

**Type: Hermetic scroll compressors**

**Producer: Copeland**

**Series: ZB**

## **Model: ZB38KCE-TFD**

### **Technical data**

Displacement [m <sup>3</sup> /h]:	14,4
Sound power [dBA]:	72
Sound pressure level [dB]:	61
Net Weight [kg]:	37,4
Oil charge [dm <sup>3</sup> ]:	1,9
Maximum high pressure [bar]:	28,8
Maximum standstill pressure [bar]:	21
Minimal lowside temperature [°C]:	-35
Maximum lowside temperature [°C]:	50
PED category:	1

### **Electrical data**

Power supply [V/~ /Hz]:	380-420V/3/50Hz
Locked rotor current [A]:	65,5
Max. operating current [A]:	12,8
Winding resistance [Ω]:	2,7

### **Connections**

	<u>inches</u>
Suction Rotolock valve connection:	1 1/4"
Discharge Rotolock valve connection:	1"
Suction connection with supplied sleeve:	7/8"
Discharge connection with supplied sleeve:	1/2"

R134a

**Cooling capacity [kW]**

<b>t<sub>c</sub> \ t<sub>e</sub></b>	<b>-20</b>	<b>-15</b>	<b>-10</b>	<b>-5</b>	<b>0</b>	<b>5</b>	<b>10</b>	<b>15</b>
<b>30</b>	3.61	4.70	5.94	7.39	9.08	11.05	13.34	-
<b>35</b>	3.38	4.44	5.65	7.04	8.65	10.53	12.72	-
<b>40</b>	3.17	4.20	5.36	6.69	8.22	10.01	12.09	14.49
<b>45</b>	-	3.95	5.06	6.33	7.79	9.48	11.45	13.73
<b>50</b>	-	3.71	4.77	5.97	7.35	8.94	10.79	12.95
<b>55</b>	-	-	4.47	5.60	6.89	8.39	10.12	12.14
<b>60</b>	-	-	-	5.21	6.42	7.81	9.43	11.32
<b>65</b>	-	-	-	4.82	5.93	7.22	8.72	10.47
<b>70</b>	-	-	-	-	5.42	6.60	7.98	9.59
<b>75</b>	-	-	-	-	4.89	5.96	7.21	8.68

**Power input [kW]**

<b>t<sub>c</sub> \ t<sub>e</sub></b>	<b>-20</b>	<b>-15</b>	<b>-10</b>	<b>-5</b>	<b>0</b>	<b>5</b>	<b>10</b>	<b>15</b>
<b>30</b>	1.67	1.71	1.73	1.75	1.76	1.78	1.80	-
<b>35</b>	1.86	1.90	1.93	1.95	1.96	1.98	2.01	-
<b>40</b>	2.07	2.11	2.14	2.16	2.18	2.20	2.24	2.28
<b>45</b>	-	2.35	2.38	2.40	2.42	2.45	2.48	2.53
<b>50</b>	-	2.62	2.65	2.67	2.69	2.71	2.75	2.79
<b>55</b>	-	-	2.96	2.98	2.99	3.01	3.05	3.09
<b>60</b>	-	-	-	3.32	3.34	3.35	3.38	3.42
<b>65</b>	-	-	-	3.72	3.73	3.74	3.76	3.80
<b>70</b>	-	-	-	-	4.17	4.17	4.19	4.22
<b>75</b>	-	-	-	-	4.67	4.66	4.67	4.70

**Current [A]**

$t_c \setminus t_e$	-20	-15	-10	-5	0	5	10	15
30	5.05	5.10	5.12	5.13	5.12	5.12	5.13	-
35	5.08	5.15	5.19	5.20	5.21	5.21	5.22	-
40	5.18	5.27	5.33	5.36	5.37	5.38	5.39	5.43
45	-	5.48	5.55	5.59	5.61	5.62	5.64	5.67
50	-	5.75	5.84	5.89	5.92	5.94	5.96	5.99
55	-	-	6.20	6.26	6.30	6.33	6.35	6.38
60	-	-	-	6.70	6.75	6.78	6.81	6.84
65	-	-	-	7.21	7.27	7.30	7.33	7.36
70	-	-	-	-	7.84	7.89	7.92	7.95
75	-	-	-	-	8.48	8.53	8.56	8.59

