

AIR ELIMINATORS DIRT SEPARATORS STANDARD VELOCITY

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THE ULTIMATE IN DISTRIBUTION EFFICIENCY

(III

## AIR- AND DIRT-FREE SYSTEM WATER THROUGH A SINGLE UNIT

The life and efficiency of a heating or cooling system are greatly dependent on the quality of the system water. Air and dirt problems cause frequent breakdowns and increased customer complaints. Corrosion, cavitation, and component wear are consequences of air-saturated, dirty water.

Recurring problems and increased maintenance results in unnecessary costs and dissatisfied owners.

#### There is a solution!

The name:

SPIROVENT DIRT

4" Threaded Dirt

A system without air and dirt is possible! There is a unique dual-purpose device that will remove air and dirt down to the smallest particle, keeping the system free from air and dirt, permanently. It requires little maintenance, and works without strainers or filters. Less maintenance, fewer costs, satisfied owners!

#### of both entrained air and dirt particles. The patented Spirotube<sup>®</sup>, the core of the Spirovant Dirt unit

THE KEY DIFFERENCE

combined unit allows for the removal

The unique construction of this

the core of the Spirovent Dirt unit, causes dirt particles of all sizes to sink to the bottom of the unit and collect in the dirt chamber, eliminating any blockage concerns. The air bubbles rise and collect in the air chamber before being released via an integral automatic valve. The dirt can be flushed through the drain while the system remains fully operational. The large dirt collection chamber ensures infrequent flushing.

# THE SPIROTUBE MAKES THE DIFFERENCE

The Spirotube is the core of the Spirovent Dirt unit. It creates a low velocity area that allows the Spirovent to scrub out 100% of the free air, 100% of the entrained air, and up to 99.6% of the dissolved air through the upper chamber. The lower chamber allows the dirt particles to sink with 80% of those 30 microns and larger removed within 100 passes. There are no strainers, filters, or replacement cartridges to get clogged and flow always remains constant without a high pressure drop. Periodic blow downs are required depending upon the condition of the system fluid. The result: increased component life and heat transfer efficiency; decreased oxygenbased corrosion and pump cavitation; the elimination of air related noises such as gurgling and cascading; and the need for continual "routine" maintenance to vent, bleed, and purge.

THE ULTIMATE IN DISTRIBUTION EFFICIENCY

4" Flanged Drain

4" Flanged Dirt



#### ADVANTAGES TO THE SPECIFIER, INSTALLER AND OWNER

- No bypass, isolating valves or replacement filters to clog and reduce flow
- Dirt can be flushed while the system is in full operation.
- Quiet operation
- Minimum pressure drop; always constant
- Increased component life
- Reduced oxygen-based corrosion and pump cavitation
- Provides optimum heat transfer
- Optional removable head for bundle inspection
- The automatic air vent is guaranteed not to leak and can only be closed by the installer for a pressure test.
- 2 Lifting eyes make installation easy.
- 3 The air chamber has been designed so that dirt cannot reach the valve.
- 4 Welded steel construction guarantees long life.
- S Valve for releasing large amounts of air during filling and for skimming off floating dirt.
- <sup>(6)</sup> The unique Spirotube is the core of the Spirovent. Designed to trap the smallest microbubble and microscopic dirt particle, yet it offers little resistance to flow.
- Threaded or flanged connections available. Threaded 2"-4" (not available on units with removable head); Flanged 2" and up.
- B Large capacity collection chamber reduces the need for frequent draining.
- Orain valve for flushing out the dirt.



When the drain valve is opened the system pressure flushes out the collected dirt. This only takes a few seconds.



#### INSTALL THE SPIROVENT DIRT FOR OPTIMUM PERFORMANCE

Ideal placement of a Spirovent unit is based on microbubble separation and Henry's Law. Simply put, Henry's Law states that air is released from water as the temperature increases or the pressure decreases\*. For this reason, the Spirovent is typically installed in the hottest point in the system. For a heating installation, this is in the supply from the boiler. In a chilled water circuit, the warmest point is in the return to the chiller.

\*For more detailed technical information, ask about our Spirotism booklet .



#### DIRT SEPARATION EFFICIENCY

#### SPIROVENT® DIRT

#### PRESSURE DROP



#### **TECHNICAL SPECIFICATIONS**

#### SPIROVENT SENIOR

DIRT Part Numb	er ber	VDT200 VDN200	VDT250 VDN250	VDT300 VDN300	VDT400 VDN400	VDT500 VDN500	VDT600 VDN600	VDT800 VDN800	VDT1000 VDN1000	VDT1200 VDN1200
Pipe Size	Inch	2	2.5	3	4	5	6	8	10	12
0.D.	Inch	2.375	3	3.5	4.5	5.5	6.625	8.625	10.75	12.75
Thread	NPT	2	2.5	3	4	_	_	_	_	_
D	Inch	6.3	6.3	8.6	8.6	12.8	12.8	16.0	20.0	24.0
H2	Inch	25.3	25.3	31.4	31.4	41.7	41.7	51.8	67.5	79.7
h2	Inch	10.4	10.4	13.6	13.6	18.9	18.9	24.2	32.1	38.2
L (Threaded)	Inch	10.2	10.2	14.6	14.6	_	_	_	_	_
LF (Flanged)	Inch	15.2	15.7	20.2	20.6	27.7	27.7	33.6	37.5	42.5
е	Inch	1	1	1	1	1	1	1	1	1
Volume	Gal.	1.8	1.8	6.6	6.6	19.8	19.8	39.6	79.3	132.1
Weight: Dirt										
Threaded	Lbs.	55	56	105	120	_	_	_	_	_
Flanged	Lbs.	66	75	139	149	238	260	436	718	1250
Weight: Drain**										
Flanged	Lbs.	107	150	202	233	325	355	686	990	1483
Recom. Flow*	GPM	60	90	140	240	370	540	940	1470	2090





\*Approximately 6 ft. per second inlet velocity.

\*\*Spirovent Drain models are available with flanged connections only and feature a removable lower head to facilitate cleaning.

All Spirovents fabricated and stamped in accordance with ASME Section VIII, Division 1 for unfired pressure vessels. Standard rating is 150 psi at 270°F. Consult local sales office for special requirements.

Custom dimensions available for space limitations.

Refer to High Velocity models for higher flows and web site Submittal Data for models up to 36".



Spirotherm, Inc. 25 N. Brandon Drive Glendale Heights, IL 60139 Tel.: 630-307-2662 Fax: 630-307-3773 www.spirotherm.com E-mail: info@spirotherm.com

DDR AMERICAS INC. 1090 Fountain Street North, Unit 10 Cambridge, Ontario, Canada N3E 1A3 Tel: 519.650.0420 Fax: 519.650.1709





Project Name	
Project location	
Contractor	
Engineering Firm	
Boiler Representative	
Sales Rep. Phone	
Date Created	

Boiler Model	Burner Model	
Assembled	Burner Included	
Relief Valve	Fuel Type	
Boiler Options	Burner Options	
Code		

#### Revision

1	Date:	4	Date:
2	Date:	5	Date:
3	Date:	6	Date:

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### **Engineering Submittal Package for GT337A Series**



- 1. Sludge removal hole Ø Rp 2 1/2" (plugged)
- Heating supply threaded female Ø 2<sup>1</sup>/<sub>2</sub>"
   Heating return threaded female Ø 2<sup>1</sup>/<sub>2</sub>" for GT 334A and 335A.Welded pipe Ø 21/2" for GT 336A to GT-339A with distributor tube.
- 4. Rp 11/2" draining outlet (plugged)

GT 337A Combustible & Service Clearances				
Sides	20 in/500 mm			
Rear	40 in/1016 mm			
Тор	55 in/1397 mm			
Vent	As specified by vent manufacturer			

#### Boiler must not be installed on combustible looring or pad, do not install on carpet.

#### **Boiler Specifications**

Input (Gas)	MBH/kW	1,024/300
Input (Oil)	US/GPH	7.1
Output (Gas-Oil)	MBH/kW	872/255.7
Cast Iron Sections	-	7
Flue-way Baffles	-	10
Water Capacity	USGAL/L	41.22/156
Water Resistance ΔT=18°F	Feet of Water (FT)/mbar	3.055/91.326
Water Resistance $\Delta T=27^{\circ}F$	Feet of Water (FT)/mbar	1.358/40.585
Water Resistance ΔT=36°F	Feet of Water (FT)/mbar	0.764/22.831
Combustion Chamber Dimensions (Diameter)	Inch/mm	14.84/337
Combustion Chamber Dimensions (Depth)	Inch/mm	41.38/1,051
Combustion Chamber Dimensions (Volume)	Ft <sup>3</sup> /m <sup>3</sup>	6.14/0.174
ASME MAWP (Water)	PSI	90
Minimum Relief Valve Capacity	МВН	957
Panel (Electrical Connection)	V/P/H	120/1/60 10A
Panel (Maximum Water Temperature)	°F/°C	Adjustable 248/120
Panel (Operating Water Temperature Range)	°F/°C	104-212/40-100
Chamber Resistance	Inch w.c./mbar	0.95/1.60
Gas-Vent Category	-	I,II-III or IV & Sidewall
Boiler Vent Connection	Inch	8
Weight (Dry)	LB/kg	2,163/981

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# GRUNDFOS X

#### **Grundfos Quotation System 24.1.1**

Customer	:		Project Number / ID	: 2285142
Customer ref. / P	O :		Model	: 20709 LC
Tag Number	: 001		Stages	:1
Service	:		Based on curve number	: RC9912-1-SS Rev Mav22
Quantity	: 1		Basic model number	:-
			Date last saved	: 06/27/2024 8:42 PM
	Operating Condition	າຣ		iquid
Flow, rated		: 190.5 USapm	Liquid type	Glycol, Propylene, 30%
Differential head	/ pressure, rated (requested)	: 29.00 ft	Additional liquid description	
Differential head	/ pressure rated (actual)	· 29 18 ft	Solids diameter max	0.00 in
Suction pressure	rated / max	-0.00/0.00 psi g	Solids concentration, by volume	: 0.00 %
NPSH available	rated	· Ample	Temperature max	: 180.0 deg F
Site Supply Frequ		: 60 Hz	Fluid density rated / max	- 0 988 / 0 988 SG
One Oupply Frequencies	Borformanco		Viscosity, rated	: 0.66 cP
Speed roted	Feiloilliance	1765 rpm	Vapor pressure rated	7 54 psi a
Speeu, rateu	r rotod	. 1765 Ipili	vapor pressure, rated	atorial
Impeller diameter		. 0.39 III	IVI Motorial colocted	alerial
Impeller diameter		: 7.10 In	Material selected	: Cast Iron
	r, minimum	- 5.00 IN	Pres	sure Data
Efficiency		. 75.22 %	Maximum working pressure	: 18.54 psi.g
NPSH required /	margin required	: 6.76 / 0.00 ft	Maximum allowable working pressu	ire : 169.0 psi.g
INS (IMP. eye flow	/) / INSS (IMP. eye flow)	: 1,325 / 6,186 US Units	Maximum allowable suction pressu	re : 175.0 psi.g
MCSF	and a dialla sectors	: 45.60 USgpm	Hydrostatic test pressure	: 263.0 psi.g
Head, maximum,	rated diameter	: 43.33 ft	Driver & Power	Data (@Max density)
Head rise to shut		: 44.19 %	Motor sizing specification	: Max power (non-overloading)
Flow, best eff. po		: 145.5 USgpm	Margin over specification	: 0.00 %
Flow ratio, rated	(BEP	: 130.93 %	Service factor	: 1.00
Diameter ratio (ra	ated / max)	90.00 %	Power, hydraulic	: 1.38 hp
Head ratio (rated	dia / max dia)	: 63.82 %	Rated power (based on duty point)	: 1.83 hp
Cq/Cn/Ce/Cn [A	NSI/HI 9.6.7-2010]	: 1.00 / 1.00 / 1.00 / 1.00	Max power (non-overloading)	: 1.94 hp
Selection status		: Acceptable	Nameplate motor rating	: 2.00 hp / 1.49 kW
	Energy Indexes			
	6,	2.02		
PEI (CL)		: 0.89		
PEI (CL) ER (CL)		: 0.89 : 11		
PEI (CL) ER (CL) 80		: 0.89 : 11		
PEI (CL) ER (CL) 80		: 0.89 : 11		MCSF
PEI (CL) ER (CL) 80 72		: 0.89 : 11		MCSF
PEI (CL) ER (CL) 80 72		: 0.89 : 11		MCSF
PEI (CL) ER (CL) 80 72 64		: 0.89 : 11		
PEI (CL) ER (CL) 80 72 64		: 0.89 : 11		
PEI (CL) ER (CL) 80 72 64 56	7.10 in	: 0.89 : 11 67 73 77 80		
PEI (CL) ER (CL) 80 72 64 56	7.10 in	: 0.89 : 11 67 73 77 80	82	
PEI (CL) ER (CL) 80 72 64 56 ± 48	7.10 in	: 0.89 : 11 67 73 77 80	82	
PEI (CL) ER (CL) 80 72 64 56 # 48 48	7.10 in	: 0.89 : 11 67 73 77 80	82 82 80	
PEI (CL) ER (CL) 80 72 64 56 <b>11</b> 48 <b>20</b> 40	7.10 in	: 0.89 : 11 67 73 77 80	82 82 80 77	
PEI (CL) ER (CL) 80 72 64 56 <b>11</b> 48 40	7.10 in 6.39 in	: 0.89 : 11 67 73 77 80	82 82 80 77	73 67
PEI (CL) ER (CL) 72 64 56 <b>H</b> 48 40 32	7.10 in 6.39 in	: 0.89 : 11 67 73 77 80	82 82 80 77	73 67
PEI (CL) ER (CL) 80 72 64 56 <b>H</b> 48 40 <b>H</b> 32	7.10 in 6.39 in	: 0.89 : 11 67 73 77 80	82 82 82 82 77	73 67
PEI (CL) ER (CL) 72 64 56 <b>H</b> 48 40 32 24	7.10 in 6.39 in	: 0.89 : 11 67 73 77 80	82 82 80 77	73 67
PEI (CL) ER (CL) 72 64 56 <b>H</b> 48 40 32 24	7.10 in 6.39 in 5.00 in	: 0.89 : 11 67 73 77 80 0.740	82 82 82 82 82 77	73 67
PEI (CL) ER (CL) 72 64 56 <b>H</b> 48 40 32 24 16	7.10 in 6.39 in 5.00 in	: 0.89 : 11 67 73 77 80 0.740	82 82 82 82 82 77	73 67 2.0 hp
PEI (CL) ER (CL) 72 64 56 <b>H</b> 48 40 32 24 16	7.10 in 6.39 in 5.00 in	: 0.89 : 11 67 73 77 80 0.7 40	82 82 82 82 82 77 1.5 hs	73 67 2.0 hp
PEI (CL) ER (CL) 72 64 56 <b>H</b> 48 40 32 24 16 8	7.10 in 6.39 in 5.00 in	: 0.89 : 11 67 73 77 80 0.7 40	82 82 82 82 82 77 1.0 hp 1.5 hp	73 67 2.0 hp
PEI (CL) ER (CL) 72 64 56 <b>H</b> 48 40 32 24 16 8	7.10 in 6.39 in 5.00 in	: 0.89 : 11 67 73 77 80 0.7 40	82 82 82 82 77 1.0 hp 1.5 hp	73 67 2.0 hp
PEI (CL) ER (CL) 72 64 56 <b>1</b> 48 40 32 24 16 8 0	7.10 in 6.39 in 5.00 in	: 0.89 : 11 67 73 77 80 0:7-00	82 82 82 82 80 77 1.0 hp 1.5 hp	73 67 2.0 hp
PEI (CL) ER (CL) 72 64 56 <b>1</b> 48 40 32 24 16 8 0 <b>1</b> 24	7.10 in 6.39 in 5.00 in	: 0.89 : 11 67 73 77 80 0:7-00	82 82 82 82 77 1.0 hp 1.5 hp	73 67 2.0 hp
PEI (CL) ER (CL) 72 64 56 <b>1</b> 48 40 32 24 16 8 0 <b>1</b> 16	7.10 in 6.39 in 5.00 in	: 0.89 : 11 67 73 77 80 0:7-00	82 82 82 1.0 hp 1.5 hp	73 67 2.0 hp
PEI (CL) ER (CL) 72 64 56 <b>1</b> 48 40 32 24 16 8 0 <b>1</b> 16 8 0 <b>1</b> 16	7.10 in 6.39 in 5.00 in		82 82 1.0 hp 1.5 hp	73 67 2.0 hp 9
PEI (CL) ER (CL) 72 64 56 <b>H</b> - 48 40 32 24 16 8 0 <b>H</b> - 16 8 0 <b>H</b> - 16 8	7.10 in 6.39 in 5.00 in		82 82 1.0 hp 1.5 hp	MCSF MCSF MCSF 
PEI (CL) ER (CL) 72 64 56 <b>1</b> <b>4</b> 8 40 32 24 16 8 0 <b>1</b> 16 8 0 <b>1</b> 16 8 0 16	7.10 in 6.39 in 5.00 in		82 82 1.0 hp 1.5 hp	MCSF MCSF MCSF 
PEI (CL) ER (CL) 72 64 56 48 40 32 24 16 8 0 41 16 8 0 41 16 8 0 16 8 0 16 8 0 16 8 0 16 8 0 0 16 8 0 0 16 16 8 0 0 16 16 16 16 16 16 16 16 16 16 16 16 16	7.10 in 6.39 in 5.00 in 0 20 40 60	: 0.89 : 11 67 73 77 80 67 73 77 80 0:7 00 80 100 120 140	82 82 82 82 77 1.0 hp 1.5 hc 160 180 200 220 24	MCSF       73     67       2.0 hp     1       9     1       1     1       1     1       2.0 hp     1       1     1       1     1       1     1       1     1       2.0 hp     1       1     1
PEI (CL) ER (CL) 72 64 56 <b>1</b> 48 40 32 24 16 8 0 <b>1</b> 16 8 0 <b>1</b> 16 8 0 <b>1</b> 24 16 8 0 16 8 0 0 <b>1</b> 24 16 8 0 0 16 8 0 0 16 16 9 0 0 16 16 16 16 16 16 16 16 16 16 16 16 16	7.10 in 6.39 in 5.00 in 0 20 40 60	: 0.89 : 11	82 82 82 82 10 10 1.5 hc 160 180 200 220 24 USapm	MCSF       73     67       2.0 hp     1       9     1       1     1       1     1       2.0 hp     1       1     1       1     1       2.0 hp     1       1     1       1     1       1     1       1     1       2.0 hp     1       1     1       1     1       2     1



## SUBMITTAL

### Grundfos Series LC - End Suction Centrifugal Pump, Close Coupled

PROJECT NUMBER / ID 2285142	UNIT TAG 001	QUANTITY 1
	SERVICE	
REPRESENTATIVE	SUBMITTED BY	DATE
ENGINEER	APPROVED BY	DATE
CONTRACTOR	ORDER #	DATE



LC 20709	
1765 rpm	

Part N/A Number

Conditions of Service		Pump Data		N	Motor Data	
Flow	190.5 USgpm	Impeller Diameter	6.38 in	Motor HP	2 HP	
Head	29.00 ft	Max. Imp. Dia.	7.10 in	BHP	1.83 HP	
Liquid	Glycol, Propylene,	Min. Imp. Dia.	5.00 in	Enclosure	TEFC	
	30%	Efficiency	75.22 %	Voltage	230/460 V	
Temperature	180.0 deg F	Suction	2.5 in.	Phase	3 Phase	
NPSHr	6.76 ft	Discharge	2 in.	Cycle	60	
Viscosity	0.66 cP	PEI (CL)	0.89	Frame Size	145JM	
Specific Gravity	0.988 SG	ER (CL)	11			









# Submittal Data

PROJECT:	UNIT TAG:	QUANTITY:
	TYPE OF SERVICE:	
REPRESENTATIVE:	SUBMITTED BY:	DATE:
ENGINEER:	APPROVED BY:	DATE:
CONTRACTOR:	ORDER NO.:	DATE:
1		



### UPS 43-100 F

UPS is a three-speed circulator pump designed for heating and air-conditioning systems and is also used for central and district heating systems. The pump provides reliable and maintenance-free operation.

Note! Product picture may differ from actual product

Conditions of Service		Pump Data	Motor Data		
Flow:	11 US GPM	Liquid temperature range:	35.6 230 °F	Max. power input:	370 W
Head:	21.23 ft	Maximum ambient temperature:	104 °F	Mains frequency:	60 Hz
Efficiency:	21.2 %	Type of connection:	C.I. Flange	Thermal protection:	Internal
Liquid:	Water	Pipe connection:	2-BOLT FLANGE		
Temperature:	180 °F	Product number:	95906636		
NPSH required:	32.81 ft				
Specific Gravity:	0.972				



# Submittal Data



#### Materials:

Pump housing: Pump housing: Impeller:

Cast iron ASTM A48-30B Composite

	- 4	Company na Created by:	ame:	
		Phone:		
GRUNDFO		Flione.		
		Date:	14/03/2024	
Description				
UPS 43-100 F				
Carlos Ca				
	Note! Product picture	may differ from act	ual product	
Product No.: 95906636				
and motor form an integral unit v	τype, i.e. pump vithout shaft			
seal and with only two gaskets for	or sealing.			
The bearings are lubricatd by the	e pumped liquid.			
The pump has 3-step speed sele	ector.			
The pump is characterized by:				
<ul> <li>Stamless steel shaft.</li> <li>* Ceramic radial bearing st</li> </ul>	vstem			
* Carbon axial bearing s	Stoffi.			
* Stainless steel rotor can a	and bearing plate			
	and bearing plate.			
* Corrosion-resistant impel	ler, Composite.			
<ul><li>Corrosion-resistant impel</li><li>Cast iron pump housing.</li></ul>	ler, Composite.			
<ul> <li>Corrosion-resistant impel</li> <li>Cast iron pump housing.</li> <li>The motor is a 1-phase motor.</li> </ul>	ler, Composite.			
<ul> <li>Corrosion-resistant impel</li> <li>Cast iron pump housing.</li> <li>The motor is a 1-phase motor.</li> <li>No additional motor protection is</li> </ul>	required.			
<ul> <li>Corrosion-resistant impel</li> <li>Cast iron pump housing.</li> </ul> The motor is a 1-phase motor. No additional motor protection is Liquid:	required.			
<ul> <li>Corrosion-resistant impel</li> <li>Cast iron pump housing.</li> </ul> The motor is a 1-phase motor. No additional motor protection is Liquid: Pumped liquid:	required.			
<ul> <li>Corrosion-resistant impel</li> <li>Cast iron pump housing.</li> </ul> The motor is a 1-phase motor. No additional motor protection is Liquid: Pumped liquid: Liquid temperature range: Selected liquid temperature:	required. Water 35.6 230 °F			
<ul> <li>Corrosion-resistant impel</li> <li>Cast iron pump housing.</li> </ul> The motor is a 1-phase motor. No additional motor protection is Liquid: Pumped liquid: Liquid temperature range: Selected liquid temperature: Density:	required. Water 35.6 230 °F 180 °F 60 55 lb/ft <sup>3</sup>			
<ul> <li>Corrosion-resistant impel</li> <li>Cast iron pump housing.</li> </ul> The motor is a 1-phase motor. No additional motor protection is Liquid: Pumped liquid: Liquid temperature range: Selected liquid temperature: Density: Kinematic viscosity:	required. Water 35.6 230 °F 180 °F 60.55 lb/ft <sup>3</sup> 1 cSt			
<ul> <li>Corrosion-resistant impel</li> <li>Cast iron pump housing.</li> </ul> The motor is a 1-phase motor. No additional motor protection is Liquid: Pumped liquid: Liquid temperature range: Selected liquid temperature: Density: Kinematic viscosity: Technical:	required. Water 35.6 230 °F 180 °F 60.55 lb/ft <sup>3</sup> 1 cSt			
<ul> <li>Corrosion-resistant impel</li> <li>Cast iron pump housing.</li> </ul> The motor is a 1-phase motor. No additional motor protection is Liquid: Pumped liquid: Liquid temperature range: Selected liquid temperature: Density: Kinematic viscosity: Technical: Actual calculated flow:	required. Water 35.6 230 °F 180 °F 60.55 lb/ft <sup>3</sup> 1 cSt 11 US GPM			
<ul> <li>Corrosion-resistant impel</li> <li>Cast iron pump housing.</li> </ul> The motor is a 1-phase motor. No additional motor protection is Liquid: Pumped liquid: Liquid temperature range: Selected liquid temperature: Density: Kinematic viscosity: Technical: Actual calculated flow: Resulting head of the pump:	Ier, Composite. required. Water 35.6 230 °F 180 °F 60.55 lb/ft <sup>3</sup> 1 cSt 11 US GPM 21.23 ft			
<ul> <li>Corrosion-resistant impel</li> <li>Cast iron pump housing.</li> </ul> The motor is a 1-phase motor. No additional motor protection is Liquid: Pumped liquid: Liquid temperature range: Selected liquid temperature: Density: Kinematic viscosity: Technical: Actual calculated flow: Resulting head of the pump: Approvals:	Ier, Composite. required. Water 35.6 230 °F 180 °F 60.55 lb/ft <sup>3</sup> 1 cSt 11 US GPM 21.23 ft ETL, CSA			
<ul> <li>Corrosion-resistant impel</li> <li>Cast iron pump housing.</li> </ul> The motor is a 1-phase motor. No additional motor protection is Liquid: Pumped liquid: Liquid temperature range: Selected liquid temperature: Density: Kinematic viscosity: Technical: Actual calculated flow: Resulting head of the pump: Approvals: Materials:	required. Water 35.6 230 °F 180 °F 60.55 lb/ft <sup>3</sup> 1 cSt 11 US GPM 21.23 ft ETL, CSA			
<ul> <li>Corrosion-resistant impel</li> <li>Cast iron pump housing.</li> </ul> The motor is a 1-phase motor. No additional motor protection is Liquid: Pumped liquid: Liquid temperature range: Selected liquid temperature: Density: Kinematic viscosity: Technical: Actual calculated flow: Resulting head of the pump: Approvals: Materials: Pump housing:	required. Water 35.6 230 °F 180 °F 60.55 lb/ft <sup>3</sup> 1 cSt 11 US GPM 21.23 ft ETL, CSA Cast iron			
<ul> <li>* Corrosion-resistant impel</li> <li>* Cast iron pump housing.</li> </ul> The motor is a 1-phase motor. No additional motor protection is Liquid: Pumped liquid: Liquid temperature range: Selected liquid temperature: Density: Kinematic viscosity: Technical: Actual calculated flow: Resulting head of the pump: Approvals: Materials: Pump housing:	required. Water 35.6 230 °F 180 °F 60.55 lb/ft <sup>3</sup> 1 cSt 11 US GPM 21.23 ft ETL, CSA Cast iron EN 1561 EN-GJL-20	0		
<ul> <li>Corrosion-resistant impel</li> <li>Cast iron pump housing.</li> </ul> The motor is a 1-phase motor. No additional motor protection is Liquid: Pumped liquid: Liquid temperature range: Selected liquid temperature: Density: Kinematic viscosity: Technical: Actual calculated flow: Resulting head of the pump: Approvals: Materials: Pump housing:	required. Water 35.6 230 °F 180 °F 60.55 lb/ft <sup>3</sup> 1 cSt 11 US GPM 21.23 ft ETL, CSA Cast iron EN 1561 EN-GJL-20 ASTM A48-30B	0		
<ul> <li>* Corrosion-resistant impel</li> <li>* Cast iron pump housing.</li> </ul> The motor is a 1-phase motor. No additional motor protection is Liquid: Pumped liquid: Liquid temperature range: Selected liquid temperature: Density: Kinematic viscosity: Technical: Actual calculated flow: Resulting head of the pump: Approvals: Materials: Pump housing:	ler, Composite. Vater 35.6 230 °F 180 °F 60.55 lb/ft <sup>3</sup> 1 cSt 11 US GPM 21.23 ft ETL, CSA Cast iron EN 1561 EN-GJL-20 ASTM A48-30B Composite PES+30% GF	0		
<ul> <li>Corrosion-resistant impel</li> <li>Cast iron pump housing.</li> </ul> The motor is a 1-phase motor. No additional motor protection is Liquid: Pumped liquid: Liquid temperature range: Selected liquid temperature: Density: Kinematic viscosity: Technical: Actual calculated flow: Resulting head of the pump: Approvals: Materials: Pump housing: Impeller: Installation:	ler, Composite. required. Water 35.6 230 °F 180 °F 60.55 lb/ft <sup>3</sup> 1 cSt 11 US GPM 21.23 ft ETL, CSA Cast iron EN 1561 EN-GJL-20 ASTM A48-30B Composite PES+30% GF	0		
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<ul> <li>* Corrosion-resistant impel</li> <li>* Cast iron pump housing.</li> <li>The motor is a 1-phase motor. No additional motor protection is</li> <li>Liquid: Pumped liquid: Liquid temperature range: Selected liquid temperature: Density: Kinematic viscosity:</li> <li>Technical: Actual calculated flow: Resulting head of the pump: Approvals:</li> <li>Materials: Pump housing:</li> <li>Impeller:</li> <li>Installation: Maximum ambient temperature: Amb. max at 80 dgr C liquid:</li> </ul>	ler, Composite. required. Water 35.6 230 °F 180 °F 60.55 lb/ft <sup>3</sup> 1 cSt 11 US GPM 21.23 ft ETL, CSA Cast iron EN 1561 EN-GJL-20 ASTM A48-30B Composite PES+30% GF 104 °F 176 °F	0		
<ul> <li>* Corrosion-resistant impel</li> <li>* Cast iron pump housing.</li> <li>The motor is a 1-phase motor. No additional motor protection is</li> <li>Liquid: Pumped liquid: Liquid temperature range: Selected liquid temperature: Density: Kinematic viscosity:</li> <li>Technical: Actual calculated flow: Resulting head of the pump: Approvals:</li> <li>Materials: Pump housing:</li> <li>Impeller:</li> <li>Installation: Maximum ambient temperature: Amb. max at 80 dgr C liquid: Maximum operating pressure:</li> </ul>	ler, Composite. required. Water 35.6 230 °F 180 °F 60.55 lb/ft <sup>3</sup> 1 cSt 11 US GPM 21.23 ft ETL, CSA Cast iron EN 1561 EN-GJL-20 ASTM A48-30B Composite PES+30% GF 104 °F 176 °F 145.04 psi	0		
<ul> <li>* Corrosion-resistant impel</li> <li>* Cast iron pump housing.</li> </ul> The motor is a 1-phase motor. No additional motor protection is Liquid: Pumped liquid: Liquid temperature range: Selected liquid temperature: Density: Kinematic viscosity: Technical: Actual calculated flow: Resulting head of the pump: Approvals: Materials: Pump housing: Impeller: Installation: Maximum ambient temperature: Amb. max at 80 dgr C liquid: Maximum operating pressure: Type of connection:	ler, Composite. required. Water 35.6 230 °F 180 °F 60.55 lb/ft <sup>3</sup> 1 cSt 11 US GPM 21.23 ft ETL, CSA Cast iron EN 1561 EN-GJL-20 ASTM A48-30B Composite PES+30% GF 104 °F 176 °F 145.04 psi 2-BOLT FLANGE	0		
<ul> <li>* Corrosion-resistant impel</li> <li>* Cast iron pump housing.</li> </ul> The motor is a 1-phase motor. No additional motor protection is Liquid: Pumped liquid: <ul> <li>Liquid temperature range:</li> <li>Selected liquid temperature:</li> <li>Density:</li> <li>Kinematic viscosity:</li> </ul> Technical: <ul> <li>Actual calculated flow:</li> <li>Resulting head of the pump:</li> <li>Approvals:</li> </ul> Materials: Pump housing: Impeller: Installation: <ul> <li>Maximum ambient temperature:</li> <li>Amb. max at 80 dgr C liquid:</li> <li>Maximum operating pressure:</li> <li>Type of connection:</li> </ul>	Ier, Composite. required. Water 35.6 230 °F 180 °F 60.55 lb/ft <sup>3</sup> 1 cSt 11 US GPM 21.23 ft ETL, CSA Cast iron EN 1561 EN-GJL-20 ASTM A48-30B Composite PES+30% GF 104 °F 176 °F 145.04 psi 2-BOLT FLANGE C.I. Flange	0		
<ul> <li>Corrosion-resistant impel</li> <li>Cast iron pump housing.</li> </ul> The motor is a 1-phase motor. No additional motor protection is Liquid: Pumped liquid: <ul> <li>Liquid temperature range:</li> <li>Selected liquid temperature:</li> <li>Density:</li> <li>Kinematic viscosity:</li> </ul> Technical: <ul> <li>Actual calculated flow:</li> <li>Resulting head of the pump:</li> <li>Approvals:</li> </ul> Materials: Pump housing: Installation: <ul> <li>Maximum ambient temperature:</li> <li>Amb. max at 80 dgr C liquid:</li> <li>Maximum operating pressure:</li> <li>Type of connection:</li> </ul>	Ier, Composite. required. Water 35.6 230 °F 180 °F 60.55 lb/ft <sup>3</sup> 1 cSt 11 US GPM 21.23 ft ETL, CSA Cast iron EN 1561 EN-GJL-20 ASTM A48-30B Composite PES+30% GF 104 °F 176 °F 145.04 psi 2-BOLT FLANGE C.I. Flange 2-BOLT FLANGE	0		
<ul> <li>Corrosion-resistant impel</li> <li>Cast iron pump housing.</li> </ul> The motor is a 1-phase motor. No additional motor protection is Liquid: Pumped liquid: <ul> <li>Liquid temperature range:</li> <li>Selected liquid temperature:</li> <li>Density:</li> <li>Kinematic viscosity:</li> </ul> Technical: <ul> <li>Actual calculated flow:</li> <li>Resulting head of the pump:</li> <li>Approvals:</li> </ul> Materials: <ul> <li>Pump housing:</li> </ul> Impeller: <ul> <li>Installation:</li> <li>Maximum ambient temperature:</li> <li>Amb. max at 80 dgr C liquid:</li> <li>Maximum operating pressure:</li> <li>Type of connection:</li> <li>Pressure rating for connection:</li> </ul>	ler, Composite. required. Water 35.6 230 °F 180 °F 60.55 lb/ft <sup>3</sup> 1 cSt 11 US GPM 21.23 ft ETL, CSA Cast iron EN 1561 EN-GJL-20 ASTM A48-30B Composite PES+30% GF 104 °F 176 °F 145.04 psi 2-BOLT FLANGE C.I. Flange 2-BOLT FLANGE PN 10 0.010 in	0		



