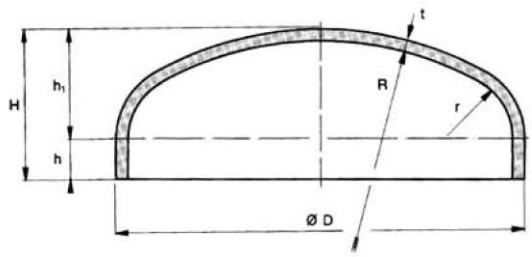
PIPE CAPS

(~2:1 RATIO)

$R = 0{,}8.D$
$r = 0{,}154.D$
$h = 3{,}5.t$
$h_1 = 0{,}26.D$
$H = 0{,}26.D + h$
D_s(disc dia.) $= 1{,}174.D + 1{,}7.h \quad (1{,}7.h \geqslant 40)$

Net weight (kg) $= 2\pi.D_s^2.t$



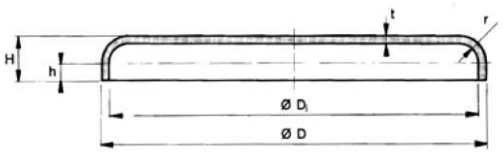
Caps

. Nom D t Inches (mm) (mm)		
½"	21,3	3-5
¾"	26,7	3-5
1"	33,5	3-5
1¼	42,2	3-5
1½"	48,3	3-8
2"	60,4	3-12
2½"	76,1	3-15
3	88,9	3-18
3½"	101,6	3-20
4"	114,3	3-25
5"	139,7	3-30
6"	168,4	3-30
8"	219,2	3-35

. Nom D t Inches (mm) (mm)		
10"	273,0	3-40
12"	323,8	3-45
14"	355,6	5-45
16"	406,4	5-50
18"	457,2	5-55
20"	508,0	5-60
22"	558,8	5-65
24"	609,6	5-70
26"	660,0	5-75
30"	762,0	5-80
34"	863,5	5-85
36"	914,4	5-90
42"	1066,8	5-100

All others on request

FLAT HEADS



r = see table (or on request)

h = 20 to 60 mm. (or on request)

H = h + r + t

D_s (disc dia.) = D + r + 2.h (2.h ⩾ 40)
(In the table: D_s is average value)

Capacity = $\frac{\pi}{4} D_i^2.r - 0{,}66.D_i.r^2$ (In the table: D_i = D and h = 0)

Surface (one side) = $\frac{\pi}{4}.D_s^2$

Nett weight (kg) = $2\pi.D_s^2.t$ (D_s in m, t in mm)

Depending on width of available millplates larger ends with one or more welded joints.

Flat heads

D (mm)	t (mm)	Ds (mm)	V (10³ m³)	r (mm)	m (kg/mm)
300	3-10	360	1,6	25	0,8
350	3-10	410	2,4	25	1,1
400	3-10	460	3,0	25	1,3
450	3-10	510	3,8	25	1,6
500	3-10	560	4,7	25	2,0
550	3-20	610	5,7	25	2,3
600	3-20	660	6,8	25	2,8
650	3-20	710	8,0	25	3,2
700	3-20	760	9,3	25	3,6
750	3-20	820	12,8	25	4,2
800	3-30	870	14,6	30	4,7
850	3-30	920	16,5	30	5,3
900	3-30	970	18,5	30	5,9
950	3-30	1020	20,7	30	6,5
1000	3-30	1070	23,0	30	7,2
1050	3-40	1120	25,3	30	7,9
1100	3-40	1180	32,5	35	8,6
1150	3-40	1230	35,5	35	9,4
1200	3-40	1280	38,5	35	10,2
1250	3-40	1330	42,0	35	11,0

