



SUBMITTAL

Condensate Return Unit





FEATURES

The Cougar Systems CRU Series, is a Condensate Return Unit designed to automatically recover and pump condensate for reuse in commercial applications.

- 304 Stainless Steel Constructed Receiver
- Grundfos MTR Series Multi-Stage Pump(s) with Stainless Steel Impellers and Stack
- Gauge Glass Assembly
- Stainless Steel Multi-float configurable
- Bi-Metal Thermometer
- Pump Opening Cover (for servicing unit)
- Control Panel Ship Loose option
- Type 4X construction withstands outdoor installations and prevents corrosion
- UL508A Listed Control Panel
- Lockable hinged front enclosure door
- Main disconnect with direct mount operator
- Pump Overload thermal protection, Pump Contactor (3 Phase Units)
- Motor Pump Circuit Breaker (1 Phase Units)
- Power On Amber indicator
- Pump Hand-Off-Auto Toggle switch
- Pump Run Green indicator
- Buzzer Test-Off-Auto Toggle switch
- High Temp Motor Protection Circuit
- Electronic pump alternation (Duplex Units)
- Control voltage stepdown transformer (3 Phase Units)
- 360° visible red alarm beacon
- Piezo alarm buzzer
- Dry contact remote alarm interface
- Color coded wiring



PANEL DETAILS

	Options
	Dead-Front Construction
	BACnet MS/TP Interface
	UL 508 and 698A Listed Panel

	Voltage
11	120vac - 1 Phase
12	208/240vac - 1 Phase
32	208/240vac - 3 Phase
34	460/480vac - 3 Phase

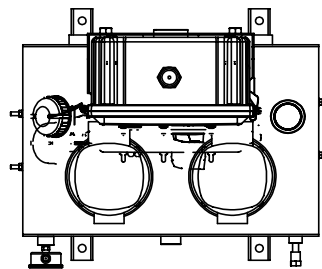
	Single Phase
B	0-15 Amp
	Three Phase
BW-1.6	1 – 1.6 Amp
BW-2.5	1.6 – 2.5 Amp
BW-4	2.5 – 4 Amp
BW-6.3	4 – 6.3 Amp
BW-10	6.3 - 10 Amp
BW-16	11 - 16 Amp
BW-20	16 - 20 Amp
BW-25	20 - 25 Amp
BS-5	1.25 - 5 Amp
BS-12	3 - 12 Amp
BS-32	8 - 32 Amp



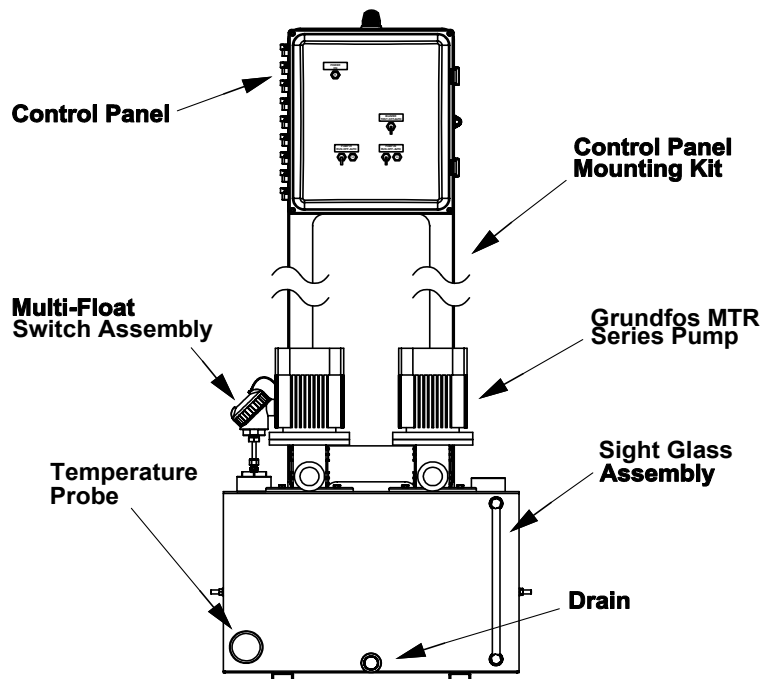
CRU COMPONENTS

- 304 Stainless Steel Constructer Receiver
- TYPE 4X Polycarbonate Enclosure
- Stainless Steel Multi-Float Switch Assembly
- Gauge Glass Assembly
- Bi-Metal Thermometer
- Grundfos MTR Series Multi-Stage Pumps
- Control Panel Mounting Kit

