

A. Estimated Design Criteria:

Total Capacity:	2640 ACFM
Composition:	
Acetylene	7531 lb/hr (65 mol %)
Ethylene	2496 lb/hr (20 mol %)
Nitrogen	718 lb/hr (5.76 mol %)
Water	741 lb/hr (9.24 mol %)
Average Molecular Weight:	25.81
Suction Pressure:	2.60 PSIG
Suction Temperature:	114.8°F (46°C)
Discharge Pressure:	15 PSIG
Discharge Temperature:	140 °F
LRC Power (+10% per HEI):	293 HP
Operating Speed:	380 RPM
Seal Liquid:	10% Formaldehyde Solution
Cooling Water Temperature:	112 °F
Seal Liquid Temperature:	122 °F
Seal Liquid Flow:	75 GPM

GDN sized a CL-4001 compressor for a recirculated seal. All components were assumed NCG with the exception of water.

either location.

OPERATING CONDITIONS

Process gas - Acetylene	10% Bypass			
Capacity -	Average + Control	5% Absorption	Total	
#/hr	15,237	1524	762	17,523
60% of total (#/hr)				10,500

1st Operating Conditions:

ACFM at 15.7 PSIA & 113°F (45°C)	at 60% capacity	2,640
Discharge Press. (PSIA)	27.0	
Brake HP	270	
Density at suction #/cu.ft.	0.0665	
Molecular wt.	25.9	
K =	1.25	
Speed (RPM)	380	
Discharge Temp. (°F)	142	
Heat absorption by seal water (Btu/hr)	576,000	

EN-4172

SPECIFICATION

April 13, 1967

9281	8-2955	2
PROJECT NO.	SPEC. NO.	REV. NO.
Houston		2
PLANT		PAGE NO.

2nd Operating Conditions:

ACFM at 18.4 PSIA & 113°F (45°C)	at 60% capacity	2,640
60% of total #/hr		12,350
Discharge Press. (PSIA)	29.4	
BHP	325	
Speed (RPM)	380	
Discharge Temp. (°F)	144	
Heat absorption by seal water (Btu/hr)	650,000	

The vendor's selection of the model CL4001 gives approx. 10% above the actual process requirements based on compressor displacement of air of 3950 cubic feet.

Suction Pressure

Capacity #/hr

15.7 PSIG	12,240 + water vapor to
2% PSI for Acetylene - 5%	11,600 saturate
18.4 PSIA	14,400 + water vapor to
- 5%	13,600 saturate

1.0 RECYCLE COMPRESSORS

FA No.	5001-7011-6 (-7)
Purchase Order No.	GHC 2955 W
Vendor:	Nash Engineering Co. c/o Sherman Eng. Co. Philadelphia, PA
BPF No.	190946
Function:	To provide necessary acetylene flow to Step I reactor for sparger agitation and to provide nitrogen to the system for startup and shutdown.
Description:	Nash Model CL4001, materials of construction: (a) Body - cast iron overlaid with stainless steel; (b) Heads - cast iron; (c) Cones - cast iron; (d) Rotor - Nodule iron; (e) Shaft - carbon steel; (f) - Packed stuffing box with water flush; (g) Lantern Rings - Teflon®; (h) Type Packing - Teflon® filament. Seal water temperature rise across compressor 13 to 18°F. Seal water temperature is 122°F.
Volumetric cap. when new 3900 ACFM free dry air at suction conditions, at 380 RPM.	
Dew Point of Gas:	135-146°F
Gear Reducer:	Philadelphia Gear Type T4111 with integral cooler and pump with SF-1.75 speed ratio 1770/380 RPM.
High Speed Coupling:	Thomas-Rex (non lubricated)
Low Speed Coupling:	Thomas-Rex (non lubricated)
Rotation:	Clockwise when viewed from driven end.

2.0 RECYCLE COMPRESSOR MOTORS

FA No. 5001-7011-6-60 (7-60)

Purchase Order No. GHC 3075 W

Vendor: Allis Chalmers
551 W. Lancaster Ave.
Haverford, PA

BPF No. 189819

Function: Drive acetylene compressors

Description: 350 HP 1800 RPM synchronous speed, squirrel cage, induction, 2300 volts, three phase, 60 cycles per second NEMA design B frame 507 VS.

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GARDNER DENVER NASH shall furnish all labor materials equipment tools facilities supplies and services not provided by THE LYCRA COMPANY and do all things necessary to perform off-site repair of one CL-4001 Nash Compressor for the THE LYCRA COMPANY La Porte TX Site.

Equipment: CL-4001 NASH COMPRESSOR

BU: THF Building: STEP 1 NASH PLATFORM

Detailed Scope:

REQUIREMENTS TO RETURN UNIT TO MANUFACTURERS SPECIFICATION:

BODY - SS Clad Construction

Sandblast and Prime

HEAD - SS Clad Construction

Sandblast and Prime

CONE - Stainless Steel Construction

Sandblast

CONES - SPECIAL REQUIREMENTS:

ROTOR - Stainless Steel Construction

Bring Back to OEM Specs as Outlined

A light machine cut will be taken on both rotor tapers to re-establish the correct taper degree. Check taper size to ensure dimensions are still within Nash tolerances. The correct degree on the taper and a clean straight profile is critical to proper pump performance.

Dynamically balances the rotor/shaft assembly to customer supplied specifications at G2.5.

SHAFT - Steel Construction

Clean and Reuse

Note: Damage may occur to both the shaft and rotor bore during the removal of shaft from the rotor. Nash will make every effort to prevent this damage during the shaft removal. If sufficient damage occurs to the rotor and/or shaft that renders them unusable additional work such as the repair of the rotor bore and/or the need for a new shaft may be required that is outside of the scope of this proposal. This additional work will be advised to the customer at the time of occurrence and the price of this additional work shall be the responsibility of the customer.

MINOR PARTS: