



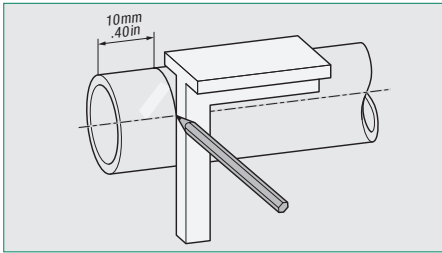
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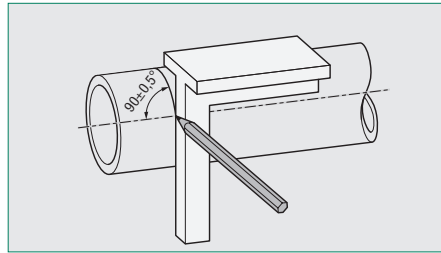
Assembly Instructions for STAUFF Connect 24° Tube Fittings with Double Edge Cutting Ring (Type FI-DS)

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

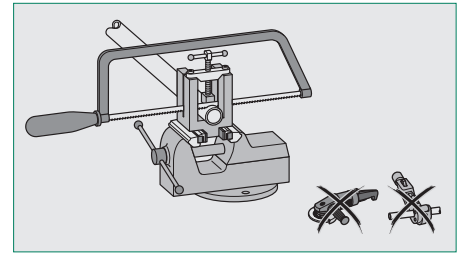
1. Tube Preparation



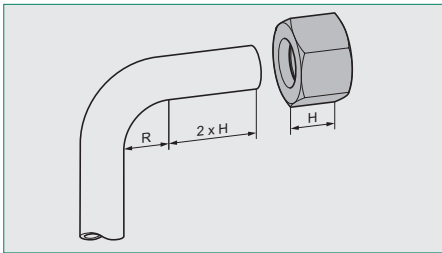
Saw off tube in right angle and at least 10 mm / .40 in from the cut made by the tube manufacturer / supplier in order to avoid failures caused during shipment.



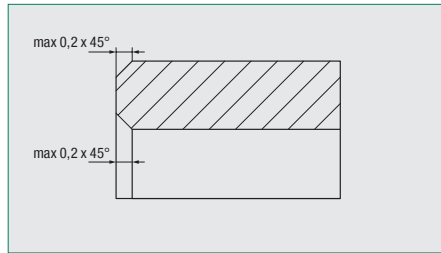
A maximum angular deviation / tolerance of $\pm 0,5^\circ$ relative to the tube axis is permissible.



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.

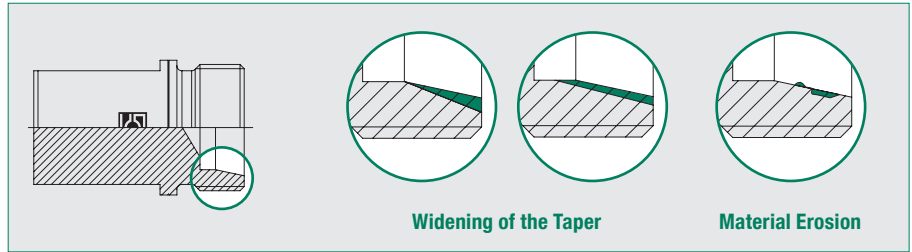


Please note: Improperly prepared and contaminated tubes will affect the service life of the connection and may result in leakage.

2. Assembly Preparation

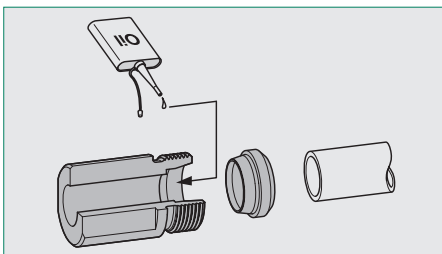


Please note: Hardened final assembly studs are wear-resistant, thus allowing for consistent assembly results with a maximum degree of accuracy, reliability and process stability.



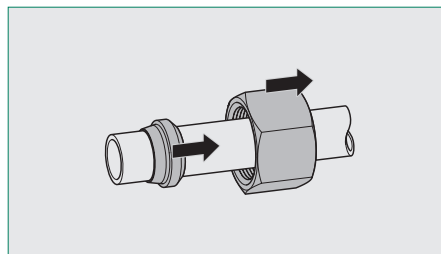
However, they have to be checked for dimensional accuracy regularly. Assembly studs that are damaged and/or dimensionally not accurate must be replaced under any circumstances!

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



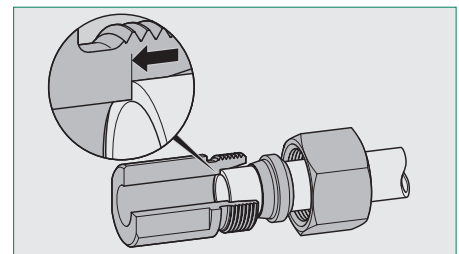
Lightly lubricate the 24° taper of the final assembly stud (e.g. using mineral-oil based hydraulic fluid HLP32). Do not use lubricating grease!

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.

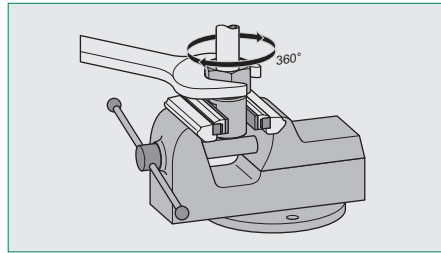
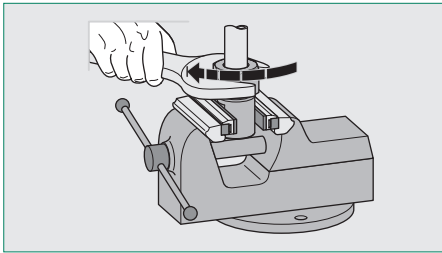
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Assembly Instructions for STAUFF Connect 24° Tube Fittings with Double Edge Cutting Ring (Type FI-DS)

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

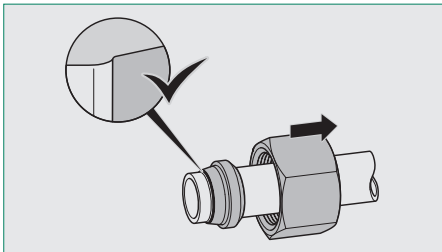
3. Assembly in the Assembly Stud



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

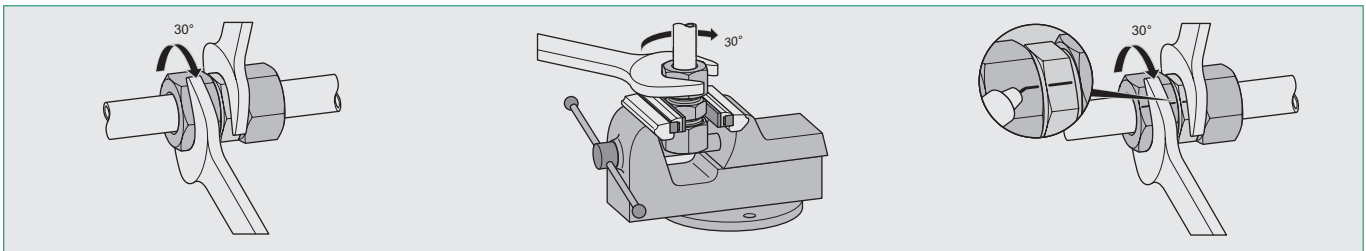


Fully untighten the union nut for a visual inspection after the assembly. A raise of tube material must be clearly visible in front of the cutting edge.

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.

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.

5. Assembly with the Fitting Body



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

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

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

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

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

6. Repeated Assembly

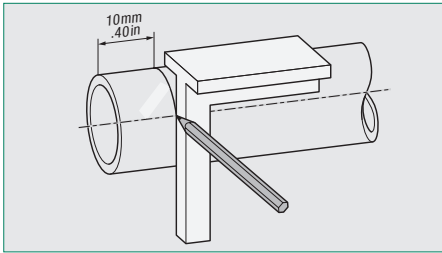
For repeated assemblies, please use a suitable spanner to tighten the union nut until the noticeable increase in force, and then finish the assembly with another approximately 1/12 a turn (30°) beyond this point.



