



## **Unit No. C-526**

### **Performance**



Company: Compass Compression  
 Quote: 1003-059  
 Case 1: Design

## Ariel Performance

Customer: Laricina Energy Ltd.  
 Inquiry: NA  
 Project: Saleski



### Compressor Data:

|                  |         |                   |        |                   |       |
|------------------|---------|-------------------|--------|-------------------|-------|
| Elevation, ft:   | 2500.00 | Barmtr, psia:     | 13.400 | Ambient, °F:      | 95.00 |
| Frame:           | JGA/4   | Stroke, in:       | 3.00   | Rod Dia, in:      | 1.125 |
| Max RL Tot, lbf: | 20000   | Max RL Tens, lbf: | 10000  | Max RL Comp, lbf: | 11000 |
| Rated RPM:       | 1800    | Rated BHP:        | 560.0  | Rated PS FPM:     | 900.0 |
| Calc RPM:        | 1200.0  | BHP:              | 185    | Calc PS FPM:      | 600.0 |

### Driver Data:

|        |          |
|--------|----------|
| Type:  | Electric |
| Mfg:   | Teco     |
| Model: | TEFC     |
| BHP:   | 250      |
| Avail: | 250 (0)  |

### SOUR GAS-1

#### Services

#### Service 1

#### Stage Data:

1

2

3

|                       |               |     |               |               |
|-----------------------|---------------|-----|---------------|---------------|
| Flow Req'd, MMSCFD    | 1.100         | --- | 1.100         | 1.100         |
| Flow Calc, MMSCFD     | 1.102         | --- | 1.102         | 0.888         |
| Cyl BHP per Stage     | 67.4          | --- | 60.7          | 48.6          |
| Specific Gravity      | <i>1.5166</i> | --- | <i>1.5166</i> | <i>1.4060</i> |
| Ratio of Sp Ht (N)    | 1.1398        | --- | 1.1400        | 1.1789        |
| Comp Suct (Zs)        | 0.9722        | --- | 0.9383        | 0.8664        |
| Comp Disch (Zd)       | 0.9416        | --- | 0.8845        | 0.7659        |
| Pres Suct Line, psig  | 14.50         | --- | N/A           | N/A           |
| Pres Suct Flg, psig   | 14.20         | --- | 68.43         | 194.11        |
| Pres Disch Flg, psig  | 70.75         | --- | 199.11        | 590.00        |
| Pres Disch Line, psig | N/A           | --- | N/A           | 580.00        |
| Pres Ratio F/F        | 3.049         | --- | 2.597         | 2.908         |
| Temp Suct, °F         | 60.00         | --- | 120.00        | 120.00        |
| Temp Clr Disch, °F    | 120.00        | --- | 120.00        | N/A           |

