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Methods of tensile and shear tests for brazed joint

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Descriptors : welded joints, tensile testing, shear testing, brazed joints

Reference number : **JIS Z 3192 : 1999 (E)**

Z 3192 : 1999

Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of International Trade and Industry through deliberations at Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law. Consequently **JIS Z 3192 : 1988** is replaced with **JIS Z 3192 : 1999**.

In this revision, **ISO 5187** *Welding and allied processes—Assemblies made with soft solders and brazing filler metals—Mechanical test methods* has been used as the basis, for the purpose of conformity with International Standards.

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Methods of tensile and shear tests for brazed joint

Introduction This Japanese Industrial Standard is based on ISO 5187 *Welding and allied processes — Assemblies made with soft solders and brazing filler metals — Mechanical test methods*, issued in 1985 as edition 1 and has been added with items (kinds of test pieces and specification of records) not specified in the referred standard.

The parts with dotted underlines and side-lines in this Standard are the items not specified in the corresponding International Standard.

1 Scope This Japanese Industrial Standard specifies methods of tensile and shear tests for brazed joint.

Remarks: The corresponding standard is ISO 5187: 1985 *Welding and allied processes — Assemblies made with soft solders and brazing filler metals — Mechanical test methods*.

2 Normative references The following standards are referred in this Standard and constitute a part of this Standard and the latest versions of them shall be applied.

JIS B 0031 *Technical drawings—Method of indicating surface texture on drawings*

JIS Z 2241 *Method of tensile test for metallic materials*

3 Classification of tests The tests shall be the two types of tensile and shear tests.

4 Test pieces

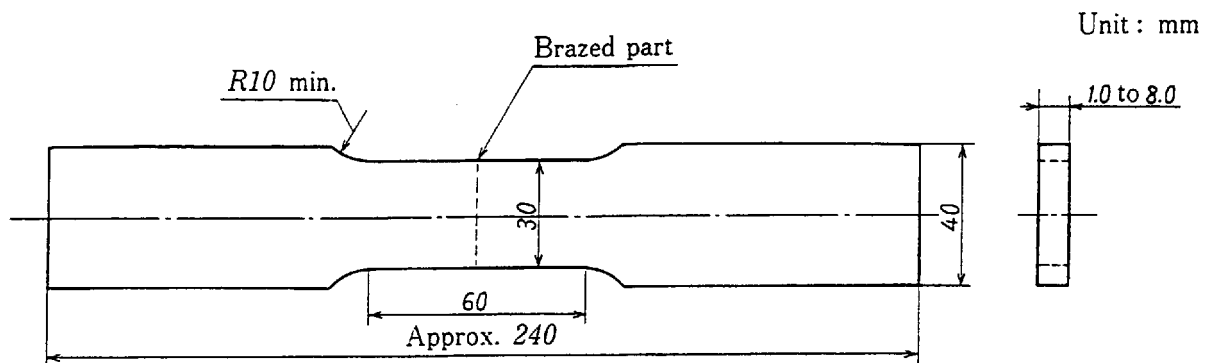
4.1 Classification of test pieces The test pieces shall be classified according to the type of test and shape of test piece and, be as shown in Table 1.

Table 1 Classification of test pieces

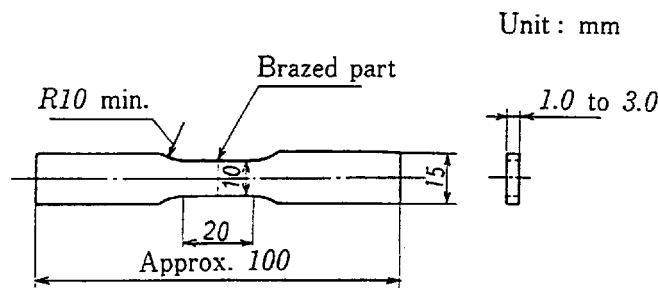
Classification			Remarks
Tensile test piece	No. 1	A	Butt brazed joint of plate member and section
		B	
	No. 2	A	Butt brazed joint of bar members
		B	
Shear test piece	No. 3	A	Lap brazed joint of plate and section
		B	
		C	
		D	
Tensile shear test piece	No. 4		Scarf brazed joint of plate and section

4.2 Shapes and dimensions of test pieces The shapes and dimensions of test pieces shall be as follows.

a) The shape and dimensions of No. 1 test piece shall be as shown in Fig. 1.



(a) No. 1 A test piece

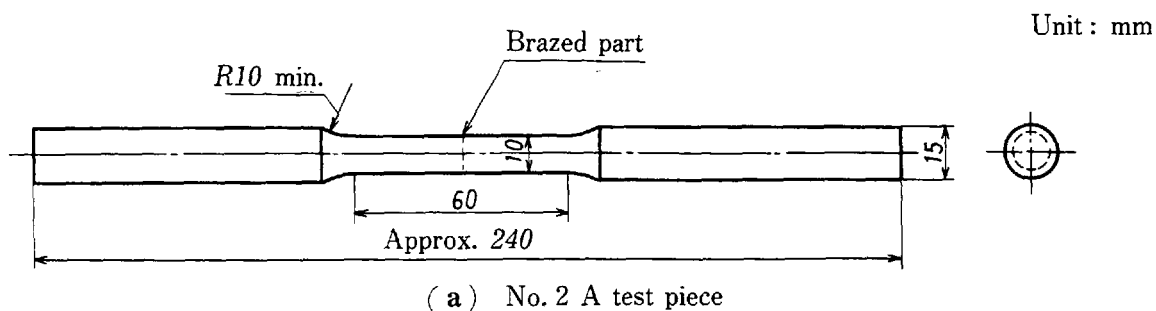


(b) No. 1 B test piece

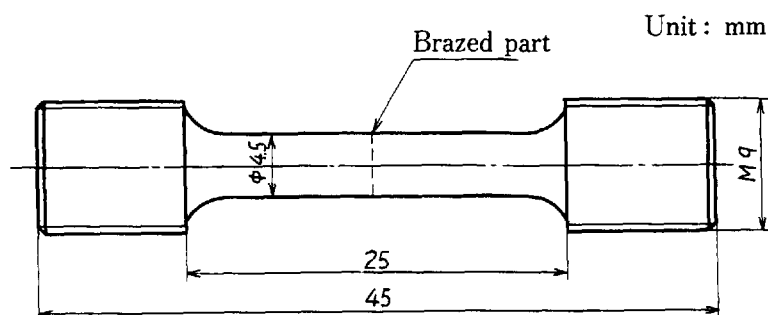
- Remarks
- 1 The parallel part of test piece shall be machine-finished after brazing.
 - 2 The roughness of finished surfaces of parallel part and shoulder part shall be $R_{\max}$ 25S.
 - 3 The indicating symbol shall be in accordance with JIS B 0031.

Fig. 1 No. 1 test piece

b) The shape and dimensions of No. 2 test piece shall be as shown in Fig. 2.



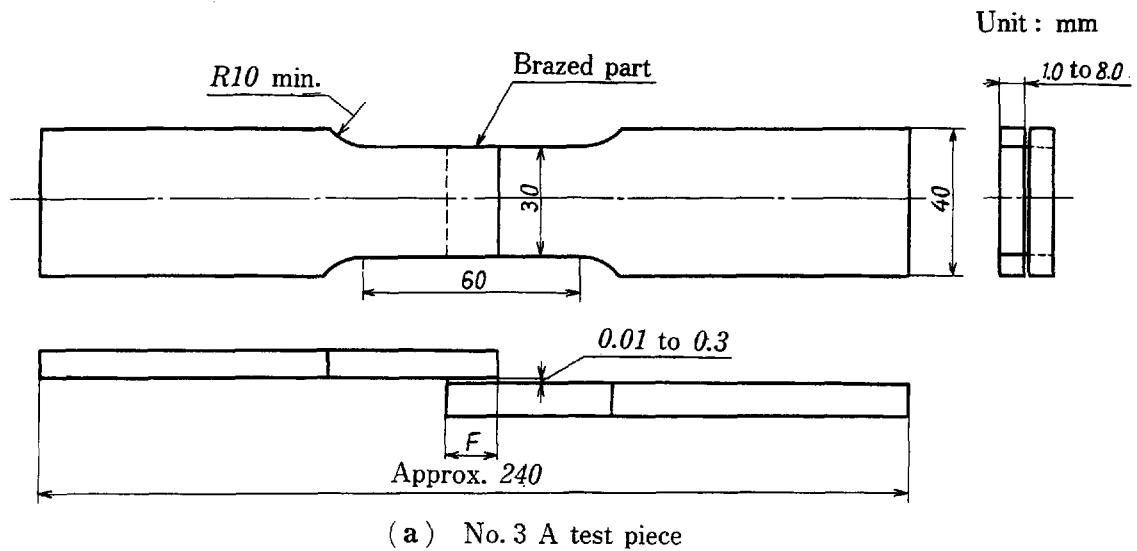
- Remarks 1 The parallel part of test piece shall be machine-finished after brazing.
 2 The roughness of finished surfaces of parallel part and shoulder part shall be $R_{\max}$ 25S.
 3 The indicating symbol shall be in accordance with JIS B 0031.



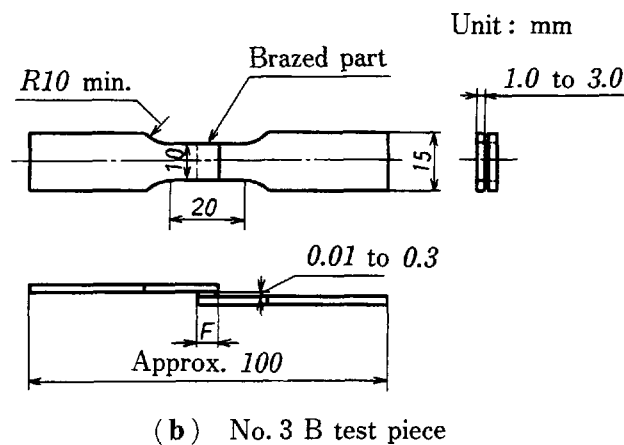
- Remarks 1 The parallel part of test piece shall be machine-finished after brazing.

Fig. 2 No. 2 test piece

c) The shape and dimensions of No. 3 test piece shall be as shown in Fig. 3.



Note : Lap (F) shall be determined from the purpose of test, base metal and kind of filler metal.



Note : Lap (F) shall be determined from the purpose of test, base metal and kind of filler metal.

- Remarks
- 1 The fillet of brazing filler metal shall be removed completely.
 - 2 The parallel part and side faces of test piece shall be machine-finished after brazing.
 - 3 The roughness of finished surfaces of parallel part and shoulder part shall be $R_{\max}$ 25S.
 - 4 The indicating symbol shall be in accordance with JIS B 0031.

Fig. 3 No. 3 test piece