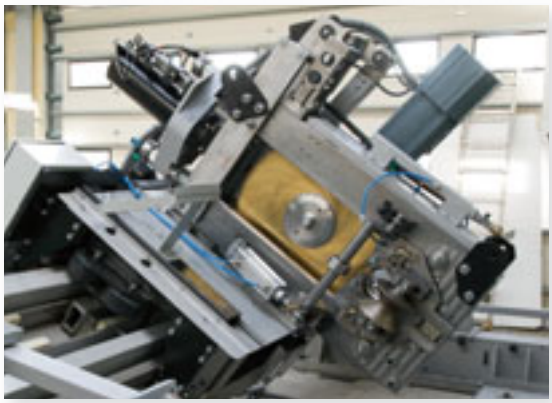


Sample range of products:

All profiles and tubes according to EN and GOST: EN 10305-3; EN 10305-5; EN 10219-1(2); EN 10255; GOST 10707; GOST 8645; GOST 8639; GOST 10704; GOST 1387.

Tube diameter (mm)	Square profile (mm)	Wall thickness (mm)	Rectangle profile (mm)	Wall thickness (mm)
32 33	25 × 25	1,2 ÷ 2,6	30 × 20 40 × 10	
38	30 × 30	1,2 ÷ 3,0	35 × 25 40 × 20 45 × 15	1,2 ÷ 3,0
42,5	32 × 32	1,2 ÷ 3,2	40 × 25 45 × 20 50 × 15	1,2 ÷ 3,2
45 48,3	35 × 35	1,2 ÷ 3,5	40 × 30 45 × 25 50 × 20	1,2 ÷ 3,5
50 51	40 × 40	1,4 ÷ 3,6	50 × 30 45 × 35 60 × 20	1,4 ÷ 3,6
57 60,3	45 × 45	1,4 ÷ 4,0	45 × 40 50 × 40 60 × 30	1,4 ÷ 4,0
63,5	50 × 50		60 × 40 70 × 30	
76	60 × 60	1,5 ÷ 4,0	70 × 50 80 × 40 90 × 30	1,5 ÷ 4,0
89	70 × 70	1,6 ÷ 4,0	80 × 60	1,6 ÷ 4,0
102	80 × 80		100 × 60 110 × 50	1,5 ÷ 4,0

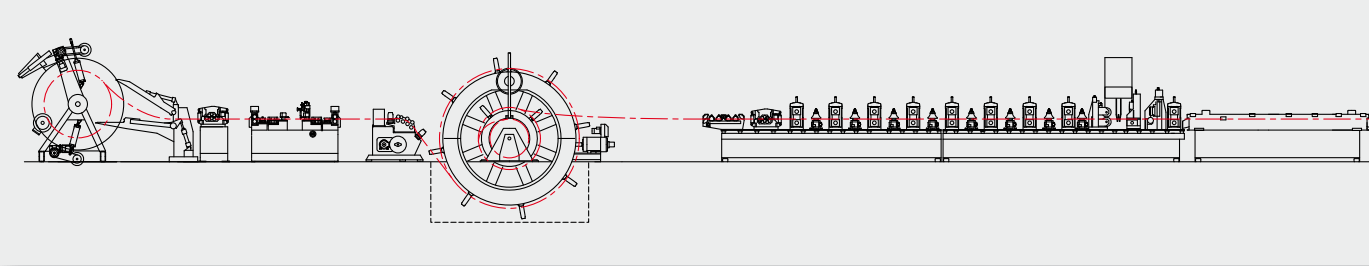


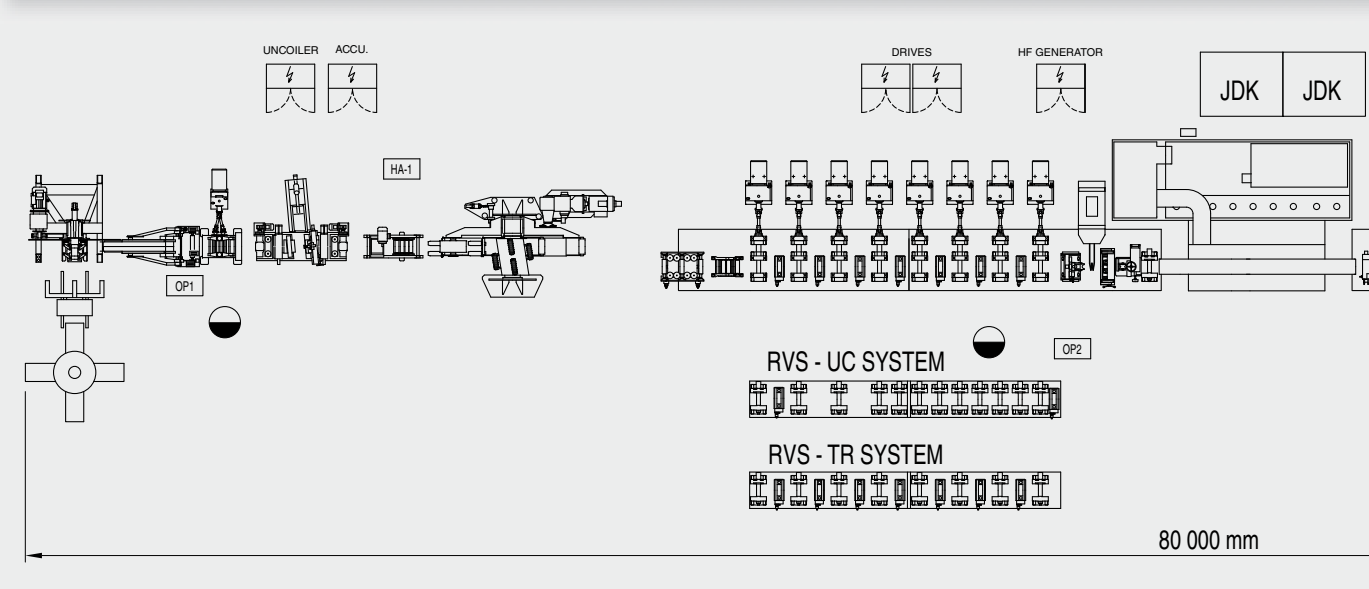


Possibility to produce other profiles:

TUBE MILL

Tr ø 159 x 4,5 mm





Mill characteristic:

Special mill, advantageously combining the system RVS-TR for tubes with RVS-UC for making square/rectangle profiles directly at the forming section of the line. The flying cutoff is by means of ALDA-Combi, facilitating increase in productivity by up to 40 %. When shear cutting, the tube diameter is limited to ø 102 mm; using the four spindle cold saw it is possible to cut tubes up to ø 159 mm.

Standard equipment of the mill includes ET-S system for longitudinal weld quality control and very high quality HF welding unit with the power output 400 kW.

Characteristics of entry material:

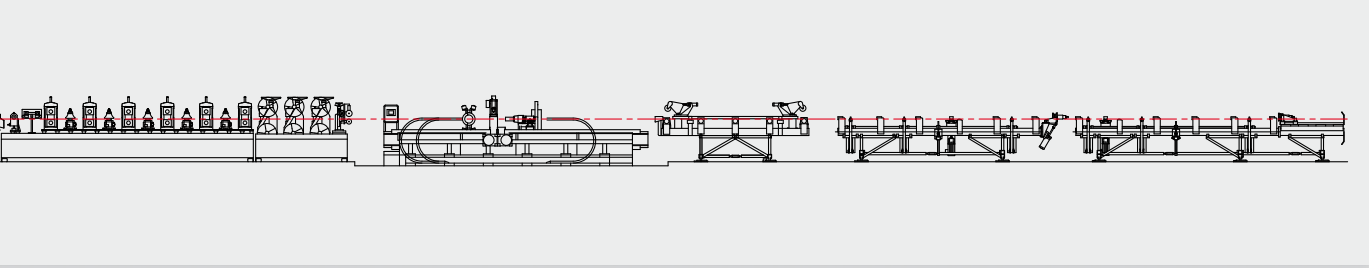
Material according to EN: S235JRG1, S275JR, S355JR. Stainless steel; Aluminum -according to the customer requirements.

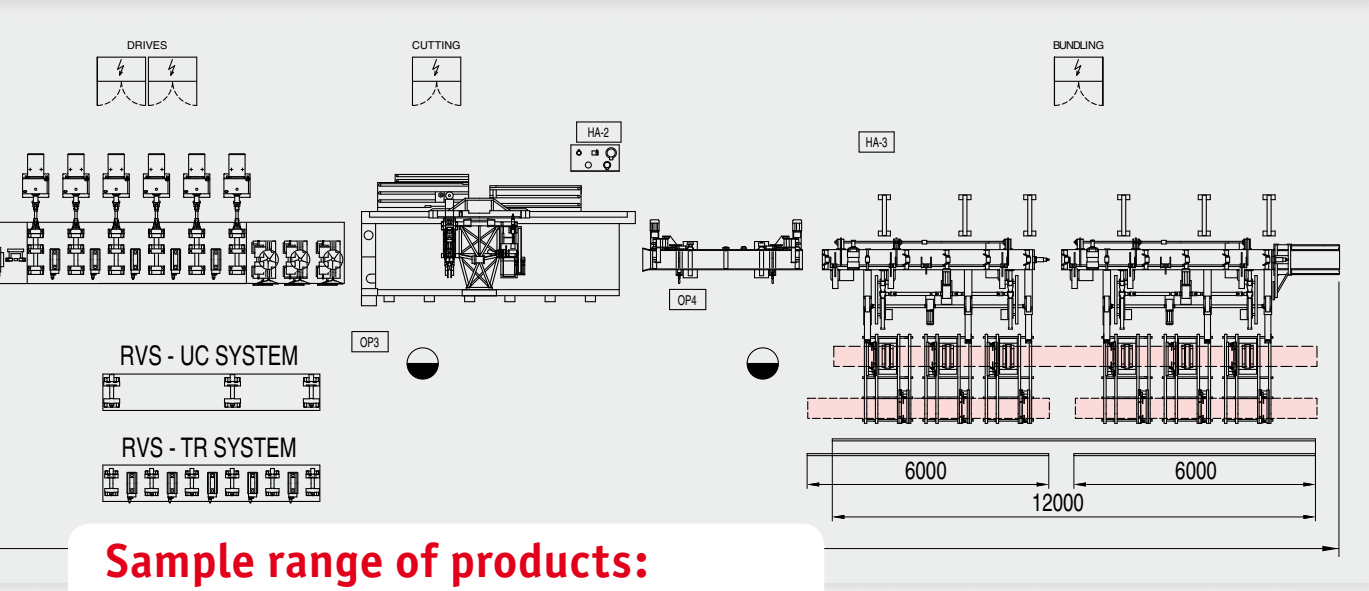
Strip width	140 ÷ 580	mm
Strip thickness	1,2 ÷ 4,5	mm
Breaking limit max.	560	MPa
Yield point Re max.	430	MPa
Ductility A_{80} min.	20	%
Coil specifications:		
Inner diameter min./max.	510 / 610	mm
Outer diameter min./max.	1 500 / 1 800	mm
Coil weights max./min.	10 000 / ?	kg

Technical parameters:

Line speed max.	100	m/min
Production lengths	4,2 ÷ 12	m
Length tolerance at 60 m/min.	±1,8	mm
Power input for strip preparation section	200	kW
Installed power input for forming section	300	kW
HF welder power input	400	kW
Flying cutoff and HA power input	300	kW
Total installed power input approx.	1 200	kW
Approximate mill dimensions- length × width × height	90 x 10 x 4	m

SP 4,5 – 14/580/1200/100/14PB





Sample range of products:

All profiles and tubes according to EN and GOST: EN 10305-3; EN 10305-5; EN 10219-1(2); EN 10255; GOST 10707; GOST 8645; GOST 8639; GOST 10704; GOST 1387.

