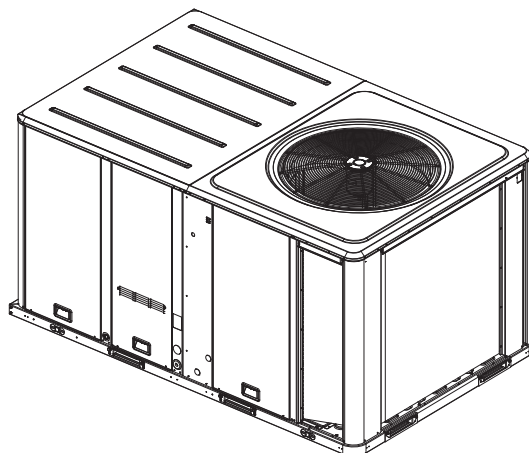


## Service Facts

# Packaged Rooftop Air Conditioners Precedent™ Cooling, Gas/Electric 10 Ton Standard Efficiency Rooftop Units



**Model Numbers** TSC120H YSC120H

### **SAFETY WARNING**

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

# Introduction

Read this manual thoroughly before operating or servicing this unit.

## Warnings, Cautions, and Notices

Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:

**⚠ WARNING** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

**⚠ CAUTION** Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.

**NOTICE** Indicates a situation that could result in equipment or property-damage only accidents.

## Important Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants-including industry replacements for CFCs and HCFCs such as saturated or unsaturated HFCs and HCFCs.

## Important Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified according to local rules. For the USA, the Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

### ⚠ WARNING

#### Proper Field Wiring and Grounding Required!

Failure to follow code could result in death or serious injury. All field wiring **MUST** be performed by qualified personnel. Improperly installed and grounded field wiring poses **FIRE** and **ELECTROCUTION** hazards. To avoid these hazards, you **MUST** follow requirements for field wiring installation and grounding as described in NEC and your local/state electrical codes.

### ⚠ WARNING

#### Personal Protective Equipment (PPE) Required!

Failure to wear proper PPE for the job being undertaken could result in death or serious injury. Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, **MUST** follow precautions in this manual and on the tags, stickers, and labels, as well as the instructions below:

- Before installing/servicing this unit, technicians **MUST** put on all PPE required for the work being undertaken (Examples; cut resistant gloves/sleeves, butyl gloves, safety glasses, hard hat/bump cap, fall protection, electrical PPE and arc flash clothing). **ALWAYS** refer to appropriate Safety Data Sheets (SDS) and OSHA guidelines for proper PPE.
- When working with or around hazardous chemicals, **ALWAYS** refer to the appropriate SDS and OSHA/GHS (Global Harmonized System of Classification and Labeling of Chemicals) guidelines for information on allowable personal exposure levels, proper respiratory protection and handling instructions.
- If there is a risk of energized electrical contact, arc, or flash, technicians **MUST** put on all PPE in accordance with OSHA, NFPA 70E, or other country-specific requirements for arc flash protection, **PRIOR** to servicing the unit. **NEVER PERFORM ANY SWITCHING, DISCONNECTING, OR VOLTAGE TESTING WITHOUT PROPER ELECTRICAL PPE AND ARC FLASH CLOTHING. ENSURE ELECTRICAL METERS AND EQUIPMENT ARE PROPERLY RATED FOR INTENDED VOLTAGE.**

### **WARNING**

#### **Follow EHS Policies!**

Failure to follow instructions below could result in death or serious injury.

- All Trane personnel must follow the company's Environmental, Health and Safety (EHS) policies when performing work such as hot work, electrical, fall protection, lockout/tagout, refrigerant handling, etc. Where local regulations are more stringent than these policies, those regulations supersede these policies.
- Non-Trane personnel should always follow local regulations.

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## Revision History

Updated general data - 10 tons standard efficiency table.

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# General Data

**Table 1. General data - 10 tons - standard efficiency**

	<b>10 Tons</b>
	<b>T/YSC120H3,4,W</b>
<b>Cooling Performance<sup>(a)</sup></b>	
Gross Cooling Capacity	116,000
EER <sup>(b)</sup>	11.2
Nominal cfm/AHRI Rated cfm	4,000/4,000
AHRI Net Cooling Capacity	113,000
IEER (T/Y) <sup>(c)</sup>	12.9/12.7
System Power (kW)	10.09
<b>Compressor</b>	
Number/Type	2/Scroll
<b>Sound</b>	
Outdoor Sound Rating (dB) <sup>(d)</sup>	88
<b>Outdoor Coil - Type</b>	Microchannel
Configuration	Face Split
Tube Size (in.)	1
Face Area (sq. ft.)	20.77
Rows/FPI (Fins per inch)	1/20
<b>Indoor Coil - Type</b>	Lanced
Configuration	Intertwined
Tube Size (in.)	0.3125
Face Area (sq. ft.)	12.36
Rows/FPI (Fins per inch)	4/16
Refrigerant Control	Thermal Expansion Valve
Drain Connection Number/Size (in.)	1¼ NPT
<b>Outdoor Fan</b>	
Type	Propeller
Number Used/Diameter (in.)	1/26
Drive Type/No. Speeds	Direct/1
cfm	6,800
Motor hp	0.70
Motor rpm	1,100
<b>Indoor Fan - Type</b>	
Type	BC Plenum
Number Used/Diameter/Width (in.)	1/23.0315 x 6.14
Drive Type/Number Speeds/RPM	Direct/Variable <sup>(d)</sup>
Motor hp (Standard/Oversized)	2.75/—
<b>Filters<sup>(e)</sup></b>	
Type Furnished	Throwaway
Number Size Recommended	(4) 20 x 25 x 2
<b>Refrigerant Charge (Lbs. of R-410A)<sup>(f)</sup></b>	
Standard	5.6/4.4

