



# Performance Data

## 48x24 AJ Criti-Clean: Sound

Exp 700 TST 0429  
LTO 2012-1211 Rev. 2

5/21/2013

AJ 48x24 fan filter

Note: Data collected @ 120V.

Mic location: 30" perpendicular distance from center of perforated face

| Velocity | L <sub>Aeq</sub> | 50Hz    | 63Hz | 80Hz    | 100Hz | 125Hz   | 160Hz | 200Hz   | 250Hz | 315Hz   | 400Hz | 500Hz   | 630Hz | 800Hz   | 1kHz | 1.25kHz | 1.6kHz | 2kHz | 2.5kHz | 3.15kHz | 4kHz | 5kHz | 6.3kHz | 8kHz | 10kHz |
|----------|------------------|---------|------|---------|-------|---------|-------|---------|-------|---------|-------|---------|-------|---------|------|---------|--------|------|--------|---------|------|------|--------|------|-------|
| 70       | 48.3             | 48      | 48   | 49      | 50    | 49      | 46    | 46      | 43    | 44      | 44    | 45      | 42    | 41      | 31   | 28      | 27     | 28   | 27     | 26      | 23   | 19   | 17     | 14   | 13    |
| 80       | 50.1             | 50      | 50   | 51      | 52    | 52      | 49    | 48      | 45    | 45      | 46    | 47      | 44    | 43      | 34   | 30      | 29     | 30   | 29     | 29      | 25   | 21   | 19     | 16   | 15    |
| 90       | 51.4             | 51      | 52   | 53      | 55    | 53      | 51    | 50      | 47    | 47      | 47    | 48      | 45    | 43      | 36   | 32      | 31     | 31   | 30     | 30      | 27   | 23   | 21     | 18   | 16    |
| 100      | 53.0             | 53      | 53   | 55      | 58    | 55      | 52    | 52      | 49    | 49      | 49    | 49      | 47    | 44      | 38   | 35      | 33     | 33   | 32     | 32      | 29   | 25   | 23     | 20   | 18    |
| 110      | 54.6             | 54      | 55   | 58      | 60    | 57      | 55    | 55      | 51    | 50      | 50    | 51      | 48    | 45      | 40   | 36      | 35     | 35   | 33     | 33      | 31   | 27   | 25     | 22   | 20    |
|          |                  | 53.478  |      | 53.7746 |       | 49.0467 |       | 48.8354 |       | 41.543  |       | 32.0811 |       | 28.5893 |      | 19.7502 |        |      |        |         |      |      |        |      |       |
|          |                  | 55.4182 |      | 55.9067 |       | 51.0439 |       | 50.5107 |       | 43.3247 |       | 34.0267 |       | 30.7573 |      | 21.8123 |        |      |        |         |      |      |        |      |       |
|          |                  | 56.8375 |      | 58.0593 |       | 52.7984 |       | 51.64   |       | 44.1233 |       | 35.2279 |       | 32.257  |      | 23.3835 |        |      |        |         |      |      |        |      |       |
|          |                  | 58.9297 |      | 60.3515 |       | 55.1    |       | 53.1505 |       | 45.4448 |       | 37.3685 |       | 34.3824 |      | 25.6893 |        |      |        |         |      |      |        |      |       |
|          |                  | 60.8379 |      | 62.4207 |       | 57.1401 |       | 54.46   |       | 46.5436 |       | 39.2638 |       | 35.9734 |      | 27.5216 |        |      |        |         |      |      |        |      |       |

| Calc'd Velocity [fpm] | Sound [dBA] | Octave Band Frequency |    |    |    |    |    |    |    |
|-----------------------|-------------|-----------------------|----|----|----|----|----|----|----|
|                       |             | 1                     | 2  | 3  | 4  | 5  | 6  | 7  | 8  |
| 70                    | 48.3        | 53                    | 54 | 49 | 49 | 42 | 32 | 29 | 20 |
| 80                    | 50.1        | 55                    | 56 | 51 | 51 | 43 | 34 | 31 | 22 |
| 90                    | 51.4        | 57                    | 58 | 53 | 52 | 44 | 35 | 32 | 23 |
| 100                   | 53.0        | 59                    | 60 | 55 | 53 | 45 | 37 | 34 | 26 |
| 110                   | 54.6        | 61                    | 62 | 57 | 54 | 47 | 39 | 36 | 28 |

