



## Selection: Open Screw Compressors OS

### Input Values

Compressor model	OSNA5361-K	Speed	2900 /min
Refrigerant	R717	Useful superheat	100%
Reference temperature	Dew point temp.	Additional cooling	Automatic
Liq. subc. (in condenser)	0 K	Max. discharge gas temp.	80,0 °C
Suct. gas superheat	1,00 K	Cooling capacity	100 %
Operating mode	Standard		

### Result

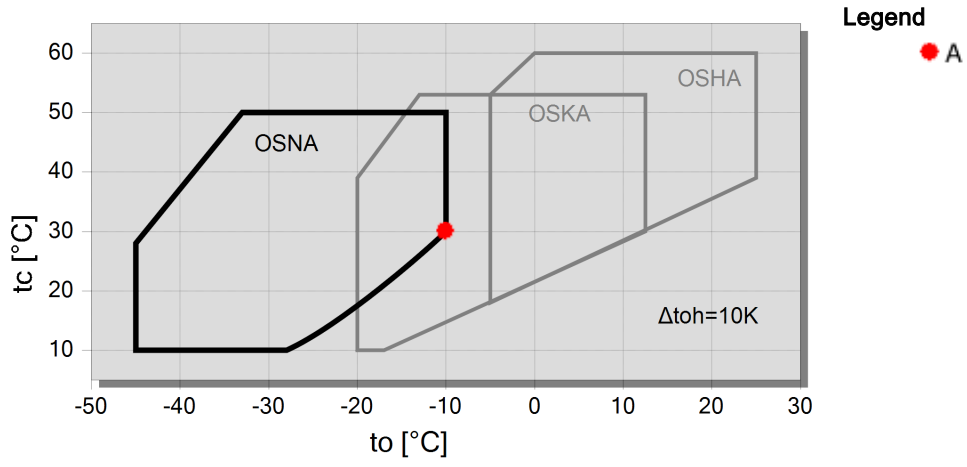
Q [W]	Cooling capacity	Qac [kW]	Additional cooling
P [kW]	Power input	tcu [°C]	Liquid temp.
COP [ - ]	COP/EER	pm [bar(a)]	ECO pressure
mLP [kg/h]	Mass flow LP	Qsc [kW]	sub cooler capacity (ECO)
mHP [kg/h]	Mass flow HP		

tc	to	-5°C	-10°C	-15°C	-20°C	-25°C	-30°C	-35°C	-40°C
<b>30°C</b>	Q [W]	--	79704	64718	51937	41103	31976	24328	17949
	P [kW]	--	23,2	20,8	18,73	16,86	15,18	13,65	12,24
	COP [ - ]	--	3,44	3,11	2,77	2,44	2,11	1,78	1,47
	mLP [kg/h]	--	258	211	170,2	135,5	106,1	81,3	60,5
	mHP [kg/h]	--	258	211	170,2	135,5	106,1	81,3	60,5
	Qac [kW]	--	10,86	10,40	10,01	9,65	9,31	8,98	8,64
	tcu [°C]	--	30,0	30,0	30,0	30,0	30,0	30,0	30,0
	pm [bar(a)]	--	--	--	--	--	--	--	--
	Qsc [kW]	--	--	--	--	--	--	--	--
<b>40°C</b>	Q [W]	--	73680	59493	47379	37096	28414	21121	--
	P [kW]	--	26,6	24,0	21,6	19,54	17,61	15,79	--
	COP [ - ]	--	2,77	2,48	2,19	1,90	1,61	1,34	--
	mLP [kg/h]	--	249	203	162,3	127,9	98,7	73,9	--
	mHP [kg/h]	--	249	203	162,3	127,9	98,7	73,9	--
	Qac [kW]	--	15,78	14,84	14,03	13,30	12,60	11,88	--
	tcu [°C]	--	40,0	40,0	40,0	40,0	40,0	40,0	--
	pm [bar(a)]	--	--	--	--	--	--	--	--
	Qsc [kW]	--	--	--	--	--	--	--	--
<b>50°C</b>	Q [W]	--	66678	53396	42043	32392	24230	--	--
	P [kW]	--	29,7	27,0	24,6	22,2	19,96	--	--
	COP [ - ]	--	2,24	1,98	1,71	1,46	1,21	--	--
	mLP [kg/h]	--	236	190,5	151,0	117,2	88,3	--	--
	mHP [kg/h]	--	236	190,5	151,0	117,2	88,3	--	--
	Qac [kW]	--	20,8	19,55	18,36	17,19	15,99	--	--
	tcu [°C]	--	50,0	50,0	50,0	50,0	50,0	--	--
	pm [bar(a)]	--	--	--	--	--	--	--	--
	Qsc [kW]	--	--	--	--	--	--	--	--

