

APÉNDICE E

Para la Succión de la Bomba

DISEÑO DE UNA BATERIA DE SEPARACION DE HIDROCARBUROS A BAJA PRESION A PARTIR DE PRESION INTERMEDIA

No. EQUIPO : BA-02 A/B
DESCRIPCION: BOMBAS CENTRIFUGAS HORIZONTALES
No. BOMBAS OPERANDO : 1 / 1
TIPO DE MOTORES : MOTOR ELECTRICO

SUCCION DE BOMBA

Tramo # 1 :

| clave de flujo | Q [gpm] | claves de accesorios | Diametro interno [in] | Cantidad | accesorios | Factor K | Δ P [psi] |
|--------------------------------------|---------|----------------------|-----------------------|----------|------------------|----------|----------------|
| 200 | 261.9 | 50 | 7.981 | 1 | pichancha | 0.56 | 0.00777 |
| | | 14 | 7.981 | 1 | gate valve: open | 0.17 | 0.00236 |
| | | 3 | 7.981 | 1 | elbow90std | 0.75 | 0.01041 |
| Δ P [psi] total de accesorios | | | | | | | 0.02054 |

SEGMENTO DE TUBERIA

| clave mat | diametro interno (plg.) | longitud [ft] | material | Rugosidad (/), [ft] | Factor de fricción (f) | Δ P [psi] |
|-----------|---------------------------|-----------------|-----------------|-------------------------|--------------------------|-----------|
| 103 | 7.981 | 10 | acero comercial | 0.000150 | 0.0185 | 0.004 |

Tramo # 2 :

| clave de flujo | Q [gpm] | claves de accesorios | Diametro interno [in] | Cantidad | accesorios | Factor K | Δ P [psi] |
|--------------------------------------|---------|----------------------|-----------------------|----------|------------|----------|-----------|
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| | | | | | | | |
| Δ P [psi] total de accesorios | | | | | | | 0 |

SEGMENTO DE TUBERIA

| clave mat | diametro interno (plg.) | longitud [ft] | material | Rugosidad (/), [ft] | Factor de fricción (f) | Δ P [psi] |
|-----------|---------------------------|-----------------|----------|-------------------------|--------------------------|-----------|
| | | | | | | 0 |

Tramo # 3 :

| clave de flujo | Q [gpm] | claves de accesorios | Diametro interno [in] | Cantidad | accesorios | Factor K | Δ P [psi] |
|--------------------------------------|---------|----------------------|-----------------------|----------|------------|----------|-----------|
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| | | | | | | | |
| Δ P [psi] total de accesorios | | | | | | | 0 |

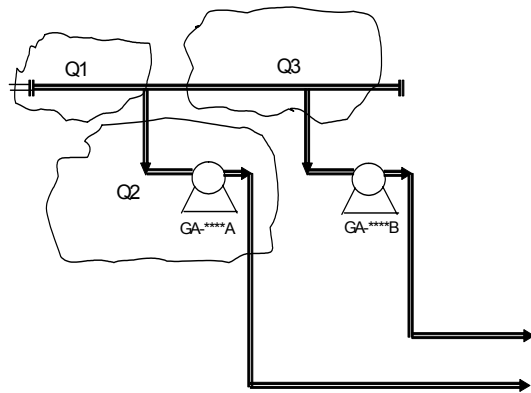
SEGMENTO DE TUBERIA

| clave mat | diametro interno (plg.) | longitud [ft] | material | Rugosidad (/), [ft] | Factor de fricción (f) | Δ P [psi] |
|-----------|---------------------------|-----------------|----------|-------------------------|--------------------------|-----------|
| | | | | | | 0 |

| | | |
|---|------------|----------------|
| Caída de presión total en la succión | psi | 0.02441 |
|---|------------|----------------|

Factores para la caída de presión de los accesorios.

