



Customer Document title:

## Performance Test Report

Flowserve Document title: **Performance Test Report**  
Flowserve Document No.: **1400944-008-4006-01**  
Document Revision No.: **0**  
Flowserve Order No.: **1400944**  
Flowserve Serial No.: **1400944CHP008A/F**  
Pump Type/Size: **MARK 3 STANDARD / 2K4X3-10RV**  
Quantity: **6**  
Customer Name: **DESMET BALLESTRA NORTH AMERICA**

Customer Tag No: **DESMET TAG#: P604B.2/1, WORLD ENERGY TAG#: 19-P-863A, DESMET TAG#: P604B.2/2, WORLD ENERGY TAG#: 19-P-863B, DESMET TAG#: P604B1.1/1, WORLD ENERGY TAG#: 19-P-763A, DESMET TAG#: P604B1.1/2, WORLD ENERGY TAG#: 19-P-763B, DESMET TAG#: P604B2.1/1, WORLD ENERGY**

Customer PO No.: **28493**

End User: **DESMET BALLESTRA NORTH AMERICA**

### Please complete and return:

Document Reviewed by:

Document Reviewed date:

- ☐ **APPROVED. NO ACTION REQUIRED**  
☐ **APPROVED. RE-SUBMIT AS FINAL**  
☐ **APPROVED WITH COMMENTS.** DOCUMENT WILL BE MODIFIED AND RESUBMITTED AS FINAL.  
☐ **REJECTED.** CORRECT AND RE-SUBMIT FOR APPROVAL.  
☐ **FOR INFORMATION.** REVIEW NOT REQUIRED  
☐ **AS-BUILT**

- Return any documents sent for review with your comments by the stated return date. All documents not returned two weeks after requested Return date will be considered Approved, no action.
- Purchaser's comments and/or corrections within the scope of contract will be made on the first completed document submitted by Flowserve Corp. and returned.
- Corrections, alterations, additions and/or modifications outside scope of contract or made after first submittal may require an additional engineering service charge.
- Items conditionally approved or with deferred approval by purchaser must be specifically stated otherwise delivery may be affected.

| Rev | Revision Description | Released       | Release Date |
|-----|----------------------|----------------|--------------|
|     | Final                | Morris, Tamika | 01-Jul-22    |



# Performance Report

Curve No.

00036447

3900 Cook Boulevard, Chesapeake, VA 23323

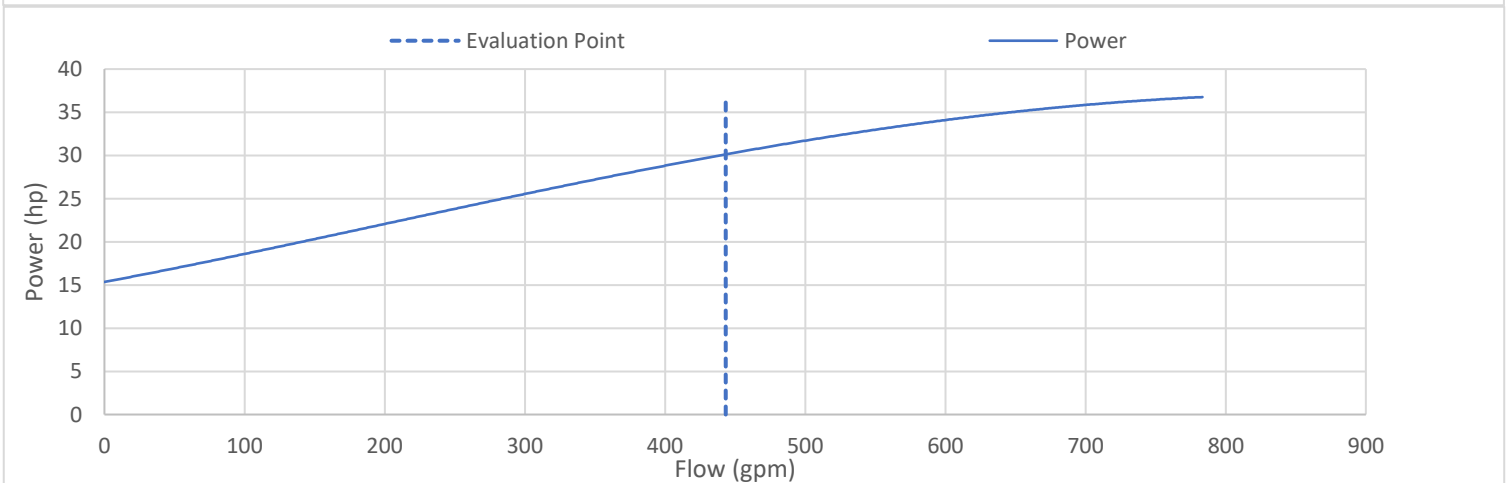
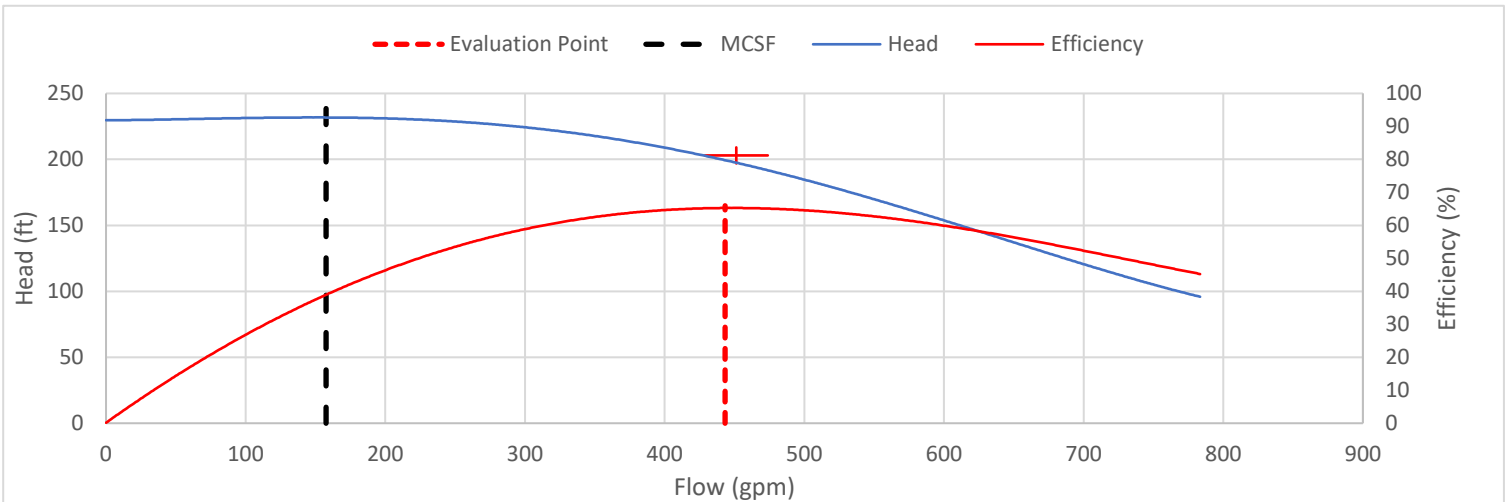
| Test Date | Tested By | Certified |
|-----------|-----------|-----------|
| 6/10/2022 | GBAILEY   |           |

