

## Heater and thermocouple setup

Wednesday, December 27, 2017 6:48 PM

### Heater details

Heaters were grouped by approximately similar resistances. To see which thermocouples are closest refer to the hyperlink in the location column to jump to the pictures showing the thermocouple and heating band placements.

Cable Number	Description	Measured Resistance [Ohms]	Heater group	Location
9 & 10	Combined cable which connects to both the bottom and middle heater bands near the of metal valve	72	H1	<a href="#">Figure 4</a> - Left view
21	Source chamber, right side connection to 6" tee	76	H1	<a href="#">Figure 3</a>
27	4 connections in parallel to the heating wraps around the upper arms of the 2D collimator	51	H1	<a href="#">Figure 1</a> & <a href="#">Figure 2</a>
28	3 connections in parallel to the heating wraps around the lower arms of the 2D collimator	70	H1	<a href="#">Figure 1</a> & <a href="#">Figure 2</a>
29	Heating wrap around the bottom of the 6" tee to the right of the source chamber	54	H1	<a href="#">Figure 3</a>
6	Chamber to tower connection	291	H2	<a href="#">Figure 4</a> - Right view
11	Top of metal valve	377	H2	<a href="#">Figure 4</a> - Left view
30	Laser input of 2D collimator	160	H2	<a href="#">Figure 1</a>
31	2D collimator input connection to the 6-way cross of the 2D collimator	292	H2	<a href="#">Figure 1</a>
33	90' elbow connection to tower	144	H2	<a href="#">Figure 4</a> - Left view
2	Top nipple connection of tower	56	H3	<a href="#">Figure 4</a>
3	Band around upper mid part of tower	76	H3	<a href="#">Figure 4</a>
4	Tower to ion pump connection	76	H3	<a href="#">Figure 4</a> - Left view
5	Self heater of chamber side ion pump	59	H3	<a href="#">Figure 4</a> - Left view
7	Band around bottom mid part of tower	59	H3	<a href="#">Figure 4</a>
13	Bottom flange connection of tower	78	H3	<a href="#">Figure 4</a>
16	Source side, large ion pump self heater	100	H4	<a href="#">Figure 3</a>
20	Left viewport connection on source chamber	76	H4	<a href="#">Figure 3</a>
22	Top connection of 2 3/4 tee above source to angle valve	300	H4	<a href="#">Figure 2</a> & <a href="#">Figure 3</a>
23	Bottom connection of 2 3/4 tee above source to source chamber	145	H4	<a href="#">Figure 2</a> & <a href="#">Figure 3</a>
25	Source side, small ion pump self heater	102	H4	<a href="#">Figure 2</a>
24	Heater wire around source chamber body (thin white cable visible around oven flange)	11	Not used	Not shown

### Thermocouple details

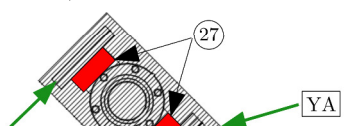
Label	Description	Location
GB	2D collimator input viewport	<a href="#">Figure 1</a>
GH	Source side of zeeman slower tube	<a href="#">Figure 2</a>
GT	Nipple on top of tower	<a href="#">Figure 4</a>
GP	Nipple connection to tower	<a href="#">Figure 4</a>
GY	Upper part of tower body	<a href="#">Figure 4</a>
GR	Connection to chamber side ion pump	<a href="#">Figure 4</a> - Left view
GQ	Connection between tower and chamber	<a href="#">Figure 4</a> - Right view
GW	Body of all metal valve	<a href="#">Figure 4</a> - Left view
GX	Middle body of elbow extension	<a href="#">Figure 4</a> - Left view
BA	2D collimator, upper right viewport	<a href="#">Figure 1</a>
BB	2D collimator, upper left viewport	<a href="#">Figure 1</a> & <a href="#">Figure 2</a>
BC	2D collimator, lower left viewport	<a href="#">Figure 1</a> & <a href="#">Figure 2</a>
RA	Top of source side 6" tee	<a href="#">Figure 3</a>
RB	Right side of source side 6" tee (fell off after a couple days)	
RC	Middle of the 2 3/4 tee on top of the source chamber	<a href="#">Figure 2</a> & <a href="#">Figure 3</a>
RD	Source side, large ion pump, internal thermocouple	<a href="#">Figure 3</a>
RE	Connection between 6" tee and source side large ion pump	<a href="#">Figure 3</a>
RF	Left side of source side 6" tee	<a href="#">Figure 3</a>
YA	Source side, small ion pump, internal thermocouple	<a href="#">Figure 1</a> & <a href="#">Figure 2</a>

### Heater and thermocouple positions

[Figure 1](#)

2D collimator rear view

2D Collimator view from rear  
(source is out of page and chamber is into page)



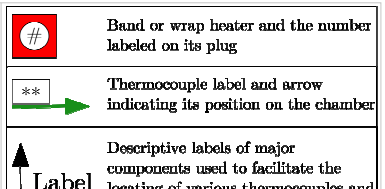
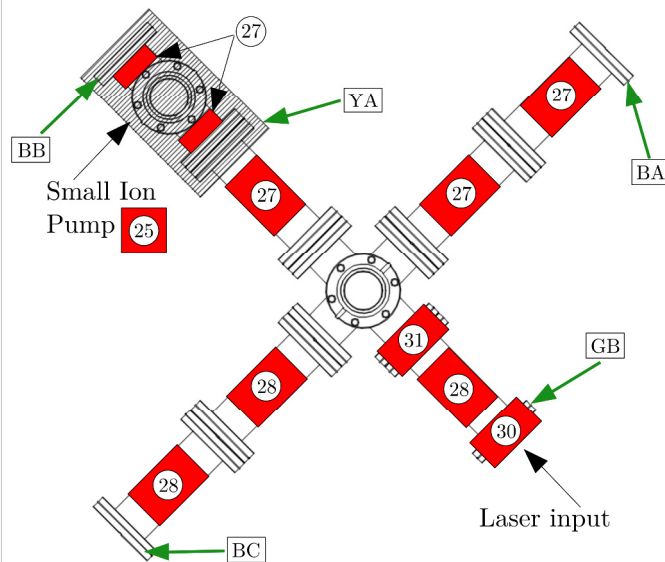


Figure 1

2D collimator rear view

2D Collimator view from rear  
(source is out of page and chamber is into page)

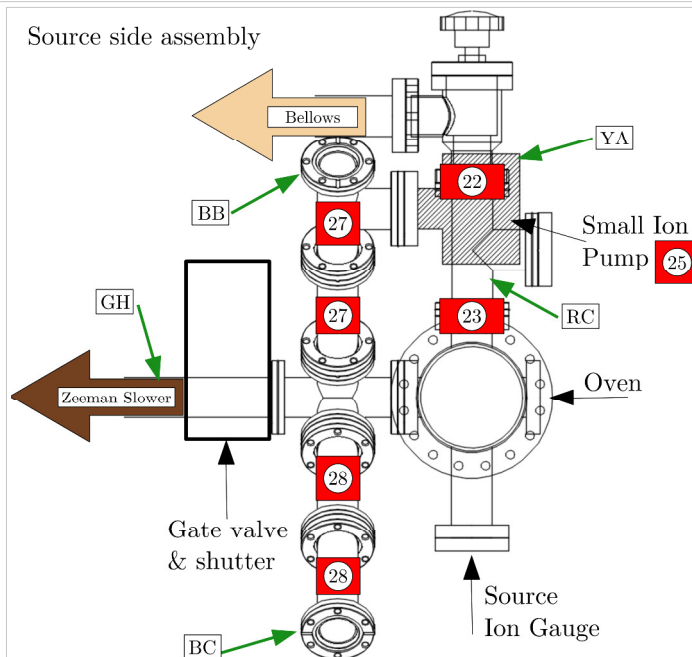


#	Band or wrap heater and the number labeled on its plug
**	Thermocouple label and arrow indicating its position on the chamber
Label	Descriptive labels of major components used to facilitate the locating of various thermocouples and heating elements

Figure 2

Source side assembly

Source side assembly

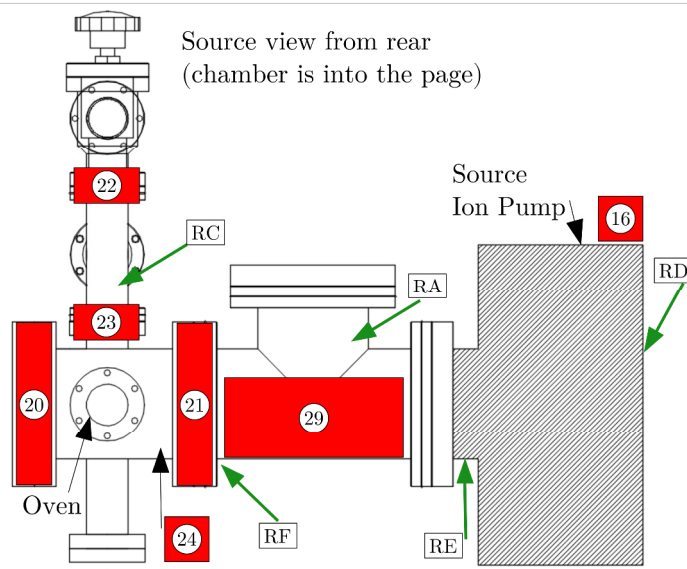


#	Band or wrap heater and the number labeled on its plug
**	Thermocouple label and arrow indicating its position on the chamber
Label	Descriptive labels of major components used to facilitate the locating of various thermocouples and heating elements

Figure 3

Source view from rear

Source view from rear  
(chamber is into the page)



#	Band or wrap heater and the number labeled on its plug
**	Thermocouple label and arrow indicating its position on the chamber
Label	Descriptive labels of major components used to facilitate the locating of various thermocouples and heating elements

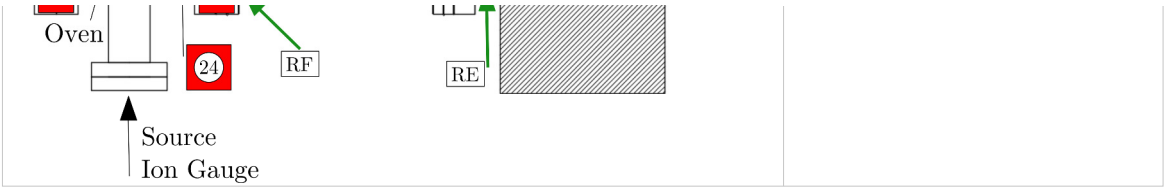


Figure 4  
Cryo-pump and Ti Sub tower

