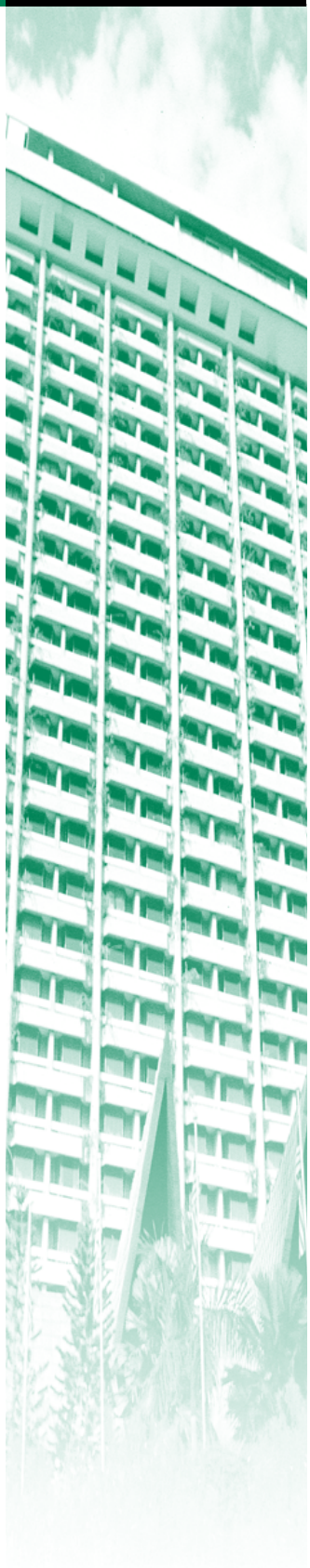
Catalog

C: 720-13

ThinLine™ Fan Coil Units

Type FTSC & FTSH Horizontal Design



AHRI CERTIFIED™ www.ahridirectory.org Room Fan-Coils AHRI Standard 440

ETL LISTED C US

McQuay® Air Conditioning

Contents

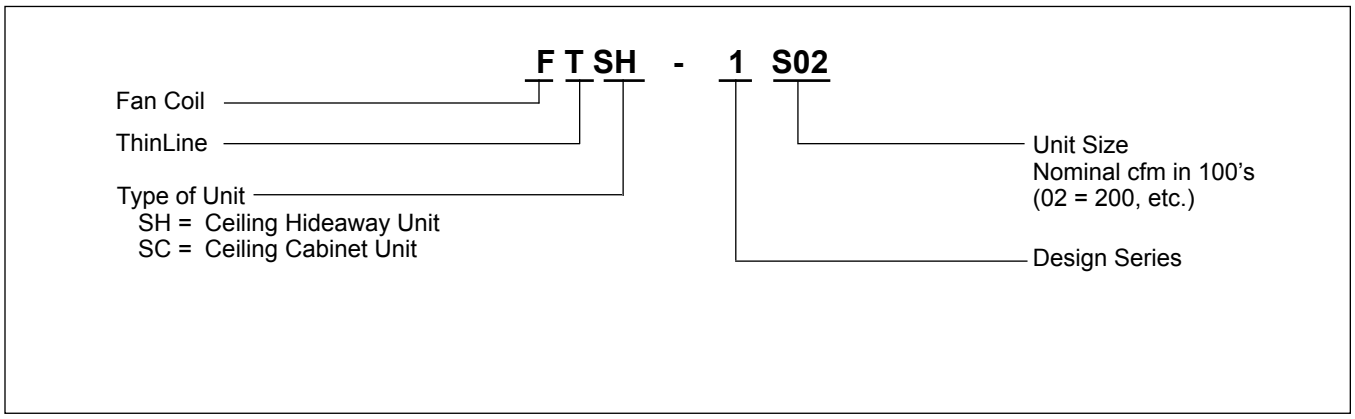
Computer fan coil selection 2
Design features 4
Optional features and accessories 6
Controls 7
Unit selection 8
Capacity data.....9
Shipping weights 9
Dimensional data.....13
Engineering guide specifications.....15

Computer fan coil selection program

To provide optimal fan coil unit selection, McQuay International provides McQuayTools™ and SelectTools™ for Fan Coil. These computer programs aid in the selection of the most economical unit size and coil option to meet the specification. The program capabilities include hot and chilled water, hot and chilled water with glycol, electric heat, supplemental steam heat, and unit external static pressure.

Contact your nearest McQuay representative for a copy of SelectTools or for a fan coil selection that meets the most exacting specifications.

Nomenclature



McQuay ThinLine fan coil units

FTSH hideaway unit

FTSH hideaway unit

The FTSH hideaway unit is designed for fully concealed installation in areas where a ceiling enclosure is furnished by others. Unit features include:

- 6 unit sizes from 300 to 1200 cfm.
- Heavy-gauge galvanized steel base casing.
- Standard or high capacity cooling coil.
- Quiet, 3-speed permanent split capacitor motor(s).
- High performance, forward curved centrifugal fan wheels.
- Rigid, self-locking fan deck with split design, die-formed fan housings for exceptional serviceability.
- Available with or without factory-installed plenum.
- Single power location for field wiring connections in unit electrical raceway.
- ARI certified performance.
- ETL and CETL safety agency approval listing.

TSC ceiling unit; exposed cabinet

TSC ceiling unit

The FTSC ceiling unit is designed for exposed or recessed ceiling applications. An optional trim flange ceiling frame allows installation with the FTSC hinged bottom panel flush with the ceiling. The unit includes all of the features listed above for the FTSH unit plus the following:

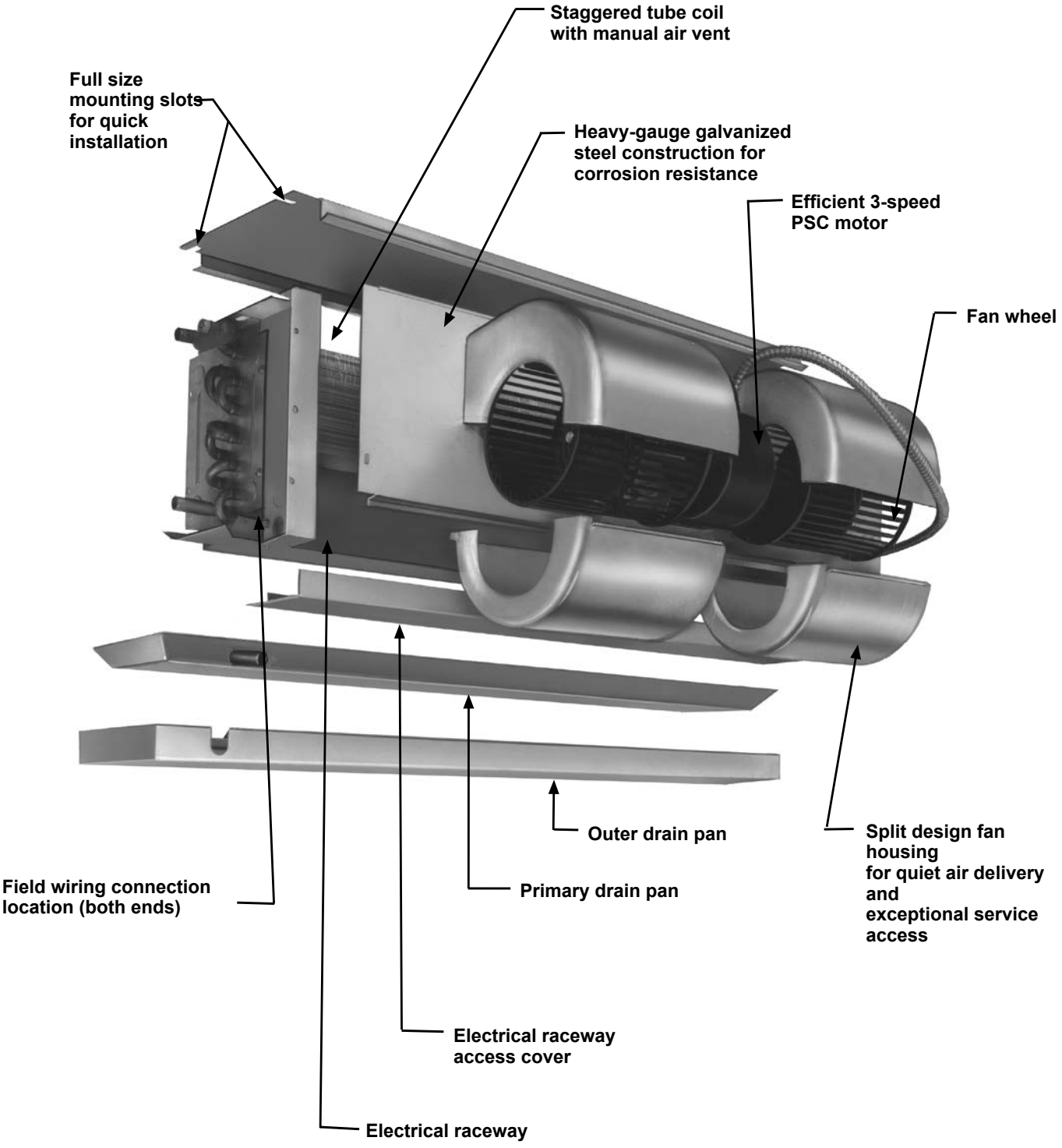
- 6 unit sizes from 300 to 1200 cfm.
- Heavy 18 gauge steel decorative cabinet with stamped discharge grille.
- Attractive Antique Ivory electrostatically applied, baked-on finish.
- Hinged bottom panel available for total accessibility to the unit, controls and filter.
- Stamped return air grille in bottom access panel or in back return duct opening.
- Optional field-installed, telescoping trim flange ceiling frame to accommodate any ceiling type.
- Cabinet design permits complete removal of the basic unit for installation in steps coinciding with the various trades.

ARI certification, ETL & CETL listing

McQuay ThinLine fan coil units are tested and rated in accordance with Air Conditioning and Refrigeration Institute (ARI) Standard 440 and certified in accordance with the ARI certification program. ARI certification assures you full rated performance and offers confidence in unit selection.

ThinLine fan coil units are listed by ETL and CETL as complying with nationally recognized safety standards for fan coil air conditioning units.

Design features — FTSH & FTSC ceiling units



Quality, efficiency & reliability built into every unit

Coils

Standard and optional high capacity cooling coils are available with manual air vents for all unit sizes. Optional water heating and steam coils are available for 4-pipe systems. Field installed automatic air vents are optional for water cooling coils.

Coils are constructed of seamless copper tubes with headers and aluminum fins. Full depth collars, drawn in the fin stock, provide accurate control of fin spacing and completely cover the copper tubes to lengthen coil life. Tubes are mechanically expanded into the fins for a permanent primary to secondary surface bond, assuring maximum heat transfer efficiency.

The vertical position of the coil assures rapid condensate drainage to provide even airflow and full rated capacity at all conditions.

Motors

Tap wound, three-speed, permanent split capacitor motors are standard for FTSH and FTSC units. Motors have sleeve bearings with oilers, inherent thermal overload protection and automatic reset. Motors are resiliently mounted to assure quiet, vibration-free operation and are easily removed.

Fan Wheels

All fan wheels are forward curved, double width, double inlet, centrifugal type and are statically and dynamically balanced for smooth, quiet operation.

Fan Housings

Split design fan housings allow quick service of fans and motors.

Fan Deck

Heavy-gauge continuous galvanized steel rigidly supports motors, fan assembly, and fan housings as a single unit. The fan deck is self-locking to the basic chassis and is easily removed for service.

Filter

TSC units have as standard a 1" throwaway filter. The filter is easily removable through the bottom access panel. For FTSH units a filter is supplied only with the optional return air plenum

Casing and Cabinet

All units are constructed of heavy gauge steel for long life and durability. FTSC units and optional trim flange ceiling frames are finished with an electrostatically applied, baked-on Antique Ivory paint.

Single Power Location

All electrical components of the FTSH and FTSC units are factory wired to an electric raceway accessible from the bottom of the unit. All field wiring connections can be made at the electrical raceway. Electric heaters, depending on amperage, may require more than one field circuit, all of which can be brought to the raceway.

Controls

For low-voltage applications, units can be supplied with an LV-3SP junction box. It includes three 24 volt relays, a line voltage or 24-volt transformer, a set of terminal strips and a toggle disconnect. This interface control can be used with a simple 24-volt thermostat or with building automation systems.

For line voltage connections, units can be supplied with an Off, Hi, Med, Lo switch factory installed on a 2 x 2 junction box on the side of the unit and plenum.

A variety of wall-mounted thermostats are available for all applications, ranging from a simple thermostat and/or 3-speed switch to a digital, ADA display thermostat with auto-stage (i.e., ramping speed control). See Page 10 for a summary of options available. For additional details on thermostats and wiring, contact your local McQuay Representative.

Drain Pans

The galvanized steel drain pan with copper connection is insulated on the external surface with fire rated closed cell foam. The drain pan extends under the entire coil and coil connections. An optional galvanized steel secondary drain pan provides complete condensate drainage from valve package components. Stainless steel drain pans are available as an option.

