

1. SCOPE

The metric wide range U-shape multi-thread spring nuts covered in this standard are intended for applications where it is desired to use spring nuts in conjunction with bolts, machine screws or screw and washer assemblies. Nuts conforming to this standard are suitable for use with mating fasteners conforming to 9.8 or lower property classes.

2. PART DESCRIPTION

Typical part description for BOM's and CAD drawings entered by Standards.

NUT, SPRING, M12 SHORT U HTS ZND
NUT, SPRING, M8 LONG U HTS PLN

For cross-reference listing of company part numbers, go to [PARTsolutions](#).

3. RELATED DOCUMENTS

3.1 REFERENCE STANDARDS

CNH STPA020—Fastener Finishes and Material Specifications
Fiat 12787 – Quick Operating Fasteners
Fiat 12790 – Quick Operating Fasteners – Spring Nuts
Fiat 12790/01 – Spring Nuts For Screws
ISO 898/2—Mechanical Properties of Fasteners
MAT1027—Spec High Carbon Steel, CR Sheet
SAE J122—Surface Discontinuities on Nuts

3.2 REPLACED STANDARDS

Case EM-090—Spring Nuts General Specification
Case EM-091—Spring Nuts, Multi-Thread Wide Range U-Nuts, Preferred

4. REQUIREMENTS

4.1 PREFERRED PARTS POLICY

Preferred parts are so designated to reduce variety of parts and assure maximum availability, interchangeability and cost savings.

Nominal sizes: All sizes listed
Throat style: Short
Finish: Phosphate coated (PHC)

AUTHOR	APPROVED BY	ECO	PART NUMBER
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4.2 IDENTIFICATION

Spring nuts shall be permanently and legibly marked with manufacturer's identification on the upper surface of the top leg adjacent to the fold. The marking shall have a minimum height of 1.6 mm.

4.3 CONTOURS

Contours of features such as upper leg in area of extruded barrel, the barrel, retaining extrusion, cutoff, and carrying tab shall be optional with the manufacturer, provided the specified dimensions are maintained and nuts will meet all of the performance requirements.

4.4 EXTRUDED BARREL

The axis of the extruded barrel shall be located centrally on the width of the upper leg within a tolerance of plus or minus 0.25 mm.

4.5 FINISHES

Nuts shall be supplied in accordance with that designated by the part number and the CNH Fastener Finish Specification: STPA020

4.6 THREADS

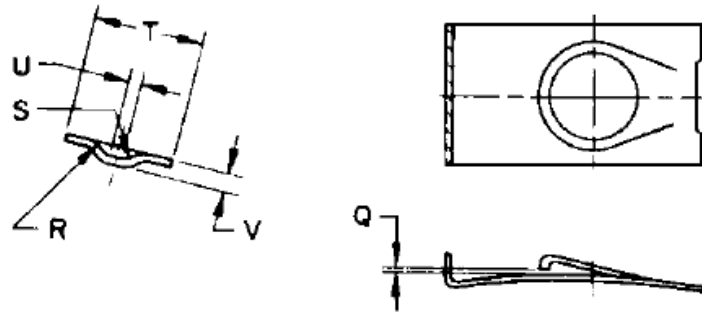
Threads in the extruded barrel shall be produced only by the roll forming process and shall conform to ISO Class 6H internal metric screw threads. However, the minor diameter may exceed the specified maximum limit providing the nut will meet the proof strength requirements.

4.7 MATERIAL

Nuts where HTS is specified shall be fabricated from MAT1027 Grade A steel and suitably heat treated to meet the performance requirements of this standard. Nuts shall have a hardness of Rockwell C45 to 50. (For stock thicknesses less than 1 mm, it is recommended the hardness be checked using the appropriate superficial Rockwell scale and converted to Rockwell C.)

4.8 RETAINING EXTRUSION

The nut retaining extrusion in the bottom leg shall conform to the dimensions shown in the illustration and Table 1 below, and otherwise be such as to enable the nuts to meet the performance requirements. The critical edges of the extrusion shall be free from burrs which could cause interference as spring nut is assembled onto panel. The size, configuration and location of the hole through the retaining extrusion shall be such that a bolt or screw of respective size when installed normal to the plane of the lower leg into the nut, assembled on a test plate as described in the performance requirements below, will not interfere with the sides of the hole.



Retaining Extrusion Detail

Dimensions of Retaining Extrusion (mm)

Nominal Nut Size	Q	R		S	T	U		V
	Cap Opening	Radius		Radius	Width	Flat Width		Bend Depth
	max.	max.	min.	±0.5	±0.2	max.	min.	±0.5
M4	0.5	2	1	0.8	7	1	0	2
M5	0.5	2	1	0.8	7.8	1	0	2
M6	0.7	2	1	0.8	9.4	1	0	2.3
M8	0.7	2.8	1.8	1	10.8	1	0	2.5
M10	1.4	3.6	2.5	1.3	14.2	1.3	0.3	3.3

4.9 RELIEF OF EMBRITTLEMENT: Plated or coated steel nuts which are subject to hydrogen embrittlement shall be suitably treated subsequent to the plating or coating operation to relieve such embrittlement.

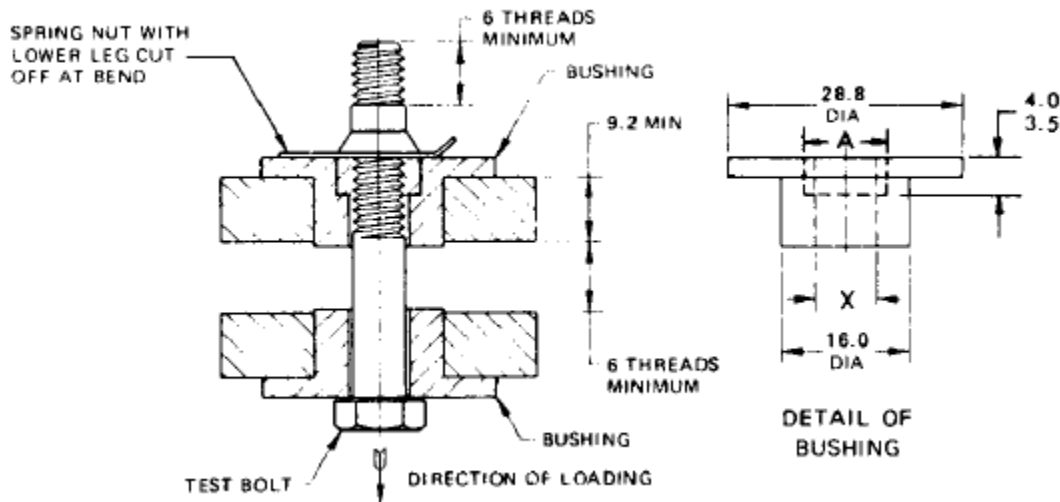
4.10 PERFORMANCE REQUIREMENTS:

Preassembly and Retention Test: Spring nuts shall preassemble onto test panels of thicknesses equal to the two extremes of the panel ranges specified, having minimum diameter holes located at the maximum edge distance. The retaining extrusion shall snap into the hole and, when nuts are so assembled, a pull force of 13N minimum, applied parallel to the axis of nut, shall be required to remove the nut from the panel.

Proof Load Test: The spring nut shall be prepared for testing by removing the lower leg and bend portion at rear. The actual barrel height "K" shall be measured and recorded. The upper portion of nut along with special bushings shall be assembled onto the test bolt, as depicted in the illustration on the following page, then installed into a suitable tension test fixture. The bushings shall be made from SAE 1095 steel, hardened and tempered to a hardness of Rockwell C59 to 62, and shall conform to the dimensions shown in Table 2. The test bolt shall have threads conforming to Class 6g tolerances for external metric screw threads and shall be of 9.8 steel or higher property class.

Following application and removal of the respective tension load specified in Table 2, the threaded barrel portion of nut shall exhibit no indication of thread stripping or rupture and the bolt shall be capable of being removed from the nut barrel with the fingers. The height of barrel shall be re-measured and any reduction reflecting permanent set of the base of barrel shall not exceed the maximum limitation given in Table 2.

The nut shall be reinstalled on the test bolt and subjected to the respective proof load specified in Table 2, then released. There shall be no evidence of cracks in the barrel or upper leg of nut. The threaded portion of barrel shall withstand this proof load without thread stripping, excessive plastic deformation or rupture, and the bolt shall be removable from nut with the fingers. (Occasionally, it may be necessary to manually wrench the bolt to initiate motion, and such practice shall be considered permissible only if the bolt can be removed with fingers following an initial loosening of not more than one-half turn of the bolt.) Additional distortion occurring in the upper leg and the base of barrel shall be permissible.



Dimensions in millimetres.

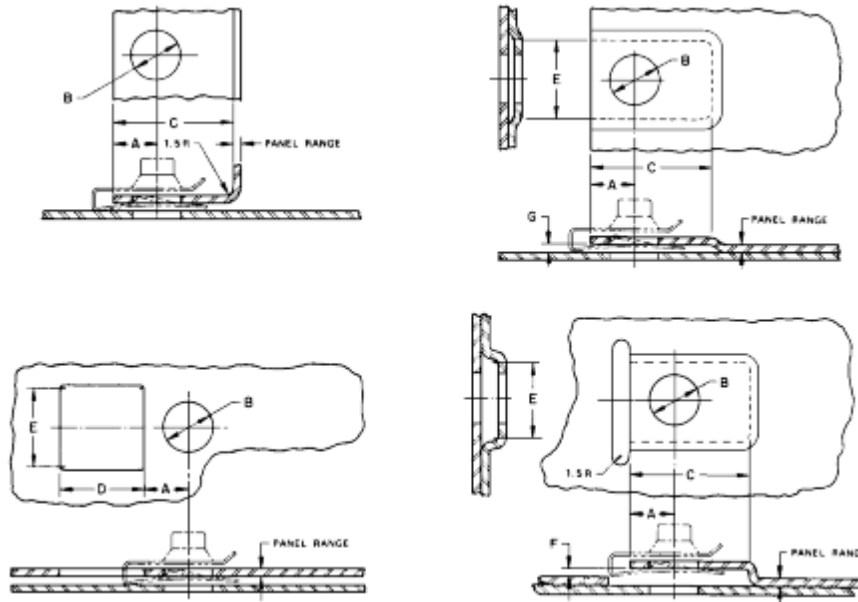
Nominal Size	Test Tension Load kN	Allowable Permanent Set	Test Proof Load kN	A		X	
				Test Bushing Counterbore Diameter		Test Bushing Hole Diameter	
				min.	max.	min.	max.
M4	5.70	0.25	7.90	8.0	8.3	5.0	5.3
M5	9.30	0.35	12.78	8.7	9.1	6.0	6.3
M6	13.06	0.45	18.09	9.9	10.2	7.0	7.3
M8	23.80	0.50	32.94	11.5	11.8	8.5	9.0
M10	37.70	0.70	52.20	14.7	15.0	10.5	11.0

WORKMANSHIP: Nuts shall be free from cracks, splits, burrs, loose scale and any defects that might affect their serviceability.

SPRING NUTS

Multi-Thread Wide Range "U" Nuts

ASSEMBLY CONSIDERATIONS: To assure proper function and satisfactory performance of spring nuts and to provide flexibility for possible subsequent substitutions in designs, it is essential that the panel hole sizes, edge to center dimensions, and any embossing or slotting of panels necessary to install the nut be designed in accordance with the recommendations set forth in the illustrations and table below.



Recommended Assembly Data

Dimensions in millimetres.

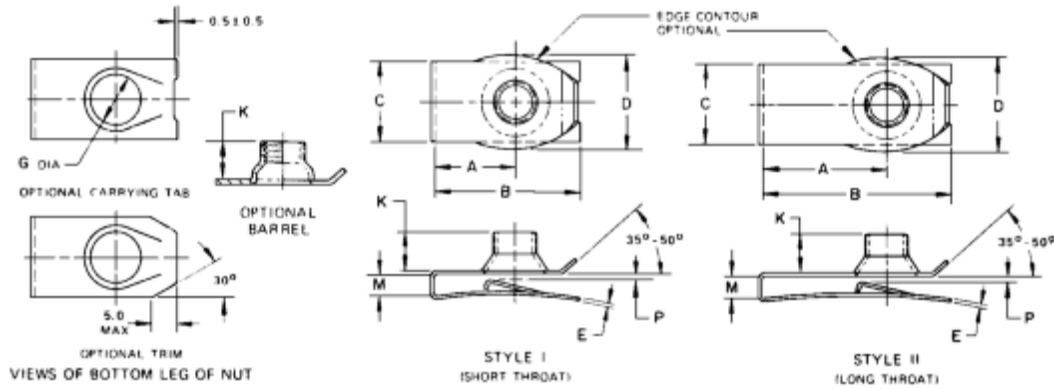
Nom. Thd Size	Throat Style	A Edge Distance		B Panel Hole Diameter		C Nut Length Clearance	D Slot Width		E Slot or Emboss Width (Flat)**	F Emboss Depth	G Emboss Depth
		max.	min.	max.	min.	min.*	max.	min.	min.*	min.*	min.*
M4	Short Long	9 13	8 12	8.3	7.5	18 23	15	14	13	2.5	1
M5	Short Long	10.5 15.5	9.5 14.5	9.1	8.3	20.5 26.5	16	15	14	2.5	1.1
M6	Short Long	12.5 18.5	11.5 17.5	10.7	9.9	25 31.5	16.5	15.5	15	2.5	1.2
M8	Short Long	13.5 20	12.5 19	12.1	11.3	26.5 33.5	20	19	17.5	2.5	1.4
M10	Short Long	17.5 27.5	16.5 26.5	15.5	14.7	35 45	26	25	25	3	2

* Consideration should be given to tolerances of manufacturing practices used to emboss and punch these features when designing panels in which they are employed.

** Dimension measured between centers of corner radii.

SPRING NUTS

Multi-Thread Wide Range "U" Nuts



Dimensions in millimetres																				
Nom Size	Thd Pitch	Panel Thickness Range	Throat Style	A		B		C		D		E		G		K		M		P
				Throat Depth		Leg Length		Lower Leg Width		Upper Leg Width		Stock Thickness		Hole Diameter		Barrel Height		Width at Fold		Opening
				max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
M4	0.7	0.6-3.8	Short	10.5	9.5	17.5	16.5	11	10	13	12	0.7	0.6	6.4	6	6	5	4.5	4	0.4
				14.5	13.5	21.5	20.5													
M5	0.8	0.6-3.8	Short	12	11	20	19	12	11	14	13	0.8	0.7	6.9	6.8	6	5	4.5	4	0.4
				17	16	25	24													
M6	1	0.8-4	Short	14	13	24	23	13	12	15	14	0.9	0.8	7.9	7.8	6.5	5.5	5.2	4.2	0.6
				20	19	30	29													
M8	1.25	0.8-4	Short	15	14	25.5	24.5	14.7	13.7	17.5	16.5	1.1	1	9.4	9.3	9	7.5	5.2	4.2	0.6
				21.5	20.5	32	31													
M10	1.5	1.5-5.5	Short	19	18	33	32	18	17	25	23	1.45	1.35	11.7	11.6	10.5	9	6.7	5.7	1.3
				29	28	43	42													



Standard Part

Spring Nuts

STPE620

87366979

Rev F

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TABLE 1: SPRING NUTS
Multi-Thread Wide Range "U" Nuts

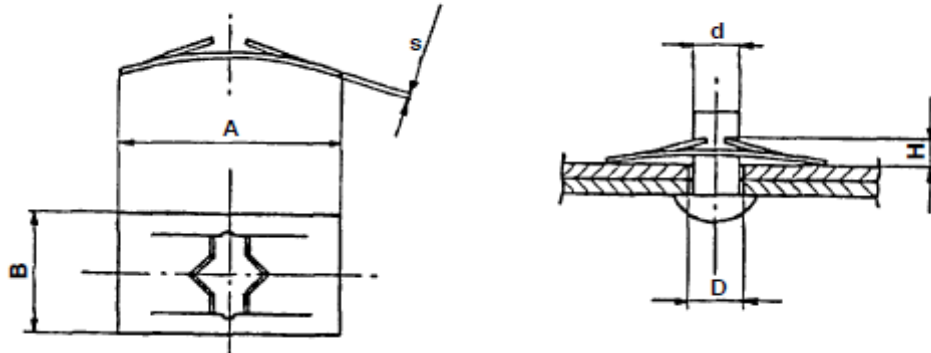
Part #	Nom. Size	Panel Thickness		STYLE	Material	Finish
		Min.	Max.			
47765955	M4	0.6	3.8	I (SHORT)	HTS	PHC
87682409	M4	0.6	3.8	I (SHORT)	HTS	ZND
84467159	M4	0.6	3.8	I (SHORT)	HTS	DAC
47608153	M4	0.6	3.8	II (LONG)	HTS	PHC
86624027	M5	0.6	3.8	I (SHORT)	HTS	PHC
87301324	M5	0.6	3.8	II (LONG)	HTS	ZND
87037710	M6	0.8	4.0	I (SHORT)	HTS	PLN
87016585	M6	0.8	4.0	I (SHORT)	HTS	PHC
86625073	M6	0.8	4.0	I (SHORT)	HTS	ZND
83929522	M6	0.8	4.0	II (LONG)	HTS	ZND
87037711	M8	0.8	4.0	I (SHORT)	HTS	PLN
86625074	M8	0.8	4.0	I (SHORT)	HTS	ZND
87016586	M8	0.8	4.0	II (LONG)	HTS	PHC
84485584	M8	0.8	4.0	II (LONG)	HTS	ZND
84346910	M8	1.5	5.5	I (SHORT)	HTS	DAC
86625071	M10	1.5	5.5	I (SHORT)	HTS	PHC
87493302	M10	1.5	5.5	I (SHORT)	HTS	ZND
84522379	M10	1.5	5.5	II (LONG)	HTS	ZND

TABLE 2: Fiat 12787 PUSH ON NUT Style A

Material: Steel per Fiat 52650

SPRING NUT - STYLE A

Application •



For Hole dia. D tolerance see Fiat Std 01328

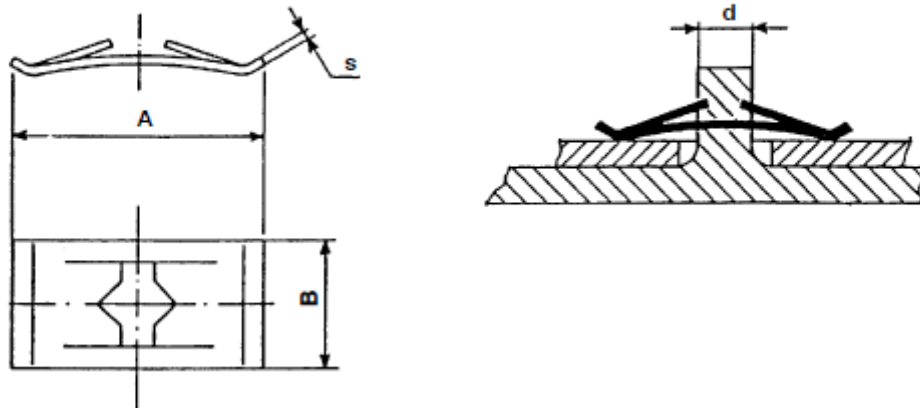
Part Number	Style	Stud nom. Dia d	A	B	s	H	Material	Finish
14183474	Style A	4	18	10	0.4	3	C72 HRC 41 - 46	DAC
14183974	Style A	9	25	22	0.5	4	C72 HRC 41 - 46	DAC

TABLE 3: Fiat 12787 PUSH ON NUT Style B

Material: Steel per Fiat 52650

SPRING NUT - STYLE B

Application •



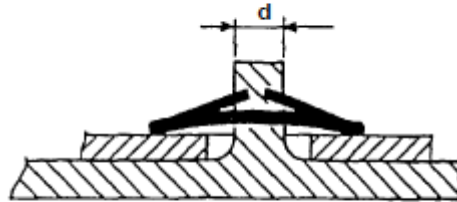
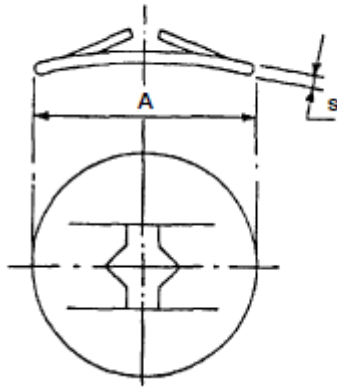
Part Number	Style	d	A +/- 0.3	B +/- 0.3	s	Material	Finish
14227674	Style B	4	14	8	0.4	C72 HRC 41 - 46	DAC

TABLE 4: Fiat 12787 PUSH ON NUT Style C

Material: Steel per Fiat 52650

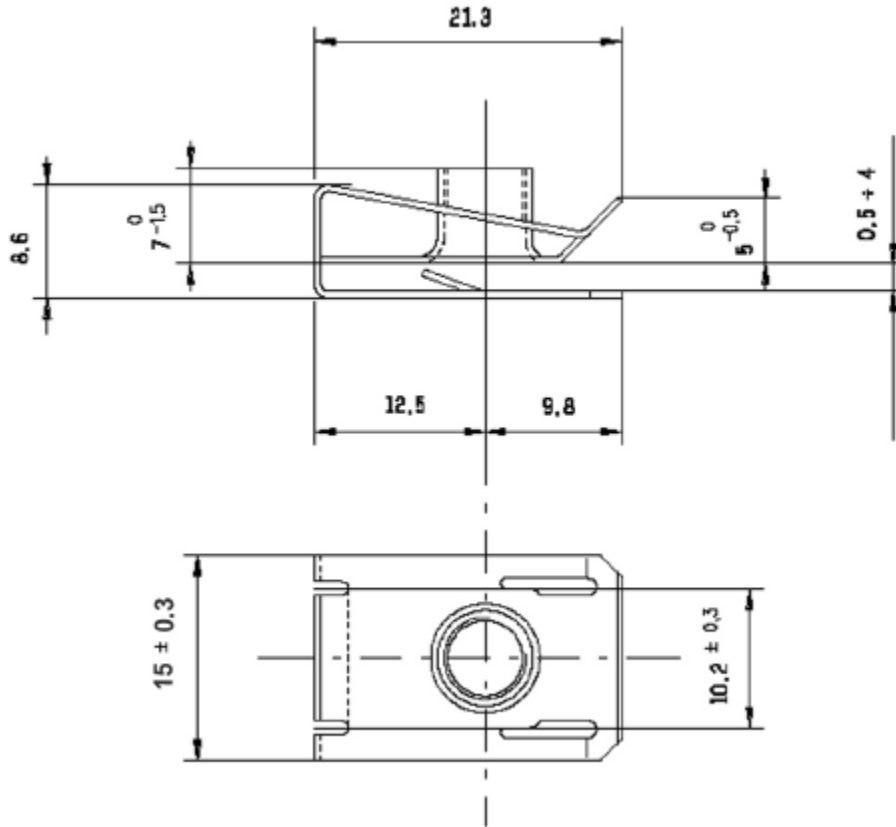
SPRING NUT - STYLE C

Application •



Part Number	Style	d	A +/- 0.3	s	Material	Finish
14227474	Style C	3	9	0.3	C72 HRC 41-46	DAC
14227774	Style C	4	10.5	0.4	C72 HRC 41-46	DAC
14227776	Style C	4	10.5	0.4	C72 HRC 41-46	BLO
14227874	Style C	4	12	0.4	C72 HRC 41-46	DAC
14227876	Style C	4	12	0.4	C72 HRC 41-46	BLO
14183674	Style C	4.8	15	0.4	C72 HRC 41-46	DAC
14228074	Style C	5	12	0.4	C72 HRC 41-46	DAC
14228171	Style C	5	15	0.4	C72 HRC 41-46	ZND
14228274	Style C	6	15	0.4	C72 HRC 41-46	DAC
14228374	Style C	8	24	0.4	C72 HRC 41-46	DAC

TABLE 5: Fiat 12790 SPRING NUT

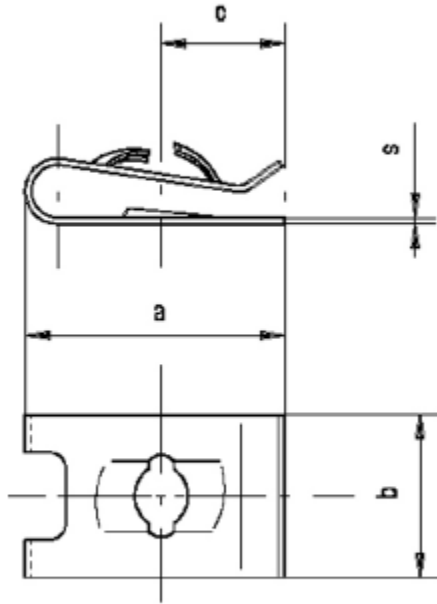


Part #	Description	Material	Finish
14189071	SPRING NUT, M6 SCREW STL ZND	XC 45 f BON (40 to 48 HRC)	ZND
90374985	SPRING NUT, M6 SCREW STL BGM	XC 45 f BON (40 to 48 HRC)	BGM
90391776	SPRING NUT, M6 SCREW STL DAC	XC 45 f BON (40 to 48 HRC)	DAC

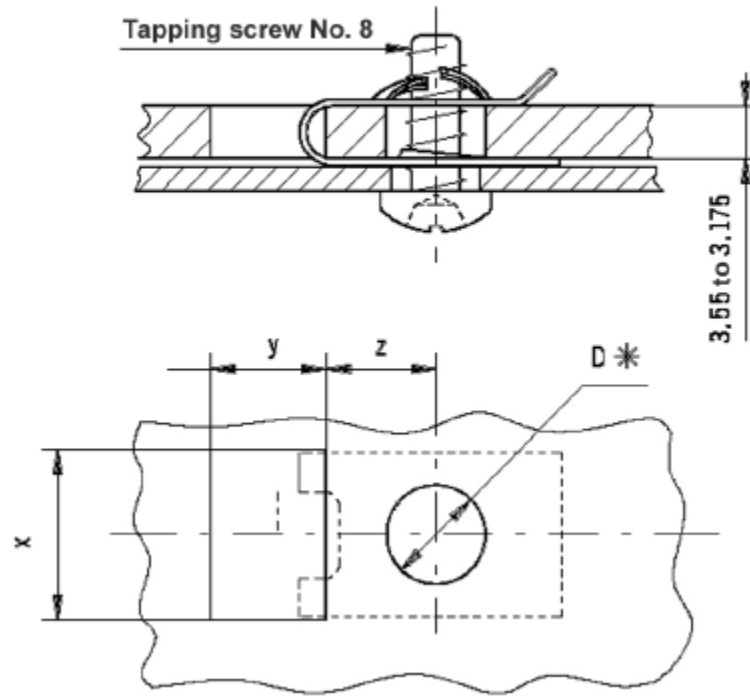
TABLE 6: Fiat 12790 SPRING NUT

Material: Steel – Fiat 52650 (C 72 NASTRO BON (HRC 41 to 46))

