



# The Facts About Interchangeability and Intermixability

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gyrolok® tube fittings

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# Interchangeability and Intermixability

## *History of HOKE Gyrolok®*

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HOKE Incorporated was founded in 1925 and began manufacturing valve products, which were the forerunners of today's valve products, in the 1940's.

During the 1950's, HOKE had a licensing agreement with the Crawford Fitting Company, the manufacturer of Swagelok® fittings. That agreement permitted HOKE to manufacture and supply its valves with Swagelok® fitting ends. In the early 1960's, once that agreement had expired, HOKE had several decisions to make regarding how to continue supplying valves with flareless tube fitting ends.

In some ways it would have been easy for HOKE to offer a virtual copy (once patents had run out) of the Swagelok® fitting. HOKE chose not to do this, however. Why? Because our experiences with the Swagelok® fitting combined with customer feedback indicated that, even though the Swagelok® fitting was a good one, there were opportunities to improve upon it.

Those improvements can be found in the HOKE Gyrolok® tube fitting. **HOKE Gyrolok® Fittings have a unique design offering added features and value to our customers available on no other fitting product.**



## *Background*

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Users of flareless tube fittings, like consumers of any product, are always looking for the best product value available. If a fittings user determines that another brand offers better value, one must consider the questions of Interchange/Intermix. The terms *interchange* or *intermix* refer to the use of components of different manufacturers within one fitting assembly. Some of the questions we will address while focusing on HOKE Gyrolok® and Swagelok® fittings are:

- Should it be done?
- What are the positions of different manufacturers?
- What is HOKE's position?

## *HOKE's Commitment to the Customer*

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Not only is HOKE Gyrolok® a precision engineered and manufactured fitting, but HOKE's commitment to quality and to the customer assures that the HOKE Gyrolok® fitting is the finest product available.

At HOKE, the customer comes first. To that end, HOKE products are designed to provide the maximum in safety and value to the user. HOKE's world class quality – exemplified by HOKE's holding of American Society of Mechanical Engineers (ASME) Quality System Certificates and ISO 9001 Certification – assures that our designs are translated into the finest products available.

To ensure that our customers always receive the highest quality products available, HOKE is committed to a philosophy of continuous improvement. To this end, HOKE has embraced the concepts of *Total Quality Management* and *Statistical Process Control*.

Total Quality Management is a customer focused management process that drives continuous improvement in quality, cost, and delivery through the creative involvement of all employees. Statistical Process Control is one of the key mechanisms by which this process is accomplished.

Through continuous improvement, HOKE is dedicated to providing our customers the safest and most economical products available.

# Interchangeability and Intermixability

To help understand the subject we will define the terms *intermix* and *interchange* as follows:

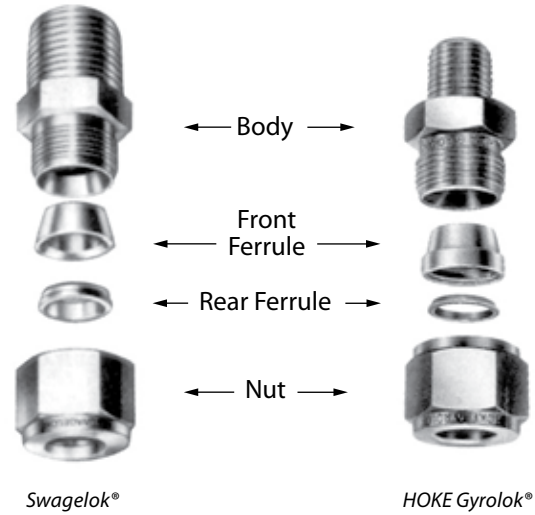
## Intermixability

Definition:

*Intermix* is the random mixing of components of different manufacturers.

### HOKE Position:

As described on the following pages HOKE has chosen to produce a unique fitting with distinct user-oriented advantages. Having chosen to be better by being different HOKE Gyrolok® also chose not to be randomly intermixable. The commitment to provide maximum benefits to the user precludes HOKE from recommending random mixing of components.



## Interchangeability

Definition:

*Interchange* is more specifically defined as the use of one manufacturer's nut and ferrule system with another manufacturer's body.

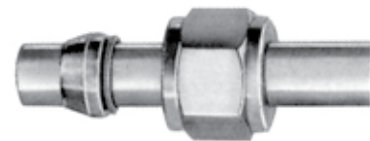
Interchangeability situations are encountered when a user must replace a portion of a system. In this case a user may have a fitting ended valve he wants to retain while replacing the tubing coming into it. Interchangeability allows him to replace the tubing, which has attached nuts and ferrules, but still retain the use of the valve. He would then assemble new tubing with new nuts and ferrules of another manufacturer to the fitting-ended valve already in place. The converse could equally be true. Interchangeability thus addresses real functional needs while giving the user the opportunity to achieve maximum safety and value.

