



Technical data sheet F90 Generator R449A

FR_V1.00_2023-03-10



Physical limits of the F90 Generator

Coolant type:

- According to the configuration of the F90 SH: R134a, R404A, R407F, R449A, R717, R507A
- According to the configuration of the F90 H: R134a, R404A, R407F, R449A, R507A
- According to the configuration of the F90 V: R134a, R404A, R407F, R449A, R507A



For the other coolants: contact Geneglace

Maxi allowable pressures (PS) :

"Permissible limits of pressure equipment" (below)

Mini allowable temperature

Ambient air temperature:

+ 10 to + 35°C (dry bulb)

Water quality

Fresh water for human consumption

Temperature of water to be frozen

+ 5 to + 25°C

Water supply pressure

0,8 to 1,5 bars

Supply water hardness

TH 15 to 20° français

Supply water acidity

PH 7/8

Sodium chloride content

100 g/m³

Protection index:

IP44

Electrical power supply:

Read information on maker's plate and comply with applicable standards.

Value airborne noise

>70 dB

Permissible limits of pressure equipment

Type	Volume	PS (Min/Max)	T° (Min/Max)
	(L)	(Bar)	(°C)
F90H	15	-1/+18,5	-30/+50
F90V**	25	-1/+18,5	-30/+50
F90SH***	8	-1/+18,5	-30/+50

* Generator equipped with a horizontal exchanger / ** Generator equipped with a vertical exchanger / *** Generator without exchanger for recirculation by pump.

Type	Coolant	D.E.S.P. Category	Coolant group	Load (kg)	T. eq CO2
F90H	R449A	I	2	5	6,99
F90V	Coolant	D.E.S.P. Category	Coolant group	Load (kg)	T. eq CO2
	R449A	II	2	13	18,16
F90SH	Coolant	D.E.S.P. Category	Coolant group	Load (kg)	T. eq CO2
	R449A	I	2	4	5,59

Supply limit F90 Generator

Cylinder	<ul style="list-style-type: none">• Double-walled cylinder: Machined steel, Genecoat® coating.• Thermal insulation of the cylinder: Expanded polyurethane injection..• External cylinder coating: White lacquered aluminium sheet.
Base	<ul style="list-style-type: none">• Lower base: Stainless steel• Thermal insulation of the base: polyurethane panels and PVC coating.• Base covers: PVC foam.• Water supply float valve .• Submersible water pump• Water tube between water pump discharge and distribution bowl.
Rotating part	<ul style="list-style-type: none">• Central shaft: Stainless steel.• Lower central shaft bearing assembly: Stainless steel box.• Upper central shaft bearing assembly: Stainless steel box.• Lower water collection bowl: stainless steel.• Upper water distribution bowl: stainless steel.• Rear reamer deflector: stainless steel.• Helical reamer: stainless steel.• Lower reamer bearing assembly: Stainless steel box.• Upper reamer bearing assembly: Stainless steel box• Reamer approach adjustment arrangement.• Scrapers for limiting the watering area : natural rubber.• Top part with inspection hatch: Stainless steel.
Rotating part drive	<ul style="list-style-type: none">• Geared motor with pulley-belt transmission.
Safety	<ul style="list-style-type: none">• Motor and gearbox casing: stainless steel.• Safety by force limiter on electrical contact (manual reset)• Mushroom switch "Scraper stop" on electric contact (manual reset)
Addition of salt	<ul style="list-style-type: none">• Refillable salt dosing tube + 25 kg of sodium chloride tablets

Generator F90 SH with refrigerant R449A

Characteristics	Units						
Approx. load	kg	<i>"Permissible limits of pressure equipment" (on page 2)</i>					
Water to be frozen	°C	15					
	°F	59					
Production	T /24h	1,7	2	2,2	2,5	2,7	3
	UST/24h	1.8	2.2	2.4	2.7	2.9	3.3
Cooling capacity	KW	8,5	10	11	12,5	13,5	15
	BTU/h	29019	34140	37554	42675	46089	51210
Frequency	Hz	50					
Speed of rotation	tr/h	58	58	77	77	77	92
Thickness of ice flakes	mm	1,9	2,3	1,9	2,2	2,3	2,2
	inch	0.07	0.09	0.07	0.08	0.09	0.08
Evaporation temperature at the generator	°C	-13	-16,5	-16,1	-20,4	-24,1	-26,1
	°F	8.6	2.3	3	-4.8	-11.5	-15
Frequency	Hz	60					
Speed of rotation	tr/h	-	-	79	79	79	93
Thickness of ice flakes	mm	-	-	1,8	2,1	2,3	2,2
	inch	-	-	0.07	0.08	0.09	0.08
Evaporation temperature at the generator	°C	-	-	-15,7	-19,9	-23,5	-25,8
	°F	-	-	4	-4	-10	-14.5