Dimensions in mm



Example of application

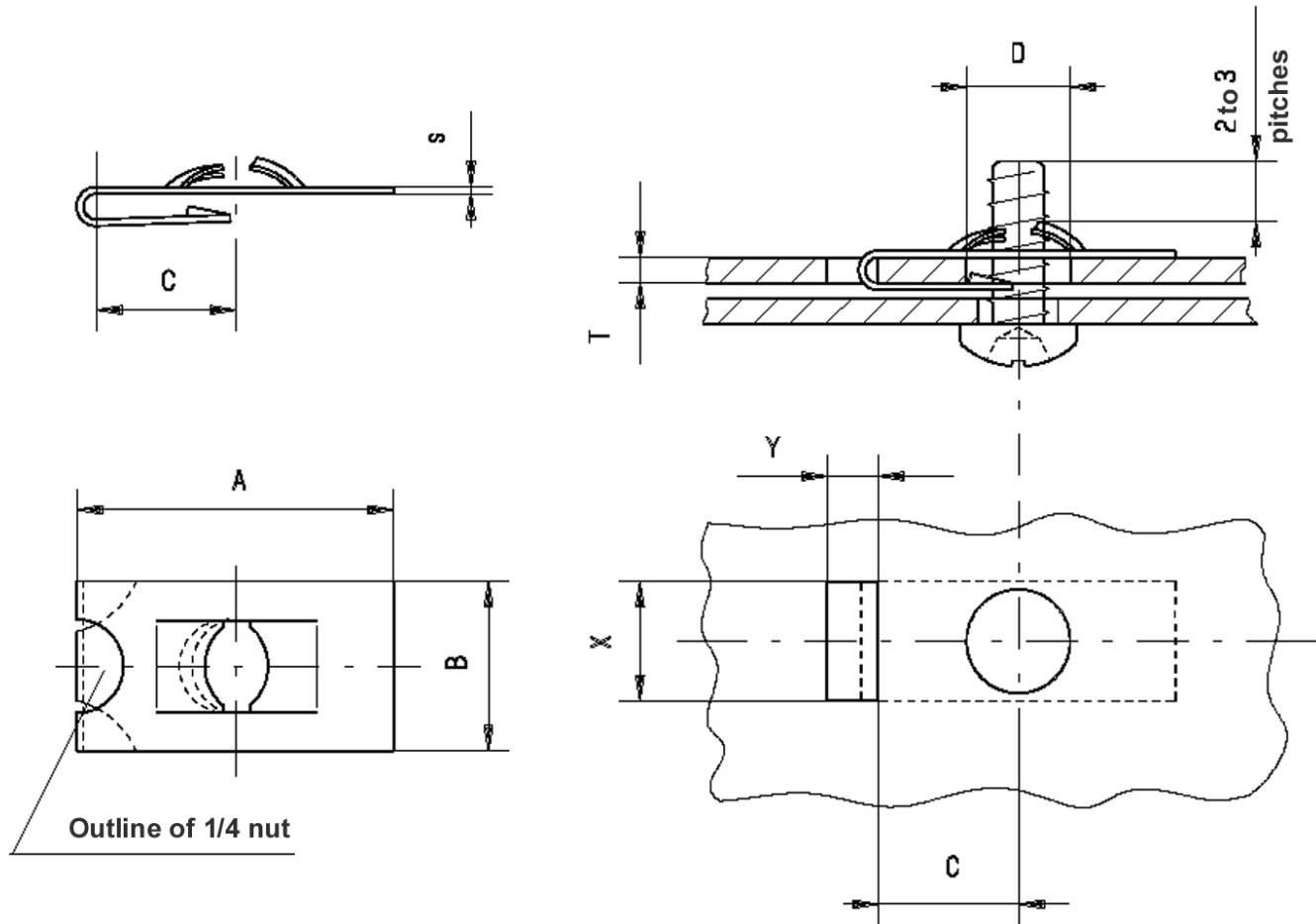


Part No.	Designation	a	b	c	s	x min.	y min.	z	D*	Mat	Fin
14189674	No. 6 or Ø 4	17.07	11.11	7.94	0.61	11.38	7.94	6.75	5	C72	DAC
14189676	No. 6 or Ø 4	17.07	11.11	7.94	0.61	11.38	7.94	6.75	5	C72	BLO
14189974	No. 8 or Ø 5	17.07	11.11	7.94	0.61	11.38	7.94	6.75	7	C72	DAC
14189976	No. 8 or Ø 5	17.07	11.11	7.94	0.61	11.38	7.94	6.75	7	C72	BLO

*For tolerance on hole diameter see Fiat Std. 01328.

TABLE 7: Fiat 12790 SPRING NUT

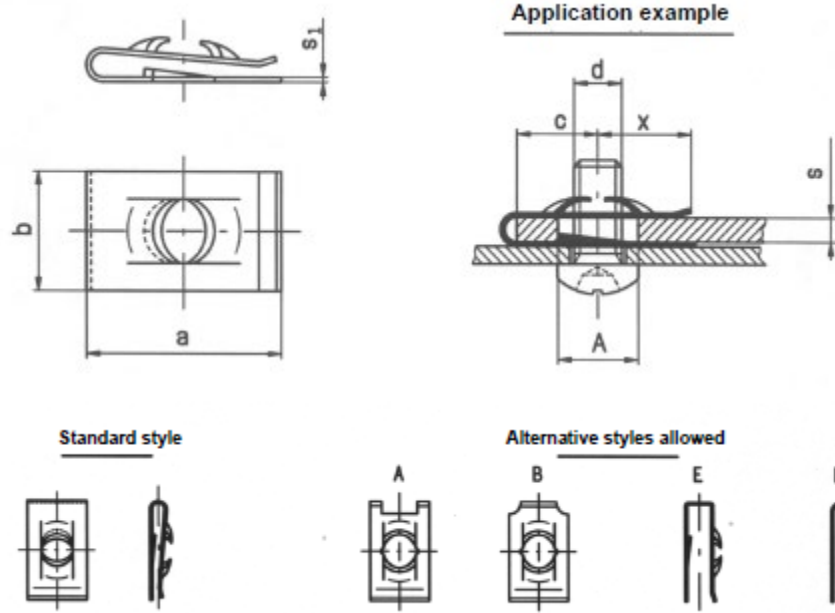
Material: Steel – Fiat 52650 (C 72 NASTRO BON (HRC 41 to 46))

