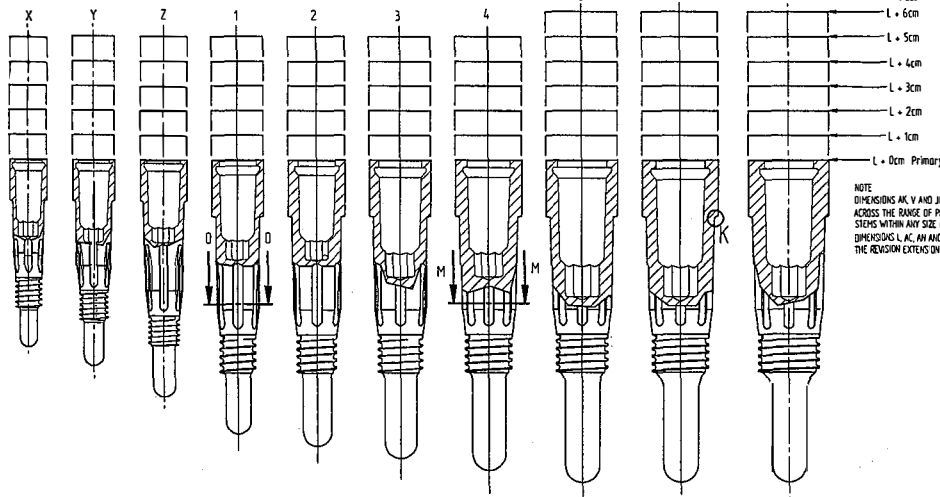


STEM SIZE RANGE XYZ plus 1 to 7

SCALE 1:1

MAXIMUM REVISION EXTENSION FOR SIZES 1, 2, 3 AND 4 IS 5cm
MAXIMUM REVISION EXTENSION FOR SIZES 5, 6 AND 7 IS 5cm



*Y DESIGNATES REVISION EXTENSION LENGTH

ASSEMBLY COMBINATIONS

STEM SIZE	X	Y	Z	1	2	3	4	5	6	7
FRONT VIEW	1-725-000	1-728-000	1-727-000	1-647-000	1-644-000	1-649-000	1-650-000	1-651-000	1-652-000	1-653-000
REAR VIEW	2-730-05x	2-730-08x	2-730-07x	2-662-01x	2-662-02x	2-662-03x	2-662-04x	2-662-05x	2-662-06x	2-662-07x
MATING	X	Y, Z, AZ	A, B, CA	B, B+4, CB	C, C+6					
MATING MODALS	X08, X07	Y06, Y07	Z08, Z07	A06, A07	B05, B07	C07				

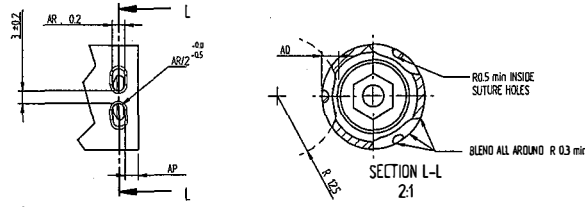
DIMENSION TABLE

SIZE No.	X	Y	Z	1	2	3	4	5	6	7
A	15.00	17.50	19.00	21.0	23.0	25.0	27.0	29.0	31.0	33.0
B	11.00	12.50	13.50	15.0	16.0	17.5	18.5	20.0	21.0	22.0
C	12.60	14.60	16.60	17.8	19.8	21.8	23.8	25.8	27.8	29.8
D	12.00	14.00	15.00	17.0	19.0	21.0	22.0	24.0	26.0	28.0
E	10.50	11.40	12.40	14.5	16.0	18.0	19.0	21.0	23.0	25.0
F	7.00	8.00	9.00	10.0	11.5	13.0	13.5	14.0	15.0	16.0
G	3.00	3.00	3.00	4.0	4.0	4.0	4.0	4.0	4.0	4.0
GB	3.00	3.00	3.00	4.0	4.0	4.0	4.0	4.0	4.0	4.0
GC	1.2	1.2	1.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0
H (IAUF)	7.00	7.00	8.00	8.0	8.0	10.0	10.0	12.0	12.0	12.0
J	24.00	26.00	26.00	30.0	30.0	35.0	35.0	40.0	40.0	40.0
K	6.00	6.00	6.00	10.0	12.0	12.0	15.0	15.0	15.0	15.0
L	75.00	82.50	95.00	110.0	115.0	120.0	125.0	130.0	130.0	130.0
U	13.50	15.00	16.00	18.0	19.0	21.0	21.0	24.0	24.0	24.0
V	1.50	1.50	1.50	2.5	2.5	3.0	3.0	3.5	3.5	3.5
W	1.25	1.25	1.25	1.5	1.5	1.5	1.5	1.5	1.5	1.5
AK (Primary)	6.00	6.00	6.00	10.0	10.0	10.0	10.0	10.0	10.0	10.0
AB	6.50	8.50	8.50	12.5	12.5	12.5	12.5	12.5	12.5	12.5
AC	37.50	42.50	52.50	60.0	60.0	60.0	60.0	60.0	60.0	60.0
AD	10.00	10.00	10.00	10.0	10.0	10.0	10.0	10.0	10.0	10.0
AE	11.50	11.50	11.50	15.0	15.0	15.0	15.0	15.0	15.0	15.0
AF	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0
AH	1.00	1.00	1.00	1.0	1.0	2.0	3.0	6.0	10.0	10.0
AK	9.00	9.00	9.00	11.0	11.0	11.0	11.0	11.0	11.0	11.0
AL	6.25	6.25	6.25	8.5	8.5	10.0	10.5	12.7	12.7	12.7
AN	39.00	34.00	34.00	41.5	41.5	36.5	36.5	41.5	41.5	41.5
AO	2.75	3.0	3.5	3.7	4.7	4.2	5.2	4.7	5.7	7.7
AP	1.7	1.7	1.7	2.7	3.2	3.2	3.7	3.7	3.7	3.7
AR	2.0	2.0	2.0	2.6	2.6	2.6	2.6	2.6	2.6	2.6

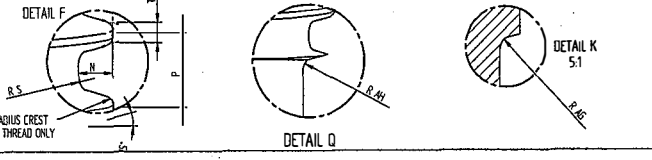
- NOTES
1. MATERIAL: ASTM F537 LOW CARBON WARM WORKED BAR STOCK IF MACHINED FROM SOLID. IF FORGED THEN MACHINED TO SIZE COMPONENTS TO BE CERTIFIED TO ASTM F995 FORGE IN RANGE 1120 C - 1155 C AND DEFORMATION MUST NOT CONTINUE BELOW 1000 C.
 2. MINIMUM HARDNESS: 35 HRC. HARDNESS TEST INDENTATIONS TO BE MACHINED AWAY.
 3. UNLESS OTHERWISE STATED, ALL DIMENSIONS ARE IN MILLIMETRES.
 - 3.1. TOLERANCES: UNLESS OTHERWISE SPECIFIED ARE: ±0.10 ON LENGTHS AND DIAMETERS, ±0.05 ON CHANGES ON ANGLES.
 4. SURFACE FINISH: UNLESS OTHERWISE SPECIFIED IS 6.3µm Ra Max.
 5. ALL MACHINING TO BE FULLY DEBURRED.
 6. THESE STEMS TO BE ONLY USED WITH ST GEORGE HIP PROSTHESIS PROXIMAL NECK COMPONENTS AS PER DRAWINGS SHP-002 AND SHP-003.
 7. HYDROXYAPATITE COATING TO BE APPLIED TO OUTER SURFACE OF STEM TO WITHIN 3mm OF TOP FACE TO TOP OF DISTAL TAPER. COATING TO START BELOW SUTURE HOLES AS NECESSARY.
 8. EACH STEM SIZE TO HAVE ITS OWN SERIAL NUMBER SERIES, 000001 TO 999999.

