


Inch and **Metric**

Pouce et **Métrique**

Spring Tension Washers / Assortment

Rondelles tendues à ressort / Assortiment

**WAVE
SPRING TENSION WASHERS**




Undulated surface with many bands or contact points. Provides stability - more "load build-up" and less deflection than in the bowed washer at left. Used to provide pressure between surfaces and prevent rattles. Controlled friction provided between surfaces.

Spring Steel - Plain Finish

SPAENAUR No.	For Bolt Size	Inside Diameter	Outside Diameter	Nominal Height	Material Thickness
W-379	#10	.204-.195"	.313-.293"	.060"	.016"
W-305	1/4"	1/4"	9/16"	3/32"	.010"
B-1373	1/4"	9/32"	1/2"	1/16"	.008"
W-382	3/8"	25/64"	3/4"	.090"	.015"
B-1374	3/8"	27/64"	39/64"	3/64"	.010"
W-383	7/16"	29/64"	.840"	.060"	.015"
W-142	9/16"	19/32"	7/8"	5/64"	.032"
W-385	5/8"	.659-.640"	.885-.865"	.125"	.015"

PKG QTY. 100

**SPHERICAL
SPRING TENSION
WASHERS**




Plain Finish


SPAENAUR No.	Inside Diameter	Outside Diameter	Height	Material Thickness	Material
680-001	1/8"	15/32"	5/64"	.020"	Steel
W-141	3/16"	1/2"	.068"	.016"	Steel

PKG QTY. 100

**BOWED
SPRING TENSION WASHERS**



To provide tension between two rotating or static surfaces, to eliminate play and prevent rattle.

Plain Finish *Alternate Style 

SPAENAUR No.	Inside Diameter	Outside Diameter	Material Thickness	Material
W-2075	.095-.099"	.297-.307"	.009"	410 Stainless Steel
*W-224	1/8"	3/8"	.010"	Steel
*W-209	1/8"	1/2"	.016"	Steel
W-261	11/64"	15/64"	.010"	Steel
680-008	.171"	5/16"	.010"	Steel
W-172	3/16"	9/16"	.008"	Steel
*W-208	3/16"	3/4"	.020"	Steel
680-003	.200"	.370"	.010"	Steel
W-262	13/64"	7/16"	.010"	Steel
680-002	13/64"	17/32"	.014"	Steel
W-392	1/4"	1/2"	.008"	Steel
W-265	1/4"	1/2"	.010"	Steel
W-210	1/4"	1/2"	.016"	Steel
W-162S	17/64"	1/2"	.010"	Steel
680-B03-1T	17/64"	1/2"	.012"	Copper Alloy
W-266	17/64"	7/16"	.015"	Steel
W-174S	17/64"	9/16"	.010"	Steel
W-174	17/64"	9/16"	.010"	Copper Alloy
W-211	9/32"	5/8"	.012"	Steel
W-213	.320"	5/8"	.020"	Steel
W-267	.320"	1/2"	.015"	Steel
W-214	21/64"	1/2"	.012"	Steel
W-268	25/64"	3/4"	.020"	Steel
W-269	7/16"	3/4"	.017"	Steel
680-B01-1K	.505"	3/4"	.015"	Steel
W-393	11/16"	29/32"	.025"	Steel
649-B04-1K	49/64"	1"	.020"	Steel

PKG QTY. 100

ASSORTMENT 805-527

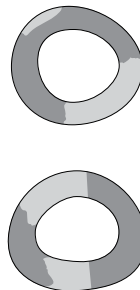
**Inch & Metric Sizes
SPRING TENSION WASHERS**

Steel - Plain Finish

**Bowed and Wave
29 SIZES - 1175 WASHERS**

Furnished in a Regular Size grey enamelled STEEL Drawer, with scooped bins. Drawer will fit into Slide Racks shown on page A2

Shipping Weight: **2.26 kg** (5 lbs.)



