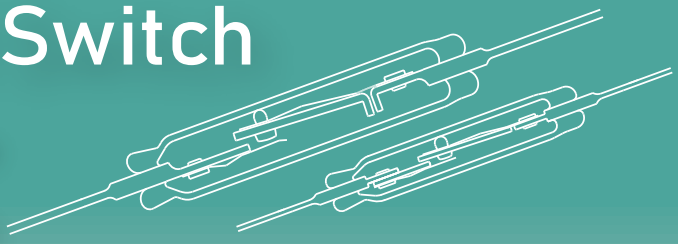
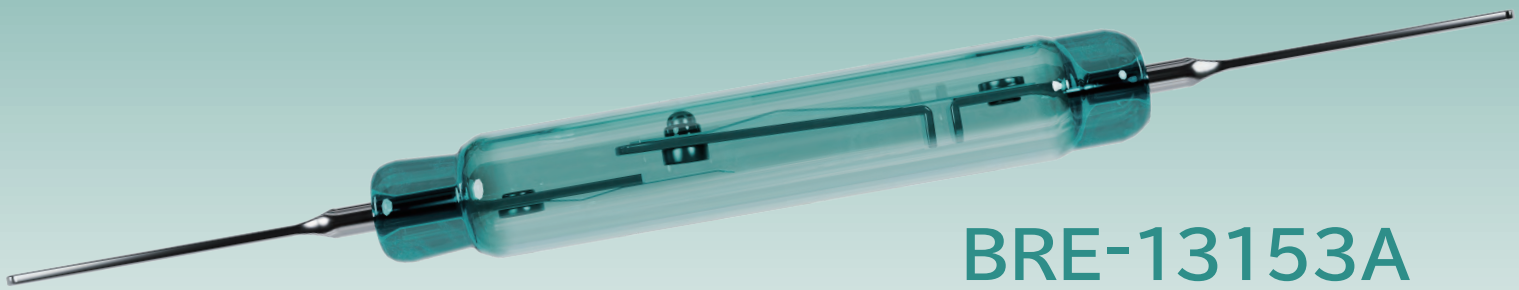
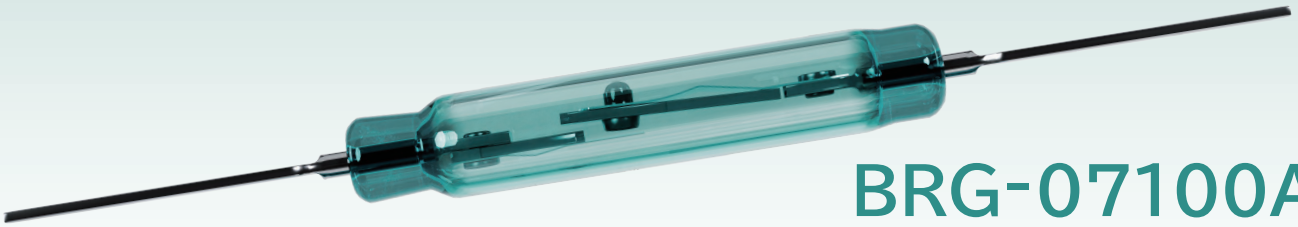
High Power Reed Switch

Bestact





BRE-13153A



BRG-07100A

High Carry Current: 13A

- Enables 13A Carry Current, the largest value in dry reed switches, 2 to 5 times greater*1 than competitors.
- Even if several contacts are used to carry more than 10A, Bestact®*2 allows you to use only one Bestact instead, enabling you to downsize your devices and reduce costs.

Large Contact Capacity and High Insulation Resistance in a Small Size

- Maximum Contact capacity of 150W, insulation resistance of $10^{13}\Omega$, and approximately 18% smaller*1 than competing products with the same characteristics (glass tube length 37mm).
- The smallest size in the industry for high power reed switches, enabling miniaturization of devices.

Suitable for a wide range of loads, including micro-loads and inductive loads

- Able to operate at a micro load of 5V DC 1mA with a failure rate $\lambda_{60} = 5 \times 10^{-8}$/ time or less.
- Able to directly switch inductive load with a large time constant, eliminating the need for protection circuits.

