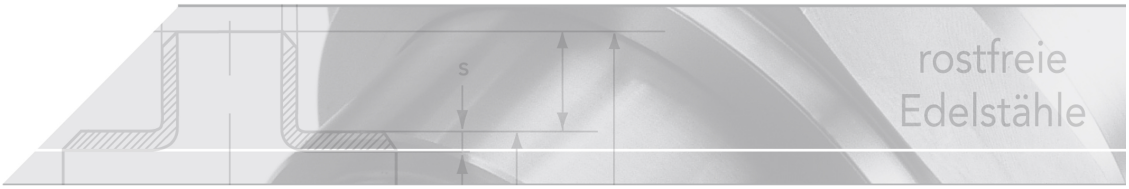
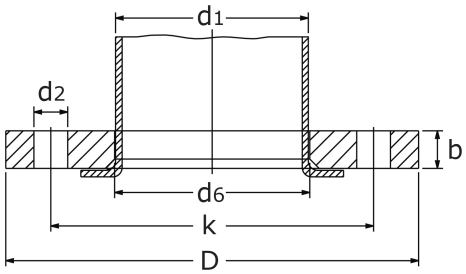


loose plate flange aluminium

short name: AF.10*

drilled acc. PN 10

based on DIN 2642



technical product sheet

DN	d1	Typ	D	b	k	d6	d2	M	O	kg	Art.-Nr.
10	17,2	C	90	12	60	19	14	4 x M12	blank	0,196	AF-010-000
15	21,3	C	95	12	65	24	14	4 x M12	blank	0,180	AF-015-000
15	21,3	C	95	12	65	24	14	4 x M12	beschichtet	0,180	AF-015-00B
20	26,9	C	105	12	75	30	14	4 x M12	blank	0,235	AF-020-000
20	26,9	C	105	12	75	30	14	4 x M12	beschichtet	0,240	AF-020-00B
25	29,0	A	115	12	85	33	14	4 x M12	blank	0,260	AF-025-000
25	29,0	A	115	12	85	33	14	4 x M12	beschichtet	0,280	AF-025-00B
25	33,7	C	115	12	85	36	14	4 x M12	blank	0,240	AF-025-000
25	33,7	C	115	12	85	36	14	4 x M12	beschichtet	0,260	AF-025-00B
32	35,0	A	140	16	100	42	18	4 x M16	blank	0,500	AF-032-000
32	35,0	A	140	16	100	42	18	4 x M16	beschichtet	0,560	AF-032-00B
32	42,4	C	140	16	100	46	18	4 x M16	blank	0,520	AF-032-000
32	42,4	C	140	16	100	46	18	4 x M16	beschichtet	0,524	AF-032-00B
40	44,0	A	150	16	110	48	18	4 x M16	blank	0,593	AF-040-000
40	44,0	A	150	16	110	48	18	4 x M16	beschichtet	0,600	AF-040-00B
40	48,3	C	150	16	110	54	18	4 x M16	blank	0,580	AF-040-000
40	48,3	C	150	16	110	54	18	4 x M16	beschichtet	0,580	AF-040-00B
50	54,0	A	165	16	125	59	18	4 x M16	blank	0,780	AF-050-000
50	54,0	A	165	16	125	59	18	4 x M16	beschichtet	0,760	AF-050-00B
50	57,0	B	165	16	125	62	18	4 x M16	blank	0,770	AF-050-000
50	57,0	B	165	16	125	62	18	4 x M16	beschichtet	0,000	AF-050-00B
50	60,3	C	165	16	125	65	18	4 x M16	blank	0,700	AF-050-000
50	60,3	C	165	16	125	65	18	4 x M16	beschichtet	0,690	AF-050-00B
50	60,3	D	165	18	125	75	18	4 x M16	blank	0,640	AF-050-000
65	70,0	A	185	16	145	73	18	4 x M16	blank	0,860	AF-065-000
65	70,0	A	185	16	145	73	18	4 x M16	beschichtet	0,920	AF-065-00B
65	76,1	C	185	16	145	81	18	4 x M16	blank	0,850	AF-065-000
65	76,1	C	185	16	145	81	18	4 x M16	beschichtet	0,860	AF-065-00B
65	76,1	D	185	18	145	92	18	4 x M16	blank	0,797	AF-065-000
80	84,0	A	200	18	160	90	18	8 x M16	blank	1,099	AF-080-000
80	84,0	A	200	18	160	90	18	8 x M16	beschichtet	1,100	AF-080-00B
80	88,9	C	200	18	160	94	18	8 x M16	blank	1,038	AF-080-000
80	88,9	C	200	18	160	94	18	8 x M16	beschichtet	1,060	AF-080-00B
80	88,9	D	200	20	160	108	18	4 x M16	blank	0,951	AF-080-000
100	104,0	A	220	18	180	111	18	8 x M16	blank	1,247	AF-100-000
100	104,0	A	220	18	180	111	18	8 x M16	beschichtet	1,240	AF-100-00B