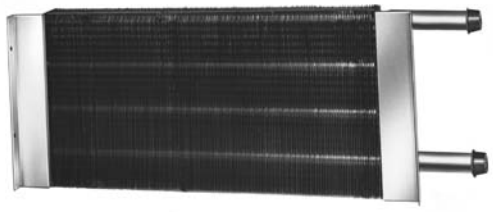
.

TSC Ceiling Unit

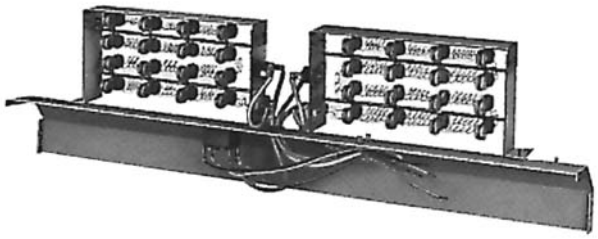
FTSH Hideaway Unit

TSC Ceiling Unit with Optional Trim Flange (also available with open discharge and rear return)

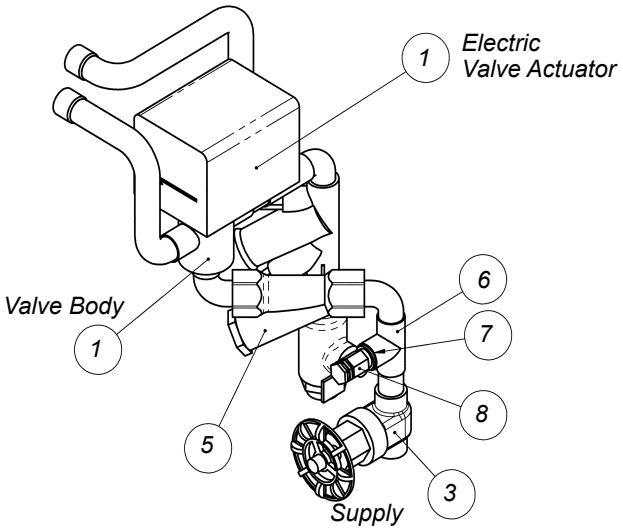
Optional features and accessories

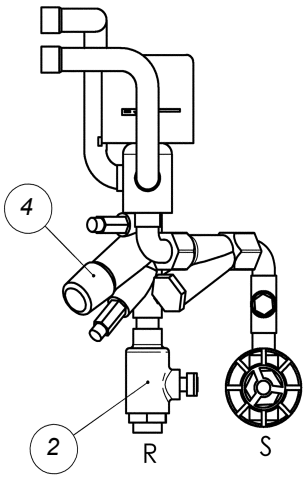


FTSH Heating Coil



FTSH Electric Heater





Deluxe Valve Packages

Electric Heat

Electric heat is offered in a wide variety of sizes and voltages. Each is equipped with an automatic thermal overload switch. Electric heaters can be used for supplementary between-season heating when chilled water is being supplied to the system, or for year-round electric heat.

Return Plenum (FTSH Units Only)

A galvanized steel plenum section is available to enclose the motor and fans. It facilitates making the return air connection to the unit without interfering with the piping for the unit supply, return or drain connections. It is equipped with a 1" throw-away filter holding frame with side or bottom filter access. A $^{3}/_{4}$" duct collar offers easy field duct connections. The plenum is available factory mounted or as a field mounted kit. The filter frame and bottom panel can be interchanged for back or bottom return air.

Valve and Piping Packages

Two-way and three-way electric valves are available in low- and line-voltage configurations for factory or field installation on two-pipe or four-pipe systems. Basic, Enhanced, Premium and Deluxe valve and piping packages are also available with and without unions. Packages without bleed lines will require thermostats capable of sampling the entering water temperature to sense automatic changeover on two-pipe changeover units. For more information, contact your McQuay Representative.

Trim Flange (TSC Units Only)

Optional field-installed trim flange accommodates acoustic type ceiling panels in drop ceiling applications and has an Antique Ivory finish.

TSC Ceiling Unit with Optional Trim Flange

Controls

Manual 4-Position Fan Switch

This four-position fan switch (Off, High, Med, Low) option is available remotemounted It operates on low-voltage or line voltage power and can be provided with a factory-mounted, low-voltage DDC interface board, which contains 3-24 volt relays with line voltage contactors and terminal connections. The transformer is factory-installed and wired.

Sequence of operation

- **Off:** Fan is turned off. The two-position, motorized fresh-air damper, when supplied, is closed.
- **High, Medium, Low:** Fan runs continuously at the selected speed. The two-position, motorized fresh-air damper, when supplied, is opened.

Manual 4-Position Fan Switch

Digital Thermostats

McQuay offers a broad range of remote, wall-mounted digital thermostats with the capability to control on-off, 3-wire and proportional modulating valves, and normally closed or normally open actuator valves. For more information, refer to the McQuay publication ED 18513.

MT155 Thermostat

The MT155 series thermostat provides on-off control for low-voltage or line-voltage valves and fan motors. It is remote-wall mounted. Options include manual or automatic changeover and three-speed fan control for continuous or cycling fan operation. Three standard control options are available:

- On-off fan cycle operation only: The thermostat cycles thefan from the manually selected fan speed (high, medium or low) to off.
- Continuous fan and on-off valve cycle operation: The thermostat cycles the valves on and off. The fan runs continuously at the manually selected fan speed.
- On-off fan and on-off valve cycle operation: The thermostat cycles the fan from the manually selected fan speed to off and it cycles the valves on and off. When the system switch is in the off position, the fan coil system including the fan is shut off.

MT158 and MT168 Thermostat-Controllers with Digital Display

Series MT158 and MT168 microprocessor-based thermostat controllers combine a proportional integral control algorithm with adaptive logic. They can be unit-mounted or remote-wall mounted.

Heating and cooling outputs for the MT158 are individually configurable for three-wire floating control valves or on/off valves in the normally open or normally closed modes.

Heating and cooling outputs for the MT168 provide 0-10 Vdc or 4-20 mA. The integrated, three-speed fan control switch is line voltage to allow direct connection to the fan motors. Manual or automatic changeover is provided with remote setback capability from a time clock or facility management system. Features include a Fahrenheit or Celsius digital display and a built-in purge cycle which assists the controller to determine if the system is supplying hot water or cooling.

Two standard control options are available:

- Continuous fan and modulating (or on-off) valve operation. The fan runs continuously at the manually selected fan speed (high, medium or low). The controller modulates the valves or, on the MT158, dip-switches can be set to cycle the valves on and off.

- On-off fan cycle operation and modulating (or on-off) valve operation. The controller cycles the fan from the manually selected fan speed to off. The controller modulates the valves or, on the MT158, dip-switches can be set to cycle the valves on and off.