**Table 1. General data - 10 tons - standard efficiency (continued)**

	<b>10 Tons</b>
	<b>T/YSC120H3,4,W</b>
<b>Heating Performance<sup>(g)</sup> (Gas/Electric Only)</b>	
<b>Heating Input</b>	
Low Heat Input (Btu)	150,000/105,000
Mid Heat Input (Btu)	200,000/140,000
High Heat Input (Btu)	235,000/164,500
<b>Heating Output</b>	
Low Heat Output (Btu)	120,000/84,000
Mid Heat Output (Btu)	160,000/112,000
High Heat Output (Btu)	188,000/131,600
<b>Steady State Efficiency%</b>	
Low Heat Input (Btu)	80
Mid Heat Input (Btu)	80
High Heat Input (Btu)	80
<b>No. Burners</b>	
Low Heat Output (Btu)	3
Mid Heat Output (Btu)	4
High Heat Output (Btu)	5
<b>No. Stages</b>	
Low Heat Input (Btu)	2
Mid Heat Input (Btu)	2
High Heat Input (Btu)	2
<b>Gas Supply Line Pressure</b>	
Natural (minimum/maximum)	4.5/14.0
LP (minimum/maximum)	11.0/14.0
<b>Gas Connection Pipe Size (in.)</b>	
Low Heat	3/4
Mid Heat	3/4
High Heat	3/4

(a) Cooling performance is rated at 95°F ambient, 80°F entering dry bulb, 67°F entering wet bulb. Gross capacity does not include the effect of fan motor heat. AHRI capacity is net and includes the effect of fan motor heat. Units are suitable for operation to ±20% of nominal cfm. Units are certified in accordance with the Unitary Air-Conditioner Equipment certification program, which is based on AHRI Standard 340/360.

(b) EER is rated at AHRI conditions and in accordance with DOE test procedures.

(c) Integrated Efficiency Ratio (IEER) is rated in accordance with AHRI Standard 340/360. The IEER rating requires that the unit efficiency be determined at 100%, 75%, 50% and 25% load (net capacity) at the specified in AHRI Standard.

(d) Outdoor sound rating shown is tested in accordance with AHRI Standard 270. For additional information reference the outdoor sound power level data in the performance section.

(e) Optional 2 inch MERV 8 and MERV 13 filters also available.

(f) Refrigerant charge is an approximate value. For a more precise value, see unit nameplate and service instructions.

(g) Heating performance limit settings and rating data were established and approved under laboratory test conditions using American National Standards Institute standards. Ratings shown are for elevations up to 2000 feet. For elevations above 2000 feet, ratings should be reduced at the rate of 4% for each 1000 feet above sea level. Applicable to gas/electric units only.

# Evaporator Fan Performance

**Table 2. Direct drive evaporator fan performance - 10 tons standard efficiency - TSC120H3,4,W downflow airflow**

External Static Pressure (Inches of Water)																				
0.10			0.20		0.30		0.40		0.50		0.60		0.70		0.80		0.90		1.00	
cfm	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3200	942	0.47	978	0.54	1017	0.63	1053	0.71	1082	0.78	1116	0.87	1150	0.96	1181	1.04	1207	1.12	1231	1.19
3600	1051	0.65	1083	0.73	1116	0.81	1152	0.91	1183	1.00	1209	1.08	1237	1.17	1268	1.27	1298	1.38	1325	1.47
4000	1161	0.87	1190	0.96	1219	1.05	1249	1.15	1282	1.26	1310	1.36	1334	1.45	1357	1.54	1385	1.65	1412	1.76
4400	1272	1.13	1298	1.23	1324	1.33	1351	1.44	1379	1.54	1409	1.67	1435	1.79	1457	1.88	1478	1.98	1501	2.08
4800	1383	1.45	1407	1.56	1431	1.66	1455	1.78	1480	1.89	1506	2.01	1532	2.14	1558	2.28	1579	2.39	1599	2.49
External Static Pressure (Inches of Water)																				
1.10			1.20		1.30		1.40		1.50		1.60		1.70		1.80		1.90		2.00	
cfm	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3200	1254	1.26	1282	1.35	1307	1.43	1332	1.51	1357	1.59	1381	1.66	1404	1.74	1427	1.82	1449	1.89	1471	1.96
3600	1350	1.56	1372	1.64	1392	1.72	1412	1.80	1437	1.90	1460	1.99	1483	2.08	1504	2.17	1526	2.26	1548	2.35
4000	1440	1.88	1464	1.98	1488	2.08	1508	2.18	1527	2.26	1545	2.35	1564	2.44	1586	2.55	1606	2.65	1627	2.75
4400	1526	2.20	1552	2.33	1576	2.46	1600	2.58	1621	2.69	1642	2.80	1660	2.90	-	-	-	-	-	-
4800	1618	2.60	1639	2.71	1663	2.85	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**Notes:**

1. For direct drive evaporator fan speed (rpm), refer to the applicable table in the fan performance section.
2. Data includes pressure drop due to standard filters and wet coils. No accessories or options are included in pressure drop data.
3. To determine static pressure drop due to other options/accessories, refer to the applicable table in the fan performance section.
4. Direct drive fan motor heat (MBh) =  $2.7912 \times \text{fan bhp} + 0.1388$
5. Factory supplied motors, in commercial equipment, are definite purpose motors, specifically designed and tested to operate reliably and continuously at all cataloged conditions. Using the full horsepower range of our fan motors as shown in our tabular data will not result in nuisance tripping or premature motor failure. Our product's warranty will not be affected.
6. For electric heat applications, minimum airflow is set to 320 cfm/tons, unless specified otherwise, values found in electric heat temperature rise table.