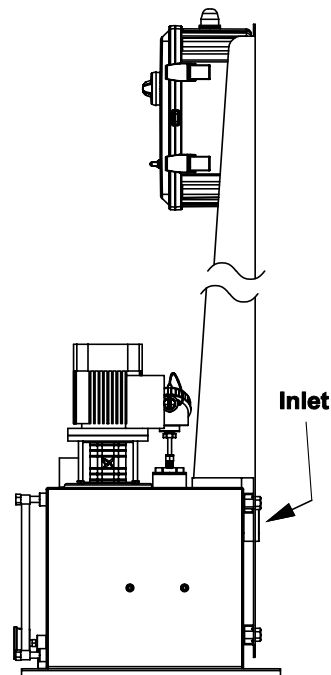
Top View



Front View



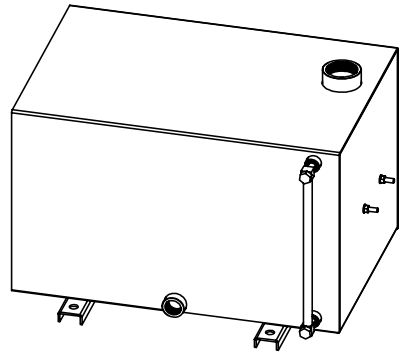
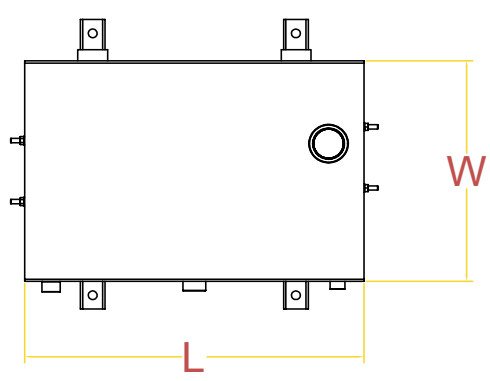
Side View



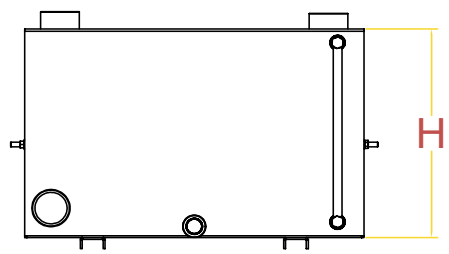
TANK SIZING

Gallons	Dimensions				Connections				
	(L) Length	(W) Width	(H) Height	(H1) Height w/Control Panel Mount	Inlet	Vent	Sight Glass	Temperature Probe	Drain
15	14"	17"	15"	60"	3"	2"	(2) 1/2"	3/4"	1"
24	16"	24"							
44	20"	36"							
70	30"								
100	39.5"								

