

# New generation of CS.3 compact screws

## Introduction

BITZER Kühlmaschinenbau GmbH



# New generation of CS.3 compact screws

---



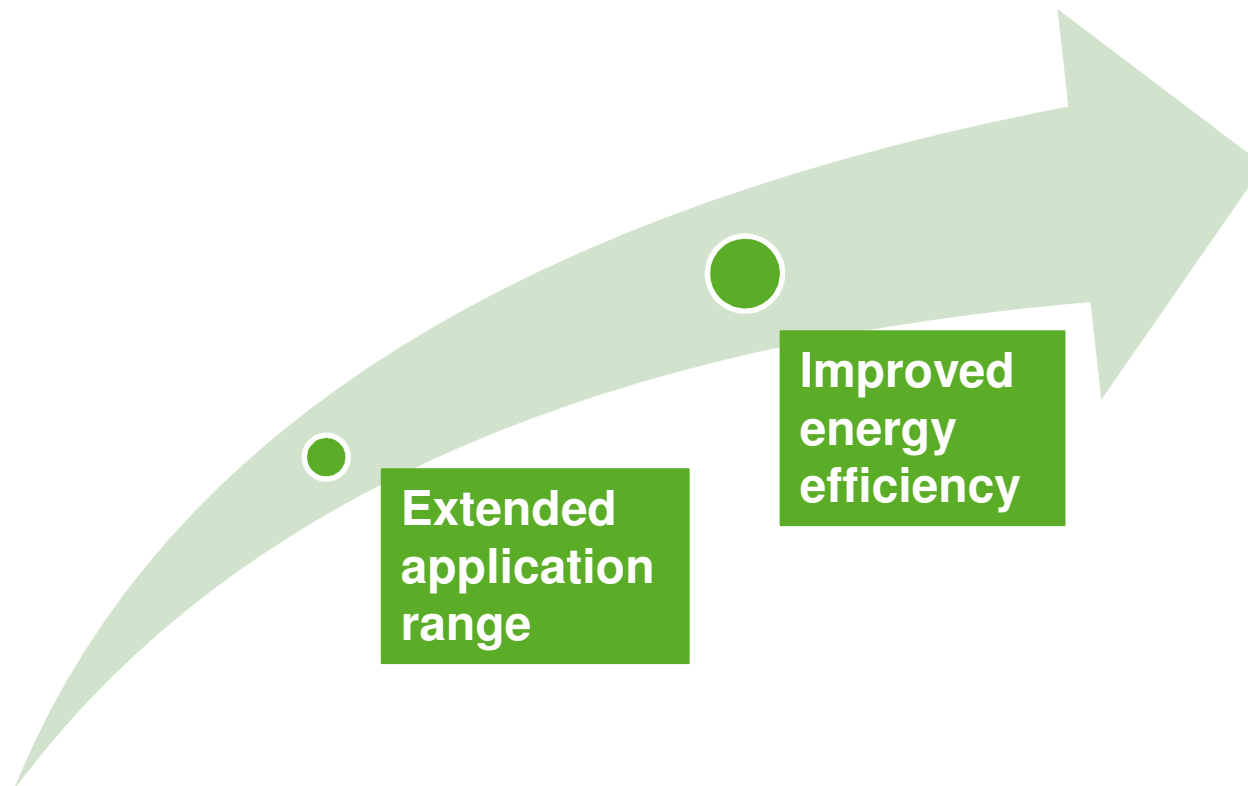
## Contents

- / New generation of CS.3 compact screws
- / Two series
- / Product portfolio CSH.3 and CSW.3
- / Sectional view compact screw
- / Integrated mechanical capacity slider
- / Refrigerant for operation with CS.3 compact screws
- / Glossary
- / Applications
- / History

# New generation of CS.3 compact screws



BITZER reinvents the mechanical capacity regulation !