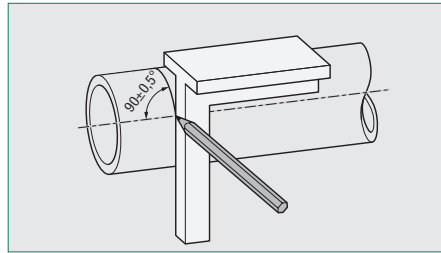
Assembly Instructions for STAUFF Connect 24° Tube Fittings with Double Edge Cutting Ring (Type FI-DS)

50% Assembly with the Manual Pre-Assembly Stud (Type FI-VK) and Assembly with the Fitting Body

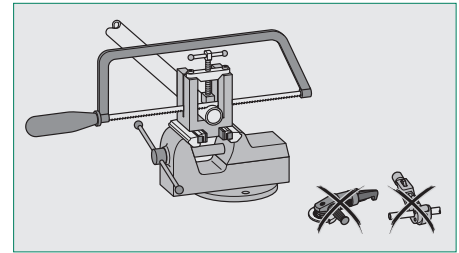
1. Tube Preparation



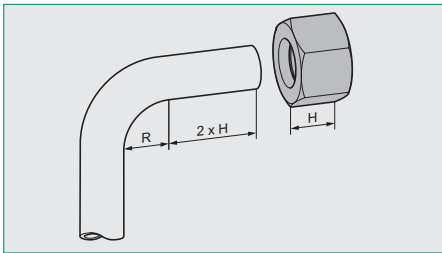
Saw off tube in right angle and at least 10 mm / .40 in from the cut made by the tube manufacturer / supplier in order to avoid failures caused during shipment.



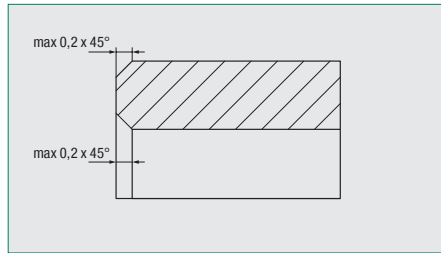
A maximum angular deviation / tolerance of $\pm 0,5^\circ$ relative to the tube axis is permissible.



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.

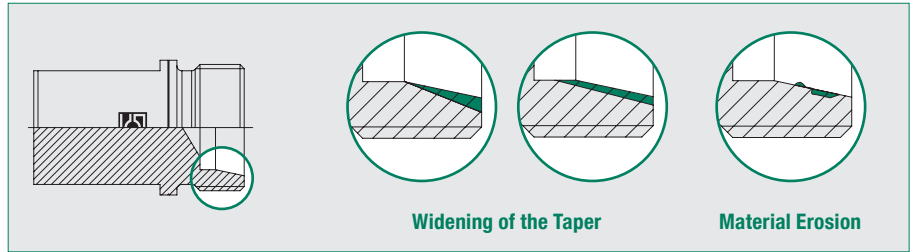


Please note: Improperly prepared and contaminated tubes will affect the service life of the connection and may result in leakage.

2. Assembly Preparation

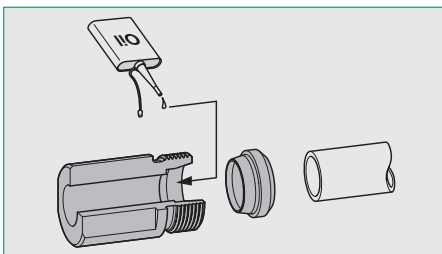


Please note: Hardened pre-assembly studs are wear-resistant, thus allowing for consistent assembly results with a maximum degree of accuracy, reliability and process stability.



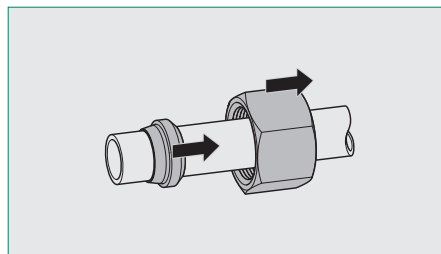
However, they have to be checked for dimensional accuracy regularly. Assembly studs that are damaged and/or dimensionally not accurate must be replaced under any circumstances!

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



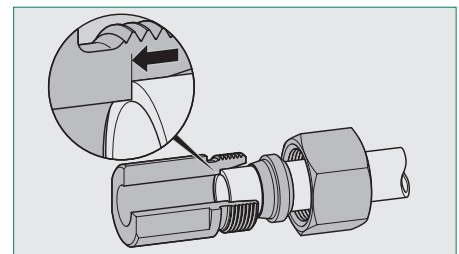
Lightly lubricate the 24° taper of the pre-assembly stud (e.g. using mineral-oil based hydraulic fluid HLP32). Do not use lubricating grease!

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.

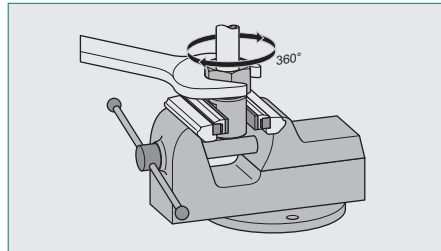
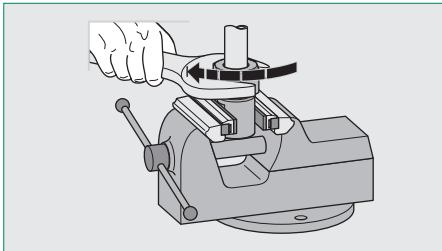
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Assembly Instructions for STAUFF Connect 24° Tube Fittings with Double Edge Cutting Ring (Type FI-DS)

50% Assembly with the Manual Pre-Assembly Stud (Type FI-VK) and Assembly with the Fitting Body

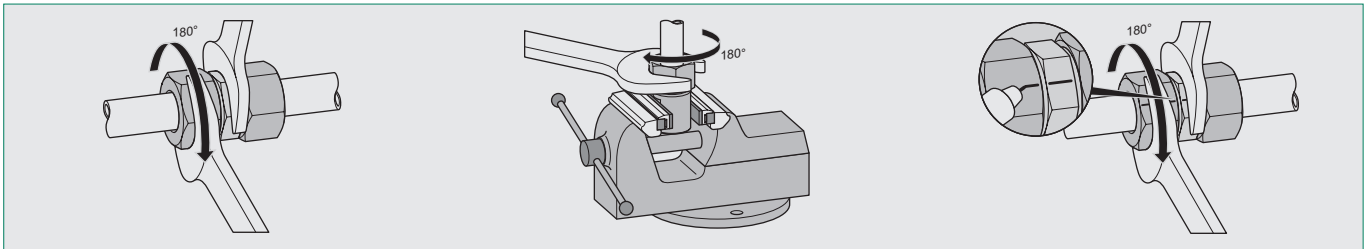
3. Assembly in the Assembly Stud



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 1/2 a turn (180°) beyond the pressure point. In doing so, the cutting ring will uniformly cut into the tube.

4. Assembly with the Fitting Body



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

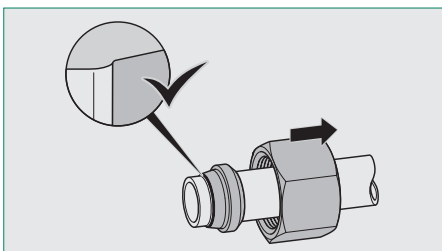
Use a suitable spanner to tighten the union nut until the noticeable increase in force, and then finish the assembly with another approximately 1/2 a turn (180°) beyond this point.

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. A raise of tube material must be clearly visible in front of 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.

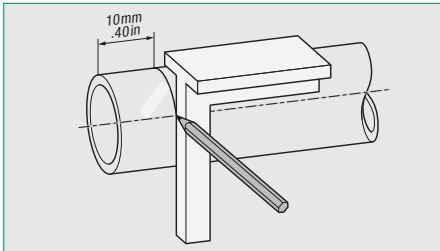
6. Repeated Assembly

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 approximately 1/12 a turn (30°) beyond this point.