-- No calculation possible (see message in single point selection)

\*According to EN12900 (5K suction gas superheat, 0K liquid subcooling)

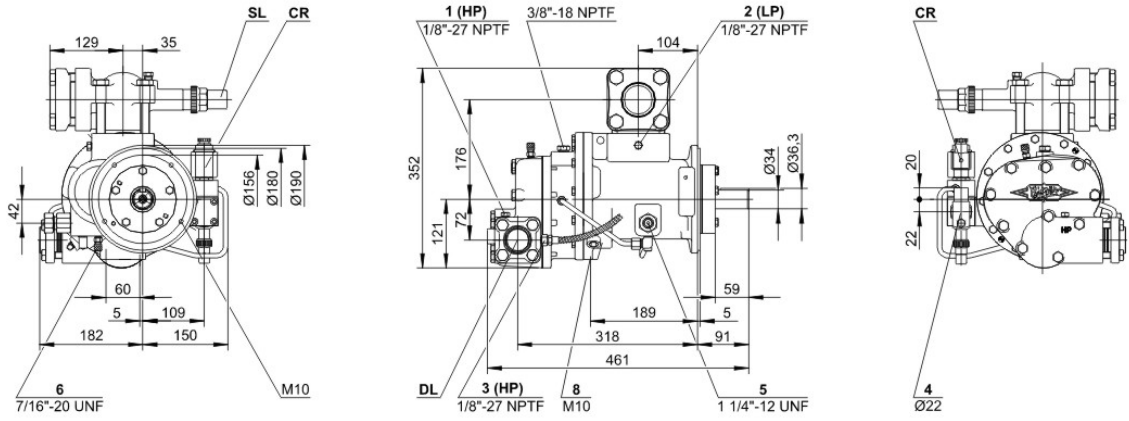
## Application Limits Standard





## Technical Data: OSNA5361-K

### Dimensions and Connections





## Technical Data

### Technical Data

Displacement (2900 RPM 50 Hz)	118 m <sup>3</sup> /h
Displacement (3500 RPM 60 Hz)	142 m <sup>3</sup> /h
Allowed speed range	1450 .. 4500 min <sup>-1</sup>
Sens of rotation (compressor)	rechts / clockwise
Weight	65 kg
Max. pressure (LP/HP)	19 / 28 bar
Connection suction line	54 mm - 2 1/8"
Connection suction line (NH3)	DN 50
Connection discharge line	42 mm - 1 5/8"
Connection discharge line (NH3)	DN 40
Adapter for ECO (NH3)	DN 20 (Option)
Oil type NH3	Reniso KC68 , SHC 226E

### Extent of delivery (Standard)

Suction shut-off valve	Standard
Pressure relief valve	Standard
Check valve	Standard
Oil injection kit	Standard
Built in oil filter	Standard
discharge gas temperature monitoring	SE-B3
Discharge gas temperature sensor	Standard
Protective charge	Standard

### Available Options

Oil flow control	Option
Discharge shut-off valve	Option
ECO connection with shut-off valve	Option
Coupling housing	Option
Start unloading	Option
Capacity control	100-75% (Option)



## Open Screw Compressors OS

**OSK** = Application for air-conditioning and medium temperature cooling.

**OSN** = Application for low temperature cooling.

**OSH** = Application for air-conditioning and heat pumps.

### Notes regarding application limits (see "T.Data - Limits")

\* Ranges are valid for standart operation and at full-load conditions.

\* With high pressure conditions, part-laod operation is partly limited (see application limits in applications manual SH-500/SH-510).

