

FRIALIT®-DEGUSSIT® Oxide Ceramics
High Temperature Technology

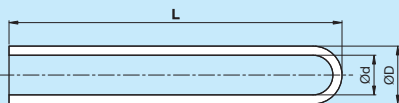
**Tubes, Rods, Multi-Bore Tubes, Crucibles, Plates,
Boats, Combustion Trays and Grinding Pieces**

TUBES



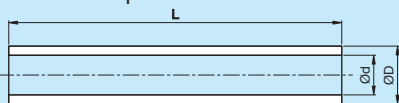
DEGUSSIT AL23

one end closed



DEGUSSIT AL23

both ends open



| Ø D | Ø d | L Length max. | Article no. closed | L Length max. | Article no. open |
|------|-----|------------------|-----------------------|------------------|---------------------|
| 3 | 1,6 | 1000 | 101-11003-0 | 1000 | 122-11003-0 |
| 4 | 2 | 1000 | 101-11004-0 | 1000 | 122-11004-0 |
| 5 | 3 | 1000 | 101-11005-0 | 1000 | 122-11005-0 |
| 6 | 3 | 2100 | 101-11006-0 | 2100 | 122-11006-0 |
| 6 | 4 | 2100 | 101-11006-1 | 2100 | 122-11006-2 |
| 7 | 4 | 2100 | 101-11007-0 | 2100 | 122-11007-0 |
| 8** | 5 | 2100 | 101-11008-0 * | 2100 | 122-11008-0 |
| 10** | 6 | 2100 | 101-11010-0 * | 2100 | 122-11010-0 |
| 11 | 7 | 2100 | 101-11011-0 * | 2100 | 122-11011-0 |
| 12** | 8 | 2100 | 101-11012-0 * | 2100 | 122-11012-0 |
| 15** | 10 | 2100 | 101-11015-0 * | 2100 | 122-11015-0 |
| 16 | 12 | 2100 | 101-11016-0 * | 2100 | 122-11016-0 |
| 20** | 15 | 2100 | 101-11020-0 * | 2100 | 122-11020-0 |
| 24** | 18 | 2100 | 101-11024-0 * | 2100 | 122-11024-0 |
| 25 | 20 | 2100 | 101-11025-0 | 2100 | 122-11025-0 |
| 30 | 25 | 800 | 101-13030-0 | 2100 | 122-11030-0 |
| 35 | 29 | 800 | 101-11035-0 | 2100 | 122-11035-0 |
| 40 | 34 | 800 | 101-11040-0 | 2100 | 122-11040-0 |
| 45 | 38 | 800 | 101-11045-0 | 2100 | 122-11045-0 |
| 48 | 40 | - | - | 2100 | 122-11048-0 |
| 50 | 42 | 800 | 101-11050-0 | 2100 | 122-11050-0 |
| 55 | 47 | 800 | 101-11055-0 | 2100 | 122-11055-0 |
| 60 | 50 | 800 | 101-11060-0 | 2100 | 122-11060-0 |
| 65 | 55 | - | - | 2100 | 122-11065-0 |
| 70 | 60 | 800 | 101-11070-0 | 2100 | 122-11070-0 |
| 80 | 70 | 800 | 101-11080-0 | 2100 | 122-11080-0 |
| 90 | 80 | - | - | 2000 | 122-11090-0 |
| 95 | 85 | - | - | 1500 | 122-11095-1 |
| 100 | 85 | - | - | 1500 | 122-11100-0 |
| 105 | 90 | - | - | 1500 | 122-11105-0 |
| 110 | 95 | 1200 | 122-11110-0 | - | - |
| 115 | 100 | - | - | 1800 | 122-11115-1 |
| 120 | 105 | - | - | 1700 | 122-11120-0 |
| 130 | 110 | - | - | 1500 | 122-11130-0 |
| 140 | 120 | - | - | 1800 | 122-11140-0 |
| 150 | 130 | - | - | 1100 | 122 11150-1 |
| 170 | 150 | - | - | 1500 | 122 11170-0 |

* with flange available

** normative size for thermocouple

Other dimensions upon request

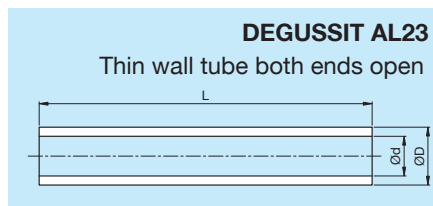
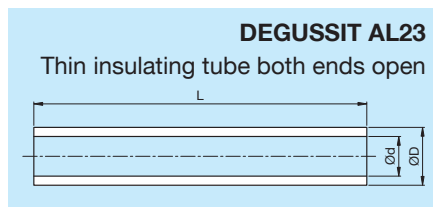