**Table 3. Direct drive evaporator fan performance - 10 tons standard efficiency - TSC120H3,4,W horizontal airflow**

External Static Pressure (Inches of Water)																				
0.10			0.20		0.30		0.40		0.50		0.60		0.70		0.80		0.90		1.00	
cfm	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3200	953	0.48	988	0.55	1027	0.64	1067	0.73	1098	0.80	1128	0.88	1157	0.96	1186	1.03	1213	1.11	1239	1.19
3600	1064	0.67	1095	0.75	1126	0.83	1163	0.93	1198	1.03	1226	1.11	1253	1.20	1280	1.29	1306	1.37	1331	1.46
4000	1175	0.90	1203	0.98	1231	1.07	1260	1.17	1294	1.28	1327	1.39	1353	1.49	1377	1.58	1401	1.68	1425	1.78
4400	1288	1.18	1313	1.27	1338	1.36	1364	1.46	1392	1.57	1422	1.70	1452	1.82	1477	1.93	1500	2.04	1522	2.14
4800	1400	1.51	1423	1.61	1446	1.71	1470	1.82	1494	1.93	1519	2.05	1547	2.18	1575	2.32	1600	2.45	1622	2.56
External Static Pressure (Inches of Water)																				
1.10			1.20		1.30		1.40		1.50		1.60		1.70		1.80		1.90		2.00	
cfm	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3200	1265	1.27	1291	1.35	1316	1.43	1342	1.52	1365	1.60	1389	1.69	1412	1.78	1435	1.87	1458	1.96	1479	2.05
3600	1355	1.54	1378	1.63	1401	1.72	1425	1.81	1447	1.90	1471	2.00	1492	2.09	1515	2.19	1536	2.28	1557	2.38
4000	1448	1.87	1471	1.97	1494	2.07	1515	2.16	1536	2.26	1557	2.36	1578	2.46	1598	2.56	1619	2.66	1640	2.77
4400	1543	2.24	1565	2.35	1586	2.46	1607	2.56	1628	2.67	1647	2.77	1667	2.88	1686	2.98	-	-	-	-
4800	1642	2.68	1662	2.79	1682	2.91	1701	3.02	-	-	-	-	-	-	-	-	-	-	-	-

**Notes:**

1. For direct drive evaporator fan speed (rpm), refer to the applicable table in the fan performance section.
2. Data includes pressure drop due to standard filters and wet coils. No accessories or options are included in pressure drop data.
3. To determine static pressure drop due to other options/accessories, refer to the applicable table in the fan performance section.
4. Direct drive fan motor heat (MBh) =  $2.7912 \times \text{fan bhp} + 0.1388$
5. Factory supplied motors, in commercial equipment, are definite purpose motors, specifically designed and tested to operate reliably and continuously at all cataloged conditions. Using the full horsepower range of our fan motors as shown in our tabular data will not result in nuisance tripping or premature motor failure. Our product's warranty will not be affected.
6. For electric heat applications, minimum airflow is set to 320 cfm/tons, unless specified otherwise, values found in electric heat temperature rise table.

## Evaporator Fan Performance

**Table 4. Direct drive evaporator fan performance - 10 tons standard efficiency with gas heat - YSC120H3,4,W\*L,M low and medium heat downflow airflow**

External Static Pressure (Inches of Water)																				
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80		0.90		1.00	
cfm	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3200	956	0.49	992	0.56	1026	0.64	1060	0.72	1092	0.80	1124	0.88	1157	0.97	1190	1.06	1219	1.14	1244	1.21
3600	1067	0.67	1100	0.76	1130	0.84	1160	0.93	1190	1.01	1219	1.11	1248	1.20	1276	1.30	1305	1.39	1335	1.49
4000	1179	0.90	1208	0.99	1237	1.09	1264	1.18	1291	1.28	1318	1.38	1344	1.48	1370	1.58	1395	1.68	1421	1.79
4400	1291	1.18	1318	1.28	1345	1.39	1370	1.49	1394	1.59	1419	1.69	1443	1.80	1467	1.91	1491	2.02	1514	2.14
4800	1404	1.51	1428	1.62	1453	1.73	1477	1.85	1500	1.96	1522	2.07	1544	2.18	1567	2.30	1590	2.42	1611	2.54

External Static Pressure (Inches of Water)																				
	1.10		1.20		1.30		1.40		1.50		1.60		1.70		1.80		1.90		2.00	
cfm	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3200	1268	1.29	1296	1.38	1323	1.47	1350	1.56	1376	1.65	1400	1.74	1426	1.84	1450	1.93	1473	2.03	1496	2.13
3600	1362	1.59	1386	1.68	1407	1.76	1429	1.85	1454	1.95	1479	2.05	1502	2.14	1525	2.25	1548	2.35	1571	2.46
4000	1448	1.90	1475	2.01	1500	2.12	1523	2.22	1543	2.31	1562	2.41	1581	2.50	1604	2.61	1626	2.72	1647	2.83
4400	1538	2.25	1561	2.37	1586	2.49	1609	2.61	1634	2.74	1656	2.85	-	-	-	-	-	-	-	-
4800	1633	2.67	1655	2.79	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**Notes:**

1. For direct drive evaporator fan speed (rpm), refer to the applicable table in the fan performance section.
2. Data includes pressure drop due to standard filters and wet coils. No accessories or options are included in pressure drop data.
3. To determine static pressure drop due to other options/accessories, refer to the applicable table in the fan performance section.
4. Direct drive fan motor heat (MBh) =  $2.7912 \times \text{fan bhp} + 0.1388$
5. Factory supplied motors, in commercial equipment, are definite purpose motors, specifically designed and tested to operate reliably and continuously at all cataloged conditions. Using the full horsepower range of our fan motors as shown in our tabular data will not result in nuisance tripping or premature motor failure. Our product's warranty will not be affected.

