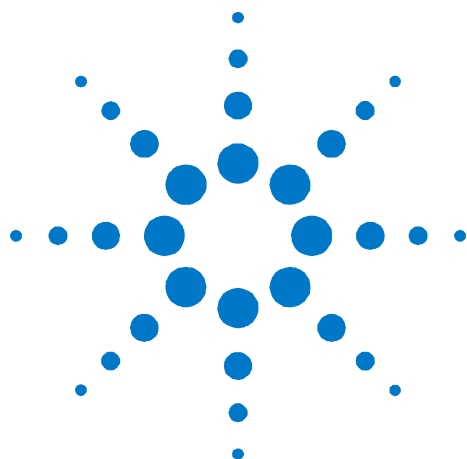




# **Agilent 7667A**

## **Mini Thermal Desorber**

### **Site Preparation**



**Agilent Technologies**

## Notices

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## Warranty

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## Safety Notice

### CAUTION

A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

### WARNING

A **WARNING** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.



# Agilent 7667A Mini Thermal Desorber Site Preparation

|                                     |    |
|-------------------------------------|----|
| Customer Responsibilities           | 4  |
| Dimensions and Weight               | 5  |
| Power Consumption                   | 6  |
| Environmental Conditions            | 7  |
| Gas Selection                       | 7  |
| 7667A Connection with GC and GC-MSD | 11 |
| Basic Tools and Supplies            | 15 |

This section outlines the space and resource requirements for Agilent 7667A Mini Thermal Desorber(Mini TD) installation. For a successful and timely installation of the instrument, the site must meet these requirements before beginning installation. Necessary supplies (gases, tubing, operating supplies, consumables, and other usage- dependent items such as columns, and solvents) must also be available. Refer to the Agilent website at [www.agilent.com/chem](http://www.agilent.com/chem) for the most up-to-date listing of GC, GC/MS, and consumables.



## Customer Responsibilities

The specifications in this manual outline the necessary space, electrical outlets, gases, tubing, operating supplies, consumables, and other usage- dependent items such as columns and solvents required for the successful installation of instruments and systems.

If Agilent is delivering installation and familiarization services, users of the instrument should be present throughout these services; otherwise, they will miss important operational, maintenance, and safety information.

If Agilent is delivering installation and familiarization services, delays due to inadequate site preparation could cause loss of instrument use during the warranty period. In extreme cases, Agilent Technologies may ask to be reimbursed for the additional time required to complete the installation. Agilent Technologies provides service during the warranty period and under maintenance agreements only if the specified site requirements are met.

## Dimensions and Weight

Select the laboratory bench space before the system arrives. Pay special attention to the total height requirements. Avoid bench space with overhanging shelves.

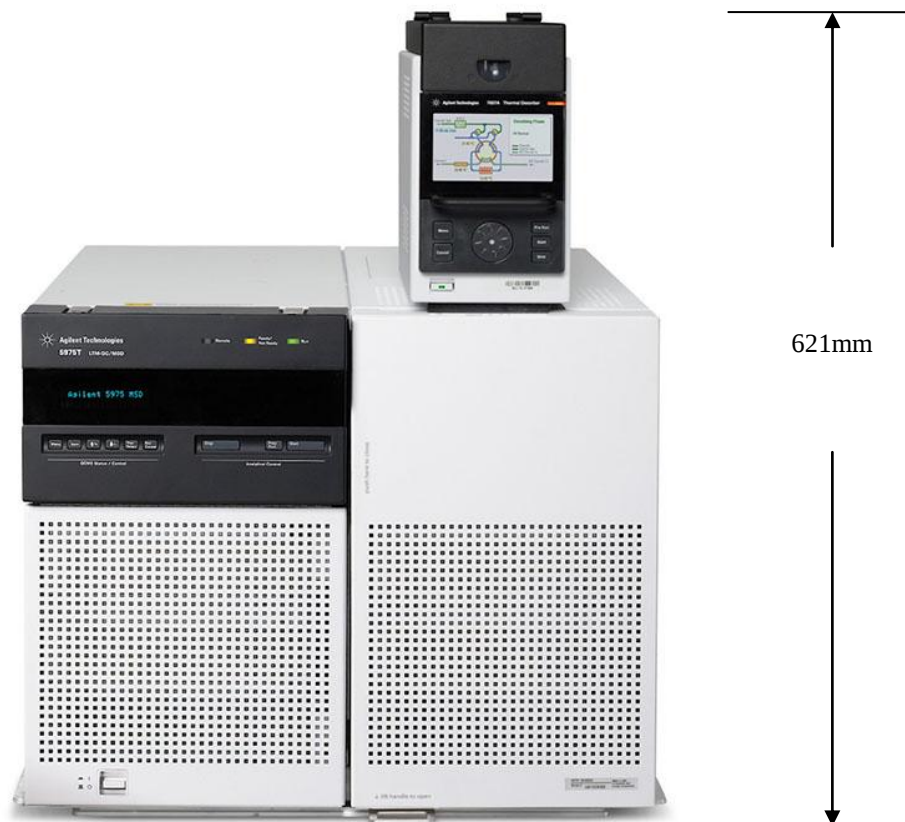
**The Agilent 7667A Mini Thermal Desorber installs on the *left side/top of the GC*.** It supports Agilent 7820A, and 5975T LTM GC/MSD products. See Figure 1 through Figure 2 for example total dimensions when used as a system with various Agilent products.

