Selection: Compact Screw Compressors CS

Input Values

Compressor model	CSH9583-210Y	Operating mode	Standard
Refrigerant	R134a	Power supply	400V-3-50Hz
Reference temperature	Dew point temp.	Capacity Control	100%
Liq. subc. (in condenser)	0 K	Additional cooling	Automatic
Suct. gas superheat	10.00 K	Max. discharge gas temp.	110.0 °C
Useful superheat	100%		

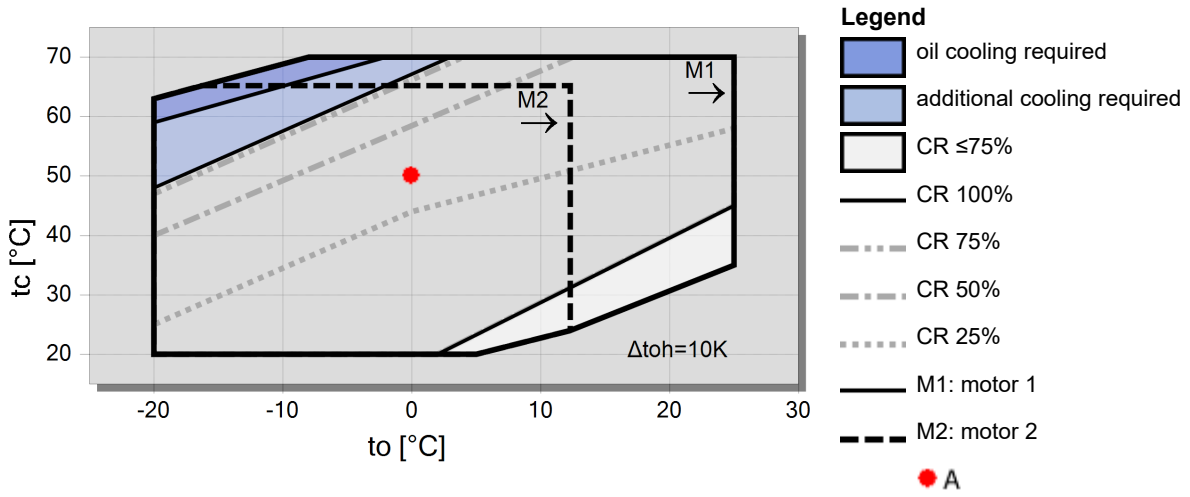
Result

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

tc	to	10°C	5°C	0°C	-5°C	-10°C	-15°C	-20°C	-25°C
30°C	Q [W]	725618	602524	496583	405849	328537	263022	207816	--
	P [kW]	97.0	93.7	90.5	87.5	84.7	82.1	79.8	
	I [A]	170.5	166.0	161.7	157.7	154.0	150.7	147.8	
	COP [-]	7.48	6.43	5.49	4.64	3.88	3.20	2.60	
	mLP [kg/h]	15226	12878	10817	9016	7448	6088	4915	
	mHP [kg/h]	15226	12878	10817	9016	7448	6088	4915	
	Qac [kW]	--	--	--	--	--	--	--	
	tcu [°C]	30.0	30.0	30.0	30.0	30.0	30.0	30.0	
	pm [bar(a)]	--	--	--	--	--	--	--	
	Qsc [kW]	--	--	--	--	--	--	--	
40°C	Q [W]	658397	544178	446004	362034	290584	230121	179245	--
	P [kW]	115.4	112.1	108.8	105.6	102.4	99.5	96.6	
	I [A]	196.4	191.6	186.9	182.4	178.0	173.9	170.0	
	COP [-]	5.70	4.86	4.10	3.43	2.84	2.31	1.86	
	mLP [kg/h]	15125	12755	10675	8854	7267	5889	4697	
	mHP [kg/h]	15125	12755	10675	8854	7267	5889	4697	
	Qac [kW]	--	--	--	--	--	--	--	
	tcu [°C]	40.0	40.0	40.0	40.0	40.0	40.0	40.0	
	pm [bar(a)]	--	--	--	--	--	--	--	
	Qsc [kW]	--	--	--	--	--	--	--	
50°C	Q [W]	585135	480476	390715	314125	249131	194299	148324	--
	P [kW]	139.5	135.9	132.3	128.6	124.9	121.2	117.6	
	I [A]	232	226	221	216	210	205	199.6	
	COP [-]	4.19	3.54	2.95	2.44	2.00	1.60	1.26	
	mLP [kg/h]	14899	12511	10412	8575	6972	5580	4375	
	mHP [kg/h]	14899	12511	10412	8575	6972	5580	4375	
	Qac [kW]	--	--	--	--	--	--	--	
	tcu [°C]	50.0	50.0	50.0	50.0	50.0	50.0	50.0	
	pm [bar(a)]	--	--	--	--	--	--	--	
	Qsc [kW]	--	--	--	--	--	--	--	

