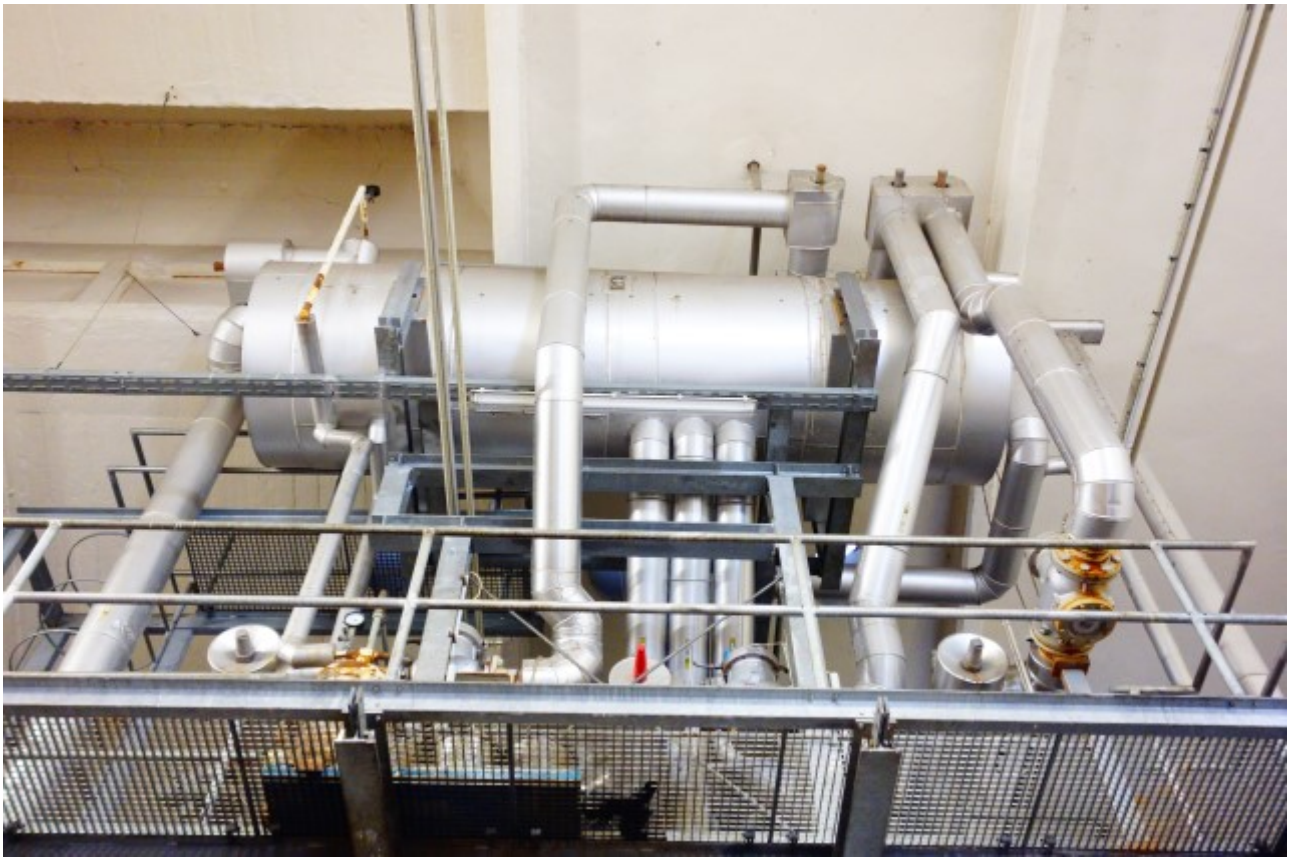
CRUSH ICE INSTALLATION – 200 TONS/DAY

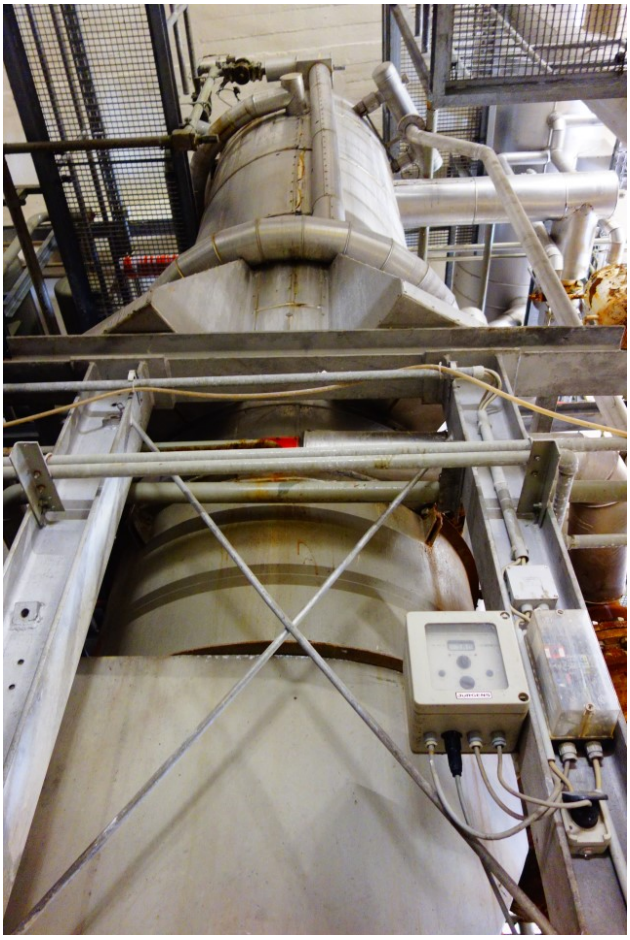
Ice maker:

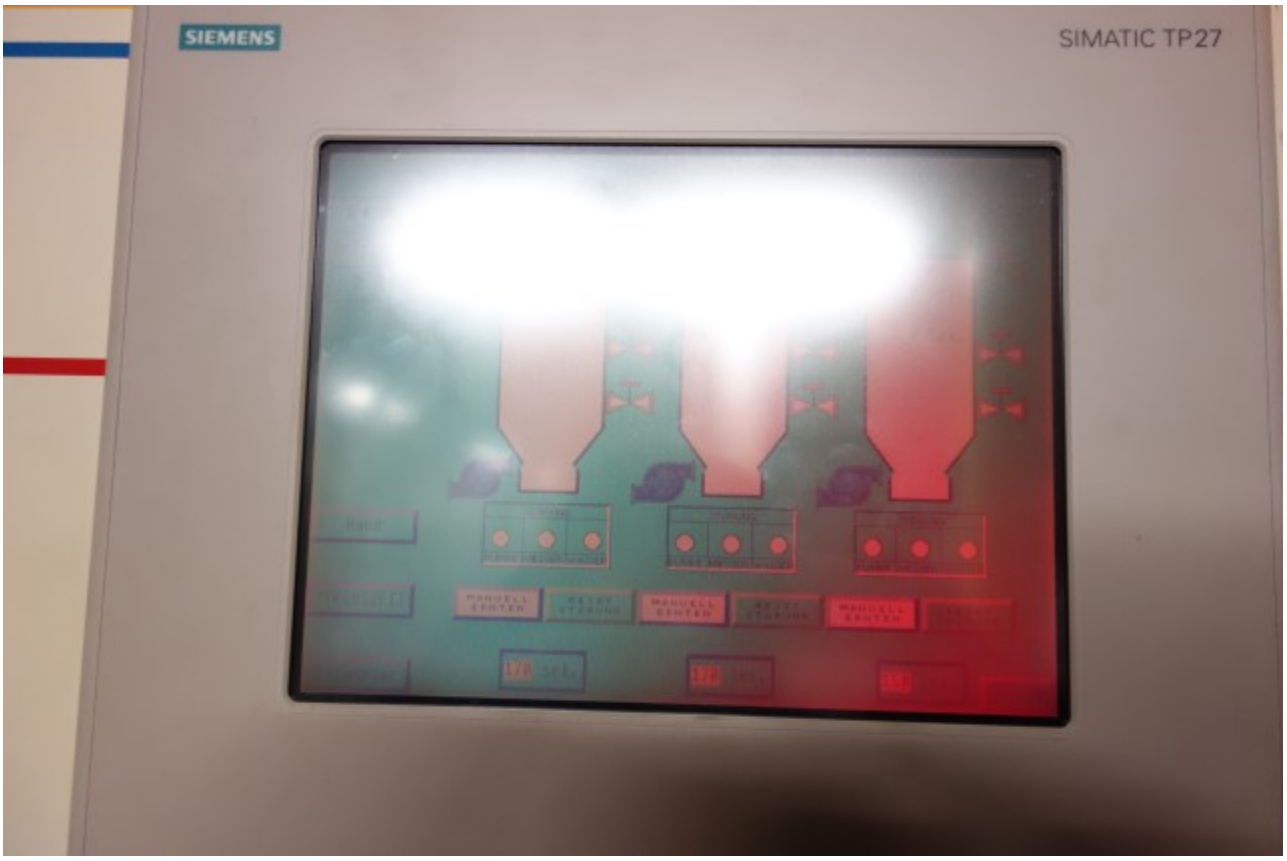
Brand:	Stal-Astra
Type:	FA703
Refrigerant:	NH3/Ammonia
Capacity each drum:	66,6 tons/day
Total capacity:	200 tons/day
Refrigerant Capaity:	1130 kW
Shipping Weight:	34 tons
Dimensions:	

