

PRODUCT SPECIFICATION

COMPRESSOR MODEL

CS27KQME-TFD-XXXXX

Copeland (India) Private Limited

Karad Dhebewadi Road

Karad - 415 110

INDIA

Note: Sales compressor drawing number and compressor model name are the same.

DVM				01	F45-0419-0074 EN No.	A3 30.04.2019
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PRODUCT SPECIFICATION

MODEL: CS27KQME-TFD-XXXXX

A) MODEL DESCRIPTION

Model Name	CS27KQME-TFD-XXXXX
Compressor Type	Reciprocating, Connecting Rod Type
Application Group	Medium Temperature with R-404A High Temperature with R-134a
Evaporating Temperature Range	(-)31.7 °C To (-)1.1 °C Or (-)25 °F To 30 °F for R-404A (-)23.3 °C To 12.8 °C Or (-)10 °F To 55 °F for R-134a
Refrigerant	R-404A, R-134a
Rated Voltage & Circuit	380-420 V, 50 Hz, 3 Phase 460 V, 60 Hz, 3 Phase
Compressor Cooling	Fan: 400 ft ³ / minute
Typical Application	Cold Room Application

B) PERFORMANCE SPECIFICATION @ RATED CONDITION

Specification	Unit	R-404A				R-134a	
		ARI- MBP		EN12900		ARI-HBP	
		50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz
Cooling Capacity	Btu / hr	22210	26300	23315	27608	25553	30153
	kcal / hr	5597	6627	5875	6957	6439	7598
	W	6509	7708	6833	8091	7489	8837
Input Power	W	3425	4175	3363	4060	2800	3387
Input Current	A	6.77	6.64	6.60	6.80	5.6	5.8
EER = $\frac{\text{Cooling Capacity}}{\text{Input Power}}$	Btu / W-hr	6.48	6.30	6.93	6.80	9.13	8.90
	kcal / W-hr	1.63	1.59	1.75	1.71	2.30	2.24
	W / W	1.90	1.85	2.03	1.99	2.67	2.61

Note: Above Performance Parameters are Nominal Values & subject to ± 5% variation.

C) RATING CONDITIONS

Parameter	Unit	ARI-MBP	EN12900	ARI-HBP
Evaporating Temperature	°C (°F)	-6.7 (20)	-10(14)	7.2 (45)
Condensing Temperature	°C (°F)	48.9 (120)	45 (113)	54.4 (130)
Ambient Temperature	°C (°F)	35 (95)	35 (95)	35 (95)
Sub cooled Liquid Temp.	°C (°F)	48.9 (120)	45 (113)	54.4 (130)
Return Gas Temperature	°C (°F)	4.4 (40)	20 (68)	18.3 (65)
Test Voltage	V	380 @ 50Hz 460 @ 60Hz	380 @ 50Hz 460 @ 60Hz	380 @ 50Hz 460 @ 60Hz

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SPECIFICATION

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MODEL: CS27KQME-TFD-XXXXX

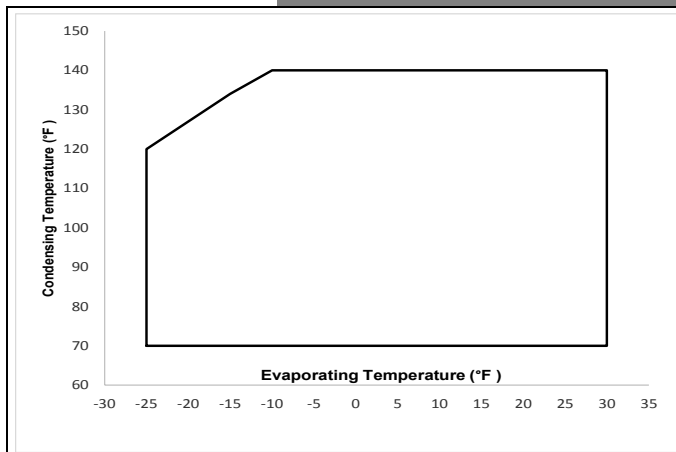
D) MECHANICAL SPECIFICATIONS

Parameter	Unit	Value
Number of Cylinders	Number	Two (2)
Displacement	cm ³ (inch ³) / rev	88.28 (5.387)
Net Weight	kg	36.2
Approximate Shipping Weight	kg	37.5
Oil Charge	cm ³ (Oz)	1,330 (45)
Oil Type	Refrigeration Grade	POE
IPRV (Pressure Differential)	kg/cm ² (psig)	31.65 / 38.68 (450 / 550)
Crank - case Heater	W @ V	40 @ 480 & 40 @ 240 as per BoM