Company name: Created by: Phone:

			Date:	14/03/2024	
Qty.	Description				
1	Electrical data: Power input in speed 1: Power input in speed 2: Max. power input: Mains frequency: Rated voltage: Current in speed 1: Current in speed 2: Current in speed 3: Capacitor size - run: Number of poles:	0.3554 HP 335 W 370 W 60 Hz 1 x 115 V 2.5 A 3.1 A 3.5 A 40 µF/180 V 2			
	Insulation class (IEC 85): Built-in motor protection:	H CONTACT			
	Others: Terminal box position: Net weight: Gross weight: Country of origin: Custom tariff no.:	9H 16.5 lb 17.9 lb US 8413.70.2005			



#### Company name: Created by: Phone:

		Dale.
Description	Value	H [ft]
General information:		
Product name:	UPS 43-100 F	
Product No:	95906636	30
EAN number:	5700313291748	
Technical:		25
Speed no:	3	
Actual calculated flow:	11 US GPM	20
Max flow:	65 US GPM	• N
Resulting head of the pump:	21.23 ft	15 0
Maximum head:	30.84 ft	
Approvals:	ETL, CSA	10
Materials:		
Pump housing:	Cast iron	5-
Pump housing:	EN 1561 EN-GJL-200	
Pump housing:	ASTM A48-30B	o <b>/</b>
Impeller:	Composite	0 10
Impeller:	PES+30% GF	Q = 11 US GPM Pumped liquid = V
Installation:		Eta pump+motor =
Maximum ambient temperature:	104 °F	Liquid temperature
Amb. max at 80 dgr C liquid:	176 °F	[W]
Maximum operating pressure:	145.04 psi	350
Type of connection:	2-BOLT FLANGE	000
Type of connection:	C.I. Flange	300
Pipe connection:	2-BOLT FLANGE	250
Pressure rating for connection:	PN 10	200 -
Port-to-port length:	8 9/16 in	150 -
Liquid:		100
Pumped liquid:	Water	50
Liquid temperature range:	35.6 230 °F	50 _
Selected liquid temperature:	180 °F	0 P1 = 201 3 W
Density:	60.55 lb/ft <sup>3</sup>	1 1 - 201.3 W
Kinematic viscosity:	1 cSt	
Electrical data:		
Power input in speed 1:	0.3554 HP	
Power input in speed 2:	335 W	
Max. power input:	370 W	
Mains frequency:	60 Hz	
Rated voltage:	1 x 115 V	
Current in speed 1:	2.5 A	
Current in speed 2:	3.1 A	
Current in speed 3:	3.5 A	
Capacitor size - run:	40 µF/180 V	
Number of poles:	2	
Insulation class (IEC 85):	Н	
Built-in motor protection:	CONTACT	
Thermal protec:	Internal	
Others:		
Terminal box position:	9H	
Net weight:	16.5 lb	
Gross weight:	17.9 lb	
Country of origin:	US	
Custom tariff no.:	8413.70.2005	







### **125 PSIG Working Pressure**

#### Construction

Shell	ASME Approved Steel
Diaphragm	Heavy Duty Butyl/EPDM
System Connection	NPTF <sup>1</sup> Malleable Iron Center NPTM <sup>2</sup> Steel Pipe,Top Offset
Finish	Red Oxide Primer
Air Valve	Schrader Valve w/EPDM Seats
Factory Precharge	12 PSIG (.8 bar)

#### Performance

Model

Number

AX-15V-DD

AX-20V-DD

AX-40V-DD

Model

Number

AX-60V

AX-80V

AX-100V

AX-120V

AX-144V

AX-180V

AX-200V

AX-240V

AX-260V

AX-280V

Maximum Operating Temperature	240°F (115°C)
Maximum Working Pressure	125 PSIG (8.6 bar)
Warranty	3-Years

Max

Max.

Accept. Volume

Lit

42.8

85.5

85.5

128.7

128.7

128.7

128.7

174.0

212.0

318.0

Gal

3.2

11.3

11.3

Gal

11.3

22.6

22.6

34.0

34.0

34.0

34.0

46.0

56.0

84.0

Accept. Volume

Lit

12.1

43

43

Tank

Volume

Lit

33

63

88

Gal

8.6

16.5

23

Tank

Volume

Lit

127.2

168.1

211.8

257.4

291.5

340.7

416.4

500.0

600.0

Gal

33.6

44.4

55.7

68.0

77.0

90.0

110.0

132.0

159.0

211.0

**Deep Drawn ASME Models** 

In

12

15

15

Head & Shell ASME Models

In

16

24

24

24

24

24

24

30

30

30

Tank Diameter

А

Tank Diameter

mm

305

381

381

mm

356

610

610

610

610

610

610

762

762

762

#### **Application**

- · For use in closed, non-potable hydronic heating and chilled water systems.
- · Designed to meet all ASME Code Section VIII, Division 1 standards.
- · Available with optional sight glass and seismic restraints.
- Suitable in propylene glycol applications with mixtures up to 50%.
- · Deep drawn models are lighter, stronger and more compact than traditional head and shell construction.

Shipping

Weight

Shipping

Weight

Kg

45

75

81

100

105

109

122

196

215

272

Lbs

99

166

178

220

232

241

269

432

475

599

Kg

17

23

34

Lbs

38

51

72

Sys.

Conn

In

**3∕4**1

3⁄41

3/41

Sys.

Conn

In

1/21

**1**1

**1**<sup>1</sup>

1<sup>2</sup>

1<sup>2</sup>

1<sup>2</sup>

1<sup>2</sup>

1<sup>2</sup>

1¼<sup>3</sup>

11/4<sup>3</sup>

Tank Height

Tank Height

mm

559

636

838

mm

1143

737

863

1194

1321

1524

1676

1473

1651

2083

In

22

25

33

In

45

29

34

47

52

60

66

58

65

82



#### CHARGING ۰A CHARGING VALVE А A î <sup>3</sup>\_\_\_\_ 0 В (C **1**72 AX-120V THROUGH AX-240V AX-260V THROUGH AX-280V



BOTTOM VIEW

#### **Optional Seismic Restraints**

Tank Diameter	Bolt Circle	Dim.	Dim.	Hole Size
В	D	E	F	G
12	12¾	2	2	<sup>9</sup> ⁄16
16¼	14¾	2	2	9⁄16
24	18	2	2	9⁄16
30	27	3	3	3/4

800.0 All dimensions and weights are approximate.

Job Name	Notes
Engineer	
Contractor	
P.O. No.	
Sales Rep	
Model No.	

# b king Pic-A-Watt

# Compact Unit Heater KBP Series



- Pic-A-Watt<sup>®</sup> element
- Multiple wattage selection
- Long life cast iron motor
- Aluminum fan blade
- High accuracy built-in thermostat
- Fan delay
- Patented Smart Limit Protection<sup>®</sup>
- Selector switch: Heat/Fan/Off-Disconnect
- Universal (wall/ceiling) mounting bracket
  Standard color: Onyx Gray
- 5-year limited warranty
- With U.S. & Global Materials

Pic-A-Watt

(SP

Model Code:

B: 12 - 120V 24 - 240V 20 - 208V 27 - 277V 48 - 480V C: Watts (950 to 6000)

24 06 B C

A: Series

KRP

# Multiple Wattage Unit Heater

**The KBP is the industry standard for multi-wattage garage / shop heaters.** Designed for rugged performance, the flow-through design efficiently moves air by pulling air from the back of the heater and discharges it out the front, easily heating a large space. With high quality components suitable for both residential and commercial applications, it comes standard with a 3 position (Heat/Fan/OFF-DISCONNECT) Switch and an accurate built-in thermostat. The integral fan delay continues to dissipate heat from the elements during the cool down period, maximizing the heat exchange in the room. King's exclusive dual Pic-A-Watt steel fin elements allow customers to select from a range of wattage options, tailoring the heater to an area's specific heating requirements.

#### **Ordering Information**

MODEL	UPC	WATTS	BTUH (000)	PHASE	VOLTS	AMPS	CFM	temp. Rise	AIR Throw	MAX Mount Height	WT. (lbs.)
KBP1230	15191	2850-1900-950	9,727 - 3,242	1	120	23.8 - 7.9	270	34°F-11°F	12 ft.	8 ft.	26
KBP2406	15190	5700-4750-3800-2850-1900-950	19,454 - 3,242	1	240/208*	23.8 - 4	270	67°F-11°F	12 ft.	8 ft.	24
KBP2006-3MP	15193	5700-2850	19,454 - 9,727	1-3	208	15.8 - 7.9	270	67°F-34°F	12 ft.	8 ft.	26
KBP2406-3MP	15188	5700-2850	19,454 - 9,727	1-3	240/208*	13.7 - 6.9	270	67°F-34°F	12 ft.	8 ft.	25
KBP2704	15187	4000-3000-2000-1000	13,652 - 3,413	1	277	14.5 - 3.6	270	47°F-12°F	12 ft.	8 ft.	26
KBP4804-3MP	15196	4160	14,198	1-3	480***	5	270	49°F	12 ft.	8 ft.	26
KBP4806-3MP	15197	6000	20,478	1-3	480***	7.2	270	71°F	12 ft.	8 ft.	26

\*Approved for 208V operation. Heater will draw 13% less Amps and 25% less wattage \*\*3-Phase units do not have Heat / Fan / Off \*\* Prewired for 3-Phase, Field Convertable to 1-Phase \*\*\*480 Volt models are 24 Volt control Minimum clearance from combustibles: 18" from front, 2" from top, 6" from sides and 5" from rear. Minimum clearance 6' from floor.

#### **Engineering Specifications**

Contractor shall supply and install KBP Series unit heaters manufactured by King Electrical Mfg. Company. Heaters shall be of the wattage and voltage as indicated on the plans.

**Pic-A-Watt Heating Element:** Exclusive King multi-tap element allows field adjustment to several wattages at time of installation. Steel sheath elements of various resistance are copper brazed to steel plate fins producing a multi-wattage heating element.

**Built-in Thermostat:** Single pole factory installed hydraulic capillary tube thermostat for precision heating control. Operating range 40° to 90° F. **Heat / Fan / Off-Disconnect Switch** 3-position switch provides heating and summer fan only operation. The DPST off switch provides a "positive"

off" that disconnects all ungrounded conductors.

**Fan Delay Switch:** The fan continues to operate after the thermostat shuts off in order to remove the residual heat left in the elements. Power must not be interrupted.

#### **CFM:** 270

**Universal Mounting Bracket:** Combination ceiling/wall bracket is included with every heater.

**Unit Bearing Motor:** Permanently lubricated, long life, unit bearing 4-Pole motor with 20 cc of oil. Enclosed rotor provides long-lasting, trouble-free operation. Thermally protected. 1300 RPM.

**Electrically Held Smart Limit Protection:** Heater shuts off when an over temperature condition exists and automatically resets when the normal operating temperature returns.

Tested: UL 2021 Approval: cCSAus

# **Dic-A-Watt** Compact Unit Heater KBP Series

#### **Accessories**

MODEL	UPC	PHASE	WEIGHT	(lbs.)
KBP-K1	15198	6 ft. cord/handle kit - 120V, 1-Phase, 30 Amp (Receptacle not inc	luded. See below)	2
KBP-K2	15199	6 ft. cord/handle kit - 240V, 1-Phase, 30 Amp (Receptacle include	ed. See below)	2







### SF100 HYDRONIC SYSTEM FEEDER TECHNICAL INFORMATION

#### **DIMENSIONS :**

WEIGHT: 22.6 kg, 50 lbs (Empty)

#### **PUMP ELECTRICAL :**

115/60/1, 0.7 amps 3-prong plug and cord

#### **PUMP PERFORMANCE :**

0.09 l/s (1.4 gpm) @ free flow 0.06 l/s (1.0 gpm) @ 345 kPa (50 psig) Self-priming up to 2.1 m (7 feet) Maximum liquid temp. 77 C (170 F)





Certified to CAN/CSA C22.2 No. 68

Conforms to UL 739901055

#### **SPECIFICATION:**

Hydronic system feeder shall be AXIOM INDUSTRIES LTD. Model SF100. System shall include 208 litre (55 US gallon) storage/mixing tank with cover; pump suction hose with inlet strainer; pressure pump with thermal cut-out; integral pressure switch; integral check valve; cord and plug; pre-charged accumulator tank with EPDM diaphragm; manual diverter valve for purging air and agitating contents of storage tank; pressure regulating valve adjustable (35 – 380 KPa; 5 – 55 psig) complete with pressure gauge; built-in check valve; union connection; 12 mm (½") x 900 mm (36") long flexible connection hose with check valve; low level pump cut-out. Pressure pump shall be capable of running dry without damage. Power supply 115/60/1 0.7 A. Unit shall be completely pre-assembled and certified by a recognized testing agency to CSA standard C22.2 No 68.

#### **OPTIONAL ACCESSORIES :**

- **2PRV** -- Second Pressure Reducing Valve, Pressure Gauge, System Connector Hose and Check Valve to allow for independent pressure supply to a second system.
- **RIA10-1-SAA** -- Low level Alarm Panel c/w Remote Monitoring Dry Contacts and Selectable Audible Alarm

#### **LIMITED WARRANTY :**

The SF100 is warranted against defects in materials and workmanship for one year.

Project	Location
Consultant	Contractor
Unit Tag	Sales Agent

© Axiom Industries Ltd



Page 1



Heatcraft<sup>®</sup> heat transfer

#### COILCALC FLUID SCHEDULE

Customer							Date		5/22/2024 2	2:11:18 PM		
Contact							Ву		Zach Keller			
Telephone							Company	/	Stinebaugh	& Compar	ıy	
Email							Return te	lephone				
Project	(1450	050) Haines Maintenance & Ope	erations Sta	ation			Email		zkeller@sti	nebaugh.co	om	
Savedrun	ltem	(CPB) Model	Air flow [CFM]	Face vel [ft/min]	EAT db/wb [°F]	LAT db/wb [°F]	Capacity tot/sens [MBH]	APD Fluid [in wg]	Fluid temp ent/lvg [°F]	Fluid pd [ft H2O]	Fluid vel [ft/s]	Fluid flow [gpm]
2821465	HC-1	(1) 4BS0901A - 10.00 x 14.00	475.0	488.6	45.00 / N/A	70.99 / N/A	13.39 / 13.39	0.04705 Propyle 30%	ne 180.0 / 160.0	1.932	2.518	1.401
2821467	PHC-1	(1) 4BS0601A - 7.500 x 14.00	475.0	651.4	0 / N/A	24.25 / N/A	12.49 / 12.49	0.05488 Propyle	ne 180.0 / 160.0	1.337	2.349	1.307



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Heatcraft<sup>®</sup> heat transfer

OLD→2821465

OLD→2821467

2821468

2821469

HC-1

PHC-1

HC-2

PHC-2

#### COILCALC FLUID SCHEDULE

Customer							Date			4/3/2024 6:3	33:23 PM		
Contact							Ву			Zach Keller			
Telephone							Company			Stinebaugh	& Compar	ny	
Email							Return tel	ephone					
Project	(145050)	Haines Maintenance & G	Operations Sta	ation			Email			zkeller@stir	nebaugh.co	om	
					EAT	LAT							
Savedrun	Item	(CPB) Model	Air flow	Face vel	db/wb	db/wb	Capacity tot/sens	APD	Fluid	Fluid temp ent/lvg	Fluid pd	Fluid vel	Fluid flow

[°F]

71.56 / N/A

26.40 / N/A

70.10 / N/A

27.22 / N/A

[MBH]

11.52 / 11.52

11.45 / 11.45

7.351 / 7.351

7.971 / 7.971

[in wg]

30%

30%

30%

30%

0.03700 Propylene 180.0 / 160.0

0.04114 Propylene

0.04113 Propylene

0.04258 Propylene

[°F]

180.0 / 160.0

180.0 / 160.0

180.0 / 160.0

[ft H2O]

1.493

1.152

0.1420

0.1295

[ft/s]

2.167

2.154

0.8209

0.8902

[gpm]

1.206

1.199

0.7694

0.8343

Page 1

[°F]

45.00 / N/A

0 / N/A

45.00 / N/A

0 / N/A

[CFM]

400.0

400.0

270.0

270.0

(1) 4BS0801B - 10.00 x 14.00

(1) 4BS0601A - 7.500 x 14.00

(1) 5BS0801A - 9.000 x 10.00

(1) 5BS0601A - 6.000 x 14.00

[ft/min]

411.4

548.6

432.0

462.9

# uponor

Project Information	
Job name:	Location:
Engineer:	Date submitted:
Contractor:	Submitted by:
Manufacturer's representative:	Approved by:

Technical data		
Material	Stainless Steel	
Manifold size	2 inch	
End type 1	FNPT 1-1/2"	
End type 2	ISO 228-G 1"	
Temp/pressure ratings	68 °F (20 °C) at 145 psi (10 bar)	
	158 °F (70 °C) at 87 psi (6 bar)	
	194 °F (90 °C) at 44 psi (3 bar)	
Max. fluid flow rate	48 gpm	
Prop 65 label required?	Yes	



Product information and application use

The Uponor Commercial Stainless-steel Manifold is used for distribution and loop isolation in hydronic hot-water heating, chilled water, radiant heating and cooling, snow and ice melting, and permafrost prevention (cold storage) applications. The manifold features 1-1/2" distribution ball valves with 1" isolation ball valves on the supply manifold for easy loop isolation along with flow meters on the return manifold to balance the loops from 0-4 gpm. The R25 connections for outlet fittings are sold separately and are available in 5/8" and 3/4" compression or 5/8", 3/4", and 1" ProPEX.

Part name	Part no.	A [inch]	B [inch]	C [inch]	D [inch]	E [inch]	F [inch]	G [inch]	H [inch]	l [inch]	Cv
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 3 loops	A2740302	15.555	10.024	4.841	3.15	6.319	1.634	3.012	5.851	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 4 loops	A2740402	18.705	10.024	4.841	3.15	6.319	1.634	3.012	6.299	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 5 loops	A2740502	21.854	10.024	4.841	3.15	6.319	1.634	3.012	9.449	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 6 loops	A2740602	25.004	10.024	4.841	3.15	6.319	1.634	3.012	12.598	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 7 loops	A2740702	28.154	10.024	4.841	3.15	6.319	1.634	3.012	15.748	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 8 loops	A2740802	31.303	10.024	4.841	3.15	6.319	1.634	3.012	18.898	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 10 loops	A2741002	37.602	10.024	4.841	3.15	6.319	1.634	3.012	25.197	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Value, 12 Joons	A2741202	43.902	10.024	4.841	3.15	6.319	1.634	3.012	31.496	3.386	4.85

Part name	Part no.	Weight per UOM [lbs/UOM]
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 3 loops	A2740302	14.95
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 4 loops	A2740402	17.37
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 5 loops	A2740502	20.02
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 6 loops	A2740602	22.44
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 7 loops	A2740702	25.09
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 8 loops	A2740802	27.73
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 10 loops	A2741002	32.8
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 12 loops	A2741202	37.88

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#### Related applications

Radiant Heating and Cooling Systems

Refer to the Uponor Commercial Stainless-steel Manifold Instruction Sheet for installation guidelines.

#### Snow and Ice Melting Systems Permafrost Protection Systems

Turf Conditioning Systems

Footnotes	Contact information			
	Uponor Inc.	Uponor Ltd.		
	5925 148th Street West	6510 Kennedy Road		
	Apple Valley, MN 55124	Mississauga, ON L5T 2X4		
	T 800.321.4739	T 888.594.7726		
	F 952.891.2008	F 800.638.9517		

# uponor

Project Information	
Job name:	Location:
Engineer:	Date submitted:
Contractor:	Submitted by:
Manufacturer's representative:	Approved by:

Technical data		
Material	Stainless Steel	
Manifold size	2 inch	
End type 1	FNPT 1-1/2"	
End type 2	ISO 228-G 1"	
Temp/pressure ratings	68 °F (20 °C) at 145 psi (10 bar)	
	158 °F (70 °C) at 87 psi (6 bar)	
	194 °F (90 °C) at 44 psi (3 bar)	
Max. fluid flow rate	48 gpm	
Prop 65 label required?	Yes	



Product information and application use

The Uponor Commercial Stainless-steel Manifold is used for distribution and loop isolation in hydronic hot-water heating, chilled water, radiant heating and cooling, snow and ice melting, and permafrost prevention (cold storage) applications. The manifold features 1-1/2" distribution ball valves with 1" isolation ball valves on the supply manifold for easy loop isolation along with flow meters on the return manifold to balance the loops from 0-4 gpm. The R25 connections for outlet fittings are sold separately and are available in 5/8" and 3/4" compression or 5/8", 3/4", and 1" ProPEX.

Part name	Part no.	A [inch]	B [inch]	C [inch]	D [inch]	E [inch]	F [inch]	G [inch]	H [inch]	l [inch]	Cv
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 3 loops	A2740302	15.555	10.024	4.841	3.15	6.319	1.634	3.012	5.851	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 4 loops	A2740402	18.705	10.024	4.841	3.15	6.319	1.634	3.012	6.299	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 5 loops	A2740502	21.854	10.024	4.841	3.15	6.319	1.634	3.012	9.449	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 6 loops	A2740602	25.004	10.024	4.841	3.15	6.319	1.634	3.012	12.598	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 7 loops	A2740702	28.154	10.024	4.841	3.15	6.319	1.634	3.012	15.748	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 8 loops	A2740802	31.303	10.024	4.841	3.15	6.319	1.634	3.012	18.898	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 10 loops	A2741002	37.602	10.024	4.841	3.15	6.319	1.634	3.012	25.197	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Value, 12 Joons	A2741202	43.902	10.024	4.841	3.15	6.319	1.634	3.012	31.496	3.386	4.85

Part name	Part no.	Weight per UOM [lbs/UOM]
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 3 loops	A2740302	14.95
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 4 loops	A2740402	17.37
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 5 loops	A2740502	20.02
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 6 loops	A2740602	22.44
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 7 loops	A2740702	25.09
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 8 loops	A2740802	27.73
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 10 loops	A2741002	32.8
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 12 loops	A2741202	37.88

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10.00	

#### Related applications

Radiant Heating and Cooling Systems

Refer to the Uponor Commercial Stainless-steel Manifold Instruction Sheet for installation guidelines.

