

Trud



ESTABLISHED 1893

·Trud·JSC

REFRACTORY PRODUCTS, ENGINEERING AND TRADE ACTIVITIES

**REFRACTORY
PRODUCTS
FOR THE INDUSTRY**

**REFRACTORY
PRODUCTS
FOR STOVES
AND FIREPLACES**

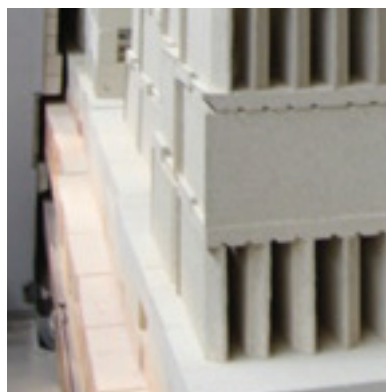
**CLINKER
PRODUCTS**

www.trud-bg.com

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TRUD JSC was established in 1893. The company started its business as a joint venture company for production of building materials. In 1897 the company laid down the foundations of the refractory industry in Bulgaria. Since 1966 the company is specialized in production of refractory. In the 80s a new technology of semidry molding was introduced and TRUD built the biggest high-temperature tunnel kiln on the Balkan Peninsula with a capacity of 50,000 tons per year. In the 90s the company was privatized and a new era of modernization and optimization of the production was initiated. During this period two new presses were purchased - 1000 tons and 500 tons produced by SACMI, Italy. In 2013 a new tunnel kiln was put into operation, purchased from one of the most reputable manufacturers in the world - RIEDHAMMER, Germany.



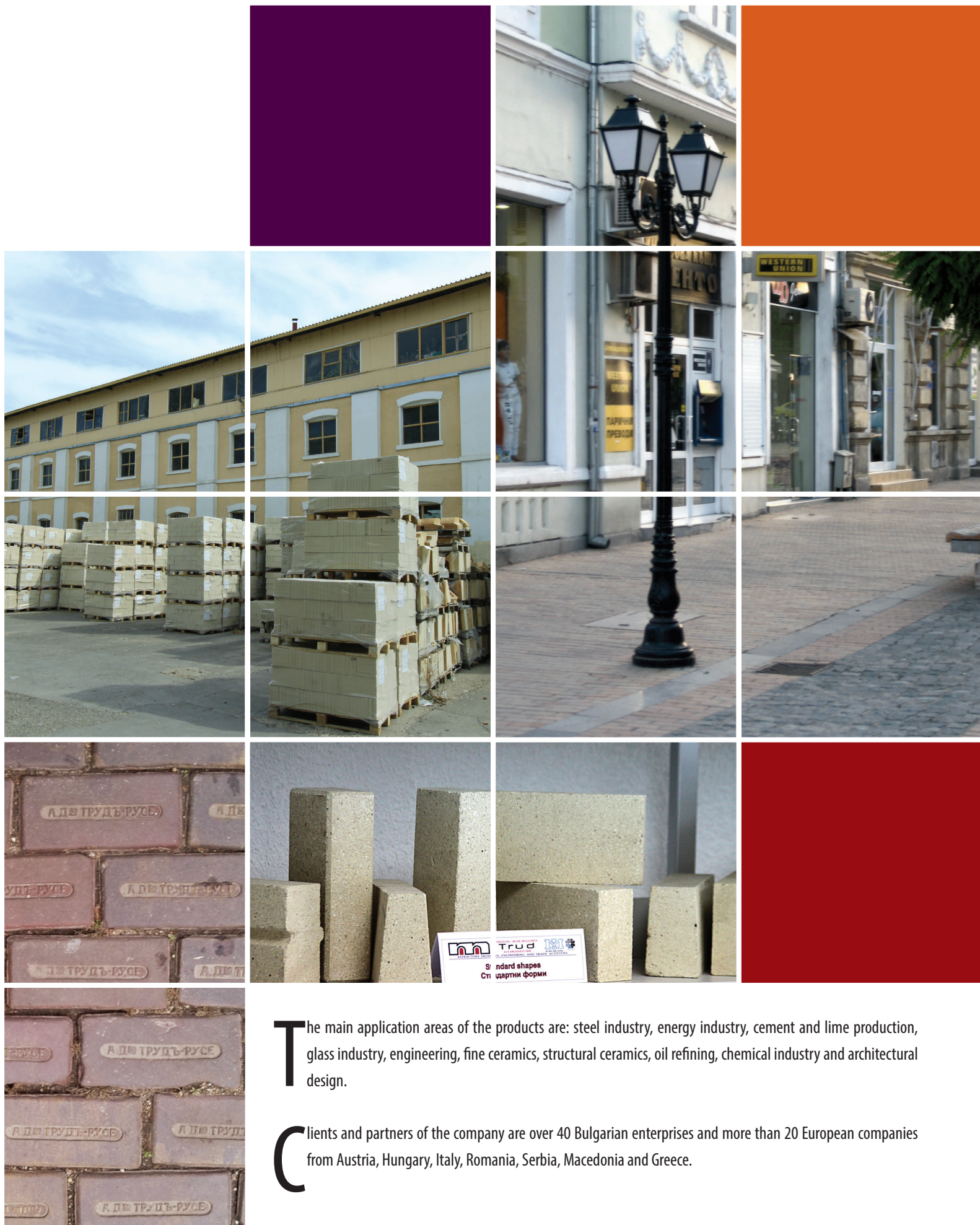
Today TRUD is a joint stock company with over 220 employees. Two tunnel kilns are installed in the factory with a production capacity of 15 000 and 50 000 tonnes per year. The factory area is 72 000 m², of which the production area occupies 9 000 m². A key advantage of TRUD JSC is its location in close proximity to the Danube River, Ruse East Port, Danube Bridge and Ruse Free Zone.

The quality of the ready production is monitored by the company's own chemical-physical laboratory. Since 2003 the company has implemented a system of quality management and is certified according to the ISO 9001: 2008 standard.

The product range of the company has the following production lines:

- Refractory products for the industry (incl. chamotte fractions and mortars);
- Refractory products for stoves and fireplaces;
- Clinker products;





The main application areas of the products are: steel industry, energy industry, cement and lime production, glass industry, engineering, fine ceramics, structural ceramics, oil refining, chemical industry and architectural design.

Clients and partners of the company are over 40 Bulgarian enterprises and more than 20 European companies from Austria, Hungary, Italy, Romania, Serbia, Macedonia and Greece.

**REFRACTORY
PRODUCTS
FOR THE INDUSTRY**





REFRACTORY PRODUCTS FOR THE INDUSTRY

TRUD JSC produces chamotte refractory products for the industry. These are used in the steel industry, energy industry, kilns and furnaces construction, cement production and glass industry. The factory produces high acid proof items and products from refractory concrete. The company has extensive experience in the development and design of refractory products for thermal units and aggregates.

The engineers and constructors of the company develop specific products according to the client's drawings offering different technological solutions, forms and technical parameters to fully meet customers' requirements. All the products are then tested in the company's own chemical-physical laboratory and can be produced by TRUD JSC.

The company develops, designs and manufactures tooling equipment for molding and stamping of different types of products for the refractory, ceramic and many other industries.

REFRACTORY PRODUCTS FOR THE INDUSTRY

CHARACTERISTICS

GENERAL APPLICATION

Class	Material	Content of Al ₂ O ₃ +TiO ₂ %	Refractoriness °C	Refractoriness under load T06 °C	Cold crushing strenght MPa	Apparent porosity %
HA-45	Chamotte	45	1750	1400	> 30	20
FC-40		40	1730	1350	> 25	22
FC-36		36	1730	1350	> 20	22
FC-32		32	1730	1320	> 20	23
FC-30		30	1710	1300	> 20	26
LF-28		28	1670	1270	> 25	26

FOUNDRY INDUSTRY

Class	Material	Content of Al ₂ O ₃ +TiO ₂ %	Refractoriness °C	Apparent porosity %	Carbon content %
F	Chamotte	33	1690	22	
AC	Graphite Chamotte			27	> 10
F-N1	Chamotte	30	1690	17 - 28	
F-N2	Chamotte	28	1670	17 - 28	

CHEMICAL INDUSTRY

Class	Material	Cold crushing Strenght MPa	Apparent porosity %	Acid resistance %
F-AR	Chamotte	20	19	95

CHARACTERISTICS

THERMAL INSULATING REFRACTORY PRODUCTS

Class	Content of Al ₂ O ₃ +TiO ₂ %	Maximum application temperature °C	Density g/cm ³	Cold crushing strenght MPa	Thermal conductivity at 600 °C W/(m.K)
FT 1.0	28	1200	1.0	3	0.50
FT 1.3	28	1200	1.3	4	0.70

FIRECLAY MORTARS

Class	Content of Al ₂ O ₃ +TiO ₂ %	Refractoriness °C	Humidity content %	Residue on sieve 0,5 mm %
FM 36	36	1730	5	< 5
FM 30	30	1710	5	< 5

FIRECLAY FRACTIONS

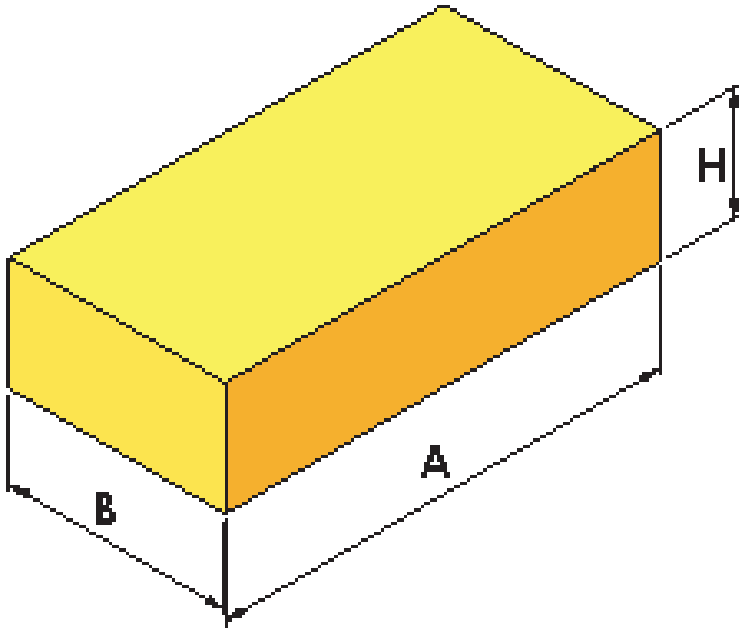
Class	Content of Al ₂ O ₃ +TiO ₂ %	Refractoriness °C	Humidity content %
FF 36	36	1730	3
FF 30	30	1710	3

