



Product Spotlight

WCS Models Series



Water cooled Screw Chiller - (63 Tons to 490 Tons)

Sabro technologies is a wholly owned subsidiary of **Sabro group Pvt., Ltd.**, specializing in research, development and manufacturing of screw type products. The company sells water cooled screw chillers with optimum COP(HIGH ENERGY EFFICIENCY RATIO).

Adhering to the principle of integrity, innovation and excellence, the company constantly creates new products every year according to the market demands. The water cooled screw chillers/ water source heat pumps have the features of high energy efficiency ratio, high reliability, high efficiency, and high automation etc., which continues to lead the domestic refrigeration energy industry, opening a new era of high efficiency screw type of products.



Features

- 1- Using R134a refrigerant
- 2- Positive pressure refrigerant, no need for exhaust device, the design of ventilation is simple
- 3- Using Hanbell semi-closed double screw compressor
- 4- Using high efficiency falling film (spray) evaporator
- 5- Using independent oil return system (ejector pump oil return), which guarantees timely oil return at any loading condition
- 6- The machine adopts fixed orifice plate as flow control device which has no moving parts. The refrigerant flow can be adjusted in time without delay under variable load and variable conditions, so as to ensure stable operation of the package.
- 7- The microcomputer control system of the unit uses Hi-Tech UI, which clearly shows the operation data, and the operation is very convenient.

High reliability

1- Professional design

Hanbell specializes in the research and development of the technology of screw compressors. Its main product screw refrigeration compressor is used in large commercial central air conditioning and refrigeration equipment etc.. After years of development, Hanbell has become one of the most powerful compressor manufacturers in HVAC engineering field. Hanbell screw compressor occupies a larger share in the domestic market of the screw compressor. Since 2006, Hanbell's market share has always been way ahead in the same industry.

2- Authoritative certification

The company has the most advanced water cooled chiller test bench which is certified by the National Quality Supervision and Inspection Center of compressor & refrigeration equipment (Hefei General Machinery Research Institute). The test bench in strictly established accordance with the national standard GB/T10870-2014, GB/T18430.1-2007 and GB/T 19409-2013. Each machine will go through a full set of strict performance test before delivery to ensure the performance of the package.

3- Reliable oil return device-ejector pump

The package uses an ejector pump as oil return component, and it uses medium pressure flash stream as the power, which completes oil return at the low pressure side without the energy loss of the package.



Technical specification of Water cooled screw flooded chiller (Single compressor)

