



azarnasim
AIR CONDITIONING COMPANY

UNIT HEATER



Introduction

Unit heaters are designed and manufactured in four types (hot water, hot oil, steam and electrical). Heating Capacities are variable from 54 to 450 MBH. This products is used for heating industrial halls, gyms, swimming pool, agricultural applications, parking lots and etc. Unit heaters are typically wall-mounted. For model selection it is necessary to know air flow rate and heating capacity. The main elements of this product include body, coil and electro-fan.

- **Body**

The body is made of stainless steel or carbon- steel and aluminum sheet with appropriate thickness and electro-static paint coating, according to the technical specifications.

- **Coil**

Hot water coils are made of copper tubes and steam coils are made of seamless steel tubes. Standard fins of both coils are made of aluminum fins. Copper fins can also be made according to customers request. Electrical coils may be replaced water or steam coils.

- **Electro-Fan**

Electro-motor types and fan speeds include single or three phases (explosion proof based on request) with axial fans. Fan speeds are available in 700-900-1400 and 2900 RPM.

- **Air Damper**

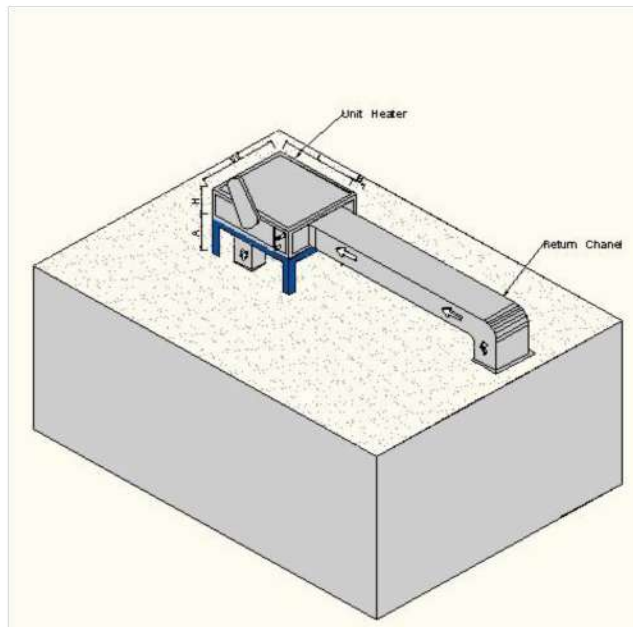
Dampers are manually adjustable in which every blade is regulated singly and installed in outlet of unit heater. For hothouse unit heaters no damper is installed and standing industrial units dampers are according to Italian ARISIO design.

- **Special Applications**

In some applications it is possible to use cooling of this product by redesigning the coil and installing condensate drain pan.