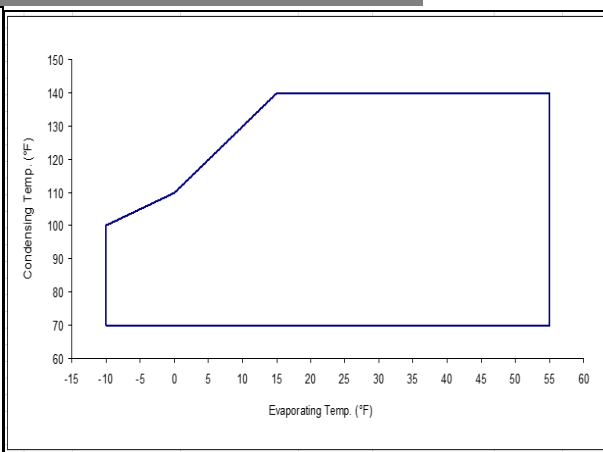
E) ELECTRICAL SPECIFICATIONS

Parameter	Unit	Value
Operating Voltage Range	V	342 To 462, 50Hz 361 To 506, 60 Hz
Motor Circuit	---	Three Phase
Electrical Accessories	---	
➤ Start Capacitor	μF @ V AC	N/A
➤ Run Capacitor	μF @ V AC	N/A
➤ Relay	---	N/A
➤ Over Load Protector	---	Internal
Locked Rotor Ampere (LRA)	A	61 @ 420 V 50Hz 60 @ 460V, 60Hz
Maximum Continuous Current (MCC)	A	13.8
High Potential Test	(kV / second / mA)	2.3 / 1 / 5.5 ± 0.5

F) OPERATING ENVELOPE 50Hz & 60Hz



R-404A



R-134a

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PRODUCT SPECIFICATION**MODEL : CS27KQME-TFD-XXXXX****G) PERFORMANCE TABLES**

Return Gas Temp.	4.4 °C (40 °F)	Voltage	380V, 50 Hz, 3 Phase
Sub - cooling	0 °C (0 °F)	Compressor Cooling	400 ft3 / minute
Ambient Temperature	35 °C (95 °F)	Refrigerant	R-404A

H) COOLING CAPACITY (Btu / h)

Condensing Temperature		Evaporating Temperature											Coefficients	
°C		-31.7	-26.1	-23.3	-20.6	-17.8	-15.0	-12.2	-9.4	-6.7	-3.9	-1.1	c1	26979.589135953900
	(°F)	-25	-15	-10	-5	0	5	10	15	20	25	30	c2	922.436350185497
21.1	70	11056	15745	18563	21688	25116	28841	32856	37156	41736	46589	51710	c3	271.230954566166
26.7	80	9577	13917	16537	19450	22650	26131	29887	33914	38204	42752	47553	c4	8.076762207015
32.2	90	7996	11943	14344	17022	19972	23188	26663	30393	34372	38594	43053	c5	-1.418955043563
37.8	100	6426	9937	12096	14518	17195	20124	23297	26709	30354	34227	38322	c6	-5.571655720922
43.3	110	4981	8010	9907	12049	14433	17052	19900	22972	26263	29765	33474	c7	-0.007630275292
48.9	120	3772	6277	7888	9730	11798	14085	16587	19297	22210	25320	28621	c8	-0.030665413752
54.4	130	---	4850	6153	7673	9403	11337	13470	15796	18310	21005	23876	c9	-0.021975120253
60.0	140	---	---	4815	5990	7360	8919	10662	12582	14674	16932	19351	c10	0.018809276784

J) INPUT POWER (W)

Condensing Temperature		Evaporating Temperature											Coefficients	
°C		-31.7	-26.1	-23.3	-20.6	-17.8	-15.0	-12.2	-9.4	-6.7	-3.9	-1.1	c1	4789.669859413170
	(°F)	-25	-15	-10	-5	0	5	10	15	20	25	30	c2	34.116189504973
21.1	70	1686	2066	2238	2398	2545	2680	2804	2916	3015	3104	3180	c3	-76.040139933578
26.7	80	1664	2064	2243	2409	2561	2700	2825	2938	3037	3123	3196	c4	-0.050150842653
32.2	90	1670	2093	2281	2455	2614	2759	2888	3004	3104	3190	3262	c5	-0.227842188215
37.8	100	1687	2137	2338	2522	2690	2842	2978	3098	3202	3290	3363	c6	0.809659671648
43.3	110	1701	2182	2396	2593	2772	2933	3077	3204	3314	3406	3482	c7	0.000106751326
48.9	120	1702	2212	2441	2652	2844	3018	3172	3308	3425	3524	3604	c8	-0.002718095877
54.4	130	---	2215	2458	2685	2892	3079	3246	3393	3520	3627	3714	c9	0.002065358918
60.0	140	---	---	2460	2687	2900	3103	3284	3444	3582	3700	3796	c10	-0.002592383314

