



BITZER Output data

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Project survey

Selected compressors

Open Screw Compressors OS

1x OSKA9573-K

Chosen accessory

[Motor & coupling](#)

[Oil separator](#)



Selection: Open Screw Compressors OS

Input Values

Compressor model	OSKA9573-K	Operating mode	Economiser
Refrigerant	R717	Speed	2900 /min
Reference temperature	Dew point temp.	Useful superheat	100%
Liq. subc. (in condenser)	0 K	Additional cooling	Automatic
Auto. subcooling	Auto	Max. discharge gas temp.	80,0 °C
Suct. gas superheat	1,00 K	Cooling capacity	100 %

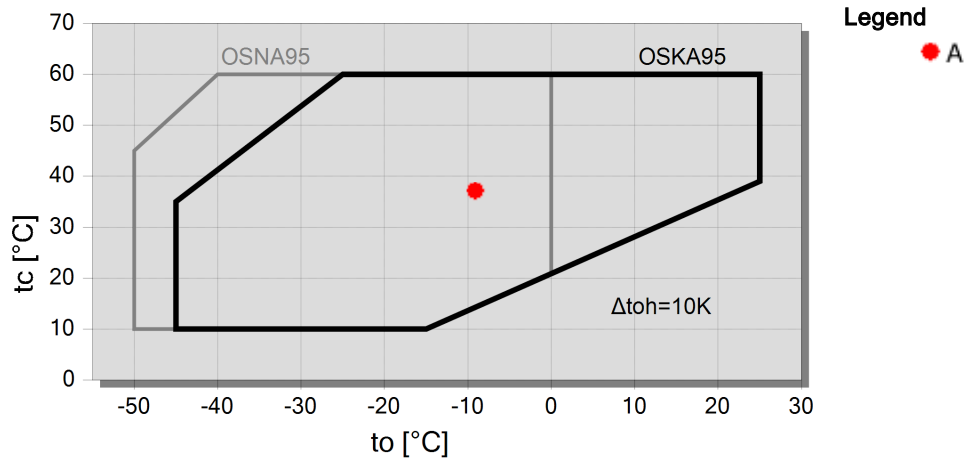
Result

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	-6°C	-7°C	-8°C	-9°C	-10°C	-11°C	-12°C
30°C	Q [W]	634839	612498	590715	569481	548790	528631	508999	489883
	P [kW]	112,1	112,2	112,1	112,0	111,8	111,5	111,2	110,8
	COP [-]	5,66	5,46	5,27	5,08	4,91	4,74	4,58	4,42
	mLP [kg/h]	1839	1770	1702	1636	1573	1511	1451	1393
	mHP [kg/h]	2039	1969	1901	1835	1770	1706	1645	1584
	Qac [kW]	32,3	33,9	35,4	36,9	38,3	39,7	41,0	42,3
	tcu [°C]	3,22	2,23	1,23	0,24	-0,76	-1,75	-2,75	-3,75
	pm [bar(a)]	4,84	4,67	4,50	4,34	4,18	4,03	3,88	3,73
	Qsc [kW]	63,9	63,7	63,4	63,1	62,6	62,1	61,5	60,8
	35°C	Q [W]	629434	607067	585258	563999	543282	523099	503442
P [kW]		129,3	129,0	128,7	128,2	127,7	127,1	126,5	125,8
COP [-]		4,87	4,71	4,55	4,40	4,25	4,11	3,98	3,85
mLP [kg/h]		1826	1757	1689	1623	1559	1497	1437	1379
mHP [kg/h]		2065	1993	1924	1855	1789	1724	1661	1600
Qac [kW]		47,7	49,2	50,6	51,9	53,2	54,5	55,6	56,8
tcu [°C]		3,61	2,62	1,62	0,62	-0,38	-1,38	-2,38	-3,38
pm [bar(a)]		4,91	4,74	4,57	4,40	4,24	4,08	3,93	3,78
Qsc [kW]		74,6	74,0	73,3	72,5	71,6	70,7	69,7	68,6
40°C		Q [W]	621698	599330	577519	556259	535541	515357	495699
	P [kW]	147,0	146,4	145,8	145,0	144,2	143,4	142,4	141,5
	COP [-]	4,23	4,09	3,96	3,84	3,71	3,59	3,48	3,37
	mLP [kg/h]	1807	1737	1669	1603	1539	1477	1417	1358
	mHP [kg/h]	2084	2011	1939	1870	1802	1736	1671	1609
	Qac [kW]	64,7	66,0	67,3	68,5	69,6	70,8	72,1	73,3
	tcu [°C]	4,00	3,01	2,01	1,00	0,00	-1,00	-2,01	-3,02
	pm [bar(a)]	4,98	4,81	4,63	4,46	4,30	4,14	3,99	3,84
	Qsc [kW]	84,9	83,8	82,7	81,5	80,2	78,9	77,5	76,0

