

Weld-Ring Gaskets

Absolutely leak proof gasketing

Toll Free Sales & Service (USA & Canada)
1-800-217-8677

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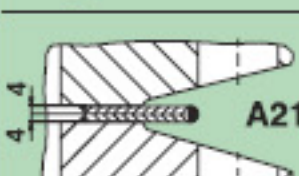
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Typical characteristics				
Profiles	Inside welding seams prevents crevice corrosion between weld ring and flange.	Outside weld seams allow repair welding without dismantling.	Compensation of radial differential expansion.	Dismantling and re-welding
 A24	Standard procedure	Not possible	Up to max. $\Delta r \sim 5$ mm depends on hollow lip wall thickness	Easy to dismantle with a 2mm cut off disc. Can be re-welded up to 4 times
 A25	Can be applied as an additional intermittent weld for further fastening	Standard procedure	Up to max. $\Delta r \sim 5$ mm depends on hollow lip wall thickness	Easy to dismantle with a 2mm cut off disc. Can be re-welded up to 4 times
 A23	a) An additional intermittent weld for further fastening b) If susceptible to corrosion	a) Standard procedure b) Additional fastening through intermittent weldments	Effect is small because of the small hollow lip dimensions. max. $\Delta r \sim 0,5$ mm	Difficult to dismantle. Can be re-welded up to 3 times
 A22	a) An additional intermittent weld for further fastening b) If susceptible to corrosion	a) Standard procedure b) Additional fastening Befestigungshilfe. through intermittent weldments	hardly possible max. $\Delta r \sim 0,1$ mm	Use cut-off disc. Material loss 2-3 mm each. Can be rewelded up to 5 times
 A21	Only possible method	Not possible. Additionally flange form M to DIN 2526 required	Effect is small and depends on projection of gaskets max. $\Delta r \sim 0,3$ mm	Use cut-off disc. Material loss 2-3 mm each. Can be rewelded up to 5 times

kempOchen
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Characteristics

It is recommended to use weld-ring gaskets for any application where it is absolutely necessary to have a leak proof joint, and also a limited opportunity for disassembling is required. Underlying reasons for this requirement may be containment of hazardous materials or the need for a shutdown free operation.

The limited opportunity for disassembling mean in this case, that the bolts have to be removed and the weld seam has to be cut besides. The gasket can be reused and rewelded up to five times depending on gasket type.

Gasket materials are generally the same or similar to the pipe or flange material. Weld-ring gaskets can only be used in pairs.

Depending on requirements a gasket profile is to select from previously shown table. In the overview, the selection criteria are shown versus typical characteristics for profiles A21 to A25.

The welded connection between one half of the weld-ring gasket and one flange is defined as welded joint in the following text. The welded joint can either be an inside or outside weld, or even be a combination of both. The welding connection of the two gasket halves to each other is defined as seal-weld.

All weld-ring gaskets can be fitted with other additional auxillary gaskets. This may be advantageous for several reasons:

- Hydraulic pressure testing can be performed using auxiliary gasketing before final welding.
- Testing or start up can be accomplished utilizing an auxiliary gasket, which allows repeated dismantling.
- The additional gasket may be the primary operational gasket. The weld-rings would only be welded in the event of gasket failure.

For weld-ring gaskets without the additional gasket, bolt forces must be increased to ensure that the weld-ring gasket halves contact each other without any gap. Calculation of the bolt forces for weld-ring gaskets with an auxiliary gasket require a computation for weld-ring gasket using the outside diameter plus a calculation for the auxiliary gasket. In this case a gap of 0.3 mm exists. All weld-ring gaskets should have a surface roughness of $R_z \sim 25$ to $50 \mu\text{m}$.

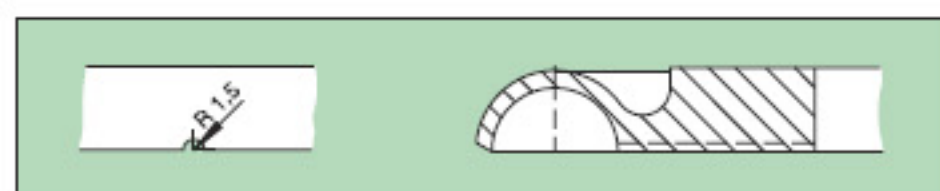
Hollow Lip Weld-Ring Gaskets

Weld-ring gaskets with hollow lips according to **profile A24, A25 and A23** offer improved stress conditions in the seal weld. The use of weld-ring gaskets with hollow lips is recommended for connecting constructional parts with different thermal expansion coefficients.

Profiles A24 and A25 have the advantage of increased ability to absorb movement. As an example, they are preferably installed to seal heat exchanger bonnet flanges and tube plates, where different radial movement occurs. With profile A24, the welded joint are not accessible from the outside. However, for many applications this is an advantage, especially where crevice corrosion is assumed. In such instances **profiles A24H, A24K, A24KVR and A24N** are recommended.

Safety instruction:

Weld-ring gaskets with hollow lip profiles A24 and A25 sometimes have the tendency to build up condensation, which can expand due to sudden temperature rises. In order to prevent this, the design of each gasket-half has 4 radial grooves, 1.5mm deep and 3mm wide.



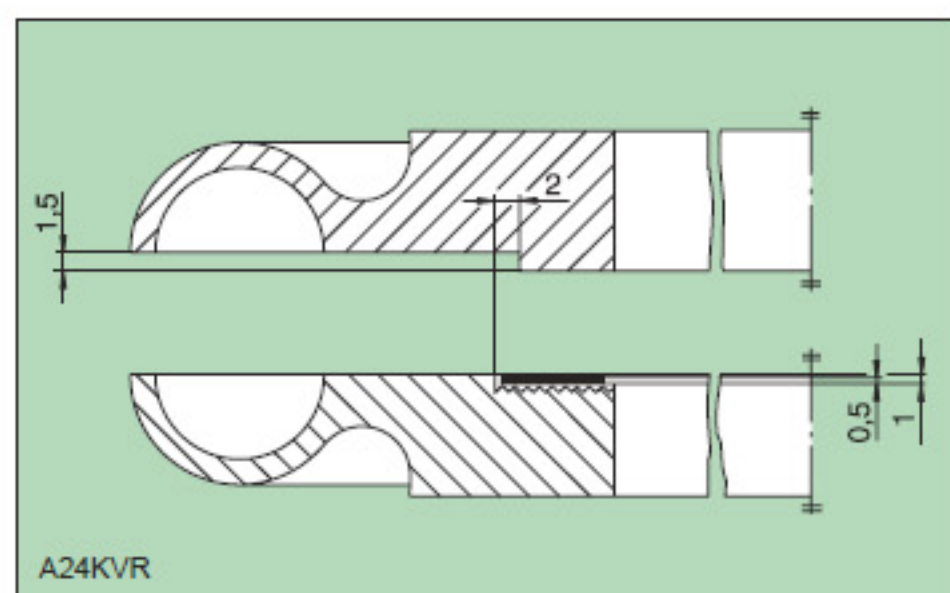
Profile	Cross-Section
A23	
A24	
A24H	
A24K	
A25	

Profile A24H, one gasket-half is designed with a convex sealing surface. The radius is designed considering pressure, temperature and required construction materials. Frequently a galvanic coating of the sealing face can be very usefull.

Profile A24K, one gasket-half is designed with a grooved sealing surface, which is equipped with a layer of PTFE, graphite or AFS* with 0.5 mm thickness. Layer material depends upon requirements.

