

FIREPROOF PRODUCTS



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INTRODUCTION

Matrix of graphite fireproof crucibles is natural graphite, clay and silicon carbide.

GRAPHITE is basis of heat conduction, electrical conduction, it gives necessary thermal stability to crucible and is for the most part stable to chemical action. The only solvent for graphite is melted iron. That's why graphite crucibles are not intended for melting of cast iron and steel. One more "disadvantage" of graphite is its corrosion at oxygen's access, beginning from 600°C. Therefore crucibles are covered with glaze, which defends graphite from corrosion for the most part.

CLAY is high-refractory bond for graphite articles.

SILICON CARBIDE is additional heat conductor, which also increases mechanical strength and durability of crucibles essentially.

MARKING Marking of crucibles includes:

1. Form of products.
2. Brand of material, from which the crucible is manufactured.
3. Number or capacity of a product.
4. Type of glaze.
5. Further details.

Depending on composition and assignment the following types of products are distinguished:

- on clay bond:

A - intended for melting of non-ferrous metals with the melting temperature up to 1500°C in induction and resistance furnaces.

K - for melting of non-ferrous metals with melting temperature up to 1600°C in induction and gas or liquid furnaces, distribution of non-ferrous metals in resistance furnaces.

C - for casting of non-ferrous metals with working temperature up to 1600°C.

T - for melting precious metals with melting temperature up to 1600°C in induction and muffle furnaces.

D - for melting of precious metals with melting temperature up to 1250°C by heating at the expense of passing a current through a crucible.

E - for foundry accessories.

H - for testing of non-ferrous metals.

- on carbon bond:

X - for melting of non-ferrous metals with melting temperature up to 1500°C in resistant and gas or liquid furnaces. They don't demand preliminary drying.

The crucibles are protected from oxidation and freting by special glazes:

L - for operations with metals with melting temperature lower than 1000°C.

T - for working in conditions of temperature over 1000°C.

As further details the following signs are adopted:

"1" - application of glazes on outer surface only.

"2" - crucibles are intended for resistance furnaces.

Type of glaze and further details are indicated for crucibles on clay bond only.

EXAMPLES OF NOTATION CONVENTIONS:

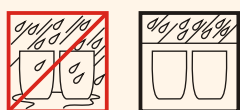
BA 750L2 TY....., that is crucible form B type A, with capacity 750 kg on copper, for melting of non-ferrous metals with melting temperature up to 1000°C (L) in resistance furnaces (2).

ZK 175T TY....., that is cylinder crucible form Z, type K, with capacity 175 kg on copper, for melting of non-ferrous metals with melting temperature up to 1000°C (T) in induction furnaces.

AX 500 TY....., that is crucible form A, type K, with capacity 500 kg on copper for melting of non-ferrous metals in resistance and flame furnaces.

OPERATIONAL GUIDELINE OF THE CRUCIBLES

Storage of the Crucibles

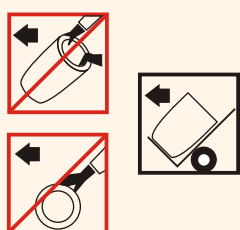


The crucibles should be stored in dry well-aired room, on wood shelving (supports). The storage of the crucibles on concrete or metal floor is not allowed.



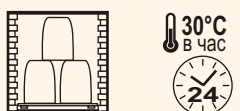
It is not allowed to put the crucibles one into another.

Transportation

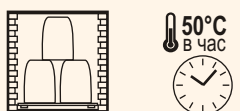


It is impossible to enable pushes and impacts on the crucibles. It is impossible to move the crucibles on floor edgewise or on the bottom edge. It is recommended to use the trolleys with padding transportation.

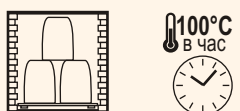
Preparation of crucibles



Drying of crucibles
 - at temperature 200°C 24 hours at least. The rise of temperature should not be sudden at most 30°C per hour.



Glowing of crucibles
 - crucibles of type C - rise of temperature till 900°C in 50°C per hour.
 - crucibles of type A and K - rise of temperature till 1050°C in 100°C per hour.



- crucibles of type X - rise of temperature till 400°C in 100°C per hour and further till 1050°C as soon as possible.

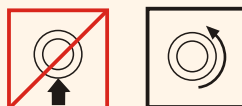
Installation of the Crucibles



Around of an upper crucible edge it is necessary to create an even gap. For this purpose it is possible to use cardboard or arboreal chips. It is not allowed to use wedges made of fire proof material.



The burner axis should be in a bottom plane of a crucible.



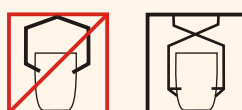
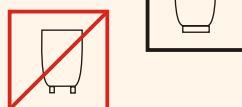
The burner should be established so that the flame does not flap directly in a crucible and bent it on tangent.



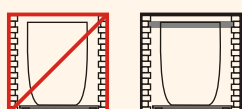
A gap between crucible and a furnace cover should be insulated by thermoinsulating material.



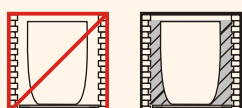
Use only standard supports. Between crucible and support should be separating material: paper, coke, alumina.



For installation and extraction of crucibles tongs (claws) should be used. Tongs should correspond to the shape of crucible and be wrapped up with mild material.

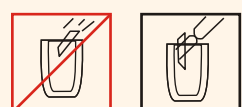


In resistance ovens and induction furnaces air gap between crucible's edge and oven's cover should be sealed up by mixture on the ground of fireproof clay.

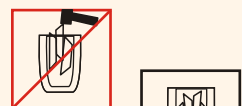


In induction furnaces space between crucible and inductor is filled by insulating material.

Loading of Metal



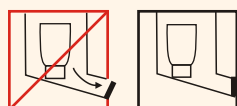
The metal is necessary to load in the previously warmed-over crucible. The metal should be dry and heated a little. The large pieces should be placed into crucible by grips, avoiding their impacts with a crucible.



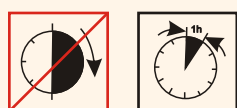
The ingots should be packed into a crucible upright excluding jamming of separate pieces.



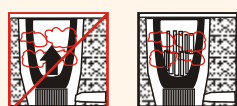
Conducting of Melting



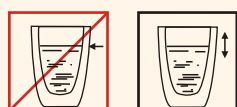
It is forbidden categorically to warm up a crucible with metal stiffened in it. The hole for emergency output of molten metal in furnace should be closed.



Metal melting is necessary to conduct as soon as possible.



Don't leave empty crucible in the furnace between meltings. Period between meltings should be minimal.



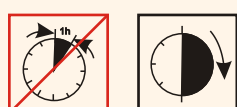
It is necessary to change a level of melt in a crucible in order to avoid fretting of crucible walls by drosses on a "mirror" of metal.



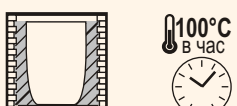
Keep strictly to necessary quantity of chemical components for modification of alloys.



Enter the components only into molten metal.

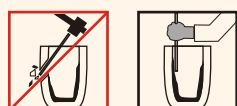


After breaks in work (e.g. stops during weekends) it is necessary to warm up slowly the empty crucibles in the furnace, regardless of its type.

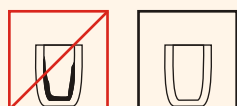


In induction furnaces where heating and metal fusion occur at the expense of currents proceeding in it, and the crucible is heated from metal, it is recommended to increase gradually the energy to provide uniform heating of the crucible. The optimum decision in this case is the continuous operating mode.

