

Electrical Engineering 02 – 11

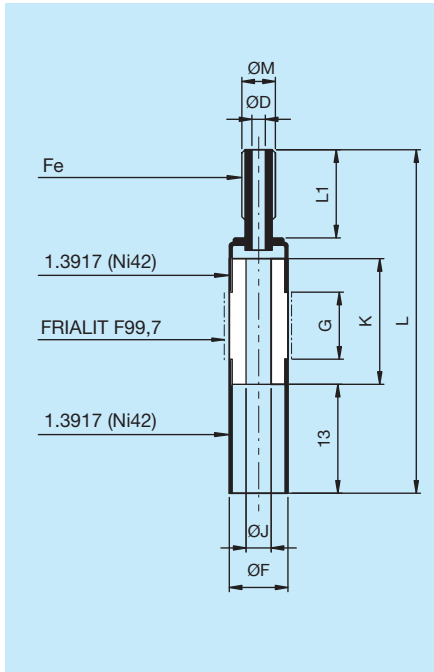
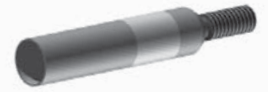
High Temperature Technology 12 – 31

Surface Finishing 32 – 39

FRIALIT®-DEGUSSIT® Oxide Ceramics
Electrical Engineering

Ceramic-Metal Assemblies
Metallised Ceramics

SINGLE TERMINAL FEEDTHROUGHS



Voltage (DC)	Ø M	Ø D	Ø F	Ø J	G	K	L	L1	Article no.
4 kV	M4	1,6	7,0	3,0	8	15	41	10	551-1001
6 kV	M6	2,5	9,0	4,0	13	20	47	10	551-1002
6 kV	M6	2,5	10,8	5,0	13	20	47	10	551-1003
6 kV	M8	3,8	13,5	6,5	13	20	54	17	551-1004

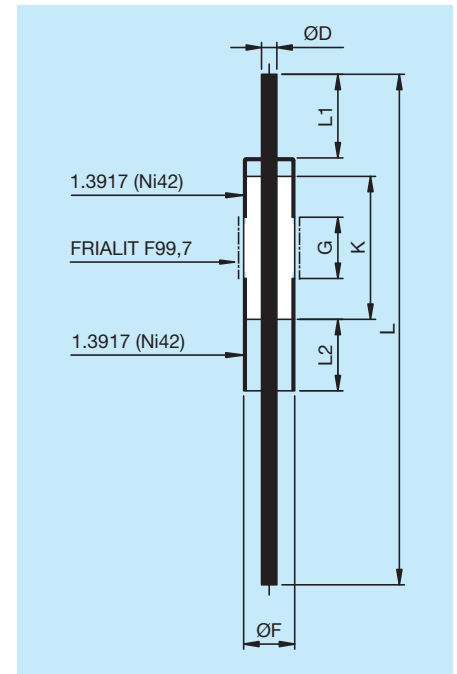
Feedthroughs are also available in other dimensions



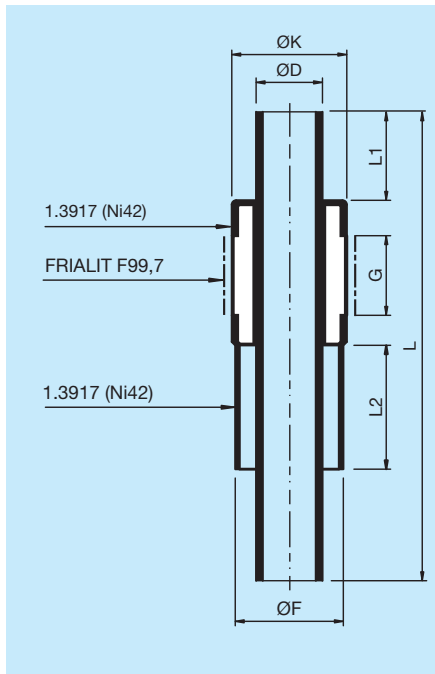
SINGLE TERMINAL FEEDTHROUGHS

Voltage (DC)	Conductor	Current	Ø D	Ø F	G	K	L1	L2	L	Article no.
1 kV	Ni42	5 A	1,5	10,8	4	22	12		75	551-0725
2 kV	NiFeCo	4 A	1,5x0,25	5	4	10,5	10	7	60	551-1063
2 kV	NiFeCo	5 A	1,5x0,25	5	4	10,5	10	7	60	551-1064
3 kV	NiFeCo	5 A	1,5x0,25	5	6	12,5	10	7	60	551-1066
3 kV	Cu	15 A	1,5x0,25	5	6	12,5	10	7	60	551-1066-2
4 kV	Ni42	5 A	1,5	7	8	15	10	13	57	551-0412
4 kV	Cu	15 A	1,5	7	8	15	10	13	57	551-0412-1
4 kV	Ni42	8 A	2,0	7	8	15	10	13	57	551-1006
4 kV	Cu	25 A	2,0	7	8	15	10	13	57	551-1006-1
5 kV	NiFeCo	5 A	1,5x0,25	5	10	16,5	10	7	60	551-1068
5 kV	Cu	15 A	1,5x0,25	5	10	16,5	10	7	60	551-1068-2
6 kV	Ni42	12 A	3,0	9	13	20	10	13	58	551-1007
6 kV	Cu	40 A	3,0	9	13	20	10	13	58	551-1007-1
6 kV	Ni42	20 A	4,0	10,8	13	20	10	13	58	551-1008
6 kV	Cu	60 A	4,0	10,8	13	20	10	13	58	551-1008-1
6 kV	Ni42	25 A	5,0	13,5	13	20	10	13	65	551-1009
6 kV	Cu	80 A	5,0	13,5	13	20	10	13	65	551-1009-1
8 kV	Cu	120 A	8,0	19,8	16	23	10	13	68	551-1010-1

