



Customer Document title:

## Flowserve Hydraulic Data Sheet

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Flowserve Document No.: **1400944-007-5008-01**

Document Revision No.: **A**

Flowserve Order No.: **1400944**

Flowserve Serial No.: **1400944CHP007A/D**

Pump Type/Size: **MARK 3 STANDARD / 2K4X3-10RV**

Quantity: **4**

Customer Name: **DESMET BALLESTRA NORTH AMERICA**

Customer Tag No: **DESMET TAG#: P601.1/1, WORLD ENERGY TAG#: 19-P-760A, DESMET TAG#: P601.1/2, WORLD ENERGY TAG#: 19-P-760B, DESMET TAG#: P601.2/1, WORLD ENERGY TAG#: 19-P-860A, DESMET TAG#: P601.2/2, WORLD ENERGY TAG#: 19-P-860B**

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	: 2K4x3-10RV M3 ST / 1
Customer reference	: WORPAR	Based on curve no.	: MIII7901FV
Item number	: P601.1 / 1, 1/2, 2/1, 2/2	Flowserve reference	: 1989206898
Service	: Oil Dryer Discharge	Date	: August 25, 2021

	Unit	Oil Dryer Discharge	Alternate 1	Alternate 2	-
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## Operating Conditions

Capacity	USgpm	464.2	400.0	300.0	-
Water capacity / CQ	USgpm	465.6 / 1.00	401.8 / 1.00	302.1 / 0.99	- / -
Normal capacity	USgpm	-	-	-	-
Total developed head	ft	158.00	110.50	71.30	-
Water head / CH	ft	158.48 / 1.00	111.01 / 1.00	71.80 / 0.99	- / -
NPSH available (NPSHa)	ft	10.0	10.0	10.0	-
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		Oil Dryer Discharge	Oil Dryer Discharge	Oil Dryer Discharge	-
Temperature / Specific gravity	°F/	185 / 0.880	185 / 0.880	185 / 0.880	- / -
Solid Size - Actual / Limit	in/in	- / 0.6560	- / 0.6560	- / 0.6560	- / -
Viscosity / Vapor pressure	cP/psia	11.36 / -	11.36 / -	11.36 / -	- / -

## Performance

Actual head	ft	158.00	110.50	71.30	-
Hydraulic power	hp	16.3	9.82	4.75	-
Pump speed	rpm	2,364	1,991	1,581	-
Pump overall efficiency (CE=0.95)	%	63.7	61.1	55.9	-
NPSH required (NPSH3)	ft	6.3	4.7	2.7	-
Rated brake power	hp	25.6	16.1	8.52	-
Maximum brake power	hp	30.7	19.0	10.2	-
Driver power rating	hp / kW	50.0 hp / 37.3 kW	50.0 hp / 37.3 kW	50.0 hp / 37.3 kW	-
Casing working pressure	psig	69.4	49.2	31.0	-
(based on shut off @ cut dia/rated SG)					
Maximum allowable	psig	241.0	241.0	241.0	-
Hydrostatic test pressure	psig	413.0	413.0	413.0	-
Estimated rated seal chamber pressure	psig	5.7	5.7	5.7	-
Impeller diameter, Rated	in	10.00	10.00	10.00	-
Impeller diameter, Maximum/Minimum	in/in	10.00 / 6.00	10.00 / 6.00	10.00 / 6.00	- / -
Ns / Nss	(US units)	1,111 / 13,010	1,111 / 13,010	1,111 / 13,010	- / -
Minimum continuous flow	USgpm	132.9	111.9	88.9	-
Maximum head at rated diameter	ft	182.07	129.15	81.43	-
Flow at BEP	USgpm	456.3	387.1	312.3	-
Flow as % of BEP	%	101.7	103.3	96.1	-
Efficiency at normal flow	%	-	-	-	-
Impeller diameter ratio (rated/max)	%	100.0	100.0	100.0	-
Head rise to shut off	%	15.2	16.9	14.2	-
Total head ratio (rated / max) / (max / rated)	%	57.3 / 174.5	39.1 / 255.6	24.7 / 404.4	- / -

## Materials / Specification

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