

Fiducials for QFC Std. Vac. Chamber

QFC020

Date:

1/14/02

Chamber:

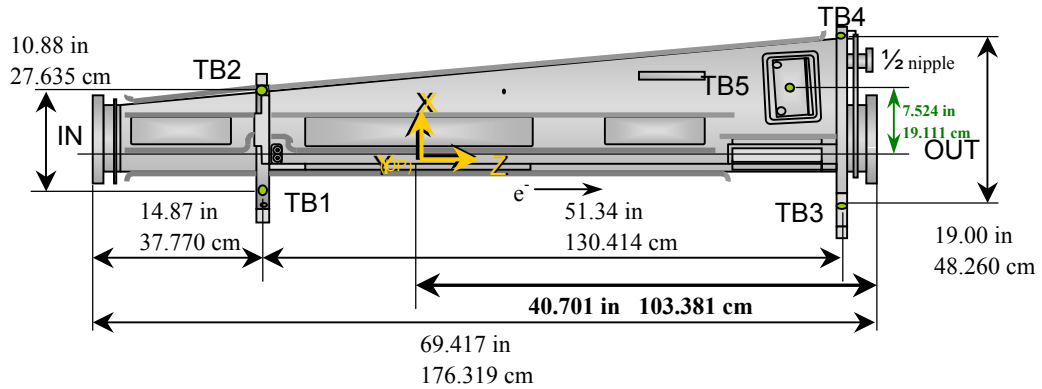
QFC020

Operator(s):

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Notes:

Traveler Step #1200: 11/28/01; #1280: 12/04/01 (#1380 & #1465 see below)



Fiducial Coordinates for QFC Standard Vacuum Chamber: (inches)

| Fiducial | Z | X | Y |
|----------|---------|--------|-------|
| TB1 | -13.801 | -3.582 | 4.393 |
| TB2 | -13.812 | 7.224 | 4.373 |
| TB3 | 37.486 | -5.513 | 4.396 |
| TB4 | 37.503 | 13.298 | 2.968 |
| TB5 | 33.387 | 7.527 | 2.104 |
| TB6 | | | |
| TB7 | | | |

| TB5 _x Absorber Check | |
|---------------------------------|--------------|
| Measured | 7.527 |
| Nominal | 7.524 |
| Difference | 0.003 |

STATUS: **OK**
< 0.100 in

Source: **US Step**

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

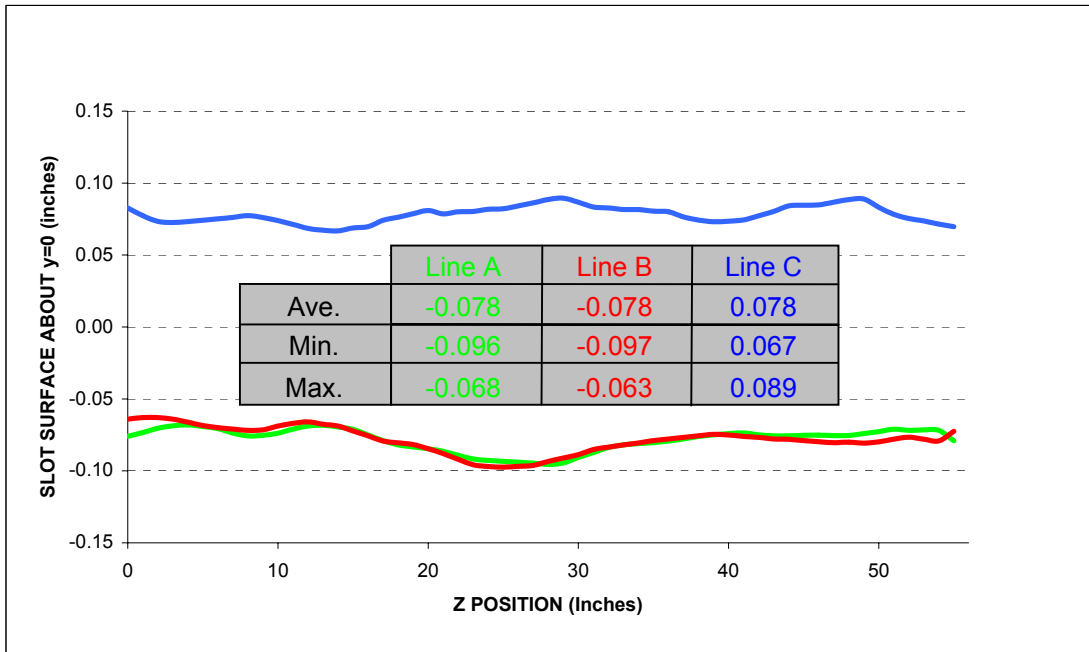
Flange Positions: (inches)

| Flange | Z | X | Y | Source |
|--------|---------|--------|--------|--------|
| IN | -28.638 | 1.815 | 0.011 | US |
| OUT | 40.701 | 1.836 | 0.016 | DS |
| NIP | N/A | 10.522 | -0.004 | DS |