Customer: DESMET BALLESTRA NORTH AMERICA  
 PO #: 28493  
 Customer Tag: SEE NOTES BELOW  
 Order #: 1400944  
 Line Item #: 8  
 Job #: 3135185  
 Serial #: 1400944CHP008B  
 Pump Line: MK3  
 Pump Size: 2K4X3-10RV

Speed Ratio:  
 Impeller Type: RV  
 Imp. Dia. (in): 7.56  
 Impeller Mat.: D4  
 Casing Mat.: D4  
 Test Media: Water  
 Test Driver #: M206  
 Test Driver (hp): 50  
 Test Driver Speed (RPM): 3550  
 Vibration: Unfiltered RMS

Rated Values  
 Flow (gpm): 451.3  
 Head (ft): 203  
 Eff. (%): 64.6  
 Power (hp): 31.5  
 RPM: 3550  
 NPSHR (ft): 11.3  
 Specific Gravity: 0.880  
 Viscosity: 11.36  
 Customer Driver: 40HP  
 Criteria: 1B

|         | Flow (gpm) | Head (ft) | Power (hp) | Eff. (%) | IN Horiz. | IN Vert. | IN Axial | OUT Horiz. | OUT Vert. | OUT Axial |
|---------|------------|-----------|------------|----------|-----------|----------|----------|------------|-----------|-----------|
| Point 1 | 0.0        | 229.3     | 15.3       | 0.0      |           |          |          |            |           |           |
| Point 2 | 157.6      | 233.3     | 20.6       | 39.7     | 0.06      | 0.06     | 0.07     | 0.07       | 0.07      |           |
| Point 3 | 254.7      | 229.0     | 24.1       | 53.8     | 0.06      | 0.06     | 0.06     | 0.07       | 0.07      |           |
| Point 4 | 353.8      | 212.1     | 27.1       | 61.5     | 0.05      | 0.06     | 0.06     | 0.07       | 0.06      |           |
| Point 5 | 451.9      | 200.2     | 30.5       | 65.9     | 0.06      | 0.06     | 0.07     | 0.08       | 0.08      |           |
| Point 6 | 561.3      | 169.3     | 33.3       | 63.4     | 0.07      | 0.07     | 0.08     | 0.08       | 0.08      |           |
| Point 7 | 673.7      | 125.6     | 35.4       | 53.2     | 0.08      | 0.08     | 0.08     | 0.07       | 0.08      |           |
| Point 8 | 783.4      | 96.4      | 36.8       | 45.6     | 0.08      | 0.08     | 0.07     | 0.07       | 0.08      |           |



|        |                                                       |
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| Notes: | DESMET TAG#: P604B1.2/2, WORLD ENERGY TAG#: 19-P-863B |
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# Performance Report

Curve No.

