



Customer Document title:

Mechanical Run Test Report

Flowserve Document title: **Mechanical Run Test Report**Flowserve Document No.: **1400944-008-4000-01**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
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- 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



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**1 Hour Mechanical Run Test****ORDER INFORMATION**

Order no:	1400944_8
Serial no.	1400944CHP008A
Customer	DESMET BALLESTRA NORTH AMERICA
Customer P.O.	28493
Pump Tag No.	DESMET TAG#: P604B1.2/1, WORLD ENERGY TAG#: 19-P-863A
Tested by	S. WEBSTER
Witnessed by	TONY ZAMARRON
Date	6/21/2022
Curve no.	3135185A

TECHNICAL INFORMATION

Model	MARK 3
Size	2K4X3-10RV
Imp. dia (In.)	7.56
Open/Closed	CLOSED
Imp. matl.	D4
Case matl.	D4
# of Stages	N/A
Lubrication	OIL
Seal Type	MECH.

GUARANTEED CONDITIONS OF SERVICE

RPM	Flow (GPM)	Total Head (Ft)	NPSHR (Ft)	Sp. Gr.	Visc. (cP)	Temp. (F)
3550	451.3	203.0	11.3	.880	11.36	185

TEST CONDITIONS

RPM	Flow (GPM)	Total Head (Ft)	NPSHA (Ft)	Sp. Gr.	Visc. (CPU)	Amb.(F)
3575	451	200	39.2	1.00	1.00	74

TEST DATA POINTS

	1	2	3	4	5	6	7	8	9	10	11	12	13
Duration (Min.)	0	10	20	30	40	50	60						
Flow (gpm)	451	452	452	452	452	452	452						
TDH (feet)	200	200	200	200	200	200	200						
Pump speed (rpm)	3575	3574	3574	3574	3575	3575	3575						
Power (BHP)	65.3	65.7	65.5	65.5	65.5	65.5	65.4						
Ambient Temp (°F)	74	74	74	74	74	74	74						
Brg Hsg Temp (°F)	114	113	117	118	118	118	118						
Water Temp (°F)	81	81	81	81	82	82	82						

Acceptance Criteria						INITIALS		
Smooth operation confirmed: no indication of mechanical defect is detected						SW		
For 5 minutes after shutdown, suction pressure is maintained and no leakage is detected						SW		
Flow rate stayed within +/-5% of rated						SW		
Bearing housing temperature did not exceed 180°F for Oil/Oil Mist or 200°F for Grease lubrication						SW		
Input (line) power did not exceed the rating of the job motor, if applicable						SW		
Vibration readings: IBH/IBV/OBH/OBV/OBA in in/sec RMS				.04	.05	.06	.06	.05
Vibrations readings as shown above are compliant with ANSI/HI 9.6.4 specifications							SW	



1 Hour Mechanical Run Test

ORDER INFORMATION

Order no:	1400944_8
Serial no.	1400944CHP008B
Customer	DESMET BALLESTRA NORTH AMERICA
Customer P.O.	28493
Pump Tag No.	DESMET TAG#: P604B1.2/2, WORLD ENERGY TAG#: 19-P-863B
Tested by	G. BAILEY
Witnessed by	
Date	6/10/2022
Curve no.	3135185B

TECHNICAL INFORMATION

Model	MARK 3
Size	2K4X3-10RV
Imp. dia (In.)	7.56
Open/Closed	CLOSED
Imp. matl.	D4
Case matl.	D4
# of Stages	N/A
Lubrication	OIL
Seal Type	MECH.

