SHIPPENSBURG PUMP CO. INC.
P.O. BOX 279, SHIPPENSBURG, PA 17257
PH 717-532-7321 • FAX 717-532-7704
WWW.SHIPCOPUMPS.COM

Pride

Quality

Craftsmanship

BULLETIN 185
Revised 4/23

DMS-MU

TYPE DMS-MU

Steel Receivers Low Inlet Boiler Feed Unit

SHIPCO® PUMPS equipped with Mechanical Seals rated up to a standard 250°F.

Consult Performance Curves for Temperature Rating.

Customized Receivers Available Upon Request.

U.S. Patent #4,932,846

TYPE DMS-MU BOILER FEED UNITS

CAP. SQ.FT. EDR	PUMP CAP. GPM	DISCH. PRESS. PSIG	MOTOR HP 3500 RPM ONLY	PHASE	DISCH. SIZE INCHES	SIMPLEX CATALOG NO.	DUPLEX CATALOG NO.	REC. CAP. GALS.	INLET SIZE INCHES
		10	⅓	1		60 DMS-MU1	60 DMSD-MU1		
		10	⅓	3		60 DMS-MU3	60 DMSD-MU3		
		15	⅓	1		61 DMS-MU1	61 DMSD-MU1		
		15	⅓	3		61 DMS-MU3	61 DMSD-MU3		
		20	⅓	1		62 DMS-MU1	62 DMSD-MU1		
6,000	6	20	⅓	3	¾"	62 DMS-MU3	62 DMSD-MU3	34	2"
		25	½	3		62.5 DMS-MU1	62.5 DMSD-MU1		
		25	½	3		62.5 DMS-MU3	62.5 DMSD-MU3		
		30	¾	3		63 DMS-MU1	63 DMSD-MU1		
		30	¾	3		63 DMS-MU3	63 DMSD-MU3		
		40	1	3		64 DMS-MU3	64 DMSD-MU3		
		50	2	3		65 DMS-MU3	65 DMSD-MU3		
		10	⅓	1		90 DMS-MU1	90 DMSD-MU1		
		10	⅓	3		90 DMS-MU3	90 DMSD-MU3		
		15	⅓	1		91 DMS-MU1	91 DMSD-MU1		
		15	⅓	3		91 DMS-MU3	91 DMSD-MU3		
		20	⅓	1		92 DMS-MU1	92 DMSD-MU1		
9,000	9	20	⅓	3	¾"	92 DMS-MU3	92 DMSD-MU3	50	2"
		25	½	1		92.5 DMS-MU1	92.5 DMSD-MU1		
		25	½	3		92.5 DMS-MU3	92.5 DMSD-MU3"		
		30	¾	1		93 DMS-MU1	93 DMSD-MU1		
		30	¾	3		93 DMS-MU3	93 DMSD-MU3		
		40	1	3		94 DMS-MU3	94 DMSD-MU3		
		50	2	3		95 DMS-MU3	95 DMSD-MU3		
		10	⅓	1		120 DMS-MU1	120 DMSD-MU1		
		10	⅓	3		120 DMS-MU3	120 DMSD-MU3		
		15	⅓	1		121 DMS-MU1	121 DMSD-MU1		
		15	⅓	3		121 DMS-MU3	121 DMSD-MU3		
		20	⅓	1		122 DMS-MU1	122 DMSD-MU1		
12,000	12	20	⅓	3	¾"	122 DMS-MU3	122 DMSD-MU3	68	2"
		25	½	1		122.5 DMS-MU1	122.5 DMSD-MU1		
		25	½	3		122.5 DMS-MU3	122.5 DMSD-MU3		
		30	¾	1		123 DMS-MU1	123 DMSD-MU1		
		30	¾	3		123 DMS-MU3	123 DMSD-MU3		
		40	1½	3		124 DMS-MU3	124 DMSD-MU3		
		50	2	3		125 DMS-MU3	125 DMSD-MU3		
		10	⅓	1		150 DMS-MU1	150 DMSD-MU1		
		10	⅓	3		150 DMS-MU3	150 DMSD-MU3		
		15	⅓	1		151 DMS-MU1	151 DMSD-MU1		
		15	⅓	3		151 DMS-MU3	151 DMSD-MU3		
		20	⅓	1		152 DMS-MU1	152 DMSD-MU1		
15,000	15	20	⅓	3	¾"	152 DMS-MU3	152 DMSD-MU3	84	3"
		25	½	1		152.5 DMS-MU1	152.5 DMSD-MU1		
		25	½	3		152.5 DMS-MU3	152.5 DMSD-MU3		
		30	¾	1		153 DMS-MU1	153 DMSD-MU1		
		30	¾	3		153 DMS-MU3	153 DMSD-MU3		
		40	1½	3		154 DMS-MU3	154 DMSD-MU3		
		50	2	3		155 DMS-MU3	155 DMSD-MU3		
		10	⅓	1		180 DMS-MU1	180 DMSD-MU1		
		10	⅓	3		180 DMS-MU3	180 DMSD-MU3		
		15	⅓	1		181 DMS-MU1	181 DMSD-MU1		
		15	⅓	3		181 DMS-MU3	181 DMSD-MU3		
		20	⅓	1		182 DMS-MU1	182 DMSD-MU1		
18,000	18	20	⅓	3	1½"	182 DMS-MU3	182 DMSD-MU3	84	3"
		25	½	1		182.5 DMS-MU1	182.5 DMSD-MU1		
		25	½	3		182.5 DMS-MU3	182.5 DMSD-MU3		
		30	¾	1		183 DMS-MU1	183 DMSD-MU1		
		30	¾	3		183 DMS-MU3	183 DMSD-MU3		
		40	1½	3		184 DMS-MU3	184 DMSD-MU3		
		50	2	3		185 DMS-MU3	185 DMSD-MU3		
		10	⅓	1		220 DMS-MU1	220 DMSD-MU1		
		10	⅓	3		220 DMS-MU3	220 DMSD-MU3		
		15	⅓	1		221 DMS-MU1	221 DMSD-MU1		
		15	⅓	3		221 DMS-MU3	221 DMSD-MU3		
		20	½	1		222 DMS-MU1	222 DMSD-MU1		
22,000	22	20	½	3	1½"	222 DMS-MU3	222 DMSD-MU3	119	3"
		25	¾	1		222.5 DMS-MU1	222.5 DMSD-MU1		
		25	¾	3		222.5 DMS-MU3	222.5 DMSD-MU3		
		30	¾	1		223 DMS-MU1	223 DMSD-MU1		
		30	¾	3		223 DMS-MU3	223 DMSD-MU3		
		40	1½	3		224 DMS-MU3	224 DMSD-MU3		
		50	2	3		225 DMS-MU3	225 DMSD-MU3		