* AFS = asbestosfree fibre sheet

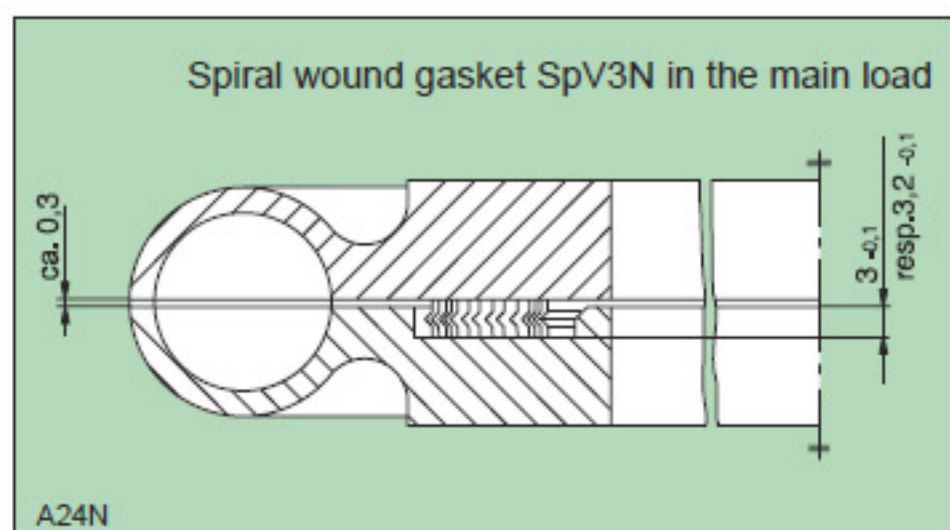
Hollow Lip Weld-Ring Gaskets



Profile A24KVR with male and female designs. The female part is designed as a grooved gasket.

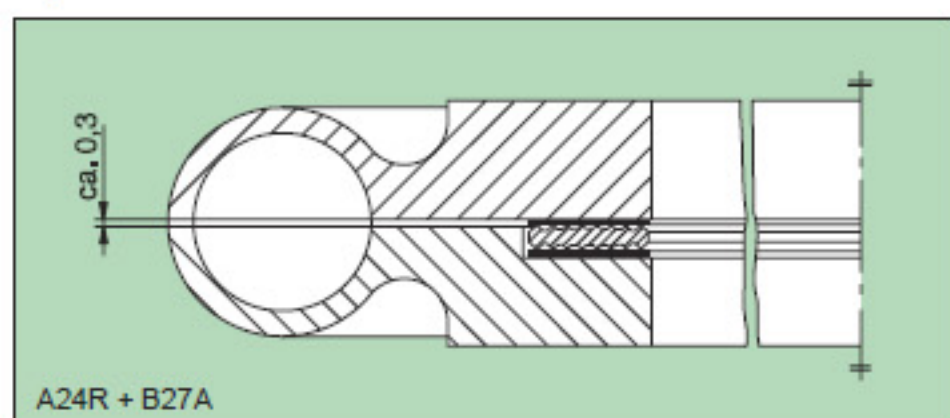
Layers for this gasket are PTFE, graphite, silver or, AFS* depending on design requirements. Thickness of layer 0.5 mm.

Profile A24N is designed with a groove to accommodate a **profile SpV3N** spiral wound gasket. Materials of construction available are listed in brochure "Spiral Wound Gaskets SPIROFLEX".



For spiral wound gaskets with a thickness of 4.5 mm the groove depth is $3,0^{+0,1}_{-0}$ mm. Spiral wound gaskets with a 5.5 mm thickness have a groove depth of $3,2^{+0,1}_{-0}$ mm.

Weld-ring gaskets may also be supplied with male/female design as per **profile A24R** to accommodate a grooved gasket. If damaged the complete grooved gasket can be replaced.

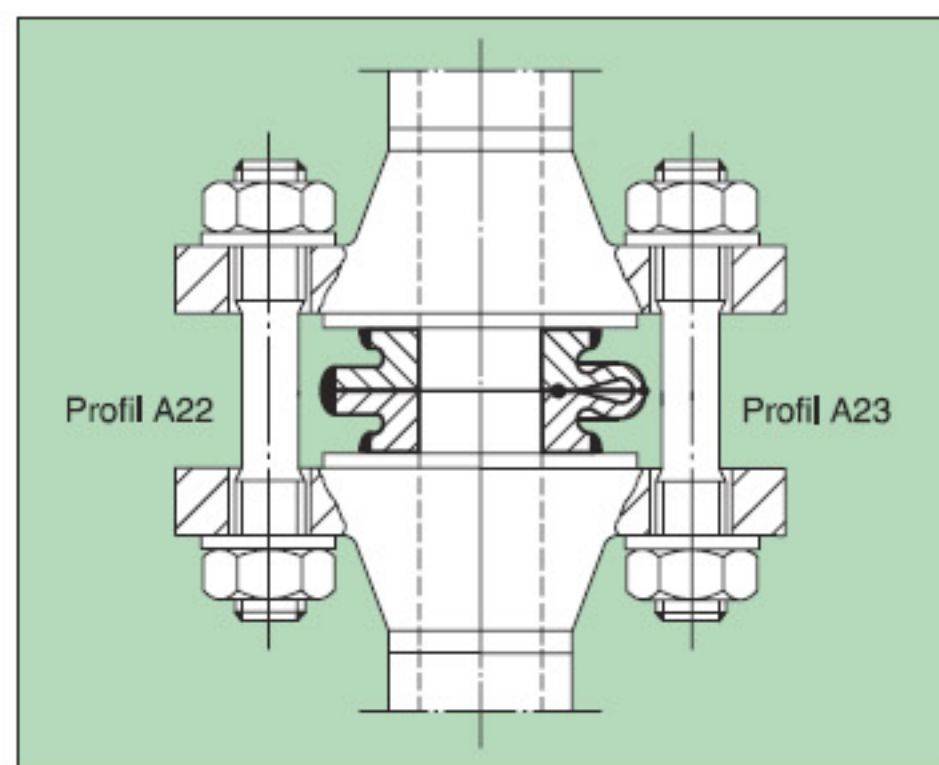


For **profiles A25** and **A23** the same auxiliary gasket variety is available as for **profile A24**.

Profile A23 is illustrated with a "protector" gasket, which is not leak proof.

Weld-Ring Gaskets

Profile A22 Weld-ring gaskets have the same thickness as profiles A23 and A24 (2x15=30mm). Therefore there is enough space for the necessary joint welding. No special flanges are required.



Using this type, it is easy to make additional welds to stop leaking, because all welding seams are on the outside. Necessary bolts are longer and thus there is more positive elastic behavior.

Profiles A22 to A22N are preferably used on pipeline applications. In such cases there is no expansion differential between gaskets and flanges due to identical flanges and construction material.

Another advantage is that the greater thickness permits the use of an auxiliary gasket (see previous page weld-ring gaskets profile A24).

Profile	Cross-Section
A22	
A22H	
A22K	
A22KVR	
A22N	

* AFS = asbestosfree fibre sheet

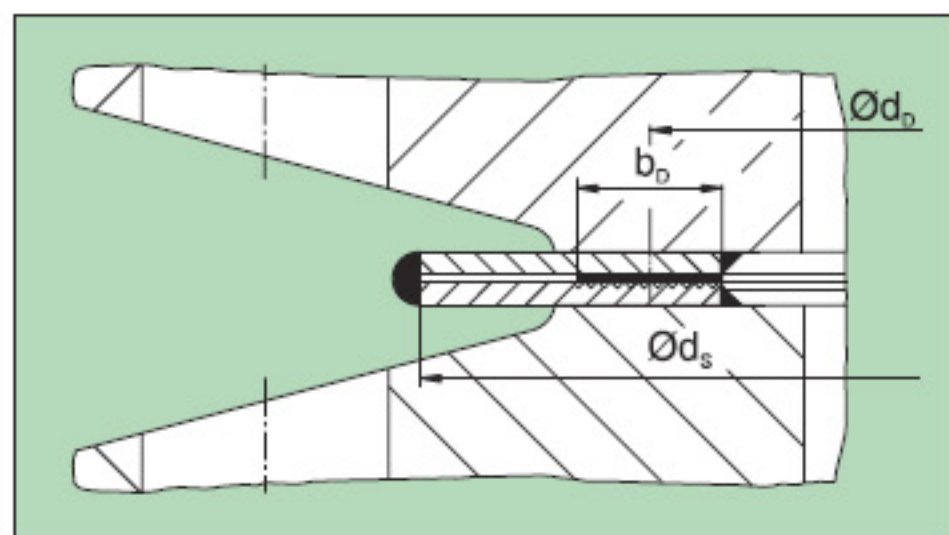
Membrane Type Weld-Ring Gas-kets

Membrane rings per DIN 2695 are 4mm thick. Due to limited ability to take up radial differential expansion, membrane weld gaskets should be of the same material as the flange. For installation, each membrane half must be welded to the flange half by an inside joint welding. After flange assembly the outside seal-weld is made. Errors made on the inside joint welding are difficult to repair.

