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ROLL FORMING AND COIL PROCESSING EQUIPMENT
EUROPEAN QUALITY AT COMPETITIVE PRICES

****WE WELCOME YOU TO VISIT OUR FACILITY AT ANY CONVENIENT TIME****

Technical-commercial quotation

We offer for your consideration this quotation on a Cut-to-length and Slitting line for processing coil metal.
All equipment is designed and manufactured by Ruscana Engineering Group.

Cut-to-length and Slitting line for processing coil metal with thickness 0,4 – 1,5 mm and width 1250 mm

1. Field of application

Cut-to-length and Slitting line for processing coil metal with thickness 0,4 – 1,5 mm and width 1250 mm, hereinafter referred to as "Equipment", is intended for longitudinal and transverse cutting of coil metal.

Fig.1. General view of the Equipment

2. Raw material requirements:

Zinc coating with range from 100…275 g/m²;
Tensile strength 360…430 N/mm²;
Yield strength 280…350 N/mm²;
Coil width – 1250 mm + 10 mm;
Coil thickness – 0,4 mm…1,5 mm;
Maximum external diameter of the coil -1500 mm;
Internal diameter of the coil – 500 or 600 mm;
Maximum coil weight up to 7,5 tons, (10 tons-option)

3. Metal processing types

3.1. Longitudinal cutting mode:

3.1.1. **Set of disk knives on face plate:**

Metal thickness, mm	Maximum cutting speed, m/min	Width of face plate, mm	Quantity of cuts, pcs.
0,4	25 / 35	60 / 80	14
1,2	20 / 30	60 / 80	8
1,5	15 / 20	80	5

- the minimum width of the strip – 60 and 80 mm;
- the maximum deviations of the strip width ±0,5 mm.

3.1.2. Set of disk knives with ring spacers (option):

Metal thickness, mm	Maximum cutting speed, m/min	Quantity of cuts, pcs.
0,4	25 / 35	18
1,2	20 / 30	14
1,5	15 / 20	10

- the minimum width of the strip – 10 mm;
- the maximum deviations of the strip width ±0,2 mm.

3.2. Transverse cutting mode:

- sheet length- 1000….3000 mm;
- sheet width- 1250 mm;
- metal thickness – 0,4.…1,5 mm
- The maximum deviation of the sheet length should not exceed 2 mm for a length of 1 m.

3.3. Coil rewinding mode.

3.3.1. The maximum width of the rewinding coil is 600 mm.

3.3.2. In case when it is necessary to rewind a coil with a width of more than 600 mm, it is necessary to provide a **coil rewinding device** (see item 8 of the options list).