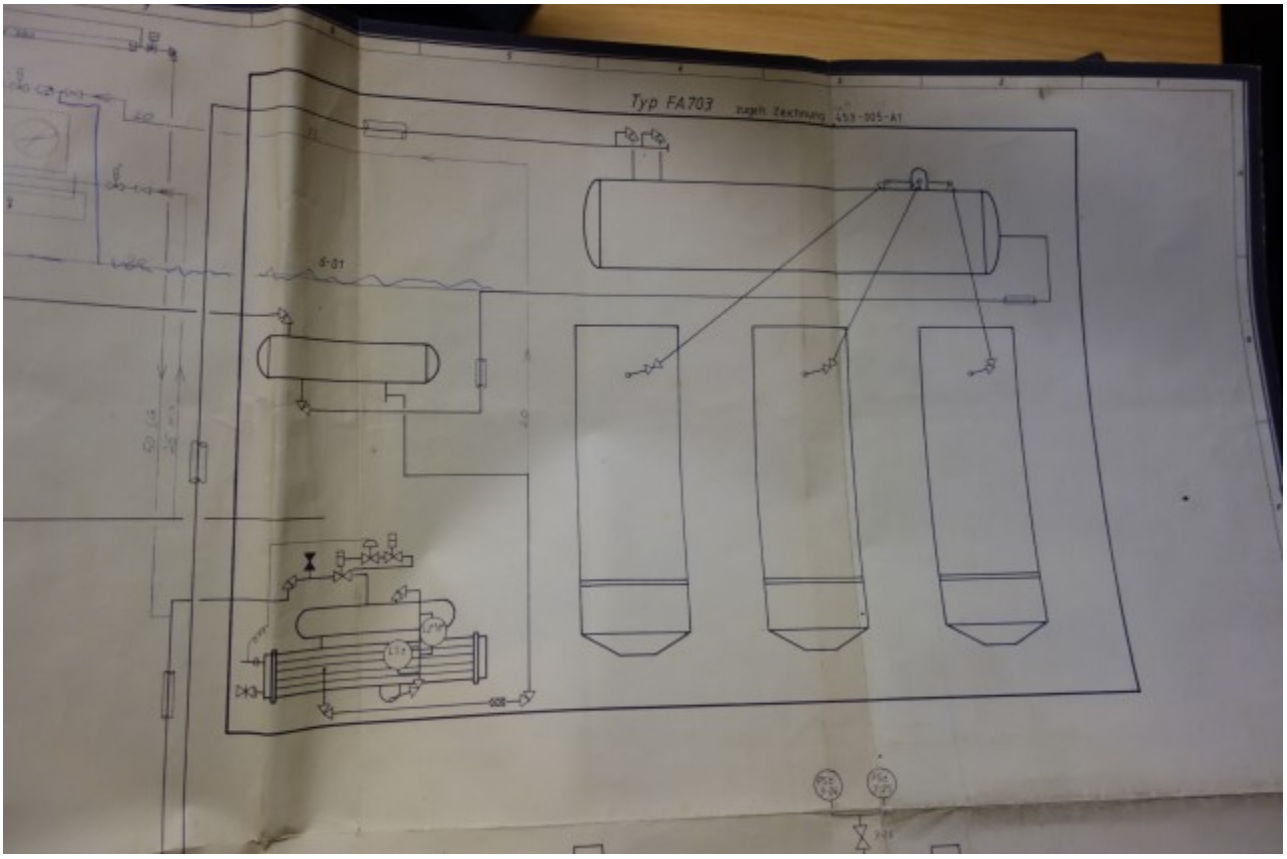
Including for example:
- Central control panel with Siemens PLC (Simatic TP27)
- Oil separator Stal (4.500 ltr.) (4670x1200 mm LxØ)
- P&ID drawing of the original installation
- All manuals, books and documentation which are available

