

# H.Stars Explosion-proof Chiller



H.Stars (Guangzhou) Refrigerating Equipment Group Ltd.

As a kind of special air-conditioning equipment, explosion-proof equipment and its components are manufactured in strict accordance with relevant requirements of GB3836, a national explosion-proof standard, and explosion-proof certificate shall be obtained for it. It can be used in special places of high explosion or fire risk, as well as in ordinary circumstances. It is widely used in various industries,

including petroleum, chemical, textile, printing, medicine, and food industries. Flameproof or positive pressure type of explosion proof equipment can be chosen based on the characteristics of the project. Our Explosion proof equipment have two explosion proof levels, Ex d IIB T4 and Ex d IIC T4; other explosion level is also available according to user requirements.

## Explosion proof certificates



## Explosion-proof compressors

Explosion-proof compressors are produced in accordance with the national standard GB3836, have the explosion proof symbol of Exdib mb IIBT4Gb or Ex d e mb II BT4Gb, have passed the national inspection, and have obtained explosion proof certificates. Its main application is in Zones 1 and 2 in the petroleum, chemical industry, metallurgy, pharmaceutical and national defense industries, where explosive gas mixture exists in the air.



## Explosion-proof electrical cabinet

Explosion proof mark: Ex d ib II BT4 Gb

The electrical cabinets come in flameproof and positive pressure types; with their case made of steel plates, they are strong and durable; and they also have an NWN entry system.

Flameproof type: it is used in explosive mixture invades into the cabinet and explodes due to some reason, it will not cause explosion of the explosive mixture outside the cabinet.

Positive pressure type: Positive pressure ventilated explosion proof electrical cabinet achieves explosion prevention by using proper medium to isolate ignition source.



## Explosion-proof fan

They are produced in accordance with the national standard GB3836, have the explosion proof symbol of Exd II CT4Gb by passed national inspection, and have obtained explosion proof certificates.



## Explosion-proof components



## Air-cooled explosion-proof screw chiller

Standard configuration	
Compressor	Explosion-proof screw compressor
Evaporator	Self-developed high performance evaporator
Condenser	Self-developed high performance finned tube condenser
Electrical control cabinet	explosion proof electrical control cabinet
Flow control device	Thermostatic/electronic expansion valve
Fan	Explosion proof motor fan
Cable	Explosion proof cable
Thermal insulation materials	Antisepsis, water proof, and reticular thermal insulation layer
Package	High-strength plastic sheet
Connection of water pipeline	Flange



## Air-cooled explosion proof scroll chiller

Standard configuration	
Compressor	Explosion proof scroll compressor
Evaporator	Self-developed high performance evaporator
Condenser	Self-developed high performance finned tube condenser
Electrical control cabinet	explosion proof electrical control cabinet
Flow control device	Thermostatic expansion valve
Fan	Explosion proof motor fan
Cable	Explosion proof cable
Thermal insulation materials	Antisepsis, water proof, and reticular thermal insulation layer
Package	High-strength plastic sheet
Connection of water pipeline	Flange



## Water-cooled explosion-proof screw chiller

Standard configuration	
Compressor	Explosion-proof screw compressor
Evaporator	Self-developed high performance evaporator
Condenser	Self-developed high performance condenser
Electrical control cabinet	explosion proof electrical control cabinet
Flow control device	Thermostatic/electronic expansion valve
Cable	Explosion proof cable
Thermal insulation materials	Antisepsis, water proof, and reticular thermal insulation layer
Package	High-strength plastic sheet
Connection of water pipeline	Flange



## Water-cooled explosion proof scroll chiller

Standard configuration	
Compressor	Explosion proof scroll compressor
Evaporator	Self-developed high performance evaporator
Condenser	Self-developed high performance finned tube condenser
Electrical control cabinet	explosion proof electrical control cabinet
Flow control device	Thermostatic expansion valve
Cable	Explosion proof cable
Thermal insulation materials	Antisepsis, water proof, and reticular thermal insulation layer
Package	High-strength plastic sheet
Connection of water pipeline	Flange



