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Broaches — Vocabulary

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Broaches — Vocabulary

1 Scope This Japanese Industrial Standard specifies the designations of the broaches⁽¹⁾ to be used, in general, mainly for metal cutting, as well as the terms and definitions thereof.

Note (1) The tools in which many cutting edges in combination of roughing teeth and finishing teeth have been arranged in the order of dimension. These are used mainly by attaching to the broaching machine.

Remarks: The standards cited in this Standard are given in the following:

JIS B 0102 *Glossary of gear terms*

JIS B 0170 *Cutting tools — Vocabulary — Common terms*

2 Classification The classification of terms shall be in accordance with the following:

- (1) Types of broaches
 - (1.1) Classification according to cutting tooth materials
 - (1.2) Classification according to structures
 - (1.3) Classification according to operation methods
 - (1.4) Classification according to portions to be worked
 - (1.5) Classification according to arrangements of cutting teeth in cutting direction
 - (1.6) Classification according to workpieces, finishing shapes and functions (or uses)
- (2) Elements of broach
- (3) Angles of broach
- (4) TUKAMIBU (attaching end to broaching machine) of broach
- (5) Accuracy of broach
- (6) Damage on cutting tooth of broach
- (7) General terms of broaches

3 Designation of broaches The broaches shall be designated by combining the relevant terms in the order of the classification given in 2 (1).

The broaches used high speed tool steel for the cutting tooth material, broaches of solid⁽²⁾ or tipped in structure, broaches of which operating method is of pulling, and broaches of which portion to be worked is internal surface or external surface shall be designated by omitting these [the words in () of the following examples].

Note (2) As for the broaches used other material than the high speed tool steel for the cutting tooth material the "solid" shall not be omitted.

As for the broaches used cemented carbide alloy for the cutting tooth material, they shall be designated by omitting the "alloy".

Examples

Designation	Cutting tooth material	Structure	Operating method	Portion to be worked	Arrangement of cutting teeth in cutting direction	Workpieces, finishing shape, function or use
Spline broach with round teeth	(High speed tool steel)	(Solid)	(Pulling)	(Internal surface)	With round teeth	Spline
Pushing serration broach	(High speed tool steel)	(Solid)	Pushing	(Internal surface)	—	Serration
Cylinder key broach	(High speed tool steel)	(Solid)	(Pulling)	(Internal surface)	—	Key hole
Carbide surface broach	Cemented carbide (alloy)	(Tipped teeth)	—	(External surface) Surface	—	—

4 Terms and definitions The terms and definitions of the broaches shall be in accordance with the following.

The quantity symbols, units and English equivalent are given for informative reference.

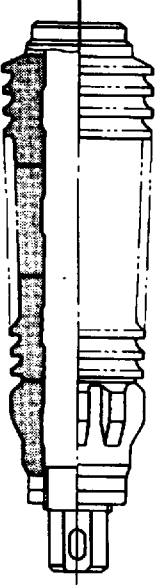
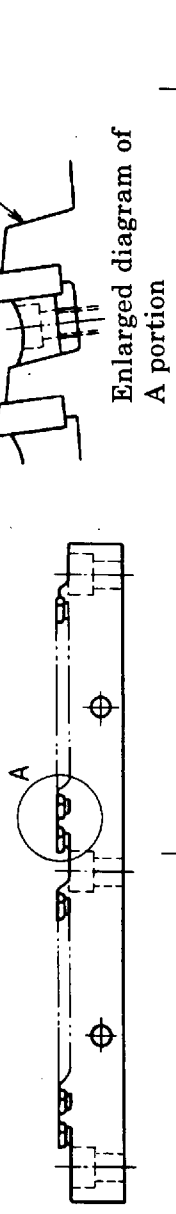
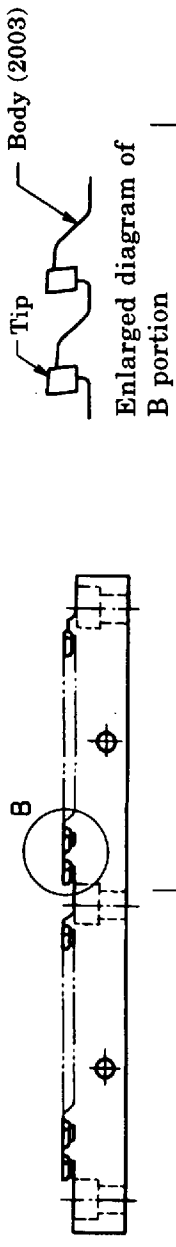
Remarks 1 As to terms parenthesized partially, the letters given in the parentheses may be omitted.