| Ø D | Ø d | L Length max. | Article no. open |
|------|------|------------------|---------------------|
| 0,50 | 0,20 | 400 | 121-11050-0 |
| 0,60 | 0,30 | 400 | 121-11060-0 |
| 0,80 | 0,40 | 400 | 121-11080-0 |
| 1,00 | 0,50 | 400 | 121-11100-0 |
| 1,00 | 0,60 | 400 | 121-11100-1 |
| 1,10 | 0,60 | 400 | 121-11110-0 |
| 1,20 | 0,80 | 400 | 121-11120-0 |
| 1,50 | 1,00 | 400 | 121-11150-0 |
| 1,60 | 0,80 | 400 | 121-11160-0 |
| 1,70 | 1,10 | 400 | 121-11170-0 |
| 2,00 | 1,00 | 400 | 121-11200-0 |
| 2,00 | 1,20 | 400 | 121-11200-1 |
| 2,00 | 1,50 | 400 | 121-11200-2 |
| 2,50 | 1,30 | 400 | 121-11250-0 |
| 2,70 | 1,70 | 400 | 121-11270-0 |

Other dimensions upon request

| Ø D | Ø d | L Length max. | Article no. open |
|-----|-----|------------------|---------------------|
| 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 |

Other dimensions upon request



TUBES



DEGUSSIT AL24

one end closed



DEGUSSIT AL24

both ends open



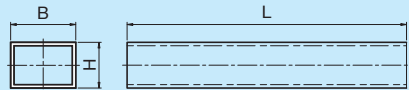
| Ø D | Ø d | L Length max. | Article no. closed | L Length max. | Article no. open |
|-----|-----|------------------|------------------------------|------------------|----------------------------|
| 10 | 6 | - | - | 1500 | 122-21010-0 |
| 12 | 8 | - | - | 1500 | 122-21012-0 |
| 15 | 10 | 2100 | 101-21015-0 | 1500 | 122-21015-0 |
| 20 | 15 | 2100 | 101-21020-0 | 1500 | 122-21020-0 |
| 24 | 18 | 2100 | 101-21024-0 | 1500 | 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 |

Other dimensions upon request

SQUARE-SECTION TUBES



DEGUSSIT AL23



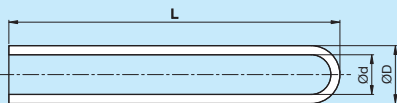
| B | H | L Length max. | Article no. |
|----|----|------------------|-------------|
| 15 | 15 | 2150 | 191-11015-0 |
| 16 | 12 | 2150 | 191-11016-0 |
| 20 | 20 | 2150 | 191-11020-0 |

Other dimensions upon request

TUBES FOR OXYGEN PROBES

DEGUSSIT FZY

one end closed



DEGUSSIT FZY

both ends open



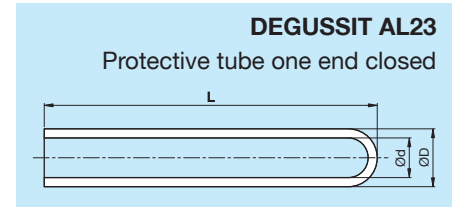
| Ø D | Ø d | L Length max. | Article no. closed | L Length max. | Article no. open |
|-----|-----|------------------|------------------------------|------------------|----------------------------|
| 6 | 3 | 1000 | 101-56006-0 | 1000 | 122-56006-0 |
| 6 | 4 | 1000 | 101-56006-1 | 1000 | 122-56006-1 |
| 8 | 5 | 1000 | 101-56008-0 | 1000 | 122-56008-0 |
| 10 | 6 | 1000 | 101-56010-0 | 1000 | 122-56010-0 |
| 10 | 7 | 1000 | 101-56010-1 | 1000 | 122-56010-1 |
| 13 | 9 | 1000 | 101-56013-0 | 1000 | 122-56013-0 |
| 15 | 10 | 1000 | 101-56015-0 | 1000 | 122-56015-0 |

Other dimensions upon request

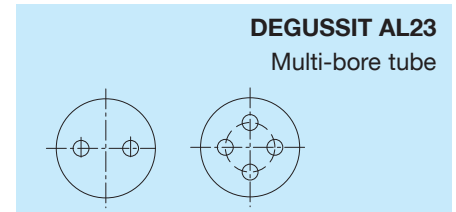


NORMATIVE TUBES FOR THERMOCOUPLES

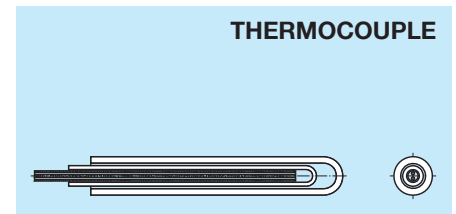
| Ø D | Ø d | L Length max. | Article no. |
|-----|-----|------------------|-------------|
| 8 | 5 | 2100 | 100-11008-0 |
| 10 | 6 | 2100 | 100-11010-0 |
| 12 | 8 | 2100 | 100-11012-0 |
| 15 | 10 | 2100 | 100-11015-0 |
| 20 | 15 | 2100 | 100-11020-0 |
| 24 | 18 | 2100 | 100-11024-0 |



| Ø D | Bore-Ø | Number of bores | L Length max. | Article 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 |



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



For a standard thermocouple with an outer protective tube L 180 you need an inner protective tube L 200 and a bore tube L 205.