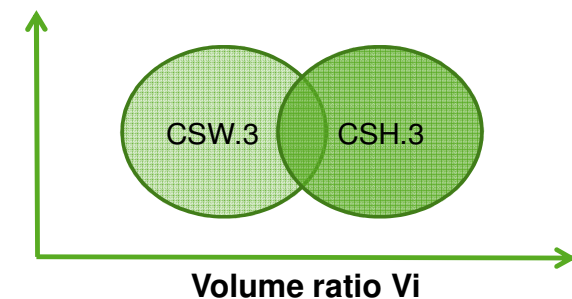


Extended  
application  
range

Improved  
energy  
efficiency



## CS.3 series

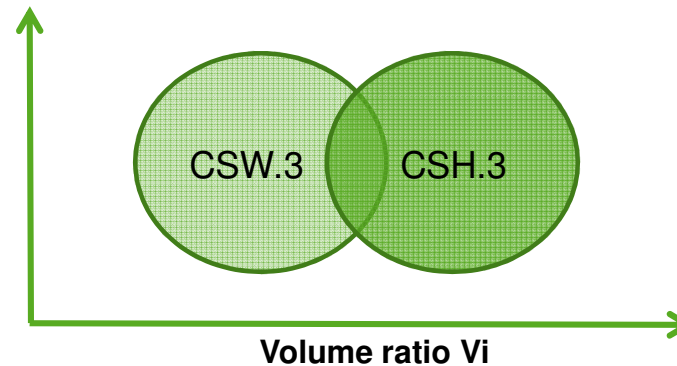




# New generation of CS.3 compact screws

## Two series

– for optimized adaptation on system- and operating conditions



### / Watercooled chillers

- Low condensing temperatures

### / Heat pumps

/ Highest energy efficiency in full- and part load

### / Air-cooled chillers

- Higher condensing temperatures

### / Heat pumps

/ Improved energy efficiency in full- and part load

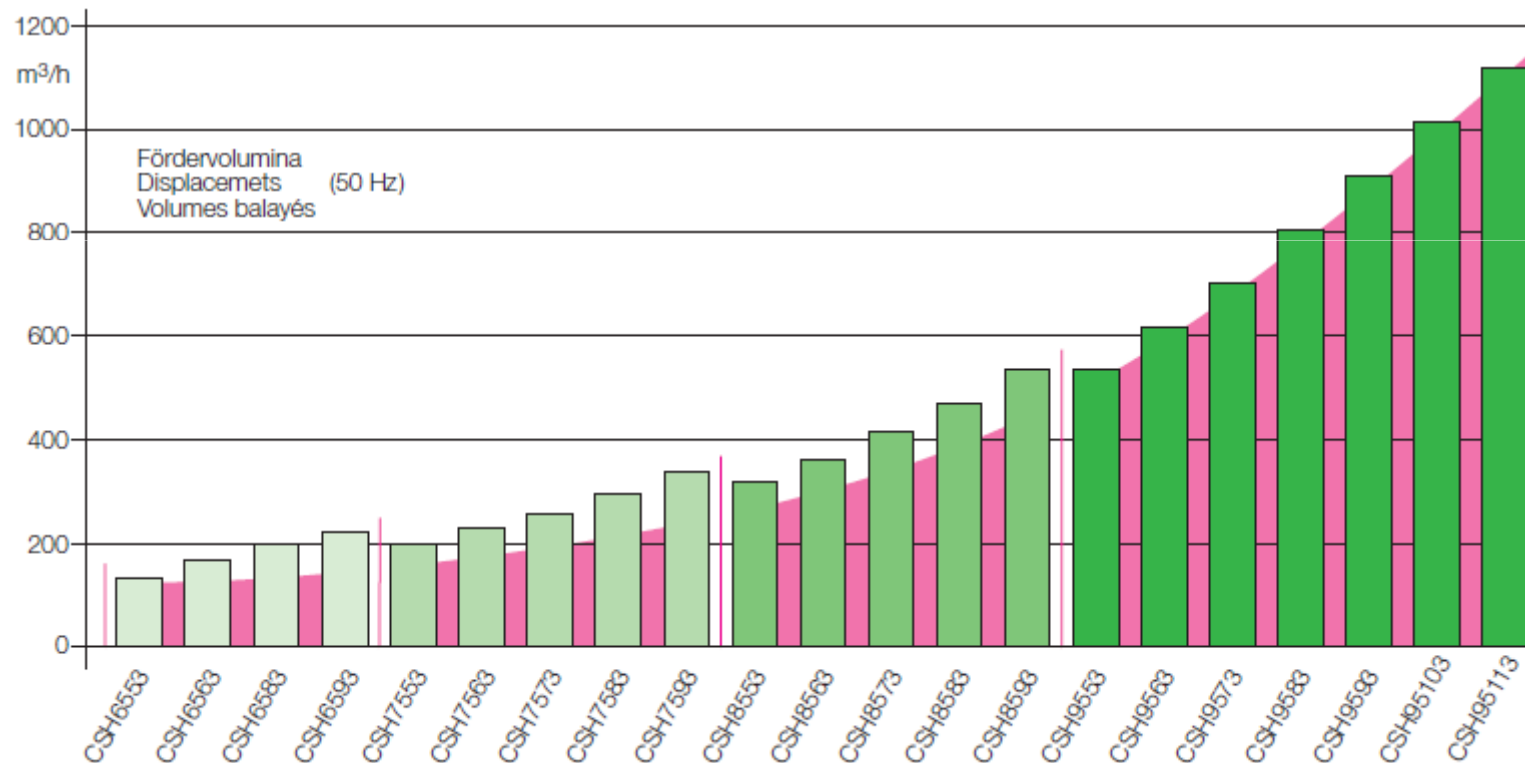
/ Improved application range for even more flexibility