DN	d1	Typ	D	b	k	d6	d2	M	O	kg	Art.-Nr.
100	108,0	B	220	18	180	113	18	8 x M16	blank	1,240	AF-100-000
100	108,0	B	220	18	180	113	18	8 x M16	beschichtet	0,000	AF-100-00B
100	114,3	C	220	18	180	119	18	8 x M16	blank	1,180	AF-100-000
100	114,3	C	220	18	180	119	18	8 x M16	beschichtet	1,120	AF-100-00B
100	114,3	D	220	20	180	128	18	8 x M16	blank	1,014	AF-100-000
125	129,0	A	250	18	210	136	18	8 x M16	blank	1,475	AF-125-000
125	129,0	A	250	18	210	136	18	8 x M16	beschichtet	1,540	AF-125-00B
125	133,0	B	250	18	210	138	18	8 x M16	blank	1,650	AF-125-000
125	133,0	B	250	18	210	138	18	8 x M16	beschichtet	0,000	AF-125-00B
125	139,7	C	250	18	210	145	18	8 x M16	blank	1,430	AF-125-000
125	139,7	C	250	18	210	145	18	8 x M16	beschichtet	1,439	AF-125-00B
125	139,7	D	250	22	210	152	18	8 x M16	blank	1,538	AF-125-000
150	154,0	A	285	18	240	161	23	8 x M20	blank	1,874	AF-150-000
150	154,0	A	285	18	240	161	23	8 x M20	beschichtet	1,920	AF-150-00B
150	159,0	B	285	18	240	164	23	8 x M20	blank	1,870	AF-150-000
150	159,0	B	285	18	240	164	23	8 x M20	beschichtet	0,000	AF-150-00B
150	168,3	C	285	18	240	173	22	8 x M20	blank	1,700	AF-150-000
150	168,3	C	285	18	240	173	22	8 x M20	beschichtet	1,680	AF-150-00B
150	168,3	D	285	22	240	178	23	8 x M20	blank	2,054	AF-150-000
200	204,0	A	340	20	295	212	23	8 x M20	blank	2,660	AF-200-000
200	204,0	A	340	20	295	212	23	8 x M20	beschichtet	2,680	AF-200-00B
200	219,1	C	340	20	295	225	22	8 x M20	blank	2,486	AF-200-000
200	219,1	C	340	20	295	225	22	8 x M20	beschichtet	2,420	AF-200-00B
200	219,1	D	340	24	295	238	23	8 x M20	blank	2,216	AF-200-000
250	254,0	A	395	22	350	264	23	12x M20	blank	3,570	AF-250-000
250	254,0	A	395	22	350	264	23	12x M20	beschichtet	3,298	AF-250-00B
250	267,0	B	395	22	350	273	23	12x M20	blank	3,300	AF-250-000
250	267,0	B	395	22	350	273	23	12x M20	beschichtet	0,000	AF-250-00B
250	273,0	C	395	22	350	279	22	12x M20	blank	3,240	AF-250-000
250	273,0	C	395	22	350	279	22	12x M20	beschichtet	3,220	AF-250-00B
250	273,0	D	395	26	350	288	23	12x M20	blank	3,480	AF-250-000
300	304,0	A	445	22	400	315	23	12x M20	blank	4,240	AF-300-000
300	304,0	A	445	22	400	315	23	12x M20	beschichtet	3,700	AF-300-00B
300	323,9	C	445	22	400	329	22	12x M20	blank	3,720	AF-300-000
300	323,9	C	445	22	400	329	22	12x M20	beschichtet	3,680	AF-300-00B
300	323,9	D	445	26	400	338	23	12x M20	blank	3,380	AF-300-000
350	355,6	A/C	505	22	460	362	22	16x M20	blank	5,100	AF-350-000
350	355,6	A/C	505	22	460	362	22	16x M20	beschichtet	5,200	AF-350-00B
350	368,0	B	505	22	460	374	23	16x M20	blank	4,200	AF-350-000
350	368,0	B	505	22	460	374	23	16x M20	beschichtet	0,000	AF-350-00B
400	406,4	A/C	565	25	515	413	26	16x M24	blank	6,940	AF-400-000
400	406,4	A/C	565	25	515	413	26	16x M24	beschichtet	7,020	AF-400-00B
450	457,2	A/C	615	25	565	465	26	16x M24	beschichtet	0,000	AF-450-00B
450	457,2	A/C	615	25	565	465	26	20x M24	blank	7,300	AF-450-000
500	508,0	A/C	670	28	620	517	26	20x M24	blank	9,320	AF-500-000
500	508,0	A/C	670	28	620	517	30	20x M24	beschichtet	0,000	AF-500-00B
600	609,6	A/C	780	30	725	618	30	20x M27	blank	12,130	AF-600-000
600	609,6	A/C	780	30	725	618	30	20x M27	beschichtet	14,500	AF-600-00B
700	711,2	A/C	895	40	840	721	30	24x M27	blank	21,000	AF-700-000
700	711,2	A/C	895	40	840	721	30	24x M27	beschichtet	0,000	AF-700-00B
800	812,8	A/C	1015	44	950	824	33	24x M30	blank	29,200	AF-800-000
800	812,8	A/C	1015	44	950	824	33	24x M30	beschichtet	30,000	AF-800-00B
900	914,4	A/C	1115	44	1050	920	33	28x M30	blank	37,000	AF-900-000
900	914,4	A/C	1115	44	1050	920	33	28x M30	beschichtet	0,000	AF-900-00B
1000	1016,0	A/C	1230	44	1160	1020	36	28x M33	blank	43,000	AF-A00-000
1000	1016,0	A/C	1230	44	1160	1020	36	28x M33	beschichtet	0,000	AF-A00-00B
1200	1232,0	A/C	1455	60	1380	1232	40	32x M36	blank	75,000	AF-C00-000