#### Snow and Ice Melting Systems Permafrost Protection Systems

Turf Conditioning Systems

Footnotes	Contact information			
	Uponor Inc.	Uponor Ltd.		
	5925 148th Street West	6510 Kennedy Road		
	Apple Valley, MN 55124	Mississauga, ON L5T 2X4		
	T 800.321.4739	T 888.594.7726		
	F 952.891.2008	F 800.638.9517		

# uponor

Project Information	
Job name:	Location:
Engineer:	Date submitted:
Contractor:	Submitted by:
Manufacturer's representative:	Approved by:

Technical data		
Material	Stainless Steel	
Manifold size	2 inch	
End type 1	FNPT 1-1/2"	
End type 2	ISO 228-G 1"	
Temp/pressure ratings	68 °F (20 °C) at 145 psi (10 bar)	
	158 °F (70 °C) at 87 psi (6 bar)	
	194 °F (90 °C) at 44 psi (3 bar)	
Max. fluid flow rate	48 gpm	
Prop 65 label required?	Yes	



Product information and application use

The Uponor Commercial Stainless-steel Manifold is used for distribution and loop isolation in hydronic hot-water heating, chilled water, radiant heating and cooling, snow and ice melting, and permafrost prevention (cold storage) applications. The manifold features 1-1/2" distribution ball valves with 1" isolation ball valves on the supply manifold for easy loop isolation along with flow meters on the return manifold to balance the loops from 0-4 gpm. The R25 connections for outlet fittings are sold separately and are available in 5/8" and 3/4" compression or 5/8", 3/4", and 1" ProPEX.

Part name	Part no.	A [inch]	B [inch]	C [inch]	D [inch]	E [inch]	F [inch]	G [inch]	H [inch]	l [inch]	Cv
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 3 loops	A2740302	15.555	10.024	4.841	3.15	6.319	1.634	3.012	5.851	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 4 loops	A2740402	18.705	10.024	4.841	3.15	6.319	1.634	3.012	6.299	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 5 loops	A2740502	21.854	10.024	4.841	3.15	6.319	1.634	3.012	9.449	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 6 loops	A2740602	25.004	10.024	4.841	3.15	6.319	1.634	3.012	12.598	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 7 loops	A2740702	28.154	10.024	4.841	3.15	6.319	1.634	3.012	15.748	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 8 loops	A2740802	31.303	10.024	4.841	3.15	6.319	1.634	3.012	18.898	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 10 loops	A2741002	37.602	10.024	4.841	3.15	6.319	1.634	3.012	25.197	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Value, 12 Joons	A2741202	43.902	10.024	4.841	3.15	6.319	1.634	3.012	31.496	3.386	4.85

Part name	Part no.	Weight per UOM [lbs/UOM]
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 3 loops	A2740302	14.95
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 4 loops	A2740402	17.37
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 5 loops	A2740502	20.02
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 6 loops	A2740602	22.44
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 7 loops	A2740702	25.09
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 8 loops	A2740802	27.73
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 10 loops	A2741002	32.8
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 12 loops	A2741202	37.88

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#### Related applications

Radiant Heating and Cooling Systems

Refer to the Uponor Commercial Stainless-steel Manifold Instruction Sheet for installation guidelines.

#### Snow and Ice Melting Systems Permafrost Protection Systems

Turf Conditioning Systems

Footnotes	Contact information			
	Uponor Inc.	Uponor Ltd.		
	5925 148th Street West	6510 Kennedy Road		
	Apple Valley, MN 55124	Mississauga, ON L5T 2X4		
	T 800.321.4739	T 888.594.7726		
	F 952.891.2008	F 800.638.9517		

# uponor

Project Information	
Job name:	Location:
Engineer:	Date submitted:
Contractor:	Submitted by:
Manufacturer's representative:	Approved by:

Technical data		
Material	Stainless Steel	
Manifold size	2 inch	
End type 1	FNPT 1-1/2"	
End type 2	ISO 228-G 1"	
Temp/pressure ratings	68 °F (20 °C) at 145 psi (10 bar)	
	158 °F (70 °C) at 87 psi (6 bar)	
	194 °F (90 °C) at 44 psi (3 bar)	
Max. fluid flow rate	48 gpm	
Prop 65 label required?	Yes	



Product information and application use

The Uponor Commercial Stainless-steel Manifold is used for distribution and loop isolation in hydronic hot-water heating, chilled water, radiant heating and cooling, snow and ice melting, and permafrost prevention (cold storage) applications. The manifold features 1-1/2" distribution ball valves with 1" isolation ball valves on the supply manifold for easy loop isolation along with flow meters on the return manifold to balance the loops from 0-4 gpm. The R25 connections for outlet fittings are sold separately and are available in 5/8" and 3/4" compression or 5/8", 3/4", and 1" ProPEX.

Part name	Part no.	A [inch]	B [inch]	C [inch]	D [inch]	E [inch]	F [inch]	G [inch]	H [inch]	l [inch]	Cv
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 3 loops	A2740302	15.555	10.024	4.841	3.15	6.319	1.634	3.012	5.851	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 4 loops	A2740402	18.705	10.024	4.841	3.15	6.319	1.634	3.012	6.299	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 5 loops	A2740502	21.854	10.024	4.841	3.15	6.319	1.634	3.012	9.449	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 6 loops	A2740602	25.004	10.024	4.841	3.15	6.319	1.634	3.012	12.598	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 7 loops	A2740702	28.154	10.024	4.841	3.15	6.319	1.634	3.012	15.748	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 8 loops	A2740802	31.303	10.024	4.841	3.15	6.319	1.634	3.012	18.898	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 10 loops	A2741002	37.602	10.024	4.841	3.15	6.319	1.634	3.012	25.197	3.386	4.85
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Value, 12 Joons	A2741202	43.902	10.024	4.841	3.15	6.319	1.634	3.012	31.496	3.386	4.85

Part name	Part no.	Weight per UOM [lbs/UOM]
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 3 loops	A2740302	14.95
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 4 loops	A2740402	17.37
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 5 loops	A2740502	20.02
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 6 loops	A2740602	22.44
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 7 loops	A2740702	25.09
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 8 loops	A2740802	27.73
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 10 loops	A2741002	32.8
Commercial Stainless-steel Manifold Assembly, 1 1/2" with Flow Meter & Ball Valve, 12 loops	A2741202	37.88

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#### Related applications

Radiant Heating and Cooling Systems

Refer to the Uponor Commercial Stainless-steel Manifold Instruction Sheet for installation guidelines.

#### Snow and Ice Melting Systems Permafrost Protection Systems

Turf Conditioning Systems

Footnotes	Contact information			
	Uponor Inc.	Uponor Ltd.		
	5925 148th Street West	6510 Kennedy Road		
	Apple Valley, MN 55124	Mississauga, ON L5T 2X4		
	T 800.321.4739	T 888.594.7726		
	F 952.891.2008	F 800.638.9517		

# Submittal Data

PROJECT:	UNIT TAG:	QUANTITY:
	TYPE OF SERVICE:	
REPRESENTATIVE:	SUBMITTED BY:	DATE:
ENGINEER:	APPROVED BY:	DATE:
CONTRACTOR:	ORDER NO.:	DATE:
1		



## UPS 15-58 FC

UPS is a three-speed circulator pump designed for heating and air-conditioning systems and is also used for central and district heating systems. The pump provides reliable and maintenance-free operation.

Note! Product picture may differ from actual product

Conditions of Service		Pump Data		Motor Data	
Flow:	2.88 US GPM	Liquid temperature range:	35.6 230 °F	Max. power input:	87 W
Head:	13.83 ft	Maximum ambient temperature:	104 °F	Mains frequency:	60 Hz
Efficiency:	8.5 %	Type of connection:	C.I. Flange	Thermal protection:	IMP.
Liquid:	Water	Pipe connection:	2-BOLT FLANGE		
Temperature:	120 °F	Product number:	59896341		
NPSH required:	32.81 ft				
Specific Gravity:	0.990				




#### Materials:

Pump housing: Pump housing: Impeller:

Cast iron ASTM A48-25B Composite

			Company n	ame:	
		$\sim$	Created by:		
	GRUNDFOS X		Phone:		
			Date:	01/03/2024	
Qty.	Description				
Created by: Phone: Date: 01/03/2024 Description 1 UPS 15-8 FC Vol Product picture may differ from actual product Product No: 5960541 The pump is of the canned rolor type, i.e. pump and motify are higher and type type, i.e. pump and motify are higher at the standard type of type. I.e. pump and motify are higher at the standard type of type. I.e. pump and motify are higher at the standard type of type. I.e. pump and motify are higher at the standard type of type. I.e. pump and motify are higher at the standard type of type. I.e. pump and motify are higher at the standard type of type. I.e. pump and motify are higher at the standard type of type. I.e. pump and motify are higher at the standard type of type. I.e. pump and motify are higher at the standard type. I.e. pump and motify are higher at the standard type of type. I.e. pump and motify are higher at the standard type of type. I.e. pump and motify are higher at the standard type of the sta					
		Notel Product nicture	may differ from ac	tual product	
	Product No.: 59896341	Noter i roudet picture	may amer nom do		
	The pump is of the canned rotor	type, i.e. pump			
	and motor form an integral unit w	vithout shaft			
	seal and with only two gaskets fo	or sealing.			
	The bearings are lubricated by the	e pumped liquid.			
	The pump is characterized by:	CIOI.			
	* Ceramic shaft and radial I	pearings.			
	* Carbon axial bearing.	C C			
	* Stainless steel rotor can a	nd bearing plate.			
	Corrosion-resistant impel     * Cast iron nump housing	er, Composite.			
	Cast non pump housing.				
	The motor is a 1-phase motor.				
	No additional motor protection is	required.			
	Liquid				
	Pumped liquid:	Water			
	Liquid temperature range:	35.6 230 °F			
	Selected liquid temperature:	120 °F			
	Density:	61.68 lb/ft <sup>3</sup>			
	Kinematic viscosity:	1 cSt			
	Technical				
	Actual calculated flow:	2.88 US GPM			
	Resulting head of the pump:	13.83 ft			
	Approvals:	UL, CSA			
	Matariala				
	Pump housing	Cast iron			
		EN 1561 EN-GJL-20	0		
		ASTM A48-25B			
	Impeller:	Composite			
		PES+30% GF			
	Installation <sup>.</sup>				
	Maximum ambient temperature:	104 °F			
	Amb. max at 80 dgr C liquid:	176 °F			
	Maximum operating pressure:	145.04 psi			
	Type of connection:	2-BOLT FLANGE			
	Pipe connection:	C.I. Flange			
	Pressure rating for connection:	Z-DULT FLANGE			
	Port-to-port length:	6.54 in			
		-			
	Electrical data:				



			Date:	01/03/2024	
Qty.	Description				
1	Power input in speed 1:	0.0805 HP			
	Power input in speed 2:	80 W			
	Max. power input:	87 W			
	Mains frequency:	60 Hz			
	Rated voltage:	1 x 115 V			
	Current in speed 1:	0.55 A			
	Current in speed 2:	0.66 A			
	Current in speed 3:	0.75 A			
	Capacitor size - run:	10 µF/180 V			
	Number of poles:	2			
	Insulation class (IEC 85):	F			
	Built-in motor protection:	CONTACT			
	Others:				
	Terminal box position:	9H			
	Net weight:	6.26 lb			
	Gross weight:	6.75 lb			
	Country of origin:	US			
	Custom tariff no.:	8413.70.2005			



Date:

01/03/2024



Density = 61.68 lb/ft<sup>3</sup>



		Date:	01/03/2024
Description	Value	H <b>-</b> [ft]	
General information:			
Product name:	UPS 15-58 FC	21-	
Product No:	59896341	20 -	
EAN number:	5700395855203	19	
Technical:		18	
Speed no:	3	17	
Actual calculated flow:	2.88 US GPM		
Max flow:	17.2 US GPM		
Resulting head of the pump:	13.83 ft	- 15-	
Maximum head:	19.36 ft	14	
Approvals:	UL, CSA	13	
Y = pump with built-in isolating and non-return valves:	Y	12-	$\setminus$
Materials:			
Pump housing:	Cast iron	10-	
Pump housing	EN 1561 EN-GJL-200	9 0	
		8	
Pump housing:	ASTM A48-25B		
Impeller:	Composite		
Impeller:	PES+30% GF	6	
Installation:		5	
Maximum ambient temperature:	104 °F	4	
Amb. max at 80 dgr C liquid:	176 °F		
Maximum operating pressure:	145.04 psi	- 3-	
Type of connection:	2-BOLT FLANGE	2-	
Type of connection:	C.I. Flange	- 1 - 1	
Pipe connection:	2-BOLT FLANGE	- o <b>j</b>	
Pressure rating for connection	PN 10	0 2	4 6 8 10
Port-to-port length	6 54 in	Q = 2.88 US GP	PM
Liquid:		Pumped liquid =	Water
Pumped liquid:	Water	Liquid temperatu	ure during operation = 120 °F
Liquid temperature range:	35.6 230 °F	Density - 01.00	ib/it
Selected liquid temperature:	120 °F		
Density:	61 68 lb/ft <sup>3</sup>		
Kinomatic viscosity:	1.051.071		
Floctrical data:	1031		
Dowor input in speed 1:			
Power input in speed 1.			
Power input in speed 2:			
	0/ 1		
Mains frequency:	60 HZ		
	1 X 115 V		
Current in speed 1:	0.55 A		
Current in speed 2:	0.66 A		
Current in speed 3:	0.75 A		
Capacitor size - run:	10 µF/180 V		
Number of poles:	2		
Insulation class (IEC 85):	F		
Built-in motor protection:	CONTACT		
Thermal protec:	IMP.		
Others:			
Terminal box position:	9H		
Net weight:	6.26 lb		
Gross weight:	6.75 lb		
Country of origin:	US		
Custom tariff no.:	8413.70.2005		





01/03/2024

# 59896341 UPS 15-58 FC 60 Hz





Note! All units are in [in] unless others are stated. Disclaimer: This simplified dimensional drawing does not show all details.



## 59896341 UPS 15-58 FC 60 Hz

#### Input

Life evels each calculation
Select product group
Journey
Select pump family
Size by

Lifecycle cost calculation
Load profile
Heating season
Reduced night-time duty
Control mode
Decrease at low flow
Energy price
Increase of energy price
CO2 emission intensity
Calculation period
How detailed do you want your life
CVCIE COSI ADAIVSIS7

Pump family UP, UPS Series 100, North America Standard UPS 15, North America

Standard profile 285 days No Prop. pressure 50 % 0.16 USD/kWh 6 % 1.08 lb/kWh 15 years Simple LCC analysis

### Sizing result

Date:

Туре	UPS 15-58	FC	
Quantity	1		
Flow		2.88	US GPM
Head		13.83	ft
Power P1	I	0.087	kW
Eta pump	+motor	8.5	% =Eta pump * Eta motor
Energy co	onsumption	595	kWh/Year
CO2 emis	ssion	642	lb/Year
Price		On request	
Life cycle	cost	2478	\$ /15Years
-			

01/03/2024

#### Load Profile

	1	2	3	4	
Flow (%)	25	50	75	100	
Flow (US gpm)	0.44	1.32	1.76	2.64	
Head (%)	163	155	146	138	
Head (ft)	17	16.1	15.23	14.36	
P1 (kW)	0.087	0.087	0.087	0.087	
Eta total (%)	2.3	4.3	6.1	7.7	
Time (h/a)	3010	2394	1026	410	
Energy consumption (kWh/Year)	262	208	89	36	
Quantity	1	1	1	1	





	Date: 01/03/2024
Installation and Input	Sizing Results
	Product number:59896341Type:UPS 15-58 FCQuantity:1Flow:2.88 US GPMHead:13.83 ftPower P1:0.087 kWEta pump+motor:8.5 % =Eta pump * Eta motorEnergy consumption:595 kWh/YearCO2 emission:642 lb/YearPrice:On request
	Load profile
	1       2       3       4         Flow (%)       25       50       75       100         Flow (US gpm)       0.44       1.32       1.76       2.64         Head (%)       163       155       146       138         Head (fit)       17       16.1       15.23       14.36         P1 (kW)       0.087       0.087       0.087       0.087         Eta total (%)       2.3       4.3       6.1       7.7         Time (h/a)       3010       2394       1026       410         Energy consumption (kWh/Year)       262       208       89       36         Quantity       1       1       1       1       1
Ритр Curve	Dimensional Drawing
Q = 2.88 US GPM           H = 13.83 ft           21	
19	
18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 4 3 2 1 1 0 0 2 4 6 8 10 12 14 12 14 10 10 10 10 10 10 10 10 10 10	5.24 4.02 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0

PROJECT:	UNIT TAG:	QUANTITY:
	TYPE OF SERVICE:	
REPRESENTATIVE:	SUBMITTED BY:	DATE:
ENGINEER:	APPROVED BY:	DATE:
CONTRACTOR:	ORDER NO.:	DATE:



### UPS 26-99 FC

UPS is a three-speed circulator pump designed for heating and air-conditioning systems and is also used for central and district heating systems. The pump provides reliable and maintenance-free operation.

Note! Product picture may differ from actual product

Conditions	of Service	Pump Data		Motor Data	
Flow:	3.22 US GPM	Liquid temperature range:	35.6 230 °F	Max. power input:	197 W
Head:	18.58 ft	Maximum ambient temperature:	104 °F	Mains frequency:	60 Hz
Efficiency:	5.7 %	Pipe connection:	2-BOLT FLANGE	Thermal protection:	INT.
Liquid:	Water	Product number:	52722512		
Temperature:	120 °F				
NPSH required:	32.81 ft				
Specific Gravity:	0.990				





#### Materials:

Pump housing: Pump housing: Impeller:

Cast iron ASTM A48-30B Composite



Qty. |

1

Company name: Created by: Phone:

01/03/2024

Description **UPS 26-99 FC** Note! Product picture may differ from actual product Product No.: 52722512 The pump is of the canned rotor type, i.e. pump and motor form an integral unit without shaft seal and with only two gaskets for sealing. The bearings are lubricatd by the pumped liquid. The pump has 3-step speed selector. The pump is characterized by: Ceramic shaft and radial bearings. \* Carbon axial bearing. \* Stainless steel rotor can and bearing plate. + Corrosion-resistant impeller, Composite. \* Cast iron pump housing. The motor is a 1-phase motor. No additional motor protection is required. Liquid: Pumped liquid: Water Liquid temperature range: 35.6 .. 230 °F Selected liquid temperature: 120 °F Density: 61.68 lb/ft3 Kinematic viscosity: 1 cSt Technical: Actual calculated flow: 3.22 US GPM Resulting head of the pump: 18.58 ft Approvals: CUL Materials: Pump housing: Cast iron EN 1561 EN-GJL-200 ASTM A48-30B Impeller: Composite PES+30% GF Installation: Range of ambient temperature: 35.6 .. 104 °F Amb. max at 80 dgr C liquid: 176 °F Maximum operating pressure: 145.04 psi Type of connection: 2-BOLT FLANGE Pipe connection: 2-BOLT FLANGE

Pressure rating for connection:

Port-to-port length:

Power input in speed 1:

Electrical data:

PN 10

6 1/2 in

0.2012 HP



			Date:	01/03/2024	
Qty.	Description				
1	Power input in speed 2:	179 W			
	Max. power input:	197 W			
	Mains frequency:	60 Hz			
	Rated voltage:	1 x 115 V			
	Current in speed 1:	1.3 A			
	Current in speed 2:	1.5 A			
	Current in speed 3:	1.8 A			
	Capacitor size - run:	20 µF/180 V			
	Number of poles:	2			
	Insulation class (IEC 85):	F			
	Built-in motor protection:	CONTACT			
	Others:				
	Terminal box position:	9H			
	Net weight:	9.48 lb			
	Gross weight:	10.2 lb			
	Country of origin:	US			
	Custom tariff no.:	8413.70.2005			



Date:

01/03/2024

### 52722512 UPS 26-99 FC 60 Hz





		Dale.	01/0	JJ/ZUZ4		
Description	Value	H (ff)			UPS 26-9	99 FC,
General information:	Value	1.3				
Product name <sup>.</sup>	UPS 26-99 FC	32				_
Product No:	52722512	30				
=AN number:	5700834818707	- 00				
	0100004010101	- 28-				_
Speed no:	3					
Actual calculated flow:	3 22 US CPM	- 26				
Max flow:	33 US GPM	- 24				
Resulting head of the nump:	18 58 ft	- 🜔 🔪	$\mathbf{X}$			
Maximum head:	28.87 ft	22				_
Approvals:		20	$\setminus$			
Y = pump with built-in isolating and		-   }				
non-return valves:	Y	18	$\rightarrow$			
Materials:		16				
Pump housing:	Cast iron	- I <u>I</u> <u>N</u> -				
Pump housing:	EN 1561 EN-GJL-200	- 14 - 0		$\setminus$ $\setminus$		
1 3		12		$\land$		
Pump housing:	ASTM A48-30B					
Impeller:	Composite	10-	$\rightarrow \vdash$	+ + +	$\rightarrow \mid$	_
Impeller:	PES+30% GF	- 0			$\mathbf{X}$	
Installation:		- 0-				
Range of ambient temperature:	35.6 104 °F	6 -	-	\	$ \rightarrow $	_
Amb. max at 80 dgr C liquid:	176 °F	-			$\setminus$   $\setminus$	
Maximum operating pressure:	145.04 psi	4			$ \land \land \land$	
Type of connection:	2-BOLT FLANGE	2				
Pipe connection:	2-BOLT FLANGE					
Pressure rating for connection:	PN 10		10	15 20	25 (	a lus
Port-to-port length:	6 1/2 in	0 = 3 22 US GPM	10	20	20	a [00
Liquid:		H = 18.58 ft				
Pumped liquid:	Water	<ul> <li>Pumped liquid = W</li> <li>Liquid temperature</li> </ul>	/ater during operatio	n = 120 °F		
Liquid temperature range:	35.6 230 °F	Density = 61.68 lb	/ft <sup>3</sup>			
Selected liquid temperature:	120 °F					
Density:	61.68 lb/ft <sup>3</sup>					
Kinematic viscosity:	1 cSt					
Electrical data:						
Power input in speed 1:	0.2012 HP					
Power input in speed 2:	179 W					
Max. power input:	197 W					
Mains frequency:	60 Hz					
Rated voltage:	1 x 115 V					
Current in speed 1:	1.3 A					
Current in speed 2:	1.5 A					
Current in speed 3:	1.8 A					
Capacitor size - run:	20 µF/180 V					
Number of poles:	2					
Insulation class (IEC 85):	F					
Built-in motor protection:	CONTACT					
Thermal protec:	INT.					
Others:						
Terminal box position:	9H					
Net weight:	9.48 lb					
Gross weight:	10.2 lb					
Country of origin:	US					



01/03/2024

## 52722512 UPS 26-99 FC 60 Hz





Note! All units are in [in] unless others are stated. Disclaimer: This simplified dimensional drawing does not show all details.



## 52722512 UPS 26-99 FC 60 Hz

#### Input

Life evels each calculation
Select product group
Journey
Select pump family
Size by

Lifecycle cost calculation
Load profile
Heating season
Reduced night-time duty
Control mode
Decrease at low flow
Energy price
Increase of energy price
CO2 emission intensity
Calculation period
How detailed do you want your life
CVCIE COSI ADAIVSIS7

Pump family UP, UPS Series 100, North America Standard UPS 26, North America

Standard profile 285 days No Prop. pressure 50 % 0.16 USD/kWh 6 % 1.08 lb/kWh 15 years Simple LCC analysis

# Load Profile

	1	2	3	4
Flow (%)	25	50	75	100
Flow (US gpm)	0.881	1.32	2.2	3.08
Head (%)	143	134	126	118
Head (ft)	22.96	21.6	20.27	18.98
P1 (kW)	0.197	0.197	0.197	0.197
Eta total (%)	1.6	3.1	4.3	5.4
Time (h/a)	3010	2394	1026	410
Energy consumption (kWh/Year)	593	472	202	81
Quantity	1	1	1	1

#### Sizing result

Date:

Туре	UPS 26-99	FC		
Quantity	1			
Flow		3.22	US GPM	
Head		18.58	ft	
Power P1		0.197	kW	
Eta pump	+motor	5.7	% =Eta pump * Eta mo	otor
Energy co	onsumption	1347	kWh/Year	
CO2 emis	ssion	1450	lb/Year	
Price		On request		
Life cycle	cost	5705	\$ /15Years	

01/03/2024





	Date: 01/03/2024
Installation and Input	Sizing Results
	Product number:52722512Type:UPS 26-99 FCQuantity:1Flow:3.22 US GPMHead:18.58 ftPower P1:0.197 kWEta pump+motor:5.7 % =Eta pump * Eta motorEnergy consumption:1347 kWh/YearCO2 emission:1450 lb/YearPrice:On request
	Load profile
	1234Flow (%)255075100Flow (US gpm) $0.881$ $1.32$ $2.2$ $3.08$ Head (%)143134126118Head (ft)22.96 $21.6$ $20.27$ 18.98P1 (kW) $0.197$ $0.197$ $0.197$ $0.197$ Eta total (%)1.6 $3.1$ $4.3$ $5.4$ Time (h/a)3010 $2394$ 1026410Energy consumption (kWh/Year) $593$ $472$ $202$ $81$ Quantity1111
	Dimensional Drawing
H UPS 26-99 FC, 60Hz	
32 - Q = 3.22 US GPM H = 18.58 ft Pumped liquid = Water Liquid temperature during operation = 120 °F Density = 61.68 lb/ft <sup>a</sup>	
26 24 22 20 18 16 14 12 10 14 12 10 14 14 12 10 14 14 14 12 10 14 14 14 14 14 14 14 14 14 14	

PROJECT:	UNIT TAG:	QUANTITY:
	TYPE OF SERVICE:	
REPRESENTATIVE:	SUBMITTED BY:	DATE:
ENGINEER:	APPROVED BY:	DATE:
CONTRACTOR:	ORDER NO.:	DATE:



### UPS 26-99 FC

UPS is a three-speed circulator pump designed for heating and air-conditioning systems and is also used for central and district heating systems. The pump provides reliable and maintenance-free operation.