Note: 1. Nominal Performance Values (± 5%) based on 24 h of 'run in'. Subject to change without notice.
 2. Compressor is intended to be operated in the range of condensing & evaporating temperatures where performance values are specified in above tables.

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PRODUCT SPECIFICATION**MODEL : CS27KQME-TFD-XXXXX****N) PERFORMANCE TABLES**

Return Gas Temp.	4.4 °C (40 °F)	Voltage	460V, 60 Hz, 3 Phase
Sub - cooling	0 °C (0 °F)	Compressor Cooling	400 ft3 / minute
Ambient Temperature	35 °C (95 °F)	Refrigerant	R-404A

P) COOLING CAPACITY (Btu / h)

Condensing Temperature		Evaporating Temperature											Coefficients	
°C		-31.7	-26.1	-23.3	-20.6	-17.8	-15.0	-12.2	-9.4	-6.7	-3.9	-1.1	c1	31943.840133749500
	(°F)	-25	-15	-10	-5	0	5	10	15	20	25	30	c2	1092.298545661560
21.1	70	13092	18644	21981	25682	29741	34152	38906	43999	49422	55169	61233	c3	321.297012985586
26.7	80	11340	16480	19582	23032	26821	30943	35391	40159	45239	50625	56310	c4	9.564227776422
32.2	90	9468	14142	16985	20157	23650	27458	31573	35991	40702	45701	50981	c5	-1.680157542624
37.8	100	7610	11767	14324	17191	20362	23830	27587	31627	35944	40530	45379	c6	-6.598779723894
43.3	110	5898	9486	11731	14268	17091	20192	23565	27203	31099	35246	39638	c7	-0.009034629073
48.9	120	4467	7433	9341	11522	13971	16679	19642	22851	26300	29982	33891	c8	-0.036314457121
54.4	130	---	5743	7286	9086	11134	13425	15950	18705	21681	24873	28272	c9	-0.026022237717
60.0	140	---	---	5702	7093	8716	10562	12625	14899	17376	20051	22915	c10	0.022276310642

Q) INPUT POWER (W)

Condensing Temperature		Evaporating Temperature											Coefficients	
°C		-31.7	-26.1	-23.3	-20.6	-17.8	-15.0	-12.2	-9.4	-6.7	-3.9	-1.1	c1	5839.177893954140
	(°F)	-25	-15	-10	-5	0	5	10	15	20	25	30	c2	41.608917828084
21.1	70	2055	2519	2728	2923	3102	3267	3418	3554	3676	3783	3876	c3	-92.718002821828
26.7	80	2029	2516	2734	2936	3122	3291	3444	3581	3702	3807	3896	c4	-0.061296850634
32.2	90	2036	2551	2781	2993	3187	3363	3521	3661	3784	3889	3977	c5	-0.278268323101
37.8	100	2057	2605	2850	3074	3279	3464	3630	3776	3903	4010	4099	c6	0.987308079695
43.3	110	2073	2660	2921	3161	3379	3576	3751	3906	4039	4152	4244	c7	0.000133994747
48.9	120	2075	2696	2976	3233	3467	3678	3867	4032	4175	4295	4393	c8	-0.003313457428
54.4	130	---	2700	2996	3273	3526	3753	3957	4136	4290	4421	4527	c9	0.002520459682
60.0	140	---	---	3000	3280	3535	3782	4003	4198	4367	4510	4627	c10	-0.003161459724

Note: 1. Nominal Performance Values (± 5%) based on 24 h of 'run in'. Subject to change without notice.
 2. Compressor is intended to be operated in the range of condensing & evaporating temperatures where performance values are specified in above tables.