REVISION	DATE	DETAILS	DRAWN	CHECKED
K		Increase x and y of AF to 3mm and 2.5mm if 6mm increase of AF from 100 to 115 for XYZ stems. Increase stem length to 150mm for XYZ stems. Update ASH information for weight ear stock for modelling from solid. Minimum Number of Parting Adjust 1/4" thickness tolerance from 20 to 10mm. See DC 1000.	EL	RB/RS
J		See DEN 0075	EL	RB/RS
I	19/7/01	SHORTEN PRIMARY PILOT BY 1cm SHORTEN REVISION PILOT BY 2cm REMOVE COMPASS POINTS INCLUDE No. 7 STEM SIZE RANGE	EL	RB/RS
H	6/9/00	REFER PAC OR DRWG PROJECT 002	EL/MB	RB/RS
G	24/11/99	REVISION DETAIL ADDED SUTURE HOLE DETAIL	EL	RB/RS
F	1/3/99	NUMEROUS	EL	RB/RS
E	19/9/97	NUMEROUS	AL	RB/RS
D	5/4/94	DISTAL TAPER ANGLE CHANGED TOLERANCE ON H8 CHANGED OPERATIONS REFERENCE LIST ORDER CHANGED HYDROXYAPATITE COATING SPECIFICATIONS CHANGED	JRR	RB/RS
C	10/2/94	NOTED ADDED FOR PROTOTYPING ASSEMBLY COMBINATIONS ADDED TO TABLE SIZES AH ACC TO TABLE DISTAL TAPER ANGLE AND SURFACE FINISH CHANGED NOTES LABORATORY CHANGED DIMENSION INFORMATION ADDED TO AREA BETWEEN SLOTS ON LOWER PART OF STEM TOLERANCE ON B CHANGED	JRR	RB/RS
B	22/12/92	DIAMETER ADDED TO TOP OF NECK TAPER DURS OF SLOTS (GAMMA CODE) ADD MINOR SLOTS ADDED TO MID AND OVER SECTIONS OF STEM	JRR	RB/RS
ISSUE			DRAWN	CHECKED

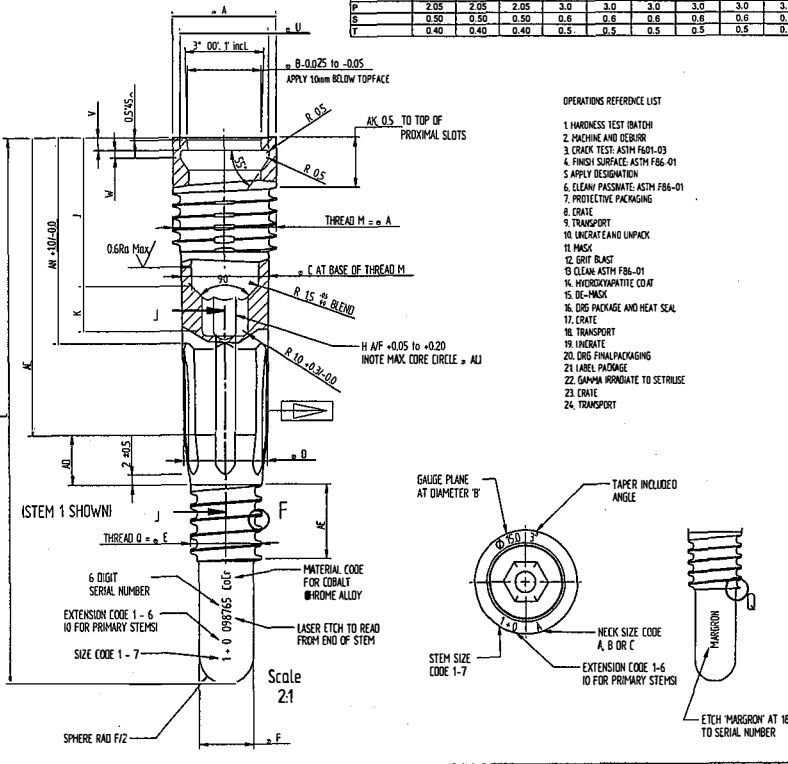
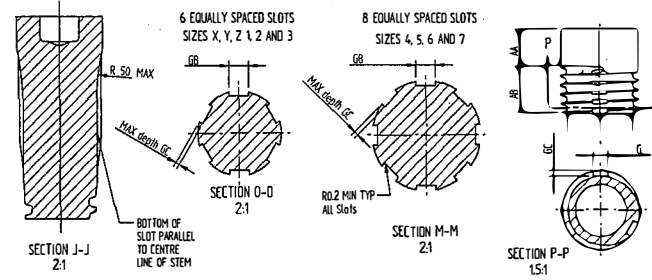
SUTURE HOLE DETAILS: for all revision sizes +3 to +6 stems only



THREAD DETAILS



SLOT DETAILS



PORTLAND ORTHOPAEDICS
UNIT 3/44, MCJUALY STREET
MATRIVILLE
NSW 2036

JOB: ST. GEORGE HOSPITAL HIP PROSTHESIS

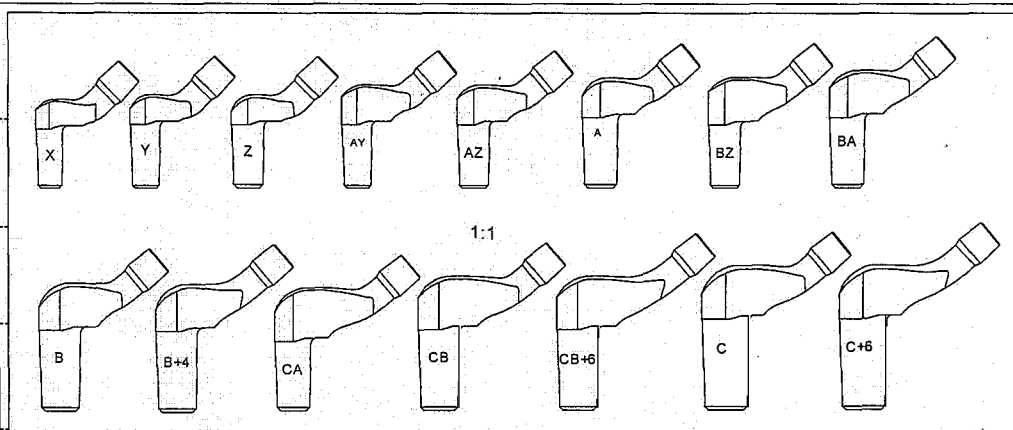
TITLE: FEMORAL STEM COMPONENT SET AND DETAILS

DRAWING NUMBER: SGHP - 001

SCALE: AS SHOWN APPROVED BY: R. FROST

DRAWN: AL CHECKED: R. FROST Date Drawn: 8/11/92

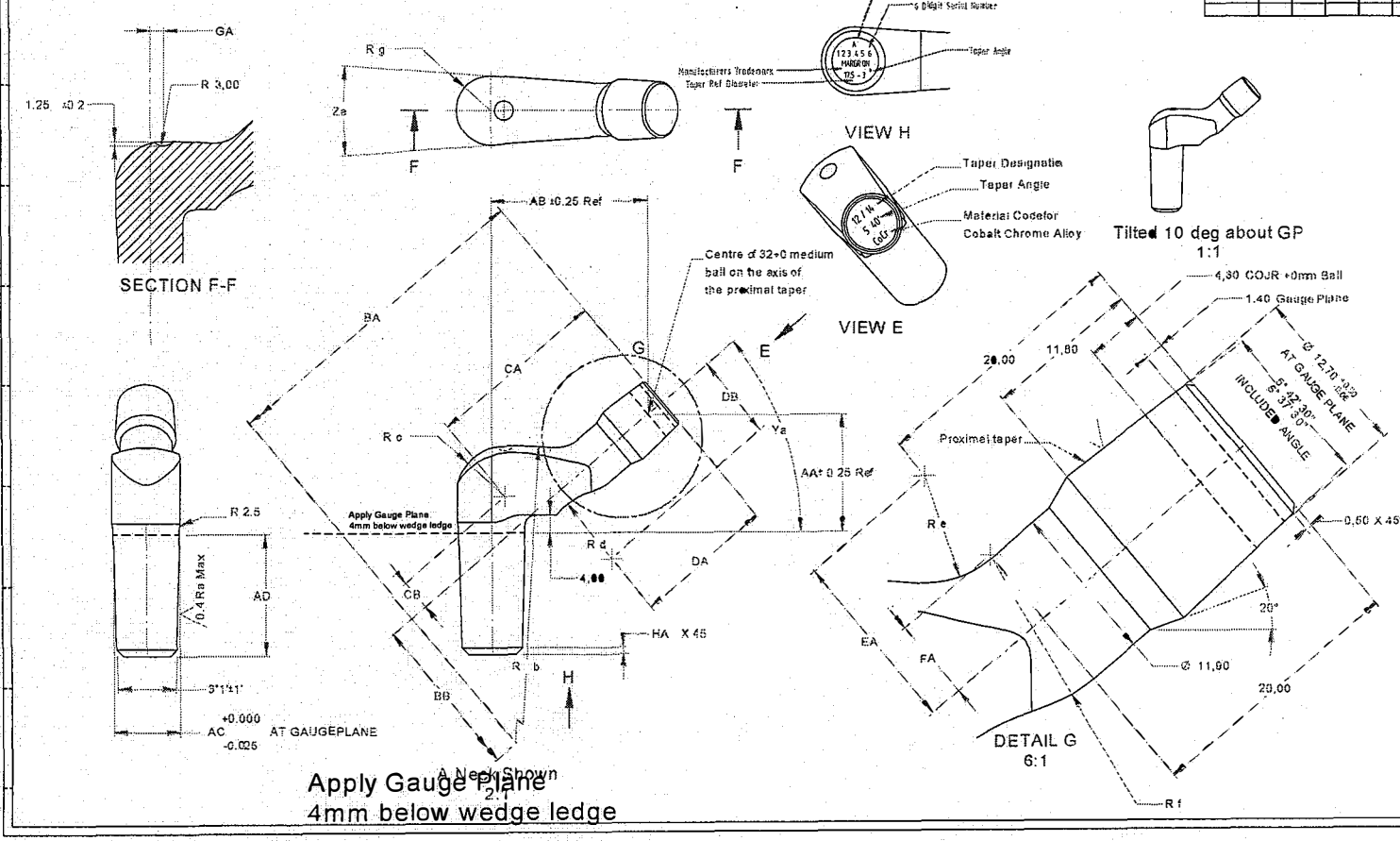
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NOTE:
 1. MATERIAL WITH 15% MIN. ELONG. FROM WORKED LEEK.
 2. UNLESS OTHERWISE STATED ALL DIMENSIONS ARE IN MILLIMETRES.
 3. TOLERANCE IS ON ALL DIMENSIONS. DIMENSIONS IN PARENTHESIS ARE J.M. DIMENSIONS. DIMENSIONS IN SQUARE BRACKETS ARE DIMENSIONS OF THE PARTS AS SUPPLIED.
 4. SURFACE FINISH OF CURVED INTERNAL SECTION IS 2.0 RA MAX. THIS SURFACE CAN BE POLISHED AND/OR REGRIND TO FIT WITH THE SPECIFIC TOLERANCE IS THIS SURFACE FINISH REQUIRED.
 5. SURFACE FINISH ON PROXIMAL TAPER TO BE RA 0.4 TO 1.0 TO 2.0 TO OBTAIN THE BALL AND RING TO BE ACHIEVED BY TURNING.
 6. ALL MACHINING TO BE FULLY DEBURRED.
 7. THESE NEEDS TO BE USED ONLY IN THE ST. GEORGE HOSPITAL NECK FEEDBACK USE ONLY FOR DRAWING IS NOT TO BE USED FOR EXTENSION/MODULAR COMPONENTS SET PER DRAWING SS HP-001 TO 999999.
 8. EACH NECK SIZE TO HAVE ITS OWN SERIAL NUMBER SERIES 0000 01 TO 999999