**Table 5. Direct drive evaporator fan performance - 10 tons standard efficiency with gas heat - YSC120H3,4,W\*L,M low and medium heat horizontal airflow**

External Static Pressure (Inches of Water)																				
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80		0.90		1.00	
cfm	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3200	949	0.48	989	0.56	1026	0.63	1061	0.71	1092	0.79	1124	0.88	1155	0.96	1186	1.05	1214	1.13	1241	1.22
3600	1059	0.66	1094	0.74	1128	0.83	1161	0.92	1192	1.01	1220	1.10	1248	1.19	1276	1.29	1303	1.39	1330	1.48
4000	1170	0.88	1200	0.97	1233	1.07	1262	1.17	1291	1.27	1320	1.37	1346	1.47	1370	1.57	1395	1.67	1420	1.78
4400	1282	1.15	1308	1.25	1338	1.36	1366	1.47	1393	1.57	1420	1.68	1445	1.79	1469	1.90	1492	2.01	1514	2.12
4800	1394	1.48	1417	1.58	1444	1.69	1471	1.82	1496	1.93	1520	2.05	1545	2.17	1569	2.29	1592	2.41	1613	2.52

External Static Pressure (Inches of Water)																				
	1.10		1.20		1.30		1.40		1.50		1.60		1.70		1.80		1.90		2.00	
cfm	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3200	1267	1.30	1292	1.38	1316	1.45	1339	1.52	1362	1.59	1384	1.66	1407	1.73	1428	1.80	1448	1.86	1469	1.92
3600	1356	1.58	1381	1.67	1404	1.76	1427	1.85	1449	1.94	1471	2.03	1492	2.11	1512	2.19	1533	2.27	1552	2.35
4000	1445	1.89	1470	2.00	1493	2.11	1517	2.21	1539	2.32	1559	2.42	1580	2.52	1600	2.61	1620	2.71	1639	2.80
4400	1537	2.24	1560	2.36	1582	2.47	1605	2.60	1627	2.72	1649	2.84	-	-	-	-	-	-	-	-
4800	1634	2.64	1654	2.76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**Notes:**

1. For direct drive evaporator fan speed (rpm), refer to the applicable table in the fan performance section.
2. Data includes pressure drop due to standard filters and wet coils. No accessories or options are included in pressure drop data.
3. To determine static pressure drop due to other options/accessories, refer to the applicable table in the fan performance section.
4. Direct drive fan motor heat (MBh) =  $2.7912 \times \text{fan bhp} + 0.1388$
5. Factory supplied motors, in commercial equipment, are definite purpose motors, specifically designed and tested to operate reliably and continuously at all cataloged conditions. Using the full horsepower range of our fan motors as shown in our tabular data will not result in nuisance tripping or premature motor failure. Our product's warranty will not be affected.

## Evaporator Fan Performance

**Table 6. Direct drive evaporator fan performance - 10 tons with standard efficiency gas heat - YSC120H3,4,W\*H high heat downflow airflow**

External Static Pressure (Inches of Water)																				
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80		0.90		1.00	
cfm	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3200	979	0.53	1014	0.61	1048	0.68	1081	0.77	1112	0.85	1143	0.93	1174	1.02	1204	1.10	1233	1.19	1259	1.27
3600	1092	0.73	1124	0.82	1155	0.91	1185	0.99	1214	1.08	1242	1.18	1270	1.27	1297	1.36	1325	1.47	1351	1.56
4000	1207	0.98	1236	1.08	1264	1.17	1292	1.27	1319	1.37	1344	1.47	1370	1.57	1394	1.67	1420	1.78	1445	1.89
4400	1322	1.28	1348	1.39	1374	1.49	1400	1.60	1425	1.71	1449	1.82	1473	1.93	1496	2.04	1519	2.15	1542	2.26
4800	1437	1.64	1462	1.75	1486	1.87	1509	1.99	1533	2.11	1555	2.22	1578	2.34	1599	2.46	1621	2.58	1642	2.70

External Static Pressure (Inches of Water)																				
	1.10		1.20		1.30		1.40		1.50		1.60		1.70		1.80		1.90		2.00	
cfm	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3200	1284	1.35	1308	1.43	1331	1.51	1354	1.60	1376	1.68	1398	1.77	1419	1.86	1440	1.95	1460	2.03	1480	2.12
3600	1377	1.65	1402	1.75	1424	1.84	1446	1.93	1467	2.02	1489	2.12	1508	2.21	1529	2.30	1548	2.40	1567	2.49
4000	1468	2.00	1493	2.10	1517	2.21	1540	2.31	1562	2.42	1581	2.52	1601	2.62	1621	2.72	1639	2.82	1659	2.93
4400	1565	2.38	1586	2.50	1609	2.62	1631	2.74	1654	2.86	1675	2.97	-	-	-	-	-	-	-	-
4800	1663	2.82	1684	2.95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**Notes:**

1. For direct drive evaporator fan speed (rpm), refer to the applicable table in the fan performance section.
2. Data includes pressure drop due to standard filters and wet coils. No accessories or options are included in pressure drop data.
3. To determine static pressure drop due to other options/accessories, refer to the applicable table in the fan performance section.
4. Direct drive fan motor heat (MBh) =  $2.7912 \times \text{fan bhp} + 0.1388$
5. Factory supplied motors, in commercial equipment, are definite purpose motors, specifically designed and tested to operate reliably and continuously at all cataloged conditions. Using the full horsepower range of our fan motors as shown in our tabular data will not result in nuisance tripping or premature motor failure. Our product's warranty will not be affected.

