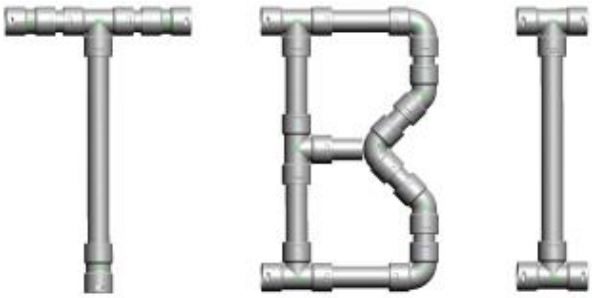

Stainless Steel Tube and Fittings for Potable Water System

Double Seals Press-Fit Type Jointing

Compatible with BSEN 10312 SERIES 1 & 2 Stainless Steel Tubing

Operation and Installation Manual

•Tomorrow •Building •Innovation

JWWA
公益社団法人 日本水道協会
JAPAN WATER WORKS ASSOCIATION
認証登録番号:G-793

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Certificate No. SPAN/PPI/1043-2015

SIRIM QAS INTERNATIONAL
2013MA0547

Index

1. Introduction of TBI Double Seals Press-fit Fitting

Material of TBI Double Seals Press-fit Fittings

Body	Investment casting in grade 1.4301 to BSEN10088 (AISI304) or 1.4401 to BSEN10088 (AISI316)
O-Rings	Silicon Rubber (to BS6920 for Portable Water), chloramine – resistance, UV resistance
C-Spring	1.4301 to BSEN10088 (AISI304) or 1.4401 to BSEN10088 (AISI316)

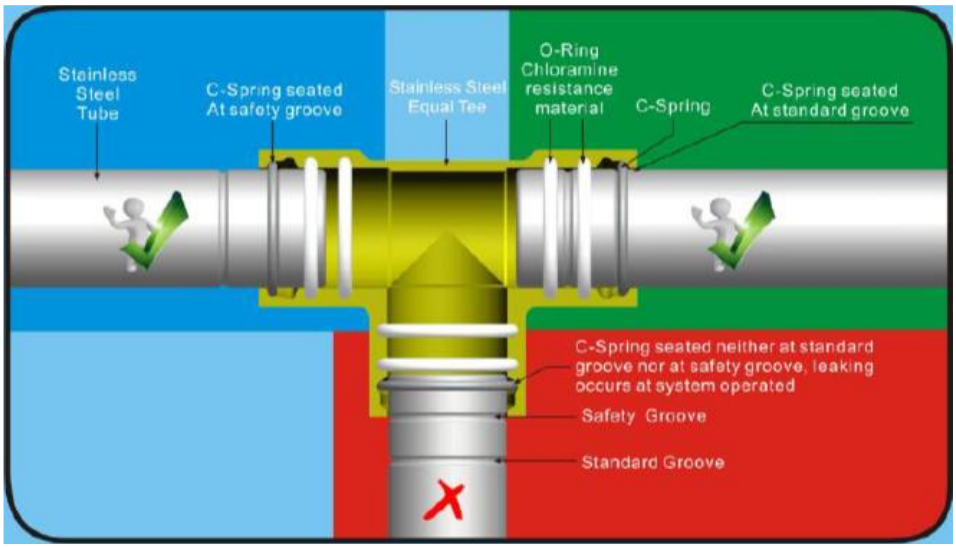
Application

Usage	Plumping system, cooling system and fire system
Maximum working temperature	85°C
Maximum working pressure	25 bar
Compatible with BSEN 10312 Series 1 & 2 tube	

2. Characteristics of TBI Double Seals Press-fit Fittings

- Every fitting including O-rings and the joint undergoes 1bar and 20bar air pressure testing before ex mill to ensure the quality is met.
- Easy installation, reduce the manpower, enhance the working efficiency.
- High impact resistance and tough.
- Easy disassembly, maintenance & reusable, which is an environmental friendly product.
- Fabricated from stainless steel which its high resistance to corrosion, economical, hygiene and no metal leaching.
- Insert the pipe towards the fittings and then "Pull-back". The joint is completed. It is not necessary to use special tooling.

TBI Double Seals Press-fit System Mechanism



3.Operation Procedure of Cutting and Grooving Machine

Thank you for applying our TBI stainless steel system, TBI cutting and grooving machine MUST be operated with the system together. TBI cutting and grooving machine can supply in 110V and 220 V.