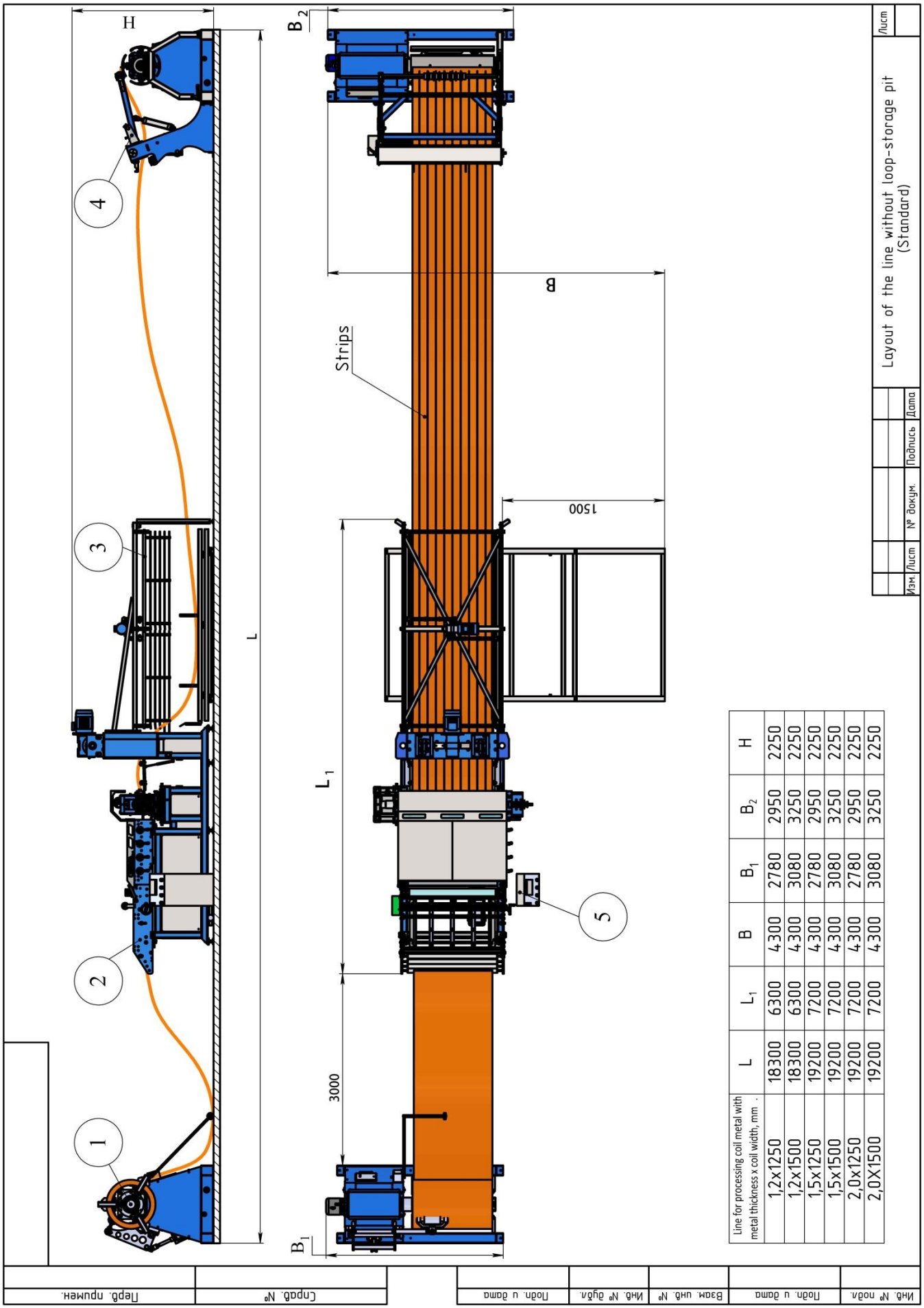
The device is designed to control the laying of the coil edge with a specified telescopicness by adjusting the position of the drum of the recoiler in the direction perpendicular to the axis of the line. Coil rewinding device consists of a tensioning device, mechanism of the movement of the recoiler with an optical sensor.

Telescopic of the coil metal should not exceed 30 mm for coils up to 1000 mm width and 50 mm for coils over 1000 mm width. The thickness of the rewinding metal should not exceed 1.0 mm

3.4. Additional requirements. The line allows to slit and rewind coils completely only with the presence of a loop-storage pit with length of 3 to 4 meters, width of 2 meters and a depth from 3 up to 6 meters. Loop-storage pit is located between the slitting module and the tensioner, is necessary to compensate the slacking of the metal strips in the result of uneven winding and gage interference of the rolled metal.

4. Equipment configuration:

№	Description	Standard
1	Decoiler	yes
2	Cut-to-length and slitting machine	yes
3	Receiving table	yes
4	Recoiler	yes
5	Automatic control system (ACS)	yes
6	Technical documents	yes



Line for processing coil metal with metal thickness x coil width, mm .	L	L_1	B	B_1	B_2	H
1,2x1250	18300	6300	4300	2780	2950	2250
1,2x1500	18300	6300	4300	3080	3250	2250
1,5x1250	19200	7200	4300	2780	2950	2250
1,5x1500	19200	7200	4300	3080	3250	2250
2,0x1250	19200	7200	4300	2780	2950	2250
2,0X1500	19200	7200	4300	3080	3250	2250

Fig. 2. Lay out of the line without loop-storage pit .

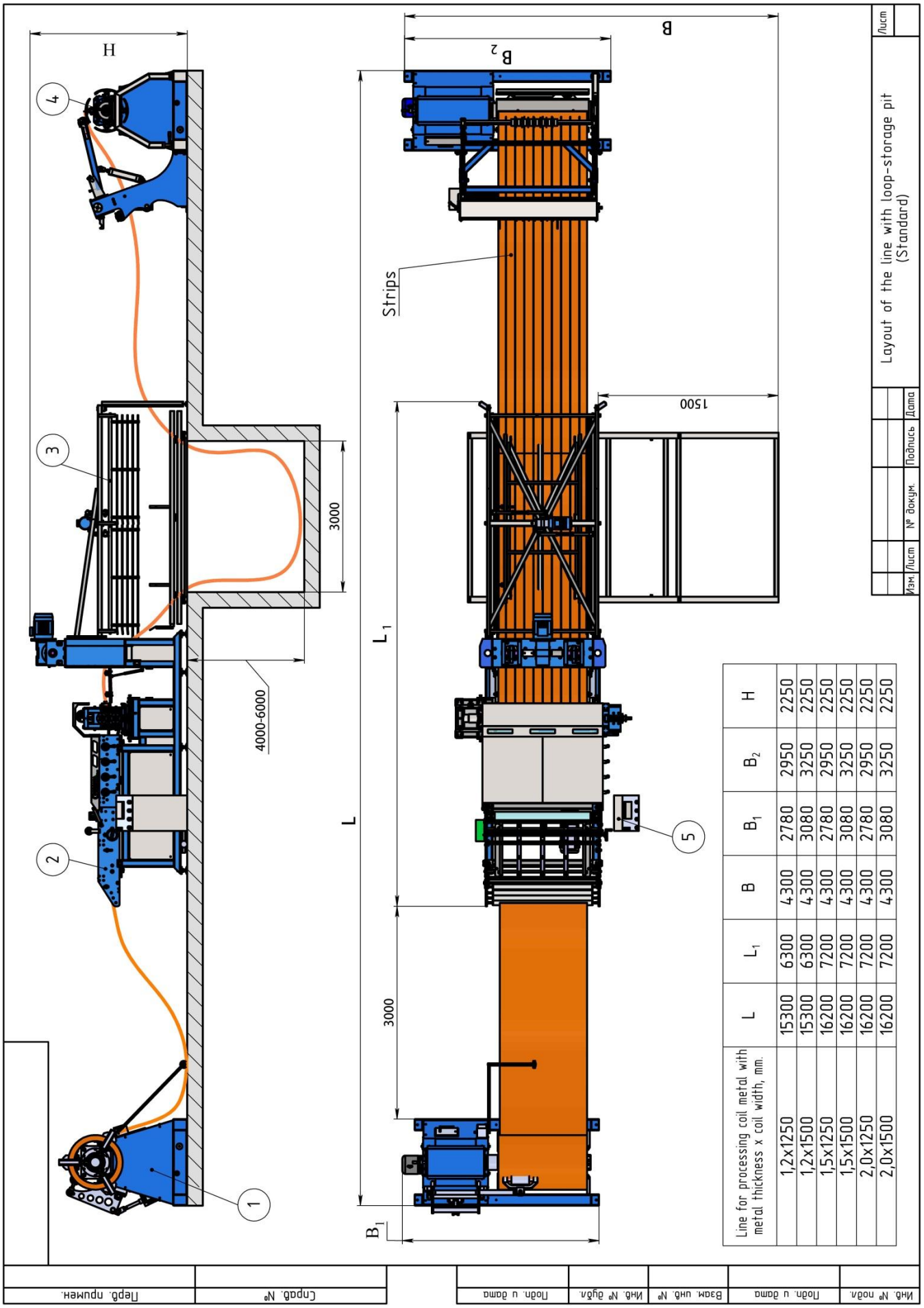


Fig. 3. Lay out of the line with loop-storage pit.

5. Equipment configuration:

№	Description	UOM	Standard
1	Line operating mode		manual / automatic
2	Installed power capacity, no more than	kW	27
3	Maximum cutting speed, no more than	m/min	20 (35 option)
4	Supply voltage at frequency of 50 Hz ± 0.4Hz	V	380
5	Dimensions (LxWxH), no more than - without loop-storage pit - with loop-storage pit	mm	 19200x4300x2 250 16200x4300x2 250
6	Weight, no more than	kg	7 900
7	Required operation personnel	persons	2

