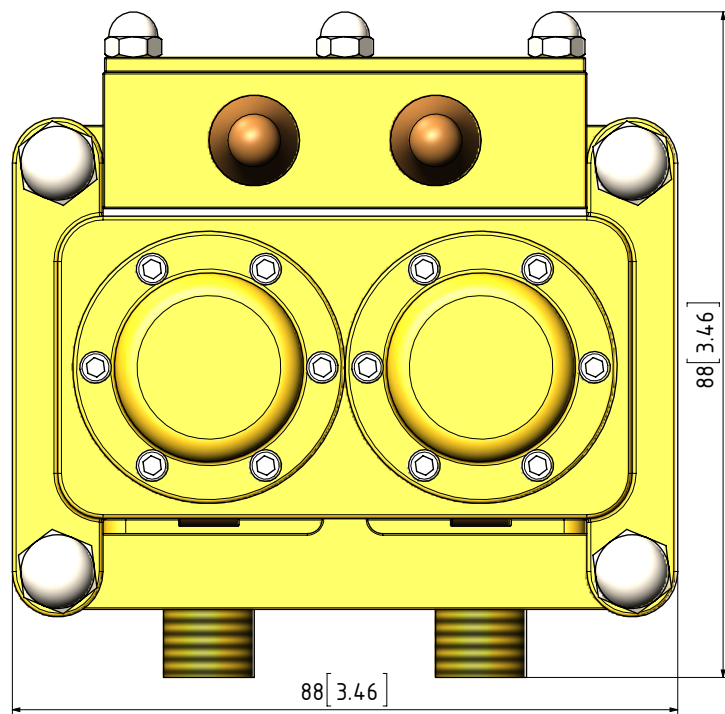
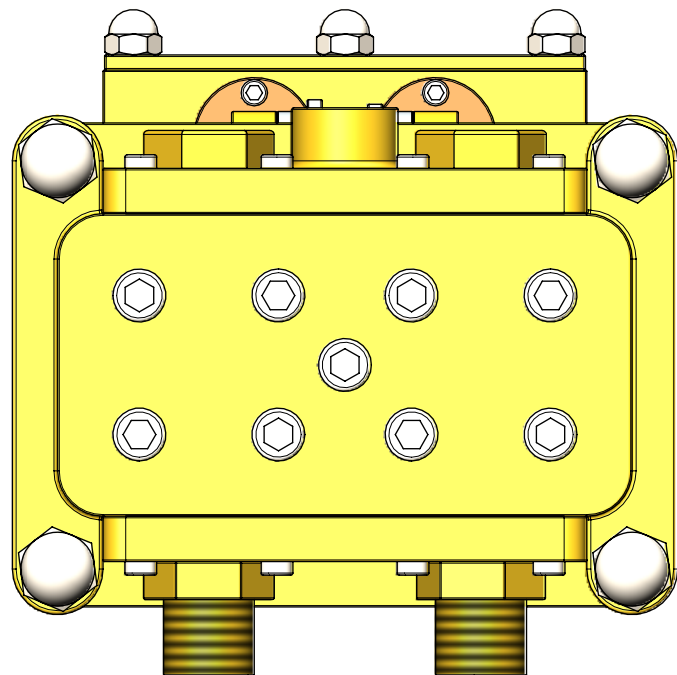
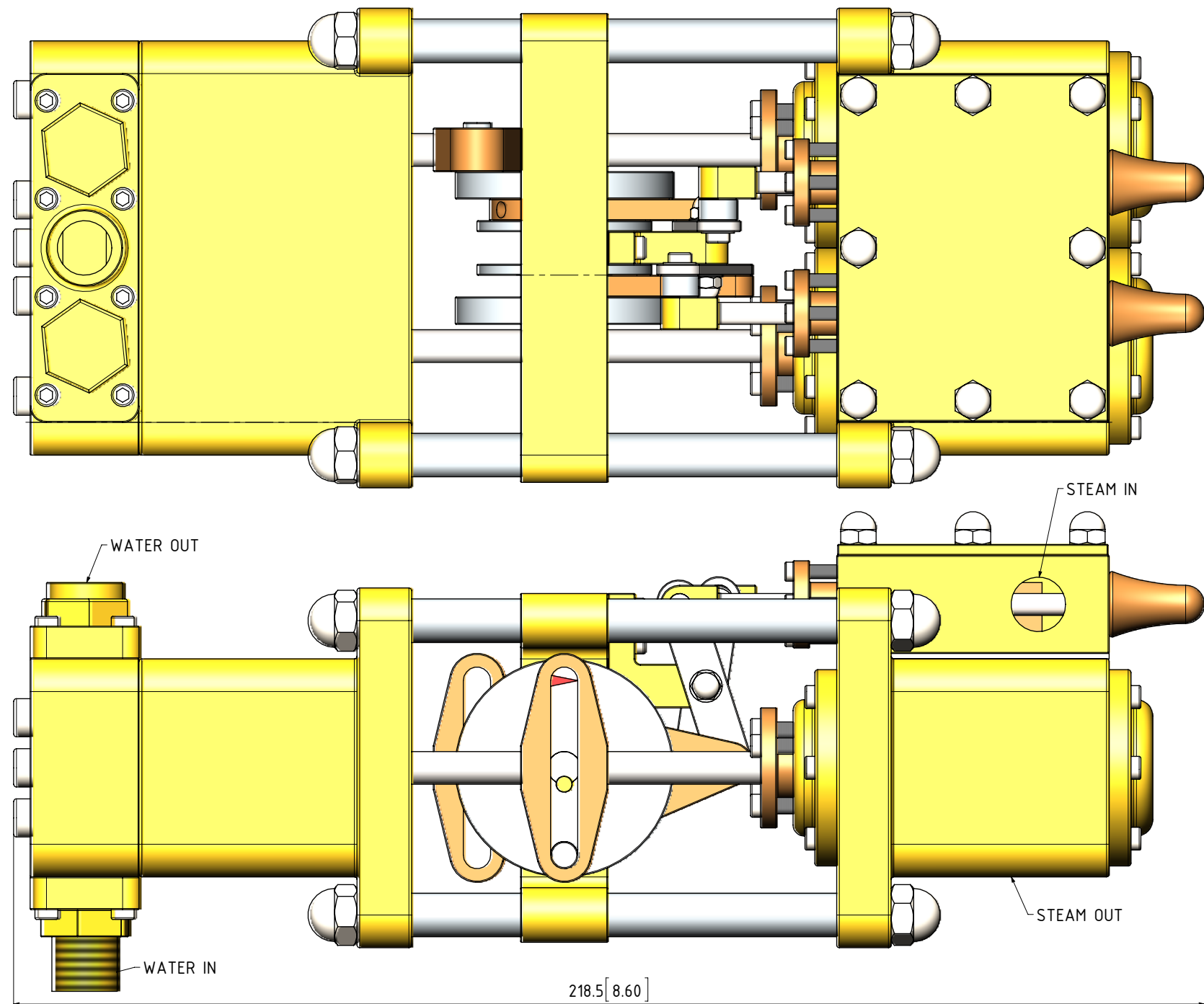