Model Number		WFSC-234S	WFSC-260S	WFSC-280S	WFSC-298S	WFSC-323S	WFSC-348S	WFSC-380S	WFSC-406S	
Nominal cooling capacity	Tons	66.5	74	80.4	85	92	98.6	108	115	
	KW	234	260	283	298	323	346.7	380.7	405.7	
	kCal/h x1000	201	224	243	257	278	211	326	348	
Power input	KW	44.5	48.1	53.8	57.8	60.5	65.8	71.0	73.1	
Rated current	Amps.	79.9	85.2	92.2	98.1	105	112.4	121.2	125	
Power supply	Voltage	380-415-3-50Hz								
Energy efficiency ratio	EER (COP)	17.9 (5.25)	18.5 (5.40)	17.9 (5.26)	17.64 (5.15)	18.24 (5.33)	18 (5.26)	18.25 (5.36)	19 (5.54)	
Capacity steps	%	25-50-75-100 OR step less as optional								
Compressor	Type	Semi-hermetic twin screw								
	Quantity	One	One	One	One	One	One	One	One	
	Starting Method	y-Δ	y-Δ	y-Δ	y-Δ	y-Δ	y-Δ	y-Δ	y-Δ	
	Rated speed (RPM)	2950	2950	2950	2950	2950	2950	2950	2950	
Refrigerant		134a	134a	134a	134a	134a	134a	134a	134a	
Refrigerant Charged										
No. of refrigerant circuit		One	One	One	One	One	One	One	One	
Refrigerant control		Orifice + electronic expansion valve								
Evaporator (cooler)	Type	Shell and Tube Flooded								
	Water passes	2	2	2	2	2	2	2	2	
	Water flow rate	USGPM	159.6	177.6	193	204	221	237	259	276
		m ³ /h	36.2	40.3	43.8	46.3	50.2	53.8	59	62.3
	Water pressure drop	KPa/feet	34/11	36/12	38/13	41/14	43/14	45/15	45/15	46/15
	Water side working pressure	MPa/PSI		1/145	1/145	1/145	1/145	1/145	1/145	1/145
Water connection	mm	DN76	DN76	DN102	DN102	DN102	DN102	DN102	DN102	
	Inch	3	3	4	4	4	4	4	4	
Condenser	Type	Shell and tube								
	Water passes	2	2	2	2	2	2	2	2	
	Water flow rate	USGPM	199.5	222	241.2	255	276	296	324	345
		m ³ /h	45.3	50.42	55	58	62.7	67.2	73.6	78
	Water pressure drop	KPa/feet	36/12	38/13	40/13	43/14	44/14	47/16	48/16	48/16
	Water side working pressure	MPa/Psi	1/145	1/145	1/145	1/145	1/145	1/145	1/145	1/145
Water connection	mm	DN76	DN76	DN102	DN102	DN102	DN102	DN102	DN102	
	Inch	3	3	4	4	4	4	4	4	
Dimensions (mm)	Length	3450	3450	3450	3450	3650	3640	3640	3640	
	width	1500	1500	1500	1500	1550	1550	1550	1600	
	height	1600	1600	1600	1600	1650	1650	1650	1700	
Operating weight	Kg	2800	3000	3200	3450	3450	3450	3550	3550	
Protection devices	High pressure cut out, low pressure cut out, power phase protection, anti-freeze protection, frequent start protection, over current protection, over heat protection Comp., water flow protection, reverse phase protection,									
Operating limits	Leaving Chilled water temp.	5°C-15°C (41°F – 59°F)								
	Entering condenser water temp.	20°C-35°C (68°F – 95°F)								

Specifications are based on standard conditions,

Entering/leaving chilled water 12.7°C/7.2°C (55°F/45°F)

Entering/leaving condenser water 30°C/35°C (85°F/95°F)

Fouling factor 0.0005Btu/hr/S qft/°F

Specifications are subject to change keeping in view improvement in product.

Technical specification of Water cooled screw flooded chiller(Single Compressor)