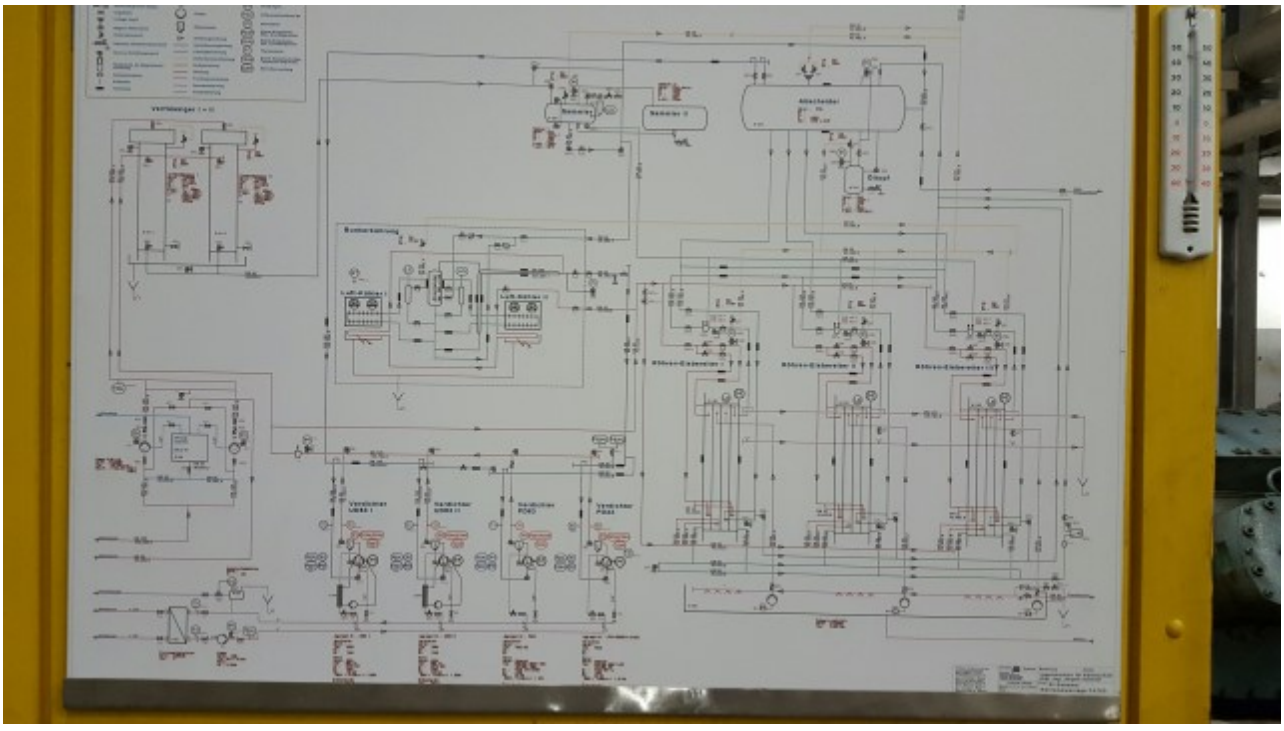
EQUIPMENT IS AVAILABLE AS LONG AS NOT SOLD






