**Price T-Bar Diffusers**

**Division 23 – Heating, Ventilating, and Air Conditioning**

**Section 23 37 13 – Diffusers, Registers, and Grilles**

The following specification is for a defined application. Price would be pleased to assist in developing a specification for your specific need.

**PART 1 – GENERAL**

* 1. **Section includes**:
1. T-Bar Diffusers
	1. **Related Requirements**
2. Section 01 30 00 – Administrative Requirements
3. Section 01 40 00 – Quality Requirements
4. Section 01 74 21 – Construction/Demolition Waste Management and Disposal
5. Section 01 78 00 – Closeout Submittals
6. Section 01 79 00 – Demonstration and Training
	1. **Reference Standards**
7. All referenced standards and recommended practices in this section pertain to the most recent publication thereof, including all addenda and errata.
8. ASHRAE 70 – Standard Method of Testing the Performance of Air Outlets and Air Inlets
9. ASTM D610 – Standard Practice for Evaluating Degree of Rusting on Painted Steel Surfaces
10. ASTM D714 – Standard Test Method for Evaluating Degree of Blistering of Paints
11. ASTM D1308 – Standard Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes
12. ASTM D1654 – Standard Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments
13. ASTM D4752 – Standard Practice for Measuring MEK Resistance of Ethyl Silicate (Inorganic) Zinc-Rich Primers by Solvent Rub

**1.04 Submittals**

1. See Section 01 30 00 – Administrative Requirements for submittal procedures.
2. Product Data: Provide data indicating configuration, general assembly, and materials used in fabrication. Include catalog performance ratings that indicate airflow, and NC designation.
3. Shop Drawings: Indicate configuration, general assembly, and materials used in fabrication.
4. Project Record Documents: Record actual locations of units and control components.
5. Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions (if applicable), and maintenance and repair data.
6. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.
7. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

**1.06 Quality Assurance**

1. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum ten years of documented experience.

**1.07 Warranty**

1. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
2. Provide 12 month manufacturer warranty from date of shipment of diffusers.

**PART 2 – PRODUCTS**

**2.01 Manufacturer**

1. Basis of Design: Price Industries, Inc.
2. T-Bar Supply Diffusers: Model TBD
3. Fire-rated T-bar Supply Diffusers: TBD-FR
4. T-bar Return Diffusers: Model TBR
5. Fire-rated T-bar Return Diffusers: Model TBR-FR

**2.02 T-bar Supply Diffusers**

1. Description:
	1. Furnish and install Price model TBD T-bar supply diffusers in sizes and capacities as shown by the plans and air distribution schedule. Provide drawings accompanied by an itemized list indicating the unit locations and appropriate product submittal drawings provided by the manufacturer. Exact dimensions of the walls and ceiling are per the architectural drawings.
2. Construction:
	1. The T-bar diffusers shall have coated steel construction shells, and extruded aluminum center tees and pattern controllers.
	2. The [blade type], [curved], or [ice tong] air pattern controller shall be field adjustable without the use of tools.
	3. The diffuser slot width shall be [1/2 inch], [3/4 inch], [1 inch], or [1-1/2 inch].
	4. Module sizes of 36 inches, 48 inches, and 60 inches shall have pattern controllers divided into two sections along the length, allowing split air patterns.
	5. The T-bar diffusers shall have integral supply air plenums. The plenums shall be manufactured of heavy gauge coated steel.
	6.
	7. The diffusers shall be equipped with [1 to 4] slots.
	8. The integral plenums shall be equipped with a side inlet collar, and shall be [insulated] or [uninsulated].
3. Performance:
	1. Performance of the selected T-bar diffusers shall be based on catalogued data obtained with the pattern controllers set in the normal operating position, and tested in accordance with ASHRAE 70.
	2. Paint finish shall be (**select one**):
		1. Baked-on powder coat finish.
			1. The paint film thickness shall be a minimum of 2 mils.
			2. The finish shall have a hardness of 2H as tested in accordance with ASTM D3363.
			3. The finish shall pass an ASTM B117 Corrosive Environment Salt Spray Test for 1000 hours with no measurable creep, rusting or blistering as per ASTM D1654, D610 and D714.
			4. The finish shall pass an ASTM D870 Water Immersion test of a minimum of 500 hours with no measurable with no rusting or blistering as per ASTM D610 and D714.
			5. The finish shall have an impact resistance of 100 inch-pounds in accordance with ASTM D2794.
		2. All components shall have a custom finish in a color to match a customer supplied sample.
		3. The pattern controller and plenum face shall be painted black.
4. Paint Specification:
	1. Paint finish shall be (**select one**):
		1. Baked-on powder coat finish.
			1. The paint film thickness shall be a minimum of 2 mils.
			2. The finish shall have a hardness of 2H as tested in accordance with ASTM D3363.
			3. The finish shall pass an ASTM B117 Corrosive Environment Salt Spray Test for 1000 hours with no measurable creep, rusting or blistering as per ASTM D1654, D610 and D714.
			4. The finish shall pass an ASTM D870 Water Immersion test of a minimum of 500 hours with no measurable with no rusting or blistering as per ASTM D610 and D714.
			5. The finish shall have an impact resistance of 100 inch-pounds in accordance with ASTM D2794.
		2. All components shall have a custom finish in a color to match a customer supplied sample.
		3. The pattern controller and plenum face shall be painted black.
5. Options (**select all that apply**):
	1. Border:
		1. The diffuser shall include the following border type (**select one**):
			1. Center notch (**1 slot diffusers only**).
			2. Straddle tee (**2 or more slots only**).
			3. Straddle type and center notch (**2 or more slots only**).
	2. Face Finish:
		1. The diffuser face finish shall be (**select one**):
			1. Black powder coat.
			2. Narrow flange mill finish (**Canada only**).
			3. Narrow flange black face finish (**Canada only**).
	3. Frame style:
		1. The T-bar diffusers shall be supplied with the following frame style for T-bar lay in mounting (**select one**)
			1. T-bar clips on [inlet side] or [both sides].
			2. One outside T-bar on [inlet side] or [both sides].
	4. Mounting frame
		1. The T-bar diffuser shall be supplied with an extruded aluminum plaster frame for surface mount installations.

**2.03 Fire-Rated T-bar Supply Diffusers**

1. Description:
	1. Furnish and install Price model TBD fire-rated T-bar supply diffusers in sizes and capacities as shown by the plans and air distribution schedule. Provide drawings accompanied by an itemized list indicating the unit locations and appropriate product submittal drawings provided by the manufacturer. Exact dimensions of the walls and ceiling are per the architectural drawings.
	2. Diffusers shall be Fire-Rated assemblies listed in the UL, Underwriters Laboratories Fire Resistance Directory and in the ULC, Underwriters Laboratories of Canada Equipment and Materials Directory. Diffusers shall meet UL time and temperature test criteria and NFPA 90A requirements.
	3. This design is intended for use in an exposed grid suspended ceiling (T-bar lay-in) with up to a three hour rating and must be installed in accordance with installation instructions.
2. Construction:
	1. The T-bar diffusers shall have coated steel construction shells, and extruded aluminum center tees and pattern controllers.
	2. The [blade type], [curved], or [ice-tong] air pattern controllers shall be field adjustable to create a one-way horizontal airflow pattern, or a vertical airflow pattern without the use of tools.
	3. Module sizes of 36 inches, 48 inches, and 60 inches shall have pattern controllers divided into two sections along the length, allowing split air patterns.
	4. The T-bar diffusers shall have integral supply air plenums. The plenums shall be manufactured of heavy gauge coated steel.
	5. The diffusers shall be equipped with [1 to 4] slots.
	6. The integral plenums shall be equipped with a side inlet collar, and shall be [insulated] or [uninsulated].
3. Performance:
	1. Performance of the selected T-bar diffusers shall be based on catalogued data obtained with the pattern controllers set in the normal operating position and a compatible Price supply air plenum, and tested in accordance with ASHRAE 70.
4. Paint Specification:
	1. Paint finish shall be (**select one**):
		1. Baked-on powder coat finish.
			1. The paint film thickness shall be a minimum of 2 mils.
			2. The finish shall have a hardness of 2H as tested in accordance with ASTM D3363.
			3. The finish shall pass an ASTM B117 Corrosive Environment Salt Spray Test for 1000 hours with no measurable creep, rusting or blistering as per ASTM D1654, D610 and D714.
			4. The finish shall pass an ASTM D870 Water Immersion test of a minimum of 500 hours with no measurable with no rusting or blistering as per ASTM D610 and D714.
			5. The finish shall have an impact resistance of 100 inch-pounds in accordance with ASTM D2794.
		2. All components shall have a custom finish in a color to match a customer supplied sample.
		3. The pattern controller and plenum face shall be painted black.
5. Damper:
	1. The diffuser shall be supplied with a galvanized steel, non-adjustable, fire flap-type ceiling radiation damper.
6. Options (**select all that apply**):
	1. Fusible Link:
		1. The diffuser shall be supplied with a fusible link rated for (**select one**):
			1. 165 degrees Fahrenheit.
			2. 212 degrees Fahrenheit.

**2.04 T-bar Return Diffusers**

1. Description:
	1. Furnish and install Price model TBR T-bar return diffusers in sizes and capacities as shown by the plans and air distribution schedule. Provide drawings accompanied by an itemized list indicating the unit locations and appropriate product submittal drawings provided by the manufacturer. Exact dimensions of the walls and ceiling are per the architectural drawings.
2. Construction:
	1. The T-bar diffusers shall have steel construction shells, and extruded aluminum center tees.
	2. The T-bar diffuser shall have integral air plenums manufactured of heavy gauge coated steel.
	3. Return units shall have [1], [2], [3], or [4] slots with [1/2 inch], 3/4 inch], [1 inch], or [1-1/2 inch] slot widths. The extruded aluminum center tee on the 2, 3, and 4 slot models shall be painted white.
	4. The integral plenums shall be [internally insulated with (fiber free) or (coated fiberglass insulation)] or [uninsulated].
3. Performance:
	1. Performance of the selected T-bar diffusers shall be based on catalogued data obtained with the pattern controllers set in the normal operating position, and tested in accordance with ASHRAE 70.
4. Paint Specification:
	1. Paint finish shall be (**select one**):
		1. Baked-on powder coat finish.
			1. The paint film thickness shall be a minimum of 2 mils.
			2. The finish shall have a hardness of 2H as tested in accordance with ASTM D3363.
			3. The finish shall pass an ASTM B117 Corrosive Environment Salt Spray Test for 1000 hours with no measurable creep, rusting or blistering as per ASTM D1654, D610 and D714.
			4. The finish shall pass an ASTM D870 Water Immersion test of a minimum of 500 hours with no measurable with no rusting or blistering as per ASTM D610 and D714.
			5. The finish shall have an impact resistance of 100 inch-pounds in accordance with ASTM D2794.
		2. All components shall have a custom finish in a color to match a customer supplied sample.
		3. The pattern controller and plenum face shall be painted black.
5. Options (**select all that apply**):
	1. Border:
		1. The diffuser shall include the following border type (**select one**):
			1. Center notch (**1 slot diffusers only**).
			2. Straddle tee (**2 or more slots only**).
			3. Straddle type and center notch (**2 or more slots only**).
	2. Frame style:
		1. The T-bar diffusers shall be supplied with the following frame style for T-bar lay in mounting (**select one**)
			1. T-bar clips on [inlet side] or [both sides].
			2. One outside T-bar on [inlet side] or [both sides].
	3. Mounting frame:
		1. The T-bar diffuser shall be supplied with an extruded aluminum plaster frame for surface mount installations.

**2.05 Fire-Rated T-bar Return Diffusers**

1. Description:
	1. Furnish and install Price model TBR-FR fire-rated T-bar return diffusers in sizes and capacities as shown by the plans and air distribution schedule. Provide drawings accompanied by an itemized list indicating the unit locations and appropriate product submittal drawings provided by the manufacturer. Exact dimensions of the walls and ceiling are per the architectural drawings.
	2. Diffusers shall be Fire-Rated assemblies listed in the UL, Underwriters Laboratories Fire Resistance Directory and in the ULC, Underwriters Laboratories of Canada Equipment and Materials Directory. Diffusers shall meet UL time and temperature test criteria and NFPA 90A requirements.
	3. This design is intended for use in an exposed grid suspended ceiling (T-bar lay-in) with up to a three hour rating and must be installed in accordance with installation instructions.
2. Construction:
	1. The T-bar diffusers shall have coated steel construction shells, and extruded aluminum center tees.
	2. The T-bar diffusers shall have integral supply air plenums. The plenums shall be manufactured of heavy gauge coated steel.
	3. The integral plenums shall be equipped with a side inlet collar.
	4. The diffusers shall be equipped with [1] or [2] slots.
	5. The center tee shall be painted white.
3. Performance:
	1. Performance of the selected T-bar diffusers shall be based on catalogued data obtained with the pattern controllers set in the normal operating position and a compatible Price supply air plenum, and tested in accordance with ASHRAE 70.
4. Paint Specification:
	1. Paint finish shall be (**select one**):
		1. Baked-on powder coat finish.
			1. The paint film thickness shall be a minimum of 2 mils.
			2. The finish shall have a hardness of 2H as tested in accordance with ASTM D3363.
			3. The finish shall pass an ASTM B117 Corrosive Environment Salt Spray Test for 1000 hours with no measurable creep, rusting or blistering as per ASTM D1654, D610 and D714.
			4. The finish shall pass an ASTM D870 Water Immersion test of a minimum of 500 hours with no measurable with no rusting or blistering as per ASTM D610 and D714.
			5. The finish shall have an impact resistance of 100 inch-pounds in accordance with ASTM D2794.
		2. All components shall have a custom finish in a color to match a customer supplied sample.
		3. The pattern controller and plenum face shall be painted black.
5. Thermal Blanket:
	1. The diffuser shall be externally wrapped with a non-asbestos thermal blanket.
6. Options (**select all that apply**):
	1. 14 inch oval duct
	2. Fusible Link:
		1. The diffuser shall be supplied with a fusible link rated for (**select one**):
			1. 165 degrees Fahrenheit.
			2. 212 degrees Fahrenheit.

**PART 3 – EXECUTION**

**3.01 Examination**

1. Verify that conditions are suitable for installation.
2. Verify that field measurements are as shown on the drawings.

**3.02 Installation**

1. Install in accordance with manufacturer’s instructions.
2. See drawings for the size(s) and locations of diffusers.

**3.03 Field Quality Control**

1. See Section 01 40 00 – Quality Requirements for additional requirements.

**3.05 Cleaning**

1. See Section 01 74 19 – Construction Waste Management and Disposal for additional requirements.

**3.06 Closeout Activities**

1. See Section 01 78 00 – Closeout Submittals for closeout documentation requirements.
2. See Section 01 79 00 – Demonstration and Training for addition.