

BASIC HYDRUALIC CALCULATION
HYDRAULIC ANCHOR WINDLASS/TOWING WINCH

INPUT KW 54
KW TO HP 72.41508

HP = GPM X PSIG / 1714 X EFFICIENCY 72.19953326
GPM = 33
PSIG 3000
EFFICIENCY = 0.8
HP = 72.41508



GPM = HP X 1714 X EFF/ PSIG
GPM = 33.09851923 MAX PUMP FLOW AT 1800 RPM

ESTIMATED TORQUE OFF THE FRONT OF THE ENGINE FOR THE SIZE 71 HYDRAULIC PUMP

TORQUE = HP X 5252 / RPM
HP = 72.41508
RPM = 1800
TORQUE = HP X 5252 / RPM **211.2911112** FT-LBS PTO RATED AT 400 FT-LBS

BASIC HYDRUALIC CALCULATION
HYDRAULIC TOWING WINCH

INPUT KW 30
KW TO HP 40.2306

HP = GPM X PSIG / 1714 X EFFICIENCY 43.75729288
GPM = 20
PSIG 3000
EFFICIENCY = 0.8
HP = 40.2306

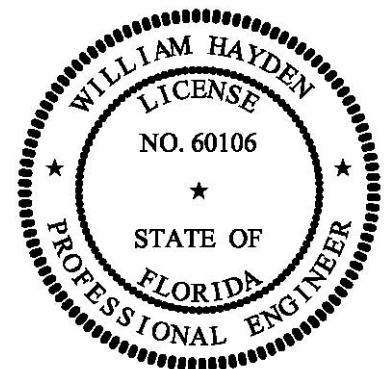
GPM = HP X 1714 X EFF/ PSIG
GPM = **18.38806624**

BASIC HYDRUALIC CALCULATION
HYDRAULIC VERTICAL CAPSTAN

INPUT KW 22
KW TO HP 29.50244

HP = GPM X PSIG / 1714 X EFFICIENCY 32.81796966
GPM = 15
PSIG 3000
EFFICIENCY = 0.8
HP = 29.50244

GPM = HP X 1714 X EFF/ PSIG
GPM = **13.48458191**



BURST PRESSURE CALCULATION FOR 316 SS TUBING

T= 0.065
S= 70000
D= 0.5

$P = 2 \times T \times S / d$

P = 18200 PSI BURST PRESSURE
4550 BURST PRESSURE/4

HYDRAULIC LINES SIZING

PRESSURE LINES - 25 FT/SEC
RETURN LINES - 10 FT/SEC
SUCTION LINES - 4 FT/SEC

TUBE ID = .64 X SQRT(FLOW IN GPM/ VELOCITY IN FT/ SEC)

FLOW = 33 GPM
VELOCITY = 15 FT/SEC OIL STATES USES 15 FT/SEC FOR PRESSURE LINES

TUBE ID = 0.949273406 INCHES MIN

OD = 1
WALL THICKNESS 0.065
ID = 0.87

HYDRAULIC LINES SIZING

PRESSURE LINES - 25 FT/SEC
RETURN LINES - 10 FT/SEC
SUCTION LINES - 4 FT/SEC

TUBE ID = .64 X SQRT(FLOW IN GPM/ VELOCITY IN FT/ SEC)

FLOW = 33 GPM
VELOCITY = 7 FT/SEC OIL STATES USES 7 FT/ SEC FOR RETURN LINES

TUBE ID = 1.38959398 INCHES MINIMUM

OD = 0.625 COY
WALL THICKNESS 0.065
ID = 0.495