DN	d1	Typ	D	b	k	d6	d2	M	O	kg	Art.-Nr.

available material: AlSi12Cu

Flanges › loose plate flanges › aluminium-flanges › PN 10

Aluminum alloy flange

The aluminum alloy flanges are manufactured using the G-ALSi12 (Cu) casting process, which has good mechanical properties as well as good corrosion resistance.

The alloy composition according to DIN 1725 Sheet 2 is as follows:

Cu	Zn	Si	Fe	Ti	Ni	Mn	Mg	Pb	Sn	Al
1,0%	0,5%	11-13,5	0,8%	0,15%	0,2%	0,5%	0,3%	0,2%	0,1%	Rest

The mechanical properties at room temperature are as follows:

Property	Unit	Value
0,2 limit Rpo,2	N/mm²	90-120
Tensile strength (p/B)	N/mm²	160-240
Fracture elongation A5	%	1 - 4
Brinell hardness	HB 5/250	55-75
Fatigue strength	N/mm²	70-80

Since the thermal conductivity of light metal alloys is three to four times higher than that of carbon steels and six to eight times higher that that of heat-resistant steels, a very fast heat absorption and heat dissipation is possible so that the intrinsic temperature of a aluminum alloy flange can be maintained below critical values even at high pipe surface temperatures.

Mechanical properties at high temperatures (typical values):

Property	20° C	50° C	100° C	200° C
0,2 limit Rpo,2	90 N/mm²	80 N/mm²	70 N/mm²	55 N/mm²
Tensile strength Rm	190 N/mm²	180 N/mm²	160 N/mm²	110 N/mm²
Fracture elongation	4%	5%	7%	10%
Brinell hardness HB	55	51	45	32

Overview of Types

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Type A: innerØ suitable for the paper and pulp industry
Type B: innerØ acc. to DIN 2642, suitable for pipes conforming to the old boiler pipe standard DIN 2448
Type C: innerØ acc. to DIN 2642, suitable for pipes conforming to ISO recommendation R64/ DIN 2448
Type D: innerØ acc. to DIN 2673, suitable for weld-neck collars conforming to old boiler pipe standard
Type E: innerØ acc. to DIN 8063, suitable for PVC-pipes with collar bushing
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For actual applications, it can be stated that aluminum alloy flanges manufactured with the dimensions of the DIN PN-10 flange can be used at operating pressures of up to 6 bar and a flange temperature of 150° C. At lower operating pressures, higher temperatures are permissible.

Detailed tests and many years of application experience have shown that, in terms of the leakage behavior at the specified operating conditions, no significant differences could be determined between steel and aluminum alloy flanges.

The flanges are usually delivered with a bare metallic surface.
Flanges with this finish are installed in aluminum alloy, stainless steel, and plastic piping because in a normal atmosphere, the natural casting skin (oxide layer) provides the flanges with good corrosion protection.
In moist air, a thick layer of oxide consisting of two superimposed sublayers forms, The almost pore-free base and barrier layer of amorphous aluminum oxide and a porous, hydrated surface layer with a low crystalline content. On this surface layer, it is possible for white deposits to form. The underlying barrier layer of the protective oxide skin, with a pH value in the range between 4.5 and 8.0, is largely insoluble, so that in most cases, flanges with bare metal surface can be installed.

Epoxy resin coating

The flanges are also available with electrostatically applied, cured epoxy resin coating. Flanges with this coating may be desired due to the improved corrosion protection or for aesthetic reasons.
The flanges coated with epoxy resin are degreased, blasted, and then cured with the electrostatically applied powder. During transport, during installation of the pipes, And when bolting the flanges, it must be ensured that no damage is caused because otherwise penetration of the coating due to corrosion could be more prevalent.

RAL 7035