Feedthroughs are also available in other dimensions



SINGLE TERMINAL FEEDTHROUGHS



Voltage (DC)	Conductor	Current	Ø D	Ø F	G	Ø K	L1	L2	L	Article no.
1 kV	Ni42	4 A	1,5 x 0,25	4	2,8	4,4	6	10	35	551-1491
1 kV	Ni42	5 A	1,5	4	2,8	4,4	6	10	35	551-1425
1 kV	Cu	5 A	1,5	4	2,8	4,4	6	10	35	551-1425-1
4 kV	Ni42	30 A	7,5 x 0,75	12	8	13	10	14	53	551-1633
4 kV	Cu	90 A	7,5 x 0,75	12	8	13	10	14	53	551-1633-1

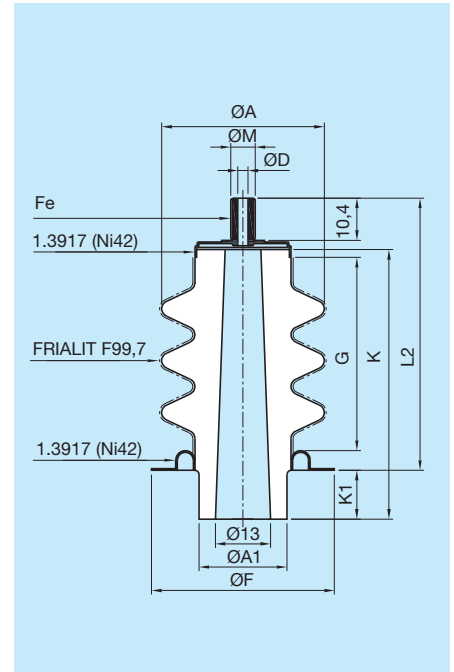
Feedthroughs are also available in other dimensions

SINGLE TERMINAL FEEDTHROUGHS



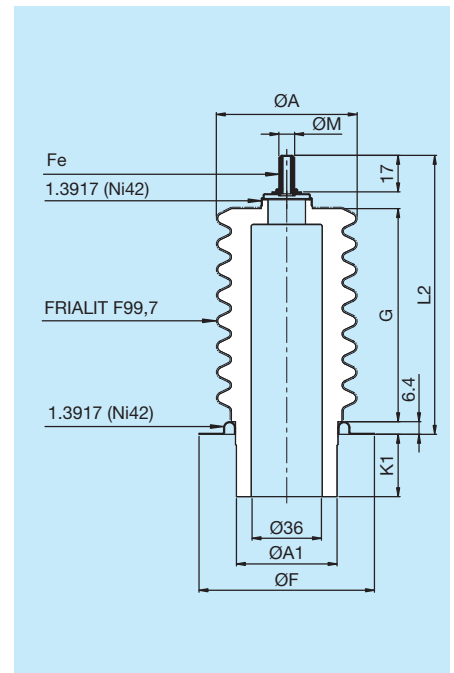
Voltage (DC)	No. of Flutes	Leakage Path	Ø M	Ø D	Ø F	Ø A	Ø A1	G	K	K1	L2	Article no.
25 kV	3	54	M6	2,5	45	40	22	45	66	12	67	551-1012

This feedthrough could be adjusted with different conductors for special electrical standards.

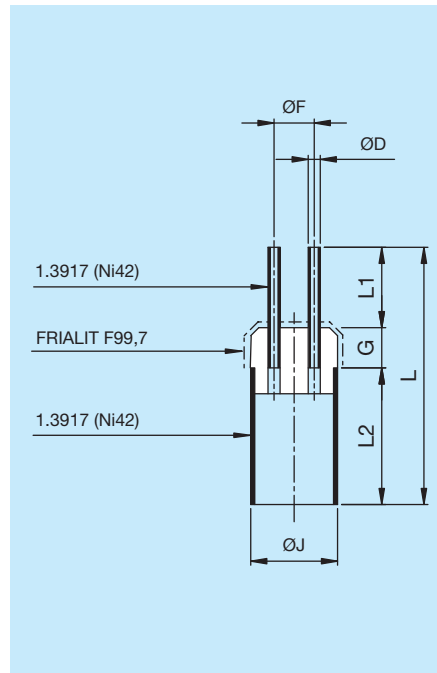


Voltage (DC)	No. of Flutes	Leakage Path	Ø M	Ø D	Ø F	Ø A	Ø A1	G	K	K1	L2	Article no.
50 kV	8	150	8	3,8	88,9	70	52	108	-	31,6	141,4	551-0970

This feedthrough could be adjusted with different conductors for special electrical standards.

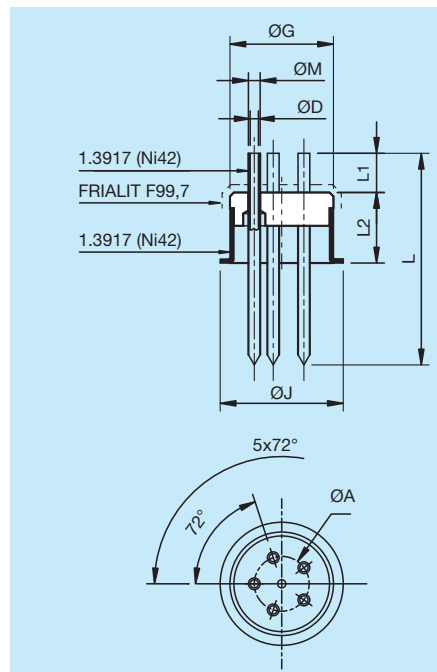


MULTITERMINAL FEEDTHROUGHS



Voltage (DC)	Current	Ø D	Ø J	Ø F	G	L1	L2	L	Article no.
500 V Pin-Pin 1 kV Pin-Flange	4 A	1,5 x 0,25	5	10,8	5	10	17	32	552-0861 (2-terminal)
500 V Pin-Pin 1 kV Pin-Flange	4 A	1,5 x 0,25	5	10,8	5	10	17	32	552-0838 (4-terminal)