MT155 Thermostat

MT158 and MT168 Thermostat

Unit Selection

Selection of unit type

General

The achievement of an efficient fan coil system is dependent upon accurate system design and proper equipment selection. Variations, limitations and control of fan coil systems, design conditions and design load calculations are not described in detail in this catalog. More detailed information may be found in the ASHRAE Guide. This catalog contains ARI certified ratings and application ratings for ThinLine fan coil units from which the design engineer can make initial unit selections to meet the requirements of the system.

The mechanical system designer must select the unit types best suited to the overall system before the actual unit sizes can be determined. The factors that generally influence this decision are intended building usage, building layout, architectural and aesthetic values, economics, geographical location, and type of maintenance service available. The general results may be a mixture of various unit types within a given system. McQuay International manufactures a fan coil unit to meet your every need including ThinLine, HiLine and Large Capacity models.

Basic design data

Prior to selecting the individual unit sizes, the design engineer must fix or determine the following factors:

1. Inside and outside wet and dry bulb design temperatures.
2. Method of introducing the ventilation air.
3. Wet and dry bulb temperatures of the air mixture entering the unit coil.
4. Total and sensible heat gains and losses of the area to be served.
5. Properties of the heating and cooling medium.
6. Available electric power service.
7. Any special design requirements of the building or system.

Selection of unit size

The capacity ratings presented in this catalog are provided for initial unit selection only. Unit size selection should be determined by using the SelectTools for Fan Coil computer selection program. Water cooling and heating capacities, unit air flow, static pressure, electric heat, and glycol solutions are all incorporated into the program to provide the best possible selection. Consult your McQuay representative for a selection tailored to your application.

Unit sizes for the ideal system should be selected by calculating the peak load requirements due to unusually high occupancy or severe climatic conditions and with fan operating at high speed. Ordinary day to day cooling and heating requirements are then achieved at low and medium speeds.

Ventilation requirements should be considered along with heating and cooling capacity to determine the proper unit size. Outside fresh air must be tempered before entering the unit if freezing conditions are expected.

Cooling coil requirements

Having checked the minimum unit size to meet the ventilation requirement, the unit size is generally selected on the basis of matching the sensible cooling capacity of the unit with the calculated requirements when operating at high speed.

Coil Types

Standard and high capacity coil types are available for all FTSH and FTSC ceiling unit sizes to permit unit selections for optimum performance.

- Standard coils are designed to meet both the cooling and heating requirements in a typical system.
- Low flow coils are designed to meet both the normal cooling and heating requirements while operating with reduced gpm and correspondingly higher water temperature rises. Their use is enhanced by the lower first cost of both riser piping and pump, plus lower overall fan coil unit and water pump operating cost.
- High capacity coils are designed to meet cooling and heating loads that exceed typical system requirements for ceiling units.

Heating requirements

Heating requirements for two-pipe systems are generally met by employing the same water flow rate as cooling and adjusting the entering hot water temperature to obtain a matching unit heat output at low fan speed. Four-pipe systems are generally designed by specifying the flow rate through the separate heating coil to meet the required heat load with the fan operating at low speed.

Electric heaters are available for primary year-round heating or intermediate between-seasons heat loads for two-pipe systems when chilled water is in the system.

FTSH & FTSC Series horizontal units

ARI approved standard ratings - ceiling units

Table 1. Standard coil water cooling capacity ratings(1)

Unit Size	TSH Hideaway Units				TSC Ceiling Units			
	Cooling Capacity(2)		Water Flow (GPM)	Water P.D. (FT. W.C.)	Cooling Capacity(2)		Water Flow (GPM)	Water P.D. (FT. W.C.)
	Total (BTUH)	Sensible (BTUH)			TOTAL BTUH	SENSIBLE BTUH		
S03	8,100	6,800	1.7	3.7	5,800	4,600	1.2	2.0
S04	11,900	10,100	2.5	8.0	10,900	9,100	2.2	6.5
S06	19,100	15,200	4.0	3.0	17,100	13,000	3.4	2.4
S08	22,100	17,600	4.6	3.9	19,900	15,200	3.9	2.8
S10	29,000	23,500	6.2	11.5	26,500	20,300	5.3	8.8
S12	38,300	29,700	7.8	21.6	34,500	25,300	6.9	17.2

NOTES:

(1) Rated in accordance with ARI Standard 440. Cooling capacities based on 80°F DB/67°F WB entering air, 45°F entering water, 10°F water temperature rise and high fan speed with standard 115/60/1 motor. See tables 10 and 11 for air volume capacities.

(2) For cooling coil capacity ratings at conditions other than those listed refer to the SelectTools for Fan Coil computer selection program or consult your McQuay representative.

Table 2. High capacity coil water cooling capacity ratings(1)

Unit Size	TSH Hideaway Units				TSC Ceiling Units			
	Cooling Capacity(2)		Water Flow (GPM)	Water P.D. (FT. W.C.)	Cooling Capacity(2)		Water Flow (GPM)	Water P.D. (FT. W.C.)
	Total (BTUH)	Sensible (BTUH)			Total (BTUH)	Ssnsible (BTUH)		
S03	10,200	7,700	2.1	6.3	7,300	5,400	1.5	3.6
S04	15,100	11,000	3.2	4.5	14,000	10,100	2.8	3.6
S06	24,200	17,500	5.0	8.0	21,800	15,400	4.4	5.7
S08	28,000	20,000	5.8	10.4	24,700	17,400	5.1	8.3
S10	37,800	26,700	7.7	14.7	35,700	24,700	7.2	12.3
S12	43,200	30,200	8.6	21.6	39,400	26,800	7.8	17.6

NOTES:

(1) Rated in accordance with ARI Standard 440. Cooling capacities based on 80°F DB/67°F WB entering air, 45°F entering water, 10°F water temperature rise and high fan speed with standard 115/60/1 motor. See tables 10 and 11 for air volume capacities.

(2) For cooling coil capacity ratings at conditions other than those listed refer to the SelectTools for Fan Coil computer selection program or consult your McQuay representative.

Water heating coil ratings - ceiling units

Table 3. Standard coil water heating capacity ratings(1)

Unit Size	TSH Hideaway Units			TSC Ceiling Units		
	Heating Capacity(2)	Water Flow (GPM)	Water P.D. (FT. W.C.)	Heating Capacity(2)	Water Flow (GPM)	Water P.D. (FT. W.C.)
	Sensible (BTUH)			Sensible (BTUH)		
S03	16,600	1.7	3.7	13,200	1.2	2.0
S04	22,500	2.5	8.0	19,900	2.2	6.5
S06	36,800	4.0	3.0	31,500	3.4	2.4
S08	42,800	4.5	3.8	37,500	3.9	2.8
S10	58,700	6.2	11.5	50,200	5.3	8.8
S12	72,100	7.8	21.6	59,500	6.9	17.2

(1) Water heating coils at 70°F DB entering air, 140°F entering water and high fan speed with standard 115/60/1 motor. See tables 10 and 11 for air volume capacities.

