



INVOTECH

YF/YSF Series Scroll Compressors

**Special Design For
Low Temperature Application**

50Hz





Suzhou Invotech Scroll Technologies Co., Ltd.
is a high-tech company.

Our company is founded by a group of engineers who formerly worked for the world's largest manufacturer of scroll compressors. We are a team of passionate and highly qualified professionals with more than 15 years of experience in this industry. Our company's products in addition to impressive sales performance in the domestic market, also sales to Asia, Africa, Europe, South America, North America and other more than 30 countries and regions.

Our company provides specialized scroll compressors and related technical consulting services for heat pump water heaters, refrigeration and air conditioning, chillers and other applications. We are willing to provide our customers with jointly developed or Turn-Key solutions to meet their needs.

Our vision: to become a global first class solution provider by providing innovative products for the climate and energy industries.

For more information please visit:
www.invotech.cn



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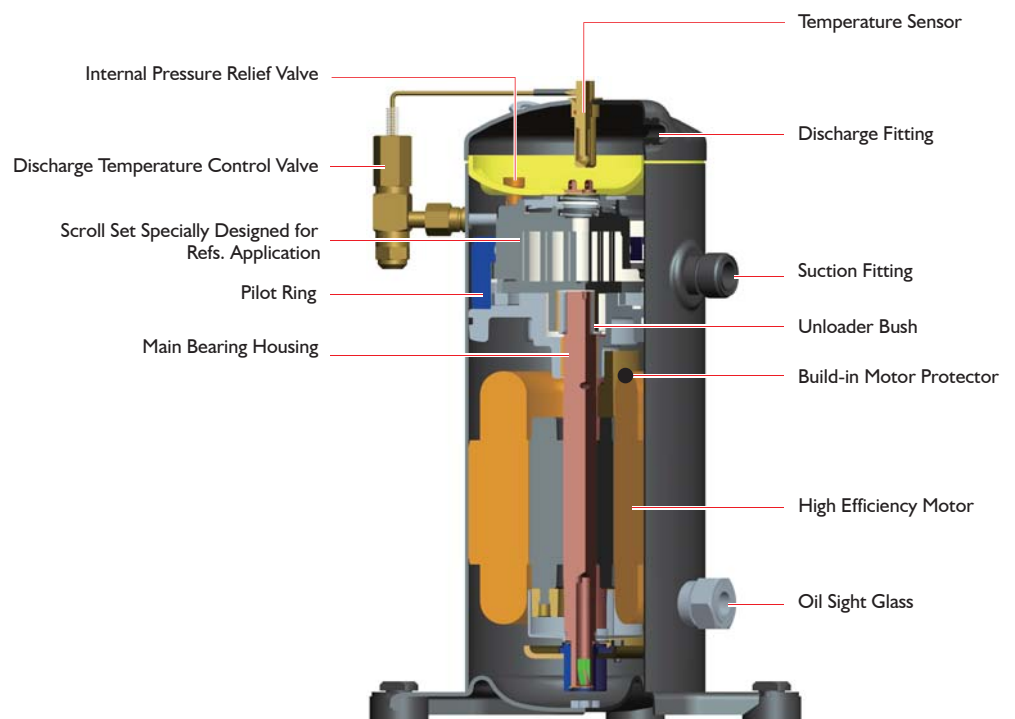
YF Series

Scroll Compressors With Dual-Compliance For Low. Temp. Application

- Specific Design For Refs. Application, Not Only The Scroll Set But Also The Unit, Precise Product-Definition Based On Customer's Need
- Both Build-in Radius and Axial Compliance Design, Improved Floating Seal Design for Better Energy Efficiency
- Excellent Discharge Temperature Management to Stretch Operation Envelope
- Accurate Calculation of Load and Sealing Force for Running Sound Optimization
- High Efficiency Motor Design

Features

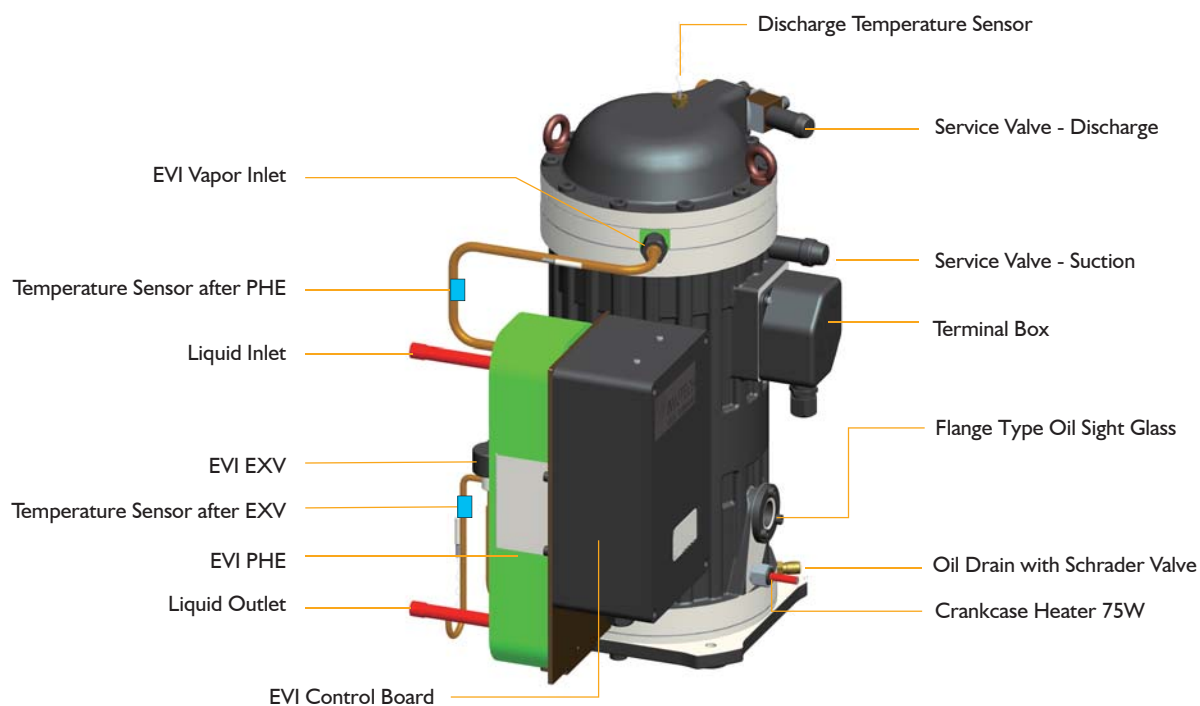
- Be Capable of Running Perfectly at as low as -40°C Evap. Temp.
- 20% Better in Terms of COP Than Similar Products in The Market
- Truly Specific Scroll Design For Refs. Application
- Optimized Floating Seal Design for Better COP
- Multiple Internal Protections
 - High Pressure Protection
 - Overload Protection



YSF Series

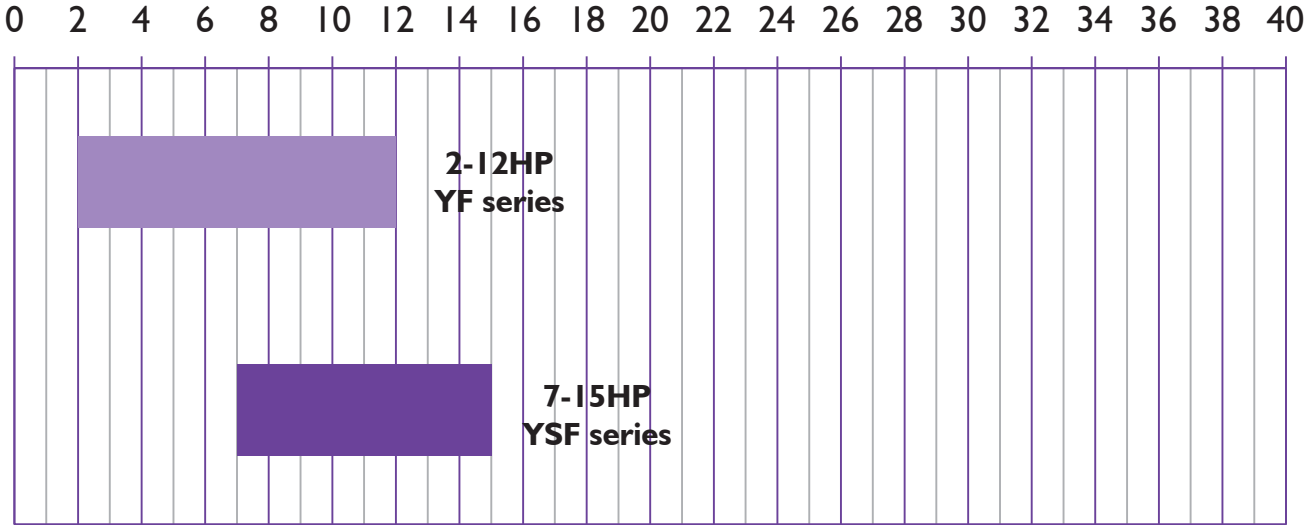
Semi-Hermetic Scroll Compressors With Dual-Compliance For Low Temp. Application

- Specific Design for Refs. Application, Not Only the Scroll Set But Also the Unit, Precise Product-Definition Based on Customer's
- Both Build-in Radius and Axial Compliance Design, Improved Floating Seal Design for Better Energy Efficiency
- Excellent Discharge Temperature Management to Stretch Operation Envelope
- Accurate Calculation of Load and Sealing Force for Running Sound Optimization
- High Efficiency Motor Design
- Integrated Vapor Injection and Controller
- Evaporating Temperature can be Lower to -40°C
- Repairable