Cleaning of the Crucibles



At disconnection of the furnace it is necessary to remove the fluid melt from crucible. At the end of melting process the drosses should be accurately cleaned off from an internal surface of hot crucible with the help of the metal scraper or blade.

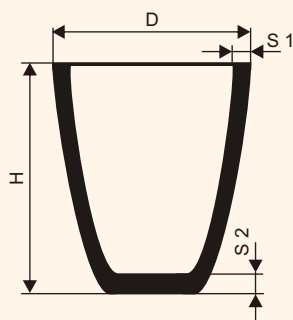


FIREPROOF GRAPHITE CRUCIBLES FOR CASTING OF NON-FERROUS METALS AND THEIR ALLOYS

Type AC

Non-glazed crucibles are used for casting of non-ferrous metals and their alloys with temperature not more than 1600°C. They are remarkable for their increased thermal insulating properties.

* Glazed type is possible if requested by consumer.



Conventional cubic content on copper, kg	D, mm	H, mm	S1, mm	S2, mm	Weight, kg	
3*	100	122	9	12	0.8	16
5*	120	145	10	15	1.1	16
10*	145	165	11	15	1.5	8
15*	160	200	15	18	2.25	4
20*	175	220	15	23	3.0	4
30*	220	260	20	28	6.0	2
50*	250	300	25	33	9.0	2
75*	285	345	25	33	12.0	1
100*▲	305	370	27	35	15.0	1
150*	350	450	30	38	22.0	1
200*	400	470	35	43	34.0	1
300*	445	530	37	45	46.0	1
400	500	600	40	50	60.0	1
500	505	640	40	50	72.0	1
600	540	765	50	60	94.0	1

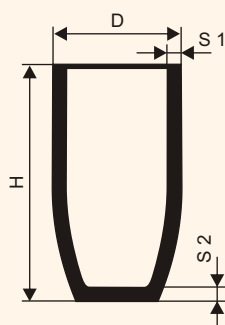
▲ - content of crucible on copper is 80 kg

The plant accepts the orders for crucibles manufacture with dimensions not indicated in the given table.

Type CC

Non-glazed crucibles are used for casting of non-ferrous metals and their alloys with temperature not more than 1600°C. They are remarkable for their increased thermal insulating properties.

* Glazed type is possible if requested by consumer.

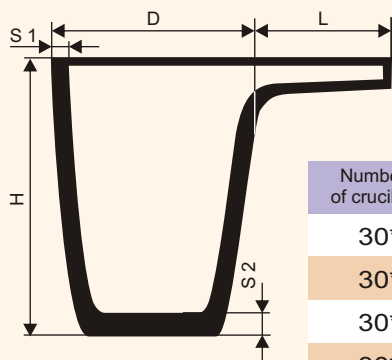


Conventional cubic content on copper, kg	D, mm	H, mm	S1, mm	S2, mm	Weight, kg	
90*	250	500	25	33	16.0	1
225	360	615	30	43	52.0	1
400	410	810	40	50	66.0	1

The plant accepts the orders for crucibles manufacture with dimensions not indicated in the given table.

Type TPC

Non-glazed crucibles with tapping spoon are used for casting of non-ferrous metals and their alloys with temperature not more than 1600°C. They are remarkable for their increased thermal insulating properties.
* Glazed type is possible if requested by consumer.



Number of crucible	Conventional cubic content on copper, kg	D, mm	H, mm	S1, mm	S2, mm	L, mm	Weight, kg	
30*	25	220	260	20	28	80	6.30	1
30*	25	220	260	20	28	170	6.60	1
30*	25	220	260	20	28	210	6.90	1
30*	25	220	260	20	28	300	7.65	1
50*	40	250	300	25	33	150	9.50	1
100*	80	305	370	27	35	260	17.35	1
150	130	350	450	30	38	260	24.35	1
200	180	360	615	30	40	120	54.00	1
400	360	500	600	40	50	380	63.14	1
500	450	505	640	40	50	200	74.00	1

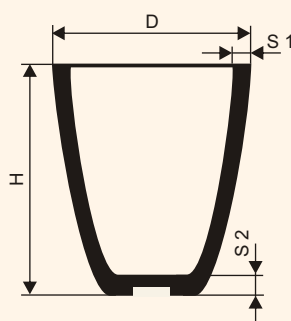
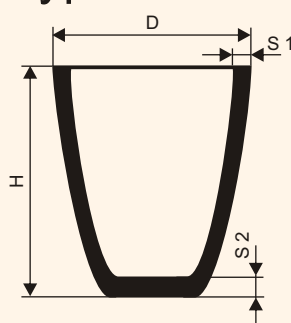
The plant accepts the orders for crucibles manufacture with dimensions not indicated in the given table.



FIREPROOF GRAPHITE CRUCIBLES FOR MELTING AND DISTRIBUTION OF NON-FERROUS METALS

Type **AK**

Glazed crucibles are intended for melting and distribution of non-ferrous metals and alloys with melting temperature up to 1600°C.



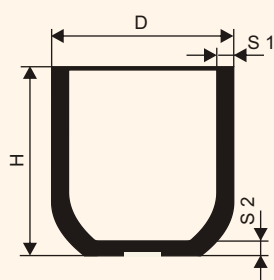
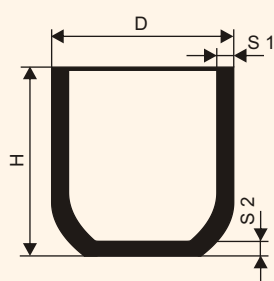
Conventional cubic content on copper, kg	D, mm	H, mm	S1, mm	S2, mm	Weight, kg	
0.1	30	40	3	5	0.024	50
0.3	50	60	5	5	0.110	50
0.6	60	70	6	7	0.200	20
1	72	88	9	11	0.380	20
2	100	122	9	12	0.800	16
3	110	130	10	18	1.270	16
5	120	145	10	11	1.750	8
10	145	175	13	18	2.700	8
20	175	220	15	23	4.600	1
30	220	270	20	30	9.000	1
40	225	290	20	30	9.600	1
50	255	310	20	30	14.000	1
75	290	350	25	30	16.000	1
100 ▲	300	370	25	30	20.000	1
150	360	455	30	45	40.000	1
200	410	490	35	55	50.000	1
300	440	555	30	55	65.000	1
400	500	610	40	60	75.000	1
500	520	635	50	60	85.000	1
600 ◆	540	765	50	60	116.000	1

◆ - cubic content on zinc ▲ - content of crucible on copper is 80 kg

The plant accepts the orders for crucibles manufacture with dimensions not indicated in the given table.

Type **BK**

Glazed crucibles are intended for melting and distribution of non-ferrous metals and alloys with melting temperature up to 1600°C.

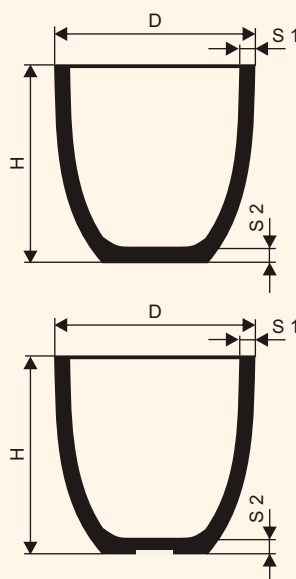


Conventional cubic content on copper, kg	D, mm	H, mm	S1, mm	S2, mm	Weight, kg	
750	600	635	50	65	125.0	1
800	700	690	50	65	192.0	1
900	615	735	50	65	145.0	1
980	600	790	50	65	155.0	1
1000	700	790	50	65	210.0	1
2000	880	1000	60	80	410.0	1

The plant accepts the orders for crucibles manufacture with dimensions not indicated in the given table.

