



# PLANT STANDARD

HPBP TIRUCHIRAPALLI

BPS: 41406

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Based on IS: 2016-1967

## MACHINED WASHERS

### 1.0 SCOPE

Covers the requirements for machined washers in the size range 1.7 to 155mm.

### 2.0 SPECIFICATION AND REFERENCE STANDARDS

Dimensions and tolerances	Table 1 of this standard	
Material	Suitable Steel	
Finish	Natural finish	
Sampling and Acceptability	Indian Standard	IS: 6821 & IS: 5369
General requirements	Washers shall comply with IS: 2016 in respect of requirements not covered in this standard	

### 2.1 Referred Standards (Only the current versions are applicable).

IS: 2016 Specification for plain washers

IS: 5369 General requirements for plain washers and lock washers

IS: 6821 Methods for sampling non-threaded fasteners

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REVISIONS

DATE

APPROVED

STANDARDS SECTION  
ENGINEERING AND DEVELOPMENT CENTRE  
HPBP TIRUCHIRAPALLI

PREPARED

HPBP TIRUCHY

ISSUED

STANDARDS  
ENGG

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## 3.0 DESIGNATION

A machined washer to this standard for bolt/screw size M10 shall be designated as:

### 3.1 On Drawings

- i) Material Specification column: IS: 2016
- ii) Description column : WASHER MCD 10
- iii) Drawing Number column : 4140610000
- iv) Material code column : 4140600010

### 3.2 Ordering Description

For placing indents, issuing enquiries and on purchase order, the Ordering Description given below shall be followed.

Machined Washer 10.5\* IS: 2016 - Steel

## 4.0 ADDITIONAL INFORMATION

- 4.1 These washers can be used for product grades A and B of general purpose bolts and screws.
- \*4.2 While preparing Ordering Description only the actual hole size (corresponding to bolt/screw size) shall be filled in referring to Table.

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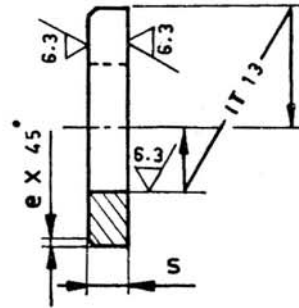
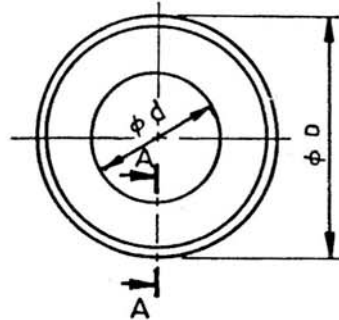
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**TABLE 1 - DIMENSIONS FOR MACHINED WASHERS**



12.5/(6.3)

SECTION AA

(All dimensions are in millimetres)

d H12	D		s		e Nom	For bolt/ screw size	Weight
	Basic	Tol	Basic	Tol			
1.7	4	0 -0.3	0.3	+0.1 -0.1	0.1	M1.6	
2.2	5	0 -0.3	0.3	+0.1 -0.1	0.1	M2	
3.2	7	0 -0.3	0.5	+0.1 -0.1	0.2	M3	
4.3	9	0 -0.3	0.8	+0.1 -0.1	0.3	M4	0.3
5.3	10	0 -0.3	1.0	+0.1 -0.1	0.4	M5	
6.4	12.5	0 -0.4	1.6	+0.2 -0.2	0.6	M6	1.1
8.4	17	0 -0.4	1.6	+0.2 -0.2	0.6	M8	
10.5	21	0 -0.5	2	+0.2 -0.2	0.6	M10	4
13	24	0 -0.5	2.5	+0.3 -0.3	0.6	M12	6.2
17	30	0 -0.5	3	+0.3 -0.3	0.6	M16	11.1
21	37	0 -0.8	3	+0.3 -0.3	1.0	M20	16.7
25	44	0 -0.8	4	+0.3 -0.3	1.0	M24	31.7
(28)	50	0 -0.8	4	+0.3 -0.3	1.0	(M27)	41.7
31	56	0 -1.0	4	+0.3 -0.3	1.0	M30	52.9
(34)	60	0 -1.0	5	+0.6 -0.6	1.0	(M33)	

**NOTE:**

1. Sizes in brackets are non-preferred.
2. Weights are given in kg per 1000 numbers only.
3. For stocked sizes refer BPS Components booklet.

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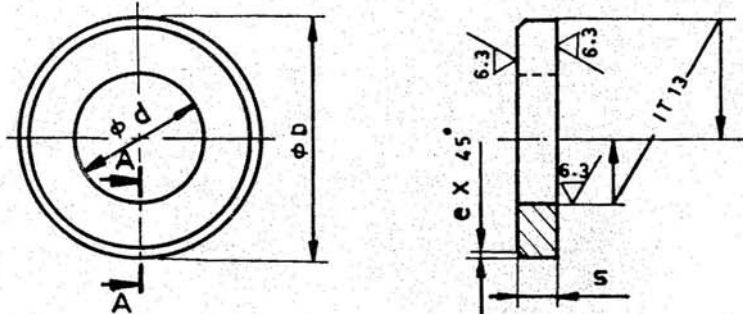
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TABLE 1 - DIMENSIONS FOR MACHINED WASHERS (Contd.)

12.5 / (6.3)



SECTION AA

(All dimensions are in millimetres)

d H12	D		s		e Nom	For bolt/ screw size	Weight
	Basic	Tol	Basic	Tol			
37	66	0 -1.0	5	$\pm 0.6$	1.6	M36	89.9
(40)	72	0 -1.0	6	$\pm 0.6$	1.6	(M39)	
43	78	0 -1.0	7	$\pm 1.0$	1.6	M42	180
(46)	85	0 -1.5	7	$\pm 1.0$	1.6	(M45)	243
50	92	0 -1.5	8	$\pm 1.0$	1.6	M48	291
(54)	98	0 -1.5	8	$\pm 1.0$	1.6	(M52)	
58	105	0 -1.5	9	$\pm 1.0$	1.6	M56	
(62)	110	0 -1.5	9	$\pm 1.0$	2.0	(M60)	
66	115	0 -1.5	9	$\pm 1.0$	2.0	M64	486.5
74	125	0 -1.8	10	$\pm 1.0$	2.0	M72	
82	140	0 -1.8	12	$\pm 1.2$	2.5	M80	
93	160	0 -1.8	12	$\pm 1.2$	3.0	M90	
104	175	0 -1.8	14	$\pm 1.2$	3.0	M100	
(124)	210	0 -2	16	$\pm 1.2$	3.0	(M120)	
(155)	250	0 -2	18	$\pm 1.2$	4.0	(M150)	

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