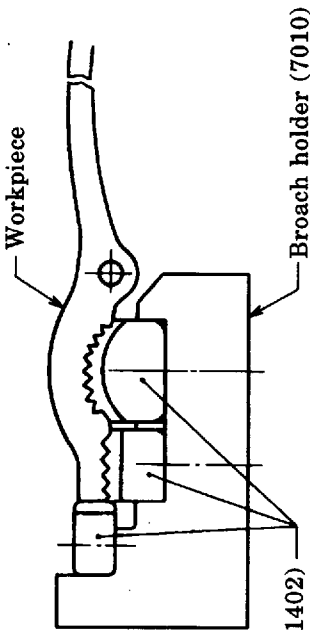
2 The diagrams are for indicating examples, and are not for expressing the shapes and dimensions.

(1) Types of broaches**(1.1) Classification according to cutting tooth materials**

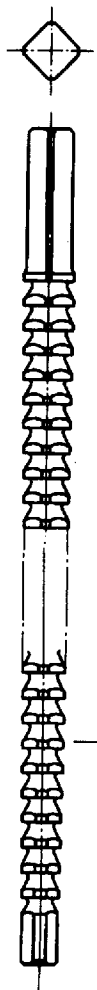
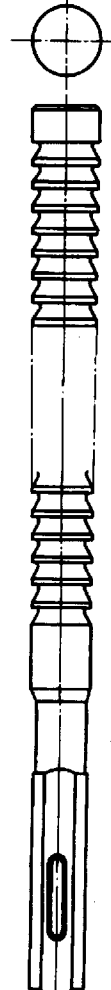
No.	Term (Japanese characters)	Reading	Definition	English equivalent (informative reference)
1101	高速度工具鋼ブローチ	KÔSOKUDO KÔGUKÔ BURÔTI	The broach for which high speed tool steel is used as the material of cutting tooth.	high speed steel broach
1102	超硬ブローチ	TYÔKÔ BURÔTI	The broach for which cemented carbide alloy (sintered material of tungsten carbide as main body) is used as the material of cutting tooth.	carbide broach

(1.2) Classification according to structures

No.	Term (Japanese characters)	Reading	Definition	English equivalent (informative reference)
1201	むくブローチ	MUKU BURÔTI	The broach made of the same material in whole body to be integral.	solid broach
1202	組立ブローチ	KUMITATE BURÔTI	The broach built-up by assembling not less than two parts. 	built-up broach
1203	植刃ブローチ	UEBA BURÔTI	The broach attached mechanically with blades to its body. Remarks: The blades shall be in accordance with JIS B 0170 . 	inserted broach
1204	付刃ブローチ	TUKEHA BURÔTI	The broach having tips brazed or welded on the body. Remarks: The tips shall be in accordance with JIS B 0170 . 	tipped broach

No.	Term (Japanese characters)	Reading	Definition	English equivalent (informative reference)
1205	組合せブローチ	KUMIAWASE BURÔTI	The broach used in a set for working two places or more of workpieces simultaneously.  External broach (1402) Broach holder (7010) Workpiece	—

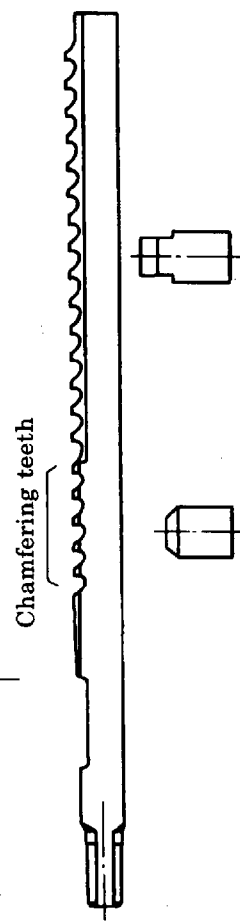
(1.3) Classification according to operation methods

No.	Term (Japanese characters)	Reading	Definition	English equivalent (informative reference)
1301	押しブローチ	OSI BURÔTI	The broach to perform cutting by pushing. 	pushing broach
1302	引抜きブローチ	HIKINUKI BURÔTI	The broach to perform cutting by pulling. 	pulling broach