Energistics Laboratory

\*for information on 240V and 277V, please consult factory

April 2013



# Performance Data

Observer  
BN

Date  
5/3/2013

| Psychrometric Data |     |      |      |             |       |
|--------------------|-----|------|------|-------------|-------|
| Dry Bulb           | %RH | Pb   | W    | v           | V/v   |
| 67                 | 51  | 30.2 | 50.3 | 13.30176786 | 1.003 |

| 8" ADC Nozzle |        |
|---------------|--------|
| A             | B      |
| 458.5         | 0.4907 |

## 48x24 AJ Criti-Clean: 120V Electrical

Exp 700 TST 0429  
LTO 2012-1211 Rev. 1

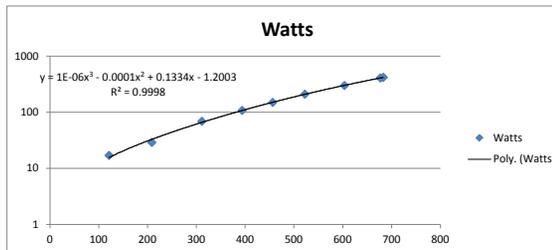
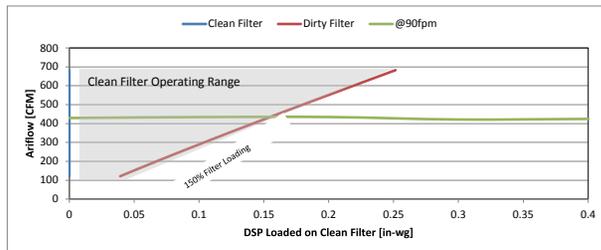
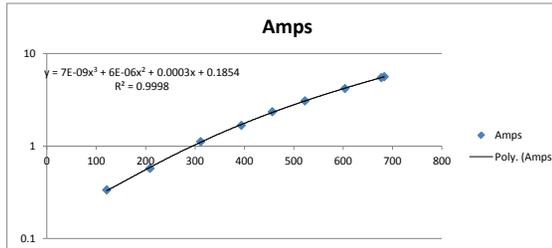
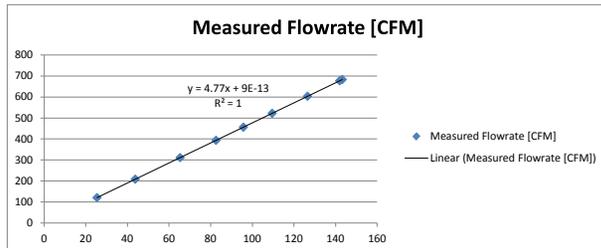
Filter Area  
4.77

