

## 9: Electrical Penetrators for Manned & Unmanned Systems



### HPS (Hydrobond Penetrator Series)

#### FEATURES

- Fully pressure blocked
- Right Angled or In Line designs
- Smooth Bore O-Ring sealed NPT, UNF, Flanged seal and other sealing configurations available
- Robust Design
- Mono and bi-directional Pressure Designs
- Mono Directional depth rated to 1,500 MSW with additional depth ratings available on request
- Bi-Directional Manned pressure vessel depth rated to 455 MSW
- Electrical, Coaxial and Optical designs available
- Inboard conductor tails meet requirements for manned systems
- Wide variety of outboard composite cable designs available
- Lloyd's, DNV, ABS and other third party tests certificates available on request
- Metal Shell Construction
- Mounting O – Ring face seals and optional Barrel seals available as standard
- Voltage ratings up to 3,000 Volts RMS
- Current ratings up to 140 Amps with higher ratings available on request
- Available in 316 Stainless Steel as standard or Titanium, Aluminium Silicon Bronze etc on request
- Non Magnetic versions available
- Optional Earth Bonding
- Optional Cathodic delamination version available
- Termination options include fully water blocked, moulded to cable or oil filled options

#### BENEFITS

- Easy to use
- Cost effective
- Less connections to worry about
- Low optical losses
- Low failure rate
- Fast Delivery lead times
- Wide variety of insert configurations allows cost effective system design
- Wide variety of metal options allows for best corrosion resistant design

[www.hydrogroup.plc.uk](http://www.hydrogroup.plc.uk)

**Contact:** [sales@hydrogroup.plc.uk](mailto:sales@hydrogroup.plc.uk)

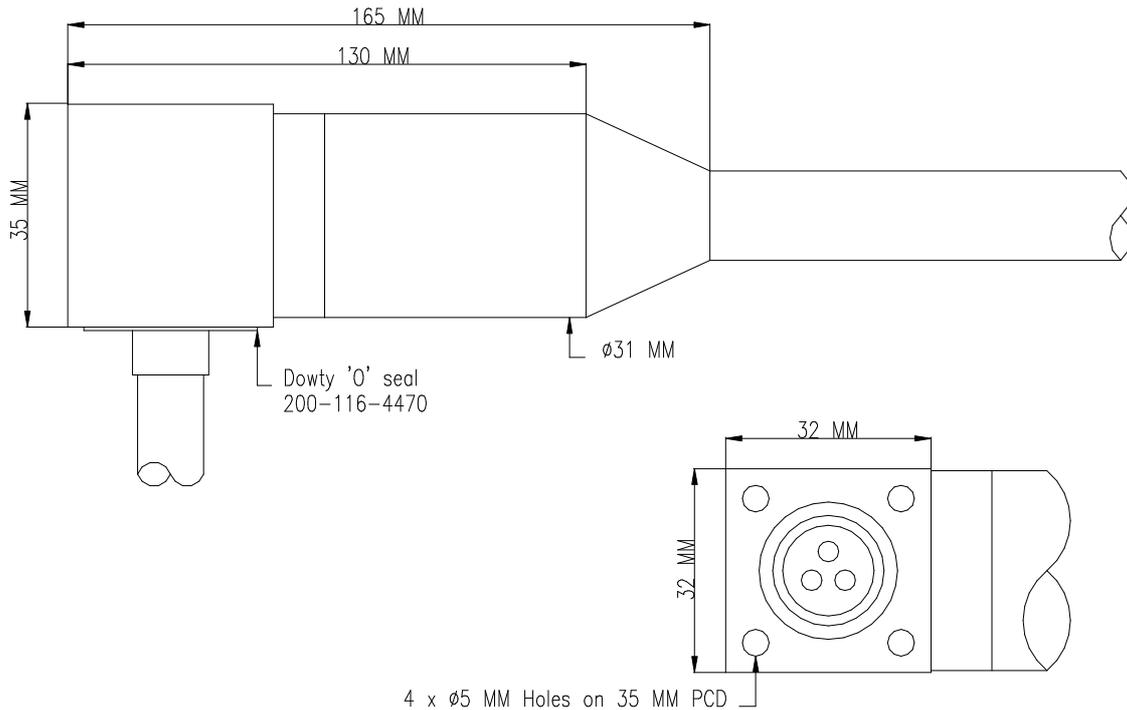
**Phone:** +44 (0)1224 822996

**Fax:** +44 (0)1224 825142





**HPS (Hydrobond Penetrator Series)  
TV CAMERA  
HPS\_10**



**Electrical and Environmental:**

Circuit Type: *Telephone for full list*  
Conductor Voltage Rating: *500 V rms Typical*  
Minimum Insulation Resistance: *100 MOhms @ 500 V*  
Depth Rating: *1500 MSW*  
Inboard Conductor Tails: *Zero Halogen*  
Outboard Cable: *Customer Specified*

**Standard Material Specification:**

Body: *HE30 Hard Anodised Aluminium*

**General Information:**

Part No.: *HPS 14-1or2/xx*  
Application: *ROV TV Cameras*  
Test Spec.: *HTS 112*  
Approvals: *Lloyds, DNV, ABS etc. (Available on application)*

**Data Sheet:**

Issue: *01*  
Approved by:

**Mechanical:**

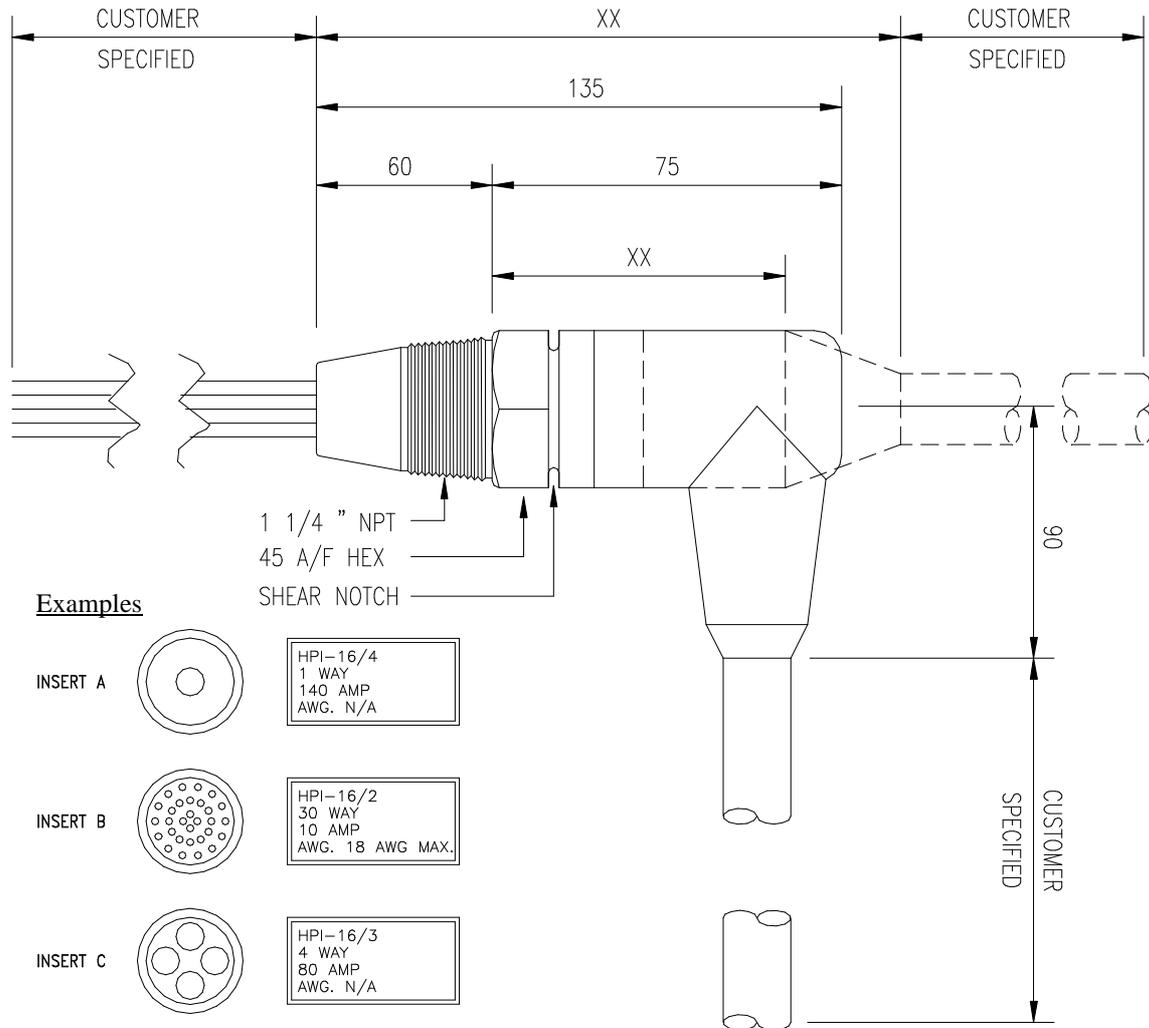
*Inline Moulded*

**Mounting Detail:**

*See Mounting Detail Section of Binder*



**HPS (Hydrobond Penetrator Series)  
Bi-Directional Diving Bell & DDCs  
HPS\_14 (1 1/4" NPT)**



**Electrical and Environmental:**

Circuit Type: *Telephone for full list*  
 Conductor Voltage Rating: *500 V rms Typical*  
 Minimum Insulation Resistance: *100 MOhms @ 1,000 V dc*  
 Depth Rating: *455 MSW*  
 Inboard Conductor Tails: *Zero Halogen*  
 Outboard Cable: *Customer Specified*

**Standard Material Specification:**

Body: *Aluminium Silicon Bronze*

**General Information:**

Part No.: *HPS 14-1or2/xx*  
 Application: *Diving Bells & DDCs*  
 Test Spec. : *HTS 120*  
 Approvals : *Lloyds, DNV, ABS etc.*  
 (Available on application)

**Data Sheet:**

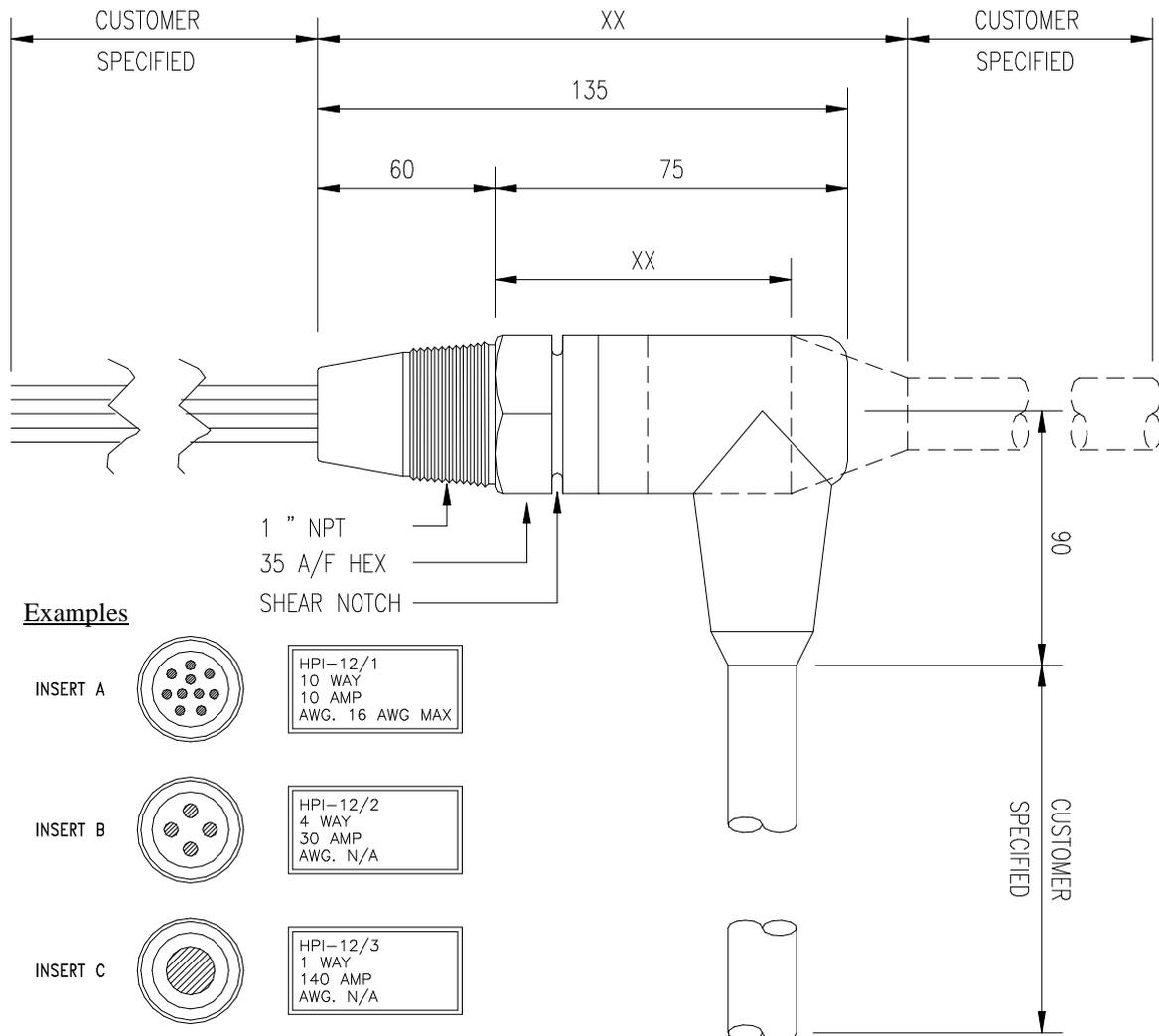
Issue: *01*  
 Approved by:

**Mechanical:**

-1. *Right Angled Moulded*  
 -2. *Inline Moulded*  
**Mounting Detail:**  
*1 1/4" NPT*



**HPS (Hydrobond Penetrator Series)  
Bi-Directional Diving Bell & DDCs  
HPS\_15 (1" NPT)**



**Electrical and Environmental:**

Circuit Type: *Telephone for full list*  
 Conductor Voltage Rating: *500 V rms Typical*  
 Minimum Insulation Resistance: *100 MOhms @ 1,000 V dc*  
 Depth Rating: *455 MSW*  
 Inboard Conductor Tails: *Zero Halogen*  
 Outboard Cable: *Customer Specified*

**Standard Material Specification:**

Body: *Aluminium Silicon Bronze*

**General Information:**

Part No.: *HPS 15-1or2/xx*  
 Application: *Diving Bells & DDCs*  
 Test Spec. : *HTS 120*  
 Approvals : *Lloyds, DNV, ABS etc.*  
*(Available on application)*

