Flowserve Flow Solutions Group

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Customer Document title:

Flowserve Hydraulic Data Sheet

Flowserve Document title:	**Flowserve Hydraulic Data Sheet**
Flowserve Document No.:	**1400944-016-5008-01**
Document Revision No.:	**A**
Flowserve Order No.:	**1400944**
Flowserve Serial No.:	**1400944CHP016A/D**
Pump Type/Size:	**MARK 3 STANDARD / 1K1.5X1-82RV**
Quantity:	**4**
Customer Name:	**DESMET BALLESTRA NORTH AMERICA**
Customer Tag No:	**DESMET TAG#:P682H.1/1, World Energy TAG#:19-P-764A, DESMET TAG#:P682H.1/2, World Energy TAG#:19-P-764B, DESMET TAG#: P682H.2/1,World Energy TAG#:19-P-864A, DESMET TAG#: P682H.2/2,World Energy TAG#:19-P-864B**
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
	For Information	Morris, Tamika	04-Feb-22

FLOWSERVE

Hydraulic Datasheet

Customer	: DESMET PROCESS & TECHNOLO...	Pump / Stages	: 1K1.5x1-82RV M3 ST / 1
Customer reference	: WORPAR	Based on curve no.	: MIII7041CV
Item number	: P682H.1/1, 1/2, 2/1, 2/2	Flowserve reference	: 1989206898
Service	: Heel Collecting Tank Disch	Date	: August 26, 2021

	Unit	Heel Collecting Tan...	Alternate 1	Alternate 2	-
Operating Conditions					
Capacity	USgpm	94.4	75.0	50.0	-
Water capacity / CQ	USgpm	95.0 / 0.99	75.7 / 0.99	50.7 / 0.99	- / -
Normal capacity	USgpm	-	-	-	-
Total developed head	ft	148.00	103.75	66.80	-
Water head / CH	ft	148.79 / 0.99	104.49 / 0.99	67.41 / 0.99	- / -
NPSH available (NPSHa)	ft	10.6	10.6	10.6	-
NPSHa less NPSH margin	ft	-	-	-	-
Maximum suction pressure	psig	0.0	0.0	0.0	-
Rated suction pressure	psig	0.0	0.0	0.0	-
Liquid					
Liquid type		Other	Other	Other	-
Liquid description		Heel Collecting Tank...	Heel Collecting Tank...	Heel Collecting Tank...	-
Temperature / Specific gravity	°F/	221 / 0.870	221 / 0.870	221 / 0.870	- / -
Solid Size - Actual / Limit	in/in	- / 0.3440	- / 0.3440	- / 0.3440	- / -
Viscosity / Vapor pressure	cP/psia	7.71 / -	7.71 / -	7.71 / -	- / -
Performance					
Actual head	ft	148.00	103.75	66.80	-
Hydraulic power	hp	3.07	1.71	0.73	-
Pump speed	rpm	2,730	2,274	1,795	-
Pump overall efficiency (CE=0.92)	%	43.5	39.0	29.7	-
NPSH required (NPSH3)	ft	5.7	3.4	1.3	-
Rated brake power	hp	7.06	4.39	2.47	-
Maximum brake power	hp	8.11	5.06	2.92	-
Driver power rating	hp / kW	15.0 hp / 11.2 kW	15.0 hp / 11.2 kW	15.0 hp / 11.2 kW	-
Casing working pressure	psig	62.4	43.3	27.0	-
(based on shut off @ cut dia/rated SG)					
Maximum allowable	psig	230.8	230.8	230.8	-
Hydrostatic test pressure	psig	413.0	413.0	413.0	-
Estimated rated seal chamber pressure	psig	11.3	11.3	11.3	-
Impeller diameter, Rated	in	8.18	8.18	8.18	-
Impeller diameter, Maximum/Minimum	in/in	8.18 / 4.50	8.18 / 4.50	8.18 / 4.50	- / -
Ns / Nss	(US units)	855 / 3,500	855 / 3,500	855 / 3,500	- / -
Minimum continuous flow	USgpm	11.7	9.7	7.7	-
Maximum head at rated diameter	ft	165.73	114.99	71.65	-
Flow at BEP	USgpm	137.4	114.2	89.7	-
Flow as % of BEP	%	68.7	65.7	55.7	-
Efficiency at normal flow	%	-	-	-	-
Impeller diameter ratio (rated/max)	%	100.0	100.0	100.0	-
Head rise to shut off	%	12.0	10.8	7.3	-
Total head ratio (rated / max) / (max / rated)	%	80.8 / 123.8	54.4 / 183.7	34.0 / 294.4	- / -

Veg Oil / Animal Fat Slurry

Odd to provide 46% margin on driver power versus max brake power given full size impeller

Full size impeller provides no design margin

Materials / Specification

Material column code : D4 — Pump specification : ANSI B73.1

Other Requirements

Hydraulic selection : No specification

Seal configuration : Double Seal

Construction : No specification

Test tolerance : ANSI/HI 14.6 Grade 1B

Variable Speed - Maximize Efficiency

Driver Sizing : Max Power (SO to EOC) not using SF