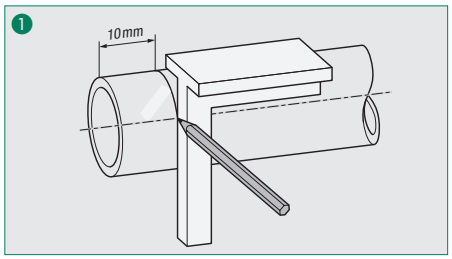
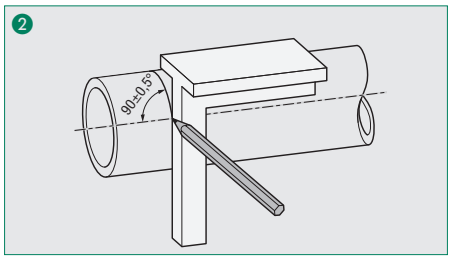
Assembly Instructions for STAUFF Connect 24° Tube Fittings with Double Edge Cutting Ring (Type FI-DS)

100% Assembly with the Manual Final Assembly Stud (Type FI-FK) and Assembly with the Fitting Body

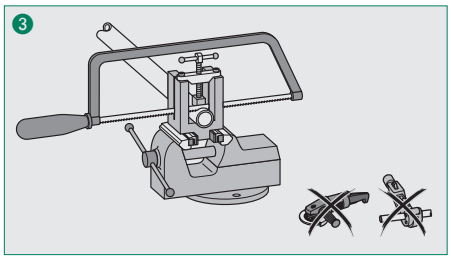
1. Tube Preparation



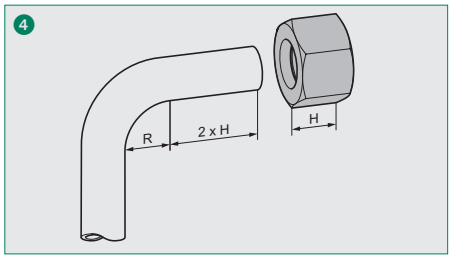
Saw off tube in right angle and at least 10 mm from the cut made by the tube manufacturer / supplier in order to avoid failures caused during shipment.



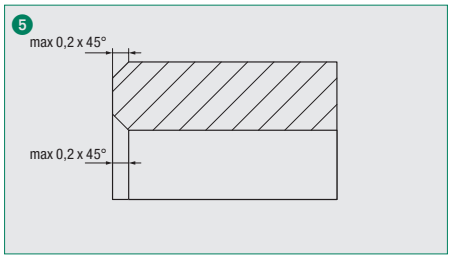
A maximum angular deviation / tolerance of ±0,5° relative to the tube axis is permissible.



Only use proper tube sawing machinery or equipment. Do not use tube cutters or grinders as this may result in unwanted angled cuts and cause severe burring.



For tube bends, the length of the straight section of the tube end to the start of the bending radius has to be twice the height of the union nut.

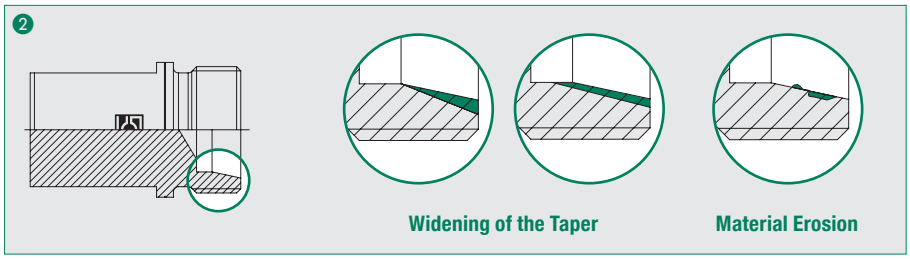


Slightly deburr inside and outside of the tube end (max 0,2 x 45°). The assembly area of the tube has to be free of contamination, chips and paint.

Please note: Improperly prepared and contaminated tubes will affect the service life of the connection and may result in leakage.

2. Assembly Preparation

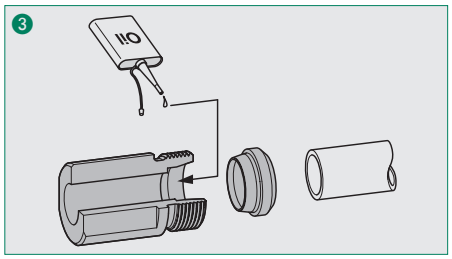
Please note: Hardened final assembly studs are wear-resistant, thus allowing for consistent assembly results with a maximum degree of accuracy, reliability and process stability.



However, they have to be checked for dimensional accuracy regularly. Assembly studs that are damaged and/or dimensionally not accurate must be replaced under any circumstances!

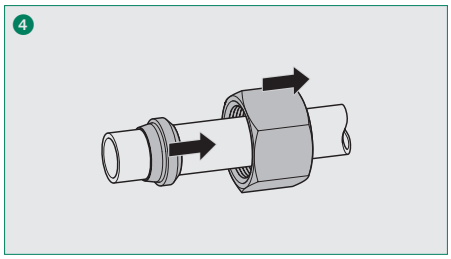
Typical damages include widening of the 24° angle or the entire taper, as well as material erosion.

S



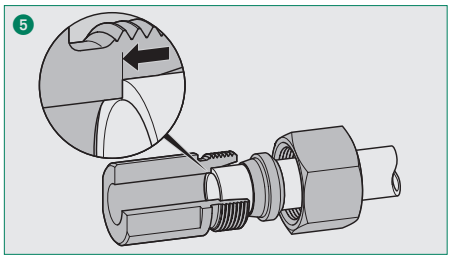
Lightly lubricate the 24° taper of the final assembly stud (e.g. using mineral-oil based hydraulic fluid HLP32). Do not use lubricating grease!

Immediately proceed with the assembly in order to avoid exposure to contamination.



Consecutively put the union nut first and then the cutting ring onto the tube end.

Pay attention to the correct alignment of the cutting ring: The cutting edges have to face to the tube end.



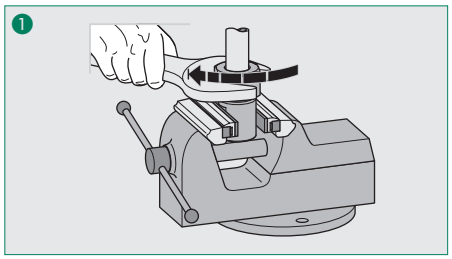
Carefully insert the tube end into the 24° taper of the final assembly stud and push it firmly against the inner stop.

The tube must be held in this position during the entire assembly process in order to avoid faulty assembly.

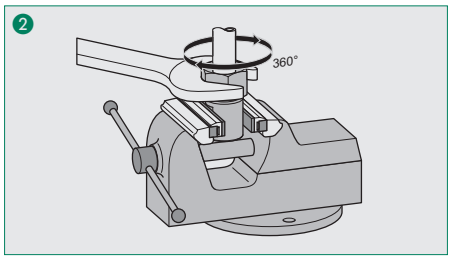
Assembly Instructions for STAUFF Connect 24° Tube Fittings with Double Edge Cutting Ring (Type FI-DS)

100% Assembly with the Manual Final Assembly Stud (Type FI-FK) and Assembly with the Fitting Body

3. Assembly in the Assembly Stud

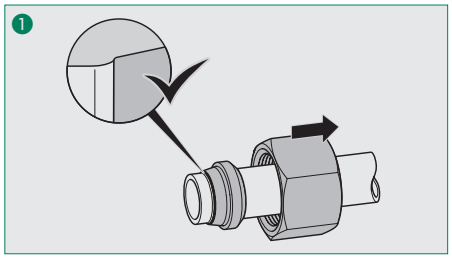


Tighten the union nut until the noticeable increase in force (pressure point). The cutting ring now grips the tube, which can no longer be rotated.



Use a suitable spanner to tighten the union nut another full turn (360°) beyond the pressure point. In doing so, the cutting ring will uniformly cut into the tube.

4. Inspection

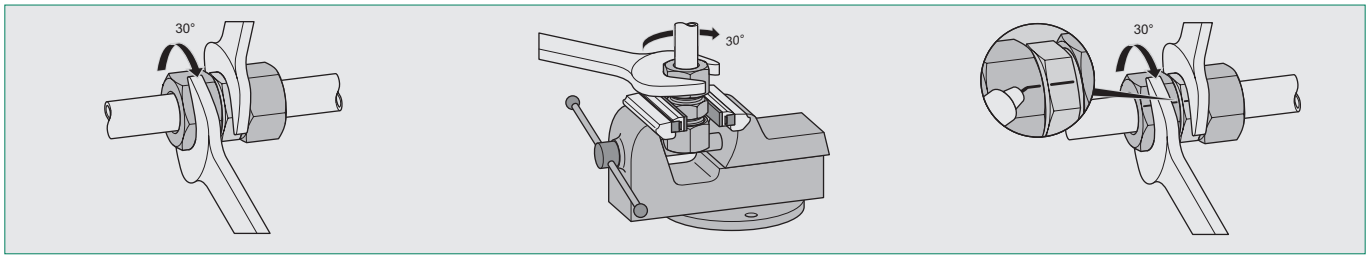


Fully untighten the union nut for a visual inspection after the assembly. The material accumulation must be clearly visible in front of the cutting edge and should almost completely cover the cutting edge.

In this position, it is still permissible for the cutting ring to turn on the tube, but not to be displaced in axial direction of the tube.

Please note: If not enough tube material has been raised in front of the cutting edge or if the cutting ring is still capable of being displaced in axial direction, the assembly procedure must be repeated by using more force, and the result must be re-checked.

5. Final-Assembly with the Fitting Body



Carefully insert the assembled tube end into the 24° taper of the fitting body.

Use a suitable spanner to tighten the union nut until the noticeable increase in force, and then finish the assembly with another approx.imately 1/12 a turn (30°) beyond this point.

Always use a second spanner to hold the fitting body during the entire assembly procedure.

In case of unfavourable mounting conditions or larger tube dimensions, use a bench vice for the assembly.

A marking line applied on the union nut and the fitting body makes it easier to indicate the sufficient tightening angle.

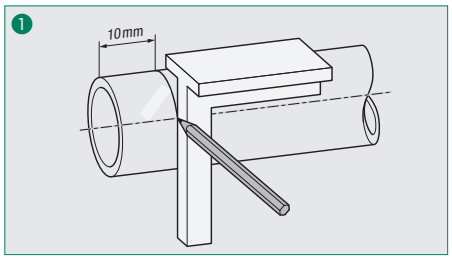
6. Repeated Assembly

For repeated assemblies, please use a suitable spanner to tighten the union nut until the noticeable increase in force, and then finish the assembly with another approx.imately 1/12 a turn (30°) beyond this point.

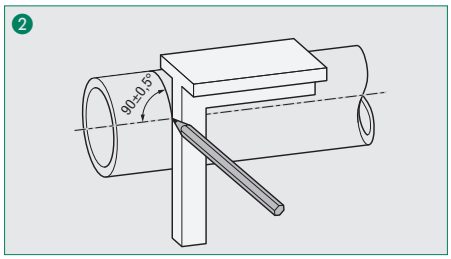
Assembly Instructions for STAUFF Connect 24° Tube Fittings with Double Edge Cutting Ring (Type FI-DS)

Assembly with the Manual Pre-Assembly Stud (Type FI-FK) and Assembly with the Fitting Body

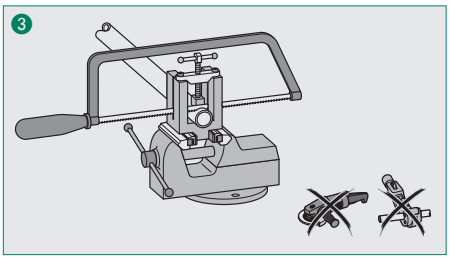
1. Tube Preparation



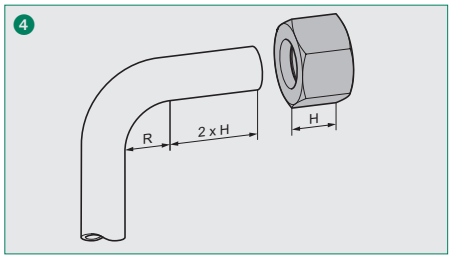
Saw off tube in right angle and at least 10 mm from the cut made by the tube manufacturer / supplier in order to avoid failures caused during shipment.



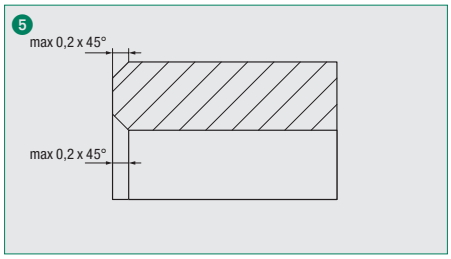
A maximum angular deviation / tolerance of ±0,5° relative to the tube axis is permissible.



Only use proper tube sawing machinery or equipment. Do not use tube cutters or grinders as this may result in unwanted angled cuts and cause severe burring.



For tube bends, the length of the straight section of the tube end to the start of the bending radius has to be twice the height of the union nut.

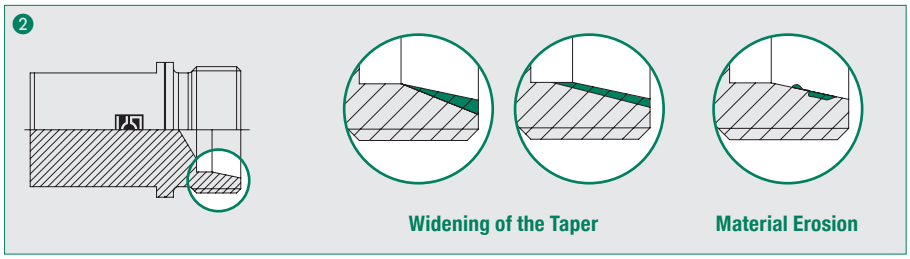


Slightly deburr inside and outside of the tube end (max 0,2 x 45°). The assembly area of the tube has to be free of contamination, chips and paint.

Please note: Improperly prepared and contaminated tubes will affect the service life of the connection and may result in leakage.

2. Assembly Preparation

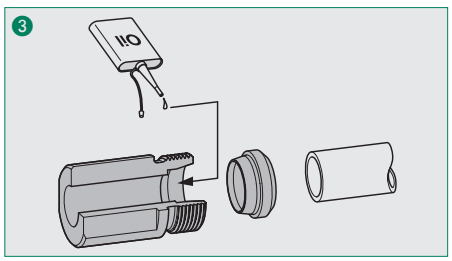
Please note: Hardened pre-assembly studs are wear-resistant, thus allowing for consistent assembly results with a maximum degree of accuracy, reliability and process stability.



However, they have to be checked for dimensional accuracy regularly. Assembly studs that are damaged and/or dimensionally not accurate must be replaced under any circumstances!