Note! Product picture may differ from actual product

Conditions of Service		Pump Data	Motor Data		
Flow:	5.64 US GPM	Liquid temperature range:	35.6 230 °F	Max. power input:	197 W
Head:	22.83 ft	Maximum ambient temperature:	104 °F	Mains frequency:	60 Hz
Efficiency:	12.2 %	Pipe connection:	2-BOLT FLANGE	Thermal protection:	INT.
Liquid:	Water	Product number:	52722512		
Temperature:	120 °F				
NPSH required:	32.81 ft				
Specific Gravity:	0.990				





#### Materials:

Pump housing: Pump housing: Impeller:

Cast iron ASTM A48-30B Composite



Qty. |

1

Company name: Created by: Phone:

01/03/2024

Description **UPS 26-99 FC** Note! Product picture may differ from actual product Product No.: 52722512 The pump is of the canned rotor type, i.e. pump and motor form an integral unit without shaft seal and with only two gaskets for sealing. The bearings are lubricatd by the pumped liquid. The pump has 3-step speed selector. The pump is characterized by: Ceramic shaft and radial bearings. \* Carbon axial bearing. \* Stainless steel rotor can and bearing plate. + Corrosion-resistant impeller, Composite. \* Cast iron pump housing. The motor is a 1-phase motor. No additional motor protection is required. Liquid: Pumped liquid: Water Liquid temperature range: 35.6 .. 230 °F Selected liquid temperature: 120 °F Density: 61.68 lb/ft3 Kinematic viscosity: 1 cSt Technical: Actual calculated flow: 5.64 US GPM Resulting head of the pump: 22.83 ft Approvals: CUL Materials: Pump housing: Cast iron EN 1561 EN-GJL-200 ASTM A48-30B Impeller: Composite PES+30% GF Installation: Range of ambient temperature: 35.6 .. 104 °F Amb. max at 80 dgr C liquid: 176 °F Maximum operating pressure: 145.04 psi

Power input in speed 1:

Pressure rating for connection:

Type of connection:

Port-to-port length:

Electrical data:

Pipe connection:

2-BOLT FLANGE

2-BOLT FLANGE

PN 10

6 1/2 in

0.2012 HP



			Date:	01/03/2024	
Qty.	Description				
1	Power input in speed 2:	179 W			
	Max. power input:	197 W			
	Mains frequency:	60 Hz			
	Rated voltage:	1 x 115 V			
	Current in speed 1:	1.3 A			
	Current in speed 2:	1.5 A			
	Current in speed 3:	1.8 A			
	Capacitor size - run:	20 µF/180 V			
	Number of poles:	2			
	Insulation class (IEC 85):	F			
	Built-in motor protection:	CONTACT			
	Others:				
	Terminal box position:	9H			
	Net weight:	9.48 lb			
	Gross weight:	10.2 lb			
	Country of origin:	US			
	Custom tariff no.:	8413.70.2005			



Date:

01/03/2024

# 52722512 UPS 26-99 FC 60 Hz





		Date:	01/0	13/2024		
Description	Value	H (ft)			UPS 20	6-99 FC, 6
General information:						
Product name:	UPS 26-99 FC	32 -				
Product No:	52722512	30 -				
EAN number:	5700834818707	-				
Fechnical:		- 28-				
Speed no:	3	- 26				
Actual calculated flow:	5.64 US GPM					
Max flow:	33 US GPM	- 24	$\searrow$			
Resulting head of the pump:	22.83 ft					
Maximum head:	28.87 ft					
Approvals:	CUL	20	$\rightarrow$			
Y = pump with built-in isolating and non-return valves:	Y	- 18	$\rightarrow$			
Materials:		16	$\rightarrow$			
Pump housing:	Cast iron	⁻ I ŬN -				
Pump housing:	EN 1561 EN-GJL-200					
Pump housing:	ASTM A48-30B		$\setminus$			
Impeller:	Composite	10	$\rightarrow \mid $	+ + +	$\rightarrow \vdash$	
Impeller:	PES+30% GF	8	X		X	
Installation:		- 0-				
Range of ambient temperature:	35.6 104 °F	6 -	$\rightarrow$		$ \rightarrow $	
Amb. max at 80 dgr C liquid:	176 °F				$\mathbf{\lambda}$ $\mathbf{h}$	$\mathbf{x}$
Maximum operating pressure:	145.04 psi	- 4-	`			
Type of connection:	2-BOLT FLANGE	2			$\rightarrow$	$\rightarrow$
Pipe connection:	2-BOLT FLANGE					
Pressure rating for connection:	PN 10	0 5	10	15 20	25	Q US C
Port-to-port length:	6 1/2 in	Q = 5.64 US GPM				
Liquid:		H = 22.83 ft	later			
Pumped liquid:	Water	Liquid temperature	during operatio	n = 120 °F		
Liquid temperature range:	35.6 230 °F	Density = 61.68 lb/	ft <sup>3</sup>			
Selected liquid temperature:	120 F					
Density.						
	1031					
Electrical data:						
Power input in speed 1.						
Fower input in speed 2.	1/9 W 107 W					
Man. power input. Mains frequency:	60 Hz					
Rated voltage:	1 x 115 \/					
Current in speed 1:	134					
Current in speed 2:	15A					
Current in speed 3:	18A					
Capacitor size - run:	20 µF/180 V					
Number of poles:	2					
Insulation class (IEC 85):	- F					
Built-in motor protection	CONTACT					
Thermal protec:	INT.					
Others:						
Terminal box position:	9H					
Net weight:	9.48 lb					
Gross weight:	10.2 lb					
Country of origin:	US					
	~~					



01/03/2024

## 52722512 UPS 26-99 FC 60 Hz





Note! All units are in [in] unless others are stated. Disclaimer: This simplified dimensional drawing does not show all details.



### 52722512 UPS 26-99 FC 60 Hz

#### Input

Life evels each calculation
Select product group
Journey
Select pump family
Size by

Lifecycle cost calculation
Load profile
Heating season
Reduced night-time duty
Control mode
Decrease at low flow
Energy price
Increase of energy price
CO2 emission intensity
Calculation period
How detailed do you want your life
cvcle cost analysis?

Pump family UP, UPS Series 100, North America Standard UPS 26, North America

Standard profile 285 days No Prop. pressure 50 % 0.16 USD/kWh 6 % 1.08 lb/kWh 15 years Simple LCC analysis

#### Sizing result

Date:

H [ft]

Type Quantity	UPS 26-99 1	FC		
Flow		5.64	US GPM	
Head		22.83	ft	
Power P1		0.197	kW	
Eta pump	+motor	12.2	% =Eta pump * Eta	a moto
Energy co	onsumption	1347	kWh/Year	
CO2 emis	ssion	1450	lb/Year	
Price		On request		
Life cycle	cost	5705	\$ /15Years	

01/03/2024

#### Load Profile

	1	2	3	4
Flow (%)	25	50	75	100
Flow (US gpm)	1.32	2.64	3.96	4.84
Head (%)	150	144	137	131
Head (ft)	26.83	25.73	24.6	23.44
P1 (kW)	0.197	0.197	0.197	0.197
Eta total (%)	3.2	6.1	8.7	11.1
Time (h/a)	3010	2394	1026	410
Energy consumption (kWh/Year)	593	472	202	81
Quantity	1	1	1	1

Q = 5.64 US GPM H = 22.83 ft Pumped liquid = Water Liquid temperature during operation = 120 °F Density = 61.68 lb/ft<sup>a</sup> 32 30 28 26 24 22 20 -18 16 14 12 10 8 6 4 2 -0 12 14 16 18 20 22 24 26 10 28 Q [US GPM] 2 4 6 8

UPS 26-99 FC, 60Hz



	Date: 01/03/2024
Installation and Input	Sizing Results
	Product number:52722512Type:UPS 26-99 FCQuantity:1Flow:5.64 US GPMHead:22.83 ftPower P1:0.197 kWEta pump+motor:12.2 % =Eta pump * Eta motorEnergy consumption:1347 kWh/YearCO2 emission:1450 lb/YearPrice:On request
	Load profile
	1234Flow (%)255075100Flow (US gpm)1.322.643.964.84Head (%)150144137131Head (ft)26.8325.7324.623.44P1 (kW)0.1970.1970.1970.197Eta total (%)3.26.18.711.1Time (h/a)301023941026410Energy consumption (kWh/Year)59347220281Quantity1111
Pump Curve	Dimensional Drawing
Q = 5.64 US GPM H = 22.83 ft Pumped liquid = Water Liquid temperature during operation = 120 °F Density = 61.68 lb/ft <sup>a</sup>	
26 24 22 20 18 16 14 12 10 8 6 4 2 0 2 4 6 8 10 12 14 16 16 14 16 16 14 16 16 16 16 16 16 16 16 16 16	

PROJECT:	UNIT TAG:	QUANTITY:
	TYPE OF SERVICE:	
REPRESENTATIVE:	SUBMITTED BY:	DATE:
ENGINEER:	APPROVED BY:	DATE:
CONTRACTOR:	ORDER NO.:	DATE:
1		



### UPS 26-99 FC

UPS is a three-speed circulator pump designed for heating and air-conditioning systems and is also used for central and district heating systems. The pump provides reliable and maintenance-free operation.

Note! Product picture may differ from actual product

Conditions of Service Pump Data		Motor Data			
Flow:	4.5 US GPM	Liquid temperature range:	35.6 230 °F	Max. power input:	197 W
Head:	16.47 ft	Maximum ambient temperature:	104 °F	Mains frequency:	60 Hz
Efficiency:	7 %	Pipe connection:	2-BOLT FLANGE	Thermal protection:	INT.
Liquid:	Water	Product number:	52722512		
Temperature:	120 °F				
NPSH required:	32.81 ft				
Specific Gravity:	0.990				





#### Materials:

Pump housing: Pump housing: Impeller:

Cast iron ASTM A48-30B Composite



Qty. |

\*

\*

\*

\*

1

Company name: Created by: Phone:

Date: 01/03/2024 Description **UPS 26-99 FC** Note! Product picture may differ from actual product Product No.: 52722512 The pump is of the canned rotor type, i.e. pump and motor form an integral unit without shaft seal and with only two gaskets for sealing. The bearings are lubricatd by the pumped liquid. The pump has 3-step speed selector. The pump is characterized by: \* Ceramic shaft and radial bearings. Carbon axial bearing. Stainless steel rotor can and bearing plate. Corrosion-resistant impeller, Composite. Cast iron pump housing. The motor is a 1-phase motor. No additional motor protection is required. Liquid: Pumped liquid: Water Liquid temperature range: 35.6 .. 230 °F Selected liquid temperature: 120 °F Density: 61.68 lb/ft3 Kinematic viscosity: 1 cSt Technical: Actual calculated flow: 4.5 US GPM Resulting head of the pump: 16.47 ft Approvals: CUL Materials: Pump housing: Cast iron EN 1561 EN-GJL-200 ASTM A48-30B Impeller: Composite PES+30% GF

Installation:	
Range of ambient temperature:	35.6 104 °F
Amb. max at 80 dgr C liquid:	176 °F
Maximum operating pressure:	145.04 psi
Type of connection:	2-BOLT FLANGE
Pipe connection:	2-BOLT FLANGE
Pressure rating for connection:	PN 10
Port-to-port length:	6 1/2 in
Electrical data:	
Power input in speed 1:	0.2012 HP



			Date:	01/03/2024	
Qty.	Description				
1	Power input in speed 2:	179 W			
	Max. power input:	197 W			
	Mains frequency:	60 Hz			
	Rated voltage:	1 x 115 V			
	Current in speed 1:	1.3 A			
	Current in speed 2:	1.5 A			
	Current in speed 3:	1.8 A			
	Capacitor size - run:	20 µF/180 V			
	Number of poles:	2			
	Insulation class (IEC 85):	F			
	Built-in motor protection:	CONTACT			
	Others:				
	Terminal box position:	9H			
	Net weight:	9.48 lb			
	Gross weight:	10.2 lb			
	Country of origin:	US			
	Custom tariff no.:	8413.70.2005			



Date:

01/03/2024

# 52722512 UPS 26-99 FC 60 Hz





		Date:	01/03/2024	
Description	Value	H [ft]		UPS 26-99 FC, 60
General information:	Value			
Product name:	UPS 26-99 FC	32		
Product No.	52722512	30		
FAN number	5700834818707	-		
Technical:		- 28-		
Speed no:	3			
Actual calculated flow:		- 26-		
		- 24		
Regulting head of the nump:	16 47 ft	-		
Resulting head of the pump.	10.47 IL	_ 22	$\sim$	
	20.07 11	- 20	$\setminus$ $\setminus$ $ $	
Approvals.	COL			
non-return valves:	Y	18		
Materials:		16-	-	
Pump housing:	Cast iron			
Pump housing:	EN 1561 EN-GJL-200			
Pump housing:	ASTM A48-30B	- '4		
Impeller:	Composite	<sup>-</sup> 10 - 0 - 10 - 10 - 10 - 10 - 10 - 10		
Impeller:	PES+30% GF	-	$\mathbf{N}$	
Installation:		- 8-		
Range of ambient temperature:	35.6 104 °F	6		
Amb. max at 80 dor C liquid:	176 °F	-		
Maximum operating pressure:	145.04 psi	- 4		
Type of connection:	2-BOLT FLANGE			
Pipe connection:	2-BOLT FLANGE	- 2-		
Pressure rating for connection	PN 10	- 0		
Port-to-port length:	6 1/2 in	0 5	10 15 2	0 25 Q [US GF
Liquid:	0	_ Q = 4.5 US GPM H = 16 47 ft	I	
Pumped liquid	Water	Pumped liquid =	Water	
l iguid temperature range	35.6 230 °E	Liquid temperatur	re during operation = 120 °F lb/ft <sup>3</sup>	
Selected liquid temperature	120 °F			
Density	61 68 lb/ft <sup>3</sup>			
Kinematic viscosity:	1 cSt			
Electrical data:	1001			
Power input in speed 1	0 2012 HP			
Power input in speed 2	179 W			
Max power input:	197 W			
Mains frequency:	60 Hz			
Rated voltage:	1 x 115 V			
Current in sneed 1.	134			
Current in speed 2.	1.5 A			
Current in speed 2.	1.3 A			
Conceitor eize run:				
Capacitor size - run:	20 µF/180 V			
Numper of poles:	2			
	F			
Built-in motor protection:	CONTACT			
I nermal protec:	IN I .			
Others:				
Terminal box position:	9H			
Net weight:	9.48 lb			
Gross weight:	10.2 lb			
Country of origin:	US			
Output to will us a	0440 70 0005			



01/03/2024

## 52722512 UPS 26-99 FC 60 Hz





Note! All units are in [in] unless others are stated. Disclaimer: This simplified dimensional drawing does not show all details.



52722512 UPS 26-99 FC 60 Hz

#### Input

Size by
Select pump family
Journey
Select product group
1.16

Lifecycle cost calculation
Load profile
Heating season
Reduced night-time duty
Control mode
Decrease at low flow
Energy price
Increase of energy price
CO2 emission intensity
Calculation period
How detailed do you want your life
CVCIE COST ADAIVSIS?

Pump family UP, UPS Series 100, North America Standard UPS 26, North America

Standard profile 285 days No Prop. pressure 50 % 0.16 USD/kWh 6 % 1.08 lb/kWh 15 years Simple LCC analysis

#### Sizing result

Date:

Туре	UPS 26-99	FC		
Quantity	1			
Flow		4.5	US GPM	
Head		16.47	ft	
Power P1	l	0.197	kW	
Eta pump	+motor	7.0	% =Eta pump * Eta	motor
Energy c	onsumption	1347	kWh/Year	
CO2 emi	ssion	1450	lb/Year	
Price		On request		
Life cycle	cost	5705	\$ /15Years	

01/03/2024

#### Load Profile

	1	2	3	4
Flow (%)	25	50	75	100
Flow (US gpm)	1.32	2.2	3.52	4.4
Head (%)	135	123	111	100
Head (ft)	22.28	20.27	18.33	16.47
P1 (kW)	0.197	0.197	0.197	0.197
Eta total (%)	2.4	4.3	5.8	7.0
Time (h/a)	3010	2394	1026	410
Energy consumption (kWh/Year)	593	472	202	81
Quantity	1	1	1	1





	Date: 01/03/2024
Installation and Input	Sizing Results
	Product number:52722512Type:UPS 26-99 FCQuantity:1Flow:4.5 US GPMHead:16.47 ftPower P1:0.197 kWEta pump+motor:7.0 % =Eta pump * Eta motorEnergy consumption:1347 kWh/YearCO2 emission:1450 lb/YearPrice:On request
	Load profile
	1234Flow (%)255075100Flow (US gpm) $1.32$ $2.2$ $3.52$ $4.4$ Head (%)135123111100Head (ft)22.28 $20.27$ $18.33$ 16.47P1 (kW)0.1970.1970.1970.197Eta total (%)2.44.35.87.0Time (h/a)301023941026410Energy consumption (kWh/Year)59347220281Quantity11111
	Dimensional Derwine
Pump Curve	Dimensional Drawing
Q = 4.5 US GPM H = 16.47 ft Pumped liquid = Water Liquid temperature during operation = 120 °F Density = 61.68 lb/ft <sup>a</sup>	
26 24 22 20 18 16 14 12 10 10 14 12 10 10 14 12 10 10 14 12 10 10 14 14 12 10 10 14 14 12 10 10 14 14 14 14 14 14 14 16 16 14 14 14 14 14 16 16 16 16 16 16 16 16 16 16 16 16 16	

PROJECT:	UNIT TAG:	QUANTITY:
	TYPE OF SERVICE:	
REPRESENTATIVE:	SUBMITTED BY:	DATE:
ENGINEER:	APPROVED BY:	DATE:
CONTRACTOR:	ORDER NO.:	DATE:



### UPS 15-58 FC

UPS is a three-speed circulator pump designed for heating and air-conditioning systems and is also used for central and district heating systems. The pump provides reliable and maintenance-free operation.

Note! Product picture may differ from actual product

Conditions of Service		Pump Data		Motor Data	
Flow:	1.68 US GPM	Liquid temperature range:	35.6 230 °F	Max. power input:	87 W
Head:	10.41 ft	Maximum ambient temperature:	104 °F	Mains frequency:	60 Hz
Efficiency:	3.7 %	Type of connection:	C.I. Flange	Thermal protection:	IMP.
Liquid:	Water	Pipe connection:	2-BOLT FLANGE		
Temperature:	120 °F	Product number:	59896341		
NPSH required:	32.81 ft				
Specific Gravity:	0.990				




### Materials:

Pump housing: Pump housing: Impeller:

Cast iron ASTM A48-25B Composite

			Company n	ame:	
		$\sim$	Created by:		
	GRUNDFO		Phone:		
			Date:	01/03/2024	
Qty.	Description				
1	UPS 15-58 FC				
	N see				
		Note! Product picture	may differ from ac	tual product	
	Product No.: 59896341	tupo i o puma			
	and motor form an integral unit w	iype, i.e. pump /ithout shaft			
	seal and with only two gaskets for	r sealing.			
	The bearings are lubricatd by the	pumped liquid.			
	The pump has 3-step speed sele	ctor.			
	* Ceramic shaft and radial	pearings			
	* Carbon axial bearing.	Journigs.			
	* Stainless steel rotor can a	and bearing plate.			
	* Corrosion-resistant impell	er, Composite.			
	Cast from pump housing.				
	The motor is a 1-phase motor.				
	No additional motor protection is	required.			
	Liquid				
	Pumped liquid:	Water			
	Liquid temperature range:	35.6 230 °F			
	Selected liquid temperature:	120 °F			
	Density:	61.68 lb/ft <sup>3</sup>			
	Kinematic viscosity:	1 cSt			
	Technical:				
	Actual calculated flow:	1.68 US GPM			
	Resulting head of the pump:	10.41 ft			
	Approvals:	UL, CSA			
	Materials:				
	Pump housing:	Cast iron			
		EN 1561 EN-GJL-20	0		
	Impollor	ASTM A48-25B			
		PES+30% GE			
		0.0070 01			
	Installation:				
	Maximum ambient temperature:	104 °F			
	Amb. max at 80 dgr C liquid:	1/6 °F 1/5 0/ pci			
	Type of connection:	2-BOLT FLANGF			
		C.I. Flange			
	Pipe connection:	2-BOLT FLANGE			
	Pressure rating for connection:	PN 10			
	Port-to-port length:	6.54 in			
	   Electrical data:				



			Date:	01/03/2024	
Qty.	Description				
1	Power input in speed 1:	0.0805 HP			
	Power input in speed 2:	80 W			
	Max. power input:	87 W			
	Mains frequency:	60 Hz			
	Rated voltage:	1 x 115 V			
	Current in speed 1:	0.55 A			
	Current in speed 2:	0.66 A			
	Current in speed 3:	0.75 A			
	Capacitor size - run:	10 µF/180 V			
	Number of poles:	2			
	Insulation class (IEC 85):	F			
	Built-in motor protection:	CONTACT			
	Others:				
	Terminal box position:	9H			
	Net weight:	6.26 lb			
	Gross weight:	6.75 lb			
	Country of origin:	US			
	Custom tariff no.:	8413.70.2005			



Date:

01/03/2024

# 59896341 UPS 15-58 FC 60 Hz





		Dale.
Description	Value	H -
General information:		
Product name:	UPS 15-58 FC	21 -
Product No:	59896341	20 -
EAN number:	5700395855203	19
Technical:		- 10
Speed no:	3	- 18-
Actual calculated flow:	1 68 US GPM	17
Max flow:	17.2 US GPM	- 16 -
Resulting head of the pump	10 41 ft	15-
Maximum head	19.36 ft	14
Approvals:	UL CSA	
Y = pump with built-in isolating and	<u> </u>	- "-
non-return valves:	ř	12
Materials:		- 11 - 🥈
Pump housing:	Cast iron	- 10
Pump housing:	EN 1561 EN-GJL-200	9
r unp nousing.		
Pump housing:	ASTM A48-25B	- ° <b>-</b>
Impeller	Composite	7
Impeller:	PES+30% GF	6-0/
Installation:		5_
Maximum ambient temperature:	104 °F	4
Amb. max at 80 dgr C liquid:	176 °F	
Maximum operating pressure:	145 04 psi	_ 3_
Type of connection	2-BOLT FLANGE	2-
Type of connection		- 1 - /
Pipe connection:	2-BOLT FLANGE	- o
Pressure rating for connection:	PN 10	0 2
Port-to-port length:	6.54 in	Q = 1.68 US GP
	0.04 11	Pumped liquid =
Pumped liquid:	Water	Liquid temperatu
Liquid temperature range:	35.6 230 °F	Density - 01.00
Selected liquid temperature:	120 °F	
Donsity:	61 68 lb/ft <sup>3</sup>	
Kinomatic viscosity:	1 oSt	
Electrical data:	1001	
Dewer input in anood 1:		
Power input in speed 1.	0.0605 HF	
Max nower input:	80 W	
Maine frequency:	60.117	
Pated voltage:		
Current in speed 1:		
Current in apoed 2:	0.66 A	
Current in speed 2.	0.00 A	
Current in speed 3:	0.75 A	
Capacitor size - run:	10 μF/180 V	
	2	
Insulation class (IEC 85):	F	
Built-in motor protection:		
i nermal protec:	IMP.	
Otners:		
I erminal box position:	9H	
Net weight:	6.26 lb	
Gross weight:	6.75 lb	
Country of origin:	US	
Custom tariff no.:	8413.70.2005	



Pumped liquid = Water iciquid temperature during operation = 120 °F Density = 61.68 lb/ft<sup>3</sup>



01/03/2024

# 59896341 UPS 15-58 FC 60 Hz





Note! All units are in [in] unless others are stated. Disclaimer: This simplified dimensional drawing does not show all details.



### 59896341 UPS 15-58 FC 60 Hz

#### Input

Size by
Select pump family
Journey
Select product group

Load Profile

Lifecycle cost calculation
Load profile
Heating season
Reduced night-time duty
Control mode
Decrease at low flow
Energy price
Increase of energy price
CO2 emission intensity
Calculation period
How detailed do you want your life
cvcle cost analysis?

Pump family UP, UPS Series 100, North America Standard UPS 15, North America

Standard profile 285 days No Prop. pressure 50 % 0.16 USD/kWh 6 % 1.08 lb/kWh 15 years Simple LCC analysis

	1	2	3	4
Flow (%)	25	50	75	100
Flow (US gpm)	0.44	0.881	1.32	1.32
Head (%)	159	149	140	131
Head (ft)	13.09	12.29	11.52	10.77
P1 (kW)	0.087	0.087	0.087	0.087
Eta total (%)	1.0	2.0	2.8	3.5
Time (h/a)	3010	2394	1026	410
Energy consumption (kWh/Year)	262	208	89	36
Quantity	1	1	1	1

#### Sizing result

Date:

Туре	UPS 15-58	FC	
Quantity	1		
-			
Flow		1.68	US GPM
Head		10.41	ft
Power P1	I	0.087	kW
Eta pump	+motor	3.7	% =Eta pump * Eta motor
Energy c	onsumption	595	kWh/Year
CO2 emi	ssion	642	lb/Year
Price		On request	
Life cycle	cost	2478	\$ /15Years
-			

01/03/2024





	Date: 01/03/2024
Installation and Input	Sizing Results
	Product number:59896341Type:UPS 15-58 FCQuantity:1Flow:1.68 US GPMHead:10.41 ftPower P1:0.087 kWEta pump+motor:3.7 % =Eta pump * Eta motorEnergy consumption:595 kWh/YearCO2 emission:642 lb/YearPrice:On request
	Load profile
	1 2 3 4   Flow (%) 25 50 75 100   Flow (US gpm) 0.44 0.881 1.32 1.32   Head (%) 159 149 140 131   Head (ft) 13.09 12.29 11.52 10.77   P1 (kW) 0.087 0.087 0.087 0.087   Eta total (%) 1.0 2.0 2.8 3.5   Time (h/a) 3010 2394 1026 410   Energy consumption (kWh/Year) 262 208 89 36   Quantity 1 1 1 1 1
Pump Curve   UPS 15-58 FC, 60Hz     122   Q = 1.68 US GPM     21   H = 10.41 ft     21   Pumped liquid = Water     20   Liquid temperature during operation = 120 °F     20   Density = 61.68 lb/ft <sup>a</sup>	Dimensional Drawing
	5.24 4.02 5 5 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
	4.17

PROJECT:	UNIT TAG:	QUANTITY:
	TYPE OF SERVICE:	
REPRESENTATIVE:	SUBMITTED BY:	DATE:
ENGINEER:	APPROVED BY:	DATE:
CONTRACTOR:	ORDER NO.:	DATE:



### UPS 15-58 FC

UPS is a three-speed circulator pump designed for heating and air-conditioning systems and is also used for central and district heating systems. The pump provides reliable and maintenance-free operation.