REFRACTORY
PRODUCTS
FOR THE INDUSTRY

STRAIGHT SHAPES BRICKS

Item No.	Dimensions (mm)		
	A	B	H
1	250	124	65
30	250	187	65
66	250	124	40
2	250	124	30
4	230	114	65
4f*	230	114	65
15	230	114	40
4050	230	114	32
27	230	114	30
4049	230	114	25
3988	220	110	60
B4	250	250	123
468	300	150	65

* This item is produced with chamfer (4x4 mm)

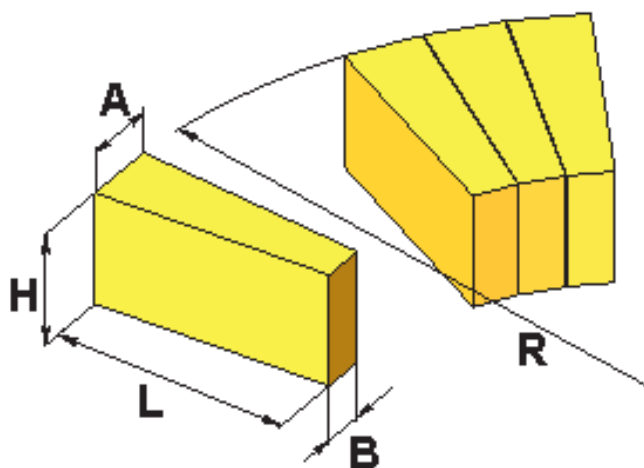


Dimensional tolerances
up to 100 mm $\pm$ 1,5 mm
over 100 mm $\pm$ 1,5 %

TRUD JSC develops products according to clients' drawings!

WEDGES (STANDING)

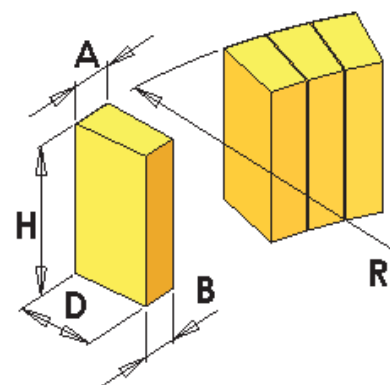
Item No.	Dimensions (mm)					Dimensional tolerance	Items/360°
	L	H	A	B	R		
6	250	124	65	55	1675	1	157
13	250	124	65	45	840	1	79
10	230	114	65	55	1540	1	145
11	230	114	65	45	770	1	72
2818	250	187	74	50	790	1	66
76	250	150	83	72	1930	1	143
74	250	150	79	66	1280	1	92
217	250	124	78	45	607	1	48
323	250	124	73	57	1170	1	98
29	250	124	64	57	2100	2	196
25	250	124	65	35	560	1	52
23	230	114	75	65	1310	1	145
24	230	114	75	55	885	1	72
22	230	114	55	45	1770	1	145
26	230	114	65	35	515	2	49
4109	220	110	60	55	2730	1	276
68	200	150	76	45	505	1	41
72	200	150	84	59	690	1	50
84	200	150	72	66	2470	1	210
98	200	150	70	63	2570	1	224
469	300	150	65	55	2010	1	188



REFRACTORY PRODUCTS FOR THE INDUSTRY

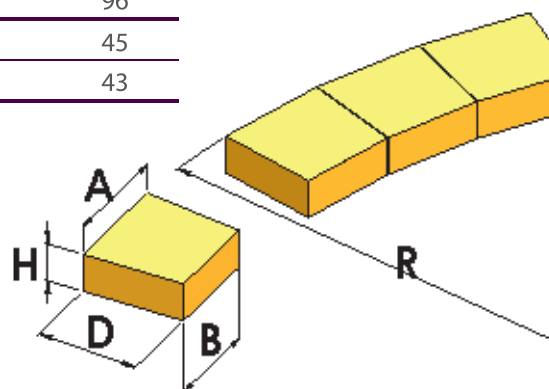
WEDGES (LAYING)

Item No.	Dimensions (mm)					Dimensional tolerance	Item/360°
	D	H	A	B	R		
7	124	250	65	55	830	1	78
14	124	250	65	45	415	1	39
12	114	230	65	55	765	1	72
9	114	230	65	45	380	1	36
51	124	250	78	52	383	2	30
50	124	250	73	57	580	2	49
92	124	250	72	65	1310	2	110
99	114	230	78	66	760	2	60
4098	110	220	60	50	1360	1	138
643	64	230	69	55	325	2	29



WEDGES (RADIAL)

Item No.	Dimensions (mm)					Dimensional tolerance	Item/360 °
	D	H	A	B	R		
B1	250	123	250	223	2340	1	58
B2	250	123	250	170	800	1	20
B3	250	123	250	190	1060	1	26
151	345	75	150	125	2100	2	86
3155	230	75	150	135	2320	2	96
3968	200	80	220	192	1580	1	45
3969	150	80	250	228	1715	1	43

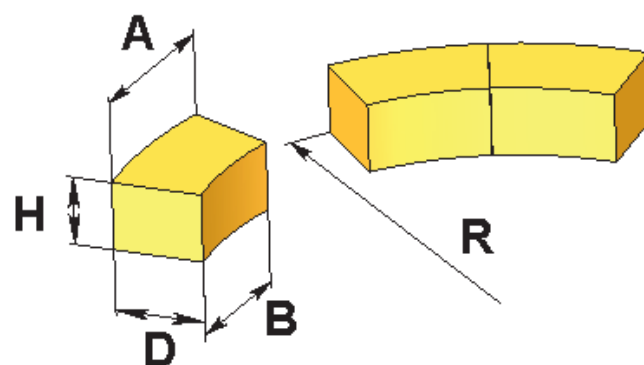


Dimensional tolerances	1	2
	up to 100 mm $\pm 1,5$ mm	up to 100 mm $\pm 2,5$ mm
	over 100 mm $\pm 1,5$ %	over 100 mm $\pm 2,5$ %

TRUD JSC develops products according to clients' drawings!

RADIAL BRICKS

Item No.	Dimensions (mm)					Dimensional tolerance	Item/360 °
	D	H	A	B	R		
359	245	120	273	155	585	2	13
332	150	120	230	153	465	2	13
546	134	55	192	90	254	1	8
3026	125	120	186	160	903	2	30
347	50	80	160	134	310	2	13



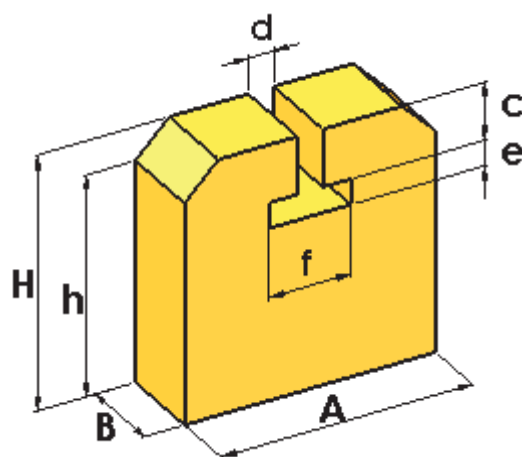
Dimensional tolerances	1	2
	up to 100 mm $\pm$ 1,5 mm	up to 100 mm $\pm$ 2,5 mm
	over 100 mm $\pm$ 1,5 %	over 100 mm $\pm$ 2,5 %

TRUD JSC develops products according to clients' drawings!

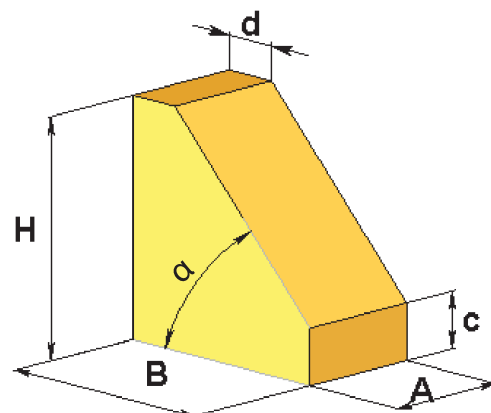
REFRACTORY PRODUCTS FOR THE INDUSTRY

SHAPED PRODUCTS

Item No.	Dimensions (mm)							
	A	B	H	h	c	d	e	f
979	296	75	300	260	68	30	30	96
2622	258	65	188	138	50	25	25	55
3244	240	100	250	220	55	30	30	80



Item No.	Dimensions (mm)					Angle, ° α
	A	B	H	c	d	
2559	113	230	240	40	115	60
930	113	230	275	75	115	60
2403	150	230	275	15	80	60
832	150	275	275	65	65	45
2420	230	113	135	37	56	60

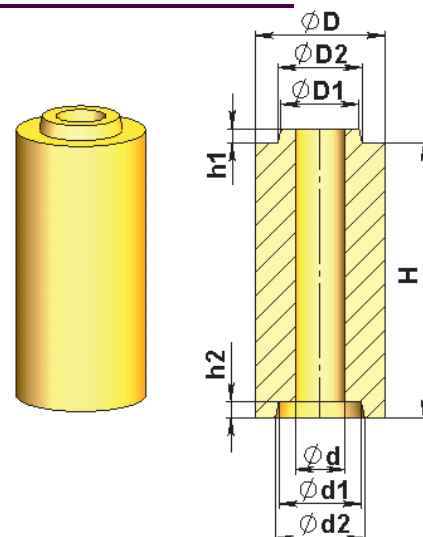


Dimensional tolerances
up to 100 mm $\pm 2,5$ mm
over 100 mm $\pm 2,5$ %

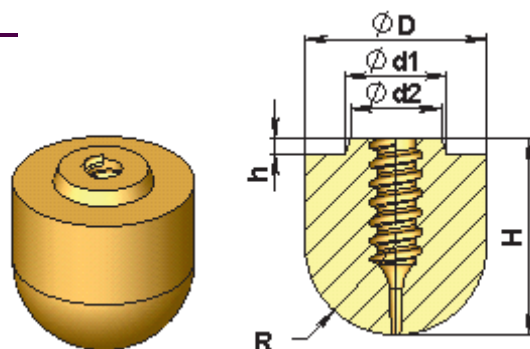
TRUD JSC develops products according to clients' drawings!

