

# Application with Reciprocating and Screw Compressors operated on R407F



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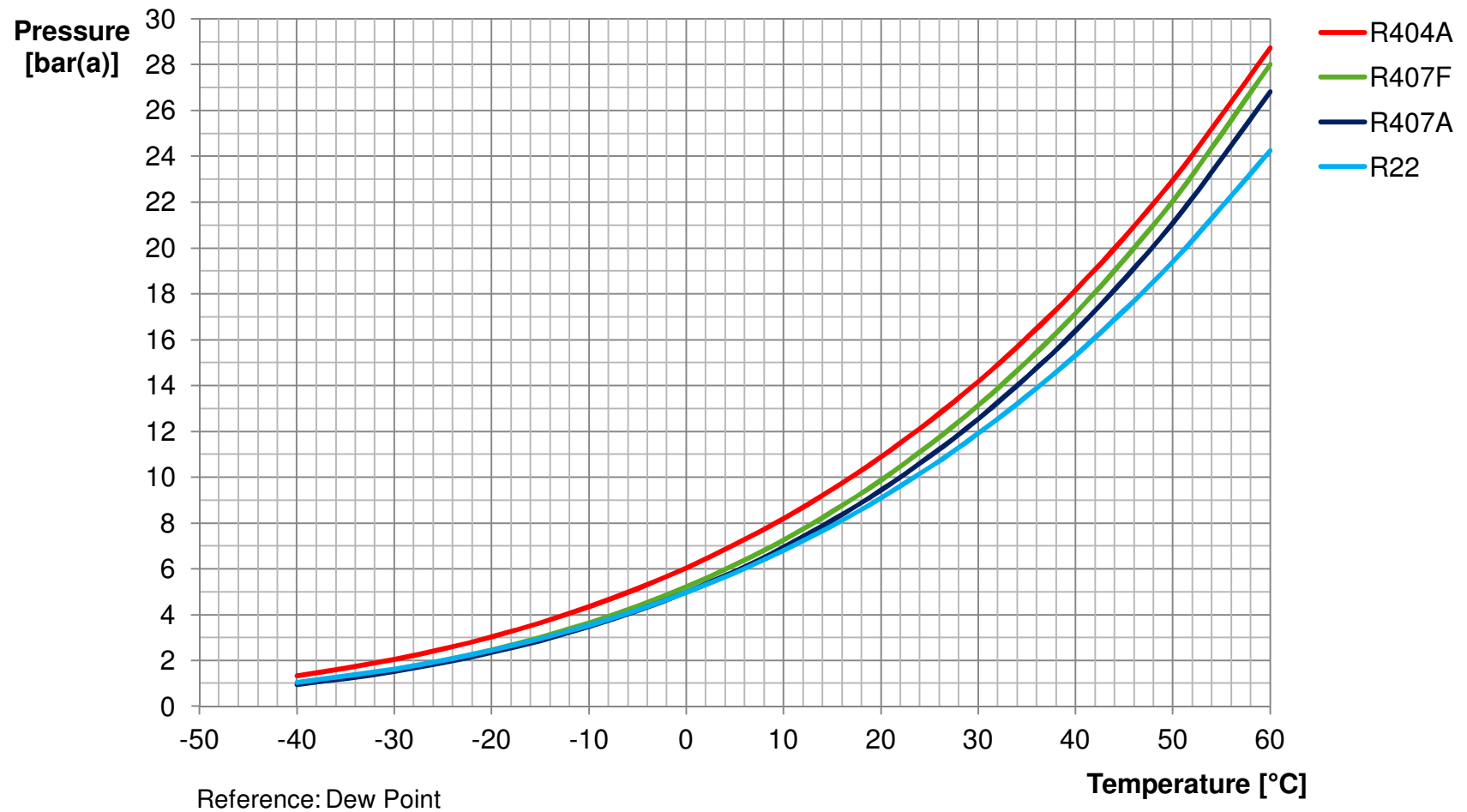
# Physical Properties