**Data Sheet:**

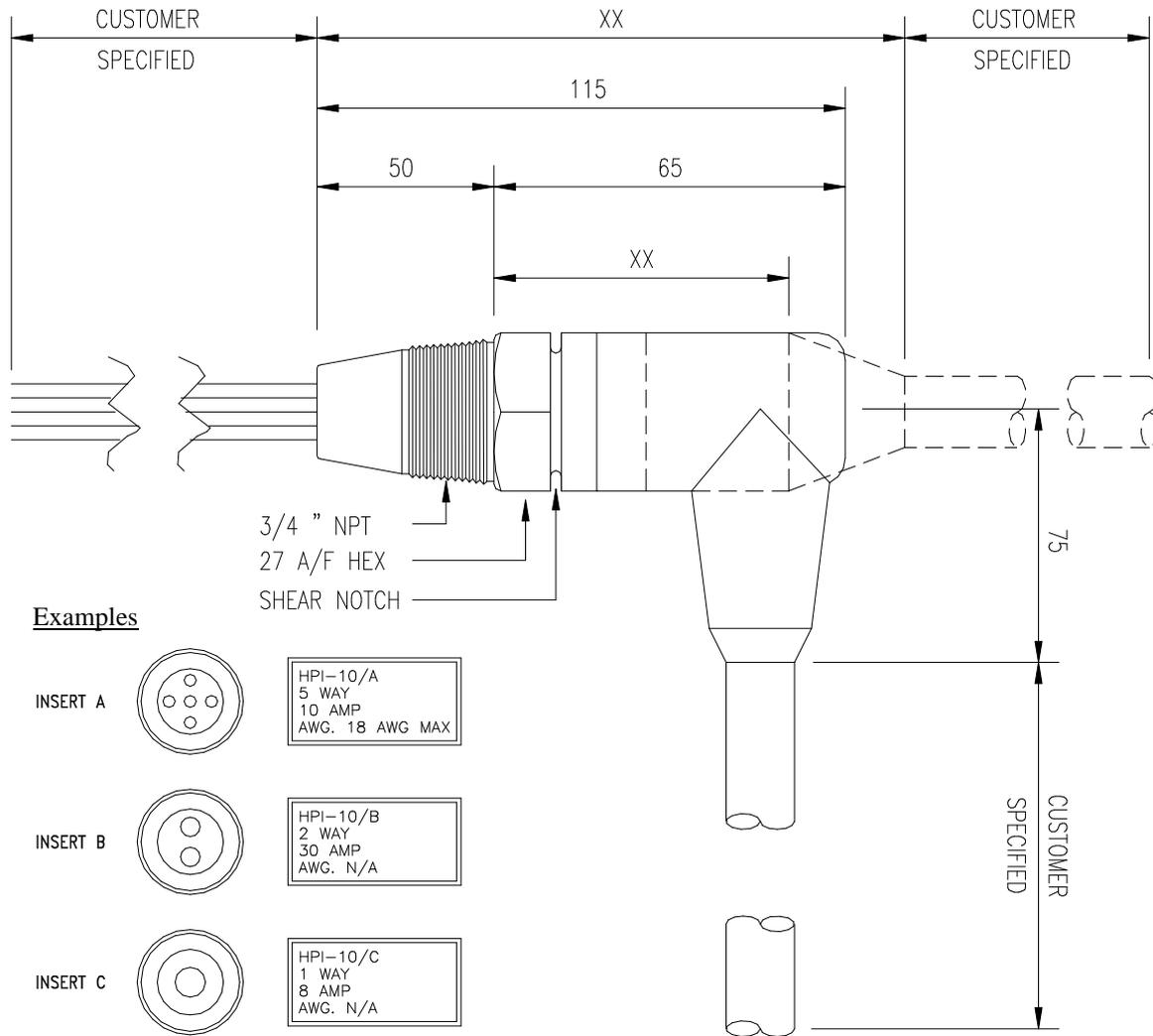
Issue: *01*  
 Approved by:

**Mechanical:**

-1. *Right Angled Moulded*  
 -2. *Inline Moulded*  
**Mounting Detail:**  
*1" NPT*



**HPS (Hydrobond Penetrator Series)  
Bi-Directional Diving Bell & DDCs  
HPS\_16 (3/4" NPT)**



**Electrical and Environmental:**

Circuit Type: *Telephone for full list*  
 Conductor Voltage Rating: *500 V rms Typical*  
 Minimum Insulation Resistance: *100 MOhms @ 1,000 V dc*  
 Depth Rating: *455 MSW*  
 Inboard Conductor Tails: *Zero Halogen*  
 Outboard Cable: *Customer Specified*

**Standard Material Specification:**

Body: *Aluminium Silicon Bronze*

**General Information:**

Part No.: *HPS 16-1or2/xx*  
 Application: *Diving Bells & DDCs*  
 Test Spec. : *HTS 120*  
 Approvals : *Lloyds, DNV, ABS etc.*  
 (Available on application)

**Data Sheet:**

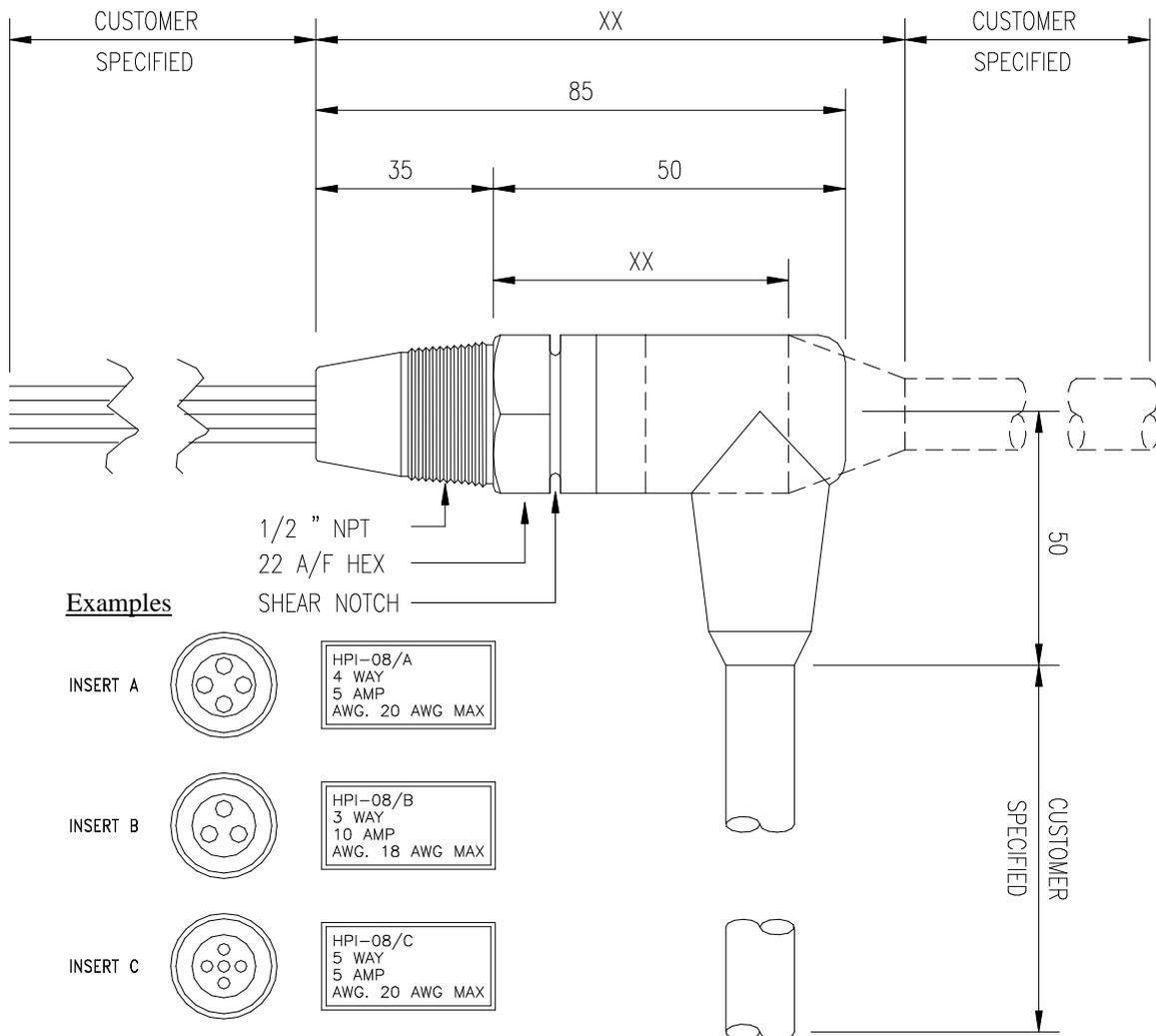
Issue: *01*  
 Approved by:

**Mechanical:**

-1. *Right Angled Moulded*  
 -2. *Inline Moulded*  
**Mounting Detail:**  
*3/4" NPT*



**HPS (Hydrobond Penetrator Series)  
Bi-Directional Diving Bell & DDCs  
HPS\_17 (1/2" NPT)**



**Electrical and Environmental:**

Circuit Type: *Telephone for full list*  
 Conductor Voltage Rating: *500 V rms Typical*  
 Minimum Insulation Resistance: *100 MOhms @ 1,000 V dc*  
 Depth Rating: *455 MSW*  
 Inboard Conductor Tails: *Zero Halogen*  
 Outboard Cable: *Customer Specified*

**Standard Material Specification:**

Body: *Aluminium Silicon Bronze*

**General Information:**

Part No.: *HPS 17-1or2/xx*  
 Application: *Diving Bells & DDCs*  
 Test Spec. : *HTS 120*  
 Approvals : *Lloyds, DNV, ABS etc.*  
 (Available on application)

**Data Sheet:**

Issue: *01*  
 Approved by:

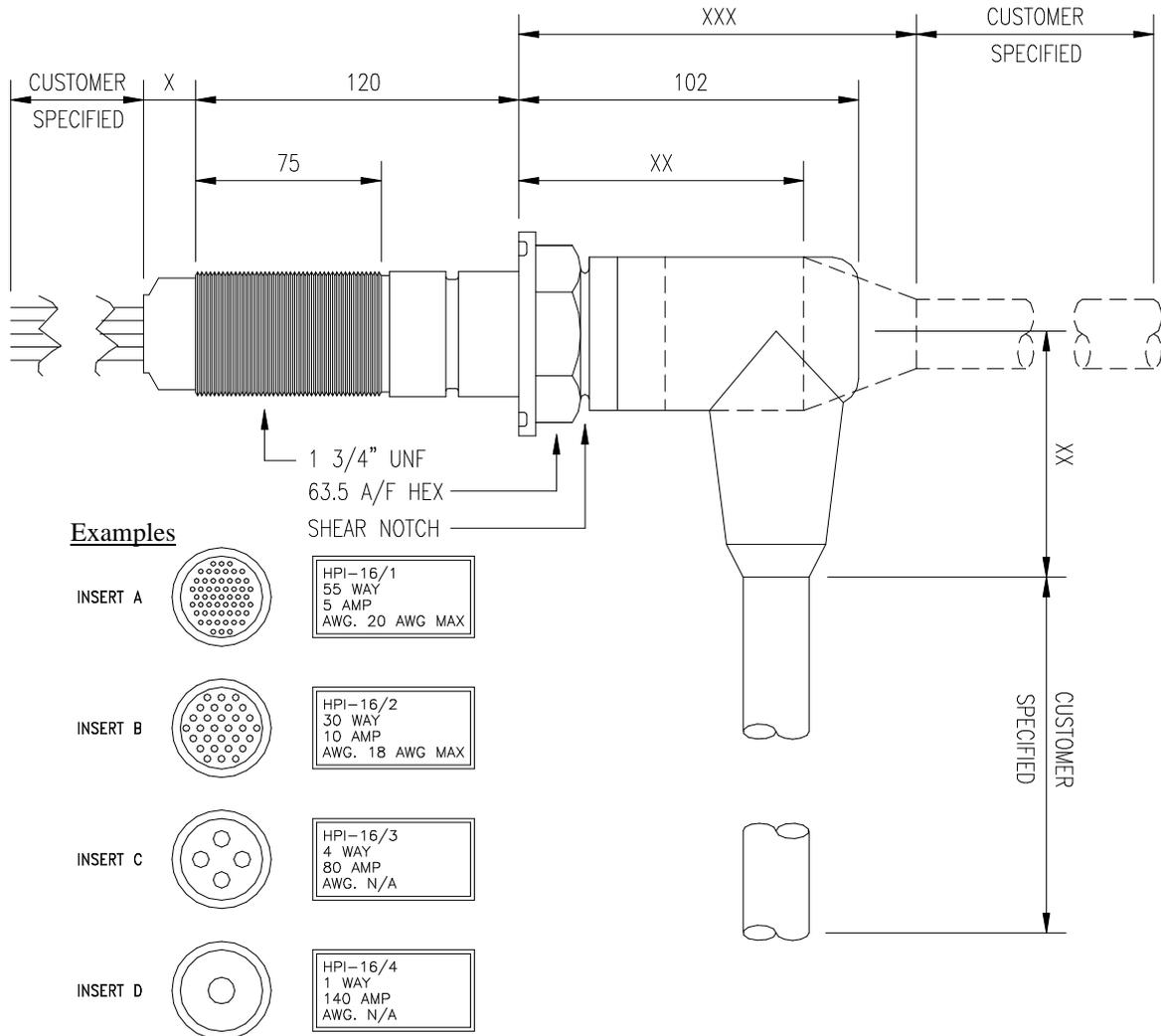
**Mechanical:**

-1. *Right Angled Moulded*  
 -2. *Inline Moulded*  
**Mounting Detail:**  
*1/2" NPT*

**HYDRO  
BOND**

**ENGINEERING**

**HPS (Hydrobond Penetrator Series)  
Bi-Directional Diving Bell & DDCs  
HPS\_20 (1 3/4" UNF)**



**Electrical and Environmental:**

Circuit Type: *Telephone for full list*  
 Conductor Voltage Rating: *500 V rms Typical*  
 Minimum Insulation Resistance: *100 MOhms @ 1,000 V dc*  
 Depth Rating: *455 MSW*  
 Inboard Conductor Tails: *Zero Halogen*  
 Outboard Cable: *Customer Specified*

**Standard Material Specification:**

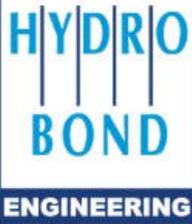
Body: *BS316-S16 Stainless Steel*  
**General Information:**  
 Part No.: *HPS 20-1or2/xx*  
 Application: *Diving Bells & DDCs*  
 Test Spec.: *HTS 120*  
 Approvals: *Lloyds, DNV, ABS etc.*  
*(Available on application)*