PRODUCTS FOR THE FOUNDRY INDUSTRY

Item No.	Dimensions (mm)								
	D	d	H	D1	D2	d1	d2	h1	h2
201	125	48	265	75	81	79	86	14	16
202	125	48	132	75	81	79	86	14	16
203	100	40	280	69	72	72	75	10	14
204	100	40	140	69	72	72	75	10	14



Item No.	Dimensions (mm)					
	D	R	H	d1	d2	h
108	100	48	130	67	63	10
128	120	60	130	76	68	10
107	125	60	154	81	75	14



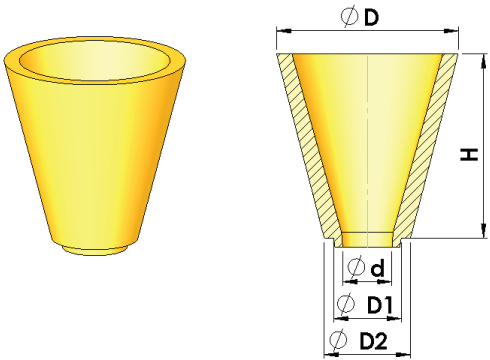
Dimensional tolerances			
Lenght	up to 50 mm $\pm$ 1 mm	over 50 mm $\pm$ 1,5 %	
Diameter	over 50 mm $\pm$ 1 mm	over 50 up to 100 mm $\pm$ 2 mm	over 100 mm $\pm$ 2 %

REFRACTORY PRODUCTS FOR THE INDUSTRY

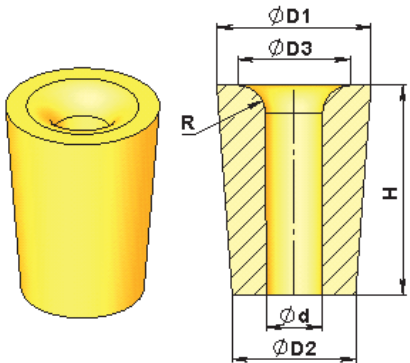
PRODUCTS FOR THE FOUNDRY INDUSTRY

Item No.	Dimensions (mm)				
	d	H	D	D1	D2
101	80	300	295	110	140
117	100	300	320	130	160

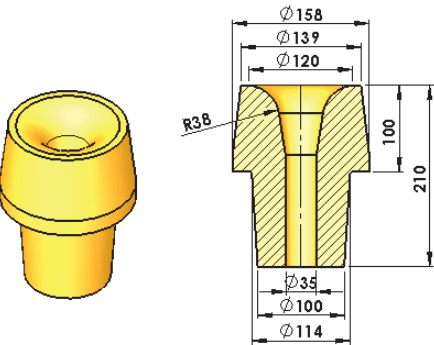
Dimensional tolerances
up to 100 mm ± 2,5 mm
over 100 mm ± 2,5 %



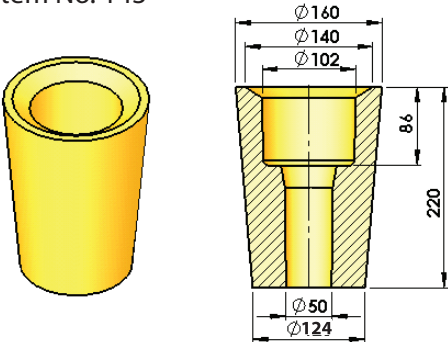
Item No.	Dimensions (mm)					
	H	d	D1	D2	D3	R
138	140	30	140	112	100	35
146	190	35	140	112	100	45
149	190	50	140	112	100	25



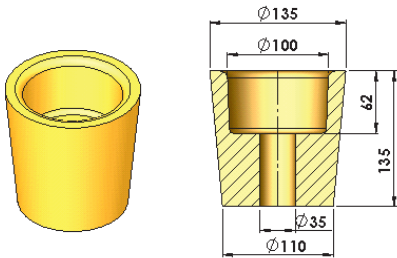
Item No. 136



Item No. 143

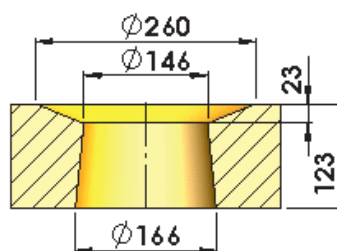
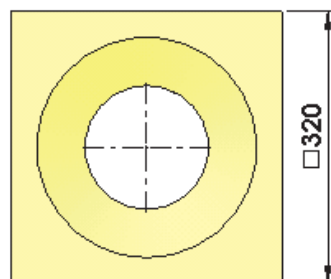
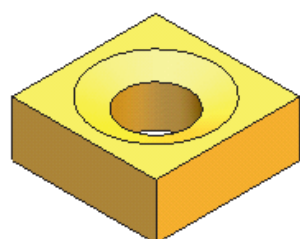


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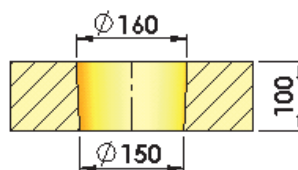
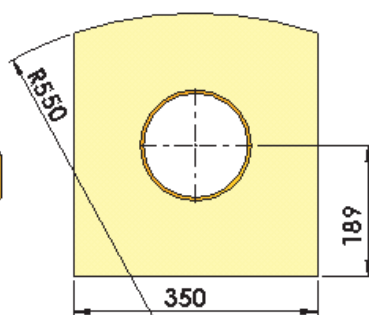
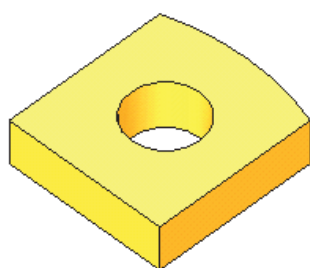


Dimensional tolerances			
Lenght	up to 50 mm ± 1 mm	over 50 mm ± 1,5 %	
Diameter	over 50 mm ± 1 mm	over 50 up to 100 mm ± 2 mm	over 100 mm ± 2 %

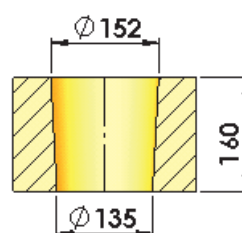
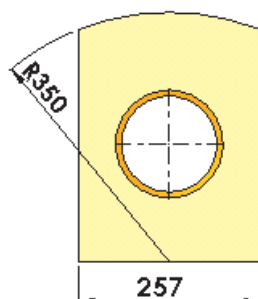
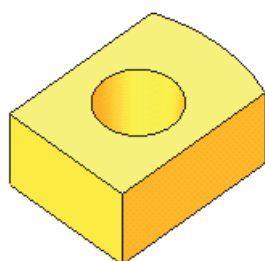
PRODUCTS FOR THE FOUNDRY INDUSTRY



Item No. 676



Item No. 115



Item No. 139

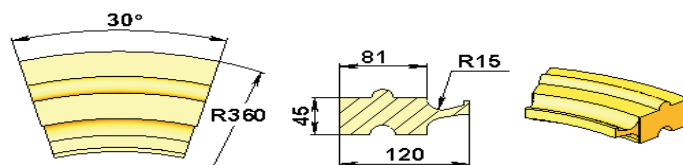
TRUD JSC offers Gating Systems Ø 60, Ø 80 and Ø 100



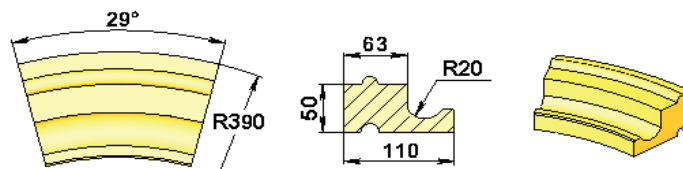
Dimensional tolerances
up to 100 mm $\pm 2,5$ mm
over 100 mm $\pm 2,5$ %

