

DIN

2501

Part 1

Flanges
Connecting Dimensions

Flansche, Anschlußmaße

Dimensions in mm

1. Connecting dimensions

The connecting dimensions of a flange are

- the outside diameter D
- the pitch circle diameter of the bolt holes k
- the raised sealing face diameter d_4

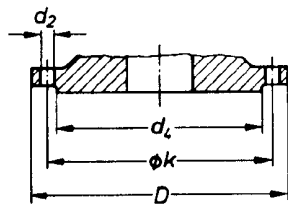
The number and diameter of the bolts

- the bolt hole diameter d_2

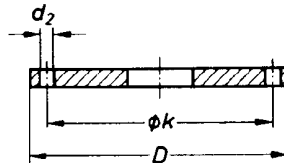
The illustrations below are not intended to represent all types of flanges; they are only intended to illustrate the connecting dimensions.

Connecting dimensions

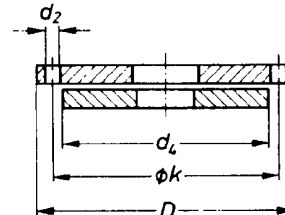
fixed flanges with taper neck and raised face



fixed flat flanges without flat face



loose flanges with plain collar or welded stub collar



Designation of a flange connection of nominal width 250 for nominal pressure 10 in drawings

Anwenderinformation

Die Originalfassung der Norm enthält **Elemente**, z. B. farbige Abbildungen oder Tabellen, die in dieser gescannten Form der Norm nicht originalgetreu darstellbar sind. Dies muß bei der Anwendung berücksichtigt werden. Maßgebend für das Anwenden jeder DIN-Norm ist deren Originalfassung mit dem neuesten Ausgabedatum.

11y

and 3
4

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Translation
Fachtechnisches Übersetzungsinstitut
Henry G. Freeman, Düsseldorf

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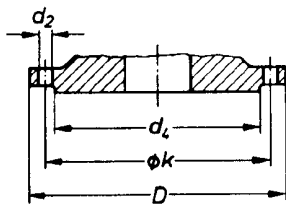
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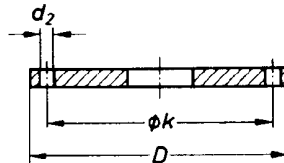
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Connecting dimensions

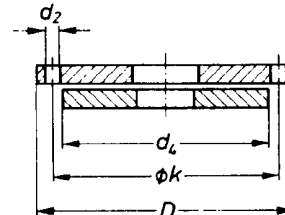
fixed flanges with taper
neck and raised face



fixed flat flanges without
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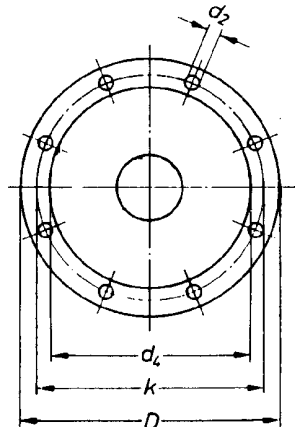


loose flanges with plain
collar or welded stub collar



Designation of a flange connection of nominal width 250 for nominal pressure 10, in drawings and manufacturing documents:

Flange connection 250 ND 10 DIN 2501

2. Arrangement of bolt holes

Every flange shall have a number of bolt holes completely divisible by 4.

The bolt holes on piping, valves and fittings shall be so arranged that they are symmetrically disposed in relation to the two major axes, with no hole lying on either of the axes.