6. Equipment Specifications

№	Description	UOM	Standard
1	**Decoiler**		
1.1	Type		Cantilevered
1.2	Feeding speed, no more than (controlled by automatics)	m/min	35
1.3	Operating mode		Automatic, manual, reverse
1.4	Installed power capacity	kw	5,5
1.5	Electromagnetic brake (supplied with the electric motor)		yes
1.6	Lifting capacity, no more than	kg	7500
1.7	Dimensions (LxWxH), no more than	mm	1250x2500x1600
1.8	Mandrel expansion range (coil ID 500 mm/600 mm)	mm	480 mm…620
1.9	Mandrel expansion/clamping mechanism		mechanical (by handle)
1.10	Pneumatic clamping unit		yes
1.11	Autonomous compressor	kw	1
1.12	Weight, no more than	kg	1496
2	**Cut-to-length and slitting machine**		
2.1	Dimensions (LxWxH), no more than	mm	4000x2150x2250
2.2	Weight, no more than	kg	4047
2.3	**Metal broaching and straightening module**		
2.3.1	Clamping pneumatic drive of the feeding shafts		yes
2.3.2	Feeding rubberized shafts in quantity of	pcs	2
2.3.3	Version of the straightening shafts of the upper row		eccentric shaft
2.3.4	Quantity of the straightening shafts	pcs	9 (with heat treatment)
2.3.5	Device for applying self-adhesive protective film		yes

2.3.6	Maximum weight of protective film roll, no more than	kg	75
2.3.7	Installed power capacity, no more than	kw	5,5 (7,5)
2.4	**Slitting module**		
2.4.1	Slitting shafts ∅120	pcs	2 (with heat treatment)
2.4.2	Disc knives types		
2.4.2.1	Knives on a face-plate 80 mm width, quantity	pcs	10
2.4.2.2	Knives on a face-plate 60 mm width, quantity	pcs	option
2.4.2.3	Knives installed through ring spacers, quantity	pcs	option
2.5	**Guillotine**		
2.5.1	Drive type		electromechanical
2.5.2	Cutting time, no more	sec	2
2.5.3	Installed power capacity, no more than	kw	5,5
2.5.4	Electromagnetic brake (supplied with the electromotor)		yes
3	**Receiving table**		
3.1	Type		stacker
3.2	Drive type		electromechanical
3.3	Installed power capacity, no more than	kw	1,1
3.4	Electromagnetic brake (supplied with the electromotor)		yes
3.5	Dimensions (LxWxH), no more than	mm	3500x1800x1550
3.6	Roll out platform direction	m	forward / sideways (3,0 / 1,5)
3.7	Lifting capacity of platform, no more than	kg/ rm	500
3.8	Weight, no more than	kg	580
4	**Recoiler**		
4.1	Type		cantilevered (with swing up support)
4.2	Winding speed, no more than (feeding speed is controlled by automatic)	m/min	20 (35-option)
4.3	Operating mode		Automatic, manual, reverse
4.4	Installed power capacity, no more than	kw	7,5
4.5	Electromagnetic brake (supplied with the electromotor)		yes
4.6	Lifting capacity, no more than	kg	10000
4.7	Dimensions (LxWxH), no more than	mm	2150x2850x1900
4.8	Mandrel expansion range (coil ID 600 mm)	mm	520….620
4.9	Strips tensioning device		pneumatic
4.10	Autonomous compressor, in quantity of 1 pcs		yes
4.11	Installed capacity of the compressor, no more than	kw	1
4.12	Slacking loop control system		ultrasonic sensor
4.13	Quantity of separation strip shafts	pcs	2
4.14	Quantity of separators	pcs	14
4.15	Mandrel expansion/clamping (by handle)		mechanical

4.16	Weight, no more than	kg	2214
5	**Automatic control system (ACS)**		
5.1	Hardware base Omron (Japan)		+
5.2	Controlled parameters: Rolling speed, quantity/length of end product, adjustment of the pauses of the technological cycle, production task, the possibility of scaling impulse length counter		+
5.3	Interface: English, User-friendly		+
5.4	Indicators: General settings, error and emergency alarms		+
5.5	Dimensions (LxWxH) , no more than	mm	700x400x1060
5.6	Weight, no more	kg	50

