

A photograph showing several light-colored, rectangular acid-resistant tiles and bricks standing upright against a solid blue background.

Acid-resistant tiles, bricks and shapes in standard sizes
耐酸瓷砖，标准砖



Acid-resistant tiles, bricks and shapes in standard sizes 耐酸瓷砖，标准砖

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Acid-resistant tiles, bricks and shapes in standard sizes 耐酸瓷砖、砖、标准砖

Acid-resistant ceramic materials are nowadays used in the following fields, e.g.:

- Industrial fields with chemical attack on buildings
Lining of floors, trenches, pits and wall areas
- Chemical industry, iron and steel working industry, metal industry
Lining of vessels, reaction vessels, scrubbing towers, neutralization facilities, basins, extraction vessels, acid storage tanks, etc.
- Fibre industry, textile industry, pulp and paper industry
Bleaching and dyeing vats, dissolving tanks, pulp chests, digestors, etc.
- Coking industry
Ammonia saturators, saturation pits, bund areas for storage tanks, H_2SO_4 plants, de-acidifiers, coke ramps, coke quenching towers, centrifuge platforms, salt storages, cooler tubs, etc.
- Battery factories
Formation and loading rooms, acid mixing plants, neutralization pits, drying rooms
- Power Stations
Flue gas desulfurizing plants, Denox plants, trenches, channels, water treatment plants

Load spectrum for acid-resistant ceramic materials

The materials used for lining of chemical vessels are exposed to the following conditions:

Chemical attack
by acids, alkalis, solvents, oils and greases in a liquid or gaseous phase.

Thermal stress

- temperature inside the vessels
- strongly varying environmental temperatures
- different temperature distribution inside the vessels
- thermal cycling by charging and process sequence
- temperature drop in the individual masonry courses
- different thermal expansion coefficients of masonry and shell

Mechanical stress

- internal pressure or vacuum
- vibration
- gas or liquid flow
- solids
- abrasion
- traffic areas

耐酸陶瓷材料目前被用在如下情况

有化学侵蚀建筑的工业领域

地坪、地沟、墙面修补

化工，钢铁行业，金属行业

容器、反应釜、洗涤塔、中和塔、洗涤槽、过滤器、酸储罐等

化纤行业、纺织业、纸浆造纸业

漂白和染色罐、溶解槽、纸浆箱、浸煮器等

焦化工业

氨饱和器、饱和器维修、码头储油罐

硫酸装置、焦化坡道、焦化冷却塔

离心机平台、盐储罐、冷却器装置等

电池工厂

施工和装货房，酸搅拌装置，中和区，干燥房

发电站

烟道脱硫装置，脱硝装置，地沟，通道，水处理装置

耐酸陶瓷材料载荷

耐酸陶瓷材料被用于暴露在如下情况的化学容器衬里中

化学腐蚀

酸，碱，溶剂，液体油脂或气体

热应力

容器内温度

强烈变化的环境温度

容器内不同温度分布

通过加料和工艺顺序来热循环

在个别建筑物内温度下降

建筑和外壳不同的膨胀系数

机械应力

内压力或真空

震动

气体或液体流动

固体

磨损

交汇区

Acid-resistant tiles, bricks and shapes in standard sizes 耐酸瓷砖、砖、标准砖

Demands on acid-resistant material

- low water absorption (apparent porosity) in order to minimize penetration of aggressive media
- high SiO_2 content for being as siliceous as possible (resistance against acids)
- low contents of Al_2O_3 , Fe_2O_3 , CaO and MgO , because exactly these components show high acid solubility
- high mechanical strength and good abrasion resistance when being used as floor lining or in vessels with abrasive components in the aggressive media
- good thermal shock resistance

Standards and regulations

The demands on acid-resistant ceramic lining materials are stipulated in:

DIN EN 14879-6 Organic coating systems and linings for protection of industrial apparatus and plants against corrosion caused by aggressive media – Part 6: Combined linings with tile and brick layers

The following properties for acid-resistant ceramic materials and their testing method are defined in:

DIN EN 993-1 Determination of the bulk density, apparent porosity and true porosity

DIN EN 993-5 Determination of the crushing strength at room temperature (CCS)

DIN 51068 Part 1 Determination of the resistance against thermal shock

DIN EN 993-16 Determination of the resistance against sulphuric acid

耐酸材料要求

- 低吸水率（显气孔率）为了媒介最小化渗透
- 尽可能高含量 SiO_2 (电阻耐酸)
- 少量含 Al_2O_3 , Fe_2O_3 , CaO 和 MgO , 这些成分展示了高酸溶解度
- 在地坪或者容器高腐蚀介质中磨料具有高机械强度和耐磨性
- 抗热震性能好

标准与法规

耐酸衬里材料的要求及规定:

DIN EN 14879-6 有机涂层和衬里系统用于活性介质工业设备和装置的抗腐蚀保护 – 章节 6: 瓷砖和砖与衬里结合

耐酸陶瓷材料测试方法定义

DIN EN 993-1 测定体积密度、显气孔率、孔隙度

DIN EN 993-5 室温下测定抗拉强度

DIN 51068 1 章节 抗热性能测定

DIN EN 993-16 耐酸测定

Acid-resistant tiles, bricks and shapes in standard sizes 耐酸瓷砖、砖、标准砖

Production of acid-resistant ceramic materials

- **Raw materials**
The clay resources of the "Westerwald" region and the "chamotte" prefired from such clay, offer – amongst additional raw materials – ideal conditions for the production of high grade acid-resistant products.
- **Methods of manufacture**
The manufacture of acid-resistant ceramic products can be subdivided in plastic and dry shaping.

Plastic processing

In general there are three different methods:

1. **Vacuum extrusion**
With this procedure the mass is compressed under vacuum with an extruder and an endless clot of mass is extruded, that is cut in varying frequencies according to the required length. This procedure is suitable for simple symmetric geometries and high quantities.
2. **Machine processing**
With this procedure mass bodies are extruded that are subsequently machine re-shaped in steel moulds. This procedure is suitable for complicated geometries and medium to high quantities.
3. **Hand processing**
With this procedure the shapes are hand formed from plastic clots (extruded without vacuum). This procedure is suitable for complicated geometries that cannot be made by pressing and for small to medium quantities.

Dry processing

The dry processing is divided in two methods:

1. **Machine pressing**
With this procedure "dry" pourable mixes are compressed in steel moulds on hydraulic or mechanic presses. This procedure is suitable for simple geometries and big quantities with excellent dimensional accuracy.
2. **Dry ramming**
With this procedure "dry" pourable mixes are compressed in wooden steel-clad moulds with a pneumatic hammer. This procedure is suitable for complicated geometries and high brick weights and for small and medium quantities. It is also appropriate for achieving a very high dimensional accuracy.

Acid-resistant tiles, bricks and shapes in standard sizes 耐酸瓷砖、标准砖

耐酸陶瓷产品烧制

耐酸陶瓷材料生产

- **原材料**
黏土来源“韦斯特”地区，耐火材料由此黏土预热得来，以及其他额外原材料是生产优质耐酸产品的前提。
- **制造方法**
耐酸陶瓷制品可以在塑料干燥成型中被细分制造。

塑料成型加工

一般来说有三种不同方法:

1. **真空挤压**
真空压缩机连续不断挤压出团块的过程，根据所需长度调整不同频率。这个过程适用于大量简单的结构。
2. **机械加工**
产品被大量挤出随后用机器在钢模中改造成型。本制造过程适用于大量复杂结构的介质。
3. **手工处理**
这个过程是用手工形成塑料模块（无真空挤压）。此过程适用于小批量交期时间充足的复杂结构。

干燥处理

干燥处理分为两种方法:

1. **机械加压法:**
用液压或机械压力把产品混合浇筑压入钢模中。此过程适用于大批量精度要求高的简单结构。
2. **干燥冲压:**
用气锤把产品混合浇筑压入木钢混合磨具中。此过程适用于中小数量的重砖。也可以达到一个很高的精度。



调整烧制时间和温度达到最大矿化作用。此外为了保持脆性，尽可能降低玻璃化阶段形成。

质量保证

根据 DIN EN ISO 9001 在生产前检查原材料质量证书。根据质量大纲基础做测速实验，与原材料数据进行对比分析。

在生产过程中执行以下检查程序：

- 准备颗粒大小均匀的原材料
 - 生产搅拌含水量和可塑性
 - 分送大小颗粒混合生产
 - 加工后处理体积密度及形状
 - 干燥剩余水分
-
- 烧制完美形状和尺寸

另外这些成品的化学成分和物理性能还需要最终检测控制。

Firing of acid-resistant ceramic products

The firing temperature and firing time is adjusted to achieve maximum mineralisation. Moreover the formation of vitrification phases is kept as low as possible in order to avoid increased brittleness.