# New generation of CS.3 compact screws



## Product portfolio CSH.3

- / For applications with higher condensing temperatures or air-cooled condensation
- / Small stage capacity range with displacement of 137 m<sup>3</sup>/h up to 1120 m<sup>3</sup>/h @ 2900 1/min

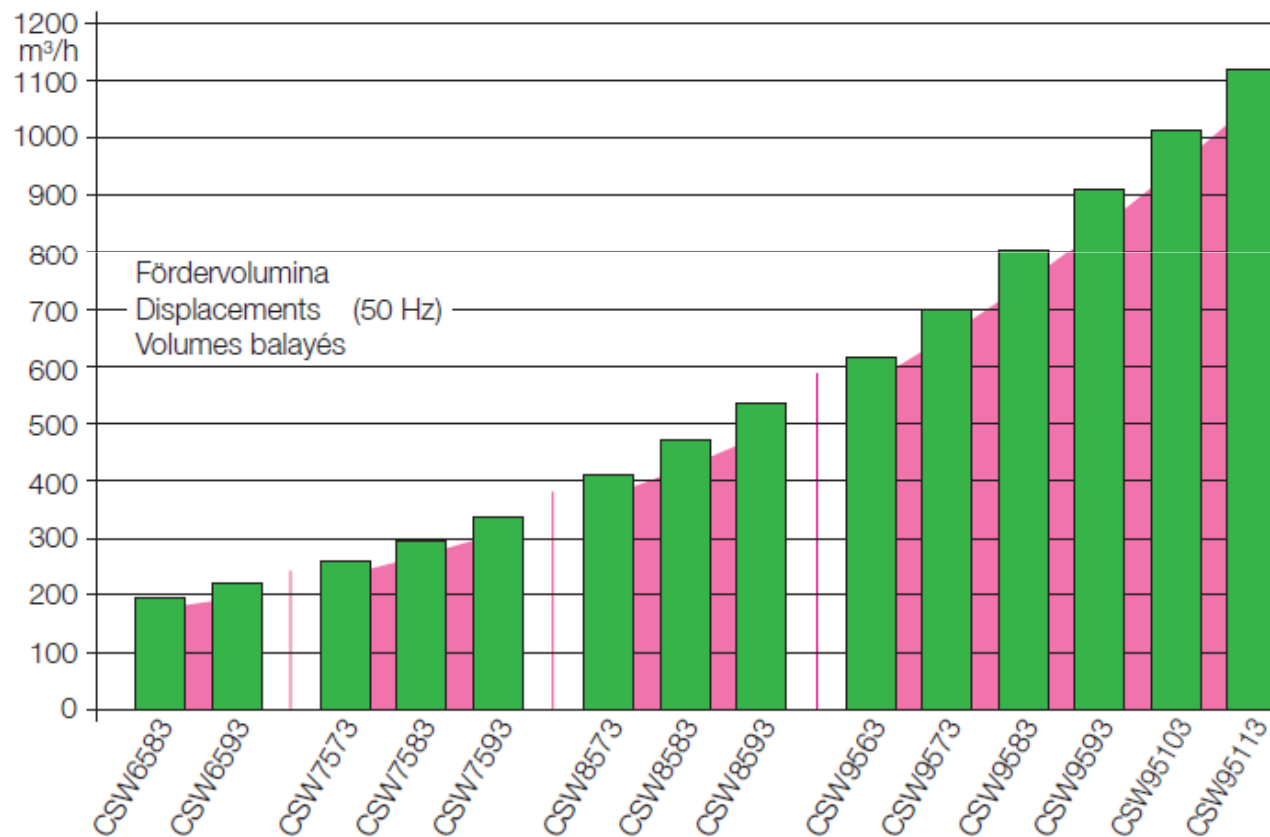