By adopting Bestact as contacts for power relays and limit switches, higher reliability and durability can also be expected.

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*1 Comparison of catalog values of reed switches based on our own research as of May 2024.
*2 Bestact® is a registered trademark No. 6136829, No. 1688304, No. 1437384, and No. 3766101. The name is derived from "Best Contact".

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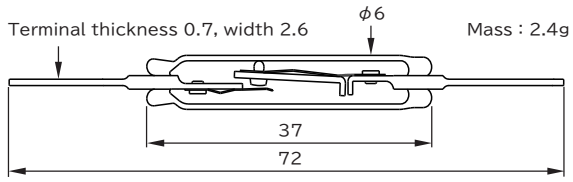
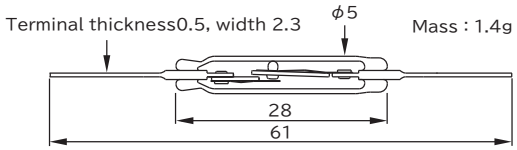
Bestact High Power Reed Switch

- BRE-13153A
- BRG-07100A

Dimensions (㎜)



BRE-13153A



BRG-07100A

RoHS COMPLIANT

Made in Japan

Electrical Characteristics

		BRE-13153A	BRG-07100A	Units	Remarks
Contact form		1a (NO)	1a (NO)	-	-
Resistive Load	Contact rating	150	100	W - max.	-
	Switching voltage	300	250	V DC - max.	-
	Switching current	3	2	A DC - max.	-
	Min. switching load	1	1	mA (5V DC)	$\lambda_{60}=5\times10^{-8}$/time or less
Inductive Load	Switching current	0.5	0.3	A (110V DC)	BRE-13153A L/R=100ms BRE-07100A L/R=40ms
Carry current		13	10	A DC - max.	-
Breakdown voltage		1300	700	V DC - min.	-
Contact resistance		100	100	mOhm - max.	-
Insulation resistance		10^{13}	10^{13}	Ohm - typ.	100V RH<45%
Capacitance		0.5	0.5	pF - typ.	10kHz
Electrical life		Please inquire as it depends on load.			

* Please inquire regarding electrical characteristics when used with AC loads.

Operating Characteristics

Pull In range	180-210	100-130	AT	Test coil is of 3000 turns, 33.5mm long, 10.5mm I.O. with 0.2mm dia. wire
Drop out	60	50	AT - min.	
Operate time	5	4	ms - max.	-
Release time	3	2	ms - max.	-

Enviromental Characteristics

Vibration	40	40	G - max.	20-1000Hz
Shock	70	70	G - max.	11ms
Operate temperature	-40 to +150	-40 to +150	℃	-
Storage temperature	-60 to +180	-60 to +180	℃	-
Lead tensile strength	98	98	N	-
Soldering temperature	350	350	℃ - max.	3s

Please contact us for a quotation, free samples, and higher breakdown voltage type or inductive load usage type from each product page.
Product specifications are subject to change without notice. Please check the product page before ordering.

https://www.bestact.co.jp/gl/products/bestact-high-power-reed-switch

Address: Yaskawa Electric Corporation Yukuhashi Division 2-13-1 Nishimiyaichi, Yukuhashi, Fukuoka, Japan HP: https://www.bestact.co.jp/gl Doc.No.CHE-B-003-<0> Published in June.2024

YASKAWA
BESTACT SOLUTIONS INC.

Instruction Manual for hermetically-sealed glass contact "Bestact"
Model: BRG Series, BRE Series

Thank you for choosing the Bestact. Before using the product, read this manual thoroughly to ensure correct use.
After reading that, be sure to keep it in a place where the user can refer to it at any time.

1.Safety symbols

The following symbols are used throughout this manual for safety.

WARNING : Indicates a hazardous situation which may result in death or serious injury if it is handled improperly.

CAUTION : Indicates a hazardous situation which may result in moderate disability, minor injury, or property damage only if it is handled improperly. Note that even items described as "CAUTION" may lead to serious results depending on the situation. Therefore, be sure to follow the instructions described for each item.