Quality assurance

Quality assurance – certified according to DIN EN ISO 9001 – starts in the production with checking of the raw material supplies. On base of a defined testing schedule, the incoming raw materials are analysed for compliance with the standard data.

The following checks are performed during the manufacturing process:

- Distribution of grain sizes of the raw materials after preparation
- Moisture content and plasticity of the production mixes
- Distribution of grain sizes of the production mixes
- Bulk densities and sizes of the shapes after processing
- Residual moisture and condition of the shapes after

drying

- Sizes and perfection of the shapes after burning

In addition to these production and final controls the products are tested in respect to their chemical composition and their physical properties.

Acid-resistant tiles, bricks and shapes in standard sizes 耐酸瓷砖、标准砖

Acid resistant bricks and tiles / vacuum extruded (plastic) 耐酸瓷砖/真空挤压（塑料）

商品名/ Brand		Steuler	Steuler	Steuler
		SF-P	SF-NF	SF-A
商品编码. / Brand-No.		4251	4311	4231
化学成分/ Chemical analysis				
	Al ₂ O ₃ %	25	23	24
	SiO ₂ %	69	71	69
	Fe ₂ O ₃ %	1,0	1,0	1,0
物理数据 / Physical Data				
体积密度 Bulk Density	R g/cm ³	2,28	2,12	2,12
气孔率 Apparent Porosity	P ₀ Vol. %	4	11	11
吸水性 Water Absorption	WA Gew.-%	2	5	5
低温压碎强度 Cold Crushing Strength	KDF N/mm ²	160	110	130
弯曲强度 Bending Strength	KBF N/mm ²	25	15	15
耐热震性 Thermal Shock Resistance	TWB n	10	6	6
酸溶解度 Acid Solubility	SL Gew.-%	1,0	0,9	0,9
导热系数/ Thermal Conductivity				
	400 °C W/mK	1,05	1,05	1,05
	800 °C W/mK	1,35	1,35	1,35
	1200 °C W/mK	1,55	1,55	1,55

尺寸公差 / Dimensional tolerance: 尺寸 /
for sizes < 100 mm: ± 2 mm 尺寸 / for
sizes ≥ 100 mm: ± 2 %
最大弯曲尺寸 / Warpage of the largest size: ≤ 1,5 %

上表数据标准值适用于压力机生产的砖或者类似的砖。这些数据被认定符合德国标准。这些数据无法用于其它尺寸或者测试。所有数据符合我们目前所掌握的情况。然而关于产品性能的责任无法从数据中获得。我们有权做技术改变。

The above data are standard values applicable to machine-pressed straight bricks and similar sizes. They have been determined in compliance with the current DIN specifications. They cannot be taken without reservation for other sizes or as inspection specification. All information correspond to the present state of our knowledge. However a liability concerning properties cannot be derived from the data. We reserve the right to make any technical alterations.

Acid-resistant tiles, bricks and shapes in standard sizes 耐酸瓷砖、标准砖

耐酸砖/机械加工（塑料）

Acid resistant bricks / machine processed (plastic)

商标/ Brand		Steuler
		SF-A
商品号码. / Brand-No.		4212
化学成分 / Chemical analysis		
	Al ₂ O ₃ %	23
	SiO ₂ %	71
	Fe ₂ O ₃ %	1,0
物理数据 / Physical Data		
体积密度 Bulk Density	R g/cm ₃	2,13
显气孔率 Apparent Porosity	P ₀ Vol. %	11
吸水性 Water Absorption	WA Gew.-%	5
低温压碎强度 Cold Crushing Strength	KDF N/mm ₂	110
弯曲强度 Bending Strength	KBF N/mm ₂	15
耐热震性 Thermal Shock Resistance	TWB n	6
酸溶解度 Acid Solubility	SL Gew.-%	0,9
导热系数 / Thermal Conductivity		
	400 °C W/mK	1,05
	800 °C W/mK	1,35
	1200 °C W/mK	1,55

尺寸公差 / Dimensional tolerance: 尺寸/

for sizes < 100 mm: ± 2 mm 尺寸 / for

sizes ≥ 100 mm: ± 2 %

最大弯曲尺寸/ Warpage of the largest size: ≤ 1,5 %

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Acid-resistant tiles, bricks and shapes in standard sizes 耐酸瓷砖、标准砖

Acid resistant bricks / semi-dry pressed / dry rammed

耐酸砖/半干压/干燥撞击

商标名 / Brand		Steuler	Steuler	Steuler
		SF-A	SF-H	SF-S
商品编号 / Brand-No.		4260	4420	4247
化学成分 / Chemical analysis				
	Al ₂ O ₃ %	24	24	24
	SiO ₂ %	69	69	68
	Fe ₂ O ₃ %	1,1	1,2	0,9
物理数据 / Physical Data				
体积密度 Bulk Density	R g/cm ₃	2,14	2,14	2,17
显气孔率 Apparent Porosity	P ₀ Vol. %	11	13	10
吸水性 Water Absorption	WA Gew.-%	5	6	5
低温压碎强度 Cold Crushing Strength	KDF N/mm ²	70	70	80
弯曲强度 Bending Strength		12		15
耐热震性 Thermal Shock Resistance	TWB n	10	20	8
酸溶解度 Acid Solubility	SL Gew.-%	0,9	1,0	0,6
导热系数 / Thermal Conductivity				
	400 °C W/mK	1,05	1,05	1,05
	800 °C W/mK	1,35	1,35	1,35
	1200 °C W/mK	1,55	1,55	1,55

尺寸公差 / Dimensional tolerance: 尺寸 /

for sizes < 150 mm: ± 1,5 mm 尺寸 / for

sizes ≥ 150 mm: ± 1 %

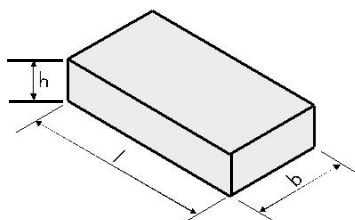
最大弯曲尺寸 / Warpage of the largest size: ≤ 1 %

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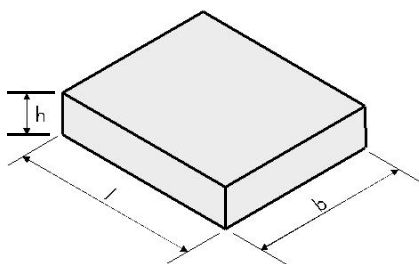
Acid-resistant tiles, bricks and shapes in standard sizes 耐酸瓷砖、标准砖

标砖



类型 type	标号 number	尺寸 mm / sizes in mm			kg/块 kg/piece
		l	b	h	
NF 2	20004311	250	124	64	4,25
NF 2-80	20024311	250	124	80	5,30
N 40	9209154311	240	115	40	2,35
N 50	20254260	240	115	50	2,95
N 65	20174260	240	115	65	3,85
N 80	20184260	240	115	80	4,75
N 100	20274260	240	115	100	5,90

基础砖
Foundation brick



类型 type	标号 number	尺寸 mm / sizes in mm			kg/块 kg/piece
		l	b	h	
F 24-65	58584260	240	240	65	8,05
F 24-80	58594260	240	240	80	9,90
F 24-100	58634260	240	240	100	12,40
F 24-115	58644260	240	240	115	14,25
F 30-100	58604260	300	300	100	19,35
F 40-100	58554260	400	400	100	34,40
F 42-100	58544260	400	200	100	17,20
F 50-100	58574260	500	500	100	53,75

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Fon: +49 2623 600-557 / Fax: +49 2623 600-623 / Mail: sales-oss@steuler-kch.de / www.steuler-kch.de

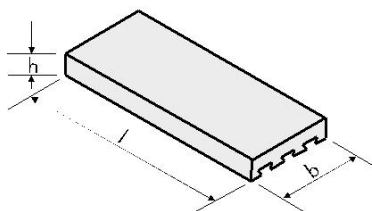
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Fon: +49 2623 600-557 / Fax: +49 2623 600-623 / Mail: sales-oss@steuler-kch.de / www.steuler-kch.de