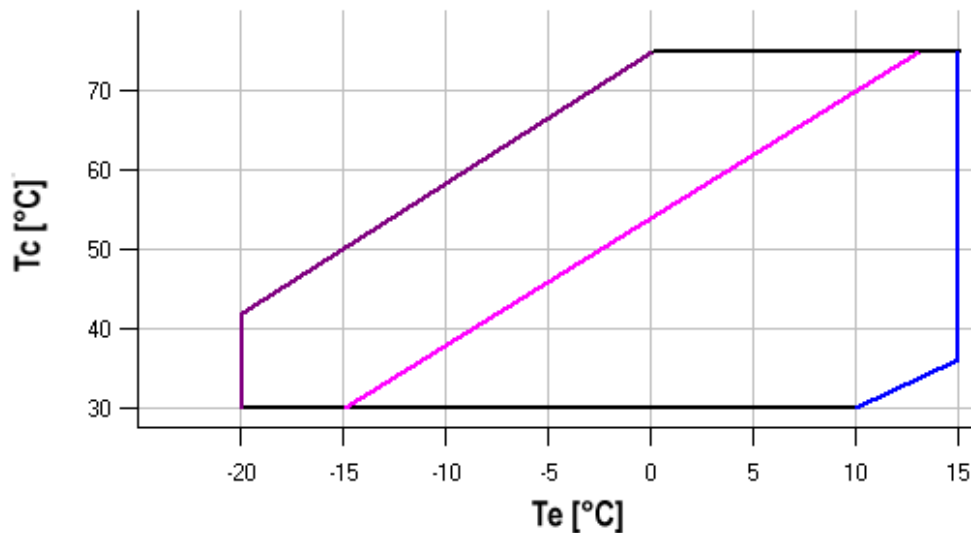
**Mass flow [kg/h]**

$t_c \setminus t_e$	-20	-15	-10	-5	0	5	10	15
30	72.25	95.33	121.45	151.78	187.52	229.87	280.01	-
35	71.84	94.77	120.75	150.95	186.57	228.81	278.85	-
40	71.44	94.23	120.06	150.13	185.64	227.76	277.71	336.66
45	-	93.59	119.28	149.22	184.61	226.62	276.47	335.33
50	-	92.75	118.30	148.11	183.37	225.27	275.01	333.79
55	-	-	116.99	146.67	181.81	223.60	273.24	331.92
60	-	-	-	144.81	179.82	221.50	271.04	329.63
65	-	-	-	142.40	177.29	218.86	268.29	326.78
70	-	-	-	-	174.11	215.56	264.89	323.29
75	-	-	-	-	170.17	211.50	260.73	319.03

**C.O.P. [W/W]**

$t_c \setminus t_e$	-20	-15	-10	-5	0	5	10	15
<b>30</b>	2.16	2.75	3.43	4.23	5.15	6.21	7.39	-
<b>35</b>	1.82	2.34	2.93	3.61	4.40	5.31	6.31	-
<b>40</b>	1.53	1.99	2.50	3.09	3.77	4.54	5.40	6.35
<b>45</b>	-	1.68	2.13	2.64	3.22	3.88	4.62	5.43
<b>50</b>	-	1.41	1.80	2.23	2.73	3.29	3.93	4.63
<b>55</b>	-	-	1.51	1.88	2.30	2.78	3.32	3.93
<b>60</b>	-	-	-	1.57	1.92	2.33	2.79	3.31
<b>65</b>	-	-	-	1.30	1.59	1.93	2.32	2.76
<b>70</b>	-	-	-	-	1.30	1.58	1.91	2.27
<b>75</b>	-	-	-	-	1.05	1.28	1.54	1.85

**Application range**



- Maximum evaporating temperature
- 25°C suction gas temperature
- 10K gas overheat

Operating conditions: suction gas temperature 20°C, 0K subcooling

$t_c$  - Condensing temperature [°C]

$t_e$  - Evaporating temperature [°C]