-- No calculation possible (see message in single point selection)
 *According to EN12900 (5K suction gas superheat, with open flash)

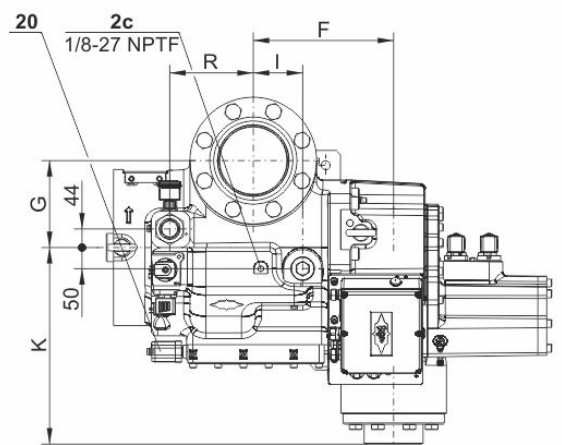
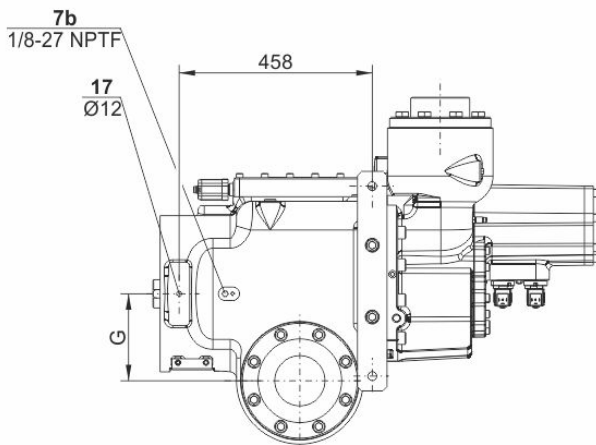
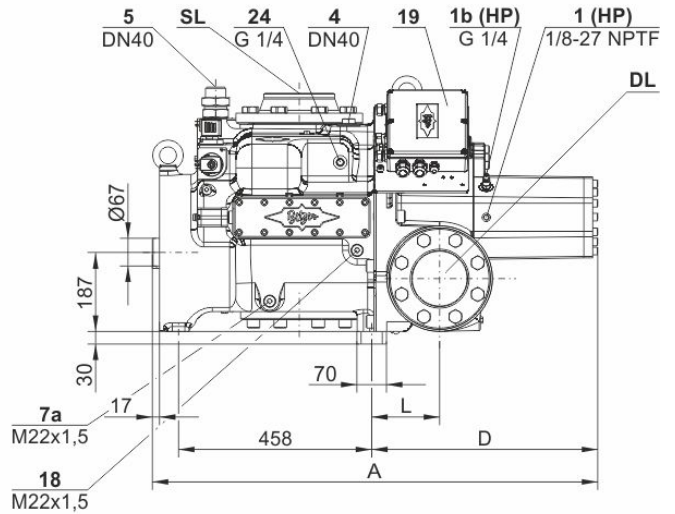
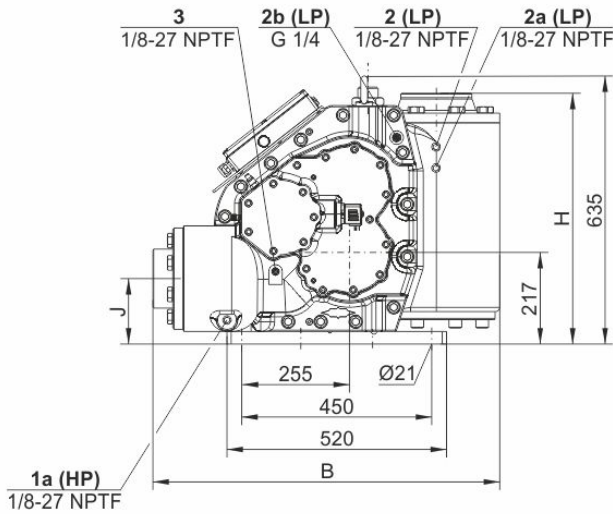
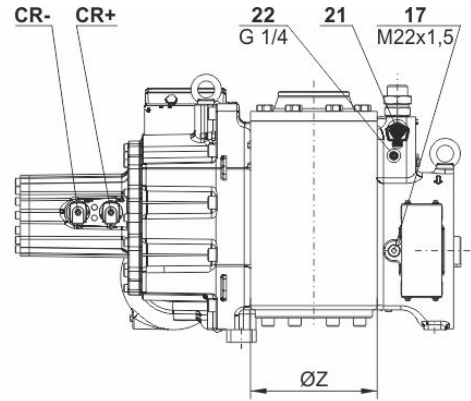
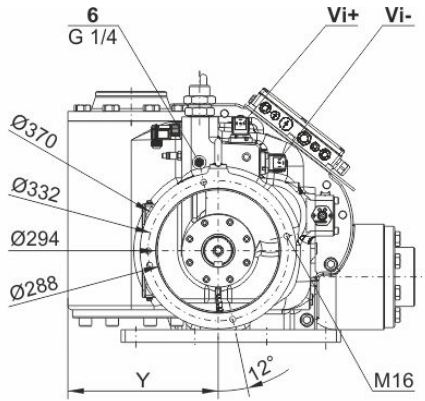
Application Limits ECO OSKA9573