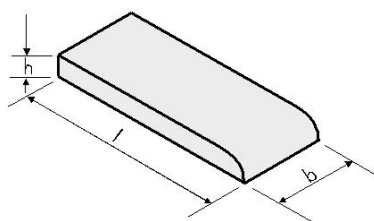
Acid-resistant tiles, bricks and shapes in standard sizes 耐酸陶瓷砖，标砖



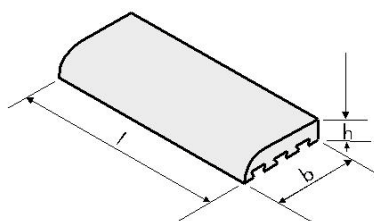
劈离砖
Split tile



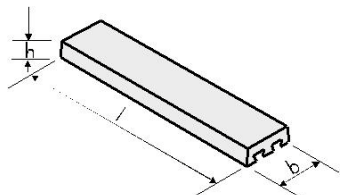
劈离砖，短边外圆
Split tile, short edge bullnosed



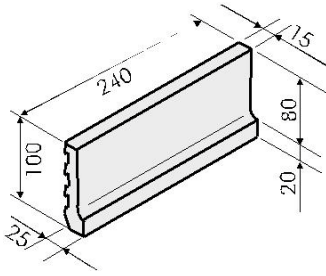
劈离砖，长边圆角
Split tile, long edge bullnosed



条形砖
Strip tile



凹圆形踢脚砖
Coved skirting tile



型号 type	标号 number	尺寸 mm / sizes in mm			kg/块 kg/piece
		l	b	h	
DS 15	9209094251	240	115	15	0,80
DS 20	9209084251	240	115	20	1,19
DS 25	9209104251	240	115	25	1,52
DS 30	9209114251	240	115	30	1,83
DS 40	9209124251	240	115	40	2,39

型号 type	标号 number	尺寸 mm / sizes in mm			kg/块 kg/piece
		l	b	h	
SR 15	43304251	240	52	15	0,40

型号 type	标号 number	尺寸 mm / sizes in mm			kg/块 kg/piece
		l	b	h	
DB 20	9216524251	240	115	20	1,15

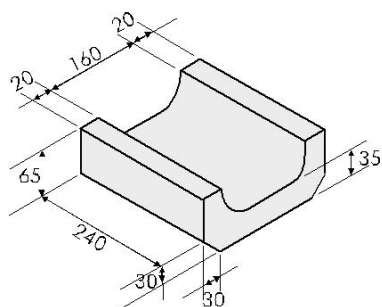
型号 type	标号 number	尺寸 mm / sizes in mm			kg/块 kg/piece
		l	b	h	
DL 20	9216514251	240	115	20	1,15

型号 type	标号 number	尺寸 mm / sizes in mm			kg/块 kg/piece
		l	b	h	
K	9216514251	240	25	100	1,20

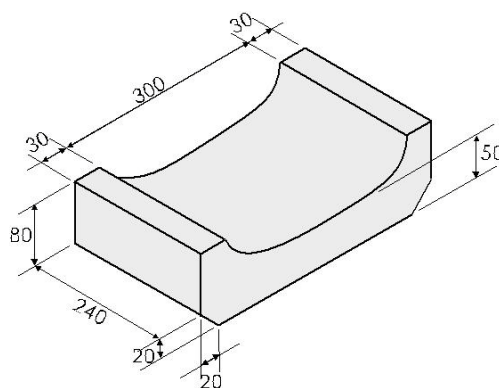
槽底砖
Trench bottom brick

型号 type	标号 number	kg/块 kg/piece
R 16	55134321	3,80
R 20	55024321	6,90
R 25	55144321	9,30
R 30	55154231	11,10
R 40	55164231	14,10