OPERATIONS REFERENCE LIST
 1. MACHINE AND TOOL
 2. DRAWING NO. ASH 1045-2
 3. APPROVED
 4. CLEAN AND PASSIVATE ASHIN. FOS-01
 5. FINISH AND HATCH
 6. FINISH AND HATCH
 7. GAMMA RAY DATE TO STEEL USE
 8. DATE
 9. DIMENSION

Neck Size	X	Y	Z	A	AY	AZ	B	BZ	B+4	BA	C	C+6	CA	CB	CB+6
mm	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Dim	X	Y	Z	A	AY	AZ	B	BZ	B+4	BA	C	C+6	CA	CB	CB+6
AA	21.00	24.00	24.00	26.25	28.25	28.25	32.00	32.00	32.00	32.00	31.90	31.90	31.90	31.90	31.90
AB	31.00	31.00	31.00	35.47	35.47	35.47	39.30	39.30	42.36	39.30	40.57	51.57	48.97	46.97	51.57
AC	11.00	12.50	13.50	15.00	12.50	13.50	15.00	17.50	15.00	20.00	20.00	15.00	15.00	17.50	17.50
AD	22.00	24.00	24.00	27.00	24.00	24.00	32.00	32.00	32.00	27.00	35.50	35.50	27.00	32.00	32.00
BA	66.22	66.22	66.22	113.11	113.11	113.11	127.96	127.96	131.96	127.96	162.37	162.37	162.37	162.37	162.37
BB	41.62	41.62	41.62	79.16	79.16	79.16	94.01	94.01	94.01	94.01	148.47	148.47	148.47	148.47	148.47
CA	37.71	37.71	37.71	40.77	40.77	40.77	44.28	44.28	48.28	44.28	50.70	50.70	49.50	50.70	50.70
CB	8.00	8.00	8.00	7.05	7.05	7.05	8.72	8.72	8.72	8.72	8.44	8.44	7.31	10.07	8.44
DA	35.19	33.61	33.61	31.42	31.90	32.06	33.25	37.00	35.16	35.56	42.94	47.59	43.73	42.94	46.94
DB	13.64	14.92	14.92	19.20	16.54	16.33	26.08	16.23	23.57	20.70	16.44	20.14	16.21	16.44	16.44
EA	13.95	13.95	13.95	13.95	13.95	13.95	13.95	13.95	13.95	13.95	28.71	13.95	13.95	28.71	28.71
FA	5.95	5.95	5.95	6.26	6.26	6.26	7.92	7.92	7.92	7.92	39.66	39.66	39.66	39.66	39.66
GA	7.50	7.50	7.50	3.00	3.00	3.00	3.00	3.00	3.00	3.00	5.00	5.00	5.00	5.00	5.00
HA	1.00	1.00	1.00	1.50	1.00	1.00	1.50	1.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50



REV	DATE	BY	CHKD	DESCRIPTION
1				ISSUE FOR MANUFACTURE
2				REVISION
3				REVISION
4				REVISION
5				REVISION
6				REVISION
7				REVISION
8				REVISION
9				REVISION
10				REVISION

PORTLAND ORTHOPAEDICS
 UNIT 3, 44 McCauley Street
 Matraville 2036

JOB ST. GEORGE HOSPITAL HIP PROSTHESIS

TITLE FEMORAL NECK COMPONENT SET AND DETAILS

DRAWING NUMBER SGHP-002

SCALE AS SHOWN APPROVED

DRAWN CHECKED R. FR OST ISSUE K DATE 8/1/92

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ASSEMBLY COMBINATIONS FOR STANDARD MODULES											
MODULE SIZE	XX6	XX7	YY6	YY7	ZZ6	ZZ7	AA6	AA7	BB6	BB7	CC7
Part Number	2-731-003	2-731-004	2-731-005	2-731-006	2-731-007	2-731-008	2-677-001	2-677-002	2-677-003	2-677-004	2-677-005
NECK SIZE	X	X	Y	Y	Z, A2	Z, AZ	A, BA	A, BA	B, CB, B+4	B, CB, B+4	C, C+6
STEM SIZE	X	X	Y	Y	Z	Z	1 and 2	1 and 2	3 and 4	3 and 4	5 and 6

DIMENSION TABLE											
SIZE	XX6	XX7	YY6	YY7	ZZ6	ZZ7	AA6	AA7	BB6	BB7	CC7
A	15	15	17	17	19	19	21	21	25	25	29
B	11	11	12.5	12.5	13.5	13.5	15	15	17.5	17.5	20
C	15	15	17	17	19	19	21	21	25	25	29
D	11	11	12.5	12.5	13.5	13.5	15	15	17.5	17.5	20
L	60	70	60	70	60	70	60	70	60	70	70

PROXIMAL TAPER REF as per SGHP-001	X	X	Y	Y	Z	Z	1	1	3	3	5
DISTAL TAPER REF as per SGHP-002	X	X	Y	Y	Z	Z	A	A	B	B	C

ASSEMBLY COMBINATIONS FOR HYBRID MODULES							
MODULE SIZE	AZ6	AZ7	BA6	BA7	CB7	CA7	
Part Number	2-731-017	2-731-018	2-677-008	2-677-007	2-677-009	2-677-008	
NECK SIZE	A, BA	A, BA	B, CB, B+4	B, CB, B+4	C	C	
STEM SIZE	Z	Z	1 and 2	1 and 2	3 and 4	1 and 2	

DIMENSION TABLE							
SIZE	AZ6	AZ7	BA6	BA7	CB7	CA7	
A	21	21	25	25	29	29	
B	15	15	17.5	17.5	20	20	
C	19	19	23	23	27	25	
D	13.5	13.5	15	15	17.5	15	
L	60	70	60	70	70	70	

