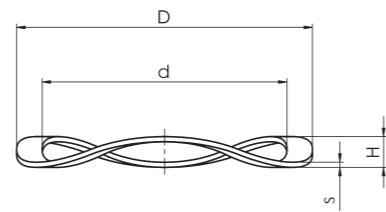
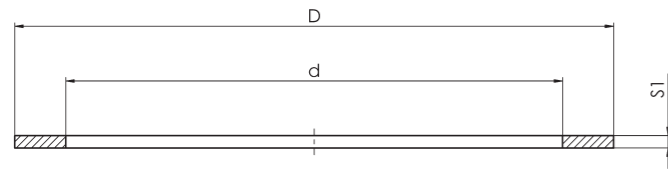


Accessories



Shims AS

Shims are often used to balance the accumulation of tolerances (tolerance chains) and axial tolerances.

GRW spring washers are made of corrosion-resistant 1.4310 (AISI 301) spring wire. They are heat-treated, burr-free, and have an extremely fine surface finish.

Spring washers WF

Spring washers are used for defined axial preloading of bearings, particularly for miniature and small ball bearings. The manufacture of these spring washers includes cutting and punching processes. Through a subsequent finishing process they can be calibrated to provide highly accurate preload tolerances as required for special applications.

GRW spring washers are made of corrosion-resistant 1.4310 (AISI 301) spring wire. They are heat-treated, burr-free, and have an extremely fine surface finish. Our spring washers are designed with 3 waves ensuring even support of the bearing during axial preloading.

Shims	Dimensions [mm]			for use in version		
	d x D	s	Spring washers (d x D x H x s)	Spring constant [N/mm]	for use on the shaft	for use in the housing
AS 1.55 x 2.50	0.15	-	-	-	68/1,5, 69/1,5	-
-	-	WF 1.60 x 2.90 x 0.40 x 0.06	50.0	-	-	-
-	-	WF 1.90 x 2.80 x 0.50 x 0.08	60.0	-	-	-
AS 2.00 x 4.30	0.10 0.16 0.20	-	-	-	-	-
AS 2.25 x 3.20	0.08 0.10	WF 2.15 x 3.10 x 0.50 x 0.08	54.9	682, 692, 5/64	-	-
AS 2.80 x 3.90	0.08 0.10	WF 2.70 x 3.80 x 0.50 x 0.08	52.0	60/2,5, 68/2,5, 69/2,5, 3/32	68/1,5, 691, 1191	-
AS 3.05 x 4.50	0.10 0.16 0.20	-	-	-	-	-
AS 3.30 x 4.40	0.08 0.10 0.12	WF 3.20 x 4.30 x 0.50 x 0.10	32.5	623, 683, 693, 1/8A, 1/8B, 3175, 1/8A/6, 1/8B/083	-	-
AS 3.50 x 5.00	0.08	-	-	-	-	-
AS 3.80 x 4.90	0.08 0.10 0.12	WF 3.70 x 4.80 x 0.55 x 0.10	32.0	-	682, 69/1,5	-
AS 4.05 x 5.50	0.10 0.20	-	-	-	-	-
AS 4.30 x 5.85	0.10 0.12 0.15	WF 4.20 x 5.75 x 0.65 x 0.12	40.0	604, 624, 634, 684, 694, 3967	68/2,5, 692	-
AS 4.90 x 6.20	0.10 0.12 0.15	WF 4.80 x 6.10 x 0.60 x 0.12	37.0	3/16, 4763A, 4763B	5/64, 3175	-
AS 5.20 x 6.75	0.15	-	-	-	-	-
AS 5.30 x 6.85	0.10 0.12 0.15	WF 5.20 x 6.75 x 0.65 x 0.12	22.0	625, 635, 685, 695	683, 69/2,5	-
AS 5.50 x 8.50	0.40	-	-	-	-	-
AS 6.30 x 7.85	0.12 0.15 0.18	WF 6.20 x 7.75 x 0.70 x 0.15	38.0	626, 686, 696	60/2,5, 693, 3/32, 1/8A, 3967, 4763A	-
AS 6.70 x 9.40	0.10	-	-	-	-	-
AS 7.30 x 8.80	0.12 0.15 0.18	WF 7.20 x 8.70 x 0.90 x 0.15	28.5	607, 627, 687, 697	684	-
-	-	WF 7.20 x 12.00 x 1.55 x 0.13	41.8	607, 627	6350B, 7938, 1/8B/083	-
AS 8.30 x 9.80	0.10 0.15 0.18 0.20	WF 8.20 x 9.70 x 0.85 x 0.18	26.0	608, 688, 698, 7938	623	-
AS 9.30 x 10.80	0.15 0.18 0.20	WF 9.20 x 10.70 x 1.15 x 0.18	22.0	609, 629, 689, 699	685, 694	-
AS 10.30 x 11.80	0.18 0.20 0.22	WF 10.20 x 11.70 x 1.05 x 0.20	18.5	6000, 6800, 6900, 3/8	604	-
-	-	WF 10.50 x 15.80 x 1.85 x 0.25	77.0	6000	625, 634	-
AS 11.30 x 12.80	0.18 0.20 0.22	WF 11.20 x 12.70 x 1.30 x 0.20	16.0	-	624, 686, 695	-
AS 12.30 x 13.80	0.20 0.22 0.25	WF 12.20 x 13.70 x 1.30 x 0.22	20.0	-	687	-
AS 13.30 x 14.80	0.20 0.22 0.25	WF 13.20 x 14.70 x 1.30 x 0.22	13.0	-	696	-
AS 14.35 x 15.80	0.22 0.25 0.30	WF 14.20 x 15.65 x 1.55 x 0.25	17.0	-	625, 634, 688, 1/4A	-
AS 15.35 x 16.80	0.22 0.25 0.30	WF 15.20 x 16.65 x 1.55 x 0.25	14.5	-	689, 697	-
AS 16.00 x 22.00	0.10 0.20	WF 15.80 x 21.80 x 1.60 x 0.20	10.0	-	3/8	-
AS 16.40 x 18.80	0.25 0.30 0.35	WF 16.20 x 18.55 x 2.15 x 0.30	28.5	-	607, 626, 635, 6800, 698, 1/4	-

Material 1.4310 (AISI 301). Before planning on the use of shims and spring washers, please ask about the availability. Subject to change due to technical improvement. Minimum quantity 100 pieces.