



Application Bulletin

APP-APB001-EN
Non-rated R-22 Systems



The purpose of this bulletin is to address concerns regarding non - ARI rated systems. These types of systems may include previously manufactured indoor units.

POSITION STATEMENT:

Trane Residential Systems recommends installing Trane approved matched indoor and outdoor systems. All Trane split systems with a nominal rating of 13 SEER and above are listed in the ARI Certified Directory with thermostatic expansion valves (TXV) only.

The position statement above reflects the company’s best effort in maintaining system reliability, performance, efficiency, and ultimately customer satisfaction. Inevitably, occasions will arise when the above is not possible. Please refer to the guide matrix to determine if the system in question is approved for use with a Flow Control Check Valve (FCCV) as well as other application requirements.

Guide Matrix		
Installation Method	Split Cooling System	Split Heat Pump System
New Indoor / New Outdoor	TXV Only	TXV Only
New Outdoor / Existing Indoor	TXV recommended. FCCV allowed on 2TTB3 and 2TTR3 units only. Check FCCV sizing chart for appropriate diameter flow control.	TXV Only. Contact Trane to assure indoor and outdoor coil volumes are in range. Start kit may be required.
Indoor Already Roughed In		TXV Only Check Primeret or Rating Files
Old Outdoor / New Indoor	Outdoor start kit may be required due to factory installed non-bleed TXV	Contact Trane to assure indoor and outdoor coil volumes are in range. Start kit may be required.
Other manufacturer's indoor coil or air handler	TXV Only	TXV Only

FCCV Sizing Chart for 13 SEER R-22 Cooling Models	
Cooling Unit	FCCV size
2TT*3018A	.049
2TT*3024A	.057
2TT*3030A	.065
2TT*3036A	.073
2TT*3042A	.079
2TT*3048A	.083
2TT*3060A	TXV Only

* means B or R

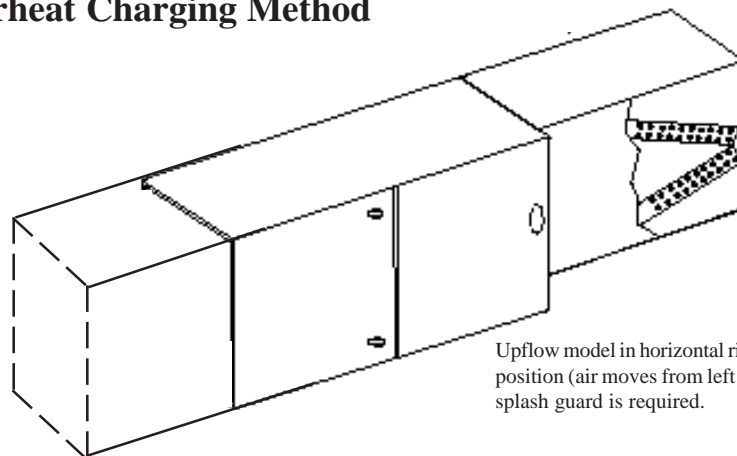
Fixed orifice style coil / 2TTB3-2TTR3 matrix			
ID Coil	Outdoor	ID Coil	Outdoor
CUB*18 CCB*18	2TTB3018A 2TTR3018A	CUB*42 CCB*42	2TTB3042A 2TTR3042A
CUB*24 CCB*24	2TTB3024A 2TTR3024A	CUB*48 CCB*48	not approved - internal FCCV too large
CUB*30 CCB*30	2TTB3030A 2TTR3030A	CUB60 CCB60	Not approved
CUB*36 CCB*36	2TTB3036A 2TTR3036A	CUBD60 CCBC60	2TTB3060A 2TTR3060A indoor has TXV.

- If refrigerant lines exceed 60 feet in total length, a TXV is required.
- All non-residential applications require TXV flow control.
- For CUB and CCB style coils please refer to the fixed orifice style coil / 2TTB3-2TTR3matrix .