PROXIMAL TAPER REF as per SGHP-001	1	1	3	3	5	5	
DISTAL TAPER REF as per SGHP-002	Z	Z	A	A	B	A	

NOTES

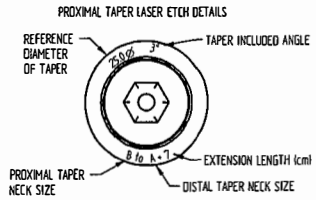
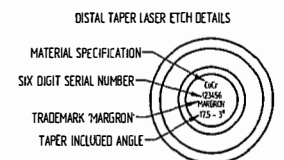
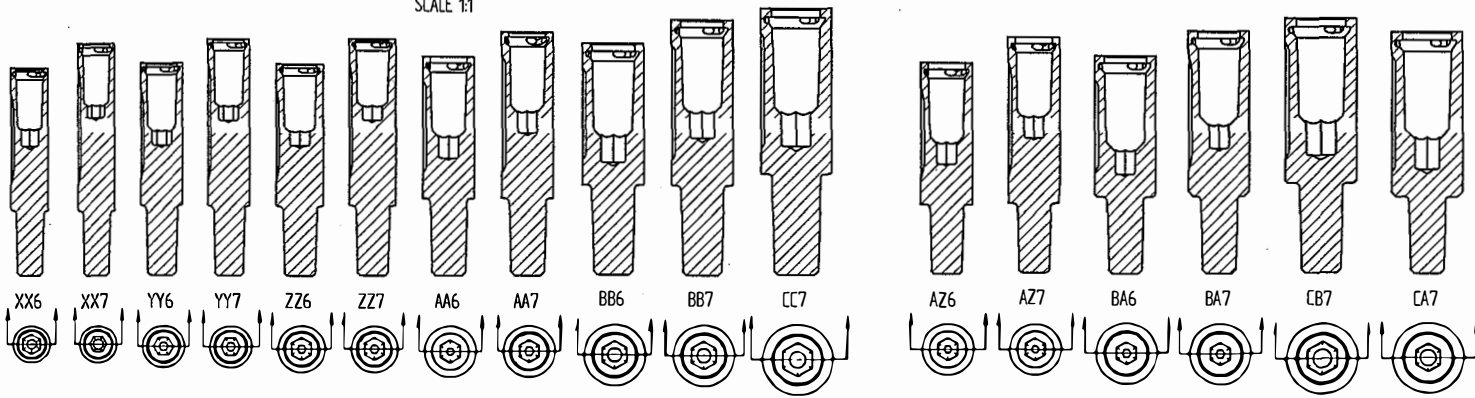
- MATERIAL: ASTM F1537 HIGH CARBON, WARM WORKED, BAR STOCK, FINISHED FROM 300.0L. IF FORGED AND THEN MACHINED TO SIZE, COMPONENTS TO BE CERTIFIED TO ASTM F799 FORGE IN RANGE 100° C - 105° C AND DEFORMATION MUST NOT CONTINUE BELOW 100° C. MINIMUM THICKNESS: 35 RC. HARDNESS TREATMENT TO BE MACHINED AWAY.
- UNLESS OTHERWISE STATED ALL DIMENSIONS ARE IN MILLIMETERS.
- TOLERANCES UNLESS OTHERWISE SPECIFIED ARE: ±.01 ON LENGTHS AND DIAMETERS, ±.05 DEGREE ANGLES.
- SURFACE FINISH: UNLESS OTHERWISE SPECIFIED IS 6.3µm Ra.
- ALL MACHINING TO BE REFULLY DEBURRED.
- THESE MODULAR EXTENSION COMPONENTS ARE TO BE ONLY USED WITH ST. GEORGE HSP PROSTHESIS PROXIMAL NECK COMPONENTS AS PER DRAWINGS SGHP-001 AND SGHP-002.
- HYDROXYAPATITE COATING TO BE APPLIED TO OUTER SURFACES OF MODULE AS SHOWN.

COATING CHARACTERISTICS AS FOLLOWS:

THICKNESS	50µm ± 0.01-0.02
POROSITY	90% BULK DENSITY
CRYSTALLINITY	~45%
CHEMICAL PURITY	TO ASTM 1185
TENSILE STRENGTH	~30MPa
FATIGUE LIFE	~1007 TENSILE CYCLES @ 83 MPa

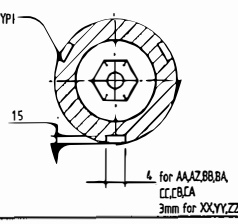
8. EACH MODULE SIZE TO HAVE ITS OWN SERIAL NUMBER SERIES: 000001 TO 999999

SCALE 1:1



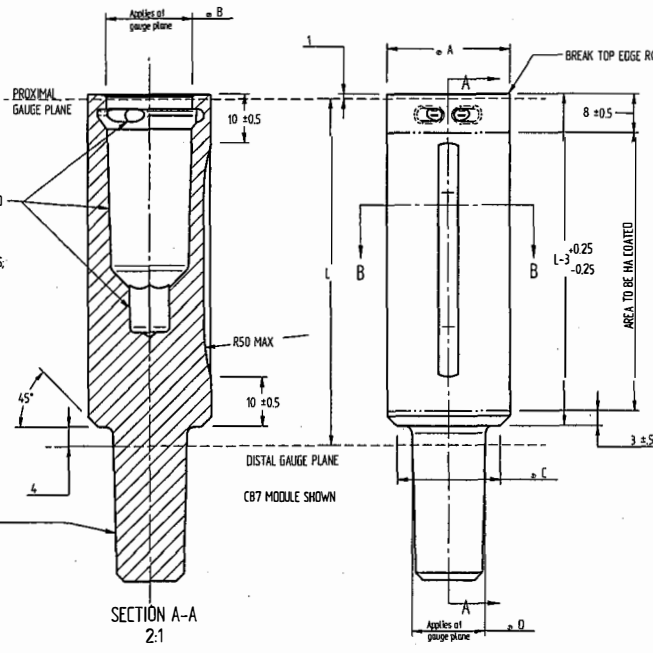
- OPERATIONS REFERENCE LIST
- HARDNESS TEST (BAT D9)
 - MACHINING AND DEBURR
 - CRACK TEST: ASTM F601-03
 - FINISH SURFACE: ASTM F86-01
 - APPLY DESIGNATION
 - CLEAN PASSIVATE: ASTM F86-01
 - PROTECTIVE PACKAGING
 - CRATE
 - TRANSPORT
 - UNCRATE AND UNPACK
 - WASH
 - BLAST
 - CLEAN: ASTM F86-01
 - HYDROXYAPATITE COAT
 - DISINFECTION
 - DISP. PACKAGE AND HEAT SEAL
 - CRATE
 - TRANSPORT
 - UNCRATE
 - DISP. FINAL PACKAGING
 - LABEL PACKAGE
 - GAMMA IRRADIATE TOSTERILISE
 - CRATE
 - TRANSPORT

SECTION B-B



PROXIMAL TAPER AS PER STANDARD X, Y, Z, 1, 3 OR 5 STEM. THIS INCLUDES ALL DETAILS OF TAPER SIZE, INTERNAL GROOVE, HEX AND SUTURE HOLE DIMENSIONS, DETAILS TOLERANCES AND SURFACE FINISHES (REF SGHP-001)

DISTAL TAPER AS PER STANDARD X, Y, Z, A, B OR C NECK. THIS INCLUDES ALL DETAILS OF TAPER SIZE, DIMENSIONS, DETAILS, TOLERANCES AND SURFACE FINISHES (REF SGHP-002)



REVISIONS	DATE	DETAILS	EL	RF	DRAWN	CHECKED
C		ADD XYZ SERIES OF NECKS CORRECT TYPE IN NOTE 7. CHANGE STEMS TO NECKS. UPDATE ASTM F601-03 TO ASTM F601-03. UPDATE ASTM F86-01 TO ASTM F86-01. UPDATE ASTM INFORMATION FOR WRIGHT BAR STOCK FOR MACHINING FROM 300.0L. INCLUDE PART NUMBERS. ADJUST I/O THICKNESS TOLERANCE FROM 20 TO 40µm. REFER TO PORTLAND ORTHOPAEDICS DCN 62.	EL	RF		
B	22/12/00	REFER TO MAC ORTHOPAEDICS PROJECT P0004	EL	RF		