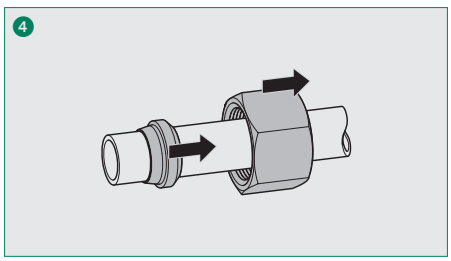
Typical damages include widening of the 24° angle or the entire taper, as well as material erosion.

S



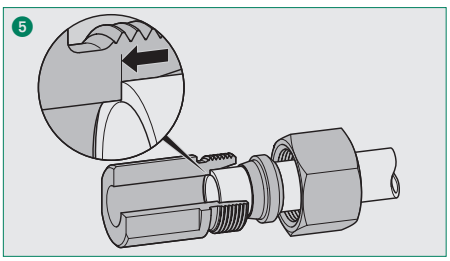
Lightly lubricate the 24° taper of the pre-assembly stud (e.g. using mineral-oil based hydraulic fluid HLP32). Do not use lubricating grease!

Immediately proceed with the assembly in order to avoid exposure to contamination.



Consecutively put the union nut first and then the cutting ring onto the tube end.

Pay attention to the correct alignment of the cutting ring: The cutting edges have to face to the tube end.



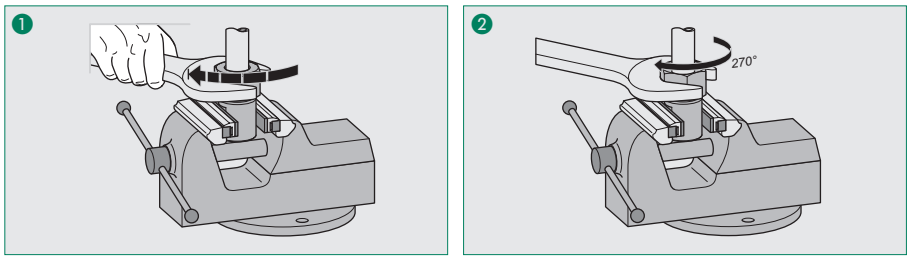
Carefully insert the tube end into the 24° taper of the pre-assembly stud and push it firmly against the inner stop.

The tube must be held in this position during the entire assembly process in order to avoid faulty assembly.

Assembly Instructions for STAUFF Connect 24° Tube Fittings with Double Edge Cutting Ring (Type FI-DS)

Assembly with the Manual Pre-Assembly Stud (Type FI-FK) and Assembly with the Fitting Body

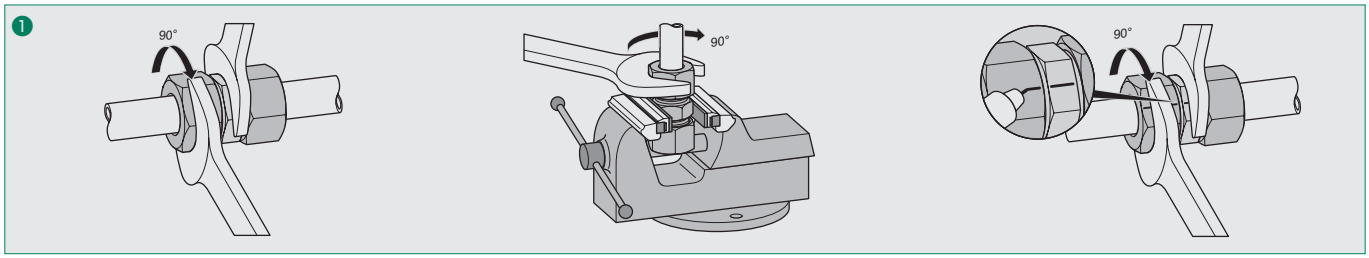
3. Pre-Assembly in the Assembly Stud



Tighten the union nut until the noticeable increase in force (pressure point). The cutting ring now grips the tube, which can no longer be rotated.

Use a suitable spanner to tighten the union nut another 3/4 a turn (270°) beyond the pressure point. In doing so, the cutting ring will uniformly cut into the tube.

4. Final-Assembly with the Fitting Body



Carefully insert the assembled tube end into the 24° taper of the fitting body.

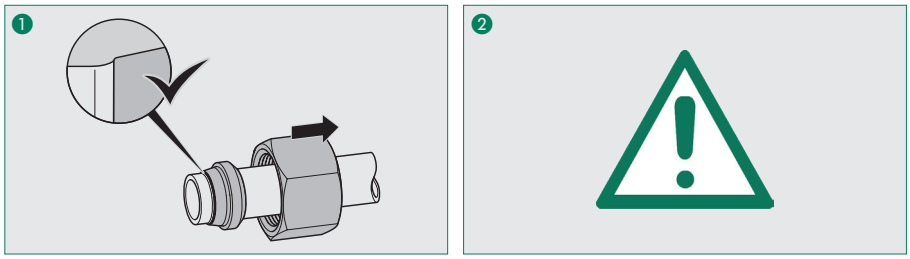
Use a suitable spanner to tighten the union nut until the noticeable increase in force, and then finish the assembly with another approx.imately 1/4 a turn (90°) beyond this point.

Always use a second spanner to hold the fitting body during the entire assembly procedure.

In case of unfavourable mounting conditions or larger tube dimensions, use a bench vice for the assembly.

A marking line applied on the union nut and the fitting body makes it easier to indicate the sufficient tightening angle.

5. Inspection



Fully untighten the union nut for a visual inspection after the assembly. The material accumulation must be clearly visible in front of the cutting edge and should cover the cutting edge approx. 80%.

In this position, it is still permissible for the cutting ring to turn on the tube, but not to be displaced in axial direction of the tube.

Please note: If not enough tube material has been raised in front of the cutting edge or if the cutting ring is still capable of being displaced in axial direction, the assembly procedure must be repeated by using more force, and the result must be re-checked.

6. Repeated Assembly

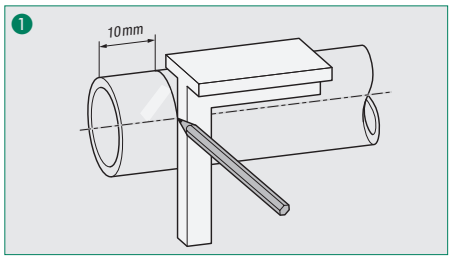
For repeated assemblies, please use a suitable spanner to tighten the union nut until the noticeable increase in force, and then finish the assembly with another approx.imately 1/12 a turn (30°) beyond this point.

S

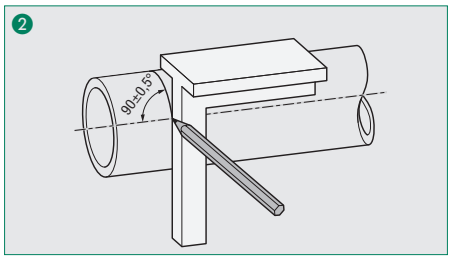
Assembly Instructions for STAUFF Connect 24° Tube Fittings with Double Edge Cutting Ring (Type FI-DS)

Direct Assembly with the Fitting Body

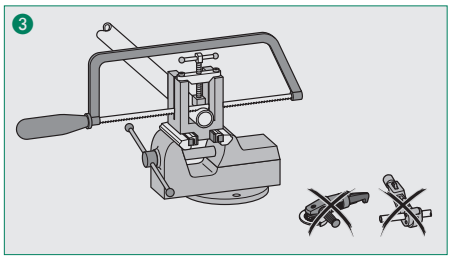
1. Tube Preparation



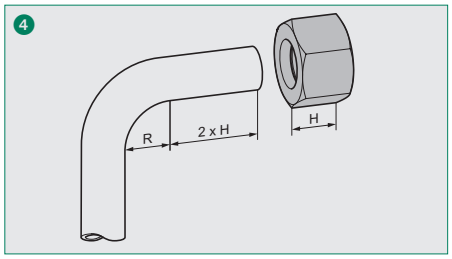
Saw off tube in right angle and at least 10 mm from the cut made by the tube manufacturer / supplier in order to avoid failures caused during shipment.



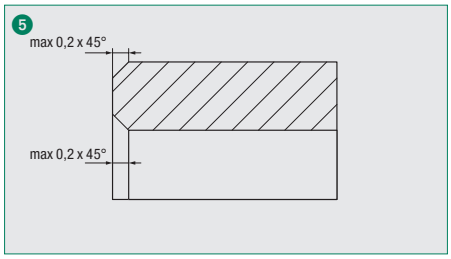
A maximum angular deviation / tolerance of ±0,5° relative to the tube axis is permissible.



Only use proper tube sawing machinery or equipment. Do not use tube cutters or grinders as this may result in unwanted angled cuts and cause severe burring.



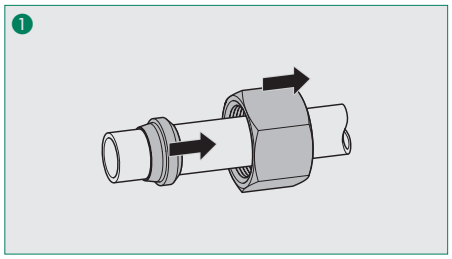
For tube bends, the length of the straight section of the tube end to the start of the bending radius has to be twice the height of the union nut.



Slightly deburr inside and outside of the tube end (max 0,2 x 45°). The assembly area of the tube has to be free of contamination, chips and paint.

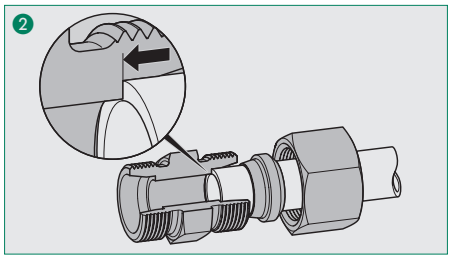
Please note: Improperly prepared and contaminated tubes will affect the service life of the connection and may result in leakage.

2. Assembly Preparation



Consecutively put the union nut first and then the cutting ring onto the tube end.

Pay attention to the correct alignment of the cutting ring: The cutting edges have to face to the tube end.



Carefully insert the tube end into the 24° taper of the fitting body and push it firmly against the inner stop.

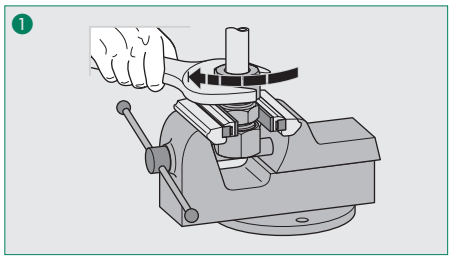
The tube must be held in this position during the entire assembly process in order to avoid faulty assembly.

S

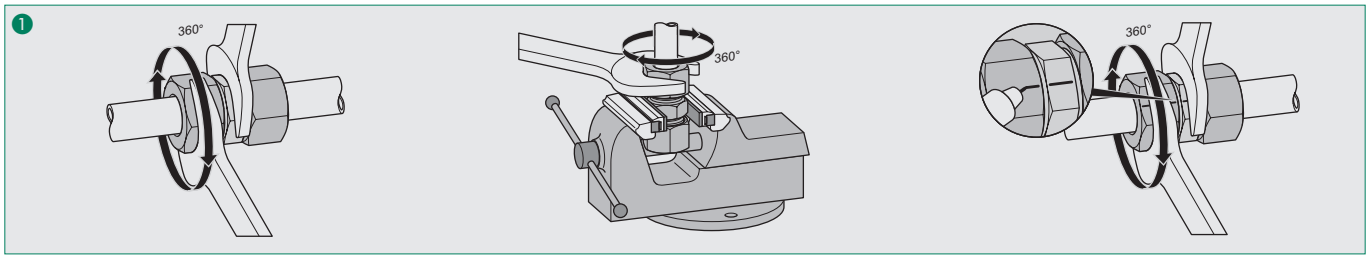
Assembly Instructions for STAUFF Connect 24° Tube Fittings with Double Edge Cutting Ring (Type FI-DS)

Direct Assembly with the Fitting Body

3. Direct Assembly in the Fitting Body



Tighten the union nut until the noticeable increase in force (pressure point). The cutting ring now grips the tube, which can no longer be rotated.



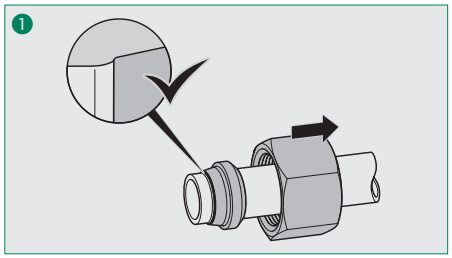
Use a suitable spanner to tighten the union nut another full turn (360°) beyond the pressure point. In doing so, the cutting ring will uniformly cut into the tube.

Always use a second spanner to hold the fitting body during the entire assembly procedure.

In case of unfavourable mounting conditions or larger tube dimensions, use a bench vice for the assembly.

A marking line applied on the union nut and the fitting body makes it easier to indicate the sufficient tightening angle.

4. Inspection



Fully untighten the union nut for a visual inspection after the assembly. The material accumulation must be clearly visible in front of the cutting edge and should almost completely cover the cutting edge.

In this position, it is still permissible for the cutting ring to turn on the tube, but not to be displaced in axial direction of the tube.

Please note: If not enough tube material has been raised in front of the cutting edge or if the cutting ring is still capable of being displaced in axial direction, the assembly procedure must be repeated by using more force, and the result must be re-checked.

5. Repeated Assembly

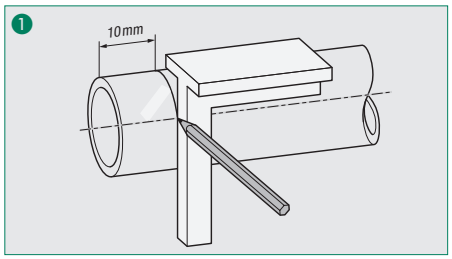
For repeated assemblies, please use a suitable spanner to tighten the union nut until the noticeable increase in force, and then finish the assembly with another approx.imately 1/12 a turn (30°) beyond this point.

S

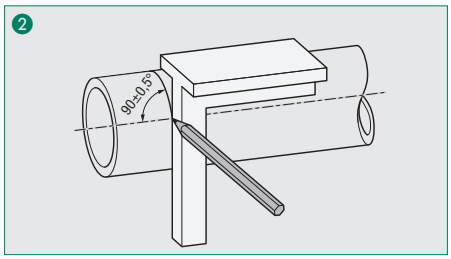
Assembly Instructions for STAUFF Connect 24° Tube Fittings with Double Edge Cutting Ring (Type FI-DS)

Machine-Assisted 100% Assembly with a STAUFF Press Assembly Machine and Assembly with the Fitting Body

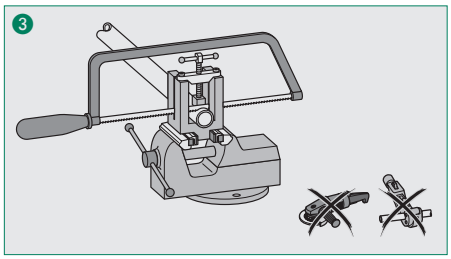
1. Tube Preparation



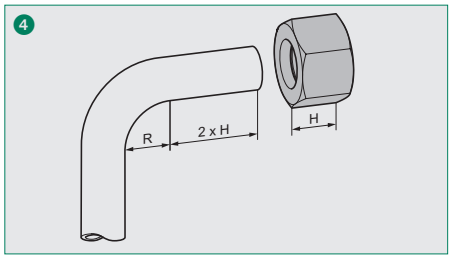
Saw off tube in right angle and at least 10 mm from the cut made by the tube manufacturer / supplier in order to avoid failures caused during shipment.