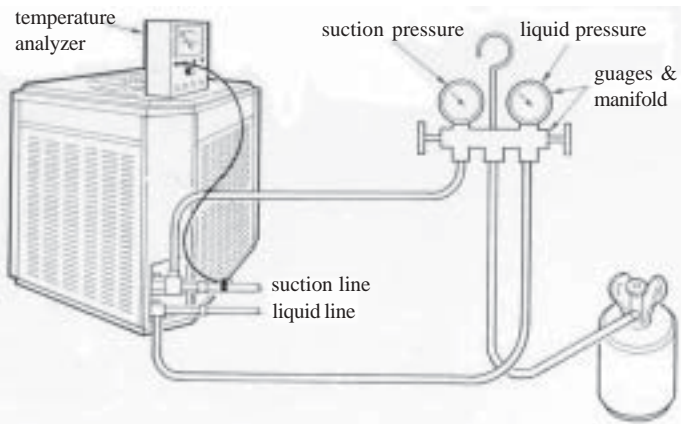
FCCV Split System Superheat Charging Method

1. Measure indoor dry bulb temperature. (return air temp entering the air handler)

Return Air



Upflow model in horizontal right airflow position (air moves from left to right) splash guard is required.



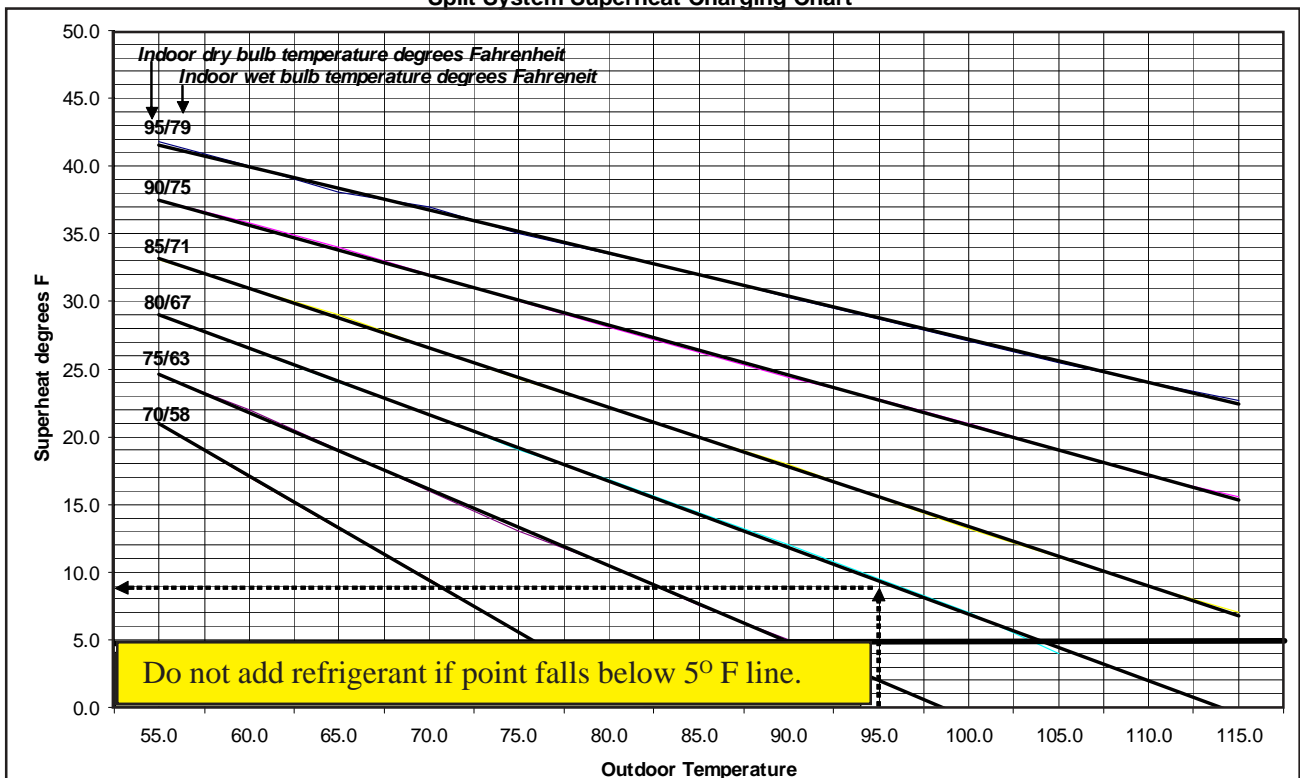
Drawing for illustration purposes only, unit appearance may differ based on design.