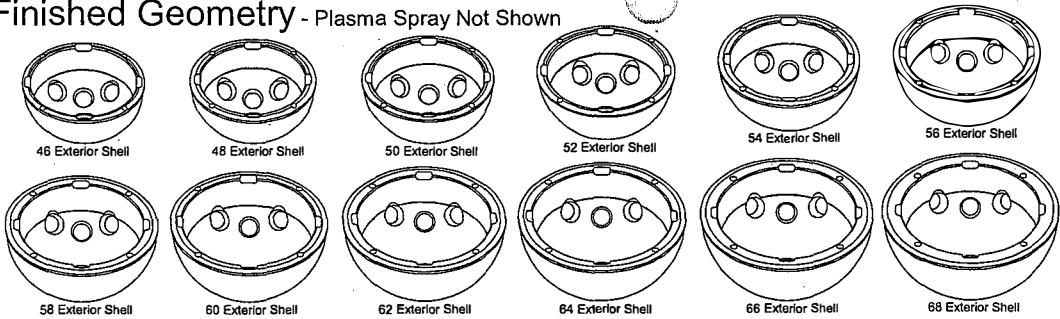
PORTLAND ORTHOPAEDICS

UNIT 3/44 McCULLY STREET
MATAVILLE
NSW 2036

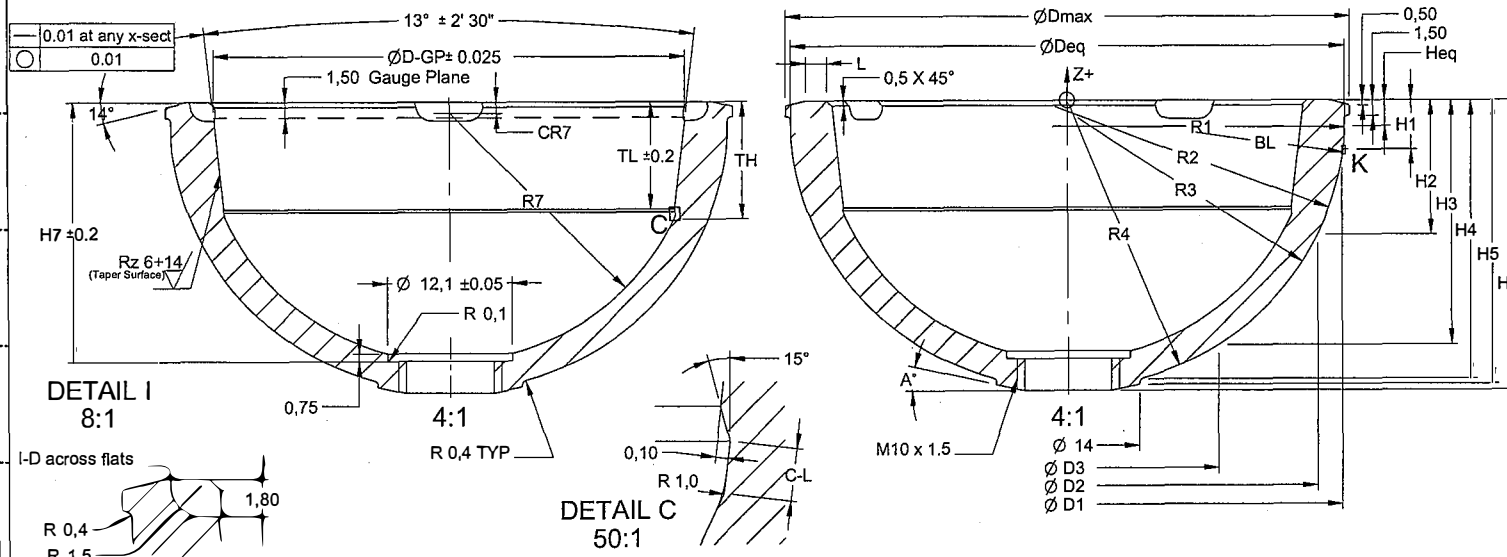
JOB	ST. GEORGE HOSPITAL HIP PROSTHESIS
TITLE	MODULAR EXTENSION COMPONENTS SET AND DETAILS
DRAWING NUMBER	SGHP - 003
SCALE	AS SHOWN APPROVED R. FROST
DRAWN	EL CHECKED R. FROST DATE DRAWN 25/11/99

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Finished Geometry - Plasma Spray Not Shown



1. MATERIAL IS: ASTM F 136 Ti 6Al4V ELI WROUGHT ALUMINUM STOCK.
2. UNLESS OTHERWISE STATED, ALL DIMENSIONS ARE IN MILLIMETRES.
3. TOLERANCES ON ALL MACHINED SIZES, UNLESS OTHERWISE SPECIFIED ARE ± 0.10 ON LENGTHS AND DIAMETERS AND ± 0.5 DEGREES ON ANGLES.
4. SURFACE FINISH ON INTERNAL TAPER TO BE IN RANGE 6 TO 20µm Ra AND MUST BE ACHIEVED BY TURNING.
5. ALL MACHINING TO BE FULLY DEBURRED.
6. EXTERIOR SHELLS ONLY TO BE USED WITH PORTLAND ORTHOPAEDICS PROSTHESIS COMPONENTS AS PER DRAWING SGHP-005 & SGHP-007.
7. COMMERCIAL PURE TITANIUM TO ASTM F 1580 TO BE APPLIED TO OUTER SURFACE OF SHELL, STARTING FROM FRONT LIP TO DOMESTEP.
8. COATING CHARACTERISTICS AS FOLLOWS:
COATING TYPE: GPE 1600 PP SYSTEM
THICKNESS: 500µm ± 40 µm
SURFACE POROSITY: 20% - 40%
TENSILE STRENGTH: ≥ 25 MPa
9. EACH EXTERIOR SHELL SIZE TO HAVE ITS OWN SERIAL NUMBER SERIES, 00001 TO 99999.
10. 5 HOLE EXTERIOR SHELLS TO HAVE ANOTHER 2 "LOW" SCREW HOLES PLACED EITHER SIDE OF STANDARD HOLES AS SHOWN IN ETCHING DETAIL.
11. SCREW HOLE AXIS PERPENDICULAR TO THE SURFACE OF THE SHELL AT THAT POINT.
12. 100% GAUGING ON SCREW HOLE DIA AND TAPERS.



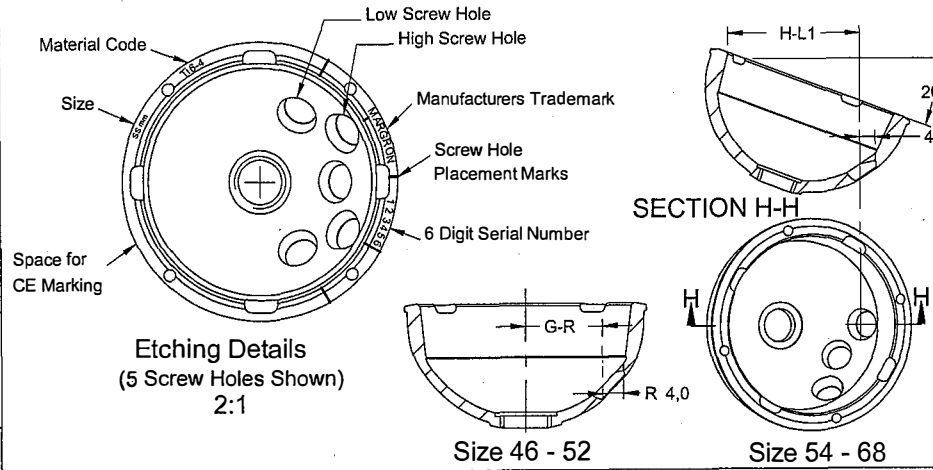
Shell Size	Set 3	Set 4	Set 5	Set 6	Set 7	Set 8
Phi 2 Hole	40	45	50	55	60	65
Phi 3 Hole	1410-146	1410-148	1410-150	1410-152	1410-154	1410-156
Phi 4 Hole	1410-158	1410-160	1410-162	1410-164	1410-166	1410-168
R1	23.050	24.050	25.050	26.050	27.050	28.050
R2	12.333	15.193	18.053	20.913	23.773	26.633
R3	25.222	27.334	28.607	29.200	29.911	27.548
R4	23.594	24.329	25.143	25.904	26.718	26.889
R7	22.898	22.166	23.726	24.460	24.088	26.178
A	14.000	12.000	12.000	12.000	12.000	12.000
B	9.500	14.500	9.500	9.500	9.500	14.500
H1	8.127	7.210	5.535	6.297	4.766	8.374
H2	12.189	12.241	12.301	12.234	13.000	16.000
H3	20.909	18.889	22.427	22.083	23.998	24.523
H4	23.188	23.971	25.016	26.074	27.105	28.118
H5	23.711	24.493	25.538	26.591	27.021	28.684
H6	24.371	25.077	26.100	26.508	28.206	29.298
H7	21.936	22.600	23.466	24.641	25.124	26.541
Heq	2.750	2.500	2.500	2.640	2.500	2.500
CR7	-0.598	0.531	-0.290	0.241	0.244	0.244
D1	44.300	47.188	48.731	51.544	55.914	54.898
D2	41.685	43.168	45.321	47.451	48.772	47.636
D3	24.206	29.838	25.308	28.607	28.424	30.894
D4	46.100	48.100	50.100	52.100	54.100	56.100
D5	47.100	49.100	51.100	53.100	55.100	57.100
D6	40.840	40.840	43.870	45.800	45.800	47.870
TL	10.400	10.400	10.400	10.400	12.000	12.000
TH	11.500	11.300	11.350	11.350	12.500	13.500
L	0.710	1.400	1.030	2.030	1.900	2.300
C-L	0.500	0.500	0.400	0.400	0.800	0.800
H	45.462	45.462	48.212	50.342	52.512	56.212
DA	56.300	58.100	55.400	52.400	48.600	45.000
DH	18.221	19.560	19.430	19.290	19.170	19.060
E-A1	43.900	44.600	42.400	39.300	36.200	34.400
E-H1	14.200	14.960	14.880	14.780	14.720	14.680
G-R	14.900	15.170	16.430	17.760		
M-L					34.240	36.560
J-D	45.168	46.488	50.678	52.798	56.198	58.498