**Table 7. Direct drive evaporator fan performance - 10 tons standard efficiency with gas heat - YSC120H3,4,W\*H high heat horizontal airflow**

External Static Pressure (Inches of Water)																				
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80		0.90		1.00	
cfm	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3200	950	0.47	986	0.54	1023	0.61	1061	0.70	1094	0.78	1127	0.86	1161	0.95	1193	1.05	1221	1.13	1247	1.20
3600	1060	0.64	1093	0.72	1124	0.80	1158	0.89	1191	0.99	1222	1.08	1251	1.17	1280	1.26	1310	1.37	1339	1.48
4000	1171	0.86	1201	0.95	1229	1.04	1256	1.13	1288	1.23	1319	1.34	1346	1.44	1373	1.54	1400	1.64	1425	1.75
4400	1282	1.13	1309	1.22	1336	1.32	1361	1.42	1387	1.52	1416	1.63	1444	1.75	1469	1.86	1494	1.97	1518	2.08
4800	1394	1.44	1419	1.55	1444	1.65	1467	1.76	1490	1.87	1514	1.98	1541	2.10	1567	2.23	1591	2.35	1614	2.47

External Static Pressure (Inches of Water)																				
	1.10		1.20		1.30		1.40		1.50		1.60		1.70		1.80		1.90		2.00	
cfm	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3200	1274	1.29	1301	1.38	1326	1.46	1351	1.55	1376	1.64	1400	1.73	1423	1.82	1445	1.91	1468	2.01	1489	2.10
3600	1364	1.57	1388	1.66	1411	1.75	1435	1.84	1459	1.94	1482	2.04	1505	2.14	1527	2.24	1548	2.34	1570	2.44
4000	1453	1.87	1479	1.98	1503	2.09	1525	2.19	1546	2.29	1567	2.39	1588	2.5	1610	2.61	1631	2.72	1652	2.82
4400	1541	2.2	1566	2.32	1591	2.45	1615	2.57	1638	2.7	1659	2.82	-	-	-	-	-	-	-	-
4800	1636	2.6	1658	2.71	1679	2.84	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**Notes:**

1. For direct drive evaporator fan speed (rpm), refer to the applicable table in the fan performance section.
2. Data includes pressure drop due to standard filters and wet coils. No accessories or options are included in pressure drop data.
3. To determine static pressure drop due to other options/accessories, refer to the applicable table in the fan performance section.
4. Direct drive fan motor heat (MBh) =  $2.7912 \times \text{fan bhp} + 0.1388$
5. Factory supplied motors, in commercial equipment, are definite purpose motors, specifically designed and tested to operate reliably and continuously at all cataloged conditions. Using the full horsepower range of our fan motors as shown in our tabular data will not result in nuisance tripping or premature motor failure. Our product's warranty will not be affected.



# Performance Data

**Table 8. Direct drive plenum fan settings (rpm vs. voltage)**

Potentiometer Voltage	Motor RPM
1	N/A
1.25	N/A
1.5	N/A
1.75	N/A
2	N/A
2.25	325
2.5	402
2.75	465
3	544
3.25	630
3.5	716
3.75	775
4	845
4.25	912
4.5	976
4.75	1044
5	1115
5.25	1203
5.5	1253
5.75	1312
6	1368
6.25	1425
6.5	1475
6.75	1533
7	1581
7.25	1615
7.5	1615

**Table 9. Air temperature rise across electric heaters (°F)**

kW	Stages	10 Tons 4000 cfm <sup>(a)</sup> TSC120H3,4,W
18.0	1	14.2
27.0	2	21.3
36.0	2	28.5
54.0	2	42.7