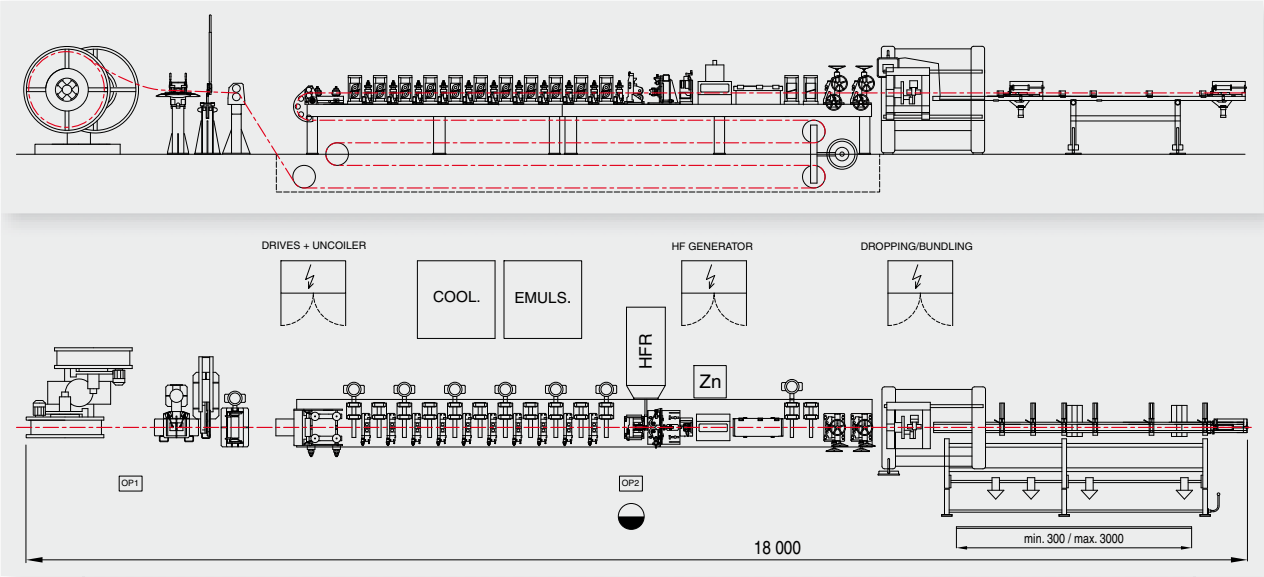
Tube diameter (mm)	Square profile (mm)	Wall thickness (mm)	Rectangle (mm)	Wall thickness (mm)
42 ,5 o	32 × 32 o	1,2 ÷ 3,2	40 × 25 45 × 20 o 50 × 15	1,2 ÷ 3,2
45 o 48,3	35 × 35 o	1,2 ÷ 3,5	40 × 30 45 × 25 o 50 × 20	1,2 ÷ 3,5
50 o 51	40 × 40 o	1,4 ÷ 3,6	50 × 30 45 × 35 o 60 × 20	1,4 ÷ 3,6
57 o 60,3	45 × 45 o	1,4 ÷ 4,0	45 × 40 50 × 40 o 60 × 30	1,4 ÷ 4,0
63,5 o	50 × 50 o		60 × 40 o+ 70 × 30	
76 o	60 × 60 o+	1,5 ÷ 4,0	70 × 50 80 × 40 o+ 90 × 30	1,5 ÷ 4,0
89 o	70 × 70 o+	1,6 ÷ 4,0	80 × 60 o+	1,6 ÷ 4,0
102 o	80 × 80 o+		100 × 60 110 × 50 o+ 120 × 50	1,5 ÷ 4,0
114 o	90 × 90 o+	2,0 ÷ 4,5	100 × 80 120 × 60 o+ 130 × 50	2,0 ÷ 4,5
127 o 130 o	100 × 100 o+		120 × 80 150 × 50 o+ 160 × 50	
159 o	125 × 125 +		150 × 100 + 160 × 90	

Notes: o = production suitable for system RVS –TR
+ = production suitable for system RVS –UC

Possibility to produce other profiles:

SPECIAL TUBE MILLS

Special mills in "LOW COST" version for production of longitudinally welded short length profiles (so called service lengths) with square, rectangle and round cross sections.



Characteristic of the mills:

Suitable for production of service lengths 0,3 ÷ 3 m of profiles and tubes as an integral part of a production process in furniture or car industries. The design of the mill enables to omit the so called preparation cutting centers and noticeably reduce technologically necessary material waste. The mills are designed to incorporate subsequent weld galvanization. If we consider a theoretical annual output of 6 000 tons, (8 000 tons respectively) of finished short length sections in one shift, then we are looking at a very effective investment in purchasing this type of mill.

Technical parameters:

	LC2-14/180/200/25/7PB	LC3-14/250/300/25/7PB	
Line speed max.	25	25	m/min
Service lengths	0,3 ÷ 3,0	0,3 ÷ 3,0	m
Length tolerance at 25 m/min	±0,15	±0,15	mm
Power input for strip preparation section	10	10	kW
Installed power input for forming section	30	50	kW
HFR welder power input	75	100	kW
Total installed power input approx.	~200	~300	kW
Approximate mill dimensions- length × width × height	18 × 6 × 3	18 × 6 × 3	m

Characteristics of entry material:

Material according to EN: S235JRG1, S275JR, S355JR. Stainless steel; Aluminum -according to the customer requirements.

Strip width	180	250	mm
Strip thickness	0,4 ÷ 1,8	0,8 ÷ 3	mm
Breaking limit Rm max.	550	550	MPa
Yield point Re max.	340	340	MPa
Ductility A_{80} min.	18	18	%
Coil specifications:			
Inner diameter max.	508	508	mm
Outer diameter min./max.	1 400 / 1 800	1 400 / 1 800	mm
Coil weight max./min.	3 000 / 2 000	4 000 / 2 500	kg

LC 2 – 14/180/200/25/7PB
LC 3 – 14/250/300/25/7PB

Attl a spol. s.r.o.
Továrna na stroje

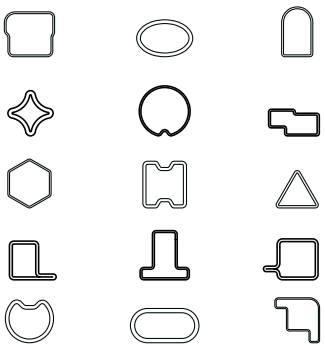
Sample range of products:

All profiles and tubes according to EN and GOST: EN 10305-3; EN 10305-5; EN 10219-1(2); EN 10255; GOST 10707; GOST 8645; GOST 8639; GOST 10704; GOST 1387.

Notes for the following table: The columns marked **A = LC 2 - 14/180/200/25/7PB**, **B = LC 3 – 14/250/300/25/7PB**

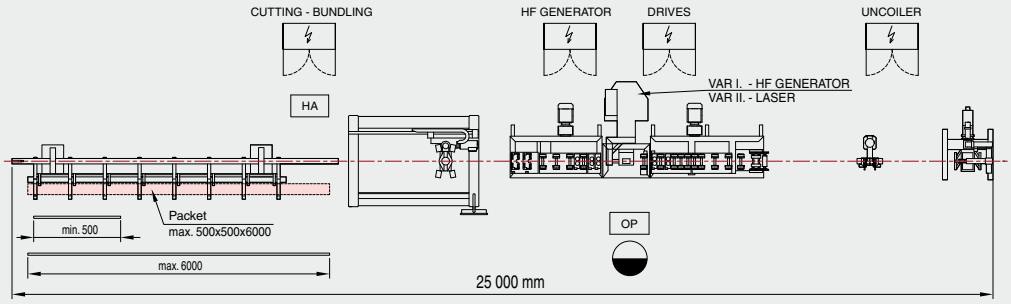
Tube diameter (mm)		Square profile (mm)		Wall thickness (mm)		Rectangle profile (mm)		Wall thickness (mm)	
A	B	A	B	A	B	A	B	A	B
10		8 × 8		0,4 ÷ 1,0		10 × 6		0,4 ÷ 1,0	
12				0,4 ÷ 1,2		15 × 5		0,4 ÷ 1,2	
14		10 × 10		0,4 ÷ 1,4					
Ø16		12 × 12		0,5 ÷ 1,5		15 × 10		0,5 ÷ 1,5	
18		14 × 14		0,5 ÷ 1,5	0,8 ÷ 1,5				
20		15 × 15			0,8 ÷ 1,8	20 × 10		0,5 ÷ 1,5	0,8 ÷ 1,8
21		16 × 16				25 × 10		0,5 ÷ 1,6	
22		18 × 18		0,6 ÷ 1,6	0,8 ÷ 2,0	20 × 15 25 × 10		0,5 ÷ 2,0	0,8 ÷ 2,0
24 25		18 × 18 20 × 20			1,0 ÷ 2,0	25 × 15 30 × 10			1,0 ÷ 2,0
26		20 × 20			1,0 ÷ 2,2	25 × 15 30 × 10		0,6 ÷ 2,0	1,0 ÷ 2,2
32		25 × 25		0,8 ÷ 1,8	1,0 ÷ 2,4	30 × 20		0,8 ÷ 1,8	1,0 ÷ 2,4
38		30 × 30		1,0 ÷ 1,6	1,0 ÷ 3,0	35 × 25 40 × 20 45 × 15		1,0 ÷ 1,6	1,0 ÷ 3,0
42		32 × 32		1,0 ÷ 1,4		40 × 25 45 × 20 50 × 15		1,0 ÷ 1,4	
45		35 × 35				40 × 30 45 × 25 50 × 20			
50 51		40 × 40		1,0 ÷ 1,2		50 × 30 45 × 35 60 × 20		1,0 ÷ 1,2	
	57		45 × 45		1,2 - 3,0		45 × 40 50 × 40 60 × 30		1,2 – 3,0
	63,5		50 × 50				60 × 40 70 × 30		
	76		60 × 60		1,4 ÷ 3,0		70 × 50 80 × 40		1,4 ÷ 3,0

