

Inch

# Spherical Washers / Spherical Flanged Nuts

Pouce

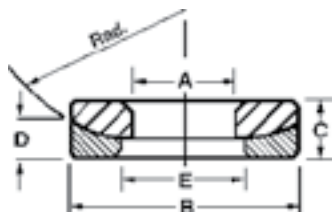
# Rondelles sphériques / Écrous à embase sphériques

## Self-Aligning Washers (Spherical)

Heat Treated Steel.  
 Black Oxide Finish.  
 Tops and bottoms available separately.  
 Bottom half works with Spherical Flanged Nuts (see below).

Tool Room Necessities  
 Nécessités pour la place aux outils

Spherical Washers for bolts larger than 2" available.  
 Ask for price and delivery.

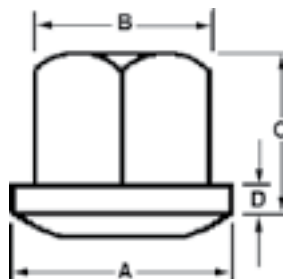


**B**

SPAENAUR No.		Bolt Size	A	B	C	D	E	R	PKG QTY.
Top	Bottom								
656-250	656-259	1/4"	9/32"	5/8"	3/16"	1/8"	5/16"	3/4"	10
656-251	656-260	5/16"	11/32"	3/4"	1/4"	5/32"	3/8"	1"	10
656-252	656-261	3/8"	13/32"	7/8"	1/4"	5/32"	7/16"	1-1/4"	10
656-253	656-262	7/16"	15/32"	1"	5/16"	7/32"	1/2"	1-3/4"	10
656-254	656-263	1/2"	17/32"	1-1/8"	5/16"	7/32"	9/16"	1-1/2"	10
656-255	656-264	5/8"	21/32"	1-3/8"	5/16"	7/32"	11/16"	1-3/4"	10
656-256	656-265	3/4"	25/32"	1-5/8"	3/8"	9/32"	13/16"	2-1/4"	5
656-B62-1P	656-266	7/8"	15/16"	1-3/4"	3/8"	1/4"	1"	2-1/2"	5
656-258	656-267	1"	1-1/16"	2"	1/2"	5/16"	1-1/8"	2-3/4"	5
656-271	656-272	2"	2-1/16"	3-7/8"	3/4"	9/16"	2-1/8"	4"	1

## Spherical Flanged Nut

Heat Treated Steel.  
 Black Oxide Finish.  
 Spherical Flanged Nut works with bottom Self-Aligning Washer shown above.



SPAENAUR No.	Thread Size	A	B	C	D	PKG QTY.
155-216	1/4"-20	5/8"	1/2"	5/16"	3/32"	10
155-217	5/16"-18	3/4"	9/16"	3/8"	3/32"	10
155-218	3/8"-16	7/8"	11/16"	1/2"	1/8"	10
155-219	7/16"-14	1"	3/4"	9/16"	5/32"	10
155-220	1/2"-13	1-1/8"	7/8"	11/16"	5/32"	10
155-221	5/8"-11	1-3/8"	1-1/16"	13/16"	3/16"	10
155-222	3/4"-10	1-5/8"	1-1/4"	1"	1/4"	5
155-223	7/8"-9	1-3/4"	1-7/16"	1-1/8"	1/4"	5
155-224	1"-8	2"	1-5/8"	1-1/4"	1/4"	5

CATALOG 14 SPAENAUR

Metric

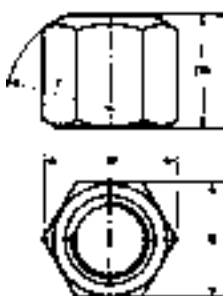
Spherical Fixture Nuts / Collar Nuts

Métrique

Écrous de fixation sphériques / écrous à collerette

## METRIC Fixture Nut

**DIN 6330-B**



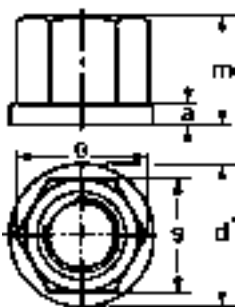
GRADE A STEEL (May contain some lead)  
Tensile strength class 8 or 10.  
With one spherical bearing face.  
Flat end matching hardened washers DIN 6340.

