

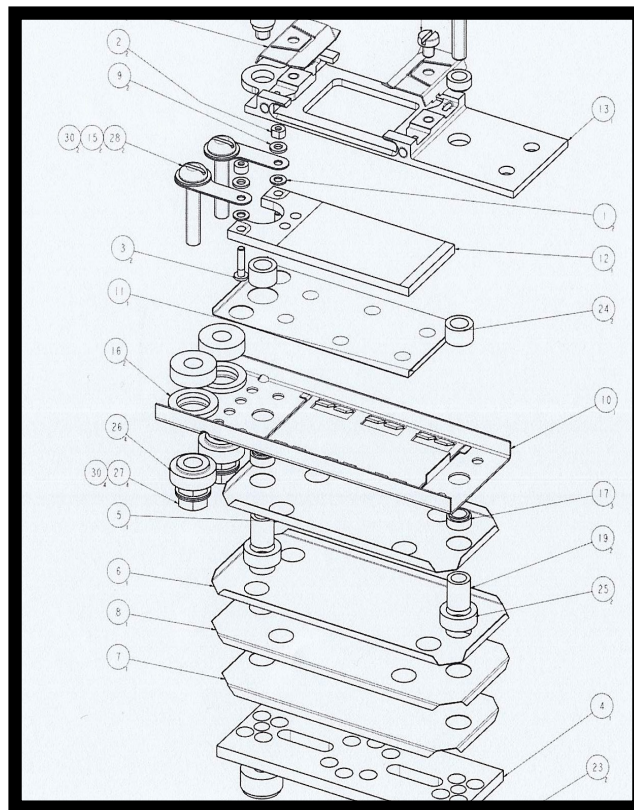


VACGEN

Assembly Guide

HST/PBN Filament AS0037

VGS03-02T37



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DISCLAIMER

This Assembly Guide should be used in conjunction with the owner's manual where available, and is intended as a guide only as there may be variations between versions and therefore must be used at the Owner's Risk. For more detailed assistance, please contact our Support desk +44 (0) 1323 379 335 or support@vacgen.com.

HEALTH AND SAFETY

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Revision	Date	Comment	Initials
1	31/03/2020	New Document	DM
2			
3			

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Assembly Information HST/PBN Filament

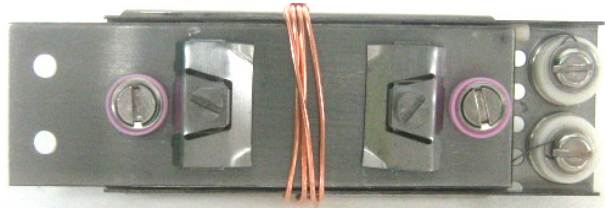
There are two different setups, one with Sapphire Balls and one with ceramic spacers.

Place the Heater Assembly over a tray with a cloth when taking apart, so not to lose the Sapphire Balls etc.

1. Lift off the Thermocouple and remove the Heater Connections by undoing the M2 nuts.
2. With the heater supported, place finger on sample plate and undo the two M2 counter sunk screws in the ceramic cups. The WHOLE assembly will be free, so take care.
3. With finger place on the sample plate and gripping Filament Tray, remove the assembly, leaving the 3 Radiation Shields and 4 Sapphire Balls on the Back Plate.
NOTE: The version without sapphire balls has two ceramic spacers which supports the tray.
4. With the Heater Assembly on the table, carefully remove the sample plate to reveal the Filament, or element in the PBN version. Note: There are two setup versions of the PBN.
5. Undo the Terminal Post and lift out the Filament or PBN Element.
NOTE: The wire filament will become very brittle once heated and is easily broken.
NOTE: Under the heater element is a plain plate, make sure this is refitted.
6. NOTE: On the older Heaters, the Filament Wires are spot welded to Paddles and then mounted on the Filament Post.
7. Refit Plate under the heater ceramics.
8. WIRE: Fit the new Filament, noting it is like a coiled spring at this stage, so take care.
NOTE: The new version does not have these Paddles, so just wrap the Filament Wire around the post once, do not cross the wire. NOTE: Make sure the wires that go to the filament posts, do not touch the tray cut outs and short.
9. Fit the loose End Spacer Ceramics Tube into the tray section.
- 10.PBN: Fit as removed
- 11.Carefully fit Sample Plate onto tray. It does not matter if it touches the tray.



12. NOTE: Wrap a Copper Wire (No more than 0.5mm) around the Tray and Sample Plate, which will hold it together and makes it easier to assembly.
13. Lay Heater Assembly on Sapphires and make sure it's square and refit screws.
NOTE: the one without Sapphire balls, fit the two spacers.
14. When refitting Heater Lead Nuts, make sure the screw does not twist.
15. Once you are sure it is fitted correctly, cut the Copper Wire holding the heater together.



Recommended new parts:

Resistive Wire Heater ZHSTFIL Filament & ZHSTCSSK Ceramic Kit
For PBN, contact VACGEN

HST

3 amps Maximum / 2.75 amps continuous @ 30 volts / 900°c continuous running /
1 ohm

PBN

3 amps Maximum / 2.75 amps continuous @ 60 volts / 900°c continuous running /
15ohm



Assembly Notes:

1. Ensure insulating rods are free to move
2. Ensure Radiation shields are free to move but are unable to touch Heater tray.
3. After Testing, secure assembly together using Paper tape or wire between sample clips.

Test Notes:

1. Check filament continuity <1 at 20°C
2. Insulation resistance must be greater than 20MΩ at 500V DC between filament and specimen plate and filament and backplate.

ITEM	DESCRIPTION	QTY
24	Special Screw	2
23	Sample Clip	4
22	Special Washer	2
21	SCREW CSK M2X14	2
20	SCREW MOLY PAN HD M2x10	2
19	HST Heater Platten Assy	1
18	Insulator - 13 long	1
17	INSULATOR 4mm SINGLE BORE	4
16	Insulator - 14 long	1
15	Heater Winding Assy.	1
14	Heater Support Plate	1
13	CERAMIC BUSH D43704A	4
12	HST Heater Tray Assy.	1
11	CERAMIC BUSH 8227TL	3
10	Special washer	2
9	Spacer	2
8	BALL SAPPHIRE 3/32	4
7	Outer Radiation Shield	1
6	Intermediate Rad. Shield	1
5	Inner Radiation Shield	1
4	WASHER MOLYBDENUM M2	4
3	Backplate	1
2	Spacer	2
1	NUT FULL MOLYBDENUM M2	6

NOTES ASSEMBLY:

1. ENSURE RADIATION SHIELDS ARE FREE TO MOVE BUT ARE UNABLE TO TOUCH HEATER TRAY.
2. AFTER TESTING, SECURE ASSEMBLY TOGETHER USING PAPER TAPE OR WIRE BETWEEN SAMPLE CLIPS.

TEST:

3. CHECK HEATER CONTINUITY PER HEATER DRAWING.
4. INSULATION RESISTANCE MUST BE GREATER THAN 20MΩ AT 500V DC BETWEEN THE HEATER AND PLATTEN ASSY PLUS HEATER AND HEATER TRAY ASSY.

SAMPLE CLIP CAN BE USED TO SECURE THERMOCOUPLE

ITEM	DESCRIPTION	QTY
27	SPECIAL WASHER	2
26	CERAMIC BUSH 8227TL	2
25	WASHER MOLYBDENUM M2	6
24	SCREW MOLY PAN HD M2x12	2
23	BUZZ BARS, PBN	2
22	NUT MOLY. M1	2
21	-	-
20	BOLT MOLY. M1	2
19	-	-
18	WASHER GRAPHITE, PBN	2
17	PBN HEATER	1
16	SAMPLE CLIP	4
15	SPECIAL SCREW	2
14	SCREW PAN M2X16	2
13	-	-
12	HEATER PLATTEN ASSY., PBN	1
11	INSULATING ROD	2
10	CERAMIC BUSH D43704A	4
9	HEATER TRAY ASSY., PBN	1
8	SPACER	2
7	BALL SAPPHIRE 3/32	4
6	OUTER RADIATION SHIELD	1
5	INTERMEDIATE RAD. SHIELD	1
4	INNER RADIATION SHIELD	1
3	BACKPLATE	1
2	SPACER	2
1	NUT FULL MOLYBDENUM M2	6