OPERATIONS REFERENCE LIST:

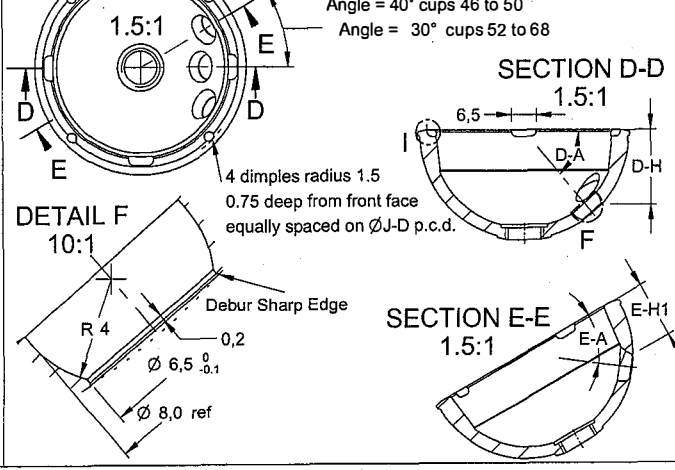
1. ROUGH MACHINE AND DEBURR
2. CLEAN AND PASSIVATE: ASTM F86-01
3. TRANSPORT & PLASMA SPRAY
4. FINISH MACHINE AND DEBUR
5. GAZE & CHAM
6. CLEAN AND PASSIVATE: ASTM F86-01
7. PACKAGE AND HEAT SEAL
8. FINAL PACKAGING AND LABEL
9. GAMMA IRRADIATE TO STERILISE
10. CRATE
11. DELIVER

ISSUE	DATE	DETAILS	DRAWN	CHECKED
REVISIONS				

Etching & Screw Hole Chamfer Details

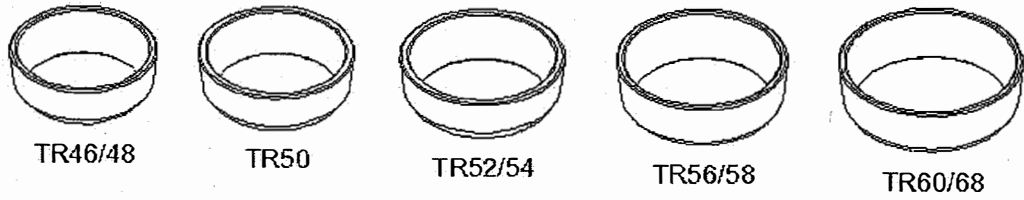


Screw Hole Details

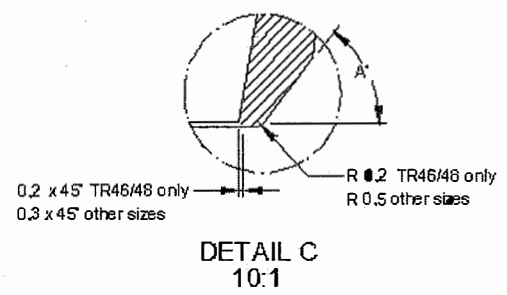
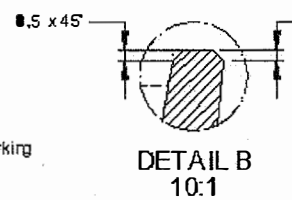
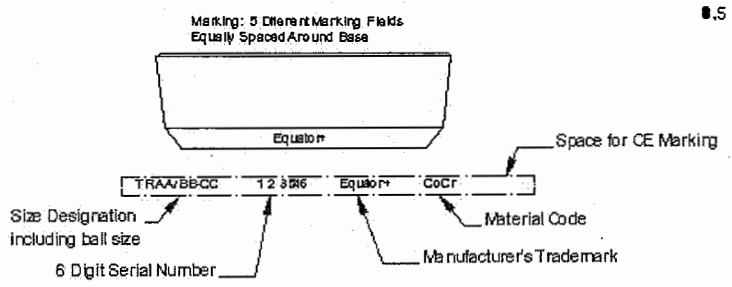
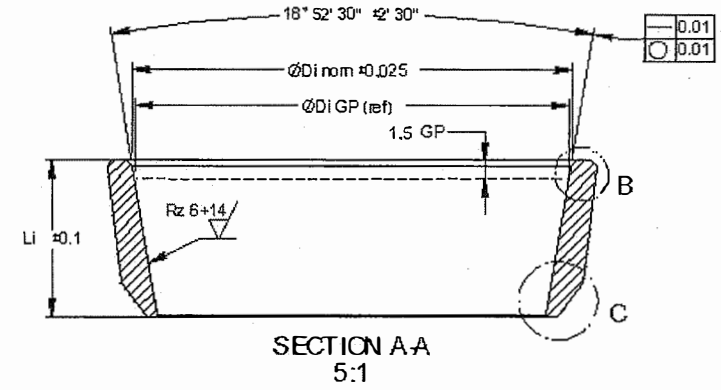
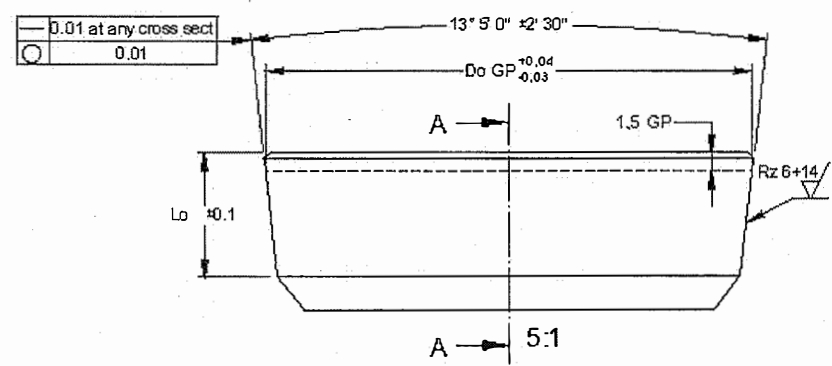


DRAFT

DRAWN	RM	CHECKED	ISSUE	A	DATE	7/3/05
SCALE	As Shown		APPROVED BY			
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JOB	X		PG		1 of 2	
TITLE	Exterior Shell					
CONFIDENTIAL						
UNIT 3, 44 McCauley Street Matraville, NSW, Australia, 2036						
DRAWING No.			SGHP-005			



- OPERATION REFERENCE LIST:**
1. MACHINING AND DEBURR
 2. APPLY DESIGNATION
 3. CLEAN AND PASSIVATE AT 37°C
 4. PACKAGE IN METAL SEAL
 5. ASSEMBLY WITH CERAMIC INSERT
 6. FINAL PACKAGING AND LABEL
 7. CRATE
 8. DELIVER
- NOTES:**
1. MATERIAL: ALUMINUM 3003 COATED WITH CERAMIC
 2. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETERS
 3. TOLERANCES: UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETERS AND TO FOLLOW THE FOLLOWING TOLERANCES: ±0.025
 4. SURFACE FINISH: UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE TO BE FINISHED TO RZ 6+14
 5. ALL MACHINING TO BE FULLY DEBURRED
 6. THESE PARTS ARE TO BE USED ONLY WITH PORTLAND ORTHOPAEDICS CERAMIC INSERTS
 7. EACH TAPERING SIZE TO HAVE ITS OWN SERIAL NUMBER FROM 00001 TO 00005

