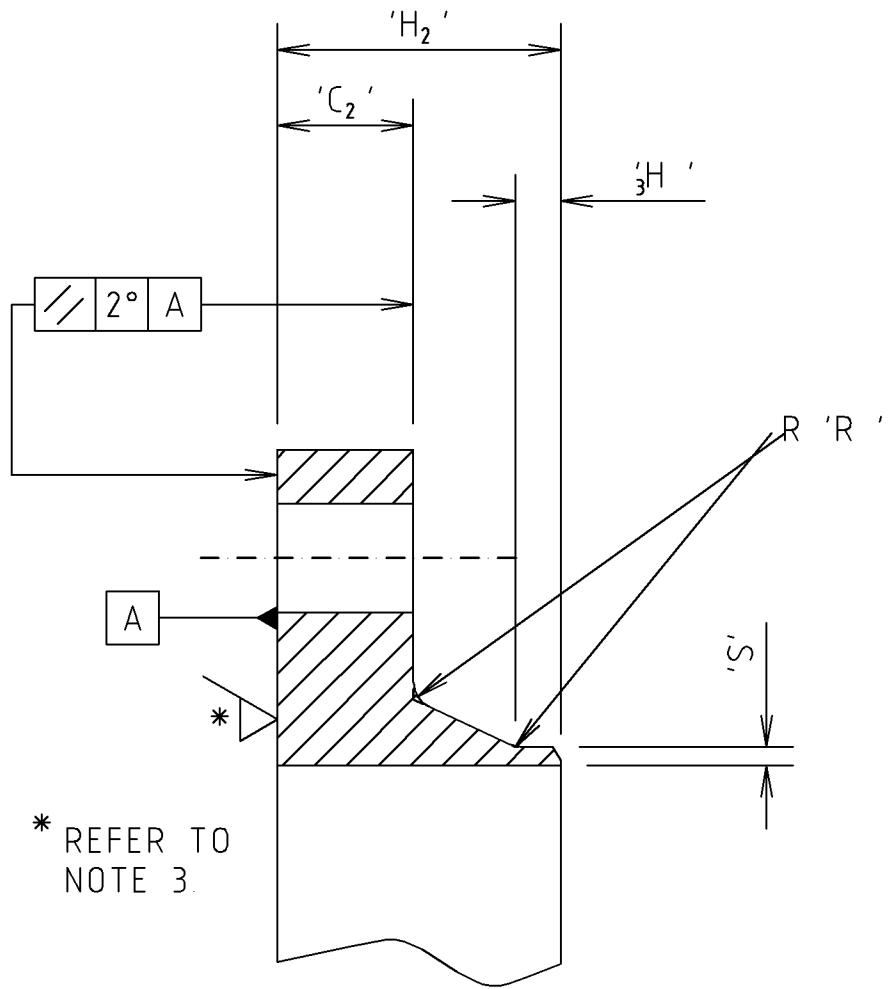