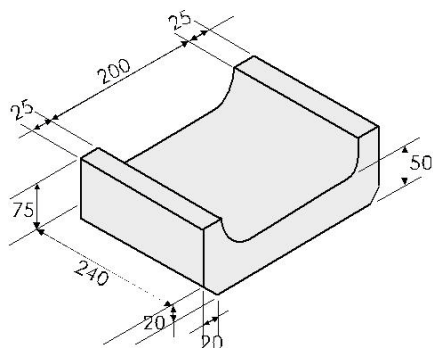
R 16



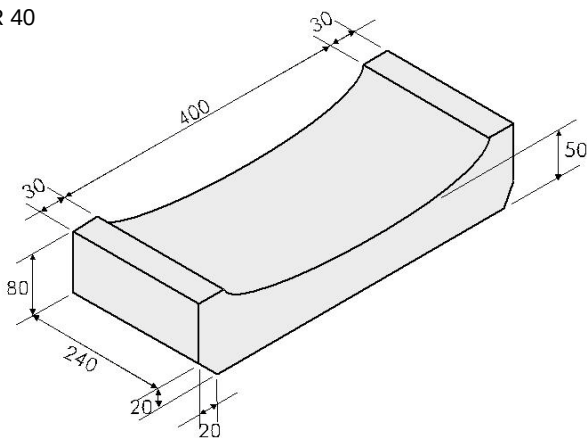
R 30



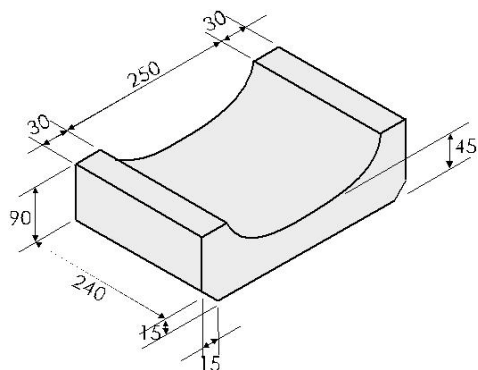
R 20



R 40



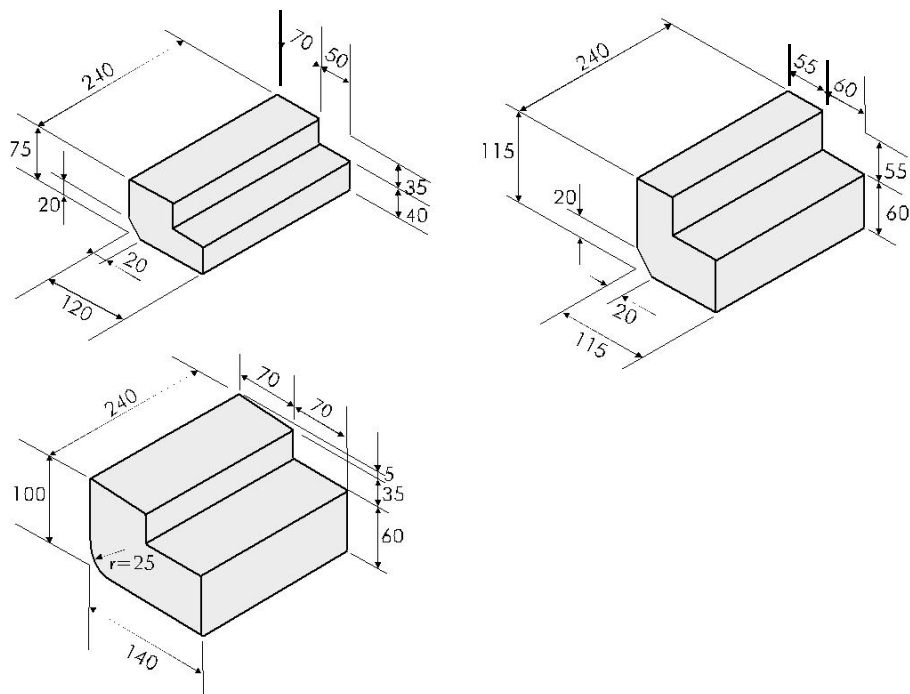
R 25



Acid-resistant tiles, bricks and shapes in standard sizes 耐酸陶瓷砖，标砖

缩缘式边缘砖 / 沟边缘砖

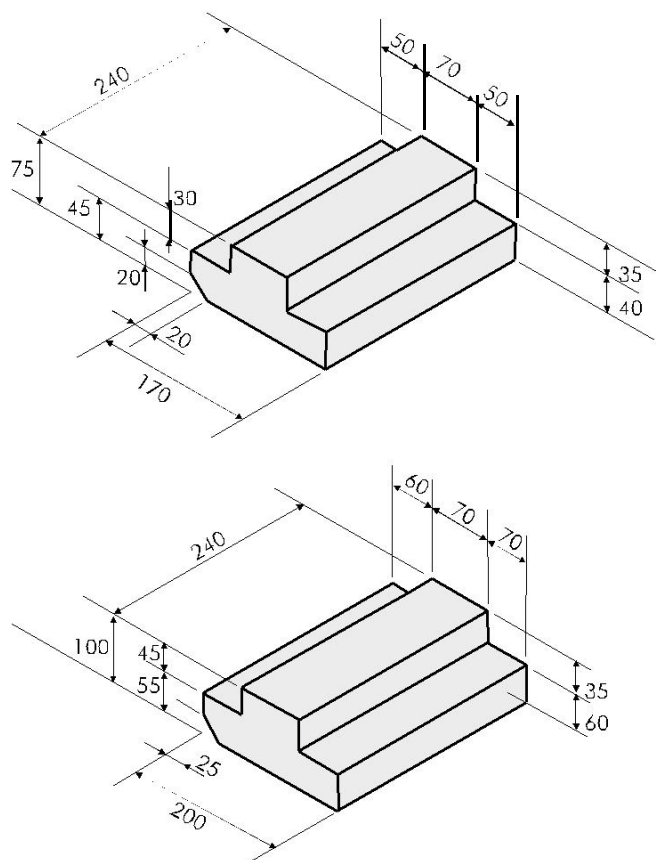
Rebated edge brick / Trench edge brick



型号 type	标号 number	kg/块 kg/piece
K 1-35	55514311	3,70
K 1-55/60	55504311	5,02
SKR	55904311	5,70

双缩缘式边缘砖 / 双沟边缘砖

Double rebated edge brick / Double trench edge brick



型号 type	标号 number	kg/块 kg/piece
K 2-35	55524311	5,10
SKRR	55914311	7,48

Acid-resistant tiles, bricks and shapes in standard sizes
耐酸陶瓷砖，标砖

细沟渠砖

Detail trench brick

	A	B	C
R 16	260	160	220
R 20	300	200	270
R 25	350	250	330
R 30	400	300	380
R 40	500	400	480

双缩缘式边缘砖 K2-35

Double rebated edge brick K2-35

缩缘式边缘砖 K1-35

Rebated edge brick K1-35

劈离砖 DS 20, DS 25, DS 30

Split tile DS 20, DS 25, DS 30

胶泥

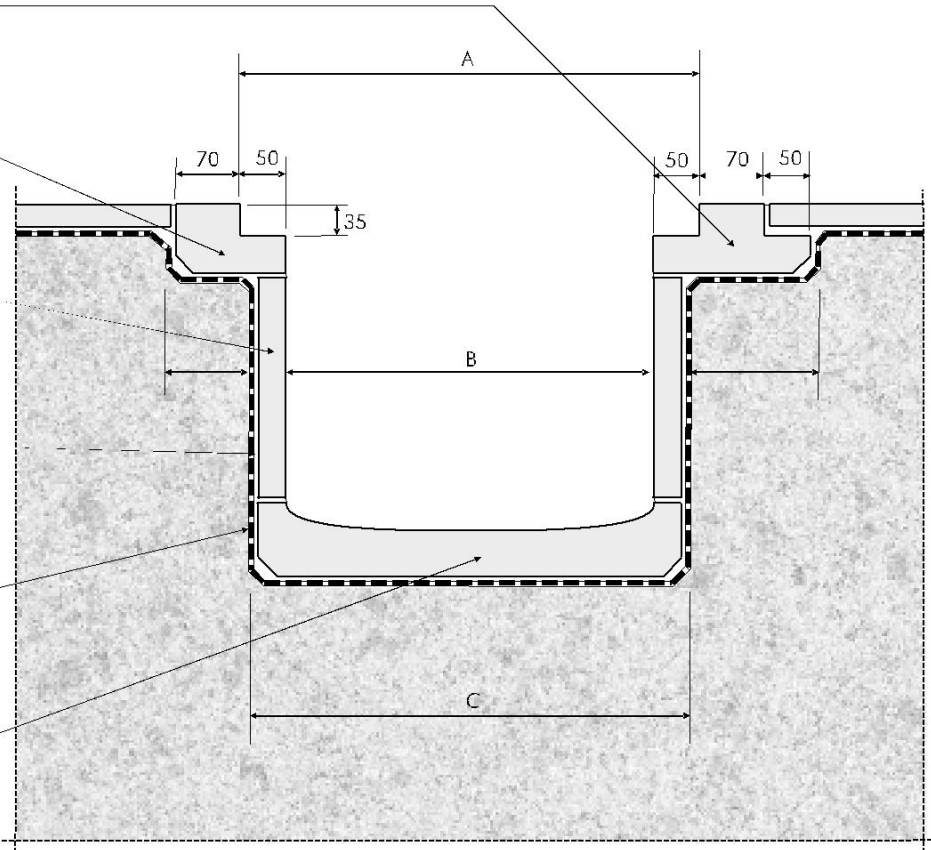
Mortar

薄膜

Membrane

槽底砖

Trench bottom brick



细沟渠砖

Detail rebated edge brick

缩缘式边缘砖 K1-55/60

Rebated edge brick K1-55/60

劈离砖 DS 20, DS 25, DS 30

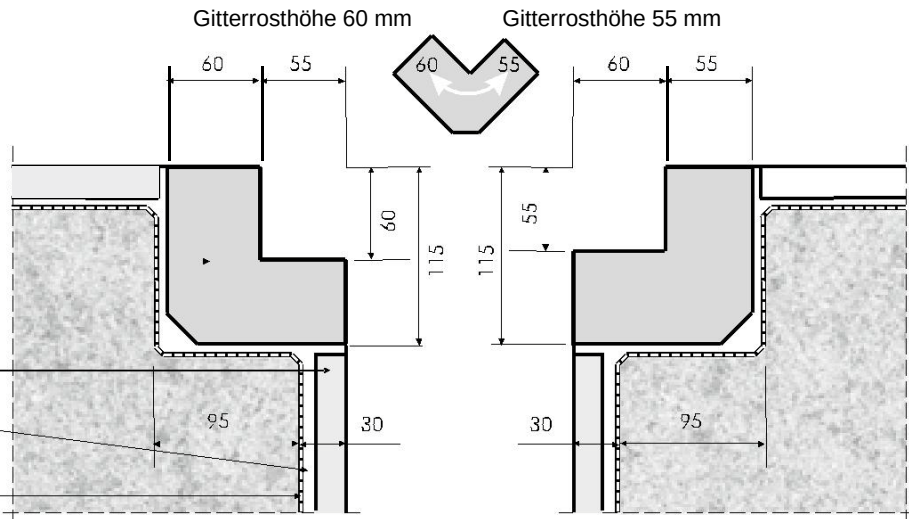
Split tile DS 20, DS 25, DS 30

胶泥

Mortar

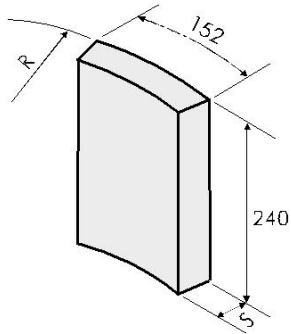
膜

Membrane



Acid-resistant tiles, bricks and shapes in standard sizes
耐酸陶瓷砖，标准砖

圆弧砖
Circle brick



S = 30 mm

型号 type	半径 radius	标号 number	kg/块 kg/piece
M 8-30	400	53504212	2,26
M 12-30	600	53604212	2,29
M 16-30	800	53704212	2,30
M 20-30	1000	53804212	2,31
M 30-30	1500	53904212	2,33

S = 40 mm

型号 type	半径 radius	标号 number	kg/块 kg/piece
M 8-40	400	53514212	2,97
M 12-40	600	53614212	3,03
M 16-40	800	53714212	3,05
M 20-40	1000	53814212	3,08
M 30-40	1500	53914212	3,10

