METRIC DRIVE PIN BLIND RIVETS

IFI NOTES:

1. ***This specification is under the jurisdiction of the IFI Standards and Technical Practices Committee and directly under the Technical Committee of IFI's Division I. This is the first publication of this metric standard.***

2. ***There are no ISO standards which include this product at this time.***

1. Scope

1.1 Scope. This standard establishes the requirements for metric drive pin blind rivets suitable for use in joining the component parts of an assembly.

1.2 Definitions

1.2.1 *Blind Rivet.* A blind rivet is a blind fastener which has a self-contained mechanical or other feature which permits the formation of an upset on the blind end of the rivet and expansion of the rivet shank during rivet setting to join the component parts of an assembly.

1.2.2 *Drive Pin.* A drive pin rivet is a blind rivet consisting of a rivet body and a pin which is contained in the rivet body and which projects above the rivet head. In the setting operation, the rivet is inserted into the components to be joined, and the pin is forced into the rivet body until the pin end is flush with the top of the rivet head. This action flares or spreads the end of the rivet body forming a blind head.

1.2.3 Definitions of other terms used in this standard are given in IFI-110/550, "Glossary of Terms Relating to Blind Rivets," page I–3.

2. Designations

2.1 Styles. The two basic styles of metric drive pin blind rivets are designated as protruding head and flush head. Flush head rivets are available in two styles designated as 100 deg countersunk head and 78 deg countersunk head.

2.2 Grades. The material combinations of drive pin blind rivets are designated as grades with each material combination representing a different combination of rivet body material and mandrel material as given in Table 1.

2.3 Design. The design of drive pin blind rivets shall be in accordance with the practice of the manufacturer.

Table 1 Grades of Metric Drive Pin Blind Rivets

Grade Designation	Rivet Body Material	Pin Material
12	Aluminum Alloy 5056	Aluminum Alloy
14	Aluminum Alloy 2117	Aluminum Alloy
30	Low Carbon Steel	Carbon Steel
31	Low Carbon Steel	300 Series Stainless Steel
60	Aluminum Alloy 2117	300 Series Stainless Steel
61	Aluminum Alloy 5056	300 Series Stainless Steel

NOTE: At manufacturer's option, Grade 31 rivets may be substituted for Grade 30.

METRIC DRIVE PIN BLIND RIVETS

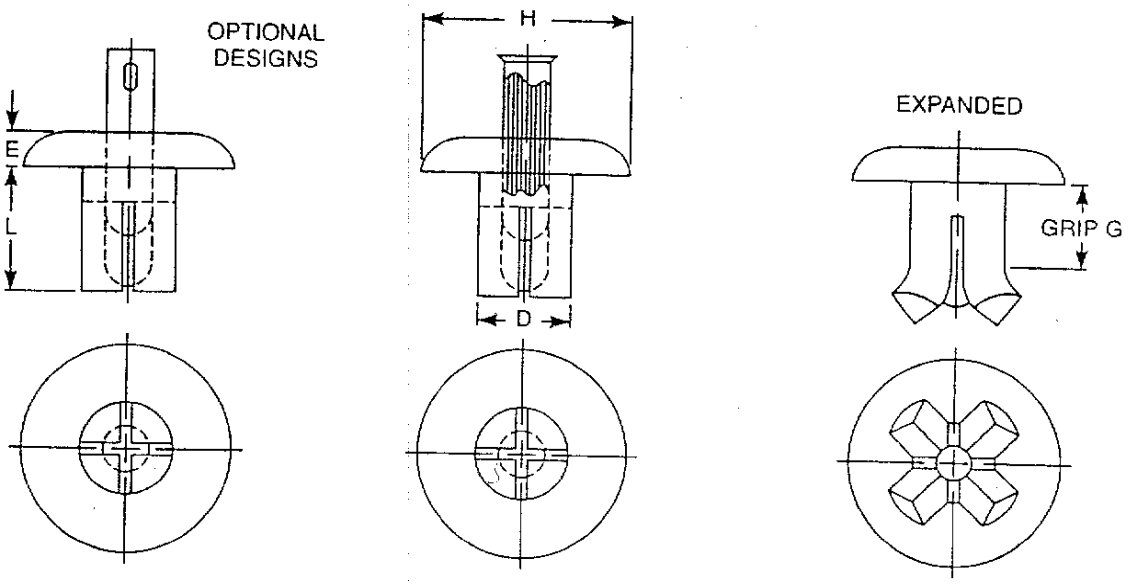


Table 2 Dimensions of Protruding Head Metric Drive Pin Blind Rivets

Rivet Series No.	Nom Rivet Dia	D		H		E		L
		Body Dia		Head Dia		Head Height		Rivet Body Length
		Max	Min	Max	Min	Max	Min	Max
4	3.2	3.22	3.07	6.65	6.04	1.63	1.37	See Table 3
5	4.0	4.01	3.86	8.32	7.51	1.96	1.70	
6	4.8	4.82	4.67	10.0	9.03	2.29	2.03	
8	6.3	6.39	6.24	13.32	12.05	2.97	2.71	

NOTES:
1. All dimensions are in millimeters.
2. For application data, see Table 3.
3. The slotted shanks of No. 4 rivets may produce 2, 3, or 4 segments. Slotted rivet shanks of larger sizes may produce 3 or 4 segments.
4. Illustrations are for basic dimensioning purposes only and are not intended to restrict designs and shapes of rivets otherwise conforming to the dimensional requirements.

3. Requirements

3.1 Materials and Processes

3.1.1 *Material.* Rivet bodies and mandrels shall be made of the material specified for the grade in Table 1. When the specific material analysis is not given, the analysis shall be selected by the manufacturer.

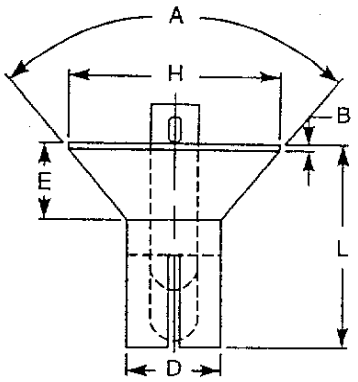
3.1.2 *Heat Treatment.* Rivet components shall be heat treated when necessary. Heat treat-

Table 3 Application Data for Protruding Head Metric Drive Pin Blind Rivets

Rivet Series No.	Nom Rivet Size	Recommended Metric Drill Size	Recommended Hole Size		Rivet No.	Grip Range	Rivet Body Length
			Max	Min			Max
4	3.2	3.3	3.38	3.28	42 43 44 45	1.17-1.98 2.00-2.76 2.79-3.55 3.58-4.34	4.72 5.53 6.32 7.11
					46 47 48 49	4.37-5.15 5.18-5.94 5.96-6.73 6.75-7.51	7.89 8.68 9.49 10.28
					410 411 412 413	7.54-8.32 8.35-9.11 9.14-9.90 9.92-10.69	11.07 11.88 12.66 13.45
5	4.0	4.1	4.16	4.06	52 53 54	1.17-1.98 2.00-2.76 2.79-3.55	5.53 6.32 7.11
					55 56 57 58	3.58-4.34 4.37-5.15 5.18-5.94 5.96-6.73	7.89 8.68 9.49 10.28
					59 510 511 512	6.75-7.51 7.54-8.32 8.35-9.11 9.14-9.90	11.07 11.88 12.66 13.45
					513 514 515 516	9.92-10.69 10.71-11.50 11.52-12.28 12.31-13.07	14.24 15.03 15.81 16.62
					517 518 519 520	13.10-13.86 13.88-14.67 14.70-15.46 15.48-16.24	17.41 18.22 18.98 19.80
6	4.8	4.9	4.98	4.88	62 64 66	1.17-2.76 2.79-4.34 4.37-5.94	7.11 7.89 9.49
					68 610 612 614	5.96-7.51 7.54-9.11 9.14-10.69 10.71-12.28	11.07 12.66 14.24 15.84
					616 618 620	12.31-13.86 13.88-15.46 15.48-17.03	17.41 19.01 20.58
8	6.3	6.5	6.63	6.53	84 86 88	2.79-4.34 4.37-5.94 5.96-7.51	7.89 9.49 11.07
					810 812 814	7.54-9.11 9.14-10.69 10.71-12.28	12.66 14.24 15.80
					816 818 820	12.31-13.86 13.88-15.46 15.48-17.03	17.41 19.01 20.58
See Notes		2					3

NOTES:
1. All dimensions are in millimeters.
2. Recommended drill sizes are those which normally produce notes within the specified hole size limits.
3. Maximum blind side clearance necessary to permit proper rivet setting equals max rivet length minus total thickness of material to be joined (grip).

METRIC DRIVE PIN BLIND RIVETS



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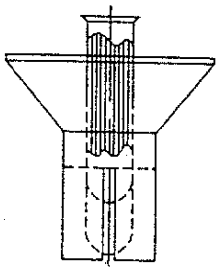

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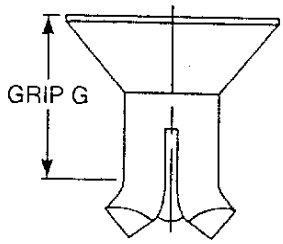

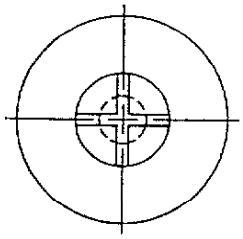

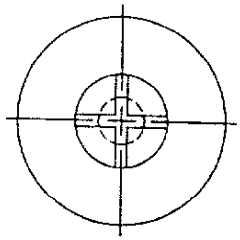

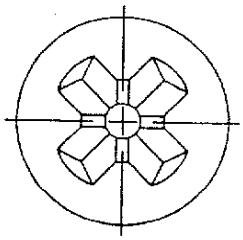

Table 4 Dimensions of Flush Head Metric Drive Pin Blind Rivets

Rivet Series No.	Nom Rivet Size	D		A	H		E	A	H		E	B			L
		Body Dia		Head Angle	Head Dia		Head Height	Head Angle	Head Dia		Head Height	Flat on Edge of Head			Rivet Body Length
												Grades 12, 14, 60, 61		Grades 30, 31	
		Max	Min	Deg Nom	Max	Min	Ref	Deg Nom	Max	Min	Ref	Max	Min	Max	Max
4	3.2	3.22	3.07	100	5.81	5.18	1.07	78	5.81	5.33	1.57	0.15	0.05	0.20	
5	4.0	4.01	3.86	100	7.39	6.65	1.40	78	7.36	6.70	1.98	0.18	0.08	0.25	See Table 5
6	4.8	4.67	2.02	100	9.11	8.22	1.78	78	8.70	8.02	2.39	0.23	0.08	0.25	
8	6.3	6.40	6.24	100	12.28	11.14	2.41	78	11.57	10.81	3.17	0.28	0.13	0.30	
See Notes				5			6	5			6				

NOTES:

1. All dimensions are in millimeters.
2. For application data see Table 5.
3. The slotted shanks of No. 4 rivets may produce 2, 3, or 4 segments. Slotted rivet shanks of larger rivets may produce 3 or 4 segments.
4. Illustrations are for basic dimensioning purposes only and are not intended to restrict designs and shapes of rivets otherwise conforming to the dimensional requirements.
5. Max head diameter is calculated on nominal body diameter and nominal head angle extended to a theoretical sharp corner. Min head diameter is absolute.
6. Head height is given for reference purposes only. Variations in this dimension are controlled by the diameters (H) and (D) and the included angle of the head.

METRIC DRIVE PIN BLIND RIVETS

Table 5 Application Data for 100 Deg Flush Head Metric Drive Pin Blind Rivets

Rivet Series No.	Nom Rivet Size	Recommended Metric Drill Size	Recommended Hole Size		Rivet No.	Grip Range	Rivet Body Length
			Max	Min			Max
4	3.2	3.3	3.38	3.28	44 45 46	2.79-3.55 3.58-4.34 4.37-5.15	6.32 7.11 7.89
					47 48 49 410	5.18-5.94 5.96-6.73 6.75-7.51 7.54-8.32	8.68 9.49 10.28 11.07
					411 412 413	8.35-9.11 9.14-9.90 9.92-10.69	11.88 12.66 13.45
5	4.0	4.1	4.16	4.06	54 55 56	2.76-3.55 3.58-4.34 4.37-5.15	7.11 7.89 8.68
					57 58 59 510	5.18-5.94 5.96-6.73 6.75-7.51 7.54-8.32	9.49 10.28 11.07 11.88
					511 512 513	8.35-9.11 9.14-9.90 9.92-10.69	12.66 13.45 14.24
					514 515 516 517	10.71-11.50 11.52-12.28 12.31-13.07 13.10-13.86	15.03 15.84 16.62 17.41
					518 519 520	13.88-14.67 14.70-15.46 15.48-16.24	18.22 19.01 19.80
6	4.8	4.9	4.98	4.88	66 68 610 612	4.37-5.94 5.96-7.51 7.54-9.11 9.14-10.69	9.49 11.07 12.66 14.24
					614 616 618 620	10.71-12.28 12.31-13.86 13.88-15.46 15.48-17.03	15.84 17.41 19.01 20.58
8	6.3	6.5	6.63	6.53	86 88 810 812	4.37-5.94 5.96-7.51 7.54-9.11 9.14-10.69	9.49 11.07 12.66 14.24
					814 816 818 820	10.71-12.28 12.31-13.86 13.88-15.46 15.48-17.03	15.80 17.41 19.01 20.58
See Notes		2					3

NOTES:
1. All dimensions are in millimeters.
2. Recommended drill sizes are those which normally produce holes within the specified hole size limits.
3. Minimum blind side clearance necessary to permit proper rivet setting equals max rivet length minus total thickness of material to be joined (grip).

ment shall be in accordance with good commercial practice.

3.1.3 *Finish.* Grade 60 rivet bodies may be anodized at the manufacturer's option except when specified by the purchaser. The stainless steel pins of Grades 60, 61, and 31 may be passivated or mill finish in accordance with the practice of the manufacturer.

Unless otherwise specified, Grades 30 and 31 rivet bodies shall be cadmium plated with a minimum plating thickness of 0.0038 mm.

3.2 Dimensional Requirements

3.2.1 *Rivet Dimensions.* Protruding and 100° and 78° flush head rivets shall conform to the dimensions given in Tables 2 and 4, respectively.

3.2.2 *Application Data.* Recommendations on the selection and application of protruding and 100° and 78° flush head rivets are given in Tables 3 and 5, respectively.

4. Inspection

Rivets shall be inspected to determine conformance with dimensional, mechanical, and performance requirements. Inspection shall be as agreed upon between manufacturer and purchaser.

Properly set rivet