



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 176

Revised 12/22



TYPE DS-MU

STEEL RECEIVERS LOW INLET
CONDENSATE PUMP

TYPE DSS-MU

STAINLESS STEEL RECEIVERS
LOW INLET CONDENSATE PUMP

SHIPCO®
PUMPS equipped with Mechanical Seals rated up to a standard 250°F.
Consult Performance Curves for Temperature Rating.
Customized Receivers Available Upon Request.

TYPE DS-MU CONDENSATE 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	INLET HEIGHT INCHES
6,000	6	10	1/8	1	3/4"	60 DS-MU1	60 DSD-MU1	16 Single 22 Duplex	2"	* 6-1/2"
		10	1/8	3		60 DS-MU3	60 DSD-MU3			
		15	1/8	1		61 DS-MU1	61 DSD-MU1			
		15	1/8	3		61 DS-MU3	61 DSD-MU3			
		20	1/8	1		62 DS-MU1	62 DSD-MU1			
		20	1/8	3		62 DS-MU3	62 DSD-MU3			
		25	1/2	3		62.5 DS-MU1	62.5 DSD-MU1			
		25	1/2	3		62.5 DS-MU3	62.5 DSD-MU3			
		30	3/4	3		63 DS-MU1	63 DSD-MU1			
		30	3/4	3		63 DS-MU3	63 DSD-MU3			
		40	1	3		64 DS-MU3	64 DSD-MU3			
		50	2	3		65 DS-MU3	65 DSD-MU3			
9,000	9	10	1/8	1	3/4"	90 DS-MU1	90 DSD-MU1	16 Single 22 Duplex	2"	* 6-1/2"
		10	1/8	3		90 DS-MU3	90 DSD-MU3			
		15	1/8	1		91 DS-MU1	91 DSD-MU1			
		15	1/8	3		91 DS-MU3	91 DSD-MU3			
		20	1/8	1		92 DS-MU1	92 DSD-MU1			
		20	1/8	3		92 DS-MU3	92 DSD-MU3			
		25	1/2	1		92.5 DS-MU1	92.5 DSD-MU1			
		25	1/2	3		92.5 DS-MU3	92.5 DSD-MU3"			
		30	3/4	1		93 DS-MU1	93 DSD-MU1			
		30	3/4	3		93 DS-MU3	93 DSD-MU3			
		40	1	3		94 DS-MU3	94 DSD-MU3			
		50	2	3		95 DS-MU3	95 DSD-MU3			
12,000	12	10	1/8	1	3/4"	120 DS-MU1	120 DSD-MU1	16 Single 22 Duplex	2"	* 6-1/2"
		10	1/8	3		120 DS-MU3	120 DSD-MU3			
		15	1/8	1		121 DS-MU1	121 DSD-MU1			
		15	1/8	3		121 DS-MU3	121 DSD-MU3			
		20	1/8	1		122 DS-MU1	122 DSD-MU1			
		20	1/8	3		122 DS-MU3	122 DSD-MU3			
		25	1/2	1		122.5 DS-MU1	122.5 DSD-MU1			
		25	1/2	3		122.5 DS-MU3	122.5 DSD-MU3			
		30	3/4	1		123 DS-MU1	123 DSD-MU1			
		30	3/4	3		123 DS-MU3	123 DSD-MU3			
		40	1 1/2	3		124 DS-MU3	124 DSD-MU3			
		50	2	3		125 DS-MU3	125 DSD-MU3			
15,000	15	10	1/8	1	3/4"	150 DS-MU1	150 DSD-MU1	16 Single 22 Duplex	2"	* 6-1/2"
		10	1/8	3		150 DS-MU3	150 DSD-MU3			
		15	1/8	1		151 DS-MU1	151 DSD-MU1			
		15	1/8	3		151 DS-MU3	151 DSD-MU3			
		20	1/8	1		152 DS-MU1	152 DSD-MU1			
		20	1/8	3		152 DS-MU3	152 DSD-MU3			
		25	1/2	1		152.5 DS-MU1	152.5 DSD-MU1			
		25	1/2	3		152.5 DS-MU3	152.5 DSD-MU3			
		30	3/4	1		153 DS-MU1	153 DSD-MU1			
		30	3/4	3		153 DS-MU3	153 DSD-MU3			
		40	1 1/2	3		154 DS-MU3	154 DSD-MU3			
		50	2	3		155 DS-MU3	155 DSD-MU3			
18,000	18	10	1/8	1	1 1/2"	180 DS-MU1	180 DSD-MU1	22	2"	* 6-1/2"
		10	1/8	3		180 DS-MU3	180 DSD-MU3			
		15	1/8	1		181 DS-MU1	181 DSD-MU1			
		15	1/8	3		181 DS-MU3	181 DSD-MU3			
		20	1/8	1		182 DS-MU1	182 DSD-MU1			
		20	1/8	3		182 DS-MU3	182 DSD-MU3			
		25	1/2	1		182.5 DS-MU1	182.5 DSD-MU1			
		25	1/2	3		182.5 DS-MU3	182.5 DSD-MU3			
		30	3/4	1		183 DS-MU1	183 DSD-MU1			
		30	3/4	3		183 DS-MU3	183 DSD-MU3			
		40	1 1/2	3		184 DS-MU3	184 DSD-MU3			
		50	2	3		185 DS-MU3	185 DSD-MU3			
22,000	22	10	1/8	1	1 1/2"	220 DS-MU1	220 DSD-MU1	22	2"	* 6-1/2"
		10	1/8	3		220 DS-MU3	220 DSD-MU3			
		15	1/8	1		221 DS-MU1	221 DSD-MU1			
		15	1/8	3		221 DS-MU3	221 DSD-MU3			
		20	1/2	1		222 DS-MU1	222 DSD-MU1			
		20	1/2	3		222 DS-MU3	222 DSD-MU3			
		25	3/4	1		222.5 DS-MU1	222.5 DSD-MU1			
		25	3/4	3		222.5 DS-MU3	222.5 DSD-MU3			
		30	3/4	1		223 DS-MU1	223 DSD-MU1			
		30	3/4	3		223 DS-MU3	223 DSD-MU3			
		40	1 1/2	3		224 DS-MU3	224 DSD-MU3			
		50	2	3		225 DS-MU3	225 DSD-MU3			

