

Metal Washers / Collars

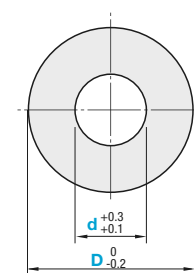
	Shape	Size	Ordering Code	Accuracy	Material		Surface Treatment	Catalog Page
					(Raw Material)	(Hardened Products)		
Washer	Standard	O.D. D 4~60 I.D. V 2~30 Thickness T 1~10	Selectable	Standard Grade Precision Grade	EN 1.1191 Equiv. Standard Grade EN 1.1191 Equiv. EN 1.4301 Equiv. Standard Grade EN 1.4301 Equiv.	EN 1.1191 Equiv. Standard Grade EN 1.1191 Equiv. EN 1.4301 Equiv.	None Black Oxide Electroless Nickel Plating	P.113 P.114 P.119
		O.D. D 4~30 I.D. V 2~25 Thickness T 1~10	Configurable	Standard Grade Precision Grade	EN 1.1191 Equiv. EN 1.4301 Equiv.	-	None Black Oxide Electroless Nickel Plating	P.113 P.114
		O.D. D 4~100 I.D. V 0~90 Thickness T 1~10	Dimension Configurable	Standard Grade Precision Grade	EN 1.0038 Equiv. EN 1.1191 Equiv. EN 1.4301 Equiv. EN AW-2017 Equiv. EN AW-2017 Equiv.	EN 1.1191 Equiv. EN 1.2510 Equiv. EN 1.4301 Equiv. EN 1.4301 Equiv. EN 1.4301 Equiv.	None Black Oxide Electroless Nickel Plating LTBC Plating Anodize (Clear, Black)	P.115 P.120
	Flanged	D Dim. 5~60 H Dim. 7~70 V Dim. 2~58 L Dim. 2~10	Dimension Configurable	Standard Grade Precision Grade	EN 1.0038 Equiv. EN 1.1191 Equiv. EN 1.4301 Equiv.	EN 1.4301 Equiv. EN 1.2510 Equiv.	None Black Oxide Electroless Nickel Plating	P.122
		O.D. D 10~60 I.D. P 3.5~11 Thickness T 6~20	Selectable	Standard Grade	EN 1.1191 Equiv. EN 1.4301 Equiv.	EN 1.1191 Equiv. EN 1.4301 Equiv. EN 1.4301 Equiv.	None Black Oxide Electroless Nickel Plating	P.123
	Counterbored	O.D. D 10~30 I.D. P 3.5~9 Thickness T 3~20	Configurable	Standard Grade Precision Grade	EN 1.1191 Equiv. EN 1.4301 Equiv.	-	None Black Oxide Electroless Nickel Plating	P.123
		O.D. D 10~100 I.D. P 3~88 Thickness T 3~50	Dimension Configurable	Standard Grade Precision Grade	EN 1.1191 Equiv. EN 1.4301 Equiv. EN 1.0038 Equiv. EN AW-2017 Equiv.	EN 1.1191 Equiv. EN 1.4301 Equiv. EN 1.2510 Equiv.	None Black Oxide Electroless Nickel Plating Clear Anodize	P.124
		O.D. D 10~60 M Dia. 2~20 Thickness T 3~20	Selectable	Standard Grade	EN 1.1191 Equiv. EN 1.4301 Equiv.	-	None Black Oxide Electroless Nickel Plating	P.125
	Tapped	O.D. D 6~30 M Dia. 2~12 Thickness T 3~20	Configurable	Standard Grade	EN 1.1191 Equiv. EN 1.4301 Equiv.	-	None Black Oxide Electroless Nickel Plating	P.125
		Thickness T 3~50	Dimension Configurable	Standard Grade	EN 1.1191 Equiv. EN 1.4301 Equiv. EN AW-2017 Equiv.	-	None Black Oxide Electroless Nickel Plating Clear Anodize	P.125
Collar	Countersunk	O.D. D 14~30 Applicable Countersunk M Dia. 4~10 Thickness T 2.5~3	Selectable	Standard Grade	EN 1.1191 Equiv. EN 1.4301 Equiv.	-	None Black Oxide Electroless Nickel Plating	P.126
		O.D. D 10~60 Applicable Countersunk M Dia. 2~30 Thickness T 2~10	Dimension Configurable	Standard Grade	EN 1.1191 Equiv. EN 1.4301 Equiv. EN AW-2017 Equiv.	-	None Black Oxide Electroless Nickel Plating Clear Anodize	P.126
	With Screw Holes	O.D. D 20~40 Applicable Countersunk M Dia. 3~28 Thickness T 1~10	Dimension Configurable	Standard Grade	EN 1.1191 Equiv. EN 1.4301 Equiv. EN AW-2017 Equiv.	-	None Black Oxide Electroless Nickel Plating Clear Anodize	P.126
		O.D. D 10~50 I.D. V 3~30 Thickness T 3~10	Dimension Configurable	Standard Grade	EN 1.1191 Equiv. EN 1.4301 Equiv.	-	None Black Oxide Electroless Nickel Plating	P.127
	Standard	I.D. V 3~25 O.D. D 5~30 Thickness L 10~35	Selectable	Standard Grade	EN 1.1191 Equiv. EN 1.4301 Equiv.	-	None Black Oxide Electroless Nickel Plating	P.131
		O.D. D 4~60 I.D. V 2~30 Thickness L 10~100	Configurable	Standard Grade Precision Grade	EN 1.1191 Equiv. EN 1.4301 Equiv. EN AW-2017 Equiv.	-	None Black Oxide Electroless Nickel Plating Clear Anodize	P.132 P.137
	Flanged	I.D. V 2~90 O.D. D 4~100 Thickness L 10~100	Dimension Configurable	Standard Grade Precision Grade	EN 1.0038 Equiv. EN 1.1191 Equiv. EN 1.4301 Equiv. EN AW-2017 Equiv. EN AW-2017 Equiv.	EN 1.1191 Equiv. EN 1.4301 Equiv. EN 1.2510 Equiv.	None Black Oxide Electroless Nickel Plating LTBC Plating Anodize (Clear, Black)	P.133
		I.D. V 2~30 O.D. D 5~60 Length L 10~100	Selectable	Standard Grade	EN 1.1191 Equiv. EN 1.4301 Equiv. EN AW-2017 Equiv.	-	None Black Oxide Electroless Nickel Plating Clear Anodize	P.139
		V Dim. 2~55 D Dim. 4~60 H Dim. 6~70 T Dim. 1~20 L Dim. 10~100	Dimension Configurable	Standard Grade Precision Grade	EN 1.1191 Equiv. EN 1.4301 Equiv. EN 1.0038 Equiv. EN AW-2017 Equiv. EN AW-2017 Equiv.	EN 1.1191 Equiv. EN 1.4301 Equiv. EN 1.2510 Equiv.	None Black Oxide Electroless Nickel Plating Anodize (Clear, Black)	P.140
	Thin-Walled Metal Collar	O.D. D 2~7 I.D. V 1~5 Length L 3~20	Selectable	Standard Grade	EN 1.4301 Equiv.	-	None	P.128
	Hollow Collar	O.D. D 10.5~48.6 I.D. d 5.7~41.6 Length L 6~200	-	Standard Grade	EN 1.0035 Equiv. EN 1.0254 Equiv. (Sch40/80)	-	None Black Oxide	P.128