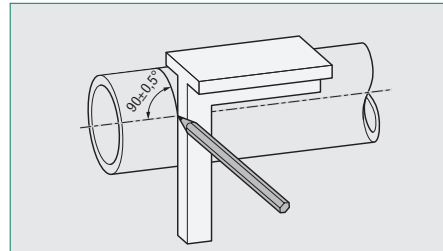


Assembly Instructions for STAUFF Connect 24° Tube Fittings with Double Edge Cutting Ring (Type FI-DS) Direct Assembly with the Fitting Body

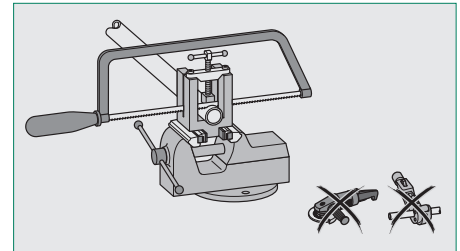
1. Tube Preparation



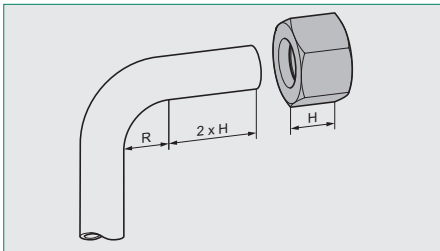
Saw off tube in right angle and at least 10 mm / .40 in from the cut made by the tube manufacturer / supplier in order to avoid failures caused during shipment.



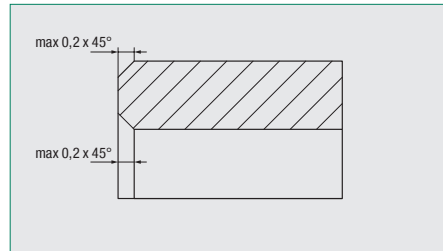
A maximum angular deviation / tolerance of $\pm 0,5^\circ$ relative to the tube axis is permissible.



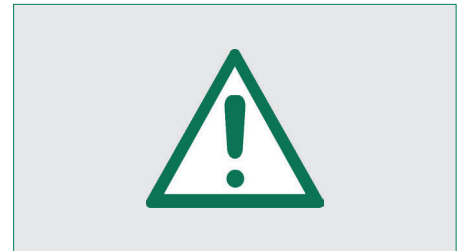
Only use proper tube sawing machinery or equipment. Do not use tube cutters or grinders as this may result in unwanted angled cuts and cause severe burring.



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.

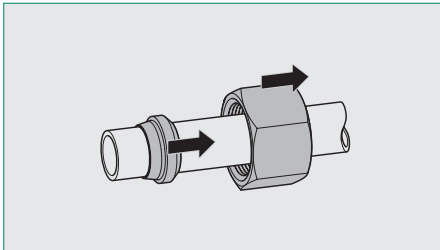


Slightly deburr inside and outside of the tube end (max 0,2 x 45°). The assembly area of the tube has to be free of contamination, chips and paint.



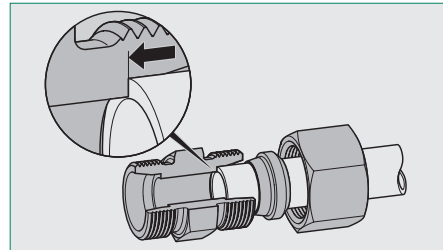
Please note: Improperly prepared and contaminated tubes will affect the service life of the connection and may result in leakage.

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.



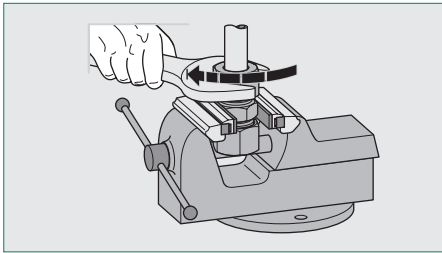
Carefully insert the tube end into the 24° taper of the fitting body and push it firmly against the inner stop.

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

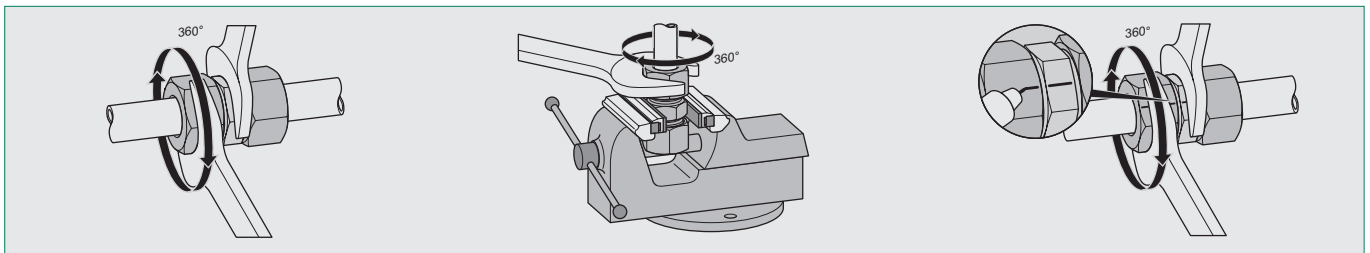


Assembly Instructions for STAUFF Connect 24° Tube Fittings with Double Edge Cutting Ring (Type FI-DS) Direct Assembly with the Fitting Body

3. 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.



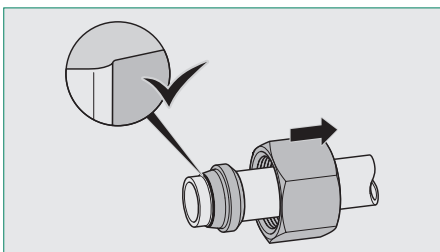
Use a suitable spanner to tighten the union nut another full turn (360°) beyond the pressure point. In doing so, the cutting ring will uniformly cut into the tube.

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. A raise of tube material must be clearly visible in front of 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

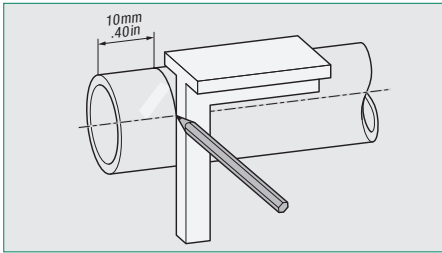
For repeated assemblies, please use a suitable spanner to tighten the union nut until the noticeable increase in force, and then finish the assembly with another approximately 1/12 a turn (30°) beyond this point.



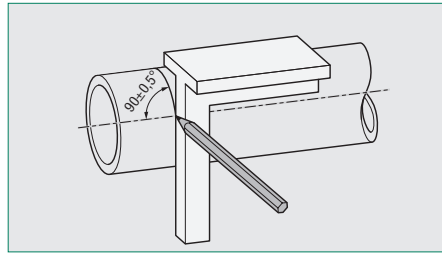
Assembly Instructions for STAUFF Connect 24° Tube Fittings with Double Edge Cutting Ring (Type FI-DS)

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

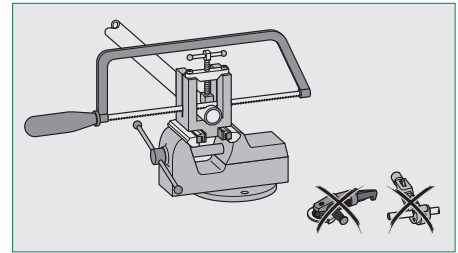
1. Tube Preparation



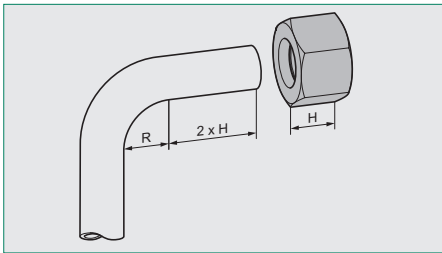
Saw off tube in right angle and at least 10 mm / .40 in from the cut made by the tube manufacturer / supplier in order to avoid failures caused during shipment.