## Evaporative condenser explosion-proof screw chiller

Standard configuration	
Compressor	Explosion-proof screw compressor
Evaporator	Self-developed high performance evaporator
Condenser	Explosion-proof evaporative condenser
Electrical control cabinet	explosion proof electrical control cabinet
Flow control device	Thermostatic/electronic expansion valve
Fan	Explosion proof motor fan
Cable	Explosion proof cable
Thermal insulation materials	Antisepsis, water proof, and reticular thermal insulation layer
Package	High-strength plastic sheet
Connection of water pipeline	Flange



## Selection of explosion-proof chiller

Usage*	<input type="checkbox"/> Central air conditioner <input type="checkbox"/> Industrial cooling and freezing equipment <input type="checkbox"/> Hot water equipment
Refrigerating/Heating*	<input type="checkbox"/> kW provision <input type="checkbox"/> Material provision
Applicable area category*	<input type="checkbox"/> I <input type="checkbox"/> II A <input type="checkbox"/> II B <input type="checkbox"/> II C
Explosion proof temperature level*	<input type="checkbox"/> T1 <input type="checkbox"/> T2 <input type="checkbox"/> T3 <input type="checkbox"/> T4 <input type="checkbox"/> T5
Cooling mode*	<input type="checkbox"/> Air <input type="checkbox"/> Water <input type="checkbox"/> Evaporative condenser <input type="checkbox"/> Dual
Power supply*	<input type="checkbox"/> 380V <input type="checkbox"/> 4kV <input type="checkbox"/> 6kV <input type="checkbox"/> 10kV
Power frequency	<input type="checkbox"/> 50Hz <input type="checkbox"/> 60Hz
Refrigerant type*	<input type="checkbox"/> R22 <input type="checkbox"/> R134a <input type="checkbox"/> R407C <input type="checkbox"/> R404A <input type="checkbox"/> R410A <input type="checkbox"/> R507
Compressor type	<input type="checkbox"/> Screw <input type="checkbox"/> Scroll
Control mode	<input type="checkbox"/> PLC
Inlet/Outlet water temperature	<input type="checkbox"/> Standard <input type="checkbox"/> Non-standard
Cooling medium	<input type="checkbox"/> Water <input type="checkbox"/> Non-standard
Other requirements	<input type="checkbox"/> Customization

Remarks: Fields with \* are required.

## Relevant standards of explosion proof

Equipment is in strict compliance with national standards:

GB3836.1-2010: Explosive atmospheres-Part 1: *Equipment-General requirements.*

This Part specifies general structure, testing and label requirements for electrical equipment and Ex components for application in explosive atmospheres.

Suitable for use under standard atmosphere conditions in the following dangerous places where explosive environment exists:

Temperature: -20°C ~+60°C;

Pressure: 80kPa~110kPa;

Standard oxygen content (volume ratio): 21%.

Special considerations shall be taken for electrical equipment to be used beyond the atmosphere conditions mentioned above.

It is recommendable to consider the situation combined of explosive gas atmosphere and combustible dust atmosphere and take additional precautions.

Ignition sources not considered in this Part include: adiabatic compression, shock wave, exothermic chemical reaction, spontaneous combustion of dust, open flames, and hot gas/liquid.

Electrical equipment is classified into three types: Type I, Type II, and Type III.

Type I electrical equipment is used in places where coal seam gas exists.

Type II electrical equipment is used in places where there is explosive gas other than coal seam gas.

Type III electrical equipment is used in explosive dust atmospheres other than coal mines.

GB3836.2-2010: *Explosive atmospheres – Part 2: Equipment protection by flameproof enclosures “d”*

This Part specifies special structure and testing requirements for electrical equipment protected by flameproof enclosures “d” for application in explosive atmospheres.

GB3836.5-2010: Explosive atmospheres—Part 5: *Equipment protection by positive pressure case “p”*

This Part specifies special structure and testing requirements for electrical equipment protected by positive pressure case “p” for application in explosive atmospheres.

GB3836.4-2010: Explosive atmospheres-Part 4: *Equipment protection by intrinsic safety “i”*

This Part specifies terms of art, structure, testing and label requirements for electrical equipment protected by intrinsic safety “i” for application in explosive atmospheres and for associated electrical apparatus in explosive atmospheres connected with intrinsically safe circuit.

