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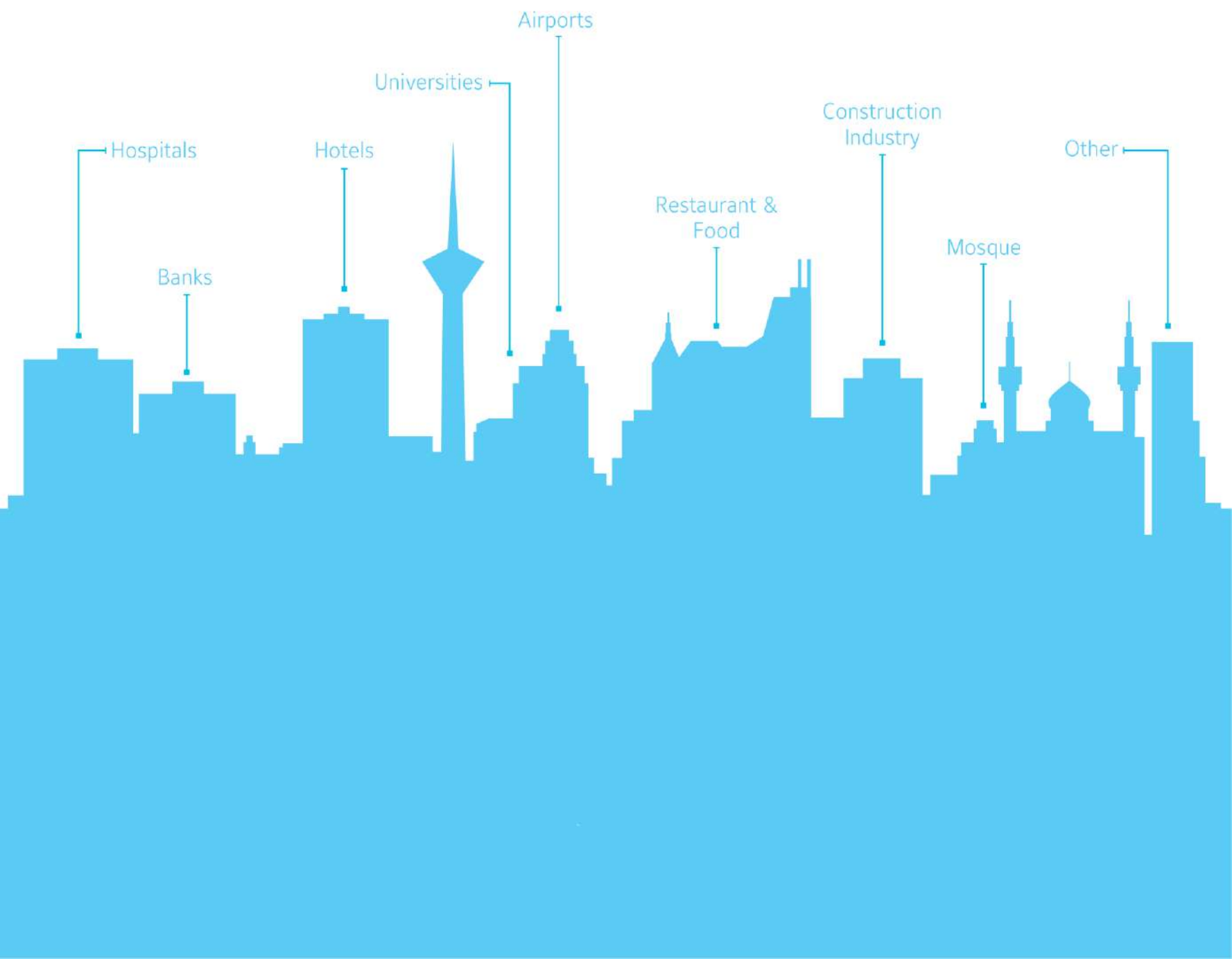
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UNIT HEATER

Saran

Life's Pleasant Breeze



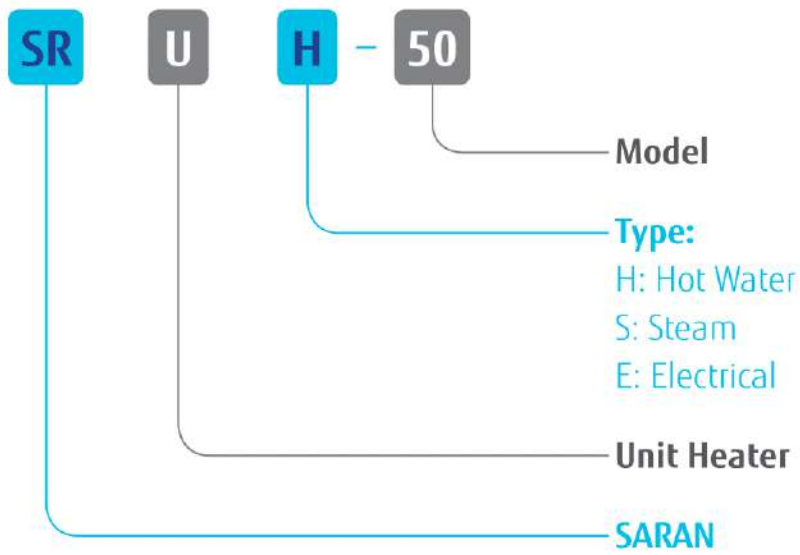


Contents

| | |
|---------------------------------------|----|
| Nomenclature | 4 |
| Introduction | 5 |
| Selection Examples | 5 |
| Technical and Performance Data | 7 |
| Selection Considerations | 9 |
| Dimensions | 11 |
| Piping Recommendations | 12 |
| Air Distribution pattern | 13 |



NOMENCLATURE



Introduction

Saran unit heaters offered in ten models in three type such as hot water, steam and electrical. These units cover a wide range of heating capacities and suitable for use in commercial and industrial applications.

All units are constructed from heavy gauge galvanized steel sheet covered with fine quality paint. Water and steam coils are manufactured from seamless copper tubes mechanically bonded to high efficiency wavy corrugated aluminum fins (In steam pressures above 40 psig, steam coils are made of seamless steel tubes with spiral aluminum fins).

