

Compressor Special Calculation

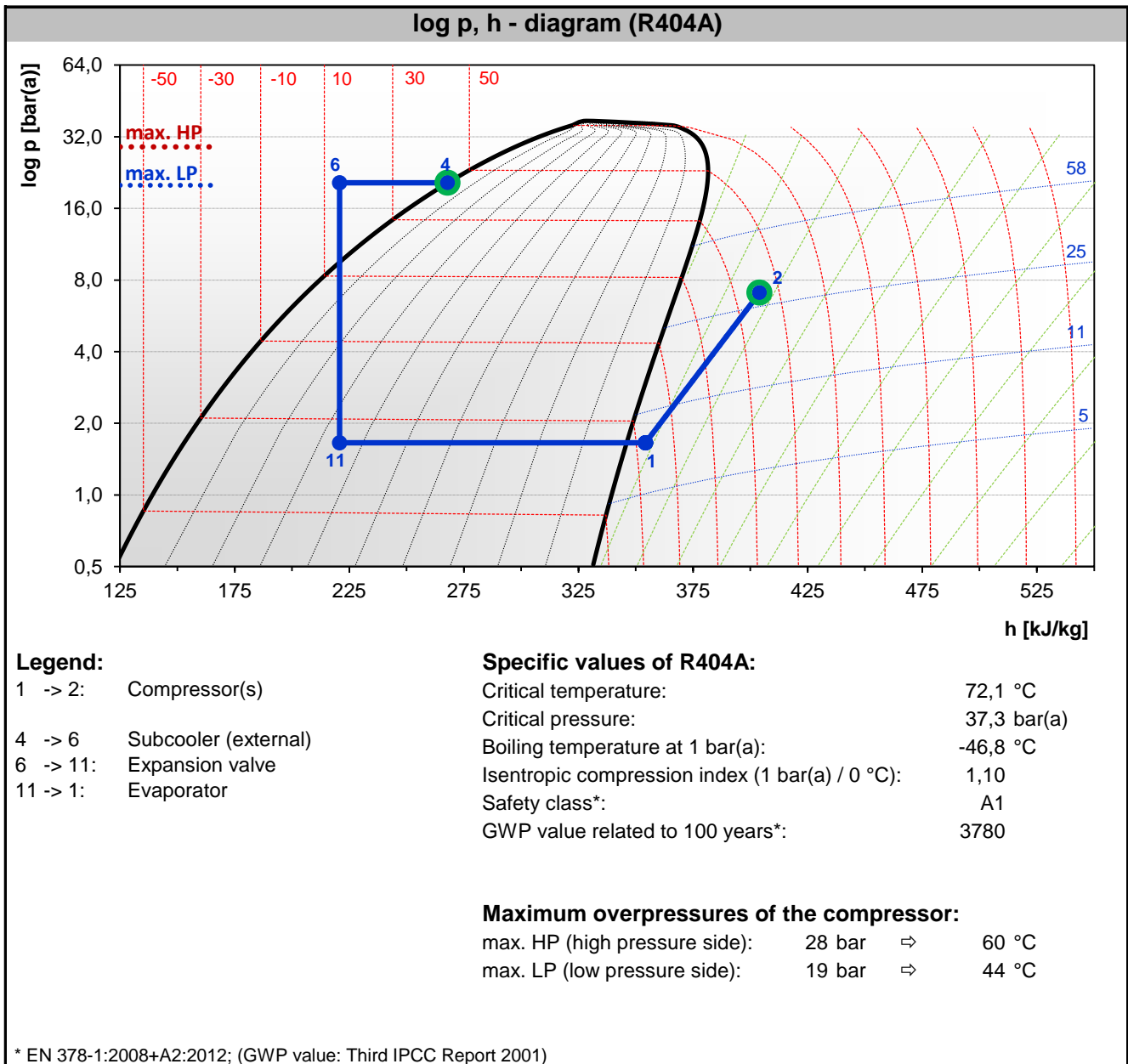


Operating conditions / given values				
Type of system	Booster: LT stage			
Refrigerant	R404A*		(Dew point temp.)	
Evaporating temperature		-35,0 °C	(1,7 bar(a))	
Superheat evaporator	10,0 K			
Superheat suction line	0,0 K			
Superheat int. heat. exch.	0,0 K			
Superheat total	10,0 K		(-25 °C)	
Intermediate condensing temperature		5,0 °C	(7,1 bar(a))	
Condensing temperature (2. stage)		45,0 °C	(20,5 bar(a))	
Subcooling condenser	0,0 K			
Subcooling int. heat. exch.	0,0 K			
Subcooling external	30,0 K			
Subcooling total	30,0 K		(14,7 °C)	
Power supply frequency		50 Hz		
Performance data**				
Compressor model	3	x	HSK6461-60	
Cooling capacity, compressor (4 -> 1)	3	x	30,0 kW	= 90,1 kW
Cooling capacity, evaporator	3	x	46,4 kW	= 139,3 kW
Power input	3	x	17,3 kW	= 52,0 kW
Current (400 V)	3	x	35,7 A	= 107,0 A
COP / EER			2,68	2,68
Refrigerant mass flow	3	x	1253 kg/h	= 3760 kg/h
Discharge gas temp. without cooling			41 °C	41 °C
External subcooler capacity			49,2 kW	
* Refrigerant data calculated by Aserep library				
** Listed performance data are based on calculations and measured data. Under worst conditions given values might differ from common tolerances				

Please see application-related remarks on page 3

In case of a compressor failure, the decision on a potential warranty claim remains reserved to a diagnosis and examination of the compressor at the BITZER factory. Design, operation, and monitoring of the system is in the responsibility of the designer or executing company.

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Application range

Not defined
so far

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Application related remarks:

The selected screw compressor has not been designed for booster applications.

At the indicated operating conditions, the pressure differential required for the oil lubrication of the screw compressor is 5,4 bar, which is acceptable. The operation of the selected screw compressor at a pressure differential below 4,5 bar is critical and the compressor should never be operated at a pressure differential lower than 4 bar.

In case of different operating conditions at a lower pressure differential, the oil flow switch of the compressor will show a fault alarm. In order to ensure a sufficient lubrication of the compressor under these conditions, an oil pump per compressor of the lower stage for an oil volume of 0,75 m³/h and a pressure increase of 2 bar must be installed. For this reason, it is recommended to plan enough space in the system for the possible installation of an oil pump per compressor, if it were necessary.