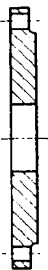



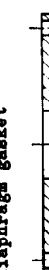
Continued on pages 2 and 3
Explanations on page 4

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3. Shapes of sealing faces

Shape	Code letter	Dimensions of		Suitable for nominal pressure											
		machining of raised sealing face, see DIN	gasket, see DIN	1	6	10	16	25	40	64	100	160	250	320	400
Plain raised face 	C	2526	2690	X	X	X	X	X	X						
	D		2698												
Tongue and groove 	E	2526	2697 2698							X	X	X	X	X	X ¹⁾
	F N	2512	2691			X	X	X	X	X					
Spigot and recess 	V13 R13	2513	2692			X	X	X	X	X					
	V14 R14	2514	2693			X	X	X	X						
Chamfer for welded diaphragm gasket 	M	2695	2695							X ¹⁾	X ¹⁾	X	X	X	X ¹⁾
	L	2696	2696							X	X	X	X	X	X ¹⁾
Groove for lens ring joint 															

¹⁾ These nominal pressures will be incorporated in a new issue of the relevant dimension standards.

Nominal width	Nominal pressure 1 and 2.5				Nominal pressure 6				Nominal pressure 10				Nominal pressure 16				Nominal pressure 25				Nominal pressure 40																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
	D	d ₁	k	Quantity	D	d ₁	k	Quantity	D	d ₁	k	Quantity	D	d ₁	k	Quantity	D	d ₁	k	Quantity	D	d ₁	k	Quantity	D	d ₁	k	Quantity	D	d ₁	k	Quantity																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
6	55	25	40	4	60	30	40	4	65	35	45	4	70	40	50	4	75	45	55	4	80	50	60	4	85	55	65	4	90	60	70	4	95	65	75	4	100	70	80	4	105	75	85	4	110	80	90	4	115	85	95	4	120	90	100	4	125	95	105	4	130	100	110	4	135	105	115	4	140	110	120	4	145	115	125	4	150	120	130	4	155	125	135	4	160	130	140	4	165	135	145	4	170	140	150	4	175	145	155	4	180	150	160	4	185	155	165	4	190	160	170	4	195	165	175	4	200	170	180	4	205	175	185	4	210	180	190	4	215	185	195	4	220	190	200	4	225	195	205	4	230	200	210	4	235	205	215	4	240	210	220	4	245	215	225	4	250	220	230	4	255	225	235	4	260	230	240	4	265	235	245	4	270	240	250	4	275	245	255	4	280	250	260	4	285	255	265	4	290	260	270	4	295	265	275	4	300	270	280	4	305	275	285	4	310	280	290	4	315	285	295	4	320	290	300	4	325	295	305	4	330	300	310	4	335	305	315	4	340	310	320	4	345	315	325	4	350	320	330	4	355	325	335	4	360	330	340	4	365	335	345	4	370	340	350	4	375	345	355	4	380	350	360	4	385	355	365	4	390	360	370	4	395	365	375	4	400	370	380	4	405	375	385	4	410	380	390	4	415	385	395	4	420	390	400	4	425	395	405	4	430	400	410	4	435	405	415	4	440	410	420	4	445	415	425	4	450	420	430	4	455	425	435	4	460	430	440	4	465	435	445	4	470	440	450	4	475	445	455	4	480	450	460	4	485	455	465	4	490	460	470	4	495	465	475	4	500	470	480	4	505	475	485	4	510	480	490	4	515	485	495	4	520	490	500	4	525	495	505	4	530	500	510	4	535	505	515	4	540	510	520	4	545	515	525	4	550	520	530	4	555	525	535	4	560	530	540	4	565	535	545	4	570	540	550	4	575	545	555	4	580	550	560	4	585	555	565	4	590	560	570	4	595	565	575	4	600	570	580	4	605	575	585	4	610	580	590	4	615	585	595	4	620	590	600	4	625	595	605	4	630	600	610	4	635	605	615	4	640	610	620	4	645	615	625	4	650	620	630	4	655	625	635	4	660	630	640	4	665	635	645	4	670	640	650	4	675	645	655	4	680	650	660	4	685	655	665	4	690	660	670	4	695	665	675	4	700	670	680	4	705	675	685	4	710	680	690	4	715	685	695	4	720	690	700	4	725	695	705	4	730	700	710	4	735	705	715	4	740	710	720	4	745	715	725	4	750	720	730	4	755	725	735	4	760	730	740	4	765	735	745	4	770	740	750	4	775	745	755	4	780	750	760	4	785	755	765	4	790	760	770	4	795	765	775	4	800	770	780	4	805	775	785	4	810	780	790	4	815	785	795	4	820	790	800	4	825	795	805	4	830	800	810	4	835	805	815	4	840	810	820	4	845	815	825	4	850	820	830	4	855	825	835	4	860	830	840	4	865	835	845	4	870	840	850	4	875	845	855	4	880	850	860	4	885	855	865	4	890	860	870	4	895	865	875	4	900	870	880	4	905	875	885	4	910	880	890	4	915	885	895	4	920	890	900	4	925	895	905	4	930	900	910	4	935	905	915	4	940	910	920	4	945	915	925	4	950	920	930	4	955	925	935	4	960	930	940	4	965	935	945	4	970	940	950	4	975	945	955	4	980	950	960	4	985	955	965	4	990	960	970	4	995	965	975	4	1000	970	980	4	1005	975	985	4	1010	980	990	4	1015	985	995	4	1020	990	1000	4	1025	995	1005	4	1030	1000	1010	4	1035	1005	1015	4	1040	1010	1020	4	1045	1015	1025	4	1050	1020	1030	4	1055	1025	1035	4	1060	1030	1040	4	1065	1035	1045	4	1070	1040	1050	4	1075	1045	1055	4	1080	1050	1060	4	1085	1055	1065	4	1090	1060	1070	4	1095	1065	1075	4	1100	1070	1080	4	1105	1075	1085	4	1110	1080	1090	4	1115	1085	1095	4	1120	1090	1100	4	1125	1095	1105	4	1130	1100	1110	4	1135	1105	1115	4	1140	1110	1120	4	1145	1115	1125	4	1150	1120	1130	4	1155	1125	1135	4	1160	1130	1140	4	1165	1135	1145	4	1170	1140	1150	4	1175	1145	1155	4	1180	1150	1160	4	1185	1155	1165	4	1190	1160	1170	4	1195	1165	1175	4	1200	1170	1180	4	1205	1175	1185	4	1210	1180	1190	4	1215	1185	1195	4	1220	1190	1200	4	1225	1195	1205	4	1230	1200	1210	4	1235	1205	1215	4	1240	1210	1220	4	1245	1215	1225	4	1250	1220	1230	4	1255	1225	1235	4	1260	1230	1240	4	1265	1235	1245	4	1270	1240	1250	4	1275	1245	1255	4	1280	1250	1260	4	1285	1255	1265	4	1290	1260	1270	4	1295	1265	1275	4	1300	1270	1280	4	1305	1275	1285	4	1310	1280	1290	4	1315	1285	1295	4	1320	1290	1300	4	1325	1295	1305	4	1330	1300	1310	4	1335	1305	1315	4	1340	1310	1320	4	1345	1315	1325	4	1350	1320	1330	4	1355	1325	1335	4	1360	1330	1340	4	1365	1335	1345	4	1370	1340	1350	4	1375	1345	1355	4	1380	1350	1360	4	1385	1355	1365	4	1390	1360	1370	4	1395	1365	1375	4	1400	1370	1380	4	1405	1375	1385	4	1410	1380	1390	4	1415	1385	1395	4	1420	1390	1400	4	1425	1395	1405	4	1430	1400	1410	4	1435	1405	1415	4	1440	1410	1420	4	1445	1415	1425	4	1450	1420	1430	4	1455	1425	1435	4	1460	1430	1440	4	1465	1435	1445	4	1470	1440	1450	4	1475	1445	1455	4	1480	1450	1460	4	1485	1455	1465	4	1490	1460	1470	4	1495	1465	1475	4	1500	1470	1480	4	1505	1475	1485	4	1510	1480	1490	4	1515	1485	1495	4	1520	1490	1500	4	1525	1495	1505	4	1530	1500	1510	4	1535	1505	1515	4	1540	1510	1520	4	1545	1515	1525	4	1550	1520	1530	4	1555	1525	1535	4	1560	1530	1540	4	1565	1535	1545	4	1570	1540	1550	4	1575	1545	1555	4	1580	1550	1560	4	1585	1555	1565	4	1590	1560	1570	4	1595	1565	1575	4	1600	1570	1580	4	1605	1575	1585	4	1610	1580	1590	4	1615	1585	1595	4	1620	1590	1600	4	1625	1595	1605	4	1630	1600	1610	4	1635	1605	1615	4	1640	1610	1620	4	1645	1615	1625	4	1650	1620	1630	4	1655	1625	1635	4	1660	1630	1640	4	1665	1635	1645	4	1670	1640	1650	4	1675	1645	1655	4	1680	1650	1660	4	1685	1655	1665	4	1690	1660	1670	4	1695	1665	1675	4	1700	1670	1680	4	1705	1675	1685	4	1710	1680	1690	4	1715	1685	1695	4	1720	1690	1700	4	1725	1695	1705	4	1730	1700	1710	4	1735	1705	1715	4	1740	1710	1720	4	1745	1715