### HOKE Position:

HOKE, while offering superior product design, is nonetheless able to guarantee functional interchangeability of the HOKE Gyrolok® and Swagelok® fittings.



Fitting Ended Valve



Ferrules Nut Tubing

## Positions of Other Manufacturers

Most flareless tube fitting manufacturers endorse intermixability and/or interchangeability with specific manufacturers. We will not focus on these manufacturers but rather on the one notable exception, the Swagelok® Company. Swagelok® does not recommend interchangeability or intermixability.

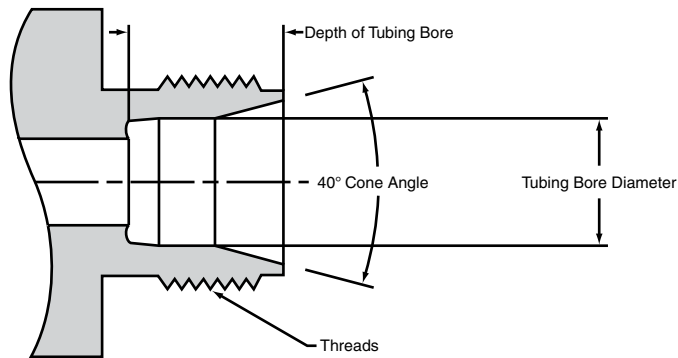
A fitting user who doesn't investigate further might then fail to be diligent in assuring that he is getting the maximum value and safety from his fitting product.

And the **maximum** in value and safety is what the user of HOKE Gyrolok® Flareless Tube Fittings receives.

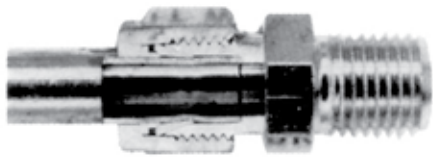
# Interchangeability and Intermixability

## *The Interchangeability Guarantee*

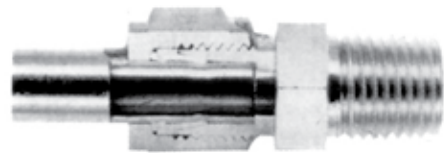
HOKE's experience in manufacturing HOKE valves with Swagelok® ends enables us to ensure that the Gyrolok® fitting body is dimensioned similarly to Swagelok® in key areas, highlighted below, and then precision manufactured.



The result is that HOKE Incorporated is able to guarantee the functional interchangeability of Gyrolok® Tube Fittings with similar fittings of certain other manufacturers, including Swagelok®, Parker A-lok® and Parker CPI™. Specifically, whenever Gyrolok® and fittings of certain other manufacturers are interchanged by using one manufacturer's nut and ferrule system with the other's body, HOKE will guarantee this interchanged fitting to effect a safe, secure leak tight seal provided there is no deficiency in parts not supplied by HOKE. Properly interchanged product is covered by HOKE Incorporated's standard warranty.



*Gyrolok® body with Swagelok® nut and ferrule – 1 turn*



*Swagelok® body with Gyrolok® nut and ferrule – 1 turn*

The interchange process, as well as routine component replacement, is most safely and easily accomplished by use of HOKE Gyrolok's® unique SCNF Safety Changer which contains nut and ferrule sets ready for assembly to Gyrolok® or Swagelok® fitting bodies.



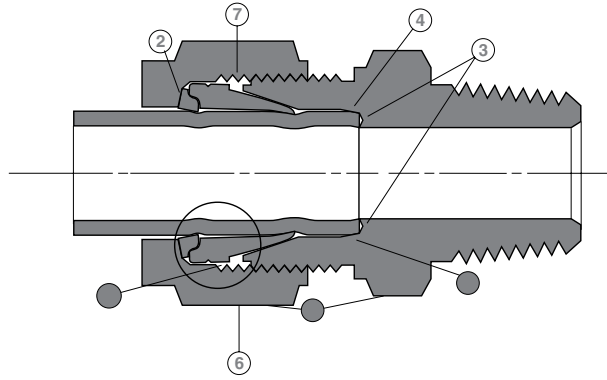
As many customers have already discovered, interchangeability is the safe way to combine Gyrolok® and Swagelok® components.

