

RECIPROCATING COMPRESSOR DATA SHEET				DATE	19. APRIL. 2006	REV.	0
				PAGE NO.	1 OF 3		
1	CUSTOMER	Mr. Umer Shariif		PREPARED BY			
2	PJT. NAME	CNG REFUELING STATION EQUIPMENT		PREPARED BY			
3	DOC. NO.	MODEL NO. GEO-A-150		REVIEWED BY			
4	SERVICE	CNG GAS COMPRESSOR		REVIEWED BY			
5	NO. REQ'D	WORKING	STAND-BY	TOTAL	1	APPROVED BY	
6	<b>OPERATION CONDITIONS</b>						
7	NO. OF STAGE(S)	FOUR (4)					
8	GAS HANDLED	CH4 - 96.27, C2H6 - 1.82, C3H8 - 0.43, C4H10 - 1.13, N2 - 0.35 (%)					
9	BAROMETRIC PRESSUF (mmHg)	760					
10	CAPACITY (DRY) (WET) (kg/hr)	226.81 / 314					
11	(DRY) (WET) (Nm <sup>3</sup> /hr)	300 - 480					
12	(m <sup>3</sup> /hr)	480.0					
13	<b>SUCTION CONDITIONS</b>						
14	STAGE	1ST	2ND	3RD	4TH		
15	PRESSURE (kg/cm <sup>2</sup> . G )	0.250 / .760	4.02 / 5.77	11.91 / 16.58	67.41		
16	TEMPERATURE (□)	30	50	50	50		
17	RELATIVE HUMIDITY (%)	DRY	DRY	DRY	DRY		
18	MOLECULAR WEIGHT	16.935	16.935	16.935	16.935		
19	Cp/Cv (K1)	1.3103	1.3103	1.3103	1.3103		
20	COMPRESSIBILITY (Zs)	0.991	0.983	0.953	0.873		
21	<b>DISCHARGE CONDITIONS</b>						
22	PRESSURE (kg/cm <sup>2</sup> . G )	4.47 / 6.22	12.36 / 17.03	51.74 / 70.61	255		
23	TEMPERATURE (□)	133 / 134	134 / 134	178 / 177	197 / 164		
24	Cp/Cv (K2)	1.3103	1.3103	1.3103	1.3103		
25	COMPRESSIBILITY (Zd)	0.989	0.98	0.953	0.985		
26	INTER STAGE PRESS. DROP (kg/cm <sup>2</sup> . G )	0.45	0.45	0.45	0.45		
27	COMPRESSION RATIO (Rc)	3.449 / 3.474	2.65 / 2.655	4.077 / 4.068	4.892 / 3.595		
28	BHP OF EACH STAGE (kw)	16.389 / 20.861	13.742 / 18.018	19.969 / 26.098	22.827 / 23.656		
29	TOTAL BHP (kw)	72.93 / 89					
30	ROTATIONAL SPEED OF COMP'R (rpm)	1480					
31	<b>OTHER CONDITIONS</b>						
32	COMP'R TYPE	<input type="checkbox"/> "D" TYPE <input type="checkbox"/> "Y" TYPE <input type="checkbox"/> "L" TYPE <input type="checkbox"/> "C" TYPE <input type="checkbox"/> "W" TYPE <input checked="" type="checkbox"/> "GEO-A" TYPE					
33		<input type="checkbox"/> NON-LUBRICATED <input checked="" type="checkbox"/> LUBRICATED					
34		<input type="checkbox"/> WATER COOLED <input checked="" type="checkbox"/> AIR COOLED					
35	DRIVER	<input type="checkbox"/> V-BELT    TYPE :    PCS :    LENGTHS :    C    mm),    inch.					
36		COMP' PULLEY DIA.    mm    MOTOR PULLEY DIA    mm.					
37		<input checked="" type="checkbox"/> DIRECT BY COUPLING (DIA : 276)    FLY-WHEEL DIA    500					
38	COMP'R ROTATION (view comp'r coupling side)	<input checked="" type="checkbox"/> CW <input type="checkbox"/> CCW					
39	ELECTRIC MOTOR SPEC.	TYPE <b>TEFC (Exd IIB T4)</b>				MANUFACTURE	
40		SPEC.	110 kw	415 volts	3 phase	50 Hz	4 poles 1480 rpm
41		STARTING METHOD	<input type="checkbox"/> DIRECT ON LINE START		<input type="checkbox"/> Y-□		<input checked="" type="checkbox"/> <b>START DELTA</b>
42		INSULATION CLASS	<input checked="" type="checkbox"/> F	<input checked="" type="checkbox"/> B(temp.)	LOCATION	<input checked="" type="checkbox"/> INDOOR	<input type="checkbox"/> OUTDOOR
43	CAPACITY CONTROL	<input type="checkbox"/> POCKET VALVE <input type="checkbox"/> ON AIR / POWER FAILURE : LOAD					
44		<input checked="" type="checkbox"/> START-STOP <input type="checkbox"/> 2-STEP <input type="checkbox"/> 3-STEP (70%, 80%, 90% POCKET VALVE) <input type="checkbox"/> BY-PASS CONTR					
45		<input type="checkbox"/> BY RECEIVER PRESSURE <input checked="" type="checkbox"/> BY PURCHASER'S INSTRUMENT					
46	COMP'R LOCATION	<input checked="" type="checkbox"/> INDOOR <input type="checkbox"/> OUTDOOR <input type="checkbox"/> UNDER ROOF					
47	ELECTRIC AREA	<input type="checkbox"/> NON-HAZARDOUS <input checked="" type="checkbox"/> HAZARDOUS <input type="checkbox"/>					
48	CONTROL POWER	<input checked="" type="checkbox"/> AC    220 volts    1 phase    50 Hz					
49	PAINTING COLOR (Munsell N)	<input checked="" type="checkbox"/> MANUFACTURER'S STANDARD (2.5G 6/2) <input type="checkbox"/> 5B 7.5/4					
50	APPLICABLE CODE	<input checked="" type="checkbox"/> MANUFACTURER'S STANDARD <input checked="" type="checkbox"/> JOB SPEC. <input checked="" type="checkbox"/> KS & JIS					
51	<b>REMARKS :</b>						
52	SUCTION PRESSURE : 3 ~ 11 PSIG						
53	DISCHARGE PRESSURE : 3600 PSIG						
54							

*KwangShin Machine Ind. Co., Ltd*

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		PAGE NO.	2 OF 3		
1	CUSTOMER	ITEM NO.			
2	PJT. NAME	M/O NO.			
3	SERVICE				
4	<b>CYLINDER DATA</b>				
5	STAGE	1ST	2ND	3RD	4TH
6	NO. OF CYLINDER PER STAGE	1	1	1	1
7	SINGLE / DOUBLE ACTING	SINGLE	SINGLE	SINGLE	SINGLE
8	CYLINDER LINER YES / NO	NO	NO	NO	NO
9	CYLINDER LINER WET / DRY	-	-	-	-
10	OUTSIDE DIA. LINER (mm)	-	-	-	-
11	BORE (mm)	280	237	98	36
12	STROKE (mm)	80	80	80	80
13	PISTON DISPLACEMENT (m <sup>3</sup> /hr)	435.96	123.62	48.4	7.21
14	VOLUMETRIC EFFICIENCY (%)	65.95	65.95	65.95	65.95
15	NO. OF PISTON RING PER STAGE	3 PCS	3 PCS twIN	5 PCS	7 PCS
16	NO. OF RIDER RING PER STAGE	1 PC	-	1 PC	1 PC
17	NO. OF SUC. / DIS. VALVE PER STAGE	2 / 2	1 / 1	1 / 1	1