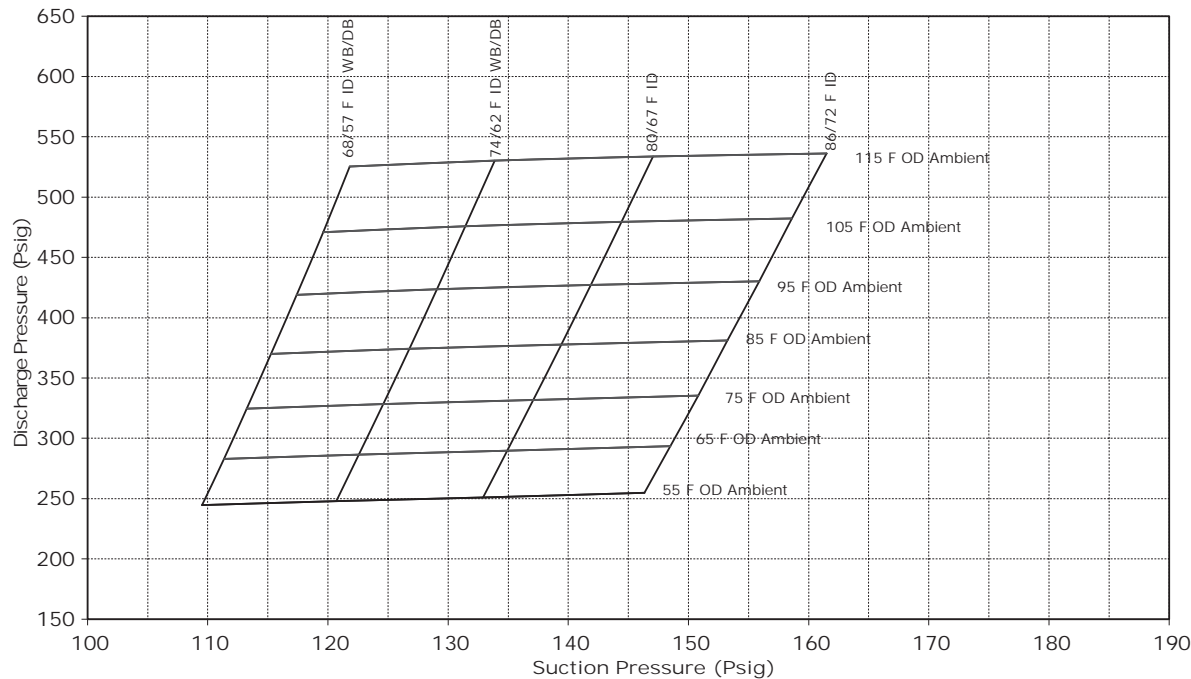
**Notes:**

1. For minimum design airflow, see airflow performance table for each unit.
  2. To calculate temp rise at different airflow, use the following formula:  
Temp. rise across electric heater = kW x 3414/1.08 x cfm.
- (a) Minimum allowable airflow with a 54 kW heater for the TSC120H is 3400 cfm.

