

Selection: Semi-hermetic Reciprocating Compressors

Input Values

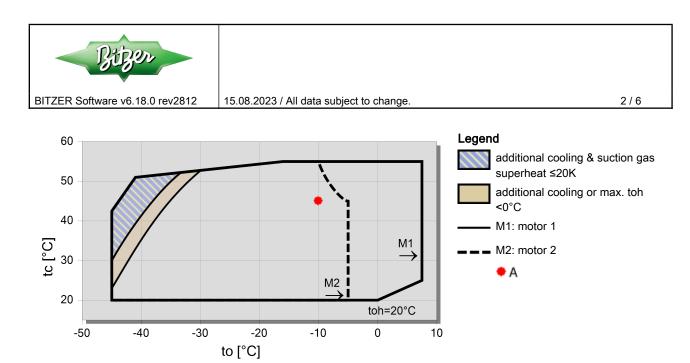
Compressor model Mode		(4G-30.2Y) Refrigeration and Air conditioning	Suction gas temperature Operating mode		20,00 °C Auto
Refrigerant Reference temperature Liq. subc. (in condenser) Result		R404A Dew point temp. 0 K	Power supply Capacity control Useful superheat		400V-3-50Hz 100% 100%
Q [W] Qu* [W] P [kW] I [A] Qc [W]	Cooling capacity Evaporator capacity Power input Current Condenser capacity		COP [-] m [kg/h] Op. th [°C]	COP/EER Mass flow Operating mode Discharge gas temp.	w/o cooling

tc	to	0°C	-5°C	-10°C	-15°C	-20°C	-25°C	-30°C	-35°C
30°C	Q [W]	79895	66541	54949	44910	36247	28803	22442	17038
	Qu* [W]	79895	66541	54949	44910	36247	28803	22442	17038
	P [kW]	18,57	17,81	16,84	15,70	14,41	13,02	11,57	10,09
	I [A]	33,8	32,7	31,3	29,8	28,1	26,3	24,6	23,0
	Qc [W]	98460	84353	71793	60609	50659	41827	34011	27125
	COP [-]	4,30	3,74	3,26	2,86	2,51	2,21	1,94	1,69
	m [kg/h]	2031	1672	1367	1108	888	701	544	411
	Op.	Standard							
	th [°C]	64,3	70,8	77,6	84,8	92,6	101,1	110,8	122,0
40°C	Q [W] Qu* [W]	68555 68555	57021 57021	46974 46974	38246 38246	30693 30693	24187 24187	18612 18612	13864 13864
	P [kW]	21,7	20,4	18,88	17,26	15,56	13,81	12,06	10,33
	I [A]	38,4	36,4	34,2	31,9	29,6	27,3	25,2	23,2
	Qc [W]	90283	77405	65856	55508	46252	37999	30670	24198
	COP [-]	3,16	2,80	2,49	2,22	1,97	1,75	1,54	1,34
	m [kg/h]	1967	1614	1315	1061	844	661	506	375
	Op.	Standard							
	th [°C]	75,2	81,6	88,3	95,5	103,3	112,0	122,1	134,6
50°C	Q [W] Qu* [W]	57089 57089	47384 47384	38898 38898	31508 31508	25100 25100	19576 19576	14843 14843	10815 10815
	P [kW]	24,5	22,6	20,6	18,56	16,50	14,45	12,45	10,54
	I [A]	42,5	39,6	36,7	33,8	30,9	28,1	25,6	23,5
	Qc [W]	81549	69965	59501	50071	41600	34026	27294	21357
	COP [-]	2,33	2,10	1,89	1,70	1,52	1,35	1,19	1,03
	m [kg/h]	1901	1554	1259	1009	797	616	464	337
	Op.	Standard							
	th [°C]	86,1	92,5	99,2	106,5	114,5	123,7	134,9	0

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

*According to EN12900 (20°C suction gas temp., 0K liquid subcooling)