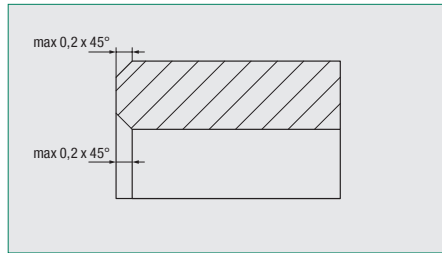
A maximum angular deviation / tolerance of $\pm 0,5^\circ$ relative to the tube axis is permissible.



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.



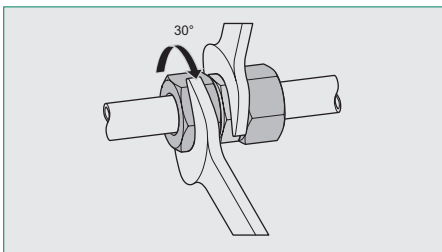
Please note: Improperly prepared and contaminated tubes will affect the service life of the connection and may result in leakage.

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.

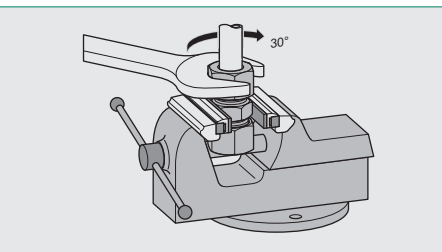


3. Assembly with the Fitting Body



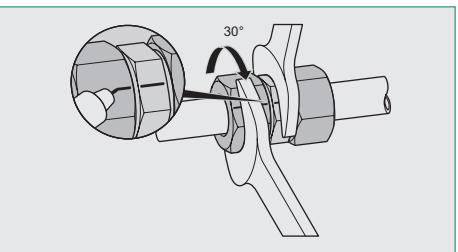
Carefully insert the assembled tube end into the 24° taper of the fitting body.

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

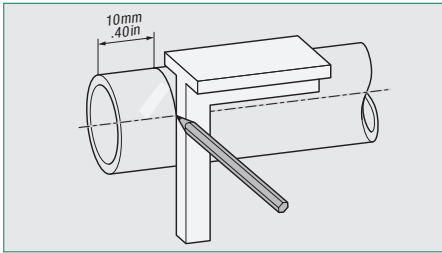
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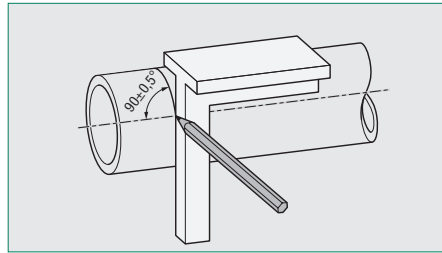
Assembly Instructions for STAUFF Connect 24° Tube Fittings with Double Edge Cutting Ring (Type FI-DS)

Machine-Assisted 50% Assembly with a STAUFF Press Assembly Machine and Assembly with the Fitting Body

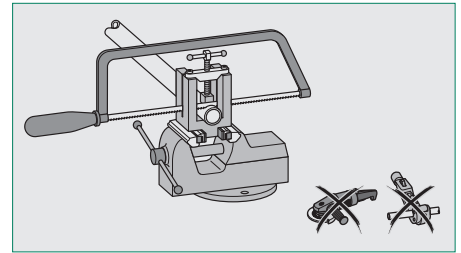
1. Tube Preparation



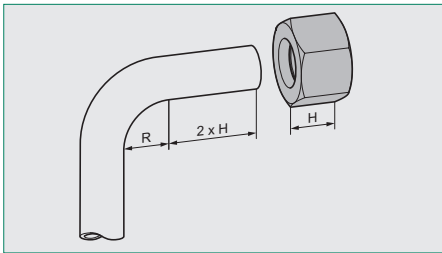
Saw off tube in right angle and at least 10 mm / .40 in from the cut made by the tube manufacturer / supplier in order to avoid failures caused during shipment.



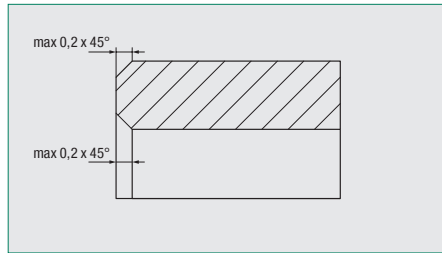
A maximum angular deviation / tolerance of $\pm 0,5^\circ$ relative to the tube axis is permissible.



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.



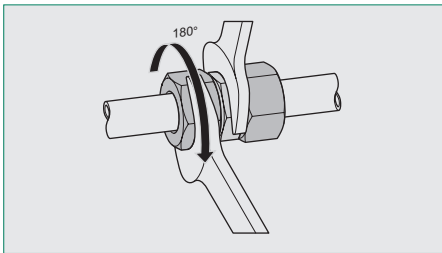
Please note: Improperly prepared and contaminated tubes will affect the service life of the connection and may result in leakage.

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.

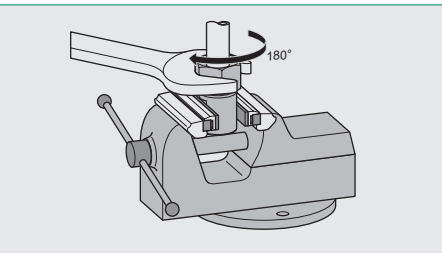


3. Assembly with the Fitting Body



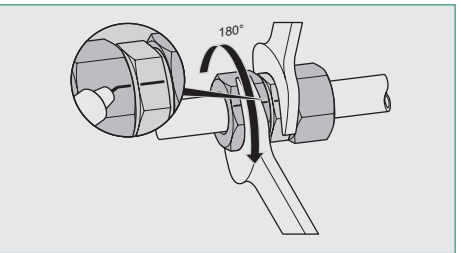
Carefully insert the assembled tube end into the 24° taper of the fitting body.

Use a suitable spanner to tighten the union nut until the noticeable increase in force, and then finish the assembly with another approximately 1/2 a turn (180°) 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

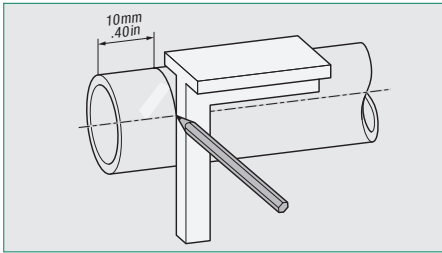
For repeated assemblies, please use a suitable spanner to tighten the union nut until the noticeable increase in force, and then finish the assembly with another approximately 1/12 a turn (30°) beyond this point.



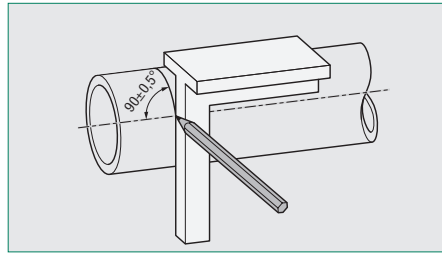
Assembly Instructions for STAUFF Connect 24° Tube Fittings with Soft-Sealing Cutting Ring (Type FI-WDDS)

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

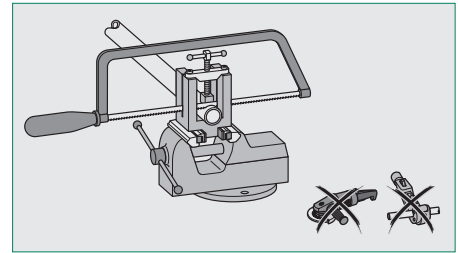
1. Tube Preparation



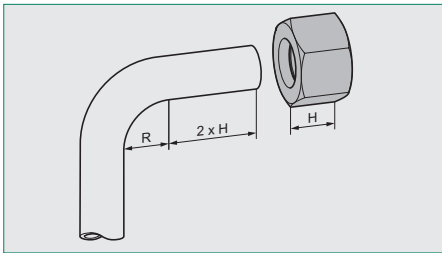
Saw off tube in right angle and at least 10 mm / .40 in from the cut made by the tube manufacturer / supplier in order to avoid failures caused during shipment.