**R404A/R507**
**Cooling capacity [kW]**

$t_c \setminus t_e$	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
<b>10</b>	3.72	4.71	5.92	7.38	9.11	11.14	13.49	-	-	-	-
<b>15</b>	3.53	4.49	5.65	7.04	8.69	10.62	12.85	15.41	-	-	-
<b>20</b>	3.34	4.25	5.36	6.68	8.24	10.07	12.19	14.62	17.39	-	-
<b>25</b>	3.14	4.01	5.05	6.30	7.78	9.50	11.50	13.80	16.42	19.39	-
<b>30</b>	2.92	3.75	4.73	5.91	7.29	8.91	10.79	12.96	15.43	18.23	21.39
<b>35</b>	2.70	3.48	4.40	5.50	6.79	8.30	10.06	12.09	14.40	17.04	20.01
<b>40</b>	2.47	3.20	4.06	5.08	6.27	7.68	9.31	11.19	13.35	15.82	18.60
<b>45</b>	-	-	3.70	4.64	5.74	7.03	8.53	10.27	12.28	14.57	17.17
<b>50</b>	-	-	-	4.19	5.19	6.36	7.74	9.33	11.18	13.29	15.70
<b>55</b>	-	-	-	-	4.62	5.68	6.92	8.37	10.05	11.99	14.21
<b>60</b>	-	-	-	-	-	4.98	6.09	7.39	8.90	10.66	12.68

**Power input [kW]**

$t_c \setminus t_e$	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
<b>10</b>	1.85	1.86	1.86	1.85	1.84	1.82	1.79	-	-	-	-
<b>15</b>	2.09	2.10	2.10	2.10	2.09	2.08	2.06	2.03	-	-	-
<b>20</b>	2.35	2.36	2.37	2.37	2.37	2.36	2.34	2.32	2.28	-	-
<b>25</b>	2.63	2.65	2.66	2.67	2.67	2.66	2.65	2.63	2.60	2.56	-
<b>30</b>	2.95	2.97	2.98	2.99	3.00	3.00	2.99	2.97	2.95	2.92	2.87
<b>35</b>	3.30	3.32	3.34	3.35	3.36	3.36	3.36	3.35	3.33	3.30	3.26
<b>40</b>	3.68	3.71	3.73	3.75	3.76	3.76	3.76	3.76	3.74	3.71	3.68
<b>45</b>	-	-	4.16	4.18	4.19	4.20	4.20	4.20	4.19	4.16	4.13
<b>50</b>	-	-	-	4.65	4.67	4.68	4.68	4.68	4.67	4.65	4.63
<b>55</b>	-	-	-	-	5.18	5.20	5.20	5.20	5.20	5.18	5.16
<b>60</b>	-	-	-	-	-	5.76	5.77	5.77	5.77	5.76	5.74



**Current [A]**

<b>t<sub>c</sub> \ t<sub>e</sub></b>	<b>-40</b>	<b>-35</b>	<b>-30</b>	<b>-25</b>	<b>-20</b>	<b>-15</b>	<b>-10</b>	<b>-5</b>	<b>0</b>	<b>5</b>	<b>10</b>
<b>10</b>	6.38	6.38	6.37	6.37	6.36	6.35	6.35	-	-	-	-
<b>15</b>	6.58	6.59	6.60	6.60	6.60	6.60	6.60	6.60	-	-	-
<b>20</b>	6.82	6.85	6.87	6.88	6.89	6.89	6.89	6.89	6.89	-	-
<b>25</b>	7.11	7.16	7.19	7.21	7.22	7.23	7.23	7.23	7.22	7.21	-
<b>30</b>	7.48	7.54	7.58	7.60	7.62	7.63	7.63	7.62	7.61	7.60	7.58
<b>35</b>	7.93	8.00	8.05	8.08	8.10	8.11	8.11	8.10	8.08	8.06	8.03
<b>40</b>	8.48	8.55	8.61	8.65	8.68	8.69	8.68	8.67	8.64	8.61	8.57
<b>45</b>	-	-	9.29	9.33	9.36	9.37	9.36	9.34	9.31	9.26	9.21
<b>50</b>	-	-	-	10.13	10.16	10.17	10.16	10.13	10.09	10.03	9.96
<b>55</b>	-	-	-	-	11.10	11.10	11.09	11.06	11.00	10.93	10.85
<b>60</b>	-	-	-	-	-	12.19	12.17	12.12	12.06	11.98	11.87