Type BUK

Glazed crucibles are intended for melting and distribution of non-ferrous metals and alloys with melting temperature up to 1600°C.

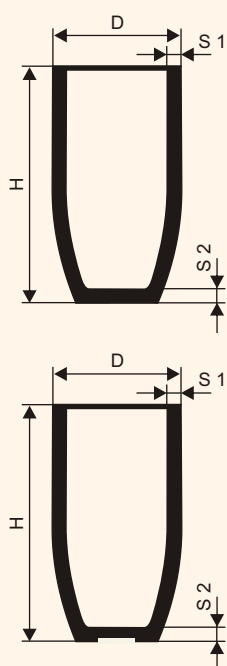


Conventional cubic content on copper, kg	D, mm	H, mm	S1, mm	S2, mm	Weight, kg	
350	530	490	50	60	71.6	1
450	530	590	50	60	100.0	1
460	700	320	50	65	90.0	1
500	530	680	50	60	106.0	1
650	700	400	50	65	110.5	1
900	615	700	40	50	121.0	1
1000	800	775	55	65	220.0	1
1600	775	750	50	60	195.0	1
1800	780	900	50	65	234.0	1
2200	780	1000	50	65	260.0	1

The plant accepts the orders for crucibles manufacture with dimensions not indicated in the given table.

Type CK

Glazed crucibles are intended for melting and distribution of non-ferrous metals and alloys with melting temperature up to 1600°C.



Conventional cubic content on copper, kg	D, mm	H, mm	S1, mm	S2, mm	Weight, kg	
25	160	370	20	30	5.4	2
70	220	450	20	30	15.2	1
90	285	590	30	35	23.5	1
175	340	910	30	60	63.2	1
280	365	630	30	45	52.0	1
350	440	610	30	55	70.0	1
370	485	700	45	60	110.0	1
450	465	840	45	55	113.0	1
500	490	840	45	60	128.0	1
600	485	940	45	60	137.0	1

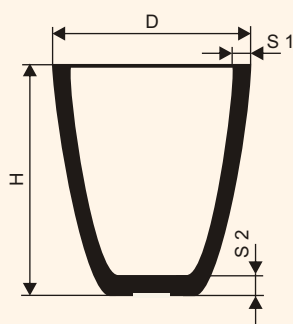
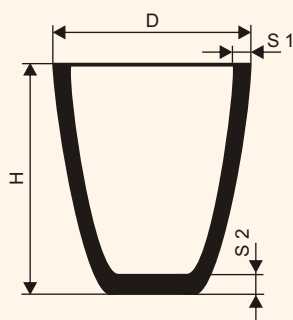
The plant accepts the orders for crucibles manufacture with dimensions not indicated in the given table.



FIREPROOF GRAPHITE CRUCIBLES FOR MELTING OF NON-FERROUS METALS

Тип **AA**

Glazed crucibles are intended for melting of non-ferrous metals and alloys with melting temperature up to 1500°C.



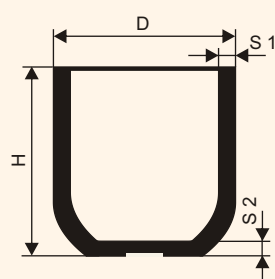
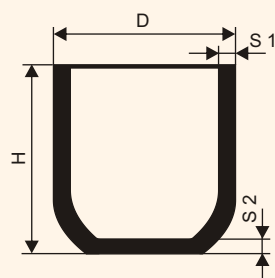
Conventional cubic content on copper, kg	D, mm	H, mm	S1, mm	S2, mm	Weight, kg	
0.1	30	40	3	5	0.02	50
0.3	50	60	5	5	0.10	50
0.6	60	70	6	7	0.17	20
1	72	88	9	11	0.32	20
2	100	122	9	12	0.68	16
3	110	130	10	18	1.10	16
5	120	150	10	11	1.27	8
10	145	175	13	18	2.30	8
20	175	220	15	23	3.90	1
30	220	270	20	30	7.65	1
40	225	290	20	30	8.20	1
50	255	310	20	30	12.00	1
75	290	350	25	30	14.00	1
100 ▲	300	370	25	30	16.00	1
150	360	455	30	45	34.00	1
200	410	490	35	45	43.00	1
300	440	555	30	55	54.00	1
400	500	610	40	60	70.00	1
500	520	635	50	60	90.00	1
600 ◆	540	765	50	60	105.00	1

◆ - cubic content on zinc ▲ - content of crucible on copper is 80 kg

The plant accepts the orders for crucibles manufacture with dimensions not indicated in the given table.

Type **BA**

Glazed crucibles are intended for melting of non-ferrous metals and alloys with melting temperature up to 1500°C.

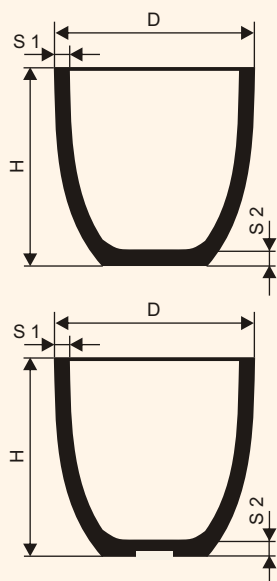


Conventional cubic content on copper, kg	D, mm	H, mm	S1, mm	S2, mm	Weight, kg	
750	600	635	50	65	112.0	1
800	700	690	50	65	165.0	1
900	615	735	50	65	125.0	1
980	600	790	50	65	133.0	1
1000	700	790	50	65	180.0	1
2000	880	1000	60	80	350.0	1

The plant accepts the orders for crucibles manufacture with dimensions not indicated in the given table.

Type BUA

Glazed crucibles are intended for melting of non-ferrous metals and alloys with melting temperature up to 1500°C.

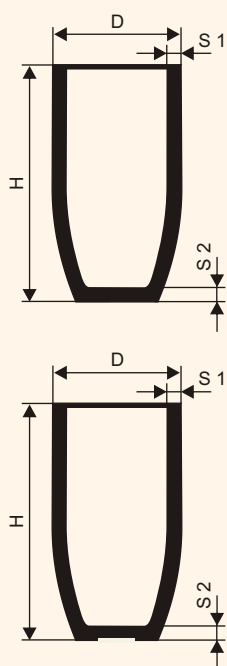


Conventional cubic content on copper, kg	D, mm	H, mm	S1, mm	S2, mm	Weight, kg	
350	530	490	50	60	68.0	1
450	530	590	50	60	95.0	1
460	700	320	50	65	78.0	1
500	530	680	50	60	100.0	1
650	700	400	50	65	105.0	1
900	615	700	40	50	112.0	1
1000	800	775	55	65	190.0	1
1600	775	750	50	60	181.0	1
1800	780	900	50	65	217.0	1
2200	780	1000	50	65	226.0	1

The plant accepts the orders for crucibles manufacture with dimensions not indicated in the given table.

Type CA

Glazed crucibles are intended for melting of non-ferrous metals and alloys with melting temperature up to 1500°C.