GB3836.9-2014: *Explosive atmospheres—Part 9: Equipment protection by type of protection “m”*

This Part specifies special structure, testing and label requirements for electrical equipment, equipment parts and Ex components protected by type of protection “m” for application in explosive atmospheres and explosive dust atmospheres.

GB3836.15-2000: *Electrical apparatus for explosive gas atmospheres-Part 15: Electrical installations in hazardous areas (other than mines)*

This Part specifies design, selection, and installation requirements for electrical installation in explosive atmospheres.

This standard is applicable to installation of all electrical equipment in hazardous areas.

This standard is not applicable to electrical installation in coal mines.

## Screw Type Water-cooled Explosion-proof Chiller Technical Parameters

Refrigerant: R22 Power Supply: 380V-3P-50Hz

Model	Nominal cooling capacity		Input power kW	Energy control %	Refrigerant charge kg	Condenser				Evaporator				Operating sound dB(A)	Shipping weight kg	Operating weight kg
	kW	USRT				Pipe connection inch	Water flow m <sup>3</sup> /h	Water Side MAX. Pressure MPa	Water pressure drop kPa	Pipe connection inch	Water flow m <sup>3</sup> /h	Water Side MAX. Pressure MPa	Water pressure drop kPa			
40STD-FB440WS4	438	125	83	0 50 75 100	92	5"	90	1	53	4"	75	1	68	76	2840	3060
40STD-FB530WS4	532	151	100		109	5"	109	1	56	5"	91	1	70	77	3100	3380
40STD-FB610WS4	615	175	115		126	5"	126	1	54	5"	106	1	69	77	4100	4410
40STD-FB690WS4	691	196	128		140	5"	141	1	56	5"	119	1	70	77	4520	4890
40STD-FB800WS4	805	229	146		163	5"	164	1	58	5"	138	1	72	78	4740	5190
40STD-FB880WS4	866	246	158		179	6"	176	1	58	6"	149	1	73	78	5130	5620
40STD-FB940WS4	943	268	172		191	6"	192	1	73	6"	162	1	88	79	5810	6340
40STD-FB1060WS4	1064	303	195		216	6"	217	1	76	6"	183	1	91	79	6230	6760
40STD-FB1290WS4	1199	341	219		264	8"	244	1	79	8"	206	1	94	80	6750	7460
40STD-FB1520WS4	1536	437	272		310	8"	311	1	80	8"	264	1	95	81	7890	8600
40STD-FB1740WS4	1782	507	313	0 25 37.5 50 62.5 75 87.5 100	357	8"	360	1	81	8"	306	1	96	82	8989	10370
40STD-FB1110WD4	1111	316	204		228	6"	226	1	56	6"	191	1	70	82	4820	5450
40STD-FB1220WD4	1230	350	230		252	8"	251	1	56	8"	212	1	70	82	5620	6170
40STD-FB1380WD4	1382	393	256		281	8"	282	1	58	8"	238	1	72	83	5810	6260
40STD-FB1600WD4	1610	458	292		326	8"	327	1	58	8"	277	1	73	83	5980	6440
40STD-FB1880WD4	1886	536	344		383	8"	383	1	73	8"	324	1	88	84	9970	11190
40STD-FB2120WD4	2128	605	390		432	10"	433	1	76	10"	366	1	91	84	10350	11770
40STD-FB2580WD4	2398	682	438		527	10"	488	1	79	10"	412	1	94	85	12820	14450
40STD-FB3040WD4	3072	873	544		621	12"	622	1	80	10"	528	1	95	86	15890	17910
40STD-FB3480WD4	3564	1013	626		714	14"	721	1	81	12"	613	1	96	87	16720	18960

Note:

- Nominal cooling capacity reference: evaporator inlet and outlet water temperature 12°C /7°C , condenser inlet and outlet water temperature 30°C /35°C ; fouling factor 0.088 m<sup>2</sup> ·°C /kW;
- Chilled water temperature range: 5°C ~20°C
- Cooling water temperature range: 15°C ~40°C ;
- Specifications and dimensions will be subject to improvement change without notice.