Interchangeability allows the current Swagelok® fitting user to enjoy the unique benefits of HOKE Gyrolok® fittings.

HOKE Gyrolok® interchangeability is not just limited to Swagelok®. A written statement of HOKE's Position on Interchangeability with specific manufacturers is available on request from your local HOKE stocking distributor.

# Interchangeability and Intermixability

## Features & Benefits



FEATURES	BENEFITS
<p>1 <b>Controlled Ferrule Drive</b> (Added value to the customer provided on all sizes, only by HOKE Gyrolok®).</p> <p>Gyrolok's Controlled Ferrule Drive, utilizing a shoulder on the front ferrule and a lock-in action rear ferrule, prevents:</p> <ul style="list-style-type: none"> <li>• Damage to the fitting body resulting in the need for premature replacement</li> <li>• Excessive sing of the tube</li> <li>• Excessive restriction of the tubing's inside diameter, affecting flow.</li> </ul> <p>Swagelok® does <u>not</u> utilize a front ferrule shoulder on their 1" and under fittings or an equivalent lock-in action.</p>	<ul style="list-style-type: none"> <li>• Maximum user safety</li> <li>• Economy – unmatched remake capability</li> </ul>
<p>2 <b>Ferrules</b></p> <p>All ferrules are manufactured in a manner that maintains or enhances the corrosion resistance characteristics of the parent material. Additionally, 316 Stainless Steel ferrules larger than 1" or 25mm are PFA coated.</p> <p>Nitriding reduces 316 Stainless Steel's corrosion resistance. HOKE Gyrolok® offers maximum protection.</p>	<ul style="list-style-type: none"> <li>• User safety and extended product life, particularly in corrosive environments</li> </ul>
<p>3 <b>Butt Seal</b> (Added value to the customer provided only by HOKE Gyrolok®).</p> <p>Added user safety and product performance is an evident benefit of all of HOKE Gyrolok's® unique features. Swagelok® does not provide a Butt Seal.</p>	<ul style="list-style-type: none"> <li>• Added leak protection particularly with scratched tubing</li> <li>• Dead space eliminator improves performance in sampling and vacuum applications</li> </ul>
<p>4 <b>Sizing Angle</b></p> <p>HOKE Gyrolok® provides a slight taper in the base of the tube socket in the fitting body which reduces the likelihood of tube sticking.</p>	<ul style="list-style-type: none"> <li>• Saves time and money by reducing problem of tube sticking on disassembly</li> </ul>
<p>5</p> <p>Material traceability on bodies and nuts in 316SS, Hastelloy® C-276, Monel® and other specialty alloys. Every Gyrolok® fitting in Stainless Steel, Hastelloy® C-276, Monel® and other specialty alloys includes the added safety offered by material traceability.</p>	<ul style="list-style-type: none"> <li>• User safety</li> </ul>
<p>6 <b>Silver-plated Nut</b></p> <p>Some fitting manufacturers utilize other nut lubricants which do not offer silver's temperature capability.</p>	<ul style="list-style-type: none"> <li>• Extended life even at temperatures of 1200° F</li> </ul>
<p>7 <b>Nut and Ferrule "Safety Changers"</b> (Added value to the customer provided).</p> <p>The HOKE Gyrolok® Nut and Ferrule Safety Changer offers nuts and ferrules properly oriented ready for attachment to a fitting body. Ferrules need not be handled thus avoiding the possibility of dropping, loss, or misorientation.</p>	<ul style="list-style-type: none"> <li>• Safe, simple, component replacement</li> </ul>
<p>8 <b>HOKE Valves with Integral Gyrolok® Ends</b> (Added value to the customer provided only by HOKE Gyrolok®).</p> <p>Only HOKE valves additionally offer the safety and economy of integral Gyrolok® fittings. Gyrolok's® Controlled Ferrule Drive prevents valve end connection expansion prolonging the life of the valve while eliminating the need to use female-ended valves with separate fittings.</p>	<ul style="list-style-type: none"> <li>• Safety and economy</li> </ul>

## For Your Safety

It is solely the responsibility of the system designer and user to select products suitable for their specific application requirements and to ensure proper installation, operation, and maintenance of these products. Material compatibility, product ratings and application details should be considered in the selection. Improper selection or use of products described herein can cause personal injury or property damage.

*Gyrolok® is a registered trademark of HOKE Incorporated.  
Swagelok® is a registered trademark of Swagelok Company.  
Hastelloy® is a registered trademark of Haynes International, Inc.  
Monel® is a registered trademark of Special Metals Corporation.*