Possibility to produce other profiles:

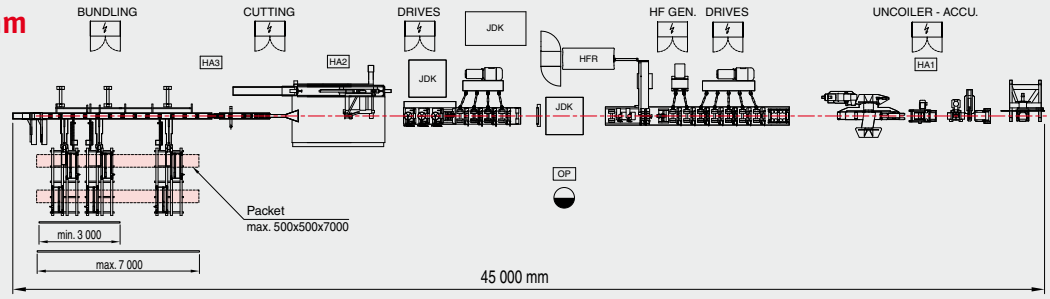


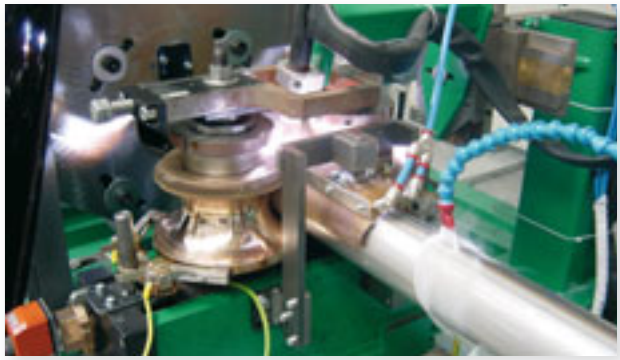
SPS – TUBE MILLS TO MAKE STAINLESS STEEL PROFILES AND TUBES WELDED BY LASER

Tr ø 22 × 1,6 mm



Tr ø 76 × 2,6 mm





Characteristic of the mills:

The SPS type of mills use laser welder by Trumpf or Rofin. The mills can include brushing of the weld or of the entire diameter of the tube. Furthermore, the mill can be equipped with rolling out of the inner bead or with the inner bead scarfer and chopper.

Technical parameters:

Line speed max.	20	m/min
Production lengths	0,5 ÷ 6,0	m
Length tolerance at 15 m/min	±0,4	mm
Installed power input for forming section	5 ÷ 100	kW
Welder power input	1 ÷ 15	kW
Total installed power input approx.	50 ÷ 300	kW
Approximate mill dimensions – length	15 ÷ 60	m

Characteristics of entry material:

Material according to EN/AISI:
1.4301/304; 1.4306/304L; 1.4436/316.

Strip width	20 ÷ 640	mm
Strip thickness	0,15 ÷ 2,6	mm
Breaking limit max.	610	MPa
Yield point $R_{e\ max.}$	320	MPa
Ductility A_{80} min.	50	%
Coil specifications:		
Inner diameter min./max.	400 / 500	mm
Outer diameter min./max.	1200 / 1800	mm
Coil weights min./max.	2000 / 4000	kg

Tr ø 22 x 1,6 mm; Tr ø 125 x 2 mm
Tr ø 76 x 2,6 mm; Tr ø 200 x 2 mm

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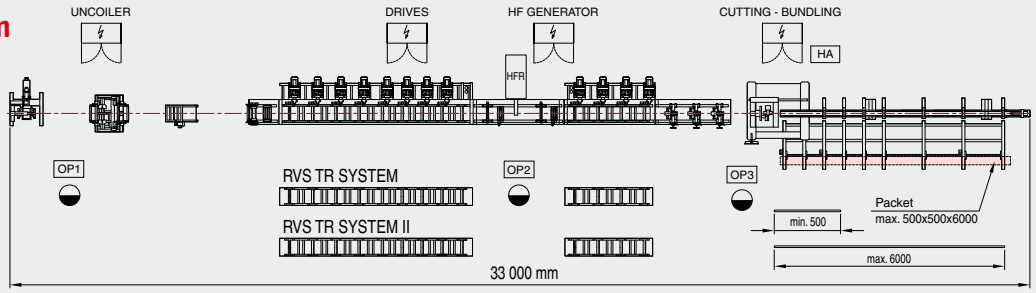
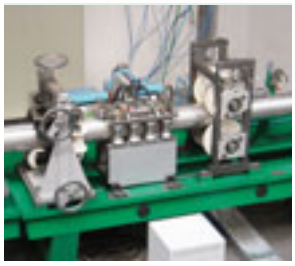
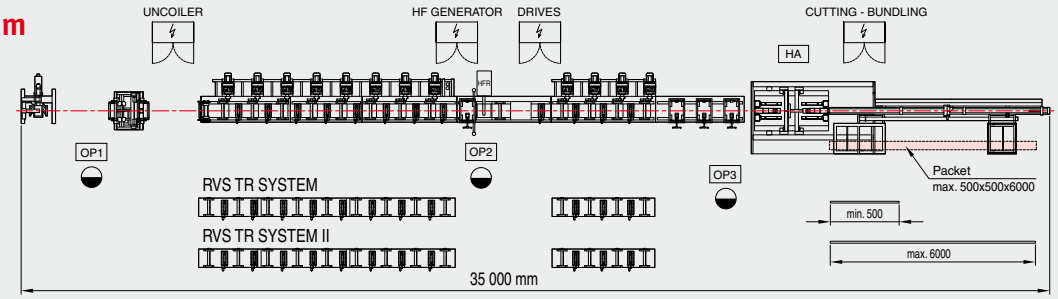
Tr ø 125 × 2 mm





Tr ø 200 × 2 mm



Sample range of products:

All profiles and tubes according to EN10217-7, EN10296-2.

Tube diameter (mm)	Square profile (mm)	Wall thickness (mm)	Rectangle (mm)	Wall thickness (mm)
6 ÷ 11		0,15 ÷ 1,0		
12,8	10 × 10	0,15 ÷ 1,2	15 × 5	0,15 ÷ 1,2
13 ÷ 16				
16	12 × 12	0,2 ÷ 1,5	15 × 10	0,2 ÷ 1,5
19	15 × 15		20 × 10	
25	20 × 20		20 × 15 30 × 10	
26	20 × 20	0,2 ÷ 1,6	25 × 15 30 × 10	0,2 ÷ 1,6
32	25 × 25	0,2 ÷ 1,8	30 × 20	0,2 ÷ 1,8
38	30 × 30	0,8 ÷ 2,0	35 × 25 40 × 20 45 × 15	0,8 ÷ 2,8 0,8 ÷ 3,0
45	35 × 35		40 × 30 45 × 25 50 × 20	
50 51	40 × 40		50 × 30 45 × 35 60 × 20	
57	45 × 45	0,8 ÷ 2,6	45 × 40 50 × 40 60 × 30	0,8 ÷ 2,6
63,5	50 × 50		60 × 40 70 × 30	
76	60 × 60		70 × 50 80 × 40	
76 ÷ 114		1,2 ÷ 3,0		
114 ÷ 127		1,4 ÷ 3,0		
130 ÷ 159				
159 ÷ 216				

Possibility to produce other profiles:

STRIP PREPARATION SECTION

The series of uncoilers AOZ

AOZ 08

AOZ 15

AOZ 40

Model	Carrying capacity (kN)	Inner coil ∅ (mm)	Strip width max. (mm)	Strip thickness (mm)	Uncoiling speed max. (m/min)	Electromotor drive	Power input (kW)
AOZ 03	1÷3	480÷620	160	0,15÷1,2	80	no	—
AOZ 08	3÷8	480÷620	250	0,3÷2,0	160	yes/no	1,5÷3
AOZ 25	8÷25	480÷620	350	0,3÷3,0	140	yes/no	2,2÷7,5
AOZ 40	15÷40	480÷620	350	0,3÷4,0	100	yes/no	7,5÷15
AOZ 100	40÷100	480÷620	580	0,5÷4,5	100	yes/no	11÷22

Strip guiding machine AUS

Strip guiding machine AUS 580

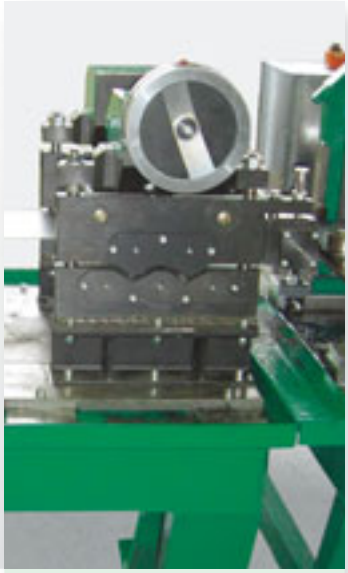
Strip guiding machine AUS 580

Model	Strip width max. (mm)	Strip thickness max. (mm)	Uncoiling speed max. (m/min.)
AUS 320	320	4,0	300
AUS 580	580	4,5	250

The series of straighteners ROA


Straightener ROA 320 × 4,0


Straightener ROA 580 × 1,2


Straightener ROA 350 × 2,0

Model	No. of cylinders	Cylinder diameter (mm)	Strip width max. (mm)	Strip thickness (mm)	Speed max. (m/min)	Electromotor drive	Power input (kW)
ROA 160	5	40	160	0,3 - 1,8	280	no	7,5
ROA 250	5	60	250	0,3 - 2,5	320	yes / no	7,5
ROA 350	5	80	350	0,3 - 4,0	260	yes / no	11
ROA 580	5	100	580	1,0 - 4,5	260	yes / no	18,5

Butt welding of the strip NPA


Strip welder NP 160 × 2,0


Strip welder NPM 250 × 3,0


Strip welder NPA 320 × 4,0

Model	Strip width max. (mm)	Strip thickness max. (mm)	Version
NP 160 × 2,0	160	0,3 ÷ 2,0	manual
NPM 250 × 3,0	250	0,3 ÷ 3,0	semiautomatic
NPA 320 × 4,0	320	0,5 ÷ 4,0	automatic
NPA 580 × 4,5	580	1,2 ÷ 4,5	automatic

Vertical Accumulators VAK

Accumulator VAK 250 x 3,2

Accumulator VAK 320 x 4

The Vertical Accumulators VAK for continual supply of strip material into the mill employ a new concept in the design, which results in minimal energy requirements; up to 70 % less than a conventional accumulator. Indisputable advantages are the ease of controlling the speed of the rotor during operation by regulating torque of the electromotor drive, as well as the minimal space requirement.