GUARANTEED CONDITIONS OF SERVICE

RPM	Flow (GPM)	Total Head (Ft)	NPSHR (Ft)	Sp. Gr.	Visc. (cP)	Temp. (F)
3550	451.3	203.0	11.3	.880	11.36	185

TEST CONDITIONS

RPM	Flow (GPM)	Total Head (Ft)	NPSHA (Ft)	Sp. Gr.	Visc. (CPU)	Amb.(F)
3575	465	199	39.2	1.00	1.00	73

TEST DATA POINTS

	1	2	3	4	5	6	7	8	9	10	11	12	13
Duration (Min.)	0	10	20	30	40	50	60						
Flow (gpm)	465	466	466	463	464	465	465						
TDH (feet)	199	199	200	200	199	199	199						
Pump speed (rpm)	3575	3575	3576	3575	3574	3575	3575						
Power (BHP)	31.2	31.2	31.2	31.3	31.2	31.2	31.1						
Ambient Temp (°F)	73	73	72	72	73	73	73						
Brg Hsg Temp (°F)	93	95	100	100	99	104	107						
Water Temp (°F)	89.27	89.68	90.17	90.51	90.79	90.89	91.19						

Acceptance Criteria					INITIALS		
Smooth operation confirmed: no indication of mechanical defect is detected					GB		
For 5 minutes after shutdown, suction pressure is maintained and no leakage is detected					GB		
Flow rate stayed within +/-5% of rated					GB		
Bearing housing temperature did not exceed 180°F for Oil/Oil Mist or 200°F for Grease lubrication					GB		
Input (line) power did not exceed the rating of the job motor, if applicable					GB		
Vibration reading at the end of run			.06	.06.	.06	.07	.08
Vibration readings: IBH/IBV/OBH/OBV/OBA in in/sec RMS							
Vibrations readings as shown above are compliant with ANSI/HI 9.6.4 specifications						GB	



1 Hour Mechanical Run Test

ORDER INFORMATION

Order no:	1400944_8
Serial no.	1400944CHP008C
Customer	DESMET BALLESTRA NORTH AMERICA
Customer P.O.	28493
Pump Tag No.	DESMET TAG#: P604B1.1/1, WORLD ENERGY TAG#: 19-P-763A
Tested by	G. BAILEY
Witnessed by	
Date	6/10/2022
Curve no.	3135185C

TECHNICAL INFORMATION

Model	MARK 3
Size	2K4X3-10RV
Imp. dia (In.)	7.56
Open/Closed	CLOSED
Imp. matl.	D4
Case matl.	D4
# of Stages	N/A
Lubrication	OIL
Seal Type	MECH.

GUARANTEED CONDITIONS OF SERVICE

RPM	Flow (GPM)	Total Head (Ft)	NPSHR (Ft)	Sp. Gr.	Visc. (cP)	Temp. (F)
3550	451.3	203.0	11.3	.880	11.36	185

TEST CONDITIONS

RPM	Flow (GPM)	Total Head (Ft)	NPSHA (Ft)	Sp. Gr.	Visc. (CPU)	Amb.(F)
3574	472	198	39.2	1.00	1.00	72

TEST DATA POINTS

	1	2	3	4	5	6	7	8	9	10	11	12	13
Duration (Min.)	0	10	20	30	40	50	60						
Flow (gpm)	472	473	465	463	463	464	464						
TDH (feet)	198	197	198	198	198	198	198						
Pump speed (rpm)	3574	3574	3574	3573	3575	3578	3579						
Power (BHP)	31.3	31.5	31.0	31.1	31.0	31.2	31.1						
Ambient Temp (°F)	72.0	72.5	72.0	71.5	72.0	72.0	73.0						
Brg Hsg Temp (°F)	75.5	78.5	80.5	86.5	84.0	86.0	92.0						
Water Temp (°F)	82.20	82.70	83.00	83.30	83.49	83.80	84.00						

Acceptance Criteria					INITIALS		
Smooth operation confirmed: no indication of mechanical defect is detected					GB		
For 5 minutes after shutdown, suction pressure is maintained and no leakage is detected					GB		
Flow rate stayed within +/-5% of rated					GB		
Bearing housing temperature did not exceed 180°F for Oil/Oil Mist or 200°F for Grease lubrication					GB		
Input (line) power did not exceed the rating of the job motor, if applicable					GB		
Vibration reading at the end of run Vibration readings: IBH/IBV/OBH/OBV/OBA in in/sec RMS			.06	.06.	.07	.07	.07
Vibrations readings as shown above are compliant with ANSI/HI 9.6.4 specifications						GB	



