



STANDARD PRODUCT RANGE

FRIALIT®-DEGUSSIT® High Performance Ceramics

www-friatec-ceramics.com

CONTACT

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MATERIALS

Material	FRIATEC-Brand	Characterisation
Al ₂ O ₃ Aluminium Oxide	DEGUSSIT AL23	Pure Al ₂ O ₃ , dense, excellent thermal and electrical resistance properties, corrosion resistant, permeable to microwaves
Al ₂ O ₃ Aluminium Oxide	DEGUSSIT AL24	Pure Al ₂ O ₃ , slightly porous, good resistance to thermal shock, extremely good creep strength
Al ₂ O ₃ Aluminium Oxide	DEGUSSIT AL25	Pure Al ₂ O ₃ , very porous, good thermal insulation, highest resistance to thermal shock of all the Al ₂ O ₃ materials
Al ₂ O ₃ Aluminium Oxide	DEGUSSIT DD57	Pure Al ₂ O ₃ , dense, without any binder, red colour, wear resistant and tough, also called 'sintered ruby'
Al ₂ O ₃ Aluminium Oxide	FRIALIT F99,7	Pure Al ₂ O ₃ , dense, extremely resistant to wear and corrosion, very high electrical insulating properties
Al ₂ O ₃ (+ ZrO ₂) Aluminium Oxide, fine grain stabilized	FRIALIT FZT	Al ₂ O ₃ toughened with ZrO ₂ , dense, high strength, good resistance to thermal shock, extremely resistant to wear and corrosion, fine grain size
ZrO ₂ Zirkonium Oxide	FRIALIT FZM	ZrO ₂ partially stabilized with MgO, dense, high strength and highly wear resistant, extremely resistant to corrosion and thermal shock
ZrO ₂ Zirkonium Oxide	DEGUSSIT FZY	Partially stabilized with Y ₂ O ₃ , dense, high purity ZrO ₂ , high temperature and corrosion resistance, ion conducting for measuring oxygen

On request, we also supply parts with dimensions not listed as well as parts made of other ceramic materials

TOLERANCES IN HIGH-TEMPERATURE TECHNOLOGY

The dimensional accuracy of the size of the sintered parts essentially depends on the material and the forming method.

Tubes, multi-bore tubes and rods $\varnothing \geq 3$ mm as well as bands:

Diameter $\pm 5\%$ (but not less than $\pm 0,1$ mm); Cut length tolerance: $\pm 1\%$, < 100 mm upon request;
Straightness: maximum crescent height 0.5% of total length

Tubes, multi-bore tubes and rods $\varnothing < 3$ mm:

Diameter $\pm 5\%$ (but not less than $\pm 0,05$ mm); Cut length tolerance: $\pm 1\%$, < 100 mm upon request;
Straightness: maximum crescent height: 0.5% of total length

Crucibles, boats, combustion trays:

Tolerances $\pm 3\%$ (but not less $\pm 0,1$ mm)

Plates:

Tolerances $\pm 3\%$ (but not less $\pm 0,1$ mm); Deflection: maximum 0,5 % of the diagonal

Insulating beads and grinding bodies:

Tolerances $\pm 3\%$ (but not less than $\pm 0,1$ mm)

All dimensions in mm

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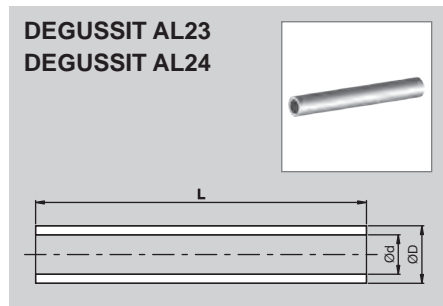




HIGH TEMPERATURE **TECHNOLOGY**

Tubes, Rods, Multi-Bore Tubes, Bands, Crucibles,
Discs, Plates, Boats, Combustion Trays,
Grinding Pieces, Insulating powders, Cement

TUBES

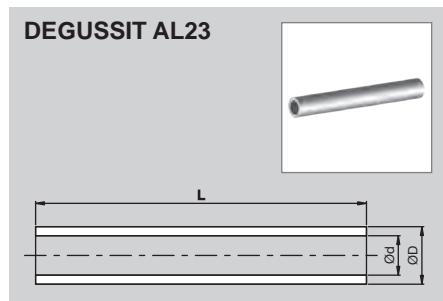


Ø D	Ø d	L max.	Product No. DEGUSSIT AL23
3	1,6	1000	122-11003-0
4	2	1000	122-11004-0
5	3	1000	122-11005-0
6	3	2100	122-11006-0
6	4	2100	122-11006-2
7	4	2100	122-11007-0
8	5	2100	122-11008-0 *
10	6	2100	122-11010-0 *
11	7	2100	122-11011-0
12	8	2100	122-11012-0 *
15	10	2100	122-11015-0 *
16	12	2100	122-11016-0
20	15	2100	122-11020-0 *
24	18	2100	122-11024-0 *
25	20	2100	122-11025-0
30	25	2100	122-11030-0
35	29	2100	122-11035-0
40	34	2100	122-11040-0
45	38	2100	122-11045-0
48	40	2100	122-11048-0
50	42	2100	122-11050-0
55	47	2100	122-11055-0
60	50	2100	122-11060-0
65	55	2100	122-11065-0
70	60	2100	122-11070-0
80	70	2100	122-11080-0