D (mm)	t (mm)	Ds (mm)	V (10³ m³)	r (mm)	m (kg/mm)
1300	3-50	1380	45,5	35	11,9
1350	3-50	1430	49,0	35	12,8
1400	3-50	1480	53,0	35	13,7
1450	3-50	1530	64,5	40	14,6
1500	3-50	1580	69,0	40	15,6
1550	3-40	1630	73,5	40	16,7
1600	3-40	1680	78,5	40	17,7
1650	3-40	1730	83,5	40	18,8
1700	3-40	1780	88,5	40	19,9
1750	3-40	1830	94,0	40	21,0
1800	3-30	1880	99,5	40	22,2
1850	3-30	1940	119,0	40	23,5
1900	3-30	1990	125,0	40	24,8
1950	3-30	2040	131,0	40	26,1
2000	3-30	2090	138,0	40	27,4
2050	3-30	2140	145,0	45	28,5
2100	3-30	2190	152,0	45	30,0
2150	3-30	2240	160,0	45	31,5
2200	3-30	2290	168,0	45	33,0
2250	3-30	2340	176,0	45	34,5

FLAT HEADS

(CONTINUED)

Flat heads

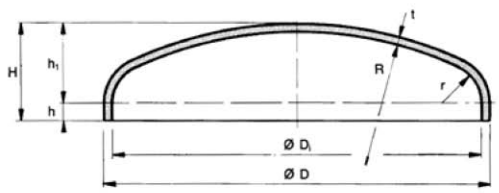
D (mm)	t (mm)	Ds (mm)	V (10^3 m^3)	r (mm)	m (kg/mm)
2300	3-30	2400	204	50	36,0
2350	3-30	2450	213	50	37,5
2400	3-30	2500	222	50	39,0
2450	3-30	2550	231	50	41,0
2500	3-30	2600	240	50	42,5
2550	3-30	2650	250	50	44,0
2600	3-30	2700	260	50	46,0
2650	3-30	2750	270	50	47,5
2700	3-30	2800	281	50	49,5
2750	3-30	2850	292	50	51,0
2800	4-30	2900	303	50	53,0
2850	4-30	2950	314	50	54,5
2900	4-30	3000	325	50	56,5
2950	4-30	3050	337	50	58,5
3000	4-30	3100	348	50	60,5
3100	4-30	3200	372	50	64,0
3200	4-30	3300	397	50	68,0
3300	4-30	3400	422	50	73,0
3400	4-30	3500	448	50	77,0
3500	4-30	3600	475	50	81,0

D (mm)	t (mm)	Ds (mm)	V (10^3 m^3)	r (mm)	m (kg/mm)
3600	5-30	3700	503	50	86
3700	5-30	3800	532	50	91
3800	5-30	3900	561	50	96
3900	5-30	4000	591	50	101
4000	5-30	4100	622	50	106
4500	6-30	4700	1176	50	139
5000	6-30	5200	1454	75	170
5500	6-30	5700	1762	75	204
6000	8-30	6200	2098	75	242
6500	10-30	6700	2465	75	282
7000	10-30	7200	2859	100	328
7500	10-30	7700	3281	100	375
8000	10-30	8200	3733	100	425
8500	10-30	8700	4214	100	474
9000	10-30	9200	4724	100	535
9500	10-30	9700	5263	100	595
10000	10-30	10200	5832	100	657

All others on request

DECIMAL HEADS

KLÖPPERBÖDEN



DETAILS

R	=	D
r	=	0,1.D
h	=	3,5.t (or on request)
h_1	=	0,2.D
H	=	0,2.D + h
D_s (disc dia.)	=	1,12.D + 1,7.h (1,7.h ⩾ 40) (in the table: D_s is average value)
Capacity	=	$0,1.D_i^3$ (in the table: D_i = D and h = 0)
Surface (one side)	=	$\frac{\pi}{4}.D_s^2$
Nett weight (kg)	=	$2\pi.D_s^2.t$ (D_s in m, t in mm)

Decimal heads (Klöpper)

