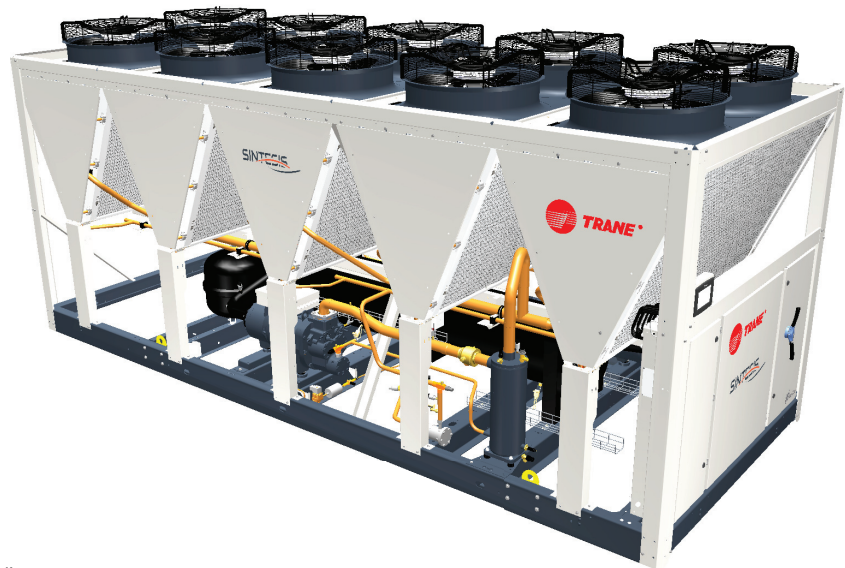




Installation Operation Maintenance

RTAF SE/HE/XE/HSS/HSE
Air-cooled
Helical-rotary chillers
300 - 1600 kW



EcoWise™

Sintesis chillers are part of the Ingersoll Rand EcoWise™ portfolio of products that are designed to lower their environmental impact with next-generation, low global warming potential (GWP) refrigerants and high efficiency operation.

SINTECIS

RLC-SVX19D-GB
Original instructions

Unit Model Number Description

Digit 1, 2, 3, 4 – Unit model

RTAF = Air-Cooled Chiller

Digit 5 to 7 - Nominal Tonnage

090 = 90 tons
 105 = 105 tons
 125 = 125 tons
 145 = 145 tons
 155 = 155 tons
 175 = 175 tons
 190 = 190 tons
 205 = 205 tons
 245 = 245 tons
 250 = 250 tons
280 = 280 tons
 310 = 310 tons
 350 = 350 tons
 380 = 380 tons
 410 = 410 tons
 450 = 450 tons

Digit 8 – Unit voltage

D = 400V/50Hz/3ph

Digit 9 – Manufacturing Location

E = Europe

Digit 10, 11 – Design sequence

A0 = Factory assigned

Digit 12 - Efficiency

N = Standard Efficiency
 H = High Efficiency
A = Extra Efficiency
 U = High Seasonal Short (HSS)
 V = High Seasonal Efficiency

Digit 13 – Agency listing

C = CE Marking

Digit 14 – Pressure vessel code

2 = PED (Pressure equipment directive)

Digit 15 – Acoustic level

X = Standard noise (SN)
 L = Low noise (LN)
 Q = Low Noise with Night Noise SetBack (NNSB)
 E = Extra Low Noise (XLN)

Digit 16 – Operating map : airside

X = Standard ambient
L = Low ambient
 H = High ambient

Digit 17 – Relief valve option

L = Single relief valve high & low Pressure side
D = Dual relief valve with 3 way valve high pressure & low pressure side

Digit 18 – Water connection

X = Grooved pipe connection
W = Grooved pipe with coupling and pipe stub

Digit 19 – Operating map water side

N = Comfort cooling (above 4.4°C)
P = Process cooling (below 4.4°C)
 C = Ice Making (-7°C to 20°C)

Digit 20 – Evaporator Configurations

2 = Standard pass evaporator
T = Standard Pass Evaporator + Turbulators

Digit 21 – Thermal Insulation

N = Standard
H = High performance
 X = None

Digit 22 – Condenser Coating

N = Aluminum Micro Channel
C = E-Coated Micro Channel (Free Cooling excluded)

Digit 23 - Heat Recovery

X = No Heat Recovery
 P = Partial Heat Recovery
 T = Total Heat Recovery

Digit 24 – Hydraulic module

X = Pump signal On/Off
 1 = Dual pump standard pressure
 3 = Dual pump high pressure

Digit 25 - Free Cooling

X = No Free Cooling
 F = Total Free-Cooling Direct
 G = Partial Free-cooling Direct
 H = Total Free Cooling Glycol Free
 J = Partial Free Cooling Glycol Free

Digit 26 – Disconnect switch

F = With Fuse
 B = With circuit breaker

Digit 27 – Under/Over Voltage

X = None
 1 = Included
 2 = Included with ground fault protection

Unit Model Number Description

Digit 28 – Human Interface language

C = Spanish
 D = German
 E = English
 F = French
 H = Dutch
 I = Italian
 M = Swedish
 P = Polish
 R = Russian
 T = Czech
 U = Greek
 V = Portuguese
 2 = Romanian
 6 = Hungarian
 8 = Turkish

Digit 29 – Smart com protocol

X = None
 B = Bacnet interface
 M = Modbus interface
 L = LonTalk interface

Digit 30 – Communication customer

X = None
 A = External set point & capacity outputs

Digit 31 – Flow switch

X = None
 F = Field installed flow switch

Digit 32 – Electrical Panel Protection

X = Enclosure with deadfront protection
 1 = Enclosure with IP 20 internal protection

Digit 33 – Master Slave

X = Open for Future Use

Digit 34 – Unit User Interface

L = Standard, Local UI supplied (TD7)

Digit 35 – Energy meter

X = No energy meter
 M = Energy meter installed

Digit 36 – Open for future use = X

Digit 37 – Variable Primary Flow

X = None
 F = Constant Speed Pump -VFD Adjustment
 P = Variable Speed Pump - Constant delta P
 T = Variable Speed Pump - Constant delta T

Digit 38 – Open for future use = X

Digit 39 – Open for future use = X

Digit 40 – Power socket

X = None
 P = Included (230V - 100W)

Digit 41 – Factory tests

X = No final performances test
 B = Test A+Visual Inspection
 E = Performance test w/o customer

Digit 42 – Installation accessory

X = None
 1 = Neoprene Isolators
 4 = Neoprene pads

Digit 43 – Literature language

B = Bulgarian
 C = Spanish
 D = German
 E = English
 F = French
 H = Dutch
 I = Italian
 K = Finnish
 L = Danish
 M = Swedish
 N = Norwegian
 P = Polish
 R = Russian
 T = Czech
 U = Greek
 V = Portuguese
 Z = Slovenian
 2 = Romanian
 3 = Serbian
 4 = Slovak
 5 = Croatian
 6 = Hungarian
 8 = Turkish