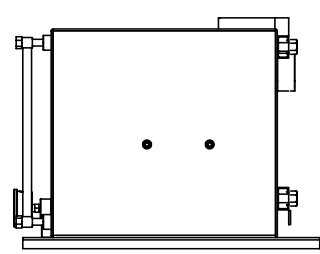
Top View



Front View



Side View





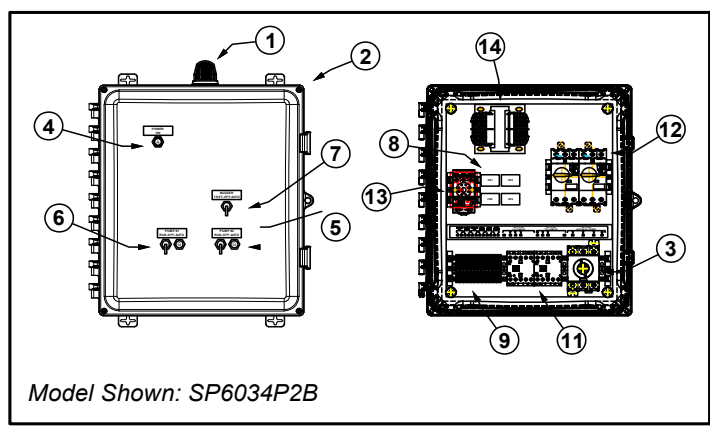
CRU SIZING CHART

Condensate Return System Sizing Chart

EDR	Steam lbs/hr	GPM	10 PSI Discharge Pressure / HP	20 PSI Discharge Pressure / HP	30 PSI Discharge Pressure / HP	40 PSI Discharge Pressure / HP	50 PSI Discharge Pressure / HP	60 PSI Discharge Pressure / HP	70 PSI Discharge Pressure / HP	80 PSI Discharge Pressure / HP	90 PSI Discharge Pressure / HP	Receiver Size Gallons
2,000	500	3	0.33 hp	0.33 hp	0.33 hp	0.5 hp	0.5 hp	0.5 hp	0.5 hp	0.75 hp	0.75 hp	15
4,000	1,000	6	0.33 hp	0.33 hp	0.33 hp	0.5 hp	0.75 hp	0.75 hp	0.75 hp	1 hp	1 hp	
6,000	1,500	9	0.33 hp	0.33 hp	0.33 hp	0.5 hp	0.75 hp	0.75 hp	0.75 hp	1 hp	1.5 hp	
8,000	2,000	12	0.5 hp	0.5 hp	0.5 hp	0.75 hp	1 hp	1 hp	1 hp	1.5 hp	1.5 hp	24
10,000	2,500	15	0.5 hp	0.5 hp	0.5 hp	0.75 hp	1 hp	1 hp	1.5 hp	1.5 hp	1.5 hp	
15,000	3,750	22.5	0.75 hp	0.75 hp	1 hp	1.5 hp	2 hp	2 hp	1.5 hp	3 hp	3 hp	
20,000	5,000	30	0.75 hp	1 hp	1.5 hp	1.5 hp	2 hp	2 hp	2 hp	3 hp	3 hp	
25,000	6,250	37.5	1 hp	2 hp	2 hp	2 hp	3 hp	3 hp	3 hp	5 hp	5 hp	44
30,000	7,500	45	1 hp	2 hp	2 hp	3 hp	3 hp	5 hp	5 hp	5 hp	5 hp	
40,000	10,000	60	2 hp	2 hp	5 hp	5 hp	5 hp	7.5 hp	5 hp	7.5 hp	7.5 hp	70
50,000	12,500	75	2 hp	2 hp	5 hp	5 hp	7.5 hp	7.5 hp	7.5 hp	7.5 hp	7.5 hp	
60,000	15,000	90	2 hp	2 hp	5 hp	5 hp	7.5hp	7.5 hp	7.5 hp	7.5 hp	7.5 hp	100
70,000	17,500	105	3 hp	3 hp	5 hp	5 hp	7.5 hp	7.5 hp	7.5 hp	10 hp	10 hp	
80,000	20,000	120	3 hp	5 hp	5 hp	5 hp	7.5 hp	7.5 hp	10 hp	10 hp	10 hp	
88,000	20,000	120	5 hp	5 hp	5 hp	7.5 hp	7.5 hp	7.5 hp	10 hp	10 hp	15 hp	
100,000	25,000	120	5 hp	5 hp	5 hp	7.5 hp	7.5 hp	10 hp	15 hp	15 hp	15 hp	