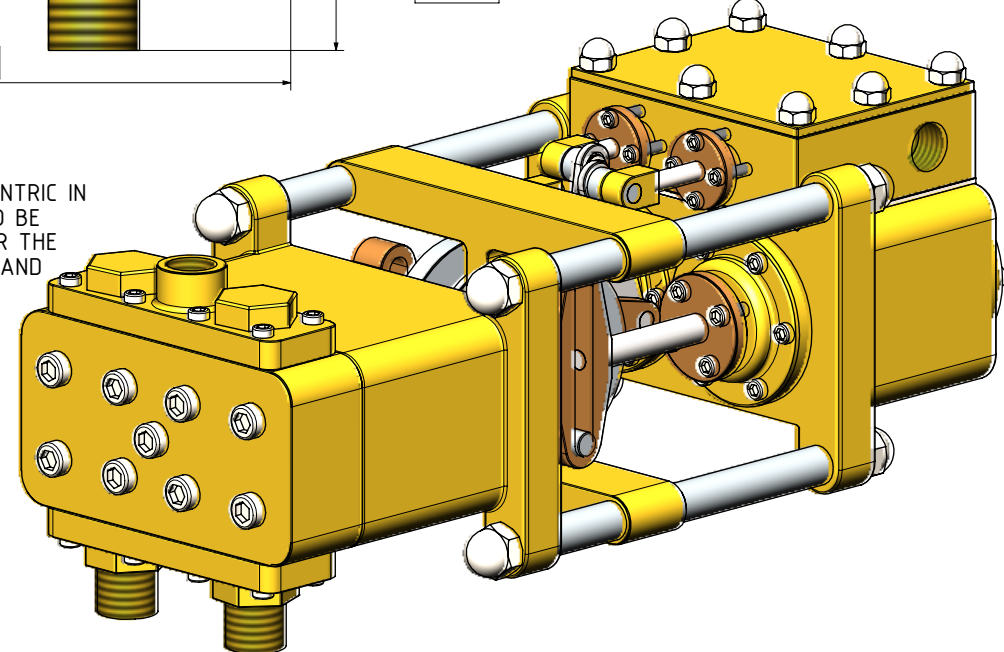
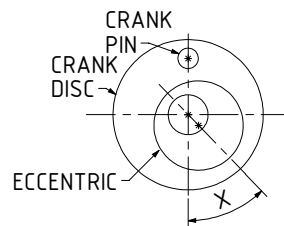
QTY.	PART NUMBER
1	01-28-00-1-01-STEAM CYLINDER BLOCK
2	01-28-00-1-02-STEAM CYLINDER FRONT COVER
2	01-28-00-1-03-STEAM CYLINDER REAR COVER
2	01-28-00-1-04-STEAM CYLINDER VALVE GLAND
2	01-28-00-1-05-STEAM CYLINDER VALVE STEM GUIDE
1	01-28-00-1-06-BEARING BLOCK
4	01-28-00-1-07A-DISTANCE STAY TYPE-A
4	01-28-00-1-07B-DISTANCE STAY TYPE-B
1	01-28-00-1-08-WATER PUMP CYLINDER BLOCK
1	01-28-00-1-09-WATER PUMP HOUSING
4	01-28-00-1-10-WATER PUMP BALL VALVE
2	01-28-00-1-11-WATER PUMP TOP SCREW
2	01-28-00-1-12-WATER PUMP BOTTOM INLET NIPPLE
1	01-28-00-2-01-CRANKSHAFT+FLWHEEL
2	01-28-00-2-02-STEAM PISTON+PUMP PISTON
2	01-28-00-2-03-ECCENTRIC STRAP
2	01-28-00-2-04-VALVE ROCKING LEVER
2	01-28-00-2-05-SLIDE VALE SPINDLE
2	01-28-00-2-06-SLIDE VALVE
2	01-28-00-2-07-SLIDE VALVE SPINDLE CLAMP
8	01-28-00-M2.5x12 A-K CYL HEAD SCREW
2	01-28-00-M3 DOME NUT
4	01-28-00-M3 WASHER
4	01-28-00-M3x6 A-K CYL HEAD SCREW
3	01-28-00-M3x8 A-K CYL HEAD SCREW
24	01-28-00-M3x10 A-K CYL HEAD SCREW
24	01-28-00-M3x14 A-K CYL HEAD SCREW
8	01-28-00-M4 DOME NUT
2	01-28-00-M4 NUT
8	01-28-00-M4x30 STUD
9	01-28-00-M5x30 A-K CYL HEAD SCREW
8	01-28-00-M6 DOME NUT

