

HVAC-R INDUSTRY

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PRODUCTION

Turkey has Mediterranean climate, with hot summers and a cold winters. Both climates necessitate extensive air conditioning or heating.

The Turkish companies involved in HVAC-R (Heating, Ventilation, Air-Conditioning-Refrigeration) products had started operating in the 50's. Since the '50s, except during crisis periods, The Turkish air-conditioning and heating sector has been rapidly developing both in production and capacity and the market is growing. In fact, the increase in population and living standards has resulted in the need to produce more HVAC-R products. However, the actual market development began in the late 80's. The number of companies and the type of equipment available on the Turkish HVAC-R market increased rapidly in the 90's. This was also in line with positive developments in the economy of the country. The percentage of domestic air conditioners being used is assumed to be around 2% of the total population of 73 million people.

Though air conditioning, as well as modern heating systems, is still considered a luxury by the majority of the population, sales in larger urban centers or resort areas are growing.

Turkish consumers who are always looking for new products, prefer to use home-produced HVAC-R products, though the Turkish market is wide-open to all world products. This in fact, shows the success of the Turkish HVAC-R industry. Turkish HVAC-R producers have created their own brands, which lead to tight consumer-dependence in the domestic market and these brands are gaining ground in foreign markets, mainly in the EU countries. Major brands in the domestic market are: Arçelik, Beko, Türk Demirdöküm, Baygan-Teba, Alarko Carrier, Vestel, Baymak.

In recent years, companies in the sector have begun to form joint ventures with global firms that they had previously represented for years, thus creating technology transfer opportunities both for Turkey and the HVAC-R sector. At the same time, the corporate activities of Turkish and international investors are opening the gates of international distribution and marketing.

The sector is well organized under various associations. About 130 White Goods Parts and components supplier firms have been organized under the "White Goods Parts Suppliers Association of Turkey- BEYSAD", and six major producers are members of the "White Goods Industrialists Association of Turkey-TÜRKBESD".

In 1993, ISKID-Turkish Air-Conditioning & Refrigeration Manufacturers' Association was established to ensure healthy, effective and systematic development of the air conditioning sector in Turkey. Today, ISKID has 74 member companies.

The Turkish Heating/Cooling Research and Education Foundation (ISKAV) was established in December 1997. It has four purposes: to develop the HVAC market, to strengthen ties between universities and industrial establishments in order to have better-coordinated research and development, to develop the sector's technology and to educate and train qualified assembly and service technicians.

The Turkish HVAC-R sector has a wide range of products from heaters to split A/C systems, boilers, DX units, fan coils, air handling units, refrigerators, freezers, VRF (Variable Refrigerant Flow systems), cooling towers, chillers, cold rooms, heating and

cooling coils and rooftop/package units, heaters and boilers. The product range is wide enough to supply world markets and satisfy sophisticated customer needs.

According to HVAC-R production statistics provided by “Turkish Air-Conditioning & Refrigeration Manufacturers’ Association” (İSKİD) and the “White Goods Industrialists Association of Turkey” (TÜRKBEŞD); Mini split indoor units and outdoor units decreased about 4,163 units and 1,540 units in 2008. The production of mono split sets reached over 1.6 million units in 2008.

While previous year 186 units ducted split were produced, in 2008 the production realized 175 units.

The production of rooftop/package units is around 1,009 units in 2008. Most of the production is for exports.

The production of fan coil units has increased as well in the last 2 years. While in 2007, 45,591 fan coil units were produced, in 2008 the production of fan coil units decreased to 40,468 units. The export of these goods has also improved considerably. This is probably due to the increasing number of Eurovent Certified Turkish manufacturers.

Production and domestic sales of air-handling units is quite high in Turkey. In 2008, 45,920 air-handling units were produced in the sector. In the market there are a large number of local producers, as well as major world producers.

In sector there are very few absorption chiller unit producers but there are reasonable numbers of centrifugal chiller unit producers. Most of the chiller production is for less than 200 kW air-cooled units. In 2008, 547 units water chiller were produced. Air-cooled units are definitely the preferred types, while water-cooled units are mostly used on the large capacity applications.

In last year, refrigerator production decreased. While in 2006 and 2007, production of refrigerators were 6.7 million units and 6.8 million units, in 2008 production exceeded 6 million units, with 12.6% decrease.

Turkish HVAC-R Industry Production (Units)

Products	2006	2007	2008
Window / Portable Air Conditioners	0	15	0
Mono Split Sets	1,021,336	1,316,381	1,661,502
Mini Split (indoor unit)	4,630	5,398	4,163
Mini Split (outdoor unit)	2,315	2,691	1,540
Ducted Split	76	186	175
Rooftop / Packaged Units (DX)	859	1,687	1,009
Fan Coil Units	34,591	45,591	40,468
Air-Handling Unit (AHU) Sections	32,648	39,477	45,920
Water Chillers	210	688	547
Refrigerators (1000 units)	6,740	6,865	6,002

Sources : İSKİD and TÜRKBEŞD

All of these data in general show that there is a continuing positive trend for the HVAC-R market in Turkey. The exports at most of the above products have had a significant increase in the last years. The split air conditioner domestic market has a lot of room for improvement. The central system equipment manufacture is also expected to continue growing steadily in the following years.

Since Turkish HVAC-R manufacturers give high priority to innovation and new product development, research and development activities are continuously conducted.

Turkish HVAC-R manufacturers are also aware of the need to continue to implement procedures necessary for the acquisition of standardization certificates of ISO Standards, CE or Eurovent-Cecomaf. All Turkish manufacturers have affixed the CE Mark to their products. At the beginning of 2003, it became obligatory to fulfill CE Mark requirements in order to sell products in the Turkish domestic market. At the same time, Turkish HVAC-R manufacturers closely follow international and national developments in environmental issues and comply with environmental legislation and regulations.