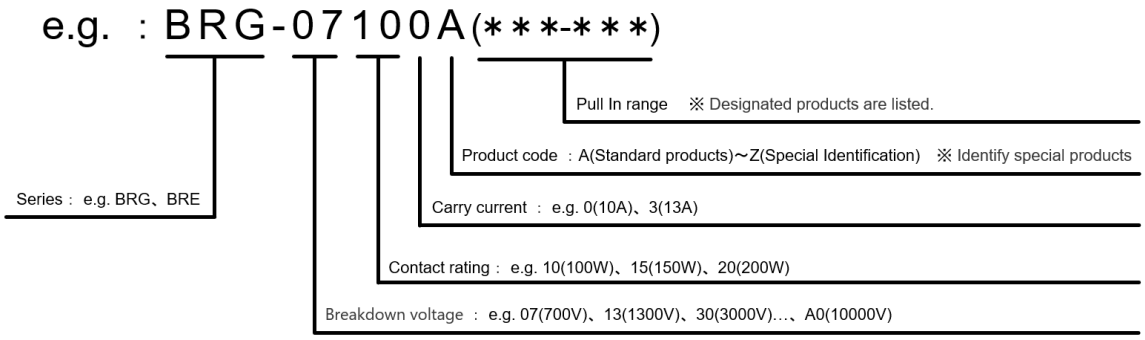
PROHIBITED : Indicates prohibited (not allowed).

EQUIREMENT : Indicates mandatory (must be done).

CAUTION

2.Confirmation of actual product

Check the model number printed on the package to confirm that the product is exactly what you ordered.



Check the product for damage or other abnormality.

In particular, when it is suspected that the product has been subjected to an impact caused by dropping, etc. during transportation, discard the product.

PROHIBITED

3.Storage location

Do not store the product in places subject to rain or water drops, places subject to high temperature or humidity, places subject to harmful gases or liquids, places subject to direct sunlight, or places subject to vibration or shock.

CAUTION

4.Precautions for use

4.1 Handling

Since the Bestact is a hermetically-sealed glass contact, sufficient care must be taken in handling.

Do not apply strong impacts such as hitting or dropping the device.

These actions may cause glass cracking or malfunction due to internal parts malfunction, or may significantly deteriorate performance.

CAUTION

4.2 Connection when applying DC circuit

When using in a DC circuit, connect the stationary side terminal to (+) and the movable side terminal to (-) as Shown in Fig.1.Reverse connection may significantly reduce the life of the contact.

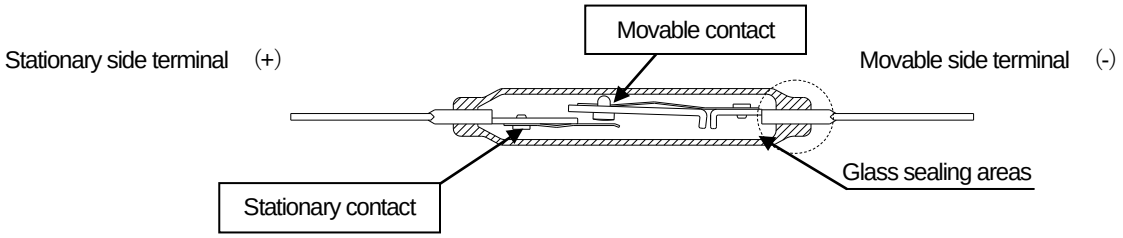


Fig. 1 Connection to DC load

PROHIBITED

4.3 Contact rating

If a current or voltage exceeding the contact switching rating is making or Breaking, there is a risk of contact welding, contact melting, or glass cracking.

Therefore, do not use the product at a value exceeding the contact switching rating (voltage and current).

When a carry current exceeding the rated current flows, overheating and EMB phenomena (※1) occur due to eddy current, which may cause welding and damage of the contact and cracking of glass sealing areas.

It may cause cracking. Also, be sure to use the product within the rated current as there is a possibility of a significant drop in the Pull In. When the product is energized, use it within the ambient temperature in consideration of heat generation.