★ Note

a) The major cutting principle of TBI machine is a form of cold cutting which maintain the basic property of the stainless steel at the tube end.

a) The plastic supporting rod must be used during the process of the cutting and grooving.

b) Deformation of pipe end and pipe surface is not allowed.

c) A **5mm** in pipe length of each new stainless steel tube is recommend to be cut at square end and burr free to ensure to obtain the optimum result of grooving process.

a) For PE coated pipe, remove 150mm PE coating before apply the cutting and grooving machine.

3.1 Tube Cutting

Before operating the electrical cutting and grooving machine, Please check the following items in advance :

a) Please check the emergency stop and safety circuit breaker as shown in Fig. 1 is function or not.

b) Remove the cutting and grooving tool as shown in Fig 3 from the machine. Please check any tear or wear on the cutting blade and grooving blade by the No-Go gauge. If both the blades cannot go through the No-Go gauge, there is no tear and wear on the cutting blade and grooving blade, put the tool back to the machine. If both the blades can go through the No-Go gauge, replace a new set of cutting and grooving blades.

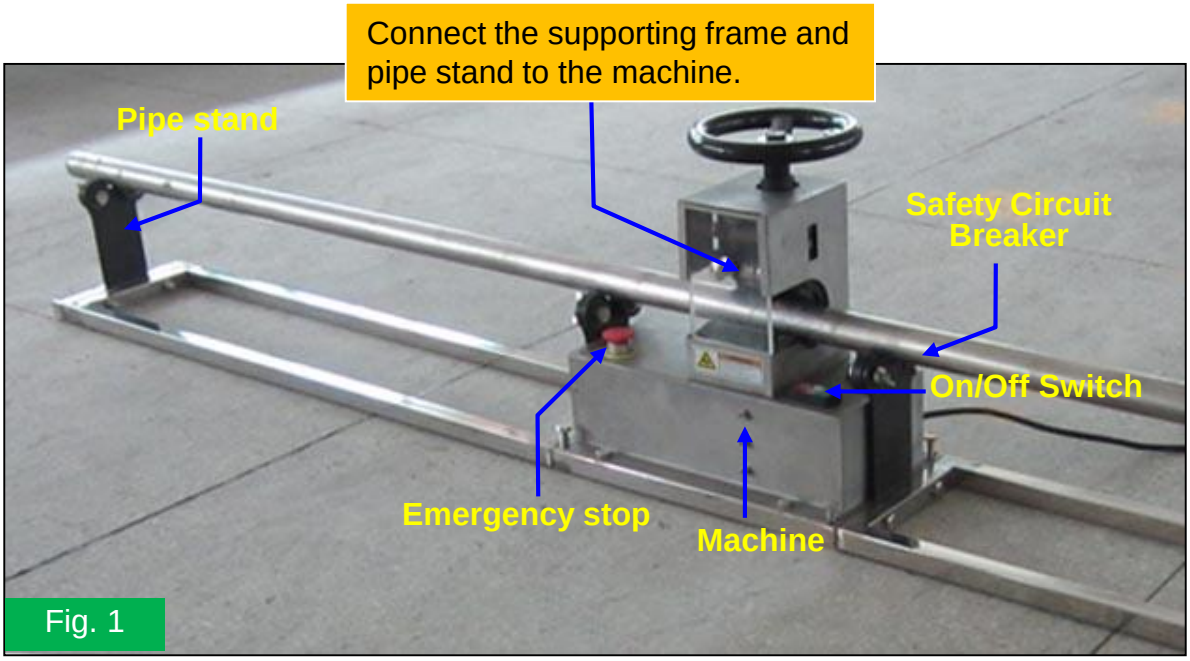


Fig. 1

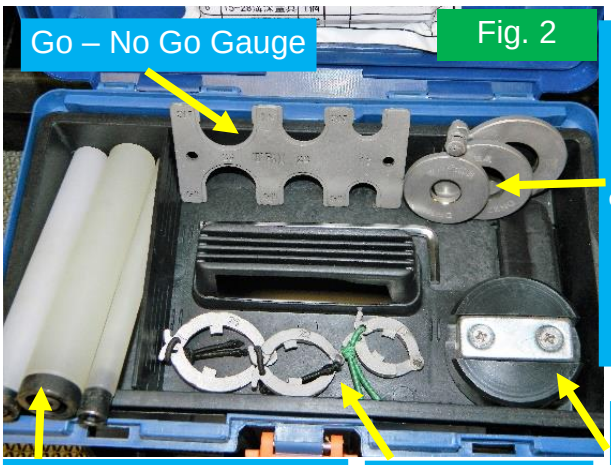


Fig. 2

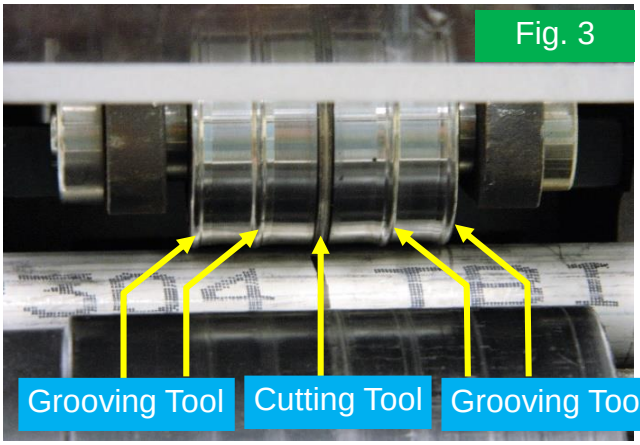


Fig. 3

Fig. 4a

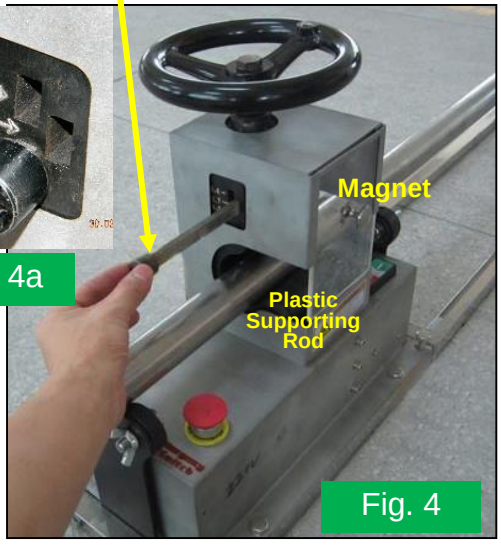


Fig. 4

Fig. 5a

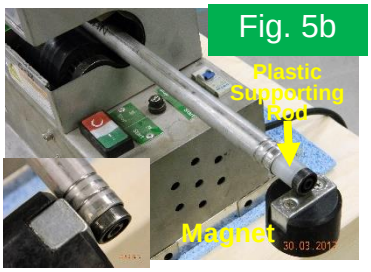


Fig. 5b

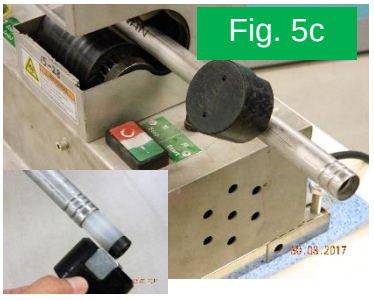


Fig. 5c


Fig. 5d

Fig. 5

1. Insert the locating rod into the corresponding pipe size DN hole. (Fig. 4a)

2. Then mark the pipe length first. Insert the plastic supporting rod into the pipe and stick with the magnet on the plastic supporting rod end and guide to the position of cutting and grooving tool. (Fig. 5)

Fig. 6

3. Switch on the machine and turning the hand wheel down until the groove is formed and the pipe is cut. (Fig. 6)

Please do not swith off the machine when the pipe is cut. Keep the machine running for a few seconds and then turn the hand wheel up position until the cutting and grooving tool not in contact with the pipe surface