OTHER ABBREVIATIONS
DP = DEEP
DAA= DRILL AFTER ASSEMBLY
D&TAA= DRILL AND TAP AFTER ASSEMBLY
CF = CLOSE FIT (SIZE FOR SIZE)
PF = PRESS FIT
PF AA= PRESS FIT AFTER ASSEMBLY
PCD = PITCH CIRCLE DIAMETER
RM = REAM
HEX = HEXACON, 6SIDED
CP = COMPRESSED
KNL = KNURLED
CSK = COUNTERSINK
PL = PLACES
DWL= DOWEL
(T)HESOP=(TAPPED)HOLES EQUALLY SPACED ON PCD
(T)HESOC=(TAPPED)HOLES EQUALLY SPACED ON CIRCUMFERENCE
[SA-xxx]= SUB ASSEMBLY-xxx

NOTES:
0. ALL DRAWINGS ARE IN METRIC MEASUREMENTS
1. ALL ENGINEERING PRACTICES SHALL BE APPLIED WITH REGARDS TO HOLE AND SHAFT TOLERANCES.
2. WHERE SCREWS OR BOLTS ARE USED THE CLEARANCE HOLES SHALL BE APPROXIMATELY 5% TO 8% LARGER THAN THE MATCHING TAPPED HOLE.
3. PREFERABLY ALL TAPPED HOLES AND MATCHING SCREWS AND/OR BOLTS TO BE METRIC FINE (MF)
4. MATERIALS SPECIFIED ON THE DRAWINGS ARE INDICATIVE ONLY. THE BUILDER CAN MAKE HIS/HER OWN MATERIAL CHOICE.
5. ALL CONNECTIONS/JOINTS WHICH HAVE STEAM PRESSURE APPLIED TO IT SHALL BE SILVER/HARD SOLDERED.
6. COMPRESSION SPRINGS ARE DRAWN IN COMPRESSED STATE (CP), UNCOMPRESSED STATE IS APPROX 40% TO 60% LONGER THEN COMPRESSED STATE.
7. WHERE PREFERRED SCREW OR RIVETED CONNECTIONS CAN BE OMITTED AND PARTS CAN BE BONDED TOGETHER BY USING EITHER HIGH STRENGTH GLUE, EPOXY RESIN, OR SOLDER.
8. PARTS WHICH ARE DIRECTLY EXPOSED TO STEAM AND/OR WATER SHOULD BE CONSTRUCTED USING NON-FERROUS OR NON CORROSIVE MATERIAL SUCH AS BRASS, BRONZE, GUNMETAL, STAINLESS STEEL, COPPER OR MONEL.
9. THE ORDER IN WHICH THE PARTS/COMPONENTS ARE MANUFACTURED AND THE MODEL IS ASSEMBLED IS ENTIRELY LEFT TO THE BUILDER/MODEL MAKER.
10. A COLOUR SCHEME FOR THIS PROJECT IS ENTIRELY LEFT UP TO THE MODEL MAKER.
11. THE MANNER IN WHICH THE PARTS/COMPONENTS ARE MANUFACTURED IS ENTIRELY LEFT UP TO THE BUILDER.
12. USE LOCTITE, ON SCREW OR PRESS FIT CONNECTIONS OR SURFACES, WERE DEEMED NECESSARY TO PREVENT PARTS FROM LOOSENING.
13. WASHER SHALL BE USED WHERE DEEMED NECESSARY.
XX. ERRORS AND/OR OMISSIONS MAY OCCUR IN THE DRAWINGS, DO NOT HESITATE TO CONTACT ME SO THAT THE ERRORS/OMISSIONS CAN BE RECTIFIED.

MATERIAL ABBREVIATIONS:
ALU = ALUMINIUM
BRS = BRASS
BRZ = BRONZE OR GUNMETAL (BRZ/GM)
CI = CAST IRON
CU = COPPER
GRA = GRAPHITE
MS = MILD STEEL/BRIGHT MILD STEEL
S/S = SILVER STEEL OR STAINLESS STEEL
SPS = SPRING STEEL
PEEK= POLYETHER ETHER KETONE
SYN = SYNTHETIC MATERIAL SUCH AS VETON, NYLON, TEFLON OR RUBBER
IN GENERAL SYNTHETIC MATERIALS SOULD BE ABLE TO WITHSTAND THE HEAT AND PRESSURE(S) APPLIED TO THEM.
nnn/nnn MEANS THAT EITHER MATERIAL CAN BE USED

THE OFF SET ANGLE OF THE ECCENTRIC IN RELATION TO THE CRANK AXIS TO BE EXPERIMENTALLY DETERMINED FOR THE SMOOTH RUNNING OF THE ENGINE AND SATISFACTION OF THE BUILDER



NOTES: DESIGNED BY J.A.M. DE WAAL

TITLE
A TWIN CYLINDER STEAM DRIVEN WATER FEED PUMP

DRAWING CONTENTS
GENERAL ARRANGEMENT, ISOMETRIC VIEW, NOTES, BILL OF MATERIALS

PROJECT No 01-28-00
JDW DRAUGHTING SERVICES
J.A.M. DE WAAL, 12 BRIGHTWELL STREET PAPA KURA 2110.
NEW ZEALAND. PHONE: 0064 09 2988815. MOB: 0211791000
E-MAIL: dewaal@xtra.co.nz.

PROJECTION
DATE MAY 2018
SHEET: 01 OF 04
JDWDS
Copyright © J.A.M. DE WAAL PAPA KURA NZ
MODEL SCALE: 1:1
DWG SCALE: 1:1 @A3 OR AS SHOWN
A3 No: 01-28-00-SHT01