PRODUCTS FOR ELECTRIC FURNACES

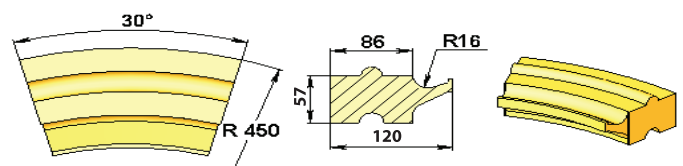
REFRACTORY PRODUCTS FOR THE INDUSTRY



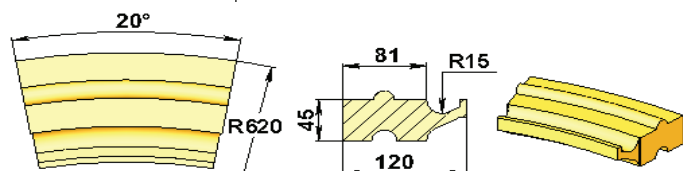
Item No. 2376
12 pcs. / 360°



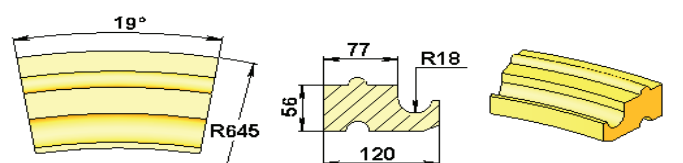
Item No. 404
12 pcs. / 360°



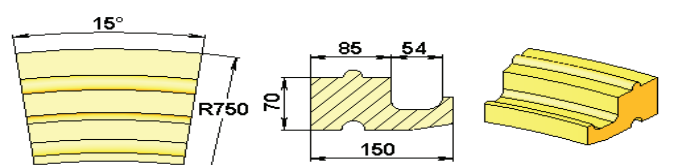
Item No. 2374
12 pcs. / 360°



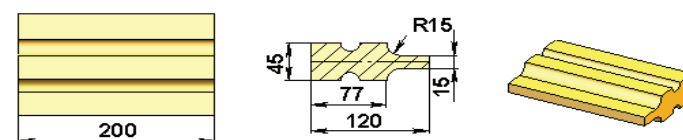
Item No. 2383
18 pcs. / 360°



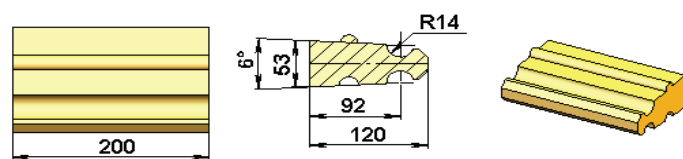
Item No. 3715
18 pcs. / 360°



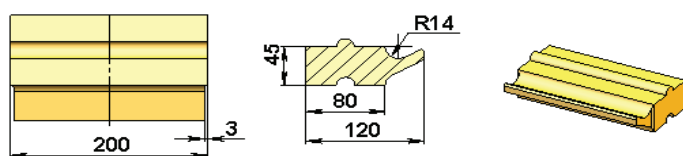
Item No. 3240
24 pcs. / 360°



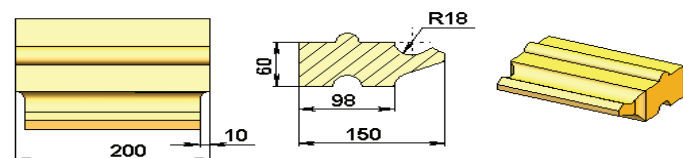
Item No. 401



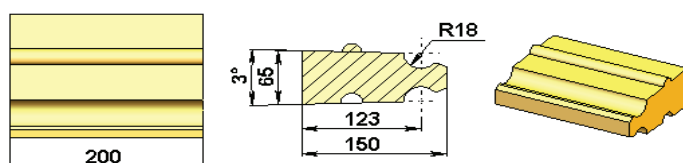
Item No. 402



Item No. 403



Item No. 405



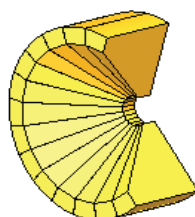
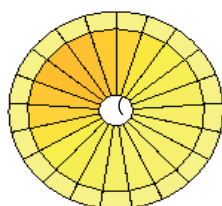
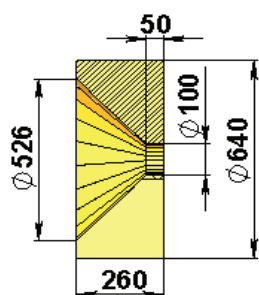
Item No. 406

Dimensional tolerances
up to 100 mm $\pm 2,5$ mm
over 100 mm $\pm 2,5$ %

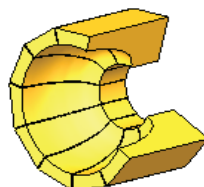
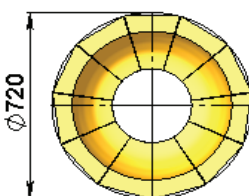
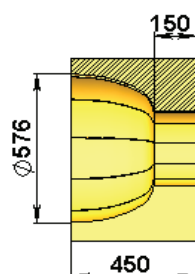
TRUD JSC develops products according to clients' drawings!

REFRACTORY PRODUCTS FOR THE INDUSTRY

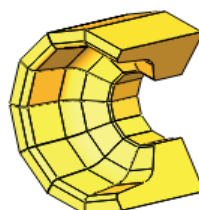
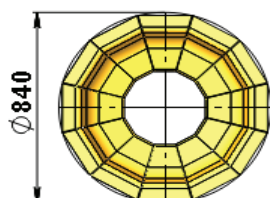
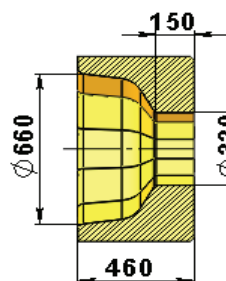
PRODUCTS FOR BOILERS



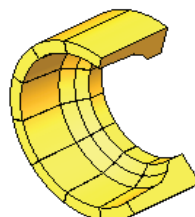
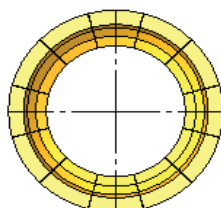
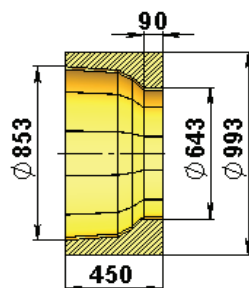
Item No. 552
21 pcs. / 360°



Item No. 3979
11 pcs. / 360°



Item No. 3974
12 pcs. / 360°



Item No. 3978
12 pcs. / 360°



Dimensional tolerances

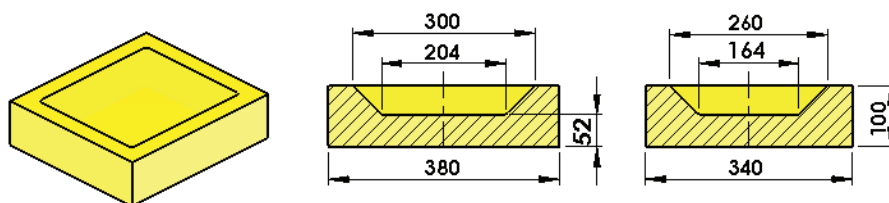
up to 100 mm $\pm 2,5$ mm

over 100 mm $\pm 2,5$ %

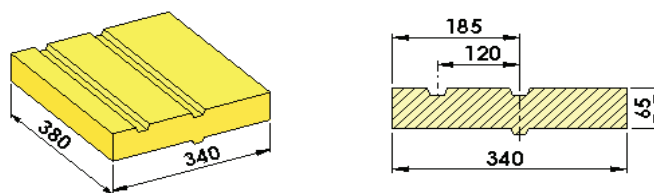
TRUD JSC develops products according to clients' drawings!

REFRACTORY PRODUCTS FOR THE INDUSTRY

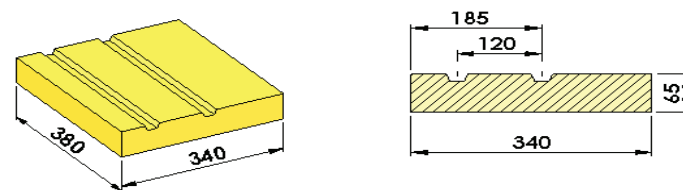
PRODUCTS FOR LINING OF KILN CARS



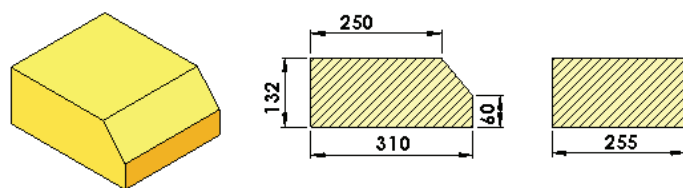
Item No. 845



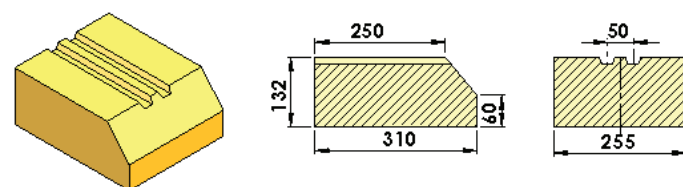
Item No. 3434



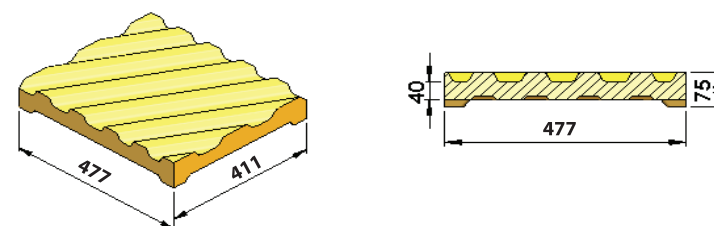
Item No. 3435



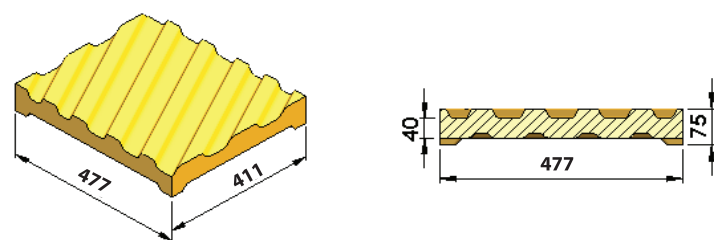
Item No. 3441



Item No. 3433



Item No. 4012



Item No. 4013

Dimensional tolerances
up to 100 mm $\pm 1,5$ mm
over 100 mm $\pm 1,5$ %

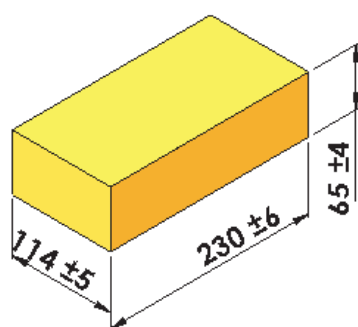
TRUD JSC develops products according to clients' drawings!

THERMAL INSULATING REFRACTORY PRODUCTS

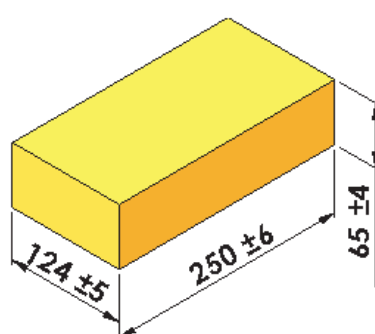
Class	Content of Al ₂ O ₃ +TiO ₂ %	Maximum application temperature °C	Density g/cm ³	Cold crushing strenght MPa	Thermal conductivity at 600 °C W/(m.K)
FT 1.0	28	1200	1.0	3	0.50
FT 1.3	28	1200	1.3	4	0.70

**REFRACTORY
PRODUCTS
FOR THE INDUSTRY**

Item No. 4FT



Item No. 1FT



TRUD JSC develops products according to clients' drawings!

CHAMOTTE MORTARS

Class	Content of Al ₂ O ₃ +TiO ₂ %	Refractoriness °C	Humidity content %	Residue on sieve 0,5 mm %
FM 36	36	1730	5	< 5
FM 30	30	1710	5	< 5

Chamotte mortars are supplied in bags of 20 kg.



CHAMOTTE FRACTIONS

Class	Content of Al ₂ O ₃ +TiO ₂ %	Refractoriness °C	Humidity content %
FF 36	36	1730	3
FF 30	30	1710	3

Chamotte fractions are produced according to clients' requirements. These are supplied in bulk or in containers "Big Bag". The company offers its clients fractions with different granulometric content.



The image features a dark background with several 3D wireframe models of geometric shapes, including rectangular blocks and a complex, multi-faceted structure. A red wireframe model is positioned in the upper left, while a grey wireframe model is in the upper right. A red rectangular box is located in the middle right, containing the text 'REFRACTORY PRODUCTS FOR STOVES AND FIREPLACES'. Below this box, there are two vertical bars, one purple and one orange. In the foreground, there are several physical refractory products, including a large, light-colored rectangular block, a smaller rectangular block, and a complex, multi-faceted structure. The products are arranged in a way that suggests they are components of a larger assembly.