# Physical Properties

	R22	R404A	R407F	R407A
Bubble Point Temperature at 1 bar(a) [°C]	-41,0	-46,8	-46,5	-45,5
Dew Point Temperature at 1 bar(a) [°C]	-41,0	-46,0	-40,0	-39,0
Temperature glide [K] at 1 bar(a)	0,0	0,8	6,5	6,5
Critical Temperature [°C]	96,2	72,1	82,5	82,0
Critical Pressure [bar(a)]	49,9	37,3	47,5	44,9
Condensing temperature at 26 bar(a) [°C]	63,2	55,5	56,8	58,7
Discharge gas temperature at MT (-10°C/45°C/20°C) (isentropic) [°C]	101,4	77,8	93,8	88,0
Discharge gas temperature at LT (-35°C/40°C/20°C) (isentropic) [°C]	143,2	102,2	129,3	120,1
ODP [R11 = 1]	0,055	0	0	0
GWP (100 a) - IPCC III (2001) [CO <sub>2</sub> = 1,0]	1700	3780	1705	1990

# Physical Properties



# General Information about the Application with Reciprocating Compressors operated on R407F



# General Information about the Application with Reciprocating Compressors operated on R407F

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## Lubricant oil:

/ BSE32 (POE) is recommended for every application with R407F

## Special guidelines for handling zeotropic refrigerant blends:

/ KT-651-2

## Pressure/refrigerant temperature table:

/ KT-651-2

## General application range:

/ KT-651-2

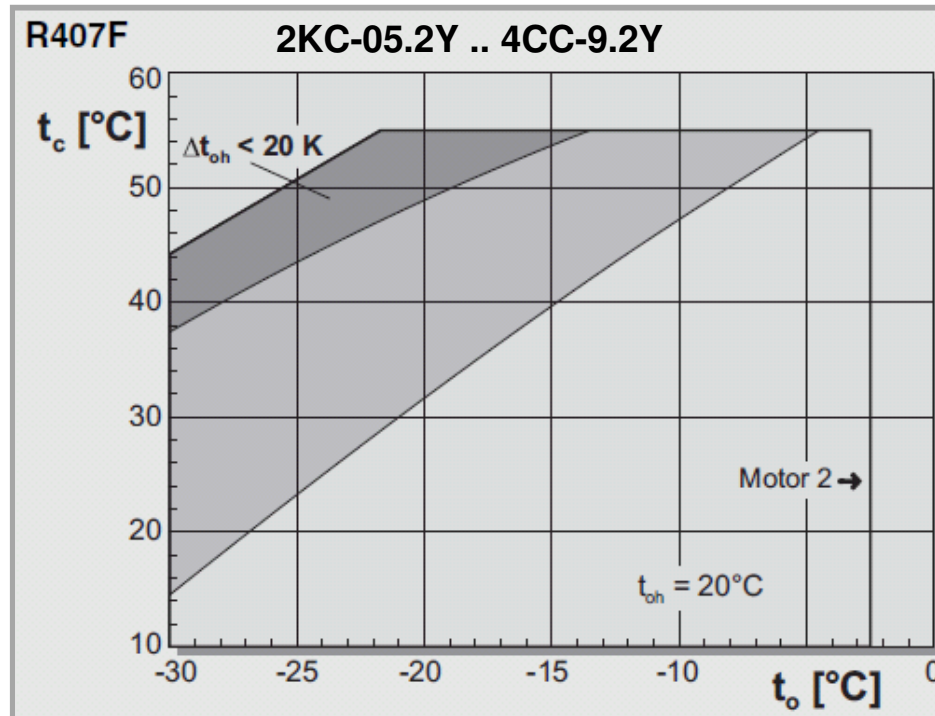


# Application Limits for Reciprocating Compressors (Current Series)



# Application Limits for Reciprocating Compressors (Current Series)

## C1, C2 and C3 Series with VARICOOL “SL(A)” Suction gas cooling “SL(A)”



- $t_o$       Evaporating temperature [°C]
- $t_{oh}$     Suction gas temperature [°C]
- $\Delta t_{oh}$    Suction superheat [K]
- $t_c$       Condensing temperature [°C]
- Additional cooling
- Additional cooling & limited suction gas temperature

