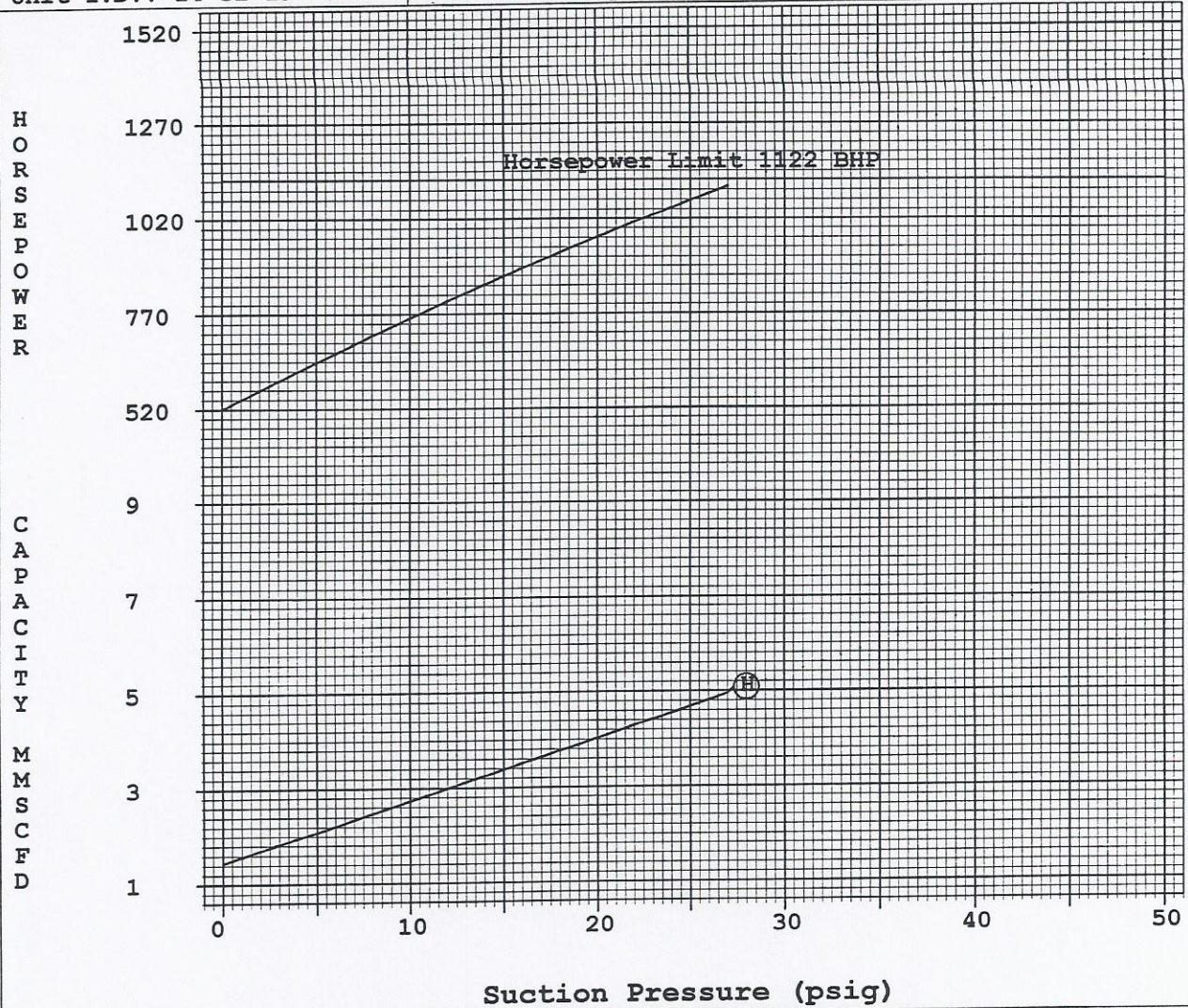


Weatherford Compression

RECIPROCATING COMPRESSOR CALCULATIONS

Unit I.D.: 14-32-19-19W4M Location: JumpBush Model: E504 (FE-565A-43)



UNIT DATA		Cylinder Data					
Date	03-26-2001	Step #	Stage Ref.	Cyl. Dia. (Inches)	Clearance %		Cyl. Ref.
Atm. Press. (PSIA)	13.197	100%	1	20.000	H.E. 27.50	C.E. 13.98	1
Rated Horsepower (BHP) ..	4800.0	100%	2	11.000	19.47	18.16	2
Rated Speed (RPM)	1500	100%	3	6.250	21.62	22.33	3
Curve Speed (RPM)	1200						
# of Stages	3						
K-Value	1.260						
Sp. Gravity689						
Rod Diameter (Inches) ..	2.25						
Unit Stroke (Inches) ..	5.000						
Disch. Press. (PSIG) ..	925						

COMMENTS AND NOTES

DBL/DBL/DBL VVCP'S CLOSED.