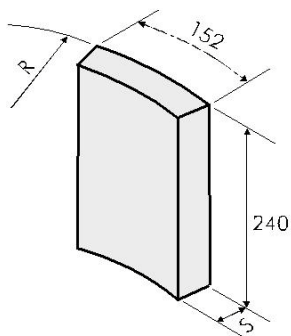
S = 50 mm

型号 type	半径 radius	标号 number	kg/块 kg/piece
M 8-50	400	53524212	3,66
M 12-50	600	53624212	3,75
M 16-50	800	53724212	3,79
M 20-50	1000	53824212	3,82
M 30-50	1500	53924212	3,86

S = 65 mm

型号 type	半径 radius	标号 number	kg/块 kg/piece
M 8-65	400	53534212	4,67
M 12-65	600	53634212	4,81
M 16-65	800	53734212	4,88
M 20-65	1000	53834212	4,93
M 25-65	1250	53884212	4,96
M 30-65	1500	53934212	4,98

圆弧砖
Circle brick



S = 80 mm

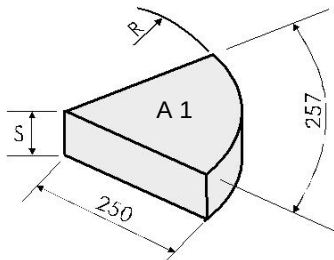
型号 type	半径 radius	标号 number	kg/块 kg/piece
M 8-80	400	53544212	5,63
M 12-80	600	53644212	5,84
M 16-80	800	53744212	5,94
M 20-80	1000	53844212	6,01
M 25-80	1250	53894212	6,07
M 30-80	1500	53944212	6,11
M 40-80	2000	53964212	6,15

S = 100 mm

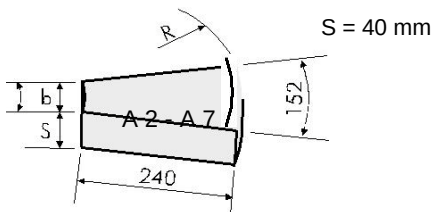
型号 type	半径 radius	标号 number	kg/块 kg/piece
M 8-100	400	53554260	6,85
M 12-100	600	53654260	7,19
M 16-100	800	53754260	7,35
M 20-100	1000	53854260	7,45
M 30-100	1500	53954260	7,60
M 40-100	2000	53974260	7,65

槽底砖 – 型号 A
Bottom brick – Type A

S = 30 mm



型号 type	标号 number	R	b	块 pieces	kg/块 kg/piece
A 1-30	50014212	250	-	6	2,07
A 2-30	50024212	495	76	20	1,76
A 3-30	50034212	740	101	30	1,96
A 4-30	50044212	985	114	40	2,06
A 5-30	50054212	1230	121	50	2,12
A 6-30	50064212	1475	126	59	2,15
A 7-30	50074212	1720	130	69	2,18



S = 40 mm

型号 type	标号 number	R	b	块 pieces	kg/块 kg/piece
A 1-40	50114212	250	-	6	2,76
A 2-40	50124212	495	76	20	2,35
A 3-40	50134212	740	101	30	2,61
A 4-40	50144212	985	114	40	2,75
A 5-40	50154212	1230	121	50	2,82
A 6-40	50164212	1475	126	59	2,87
A 7-40	50174212	1720	130	69	2,91

S = 50 mm

型号 type	标号 number	R	b	块 pieces	kg/块 kg/piece
A 1-50	50214212	250	-	6	3,45
A 2-50	50224212	495	76	20	2,94
A 3-50	50234212	740	101	30	3,27
A 4-50	50244212	985	114	40	3,44
A 5-50	50254212	1230	121	50	3,53
A 6-50	50264212	1475	126	59	3,60
A 7-50	50274212	1720	130	69	3,64

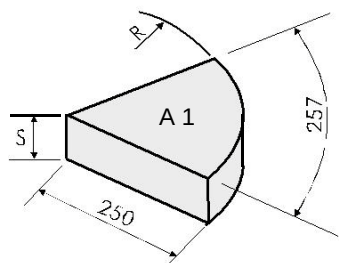
S = 65 mm

型号 type	标号 number	R	b	块 pieces	kg/块 kg/piece
A 1-65	50314212	250	-	6	4,50
A 2-65	50324212	495	76	20	3,82
A 3-65	50334212	740	101	30	4,24
A 4-65	50344212	985	114	40	4,46
A 5-65	50354212	1230	121	50	4,58
A 6-65	50364212	1475	126	59	4,67
A 7-65	50374212	1720	130	69	4,73

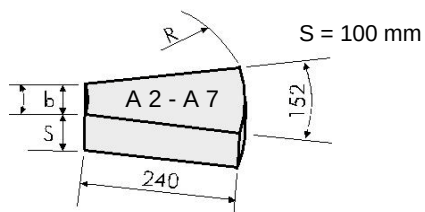
Acid-resistant tiles, bricks and shapes in standard sizes 耐酸瓷砖、标准砖

槽底砖 – 型号 A
Bottom brick – Type A

S = 80 mm



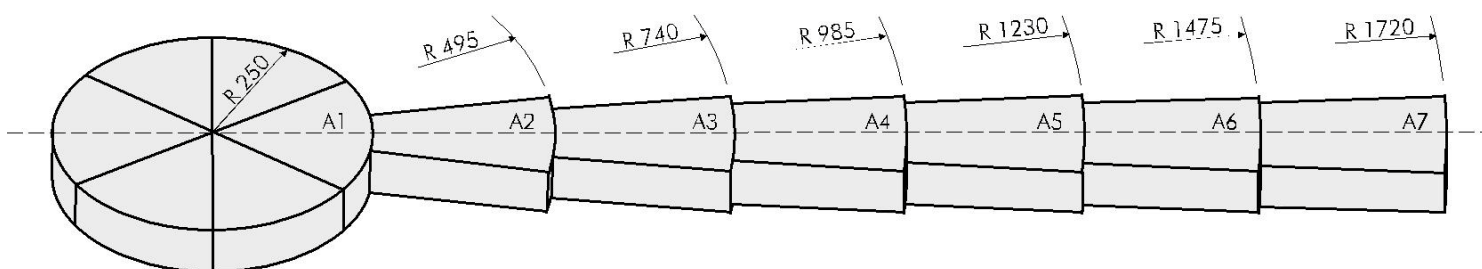
型号 type	标号 number	R	b	块 pieces	kg/块 kg/piece
A 1-80	50514212	250	-	6	5,53
A 2-80	50524212	495	76	20	4,71
A 3-80	50534212	740	101	30	5,22
A 4-80	50544212	985	114	40	5,50
A 5-80	50554212	1230	121	50	5,64
A 6-80	50564212	1475	126	59	5,74
A 7-80	50574212	1720	130	69	5,82



型号 type	标号 number	R	b	块 pieces	Kg/块 kg/piece
A 1-100	50614212	250	-	6	6,91
A 2-100	50624212	495	76	20	5,88
A 3-100	50634212	740	101	30	6,53
A 4-100	50644212	985	114	40	6,87
A 5-100	50654212	1230	121	50	7,00
A 6-100	50664222	1475	126	59	7,05
A 7-100	50674222	1720	130	69	7,10

详细：用径向底砖底部施工 – 型号 A

Detail: Bottom construction with radial bottom bricks – Type A

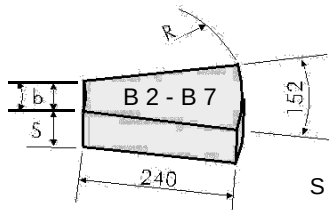
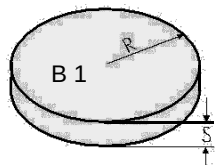


Acid-resistant tiles, bricks and shapes in standard sizes 耐酸瓷砖、标准砖

槽底砖 – 型号 B

Bottom brick – Type B

S = 30 mm



S = 40 mm

型号 type	标号 number	R	b	块 pieces	kg/块 kg/piece
B 1-30	50714212	150	-	1	4,55
B 2-30	50724212	395	57	16	1,61
B 3-30	50734212	640	93	26	1,90
B 4-30	50744212	885	109	36	2,02
B 5-30	50754212	1130	119	46	2,10
B 6-30	50764212	1375	125	55	2,14
B 7-30	50774212	1620	129	65	2,20

