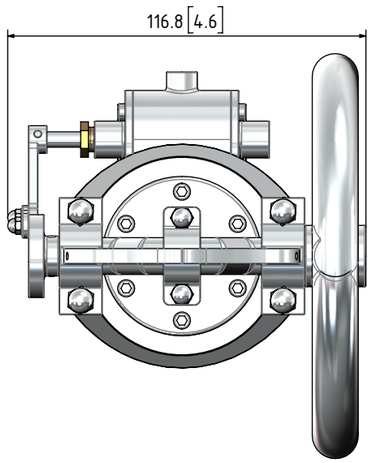
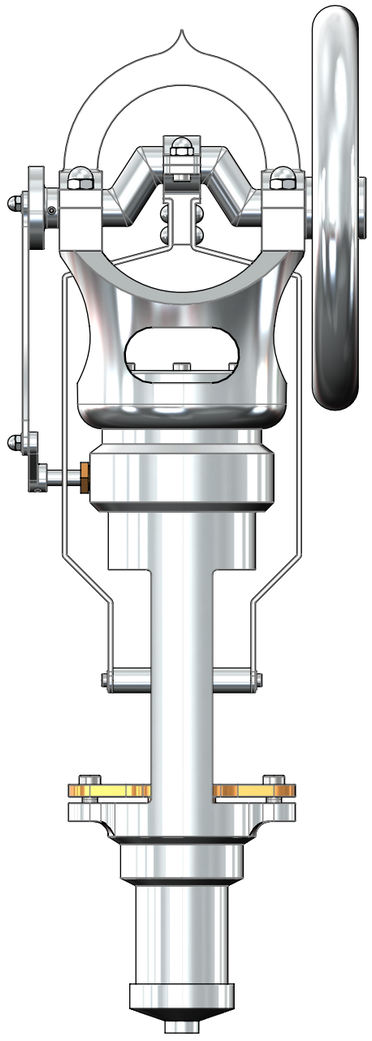


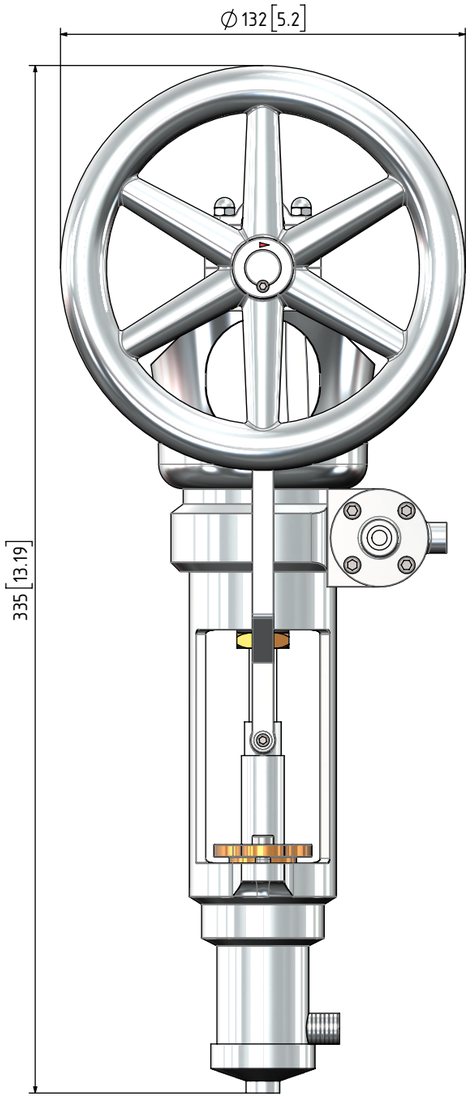

GENERAL NOTES:
0. ALL DRAWINGS ARE IN METRIC MEASUREMENTS
1. ALL ENGINEERING PRACTICES SHALL BE APPLIED WITH REGARDS TO HOLE AND SHAFT TOLERANCES.
2. WHERE SCREWS OR BOLTS ARE USED THE CLEARANCE HOLES SHALL BE APPROXIMATELY 5% TO 8% LARGER THAN THE MATCHING TAPPED HOLE.
3. PREFERABLY ALL TAPPED HOLES 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. WASHERS AND/OR SPRING WASHERS SHALL BE USED WHERE DEEMED NECESSARY.
14. REMOVE ALL SHARP EDGES
XX. ERRORS AND/OR OMISSIONS MAY OCCUR IN THE DRAWINGS, DO NOT HESITATE TO CONTACT ME SO THAT THE ERRORS/OMISSIONS CAN BE RECTIFIED.