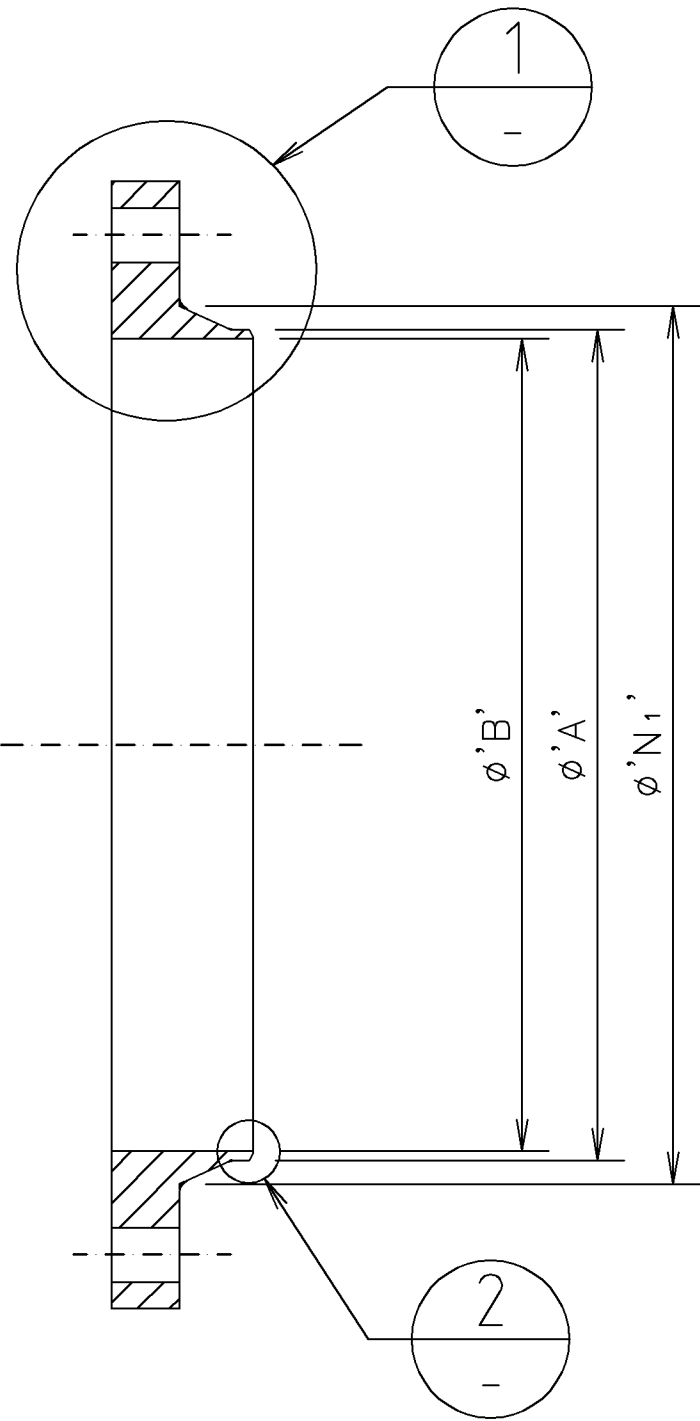
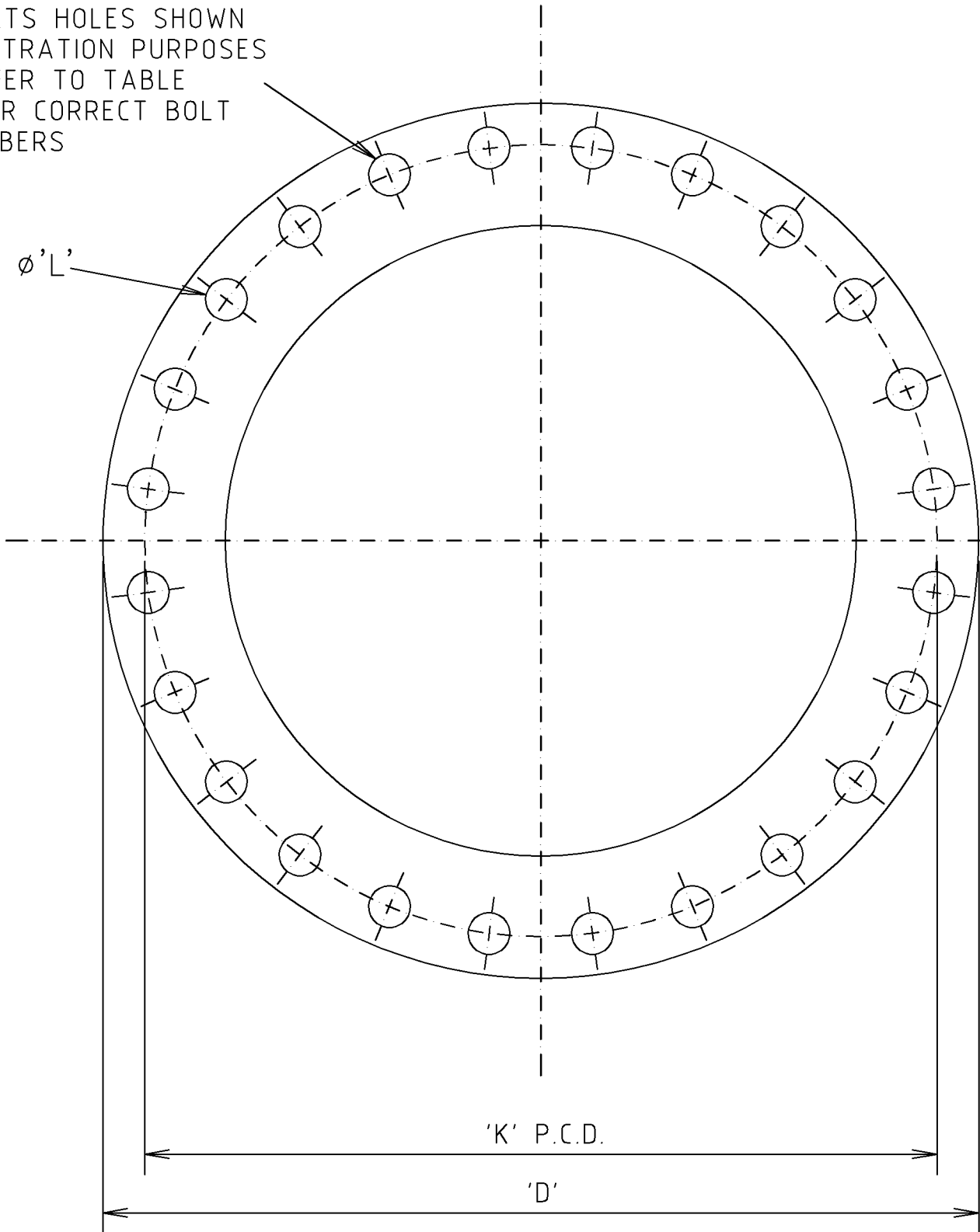
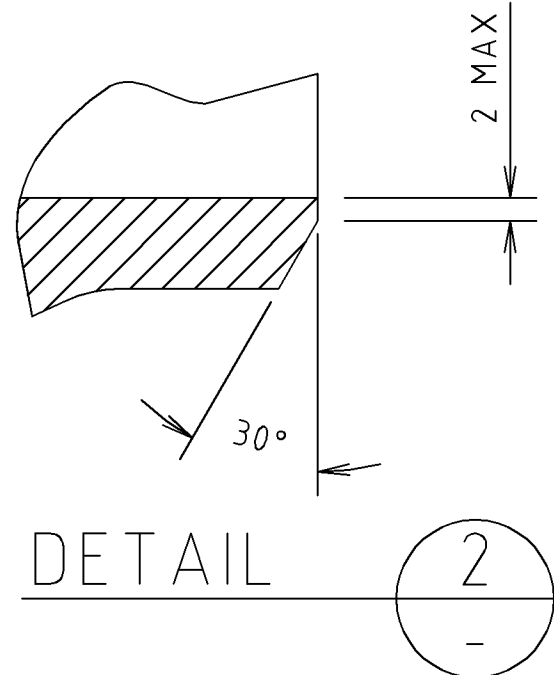