**Table1** height, width, depth and weight

| Product | Height | Width | Depth | Weight |
|---------|--------|-------|-------|--------|
| G4370A  | 238mm  | 140mm | 280mm | 6.7kg  |
| G4370M  | 263mm  | 140mm | 280mm | 6.7kg  |



**Figure 1** Example bench space needed for a G4370A - 7820A GC system



**Figure 2 Example bench space needed for a G4370M-5975T LTM GC/MSD system**

## Power Consumption

7667A will use a 250W power adaptor (PN: 0950-5534) to provide the power for the system. The AC/DC power supply included in the system has a standard 6-pin plug. See Table 2 for the adaptor specifications.

**Table 2** Adaptor specifications

| Discription     | Value        |
|-----------------|--------------|
| Input voltage   | 100-240V     |
| Input frequency | 50-60Hz      |
| Input current   | 3.0A         |
| Output voltage  | 24V          |
| Line regulation | ±15% maximum |
| Output current  | 10.41A       |

## Environmental Conditions

Operating the instrument within the recommended ranges optimizes instrument performance and lifetime. Performance can be affected by sources of heat and cold from heating, air conditioning systems, or drafts. See Table 3. The conditions assume a noncondensing, noncorrosive atmosphere.

**Table 3** Environmental conditions for operation and storage

| Product                     | Conditions | Operating temp range            | Operating humidity range  |
|-----------------------------|------------|---------------------------------|---------------------------|
| 7667A Mini Thermal Desorber | Operating  | 5 to 45 °C<br>(41 to 113 °F)    | 5 to 95% (noncondensing ) |
|                             | Storage    | -40 to 70 °C<br>(-40 to 158 °F) | 5 to 95% (noncondensing ) |

## Gas Selection

There is a 1/8 gas interface on G4370A. It only uses a gas supply to provide carrier gas and driver gas at the same time.

There are two 1/8 gas interfaces on G4370M, Carrier gas supply and driver gas supply are provided separately.

### Driver gas type and purity

Pressure for six port injection valve driver must be between 50 Psi – 80 Psi. 0.5ml gas is used per injection. Gas type is Air and Nitrogen, or pure compressed inert gas.

### Carrier gas type and purity

When Mini TD is installed on 7820A GC, there will be two types of carrier gas: Nitrogen Gas or Helium.Gas

When Mini TD is installed on 5975T LTM GC/MSD, only Helium Gas can be used..

Agilent recommends that carrier gases be 99.9995% pure. See Table 4 for acceptable carrier gas types. Agilent also recommends using high quality traps to remove hydrocarbons, water, and oxygen.

**Table 4** Carrier gas types

| Carrier gas requirements | Purity   | Notes            |
|--------------------------|----------|------------------|
| He                       | 99.9995% | Hydrocarbon free |
| N <sub>2</sub>           | 99.9995% |                  |

## Gas Supply Pressures

Table 5 lists minimum and maximum delivery pressures measured at the bulkhead fittings on the back of the MINI Thermal Desorber.