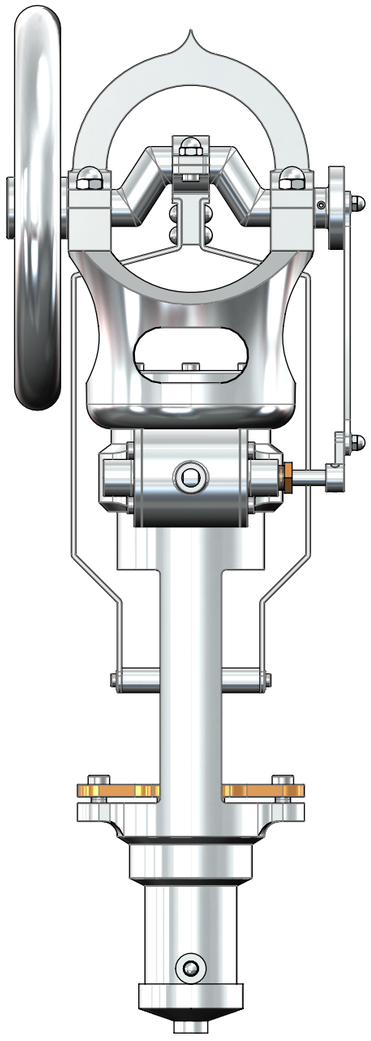
OTHER ABBREVIATIONS
AS = AS SHOWN
DP = DEEP
DAA= DRILL AFTER ASSEMBLY
D&TAA= DRILL AND TAP AFTER ASSEMBLY
CF = CLOSE FIT (SIZE FOR SIZE)
PF = PRESS FIT
PFAA= PRESS FIT AFTER ASSEMBLY
PCD = PITCH CIRCLE DIAMETER
RM = REAM
HEX = HEXACON, 6SIDED
CP = COMPRESSED
KNL = KNURLED
CSK = COUNTERSINK
PL = PLACES
DWL= DOWEL
SPF= SPOTFACE
(T)HESOP=(TAPPED)HOLES EQUALLY SPACED ON PCD
(T)HESOC=(TAPPED)HOLES EQUALLY SPACED ON CIRCUMFERENCE
OD = OUTSIDE DIAMETER
ID = INSIDE DIAMETER
MAX/MIN = CRITICAL DIMENSION
SA-xxx = SUB ASSEMBLY-xxx

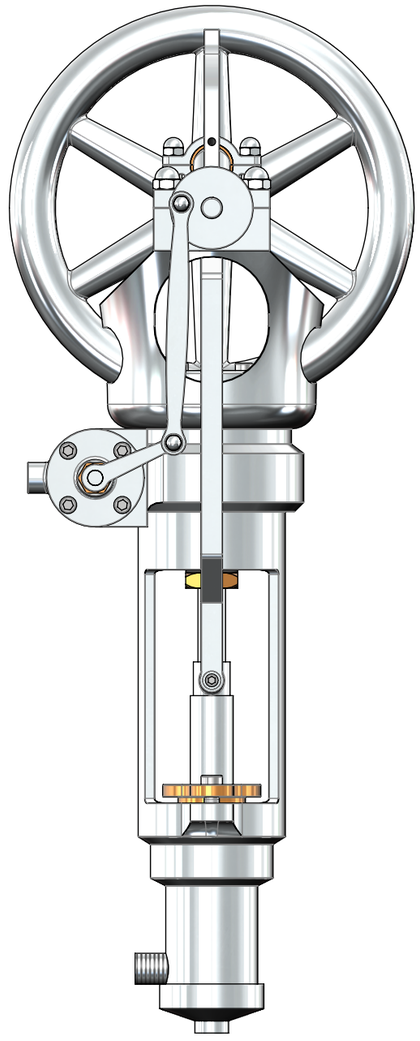
DUE TO THE LACK OF INFORMATION ON THE ORIGINAL DRAWING(S), SUCH AS VIEWS, DIMENSIONS, SECTIONS ETC AND/OR CLARITY OF COMPONENTS, OMITTED PARTS/COMPONENTS, SOME OF THE COMPONENTS MIGHT NOT BE AS CONSTRUCTED ORIGINALLY OR AS THE ORIGINAL DESIGNER INTENDED