NOTE: BOLTS HOLES SHOWN FOR ILLUSTRATION PURPOSES ONLY REFER TO TABLE BELOW FOR CORRECT BOLT HOLE NUMBERS



DETAIL 1

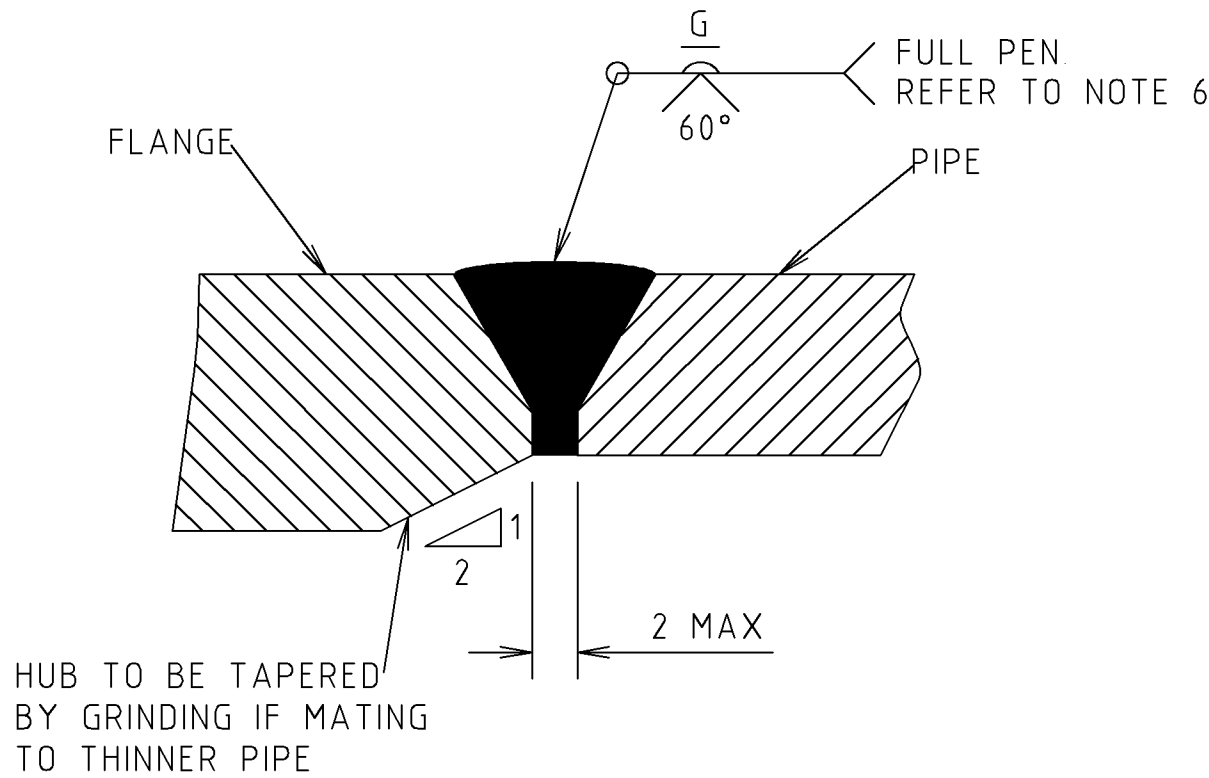


DETAIL 2

PN25 FLANGE DIMENSIONS (TYPE 11 - "WELD NECK")

DN	MATING DIMENSIONS						A	B	N <sub>1</sub>	H <sub>2</sub>	C <sub>2</sub>	H <sub>3</sub>	R <sub>1</sub>	S	APPROX WEIGHT (KG)	PIPE THICKNESS	MIN REQUIRED BOLT-UP TORQUE (Nm)						
	D	K	L	BOLTING																			
				NUMBER	SIZE																		
700	960	+5 0	875	±15	42	24	M39	711	+4 0	699	760	±1	131	+2 0	51	±3	20	+3 0	12	6	145	6	2120
800	1085		990		48	24	M45	813		799	864		147		60		22		12	7	205	7	3100
900	1185		1090		48	28	M45	914		900	968		149		64		24		12	7	240	7	3280
1000	1320		1210		56	28	M52	1016		1000	1070		160		71		24		16	8	310	8	4520
1200	1530		1420		56	32	M52	1219		1201	1301		179		80		24		16	9	470	9	5750
1400	1755		1640		62	36	M56	1422		1400	1504		203		94		24		16	11	620	11	7680

\*IF ONLY FRONT FACE IS MACHINED TOLERANCE TO BE +7<sub>0</sub>.



FLANGE TO PIPE WELD DETAIL

## GENERAL NOTES

- INSPECTION AND TESTING  
INSPECTION AND TESTING OF THE FORGED MATERIAL SHALL BE CARRIED OUT IN ACCORDANCE WITH THE APPROPRIATE STANDARD  
IE ASTM A105 OR AS1448  
IN ADDITION, MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A788 SUPPLEMENTARY REQUIREMENT S20, CARRIED OUT IN ACCORDANCE WITH STANDARD PRACTICES ASTM A 388 & A939  
ACCEPTANCE LEVEL BR FOR LONGITUDINAL WAVE EXAMINATION AND ACCEPTANCE LEVEL S FOR SHEAR WAVE EXAMINATION
- DATA SHEETS & MATERIAL TEST CERTIFICATES ARE TO BE SUPPLIED WITH ALL FLANGES.
- GASKET FACE SURFACE TO BE MACHINED TO EN1092-1:2007 AS FOLLOWS.

METHOD OF MACHINING	RADIUS OF TOOL NOSE mm	R <sub>a</sub> * µm		R <sub>z</sub> * µm	
		MIN	MAX	MIN	MAX
TURNING	1.0	3.2	12.5	12.5	50

\*ROUGHNESS AVERAGE R<sub>a</sub> IS THE ARITHMETIC AVERAGE OF THE ABSOLUTE VALUES OF THE ROUGHNESS PROFILE ORDINATES

MEAN ROUGHNESS DEPTH R<sub>z</sub> IS THE ARITHMETIC MEAN VALUE OF THE SINGLE ROUGHNESS DEPTHS R<sub>zi</sub> OF CONSECUTIVE SAMPLING LENGTHS.

- SURFACE FINISHES TO BE TO EN1092-1:2007 AS FOLLOWS.