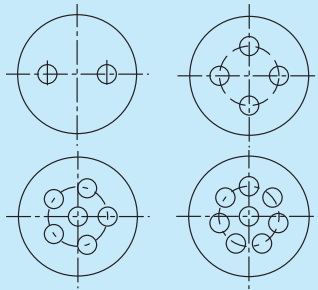
MULTI-BORE TUBES



DEGUSSIT AL23

round

on request with notch



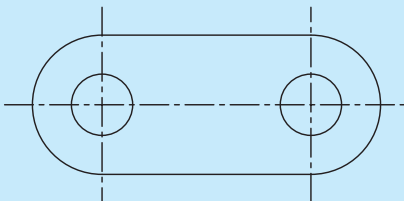
| Ø D | Bore-Ø | Number of bores | L Length max. | Article no. |
|-------|--------|-----------------|---------------|-------------|
| 0,90 | 0,20 | 2 | 400 | 141-11090-0 |
| 1,20 | 0,30 | 2 | 400 | 141-11120-0 |
| 1,55 | 0,40 | 2 | 400 | 141-11155-0 |
| 2,00 | 0,50 | 2 | 400 | 141-11200-0 |
| 2,50 | 0,70 | 2 | 1200 | 141-11250-0 |
| 3,00 | 0,80 | 2 | 2100 | 143-11030-0 |
| 4,00* | 0,80 | 2 | 2100 | 143-11040-0 |
| 4,00 | 1,20 | 2 | 2100 | 143-11040-1 |
| 5,00 | 1,20 | 2 | 2100 | 143-11050-0 |
| 6,00* | 1,50 | 2 | 2100 | 143-11060-0 |
| 8,00* | 1,60 | 2 | 2100 | 143-11080-0 |
| 1,20 | 0,20 | 4 | 400 | 142-11120-0 |
| 2,35 | 0,50 | 4 | 400 | 142-11235-0 |
| 2,80 | 0,70 | 4 | 800 | 142-11280-0 |
| 4,00* | 0,80 | 4 | 2100 | 144-11040-0 |
| 5,00 | 1,00 | 4 | 2100 | 144-11050-0 |
| 5,50* | 1,20 | 4 | 2100 | 144-11055-0 |
| 8,50* | 1,50 | 4 | 2100 | 144-11085-0 |
| 2,00 | 0,40 | 6 | 400 | 142-11200-0 |
| 8,00 | 0,80 | 6 | 2100 | 144-11080-0 |
| 8,00 | 0,80 | 8 | 2100 | 144-11080-1 |

* Normative size for thermocouple

DEGUSSIT AL23

oval

on request with notch



| D/d | Bore-Ø | Number of bores | L Length max. | Article no. |
|-----------|--------|-----------------|---------------|-------------|
| 1,55/0,90 | 0,25 | 2 | 400 | 145-11155-0 |
| 2,30/1,40 | 0,70 | 2 | 400 | 145-11230-0 |
| 3,00/1,50 | 0,80 | 2 | 400 | 145-11030-0 |
| 4,20/2,20 | 1,20 | 2 | 400 | 145-11042-0 |

Other dimensions upon request

BEADS



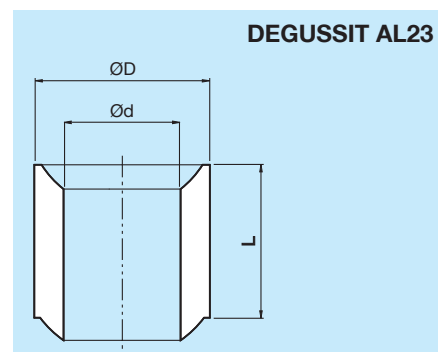
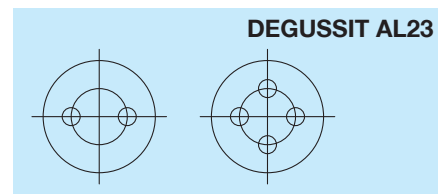
| Ø D | Bore-Ø | Number of bores | L Length max. | Article no. |
|-----|--------|-----------------|---------------|-----------------|
| 4 | 0,8 | 2 | 4 | 161-11040-00004 |
| 4 | 0,8 | 2 | 10 | 161-11040-00010 |
| 4 | 0,8 | 4 | 4 | 162-11040-00004 |
| 4 | 0,8 | 4 | 10 | 162-11040-00010 |

Other dimensions upon request



| Ø D | Bore-Ø | L Length max. | Article no. |
|-----|--------|---------------|-----------------|
| 3,5 | 1,0 | 3,0 | 160-11035-00003 |
| 4,0 | 1,5 | 4,7 | 160-11040-00004 |
| 5,0 | 2,5 | 5,0 | 160-11050-00005 |
| 7,0 | 3,8 | 7,0 | 160-11070-00007 |
| 8,5 | 5,0 | 10,0 | 160-11085-00010 |