Profile	Cross-Section
A21	

A Study must be made to determine if there is enough room to carry out the seal-weld procedure. If not, special flanges according to DIN 2526 type M design are required.

The following figure depicts gasket **profile A21K** installed between type M flanges.



Profile A21K membrane weld gaskets are designed with concentric grooves. As required by the process, soft layers of PTFE, graphite, silver or AFS* with about 0.5 mm thickness have to be specified.

Common Gasket Materials

Material abbreviation EN 10 027-1	Material-No. EN 10 027-2	Temperature of Medium
S235JRG2	1.0038	bis 425°C
16Mo3	1.5415	425 bis 475°C
13CrMo4-5	1.7335	475 bis 520°C
10CrMo9-10	1.7380	520 bis 580°C
X6CrNiTi18-10	1.4541	350 bis 550°C
X6CrNiMoTi17-12-2	1.4571	max. 550°C

* further technical data see our leaflet "Common Materials"

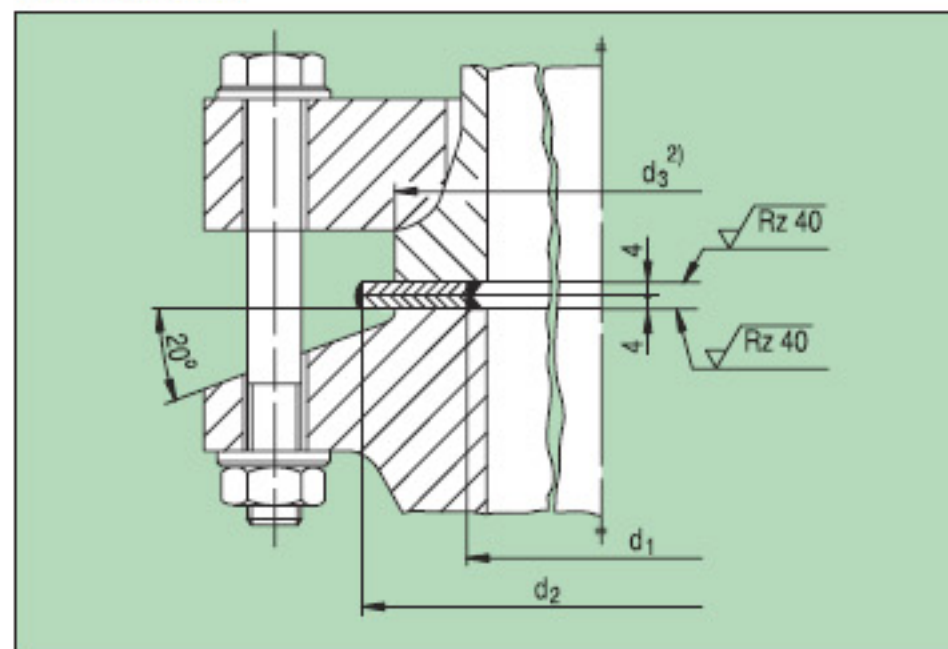
* asbestosfree fibre sheet

Dimension Table

Profile A21

DIN 2695 for DIN-flanges

Profile A21



Membrane weld-ring gaskets profile A21

DIN 2695 for PN designated flanges

Dimensions in mm

DN	d ₁	d ₂ ³⁾ for PN					d ₃ ²⁾
		63	100	160	250 u. 320	400	
80	90	143	149	149	153	153	123
100	115	169	176	176	179	179	149
125	142	206	213	213	216	216	186
150	165	243	248	248	248	248	218
200	214	305	315	315	315	315	285
250	264	360	370	370	370	-	340
300	310	420	430	430	-	-	400
350	340	482	490	-	-	-	460
400	386	539	-	-	-	-	519

DIN 2695 for Class designated flanges

Dimensions in mm

NPS	d ₁	d ₂ ³⁾ for Class						d ₃ ²⁾		
		150	300	600	900	1500	2500	150	300	600
3	92	130	142	142	157	157	157	116	122	122
4	118	167	172	180	187	187	187	146	150	157
5	144	190	208	216	216	216	216	172	180	186
6	170	215	243	246	246	246	246	196	216	216
8	220	272	300	300	300	300	300	252	270	270
10	273	332	354	354	354	354	354	308	324	324
12	322	400	411	411	411	411	411	370	381	381
14	360	440	443	443	443	443	-	413	413	413
16	412	500	500	500	500	500	-	470	470	470

Example to order a membrane weld-ring gasket, profile A21, inner diameter (ID=d₁) = 115 mm, outer diameter (OD=d₂) = 169 mm, of ...¹⁾.

Membrane weld-ring gasket A21, 115 x 169 mm, DIN 2695, 1.5415 (A204 Gr. A;4027)

The membrane weld-ring gasket is comprised of 2 weld-rings.

¹⁾ Please specify required materials in any inquiry and order.

²⁾ When sloping off the flanges the seating ledges must be fitted to these dimensions.

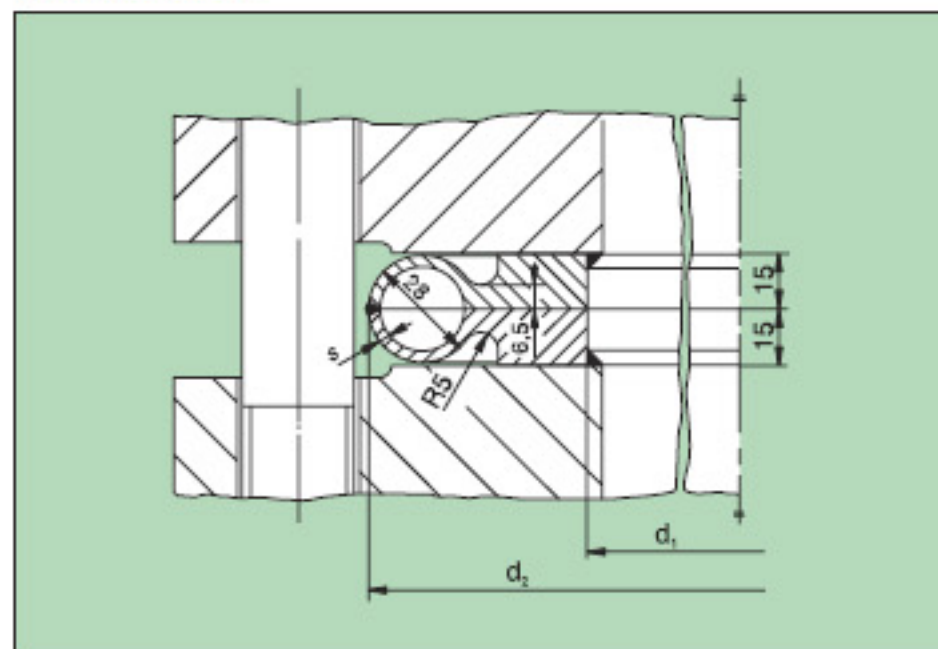
³⁾ A projection of 15 mm is preferable; but 10 mm are necessary. (Maximum outer diameter: centering diameter less 4 mm).