Source: **US Step**

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

Fiducialization Step: (Traveler Step # 1380: 01/10/02)



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

| Fiducial | Z | X | Y | Downstream Flanges | |
|----------|---------|--------|--------|--------------------|-----------------------|
| TB1 | -13.801 | -3.582 | 4.393 | OUT | NIP |
| TB2 | -13.812 | 7.224 | 4.373 | Z | 41.451 N/A in |
| TB3 | 37.486 | -5.513 | 4.396 | X | 1.836 10.522 in |
| TB4 | 37.503 | 13.298 | 2.968 | Y | 0.016 -0.004 in |
| TB5 | 33.387 | 7.527 | 2.104 | | |
| 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 ± 0.020 in.

Status

Step 2: Downstream Flange Check

| Flange | Yaw | Pitch | Diameter | | Nominal Diameter | Status |
|--------|-------|-------|----------|--------|------------------|----------------|
| | | | Meas. | Actual | | |
| OUT | -7.84 | -3.52 | 11.468 | 9.968 | 9.970 | OK |
| NIP | N/A | N/A | 4.224 | 2.724 | 2.730 | OK ?? |
| | mrad | mrad | inches | | | ± 0.015 in |

Description:
Yaw -6 to -13 mrad. Pitch ± 3 mrad. Diameter difference ± 0.015 in

Step 1: Change in Fiducial Values Check

| Fiducial | Delta Z | Delta X | Delta Y |
|----------|---------|---------|---------|
| TB1 | 0.002 | 0.000 | 0.001 |
| TB2 | 0.001 | 0.000 | -0.001 |
| TB3 | 0.000 | 0.001 | -0.001 |
| TB4 | -0.002 | -0.001 | 0.000 |
| TB5 | -0.001 | -0.001 | 0.000 |
| TB6 | | | |
| TB7 | | | |

inches inches inches

OK

OK

OK

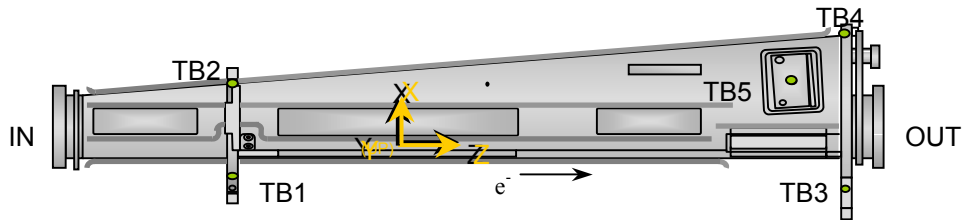
OK

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: | 1.839 | 0.018 | 11.468 in |
| Delta: | 0.003 | 0.002 | 0.000 in |

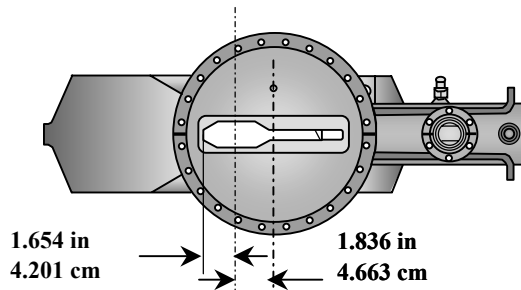
Diameter:

OK

X and Y: ±0.006 in

Diameter: ±0.015 in

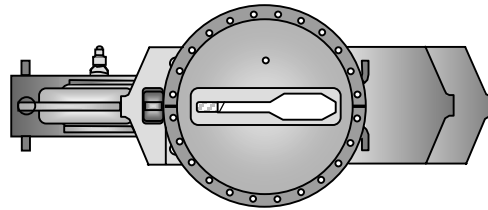
Description:
Difference between current and previous fiducial values and diameter. If the current diameter is acceptable, only then will the corresponding X and Y vals be updated if either exceed the tolerance.



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

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| Step 3: Upstream Flange Values | | | | | |
|--|---|------------------|--------------|------------------|-----------|
| Flange IN | | Flange IN | | | |
| -29.388 | Z | 5.65 | -2.88 | mrad | |
| 1.815 | X | Yaw | Pitch | | |
| 0.011 | Y | | | | |
| inches | | Meas. | Actual | Nominal Diameter | |
| Diameter | | 11.461 | 9.961 | 9.970 | OK |
| | | in | | ±0.015 in | |
| Description: | | | | | |
| 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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| Step 4: QFC Chamber Length | | | | | |
|--|--------|---------------|--------|-----------------------|-----------|
| Length with SMR | | Length | | Nominal Length | |
| 70.839 | inches | 69.339 | inches | 69.417 | OK |
| Description: | | | | | |
| Length should be between nominal value and nominal value - 0.125 in. | | | | | |