Options

№	Description	UOM	Standart
6	**Trim recoiler**		yes
6.1	Installed power capacity, no more than	kw	3 + 3
6.2	Diameter of winding, max	mm	900
6.3	Dimensions (LxWxH), no more than	mm	900x1100x1150
6.4	Weight, no more than	kg	215
7	**Coil car**		yes
7.1	Lifting capacity, no more than	kg	10000
7.2	Working stroke (lifting)	mm	260
7.3	Lifting drive		hydraulic
7.4	Installed power capacity of hydrostation, no more than	kw	1,1
7.5	Motion drive		electromechanical
7.6	Installed power capacity, no more than	kW	1,5
7.7	The length of the rails (taking into account the installation for the decoiler or recoiler)	m	3,5
7.8	Bed. Designed to compensate the height of the coil car. Is used in case of a set of coil car with recoiler, equipped with motion set.		option
7.9	Dimensions (LxWxH)	mm	800x1400x700
7.10	Weight (including rails), no more than	kg	950
8	**Hydraulic receiving table**		
8.2.1	Lifting capacity, no more than	kg./ 1rm	1000
8.2.2	Working stroke (lifting)	mm	450
8.2.3	Lifting drive		hydraulic
8.2.4	Installed power capacity of hydrostation, no more than	kw	1,1
8.2.5	Motion drive		electromechanical
8.2.6	Installed power capacity, no more than	kw	1,5

8.2.7	The length of the rails (including the installation of decoiler or recoiler)	m	3,5
8..2.8	Dimensions (LxWxH)	mm	3100x1250x560
8.2.9	Weight (including rails), no more than	kg	2100

Fig.4. General view of the decoiler

Fig 5. General view of the Cut-to-length and Slitting machine

Fig.6 General view of the strips recoiler

7. Description of tooling

7.1. Disk knives on the faceplate.

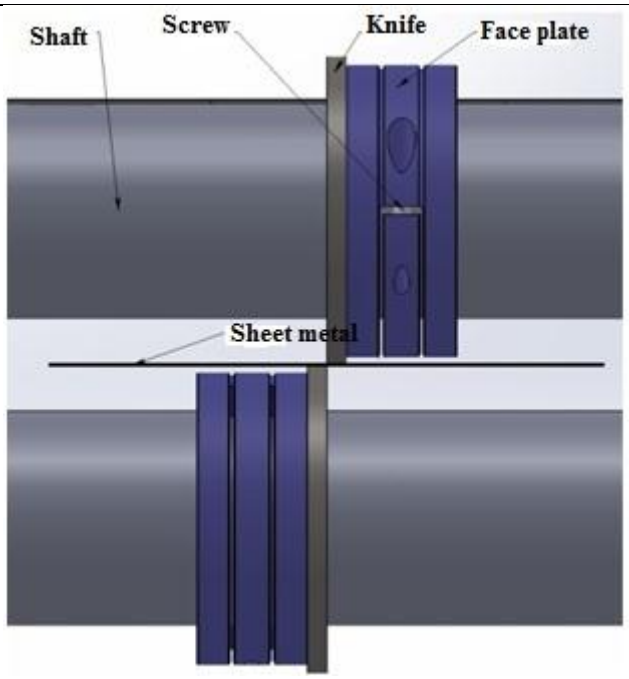
Technical specifications	General view
1. Disk knives on the faceplate. Faceplate: made of instrument steel Hardening 28-32 HRC Disk knife: made of instrument steel Hardening 58-62 HRC Knife width on faceplate: 80 mm- standard, 60 mm-option	

Fig.7. An example of set of disk knives on the faceplate in slitting module

7.2. Disk knives with ring spacers (option)
The tooling kit consists of: disc knives, rubberized rings, ring spacers, separators.
The quantity of tooling in the set is determined based on the customer's sheet cutting map provided by the customer, the minimum width of the strip, the step size of the change of the strip width 0.1 mm, 0.5 mm, 1.0 mm, 5.0 mm, 10.0 mm. etc.