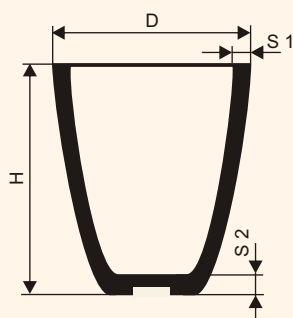
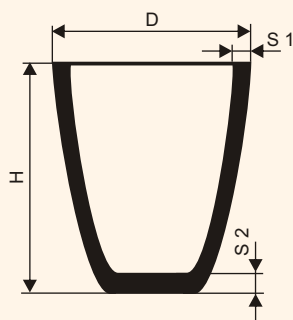
Conventional cubic content on copper, kg	D, mm	H, mm	S1, mm	S2, mm	Weight, kg	
25	160	370	20	30	4.6	2
70	220	450	20	30	12.6	1
90	285	590	30	35	19.5	1
175	340	910	30	60	60.0	1
280	365	630	30	45	45.0	1
350	440	610	30	55	62.0	1
370	485	700	45	60	73.5	1
450	465	840	45	55	106.0	1
500	490	840	45	60	113.0	1
600	485	940	45	60	121.0	1

The plant accepts the orders for crucibles manufacture with dimensions not indicated in the given table.



Type AX

Glazed crucibles on carbon bond are intended for melting of non-ferrous metals and alloys with melting temperature up to 1500°C, they don't demand preliminary drying at exploitation.



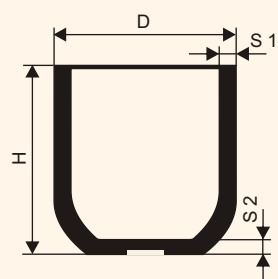
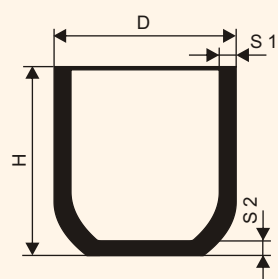
Conventional cubic content on copper, kg	D, mm	H, mm	S1, mm	S2, mm	Weight, kg	
5	120	150	10	11	1.60	16
10	145	175	13	18	2.60	8
20	175	220	15	23	4.20	1
30	220	270	20	30	8.10	1
40	225	290	20	30	8.70	1
50	255	310	25	30	12.70	1
75	290	350	25	30	14.50	1
100 ▲	300	370	25	30	19.00	1
150	360	455	30	45	37.50	1
200	410	490	35	45	48.00	1
300	440	555	30	55	60.00	1
400	500	610	40	60	81.00	1
500	520	635	50	60	85.00	1
600 ◆	540	765	50	60	125.00	1

◆ - cubic content on zinc ▲ - content of crucible on copper is 80 kg

The plant accepts the orders for crucibles manufacture with dimensions not indicated in the given table.

Type BX

Glazed crucibles on carbon bond are intended for melting of non-ferrous metals and alloys with melting temperature up to 1500°C, they don't demand preliminary drying at exploitation.

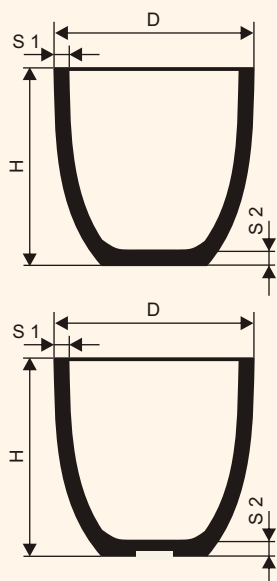


Conventional cubic content on copper, kg	D, mm	H, mm	S1, mm	S2, mm	Weight, kg	
750	600	635	50	65	130.0	1
800	700	690	50	65	195.0	1
900	615	735	50	65	156.0	1
980	600	790	50	65	165.0	1
1000	700	790	50	65	213.0	1
2000	880	1000	60	80	392.0	1

The plant accepts the orders for crucibles manufacture with dimensions not indicated in the given table.

Type **BUX**

Glazed crucibles on carbon bond are intended for melting of non-ferrous metals and alloys with melting temperature up to 1500°C, they don't demand preliminary drying at exploitation.

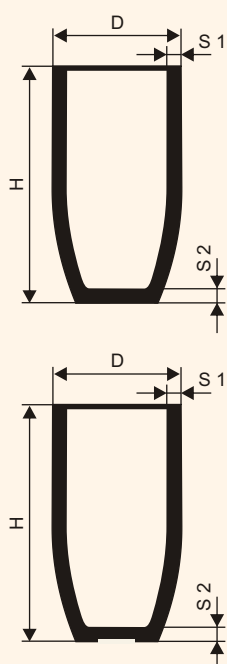


Conventional cubic content on copper, kg	D, mm	H, mm	S1, mm	S2, mm	Weight, kg	
350	530	490	50	60	68.0	1
450	530	590	50	60	89.0	1
460	700	320	50	65	88.0	1
500	530	680	50	60	111.0	1
650	700	400	50	65	109.0	1
900	615	700	40	50	118.0	1
1000	800	775	55	65	215.0	1
1600	775	750	50	60	190.0	1
1800	780	900	50	65	225.0	1
2200	780	1000	50	65	250.0	1

The plant accepts the orders for crucibles manufacture with dimensions not indicated in the given table.

Type **CX**

Glazed crucibles on carbon bond are intended for melting of non-ferrous metals and alloys with melting temperature up to 1500°C, they don't demand preliminary drying at exploitation.



Conventional cubic content on copper, kg	D, mm	H, mm	S1, mm	S2, mm	Weight, kg	
25	160	370	20	30	4.9	2
70	220	450	20	30	14.0	1
90	285	590	30	35	21.5	1
175	340	910	30	60	57.7	1
280	365	630	30	45	52.0	1
350	440	610	30	55	62.0	1
370	485	700	45	60	108.0	1
450	465	840	45	55	110.0	1
500	490	840	45	60	117.0	1
600	485	940	45	60	126.0	1

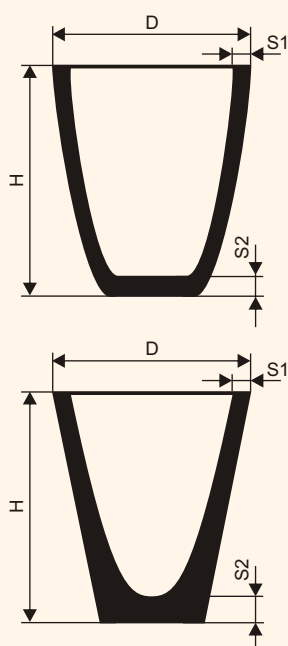
The plant accepts the orders for crucibles manufacture with dimensions not indicated in the given table.



FIREPROOF FIRE CLAY CRUCIBLES FOR TESTING OF NON-FERROUS METALS

Type AH

Non-glazed crucibles are intended for testing of non-ferrous metals with melting temperature up to 1600°C.



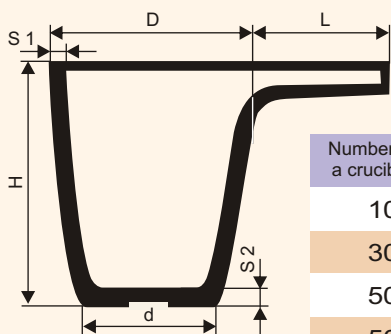
Conventional cubic content on copper, kg	D, mm	H, mm	S1, mm	S2, mm	Weight, kg	
0.1	30	40	3	5	0.03	50
0.3	50	60	5	5	0.16	50
0.6	60	70	6	7	0.27	20
0.9	70	77	6	10	0.30	20
1.0	72	88	9	11	0.43	20
1.6*	92	125	8	20	0.68	20
2.8*	120	130	8	15	1.00	20
3.0	110	130	10	18	1.10	16
5.0	120	150	10	11	1.47	8
5.5*	130	160	8	25	1.54	8
10.0	145	175	13	18	2.60	8

The plant accepts the orders for crucibles manufacture with dimensions not indicated in the given table.