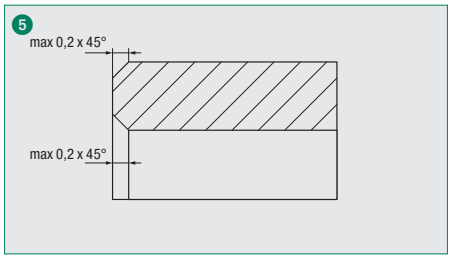
A maximum angular deviation / tolerance of ±0,5° relative to the tube axis is permissible.



Only use proper tube sawing machinery or equipment. Do not use tube cutters or grinders as this may result in unwanted angled cuts and cause severe burring.



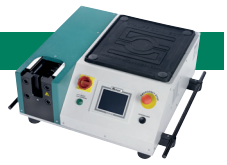
For tube bends, the length of the straight section of the tube end to the start of the bending radius has to be twice the height of the union nut.



Slightly deburr inside and outside of the tube end (max 0,2 x 45°). The assembly area of the tube has to be free of contamination, chips and paint.

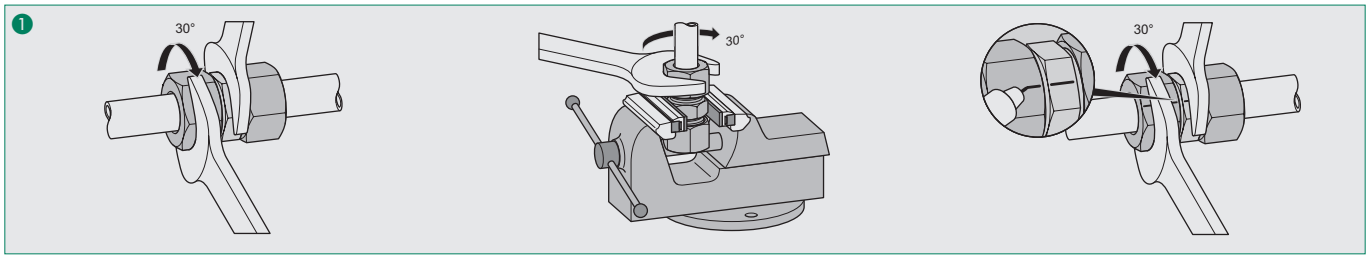
Please note: Improperly prepared and contaminated tubes will affect the service life of the connection and may result in leakage.

2. Assembly Preparation, Machine-Assisted Assembly and Inspection



With regards to assembly preparation, the actual assembly as well as the inspection of assembled tube ends, please follow the detailed instructions in the operating manual of the machine.

3. Final-Assembly with the Fitting Body



Carefully insert the assembled tube end into the 24° taper of the fitting body.

Use a suitable spanner to tighten the union nut until the noticeable increase in force, and then finish the assembly with another approx.imately 1/12 a turn (30°) beyond this point.

Always use a second spanner to hold the fitting body during the entire assembly procedure.

In case of unfavourable mounting conditions or larger tube dimensions, use a bench vice for the assembly.

A marking line applied on the union nut and the fitting body makes it easier to indicate the sufficient tightening angle.

4. Repeated Assembly

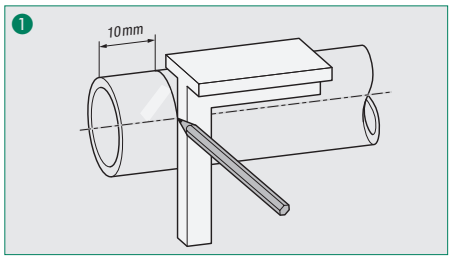
For repeated assemblies, please use a suitable spanner to tighten the union nut until the noticeable increase in force, and then finish the assembly with another approx.imately 1/12 a turn (30°) beyond this point.

S

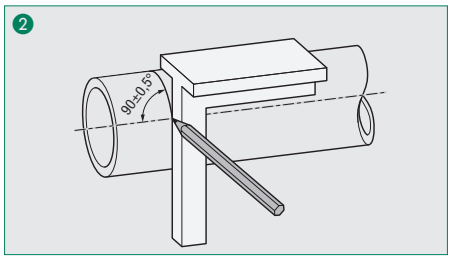
Assembly Instructions for STAUFF Connect 24° Tube Fittings with Double Edge Cutting Ring (Type FI-DS)

Machine-Assisted Pre-Assembly with a STAUFF Press Assembly Machine and Assembly with the Fitting Body

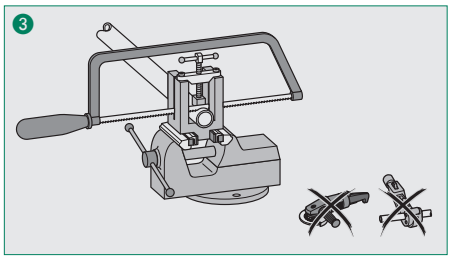
1. Tube Preparation



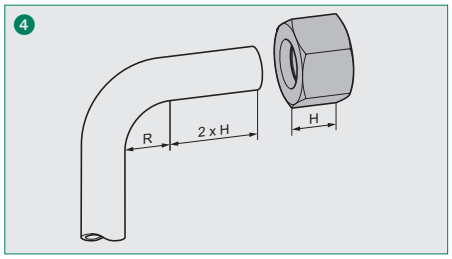
Saw off tube in right angle and at least 10 mm from the cut made by the tube manufacturer / supplier in order to avoid failures caused during shipment.



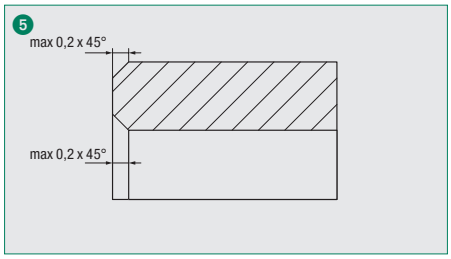
A maximum angular deviation / tolerance of ±0,5° relative to the tube axis is permissible.



Only use proper tube sawing machinery or equipment. Do not use tube cutters or grinders as this may result in unwanted angled cuts and cause severe burring.



For tube bends, the length of the straight section of the tube end to the start of the bending radius has to be twice the height of the union nut.



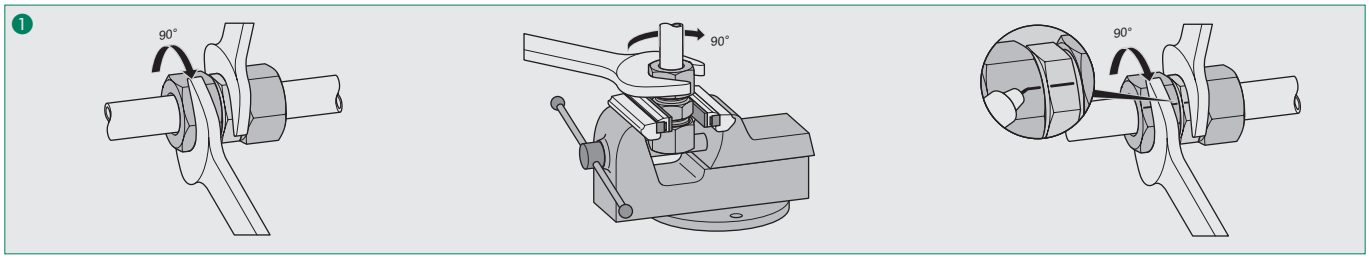
Slightly deburr inside and outside of the tube end (max 0,2 x 45°). The assembly area of the tube has to be free of contamination, chips and paint.

Please note: Improperly prepared and contaminated tubes will affect the service life of the connection and may result in leakage.

2. Assembly Preparation, Machine-Assisted Assembly and Inspection

With regards to assembly preparation, the actual assembly as well as the inspection of assembled tube ends, please follow the detailed instructions in the operating manual of the machine.

3. Final-Assembly with the Fitting Body



Carefully insert the assembled tube end into the 24° taper of the fitting body.

Use a suitable spanner to tighten the union nut until the noticeable increase in force, and then finish the assembly with another approx.imately 1/4 a turn (90°) beyond this point.

Always use a second spanner to hold the fitting body during the entire assembly procedure.

In case of unfavourable mounting conditions or larger tube dimensions, use a bench vice for the assembly.

A marking line applied on the union nut and the fitting body makes it easier to indicate the sufficient tightening angle.

4. Repeated Assembly

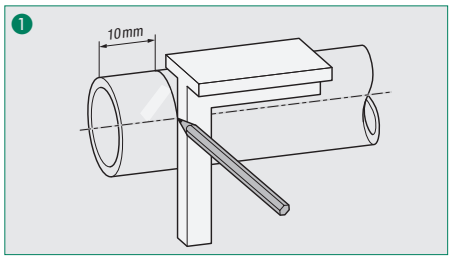
For repeated assemblies, please use a suitable spanner to tighten the union nut until the noticeable increase in force, and then finish the assembly with another approx.imately 1/12 a turn (30°) beyond this point.

S

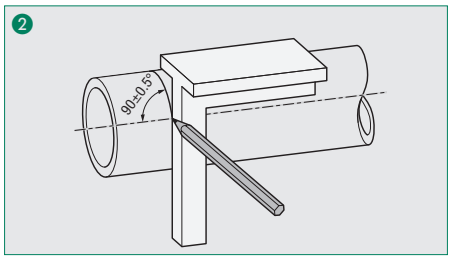
Assembly Instructions for 24° Tube Connectors with Soft-Sealing Cutting Ring (Type FI-WDDS/FI-WDDS-W5)

Pre-Assembly with the Manual Final Assembly Stud Type FI-FK and Assembly in the Fitting Body

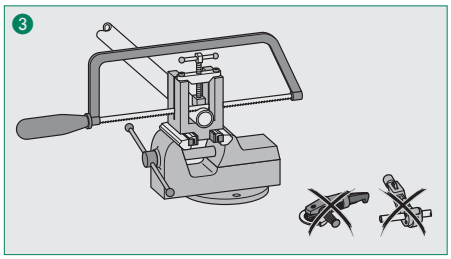
1. Tube Preparation



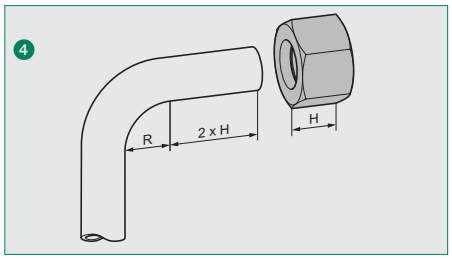
Saw off tube at a right angle (90°) and at least 10 mm from the cut made by the manufacture / supplier.



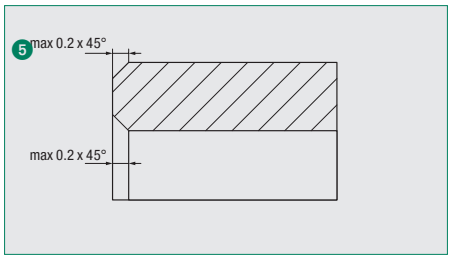
A maximum angular deviation of ±0.5° to the tube axis is permissible.



Do not use tube cutters or grinders.



The length of the straight sections of the tube of tube bends has to be twice the length of the union nut.



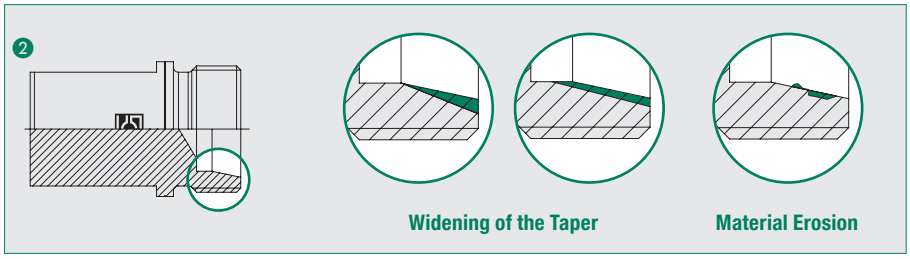
Slightly deburr the inside and outside of the tube end (max 0.2 x 45°). The assembly area of the tube has to be free of dirt, chips and paint.

Please note: Improperly prepared and contaminated tubes will affect the service life of the tube connectors and may result in leakage. Poorly deburred tube ends can result in damage to the internal O-ring!

Please note: Assembly of reinforcing sleeves is essential when using thin-walled tubes.
Refer to page 310.

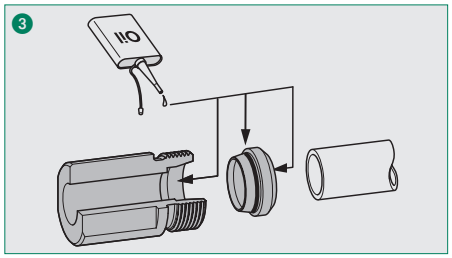
2. Assembly Preparation

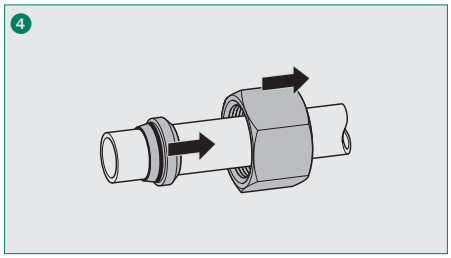
Hardened assembly studs are wear-resistant, thus allowing for consistent assembly results with a maximum degree of accuracy, reliability and process stability.

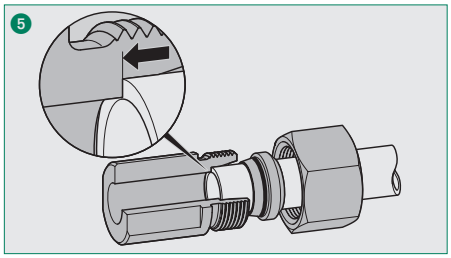


Assembly studs must be checked regularly for damage and dimensional accuracy. Replace assembly studs that are damaged and/or dimensionally inaccurate in all cases.

Typical damage includes the partial or complete widening of the 24° taper, as well as material erosion.







Please note when use FI-WDDS-W5 with Stainless Steel Fitting Body: Thread and 45° cone of the union nut and thread of the fitting body grease with special stainless steel fitting grease or use a silver coated union nut.

