

Cathode Production Status

CMS Week June 3rd 2003

A. Benvenuti

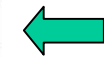
INFN Bologna

- Cathode production at Protvino on schedule (faster)
- I-beam/cathode accounting still to be clarified. Inventory of damaged and recycled I-beams will be taken during next trip (June 9th to 15th)
- Problems with ball bearings of Plotter 2 were reported but Plotter still operational
- Old Mirabelle compressor has been replaced by a new one, should have been done long time ago
- I-beam stock is getting very low ~4200 left, Ersbloeh notified
- Documentation of QC tests is non existent. **It is important to do a visual inspection on as many cathodes as feasible and to keep track of cathode failures.**



Planned Shipments up to Spring 2004

| Nr | Date | PHI | MB1 | MB2 | MB3 | CUT | Boxes | Cathodes | Cumulative |
|----|----------|-----|-----|-----|-----|-----|-------|----------|------------|
| 0 | Bologna | 9 | 1 | 3 | 3 | 0 | 16 | 14431 | 14431 |
| 1 | 04/07/01 | 3 | 1 | 0 | 0 | 0 | 4 | 3645 | 18076 |
| 2 | 30/11/01 | 9 | 1 | 0 | 0 | 0 | 10 | 9115 | 27191 |
| 3 | 19/04/02 | 9 | 2 | 1 | 0 | 0 | 12 | 11174 | 38635 |
| 4 | 06/06/02 | 9 | 1 | 1 | 1 | 0 | 12 | 11275 | 49640 |
| 5 | 29/08/02 | 7 | 1 | 1 | 3 | 0 | 12 | 10906 | 60546 |
| 6 | 06/12/02 | 7 | 2 | 2 | 1 | 0 | 12 | 11316 | 71862 |
| 7 | 07/02/03 | 8 | 1 | 2 | 1 | 0 | 12 | 11316 | 83178 |
| 8 | 06/03/03 | 11 | 1 | 0 | 0 | 0 | 12 | 11316 | 94494 |
| 9 | 24/04/03 | 8 | 1 | 1 | 2 | 0 | 12 | 11316 | 105810 |
| 10 | xx/06/03 | 10 | 1 | 1 | 0 | 0 | 12 | 11316 | 117126 |
| 11 | 08/08/03 | 9 | 1 | 1 | 1 | 0 | 12 | 11316 | 128442 |
| 12 | 09/09/03 | 7 | 0 | 0 | 0 | 5 | 12 | 11316 | 139758 |
| 13 | 28/10/03 | 9 | 1 | 1 | 1 | 0 | 12 | 11316 | 151074 |
| 14 | 09/12/03 | 9 | 1 | 1 | 1 | 0 | 12 | 11316 | 162390 |
| 15 | 15/01/04 | 11 | 0 | 0 | 1 | 0 | 12 | 11316 | 173706 |
| 16 | 04/03/04 | 12 | 0 | 0 | 0 | 0 | 12 | 11316 | 185022 |
| | Total | 147 | 16 | 15 | 15 | 5 | 198 | 185022 | |



■ Chimney

One Shipment = 12 boxes with 943 Cathodes
 Shipment 10 in transit;
 Shipment 11 was 50% done on May 29th



187 732 Required +
 Spares

Cathodes Required for the Entire DT Construction (with 19 Spares)

| Assembly Site | Phi SL | | Theta SL | | Chimneys | | Cathodes Required | | |
|---------------|------------|------------|------------|------------|-----------|----------|-------------------|--------------|-------------|
| | | | | | Phi | Theta | Phi | Theta | Chim. |
| Aachen | 146 | 110 | 62 | 50 | 4 | 2 | 29200 | 14772 | 800 |
| CIEMAT | 146 | 110 | 62 | 51 | 4 | 2 | 35332 | 14772 | 968 |
| Legnaro | 164 | 100 | 62 | 47 | 8 | 2 | 49320 | 14772 | 2320 |
| Torino | 64 | 11 | 0 | | 2 | 0 | 24704 | 0 | 772 |
| Total | 520 | 331 | 186 | 148 | 18 | 6 | 138556 | 44316 | 4860 |



Required Including
spare chambers




Delivered including Shipment 10

MB4/8,12 produced in Legnaro

Grand Total = 187 732 cathodes

| Grand Total | Aachen | | CIEMAT | | Legnaro | | Torino |
|---|--------|-------|--------|-------|---------|-------|--------|
| | Θ | Φ | Θ | Φ | Θ | Φ | Φ |
| Ship. Nr. 9 24-Apr 03 105 81 boxes | 10848 | 19213 | 11061 | 23825 | 10952 | 25531 | 2305 |
| Nr. of SL | 46 | 96 | 47 | 98 | 47 | 87 | 11 |
| Ship. Nr. 10 boxes xx-Jun 03 117 126 | 0 (1) | 4 (3) | 1 | 3 | 0 | 4 | 0 |
| Nr. of SL MB1 wrong | 50 | 110 | 51 | 110 | 47 | 100 | 11 |
| * Wasted Cathodes 2161 | 213 | 550 | 0 ? | 0 ? | 408 | 990 | |
| 182872 Required Standard | 14772 | 29200 | 14772 | 35332 | 14772 | 49320 | 24704 |
| 4860 Required Chimney | 0 | 800 | 0 | 968 | 0 | 2320 | 772 |
| 5014 Total Chimneys | 0 | 828 | 0 | 989 | 0 | 2392 | 805 |


 Update on number of available/wasted cathodes needed ASAP
 Last I-beam extrusion this fall, will be based on this table!!!

LAST Minute: mistake with paperwork MB1 box not included

I-beam Lengths and Shipments for the Second
15 ton Extrusion

Ordered last October

~ 1month
delay

| Length (mm) | Quantity | Boxes | Weight (kg) | Ready date |
|----------------|----------|-------|----------------|---------------|
| 2386 | 13860 | 15 | 3736.9 | 30/01/03 |
| 2045 | 5544 | 6 | 1281.1 | 30/01/03 |
| 3028 | 3696 | 4 | 1264.6 | 30/05/03 |
| 2386 | 9240 | 10 | 2491.3 | 30/05/03 |
| 1996 | 4620 | 5 | 1042.0 | 30/05/03 |
| 2508 | 924 | 1 | 261.9 | 30/09/03 |
| 2386 | 18480 | 20 | 4982.5 | 30/09/03 |
| Total | 56364 | | 15060.3 | |



This ~fulfills the I-beam production
(apart for spares)

Cathode production should be completed well ahead of the chambers:

- Cathode should be stored in a cool area
- Use early boxes first. **Protective bags not used before February 2002**
- Do not leave cathodes exposed to air for a long time, they attract smog
- Once cathode production is stopped, the assembly site must be cleared.
Must plan for cathode requirements beyond foreseeable spares

Move Second Plotter and both dishes to CERN ???