* When a mechanical alternator is used on duplex units the tank height and inlet height will be increased by 2 inches.
When a high water float switch is used the tank height and inlet height will be increased by 2 inches.

TYPE DS-MU CONDENSATE 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	INLET HEIGHT INCHES
30,000	30	10	1/3	1	1 1/2"	300 DS-MU1	300 DSD-MU1	34	2"	* 6-1/2"
		10	1/3	3		300 DS-MU3	300 DSD-MU3			
		15	1/3	1		301 DS-MU1	301 DSD-MU1			
		15	1/3	3		301 DS-MU3	301 DSD-MU3			
		20	1/2	1		302 DS-MU1	302 DSD-MU1			
		20	1/2	3		302 DS-MU3	302 DSD-MU3			
		25	3/4	1		302.5 DS-MU1	302.5 DSD-MU1			
		25	3/4	3		302.5 DS-MU3	302.5 DSD-MU3			
		30	1	3		303 DS-MU3	303 DSD-MU3			
		40	1 1/2	3		304 DS-MU3	304 DSD-MU3			
		50	3	3		305 DS-MU3	305 DSD-MU3			
37,000	37	10	1/2	1	1 1/2"	370 DS-MU1	370 DSD-MU1	34	2"	* 6-1/2"
		10	1/2	3		370 DS-MU3	370 DSD-MU3			
		15	1/2	1		371 DS-MU1	371 DSD-MU1			
		15	1/2	3		371 DS-MU3	371 DSD-MU3			
		20	3/4	1		372 DS-MU1	372 DSD-MU1			
		20	3/4	3		372 DS-MU3	372 DSD-MU3			
		25	1	3		372.5 DS-MU3	372.5 DSD-MU3			
		30	1 1/2	3		373 DS-MU3	373 DSD-MU3			
		40	2	3		374 DS-MU3	374 DSD-MU3			
		50	3	3		375 DS-MU3	375 DSD-MU3			
45,000	45	10	3/4	1	1 1/2"	450 DS-MU1	450 DSD-MU1	50	2"	* 6-1/2"
		10	3/4	3		450 DS-MU3	450 DSD-MU3			
		15	3/4	1		451 DS-MU1	451 DSD-MU1			
		15	3/4	3		451 DS-MU3	451 DSD-MU3			
		20	1	3		452 DS-MU3	452 DSD-MU3			
		25	1 1/2	3		452.5 DS-MU3	452.5 DSD-MU3			
		30	1 1/2	3		453 DS-MU3	453 DSD-MU3			
		40	3	3		454 DS-MU3	454 DSD-MU3			
		50	3	3		455 DS-MU3	455 DSD-MU3			
60,000	60	10	1 1/2	3	1 1/2"	600 DS-MU3	600 DSD-MU3	68	2"	* 6-1/2"
		15	2	3		601 DS-MU3	601 DSD-MU3			
		20	2	3		602 DS-MU3	602 DSD-MU3			
		25	2	3		602.5 DS-MU3	602.5 DSD-MU3			
		30	3	3		603 DS-MU3	603 DSD-MU3			
		40	3	3		604 DS-MU3	604 DSD-MU3			
		50	5	3		605 DS-MU3	605 DSD-MU3			

* When a mechanical alternator is used on duplex units the tank height and inlet height will be increased by 2 inches.
When a high water float switch is used the tank height and inlet height will be increased by 2 inches.

DS-MU & DSS-MU UNIT DESCRIPTION

Type DS-MU is constructed with a black steel receiver and **Type DSS-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.

Mechanical Alternator used on Duplex units when requested. Used only where the pumps will alternate after each cycle. Provides backup if the lead pump fails and / or the lead pump cannot keep up with the load. Raises inlet on tank 2".

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.

ENGINEERING SELECTION DATA

Receiver Sizing – DS-MU & DSS-MU Units

The receivers in this series of units are sized to allow for approximately one minute net storage capacity (where practical). The condensate return pumps need to run for approximately a one minute period to prolong the life of the motors in intermittent operation. The condensate is returned to the boiler room as quickly as possible to reduce make-up requirements and heat loss.

Condensate Pump Sizing – DS-MU & DSS-MU

The condensing rate for 1,000 sq. ft. EDR is .5 GPM (see table). The type DS-MU Condensate return pumps are sized at twice (2 times) the normal condensing rate or 1.0 GPM per 1,000 sq. ft. EDR. The low NPSH requirements and minimal capacity loss of centrifugal pumps from normal wear has shown from experience to provide more than adequate pump capacity.

Table — 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