Generator F90 H with refrigerant R449A

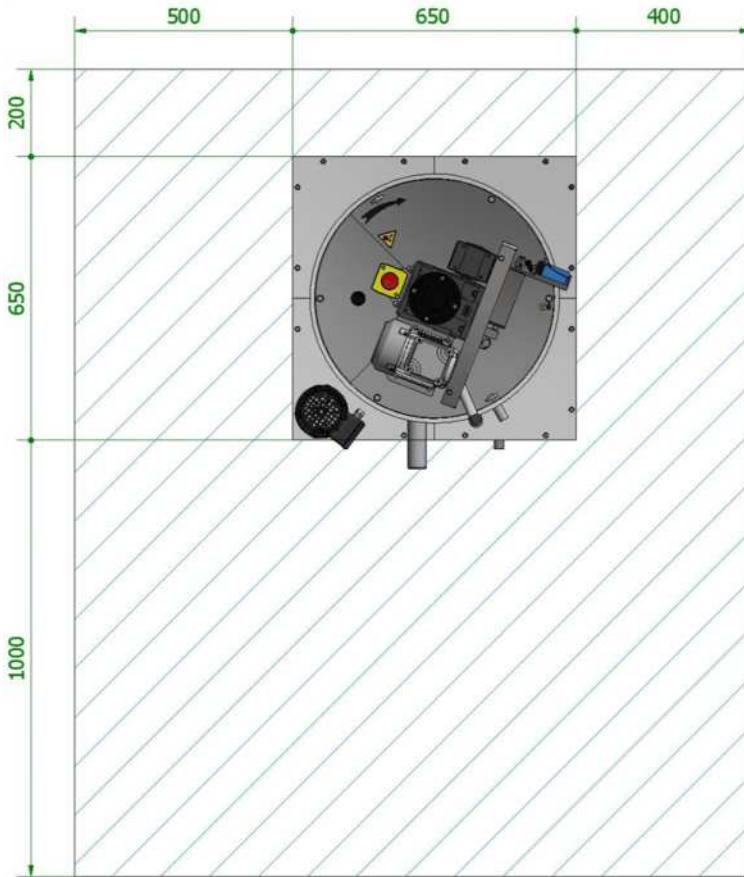
Characteristics	Units						
Approx. load	kg	<i>"Permissible limits of pressure equipment" (on page 2)</i>					
Water to be frozen	°C	15					
	°F	59					
Production	T /24h	1,7	2	2,2	2,5	2,7	3
	UST/24h	1,9	2,2	2,4	2,7	2,9	3,3
Cooling capacity	KW	8,5	10	11	12,5	13,5	15
	BTU/h	29019	34140	37554	42675	46089	51210
Condensation temp.							
Max.: (Liquid hammer)	°C	55	55	55	55	55	53
	°F	131	131	131	131	131	38
Min.: (Oil return)	°C	30	30	30	30	30	30
	°F	86	86	86	86	86	86
Pressure reducer	Type	T2	T2	T2	T2	T2	T2
Orifice (thermostatic pressure reducer)	N°	5	5	5	5	6	6
Heat exchanger	H115						
Frequency	Hz	50					
Speed of rotation	tr/h	48	58	77	92	109	109
Thickness of ice flakes	mm	2,3	2,3	1,9	1,8	1,7	1,9
	inch	0.09	0.09	0.07	0.07	0.06	0.07
Evaporation temperature at the generator	°C	-13,5	-16,5	-16,1	-18,2	-18,8	-22,7
	°F	7.7	2.3	3	1	-1.9	-8.9
Frequency	Hz	60					
Speed of rotation	tr/h	49	58	79	93	112	112
Thickness of ice flakes	mm	2,3	2,3	1,8	1,8	1,6	1,8
	inch	0.09	0.09	0.07	0.07	0.06	0.07
Evaporation temperature at the generator	°C	-13,5	-16,5	-15,7	-18	-18,6	-22,6
	°F	7.7	2.3	3.8	-0.5	-1.5	-8.7