**Table 5** Minimum and maximum Carrier gas pressure

|                   |                                               |
|-------------------|-----------------------------------------------|
| Carrier gas (max) | 85 Psi                                        |
| Carrier gas (min) | 50 psi above Inlet pressure used in GC method |

## Tanks and regulators

Supply instrument gases using tanks, an internal distribution system, or gas generators. If used, tanks require two- stage pressure regulators with packless, stainless steel diaphragms. Two- stage regulators eliminate pressure surges.

Table 8 lists available Agilent two- stage tank regulators. All Agilent regulators are supplied with the 1/8- inch Swagelok female connector. The type of regulator you use depends on the gas type and supplier. The Agilent catalog for consumables and supplies contains information to help you identify the correct regulator, as determined by the Compressed Gas Association (CGA). Agilent Technologies offers pressure- regulator kits that contain all the materials needed to install regulators properly.

**Table 8** Tank regulators

| Gas type            | CGA number | Max pressure       | Part number |
|---------------------|------------|--------------------|-------------|
| Air                 | 346        | 125 PSIG (8.6 Bar) | 5183-4641   |
| Helium,<br>Nitrogen | 580        | 125 PSIG (8.6 Bar) | 5183-4644   |
| Air                 | 590        | 125 PSIG (8.6 Bar) | 5183-4645   |

When connecting gas supplies to the Mini TD:

- Never use liquid thread sealer to connect fittings. Never use chlorinated solvents to clean tubing or fittings.

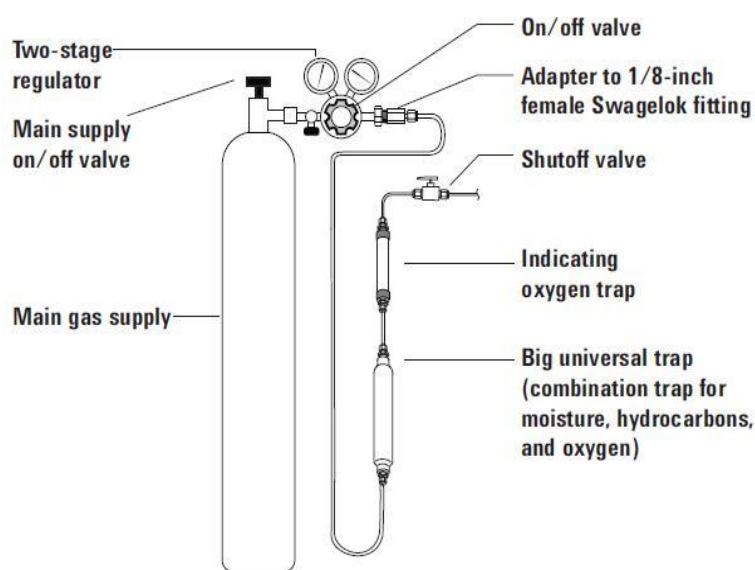
**WARNING**

**All compressed gas cylinders should be securely fastened to an immovable structure or permanent wall. Compressed gases should be stored and handled in accordance with the relevant safety codes.**

**Gas cylinders should not be located in the path of heated oven exhaust.**

**To avoid possible eye injury, wear eye protection when using compressed gas.**

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Trap size and shape will vary by manufacturer.

**Figure 8** Recommended traps and plumbing configuration from a carrier gas cylinder

- Agilent strongly recommends two- stage regulators to eliminate pressure surges. High- quality, stainless- steel diaphragm- type regulators are especially recommended.
- On/off valves mounted on the outlet fitting of the two- stage regulator are not essential but are very useful. Be sure the valves have stainless- steel, packless diaphragms.
- Flow- and pressure- controlling devices require at least 20 psi (138 kPa) pressure differential across them to operate properly. Set source pressures and capacities high enough to ensure this.

## Pressure regulator tubing connections

Use PTFE tape to seal the pipe- thread connection between the pressure regulator outlet and the fitting to which you connect the gas tubing. Instrument grade PTFE tape (partnumber 0460- 1266), from which volatiles have been removed, is recommended for all fittings. Do not use pipe dope to seal the threads; it contains volatile materials that will contaminate the tubing.

