

# SlimFlex Tag™ User Guide



## Introduction

This guide is designed to educate integrators and end users on available techniques for [SlimFlex™ Tag](#) fixation.

HID Global® SlimFlex™ RFID tags are among the most advanced general-purpose flexible tags available. The unique thermoplastic polyurethane (TPU) housings tolerate repeated bending or torsion, while maintaining excellent performance characteristics. The durable housing safeguards embedded electronics, even under harsh conditions. SlimFlex™ tag is meant to be affixed with a separate cable tie vertically to the object, for example, to a pipe or can be affixed with screws or rivets. SlimFlex™ tags are based on ICODE SLIX (HF/NFC Type 5) or Higgs 3 (UHF).



## Product Selection

Since many factors can impact product selection, it is assumed that the appropriate frequency, chip and tag form-factor have already been identified. For assistance with identifying the proper technology for a specific application, contact an HID representative or consult the [HID RFID Tag Selector](#).

## General Tag Placement

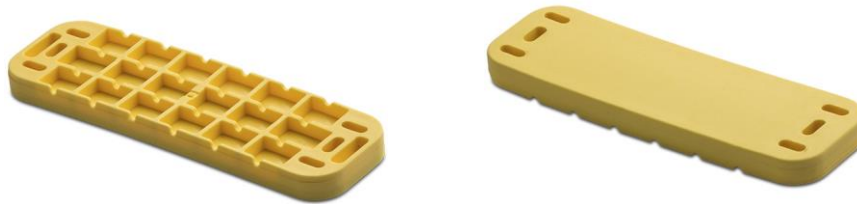
In selecting an appropriate tag location, several factors should be considered:

### **Orientation**

Although SlimFlex Tags are designed to be read from any direction, they read best when presented in a specific orientation relative to the reader antenna field like facing the (potentially laser-engraved) front of the tag and the tag is not bended. Experiment to determine the best orientation for a specific tag/reader combination, and ensure the tag is applied in the proper orientation when possible in the application.

**Proximity to Metal**

Except for the specially designed HF on-metal versions, SlimFlex Tags in general are not meant to be used directly on metal. RAIN® RFID (UHF) versions should be mounted in a way that they stand or hang away from the metallic surface in free air.



SlimFlex HF (on-metal) version

**Obstructions**

In general, RFID tags do not require line-of-sight to read. Be sure however, to test tags in their final operating environment, to prevent any unforeseen interference from obstructions like RF field reflections and dampening effects.

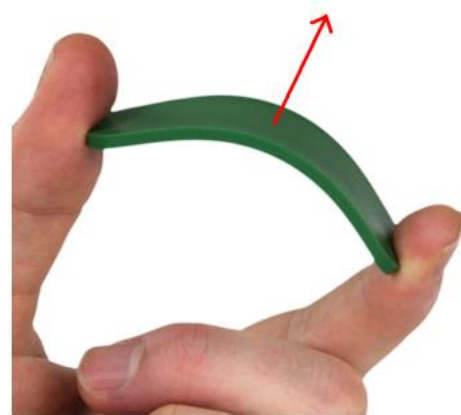
**Tag Bending (RAIN® RFID – UHF only)**

Like for all RFID tags, the bigger the surface is that is exposed to the reader field, the larger the reading distance will be. The table below shows how read range is affected when a standard SlimFlex tag is read in bent state. The stronger it is bent; the less surface is exposed to the field and therefore the read range will reduce. The maximum officially specified bending radius is 150 mm. Stronger bending would further reduce the reading distance and the tag would be used out of specification.

Bending Radius	Read Range		
	EU (m)	US (m)	JPN (m)
flat	9,1	8,1	8
200 mm	8,05	7	7
150 mm	7,5	6,8	6,5

The tag beam focus is the one shown in the screenshot.

The reader antenna main beam focus is in line with the shown tag beam focus.