1 Hour Mechanical Run Test

ORDER INFORMATION

Order no:	1400944_8
Serial no.	1400944CHP008F
Customer	DESMET BALLESTRA NORTH AMERICA
Customer P.O.	28493
Pump Tag No.	DESMET TAG#: P604B2.1/2, WORLD ENERGY TAG#: 19-P-763D
Tested by	G. BAILEY
Witnessed by	
Date	6/13/2022
Curve no.	3135185F

TECHNICAL INFORMATION

Model	MARK 3
Size	2K4X3-10RV
Imp. dia (In.)	7.56
Open/Closed	CLOSED
Imp. matl.	D4
Case matl.	D4
# of Stages	N/A
Lubrication	OIL
Seal Type	MECH.

GUARANTEED CONDITIONS OF SERVICE

RPM	Flow (GPM)	Total Head (Ft)	NPSHR (Ft)	Sp. Gr.	Visc. (cP)	Temp. (F)
3550	451.3	203.0	11.3	.880	11.36	185

TEST CONDITIONS

RPM	Flow (GPM)	Total Head (Ft)	NPSHA (Ft)	Sp. Gr.	Visc. (CPU)	Amb.(F)
3574	470	197	39.2	1.00	1.00	72

TEST DATA POINTS

	1	2	3	4	5	6	7	8	9	10	11	12	13
Duration (Min.)	0	10	20	30	40	50	60						
Flow (gpm)	470	469	469	469	471	471	468						
TDH (feet)	197	197	197	196	197	197	197						
Pump speed (rpm)	3574	3574	3573	3573	3575	3576	3574						
Power (BHP)	31.1	31.0	31.1	31.3	31.3	31.3	31.3						
Ambient Temp (°F)	72.0	714.5	73.0	73.0	72.0	72.0	73.0						
Brg Hsg Temp (°F)	103	103	105	105	105	106	105						
Water Temp (°F)	90.07	90.30	90.51	90.79	90.99	91.19	91.24						

Acceptance Criteria					INITIALS		
Smooth operation confirmed: no indication of mechanical defect is detected					GB		
For 5 minutes after shutdown, suction pressure is maintained and no leakage is detected					GB		
Flow rate stayed within +/-5% of rated					GB		
Bearing housing temperature did not exceed 180°F for Oil/Oil Mist or 200°F for Grease lubrication					GB		
Input (line) power did not exceed the rating of the job motor, if applicable					GB		
Vibration readings: IBH/IBV/OBH/OBV/OBA in in/sec RMS			.07	.07	.06	.07	.08
Vibrations readings as shown above are compliant with ANSI/HI 9.6.4 specifications						GB	



1 Hour Mechanical Run Test

ORDER INFORMATION

Order no:	1400944_8
Serial no.	1400944CHP008E
Customer	DESMET BALLESTRA NORTH AMERICA
Customer P.O.	28493
Pump Tag No.	DESMET TAG#: P604B2.1/1, WORLD ENERGY TAG#: 19-P-763C
Tested by	G. BAILEY
Witnessed by	
Date	6/13/2022
Curve no.	3135185E

TECHNICAL INFORMATION

Model	MARK 3
Size	2K4X3-10RV
Imp. dia (In.)	7.56
Open/Closed	CLOSED
Imp. matl.	D4
Case matl.	D4
# of Stages	N/A
Lubrication	OIL
Seal Type	MECH.