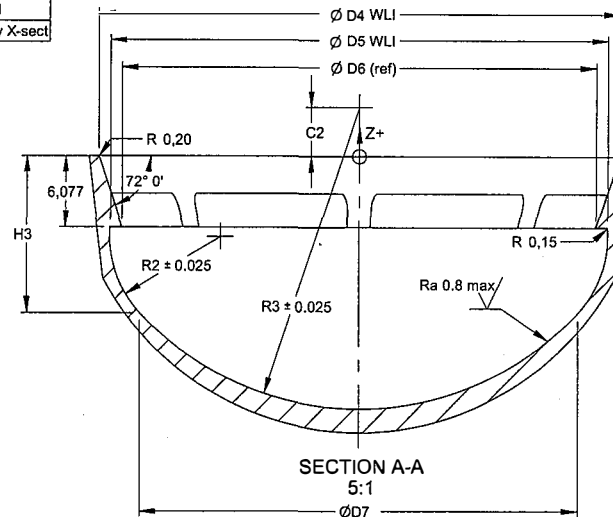
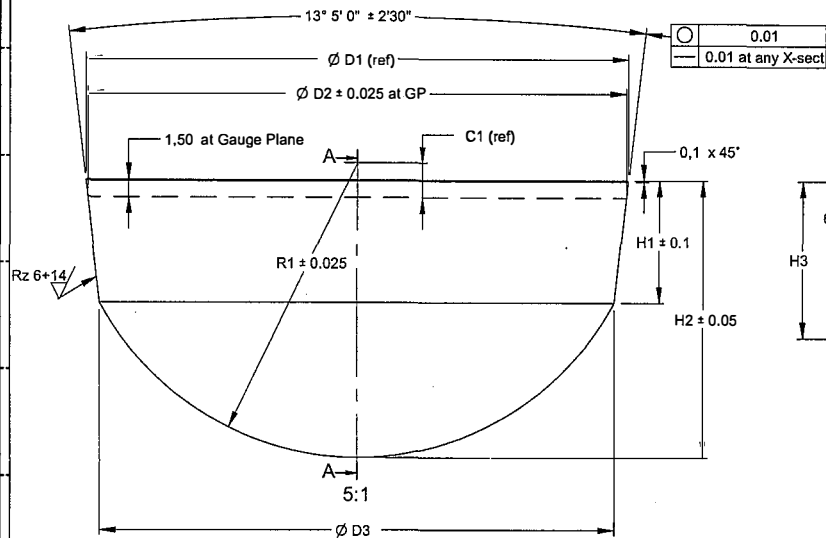
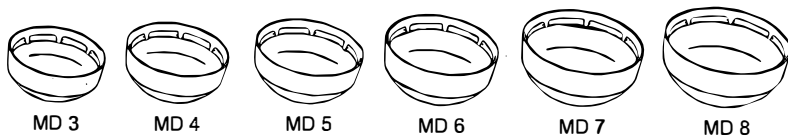


A			PW
DATE	DETAILS	DRAWN	CHECKED
REVISIONS			

CLINICAL EVALUATION

DRAWN	CHECKED	ISSUE A	DATE 10/8/05
SCALE As Shown	APPROVED BY		
<small>DO NOT SCALE ALL DIMENSIONS TO BE CHECKED IN MANY INSTANCES BECAUSE OF THE TOLERANCES AND THE FACT THAT THE DIMENSIONS ARE IN MILLIMETERS ALL RIGHTS RESERVED BY PORTLAND ORTHOPAEDICS FOR THE DESIGN AND CONSTRUCTION OF THE CERAMIC INSERTS UNLESS OTHERWISE SPECIFIED IN THE DRAWING</small>			
JOB	X		
TITLE	Taper Ring Master Drawing		
CONFIDENTIAL			
UNIT 3, 44 McCaulby Street Matraville, NSW, Australia, 2036			
PORTLAND ORTHOPAEDICS™			
DRAWING No.	SGHP-006		

Part	Part					
	TR46/48	TR50	TR52/54	TR56/58	TR60/68	TR64/68
Part No.	2-806-546	2-806-550	2-806-552	2-806-556	2-806-560	2-806-564
Do GP	40.970	43.700	45.830	48.000	51.700	54.000
Lo	10.4	10.4	10.4	12.2	12.2	12.2
Di nom	37.025	39.025	41.025	44.025	48.025	48.025
Di GP	36.526	38.562	40.526	43.526	47.526	47.526
Li	13.2	13.2	14.2	14.2	14.2	14.2
A	52°	56°	56°	56°	60°	60°



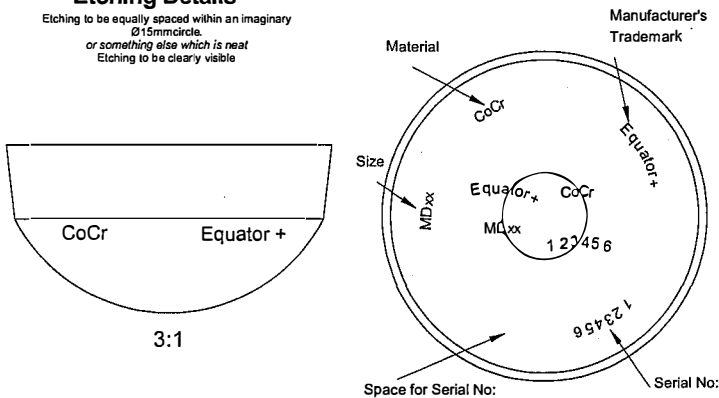
Size	MD3	MD4	MD5	MD6	MD7	MD8
Part No.	2-804-546	2-804-550	2-804-552	2-804-556	2-504-560	2-804-564
H1	10.400			12.200		
H2	20.800	22.300	23.452	25.304	27.100	28.098
H3	11.690	12.402	13.326	14.454	15.473	16.080
R1	23.415	24.180	24.890	26.340	27.795	28.804
R2	8.250	7.625	9.500	11.572	11.965	12.885
R3	22.075	24.915	25.625	26.326	28.773	30.000
D1	41.291	44.021	46.151	48.321	52.021	54.321
D2	40.970	43.700	45.830	48.000	51.700	54.000
D3	38.929	41.659	43.789	45.546	49.246	51.546
D4	39.627	42.362	44.494	46.664	50.364	52.664
D5	37.670	40.373	42.524	44.704	48.387	50.689
D6	35.678	38.413	40.545	42.715	46.415	48.715
D7	33.821	36.443	37.482	38.507	42.086	43.881
C1	2.615	1.880	1.438	1.036	0.695	0.742
C2	2.500	4.590	4.150	3.500	4.150	4.380
AP1	6° 15' 32"	5° 50' 17"	5° 32' 14"	5° 15' 40"	4° 50' 57"	4° 37' 26"
AP2	35° 35' 21"	36° 14' 41"	36° 43' 34"	37° 6' 35"	37° 43' 39"	38° 3' 54"
LP1	1.953	1.956	1.958	1.960	1.964	1.965
RP1	18.778	20.143	21.209	22.294	24.144	25.294

- NOTES:
- MATERIAL: ASTM F 1537 LOW CARBON C28 C16 Mo WRAUGHT ALLOY BAR STOCK.
 - UNLESS OTHERWISE STATED, ALL DIMENSIONS ARE IN MILLIMETRES.
 - SURFACE FINISH ON EXTERNAL TAPER TO BE IN RANGE 6 TO 20µm Rz AND MUST BE ACHIEVED BY TURNING.
 - SURFACE FINISH ON INTERIOR SURFACE TO BE Ra 0.8 MAX.
 - ALL MACHINING TO BE FULLY DEBURRED.
 - CLEAN AND PASSIVATE: ASTM F86-01.
 - ASSEMBLE WITH UHMWPE INSERT COMPONENTS AS PER DRAWING SGHP-005 AND SGHP-008.
 - EACH METAL DOME SIZE TO HAVE ITS OWN SERIAL NUMBER SERIES, 000001 TO 999999.
 - "WLI" refers to where lines intersect.
- TOLERANCES UNLESS SPECIFIED:
- WHOLE NUMBERS = ± 0.5mm
ONE DECIMAL PLACE = ± 0.2mm
TWO DECIMAL PLACES = ± 0.05mm
THREE DECIMAL PLACES = ± 0.025mm
ANGULAR DIMS = ± 1°
- OPERATIONS REFERENCE LIST:
- MACHINE AND DEBURR
 - APPLY DESIGNATION
 - CLEAN AND PASSIVATE: ASTM F86-01.
 - ASSEMBLE WITH UHMWPE INSERT
 - PACKAGE AND HEAT SEAL.
 - FINAL PACKAGING AND LABEL
 - ETHYLENE OXIDE TO STERILISE
 - CRATE
 - DELIVER

ISSUE	DATE	DETAILS	DRAWN	CHECKED
REVISIONS				

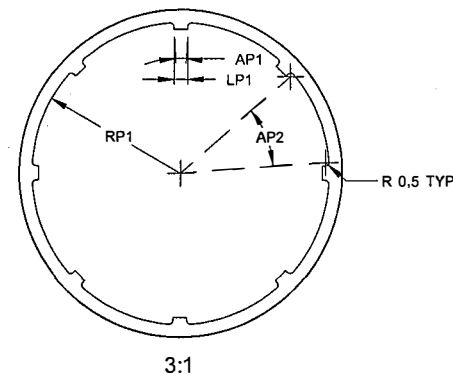
Etching Details

Etching to be equally spaced within an imaginary $\varnothing 15\text{mm}$ circle, or something else which is neat. Etching to be clearly visible.



