

# Titan Construction and Mining Wheel Profile Gauges



## WARNING



Improperly servicing tires and wheels can result in **DEATH** or **SERIOUS INJURY**



**ONLY** properly trained and certified employees to service tires and wheels



**READ** and **FOLLOW** all warnings and instructions in this document and the **TITAN OTR DATABOOK**

## **⚠WARNING**

Improperly servicing tires and wheels can result in DEATH or SERIOUS INJURY. If you do not understand or cannot follow all warnings and instructions, DO NOT attempt to service the tires or wheels.

In addition to reading and following these instructions, locate, read, and follow the instructions on servicing tires and wheels that are contained in the [TITAN OTR DATABOOK](#).

To reduce the risk of DEATH or SERIOUS INJURY:

- **ONLY** properly trained and certified employees to service tires and wheels;
- **READ** and **FOLLOW** all warnings and instructions;
- Be aware of and comply with all local laws, codes, and regulations; and
- **ALWAYS** wear proper personal protective equipment including proper gloves, footwear, eye protection, hearing protection, and head gear when servicing tires and wheels.

For more information, including this document, see: [www.titan-intl.com/otr-profile-gauges](http://www.titan-intl.com/otr-profile-gauges)



## Introduction

The most common types of tubeless Off The Road (OTR) wheel and rims used in service today are the following:

- Tubeless Single Piece Wheels or Rims;
- Three (3) Piece Tubeless Wheels or Rims;
- Five (5) Piece Tubeless Wheels or Rims; and
- Six (6) or Seven (7) Piece Tubeless Wheels or Rims.

The above-referenced OTR wheels and rims can be broken down into the following types or styles based on the profile of the lock ring groove and corresponding components:

- "T" Style (45° Contact Face);
- "5T" Style (45° Contact Face);
- "ES" Style (35° Contact Face);
- "W" Style (45° Contact Face);
- "HD" Style (45° Contact Face);
- "HD35" Style (35° Contact Face);
- "HD28" Style (28° Contact Face).

The profile gauges, as described below, are designed to assist the user in identifying the differences between these styles and to avoid the potential mismatch of components.

Each profile gauge identifies the three (3) key matching components:

1. The Lock Ring / O-ring groove profile in the wheel or rim base;
2. The Lock Ring profile in the following areas:
  - The profile of the lock ring groove where it engages the rim;
  - The corresponding mating angle where the lock ring contacts the bead seat band; and
3. The bead seat band mating angle where it contacts the lock ring.

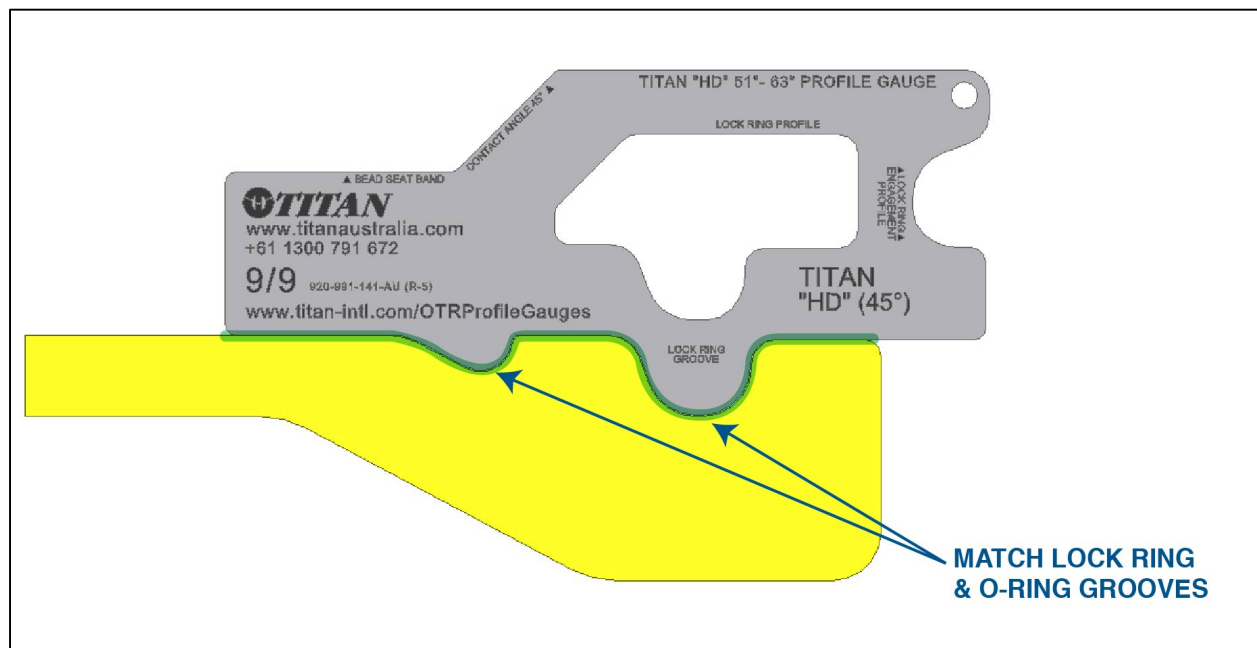
## Identifying Matching Components with Profile Gauges

