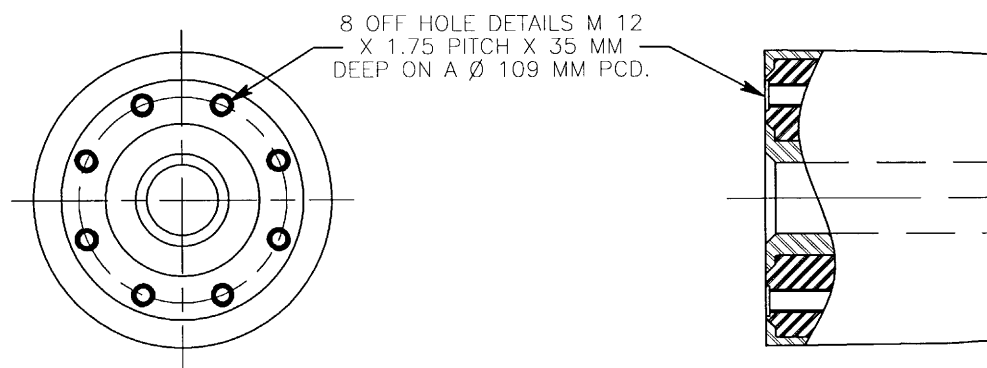
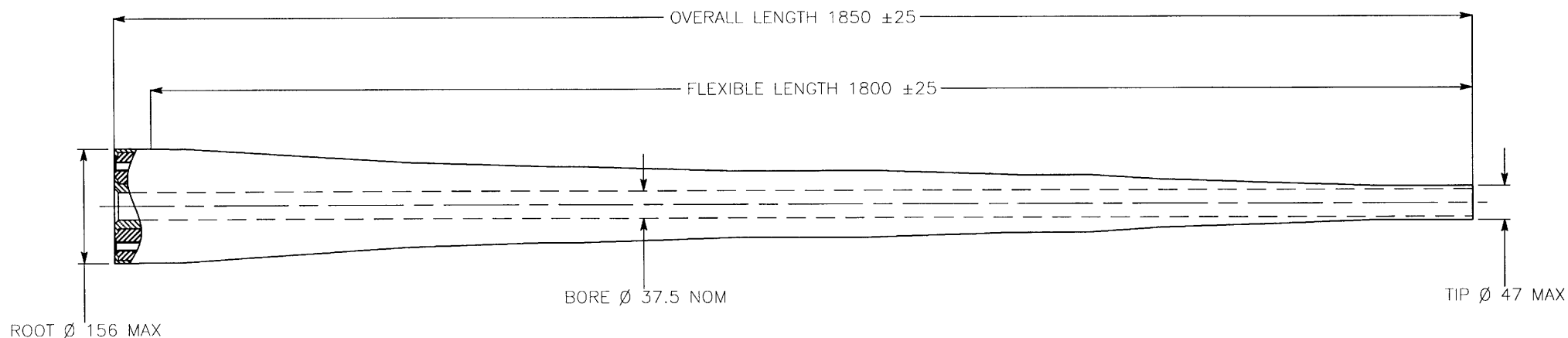


DO NOT SCALE – IF IN DOUBT ASK



NOTES;

MATERIAL – FLEXIBLE COMPONENT : POLYETHER BASED POLYURETHANE, COLOUR BLACK.

MOUNT INSERT – STAINLESS STEEL 316S31.

LOCATION FASTENERS : CLIENT SUPPLY.

APPLIED BENDING MOMENT OF 0.23 KN.m AT MAXIMUM DESIGN LOAD CASE.

APPROX WEIGHT

IN AIR – 23 KGS
IN WATER – 7 KGS

OCP Cable Protection Ltd
North Lonsdale Rd Ind Est, Ulverston, Cumbria,
LA12 9DL, UK
Tel +44 (0)1229 583914
Fax +44 (0)1229 581695
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DOCUMENT No. DES003/1 A4 ISSUE 3

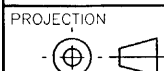
REMOVE ALL BURRS BUT LEAVE CORNERS SHARP
UNLESS OTHERWISE STATED
SURFACE FINISH – N7 UNLESS OTHERWISE STATED

N. No.	N5	N6	N7	N8	N9
MICROINCH	16	32	63	125	250
MICROMETER	0.4	0.8	1.6	3.2	6.3

GENERAL TOLERANCES
UNLESS OTHERWISE
STATED

X = ± 1.00 MM
X.X = ± 0.50 MM
X.XX = ± 0.25 MM
X* = ± 0.5*
X.X* = ± 0.25*

SCALE
1:8 AT A4 SIZE



UNITS MM

ISS

DCN NO

AUTHOR

DATE

DRAWN

CHECKED

RELEASED BY

ERTW

P. Pearson

P. Pearson

DATE 05-02-04

DATE 05-02-04

DATE 05-02-04

TITLE

GENERAL ARRANGEMENT

– BEND STIFFENER
– BOLTED INTERFACE
– Ø 37.5 BORE SIZE

DRG NO

5561

ISS

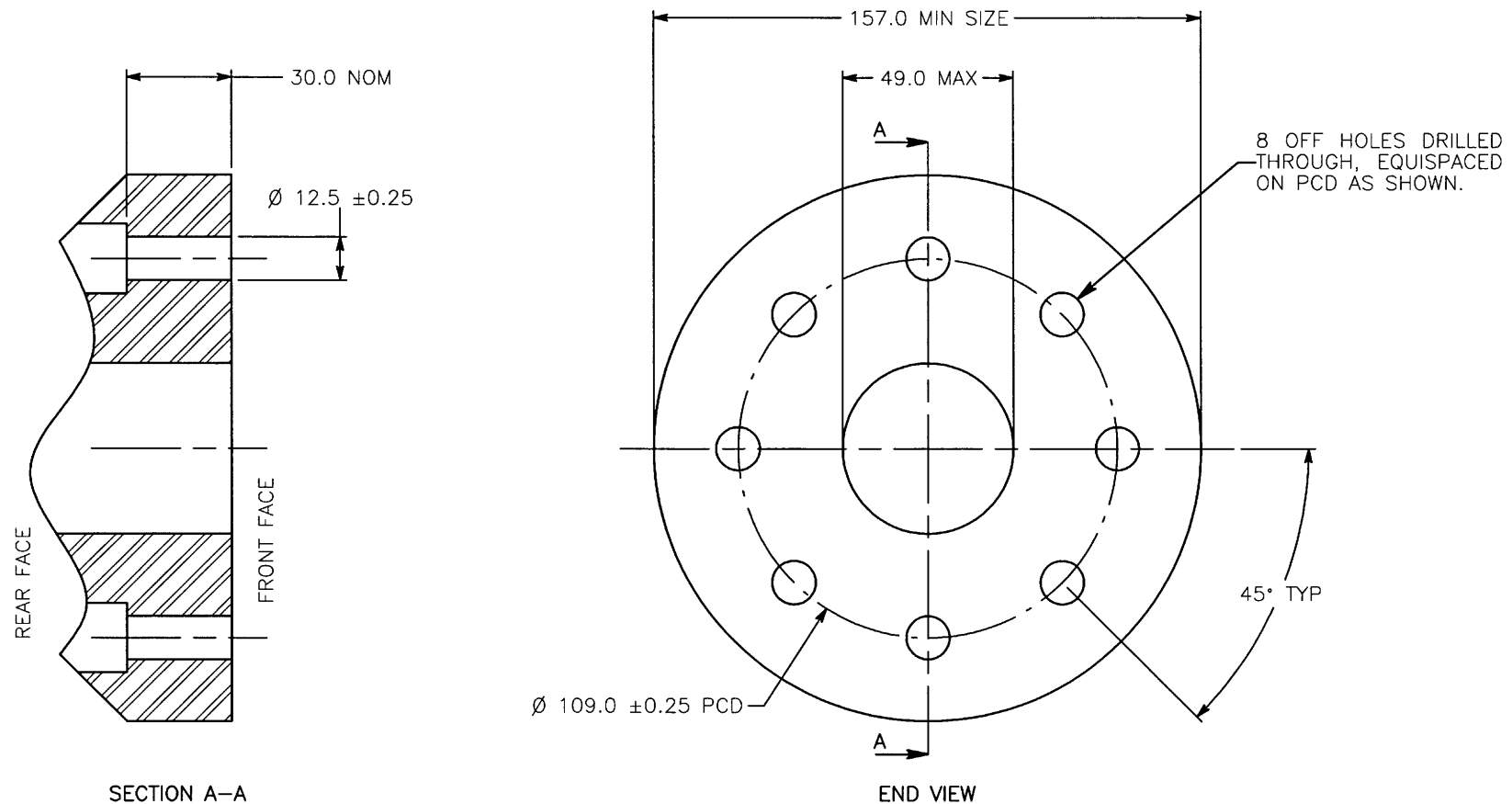
1

SHEET 1 OF 2

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ITEM No.	No. OFF	MATERIAL	PART No.	DESCRIPTION
1	1	POLYURETHANE	5562	Ø 156 ROOT BEND STIFFENER WITH A Ø 37.5 NOM BORE SIZE
2	1	ST/ST 316S31	3567	BEND STIFFENER MOUNT INSERT

OCB Cable Protection Ltd North Lonsdale Rd Ind Est, Ulverston, Cumbria, LA12 9DL, UK Tel +44 (0)1229 583914 Fax +44 (0)1229 581695 COMPANY REG. No. 2391144	THIS DRAWING AND THE INFORMATION AND DESIGNS ON IT ARE THE COPYRIGHT