De-rotation Pegs

8 off de-rotation pegs, equally spaced around 360°



CLINICAL EVALUATION

DRAWN	RM	CHECKED	X	ISSUE	1	DATE	07-04-05
SCALE	As Shown	APPROVED BY	X				

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JOB	X	PG	1 of 1
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TITLE Metal Dome

CONFIDENTIAL

UNIT 3, 44 McCauley Street Matraville, NSW, Australia, 2036

PORTLAND ORTHOPAEDICS™

DRAWING No.	SGHP-007
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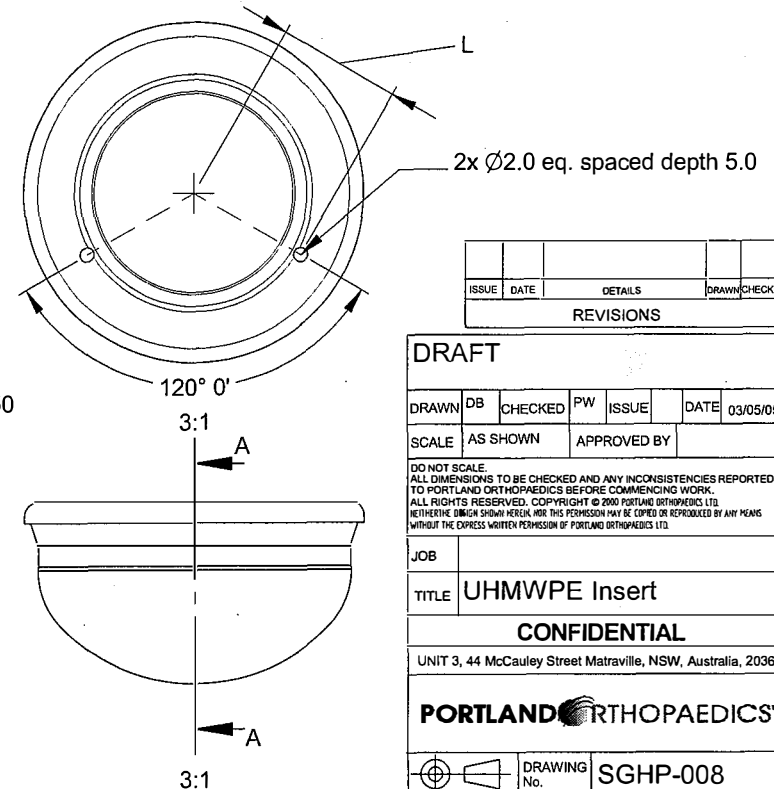
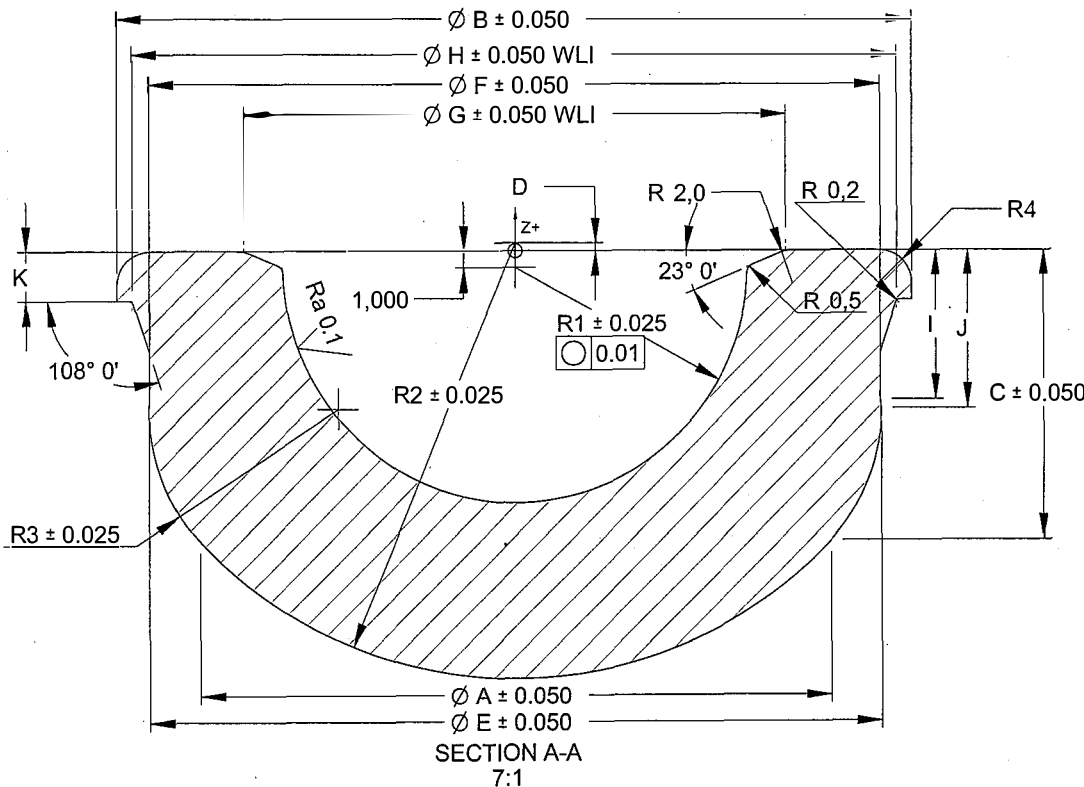
Size	A	B	C	D	E	F	G	H	I	J	K	L	R1	R2	R3	R4
46-28	33.706	41.291	15.141	-1.000	37.530	37.402	32.962	39.469	9.483	9.999	3.5	17.500	14.125	22.000	8.175	2.5
50-28	36.334	44.021	15.351	1.590	40.353	40.136	32.962	42.204	9.083	9.669	3.0	17.500	14.125	24.840	7.550	2.0
52-28	37.372	46.151	16.275	1.150	42.432	42.269	32.962	44.336	9.105	9.650	3.0	17.500	14.125	25.550	9.425	2.0
56-28	38.398	48.321	17.403	0.500	44.575	44.439	32.962	46.506	9.052	9.569	3.0	17.500	14.125	26.251	11.497	2.0
60-28	41.977	52.021	18.422	1.150	48.337	48.139	32.962	50.206	8.919	9.480	3.0	17.500	14.125	28.698	11.938	2.0
64-28	43.772	54.321	19.029	1.381	50.601	50.439	32.962	52.506	8.961	9.468	3.0	17.500	14.125	29.925	12.810	2.0
52-32	37.372	46.151	16.275	1.150	42.432	42.269	36.962	44.336	9.105	9.650	3.0	20.000	16.125	25.550	9.425	2.0
56-32	38.398	48.321	17.403	0.500	44.575	44.439	36.962	46.506	9.052	9.569	3.0	20.000	16.125	26.251	11.497	2.0
60-32	41.977	52.021	18.422	1.150	48.337	48.139	36.962	50.206	8.919	9.480	3.0	20.000	16.125	28.698	11.938	2.0
64-32	43.772	54.321	19.029	1.381	50.601	50.439	36.962	52.506	8.961	9.468	3.0	20.000	16.125	29.925	12.810	2.0
56-36	38.398	48.321	17.403	0.500	44.575	44.439	40.962	46.506	9.052	9.569	3.0	21.500	18.125	26.251	11.497	2.0
60-36	41.977	52.021	18.422	1.150	48.337	48.139	40.962	50.206	8.919	9.480	3.0	21.500	18.125	28.698	11.938	2.0
64-36	43.772	54.321	19.029	1.381	50.601	50.439	40.962	52.506	8.961	9.468	3.0	21.500	18.125	29.925	12.810	2.0

OPERATIONS REFERENCE LIST:

1. MOULDED (Poly Hi-INTERIOR)
2. MACHINE & DEBURR (Mac DEE)
3. CLEAN AND PASSIVATE: ASTM XXXX
4. ASSEMBLE WITH METAL DOME
5. PACKAGE AND HEAT SEAL
6. FINAL PACKAGING AND LABEL
7. STERILISE WITH ETO
8. CRATE
9. DELIVER

NOTES:

1. MATERIAL: ASTM F 648 GUR 1050 UHMWPE COMPRESSION MOULDED PIECES
2. UNLESS OTHERWISE STATED, ALL DIMENSIONS ARE IN MILLIMETRES
3. TOLERANCES UNLESS SPECIFIED
 - whole numbers +/- 0.5mm
 - one decimal place +/- 0.2mm
 - two decimal places +/- 0.05mm
 - three decimal places +/- 0.025mm
 - angular dimensions +/- 0.5 degrees
4. ALL MACHINING TO BE FULLY DEBURRED
5. POLY INSERTS TO BE USED WITH PORTLAND ORTHOPAEDICS METAL DOME COMPONENTS AS PER DRAWING SGHP-007
6. "WLI" REFERS TO WHERE LINES INTERSECT



ISSUE	DATE	DETAILS	DRAWN/CHECKED

REVISIONS

DRAFT

DRAWN	DB	CHECKED	PW	ISSUE	DATE	03/05/05
SCALE	AS SHOWN	APPROVED BY				

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JOB	
TITLE	UHMWPE Insert
CONFIDENTIAL	
UNIT 3, 44 McCauley Street Matraville, NSW, Australia, 2036	



DRAWING No.	SGHP-008
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Dimensions in mm