Wall-Mounted Unit Heaters



Hot House Unit Heater

Installation Data and Dimensions

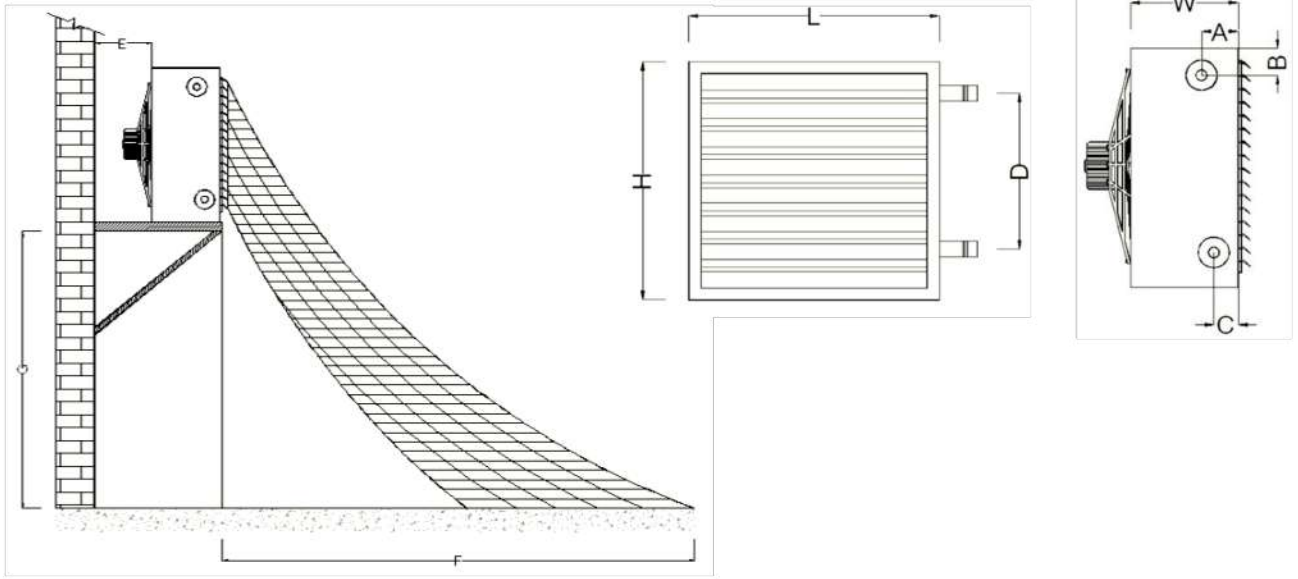


Table 1

MODEL	L	W	H	A	B	C	D	E	F	G	d	Water (Inch)		Steam (Inch)	
												In	Out	In	Out
TU 50w-75S	500	350	500	120	100	80	300	410	8800	4000	300	1/4	1/4	1/4	3/4
TU 80w-140S	580	350	580	120	100	80	390	410	12000	4000	350	1/4	1/4	1/4	3/4
TU 120w-160S	660	350	660	120	100	80	460	410	13000	4000	400	1/4	1 1/4	1 1/4	1/4
TU 180w-280S	750	350	750	120	100	80	540	410	14500	4000	450	1/4	1 1/4	1 1/4	1/4
TU 200w-300S	810	350	810	120	100	80	610	410	15000	4000	500	1/4	1 1/4	1 1/4	1/4
TU 250w-400S	900	350	900	120	100	80	650	410	16000	4000	500	1/4	1 1/4	1 1/4	1/4

Note :All Dimensions are in mm.

Table 2

Hot Water Unit Heater Technical Data

Nominal Fan Speed-1400 RPM

Model	Heating Cap. (BTU/Hr)	Coil (Row/FPI)	Air Flow Rate (CFM)	Water Flow Rate (gpm)	Water PD (Ft.W.G.)	Motor	
						Power (W)	Current (A)
TU 50 W	54000	2/8	1235	5.4	0.6	110	0.56
TU 80 W	82000	2/8	1650	8.2	1.15	140	0.7
TU 120 W	120000	2/8	2500	12	1.4	240	1.32
TU 180 W	180000	2/8	3175	18	3.6	270	1.4
TU 220 W	220000	2/8	3300	22	3.5	300	1.5
TU 250 W	260000	2/8	5120	26	4	560	2.6

Nominal Fan Speed -900 RPM

Model	Heating Cap. (BTU/Hr)	Coil (Row/FPI)	Air Flow Rate (CFM)	Water Flow Rate (gpm)	Water PD (Ft.W.G.)	Motor	
						Power (W)	Current (A)
TU 50 W	40000	2/8	885	4	0.46	78	0.4
TU 80 W	63000	2/8	1205	6.3	0.75	90	0.41
TU 120 W	90000	2/8	1410	9	0.99	85	0.4
TU 180 W	150000	2/8	1590	15	2.67	100	0.48
TU 220 W	182000	2/8	2170	18.2	2.5	140	0.69
TU 250 W	220000	2/8	2170	22	2.9	140	0.69

Note:

- Rated heating conditions: air inlet at 60° DB hot water inlet/outlet at 180°F /160°F .

Table 3

Steam Unit Heater Technical Data

Nominal Fan Speed -1400 RPM							
Model	Heating Cap. (BTU/Hr)	Coil (Row/FPI)	Air Flow Rate (CFM)	Steam Flow Rate (lb/hr)	working pressure (PSI)	Motor	
						Power (W)	Current (A)
TU 75 S	74000	2/8	1235	74	30	110	0.56
TU 140 S	140000	2/8	1650	140	30	140	0.7
TU 160 S	160000	2/8	2500	160	30	240	1.32
TU 280 S	280000	2/8	3175	280	30	270	1.4
TU 300 S	340000	2/8	3300	340	30	300	1.5
TU 400 S	450000	2/8	5120	450	30	560	2.6
Nominal Fan Speed -900 RPM							
Model	Heating Cap. (BTU/Hr)	Coil (Row/FPI)	Air Flow Rate (CFM)	Steam Flow Rate (lb/hr)	working pressure (PSI)	Motor	
						Power (W)	Current (A)
TU 75 S	54000	2/8	885	54	30	78	0.4
TU 140 S	110000	2/8	1205	110	30	90	0.41
TU 160 S	130000	2/8	1410	130	30	85	0.4
TU 280 S	240000	2/8	1590	240	30	100	0.48
TU 300 S	280000	2/8	2170	280	30	140	0.69
TU 400 S	390000	2/8	2170	390	30	140	0.69

Note:
-Rated heating conditions: air inlet at 60° DB.