Metal Washers Washers (Bulk Packages)

Have larger O.D. and are thicker compared to standard washers. As these washers are press finished, they are cheaper than the washers made by cutting.



Type	Material	Surface Treatment
PACK-PWTB	EN 1.0330	Black Oxide
PACK-PWTM	Equiv.	Electroless Nickel Plating



T Dimension Tolerance	
T Dimension	Tolerance
1	±0.08
2	±0.13
3	±0.15

Part Number		D	T	Unit Price								Pieces in 1 pack
Type	d			PACK-PWTB				PACK-PWTM				
				1~4		5~10		1~4		5~10		
				Price per 1 pc.	1 Pack	Price per 1 pc.	1 Pack	Price per 1 pc.	1 Pack	Price per 1 pc.	1 Pack	
PACK-PWTB PACK-PWTM	3	10	1 2									100 pcs.
	4	10 12	2 3									100 pcs.
	5	12	2 3									100 pcs.
		15	2 3									100 pcs.
	6	20	3									50 pcs.
	8	20	3									50 pcs.
	10	20	3									50 pcs.

Sold by the package only

 Ordering Example

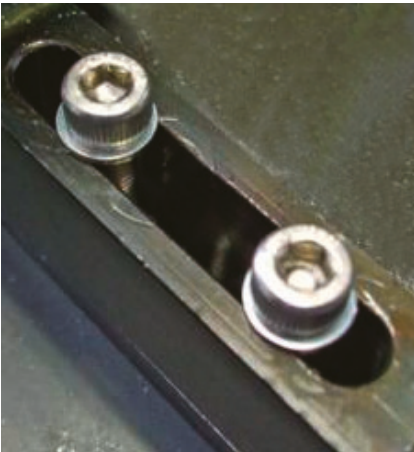
Part Number - D - T
PACK-PWTB3 - 10 - 1

 Example

Use when screw holes are large.

O.D. is larger as compared to standard washers, and grasping area is larger and hence can be fixed firmly.

Using Standard Washers



Using Metal Washers