TYPE DMS-MU BOILER FEED UNITS

CAP. SQ.FT. EDR	PUMP CAP. GPM	DISCH. PRESS. PSIG	MOTOR HP 3500 RPM ONLY	PHASE	DISCH. SIZE INCHES	SIMPLEX CATALOG NO.	DUPLEX CATALOG NO.	REC. CAP. GALS.	INLET SIZE INCHES
		10	⅓	1		300 DMS-MU1	300 DMSD-MU1		
		10	⅓	3		300 DMS-MU3	300 DMSD-MU3		
		15	⅓	1		301 DMS-MU1	301 DMSD-MU1		
		15	⅓	3		301 DMS-MU3	301 DMSD-MU3		
30,000	30	20	½	1	1½"	302 DMS-MU1	302 DMSD-MU1	119	3"
		20	½	3		302 DMS-MU3	302 DMSD-MU3		
		25	¾	1		302.5 DMS-MU1	302.5 DMSD-MU1		
		25	¾	3		302.5 DMS-MU3	302.5 DMSD-MU3		
		30	1	3		303 DMS-MU3	303 DMSD-MU3		
		40	1½	3		304 DMS-MU3	304 DMSD-MU3		
		50	3	3		305 DMS-MU3	305 DMSD-MU3		
		10	½	1		370 DMS-MU1	370 DMSD-MU1		
		10	½	3		370 DMS-MU3	370 DMSD-MU3		
		15	½	1		371 DMS-MU1	371 DMSD-MU1		
		15	½	3		371 DMS-MU3	371 DMSD-MU3		
37,000	37	20	¾	1	1½"	372 DMS-MU1	372 DMSD-MU1	168	4"
		20	¾	3		372 DMS-MU3	372 DMSD-MU3		
		25	1	3		372.5 DMS-MU3	372.5 DMSD-MU3		
		30	1½	3		373 DMS-MU3	373 DMSD-MU3		
		40	2	3		374 DMS-MU3	374 DMSD-MU3		
		10	¾	1		450 DMS-MU1	450 DMSD-MU1		
		10	¾	3		450 DMS-MU3	450 DMSD-MU3		
		15	¾	1		451 DMS-MU1	451 DMSD-MU1		
45,000	45	15	¾	3	1½"	451 DMS-MU3	451 DMSD-MU3	235	4"
		20	1	3		452 DMS-MU3	452 DMSD-MU3		
		25	1½	3		452.5 DMS-MU3	452.5 DMSD-MU3		
		30	1½	3		453 DMS-MU3	453 DMSD-MU3		

DMS-MU & DMSS-MU UNIT DESCRIPTION

Type DMS-MU is constructed with a black steel receiver and **Type DMSS-MU** is made with a stainless steel receiver. Both units are for areas where an extremely low inlet height need exists. The standard inlet is 6-1/2" from floor to centerline, but can be modified upon request, either higher or lower.