**REFRACTORY
PRODUCTS
FOR STOVES
AND FIREPLACES**



REFRACTORY PRODUCTS FOR STOVES AND FIREPLACES

TRUD JSC produces more than 300 kinds of products for stoves and fireplaces. The products are designed for the operation of burning chambers heated by wood, coal or briquettes (pellets). They are characterized by operation temperature of up to 1250°C , which determines their durability. The raw materials used in the production process are clean and safe - do not emit harmful and carcinogenic substances.

The company has developed wide range of models with channels for circulation of the air flow and with smooth surfaces. TRUD JSC produces items for stoves and fireplaces according to clients' drawings. The refractory bricks are characterized by precise dimensions, excellent physical and mechanical properties and durability.

These products are used in the production of the biggest Bulgarian manufacturers of stoves and fireplaces, as well as by leading European producers.

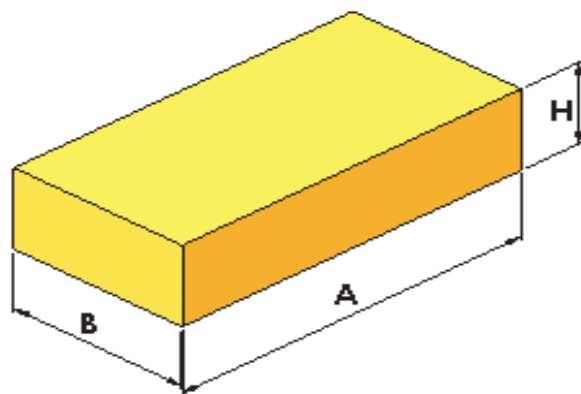
REFRACTORY PRODUCTS FOR STOVES AND FIREPLACES

CHARACTERISTICS

Material	Content of Al ₂ O ₃ +TiO ₂ %	Refractoriness °C	Cold crushing strenght MPa	Apparent porosity %
Chamotte	30 - 32	1670	15	20 - 24
	28 - 30	1650	15	20 - 24
	25 - 28	1610	> 15	20 - 22

STRAIGHT PRODUCTS

Item No.	Dimensions (mm)		
	A	B	H
594	460	200	22
4049	230	114	25
5103	175	60	30
5104	190	60	30
5106	190	70	30
5117	190	80	30
703	200	140	30
738	230	70	30
27	230	114	30
5105	240	60	30
2	250	124	30
741	275	110	30
582	300	70	30
5119	300	115	30
5109	300	135	30
704	300	200	30
5110	300	220	30
585	300	240	30
444	400	300	30
597	360	200	40
590	400	200	40
441	500	200	40

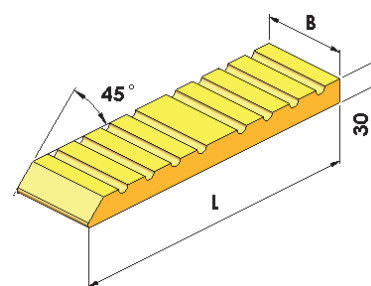


Dimensional tolerances
up to 100 mm ± 1,5 mm
over 100 mm ± 1,5 %

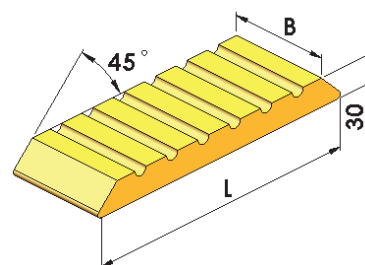
REFRACTORY PRODUCTS FOR STOVES AND FIREPLACES

SPECIALIZED PRODUCTS

Item No.	Dimensions (mm)		Dimensional tolerance
	L	B	
B69	385	108	1
B70	385	180	1

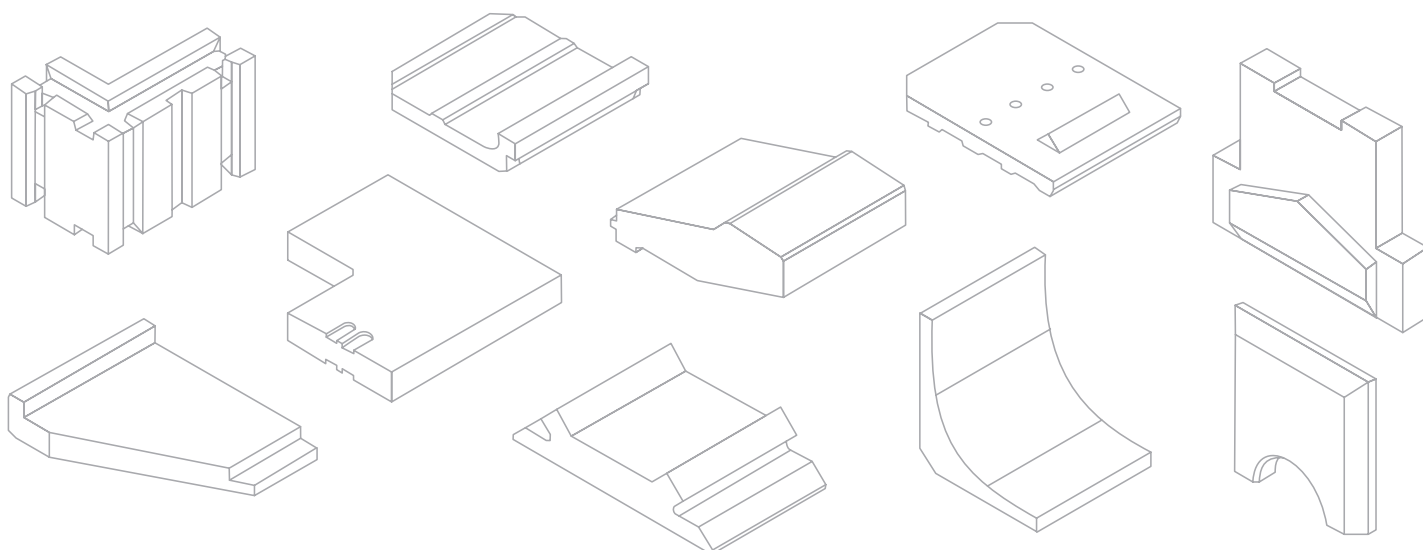


Item No.	Dimensions (mm)		Dimensional tolerance
	L	B	
018	286	138	2
011	224	180	2
024	286	180	2
052	286	200	2
056	352	230	2



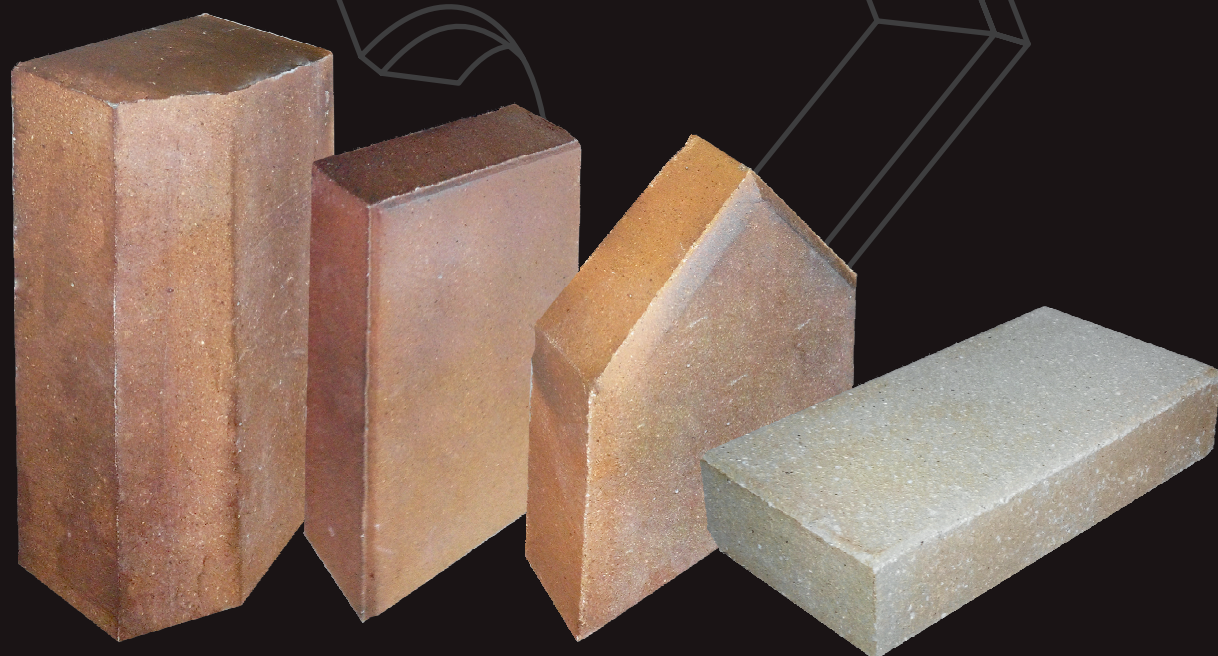
Dimensional tolerances	1	2
	up to 100 mm $\pm 1,5$ mm	up to 100 mm $\pm 2,5$ mm
	over 100 mm $\pm 1,5$ %	over 100 mm $\pm 2,5$ %

TRUD JSC develops products according to clients' drawings!





**CLINKER
PRODUCTS**





CLINKER PRODUCTS

TRUD JSC has a long tradition in the manufacturing of clinker products dating back to the beginning of the last century. In recent years, the company's specialists have developed and improved the production technology in accordance with the European standards. For the production of the clinker products the company uses only natural materials - without artificial additives and colorings.

Today TRUD JSC offers clinker products for pedestrian areas, streets and facades in two series: CLASSIC and AVANGARD.

The products from series CLASSIC are produced by classical technology and are offered in universal forms. The products from series AVANGARD are produced in advanced technology which has been developed to satisfy a wide range of customer requirements regarding forms and feasibility, for the implementation of various architectural solutions.

The products of both series meet all quality standards for clinker products.

CLINKER PRODUCTS

CHARACTERISTICS

Application	Thaw/frost resistance	Transverse rupture load N/mm	Abrasion resistance mm ³ /5000 mm ²	Resistance to slip/skid	Water absorption %	Flexural strenght N/mm ²
Pedestrian zones (solid application)	100 cycles (Class Fp100)	30 (Class T2)	< 12000	Very good Class U3	< 8	10
Zones with vehicles (flexible application)	100 cycles (Class FP100)	80 (Class T4)	< 12000	Very good Class U3	< 8	12

INSTRUCTIONS FOR LAYING, APPLICATION AND MAINTENANCE OF CLINKER PAVINGS PRODUCED BY TRUD JSC

Laying instructions

When laying paves, produced by TRUD JSC, the requirements of the classical European technology for clinker pavements in public places should be met, i.e.:

Sand layer should be laid on well rammed foundation in order to avoid wavy surface. After the tamping a specific fraction of sand should be used which provides a certain drainage - standard for all paved surfaces.