# New generation of CS.3 compact screws



## Product portfolio CSW.3

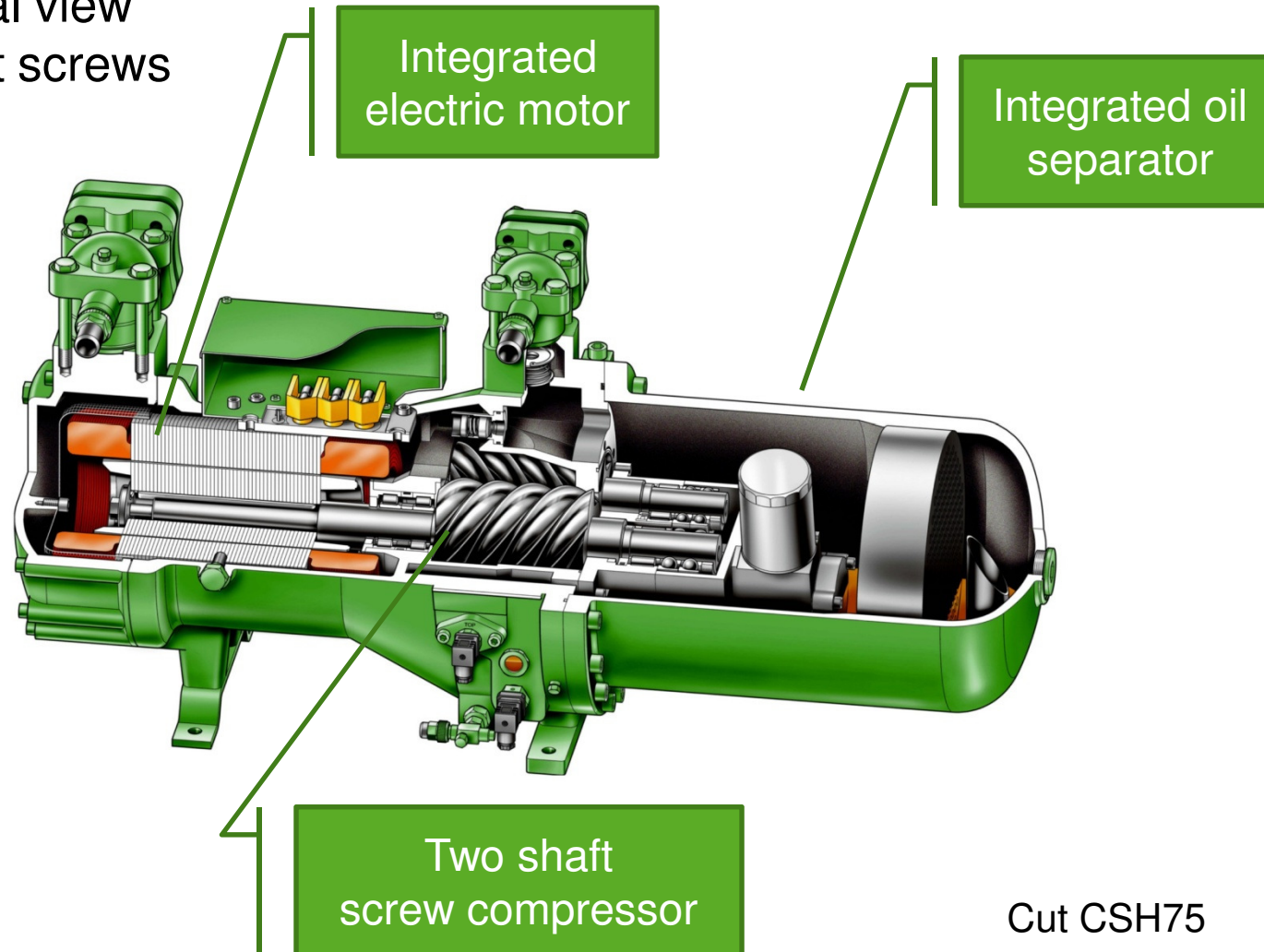
- / For applications with low condensing temperatures or water-cooled condensation
- / Small stage capacity range with displacement of 195 m<sup>3</sup>/h up to 1120 m<sup>3</sup>/h @ 2900 1/min