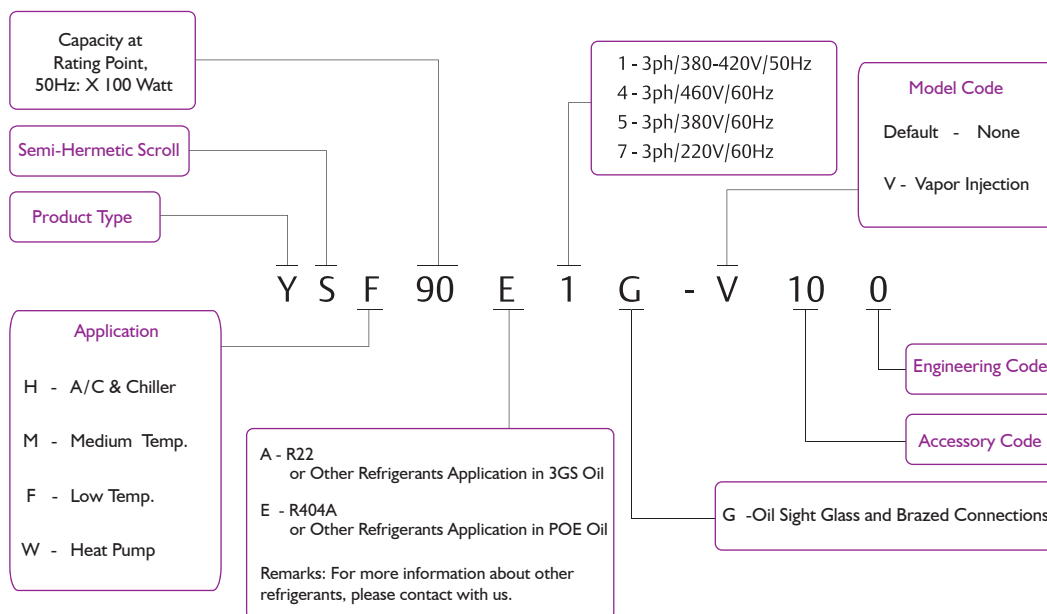
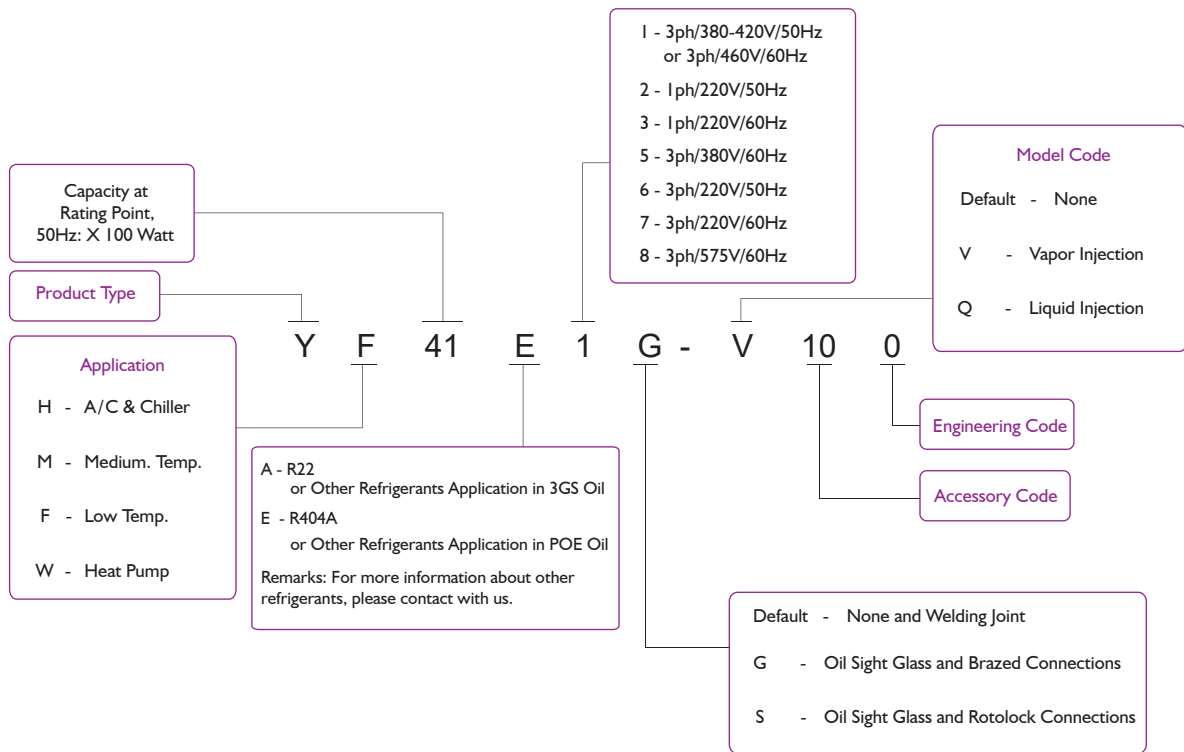
YF/YSF Series

Models



YF/YSF Series

Nomenclature



YF Series

Specifications

50Hz

R404A

Model	YF13E2G-Q102	YF17E2G-Q102	YF20E2G-Q102	YF25E2G-Q100	YF29E2G-Q100	YF35E2G-Q100	YF13E1G-Q100	YF17E1G-Q100	YF20E1G-Q100
Electricity	220V/1~/50Hz						380-420V/3~/50Hz or 460V/3~/60Hz		
Power in Horse Power (HP)	2	2.5	3	3.5	4	5	2	2.5	3
Displacement (cc/rev)	33.3	42	46.6	58	67.8	83.3	33.3	42	46.6
Refrigerant	R404A								
Cooling Capacity (W)	1386	1770	2079	2695	3145	3731	1386	1770	2079
Power in Watt (W)	1247	1599	1866	2324	2569	3004	1237	1567	1823
COP (W/W)	1.1	1.11	1.11	1.16	1.22	1.24	1.12	1.13	1.14
Running current (A)	6.1	7.8	9.1	10.5	11.9	14.4	2.5	2.9	4.5
LRA (A)	76	76	76	109	109	140	22	22	45
MOC (A)	13.4	14.2	16.2	20	23.3	26.2	3.8	4.4	5.8
Crankcase Heater (W)	70								
Fitting Dimensions (mm)									
Discharge Tube(ID)	12.87-12.97								
Suction Tube(ID)	22.35-22.45								
Product Dimensions (mm)									
Length (L)	239								
Width (W)	239								
Height (H)	418					463	418		
Feet Dimensions (hole)	190.5x190.5(8.8)								
Oil Type	POE								
Initial Charge Volume (L)	1.4								
Recharge Volume (L)	1.25								
Max Pressure (MPa)									
High Side	3.2								
Low Side	2								
Weight (kg)	31	31	31	33	33	38	29	29	30

ET -31.6℃, CT 40.6℃, RG 4.4℃, No Subcooling

Model	YF25E1G-Q100	YF29E1G-Q100	YF35E1G-Q100	YF41E1G-Q100	YF45E1G-Q100	YF56E1G-Q100	YF65E1G-Q100	YF72E1G-Q100	YF80E1G-Q100
Electricity	380-420V/3~/50Hz or 460V/3~/60Hz								
Power in Horse Power (HP)	3.5	4	5	6	7	8	9	10	12
Displacement (cc/rev)	58	67.8	83.3	98.3	108	123	145.4	167.2	189.1
Refrigerant	R404A								
Cooling Capacity (W)	2695	3145	3731	4371	5083	5560	6751	7621	8657
Power in Watt (W)	2324	2516	2889	3358	3704	4560	5193	5862	6614
COP (W/W)	1.16	1.25	1.29	1.3	1.37	1.22	1.3	1.3	1.31
Running current (A)	5	5.3	6.6	7	7.3	9.7	10.5	11	12.4
LRA (A)	60	60	60	65	85	85	117	117	121
MOC (A)	7.5	8.8	10.3	12.1	13.2	18	20.1	22.7	25.6
Crankcase Heater (W)	70					90			
Fitting Dimensions (mm)									
Discharge Tube(ID)	12.87-12.97					22.35-22.45			
Suction Tube(ID)	22.35-22.45					28.83-28.93			
Product Dimensions (mm)									
Length (L)	239					272			
Width (W)	239					248			
Height (H)	418			463		507			
Feet Dimensions (hole)	190.5x190.5(8.8)								
Oil Type	POE								
Initial Charge Volume (L)	1.4			1.6		2.7		3	
Recharge Volume (L)	1.25			1.45		2.55		2.85	
Max Pressure (MPa)									
High Side	3.2								
Low Side	2								
Weight (kg)	31	31	31	33	38	53		54	

ET -31.6°C, CT 40.6°C, RG 4.4°C, No Subcooling

YSF Series

Specifications

50Hz

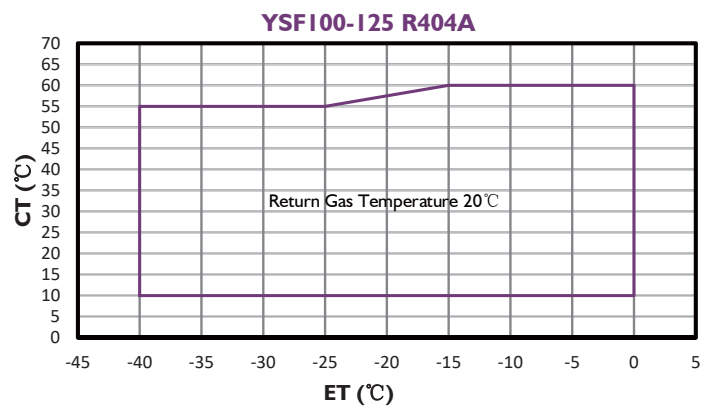
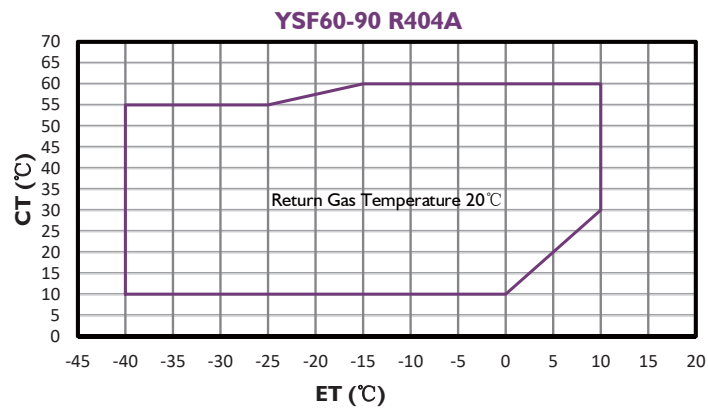
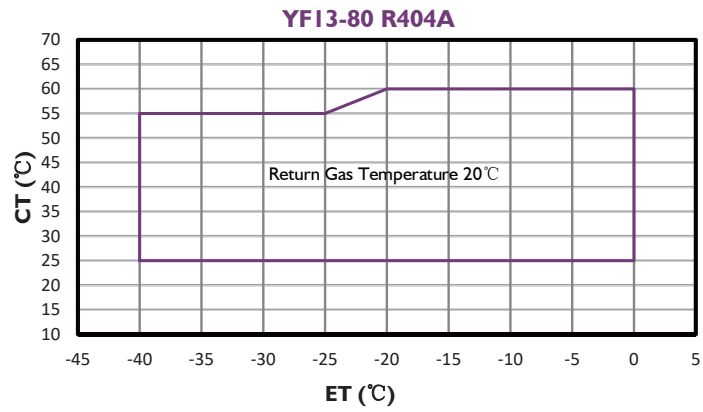
R410A

Model	YSF60E1G -V100	YSF65E1G -V100	YSF75E1G -V100	YSF85E1G -V100	YSF90E1G -V100	YSF100E1 G-V100	YSF125E1 G-V100			
Electricity	380-420V/3~/50Hz									
Power in Horse Power (HP)	7	8	9	10	12	13	15			
Displacement (cc/rev)	115.5	123	145.4	167.2	189.1	197.1	243.7			
Refrigerant	R404A									
Cooling Capacity (W)	6910	7360	8704	10010	11320	11800	13500			
Power in Watt (W)	4369	4660	5440	6256	6988	7284	9507			
COP (W/W)	1.58	1.58	1.6	1.6	1.62	1.62	1.42			
Running current (A)	9.5	10	10.8	11.9	12.9	13.3	18			
LRA (A)	117	117	117	121	121	121	148.5			
MOC (A)	17.9	19.1	22.3	25.7	28.8	27	33.4			
Crankcase Heater (W)	75									
Fitting Dimensions (mm)										
Discharge Tube(ID)	22.50-22.60									
Suction Tube(ID)	28.65-28.75						35.20-35.30			
Product Dimensions (mm)										
Length (L)	488									
Width (W)	361									
Height (H)	574						581			
Feet Dimensions (hole)	190.5x190.5(8.5)									
Oil Type	POE									
Initial Charge Volume (L)	3.4									
Recharge Volume (L)	3.25									
Max Pressure (MPa)										
High Side	3.2									
Low Side	2									
Weight (kg)	90	90	91	91	91	91	92			

ET -31.6°C, CT 40.6°C, RG 4.4°C, No Subcooling

YF Series

Operating Envelope



YF Series

Capacity

50Hz R404A

Model		CT (°C)	ET (°C)								
			-40	-35	-30	-25	-20	-15	-10	-5	0
YF13E2G-Q102	Capacity (W)	50	860	1074	1334	1645	2010	2433	2918	3469	4089
		40	1007	1264	1577	1949	2386	2889	3464	4113	4842
		30	1150	1439	1793	2216	2712	3285	3938	4675	5500
	Power (W)	50	1381	1450	1522	1595	1670	1747	1826	1908	1992
		40	1147	1211	1276	1344	1413	1485	1559	1635	1714
		30	982	1037	1094	1153	1214	1277	1343	1411	1482
YF17E2G-Q102	Capacity (W)	50	1099	1371	1704	2101	2567	3107	3726	4429	5221
		40	1285	1614	2013	2489	3046	3689	4423	5252	6182
		30	1468	1837	2289	2830	3463	4194	5028	5969	7023
	Power (W)	50	1747	1835	1926	2018	2113	2211	2311	2414	2520
		40	1451	1532	1615	1701	1789	1879	1973	2069	2169
		30	1243	1313	1385	1459	1536	1617	1700	1786	1876
YF20E2G-Q102	Capacity (W)	50	1290	1611	2002	2468	3015	3650	4377	5203	6133
		40	1510	1896	2365	2924	3578	4334	5196	6170	7262
		30	1725	2158	2689	3324	4068	4927	5906	7012	8250
	Power (W)	50	2052	2156	2262	2371	2483	2597	2715	2836	2960
		40	1705	1800	1897	1998	2101	2208	2317	2431	2548
		30	1460	1542	1627	1714	1805	1899	1997	2098	2204
YF25E2G-Q100	Capacity (W)	50	1721	2148	2669	3290	4021	4867	5837	6938	8178
		40	2013	2527	3153	3899	4771	5778	6927	8227	9683
		30	2300	2878	3586	4432	5424	6569	7875	9350	11000
	Power (W)	50	2490	2616	2744	2876	3012	3151	3293	3440	3591
		40	2068	2184	2302	2424	2549	2679	2811	2949	3091
		30	1772	1871	1973	2079	2190	2304	2422	2545	2673
YF29E2G-Q100	Capacity (W)	50	1952	2437	3028	3733	4562	5522	6622	7872	9278
		40	2284	2868	3578	4423	5413	6556	7860	9334	10987
		30	2609	3265	4068	5029	6154	7454	8935	10608	12481
	Power (W)	50	2825	2968	3114	3264	3417	3575	3737	3903	4075
		40	2347	2478	2612	2750	2892	3039	3190	3346	3507
		30	2010	2123	2239	2359	2484	2614	2748	2888	3033
YF35E2G-Q100	Capacity (W)	50	2316	2892	3593	4429	5412	6551	7857	9339	11008
		40	2710	3402	4245	5248	6423	7778	9325	11074	13035
		30	3096	3874	4827	5966	7302	8843	10601	12586	14808
	Power (W)	50	3297	3464	3635	3810	3989	4173	4362	4556	4756
		40	2739	2892	3049	3210	3376	3547	3723	3906	4094
		30	2346	2478	2614	2754	2900	3051	3208	3371	3540

Remark: Suction Temperature 20°C, No Subcooling

YF Series

Capacity

50Hz R404A

Model		CT (°C)	ET (°C)								
			-40	-35	-30	-25	-20	-15	-10	-5	0
YF13E1G-Q100	Capacity (W)	50	860	1074	1334	1645	2010	2433	2918	3469	4089
		40	1007	1264	1577	1949	2386	2889	3464	4113	4842
		30	1150	1439	1793	2216	2712	3285	3938	4675	5500
	Power (W)	50	1342	1414	1486	1561	1638	1717	1797	1881	1966
		40	1102	1167	1234	1303	1374	1447	1523	1601	1681
		30	932	988	1047	1107	1169	1234	1301	1371	1443
YF17E1G-Q100	Capacity (W)	50	1099	1371	1704	2101	2567	3107	3726	4429	5221
		40	1285	1614	2013	2489	3046	3689	4423	5252	6182
		30	1468	1837	2289	2830	3463	4194	5028	5969	7023
	Power (W)	50	1699	1789	1881	1976	2073	2172	2275	2380	2489
		40	1394	1477	1562	1649	1739	1832	1927	2026	2128
		30	1180	1251	1325	1401	1480	1561	1646	1735	1826
YF20E1G-Q100	Capacity (W)	50	1290	1611	2002	2468	3015	3650	4377	5203	6133
		40	1510	1896	2365	2924	3578	4334	5196	6170	7262
		30	1725	2158	2689	3324	4068	4927	5906	7012	8250
	Power (W)	50	1978	2083	2191	2301	2414	2530	2649	2771	2898
		40	1624	1720	1819	1920	2025	2133	2244	2359	2477
		30	1374	1457	1542	1631	1723	1818	1917	2020	2127
YF25E1G-Q100	Capacity (W)	50	1721	2148	2669	3290	4021	4867	5837	6938	8178
		40	2013	2527	3153	3899	4771	5778	6927	8227	9683
		30	2300	2878	3586	4432	5424	6569	7875	9350	11000
	Power (W)	50	2592	2730	2870	3015	3163	3315	3471	3631	3797
		40	2127	2254	2383	2516	2653	2795	2940	3091	3246
		30	1800	1909	2021	2137	2257	2382	2512	2647	2786
YF29E1G-Q100	Capacity (W)	50	1952	2437	3028	3733	4562	5522	6622	7872	9278
		40	2284	2868	3578	4423	5413	6556	7860	9334	10987
		30	2609	3265	4068	5029	6154	7454	8935	10608	12481
	Power (W)	50	2729	2874	3022	3174	3330	3490	3655	3824	3998
		40	2240	2373	2509	2649	2794	2942	3096	3254	3418
		30	1895	2010	2128	2250	2377	2508	2645	2787	2934
YF35E1G-Q100	Capacity (W)	50	2316	2892	3593	4429	5412	6551	7857	9339	11008
		40	2710	3402	4245	5248	6423	7778	9325	11074	13035
		30	3096	3874	4827	5966	7302	8843	10601	12586	14808
	Power (W)	50	3137	3304	3475	3649	3829	4012	4201	4396	4596
		40	2575	2728	2885	3046	3212	3383	3559	3741	3930
		30	2179	2310	2446	2587	2733	2884	3041	3204	3373
YF41E1G-Q100	Capacity (W)	50	2713	3387	4209	5189	6340	7674	9204	10940	12895
		40	3175	3986	4973	6148	7524	9112	10924	12973	15270
		30	3627	4538	5655	6989	8553	10359	12419	14744	17346
	Power (W)	50	3647	3841	4039	4242	4450	4664	4884	5110	5343
		40	2994	3171	3353	3540	3733	3932	4137	4349	4568
		30	2533	2686	2844	3007	3176	3352	3535	3724	3921
YF45E1G-Q100	Capacity (W)	50	2978	3718	4619	5695	6959	8423	10102	12007	14153
		40	3485	4374	5458	6748	8258	10001	11990	14238	16759
		30	3980	4980	6206	7671	9388	11370	13630	16182	19039
	Power (W)	50	3798	4000	4207	4418	4635	4858	5086	5322	5564
		40	3118	3302	3492	3687	3888	4095	4309	4530	4757
		30	2638	2797	2962	3132	3308	3491	3681	3878	4083