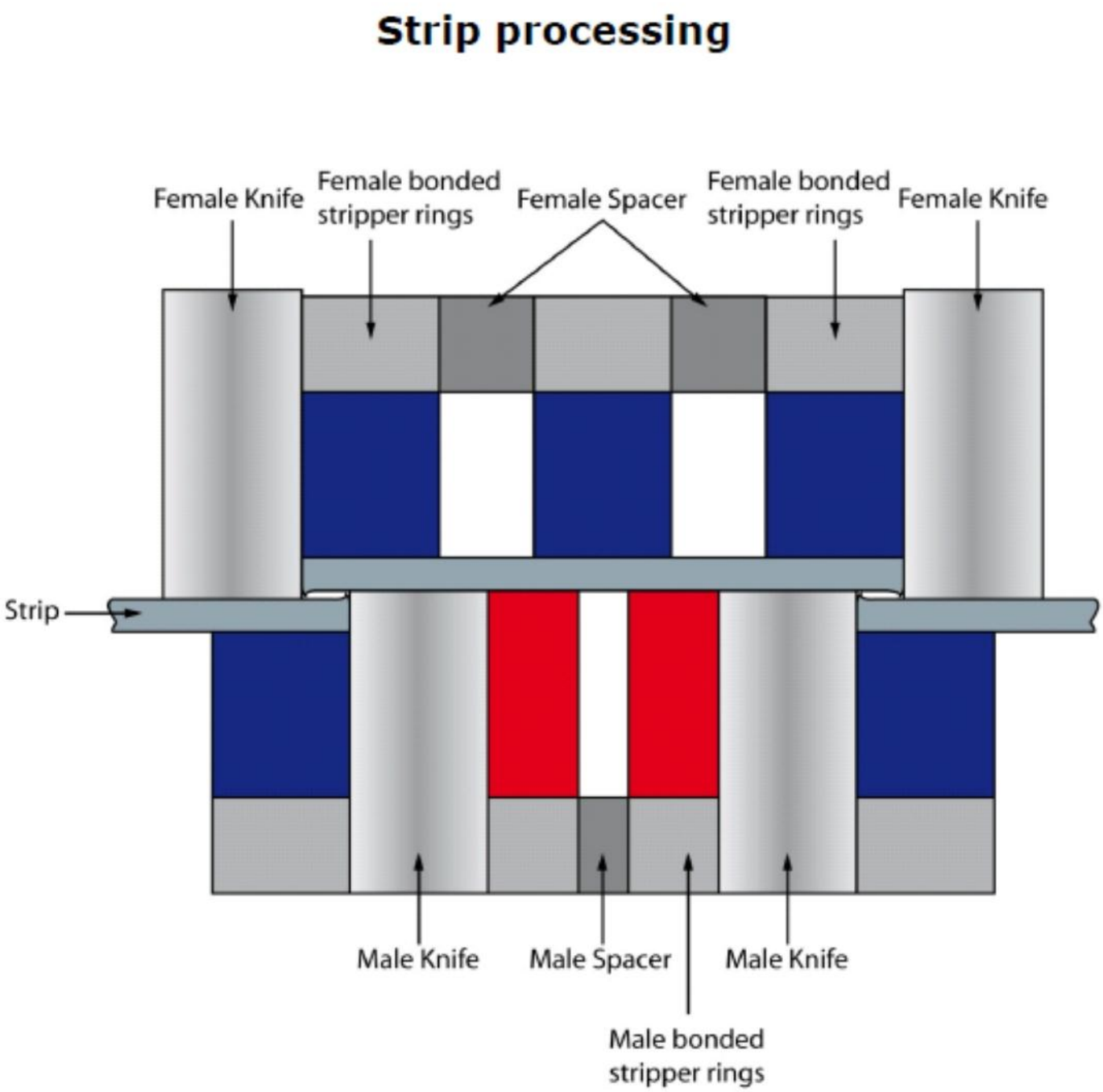


Fig.8. Tools installation scheme for sheet slitting.

Technical specifications	General view
1. Disk knives. Made of instrument steel With keyway of rectangular shape With both sided dirt groove Side faces grounded Hardening up to 57-59 HRC and precise finish Thickness tolerance + 0,0025 / -0,0025 mm Parallelism within 0,0050 mm Flatness within 0,0050 mm	
2. Bonded stripper rings. Steel core made from instrument steel With keyway of rectangular shape With both sided dirt groove Hardening up to 56-58 HRC and precise finish Thickness tolerance + 0,0025 / -0,0025 mm Parallelism within 0,0050 mm Flatness within 0,0050 mm Covering: Perbunan (Perbunan) 80±5 according to Shore Perbunan recessed 0,2-0,3 mm on both sides Surface quality [Ra] micron 0.40	
3. Ring spacers. Made of instrument steel With keyway of rectangular shape Thickness up to 8,00 mm with both sided dirt groove Thickness from 40,00 mm rings are made in a lightweight version Precise finish in internal and external diameter with creases along the edges Hardening up to 56-58 HRC Thickness tolerance + 0,0025 / -0,0025 mm Parallelism within 0,0050 mm Flatness within 0,0050 mm	
4. Separators. Made from instrument steel Side faces grounded Hardening up to 56-58 HRC	