Application Limits 100% 4G-30.2



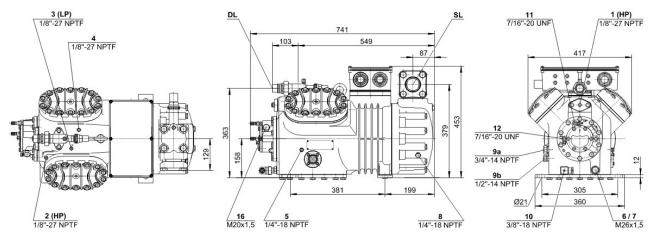


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Technical Data: (4G-30.2Y)

Dimensions and Connections





15.08.2023 / All data subject to change.

Technical Data

Displacement (1450 RPM 50Hz)84,5 m³/hDisplacement (1750 RPM 60Hz)101,98 m³/hNo. of cylinder x bore x stroke4 x 75 mm x 55 mmWeight206 kgMax. pressure (LP/HP)19 / 28 barConnection discharge line28 mm - 2 1/8"Connection discharge line28 mm - 1 1/8"Connection cooling waterR 3/4"Oil type R134a/R407C/R404A/R507A/R407AEx55°C: BSE32 tc>55°C: BSE55 (Option)Oil type R290/R1270B5.2 (Standard)Oil type R290/R1270SHC226E (Standard)Motor voltage (more on request)380-420V PW-3-50HzMax. operating current53.0 AWinding ratio50/50Starting current (Rotor locked)135.0 A Y / 220.0 A YYMax. Power input30,1 kWExtent of delivery (Standard)ES-B2ConcloudingSE-B2ConcloudingStandardOil charge4,50 dm³Available OptionsStandardOil chargeOptionAvailable OptionsOptionCapacity control0ptionCapacity control0ptionAvailable OptionsOptionCapacity controlOptionOptionOptionOil service valveOptionOption Piessure monitoringMP54 (Option), belta-PII (Option, not for R290/R1270)Sound power level (+10°C/ 45°C)81,0 dB(A) @ 50HzSound power level (+10°C/ 45°C)81,0 dB(A) @ 50HzSound power level (+10°C/ 45°C)81,0 dB(A) @ 50HzSound power level (+10°C/ 45°C)81,0 d	Technical Data	
No. of cylinder x bore x stroke 4 x 75 mm x 55 mm Weight 206 kg Max. pressure (LP/HP) 19 / 28 bar Connection suction line 54 mm - 2 1/8" Connection cooling water R 3/4" Connection cooling water R 3/4" Oil type R134a/R407C/R404A/R507A/R407F tc<55°C: BSE32 tc>55°C: BSE55 (Option) Oil type R290/R1270 B52. (Standard) Oil type R290/R1270 SHC226E (Standard) Motor data	Displacement (1450 RPM 50Hz)	84,5 m³/h
Weight 206 kg Max. pressure (LP/HP) 19 / 28 bar Connection suction line 54 mm - 2 1/8" Connection socharge line 28 mm - 1 1/8" Connection cooling water R 3/4" Oil type R134/a/R407C/R404A/R507A/R407A/R407F tc<55°C: BSE32 tc>55°C: BSE55 (Option) Oil type R22 (R12/R502) B5.2 (Standard) Oil type R290/R1270 BHC226E (Standard) Motor data Max operating current 53.0 A Winding ratio 50/50 Starting current (Rotor locked) 135.0 A Y / 220.0 A YY Max. Power input 30.1 kW Extent of delivery (Standard) Extent of delivery (Standard) Vibration dampers Standard Option Standard Option Capacity control Additional fan Option Capacity control Option Additional fan Option Oil service valve Option Capacity control 00-50% (Option) Additional fan Option Oil service valve Option <t< td=""><td>Displacement (1750 RPM 60Hz)</td><td>101,98 m³/h</td></t<>	Displacement (1750 RPM 60Hz)	101,98 m³/h
Max.pressure (LP/HP)19 / 28 barConnection suction line54 mm - 2 1/8"Connection discharge line28 mm - 1 1/8"Connection cooling waterR 3/4"Oil type R134a/R407C/R404A/R507A/R407A/R407Ftc<55°C: BSE32 tc>55°C: BSE55 (Option)Oil type R22 (R12/R502)B5.2 (Standard)Oil type R290/R1270SHC20E6 (Standard)Motor dat $Motor dat$ Max operating current53.0 AWinding ratio50/50Starting current (Rotor locked)135.0 A Y / 220.0 A YYMax. Power input30,1 kWExtent of delivery (Standard)Wibrarding current (Rotor locked)SE-B2Enclosure classIP54 (Standard), IP66 (Option)Vibration dampersStandardOil charge4,50 dm³Available OptionStart un locatingCapacity control100-50% (Option)Additional fanOptionVibration afanOptionOil service valveOptionOil service v	No. of cylinder x bore x stroke	4 x 75 mm x 55 mm