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PRODUCT SPECIFICATION**MODEL : CS27KQME-TFD-XXXXX****K) PERFORMANCE TABLES**

Return Gas Temp.	18.33°C (65°F)	Voltage	380V, 50 Hz, 3 Phase
Sub - cooling	0 °C (0 °F)	Compressor Cooling	400 ft ³ / minute
Ambient Temperature	35 °C (95 °F)	Refrigerant	R-134a

L) COOLING CAPACITY (Btu / h)

Condensing Temperature		Evaporating Temperature									Coefficients	
°C		-23.3	-17.8	-15.0	-12.2	-6.7	-1.1	4.4	7.2	12.8	c1	27319.877792980500
	(°F)	-10	0	5	10	20	30	40	45	55	c2	210.449141024052
21.1	70	8700	12858	14861	16955	21843	28370	37389	43098	57448	c3	-295.447428905495
26.7	80	7167	11487	13515	15595	20341	26575	35148	40577	54254	c4	5.017081223291
32.2	90	5762	10200	12229	14273	18831	24726	32808	37935	50893	c5	4.281879002168
37.8	100	4457	8966	10974	12958	17284	22795	30340	35142	47335	c6	1.619796183523
43.3	110	---	7756	9719	11622	15670	20750	27714	32167	43550	c7	0.141768405986
48.9	120	---	---	8436	10234	13958	18563	24898	28981	39508	c8	-0.076012423723
54.4	130	---	---	---	8763	12118	16202	21864	25553	35179	c9	-0.022774408167
60.0	140	---	---	---	---	10121	13638	18581	21854	30533	c10	-0.005006996374

M) INPUT POWER (W)

Condensing Temperature		Evaporating Temperature									Coefficients	
°C		-23.3	-17.8	-15.0	-12.2	-6.7	-1.1	4.4	7.2	12.8	c1	1158.885147699100
	(°F)	-10	0	5	10	20	30	40	45	55	c2	-23.518112945307
21.1	70	1118	1324	1401	1463	1557	1630	1704	1748	1866	c3	-1.209616412318
26.7	80	1099	1350	1450	1536	1678	1800	1923	1993	2163	c4	-0.376939648917
32.2	90	1072	1367	1488	1596	1783	1950	2121	2215	2434	c5	0.678951248188
37.8	100	1035	1369	1511	1639	1868	2079	2294	2410	2675	c6	0.092751433148
43.3	110	---	1354	1515	1662	1930	2181	2438	2575	2883	c7	0.003802910201
48.9	120	---	---	1497	1662	1966	2254	2549	2706	3054	c8	0.000573439508
54.4	130	---	---	---	1634	1971	2294	2624	2800	3185	c9	-0.001456078622
60.0	140	---	---	---	---	1943	2297	2660	2852	3271	c10	-0.000596280985

Note: 1. Nominal Performance Values (± 5%) based on 24 h of 'run in'. Subject to change without notice.
 2. Compressor is intended to be operated in the range of condensing & evaporating temperatures where performance values are specified in above tables.

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PRODUCT SPECIFICATION**MODEL : CS27KQME-TFD-XXXXX****K) PERFORMANCE TABLES**

Return Gas Temp.	18.33°C (65°F)	Voltage	380V, 60 Hz, 3 Phase
Sub - cooling	0 °C (0 °F)	Compressor Cooling	400 ft3 / minute
Ambient Temperature	35 °C (95 °F)	Refrigerant	R-134a

L) COOLING CAPACITY (Btu / h)

Condensing Temperature		Evaporating Temperature									Coefficients	
°C		-23.3	-17.8	-15.0	-12.2	-6.7	-1.1	4.4	7.2	12.8	c1	32239.684076363500
	(°F)	-10	0	5	10	20	30	40	45	55	c2	248.314630908806
21.1	70	10266	15173	17536	20007	25774	33477	44119	50856	67789	c3	-348.687053251068
26.7	80	8457	13555	15947	18402	24002	31358	41475	47881	64020	c4	5.920455959892
32.2	90	6799	12036	14430	16842	22221	29177	38714	44764	60054	c5	5.052908498601
37.8	100	5259	10580	12949	15291	20396	26898	35802	41468	55855	c6	1.911853028478
43.3	110	---	9152	11469	13714	18491	24485	32702	37957	51389	c7	0.167289508767
48.9	120	---	---	9954	12076	16471	21904	29380	34197	46619	c8	-0.089699931143
54.4	130	---	---	---	10341	14300	19118	25800	30153	41511	c9	-0.026874555643
60.0	140	---	---	---	---	11943	16092	21926	25787	36028	c10	-0.005909555972

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M) INPUT POWER (W)

