Danfoss Compressor HP Chart – TFS, FR, SC Model Reference

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Danfoss Compressor Model Code Chart: Quick Reference Guide for HP, Watts & Amps

Mbsmpro.com, Compressor HP Code Chart, TFS 4 AT to SC 18B, 1/8–5/8 hp, Danfoss/Secop, R134a R404A, 100–470 W, 220-240V 50Hz, LBP MBP HBP, RSIR CSIR, Selection Guide

When a refrigerator or freezer arrives at the workshop with a worn nameplate or faded sticker, identifying the compressor becomes a guessing game. The **Danfoss and Secop hermetic compressor model codes**—such as TFS 4 AT, FR 8.5A, or SC 18B—tell you exactly what you're dealing with if you know how to read them. This chart breaks down those cryptic codes into simple horsepower, watt consumption, and amp ratings so you can diagnose problems, choose the right replacement, or estimate expected power draw in seconds.

What the Model Code Actually Tells You

Every Danfoss and Secop compressor code hides three critical pieces of information that technicians need daily: the **horsepower class** (from 1/8 hp to 5/8 hp for small units), the **power consumption in watts**, and the **running current in amperes**. These values come straight from standardized testing under EN12900 conditions, though real-world consumption will shift with ambient temperature, refrigerant charge level, and how often the thermostat cycles the compressor on and off.

Understanding these numbers transforms a worn-out compressor into useful data. You stop guessing and start troubleshooting with confidence. If your clamp meter shows 2.8 amps but the chart says the model should draw 1.2 amps, something is wrong—perhaps the compressor is flooded with liquid refrigerant, the motor is failing, or the system is simply overcharged.

Breaking Down the Compressor Code Chart

Model No	HP Code	Typical Watt Input	Approx. Running Current (A)	Primary Application
TFS 4 AT	1/8 hp	≈100 W	≈0.9 A	Very small fridges, desktop coolers, R134a LBP
TFS 5 AT	1/6 hp	≈120 W	≈1.05 A	Small bar fridges, display cabinets, LBP/MBP
FR 7.5 A	1/4 hp	≈130 W	≈1.05 A	Efficient domestic fridges, R134a LBP systems
FR 8.5 A	1/5 hp	≈155 W	≈1.20 A	Universal workhorse, LBP/MBP/HBP duty, R134a or R404A
FR 10 A	1/3 hp	≈170 W	≈1.30 A	Larger fridges, small freezers, −30 °C evaporating
FR 11 A	3/8 hp	≈185 W	≈1.30 A	Chest freezers, double-door refrigerators, commercial use
FR 6 B	1/8 hp	≈100 W	≈0.9 A	Direct replacement for vintage FR6 models

Model No	HP Code	Typical Watt Input	Approx. Running Current (A)	Primary Application
FR 7.5 B	1/6 hp	≈135 W	≈1.05 A	Mid-range domestic refrigerators, cooling cabinets
FR 8.5 B	1/4 hp	≈155 W	≈1.20 A	Industry standard, found in thousands of appliances, all duty types
FR 11 B	1/3 hp	≈205 W	≈1.35 A	Upright freezers, glass-door merchandisers, commercial cabinets
SC 12 A	1/2 hp	≈250 W	≈2.0 A	Chest freezers, small cool rooms, MBP/HBP
SC 13 A	1/2 hp	≈250 W	≈2.0 A	Heavier-duty SC12 replacement, upgraded cooling
SC 15 A	1/2 hp	≈315 W	≈3.0 A	Larger merchandisers, cool rooms, all duty types
SC 18 A	5/8 hp	≈385 W	≈2.5 A	Medium-size ice cream freezers, cold storage rooms
SC 18 B	5/8 hp	≈470 W	≈4.2 A	Heavy-duty cooling, large cold rooms, demanding LBP/MBP/HBP applications

These figures are approximate starting points. Always download the official **Danfoss or Secop technical datasheet** for your exact model and refrigerant version before making critical decisions about compressor sizing, capillary tube replacement, or system overhaul.

The Three Compressor Families: TL, FR, and SC Explained

Not all small Danfoss hermetic compressors work the same way. Three distinct product families dominate the market, each optimized for different cooling loads and cabinet types. Swapping between families without understanding their differences can cause short cycling, liquid floodback, high starting current, or simply insufficient cooling.

Family	Popular Models	Watt Range	Best For	Key Advantages
TL Series	TL4G, TL5G	80–160 W	Domestic fridges, beverage coolers, quiet operation	Compact, low noise, modest starting current, R134a optimized

Family	Popular Models	Watt Range	Best For	Key Advantages
FR Series	FR8.5G, FR8.5CL, FR10A	150–300 W	Small freezers, light commercial, flexible duty	Universal workhorse, handles LBP/MBP/HBP, wide evaporating window (−30 °C to +10 °C), multiple refrigerants (R134a, R404A, R507)
SC Series	SC18G, SC18B, SC21G	280–470+ W	Heavy-duty freezers, cold rooms, demanding loads	Higher displacement, cooling capacity up to ~1950 W at some points, suited for commercial-grade duty cycles

The practical lesson: A **TL4G** and an **SC18B** both carry a Danfoss nameplate, but they’re worlds apart in displacement, starting current, and cooling power. Plugging an SC18B into a system designed for a TL4G creates an instant overcharge and liquid migration problems. Conversely, installing a TL4G in place of a failed SC18B leaves your customer’s freezer unable to maintain temperature.