18	TYPE OF VALVES	PLATE (PEEK)	PLATE (PEEK)	PLATE (PEEK)	PLATE (PEEK/SS)
19	PISTON SPEED (m/s)	3.93	3.933	3.93	3.93
20	ROD DIAMETER (mm)	-	30	30	-
21	ROD LOAD-C (kg)	1369 / 1790	-	TANDEM	2228 / 2247
22	ROD LOAD-T (kg)	-	1890 / 2556	2141 / 2898	TANDEM
23	DESIGN PRESS. (kg/cm <sup>2</sup> . G)	29	67	168	305
24	DESIGN TEMP. (°C)	204	204	204	204
25	HYDRO. TEST PRESS. (kg/cm <sup>2</sup> . G)	44	100.5	252	381
26	SUCTION FLANGE SIZE	3"	2.5"	2"	1"
27	RATING / FACING	M/S	M/S	M/S	M/S
28	DISCHARGE FLANGE SIZE	3"	2.5"	2"	1"
29	RATING / FACING	M/S	M/S	M/S	M/S
30	TYPE OF MAIN BEARING	<input checked="" type="checkbox"/> SPHERICAL ROLLER B/R #23222CE4 x 2		<input type="checkbox"/> METAL B/R	
31	<b>COMPRESSOR MATERIALS</b>				
32	CYLINDER (S)	GCD500 / SCM440 (NITRIDING)	VALVE SEAT (S)	SS431 (HOERBIGER)	
33	CYLINDER LINER (S)	NONE	VALVE GUARD (S)	SS431 (HOERBIGER)	
34	PISTON (S)	AC4C-T6 / SCM440	VALVE PLATE (S)	PEEK (HOERBIGER)	
35	PISTON RING (S)	FILLED PTFE / FILLED PEEK (HOER)	VALVE SPRING (S)	SS304-WPB (HOERBIGER)	
36	RIDER RING (S)	FILLED PTFE / FILLED PEEK (HOER)	CRANK SHAFT	SCM440	
37	DIAPHRAGM	-	CROSS HEAD (S)	SC480	
38	PISTON ROD (S)	SCM440 (ION NITRIDING)	CONNECTING ROD	SC480	
39	COMP'R PACKING	<input type="checkbox"/> NON-LUBRICATED		<input checked="" type="checkbox"/> LUBRICATED(3RD)	
40		<input checked="" type="checkbox"/> SELF COOLED		<input type="checkbox"/> WATER COOLED	
41		<input checked="" type="checkbox"/> FILLED PTFE / BRONZE		<input type="checkbox"/> BRONZE	<input type="checkbox"/> CAF
42	DISTANCE PIECE	<input checked="" type="checkbox"/> STANDARD		<input type="checkbox"/> EXTRA LONG SINGLE COMPARTME	<input type="checkbox"/> TWO COMPARTMENT ("C" TYPE)
43	LUBRICATION	<input type="checkbox"/> SPLASH SYSTEM			
44		<input checked="" type="checkbox"/> PRESS. SYSTEM			
45		OIL PUMP DRIVEN			
46		<input checked="" type="checkbox"/> COMP'R SHAFT FOR MAIN PUMP			
47		<input checked="" type="checkbox"/> ELECTRIC MOTOR FOR AUX. PUMP			
48	<input type="checkbox"/> MANUAL FOR START				
48	LUBRICATOR OIL CAPACITY	22 (l)	<input type="checkbox"/>		
49	<input checked="" type="checkbox"/> ELECTRIC HEATER (W/THERMOSTART)		<input type="checkbox"/> STEAM		
50	REMARKS	SUCTION & DISCHARGE VALVE : HOERBIGER			
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RECIRCATING COMPRESSOR DATA SHEET						DATE	REV.	0			
						PAGE NO.	3 OF 3				
1	CUSTOMER					ITEM NO.					
2	PJT. NAME					M/O NO.					
3	SERVICE										
4	<b>ACCESSORIES</b>										
5	■ SEPARATOR				■ 3RD INTER COOLER						
6	TYPE	■ VOLUME BOTTLES	<input type="checkbox"/>		TYPE :	FIN/ TUBE	Q'TY :	1 SET(S)			
7	Q'TY :	■ SUCTION	<input type="checkbox"/>		FIN DIA. :	37.1	HEAD MAT'L :	A105			
8	3	<input type="checkbox"/>		EACH STAGE SUCTION & DISCHARGE	TUBE SIZE (OD x L x TH'K)	15.9 x 2036 x 2.11					
9	■ SUCTION LINE FILTER				TUBE MAT'L	A179	TUBE Q'TY :	36 PCS			