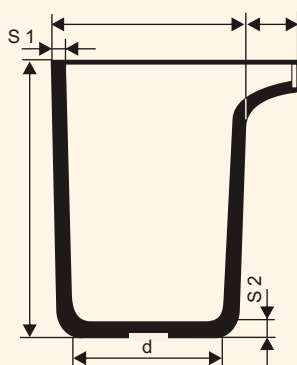
FIREPROOF GRAPHITE CRUCIBLES WITH A SPOUT FOR OPERATIONS IN THE ROTATING FURNACES

Type TPA Glazed crucibles with a spout for metal discharging are intended for operations in the rotating furnaces with melting temperature up to 1500°C.



Number of a crucible	Conventional cubic content on copper, kg	D, mm	H, mm	d, mm	S1, mm	S2, mm	L, mm	Weight, kg	
10	8	145	175	90	13	18	326	4.60	1
30	25	220	270	140	20	30	210	8.55	1
50	40	255	310	150	20	30	210	12.90	1
50	40	255	310	150	20	30	350	14.00	1
50	40	255	310	150	20	30	500	14.80	1
80 ²	80	225	470	220	28	35	375*	21.90	1
100	60	300	370	170	25	30	260	18.35	1
100	80	300	370	170	25	30	50	18.10	1
100	80	300	370	170	25	30	365*	19.00	1
150	120	360	455	230	30	45	260	36.35	1
200	160	410	490	250	35	55	260	45.35	1
280	250	365	630	230	30	45	260	47.35	1
300	270	440	555	280	30	55	150	55.60	1
400	360	500	610	310	40	60	380	73.14	1
400 ²	345	385	630	380	30	45	155*	49.20	1
430	430	530	560	380	50	60	400	99.40	1
450	450	520	640	320	45	60	130	83.00	1
500	500	490	840	320	45	60	150	127.00	1
600	600	485	940	320	45	60	150	135.00	1
750-2 ¹	470	600	635	360	50	65	400	127.00	1
980	930	600	790	360	50	65	180	140.20	1
1000	950	700	790	490	50	65	200	187.20	1
1000	950	700	790	490	50	65	300	190.00	1
1500 ²	1450	640	930	450	45	70	200	207.20	1
2000	1950	880	1000	520	60	80	200	357.20	1

Type ZPA

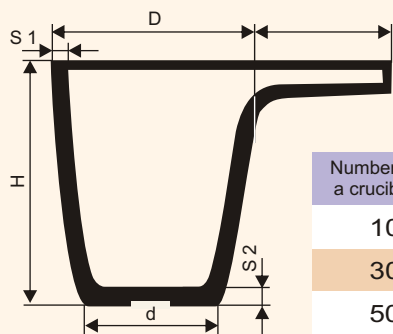


The plant accepts the orders for crucibles manufacture with dimensions not indicated in the given table.



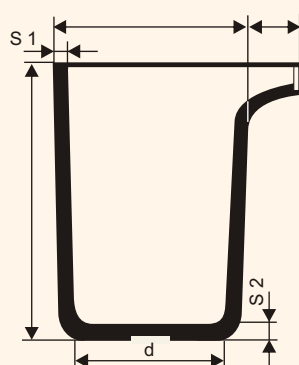
- 1 - crucible with two spouts, situated at an angle 90° to each other.
- 2 - crucible of cylindrical form with spout.
- * - spout is situated at an angle.

Type **TPK** Glazed crucibles with a spout for metal discharging are intended for operations in the rotating furnaces with melting temperature up to 1600°C.



Number of a crucible	Conventional cubic content on copper, kg	D, mm	H, mm	d, mm	S1, mm ¹	S2, mm	L, mm	Weight, kg	
10	8	145	175	90	13	18	326	5.00	1
30	25	220	270	140	20	30	210	9.91	1
50	40	255	310	150	20	30	210	14.90	1
50	40	255	310	150	20	30	350	16.00	1
50	40	255	310	150	20	30	500	16.80	1
80 ²	80	225	470	220	28	35	375*	22.80	1
100	60	300	370	170	25	30	260	22.35	1
100	80	300	370	170	25	30	50	22.60	1
100	80	300	370	170	25	30	365*	23.00	1
150	120	360	455	230	30	45	260	42.35	1
200	160	410	490	250	35	55	260	52.35	1
280	250	365	630	230	30	45	260	54.35	1
300	270	440	555	280	30	55	150	66.60	1
400	360	500	610	310	40	60	380	78.14	1
400 ²	345	385	630	380	30	45	155*	52.50	1
430	430	530	560	380	50	60	400	104.40	1
450	450	520	640	320	45	60	130	91.00	1
500	500	490	840	320	45	60	150	135.00	1
600	600	485	940	320	45	60	150	143.00	1
750-2 ¹	470	600	635	360	50	65	400	140.00	1
980	930	600	790	360	50	65	180	162.20	1
1000	950	700	790	490	50	65	200	217.20	1
1000	950	700	790	490	50	65	300	220.00	1
1500 ²	1450	640	930	450	45	70	200	215.20	1
2000	1950	880	1000	520	60	80	200	417.20	1

Type **ZPK**

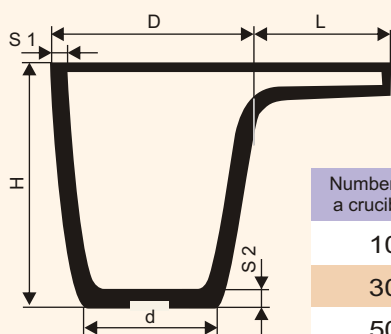


The plant accepts the orders for crucibles manufacture with dimensions not indicated in the given table.



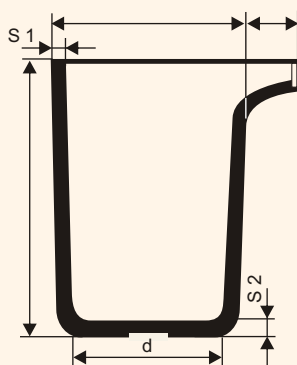
- 1 - crucible with two spouts, situated at an angle 90° to each other.
- 2 - crucible of cylindrical form with spout.
- * - spout is situated at an angle.

Type TPX Glazed crucibles on carbon bond with a spout for metal discharging are intended for operations in the rotating furnaces with melting temperature up to 1500°C, they don't demand preliminary drying at the exploitation.