Other dimensions upon request

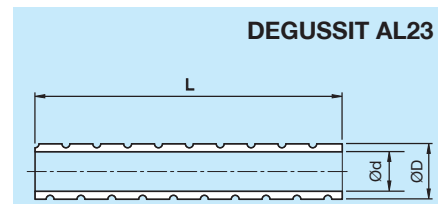


TUBES FOR HEATING COILS



| Ø D | Ø d | Thread breath | Thread depth | Thread pitch | L Length max. | Article no. |
|-----|-----|---------------|--------------|--------------|---------------|-------------|
| 21 | 15 | 1,0 | 1,0 | 1,5 | 500 | 281-11021-0 |
| 27 | 20 | 1,0 | 1,0 | 1,5 | 500 | 281-11027-0 |
| 33 | 25 | 1,0 | 1,0 | 1,5 | 500 | 281-11033-0 |
| 38 | 29 | 1,5 | 1,2 | 2,0 | 500 | 281-11038-0 |
| 44 | 34 | 2,0 | 1,6 | 2,5 | 500 | 281-11044-0 |
| 50 | 38 | 2,0 | 2,0 | 2,5 | 500 | 281-11050-0 |
| 60 | 47 | 2,5 | 2,0 | 5,0 | 500 | 281-11060-0 |

Other dimensions upon request

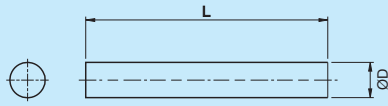


RODS



DEGUSSIT AL23

rund

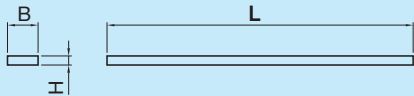


| Ø D | L Length max. | Article no. |
|------|------------------|-------------|
| 0,5 | 400 | 181-11050-0 |
| 0,6 | 400 | 181-11060-0 |
| 0,8 | 400 | 181-11080-0 |
| 1,0 | 400 | 181-11100-0 |
| 1,2 | 400 | 181-11120-0 |
| 1,5 | 400 | 181-11150-0 |
| 2,0 | 400 | 181-11200-0 |
| 3,0 | 1000 | 182-11003-0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

Other dimensions upon request

BANDS

DEGUSSIT AL23

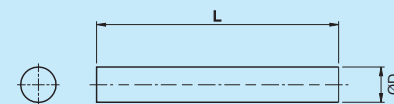


| B | H | L Length max. | Article no. |
|----|---|------------------|-------------|
| 1 | 1 | 500 | 183-11100-1 |
| 6 | 3 | 500 | 183-11060-1 |
| 7 | 2 | 500 | 183-11070-2 |
| 8 | 4 | 500 | 183-11080-2 |
| 10 | 1 | 500 | 183-11100-1 |
| 10 | 2 | 500 | 183-11100-6 |
| 10 | 3 | 500 | 183-11100-0 |
| 11 | 3 | 500 | 183-11110-0 |
| 15 | 3 | 500 | 183-11150-0 |
| 16 | 8 | 500 | 183-11160-0 |

Other dimensions upon request



FRIALIT F99,7 round



| Ø D | L Length max. | Article no. |
|-----|------------------|-------------|
| 15 | 400 | 625-13015-0 |
| 16 | 400 | 625-13016-0 |
| 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 |

Other dimensions upon request

Tolerances

Diameter: + 1 / + 4 mm

Length: +/- 5 mm

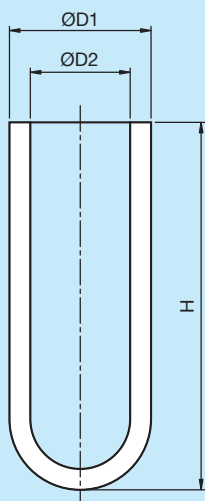
Deviation: max. 0,5 % of the total length

CRUCIBLES



DEGUSSIT AL23

Tammann



| Ø D1 | Ø D2 | H | Tammann No. | approx. Vol. ml | Article no. |
|------|------|-----|-------------|-----------------|----------------|
| 6 | 3 | 30 | - | 0,2 | 204-11006-0300 |
| 8 | 5 | 50 | - | 1,0 | 204-11008-0500 |
| 10 | 6 | 80 | - | 2,3 | 204-11010-0800 |
| 12 | 8 | 100 | - | 5,0 | 204-11012-1000 |
| 15 | 10 | 100 | - | 8,0 | 204-11015-1000 |
| 20 | 15 | 100 | - | 17,0 | 204-11020-1000 |
| 25 | 20 | 100 | - | 30,0 | 204-11025-1000 |
| 16 | 12 | 190 | I a | 22,0 | 204-11016-1900 |
| 24 | 20 | 190 | I b | 60,0 | 204-11024-1900 |
| 34 | 28 | 190 | I c | 123,0 | 204-11034-1900 |
| 24 | 20 | 280 | II a | 90,0 | 204-11024-2800 |
| 34 | 28 | 280 | II b | 180,0 | 204-11034-2800 |
| 44 | 38 | 280 | II c III a | 300,0 | 204-11044-2800 |
| 55 | 47 | 280 | III b | 490,0 | 204-11055-2800 |
| 68 | 58 | 280 | III c | 790,0 | 204-11068-2800 |
| 68 | 58 | 390 | IV a | 1070,0 | 204-11068-3900 |