Lubricate the 24° taper of the assembly stud as well as the two soft-sealing elements of the cutting ring (e.g. using hydraulic oil HLP32). Do not use lubricating grease!

Immediately proceed with assembly to avoid the adhesion of dirt.

Consecutively push the union nut and then the cutting ring onto the tube end.

Pay attention to the correct alignment of the cutting ring: the cutting edges of the cutting ring have to face the tube end.

Carefully insert the tube end into the 24° taper of the assembly stud until it is flush with the stop.

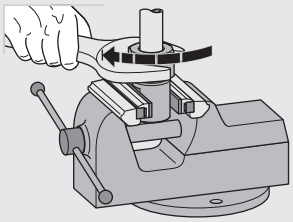
The tube must be held in this position during the entire assembly process.

Assembly Instructions for 24° Tube Connectors with Soft-Sealing Cutting Ring (Type FI-WDDS/FI-WDDS-W5)

Pre-Assembly with the Manual Final Assembly Stud Type FI-FK and Assembly in the Fitting Body

3. Pre-Assembly in the Assembly Stud

❶



Please note when use FI-WDDS-W5 with Stainless Steel Fitting Body: Thread and 45° cone of the union nut and thread of the fitting body grease with special stainless steel fitting grease or use a silver coated union nut.

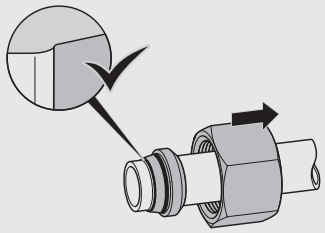
Use a suitable spanner.
Tighten the union nut to the point where there is a first increase in force, the pressure point.
The pressure point defines the point at which the cutting ring starts gripping the tube.

The tube can then no longer be rotated in the fitting. Now tighten the union nut to the end of the assembly. The end of the assembly is situated approx. 1 turn (360°) beyond the pressure point.and is signalled by a significant increase in force.

The cutting ring comes into contact with the face side of the fitting body.

4. Inspection

❶

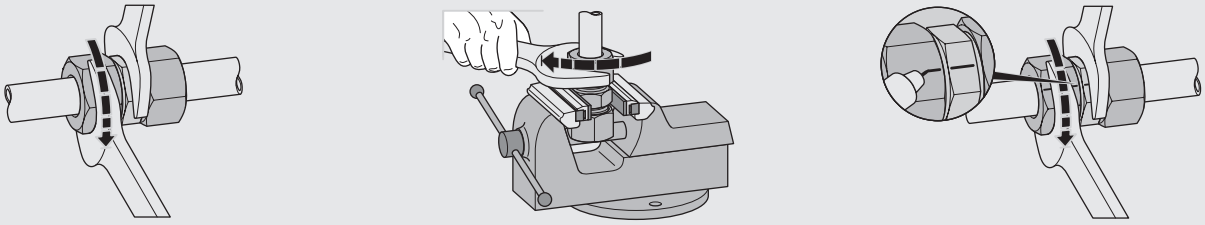


Fully loosen the union nut to visually inspect the assembly. There must be raised material clearly visible in front of the cutting edge and should cover the cutting edge approx. 80%.

Under certain circumstances, it is still possible at this time to turn the cutting ring on the tube (radial direction). It can no longer be moved in the direction of the tube (axial direction).

5. Final-Assembly with the Fitting Body

❶



Please note when use FI-WDDS-W5 with Stainless Steel Fitting Body: Thread and 45° cone of the union nut and thread of the fitting body grease with special stainless steel fitting grease or use a silver coated union nut.

Lightly lubricate the soft-sealing element located on the 24° taper of the cutting ring (e.g. using hydraulic oil HLP32). Do not use lubricating grease!

Immediately proceed with assembly to avoid the adhesion of dirt.

Carefully insert the assembled tube end into the 24° taper of the fitting body.

Tighten the union nut to the point where there is a first increase in force. Then tighten the union nut to the end of the assembly.

The cutting ring comes into contact with the face side of the fitting body after approx. 90°-120°. The end of the assembly is once again indicated by a significant increase in force.

Use a suitable spanner to hold the fitting body within the tube during the entire assembly process. Use a bench vice for assembly in the event of unfavourable assembly conditions or larger tube dimensions.

A marking line on the union nut and the fitting body makes it easier to note and check the correct tightening angle.

6. Repeated Assembly

Check the soft-sealing element located on the 24° taper of the cutting ring for possible damage.

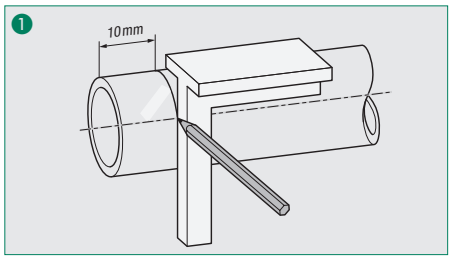
Carefully insert the tube end into the 24° taper of the fitting body.

Then tighten the union nut to the end of the assembly. The cutting ring comes into contact with the face side of the fitting body after approx. 90°-120°. The end of the assembly is once again indicated by a significant increase in force.

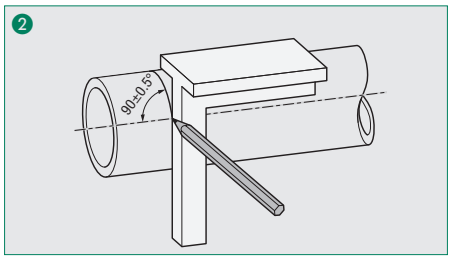
Assembly Instructions for 24° Tube Connectors with Soft-Sealing Cutting Ring (Type FI-WDDS/FI-WDDS-W5)

Direct Assembly in the Fitting Body

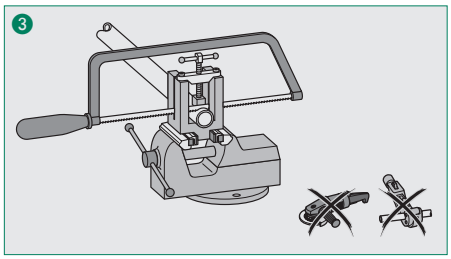
1. Tube Preparation



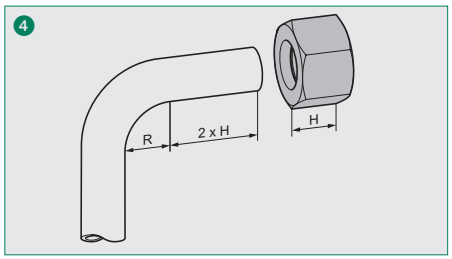
Saw off tube at a right angle (90°) and at least 10 mm from the cut made by the manufacture / supplier.



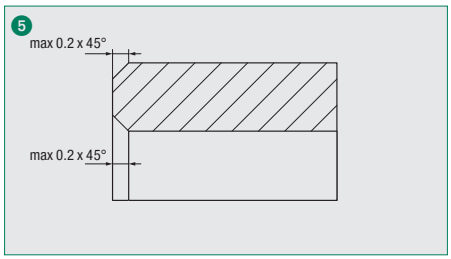
A maximum angular deviation of ±0.5° to the tube axis is permissible.



Do not use tube cutters or grinders.



The length of the straight sections of the tube of tube bends has to be twice the length of the union nut.

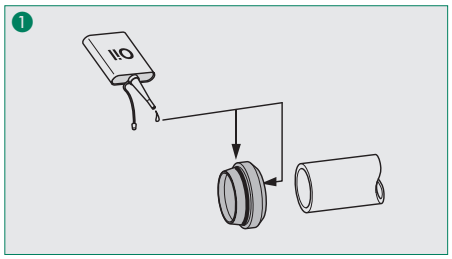


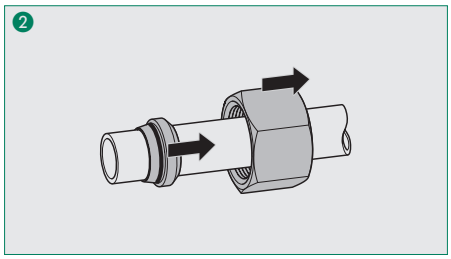
Slightly deburr the inside and outside of the tube end (max 0.2 x 45°). The assembly area of the tube has to be free of dirt, chips and paint.

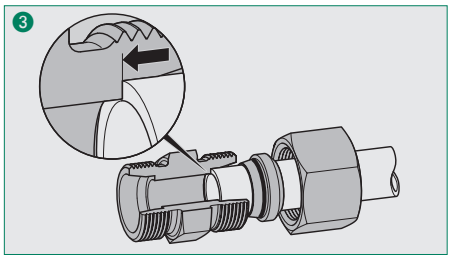
Please note: Improperly prepared and contaminated tubes will affect the service life of the tube connectors and may result in leakage. Poorly deburred tube ends can result in damage to the internal O-ring!

Please note: Assembly of reinforcing sleeves is essential when using thin-walled tubes.
Refer to page 310.

2. Assembly Preparation







Please note when use FI-WDDS-W5 with Stainless Steel Fitting Body: Thread and 45° cone of the union nut and thread of the fitting body grease with special stainless steel fitting grease or use a silver coated union nut.

Lightly lubricate the two soft-sealing elements of the cutting ring (e.g. using hydraulic oil HLP32). Do not use lubricating grease!

Immediately proceed with assembly to avoid the adhesion of dirt.

Consecutively push the union nut and then the cutting ring onto the tube end.

Pay attention to the correct alignment of the cutting ring: the cutting edges of the cutting ring have to face the tube end.

Carefully insert the tube end into the 24° taper of the fitting body until it is flush with the stop.

The tube must be held in this position during the entire assembly process.

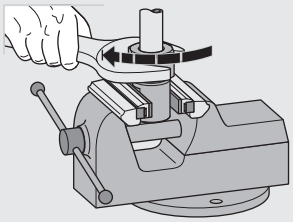
S

Assembly Instructions for 24° Tube Connectors with Soft-Sealing Cutting Ring (Type FI-WDDS/FI-WDDS-W5)

Direct Assembly in the Fitting Body

3. Pre-Assembly in the Fitting Body

1



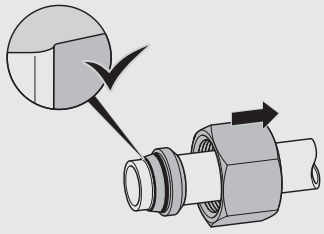
Please note when use FI-WDDS-W5 with Stainless Steel Fitting Body: Thread and 45° cone of the union nut and thread of the fitting body grease with special stainless steel fitting grease or use a silver coated union nut.

Use a suitable spanner. Tighten the union nut to the point where there is a first increase in force, the pressure point. The pressure point defines the point at which the cutting ring starts gripping the tube.

The tube can then no longer be rotated in the fitting. Now tighten the union nut to the end of the assembly. The end of the assembly is situated approx. 1 turn (360°) beyond the pressure point and is signalled by a significant increase in force. The cutting ring comes into contact with the face side of the fitting body.

4. Inspection

1



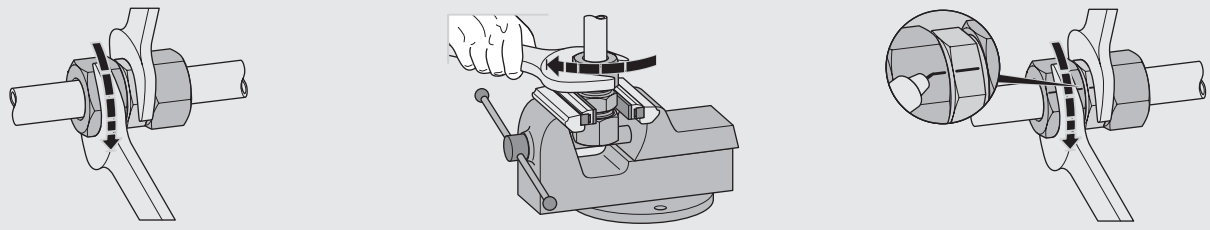
Fully loosen the union nut to visually inspect the assembly. There must be raised material clearly visible in front of the cutting edge and should cover the cutting edge approx. 80%.

.

Under certain circumstances, it is still possible at this time to turn the cutting ring on the tube (radial direction). It can no longer be moved in the direction of the tube (axial direction).

5. Final-Assembly with the Fitting Body

1



Please note when use FI-WDDS-W5 with Stainless Steel Fitting Body: Thread and 45° cone of the union nut and thread of the fitting body grease with special stainless steel fitting grease or use a silver coated union nut.

Lightly lubricate the soft-sealing element located on the 24° taper of the cutting ring (e.g. using hydraulic oil HLP32). Do not use lubricating grease!

Immediately proceed with assembly to avoid the adhesion of dirt.

Carefully insert the assembled tube end into the 24° taper of the fitting body.

Tighten the union nut to the point where there is a first increase in force. Then tighten the union nut to the end of the assembly.

The cutting ring comes into contact with the face side of the fitting body after approx. 90°-120°. The end of the assembly is once again indicated by a significant increase in force.

Use a suitable spanner to hold the fitting body within the tube during the entire assembly process. Use a bench vice for assembly in the event of unfavourable assembly conditions or larger tube dimensions.

A marking line on the union nut and the fitting body makes it easier to note and check the correct tightening angle.

6. Repeated Assembly

Check the soft-sealing element located on the 24° taper of the cutting ring for possible damage.

Carefully insert the tube end into the 24° taper of the fitting body.

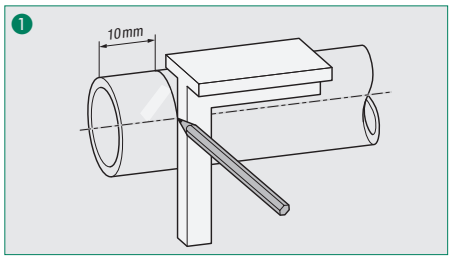
Then tighten the union nut to the end of the assembly. The cutting ring comes into contact with the face side of the fitting body after approx. 90°-120°. The end of the assembly is once again indicated by a significant increase in force.

S

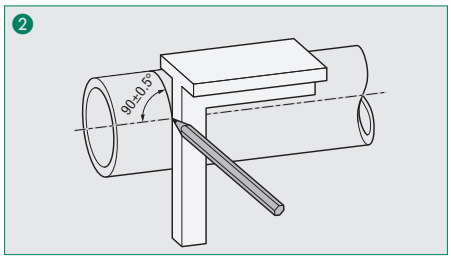
Assembly Instructions for 24° Tube Connectors with Soft-Sealing Cutting Ring (Type FI-WDDS/FI-WDDS-W5)

Machine-Assisted Pre-Assembly with a STAUFF Press Assembly Machine and Assembly with the Fitting Body

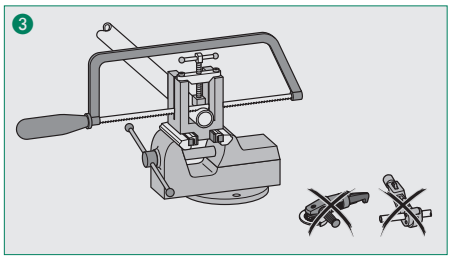
1. Tube Preparation



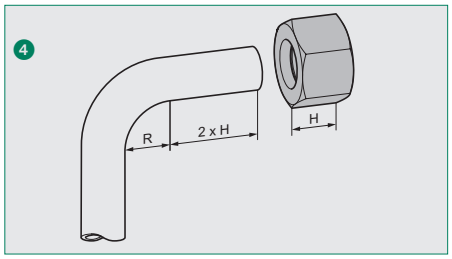
Saw off tube at a right angle (90°) and at least 10 mm from the cut made by the manufacture / supplier.