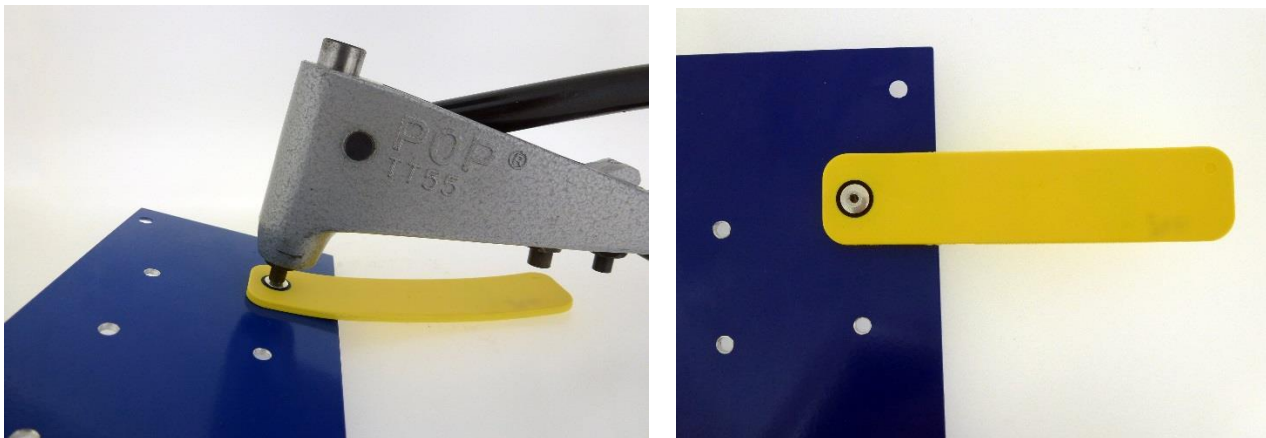
## Fixation Methods for SlimFlex Tag

Although multiple fixation methods are available for most tags, some methods may yield better results in a specific application.

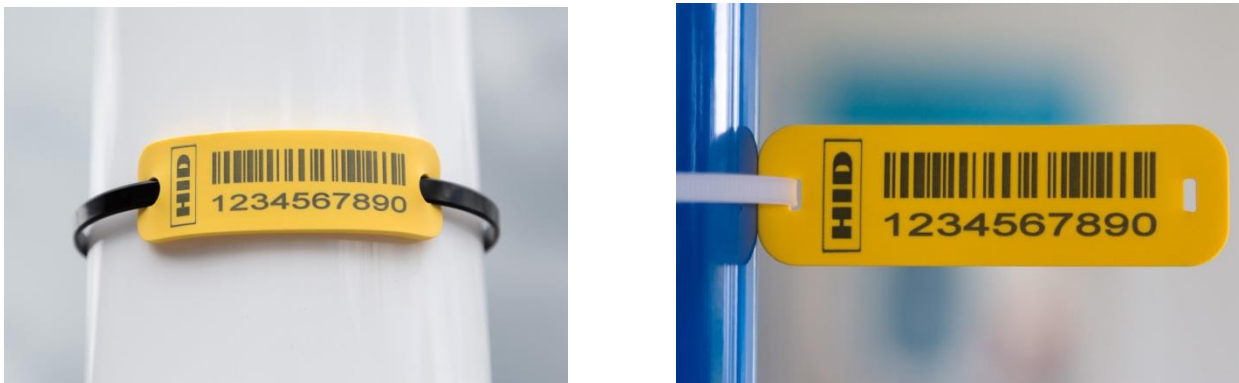
When selecting a method of tag fixation, be sure to test the method both for strength and for readability of the tag prior to putting it into practice.

### ***Mechanical Fastener***

[SlimFlex™ Tag](#) series have holes through which a screw or rivet can be used to secure the tag mechanically. Select a screw or rivet that is appropriate for the surface material to which the tag is being applied. With its reinforced hole, the [SlimFlex™ Tag Washer](#) is specifically designed to be affixed with aluminium rivets to hang down from metal plates or bars e.g. to tag metallic cages.



Some versions of the [SlimFlex™ tag](#) are meant to be fixed to objects with standard cable ties. When the tag is mounted vertically to the object's surface, the effect of the object being wet or metallic is greatly reduced. In addition, there is the HID [Seal Tag](#) available, which features a built-in cable tie, which makes fixation quick and easy and provides tamper evidence.