|                        |                |                |                |                |
|------------------------|----------------|----------------|----------------|----------------|
| <b>Cylinder Data:</b>  | <b>Throw 1</b> | <b>Throw 3</b> | <b>Throw 4</b> | <b>Throw 2</b> |
| Cyl Model              | 11JG           | 11JG           | 8-7/8JG        | 5-1/8JG        |
| Cyl Bore, in           | 10.500         | 10.500         | 8.500          | 4.750          |
| Cyl RDP (API), psig    | 125.0          | 125.0          | 340.9          | 786.4          |
| Cyl MAWP, psig         | 150.0          | 150.0          | 375.0          | 865.0          |
| Cyl Action             | DBL            | DBL            | DBL            | DBL            |
| Cyl Disp, CFM          | 358.7          | 358.7          | 234.4          | 71.8           |
| Pres Suct Intl, psig   | 12.37          | 12.37          | 63.85          | 184.80         |
| Temp Suct Intl, °F     | 64             | 64             | 123            | 123            |
| Suct Zsph              | 0.9728         | 0.9728         | 0.9393         | 0.8690         |
| Pres Disch Intl, psig  | 76.80          | 76.80          | 213.02         | 620.39         |
| Temp Disch Intl, °F    | 151            | 151            | 205            | 236            |
| HE Suct Gas Vel, FPM   | 5318           | 5318           | 5085           | 4637           |
| HE Disch Gas Vel, FPM  | 4909           | 4909           | 4754           | 4203           |
| HE Spcrrs Used/Max     | 0/4            | 0/4            | 1/4            | 0/2            |
| HE Vol Pkt Avail, %    | 1.92+66.50     | 1.92+66.50     | No Pkt         | No Pkt         |
| Vol Pkt Used, %        | 0.00 (V)       | 0.00 (V)       | No Pkt         | No Pkt         |
| HE Min Clr, %          | 21.16          | 21.16          | 18.67          | 18.55          |
| HE Total Clr, %        | 23.07          | 23.07          | 26.43          | 18.55          |
| CE Suct Gas Vel, FPM   | 5257           | 5257           | 4996           | 4376           |
| CE Disch Gas Vel, FPM  | 4853           | 4853           | 4671           | 3967           |
| CE Spcrrs Used/Max     | 0/4            | 0/4            | 0/4            | 0/2            |
| CE Min Clr, %          | 20.69          | 20.69          | 18.21          | 20.12          |
| CE Total Clr, %        | 20.69          | 20.69          | 18.21          | 20.12          |
| Suct Vol Eff HE/CE, %  | 53.6/57.7      | 53.6/57.7      | 56.0/67.7      | 60.7/57.9      |
| Disch Event HE/CE, ms  | 6.8/8.3        | 6.8/8.3        | 7.6/9.9        | 7.6/8.8        |
| Suct Pseudo-Q HE/CE    | 7.4/7.3        | 7.4/7.3        | 6.8/6.5        | 4.8/4.3        |
| Gas Rod Ld Comp, %     | 50.9 C         | 50.9 C         | 77.6 C         | 72.0 C         |
| Gas Rod Ld Tens, %     | 55.0 T         | 55.0 T         | 82.4 T         | 70.8 T         |
| Gas Rod Ld Total, %    | 55.5           | 55.5           | 83.9           | 75.0           |
| Xhd Pin Deg/%RvrsI lbf | 165/96.1       | 165/96.1       | 179/99.1       | 174/82.5       |
| Flow Calc, MMSCFD      | 0.551          | 0.551          | 1.102          | 0.888          |
| Cyl BHP                | 33.7           | 33.7           | 60.7           | 48.6           |



# Ariel Performance



Company: Compass Compression  
Quote: 1003-059  
Case 4: Shut down sequence

Customer: Laricina Energy Ltd.  
Inquiry: NA  
Project: Saleski

7.6.2.0

## Compressor Data:

|                  |              |                   |        |                   |       |
|------------------|--------------|-------------------|--------|-------------------|-------|
| Elevation, ft:   | 2500.00      | Barmtr, psia:     | 13.400 | Ambient, °F:      | 95.00 |
| Frame:           | JGA/4        | Stroke, in:       | 3.00   | Rod Dia, in:      | 1.125 |
| Max RL Tot, lbf: | 20000        | Max RL Tens, lbf: | 10000  | Max RL Comp, lbf: | 11000 |
| Rated RPM:       | 1800         | Rated BHP:        | 560.0  | Rated PS FPM:     | 900.0 |
| Calc RPM:        | <u>800.0</u> | BHP:              | 116    | Calc PS FPM:      | 400.0 |

## Driver Data:

|        |          |
|--------|----------|
| Type:  | Electric |
| Mfg:   | Teco     |
| Model: | TEFC     |
| BHP:   | 250      |
| Avail: | 250 (0)  |