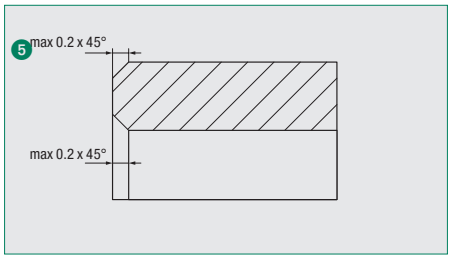
A maximum angular deviation of ±0.5° to the tube axis is permissible.



Do not use tube cutters or grinders.



The length of the straight sections of the tube of tube bends has to be twice the length of the union nut.

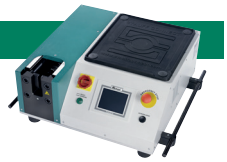


Slightly deburr the inside and outside of the tube end (max 0.2 x 45°). The assembly area of the tube has to be free of dirt, chips and paint.

Please note: Improperly prepared and contaminated tubes will affect the service life of the tube connectors and may result in leakage. Poorly deburred tube ends can result in damage to the internal O-ring!

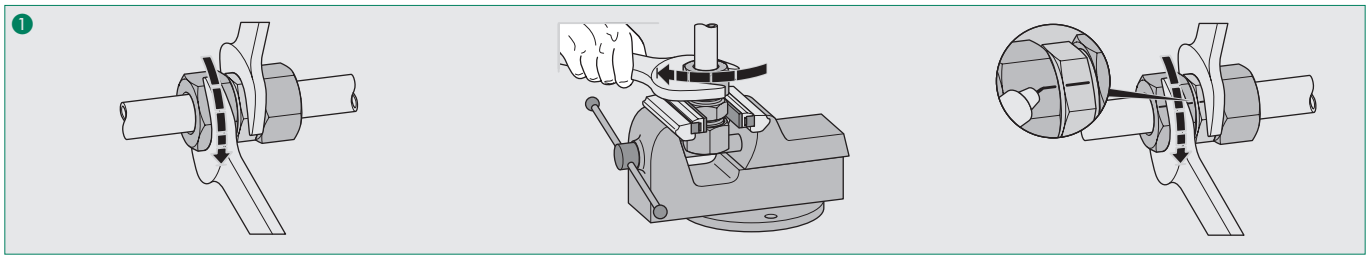
Please note: Assembly of reinforcing sleeves is essential when using thin-walled tubes.
Refer to page 310.

2. Assembly Preparation, Machine-Assisted Assembly and Inspection



Please refer to the detailed instructions in the operating manual for the machine with regard to assembly preparation, actual assembly and inspection of the assembled tube ends.

3. Final-Assembly with the Fitting Body



Please note when use FI-WDDS-W5 with Stainless Steel Fitting Body: Thread and 45° cone of the union nut and thread of the fitting body grease with special stainless steel fitting grease or use a silver coated union nut.

Lightly lubricate the soft-sealing element located on the 24° taper of the cutting ring (e.g. using hydraulic oil HLP32). Do not use lubricating grease!

Immediately proceed with assembly to avoid the adhesion of dirt.

Carefully insert the assembled tube end into the 24° taper of the fitting body.

Tighten the union nut to the point where there is a first increase in force. Then tighten the union nut to the end of the assembly.

The cutting ring comes into contact with the face side of the fitting body after approx. 90°-120°. The end of the assembly is once again indicated by a significant increase in force.

Use a suitable spanner to hold the fitting body within the tube during the entire assembly process. Use a bench vice for assembly in the event of unfavourable assembly conditions or larger tube dimensions.

A marking line on the union nut and the fitting body makes it easier to note and check the correct tightening angle.

6. Repeated Assembly

Check the soft-sealing element located on the 24° taper of the cutting ring for possible damage.

Carefully insert the tube end into the 24° taper of the fitting body.

Then tighten the union nut to the end of the assembly. The cutting ring comes into contact with the face side of the fitting body after approx. 90°-120°. The end of the assembly is once again indicated by a significant increase in force.

Please note when use FI-WDDS-W5 with Stainless Steel Fitting Body: Thread and 45° cone of the union nut and thread of the fitting body grease with special stainless steel fitting grease or use a silver coated union nut.

Assembly Instructions for Support Sleeves (Type FI-VH)

Selection Chart for Tubes made of Steel / Stainless Steel

Series	Tube OD mm	Tube Wall Thickness mm								
		0,5	0,75	1,0	1,5	2,0	2,5	3,0	3,5	4,0
LL	4									
	6	●								
	8	●								
L	6	●	●							
	8	●	●							
	10	●	●							
	12	●	●	○						
	15	●	●	●						
	18	●	●	●	○					
	22	●	●	●	○	○				
	28	●	●	●	○	○				
	35	●	●	●	●	○	○			
	42	●	●	●	●	○	○			
S	6	●	●							
	8	●	●							
	10	●	●							
	12	●	●	○						
	14	●	●	●						
	16	●	●	●	○					
	20	●	●	●	●	○				
	25	●	●	●	●	○				
	30	●	●	●	●	●	○			
	38	●	●	●	●	●	●	○	○	

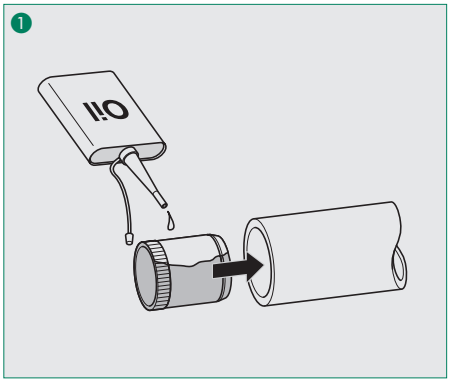
Selection Chart for Tubes made of Non-Ferrous Metals

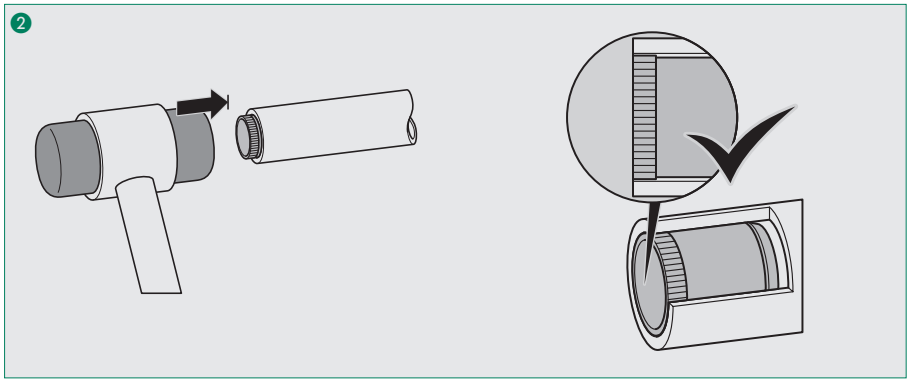
Series	Tube OD mm	Tube Wall Thickness mm								
		0,5	0,75	1,0	1,5	2,0	2,5	3,0	3,5	4,0
LL	4									
	6	●	●							
	8	●	●							
L	6	●	●	●						
	8	●	●	●						
	10	●	●	●	○					
	12	●	●	●	●					
	15	●	●	●	●					
	18	●	●	●	●	●				
	22	●	●	●	●	●	●			
	28	●	●	●	●	●	●			
	35	●	●	●	●	●	●	●		
	42	●	●	●	●	●	●	●		
S	6	●	●	●						
	8	●	●	●						
	10	●	●	●						
	12	●	●	●						
	14	●	●	●	●					
	16	●	●	●	●	●				
	20	●	●	●	●	●	●			
	25	●	●	●	●	●	●			
	30	●	●	●	●	●	●	●		
	38	●	●	●	●	●	●	●	●	

● Generally required ○ Highly recommended, especially for adverse operating conditions (vibrations, risks of self-loosening of fittings etc.)

Support sleeves are generally required for use with tubes made of plastics.

Assembly





Lubricate the outside of the support sleeve (e.g. using mineral-oil based hydraulic fluid HLP32) and insert it into the tube end up to the knurled section.

Use a hammer (plastic or rubber) to fully drive the support sleeve into the tube end, so that the knurled section is pressed against the inner wall of the tube and the sleeve is firmly flush with the tube end.

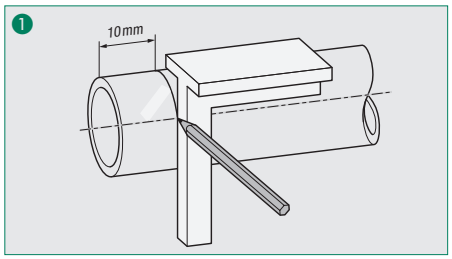
In doing so, the support sleeve is prevented from subsequent turning, sliding and falling out.

S

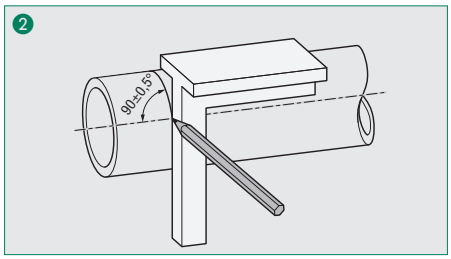
Assembly Instructions for STAUFF Form EVO Tube Fittings

Tube End Forming with a STAUFF Form EVO Machine and Assembly with the Fitting Body

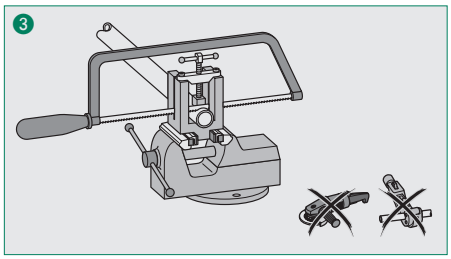
1. Tube Preparation



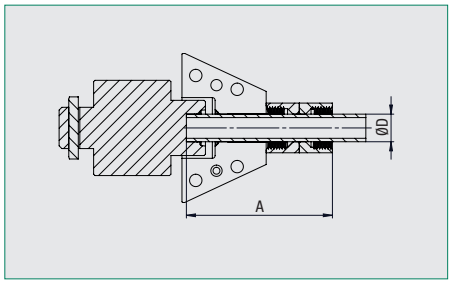
Saw off tube in right angle and at least 10 mm from the cut made by the tube manufacturer / supplier in order to avoid failures caused during shipment.

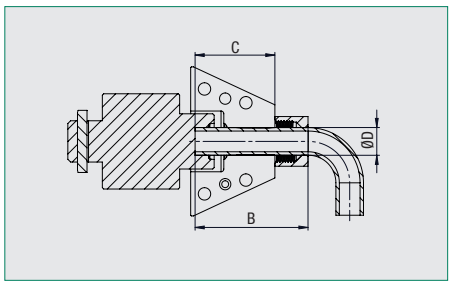


A maximum angular deviation / tolerance of ±0,5° relative to the tube axis is permissible.



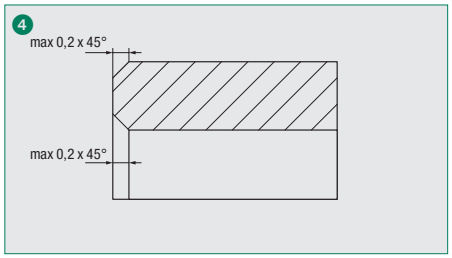
Only use proper tube sawing machinery or equipment. Do not use tube cutters or grinders as this may result in unwanted angled cuts and cause severe burring.





Series	Tube OD	Mimimum Length A Straight Tube Ends	Mimimum Length B Straight Sections next to Tube Bends	Insertion Depth C incl. 10 mm Door thickness
	mm	mm	mm	mm
L	6	75	52	52
	8	75	52	52
	10	74	52	52
	12	75	54	54
	15	89	66	59
	18	99	74	67
	22	106	82	72
	28	112	87	75
	35	138	106	81
	42	139	106	81
S	6	77	54	54
	8	77	54	52
	10	77	54	52
	12	78	56	54
	16	98	72	61
	20	115	84	70
	25	129	96	79
	30	148	111	82
	38	170	126	94

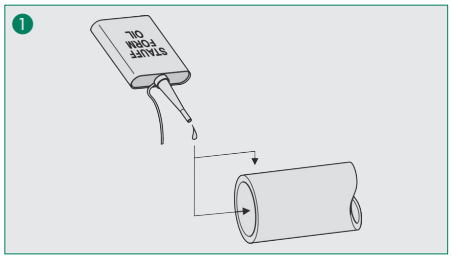
Please note the minimum lengths for straight tube ends (dimension A) as well as for straight tube sections next to tube bends (dimension B) that are listed in the table.



Slightly deburr inside and outside of the tube end (max 0,2 x 45°). The assembly area of the tube has to be free of contamination, chips and paint.

Please note: Improperly prepared and contaminated tubes will affect the service life of the connection and may result in leakage.

2. Preparation and Machine-Assisted Tube Forming



Lightly lubricate the inside and outside of the tube end (e.g. with a thin film of mineral-oil based hydraulic fluid HLP32) before starting the machine-assisted tube forming process. Do not use lubricating grease!

Important: For tube ends made of stainless steel, always and only use original STAUFF Form EVO Oil. The use of any other fluid is not allowed and may result in damage of the assembly tools.

Immediately proceed with the assembly in order to avoid exposure to contamination.

If the lubricant film on the outside of the tube end is too thick, fluid will be trapped between the forming tool and the tube end, thus resulting in inaccurate contours.

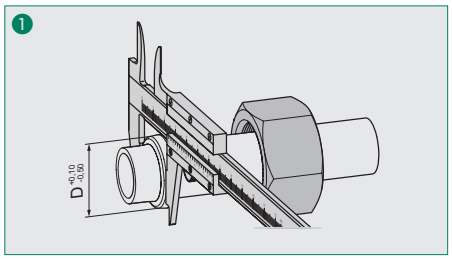
With regards to the actual tube forming process, please follow the detailed instructions in the operating manual of the machine.