Dimension Table

Profile A24

Works standard 126 for DIN-flanges

Profile A24



Works standard 126

Weld-ring gaskets profile A24 for DIN-flanges

Example to order a weld-ring gasket profile A24, nominal diameter 500, nominal pressure 40, works standard 126, of...¹⁾.

Weld-ring gasket A24, DN 500, PN 40, 490 x 626, WN 126, 1.5415 (A182 Gr. F1; F2), s = ...*

The weld-ring gasket consists of two weld-ring halves

Dimensions in mm

DN	PN									
	16		25		40		63		100	
	d ₁	d ₂	d ₁	d ₂	d ₁	d ₂	d ₁	d ₂	d ₁	d ₂
250	-	-	-	-	-	-	-	-	258	389
300	-	-	-	-	-	-	-	-	306	456
350	-	-	-	-	348	472	341	484	334	510
400	-	-	-	-	395	544	388	541	-	570
500	-	-	498	622	490	626	-	655	-	702
600	-	-	598	729	-	745	-	762	-	811
700	-	-	696	831	-	850	-	877	-	948
800	-	-	795	940	-	972	-	986	-	-
900	-	-	892	1040	-	1082	-	1106	-	-
1000	1006	1126	991	1152	to be specified by purchaser**	1192	to be specified by purchaser**	1218	to be specified by purchaser**	-
1200	1205	1340	-	1362	to be specified by purchaser**	1396	to be specified by purchaser**	1450	to be specified by purchaser**	-
1400	1402	1540	-	1576	to be specified by purchaser**	1616	-	-	-	-
1600	1598	1762	-	1796	to be specified by purchaser**	1828	-	-	-	-
1800	1795	1962	-	1998	-	-	-	-	-	-
2000	1990	2166	-	2228	-	-	-	-	-	-

* Dimension "s" to customer specification. Wall thickness have to be specified based upon pressure, temperature, material of construction and radial movement.

** Weld-ring gaskets per profiles A24 to A24N are not available for smaller width than 60 mm [(d₂-d₁)/2=60 mm].

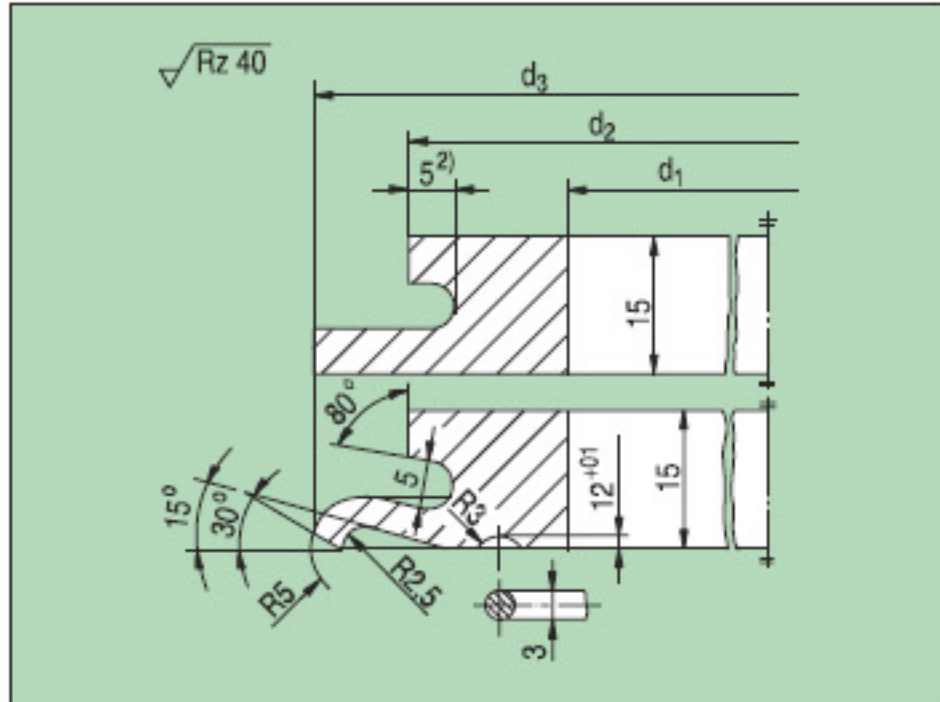
1) Please specify required material in any inquiry and order.

Dimension Table

Profile A22 and A23

Works standard 110 for DIN-flanges

Profile A22 and A23



Works standard 110

Weld-ring gaskets profile A22 and A23 for DIN-flanges

Example to order a weld-ring gasket profile A22, nominal width 100, nominal pressure 160, works standard 110, of...¹⁾.

Weld-ring gasket A22, DN 100, PN 160, works standard 110, 1.5415 (A204 Gr. A; 4027)

The weld-ring gasket consists of two weld-ring halves.

For correct welding procedures, please check:

- Sealing ledge details.
- If a flat flange is used
- Or, if in respect to Kempchen standard WN 110, the outer diameter d3 should be smaller than given.

- Please specify required material in any inquiry and order.
- For DN 10 and 15 sizes, only 4 mm.

Dimensions in mm

DN	PN 10 – 40			PN 63			PN 100			PN 160			PN 250			PN 320			PN 400		
	d ₁	d ₂	d ₃	d ₁	d ₂	d ₃	d ₁	d ₂	d ₃	d ₁	d ₂	d ₃	d ₁	d ₂	d ₃	d ₁	d ₂	d ₃	d ₁	d ₂	d ₃
10	13,6	27	41	13,6	30	50	13,6	30	50	13,6	30	50	12	30	50	12	30	50	10	30	50
15	17,3	32	46	17,3	35	55	17,3	35	55	17,3	35	55	16,1	35	55	14,9	35	55	16,9	40	60
20	22,3	38	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	28,5	46	66	28,5	50	70	28,5	50	70	27,9	50	70	26,5	50	70	23,7	50	70	28,2	50	70
32	37,2	55	75	37,2	55	75	37,2	55	75	-	-	-	-	-	-	-	-	-	-	-	-
40	43,1	60	80	42,5	60	80	42,5	60	80	41,1	60	80	38,3	60	80	35,7	60	80	40,3	80	100
50	54,5	75	95	54,5	75	95	53,9	75	95	52,3	75	95	47,7	80	100	47,5	90	110	51,1	90	110
65	70,3	90	110	69,7	90	110	68,9	90	110	66,1	90	110	60,1	100	120	66,9	110	130	69,6	120	140
80	82,5	105	125	81,7	105	125	80,9	105	125	76,3	105	125	79,6	115	135	76,6	125	145	79,3	130	150
100	107,1	125	145	106,3	125	145	104,3	125	145	98,3	125	145	98,6	135	155	101	145	165	95,3	150	170
125	131,7	150	170	130,7	150	170	127,1	150	170	119,7	160	180	120,4	160	180	128,3	172	192	133,7	188	208
150	159,3	178	198	157,1	178	198	154,1	178	198	143,3	185	205	142,8	185	205	143,7	205	225	149,1	218	238
(175)	182,5	210	230	181,1	210	230	176,1	210	230	165,3	205	225	174,7	230	250	163,1	230	250	-	-	-
200	206,5	235	255	204,9	235	255	199,1	235	255	187,1	230	250	194,5	255	275	184,5	255	275	193	285	305
250	258,8	285	305	255,4	285	305	248	285	305	233	280	300	234,5	310	330	243,9	335	355	-	-	-