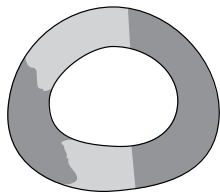
For the complete assortment contents turn to A81

Spring Tension Washers

Metric

Rondelles tendues à ressort

Métrique

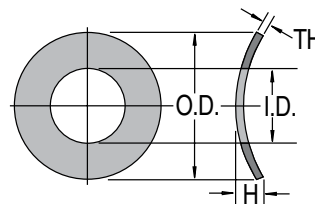


DIN 137A

Metric BOWED SPRING WASHERS

High Grade, Tempered Steel - Plain Finish (Oil), Zinc Plated, Yellow Zinc Plated and A2 Stainless Steel

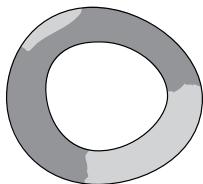
These parts are appropriately used in light metal construction where a useful elastic spring action proportionally high with respect to the washer's outer diameter is looked for. These washers can be flattened out completely without effect on their resiliency.



PKG QTY. 100

ORDER BY SPAENAUR NUMBERS BELOW

STEEL				Bolt Size in mm	Sizes in Millimetres				Approximate sizes in Inches			
(Oil) Plain Finish	Zinc Plated	Yellow Zinc Plated	A2 Stainless Steel		I.D. Min.	O.D. Max.	TH Thick.	H HIGH Min.	I.D. Min.	O.D. Max.	TH Thick.	H HIGH Min.
681-100		681-100YZ	681-D25-1T	2	2.2	4.5	0.3	0.50	.087	.177	.012	.020
681-101	681-101ZP	681-101YZ	681-D26-1K	2.5	2.8	5.5	0.3	0.55	.110	.217	.012	.022
681-102	681-102ZP	681-102YZ	681-D05-1X	3	3.2	6.0	0.4	0.65	.126	.236	.016	.026
681-135	681-135ZP	681-135YZ	681-D27-1W	3.5	3.7	7.0	0.4	0.70	.146	.276	.016	.028
681-103	681-103ZP	681-D02-1K	681-820	4	4.3	8.0	0.5	0.80	.169	.315	.020	.031
681-104	681-104ZP	681-104YZ	681-821	5	5.3	10.0	0.5	0.90	.207	.394	.020	.035
681-D28-1M	681-105ZP	681-105YZ	681-822	6	6.4	11.0	0.5	1.10	.252	.433	.020	.043
681-106	681-106ZP	681-106YZ		7	7.4	12.0	0.5	1.20	.291	.472	.020	.047
681-107	681-107ZP	681-107YZ	681-823	8	8.4	15.0	0.5	1.70	.331	.591	.020	.067
681-D22-1Y	681-108ZP	681-108YZ	681-824	10	10.5	18.0	0.8	2.00	.413	.709	.031	.079
681-109	681-109ZP	681-109YZ		12	13	22	0.8	2.00	.510	.869	.031	.079

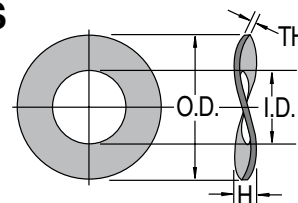


DIN 137B

Metric SINGLE WAVE SPRING WASHERS

High Grade, Tempered Steel - Plain Finish (Oil), Zinc Plated, Yellow Zinc Plated and A2 Stainless Steel

This type is used wherever a higher pressure than with type A is required, and when this pressure is to be distributed at several points. It is particularly recommended with aluminum screws and parts to be fixed, as the resilient effect catches up with the extrusion of this metal under the tightening pressure.