PANEL COMPONENTS

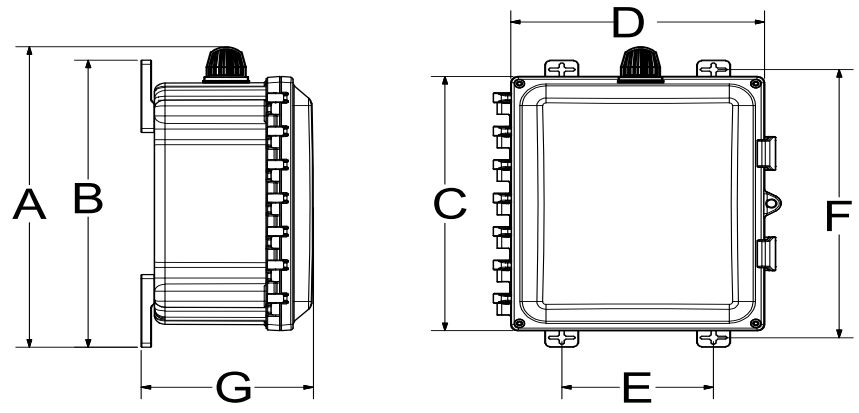
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|--------------------------|--|
| 1. Alarm Beacon | 8. Control Relay |
| 2. TYPE 4X Enclosure | 9. Terminal Strip |
| 3. Main Disconnect | 10. Alarm Horn |
| 4. Power ON Indicator | 11. Pump Contactor |
| 5. Pump Run Indicator | 12. Motor Overload Protection (3PH Only) |
| 6. Pump Selector switch | 13. Alternator (Duplex only) |
| 7. Alarm Selector switch | 14. Control Transformer (3PH Only) |



ENCLOSURE DIMENSIONS

STADARD - 16X14X08

A	B	C	D	E	F	G
19.47	18.88	17.41	15.41	11.63	18.03	9.89





MOTOR CONTROLS

1. Standard Motor Controls Incoming Power Service of 115/120vac - 1 phase. Simplex and Duplex setup (Figure 1). Adder Options Available.

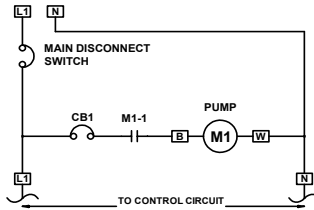
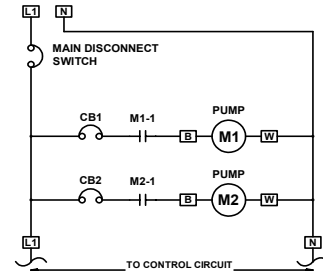


Figure 1



1. Standard Motor Controls Incoming Power Service of 208/240vac - 1 phase. Simplex and Duplex setup (Figure 1). Adder Options Available.

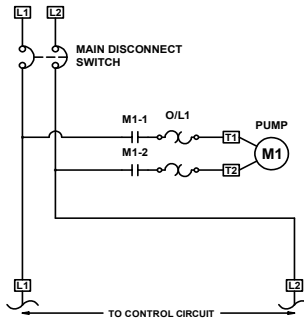
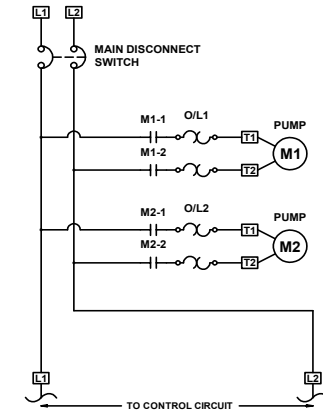


Figure 2



1. Standard Motor Controls Incoming Power Service of 208/240/480vac - 3 phase. Simplex and Duplex setup (Figure 1). Adder Options Available.