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WEATHERFORD COMPRESSION SERVICES

LOCATION: JumpBush
ELEVATION(FT): 2919
Tc(DEG R): 386.0

ATMOS. PR. (PSIA): 13.197
Pc(PSIA): 669.5

DATE: 03-26-2001
AMB. TEMP (DEG F): 100

DRIVER: Waukesha
MODEL: L5108GSI
MAX BHP: 1122
MAX RPM: 1200
DRIVER LOAD(%): 64.3

COMPRESSOR: GEMINI
MODEL: E504
MAX BHP: 4800.0
MAX RPM: 1500
DESIGN RPM: 1200

STROKE (IN): 5.000
ROD DIA (IN): 2.250
R/L TENSION: 40000
R/L COMPR: ~~47500~~ 40000
PISTON SPEED (FPS): 1000

CYLINDER DATA

CYLINDER #	1	2	3
STAGE #	1	2	3
CYL. BORE (IN)	20.000	11.000	6.250
M.A.W.P. (PSIG)	250	1000	2200
CYL. ACTION (DA/SA)	DA	DA	DA
PISTON DISPL. (ACFM)	2167.9	646.1	199.2

PRESSURES AND TEMPERATURES

	1	2	3
INLET PRES. (PSIG)	5.0	58.4	242.2
DISCH. PRES. (PSIG)	60.1	249.5	925.0
COMP. RATIO (Pd/Ps)	4.1	3.7	3.7
Ts (DEG-F)	68	120	120
Td (ADIAB) (DEG-F)	245	298	300
Td (EST.) (DEG-F)	264	304	307

FLOW CONDITIONS AND HORSEPOWER

	1	2	3
CAP. PER CYL. (MMSCFD)	2.41	2.41	2.41
STAGE CAP. (MMSCFD)	2.41	2.41	2.41
SP. GRAVITY (Air=1)	.689	.689	.689
K VALUE (Cp/Cv)	1.260	1.260	1.260
ZS	.996	.990	.964
ZD	.995	.987	.961
CYL. IHP (PER/CYL)	205	203	200
CYL. BHP (TOTAL)	667		
TOTAL UNIT BHP	667 + 56(parasitic hp) = 723		

CLEARANCE DATA

	1	2	3
H.E. BASE CLR (%)	13.97	19.47	21.62
C.E. BASE CLR (%)	13.98	18.16	22.33
ADDED CLR H.E. (%)	.0	.0	.0
ADDED CLR H.E. (IN^3)	.0	.0	.0
PKT. TRAVEL (IN)	.00	.00	.00
ADDED CLR C.E. (%)	.0	.0	.0
ADDED CLR C.E. (IN^3)	.0	.0	.0
H.E. VOL. EFF (%)	63.51	57.25	52.77
C.E. VOL. EFF (%)	63.49	59.63	51.46
VLV. VEL. INLET (FPM)	6322	6129	5977
VLV. VEL. DISCH. (FPM)	6322	6129	5977

ROD LOADS AND REVERSALS

	1	2	3
ROD LOAD TENS (LB)	17087	17119	17468
ROD LOAD COMPR (LB)	17450	18449	22251
ROD LOAD (COMBINED)	34537	35568	39719
REVERSAL (YES/NO)	YES	YES	YES

EASY SIZE VERSION #: 2.80-SE1

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WEATHERFORD COMPRESSION SERVICES

