



Customer Document title:

## Flowserve Hydraulic Data Sheet

Flowserve Document title: **Flowserve Hydraulic Data Sheet**

Flowserve Document No.: **1400944-002-5008-01**

Document Revision No.: **A**

Flowserve Order No.: **1400944**

Flowserve Serial No.: **1400944CHP002A/D**

Pump Type/Size: **MARK 3 STANDARD / 2K4X3-100P**

Quantity: **4**

Customer Name: **DESMET BALLESTRA NORTH AMERICA**

Customer Tag No: **DESMET TAG#: PW502.1/1, WORLD ENERGY TAG#: 19-P-754A, DESMET TAG#: PW502.1/2, WORLD ENERGY TAG #: 19-P-754B, DESMET TAG#: PW502.2/1, WORLD ENERGY TAG#: 19-P-854A, DESMET TAG#: PW502.2/2, WORLD ENERGY TAG#: 19-P-854B**

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

Customer	: DESMET PROCESS & TECHNOLO...	Pump / Stages	: 2K4x3-10OP M3 ST / 1
Customer reference	: WORPAR	Based on curve no.	: MIII7885AV
Item number	: PW502.1/1, 1/2, 2/1, 2/2	Flowserve reference	: 1989206898
Service	: Degummed Oil Surge	Date	: August 25, 2021

Operating Conditions		Materials / Specification	
Capacity (rated/normal)	: 445.7 USgpm / -	Material column code	: D4
Water capacity (CQ=1.00)	: 446.6 USgpm	Pump specification	: ANSI B73.1
Total developed head	: 273.00 ft	<b>Other Requirements</b> Hydraulic selection : No specification Construction : No specification Test tolerance : ANSI/HI 14.6 Grade 1B Driver Sizing : Max Power (SO to EOC) not using SF Seal configuration : Single Seal	
Water head (CH=1.00)	: 273.53 ft		
NPSHa/NPSHa less margin	: 35.7 ft / -		
Maximum suction pressure	: 0.0 psig		
Liquid			
Liquid type	: Other	<b>Driver selection will not support any significant increase in impeller size</b>	
Liquid description	: Degummed Oil Surge		
Temperature	: 173 °F		
Density / Specific gravity	: - / 0.887		
Solid Size - Actual / Limit	: - / 0.5630 in		
Viscosity / Vapor pressure	: 13.08 cP / -		

Performance			
Hydraulic power	: 27.3 hp	Impeller diameter	
Pump speed	: 3,550 rpm	Rated	: 8.88 in
Pump overall efficiency (CE=0.95)	: 65.3 %	Maximum	: 10.00 in
NPSH required (NPSH3)	: 11.7 ft	Minimum	: 6.00 in
Rated brake power	: 41.7 hp	Ns / Nss	: 1,083 / 11,220 (US units)
Maximum brake power	: 51.5 hp	Minimum continuous flow	: 154.4 USgpm
Driver power rating	: 60.0 hp / 44.7 kW	Maximum head at rated diameter	: 312.22 ft
Casing working pressure	: 119.9 psig	Flow at BEP	: 502.0 USgpm
(based on shut off @ cut dia/rated SG)		Flow as % of BEP	: 88.8 %
Maximum allowable	: 245.9 psig	Efficiency at normal flow	: -
Hydrostatic test pressure	: 413.0 psig	Impeller diameter ratio (rated/max)	: 88.8 %
Estimated rated seal chamber pressure	: 19.2 psig	Head rise to shut off	: 14.4 %
		Total head ratio (rated / max) / (max / rated)	: 72.9 % / 137.1 %

CURVES ARE APPROXIMATE, PUMP IS GUARANTEED FOR ONE SET OF CONDITIONS; CAPACITY, HEAD, AND EFFICIENCY.  
MCSF PROVIDES MECHANICAL PROTECTION ONLY. MINIMUM THERMAL FLOW MUST BE CALCULATED FOR THE SPECIFIC FLUID AND OPERATING CONDITIONS.