Other dimensions upon request



| Ø D1 | Ø D2 | H | approx. Vol. ml | Article no. AL23 |
|------|------|-----|-----------------|-------------------------|
| 10 | 8 | 15 | 0,7 | 201-11010-0150 |
| 20 | 16 | 30 | 6,0 | 201-11020-0300 |
| 30 | 26 | 40 | 20,0 | 201-11030-0400 |
| 35 | 30 | 50 | 40,0 | 201-11035-0500 |
| 40 | 36 | 60 | 60,0 | 201-11040-0600 |
| 50 | 44 | 75 | 110,0 | 201-11050-0750 |
| 65 | 55 | 100 | 225,0 | 201-11065-1000 |
| 85 | 73 | 150 | 600,0 | 201-11085-1500 |
| 110 | 100 | 150 | 1100,0 | 201-11110-1500 |

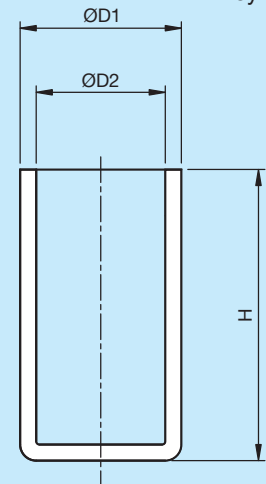
| Ø D1 | Ø D2 | H | approx. Vol. ml | Article no. AL24 |
|------|------|-----|-----------------|-------------------------|
| 20 | 16 | 30 | 6,0 | 201-21020-0300 |
| 30 | 26 | 40 | 20,0 | 201-21030-0400 |
| 35 | 30 | 50 | 40,0 | 201-21035-0500 |
| 40 | 36 | 60 | 60,0 | 201-21040-0600 |
| 50 | 44 | 75 | 110,0 | 201-21050-0750 |
| 65 | 55 | 100 | 225,0 | 201-21065-1000 |
| 85 | 73 | 150 | 600,0 | 201-21085-1500 |

| Ø D1 | Ø D2 | H | approx. Vol. ml | Article no. AL25 |
|------|------|-----|-----------------|-------------------------|
| 145 | 125 | 160 | 1760,0 | 201-22145-1600 |
| 120 | 100 | 200 | 1500,0 | 201-22120-2000 |

| Ø D1 | Ø D2 | H | approx. Vol. ml | Article no. FZY |
|------|------|-----|-----------------|------------------------|
| 10 | 8 | 15 | 0,7 | 201-56010-0150 |
| 20 | 16 | 30 | 6,0 | 201-56020-0300 |
| 30 | 26 | 40 | 20,0 | 201-56030-0400 |
| 35 | 30 | 50 | 40,0 | 201-56035-0500 |
| 40 | 36 | 60 | 60,0 | 201-56040-0600 |
| 50 | 44 | 75 | 110,0 | 201-56050-0750 |
| 65 | 55 | 100 | 225,0 | 201-56065-1000 |
| 85 | 73 | 150 | 600,0 | 201-56085-1500 |

Other dimensions upon request

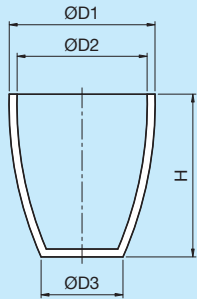
DEGUSSIT AL23
DEGUSSIT AL24
DEGUSSIT AL25
DEGUSSIT FZY
 cylindrical



CRUCIBLES



DEGUSSIT AL23
DEGUSSIT FZY
conical high form

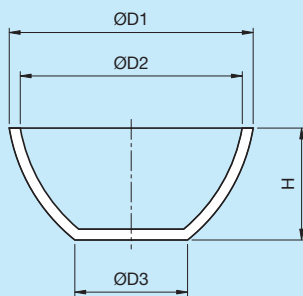


| Ø D1 | Ø D2 | Ø D3 | H | approx. Vol. ml | Article no. AL23 |
|------|------|------|----|-----------------|-------------------------|
| 20 | 17 | 11 | 25 | 4,0 | 202-11020-0250 |
| 25 | 21 | 13 | 30 | 9,0 | 202-11025-0300 |
| 30 | 26 | 15 | 38 | 15,0 | 202-11030-0380 |
| 35 | 31 | 18 | 45 | 23,0 | 202-11035-0450 |
| 45 | 40 | 22 | 55 | 49,0 | 202-11045-0550 |
| 60 | 53 | 30 | 65 | 75,0 | 202-11060-0650 |
| 73 | 67 | 35 | 90 | 160,0 | 202-11073-0900 |

| Ø D1 | Ø D2 | Ø D3 | H | approx. Vol. ml | Article no. FZY |
|------|------|------|-----|-----------------|------------------------|
| 20 | 17 | 11 | 25 | 4,0 | 202-56020-0250 |
| 60 | 53 | 30 | 65 | 100,0 | 202-56060-0650 |
| 65 | 55 | 32 | 100 | 150,0 | 202-56065-1000 |
| 73 | 67 | 35 | 90 | 20,0 | 202-56073-0900 |
| 85 | 78 | 35 | 100 | 400,0 | 202-56085-1001 |
| 100 | 91 | 50 | 120 | 500,0 | 202-56100-1200 |