# New generation of CS.3 compact screws



Sectional view  
compact screws

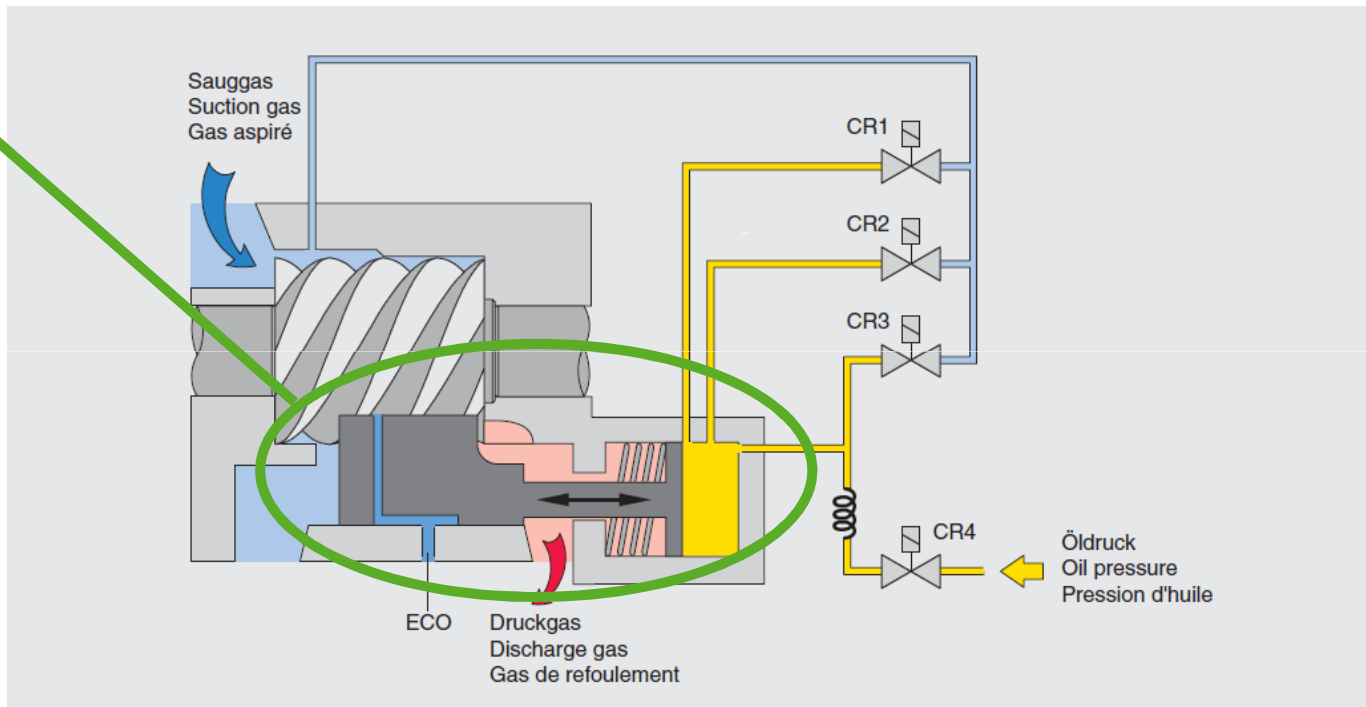


Cut CSH75



# New generation of CS.3 compact screws

Integrated capacity regulation slider  
Alternative four-stage or infinite capacity regulation



- / BITZER reinvents the mechanical capacity regulation !
  - Significantly improved energy efficiency in full- and part load



# New generation of CS.3 compact screws



Refrigerants for operation with CS.3 compact screws

| Refrigerant | R134a | R407C | R22 | R404A | R507A |
|-------------|-------|-------|-----|-------|-------|
| CSW.3       | ✓     | ✓     | ✓   | --    | --    |
| CSH.3       | ✓     | ✓     | ✓   | ✓ *   | ✓ *   |

\* Upon request – if necessary additional measures have to be taken

BITZER recommends R134a for the operation with CS.3 compact screws!

# New generation of CS.3 compact screws



## Glossary

### Type designation

**CSH** 7 5 7 3 - 9 0 Y - 40P

Semi-hermetic compact screw  
compressor

**CSH** 7 **5** 7 3 - 9 0 Y - 40P

Housing size

**CSH** 7 5 **7** 3 - 9 0 Y - 40P

Code for displacement (5 - 11)

**CSH** 7 5 7 **3** - 9 0 Y - 40P

Compressor execution

**CSH** 7 5 7 3 - **9 0** Y - 40P

Code for motor size

**CSH** 7 5 7 3 - 9 0 **Y** - 40P

Oil charge (polyol-ester) for R134a and  
R407C (R404A/R507A)

**CSH** 7 5 7 3 - 9 0 Y - **40P**

Motor code

**CSH.1 will be CSH.3**  
Nothing else is changed  
in the type designation!!!