## Traps

Using chromatographic- grade gases ensures that the gas in your system is pure. However, for optimum sensitivity, install high-quality traps to remove traces of water or other contaminants. After installing a trap, check the gas supply lines for leaks.

Table 9 lists the recommended traps. See the Agilent online store for the complete listing of traps and trap accessories. As shown in Figure 7, install the indicating trap last so that it warns when the combination begins to fail.

**Table 9** Recommended traps

| Description                                                                                                            | Part number |
|------------------------------------------------------------------------------------------------------------------------|-------------|
| <b>Carrier gas</b>                                                                                                     |             |
| Big universal trap. Removes oxygen, moisture, hydrocarbons, carbon dioxide and carbon monoxide from helium gas streams | RMS         |
| Indicating oxygen trap                                                                                                 | IOT-2-HP    |

Moisture in carrier gas damages columns. Agilent recommends installing a moisture trap after the source regulator and before any other traps.

A hydrocarbon trap removes organics from gases. Place it after a molecular sieve trap and before an oxygen trap, if they are present.

An oxygen trap removes 99% of the oxygen from a gas plus traces of water. Place it last in a series of traps. Because trace amounts of oxygen can damage columns, use an oxygen trap with carrier gases.

## 7667A Connection with GC and GC-MSD

### Connect to Transfer Line

Agilent 7667A Mini Thermal Desorber is provided with Transfer Line, to be connected Mini TD with GC's Inlet. The GC connected with 7667A must have separate Inlet. Agilent recommends using split/split less with electronic flow control to get the best measurement.

G4370A and G4370M have different structure of transfer line. It results in different installation and space requirement for installation. Please refer to related chapter in <<Agilent 7667A Mini Thermal Desorber Installation and Operating>> for details

If your desired connection type requires other specific hardware, make sure it is available for installation.

Please visit the Agilent web site at [www.agilent.com/chem](http://www.agilent.com/chem) for the latest information about Agilent Mini Thermal Desorber products, options, and accessories.

### Cable connection

Agilent provides one RS232 Cable for ALS (P/N G4370-61207) and one APG Remote Synchronization Cable (P/N G4370-61208). Please refer to related chapter in « Agilent 7667A Mini Thermal Desorber Installation and Operating » for connection.

### Cable Lengths

The distance between system modules may be limited by some of the cabling. Plan to set up the work space as shown in **“Dimensions and Weight”**.

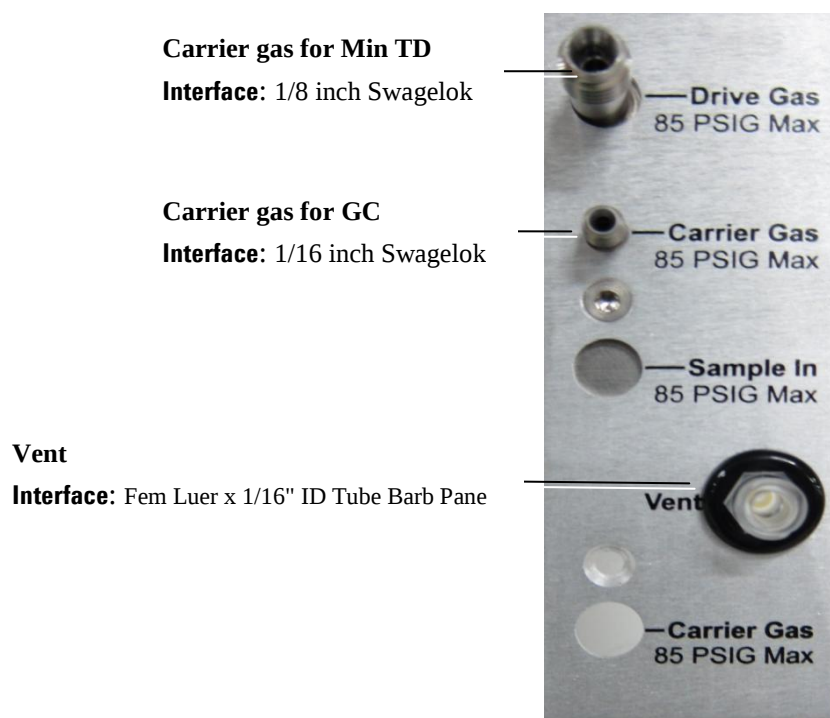
- The length of the remote synchronization cable is 2 meters (6.6 feet).
- The lengths of the Agilent supplied power cords are 3 meters (9.8 feet).