Connection suction line $54 \text{ mm} - 2 1/8"$ Connection discharge line $28 \text{ mm} - 1 1/8"$ Connection cooling waterR $3/4"$ Oil type R134a/R407C/R404A/R507A/R407A/R407Ftc<55°C: BSE32 tc>55°C: BSE55 (Option)Oil type R22 (R12/R502)B5.2 (Standard)Oil type R290/R1270SHC226E (Standard)Motor data V Motor voltage (more on request) $380-420V$ PW-3-50HzMax operating current 53.0 AWinding ratio $50/50$ Starting current (Rotor locked) 135.0 A Y / 220.0 A YYMax. Power input 30.1 kWExtent of delivery (Standard) V Wotor voltage age temperature sensorSE-B2Enclosure classIP54 (Standard), IP66 (Option)Vibration dampersStandardOil charge 450 dm^3 Available Options V Start unloadingOptionCapacity control $100-50\%$ (Option)Additional fanOptionOil service valveOptionOil service valveOptionOur densurement140	Weight	206 kg
Connection discharge line $28 \text{ mm} - 1 1/8"$ Connection cooling waterR $3/4"$ Oil type R134a/R407C/R404A/R507A/R407A/R407Ftc<55°C: BSE32 tc>55°C: BSE55 (Option)Oil type R220 (R12/R502)B5.2 (Standard)Oil type R290/R1270SHC22EE (Standard)Motor data M Motor voltage (more on request) $380-420V$ PW-3-50HzMax operating current 53.0 A Vinding ratio $50/50$ Starting current (Rotor locked) $135.0 \text{ A Y} / 220.0 \text{ A YY}$ Max. Power input $30,1 \text{ kW}$ Extent of delivery (Standard)ESE-82Enclosure classIP54 (Standard), IP66 (Option)Vibration dampersStandardOil typage as temperature sensorOptionStart unloadingOptionCapacity control100-50% (Option)Additional fanOptionWater-cooled cylinder headsOptionOil service valveOptionOil service valveOptionOil service valveOptionOrankcase heater140 W (Option)Oil pressure monitoringMP54 (Option), Delta-PII (Option, not for R290/R1270)Sound power level (+5°C / 50°C) $81,5 dB(A) @ 50Hz$ Sound power level (-10°C / 45°C) $81,0 dB(A) @ 50Hz$	Max. pressure (LP/HP)	19 / 28 bar
Connection cooling waterR $3/4"$ Oil type R134a/R407C/R404A/R507A/R407Ftc<55°C: BSE32 tc>55°C: BSE55 (Option)Oil type R220/R12/R502)B5.2 (Standard)Oil type R290/R1270SHC226E (Standard)Motor data $380-420V$ PW-3-50HzMax operating current 53.0 AWinding ratio $50/50$ Starting current (Rotor locked) 135.0 A Y / 220.0 A YYMax. Power input $30,1$ kWExtent of delivery (Standard)Motor yotage (more on request) $36.420V$ PW-3-50HzMax. Power input $30,1$ kWExtent of delivery (Standard)Motor protectionSE-B2Enclosure classIP54 (Standard), IP66 (Option)Vibration dampersStandardOil charge $4,50$ dm³Available OptionsUDischarge gas temperature sensorOptionStart unloadingOptionCapacity control100-50% (Option)Additional fanOptionOil service valveOptionOil service valveOptionOil service valveOptionOil service valveOptionOil service valveSpitonOil service valveOptionOil service valveOptionOil service valveOptionOptionStalLameSound power level (+5°C / 5°C) $81,5$ dB(A) @ 50HzSound power level (-10°C / 45°C) $81,0$ dB(A) @ 50Hz	Connection suction line	54 mm - 2 1/8"
