

# Fiducials for QFC Std. Vac. Chamber

# QFC017

Date:

1/31/02

Chamber:

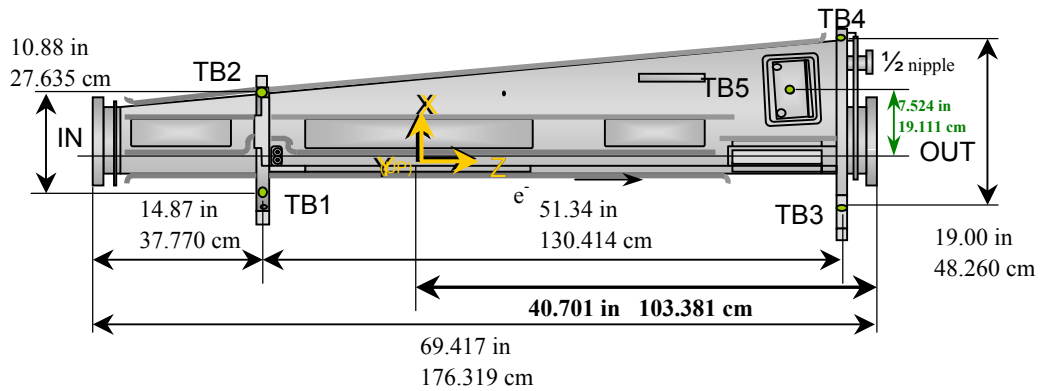
QFC017

Operator(s):

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Notes:

Traveler Step #1200: 01/18/02; #1280: 01/29/02 (#1380 & #1465 see below)



## Fiducial Coordinates for QFC Standard Vacuum Chamber: (inches)

Fiducial	Z	X	Y
TB1	-13.811	-3.430	4.409
TB2	-13.745	7.290	4.375
TB3	37.503	-5.469	4.404
TB4	37.588	13.357	2.967
TB5	33.422	7.566	2.085
TB6			
TB7			

TB5 <sub>x</sub> Absorber Check	
Measured	7.566
<b>Nominal</b>	<b>7.524</b>
<b>Difference</b>	<b>0.042</b>

STATUS: **OK**  
< 0.100 in

Source: **US Step**

**Description:**  
Fid. vals based on internal chamber datum. Source="US Step" indicates final data unless rechecked.

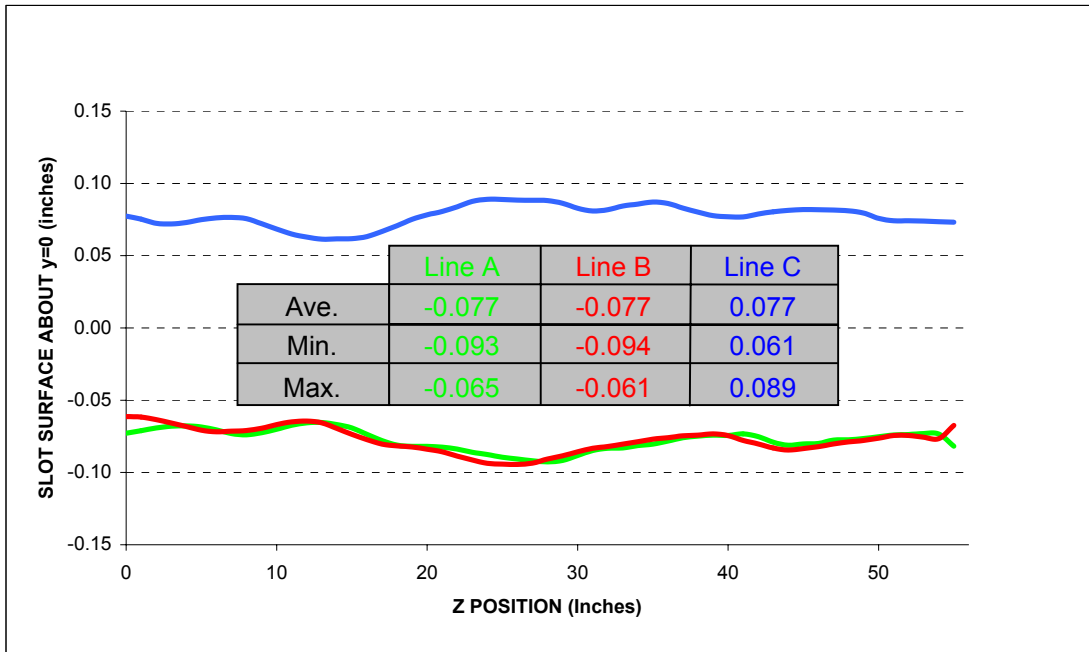
## Flange Positions: (inches)

Flange	Z	X	Y	Source
IN	-28.639	1.858	0.007	US
OUT	40.701	1.840	-0.013	DS
NIP	N/A	10.513	-0.043	DS