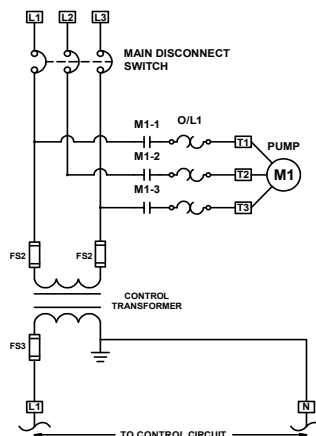
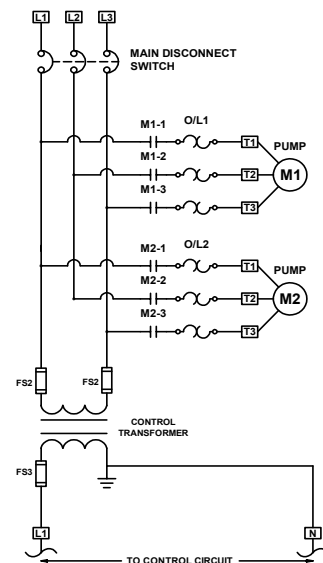
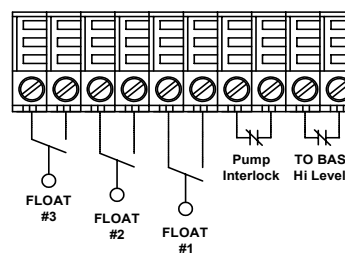


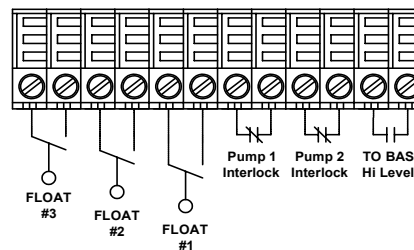
Figure 3



SIMPLEX



DUPLEX

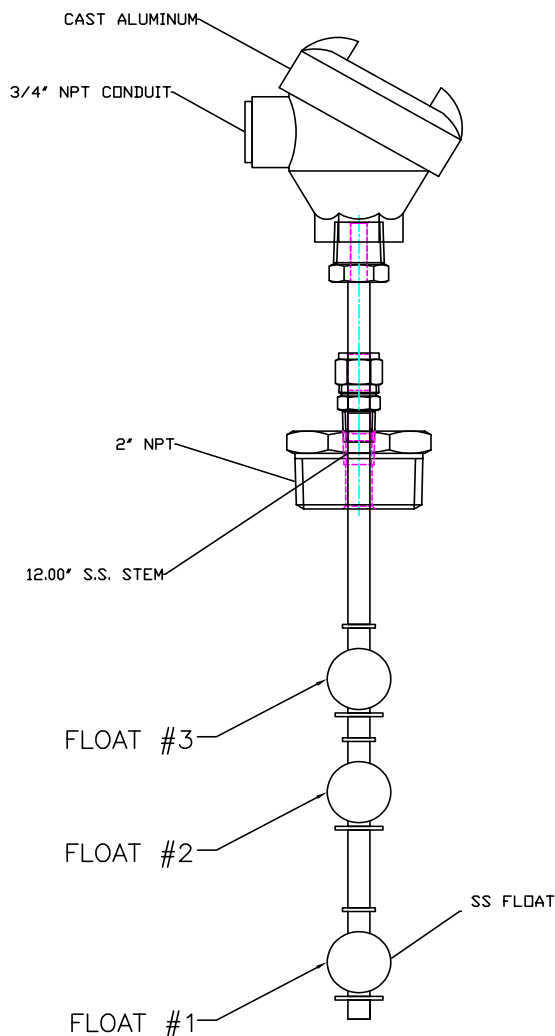




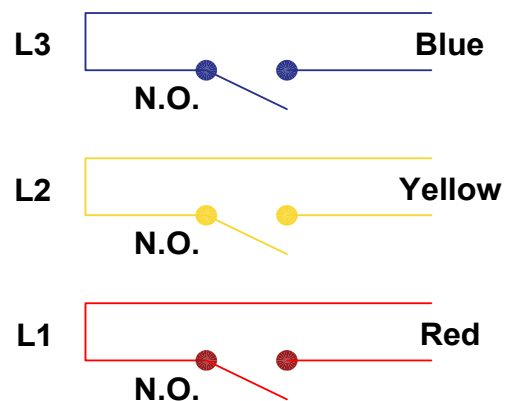
FLOAT DETAIL

1. **Multi-Float Switch Assembly. Construction is Stainless Steel. Standard 3-Float assembled see *Figure 2.1*. Sizing options upon request.**