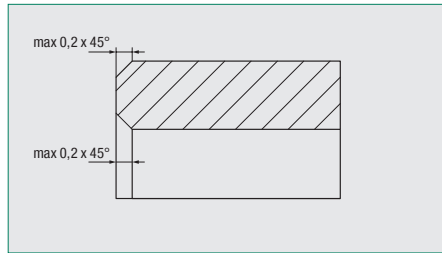
A maximum angular deviation / tolerance of $\pm 0,5^\circ$ relative to the tube axis is permissible.



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.

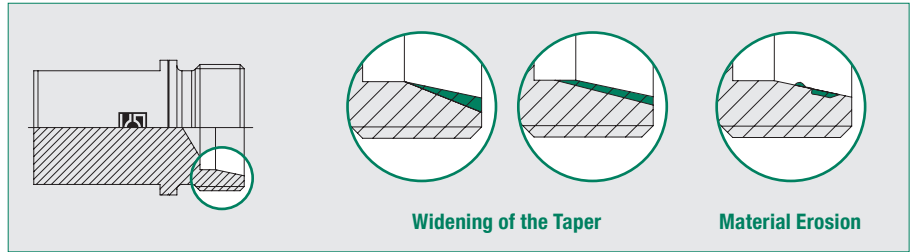


Please note: Improperly prepared and contaminated tubes will affect the service life of the connection and may result in leakage.

2. Assembly Preparation

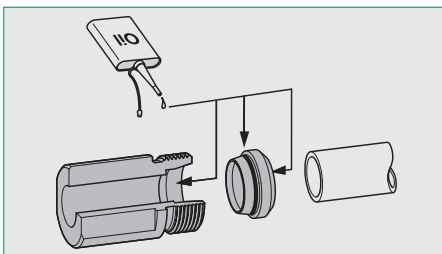


Please note: Hardened assembly studs are wear-resistant, thus allowing for consistent assembly results with a maximum degree of accuracy, reliability and process stability.



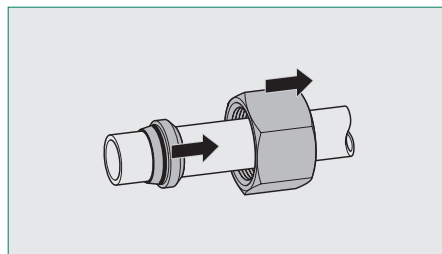
However, they have to be checked for dimensional accuracy regularly. Assembly studs that are damaged and/or dimensionally not accurate must be replaced under any circumstances!

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



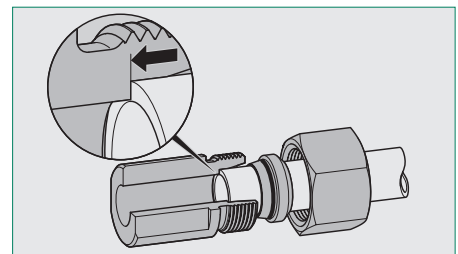
Lightly lubricate the 24° taper of the assembly stud as well as the two soft-sealing elements of the cutting ring (e.g. using mineral-oil based hydraulic fluid HLP32). Do not use lubricating grease!

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



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.

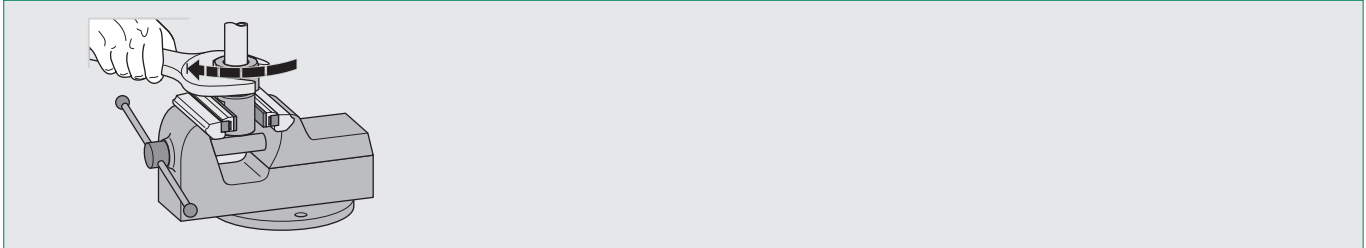
Q



Assembly Instructions for STAUFF Connect 24° Tube Fittings with Soft-Sealing Cutting Ring (Type FI-WDDS)

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

3. Assembly in the Assembly Stud

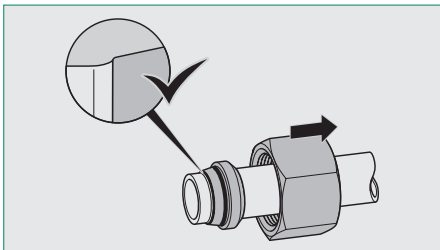


Use a suitable spanner to tighten the union nut until the point where the cutting ring comes into contact and sits closely with the face side of the fitting body, and pretension it.

This point is characterised by a significant increase in force and typically situated 1 to 1 1/2 turns (360° to 540°) beyond the pressure point.

At this point, the cutting ring starts gripping the tube, which can no longer be rotated.

4. Inspection

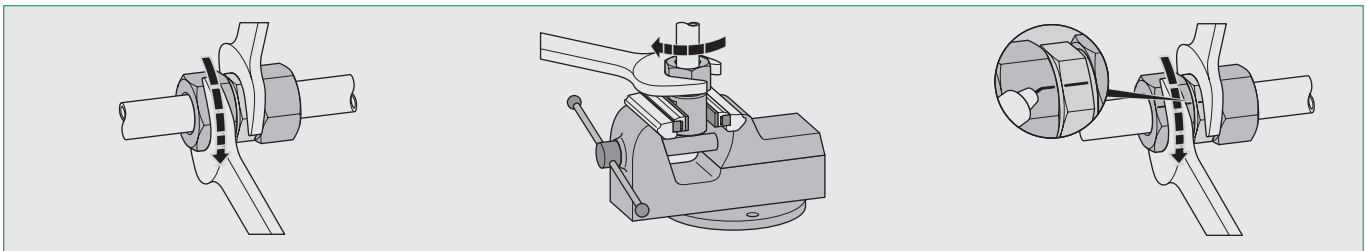


Fully untighten the union nut for a visual inspection after the assembly. A raise of tube material must be clearly visible in front of the cutting edge.

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.

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.

5. Assembly with the Fitting Body



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

Use a suitable spanner to tighten the union nut until the point where the cutting ring comes into contact and sits closely with the face side of the fitting body, and pretension it. This point is characterised by a significant increase in force.

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

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

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

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

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

6. Repeated Assembly

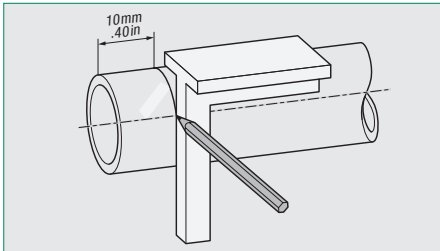
Check the soft-sealing element located on the 24° taper of the cutting ring for possible damages.

Use a suitable spanner to tighten the union nut until the point where the cutting ring comes into contact and sits closely with the face side of the fitting body, and pretension it. This point is characterised by a significant increase in force.

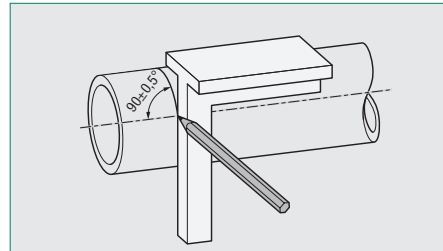


Assembly Instructions for STAUFF Connect 24° Tube Fittings with Soft-Sealing Cutting Ring (Type FI-WDDS) 50% Assembly with the Manual Pre-Assembly Stud (Type FI-VK) and Assembly with the Fitting Body

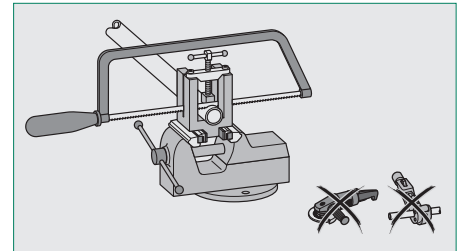
1. Tube Preparation



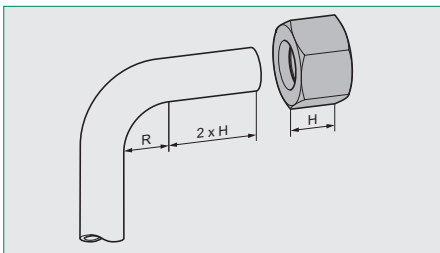
Saw off tube in right angle and at least 10 mm / .40 in from the cut made by the tube manufacturer / supplier in order to avoid failures caused during shipment.