Example of application


Part No.	Designation	A	B	s	D	C	T min.	T max.	X min	Y min.	Mat	Fin
	No/ 6	15.1	12	0.6	5	6.5	0.6	1	-	-		
14189176	No. 10	20.65	12.7	0.71	8	8.74	0.7	1.3	13	6.1	C72	BLO
14189276	No. 10	20.65	12.7	0.71	8	8.74	1.3	2.0	13	6.1	C72	BLO
	1/4 "-12- Acme spec.	26	16	0.9	10	13.8	0.9	1.6	16.4	10		

TABLE 8: Fiat 12790/01 SPRING NUTS FOR METRIC THREAD SCREWS

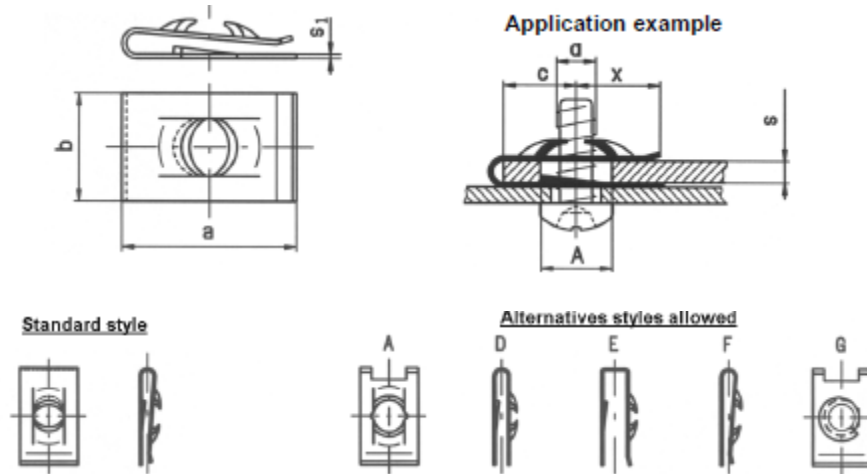
Material Fiat 52554 steel C72 NASTRO BON



Part Number	Style	Dia d	Length a ±0.3	Width b ±0.3	Thick S1	C max	X ±0.3	A	S	Finish
14370178	F	4	15.7	10	0.4	6.8	8.5	4.5	2.0 – 2.5	ZNM
14371071	A	5	20.3	12	0.5	8.0	10.0	7.0	2.7 – 4.2	ZND
14369271	A	6	16.2	16	0.5	7.4	6.6	8.0	1.9 – 3.0	ZND
14371774	A	6	24.3	14	0.5	10.0	12.0	8.0	2.0 – 3.2	DAC

TABLE 9: Fiat 12790/01 SPRING NUTS FOR SELF TAPPING SCREWS

Material Fiat 52554 steel C72 NASTRO BON



Part Number	Style	Dia d	Length a ±0.3	Width b ±0.3	Thick S1	C max	X ±0.3	A	S	Finish
14372171	A	3.5	16.5	10	0.5	9.0	5.5	6.3	2.0 – 3.0	ZND
14372274	A	4.2	16.0	12	0.6	8.5	6.0	6.0	0.6 – 1.4	DAC
14372471	D	4.2	11.8	9	0.6	5.0	4.4	6.0	2.1 – 2.5	ZND
47823398	Std	4.2	16.3	10	0.6	8.5	5.5	7.0	2.5 – 3.2	ZND
14369474	Std	4.2	16.3	10	0.6	8.5	5.5	7.0	2.5 – 3.2	DAC
90357579	G	4.2	13.0	11	0.5	6.0	5.8	6.4	2.5 – 3.0	ZND
14372671	E	4.2	12.4	9	0.6	6.0	5.0	6.0	3.8 – 4.2	ZND
14373071	A	4.8	15.0	12	0.7	6.5	6.8	7.0	0.8 – 1.5	ZND
14369071	A	4.8	14.6	12	0.7	5.5	6.8	7.0	2.5 – 3.2	ZND
47410458	Std	4.8	20.6	12	0.7	9.5	2.2	5.5	1.5 – 3.0	ZND
14369171	Std	4.8	25.2	10	0.7	12.0	10.0	6.5	3.6 – 5.0	ZND