## SOUR GAS-1

### Services

### Service 1

| Stage Data:            | 1              | ---            | 2              | 3              |
|------------------------|----------------|----------------|----------------|----------------|
| Flow Req'd, MMSCFD     | 1.100          | ---            | 1.100          | 1.100          |
| Flow Calc, MMSCFD      | 0.735          | ---            | 0.735          | 0.592          |
| Cyl BHP per Stage      | 42.0           | ---            | 37.8           | 30.8           |
| Specific Gravity       | <u>1.5166</u>  | ---            | <u>1.5166</u>  | <u>1.4060</u>  |
| Ratio of Sp Ht (N)     | 1.1398         | ---            | 1.1400         | 1.1789         |
| Comp Suct (Zs)         | 0.9722         | ---            | 0.9383         | 0.8664         |
| Comp Disch (Zd)        | 0.9416         | ---            | 0.8845         | 0.7659         |
| Pres Suct Line, psig   | 14.50          | ---            | N/A            | N/A            |
| Pres Suct Flg, psig    | 14.20          | ---            | 68.43          | 194.12         |
| Pres Disch Flg, psig   | 70.76          | ---            | 199.12         | 590.00         |
| Pres Disch Line, psig  | N/A            | ---            | N/A            | 580.00         |
| Pres Ratio F/F         | 3.049          | ---            | 2.597          | 2.908          |
| Temp Suct, °F          | 60.00          | ---            | 120.00         | 120.00         |
| Temp Clr Disch, °F     | 120.00         | ---            | 120.00         | N/A            |
| <b>Cylinder Data:</b>  | <b>Throw 1</b> | <b>Throw 3</b> | <b>Throw 4</b> | <b>Throw 2</b> |
| Cyl Model              | 11JG           | 11JG           | 8-7/8JG        | 5-1/8JG        |
| Cyl Bore, in           | 10.500         | 10.500         | 8.500          | 4.750          |
| Cyl RDP (API), psig    | 125.0          | 125.0          | 340.9          | 786.4          |
| Cyl MAWP, psig         | 150.0          | 150.0          | 375.0          | 865.0          |
| Cyl Action             | DBL            | DBL            | DBL            | DBL            |
| Cyl Disp, CFM          | 239.1          | 239.1          | 156.2          | 47.8           |
| Pres Suct Intl, psig   | 13.39          | 13.39          | 66.39          | 189.98         |
| Temp Suct Intl, °F     | 63             | 63             | 123            | 123            |
| Suct Zsph              | 0.9727         | 0.9727         | 0.9392         | 0.8689         |
| Pres Disch Intl, psig  | 73.47          | 73.47          | 205.35         | 603.62         |
| Temp Disch Intl, °F    | 145            | 145            | 200            | 230            |
| HE Suct Gas Vel, FPM   | 3545           | 3545           | 3390           | 3091           |
| HE Disch Gas Vel, FPM  | 3273           | 3273           | 3169           | 2802           |
| HE Spcrs Used/Max      | 0/4            | 0/4            | 1/4            | 0/2            |
| HE Vol Pkt Avail, %    | 1.92+66.50     | 1.92+66.50     | No Pkt         | No Pkt         |
| Vol Pkt Used, %        | 0.00 (V)       | 0.00 (V)       | No Pkt         | No Pkt         |
| HE Min Clr, %          | 21.16          | 21.16          | 18.67          | 18.55          |
| HE Total Clr, %        | 23.07          | 23.07          | 26.43          | 18.55          |
| CE Suct Gas Vel, FPM   | 3505           | 3505           | 3331           | 2918           |
| CE Disch Gas Vel, FPM  | 3235           | 3235           | 3114           | 2645           |
| CE Spcrs Used/Max      | 0/4            | 0/4            | 0/4            | 0/2            |
| CE Min Clr, %          | 20.69          | 20.69          | 18.21          | 20.12          |
| CE Total Clr, %        | 20.69          | 20.69          | 18.21          | 20.12          |
| Suct Vol Eff HE/CE, %  | 53.6/57.7      | 53.6/57.7      | 56.0/67.7      | 60.7/57.9      |
| Disch Event HE/CE, ms  | 10.2/12.5      | 10.2/12.5      | 11.5/14.8      | 11.5/13.1      |
| Suct Pseudo-Q HE/CE    | 3.3/3.2        | 3.3/3.2        | 3.0/2.9        | 2.1/1.9        |
| Gas Rod Ld Comp, lbf   | 5217 C         | 5217 C         | 7955 C         | 7528 C         |
| Gas Rod Ld Tens, lbf   | 5127 T         | 5127 T         | 7677 T         | 6721 T         |
| Gas Rod Ld Total, lbf  | 10344          | 10344          | 15632          | 14249          |
| Xhd Pin Deg/%RvrsI lbf | 176/99.3       | 176/99.3       | 180/97.8       | 176/86.1       |
| Flow Calc, MMSCFD      | 0.367          | 0.367          | 0.735          | 0.592          |
| Cyl BHP                | 21.0           | 21.0           | 37.8           | 30.8           |