Oil type R134a/R407C/R404A/R507A/R407A/R407Ftc<55°C: BSE32 tc>55°C: BSE55 (Option)Oil type R22 (R12/R502)B5.2 (Standard)Motor Voltage (more on request)S80-420V PW-3-50HzMax operating current53.0 AWinding ratio50/50Statring current (Rotor locked)135.0 A Y / 220.0 A YYMax. Power input30.1 kW Extent of delivery (Standard) Motor voltage (more on request)SE-B2Enclosure classIP54 (Standard), IP66 (Option)Vibration dampersStandardOil chargeA50 dm³Available OptionsOptionCapacity control0ptionAdditional fanOptionVater-cooled cylinder headsOptionOil service valveOptionOil service valveOptionOil service valveOptionOil pressure monitoringMP54 (Option)Sound power level (+5°C / 50°C)81,5 dB(A) @ 50HzSound power level (-10°C / 45°C)81,0 dB(A) @ 50Hz	Connection discharge line	28 mm - 1 1/8"
Oil type R22 (R12/R502)B5.2 (Standard)Motor dataMotor voltage (more on request)380-420V PW-3-50HzMax operating current53.0 AWinding ratio50/50Starting current (Rotor locked)135.0 A Y / 220.0 A YYMax. Power input30,1 kWExtent of delivery (Standard)Motor voltage (more on request)SE-B2Enclosure classIP54 (Standard), IP66 (Option)Vibration dampersStandardOil charge4,50 dm³Available OptionsDischarge gas temperature sensorOptionCapacity controlAdditional fanOptionVater-cooled cylinder headsOptionOil service valveOptionOil service valveOptionOil service valveOptionOil service valveOptionSound measurementMV (Option), Delta-PII (Option, not for R290/R1270)Sound power level (+5°C / 50°C)81,5 dB(A) @ 50HzSound power level (-10°C / 45°C)81,0 dB(A) @ 50Hz	Connection cooling water	R 3/4"
Oil type R290/R1270 SHC226E (Standard) Motor data	Oil type R134a/R407C/R404A/R507A/R407A/R407F	tc<55°C: BSE32 tc>55°C: BSE55 (Option)
Motor dataMotor voltage (more on request)380-420V PW-3-50HzMax operating current53.0 AWinding ratio50/50Starting current (Rotor locked)135.0 A Y / 220.0 A YYMax. Power input30,1 kWExtent of delivery (Standard)Motor protectionSE-B2Enclosure classIP54 (Standard), IP66 (Option)Vibration dampersStandardOil charge4,50 dm³Available OptionsDitionStart unloadingOptionCapacity control100-50% (Option)Additional fanOptionVibret-cooled cylinder headsOptionOil service valveOptionOil service valveOptionOil service valveOptionSund measurement140 W (Option), Delta-PII (Option, not for R290/R1270)Sound power level (+5°C / 50°C)81,5 dB(A) @ 50HzSound power level (-10°C / 45°C)81,0 dB(A) @ 50Hz	Oil type R22 (R12/R502)	B5.2 (Standard)
Motor voltage (more on request)380-420V PW-3-50HzMax operating current53.0 AWinding ratio50/50Starting current (Rotor locked)135.0 A Y / 220.0 A YYMax. Power input30,1 kWExtent of delivery (Standard)Motor protectionSE-B2Enclosure classIP54 (Standard), IP66 (Option)Vibration dampersStandardOil charge4,50 dm³Available OptionsDischarge gas temperature sensorDischarge gas temperature sensorOptionCapacity control100-50% (Option)Additional fanOptionWater-cooled cylinder headsOptionOil service valveOptionOil service valveOptionOil service valveOptionOil service valveNotonOtionStandardOil pressure monitoringMP54 (Option), Delta-PII (Option, not for R290/R1270)Sound power level (+5°C / 50°C)81,5 dB(A) @ 50HzSound power level (-10°C / 45°C)81,0 dB(A) @ 50Hz	Oil type R290/R1270	SHC226E (Standard)
