

# WORK ORDER REQUEST AND CERTIFICATION

VIKING PUMP, INC. - A Unit of IDEX Corporation

Product Engineering Laboratory

406 State Street

Cedar Falls, IA. 50613

PW532C.1/1 (CLIENT TAG#: 19-P-759A)

PW532C.1/2 (CLIENT TAG#: 19-P-759B)

PW532C.2/1 (CLIENT TAG#: 19-P-859A)

PW532C.2/2 (CLIENT TAG#: 19-P-859B)

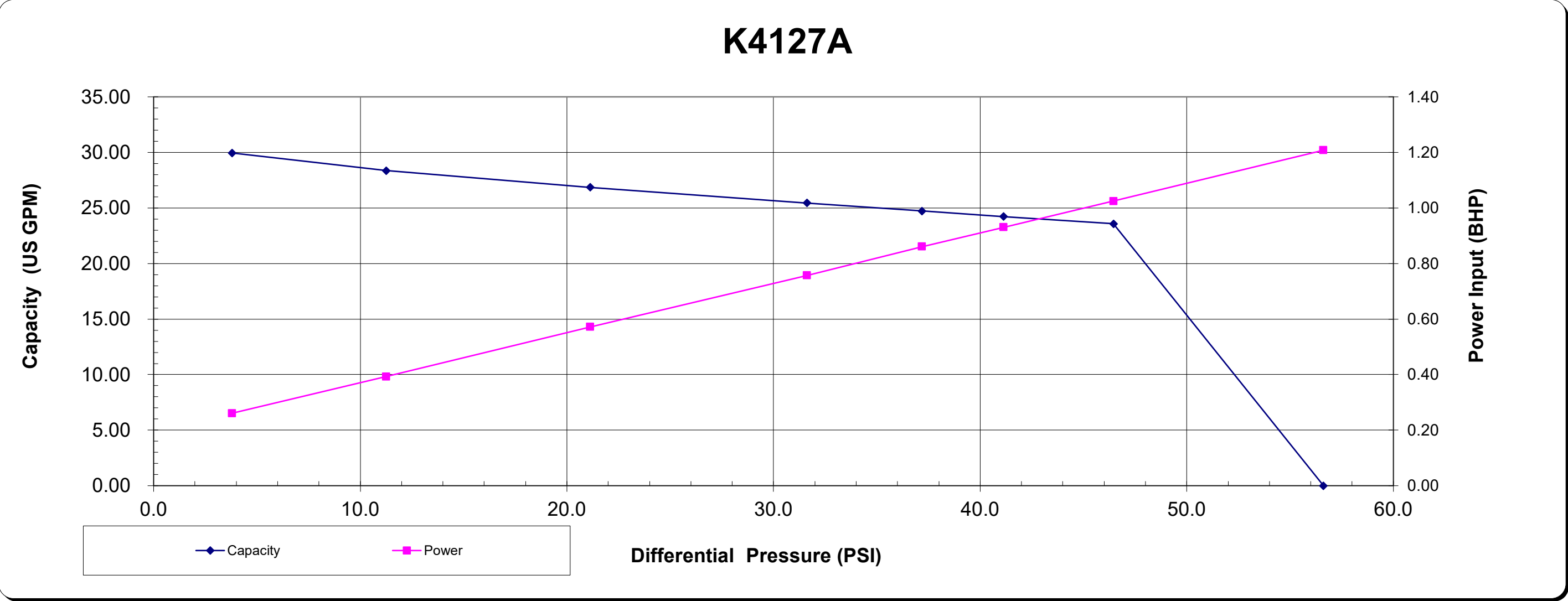
|                     |            |                     |                 |
|---------------------|------------|---------------------|-----------------|
| W.O. Number:        | 804070     | Date:               | 3/28/2022       |
| Customer:           | Pye Barker | Customer Order No.: |                 |
| Viking Invoice No.: | 804070     | Serial No. (s):     |                 |
| Pump Model:         | K4127A     |                     | 7887890032-0035 |