Feedthroughs are also available in other dimensions



Voltage (DC)	Current	Ø D	Ø A	Ø G	Ø J	L1	L2	L	Article no.
500 V Pin-Pin 1 kV Pin-Flange	4 A	1,5 x 0,225	7	13,2	15,7	5	9	27	552-2548 (5-terminal)

Feedthrough is also available in other dimensions



TUBE-TO-TUBE INSULATORS



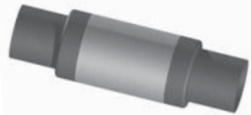
Voltage (DC)	No. of Flutes	Leakage Path	Available with	Ø F	Ø A	Ø J	G	L	Article no.
15 kV	3	44	35	36	46	25	30	67,6	559-0654

Tube-To-Tube Insulator is also available in other dimensions



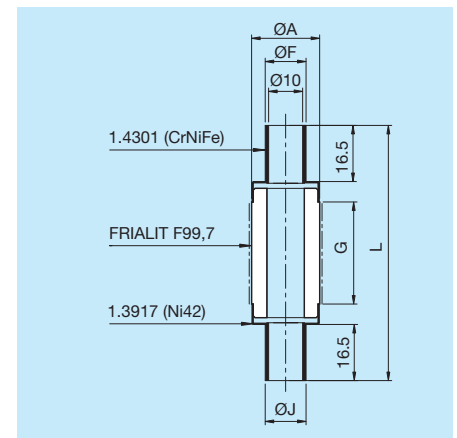
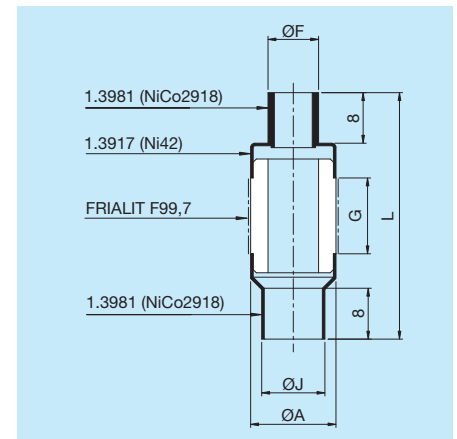
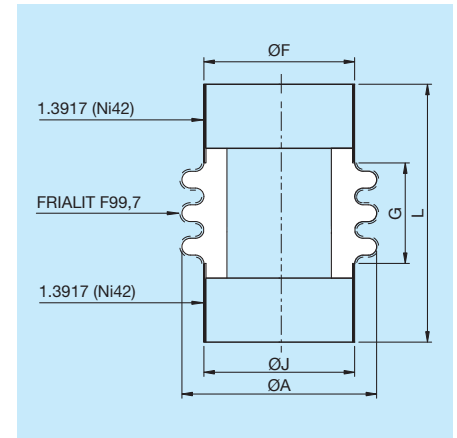
Voltage (DC)	Ø A	Ø F	Ø J	G	L	Article no.
5 kV	13,5	8 x 6	10	12	39	559-1464

Tube-To-Tube Insulator is also available in other dimensions

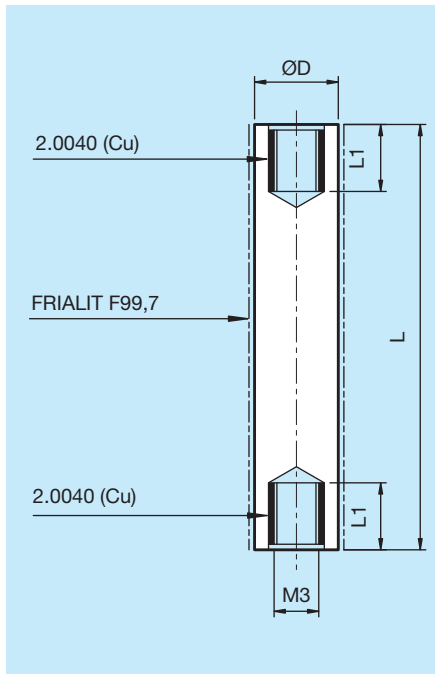


Voltage (DC)	Ø A	Ø F	Ø J	G	L	Article no.
15 kV	20	18	18	30	74	559-3664-2

Tube-To-Tube Insulator is also available in other dimensions

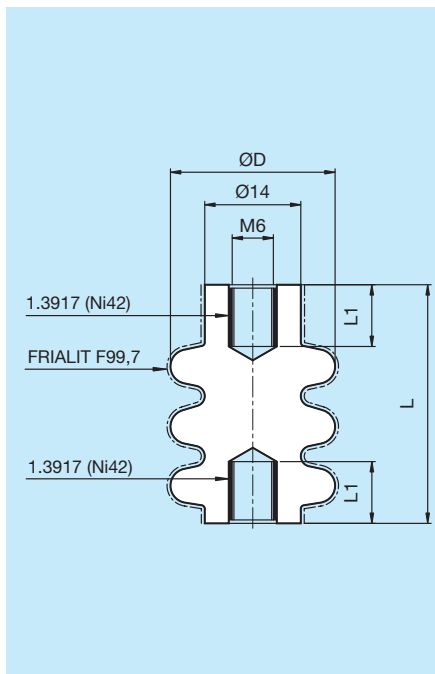


STANDOFFS



Voltage (DC)	Leakage Path	Ø D	L1	L	Article no.
10 kV	25	7,5	8	25,0	558-1511
15 kV	38	9,5	6	38,1	558-1984

Standoffs are also available in other dimensions



Voltage (DC)	Leakage Path	Ø D	L1	L	Article no.
15 kV	40	24	9	30,0	558-1162

Standoff is also available in other dimensions

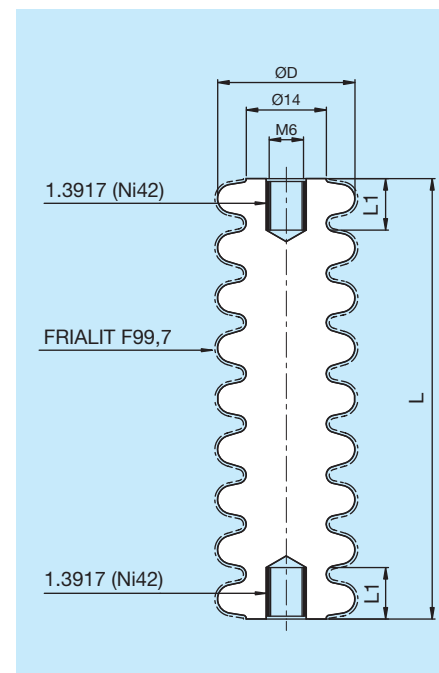




STANDOFFS

Voltage (DC)	Leakage Path	Ø D	L1	L	Article no.
40 kV	130	24	9	80,0	558-2105

Customized parts with different lengths, different diameters or different number of flutes are also available.