How Technicians Use This Chart in Daily Work

Diagnosing a Mystery Compressor

Imagine you open up an old ice cream freezer or reach the back of a forgotten wine cooler and find a compressor with **no readable nameplate—just a bare black shell with a yellow identification sticker**. The model number might be partially visible: perhaps you can make out **“FR8.5”** or **“SC18”**.

This chart lets you instantly know that an **FR8.5 B** will draw around 155 watts and 1.2 amps during steady running. You clamp the power lead and measure 2.1 amps instead. That’s a red flag—the motor is working harder than it should. Possible causes: **overcharge of refrigerant, flooding of oil and liquid into the crankcase, worn motor bearings, or a faulty capacitor** causing inefficient starting. Instead of blindly replacing the compressor, you now have a diagnostic direction.

Selecting a Replacement

When a customer’s 10-year-old refrigerator needs a new compressor, you have options. **Should you stick with the original FR 8.5 A, upgrade to an FR 8.5 B, or jump to an SC 12 A?**

The chart helps you think this through:

- **Same family, same size:** An FR 8.5 B replacement (≈155 W) in place of a failed FR 8.5 A (≈155 W) keeps system design intact.
- **Efficiency upgrade:** A newer **high-EER FR 8.5B** or **TL5G** consuming 10% less power but delivering the same cooling might save your customer 15–20% annually on electricity.

- **Oversizing trap:** Moving from FR 8.5 (155 W) to SC 12 A (250 W) sounds like added cooling power, but without redesigning the capillary tube, expansion device, and charge volume, you risk **liquid slugging and compressor failure within weeks**.

The chart is your reality check. It shows displacement boundaries that shouldn't be crossed carelessly.

Cross-Referencing Between Brands

Not every customer uses Danfoss. A competitor's 1/4 hp compressor running R134a might be perfectly comparable to an **FR 8.5B** if the **cooling capacity, motor winding, starting current, and duty cycle align**. The chart becomes your baseline—a reference point for comparing specs across manufacturers when a customer insists on a different brand or when supply is tight.

Real-World Cooling Capacity Behind the Watt Numbers

Power consumption (watts) is **not the same as cooling capacity (watts of refrigeration)**. A compressor drawing 155 watts of electrical input might deliver 400–600 watts of cooling capacity depending on the **evaporating temperature, condensing temperature, and refrigerant type**.

This is why the chart lists electrical input, not cooling output. When a customer asks, *"Will this compressor keep my freezer cold?"* you need the full technical datasheet—not just this quick-reference chart—to answer

properly. The chart gets you in the door; the datasheet closes the sale.

Common Mistakes Technicians Make with Compressor Charts

Mistake 1: Assuming “5/8 hp” compressor is always better than “1/2 hp”

An SC 18B (5/8 hp, 470 W) delivers more cooling than an SC 15 A (1/2 hp, 315 W), but only if the system is properly designed for it. Oversizing without adjusting capillary tubes and refrigerant charge causes short cycling and inefficiency.

Mistake 2: Ignoring refrigerant type and duty rating

An **FR 8.5 A** rated for R134a in LBP service is not the same as an FR 8.5 A rated for R404A in HBP service. The motor windings, displacement, and performance curves differ. Always match refrigerant and duty code.

Mistake 3: Mixing current (amps) with cooling capacity

A compressor drawing 4.2 amps (like the SC 18B) will trip a standard 15-amp residential circuit faster than an FR 8.5 (1.2 A) if run continuously. Circuit protection, wiring gauge, and contactor sizing must all account for this difference.

Mistake 4: Using only the chart without the datasheet

This chart is a diagnostic *shortcut*, not a design tool. For new installations, retrofits, or capacity upgrades, download the **official technical data** showing performance curves, cooling capacity at different evaporating/condensing temperatures, and refrigerant charge recommendations.

Why This Chart Matters for Your Bottom Line

When you can quickly identify a compressor, estimate its power draw, and recognize whether it’s being overloaded or oversized, you **reduce diagnostic time, avoid costly misdiagnosis, and build customer trust**. A technician who says, *“Your compressor is drawing 30% more current than it should—we need to check the charge level before replacing anything”* sounds more professional than one who immediately orders a replacement part.

The chart also protects you from expensive warranty claims. If you install a SC 18B in a system designed for an FR 8.5, and it fails in three months due to liquid floodback, you’re liable. The chart is your documentation that you understood the difference.

Next Steps: Getting the Full Technical Data

This quick-reference guide covers the essentials, but **every compressor model has a detailed datasheet** showing cooling capacity curves, motor starting characteristics, and refrigerant-specific performance. The PDF links below connect you to official Danfoss and Secop sources so you can dive deeper whenever you need to.

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Excerpt (55 words)

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dealing with. This chart breaks down those codes into horsepower, watt consumption, and amp ratings for fast diagnosis.

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