Model	Mill speed max. (m/min.)	Coiling speed max. (m/min.)	Storage capacity (kg)	Input (kW)
VAK 160 x 2,6	120	300	2500	25
VAK 250 x 3,2	140	400	3 000	30
VAK 320 x 4	120	300	4 000	45
VAK 580 x 4,5	100	250	6 000	60

Accumulator VAK 160 x 2,6

Accumulator VAK 580 × 4,5

Accumulators with two drums VAB

Accumulator VAB 160 × 2,4

Accumulator VAB 250 × 3,0

Model	Mill speed max. (m/min.)	Strip width max. (mm)	Strip thickness max. (mm)	Coiling speed max. (m/min.)	Storage capacity (kg)	Power input (kW)
VAB 160 × 2,4	120	160	2,4	280	8 000	2 × 11
VAB 250 × 3,2	140	250	3,2	320	10 000	2 × 18,5

FORMING SECTION

Horizontal and vertical strip guiding HVP

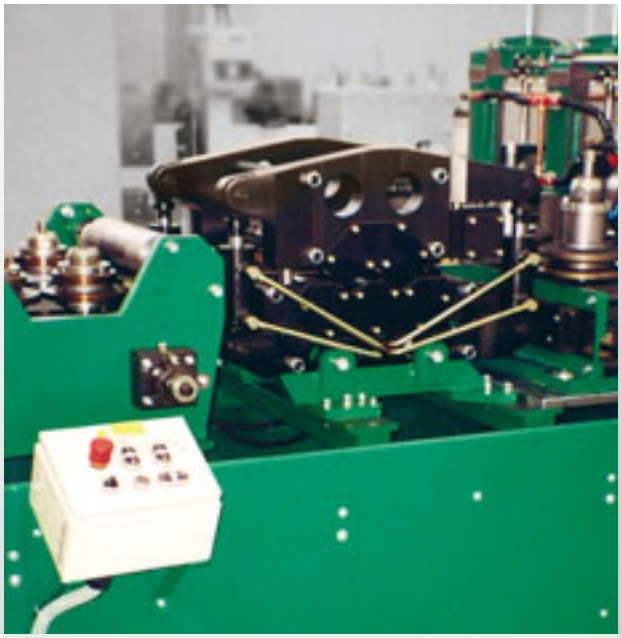
Strip guiding HVP 250 × 3,2

Strip guiding HVP 320 × 4

Model	Strip width max. (mm)	Strip thickness (mm)	Mill speed max. (m/min.)	Forming plane above table (mm)
HVP 250	250	0,4 ÷ 3,2	140	250 ± 20
HVP 320	320	0,8 ÷ 4,0	100	270 ± 20
HVP 580	580	1,2 ÷ 4,5	100	320 ± 20

Straightening cylinders PV

Straightening cylinders PV 250



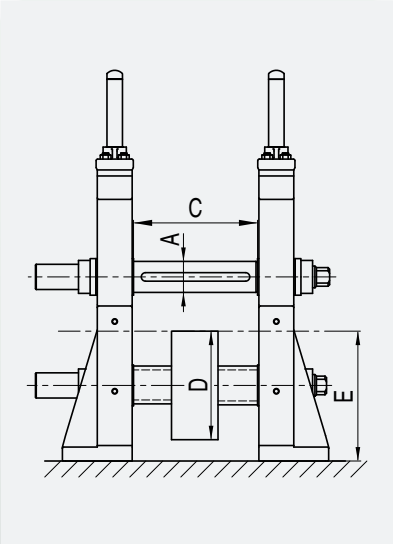
Straightening cylinders PV 320

The machine is placed behind the HVP guiding and is able to partially restore the original mechanical properties of the strip.

Model	Strip width max. (mm)	Strip thickness (mm)	Diameters of cylinders (mm)	Adjustment
PV 250	250	0,4 ÷ 3,2	60	manual
PV 320	320	0,8 ÷ 4,0	80	hydraulic
PV 580	580	1,2 ÷ 4,5	100	hydraulic

Forming Stand A

Forming stand A 6



Dimentional diagram

Forming stand A 8

Forming and sizing section can be ordered with RVS setup, which is a system for fast change of forming and intermediate stands by ones already preset and prepared elsewhere. The time to change the type of a profile to be produced is shortened by up to 2/3.

Model	Working width C (mm)	Shaft diameter A (mm)	Forming plane above table E (mm)	Nominal roll diameter D (mm)
A 4	120	36	130	70
A 5	160	40	160	100
A 6	250	70	250	130
A 8	320	80	270	140
A10	580	100	320	190

Intermediate stand AC

Intermediate stand AC 5

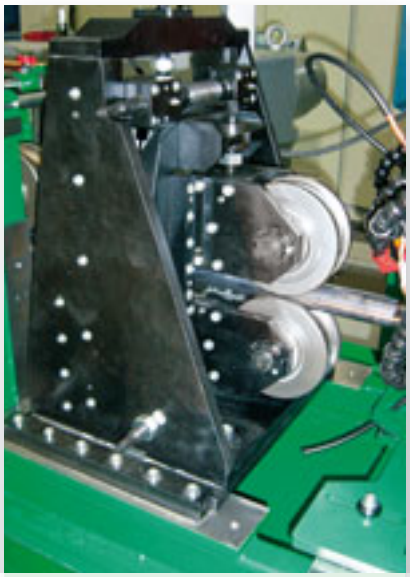
Intermediate stand AC 6

Intermediate stand AC 8

Model	Strip width max. (mm)	Vertical shaft diameter (mm)	Forming plane above table (mm)	Nominal roll diameter (mm)	Vertical roll movement (mm)	Horizontal roll movement (mm)
AC 4	120	20	130	60	80÷160	+3/-3
AC 5	160	56	160	70	110÷200	+5/-5
AC 6	250	90	250	110	126÷310	+7/-5
AC 8	320	90	270	140	136÷270	+8/-8
AC 10	580	105	320	160	250÷600	+10/-10

Groove guiding NS


Groove guiding NS 42


Groove guiding NS 76


Groove guiding NS 102

Model	Tube diameter max. (mm)	Adjustment angle of supports (°)	Forming plane above table (mm)	Mill speed max. (m/min.)	Nominal roll diameter (mm)
NS 42	42	±15	160	140	100
NS 76	76	±18	250	120	130
NS 102	102	±20	270	100	140
NS 160	160	±25	290	100	160

Welding Rolls GV

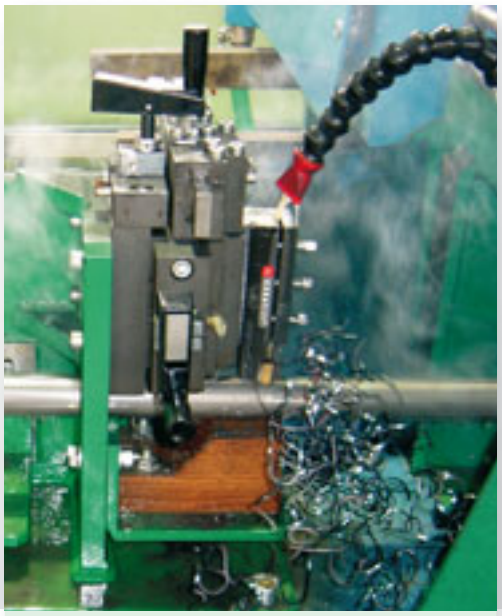

Welding rolls GV 42


Welding rolls GV 76

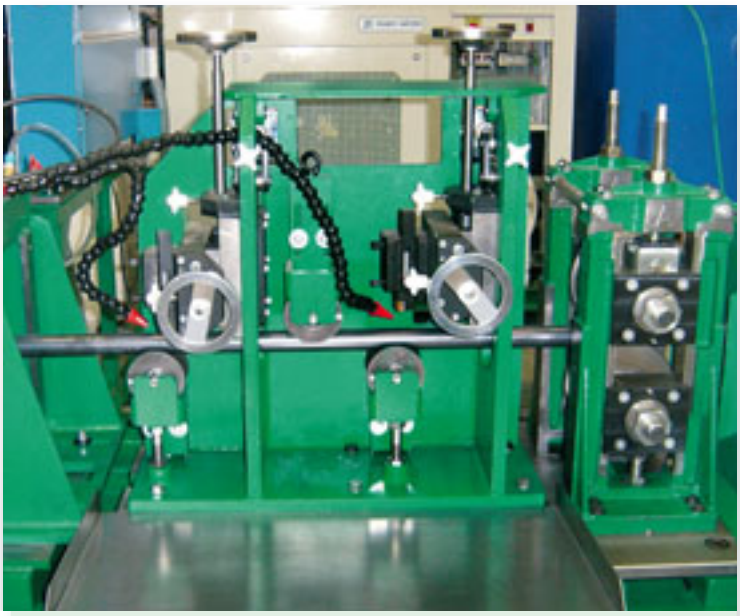

Welding rolls GV 102

Model	Range of tube diameters (mm)	Forming plane above table (mm)	Mill speed max. (m/min.)	Nominal roll diameter (mm)
GV 42	12÷42	160	140	100
GV 76	18÷76	250	120	130
GV 102	32÷102	270	100	140
GV 160	51÷159	300	100	160

Planing Supports HS



Planing support HS 42



Planing support HS 76

When using galvanized strip, separate galvanizing of the weld can be placed behind the planing support.

Model	Tube diameter max. (mm)	Mill speed max. (m/min.)	Blade holder size (mm)	Tip type
HS 42	42	140	25 × 25	Cera Tizit
HS 76	76	120	32 × 32	Cera Tizit
HS 102	102	100	32 × 32	Cera Tizit
HS 160	160	100	32 × 32	Cera Tizit

Longitudinal Weld quality control unit ET-S

Installed ET-S - 104

Components of the unit

Unit ET is an inspection device using eddy currents. The tube passes in close proximity of several coils and the instrument signals insufficient depth of the weld or faults in the immediate vicinity of the weld.

Model	Range of tube diameters (mm)	Power input (V/Hz/VA)	Applied frequency	Number of coils
ET	12 ÷ 42	230/50/700	10 kHz ÷ 1 MHz	According to diameter of the tube
	18 ÷ 76			
	51 ÷ 160			

High Frequency Solid-State Welders

Attl a spol. s.r.o. is pleased to offer the latest generation of Thermatool solid-state welders as part of a comprehensive programme offered by Attl to tube and pipe producers worldwide.

Specialists in Tube and Pipe Welding

Thermatool, part of the Inductotherm Group, specialises in the design and manufacture of high quality tube and pipe production equipment.

This dedicated and highly focussed approach has established Thermatool as the leader in its field with more than 50 years of applications knowledge relating to the tube and pipe welding process.