(1.4) Classification according to portions to be worked

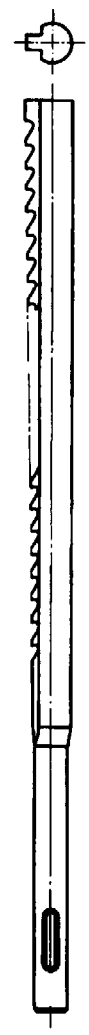
No.	Term (Japanese characters)	Reading	Definition	English equivalent (informative reference)
1401	内面ブローチ	NAIMEN BURÔTI	The broach to finish the internal face of workpiece to the required shape.	internal broach
1402	外面ブローチ	GAIMEN BURÔTI	The broach to finish the external face of workpiece to the required shape. Remarks: It is also called "surface broach".	external broach; surface broach

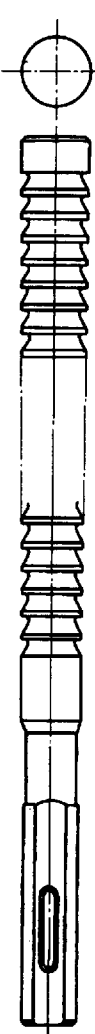
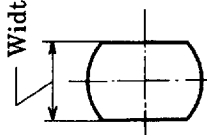
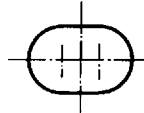
(1.5) Classification according to arrangements of cutting teeth in cutting direction

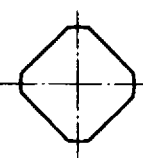
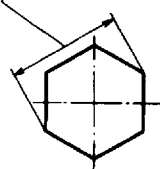
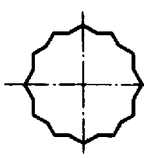
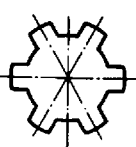
No.	Term (Japanese characters)	Reading	Definition	English equivalent (informative reference)
1501	コンビネーションブローチ	KONBINÊSYON BURÔTI	The generic name of the broaches having two or more cutting portions such as the round hole and keyway, or round hole and spline groove and the like.	combination broach
1502	面取刃付きブローチ	MENTORI HA TUKI BURÔTI	The broach having chamfering teeth at the front or rear of cutting teeth.  Chamfering teeth Chamfering tooth (2022)	—
1503	バニシング刃付きブローチ	BANISINGU HA TUKI BURÔTI	The broach having burnishing teeth at the rear part of cutting teeth. Remarks: It is also called "the broach with TAKUMA-BA (burnishing teeth)".	—

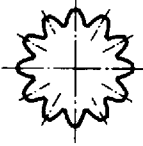
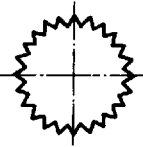
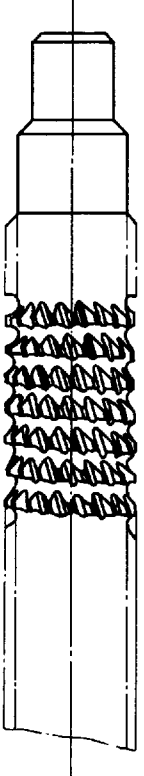
No.	Term (Japanese characters)	Reading	Definition	English equivalent (informative reference)
1503 (continued)	バニシング刃付きブローチ	BANISINGU HA TUKI BURÔTI	 Burnishing teeth (2023)	
1504	丸刃付きブローチ	MARUBA TUKI BURÔTI	The broach having round teeth at the front part or rear part of cutting teeth.  Spline teeth (2019) Round teeth (2018)  Round teeth (2018)	—
1505	交互丸刃付きブローチ	KÔGO MARUBA TUKI BURÔTI	The broach arranged the round teeth and chamfering teeth, spline teeth and the like alternately.  Spline teeth (2019) KÔGO BA (2021) Spline tooth (2019) Round tooth (2018)	—

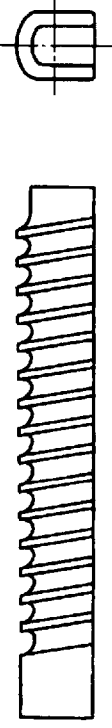
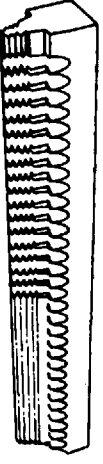
(1.6) Classification according to workpieces, finishing shapes and functions (or uses)