型号 type	标号 number	R	b	块 pieces	kg/块 kg/piece
B 1-40	50814212	150	-	1	6,08
B 2-40	50824212	395	57	16	2,16
B 3-40	50834212	640	93	26	2,53
B 4-40	50844212	885	109	36	2,70
B 5-40	50854212	1130	119	46	2,80
B 6-40	50864212	1375	125	55	2,85
B 7-40	50874212	1620	129	65	2,90

S = 50 mm

型号 type	标号 number	R	b	块 pieces	kg/块 kg/piece
B 1-50	50914222	150	-	1	7,42
B 2-50	50924212	395	57	16	2,70
B 3-50	50934212	640	93	26	3,16
B 4-50	50944212	885	109	36	3,37
B 5-50	50954212	1130	119	46	3,50
B 6-50	50964212	1375	125	55	3,57
B 7-50	50974212	1620	129	65	3,62

S = 65 mm

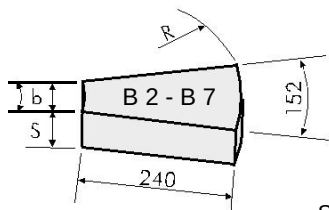
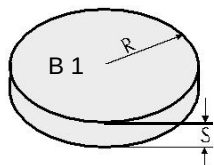
型号 type	标号 number	R	b	块 pieces	kg/块 kg/piece
B 1-65	51014222	150	-	1	9,65
B 2-65	51024212	395	57	16	3,51
B 3-65	51034212	640	93	26	4,11
B 4-65	51044212	885	109	36	4,38
B 5-65	51054212	1130	119	46	4,54
B 6-65	51064212	1375	125	55	4,65
B 7-65	51074212	1620	129	65	4,72

Acid-resistant tiles, bricks and shapes in standard sizes

耐酸瓷砖、标准砖

槽底砖 – 型号 B
Bottom brick – Type B

S = 80 mm



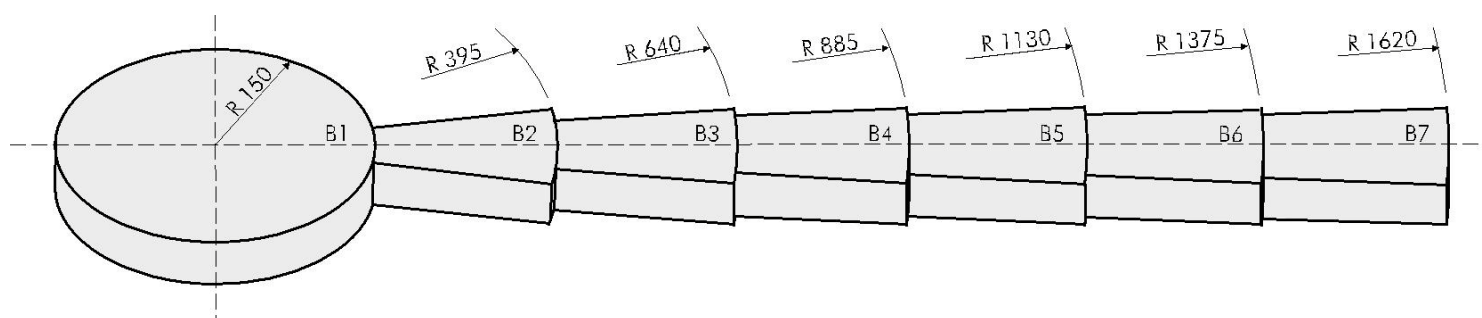
S = 100 mm

型号 type	标号 number	R	b	块 pieces	kg/块 kg/piece
B 1-80	51114222	150	-	1	11,87
B 2-80	51124212	395	57	16	4,31
B 3-80	51134212	640	93	26	5,06
B 4-80	51144212	885	109	36	5,21
B 5-80	51154212	1130	119	46	5,60
B 6-80	51164212	1375	125	55	5,72
B 7-80	51174212	1620	129	65	5,80

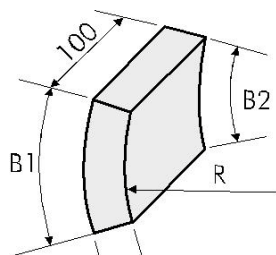
型号 type	标号 number	R	b	块 pieces	kg/块 kg/piece
B 1-100	51214222	150	-	1	14,84
B 2-100	51224212	395	57	16	5,40
B 3-100	51234212	640	93	26	6,32
B 4-100	51244212	885	109	36	6,73
B 5-100	51254212	1130	119	46	7,00
B 6-100	51264222	1375	125	55	7,02
B 7-100	51274222	1620	129	65	7,08

详细：用径向底砖底部施工 – 型号 – B

Detail: Bottom construction with radial bottom bricks – Type B



凹圆形砖
Coved brick



S = 30 mm

型号 type	标号 number	尺寸 mm / sizes in mm			kg/块 kg/piece
		R	B 1	B 2	
H 10 - 30	56304212	65	100	68	0,54
H 15 - 30	56314212	100	100	76	0,56
H 20 - 30	56324212	150	100	83	0,59
H 25 - 30	56334212	200	125	109	0,75
H 35 - 30	56344212	300	125	114	0,77

S = 40 mm

型号 type	标号 number	尺寸 mm / sizes in mm			kg/块 kg/piece
		R	B 1	B 2	
H 10 - 40	56404212	55	100	58	0,68
H 15 - 40	56414212	95	100	67	0,72
H 20 - 40	56424212	135	100	77	0,76
H 25 - 40	56434212	185	125	103	0,97
H 35 - 40	56444212	285	125	109	1,02

S = 50 mm

型号 type	标号 number	尺寸 mm / sizes in mm			kg/块 kg/piece
		R	B 1	B 2	
H 10 - 50	56504212	45	100	47	0,79
H 15 - 50	56514212	80	100	62	0,87
H 20 - 50	56524212	130	100	72	0,92
H 25 - 50	56534212	180	125	98	1,20
H 35 - 50	56544212	280	125	106	1,25

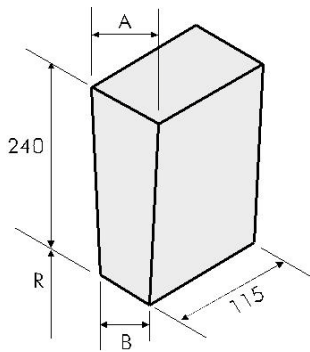
S = 65 mm

型号 type	标号 number	尺寸 mm / sizes in mm			kg/块 kg/piece
		R	B 1	B 2	
H 10 - 65	56604212	30	100	32	0,91
H 15 - 65	56614212	65	100	52	1,06
H 20 - 65	56624212	115	100	64	1,15
H 25 - 65	56634212	165	125	89	1,49
H 35 - 65	56644212	265	125	102	1,58

Acid-resistant tiles, bricks and shapes in standard sizes

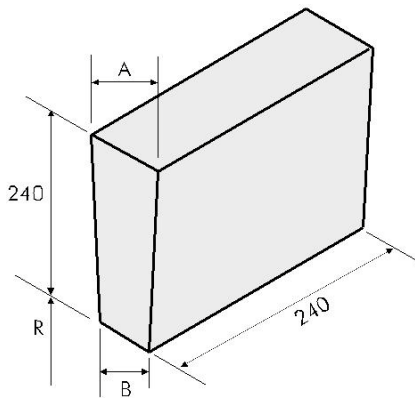
耐酸瓷砖、标准砖

端面拱形砖
End arch brick



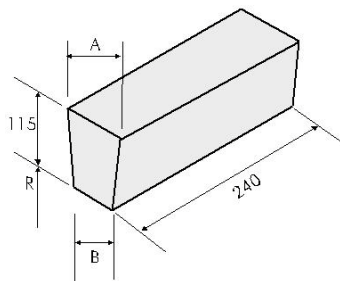
型号 type	标号 number	A	B	R	块 pieces	kg/块 kg/piece
G 4	22604212	78	74	4740	377	4,50
G 6	22614212	79	73	3120	252	4,50
G 10	22624212	81	71	1824	151	4,50
G 16	22634212	84	68	1095	95	4,50
G 24	22644212	88	64	690	63	4,50

双端面拱形砖
Double end arch brick



型号 type	标号 number	A	B	R	块 pieces	kg/块 kg/piece
GG 4	53004260	78	74	4740	377	9,41
GG 6	53014260	79	73	3120	252	9,41
GG 10	53024260	81	71	1824	151	9,41
GG 16	53034260	84	68	1095	95	9,41
GG 24	53044260	88	64	690	63	9,41