Note! Product picture may differ from actual product

Conditions of Service		Pump Data	Motor Data		
Flow:	2.11 US GPM	Liquid temperature range:	35.6 230 °F	Max. power input:	87 W
Head:	14.89 ft	Maximum ambient temperature:	104 °F	Mains frequency:	60 Hz
Efficiency:	6.7 %	Type of connection:	C.I. Flange	Thermal protection:	IMP.
Liquid:	Water	Pipe connection:	2-BOLT FLANGE		
Temperature:	120 °F	Product number:	59896341		
NPSH required:	32.81 ft				
Specific Gravity:	0.990				





### Materials:

Pump housing: Pump housing: Impeller:

Cast iron ASTM A48-25B Composite

			Company n	ame:	
		$\sim$	Created by:		
	GRUNDFO		Phone:		
			Date:	01/03/2024	
Qty.	Description				
1	UPS 15-58 FC				
	CRUNDFOS MERCENT MERCENTE MERC				
	Broduct No : 50806241	Note! Product picture	may differ from ac	tual product	
	The pump is of the canned rotor	type, i.e. pump			
	and motor form an integral unit w	vithout shaft			
	seal and with only two gaskets for	or sealing.			
	The bearings are lubricatd by the	e pumped liquid.			
	The pump has 3-step speed sele	ector.			
	* Ceramic shaft and radial	hearings			
	* Carbon axial bearing.	ocanngo.			
	* Stainless steel rotor can a	and bearing plate.			
	* Corrosion-resistant impell	er, Composite.			
	* Cast iron pump housing.				
	The motor is a 1-phase motor.				
	No additional motor protection is	required.			
	Liquid:	10/			
	Pumped liquid:	VVater			
	Selected liquid temperature:	120 °F			
	Density:	61.68 lb/ft <sup>3</sup>			
	Kinematic viscosity:	1 cSt			
	Technical:				
	Resulting head of the pump	2.11 US GPM 14 89 ft			
	Approvals:	UL, CSA			
		,			
	Materials:				
	Pump housing:	Cast iron	20		
		EN 1501 EN-GJL-20 ΔSTM Δ/8-25B	10		
	Impeller:	Composite			
		PES+30% GF			
	Installation:				
	Maximum ambient temperature:	104 °⊢ 176 °⊑			
	Maximum operating pressure:	145.04 nsi			
	Type of connection:	2-BOLT FLANGE			
		C.I. Flange			
	Pipe connection:	2-BOLT FLANGE			
	Pressure rating for connection:	PN 10			
	Port-to-port length:	6.54 in			
	Electrical data:				



			Date:	01/03/2024	
Qty.	Description				
1	Power input in speed 1:	0.0805 HP			
	Power input in speed 2:	80 W			
	Max. power input:	87 W			
	Mains frequency:	60 Hz			
	Rated voltage:	1 x 115 V			
	Current in speed 1:	0.55 A			
	Current in speed 2:	0.66 A			
	Current in speed 3:	0.75 A			
	Capacitor size - run:	10 µF/180 V			
	Number of poles:	2			
	Insulation class (IEC 85):	F			
	Built-in motor protection:	CONTACT			
	Others:				
	Terminal box position:	9H			
	Net weight:	6.26 lb			
	Gross weight:	6.75 lb			
	Country of origin:	US			
	Custom tariff no.:	8413.70.2005			



Date:

01/03/2024





		Date:
Description	Value	H = [ft]
General information:		-
Product name:	UPS 15-58 FC	21 -
Product No:	59896341	20 -
EAN number:	5700395855203	19
Technical:		18
Speed no:	3	
Actual calculated flow:	2.11 US GPM	
Max flow:	17.2 US GPM	16
Resulting head of the pump:	14.89 ft	15 - 0
Maximum head:	19.36 ft	14
Approvals:	UL, CSA	13
Y = pump with built-in isolating and non-return valves:	Y	12-0
Materials:		- 11
Pump housing:	Cast iron	10-0
Pump housing:	EN 1561 EN-GJL-200	9-
Pump housing:	ASTM A48-25B	8-
Impeller:	Composite	7
Impeller	PES+30% GE	6
Installation:		5 -
Maximum ambient temperature:	104 °F	4
Amb max at 80 dgr C liguid	176 °F	
Maximum operating pressure:	145 04 psi	3-
Type of connection	2-BOLT FLANGE	2
Type of connection:	C L Flange	- 1
Pipe connection:	2-BOLT FLANGE	o
Pressure rating for connection:	PN 10	0 2
Port-to-port length	6 54 in	Q = 2.11 US H = 14 89 ft
Liquid:	0.01	Pumped liqui
Pumped liquid	Water	Liquid temper Density = 61
Liquid temperature range:	35.6 230 °F	
Selected liquid temperature	120 °F	
Density:	61 68 lb/ft <sup>3</sup>	
Kinematic viscosity	1 cSt	
Electrical data:		
Power input in speed 1	0 0805 HP	
Power input in speed 2	80 W	
Max power input	87 W	
Mains frequency:	60 Hz	
Rated voltage:	1 x 115 V	
Current in speed 1	0.55 A	
Current in speed 2	0.66 A	
Current in speed 3:	0 75 A	
Capacitor size - run:	10 uF/180 V	
Number of poles:	2	
Insulation class (IEC 85):	F	
Built-in motor protection:	CONTACT	
Thermal protec:	IMP	
Others:		
Terminal box position:	9H	
Net weight:	6 26 lb	
Gross weight	6 75 lb	
Country of origin:		
Custom tariff no :	8413 70 2005	
	0-10.10.2000	



I = 14.89 ft Pumped liquid = Water iquid temperature during c

quid temperature during operation = 120 °F ensity = 61.68 lb/ft<sup>3</sup>



01/03/2024

# 59896341 UPS 15-58 FC 60 Hz





Note! All units are in [in] unless others are stated. Disclaimer: This simplified dimensional drawing does not show all details.



59896341 UPS 15-58 FC 60 Hz

#### Input

Size by
Select pump family
Journey
Select product group
1.16

Lifecycle cost calculation
Load profile
Heating season
Reduced night-time duty
Control mode
Decrease at low flow
Energy price
Increase of energy price
CO2 emission intensity
Calculation period
How detailed do you want your life
cycle cost analysis?

Pump family UP, UPS Series 100, North America Standard UPS 15, North America

Standard profile 285 days No Prop. pressure 50 % 0.16 USD/kWh 6 % 1.08 lb/kWh 15 years Simple LCC analysis

#### Load Profile

	1	2	3	4	
Flow (%)	25	50	75	100	
Flow (US gpm)	0.44	0.881	1.32	2.2	
Head (%)	129	124	118	113	
Head (ft)	17.18	16.46	15.75	15.05	
P1 (kW)	0.087	0.087	0.087	0.087	
Eta total (%)	1.8	3.5	5.1	6.4	
Time (h/a)	3010	2394	1026	410	
Energy consumption (kWh/Year)	262	208	89	36	
Quantity	1	1	1	1	

#### Sizing result

Date:

	Туре	UPS 15-58	FC	
	Quantity	1		
	Flow		2.11	US GPM
	Head		14.89	ft
	Power P1	I	0.087	kW
	Eta pump	+motor	6.7	% =Eta pump * Eta moto
	Energy c	onsumption	595	kWh/Year
	CO2 emi	ssion	642	lb/Year
	Price		On request	
	Life cycle	cost	2478	\$ /15Years
I				

01/03/2024





	Date: 01/03/2024
Installation and Input	Sizing Results
	Product number:59896341Type:UPS 15-58 FCQuantity:1Flow:2.11 US GPMHead:14.89 ftPower P1:0.087 kWEta pump+motor:6.7 % =Eta pump * Eta motorEnergy consumption:595 kWh/YearCO2 emission:642 lb/YearPrice:On request
	Load profile
	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
Pump Curve   UPS 15-58 FC, 60Hz     H   Q = 2.11 US GPM     22   Q = 2.11 US GPM     21   Pumped liquid = Water     21   Liquid temperature during operation = 120 °F     20   Density = 61.68 lb/t°	Dimensional Drawing
	5.24 4.02 55 6 75 75 75
	4.17

PROJECT:	UNIT TAG:	QUANTITY:
	TYPE OF SERVICE:	
REPRESENTATIVE:	SUBMITTED BY:	DATE:
ENGINEER:	APPROVED BY:	DATE:
CONTRACTOR:	ORDER NO.:	DATE:



### UPS 26-99 FC

UPS is a three-speed circulator pump designed for heating and air-conditioning systems and is also used for central and district heating systems. The pump provides reliable and maintenance-free operation.

Note! Product picture may differ from actual product

Conditions of Service		Pump Data	Motor Data		
Flow:	4.64 US GPM	Liquid temperature range:	35.6 230 °F	Max. power input:	197 W
Head:	16.22 ft	Maximum ambient temperature:	104 °F	Mains frequency:	60 Hz
Efficiency:	7.1 %	Pipe connection:	2-BOLT FLANGE	Thermal protection:	INT.
Liquid:	Water	Product number:	52722512		
Temperature:	120 °F				
NPSH required:	32.81 ft				
Specific Gravity:	0.990				





### Materials:

Pump housing: Pump housing: Impeller:

Cast iron ASTM A48-30B Composite



Qty. |

1

Company name: Created by: Phone:

01/03/2024

Description **UPS 26-99 FC** Note! Product picture may differ from actual product Product No.: 52722512 The pump is of the canned rotor type, i.e. pump and motor form an integral unit without shaft seal and with only two gaskets for sealing. The bearings are lubricatd by the pumped liquid. The pump has 3-step speed selector. The pump is characterized by: Ceramic shaft and radial bearings. \* Carbon axial bearing. \* Stainless steel rotor can and bearing plate. \* Corrosion-resistant impeller, Composite. \* Cast iron pump housing. The motor is a 1-phase motor. No additional motor protection is required. Liquid: Pumped liquid: Water Liquid temperature range: 35.6 .. 230 °F Selected liquid temperature: 120 °F Density: 61.68 lb/ft3 Kinematic viscosity: 1 cSt Technical: Actual calculated flow: 4.64 US GPM Resulting head of the pump: 16.22 ft Approvals: CUL Materials: Pump housing: Cast iron EN 1561 EN-GJL-200 ASTM A48-30B Impeller: Composite PES+30% GF Installation

molaliation.	
Range of ambient temperature:	35.6 104 °F
Amb. max at 80 dgr C liquid:	176 °F
Maximum operating pressure:	145.04 psi
Type of connection:	2-BOLT FLANGE
Pipe connection:	2-BOLT FLANGE
Pressure rating for connection:	PN 10
Port-to-port length:	6 1/2 in
Electrical data:	
Power input in speed 1:	0.2012 HP



			Date:	01/03/2024	
Qty.	Description				
1	Power input in speed 2:	179 W			
	Max. power input:	197 W			
	Mains frequency:	60 Hz			
	Rated voltage:	1 x 115 V			
	Current in speed 1:	1.3 A			
	Current in speed 2:	1.5 A			
	Current in speed 3:	1.8 A			
	Capacitor size - run:	20 µF/180 V			
	Number of poles:	2			
	Insulation class (IEC 85):	F			
	Built-in motor protection:	CONTACT			
	Others:				
	Terminal box position:	9H			
	Net weight:	9.48 lb			
	Gross weight:	10.2 lb			
	Country of origin:	US			
	Custom tariff no.:	8413.70.2005			



Date:

01/03/2024

# 52722512 UPS 26-99 FC 60 Hz





		Date:	01/03/2024	4
Description	Value	H [ft]		UPS 26-99 FC, 6
General information:	Value	[iii]		
Product name:	LIPS 26-99 EC	32		
Product No:	52722512	30		
=AN number:	5700834818707			
	3700034010707	- 28-		
Prood no:	3	- \ \ \ -		
Actual calculated flow:		- 26-		
		- 24		
viax now.	16 00 ft	-		
Resulting head of the pump.	10.22 IL	_ 22		
	20.07 11	- 20	$\setminus$	
Approvals. $Y = $ nump with built in isolating and	COL			
non-return valves:	Y	18		
Materials:		16 - 🧖		
Pump housing:	Cast iron			
Pump housing:	EN 1561 EN-GJL-200			
Pump housing:	ASTM A48-30B	- '2 0		
mpeller:	Composite	10-	-	
mpeller:	PES+30% GF	- [0 ]]	N	
nstallation:		- 8-		
Range of ambient temperature:	35.6 104 °F	6		
Amb. max at 80 dgr C liquid:	176 °F			
Maximum operating pressure:	145.04 psi	- 4		
Type of connection:	2-BOLT FLANGE			
Pipe connection:	2-BOLT FLANGE	- 2-		
Pressure rating for connection:	PN 10	- 0		
Port-to-port length:	6 1/2 in	0 5	10 15	20 25 Q [US 0
	0 1/2 11	Q = 4.64 US GPN	М	
Pumped liquid:	Water	Pumped liquid =	Water	
iquid temperature range	35.6 230 °E	Liquid temperatur	re during operation = 120 °F	
Selected liquid temperature:	120 °F			
Density	61 68 lb/ft <sup>3</sup>			
Kinematic viscosity:	1 cSt			
Electrical data:				
Power input in speed 1	0.2012 HP			
Power input in speed 2	179 W			
Max power input	197 W			
Mains frequency:	60 Hz			
Rated voltage:	1 x 115 \/			
Current in speed 1:	134			
Current in speed 2:	150			
Current in speed 2:	1.5 A			
Canacitar siza run:	20 JE/190 V			
Japaului Size - Iuli.	20 μΓ/ 100 V			
	2 E			
Duilt in motor protootion:	CONTACT			
	IIN I .			
	011			
reminal box position:	9H			
Net weight:	9.48 lb			
Gross weight:	10.2 lb			
Country of origin:	US			
O 1 1 10				



01/03/2024

## 52722512 UPS 26-99 FC 60 Hz





Note! All units are in [in] unless others are stated. Disclaimer: This simplified dimensional drawing does not show all details.



## 52722512 UPS 26-99 FC 60 Hz

#### Input

Size by
Select pump family
Journey
Select product group
1.16

Lifecycle cost calculation
Load profile
Heating season
Reduced night-time duty
Control mode
Decrease at low flow
Energy price
Increase of energy price
CO2 emission intensity
Calculation period
How detailed do you want your life
cycle cost analysis?

Pump family UP, UPS Series 100, North America Standard UPS 26, North America

Standard profile 285 days No Prop. pressure 50 % 0.16 USD/kWh 6 % 1.08 lb/kWh 15 years Simple LCC analysis

### Sizing result

Date:

Туре	UPS 26-99	FC		
Quantity	1			
,				
Flow		4.64	US GPM	
Head		16.22	ft	
Power P1	l	0.197	kW	
Eta pump	+motor	7.1	% =Eta pump * E	ta moto
Energy co	onsumption	1347	kWh/Year	
CO2 emis	ssion	1450	lb/Year	
Price		On request		
Life cycle	cost	5705	\$ /15Years	

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#### Load Profile

	1	2	3	4
Flow (%)	25	50	75	100
Flow (US gpm)	1.32	2.2	3.52	4.4
Head (%)	147	133	121	108
Head (ft)	22.28	20.27	18.33	16.47
P1 (kW)	0.197	0.197	0.197	0.197
Eta total (%)	2.4	4.3	5.8	7.0
Time (h/a)	3010	2394	1026	410
Energy consumption (kWh/Year)	593	472	202	81
Quantity	1	1	1	1

UPS 26-99 FC, 60Hz H [ft] Q = 4.64 US GPM H = 16.22 ft Pumped liquid = Water Liquid temperature during operation = 120 °F Density = 61.68 lb/ft<sup>a</sup> 32 30 28 26 24 22 20 18 16 14 0 12 O 10 8 6 4 2 -0 12 14 16 18 20 22 24 26 10 28 Q [US GPM] 2 4 6 8



PROJECT:	UNIT TAG:	QUANTITY:
	TYPE OF SERVICE:	
REPRESENTATIVE:	SUBMITTED BY:	DATE:
ENGINEER:	APPROVED BY:	DATE:
CONTRACTOR:	ORDER NO.:	DATE:



### UPS 26-99 FC

UPS is a three-speed circulator pump designed for heating and air-conditioning systems and is also used for central and district heating systems. The pump provides reliable and maintenance-free operation.

Note! Product picture may differ from actual product

Conditions of Service		Pump Data	Motor Data		
Flow:	4.63 US GPM	Liquid temperature range:	35.6 230 °F	Max. power input:	197 W
Head:	16.25 ft	Maximum ambient temperature:	104 °F	Mains frequency:	60 Hz
Efficiency: 7.1 %		Pipe connection:	2-BOLT FLANGE	Thermal protection:	INT.
Liquid:	Water	Product number:	52722512		
Temperature:	120 °F				
NPSH required: 32.81 ft					
Specific Gravity:	0.990				





### Materials:

Pump housing: Pump housing: Impeller:

Cast iron ASTM A48-30B Composite



Qty. |

1

Company name: Created by: Phone:

01/03/2024

Description **UPS 26-99 FC** Note! Product picture may differ from actual product Product No.: 52722512 The pump is of the canned rotor type, i.e. pump and motor form an integral unit without shaft seal and with only two gaskets for sealing. The bearings are lubricatd by the pumped liquid. The pump has 3-step speed selector. The pump is characterized by: Ceramic shaft and radial bearings. \* Carbon axial bearing. \* Stainless steel rotor can and bearing plate. + Corrosion-resistant impeller, Composite. \* Cast iron pump housing. The motor is a 1-phase motor. No additional motor protection is required. Liquid: Pumped liquid: Water Liquid temperature range: 35.6 .. 230 °F Selected liquid temperature: 120 °F Density: 61.68 lb/ft3 Kinematic viscosity: 1 cSt Technical: Actual calculated flow: 4.63 US GPM 16.25 ft Resulting head of the pump: Approvals: CUL Materials: Pump housing: Cast iron EN 1561 EN-GJL-200 ASTM A48-30B Impeller: Composite PES+30% GF Installation: Range of ambient temperature: 35.6 .. 104 °F Amb. max at 80 dgr C liquid: 176 °F Maximum operating pressure: 145.04 psi

Pressure rating for connection:

Type of connection:

Port-to-port length:

Power input in speed 1:

Electrical data:

Pipe connection:

2-BOLT FLANGE

2-BOLT FLANGE

PN 10

6 1/2 in

0.2012 HP



			Date:	01/03/2024	
Qty.	Description				
1	Power input in speed 2:	179 W			
	Max. power input:	197 W			
	Mains frequency:	60 Hz			
	Rated voltage:	1 x 115 V			
	Current in speed 1:	1.3 A			
	Current in speed 2:	1.5 A			
	Current in speed 3:	1.8 A			
	Capacitor size - run:	20 µF/180 V			
	Number of poles:	2			
	Insulation class (IEC 85):	F			
	Built-in motor protection:	CONTACT			
	Others:				
	Terminal box position:	9H			
	Net weight:	9.48 lb			
	Gross weight:	10.2 lb			
	Country of origin:	US			
	Custom tariff no.:	8413.70.2005			



Date:

01/03/2024

# 52722512 UPS 26-99 FC 60 Hz





		Date:	01/03/2024	
Description	Value	H		UPS 26-99 FC, 60Hz
General information:	value			
Product name:	UPS 26-99 FC	32 -		
Product No:	52722512	30		
FAN number	5700834818707			
Technical:	3700034010707	28		
Spood po:	3			
Actual calculated flow:		- 26-		
Max flow:	33 US GPM	24		
Resulting head of the nump:	16 25 ft	-		
Maximum head:	29.97 ft	_ 22		
		20		
Approvals. $V = nump with built in isolating and$	COL			
non-return valves:	Y	18		
Materials:		16	$ \rightarrow $	
Pump housing:	Cast iron	- 14		
Pump housing:	EN 1561 EN-GJL-200			
Pump housing:	ASTM A48-30B			
Impeller:	Composite	10		
Impeller:	PES+30% GF			$\mathbf{X}$
Installation:		8-		
Range of ambient temperature:	35.6 104 °F	6		
Amb. max at 80 dgr C liquid:	176 °F			$\langle \rangle$
Maximum operating pressure:	145.04 psi	4 -		
Type of connection:	2-BOLT FLANGE	2		$\langle \rangle$
Pipe connection:	2-BOLT FLANGE			
Pressure rating for connection:	PN 10	- 0 <b></b>	10 15 20	25 0 115 CPM
Port-to-port length:	6 1/2 in		10 13 20	
Liquid:		H = 16.25  ft	W	
Pumped liquid:	Water	Pumped liquid =	Water	
Liquid temperature range:	35.6 230 °F	Density = 61.68	lb/ft <sup>3</sup>	
Selected liquid temperature:	120 °F			
Density:	61.68 lb/ft <sup>3</sup>			
Kinematic viscosity:	1 cSt			
Electrical data:				
Power input in speed 1:	0.2012 HP			
Power input in speed 2:	179 W			
Max. power input:	197 W			
Mains frequency:	60 Hz			
Rated voltage:	1 x 115 V			
Current in speed 1:	1.3 A			
Current in speed 2:	1.5 A			
Current in speed 3:	1.8 A			
Capacitor size - run:	20 µF/180 V			
Number of poles:	2			
Insulation class (IEC 85):	F			
Built-in motor protection:	CONTACT			
Thermal protec:	INT.			
Others:				
Terminal box position:	9H			
Net weight:	9.48 lb			
Gross weight:	10.2 lb			
Country of origin	US			
Custom tariff no :	8413 70 2005			
	0+10.70.2000			



01/03/2024

## 52722512 UPS 26-99 FC 60 Hz





Note! All units are in [in] unless others are stated. Disclaimer: This simplified dimensional drawing does not show all details.



## 52722512 UPS 26-99 FC 60 Hz

#### Input

Life evels each calculation
Select product group
Journey
Select pump family
Size by

Lifecycle cost calculation
Load profile
Heating season
Reduced night-time duty
Control mode
Decrease at low flow
Energy price
Increase of energy price
CO2 emission intensity
Calculation period
How detailed do you want your life
cvcle cost analysis?

Pump family UP, UPS Series 100, North America Standard UPS 26, North America

Standard profile 285 days No Prop. pressure 50 % 0.16 USD/kWh 6 % 1.08 lb/kWh 15 years Simple LCC analysis

### Sizing result

Date:

Туре	UPS 26-99	FC	
Quantity	1		
Flow		4.63	US GPM
Head		16.25	ft
Power P1	I	0.197	kW
Eta pump	+motor	7.1	% =Eta pump * Eta motor
Energy c	onsumption	1347	kWh/Year
CO2 emi	ssion	1450	lb/Year
Price		On request	
Life cycle	cost	5705	\$ /15Years

01/03/2024

#### Load Profile

	1	2	3	4
Flow (%)	25	50	75	100
Flow (US gpm)	1.32	2.2	3.52	4.4
Head (%)	146	132	120	108
Head (ft)	22.28	20.27	18.33	16.47
P1 (kW)	0.197	0.197	0.197	0.197
Eta total (%)	2.4	4.3	5.8	7.0
Time (h/a)	3010	2394	1026	410
Energy consumption (kWh/Year)	593	472	202	81
Quantity	1	1	1	1

H [ft] Q = 4.63 US GPM H = 16.25 ft Pumped liquid = Water Liquid temperature during operation = 120 °F Density = 61.68 lb/ft<sup>a</sup> 32 30 28 26 24 22 20 18 16 14 0 12 10 8 6 4 2 -۰+ 12 14 16 18 20 22 24 26 10 28 Q [US GPM] 2 4 6 8

UPS 26-99 FC, 60Hz



	Date: 01/03/2024			
Installation and Input	Sizing Results			
	Product number:52722512Type:UPS 26-99 FCQuantity:1Flow:4.63 US GPMHead:16.25 ftPower P1:0.197 kWEta pump+motor:7.1 % =Eta pump * Eta motorEnergy consumption:1347 kWh/YearCO2 emission:1450 lb/YearPrice:On request			
	Load profile   1   2   3   4     Flow (%)   25   50   75   100     Flow (US gpm)   1.32   2.2   3.52   4.4     Head (%)   146   132   120   108     Head (ft)   22.28   20.27   18.33   16.47     P1 (kW)   0.197   0.197   0.197     Eta total (%)   2.4   4.3   5.8   7.0     Time (h/a)   3010   2394   1026   410			
Pump Curve	Energy consumption (kWh/Year) 593 472 202 81   Quantity 1 1 1 1   Dimensional Drawing 1 1 1			
H [ft] Q = 4.63 US GPM H = 16.25 ft Pumped liquid = Water Liquid temperature during operation = 120 °F Density = 61.68 lb/ft <sup>3</sup>				
2 0 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 Q[USGPM]				

PROJECT:	UNIT TAG:	QUANTITY:
	TYPE OF SERVICE:	
REPRESENTATIVE:	SUBMITTED BY:	DATE:
ENGINEER:	APPROVED BY:	DATE:
CONTRACTOR:	ORDER NO.:	DATE:



### UPS 26-99 FC

UPS is a three-speed circulator pump designed for heating and air-conditioning systems and is also used for central and district heating systems. The pump provides reliable and maintenance-free operation.

Note! Product picture may differ from actual product

Conditions	s of Service Pump Data		Motor Data		
Flow:	4.33 US GPM	Liquid temperature range:	35.6 230 °F	Max. power input:	197 W
Head:	16.74 ft	Maximum ambient temperature:	104 °F	Mains frequency:	60 Hz
Efficiency:	6.9 %	Pipe connection:	2-BOLT FLANGE	Thermal protection:	INT.
Liquid:	Water	Product number:	52722512		
Temperature:	120 °F				
NPSH required:	32.81 ft				
Specific Gravity:	0.990				


# Submittal Data



#### Materials:

Pump housing: Pump housing: Impeller:

Cast iron ASTM A48-30B Composite



01/03/2024

Qty. | Description **UPS 26-99 FC** 1 Note! Product picture may differ from actual product Product No.: 52722512 The pump is of the canned rotor type, i.e. pump and motor form an integral unit without shaft seal and with only two gaskets for sealing. The bearings are lubricatd by the pumped liquid. The pump has 3-step speed selector. The pump is characterized by: Ceramic shaft and radial bearings. \* Carbon axial bearing. \* Stainless steel rotor can and bearing plate. + Corrosion-resistant impeller, Composite. \* Cast iron pump housing. The motor is a 1-phase motor. No additional motor protection is required. Liquid: Pumped liquid: Water Liquid temperature range: 35.6 .. 230 °F Selected liquid temperature: 120 °F Density: 61.68 lb/ft3 Kinematic viscosity: 1 cSt Technical: Actual calculated flow: 4.33 US GPM Resulting head of the pump: 16.74 ft Approvals: CUL Materials: Pump housing: Cast iron EN 1561 EN-GJL-200 ASTM A48-30B Impeller: Composite PES+30% GF Installation: Range of ambient temperature: 35.6 .. 104 °F Amb. max at 80 dgr C liquid: 176 °F Maximum operating pressure: 145.04 psi Type of connection: 2-BOLT FLANGE Pipe connection: 2-BOLT FLANGE Pressure rating for connection: PN 10 Port-to-port length: 6 1/2 in

Power input in speed 1:

Electrical data:

0.2012 HP



			Date:	01/03/2024	
Qty.	Description				
1	Power input in speed 2:	179 W			
	Max. power input:	197 W			
	Mains frequency:	60 Hz			
	Rated voltage:	1 x 115 V			
	Current in speed 1:	1.3 A			
	Current in speed 2:	1.5 A			
	Current in speed 3:	1.8 A			
	Capacitor size - run:	20 µF/180 V			
	Number of poles:	2			
	Insulation class (IEC 85):	F			
	Built-in motor protection:	CONTACT			
	Others:				
	Terminal box position:	9H			
	Net weight:	9.48 lb			
	Gross weight:	10.2 lb			
	Country of origin:	US			
	Custom tariff no.:	8413.70.2005			



Date:

01/03/2024

## 52722512 UPS 26-99 FC 60 Hz





		Date:	01/0	)3/2024		
Description	Value	H [ft]			UPS 26-9	99 FC, 6
General information:	Value					
Product name:	UPS 26-99 FC	32				_
Product No:	52722512	30 -				
EAN number:	5700834818707	-				
Technical:		- 28				_
Speed no:	3	- 26				
Actual calculated flow:	4.33 US GPM	- 20				
Max flow:	33 US GPM	- 24	$\searrow$			
Resulting head of the pump:	16.74 ft	- 22				
Maximum head:	28.87 ft					
Approvals:	CUL	20-	$ \rightarrow $			
Y = pump with built-in isolating and non-return valves:	Y	- 18	$\rightarrow$			
Materials:		- 16	$ \rightarrow $			
Pump housing:	Cast iron	-				
Pump housing:	EN 1561 EN-GJL-200					
Pump housing:	ASTM A48-30B					
Impeller:	Composite	<sup>-</sup> 10 - 0 - 0	$\rightarrow$	+ $+$	$\rightarrow$	_
Impeller:	PES+30% GF		N		$\mathbf{X}$	
Installation:		- 8-				
Range of ambient temperature:	35.6 104 °F	6-	$ \rightarrow $		$ \rightarrow $	
Amb. max at 80 dgr C liquid:	176 °F	-			$\setminus$ $ $ $\setminus$	
Maximum operating pressure:	145.04 psi	- 4			$ \rightarrow  $	
Type of connection:	2-BOLT FLANGE	2				$\backslash$
Pipe connection:	2-BOLT FLANGE	-				
Pressure rating for connection:	PN 10	- 0 <b></b>	10	15 20		
Port-to-port length:	6 1/2 in	0 = 4 33 US GPM	10	10 20	20	Q [00
Liquid:		H = 16.74 ft				
Pumped liquid:	Water	<ul> <li>Pumped liquid = W</li> <li>Liquid temperature</li> </ul>	/ater during operatio	n = 120 °F		
Liquid temperature range:	35.6 230 °F	Density = 61.68 lb/	'ft <sup>3</sup>			
Selected liquid temperature:	120 °F					
Density:	61.68 lb/ft <sup>3</sup>					
Kinematic viscosity:	1 cSt					
Electrical data:						
Power input in speed 1:	0.2012 HP					
Power input in speed 2:	179 W					
Max. power input:	197 W					
Mains frequency:	60 Hz					
Rated voltage:	1 x 115 V					
Current in speed 1:	1.3 A					
Current in speed 2:	1.5 A					
Current in speed 3:	1.8 A					
Capacitor size - run:	20 µF/180 V					
Number of poles:	2					
Insulation class (IEC 85):	F					
Built-in motor protection:	CONTACT					
Thermal protec:	INT.					
Others:						
Terminal box position:	9H					
Net weight:	9.48 lb					
Gross weight:	10.2 lb					
Country of origin:	US					



01/03/2024

### 52722512 UPS 26-99 FC 60 Hz





Note! All units are in [in] unless others are stated. Disclaimer: This simplified dimensional drawing does not show all details.