Nominal width	Nominal pressure 1 and 2.5						Nominal pressure 6						Nominal pressure 10						
	D	d ₄	k	Bolts		d ₂	D	d ₄	k	Bolts		d ₂	D	d ₄	k	Bolts		d ₂	
				Quantity	Thread					Quantity	Thread					Quantity	Thread		
6						65	25	40	4	M 10	11								
8						70	30	45	4	M 10	11								
10						75	35	50	4	M 10	11								
15						80	40	55	4	M 10	11								
20						90	50	65	4	M 10	11								
25						100	60	75	4	M 10	11								
32						120	70	90	4	M 12	14								
40						130	80	100	4	M 12	14								
50						140	90	110	4	M 12	14								
65						160	110	130	4	M 12	14								
80						190	128	150	4	M 16	18								
100						210	148	170	4	M 16	18								
125						240	178	200	8	M 16	18								
150						265	202	225	8	M 16	18								
(175)						—	—	—	—	—	—								
200						320	258	280	8	M 16	18	340	268	295	8	M 20	22		
250						375	312	335	12	M 16	18	395	320	350	12	M 20	22		
300						440	365	395	12	M 20	22	445	370	400	12	M 20	22		
350						490	415	445	12	M 20	22	505	430	460	16	M 20	22		
400						540	465	495	16	M 20	22	565	482	515	16	M 24	26		
(450)						595	520	550	16	M 20	22	615	532	565	20	M 24	26		
500						645	570	600	20	M 20	22	670	585	620	20	M 24	26		
600						755	670	705	20	M 24	26	780	685	725	20	M 27	30		
700						860	775	810	24	M 24	26	895	800	840	24	M 27	30		
800						975	880	920	24	M 27	30	1015	905	950	24	M 30	33		
900						1075	980	1020	24	M 27	30	1115	1005	1050	28	M 30	33		
1000						1175	1080	1120	28	M 27	30	1230	1110	1160	28	M 33	36		
1200						1405	1295	1340	32	M 30	33	1455	1330	1380	32	M 36	39		
1400	1375	1280	1320	32	M 27	30	1630	1510	1560	36	M 33	36	1675	1535	1590	36	M 39	42	
1600	1790	1690	1730	40	M 27	30	1830	1710	1760	40	M 33	36	1915	1760	1820	40	M 45	48	
1800	1990	1890	1930	44	M 27	30	2045	1920	1970	44	M 36	39	2115	1960	2020	44	M 45	48	
2000	2190	2090	2130	48	M 27	30	2265	2125	2180	48	M 39	42	2325	2170	2230	48	M 45	48	
2200	2405	2295	2340	52	M 30	33	2475	2335	2390	52	M 39	42	2550	2370	2440	52	M 52	56	
2400	2605	2495	2540	56	M 30	33	2685	2545	2600	56	M 39	42	2760	2570	2650	56	M 52	56	
2600	2805	2695	2740	60	M 30	33	2905	2750	2810	60	M 45	48	2960	2780	2850	60	M 52	56	
2800	3030	2910	2960	64	M 33	36	3115	2960	3020	64	M 45	48	3180	3000	3070	64	M 52	56	
3000	3230	3110	3160	68	M 33	36	3315	3160	3220	68	M 45	48	3405	3210	3290	68	M 56	62	
3200	3430	3310	3360	72	M 33	36	3525	3370	3430	72	M 45	48							
3400	3630	3510	3560	76	M 33	36	3735	3580	3640	76	M 45	48							
3600	3840	3720	3770	80	M 33	36	3970	3790	3860	80	M 52	56							
3800	4045	3920	3970	80	M 36	39													
4000	4245	4120	4170	84	M 36	39													