D (mm)	t (mm)	Ds (mm)	V (10^3 m^3)	h (mm)	m (kg/mm)
300	3-40	380	2,7	60	0,9
350	3-40	435	4,3	70	1,2
400	3-45	490	6,4	80	1,5
450	3-50	550	9,1	90	1,9
500	3-55	610	12,5	100	2,3
550	3-60	665	16,6	110	2,8
600	3-65	720	21,6	120	3,2
650	3-70	775	27,5	130	3,8
700	3-75	830	34,5	140	4,3
750	3-80	885	42,0	150	4,9
800	3-80	950	51,0	160	5,6
850	3-85	1000	61,0	170	6,3
900	3-90	1060	73,0	180	7,0
950	3-95	1120	86,0	190	7,8
1000	3-100	1180	100,0	200	8,7
1050	3-105	1240	116,0	210	9,6
1100	3-110	1290	134,0	220	10,4
1150	3-115	1350	152,0	230	11,4
1200	3-120	1400	174,0	240	12,3
1250	3-125	1460	196,0	250	13,4
1300	3-130	1520	220,0	260	14,5

D (mm)	t (mm)	Ds (mm)	V (10^3 m^3)	h (mm)	m (kg/mm)
1350	3-135	1580	246	270	15,6
1400	3-140	1640	275	280	16,8
1450	3-140	1690	305	290	18,0
1500	3-140	1750	337	300	19,2
1550	3-140	1800	375	310	20,4
1600	3-140	1860	410	320	21,6
1650	3-140	1910	450	330	22,9
1700	3-140	1970	490	340	24,3
1750	3-140	2030	535	350	25,8
1800	3-140	2080	580	360	27,1
1850	3-140	2140	630	370	28,7
1900	3-140	2200	685	380	30,4
1950	3-140	2260	740	390	32,0
2000	3-140	2310	800	400	33,5
2050	3-25	2370	860	410	35,2
2100	3-25	2430	925	420	37,0
2150	3-25	2490	995	430	39,0
2200	3-25	2540	1065	440	40,7
2250	3-25	2600	1140	450	42,5
2300	3-25	2660	1215	460	44,3
2350	3-25	2720	1300	470	46,2

DECIMAL HEADS

KLÖPPERBÖDEN (CONTINUED)

Decimal heads (Klöpper)

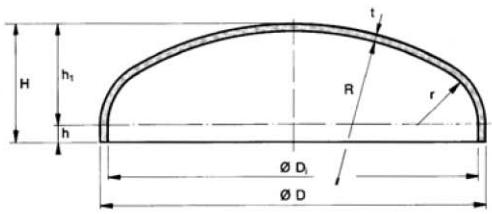
D t Ds V h m (mm) (mm) (mm) (10^3 m^3) (mm) (kg/mm)					
2400	3-25	2770	1380	480	48,0
2450	3-25	2830	1470	490	50,0
2500	3-25	2880	1560	500	52,0
2550	3-25	2940	1660	510	54,0
2600	3-25	3000	1760	520	56,5
2650	3-25	3060	1860	530	59,0
2700	3-25	3110	1970	540	61,0
2750	3-25	3170	2080	550	63,0
2800	3-25	3230	2200	560	65,5
2850	3-25	3290	2320	570	68,0
2900	3-25	3340	2440	580	70,0
2950	3-25	3400	2570	590	72,0
3000	3-25	3450	2700	600	75,0
3050	4-25	3510	2840	610	77,5
3100	4-25	3560	2980	620	80,0
3150	4-25	3620	3130	630	82,5
3200	4-25	3680	3280	640	85,0
3250	4-25	3740	3440	650	87,5
3300	4-25	3790	3600	660	90,0
3350	4-25	3850	3760	670	93,0
3400	4-25	3910	3930	680	96,0