### **⚠ WARNING**

**DO NOT** attempt to assemble or service the wheel unless **ALL** components pass all three (3) steps below. Servicing components that do not match all three (3) steps can lead to **DEATH** or **SERIOUS INJURY**.

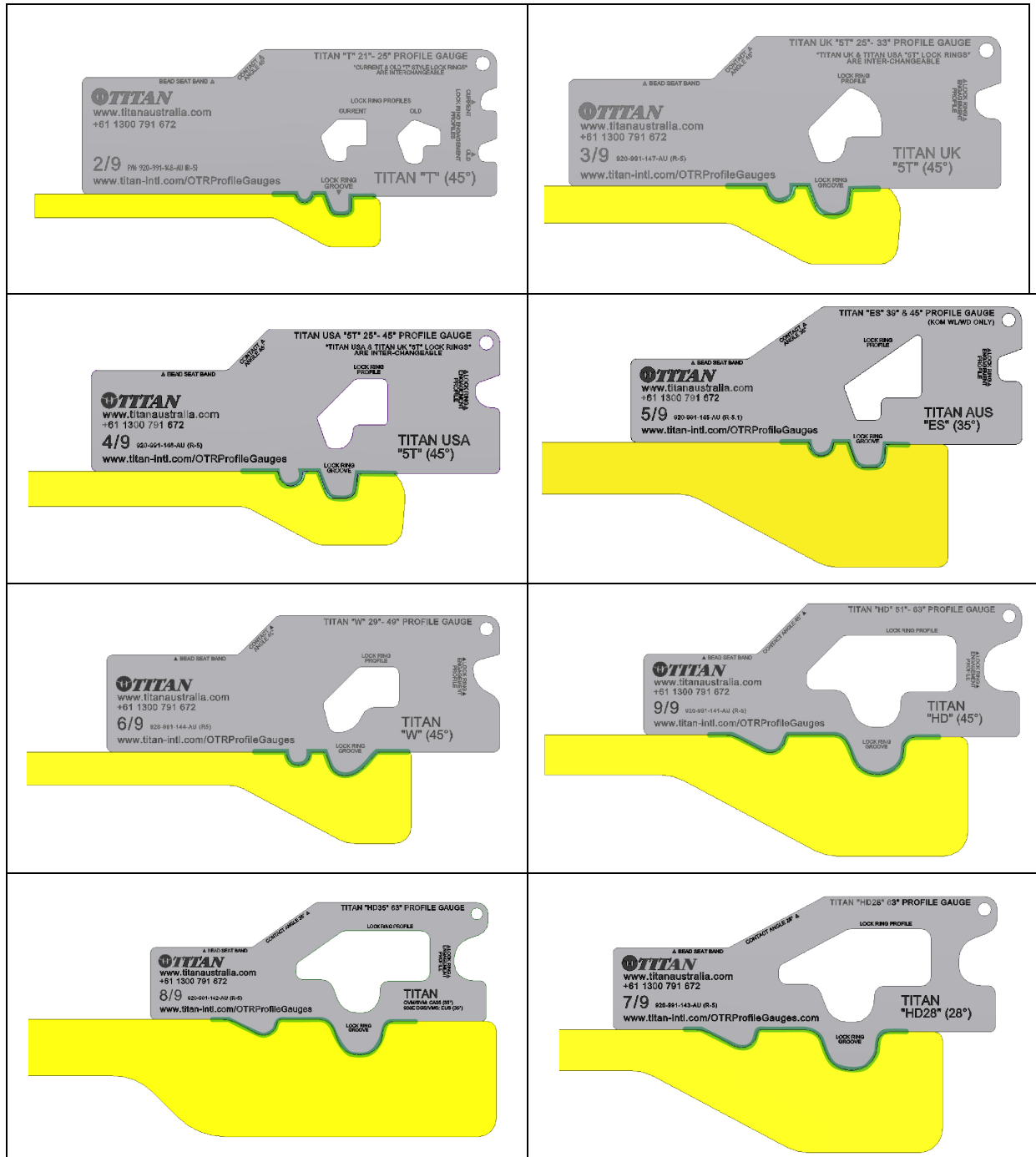
### Step 1 - Identify the Rim

- Using all eight (8) profile gauges, find the gauge or gauges that match the Lock Ring and O-Ring grooves in the Rim as shown below.



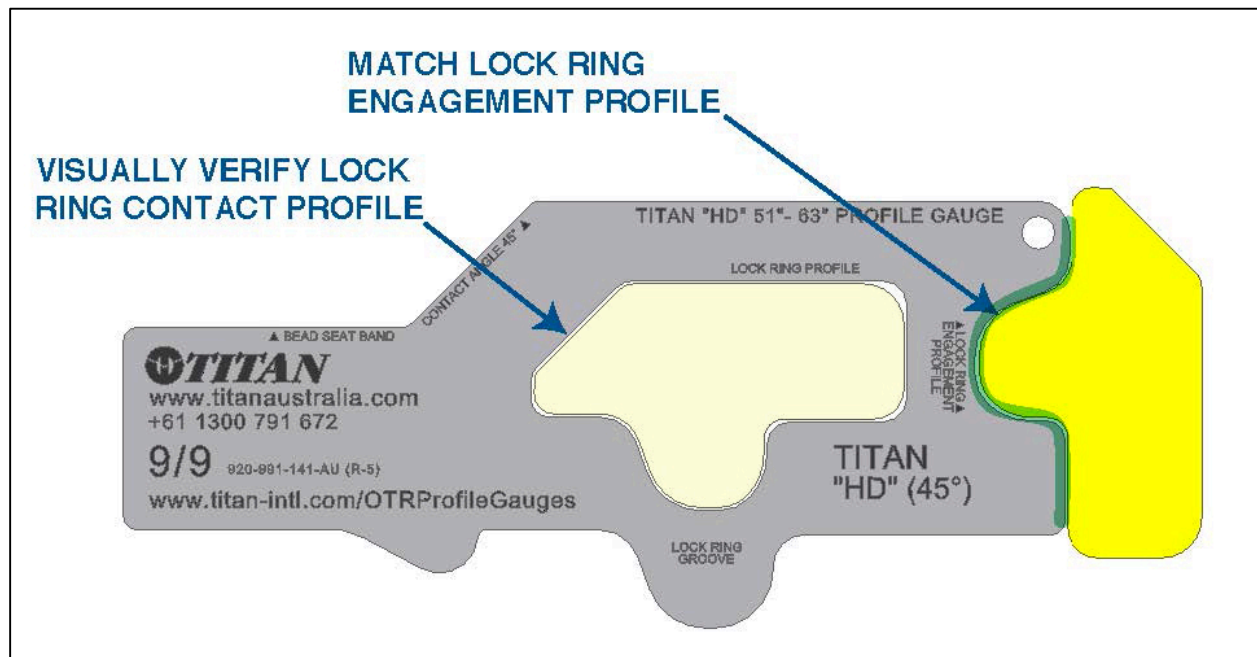
**NOTE:** At this stage, there may be more than one (1) gauge that matches the rim. Only use the gauge or gauges that match the rim in Step 1 in Step 2.

## Additional Examples of Matching Lock Ring and O-Ring Grooves for Each Profile Gauge



## Step 2 - Identify the Lock Ring

- Using the gauge or gauges that matched the rim in Step 1, Identify the lock ring profile ensuring that both of the following steps match as shown below:
  - Visually compare the cutout in the middle of the profile gauge to the end profile of the lock ring (NOTE: do not attempt to physically fit or insert the end profile of the lock ring into the middle of the profile gauge. This could result in serious injury to the user and/or damage to the lock ring); and
  - Ensure that the lock ring engagement profile matches the cut out on end of the profile gauge as shown in the image below.



