



### Selection: Semi-hermetic Reciprocating Compressors

#### Input Values

Compressor model Mode	6FE-50Y Refrigeration and Air conditioning	Suction gas temperature Operating mode	20,00 °C Auto
Refrigerant	R404A	Power supply	400V-3-50Hz
Reference temperature	Dew point temp.	Capacity Control	100%
Liq. subc. (in condenser)	0 K	Useful superheat	100%

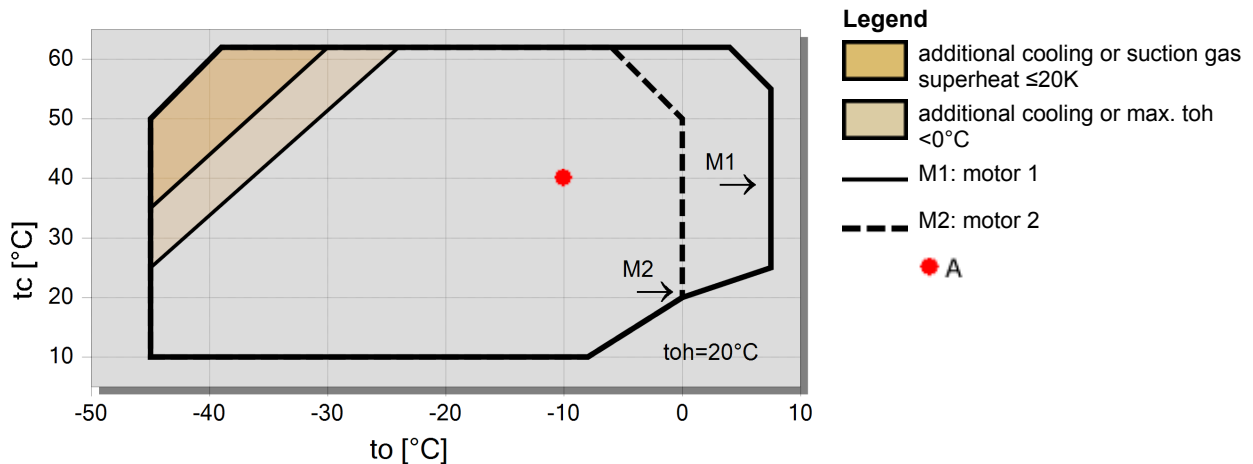
#### Result

Q [W]	Cooling capacity	COP [ - ]	COP/EER
Qu* [W]	Evaporator capacity	m [kg/h]	Mass flow
P [kW]	Power input	Op.	Operating mode
I [A]	Current	th [°C]	Discharge gas temp. w/o cooling
Qc [W]	Condenser Capacity		

tc	to	10°C	5°C	0°C	-5°C	-10°C	-15°C	-20°C	-25°C
30°C	Q [W]	--	174546	146404	121978	100798	82481	66699	53168
	Qu* [W]	--	174546	146404	121978	100798	82481	66699	53168
	P [kW]	--	33,4	32,6	31,3	29,6	27,6	25,4	22,9
	I [A]	--	70,8	69,8	68,2	66,1	63,5	60,5	57,2
	Qc [W]	--	207959	178992	153282	130427	110112	92075	76100
	COP [ - ]	--	5,22	4,49	3,90	3,40	2,99	2,63	2,32
	m [kg/h]	--	4500	3721	3064	2507	2035	1634	1295
	Op.	--	Standard	Standard	Standard	Standard	Standard	Standard	Standard
	th [°C]	--	57,0	63,0	69,3	75,9	82,8	90,2	98,3
40°C	Q [W]	--	148531	124645	103817	85683	69941	56329	44617
	Qu* [W]	--	148531	124645	103817	85683	69941	56329	44617
	P [kW]	--	39,6	37,8	35,7	33,2	30,4	27,5	24,4
	I [A]	--	77,8	75,9	73,4	70,5	67,1	63,3	59,1
	Qc [W]	--	188090	162449	139467	118847	100354	83792	68996
	COP [ - ]	--	3,75	3,30	2,91	2,58	2,30	2,05	1,83
	m [kg/h]	--	4329	3576	2939	2399	1940	1550	1219
	Op.	--	Standard	Standard	Standard	Standard	Standard	Standard	Standard
	th [°C]	--	67,6	73,7	80,1	86,6	93,6	101,0	109,1
50°C	Q [W]	--	121712	102228	85124	70144	57068	45700	35864
	Qu* [W]	--	121712	102228	85124	70144	57068	45700	35864
	P [kW]	--	44,8	42,1	39,2	35,9	32,4	28,8	25,1
	I [A]	--	83,5	80,6	77,4	73,7	69,6	65,1	60,1
	Qc [W]	--	166513	144378	124285	106043	89498	74518	60991
	COP [ - ]	--	2,72	2,43	2,17	1,95	1,76	1,59	1,43
	m [kg/h]	--	4129	3405	2792	2271	1828	1450	1129
	Op.	--	Standard	Standard	Standard	Standard	Standard	Standard	Standard
	th [°C]	--	78,7	84,7	91,0	97,5	104,5	111,9	120,0