Table 4

Hot Water Unit Heater Capacity Correction Factors

Entering Water Temp. °F \ Entering Air Temp. °F	Entering Air Temp. °F											
	150	160	170	180	190	200	210	220	230	240	250	
30	1.04	1.115	1.21	1.295	1.38	1.465	1.545	1.64	1.72	1.18	1.895	
40	0.94	1.025	1.105	1.195	1.28	1.36	1.44	1.54	1.62	1.7	1.785	
50	0.84	0.93	1.05	1.09	1.18	1.265	1.345	1.43	1.51	1.6	1.69	
60	0.74	0.835	0.92	1	1.08	1.165	1.24	1.33	1.405	1.5	1.58	
70	0.65	0.745	0.825	0.905	0.98	1.07	1.15	1.24	1.315	1.392	1.48	
80	0.57	0.65	0.735	0.815	0.9	0.98	1.06	1.14	1.22	1.3	1.38	
90	0.48	0.565	0.64	0.72	0.81	0.885	0.965	1.05	1.13	1.21	1.28	
100	0.4	0.475	0.56	0.71	0.79	0.875	0.955	1.04	1.115	1.165	1.185	

Table 5

Steam Correction Factors

Steam pressure (psi) \ Entering Air Temp. °F	Entering Air Temp. °F															
	0	2	5	10	15	20	30	40	50	60	80	100	125	150	175	200
-30	1.11	1.163	1.2	1.258	1.31	1.348	1.42	1.48	1.532	1.585	1.654	1.717	1.792	1.847	1.903	1.956
-20	1.08	1.113	1.153	1.211	1.26	1.301	1.37	1.43	1.483	1.528	1.605	1.67	1.74	1.801	1.855	1.903
-10	1.04	1.066	1.107	1.164	1.21	1.254	1.33	1.38	1.436	1.481	1.558	1.623	1.693	1.755	1.808	1.856
0	0.99	1.02	1.06	1.117	1.17	1.207	1.28	1.34	1.386	1.434	1.512	1.576	1.647	1.708	1.762	1.81
10	0.94	0.973	1.013	1.071	1.12	1.161	1.23	1.29	1.342	1.388	1.465	1.53	1.601	1.66	1.715	1.764
20	0.89	0.926	0.967	1.024	1.07	1.114	1.19	1.24	1.296	1.341	1.418	1.483	1.553	1.615	1.669	1.717
30	0.85	0.88	0.92	0.977	1.03	1.067	1.14	1.2	1.25	1.294	1.372	1.436	1.506	1.568	1.622	1.67
40	0.8	0.883	0.873	0.93	0.98	1.021	1.09	1.15	1.202	1.248	1.325	1.39	1.461	1.521	1.575	1.628
45	0.78	0.81	0.85	0.907	0.96	0.997	1.07	1.13	1.18	1.224	1.302	1.366	1.436	1.496	1.552	1.601
50	0.76	0.786	0.827	0.884	0.93	0.974	1.05	1.1	1.156	1.201	1.273	1.343	1.414	1.474	1.529	1.576
55	0.73	0.763	0.803	0.861	0.91	0.951	1.02	1.08	1.133	1.178	1.255	1.32	1.39	1.451	1.505	1.553
60	0.71	0.74	0.78	0.837	0.89	0.927	1	1.06	1.109	1.154	1.231	1.297	1.367	1.427	1.482	1.531
65	0.69	0.716	0.757	0.814	0.86	0.904	0.98	1.03	1.086	1.131	1.209	1.273	1.343	1.407	1.459	1.506
70	0.66	0.693	0.733	0.791	0.84	0.881	0.94	1.01	1.063	1.108	1.186	1.25	1.32	1.38	1.435	1.484
75	0.64	0.67	0.71	0.767	0.82	0.857	0.94	0.99	1.04	1.084	1.163	1.226	1.297	1.357	1.412	1.46
80	0.62	0.646	0.687	0.744	0.79	0.934	0.91	0.87	1.016	1.061	1.139	1.203	1.273	1.335	1.389	1.436
85	0.59	0.623	0.663	0.72	0.77	0.811	0.88	0.94	1.093	1.038	1.116	1.18	1.251	1.31	1.365	1.414
90	0.56	0.6	0.64	0.696	0.75	0.787	0.86	0.92	1.069	1.014	1.093	1.156	1.226	1.288	1.342	1.39
100	0.52	0.533	0.593	0.65	0.7	0.732	0.81	0.87	0.923	0.968	1.045	1.11	1.181	1.24	1.295	1.344
110	0.48	0.506	0.547	0.603	0.65	0.694	0.77	0.83	0.876	0.921	0.998	1.063	1.134	1.194	1.248	1.297
120	0.43	0.46	0.5	0.556	0.61	0.647	0.72	0.78	0.83	0.874	0.952	1.027	1.086	1.147	1.201	1.251
140	0.34	0.366	0.407	0.464	0.51	0.554	0.63	0.69	0.737	0.781	0.858	0.923	0.993	1.055	1.108	1.156
160	0.24	0.273	0.313	0.37	0.42	0.46	0.53	0.59	0.642	0.688	0.765	0.831	0.901	0.961	1.012	1.065
180	0.15	0.179	0.22	0.227	0.33	0.367	0.44	0.5	0.55	0.594	0.671	0.737	0.808	0.868	0.921	0.97
200	0.06	0.085	0.127	0.183	0.23	0.274	0.35	0.41	0.455	0.501	0.577	0.643	0.713	0.775	0.827	0.876