**Data Sheet:**

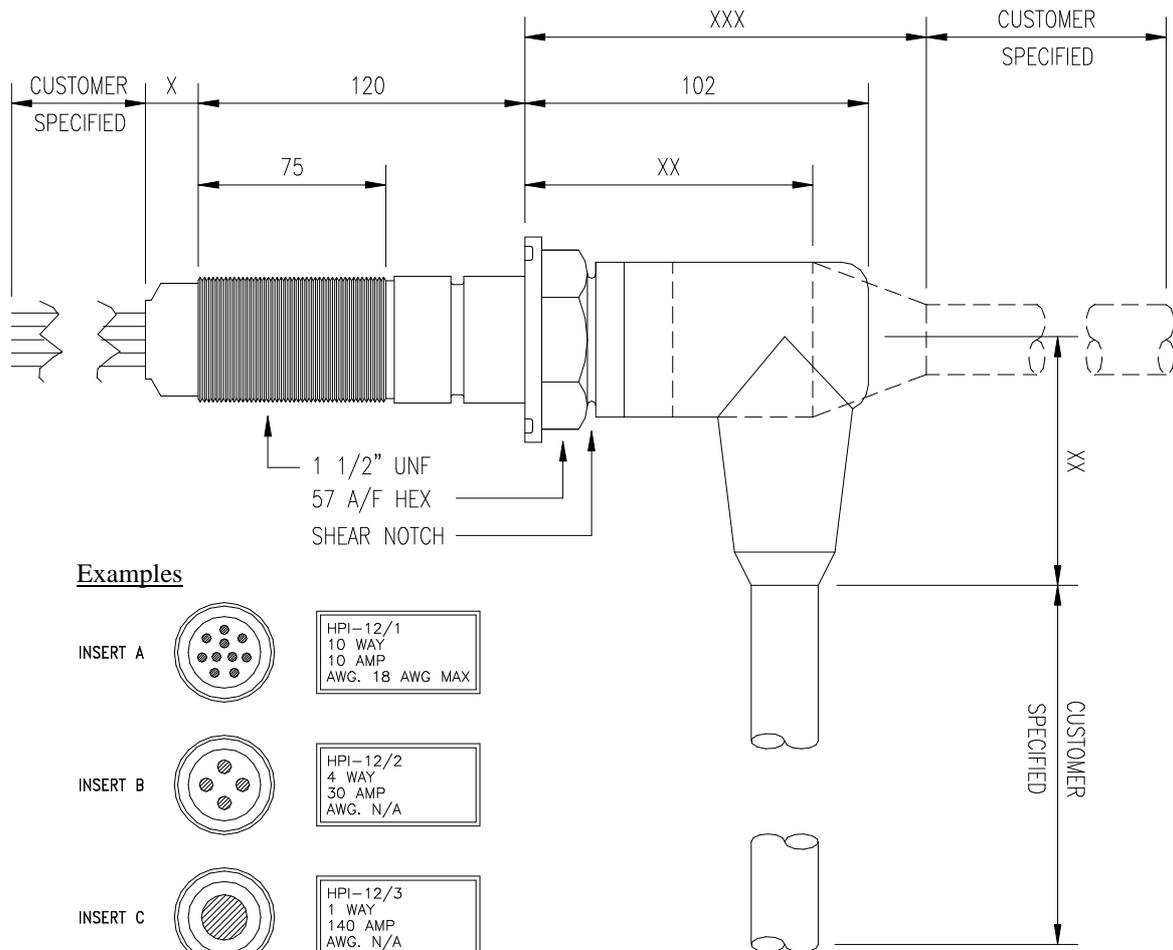
*Issue: 01*  
**Approved by:**

**Mechanical:**

*-1. Right Angled Moulded*  
*-2. Inline Moulded*  
**Mounting Detail:**  
*1 3/4" UNF*



**HPS (Hydrobond Penetrator Series)  
Bi-Directional Diving Bell & DDCs  
HPS\_21 (1 1/2" UNF)**



**Electrical and Environmental:**

Circuit Type: *Telephone for full list*  
 Conductor Voltage Rating: *500 V rms Typical*  
 Minimum Insulation Resistance: *100 MOhms @ 1,000 V dc*  
 Depth Rating: *455 MSW*  
 Inboard Conductor Tails: *Zero Halogen*  
 Outboard Cable: *Customer Specified*

**Standard Material Specification:**

Body: *Aluminium Silicon Bronze*

**General Information:**

Part No.: *HPS 21-1or2/xx*  
 Application: *Diving Bells & DDCs*  
 Test Spec. : *HTS 120*  
 Approvals : *Lloyds, DNV, ABS etc.*  
 (Available on application)

**Data Sheet:**

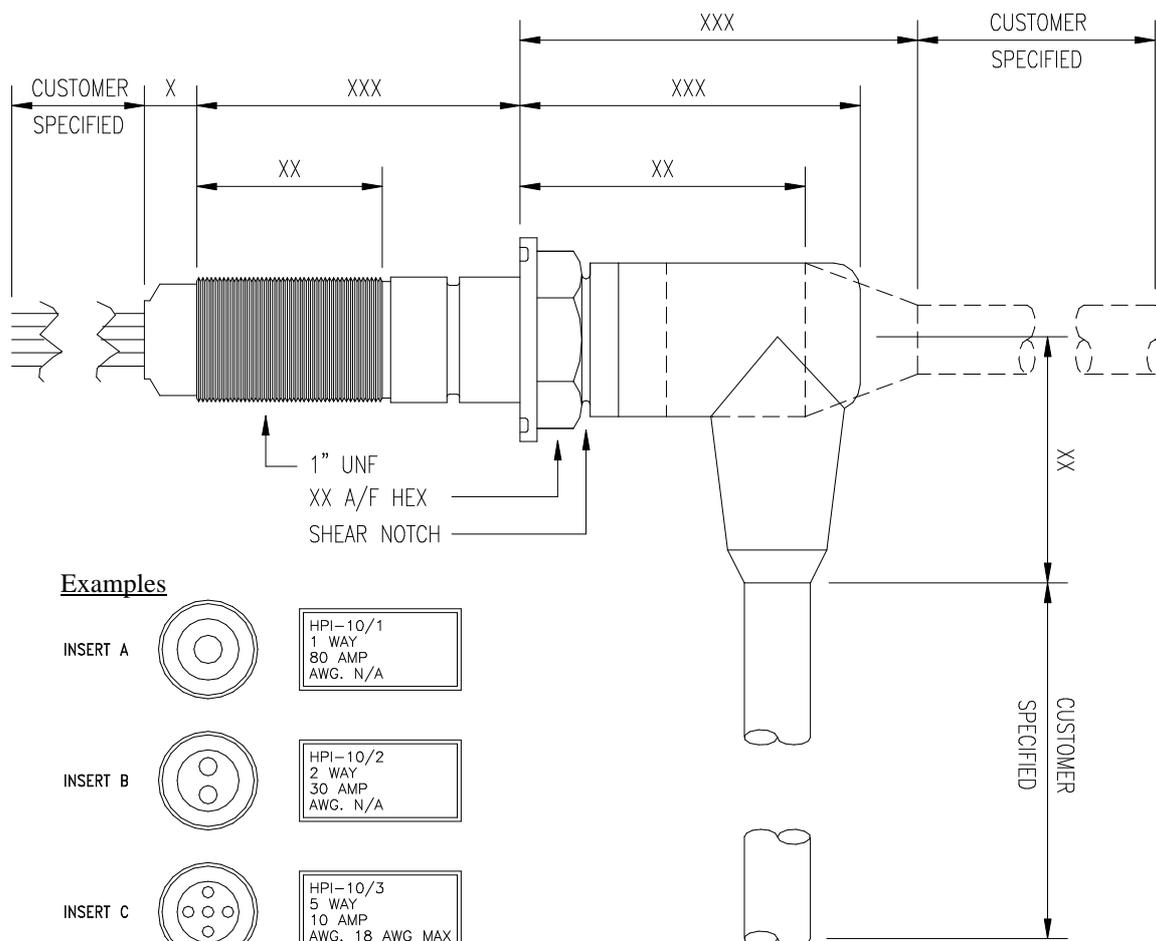
Issue: *01*  
 Approved by:

**Mechanical:**

-1. *Right Angled Moulded*  
 -2. *Inline Moulded*  
**Mounting Detail:**  
*1 3/4" UNF*



**HPS (Hydrobond Penetrator Series)  
Bi-Directional Diving Bell & DDCs  
HPS\_22 (1" UNF)**



**Examples**

INSERT A		HPI-10/1 1 WAY 80 AMP AWG. N/A
INSERT B		HPI-10/2 2 WAY 30 AMP AWG. N/A
INSERT C		HPI-10/3 5 WAY 10 AMP AWG. 18 AWG MAX
INSERT D		HPI-12/4 8 WAY 5 AMP AWG. 20 AWG MAX

**Electrical and Environmental:**

Circuit Type: *Telephone for full list*  
 Conductor Voltage Rating: *500 V rms Typical*  
 Minimum Insulation Resistance: *100 MOhms @ 1,000 V dc*  
 Depth Rating: *455 MSW*  
 Inboard Conductor Tails: *Zero Halogen*  
 Outboard Cable: *Customer Specified*

**Standard Material Specification:**

Body: *BS316-S16 Stainless Steel*

**General Information:**

Part No.: *HPS 22-1or2/xx*  
 Application: *Diving Bells & DDCs*  
 Test Spec. : *HTS 120*  
 Approvals : *Lloyds, DNV, ABS etc.*  
*(Available on application)*