Remark

3.2 Groove Depth inspection

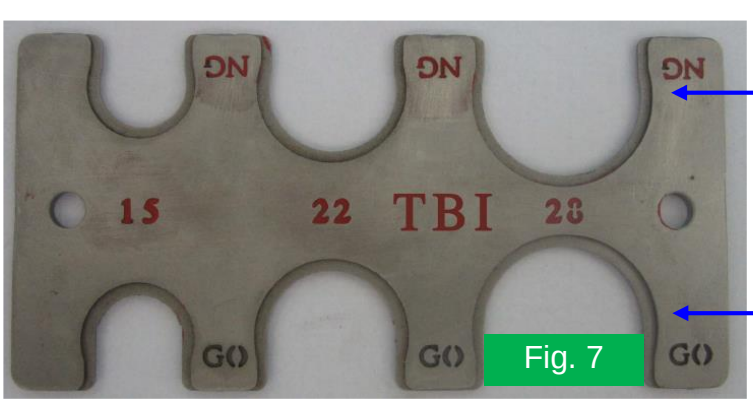
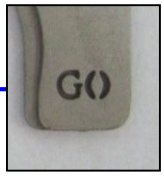


Fig. 7



Go & No-Go gauge

Go

No-Go

Fig. 8

Fig. 9

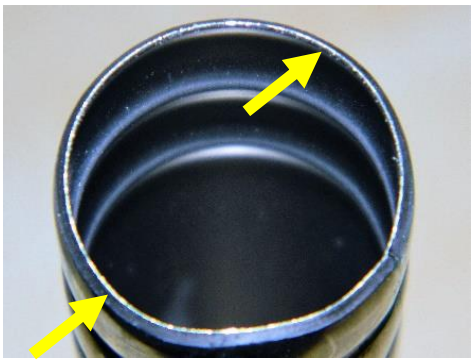
Each groove depth MUST be checked by a Go & No-Go gauge to meet the quality requirement of the system. (BOTH grooves MUST be checked)

Table 3.1 Groove depth dimension		
DN (mm)	Outside Diameter (mm)	Groove Diameter (mm)
15	15.0	14.2 ± 0.2
22	22.0	21.0 ± 0.2
28	28.0	26.8 ± 0.2
35	35.0	33.6 ± 0.2
42	42.0	40.6 ± 0.2
54	54.0	52.4 ± 0.2

3.3Tube End Deformation Inspection

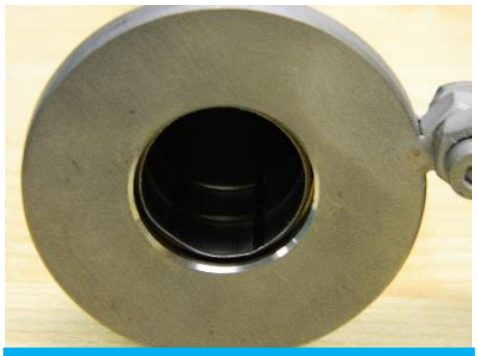
Go Gauge

Tube End Deformation Check Gauge



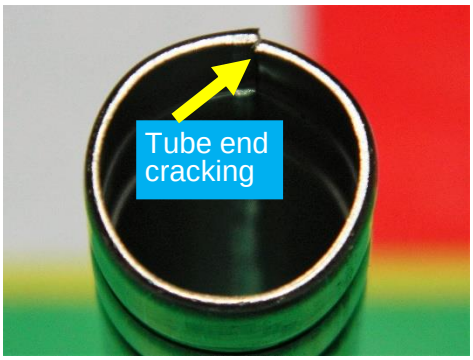
Deformed Tube End

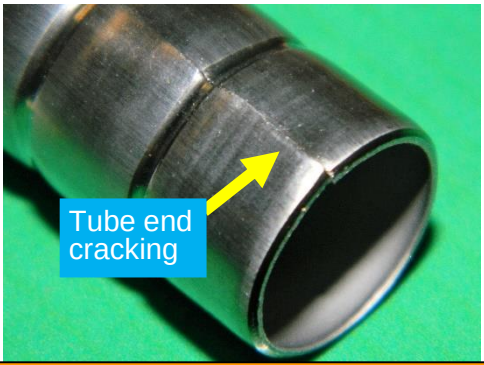
Standard Tube End



Deformed tube end cannot go through the check gauge

Standard tube end can go through the check gauge





Every tube end MUST be checked by tube end deformation check gauge. If the tube end can go through the check gauge, the tube end is standard. (If the tube end CANNOT go through the check gauge Or the tube end is cracked, DO NOT install the tube)