10	TYPE	■ DRY	<input type="checkbox"/>	OIL BATH	■ INDOOR	<input type="checkbox"/>	OUTDOOR				
11	■ 2 1/2" ANSI 150LB SO.RF				■ 4TH AFTER COOLER						
12	Q'TY :	1			TYPE :	FIN / TUBE	Q'TY :	1 SET(S)			
13	<input type="checkbox"/>				UNLOADER SYSTEM	FIN DIA. :	37.1	HEAD MAT'L :	A105		
14	<input type="checkbox"/>		MAGNETIC TYPE	<input type="checkbox"/>	FILTER & REGULATOR	TUBE SIZE (OD x L x TH'K)	15.9 x 2016 x 2.77				
15	<input type="checkbox"/>		MANUAL TYPE	<input type="checkbox"/>	PRESSURE TRANSMITT	TUBE MAT'L	A179	TUBE Q'TY :	36 PCS		
16	<input type="checkbox"/>				SOLENOID VALVE	■ OIL COOLER					
17	■ LUBRICATION				TYPE :	FIN / TUBE	Q'TY :	1 SET(S)			
18	■ CYLINDER PART		■ LUBRICATOR		FIN DIA. :	37.1	HEAD MAT'L :	A105			
19			■ CHECK VALVE		TUBE SIZE (OD x L x TH'K)	15.9 x 2036 x 1.65					
20			■ INTER PIPING		TUBE MAT'L	A179	TUBE Q'TY :	8 PCS			
21	■ CRANK CASE PART		■ LEVEL GAUGE		■ CHECK VALVE						
22			■ GEAR PUMP		TYPE	LIFT	Q'TY :	1 SET(S)			
23			■ OIL COOLER		SIZE	■ 0.75" TUBE 600LB					
24			■ OIL FILTER		■ BED						
25			■ OIL STRAINER		FOR	■ COMMON BED	Q'TY :	1 SET(S)			
26			■ INTER PIPING			■ MOTOR SLIDE BED	Q'TY :	1 SET(S)			
27	■ 1ST / 2ND INTER COOLER				■ GUARD (NON-SPARKING)						
28	TYPE :	FIN / TUBE	Q'TY :	1+1 SET(S)	FOR	<input type="checkbox"/>	V-BELT	Q'TY :	SET(S)		
29	FIN DIA. :	37.1	HEAD MAT'L :	A105	■ DIRECT COUPLING						
30	TUBE SIZE (OD x L x TH'K)	15.9 x 2036 x 1.65			Q'TY :	1 SET(S)					
31	TUBE MAT'L	A179	TUBE Q'TY :	36/35 PCS	■ PROCESS & UTILITY PIPING						
32			■ SUCTION		■ INTER STAGE						
33			■ DISCHARGE (up to check valve)		■ COOLING WATER		■ OIL ■ INSTRUMENT AIR				
34			■ THE OTHERS		■ ANCHOR BOLT & NUT		■ COUNTER FLANGES ■ NAME PLATE				
35	■ SAFETY VALVE										
36	LOCATION	■ 1ST COOLER	■ 2ND COOLER	■ 3RD COOLER	■ 4TH COOLER						
37	SIZE	1" (SCREWED)	1" (SCREWED)	1" (SCREWED)	1" (SCREWED)						
38	SET POINT (kg/cm <sup>2</sup> . G)	24	50	168	300						
39	Q'TY :	1	1	1	1						
40	DATA OF AIR										
41	SERVICE	1ST COOLER	2ND COOLER	3RD COOLER	4TH COOLER	OIL COOLER					
42	SURF. ARE/(m2)	48.7	47.35	48.7	48.7	10.82					
43	INLET TEMF(□)	133 / 134	134	178 / 177	197 / 164	71					
44	OUTLET TEM(□)	50	50	50	50	50					
45	PRESSURE (kg/cm <sup>2</sup> . G)	4.47 / 6.22	12.36 / 17.03	51.74 / 70.61	255	2.5 ~ 11					
46	NUMBER.OF PASS	4	5	8	12	4					
47	ELECTRIC SERVICE				ALARM & SHUT DOWN						
48		kw	volts	phase	Hz	poles	■ LUBE OIL PRESS. LOW	■ ALARM	<input type="checkbox"/>	SHUTDOWN	
49	MAIN DRIVER	110	415	3	50	4	■ LUB. OIL PRESS. LOW.LOW	<input type="checkbox"/>	ALARM	■ SHUTDOWN	
50	AUX. OIL PUMP	0.75	415	3	50	4	■ SUCTION PRESS. LOW	■ ALARM	■ SHUTDOWN		
51	CONTROL	1.0	220	1	50	-	■ DISCHARGE PRESS. HIGH	■ ALARM	■ SHUTDOWN		
52	OIL HEATER	0.346	220	1	50		■ DISCHARGE TEMP. HIGH	■ ALARM	■ SHUTDOWN		
53	FAN MOTOR	3.7	415	3	50	8	■ VIBRATION HIGH	■ ALARM	<input type="checkbox"/>	SHUTDOWN	
54	REMARKS :										