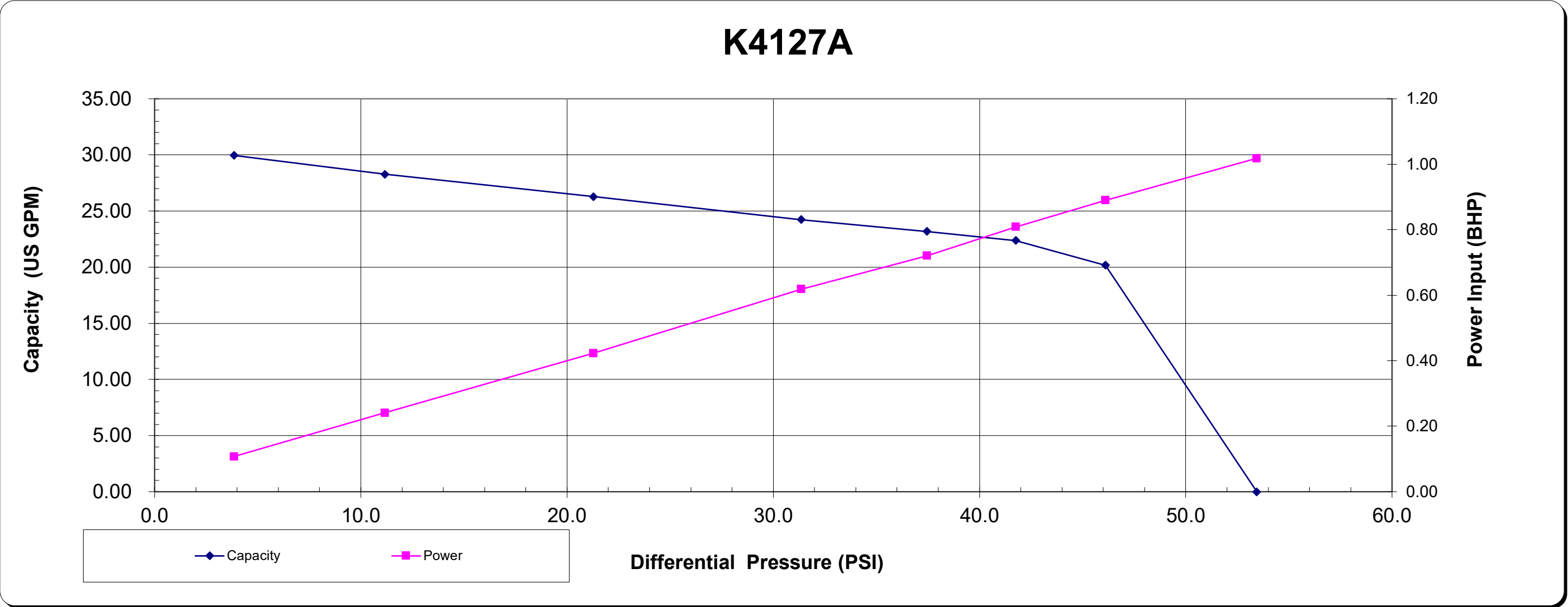
|                                  |                         |       |
|----------------------------------|-------------------------|-------|
| TEST TO BE PERFORMED AS FOLLOWS: | Technician's Init'ls:   |       |
| Hydrostatic Test<br>Per WIS-1    | <b>NONE</b>             |       |
| Pumping Chamber:                 | 0.0 (PSI <sub>g</sub> ) |       |
| Jacketed Chamber:                |                         | Date: |
| Duration:                        | 0                       |       |
| Pressure Gage#:                  |                         |       |

|                               |             |                                                 |                       |
|-------------------------------|-------------|-------------------------------------------------|-----------------------|
| Performance Test<br>Per WIS-2 | <b>YES</b>  | Record Capacity and HP Data<br>From Minimum to: |                       |
|                               |             | 50.0 (PSI <sub>g</sub> )                        |                       |
| RPM:                          | 301         | rpm                                             |                       |
| Liquid:                       | LVG - 04/SM |                                                 | Technician's Init'ls: |
| Temp:                         | 92.0        | ( ° F)                                          |                       |
| Viscosity:                    | 100         | ssu                                             |                       |
| Inlet Condition:              | 0           | (In-HgVac)                                      |                       |
| Required Capacity:            | 21          | (US GPM)                                        | Date:                 |
|                               |             |                                                 | 3/28/2022             |

|                             |             |                                                                                       |  |
|-----------------------------|-------------|---------------------------------------------------------------------------------------|--|
| NPSH Test                   | <b>NONE</b> | Record Capacity vs. Vacuum<br>Data From minimum (In-HgVac) to Point<br>of Cavitation. |  |
|                             |             | Technician's Init'ls:                                                                 |  |
|                             |             | Date:                                                                                 |  |
| Misc. Testing Requirements: |             | Technician's Init'ls:                                                                 |  |
|                             |             | Date:                                                                                 |  |

|                 |                                       |  |
|-----------------|---------------------------------------|--|
| Lab Technician: | Electronic Signature<br>Tom Wildeboer |  |
| Date Completed: | 3/28/2022                             |  |