# New generation of CS.3 compact screws

## Applications with BITZER compact screws

Examples for different application areas of BITZER CS.3 compact screws

/ Pharmaceutical industry  
/ Chemical industry

/ Plastics engineering  
/ Machine tools  
/ Power plant technology

**/ Air-conditioning**  
**/ Process cooling**  
**/ Heat pumps**

/ Air-conditioning for buildings  
/ Museums  
/ Hospitals

/ Food technology and drinks  
/ Automotive and  
environmental simulations  
/ Marine applications



## New generation of CS.3 compact screws

---

### History

- / **1986** Introduction of the BITZER **two-shaft screw compressors** as new compressor technology in the refrigeration and air-conditioning industry.
- / **1994** Introduction of the first generation BITZER screw compressors with flanged-on oil separator – the **HSKC series**.
- / **1999** Implementation of the second generation – the **CSH series**.  
Introduction of the **slider technology** with the possibility of 4-stage or infinite capacity regulation. This series has continuously been improved and extended over the following years.
- / **2009/2010** Introduction of the CS.3 generation and **split-up into CSW.3 and CSH.3** - for appropriate adaptation to the given system- and operating conditions.

The **CS series** has become the most common screw compressor series within the refrigeration and air-conditioning range. With **more than 100.000** compressors sold it is global standard in this range of technology today.



THE HEART OF FRESHNESS