MODIFIED MODEL U PUMP FEATURES

The Heart of the Unit is the Modified Model U Pump (U.S. patent #4,932,846), shortened to fit the height of the receiver. The pump is mounted on top of the tank and excellent for limited floor space areas where a pump mounted on the side of the tank takes up too much floor space. It eliminates the need for a suction isolation valve(s) since you can just unbolt and lift the pump out of the tank. The pumps can have 2 feet of NPSH capabilities based on curve and can handle condensate at temperatures up to 210°F at sea level.
All units come with side mounted float switches as standard in a NEMA 1 classification.

Pump Head and Case are made of close-grained cast iron.

Impeller is cast bronze, enclosed vane, precision balanced, and trimmed to meet the design conditions for smooth durable operation.

Case Wearing Ring is bronze and easily renewable to keep the pump at peak performance.

Motors are industry standard with heavy duty ball bearing design.

Motor Shaft is stainless steel on all pumps using 56J frame motors. The JM frame motors have a bronze shaft sleeve as standard.

Water Safety Slinger is Buna N for high temperature resistance and installed to help prevent water from entering the motor from seal leakage.

Discharge Companion Flange allows the pump removal and eliminates the need for additional unions.

Propeller Shaft is 316 Stainless Steel.

Rubber Bearing Assembly (US patent #4,932,846)

Standard Mechanical Seal is EPR with a ceramic seat rated for 250°F. Other seals are available upon request up to 300°F.

Standard Suction Column is black steel. 304 and 316 are available upon request.

Propeller is 400 Series Stainless.

UNIT ACCESSORIES

These units can be fitted with any of the following accessories:

Basket Inlet Strainers are a recommended feature of the units. The large dirt pocket and vertical self-cleaning screens help prevent unnecessary wear and problems with the pumps.

Gauge Glass Assembly provides a quick check of receiver water level and has automatic stops if the glass is broken.

Dial Thermometer provides a quick check of condensate temperature.

Discharge Pressure Gauges provide a quick check of the pump operation at design conditions.

High Water Alarm Switch when requested. Provides a signal to alert when the pumps fail to keep up. Raises inlet on tank 2".

All units are completely assembled, piped, wired, and individually tested before shipment. Testing includes a complete hydrostatic test for leaks, electrical tests for controls and accessories, and performance test for pumps at design conditions. After testing, the units are packaged for shipment.

When a control panel is added, the complete package unit bears a UL stamp.

Sizing Boiler Feed Pumps — DMS-MU Units

34.5 lbs. per hour of water evaporated at 212°F at sea level equals (1) Boiler Horsepower.

$$\frac{34.5 \text{ lbs.}}{60 \text{ min.}} \times \frac{1 \text{ gallon}}{8.34 \text{ lbs.}} = .069 \text{ gallon per minute}$$

The evaporation rate of 1 boiler horsepower is .069 gallons per minute. The feed pump input rate is sized at a rate of 170% to 200% of the maximum steaming rate of the boiler. This method of sizing helps to balance the boiler conditions and reduce thermal shock to the boiler. Thermal shock is caused by oversizing the feed pumps.

Table of Values of Heat and Power

	GPM	BTU	Lbs/Hr	Sq. Ft. EDR
1 Boiler Horsepower	.069	33,475	34.5	139.4
1,000 sq. ft. EDR	.50	240,000	247.3	1,000

Receiver Sizing — DMS-MU Units

The receivers in this series of units are sized to allow for approximately a 10-minute system lag time. The lag time of the system is the time from which the steam evaporated at the boiler, travels to the radiation device, condenses to water and returns to the boiler. This is adequate for most small systems. (Larger multi-building systems, the receiver is sized for a 15-minute lag time.)

Boiler required make-up water is added to the receiver on DMS-MU Units. This helps, by tempering the make-up water, reduce thermal shock to the boiler.

The Durable Line of Boiler Feed Pumps is constructed with Steel Receivers that provide years of service. Receivers are constructed of heavy gauge steel.

- Receivers available from 21-gallon to 235-gallon capacity.
- Centrifugal Pumps designed for many years of dependable service with low maintenance.
- Pumps are bronze fitted to resist corrosion and prevent seizing.
- Bronze impellers are cast one piece construction trimmed and balanced to design capacities.
- Pump has no internal bearings. (Motor bearings—refer to motor manufacturer's instructions.)
- Units are available in most popular voltages.
- Control panels (optional) are available and can be factory mounted and wired to NEMA and J.I.C. specifications. (Note: Magnetic Starters should be provided for all three phase motors.)

SHIPPENSBURG PUMP COMPANY, INC., P.O. BOX 279, SHIPPENSBURG, PA 17257 • PHONE 717-532-7321 • FAX 717-532-7704 • WWW.SHIPCOPUMPS.COM

PRINTED IN THE U.S.A. • BEIDEL PRINTING HOUSE, INC., 717-532-5063