OUTER DIAMETER µm		CENTRE BORE DIAMETER µm		SPOT FACING
R <sub>a</sub> MAX.	R <sub>z</sub> MAX.	R <sub>a</sub> MAX.	R <sub>z</sub> MAX.	
25	160	25	160	YES*

\*REFER TO NOTE 5

- ANY SPOT FACING OR BACK FACING SHALL NOT REDUCE THE FLANGE THICKNESS TO LESS THAN THE FLANGE THICKNESS SPECIFIED WHEN SPOT FACING IS USED, THE DIAMETER SHALL BE LARGE ENOUGH TO ACCOMMODATE THE OUTSIDE DIAMETER OF THE EQUIVALENT NORMAL SERIES OF WASHERS IN ACCORDANCE WITH EN ISO 887 (IDENTICAL TO AS1237) FOR THE BOLT SIZE BEING FITTED THE BEARING SURFACES FOR THE BOLTING SHALL BE PARALLEL TO THE FLANGE FACE WITHIN THE LIMITS SPECIFIED IN DETAIL 1 WHEN THE FLANGE IS FACED BACK A MINIMUM FILLET RADIUS OF 3.2mm SHALL BE MAINTAINED
- BUTT WELD MADE BEFORE WELDING OTHER SIDE
- WELD INSPECTION AS PER EN13445 5 GROUP 1,2,3 & 4
- FLANGES TO BE COATED WITH SILICONE BASED WATER REPELLENT AS PER WATER CORPORATIONS STANDARD DS 60 GASKET FACE COATING TO BE REMOVED PRIOR TO FLANGE ASSEMBLY.
- FLANGE JOINTS SHALL BE SQUARE TO PIPE WITHIN 0.25° OR 2mm WHICHEVER IS THE LESSER AND THE LAYBACK SHALL BE WITHIN THE RANGE OF 0 - 0.75° . (LAYBACK AS PER AS1579 IS "THE ANGULAR DISTORTION OF A FLANGE FROM IT'S ORIGINAL PLANE DUE TO WELDING THE FLANGE ONTO A PIPE OF FITTING")

## DESIGN DATA

DESIGN STANDARD.	EN1591-1:2001 / EN13445-3:2002
DIMENSIONAL SPECIFICATIONS.	EN1092-1:2007
FLANGE PRESSURE RATING.	PN25
SERVICE.	WATER
DESIGN PRESSURE.	2500 kPa
MAXIMUM HYDROTEST PRESSURE.	3575 kPa
DESIGN TEMPERATURE.	50°C
FLANGE MATERIAL.	ASTM A350 LF3 (CARBON STEEL FORGING) AS1448 GrK5 (EQUIVALENT)

## FASTENER SPECIFICATIONS

BOLT DIMENSIONAL SPECIFICATION	AS1110 1
NUT DIMENSIONAL SPECIFICATION.	AS1112.1
BOLT & NUT MECHANICAL PROPERTIES	AS4291.1:2000 - GRADE 8.8 (HOT-DIP GALVANISED)
WASHER TOLERANCES & MECHANICAL PROPERTIES	AS1237
GALVANISING.	AS1214
FLANGE BOLTING PROCEDURE.	WATER CORP. DS 38-03

## GASKET SPECIFICATIONS

SPECIFICATION.	EN1591 & EN13445
GASKET TYPE.	NON-METALLIC FLAT
GASKET MATERIAL.	NON-ASBESTOS COMPRESSED FIBRE
GASKET PROPERTIES.	
"E <sub>0</sub> "	500 MPa
"K <sub>1</sub> "	20
"m"	1.6
"g <sub>C</sub> OR P <sub>QR</sub> "	0.9
"Q <sub>0 min</sub> "	35 MPa
"Q <sub>max</sub> "	70 MPa
"Q <sub>smin</sub> "	10 MPa
"Q <sub>smax</sub> "	120 MPa

C B	10/2012 03/2010		TITLE LINE 3 AMENDED REDRAWN IN AUTOCAD	AC AC	MC GC	MC MC	DESIGN SURVEY NONE	VERTICAL DATUM NONE	DES CALC D. HEATON	NORTH POINT	<div>HATCH</div>	RECOMMENDED 01/12/2009 M.L.HOLMES ENGINEERING CONSULTANT	<div>WATER CORPORATION</div>	MECHANICAL STANDARD DRAWING MECHANICAL DESIGN STANDARD DS 38-03 PN25 FLAT FACE WELD NECK FLANGES (FOR USE WITH SEAL-ON-BODY VALVES)			ORIGINAL SHEET SIZE  A1	
							COORDINATE SYS NONE	DES CHD M. CALLARD										
							ASCON SURVEY NONE	DES REF	DRN L. ZUIDEMA Q.C. CHD M. KEATING									
566	ISSUE	DATE	GRID	REVISION			DRN	REC	APPD			APPROVED 01/12/2009 S.W.EVANS PROJECT MECHANICAL ENGINEER		<div>FILE</div> <div>PROJECT</div>	PLAN  JZ39-91-7	CAD	ISSUE  C	MF