SIEMENS
SIMATIC TP27


Typ FA703



TUBE-ICE MACHINE
Type FA702A, FA703A, FA704A and FA705A
Refrigerant: NH_3

GENERAL
In the tube-ice production, there is a tendency towards the use of ever bigger units. To meet this increasing demand, a series of tube-ice machines has been designed for capacities of more than 100 tons per day.

The design is based on STAL's wide experience of medium-sized tube-ice machines. The principle for ice-freezing is the same, but the treatment of the ice has been adapted to the bigger generator. Moreover, the new machine has been equipped with a precooler for feed water. Experience from most of the plants in operation proves that the results of our endeavours to develop a tube-ice machine for large capacities have amply satisfied our anticipations.

ICE PRODUCTION
In the tube-ice machine, the refrigerant evaporates directly around the tubes in which the water freezes. This method gives better heat transfer and gives a smaller temperature difference between the water and the refrigerant than is the case when using brine in a conventional block-ice plant. In other words, the capacity of the refrigerating compressor is used in the optimum economic manner.

By varying the duration of the ice-freezing cycle it is possible to obtain ice of different thicknesses. By a suitable balance of ice thickness and temperature difference, the active refrigeration surfaces can be very effectively utilized. This implies compact units with small space requirements.

The difference in temperature between the water and the evaporated refrigerant is kept relatively small and can be adjusted to give clear ice. A further contributory factor in this respect is the device that forces the water to circulate over the ice during the freezing process.

The tube-ice machine is fully automatic and is controlled by the STALECTRONIC Ⓡ 1000 electronic control system.

The name "tube-ice" is derived from the fact that the ice is frozen in the shape of tubular bars on the inside of tubes.

TYPE DESIGNATION
Example: FA – 70 3 A

- FA – Type
- 70 – Size designation
- 3 – Number of generators: 2, 3, 4, 5
- A – Version

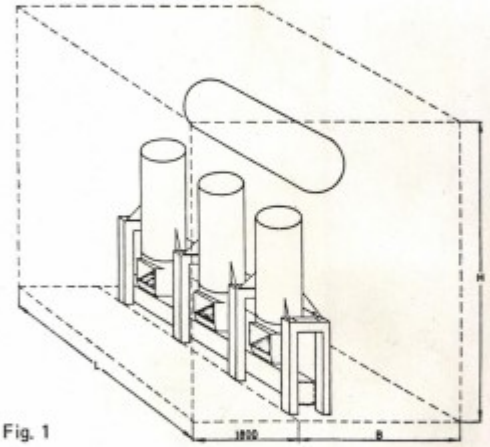


Fig. 1

DATA
Some characteristic data for the different tube-ice machines

Type designation	Dimensions acc. to figure mm			Service weight	NH_3 1) charge	Aux. motors		Capacity	
						Installed output	Power consumption	Refrig. 2) capacity	Ice production
	L	B	H	tons	tons	kW	kWh/h	kW	tons/24h
FA702A	5500			28	3.0	19	10	815	140
FA703A	7200	2800	9000	40	4.0	28.5	15	1130	200
FA704A	9000			50	5.5	38	20	1630	275
FA705A	10700	3000	9300	60	7.0	47.5	25	2100	350