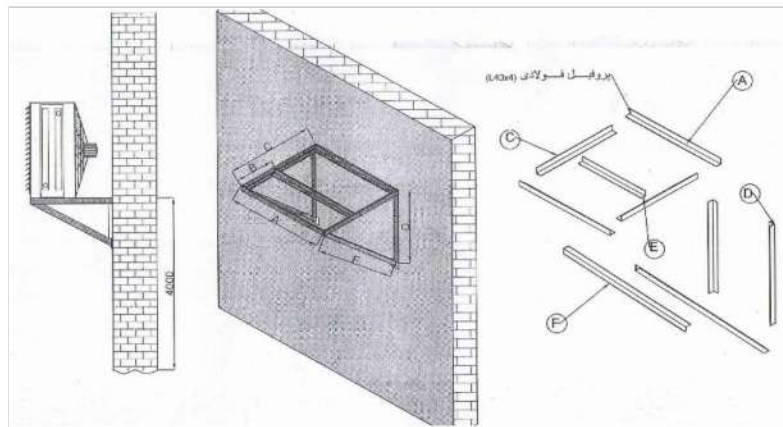
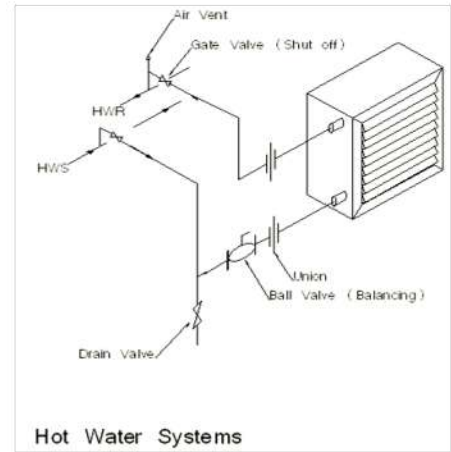
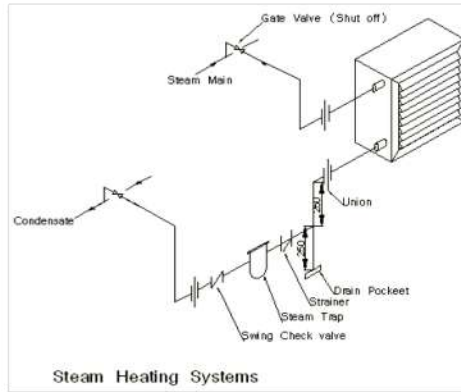


Table 6

Seatin Frame Dimensions

MODEL	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
TU 50w -75s	520	370	800	400	510	890
TU 80w -140s	600	370	800	400	590	890
TU 120w -160s	680	370	800	400	670	890
TU 180w -280s	770	370	800	400	760	890
TU 200w -300s	830	370	800	400	820	890
TU 250w -400s	870	370	800	400	860	890

Note: E: 30*30 L profile