Remark: Suction Temperature 20°C, No Subcooling

YF Series

Capacity

50Hz R404A

Model		CT (°C)	ET (°C)								
			-40	-35	-30	-25	-20	-15	-10	-5	0
YF56E1G-Q100	Capacity (W)	50	3476	4340	5392	6648	8123	9833	11793	14017	16523
		40	4068	5107	6371	7877	9640	11675	13997	16622	19565
		30	4647	5814	7245	8955	10959	13273	15912	18891	22226
	Power (W)	50	4996	5261	5533	5811	6096	6389	6690	7000	7318
		40	4101	4344	4593	4850	5114	5386	5667	5958	6257
		30	3470	3679	3895	4119	4351	4592	4842	5101	5371
YF65E1G-Q100	Capacity (W)	50	4079	5093	6327	7801	9532	11538	13837	16448	19388
		40	4773	5992	7476	9243	11311	13699	16424	19504	22957
		30	5452	6822	8501	10508	12859	15574	18671	22167	26080
	Power (W)	50	5640	5940	6246	6560	6882	7213	7553	7902	8262
		40	4629	4904	5185	5475	5773	6081	6398	6726	7064
		30	3917	4153	4397	4650	4912	5184	5466	5759	6063
YF72E1G-Q100	Capacity (W)	50	4731	5906	7338	9048	11055	13382	16049	19076	22486
		40	5536	6950	8671	10720	13119	15888	19048	22621	26626
		30	6324	7912	9860	12187	14914	18063	21654	25709	30247
	Power (W)	50	6366	6705	7051	7405	7769	8142	8525	8920	9326
		40	5226	5535	5853	6180	6517	6864	7222	7592	7974
		30	4422	4688	4964	5249	5545	5852	6170	6501	6844
YF80E1G-Q100	Capacity (W)	50	5206	6547	8182	10133	12424	15080	18124	21579	25471
		40	6125	7738	9702	12042	14780	17940	21547	25625	30196
		30	7024	8837	11060	13716	16829	20423	24522	29149	34329
	Power (W)	50	7185	7566	7957	8357	8767	9189	9621	10067	10525
		40	5897	6247	6606	6975	7355	7746	8151	8568	8999
		30	4990	5291	5602	5924	6258	6604	6963	7336	7724

Remark: Suction Temperature 20°C, No Subcooling

YSF Series

Capacity Vapor Injection

50Hz R404A

Model		CT (°C)	ET (°C)										
			-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
YSF60E1G-V100	Capacity (W)	60						9439	11041	12843	14878	17178	19774
		55	3794	4908	6083	7352	8746	10298	12038	13999	16213	18711	21525
		50	4204	5358	6593	7941	9435	11105	12984	15104	17495	20192	23224
		45	4572	5765	7060	8487	10079	11868	13886	16163	18733	21626	24876
		40	4906	6138	7491	8997	10688	12595	14750	17185	19932	23023	26489
		35	5212	6483	7895	9479	11268	13292	15585	18177	21101	24388	28071
		30	5498	6808	8277	9939	11825	13967	16397	19146	22246	25730	29628
	25	5772	7119	8646	10385	12368	14627	17193	20099	23375	27054	31168	
	Power (W)	60								8079	8467	8910	9411
		55	5908	6025	6160	6317	6499	6712	6960	7248	7579	7958	8391
		50	5306	5414	5532	5666	5821	5999	6207	6448	6726	7047	7414
		45	4727	4829	4936	5052	5182	5331	5502	5700	5930	6196	6502
		40	4193	4293	4392	4495	4605	4727	4866	5026	5212	5427	5677
		35	3724	3827	3923	4016	4110	4211	4322	4448	4593	4762	4960
30		3343	3453	3549	3637	3720	3803	3890	3986	4096	4223	4372	
25	3071	3192	3293	3379	3455	3525	3593	3663	3741	3830	3935		
YSF65E1G-V100	Capacity (W)	60					10050	11755	13673	15840	18289	21053	
		55	4039	5225	6477	7828	9312	10964	12817	14905	17261	19921	22917
		50	4476	5704	7019	8455	10045	11823	13824	16080	18627	21497	24726
		45	4868	6138	7516	9036	10731	12636	14784	17209	19944	23025	26485
		40	5223	6535	7976	9579	11379	13410	15704	18297	21221	24512	28202
		35	5549	6903	8406	10092	11996	14152	16593	19353	22466	25966	29886
		30	5854	7248	8813	10582	12590	14871	17457	20384	23685	27394	31545
	25	6145	7579	9205	11057	13168	15573	18305	21399	24887	28804	33184	
	Power (W)	60							8601	9015	9486	10020	
		55	6290	6415	6559	6725	6919	7146	7410	7716	8069	8473	8933
		50	5650	5764	5890	6033	6197	6387	6608	6865	7161	7502	7893
		45	5033	5141	5255	5379	5517	5675	5858	6069	6313	6596	6923
		40	4464	4571	4676	4785	4903	5033	5181	5351	5549	5778	6044
		35	3965	4075	4177	4275	4376	4483	4601	4736	4890	5070	5280
30		3559	3676	3779	3872	3960	4049	4142	4244	4361	4496	4655	
25	3269	3398	3506	3598	3679	3753	3825	3900	3983	4078	4189		
YSF75E1G-V100	Capacity (W)	60					11881	13897	16165	18727	21622	24889	
		55	4775	6177	7657	9254	11009	12962	15152	17621	20407	23552	27094
		50	5291	6744	8298	9996	11875	13978	16343	19011	22022	25415	29232
		45	5755	7257	8886	10683	12687	14939	17478	20345	23579	27221	31311
		40	6175	7726	9430	11325	13453	15853	18566	21631	25089	28979	33342
		35	6561	8160	9937	11931	14183	16731	19617	22880	26560	30698	35333
		30	6921	8569	10419	12511	14885	17581	20639	24099	28001	32386	37293
	25	7265	8961	10883	13072	15568	18411	21641	25298	29422	34054	39232	
	Power (W)	60							10068	10552	11104	11728	
		55	7363	7509	7677	7872	8099	8365	8674	9032	9445	9918	10457
		50	6613	6747	6895	7062	7254	7477	7735	8035	8382	8782	9239
		45	5892	6018	6151	6296	6458	6643	6856	7104	7390	7721	8103
		40	5226	5350	5474	5601	5739	5891	6065	6264	6495	6764	7075
		35	4642	4770	4889	5005	5122	5248	5386	5543	5724	5935	6181
30		4166	4303	4423	4532	4636	4739	4848	4968	5104	5263	5448	
25	3827	3977	4104	4211	4306	4393	4477	4565	4662	4773	4904		

Remark: Suction Temperature 20°C, No Subcooling

YSF Series

Capacity Vapor Injection

50Hz R404A

Model	CT (°C)	ET (°C)												
		-40	-35	-30	-25	-20	-15	-10	-5	0	5	10		
YSF85E1G-V100	Capacity (W)	60						13666	15984	18593	21540	24869	28628	
		55	5493	7105	8807	10644	12663	14909	17428	20267	23472	27089	31163	
		50	6086	7757	9545	11497	13659	16077	18798	21866	25329	29232	33622	
		45	6619	8347	10221	12287	14593	17182	20103	23400	27121	31310	36014	
		40	7102	8887	10846	13026	15474	18235	21355	24880	28857	33332	38350	
		35	7546	9386	11430	13723	16313	19244	22563	26316	30549	35309	40640	
		30	7960	9856	11984	14390	17120	20221	23739	27719	32207	37251	42895	
	25	8356	10306	12518	15036	17907	21177	24892	29098	33842	39168	45124		
	Power (W)	60									11580	12137	12771	13490
		55	8469	8637	8830	9054	9316	9621	9977	10389	10864	11408	12027	
		50	7606	7760	7930	8123	8344	8600	8897	9242	9641	10101	10627	
		45	6776	6922	7075	7242	7428	7641	7886	8171	8500	8881	9320	
		40	6010	6154	6296	6443	6601	6776	6975	7205	7471	7779	8137	
		35	5339	5486	5623	5756	5892	6036	6195	6376	6584	6826	7109	
30		4792	4949	5088	5213	5332	5451	5576	5714	5871	6053	6267		
25	4402	4575	4720	4844	4953	5052	5150	5251	5362	5490	5640			
YSF90E1G-V100	Capacity (W)	60						15450	18071	21021	24352	28117	32366	
		55	6210	8033	9957	12034	14316	16855	19704	22914	26537	30626	35233	
		50	6881	8769	10791	12998	15443	18177	21252	24722	28637	33050	38013	
		45	7484	9437	11556	13892	16498	19426	22728	26456	30662	35399	40717	
		40	8030	10047	12262	14727	17494	20616	24143	28129	32626	37684	43358	
		35	8531	10612	12922	15516	18443	21757	25509	29753	34539	39919	45947	
		30	9000	11143	13549	16269	19356	22862	26838	31338	36413	42115	48496	
	25	9447	11652	14152	16999	20245	23942	28142	32898	38261	44283	51017		
	Power (W)	60								12963	13586	14296	15101	
		55	9480	9668	9884	10135	10428	10770	11168	11629	12161	12770	13463	
		50	8514	8687	8877	9092	9340	9626	9959	10346	10792	11307	11896	
		45	7586	7749	7920	8106	8315	8553	8828	9146	9515	9942	10433	
		40	6728	6889	7048	7212	7389	7585	7808	8065	8363	8708	9109	
		35	5976	6141	6294	6443	6595	6757	6935	7137	7370	7641	7958	
30		5364	5540	5695	5835	5969	6102	6242	6396	6572	6776	7015		
25	4927	5121	5284	5422	5544	5656	5765	5878	6002	6145	6314			