Dimensions in mm

DN	PN 10			PN 16			PN 25			PN 40			PN 63			PN 100			PN 160			PN 250		
	d ₁	d ₂	d ₃	d ₁	d ₂	d ₃	d ₁	d ₂	d ₃	d ₁	d ₂	d ₃	d ₁	d ₂	d ₃	d ₁	d ₂	d ₃	d ₁	d ₂	d ₃	d ₁	d ₂	d ₃
300	309,7	335	355	309,7	335	355	307,9	335	355	307,9	335	355	301,9	335	355	295,5	335	355	279,5	335	355	244	335	355
350	314,4	385	405	339,6	385	405	339,6	385	405	338,0	385	405	330,6	385	405	323,6	385	405	-	-	-	-	-	-
400	392,2	435	455	390,4	435	455	388,6	435	455	384,4	435	455	378	435	455	371,4	435	455	-	-	-	-	-	-
(450)	443	490	510	441,2	490	510	439,6	490	510	435,2	490	510	-	-	-	-	-	-	-	-	-	-	-	-
500	493,8	540	560	492	540	560	488	540	560	479,6	540	560	476	560	580	464	560	580	-	-	-	-	-	-
600	595,4	645	665	592	645	665	587,6	645	665	585	645	665	575	655	675	560	670	690	-	-	-	-	-	-
700	695,2	750	770	693,6	750	770	686,2	750	770	683	750	770	671	760	780	651	780	800	-	-	-	-	-	-
800	797	840	860	793	850	870	784,6	855	875	781	855	875	769	870	890	-	-	-	-	-	-	-	-	-
900	894	945	965	894	945	965	882	960	980	880	960	980	864	975	995	-	-	-	-	-	-	-	-	-
1000	996	1045	1065	996	1045	1065	988	1055	1075	981	1060	1080	964	1085	1105	-	-	-	-	-	-	-	-	-
1200	1198	1260	1280	1195	1260	1280	1188	1265	1285	1176	1275	1295	1156	1295	1315	-	-	-	-	-	-	-	-	-
1400	1396	1455	1475	1392	1460	1480	1385	1465	1485	1375	1475	1495	-	-	-	-	-	-	-	-	-	-	-	-
1600	1592	1665	1685	1588	1665	1685	1585	1665	1685	1570	1680	1700	-	-	-	-	-	-	-	-	-	-	-	-
1800	1790	1860	1880	1785	1865	1885	1780	1870	1890	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000	1984	2070	2090	1980	2070	2090	1975	2075	2095	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2200	2184	2270	2290	2175	2275	2295	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2400	2380	2470	2490	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2600	2576	2675	2695	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2800	2776	2875	2895	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3000	2972	3080	3100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Dimension Table

Profile A22 and A23

Works standard 111 for ASME/ANSI-flanges

Works standard 143 for ASME B16.47 series A flanges

Kempchen works standard 111

Weld-ring gaskets profiles A22 and A23 for ASME/ANSI-flange .

Example to order a weld-ring gasket profile A22, nominal width 3", nominal pressure 900, works standard 111 of...¹⁾.

Weld-ring gasket A22, NPS 3", Class 900, WN 111, 1.5415 (A204 Gr. A; 4027).

The weld-ring gasket consists of two weld-ring halves.

Dimensions in mm

NPS	Class					
	150-300	400-900	1500-2500	150		300-2500
	d ₁			d ₂	d ₃	d ₄
½	15,7	14,0	6,4	29	45	29
¾	20,8	18,8	11,0	33	53	33
1	26,7	24,4	15,2	42	62	42
1 ¼	35,1	32,5	22,8	52	72	55
1 ½	40,9	38,1	27,9	60	80	64
2	52,6	49,3	38,2	75	95	83
2 ½	62,7	58,9	45,0	96	116	96
3	78,0	73,7	58,4	105	125	118
3 ½	90,2	85,3	-	131	151	131
4	102,4	97,3	80,1	148	168	148
5	128,3	122,2	103,2	160	180	177
6	154,2	146,3	124,4	185	205	207
8	202,7	193,8	174,6	240	260	261
10	254,5	247,6	222,3	295	315	315
12	304,8	298,4	273,1	372	392	372
14	336,6	330,2	304,8	404	424	404
16	387,3	381,0	355,6	461	481	461
18	438,1	431,8	406,4	525	545	525
20	488,9	482,6	457,2	575	595	575
22	539,7	533,4	508,0	632	652	632
24	590,5	584,2	558,8	683	703	683

1) Please specify required material in any inquiry and order.

2) At NPS ½" and NPS ¾" only 4 mm

Works standard 143

Weld-ring gasket profiles A22 and A23 for ASME B16.47 series A flanges.

Example to order a weld-ring gasket, profile A22, nominal width 30", nominal pressure 150, works standard 143, of...¹⁾.

Weld-ring gasket A 22, NPS 30", class 150, WN 143, 1.5415 (A204 Gr. A; 4027).

The weld-ring gasket consists of two weld-ring halves.

For correct welding procedures, please check:

- Sealing ledge details.
- If a flat flange is used
- Or, if in respect to work standard WN 110, the outer diameter d₃ should be smaller than given.

Dimensions in mm

NPS Zoll	Class 150 - 300			Class 400 - 600			Class 900		
	d ₁	d ₂	d ₃	d ₁	d ₂	d ₃	d ₁	d ₂	d ₃
26	641,4	695,8	715,8	635,0	695,8	715,8	622,4	708,4	728,4
28	692,2	746,6	766,6	685,8	746,6	766,6	673,2	759,2	779,2
30	743,0	797,4	817,4	736,6	797,4	817,4	724,0	810,0	830,0
32	793,8	848,2	868,2	787,4	848,2	868,2	774,8	860,8	880,8
34	844,6	899,0	919,0	838,2	899,0	919,0	825,6	911,6	931,6
36	895,4	949,8	969,8	889,0	949,8	969,8	876,4	962,4	982,4
38	946,2	1000,6	1020,6	939,8	1000,6	1020,6	927,2	1013,0	1033,0
40	997,0	1051,4	1071,4	990,6	1051,4	1071,4	978,0	1064,0	1084,0
42	1047,8	1102,4	1122,2	1041,4	1102,4	1122,2	1028,8	1114,8	1134,8
44	1098,6	1153,0	1173,0	1092,2	1153,0	1173,0	1079,6	1165,6	1185,6
46	1149,4	1203,8	1223,8	1143,0	1203,8	1223,8	1130,4	1216,4	1236,4
48	1200,2	1254,6	1274,6	1193,8	1254,6	1274,6	1181,2	1267,2	1287,2
50	1251,0	1305,4	1325,4	1244,6	1305,4	1325,4	-	-	-
52	1301,8	1356,2	1376,2	1295,4	1356,2	1376,2	-	-	-
54	1352,6	1407,0	1427,0	1346,2	1407,0	1427,0	-	-	-
56	1403,4	1457,8	1477,8	1397,0	1457,8	1477,8	-	-	-
58	1454,2	1508,6	1528,6	1447,8	1508,6	1528,6	-	-	-
60	1505,0	1559,4	1579,4	1498,6	1559,4	1579,4	-	-	-