### 52722512 UPS 26-99 FC 60 Hz

#### Input

Life evels each calculation
Select product group
Journey
Select pump family
Size by

Lifecycle cost calculation
Load profile
Heating season
Reduced night-time duty
Control mode
Decrease at low flow
Energy price
Increase of energy price
CO2 emission intensity
Calculation period
How detailed do you want your life
cvcle cost analysis?

Pump family UP, UPS Series 100, North America Standard UPS 26, North America

Standard profile 285 days No Prop. pressure 50 % 0.16 USD/kWh 6 % 1.08 lb/kWh 15 years Simple LCC analysis

#### Sizing result

Date:

Туре	UPS 26-99	FC	
Quantity	1		
-			
Flow		4.33	US GPM
Head		16.74	ft
Power P1	l	0.197	kW
Eta pump	+motor	6.9	% =Eta pump * Eta moto
Energy co	onsumption	1347	kWh/Year
CO2 emis	ssion	1450	lb/Year
Price		On request	
Life cycle	cost	5705	\$ /15Years
-			

01/03/2024

#### Load Profile

	1	2	3	4
Flow (%)	25	50	75	100
Flow (US gpm)	0.881	2.2	3.08	3.96
Head (%)	158	145	133	121
Head (ft)	22.51	20.71	18.97	17.29
P1 (kW)	0.197	0.197	0.197	0.197
Eta total (%)	2.1	3.9	5.4	6.5
Time (h/a)	3010	2394	1026	410
Energy consumption (kWh/Year)	593	472	202	81
Quantity	1	1	1	1





	Date: 01/03/2024
Installation and Input	Sizing Results
	Product number:52722512Type:UPS 26-99 FCQuantity:1Flow:4.33 US GPMHead:16.74 ftPower P1:0.197 kWEta pump+motor:6.9 % =Eta pump * Eta motorEnergy consumption:1347 kWh/YearCO2 emission:1450 lb/YearPrice:On request
	Load profile
	1       2       3       4         Flow (%)       25       50       75       100         Flow (US gpm)       0.881       2.2       3.08       3.96         Head (%)       158       145       133       121         Head (ft)       22.51       20.71       18.97       17.29         P1 (kW)       0.197       0.197       0.197       0.197         Eta total (%)       2.1       3.9       5.4       6.5         Time (h/a)       3010       2394       1026       410         Energy consumption (kWh/Year)       593       472       202       81         Quantity       1       1       1       1       1
Pump Curve	Dimensional Drawing
rtg     Q = 4.33 US GPM       H = 16.74 ft       32       Pumped liquid = Water       Liquid temperature during operation = 120 °F       30       28	
26 24 20 18 16 14 12 10 10 8 6 4 2 0 0 2 4 6 8 10 12 14 16 18 10 10 12 14 16 18 10 10 10 10 10 10 10 10 10 10 10 10 10	

## Submittal Data

PROJECT:	UNIT TAG:	QUANTITY:
	TYPE OF SERVICE:	
REPRESENTATIVE:	SUBMITTED BY:	DATE:
ENGINEER:	APPROVED BY:	DATE:
CONTRACTOR:	ORDER NO.:	DATE:



### UPS 26-99 FC

UPS is a three-speed circulator pump designed for heating and air-conditioning systems and is also used for central and district heating systems. The pump provides reliable and maintenance-free operation.

Note! Product picture may differ from actual product

Conditions of Service		Pump Data	Motor Data		
Flow:	4.36 US GPM	Liquid temperature range:	35.6 230 °F	Max. power input:	197 W
Head:	16.69 ft	Maximum ambient temperature:	104 °F	Mains frequency:	60 Hz
Efficiency:	6.9 %	Pipe connection:	2-BOLT FLANGE	Thermal protection:	INT.
Liquid:	Water	Product number:	52722512		
Temperature:	120 °F				
NPSH required:	32.81 ft				
Specific Gravity:	0.990				



# Submittal Data



#### Materials:

Pump housing: Pump housing: Impeller:

Cast iron ASTM A48-30B Composite



01/03/2024

Qty. | Description **UPS 26-99 FC** 1 Note! Product picture may differ from actual product Product No.: 52722512 The pump is of the canned rotor type, i.e. pump and motor form an integral unit without shaft seal and with only two gaskets for sealing. The bearings are lubricatd by the pumped liquid. The pump has 3-step speed selector. The pump is characterized by: Ceramic shaft and radial bearings. \* Carbon axial bearing. \* Stainless steel rotor can and bearing plate. + Corrosion-resistant impeller, Composite. \* Cast iron pump housing. The motor is a 1-phase motor. No additional motor protection is required. Liquid: Pumped liquid: Water Liquid temperature range: 35.6 .. 230 °F Selected liquid temperature: 120 °F Density: 61.68 lb/ft3 Kinematic viscosity: 1 cSt Technical: Actual calculated flow: 4.36 US GPM Resulting head of the pump: 16.69 ft Approvals: CUL Materials: Pump housing: Cast iron EN 1561 EN-GJL-200 ASTM A48-30B Impeller: Composite PES+30% GF Installation: Range of ambient temperature: 35.6 .. 104 °F Amb. max at 80 dgr C liquid: 176 °F Maximum operating pressure: 145.04 psi Type of connection: 2-BOLT FLANGE Pipe connection: 2-BOLT FLANGE Pressure rating for connection: PN 10 Port-to-port length: 6 1/2 in

Electrical data: Power input in speed 1: 0.2012 HP



			Date:	01/03/2024	
Qty.	Description				
1	Power input in speed 2:	179 W			
	Max. power input:	197 W			
	Mains frequency:	60 Hz			
	Rated voltage:	1 x 115 V			
	Current in speed 1:	1.3 A			
	Current in speed 2:	1.5 A			
	Current in speed 3:	1.8 A			
	Capacitor size - run:	20 µF/180 V			
	Number of poles:	2			
	Insulation class (IEC 85):	F			
	Built-in motor protection:	CONTACT			
	Others:				
	Terminal box position:	9H			
	Net weight:	9.48 lb			
	Gross weight:	10.2 lb			
	Country of origin:	US			
	Custom tariff no.:	8413.70.2005			



Date:

01/03/2024

## 52722512 UPS 26-99 FC 60 Hz





		Date:	01/03/202	24
Description	Value	H [ft]		UPS 26-99 F
General information:	Value			
Product name:	UPS 26-99 FC	32 -		
Product No:	52722512	30		
=AN number:	5700834818707			
	0100004010101	28		
Spood no:	2			
Actual calculated flow:		26		
	4.50 05 GFM	24		
viax now.		-		
Resulting head of the pump.	10.09 11	22		
	20.07 11	20	$\setminus$ $\setminus$ $ $	
Approvals:	CUL	20-		
Y = pump with built-in isolating and non-return valves:	Y	18 -		
Materials:		16	`	
Pump housing:	Cast iron			
Pump housing:	EN 1561 EN-GJL-200			
Pump housing:	ASTM A48-30B	12		
Impeller:	Composite	10	_ <b>\</b>	
mpeller:	PES+30% GF		N	
nstallation:		8-		
Range of ambient temperature:	35.6 104 °F	6		
Amb. max at 80 dor C liquid:	176 °F			
Maximum operating pressure:	145.04 psi	4		
Type of connection:	2-BOLT FLANGE			
Pipe connection	2-BOLT FLANGE			
Pressure rating for connection:	PN 10	0		
Port-to-port length:	6 1/2 in	0 5	10 15	20 25 Q (U
	0 1/2 111	Q = 4.36 US GPN	1	
Pumped liquid:	Water	Pumped liquid = V	Vater	
Fumped liquid.		Liquid temperature	e during operation = 120 °	F
Elected liquid temperature:	120 °E	Density = 01.00 lb	//11-	
	120 F			
Density.	01.00 ID/IL <sup>2</sup>			
	1 cSt			
Electrical data:				
Power input in speed 1:	0.2012 HP			
Power input in speed 2:	1/9 W			
Max. power input:	197 W			
Mains frequency:	60 Hz			
Rated voltage:	1 x 115 V			
Current in speed 1:	1.3 A			
Current in speed 2:	1.5 A			
Current in speed 3:	1.8 A			
Capacitor size - run:	20 µF/180 V			
Number of poles:	2			
nsulation class (IEC 85):	F			
Built-in motor protection:	CONTACT			
Thermal protec:	INT.			
Others:				
Terminal box position:	9H			
Net weight:	9.48 lb			
Gross weight	10.2 lb			
Country of origin:				
	0.0			
Clistom faritt no .	8/13 /0 2005			



01/03/2024

### 52722512 UPS 26-99 FC 60 Hz





Note! All units are in [in] unless others are stated. Disclaimer: This simplified dimensional drawing does not show all details.



### 52722512 UPS 26-99 FC 60 Hz

#### Input

Life evels each calculation
Select product group
Journey
Select pump family
Size by

Lifecycle cost calculation
Load profile
Heating season
Reduced night-time duty
Control mode
Decrease at low flow
Energy price
Increase of energy price
CO2 emission intensity
Calculation period
How detailed do you want your life
cvcle cost analysis?

Pump family UP, UPS Series 100, North America Standard UPS 26, North America

Standard profile 285 days No Prop. pressure 50 % 0.16 USD/kWh 6 % 1.08 lb/kWh 15 years Simple LCC analysis

#### Sizing result

Date:

Туре	UPS 26-99	FC		
Quantity	1			
Flow		4.36	US GPM	
Head		16.69	ft	
Power P1	l	0.197	kW	
Eta pump	+motor	6.9	% =Eta pump * Eta mo	otor
Energy co	onsumption	1347	kWh/Year	
CO2 emis	ssion	1450	lb/Year	
Price		On request		
Life cycle	cost	5705	\$ /15Years	

01/03/2024

#### Load Profile

	1	2	3	4
Flow (%)	25	50	75	100
Flow (US gpm)	0.881	2.2	3.08	3.96
Head (%)	160	148	135	123
Head (ft)	22.51	20.71	18.97	17.29
P1 (kW)	0.197	0.197	0.197	0.197
Eta total (%)	2.1	3.9	5.4	6.5
Time (h/a)	3010	2394	1026	410
Energy consumption (kWh/Year)	593	472	202	81
Quantity	1	1	1	1





	Date: 01/03/2024
Installation and Input	Sizing Results
	Product number:52722512Type:UPS 26-99 FCQuantity:1Flow:4.36 US GPMHead:16.69 ftPower P1:0.197 kWEta pump+motor:6.9 % =Eta pump * Eta motorEnergy consumption:1347 kWh/YearCO2 emission:1450 lb/YearPrice:On request
	Load profile 1 2 3 4
	Flow (%)255075100Flow (US gpm)0.8812.23.083.96Head (%)160148135123Head (ft)22.5120.7118.9717.29P1 (kW)0.1970.1970.1970.197Eta total (%)2.13.95.46.5Time (h/a)301023941026410Energy consumption (kWh/Year)59347220281Quantity11111
Pump Curve	Dimensional Drawing
H         UPS 26-99 FC, 60Hz           Q = 4.36 US GPM         H = 16.69 ft           32 -         Pumped liquid = Water           Liquid temperature during operation = 120 °F           30 -         Density = 61.68 lb/ft*	
26 24 22 20 18 16 14 12 10 8 6 4 2 0 2 4 6 8 10 12 14 16 18 16 16 16 16 16 16 16 16 16 16	

## Submittal Data

PROJECT:	UNIT TAG:	QUANTITY:
	TYPE OF SERVICE:	
REPRESENTATIVE:	SUBMITTED BY:	DATE:
ENGINEER:	APPROVED BY:	DATE:
CONTRACTOR:	ORDER NO.:	DATE:



### UPS 26-99 FC

UPS is a three-speed circulator pump designed for heating and air-conditioning systems and is also used for central and district heating systems. The pump provides reliable and maintenance-free operation.

Note! Product picture may differ from actual product

Conditions of Service		Pump Data	Motor Data		
Flow:	4.67 US GPM	Liquid temperature range:	35.6 230 °F	Max. power input:	197 W
Head:	16.18 ft	Maximum ambient temperature:	104 °F	Mains frequency:	60 Hz
Efficiency:	7.2 %	Pipe connection:	2-BOLT FLANGE	Thermal protection:	INT.
Liquid:	Water	Product number:	52722512		
Temperature:	120 °F				
NPSH required:	32.81 ft				
Specific Gravity:	0.990				



# Submittal Data



#### Materials:

Pump housing: Pump housing: Impeller:

Cast iron ASTM A48-30B Composite



Qty.

1

Description

\*

\*

\*

\*

Liquid:

Company name: Created by: Phone:

01/03/2024

UPS 26-99 FC Note! Product picture may differ from actual product Product No.: 52722512 The pump is of the canned rotor type, i.e. pump and motor form an integral unit without shaft seal and with only two gaskets for sealing. The bearings are lubricatd by the pumped liquid. The pump has 3-step speed selector. The pump is characterized by: Ceramic shaft and radial bearings. Carbon axial bearing. Stainless steel rotor can and bearing plate. Corrosion-resistant impeller, Composite. Cast iron pump housing. The motor is a 1-phase motor. No additional motor protection is required. Pumped liquid: Water

Liquid temperature range: Selected liquid temperature: Density: Kinematic viscosity:	35.6 230 °F 120 °F 61.68 lb/ft <sup>3</sup> 1 cSt
Technical: Actual calculated flow: Resulting head of the pump: Approvals:	4.67 US GPM 16.18 ft CUL
Materials: Pump housing: Impeller:	Cast iron EN 1561 EN-GJL-200 ASTM A48-30B Composite PES+30% GF
Installation: Range of ambient temperature: Amb. max at 80 dgr C liquid: Maximum operating pressure: Type of connection: Pipe connection: Pressure rating for connection: Port-to-port length:	35.6 104 °F 176 °F 145.04 psi 2-BOLT FLANGE PN 10 6 1/2 in

Electrical data: Power input in speed 1: 0.2012 HP



			Date:	01/03/2024	
Qty.	Description				
1	Power input in speed 2:	179 W			
	Max. power input:	197 W			
	Mains frequency:	60 Hz			
	Rated voltage:	1 x 115 V			
	Current in speed 1:	1.3 A			
	Current in speed 2:	1.5 A			
	Current in speed 3:	1.8 A			
	Capacitor size - run:	20 µF/180 V			
	Number of poles:	2			
	Insulation class (IEC 85):	F			
	Built-in motor protection:	CONTACT			
	Others:				
	Terminal box position:	9H			
	Net weight:	9.48 lb			
	Gross weight:	10.2 lb			
	Country of origin:	US			
	Custom tariff no.:	8413.70.2005			



Date:

01/03/2024

## 52722512 UPS 26-99 FC 60 Hz





		Date:	01/03/202	4
Description	Value	(ft)-		UPS 26-99 FC, 60H
General information:				
Product name:	UPS 26-99 FC	32 -		
Product No:	52722512	30 -		
EAN number:	5700834818707	-		
Technical:		28		
Speed no:	3	26		
Actual calculated flow:	4.67 US GPM	- 20		
Max flow:	33 US GPM	24		
Resulting head of the pump:	16.18 ft			
Maximum head	28 87 ft	- 22		
Approvals:	CUL	20-		
Y = pump with built-in isolating and non-return valves:	Y	18 -		
Materials:		16		
Pump housing:	Cast iron			
Pump housing:	EN 1561 EN-GJL-200	- 14 -		
Pump housing:	ASTM A48-30B			
Impeller:	Composite	10-		
Impeller:	PES+30% GF			$\mathbf{X}$
Installation:		8-		
Range of ambient temperature:	35.6 104 °F	6-		
Amb. max at 80 dgr C liquid:	176 °F			
Maximum operating pressure:	145.04 psi	4		
Type of connection:	2-BOLT FLANGE	2		
Pipe connection:	2-BOLT FLANGE			
Pressure rating for connection:	PN 10		10 15	20 25 Q US GPN
Port-to-port length:	6 1/2 in	0 = 4 67 US GPI	M	
Liquid:		H = 16.18  ft		
Pumped liquid:	Water	<ul> <li>Pumped liquid =</li> <li>Liquid temperatu</li> </ul>	Water re during operation = 120 °F	
Liquid temperature range:	35.6 230 °F	Density = 61.68 I	b/ft <sup>3</sup>	
Selected liquid temperature:	120 °F			
Density:	61.68 lb/ft <sup>3</sup>			
Kinematic viscosity:	1 cSt			
Electrical data:				
Power input in speed 1:	0.2012 HP			
Power input in speed 2:	179 W			
Max. power input:	197 W			
Mains frequency:	60 Hz			
Rated voltage:	1 x 115 V			
Current in speed 1:	1.3 A			
Current in speed 2:	1.5 A			
Current in speed 3:	1.8 A			
Capacitor size - run:	20 µF/180 V			
Number of poles:	2			
Insulation class (IEC 85):	F			
Built-in motor protection:	CONTACT			
Thermal protec:	INT.			
Others:				
Terminal box position:	9H			
Net weight:	9.48 lb			
Gross weight:	10.2 lb			
Country of origin:	US			
Custom tariff no :	8413 70 2005			



01/03/2024

### 52722512 UPS 26-99 FC 60 Hz





Note! All units are in [in] unless others are stated. Disclaimer: This simplified dimensional drawing does not show all details.



### 52722512 UPS 26-99 FC 60 Hz

#### Input

Size by
Select pump family
Journey
Select product group

Lifecycle cost calculation
Load profile
Heating season
Reduced night-time duty
Control mode
Decrease at low flow
Energy price
Increase of energy price
CO2 emission intensity
Calculation period
How detailed do you want your life cycle cost analysis?

Pump family UP, UPS Series 100, North America Standard UPS 26, North America

Standard profile 285 days No Prop. pressure 50 % 0.16 USD/kWh 6 % 1.08 lb/kWh 15 years Simple LCC analysis

#### Sizing result

Date:

	Туре	UPS 26-99	FC	
	Quantity	1		
	-			
	Flow		4.67	US GPM
	Head		16.18	ft
	Power P1		0.197	kW
Eta pump+motor		7.2	% =Eta pump * Eta motor	
Energy consumption		1347	kWh/Year	
	CO2 emis	ssion	1450	lb/Year
	Price		On request	
	Life cycle	cost	5705	\$ /15Years

01/03/2024

#### Load Profile

	1	2	3	4
Flow (%)	25	50	75	100
Flow (US gpm)	1.32	2.2	3.52	4.4
Head (%)	149	135	122	110
Head (ft)	22.28	20.27	18.33	16.47
P1 (kW)	0.197	0.197	0.197	0.197
Eta total (%)	2.4	4.3	5.8	7.0
Time (h/a)	3010	2394	1026	410
Energy consumption (kWh/Year)	593	472	202	81
Quantity	1	1	1	1





	Date: 01/03/2024
Installation and Input	Sizing Results
	Product number:52722512Type:UPS 26-99 FCQuantity:1Flow:4.67 US GPMHead:16.18 ftPower P1:0.197 kWEta pump+motor:7.2 % =Eta pump * Eta motorEnergy consumption:1347 kWh/YearCO2 emission:1450 lb/YearPrice:On request
	Load profile
	1234Flow (%)255075100Flow (US gpm) $1.32$ $2.2$ $3.52$ $4.4$ Head (%)149135122110Head (ft)22.28 $20.27$ $18.33$ 16.47P1 (kW)0.1970.1970.1970.197Eta total (%)2.44.35.87.0Time (h/a)301023941026410Energy consumption (kWh/Year)59347220281Quantity11111
	Dimensional Drawing
Pump Curve	Dimensional Drawing
Q = 4.67 US GPM H = 16.18 ft Pumped liquid = Water Liquid temperature during operation = 120 °F Density = 61.68 lb/ft <sup>a</sup>	
26 24 22 20 18 16 14 12 10 10 8 8 6 4 4 2 0 0 2 4 6 8 10 12 14 16 15 20 10 10 10 10 10 10 10 10 10 10 10 10 10	

## Submittal Data

PROJECT:	UNIT TAG:	QUANTITY:
	TYPE OF SERVICE:	
REPRESENTATIVE:	SUBMITTED BY:	DATE:
ENGINEER:	APPROVED BY:	DATE:
CONTRACTOR:	ORDER NO.:	DATE:
1		



### UPS 15-58 FC

UPS is a three-speed circulator pump designed for heating and air-conditioning systems and is also used for central and district heating systems. The pump provides reliable and maintenance-free operation.

Note! Product picture may differ from actual product

Conditions of Service		Pump Data	Motor Data		
Flow:	1.56 US GPM	Liquid temperature range:	35.6 230 °F	Max. power input:	87 W
Head:	10.64 ft	Maximum ambient temperature:	104 °F	Mains frequency:	60 Hz
Efficiency:	3.6 %	Type of connection:	C.I. Flange	Thermal protection:	IMP.
Liquid:	Water	Pipe connection:	2-BOLT FLANGE		
Temperature:	120 °F	Product number:	59896341		
NPSH required:	32.81 ft				
Specific Gravity:	0.990				



# Submittal Data



#### Materials:

Pump housing: Pump housing: Impeller:

Cast iron ASTM A48-25B Composite

			Company n	ame:	
		$\sim$	Created by		
	GRUNDFO		Phone:		
			Date:	01/03/2024	
Qty.	Description				
1	UPS 15-58 FC				
	X per				
	Res.				
		Note! Product picture	e may differ from ac	ctual product	
	Product No.: 59896341	h			
	I ne pump is of the canned rotor	type, i.e. pump vithout shaft			
	seal and with only two daskets for	n sealing			
	The bearings are lubricated by the	pumped liquid.			
	The pump has 3-step speed sele	ctor.			
	The pump is characterized by:				
	Ceramic shaft and radial I	pearings.			
	<ul> <li>Carbon axial bearing.</li> <li>* Stainless steel rotor can a</li> </ul>	and bearing plate			
	* Corrosion-resistant impell	er. Composite.			
	* Cast iron pump housing.				
	The motor is a 1-phase motor.				
	No additional motor protection is	required.			
	Liquid:				
	Pumped liquid:	Water			
	Liquid temperature range:	35.6 230 °F			
	Selected liquid temperature:	120 °F			
	Density:	61.68 lb/ft <sup>3</sup>			
	Kinematic viscosity:	1 051			
	Technical:				
	Actual calculated flow:	1.56 US GPM			
	Resulting head of the pump:	10.64 ft			
	Approvals:	UL, CSA			
	Materials:				
	Pump housing:	Cast iron			
		EN 1561 EN-GJL-20	00		
		ASTM A48-25B			
	Impeller:	Composite			
		25430% GF			
	Installation:				
	Maximum ambient temperature:	104 °F			
	Amb. max at 80 dgr C liquid:	176 °F			
	Maximum operating pressure:	145.04 psi			
	Type of connection:	2-BOLT FLANGE			
	Bino connection:	C.I. Flange			
	Pressure rating for connection:	2-DULT FLANGE			
	Port-to-port length:	6.54 in			
		-			
	Electrical data:				



			Date:	01/03/2024	
Qty.	Description				
1	Power input in speed 1:	0.0805 HP			
	Power input in speed 2:	80 W			
	Max. power input:	87 W			
	Mains frequency:	60 Hz			
	Rated voltage:	1 x 115 V			
	Current in speed 1:	0.55 A			
	Current in speed 2:	0.66 A			
	Current in speed 3:	0.75 A			
	Capacitor size - run:	10 µF/180 V			
	Number of poles:	2			
	Insulation class (IEC 85):	F			
	Built-in motor protection:	CONTACT			
	Others:				
	Terminal box position:	9H			
	Net weight:	6.26 lb			
	Gross weight:	6.75 lb			
	Country of origin:	US			
	Custom tariff no.:	8413.70.2005			



Date:

01/03/2024

# 59896341 UPS 15-58 FC 60 Hz





		Date:
Description	Value	H -
General information:		-
Product name:	UPS 15-58 FC	21 -
Product No:	59896341	20 -
EAN number:	5700395855203	19
Technical:		18
Speed no:	3	
Actual calculated flow:	1.56 US GPM	
Max flow:	17.2 US GPM	- 16-
Resulting head of the pump:	10.64 ft	- 15 -
Maximum head:	19.36 ft	14
Approvals:	UL, CSA	- 13
Y = pump with built-in isolating and	V	
non-return valves:	•	
Materials:		- 11
Pump housing:	Cast iron	10
Pump housing:	EN 1561 EN-GJL-200	9
p nodonig.		
Pump housing:	ASTM A48-25B	
Impeller:	Composite	
Impeller:	PES+30% GF	- 6- <mark>                                   </mark>
Installation:		5
Maximum ambient temperature:	104 °F	4
Amb max at 80 dgr C liquid	176 °F	
Maximum operating pressure:	145 04 psi	- 3-
Type of connection:	2-BOLT FLANGE	2
Type of connection:	C L Flange	- 1-
Pipe connection:		- o
Pressure rating for connection:	PN 10	0 2 4
Port_to_port length:	6 54 in	Q = 1.56 US GPM
	0.54 11	Pumped liquid = Water
Liquid.	Matar	Liquid temperature dur
Fumped liquid.		Density = $61.68 \text{ ID/IT}^3$
Elquid temperature range.	35.0 250 F	
Selected liquid temperature.		
Density:	61.68 ID/It	
	1 651	
	0.0005 LID	
Power input in speed 1:	0.0805 HP	
Power input in speed 2:	80 W	
Max. power input:	87 W	
Mains frequency:	60 Hz	
Rated voltage:	1 x 115 V	
Current in speed 1:	0.55 A	
Current in speed 2:	0.66 A	
Current in speed 3:	0.75 A	
Capacitor size - run:	10 µF/180 V	
Number of poles:	2	
Insulation class (IEC 85):	F	
Built-in motor protection:	CONTACT	
Thermal protec:	IMP.	
Others:		
Terminal box position:	9H	
Net weight:	6.26 lb	
	6 75 lb	
Gross weight	07010	
Gross weight:		



operation = 120 °F



01/03/2024

## 59896341 UPS 15-58 FC 60 Hz





Note! All units are in [in] unless others are stated. Disclaimer: This simplified dimensional drawing does not show all details.



59896341 UPS 15-58 FC 60 Hz

#### Input

Size by
Select pump family
Journey
Select product group

Lifecycle cost calculation
Load profile
Heating season
Reduced night-time duty
Control mode
Decrease at low flow
Energy price
Increase of energy price
CO2 emission intensity
Calculation period
How detailed do you want your life
cvcle cost analysis?