Remark: Suction Temperature 20°C, No Subcooling

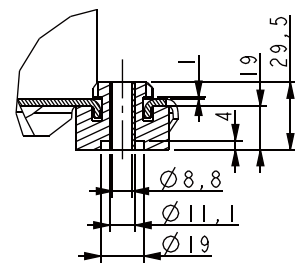
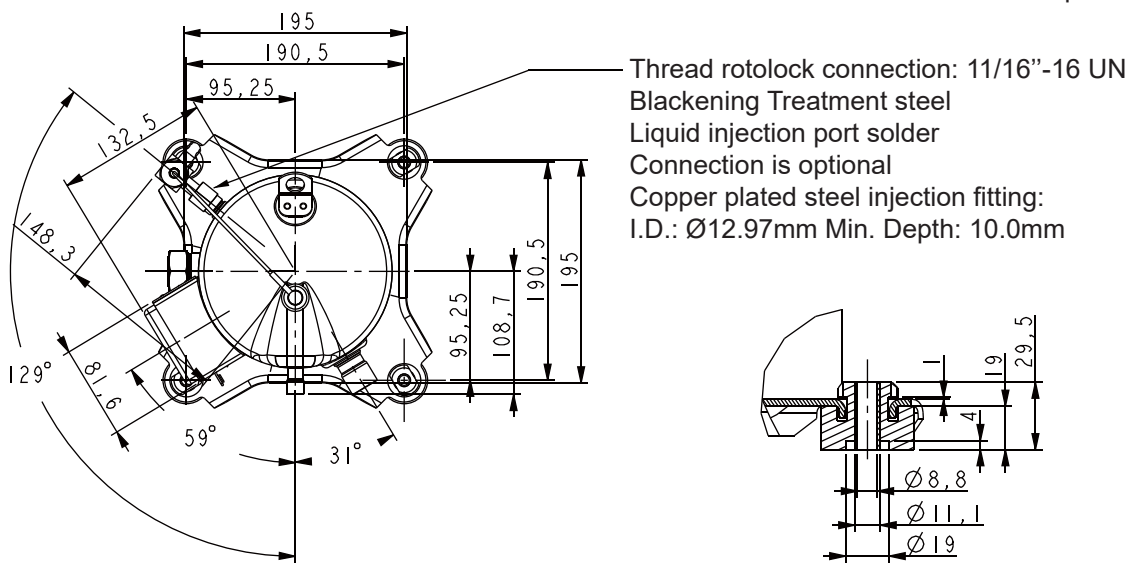
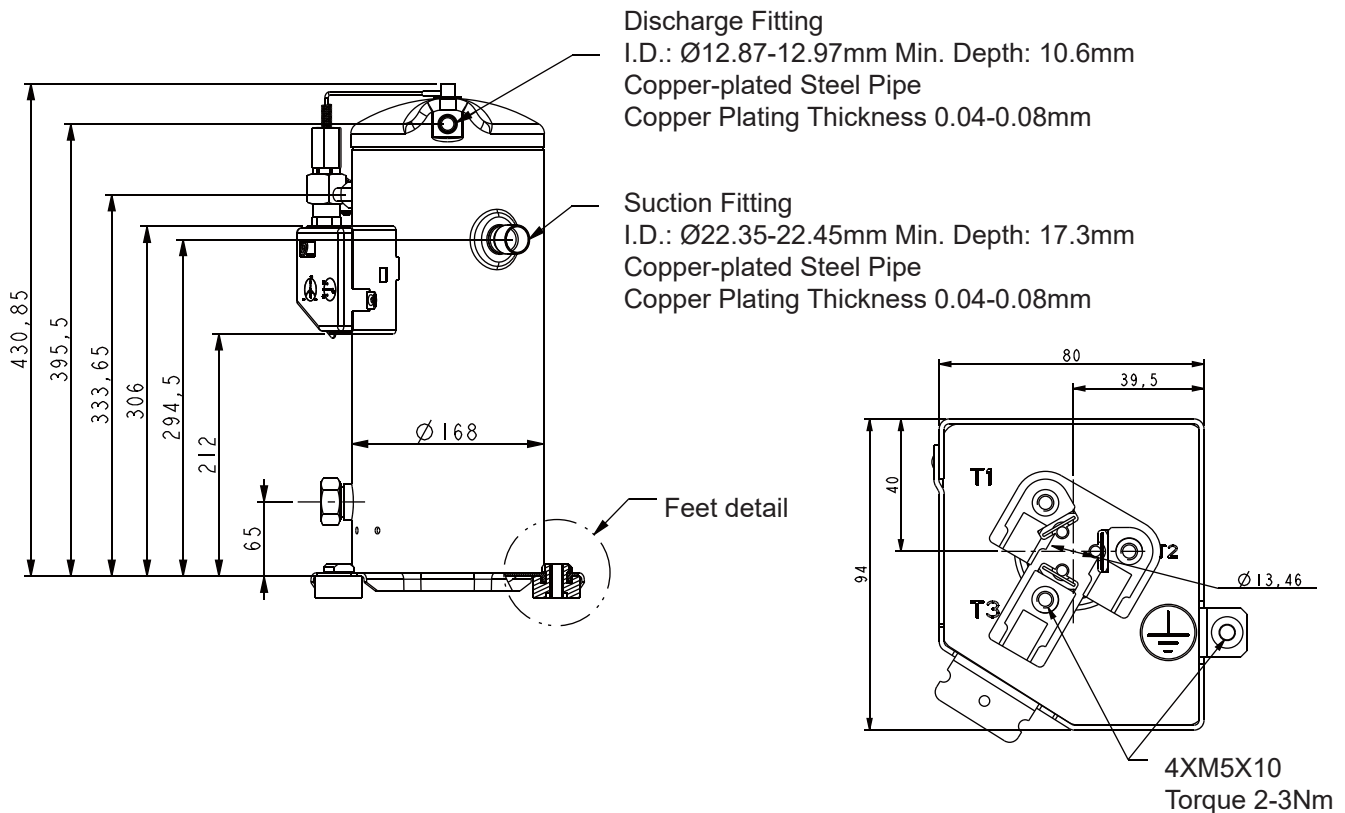
YSF Series

Capacity Vapor Injection

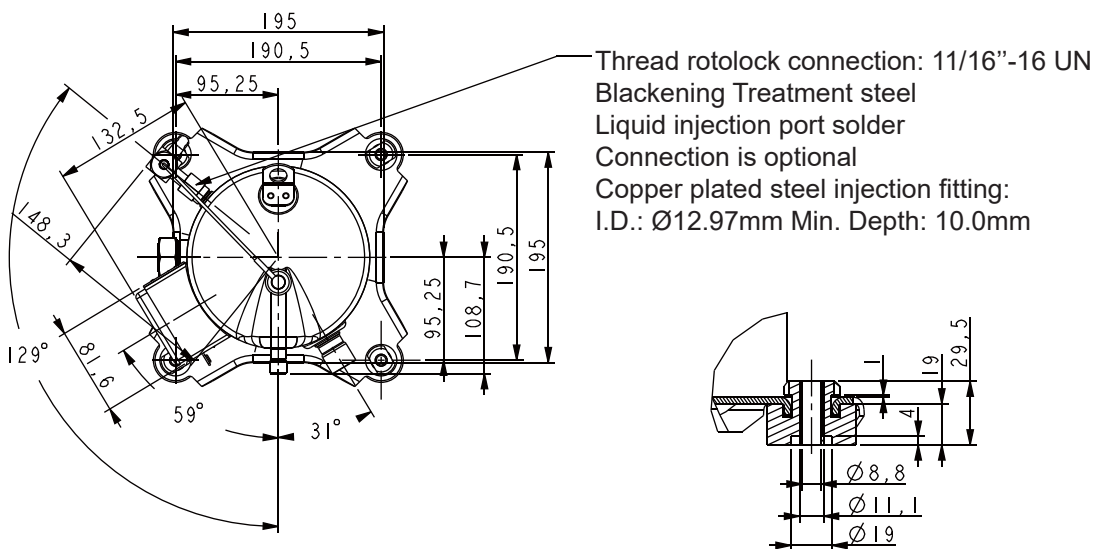
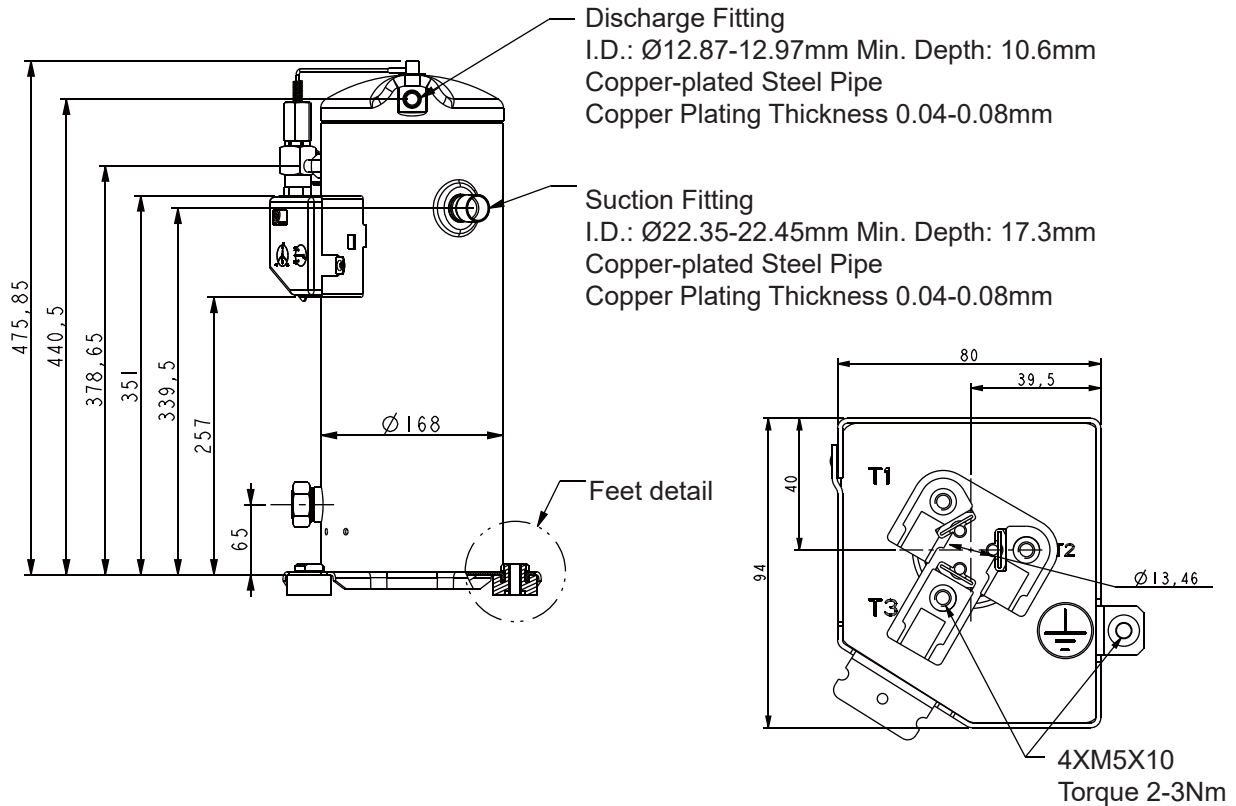
50Hz R404A

