

Алматы (7273)495-231
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Владикавказ (8672)28-90-48
Владимир (4922)49-43-18
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89

Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Коломна (4966)23-41-49
Кострома (4942)77-07-48
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Курган (3522)50-90-47
Липецк (4742)52-20-81

Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Ноябрьск (3496)41-32-12
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Петрозаводск (8142)55-98-37
Псков (8112)59-10-37
Пермь (342)205-81-47

Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Саранск (8342)22-96-24
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Сыктывкар (8212)25-95-17
Тамбов (4752)50-40-97
Тверь (4822)63-31-35

Тольятти (8482)63-91-07
Томск (3822)98-41-53
Тула (4872)33-79-87
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Улан-Удэ (3012)59-97-51
Уфа (347)229-48-12
Жабаровск (4212)92-98-04
Чебоксары (8352)28-53-07
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Чита (3022)38-34-83
Якутск (4112)23-90-97
Ярославль (4852)69-52-93

Россия +7(495)268-04-70

Казахстан +7(7172)727-132

Киргизия +996(312)96-26-47

<https://hiref.nt-rt.ru> || hfb@nt-rt.ru

TSS

HiRef

Innovators above
the standards

SERVICES

DATA CENTER

INDUSTRY



Class A chillers and heat pumps

TSS

air condensed with scroll compressors

Range: 120.3–265.2 kW

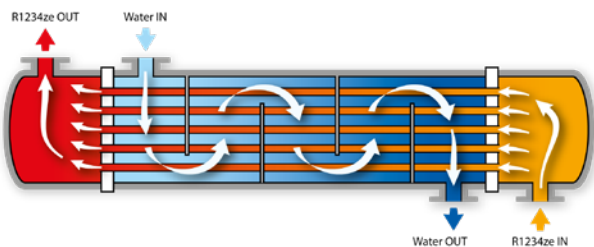


The new TSS range chillers and heat pumps are air/water units in energy class A for both cooling and heating, available for use with R410A refrigerant or, in the “A2L” version, with low environmental impact R454B refrigerant. The TSS range is designed to manage the conditioning of industrial plants and thermal loads in technological applications, where 24/7 reliability in all working conditions, one of the assets of these units, is a critically important requirement. The TSS range uses latest-generation scroll compressors, shell and tube water heat exchangers optimised for use with high pressure refrigerants (R410A/R454B) and axial fans suitable for outdoor installation.

Main advantages

Is the unit working?

Two different soundproofing systems are available: the most suitable one will depend on the importance of noise containment in the overall plant layout. Adopted technical solutions include fan speed control and compartmentalisation of compressors and pumping kits in a box internally lined with soundproofing material.



Reliability: shell and tube

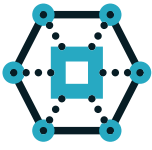
The use of shell and tube heat exchangers with exchange water flow on the shell side implies a lower risk of blocking the flow due to exchanger clogging compared to units with plate heat exchangers. This is thanks to the larger throughsections, the exchanged power being the same. Additionally, the dual-pass heat exchanger ensures high heat exchange efficiency both in “chiller” and in “heat pump” modes, with lower consumption figures for the user.

Maximised energy efficiency

The units of the TSS range belong to the energy efficiency class A, both in the chilling only version and in the heat pump version. This is thanks to a careful selection of internal components, which also includes the adoption of innovative high efficiency scroll compressors with direct start, permanent magnet motor technology. The high modulation range guaranteed by the multi-scroll technology allows cooling/heating requirements to be met at any time, minimising energy waste and increasing seasonal efficiency.



Technological components



Multi-protocol communication interface

HiRef units can be integrated with the customer's external supervision Building Management System (BMS), using the most popular communication protocols, including Modbus RTU, Modbus/IP, BacNet, LonWorks, SNMP.



Scroll compressors

Scroll compressors include a mobile scroll, driven by the motor, which completes orbital revolutions and a fixed scroll that is coupled to it. The orbital motion creates a series of gas pockets that move from one scroll to the other. When moving closer to the centre of the scroll, where exhaust takes place, the gas is compressed to smaller and smaller volumes until the desired delivery pressure is reached. Scroll technology improves volumetric efficiency and flow continuity, reduces noise and leakage and eliminates harmful volumes and downtime.



Axial fans

In axial fans air moves in a parallel direction to the rotation axis and allows large air flows to be processed. Thanks to their low head compared to radial fans, they are used on remote condensers and on components with free outlet into the atmosphere, where there are no high pressure drops due, for example, to ducting.



Corrosion resistant material

The HiRef outdoor units are protected by a metal structure resistant to corrosion and weathering. They are also made of galvanised steel sheet, with epoxy-polyester powder coating, oven-polymerised at 180°C, to offer a C3 degree of protection. On request, it is possible to order specific paint finishing treatments or a metalwork structure built entirely in stainless steel, to obtain a higher degree of protection from high impact adverse weather events.



A2L Ready

Some ranges of liquid chillers, in addition to safety class A1 refrigerants R410A and R134a, can also be supplied with class A2L slightly flammable refrigerants with low environmental impact R454B and R1234ze. HiRef makes these product sub-ranges available also in the "A2L Ready" version, filled with a safety class A1 refrigerant, factory-ready and equipped with all the necessary safety sensors to allow, if the customer requests it, fast refrigerant switching at a later stage.



Low GWP refrigerant

The Global Warming Potential (GWP) index is a numerical indicator that identifies the environmental impact of a substance. It measures the extent to which a gas contributes to the greenhouse effect, in relation to carbon dioxide (CO₂) whose baseline value is equal to 1. This parameter is used to determine the amount in kilograms of CO₂ corresponding to the environmental impact of the release of a refrigerant gas into the atmosphere. The use of low GWP refrigerants, such as R513A, R454B, R1234ze, CO₂, allows the environmental impact of air conditioning systems to be significantly reduced.



Class A

Internal high-tech components suitably chosen and sized allow the units to operate with outstanding levels of efficiency.



Shell and tube heat exchanger

Some chiller and heat pump product ranges are equipped with a shell and tube exchanger. These heat exchangers are ideally suitable for units to be installed in high-tech industrial sites, thanks to their high reliability and operating stability. Their large volumes also make them less sensitive to thermal stress and capable of ensuring unit operation stability. Finally, the dual-pass exchanger configuration allows both cooling and heat pump operation to be optimised. According to the range chosen, it is possible to have either dry expansion tube exchangers or flooded shell and tube exchangers with spray technology.



Available versions



COOLING ONLY



REVERSIBLE HEAT
PUMP

Types of system



AIR/WATER

Additional benefits

- 3 different soundproofing setups available: Standard, Low Noise and Super Low Noise
- Electric control panel with IP55 protection rating
- Class A units in both chiller and heat pump modes
- Radial EC motor fans (optional)
- Electrically controlled expansion valve
- Easy accessibility thanks to the optimisation of the internal space
- Programmable microprocessor control with proprietary software
- Compliance with ERP regulations

Technical table

TSS		114CS	124CS	144CS	164CS	194CS	214CS	244CS	
USER WATER VALUES 12/7°C, 35°C OUTSIDE AIR, 40% U.R.									
COOLING CAPACITY	kW	120.3	130.2	152.4	164.9	190.2	225.7	251.4	
TOTAL POWER INPUT	kW	34	36.2	43.6	47.5	56	71.1	80	
EER	-	3.54	3.59	3.5	3.47	3.4	3.17	3.14	
SEER	-	4.95	4.83	4.86	4.98	4.97	4.9	4.78	
USER WATER VALUES 40/45°C, 7°C OUTSIDE AIR, 89% U.R.									
THERMAL POWER	kW	123.9	130.8	149.9	163.1	186.9	227.5	265.2	
TOTAL POWER INPUT	kW	34.1	36.2	42.5	46.8	53.4	65.1	75.4	
COP	-	3.63	3.61	3.53	3.49	3.5	3.49	3.52	
SCOP	-	3.95	3.85	3.86	3.93	4.05	4.18	4.24	
SOUND POWER LEVEL	dB	83	84	86		87	88	89	
SOUND POWER LEVEL LOW NOISE	dB	80	81	83		84	85	86	
SOUND POWER LEVEL SUPER LOW NOISE	dB	78	80	82		84		85	
DIMENSIONS [LxHxD]	mm	3540 x1735 x1183	3540x1846x1653			3540x2330x1653		4206 x2330 x1653	

Also available with 60 Hz power supply | Data declared with use of R410A refrigerant

Алматы (7273)495-231
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Владикавказ (8672)28-90-48
Владимир (4922)49-43-18
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89

Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Коломна (4966)23-41-49
Кострома (4942)77-07-48
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Курган (3522)50-90-47
Липецк (4742)52-20-81

Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Ноябрьск (3496)41-32-12
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Петрозаводск (8142)55-98-37
Псков (8112)59-10-37
Пермь (342)205-81-47

Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Саранск (8342)22-96-24
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Сыктывкар (8212)25-95-17
Тамбов (4752)50-40-97
Тверь (4822)63-31-35

Тольятти (8482)63-91-07
Томск (3822)98-41-53
Тула (4872)33-79-87
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Улан-Удэ (3012)59-97-51
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Чебоксары (8352)28-53-07
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Чита (3022)38-34-83
Якутск (4112)23-90-97
Ярославль (4852)69-52-93

Россия +7(495)268-04-70

Казахстан +7(7172)727-132

Киргизия +996(312)96-26-47

<https://hiref.nt-rt.ru> || hfb@nt-rt.ru