3.3 Installation of Double Seals Press-fit Fittings

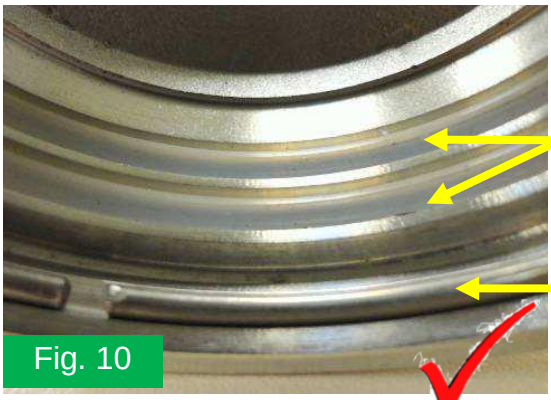


Fig. 10

1.Before installation, please check the pipe fitting structure as shown in above.

1.1 The pipe fitting should be constructed with Two sealing O-Rings and One C-Spring.

1.2 The C-Spring should be freely drop on to the bottom of the pipe fitting when the fitting was hold vertically.

1.3 Do not use the pipe fitting if C-Spring does not freely drop on to the bottom of fitting. Please return to us.

Installation Method


Fig. 11

2.Sprayed with lubricant.

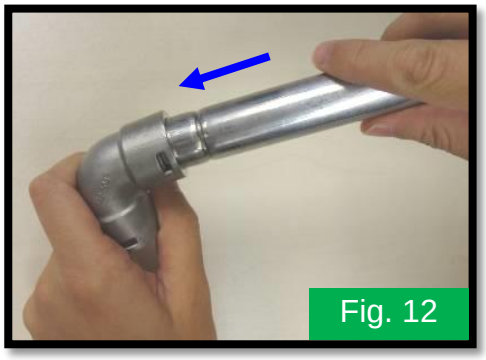


Fig. 12

3.Press the tube to the fitting end.

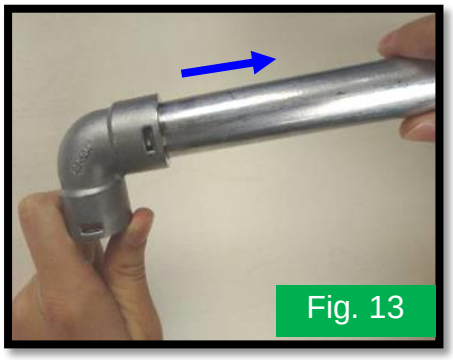


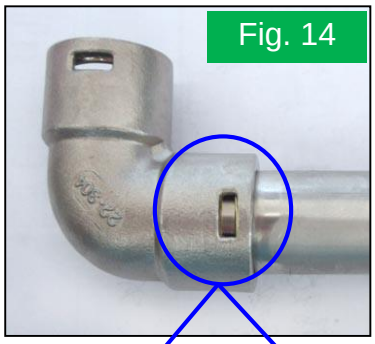
Fig. 13

4.Then “Pull-back” at the opposite direction.

Attention:
Please keep the tube surface and fitting inside surface clean before installation

5. Attention: Proper C-Spring position

Fig. 14



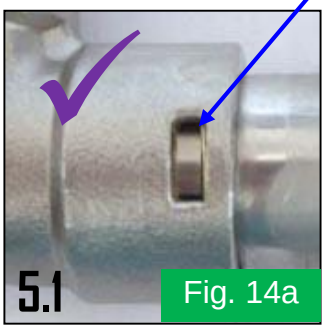


Fig. 14a

After “Pull-back”, the C-Spring should be hidden at the fitting end as shown above.

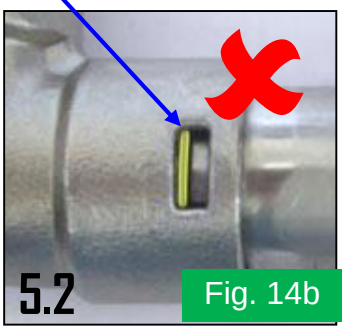
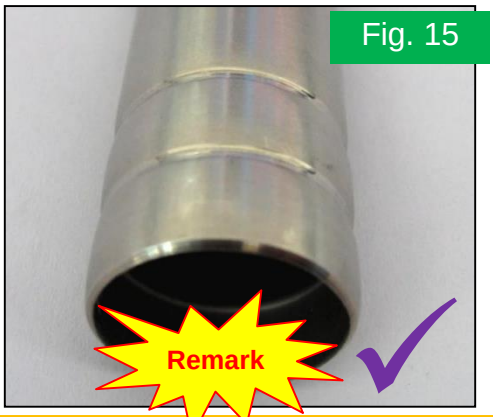