Different mounting options for Slim Flex Standard 301 and 200

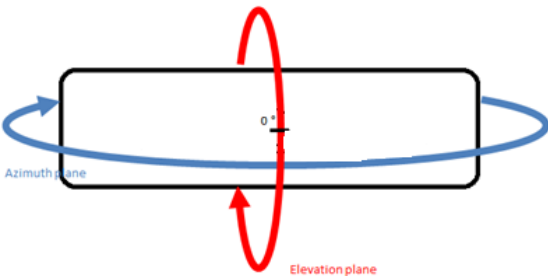

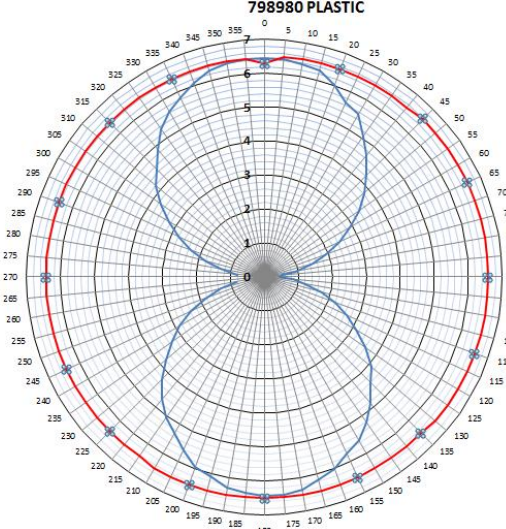
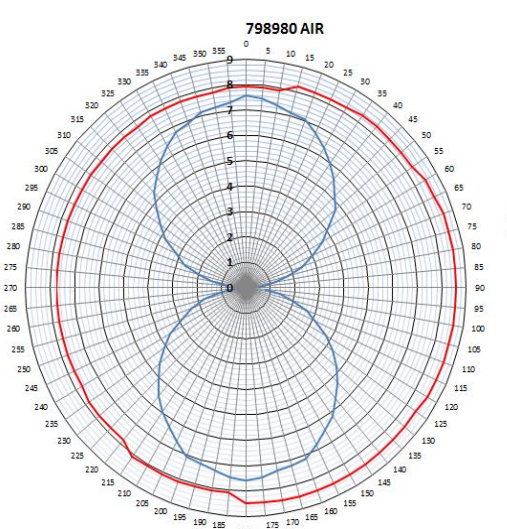
Take caution when using screws or rivets with large metal heads, as the metal content can de-tune the tag, resulting in a reduced read range. Again, be sure to test readability of the tag before putting this or any fixation method into practice.

**Fixation with Glue**

SlimFlex tags are not designed to be glued, but it can be done with proper preparation. E.g. a primer, [Loctite SF 770](#) can be used to make the low-energy surface of SlimFlex tags suitable for cyanoacrylate adhesives. After activation of the passive surface of SlimFlex tags, they can be bonded e.g. with [Loctite 406](#). For more details see the HID/Henkel whitepaper on [Adhesive Tag Fixation](#). SlimFlex On-metal tags do not support gluing, due to their limited surface contact.

**Read range graphs**

This section provides some read-range graphs for the most common SlimFlex Tag model. Graphs for other models can be obtained on request.

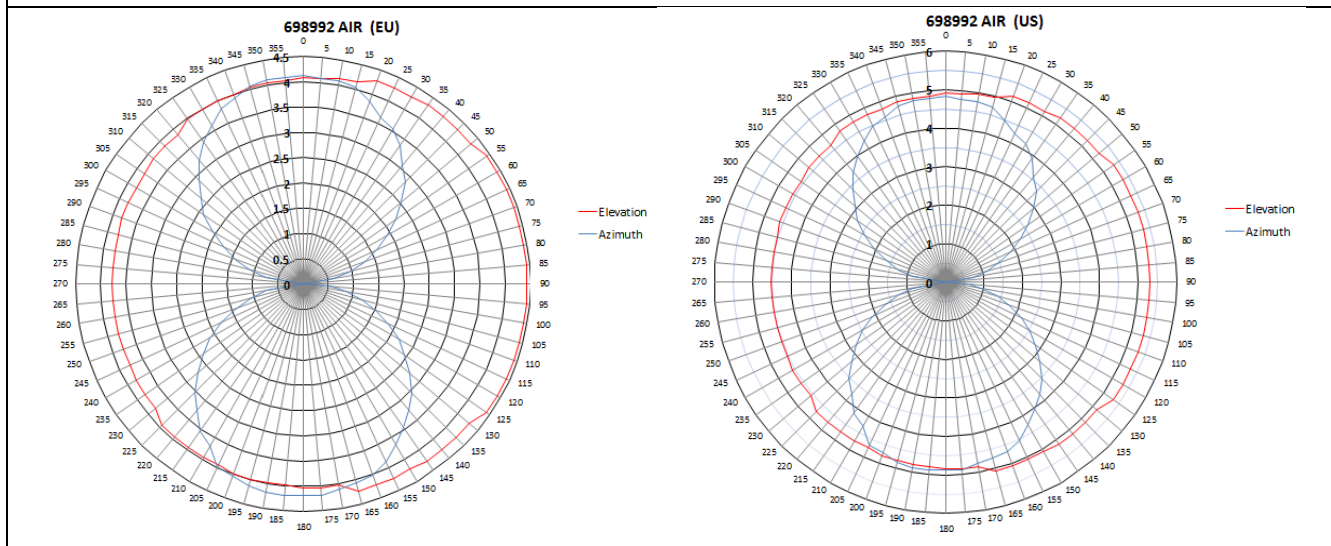
<b>P/N 798990: SLIMFLEX™ TAG UHF H3 860-960 MHZ</b> <b>P/N 798990-202: SEAL TAG UHF H3 860-960 MHZ</b>		
Plane definition	Picture	Comments
		<p><a href="#">-Measure results in EU, but applies also for US/AUS.</a></p>
3D sensitivity results		
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><b>798980 PLASTIC</b></p>  </div> <div style="text-align: center;"> <p><b>798980 AIR</b></p>  </div> </div>		