**Data Sheet:**

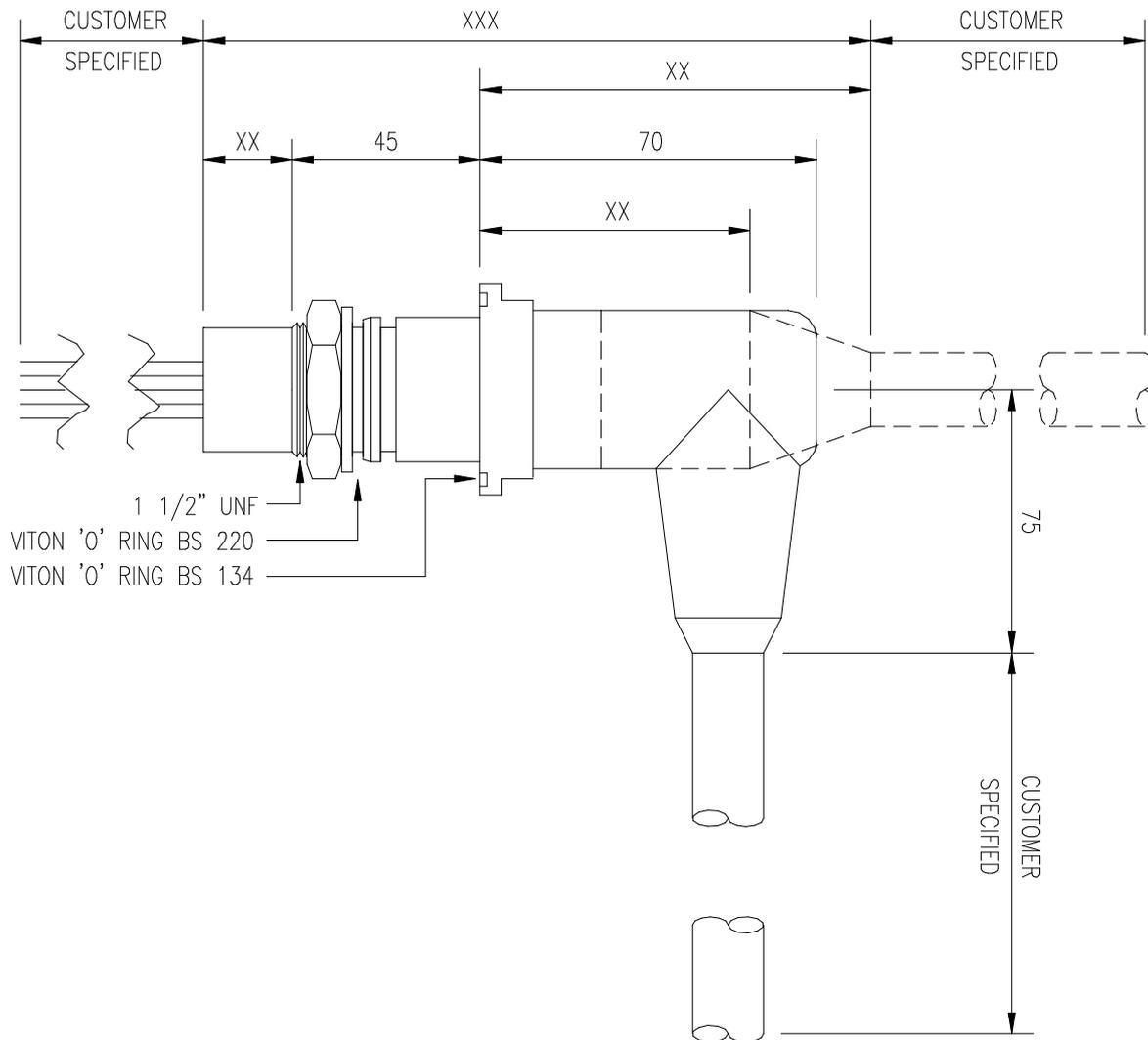
Issue: *01*  
 Approved by:

**Mechanical:**

-1. *Right Angled Moulded*  
 -2. *Inline Moulded*  
**Mounting Detail:**  
*1" UNF*



***HPS (Hydrobond Penetrator Series)  
Mono-Directional ROVs,  
Instrumentation uses  
HPS\_29 (1 1/2" UNF)***



***Electrical and Environmental:***

*Circuit Type: Telephone for full list  
Conductor Voltage Rating: 500 V rms Typical  
Minimum Insulation Resistance: 100 MOhms @ 500 V  
Depth Rating: 1500 MSW  
Inboard Conductor Tails: Zero Halogen  
Outboard Cable: Customer Specified*

***Standard Material Specification:***

*Body: BS316-S16 Stainless Steel*

***General Information:***

*Part No.: HPS\_29-1or2/xx  
Application: ROVs, Instrumentation  
Test Spec.: HTS 130  
Approvals: Lloyds, DNV, ABS etc.  
(Available on application)*

***Data Sheet:***

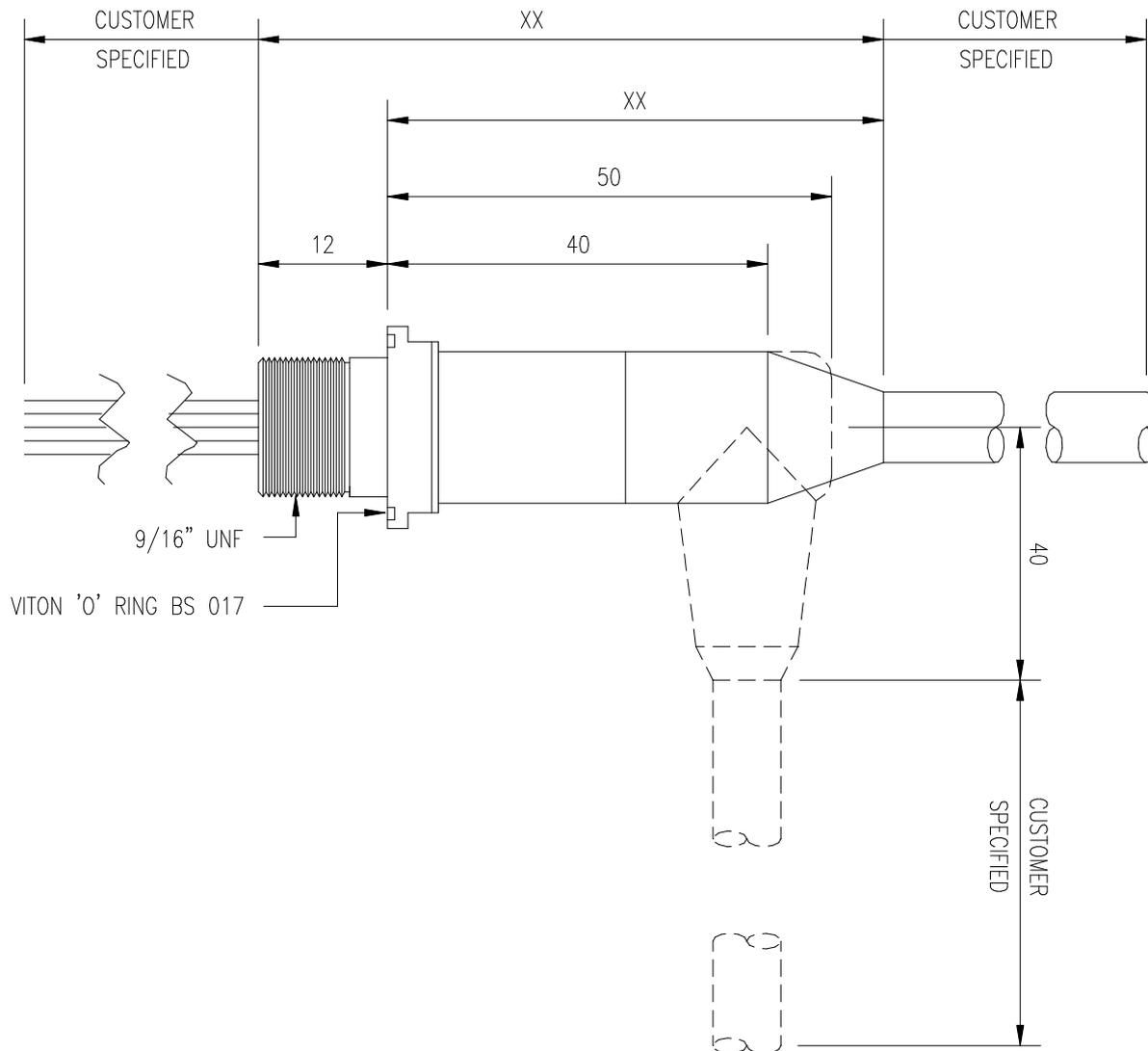
*Issue: 01  
Approved by:*

***Mechanical:***

*-1. Right Angled Moulded  
-2. Inline Moulded  
Mounting Detail:  
1 1/2" UNF*



***HPS (Hydrobond Penetrator Series)  
Mono-Directional ROVs,  
Instrumentation uses  
HPS\_32 (9/16" UNF)***



***Electrical and Environmental:***

*Circuit Type: Telephone for full list  
Conductor Voltage Rating: 500 V rms Typical  
Minimum Insulation Resistance: 100 Mohms @ 500 V  
Depth Rating: 1500 MSW  
Inboard Conductor Tails: Zero Halogen  
Outboard Cable: Customer Specified*