Company: Ariel Corporation  
 Quote:  
 Case 1: Design

## Gas Analysis Data

Customer:  
 Inquiry:  
 Project:



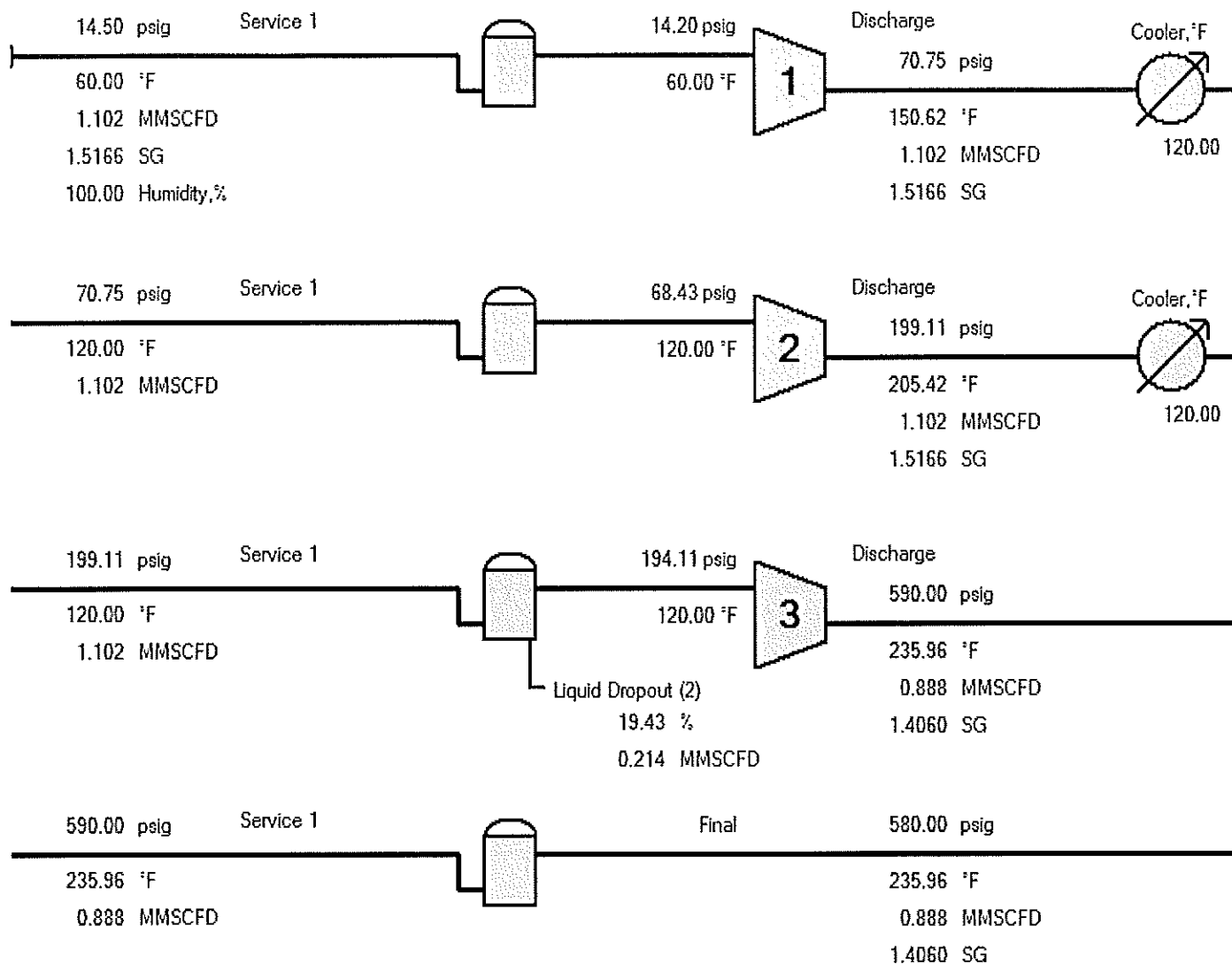
| Services                     | Service  |               |               |          |          |               |               |
|------------------------------|----------|---------------|---------------|----------|----------|---------------|---------------|
| Gas Model                    | VMG      |               |               |          |          |               |               |
| Stage                        | # 1      | # 1           | # 2           | # 3      | # 3      | # 3           | Final         |
| Stream                       | Main     | Vapor         | Vapor         | Liq1     | Liq2     | Vapor         | Vapor         |
| Suction Press, psig          | 14.50    | 14.20         | 68.43         |          |          | 194.11        |               |
| Disch Press, psig            |          | 70.75         | 199.11        |          |          | 590.00        | 580.00        |
| Suction Temp, °F             | 60.00    | 60.00         | 120.00        |          |          | 120.00        | 235.96        |
| Disch Temp, °F               |          | 150.62        | 205.42        |          |          | 235.96        | 235.96        |
| Flow, MMSCFD                 | 1.102    | 1.102         | 1.102         | 0.212    | 0.002    | 0.888         | 0.888         |
| Flow, lb/h                   | 5312.6   | 5312.6        | 5312.6        | 1339.7   | 4.5      | 3968.3        | 3968.3        |
| Flow, GPM                    |          |               |               | 4.903    | 0.009    |               |               |
| Dropout, %                   |          |               |               | 19.219   | 0.206    |               |               |
| Specific Gravity             | 1.5166   | <u>1.5166</u> | <u>1.5166</u> |          |          | <u>1.4060</u> | <u>1.4060</u> |
| Ratio of Sp Ht (N)           |          | <u>1.1398</u> | <u>1.1400</u> |          |          | <u>1.1789</u> |               |
| Comp Suct (Zs)               |          | <u>0.9722</u> | <u>0.9383</u> |          |          | <u>0.8664</u> | <u>0.7842</u> |
| Comp Disch (Zd)              |          | <u>0.9416</u> | <u>0.8845</u> |          |          | <u>0.7659</u> |               |
