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| Document version | Previous version | Changed item | Change description (including number) |
|------------------|------------------|--------------|---------------------------------------|
| AD               | -                | -            | -                                     |
| AD               | -                | -            | -                                     |
| AD               | -                | -            | -                                     |

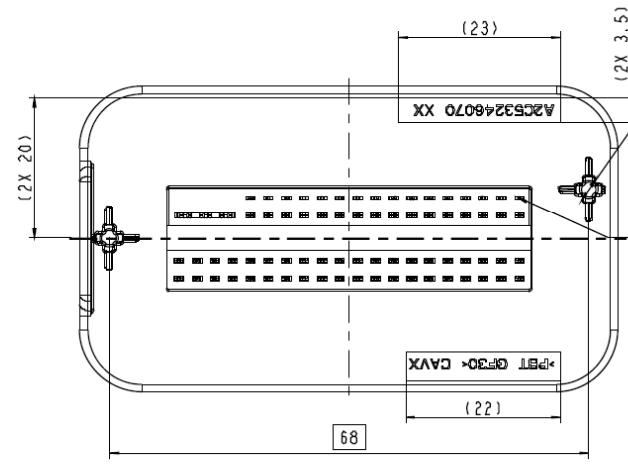
|          |          |        |                      |          |        |
|----------|----------|--------|----------------------|----------|--------|
| Material | DL - / - | Weight | calculated 35 g ± -% | Weighted | g ± -% |
| Material | -        | Weight | -                    | Weighted | -      |
| Material | -        | Weight | -                    | Weighted | -      |

|                       |                |            |         |
|-----------------------|----------------|------------|---------|
| Dimensions            | In millimeters | Scale      | 1:1     |
| For internal use only | Date           | Department | P NAFTA |
| Released by           | 2010-06-10     | Department | P NAFTA |

|              |                     |
|--------------|---------------------|
| Designation  | pin header          |
| Document key | 40177628.DRW.000.AD |
| Pages        | 1 of 2              |



2X  $\varnothing 3.8 \pm 0.1$  (MEASURED AT THE CENTER OF PRESS FIT GEOMETRY)

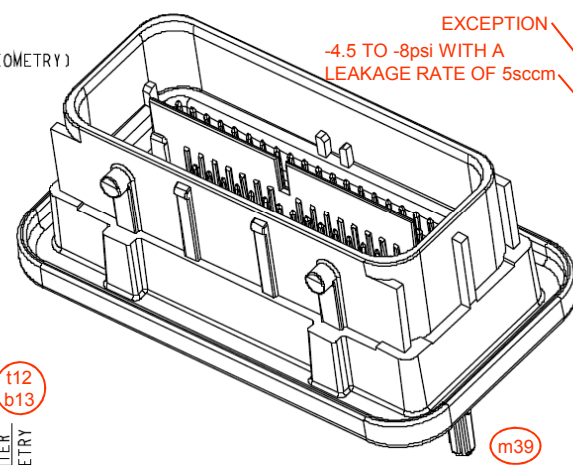
$\varnothing 0.4$  A B C m29

$\varnothing 0.3$  A B C m30

$\varnothing 0.4$  A B C m30a

$\varnothing 0.3$  A B C m27

FOR ALL UNDERSIDE PRESS-FIT GEOMETRY, TO BE MEASURED AT TIP OF PIN. POSITION TO BE CHECKED WITH A 500 gmF LOAD FUNCTIONAL GAUGE



EXCEPTION  
-4.5 TO -8psi WITH A LEAKAGE RATE OF 5ccm

**GENERAL NOTES (Valid unless otherwise specified)**

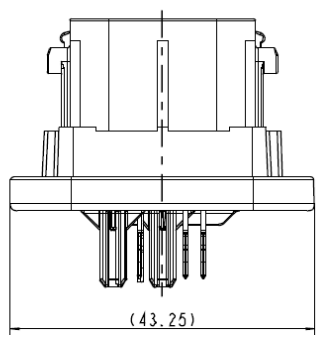
**General Functional Requirements**  
 Must operate in a temperature range from -40 to 125°C.  
 Pins must be sealed to meet IP6K9K environmental requirements per DIN 40050-9.  
 Pins must be sealed to withstand a pressure difference of -4.5 to -8 psi with a leakage rate of 5ccm.  
 Deviation only in agreement with Continental Engineering Department. Production leakage rate test method and criteria to be defined with Continental Engineering Department. 100% test coverage required.  
 Header assembly is press-fit to the PCB.  
 Header assembly must meet all requirements after a minimum of 10 mating cycles.  
 Contact retention force to plastic housing to be performed in the direction opposite the stitching direction, parallel to the pin axis at a speed of 50mm/min. For insert-moulded headers, the pins are to be pulled in both directions with a split of 50%/50%.

**Electrical Functional Requirements**  
 Insulation resistance between adjacent contacts must be greater than 100M $\Omega$  at 500VDC. The minimum value during the 4th cycle according to DIN IEC 60068-2-3B is 10M $\Omega$  at 65°C / 93% RH. Breakdown voltage must be greater than 1000VAC for 2 seconds.

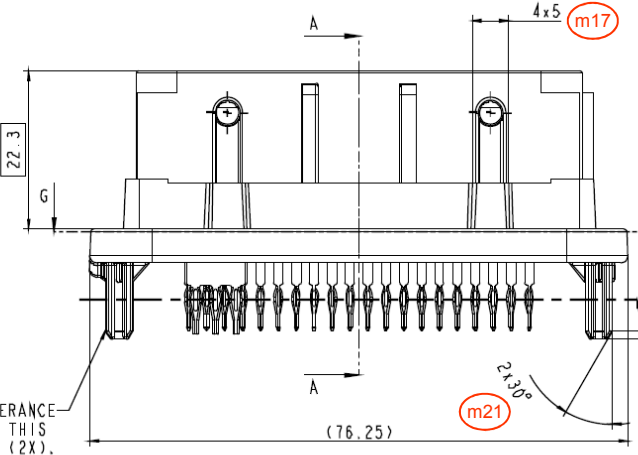
**Dimensions & Tolerances**  
 General tolerances per ISO 2768-M.  
 Geometric Dimensioning & Tolerancing per ASME Y14.5M-1994.  
 Moulding tolerances per DIN 16901-130.  
 Edges and undimensioned details per ISO 13715.  
 Tolerances and dimensions are valid for the completed header assembly.

Significant dimensions are noted with an S. Significant dimensions must have an initial Ppk of 1.67 and throughout production a Cpk of 1.33.  
 Underside of header housing is generic. Coring out proposals with minimum wall thickness of 1.7 to be provided to the Continental Engineering Department. Proposal must include 3D CAD data and approval with be provided in writing.  
 Undimensioned radii are 0.5.  
 Generic press-fit geometry shown. Specific design must pass Siemens VDO generic press-fit qualification prior to awarding business.

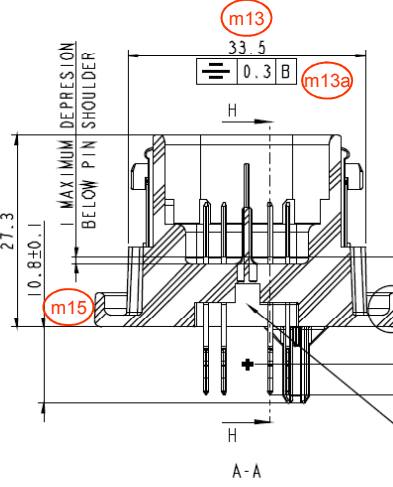
**Materials and Manufacturing**  
 Plastic housing material is PBT GF30. A maximum of 20% regrind by mass is permitted. See table for contact pin materials.  
 Parts must be in compliance with European Legislation (Directive 2000/53/EC, End of Life Vehicles).  
 Flammability requirement: burn rate must not exceed 80mm/min per GMW3232.  
 Product must meet the following performance specifications:  
 -USCAR-2 Temp Class III  
 -USCAR-21  
 -GMW 3191 Temp Class III, Vibration Class 1, Sealing Class III  
 -GMW 3172  
 -GMW3431, Sec 4.4.7, Simulated Location: Under Hood  
 Mould release is not permitted.  
 Gating location(s) not permitted on sealing surfaces.  
 Ejector pin locations, gating location(s) and parting line path must be approved in writing by Continental Engineering Department. Approval process can begin after initial tool review and mould-flow analysis.  
 Burr allowance: 0.2 maximum.  
 Parts are to be free of silicone, grease, oil and metallic particles (Particle defined as >50 $\mu$ m diameter) which affect fit, form or function.  
 Surfaces are to be free of sink marks, scratches, cracks or any other imperfections (which affect fit, form and function).  
 Pin materials and production processes must not promote the formation of whiskers.  
 Part marking location as shown. Font 1.5 $\pm$ 0.5 in a recess with a maximum depth of 0.3. Contents of part marking is to be the material number with revision, Julian Date Code resin symbol and cavity number. Date, code and revision may be laser etched on side of part.



PERPENDICULARITY TOLERANCE TO BE APPLIED WITHIN THIS RANGE (2X).



REPRESENTS PCB CENTERLINE WITH RESPECT TO ITS THICKNESS

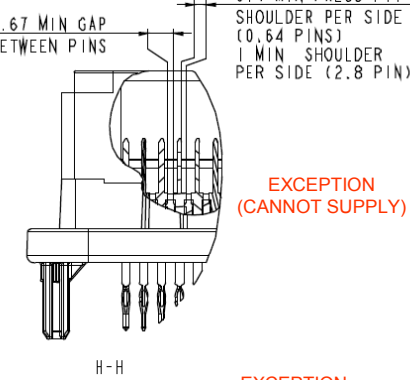


1 MAXIMUM DEPRESSION BELOW PIN SHOULDER

73x15.25 $\pm$ 0.1 TO CENTER OF PRESS FIT GEOMETRY

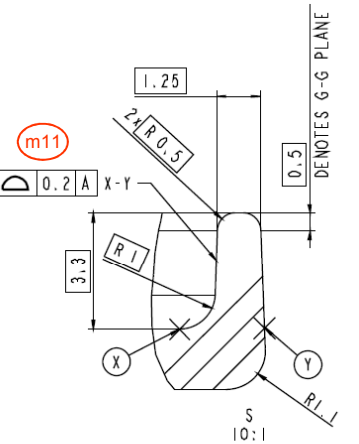
4.4 MAX FOR 0.64 5.0 MAX FOR 2.8

PIN SEALANT AREA; SHOWN FOR REFERENCE ONLY



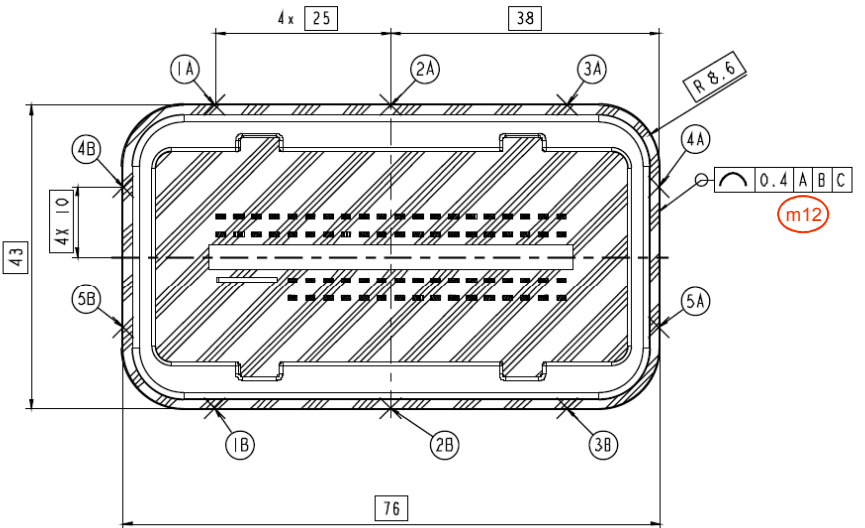
EXCEPTION (CANNOT SUPPLY)

EXCEPTION (CANNOT SUPPLY)



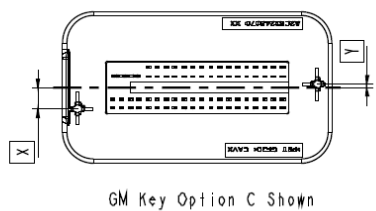
**MEASUREMENT LOCATIONS**

All relevant profile tolerances (line and surface) are to be taken at ballooned reference points shown in Section G-G.