Number of a crucible	Conventional cubic content on copper, kg	D, mm	H, mm	d, mm	S1, mm	S2, mm	L, mm	Weight, kg	
10	8	145	175	90	13	18	326	4.90	1
30	25	220	270	140	20	30	210	9.00	1
50	40	255	310	150	20	30	210	13.60	1
50	40	255	310	150	20	30	350	14.70	1
50	40	255	310	150	20	30	500	15.50	1
80 ²	80	225	470	220	28	35	375*	23.70	1
100	60	300	370	170	25	30	260	21.35	1
100	80	300	370	170	25	30	50	21.50	1
100	80	300	370	170	25	30	365*	22.00	1
150	120	360	455	230	30	45	260	39.85	1
200	160	410	490	250	35	55	260	50.35	1
280	250	365	630	230	30	45	260	54.35	1
300	270	440	555	280	30	55	150	61.60	1
400	360	500	610	310	40	60	380	84.14	1
400 ²	345	385	630	380	30	45	155*	54.00	1
430	430	530	560	380	50	60	400	93.40	1
450	450	520	640	320	45	60	130	88.00	1
500	500	490	840	320	45	60	150	132.00	1
600	600	485	940	320	45	60	150	140.00	1
750-2 ¹	470	600	635	360	50	65	400	145.00	1
980	930	600	790	360	50	65	180	172.20	1
1000	950	700	790	490	50	65	200	220.20	1
1000	950	700	790	490	50	65	300	223.00	1
1500 ²	1450	640	930	450	45	70	200	229.90	1
2000	1950	880	1000	520	60	80	200	399.20	1

Type ZPX

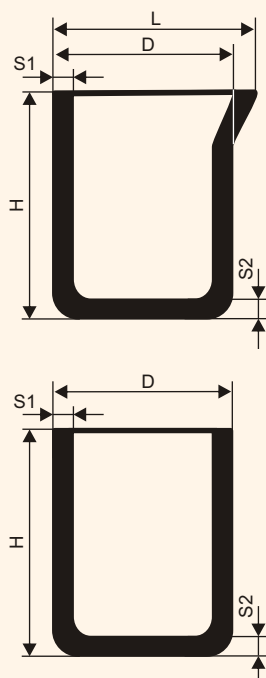


- 1 - crucible with two spouts, situated at an angle 90° to each other.
- 2 - crucible of cylindrical form with spout.
- * - spout is situated at an angle.


The plant accepts the orders for crucibles manufacture with dimensions not indicated in the given table.

FIREPROOF GRAPHITE CYLINDER CRUCIBLES FOR OPERATIONS IN THE INDUCTION FURNACES

Type ZA

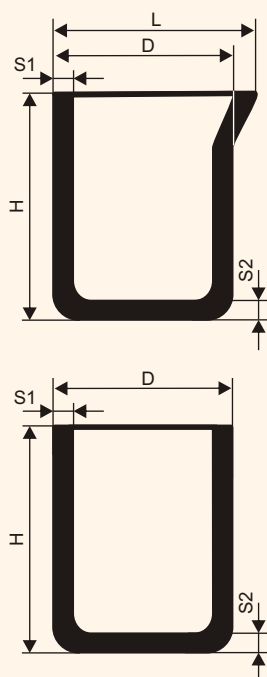


Glazed cylinder crucibles are intended for melting of non-ferrous metals and alloys in the induction furnaces with working temperature up to 1500°C.

Number of a crucible	Conventional cubic content on copper, kg	D, mm	H, mm	S1, mm	S2, mm	L, mm	Weight, kg	
10	10	140	250	20	25	-	3.4	2
11	9	110	250	12.5	15	-	1.9	4
12	10	110	265	12.5	15	-	2.0	4
60	60	225	380	28	35	-	14.5	1
80	80	225	470	28	35	-	17.6	1
90	115	270	510	30	40	-	24.5	1
95	65	255	320	27	30	260	13.8	1
120	85	270	370	30	32	280	16.5	1
135	135	300	420	30	40	-	24.7	1
150	100	270	440	30	32	280	21.0	1
175	160	300	520	30	40	-	29.5	1
180H	160	328	420	28	45	-	26.2	1
180	200	328	530	28	45	336	31.8	1
400	345	385	630	30	45	-	45.2	1
800	800	540	730	40	55	-	106.5	1
900	900	540	815	40	55	-	110.0	1
1000	1000	640	700	45	70	-	163.0	1
1200	1200	540	1000	40	55	-	128.6	1
1300	1300	540	1100	40	55	-	142.0	1
1400	1400	610	930	45	70	-	188.0	1
1500	1500	640	930	45	70	-	200.0	1
1700	1700	610	1170	45	70	-	225.0	1
2000	1800	690	1100	60	75	-	278.0	1
2500	2000	690	1200	60	75	-	296.0	1

The plant accepts the orders for crucibles manufacture with dimensions not indicated in the given table.

Type ZK



Glazed cylinder crucibles are intended for melting of non-ferrous metals and alloys in the induction furnaces with working temperature up to 1600°C.

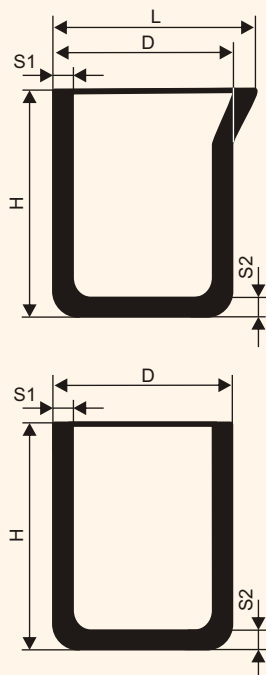
Number of a crucible	Conventional cubic content on copper, kg	D, mm	H, mm	S1, mm	S2, mm	L, mm	Weight, kg	
10	10	140	250	20	25	-	4.0	2
11	9	110	250	12.5	15	-	2.2	4
12	10	110	265	12.5	15	-	2.3	4
60	60	225	380	28	35	-	15.2	1
80	80	225	470	28	35	-	18.5	1
90	115	270	510	30	40	-	25.8	1
95	65	255	320	27	30	260	14.5	1
120	85	270	370	30	32	280	19.0	1
135	135	300	420	30	40	-	26.0	1
150	100	270	440	30	32	280	22.1	1
175	160	300	520	30	40	-	31.0	1
180H	160	328	420	28	45	-	27.6	1
180	200	328	530	28	45	336	33.5	1
400	345	385	630	30	45	-	48.5	1
800	800	540	730	40	55	-	110.8	1
900	900	540	815	40	55	-	114.0	1
1000	1000	640	700	45	70	-	170.0	1
1200	1200	540	1000	40	55	-	138.0	1
1300	1300	540	1100	40	55	-	152.0	1
1400	1400	610	930	45	70	-	203.0	1
1500	1500	640	930	45	70	-	208.0	1
1700	1700	610	1170	45	70	-	243.0	1
2000	1800	690	1100	60	75	-	300.0	1
2500	2000	690	1200	60	75	-	320.0	1

The plant accepts the orders for crucibles manufacture with dimensions not indicated in the given table.



Type ZX

Glazed cylinder crucibles are intended for melting of non-ferrous metals and alloys in the induction furnaces with working temperature up to 1500°C, they don't demand preliminary drying at exploitation.