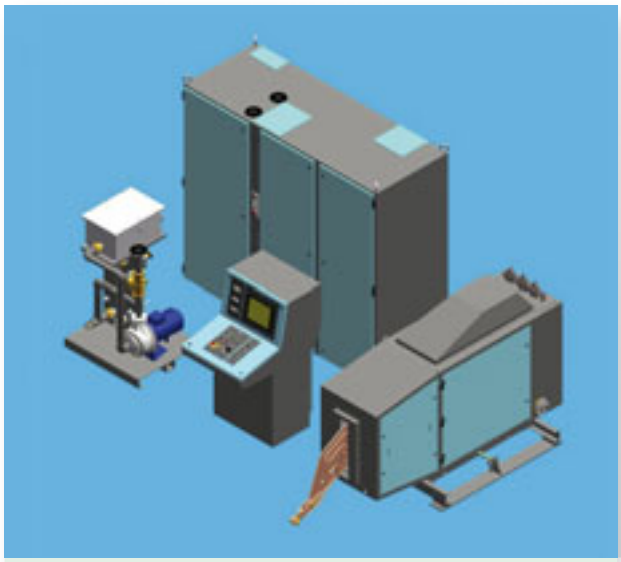
With the largest installed base of solid-state HF welders worldwide, Thermatool also offers the widest range of welders in the industry today, designed to satisfy even the most challenging and complex tube and pipe welding applications.

Offering advanced, yet proven technology and making extensive use of standard components, Thermatool has a proven track record, providing today's tube and pipe producers with superior weld quality, the highest efficiency, the lowest running costs and most important of all, operational reliability that is second to none.

The result can often be a faster than expected return on investment making Thermatool CFI welders surprisingly affordable and worthy of serious consideration.

A wide range of materials with considerable variation in profile and thickness

Weld area (160mm diameter pipe)



CFI welder components

The route to new business opportunities

In today's ever-changing market conditions, Tube and Pipe producers the world over continuously search for new opportunities in order to grow their share of the market for tube and pipe products.

The latest generation of Thermatool CFI solid-state welders are the natural choice, capable of welding carbon, stainless and boron steels in addition to brass, copper and aluminium. More complex, higher tensile alloys, coated and galvanised materials are also well suited to the latest CFI welder technology.

Advantages of the Solid-State Technology

Thermatool solid-state HF welders are based upon a current–fed design using proven MOSFET technology to deliver high power from low voltage.

CFI welders, designed to be short-circuit proof, minimise trip-outs and the effects of work coil arc-overs on the mill.

- High 78% Operating Efficiency
- Rated Power = Power "into" the Tube
- Modular design, easy to service
- No consumable parts i.e vacuum tubes

Welding head for 76 mm diameter tube

Patented AutoMatch Technology

AutoMatch, unique to Thermatool, is an automatic impedance matching circuit to provide maximum welder efficiency for all conditions in the weld area, providing:-

- Stable weld frequency
- Maximum electrical efficiency
- Repeatable tube and pipe quality

Model	Power (kW)	Frequency (kHz)
CFI 100	100	400
CFI 150	150	400
CFI 200	200	400
CFI 250	250	400
CFI 300	300	400
CFI 350	350	300
CFI 400	400	300
CFI 500	500	300

Note: Variable Frequency available on all the above CFI welder models

Variable Frequency

In recent years Thermatool has pioneered the concept of genuine, selectable variable frequency on demand. This has given tube and pipe producers the flexibility to select the optimum weld frequency, achieving the best weld results for a specific material.

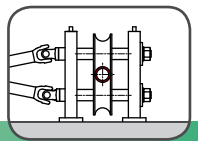
With a new Thermatool variable frequency welder, producers of tube and pipe can weld carbon steel and stainless steel tube all on the same mill.

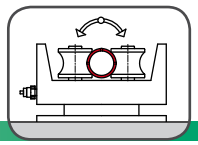
Two frequency bands are available:

180 kHz–300 kHz and 250 kHz–400 kHz

Thermatool variable frequency welder

SIZING SECTION





Sizing rolls

Design and manufacture of sizing rolls

We offer designing and manufacture of sizing rolls for both new and the existing mills. By agreement, we can repair sizing rolls.

As standard, we use the following materials:
steel DIN X210 Cr12, ASTM - D3, Al-bronz,
tungsten carbide 88, 8WC, 11, 2Co.

Twist rolls TW

Twist rolls TW 76

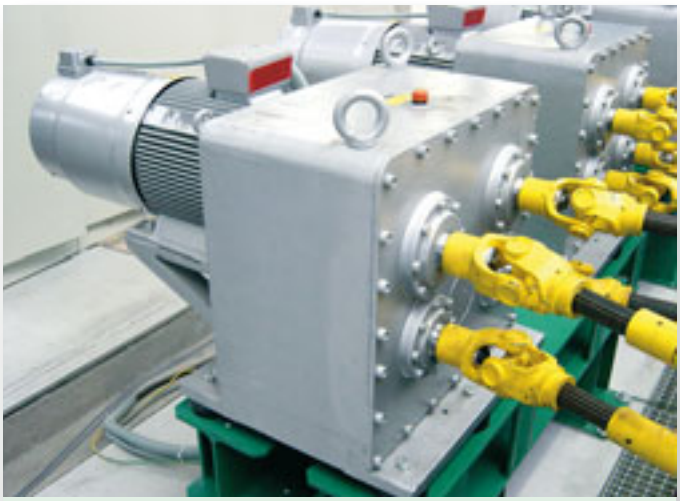
Model	Range of tube diameters (mm)	Mill speed max. (m/min.)
TW 51	12÷51	140
TW 76	16÷76	140
TW 102	32÷102	120
TW 160	76÷160	100

Universal joint shafts KA

Model	Torque max. (Nm)	Revolutions max. (r/min.)	Strip thickness (mm)
KA 2,5	1100	500	2,5
KA 3,2	1600	350	3,2
KA 4,5	2100	320	4,5

Cardan shafts KA 2,5

Drives PB



Drive PB 18×4

Model	Transfered output (kW)	Exit revolutions (revs/min.)	Number of exit drives	Lubrication		External cooling
				individ.	central	
PB 11	7,5/11	300÷450	2	Yes	Yes	No
PB 18	11/18,5	250÷350	2/4	Yes	Yes	Yes
PB 30	22/30	150÷250	2/4	Yes	Yes	Yes

Additional vertical support

Vertical support AV 6

Model	Rectangle max. (mm)	Square max. (mm)	Forming plane (mm)	Nominal roll diameter (mm)
AV 4	20 × 10	18 × 18	130	30
AV 5	40 × 20	30 × 30	160	50
AV 6	70 × 30	60 × 60	250	120
AV 8	100 × 60	80 × 80	270	150
AV 10	150 × 100	125 × 125	320	160

Length gauging unit - IRC

Length gauging IRC 51

Model	Range of tube diameters (mm)	Theoretical accuracy of gauging (mm)
IRC 51	12 ÷ 51	0,125
IRC 76	16 ÷ 76	0,125
IRC 102	32 ÷ 102	0,125

Turks heads TK

Turks heads TK 76

Model	Tube diameter max. (mm)	Adjustment angle of a head max. (°)	Vertical/horizontal movement (mm)
TK 38	38	30/60	±25/±25
TK 42	42	30/60	±25/±25
TK 76	76	30/60	±30/±30
TK 102	102	30/60	±40/±40

Turks heads TK 42

FLYING SHEAR CUTOFF

Series ALDA for cutting of profiles and tubes by shear

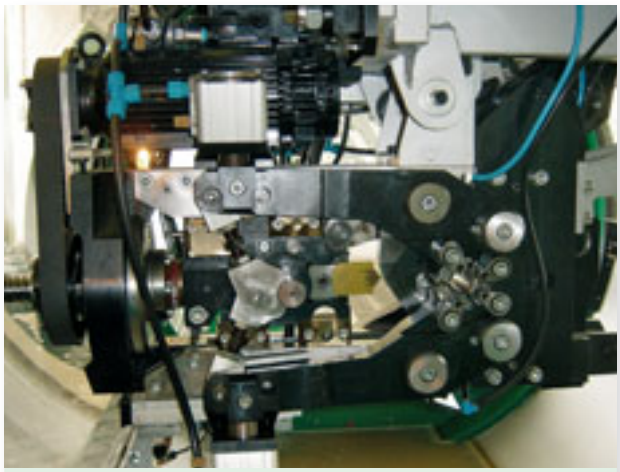
Flying cutoff ALDA uses a new way of cutting by shear. The system has been well proven over a period of several years by our customers in production conditions. ALDA offers two types of cut. The cutting head is being lubricated using the emulsion circuit of the mill.

TYPES OF CUT:

single axis – for cutting square and rectangle profiles

two axes – for cutting tubes

ALDA 76×3,2 - 140



Cutting head 32×1,8

The blades are driven hydraulically or by servomotors SEW. The cutting head is on a carriage, driven by SEW using rack and pinion. ALDA is equipped with its own emulsion catching pan and integrated full protection see through shield. The design of the machine offers fast blade change - less than 5 minutes, and the cutting jaws when changing the type of a profile to be cut can be swapped in less than 10 minutes. It has been found in practice, that it is possible and advantageous to cut square and rectangle profiles with wall thickness from 2,5 to 4,0 mm using one axis cut. Tubes are cut using two axes cut.

Model	Tube diameter max. (mm)	Square profile max. (mm)	Rectangle profile max. (mm)	Strip thickness 450 Mpa (mm)	Mill speed max. (m/min)	Length tolerance (mm)	Power input max. (kW)	Weight of the machine (t)
ALDA 32x1,8-160	32	25×25	30×20	0,5÷1,8	100	6 000 ± 1,5	50	1,8
ALDA 51x3-140	51	40×40	50×30	0,8÷3,0	140	6 000 ± 1,5	80	3,0
ALDA 76x3,6-140	76	60×60	80×40	1,0÷3,2	140	6 000 ± 1,6	95	4,5
ALDA 102x4-100	102	70×70	100×60	1,2÷4,0	120	6 000 ± 1,8	110	6,0

Series ALDA for cutting stainless steel tubes by shear

Model	Tube diameter range(mm)	Wall thickness (mm)	Mill speed max. (m/min)	Length tolerance (mm)	Time of cut (s)	Breaking limit Rm (MPa)
ALDA 120x1-40	50÷120	0,6÷1,2	40	300÷6000 ± 1,5	2÷5	560

ALDA 120×1 – 40

Series ALDA-S for cutting profiles and tubes by slitting saw

Flying cutoff for profiles and tubes ALDA-S uses classical cutting by cold rotary saw. However, the saw unit is specially designed with an extra stiff frame. This system, compared to a standard design, increases life of the saw teeth and the efficiency of the slitting saw by up to 30 %. The movement of the rotary saw into the cut is controlled by a program driven proportional hydraulic valve. The saw units can be supplied separately to modernize an existing flying cutoff machine.