Condensing Temperature		Evaporating Temperature									Coefficients	
°C		-23.3	-17.8	-15.0	-12.2	-6.7	-1.1	4.4	7.2	12.8	c1	1398.136698122420
	(°F)	-10	0	5	10	20	30	40	45	55	c2	-28.460861865523
21.1	70	1353	1602	1695	1770	1884	1972	2061	2115	2258	c3	-1.356240515433
26.7	80	1330	1634	1754	1858	2030	2177	2327	2412	2617	c4	-0.455232711118
32.2	90	1298	1654	1800	1931	2157	2360	2567	2680	2945	c5	0.821230635820
37.8	100	1253	1657	1828	1983	2260	2515	2776	2916	3237	c6	0.111348462293
43.3	110	---	1639	1833	2011	2336	2639	2949	3116	3488	c7	0.004596238347
48.9	120	---	---	1811	2011	2379	2727	3084	3274	3695	c8	0.000690133348
54.4	130	---	---	---	1977	2385	2775	3175	3387	3853	c9	-0.001759888700
60.0	140	---	---	---	---	2351	2779	3218	3451	3958	c10	-0.000719228565

Note: 1. Nominal Performance Values (± 5%) based on 24 h of 'run in'. Subject to change without notice.

2. Compressor is intended to be operated in the range of condensing & evaporating temperatures where performance values are specified in above tables.

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Parameter	Unit	Value
Cylinder Bore Diameter	cm (inch)	4.98 (1.960)
Crank - Shaft Eccentricity	cm (inch)	1.13 (0.446)
Crank - Shaft Stroke	cm (inch)	2.26 (0.892)
Approximate Internal Free Volume (Without Oil)	cm ³ (inch ³)	7000 (427)
Maximum Residual Moisture	mg	300
Maximum Internal Solid Residue / Impurities	mg	40

S) ELECTRICAL SPECIFICATIONS

Parameter	Unit	Value
Motor Type	---	2 Pole, Induction, Three Phase
Nominal Motor Speed	rpm	2,900 @ 50Hz 3,500 @ 60Hz
Nominal Motor Winding Resistance (@ 25 °C)	Main	Ω 2.85 To 3.05
	Aux.	Ω ---
Nominal Motor Output Power	kW	3.80
Max. Allowable Motor Winding Temp.	°F (°C)	266 (130) B Class Insulation
Relay		
Type	---	N/A
Part Number	---	N/A
Pick Up (Maximum)	V	N/A
Drop Out (Minimum)	V	N/A
Maximum Voltage Rating of Coils	V	N/A
Overload Protector		
Type	---	Internal
Part Number		37HM-528-14
Disc Opening Temperature	°F (°C)	212 To 230 (100 To 110)
Disc Closing Temperature	°F (°C)	134 To 156 (57 To 69)
1 st Cycle Trip Current	A	37
1 st Cycle Trip On Time	second	5 To 15
Terminal Fused Cluster	---	Screw Type Connector
Wire Material	---	Hermetic Grade Round Enameled
Wire Enamel Designation & Construction	---	H Class, Dual Coated

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T) PERFORMANCE SPECIFICATIONS

Parameter	Unit	Value
Bare Compressor Sound	dBA	82.0 Maximum
Bare Compressor Vibration	µm	135.0 Maximum
Compressor Discharge Pulse	psi	10. Maximum

U) TEST CONDITIONS for R-404A

Parameter	Voltage	Suction Pressure	Discharge Pressure	Top Shell Temperature	Ambient Temperature
Unit Test	V	kg/cm ² (psig)	kg/cm ² (psig)	°C (°F)	°C (°F)
Overload (High Load)	462, 50Hz 506, 60Hz	5.13 (73)	31.70 (451)	--	46 (115)
Blocked Fan	380, 50Hz 460, 60Hz	6.7 (95)	30.58 (435)	--	35 (95)
Low Voltage Start : Unequalised	342, 50Hz 361, 60Hz				
Equalised	342, 50Hz 361, 60Hz	8 (114) 14.3 (203)	25.3 (360) 14.3 (203)	65 (149) 65 (149)	-- --
Low Voltage Run	342, 50Hz 361, 60Hz	5.13 (73)	31.70 (451)	--	46 (115)

Note: Above test conditions are only for reference. Refer operating envelop and maximum allowable discharge line temperature for safe operation of compressor.

V) REFERENCE APPLICATION DETAIL CONDITIONS

Parameter	Unit	Value
Maximum Allowable Ambient Temperature	°C (°F)	46 (115)
Maximum Discharge Line Temperature	°C (°F)	135 (275)
Maximum Return Gas Temperature	°C (°F)	43 (109)

Note: Application Details are the guidelines for safe operation of compressor.

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