**P/N 69899A: SLIMFLEX™ MINI UHF H3 860-960 MHZ WHITE**

**P/N 69899A-202: SEAL TAG MINI UHF H3 860-960 MHZ WHITE**

Plane definition	Picture	Comments

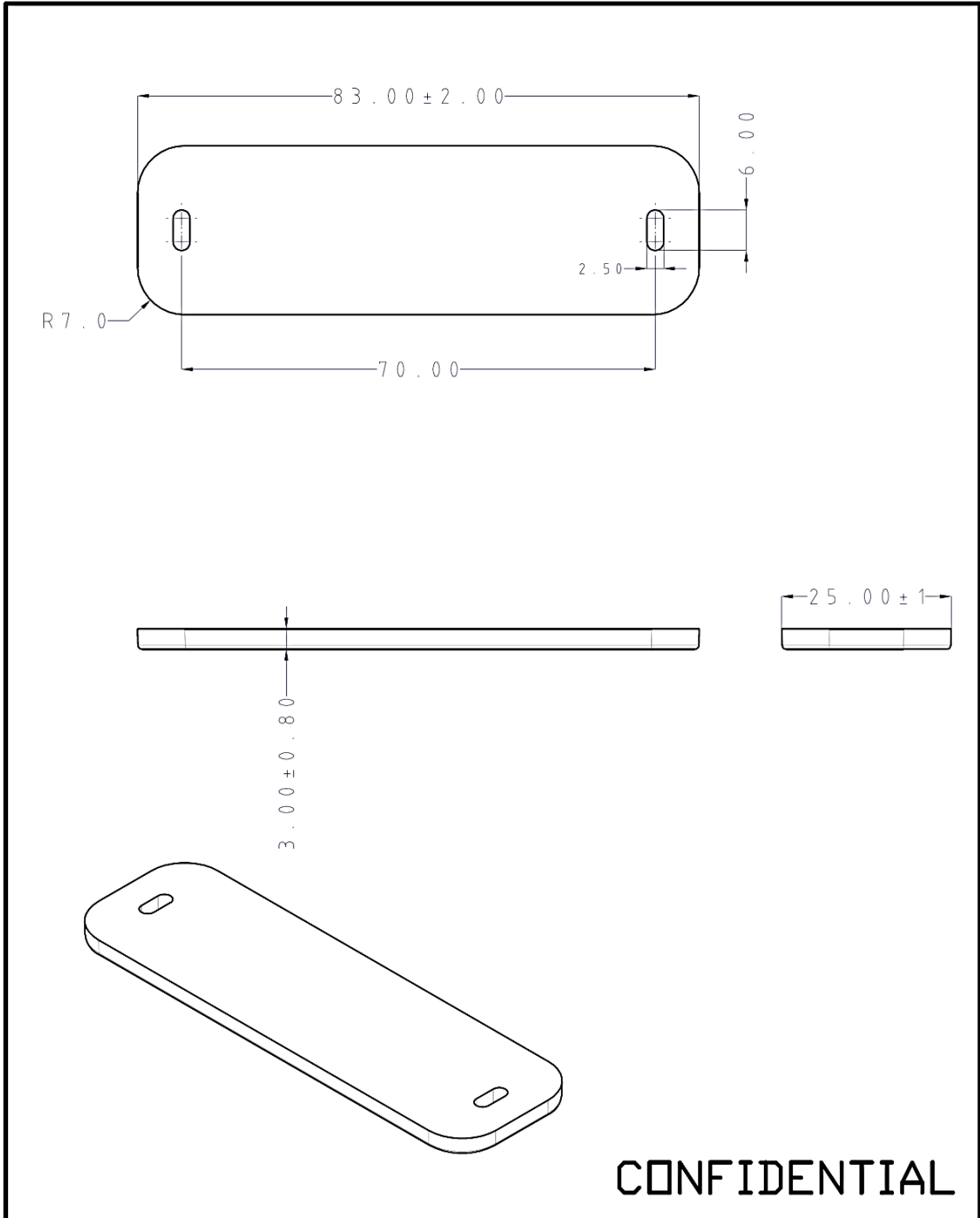
**3D sensitivity results**





**Tag Drawings**

Here are the exact dimensions for the most-common SlimFlex Tag models. Other drawings may be obtained on request from [tagsales@hidglobal.com](mailto:tagsales@hidglobal.com).