Standard Description	Material No.	American Standard Description
9S20	1.0711	-
X5CrNi18-10	1.4301	AISI 304
X6CrNiTi18-10	1.4541	AISI 321
X6CrNiMoTi17-12-2	1.4571	AISI 316Ti
X2CrNiMo17-13-3	1.4429	AISI 316LN
Ni42	1.3917	ASTM F 29, F 30
NiCo29-18	1.3981	ASTM F 15
NiCo28-23	1.3982	ASTM F 15
OF-Cu	2.0040	ASTM B 187, B 152
SE-Cu	2.0070	-
Ni99,6	2.4060	ASTM B 160
LC-Ni99	2.4068	-
Titan Grade 2	3.7035	ASTM B 265
Alloy C-276	2.4819	ASTM B 564

Standard description and materials of the steels which are used in the field of Electrical Engineering

FRIALIT®-DEGUSSIT® Oxide Ceramics
High Temperature Technology

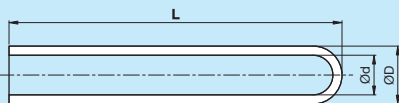
**Tubes, Rods, Multi-Bore Tubes, Crucibles, Plates,
Boats, Combustion Trays and Grinding Pieces**

TUBES



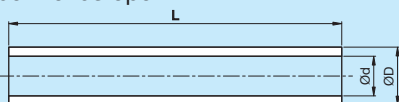
DEGUSSIT AL23

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

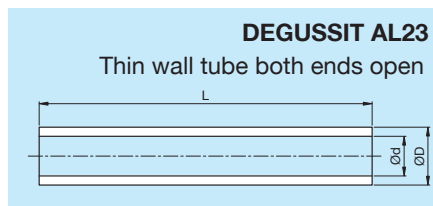
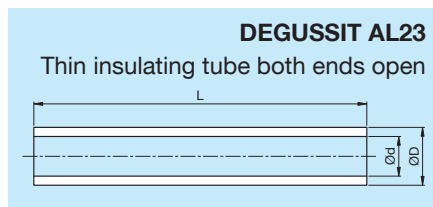


Ø D	Ø d	L Length max.	Article no. open
0,50	0,20	400	121-11050-0
0,60	0,30	400	121-11060-0
0,80	0,40	400	121-11080-0
1,00	0,50	400	121-11100-0
1,00	0,60	400	121-11100-1
1,10	0,60	400	121-11110-0
1,20	0,80	400	121-11120-0
1,50	1,00	400	121-11150-0
1,60	0,80	400	121-11160-0
1,70	1,10	400	121-11170-0
2,00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



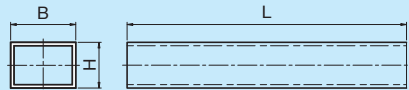
Ø D	Ø d	L Length max.	Article no. closed	L Length max.	Article no. open
10	6	-	-	1500	122-21010-0
12	8	-	-	1500	122-21012-0
15	10	2100	101-21015-0	1500	122-21015-0
20	15	2100	101-21020-0	1500	122-21020-0
24	18	2100	101-21024-0	1500	122-21024-0
30	24	-	-	1500	122-21030-0
40	32	-	-	1500	122-21040-0
50	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



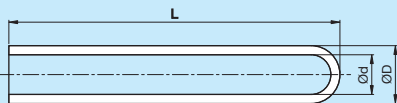
B	H	L Length max.	Article no.
15	15	2150	191-11015-0
16	12	2150	191-11016-0
20	20	2150	191-11020-0

Other dimensions upon request

TUBES FOR OXYGEN PROBES

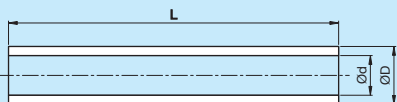
DEGUSSIT FZY

one end closed



DEGUSSIT FZY

both ends open



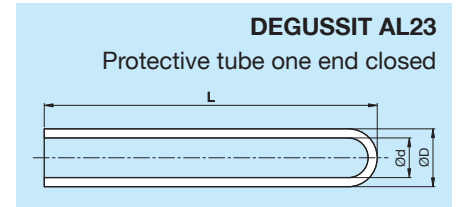
Ø D	Ø d	L Length max.	Article no. closed	L Length max.	Article no. open
6	3	1000	101-56006-0	1000	122-56006-0
6	4	1000	101-56006-1	1000	122-56006-1
8	5	1000	101-56008-0	1000	122-56008-0
10	6	1000	101-56010-0	1000	122-56010-0
10	7	1000	101-56010-1	1000	122-56010-1
13	9	1000	101-56013-0	1000	122-56013-0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

Other dimensions upon request

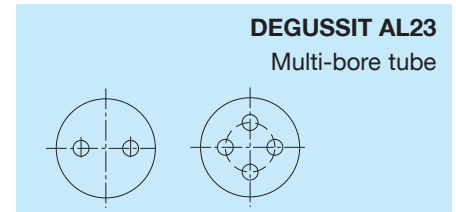


NORMATIVE TUBES FOR THERMOCOUPLES

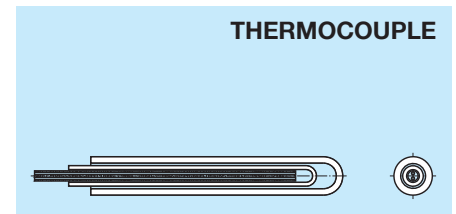
Ø D	Ø d	L Length max.	Article no.
8	5	2100	100-11008-0
10	6	2100	100-11010-0
12	8	2100	100-11012-0
15	10	2100	100-11015-0
20	15	2100	100-11020-0
24	18	2100	100-11024-0



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.