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Starting current (Rotor locked)135.0 A Y / 220.0 A YYMax. Power input30,1 kWExtent of delivery (Standard)Motor protectionSE-B2Enclosure classIP54 (Standard), IP66 (Option)Vibration dampersStandardOil charge4,50 dm³Available OptionsDischarge gas temperature sensorDischarge gas temperature sensorOptionStart unloadingOptionCapacity control100-50% (Option)Additional fanOptionWater-cooled cylinder headsOptionOil service valveOptionOil pressure monitoringMP54 (Option), Delta-PII (Option, not for R290/R1270)Sound measurementStand GB(A) @ 50HzSound power level (+5°C / 50°C)81,5 dB(A) @ 50HzSound power level (-10°C / 45°C)81,0 dB(A) @ 50Hz	Max operating current	53.0 A
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Motor protectionSE-B2Enclosure classIP54 (Standard), IP66 (Option)Vibration dampersStandardOil charge4,50 dm³Available OptionsDischarge gas temperature sensorDischarge gas temperature sensorOptionStart unloadingOptionCapacity control100-50% (Option)Additional fanOptionWater-cooled cylinder headsOptionOil service valveOptionOil service valveOptionOil pressure monitoringMP54 (Option), Delta-PII (Option, not for R290/R1270)Sound measurementStandard (Option)Sound power level (+5°C / 50°C)81,5 dB(A) @ 50HzSound power level (-10°C / 45°C)81,0 dB(A) @ 50Hz	Max. Power input	30,1 kW
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Water-cooled cylinder headsÓptionOil service valveOptionCrankcase heater140 W (Option)Oil pressure monitoringMP54 (Option), Delta-PII (Option, not for R290/R1270)Sound measurementSound power level (+5°C / 50°C)Sound power level (-10°C / 45°C)81,5 dB(A) @ 50HzSound power level (-10°C / 45°C)81,0 dB(A) @ 50Hz	Capacity control	100-50% (Option)
Oil service valveOptionCrankcase heater140 W (Option)Oil pressure monitoringMP54 (Option), Delta-PII (Option, not for R290/R1270)Sound measurementSound power level (+5°C / 50°C)Sound power level (+5°C / 50°C)81,5 dB(A) @ 50HzSound power level (-10°C / 45°C)81,0 dB(A) @ 50Hz	Additional fan	Option
Crankcase heater140 W (Option)Oil pressure monitoringMP54 (Option), Delta-PII (Option, not for R290/R1270)Sound measurementSound power level (+5°C / 50°C)Sound power level (-10°C / 45°C)81,5 dB(A) @ 50HzSound power level (-10°C / 45°C)81,0 dB(A) @ 50Hz	Water-cooled cylinder heads	Option
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Sound measurement Sound power level (+5°C / 50°C) 81,5 dB(A) @ 50Hz Sound power level (-10°C / 45°C) 81,0 dB(A) @ 50Hz	Crankcase heater	140 W (Option)
Sound power level (+5°C / 50°C) 81,5 dB(A) @ 50Hz Sound power level (-10°C / 45°C) 81,0 dB(A) @ 50Hz	Oil pressure monitoring	MP54 (Option), Delta-PII (Option, not for R290/R1270)
Sound power level (-10°C / 45°C) 81,0 dB(A) @ 50Hz		
	Sound power level (-35°C / 40°C)	(86,5) dB(A) @ 50Hz
Sound pressure level @ 1m (+5°C / 50°C) 73,5 dB(A) @ 50Hz		
Sound pressure level @ 1m (-10°C / 45°C) 73,0 dB(A) @ 50Hz		
Sound pressure level @ 1m (-35°C / 40°C) (78,5) dB(A) @ 50Hz	Sound pressure level @ 1m (-35°C / 40°C)	(78,5) dB(A) @ 50Hz