Digit 44 – Shipping package

X = Standard protection
 A = Containerization package

Digit 45 – Refrigerant

1 = R134a
 3 = R513A

Digit 46 – Open for future use = X

Digit 47 – Open for future use = X

Digit 48 – Design special

X = none
 S = special

General Data

Table 13 – General Data RTAF 250 - 410 Extra Efficiency - Standard and Low Noise

		RTAF 250	RTAF 280	RTAF 310	RTAF 350	RTAF 380	RTAF 410
		XE-SN -LN	XE-SN -LN	XE-SN -LN	XE-SN -LN	XE-SN -LN	XE-SN -LN
Cooling Capacity (1)	(kW)	876	993	1114	1238	1364	1471
Unit electrical data (2) (3) (7)							
Maximum Power input in cooling	(kW)	384.5	435.0	480.8	543.8	594.8	640.6
Unit rated amps (Max compr +Fan+Control)	(A)	617.8	701.6	775.6	877.2	959.0	1033.0
Unit start up amps (Starting Amps of the largest compr+RLA of 2nd compr+RLA of all fans+ control)	(A)	775.8	859.6	896.6	1035.2	1117.0	1154.0
Unit Power factor		0.90	0.90	0.90	0.90	0.90	0.90
Max power cable cross section	(mm ²)	4*300	4*300	4*300	4*300	4*300	4*300
Disconnect switch size	(A)	1250	1250	1250	1250	1250	1250
Compressor							
Quantity	#	3	3	3	4	4	4
Type		Screw	Screw	Screw	Screw	Screw	Screw
Model (11)		85-85/70	85-100/85	100-100/100	85-85/85-85	85-100/ 85-100	100-100/ 100-100
Max Compr Power input Circuit 1/Circuit 2	kW	121-121/99	121-144/121	144-144/144	121-121/ 121-121	121-144/ 121-144	144-144/ 144-144
Max Amps Circuit1 / Circuit 2 (3) (7)	(A)	197-197/158	197-234/197	234-234/234	197-197/ 197-197	197-234/ 197-234	234-234/ 234-234
Start up Amps Circuit1 / Circuit 2 (3) (7)	(A)	354-354/291	354-354/354	354-354/354	354-354/ 354-354	354-354/ 354-354	354-354/ 354-354
Motor RPM	(rpm)	3000	3000	3000	3000	3000	3000
Oil sump heater Circuit1 / Circuit 2	(W)	300/150	'300/150	'300/150	'300/300	'300/300	'300/300
Evaporator							
Quantity	#	1	1	1	1	1	1
Type		Flooded shell and tube heat exchanger					
Evaporator model		300D	300B	300A	500D	500C	500B
Evaporator Water Content volume	(l)	97	108	120	146	159	170
Antifreeze Heater	(W)	2240	2240	2240	2440	2440	2440
One pass evaporator							
Evap. Water Flow rate - Minimum	(l/s)	17.7	20.1	22.8	25.0	27.8	30.3
Evap. Water Flow rate - Maximum	(l/s)	65.8	74.5	84.8	92.8	103.0	112.5
Nominal water connection size (Grooved coupling)	(in) - (DN)	6" - 150	6" - 150	6" - 150	8" - 200	8" - 200	8" - 200
One pass with turbulator evaporator							
Evap. Water Flow rate - Minimum (8)	(l/s)	14.8	16.7	19.0	20.8	23.1	25.3
Evap. Water Flow rate - Maximum	(l/s)	59.1	66.9	76.1	83.4	92.5	101.1
Nominal water connection size (Grooved coupling)	(in) - (mm)	6" - 150	6" - 150	6" - 150	8" - 200	8" - 200	8" - 200
Hydraulic Module Components							
Standard head pressure pump option							
Available Head Pressure (1)	(kPa)	160	106	115	139	127	116
Max Motor Power input	(kW)	15	15	15	22	22	22
Max Amps	(A)	28	28	28	39.7	39.7	39.7
High head pressure pump option							
Available Head Pressure (1)	(kPa)	216	220	174	N/A	N/A	N/A
Max Motor Power input	(kW)	18.5	22	22	N/A	N/A	N/A
Max Amps	(A)	34.5	39.7	39.7	N/A	N/A	N/A
Expansion Tank Volume	(l)	80	160	160	160	160	160
Max User water loop Volume for factory mounted expansion tank (1)	(l)	4000	8000	8000	8000	8000	8000
Max. Water-side Operating Pressure without pump package	(kPa)	1000	1000	1000	1000	1000	1000
Max. Water-side Operating Pressure with pump package	(kPa)	450	450	450	450	450	450
Antifreeze Heater with pump package	(W)	1060	1060	1060	1060	1060	1060
Condenser							
Type		Full aluminum Micro channel heat exchanger					
Quantity	#	12/4	12/6	14/6	12/10	12/12	12/12
Face area per coil	(m ²)	2.4	2.4	2.4	2.4	2.4	2.4
Condenser Fan							
Quantity	#	12/4	12/6	14/6	12/10	12/12	12/12
Diameter	(mm)	800	800	800	800	800	800