Other dimensions upon request

DEGUSSIT AL23
conical wide form



| Ø D1 | Ø D2 | Ø D3 | H | approx. Vol. ml | Article no. AL23 |
|------|------|------|----|-----------------|-------------------------|
| 25 | 22 | 13 | 20 | 5,0 | 203-11025-0200 |
| 30 | 26 | 15 | 24 | 8,0 | 203-11030-0240 |
| 40 | 36 | 20 | 32 | 21,0 | 203-11040-0320 |
| 43 | 38 | 22 | 37 | 26,0 | 203-11043-0370 |
| 50 | 45 | 25 | 40 | 40,0 | 203-11050-0400 |
| 65 | 59 | 33 | 55 | 80,0 | 203-11065-0550 |
| 88 | 80 | 44 | 60 | 125,0 | 203-11088-0600 |

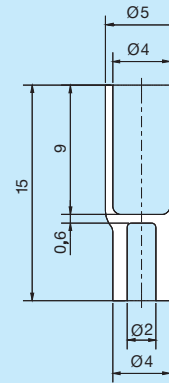
Other dimensions upon request



SLIP-ON CRUCIBLES



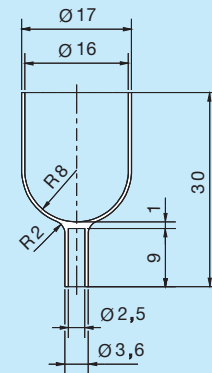
Article no.
209-11000-0063



DEGUSSIT AL23



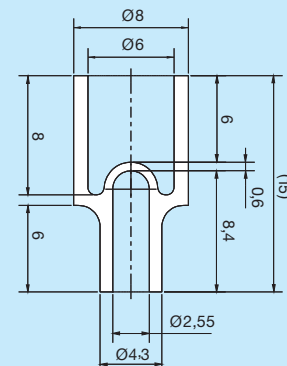
Article no.
209-11000-0064



DEGUSSIT AL23



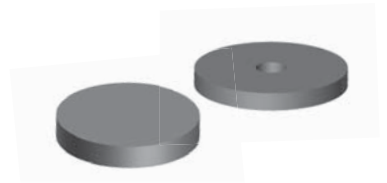
Article no.
209-11000-0068



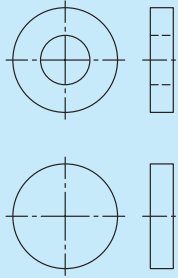
DEGUSSIT AL23

Other dimensions upon request

PLATES



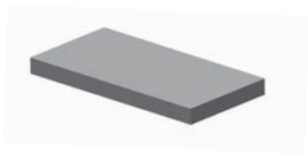
DEGUSSIT AL23
DEGUSSIT AL25
 round



| Ø D | Ø d | H | Article no. AL23 without bore | Article no. AL23 with bore |
|-----|-----|---|---|--------------------------------------|
| 10 | - | 3 | 211-11010-0300 | - |
| 15 | - | 3 | 211-11015-0300 | - |
| 20 | 6 | 3 | 211-11020-0300 | 212-11020-0300 |
| 25 | 6 | 4 | 211-11025-0400 | 212-11025-0400 |
| 30 | 6 | 5 | 211-11030-0500 | 212-11030-0500 |
| 35 | 6 | 5 | 211-11035-0500 | 212-11035-0500 |
| 40 | 8 | 6 | 211-11040-0600 | 212-11040-0600 |
| 45 | 8 | 6 | 211-11045-0600 | 212-11045-0600 |
| 50 | 10 | 6 | 211-11050-0600 | 212-11050-0600 |
| 52 | 10 | 6 | 211-11052-0600 | 212-11052-0600 |
| 55 | 10 | 6 | 211-11055-0600 | 212-11055-0600 |
| 60 | 10 | 7 | 211-11060-0700 | 212-11060-0700 |
| 70 | 10 | 7 | 211-11070-0700 | 212-11070-0700 |
| 80 | 10 | 8 | 211-11080-0800 | 212-11080-0800 |

| Ø D | Ø d | H | Article no. AL25 without bore | Article no. AL25 with bore |
|-----|-----|----|---|--------------------------------------|
| 130 | - | 15 | 211-22130-1500 | - |
| 150 | - | 20 | 211-22150-2000 | - |
| 200 | - | 25 | 211-22200-2500 | - |