Nominal width	Nominal pressure 64						Nominal pressure 100						Nominal pressure 160						
	D	d ₄	k	Bolts		d ₂	D	d ₄	k	Bolts		d ₂	D	d ₄	k	Bolts		d ₂	
				Quantity	Thread					Quantity	Thread					Quantity	Thread		
6																			
8																			
10																			
15																			
20																			
25																			
32																			
40																			
50																			
65																			
80																			
100																			
125																			
150																			
(175)																			
200																			
250																			
300																			
350																			
400																			
500																			
600																			
700																			
800																			
900																			
1000																			
1200																			

Bracketed nominal widths should be avoided where possible.

Varying from the standards at present in force for cast iron, cast steel and steel flanges, and in compliance with an ISO proposed recommendation for achieving uniformity, the nominal width 80 flanges for nominal pressure 10 have now been provided with 8 bolts.

Nominal pressure 16						Nominal pressure 25						Nominal pressure 40						Nominal width
D	d ₄	k	Quantity	Thread	d ₂	D	d ₄	k	Quantity	Thread	d ₂	D	d ₄	k	Quantity	Thread	d ₂	
Mating dimensions, see under nominal pressure 40						Mating dimensions, see under nominal pressure 40						75	32	50	4	M 10	11	6
												80	38	55	4	M 10	11	8
Mating dimensions, see under n.p. 40												90	40	60	4	M 12	14	10
												95	45	65	4	M 12	14	15
												105	58	75	4	M 12	14	20
												115	68	85	4	M 12	14	25
												140	78	100	4	M 16	18	32
												150	88	110	4	M 16	18	40
												165	102	125	4	M 16	18	50
												185	122	145	8	M 16	18	65
												200	138	160	8	M 16	18	80
												235	162	190	8	M 20	22	100
												270	188	220	8	M 24	26	125
												300	218	250	8	M 24	26	150
												350	260	295	12	M 27	30	(175)
												330	248	280	12	M 24	26	200
												450	345	385	12	M 30	33	250
												515	410	450	16	M 30	33	300
												580	465	510	16	M 33	36	350
												580	490	525	16	M 27	30	400
												685	560	610	20	M 36	39	(450)
												715	610	650	20	M 30	33	500
												845	720	770	20	M 36	39	600
												910	795	840	24	M 33	36	700
												1085	920	990	24	M 45	48	800
												1125	1000	1050	28	M 36	39	900
												1255	1115	1170	28	M 39	42	1000
												1485	1330	1390	32	M 45	48	1200
												1685	1530	1590	36	M 45	48	1400
												1930	1750	1820	40	M 52	56	1600
												2130	1950	2020	44	M 52	56	1800
												2345	2150	2230	48	M 56	62	2000
												2555	2360	2440	52	M 56	62	2200
												2425	2210	2300	48	M 64	70	2400
no flanges standardized						no flanges standardized						no flanges standardized						2600
																		2800
																		3000
																		3200
																		3400
																		3600
																		3800
																		4000