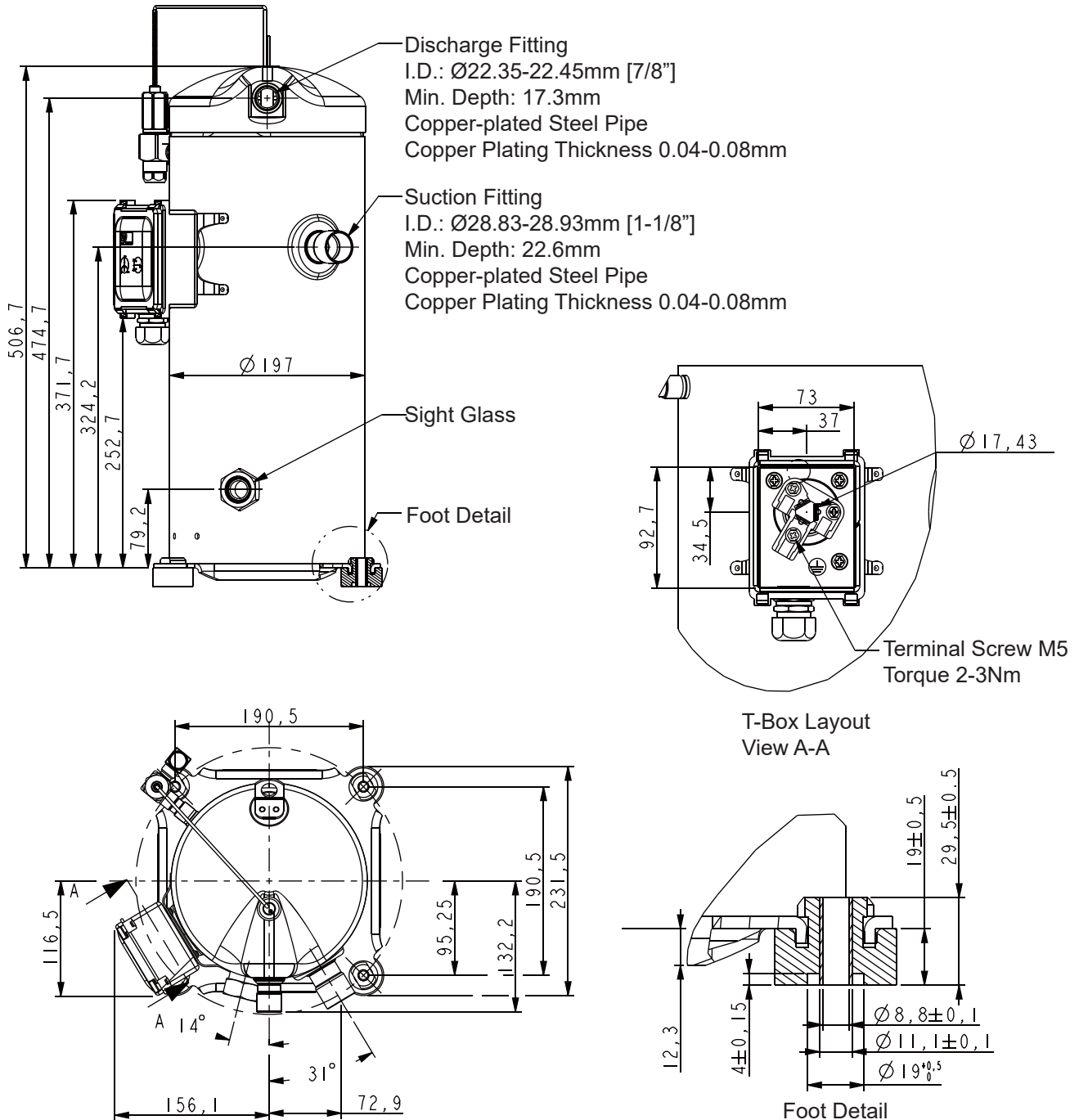
Model		CT (°C)	ET (°C)								
			-40	-35	-30	-25	-20	-15	-10	-5	0
YSF100E1G-V100	Capacity (W)	60						16108	18840	21916	25389
		55	6474	8375	10381	12546	14925	17573	20542	23889	27667
		50	7174	9143	11250	13551	16100	18950	22157	25774	29855
		45	7802	9838	12047	14483	17200	20253	23695	27582	31967
		40	8372	10475	12784	15354	18239	21493	25171	29326	34014
		35	8894	11063	13472	16176	19228	22683	26595	31019	36008
		30	9383	11617	14125	16961	20180	23835	27981	32672	37962
		25	9849	12148	14754	17722	21106	24961	29340	34298	39889
	Power (W)	60								13514	14164
		55	9883	10080	10305	10567	10872	11228	11643	12124	12678
		50	8877	9056	9255	9479	9737	10036	10383	10786	11252
		45	7908	8078	8257	8451	8669	8917	9204	9535	9920
		40	7014	7182	7347	7519	7703	7908	8140	8408	8719
		35	6230	6402	6562	6718	6876	7044	7230	7441	7684
YSF125E1G-V100	Capacity (W)	60						19918	23297	27099	31394
		55	8006	10356	12836	15513	18455	21729	25401	29539	34211
		50	8871	11305	13911	16757	19908	23432	27397	31870	36917
		45	9648	12165	14897	17909	21269	25043	29300	34106	39528
		40	10352	12952	15808	18985	22553	26577	31124	36263	42059
		35	10998	13680	16659	20002	23776	28048	32885	38355	44525
		30	11602	14365	17466	20973	24953	29472	34599	40400	46942
		25	12179	15022	18244	21914	26099	30865	36279	42410	49324
	Power (W)	60								16711	17514
		55	12221	12464	12742	13066	13443	13884	14397	14992	15677
		50	10976	11198	11444	11721	12040	12410	12839	13337	13913
		45	9779	9989	10210	10450	10719	11026	11380	11791	12266
		40	8673	8880	9085	9297	9525	9778	10066	10397	10781
		35	7704	7917	8114	8307	8502	8710	8940	9201	9501
30	6915	7142	7342	7523	7695	7866	8047	8246	8472		
25	6352	6602	6811	6990	7147	7291	7431	7577	7738		