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Semi-hermetic Reciprocating Compressors

Motor 1 = e.g. 4TES-12 with 12"HP", primary for air-conditioning (e.g. R22,R407C) and air-conditioning with R134a at high ambient temperatures.

Motor 2 = e.g. 4TES-9 with 8"HP", universal Motor for medium and low temperature application (e.g. R404A, R507A, R407A, R407F) and air-conditioning with R134a

Motor 3 = e.g. 4TES-8, for medium temperature applications and R134a

For more information concerning the application range use the "Limits" button.

Operation modes 4VES-7 to 6FE-44 and 44JE-30 to 66FE-88 with R407F/R407A/R22

CIC = liquid injection with low temperature application, suction gas cooled motor.

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 compresors are certified until 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.

Condensing capacity

The condensing capacity can be calculated with or without heat rejection. This option can be set in the menu Program
Options. The heat rejection is constantly 5% of the power consumption. The condensing capacity is to be found in the line Condensing cap. (with HR) resp. Condensing capacity.

Data for sound emission

Data based on 50 HZ apllication (IP-units 60 Hz) and R404A if not declared. Sound pressure level: values based on free field area conditions with hemisperhical sound emission in 1 meter distance.

General remarks regarding sound data

Listed sound data were measured under testing conditions in our laboratory. For this purpose the free-standing test sample is mounted on a solid foundation plate and the pipework is connected vibration-free to the largest extend possible. Suction and discharge lines are fixed in a flexible configuration, such that a transmission of vibrations to the environment can be largely excluded. In real installations considerable differences might be observed, compared to the measurements in the laboratory. The airborne sound emitted by the compressor can be reflected from surfaces of the system and this may increase the airborne sound level measured close to the compressor. Vibrations caused by the compressor are also transferred to the system by the compressor feet and piping depending on the damping ratio of the fixings. Thus, the vibrations can induce other components to such an extent that these components contribute to an increase in airborne sound emission. If required, the transfer of vibrations to the system can be minimized by suitable fixing and damping elements.

Legend of connection positions according to "Dimensions":

1 High pressure connection (HP)
2 Connection for discharge gas temperature sensor (HP) (for 4VE(S)-6Y .. 4NE(S)-20(Y) connection for CIC sensor as alternative)
3 Low pressure connection (LP)
4 CIC system: injection nozzle (LP)
4b Connection for CIC sensor
4c Connection for CIC sensor (MP / operation with liquid subcooler)
5 Oil fill plug
6 Oil drain
7 Oil filter (magnetic screw)
8 Oil return (oil separator)
8* Oil return with NH3 and insoluble oil
9 Connection for oil and gas equalization (parallel operation)
9a Connection for gas equalization (parallel operation)



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9b Connection for oil equalization (parallel operation)

- 10 Oil heater connection
- 11 Oil pressure connection +
- 12 Oil pressure connection -
- 13 Cooling water connection
- 14 Intermediate pressure connection (MP)
- 15 Liquid injection (operation without liquid subcooler and with thermostatic expansion valve)
- 16 Connection for oil monitoring (opto-electrical oil monitoring "OLC-K1" or differential oil pressure switch "Delta-PII")
- 17 Refrigerant inlet at liquid subcooler
- 18 Referigerant outlet at liquid subcooler
- 19 Clamp space
- 20 Terminal plate
- 21 Maintenance connection for oil valve
- 22 Pressure relief valve to the atmosphere (discharge side)
- 23 Pressure relief valve to the atmosphere (suction side)
- 24 IQ MODULE
- SL Suction gas line
- DL Discharge gas line

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