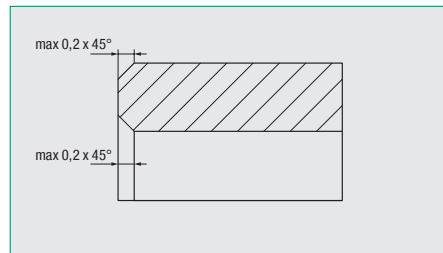
A maximum angular deviation / tolerance of $\pm 0,5^\circ$ relative to the tube axis is permissible.



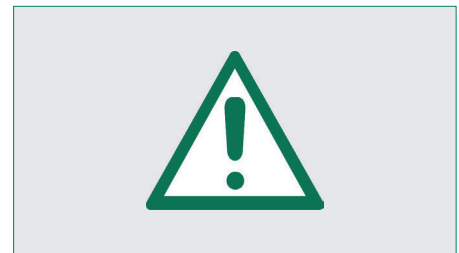
Only use proper tube sawing machinery or equipment. Do not use tube cutters or grinders as this may result in unwanted angled cuts and cause severe burring.



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.

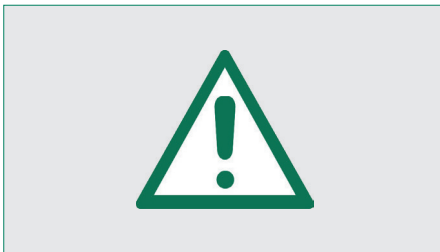


Slightly deburr inside and outside of the tube end (max 0,2 x 45°). The assembly area of the tube has to be free of contamination, chips and paint.

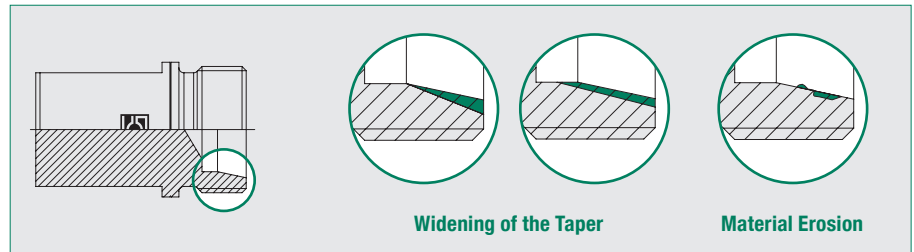


Please note: Improperly prepared and contaminated tubes will affect the service life of the connection and may result in leakage.

2. Assembly Preparation

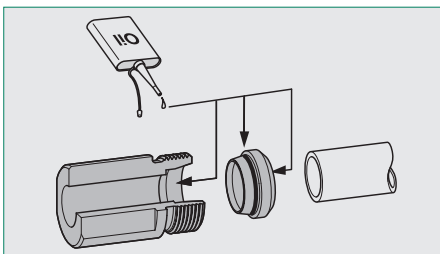


Please note: Hardened assembly studs are wear-resistant, thus allowing for consistent assembly results with a maximum degree of accuracy, reliability and process stability.



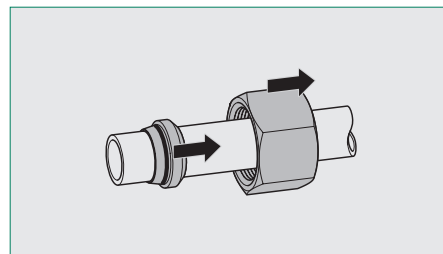
However, they have to be checked for dimensional accuracy regularly. Assembly studs that are damaged and/or dimensionally not accurate must be replaced under any circumstances!

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



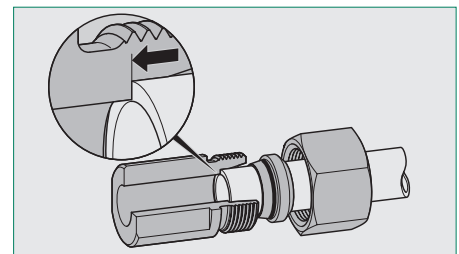
Lightly lubricate the 24° taper of the assembly stud as well as the two soft-sealing elements of the cutting ring (e.g. using mineral-oil based hydraulic fluid HLP32). Do not use lubricating grease!

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



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.

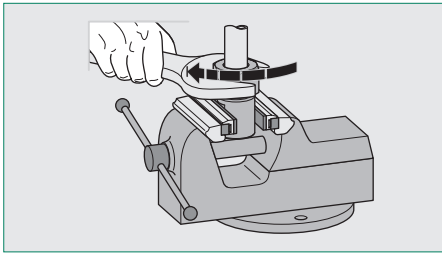
The tube must be held in this position during the entire assembly process in order to avoid faulty assembly.

Q

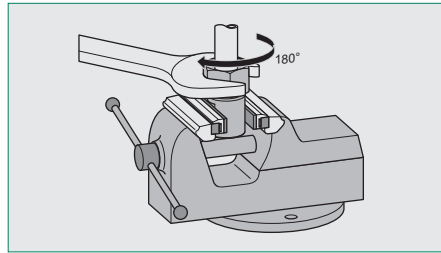


Assembly Instructions for STAUFF Connect 24° Tube Fittings with Soft-Sealing Cutting Ring (Type FI-WDDS) 50% Assembly with the Manual Pre-Assembly Stud (Type FI-VK) and Assembly with the Fitting Body

3. Assembly in the Assembly Stud

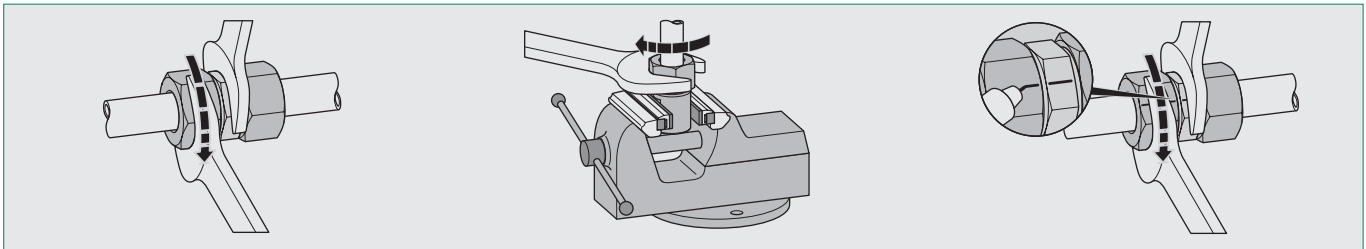


Tighten the union nut until the noticeable increase in force (pressure point). The cutting ring now grips the tube, which can no longer be rotated.



Use a suitable spanner to tighten the union nut another 1/2 a turn (180°) beyond the pressure point. In doing so, the cutting ring will uniformly cut into the tube.

4. Assembly with the Fitting Body



Lightly lubricate the soft-sealing element located on the 24° taper of the cutting 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.

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 point where the cutting ring comes into contact and sits closely with the face side of the fitting body, and pretension it.

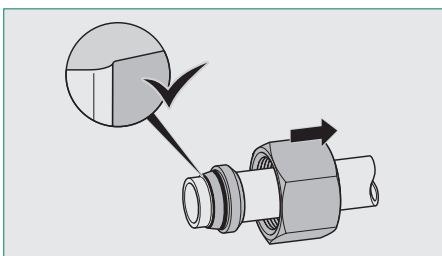
This point is characterised by a significant increase in force and typically situated 1/2 to 1 turns (180° to 360°) beyond the fixed point.

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. A raise of tube material must be clearly visible in front of 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.