Fig. 14b

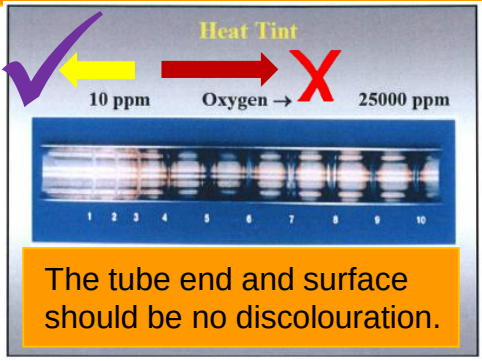
As the C-Spring still exposes in the opening of the fitting, the jointing is improper installed.

Tube Surface Reference

Fig. 15



Need to keep the tube surface and fitting clean and without damage.



The tube end and surface should be no discolouration.

3.4 Dismantle Method

Dismantle tool

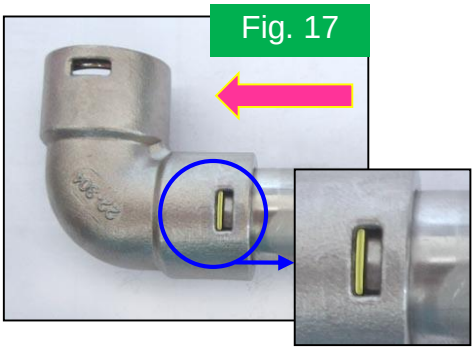
1. DN15-DN28 dismantle tool (16A)

2. DN35-DN54 dismantle tool (16B)

Fig. 16A

Fig. 16B

Fig. 17

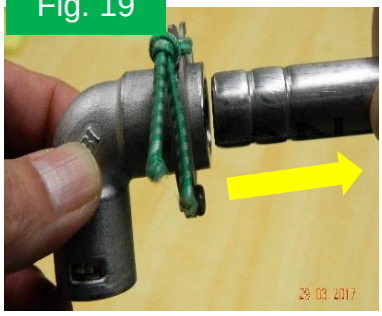


1.Push the tube towards the fitting until C-Spring was pushed to the position as shown.

Fig. 18

2.Put the dismantle tools into the square hole of the fitting.

Fig. 19



3.Pull out the tube at opposite direction with fitting.

4.0 Bracket spacing reference

Table 4.1 Bracket spacing reference			
Type	OD (mm)	Max Spacing(mm)	
		Vertical	Horizontal
SS	15	1800	1200
	22 / 28	2400	1800
	35 / 42	3000	2400
	54	3000	2700
	65-100	3600	3000
	150	5400	4500

***Reference to copper system bracket spacing is acceptable.**

5.0 System Tightness Test Under Water Pressure Testing (To prevent layman defects)

Test pressure 16 bar（Unacceptable for below 16 bar）

Duration 1 minute

Cycle 2 cycles

***We are willing to provide training, assistance, guideline for operation and installation for our system. A Chinese version of Operation and Installation is also available at request.**

TOPBUILD® INVESTMENTS LIMITED

Stainless Steel Double Seals Press-Fit Fittings System

Environmental Friendly, Fittings can be dismantled and RE-USE again

Hong Kong Office :

Topbuild Investments Limited
開捷企業股份(香港)有限公司
Address : Unit 2A, 1/F, Tower 1, Harbour Centre, 1 Hok Cheung Street, Hung Hom, Kowloon, Hong Kong
地址：香港九龍紅磡鶴翔街1號維港中心1期1樓2A
Tel 電話 : (852) 2127 4268
Fax 傳真 : (852) 2127 4267
E-mail 電郵 : sales@tbi.com.hk
Website 網址 : www.tbi.com.hk

Macau Office :

Topbuild International Enterprise (Macau) Limited
開捷國際企業 (澳門)有限公司
Address : Ald. Dr. Carlos d'Assumpção, No. 159-207, Fl 3, Rme-1, Kuongf Aigroup Com. Center, Macau
地址：澳門宋玉生廣場159至207號光輝集團商業中心3樓G-1室
Tel 電話 : (853) 6860 0305
E-mail電郵 : salesmacau@tbi.com.hk

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