00036453

3900 Cook Boulevard, Chesapeake, VA 23323

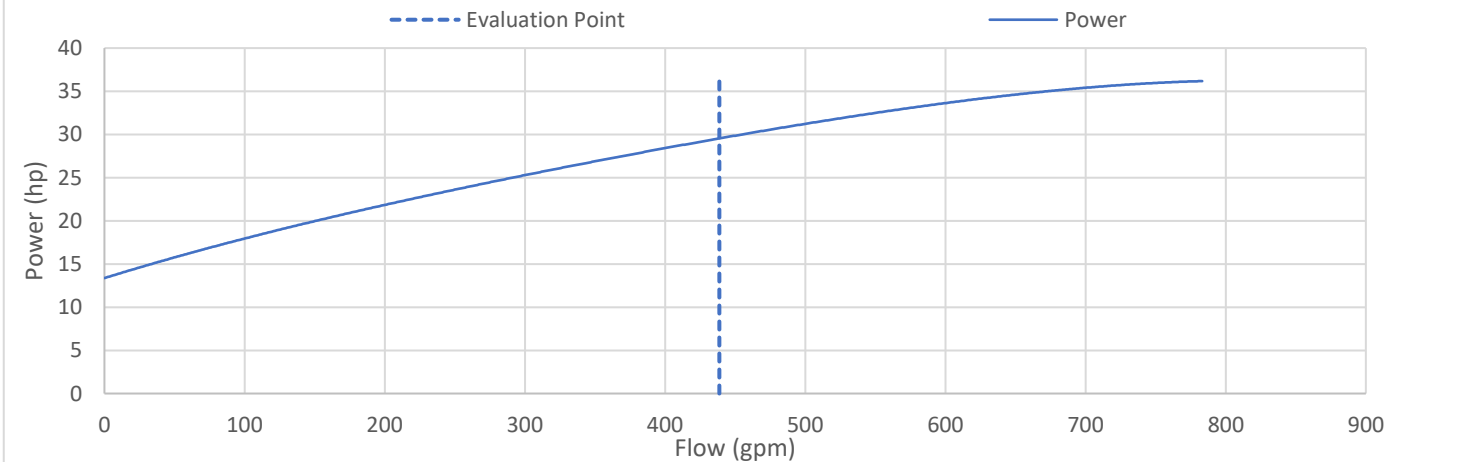
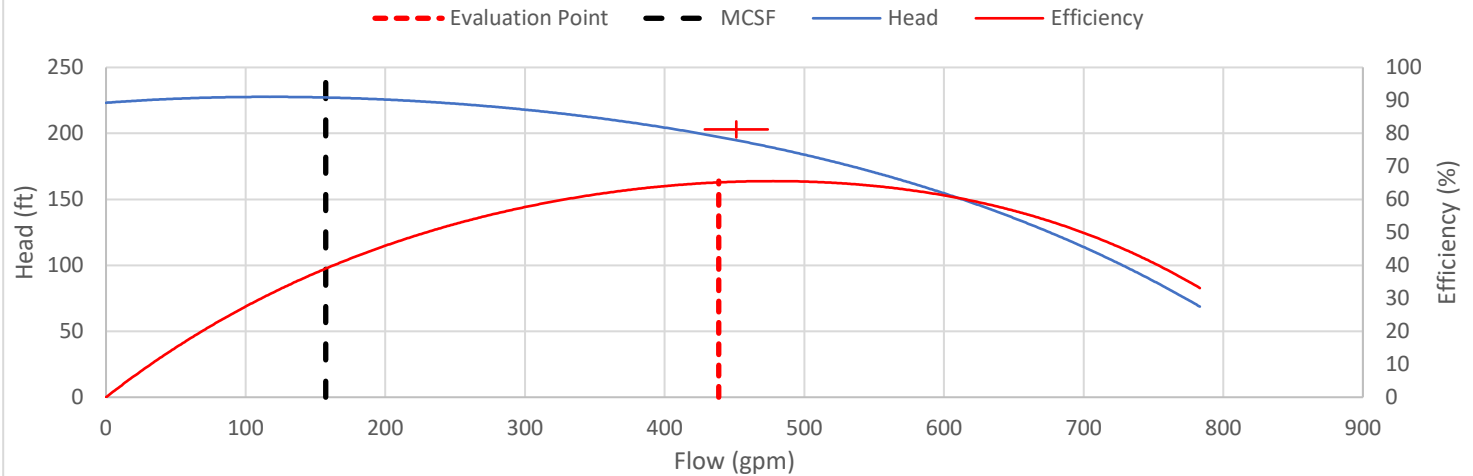
| Test Date | Tested By | Certified |
|-----------|-----------|-----------|
| 6/13/2022 | GBAILEY   |           |

Customer: DESMET BALLESTRA NORTH AMERICA  
 PO #: 28493  
 Customer Tag: SEE NOTES BELOW  
 Order #: 1400944  
 Line Item #: 8  
 Job #: 3135185  
 Serial #: 1400944CHP008D  
 Pump Line: MK3  
 Pump Size: 2K4X3-10RV

Speed Ratio:  
 Impeller Type: RV  
 Imp. Dia. (in): 7.56  
 Impeller Mat.: D4  
 Casing Mat.: D4  
 Test Media: Water  
 Test Driver #: M206  
 Test Driver (hp): 50  
 Test Driver Speed (RPM): 3550  
 Vibration: Unfiltered RMS

Rated Values  
 Flow (gpm): 451.3  
 Head (ft): 203  
 Eff. (%): 64.6  
 Power (hp): 31.5  
 RPM: 3550  
 NPSHR (ft): 11.3  
 Specific Gravity: 0.880  
 Viscosity: 11.36  
 Customer Driver: 40HP  
 Criteria: 1B

|         | Flow (gpm) | Head (ft) | Power (hp) | Eff. (%) | IN Horiz. | IN Vert. | IN Axial | OUT Horiz. | OUT Vert. | OUT Axial |
|---------|------------|-----------|------------|----------|-----------|----------|----------|------------|-----------|-----------|
| Point 1 | 0.0        | 223.0     | 13.3       | 0.0      |           |          |          |            |           |           |
| Point 2 | 157.3      | 228.2     | 20.4       | 39.0     |           |          |          |            |           |           |
| Point 3 | 254.1      | 222.4     | 23.7       | 53.0     |           |          |          |            |           |           |
| Point 4 | 353.2      | 208.0     | 26.5       | 61.6     |           |          |          |            |           |           |
| Point 5 | 451.1      | 198.5     | 30.4       | 65.5     |           |          |          |            |           |           |
| Point 6 | 562.7      | 166.3     | 32.8       | 63.3     |           |          |          |            |           |           |
| Point 7 | 672.1      | 125.6     | 34.8       | 54.0     |           |          |          |            |           |           |
| Point 8 | 783.2      | 68.9      | 36.2       | 33.1     |           |          |          |            |           |           |



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| Notes: | DESMET TAG#: P604B1.1/2, WORLD ENERGY TAG#: 19-P-763B |
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# Performance Report

Curve No.