Operating Map

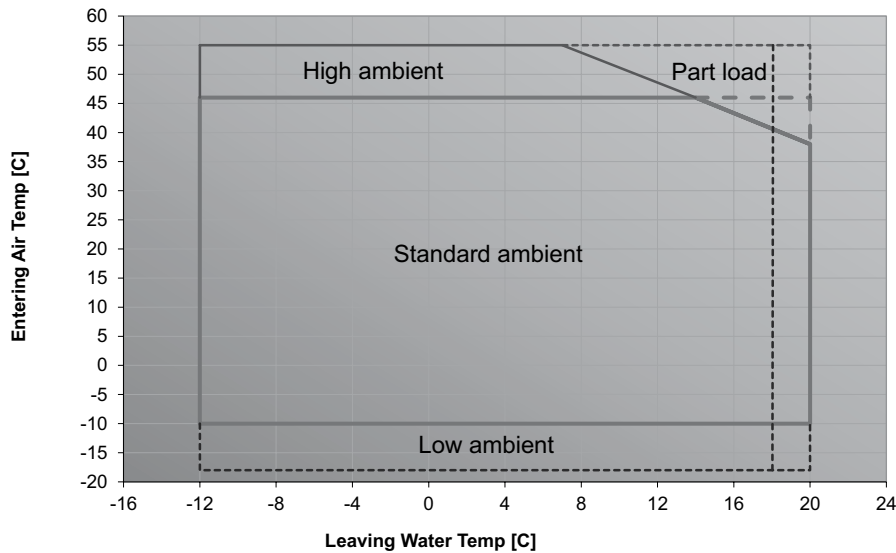
RTAF Operating Map

To check unit configuration versus ambient, refer to operating map figure below: Standard ambient, High ambient or Low ambient.

- Standard ambient units:
-10°C ≤ Air temperature ≤ 46°C
- Low ambient units:
-20°C ≤ Air temperature ≤ 46°C
- High ambient units:
-10°C ≤ Air temperature ≤ 55°C

Note: It is not possible to have a unit operating low and high ambient. For specific application with wide ambient contact Trane sales office.