PERFORMANCE DATA SHEET

Viking Pump, Inc.-A Unit of IDEX Corporation  
Product Engineering Laboratory  
406 State Street  
Cedar Falls, IA. 50613

|              |             |                                   |                 |                     |            |
|--------------|-------------|-----------------------------------|-----------------|---------------------|------------|
| Work Order:  | 804070      | For:                              | Pye Barker      | Pump Serial No (s): | 7887890033 |
| Model:       | K4127A      | BOM No.:                          | 4-2515-264C-588 | Port Size:          | 2" F       |
| Mat'l Specs: | 0           | Drive:                            | Direct          | Rotation:           | CCW        |
| Fluid:       | LVG - 04/SM | Viscosity at Pumping Temperature: | 100 SSU         |                     |            |

| Volume Pumped | Time Req'd | Fluid Temp | Suction Pressure | Discharge Pressure | Torque  | Pump Speed | Capacity | Differential Pressure | Power Input | Power Theo. | Pump Eff. | Vol. Eff. |
|---------------|------------|------------|------------------|--------------------|---------|------------|----------|-----------------------|-------------|-------------|-----------|-----------|
| (US GAL)      | (SECS)     | ( ° F)     | (In-HgVac)       | (PSIG)             | (Lb-Ft) | (RPM)      | (US GPM) | (PSI)                 | (BHP)       | (THP)       | ( % )     | ( % )     |
| 29.95         | 60         | 91.5       | 2.4              | 2.7                | 1.88    | 301.02     | 29.95    | 3.9                   | 0.11        | 0.07        | 62.57%    | 100.00%   |
| 28.28         | 60         | 91.8       | 2.4              | 10.0               | 4.20    | 301.02     | 28.28    | 11.2                  | 0.24        | 0.18        | 76.55%    | 94.42%    |
| 26.28         | 60         | 91.9       | 2.3              | 20.2               | 7.38    | 301.02     | 26.28    | 21.3                  | 0.42        | 0.33        | 77.15%    | 87.75%    |
| 24.23         | 60         | 91.9       | 2.1              | 30.3               | 10.79   | 301.02     | 24.23    | 31.4                  | 0.62        | 0.44        | 71.68%    | 80.90%    |
| 23.18         | 60         | 91.8       | 2.2              | 36.4               | 12.57   | 301.02     | 23.18    | 37.5                  | 0.72        | 0.51        | 70.31%    | 77.40%    |
| 22.37         | 60         | 91.9       | 2.1              | 40.7               | 14.11   | 301.02     | 22.37    | 41.8                  | 0.81        | 0.55        | 67.40%    | 74.69%    |
| 20.17         | 60         | 91.9       | 2.0              | 45.1               | 15.53   | 301.02     | 20.17    | 46.1                  | 0.89        | 0.54        | 60.94%    | 67.35%    |
| 0             | 60         | 91.9       | 1.7              | 52.6               | 17.77   | 300.93     | 0.00     | 53.4                  | 1.02        | 0.00        | 0.00%     | 0.00%     |

| EXTRA CLEARANCES |  |          |  |          |  |          |  |          |  |          |  |
|------------------|--|----------|--|----------|--|----------|--|----------|--|----------|--|
| OD Rotor         |  | ID Rotor |  | OD Idler |  | ID Idler |  | ID Brg's |  | End Clr. |  |
|                  |  |          |  |          |  |          |  |          |  | 0.008    |  |

LAB REMARKS

Equipment:

Pressure Gauge # 181170588

Dynamometer # 5833

HP DYNO 50

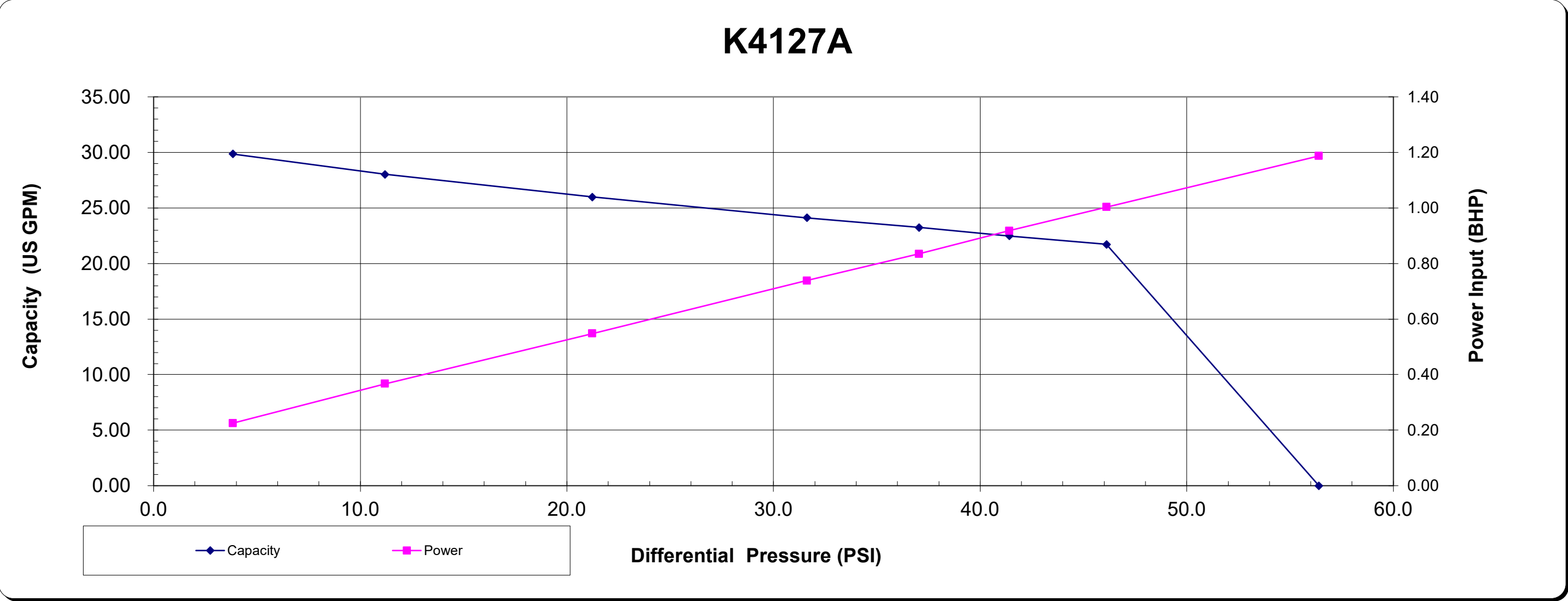
Vacuum Gauge # 728732

Flow Meter # B305005

Temp Probe # T1

Certified by: Tom Wildeboer Date: 03/28/22





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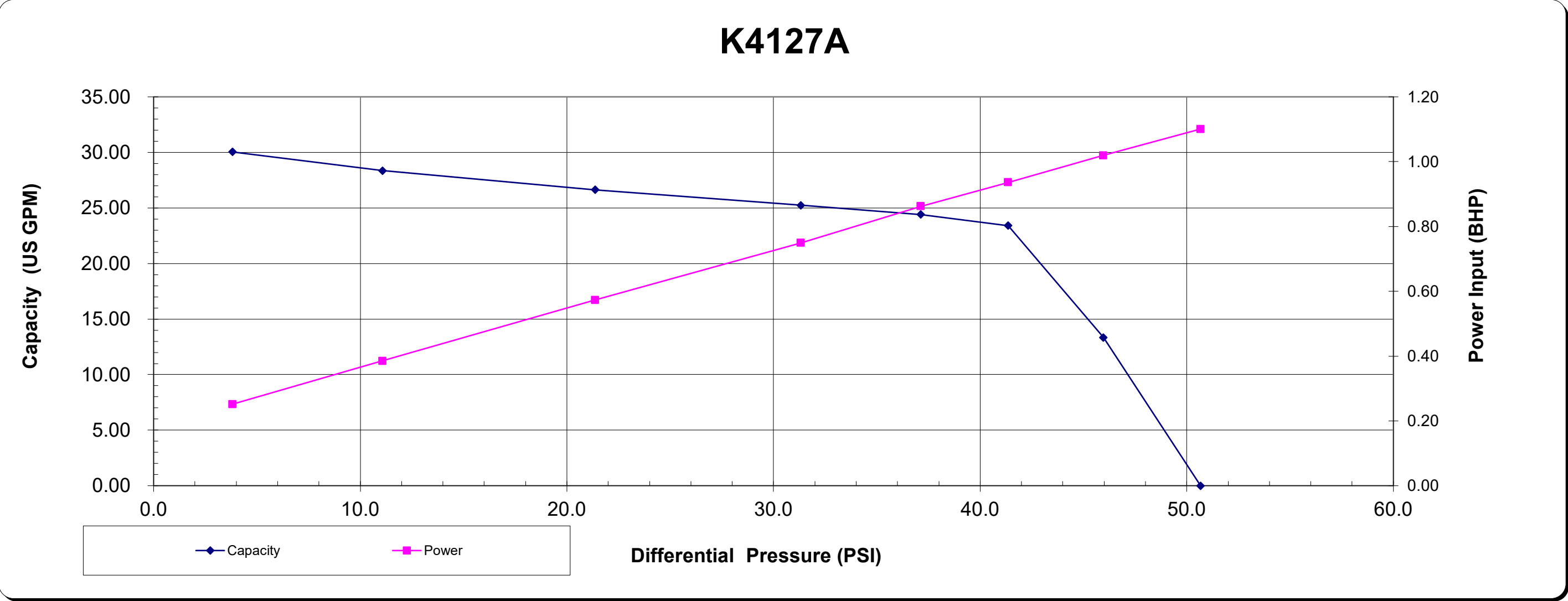
|              |             |                                   |                 |                     |            |
|--------------|-------------|-----------------------------------|-----------------|---------------------|------------|
| Work Order:  | 804070      | For:                              | Pye Barker      | Pump Serial No (s): | 7887890034 |
| Model:       | K4127A      | BOM No.:                          | 4-2515-264C-588 | Port Size:          | 2" F       |
| Mat'l Specs: | 0           | Drive:                            | Direct          | Rotation:           | CCW        |
| Fluid:       | LVG - 04/SM | Viscosity at Pumping Temperature: | 100             | SSU                 |            |