No.	Term (Japanese characters)	Reading	Definition	English equivalent (informative reference)
1601	荒ブローチ	ARA BURŌTI	The broach used for roughing work.	roughing broach
1602	仕上ブローチ	SIAGE BURŌTI	The broach used for finishing work.	finishing broach
1603	バニシングブローチ	BANISINGU BURŌTI	The broach used for burnishing finish work. Remarks: It is also called "TAKUMA (burnishing) broach". 	burnishing broach
1604	組ブローチ	KUMI BURŌTI	The broach used in assortment of two pieces or more as the roughing broach and finishing broach.	—
1605	キー溝ブローチ	KĪMIZO BURŌTI	The broach used for working keyway.	keyway broach
1606	平形キー溝ブローチ	HIRAGATA KĪMIZO BURŌTI	The keyway broach having quadrangle body. 	flat type keyway broach
1607	丸形キー溝ブローチ	MARUGATA KĪMIZO BURŌTI	The keyway broach having round body. 	round type keyway broach

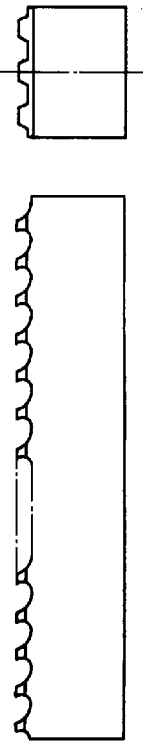
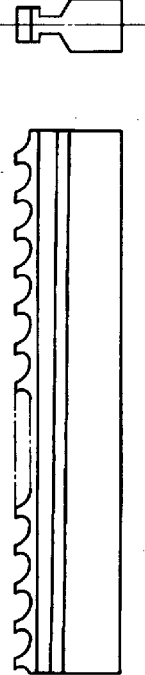
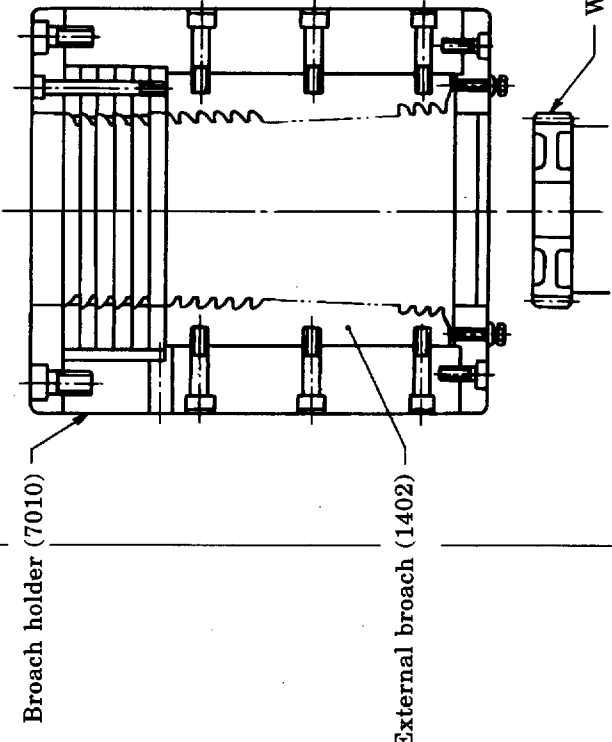
No.	Term (Japanese characters)	Reading	Definition	English equivalent (informative reference)
1608	丸ブローチ	MARU BURÔTI	The broach used for working round hole. 	round broach
1609	二面取り丸ブローチ	NIMENTORI MARU BURÔTI	The broach used for working hole having circular shape cut out by two parallel straight lines. Remarks: The shape of flattened round hole. 	flatted round broach; double "D" broach
1610	小判形ブローチ	KOBANGATA BURÔTI	The broach used for working oval shape hole. Remarks: The shape of worked hole. 	oval broach
1611	角形ブローチ	KAKUGATA BURÔTI	The broach used for working polygonal hole.	polygonal broach
1612	四角ブローチ	SIKAKU BURÔTI	The broach used for working square hole. Remarks 1. It is also called "KAKU broach". 2. The shape of square hole.	square broach

No.	Term (Japanese characters)	Reading	Definition	English equivalent (informative reference)
1612 (continued)	四角ブローチ	SIKAKU BURÔTI		
1613	六角ブローチ	ROKKAKU BURÔTI	The broach used for working hexagonal hole. Remarks: The shape of hexagonal hole. 	hexagonal broach
1614	二重六角ブローチ	NIZYŪ ROKKAKU BURÔTI	The broach used for working offset wrench hole. Remarks: The shape of offset wrench hole. 	offset wrench broach
1615	スプラインブローチ	SUPURAIN BURÔTI	The broach used for working spline hole.	spline broach
1616	角形スプラインブローチ	KAKUGATA SUPURAIN BURÔTI	The broach used for working straight-sided spline hole. Remarks 1. According to the number of gullets of spline, three spline broach, four spline broach, six spline broach, etc. are in this type. 2. The shape of six spline hole. 	straight-sided spline broach; parallel spline broach