Model Number		WFSC-430S	WFSC-490S	WFSC-545S	WFSC-585S	WFSC-684S	WFSC-785S	WFSC-860S	
Nominal cooling capacity	Tons	121	139	155	166	194.5	223	245	
	KW	427.3	490.3	544	585	684	783	862	
	kCal/h x1000	366	420	469	502	588	674	741	
Power input	KW	79	90.5	99.5	107.4	122	142	154.5	
Rated current	Amps.	136.4	157	172	186.4	210	251	270	
Power supply	Voltage	380-415-3-50Hz							
Energy efficiency ratio	EER (COP)	18.4 (5.4)	18.4 (5.41)	18.7 (5.46)	18.54 (5.45)	19.13 (5.6)	19 (5.5)	19 (5.6)	
Capacity steps	%	25-50-75-100 OR step less as optional							
Compressor	Type	Semi-hermetic twin screw							
	Quantity	One	One	One	One	One	One	One	
	Starting Method	y-Δ	y-Δ	y-Δ	y-Δ	y-Δ	y-Δ	y-Δ	
	Rated speed (RPM)	2950	2950	2950	2950	2950	2950	2950	
Refrigerant		134a	134a	134a	134a	134a	134a	134a	
Refrigerant Charged									
No. of refrigerant circuit		One	One	One	One	One	One	One	
Refrigerant control		Orifice + electronic expansion valve							
Evaporator (cooler)	Type	Shell and Tube Flooded							
	Water passes	2	2	2	2	2	2	2	
	Water flow rate	USGPM	290.4	333.6	372	398.4	467	535	588
		m ³ /h	66	76	84.5	89.3	106	121.5	133.5
	Water pressure drop	KPa/feet	50/17	53/18	56/19	58/19	60/20	63/21	65/22
	Water side working pressure	MPa/Psi	1/145	1/145	1/145	1/145	1/145	1/145	1/145
	Water connection	mm	DN125	DN125	DN125	DN150	DN150	DN150	DN150
Inch		5	5	5	6	6	6	6	
Condenser	Type	Shell and tube							
	Water passes	2	2	2	2	2	2	2	
	Water flow rate	USGPM	363	417	465	498	583.5	669	735
		m ³ /h	82.4	95	105.6	113	132.5	152	167
	Water pressure drop	KPa/feet	52/18	55/18	58/19	59/20	60/20	62/21	66/22
	Water side working pressure	MPa/Psi	1/145	1/145	1/145	1/145	1/145	1/145	1/145
	Water connection	mm	DN125	DN125	DN125	DN150	DN150	DN150	DN150
Inch		5	5	5	6	6	6	6	
Dimensions (mm)	Length	3640	3640	3640	3640	3640	3640	3640	
	width	1600	1600	1700	1700	1800	1800	1850	
	height	1850	1850	1900	2000	2200	2200	2200	
Operating weight	Kg	4000	4800	5500	5900	6200	6500	7000	
Protection devices	High pressure cut out, low pressure cut out, power phase protection, anti-freeze protection, frequent start protection, over current protection, over heat protection Comp., water flow protection, reverse phase protection,								
Operating limits	Leaving Chilled water temp.	5°C-15°C (41°F – 59°F)							
	Entering condenser water temp.	20°C-35°C (68°F – 95°F)							

Specifications are based on standard conditions,

Entering/leaving chilled water 12.7°C/7.2°C (55°F/45°F)

Entering/leaving condenser water 30°C/35°C (85°F/95°F)

Fouling factor 0.0005Btu/hr/S qft/°F

Specifications are subject to change keeping in view improvement in product.

Technical specification of Water cooled screw flooded chiller, Double compressors

Model Number (WFSC)		850D	980D	1088D	1170SV	1370D	1570D	1725D	
Nominal cooling capacity @65HZ	Tons	243	278	309	332	389	445	490	
	KW	854	980	1087	1169	1368	1566	1724	
	KCal/hx1000	735	841	934	1004	1177	1346	1482	
Power input (each comp.)	KW	79 +79	90 + 90	99 + 99	107+107	122+122	142+142	155+155	
Rated current (each)	Amps.	136+136	157+157	172+172	187+187	211+211	252 +252	270+270	
Power supply	Voltage	380-415-3-50Hz							
Energy efficiency ratio	EER	18.4	18.5	18.7	18.6	19.1	18.8	18.9	
	COP	5.4	5.4	5.5	5.5	5.6	5.5	5.6	
Capacity control	%	25-50-75-100% OR step less as optional							
Compressor	Type	Semi-hermetic twin screw							
	Quantity	two							
	Starting Method	Y-Δ							
	Rated speed	2950RPM							
Refrigerant		134a							
Refrigerant Charged		200+200	210+210	220+220	230+230	240+240	250+250	260+260	
No. of refrigerant circuit		Two							
Refrigerant control		Orifice + electronic expansion valve							
Evaporator (cooler)	Type	Shell and tube flooded							
	Water passes	2							
	Water flow rate	USGPM	583	667	742	797	943	1068	1176
		m ³ /h	134.4	151.5	168.5	181	214	242.5	267
	Water pre. drop	Kpa/feet	55/18	58/19	60/20	60/20	65/22	70/23.5	72 / 24
	Water side working Pre.	Mpa/PSI	1.0MPa/145						
Water connection	MM	DN150	DN150	DN200	DN200	DN200	DN200	DN 200	
	Inch	6	6	8	8	8	8	8	
Condenser	Type	Shell and tube							
	Water passes	2							
	Water flow rate	USGPM	729	834	927	996	1167	1335	1470
		m ³ /h	165.6	189.4	210.5	226	265	303	334
	Water pre. drop	Kpa/feet	58/19	62/21	65/22	70/23	70/23	74/25	80/26
	Water side working pre.	Mpa/PSI	1.0MPa/145						
Water connection	MM	DN150	DN150	DN200	DN200	DN200	DN200	DN 200	
	Inch	6	6	8	8	8	8	8	
Dimensions MM (inches)	Length	4600 (181)			4650(183)				
	width	1750 (69)			1800 (72)				
	height	2000 (79)			2210 (87)				
Operating weight APP.	Kg	6500	6850	7200	7400	7800	8500	9200	
Protection devices	High pressure cut out, low pressure cut out, power phase protection, anti freeze protection, frequent start protection, over current protection, over heat protection Comp., water flow protection, reverse phase protection,								
Operating limits	Leaving Chilled water temp.	5°C-15°C (41°F – 59°F)							
	Entering condenser water temp.	20°C-35°C (68°F – 95°F)							