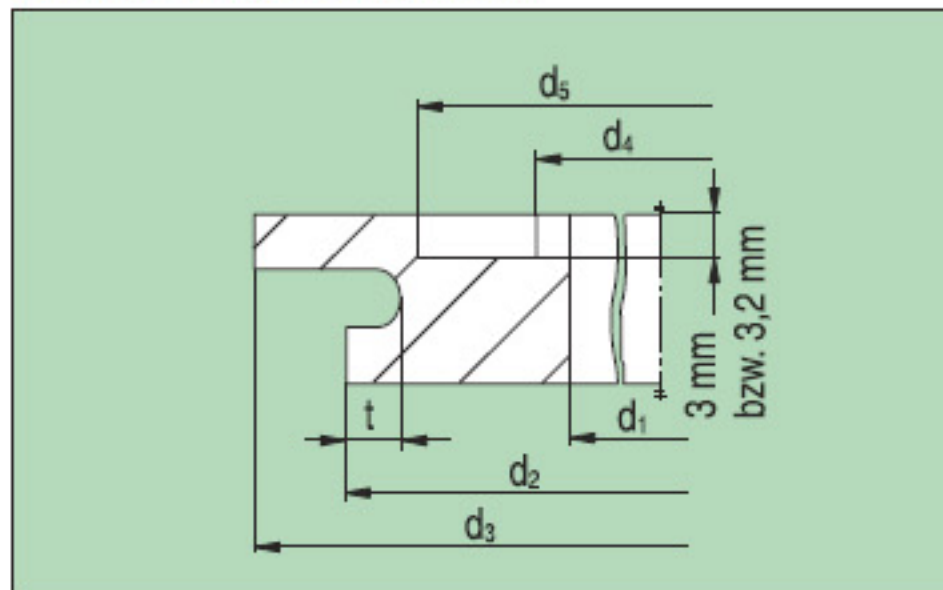
All dimensions are general recommendations subject to user approval.

Dimension Table

Profiles A22N and A23N

Works standard 134 for DIN flanges

Profiles A22N and A23N



Works Standard 134

Weld-ring gasket profiles A22N and A23N for DIN-flange.

Example to order a weld-ring gasket, profile A22N, nominal width 100, nominal pressure 160, with a spiral wound gasket profile SpV3N, works standard 134, of...¹⁾.

Weld-ring gasket A22N, DN 100, PN 160, works standard 134, 1.5415 (A204 Gr. A; 4027) / SpV3N, 1.4541/ graphite.

DimensionTable WN 134, PN 10

Dimensions in mm

DN	d ₁	d ₂	d ₃	groove			spiral wound gasket		
				d ₄	d ₅	width	width	d ₆	d ₇
32 *	37,2	65	79	40,0	54	7,0	6,0	41	53
40 *	43,1	71	85	46,0	60	7,0	6,0	47	59
50 *	54,5	84	98	59,0	73	7,0	6,0	60	72
65 *	70,3	101	115	74,6	90	7,7	6,5	76	89
80	82,5	115	135	86,6	102	7,7	6,5	88	101
100 *	107,1	141	155	111,4	128	8,3	7,0	113	127
125 *	131,7	166	180	136,4	153	8,3	7,0	138	152
150 *	159,3	196	210	165,2	183	8,9	7,5	167	182
(175) *	182,9	223	237	189,0	209	10,0	8,5	191	208
200 *	207,3	246	260	212,0	232	10,0	8,5	214	231
250	260,4	299	315	264,0	285	10,5	9,0	266	284
300	309,7	354	370	314,6	338	11,7	10,0	317	337
350	341,4	390	410	348,6	372	11,7	10,0	351	371
400	392,2	445	465	401,2	427	12,9	11,0	404	426
(450)	443,0	500	520	453,0	481	14,0	12,0	456	480
500	493,8	555	575	506,0	534	14,0	12,0	509	533
600	595,4	660	680	608,0	638	15,0	13,0	611	637
700	695,2	770	790	710,2	745	17,4	15,0	714	744
800	797,0	875	895	813,0	850	18,5	16,0	817	849
900	894,0	970	990	908,0	945	18,5	16,0	912	944
1000	996,0	1075	1095	1012,0	1049	18,5	16,0	1016	1048

DimensionTable WN 134, PN 16

Dimensions in mm

DN	d ₁	d ₂	d ₃	groove			spiral wound gasket		
				d ₄	d ₅	width	width	d ₆	d ₇
32 *	37,2	65	79	40,0	54	7,0	6,0	41	53
40 *	43,1	71	85	46,0	60	7,0	6,0	47	59
50 *	54,5	84	98	59,0	73	7,0	6,0	60	72
65 *	70,3	101	115	74,6	90	7,7	6,5	76	89
80	82,5	115	135	86,6	102	7,7	6,5	88	101
100 *	107,1	141	155	111,4	128	8,3	7,0	113	127
125 *	131,7	166	180	136,4	153	8,3	7,0	138	152
150 *	159,3	196	210	165,2	183	8,9	7,5	167	182
(175) *	182,9	223	237	189,0	209	10,0	8,5	191	208
200 *	207,3	246	260	212,0	232	10,0	8,5	214	231
250	260,4	299	315	264,0	285	10,5	9,0	266	284
300	309,7	354	370	314,6	338	11,7	10,0	317	337
350	339,6	390	410	348,6	372	11,7	10,0	351	371
400	390,4	445	465	401,2	427	12,9	11,0	404	426
500	492,0	555	575	506,0	534	14,0	12,0	509	533
600	592,4	660	680	608,0	638	15,0	13,0	611	637
700	693,4	770	790	710,2	745	17,4	15,0	714	744
800	793,0	875	895	813,0	850	18,5	16,0	817	849
900	894,0	970	990	908,0	945	18,5	16,0	912	944
1000	996,0	1075	1095	1012,0	1049	18,5	16,0	1016	1048

* Depth of turned groove t = 4 mm

For correct welding procedure, please check:

- Sealing ledge details
- If a flat flange is used
- Or, if in respect to work standard WN 134, outer diameter d₃ should be smaller than given.

1) Please specify required material in any inquiry and order.

Dimension Table

Profiles A22N and A23N

Works standard 134 for DIN-flanges

Dimension Table WN 134, PN 25

Dimensions in mm

DN	d ₁	d ₂	d ₃	groove			spiral wound gasket		
				d ₄	d ₅	width	width	d ₆	d ₇
32	37,2	65	79	40,0	54	7,0	6,0	41	53
40 *	43,1	71	85	46,0	60	7,0	6,0	47	59
50 *	54,5	84	98	59,0	73	7,0	6,0	60	72
65 *	70,3	101	115	74,6	90	7,7	6,5	76	89
80	82,5	115	135	86,6	102	7,7	6,5	88	101
100 *	107,1	141	155	111,4	128	8,3	7,0	113	127
125 *	131,7	166	180	136,4	153	8,3	7,0	138	152
150 *	159,3	196	210	165,2	183	8,3	7,5	167	182
(175) *	182,5	225	245	189,0	209	10,0	8,5	191	208
200 *	206,5	250	270	214,0	234	10,0	8,5	216	233
250	258,8	310	330	269,0	290	10,5	9,0	271	289
300	307,9	360	380	317,6	341	11,7	10,0	320	340
350	339,6	390	410	348,6	372	11,7	10,0	351	371
400	388,8	445	465	399,2	425	12,9	11,0	402	424
500	488,0	555	575	506,0	534	14,0	12,0	509	533
600	588,0	660	680	608,0	638	15,0	13,0	611	637
700	686,0	770	790	710,2	745	17,4	15,0	714	744
800	784,6	875	895	813,0	850	18,5	16,0	817	849
900	882,0	970	990	908,0	945	18,5	16,0	912	944
1000	981,0	1075	1095	1012,0	1049	18,5	16,0	1016	1048

Dimension Table WN 134, PN 40

Dimensions in mm

DN	d ₁	d ₂	d ₃	groove			spiral wound gasket		
				d ₄	d ₅	width	width	d ₆	d ₇
32	37,2	65	79	40,0	54	7,0	6,0	41	53
40 *	43,1	71	85	46,0	60	7,0	6,0	47	59
50 *	54,5	84	98	59,0	73	7,0	6,0	60	72
65 *	70,3	101	115	74,6	90	7,7	6,5	76	89
80	82,5	115	135	86,6	102	7,7	6,5	88	101
100 *	107,1	141	155	111,4	128	8,3	7,0	113	127
125 *	131,7	166	180	136,4	153	8,3	7,0	138	152
150 *	159,3	196	210	165,2	183	8,9	7,5	167	182
(175) *	182,5	225	245	189,0	209	10,0	8,5	191	208
200 *	206,5	250	270	214,0	234	10,0	8,5	216	233
250	258,8	310	330	269,0	290	10,5	9,0	271	289
300	307,9	360	380	317,6	341	11,7	10,0	320	340
350	338,0	390	410	347,6	371	11,7	10,0	350	370
400	388,4	440	460	394,2	420	12,9	11,0	397	419
500	479,6	540	560	491,0	519	14,0	12,0	494	518

* Depth of turned groove t = 4 mm

For correct welding procedure, please check:

- a) Sealing ledge details
- b) If a flat flange is used
- c) Or, if in respect to work standard WN 134, outer diameter d₃ should be smaller than given.