Pump family UP, UPS Series 100, North America Standard UPS 15, North America

Standard profile 285 days No Prop. pressure 50 % 0.16 USD/kWh 6 % 1.08 lb/kWh 15 years Simple LCC analysis

#### Load Profile

	1	2	3	4
Flow (%)	25	50	75	100
Flow (US gpm)	0.44	0.881	1.32	1.32
Head (%)	134	126	118	111
Head (ft)	13.09	12.29	11.52	10.77
P1 (kW)	0.087	0.087	0.087	0.087
Eta total (%)	1.0	2.0	2.8	3.5
Time (h/a)	3010	2394	1026	410
Energy consumption (kWh/Year)	262	208	89	36
Quantity	1	1	1	1

#### Sizing result

Date:

Туре	UPS 15-58	FC		
Quantity	1			
Flow		1.56	US GPM	
Head		10.64	ft	
Power P1	l	0.087	kW	
Eta pump	+motor	3.6	% =Eta pump * Eta moto	or
Energy c	onsumption	595	kWh/Year	
CO2 emi	ssion	642	lb/Year	
Price		On request		
Life cycle	cost	2478	\$ /15Years	
-				

01/03/2024





	Date: 01/03/2024
Installation and Input	Sizing Results
	Product number:59896341Type:UPS 15-58 FCQuantity:1Flow:1.56 US GPMHead:10.64 ftPower P1:0.087 kWEta pump+motor:3.6 % =Eta pump * Eta motorEnergy consumption:595 kWh/YearCO2 emission:642 lb/YearPrice:On request
	1       2       3       4         Flow (%)       25       50       75       100         Flow (US gpm)       0.44       0.881       1.32       1.32         Head (%)       134       126       118       111         Head (%)       13.09       12.29       11.52       10.77         P1 (kW)       0.087       0.087       0.087       0.087         Eta total (%)       1.0       2.0       2.8       3.5         Time (h/a)       3010       2394       1026       410         Energy consumption (kWh/Year)       262       208       89       36         Quantity       1       1       1       1       1
Pump Curve           Image: Provide the state of the state o	Dimensional Drawing
H = 10.64 ft       Pumped liquid = Water       Liquid temperature during operation = 120 °F       Density = 61.68 lb/ft <sup>3</sup>	
18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 6 2 4 6 8 10 12 12 14 15 14 15 14 15 14 15 14 15 14 15 14 15 14 15 14 15 14 15 14 15 14 15 14 15 14 15 16 16 16 17 17 17 17 17 17 17 17 17 17	



# **OIL FIRED UNIT HEATERS**



4-112.6 • MAY, 2023


### Maximum Performance, Comfort, and Efficiency

Modine model POR oil-fired unit heaters offer an efficient and reliable means of heating, particularly in regions where supplies of other fuels, such as natural gas, may be unavailable, undependable, or interruptible. The units are direct driven propeller fan type units designed for overhead suspension and horizontal delivery of heated air. They are available in three model sizes: 100,000, 145,000, and 185,000 Btu/hr outputs. Time-tested and field-proven components are engineered into the design of these compact units which produce comfort heating at the lowest cost through their highly efficient operation. Models are UL-listed and require fuel oil grade No. 1 or 2, as specified by ASTM (American Society for Testing and Materials) D396-73 Standard Specifications for Fuel Oils or

The following are standard features and benefits of the model POR unit (refer to Figure 2.1):

### **Advanced Burner and Burner Controls**

Canadian Government Specification Board, 3-GP-28.

The POR oil fired unit heater is equipped with the latest in burner and burner control technology making the POR an industry leader in efficient fuel handling. Features include:

- A pressure-atomizing, gun-type burner with a stainless steel, die-stamped flame retention head that produces a highly stable flame with 20-30% greater combustion efficiency over non-flame retention type burners. The flame retention head matches the flame to the shape of the heat exchanger for maximum heat transfer while ensuring a long life.
- A two-stage fuel unit for maintaining maximum fuel pressure delivery, even in high lift applications.
- The fuel unit utilizes an energy efficient permanent split capacitor (PSC) motor with ball bearings for reduced energy consumption, excellent starting characteristics, and reduced maintenance.
- The latest in oil burner controls with a solid state microprocessor based controller featuring:
- Interrupted-duty ignition that disables the spark ignition once the flame has been proven. This feature extends the life of the ignition system, reduces component noise, and saves energy over traditional controls that maintain a power consuming spark during the entire call for heat period.
- > Limited recycle/limited reset feature to limit the accumulation of unburned oil in the combustion area.
- > Communications port to enable communication with service instruments or data acquisition equipment.
- > Diagnostic LED to provide service personnel an easy indication of cad cell resistance and operational status (lockout, recycle, etc.).
- > 15 second valve-on delay provides a pre-purge mode that allows for clean starts and reduced maintenance.
- > A cad-cell safety system de-energizes the burner controls if a flame is not produced in 30 seconds. Manual reset of flame protection is required following this safety shut-down.
- Beckett electronic oil igniter module that provides superior spark ignition (20kV peak) and a smaller and lighter package than older spark transformer designs.
- Beckett CleanCut burner pump with the following advantages:
- > Cleaner operation by use of a solenoid valve that cuts oil flow almost instantly when power is cut to the motor, eliminating coasting stops that can cause soot formation on shut-down.
- > Pre-purge type controls work hand-in-hand with the CleanCut pump to establish airflow and bring pump pressure up to full operating levels before light-off to ensure smooth and clean ignition.
- > More reliable with fewer moving parts, compared to conventional pumps and fewer troublesome oil fittings to cause problems.

### **Durable Attractive Casing Design**

The casing is treated for protection against corrosion and painted with an attractive, Modine Gray-Green, baked polyester powdercoat paint finish.

### Quiet, Efficient, and Safe Air Mover

The propeller fan is statically balanced and the motor resiliently mounted to the finger-proof fan guard to minimize vibration and noise. Additionally, the draw-formed casing venturi at the air inlet is designed to reduce fan noise and power consumption. The motor is enclosed air over, permanent split capacitor (PSC)

type that provides excellent starting capabilities with low amp draw on operation.

A fan and limit-control safety device performs three functions: 1) delays start of fan until the heat exchanger has warmed up and prevents fan from stopping until the heat exchanger has cooled, 2) protects the unit from overheating, and, 3) provides a manual switch for constant fan operation.

### **Effective Heat Throw**

Heat throw and coverage are controlled by manual adjustment of standard horizontal and/or optional vertical louver blades. Depending on the model, the heat throw will vary from 39 to 51 feet, maximizing heated air distribution at floor level.

### Figure 2.1 - Model POR Unit Features



4-112.6



### Superior Heat Exchanger Life Expectancy

Long life is due in part to the roll-formed design of the heat exchanger. Stresses caused by thermal expansion and contraction typically concentrate in areas of sharp angular bends or adjacent to welds, all of which are minimized with roll-forming to distribute thermal expansion stresses uniformly. Made of corrosion-resistant, 14 gauge aluminized steel, the heat exchanger contains a preformed, ceramic fiber fire pot that is thermally efficient, lightweight, resilient, and resists both mechanical and thermal shocks. It reaches operating temperature quickly, contributing to the efficiency of operation.

### Figure 3.1

#### Model POR Heat Exchanger Features



### **Efficient Combustion**

Combustion products heat flow through the heat exchanger can be traced by the arrows in the cross-sectional view in Figure 3.2. Flue products rise to the top of the drum, then pass into the two radiators of the heat exchanger where internal baffles cause them to flow to the bottom of the radiators; then back up to the flue collector and out of the stack. During this passage the original temperature at the fire pot of 2200-2300° F, is reduced to a stack discharge temperature of 470 to 570° F. The units are designed to operate at a stack draft of minus 0.02" W.C.

### **Easy Installation**

All units are factory-assembled, wired, and fire tested prior to shipment. Units are ready to connect to 115V/60Hz/1ph supply voltage, a 24V thermostat, fuel lines, and vents. Units are shipped for a single-unit two pipe oil supply system, but can be simply modified for a single pipe oil supply system or a multiple-unit installation supplied by a common fuel distribution system. They can be suspended with four threaded rods (1/2"-13NC tap) or with 3/4" pipe by use of an optional pipe hanger kit accessory.

### **Reduced Maintenance, Easy to Service**

Under average conditions Modine unit heaters typically require inspection only once a year, more often if the air is contaminated with fumes, dust, or spray.

The heat exchanger is equipped with a convenient inspection port and the service door opening is ample in size to facilitate the removal of the fire pot should replacement become necessary. Two clean-out ports are also readily accessible for periodic cleaning. Refer to Figure 3.1.

The motor is enclosed air over with permanently lubricated bearings to minimize maintenance. The fan and limit control, motors, and burner are externally mounted on the unit for easy service access.

### **Application Suggestions**

For recommendations on specifying, applications, and locating unit heaters, refer to Modine Literature 75-203 "How to Specify the Right Unit Heater".

### Performance Data

Model	Input Btu/Hr	Input GPH	Output Btu/Hr	CFM @ 70°F	Delivery FPM	Temp. Rise °F	Max Height*	Heat Throw
POR100	119,000	0.85	100,000	1890	460	49	12'	39'
POR145	175,000	1.25	145,000	2400	580	56	13.5'	50'
POR185	231,000	1.65	185,000	3200	740	54	12'	51'

\*Deflector blades pitched 45° at the floor (heated air). Mounting height is measured from floor to bottom of unit.

### Fan Motor Specifications

Model	HP	Voltage	Hz	Phase	Fan Motor Amps*	RPM	Туре	Fan Dia.
POR100	1/5	115	60	1	2.1	1100	PSC	18"
POR145	1/3	115	60	1	5.4	1100	PSC	18"
POR185	1/3	115	60	1	5.4	1100	PSC	22"

\*Total AMPS equals fan motor AMPS plus burner motor and ignition transformer load of 2.2 AMPS.

#### Figure 3.2 - Combustion Products Heat Flow



### Figure 4.1 - Model POR Dimensions



#### Table 4.1 - Dimensions (Inches)

Model	А	В	с	D	E	F	G	н	J	к	L	м	Y	Approx. Shipping Wt. (lbs)
POR100	27-1/2	35-1/4	28-1/8	25	23-7/8	13-3/4	8-5/8	23-7/8	8	12	38-1/8	16	8	324
POR145	27-1/2	35-1/4	28-1/8	25	23-7/8	13-3/4	8-5/8	23-7/8	9-1/2	12	38-1/8	16	8	333
POR185	28-5/8	40-1/4	32-3/4	26-1/8	23-7/8	14-3/8	8-5/8	25	10	13-3/4	42-3/4	20-3/4	8	398

### Accessories

Low-Voltage Thermostats – Single-stage, 24-volt.

Thermostat Guard - Protects from damage or tampering.

Booster Pump Relay – Used to control booster pump operation in the oil supply system. Factory set to close contacts at 50 PSIG with a maximum allowable pressure of 150 PSIG. Supplied with a 1/8" MPT connector and screw terminals.

Oil Safety Valve – Protects the burner pump from excessive line pressure. The maximum inlet pressure is 60 PSIG.

Vertical Louvers – Used in combination with standard horizontal louvers for complete control of air delivery.

Draft Regulator – Barometric type with screw adjustments and hinge-pin action. Designed for precise control of drafts.

Outside Combustion Air Kit – Kit converts the burner to accept outside combustion air piping. Includes adapter, gaskets, vacuum relief valve, outside intake air hood, and other miscellaneous hardware.

As Modine Manufacturing Company has a continuous product improvement program, it reserves the right to change design specifications without notice.



Modine Manufacturing Company

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## **Rittling Unit Heaters**

Catalog





Always the best climate for

# IMPROVED QUALITY OF LIFE

With Zehnder, you will find the perfect climate for any space.

www.zehnder-systems.com

### Reliability and energy-efficient control

### Engineering excellence and contemporary design

With more than 60 years experience in the design and manufacture of hydronic heating and cooling systems, Rittling understands your need for efficient heating/ cooling equipment that will compliment the décor. Rittling Unit Heaters offer the latest in attractive design and are engineered to provide years of reliable operation and energyefficient comfort.

#### Meet specific heating requirement

Rittling steam/hot water unit heaters are available in a wide range of models and airflow arrangements to satisfy the demands of your specifications.

#### Safety and ease of installation and maintenance

All units include solderless ring terminal connections with vinyl-insulated barrels allowing for easy electrical connection. Optional suspension alternatives are available for easy unit mounting. All unit components are factory tested and coils are leak tested under pressure to ensure proper function when units arrive on the job site.

### Motor reliability

All unit heater motors are totally enclosed. All motors, with the exception of 3-phase motors, include thermal overload protection.

#### **Application flexibility**

Air distribution is virtually unlimited. Horizontal models are furnished with louvers for directional control of heated air. Vertical units can be furnished with optional air diffusion accessories or standard configuration. Side piping connection configuration on small RH models allows for low clearance installations. Large RH and all RV models have steel male NPT threaded connections. Explosion-proof and 3-phase motors are offered for flexible application.

### Attractive styling

Horizontal models have squared off, picture frame style fronts for a clean, defined appearance. Rugged, reinforced 18-GA cold rolled steel construction is die-formed and true. Vertical models are attractive and formed of 16-GA cold rolled steel. Louvers on RH units are rounded off and are aesthetically pleasing. All Rittling unit heaters are treated for corrosion-resistance and finished with a durable epoxy-based gray textured powder coating.

#### **Quiet operation**

All unit heaters offer smooth and consistent airflow. All motor horse-power and fan configuration chosen for quiet operation and efficient air output. Air is drawn through smooth, unobstructed venturis. Horizontal units have an additional low speed motor tapping for increased noise reduction.

### Rittling Unit Heaters Uniform heating in large open areas

Rittling Unit Heaters provide uniform heating you can count on in large open areas. Our high efficiency units offer low installed costs and provide large heating loads without the need for extensive ductwork systems.

Over the past 15 years, Zehnder Rittling has refined the Rittling Unit Heater design, resulting in an energy-efficient, highly effective product. A combination of smaller units and higher CFM models are available to fill the need for a variety of mounting locations for optimal heat distribution. Utilize the horizontal and vertical louvers in your design for complete directional control, as Rittling Unit Heaters perform at peak efficiency when the airflow is directed to the areas of greatest heat loss.

Contact your Zehnder Rittling Regional Sales Manager for assistance with the benefits of installing our products in accordance with ASHRAE guidelines.





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Mechanical specification	s 14
Warranty	Back cover

### Design benefits: Horizontal air delivery

### A. Coil

- Sturdy, mechanically bonded copper/ aluminum coil with twelve fins per inch with 1/2" nominal tubes and 0.028" tube wall thickness
- High BTU capacity
- Coils are tested at 275 psig air under water. Coils are suitable for operating up to 150 psig steam or 220 psig water and 375 °F
- Fins are continuous across width and depth of coil and are vertically oriented to resist collection of dirt and foreign particles

### **B. Enclosure**

- Rugged 18-gauge casing protects against impact and abuse
- Two-piece enclosure allows for ease of maintenance
- Durable and attractive gray textured epoxy powder coating is standard

### C. Louvers

- Adjustable horizontal louvers are standard for adjustment of air distribution
- Constructed of rigid 18-gauge steel
- Color matched to enclosure for consistent appearance

### **D.** Piping connection

- NPT connections permit quick and easy piping with no additional components needed
- Mounted to casing for rigidity

### E. Mounting hardware

- Heavy duty threaded hardware allows unit to be mounted with threaded rod
- Optional pipe hanger kit available for mounting unit with threaded pipe

### F. Formed air inlet/outlet

Die-formed venturi inlet draws air smoothly into unit for maximum airflow

### G. Motor

- All motors are totally enclosed, permanently lubricated for extended, reliable motor life
- Low operating cost and quiet operation
- When teamed with optional variable speed control, fan speed adjustment is infinite
- Equipped with thermal overload protection (except 3-phase motors)
- Junction box for field electrical connection

### H. Fan

- Lightweight and dynamically balanced
- Designed to move air efficiently with minimum power requirement

### I. Finger proof fan guard

- Standard equipment
- Securely mounts motor to unit while absorbing vibration with rubber isolation mounts





### Design benefits: Vertical air delivery

### A. Coil

- Sturdy, mechanically bonded copper/aluminum formed coil with 12 fins per inch with 1/2" nominal tubes between extra-heavy steel pipe connections and 0.028" tube wall thickness
- High BTU capacity
- Coils are tested at 275 psig air under water. Coils are suitable for operating up to 150 psig steam or 220 psig water and 375 °F
- Fins are continuous along width and depth and are vertically oriented to resist collection of dirt and foreign particles

### **B.** Formed air inlet/outlet

 Die-formed venturi outlet draws air through unit for maximum airflow

### C. Air diffusion

- Multiple arrangements available for unlimited air diffusion patterns
- Accessories are finished with epoxybased powder coating to match unit

### D. Finger proof fan guard

- Standard equipment
- Gives 100% safety confidence for mounting in any area
- Constructed of painted steel rod

### E. Fan

- Lightweight, dynamically balanced
- Designed to move air efficiently and quietly with minimum power requirement

### F. Casing

- Rugged 16-gauge casing protects against impact and abuse
- Separate top and bottom enclosure pieces allow for ease of maintenance
- Attractive gray textured epoxy powder coating is standard and durable

### G. Motor

- All motors are totally enclosed, permanently lubricated for extended, reliable motor life
- Low operating cost and quiet operation
- Designed for easy motor removal, important for high ceiling applications
- Equipped with thermal overload protection (except 3-phase motors)
- High efficiency

### H. Mounting hardware

- Heavy duty threaded hardware allows unit to be mounted with threaded rod
- Optional pipe hanger kit (requires 2) available for mounting unit with threaded pipe

### I. Junction box

All unit wiring is contained in an electrical junction box that is mounted to the Rittling Unit Heater casing

### J. Piping connection

Durable steel header has external NPT threads for easy connection





### Application guidelines

The first step in the design of a job is typically to determine the heat loss. Refer to ASHRAE and others for publications on the basic methodology used in calculating the building or area's heat loss. Special attention should be paid to the building type (architecturally) and application placement (area use) in this procedure.

The second step is to decide the necessary engineering data for design conditions such as CFM, Leaving air temperature, quantity and location of units, based on the specific Rittling Unit Heater model selected.

Steam/hot water Rittling Unit Heaters' versatility offers a wide selection of outputs and airflows allowing almost unlimited flexibility in job design.

Keep the following guidelines in mind when designing any job using steam/hot water Rittling Unit Heaters:

- Always direct airflow to regions of greatest heat loss.
- Use louvers for adjustment of throw length and complete directional control of airflow.
- Mount units at the lowest practical and allowable level.
- Select lower CFM models for lower installation heights and heavily occupied areas. Select higher CFM models for areas where higher installation is required.
- More, smaller units will provide better heat distribution than fewer larger units.
- Watch Leaving air temperatures on units mounted at lower levels or in heavily occupied areas to ensure that air is warm enough to avoid drafts being felt.
- Sound classifications: Rittling Unit Heaters provide exceptional heat output while considering the nuisance of a loud unit. All units were designed to minimize sound created by airflow and motor operation by careful component selection and inlet geometry. Sound Classification Table to the right shows typical rooms and their corresponding sound class rating.

### **Typical arrangements**

#### Manufacturing plant

Typical arrangement showing air flow patterns.



Note: Diagram is not to scale

#### Large exposed area

A large square area with exposed walls and roof; units are blanketing all exposed surfaces.



#### Narrow exposed area

A narrow area with four exposed walls either with or without roof exposure.



A small area with exposed walls requiring two units.

Sound	class	ratings*
oouna	01000	radingo

Type of room or building	Sound class rating
Schools, offices, libraries, hospitals, foyers, rest rooms	I
Showrooms, department stores, clubhouses, commercial dining facilities	Ш
Large lobbies, warehouse stores, gymnasiums, bars	Ш
Small factories, shipping areas, machine shops, stadium common areas	II-VII
Large factories, fabrication shops	VII

\* When placed in the paired room, the unit's noise should be relatively comparable to the ambient sound level.

Air data

### Steam performance data

### Table A: High motor speed

Standard conditions of 2 lb steam and 60°F entering air

Model number	BTU/Hr	Sq. ft. EDR	Sound class*	Maximum mounting height (ft.)	Heat spread at max. height (ft.)	CFM	Outlet velocity	Final air temp. (°F)	Condensate Ib/hr
				Horizonta	l air delivery	y			
RH-18	18,000	75	П	9	17	400	510	102	18
RH-24	24,000	100	П	9	18	450	580	109	25
RH-33	33,000	138	П	10	20	630	510	109	35
RH-47	47,000	196	III	12	25	730	600	120	49
RH-63	63,000	263	III	14	29	1120	605	112	66
RH-86	86,000	358	III	15	31	1340	730	119	89
RH-108	108,000	450	111	15	32	1550	625	125	111
RH-121	121,000	504	III	16	33	1775	715	123	126
RH-165	165,000	688	IV	17	34	2500	750	121	170
RH-193	193,000	804	IV	18	37	2900	870	122	200
RH-258	258,000	1075	V	19	40	3900	920	121	267
RH-290	290,000	1208	V	20	44	4300	1010	122	300
RH-340	340,000	1417	V	20	46	5130	965	121	352
				Vertical a	air delivery				
RV-42	42,000	175	Ш	11	17	950	779	103	43
RV-59	59,000	246	II	13	20	1150	943	111	61
RV-78	78,000	325	П	14	22	1550	992	110	81
RV-95	95,000	396	Ш	16	24	1775	1136	113	99
RV-139	139,000	579	III	18	27	2500	1284	116	144
RV-161	161,000	671	III	21	31	2900	1490	115	167
RV-193	193,000	804	IV	23	34	3900	1643	109	200
RV-212	212,000	883	IV	25	37	4300	1812	109	219
RV-247	247,000	1029	IV	26	39	5130	1805	107	256
RV-279	279,000	1163	V	30	45	5800	2040	107	288
RV-333	333,000	1388	V	30	45	6600	1968	110	345
RV-385	385,000	1604	VI	30	45	7860	1930	106	398
RV-500	500,000	2083	VI	37	56	10790	2490	103	518
BV-610	610 000	2542	VI	36	54	12350	2345	106	631

### Table B: Reduced motor speed

Standard conditions of 2 lb steam and 60°F entering air

Model number	BTU/Hr	Sq. ft. EDR	Sound class	Maximum mounting height (ft.)	Heat spread at max. height (ft.)	CFM	Outlet velocity	Final air temp.(°F)	Condensate lb/hr
				Horizonta	I air delivery	y			
RH-18	14,800	62	I	9	12	310	395	104	15
RH-24	19,700	82	I	9	13	350	455	112	21
RH-33	27,100	113	I	10	14	490	395	111	29
RH-47	38,500	161	Ш	12	18	565	465	123	40
RH-63	51,700	216	П	14	21	870	470	115	54
RH-86	70,500	294	П	15	22	1040	570	123	73
RH-108	88,600	369	П	15	23	1240	500	126	91
RH-121	99,200	413	П	16	23	1415	570	125	103
RH-165	135,300	564	111	17	24	1990	600	123	139
RH-193	158,300	659	Ш	18	26	2310	695	123	164

Air dat

Notes

See page 4 for sound class definitions

Data for horizontal air delivery units is based upon horizontal louvers open 30°

Data for vertical air delivery units is based upon no deflectors installed, see page 10 for data on units with the addition of air outlet accessories

### Hot water performance data

### Table C: High motor speed

Standard conditions of 200°F entering water, 60°F entering air, and 20°F water temperature drop

			water data					~	ii uata	uata			
Model number	BTU/Hr	GPM	Pressure drop (ft. of water)	Min./ max. GPM	Sound Class **	Maxi mour heig (ft	mum nting ght .)*	He sprea maxi hei	eat ad at mum ght	CFM	Outlet velocity	Final air temp. (°F)	
				Horizo	ontal air	delive	ry						
RH-18	13,000	1.3	0.49	0.3/5.0	П	ç	Э	1	8	400	500	90	
RH-24	17,300	1.7	0.83	0.3/5.0	Ш	1	0	2	0	450	570	96	
RH-33	24,500	2.5	0.12	0.4/10.0	П	1	1	2	2	630	495	96	
RH-47	33,800	3.4	0.21	0.4/10.0	III	1:	3	2	6	730	580	103	
RH-63	46,500	4.7	0.47	0.5/15.0	III	1	5	3	0	1120	590	98	
RH-86	61,900	6.2	0.79	0.5/15.0	III	1	6	3	1	1340	710	103	
RH-108	81,000	8.1	0.85	0.5/20.0	III	1	6	3	3	1550	605	108	
RH-121	90,000	9.0	1.04	0.7/20.0	III	1	7	3	6	1775	690	107	
RH-165	133,000	13.3	2.48	2.0/30.0	IV	1	8	3	8	2500	735	109	
RH-193	156,000	15.6	3.35	2.0/30.0	IV	1	9	4	0	2900	850	110	
RH-258	198,000	19.8	3.54	2.5/40.0	V	2	0	4	2	3900	895	107	
RH-290	224,000	22.4	4.45	2.5/40.0	V	2	1	4	6	4300	990	108	
RH-340	273,000	27.3	3.24	2.5/50.0	V	2	2	5	0	5130	945	109	
				Verti	cal air d	elivery	y						
RV-42	30,500	3.1	0.09	0.5/10.0	П	11	15	17	11	950	776	91	
RV-59	44,300	4.5	0.18	0.8/15.0	П	14	19	21	15	1150	940	97	
RV-78	58,500	6.0	0.43	1.0/20.0	П	15	21	23	16	1550	990	96	
RV-95	71,000	7.2	0.61	1.3/25.0	П	17	23	25	17	1775	1132	99	
RV-139	111,000	11.3	0.84	1.0/30.0	III	18	25	28	19	2500	1281	103	
RV-161	128,800	13.1	1.11	1.3/40.0	III	22	30	33	21	2900	1488	103	
RV-193	142,700	14.5	0.81	1.5/50.0	IV	24	33	36	24	3900	1640	95	
RV-212	159,000	16.1	0.98	2.0/60.0	IV	25	35	37	25	4300	1809	96	
RV-247	197,000	19.9	1.65	2.0/60.0	IV	27	36	40	27	5130	1803	97	
RV-279	220,000	22.2	2.01	2.3/75.0	V	31	39	47	31	5800	2037	97	
RV-333	265,000	26.7	1.27	2.8/75.0	V	30	38	46	30	6600	1966	99	
RV-385	308,000	31.1	1.68	3.3/75.0	VI	33	40	49	33	7860	1928	97	
RV-500	403,000	40.9	2.32	3.0/100.0	VI	40	48	60	40	10790	2487	94	
RV-610	459,000	46.3	2.42	6.0/100.0	VI	39	47	58	40	12350	2343	97	

### Table D:Reduced motor speed

Standard conditions of 200°F entering water, 60°F entering air, and 20°F water

			Water da	ta			Air data	a		
Model number	BTU/Hr	GPM	Pressure drop (ft. of water)	Min./ max. GPM	Sound class **	Max. mounting height	Heat spread at max height*	CFM	Outlet velocity (FPM)	Final air temp. (°F)
				Horizo	ontal air	delivery				
RH-18	10,660	1.3	0.49	0.2/5.0	- I	9	13	310	390	92
RH-24	14,186	1.7	0.83	0.2/5.0	1	10	14	350	450	98
RH-33	20,090	2.5	0.12	0.6/10.0	- I	11	16	490	390	98
RH-47	27,716	3.4	0.21	0.6/10.0	Ш	13	18	565	455	105
RH-63	38,130	4.7	0.47	0.6/15.0	Ш	15	21	870	460	101
RH-86	50,758	6.2	0.79	0.6/15.0	П	16	22	1040	550	105
RH-108	66,420	8.1	0.85	0.5/20.0	Ш	16	23	1240	485	110
RH-121	73,800	9.0	1.04	0.5/20.0	Ш	17	26	1415	555	108
RH-165	109,060	13.3	2.48	0.5/30.0	Ш	18	27	1990	590	111
RH-193	127,920	15.6	3.35	0.5/30.0	III	19	28	2310	680	111

#### Notes

■ \*Data for horizontal air delivery units is based upon horizontal louvers open 30°

\*Data for vertical air delivery units is based upon no deflectors installed, see page 10 for data on units with the addition of air outlet accessories

\*\*See page 4 for sound class definitions

### Model identification and power code

- \* Explosion proof motors are suitable for Class I, Div. 1 and Div. 2, Group C & D; Class II, Div. 1 and Div. 2, Groups F & G. The explosion proof units may not be used with a fluid temperature in excess of 329 °F and still maintain their explosion proof rating for National Electric Code ignition temperature rating T3B for grain dust. Class I, Group D Motors are for operations in areas containing gasoline, petroleum, naphtha, benzene, butane, propane, alcohol, acetone, lacquer solvent or natural gas. Class II, Group F motors are for operations in areas containing carbon black, coal or coke dust. Class II, Group G motors are for operations in areas containing flour, starch or grain dust. Class III motors are for operations in areas containing easily ignitable fibers and flyings.
- \*\* Three-phase motors require field supplied motor overload protection to be rated in compliance with the applicable installation code, as specified by the authority having jurisdiction.