2. Measure outdoor dry bulb temperature. (measure at the outdoor within 5" of one of the side panels)
3. Measure suction pressure at the suction pressure tap. (located on the outdoor unit)

Sample R-22 Temperature / Pressure Chart			
Temperature °F	Pressure (PSIG)	Temperature °F	Pressure (PSIG)
26	50.0	42	71.5
27	51.2	43	73.0
28	52.4	44	74.5
29	53.7	45	76.1
30	54.9	46	77.6
31	56.2	47	79.2
32	57.5	48	80.8
33	58.8	49	82.4
34	60.2	50	84.1
35	61.5	51	85.8
36	62.9	52	87.4
37	64.3	53	89.1
38	65.7	54	90.8
39	67.1	55	92.6
40	68.6	56	94.4
41	70.0	57	96.2

4. Measure suction temperature before the suction service valve. (located on the outdoor unit)
5. Determine the actual system superheat in degrees Fahrenheit by referring to a temperature pressure chart or the low side manifold gauge and the measured suction line temperature.
6. Find the intersection value when the outdoor temperature and indoor temperature meet and read degrees superheat. If unit superheat is greater than 5° F above the chart value, add refrigerant until superheat is within 5° F. If unit superheat is 5° F or more below chart value, remove R-22 until superheat is within 5° F of the chart value. An approved recovery system must be used if removal is required.
7. If superheat is below the 5° F line, do not add R-22.

Split System Superheat Charging Chart



NOTE: Chart is based on 400 CFM / Ton indoor airflow and 50% relative humidity, use only on systems with FCCV. If indoor relative humidity is above 70% or below 20% use indoor wet bulb temperature only. Airflow range is 375 to 425 CFM / Ton

Summary

1. TXV indoor flow control is required for all heat pump systems and cooling systems in which the nominal SEER rating of the condensing unit is 14 SEER and above.
2. **TXV indoor flow control is recommended for all applications**, however, FCCV's may be utilized with 2TTB3 and 2TTR3 condensing units. Refer to the Guide Matrix on page 2 of this document.
3. If an indoor coil was previously roughed in, system rating may be obtained from ARI Primenet @ <http://www.ariprimenet.org>. Any rating that is under 13 SEER, however, will be moved to the obsolete rating file after January 2006 and ultimately removed from Primenet after June 2006. These ratings will also be available in product bulletins published by Trane.
4. When mixing old indoor with new heat pumps or new indoor products with older heat pumps, please contact Trane to determine if the two are compatible. Performance data will not be provided.
5. Please refer to TXV chart below for selecting a TXV kit for older air handlers and coils manufactured between 1987 and 2005 in which a removable FCCV was factory supplied.
6. Refer to the outdoor unit's Service Facts and / or outdoor unit Installer's Guide for charging all TXV systems.
 - a. Note: Some outdoor products manufactured after November 2005 have subcooling value on nameplate.
7. Heat pump TXV kits (see matrix below) may be used in cooling only applications.

TXV matrix HCFC - 22 (R-22)		TXV matrix HCFC - 22 (R-22)		TXV matrix HCFC - 22 (R-22)	
Cooling bleed TXV		Cooling non-bleed TXV		Heat pump non-bleed TXV	
TAYTXVA0B5C	1 - 1.5 ton	TAYTXVA0B3C	1 - 1.5 ton	TAYTXVH0B3C	1 - 1.5 ton
TAYTXVA0C5C	2 - 2.5 ton	TAYTXVA0C3C	2 - 2.5 ton	TAYTXVH0C3C	2 - 2.5 ton
TAYTXVA0E5C	3 - 3.5 ton	TAYTXVA0E3C	3 - 3.5 ton	TAYTXVH0E3C	3 - 3.5 ton
TAYTXVA0G5C	4 ton	TAYTXVA0G3C	4 ton	TAYTXVH0G3C	4 ton
TAYTXVA0H5C	5 - 6 ton	TAYTXVA0H3C	5 - 6 ton	TAYTXVH0H3C	5 - 6 ton



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Since Trane has a policy of continuous product improvement, it reserves the right to change design and specifications without notice.