(2) For heating coil capacity ratings at conditions other than those listed refer to the SelectTools for Fan Coil computer selection program or consult your McQuay representative.

Table 4. High capacity coil water heating capacity ratings(1)

Unit Size	TSH Hideaway Units			TSC Ceiling Units		
	Heating Capacity(2) Ssnsible (BTUH)	Water Flow (GPM)	Water P.D. (FT. W.C.)	Heating Capacity(2) Sensible (BTUH)	Water Flow (GPM)	Water P.D. (FT. W.C.)
S03	18,600	2.1	6.3	14,800	1.5	3.6
S04	28,100	3.2	4.5	24,400	2.8	3.6
S06	41,600	5.0	8.0	35,600	4.4	5.7
S08	49,400	5.8	10.4	43,800	5.1	8.3
S10	68,800	7.7	14.7	58,800	7.2	12.3
S12	75,700	8.6	21.6	61,600	7.8	17.6

(1) Water heating coils at 70°F DB entering air, 140°F entering water and high fan speed with standard 115/60/1 motor. See tables 10 and 11 for air volume capacities.
(2) For heating coil capacity ratings at conditions other than those listed refer to the SelectTools for Fan Coil computer selection program or consult your McQuay representative.

Table 5. Separate 1-row heating coil capacity ratings(1)

Unit Size	TSH Hideaway Units			TSC Ceiling Units		
	Heating Capacity(2) Sensible (BTUH)	Water Flow (GPM)	Water P.D. (FT. W.C.)	Heating Capacity(2) Sensible (BTUH)	Water Flow (GPM)	Water P.D. (FT. W.C.)
S03	12,300	0.8	1.9	12,300	0.8	1.9
S04	16,800	1.1	3.8	16,500	1.0	3.1
S06	22,200	1.5	1.7	18,000	1.2	0.8
S08	23,100	1.6	1.8	21,800	1.5	1.4
S10	36,100	2.4	3.9	31,800	2.1	2.9
S12	46,900	3.2	8.0	46,100	3.1	7.6

(1) Water heating coils at 70°F DB entering air, 180°F entering water, 30°F water temperature drop and high fan speed with standard 115/60/1 motor. See tables 10 and 11 for air volume capacities.
(2) For heating coil capacity ratings at conditions other than those listed refer to the SelectTools for Fan Coil computer selection program or consult your McQuay representative.

Steam coil ratings – ceiling units

Table 6. Separate 1-row steam coil capacity ratings(1)

Unit Size	TSH Hideaway Units				TSC Ceiling Units			
	Heating Cap. Sensible (BTUH)	EDR(3)	Air Temp. Rise °F	Condensate LB/HR.	Heat. Cap.(2) Sensible (BTUH)	EDR(3)	Air Temp. Rise °F	Condensate LB/HR.
S03	20,300	84.6	62	21.0	20,300	84.6	62	21.0
S04	28,300	117.9	65	29.3	27,900	116.3	64	28.8
S06	36,100	150.4	54	37.4	31,000	129.2	51	32.1
S08	50,000	208.3	57	51.8	48,100	200.4	58	49.8
S10	65,100	271.3	53	67.4	61,300	255.4	57	63.4
S12	71,400	297.5	51	73.9	70,400	293.3	55	72.9

(1) Steam coil capacity ratings based on 60°F DB entering air temperature, 2 psig steam pressure and high fan speed with standard 115/60/1 motor. See tables 10 and 11 for air volume capacities.
(2) For steam coil capacity ratings at conditions other than those listed, use the steam heating coil conversions found on page 20.
(3) Equivalent Direct Radiation.

FTSH & FTSC Series horizontal units

Air volume capacity data – ceiling units – Standard Coil

Table 7. Air volume versus external static pressure – Standard motors, high speed operation (cfm)

Unit Size	External Static Pressure (inches of water)																				
	TSH Unit Wc"							TSH With Plenum							TSC Unit Wc"						
	.00	.05	.10	.15	.20	.25	.30	.00	.05	.10	.15	.20	.25	.30	.00	.05	.10	.15	.20	.25	.30
S03	390	360	340	290	200	170	-	340	290	200	170	110	-	-	350	300	250	210	160	-	-
S04	520	510	500	480	460	450	430	500	480	460	450	430	410	390	480	460	450	430	420	400	390
S06	700	680	670	650	610	570	510	670	650	610	570	510	460	400	640	610	570	540	500	470	430
S08	880	860	830	800	760	710	670	830	800	760	710	670	620	580	790	750	710	680	640	610	570
S10	1300	1270	1220	1180	1120	1060	960	1220	1180	1120	1060	960	900	800	1160	1110	1060	1000	950	900	850
S12	1480	1440	1390	1340	1280	1210	1140	1390	1340	1280	1210	1140	1060	980	1190	1140	1090	1040	990	940	890

Note: Based on 115/60/1 electric service, standard unit options, and dry coils.

Air volume capacity data – ceiling units – Hi Capacity Coil

Table 8. Air volume versus external static pressure – Standard motors, high speed operation (cfm)

UNIT SIZE	External Static Pressure (inches of water)																				
	TSH Unit Wc"							TSH With Plenum							TSC Unit Wc"						
	.00	.05	.10	.15	.20	.25	.30	.00	.05	.10	.15	.20	.25	.30	.00	.05	.10	.15	.20	.25	.30
S03	370	340	310	270	170	150	-	310	270	170	150	130	100	-	320	280	240	190	150	110	-
S04	510	500	480	460	450	430	410	480	460	450	430	410	390	360	460	450	430	420	400	380	370
S06	710	690	670	640	590	550	500	670	640	590	550	500	460	400	650	610	570	540	500	460	420
S08	870	850	820	800	770	740	690	820	800	770	740	690	640	590	740	710	660	630	590	530	490
S10	1290	1240	1200	1150	1080	1020	950	1200	1150	1080	1020	930	880	820	1130	1070	1000	880	810	750	690
S12	1400	1320	1260	1200	1120	1050	950	1260	1200	1120	1050	950	900	850	1160	1100	1050	990	930	870	810

Note: Based on 115/60/1 electric service, standard unit options, and dry coils.