# Application Limits for Reciprocating Compressors (Current Series)

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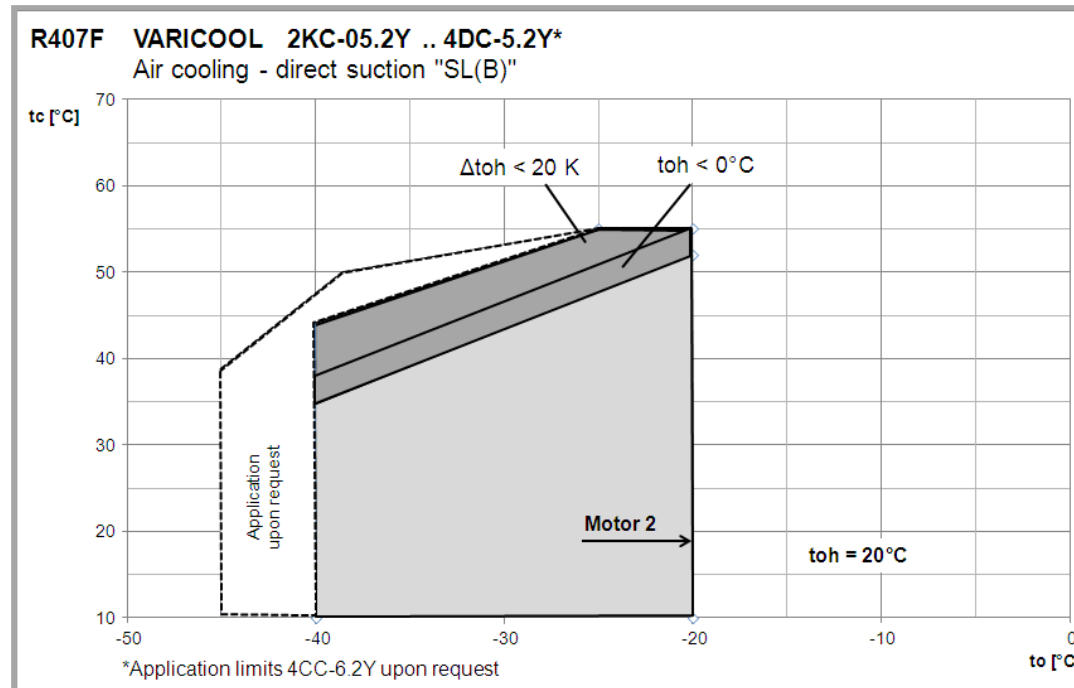
## C1, C2 and C3 Series with VARICOOL “SL(A)”

Suction gas cooling “SL(A)”

- / Motor version 1 might be necessary for some operating points at high evaporating temperatures with VARICOOL “SL(A)”
- / Further information about VARICOOL System: KB-100-6
- / Compressor selection and performance data for applications with R407F and VARICOOL “SL(A)” on request in the Department of Application Engineering

# Application Limits for Reciprocating Compressors (Current Series)

## C1, C2 and C3 Series with VARICOOL “SL(B)” Air cooling – direct suction “SL(B)”



- to Evaporating temperature [°C]
- toh Suction gas temperature [°C]
- $\Delta toh$  Suction superheat [K]
- tc Condensing temperature [°C]
- Additional cooling
- Additional cooling & limited suction gas temperature