| DESCRIPTION                          | TABLE B   |   |  |
|--------------------------------------|---|---|--|
|                                      | 0.64 PINS GOLD  | 2.8 PIN   | 0.64 PINS SILVER   |
| Base Material                        | CuSn4, CuSn6, CuNiSi, CuSnZn or similar per DIN EN 1652 |   |  |
| Connector-Side Plating               | 0.76 $\mu$ m Au Minimum over 1.25 to 2.25 $\mu$ m Ni    | 2.5 to 5.0 $\mu$ m Sn over 1.25 to 2.5 $\mu$ m Ni | 1.9-3.3 $\mu$ m Ag Minimum over 1.25 to 2.25 $\mu$ m Ni<br>Anti-tarnish for Ag plating only: Synthetic Hydrocarbon contact surface finish or equivalent applied without void to contact area (min 3.7mm from pin tip). |
| PCB-Side Plating                     | 0.5-1.0 $\mu$ m Sn over 0.5-0.8 $\mu$ m Ni              | 0.8-1.5 $\mu$ m Sn over 1.3-3.8 $\mu$ m Ni        | 0.5-1.0 $\mu$ m Sn over 0.5-0.8 $\mu$ m Ni   |
| PCB Hole                             | $\varnothing 1.0 \pm 0.09$                              | $\varnothing 1.45 \pm 0.09$                       | $\varnothing 1.0 \pm 0.09$   |
| Continuous Current Rating at Ambient | 8 $\mu$ A to 7A   | 25A   | 8 $\mu$ A to 7A  |
| Contact Retention Force to Housing   | 15N   | 60N   | 15N  |

Deviation only in agreement with Continental Engineering Department



GM Key Option C Shown

| TABLE A           |                                  |          |                          |               |                |       |       |
|-------------------|----------------------------------|----------|--------------------------|---------------|----------------|-------|-------|
| MOLEX PART NUMBER | CONTINENTAL MATERIAL PART NUMBER | REVISION | GM INTERFACE PART NUMBER | GM KEY OPTION | HOUSING COLOUR | DIM X | DIM Y |
| 346691000         | A2C53246070                      | 03       | 12582677                 | A             | Black          | 0     | 7     |
| 346691300         | A2C53421826                      | 01       | 12582677                 | A             | Black          | 0     | 7     |
| 346691100         | A2C53246072                      | 03       | 12582678                 | B             | St Gray        | 0     | 1     |
| 346691400         | A2C53421831                      | 01       | 12582678                 | B             | St Gray        | 0     | 1     |
| 346691200         | A2C53246076                      | 03       | 12615654                 | C             | Blue           | 6     | 1     |
| 346691500         | A2C53421834                      | 01       | 12615654                 | C             | Blue           | 6     | 1     |

**Relevant Documents**  
 10098897 AB - GOAS for stamped parts and formed parts.  
 657639.49.05 - Technical Delivery Instructions for Galvanic Surfaces

**IMDS**  
 Material information must be entered and maintained in the International Material and Data System (IMDS). IMDS input is the supplier's responsibility and is a requirement for every ISIR / PPAP submission. The IMDS Material Data Number is to be declared in the ISIR / PPAP submission. Data must be submitted to the following Organization Unit Codes: 31621.

**Data Transfer**  
 Model and drawing created using Pro-Engineer Wildfire 2. Data exchange has to be organized through the responsible mechanical design engineer.

| Document version | Previous version | Changed item | Change description (including number) |
|------------------|------------------|--------------|---------------------------------------|
| AD               | -                | -            | ECM 10170685<br>HSVCM_003175          |

Surface: OL - / -

Material: -

Weight: calculated 35 g  $\pm$  -9% weighed - g  $\pm$  -9%

Dimensions in millimeters: 10-Model SAP\_40177628\_AA.6.developed.ASSEM Scale: 1:1  
 Drawing SAP\_40177628\_AD.0.work in progress

For internal use only

Designed by: jonnathann.guerreros@continental-corporation.com Date: 2010-06-10 Department: P NAFTA  
 Released by: [redacted]

Continental Automotive  
 pin header  
 Stiffwanne  
 40177628 DRW 000 AD

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