D t Ds V h m (mm) (mm) (mm) (10^3 m^3) (mm) (kg/mm)					
3450	4-25	3970	4110	690	99
3500	5-25	4020	4300	700	101
3550	5-25	4080	4480	710	104
3600	5-25	4130	4680	720	107
3650	5-25	4190	4870	730	110
3700	5-25	4240	5070	740	113
3750	5-25	4300	5280	750	116
3800	5-25	4360	5500	760	119
3850	5-25	4420	5710	770	123
3900	5-25	4470	5940	780	126
3950	5-25	4530	6170	790	129
4000	5-25	4590	6400	800	132
4500	6-25	5140	9115	900	165
5000	6-25	5700	12500	1000	204
5500	6-25	6260	16640	1100	246
6000	6-25	6820	21600	1200	292
6500	6-25	7250	26780	1300	330
7000	7-25	7800	33440	1400	383
7500	8-25	8350	41230	1500	438
8000	9-25	8400	50080	1600	500

All others on request

SEMI-ELLIPTICAL HEADS

KORBBOGEN (~2:1 RATIO)



R	=	0,8.D
r	=	0,154.D
h	=	3,5.t (or on request)
h_1	=	0,26.D
H	=	0,26.D + h
D_s(disc dia.)	=	1,174.D + 1,7.h (1,7.h ⩾ 40) (in the table: D_s is average value)
Capacity	=	$0,13.D_i^3$ (in the table: D_i = D and h = 0)
Surface (one side)	=	$\frac{\pi}{4}.D_s^2$
Nett weight (kg)	=	$2\pi.D_s^2.t$ (D_s in m, t in mm)

Elliptical heads 2:1 (Korbbogen)

D (mm)	t (mm)	Ds (mm)	V (10^3 m³)	h (mm)	m (kg/mm)
300	3-40	400	3,5	78	1,0
350	3-40	460	5,6	91	1,3
400	3-45	520	8,3	104	1,7
450	3-50	580	11,8	117	2,1
500	3-55	640	16,1	130	2,6
550	3-60	700	21,6	143	3,1
600	3-65	760	28,0	156	3,6
650	4-70	820	36,0	169	4,2
700	4-75	875	44,5	182	4,8
750	4-80	935	54,5	195	5,5
800	4-80	995	66,5	208	6,2
850	4-85	1055	79,5	221	7,0
900	4-90	1115	94,0	234	7,8
950	4-95	1170	111,0	247	8,6
1000	5-100	1230	130,0	260	9,5
1050	5-105	1290	150,0	273	10,4
1100	5-110	1350	173,0	286	11,1
1150	5-115	1410	198,0	299	12,5

D (mm)	t (mm)	Ds (mm)	V (10^3 m³)	h (mm)	m (kg/mm)
1200	5-120	1470	225,0	312	13,6
1250	5-125	1530	254,0	325	14,7
1300	5-130	1590	285	338	15,9
1350	5-135	1650	320	351	17,1
1400	5-140	1710	356	364	18,4
1450	5-140	1770	395	377	19,7
1500	5-140	1830	438	390	21,0
1550	5-140	1890	483	403	22,5
1600	5-140	1950	532	416	23,9
1650	5-140	2010	585	429	25,4
1700	5-140	2070	640	442	27,0
1750	5-140	2130	700	455	28,5
1800	5-140	2190	760	468	30,0
1850	5-140	2250	825	481	31,5
1900	5-140	2300	890	494	33,0
1950	5-140	2360	965	507	35,0
2000	5-140	2420	1040	520	37,0
2050	5-140	2480	1120	533	38,5

SEMI-ELLIPTICAL HEADS

KORBBOGEN (~2:1 RATIO) (CONTINUED)

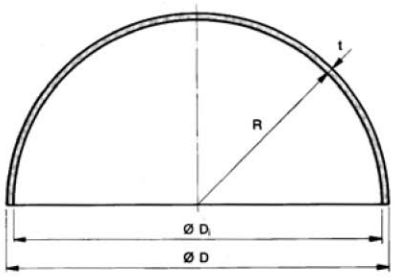
Elliptical heads 2:1 (Korbbogen)