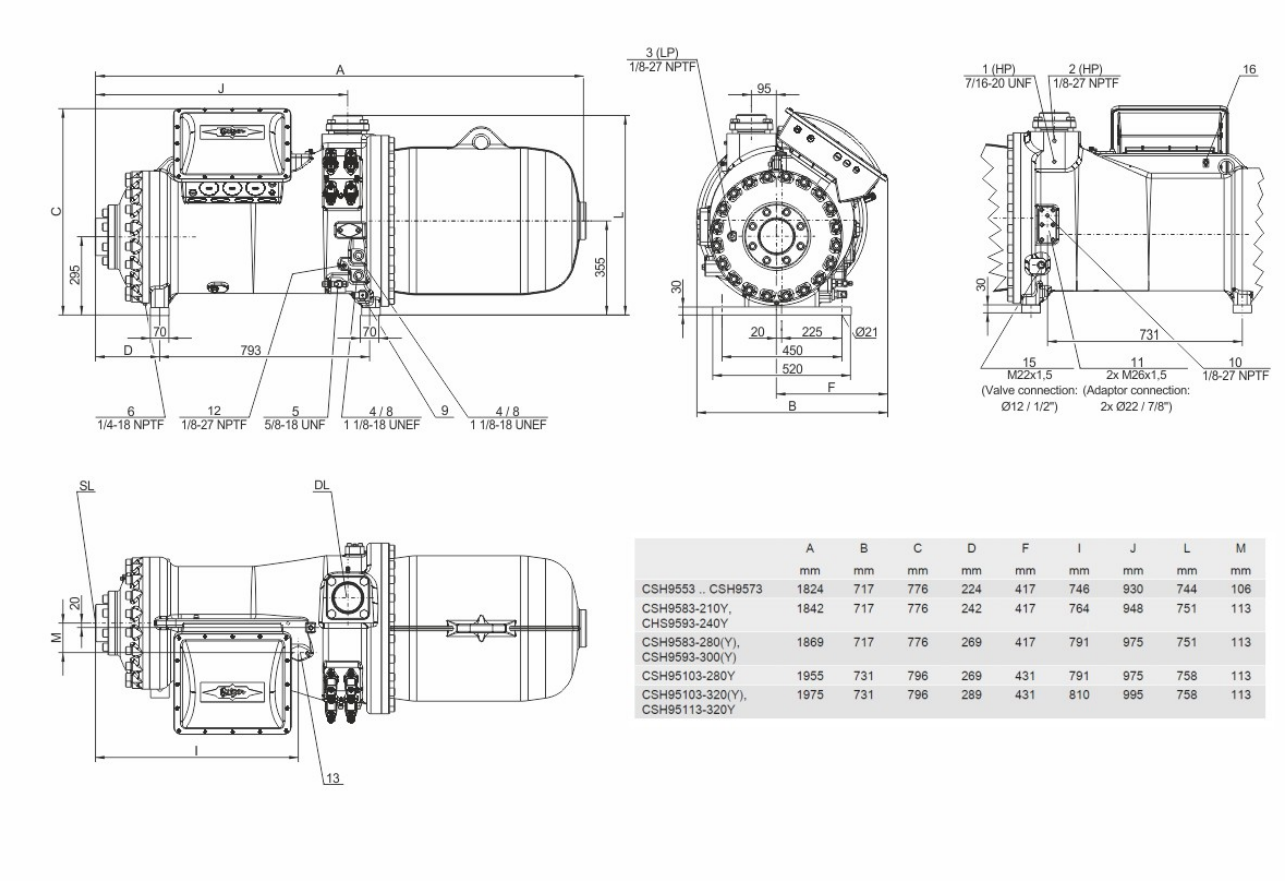
-- No calculation possible (see message in single point selection)
*According to EN12900 (10K suction gas superheat, 0K liquid subcooling, see tech. data/ notes)

Application Limits Standard CSH9583-210


70
60
50
40
30
20
tc [°C]
-20
-10
0
10
20
30
to [°C]
M1
M2
Δtoh=10K
Legend
oil cooling required
additional cooling required
CR ≤75%
CR 100%
CR 75%
CR 50%
CR 25%
M1: motor 1
M2: motor 2
A