## Screw Type Water-cooled Explosion-proof Chiller Technical Parameters

Refrigerant: R134a Power Supply 380V-3P-50Hz

Model	Nominal cooling capacity		Input power kW	Energy control %	Refrigerant charge kg	Condenser				Evaporator				Operating sound dB(A)	Shipping weight kg	Operating weight kg
	kW	USRT				Pipe connection inch	Water flow m <sup>3</sup> /h	Water Side MAX. Pressure MPa	Water pressure drop kPa	Pipe connection inch	Water flow m <sup>3</sup> /h	Water Side MAX. Pressure MPa	Water pressure drop kPa			
40STD-FBM440WS4	298	85	53	0 50 75 100	68	5"	60	1	50	4"	51	1	65	76	2700	2930
40STD-FBM530WS4	340	97	60		75	5"	69	1	52	5"	58	1	68	77	2880	3150
40STD-FBM610WS4	400	114	70		81	5"	81	1	52	5"	69	1	65	77	3600	3960
40STD-FBM690WS4	449	128	78		98	5"	91	1	54	5"	77	1	68	77	4100	4370
40STD-FBM800WS4	516	147	90		119	5"	104	1	56	5"	89	1	70	78	4410	4910
40STD-FBM880WS4	572	163	98		136	6"	115	1	50	6"	98	1	70	78	4730	5180
40STD-FBM940WS4	615	175	106		149	6"	124	1	55	6"	106	1	70	79	5360	5590
40STD-FBM1060WS4	719	204	121		162	6"	144	1	58	6"	124	1	75	79	5670	6190
40STD-FBM1290WS4	823	234	140		183	8"	166	1	60	8"	142	1	78	80	6170	7070
40STD-FBM1520WS4	1047	298	174		225	8"	210	1	75	8"	180	1	82	81	7250	8060
40STD-FBM1740WS4	1171	333	192	306	8"	234	1	76	8"	201	1	72	82	8550	9180	
40STD-FBM1110WS4	731	208	130	204	6"	148	1	52	6"	126	1	64	82	4370	4950	
40STD-FBM1220WS4	800	227	140	213	8"	162	1	52	8"	138	1	64	82	5200	5470	
40STD-FBM1380WS4	898	255	156	238	8"	181	1	53	8"	154	1	65	83	5450	5740	
40STD-FBM1600WS4	1032	293	180	272	8"	208	1	55	8"	177	1	68	83	5630	6180	
40STD-FBM1880WS4	1230	350	212	340	8"	248	1	64	8"	212	1	80	84	9450	10400	
40STD-FBM2120WS4	1438	409	242	383	10"	289	1	64	10"	247	1	82	84	9610	11600	
40STD-FBM2580WS4	1646	468	280	476	10"	331	1	65	10"	283	1	83	85	12190	13300	
40STD-FBM3040WS4	2094	595	348	621	12"	420	1	80	10"	360	1	95	86	15890	17910	
40STD-FBM3480WS4	2342	666	384	714	14"	469	1	81	12"	403	1	96	87	16720	18960	

Note:

1. Nominal cooling capacity reference: evaporator inlet and outlet water temperature 12°C /7°C , condenser inlet and outlet water temperature 30°C /35°C ; fouling factor 0.088 m<sup>2</sup> ·°C /kW;
2. Chilled water temperature range: 5°C -20°C
3. Cooling water temperature range: 15°C -40°C ;
4. Specifications and dimensions will be subject to improvement change without notice.