00036450

3900 Cook Boulevard, Chesapeake, VA 23323

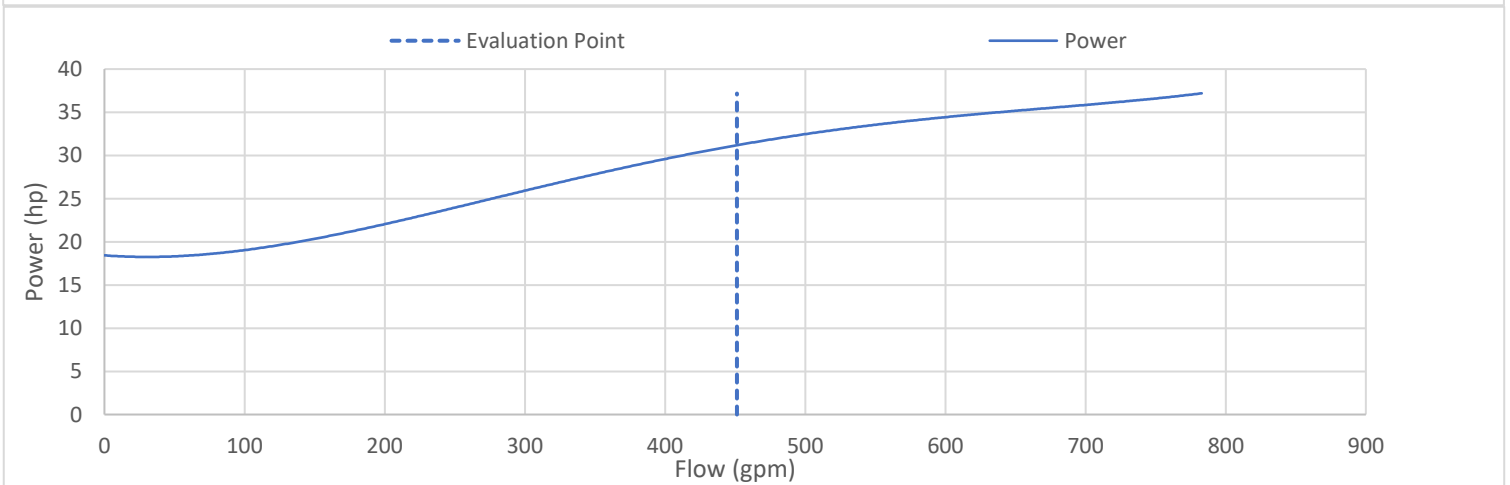
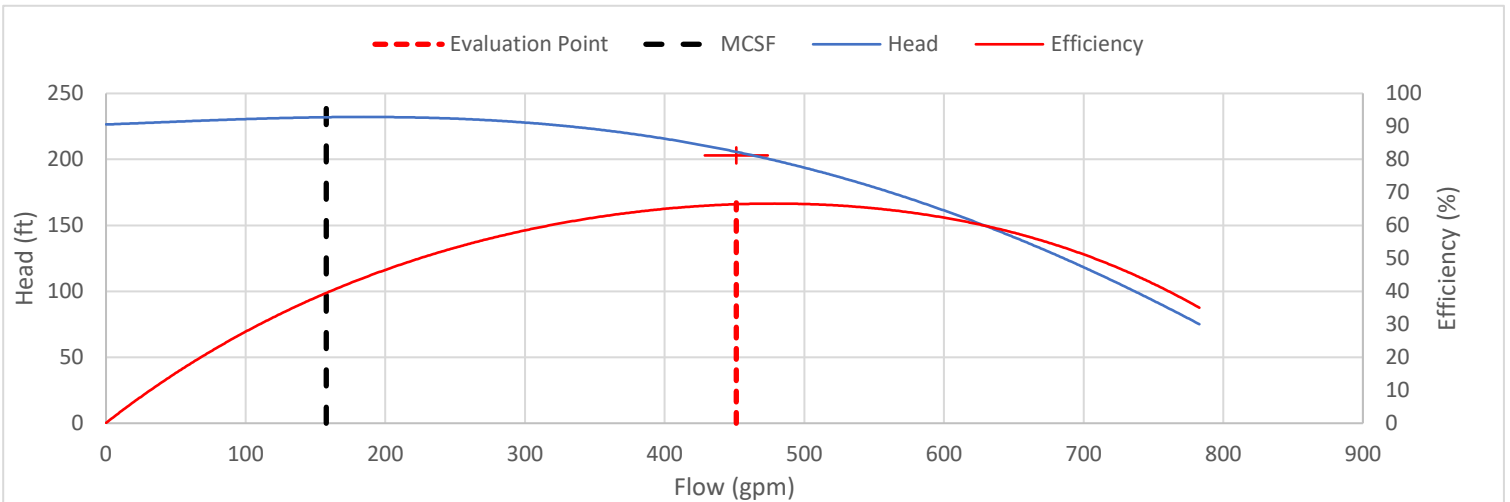
| Test Date | Tested By | Certified |
|-----------|-----------|-----------|
| 6/10/2022 | GBAILEY   |           |

Customer: DESMET BALLESTRA NORTH AMERICA  
 PO #: 28493  
 Customer Tag: SEE NOTES BELOW  
 Order #: 1400944  
 Line Item #: 8  
 Job #: 3135185  
 Serial #: 1400944CHP008C  
 Pump Line: MK3  
 Pump Size: 2K4X3-10RV

Speed Ratio:  
 Impeller Type: RV  
 Imp. Dia. (in): 7.56  
 Impeller Mat.: D4  
 Casing Mat.: D4  
 Test Media: Water  
 Test Driver #: M206  
 Test Driver (hp): 50  
 Test Driver Speed (RPM): 3550  
 Vibration: Unfiltered RMS

Rated Values  
 Flow (gpm): 451.3  
 Head (ft): 203  
 Eff. (%): 64.6  
 Power (hp): 31.5  
 RPM: 3550  
 NPSHR (ft): 11.3  
 Specific Gravity: 0.880  
 Viscosity: 11.36  
 Customer Driver: 40HP  
 Criteria: 1B

|         | Flow (gpm) | Head (ft) | Power (hp) | Eff. (%) | IN Horiz. | IN Vert. | IN Axial | OUT Horiz. | OUT Vert. | OUT Axial |
|---------|------------|-----------|------------|----------|-----------|----------|----------|------------|-----------|-----------|
| Point 1 | 0.0        | 226.2     | 18.5       | 0.0      |           |          |          |            |           |           |
| Point 2 | 157.7      | 233.4     | 20.5       | 40.0     | 0.07      | 0.07     | 0.06     | 0.07       | 0.07      |           |
| Point 3 | 254.8      | 229.7     | 24.2       | 53.8     | 0.06      | 0.06     | 0.07     | 0.07       | 0.06      |           |
| Point 4 | 353.0      | 220.9     | 28.2       | 61.5     | 0.06      | 0.07     | 0.08     | 0.07       | 0.07      |           |
| Point 5 | 451.1      | 206.7     | 31.0       | 66.8     | 0.07      | 0.06     | 0.07     | 0.08       | 0.07      |           |
| Point 6 | 562.8      | 176.8     | 33.7       | 65.7     | 0.07      | 0.07     | 0.08     | 0.08       | 0.08      |           |
| Point 7 | 673.3      | 128.5     | 35.7       | 53.9     | 0.08      | 0.07     | 0.08     | 0.08       | 0.08      |           |
| Point 8 | 782.9      | 75.4      | 37.2       | 35.3     | 0.08      | 0.07     | 0.08     | 0.07       | 0.08      |           |



|        |                                                       |
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| Notes: | DESMET TAG#: P604B1.1/1, WORLD ENERGY TAG#: 19-P-763A |
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# Performance Report

Curve No.

00036457

3900 Cook Boulevard, Chesapeake, VA 23323

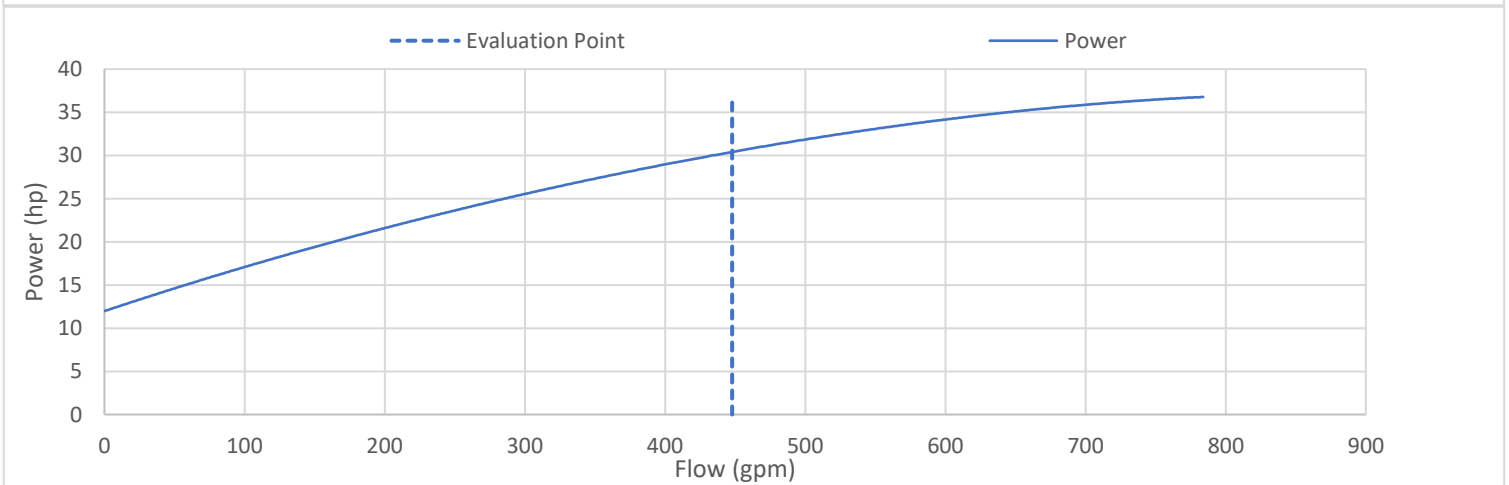
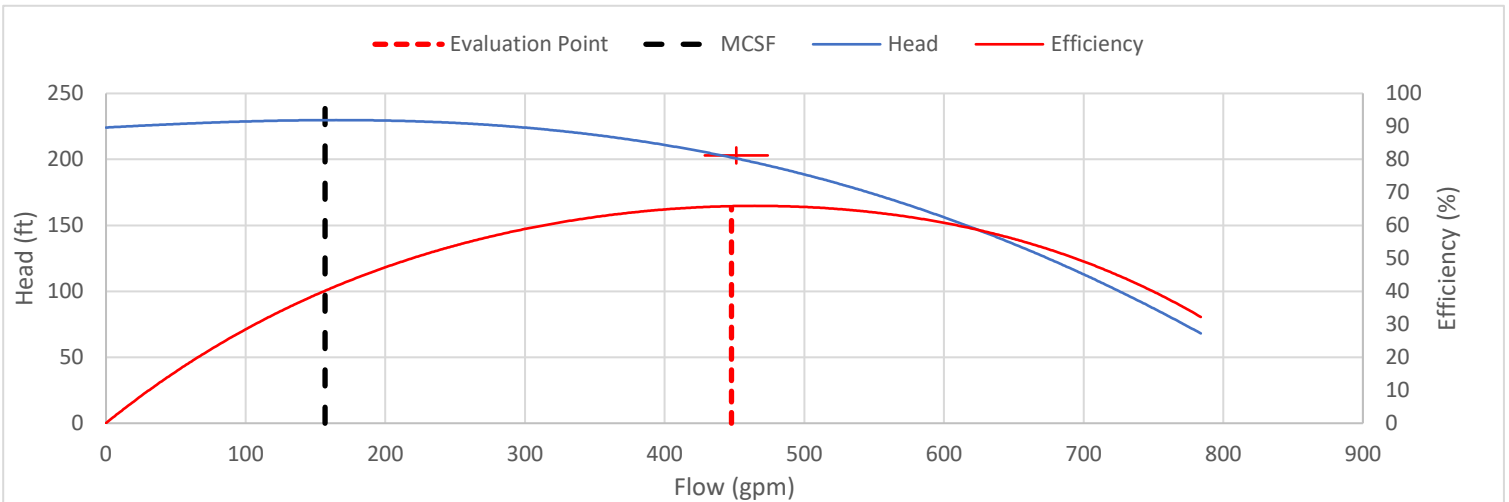
| Test Date | Tested By | Certified |
|-----------|-----------|-----------|
| 6/13/2022 | GBAILEY   |           |