-- No calculation possible (see message in single point selection)  
 \*According to EN12900 (20°C suction gas temp., 0K liquid subcooling)

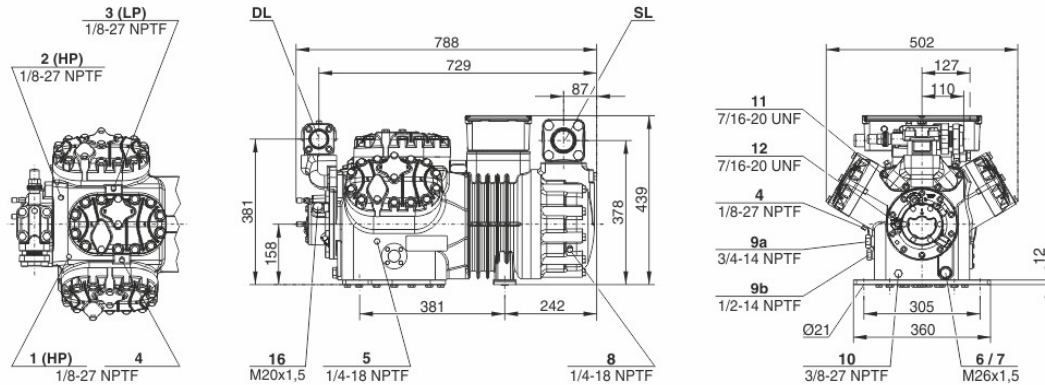
#### Application Limits 100% 6FE-50





## Technical Data: 6FE-50Y

### Dimensions and Connections



### Technical Data

#### Technical Data

Displacement (1450 RPM 50Hz)	151,6 m³/h
Displacement (1750 RPM 60Hz)	183,07 m³/h
No. of cylinder x bore x stroke	6 x 82 mm x 55 mm
Weight	241 kg
Max. pressure (LP/HP)	19 / 32 bar
Connection suction line	54 mm - 2 1/8"
Connection discharge line	42 mm - 1 5/8"
Oil type R134a/R407C/R404A/R507A/R407A/R407F	BSE32(Standard) / R134a tc>70°C: BSE55 (Option)
Oil type R22 (R12/R502)	B5.2(Option)

#### Motor data

Motor version	1
Motor voltage (more on request)	380-400V PW-3-50Hz
Max operating current	96.2 A
Winding ratio	50/50
Starting current (Rotor locked)	226.0 A Y / 404.0 A YY
Max. Power input	51.0 kW

#### Extent of delivery (Standard)

Motor protection	SE-B2, CM-RC-01(Option)
Enclosure class	IP54 (Standard), IP66 (Option)
Vibration dampers	Standard
Oil charge	4,75 dm³

#### Available Options

Discharge gas temperature sensor	Option
Start unloading	Option
Capacity control	100-66-33% (Option)
Capacity Control - infinite	100-10% (Option)
Additional fan	Option
Oil service valve	Option
Crankcase heater	140 W (Option)
Oil pressure monitoring	MP54 (Option), Delta-PII

#### Sound measurement

Sound power level (+5°C / 50°C)	83,9 dB(A) @50Hz
Sound power level (-10°C / 45°C)	82,8 dB(A) @50Hz
Sound power level (-35°C / 40°C)	90,5 dB(A) @50Hz
Sound pressure level @ 1m (+5°C / 50°C)	75,9 dB(A) @50Hz
Sound pressure level @ 1m (-10°C / 45°C)	74,8 dB(A) @50Hz
Sound pressure level @ 1m (-35°C / 40°C)	82,5 dB(A) @50Hz
Sound power level (+5°C / 50°C) R134a	81,9 dB(A) @50Hz
Sound power level (-10°C / 45°C) R134a	80,8 dB(A) @50Hz
Sound pressure level @ 1m (+5°C / 50°C) R134a	73,9 dB(A) @50Hz
Sound pressure level @ 1m (-10°C / 45°C) R134a	72,8 dB(A) @50Hz



## 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 compressors 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 application (IP-units 60 Hz) and R404A if not declared.

Sound pressure level: values based on free field area conditions with hemispherical 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 extent 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)
- 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")



### Compressor Selection: Semi-hermetic Reciprocating Compressors

#### Input Values

Compressor model Mode	(6F-50.2Y) Refrigeration and Air conditioning	Suction gas temperature Operating mode	20,00 °C Auto
Refrigerant	R404A	Power supply	400V-3-50Hz
Reference temperature	Dew point temp.	Capacity Control	100%
Liq. subc. (in condenser)	0 K	Useful superheat	100%

#### Result

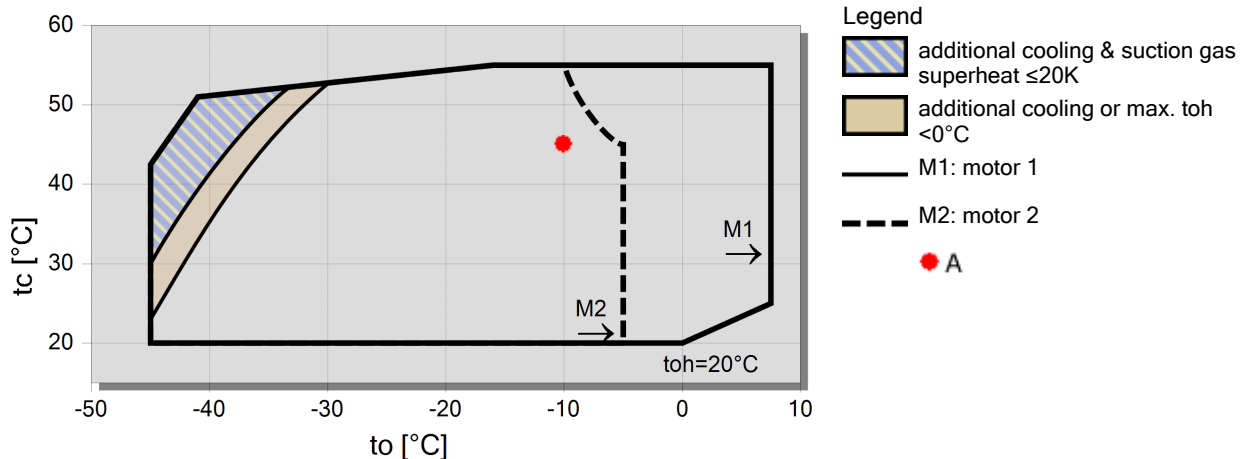
Q [W]	Cooling capacity	COP [-]	COP/EER
Q* [W]	Cooling capacity *	COP* [-]	COP/EER *
P [kW]	Power input	m [kg/h]	Mass flow
I [A]	Current	Op.	Operating mode
Qc [W]	Condenser Capacity	th [°C]	Discharge gas temp. w/o cooling

tc	to	5°C	0°C	-5°C	-10°C	-15°C	-20°C	-25°C	-30°C
30°C	Q [W]	169297	142143	118566	98113	80413	65152	52055	40878
	Q* [W]	169297	142143	118566	98113	80413	65152	52055	40878
	P [kW]	35,8	34,5	32,9	30,9	28,8	26,4	23,9	21,4
	I [A]	73,6	72,1	70,1	67,8	65,0	61,9	58,5	55,0
	Qc [W]	205054	176632	151434	129059	109195	91580	75997	62255
	COP [-]	4,73	4,12	3,61	3,17	2,79	2,47	2,17	1,91
	COP* [-]	4,73	4,12	3,61	3,17	2,79	2,47	2,17	1,91
	m [kg/h]	4364	3613	2979	2440	1984	1596	1267	990
	Op.	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
	th [°C]	59,4	65,6	72,0	78,7	85,9	93,7	102,2	111,8
40°C	Q [W]	144992	121655	101314	83614	68260	54994	43592	33850
	Q* [W]	144992	121655	101314	83614	68260	54994	43592	33850
	P [kW]	42,1	39,8	37,2	34,4	31,5	28,4	25,3	22,2
	I [A]	80,6	78,1	75,2	72,0	68,4	64,5	60,3	56,1
	Qc [W]	187084	161446	138531	118036	99723	83390	68866	56002
	COP [-]	3,44	3,06	2,72	2,43	2,17	1,94	1,72	1,53
	COP* [-]	3,44	3,06	2,72	2,43	2,17	1,94	1,72	1,53
	m [kg/h]	4226	3490	2868	2341	1893	1513	1191	920
	Op.	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
	th [°C]	70,2	76,3	82,7	89,4	96,6	104,4	113,0	122,9
50°C	Q [W]	120229	100799	83780	68915	55985	44794	35165	26936
	Q* [W]	120229	100799	83780	68915	55985	44794	35165	26936
	P [kW]	48,2	44,8	41,3	37,6	33,8	30,0	26,2	22,5
	I [A]	87,4	83,6	79,7	75,6	71,3	66,6	61,6	56,6
	Qc [W]	168433	145645	125073	106515	89807	74809	61398	49467
	COP [-]	2,49	2,25	2,03	1,83	1,66	1,49	1,34	1,20
	COP* [-]	2,49	2,25	2,03	1,83	1,66	1,49	1,34	1,20
	m [kg/h]	4079	3357	2748	2231	1793	1422	1107	843
	Op.	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
	th [°C]	81,5	87,6	94,0	100,7	107,9	115,8	124,5	134,6

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

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

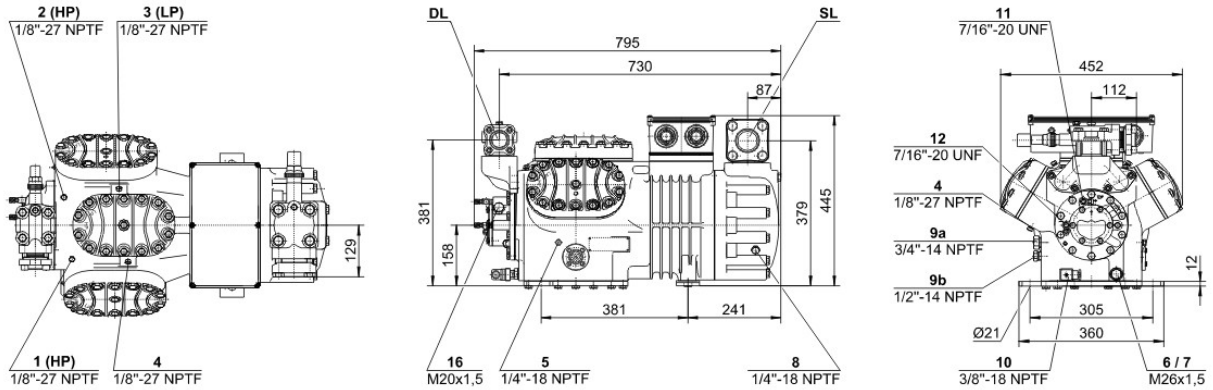
#### Application Limits 100%





## Technical Data: (6F-50.2Y)

### Dimensions and Connections



### Technical Data

#### Technical Data

Displacement (1450 RPM 50Hz)	151,6 m <sup>3</sup> /h
Displacement (1750 RPM 60Hz)	183,07 m <sup>3</sup> /h
No. of cylinder x bore x stroke	6 x 82 mm x 55 mm
Weight	241 kg
Max. pressure (LP/HP)	19 / 28 bar
Connection suction line	54 mm - 2 1/8"
Connection discharge line	42 mm - 1 5/8"
Connection cooling water	R 3/4"
Oil type R134a/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	SHC226E (Standard)

#### Motor data

Motor voltage (more on request)	380-400V PW-3-50Hz
Max operating current	92.0 A
Winding ratio	50/50
Starting current (Rotor locked)	226.0 A Y / 404.0 A YY
Max. Power input	53,2 kW

#### Extent of delivery (Standard)

Motor protection	SE-B2
Enclosure class	IP54 (Standard), IP66 (Option)
Vibration dampers	Standard
Oil charge	4,75 dm <sup>3</sup>

#### Available Options

Discharge gas temperature sensor	Option
Start unloading	Option
Capacity control	100-66-33% (Option)
Additional fan	Option
Water-cooled cylinder heads	Option
Oil service valve	Option
Crankcase heater	140 W (Option)
Oil pressure monitoring	MP54 (Option), Delta-PII (Option, not for R290/R1270)

#### Sound measurement

Sound power level (+5°C / 50°C)	84,0 dB(A) @ 50Hz
Sound power level (-10°C / 45°C)	83,0 dB(A) @ 50Hz
Sound power level (-35°C / 40°C)	(91,5) dB(A) @ 50Hz
Sound pressure level @ 1m (+5°C / 50°C)	76,0 dB(A) @ 50Hz
Sound pressure level @ 1m (-10°C / 45°C)	75,0 dB(A) @ 50Hz
Sound pressure level @ 1m (-35°C / 40°C)	(83,5) dB(A) @ 50Hz