ALDA-S 42 × 2,4 – 120

ALDA-S QUATRO 200 × 3

Sawing head 160 × 4,5

ALDA-S 76 × 3 – 160

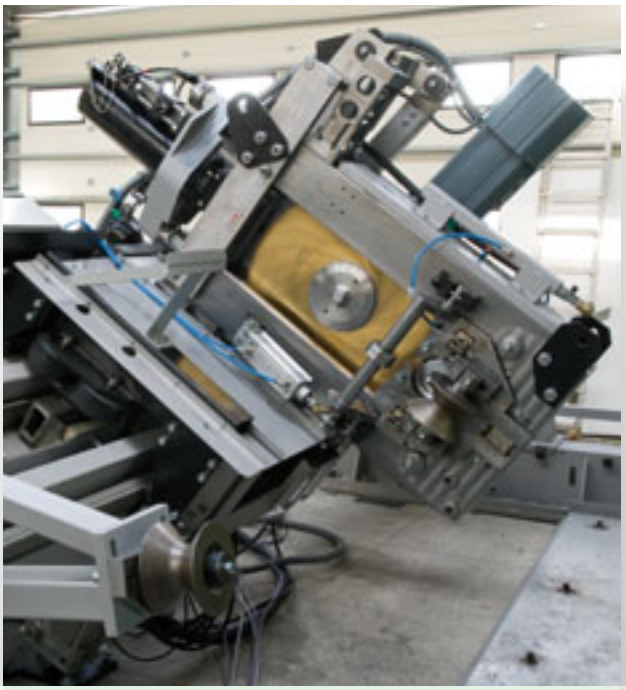
Model	Tube diameter max. (mm)	Square profile max. (mm)	Rectangle profile max. (mm)	Strip thickness 450 Mpa (mm)	Mill speed max. (m/min)	Length tolerance (mm)	Saw diameter (mm)	Power input max. (kW)	Machine weight (t)
ALDA-S 42x2,4	42	32 × 32	50 × 15	0,5 ÷ 2,4	140	6 000 ± 1,5	350	60	1,8
ALDA-S 76x3	76	60 × 60	80 × 40	0,8 ÷ 3,0	120	6 000 ± 1,5	400	80	3,0
ALDA-S 102x4	102	80 × 80	110 × 50	1,2 ÷ 4,0	100	6 000 ± 1,6	500	110	4,2
ALDA-S 160x4,5	160	140 × 140	150 × 100	1,2 ÷ 4,5	60	6 000 ± 1,8	600	120	6,0
ALDA-S QUATRO 200x3	200	–	–	1,0 ÷ 3,0	40	6 000 ± 0,5	4 × 250	140	6,5

FLYING SHEAR CUTOFF

Series ALDA-Combi for combined cutting either by shear or cold slitting saw

ALDA-Combi 102 × 4 - 100 (view without a cover)

Shear head SJ 102 × 4



Cold slitting saw 102 × 4

Model	Tube ∅ max. (mm)	Square max. (mm)	Rectangle max. (mm)	Strip thickness max. (mm)	Mill speed max. (m/min)	Length tolerance (mm)	Rotary saw ∅ (mm)	Power input max. (kW)	Machine weight (t)
ALDA-Combi 76x3,2-120	76	60 × 60	80 × 40	3,2	120	6 000 ± 1,2	450	60	4,5
ALDA-Combi 102x4-100	102	80 × 80	110 × 50	4,0	100	6 000 ± 1,6	500	60	5,0
ALDA-Combi 160x4,5-100	159	140 × 140	150 × 100	4,5	100	6 000 ± 1,8	4 × 250	80	6,8

SUGGESTIONS HOW TO CHOOSE THE RIGHT CONCEPT OF FLYING CUTOFF FOR PROFILES AND TUBES IN TUBE MILLS

Long experience of our company suggests, that the choice of application of flying cutoff for profiles and tubes depends on types of products being manufactured, coupled with consideration of the maximum achievable mill capacity.

- Flying cutoff ALDA-S 42 × 2,4 - 140

This type of flying cutoff uses only cold slitting saw, with the cutting speed of the rotary saw approx. 180 m/min. The use of shearing is not justified. We suggest the concept of saw unit from Attl a spol. s.r.o. for the reason of high frame rigidity and long periods between re-sharpening the blade.

- Flying cutoff ALDA-S 76 × 3,2 - 120

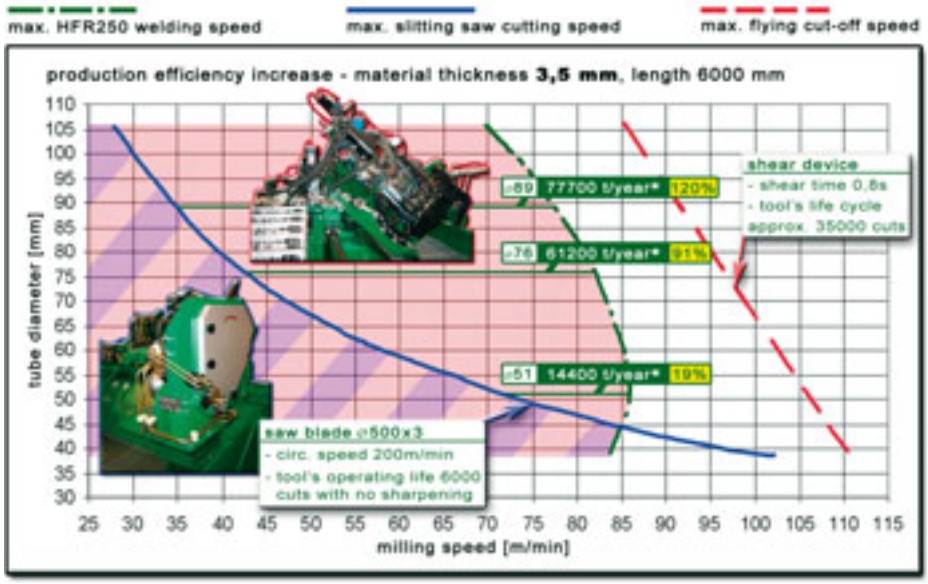
For this type of flying cut off it is advantageous to use cold saw. Our special design enables high number of cuts in between re-sharpening of the circular blade. The machine provides high quality cuts in compliance with customer's demands.

- Flying cutoff ALDA-Combi 102 × 4 - 100

This type of flying cutoff enables the use of both methods of dividing. Cutting of tubes and shearing profiles. To change from one way of dividing to the other takes about 30 mins and is semiautomatic. Alda-Combi enables increase of mill capacity by 30 ÷ 45 % provided the HF generator has sufficient capacity.

- Flying cutoff ALDA-Duo 160 × 4,5 - 100

This model of the flying cutoff is unique, in that the cold saw unit for tubes with ø 104 ÷ 158 mm has two spindles with rotary blades ø 250 mm resulting in the cutting time of about 4,2 sec.



The graph suggests, that simply by using ALDA-Combi a standard tube mill can increase production substantially.

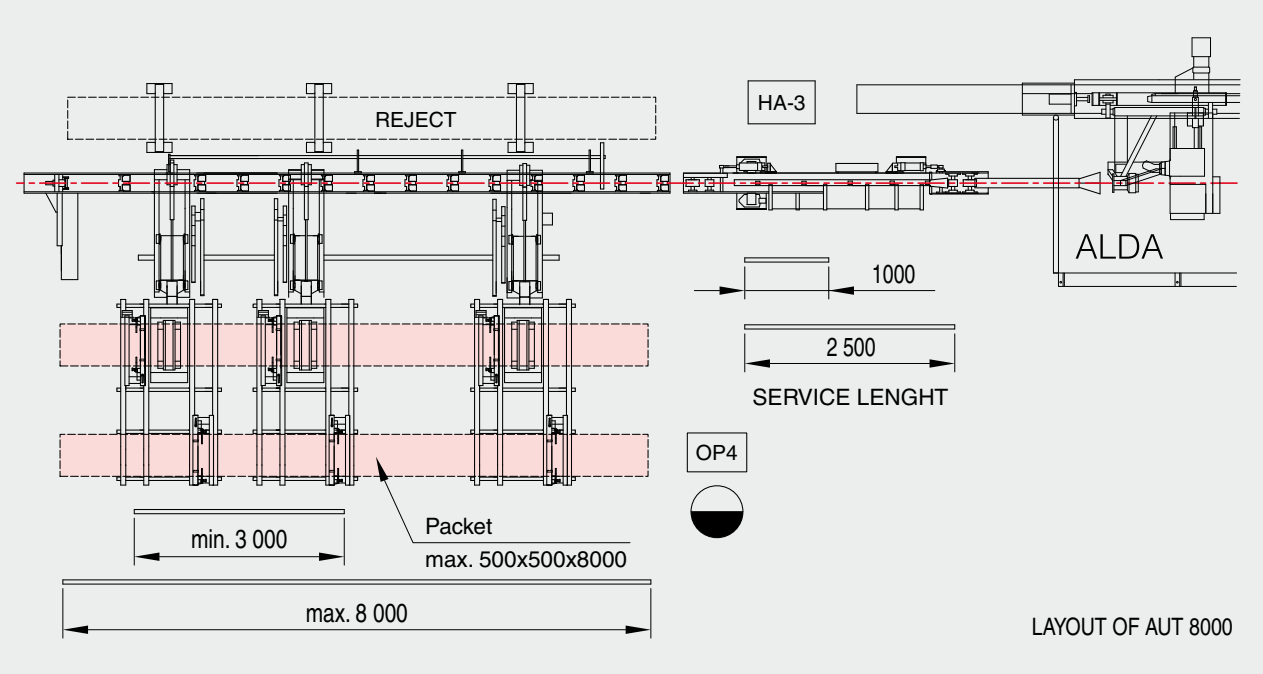
The concept of ALDA-Combi is most advantageous for tubes in a range of ø 51 ÷ 102 mm and wall thickness 2 ÷ 4,5 mm.

CONCLUSIONS:

It follows from the above information, that in order to utilize new or existing tube mills effectively, the concept of interchangeability of cutting components of the mill i.e. the slitting saw and the shear cutting head – as offered by ALDA-Combi system – is very advantageous. The quality of this concept is most apparent in cases of a mill producing tubes from ø 45 ÷ 102 mm. The economic analyses showed production increase by 25 ÷ 45 %.

BUNDLING SECTION

Bundling of closed profiles AUT 6000, 7000, 8000



Characteristic:

Programmable CNC machine for stacking tubes, square or rectangular profiles into packets. The cross section of a packet is either square or rectangle in the case of profiles and hexagonal for tubes. The maximum dimension of a packet is 500 × 500 mm. When bundling, the number of pieces in a row and the number of rows is programmed into the machine. The length of the profiles can be from 3 000 to 8 000 mm. Within the above parameters, the whole range of profiles and tubes can be packeted in this way.

During the bundling, the mill does not need to stop or slow down the production. The weight of the stacked packet is 3 500 kg max. The ability to sort out faulty profiles by an operator is maintained, without the need to stop production line. The length discrepancies of tubes can be sorted out automatically.