Customer: DESMET BALLESTRA NORTH AMERICA  
 PO #: 28493  
 Customer Tag: SEE NOTES BELOW  
 Order #: 1400944  
 Line Item #: 8  
 Job #: 3135185  
 Serial #: 1400944CHP008F  
 Pump Line: MK3  
 Pump Size: 2K4X3-10RV

Speed Ratio:  
 Impeller Type: RV  
 Imp. Dia. (in): 7.56  
 Impeller Mat.: D4  
 Casing Mat.: D4  
 Test Media: Water  
 Test Driver #: M206  
 Test Driver (hp): 50  
 Test Driver Speed (RPM): 3550  
 Vibration: Unfiltered RMS

Rated Values  
 Flow (gpm): 451.3  
 Head (ft): 203  
 Eff. (%): 64.6  
 Power (hp): 31.53  
 RPM: 3550  
 NPSHR (ft): 11.3  
 Specific Gravity: 0.880  
 Viscosity: 11.36  
 Customer Driver: 40HP  
 Criteria: 1B

|         | Flow (gpm) | Head (ft) | Power (hp) | Eff. (%) | IN Horiz. | IN Vert. | IN Axial | OUT Horiz. | OUT Vert. | OUT Axial |
|---------|------------|-----------|------------|----------|-----------|----------|----------|------------|-----------|-----------|
| Point 1 | 0.0        | 223.9     | 11.9       | 0.0      |           |          |          |            |           |           |
| Point 2 | 156.8      | 231.0     | 19.9       | 40.5     | 0.06      | 0.06     | 0.07     | 0.06       | 0.07      |           |
| Point 3 | 254.7      | 226.8     | 23.8       | 54.0     | 0.06      | 0.07     | 0.07     | 0.06       | 0.07      |           |
| Point 4 | 353.8      | 216.0     | 26.9       | 63.1     | 0.07      | 0.06     | 0.07     | 0.07       | 0.07      |           |
| Point 5 | 452.3      | 202.3     | 31.1       | 65.4     | 0.06      | 0.06     | 0.07     | 0.08       | 0.08      |           |
| Point 6 | 562.9      | 170.4     | 33.3       | 63.9     | 0.07      | 0.07     | 0.08     | 0.07       | 0.08      |           |
| Point 7 | 673.3      | 123.9     | 35.3       | 52.5     | 0.08      | 0.08     | 0.07     | 0.08       | 0.08      |           |
| Point 8 | 783.9      | 68.3      | 36.8       | 32.3     | 0.08      | 0.07     | 0.08     | 0.08       | 0.08      |           |



|        |                                                       |
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| Notes: | DESMET TAG#: P604B2.1/2, WORLD ENERGY TAG#: 19-P-763D |
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# Performance Report

Curve No.

00036455

3900 Cook Boulevard, Chesapeake, VA 23323

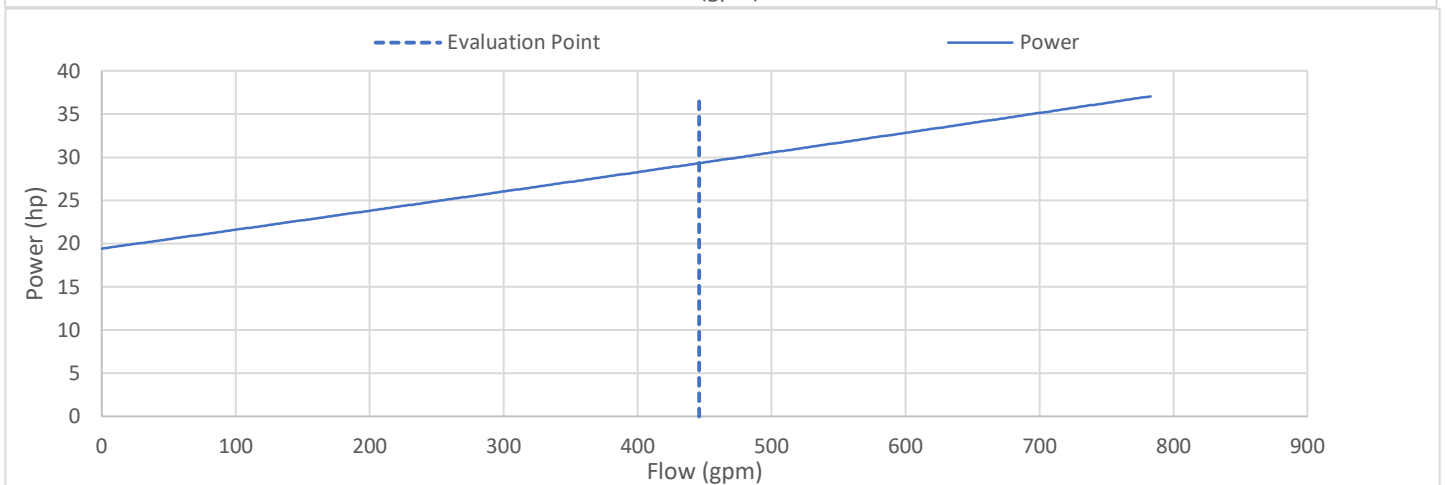
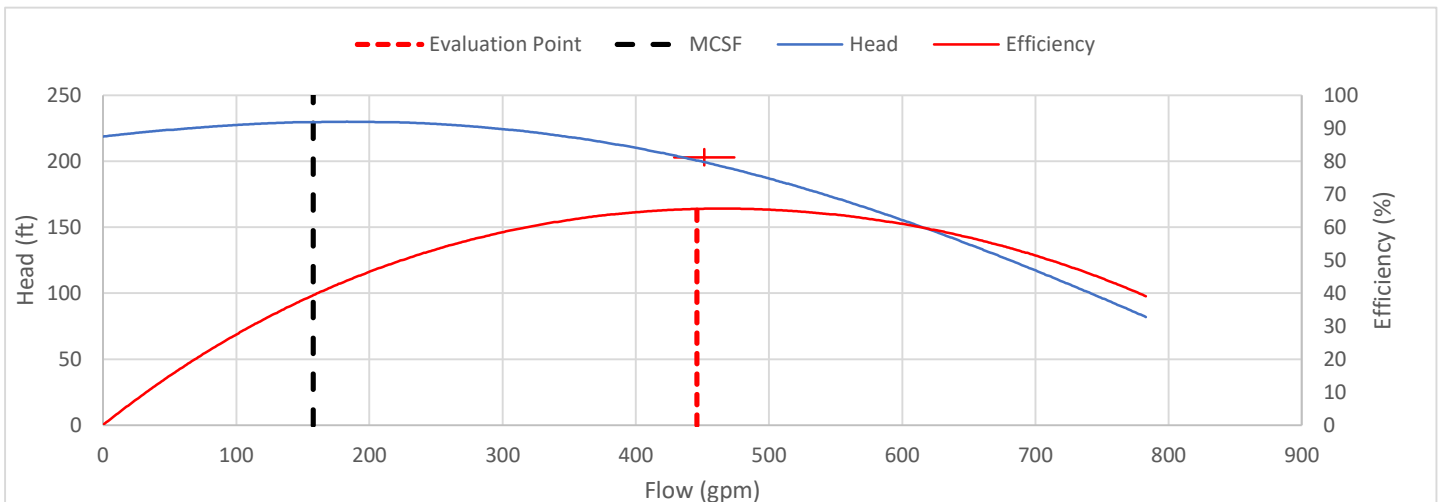
| Test Date | Tested By | Certified |
|-----------|-----------|-----------|
| 6/13/2022 | GBAILEY   |           |