Remark: Suction Temperature 20°C, No Subcooling



Mounting Feet



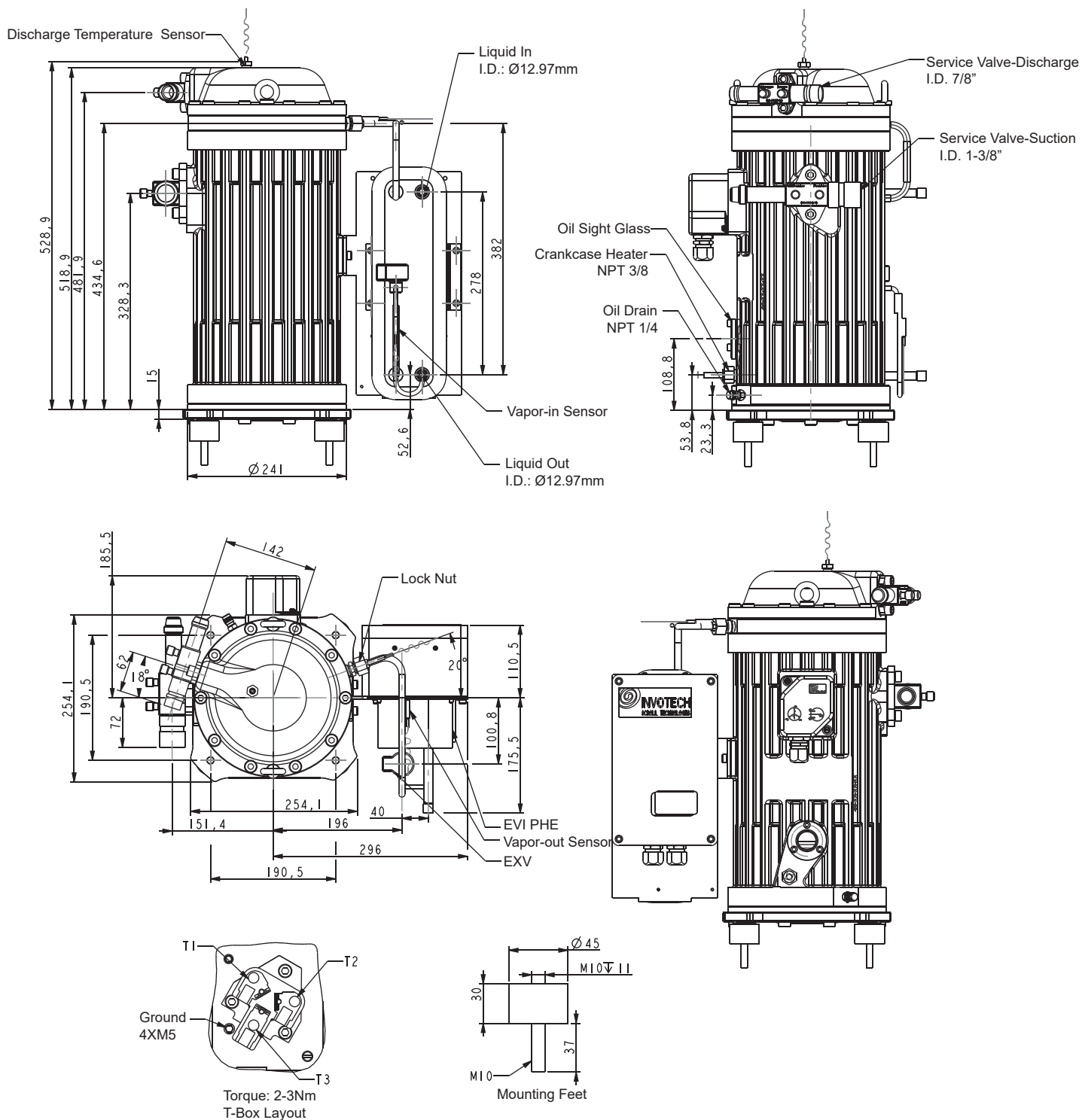


YSF Series

Dimensions

Vapor Injection

YSF60-YSF100

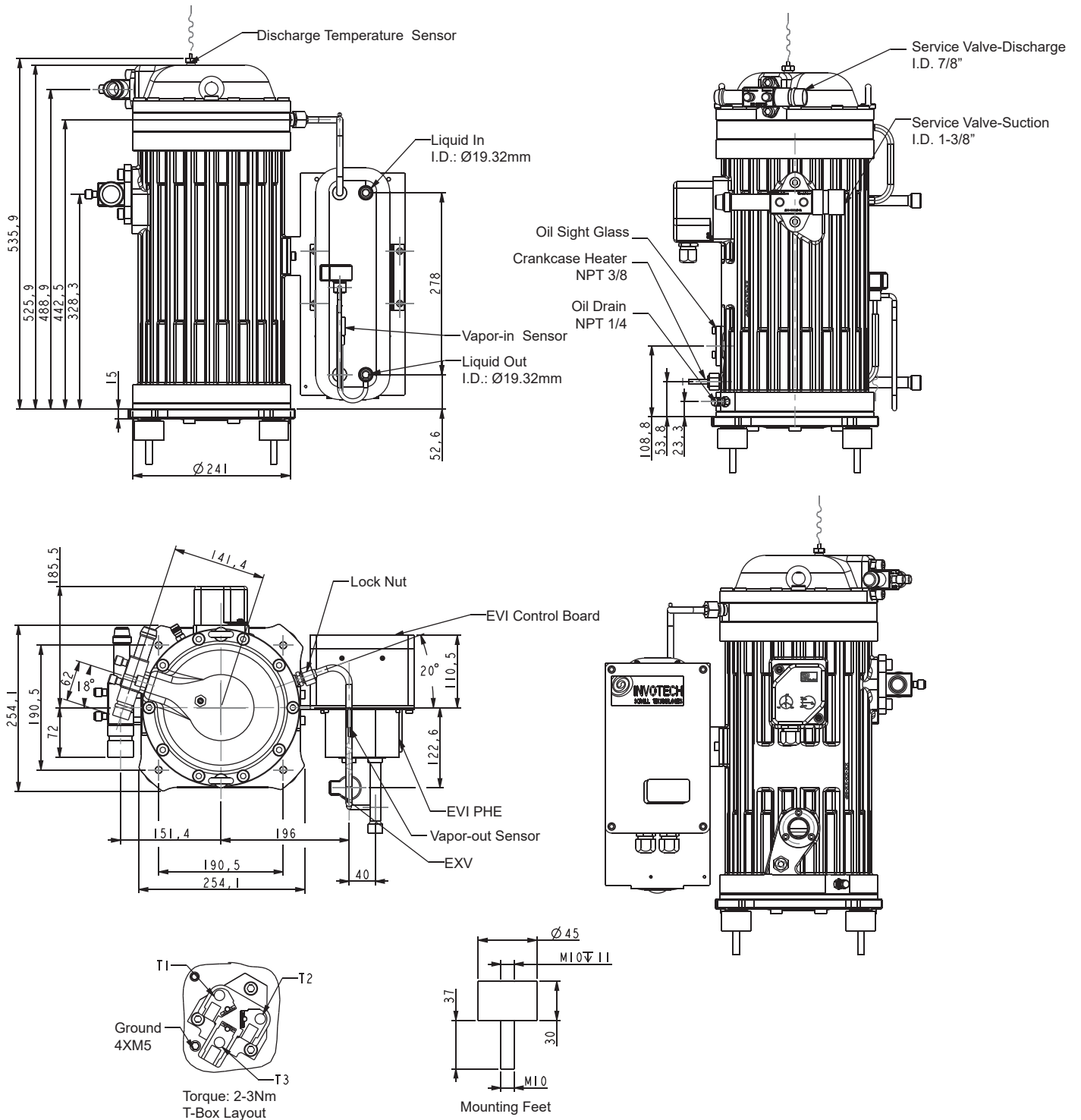


YSF Series

Vapor Injection

Dimensions

YSF125



YSF Series

Application instruction

Main Features of YSF Series:

- Classic vertical design
- Maintainability
 - Semi-hermetic design, all the parts can be removed and replaced
- Higher reliability
 - Dual compliances design
 - Strong capability to tolerate liquid flood back and impurities
- Less vibration and noise
- Wide operating range
 - Integrated EVI technologies
 - The evaporating temperature can be lower to -40°C
- Higher energy efficiency
 - High compression ratio is specially designed for refrigeration
 - Efficient economizer cycle
- More intelligent design
 - Control of EVI

1. Safety Instructions:

YSF series Semi-hermetic scroll compressors are produced in strict accordance with international safety standards.

This section focuses on safe use of a user. Before carrying out any operation, this safety instruction should be carefully read. Please reserve it for reference at any time.

The compressor should be installed, tested and maintained by specialized technicians only; electrical connections must be operated by authorized and trained personnel.

Attention:

- Avoid collision and fall down during the transportation
- Lubricant must be correctly chosen and be the same as indicated on the compressor's nameplate
- Ensure that the power supply can satisfy the specific parameter as is shown on the compressor's nameplate
- Release the internal pressure before operating, the compressor is filled with dry nitrogen while leaving the factory

Prohibition:

- Extract vacuum using the scroll compressors
- Run the compressor which is in vacuum status
- Apply power to the compressor which doesn't connect to system
- Run the compressor without charging refrigerant
- Run the compressor outside of the published envelope
- Discharge refrigerant directly into environment
- Hi-pot test in vacuum status

Warning:

- Strictly forbid the excess of pressure marked on the nameplate while running the compressor or checking the leakage of refrigerating system
- Strictly forbid running the compressor with air, for the mixture of air and oil may explore due to great heat contracted in the discharge port. It will cause damages to the compressor
- Completely open the suction and discharge valve before starting the compressor. It is very importance to open the discharge valve fully. If it is closed or partly closed, unacceptable high pressure and temperature will be produced inside the compressor
- Be sure to comply with relevant safety regulations

Avoid electric shock:

- Be sure to cut off power supply before operating
- The compressor can only be used after being connected to earth

2. Nameplate sample



3. Settings of pressure switches:

Attention: It is necessary to use a high pressure switch, the biggest cut out pressure should be below 28 bar(g). In order to protect the system as well as possible, the high pressure switch should possess the function of manual resetting whenever it is cut off. For all of the applications, the cut out set value of low pressure switch should not be lower than 0.1 bar(g). When setting the operating point of the low pressure switch, an accurate pressure gauge should be used because scales on the low pressure switch are for rough setting only. It is absolutely forbidden to run the compressor of YSF series in vacuum. Low pressure switch points must access to the connection port of low pressure switch on the compressor body.

YSF Series

Application instruction

4. Precaution of refrigerator oil

Don't mix up ester oil, mineral oil or alkyl benzene. The compressor has been filled with lubricant in advance before leaving the factory. Compressors with POE oil are available for R404A. The initial amount of oil is marked on the nameplate and the re-charge amount on the field site can be around 100 ml less than the initial one.

5. Installation

5.1 Shipment

Check packing lists which are attached to cases of each batch of goods carefully to make sure that both accessories and compressors are received. Invotech Company should be immediately informed of missing items in written form.

Standard configurations

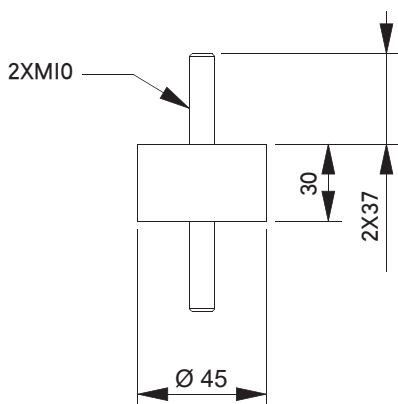
- Suction service valve and discharge service valve
- Economizer (PHE)
- Crankcase heater
- Refrigerating oil filling, oil level sight glass
- Electronic expansion valve
- Electronic control board
- Mounting kits

5.1.2 Packing

All the compressors of YSF series are individually packed. Accessories may be installed on the compressors or be placed inside the cases. Packages need keeping dry all the time.