D	t	Ds	V	h	m	(mm)	(mm)	(mm)	(10^3 m^3)	(mm)	(kg/mm)
2100	5-140	2540	1200	546	40,5
2150	5-140	2600	1290	559	42,5
2200	5-140	2660	1380	572	44,5
2250	5-140	2720	1480	585	46,5
2300	5-140	2780	1580	598	48,5
2350	5-140	2840	1690	611	51,0
2400	5-140	2900	1800	624	53,0
2450	5-140	2960	1910	637	55,0
2500	5-140	3020	2030	650	57,0
2550	5-140	3080	2150	663	59,0
2600	5-140	3140	2280	676	62,0
2650	5-140	3190	2410	690	64,0
2700	5-140	3250	2550	700	66,5
2750	5-140	3310	2700	715	69,0
2800	5-140	3370	2850	725	71,0
2850	5-140	3430	3000	740	74,0
2900	5-140	3490	3160	755	76,0
2950	5-140	3550	3340	765	79,0

D	t	Ds	V	h	m	(mm)	(mm)	(mm)	(10^3 m^3)	(mm)	(kg/mm)
3000	5-140	3610	3500	780	82
3100	5-25	3720	3850	805	87
3200	5-25	3840	4260	832	93
3300	5-25	3960	4672	858	99
3400	5-25	4080	5110	884	105
3500	6-25	4200	5574	910	111
3600	6-25	4320	6065	936	117
3700	6-25	4440	6585	962	124
3800	6-25	4560	7133	988	131
3900	6-25	4680	7712	1014	138
4000	6-25	4780	8320	1040	144
4500	6-25	5360	11846	1170	181
5000	6-25	5940	16250	1300	222
5500	6-25	6580	21630	1430	272
6000	6-25	6980	29200	1560	306
6500	7-25	7580	37050	1690	360

All others on request

HEMISPHERICAL HEADS



DETAILS

R = $0,5.D_i$

D_s(disc dia.) = 1,42.D

Capacity = $0,2619.D_i^3$ (in the table: $D_i = D$)

Surface (one side) = $1,57.D^2$

Nett weight (kg) = $1,57.D^2.8.t$ (D in m, t in mm)