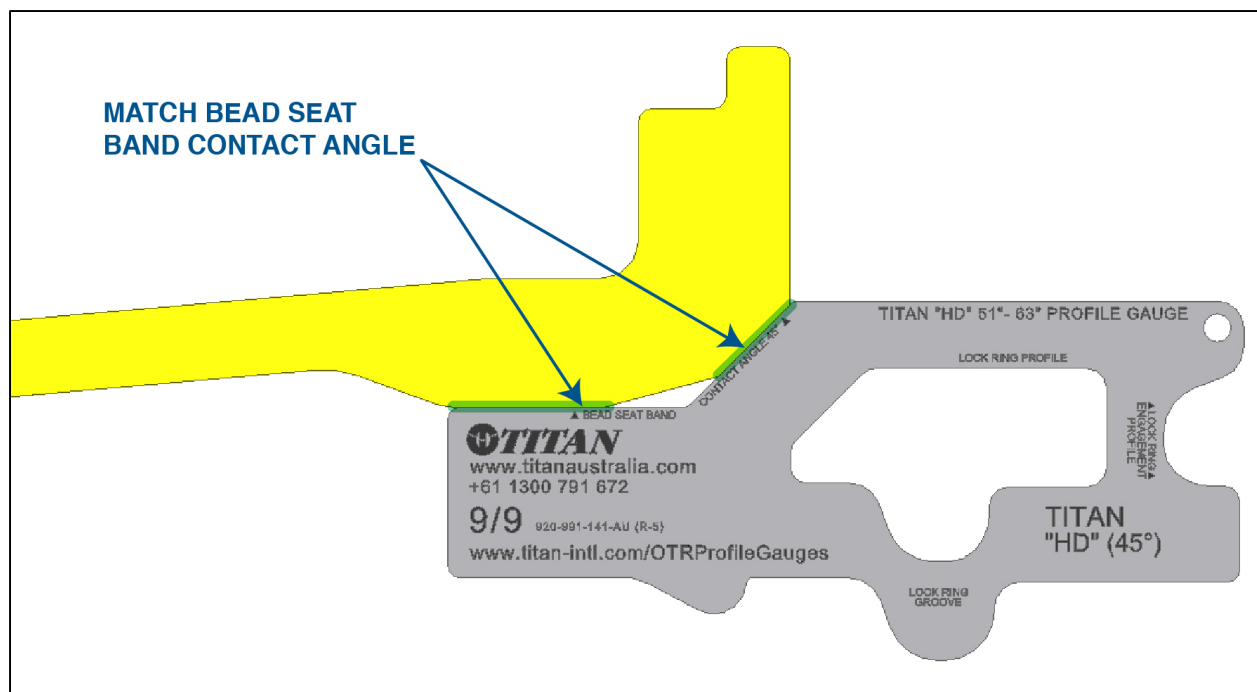
**NOTE:** At the end of Step 2 there will only be one (1) matching profile gauge. This matching gauge is the only gauge required for Step 3.

## Additional Examples of Matching Lock Ring Profiles for Each Profile Gauge

 <p><b>TITAN "T" 21"-28" PROFILE GAUGE</b>          "CURRENT &amp; OLD 'T' STYLE LOCK RINGS" ARE INTER-CHANGEABLE</p> <p><b>TITAN "T" (45°)</b></p> <p>2/9 920-991-145-AU (R-5)  <a href="http://www.titan-intl.com/OTRProfileGauges">www.titan-intl.com/OTRProfileGauges</a></p>	 <p><b>TITAN UK "5T" 25"-33" PROFILE GAUGE</b>          "TITAN UK &amp; TITAN USA '5T' LOCK RINGS" ARE INTER-CHANGEABLE</p> <p><b>TITAN UK "5T" (45°)</b></p> <p>3/9 920-991-147-AU (R-5)  <a href="http://www.titan-intl.com/OTRProfileGauges">www.titan-intl.com/OTRProfileGauges</a></p>
 <p><b>TITAN USA "5T" 25"-45" PROFILE GAUGE</b>          "TITAN USA &amp; TITAN UK '5T' LOCK RINGS" ARE INTER-CHANGEABLE</p> <p><b>TITAN USA "5T" (45°)</b></p> <p>4/9 920-991-148-AU (R-5)  <a href="http://www.titan-intl.com/OTRProfileGauges">www.titan-intl.com/OTRProfileGauges</a></p>	 <p><b>TITAN "ES" 30" &amp; 45" PROFILE GAUGE</b>          (KOM W/LWD ONLY)</p> <p><b>TITAN AUS "ES" (35°)</b></p> <p>5/9 920-991-145-AU (R-5)  <a href="http://www.titan-intl.com/OTRProfileGauges">www.titan-intl.com/OTRProfileGauges</a></p>
 <p><b>TITAN "W" 29"-49" PROFILE GAUGE</b></p> <p><b>TITAN "W" (45°)</b></p> <p>6/9 920-991-144-AU (R-5)  <a href="http://www.titan-intl.com/OTRProfileGauges">www.titan-intl.com/OTRProfileGauges</a></p>	 <p><b>TITAN "HD" 51"-63" PROFILE GAUGE</b></p> <p><b>TITAN "HD" (45°)</b></p> <p>9/9 920-991-141-AU (R-5)  <a href="http://www.titan-intl.com/OTRProfileGauges">www.titan-intl.com/OTRProfileGauges</a></p>
 <p><b>TITAN "HD35" 63" PROFILE GAUGE</b></p> <p><b>TITAN "HD35" (28°)</b></p> <p>8/9 920-991-142-AU (R-5)  <a href="http://www.titan-intl.com/OTRProfileGauges">www.titan-intl.com/OTRProfileGauges</a></p>	 <p><b>TITAN "HD28" 63" PROFILE GAUGE</b></p> <p><b>TITAN "HD28" (28°)</b></p> <p>7/9 920-991-143-AU (R-5)  <a href="http://www.titan-intl.com/OTRProfileGauges">www.titan-intl.com/OTRProfileGauges</a></p>

### Step 3 - Identify the Bead Seat Band

- Using the remaining gauge from Step 2, match the contact angle between the inside diameter of the bead seat band and the face that contacts the lock ring as shown below.



### **⚠ WARNING**

**IMPORTANT:** Make sure the gauge is flush on both sides of the angle. If the bead seat band contact angle does NOT match the profile gauge, then you have a mismatch situation and should consult the Titan data book to ensure that you have the proper components and begin with the three step process set forth in these safety instructions.





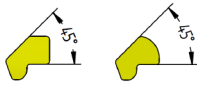

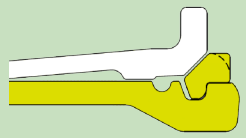
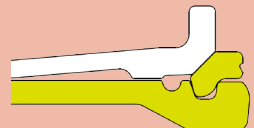
## ⚠ WARNING

**DO NOT** attempt to assemble or service the wheel unless **ALL** components pass all three (3) steps above. Servicing components that do not match all three (3) steps can lead to **DEATH** or **SERIOUS INJURY**.

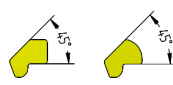


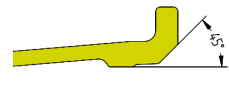
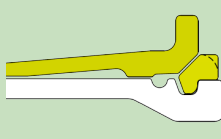
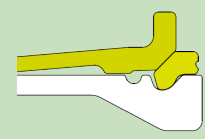
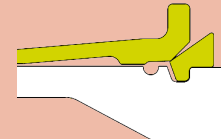

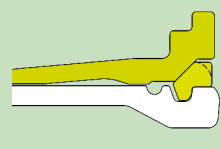
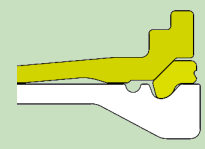
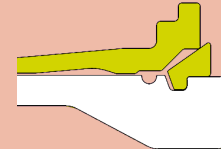

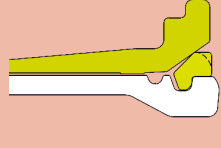
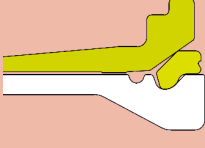
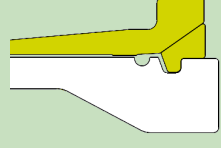
Locate, read, and follow the instructions on servicing tires and wheels in the **TITAN OTR DATABOOK**.