### 48x24 Criti-Clean Electrical and Airflow Data @ 120V

| Evolution Command % | ADC Nozzle ΔP [in.-wg] | Measured Flowrate [CFM] | Calc'd Face Velocity [FPM] | Discharge Ps [in.-wg.] | Volts | Amps  | VA  | PF (meter) | Watts | Watts / VA | RPM  | THD% | Phase Angle φ | Calc'd Motor Heat Gain | Watts/ CFM | AVG ΔP Across Filter | Dirty Filter ΔP [in.-wg] | Dirty-AVG Resulting DSP |
|---------------------|------------------------|-------------------------|----------------------------|------------------------|-------|-------|-----|------------|-------|------------|------|------|---------------|------------------------|------------|----------------------|--------------------------|-------------------------|
| 100                 | 2.24                   | 683                     | 143                        | 0                      | 119   | 5.63  | 670 | 0.62       | 420   | 0.63       | 1439 | 77.3 | 2             | 1433.0                 | 0.6149     | 0.5031               | 0.7546                   | 0.2515                  |
| 90                  | 2.2                    | 677                     | 142                        | 0                      | 119   | 5.49  | 650 | 0.62       | 410   | 0.63       | 1436 | 77.2 | 2             | 1398.9                 | 0.6056     | 0.4983               | 0.7474                   | 0.2491                  |
| 80                  | 1.74                   | 603                     | 127                        | 0                      | 119   | 4.19  | 500 | 0.61       | 300   | 0.60       | 1293 | 78.5 | 0             | 1023.6                 | 0.4972     | 0.4402               | 0.6604                   | 0.2201                  |
| 70                  | 1.297                  | 522                     | 110                        | 0                      | 119   | 3.08  | 370 | 0.58       | 210   | 0.57       | 1158 | 81.2 | -1            | 716.5                  | 0.4020     | 0.3770               | 0.5655                   | 0.1885                  |
| 60                  | 0.985                  | 456                     | 96                         | 0                      | 119   | 2.35  | 280 | 0.55       | 150   | 0.54       | 1045 | 83.1 | -3            | 511.8                  | 0.3286     | 0.3260               | 0.4890                   | 0.1630                  |
| 50                  | 0.729                  | 394                     | 83                         | 0                      | 119   | 1.674 | 198 | 0.54       | 108   | 0.55       | 928  | 83.2 | -2            | 368.5                  | 0.2743     | 0.2781               | 0.4172                   | 0.1391                  |
| 40                  | 0.452                  | 311                     | 65                         | 0                      | 119   | 1.116 | 134 | 0.52       | 69    | 0.51       | 713  | 85.5 | -3            | 235.4                  | 0.2216     | 0.2161               | 0.3241                   | 0.1080                  |
| 30                  | 0.2                    | 209                     | 44                         | 0                      | 119   | 0.573 | 66  | 0.46       | 29    | 0.44       | 561  | 88   | -4            | 98.9                   | 0.1389     | 0.1405               | 0.2107                   | 0.0702                  |
| 20                  | 0.066                  | 121                     | 25                         | 0                      | 119   | 0.335 | 40  | 0.41       | 17    | 0.43       | 398  | 88.4 | -4            | 58.0                   | 0.1403     | 0.0782               | 0.1174                   | 0.0391                  |

### 48x24 Criti-Clean Electrical and Airflow Data @ 90 FPM

| Evolution Command % | ADC Nozzle ΔP [in.-wg] | Measured Flowrate [CFM] | Calc'd Face Velocity [FPM] | Discharge Ps [in.-wg.] | Volts | Amps  | VA  | PF (meter) | Watts | Watts / VA | RPM  | THD% | Phase Angle φ | Calc'd Motor Heat Gain | Watts/ CFM | AVG ΔP Across Filter | Dirty Filter ΔP [in.-wg] | Dirty-AVG Resulting DSP |
|---------------------|------------------------|-------------------------|----------------------------|------------------------|-------|-------|-----|------------|-------|------------|------|------|---------------|------------------------|------------|----------------------|--------------------------|-------------------------|
| 58                  | 0.87                   | 429                     | 90                         | 0                      | 120   | 1.78  | 209 | 0.57       | 119   | 0.57       | 943  | 81.5 | -4            | 406.0                  | 0.2771     | 0.3053               | 0.4580                   | 0.1527                  |
| 58                  | 0.889                  | 434                     | 91                         | 0.1                    | 120   | 2.089 | 250 | 0.58       | 144   | 0.58       | 1048 | 81   | -3            | 491.3                  | 0.3318     | 0.4088               |                          |                         |
| 58                  | 0.89                   | 434                     | 91                         | 0.2                    | 120   | 2.456 | 292 | 0.58       | 169   | 0.58       | 1127 | 80.6 | -3            | 576.6                  | 0.3892     | 0.5090               |                          |                         |
| 58                  | 0.839                  | 422                     | 88                         | 0.3                    | 120   | 2.433 | 291 | 0.58       | 169   | 0.58       | 1124 | 80.4 | -3            | 576.6                  | 0.4006     | 0.5995               |                          |                         |
| 58                  | 0.851                  | 425                     | 89                         | 0.4                    | 120   | 2.74  | 330 | 0.59       | 200   | 0.61       | 1211 | 80.2 | -3            | 682.4                  | 0.4708     | 0.7018               |                          |                         |