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



PLATES

| L | B | H | Article no. AL23 |
|-----|----|---|-------------------------|
| 50 | 25 | 4 | 215-11050-0400 |
| 50 | 50 | 4 | 215-11050-0401 |
| 75 | 50 | 4 | 215-11075-0400 |
| 100 | 50 | 4 | 215-11100-0400 |

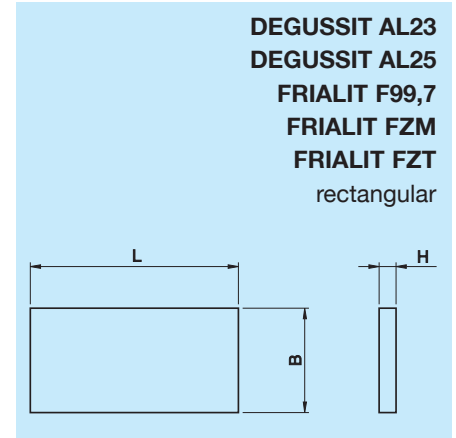
| L | B | H | Article no. AL25 |
|-----|-----|----|-------------------------|
| 105 | 50 | 10 | 215-22105-1000 |
| 145 | 70 | 15 | 215-22145-1500 |
| 115 | 115 | 15 | 215-22115-1500 |
| 205 | 125 | 15 | 215-22205-1500 |

| L | B | H | Article no. F99,7 |
|-----|----|---|--------------------------|
| 90 | 90 | 9 | 690-13090-6 |
| 135 | 80 | 9 | 690-13135-0 |
| 103 | 20 | 9 | 690-13102-3 |
| 103 | 48 | 9 | 690-13102-7 |
| 103 | 52 | 9 | 690-13103-3 |
| 103 | 67 | 9 | 690-13190-4 |

| L | B | H | Article no. FZM |
|-----|----|---|------------------------|
| 90 | 90 | 9 | 790-55090-9 |
| 100 | 17 | 9 | 790-55099-0 |
| 100 | 46 | 9 | 790-55100-8 |
| 100 | 48 | 9 | 790-55100-11 |
| 130 | 77 | 9 | 790-55130-1 |

| L | B | H | Article no. FZT |
|-------|----|---|------------------------|
| 92 | 92 | 9 | 790-58092-0 |
| 133 | 78 | 9 | 790-58133-0 |
| 103 | 19 | 9 | 790-58103-2 |
| 141,5 | 71 | 9 | 790-58141-0 |

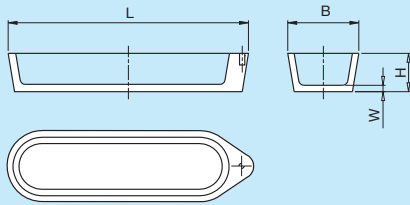
Sizes of plates up to approx. 700 X 350 x 20 upon request



BOATS



DEGUSSIT AL23

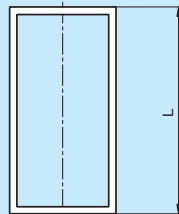
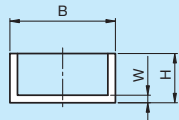


| L | B | H | W | approx. Vol. ml | Article no. |
|-----|----|----|-----|-----------------|----------------|
| 32 | 9 | 6 | 2,0 | 0,4 | 221-11032-0090 |
| 48 | 9 | 6 | 2,0 | 0,6 | 221-11048-0090 |
| 69 | 9 | 6 | 2,0 | 1,0 | 221-11069-0090 |
| 50 | 15 | 8 | 2,5 | 1,7 | 221-11050-0150 |
| 87 | 15 | 8 | 2,5 | 3,4 | 221-11087-0150 |
| 112 | 15 | 8 | 2,5 | 4,7 | 221-11112-0150 |
| 92 | 18 | 10 | 3,0 | 5,7 | 221-11092-0180 |
| 118 | 18 | 10 | 3,0 | 7,6 | 221-11118-0180 |
| 58 | 23 | 13 | 3,0 | 4,3 | 221-11058-0230 |
| 92 | 23 | 13 | 3,0 | 7,5 | 221-11092-0230 |
| 124 | 23 | 13 | 3,0 | 10,3 | 221-11124-0230 |
| 102 | 31 | 17 | 3,0 | 19,0 | 221-11102-0310 |
| 130 | 31 | 17 | 3,0 | 36,0 | 221-11130-0310 |