# Application Limits for Reciprocating Compressors (Current Series)

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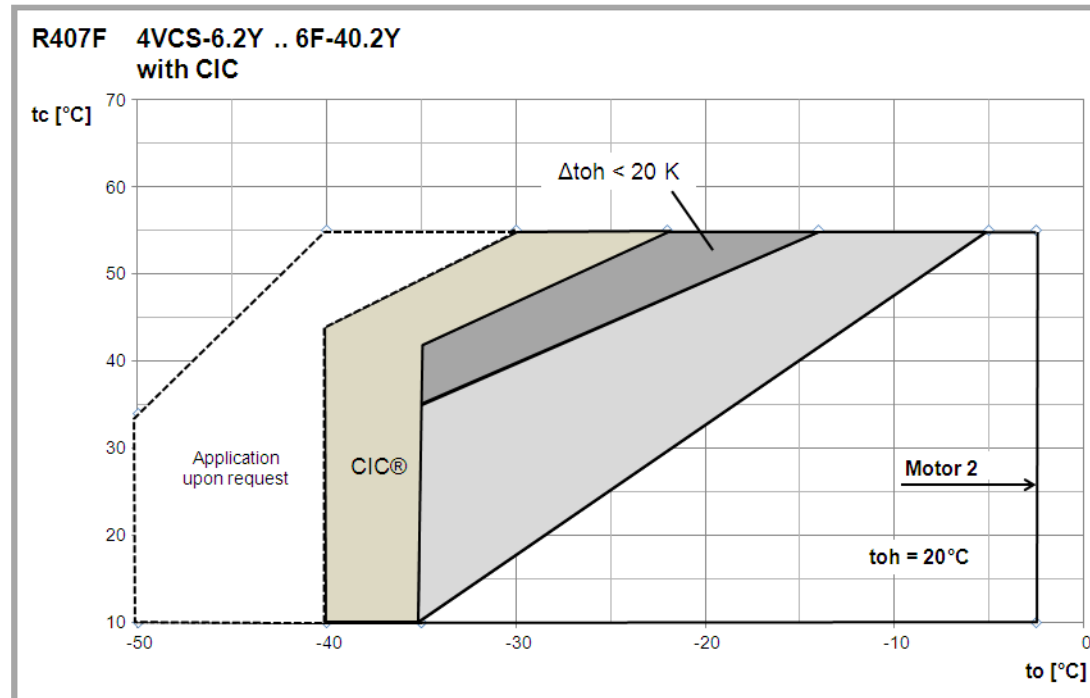
## C1, C2 and C3 Series with VARICOOL “SL(B)”

Air cooling – direct suction “SL(B)”

- / Motor version 2 must be selected for the operation with VARICOOL “SL(B)”
- / Further information about VARICOOL System: KB-100-6
- / Compressor selection and performance data for applications with R407F and VARICOOL “SL(B)” on request in the Department of Application Engineering

# Application Limits for Reciprocating Compressors (Current Series)

## C4, B5 and B6 with CIC® System



- to Evaporating temperature [°C]
- toh Suction gas temperature [°C]
- $\Delta toh$  Suction superheat [K]
- tc Condensing temperature [°C]
- Additional cooling or max. 0°C suction gas temperature
- Additional cooling & limited suction gas temperature
- Additional cooling + CIC®

# Application Limits for Reciprocating Compressors (Current Series)

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## C4, B5 and B6 with CIC® System

- / Motor version 2 must be selected for the operation with CIC® System
- / Motor version 1 might be necessary for some operating points at high evaporating temperatures where CIC® System is not required
- / Further information about CIC® System: KT-130-1
- / Compressor selection and performance data for applications with R407F and CIC® System on request in the Department of Application Engineering

# General Information about the Application with Screw Compressors operated on R407F





# General Information about the Application with Screw Compressors operated on R407F

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## Lubricant oil:

/ BSE170 (POE) is recommended for every application with R407F

## Special guidelines for handling zeotropic refrigerant blends:

/ KT-651-2

## Pressure/refrigerant temperature table:

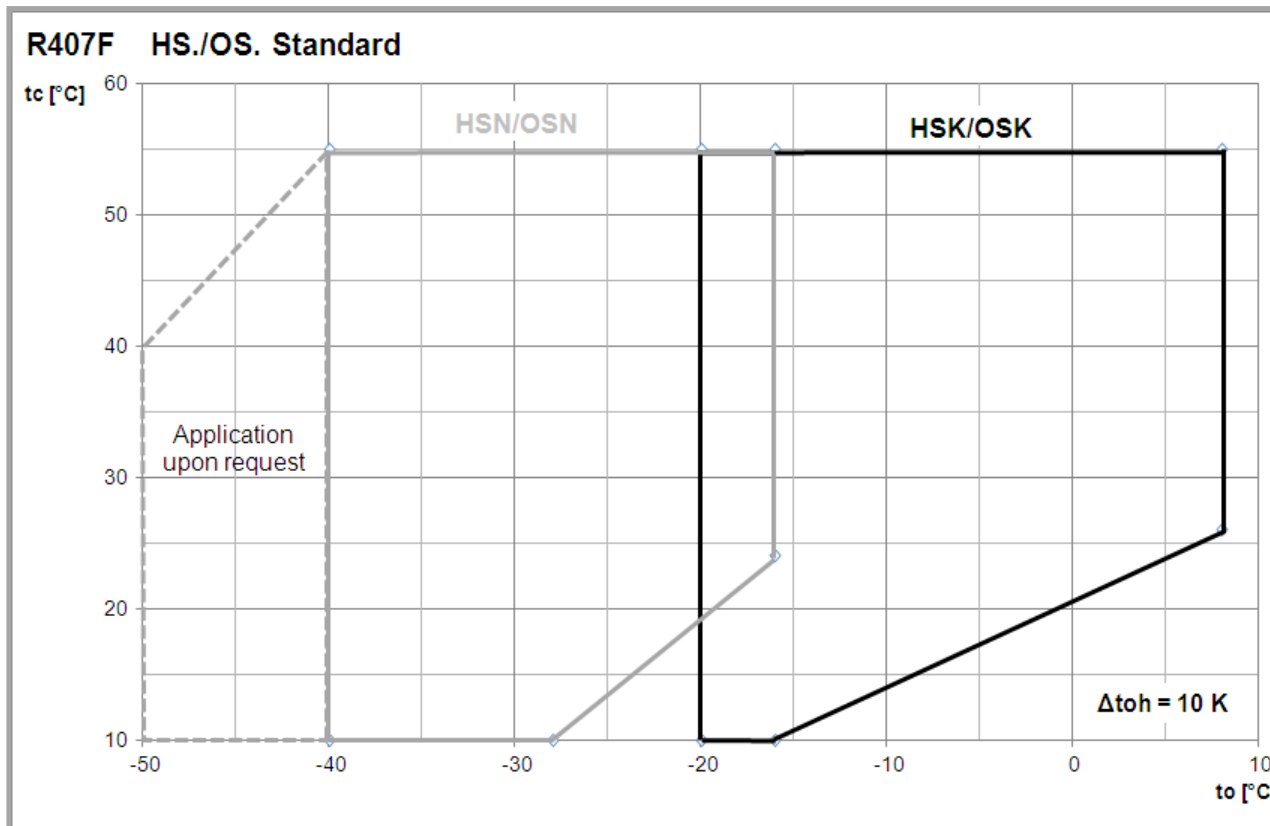
/ KT-651-2

# Application Limits for Screw Compressors (HS./OS. Series)



# Application Limits for Screw Compressors (HS./OS. Series)

## HS./OS. Series (Standard)

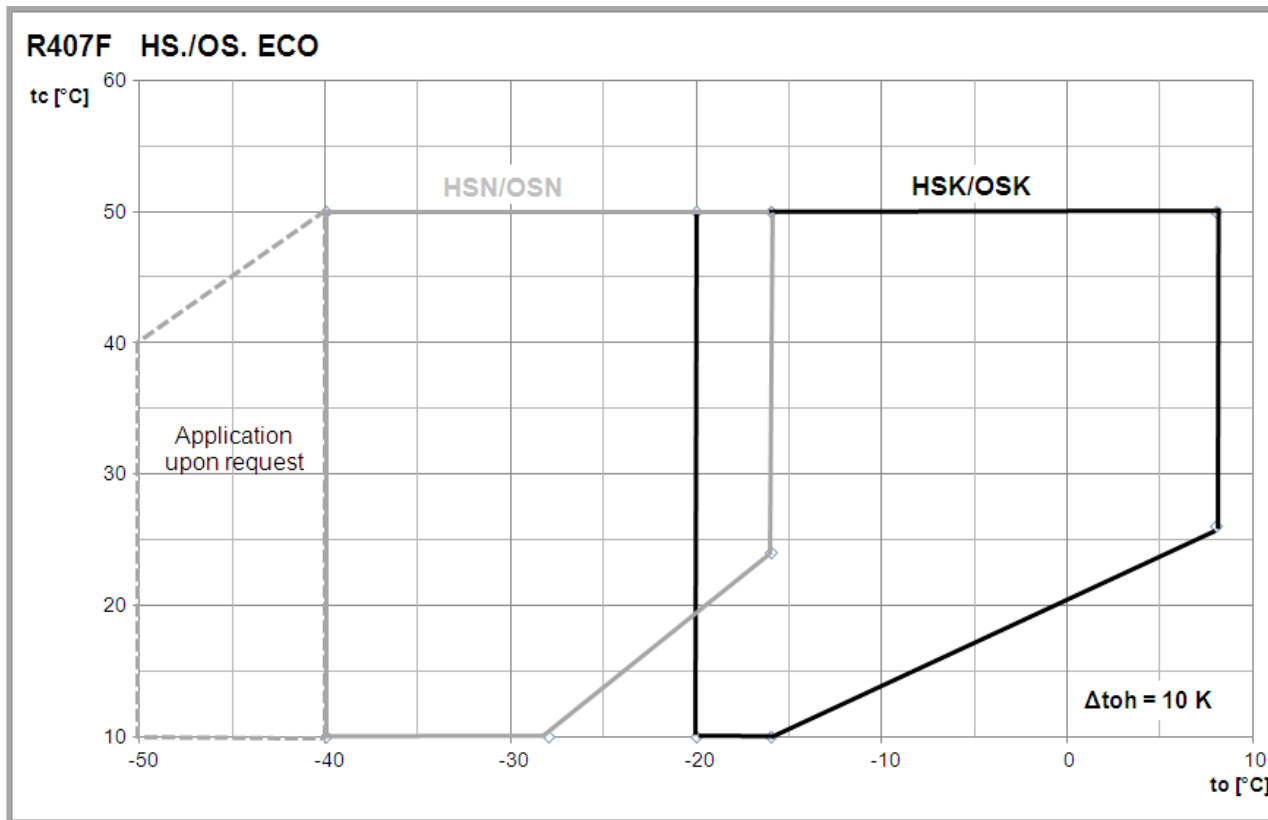


**HS.53.. / OS.53..  
HS.64..  
HS.74.. / OS.74..  
HS.85.. / OS.85..**

$t_o$  Evaporating temperature [°C]  
 $\Delta t_{oh}$  Suction superheat [K]  
 $t_c$  Condensing temperature [°C]

# Application Limits for Screw Compressors (HS./OS. Series)

## HS./OS. Series (ECO):



**HS.53.. / OS.53..**  
**HS.64..**  
**HS.74.. / OS.74..**  
**HS.85.. / OS.85..**

to Evaporating temperature [°C]  
 $\Delta t_{oh}$  Suction superheat [K]  
tc Condensing temperature [°C]