Saran unit heaters equipped with direct driven axial fans which statically and dynamically balanced. Single phase motors (220V/50Hz) at 900 RPM or 1400 RPM used in unit heaters as standard but three phase (380V/50Hz) motors at 1400 RPM are available upon request. In addition, all units equipped with individually adjustable horizontal louvers for simple vertical air distribution adjustment.

Main Features:

- Heavy gauge galvanized casing
- High efficiency direct driven axial fans for quiet operation
- Space saving & light weight
- Low power consumption
- High efficiency coil
- Adjustable louvers
- Three type capacities for electrical heater models (Low, Medium and High)
- Complete safety controllers for electrical heaters (Air flow switch, Circuit breaker and High temperature thermostat)
- Quick electrical connections

Selection Examples

Selection Example 1:

Given:

Total Heating Load: 125,000 Btu/hr

Ambient Altitude: 4000 ft

Entering Air DB Temperature: 50°F

Entering Water Temperature: 160°F

Leaving Water Temperature: 140°F

Step1: Appropriate Fan Coil Unit Selection

By referring to table 1, we can see heating capacity of SRUH-300 with 900 RPM motor is 155000 Btu/hr in the standard conditions (entering air temperature of 60°F and entering/leaving hot water temperature of 180°F / 160°F in sea level). Therefore, in first step, we select this unit and then we calculate actual capacity of unit in our conditions.

Step2: Correction Factors Consideration

Because of unit heaters performance tables are based on standard conditions, we should be use load adjustment factor in our conditions, so by referring to table 4, we can see hot water correction factor in our conditions (E.A.T = 50°F and E.W.T = 160°F) is 0.89 and by referring to table 7, altitude correction factor is 0.936. Therefore, we have:

$$\text{Actual Heating Capacity} = 155000 \times 0.89 \times 0.936 = 129121 \text{ Btu/hr}$$

Therefore, the chosen unit satisfies the load requirements.

In addition, by referring to table 6, we can see air flow rate correction factor in entering air temperature of 50°F is 1.02, so by multiply nominal air flow rate of SRUH-300 in table 1 to this value, we have:

$$\text{Actual Air Flow Rate (CFM)} = 2700 \times 1.02 = 2754 \text{ CFM}$$

Step3: Determine Water Pressure Drop

To determine water pressure drop, we need to calculate water flow rate in our conditions and actual flow rate ratio by using following formulas:

$$\text{Hot water flow rate (GPM)} = \frac{\text{Actual Heating Capacity (Btu/hr)}}{500 \times \text{Hot Water Flow Range (°F)}} = \frac{129121}{500 \times 20} = 12.9 \text{ GPM}$$

$$\text{Hot water flow ratio} = \frac{\text{Actual Water Flow Rate}}{\text{Nominal Flow Rate}} = \frac{12.9}{15.5} = 0.83$$

Therefore, by referring to table 5, we can see water pressure correction factor in calculated water flow ratio is 0.73, so we have:

$$\text{Water Pressure Drop (FT.WG)} = \text{Nominal P.D (FT.WG)} \times \text{Correction Factor (table 5)} = 2 \times 0.73 = 1.46 \text{ FT.WG}$$



Selection Examples (Cont.)

Selection Example 2:

Given:

Total Heating Load: 265,000 Btu/hr
 Ambient Altitude: Sea Level
 Entering Air DB Temperature: 50°F
 Saturated Steam Pressure: 30 psig

Step1: Appropriate Fan Coil Unit Selection

By referring to table 2, we can see heating capacity of SRUS-400 with 900 RPM motor is 259000 Btu/hr in the standard conditions (entering air temperature of 60°F and saturated steam pressure of 30 psig in sea level). Therefore, in first step, we select this unit and then we calculate actual capacity of unit in our conditions.

Step2: Correction Factors Consideration

Because of unit heaters performance tables are based on standard conditions, we should be use load adjustment factor in our conditions, so by referring to tables 8, we can see correction factor in our conditions (E.A.T = 50°F and Steam Pressure = 30 psig) is 1.045 and by referring to table 7, altitude correction factor is 1. Therefore, we have:

$$\text{Actual Heating Capacity} = 259000 \times 1.045 \times 1 = 270655 \text{ Btu/hr}$$

Therefore, the chosen unit satisfies the load requirements.

In addition, by referring to table 6, we can see air flow rate correction factor in entering air temperature of 50°F DB is 1.02, so by multiply nominal air flow rate of SRUS-400 in table 2 to this value, we have:

$$\text{Actual Air Flow Rate (CFM)} = 3700 \times 1.02 = 3774 \text{ CFM}$$

Step3: Determine Condensate Mass Flow Rate

To determine condensate mass flow rate, we can using following formula:

$$\text{Condensate Mass Flow Rate (lb/hr)} = \frac{\text{Actual Heating Capacity (Btu/hr)}}{\text{Latent Heat of Steam from table 9 (lb/hr)}} = \frac{270655}{939.26} = 288.16 \text{ lb/hr}$$