(※1) EMB phenomena: This means an unstable operation caused by the fact that the external magnetic field is relatively reduced by the eddy magnetic field generated from the energizing current, and that enough magnetic attraction force for maintaining the on-state cannot be obtained.

CAUTION

4.4 External magnetic field

If the product is used in a place where an external magnetic field (a magnetic field other than the purpose of driving the Bestact) is generated, contact malfunction may occur. Verify that there is no problem in advance before use.

CAUTION

4.5 Operation method (excitation method)

For applications that require a long service life, be sure to use an instantaneous ON/OFF.

for excitation to operate the Bestact. If the excitation is gradually increased or decreased, the contact life may be shortened due to the longer making or Breaking time.

CAUTION

4.6 Installation direction

Use the Bestact in a structure where it is installed as shown in Fig. 2(a) or (b).

If the product is used in a structure that is installed as shown in (c), the performance may be significantly reduced.

When installing a Bestact in a unit such as a relay, use the structure that is installed as shown in (a) or (b).

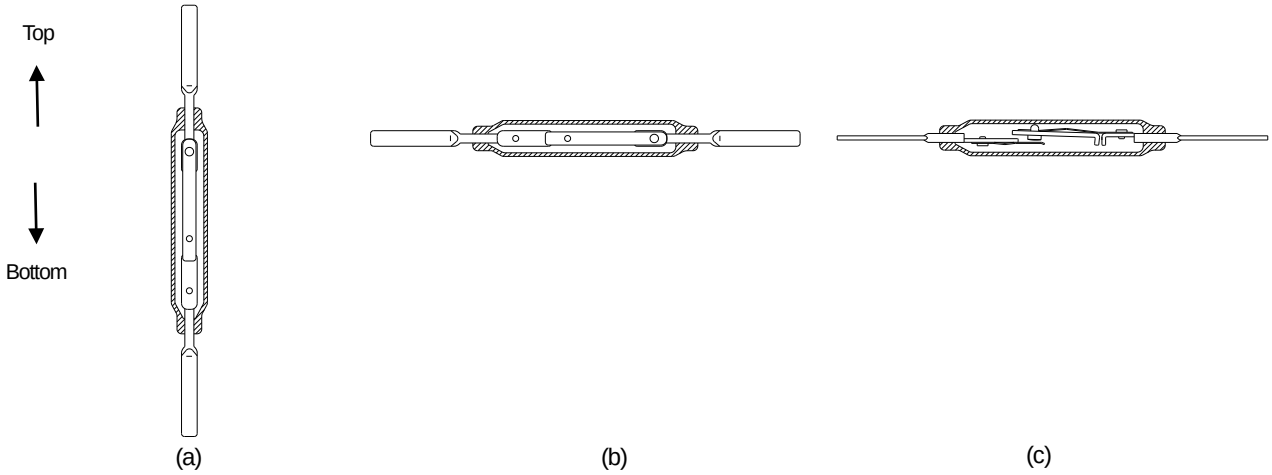


Fig. 2 Installation direction

CAUTION

4.7 Terminal processing

When processing terminals such as cutting, bending, and drilling, use a tool close to the processing section to prevent stress from being applied to the glass sealing areas.

Perform the work after fixing. (Fig. 3 shows an example of machining.)

After machining, check the glass sealing areas for any abnormality by visual check and functional test.

Since the terminal is part of the magnetic circuit configuration, the " Pull In." and " Drop Out " change when the terminal is processed.

Cutting the terminals generally increases the value of “Pull In” and “Drop Out.” Please check them with the actual magnet or driving method to be used.