The sand layer should be with thickness of 1 to 3 cm. and then proceed to the arrangement of paves on standard technology. Use rubber hammers. The methods of joint making are defined.

In the application process joint dividers should not be used. Joints should not be less than 2 mm. If smaller joints are applied the sand cannot enter into the joints and this will result in their destruction during the cold months. After completion of the laying it is very important to refill the joints with sand on the third and on the sixth month from the beginning of the exploitation period.

Potential problems can occur as a result of poor rammed basis, wrong dimension of the joint and the use of incorrect sand fraction.

Application and maintenance

Clinker pavements built with paves with thickness of 30 mm. (hard laying method) should only be used for pedestrian areas according to standard BDS EN1344. Pavements built with paves with a thickness of 40 and 52 mm. (hard or flexible laying method) can be used for pedestrian areas and for areas with vehicles traffic according to standard BDS EN1344.

It is recommended to use the flexible laying method for construction of areas with vehicles traffic.

When cleaning areas built with clinker products manufactured by TRUD JSC one must comply with the acid resistance of the clinker products, which are Class C according to BDS EN1344. Abstergents and chemicals with pH > 8 should not be used.

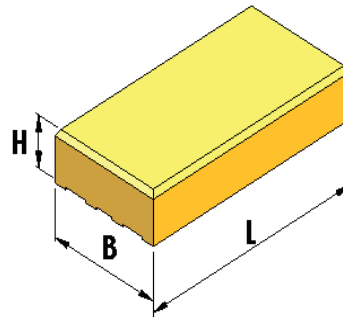
SERIES CLASSIC

CLINKER PRODUCTS

Clinker STANDART

Dimensions (mm)		
L	B	H
100	100	30*
100	100	40
100	100	52
200	100	30*
200	100	40
200	100	52
200	200	30*
200	200	40
200	200	52

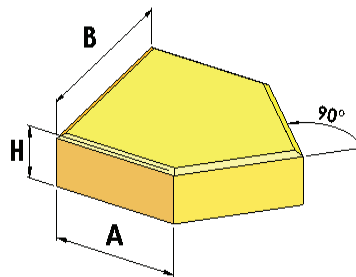
* Only for hard laying (for pedestrian areas)



Clinker PENTAGON

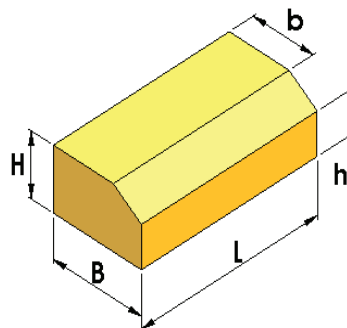
Dimensions (mm)		
A	B	H
100	141	30*
100	141	40
100	141	52

* Only for hard laying (for pedestrian areas)

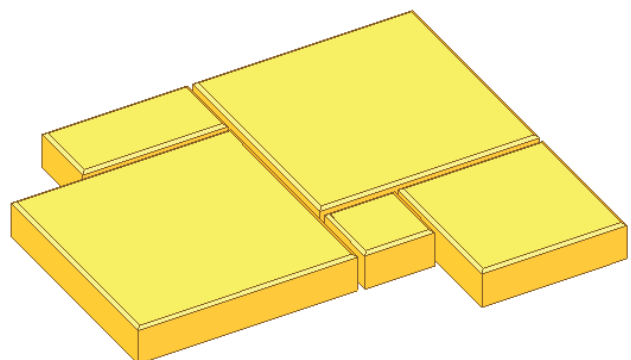
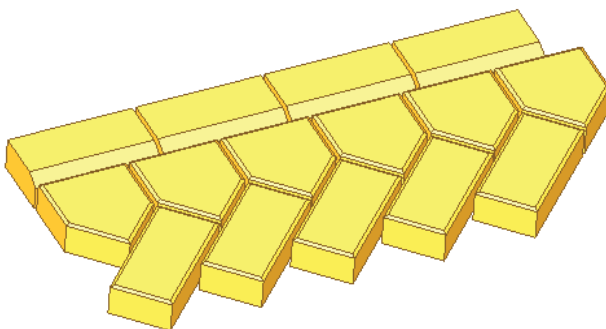


Clinker CURBSTONE

Dimensions (mm)				
L	B	H	b	h
200	100	50	68	30
200	100	60	68	40
200	100	72	68	52



Dimensional tolerances:
According to BDS EN1344 (R1)

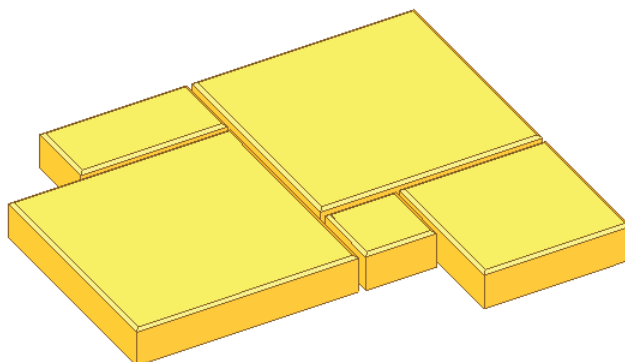
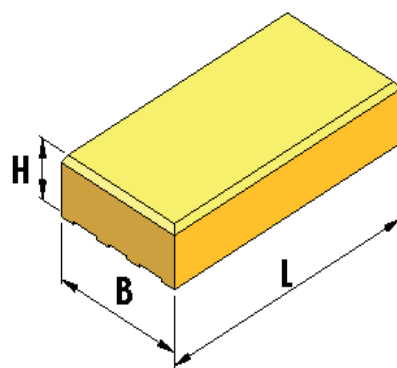


CLINKER PRODUCTS

SERIES AVANGARD

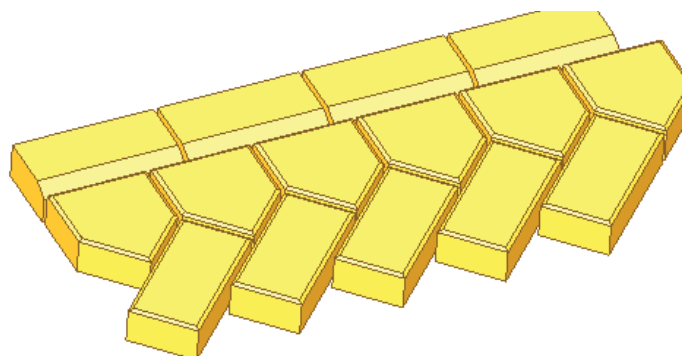
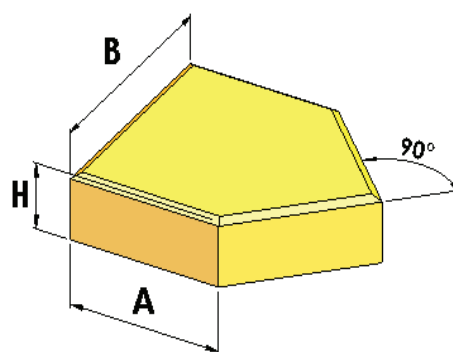
Clinker STANDART

L mm	B mm	H mm
95	95	30
95	95	40
95	95	52
195	95	30
195	95	40
195	95	52
195	195	30
195	195	40
195	195	52
295	295	52



Clinker PENTAGON

A mm	B mm	H mm
94	136	30
94	136	40
94	136	52



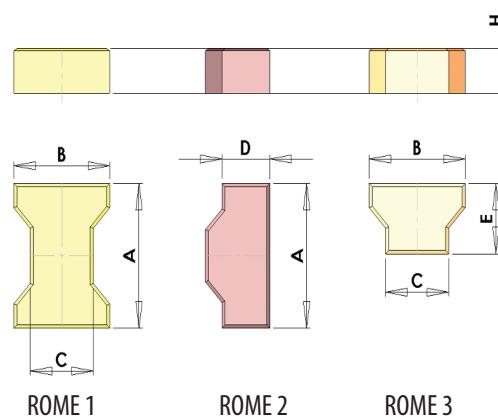
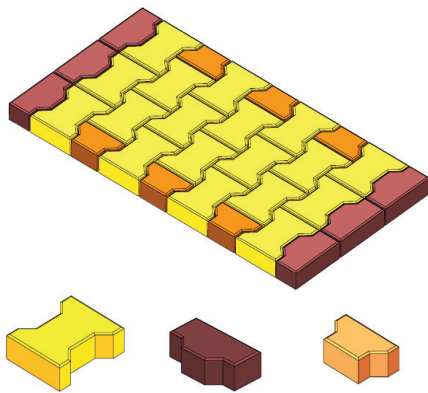
Dimensional tolerances:
According to BDS EN1344 (R1)

SERIES AVANGARD

CLINKER PRODUCTS

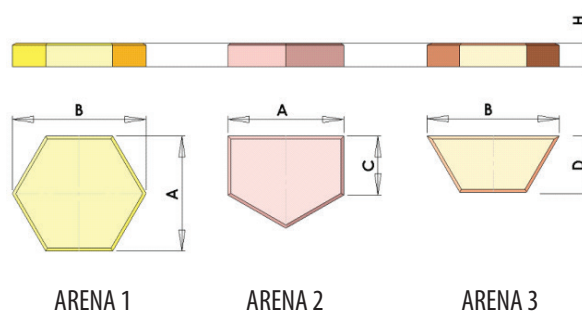
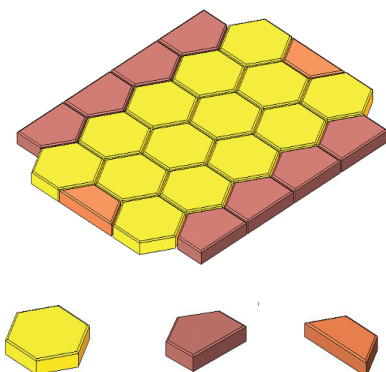
Clinker ROME

A	B	C	D	E	H
mm	mm	mm	mm	mm	mm
195	160	105	80	95	30
195	160	105	80	95	40
195	160	105	80	95	52