LOCATION: JumpBush
ELEVATION (FT): 2919
Tc (DEG R): 386.0

ATMOS. PR. (PSIA): 13.197
Pc (PSIA): 669.5

DATE: 03-26-2001
AMB. TEMP (DEG F): 100

DRIVER: Waukesha
MODEL: L5108GSI
MAX BHP: 1122
MAX RPM: 1200
DRIVER LOAD (%): 84.0

COMPRESSOR: GEMINI
MODEL: E504
MAX BHP: 4800.0
MAX RPM: 1500
DESIGN RPM: 1200

STROKE (IN): 5.000
ROD DIA (IN): 2.250
R/L TENSION: ~~40000~~ 40000
R/L COMPR: ~~47500~~ 40000
PISTON SPEED (FPS): 1000

CYLINDER DATA

CYLINDER #	1	2	3
STAGE #	1	2	3
CYL. BORE (IN)	20.000	11.000	6.250
M.A.W.P. (PSIG)	250	1000	2200
CYL. ACTION (DA/SA)	DA	DA	DA
PISTON DISPL. (ACFM)	2167.9	646.1	199.2

PRESSURES AND TEMPERATURES

INLET PRES. (PSIG)	12.0	84.5	326.9
DISCH. PRES. (PSIG)	87.0	336.7	1200.0
COMP. RATIO (Pd/Ps)	4.0	3.6	3.6
Ts (DEG-F)	68	120	120
Td (ADIAB) (DEG-F)	243	294	295
Td (EST.) (DEG-F)	262	299	301

FLOW CONDITIONS AND HORSEPOWER

CAP. PER CYL. (MMSCFD)	3.36	3.36	3.36
STAGE CAP. (MMSCFD)	3.36	3.36	3.36
SP. GRAVITY (Air=1)	.689	.689	.689
K VALUE (Cp/Cv)	1.260	1.260	1.260
ZS	.995	.986	.952
ZD	.993	.983	.952
CYL. IHP (PER/CYL)	282	276	269
CYL. BHP (TOTAL)	887		
TOTAL UNIT BHP	887 + 56 (parasitic hp) = 943		

4114
3.54
3.36
0.18 mmsec

CLEARANCE DATA

H.E. BASE CLR (%)	13.97	19.47	21.62
C.E. BASE CLR (%)	13.98	18.16	22.33
ADDED CLR H.E. (%)	.0	.0	.0
ADDED CLR H.E. (IN^3)	.0	.0	.0
PKT. TRAVEL (IN)	.00	.00	.00
ADDED CLR C.E. (%)	.0	.0	.0
ADDED CLR C.E. (IN^3)	.0	.0	.0
H.E. VOL. EFF (%)	63.98	58.35	54.46
C.E. VOL. EFF (%)	63.96	60.66	53.21
VLV. VEL. INLET (FPM)	6322	6129	5977
VLV. VEL. DISCH. (FPM)	6322	6129	5977

ROD LOADS AND REVERSALS

ROD LOAD TENS. (LB)	23252	22580	22287
ROD LOAD COMPR. (LB)	23750	24360	28512
ROD LOAD (COMBINED)	47002	46940	50799
REVERSAL (YES/NO)	YES	YES	YES

EASY SIZE VERSION #: 2.80-SE1

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WEATHERFORD COMPRESSION SERVICES

LOCATION: JumpBush
ELEVATION (FT): 2919
Tc (DEG R): 386.0

ATMOS. PR. (PSIA): 13.197
Pc (PSIA): 669.5

DATE: 03-26-2001
AMB. TEMP (DEG F): 100

DRIVER: Waukesha
MODEL: L5108GSI
MAX BHP: 1122
MAX RPM: 1200
DRIVER LOAD (%): 80.1

COMPRESSOR: GEMINI
MODEL: E504
MAX BHP: 4800.0
MAX RPM: 1500
DESIGN RPM: 1200

STROKE (IN): 5.000
ROD DIA (IN): 2.250
R/L TENSION: 40000
R/L COMPR: ~~47500~~ 40000
PISTON SPEED (FPS): 1000

CYLINDER DATA

CYLINDER #	1	2	3
STAGE #	1	2	3
CYL. BORE (IN)	20.000	11.000	6.250
M.A.W.P. (PSIG)	250	1000	2200
CYL. ACTION (DA/SA)	DA	DA	DA
PISTON DISPL. (ACFM)	2167.9	646.1	199.2