## 48x24 AJ Criti-Clean: Velocity

Observer  
BN/JB

Date  
4/29/2013

IEST 2.3 - Typically MAX 15% Relative Std Dev

Exp 700 TST 0429  
LTO 2012-1211 Rev. 1

Filter Area  
4.77

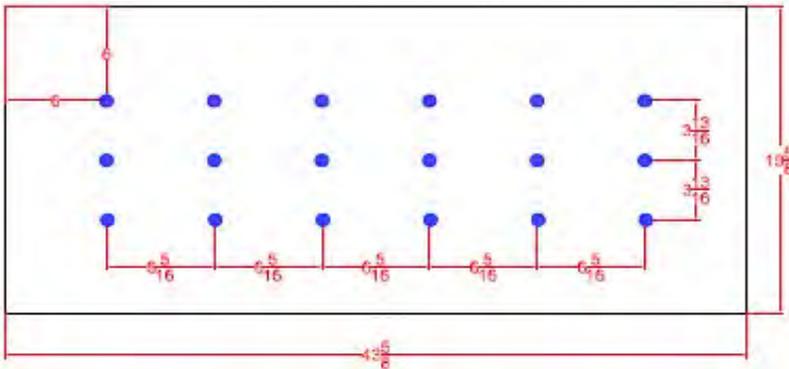
Note: Data collected @ 120V.

### 48x24 Criti-Clean Velocity Profile

| Evolution Command | V0   | V1   | V2   | V3   | V4   | V5   | V6   | V7   | V8   | V9   | V10  | V11  | V12  | V13  | V14  | V15  | V16  | V17  | Velocity AVG | SDEV | RSDEV | Measured Flowrate [CFM] | Calc'd Face Velocity [FPM] |
|-------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--------------|------|-------|-------------------------|----------------------------|
| %                 |      |      |      |      |      |      |      |      |      | 79.2 | 68   | 73   | 83.1 | 75.1 | 71.9 | 78.8 | 83.6 | 85.1 | 79.9         | 7.6  | 9.6   | 683                     | 143                        |
| 100               | 70.5 | 65.4 | 83.1 | 81.4 | 89.3 | 91.8 | 88.4 | 80.1 | 90.4 | 79.1 | 67.7 | 73.5 | 82.5 | 74.5 | 71.7 | 78.5 | 83.1 | 84.2 | 79.7         | 7.6  | 9.6   | 677                     | 142                        |
| 90                | 70.2 | 65.5 | 82.7 | 81.4 | 88.8 | 92.8 | 87.9 | 79.8 | 90   | 72.1 | 63.2 | 67.6 | 76.8 | 69.8 | 67   | 72.4 | 76.8 | 78   | 73.8         | 6.8  | 9.3   | 603                     | 127                        |
| 80                | 65.3 | 61.1 | 77.9 | 74.8 | 81.5 | 84.8 | 82   | 74.1 | 83.2 | 67.2 | 59.2 | 63.2 | 70.3 | 64   | 62   | 67   | 70   | 70.5 | 67.7         | 6    | 8.8   | 522                     | 110                        |
| 70                | 59.9 | 55.8 | 71.6 | 68.5 | 73.7 | 78.9 | 74.6 | 67.1 | 75.3 | 59.8 | 54.1 | 57.3 | 64.2 | 58.1 | 57.4 | 61.2 | 63.4 | 63.7 | 61.3         | 4.9  | 7.9   | 456                     | 96                         |
| 60                | 55.2 | 51.8 | 64.8 | 61.8 | 65.7 | 70.4 | 67.7 | 60.4 | 66.7 | 46.6 | 49.2 | 51.7 | 56.5 | 51.3 | 47.2 | 50.5 | 56.5 | 57.1 | 52.8         | 4.6  | 8.6   | 394                     | 83                         |
| 50                | 49.6 | 46.4 | 53.2 | 50.6 | 58.1 | 63.2 | 59   | 53.2 | 50.5 | 40.6 | 42.7 | 44.1 | 48.7 | 44.9 | 39.7 | 43   | 48.3 | 49   | 45.3         | 4    | 8.7   | 311                     | 65                         |
| 40                | 43.8 | 39.9 | 44.9 | 43.4 | 49.7 | 53.9 | 51.8 | 45.4 | 42.3 | 31.9 | 34.1 | 34.8 | 37.2 | 35.4 | 32.1 | 32.1 | 36.7 | 37.7 | 35.4         | 2.5  | 7     | 209                     | 44                         |
| 30                | 34.7 | 33.2 | 35.8 | 33.7 | 38.6 | 40.4 | 39.7 | 35.3 | 34.3 | 14.2 | 19.5 | 20   | 22.4 | 22.1 | 14.4 | 19.8 | 14.2 | 24.1 | 20.3         | 3.5  | 17.2  | 121                     | 25                         |
| 20                | 22.7 | 20.5 | 20.4 | 14.4 | 23.3 | 24.3 | 23.8 | 22.3 | 22.7 |      |      |      |      |      |      |      |      |      |              |      |       |                         |                            |