Technical and Performance Data

Table 1: Hot Water Unit Heater

| Model | Motor | | Air Flow (CFM) | Capacity (MBH) | Water Flow (GPM) | Leaving Air Temp. (°F) | Water P.D (FT.WG) | Weight (kg) |
|----------|-------------|-----------|----------------|----------------|------------------|------------------------|-------------------|-------------|
| | Nominal RPM | Power (W) | | | | | | |
| SRUH-25 | 900 | 90 | 280 | 15 | 1.5 | 109.6 | 0.25 | 38 |
| SRUH-50 | 900 | 90 | 480 | 25 | 2.5 | 108.2 | 0.45 | 44 |
| SRUH-75 | 900 | 90 | 700 | 36 | 3.6 | 107.6 | 0.50 | 47 |
| | 1400 | 135 | 850 | 41 | 4.1 | 104.8 | 0.55 | 47 |
| SRUH-100 | 900 | 100 | 900 | 50 | 5 | 111.4 | 0.60 | 53 |
| | 1400 | 160 | 1100 | 57 | 5.7 | 107.9 | 0.70 | 53 |
| SRUH-125 | 900 | 100 | 1000 | 55 | 5.5 | 110.9 | 0.75 | 61 |
| | 1400 | 160 | 1300 | 65 | 6.5 | 106.3 | 0.80 | 61 |
| SRUH-150 | 900 | 110 | 1300 | 70 | 7.0 | 109.8 | 1.05 | 65 |
| | 1400 | 160 | 1600 | 80 | 8.0 | 106.3 | 1.10 | 65 |
| SRUH-200 | 900 | 175 | 1700 | 97 | 9.7 | 112.8 | 1.60 | 78 |
| | 1400 | 175 | 1800 | 100 | 10 | 113.4 | 1.70 | 76 |
| SRUH-250 | 900 | 230 | 2000 | 114 | 11.4 | 112.7 | 2.00 | 87 |
| | 1400 | 210 | 2200 | 120 | 12.0 | 110.5 | 2.30 | 84 |
| SRUH-300 | 900 | 230 | 2700 | 155 | 15.5 | 113.2 | 2.00 | 103 |
| | 1400 | 370 | 3000 | 165 | 16.5 | 110.9 | 2.60 | 102 |
| SRUH-400 | 900 | 480 | 3700 | 203 | 20.3 | 110.8 | 3.60 | 130 |
| | 1400 | 380 | 4000 | 213 | 21.3 | 109.3 | 3.80 | 125 |

Table 2: Saturated Steam Unit Heater

| Model | Motor | | Air Flow (CFM) | Capacity (MBH) | Water Flow (GPM) | Leaving Air Temp. (°F) | Water P.D (FT.WG) | Weight (kg) |
|----------|-------------|-----------|----------------|----------------|------------------|------------------------|-------------------|-------------|
| | Nominal RPM | Power (W) | | | | | | |
| SRUS-25 | 900 | 90 | 280 | 28.1 | 30.3 | 153.0 | 38 | 38 |
| SRUS-50 | 900 | 90 | 480 | 43.7 | 47.1 | 144.4 | 44 | 44 |
| SRUS-75 | 900 | 90 | 700 | 63.3 | 68.2 | 143.7 | 47 | 47 |
| | 1400 | 135 | 850 | 71.2 | 76.7 | 137.5 | 47 | 47 |
| SRUS-100 | 900 | 100 | 900 | 77.6 | 83.6 | 139.9 | 53 | 53 |
| | 1400 | 160 | 1100 | 87.3 | 94.1 | 133.5 | 53 | 53 |
| SRUS-125 | 900 | 100 | 1000 | 85.9 | 92.5 | 139.5 | 61 | 61 |
| | 1400 | 160 | 1300 | 100.0 | 107.7 | 131.2 | 61 | 61 |
| SRUS-150 | 900 | 110 | 1300 | 105.1 | 113.2 | 134.9 | 65 | 65 |
| | 1400 | 160 | 1600 | 118.1 | 127.2 | 128.3 | 65 | 65 |
| SRUS-200 | 900 | 175 | 1700 | 138.0 | 148.6 | 135.1 | 78 | 78 |
| | 1400 | 175 | 1800 | 142.6 | 153.6 | 133.4 | 76 | 76 |
| SRUS-250 | 900 | 230 | 2000 | 157.1 | 169.2 | 132.7 | 87 | 87 |
| | 1400 | 210 | 2200 | 165.7 | 178.4 | 129.7 | 84 | 84 |
| SRUS-300 | 900 | 230 | 2700 | 206.0 | 221.9 | 130.6 | 103 | 103 |
| | 1400 | 370 | 3000 | 218.3 | 235.1 | 127.4 | 102 | 102 |
| SRUS-400 | 900 | 480 | 3700 | 259.0 | 278.9 | 124.8 | 130 | 130 |
| | 1400 | 380 | 4000 | 270.0 | 290.7 | 122.5 | 125 | 125 |

NOTE

- MBH = 1000 Btu/hr
- Capacities are based on entering air temperature of 60°F and entering/leaving hot water temperature of 180°F / 160°F (saturated steam pressure of 30 psig) in sea level.
- Motor data are based on 220V/1 ϕ /50HZ (380V/3 ϕ /50HZ in 1400 RPM is available upon request).
- The above data is subject to change without prior notice.

Technical and Performance Data (Cont.)

Table 3a: Electrical Unit Heater (900 RPM)

| Model | Type | Air Flow (CFM) | Capacity (MBH) | ΔT (°F) | Electrical Data | | | Weight (kg) |
|----------|------|----------------|----------------|-----------------|-----------------|----------------------|---------------------|-------------|
| | | | | | Motor Power (W) | Motor Current (Amp.) | Max. Current (Amp.) | |
| SRUE-75 | L | 1000 | 15.4 | 14 | 90 | 0.4 | 7.3 | 40 |
| | M | | 23.0 | 21 | | 0.4 | 10.7 | 45 |
| | H | | 30.7 | 28 | | 0.4 | 14.1 | 48 |
| SRUE-100 | L | 1200 | 15.4 | 12 | 100 | 0.5 | 7.3 | 53 |
| | M | | 30.7 | 24 | | 0.5 | 14.2 | 58 |
| | H | | 38.4 | 30 | | 0.5 | 17.6 | 63 |
| SRUE-200 | L | 1500 | 15.4 | 9 | 110 | 0.5 | 7.4 | 75 |
| | M | | 30.7 | 19 | | 0.5 | 14.2 | 82 |
| | H | | 46.1 | 28 | | 0.5 | 21.1 | 88 |
| SRUE-250 | L | 1850 | 20.5 | 10 | 175 | 0.8 | 9.9 | 90 |
| | M | | 40.9 | 20 | | 0.8 | 19.1 | 93 |
| | H | | 61.4 | 31 | | 0.8 | 28.2 | 97 |
| SRUE-300 | L | 2900 | 46.1 | 15 | 230 | 1.1 | 21.6 | 105 |
| | M | | 61.4 | 20 | | 1.1 | 28.4 | 109 |
| | H | | 92.1 | 29 | | 1.1 | 42.1 | 115 |
| SRUE-400 | L | 4800 | 46.1 | 9 | 480 | 2.5 | 23.0 | 123 |
| | M | | 107.5 | 21 | | 2.5 | 50.4 | 128 |
| | H | | 153.5 | 30 | | 2.5 | 70.9 | 130 |