| Volume Pumped | Time Req'd | Fluid Temp | Suction Pressure | Discharge Pressure | Torque  | Pump Speed | Capacity | Differential Pressure | Power Input | Power Theo. | Pump Eff. | Vol. Eff. |
|---------------|------------|------------|------------------|--------------------|---------|------------|----------|-----------------------|-------------|-------------|-----------|-----------|
| (US GAL)      | (SECS)     | ( ° F)     | (In-HgVac)       | (PSIG)             | (Lb-Ft) | (RPM)      | (US GPM) | (PSI)                 | (BHP)       | (THP)       | ( % )     | ( % )     |
| 29.85         | 60         | 92.3       | 2.4              | 2.6                | 3.93    | 301.02     | 29.85    | 3.8                   | 0.23        | 0.07        | 29.68%    | 100.00%   |
| 28.03         | 60         | 92.5       | 2.4              | 10.0               | 6.41    | 300.93     | 28.03    | 11.2                  | 0.37        | 0.18        | 49.87%    | 93.90%    |
| 25.99         | 60         | 92.6       | 2.2              | 20.1               | 9.56    | 300.93     | 25.99    | 21.2                  | 0.55        | 0.32        | 58.78%    | 87.07%    |
| 24.11         | 60         | 92.6       | 2.2              | 30.5               | 12.89   | 300.93     | 24.11    | 31.6                  | 0.74        | 0.44        | 60.20%    | 80.77%    |
| 23.24         | 60         | 92.6       | 2.1              | 36.0               | 14.57   | 301.02     | 23.24    | 37.0                  | 0.84        | 0.50        | 60.15%    | 77.86%    |
| 22.48         | 60         | 92.5       | 2.1              | 40.4               | 16.01   | 301.02     | 22.48    | 41.4                  | 0.92        | 0.54        | 59.18%    | 75.31%    |
| 21.72         | 60         | 92.5       | 2.0              | 45.1               | 17.50   | 301.02     | 21.72    | 46.1                  | 1.00        | 0.58        | 58.26%    | 72.76%    |
| 0             | 60         | 92.5       | 1.6              | 55.6               | 20.72   | 300.93     | 0.00     | 56.4                  | 1.19        | 0.00        | 0.00%     | 0.00%     |

| EXTRA CLEARANCES |  |          |  |          |  |          |  |          |  |          |  |
|------------------|--|----------|--|----------|--|----------|--|----------|--|----------|--|
| OD Rotor         |  | ID Rotor |  | OD Idler |  | ID Idler |  | ID Brg's |  | End Clr. |  |
|                  |  |          |  |          |  |          |  |          |  | 0.008    |  |

| LAB REMARKS                                                        |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|--|--|
| Equipment:                                                         |  |  |  |  |  |  |  |  |  |  |  |
| Pressure Gauge # 181170588      Dynamometer # 5833      HP DYNO 50 |  |  |  |  |  |  |  |  |  |  |  |
| Vacuum Gauge # 728732      Flow Meter # B305005                    |  |  |  |  |  |  |  |  |  |  |  |
| Temp Probe # T1                                                    |  |  |  |  |  |  |  |  |  |  |  |