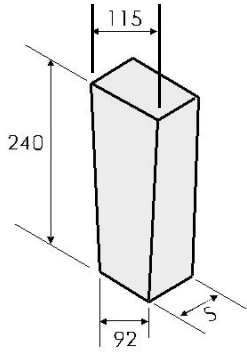
侧拱端
Side arch brick



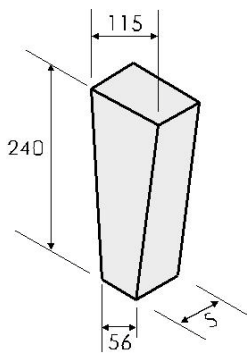
型号 type	标号 number	A	B	R	块 pieces	kg/块 kg/piece
H 4	22704260	78	74	2252	179	4,50
H 6	22714260	79	73	1482	119	4,50
H 10	22724260	81	71	867	72	4,50
H 16	22734212	84	68	520	45	4,50
H 24	22744212	88	64	328	30	4,50

Acid-resistant tiles, bricks and shapes in standard sizes
耐酸瓷砖、标准砖

锥砖
Cone brick



型号 type	标号 number	S	kg/块 kg/piece
K 23 / 3	59004212	30	1,60
K 23 / 4	59014212	40	2,15
K 23 / 5	59024212	50	2,65
K 23 / 6	59034212	65	3,45
K 23 / 8	59044212	80	4,25
K 23 / 10	59104212	100	5,35



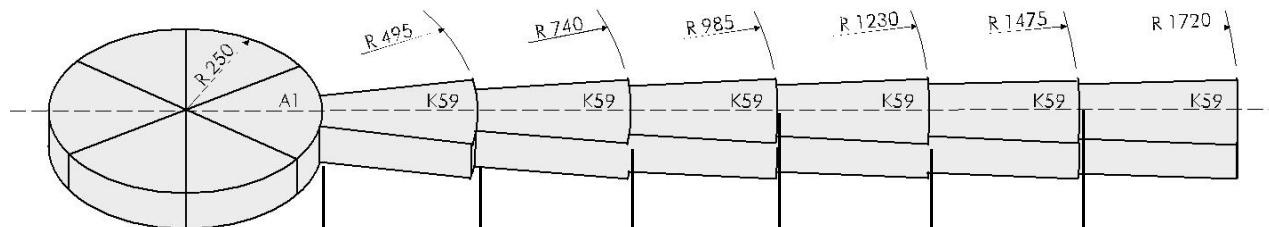
型号 type	标号 number	S	kg/块 kg/piece
K 59 / 3	59054212	30	1,30
K 59 / 4	59064212	40	1,75
K 59 / 5	59074212	50	2,20
K 59 / 6	59084212	65	2,85
K 59 / 8	59094212	80	3,50
K 59 / 10	59114212	100	4,40

Acid-resistant tiles, bricks and shapes in standard sizes

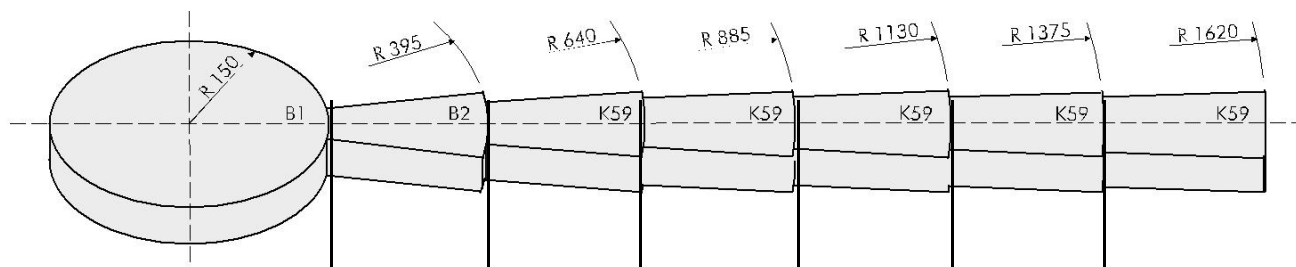
耐酸瓷砖、标准砖

详细：底部施工用锥砖系统

Detail: Bottom construction with cone brick system



径向底砖/每件 Radial bottom brick/pcs. per ring	-	-	-	-	-	-
锥砖/每件 Cone brick/pcs. per ring	26	26	26	26	26	26
标准砖/每件 Standard brick/pcs. per ring		13	26	39	51	64

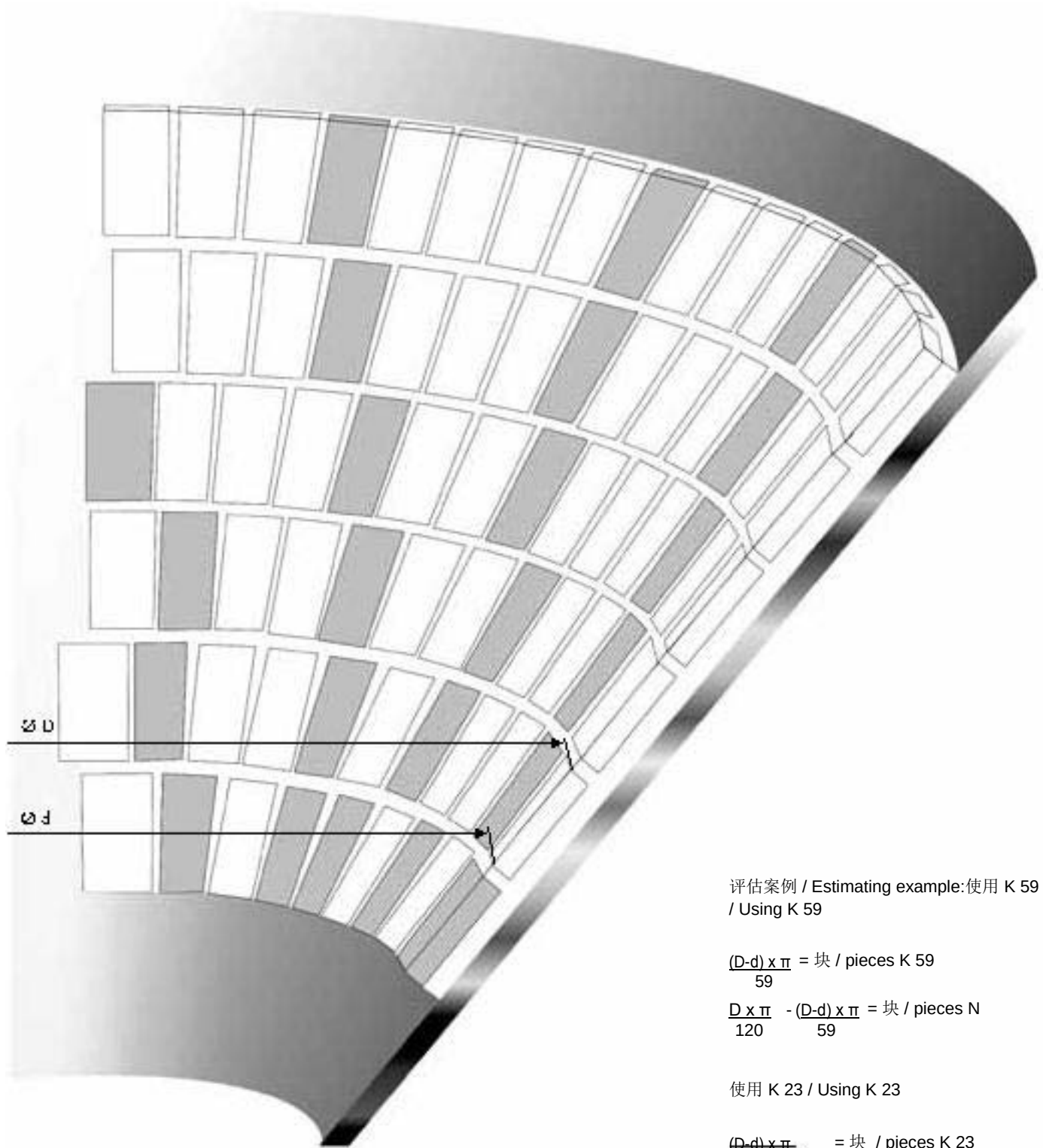


径向底砖/每件 Radial bottom brick/pcs. per ring	16	-	-	-	-	-
锥砖/每件 Cone brick/pcs. per ring	-	26	26	26	26	26
标准砖/每件 Standard brick/pcs. per ring		8	21	34	46	59