Ø D	Ø d	L max.	Product No. DEGUSSIT AL24
10	6	2100	122-21010-0
12	8	2100	122-21012-0
15	10	2100	122-21015-0
20	15	2100	122-21020-0
24	18	2100	122-21024-0
30	24	1500	122-21030-0
40	32	1500	122-21040-0
50	40	1500	122-21050-0
60	50	1500	122-21060-0
70	54	1500	122-21070-0

* normative size for thermocouple

LARGE-DIAMETER TUBES



Ø D	Ø d	L max.	Product No.
90	80	1600	122-11090-0
95	85	1500	122-11095-1
100	85	1500	122-11100-0
105	90	1500	122-11105-0
115	100	1600	122-11115-1
117	105	1700	122-11117-0
120	105	1700	122-11120-0
130	110	1800	122-11130-0
140	120	1800	122-11140-0
150	130	1100	122 11150-1
170	150	1500	122 11170-0

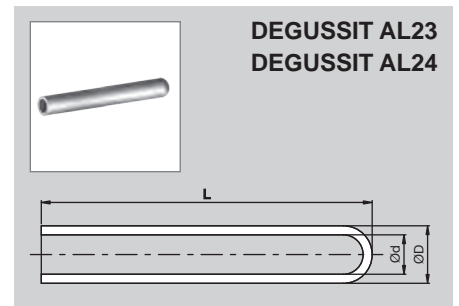
Order-related manufacture

TUBES - ONE END CLOSED

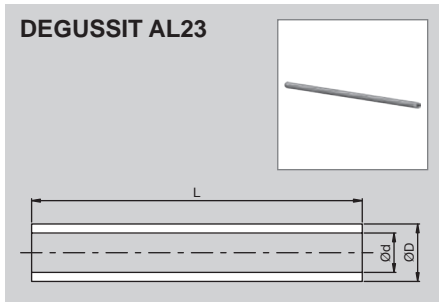
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3	1,6	1000	101-11003-0
4	2	1000	101-11004-0
5	3	1000	101-11005-0
6	3	2100	101-11006-0
6	4	2100	101-11006-1
7	4	2100	101-11007-0
8	5	2100	101-11008-0 *
10	6	2100	101-11010-0 *
11	7	2100	101-11011-0 *
12	8	2100	101-11012-0 *
15	10	2100	101-11015-0 *
16	12	2100	101-11016-0 *
20	15	2100	101-11020-0 *
24	18	2100	101-11024-0 *
25	20	2100	101-11025-0
30	25	800	101-11030-0
35	29	800	101-11035-0
40	34	800	101-11040-0
45	38	800	101-11045-0
50	42	800	101-11050-0
55	47	800	101-11055-0
60	50	800	101-11060-0
65	55	800	101-11065-0
70	60	800	101-11070-0
80	70	800	101-11080-0

Ø D	Ø d	L max.	Product No. DEGUSSIT AL24
10	6	2100	101-21010-0
12	8	2100	101-21012-0
15	10	2100	101-21015-0
20	15	2100	101-21020-0
24	18	2100	101-21024-0

* standard size for thermocouple

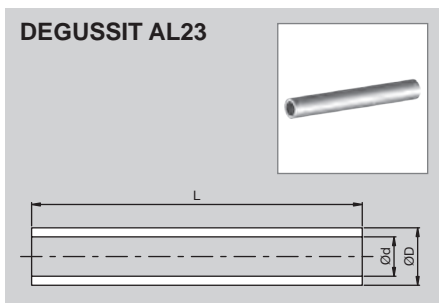


THIN INSULATING TUBES



Ø D	Ø d	L max.	Product No.
0,5	0,2	400	121-11050-0
0,6	0,3	400	121-11060-0
0,8	0,4	400	121-11080-0
1	0,5	400	121-11100-0
1	0,6	400	121-11100-1
1,1	0,6	400	121-11110-0
1,2	0,8	400	121-11120-0
1,5	1	400	121-11150-0
1,6	0,8	400	121-11160-0
1,7	1,1	400	121-11170-0
2	1	400	121-11200-0
2	1,2	400	121-11200-1
2	1,5	400	121-11200-2
2,5	1,3	400	121-11250-0
2,7	1,7	400	121-11270-0

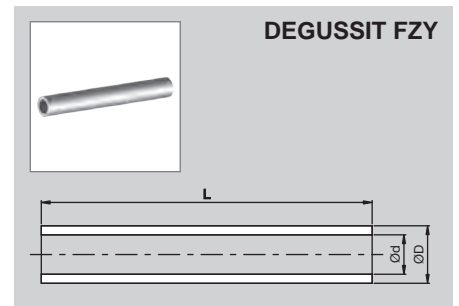
TUBES - THIN WALLED



Ø D	Ø d	L max.	Product No.
3	2	400	123-11003-0
4	3	400	123-11004-0
5	4	400	123-11005-0
6	5	400	123-11006-0
7	6	400	123-11007-0
8	7	400	123-11008-0
10	9	400	123-11010-0
12	11	400	123-11012-0
16	15	400	123-11016-0
20	19	400	123-11020-0

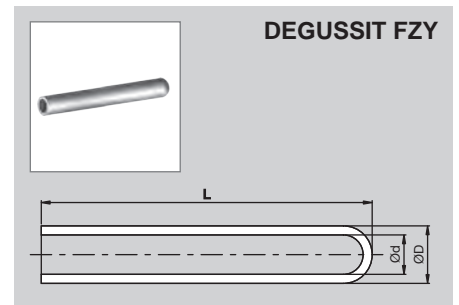
TUBES FOR OXYGEN SENSORS

Ø D	Ø d	L max.	Product No.
6	3	1000	122-56006-0
6	4	1000	122-56006-1
8	5	1000	122-56008-0
10	6	1000	122-56010-0
10	7	1000	122-56010-1
13	9	1000	122-56013-0
15	10	1000	122-56015-0
Order-Related Product			