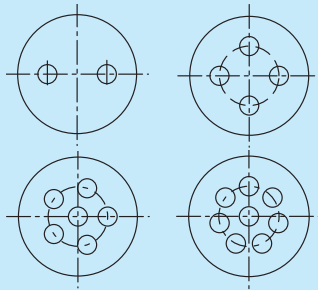
MULTI-BORE TUBES



DEGUSSIT AL23

round

on request with notch



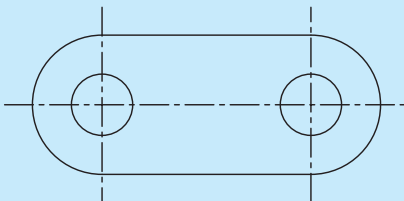
Ø D	Bore-Ø	Number of bores	L Length max.	Article no.
0,90	0,20	2	400	141-11090-0
1,20	0,30	2	400	141-11120-0
1,55	0,40	2	400	141-11155-0
2,00	0,50	2	400	141-11200-0
2,50	0,70	2	1200	141-11250-0
3,00	0,80	2	2100	143-11030-0
4,00*	0,80	2	2100	143-11040-0
4,00	1,20	2	2100	143-11040-1
5,00	1,20	2	2100	143-11050-0
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



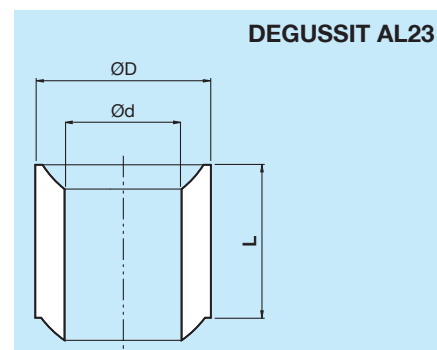
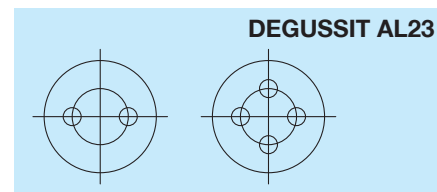
Ø D	Bore-Ø	Number of bores	L Length max.	Article no.
4	0,8	2	4	161-11040-00004
4	0,8	2	10	161-11040-00010
4	0,8	4	4	162-11040-00004
4	0,8	4	10	162-11040-00010

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

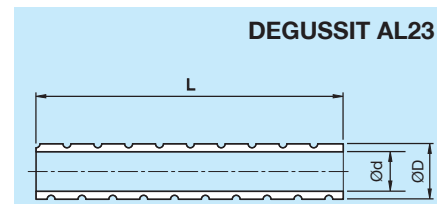


TUBES FOR HEATING COILS



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

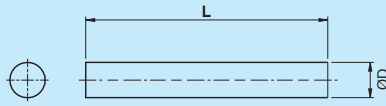


RODS



DEGUSSIT AL23

rund



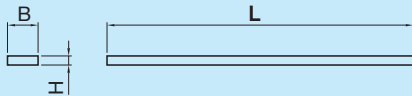
Ø D	L Length max.	Article no.
0,5	400	181-11050-0
0,6	400	181-11060-0
0,8	400	181-11080-0
1,0	400	181-11100-0
1,2	400	181-11120-0
1,5	400	181-11150-0
2,0	400	181-11200-0
3,0	1000	182-11003-0
4,0	1000	182-11004-0
5,0	1000	182-11005-0
6,0	1000	182-11006-0
8,0	1000	182-11008-0
10,0	1000	182-11010-0
12,0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

Other dimensions upon request

BANDS



DEGUSSIT AL23

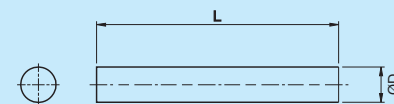


B	H	L Length max.	Article no.
1	1	500	183-11100-1
6	3	500	183-11060-1
7	2	500	183-11070-2
8	4	500	183-11080-2
10	1	500	183-11100-1
10	2	500	183-11100-6
10	3	500	183-11100-0
11	3	500	183-11110-0
15	3	500	183-11150-0
16	8	500	183-11160-0

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

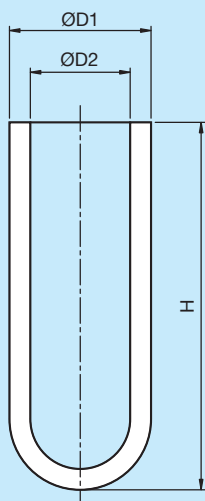
Deviation: max. 0,5 % of the total length

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

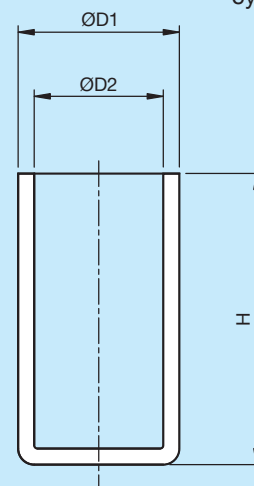
Ø D1	Ø D2	H	approx. Vol. ml	Article no. AL24
20	16	30	6,0	201-21020-0300
30	26	40	20,0	201-21030-0400
35	30	50	40,0	201-21035-0500
40	36	60	60,0	201-21040-0600
50	44	75	110,0	201-21050-0750
65	55	100	225,0	201-21065-1000
85	73	150	600,0	201-21085-1500