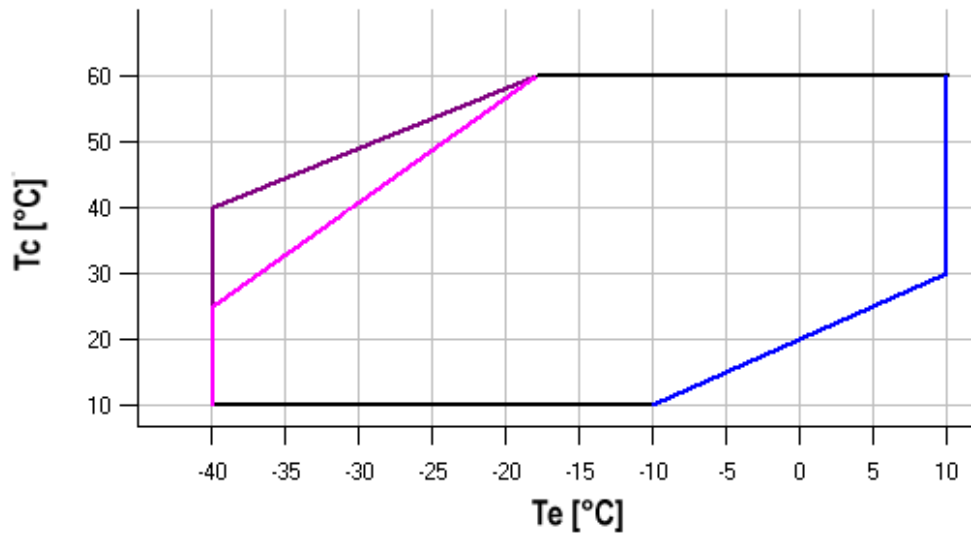
**Mass flow [kg/h]**

<b>t<sub>c</sub> \ t<sub>e</sub></b>	<b>-40</b>	<b>-35</b>	<b>-30</b>	<b>-25</b>	<b>-20</b>	<b>-15</b>	<b>-10</b>	<b>-5</b>	<b>0</b>	<b>5</b>	<b>10</b>
<b>10</b>	70.54	94.01	120.53	151.21	187.14	229.43	279.20	-	-	-	-
<b>15</b>	71.96	94.63	120.44	150.50	185.91	227.78	277.22	335.32	-	-	-
<b>20</b>	72.70	94.58	119.71	149.17	184.09	225.56	274.70	332.60	400.37	-	-
<b>25</b>	72.80	93.93	118.39	147.30	181.74	222.84	271.70	329.41	397.10	475.86	-
<b>30</b>	72.33	92.72	116.55	144.91	178.92	219.67	268.27	325.83	393.46	472.25	563.32
<b>35</b>	71.33	91.02	114.24	142.09	175.67	216.10	264.48	321.91	389.49	468.35	559.57
<b>40</b>	69.86	88.87	111.51	138.87	172.06	212.19	260.36	317.69	385.27	464.21	555.61
<b>45</b>	-	-	108.41	135.31	168.13	207.99	255.99	313.23	380.83	459.88	551.49
<b>50</b>	-	-	-	131.47	163.95	203.56	251.41	308.60	376.24	455.42	547.27
<b>55</b>	-	-	-	-	159.57	198.96	246.68	303.84	371.54	450.89	542.99
<b>60</b>	-	-	-	-	-	194.23	241.86	299.01	366.80	446.34	538.72

**C.O.P. [W/W]**

$t_c \setminus t_e$	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
<b>10</b>	2.01	2.54	3.19	3.99	4.95	6.12	7.52	-	-	-	-
<b>15</b>	1.69	2.14	2.69	3.35	4.15	5.11	6.25	7.61	-	-	-
<b>20</b>	1.42	1.80	2.26	2.82	3.48	4.27	5.21	6.31	7.62	-	-
<b>25</b>	1.19	1.51	1.90	2.36	2.91	3.57	4.34	5.24	6.31	7.56	-
<b>30</b>	0.99	1.26	1.59	1.97	2.43	2.97	3.61	4.36	5.23	6.25	7.44
<b>35</b>	0.82	1.05	1.32	1.64	2.02	2.47	2.99	3.61	4.33	5.16	6.14
<b>40</b>	0.67	0.86	1.09	1.35	1.67	2.04	2.47	2.98	3.57	4.26	5.06
<b>45</b>	-	-	0.89	1.11	1.37	1.67	2.03	2.45	2.93	3.50	4.15
<b>50</b>	-	-	-	0.90	1.11	1.36	1.65	1.99	2.39	2.86	3.39
<b>55</b>	-	-	-	-	0.89	1.09	1.33	1.61	1.93	2.31	2.75
<b>60</b>	-	-	-	-	-	0.86	1.06	1.28	1.54	1.85	2.21