Generator F90 V with refrigerant R449A

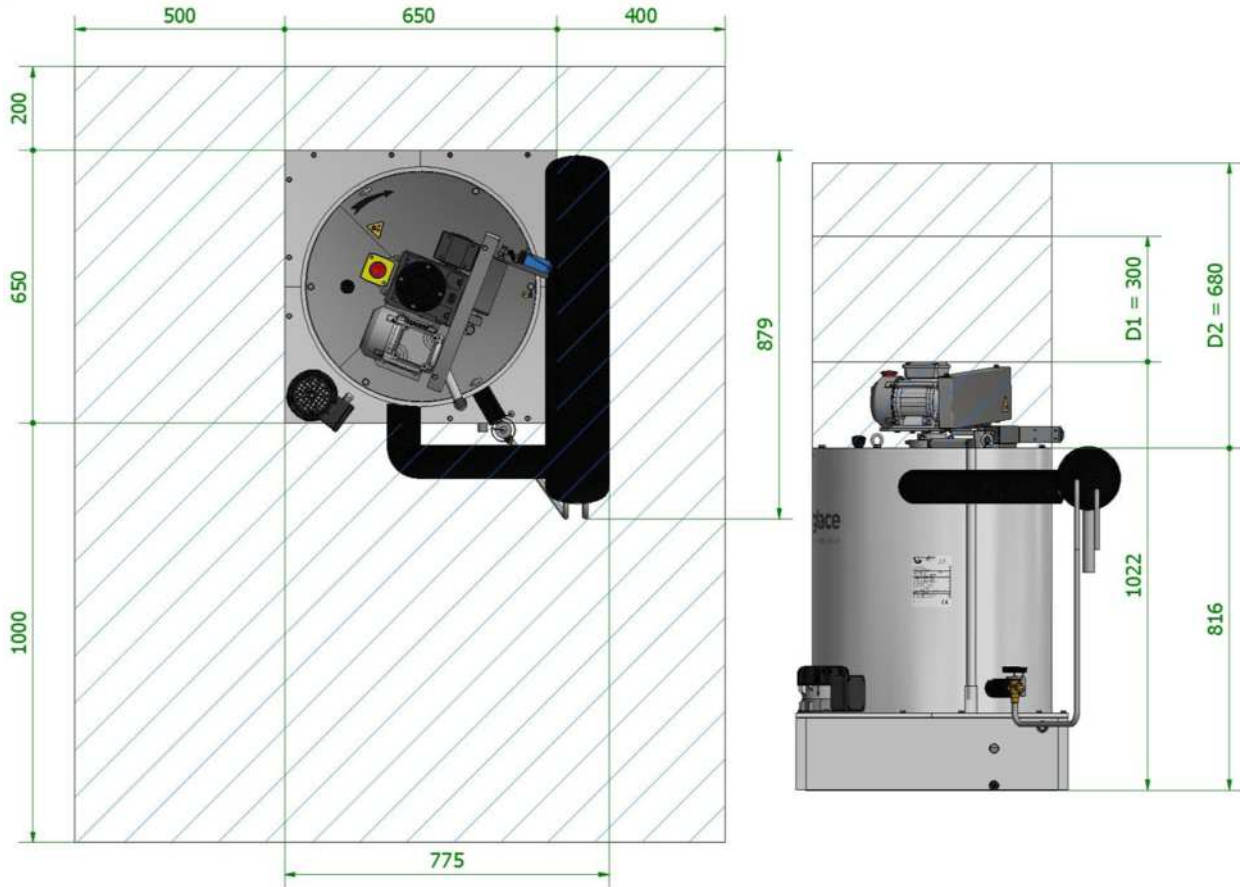
Characteristics	Units			
Approx. load	kg	<i>"Permissible limits of pressure equipment" (on page 2)</i>		
Water to be frozen	°C	15		
	°F	59		
Production	T /24h	2,8	3	3,2
	UST/24h	3	3.3	3.5
Cooling capacity	KW	14	15	16
	BTU/h	47796	51210	54624
Condensation temp.				
Max.: (Liquid hammer)	°C	55	55	55
	°F	131	131	131
Min.: (Oil return)	°C	30	30	30
	°F	86	86	86
Pressure reducer	Type	T2	T2	T2
Orifice (thermostatic pressure reducer)	N°	6	6	6
Heat exchanger	V220			
Frequency	Hz	50		
Speed of rotation	tr/h	77	92	109
Thickness of ice flakes	mm	2,4	2,2	2
	inch	0.09	0.08	0.08
Evaporation temperature at the generator	°C	-20,8	-20,7	-21,3
	°F	-5.5	-5.3	-6.5
Frequency	Hz	60		
Speed of rotation	tr/h	79	93	112
Thickness of ice flakes	mm	2,4	2,2	1,9
	inch	0.09	0.08	0.07
Evaporation temperature at the generator	°C	-20,6	-20,5	-21
	°F	-5.1	-5	-6