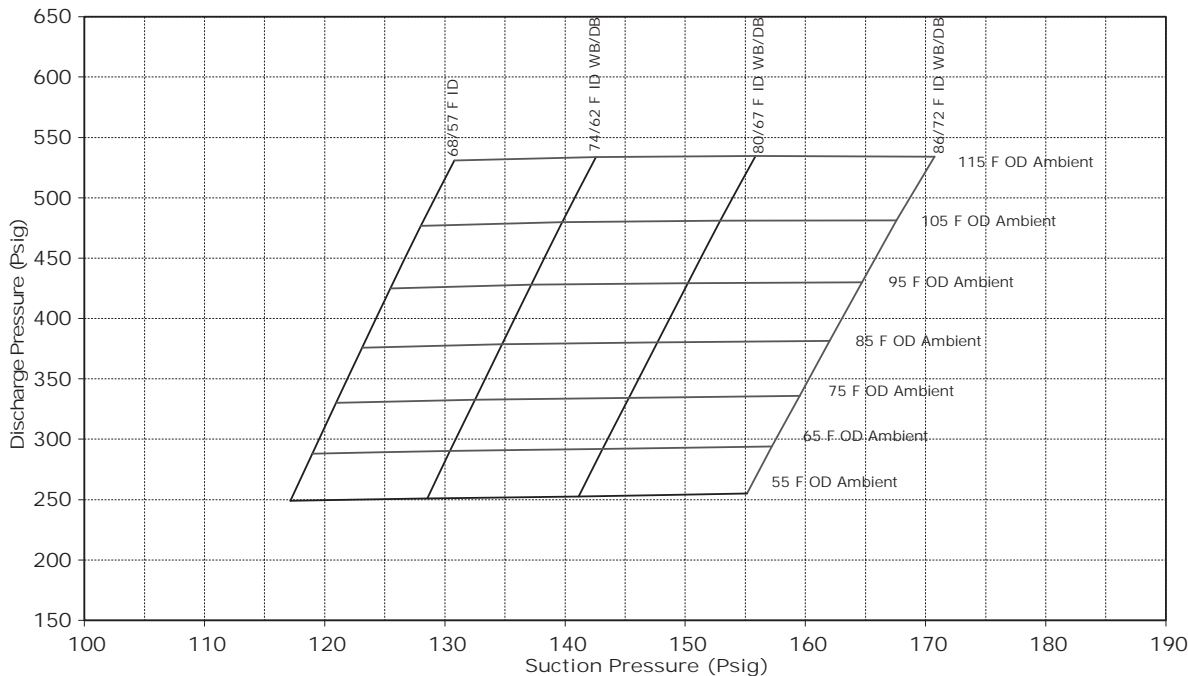
# Pressure Curves

**Note:** Curves based on indoor airflow of 400 cfm/tons.

**Figure 1. T/YSC120H, SYS 1 pressure curve**



**Figure 2. T/YSC120H, SYS 2 pressure curve**



# Subcooling Charging Charts

Figure 3. T/YSC120H subcooling charging chart — 320 cfm/tons

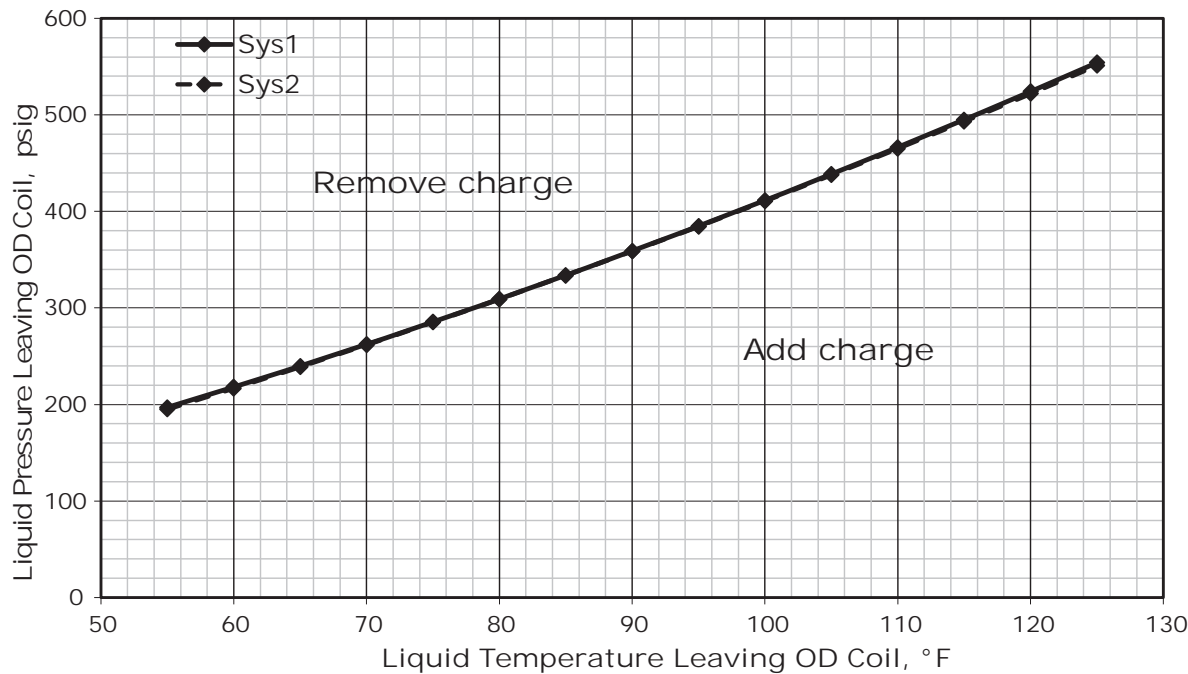
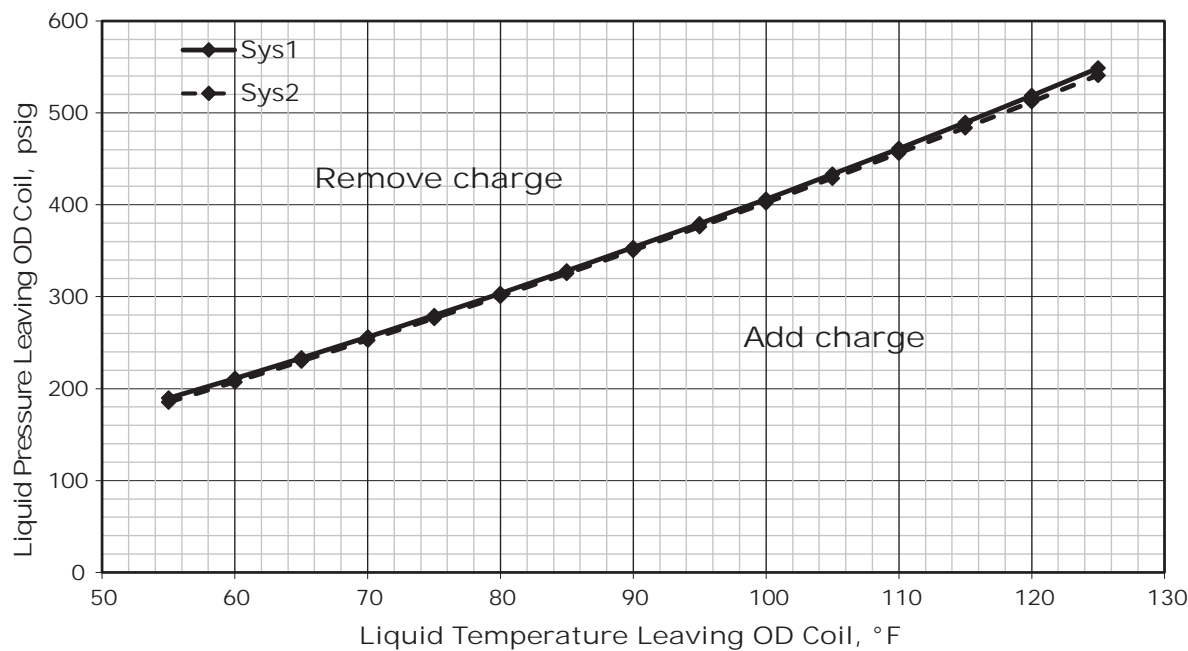
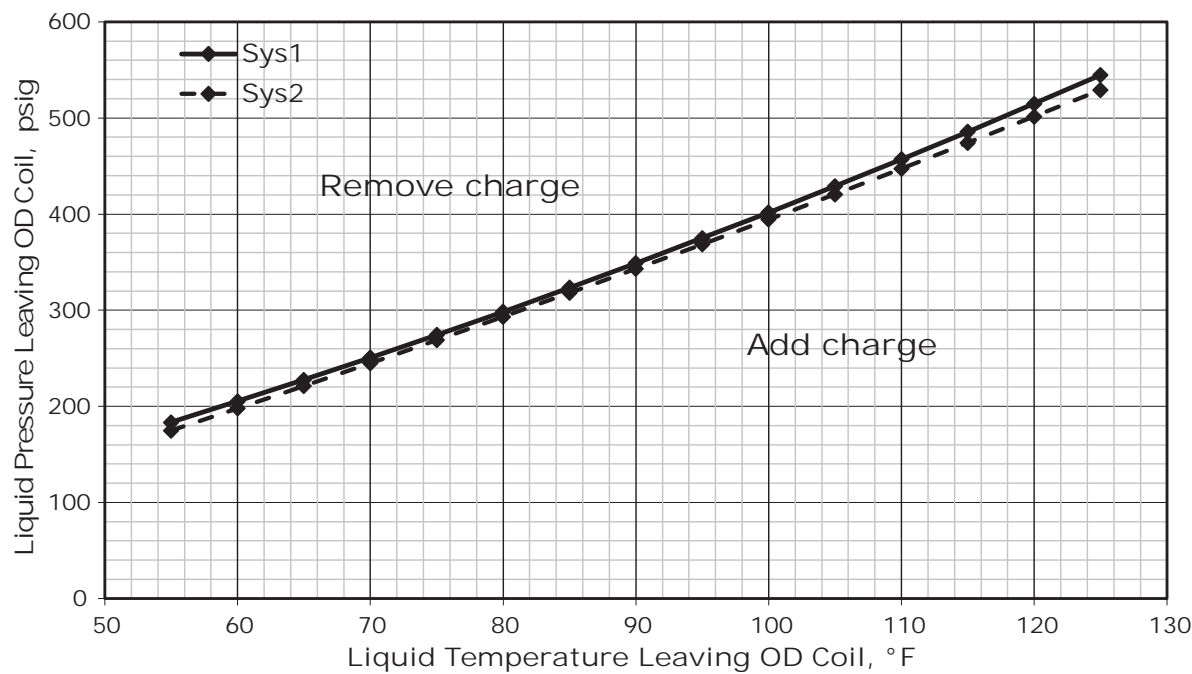