S

Assembly Instructions for STAUFF Form EVO Tube Fittings

Tube End Forming with a STAUFF Form EVO Machine and Assembly with the Fitting Body

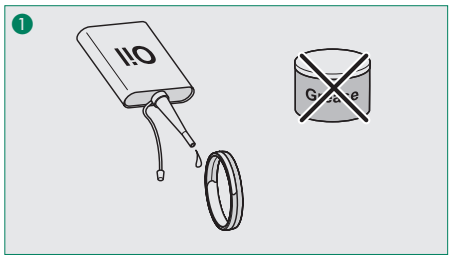
3. Inspection



Use a suitable measuring device (caliper gauge) to check control diameter D of the formed tube end based on the dimension table on the right.

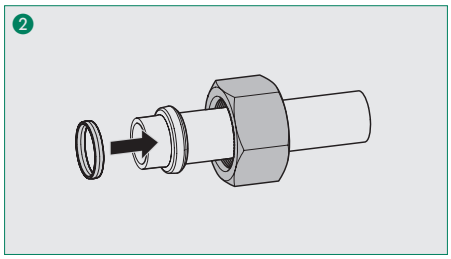
Series	Tube OD mm	Dimensions D mm
L	6	9,5
	8	12,1
	10	14,0
	12	16,1
	15	20,1
	18	23,7
	22	27,1
	28	33,1
	35	42,1
	42	49,4
S	6	9,5
	8	12,1
	10	14,0
	12	16,1
	16	21,7
	20	26,1
	25	31,1
	30	37,1
	38	46,9

4. Assembly with the Fitting Body

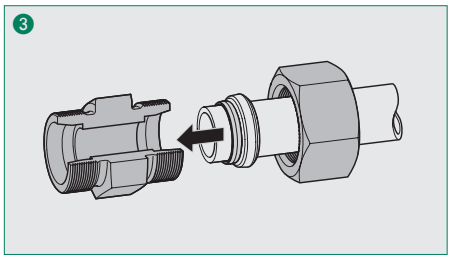


Lightly lubricate the inside and outside of the sealing element of the form ring (e.g. using mineral-oil based hydraulic fluid HLP32). Do not use lubricating grease!

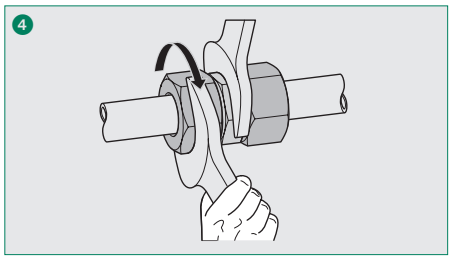
Immediately proceed with the assembly in order to avoid exposure to contamination.



Slide the sealing ring onto the formed tube end (laterally identical profile to avoid assembly errors).

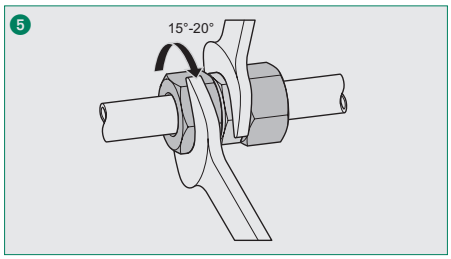


Carefully insert the formed tube end with the assembled sealing into the 24° taper of the fitting body.



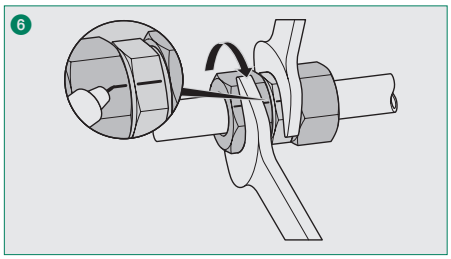
Use a suitable spanner to tighten the nut until there is a noticeable increase in force required (fixed point).

Avoid over-tightening by gripping the spanner close to the union nut.



Finish the assembly by using a suitable spanner to tighten the union nut approx.imately 15-20° beyond the fixed point. Always use a second spanner to hold the fitting body during the entire assembly procedure.

Alternatively, the assembly can be done via a torque.
Table with torques see point 6.



A marking line applied on the union nut and the fitting body makes it easier to indicate the sufficient tightening angle.

Please note when using stainless steel components: Thread and 45° cone of the union nut and thread of the fitting body grease with special stainless steel fitting grease or use a silver coated union nut.

5. Repeated Assembly

For repeated assemblies, please follow the instructions from point 4 on.

S

Assembly Instructions for STAUFF Form EVO Tube Fittings

Tube End Forming with a STAUFF Form Machine and Assembly with the Fitting Body

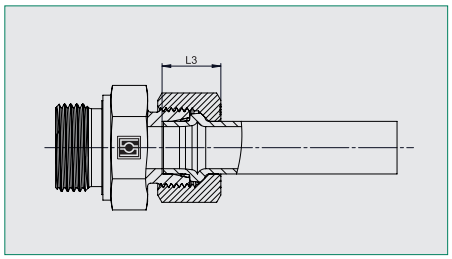
6. Torques for alternative assembly for STAUFF Form EVO Tube Fittings

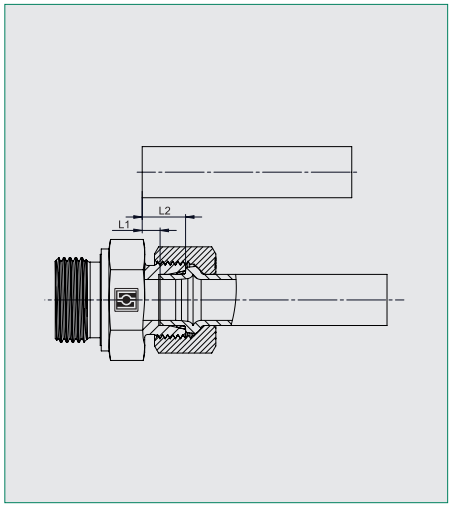
Series	Tube OD mm	Dimensions mm Thread	Turn till increase in force (fix point), than Assembly Angle	Torque N·m
L	6	M 12 x 1,5	15° ... 20°	23
	8	M 14 x 1,5		32
	10	M 16 x 1,5		40
	12	M 18 x 1,5		50
	15	M 22 x 1,5		65
	18	M 26 x 1,5		110
	22	M 30 x 2		120
	28	M 36 x 2		160
	35	M 45 x 2		275
	42	M 52 x 2		410
S	6	M 14 x 1,5		30
	8	M 16 x 1,5		40
	10	M 18 x 1,5		55
	12	M 20 x 1,5		60
	16	M 24 x 1,5		85
	20	M 30 x 2		160
	25	M 36 x 2		200
	30	M 42 x 2		270
	38	M52 x 2		400

Assembly Instructions for STAUFF Form EVO Tube Fittings

Tube End Forming with a STAUFF Form EVO Machine and Assembly with the Fitting Body

Calculation Dimensions





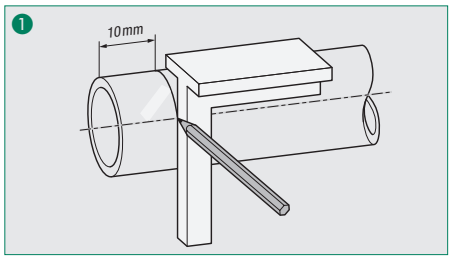
Tube OD mm	Tube Wall Thickness mm	L1 mm	L2 mm	L3 mm
6	1,5	7,3	13,8	14,6 (L+S)
8	1,5	7,5	14,0	14,6 (L+S)
	2,0	7,1	13,6	
	2,5	6,6	13,1	
10	1,5	6,0	12,4	14,5 (L) 15,5 (S)
	2,0	6,3	12,7	
	2,5	6,0	12,4	
	3,0	5,7	12,1	
12	1,5	5,2	11,7	14,6 (L) 15,6 (S)
	2,0	5,4	11,9	
	2,5	5,1	11,6	
	3,0	4,9	11,4	
15	1,5	6	12,5	15,6
	2,0	6,4	12,9	
	2,5	6,4	12,9	
16	2,0	7,4	15,3	18,4
	2,5	7,0	14,9	
	3,0	7,0	14,9	
	4,0	6,2	14,1	
18	1,5	6,2	14,1	16,4
	2,0	6,8	13,7	
	2,5	6,5	13,4	
	3,0	6,8	13,7	
	4,0	6,4	13,3	
20	2,0	7,7	17,7	21,6
	2,5	7,8	17,8	
	3,0	7,7	17,7	
	4,0	7,3	17,3	
22	2,0	5,5	12,5	17,5
	2,5	5,7	12,7	
	3,0	5,8	12,8	
	3,5	5,9	12,9	
25	2,0	7,1	18,6	24,5
	2,5	7,6	19,1	
	3,0	7,7	19,2	
	3,5	7,7	19,2	
	4,0	7,8	19,3	
	5,0	7,8	19,3	
28	2,0	5,4	12,4	18
	2,5	5,8	12,8	
	3,0	5,7	12,7	
	3,5	5,3	12,3	
	4,0	6,2	13,2	
30	2,5	7,9	20,8	27,2
	3,0	8,0	20,9	
	4,0	8,2	21,1	
	5,0	8,5	21,4	
	6,0	8,2	21,1	
35	2,5	7,7	17,6	22
	3,0	7,8	17,7	
	4,0	8,6	18,5	
	5,0	8,7	18,6	
38	3,0	9,8	25,2	31
	4,0	11,0	26,4	
	5,0	11,3	26,7	
	6,0	11,4	26,8	
42	3,0	8,1	18,5	22,7
	3,5	7,9	18,3	
	4,0	8,6	19,0	

S

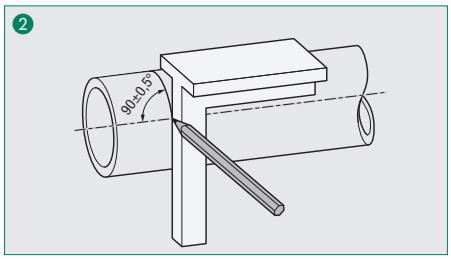
Assembly Instructions for STAUFF Connect 37° Flared Tube Fittings

Tube Flaring with a STAUFF Press Machine and Assembly with the Fitting Body

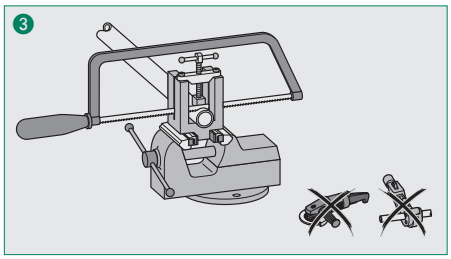
1. Tube Preparation



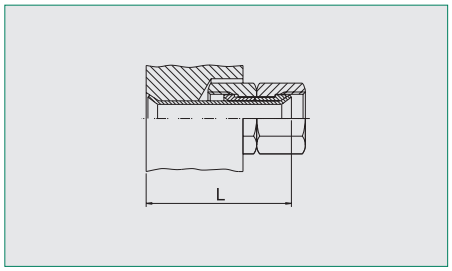
Saw off tube in right angle and at least 10 mm from the cut made by the tube manufacturer / supplier in order to avoid failures caused during shipment.

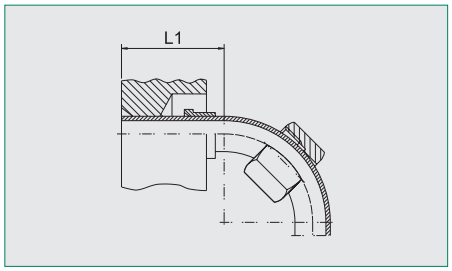


A maximum angular deviation / tolerance of ±0,5° relative to the tube axis is permissible.



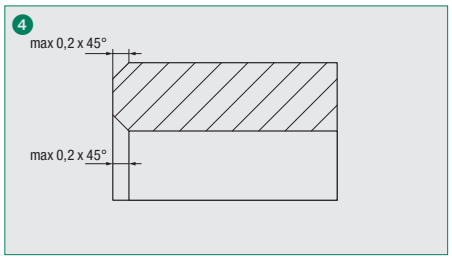
Only use proper tube sawing machinery or equipment. Do not use tube cutters or grinders as this may result in unwanted angled cuts and cause severe burring.





Series	Tube OD mm	Mimimum Length L Straight Tube Sections mm	Mimimum Length L1 Straight Tube Sections next to Tube Bends mm
L	6	59	43
	8	62	44
	10	64	46
	12	67	47
	15	75	50
	18	76	58
	22	81	60
	28	88	60
	35	92	62
	42	130	70
S	6	61	43
	8	64	44
	10	66	46
	12	68	47
	16	79	52
	20	82	58
	25	94	60
	30	96	62
	38	136	70

Please note the minimum lengths for straight tube ends (dimension L) as well as for straight tube sections next to tube bends (dimension L1) that are listed in the table. If installation situations demand that the length of straight tube sections next to tube bends (dimension L1) has to be shorter than indicated in the table, tube bending has to be be carried out after flaring.



Slightly deburr inside and outside of the tube end (max 0,2 x 45°). The assembly area of the tube has to be free of contamination, chips and paint.

Please note: Improperly prepared and contaminated tubes will affect the service life of the connection and may result in leakage.

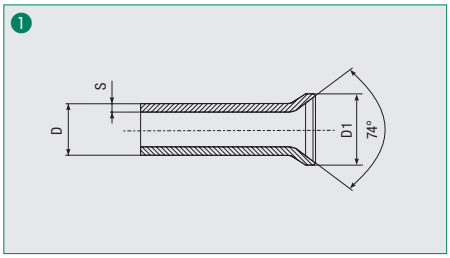
2. Preparation and Machine-Assisted Tube Flaring

With regards to assembly preparation as well as the actual tube flaring process, please follow the detailed instructions in the operating manual of the machine.

Assembly Instructions for STAUFF Connect 37° Flared Tube Fittings

Tube Flaring with a STAUFF Press Machine and Assembly with the Fitting Body

3. Inspection



Check the flared tube end for cracking and impurities after flaring.

Always verify the dimensional accuracy of the flare.

The checking diameter corresponds to the outside diameter D1 of the flared tube end (according to dimension table on the right). The flare must be at right angle to the tube axis and concentric with the tube.

Please note: If the flare is eccentric, too short or not wide enough, perfect function of the tube fitting cannot be guaranteed!

4. Assembly with the Fitting Body

Lubricate the o-rings of the 24°/37° flared tube adaptor (e.g. using mineral-oil based hydraulic fluid HLP32) and carefully insert it into the 24° taper of the fitting body.

It is recommended to use a bench vice to press and permanently capture the 24°/37° flared tube adaptor into the 24° taper of the tube fitting – a great help to the tube fitter during re-assembly. In this case, please make sure that all components are suitably protected against damage.

Apply the flared tube end to the 24°/37° flared tube adaptor, which is attached to the fitting body, tighten the union nut until the noticeable increase in force, and then finish the assembly with another approx.imately 1/2 a turn (180°) beyond this point.

Important: Always use a spanner to hold the fitting body during the assembly procedure.