Motor Data – ceiling units

Table 9. Motor data – FTSH & FTSC units

Motor Speed	Unit Size																	
	S03			S04			S06			S08			S10			S12		
	Amps	Watts	RPM	Amps	Watts	RPM	Amps	Watts	RPM	Amps	Watts	RPM	Amps	Watts	RPM	Amps	Watts	RPM
115/60/1																		
High	0.70	75	1080	1.4	185	1200	1.6	190	1070	2.30	250	1280	4.30	450	1350	3.80	395	1160
Medium	0.40	47	820	1.00	110	880	1.00	104	810	1.60	160	1030	2.30	209	1060	3.00	347	1020
Low	0.30	34	600	0.60	58	530	0.70	67	520	0.90	90	920	1.50	137	600	1.90	195	650
265/60/1																		
High	0.34	80	1080	0.50	135	1200	0.70	170	1070	1.00	220	1280	1.30	290	1360	1.40	305	1160
Medium	0.30	66	800	1.40	88	880	0.43	74	815	0.63	131	925	1.00	220	1050	1.30	260	1000
Low	0.29	60	600	0.25	45	530	0.32	50	520	0.36	73	630	0.90	180	600	0.70	145	650

FTSH & FTSC Series horizontal units

Electric heat data – ceiling units

Table 10. Electric resistance heater capacities – FTSH & FTSC units

Unit Size	Single Stage Heaters – Electrical Service											
	120/60/1			208/60/1			240/60/1			265/60/1		
	Watts	BTUH	Amps	Watts	BTUH	Amps	Watts	BTUH	Amps	Watts	BTUH	Amps
S03	1000	3413	8.3	1000	3413	4.8	1000	3413	4.2	1000	3413	3.6
	2000	6826	16.6	2000	6826	9.6	2000	6826	8.3	2000	6826	7.2
	-	-	-	3000	10239	14.4	3000	10239	12.5	3000	10239	10.8
S04	1000	3413	8.3	1000	3413	4.8	1000	3413	4.2	1000	3413	3.6
	2000	6826	16.6	2000	6826	9.6	2000	6826	8.3	2000	6826	7.2
	-	-	-	3000	10239	14.4	3000	10239	12.5	3000	10239	10.8
S06	2000	6826	16.6	2000	6826	9.6	2000	6826	8.3	2000	6826	7.2
	-	-	-	4000	13652	19.2	4000	13652	16.7	4000	13652	14.4
	-	-	-	6000	20478	28.8	6000	20478	25.0	6000	20478	21.7
S08	2000	6826	16.6	2000	6826	9.6	2000	6826	8.3	2000	6826	7.2
	-	-	-	4000	13652	19.2	4000	13652	16.7	4000	13652	14.4
	-	-	-	6000	20478	28.8	6000	20478	25.0	6000	20478	21.7
S10	-	-	-	4000	13652	19.2	4000	13652	16.7	4000	13642	14.4
	-	-	-	6000	20478	28.8	6000	20478	25.0	6000	20478	21.7
S12	-	-	-	4000	13652	19.2	4000	13652	16.7	4000	13652	14.4
	-	-	-	6000	20478	28.8	6000	20478	25.0	6000	20478	21.7

Steam heating coil conversion factors

Table 11. For ratings at other than base conditions, multiple coil capacity by proper conversion factor

Steam Pressure	Steam Temp. (SAT.)	Latent Heat	Entering Air Temperature (°F)									
			0	10	20	30	40	50	60	70	80	90
0	212.0	970.3	1.34	1.27	1.21	1.15	1.08	1.02	0.96	0.90	0.83	0.77
2	218.5	966.0	1.38	1.31	1.25	1.19	1.13	1.06	1.00	0.94	0.87	.081
5	227.1	960.6	1.43	1.37	1.31	1.24	1.18	1.12	1.06	0.99	0.93	0.87
10	239.4	952.6	1.51	1.45	1.38	1.32	1.26	1.20	1.13	1.07	1.01	0.94
15	249.7	945.6	1.57	1.51	1.45	1.38	1.32	1.26	1.20	1.13	1.07	1.01
20	258.8	939.6	1.63	1.57	1.51	1.44	1.38	1.32	1.25	1.19	1.13	1.06
25	266.8	934.0	1.68	1.62	1.56	1.50	1.43	1.37	1.31	1.24	1.17	1.12

To determine the capacity at conditions other than 2 PSIG steam and 60°F entering air, multiply the rated capacity by the proper conversion factor.

Shipping weights

Table 12. Approximate shipping weights (lbs.) – FTSH and FTSC ceiling units

Unit Type	Unit Size					
	S03	S04	S06	S08	S10	S12
TSH LESS PLENUM	34	40	52	56	78	104
TSH RETURN AIR PLENUM	23	27	31	31	38	52
TSC	102	105	128	130	184	211

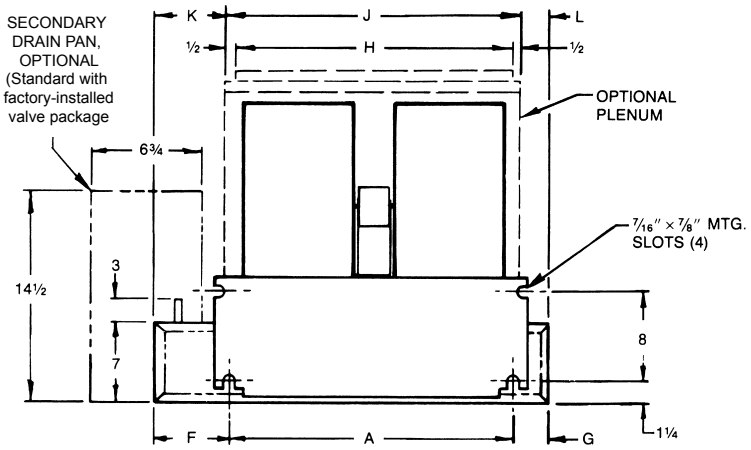
NOTE: Approximate shipping weights do not include valve packages, hot water coils, electric heaters or other options.

Dimensional data – Type FTSH Series hideaway ceiling unit

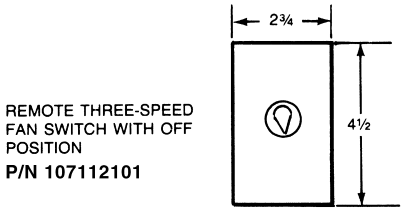
TSH Unit Size	Return Plenum Filter Size
S03	20⅞ x 9⅞ x 1
S04	26⅞ x 9⅞ x 1
S06	35⅞ x 9⅞ x 1
S08	35⅞ x 9⅞ x 1
S10	43⅞ x 9⅞ x 1
S12	59⅞ x 9⅞ x 1

TSH Unit Size	Coil Connection Size	
	Cooling	Heating
S03 Thru S12	⅝ O.D. SW	⅝ O.D. SW