AND PROPERTY OF OCB CABLE PROTECTION LTD. AND MUST NOT BE COPIED IN WHOLE OR IN PART OR CONVEYED TO ANY THIRD PARTY WITHOUT THE WRITTEN CONSENT OF OCB CABLE PROTECTION LTD. DOCUMENT No. DES003/1 A4 ISSUE 3					GENERAL TOLERANCES UNLESS OTHERWISE STATED		SCALE NOT TO SCALE		ISS	DCN NO	AUTHOR	DATE	TITLE PARTS LIST															
	REMOVE ALL BURRS BUT LEAVE CORNERS SHARP UNLESS OTHERWISE STATED SURFACE FINISH – N7 UNLESS OTHERWISE STATED					X = ± 1.00 MM X.X = ± 0.50 MM X.XX = ± 0.25 MM X* = ± 0.5* X.X* = ± 0.25*		PROJECTION		DRAWN FRT		DATE 05-02-04		- BEND STIFFENER - BOLTED INTERFACE - Ø 37.5 NOM BORE SIZE															
	<table><tr><td>N No.</td><td>N5</td><td>N6</td><td>N7</td><td>N8</td><td>N9</td></tr><tr><td>MICROINCH</td><td>16</td><td>32</td><td>63</td><td>125</td><td>250</td></tr><tr><td>MICROMETER</td><td>0.4</td><td>0.8</td><td>1.6</td><td>3.2</td><td>6.3</td></tr></table>					N No.	N5	N6	N7	N8	N9	MICROINCH	16				32	63	125	250	MICROMETER	0.4	0.8	1.6	3.2	6.3			CHECKED P Pearson
	N No.	N5	N6	N7	N8	N9																							
	MICROINCH	16	32	63	125	250																							
MICROMETER	0.4	0.8	1.6	3.2	6.3																								
							UNITS MM		RELEASED BY P Pearson		DATE 05-02-04		DRG NO 5561	ISS 1	SHEET 2 OF 2														
A CRP HOLDINGS COMPANY																													



NOTES;

MATERIAL – TO BE COMPATIBLE WITH 316S31 BEND STIFFENER MOUNT INSERT.