\* With Economizer operation the maximum admissible evaporation temperature is shifted by 10K downward (otherwise there is a danger of excessive compression and overlaod of the motor because of a higher mass flow). At pull-down conditions from higher evaporation temperatures, the ECO injection must remain closed until the evaporation temperature is below the maximum admissible value and a stable operation is achieved (e.g. control of the ECO solenoid valve by means of a low pressure cut-out). The use of the ECO-System with higher evaporation temperatures requires individual consultation with Bitzer.

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\* Capacity control with ECO operation at the same time is limited to one single regulating step (CR 75%). At CR 50% the ECO injection should be closed.

\* Combined operation (ECO + CR 50%) is possible under certain conditions, control and system design, however, require individual consultation with Bitzer.

### Motor Selection

The required driving motor is selected for starting conditions at direct start as well as at star-delta-start with start unloading (50% capcaity regulation). The starting conditions refer to the following defined operation points resp. to the maximum application limit of the compressor. Should the evaporation- or the condensing temperature of the plant be higher at the start, an individual motor selection is necessary.

Evaporation temperature for motor selection				
	HH	H	M	L
R134a	+20 °C	+12,5 °C	-5 °C	
R404A / R507A		+7,5 °C	-5 °C	-15 °C
R22		+12,5 °C	-5 °C	-10 °C
R407C		+12,5 °C	-5 °C	
NH <sub>3</sub>	+25 °C	+12,5 °C	-5 °C	-10 °C

The stated motor data refer to IEC motors at which the pull-up torque should not fall below 90% of the max. torque. In addition the following starting torque (referring to direct start) must be reached:

\* open screw compressors 120%

Should the motor not fulfil these criteria, an individual selection is also necessary.

### Lubricants and additional cooling for NH3 applications

	Type	Viscosity	Discharge gas (°C)	Oil injection (°C)
Reniso KM32	MO	32	ca. 60 .. max. 100	max. 50
Reniso KS46	MO	46	ca. 60 .. max. 80 (100 [1])	max. 60
Reniso KC68	MO	68	ca. 60 .. max. 80 (100 [1])	max. 60
Reflo 68A	MO (HT)	58	ca. 60 .. max. 80 (100 [1])	max. 60
SHC226E	PAO	68	ca. 60 .. max. 80 (100 [1])	max. 60

[1] 100 °C only after consultation with BITZER

Further information on the selection of lubricants can be found in the Application Manuals SH-500 and SH-510.

**Legend of connection positions according to "Dimensions":**

- 1 High pressure connection (HP)  
Connection for high pressure switch (HP)
- 1a Additional high pressure connection (HP)  
Not suitable for pressure switch or pressure transmitter!
- 1b Connection for high pressure transmitter (HP)
- 2 Low pressure connection (LP)  
Connection for low pressure switch
- 2a Additional low pressure connection (LP)
- 2b Connection for low pressure transmitter (LP)
- 2c Low pressure connection for the minimum pressure differential control valve
- 3 Connection for discharge gas temperature sensor (HP)
- 4 Connection for economiser (ECO)  
    HS.85: ECO valve with connection line (option)  
    OS.85, OS.95, OS.105, HS.95: ECO valve (option)
- 5 Connection/valve for oil injection
- 6 Oil pressure connection
- 7 Oil drain (compressor or motor housing)
- 7a Oil drain (suction gas filter)
- 7b Oil drain from shaft seal (maintenance connection)
- 7c Oil drain hose (shaft seal)
- 8 Threaded bore for foot fastening
- 9 Threaded bore for pipe fixture (ECO and LI lines)
- 10 Maintenance connection for oil filter
- 11 Oil drain (oil filter)
- 13 Oil filter monitoring
- 14 Oil flow switch
- 15 Earth screw for housing
- 16 Pressure blow-off (oil filter chamber)
- 17 Maintenance connection for shaft seal
- 18 Liquid injection (LI)
- 19 Compressor module
- 20 Slider position indicator
- 21 Oil level switch
- 22 Oil pressure transmitter
- 23 Connection for oil and gas return (for systems with flooded evaporator adaptor optional)
- 24 Access to oil circulation restrictor
- 25 Oil inlet for shaft seal cooling
- 26 Oil outlet for shaft seal cooling
- 27 Temperature sensor in the shaft seal
- 28 Vibration sensor connection
- SL Suction gas line
- DL Discharge gas line

Dimensions can show tolerances according to EN ISO 13920-B.