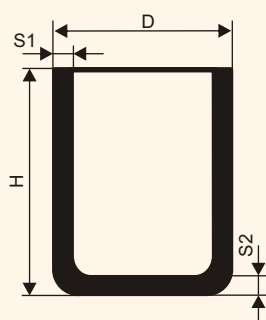


Number of a crucible	Conventional cubic content on copper, kg	D, mm	H, mm	S1, mm	S2, mm	L, mm	Weight, kg	
10	10	140	250	20	25	-	3.7	2
11	9	110	250	12.5	15	-	2.0	4
12	10	110	265	12.5	15	-	2.2	4
60	60	225	380	28	35	-	15.9	1
80	80	225	470	28	35	-	19.4	1
90	115	270	510	30	40	-	27.1	1
95	65	255	320	27	30	260	13.4	1
120	85	270	370	30	32	280	20.0	1
135	135	300	420	30	40	-	27.3	1
150	100	270	440	30	32	280	23.2	1
175	160	300	520	30	40	-	32.6	1
180H	160	328	420	28	45	-	29.0	1
180	200	328	530	28	45	336	35.2	1
400	345	385	630	30	45	-	50.0	1
800	800	540	730	40	55	-	119.0	1
900	900	540	815	40	55	-	122.0	1
1000	1000	640	700	45	70	-	182.0	1
1200	1200	540	1000	40	55	-	143.0	1
1300	1300	540	1100	40	55	-	1572.0	1
1400	1400	610	930	45	70	-	210.0	1
1500	1500	640	930	45	70	-	222.7	1
1700	1700	610	1170	45	70	-	251.0	1
2000	1800	690	1100	60	75	-	317.0	1
2500	2000	690	1200	60	75	-	340.0	1

The plant accepts the orders for crucibles manufacture with dimensions not indicated in the given table.

Type ZC

Non-glazed crucibles are used for casting of non-ferrous metals and their alloys with temperature not more than 1600°C. They are remarkable for their increased thermal insulating properties. Glazed type is possible if requested by consumer.



Number of a crucible	Conventional cubic content on copper, kg	D, mm	H, mm	S1, mm	S2, mm	L, mm	Weight, kg	
30	25	170	320	20	20	-	5.52	1

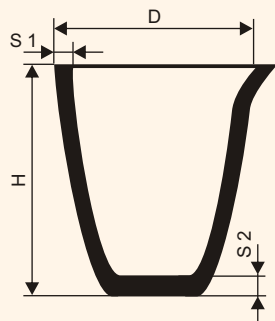
The plant accepts the orders for crucibles manufacture with dimensions not indicated in the given table.

FIREPROOF GRAPHITE CRUCIBLES FOR MELTING OF PRECIOUS METALS

Type AT

Non-glazed crucibles are intended for melting of precious metals with melting temperature up to 1600°C in the induction and muffle furnaces.

Glazed type is possible if requested by consumer.

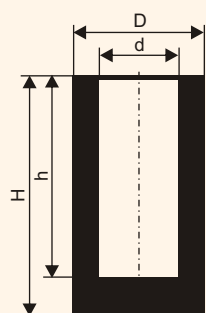


Number of a crucible	Conventional cubic content on copper, kg	D, mm	H, mm	S1, mm	S2, mm	Weight, kg	
4/0	0.1	41	51	6	7	0.05	50
2/0	0.3	54	65	7	10	0.09	50
0	0.6	60	70	7.5	12	0.16	50
1	1.0	90	90	9	12	0.27	50
2	2.0	100	110	10	12	0.54	20
3	3.0	110	130	10	12	0.85	8
4	4.0	115	140	10	15	0.90	8
5	5.0	125	150	10	15	1.20	4
7	10.0	140	175	12	15	1.50	4
10	15.0	160	200	15	18	2.70	4
14	20.0	175	220	16	22	3.00	4
15	25.0	180	230	17.5	22	3.30	4

The plant accepts the orders for crucibles manufacture with dimensions not indicated in the given table.

Type ZD

Non-glazed crucibles are intended for melting of precious metals with melting temperature up to 1250°C, by heating at the expense of an electrical current being passed through a crucible.



Conventional cubic content on gold, kg	D, mm	d, mm	H, mm	h, mm	Weight, kg	
0.3	33	20	60	50	0.06	25
0.5	40	28	60	50	0.09	25
0.7	39	24	90	83	0.125	25
2.0	54	37	94	83	0.27	20
2.5	65	40	124	114	0.56	20
2.6	62	48	94	83	0.286	20
6.0	85	55	155	140	1.06	20
23.0	128	100	180	160	2.00	10

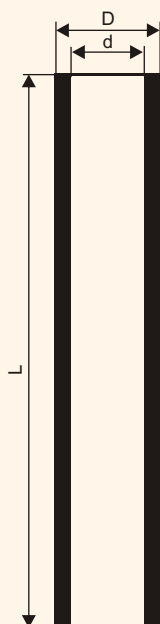
The plant accepts the orders for crucibles manufacture with dimensions not indicated in the given table.

FIREPROOF GRAPHITE REFRACTORY PRODUCTS FOR SUBLIMATION OF ZINC

Graphite Fireproof Muffles

Type **M**

Glazed muffles are intended for sublimation of zinc at exploitation temperature 1100°-1450°C.



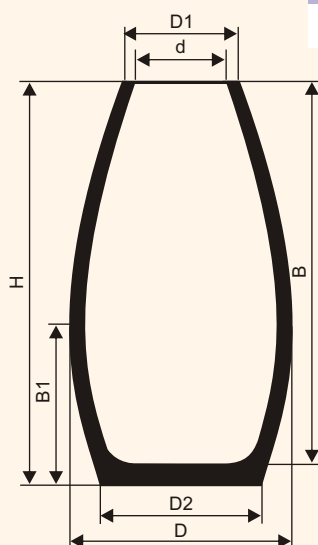
Number of a muffle	D, mm	d, mm	L, mm	Weight, kg	
1200	250	200	1200	42	1
1900	250	200	1900	66	1

The plant accepts the orders for crucibles manufacture with dimensions not indicated in the given table.

Graphite Fireproof Retorts

Type **RC**

Non-glazed retorts are intended for sublimation of zinc at exploitation temperature 1100°-1350°C.



Conventional cubic content on copper, kg	D, mm	D1, mm	D2, mm	d, mm	H, mm	B, mm	B1, mm	Weight, kg	
650	500	250	365	180	920	860	370	87	1

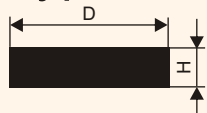
The plant accepts the orders for crucibles manufacture with dimensions not indicated in the given table.

FOUNDRY ACCESSORIES

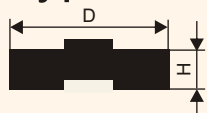
Fireproof Graphite Pedestals

Pedestals are intended for installation of the crucibles on them in all types of furnaces.

Type PE/PX



Type PVE/PVX



D, mm	H, mm	Type of a crucible	Weight, kg E/X	
165	50	A20-A50,TP50,TP100,C25,Z10	2.00/2.10	1
230	50	A75-A150,TP150, C70-C280,TP280	3.80/4.00	1
250	100	A200,TP200,Z90,Z95	9.32/9.70	1
300	100	A300,C350,TP300,Z120-Z175,Z400	13.42/13.50	1
320	100	A400,C370-C600,TP400-TP600,Z180	14.50/15.00	1
350	100	A500	19.25/20.00	1
425	100	A600,B750-B980,BU350-BU900, Z900,TP750-TP980	26.00/27.00	1
460	100	BU1000-BU2200,Z1500,ZP1500	30.00/36.50	1
525	100	B1000,BU460,BU650, TP1000,Z1200,Z1300	41.20/44.00	1
550	100	B2000,TP2000,Z1400-Z2500	43.00/52.40	1

Height more 100 (50) mm is performed by a set of 2-3 pedestals.

The plant accepts the orders for pedestals manufacture with dimensions not indicated in the given table.

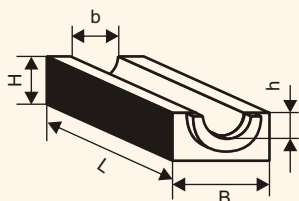


Fireproof Graphite Gutters

Type **GE/GX/GC***



Fireproof graphite gutters are intended for metal tapping from crucibles, working in the rotating furnaces.