FLANGE I/D MAY BE REDUCED AT CLIENT DISCRETION – FLANGE O/D MAY BE INCREASED AT CLIENT DISCRETION.

FRONT FACE TO BE SMOOTH AND FREE FROM SURFACE DEFECTS TO ALLOW BEND STIFFENER ATTACHMENT.

REAR FACE AT CLIENT DISCRETION, MUST ALLOW ACCESS FOR M 12 SOCKET HEAD CAP SCREW HEADS TO BE TORQUED IN PLACE.

M 12 SOCKET HEAD CAP SCREW MUST ACHIEVE AT LEAST 30 MM OF MATERIAL FOR NOMINAL FLANGE THICKNESS.

OCP Cable Protection Ltd

North Lonsdale Rd Ind Est, Ulverston, Cumbria
LA12 9DL, UK
Tel +44 (0)1229 583914
Fax +44 (0)1229 581695
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REMOVE ALL BURRS BUT LEAVE CORNERS SHARP
UNLESS OTHERWISE STATED
SURFACE FINISH – N7 UNLESS OTHERWISE STATED

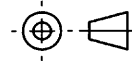
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GENERAL TOLERANCES
UNLESS OTHERWISE
STATED

X = ± 1.00 MM
X.X = ± 0.50 MM
X.XX = ± 0.25 MM
X* = ± 0.5°
X.X* = ± 0.25°

SCALE
1:2 AT A4 SIZE

PROJECTION



UNITS MM

ISS

DCN NO

AUTHOR

DATE

DRAWN

CHECKED

RELEASED BY

DATE

DATE

DATE

TITLE

INTERFACE FLANGE DETAILS

– BEND STIFFENER
– PROTECTED BOND EDGE
– Ø 34.5 NOM CABLE SIZE

DRG NO

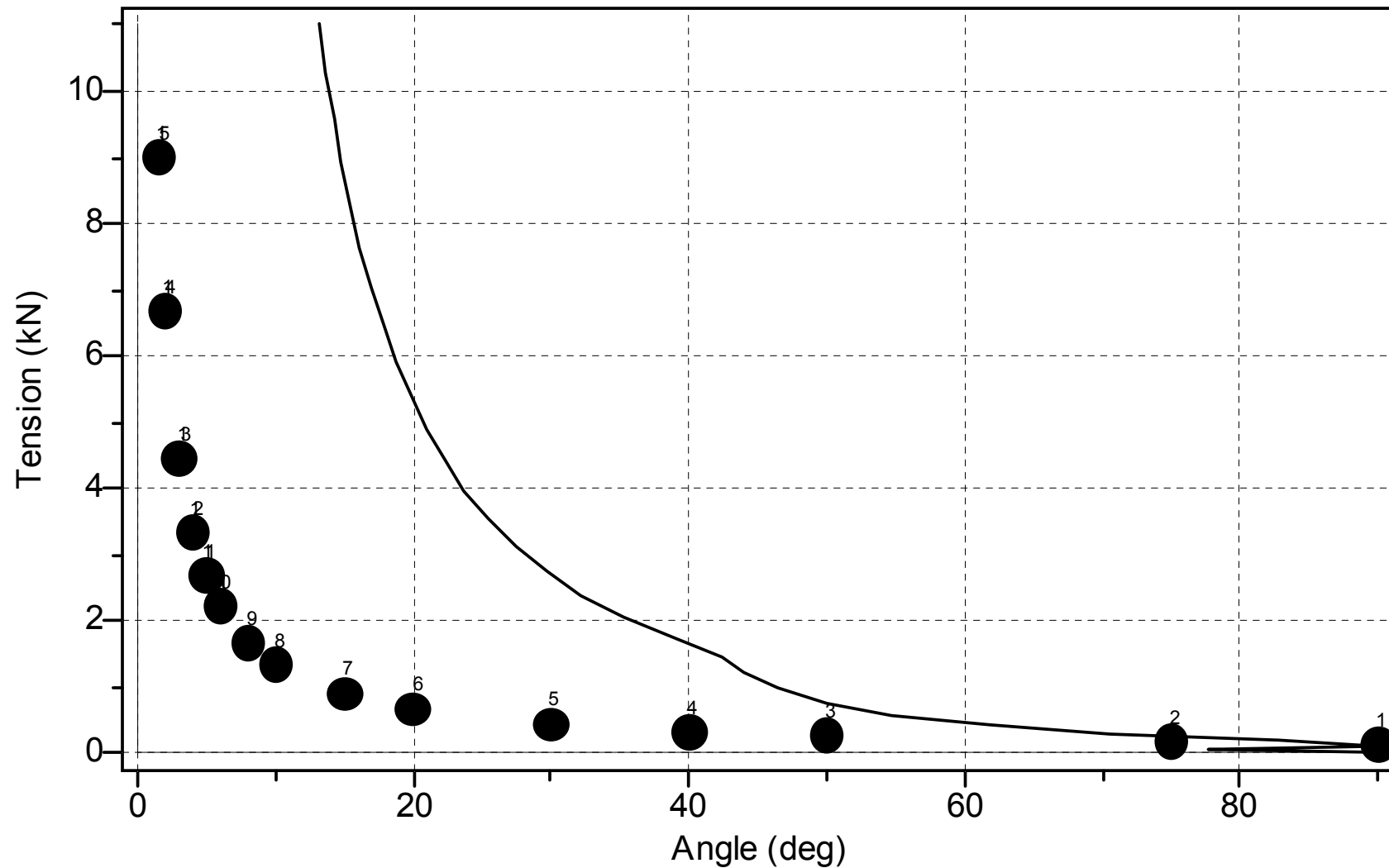
J2316-FIG-001

ISS

A

SHEET 1 OF 1

OrcaBend: J2316#3 (Top & Sub-Sea).obd (modified 13:44 on 05/02/04)