Dimension Table WN 134, PN 63

Dimensions in mm

DN	d ₁	d ₂	d ₃	groove			spiral wound gasket		
				d ₄	d ₅	width	width	d ₆	d ₇
25 *	28,5	61	75	33,0	47	7,0	6,0	34	46
32 *	37,2	65	79	40,0	54	7,0	6,0	41	53
40 *	42,5	76	90	48,0	62	7,0	6,0	49	61
50	54,5	85	105	58,0	72	7,0	6,0	59	71
65	69,7	105	125	74,6	90	7,7	6,5	76	89
80	81,7	120	140	88,6	104	7,7	6,5	90	103
100	106,3	145	165	111,4	128	8,3	7,0	113	127
125	130,7	175	195	139,2	157	8,9	7,5	141	156
150	157,1	200	220	164,0	183	9,5	8,0	166	182
(175)	181,1	225	245	188,0	208	10,0	8,5	190	207
200	204,9	250	270	212,0	232	10,0	8,5	214	231
250	255,4	305	325	265,0	286	10,5	9,0	267	285
300	301,9	355	375	311,6	335	11,7	10,0	314	334
350	330,6	385	405	341,6	365	11,7	10,0	344	364
400	378,0	435	455	389,2	415	12,9	11,0	392	414

Dimension Table WN 134, PN 100

Dimensions in mm

DN	d ₁	d ₂	d ₃	groove			spiral wound gasket		
				d ₄	d ₅	width	width	d ₆	d ₇
25 *	28,5	61	75	33,0	47	7,0	6,0	34	46
32 *	37,2	65	79	40,0	54	7,0	6,0	41	53
40 *	42,5	76	90	48,0	62	7,0	6,0	49	61
50	53,9	85	105	58,0	72	7,0	6,0	59	71
65	68,9	105	125	74,6	90	7,7	6,5	76	89
80	80,9	120	140	87,6	103	7,7	6,5	89	102
100	104,3	145	165	111,4	128	8,3	7,0	113	127
125	127,1	170	190	135,2	153	8,9	7,5	137	152
150	154,1	200	220	164,0	183	9,5	8,0	166	182
(175)	176,1	225	245	186,0	206	10,0	8,5	188	205
200	199,1	245	265	207,0	227	10,0	8,5	209	226
250	248,0	295	315	256,0	277	10,5	9,0	258	276
300	295,5	350	370	306,6	330	11,7	10,0	309	329
350	323,6	385	405	337,6	361	11,7	10,0	340	360

Dimension Table

Profiles A22N and A23N

Works standard 134 for DIN-flanges

Dimension Table WN 134, PN 160

Dimensions in mm

DN	d ₁	d ₂	d ₃	groove		width	spiral wound gasket		d ₇
				d ₄	d ₅		width	d ₆	
25	27,9	61	75	33,0	47	7,0	6,0	34	46
40*	41,1	76	90	48,0	62	7,0	6,0	49	61
50	52,3	90	110	59,0	73	7,0	6,0	60	72
65	66,1	105	125	72,6	88	7,7	6,5	74	87
80	76,3	115	135	83,6	99	7,7	6,5	85	98
100	98,3	140	160	106,4	123	8,3	7,0	108	122
125	119,7	160	180	126,2	144	8,9	7,5	128	143
150	143,3	190	210	152,0	171	9,5	8,0	154	170
(175)	165,3	215	235	175,0	195	10,0	8,5	177	194
200	187,1	230	250	194,0	214	10,0	8,5	196	213
250	233,0	280	300	241,0	262	10,5	9,0	243	261
300	279,5	335	355	290,6	314	11,7	10,0	293	313

Dimension Table WN 134, PN 320

Dimensions in mm

DN	d ₁	d ₂	d ₃	groove		width	spiral wound gasket		d ₇
				d ₄	d ₅		width	d ₆	
10*	12,0	46	60	18,0	32	7,0	6,0	19	31
15*	14,9	51	65	23,0	37	7,0	6,0	24	36
25	23,7	60	80	30,0	44	7,0	6,0	31	43
40	35,7	75	95	43,0	57	7,0	6,0	44	56
50	47,5	90	110	56,0	70	7,0	6,0	57	69
65	66,9	110	130	75,6	91	7,7	6,5	77	90
80	76,6	125	145	88,6	104	7,7	6,5	90	103
100	101,0	145	165	109,4	126	8,3	7,0	111	125
125	128,3	172	192	136,2	154	8,9	7,5	138	153
150	143,7	205	225	160,0	179	9,5	8,0	162	178
(175)	163,1	230	250	182,0	202	10,0	8,5	184	201
200	184,5	255	275	205,0	225	10,0	8,5	207	224
250	243,9	335	355	274,0	295	10,5	9,0	276	294

Dimension Table WN 134, PN 250

Dimensions in mm

DN	d ₁	d ₂	d ₃	groove		width	spiral wound gasket		d ₇
				d ₄	d ₅		width	d ₆	
10*	12,0	46	60	18,0	32	7,0	6,0	19	31
15*	16,1	51	65	23,0	37	7,0	6,0	24	36
25*	26,5	61	75	33,0	47	7,0	6,0	34	46
40	38,3	75	95	45,0	59	7,0	6,0	46	58
50	47,7	85	105	54,0	68	7,0	6,0	55	67
65	60,1	100	120	67,6	83	7,7	6,5	69	82
80	79,6	120	140	87,6	103	7,7	6,5	89	102
100	98,6	140	160	106,4	123	8,3	7,0	108	122
125	120,4	165	185	129,2	147	8,9	7,5	131	146
150	142,8	190	210	152,0	171	9,5	8,0	154	170
(175)	174,7	230	250	198,0	218	10,0	8,5	200	217
200	194,5	255	275	220,0	240	10,0	8,5	222	239
250	234,5	310	330	257,0	278	10,5	9,0	259	277

Dimension Table WN 134, PN 400

Dimensions in mm

DN	d ₁	d ₂	d ₃	groove		width	spiral wound gasket		d ₇
				d ₄	d ₅		width	d ₆	
10*	10,0	46	60	18,0	32	7,0	6,0	19	31
15*	16,9	51	65	23,0	37	7,0	6,0	24	36
25	28,2	65	85	35,0	49	7,0	6,0	36	48
40	40,3	80	100	49,0	63	7,0	6,0	50	62
50	51,1	90	110	59,0	73	7,0	6,0	60	72
65	69,6	120	140	82,6	98	7,7	6,5	84	97
80	79,3	130	150	92,6	108	7,7	6,5	94	107
100	95,3	150	170	109,4	126	8,3	7,0	111	125
125	133,7	188	208	147,2	165	8,9	7,5	149	164
150	149,1	218	238	169,0	188	9,5	8,0	171	187
200	193,0	285	305	224,0	244	10,0	8,5	226	243

* Depth of turned groove t = 4 mm

For correct welding procedure, please check:

- a) Sealing ledge details
- b) If a flat flange is used
- c) Or, if in respect to work standard WN 134, outer diameter d₃ should be smaller than given.