耐酸瓷砖、标准砖

详细：圆锥体施工用锥砖系统

Detail: Cone construction with cone brick system



评估案例 / Estimating example: 使用 K 59
/ Using K 59

$$\frac{(D-d) \times \pi}{59} = \text{块 / pieces K 59}$$

$$\frac{D \times \pi}{120} - \frac{(D-d) \times \pi}{59} = \text{块 / pieces N}$$

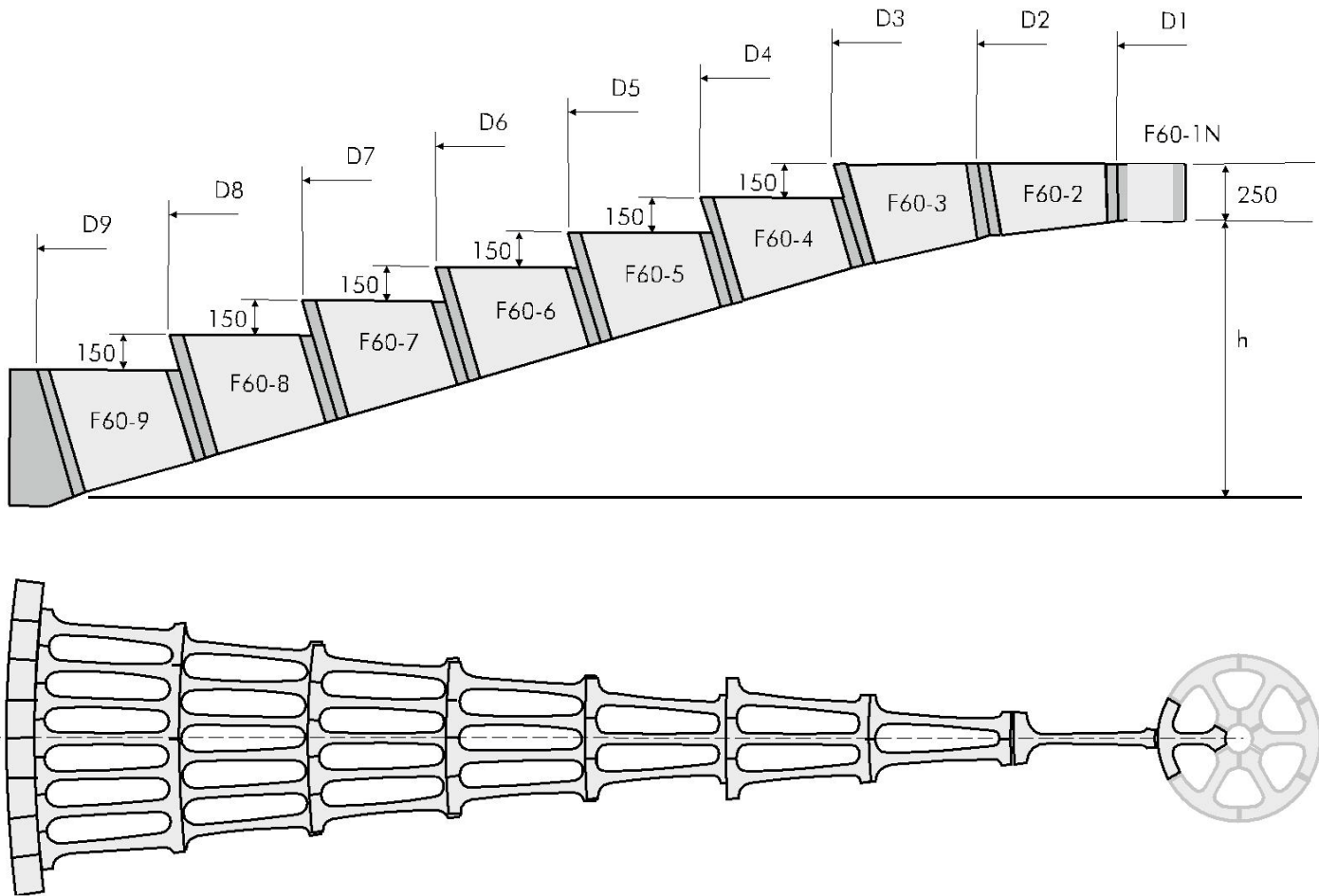
使用 K 23 / Using K 23

$$\frac{(D-d) \times \pi}{23} = \text{块 / pieces K 23}$$

$$\frac{D \times \pi}{120} - \frac{(D-d) \times \pi}{23} = \text{块 / pieces N}$$

耐酸瓷砖、标准砖

自动支持网格 – 型号 F 60
Self supporting grid – Type F 60

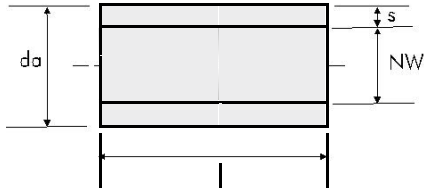


型号 type	标号 number	kg/块 kg/piece	块 pieces	名目 items	D	Ø	h mm	总重量 kg Total weight in kg
F 60-1 N	5709-4247	13,5	6	F 60-1	D1	597	0	81
F 60-2	5711-4247	22,3	26	F 60-1 bis/to F 60-2	D2	1814	66	660
F 60-3	5712-4247	31,2	53	F 60-1 bis/to F 60-3	D3	3080	195	2314
F 60-4	5713-4247	32,0	78	F 60-1 bis/to F 60-4	D4	4240	363	4810
F 60-5	5714-4247	31,8	104	F 60-1 bis/to F 60-5	D5	5402	531	8117
F 60-6	5715-4247	33,3	129	F 60-1 bis/to F 60-6	D6	6564	399	12413
F 60-7	5716-4247	35,0	154	F 60-1 bis/to F 60-7	D7	7727	867	17803
F 60-8	5717-4247	36,1	179	F 60-1 bis/to F 60-8	D8	8888	1035	24265
F 60-9	5718-4247	41,9	205	F 60-1 bis/to F 60-9	D9	10053	1203	32855

Acid-resistant tiles, bricks and shapes in standard sizes

耐酸瓷砖、标准砖

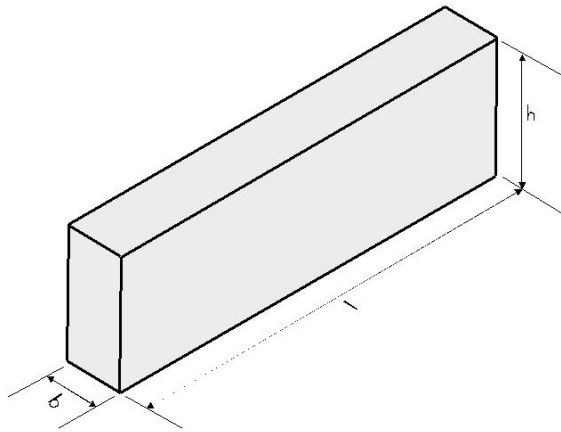
氧化铝
Ceramic sleeve



Kurzzeichen type	Nummer number	Maße in mm / sizes in mm				kg/Stück kg/piece
		NW	da	s	l	
88/20	56704223	20	50	15	200	0,71
89/30	56714223	30	70	20	200	1,35
90/40	56724223	40	80	20	300	2,43
91/50	56734223	50	100	25	300	3,80
92/60	56744223	60	120	30	300	5,47
93/70	56754223	70	130	30	300	6,08
94/80	56764223	80	140	30	300	6,69
95/90	56774223	90	150	30	300	7,13
96/100	56784223	100	160	30	300	7,72
97/120	56794223	120	180	30	300	8,91
98/130	56694223	130	190	30	335	10,86

Rostbalken
Grid beams

Nummer number	Maße in mm / sizes in mm			kg/Stück kg/piece
	l	b	h	
57004247	1150	80	240	48,55
57014247	1150	80	250	50,60
57034247	1150	100	400	101,20
57044247	1150	125	400	123,60



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