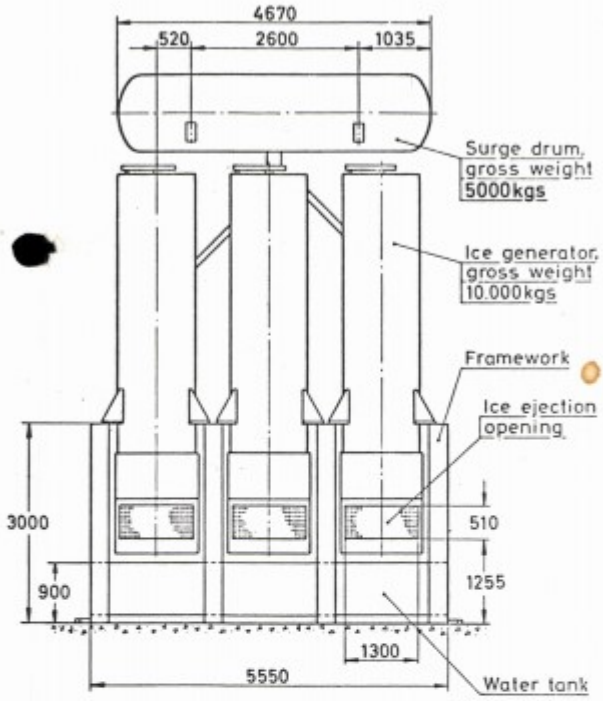
1) Excluding the charge in the high-pressure side with heat-accumulator, if any, of a complete plant

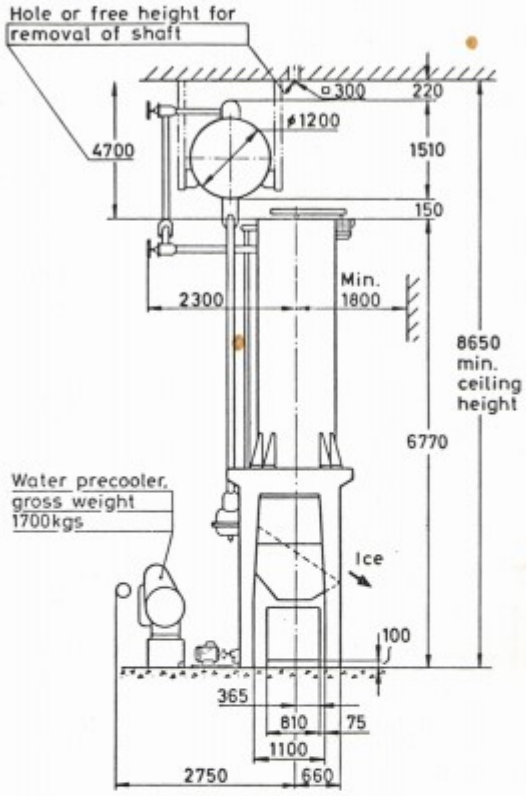
2) The refrigerating capacity, which is nominal, is valid for an evaporating temperature of -10°C and a feed-water temperature of +5°C

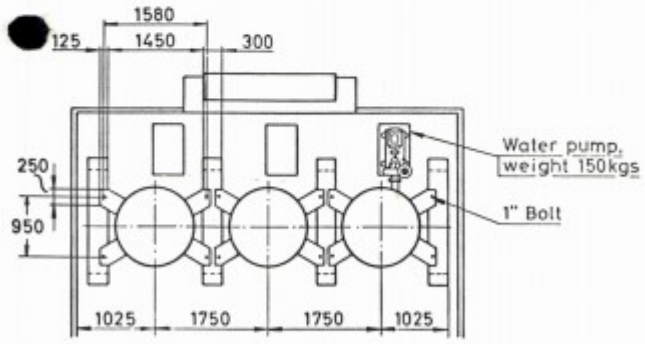
TUBE ICE MACHINE FA703

In different assembly, inquire for information

Dimensions in mm







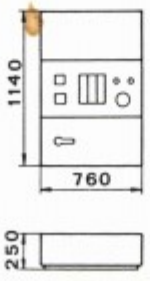
Other arrangement of water precooler is possible.

Frame work is not included. It can be made of concrete or steel.

Gross weight	ton	44
Operating weight	ton	40
NH_3-charge	ton	4
Shipping volume	m^3	106
Shipping weight	ton	34

Electric installation:

3 motors a 5,5 kW for ice cutters	220/380 V
3 motors a 3 kW for water pumps	50 Hz
Solenoid valves for 220 V, 50 Hz	



CONTROL PANEL