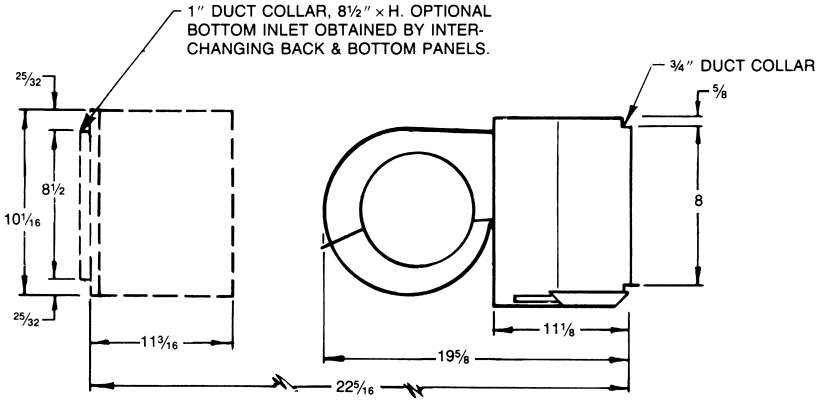
LEFT HAND UNIT SHOWN
Hand of unit determined by cooling connection *when facing front of unit.*



TOP VIEW

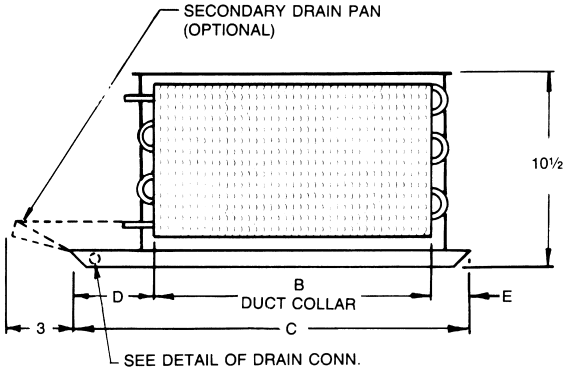


REMOTE THREE-SPEED FAN SWITCH WITH OFF POSITION
P/N 107112101

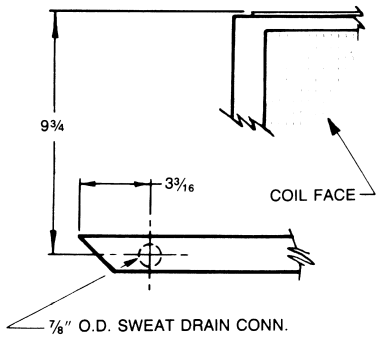


OPTIONAL PLENUM (SIDE VIEW)

SIDE VIEW



FRONT VIEW

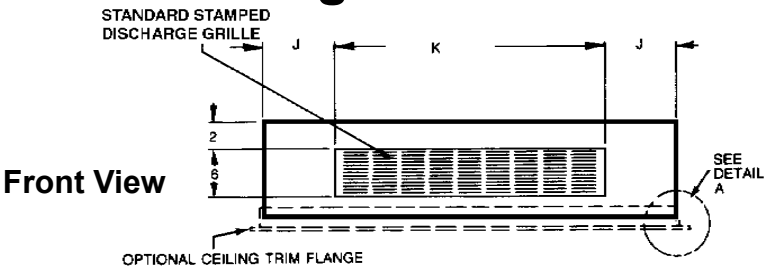


DRAIN CONN. DETAIL (FRONT VIEW)

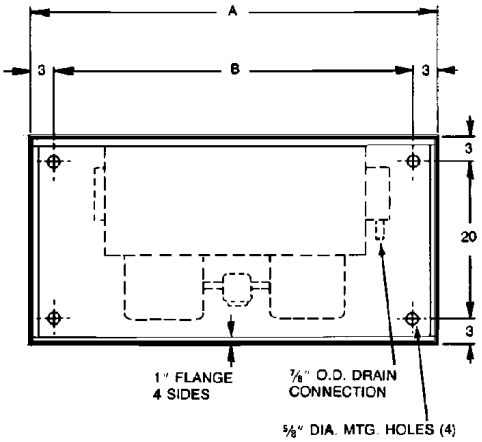
TSH Unit Size	Dimensions (inches)										
	A	B	C	D	E	F	G	H	J	K	L
S03	20¼	19	27	5½	2½	4⅞	1⅞	21	22	4	1
S04	26¼	25	33	5½	2½	4⅞	1⅞	27	28	4	1
S06	35¼	34	42	5½	2½	4⅞	1⅞	36	37	4	1
S08	35¼	34	42	5½	2½	4⅞	1⅞	36	37	4	1
S10	43¼	42	50	5½	2½	4⅞	1⅞	44	45	4	1
S12	59¼	58	68	6½	3½	5⅞	2⅞	60	61	5	2

ALL DIMENSIONS APPROXIMATE. CERTIFIED DRAWINGS AVAILABLE ON REQUEST.

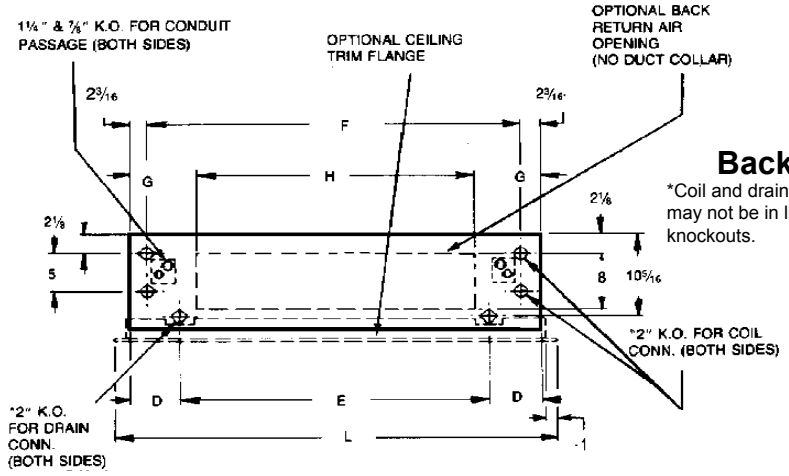
Dimensional data – Type FTSC Series cabinet ceiling unit



Front View



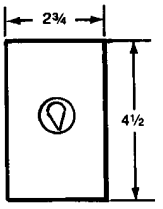
Top View



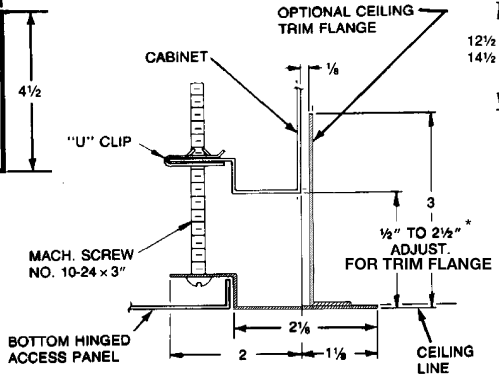
Back View

*Coil and drain connections may not be in line with cabinet knockouts.