Nominal pressure 250						Nominal pressure 320						Nominal pressure 400						Nominal width	
D	d ₄	k	Quantity	Thread	d ₂	D	d ₄	k	Quantity	Thread	d ₂	D	d ₄	k	Quantity	Thread	d ₂		
Mating dimensions, see under nominal pressure 400						Mating dimensions, see under nominal pressure 400						125	40	85	4	M 16	18	6	
												150	68	105	4	M 20	22	180	68
Mating dimensions, see under nominal pressure 320												220	88	165	4	M 27	30	10	
												235	102	150	8	M 24	26	250	102
												290	122	225	8	M 30	33	20	
												305	138	240	8	M 30	33	300	138
												370	162	295	8	M 36	39	30	
												380	188	310	12	M 33	36	415	188
												475	218	390	12	M 39	42	40	
												545	260	400	12	M 39	42	585	260
												585	285	490	16	M 45	48	50	
												640	345	540	16	M 48	52		
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Explanations

The FR 9 "Flanges" Advisory Committee in the Committee for Pipes, Pipe Connections and Pipelines decided after careful consideration to publish a draft standard DIN 2501 Part 1 incorporating the proposed new version of standards DIN 2501, DIN 2502, DIN 2503 and DIN 2504. This draft standard covers all the connecting dimensions contained in the above mentioned four standards, and in addition the connecting dimension "raised sealing face diameter" (d_4) and all connecting dimensions for flanges of nominal pressure 160, 250, 320 and 400. These dimensions coincided in their entirety with the corresponding connecting dimensions of the flanges standardized by the Swiss Standards Association. There was also a large degree of conformity with the French flange standards. As the consultations in respect of draft standard DIN 2501 Part 1 took place within the framework of Working Group CENTRI 20, which included collaborators nominated by the national flange committees of AFNOR, BSI and VSM, the draft standard offered a suitable basis for the new British flange standards.

During the objection period, the Secretariat of the ISO/TC 5/SC 4 Sub-committee "Flanges" distributed a preliminary proposed draft ISO recommendation on flange connecting dimensions (ISO/TC 5/SC 4 (Secretariat-24) 40 document). This proposed draft recommendation included the connecting dimensions outside diameter, pitch circle diameter of the bolt holes and bolt arrangement. This document influenced the final editing of the draft standard. The Advisory Committee agreed unanimously that the DIN 2501 Part 1 Standard should conform in its entirety with the ISO proposed draft recommendation.

A further consideration which arose during the objection period related to standard DIN 2508, originally published in 1926. It was proposed to incorporate the contents of this Standard within DIN 2501 Part 1.

Standard DIN 2501 Part 1 in its present version is a basic standard. It is valid for the provisions of all dimensions relating to the connection of flanges. It is the basis for the standardization of flanges of all materials. The present Standard incorporates the connecting dimensions, specifies the designation to be adopted for flanged connections in drawings and manufacturing documents, provisions for the disposition of the bolt holes and the shapes of the sealing faces.

The Table of connecting dimensions conforms with the ISO proposed draft recommendation with regard to its scope and contents, but goes beyond it, in that it also includes the diameter of the raised sealing face. In compliance with the ISO proposed draft recommendation, the connecting dimensions for flanges of nominal width 80 for nominal pressure 10 have been made uniform with the connecting dimensions for nominal pressure 40, which means that 8 bolt holes have now been provided in this case, in variation from provisions laid down in existing flange dimension standards. A decision on the incorporation of this provision in the dimension standards will have to be made when these standards are revised, and the Advisory Committee are of the opinion that this should not present any difficulties if reasonable stipulations are adopted for the transition period.