PRESSURES AND TEMPERATURES

	1	2	3
INLET PRES. (PSIG)	12.0	81.1	291.6
DISCH. PRES. (PSIG)	83.5	300.4	925.0
COMP. RATIO (Pd/Ps)	3.9	3.3	3.1
Ts (DEG-F)	68	120	120
Td (ADIAB) (DEG-F)	238	283	272
Td (EST.) (DEG-F)	255	285	273

FLOW CONDITIONS AND HORSEPOWER

	1	2	3
CAP. PER CYL. (MMSCFD)	3.41	3.41	3.41
STAGE CAP. (MMSCFD)	3.41	3.41	3.41
SP. GRAVITY (Air=1)	.689	.689	.689
K VALUE (Cp/Cv)	1.260	1.260	1.260
ZS	.995	.986	.957
ZD	.993	.983	.953
CYL. IHP (PER/CYL)	280	264	239
CYL. BHP (TOTAL)	843		
TOTAL UNIT BHP	843 + 56 (parasitic hp) = 899		

CLEARANCE DATA

	1	2	3
H.E. BASE CLR (%)	13.97	19.47	21.62
C.E. BASE CLR (%)	13.98	18.16	22.33
ADDED CLR H.E. (%)	.0	.0	.0
ADDED CLR H.E. (IN^3)	.0	.0	.0
PKT. TRAVEL (IN)	.00	.00	.00
ADDED CLR C.E. (%)	.0	.0	.0
ADDED CLR C.E. (IN^3)	.0	.0	.0
H.E. VOL. EFF (%)	65.31	61.68	61.36
C.E. VOL. EFF (%)	65.29	63.78	60.32
VLV. VEL. INLET (FPM)	6322	6129	5977
VLV. VEL. DISCH. (FPM)	6322	6129	5977

ROD LOADS AND REVERSALS

	1	2	3
ROD LOAD TENS (LB)	22158	19596	15953
ROD LOAD COMPR (LB)	22641	21217	20933
ROD LOAD (COMBINED)	44799	40813	36886
REVERSAL (YES/NO)	YES	YES	YES

EASY SIZE VERSION #: 2.80-SE1

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WEATHERFORD COMPRESSION SERVICES

LOCATION: JumpBush
ELEVATION (FT): 2919
Tc (DEG R): 386.0

ATMOS. PR. (PSIA): 13.197
Pc (PSIA): 669.5

DATE: 03-26-2001
AMB. TEMP (DEG F): 100

DRIVER: Waukesha
MODEL: L5108GSI
MAX BHP: 1122
MAX RPM: 1200
DRIVER LOAD (%): 82.3

COMPRESSOR: GEMINI
MODEL: E504
MAX BHP: 4800.0
MAX RPM: 1500
DESIGN RPM: 1200

STROKE (IN): 5.000
ROD DIA (IN): 2.250
R/L TENSION: 40000
R/L COMPR: ~~47500~~ 40000
PISTON SPEED (FPS): 1000

CYLINDER DATA

CYLINDER #	1	2	3
STAGE #	1	2	3
CYL. BORE (IN)	20.000	11.000	6.250
M.A.W.P. (PSIG)	250	1000	2200
CYL. ACTION (DA/SA)	DA	DA	DA
PISTON DISPL. (ACFM)	2167.9	646.1	199.2

PRESSURES AND TEMPERATURES

	1	2	3
INLET PRES. (PSIG)	13.0	84.3	298.5
DISCH. PRES. (PSIG)	86.8	307.6	925.0
COMP. RATIO (Pd/Ps)	3.9	3.3	3.0
Ts (DEG-F)	68	120	120
Td (ADIAB) (DEG-F)	237	281	269
Td (EST.) (DEG-F)	254	283	270

FLOW CONDITIONS AND HORSEPOWER

	1	2	3
CAP. PER CYL. (MMSCFD)	3.55	3.55	3.55
STAGE CAP. (MMSCFD)	3.55	3.55	3.55
SP. GRAVITY (Air=1)	.689	.689	.689
K VALUE (Cp/Cv)	1.260	1.260	1.260
ZS	.995	.986	.956
ZD	.993	.983	.952
CYL. IHP (PER/CYL)	291	272	244
CYL. BHP (TOTAL)	867		
TOTAL UNIT BHP	867 + 56 (parasitic hp) = 923		