Dimensions

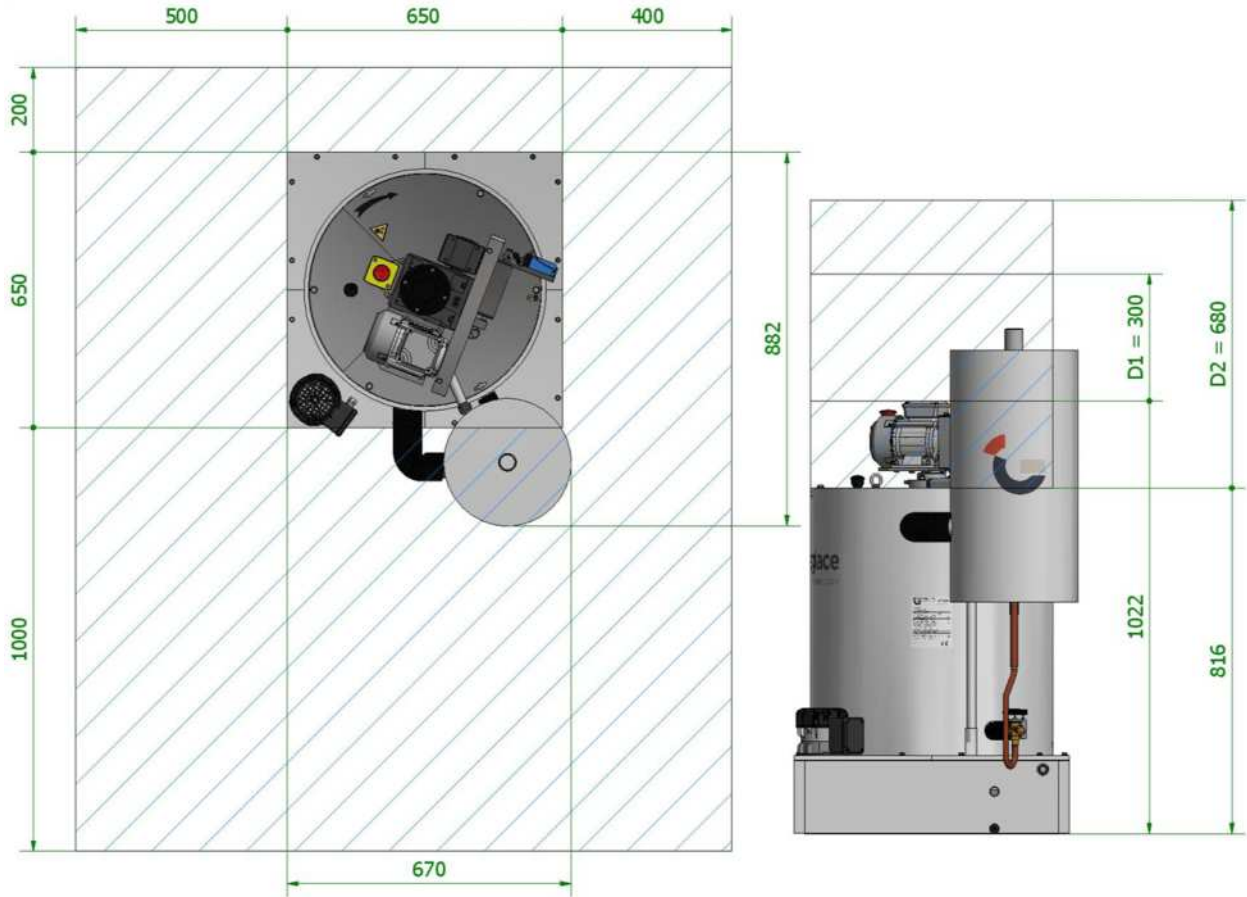
F90 Generator SH



F90 Generator H



F90 Generator V



*Values in millimetres

F90 Generator Shipment

F90 Generator SH



F90 Generator H



F90 Generator V

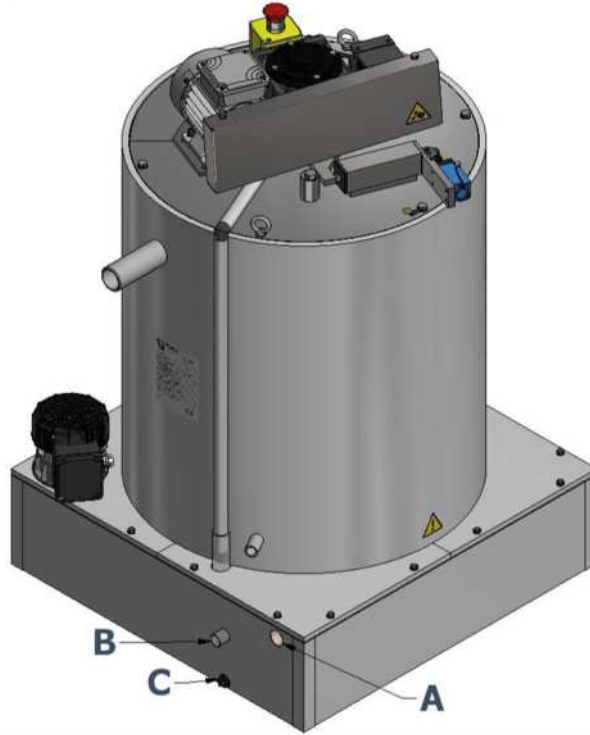


The packaging is hydrophobic and moisture resistant.

The packaging is used for air, sea and road shipments.

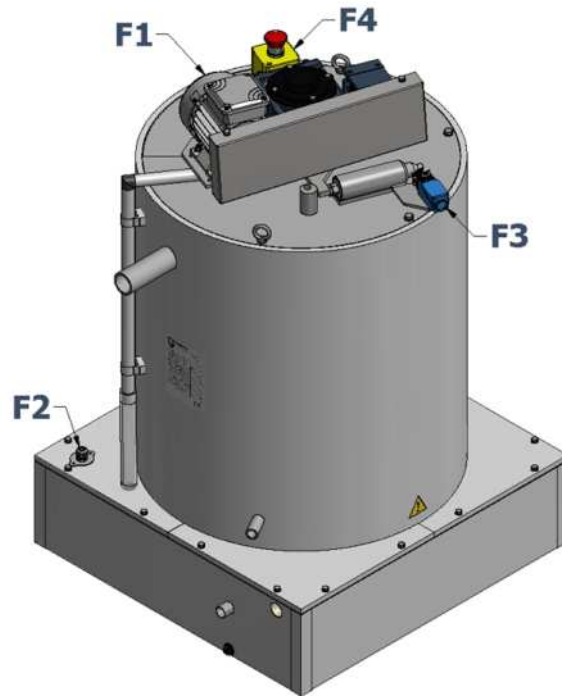
	F90 SH	F90 H	F90 V
Volume	1,5 m ³	1,5 m ³	1,5 m ³
Length	1040 mm (41 inches)	1040 mm (41 inches)	1040 mm (41 inches)
Width	940 mm (37 inches)	940 mm (37 inches)	1040 mm (41 inches)
Height	1520 mm (60 inches)	1520 mm (60 inches)	1520 mm (60 inches)
Net weight	195 Kg (430 lbs)	223 Kg (492 lbs)	220 Kg (485 lbs)
Gross weights	280 Kg (618 lbs)	288 Kg (635 lbs)	282 Kg (622 lbs)

F90 Generator Hydraulic characteristics



Ref.	Designation	Qty	Connections		
			Dimensions	Type	Material
A	Generator water supply	1	1/2" gas	Threaded	PVC
B	Overflow	1	20/22 mm	Smooth tube	Stainless steel
C	Draining	1	3/8"	Tapped	Stainless steel