**Application range**



- Maximum evaporating temperature
- 25°C suction gas temperature
- 10K gas overheat

Operating conditions: suction gas temperature 20°C, 0K subcooling

$t_c$  - Condensing temperature [°C]

$t_e$  - Evaporating temperature [°C]

**R407C**
**Cooling capacity [kW]**

$t_c \setminus t_e$	<b>-25</b>	<b>-20</b>	<b>-15</b>	<b>-10</b>	<b>-5</b>	<b>0</b>	<b>5</b>	<b>10</b>
<b>15</b>	4.42	5.72	7.33	9.25	11.50	14.09	-	-
<b>20</b>	4.25	5.55	7.14	9.05	11.28	13.85	16.77	-
<b>25</b>	4.03	5.31	6.87	8.74	10.93	13.46	16.34	-
<b>30</b>	3.79	5.02	6.53	8.35	10.48	12.95	15.76	18.93
<b>35</b>	3.54	4.71	6.16	7.90	9.96	12.34	15.06	18.14
<b>40</b>	3.31	4.40	5.76	7.41	9.37	11.66	14.27	17.24
<b>45</b>	-	4.12	5.37	6.92	8.76	10.92	13.41	16.25
<b>50</b>	-	-	5.01	6.43	8.14	10.16	12.51	15.20
<b>55</b>	-	-	-	5.97	7.53	9.39	11.57	14.10
<b>60</b>	-	-	-	-	6.95	8.64	10.64	12.98
<b>65</b>	-	-	-	-	-	7.93	9.73	11.86

**Power input [kW]**

$t_c \setminus t_e$	<b>-25</b>	<b>-20</b>	<b>-15</b>	<b>-10</b>	<b>-5</b>	<b>0</b>	<b>5</b>	<b>10</b>
<b>15</b>	1.64	1.66	1.70	1.76	1.85	1.98	-	-
<b>20</b>	1.87	1.89	1.92	1.96	2.03	2.11	2.24	-
<b>25</b>	2.12	2.15	2.18	2.21	2.25	2.31	2.39	-
<b>30</b>	2.39	2.43	2.46	2.48	2.51	2.55	2.61	2.69
<b>35</b>	2.66	2.72	2.76	2.80	2.82	2.85	2.88	2.93
<b>40</b>	2.93	3.03	3.09	3.14	3.17	3.19	3.21	3.24
<b>45</b>	-	3.34	3.44	3.51	3.55	3.58	3.60	3.61
<b>50</b>	-	-	3.80	3.90	3.96	4.00	4.03	4.04
<b>55</b>	-	-	-	4.31	4.41	4.47	4.51	4.52
<b>60</b>	-	-	-	-	4.88	4.97	5.03	5.06
<b>65</b>	-	-	-	-	-	5.50	5.59	5.64



**Current [A]**

$t_c \setminus t_e$	-25	-20	-15	-10	-5	0	5	10
15	5.36	5.38	5.41	5.47	5.55	5.68	-	-
20	5.61	5.62	5.64	5.68	5.74	5.82	5.94	-
25	5.85	5.87	5.89	5.91	5.95	6.01	6.09	-
30	6.09	6.13	6.16	6.18	6.21	6.25	6.30	6.38
35	6.35	6.41	6.45	6.48	6.51	6.53	6.57	6.62
40	6.61	6.71	6.77	6.82	6.85	6.88	6.90	6.93
45	-	7.03	7.13	7.20	7.25	7.28	7.30	7.32
50	-	-	7.52	7.63	7.70	7.75	7.77	7.79
55	-	-	-	8.10	8.21	8.28	8.33	8.35
60	-	-	-	-	8.78	8.89	8.96	9.00
65	-	-	-	-	-	9.57	9.68	9.74

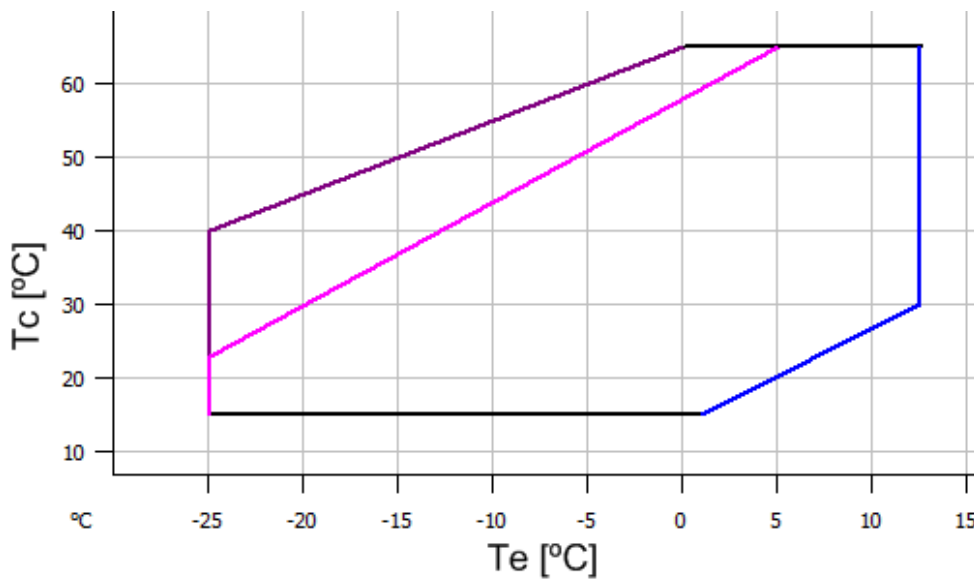
**Mass flow [kg/h]**

$t_c \setminus t_e$	-25	-20	-15	-10	-5	0	5	10
15	69.76	93.10	120.72	153.34	191.64	236.34	-	-
20	70.48	94.05	122.19	155.61	195.02	241.10	294.56	-
25	70.25	93.74	122.10	156.02	196.21	243.37	298.19	-
30	69.43	92.54	120.81	154.94	195.61	243.54	299.43	363.97
35	68.41	90.84	118.72	152.74	193.60	242.00	298.64	364.23
40	67.57	89.02	116.20	149.81	190.55	239.12	296.22	362.55
45	-	87.46	113.64	146.54	186.85	235.28	292.53	359.30
50	-	-	111.41	143.29	182.88	230.87	287.97	354.87
55	-	-	-	140.46	179.02	226.26	282.90	349.64
60	-	-	-	-	175.64	221.84	277.72	343.98
65	-	-	-	-	-	217.98	272.80	338.28

**C.O.P. [W/W]**

$t_c \setminus t_e$	-25	-20	-15	-10	-5	0	5	10
<b>15</b>	2.70	3.45	4.31	5.25	6.21	7.12	-	-
<b>20</b>	2.27	2.93	3.72	4.61	5.57	6.55	7.49	-
<b>25</b>	1.90	2.47	3.16	3.96	4.87	5.84	6.83	-
<b>30</b>	1.59	2.07	2.66	3.36	4.17	5.07	6.04	7.04
<b>35</b>	1.33	1.73	2.23	2.83	3.53	4.33	5.22	6.18
<b>40</b>	1.13	1.45	1.86	2.36	2.96	3.65	4.44	5.32
<b>45</b>	-	1.23	1.56	1.97	2.47	3.05	3.73	4.50
<b>50</b>	-	-	1.32	1.65	2.05	2.54	3.10	3.76
<b>55</b>	-	-	-	1.38	1.71	2.10	2.57	3.12
<b>60</b>	-	-	-	-	1.43	1.74	2.12	2.56
<b>65</b>	-	-	-	-	-	1.44	1.74	2.10

**Application range**



- Maximum evaporating temperature
- 25°C suction gas temperature
- 10K gas overheat

Operating conditions: suction gas temperature 20°C, 0K subcooling

$t_c$  - Condensing temperature [°C]

$t_e$  - Evaporating temperature [°C]