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

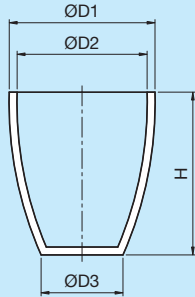
DEGUSSIT AL23
DEGUSSIT AL24
DEGUSSIT AL25
DEGUSSIT FZY
 cylindrical



CRUCIBLES



DEGUSSIT AL23 DEGUSSIT FZY conical high form

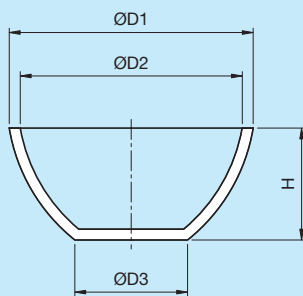


Ø D1	Ø D2	Ø D3	H	approx. Vol. ml	Article no. AL23
20	17	11	25	4,0	202-11020-0250
25	21	13	30	9,0	202-11025-0300
30	26	15	38	15,0	202-11030-0380
35	31	18	45	23,0	202-11035-0450
45	40	22	55	49,0	202-11045-0550
60	53	30	65	75,0	202-11060-0650
73	67	35	90	160,0	202-11073-0900

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

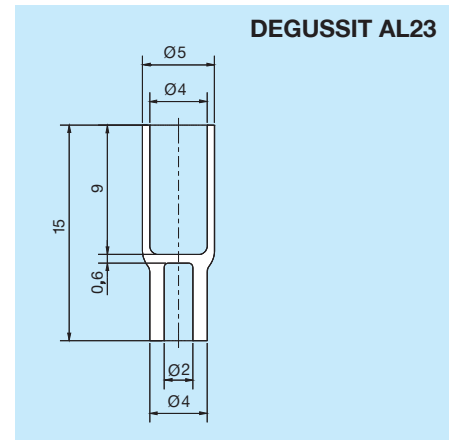
Other dimensions upon request



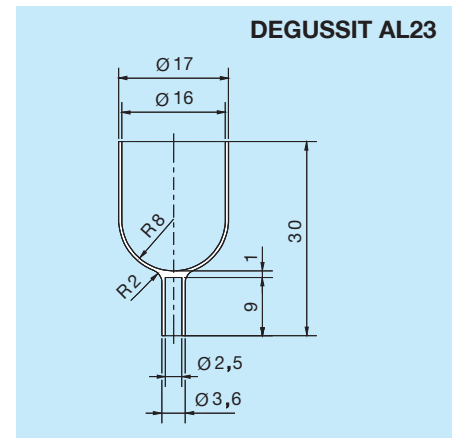
SLIP-ON CRUCIBLES



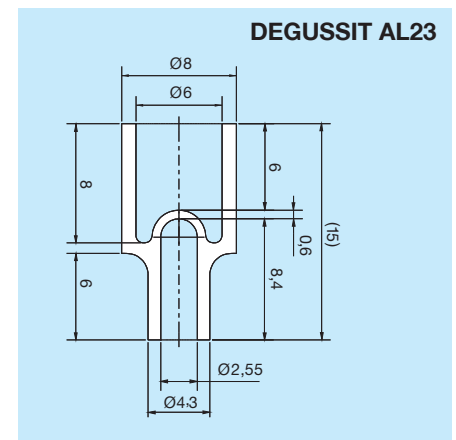
Article no.
209-11000-0063



Article no.
209-11000-0064

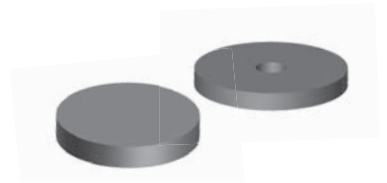


Article no.
209-11000-0068

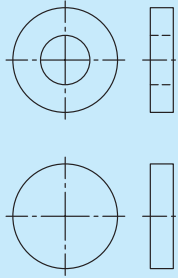


Other dimensions upon request

PLATES



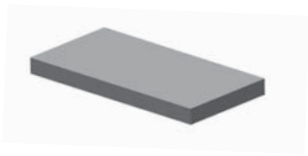
DEGUSSIT AL23
DEGUSSIT AL25
 round



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

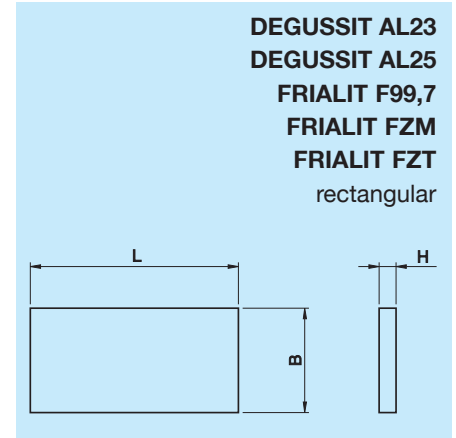
L	B	H	Article no. AL25
105	50	10	215-22105-1000
145	70	15	215-22145-1500
115	115	15	215-22115-1500
205	125	15	215-22205-1500

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

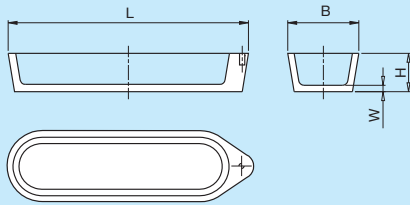
Sizes of plates up to approx. 700 X 350 x 20 upon request



BOATS



DEGUSSIT AL23

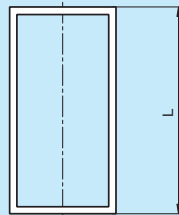
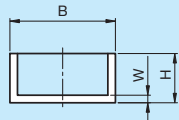


L	B	H	W	approx. Vol. ml	Article no.
32	9	6	2,0	0,4	221-11032-0090
48	9	6	2,0	0,6	221-11048-0090
69	9	6	2,0	1,0	221-11069-0090
50	15	8	2,5	1,7	221-11050-0150
87	15	8	2,5	3,4	221-11087-0150
112	15	8	2,5	4,7	221-11112-0150
92	18	10	3,0	5,7	221-11092-0180
118	18	10	3,0	7,6	221-11118-0180
58	23	13	3,0	4,3	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.