## Screw Type Air-cooled Explosion-proof Chiller Technical Parameters(R22)

Refrigerant: R22 Power Supply: 380V-3P-50Hz

Model	Nominal cooling capacity kW	Compressor Input Power kW	Energy control %	Refrigerant charge kg	Condenser/Fan			Evaporator				Operating sound dB(A)	Shipping weight kg	Operating weight kg
					wStructure Type	Air Volume x1000 m <sup>3</sup> /h	Powerx Unit	Pipe connection inch	Water flow m <sup>3</sup> /h	Water Side MAX. Pressure MPa	Water pressure drop kPa			
40STE-B110AS4	113	36	0, 66, 100	30	Copper tube with corrugated aluminum fins	40	2.0×2	2-1/2"	19	1	28	68	1160	1270
40STE-B160AS4	160	50	0 50 75 100	42		57	1.2×4	3"	28	1	33	68	1730	1920
40STE-B210AS4	214	65		56		80	2.0×4	3"	37	1	48	68	2590	2810
40STE-B240AS4	252	74		68		85	1.2×6	3"	43	1	55	68	2670	2900
40STE-B280AS4	297	86		78		121	2.0×6	4"	51	1	61	72	2750	3020
40STE-B310AS4	319	93		84		121	2.0×6	4"	55	1	64	72	2930	3240
40STE-B340AS4	347	103		93		161	2.0×8	4"	60	1	66	72	3160	3450
40STE-B380AD4	397	120	0 25 37.5 50 62.5 75 87.5 100	104		161	2.0×8	5"	68	1	68	73	4430	4750
40STE-B420AD4	428	130		112		161	2.0×8	5"	74	1	68	73	4550	4970
40STE-B480AD4	504	148		136		170	1.2×12	5"	87	1	70	73	5340	5800
40STE-B560AD4	594	172		142		241	2.0×12	4" *2	102	1	70	75	5500	6040
40STE-B620AD4	638	186		156		241	2.0×12	4" *2	110	1	72	75	5860	6480

Note:

- Nominal cooling capacity reference: DB/WB ambient temperature 35°C /24°C , chilled water inlet and outlet temperature 12°C /7°C ; fouling factor 0.088 m<sup>2</sup> ·°C /kW;
- Chilled water temperature range: 5°C -20°C
- Ambient temperature range: 15°C -43°C ;
- Specifications and dimensions will be subject to improvement change without notice.

## Screw Type Air-cooled Explosion-proof Chiller Technical Parameters(R134a)

Refrigerant: R134a Power Supply: 380V-3P-50Hz

Model	Nominal cooling capacity kW	Compressor Input Power kW	Energy control %	Refrigerant charge kg	Condenser/Fan			Evaporator				Operating sound dB(A)	Shipping weight kg	Operating weight kg
					wStructure Type	Air Volume ×1000 m <sup>3</sup> /h	Power× Unit	Pipe connection inch	Water flow m <sup>3</sup> /h	Water Side MAX. Pressure MPa	Water pressure drop kPa			
40STE-BM110AS4	75	23	0, 66, 100	30	Copper tube with corrugated aluminum fins	28	2.0×2	2-1/2"	13	1	28	68	1160	1270
40STE-BM160AS4	107	32	0 50 75 100	42		40	2.0×2	3"	18	1	33	68	1730	1920
40STE-BM210AS4	143	43		56		80	2.0×4	3"	25	1	48	68	2590	2810
40STE-BM240AS4	169	49		68		80	2.0×4	3"	29	1	55	68	2670	2900
40STE-BM280AS4	195	56		78		80	2.0×4	4"	34	1	61	72	2750	3020
40STE-BM310AS4	217	60		84		85	1.2×6	4"	37	1	64	72	2930	3240
40STE-BM340AS4	236	68		93		121	2.0×6	4"	41	1	66	72	3160	3450
40STE-BM380AD4	277	83		104		121	2.0×6	5"	48	1	68	73	4430	4750
40STE-BM420AD4	286	86	0 25 37.5 50 62.5 75 87.5 100	112		114	1.2×8	5"	49	1	68	73	4550	4970
40STE-BM480AD4	338	98		136		161	2.0×8	5"	58	1	70	73	5340	5800
40STE-BM560AD4	390	112		142		161	2.0×8	4" *2	67	1	70	75	5500	6040
40STE-BM620AD4	434	120		156		170	1.2×12	4" *2	75	1	72	75	5860	6480

Note:

1. Nominal cooling capacity reference: DB/WB ambient temperature 35°C /24°C , chilled water inlet and outlet temperature 12°C /7°C ; fouling factor 0.088 m<sup>2</sup> ·°C /kW;
2. Chilled water temperature range: 5°C -20°C
3. Ambient temperature range: 15°C -43°C ;
4. Specifications and dimensions will be subject to improvement change without notice.

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