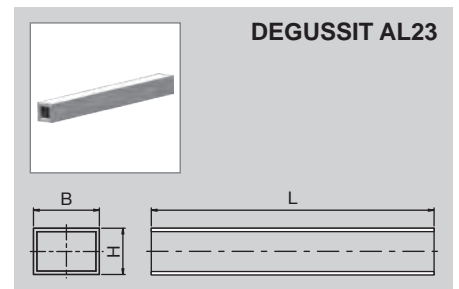
TUBES FOR OXYGEN SENSORS - ONE END CLOSED

Ø D	Ø d	L max.	Product No.
6	3	1000	101-56006-0
6	4	1000	101-56006-1
8	5	1000	101-56008-0
10	6	1000	101-56010-0
10	7	1000	101-56010-1
13	9	1000	101-56013-0
15	10	1000	101-56015-0
Order-Related Product			



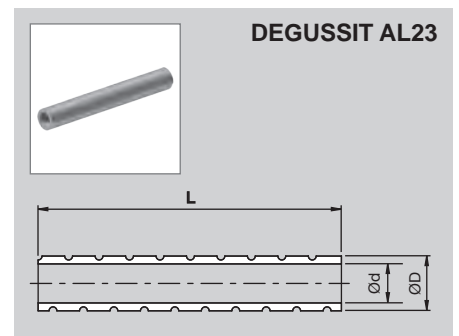
RECTANGULAR TUBES

B	H	Wall Thickness	L max.	Product No.
15	15	2,5	2150	191-11015-0
16	12	2,5	2150	191-11016-0
20	20	3	2150	191-11020-0
Order-Related Product				



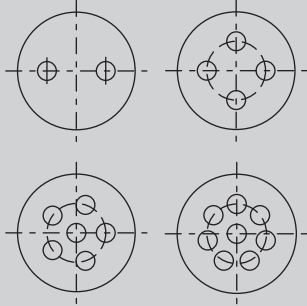
TUBES FOR HEATING COILS

Ø D	Ø d	L max.	Thread breadth	Thread depth	Thread pitch	Product No.
21	15	500	1	1	1.5	281-11021-0
27	20	500	1	1	1.5	281-11027-0
33	25	500	1	1	1.5	281-11033-0
38	29	500	1.5	1.2	2	281-11038-0
44	34	500	2	1.6	2.5	281-11044-0
50	38	500	2	2	2.5	281-11050-0
60	47	500	2.5	2	5	281-11060-0



MULTI-BORE TUBES - ROUND

DEGUSSIT AL23
on request with notch

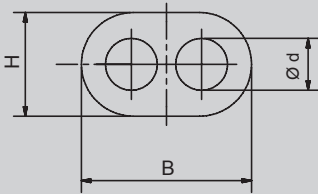


Ø D	Ø d	Number of bores	L max.	Product No.
0,9	0,2	2	400	141-11090-0
1,2	0,3	2	400	141-11120-0
1,2	0,2	4	400	142-11120-0
1,55	0,4	2	400	141-11155-0
2	0,5	2	400	141-11200-0
2	0,4	6	400	142-11200-0
2,35	0,5	4	400	142-11235-0
2,5	0,7	2	1200	141-11250-0
2,8	0,7	4	800	142-11280-0
3	0,8	2	2100	143-11030-0
4	0,8	2	2100	143-11040-0 *
4	0,8	4	2100	144-11040-0 *
4	1,2	2	2100	143-11040-1
5	1,2	2	2100	143-11050-0
5	1	4	2100	144-11050-0
5,5	1,2	4	2100	144-11055-0 *
6	1,5	2	2100	143-11060-0 *
8	0,8	6	2100	144-11080-0
8	0,8	8	2100	144-11080-1
8	1,6	2	2100	143-11080-0 *
8,5	1,5	4	2100	144-11085-0 *

* normative size for thermocouple

MULTI-BORE TUBES - OVAL

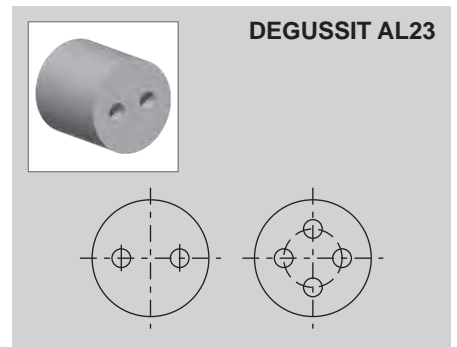
DEGUSSIT AL23
on request with notch



B	H	Ø d	Number of bores	L max.	Product No.
1.55	0,9	0,25	2	400	145-11155-0
2.3	1,4	0,7	2	400	145-11230-0
3	1,5	0,8	2	400	145-11030-0
4.2	2,2	1,2	2	400	145-11042-0

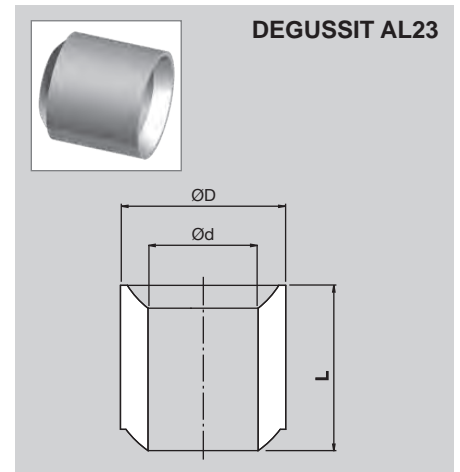
INSULATING BEADS ROUND

$\varnothing D$	$\varnothing d$	Number of bores	L	Product No.
4	0,8	2	4	161-11040-00004
4	0,8	2	10	161-11040-00010
4	0,8	4	4	162-11040-00004
4	0,8	4	10	162-11040-00010