Tube OD D mm	Dimensions S mm	$D1_{min}$ mm	$D1_{max}$ mm
6	1	9,1	10
	1,5		
8	1	11,3	12
	1,5		
	2		
10	1	13,1	14
	1,5		
	2		
12	1	15,3	16
	1,5		
	2		
14	1,5	18,6	19,6
	2		
	2,5		
	3		
15	1,5	19,1	20
	2		
	2,5		
16	1,5	20,6	22
	2		
	2,5		
	3		
18	1,5	23,2	24
	2		
	2,5		
20	2	25,6	26,8
	2,5		
	3		
	3,5		
22	1,5	26,5	27,5
	2		
	2,5		
	3		
25	2	31,1	33
	2,5		
	3		
	4		
28	2	32,7	33,3
	2,5		
	3		
30	2	37	38,7
	2,5		
	3		
	4		
	5		
35	2	41,8	42,7
	2,5		
	3		
	4		
38	2,5	46	47,2
	3		
	4		
	5		
42	2	48,8	49,8
	3		
	4		

5. Repeated Assembly

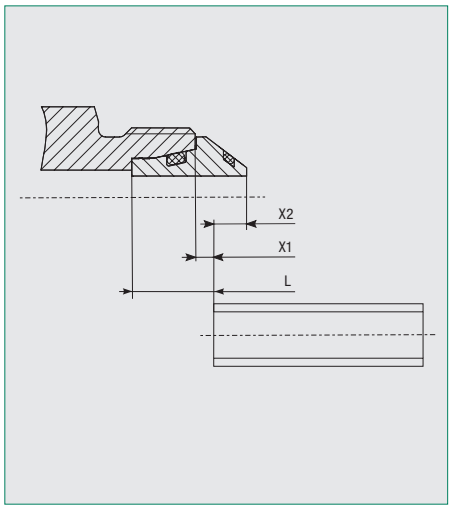
For repeated assembly, the union nut has to be tightened using exactly the same force as for the original assembly.

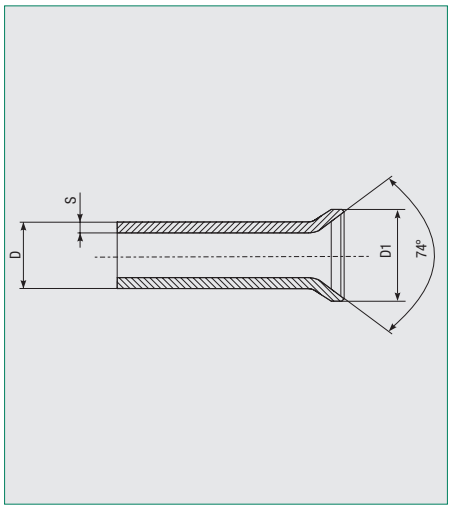
S

Assembly Instructions for STAUFF Connect 37° Flared Tube Fittings

Tube Flaring with a STAUFF Press Machine and Assembly with the Fitting Body

Calculation Dimensions





The correct tube length can be determined by measuring the distance between the 24°/37° flared tube adaptors pressed into the fitting bodies. Dimension X2 has then to be added for each of the connections.

The correct tube length can also be determined by measuring the distance between the fitting bodies. Dimension X1 has then to be subtracted for each of the connections.

Dimension L corresponds to the difference in tube length compared to cutting ring fittings. When changing over from cutting ring fittings to flared tube fittings, the tube has to be shortened by dimension L.

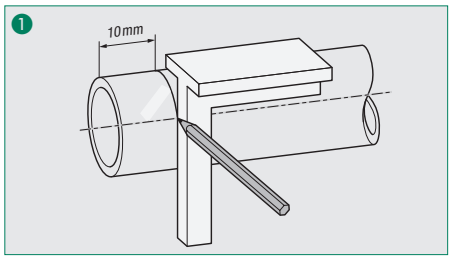
Always verify the dimensional accuracy of the flare. The checking diameter corresponds to the outside diameter D1 of the flared tube end (according to dimension table on the right). The flare must be at right angle to the tube axis and concentric with the tube. Please note: If the flare is eccentric, too short or not wide enough, perfect function of the tube fitting cannot be guaranteed!

Tube OD	Dimensions					
mm	mm					
D	S	X1	X2	L	D1 min	D1 max
6	1	1	3,5	8	9,1	10
	1,5	2	2,5	9		
8	1	1	4	8	11,3	12
	1,5	2	3	9		
	2	2,5	2,5	9,5		
10	1	1	4,5	8	13,1	14
	1,5	2	3,5	9		
	2	3	2,5	10		
12	1	1	4,5	8	15,3	16
	1,5	2	3,5	9		
	2	3	2,5	10		
14	1,5	0,5	5,5	8,5	18,6	19,6
	2	1	5	9		
	2,5	2	4	10		
	3	3	3	11		
15	1,5	1	4,5	8	19,1	20
	2	2	3,5	9		
	2,5	3	2,5	10		
16	1,5	0	6,5	8,5	20,6	22
	2	1	5,5	9,5		
	2,5	1,5	5	10		
	3	2,5	4	11		
18	1,5	0	5,5	7,5	23,2	24
	2	1	4,5	8,5		
	2,5	1,5	4	9		
20	2	1	7	11,5	25,6	26,8
	2,5	2	6	12,5		
	3	3	5	13,5		
	3,5	4	4	14,5		
22	1,5	1	5,7	8,5	26,5	27,5
	2	2	4,7	9,5		
	2,5	3	3,7	10,5		
	3	3,5	3,2	11		
25	2	1	7	13	31,1	33
	2,5	1,5	6,5	13,5		
	3	2,5	5,5	14,5		
	4	4	4	16		
28	2	1,5	5,7	9	32,7	33,3
	2,5	2,5	4,7	10		
	3	3	4,2	10,5		
30	2	-0,5	9	13	37	38,7
	2,5	0,5	8	14		
	3	1	7,5	14,5		
	4	3	5,5	16,5		
	5	4,5	4	18		
35	2	1,5	6,5	12	41,8	42,7
	2,5	2	6	12,5		
	3	3	5	13,5		
	4	4,5	3,5	15		
38	2,5	0	10	16	46	47,2
	3	0,5	9,5	16,5		
	4	2	8	18		
	5	4	6	20		
42	2	1,5	7	12,5	48,8	49,8
	3	3	6,5	14		
	4	4,5	5	15,5		

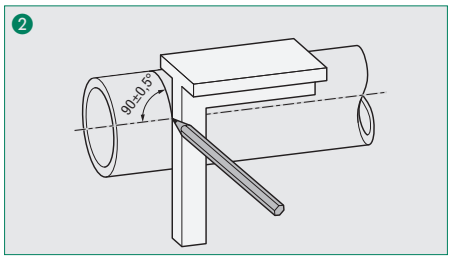
S

Assembly Instructions for 24° Weld Cones with O-Ring

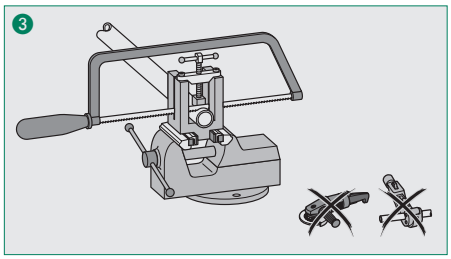
1. Tube Preparation



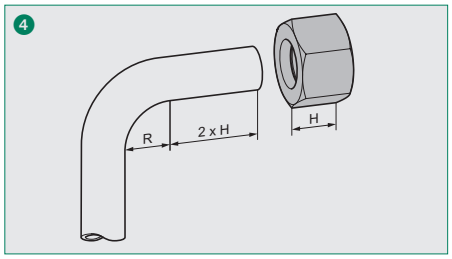
Saw off tube in right angle and at least 10 mm from the cut made by the tube manufacturer / supplier in order to avoid failures caused during shipment.



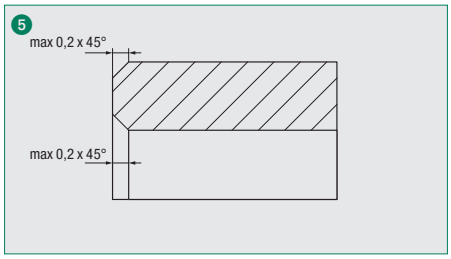
A maximum angular deviation / tolerance of ±0,5° relative to the tube axis is permissible.



Only use proper tube sawing machinery or equipment. Do not use tube cutters or grinders as this may result in unwanted angled cuts and cause severe burring.



For tube bends, the length of the straight section of the tube end to the start of the bending radius has to be twice the height of the union nut.



Slightly deburr inside and outside of the tube end (max 0,2 x 45°). The assembly area of the tube has to be free of contamination, chips and paint.

Please note: Improperly prepared and contaminated tubes will affect the service life of the connection and may result in leakage.

2. Assembly Preparation and Welding

Place the union nut on the weld cone.

Remove the o-ring from the front end of the weld cone before welding (usually supplied separately).

Weld the weld cone and the tube end according to any applicable guidelines for welding.

The user is fully responsible for the quality of the welding work.

Descale the welded area and clean the o-ring groove.

Assemble the o-ring and make sure that it is located in the groove of the weld cone without being twisted.

Lubricate the o-ring of the weld cone (e.g. using mineral-oil based hydraulic fluid HLP32). Do not use lubricating grease!

Immediately proceed with the assembly in order to avoid exposure to contamination.

3. Assembly with the Fitting Body

Carefully insert the weld cone into the 24° taper of the fitting body.

Tighten the union nut until the noticeable increase in force.

Then finish the assembly with another approx.imately 1/3 a turn (120°) beyond this point.

A marking line applied on the union nut and the fitting body makes it easier to indicate the sufficient tightening turns.

S

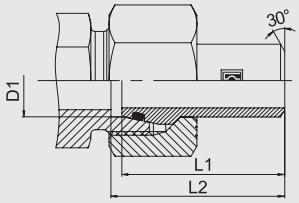
4. Repeated Assembly

For repeated assembly, the union nut has to be tightened using exactly the same force as for the original assembly.

The o-ring has to be checked for possible damages and, if necessary, replaced prior to the re-assembly.

Assembly Instructions for 24° Weld Cones with O-Ring

Calculation Dimensions



Series	Tube OD D1 mm	Dimensions L1 mm	L2 mm
L	6	31	32
	8	31	32
	10	32,5	33,5
	12	32,5	33,5
	15	35	36
	18	36	37
	22	38,5	39,5
	28	41,5	42,5
	35	47	49,5
	42	47	50
S	6	31	32
	8	31	32
	10	32,5	33,5
	12	32,5	33,5
	14	38,5	39,5
	16	39	41
	20	44,5	47
	25	49,5	53,5
	30	52,5	57,5
	38	56,5	64,5

Assembly Instructions for Tube Fittings with 24° Taper and O-Ring

1. Assembly Preparation

Make sure that the o-ring is located in the groove of the taper without being twisted.

Lubricate the o-ring of the taper fitting (e.g. using mineral-oil based hydraulic fluid HLP32). Do not use lubricating grease!

Immediately proceed with the assembly in order to avoid exposure to contamination.

2. Assembly with the Fitting Body

Keep the taper fitting aligned and carefully insert it into the 24° taper of the fitting body.

Tighten the wire-pin nut until the noticeable increase in force, and then finish the assembly with another approx.imately 1/3 a turn (120°) beyond this point.

A marking line applied on the nut and the fitting body makes it easier to indicate the sufficient tightening turns.

Important: Always use a spanner to hold the fitting body during the assembly procedure.

Series	Tube OD (mm)	Dimensions (mm) Thread	Turn till increase in force, then Assembly Angle	Torque (N·m)
L	6	M 12 x 1,5	120° (1/3 turns)	20
	8	M 14 x 1,5		30
	10	M 16 x 1,5		40
	12	M 18 x 1,5		50
	15	M 22 x 1,5		65
	18	M 26 x 1,5		110
	22	M 30 x 2		120
	28	M 36 x 2		160
	35	M 45 x 2		275
	42	M 52 x 2		410
S	6	M 14 x 1,5		30
	8	M 16 x 1,5		40
	10	M 18 x 1,5		50
	12	M 20 x 1,5		70
	14	M 22 x 1,5		78
	16	M 24 x 1,5		85
	20	M 30 x 2		160
	25	M 36 x 2		200
	30	M 42 x 2		270
	38	M 52 x 2		400

Assembly Instructions for Tube Fittings with Standpipe

1. Assembly Preparation

Standpipe fittings are always supplied with factory-assembled cutting rings and union nuts.

2. Assembly with the Fitting Body

Keep the fitting with standpipe aligned and carefully insert it into the 24° taper of the fitting body.

Tighten the union nut until the noticeable increase in force, and then finish the assembly with another approx.imately 1/12 a turn (30°) beyond this point.

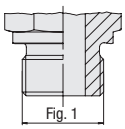
A marking line applied on the nut and the fitting body makes it easier to indicate the sufficient tightening turns.

Important: Always use a spanner to hold the fitting body during the assembly procedure.

S

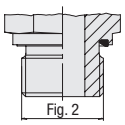
Assembly Instructions for Tube Fittings with Male Threaded Stud
Whitworth Parallel Pipe Thread

Tightening Torques



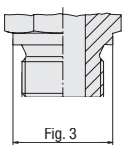
Metallic Sealing Edge

Whitworth Parallel Pipe Thread
DIN 3852-2 (Form B) / ISO 1179-4 (Type B)



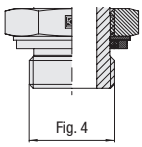
Profile Sealing Ring

Whitworth Parallel Pipe Thread
ISO 1179-2 (Type E)



Sealing Surface for Gaskets

Whitworth Parallel Pipe Thread



O-Ring with Retaining Ring (Adjustable)

Whitworth Parallel Pipe Thread

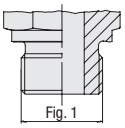
Series	Thread	Male Threaded Studs			Check Valves	Adjustable Male Threaded Stuts	Blanking Screws		
							FI-VSV	FI-VS	
		fig. 1 Metallic Sealing Edge Torque (N·m) ca.	**fig. 2** Profile Sealing Ring Torque (N·m) ca.	**fig. 3** Sealing Surface for Gaskets Torque (N·m) ca.	**fig. 2** Profile Sealing Ring Torque (N·m) ca.	**fig. 4** O-Ring with Retaining Ring Torque (N·m) ca.	**fig. 2** Profile Sealing Ring Torque (N·m) ca.	**fig. 1** Metallic Sealing Edge Torque (N·m) ca.	**fig. 2** Profile Sealing Ring Torque (N·m) ca.
L	G 1/8	25	18	20	18	25	18	25	15
	G 1/4	55	35	50	35	50	33	40	25
	G 3/8	95	70	80	70	80	70	95	50
	G 1/2	185	90	140	90	105	90	130	70
	G 3/4	250	180	190	180	220	180	250	120
	G 1	400	310	330	310	370	250	400	200
	G 1 1/4	670	450	540	450	500	400	600	320
	G 1 1/2	800	540	630	540	600	500	800	400
S	G 1/8	30	25				18	25	15
	G 1/4	80	55	60	55	50	33	40	25
	G 3/8	130	80	100	80	80	70	95	50
	G 1/2	220	115	160	115	105	90	130	70
	G 3/4	350	180	280	180	220	181	250	120
	G 1	700	310	440	310	370	250	400	200
	G 1 1/4	850	450	580	450	500	400	600	320
	G 1 1/2	1000	540	700	540	600	500	800	400
	G 2	1200							

Please note: The tightening torques for male threaded studs listed in this catalogue are approx.imate values with a tolerance of +10% and always refer to original components of the STAUFF Connect range made of steel with the default Zinc/Nickel coating and a steel mating material.