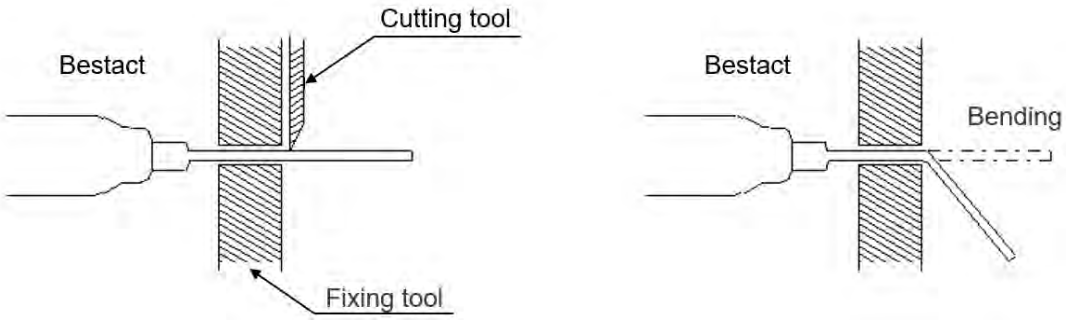


Fig. 3 Pin machining example

CAUTION

4.8 Terminal soldering conditions

The following two conditions are recommended for soldering with a solder bus and a soldering iron.

Also, be careful not to touch the glass with the solder or soldering iron, as there is a risk of glass cracking.

(1) For Solder Bus (Flow Solder)

- Soldering temperature: 250±3°C
- Soldering time: 3±0.3 sec.
- Soldering position: 5mm or more from the glass sealing areas

(2) For a soldering iron

- Soldering temperature: 350±10°C
- Soldering time: 2 to 3 seconds
- Soldering position: 5mm or more from the glass sealing areas

PROHIBITED

4.9 Ultrasonic cleaning and ultrasonic welding

Do not perform ultrasonic cleaning or ultrasonic welding as ultrasonic vibration will adversely affect the glass sealing areas and internal parts.

CAUTION

4.10 Mounting of printed circuit boards

When mounting the Bestact on a printed circuit board, use a structure that prevents the printed circuit board from coming into contact with the glass tube.

CAUTION

4.11 Resin mold

When fixing the Bestact with a resin mold when assembling it into the unit, be sure to check the following.

The vibration of the unit is transmitted directly to the glass tube, and the difference in the thermal expansion coefficient between the resin and the glass tube may cause cracking of the glass tube. Please evaluate the structural design and resin selection sufficiently in advance.

⚠ CAUTION

4.12 Comparison of characteristic with other manufacturers

Bestact's characteristic, such as " Pull In " and " Drop Out ", are the values measured with the test coil. (※2)

Characteristic values must be converted for comparison with other manufacturers' reed switches.

(※2) Test coil: 3000 turns of coil, wire diameter 0.2mm, coil length 33.5mm, coil inner diameter 10.5mm

⚠ CAUTION

4.13 Fluctuation range of characteristic measurement

Bestact property values such as " Pull In " and " Drop Out " vary by up to ±5AT depending on the ambient conditions and the position in the coil.

⚠ CAUTION

4.14 Permanent magnet drive

Please note that OFF operation may occur in the middle of ON area, depending on the properties of the permanent magnets, when it is driven in the long axis direction with respect to the Bestact.

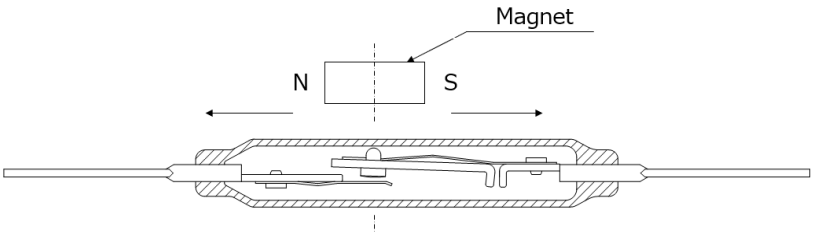


Fig. 4 Operation method in the long axis direction

⚠ CAUTION

4.15 Comparison between ampere turn [AT] and milli tesla [mT]

Below is a graphical representation of [AT] vs. [mT] at the center position in the test coil (※2)

Apply the magnetic field [mT] corresponding to [AT] between the operating point and return point of the reed switch at the position where the reed switch contact is located, the same operation as when driven by a test coil (※2) can be expected.