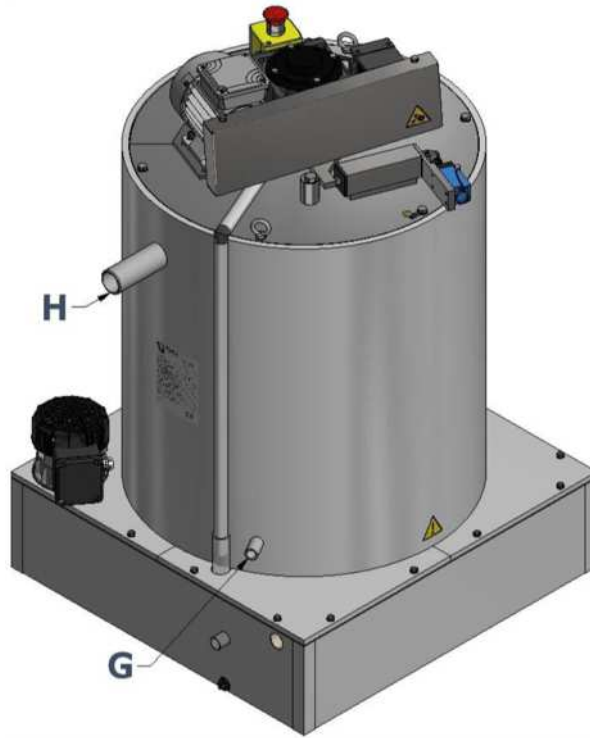
F90 Generator Electrical characteristics



Ref.	Designation	Qty.	Electrical power supply	Nominal power	Nominal current	Contact
F1	Scraper motor	1	400V - 3 - 50Hz	1 x 180W	1 x 0,8A	-
F2	Water pump	1	230V - 1- 50Hz	1 x 40W	1 x 0,3A	-
F3	Torque limiter contact	1	-	-	-	1NC/1NO
F4	Scraper emergency stop contact	1	-	-	-	1NC/1NO
PE	Equipotential earth bonding socket	1	-	-	-	-

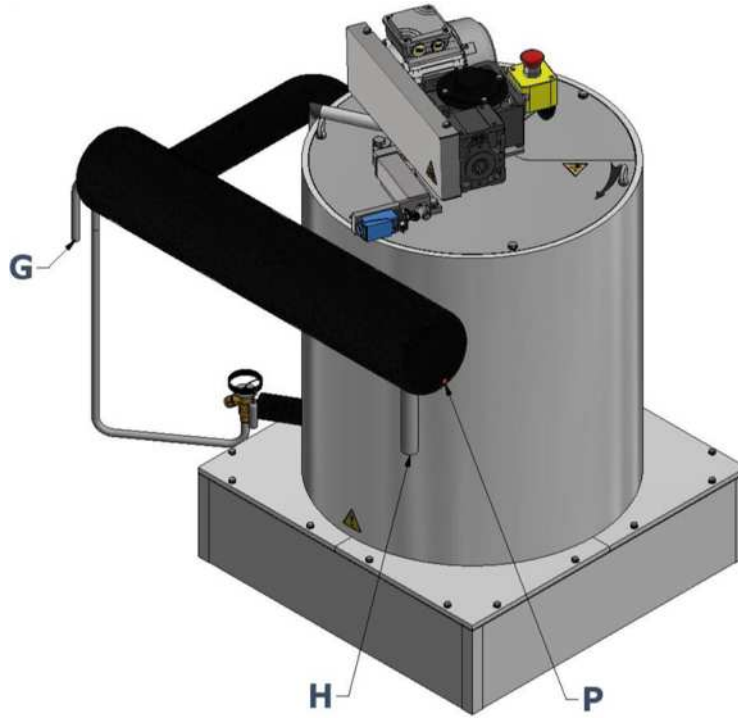
Cooling characteristics

F90 Generator SH



Ref.	Designation	Qty	Connections	
H	Suction	1	Dimensions	42.2 x 3.6 mm
			Type	Smooth tube
			Material	Steel
G	Liquid supply	1	Dimensions	21.3 x 2.8 mm
			Type	Smooth tube
			Material	Steel