Please contact STAUFF prior to the assembly for recommended tightening torques for use with any mating materials other than Steel!

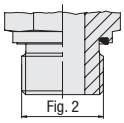
Assembly Instructions for Tube Fittings with Male Threaded Stud Metric Parallel Thread

Tightening Torques



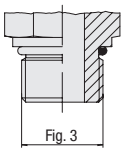
Metallic Sealing Edge

Metric Parallel Thread
DIN 3852-1 (Form B) /
ISO 9974-3 (Type B)



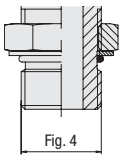
Profile Sealing Ring

Metric Parallel Thread
ISO 9974-2 (Type E)



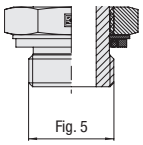
O-Ring

Metric Parallel Thread
ISO 6149-2 /-3



O-Ring without Retaining Ring (Adjustable)

Metric Parallel Thread
ISO 6149-2 /-3



O-Ring with Retaining Ring (Adjustable)

Metric Parallel Thread

		Male Threaded Studs			Check Valves	Adjustable Male Threaded Stuts		Blanking Screws		
								FI-VSV	FI-VS	
Series	**Thread**	**fig. 1** Metallic Sealing Edge Torque (N·m) ca.	**fig. 2** Profile Sealing Ring Torque (N·m) ca.	**fig. 3** O-Ring Torque (N·m) ca.	**fig. 2** Profile Sealing Ring Torque (N·m) ca.	**fig. 5** O-Ring with Retaining Ring Torque (N·m) ca.	**fig. 4** O-Ring Torque (N·m) ca.	**fig. 2** Profile Sealing Ring Torque (N·m) ca.	**fig. 2** Profile Sealing Ring Torque (N·m) ca.	**fig. 3** O-Ring Torque (N·m) ca.
L	M 8 x 1	14							10	
	M 10 x 1	25	18	15	18	18	15	12	12	15
	M 12 x 1,5	45	25	25	25	35	25	25	23	22
	M 14 x 1,5	70	45	35	45	55	35	45	30	45
	M 16 x 1,5	90	55	40	55	80	40	55	50	55
	M 18 x 1,5	120	70	45	70	105	45	70	65	70
	M 22 x 1,5	170	125	60	125	125	60	125	90	100
	M 26 x 1,5 [2]	230	180		180			180	100	170
	M 27 x 2		180	100		200	100	180	130	180
	M 33 x 2	400	310	160	310	370	160	250	250	215
	M 42 x 2	700	450	210	450	500	210	400	310	330
	M 48 x 2	900	540	260	540	600	260	500	380	420
S	M 12 x 1,5	60	35	35	35	35	35	25	23	22
	M 14 x 1,5	80	55	40	55	55	45	45	30	45
	M 16 x 1,5	130	70	55	70	80	55	55	50	55
	M 18 x 1,5	190	90	70	90	105	70	70	65	70
	M 20 x 1,5	220	125		125			80	80	
	M 22 x 1,5	300	135	100	135	125	100	125	90	100
	M 26 x 1,5		180					180	100	170
	M 27 x 2	420	180	170	180	220	170	180	130	180
	M 33 x 2	600	310	310	310	370	310	250	250	215
	M 42 x 2	700	450	330	450	500	330	400	310	330
	M 48 x 2	950	540	420	540	600	420	500	380	420

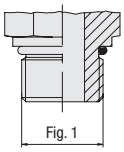
[2] M 27 x 2 according to ISO 6149.

Please note: The tightening torques for male threaded studs listed in this catalogue are approx.imate values with a tolerance of +10% and always refer to original components of the STAUFF Connect range made of steel with the default Zinc/Nickel coating and a steel mating material.

Please contact STAUFF prior to the assembly for recommended tightening torques for use with any mating materials other than Steel!

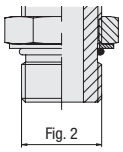
Assembly Instructions for Tube Fittings with Male Threaded Stud UN/UNF-Thread

Tightening Torques



O-Ring without Retaining Ring (Non-Adjustable)

UN/UNF-Thread



O-Ring without Retaining Ring (Adjustable)

UN/UNF-Thread
ISO 11926-2/-3

Series	Thread	Male Threaded Studs **fig. 1** O-Ring Torque N·m ca.	Adjustable Male Threaded Stuts **fig. 2** O-Ring Torque N·m ca.
L	7/16-20 UNF	18	18
	1/2-20 UNF	28	
	9/16-18 UNF	30	34
	3/4-16 UNF	50	55
	7/8-14 UNF	60	80
	1 1/16-12 UN	95	100
	1 5/16-12 UN	150	150
	1 5/8-12 UN	200	290
	1 7/8-12 UN	325	325
S	7/16-20 UNF	20	20
	9/16-18 UNF	35	46
	3/4-16 UNF	70	80
	7/8-14 UNF	100	80
	1 1/16-12 UN	170	185
	1 5/16-12 UN	270	
	1 5/8-12 UN	285	340
	1 7/8-12 UN	415	415

Please note: The tightening torques for male threaded studs listed in this catalogue are approx.imate values with a tolerance of +10% and always refer to original components of the STAUFF Connect range made of steel with the default Zinc/Nickel coating and a steel mating material.

Please contact STAUFF prior to the assembly for recommended tightening torques for use with any mating materials other than Steel!

Assembly Instructions for Banjo Fittings

1. Assembly Preparation

Lubricate the o-ring of the banjo bolt (e.g. using mineral-oil based hydraulic fluid HLP32).
Do not use lubricating grease!

Immediately proceed with the assembly in order to avoid exposure to contamination.

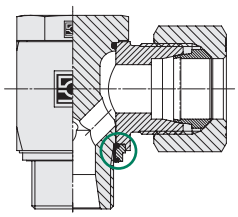
2. Assembly with the Fitting Body

Place the external metallic sealing ring or the retaining ring with captive seal on the opposite side of the banjo fitting into the larger bore and center it through the thread for the banjo bolt. Retaining rings with captive seal are additionally centered through the bore in the fitting body – any clearance between the ring and the fitting body is not allowed.

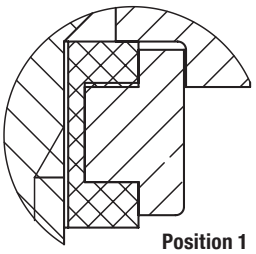
Align the body of the banjo fitting and tighten the banjo bolt with a spanner until the noticeable increase in force (pressure point).

Use a suitable spanner to finish the assembly with either another approx.imately 1/6 a turn (60°, applicable for retaining rings with captive seal) or 1/4 a turn (90°, applicable for external metallic sealing rings) beyond this point while holding the body of the banjo fitting in position using a second spanner.

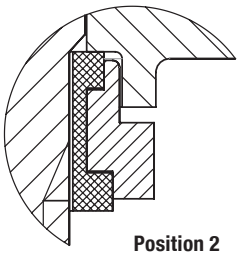
Positioning and Orientation of Retaining Rings with Captive Seal



Applicable for RSWND / RSW / RST



Position 1



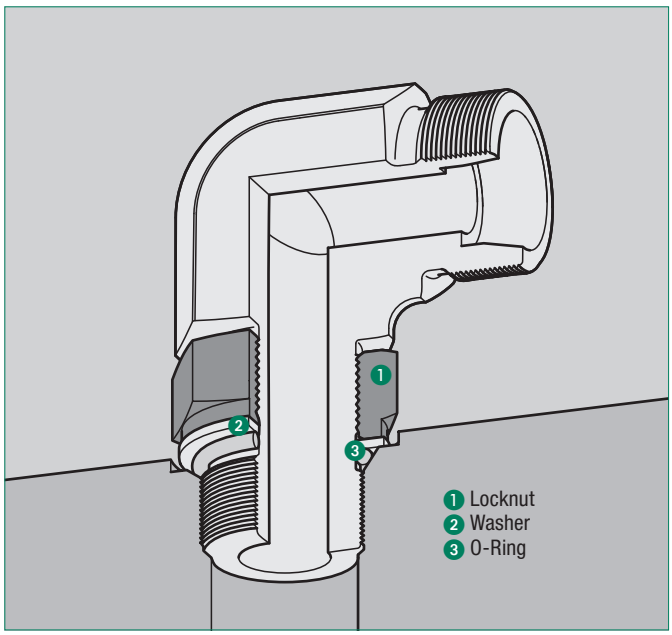
Position 2

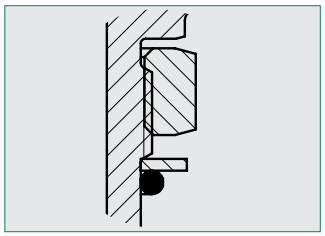
Series	Tube OD mm	Thread	Position
L	6	G 1/8	2
	8	G 1/4	2
	10	G 1/4	2
	12	G 3/8	1
	15	G 1/2	1
	18	G 1/2	1
	22	G 3/4	1
	28	G 1	1
	35	G 1 1/4	1
	42	G 1 1/2	1
S	6	G 1/4	2
	8	G 1/4	2
	10	G 3/8	1
	12	G 3/8	1
	14	G 1/2	1
	16	G 1/2	1
	20	G 3/4	1
	25	G 1	1
	30	G 1 1/4	1
	38	G 1 1/2	1

Series	Tube OD mm	Thread	Position
L	6	M10x1	2
	8	M12x1,5	1
	10	M14x1,5	2
	12	M16x1,5	1
	15	M18x1,5	1
	18	M22x1,5	1
	22	M26x1,5	1
	28	M33x2	1
	35	M42x2	1
	42	M48x2	1
S	6	M12x1,5	1
	8	M14x1,5	2
	10	M16x1,5	1
	12	M18x1,5	1
	14	M20x1,5	1
	16	M22x1,5	1
	20	M27x2	1
	25	M33x2	1
	30	M42x2	1
	38	M48x2	1

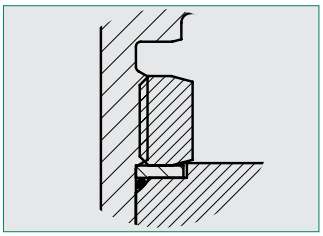
Assembly Instructions for Adjustable Fitting with Locknut (WEE, VEE, TEE, LEE)

For use in Ports to ISO 6149 and SAE UNO



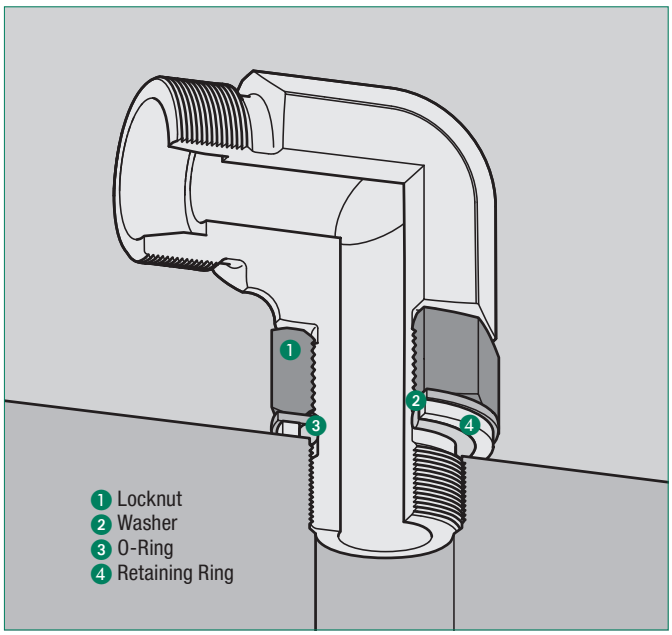


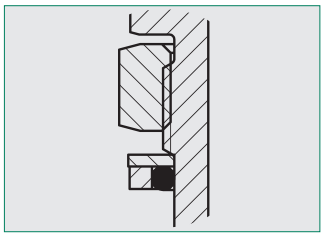
Pre-assembly



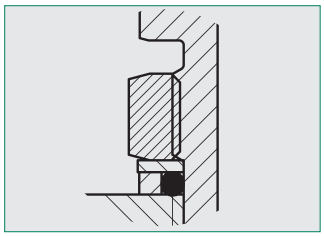
Post-assembly

For use in Ports Form X acc. to DIN 3852-2, ISO 1179-1



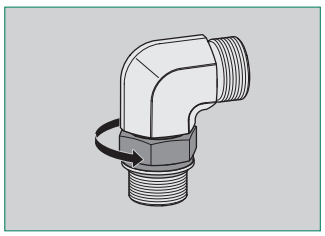


Pre-assembly



Post-assembly

1. Assembly Preparation



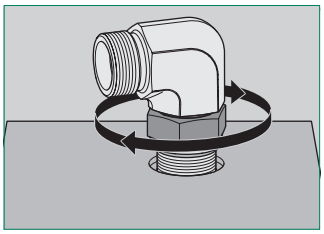
Lubricate the o-ring (e.g. using mineral-oil based hydraulic fluid HLP32).
Do not use lubricating grease!

Immediately proceed with the assembly in order to avoid exposure to contamination.

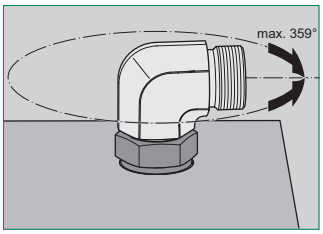
Ensure that the Locknut, O-Ring and Washer are fully raised.

Please Note:
For use in Ports Form X, ensure that the Retaining Ring is placed.

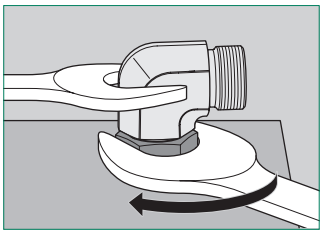
2. Assembly



Fully screw in the fitting body.



Adjust the direction.
Caution: Turn back by no more than one rotation against the direction in which the fitting body was installed!



Tighten the locknut with the defined torque (see p. 171-179) while using a spanner to counter the fitting body in the direction of adjustment.

S