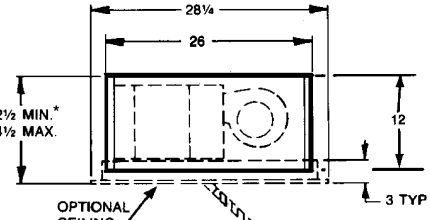
Note: Caution must be exercised when units are used with outside air as standard units are insulated on the leaving air side only. Outside fresh air must be tempered before entering the unit if freezing conditions are expected.



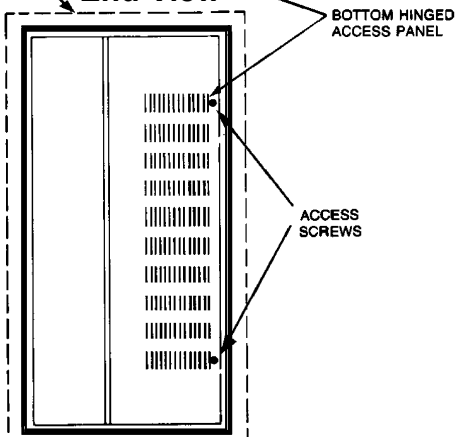
Remote 3-Speed fan switch with off position
P/N 107112101



Detail A (side view)



End View



Bottom View

LEFT HAND UNIT SHOWN
Hand of unit determined by cooling coil connection *when facing front of unit.*

UNIT SIZE	COIL CONNECTION SIZE	
	COOLING	HEATING
S03 thru S12	⅝ O.D. SW	⅝ O.D. SW

TSC Unit Size	Dimensions (inches)										TSC Filter Size
	A	B	D	E	F	G	H	J	K	L	
S03	43	37	6 11/16	29 11/16	38 5/8	8 7/8	24 11/16	9½	24	45¼	26 7/8 x 9 7/8 x 1
S04	43	37	6 11/16	29 11/16	38 5/8	8 7/8	24 11/16	9½	24	45¼	26 7/8 x 9 7/8 x 1
S06	52	46	6 3/8	39¼	47 5/8	8 3/8	34	9	34	54¼	35 7/8 x 9 7/8 x 1
S08	52	46	6 3/8	39¼	47 5/8	8 3/8	34	9	34	54¼	35 7/8 x 9 7/8 x 1
S10	78	72	6 11/16	64 11/16	73 5/8	11 3/8	58	10	58	80¼	59 7/8 x 9 7/8 x 1
S12	78	72	6 11/16	64 11/16	73 5/8	11 3/8	58	10	58	80¼	59 7/8 x 9 7/8 x 1

Engineering guide specifications

Furnish and install where shown on the plans and specifications, McQuay (horizontal hideaway type) (ceiling exposed type) (ceiling recessed type) ThinLine fan coil units. Types, sizes and performance shall be tabulated in the schedule. Unit performance shall be substantiated by computer generated output data. Each unit shall be ARI certified and consist of and comply with the following:

Casing and Cabinets

Ceiling hideaway type (FTSH) — Basic unit shall consist of a base casing and optional return air plenum fabricated of heavy gauge galvanized steel with four-sided 3/4" duct collar for ease of connecting discharge ductwork. Optional return air plenum shall have a filter frame with one-inch return air duct collar that can be interchanged for back or bottom return air. Plenum shall be fully insulated to prevent unit sweating and attenuate fan noise.

Ceiling (exposed) (recessed) cabinet type (TSC) — Unit shall consist of basic unit casing enclosed in an attractive heavy-gauge steel cabinet finished with an electrostatically applied, baked-on Antique Ivory paint. Cabinet shall have a stamped horizontal discharge grille with return air through the (bottom grille) (rear duct opening) of the unit. Cabinet shall include a bottom hinged access panel as standard.

Electrical Raceway — Unit shall have an electrical raceway providing a single location for all field wiring connections. All factory mounted electrical components shall have wire leads terminating in the unit raceway.

Coils — Coils shall have aluminum fins with copper tubes mechanically expanded for a permanent bond. Coils are tested at 320 psig. Water coils shall have a manual air vent. Unit performance shall be as tabulated in the schedule.

Fan assembly — Fans shall be DWDI forward curved, centrifugal type. Fan housing shall be of two-piece construction with a split fan housing that is easily removed, thus allowing complete service access to the fans and motors.

Motors — Units shall have (115/60/1) (265/60/1) three-speed, sleeve bearing, permanent split capacitor motors with oilers, inherent thermal overload protection with automatic reset and resilient mounts.

Drain pan — Drain pan shall be constructed of 20-gauge (galvanized) (stainless) steel, insulated with 1/4" multi-density closed cell insulation.

Insulation — Ceiling model FTSC shall be insulated with 1/2" multi-density glass fiber on the cabinet bottom panel and discharge transition between coil and discharge opening. Hideaway FTSH return air plenum shall be insulated with 1/2" multi-density glass fiber.

Filters — Filters shall be throwaway type.

Optional accessories

Electric heat — Units shall be provided with (120/60/1)(265/60/1) electric heat. Heaters shall be fully protected by a high-limit thermal cut-out with automatic reset. All electric heat controls are to be unit mounted, wired and enclosed by the unit manufacturer at the factory. All ceiling models shall have heating elements located on the entering air side of the cooling coil.

Valve and piping packages — Valve packages shall consist of (two-way) (three-way) electric valves in a (low-voltage) (line-voltage) configuration, (factory) (field) installed. Packages without bleed lines require thermostats capable of sampling the entering water temperature to sense automatic changeover on two-pipe changeover units.

Trim Flange (TSC Units Only) — Field installed trim flanges shall be used to accommodate acoustic type ceiling panels.

Secondary drain pan — Units with valve packages shall be provided with galvanized steel secondary drain pan to channel valve package condensate into primary pan.

Controls — For low-voltage applications, units shall be supplied with an LV-3SP junction box. It includes three 24 volt relays, a line voltage or 24-volt transformer, a set of terminal strips and a toggle disconnect. This interface control can be used with a simple 24-volt thermostat or with building automation systems.

For line voltage connections, units shall be supplied with an Off, Hi, Med, Lo switch, factory installed on a 2 x 2 junction box on the side of the unit and plenum.

.

Warranty
All McQuay equipment is sold pursuant to its standard terms and conditions of sale, including Limited Product Warranty. Consult your local McQuay Representative for warranty details. Refer to Form 933-43285Y. To find your local McQuay Representative, go to www.mcquay.com.

This document contains the most current product information as of this printing. For the most up-to-date product information, please go to **www.mcquay.com.**

Products Manufactured in an ISO Certified Facility.