Source: **US Step**

**Description:**  
Flange values based on scans of flange surfaces and referenced to internal chamber datum.

**Fiducialization Step: (Traveler Step # 1380: 01/31/02)**



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**Step 1: Fiducial and Flange Coordinates for QFC Std. Vac. Chamber**

Fiducial	Z	X	Y	Downstream Flanges	
TB1	-13.811	-3.430	4.409	OUT	NIP
TB2	-13.745	7.290	4.375	Z	41.451 N/A in
TB3	37.503	-5.469	4.404	X	1.840 10.513 in
TB4	37.588	13.357	2.967	Y	-0.013 -0.043 in
TB5	33.422	7.566	2.085		
TB6					
TB7					
	inches	inches	inches	Nominals:	Xout 1.836 Yout 0.000

**Description:**  
Fiducial values based on internal chamber datum. Flange OUT X and Y values checked  $\pm 0.020$  in.

Status

**Step 2: Downstream Flange Check**

Flange	Yaw	Pitch	Diameter		Nominal Diameter	Status
			Meas.	Actual		
OUT	-8.73	2.94	11.469	9.969	9.970	OK
NIP	N/A	N/A	4.231	2.731	2.730	OK ??
	mrad	mrad	inches		$\pm 0.015$ in	

**Description:**  
Yaw -6 to -13 mrad. Pitch  $\pm 3$  mrad. Diameter difference  $\pm 0.015$  in

**Step 1: Change in Fiducial Values Check**

Fiducial	Delta Z	Delta X	Delta Y
TB1	0.000	0.000	0.000
TB2	0.000	-0.001	0.000
TB3	-0.001	0.000	0.000
TB4	0.001	0.000	-0.001
TB5	0.000	0.000	0.001
TB6			
TB7			

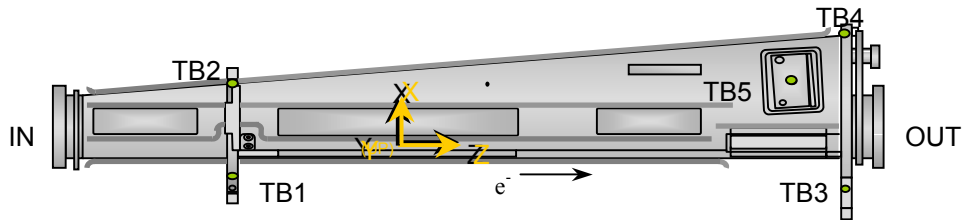
inches      inches      inches

**OK**  
**OK**  
**OK**  
**OK**  
**OK**

±0.006 in

**Description:**  
Difference between current and previous fiducial values.

Global: **OK**



**Step 2: Change in Downstream Flange Check**

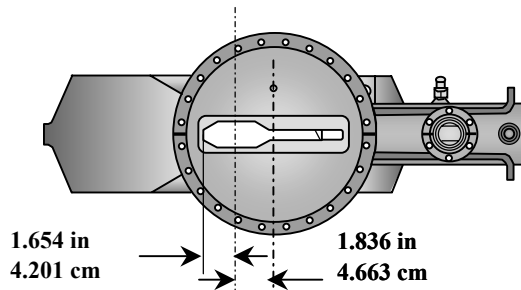
Flange	X	Y	Diameter
OUT			
New:	1.843	-0.009	11.469 in
Delta:	0.003	0.003	0.001 in

Diameter:

**OK**

X and Y: ±0.006 in  
Diameter: ±0.015 in

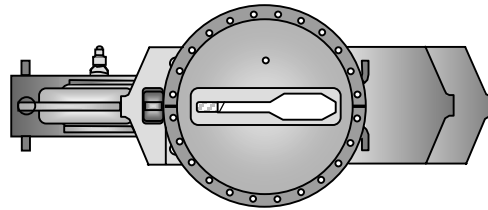
**Description:**  
Difference between current and previous fiducial values and diameter. If the current diameter is acceptable, only then will the corresponding X and Y vals be updated if either exceed the tolerance.



Final "Upstream Flange" Step (#1465 continued):

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<b>Step 3: Upstream Flange Values</b>					
<b>Flange IN</b>		<b>Flange IN</b>			
-29.389	Z	6.35	0.13	mrad	
1.858	X	<b>Yaw</b>	<b>Pitch</b>		
0.007	Y				
inches		Meas.	Actual	Nominal Diameter	
<b>Diameter</b>		11.470	9.970	9.970	OK
		in		±0.015 in	
<b>Description:</b>					
Location and orientation of Flange IN (upstream) plus its measured diameter.					
Flange IN X and Y values are also checked ±0.020 in. Yaw 5 to 9 mrad. Pitch ±3 mrad.					



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<b>Step 4: QFC Chamber Length</b>				
<b>Length with SMR</b>		<b>Length</b>	<b>Nominal Length</b>	
70.840	inches	69.340	69.417	OK
<b>Description:</b>				
Length should be between nominal value and nominal value - 0.125 in.				