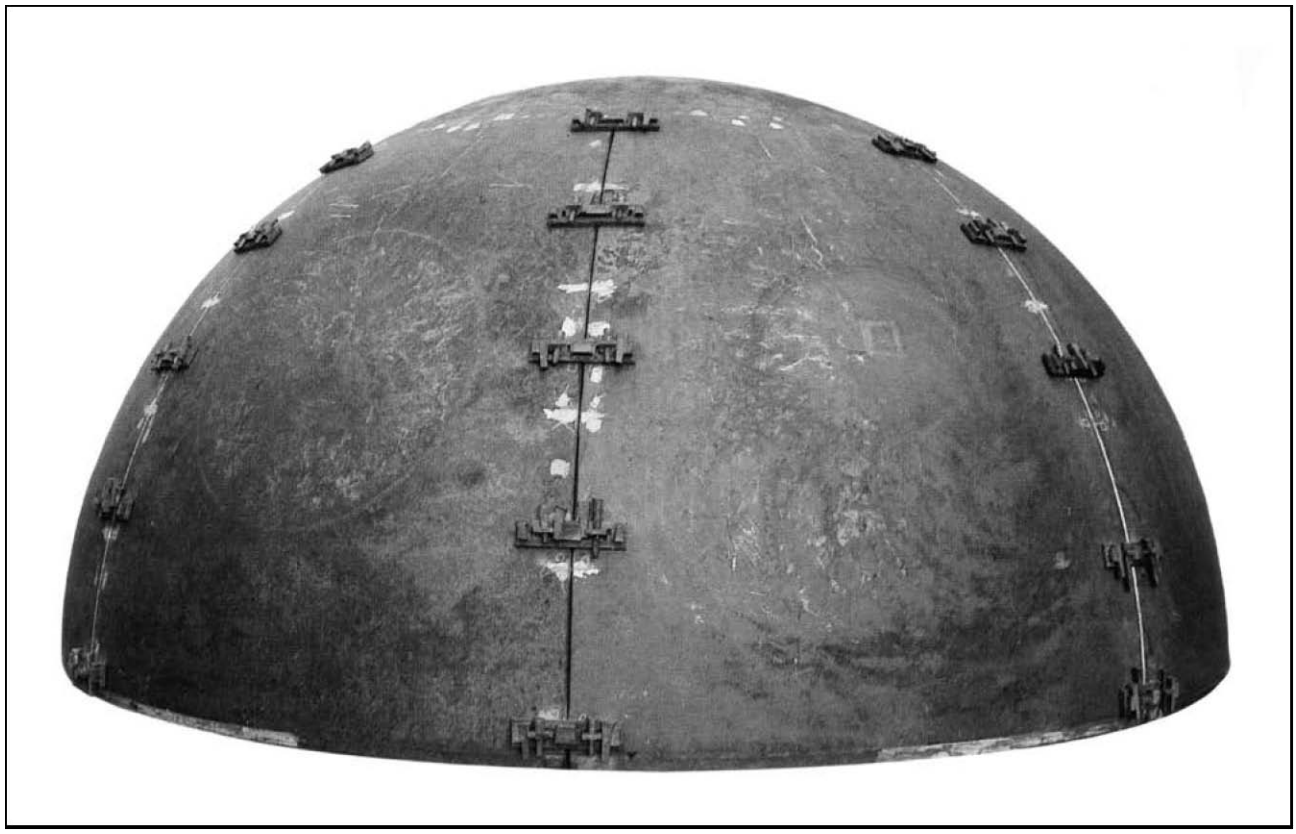
Hemispherical heads

Di (mm)	t (mm)	V (10^3 m^3)	m (kg/mm)
One piece head			
100	5-20	0,262	0,13
200	5-30	2,095	0,50
300	5-50	7,07	1,13
400	5-55	16,75	2,01
500	3-60	32,7	3,14
600	3-65	56,4	4,5
700	3-70	89,6	6,2
800	3-75	134	8,0
900	3-80	191	10,2
1000	3-85	262	12,6
1100	3-90	348	15,2
1200	3-90	451	18,2
1300	3-90	575	21,2
1400	3-90	717	24,6
1500	3-90	884	28,3

Di (mm)	t (mm)	V (10^3 m^3)	m (kg/mm)
One piece head			
1600	3-90	1070	32,0
1700	3-90	1285	36,5
Segments and spherical cap			
1800	3-50	1525	40,5
1900	3-50	1790	45,5
2000	3-50	2095	50,0
2100	3-50	2425	55,5
2200	3-50	2790	61,0
2300	3-50	3185	66,5
2400	3-50	3610	72,5
2500	3-50	4090	78
2600	4-50	4600	85
2700	4-50	5150	91
2800	4-50	5740	98
2900	4-50	6380	105

HEMISPHERICAL HEADS

(CONTINUED)



Hemispherical heads

Di (mm)	t	V	m (mm) (10³ m³) (kg/mm)
Segments and spherical cap			
3000	5-50	7070	113
3100	5-50	7800	121,00
3200	5-50	8570	129
3300	5-50	9400	137
3400	5-50	10280	145
3500	5-50	11210	154
3600	6-50	12200	163
3700	6-50	13250	172
3800	6-50	14350	181
3900	6-50	15500	191
4000	6-50	16750	201
4100	6-50	18050	211
4200	6-50	19400	222
4300	6-50	20800	232
4400	6-50	22300	243