Dimension Table

Profiles A22N and A23N

Works standard 135 for ASME/ANSI flanges

Works standard 135

Weld-ring gasket profile A22N and profile A23N for ASME/ANSI-flanges

Example to order a weld-ring gasket, profile A22N, nominal width 10, nominal pressure 150, with a spiral wound gasket profile SpV3N, works standard 135, of...¹⁾.

Dimension Table WN 135, Class 150

Dimensions in mm

DN	d ₁	d ₂	d ₃	groove			spiral wound gasket		
				d ₄	d ₅	width	width	d ₆	d ₇
2 *	52,6	81	95	56,0	70	7,0	6,0	57	69
2½	62,7	96	116	68,0	82	7,0	6,0	69	81
3 *	78,0	111	125	82,6	98	7,7	6,5	84	97
3½	90,2	131	151	97,4	114	8,3	7,0	99	113
4	102,4	148	168	112,4	129	8,3	7,0	114	128
5	128,3	160	180	132,2	150	8,9	7,5	134	149
6	154,2	194	210	160,2	178	8,9	7,5	162	177
8	202,7	245	265	209,0	229	10,0	8,5	211	228
10	254,5	300	320	262,0	283	10,5	9,0	264	282
12	304,8	372	392	321,6	345	11,7	10,0	324	344
14	336,6	404	424	353,6	377	11,7	10,0	356	376
16	387,3	461	481	406,2	432	12,9	11,0	409	431
18	438,1	515	535	458,0	486	14,0	12,0	461	485
20	488,9	575	595	513,0	541	14,0	12,0	516	540
22	539,7	625	645	563,0	593	15,0	13,0	566	592
24	590,5	683	703	617,0	647	15,0	13,0	620	646

Weld-ring gasket A22N, NPS 10, Class 150, 1.4541/SpV3N, 1.4541 (321), graphite, works standard 135.

Dimension Table WN 135, Class 300 - 600

Dimensions in mm

DN	d ₁	d ₂	d ₃	groove			spiral wound gasket		
				d ₄	d ₅	width	width	d ₆	d ₇
¾*	20,8	52	62	25,0	39	7,0	5,5	27	38
1 *	26,7	58	68	32,0	46	7,0	5,5	34	45
1¼*	35,1	68	78	42,0	56	7,0	5,5	44	55
1½*	40,9	71	85	45,0	59	7,0	6,0	46	58
2	52,6	81	95	56,0	70	7,0	6,0	57	69
2½	62,7	96	116	68,0	82	7,0	6,0	69	81
3	78,0	111	125	83,6	99	7,7	6,5	85	98
3½	90,2	131	151	97,4	114	8,3	7,0	99	113
4	102,4	148	168	112,4	129	8,3	7,0	114	128
5	128,3	170	190	135,2	153	8,9	7,5	137	152
6	154,2	195	215	161,2	179	8,9	7,5	163	178
8	202,7	260	280	217,0	237	10,0	8,5	219	236
10	254,5	315	335	270,0	291	10,5	9,0	272	290
12	304,8	372	392	321,6	345	11,7	10,0	324	344
14	336,6	404	424	353,6	377	11,7	10,0	356	376
16	387,3	461	481	406,2	432	12,9	11,0	409	431
18	438,1	515	535	458,0	486	14,0	12,0	461	485
20	488,9	575	595	513,0	541	14,0	12,0	516	540
22	539,7	632	652	566,6	596	15,0	13,0	569	595
24	590,5	683	703	617,0	647	15,0	13,0	620	646

Dimension Table WN 135, Class 900 - 1500

Dimensions in mm

DN	d ₁	d ₂	d ₃	groove			spiral wound gasket		
				d ₄	d ₅	width	width	d ₆	d ₇
½*	15,7	46	56	20,0	34	7,0	5,5	22	33
¾*	20,8	52	62	25,0	39	7,0	5,5	27	38
1 *	26,7	56	70	31,0	45	7,0	6,0	32	44
1¼	35,1	66	80	40,0	54	7,0	6,0	41	53
1½*	40,9	76	90	48,0	62	7,0	6,0	49	61
2	52,6	90	110	60,0	74	7,0	6,0	61	73
2½	62,7	100	120	70,0	84	7,0	6,0	71	83
3	78,0	120	140	86,6	102	7,7	6,5	88	101
4	102,4	150	170	113,4	130	8,3	7,0	115	129
5	128,3	180	200	140,2	158	8,9	7,5	142	157
6	154,2	210	230	168,2	186	8,9	7,5	170	185
8	202,7	260	280	217,0	237	10,0	8,5	219	236
10	254,5	315	335	270,0	291	10,5	9,0	272	290
12	304,8	372	392	321,6	345	11,7	10,0	324	344
14	336,6	404	424	353,6	377	11,7	10,0	356	376
16	387,3	461	481	406,2	432	12,9	11,0	409	431
18	438,1	515	535	458,0	486	14,0	12,0	461	485
20	488,9	575	595	513,0	541	14,0	12,0	516	540
24	590,5	683	703	617,0	647	15,0	13,0	620	646

Dimension Table WN 135, Class 2500

Dimensions in mm

DN	d ₁	d ₂	d ₃	groove			spiral wound gasket		
				d ₄	d ₅	width	width	d ₆	d ₇
½*	15,7	46	60	20,0	34	7,0	6,0	21	33
¾*	20,8	51	65	25,0	39	7,0	6,0	26	38
1 *	26,7	61	75	33,0	47	7,0	6,0	34	46
1¼	35,1	70	90	41,0	55	7,0	6,0	42	54
1½*	40,9	80	100	49,0	63	7,0	6,0	50	62
2	52,6	95	115	62,0	76	7,0	6,0	63	75
2½	62,7	105	125	72,0	86	7,0	6,0	73	85
3	78,0	125	145	89,6	105	7,7	6,5	91	104
4	102,4	155	175	115,4	132	8,3	7,0	117	131
5	128,3	185	205	143,2	161	8,9	7,5	145	160
6	154,2	210	230	168,2	186	8,9	7,5	170	185
8	202,7	260	280	217,0	237	10,0	8,5	219	236
10	254,5	315	335	270,0	291	10,5	9,0	272	290
12	304,8	372	392	321,6	345	11,7	10,0	324	344
14	336,6	404	424	353,6	377	11,7	10,0	356	376
16	387,3	461	481	406,2	432	12,9	11,0	409	431
18	438,1	515	535	458,0	486	14,0	12,0	461	485
20	488,9	575	595	513,0	541	14,0	12,0	516	540
24	590,5	683	703	617,0	647	15,0	13,0	620	646

The dimension d1 corresponds to the inner diameter of standard ANSI B 36.10 pipe.

1) Please specify required material in any inquiry and order.

* Depth of turned groove t = 4 mm

For correct welding procedure, please check:

- Sealing ledge details
- If a flat flange is used
- Or, if in respect to work standard WN 135, outer diameter d3 should be smaller than given.

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$$F_{SO} \cong d_D \cdot \pi \cdot b_V \cdot \sigma_V \cdot U_{SO} = d_D \cdot \pi \cdot b_V \cdot \sigma_{min}$$

$$F_{SO} \cong d_D \cdot \pi \cdot b_\theta \cdot \frac{\sigma_\theta}{U_{SO}} = d_D \cdot \pi \cdot b_\theta \cdot \sigma_{max}$$

$$\sigma_{min} \cong \frac{F_{Pr}}{F_{Pf}}$$

$$\sigma_{max} \cong \left(\frac{F_l}{F_{Pf}} \right)$$

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