| Comp @ Std (Zstd)            |          | 0.9853        | 0.9853        |          |          | 0.9853        | 0.9879        |
| Mole Weight                  |          | 43.93         | 43.93         |          |          | 40.72         | 40.72         |
| Density, lb/ft3              |          | 0.224         | 0.616         |          |          | 1.571         | 4.226         |
| Density @ Std, lb/ft3        |          | 0.116         | 0.116         |          |          | 0.107         | 0.107         |
| Enthalpy, Btu/lb             |          | 128.31        | 148.63        |          |          | 143.90        | 178.14        |
| Entropy, Btu/lb-F            |          | 1.0365        | 1.0265        |          |          | 1.0379        | 1.0488        |
| Speed of Sound (Suct), ft/s  |          | 800.17        | 817.63        |          |          | 806.74        | 830.42        |
| Pseudo-Pc, psig              |          | 691.333       | 691.333       |          |          | 716.518       | 716.518       |
| Pseudo-Tc, °F                |          | 162.62        | 162.62        |          |          | 132.51        | 132.51        |
| Cp, Btu/lb-°F                |          | 0.3774        | 0.4137        |          |          | 0.4299        | 0.5331        |
| NHV Mass, BTU/ft3            |          | 1893.29       | 1893.29       |          |          | 1660.01       | 1660.01       |
| Speed of Sound (Disch), ft/s |          | 830.26        | 824.59        |          |          | 809.76        | 829.99        |
| Viscosity, lb/ft-s           |          | 7.19e-006     | 7.79e-006     |          |          | 8.45e-006     | 8.58e-006     |
| Thermal Cond., Btu/ft-h-°F   |          | 1.40e-002     | 1.62e-002     |          |          | 1.80e-002     | 1.85e-002     |
| Heat Load, BTU/h             |          | 6.14e+004     | 1.88e+005     |          |          | N/A           | 2.45e+005     |
| Humidity                     | 100.00   | 100.00        |               |          |          |               |               |
| WATER                        | 0.89202  | 0.89202       | 0.89202       | 0.14110  | 99.88598 | 0.81744       | 0.81744       |
| METHANE                      | 18.89000 | 18.93153      | 18.93153      | 1.97424  |          | 23.02484      | 23.02484      |