Specifications are based on standard conditions,
 Entering/leaving chilled water 12.7°C/7.2°C (55°F/45°F)
 Entering/leaving condenser water 30°C/35°C (85°F/95°F)
 Fouling factor 0.0005Btu/hr/S qft/°F
 Specifications are subject to change keeping in view improvement in product.

Technical specification of Water cooled inverter screw flooded chiller, Single compressor

Model Number (WFSC)		220SV	260SV	304SV	370SV	420SV	500SV	556SV	760SV	
Nominal cooling capacity @65HZ	Tons	63.4	74.8	86.4	104.8	119.5	140.8	158.0	216	
	KW	223	263	304	368.6	420	495	556.0	760	
	KCal/hx1000	192	226	261	317	361	426	478	653	
Power input	KW	45	51.2	59.1	71.0	80.4	94	104	142.4	
Rated current	Amps.	76	87	101	122	137.2	160	179	242.5	
Power supply	Voltage	380-415-3-50Hz								
Energy efficiency ratio	EER	16.98	17.5	17.5	17.7	17.8	17.97	18.2	18.2	
	COP	4.9	5.13	5.14	5.19	5.22	5.26	5.34	5.34	
Capacity control		(Modulating) variable speed								
Compressor	Type	Semi-hermetic twin screw								
	Quantity	one								
	Starting Method	By inverter, speed up 0HZ to 65HZ								
	Rated speed @ 65HZ	3840RPM								
Refrigerant		134a								
Refrigerant Charged		160	175	180	190	200	200	212	220	
No. of refrigerant circuit		one								
Refrigerant control		Orifice + electronic expansion valve								
Evaporator (cooler)	Type	Shell and tube flooded								
	Water passes	2								
	Water flow rate	USGPM	152	179.5	207	252	287	338	380	518
		m ³ /h	43.5	40.8	47.0	57.2	65.2	76.8	86.3	117.6
	Water pre. drop	Kpa/feet	34/11	36/12	41/14	45/15	47/16	53/18	56 / 19	63/21
	Water side working Pre.	Mpa/PSI	1.0MPa/145							
Water connection	MM	DN76	DN76	DN102	DN102	DN125	DN125	DN 125	DN150	
	Inch	3	3	4	4	5	5	5	6	
Condenser	Type	Shell and tube								
	Water passes	2	2	2	2	2	2	2	2	
	Water flow rate	USGPM	190	224	259	314	358	422	474	648
		m ³ /h	43.2	50.9	58.8	71.3	81.3	95.8	108	147
	Water pre. drop	Kpa/feet	36/12	38/13	43/14	48/16	48/16	55/18	60/20	62/21
	Water side working pre.	Mpa/PSI	1.0MPa/145							
Water connection	MM	DN76	DN76	DN102	DN102	DN125	DN125	DN 125	DN150	
	Inch	3	3	4	4	4	5	5	6	
Dimensions MM (inches)	Length	3450 (136)			3640 (136)			3640 (136)		
	width	1500 (59)			1550 (61)			1700 (67)		
	height	1600 (63)			1650 (65)			2200 (87)		
Operating weight APP.	Kg	2800	3000	3500	3550	4000	4800	5500	6200	
Protection devices	High pressure cut out, low pressure cut out, power phase protection, anti freeze protection, frequent start protection, over current protection, over heat protection Comp., water flow protection, reverse phase protection,									
Operating limits	Leaving Chilled water temp.			5°C-15°C (41°F – 59°F)						
	Entering condenser water temp.			20°C-35°C (68°F – 95°F)						