PKG QTY. 100

ORDER BY SPAENAUR NUMBERS BELOW

STEEL				Bolt Size in mm	Sizes in Millimetres				Approximate sizes in Inches			
(Oil) Plain Finish	Zinc Plated	Yellow Zinc Plated	A2 Stainless Steel		I.D. Min.	O.D. Max.	TH Thick.	H HIGH Min.	I.D. Min.	O.D. Max.	TH Thick.	H HIGH Min.
681-110				2	2.1	4.7	0.3	0.7	.083	.185	.012	.028
681-111	681-D24-1N	681-111YZ	681-826	3	3.2	8	0.5	0.8	.126	.315	.020	.031
681-136	681-136ZP	681-136YZ	681-827	3.5	3.7	8	0.5	0.9	.146	.315	.020	.035
681-112	681-112ZP	681-112YZ	681-828	4	4.3	9	0.5	1.0	.169	.354	.020	.039
681-113	681-113ZP	681-113YZ	681-829	5	5.3	11	0.5	1.1	.207	.433	.020	.043
681-114	681-114ZP	681-114YZ	681-830	6	6.4	12	0.5	1.3	.252	.472	.020	.057
681-115		681-115YZ		7	7.4	14	0.8	1.5	.291	.551	.031	.059
681-D23-1C	681-116ZP	681-116YZ	681-831	8	8.4	17	0.8	1.5	.331	.591	.031	.059
~681-117	~681-117ZP		681-832	10	10.5	21	1.0	2.1	.413	.826	.039	.083
681-118	681-118ZP	681-118YZ	681-D21-1P	12	13.0	24	1.2	2.5	.512	.945	.047	.098
681-119	681-119ZP	681-119YZ		14	15.0	28	1.6	3.0	.591	1.102	.063	.118
681-120	681-120ZP	681-120YZ	681-834	16	17.0	30	1.6	3.2	.669	1.181	.063	.126
681-137	681-137ZP	681-137YZ		18	19.0	34	1.6	3.3	.748	1.339	.063	.130
681-138	681-138ZP	681-138YZ	681-835	20	21.0	36	1.6	3.7	.827	1.417	.063	.146
681-139	681-139ZP	681-139YZ		22	23.0	40	1.8	3.9	.906	1.575	.071	.154
681-140	681-140ZP	681-140YZ		24	25.0	44	1.8	4.1	.984	1.732	.071	.161
681-141	681-141ZP			27	28.0	50	2.0	4.7	1.102	1.969	.079	.185
681-142	681-142ZP	681-142YZ		30	31.0	56	2.2	5.0	1.220	2.205	.087	.197

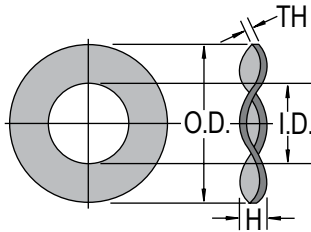
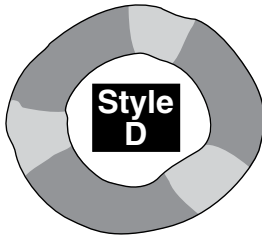
~ Approximately to standard

Inch and Metric

Pouce et Métrique

Spring Tension Washers

Rondelles tendues à ressort



PKG QTY.
100

**Metric DOUBLE WAVE
SPRING WASHERS – Steel**

High Grade, Tempered Steel - Plain Finish (Oil)

This part is useful when pressure has to be distributed at several points without marking the parts brought under tension.

STEEL (Oil) Plain Finish	Bolt Size in mm	Sizes in Millimetres				Approximate sizes in Inches			
		I.D. Min.	O.D. Max.	Thick.	HIGH Min.	I.D. Min.	O.D. Max.	Thick.	HIGH Min.
681-127	6	6.2	10.2	0.2	1.4	.244	.402	.008	.055
681-D01-1E	8	8.1	14.15	0.1	1.35	.319	.557	.004	.053
681-129	8	8.1	13.8	0.2	1.35	.319	.543	.008	.053
681-130	10	10.3	15.1	0.2	1.4	.406	.594	.008	.055
681-131	10	10.6	19.25	0.2	1.4	.417	.758	.008	.055
681-132	10	10.6	19.25	0.3	1.5	.417	.758	.012	.059
681-133	10	10.6	19.25	0.15	1.4	.417	.758	.006	.055
681-D30-1M	12	12.4	20.3	0.2	1.7	.488	.799	.008	.067

ASSORTMENT 805-417A

Bowed Spring **DIN 137A** Single Wave Spring **DIN 137B**
Bowed Spring Washers **DIN 137A**

METRIC SPRING TENSION WASHERS

High Grade Tempered Steel
Plain Finish (Oil)

Contains 24 SIZES - 1800 PIECES

Regular Size welded STEEL drawer is finished in grey enamel with 24 scooped bins. Will fit into the Slide Racks shown on page A2
Shipping weight **3.06 kg** (6.75 lbs.)



ASSORTMENT B-598

Bowed Spring **DIN 137A**
Single Wave Spring **DIN 137B**
Bowed Spring Washers **DIN 137A**

**INCH & METRIC
SPRING TENSION WASHERS**

High Grade Tempered Steel Plain Finish (Oil)

Contains 20 SIZES - 1700 PIECES

Regular Size welded STEEL drawer is finished in grey enamel with 24 scooped bins. Will fit into the Slide Racks shown on page A2
Shipping weight **3.06 kg** (6.75 lbs.)



For the complete assortment contents turn to A82