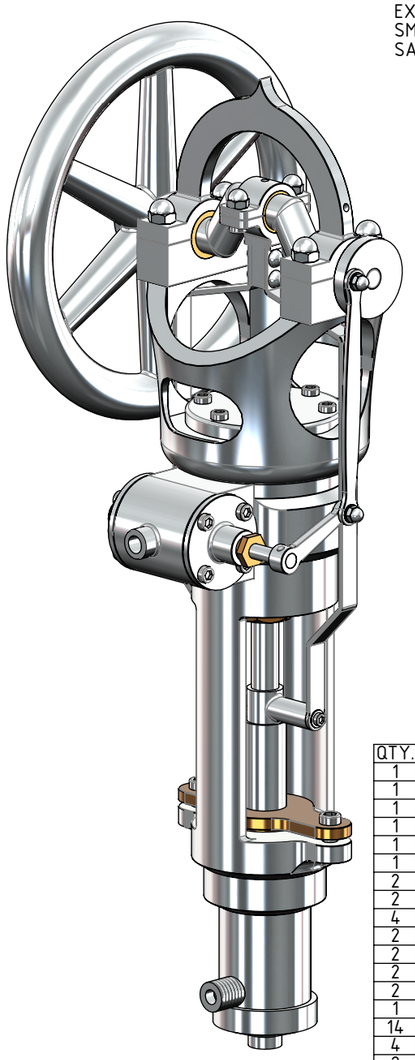
ADDITIONAL NOTES ABOUT THESE DRAWINGS:
1) NO MATERIALS HAVE BEEN SPECIFIED ON THESE DRAWINGS. THE BUILDER TO CHOOSE ITS OWN PREFERRED MATERIAL FOR THE PARTS/COMPONENTS. THE FOLLOWING COLOURS ON THE DRAWINGS INDICATES POSSIBLE MATERIALS WHICH CAN BE USED FOR PARTS: YELLOW=BRASS, LIGHT GREY=ALUMINIUM OR MILD STEEL, REDDISH BROWN=COPPER, DARK BROWN=BRONZE OR GUN METAL, WHITISH=SILVER STEEL OR STAINLESS STEEL
2) FASTENERS.
FASTENERS SUCH AS BOLTS, SCREWS, RIVETS, NUTS AND WASHERS HAVE BEEN SHOWN ON THESE DRAWINGS. THE BUILDER TO CHOOSE ITS OWN PREFERRED TYPE OF FASTENERS IF SO PREFERED.



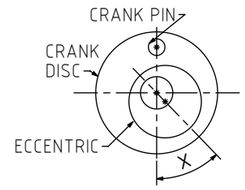






THE OFF SET ANGLE OF THE ECCENTRIC IN RELATION TO THE CRANK AXIS TO BE EXPERIMENTALLY DETERMINED FOR THE SMOOTH RUNNING OF THE ENGINE AND SATISFACTION OF THE BUILDER




| QTY. | PART NUMBER |
|---|---|
| 1 | 09E-64-00-1-01-ENGINE BODY |
| 1 | 09E-64-00-2-01-CRANKSHAFT+FLYWHEEL |
| 1 | 09E-64-00-2-02-STEAM PISTON+PLUNGER |
| 1 | 09E-64-00-2-03-CON-ROD |
| 1 | 09E-64-00-2-04-ROCKING STEAM VALVE |
| 1 | 09E-64-00-2-05-ROCKING VALVE CON-ROD |
| 2 | 09E-64-00-M2.5x3 A-K GRUB SCREW |
| 2 | 09E-64-00-M3 DOME NUT |
| 4 | 09E-64-00-M3 WASHER |
| 2 | 09E-64-00-M3x6 A-K CYL HEAD SCREW |
| 2 | 09E-64-00-M3x9 RIVET |
| 2 | 09E-64-00-M4 DOME NUT |
| 2 | 09E-64-00-M4x10 A-K CYL HEAD SCREW |
| 1 | 09E-64-00-M4x10 A-K GRUB SCREW |
| 14 | 09E-64-00-M4x14 A-K CYL HEAD SCREW |
| 4 | 09E-64-00-M5 DOME NUT |
| 2 | 09E-64-00-M5x12 A-K CYL HEAD SCREW |

NOTES: I FOUND AND DOWNLOADED THE ORIGINAL LITHOGRAPH FROM THE INTERNET. INFORMATION ON THE ORIGINAL DRAWING: STEAM PUMP, E. E. MILLER, Nzo. 234,601, PATENTED NOV. 16, 1880.

TITLE
# STEAM PUMP BY EDGAR E. MILLER DATED 1880. (BORE=30mm STROKE=28mm)

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

PROJECT No 09E-64-00
JDW DRAUGHTING SERVICES
J.A.M. DE WAAL. 12 BRIGHTWELL STREET PAPAKURA 2110. NEW ZEALAND. PHONE: 0064 09 2988815. MOB: 0211791000 E-MAIL: dewaal@xtra.co.nz.

PROJECTION | JDWDS | MODEL SCALE: 1:1
DWG SCALE: 1:1 @A3 OR AS SHOWN
DATE DECEMBER 2024
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SHEET: 01 OF 03 | A3 | No:09E-64-00-SHT-01

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