5.1.3 Mounting Kits

Attention: In order to reduce vibration generated during starting and stopping cycle as much as possible, mounting kits should be used while installing the compressor. To maintain sufficient lubrication of moving parts, the compressor should be vertically installed.



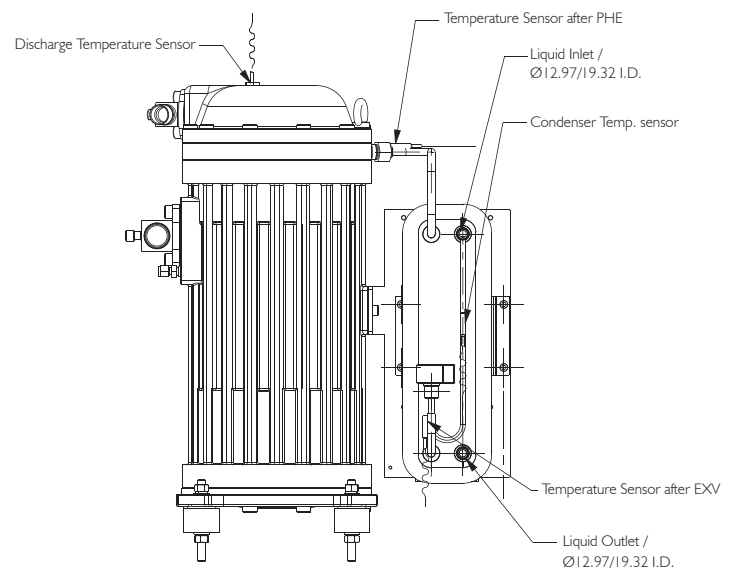
Mounting Kit

5.2 Pipe welding and compressor installation

5.2.1 Welding

- While welding all the joints, be sure to protect the system by charging nitrogen for it can remove oxygen to prevent oxide skin inside the pipe wall.
- Welding material which is recommended: any Cu-Ag alloy can be used, and it is best to contain 45% silver solder
- Wrap the suction and discharge service valves with wet cloth before welding

5.2.2 Connection of the compressor



The liquid inlet of main line: connect to outlet of condenser

The liquid outlet of main line: connect to entrance of expansion valve

In order to prevent impurities from invading into suction side of the compressors, Invotech specially installs the suction filter at the intake port of semi-hermetic scroll compressors of YSF series, so users must connect the low pressure switch to the connection port on the compressor body.

YSF Series

Application instruction

5.2.3 Pipe connection

Compressors of YSF series have significant features of low vibration, so the discharge pipe and the suction pipe do not need extra vibration absorber. The layout of suction pipe and discharge pipe should try to be close to the compressor as possible and parallel to the axis so that torsion generated from starting and stopping of the compressor can be absorbed.

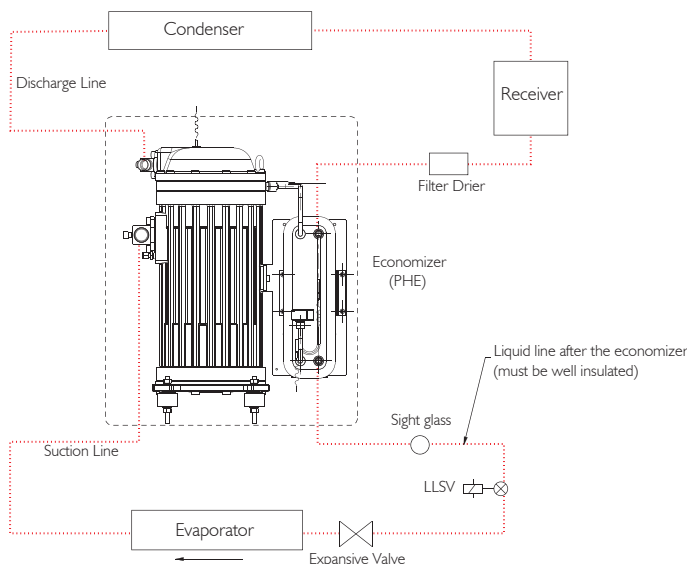
5.2.4 LLSV (Liquid Line Solenoid Valve)

LLSV contributes to separating liquid refrigerant to the low pressure side when the system is off. LLSV should be installed before the main expansion valve and try to approach it so that most of the liquid refrigerant can be reserved at the high pressure side. LLSV can prevent liquid migration on the off cycle. If the migration occurs during the off cycle, liquid is in the crankcase, when the compressor start next time, the explosion of the refrigerant out of the oil is a flood start. It is very dangerous to the compressor.

5.2.5 Insulation of liquid line

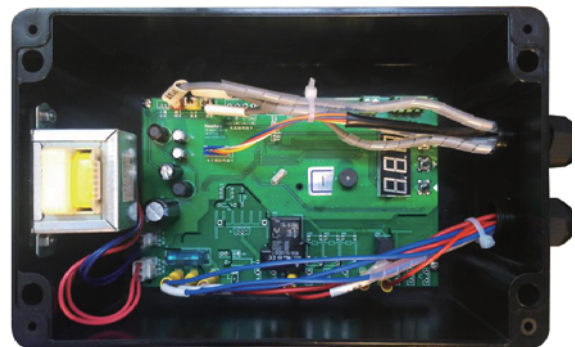
In the system of YSF series compressors, the liquid after the economizer is sub-cooled, and the sub-cooling of the liquid contribute to improve refrigerating capacity and efficiency of the system. No matter what makes the temperature of liquid rise, it will lead to the loss of capacity and efficiency of the system. So the liquid pipe after the economizer (PHE) must be well insulated and there is no need insulating the liquid pipe before the economizer.

6. Casual loop diagram of compressors of YSF series



Included when delivery from factory

7. Electrical connection



7.1 Three-phase motor

All the compressors of YSF series are three-phase, which can be directly start.

7.2 Standard type control board

The control board is a dedicated one for EVI scroll compressors. It is used to detect temperatures and control the operation of both the compressor and electronic expansion valve.

Main technical index:

supply voltage: AC220V \pm 10%,50/60Hz
operating environment: temperature -10°C~50°C, humidity \leq 85%,
no condensation, no corrosion
contact outle capacity: 2A/250VAC (pure resistant load)
thermal sensor: NTC R25=5k Ω , B(25/50)=3470K

Main function:

Control of the compressor:

Start and stop the compressor according to switch signal (passive switching mode contact, no power)

Crankcase heater:

It works when the compressor stops and it ceases heating once the compressor works.

Control of electronic expansion valve for vapor injection

Warning of high discharge temperature:

Give an alarm when discharge temperature goes out of the upper limit and cancel the alarm when the temperature is down and less than the lower limit. If the alarm takes place more than three times in one hour, the compressor will be locked.

Warning output:

When the alarm appears, the control board will output a passive switch signal to warn.

YSF Series

Application instruction

The first start-up mode:

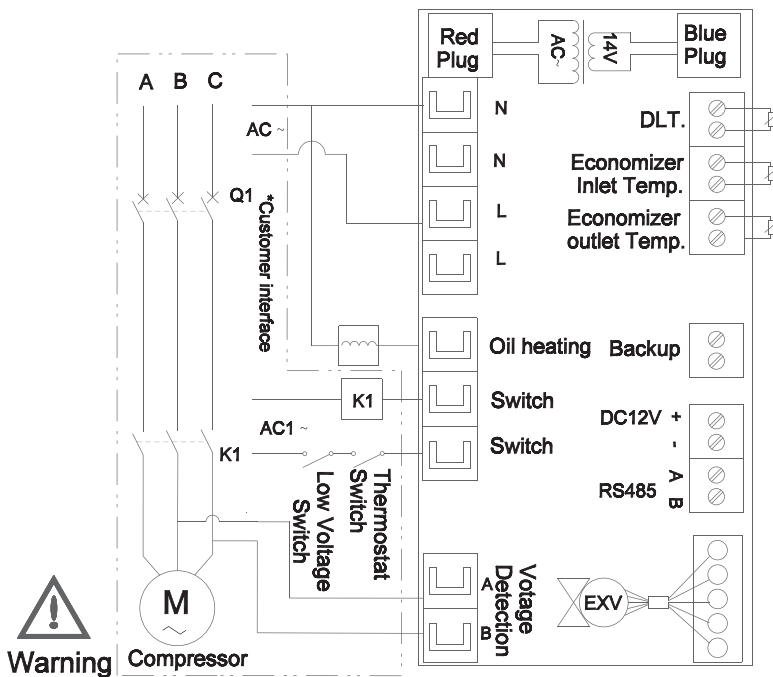
When the compressor meets starting requirements, it should immediately run for 3 seconds and then stop for 17 seconds; repeat for 3 times and then start the normal operation. Required condition: Reapply power after switching off.

Process of start-up:

1. Apply power: check the signal of start/stop, if it is closed means under the start-up condition
2. Under the start-up condition, delay for 3 minutes, then entry the first start-up mode, and then to start the compressor

Process of shutting down:

Checking the signal of start- up and shutting down if it is open.



Warning

Code E07 DLT. exceeds the setting.
 Code E08 Discharge probe shorts out or disconnects (displaying "SHr" or "OPE")
 Code E12 Probe shorts out or disconnects at the economizer entry (displaying "SHr" or "OPE")
 Code E13 Probe shorts out or disconnects at the economizer exit (displaying "SHr" or "OPE")

- NOTES:
1. AC :1&5&7 220VAC
4 460VAC
 2. AC1~: (250V,8A)_{max}
 3. K1 is Ac Contactor(Match by customer)
 4. Operating Voltage:
1 380V/3PH/50Hz
4 460V/3PH/60Hz
5 380V/3PH/60Hz
7 220V/3PH/60Hz

! Only trained and qualified specialist may operate and maintain the described product

YSF Series

Application instruction



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