### 48x24 Criti-Clean Velocity Profile @ 90 FPM

| Evolution Command | V9   | V10  | V11  | V12  | V13  | V14  | V15  | V16  | V17  | Velocity AVG | SDEV | RSDEV |
|-------------------|------|------|------|------|------|------|------|------|------|--------------|------|-------|
| %                 |      |      |      |      |      |      |      |      |      |              |      |       |
| 58                | 57.7 | 53.3 | 56.3 | 62.6 | 56.7 | 56.6 | 59.5 | 62.4 | 62.7 | 60           | 4.7  | 7.9   |



## 48x24 AJ Criti-Clean: Static Pressure

Exp 700 TST 0429  
LTO 2012-1211 Rev. 1

Observer  
BN/JB

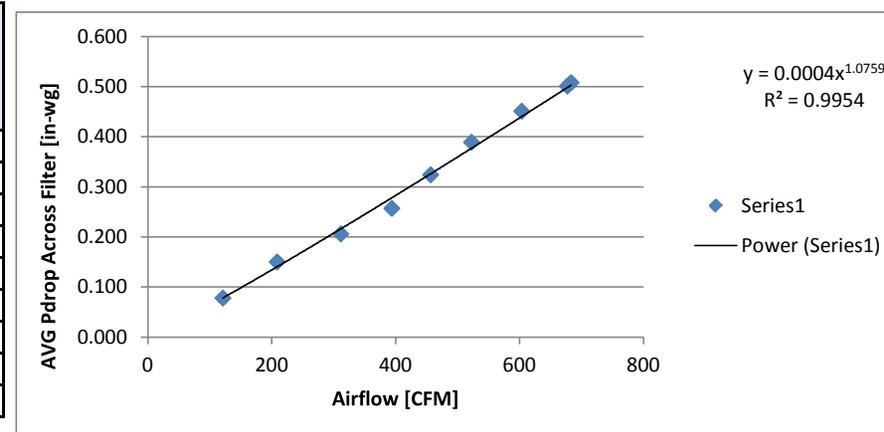
Date  
4/29/2013

Filter Area  
4.77

Note: Data collected @ 120V.

### 48x24 Criti-Clean Static Pressure

| Evolution Command % | Upstream AVG Plenum Ps [in. wg.] | Dwnstream AVG Plenum Ps [in.-wg.] | AVG ΔP Across Filter | Measured Flowrate [CFM] | Calc'd Face Velocity [FPM] |
|---------------------|----------------------------------|-----------------------------------|----------------------|-------------------------|----------------------------|
| 100                 | 0.518                            | 0.01                              | 0.508                | 683                     | 143                        |
| 90                  | 0.511                            | 0.010                             | 0.501                | 677                     | 142                        |
| 80                  | 0.46                             | 0.009                             | 0.451                | 603                     | 127                        |
| 70                  | 0.399                            | 0.010                             | 0.389                | 522                     | 110                        |
| 60                  | 0.333                            | 0.009                             | 0.324                | 456                     | 96                         |
| 50                  | 0.266                            | 0.009                             | 0.257                | 394                     | 83                         |
| 40                  | 0.216                            | 0.010                             | 0.206                | 311                     | 65                         |
| 30                  | 0.159                            | 0.009                             | 0.150                | 209                     | 44                         |
| 20                  | 0.087                            | 0.009                             | 0.078                | 121                     | 25                         |



### 48x24 Criti-Clean Electrical and Airflow Data @ 90 FPM

| Evolution Command % | Upstream AVG Plenum Ps [in. wg.] | Dwnstream AVG Plenum Ps [in.-wg.] | AVG ΔP Across Filter |
|---------------------|----------------------------------|-----------------------------------|----------------------|
| 58                  | 0.325                            | 0.009                             | 0.316                |

Airflow vs. ΔP

Power Fx'n  
C: 0.0004487  
b: 1.07592384

ΔP vs. Airflow

Power Fx'n  
C: 1286.4458  
b: 0.92517251

Dirty Filter is suggested @ 1.5 times clean filter initial resistance:

0.474

Equivalent to DSP of:

0.158