Certified by: Tom Wildeboer      Date: 03/28/22



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|              |             |                                   |                 |                     |            |
|--------------|-------------|-----------------------------------|-----------------|---------------------|------------|
| Work Order:  | 804070      | For:                              | Pye Barker      | Pump Serial No (s): | 7887890035 |
| Model:       | K4127A      | BOM No.:                          | 4-2515-264C-588 | Port Size:          | 2" F       |
| Mat'l Specs: | 0           | Drive:                            | Direct          | Rotation:           | CW         |
| Fluid:       | LVG - 04/SM | Viscosity at Pumping Temperature: | 100             | SSU                 |            |

| Volume Pumped | Time Req'd | Fluid Temp | Suction Pressure | Discharge Pressure | Torque  | Pump Speed | Capacity | Differential Pressure | Power Input | Power Theo. | Pump Eff. | Vol. Eff. |
|---------------|------------|------------|------------------|--------------------|---------|------------|----------|-----------------------|-------------|-------------|-----------|-----------|
| (US GAL)      | (SECS)     | ( ° F)     | (In-HgVac)       | (PSIG)             | (Lb-Ft) | (RPM)      | (US GPM) | (PSI)                 | (BHP)       | (THP)       | ( % )     | ( % )     |
| 30.04         | 60         | 92.2       | 2.3              | 2.7                | 4.39    | 301.02     | 30.04    | 3.8                   | 0.25        | 0.07        | 26.57%    | 100.00%   |
| 28.36         | 60         | 92.3       | 2.3              | 10.0               | 6.72    | 301.02     | 28.36    | 11.1                  | 0.39        | 0.18        | 47.58%    | 94.41%    |
| 26.64         | 60         | 92.0       | 2.1              | 20.3               | 10.00   | 301.02     | 26.64    | 21.4                  | 0.57        | 0.33        | 57.97%    | 88.68%    |
| 25.24         | 60         | 91.8       | 2.1              | 30.3               | 13.07   | 301.02     | 25.24    | 31.3                  | 0.75        | 0.46        | 61.56%    | 84.02%    |
| 24.41         | 60         | 91.9       | 2.0              | 36.2               | 15.04   | 301.02     | 24.41    | 37.1                  | 0.86        | 0.53        | 61.34%    | 81.26%    |
| 23.41         | 60         | 91.8       | 1.9              | 40.4               | 16.34   | 300.93     | 23.41    | 41.4                  | 0.94        | 0.56        | 60.33%    | 77.93%    |
| 13.34         | 60         | 91.9       | 1.6              | 45.2               | 17.79   | 300.93     | 13.34    | 46.0                  | 1.02        | 0.36        | 35.09%    | 44.41%    |
| 0             | 60         | 91.9       | 1.3              | 50.0               | 19.21   | 300.93     | 0.00     | 50.7                  | 1.10        | 0.00        | 0.00%     | 0.00%     |

| EXTRA CLEARANCES |  |          |  |          |  |          |  |          |  |          |  |
|------------------|--|----------|--|----------|--|----------|--|----------|--|----------|--|
| OD Rotor         |  | ID Rotor |  | OD Idler |  | ID Idler |  | ID Brg's |  | End Clr. |  |
|                  |  |          |  |          |  |          |  |          |  | 0.008    |  |

| LAB REMARKS                                                        |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|--|--|
|                                                                    |  |  |  |  |  |  |  |  |  |  |  |
|                                                                    |  |  |  |  |  |  |  |  |  |  |  |
|                                                                    |  |  |  |  |  |  |  |  |  |  |  |
|                                                                    |  |  |  |  |  |  |  |  |  |  |  |
| Equipment:                                                         |  |  |  |  |  |  |  |  |  |  |  |
| Pressure Gauge # 181170588      Dynamometer # 5833      HP DYNO 50 |  |  |  |  |  |  |  |  |  |  |  |
| Vacuum Gauge # 728732      Flow Meter # B305005                    |  |  |  |  |  |  |  |  |  |  |  |
| Temp Probe # T1                                                    |  |  |  |  |  |  |  |  |  |  |  |

Certified by: Tom Wildeboer      Date: 03/28/22