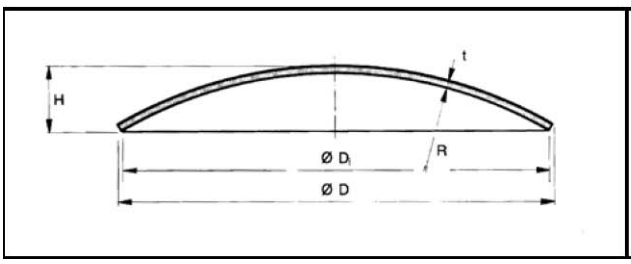
Di (mm)	t	V	m (mm) (10³ m³) (kg/mm)
Segments and spherical cap			
4500	6-50	23800	254
4600	6-50	25500	266,0
4700	6-50	27200	278
4800	6-50	28900	289
4900	6-50	30800	302
5000	6-50	32700	314
5500	7-50	43575	380
6000	8-50	56500	452
6500	9-50	71900	531
7000	10-50	89800	615
7500	12-50	110000	707
8000	12-50	134100	804

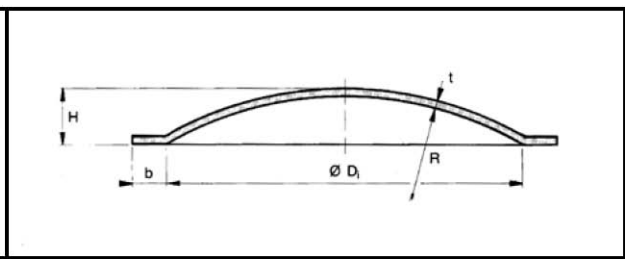
Di upto 20.000 mm

All others on request

SPHERICAL CAP SPHERICAL COVER

DISHED ONLY DISHED AND FLARED





R = D (or on request)
H = 0,134.D + t (if R = D)
D_s (disc dia.) = 1,035.D (if R = D) (see also graph on p. 24)
Capacity = $0,054.D_s^3$ (if R = D)
Surface (one side) = $\frac{\pi}{4}.D_s^2$
Nett weight (kg) = $2\pi.D_s^2.t$ (D_s in m, t in mm)

R = D (or on request)
H = 0,134.D + t (if R = D)
b = 40 ÷ 60 mm (or on request)
D_s (disc dia.) = 1,035.D + 2.b (if R = D)
Capacity = $0,054.D^3$ (if R = D)
Surface (one side) = $\frac{\pi}{4}.D_s^2$
Nett weight (kg) = $2\pi.D_s^2.t$ (D_2 in mm, t in mm)

Spherical caps (dished only)

D (mm)	t (mm)	Ds (mm)	V (10^3 m^3)	h (mm)	m (kg/mm)
1000	3-80	1035	54,0	140	6,7
1250	3-80	1290	105	174	10,5
1500	3-80	1550	183	208	15,2
1750	3-80	1810	290	242	20,6
2000	3-80	2070	432	277	27
2250	4-80	2325	615	310	34
2500	4-80	2585	845	344	42
2750	4-80	2845	1120	377	51
3000	5-80	3105	1460,0	412	60,5
3250	6-80	3365	1860	447	71,5

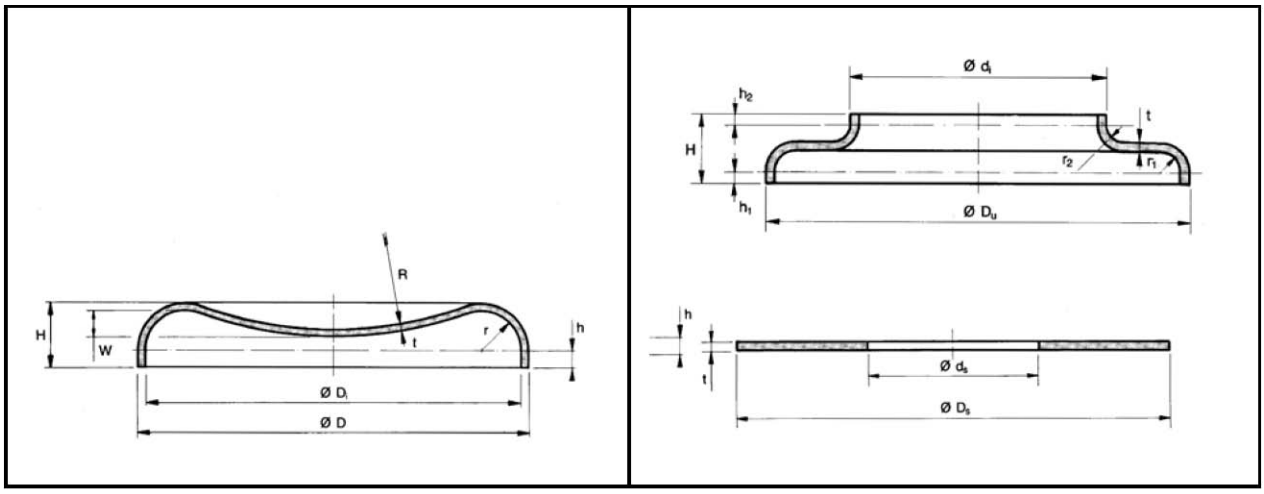
D (mm)	t (mm)	Ds (mm)	V (10^3 m^3)	h (mm)	m (kg/mm)
3500	7-80	3620	2320	480	82,5
3750	7-80	3880	2850	514	95
4000	8-80	4140	3460	548	108
4250	8-80	4400	4150	580	122
4500	8-80	4660	4920	614	136

D upto 10.000 mm t upto 80 mm

All others on request

DIFFUSION HEADS EXPANSION JOINTS

DISHED AND REVERSE FLANGED



R	=	D
r	=	see table (or on request)
h	=	20 ÷ 50 mm (or on request)
w	=	$R + r + t - \sqrt{(R+r+t)^2 - (½.D$
D_s (disc dia.)	=	$1{,}02.D + r + 1{,}7.h \quad (1{,}7.h \geqslant 40)$
Capacity	=	$\frac{\pi}{4} D_i^2.r - 0{,}65.D.r^2 - \pi (R.w^2 - ⅓$ (in the table: h = 0 and t = 0)
Surface (one side)	=	$\frac{\pi}{4} D_s^2$
Nett weight (kg)	=	$2\pi.D_s^2.t$ (D_s in m, t in mm)

$D_{u\text{-}min}$ = 200 mm; $d_{i\text{-}min}$ = 50 mm
$D_{u\text{-}max}$ = 6000 mm; $d_{i\text{-}max}$ = 4000 mm
if $3 \leqslant t \leqslant 10$ mm., then $200 \leqslant D_u \leqslant 4500$ mm
and $50 \leqslant d_i \leqslant 4000$ mm.

BLANKDIMENSIONS

$D_s = D_u + r_1 + 2\,h_1$; $\quad (2\,h_1 \geqslant 40$ mm)
$d_s = d_i - r_2 - 2\,h_2$; $\quad (2\,h_2 \geqslant 40$ mm)

Diffusion heads (dished and reverse flanged)

D (mm)	t (mm)	Ds (mm)	V (10³ m³)	r (mm)	w (mm)	m (kg/mm)
1000	4-20	1160	45	90	81	8,4
1100	4-20	1260	50	90	93	9,9
1200	4-20	1365	54	90	106	11,6
1300	4-20	1475	72	100	114	13,6
1400	4-20	1580	76	100	126	15,6
1500	4-20	1690	117	110	106	17,8
1600	4-20	1790	124	110	116	20,0
1700	4-20	1900	129	110	126	22,5
1800	4-20	2010	164	120	132	25,2
1900	4-20	2110	170	120	142	28,0
2000	4-20	2220	179	120	152	31,0

D u

All others on request