### Figure 1

### Model number designation



### Table E: Motor data

			Voltage, motor type and power code							
	115/60/1 and	208-230/60/1	115/60/1	208-230/60/1	230/46	0/60/3**	115/208-	230/60/1*		
Model number	Motor HP	Approximate RPM	Totally enclose over	ed with thermal load	Motor HP	Totally enclosed	Explosion proof motor HP	Explosion proof with thermal overload		
			01 Amps	02 Amps		05 Amps		06 Amps		
RH-18	1/30	1550	0.70	0.22	N/A	N/A	1/4	4.8/2.3-2.4		
RH-24	1/30	1550	0.70	0.22	N/A	N/A	1/4	4.8/2.3-2.4		
RH-33	1/15	1550	0.72	0.50	N/A	N/A	1/4	4.8/2.3-2.4		
RH-47	1/15	1550	0.72	0.50	N/A	N/A	1/4	4.8/2.3-2.4		
RH-63	1/10	1550	1.30	0.59	1/3	1.4/0.7	1/4	4.8/2.3-2.4		
RH-86	1/10	1550	1.30	0.59	1/3	1.4/0.7	1/4	4.8/2.3-2.4		
RH-108	1/8	1075	1.58	0.80	1/2	2.2/1.1	1/4	6.8/3.1-3.4		
RH-121	1/8	1075	1.58	0.80	1/2	2.2/1.1	1/4	6.8/3.1-3.4		
RH-165	1/4	1075	2.65	1.40	1/2	2.2/1.1	1/4	6.8/3.1-3.4		
RH-193	1/4	1075	2.75	1.40	1/2	2.2/1.1	1/4	6.8/3.1-3.4		
RH-258	1/3	1075	3.60	2.00	1/2	2.2/1.1	1/3	7.8/3.6-3.9		
RH-290	1/2	1075	4.68	2.20	1/2	2.2/1.1	1/2	9.6/4.7-4.8		
RH-340	1/2	1075	4.68	2.20	1/2	2.2/1.1	1/2	9.6/4.7-4.8		
RV-42	1/10	1550	1.30	0.59	1/3	1.4/0.7	1/4	4.8/2.3-2.4		
RV-59	1/10	1550	1.30	0.59	1/3	1.4/0.7	1/4	4.8/2.3-2.4		
RV-78	1/6	1550	2.20	1.10	1/3	1.4/0.7	1/4	4.8/2.3-2.4		
RV-95	1/6	1550	2.20	1.10	1/3	1.4/0.7	1/4	4.8/2.3-2.4		
RV-139	1/4	1075	2.75	1.40	1/2	2.2/1.1	1/3	6.6/3.1-3.3		
RV-161	1/4	1075	2.75	1.40	1/2	2.2/1.1	1/3	6.6/3.1-3.3		
RV-193	1/2	900	4.68	2.20	1/2	2.2/1.1	1/2	9.6/4.7-4.8		
RV-212	1/2	1075	4.68	2.20	1/2	2.2/1.1	1/2	9.6/4.7-4.8		
RV-247	5/8	900	5.85	3.40	1	4.2/2.1	1/2	9.6/4.7-4.8		
RV-279	5/8	1075	5.85	3.40	1	4.2/2.1	1/2	9.6/4.7-4.8		
RV-333	1	1075	8.95	4.50	1	4.2/2.1	-			
RV-385	-	-			1	4.2/2.1	-			
RV-500	-	-			2	5.0/2.5	-			
RV-610	-	-			2	6.8/3.4	-			

### Table F:Water volume and mass

Standard conditions of 200°F entering water, 60°F entering air, and 20°F water

	RH 18/24	RH 33/47	RH 63/86	RH 108/121	RH 165/193	RH 258/290	RH 340	
Volume of Water gal	0.11	0.34	0.39	0.77	0.85	1.58	1.87	
Mass of Water lbs	0.92	2.83	3.27	6.37	7.06	13.12	15.57	
	RV	RV	RV	RV	RV	RV _		RV

	RV 42/59	RV 78/95	RV 139/169	RV 193/212	RV 247/279	RV 333/385	RV 500	RV 610
Volume of Water gal	0.35	0.44	0.65	0.88	1.19	2.12	2.93	3.40
Mass of Water Ibs	2.93	3.63	5.39	7.31	9.93	17.61	24.40	28.24

### Options, accessories and control sequences

### **Control sequences**

The following control sequence descriptions are commonplace for steam/hot water horizontal and vertical air delivery Rittling Unit Heaters.

### Intermittent fan operation: intermittent hot/cold coil

When a thermostat calls for heat, the motor is energized. At the same time, a valve is opened allowing the heating fluid to enter the Rittling Unit Heater. Placing an aquastat to the supply or return piping will prevent motor operation until coil is properly heated to avoid the delivery of cold air. After thermostat is satisfied, the valve closes and motor is de-energized.

### Intermittent fan operation: hot coil

When a thermostat calls for heat, the motor is energized. The heating fluid is continuously supplied to the Rittling Unit Heater, even with the motor off. After thermostat is satisfied, motor is de-energized.

### Continuous fan operation: intermittent hot/cold coil

When a thermostat calls for heat, a valve opens, allowing the heating fluid to enter the unit heater. After the thermostat is satisfied, the valve closes. The fan runs continuously.

### **Factory mounted options**

OptionDescriptionDisconnectUnit mounted toggle switch for on/off control of fan operation.Speed controller (variable speed)Unit mounted speed controller allows infinite adjustment of fan speed, controlling airflow volume, available only with power code 01.Unit mounted thermostatUnit mounted thermostat turns fan on after air temperature falls below set point. Line voltage heating thermostat range 50 °F to 90 °F 25A at 120V/240V, only for power codes 01 and 02.		
Disconnect Unit mounted toggle switch for on/off control of fan operation.   Speed controller (variable speed) Unit mounted speed controller allows infinite adjustment of fan speed, controlling airflow volume, available only with power code 01.   Unit mounted thermostat Unit mounted thermostat turns fan on after air temperature falls below set point. Line voltage heating thermostat range 50 °F to 90 °F 25A at 120V/240V, only for power codes 01 and 02.	Option	Description
Speed controller (variable speed)Unit mounted speed controller allows infinite adjustment of fan speed, controlling airflow volume, available only with power code 01.Unit mounted thermostatUnit mounted thermostat turns fan on after air temperature falls below set point. Line voltage heating thermostat range 50 °F to 90 °F 25A at 120V/240V, only for power codes 01 and 02.	Disconnect	Unit mounted toggle switch for on/off control of fan operation.
Unit mounted thermostat Unit mounted thermostat turns fan on after air temperature falls below set point. Line voltage heating thermostat range 50 °F to 90 °F 25A at 120V/240V, only for power codes 01 and 02.	Speed controller (variable speed)	Unit mounted speed controller allows infinite adjustment of fan speed, controlling airflow volume, available only with power code 01.
	Unit mounted thermostat	Unit mounted thermostat turns fan on after air temperature falls below set point. Line voltage heating thermostat range 50 °F to 90 °F 25A at 120V/240V, only for power codes 01 and 02.
Manual starter With the mail overload protection for on/off fan control. Starter comes with a fused overload that protects unit up to 125% load, only for power code 01.	Manual starter	Unit mounted toggle switch starter with thermal overload protection for on/off fan control. Starter comes with a fused overload that protects unit up to 125% load, only for power code 01.
Diffuser blades Diffuser blades are attached to louver to deflect airflow in directions left or right of the heater.	Diffuser blades	Diffuser blades are attached to louver to deflect airflow in directions left or right of the heater.

Contact factory for options requiring different voltages than listed above

### **Field installed options**

Option	Description
Thermostat	Line voltage heating thermostat range 50 $^\circ F$ to 90 $^\circ F$ 25A at 120V/240V, only for power codes 01 and 02.
Explosion-proof thermostat	46 °F to 84 °F range 10.2A at 115V, 6.5A at 230V.
Aquastat	Surface mounted aquastat range 100 °F to 240 °F. It will delay the motor until a predetermined water temperature is reached.
Speed controller (variable speed)	Wall mounted speed controller allows remote infinite adjustment of fan speed, controlling airflow volume, available only with power code 01.
Thermostat guard	Clear plastic locking guard with lock and keys to deter unwanted adjustment of set temperature.
Pipe hanger kit	Allows unit to be suspended from ceiling by threaded pipe instead of threaded rod.
Manual starter	Wall mounted toggle switch starter with thermal overload protection for remote on/off control of fan. Starter comes with a thermal overload that protects unit up to 125% load, only for power code 01.
Disconnect	Wall mounted disconnect allows on/off control of fan operation.

Contact factory for options requiring different voltages than listed above

### Options, accessories and control sequences

### Field installed options for vertical models

Option	Description
Cone-jet	The cone-jet allows the unit's discharged air to be adjusted from a direct high velocity stream to a broadened stream that can cover a larger area.
Truncone	The truncone allows for a broad air stream covering a larger area than possible with a cone-jet.
One-way louver	The one-way louver allows for a one directional discharge of air.
Two-way louver	The two-way louver allows for a bi-directional discharge of air.
3-cone anemostat	The 3-cone anemostat allows for an even air stream covering a larger area than possible with the truncone.
4-cone anemostat	The 4-cone anemostat allows for an even air stream covering a larger area than possible with the 3-cone anemostat.

**Cone-Jet** 



Louvers



Truncone

**No Deflector** 

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### Anemostat



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### Vertical air outlet accessories

### No deflector



Model	Mounting	maximums			
number	Height	Spread			
RV-42	11'	17'			
RV-59	13'	20'			
RV-78	14'	22'			
RV-95	16'	24'			
RV-139	18'	27'			
RV-161	21'	31'			
RV-193	23'	34'			
RV-212	25'	37'			
RV-247	26'	39'			
RV-279	30'	45'			
RV-333	30'	45'			
RV-385	30'	45'			
RV-500	37'	56'			
RV-610	36'	54'			

### Truncone



Model	Acce dimer	ssory Isions	Mounting maximums				
number	Height	Width	Height	Spread			
RV-42	10"	05"	8'	19'			
RV-59	10	25	9'	25'			
RV-78	10"	05"	11'	26'			
RV-95	10	25	11'	26'			
RV-139	10"	20"	13'	32'			
RV-161	12	29	14'	35'			
RV-193	10"	00"	16'	39'			
RV-212	12	29	16'	39'			
RV-247	- 4 "	00"	17'	46'			
RV-279	14	33	18'	53'			
RV-333	14"	22"	17'	53'			
RV-385	14	33	17'	53'			
RV-500	18"	37"	19'	65'			
RV-610	18"	39"	19'	63'			

### Cone jet



Model	Acce dimer	ssory Isions	Mounting maximums				
number	Height	Width	Height	Spread			
RV-42	6 1/0"	16 1/0"	15'	11'			
RV-59	0-1/2	10-1/2	18'	13'			
RV-78	6 1/0"	10 1/0"	19'	14'			
RV-95	0-1/2	10-1/2	21'	16'			
RV-139	0 "	20 1/2"	24'	18'			
RV-161	0	20-1/2	28'	21'			
RV-193	0"	00 1/0"	31'	23'			
RV-212	0	22-1/2	33'	25'			
RV-247	0"	04 1/0"	34'	26'			
RV-279	9	24-1/2	37'	30'			
RV-333	٥"	26 1/2"	37'	30'			
RV-385	3	20-1/2	36'	30'			
RV-500	10"	20 1/2"	44'	37'			
RV-610	10	30-1/2	43'	36'			

### 3-cone anemostat



Model	Acce: dimer	ssory Isions	Mounting maximums				
number	Height	Width	Height	Spread			
RV-42	C/2"	00 1/0"	8'	22'			
RV-59	G/2	22-1/2	9'	28'			
RV-78	C/2"	04 1/0"	11'	30'			
RV-95	G/2	24-1/2	11'	30'			
RV-139	14"	06 1/0"	13'	36'			
RV-161	14	20-1/2	14'	40'			
RV-193	14"	09 1/0"	16'	44'			
RV-212	14	20-1/2	16'	44'			
RV-247	15"	20 1/2"	17'	52'			
RV-279	15	30-1/2	18'	60'			
RV-333	15"	20 1/0"	17'	60'			
RV-385	13	52-1/2	17'	60'			
RV-500	16"	36-1/2"	19'	74'			
RV-610	16"	38-1/2"	-	-			

### Louvers



	- VV	-					
Model	Acce dimer	ssory Isions	Mounting maximums				
number	Height	Width	Height	Spread			
RV-42	6 1/0"	16 1/0"	13'	11'			
RV-59	0-1/2	10-1/2	16'	14'			
RV-78	6 1/0"	10 1/0"	17'	15'			
RV-95	0-1/2	10-1/2	17'	15'			
RV-139	0.1	00.1/0	21'	18'			
RV-161	0	20-1/2	23'	20'			
RV-193	0"	00 1/0"	25'	22'			
RV-212	0	22-1/2	25'	22'			
RV-247	0"	04 1/0	30'	26'			
RV-279	9	24-1/2	35'	30'			
RV-333	0"	06 1/0"	35'	30'			
RV-385	9	20-1/2	35'	30'			
RV-500	10"	20 1/2"	42'	37'			
RV-610	10	30-1/2	41'	41'			

#### 4-cone anemostat

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Model	Acces dimen	ssory Isions	Mounting maximums										
number	Height	Width	Height	Spread									
RV-42	14"	25"	8'	28'									
RV-59	14	25	8'	35'									
RV-78	14"	07"	8'	30'									
RV-95	14	21	8'	30'									
RV-139	1/2"	20"	9'	45'									
RV-161	1/2	29	10'	50'									
RV-193	1/0"	01"	12'	55'									
RV-212	1/2	31	12'	55'									
RV-247	16 1/0"	20"	13'	65'									
RV-279	10-1/2	33	13'	75'									
RV-333	16 1/2"	25"	13'	75'									
RV-385	10-1/2	55	13'	75'									
RV-500	1A/2"	39"	13'	93'									
RV-610	1A/2"	41"	-	-									

### Table F: Hot water mounting height correction factors

Entering water temperature	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300
Correction factor	1.33	1.25	1.19	1.13	1.08	1.04	1.00	0.97	0.94	0.91	0.89	0.86	0.84	0.82	0.80	0.78	0.77

Notes:

Data shown for standard 2lb steam and 60 °F EWT conditions. For louvers or cone jet, data shown for deflectors in fully-opened position.

For mounting height and spread for hot water, multiply the value above by 1.06 to approximate the mounting height and spread at 200 °F EWT.

For entering water temperature other than 200 °F, multiply the value above by 1.06 and then multiply by the correction factor in Table F.

**RH** models

### Dimensions and data

### RH-18 through RH-86



### RH-108 through RH-340



#### **Dimensional data**

Model	A	в	с	D	E	F	G	н	J	к	NPT connections	Fan diameter	Approximate shipping weight (lb)
RH-18	15	16-7/8	7-1/2	4-1/2	12	3-1/2	5	10	-	-	3/4	9	37
RH-24	15	16-7/8	7-1/2	4-1/2	12	3-1/2	5	10	-	-	3/4	9	39
RH-33	19	19-3/4	7-1/2	4-3/4	12	3-1/2	5	14	-	-	3/4	12	48
RH-47	19	19-3/4	7-1/2	4-3/4	12	3-1/2	5	14	-	-	3/4	12	50
RH-63	19	25-3/4	8-1/2	4-3/4	18	3-1/2	5	14	-	-	3/4	14	61
RH-86	19	25-3/4	8-1/2	4-3/4	18	3-1/2	5	14	-	-	3/4	14	63
RH-108	27	25-7/8	9-1/2	6-1/4	18	3-1/2	5-1/4	-	2	3	1-1/2	18	88
RH-121	27	25-7/8	9-1/2	6-1/4	18	3-1/2	5-1/4	-	2	3	1-1/2	18	90
RH-165	27	31-7/8	10	6-1/4	24-7/8	3-1/2	6-1/4	-	2	3	1-1/2	20	110
RH-193	27	31-7/8	10	8-3/8	24-7/8	3-1/2	6-1/4	-	2	3	1-1/2	20	115
RH-258	33	40-13/16	11	8-3/8	32-7/8	3-1/2	6-1/4	-	2-1/4	3	2	22	162
RH-290	33	40-13/16	11	8-3/8	32-7/8	3-1/2	6-1/4	-	2-1/4	3	2	22	164
RH-340	39	40-13/16	12	8-3/8	32-7/8	3-1/2	7-1/4	-	2-1/4	3	2	24	210

Note:

Dimensions in inches unless otherwise noted

#### Maximum mounting height

Model	200 °F E 60 °F	WT and EAT	2 lb steam and 60 °F EAT			
	Height	Spread	Height	Spread		
RH-18	9'	18'	9'	17'		
RH-24	10'	20'	9'	18'		
RH-33	11'	22'	10'	20'		
RH-47	13'	26'	12'	25'		
RH-63	15'	30'	14'	29'		
RH-86	16'	31'	15'	31'		
RH-108	16'	33'	15'	32'		
RH-121	17'	36'	16'	33'		
RH-165	18'	38'	17'	34'		
RH-193	19'	40'	18'	37'		
RH-258	20'	42'	19'	40'		
RH-290	21'	46'	20'	44'		
RH-340	22'	50'	20'	46'		

Notes:

All dimensions in inches

RH-18 through RH-86 have side female NPT pipe connections

RH-108 through RH-340 have top and bottom male NPT pipe connections

■ Units should be mounted a minimum of 5" from wall

### Dimensions and data

#### RH-18 through RH-86





### **RH** models with explosion proof motor

### RH-108 through RH-340





#### **Dimensional data**

Model	А	В	с	D	E	F	G	н	J	к	L	NPT connections	Fan diameter	Approximate shipping weight (lb)
RH-18	16	16-7/8	7-1/2	8-1/2	21-1/2	24-7/8	3-1/2	10	-	13-1/8	-	3/4	9	64
RH-24	16	16-7/8	7-1/2	8-1/2	21-1/2	24-7/8	3-1/2	10	-	13-1/8	-	3/4	9	66
RH-33	20	19-3/4	7-1/2	10-1/2	21-1/2	24-7/8	3-1/2	14	-	11-7/8	-	3/4	12	75
RH-47	20	19-3/4	7-1/2	10-1/2	21-1/2	24-7/8	3-1/2	14	-	11-7/8	-	3/4	12	77
RH-63	20	25-3/4	8-1/2	10-1/2	22-11/16	25-3/4	3-1/2	14	-	15-7/16	-	3/4	14	88
RH-86	20	25-3/4	8-1/2	10-1/2	22-11/16	25-3/4	3-1/2	14	-	15-7/16	-	3/4	14	90
RH-108	28	25-7/8	9-1/2	14-1/2	23-7/16	27-7/16	3-1/2	-	2	14	3	1-1/2	18	118
RH-121	28	25-7/8	9-1/2	14-1/2	23-7/16	27-7/16	3-1/2	-	2	14	3	1-1/2	18	120
RH-165	28	31-7/8	10	14-1/2	24-5/8	28-7/16	3-1/2	-	2	20-1/16	3	1-1/2	20	140
RH-193	28	31-7/8	10	14-1/2	24-5/8	28-7/16	3-1/2	-	2	20-1/16	3	1-1/2	20	145
RH-258	34	40-13/16	11	17-1/2	26-5/8	29-11/16	3-1/2	-	2-1/4	23-9/16	3	2	22	195
RH-290	34	40-13/16	11	17-1/2	26-5/8	29-11/16	3-1/2	-	2-1/4	23-9/16	3	2	22	205
RH-340	40	40-13/16	12	20-1/2	28-3/16	31-3/16	3-1/2	-	2-1/4	27	3	2	24	251

Note:

Dimensions in inches unless otherwise noted

### Maximum mounting height

Model	200 °F E 60 °F	WT and EAT	2 lb steam and 60 °F EAT				
	Height	Spread	Height	Spread			
RH-18	9'	18'	9'	17'			
RH-24	10'	20'	9'	18'			
RH-33	11'	22'	10'	20'			
RH-47	13'	26'	12'	25'			
RH-63	15'	30'	14'	29'			
RH-86	16'	31'	15'	31'			
RH-108	16'	33'	15'	32'			
RH-121	17'	36'	16'	33'			
RH-165	18'	38'	17'	34'			
RH-193	19'	40'	18'	37'			
RH-258	20'	42'	19'	40'			
RH-290	21'	46'	20'	44'			
RH-340	22'	50'	20'	46'			

Notes:

- All dimensions in inches
- RH-18 through RH-86 have side female NPT pipe connections

RH-108 through RH-340 have top and bottom male NPT pipe connections

■ Units should be mounted a minimum of 5" from wall

### Dimensions and data

**RV** models

#### RV-42, RV-59

RV-78 through RV-610



steam return NPT connection

#### **Dimensional data**

Model	Α	В	с	D	E	F	G	н	J	Male NPT connections	Fan diameter	Approx. shipping weight lb
RV-42/RV-59	23	6-3/8	12	12	3-1/8	15	2-3/4	1-7/8	3-1/4	1-1/2	13-3/4	65
RV-78/RV-95	25	6-3/8	13	13	3-1/8	17	2-3/4	1-7/8	3-1/4	1-1/2	15-3/4	76
RV-139/RV-161	25	10-3/8	14-7/16	14-7/16	3-1/8	18-7/8	2-3/4	2	3-1.4	1-1/2	17-3/4	118
RV-193/RV-212	30	12-3/8	19	17	4	20-7/8	2-3/4	2	3-5/8	2	19-3/4	157
RV-247/RV-279	35	12-3/8	20	18	4	22-7/8	2-3/4	2	3-5/8	2	21-3/4	185
RV-333/RV-385	35	18-3/8	21	21	4	24-3/4	2-3/4	2-1/2	4-1/2	2-1/2	23-3/4	220
RV-500	43	18-3/8	14	14	4	28-3/4	2-3/4	2-1/2	4-1/2	2-1/2	27-3/4	285
RV-610	43	18-3/8	14	14	4	30-3/4	2-3/4	2-1/2	4-1/2	2-1/2	29-3/4	331

Notes:

All dimensions in inches

■ RH-18 through RH-86 have side female NPT pipe connections

■ RH-108 through RH-340 have top and bottom male NPT pipe connections

■ Units should be mounted a minimum of 5" from wall

### Mechanical specifications

### General

Furnish and install Rittling Unit Heaters where indicated on the plans and in the specifications, with required mounting components and accessories. All units shall be capable of meeting or exceeding the scheduled capacities for heating and air delivery. Units shall be ETL certified for the United States and Canada in compliance with UL/ANSI Standard 1995 and CSA C22.2 No. 236-95.

### Construction

All units shall have panels fabricated of not less than 18-gauge cold rolled steel and consist of top/back and side halves. Both halves are joined on top and back with hex head screws. Top casing is furnished with threaded hanger connections for suspension of unit. Fan venture is die-formed on back half.

Casing on all vertical units are top and bottom pieces joined by corners and additional hardware. Top casing is furnished with threaded hanger connections for suspension of unit.

Units shall be equipped with horizontal, individually adjustable louvers (RH). [Vertical louvers for four-way air control shall be included (RH).]

- Option: Provide a [cone-jet] [truncone] [one-way louver] [two-way louver] [3-cone anemostat] [4-cone anemostat] to provide specific air throw pattern on vertical Rittling Unit Heater.
- Option: Provide a pipe hanging kit that allows the unit to be hung from threaded pipe in lieu of threaded hanger rod.

### Painted finish

All painted cabinet exterior panels shall be finished with a standard textured gray epoxy powder coat paint.

### Power

Units shall not exceed scheduled power consumption.

### Motor

Motors shall be two speed, permanent split-capacitor, totally enclosed, permanently lubricated bearing type with automatic reset integral thermal overload protection (3-phase motors require field supplied motor overload protection), designed to handle up to 104°F maximum constant ambient temperature. Shaded pole motors are not acceptable. Single speed motors are not acceptable.

[Explosion proof motors have an enclosure designed and constructed to withstand an explosion of a specified gas or vapor which may occur within the motor and to prevent the ignition of this gas or vapor surrounding the unit. Explosion proof motor is suitable for Class I, Div I&II, Groups C&D and Class II, Div I&II, Groups F&G. The explosion proof motors may not be used with a fluid temperature in excess of 329°F and still maintain the explosion proof rating for NEC ignition temperature rating T3B for grain dust. All explosion proof motors are shelf mounted.

 Option: Provide a solid state variable speed controller.

### Fan

Fans shall have non-conducting, sparkproof aluminum blades, with a steel hub. Each fan blade is balanced and designed specifically for the unit in which it is installed to assure maximum air delivery and quiet operation.

### Fan guard

Fan guard shall be finger-proof, constructed of welded steel rod and finished with a standard black epoxy powder coat paint. Units mounted below 8 feet from the floor must be equipped with an OSHA fan guard to meet ETL and OSHA requirements.

### Coils

Heating coil is designed for either two-pipe steam or hot water heating system. Coils shall have ½" nominal diameter seamless copper tubes and shall be mechanically expanded to provide an efficient, permanent bond between the tube and integral collar of the aluminum fin. Minimum copper tube thickness shall be 0.028".

Fins shall be die-formed and have a high efficiency aluminum surface optimized for heat transfer, air pressure drop and carryover. Minimum fin thickness shall be 0.010". Lanced fins shall not be acceptable. Fins are continuous across width and depth of coil and are vertically oriented to resist collection of dirt and foreign particles.

Coils are of non-ferrous construction and serpentine design for RH-18 and RH-24. All other units incorporate brazed steel header tubes. RH-18 through RH-86 units have <sup>3</sup>⁄<sub>4</sub>" female threaded NPT, brass header connections while all other units have male threaded NPT connections.

All coils shall be tested at 275 PSIG air pressure under water, and rated for a maximum 220 PSIG water or 150 PSIG steam and 375°F. Coils have CRN pressure vessel certification for Ontario and Quebec provinces.

### Mechanical specifications

### Electrical

Units shall be furnished with single point power connection. Provide an electrical junction box for motor and other electrical terminations.

- Option: Provide an explosion proof wall thermostat, shipped loose for remote mounting.
- Option: Provide a line voltage wall thermostat, shipped loose for remote mounting. Adjustable setpoint dial included.
- Option: Provide a clear, plastic locking thermostat guard, shipped loose for remote mounting.
- Option: Provide a service disconnect switch to isolate power from the unit during maintenance.
- Option: Provide a manual motor starter to provide overload protection for the motor.
- Option: Provide a line voltage aquastat, shipped loose for remote mounting on the incoming supply piping. Adjustable setpoint dial included.

The brand with the best indoor climate solutions.

The broad and clearly structured portfolio from the Zehnder Group is split into four product lines. Consequently, we can provide the right product, the perfect system and the matching service for all types of projects - from new builds to renovations, single- or multiple- family homes, as well as commercial projects. This variety ensures that our wealth of experience is continuously expanding, providing tangible added value to our customers on a daily basis.



#### **Decorative radiators**

Our individual decorative radiators for living and bathrooms not only make a home warmer but also more attractive. Created by renowned designers, they impress with excellent functionality.

### NUMBERS THAT SPEAK FOR THEMSELVES



### WARRANTY

Zehnder guarantees its products to be free from defects in material and workmanship for a period of two years from date of shipment from our factory.

Should there be any defects in the good(s), the purchaser should promptly notify Zehnder. Upon receipt of written consent from Zehnder, the purchaser shall return the defective good(s) to the factory for inspection with freight prepaid. If inspection shows the goods to be defective, Zehnder will at its discretion repair or replace the said item(s).

Defects arising from damage due to shipment, improper installation, negligence or misuse by others are not covered by this warranty.



Comfortable indoor ventilation Our comfortable indoor ventilation is energy-efficient and provides a healthy indoor climate. It promotes the wellbeing of the occupants and increases the value of the property.



Heating and cooling ceiling systems Zehnder heating and cooling ceiling systems are convenient and energyefficient for heating and cooling. They are perfectly attuned to the relevant environment.



Clean air solutions Clean air solutions from Zehnder reduce the level of dust in the air, create a healthier working climate and reduce the amount of cleaning required.

### **BEST CLIMATE IN THE WORLD**



This warranty is extended only to the original purchaser from Zehnder.

IMPORTANT: Approved submittal documentation, specific to each project, supersedes the general guidelines contained within this document.



The Zehnder brand offers excellent indoor climate solutions within the sectors of decorative radiators, clean air solutions, comfortable indoor ventilation and heating and cooling ceiling systems.



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