7.3. Guillotine knives

Technical specifications	General view
1. Guillotine knives. Made of instrument steel Guillotine type Hardening up to 58-62 HRC	

8. Technical documentation

Technical documentation includes:
8.1. Technical passport for equipment and instruction manual for the Equipment;
8.2. Specification of imported parts and assemblies.
8.3. The assembly drawing of the Equipment with items from specification.
8.4. List of consumable and wearing parts.
8.5. Electric circuit diagram.
8.6. Hydraulic diagramt (if available).
8.7 Pneumatic diagram

9. Imported components details

Components kit	Manufacturer
- cylinders; - distributors; - service units (filters, moisture separators, lubricators, pressure regulators); - pneumatic hoses and connectors	Pneumatic components "DUPLOMATIC" (Italy)
- controllers; - frequency converters; - length encoders; - inductive proximity sensors - control panels - relay	Industrial automation components "OMRON" (Japan)
- Shaft bearing units;	"ASKUBAL", (Germany)
- Slitting tools * (optional)	«NEUENKAMP» (Germany)

10. Equipment specification

№	Description	UOM	Quantity
1	**Cut-to-length and Slitting line for processing coil metal with thickness 0,4 – 1,5 mm and width 1250 mm**, consists of:	**Set**	**1**
1.1	Decoiler	pcs	1
1.2	Cut-to-length and slitting machine	pcs	1
1.3	Receiving table	pcs	1
1.4	Recoiler	pcs	1
1.5	Automatic control system (ACS)	pcs	1
1.6	Supervised installation and commissioning	ea	1

Options:

№	***Description***
1	***For Decoiler***
1.1	*Hydraulic clamping unit (hydrostation 2.2kW + radiator + temperature controller)*
1.2	*Hydraulic mandrel expansion*
1.3	*Hydraulic clamping unit + Hydraulic mandrel expansion (hydro station 2.2 kW + radiator + temperature controller)*
1.4	*Motion set, rails from 4,5 m + 4 wheel supports*
1.5	*Movable stop, for fixing the edge of coils of smaller width*
1.6	*An additional payment for Decoiler with lifting capacity 10 tons*
1.7	*Additional support block of the decoiler shaft*
2	***For Cut-to-length and slitting machine***
2.1	***Disk knives on the faceplate***
2.1.1	*Set of disk knives on a face-plate for cut width from 80 mm in quantity of 2 pcs*
2.1.2	*Set of knives on a face-plate for cut width from 80 mm with knives produced by «NEUENKAMP» (Germany) in quantity of 2 pcs*
2.1.3	*Set of knives on a face-plate for cut from 60 mm (2 pcs)*
2.1.4	*Set of knives on a face-plate for cut width from 60 mm with knives produced by «NEUENKAMP» (Germany) in quantity of 2 pcs*
2.1.5	*Set of guillotine knives ГРП 002.00.00.02 - 2 pcs., ГРП 002.00.00.03 - 2 pcs*
2.1.6	*Set of guillotine knives ГРП 002.00.00.02 - 2 pcs., ГРП 002.00.00.03 - 2 pcs., produced by «NEUENKAMP» (Germany)*
2.2	***Set of disk knives with ring spacers***
2.2.1	*Disk knife produced by «NEUENKAMP» (Germany),1 pcs.*
2.2.2	*Rubberized ring produced by «NEUENKAMP» (Germany),1 pcs.*
2.2.3	*Ring spacer produced by «NEUENKAMP» (Germany),1 pcs*

2.2.4	*Separator produced by «NEUENKAMP» (Germany),1 pcs*
2.3	***Electronic ruler for setting disc knives***
3	***For Strips recoiler***
3.1	*Set of separators, in quantity of 2 pcs.*
4	***Additional payment for increasing the quantity of shafts of straightening module, for 2 shafts***
5	***Hydraulic receiving table***
6	***Loop compensator (air pit)***
7	***Coil rewinding device*** *(ensures the smoothness of the edge when rewinding coils, without slitting into strips with width from 600 up to 1250 mm)*
8	***Trim recoiler*** *in quantity 2 pcs*
9	***Coil car***
10	***Additional payment for increasing speed of the line up to 35 m/min***