After confirming that all three (3) components are a match by completing the three (3) steps above, a properly trained individual using the appropriate tools and safety devices and/or equipment can proceed with assembling the wheel/rim with the correct matching parts.

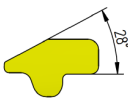
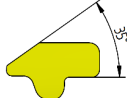
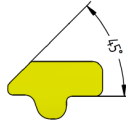

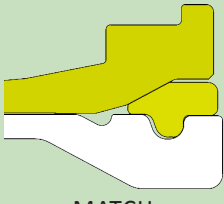
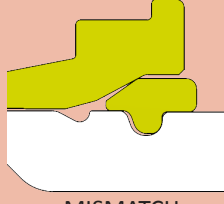
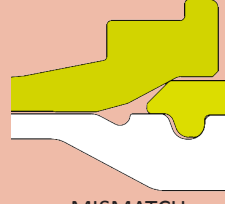
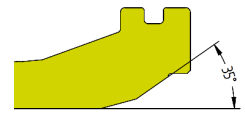
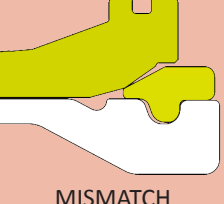
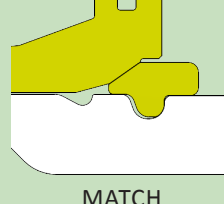
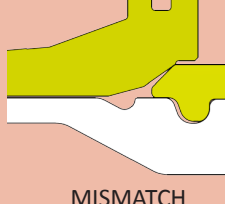
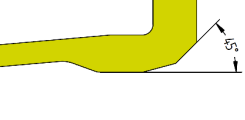
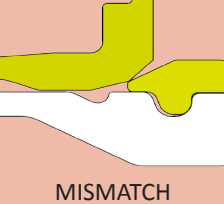
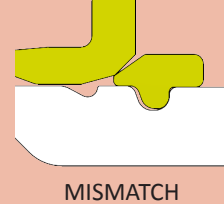
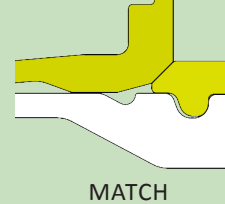
Below are examples of **CORRECTLY** assembled components that allow for **SAFE** use and **operation** and **MISMATCHED** components that may cause **HAZARDOUS** conditions that could result in **DEATH** and/or **SERIOUS INJURY**.

5T & W LOCK RING PROFILES			
LOCK RING GROOVE PROFILES		5T LOCK RING	W LOCK RING
	HT RIM PROFILE		
	W RIM PROFILE	 <p style="text-align: center;">MATCH</p>	 <p style="text-align: center;">MISMATCH</p>

Below are additional examples of **CORRECTLY** assembled components that allow for **SAFE** use and operation and **MISMATCHED** components that may cause **HAZARDOUS** conditions that could result in **DEATH** and/or **SERIOUS INJURY**.

5T, W & ES LOCK PROFILES					
BEAD SEAT PROFILES		5T LOCK RING	W LOCK RING	ES LOCK RING	
					
	HT STYLE BEAD BAND		 MATCH	 MATCH	 MISMATCH
	R STYLE BEAD BAND		 MATCH	 MATCH	 MISMATCH
	ES STYLE BEAD BAND		 MISMATCH	 MISMATCH	 MATCH

Below are further examples of **CORRECTLY** assembled components that allow for **SAFE** use and **operation** and **MISMATCHED** components that may cause **HAZARDOUS** conditions that could result in **DEATH** and/or **SERIOUS INJURY**.

HD LOCK RING PROFILES				
BEAD SEAT PROFILES		HD28 LOCK RING 	HD35 LOCK RING 	HD LOCK RING 
	STMT STYLE BEAD BAND 	 MATCH	 MISMATCH	 MISMATCH
	HSW STYLE BEAD BAND 	 MISMATCH	 MATCH	 MISMATCH
	EHD STYLE BEAD BAND 	 MISMATCH	 MISMATCH	 MATCH

For more information see your local Titan representative or:

Web: [www.titan-intl.com/otr-profile-gauges](http://www.titan-intl.com/otr-profile-gauges)

Phone: 1-800-USA-BEAR