Figure 2.1



Wiring Schematic



Notes:

1. **Media: Water**
2. **Stem Material: AISI Type 316L Stainless Steel**
3. **Electrical Specs:**
 - 3.1. **Switching Voltage: 300 vac/vdc max**
 - 3.2. **Switching Current: .5amps ac/ .7amp dc**
4. **Float Specs:**
 - 4.1. **Float Material: 316 SS**
 - 4.2. **PSI rating: 600 PSI max**
 - 4.3. **Temp rating: 300F max**

The **MTR RANGE**

– where power is required

The MTR range offers a broad range of high efficiency pumps of different immersible length for varying flow and pressure requirements of up to 102 m³/h (1700 l/min) and pressures up to 35 bar. MTR pumps are available as a customised solution in cast iron or stainless steel and in number of variants.

In addition to machine tool, wash & clean applications, and the circulation of cooling liquids, MTR pumps are also used as condensate or filter pumps. They are well suited for water treatment applications as well.

The MTR range is also available:

- With drainage back to tank solution
- As completely enclosed for temperatures up to 120 °C
- For horizontal installation in the side of the tank
- With explosion-proof motors, ATEX-approved pump/motors

MOTOR

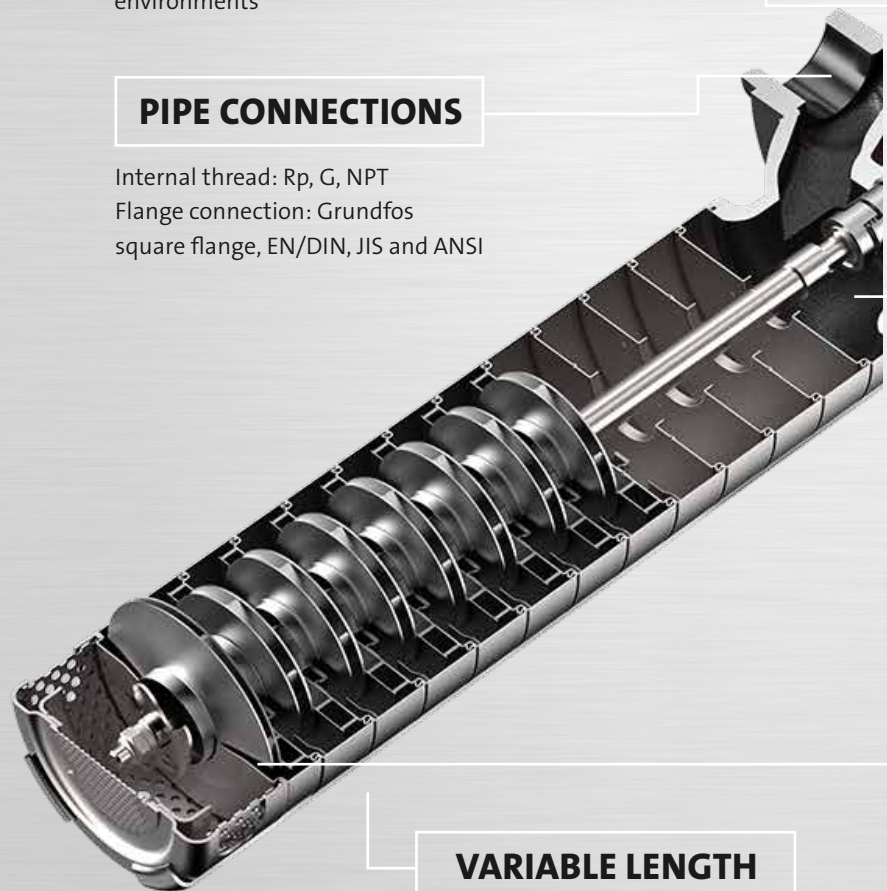
Standard IE3 motor (MTR) and with an integrated frequency converter for IE5 motors (MTRE) available for global voltage with single and three-phase motors. Motor protection from Klixon, PTC and PT100 or the frequency converter. Enclosure class IP55 as standard. Available in a tropicalised variant for condensing environments

PIPE CONNECTIONS

Internal thread: Rp, G, NPT
Flange connection: Grundfos square flange, EN/DIN, JIS and ANSI

VARIABLE LENGTH

To reach the exact depth of tank, the immersible length can be extended up to 1.5 m, depending on pump size



APPROVALS

Meets current motor and pump efficiency requirements applicable in your market such as the global MEPS (Minimum Energy Performance Standards) for the motor and the Ecodesign requirements for rotodynamic water pumps defined by the Minimum Efficiency Index (MEI).