| clave | FITTINGS | Pipe Fitting Factor(K) | clave | material de la tubería | rugosidad(/) |
|-------|------------------------------------|------------------------|-------|--------------------------|----------------|
| 1 | elbow45std | 0.35 | 100 | hierro fundido | 0.00085 ft |
| 2 | elbow45long | 0.2 | 101 | hierro galvanizado | 0.0006 ft |
| 3 | elbow90std | 0.75 | 102 | hierro fundido asfaltado | 0.0004 ft |
| 4 | elbow90long | 0.23 | 103 | acero comercial | 0.00015 ft |
| 5 | elbow 90 mitre | 1.3 | 104 | tubo estirado | 0.000005 ft |
| 6 | 180 degree close return | 1.5 | | | |
| 7 | 180 degree long radius return | 0.25 | clave | tipo de flujo | [gpm] |
| 8 | Tee branch blanked | 0.4 | 200 | Q1 = Q'1 | 261.9 |
| 9 | tee as elbow | 1 | 201 | Q2 = Q'2 | 130.95 |
| 10 | tee flow from line to branch | 1.3 | 202 | Q3 = Q'2 | 130.95 |
| 11 | tee flow from branch to line | 2.15 | | | |
| 12 | coupling/union | 0.04 | | | |
| 13 | ball valve | 0.17 | | | |
| 14 | gate valve: open | 0.17 | | | |
| 15 | gate valve: three quarter | 0.9 | | | |
| 16 | gate valve: half | 4.5 | | | |
| 17 | gate valve: one quarter | 24 | | | |
| 18 | gate valve: wedge disc | 0.19 | | | |
| 19 | gate valve: double disc | 0.13 | | | |
| 20 | diaphragm valve: open | 2.3 | | | |
| 21 | diaphragm valve: three quarter | 2.6 | | | |
| 22 | diaphragm valve: half | 4.3 | | | |
| 23 | diaphragm valve: one quarter | 21 | | | |
| 24 | globe valve: open | 6 | | | |
| 25 | globe valve: half | 9.5 | | | |
| 26 | globe valve: composition disc | 7.3 | | | |
| 27 | globe valve: bevel seat | 7.2 | | | |
| 28 | globe valve: plug disc | 10.3 | | | |
| 29 | angle valve: open | 2 | | | |
| 30 | blowoff valve: open | 3 | | | |
| 31 | plug cock: angle 5 | 0.05 | | | |
| 32 | plug cock: angle 10 | 0.29 | | | |
| 33 | plug cock: angle 20 | 1.56 | | | |
| 34 | plug cock: angle 40 | 17.3 | | | |
| 35 | plug cock: angle 60 | 206 | | | |
| 36 | butterfly valve: angle 5 | 0.24 | | | |
| 37 | butterfly valve: angle 10 | 0.52 | | | |
| 38 | butterfly valve: angle 20 | 1.54 | | | |
| 39 | butterfly valve: angle 40 | 10.8 | | | |
| 40 | butterfly valve: angle 60 | 118 | | | |
| 41 | check valve: swing | 2 | | | |
| 42 | check valve: disk | 10 | | | |
| 43 | check valve: ball | 70 | | | |
| 44 | foot valve | 15 | | | |
| 45 | water meter: disk | 7 | | | |
| 46 | water meter: piston | 15 | | | |
| 47 | water meter: rotary | 10 | | | |
| 48 | water meter: turbine | 6 | | | |
| 49 | bell mouth: inlet or reducer | 0.05 | | | |
| 50 | inlet: square edged inlet | 0.56 | | | |
| 51 | projecting: inward projecting pipe | 1 | | | |



El Método ASTM D323 cubre las determinaciones de la Presión de VapoAbsoluta de petróleo crudo y de productos derivados del petróleo no volátiles, excepto los gases de petróleo licuados (ASA:Z11.44).

La construcción de las bombas y manómetros que se usan para la determinación de la presión de vapor absoluta cumple las normas ASTM. Los sellos se realiza mediante la utilización de O'Rings, y todas las conexiones son del tipo "libre de pérdidas" Cada bomba ha sido probadas a 500 psi utilizando aire.