Table 3b: Electrical Unit Heater (1400RPM)

| Model | Type | Air Flow (CFM) | Capacity (MBH) | ΔT (°F) | Electrical Data | | | Weight (kg) |
|----------|------|----------------|----------------|-----------------|-----------------|----------------------|---------------------|-------------|
| | | | | | Motor Power (W) | Motor Current (Amp.) | Max. Current (Amp.) | |
| SRUE-75 | L | 1400 | 15.4 | 10 | 180 | 0.4 | 7.3 | 40 |
| | M | | 30.7 | 20 | | 0.4 | 14.1 | 45 |
| | H | | 46.1 | 30 | | 0.4 | 21.0 | 48 |
| SRUE-100 | L | 1600 | 23.0 | 13 | 200 | 0.5 | 10.8 | 53 |
| | M | | 38.4 | 22 | | 0.5 | 17.6 | 58 |
| | H | | 53.7 | 31 | | 0.5 | 24.5 | 63 |
| SRUE-200 | L | 2200 | 30.7 | 13 | 215 | 0.5 | 14.2 | 75 |
| | M | | 46.1 | 19 | | 0.5 | 21.0 | 82 |
| | H | | 76.8 | 32 | | 0.5 | 34.7 | 88 |
| SRUE-250 | L | 2500 | 30.7 | 11 | 250 | 0.5 | 14.2 | 90 |
| | M | | 61.4 | 23 | | 0.5 | 27.9 | 93 |
| | H | | 81.9 | 30 | | 0.5 | 37.0 | 97 |
| SRUE-300 | L | 3500 | 46.1 | 12 | 370 | 0.8 | 21.3 | 105 |
| | M | | 76.8 | 20 | | 0.8 | 35.0 | 109 |
| | H | | 122.8 | 32 | | 0.8 | 55.5 | 115 |
| SRUE-400 | L | 4300 | 46.1 | 10 | 414 | 0.9 | 21.4 | 123 |
| | M | | 92.1 | 20 | | 0.9 | 41.9 | 128 |
| | H | | 153.5 | 33 | | 0.9 | 69.3 | 132 |

NOTE

- MBH = 1000 Btu/hr
- ΔT = Air Temperature Rise
- System Power Supply = 380~400V/3 ϕ /50HZ.
- The above data is subject to change without prior notice.



Selection Considerations

Saran unit heaters rating data presented in the table 1 and 2, indicate capacity of them at standard condition, so for other condition, following performance adjustment factors shall be attend in unit heaters selection

Table 4: Hot Water Correction Factor

| Entering Air Temp. (°F) | Entering Water Temperature (°F) | | | | | | | | | | |
|-------------------------|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 150 | 160 | 170 | 180 | 190 | 200 | 210 | 220 | 230 | 240 | 250 |
| 30 | 1.035 | 1.115 | 1.210 | 1.295 | 1.380 | 1.465 | 1.545 | 1.640 | 1.720 | 1.810 | 1.895 |
| 40 | 0.940 | 1.025 | 1.105 | 1.195 | 1.275 | 1.360 | 1.440 | 1.535 | 1.620 | 1.700 | 1.785 |
| 50 | 0.840 | 0.890 | 1.050 | 1.090 | 1.175 | 1.265 | 1.345 | 1.430 | 1.510 | 1.600 | 1.690 |
| 60 | 0.743 | 0.835 | 0.920 | 1.000 | 1.080 | 1.165 | 1.240 | 1.325 | 1.405 | 1.500 | 1.580 |
| 70 | 0.650 | 0.745 | 0.825 | 0.905 | 0.980 | 1.070 | 1.150 | 1.235 | 1.315 | 1.395 | 1.480 |
| 80 | 0.570 | 0.650 | 0.735 | 0.815 | 0.895 | 0.980 | 1.060 | 1.140 | 1.220 | 1.300 | 1.380 |
| 90 | 0.475 | 0.560 | 0.640 | 0.720 | 0.805 | 0.885 | 0.965 | 1.050 | 1.130 | 1.210 | 1.280 |
| 100 | 0.395 | 0.475 | 0.560 | 0.710 | 0.790 | 0.870 | 0.955 | 1.035 | 1.115 | 1.165 | 1.185 |

NOTE

- To determine unit ratings at various entering water and air temperature, multiply given values from table1 by the appropriate factor from the above table.

Table 5: Water Pressure Drop Correction Factor

| | | | | | | | | | | | | | | |
|-------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Water Flow Ratio | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 |
| Correction Factor | 0.3 | 0.4 | 0.5 | 0.7 | 0.8 | 1.0 | 1.2 | 1.4 | 1.6 | 1.8 | 2.1 | 2.3 | 2.6 | 2.8 |

NOTE

- Adjust pressure drop in table 1 by multiplying appropriate factors from the above table.

Table 6: Air Flow Rate Correction Factor

| | | | | | | | | | | |
|-------------------------|------|------|------|------|------|------|------|------|------|------|
| Entering Air Temp. (°F) | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| Correction Factor | 1.11 | 1.08 | 1.06 | 1.04 | 1.02 | 1.00 | 0.98 | 0.96 | 0.95 | 0.93 |

NOTE

- Adjust air flow rate in table 1 by multiplying appropriate factors from the above table.

Table 7: Altitude Correction Factor

| | | | | | | | |
|-------------------|-------|-------|-------|-------|-------|-------|-------|
| Altitude (ft) | 0 | 1000 | 2000 | 3000 | 4000 | 5000 | 6000 |
| Correction Factor | 1.000 | 0.984 | 0.968 | 0.952 | 0.936 | 0.920 | 0.904 |

NOTE

- Adjust heating capacities in table 1 and 2 by multiplying appropriate factors from the above table.

Selection Considerations (Cont.)

Table 8: Saturated Steam Correction Factor

| Ent. Air Temp. (°F) | Steam Pressure (Lbs/In ²) | | | | | | | | | | | | | | | |
|---------------------|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 0 | 2 | 5 | 10 | 15 | 20 | 30 | 40 | 50 | 60 | 80 | 100 | 125 | 150 | 175 | 200 |
| -30 | 1.133 | 1.163 | 1.2 | 1.258 | 1.308 | 1.348 | 1.42 | 1.482 | 1.532 | 1.585 | 1.654 | 1.717 | 1.792 | 1.847 | 1.903 | 1.956 |
| -20 | 1.082 | 1.113 | 1.153 | 1.211 | 1.258 | 1.301 | 1.373 | 1.431 | 1.483 | 1.528 | 1.605 | 1.67 | 1.74 | 1.801 | 1.855 | 1.903 |
| -10 | 1.036 | 1.066 | 1.107 | 1.164 | 1.212 | 1.254 | 1.325 | 1.384 | 1.436 | 1.481 | 1.558 | 1.623 | 1.693 | 1.755 | 1.808 | 1.856 |
| 0 | 0.989 | 1.02 | 1.06 | 1.117 | 1.166 | 1.207 | 1.278 | 1.338 | 1.389 | 1.434 | 1.512 | 1.576 | 1.647 | 1.708 | 1.762 | 1.81 |
| 10 | 0.942 | 0.973 | 1.013 | 1.071 | 1.118 | 1.161 | 1.233 | 1.292 | 1.342 | 1.388 | 1.465 | 1.53 | 1.601 | 1.66 | 1.715 | 1.764 |
| 20 | 0.896 | 0.926 | 0.967 | 1.024 | 1.073 | 1.114 | 1.186 | 1.244 | 1.296 | 1.341 | 1.418 | 1.483 | 1.553 | 1.615 | 1.669 | 1.717 |
| 30 | 0.849 | 0.88 | 0.92 | 0.977 | 1.026 | 1.067 | 1.139 | 1.198 | 1.25 | 1.294 | 1.372 | 1.436 | 1.506 | 1.568 | 1.622 | 1.67 |
| 40 | 0.802 | 0.833 | 0.873 | 0.93 | 0.978 | 1.021 | 1.092 | 1.151 | 1.202 | 1.248 | 1.325 | 1.39 | 1.461 | 1.521 | 1.575 | 1.628 |
| 45 | 0.779 | 0.81 | 0.85 | 0.907 | 0.955 | 0.997 | 1.059 | 1.128 | 1.18 | 1.224 | 1.302 | 1.366 | 1.436 | 1.496 | 1.552 | 1.601 |
| 50 | 0.756 | 0.796 | 0.827 | 0.984 | 0.932 | 0.974 | 1.045 | 1.104 | 1.156 | 1.201 | 1.273 | 1.343 | 1.414 | 1.474 | 1.529 | 1.576 |
| 55 | 0.732 | 0.763 | 0.803 | 0.861 | 0.908 | 0.951 | 1.023 | 1.081 | 1.133 | 1.178 | 1.255 | 1.32 | 1.39 | 1.451 | 1.505 | 1.553 |
| 60 | 0.709 | 0.74 | 0.78 | 0.837 | 0.885 | 0.927 | 1 | 1.058 | 1.109 | 1.154 | 1.231 | 1.297 | 1.367 | 1.427 | 1.482 | 1.531 |
| 65 | 0.686 | 0.716 | 0.757 | 0.814 | 0.862 | 0.904 | 0.976 | 1.034 | 1.086 | 1.131 | 1.209 | 1.273 | 1.343 | 1.407 | 1.459 | 1.506 |
| 70 | 0.662 | 0.693 | 0.733 | 0.791 | 0.838 | 0.881 | 0.935 | 1.011 | 1.063 | 1.108 | 1.186 | 1.25 | 1.32 | 1.38 | 1.435 | 1.484 |
| 75 | 0.639 | 0.67 | 0.71 | 0.767 | 0.815 | 0.859 | 0.93 | 0.988 | 1.04 | 1.084 | 1.163 | 1.226 | 1.297 | 1.357 | 1.412 | 1.46 |
| 80 | 0.616 | 0.646 | 0.687 | 0.744 | 0.792 | 0.834 | 0.906 | 0.965 | 1.016 | 1.061 | 1.139 | 1.203 | 1.273 | 1.335 | 1.389 | 1.436 |
| 85 | 0.592 | 0.623 | 0.663 | 0.72 | 0.768 | 0.811 | 0.883 | 0.941 | 0.993 | 1.038 | 1.116 | 1.18 | 1.251 | 1.31 | 1.365 | 1.414 |
| 90 | 0.569 | 0.6 | 0.64 | 0.696 | 0.745 | 0.787 | 0.86 | 0.918 | 0.969 | 1.014 | 1.093 | 1.156 | 1.226 | 1.288 | 1.342 | 1.39 |
| 100 | 0.522 | 0.553 | 0.593 | 0.65 | 0.698 | 0.732 | 0.813 | 0.871 | 0.923 | 0.968 | 1.045 | 1.11 | 1.181 | 1.24 | 1.295 | 1.344 |
| 110 | 0.476 | 0.506 | 0.547 | 0.603 | 0.652 | 0.694 | 0.766 | 0.825 | 0.876 | 0.921 | 0.998 | 1.063 | 1.134 | 1.194 | 1.248 | 1.297 |
| 120 | 0.429 | 0.46 | 0.5 | 0.556 | 0.605 | 0.647 | 0.72 | 0.778 | 0.83 | 0.874 | 0.952 | 1.027 | 1.086 | 1.147 | 1.201 | 1.251 |
| 140 | 0.336 | 0.366 | 0.407 | 0.464 | 0.512 | 0.554 | 0.626 | 0.685 | 0.737 | 0.781 | 0.858 | 0.923 | 0.993 | 1.055 | 1.108 | 1.158 |
| 160 | 0.242 | 0.273 | 0.313 | 0.37 | 0.418 | 0.46 | 0.533 | 0.591 | 0.642 | 0.688 | 0.765 | 0.831 | 0.901 | 0.961 | 0.012 | 1.065 |
| 180 | 0.149 | 0.179 | 0.22 | 0.277 | 0.325 | 0.367 | 0.439 | 0.498 | 0.55 | 0.594 | 0.671 | 0.737 | 0.808 | 0.868 | 0.921 | 0.97 |
| 200 | 0.056 | 0.085 | 0.127 | 0.183 | 0.232 | 0.274 | 0.345 | 0.405 | 0.455 | 0.501 | 0.577 | 0.643 | 0.713 | 0.775 | 0.829 | 0.876 |

NOTE

- To determine unit ratings at various entering air temperature and saturated steam pressure, multiply given values from table 2 by the appropriate factor from the above table.

Table 9: Properties of Saturated Steam

| Pressure (psig) | 0 | 2 | 3 | 5 | 8 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 60 |
|----------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Temperature (°F) | 212.00 | 218.47 | 221.50 | 227.16 | 234.78 | 239.41 | 249.73 | 258.79 | 266.85 | 174.08 | 280.64 | 286.74 | 292.37 | 297.70 | 307.30 |
| Latent Heat (Btu/Lb) | 970.40 | 966.20 | 964.27 | 960.54 | 955.58 | 952.45 | 945.49 | 939.26 | 933.63 | 928.50 | 923.77 | 919.27 | 915.15 | 911.24 | 903.91 |

| Pressure (psig) | 70 | 75 | 80 | 90 | 100 | 110 | 120 | 125 | 130 | 140 | 150 | 175 | 200 | 225 | 250 |
|----------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Temperature (°F) | 316.03 | 320.00 | 323.89 | 331.16 | 337.86 | 344.22 | 350.09 | 353.00 | 355.65 | 360.89 | 365.92 | 377.47 | 387.88 | 397.27 | 406.01 |
| Latent Heat (Btu/Lb) | 897.28 | 894.20 | 891.08 | 885.42 | 880.82 | 874.85 | 870.05 | 867.70 | 865.48 | 861.12 | 856.92 | 847.02 | 838.00 | 828.30 | 820.00 |

Dimensions

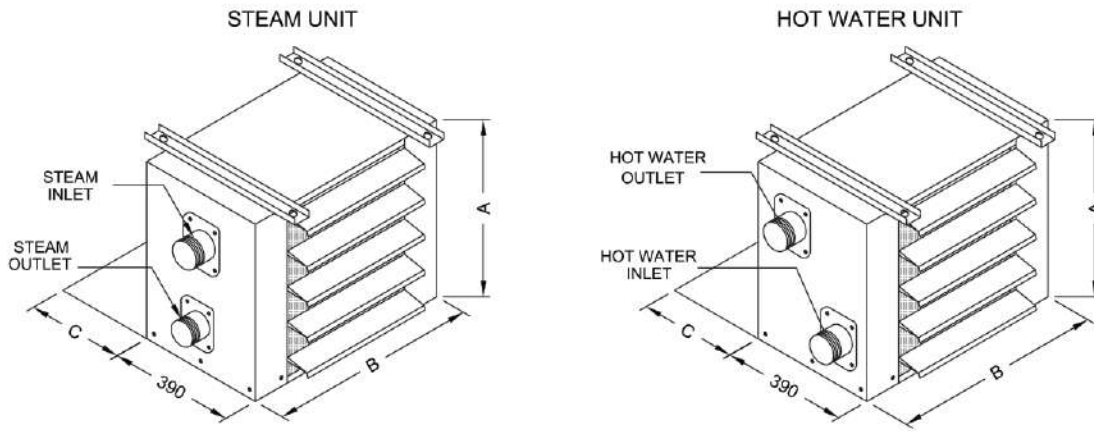


Table 10

| Model | A | | B | C | Hot Water Connections | Steam Connections | |
|--------------------|---------|----------|------|-----|-----------------------|-------------------|--------|
| | 900 RPM | 1400 RPM | | | | Outlet | Inlet |
| SRUH-25, SRUS-25 | 400 | - | 510 | 300 | 2×1" | 1 1/4" | 1" |
| SRUH-50, SRUS-50 | 435 | - | 550 | 300 | 2×1" | 1 1/4" | 1" |
| SRUH-75, SRUS-75 | 510 | 510 | 600 | 350 | 2×1" | 1 1/2" | 1 1/4" |
| SRUH-100, SRUS-100 | 510 | 510 | 650 | 350 | 2×1" | 2" | 1 1/4" |
| SRUH-125, SRUS-125 | 550 | 550 | 650 | 350 | 2×1" | 2" | 1 1/4" |
| SRUH-150, SRUS-150 | 550 | 550 | 730 | 350 | 2×1" | 2" | 1 1/4" |
| SRUH-200, SRUS-200 | 585 | 585 | 830 | 400 | 2×1 1/4" | 2" | 1 1/4" |
| SRUH-250, SRUS-250 | 700 | 585 | 880 | 400 | 2×1 1/4" | 2" | 1 1/4" |
| SRUH-300, SRUS-300 | 700 | 700 | 930 | 400 | 2×1 1/4" | 2" | 1 1/4" |
| SRUH-400, SRUS-400 | 800 | 700 | 1020 | 400 | 2×1 1/4" | 2" | 1 1/4" |

NOTE

- All dimensions are in mm
- The above data is subject to change without prior notice.

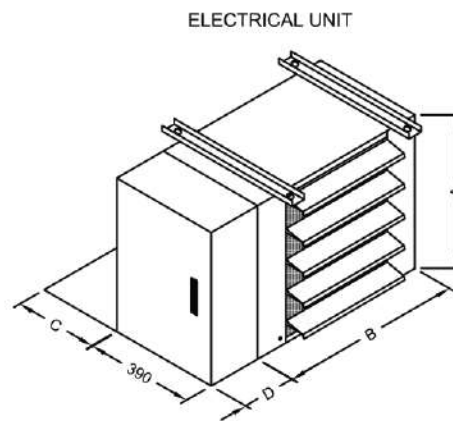


Table 11

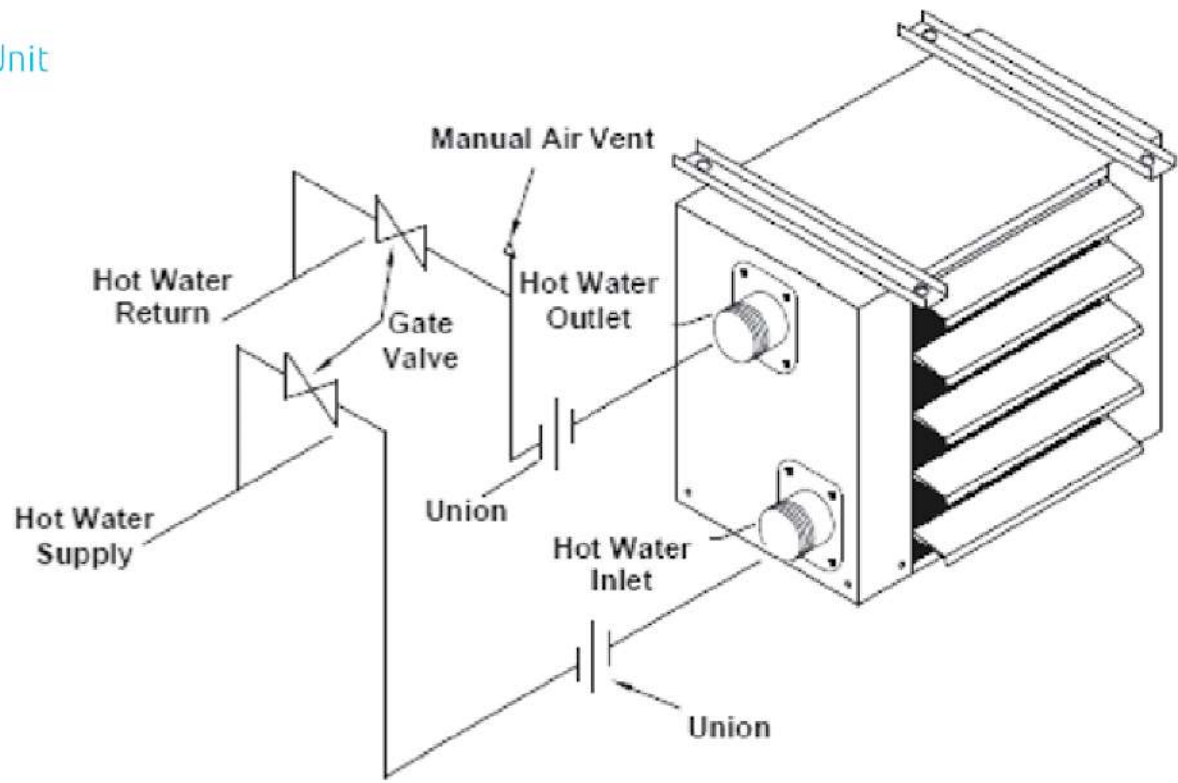
| Model | A | | B | C | D |
|----------|---------|----------|------|-----|-----|
| | 900 RPM | 1400 RPM | | | |
| SRUE-75 | 510 | 510 | 600 | 350 | 170 |
| SRUE-100 | 510 | 510 | 650 | 350 | 170 |
| SRUE-200 | 585 | 585 | 830 | 400 | 170 |
| SRUE-250 | 585 | 585 | 880 | 400 | 170 |
| SRUE-300 | 700 | 700 | 930 | 400 | 170 |
| SRUE-400 | 800 | 700 | 1020 | 400 | 170 |

NOTE

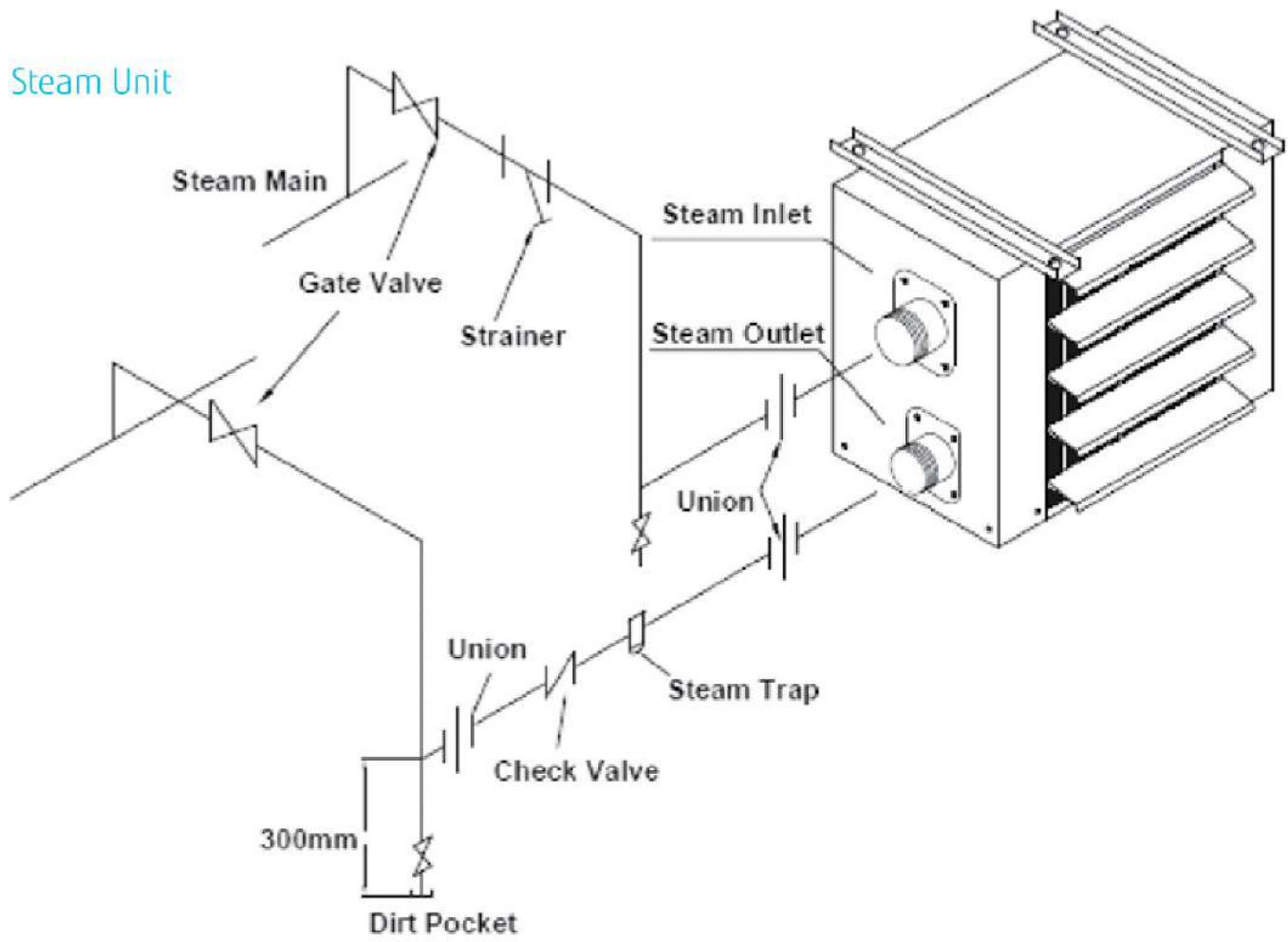
- All dimensions are in mm
- The above data is subject to change without prior notice.