MATERIALS

Available in three material variants – cast iron and two different stainless steel grades, covering everything from clean water, coolant to chemical applications

SEAL SOLUTION

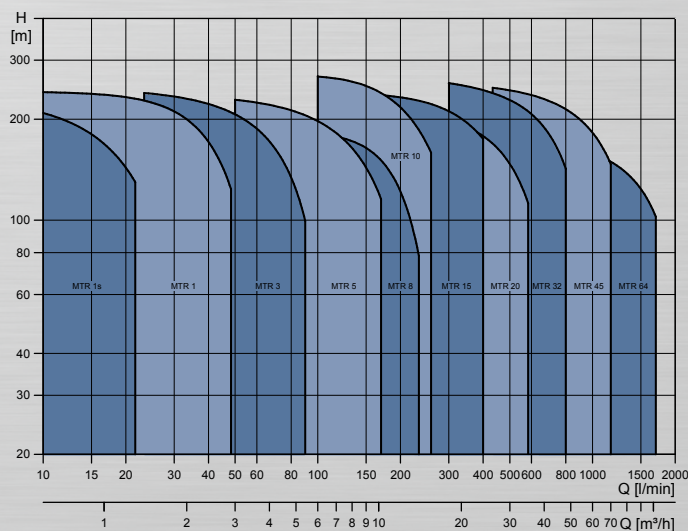
Grundfos offers a wide range of balanced cartridge shaft seals with different seal faces such as Silicon Carbide, Carbon and Tungsten Carbide to handle almost any industrial liquid. Drainage back to tank solution (see page 6)

INLET

Fitted with a suction strainer that prevents large solid particles from entering and damaging the pump. The size of the passage in the strainer and the impeller depends on the pump size. The special priming screw allows for liquid levels down to 25 mm

MTR:

Flow rate:	max 102 m ³ /h (1700 l/min)
Head:	max 250 m
Motor:	0.37-45 kW
Liquid temp.:	-10 °C to +90 °C (+120 °C)
Pump sizes:	11



The **MTR RANGE**

– available in the following variants

The MTR range offers a high degree of modularity using standard motors and a range of variants for specific applications.

MTR – DRAINAGE BACK TO TANK

Leak-free pumps are a top priority in any industrial process. Leaking pumps may lead to costly downtime and in turn affect part cost. The MTR DBT (Drainage Back to Tank) pump effectively eliminates that risk, as the liquid remains in the tank where it is supposed to be – even if the shaft seal is worn out and starts to leak. In addition to being leak-free, the MTR DBT pump features an innovative frequency drive motor that reduces energy consumption to reduce further part costs.

- Downtime risk due to leakage is eliminated
- No risk of contamination
- Longer service intervals
- Reduction of part costs
- Non-sticking solution for the shaft seal on startup



MTRE - INTEGRATED FREQUENCY CONVERTER

An E-solution means electronic control and energy savings. This all-in-one solution with pump, motor and integrated frequency converter is packed with intelligent features that makes installation, operation, and service exceptionally easy and performance much more efficient and reliable. The compact, integrated design comes with one drive for use worldwide and complies with all international standards.

- IE5 motor with an integrated frequency converter
- Sensors
- BUS communication
- Pump motor monitoring and protection

MTRE:

Flow rate: max 102 m³/h (1700 l/min)

Head: max 300 m

Motor: 0.37-22 kW

Liquid temp.: -10 °C to +90 °C (+120 °C)

Pump sizes: 11