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North Lonsdale Rd Ind Est, Ulverston, Cumbria
LA12 9DL, UK
Tel +44 (0)1229 583914
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J2316-DESIGN SUMMARY-003

Orcabend Run No. :	J2316#3	Date :	5 th February 2004
Enquiry No. :	E2385	Customer :	MBARI – Via CRP Group
Job No. :	J2316	Project :	Moos Mooring System

Introduction

OCP have been requested to provide cable protection to work in conjunction with the CRP Linksyn system.

Reference Documents

1. "CRP_Design_Specifics", Rev 1.0 - 5 Dec 2003, emailed from Andrew Hamilton – Dated 09/12/03.
2. "11550 MBARI Schedule.xls", emailed to Andrew Hamilton – Dated 03/12/03

Properties of Flexible

Outside Diameter	28 and 34.5	mm	with a	N/A	mm	tolerance
Minimum Bend Radius	1,000	mm	(stored)	N/A	mm	(operational)
Stiffness	0.015 Est'	KNm ²	(min.)	0.05 Est'	KNm ²	(max.)

Duty and Environmental Conditions

Load Cases

Tension (kN)	Angle °	Tension (kN)	Angle °
1250/θ	See Chart		
3000/θ	See Chart		

Deployed in air / water (*delete as applicable*)
Both air and water.

Temperature 0° °C (min)
23° °C (max)

Design Parameters

P.U. Code OCP 002

Key Dimensions

— Root O/D	156	mm	(max.)
— Flexible Length	1800	mm	(nom.)
— Tip O/D	47	mm	(nom.)
— Bore	37.5	mm	(nom.)

Bolt Details

— Size	M 12 x 35 Deep Holes
— Material	Client Supply
— Quantity	8 Off
— P.C.D	Ø 109.0 mm