

# ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

## ISO RECOMMENDATION R 887

WASHERS FOR HEXAGON BOLTS AND NUTS

METRIC SERIES

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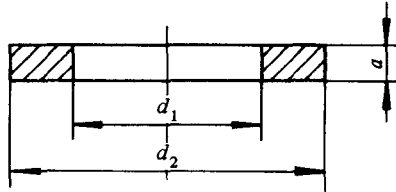
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**WASHERS FOR HEXAGON BOLTS AND NUTS**  
**METRIC SERIES**



**TABLE 1 – Washers for hexagon bolts and nuts  
up to and including 39 mm thread diameter**

Dimensions in millimetres

Clearance hole* $d_1$		Diameter of the washer $d_2$ for widths across flats			Thickness of the washer $a$	For hexagon bolts and nuts**			
fine series	medium series	normal	small	large		thread diameter	widths across flats		
						normal	small	large	
1.7	—	4	—	—	0.3	1.6	3.2	—	—
2.2	—	5	—	—	0.3	2	4	—	—
2.7	—	6.5	—	—	0.5	2.5	5	—	—
3.2	—	7	—	—	0.5	3	5.5	—	—
4.3	—	9	—	—	0.8	4	7	—	—
5.3	5.5	10	—	—	1	5	8	—	—
6.4	6.6	12.5	—	—	1.6	6	10	—	—
7.4	7.6	14	—	—	1.6	7	11	—	—
8.4	9	17	15.5	21	1.6	8	13	12	17
10.5	11	21	18	24	2	10	17	14	19
13	14	24	21	28	2.5	12	19	17	22
15	16	28	24	30	2.5	14	22	19	24
17	18	30	28	34	3	16	24	22	27
19	20	34	30	37	3	18	27	24	30
21	22	37	34	39	3	20	30	27	32
23	24	39	37	44	3	22	32	30	36
25	26	44	39	50	4	24	36	32	41
28	30	50	44	56	4	27	41	36	46
31	33	56	50	60	4	30	46	41	50
34	36	60	56	66	5	33	50	46	55
37	39	66	60	72	5	36	55	50	60
40	42	72	66	78	6	39	60	55	65

\* These clearance holes conform to ISO Recommendation R 273, Part I : *Clearance holes for metric bolts 1.6 up to and including 39 mm thread diameter.*

\*\* The hexagon bolts and nuts conform to ISO Recommendation R 272, *Hexagon bolts and nuts – Widths across flats, heights of heads, thicknesses of nuts (2nd edition, 1968).*

TABLE 2 – Washers for hexagon bolts and nuts  
from 42 up to and including 150 mm thread diameter

Dimensions in millimetres

Clearance hole* $d_1$		Diameter of the washer  $d_2$	Thickness of the washer  $a$	For hexagon bolts and nuts**	
fine series	medium series			thread diameter	width across flats
43	45	78	7	42	65
46	48	85	7	45	70
50	52	92	8	48	75
54	56	98	8	52	80
58	62	105	9	56	85
62	66	110	9	60	90
66	70	115	9	64	95
70	74	120	10	68	100
74	78	125	10	72	105
78	82	135	10	76	110
82	86	140	12	80	115
87	91	145	12	85	120
93	96	160	12	90	130
98	101	165	12	95	135
104	107	175	14	100	145
109	112	180	14	105	150
114	117	185	14	110	155
119	122	200	14	115	165
124	127	210	16	120	170
129	132	220	16	125	180
134	137	230	16	130	185
144	147	240	18	140	200
155	158	250	18	150	210

\* These clearance holes conform to ISO Recommendation R 273, Part II: *Clearance holes for metric bolts 42 up to and including 150 mm thread diameter.*

\*\* The hexagon bolts and nuts conform to ISO Recommendation R 272, *Hexagon bolts and nuts – Widths across flats, heights of heads, thicknesses of nuts* (2nd edition, 1968).

In cases where it is necessary to avoid interference between the edge of the clearance hole and the radius under the head of the bolt, it is recommended to chamfer the edge of the clearance hole.