Figure 4. T/YSC120H subcooling charging chart — 400 cfm/tons



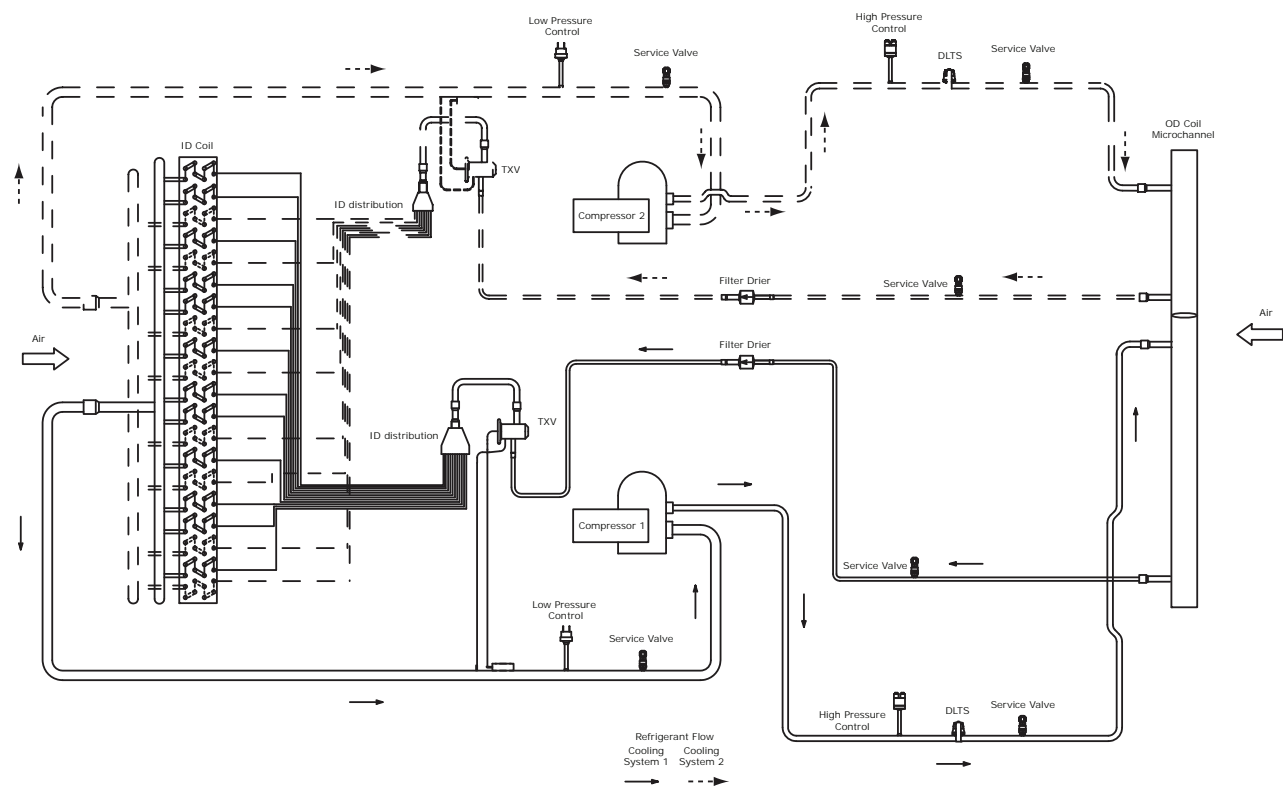
Subcooling Charging Charts

Figure 5. T/YSC120H subcooling charging chart — 480 cfm/tons



# Refrigerant Circuit

Figure 6. T/YSC120H refrigerant circuit







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