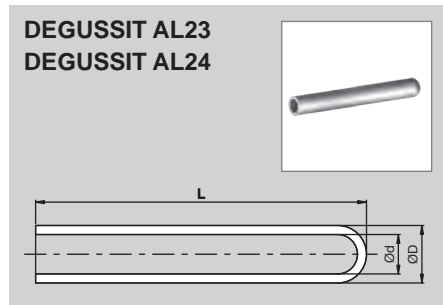


INSULATING BEADS ANGULAR

$\varnothing D$	$\varnothing d$	L	Product No.
3,5	1	3	160-11035-00003
4	1,5	4,7	160-11040-00004
5	2,5	5	160-11050-00005
7	3,8	7	160-11070-00007
8,5	5	10	160-11085-00010



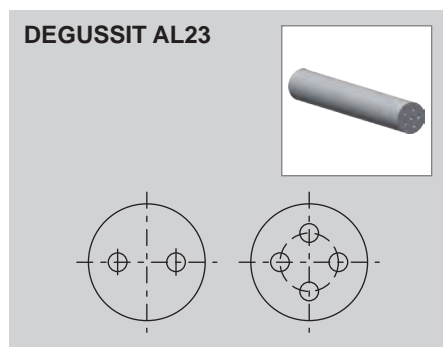
PROTECTIVE TUBES FOR STANDARD-LENGTH THERMOCOUPLES - ONE END CLOSED



Ø D	Ø d	L max.	Product No. DEGUSSIT AL23
8	5	2100	100-11008-0
10	6	2100	100-11010-0
12	8	2100	100-11012-0
15	10	2100	100-11015-0
20	15	2100	100-11020-0
24	18	2100	100-11024-0

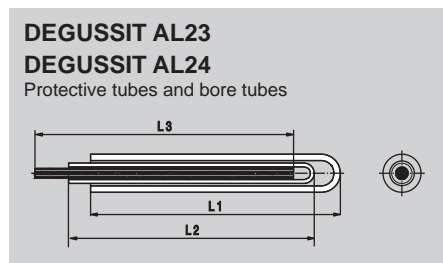
Ø D	Ø d	L max.	Product No. DEGUSSIT AL24
15	10	2100	100-21015-0
20	15	2100	100-21020-0
24	18	2100	100-21024-0

MULTI-BORE TUBES FOR STANDARD-LENGTH THERMOCOUPLES



Ø D	Ø d	Number of bores	L max.	Product No.
4	0,8	2	2100	140-11040-0
6	1,5	2	2100	140-11060-0
8	1,6	2	2100	140-11080-0
4	0,8	4	2100	140-11040-1
5,5	1,2	4	2100	140-11055-0
8,5	1,5	4	2100	140-11085-0

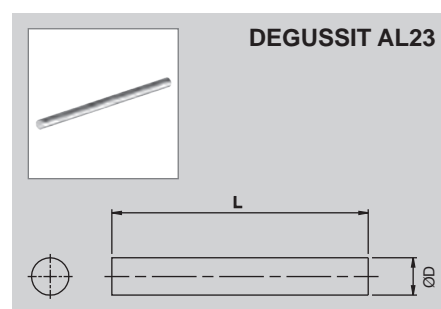
THERMOCOUPLES



Length outer protective tube L1	Length inner protective tube L2	Length bore tube L3
180	200	205
250	270	275
355	375	380
500	530	560
710	740	770
1000	1030	1060
1400	1430	1460
2000	2030	2060

RODS

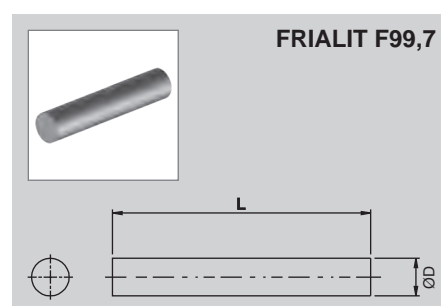
Ø D	L max.	Product No.
0,5	400	181-11050-0
0,6	400	181-11060-0
0,8	400	181-11080-0
1	400	181-11100-0
1,2	400	181-11120-0
1,5	400	181-11150-0
2	400	181-11200-0
3	1000	182-11003-0
4	1000	182-11004-0
5	1000	182-11005-0
6	1000	182-11006-0
8	1000	182-11008-0
10	1000	182-11010-0
12	1000	182-11012-0



BARS

Ø D	L max.	Product No.
15	400	625-13015-0
16	400	625-13016-1
20	400	625-13020-1
25	400	625-13025-1
30	400	625-13030-0
35	400	625-13035-0
40	400	625-13040-0
45	400	625-13045-0
50	400	625-13050-0
55	400	625-13055-0
60	400	625-13060-0
65	400	625-13065-0
70	400	625-13070-0
75	400	625-13075-0
80	400	625-13080-0
90	400	625-13090-0