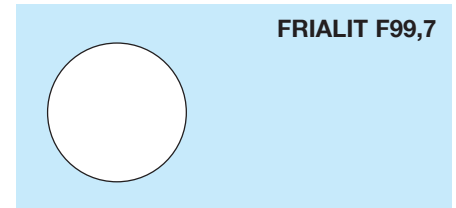
On request, we also supply parts with dimensions not listed in this delivery programme and in other ceramic materials.



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

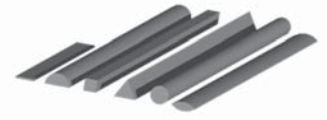
Diameter Tolerance: 2,5 µm

Other dimensions and further geometrical tolerances upon request

FRIALIT®-DEGUSSIT® Oxide Ceramics
Surface Finishing

Grinding Tools

GRINDING TOOLS

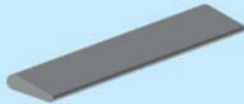


DEGUSSIT DD57
DEGUSSIT AL24
Benchstone



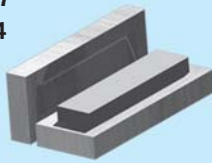
Dimensions	Article no. fine	Article no. medium	Article no. coarse
100 x 25 x 10	901-41100-0	902-41100-0	903-21100-0*
150 x 25 x 15	901-41101-0	902-41101-0	903-21101-0*
200 x 50 x 12	901-41102-0	902-41102-0	-

DEGUSSIT DD57
Tapered stone



100 x 30 x 7/2	-	902-41105-0	-
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DEGUSSIT DD57
DEGUSSIT AL24
Benchstone in wooden case



100 x 25 x 10	901-41110-0	902-41110-0	903-21110-0*
100 x 25 x 10	901-41111-0	902-41111-0	-
200 x 50 x 12	901-41112-0	902-41112-0	-

120 x 50 x 10

904-41 111-0

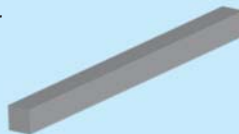
Benchstone in wooden case,
removable one face medium, one
face fine

DEGUSSIT DD57
Triangular



100 x 4	901-41200-0	902-41200-0	-
100 x 6	901-41201-0	902-41201-0	903-44201-0
100 x 8	901-41202-0	902-41202-0	903-44202-0
100 x 10	901-41203-0	902-41203-0	903-44203-0
120 x 13	901-41205-0	902-41205-0	903-44205-0

DEGUSSIT DD57
Quadrangular



100 x 4	901-41210-0	902-41210-0	-
100 x 6	901-41211-0	902-41211-0	903-44211-0
100 x 8	901-41212-0	902-41212-0	903-44212-0
100 x 10	901-41213-0	902-41213-0	903-44213-0
120 x 13	901-41214-0	902-41214-0	903-44214-0

DEGUSSIT DD57
Flat



100 x 6 x 3	901-41220-0	902-41220-0	-
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DEGUSSIT DD57 = aluminium oxide, ruby colour

* **DEGUSSIT AL24** = aluminium oxide lightly porous, white colour

Other dimensions upon request

Possible deviation in dimension

GRINDING TOOLS



Dimensions	Article no. fine	Article no. medium	Article no. coarse
100 x 10	-	902-41231-0	903-44231-0

100 x 13 x 5	-	-	903-44240-0
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100 x 5 x 2	901-41255-0	-	903-44255-0
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100 x 5	901-41261-0	-	-
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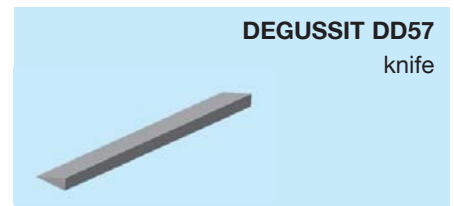
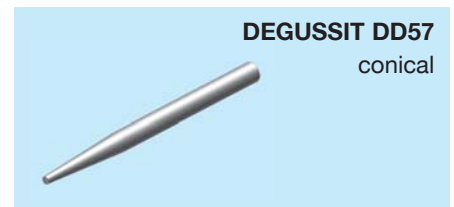
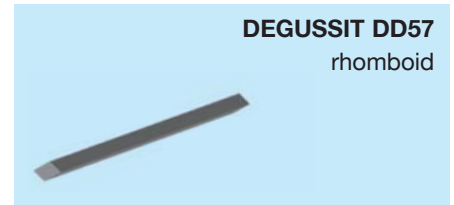
100 x 4	901-41270-0	902-41270-0	-
100 x 6	901-41271-0	902-41271-0	903-44271-0
100 x 8	901-41272-0	902-41272-0	903-44272-0
100 x 10	901-41273-0	902-41273-0	903-44273-0

100 x 15 x 3/0,5	901-41291-0	902-41291-0	-
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DEGUSSIT DD57 = aluminium oxide, ruby colour

Other dimensions upon request

Possible deviation in dimension



ASSORTMENT OF FILES AND MIDGET FILES



DEGUSSIT DD57
Assortment of Midget Files
Article no. 900-41420-0

Dimensions	Shape	Type	Article no.
50 x 1	■	fine	901-41400-0
100 x 2	■	fine	901-41403-0
50 x 2	▲	fine	901-41402-0
100 x 3	▲	fine	901-41413-0
50 x 1	●	fine	901-41401-0
100 x 2	●	fine	901-41404-0
100 x 3	●	fine	901-41405-0
50 x 3 x 0,3	■	fine	901-41406-0
100 x 4	◐	fine	901-41407-0
100 x 5 x 1,5	▲	fine	901-41409-0
100 x 4 x 1,5	●	fine	901-41411-0

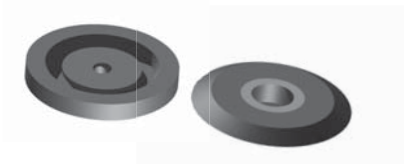
The **midget files** article no. **900-41420-0** contains 1 holder and 2 collets as well as one each of the a.m. listed files.