Clinker ARENA

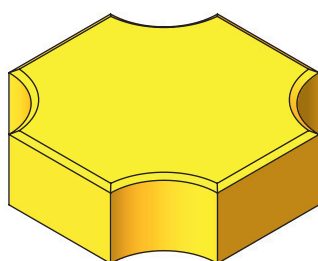
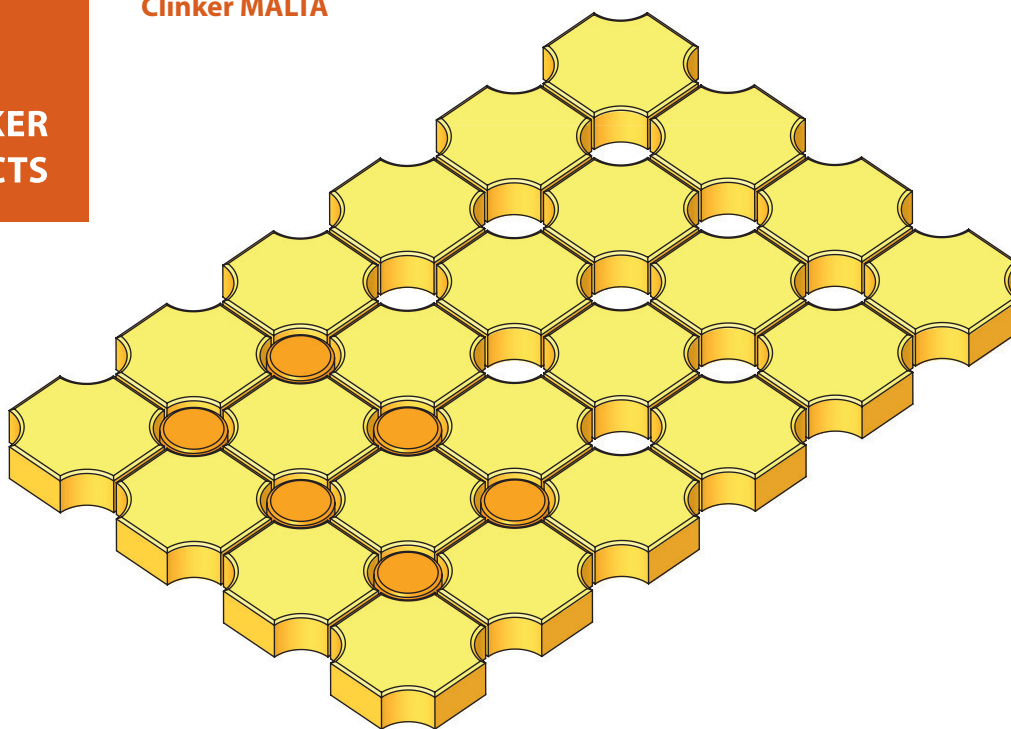
A	B	C	D	H
mm	mm	mm	mm	mm
195	225	100	95	30
195	225	100	95	40
195	225	100	95	52



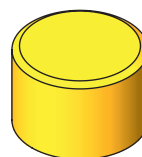
CLINKER
PRODUCTS

SERIES AVANGARD

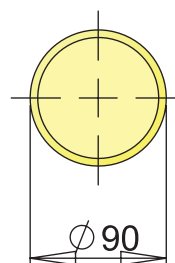
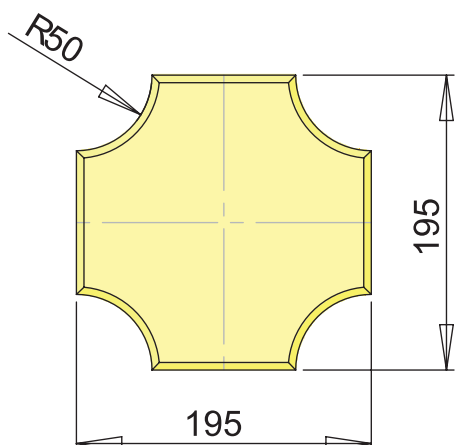
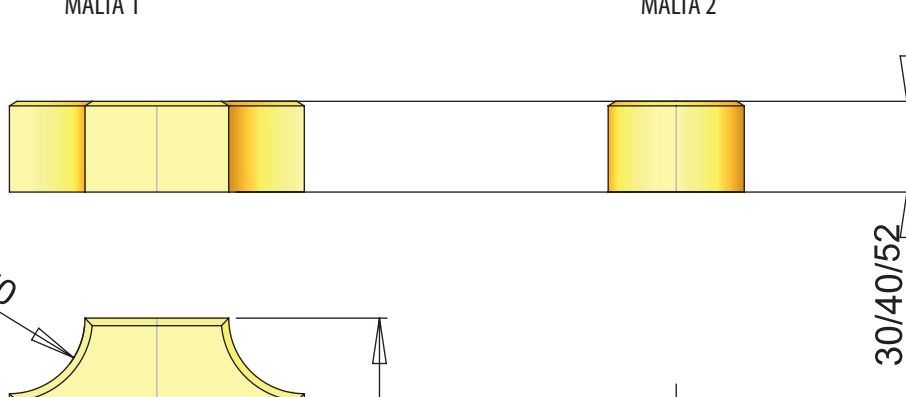
Clinker MALTA



MALTA 1

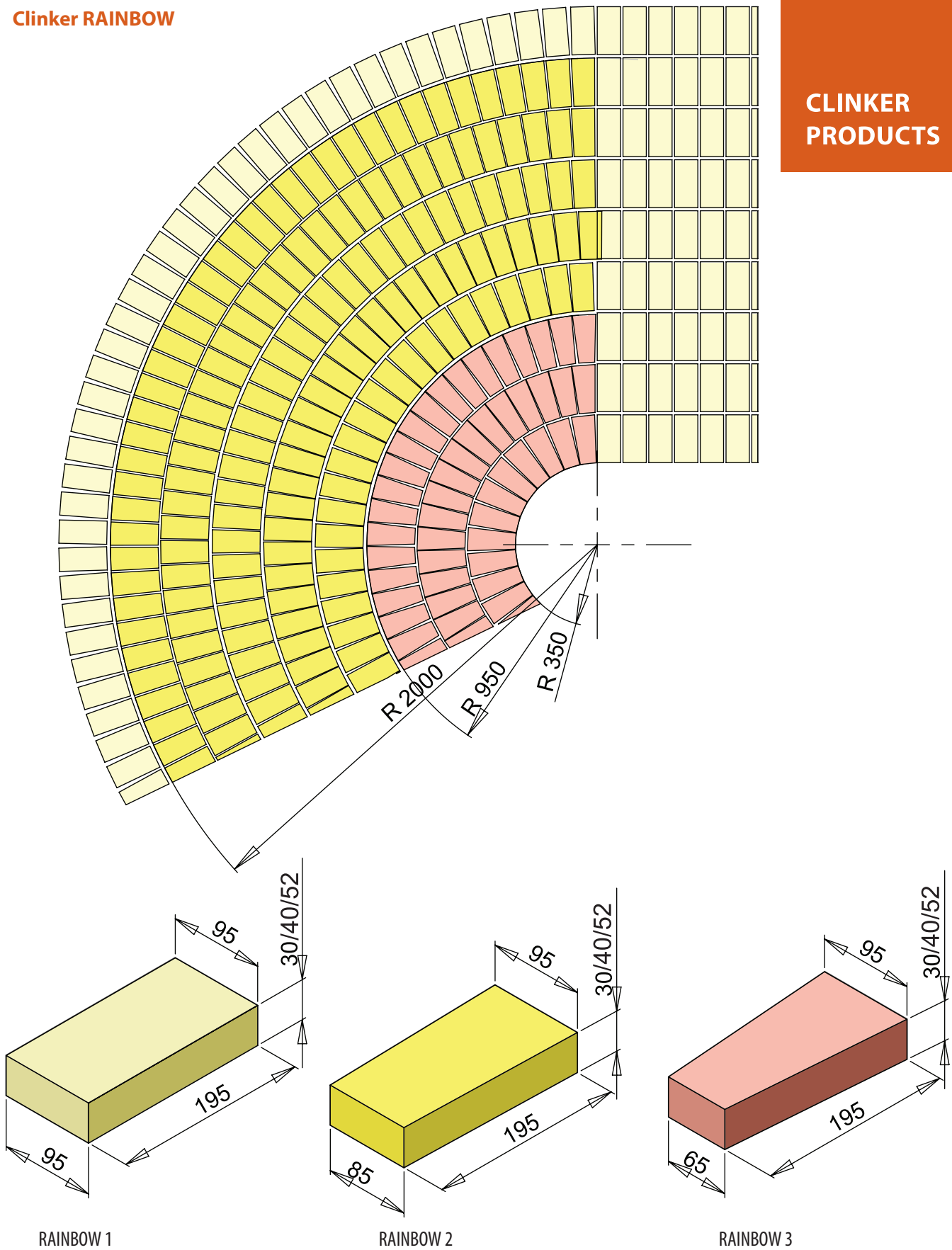


MALTA 2



Clinker RAINBOW

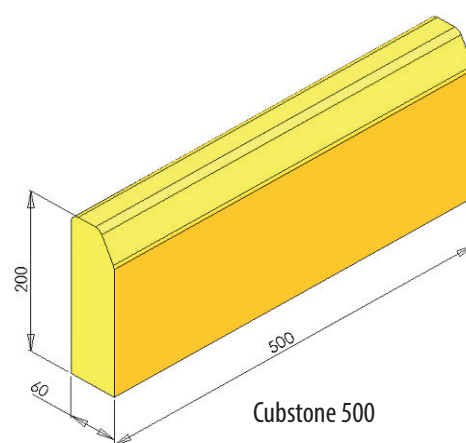
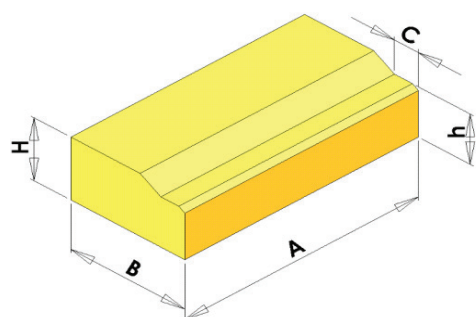
CLINKER
PRODUCTS