F90 Generator H



Ref.	Designation	Qty	Connections	
G	HP liquid supply	1	Dimensions	5/8"
			Type	Smooth tube
			Material	Copper
H	Suction	1	Dimensions	1"1/8
			Type	Smooth tube
			Material	Copper
P	pressure tap	1	Dimensions	1/4
			Type	Flare
			Material	Brass

F90 Generator V

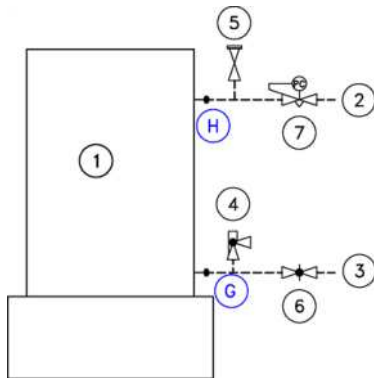


Ref.	Designation	Qty	Connections	
			Dimensions	
H	Suction	1	Dimensions	42.2 x 3.6 mm
			Type	Smooth tube
			Material	Steel
G	HP liquid supply	1	Dimensions	5/8"
			Type	Smooth tube
			Material	Copper
P	pressure tap	1	Dimensions	1/4
			Type	Flare
			Material	Brass

Cooling diagram F90 GeneratorSH without exchanger

«SH» Generator without exchanger is intended to be connected to a refrigeration system supplying the generator with HP liquid by pump recirculation.

F90 SH generator

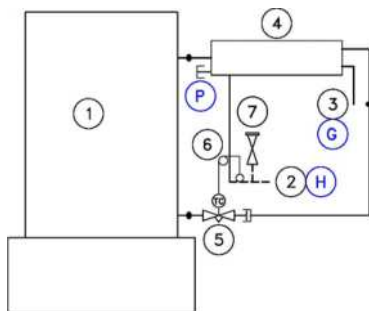


1. Generator
2. Suction
3. LP supply
4. Oil purge (only R717) (supplied/not installed)
5. Safety valve (not supplied)
6. Adjuster (not supplied)
7. Constant pressure valve (not supplied)

--- Connections not supplied

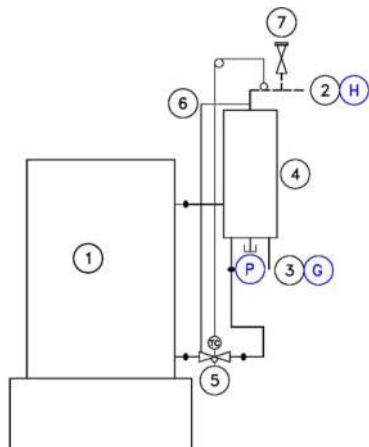
F90 H Generator with exchanger

The generator with "H" exchanger is intended to be connected to a refrigeration system supplying the generator with HP liquid..



1. Generator
2. Suction
3. HP liquid supply
4. Heat exchanger
5. Thermostatic expansion valve
6. Bulb position
7. Safety valve (not supplied)
8. --- Connections not supplied

Cooling diagram F90 V Generator with exchanger



1. Generator
2. Suction
3. HP liquid supply
4. Heat exchanger
5. Thermostatic expansion valve
6. External equalisation*
7. Safety valve (not supplied)
8. --- Connections not supplied

*Production > 3T/d

Options F90 Generator

Salt dosing pump

- Power supply 100÷240 Vac - 50/60 Hz - 15 W
- Flow rate range: (0.1 % to 100%)x 2 L/h.
- IP65
- Fuse 1.6 A (20 W).
- 50 L reserve
- 25 Kg salt tablets



Ice level detection

- IP: 67
- CE and UL standards
- Power supply : 10-30 VDC
- 2 Infrared sensors:
 - A: Infrared sensor for security level
 - B: Infrared sensor for control level
- 1 Ice level sensors holder in inox steel



Electrical panel PGS_2

- IP: 55
- CE or UL standards
- Available power supply voltages:
 - 400 V-3+Neutral / 50 Hz
 - 400 V-3 / 50 Hz
 - 575 V-3 / 60 Hz
 - 460 V-3 / 60 Hz



Remote control for PGS_2 Electrical panel

- IP: 65
- CE or UL standards
- An On button
- An Off button
- A green On indicator light
- A red fault indicator light
- A weekly programmable clock
- An emergency stop button