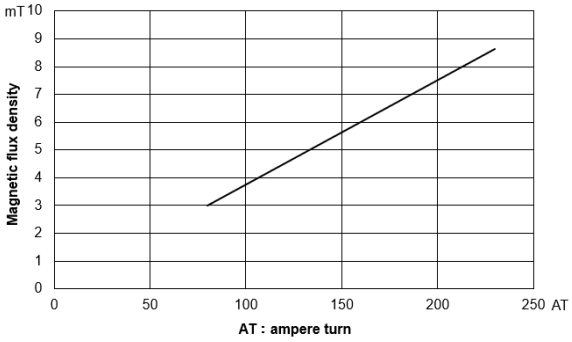


Fig. 5 Comparison of AT and mT in test coil

⚠ CAUTION

5.California PROP65 (Regulatory)

This product can expose you to chemicals including [Nickel (Metal)], which is known to the State of California to cause cancer, and [Lead], which is known to the State of California to cause birth defects or other reproductive harm.

For more information go to www.P65Warnings.ca.gov.

BESTACT SOLUTIONS INC.

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https://www.bestact.co.jp/gl

株式会社贝斯达继电器

有害物質の含有情報
有害物质含有的信息　Information on hazardous substances
本資料は中国「電器電子製品有害物質使用制限管理弁法」に基づいて記載しています。
本资料根据中国《电器电子产品有害物质限制使用管理办法》制定。
Management Methods for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Products.
製品中の有害物質名称及び含有量
产品中有害物 质 的名称及含量　Contents o hazardous substances in products

形式 型号 Type	部位名称 部件名称 Parts Name	有害物質　有害物质　Hazardous substances									
		鉛 铅 Lead (Pb)	水銀 汞 Mercury (Hg)	ｶﾄﾞﾐｳﾑ 镉 Cadmium (Cd)	6価ｸﾛﾑ 六价铬 Hexavalent chromium (Cr(VI))	ﾎﾟﾘ臭化ﾋﾞﾌｪﾆﾙ 多溴联苯 Polybrominated biphenyls (PBB)	ﾎﾟﾘ臭化ｼﾞﾌｪﾆﾙｴｰﾃﾙ 多溴二苯醚 Polybrominated diphenyl ethers (PBDE)	ﾌﾀﾙ酸ｼﾞｰn-ﾌﾞﾁﾙ 邻苯二甲酸二正丁酯 Dibutyl phthalate (DBP)	ﾌﾀﾙ酸ｼﾞｲｿﾌﾞﾁﾙ 邻苯二甲酸二异丁酯 Diisobutyl phthalate (DIBP)	ﾌﾀﾙ酸ﾌﾞﾁﾙﾍﾞﾝｼﾞﾙ 邻苯二甲酸丁基苄酯 Butyl benzyl phthalate (BBP)	ﾌﾀﾙ酸ﾋﾞｽ(2-ｴﾁﾙﾍｷｼﾙ) 邻苯二甲酸二(2-乙基)己酯 Bis(2-ethylhexyl) phthalate (DEHP)
BRE-* BRG-*	接点 接点 Contact	×	○	○	○	○	○	○	○	○	○

本表はSJ/T 11364の規定により作成したものである。
本表格依据SJ/T 11364的规定编制。
This table has been prepared in accordance with the provisions outlined in SJ/T 11364.
○：該当部品全ての均質材料による有害有毒物質の含有量がGB/T 26572に定める限度量の要求以下であることを示す。
×：該当部品中の少なくとも1種類の均質材料における当該有害物質の含有量が、GB/T 26572に定める限度量を上回っていることを示す。
○：表示该有害物质在该部件所有均质材料中的含量均在GB/T 26572规定的限量要求以下。
×：表示该有害物质至少在该部件的某一均质材料中的含量超出GB/T 26572规定的限量要求。
○：Indicates that said hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement of GB/T 26572.
×：Indicates that said hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement of GB/T 26572.
注記：本製品は欧州のRoHS指令に適合しています。
　　上記表の×には欧州の適用除外項目の含有を表示しています。
注記：本产品符合欧洲的RoHS指令
　　上表中的“×”表示在欧盟 RoHS 指令的豁免范围内
Note：This product complies with EU RoHS directive.
　　In the above list, the content of hazardous substances of the components, exempt from EU RoHS directive, are also described.

2025年12月作成　25-12