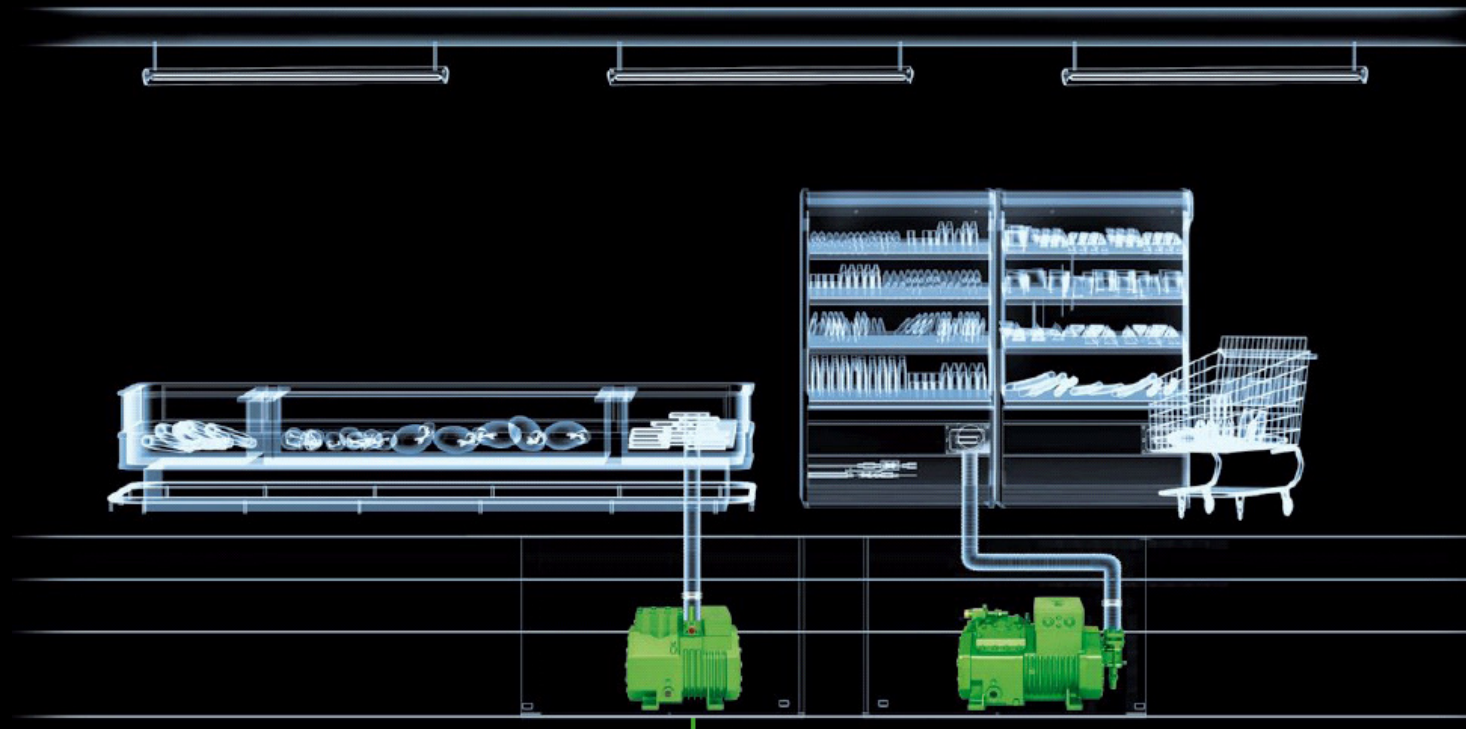
# Application Limits for Screw Compressors (HS./OS. Series)

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## HS./OS. Series (Standard and ECO):

- / Oil cooling is necessary for high compression ratios
- / Compressor selection and performance data for applications with R407F on request in the Department of Application Engineering

# APPLICATIONS - REFRIGERATION





THE HEART OF FRESHNESS