Single files are also available separately.

DEGUSSIT DD57
Files Assortment
Article no. 900-00700-0

Dimensions	Shape	Type	Article no.
100 x 10	▲	mittel	902-41203-0
100 x 10	■	mittel	902-41213-0
100 x 8 x 6	■	fein	901-41221-0
100 x 10	◐	grob	903-44231-0
100 x 6	●	mittel	902-41271-0

The **files** article no.: **900-41420-0** contains one each of the a.m. listed files.



FINE GRINDING WHEELS

Ø D	B	Ø d (wmb*)	Article no.	Ø d (nmb*)	Article no.
75	3	20	911-41373-0	30	911-41373-7
75	6	20	911-41376-0	30	911-41376-7
75	10	20	911-41380-0	30	911-41380-7
100	8	32	911-41488-0	42	911-41488-7
100	10	32	911-41490-0	42	911-41490-7

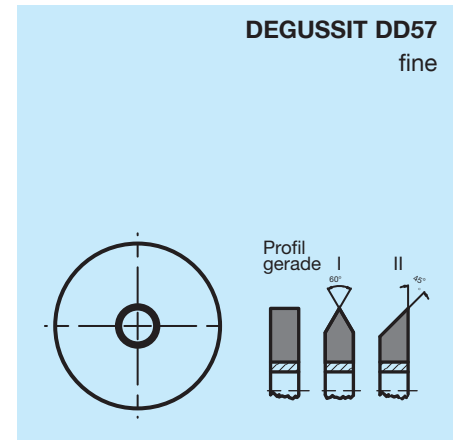
If not otherwise stated, wheels with metal bushings will be supplied.

Profile I and Profile II upon request

Other dimensions and other types upon request

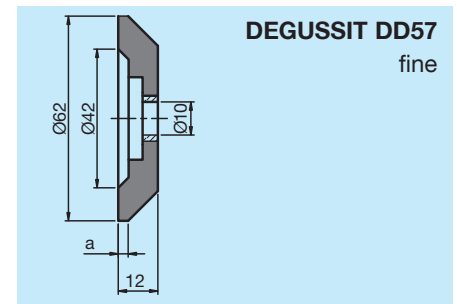
* **wmb** = with metal bushing

* **nmb** = without metal bushing

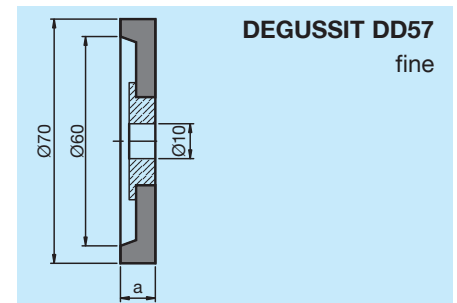


BURNISHING WHEELS

Ø D1	Ø D2	Ø D3	a	Article no.
62	42	10	3	931-41906-1
			4	931-41906-2
			6	931-41906-3



Ø D1	Ø D2	Ø D3	a	Article no.
70	60	10	8	931-41970-4
			10	931-41970-5
			12	931-41970-6
			15	931-41970-7
80	60	10	8	931-41980-4
			10	931-41980-5
			12	931-41980-6
			15	931-41980-7



The listed burnishing wheels are available in fine type only.

FINE GRINDING TOOLS

DEGUSSIT DD57

cylindrical
mounted point



Ø D	Ø d	H	Article no. fine	Article no. medium
2	2,35	4	921-41002-1	922-44002-1
2	3	4	921-41002-0	922-44002-0
3	2,35	6	921-41003-1	922-44003-1
3	3	6	921-41003-0	922-44003-0

Length of the shaft from 30 mm up to 35 mm

DEGUSSIT DD57

cylindrical
mounted point



Ø D	Ø d	H	Article no. fine	Article no. medium
4	2,35	8	921-41104-1	922-44104-1
4	3	8	921-41104-0	922-44104-0
5	3	10	921-41110-0	922-44110-0
6	6	12	921-41116-0	922-44116-0
8	6	10	921-41128-0	922-44128-0
8	6	16	921-41136-0	922-44136-0
10	6	12	921-41150-0	922-44150-0

DEGUSSIT DD57

mounted point
angle 60°



Ø D	Ø d	H	Article no. fine	Article no. medium
4	2,35	8	921-41204-1	922-44204-1
4	3	8	921-41204-0	922-44204-0
5	3	10	921-41210-0	922-44210-0
6	6	12	921-41216-0	922-44216-0
8	6	16	921-41236-0	922-44236-0
10	6	20	921-41255-0	922-44255-0

Length of the shaft 30 upto 35 mm

Available in type fine and type medium

Other dimensions and other types available upon request

Material	FRIATEC-Brand	Characterisation
Al ₂ O ₃ Aluminium Oxide	FRIALIT F99,7	Pure Al ₂ O ₃ , dense, extremely resistant to wear and corrosion, very high electrical insulation properties
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	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 (+ 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 Zirconium Oxide	FRIALIT FZM	ZrO ₂ partially stabilizing with MgO, dense, high strength and highly wear resistant, extremely resistant to corrosion and thermal shock
ZrO ₂ Zirconium Oxide	FRIALIT FZY	Partially stabilizing with Y ₂ O ₃ , dense, high purity ZrO ₂ , high temperature and corrosion resistance, ion conducting for measuring oxygen

Other ceramic materials upon request

FRIALIT®-DEGUSSIT® Oxide Ceramics for:

Electrical Engineering
High Temperature Technology
Mechanical Engineering
Surface Finishing



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: FRIALIT®-DEGUSSIT® is the technological and market leader in ceramic materials for the 21st Century.

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