GUARANTEED CONDITIONS OF SERVICE

RPM	Flow (GPM)	Total Head (Ft)	NPSHR (Ft)	Sp. Gr.	Visc. (cP)	Temp. (F)
3550	451.3	203.0	11.3	.880	11.36	185

TEST CONDITIONS

RPM	Flow (GPM)	Total Head (Ft)	NPSHA (Ft)	Sp. Gr.	Visc. (CPU)	Amb.(F)
3575	466	196	39.2	1.00	1.00	72

TEST DATA POINTS

	1	2	3	4	5	6	7	8	9	10	11	12	13
Duration (Min.)	0	10	20	30	40	50	60						
Flow (gpm)	466	469	468	469	469	466	467						
TDH (feet)	196	196	196	196	196	196	196						
Pump speed (rpm)	3575	3576	3575	3574	3574	3575	3576						
Power (BHP)	31.1	31.1	31.0	31.0	31.0	31.1	31.0						
Ambient Temp (°F)	72.0	72.5	72.5	72.5	73.0	73.0	72.5						
Brg Hsg Temp (°F)	92.0	98.5	103.0	104.5	106.5	107.5	110.0						
Water Temp (°F)	86.63	86.83	87.22	87.52	87.78	88.27	88.62						

Acceptance Criteria					INITIALS		
Smooth operation confirmed: no indication of mechanical defect is detected					GB		
For 5 minutes after shutdown, suction pressure is maintained and no leakage is detected					GB		
Flow rate stayed within +/-5% of rated					GB		
Bearing housing temperature did not exceed 180°F for Oil/Oil Mist or 200°F for Grease lubrication					GB		
Input (line) power did not exceed the rating of the job motor, if applicable					GB		
Vibration reading at the end of run Vibration readings: IBH/IBV/OBH/OBV/OBA in in/sec RMS			.06	.06	.06	.07	.08
Vibrations readings as shown above are compliant with ANSI/HI 9.6.4 specifications						GB	



1 Hour Mechanical Run Test

ORDER INFORMATION

Order no:	1400944_8
Serial no.	1400944CHP008D
Customer	DESMET BALLESTRA NORTH AMERICA
Customer P.O.	28493
Pump Tag No.	DESMET TAG#: P604B1.1/2, WORLD ENERGY TAG#: 19-P-763B
Tested by	G. BAILEY
Witnessed by	
Date	6/10/2022
Curve no.	3135185D

TECHNICAL INFORMATION

Model	MARK 3
Size	2K4X3-10RV
Imp. dia (In.)	7.56
Open/Closed	CLOSED
Imp. matl.	D4
Case matl.	D4
# of Stages	N/A
Lubrication	OIL
Seal Type	MECH.

GUARANTEED CONDITIONS OF SERVICE

RPM	Flow (GPM)	Total Head (Ft)	NPSHR (Ft)	Sp. Gr.	Visc. (cP)	Temp. (F)
3550	451.3	203.0	11.3	.880	11.36	185

TEST CONDITIONS

RPM	Flow (GPM)	Total Head (Ft)	NPSHA (Ft)	Sp. Gr.	Visc. (CPU)	Amb.(F)
3573	468	194	39.2	1.00	1.00	73.5

TEST DATA POINTS

	1	2	3	4	5	6	7	8	9	10	11	12	13
Duration (Min.)	0	10	20	30	40	50	60						
Flow (gpm)	468	469	463	462	462	464	461						
TDH (feet)	194	194	196	196	196	196	195						
Pump speed (rpm)	3573	3573	3574	3573	3575	3574	3575						
Power (BHP)	31.0	31.0	30.8	30.9	30.9	30.9	30.8						
Ambient Temp (°F)	73.5	73.0	71.5	71.5	71.0	71.5	72.0						
Brg Hsg Temp (°F)	88.5	92.0	95.5	96.0	96.0	96.5	97.0						
Water Temp (°F)	84.60	84.75	84.99	85.39	85.59	85.91	86.14						

Acceptance Criteria						INITIALS		
Smooth operation confirmed: no indication of mechanical defect is detected						GB		
For 5 minutes after shutdown, suction pressure is maintained and no leakage is detected						GB		
Flow rate stayed within +/-5% of rated						GB		
Bearing housing temperature did not exceed 180°F for Oil/Oil Mist or 200°F for Grease lubrication						GB		
Input (line) power did not exceed the rating of the job motor, if applicable						GB		
Vibration readings: IBH/IBV/OBH/OBV/OBA in in/sec RMS				.06	.07	.06	.06	.08
Vibrations readings as shown above are compliant with ANSI/HI 9.6.4 specifications							GB	