CLINKER PRODUCTS

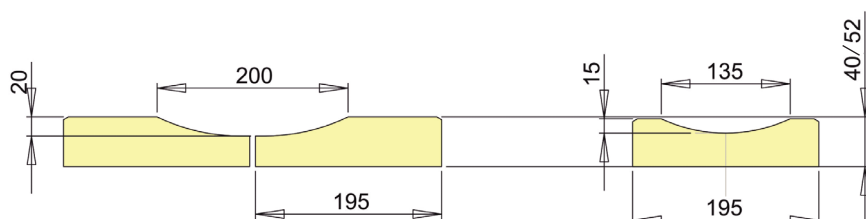
SERIES AVANGARD - CUBSTONES

mm	mm	mm	mm	mm
195	95	20	40	30
195	95	20	50	40
195	95	20	62	52



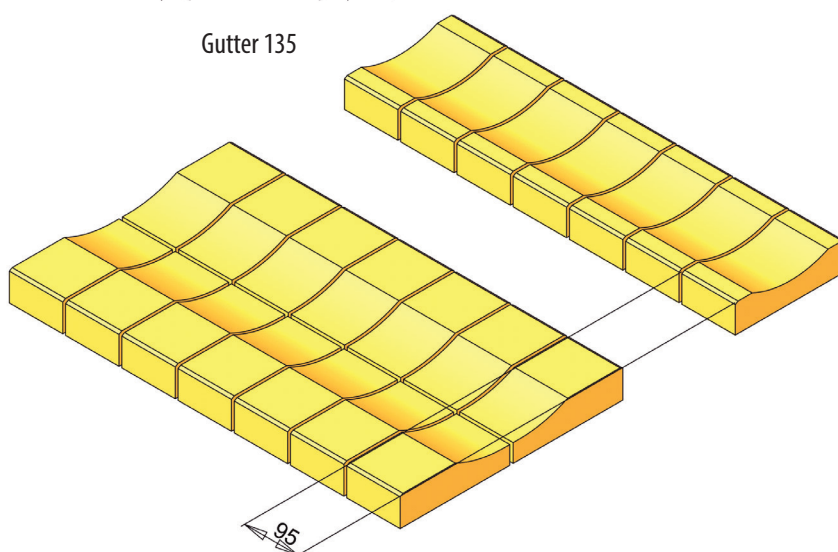
Cubstone 500

SERIES AVANGARD - GUTTERS

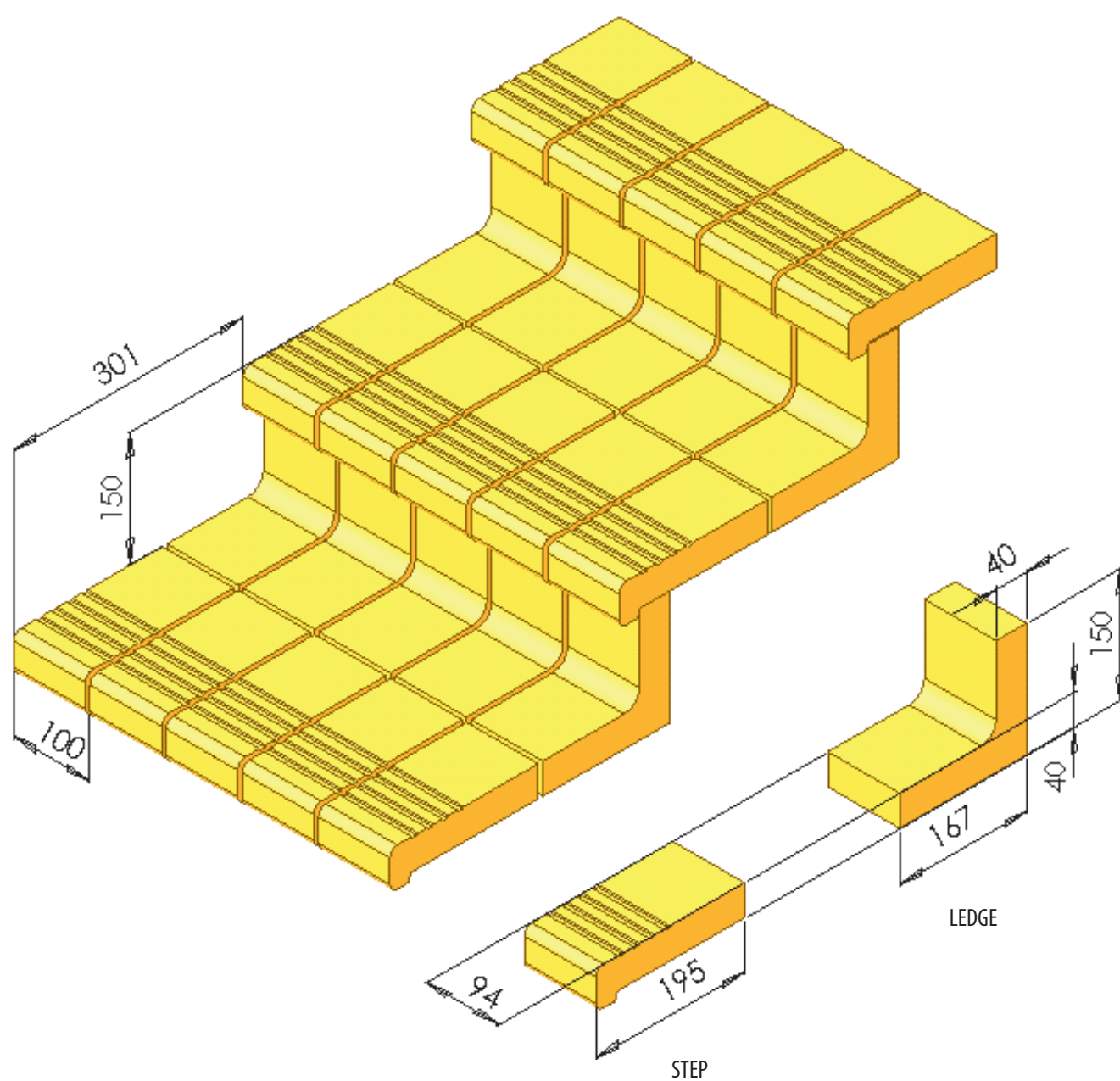


2 x Gutter 100

Gutter 135



SERIES AVANGARD - STAIRS

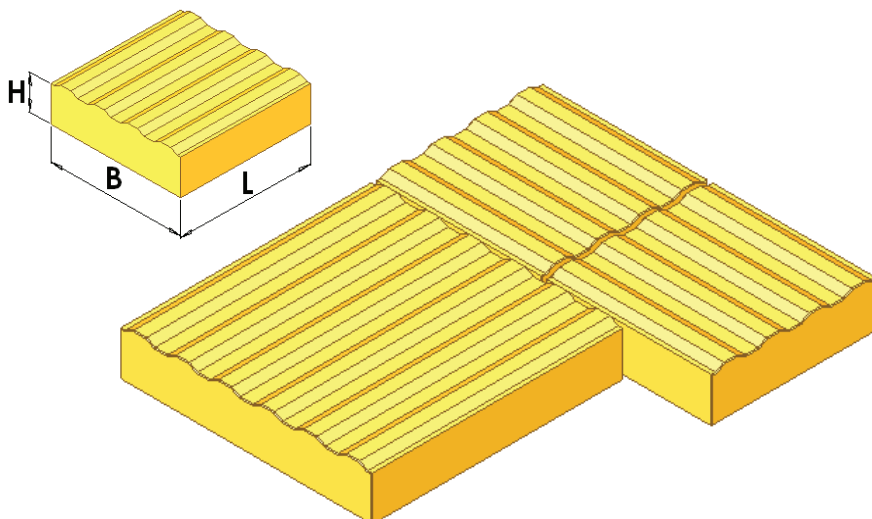


CLINKER PRODUCTS

SERIES AVANGARD - TACTILE PLATES R1

The steering plate type R1 is used for construction of tactile strips leading people with visual disabilities along the sidewalks, passing through wide urban areas, squares and others.

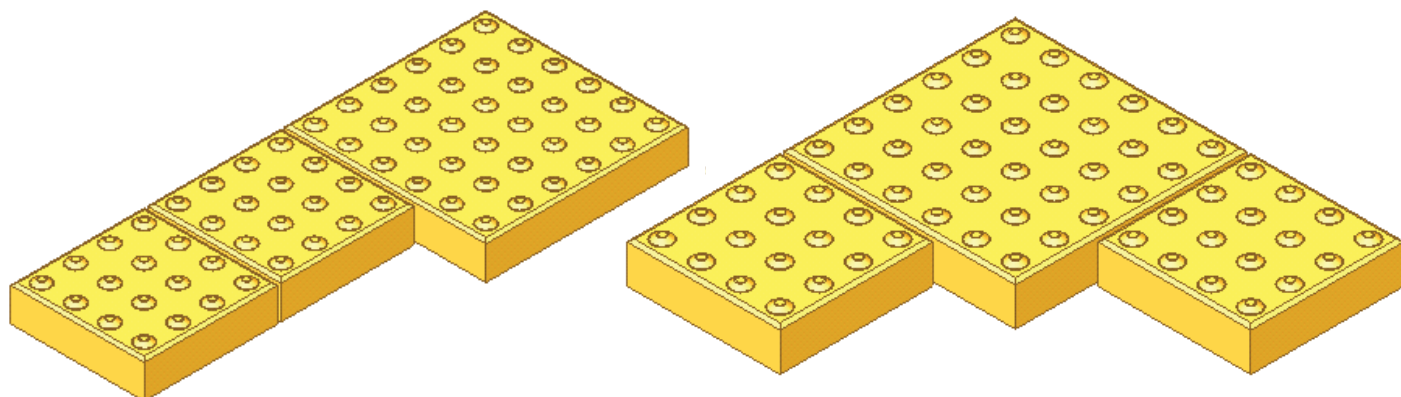
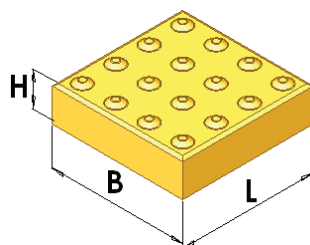
L mm	B mm	H mm
195	195	30
195	195	40
195	195	52
295	295	52



SERIES AVANGARD - TACTILE PLATES B1

The warning plate type B1 warns visually disabled people to continue cautiously toward controlled or uncontrolled crossings. This type of paving also indicates direction changes or areas for direction choice /usually at 90°/.

L mm	B mm	H mm
195	195	30
195	195	40
195	195	52
295	295	52



The tactile plates are manufactured according to the requirements of the Bulgarian standardization document SD CEN/TS 15209.





ESTABLISHED 1893

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