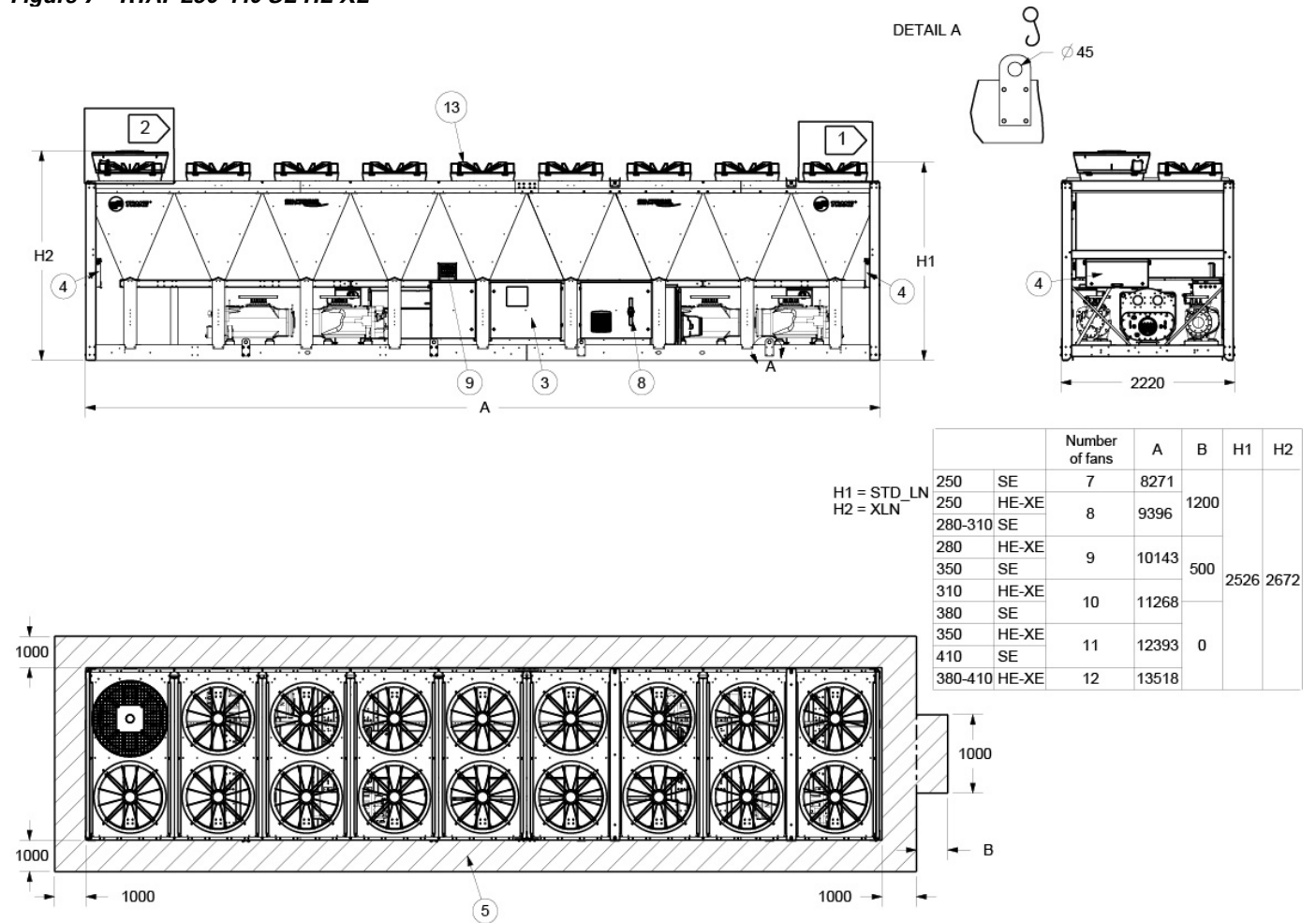
Figure 1 – RTAF Operating Map



Note: for RTAF 250 to 450 with a single pass evaporator Leaving Water Temperature cannot exceed 18.3°C.

Dimensional Data

Figure 7 – RTAF 250-410 SE HE XE



Operating weight (kg)								
		250	280	310	350	380	410	450
SN-LN unit	HSS	6685	7275	7325	8700	9070	9425	-----
	HSE	7005	7575	7945	9345	9650	9715	9715
Option XLN	HSS	+140	+160	+160	+180	+200	+220	-----
	HSE	+160	+180	+200	+220	+240	+240	+240
Hydraulic Module DPSP	HSS	7354	8264	8314	9929	10299	10654	-----
	HSE	7678	8564	8934	10574	10879	10944	10944
Hydraulic Module DPHP	HSS	7379	8053	8103	-----	-----	-----	-----
	HSE	7703	8353	8103	-----	-----	-----	-----
Hydraulic Module VPF	HSS_HSE	+70						

Important! Additional space is required to remove evaporator tubes.

For RTAF sizes 250 to 450 : 4.5 meter in front of the unit (evaporator outlet side at the right of the electrical panel).