Technical Data: CSH9583-210Y

Dimensions and Connections



	A	B	C	D	F	I	J	L	M
	mm	mm	mm	mm	mm	mm	mm	mm	mm
CSH9553 .. CSH9573	1824	717	776	224	417	746	930	744	106
CSH9583-210Y, CHS9593-240Y	1842	717	776	242	417	764	948	751	113
CSH9583-280(Y), CSH9593-300(Y)	1869	717	776	269	417	791	975	751	113
CSH95103-280Y	1955	731	796	269	431	791	975	758	113
CSH95103-320(Y), CSH95113-320Y	1975	731	796	289	431	810	995	758	113

Technical Data

Technical Data	
Displacement (2900 RPM 50 Hz)	805 m³/h
Displacement (3500 RPM 60 Hz)	972 m³/h
Weight	1350 kg
Max. pressure (LP/HP)	19 / 28 bar
Connection suction line	DN 125
Connection discharge line	DN 100
Oil type R1234yf/R1234ze(E)/R450A/R513A	BSE170 (Standard)
Oil type R134a/R407C/R404A/R507A/R407A/R407F	BSE170 (Standard)
Motor data	
Motor voltage (more on request)	380-415V D-3-50Hz
Max operating current	320.0 A
Starting current (Rotor locked)	586.0 A Y / 1853.0 A D
Max. Power input	204.0 kW
Extent of delivery (Standard)	
Enclosure class	IP54
Oil heater	300 W (Standard)
Oil separator	Standard
Oil filter	Standard
Discharge gas temperature sensor	Standard
Start unloading	Standard
Capacity Control - 4-step	100-75-50-25% (Standard)
Capacity Control - infinite	100-25% (Standard)
Built-in check valve	Standard
Motor protection	SE-E1 (Standard), SE-E3(Standard for 660-690V)
Oil charge	30,0 dm³
Available Options	
Oil level switch	min / max OLC-D1-S (Option)
Discharge shut-off valve	Option
Suction shut-off valve	Option

Shut-off valve for ECO with muffler	Option
Liquid injection with integrated nozzle	Option
Bridges for DOL start	Option
with sound jacket	Option
Vibration dampers	Option
Motor protection	SE-i1 (200-690V)

Compact Screw Compressors CS

Reference points for evaporating and condensing pressures

Connection positions 1 (HP) and 3 (LP) on the compressor (see dimensions). The pressure drop for shut-off valves and check valves has not been taken into consideration. This is the worldwide state of the art for compact screws, as in factory-produced chillers shut-off valves are often omitted and the check valve can also be arranged as an external com-ponent in the discharge line. For the sake of the international comparability of performance data, this standard has been adopted for the screw compressors of the CSH/CSW/CSVH series.

ASERCOM certified performance data

The Association of European Refrigeration Component Manufacturers has implemented a procedure of certifying performance data. The high standard of these certifications is assured by:

* plausibility tests of the data performed by experts.

* regular measurements at independent institutes.

These high efforts result in the fact that only a limited number of compressors can be submitted. Due to this not all BITZER compressors are certified up to now.Performance data of compressors which fulfil the strict requirements may carry the label ""ASERCOM certified"". In this software you will find the label at the respective compressors on the right side below the field ""result"" or in the print out of the performance data. All certified compressors and further information are listed on the homepage of ASERCOM.

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

1 High pressure connection (HP)
2 Additional high pressure connection
3 Low pressure connection (LP)
4 Oil sight glass
5 Oil valve for maitenance (standard) / connection for oil equalisation (parallel operation)
6 Oil drain plug (motor housing)
7 CSH only, except CSH6583, CSH6593, CSH95103 and CSH95113: Connection for electro-mechanical oil level switch in case of replacing a CSH.1 by a CSH.3
8 Connection for opto-electronical oil level switch (OLC-D1-S) CSVH: integrated into FI control
CS.105: connected to monitoring module
9 Oil heater with sleeve (standard) CSVH: integrated into FI control
CS.105: connected to monitoring module
10 Oil pressure connection
11 External oil cooler connections (adaptor optional)
11a outlet to oil cooler
11b inlet / return from oil cooler
12 Oil temperature sensor (PTC) CSVH: integrated into FI control
CS.105: connected to monitoring module
13 Economiser connection (ECO) (shut-off valve optional CSH: with pulsation muffler)
14 Threaded bore for pipe support
CS.L line for ECO or LI
CSVH:
14a line for ECO
14b line for FI cooling
15 Liquid injection connection (LI) (CSH: shut-off valve optional)
16 Earth screw for housing
17 Connection for oil and gas return (for systems with flooded evaporator adaptor optional)
18 Oil filter (maitenance connection)
19 FI cooling (liquid refrigerant)
20 Frequency inverter (FI)
21 Oil injection valve (internal)
24 Gas permeable plug
SL Suction gas line
DL Discharge gas line
Dimensions can show tolerances according to EN ISO 13920-B.