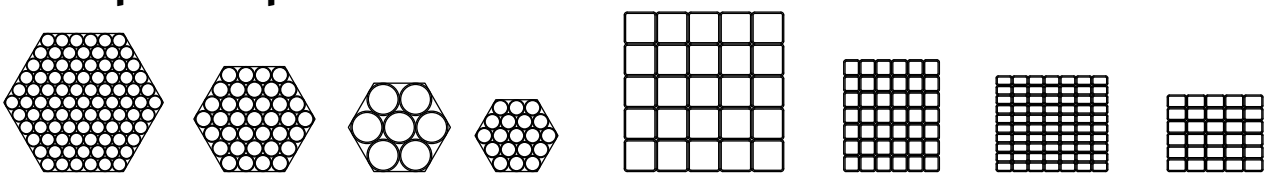
Bundling AUT 8000, tube max. ∅ 51 mm

Bundling AUT 7000, profile max. 40 x 40 x 2 mm

AUT 6000, tube max. ∅ 76 x 2 mm

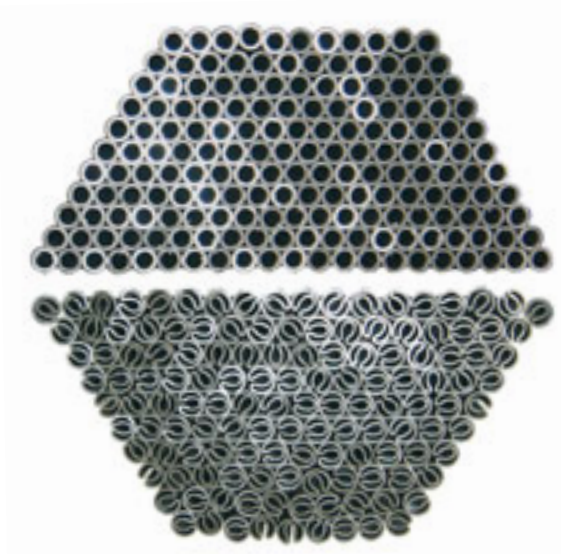
Bundling AUT 7000, tube max. ∅ 15 × 2,4 mm

Examples of packets:

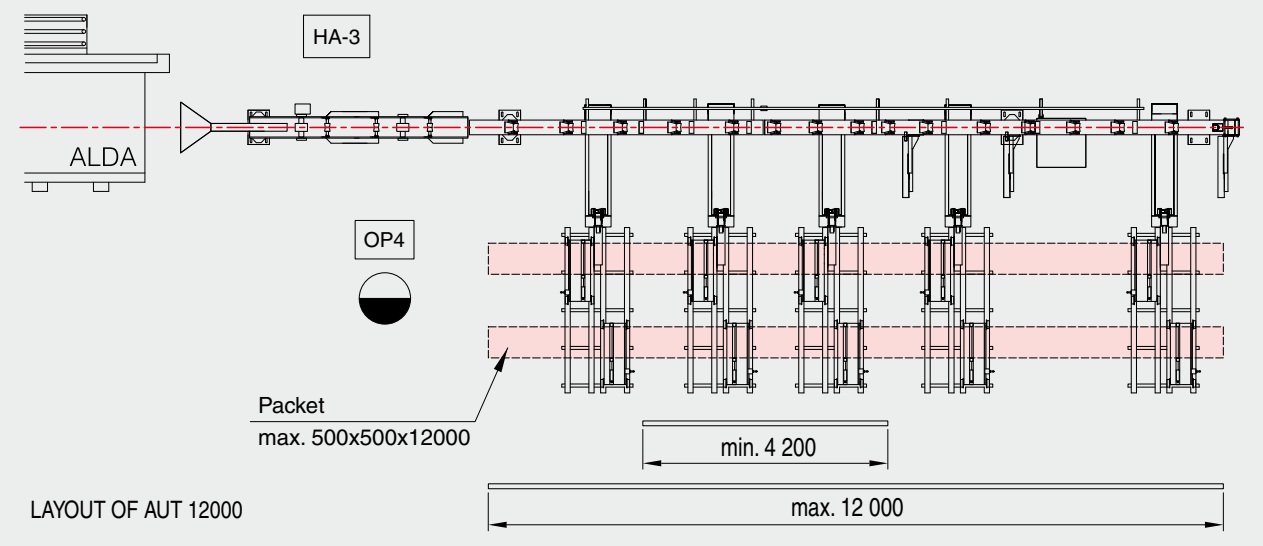


Technical parameters:

Profile weight max. 60 kg/6m
Packet weight max. . . . . 3 500 kg
Cross section of a packet max. . . . . 500 × 500 mm
Cross section of a packet min.. . . . . 250 × 250 mm
Range of profile length . . . . . .3 000 ÷ 8 000 mm
Profile cross section max.. . . . . 80 × 80 mm
Mill speed max. . . . . .140 m/min
Power input of packeting section . . . . . .11 kW
Continually adjustable runout table speed 60 ÷ 180 m/min
Air pressure . . . . . 0,6 MPa
Consumption of air. . . . . .10 m^3/h
Overall dimensions of the section: length . 12 500 mm
width . . . 3 600 mm
height . . 1 800 mm
Machine weight approx. . . . . 8 t



Bundling of closed profiles AUT 12000



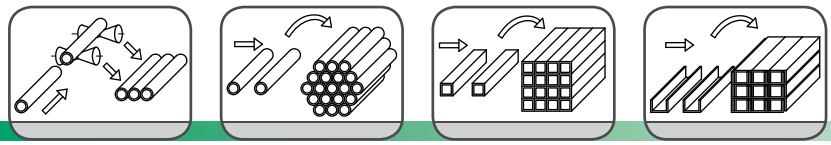
Characteristic:

Programmable CNC machine for stacking tubes, square or rectangular profiles into packets. The cross section of a packet is either square or rectangle in the case of profiles and hexagonal for tubes. The maximum dimension of a packet is 500 × 500 mm. When bundling, the number of pieces in a row and the number of rows is programmed into the machine. The length of a profile in comparison with AUT 6000 is in the range 4 200 to 12 000 mm. Within the above parameters, the whole range of profiles and tubes can be bundled in this way.

During the bundling, the mill does not need to stop or slow down the production. The weight of the stacked packet is 5 000 kg max. The ability to sort out faulty profiles by an operator is maintained, without the need to stop the production line. The length discrepancies of tubes can be sorted out automatically.

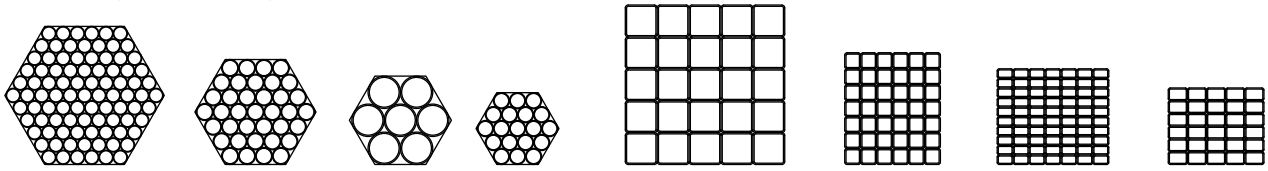
Bundling AUT 12000

Bundling AUT 12000



Bundling of closed profiles and tubes AUT 12000

Examples of packets:



Technical parameters:

Profile weight max. 200 kg/12m
Packet weight max. 5 000 kg/12m
Cross section of a packet max. . . . . 500 × 500 mm
Cross section of a packet min.. . . . . 250 × 250 mm
Range of profile length . . . . . .4 200 ÷ 12 000 mm
Profile cross section max.. . . . . 130 × 130 mm
Mill speed max. . . . . .100 m/min
Power input of packeting section . . . . . .18 kW
Continually adjustable runout table speed 40 ÷ 160 m/min
Air pressure . . . . . 0,6 MPa
Consumption of air. . . . . .10 m^3/h
Overall dimensions of the section: length . 22 000 mm
width . . . 3 600 mm
height . . 1 800 mm
Machine weight approx. . . . . .14 t

Packeting AUT 12000

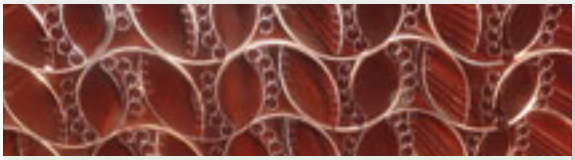
BUNDLING SECTION

Bundling manipulator of profiles AUTM 6000

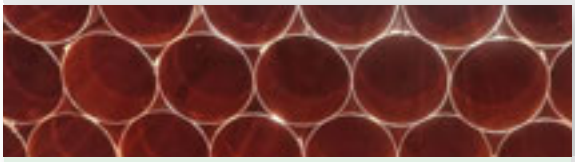
for roof gutters and down pipes; stainless large diameter pipes ø 100 ÷ 200 mm

It is a programmable CNC bundling of roof gutters 250; 280; 333 and down pipes ø 80; 100; 120 mm into bundles with square cross section. To bundle, one chooses the number of pieces in a row and the number of rows. Bundling process does not interrupt nor slows down the production speed of the roll forming machine. The machine has its own control panel and switchboard which are included. Also included is the integration of the AUTM into the control system of the existing roll forming machine. The manipulator places down pipes and gutters into a special pallet in a preselected orientation. The pallets are located on both external sides of run-out table. The way and direction of bundling can be modified according to the needs of the customer.

Packeting AUTM 6000



Roof gutters 250; 280; 333



Down pipes ø80; ø100; ø120

Technical parameters:

Tube diameter max. ..... ø 120 mm
Bundle mass max. ..... 2 000 kg
Roll forming speed of mill max. .....60 m/min
Cross section of bundle max. ..... 1000 × 1100 mm
Range of lengths to bundle ..... 1000 ÷ 6000 mm
AUTM 6000 power input .....30 kW
Pneumatic working pressure ..... 0,6 MPa
Bundling section size:
length × width × height .... 6 m × 6,5 m × 1,6 m

Bundling manipulator of profiles AUP 6000

for open profiles of "U" type 80 ÷ 200 mm

Programmable CNC machine for stacking open U; C profiles and other profiles into a packet with square or rectangle cross section, with maximum base 700 mm and maximum height also 700 mm. The length of the profile is in the range of 4 200 to 12 000 mm.

In the course of bundling the U; C profiles, the production speed of the mill is not effected. The weight of the stacked packet is 5 000 kg maximum. The ability to sort out faulty profiles by an operator is maintained, without the need to stop production line. The length discrepancies of tubes are sorted out automatically.