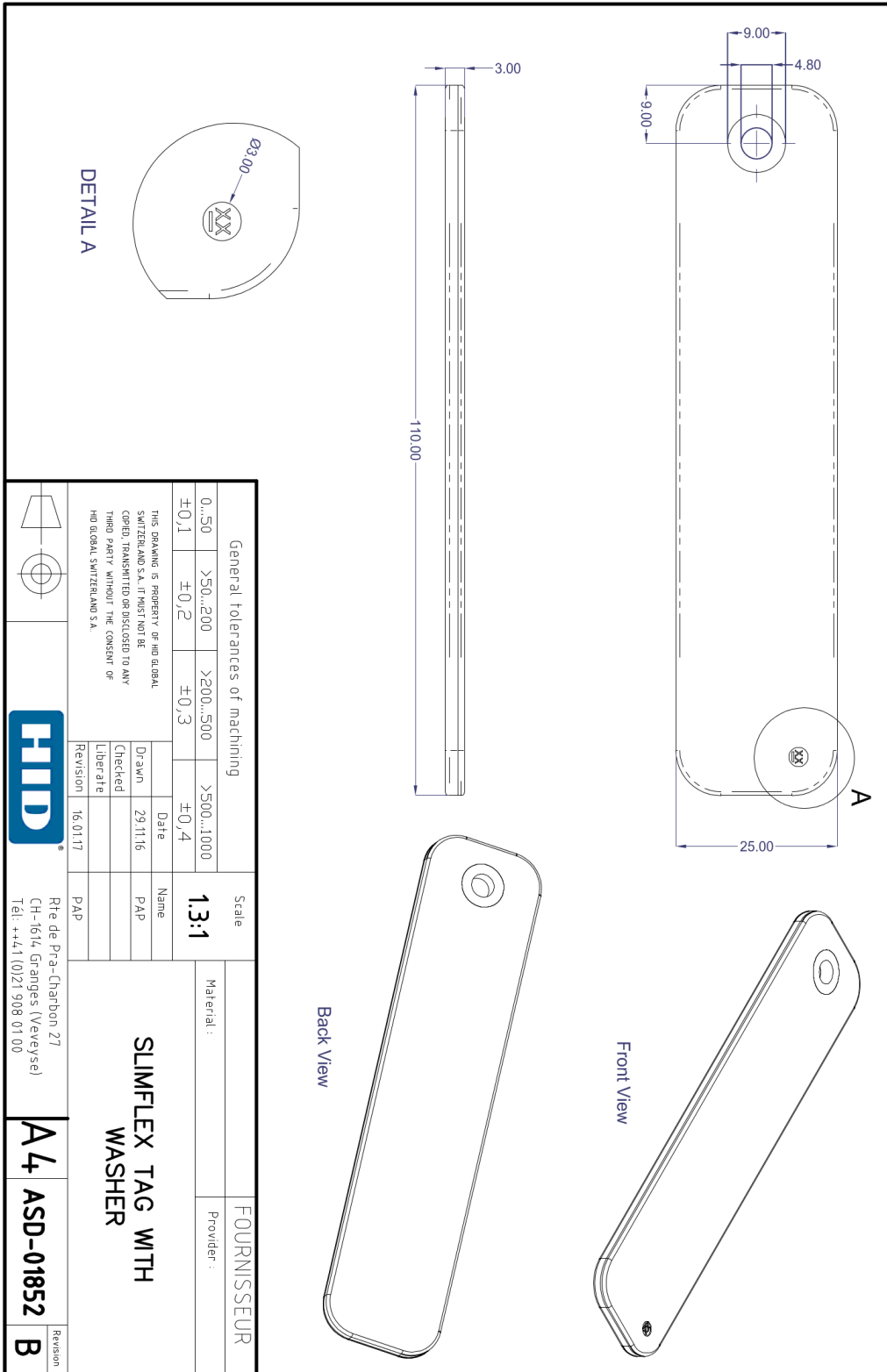
**SlimFlex Tag HF – P/N: 629990**



**CONFIDENTIAL**

General tolerances of machining		Scale	FOURNISSEUR
		1.25 : 1	Material : Provider :
THIS DRAWING IS PROPERTY OF HID GLOBAL SWITZERLAND S.A. IT MUST NOT BE COPIED, TRANSMITTED OR DISCLOSED TO ANY THIRD PARTY WITHOUT THE CONSENT OF HID GLOBAL SWITZERLAND S.A.	Date	Name	SlimFlex Tag
	Drawn	13.06.14 PAP	
	Checked		
	Liberate		
	Revision		
 Rte de Pra-Charbon 27 CH-1614 Granges (Veveyse) Tél: ++41 (0)21 908 01 00		 ASD-00650	

**SlimFlex Tag Washer – P/N 798990-302**



General tolerances of machining				Scale
0..50	>50..200	>200..500	>500..1000	<b>1:3:1</b>
±0,1	±0,2	±0,3	±0,4	

Material:		FOURNISSEUR
Provider:		
<b>SLIMFLEX TAG WITH WASHER</b>		
Drawn:	Date:	Name:
Checked:	29.11.16	PAP
Liberate:		
Revision:	16.0117	PAP

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**A4** ASD-01852 **B**



**Other Remarks**

**DISCLAIMER**

- HID Global accepts no responsibility for the use of the tag outside the mentioned specification. Any additional requirement for a customized and specific application has to be validated by the customer himself at his own responsibility.
- All performances mentioned above are subject to validation by design, qualification or production control.
- The delivered product quality is therefore defined according to the specified production control methods.

**NORMATIVE REFERENCE**

**Environment**

	European Conformity
	WEEE (Waste of Electronic and Electrical Equipment)
	China RoHS (Restriction of Hazardous Substances)
	REACH (Registration, Evaluation, Authorization and Restriction of Chemicals)
	RoHS (Restriction of Hazardous Substances)
	Halogen Free

- This product is a unique identification product.
- It is based on a passive RFID transponder with no internal power source such as battery
- To operate, the transponder needs to be placed in front of a reader electromagnetic field so it can harvest its energy.
- The lifecycle of this product will depend on the application and environmental exposure.
- Inspect the product regularly to make sure the housing has not been visually or mechanically damaged.
- Do not attempt to repair a damaged product, but replace it by a new one.
- As part of the commitment to environment, the end of life treatment for process waste and product out of function must be disposed of in accordance with all applicable federal / state or local regulations.



## Summary

HID has a long history of RFID tag production in all major frequencies LF / HF-NFC / RAIN RFID / BLE and with all major chip manufacturers. Its tags are designed by a Swiss/European engineering team and made in HID's own ISO certified manufacturing plants in Malaysia by fully automated equipment. This ensures a constantly high tag quality at affordable costs. Custom designs are possible and manufactured with the same industrial processes and equipment that has a capacity of many million transponders per month. HID tags are officially certified and tested against international standards for robustness and compliance. HID is a reliable supplier with global support and a worldwide partner network.

For further assistance, please contact your local HID partner or [tagsales@hidglobal.com](mailto:tagsales@hidglobal.com)

### [hidglobal.com/rfid](http://hidglobal.com/rfid)

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