



**UNITED
TECHNOLOGIES
CARRIER**

Commercial Division
Carrier Corporation

BULLETIN: CA-SB-19-D-67-38
DATE: 6/29/67
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SERVICE BULLETIN

SUBJECT:

19D AND 19DA REFRIGERANT CHARGES

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PURPOSE: To consolidate 19D and 19DA refrigerant charges and charging procedures.

**MACHINES
AFFECTED:** All 19D and 19DA centrifugal machines.

BACKGROUND: The recommended refrigerant charges for the 19D and 19DA are listed in the table below.

MACHINE MODEL	OPTIMUM CHARGE (LBS)		MAXIMUM OPERATING CHARGE (LBS)		REFRIGERANT CHARGE SHIPPED (LBS)
	19D	19DA	19D	19DA	19D & 19DA
19D,19DA-102	425	400	470	400	500
19D,19DA-112	425	400	470	400	500
19D,19DA-131	450	425	500	425	500
19D,19DA-147	475	450	500	450	500
19D,19DA-160	500	525	550	550	600
19D,19DA-182	525	550	575	575	600
19D,19DA-198	550	575	600	625	600
19D,19DA-228	550	575	600	625	600
19D,19DA-255	800	850	880	900	900
19D,19DA-284	850	880	935	930	950
19D,19DA-325	925	900	1000	975	1000
19D,19DA-362	1000	935	1100	1035	1100
19D,19DA-397	1050	960	1150	1060	1150

Optimum charge is based on factory and field tests at 44°F leaving chilled water temperature and 85°F entering condenser water temperature. Therefore, the amount charted is sufficient for most machine applications. The difference between the 19D and 19DA charges is the result of design changes in the unishells of the 19DA.

Machines with different design conditions may require some charge adjustment. The final charge required should not exceed the maximum charge shown in Column 2.

FILE INSTRUCTIONS: UNISHELL-COOLER-CONDENSER
Remove and obsolete Bulletin No. 19SB-65-6D
Dated 11/18/65 and Bulletin No. 19SB-66-3D,
Dated 3/3/66



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Charging Refrigerant at Initial Start-Up

1. Charge amount shown in Column 1.
2. Mark the refrigerant level on the sight glass gland with a scribe, file or paint with machine shut down.

Trimming Charge at Full Design Load

1. Add refrigerant slowly until the LTD - Leaving Temperature Difference (difference between refrigerant temperature and leaving chilled water temperature) becomes a minimum.
2. Do not exceed "Maximum Charge" shown in Column 2.

Effects of Overcharging or Undercharging

Overcharging may cause liquid refrigerant carryover into the compressor and increase motor horsepower. When liquid carryover occurs, it will be indicated by cold temperatures and possible condensation on the bottom of the compressor inlet venturi. Overcharging beyond the optimum charge also increases the difference between leaving chilled water temperature and the refrigerant temperature (LTD). This is shown in Figure 1 on a typical machine at full design load.

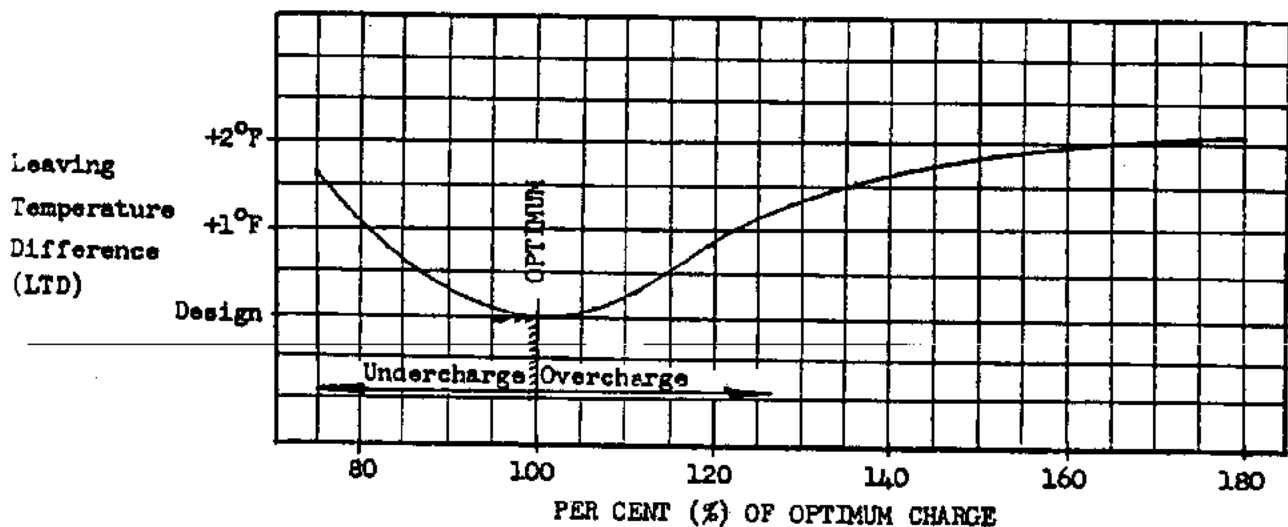


FIGURE 1

TYPICAL CHARGING CURVE AT FULL LOAD DESIGN

Undercharging may cause nuisance trip-outs on low refrigerant temperature.