Packeting AUP 6000

Technical parameters:

Profile weight max. 230 kg/6m
Packet weight max. ..... 5 000 kg
Cross section of a packet max. ..... 700 × 700 mm
Mill speed max. .....80 m/min
Power input of packeting section .....15 kW
Air pressure. ..... 0,6 MPa
Overall dimensions of the section:
length × width × height. . .12 m × 4 m × 2 m

Accelerating section - Service lengths

Service length for VS 76

Model	Tube diameter max. (mm)	Mill speed max. (m/min.)	Range of length (mm)	Length profile max. (mm)
VS 42	12 ÷ 42	140	800 ÷ 3 000	6 000
VS 76	18 ÷ 76	120	800 ÷ 4 200	6 000 / 12 000
VS 160	63 ÷ 159	100	1500 ÷ 4 200	12 000

Runout table

Runout table VS 76

Packeting carts

Packeting carts WA 4

Packeting carts WA 3

Model	Range of tube diameters (mm)	Cross section of a packet max. (mm)	Cross shape of a packet (mm)				Cart travel method
			Square	Rectangle	Hexagon		
					Manual	Autom.	
WA 2	12 ÷ 42	500 × 500	autom.	autom.	manual	autom.	manual
WA 3	18 ÷ 78	500 × 500	autom.	autom.	manual	autom.	manual
WA 4	32 ÷ 102	700 × 700	autom.	autom.	manual	—	hydraulic

TUBE DIAMETERS AND IMPLIED SQUARE AND RECTANGULAR PROFILES

Outer tube diameter (mm)	Square profile AxA (mm)	Wall thickness (mm)	Rectangular profile AxB (mm)	Wall thickness (mm)
5				
6				
8				
10				
13 (~½")	10×10	1÷1,5		
14				
16	12×12	1÷1,5	15×10	1÷1,5
18	14×14	1÷1,5		
	15×15	0,8		
19 (~¾")	15×15	1÷1,2	20×10	1÷1,2
20	15×15	1,5÷1,8	20×10	1,5÷1,8
	16×16	1÷1,2		
21	16×16	1,5÷2		
22	18×18	1÷1,2	20×15	1÷1,8
			25×10	1÷1,8
24	18×18	1,5÷2		
25 (~1")	19×19	1÷2	25×15	1÷1,2
	20×20	1÷1,2	30×10	1÷1,2
26	20×20	1,2÷2	25×15	1,5÷2
			30×10	1,5÷2
28	22×22	1÷1,5	25×20	1÷1,5
			29×15	1÷1,5
			30×15	1÷1,5
30			25×20	1,8÷2
			30×15	1,8÷2
			35×10	1,8÷2
32 (~1¼")	24×24	2	30×20	1÷2,8
	25×25	1÷1,5	35×15	1÷1,5
			40×10	1÷1,5
33	25×25	1,8÷3	30×20	1,8÷3
			35×15	1,8÷3
			40×10	1,8÷3
35	27×27	1÷2,5	30×25	1÷2,5
	28×28	1÷2,5	40×15	1÷2,5
			35×20	1÷2,5
38 (~1½")	30×30	1÷3	35×25	1÷3
			40×20	1÷3
			45×15	1÷1,5
			50×10	1÷2
39	30×30	1,8÷3	35×25	1,8÷3
			40×20	1,8÷3
40				
42	32×32	1÷3	40×25	1÷3
			45×20	1÷3
			50×15	1÷3
45 (~1¾")	35×35	1÷3	40×30	1÷3
			45×25	1÷3
			45×30	1,5÷3
			48×25	1÷5
			50×20	1÷3
			60×10	1÷3
48	38×38	1,5÷3	40×35	1÷3
	39×39	3,65	45×30	1÷3
			50×25	1÷3
			60×15	1÷3
50			50×30	1,5
51 (~2")	40×40	1÷3	45×35	1÷3,5
			50×30	1÷3
			55×25	1÷3
			60×20	1÷3

Outer tube diameter (mm)	Square profile AxA (mm)	Wall thickness (mm)	Rectangular profile AxB (mm)	Wall thickness (mm)
54			45×40	1,3÷3
			50×35	1,3÷3
			60×25	1,3÷3
57 (~2¼")	45×45	1,3÷3	50×40	1,3÷3
			55×35	1,3÷3
			60×30	1,5÷3
			65×25	1,5÷3
			70×20	1,5÷3
60	48×48	1,3÷3	55×40	1,5÷3
			60×35	1,5÷3
			70×25	1,5÷3
			80×15	1,5÷3
63,5 (~2½")	50×50	1,3÷4	60×40	1,5÷4
			60×45	1,3÷3,25
			65×35	1,5÷3
			70×30	1,5÷3
			80×20	1,5÷3
66			70×35	1,5÷3,25
70 (~2¾")	55×55	1,5÷3,5	65×45	1,5÷3,25
			70×40	1,5÷3,25
			80×30	1,5÷3,25
			90×20	1,5÷3
76 (~3")	60×60	1,5÷4	70×50	1,5÷3,5
			80×40	1,5÷4
			80×45	1,5÷3,5
			90×30	1,5÷3,5
			100×20	1,5÷3
83 (~3¼")	65×65	1,5÷3,5	70×60	1,5÷3,5
			80×50	1,5÷3,5
			90×40	1,5÷3,5
			100×30	1,5÷3
89 (~3½")	70×70	1,5÷4	80×60	1,5÷4
			90×50	1,5÷3,5
			100×40	1,5÷4
102 (~4")	80×80	1,5÷4,5	100×60	1,5÷4
			110×50	1,5÷4
			110×60	6
			120×40	1,5÷4
			130×30	1,5÷3,5
108 (~4¼")			120×50	2÷4
			135×35	2÷3,5
114 (~4½")	90×90	2÷5	100×80	1,5÷4,5
			110×70	2÷3,5
			120×60	2÷5
			130×50	2÷4,5
121 (~4¾")	94×94	1,5÷3,5	130×60	2÷3,5
	95×95	1,5÷3,5	150×40	1,5÷4,5
	100×100	1,5÷3,5		
127 (~5")	100×100	2÷6	120×80	2÷6
			150×50	2÷6
130	100×100	3		
133 (~5¼")	102×102	1,8÷3	130×80	1,8÷5
	105×105	1,8÷5	140×70	1,8÷6
			150×60	1,8÷5
			160×50	1,8÷5
139 (~5½")			120×100	2÷5
			160×60	2÷6
159 (~6¼")	125×125	2÷5,9	150×100	2÷5,9
			155×95	2÷5,9
			160×90	2÷5,9
			170×80	2÷5,9

ENQUIRY
FOR A MILL OR COMPONENTS

Attl a spol. s.r.o. Továrna na stroje

An/to: **Ing. Jan Attl**	Tel: **+420 272 705 511**	Fax: **+420 271 960 414**	e-mail: **attl@attl.cz**

Information about the interested party:

Company name :	
Address / Country:	
Person to contact:	
Telefon / Fax:	
E-mail / www:	
Number of tube mills in operation:	

1. We are interested in: ☐ Separate component: ..... pcs. ....
(type as in catalogue) ..... pcs. ....
..... pcs. ....

☐ Complete tube mill: .....

2. Entry material:

Carbon steel < ☐ Hot strip ☐ Cold strip

☐ Galvanized strip ☐ Stainless steel

☐ Aluminium strip ☐ Other: material: .....

Material according to EN, DIN, GOST, ISO, ANSI: .....

Breaking limit Rm:	min.		max.		MPa
Ductility A_{80}:	min.		max.		MPa

3. Coil parameters:

Coil weight:	min.		max.		t
Coil size:	max. outer ø		inner ø		mm

4. Required product::

According to standards EN, DIN, GOST, ISO, ANSI:.....

Tube diameter:	min.		max.		mm
Square size (a x a):	min.	x	max.	x	mm
Rectangle size (a x b):	min.	x	max.	x	mm
Other type of a profile:	min.		max.		mm
Wall thickness:	min.		max.		mm
Planned annual production:					t/annum
Required mill speed:	min.		max.		m/min.
Cut profile length:	min.		max.		mm
Length tolerance:	±	mm	/		m

5. Product exit:

☐ No bundling ☐ Bundling

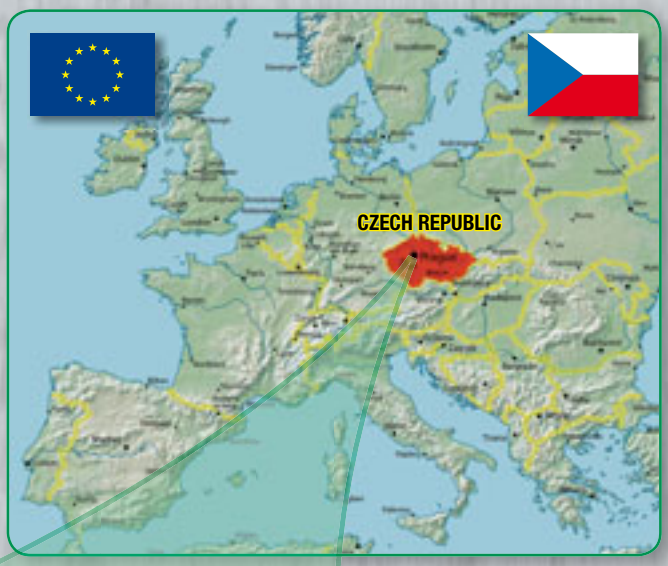
Packet size: cross section	a x b	x	mm
Packet weight:	max.		t

6. Line direction: ☐ Left to right ☐ Right to left

☐ Weld galvanizing ☐ Weld inspection ET-S

☐ Grinding of outer bead ☐ Inner bead scarfing

CONTACT:



TEPLICE D8 E55

LIBEREC R10 E65

CHOMUTOV R7

HRADEC KRÁLOVÉ D11 E67

KARLOVY VARY E48

PLZEŇ D5 E50

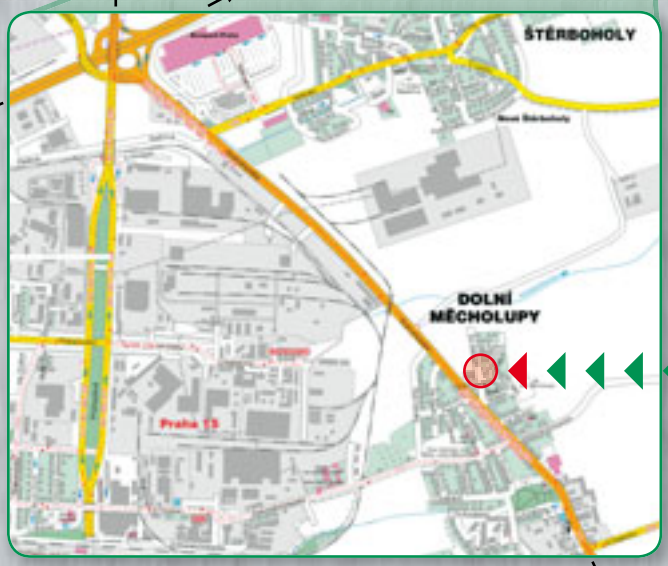
KUTNÁ HORA R2

PŘÍBRAM R4

BRNO D1 E50 E55

TEPLICE D8 E55

LIBEREC R10 E65



KARLOVY VARY E48

PLZEŇ E50

KUTNÁ HORA R2

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14°33'27.672"E