| ETHANE                       | 1.27000  | 1.27279       | 1.27279       | 0.49053  |          | 1.46264       | 1.46264       |
| PROPANE                      | 32.54000 | 32.61154      | 32.61154      | 29.55383 |          | 33.42446      | 33.42446      |
| ISOBUTANE                    | 8.48000  | 8.49864       | 8.49864       | 13.79827 |          | 7.25631       | 7.25631       |
| n-BUTANE                     | 9.84000  | 9.86163       | 9.86163       | 18.67629 |          | 7.78436       | 7.78436       |
| ISOPENTANE                   | 4.82000  | 4.83060       | 4.83060       | 13.69782 |          | 2.72789       | 2.72789       |
| n-PENTANE                    | 4.26000  | 4.26937       | 4.26937       | 12.86185 |          | 2.23076       | 2.23076       |
| n-HEXANE                     | 1.01000  | 1.01222       | 1.01222       | 4.19315  |          | 0.25607       | 0.25607       |
| n-HEPTANE                    | 0.10500  | 0.10523       | 0.10523       | 0.49338  |          | 0.01292       | 0.01292       |
| n-OCTANE                     | 0.01190  | 0.01193       | 0.01193       | 0.05934  |          | 0.00065       | 0.00065       |
| n-NONANE                     | 0.00094  | 0.00094       | 0.00094       | 0.00482  |          | 0.00002       | 0.00002       |
| n-DECANE                     | 0.00010  | 0.00010       | 0.00010       | 0.00052  |          |               |               |
| NITROGEN                     | 0.00793  | 0.00795       | 0.00795       | 0.00033  |          | 0.00978       | 0.00978       |
| CARBON DIOXIDE               | 16.69000 | 16.72669      | 16.72669      | 3.29871  | 0.09770  | 19.97226      | 19.97226      |
| HYDROGEN SULFIDE             | 0.87000  | 0.87191       | 0.87191       | 0.35786  | 0.01631  | 0.99672       | 0.99672       |
| TOLUENE                      | 0.01830  | 0.01834       | 0.01834       | 0.08677  |          | 0.00207       | 0.00207       |
| BENZENE                      | 0.07640  | 0.07657       | 0.07657       | 0.31119  |          | 0.02080       | 0.02080       |



Company: Ariel Corporation  
Quote:  
7.6.2.0 Case 1: Design

## Stream Summary

Customer:  
Inquiry:  
Project:



\* Stream Summary is for illustration purposes and does not indicate scope of supply



Company: Ariel Corporation  
Quote:  
Case 1: Design

## Phase Envelope - Service 1

Customer:  
Inquiry:  
Project:

