

Product profile



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BITZER CSH2T compact screw compressors for applications with fluid outlet temperatures of up to +120°C

Many industrial processes require thermal energy at high temperatures. The use of high temperature heat pumps to utilise valuable waste heat offers an opportunity to reduce dependence on fossil fuels. High temperature heat pumps are also playing an increasingly important role in local and district heating networks. The CSH2T series of compact screw compressors from BITZER enables fluid outlet temperatures of up to +120°C in these applications.

The compressors of the CSH2T series have been specifically developed for high system temperatures. Drawing on more than 40 years of experience in screw compressor technology, BITZER has optimised every component, from the motors and bearings to the refrigeration oil used, for these operating conditions. This enables BITZER to offer customers suitable compressors for efficient system designs¹ in the growing high temperature heat pump market, backed by a comprehensive range of consulting and support services.

The compressors of the CSH2T series have been developed for operation with the refrigerants R1233zd(E) and R245fa. They are available in four displacement levels of 742 m³/h (CSH2T9563), 845 m³/h (CSH2T9573), 972 m³/h (CSH2T9583) and 1,098 m³/h (CSH2T9593, for R1233zd(E) only), each at 60 Hz and exclusively for operation with an external frequency inverter such as the BITZER VARIPACK. This combination enables efficient compressor speed control whilst ensuring maximum operational reliability for these demanding system applications.

¹ Cf. <https://www.bitzer.de/empc>

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High performance for high temperature heat pumps

With evaporation temperatures between +20°C and +70°C and condensing temperatures between +60°C and +125°C, the CSH2T series enables fluid outlet temperatures of up to +120°C. Heating capacities of up to approximately 1.1 MW* per compressor are possible (* operating points: $t_0 = +70^\circ\text{C}$, $t_c = +120^\circ\text{C}$ at 60 Hz, version: CSH2T9593-280Y-35D with R1233zd(E) in economiser operation). This makes the compressors ideally suited as the powerful heart of a wide range of high temperature applications, such as industrial heating processes or local and district heating networks. The CSH2T series also enables experienced OEM system manufacturers to develop large-scale heat pumps for industrial steam generation that can replace fossil-fuel-fired steam boilers and pave the way for electrified, decarbonised steam generation.

Thanks to the integrated oil separator and built-in suction-gas-cooled high temperature motor, the CSH2T series enables compact system designs. The compressors are equipped as standard with the SE-i1 compressor protection device, which monitors parameters such as motor and discharge gas temperature, low and high pressure as well as rotor direction of rotation to ensure safe operation. Optionally, the compressors can be equipped with oil temperature and suction gas temperature sensors. In combination with BEST SOFTWARE, operating data can also be visualised and analysed, supporting compressor commissioning and service.



As an independent specialist for refrigeration, air conditioning and heat pump technology, BITZER is present all over the world: with products and services for refrigeration, air conditioning and process cooling as well as transport, BITZER ensures optimum temperature conditions for trade in goods, industry processes and indoor climate control – always striving for the highest possible energy efficiency and quality. BITZER is represented all over the world with 74 sites in 40 countries, including its sales companies and production facilities. Trade and service partners included, the BITZER network of manufacturing, development and sales extends to almost all countries in the world. In 2025, 4,500 employees generated a turnover of €1.135 billion; expenditure for research and development totalled €67 million.

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Overview of images

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Image: BITZER CSH2T compact screw compressors have been specifically developed for use in high temperature heat pumps