***Standard Material Specification:***

*Body: BS316-S16 Stainless Steel*

***General Information:***

*Part No.: HPS 32-1or2/xx  
Application: ROVs, Instrumentation  
Test Spec. : HTS 130  
Approvals : Lloyds, DNV, ABS etc.  
(Available on application)*

***Data Sheet:***

*Issue: 01*

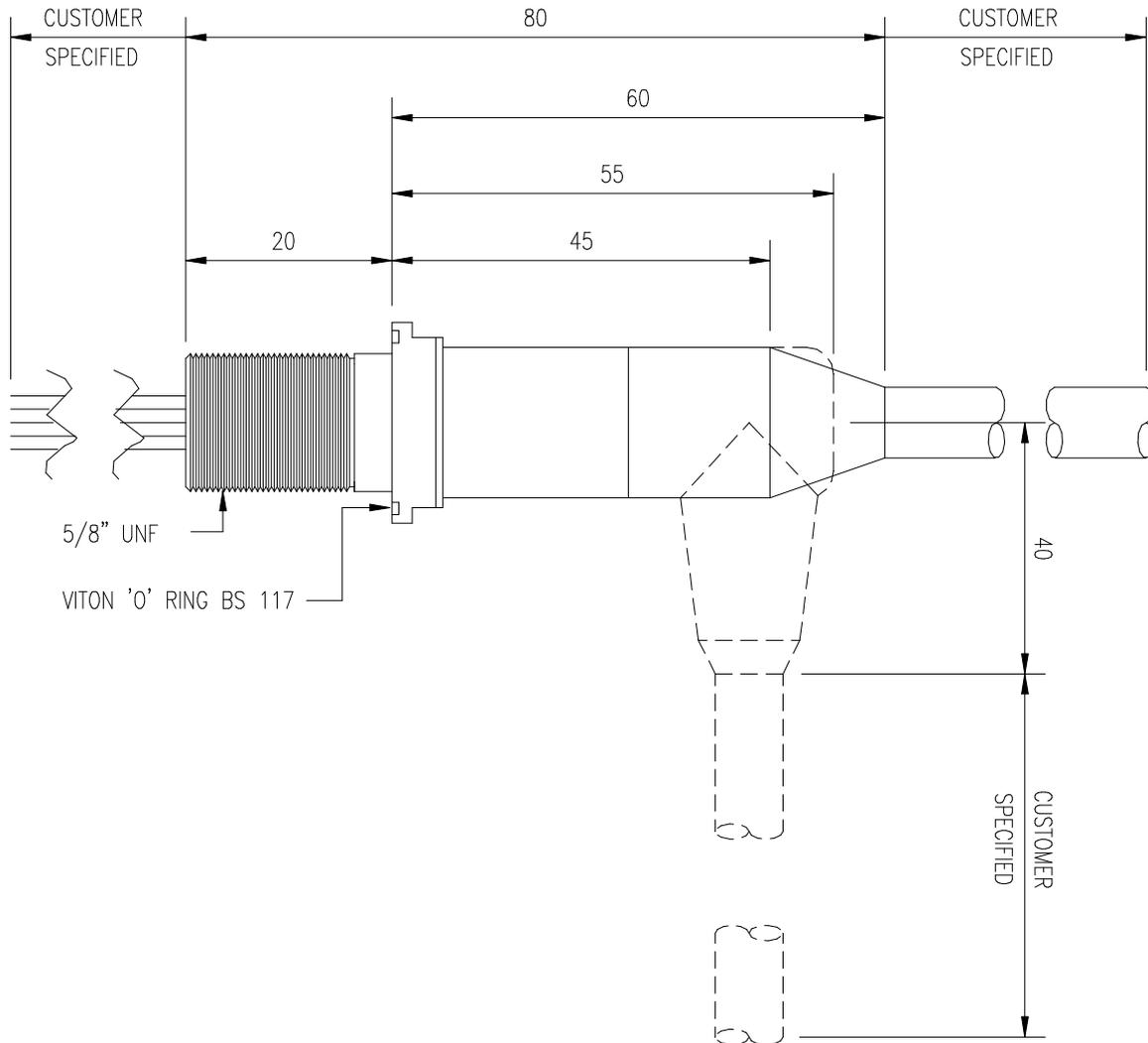
***Approved by:***

***Mechanical:***

*-1. Right Angled Moulded  
-2. Inline Moulded  
Mounting Detail:  
9/16" UNF*



***HPS (Hydrobond Penetrator Series)  
Mono-Directional ROVs,  
Instrumentation uses  
HPS\_35 (5/8" UNF)***



**Electrical and Environmental:**

Circuit Type: *Telephone for full list*  
 Conductor Voltage Rating: *500 V rms Typical*  
 Minimum Insulation Resistance: *100 MOhms @ 500 V*  
 Depth Rating: *1500 MSW*  
 Inboard Conductor Tails: *Zero Halogen*  
 Outboard Cable: *Customer Specified*

**Standard Material Specification:**

Body: *BS316-S16 Stainless Steel*

**General Information:**

Part No.: *HPS 35-1or2/xx*  
 Application: *ROVs, Instrumentation*  
 Test Spec. : *HTS 130*  
 Approvals : *Lloyds, DNV, ABS etc.*  
 (Available on application)

**Data Sheet:**

Issue: *01*

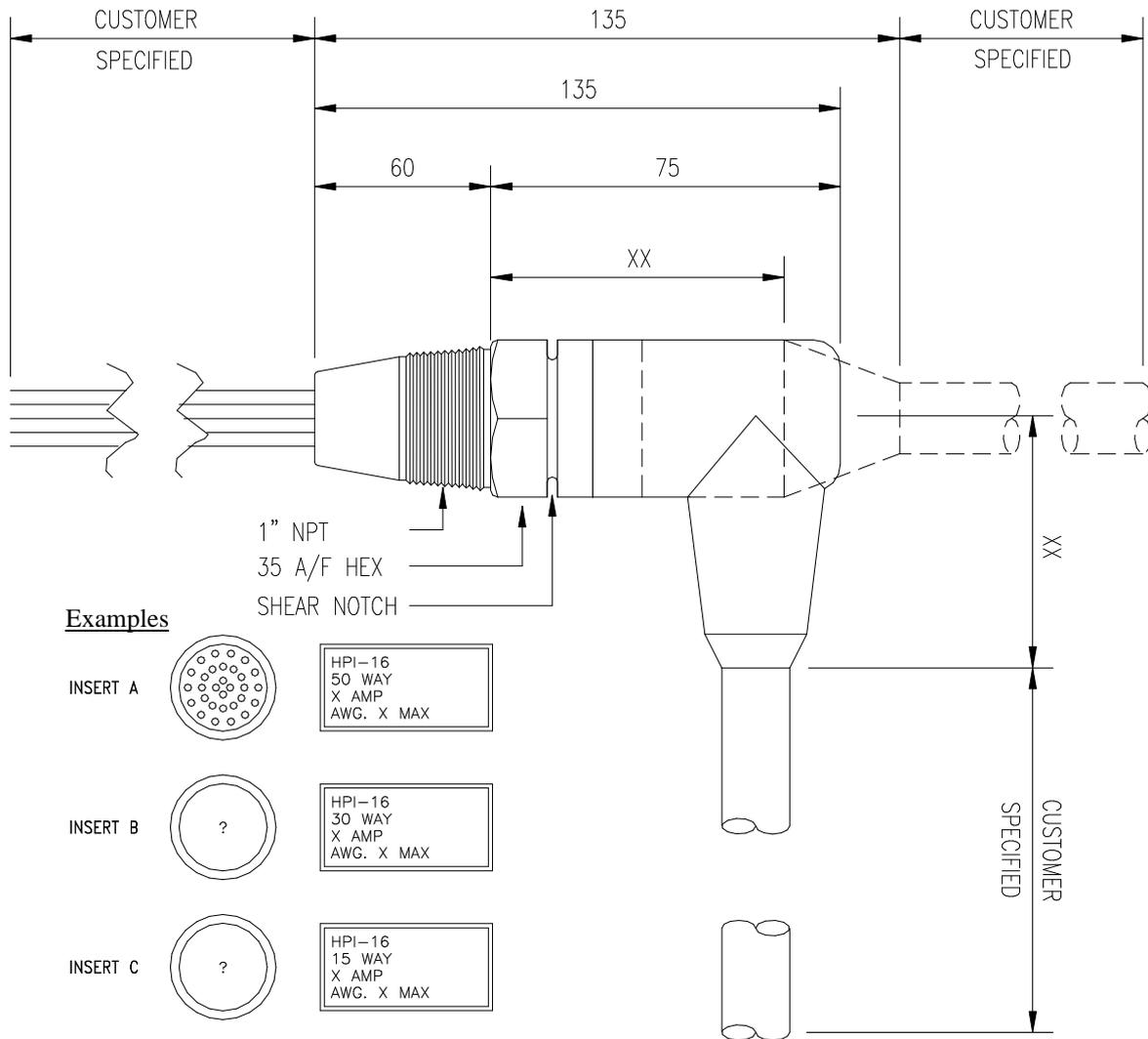
**Approved by:**

**Mechanical:**

-1. *Right Angled Moulded*  
 -2. *Inline Moulded*  
**Mounting Detail:**  
*5/8" NPT*



**HPS (Hydrobond Penetrator Series)  
Bi-Directional Diving Bell & DDCs  
HPS\_435 (1" NPT)**



**Electrical and Environmental:**

Circuit Type: *Telephone for full list*  
 Conductor Voltage Rating: *500 V rms Typical*  
 Minimum Insulation Resistance: *100 MOhms @ 1,000 V dc*  
 Depth Rating: *455 MSW*  
 Inboard Conductor Tails: *Zero Halogen*  
 Outboard Cable: *Customer Specified*

**Standard Material Specification:**

Body: *Aluminium Silicon Bronze*

**General Information:**

Part No.: *HPS 435-1or2/xx*  
 Application: *Diving Bells & DDCs*  
 Test Spec. : *HTS 120*  
 Approvals : *Lloyds, DNV, ABS etc.*  
*(Available on application)*

**Data Sheet:**

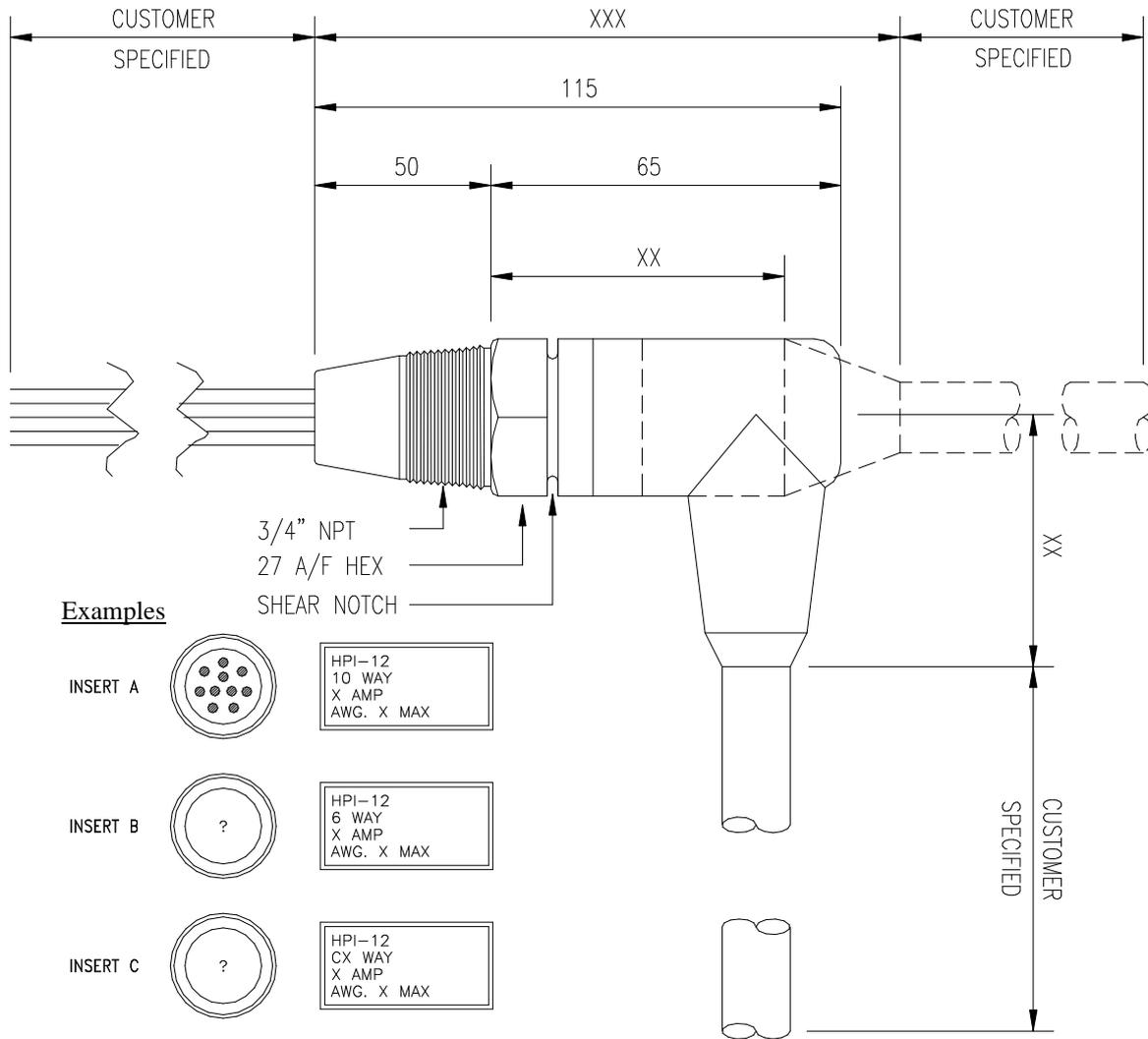
Issue: *01*  
 Approved by:

**Mechanical:**

-1. *Right Angled Moulded*  
 -2. *Inline Moulded*  
**Mounting Detail:**  
*1" NPT*



**HPS (Hydrobond Penetrator Series)  
Bi-Directional Diving Bell & DDCs  
HPS\_436 (3/4" NPT)**



**Electrical and Environmental:**  
 Circuit Type: *Telephone for full list*  
 Conductor Voltage Rating: *500 V rms Typical*  
 Minimum Insulation Resistance: *100 MOhms @ 1,000 V dc*  
 Depth Rating: *455 MSW*  
 Inboard Conductor Tails: *Zero Halogen*  
 Outboard Cable: *Customer Specified*

**Standard Material Specification:**  
 Body: *Aluminium Silicon Bronze*

**General Information:**  
 Part No.: *HPS 436-1or2/xx*  
 Application: *Diving Bells & DDCs*  
 Test Spec.: *HTS 120*  
 Approvals: *Lloyds, DNV, ABS etc.*  
*(Available on application)*

**Data Sheet:**  
 Issue: *01*  
 Approved by:

**Mechanical:**  
 -1. *Right Angled Moulded*  
 -2. *Inline Moulded*

**Mounting Detail:**  
*3/4" NPT*