

**SYSTEM CONTROLS & COMPONENTS FOR**

- Air Conditioning
- Commercial Refrigeration
- Heat Pumps



- HONGSEN CONTROLS FOR AIR COND. & REF. APPLICATIONS
- COPELAND & KULTHRON COMPRESSORS (THAILAND)
- EGRET PRESSURE SWITCHES
- GENETRON REFRIGERANT (USA)
- AXIAL FANS-REFCO QUALITY TOOLS(SWITZERLAND)
- ELITECH TEMP. CONTROLLERS & SUNUSO OILS



## About Us

Ever since the establishment of United Engineering we have been providing products and solutions for use in Food Retail, Air Conditioning, and Industrial and Commercial Refrigeration. Our comprehensive product portfolio includes valves, sensors, control, Refrigerants, Vacuum pumps, Recovery units, Refrigeration compressor lubricants, Copper tubes & fittings and compressor.

We have been supplying quality and well known products to all industries which includes Refrigeration & Air-condition OEMs, Pharmaceuticals, textiles power, food & beverages, dairy plants, etc.

Our aim is to truly understand customer needs and fulfill them with the right products and solutions.



## Mission Statement

We are dedicated to be a Company well known in our field for its exceptional products, services & integrity. Our friendly knowledgeable and professional staff will help inspire, educate and problem-solve for our valued customers.

## HONGSEN AUTOMATIC CONTROLS FOR

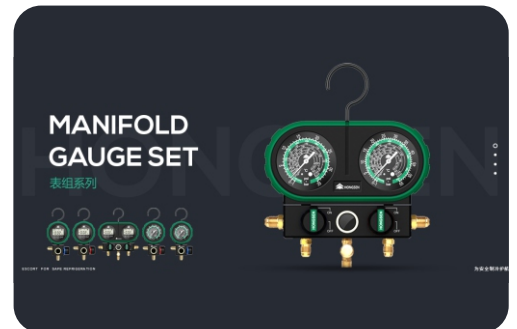
AIR CONDITIONING    COMERCIAL REFRIGERATION    HEAT PUMPS

Hongsen Complete range available Controls that includes Electronic & Thermostatically controlled Expansion Valves, Solenoid Valve, Ball Valves, Sight Glasses, Vibration Absorbers, Check Valves, Filter Driers, Shells & Cores.



## HONGSEN REFRIGERATION TOOLS

Manifold Gauges Set, Pressure Gauges, Quick Couplers Refrigerant Charging hose series, Cutter & Brass fittings.



## COPELAND SCROLL™ COMPRESSORS

### SETTING THE STANDARD

Over 30 years and 150M+ installations later, Emerson's Copeland Scroll compressors continue to lead RELIABILITY TO COMFORT | breadth of portfolio | efficiency and comfort





## Kulthorn Kirby Reciprocating Compressors

For Air Condition & Refrigeration applications

Complete range of R 22 & R 404a Compressors available



## Changzhou Egret Electric Equipment Co.,Ltd.

Egret is a leading manufacturer of adhesive & non-adhesive tapes pressure switches & other HVAC parts for commercial air conditioning systems



**Honeywell**  
Genetron®

## Refrigerants with the future in mind

A world leader in the invention, manufacture and supply of environmentally safer refrigerants.

Our ex-stock Genetron Range includes R 22, R407C,R410A R404A,R134a etc.





AXIAL FAN

## AXIAL FANS MOTORS

Best quality Axial Fans available from 8" to 28" with better air flow and low noise.



## THE SPECIALIST FOR QUALITY TOOLS

If you are looking for installation aids, vacuum pumps, pressure gauges or any other tools for the professional HVAC/R technician, you will find them in our wide range of products



## TEMPERATURE CONTROLLER

For all of your air conditioning and Refrigeration Applications





Arthermo Capillary Thermometers & Thermostats



## SUNISO REFRIGERATION OILS

We have available ex-stock complete range of Suniso oil (Belgium)  
Mineral Oil : 3GS, 4GS,5G & Vacuum Pump Oil  
POE / Synthetic Oil : SL 32, SL 46, SL 56, SL 100 & SL 160



## ***COPPER TUBES & COPPER FITTINGS***

### COPPER PIPE AND FITTINGS

Copper tube, Capillary tubes available in all sizes along with complete Copper fittings range that includes Elbows, Tees, Sockets, Reducers, U-Bend etc.



# Pressure Temperature Chart



°C emp	R717 bar	R22 bar	R134a bar	R404a bar	R507 bar
-60	0.218	0.375	0.159	0.522	0.522
-58	0.249	0.420	0.180	0.544	0.582
-56	0.283	0.469	0.205	0.606	0.648
-54	0.320	0.522	0.232	0.674	0.719
-52	0.362	0.580	0.261	0.747	0.796
-50	0.408	0.644	0.294	0.827	0.880
-48	0.459	0.713	0.330	0.913	0.970
-46	0.515	0.787	0.370	1.006	1.068
-44	0.576	0.868	0.413	1.106	1.173
-42	0.644	0.955	0.460	1.214	1.286
-40	0.717	1.049	0.516	1.330	1.408
-38	0.797	1.151	0.572	1.454	1.523
-36	0.885	1.204	0.633	1.587	1.663
-34	0.98	1.259	0.699	1.730	1.813
-32	1.083	1.376	0.770	1.882	1.973
-30	1.195	1.501	0.847	2.045	2.144
-28	1.315	1.635	0.930	2.218	2.325
-26	1.446	1.930	1.020	2.402	2.518
-24	1.587	2.092	1.116	2.598	2.723
-22	1.738	2.265	1.219	2.806	2.940
-20	1.901	2.448	1.330	3.027	3.170
-18	2.076	2.643	1.448	3.260	3.414
-16	2.263	2.849	1.575	3.507	3.671
-14	2.464	3.068	1.710	3.767	3.942
-12	2.679	3.299	1.854	4.043	4.228
-10	2.908	3.543	2.007	4.333	4.529
-8	3.152	3.801	2.170	4.639	4.846
-6	3.412	4.072	2.344	4.961	5.179
-4	3.688	4.358	2.527	5.299	5.529
-2	3.982	4.659	2.722	5.655	5.896
0	4.294	4.976	2.928	6.028	6.282
2	4.625	5.308	3.146	6.420	6.686
4	4.975	5.657	3.376	6.830	7.108
6	5.345	6.023	3.619	7.260	7.551
8	5.737	6.406	3.876	7.710	8.014
10	6.150	6.807	4.145	8.180	8.498
12	6.586	7.226	4.429	8.672	9.004
14	7.046	7.665	4.728	9.186	9.532
16	7.530	8.123	5.042	9.722	10.084
18	8.039	8.601	5.371	10.281	10.659
20	8.574	9.099	5.716	10.864	11.258
22	9.136	9.619	6.078	11.472	11.883
24	9.725	10.160	6.457	12.104	12.534
26	10.343	10.723	6.853	12.763	13.212
28	10.991	11.309	7.267	13.448	13.919
30	11.669	11.919	7.701	14.160	14.653
32	12.379	12.552	8.153	14.900	15.418
34	13.121	13.210	8.625	15.669	16.213
36	13.896	13.892	9.117	16.468	17.041
38	14.705	14.601	9.630	17.297	17.901
40	15.549	15.335	10.164	18.157	18.795
42	16.429	16.097	10.720	19.049	19.724
44	17.347	16.885	11.299	19.974	20.689
46	18.302	17.702	11.901	20.932	21.692
48	19.297	18.548	12.526	21.925	22.734
50	20.331	19.423	13.176	22.953	23.816
52	21.407	20.328	13.851	24.018	24.94
54	22.525	21.265	14.552	25.120	26.107
56	23.686	22.232	15.278	26.260	27.319
58	24.892	23.232	16.032	27.440	28.578
60	26.143	24.266	16.813	28.660	29.884
62	27.440	25.333	17.623	29.921	31.241
64	28.785	26.435	18.462	31.225	32.649
66	30.179	27.573	19.331	32.572	34.112
68	31.622	28.747	20.231	33.964	35.63
70	33.117	29.959	21.162	35.402	37.207
72	34.664	31.210	22.126	36.887	-
74	36.264	32.500	23.123	-	-
76	37.919	33.832	24.154	-	-
78	39.629	35.205	25.221	-	-

## CONVERSIONS

- $1^{\circ}\text{C} = 1.8^{\circ}\text{F}$  or  $1^{\circ}\text{F} = \frac{5}{9}^{\circ}\text{C}$
- Temperature in  $^{\circ}\text{F} = 1.8^{\circ}\text{C} + 32$
- Temperature in  $^{\circ}\text{C} = \frac{5}{9} (^{\circ}\text{F} - 32)$
- 1 psi = 0.06895 bar = 6.895 kPa or 1 bar = 14.5 psi = 100 kPa
- Cv (U.S. GPM) = Kv multiplied by 1.156 or Kv = Cv multiplied by 0.865
- 1 American Standard Commercial Ton of Refrigeration = 12000 Btu/h = 3024 kcal/h = 3.517 kW
- 1 kW = 0.284 American Standard Commercial Ton of Refrigeration
- 1" (inch) = 25.4 mm or 1 mm = 0.03937"
- 1 ft = 0.3048 m or 1 m = 3.2808 ft
- 1 lb = 0.4536 kg or 1 kg = 2.2046 lbs

Suit # 105-A, 1st Floor, Sajjad Center,  
Block H-3, Johar Town, Expo Center Road,  
54770-Lahore-Pakistan.

T: +92-42-35138742

M: +92-300-4835060

E-mail: [info@unitedengin.com](mailto:info@unitedengin.com)



[www.unitedengin.com](http://www.unitedengin.com)