Other dimensions upon request

COMBUSTION TRAYS

DEGUSSIT AL23 DEGUSSIT AL24 DEGUSSIT AL25 DEGUSSIT FZY



| L | B | H | W | approx. Vol. ml | Article no. AL23 |
|-----|----|----|---|-----------------|-------------------------|
| 50 | 25 | 20 | 3 | 14,0 | 222-11050-0250 |
| 50 | 50 | 20 | 3 | 33,0 | 222-11050-0500 |
| 75 | 50 | 20 | 4 | 45,0 | 222-11075-0500 |
| 100 | 50 | 30 | 4 | 100,0 | 222-11100-0500 |

| L | B | H | W | approx. Vol. ml | Article no. AL24 |
|-----|----|----|---|-----------------|-------------------------|
| 145 | 85 | 30 | 5 | 240,0 | 222-21145-0850 |

| L | B | H | W | approx. Vol. ml | Article no. AL25 |
|-----|-----|----|----|-----------------|-------------------------|
| 205 | 125 | 50 | 10 | 820,0 | 222-22205-1250 |

| L | B | H | W | approx. Vol. ml | Article no. FZY |
|-----|----|----|---|-----------------|------------------------|
| 50 | 25 | 20 | 3 | 14,0 | 222-56050-0250 |
| 50 | 50 | 20 | 3 | 33,0 | 222-56050-0500 |
| 75 | 50 | 20 | 4 | 45,0 | 222-56075-0500 |
| 100 | 50 | 30 | 4 | 100,0 | 222-56100-0500 |

Other dimensions upon request



GRINDING PIECES

| Ø = H | Piece/l | Piece/kg | kg/l | Article no. |
|-------|---------|----------|------|----------------|
| 5 | 8325 | 3540 | 2,35 | 230-11000-0505 |
| 10 | 1020 | 440 | 2,30 | 230-11000-0510 |
| 15 | 350 | 157 | 2,25 | 230-11000-0515 |
| 20 | 120 | 53 | 2,25 | 230-11000-0520 |
| 30 | 34 | 15 | 2,20 | 230-11000-0530 |

DEGUSSIT AL23

Other dimensions and other materials upon request

INSULATING POWDERS

| Type | Constituents | Crystal-Ø | Article no. calcinated |
|------|--|------------|------------------------|
| VM | Al ₂ O ₃ 99,50 % | < 10µ 99 % | 251-11000-1025 |
| | Na ₂ O 0,25 % | < 6µ 92 % | |
| | CaO 0,15 % | < 5µ 80 % | |
| | Fe ₂ O ₃ 0,05 % | < 4µ 60 % | |
| | SiO ₂ < 0,05 % | < 3µ 30 % | |

Al₂O₃ calcinated
Al₂O₃ fused

Primarily for **electrical insulation** of cathode heaters and as fillers of casting resins.

| Type | Constituents | Crystal-Ø | Article no. fused |
|-----------|---|-----------|-------------------|
| E-Nr. 100 | Al ₂ O ₃ > 99,7 % | ~180µ | 251-11000-1100 |
| E-Nr. 250 | Al ₂ O ₃ > 99,7 % | ~60µ | 251-11000-1250 |

Primarily in dry filling for **thermal insulation** of electrical furnaces.

CEMENT

| Type | Constituents | Crystal-Ø | Article no. |
|--------------------------------|---|-----------|----------------|
| Al ₂ O ₃ | Al ₂ O ₃ > 94 % SiO ₂ ca. 5 % | ~150µ | 251-15000-1010 |

Al₂O₃
SiO₂
95% Agglomerates

Sealing thermocouples in furnace linings, embedding of heating coils or platinum crucibles etc.

The cement is diluted with water to the requested consistency. Since it is not cold-hardening, it contains 0.5% organic

binder to increase its dry strength. This binder is burned off completely during the heating process. Above 1200°C progressive hardening of the cement begins, as a result of sintering.

TOLERANCES CONCERNING HIGH TEMPERATURE TECHNOLOGY

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

■ **Tubes, Multi-Bore Tubes and Rods $\varnothing > 3$ mm as well as Bands:**

Diameter ± 5 %

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

Length ± 1 %

Linearity: Maximum deviation 0.5% of total length.

■ **Tubes, Multi-Bore Tubes and Rods $\varnothing < 3$ mm:**

Diameter ± 5 %

(but not less than $\pm 0,05$ mm)

Length ± 1 %

Linearity: Maximum deviation 0.5% of total length.

■ **Crucibles, Plates, Boats, Combustion Trays:**

Tolerances ± 3 %

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

Deviation: Maximum 0,5% of the total diagonal

■ **Beads and Grinding Pieces:**

Tolerances ± 3 %

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

All dimensions in mm.

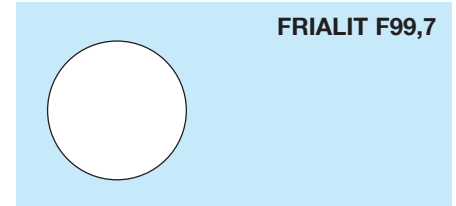
On request, we also supply parts with dimensions not listed in this delivery programme and in other ceramic materials.



PRECISION BALLS

| Ø D | Article 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 | 610-13175-0 |
| 3,5000 | 610-13500-0 |
| 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 |

| Ø D | Article no. |
|----------|-------------|
| 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 |



FRIALIT F99,7

Quality: Grade 25, polished surface

Sphericity: 0,6 µm

Diameter Tolerance: 2,5 µm

Other dimensions and further geometrical tolerances upon request