6. Repeated Assembly

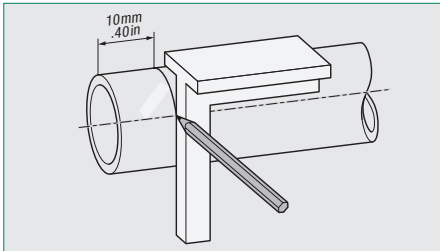
Check the soft-sealing element located on the 24° taper of the cutting ring for possible damages.

Use a suitable spanner to tighten the union nut until the point where the cutting ring comes into contact and sits closely with the face side of the fitting body, and pretension it. This point is characterised by a significant increase in force.

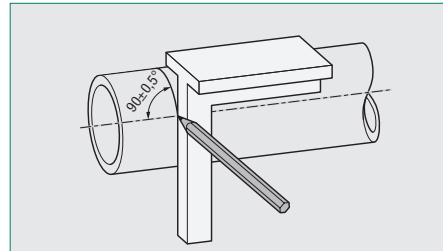


Assembly Instructions for STAUFF Connect 24° Tube Fittings with Soft-Sealing Cutting Ring (Type FI-WDDS) Direct Assembly with the Fitting Body

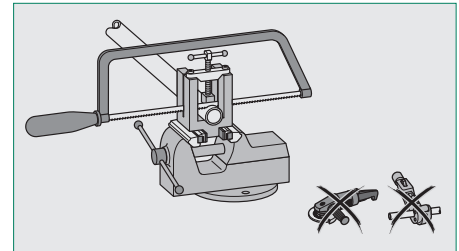
1. Tube Preparation



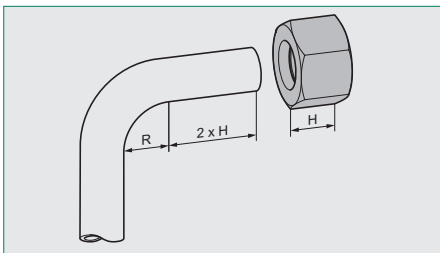
Saw off tube in right angle and at least 10 mm / .40 in from the cut made by the tube manufacturer / supplier in order to avoid failures caused during shipment.



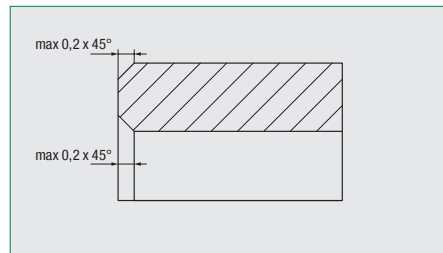
A maximum angular deviation / tolerance of $\pm 0,5^\circ$ relative to the tube axis is permissible.



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.

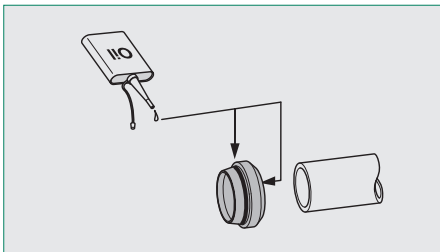


Slightly deburr inside and outside of the tube end (max 0,2 x 45°). The assembly area of the tube has to be free of contamination, chips and paint.



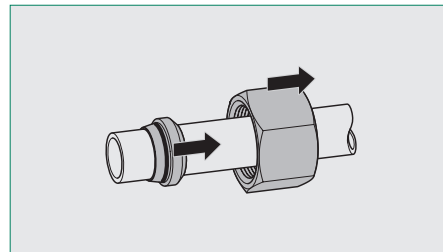
Please note: Improperly prepared and contaminated tubes will affect the service life of the connection and may result in leakage.

2. Assembly Preparation



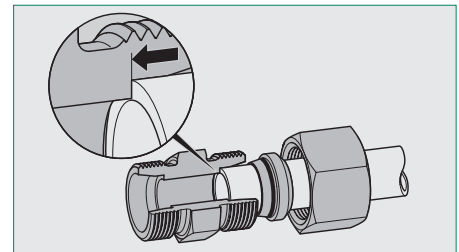
Lightly lubricate the two soft-sealing elements of the cutting ring (e.g. using mineral-oil based hydraulic fluid HLP32). Do not use lubricating grease!

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



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.



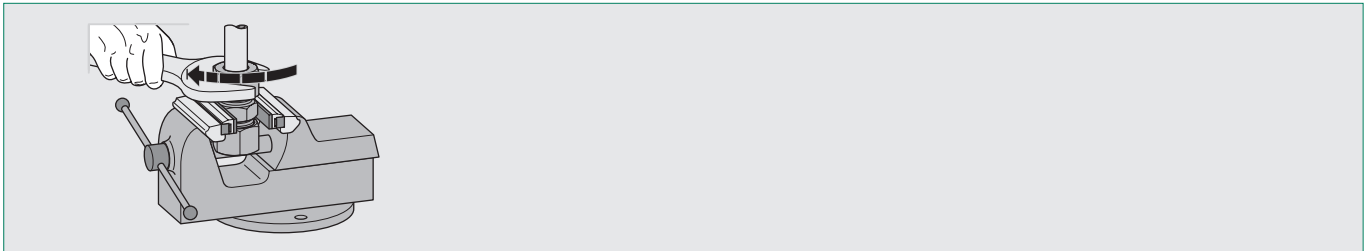
Carefully insert the tube end into the 24° taper of the fitting body and push it firmly against the inner stop.

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



Assembly Instructions for STAUFF Connect 24° Tube Fittings with Soft-Sealing Cutting Ring (Type FI-WDDS) Direct Assembly with the Fitting Body

3. Assembly in the Fitting Body

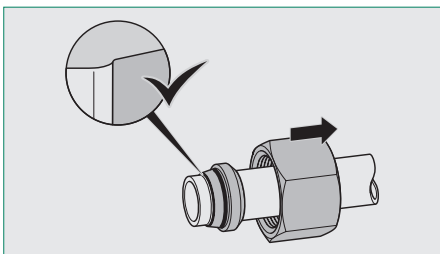


Use a suitable spanner to tighten the union nut until the point where the cutting ring comes into contact and sits closely with the face side of the fitting body, and pretension it.

This point is characterised by a significant increase in force and typically situated 1 to 1 1/2 turns (360° to 540°) beyond the pressure point.

At this point, the cutting ring starts gripping the tube, which can no longer be rotated.

4. Inspection



Fully untighten the union nut for a visual inspection after the assembly. A raise of tube material must be clearly visible in front of 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

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

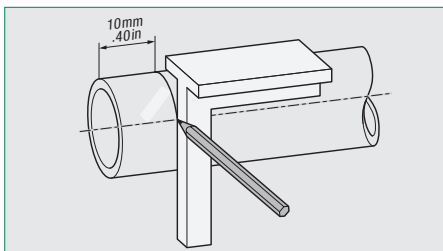
Use a suitable spanner to tighten the union nut until the point where the cutting ring comes into contact and sits closely with the face side of the fitting body, and pretension it. This point is characterised by a significant increase in force.



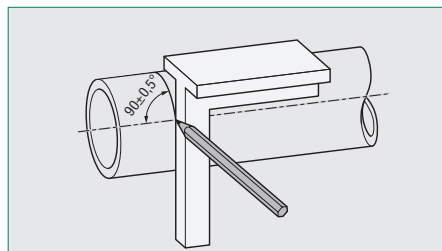
Assembly Instructions for STAUFF Connect 24° Tube Fittings with Soft-Sealing Cutting Ring (Type FI-WDDS)

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

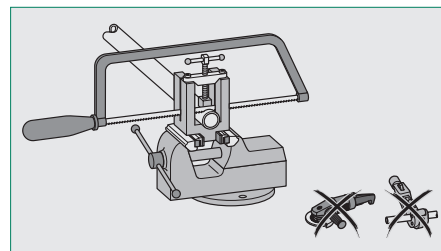
1. Tube Preparation



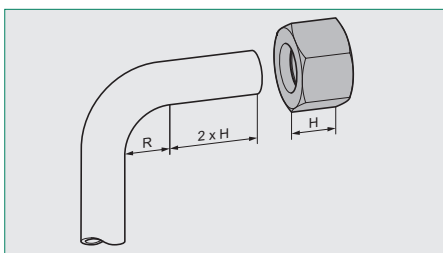
Saw off tube in right angle and at least 10 mm / .40 in from the cut made by the tube manufacturer / supplier in order to avoid failures caused during shipment.