Piping Recommendations

Hot Water Unit



Steam Unit



Air Distribution Pattern

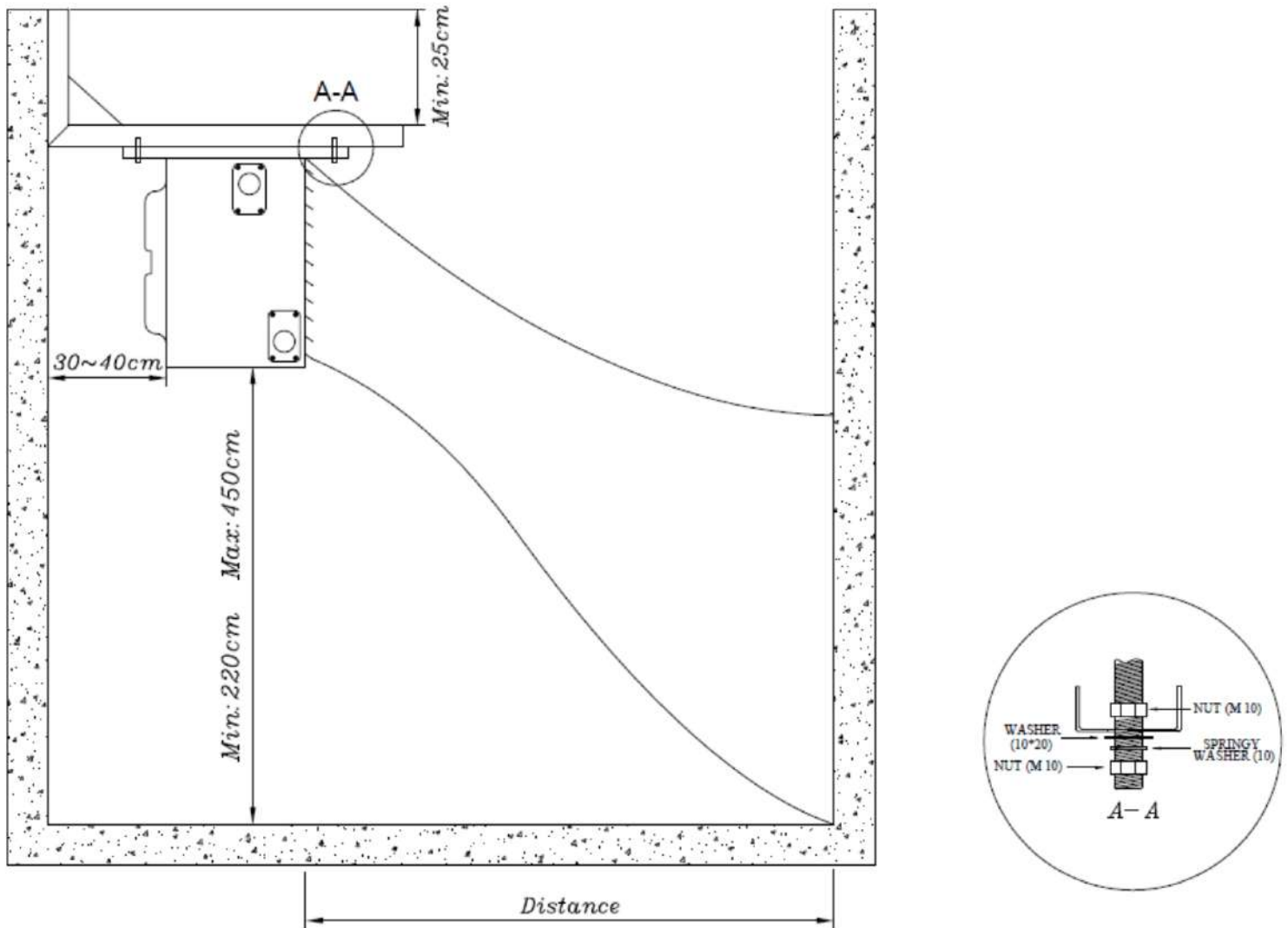


Table 12: Horizontal Actual Discharge Distance

| Model | Distance (m) | |
|-------|-------------------------------|------------------------|
| | Hot Water & Steam Unit Heater | Electrical Unit Heater |
| 25 | 2.5 | - |
| 50 | 2.5 | - |
| 75 | 5.0 | 6.0 |
| 100 | 5.0 | 6.5 |
| 125 | 6.0 | - |
| 150 | 6.0 | - |
| 200 | 6.0 | 6.5 |
| 250 | 6.5 | 6.5 |
| 300 | 7.0 | 7.0 |
| 400 | 7.5 | 8.0 |

NOTE

- Above values are based on 180°F entering water temperature (40 psig saturated steam or H type electrical heater), 60°F entering air temperature, 1400 RPM motor and 45° blades angle.