Technical Data: OSKA9573-K

Dimensions and Connections



Type	A	B	D	F	G	H	I	J	K	L	R	Y	ØZ	SL	DL
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
OSKA9573, OSKA9583, OSNA9583	1050	730	531	360	176	585	142	144	434	164	154	296	240	DN125	DN100
OSKA9593, OSKA95103, OSNA95103	1055	821	536	332	206	594	117	155	465	161	198	356	300	DN150	DN125



Technical Data

Technical Data

Displacement (2900 RPM 50 Hz)	700 m ³ /h
Displacement (3500 RPM 60 Hz)	845 m ³ /h
Allowed speed range	1500 .. 4000
Sens of rotation (compressor)	links / counter-clockwise
Weight	590 kg
Max. pressure (LP/HP)	19 / 32 bar
Connection suction line (NH3)	DN 125
Connection discharge line (NH3)	DN 100
Adapter for ECO (NH3)	DN 40 (Option)
Oil type NH3	Reniso KC68 , SHC 226E

Extent of delivery (Standard)

Pressure relief valve	Standard
Check valve	Standard
Oil flow control	OLC-D1 & CM-SW-01
Discharge gas temperature sensor	PT1000 & CM-SW-01
Start unloading	CM-SW-01
Capacity control	100-10% (stepless, CM-SW-01)
Protective charge	Standard
automatic Vi-adaption	CM-SW-01
application limit monitoring	CM-SW-01

Available Options

Discharge shut-off valve	Option
ECO connection with shut-off valve	Option
Coupling housing	Option
Oil injection kit	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.

OS53..OS74

* 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 ₃	+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.



Selection: Motor & coupling

Input Values

Common	No
Enclosure class	IP23
Efficiency class	IE3
Operating point	Auto

Operating Points

	A
to [°C]	-9
tc [°C]	37

Result



Legend of connection positions according to "Dimensions":

- 1 Compressor side
- 2 Motor side
- 3 Compressor shaft
- 4 Motor shaft



Selection: Oil separator

Input Values

Common	Yes
Operating point	Auto

Operating Points

	A
to [°C]	-9
tc [°C]	37

Result



Connection positions

- 1 Refrigerant inlet
- 2 Refrigerant outlet
- 3 Oil outlet
- 4 Oil fill connection
- 5 Service connection
- 6 Oil thermostat connection
- 7 Oil heater connection
- 8 Oil level switch connection
- 9 Connection for pressure relief valve
- 10 Oil outlet (secondary stage)
- 11 Service flange for filter cartridges (filter of the secondary stage)
- 12 Oil drain

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