Customer: DESMET BALLESTRA NORTH AMERICA  
 PO #: 28493  
 Customer Tag: SEE NOTES BELOW  
 Order #: 1400944  
 Line Item #: 8  
 Job #: 3135185  
 Serial #: 1400944CHP008E  
 Pump Line: MK3  
 Pump Size: 2K4X3-10RV

Speed Ratio:  
 Impeller Type: RV  
 Imp. Dia. (in): 7.56  
 Impeller Mat.: D4  
 Casing Mat.: D4  
 Test Media: Water  
 Test Driver #: M206  
 Test Driver (hp): 50  
 Test Driver Speed (RPM): 3550  
 Vibration: Unfiltered RMS

Rated Values  
 Flow (gpm): 451.3  
 Head (ft): 203  
 Eff. (%): 64.6  
 Power (hp): 31.53  
 RPM: 3550  
 NPSHR (ft): 11.3  
 Specific Gravity: 0.880  
 Viscosity: 11.3  
 Customer Driver: 40HP  
 Criteria: 1B

|         | Flow (gpm) | Head (ft) | Power (hp) | Eff. (%) | IN Horiz. | IN Vert. | IN Axial | OUT Horiz. | OUT Vert. | OUT Axial |
|---------|------------|-----------|------------|----------|-----------|----------|----------|------------|-----------|-----------|
| Point 1 | 0.0        | 218.5     | 21.1       | 0.0      |           |          |          |            |           |           |
| Point 2 | 157.7      | 231.4     | 20.6       | 39.4     | 0.06      | 0.07     | 0.06     | 0.06       | 0.07      |           |
| Point 3 | 254.5      | 226.1     | 23.7       | 54.0     | 0.06      | 0.06     | 0.06     | 0.07       | 0.07      |           |
| Point 4 | 353.0      | 217.5     | 27.5       | 62.0     | 0.07      | 0.06     | 0.07     | 0.07       | 0.07      |           |
| Point 5 | 452.5      | 199.4     | 30.7       | 65.3     | 0.06      | 0.06     | 0.07     | 0.07       | 0.08      |           |
| Point 6 | 562.9      | 170.0     | 33.1       | 64.1     | 0.06      | 0.07     | 0.08     | 0.08       | 0.08      |           |
| Point 7 | 673.5      | 125.8     | 35.0       | 53.8     | 0.08      | 0.07     | 0.08     | 0.07       | 0.08      |           |
| Point 8 | 782.9      | 82.3      | 36.5       | 39.2     | 0.08      | 0.08     | 0.08     | 0.07       | 0.08      |           |



Notes: DESMET TAG#: P604B2.1/1, WORLD ENERGY TAG#: 19-P-763C



# Performance Report

Curve No.

