EADS CORPORATE STANDARDIZATION	**NORME D'ETUDES** **BLIND BOLTS** **CYLINDRICAL HEAD**	**ASNA0027** Issue: **F** Date: **06.2012**

1 SCOPE

This ASN defines the main characteristics of blind bolts that can be installed with single or double action tooling in accordance with the installation technique.

With single action, there are two types of locking collar installation methods:

- S type: with flat shifting washer,
- U type: with conic shifting washer,

2 NORMATIVE REFERENCES

ASTM-A-331	Standard specification for steel bars, alloy, cold-finished withdrawn 2004.
ASTM-A-108	Standard specification for steel bars, carbon and alloy, cold-finished.
AMS 5690	Steel, corrosion and heat resistant, wire 17 Cr – 12 Ni – 2,5 Mo (SAE 30316) – Solution heat treated.
AMS 5737	Steel, corrosion and heat resistant, bars, wire, forgings, and tubing 15 Cr – 25,5 Ni – 1,2 Mo – 2,1 Ti – 0,006 B – 0,30 V – Consumable electrode melted 1650°F (899°C) solution and precipitation heat treated.
AMS 2700	Passivation for corrosion – Resistant steels.
AMS-QQ-P-416	Plating, cadmium (electrodeposited).
NASM 81177	Fasteners, blind, high strength, installation formed, alloy steel, general specification for (for material code A bolts).
NASM 8975	Fastener, blind, high strength, installation formed, corrosion resistant steel, heat resistant steel and titanium general specification for (pour boulons code matière B).
IGC 04.81.104	Marquage d'identification des éléments de fixation.
IFMA 520	Pose des boulons aveugles.

These documents shall be consulted at the latest issue in effect.

Keywords: Blind rivet (TC) – Cylindrical head rivet – Rivet – Blind bolt – Cylindrical head blind bolt – Steel blind bolt – Steel blind rivet.

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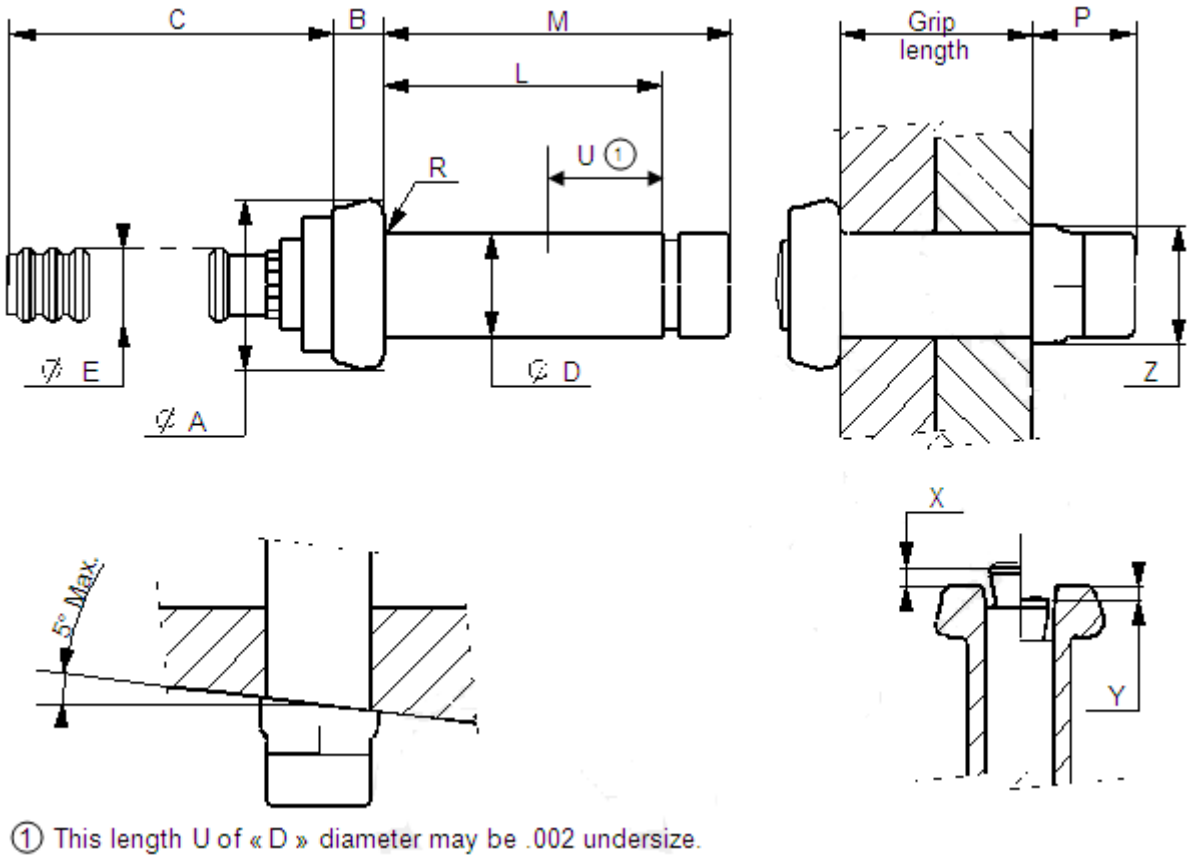
3 REQUIRED CHARACTERISTICS

3.1 Configuration - Dimensions - Lengths - Grip lengths



① This length U of « D » diameter may be .002 undersize.

FIGURE 1

TABLE 1 - Dimensions

Diameter code	A				B				C		D				E		U	
	max.		min.		max.		min.		min.		max.		min.		Ref.			
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
05	.272	6,91	.250	6,35	.070	1,78	.062	1,58	.844	21,44	.164	4,16	.162	4,12	.116	2,95	.215	5,46
06	.332	8,43	.305	7,75	.135	3,43	.125	3,18	.875	22,23	.199	5,05	.197	5,00	.144	3,66	.250	6,35
08	.432	10,97	.400	10,16	.140	3,55	.130	3,30	1.000	25,40	.260	6,60	.258	6,55	.185	4,70	.305	7,75
10	.522	13,26	.480	12,19	.141	3,58	.131	3,33	1.218	30,94	.312	7,92	.310	7,88			.350	8,89
12	.627	15,92	.580	14,73	.205	5,20	.195	4,96	1.562	39,68	.374	9,50	.372	9,45			.405	10,29

Diameter code	R		P		Z		Stainless steel X		Alloy steel X		Y		BK	
	max		max				max		max		max		min	
	In	mm	In	mm	In	mm	In	mm	In	mm	In	mm	In	mm
05	.010	0,25	.202	5,13	.195	4,95	.010	0,25	.020	0,51	.010	0,25	.310	7,87
06	.015	0,38	.231	5,87	.238	6,05	.010	0,25	.024	0,61	.010	0,25	.355	9,01
08	.020	0,51	.279	7,09	.315	8,00	.015	0,38	.030	0,76	.015	0,38	.430	10,92
10	.025	0,63	.319	8,10	.373	9,47	.020	0,51	.038	0,96	.015	0,38		
12	.030	0,76	.364	9,25	.448	11,38	.025	0,63	.045	1,17	.020	0,51		

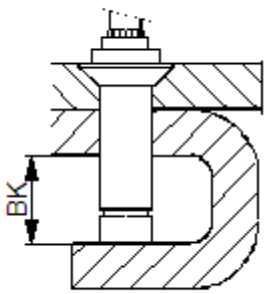


TABLE 2 - Lengths and grip lengths

Length code	Grip length		Diameter code																			
			05				06				08				10				12			
			L		M		L		M		L		M		L		M		L		M	
			Ref.		max.		Ref.		max.		Ref.		max.		Ref.		max.		Ref.		max.	
	in	mm	in	mm	in	mm	In	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
02	.094 .157	2,39 3,98	.280	7,11	.434	11,02	.303	7,70	.479	12,17												
03	.156 .220	3,96 5,59	.342	8,69	.496	12,60	.365	9,27	.541	13,74	.406	10,31	.616	15,65								
04	.219 .282	5,56 7,16	.405	10,29	.559	14,20	.428	10,87	.604	15,34	.469	11,91	.678	17,22	.506	12,85	.743	18,87	.548	13,92	.820	20,83
05	.281 .345	7,14 8,76	.467	11,86	.622	15,80	.490	12,45	.666	16,92	.531	13,49	.740	18,80	.568	14,43	.805	20,45	.610	15,49	.883	22,43
06	.344 .407	8,74 10,34	.530	13,46	.684	17,37	.553	14,05	.729	18,52	.594	15,09	.803	20,40	.631	16,03	.868	22,05	.673	17,09	.945	24,00
07	.406 .470	10,31 11,94	.592	15,04	.746	18,95	.615	15,62	.791	20,09	.656	16,66	.866	22,00	.693	17,60	.930	23,62	.735	18,67	1.007	25,58
08	.469 .532	11,91 13,51	.655	16,64	.809	20,55	.678	17,22	.854	21,69	.719	18,26	.928	23,57	.756	19,20	.993	25,22	.798	20,27	1.070	27,18
09	.531 .595	13,49 15,11	.717	18,21	.872	22,15	.740	18,80	.916	23,27	.781	19,84	.990	25,15	.818	20,78	1.055	26,80	.860	21,84	1.133	28,78
10	.594 .657	15,09 16,68	.780	19,81	.934	23,72	.803	20,40	.979	24,87	.844	21,44	1.053	26,75	.881	22,38	1.118	28,40	.923	23,44	1.195	30,35
11	.656 .720	16,66 18,29	.842	21,39	.996	25,30	.865	21,97	1.041	26,44	.906	23,01	1.116	28,35	.943	23,95	1.180	29,97	.985	25,02	1.257	31,93
12	.719 .782	18,26 19,86	.905	22,99	1.059	26,90	.928	23,57	1.104	28,04	.969	24,61	1.178	29,92	1.006	25,55	1.243	31,57	1.048	26,62	1.320	33,53
13	.781 .845	19,84 21,46	.967	24,56	1.122	28,50	.990	25,15	1.166	29,62	1.031	26,19	1.240	31,50	1.068	27,13	1.305	33,15	1.110	28,19	1.383	35,13
14	.844 .907	21,44 23,03	1.030	26,16	1.184	30,07	1.053	26,75	1.229	31,22	1.094	27,79	1.303	33,10	1.131	28,73	1.368	34,75	1.173	29,79	1.445	36,70

3.2 Materials - Surface treatment

TABLE 3

Code	Material			Surface treatment		
	Sleeve	Stem	Retaining ring	Sleeve	Stem	Retaining ring
A	steel alloy 4037 as per ASTM-A-331 or ASTM-A-108	steel alloy 8740 as per ASTM-A-331 or ASTM-A-108	A286 stainless steel as per AMS 5737 or Type 316 stainless steel Type 316 as per AMS 5690	Cadmium plating as per AMS-QQ-P-416 Type II CL 2	Cadmium plating as per AMS-QQ-P-416 Type I CL 3	Passivation as per QQ-P-35
B	A286 stainless steel as per AMS 5737	A286 stainless steel as per AMS 5737		Passivation as per AMS 2700	Passivation as per AMS 2700	Passivation as per AMS2700

3.3 Shear and tensile strength level

TABLE 4

* Value expressed in N*

Diameter code	Material code A		Material code B	
	Single shear strength	Tensile	Single shear strength	Tensile
05	10409	6005	8807	5115
06	15345	9340	13011	7517
08	26245	16236	22241	12900
10	37810	23130	32027	18549
12	54268	33361	46172	26556

* Minimum shear and tensile values of attached blind bolt.

4 DESIGNATION

4.1 New designation

Each bolt shall be designated as in the following example:

Description block[1]	Identifier block[2)]
BLIND BOLT	**ASNA0027 U A 08 10**

Standard reference

Installation type code (see table 5)

Material / finish code (see table 3)

Diameter code (see table 1)

Length-grip length code (see table 2)

NOTE – Where necessary, the company code F5442[3)] shall be specified between the description block and the identifier block.

4.2 Old designation (not valid for new design studies)

Description block [1)]	Identifier block [2)]
BLIND BOLT	**54215 - 08 - 10 S**

Standard reference

Diameter code (see table 1)

Length-grip length code (see table 2)

Installation type code (see table 5)

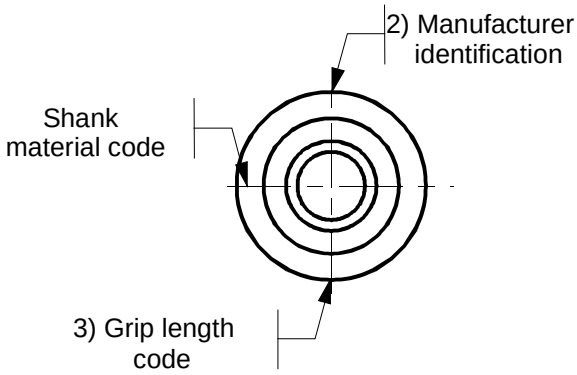
NOTE: Installation can be completed in single or double action.

TABLE 5

Installation code	Tools
S	Single action flat shifting washer
U	Single action conic shifting washer
None	Double action

[1)] Optional.
[2)] The identifier block shall be written without spaces. Those in the example are only intended to facilitate reading.
[3)] Company code assigned to EADS Corporate Standardization. F5442 is the designer's code for the present standard.

5 MARKING



The marking on the rivet head includes the following:

1) a shank material code:
   - a "C" for stainless steel shanks,
   - no code for alloy steel shanks,

2) the manufacturer's initials (see IGC 04.81.104),

3) the grip length code.

6 TECHNICAL SPECIFICATION

- NASM 81177
- NASM 8975

7 MANUFACTURERS

Refer to the list of qualified manufacturers and products.

RECORD OF REVISIONS

Issue	Paragraph modified	Description of modification	Reason
A 06-75		New standard.	
B 06-84		Updated.	
C 05-89		Standard revised.	CN/DIR 1 AECMA rules applied.
	4 - 2	Stainless steel material added.	Helicopters Division request.
	6	Old designation replaced by new designation for new design studies.	
D 09-89	4	Dimension D max 4,12 changed to 4,16 diameter code 05.	
E 04-01	Page 1	AEROSPATIALE changed to EADS.	Group trade name changed.
	2	Normative references: – Standards added: ASTM-A-752, AMS 5690, AMS 5737, AMS-QQ-P35, QQ-P-416. – Standards modified: MIL-F-81177 changed to NASM 81177 MIL-F-8975 changed to NASM 8975.	DCR/DN/P initiative.
	Figure 1	Dimension 7° maxi changed to 5° maxi.	
	Table 1	Dimension Y modified Dimension X stainless steel added.	In agreement with manufacturer's standards.
	Table 2	– Dimension M modified	
F	Figure 1 Table 1	Adding Coast U and related dimensions	Manufacturer request.
	Paragraph 2 and table 2	AMS-QQ-P35 replaced by AMS 2700. QQ-P-416 becomes AMS-QQ-P-416. QQ-P-35 becomes AMS 2700. ASTM-A-752 replaced by ASTM-A331.	
	Table 3	Socket replaced by Sleeve. Shank replaced by Stem.	

1) The issues I, O, X, Q and Z are not used