No.	Term (Japanese characters)	Reading	Definition	English equivalent (informative reference)
1617	インボリユースプライン インブローチ	INBORYÛTO SUPURAIN BURÔTI	The broach used for working involute spline hole. Remarks: The shape of involute spline hole. 	involute spline broach
1618	セレーションブローチ	SERÊSYON BURÔTI	The broach used for working serration hole.	serration broach
1619	山形セレーションブローチ	YAMAGATA SERÊSYON BURÔTI	The broach used for working straight-sided serration hole. Remarks: The shape of straight-sided serration hole. 	straight-sided serration broach
1620	インボリユートセレー ションブローチ	INBORYÛTO SERÊSYON BURÔTI	The broach used for working involute serration hole.	involute serration broach
1621	内歯車用ブローチ	UTIHAGURUMA YÔ BURÔTI	The broach used for working internal gear.	internal gear broach
1622	ヘリカルブローチ	HERIKARU BURÔTI	The broach used for working helical slot. Remarks 1. It is also called "spiral broach". 2. Helical spline broach, helical involute broach, etc. are in this type. 	helical broach

No.	Term (Japanese characters)	Reading	Definition	English equivalent (informative reference)
1623	ライフルブローチ	RAIHURU BURÔTI	The helical broach used for working rifling of bore.	rifle broach
1624	ラチェットブローチ	RATYETTO BURÔTI	The broach used for working ratchet cutting tooth form.	ratchet broach
1625	油溝ブローチ	ABURA MIZO BURÔTI	The broach used for working oil groove.	oil groove broach
1626	平ブローチ	HIRA BURÔTI	The broach used for working plain surface. Remarks: It is also called "HEIMEN BRÔTI". 	plain broach
1627	スパナブローチ	SUPANA BURÔTI	The broach used for working spanner opening. 	spanner broach
1628	かぎ穴ブローチ	KAGIANA BURÔTI	The broach used for working key hole. 	cylinder key broach
1629	クリスマスツリー形ブローチ	KURISUMASU TURÎGATA BURÔTI	The broach used for working Christmas-tree form of turbine disc. 	pine-tree form broach; fir-tree form broach; Christmas tree form broach

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No.	Term (Japanese characters)	Reading	Definition	English equivalent (informative reference)
1630	ラックブローチ	RAKKU BURÔTI	The broach used for working rack form (refer to No. 11203 in JIS B 0102). Remarks: Refer to JIS B 0102. 	rack broach
1631	T溝ブローチ	T-MIZO BURÔTI	The broach used for working T-slot form. 	T-slot broach
1632	ポットブローチ	POTTO BURÔTI	The cylindrical broach used for working periphery of workpiece. 	pot broach

(2) Elements of broach

No.	Term (Japanese characters)	Reading	Definition	Informative reference	
				Quantity symbol	English equivalent
2001	軸	ZIKU	The central line in longitudinal direction of internal broach and the like.	—	axis
2002	刃部	HABU	The generic name of parts constituted of rake face, flank, tooth back and tooth side (refer to JIS B 0170).	—	cutting tooth
2003	ボディ	BODÊ	The basic part of flat type keyway broach, plain broach, etc. (refer to JIS B 0170).	—	body
2004	シャンク	SYANKU	The part from the end of pull end to the first tooth of the internal broach and the like.	—	shank
2005	後部シャンク	KÔBU SYANKU	The part from the rear pilot to the follower end.	—	rear shank
2006	つかみ部	TUKAMIBU	The both ends of broach to be attached to broaching machine. Remarks: There are pull end and follower end.	—	—
2007	前つかみ部	MAE TUKAMIBU	The part at an end of TUKAMIBU of broach to be attached to pull head of broaching machine.	—	pull end
2008	後つかみ部	USIRO TUKAMIBU	The part at an end of TUKAMIBU of broach to be attached to retrieving head of broaching machine.	—	follower end; retriever; follow rest
2009	前部案内	ZENBU ANNAI	The part directly before the first tooth. Remarks: In general, the part to guide the workpiece correctly to the first tooth by coinciding with the prepared hole of workpiece. It is also called "guide".	—	front pilot
2010	後部案内	KÔBU ANNAI	The part at the direct rear of the final tooth. Remarks: In general, the part to guide until the workpiece passes through the final tooth correctly.	—	rear pilot