CLEARANCE DATA

	1	2	3
H.E. BASE CLR (%)	13.97	19.47	21.62
C.E. BASE CLR (%)	13.98	18.16	22.33
ADDED CLR H.E. (%)	.0	.0	.0
ADDED CLR H.E. (IN^3)	.0	.0	.0
PKT. TRAVEL (IN)	.00	.00	.00
ADDED CLR C.E. (%)	.0	.0	.0
ADDED CLR C.E. (IN^3)	.0	.0	.0
H.E. VOL. EFF (%)	65.49	62.15	62.37
C.E. VOL. EFF (%)	65.47	64.22	61.36
VLV. VEL. INLET (FPM)	6322	6129	5977
VLV. VEL. DISCH. (FPM)	6322	6129	5977

ROD LOADS AND REVERSALS

	1	2	3
ROD LOAD TENS (LB)	22877	19943	15739
ROD LOAD COMPR. (LB)	23378	21606	20747
ROD LOAD (COMBINED)	46255	41549	36486
REVERSAL (YES/NO)	YES	YES	YES

EAZY SIZE VERSION #: 2.80-SE1

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WEATHERFORD COMPRESSION SERVICES

LOCATION: JumpBush
ELEVATION (FT): 2919
Tc (DEG R): 386.0

ATMOS. PR. (PSIA): 13.197
Pc (PSIA): 669.5

DATE: 03-26-2001
AMB. TEMP (DEG F): 100

DRIVER: Waukesha
MODEL: L5108GSI
MAX BHP: 1122
MAX RPM: 1200
DRIVER LOAD (%): 94.9

COMPRESSOR: GEMINI
MODEL: E504
MAX BHP: 4800.0
MAX RPM: 1500
DESIGN RPM: 1200

STROKE (IN): 5.000
ROD DIA (IN): 2.250
R/L TENSION: 40000
R/L COMPR: 47500 ~~40000~~
PISTON SPEED (FPS): 1000

CYLINDER DATA

CYLINDER #	1	2	3
STAGE #	1	2	3
CYL. BORE (IN)	20.000	11.000	6.250
M.A.W.P. (PSIG)	250	1000	2200
CYL. ACTION (DA/SA)	DA	DA	DA
PISTON DISPL. (ACFM)	2167.9	646.1	199.2

PRESSURES AND TEMPERATURES

	1	2	3
INLET PRES. (PSIG)	25.0	109.7	353.0
DISCH. PRES. (PSIG)	113.0	363.7	925.0
COMP. RATIO (Pd/Ps)	3.3	3.1	2.6
Ts (DEG-F)	68	120	120
Td (ADIAB) (DEG-F)	217	270	245
Td (EST.) (DEG-F)	227	271	246

FLOW CONDITIONS AND HORSEPOWER

	1	2	3
CAP. PER CYL. (MMSCFD)	4.69	4.69	4.69
STAGE CAP. (MMSCFD)	4.69	4.69	4.69
SP. GRAVITY (Air=1)	.689	.689	.689
K VALUE (Cp/Cv)	1.260	1.260	1.260
ZS	.993	.982	.948
ZD	.990	.978	.944
CYL. IHP (PER/CYL)	342	336	271
CYL. BHP (TOTAL)	1010		
TOTAL UNIT BHP	1010 + 56 (parasitic hp) = 1066		

CLEARANCE DATA

	1	2	3
H.E. BASE CLR (%)	13.97	19.47	21.62
C.E. BASE CLR (%)	13.98	18.16	22.33
ADDED CLR H.E. (%)	13.5	.0	.0
ADDED CLR H.E. (IN^3)	212.5	.0	.0
PKT. TRAVEL (IN)	3.00	.00	.00
ADDED CLR C.E. (%)	.0	.0	.0
ADDED CLR C.E. (IN^3)	.0	.0	.0
H.E. VOL. EFF. (%)	48.62	65.09	69.10
C.E. VOL. EFF. (%)	70.39	66.98	68.29
VLV. VEL. INLET (FPM)	6322	6129	5977
VLV. VEL. DISCH. (FPM)	6322	6129	5977

ROD LOADS AND REVERSALS

	1	2	3
ROD LOAD TENS. (LB)	27276	22639	14068
ROD LOAD COMPR. (LB)	27928	24626	19292
ROD LOAD (COMBINED)	55204	47265	33360
REVERSAL (YES/NO)	YES	YES	YES

EASY SIZE VERSION #: 2.80-SE1

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