Order-Related Product



Tolerances

Diameter: +1 / +4 mm

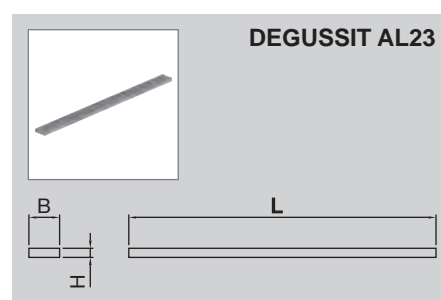
Length: +/- 5 mm

Deflection: max. 0,5 % of the total length

BANDS

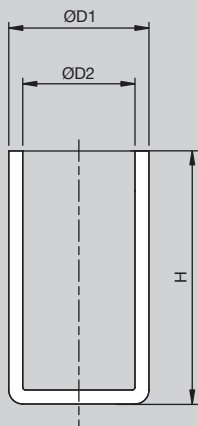
B	H	L max.	Product No.
1	1	400	183-11010-0
6	3	400	183-11060-1
7	2	400	183-11070-2
8	4	400	183-11080-2
10	1	400	183-11100-1
10	2	400	183-11100-6
10	3	400	183-11100-0
11	3	400	183-11110-0
15	3	400	183-11150-0
16	8	400	183-11160-3

Order-Related Product



CRUCIBLES - CYLINDRICAL, FLAT BASE

DEGUSSIT AL23
DEGUSSIT AL24
DEGUSSIT AL25
DEGUSSIT FZY



H	Ø D1	Ø D2	Approx. Vol. ml	Product No. DEGUSSIT AL23
15	10	8	0.7	201-11010-0150
30	20	16	6	201-11020-0300
40	30	26	20	201-11030-0400
50	35	30	40	201-11035-0500
60	40	36	60	201-11040-0600
75	50	44	110	201-11050-0750
100	65	55	225	201-11065-1000
150	85	73	600	201-11085-1500
150	110	100	1,100	201-11110-1500

H	Ø D1	Ø D2	Approx. Vol. ml	Product No. DEGUSSIT AL24
30	20	16	6	201-21020-0300
40	30	26	20	201-21030-0400
50	35	30	40	201-21035-0500
60	40	36	60	201-21040-0600
75	50	44	110	201-21050-0750
100	65	55	225	201-21065-1000
150	85	73	600	201-21085-1500

H	Ø D1	Ø D2	Approx. Vol. ml	Product No. DEGUSSIT AL25
160	145	125	1,760	201-22145-1600
200	120	100	1,500	201-22120-2000

H	Ø D1	Ø D2	Approx. Vol. ml	Product No. DEGUSSIT FZY
15	10	8	0.7	201-56010-0150
30	20	16	6	201-56020-0300
40	30	26	20	201-56030-0400
50	35	30	40	201-56035-0500
60	40	36	60	201-56040-0600
75	50	44	110	201-56050-0750
100	65	55	225	201-56065-1000
150	85	73	600	201-56085-1500

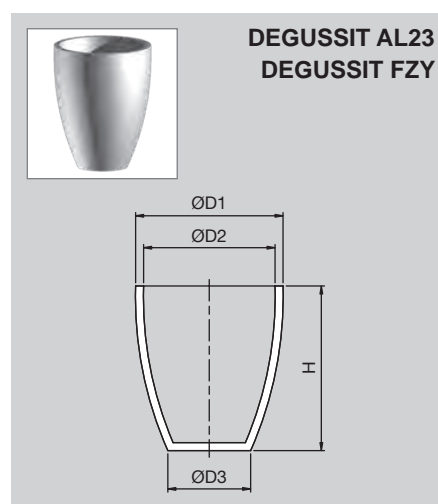
Order-Related Product

CRUCIBLES CONICAL HIGH FORM

H	Ø D1	Ø D2	Ø D3	Approx. Vol. ml	Product No. DEGUSSIT AL23
25	20	17	11	3	202-11020-0250
30	25	21	13	6	202-11025-0300
38	30	26	15	12	202-11030-0380
45	35	31	18	19	202-11035-0450
55	45	40	22	37	202-11045-0550
65	60	53	30	76	202-11060-0650
90	73	67	35	190	202-11073-0900

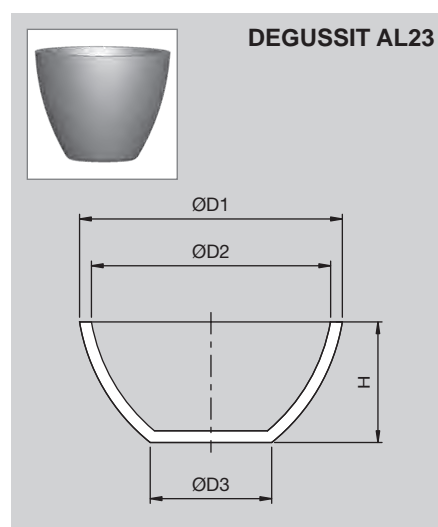
H	Ø D1	Ø D2	Ø D3	Approx. Vol. ml	Product No. DEGUSSIT FZY
25	20	17	11	4	202-56020-0250
65	60	53	30	76	202-56060-0650
100	65	55	32	150	202-56065-1000
90	73	67	35	190	202-56073-0900
100	85	78	35	400	202-56085-1001
120	100	91	50	500	202-56100-1200

Order-Related Product



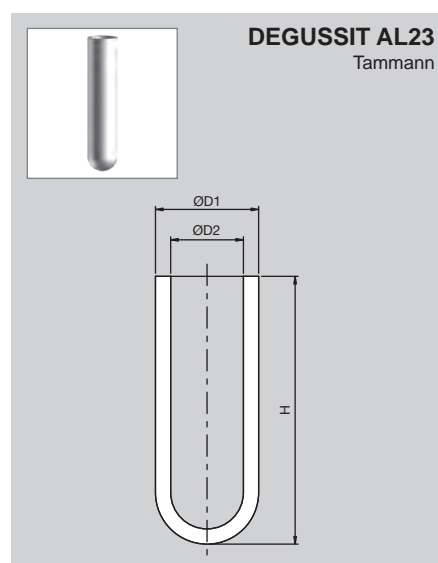
CRUCIBLES CONICAL WIDE FORM

H	Ø D1	Ø D2	Ø D3	Approx. Vol. ml	Product No.
20	25	22	13	4	203-11025-0200
24	30	26	15	6.5	203-11030-0240
32	40	36	20	16	203-11040-0320
37	43	38	22	22	203-11043-0370
40	50	45	25	34	203-11050-0400
55	65	59	33	88	203-11065-0550
60	88	80	44	170	203-11088-0600



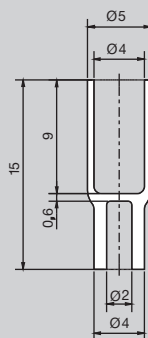
CRUCIBLES - CYLINDRICAL, ROUND BASE

H	Ø D1	Ø D2	Approx. Vol. ml	Tammann No.	Product No.
30	6	3	0.2	-	204-11006-0300
50	8	5	1	-	204-11008-0500
80	10	6	2.3	-	204-11010-0800
100	12	8	5	-	204-11012-1000
100	15	10	8	-	204-11015-1000
100	20	15	17	-	204-11020-1000
100	25	20	30	-	204-11025-1000
190	16	12	22	I a	204-11016-1900
190	24	20	60	I b	204-11024-1900
190	34	28	123	I c	204-11034-1900
280	24	20	90	II a	204-11024-2800
280	34	28	180	II b	204-11034-2800
280	44	38	300	II c III a	204-11044-2800
280	55	47	490	III b	204-11055-2800
280	68	58	790	III c	204-11068-2800
390	68	58	1,070	IV a	204-11068-3900



SLIP-ON CRUCIBLES

DEGUSSIT AL23



Approx. Vol. ml

Product No.

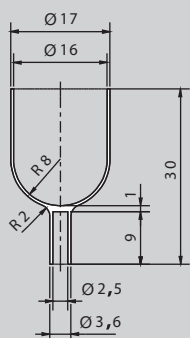
0.11

209-11000-0063

Order-Related Product

SLIP-ON CRUCIBLES

DEGUSSIT AL23



Approx. Vol. ml

Product No.

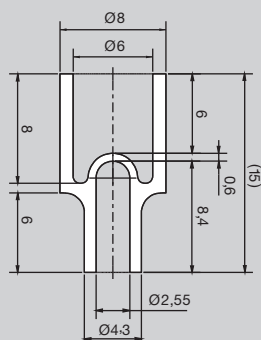
3.5

209-11000-0064

Order-Related Product

SLIP-ON CRUCIBLES

DEGUSSIT AL23



Approx. Vol. ml

Product No.

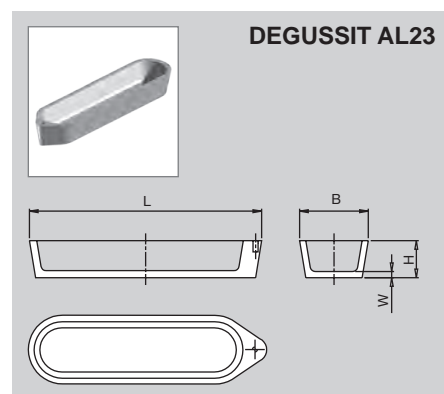
0.2

209-11000-0068

Order-Related Product

BOATS

B	H	L	W	Approx. Vol. ml	Product No.
9	6	32	2	0.2	221-11032-0090
9	6	48	2	0.4	221-11048-0090
9	6	69	2	0.7	221-11069-0090
15	8	50	2,5	1.7	221-11050-0150
15	8	87	2,5	2.8	221-11087-0150
15	8	112	2,5	4.7	221-11112-0150
18	10	92	3	5.5	221-11092-0180
18	10	118	3	7	221-11118-0180
23	13	58	3	5.2	221-11058-0230
23	13	92	3	9.5	221-11092-0230
23	13	124	3	13.5	221-11124-0230
31	17	102	3	20	221-11102-0310
31	17	130	3	27	221-11130-0310



B	H	L	W	Approx. Vol. ml	Product No.
DEGUSSIT AL23					
25	20	50	3	12	222-11050-0250
50	20	50	3	26	222-11050-0500
50	20	75	4	35	222-11075-0500
50	30	100	4	95	222-11100-0500

B	H	L	W	Approx. Vol. ml	Product No.
DEGUSSIT AL24					
85	30	145	5	212	222-21145-0850

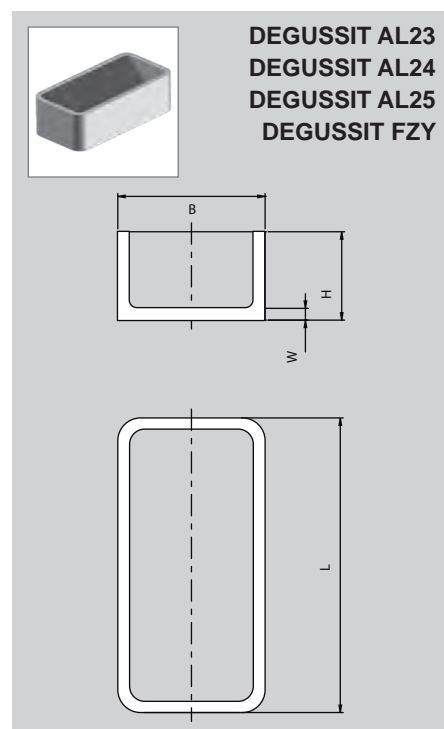
B	H	L	W	Approx. Vol. ml	Product No.
DEGUSSIT AL25					
125	50	205	10-15	660	222-22205-1250 *

B	H	L	W	Approx. Vol. ml	Product No.
DEGUSSIT FZY					
25	20	50	3	12	222-56050-0250
50	20	50	3	26	222-56050-0500
50	20	75	4	35	222-56075-0500
50	30	100	4	95	222-56100-0500

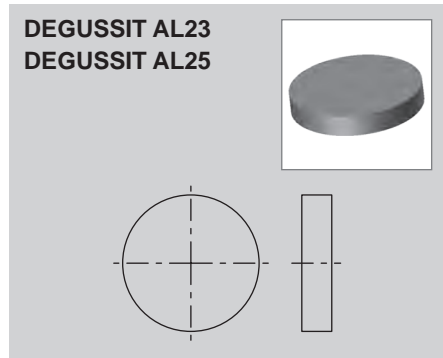
Order-Related Product

*W 10-15 conical

COMBUSTION TRAYS



PLATES - ROUND

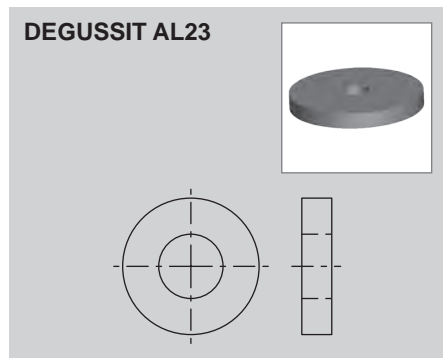


H	Ø D	Product No. DEGUSSIT AL23
3	10	211-11010-0300
3	15	211-11015-0300
3	20	211-11020-0300
4	25	211-11025-0400
5	30	211-11030-0500
5	35	211-11035-0500
6	40	211-11040-0600
6	45	211-11045-0600
6	50	211-11050-0600
6	52	211-11052-0600
6	55	211-11055-0600
7	60	211-11060-0700
7	70	211-11070-0700
8	80	211-11080-0800

H	Ø D	Product No. DEGUSSIT AL25
15	130	211-22130-1500
20	150	211-22150-2000
25	200	211-22200-2500

Plates sizes of plates up to approx. Ø 350 x 20 upon request

PLATES ROUND WITH HOLE



H	Ø D	Ø d	Product No.
3	20	6	212-11020-0300
4	25	6	212-11025-0400
5	30	6	212-11030-0500
5	35	6	212-11035-0500
6	40	8	212-11040-0600
6	45	8	212-11045-0600
6	50	10	212-11050-0600
6	52	10	212-11052-0600
6	55	10	212-11055-0600
7	60	10	212-11060-0700
7	70	10	212-11070-0700
8	80	10	212-11080-0800

Plates sizes of plates up to approx. Ø 350 x 20 upon request

PLATES - RECTANGULAR

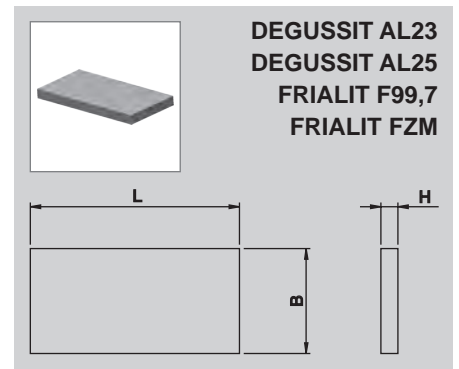
B	H	L	Product No. DEGUSSIT AL23
25	4	50	215-11050-0400
50	4	50	215-11050-0401
50	4	75	215-11075-0400
50	4	100	215-11100-0400

B	H	L	Product No. DEGUSSIT AL25
50	10	105	215-22105-1000
115	15	115	215-22115-1500
70	15	145	215-22145-1500
85	15	145	215-22145-1501

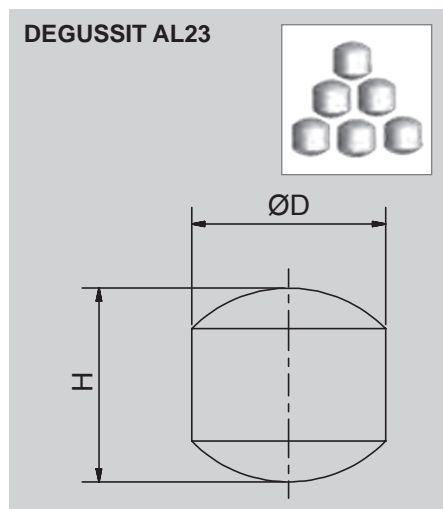
B	H	L	Product No. FRIALIT F99,7
90	9	90	690-13090-6
17	9	102	690-13102-2
66	9	103	690-13103-0
37	9	103	690-13103-2

B	H	L	Product No. FRIALIT FZM
90	9	90	790-55090-9
17	9	100	790-55099-0

Plates sizes of plates up to approx. 700 x 350 x 20 upon request



GRINDING BODIES



H	Ø D	pcs./l	pcs./kg	kg/l	Product No.
5	5	8325	3540	2,35	230-11000-0505
10	10	1020	440	2,3	230-11000-0510
15	15	350	157	2,25	230-11000-0515
20	20	120	53	2,25	230-11000-0520
30	30	34	15	2,2	230-11000-0530

INSULATING POWDER - CALCINED

ALUMINIUM OXIDE
Al₂O₃ >99,5 %

Type	Crystal size	Product No.
VM	99% < 10 µm	251-11000-1025

INSULATING POWDER - FUSED

ALUMINIUM OXIDE
Al₂O₃ >99,7%

Type	Crystal size	Product No.
E No. 100	~ 150 µm	251-11000-1100
E No. 250	~ 40 µm	251-11000-1250

CEMENT

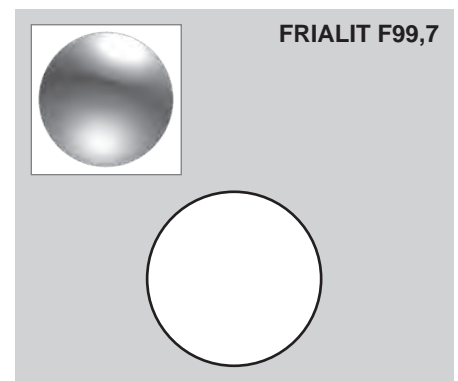
ALUMINIUM OXIDE
Al₂O₃ >95%

Type	Crystal size	Product No.
AL2O3	~ 150 µm	251-15000-1010

PRECISION BALLS

Ø D	Product No.
1,0000	610-13100-0
1,5000	610-13150-0
1,5880	610-13158-7
2,0000	610-13200-0
2,3810	610-13238-1
2,5000	610-13250-0
3,0000	610-13300-0
3,1750	610-13317-5
3,5000	610-13350-0
4,0000	610-13400-0
4,7625	610-13476-3
5,0000	610-13500-0
6,0000	610-13600-0
6,3500	610-13635-0
7,0000	610-13700-0
8,0000	610-13800-0
8,7320	610-13873-2
9,0000	610-13900-0
9,5250	610-13952-5
10,0000	611-13010-0
12,0000	611-13012-0
12,7000	611-13012-7
13,0000	611-13013-0
14,0000	611-13014-0
16,0000	611-13016-0
17,0000	611-13017-0
18,0000	611-13018-0
19,0000	611-13019-0
20,0000	611-13020-0
22,0000	611-13022-0
26,0000	611-13026-0
29,0000	611-13029-0
30,0000	611-13030-0
32,0000	611-13032-0
35,0000	611-13035-0
40,0000	611-13040-0
45,0000	611-13045-0
50,0000	611-13050-0
54,0000	611-13054-0
60,0000	611-13060-0
65,0000	611-13065-0
70,0000	611-13070-0
90,0000	611-13090-0
100,0000	611-13100-0

Other dimensions and further geometrical tolerances upon request



Quality: Grade 25, polished surface
Sphericity: 0,6 µm
Diameter Tolerance: 2,5 µm

COMPETENCE PLUS RESPONSIBILITY

Our customers rightly expect first-class performance with lasting value. Besides the competence to achieve this, we also undertake the responsibility for it. Ask for the evidence: FRIATEC is the technological and market leader in ceramic materials for the 21st Century.



- | | |
|--|--|
| 01 Image-intensifier for radiology | 13 Guide strip for the printing industry |
| 02 X-Ray tube for radiology | 14 Isolator for the printing industry |
| 03 Pressure sensor for aerospace | 15 Square tubes for the printing industry |
| 04 Camera housing for aerospace | 16 Tubes, rods and capillaries for high temperature applications |
| 05 Accelerator tube for radiology | 17 Thermal protection tubes for the glass and metallurgical industries |
| 06 Feedthroughs for high-vacuum applications | 18 Crucibles and boats for industry and research |
| 07 High-voltage feedthroughs for vacuum technology | 19 FZY-probes for oxygen measurement in gases |
| 08 Insulating tubes for high-vacuum technology | 20 Dielectric elements for fuel cells |
| 09 High current feedthroughs for energy systems | 21 Dielectric elements for fuel cells |
| 10 Wafer carrier for the semiconductor industry | 22 Thermal protection tubes for high temperature applications |
| 11 Test plates for the semiconductor industry | 23 Shaping roller for the glass industry |
| 12 Sensor elements for the semiconductor industry | 24 Glow-block for heat treatment of lamp filaments |

Electrical Engineering
High Temperature Technology
Mechanical Engineering
Surface Finishing



- 25 Ozone generator for the semiconductor industry
- 26 Control discs for production and laboratory processes
- 27 Dosing pistons with control edge for the food-processing and pharmaceutical industries
- 28 Pump inserts for medical technology
- 29 Float body for flow-measurement in the chemical industry
- 30 Electrode holder for flow-measurement in the chemical industry
- 31 Flow meters for the food-processing industry
- 32 Welding pins for automotive-body manufacture
- 33 Centring pin for automotive-body manufacture
- 34 Metal-forming tools for automotive-body manufacture
- 35 Isolation shells for magnetically-coupled pump in the chemical industry
- 36 Pump impeller for the chemical industry
- 37 Stirrers for the chemical industry
- 38 High-pressure pump piston for the chemical industry
- 39 Adhesive nozzle for the paper industry
- 40 Valve disc for pulp-processing
- 41 Vacuum plate for paper-making
- 42 Protection tubes for the glass industry
- 43 Midget file for the glass-processing industry
- 44 Hand lappers for the glass-processing industry
- 45 Grinding wheel for the glass-processing industry
- 46 Grinding tools for metal working
- 47 Bench-stones for metal working
- 48 Mounted points for metal working