00036503

3900 Cook Boulevard, Chesapeake, VA 23323

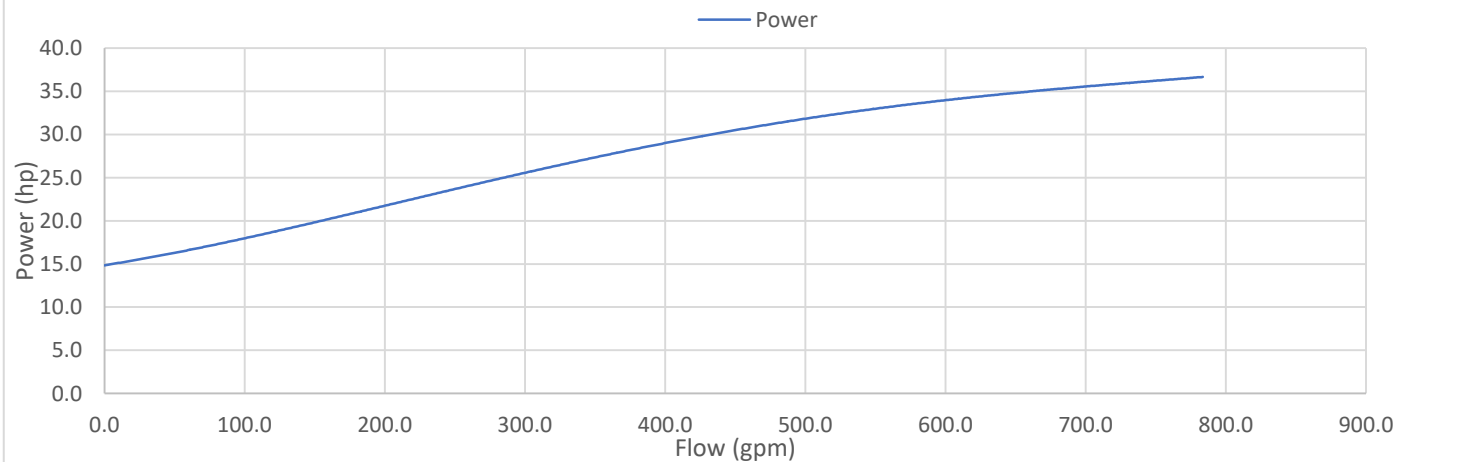
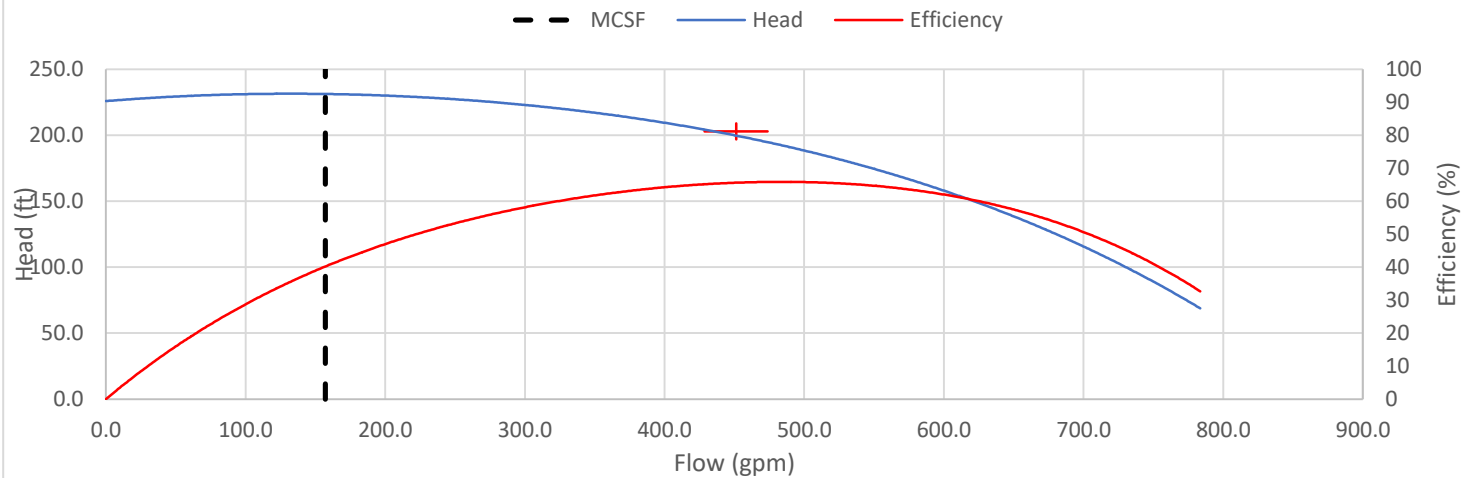
| Test Date | Tested By | Certified |
|-----------|-----------|-----------|
| 6/21/2022 | SWEBSTER  |           |

Customer: DESMET BALLESTRA NORTH AMERICA  
 PO #: 28493  
 Customer Tag: SEE NOTES BELOW  
 Order #: 1400944  
 Line Item #: 8  
 Job #: 3135185  
 Serial #: 1400944CHP008A  
 Pump Line: MK3  
 Pump Size: 2K4X3-10RV

Speed Ratio:  
 Impeller Type: RV  
 Imp. Dia. (in): 7.56  
 Impeller Mat.: D4  
 Casing Mat.: D4  
 Test Media: Water  
 Test Driver #: M206  
 Test Driver (hp): 50  
 Test Driver Speed (RPM): 3550  
 Vibration: Unfiltered RMS

Rated Values  
 Flow (gpm): 451.3  
 Head (ft): 203  
 Eff. (%): 64.6  
 Power (hp): 31.5  
 RPM: 3550  
 NPSHR (ft): 11.3  
 Specific Gravity: 0.880  
 Viscosity: 11.360  
 Customer Driver: 40HP  
 Criteria: 1B

|         | Flow (gpm) | Head (ft) | Power (hp) | Eff. (%) | IN Horiz. | IN Vert. | IN Axial | OUT Horiz. | OUT Vert. | OUT Axial |
|---------|------------|-----------|------------|----------|-----------|----------|----------|------------|-----------|-----------|
| Point 1 | 0.0        | 225.8     | 14.9       | 0.0      |           |          |          |            |           |           |
| Point 2 | 157.2      | 231.4     | 20.1       | 40.2     | 0.04      | 0.05     | 0.06     | 0.07       | 0.07      |           |
| Point 3 | 254.8      | 226.9     | 23.8       | 53.9     | 0.03      | 0.04     | 0.05     | 0.05       | 0.05      |           |
| Point 4 | 353.8      | 216.2     | 27.4       | 62.0     | 0.03      | 0.04     | 0.05     | 0.04       | 0.04      |           |
| Point 5 | 451.5      | 200.0     | 30.7       | 65.3     | 0.03      | 0.04     | 0.03     | 0.05       | 0.05      |           |
| Point 6 | 562.6      | 170.7     | 33.0       | 64.6     | 0.04      | 0.05     | 0.06     | 0.07       | 0.06      |           |
| Point 7 | 672.5      | 128.5     | 35.3       | 54.5     | 0.05      | 0.06     | 0.07     | 0.07       | 0.07      |           |
| Point 8 | 783.7      | 68.8      | 36.6       | 32.7     | 0.08      | 0.09     | 0.08     | 0.07       | 0.07      |           |



|        |                                                       |
|--------|-------------------------------------------------------|
| Notes: | DESMET TAG#: P604B1.2/1, WORLD ENERGY TAG#: 19-P-863A |
|--------|-------------------------------------------------------|