**Tool Room Necessities**  
**Nécessités pour la**  
**place aux outils**

SPAENAUR No.	All Dimensions Stated in Millimetres					PKG QTY.
	Thread	s	e	m (1.5d)	r	
156-383	M6	10	11.5	9	9	25
156-384	M8	13	15.0	12	11	25
156-F08-1N	M10	16	18.2	15	15	25
156-386	M12	18	20.4	18	17	25
156-387	M14	21	23.8	21	20	25
156-388	M16	24	27.7	24	22	25
156-389	M18	27	31.2	27	24	25
156-353	M20	30	34.6	30	27	25
156-390	M22	34	38.6	33	30	10
156-391	M24	36	41.6	36	32	10
156-392	M27	41	47.3	40	36	10
156-393	M30	46	53.1	45	41	10
156-394	M36	55	63.5	54	50	1
156-395	M42	65	75.0	63	58	1

## METRIC Collar Nut

**DIN 6331**



GRADE A STEEL (may contain some lead)  
Turned and milled.  
Tensile strength class 8 or 10.

SPAENAUR No.	All Dimensions Stated in Millimetres						PKG QTY.
	Thread	s	e	m (1.5d)	a	d <sup>1</sup>	
156-397	M6	10	11.5	9	3	14	10
156-398	M8	13	15.0	12	3.5	18	10
156-399	M10	16	19.6	15	4	22	10
156-400	M12	18	21.9	18	4	25	10
156-401	M14	22	25.4	21	4.5	28	10
156-402	M16	24	27.7	24	5	31	10
156-403	M18	27	31.2	27	5	34	5
156-404	M20	30	34.6	30	6	37	5
156-405	M22	32	36.9	33	6	40	1
156-406	M24	36	41.6	36	6	45	1
156-407	M27	41	47.3	40	7	50	1
156-408	M30	46	53.1	45	8	58	1
156-411	M48	75	86.5	72	14	92	1

Spherical Washers

Metric

Rondelles sphériques

Métrique

**METRIC**

**Spherical Seat Washer**

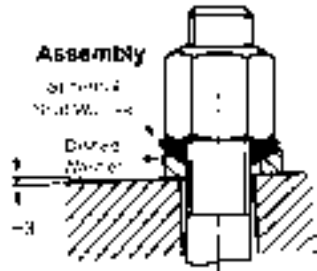
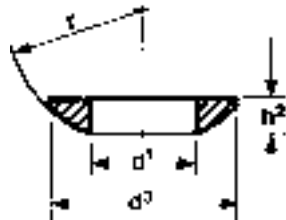
Case Hardened Steel - Black

**DIN 6319C**



Tool Room Necessities  
Nécessités pour la place aux outils

B



SPAENAUR No.	Nominal Size	All Dimensions in Millimetres				PKG QTY.
		d <sup>1</sup>	d <sup>3</sup>	h <sup>2</sup>	r	
657-320	M6	6.4	12	2.3	9	50
657-321	M8	8.4	17	3.2	12	50
657-322	M10	10.5	21	4.0	15	50
657-323	M12	13.0	24	4.6	17	25
657-324	M14	15.0	28	5.0	22	25
657-325	M16	17.0	30	5.3	22	25
657-326	M20	21.0	36	6.3	27	10
657-327	M24	25.0	44	8.2	32	5
657-285	M30	31.0	56	11.2	41	1
657-328	M36	37.0	68	14.0	50	1
657-329	M42	43.0	78	17.0	58	1
657-330	M48	50.0	92	21.0	67	1

**DIN 6319D**

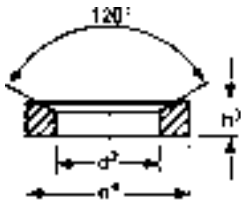


**METRIC**

**Dished Washer**

Case Hardened Steel - Black

SPAENAUR No.	Nominal Size	All Dimensions in Millimetres			PKG QTY.
		d <sup>2</sup>	d <sup>4</sup>	h <sup>3</sup>	
657-331	M6	7.1	12	2.8	50
657-332	M8	9.6	17	3.5	50
657-333	M10	12.0	21	4.2	50
657-334	M12	14.2	24	5.0	25
657-335	M14	16.5	28	5.6	25
657-336	M16	19.0	30	6.2	25
657-337	M20	23.2	36	7.5	10
657-338	M24	28.0	44	9.5	5
657-283	M30	35.0	56	12.0	1
657-339	M36	42.0	68	15.0	1
657-340	M42	49.0	78	18.0	1
657-341	M48	56.0	92	22.0	1



These washers serve to transmit clamping forces in cases where the clamping elements have to compensate uneven surfaces. The combined application of spherical seat washer with respective nuts DIN 6330 with dished washers allows a 3° deviation from squareness of bolt and work.

**DIN 6319G**



Dished Washer with larger diameter to bridge the slots of clamps, available upon request.

**B302**