As to consumer services, end-users are well served by the after-sales services of the appliance manufacturers. The HVAC-R industry follows strict legislation on after-sales services in Turkey.

EXPORTS

In the last decade, the HVAC-R sector of Turkey has turned its attention to exporting its products. The high-technology used in the production process, the high priority given to research and development activities by Turkish HVAC manufacturers, the rising number of Turkish firms which have ISO Certificates and quality standards, the consideration of customer preferences during the designing phase, the consideration of the priorities of the foreign end-users, improved marketing techniques used and well-established after sales services are the reasons for the continuous growth in exports in recent years.

In recent years, Turkish exports of the HVAC-R industry have had an upward trend. While in 2006 and 2007, exports of the HVAC-R industry were valued at US\$2 billion and US\$2.6 billion, in 2009 exports exceeded US\$2.5 billion.

In 2009 the largest export product of the industry was refrigerators and freezers (US\$1.3 billion) with a share of 52%. The second radiators & parts thereof with an export value of US\$381 million with a share of 15%. Air conditioning machines with an export value of US\$252 million emerged as new products for export. The others were central heating boilers (8%) and parts of vacuum pumps, compressors, fans, blowers (3%).

Turkey's Exports of HVAC-R Industry (Value: US\$ 1000)

HS Codes	Products	2006	2007	2008	2009
732181	Domestic iron/steel appliances, gas fuel	16.560	20.376	18.787	26.798
732182	Domestic iron/steel appliances, liquid fuel	695	1.042	1.830	760
732189	Domestic iron/steel appliances, solid fuel	13.412	13.653	12.964	8.527
732190	Parts for domestic non-electric thermic appliances	8.738	9.349	19.560	20.601
7322	Radiators & parts thereof,	367.549	458.922	492.958	381.676
8402	Steam or vapour generating boilers	20.659	35.544	43.784	49.032
8403	Central heating boilers, non-electric	142.341	163.228	213.054	216.400
8404	Auxiliary plant for use with boilers	2.195	5.237	9.899	8.444
841451	Table, window, ceiling fans, electric motor <125 watt	10.383	8.148	6.647	5.355
841459	Electric fans, motor > 125 watts	12.113	20.737	35.238	30.708
841460	Ventilating hoods having a maximum width < 120 cm	39.316	52.997	68.019	66.447
841480	Air or gas compressors, hoods	30.965	43.292	50.668	30.593
841490	Parts of vacuum pumps, compressors, fans, blowers, hoods	63.901	91.848	97.907	81.248
8415	Air conditioning machines, comprising a motor-driven fan and elements	132.713	222.014	374.131	252.751
8416	Furnace burners for liquid fuel or pulverized solid	7.109	10.515	13.264	9.720

	fuel or gas,				
8418	Refrigerators, freezers, electric or other,	1.158.454	1.450.116	1.454.325	1.319.142
841911	Instantaneous gas water heaters	9.891	11.601	12.820	7.185
841919	Instantaneous or storage water heaters, non-electric	6.600	10.647	20.564	17.685
847621	Automatic beverage-vending machines incorporating heating or refrigerating devices	7	76	34	354
847681	Automatic goods-vending machines incorporating heating or refrigerating devices,	17	13	13	13
847960	Evaporative air coolers	721	1.641	1.828	1.470
851610	Electric instantaneous, storage and immersion water heaters	10.155	8.394	11.563	7.242
851621	Electric storage heating radiators	95	27	250	130
Total of the list		2.054.601	2.639.427	2.959.788	2.542.291

Source: Undersecretariat of Foreign Trade (DTM)

Exports by Countries (Value: Million \$)

	2006	2007	2008	2009
United Kingdom	333	410	383	390
Germany	174	180	216	223
France	139	171	182	174
Irak	86	87	115	151
Italy	128	169	154	121
Spain	107	118	111	104
İst. Leather Industry Free Zone	10	31	93	100
Romania	88	124	136	78
Greece	81	101	105	65

Libya	17	33	62	64
Iran	15	32	39	55
Poland	37	46	58	55
Algeria	52	52	60	55
USA	38	42	65	48
Azerbaijan	29	43	61	46
Russia	58	89	107	45
Ukraine	67	91	98	43
Israel	29	53	68	42
Netherlands	27	33	43	38
Sweden	13	22	23	37
Belgium	44	49	48	36
Hungary	33	43	40	34
Bulgaria	46	57	56	29
Morocco	9	24	27	27
Denmark	19	53	27	25
Portugal	14	22	19	23
Turkmenistan	7	8	16	23
Egypt	3	6	10	21

Source: DTM

Turkish HVAC-R industry products were exported to about 182 countries in 2009. The main export markets are the UK, Germany, France, Irak and Italy.

Turkish HVAC-R industry products are exhibited in international and local fairs organised in Turkey. In 2010, 4 fairs, which are listed below, will be organised in Turkey.

- “IHS 2010” Heating, Cooling, Air Conditioning, Natural Gas Technology, Installation, Insulation Trade Fair, in Adana, in February,
- “BURSA 5th HEATING, COOLING, AIR CONDITIONING AND NATURAL GAS TECHNOLOGIES FAIR” in Bursa, in March,
- “KONYA NATURAL GAS 2010” Konya 7th Natural Gas, Heating, Cooling, Air Conditioning, Pumps, Valves, Installation Insulation Equipment and Pipes Trade Fair in Konya, in April,
- “ISK- SODEX 2010”, Heating, Cooling, Ventilation, Insulation, Pumps and Valves Trade Fair, in İstanbul, in May.