Specifications are based on standard conditions,

Entering/leaving chilled water 12.7°C/7.2°C (55°F/45°F)

Entering/leaving condenser water 30°C/35°C (85°F/95°F)

Fouling factor 0.0005Btu/hr/S qft/°F

Specifications are subject to change keeping in view improvement in product.

Technical specification of Water cooled inverter screw flooded chiller, Double compressor

Model Number (WFSC)		840SV	915SV	990SV	1050SV	1110SV	1315SV	1520SV	
Nominal cooling capacity @65HZ	Tons	239	260	281	298	316	374	432	
	KW	840	915	990	1050	1110	1315	1520	
	KCal/hx1000	723	786	850	901	956	1131	1306	
Power input (each comp.)	KW	80 +80	80 + 94	94 + 94	94+ 104	104+104	104+142	142+142	
Rated current (each)	Amps.	137+137	137+160	160+160	160179	179+179	179 +243	243+243	
Power supply	Voltage	380-415-3-50Hz							
Energy efficiency ratio	EER	16.93	17.9	17.9	18.0	18.2	18.5	18.25	
	COP	5.2	5.25	5.25	5.3	5.33	5.43	5.35	
Capacity control		(Modulating) variable speed							
Compressor	Type	Semi-hermetic twin screw							
	Quantity	two							
	Starting Method	By inverter, speed up OHZ to 65HZ							
	Rated speed @ 65HZ	3840RPM							
Refrigerant		134a							
Refrigerant Charged		200+200	200+210	210+210	210+215	215=215	215=220	220+220	
No. of refrigerant circuit		Two							
Refrigerant control		Orifice + electronic expansion valve							
Evaporator (cooler)	Type	Shell and tube flooded							
	Water passes	2							
	Water flow rate	USGPM	574	624	675	715	758	898	1037
		m ³ /h	130.4	142	153	162.3	172	204	236
	Water pre. drop	Kpa/feet	55/18	58/19	60/20	60/20	65/22	70/23.5	72 / 24
	Water side working Pre.	Mpa/PSI	1.0MPa/145						
Water connection	MM	DN150	DN150	DN200	DN200	DN200	DN200	DN 200	
	Inch	6	6	8	8	8	8	8	
Condenser	Type	Shell and tube							
	Water passes	2	2	2	2	2	2	2	
	Water flow rate	USGPM	717	780	843	894	948	1122	1296
		m ³ /h	163	177	191	203	215	255	294
	Water pre. drop	Kpa/feet	58/19	62/21	65/22	70/23	70/23	74/25	80/26
	Water side working pre.	Mpa/PSI	1.0MPa/145						
Water connection	MM	DN150	DN150	DN200	DN200	DN200	DN200	DN 200	
	Inch	6	6	8	8	8	8	8	
Dimensions MM (inches)	Length	4600 (181)			4650(183)				
	width	1750 (69)			1800 (71)				
	height	2000 (79)			2210 (87)				
Operating weight APP.	Kg	6500	6850	7200	7400	7600	7900	8200	
Protection devices	High pressure cut out, low pressure cut out, power phase protection, anti freeze protection, frequent start protection, over current protection, over heat protection Comp., water flow protection, reverse phase protection,								
Operating limits	Leaving Chilled water temp.	5°C-15°C (41°F – 59°F)							
	Entering condenser water temp.	20°C-35°C (68°F – 95°F)							

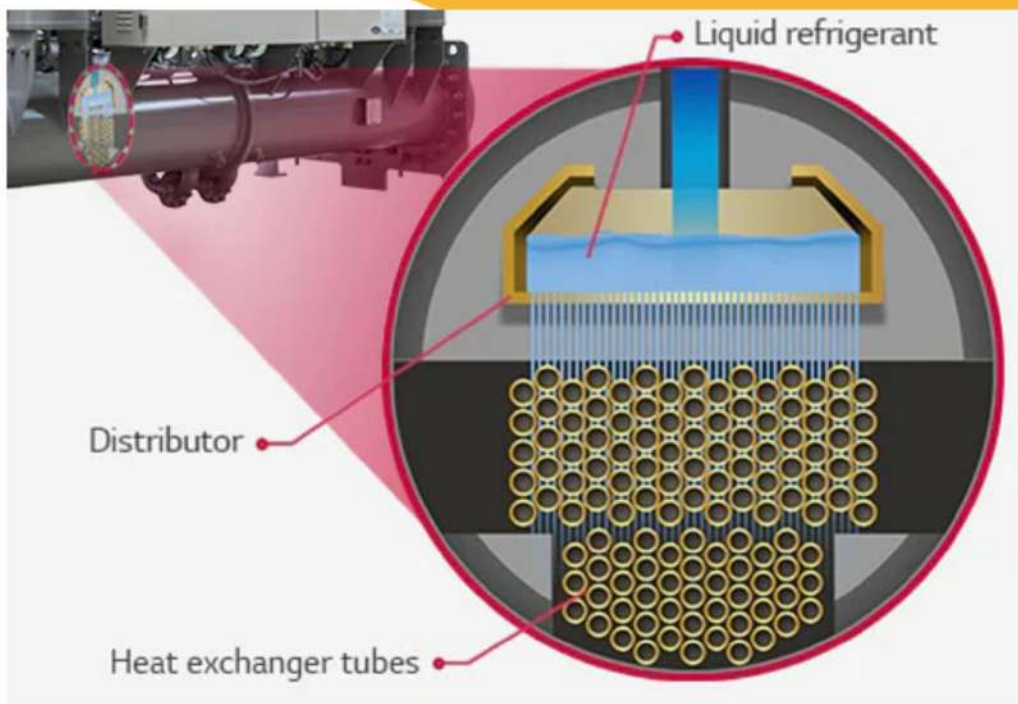
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Entering/leaving condenser water 30°C/35°C (85°F/95°F)

Fouling factor 0.0005Btu/hr/S qft/°F

Specifications are subject to change keeping in view improvement in product.



Inspired By The Stimulus to Grow through Knowledge, interlaced with the zeal and sheer commitment, of an enthusiastic team and Gripped by the Obsession of Three Brothers of turning the dream-into reality, Sabro has evolved, grown and expanded since its inception in 1969.

It was the fruit of commitment, hope and hard work that enabled us to be the pioneers of HVAC manufacturing in Pakistan, exporting to over 22 countries, encapsulating 3 continents. We now thrive as an agile manufacturer for a complete range of HVAC manufacture including Chillers, Self-Contained units, Air-Side Equipment, Mini Split Units & a menagerie of customised HVAC manufacture tailored to suit every HVAC requirement of the customer.

For over five decades, Sabro has been a trusted brand name that has exceeded expectations nationwide & internationally, catering to the needs of both domestic as well international customers.

2014: Obtained BS EN ISO 9001:2008

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