If using Remote Synchronization Cable connect a Mini Thermal Desorber to an existing GC-MSD, order part number G4370-61208, APG Remote Y- cable, for connecting the instruments. (If purchasing a new, complete GC-MSD - Mini TD system, the G1530-61200 cable is included.)

## Gas Plumbing

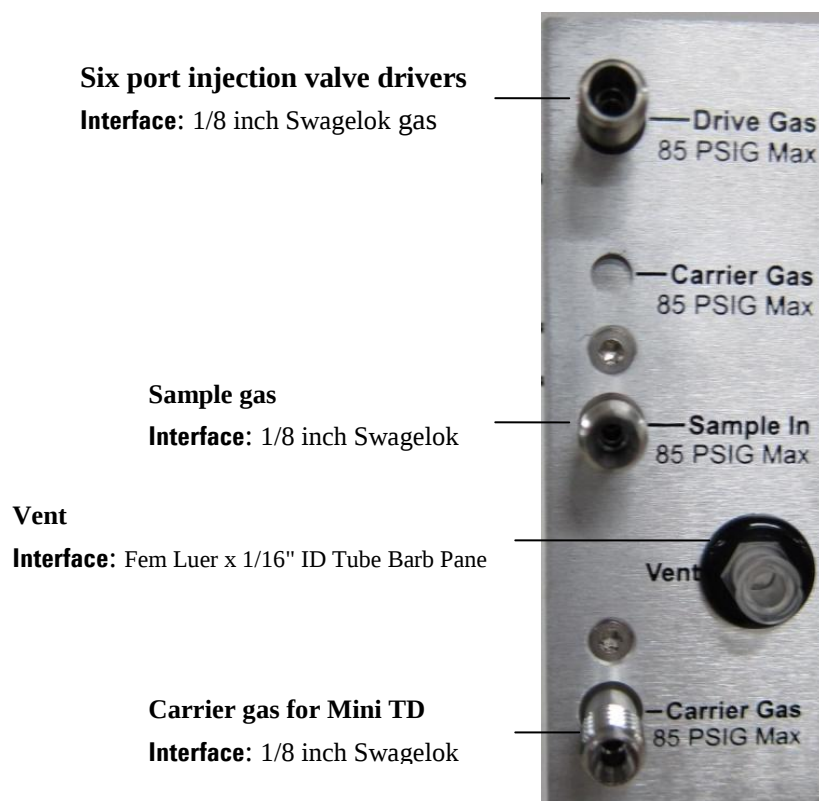
Agilent provides sufficient tubing and fittings to connect the Mini Thermal Desorber in the standard configuration:

G4370A uses 1/8- inch Swagelok connection for its carrier gas supply, uses Fem Luer x 1/16" ID Tube Barb Pane (P/N 0100-2377) connection its vent, and a 1/16- inch Swagelok connection for Inlet carrier gas supply. See Figure 6.



**Figure 6 G4370A Back Gas panel**

G4370M uses 1/8- inch Swagelok connection for its carrier gas supply, Sampling gas and Six port injection valve driver gas. Using Fem Luer x 1/16" ID Tube Barb Pane (P/N 0100-2377) connect to vent. See Figure 7



**Figure 7 G4370M Back GAS panel**

**NOTE**

Plumb the gas supply tubing/regulators so that one 1/8-inch Swagelok female connector is available for each gas needed at the instrument.

## Supply tubing for gases

Use the stainless steel supply tubing supplied with the instrument, or preconditioned copper tubing (part number 5180- 4196) to supply gases to the instrument. Do not use ordinary copper tubing, which contains oils and contaminants.

### CAUTION

**Do not use methylene chloride or other halogenated solvent to clean tubing that will be used with an electron capture detector. They will cause elevated baselines and detector noise until they are completely flushed out of the system.**

---

### CAUTION

**Do not use plastic tubing for supplying carrier gas. It is permeable to oxygen and other contaminants that can damage columns and detectors.**

**Plastic tubing can melt if near hot exhaust or components.**

---

The tubing diameter depends on the distance between the supply gas and the Mini TD and the total flow rate for the particular gas (in the Mini TD or GC). Tubing of 1/8- in diameter is adequate when the supply line is less than 15 feet (4.6 m) long.