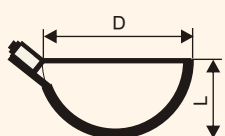
Number of a gutter	B, mm	L, mm	H, mm	b, mm	h, mm	Weight, kg E/X	
1	160	200	100	80	60	5.6/5.8	1
2	160	300	100	80	60	8.4/8.6	1
3	160	360	100	80	60	10.0/10.5	1
4	160	150	100	100	45	4.5/4.6	2
5*	130	360	70	65	40	6.1	1
6*	190	400	190	140	165	10.0	1
7*	200	260	80	60	30	2.4	1
8	160	240	100	80	60	6.7/7.0	1
12*	400	316	190	100	60	7.2	1
16	220	360	110	80	30	10.6/11.2	1

The plant accepts the orders for gutters manufacture with dimensions not indicated in the given table.

Fireproof Graphite Casting Ladles

Type **SK**

Casting ladles are intended for bailing non-ferrous metals and their alloys out of the crucibles.



Number of a casting ladle	Content in litres	D, mm	H, mm	Threading	Weight, kg	
1	0.13	100	56	M 8	0.50	4
1.5	0.26	120	66.5	M 8	0.60	4
2	0.33	128	75	M10	0.70	4
3	0.55	150	81.5	M10	0.85	4
5	0.73	172	92	M16	1.40	1
6	1.5	170	130	M16	1.60	1
8	2.2	220	125	M16	3.20	1
9	3.2	265	140	M16	3.65	1

The plant accepts the orders for ladles manufacture with dimensions not indicated in the given table.

Fireproof Graphite Rods

Type S

Rods are intended for mixing of non-ferrous metals and their alloys in the crucibles.



Number of a rod	D, mm	L, mm	Weight, kg	
1	20	600	0.32	20
2	30	265	0.35	20
3	30	1000	1.30	5
4	32	600	0.87	6
5	40	600	1.32	5
6	50	460	1.65	4
7	50	500	1.77	4
8	50	1000	3.54	2
9	30	795	1.05	5
10	95	230	2.93	3
11	120	230	4.68	2
12	10	300	0.05	40
13	30	600	0.78	5

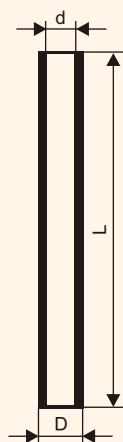
The plant accepts the orders for rods manufacture with dimensions not indicated in the given table.



Fireproof Graphite Tubes

Type U

Tubes are intended for passing of non-ferrous metals and their alloys.



Number of a tube	D, mm	d, mm	L, mm	Weight, kg	
1	35	8	100	0.17	40
2	80	40	800	5.30	2
3	80	40	1000	6.80	2
4	100	60	600	5.43	2
5	100	60	700	6.30	2
9	50	10	120	0.41	20
10	100	60	856	8.41	2
12	60	10	700	3.50	3
13	70	10	530	3.60	3
14*	63	22	250	1.30	10
15	100	60	1000	9.00	2
16*	100	60	886	8.10	2
17	100	60	1200	10.80	2
19**	70	40	750	2.40	5
21***	36	18	300	0.41	20
24	40	12	500	1.03	5
26	76	16	800	6.24	2
27	80	35	600	4.40	2
28	60	26	1600	6.64	5
UK/UH-7	200	160	360	9.30/8.80	1
UK/UH-8	370	330	250	10.20/9.70	1
UK/UH-22	330	290	250	10.40/10.00	1
UK/UH-23	300	240	310	17.20/16.50	1
UK/UH-25	200	160	1000	25.80/25.40	1

* tube-plug

** tube of rectangular section

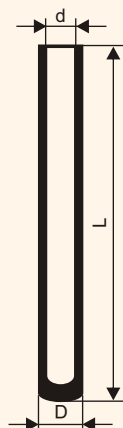
*** tube with thread M36 on outside surface.

The plant accepts the orders for tubes manufacture with dimensions not indicated in the given table.



Type UP

Pyrometric tubes are intended for protection of thermocouples when measuring of temperature of molten non-ferrous metal or alloy.



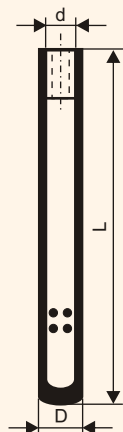
Number of a tube	D, mm	d, mm	L, mm	Weight, kg	
1	30	10	300	0.34	20
2	30	10	600	0.68	10
3	50	25	460	1.38	5
4	50	25	480	1.43	5
5	50	25	645	1.95	5
6	50	25	670	2.02	5
7	50	25	800	2.40	5
8	60	26	1000	4.15	5
9	98	22	340	4.40	5
10	60	22	400	1.80	10
11	30	16	300	0.275	20
12	50	22	1000	2.85	5
13	26	16	400	0.238	20
14	50	26	2000	5.15	5
15	50	26	1600	4.12	5
16	90	60	800	5.10	2
17	100	70	600	4.30	2
18	30	16	620	0.57	10
19	32	22	160	0.12	10
20	45	20	500	1.15	10
21	48	26	2000	4.60	5
22	50	25	600	1.80	5
23	100	70	220	1.60	5
24	50	26	1300	3.35	5
25*	50	20	300	0.89	5
26	50	22	600	1.70	5
27	70	35	1500	7.80	3
28	50	26	1250	3.22	5
29	40	20	1600	2.70	5
31	50	26	1100	2.83	5
32	50	26	250	0.64	10
33	50	26	750	1.93	5
34	50	26	900	2.32	5
35	56	25	1000	3.70	5
36	60	22	500	2.30	5
37	50	25	500	1.50	5

* with thread M24

The plant accepts the orders for tubes manufacture with dimensions not indicated in the given table.

Type UV

Gas tubes are intended for passing of different gases through molten metal, used at chlorination, nitriding of metal and others.



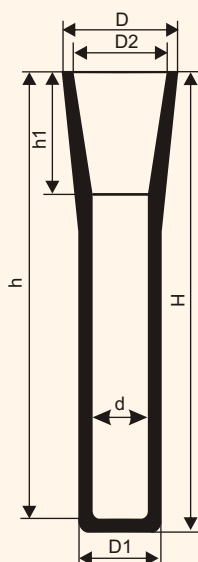
Number of a tube	D, mm	d, mm	L, mm	Threading	Weight, kg	
1	56	20	645	M24	2.3	5
2	56	20	1000	M24	3.9	5
3	56	20	1600	M24	6.2	5
4	56	20	1500	M24	5.8	5
5	56	20	600	M24	2.2	5

The plant accepts the orders for tubes manufacture with dimensions not indicated in the given table.

Fireproof Graphite Chills

Type F/FX

Glazed chills are intended for production of metallic and bimetallic bars.



Number of a chill	D, mm	D1, mm	D2, mm	d, mm	H, mm	h, mm	h1, mm	Weight, kg, F/Fx	
122	310	255	250	122	1180	1120	320	86/98	1
124	265	220	160	124	1100	980	80	75/86	1
147	310	255	250	147	1180	1120	320	77/88	1

The plant accepts the orders for chills manufacture with dimensions not indicated in the given table.

Fireproof SiC-mixture

Intended for sound connection of fireproof graphite products into a single structure.



The plant sells fireproof SiC-mixture in any quantity from 1 kg, including packed into standard plastic buckets of 5,0 kg and 12,0 kg.