Be generous when cutting tubing for local supply lines. A coil of flexible tubing between the supply and the instrument lets you move the Mini TD without moving the gas supply. Take this extra length into account when choosing the tubing diameter.

## Basic Tools and supplies

The Mini Thermal Desorber comes with a few basic tools and consumables depending on the specific model that you ordered. Depending on your requirements, you will need other tools and parts for installation. Table 10/11 lists other useful tools not included with the Mini TD. See the Agilent website at [www.agilent.com/chem](http://www.agilent.com/chem) for the latest parts and supplies.

**Table 10 G4370A Shipping Kit for Installation**

| Parts                                     | Agilent part number | Used for                   |
|-------------------------------------------|---------------------|----------------------------|
| Stainless Steel Tube Assembly             | G4370-60000         | Transfer line installation |
| Xfer Line Support Assembly                | G3504-60620         | Fix Transfer line          |
| O-Ring 0.364-in-ID                        | 0905-1819           | Tube installation          |
| PTFE Filter Disks 6.3mm Marks TD PK 10    | MKI-U-DISK3         | Tube installation          |
| Syringe 10uL FN bevel Tip                 | 5190-1483           | Manual injection sample    |
| Torx Screwdriver T10 Size                 | 51820-3466          | Installation instrument    |
| Wrench-Double open-end 3/16*1/4 – in-Size | 8710-2697           | Installation instrument    |
| Tubing Cutter                             | G4350-20120         | Gas connections            |
| Union SS 1/16 inch Tubing                 | 0100-0124           | Gas connections            |
| Cap, 1/16 inch Stainless Steel            | 0100-0050           | Gas connections            |
| Cap Carrier Tube                          | G1544-20150         | Gas connections            |
| Stainless Nut 1/16 inch                   | 0100-0053           | Gas connections            |
| 1/16inch Ferrule set SST                  | 0100-1490           | Gas connections            |
| Tube fixer Tool                           | G4372-20048         | Tube installation          |
| Catch Ferrule                             | G4372-20049         | Tube installation          |
| O-Ring 0.239-in-ID                        | 0905-1820           | Tube installation          |
| Ship Kit Package For Mini TD              | G4370-80001         |                            |
| Septum Retainer Nut for Transfer Line     | G3452-60835         | Transfer line installation |

**Table 11 G4370M Shipping Kit for Installation**

| Parts                                     | Agilent part number |                         |
|-------------------------------------------|---------------------|-------------------------|
| O-Ring 0.239-in-ID                        | 0905-1820           | Tube installation       |
| O-Ring 0.364-in-ID                        | 0905-1819           | Tube installation       |
| PTFE Filter Disks 6.3mm Marks TD PK 10    | MKI-U-DISK3         | Tube installation       |
| Syringe 10uL FN bevel Tip                 | 5190-1483           | Manual injection sample |
| Torx Screwdriver T10 Size                 | 51820-3466          | Installation instrument |
| Wrench-Double open-end 3/16*1/4 – in-Size | 8710-2697           | Installation instrument |
| SCREW-MACHINE ASSEMBLY M4*12MM            | 0515-0382           | Installation instrument |
| Injection Needle ASS                      | G4372-60015         | Installation instrument |
| 75t Base Assy                             | G4370-60650         | Installation instrument |
| Foot                                      | G4370-20600         | Installation instrument |
| Installation Pole                         | G4370-20456         | Installation instrument |

|                              |             |                         |
|------------------------------|-------------|-------------------------|
| Installation Pole Assy       | G4370-60020 | Installation instrument |
| SACREW-MACH M4*10MM          | 0515-1269   | Installation instrument |
| Tubing Cutter                | G4350-20120 | Tube installation       |
| Ship Kit Package For Mini TD | G4370-80001 |                         |
| Tube fixer Tool              | G4372-20048 | Tube installation       |
| Catch Ferrule                | G4372-20049 | Tube installation       |