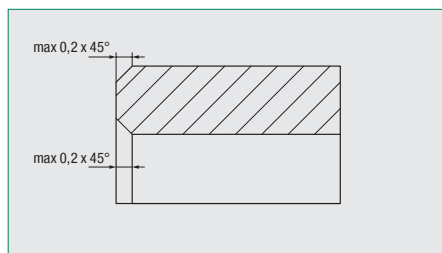
A maximum angular deviation / tolerance of $\pm 0,5^\circ$ relative to the tube axis is permissible.



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 $0,2 \times 45^\circ$). The assembly area of the tube has to be free of contamination, chips and paint.



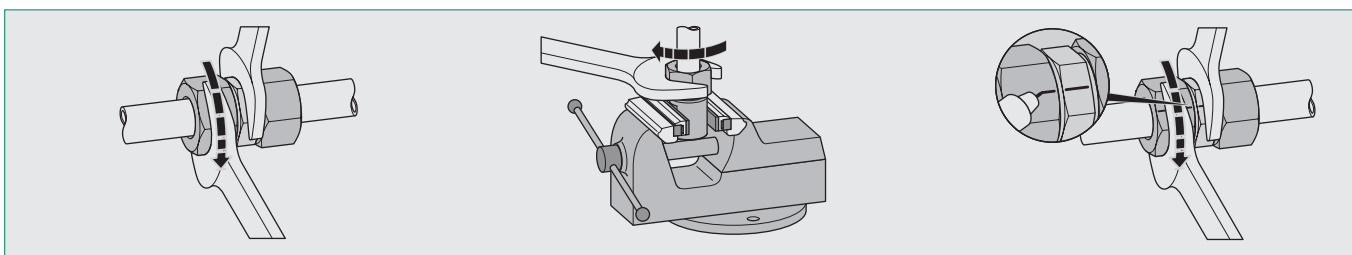
Please note: Improperly prepared and contaminated tubes will affect the service life of the connection and may result in leakage.

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. Assembly with the Fitting Body



Lightly lubricate the soft-sealing element located on the 24° taper of the cutting 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.

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 point where the cutting ring comes into contact and sits closely with the face side of the fitting body, and pretension it. This point is characterised by a significant increase in force.

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

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

Use a suitable spanner to tighten the union nut until the point where the cutting ring comes into contact and sits closely with the face side of the fitting body, and pretension it. This point is characterised by a significant increase in force.

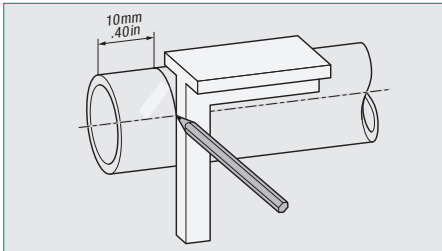
Q



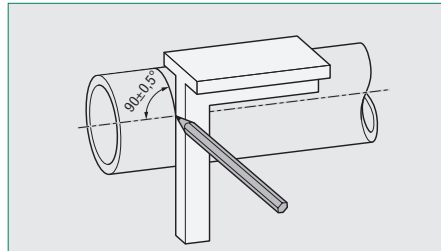
Assembly Instructions for STAUFF Connect 24° Tube Fittings with Soft-Sealing Cutting Ring (Type FI-WDDS)

Machine-Assisted 50% Assembly with a STAUFF Press Assembly Machine and Assembly with the Fitting Body

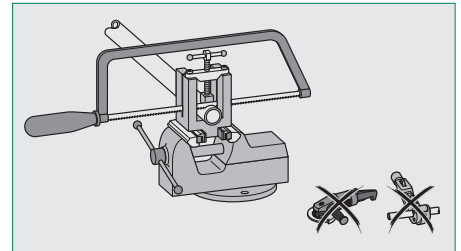
1. Tube Preparation



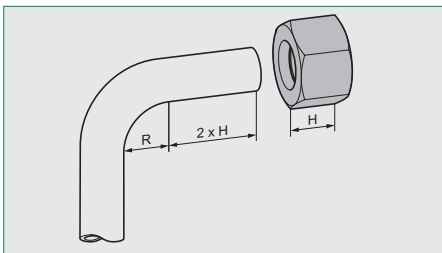
Saw off tube in right angle and at least 10 mm / .40 in from the cut made by the tube manufacturer / supplier in order to avoid failures caused during shipment.



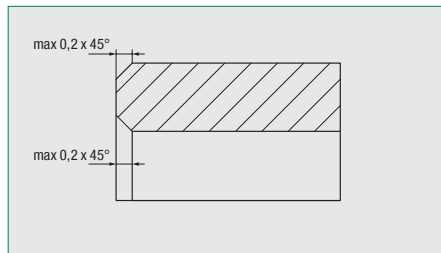
A maximum angular deviation / tolerance of $\pm 0,5^\circ$ relative to the tube axis is permissible.



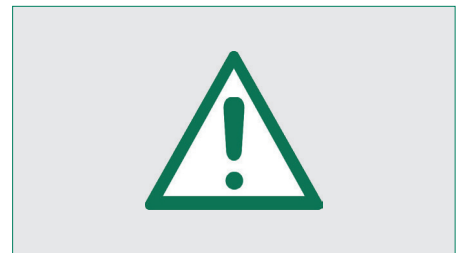
Only use proper tube sawing machinery or equipment. Do not use tube cutters or grinders as this may result in unwanted angled cuts and cause severe burring.



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.



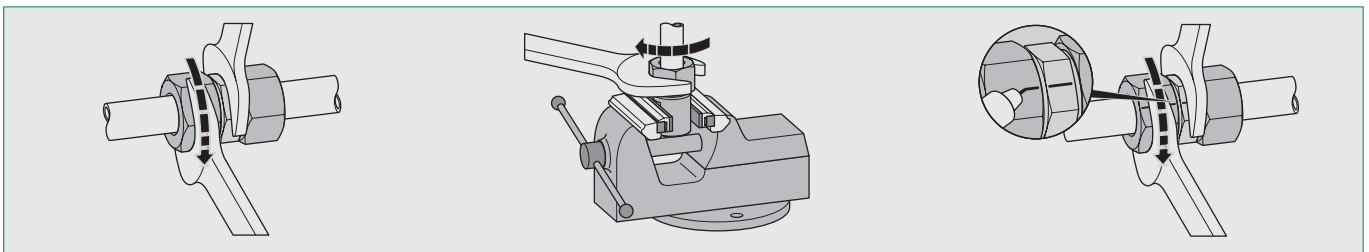
Please note: Improperly prepared and contaminated tubes will affect the service life of the connection and may result in leakage.

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. Assembly with the Fitting Body



Lightly lubricate the soft-sealing element located on the 24° taper of the cutting 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.

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 point where the cutting ring comes into contact and sits closely with the face side of the fitting body, and pretension it.

This point is characterised by a significant increase in force and typically situated 1/2 to 1 turns (180° to 360°) beyond the fixed 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

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

Use a suitable spanner to tighten the union nut until the point where the cutting ring comes into contact and sits closely with the face side of the fitting body, and pretension it. This point is characterised by a significant increase in force.



Assembly Instructions for Support Sleeves (Type FI-VH)

Selection Chart for Tubes made of Steel / Stainless Steel

Series	Tube OD		Tube Wall Thickness										
	(mm)	(in)	(mm)	0,5	0,75	1,0	1,5	2,0	2,5	3,0	3,5	4,0	
LL	4	.16											
	6	.24	●										
	8	.31	●										
L	6	.24	●	●									
	8	.31	●	●									
	10	.39	●	●									
	12	.47	●	●	○								
	15	.59	●	●	●								
	18	.71	●	●	●	○							
	22	.87	●	●	●	○	○						
	28	1.10	●	●	●	○	○	○					
	35	1.38	●	●	●	●	○	○	○				
	42	1.65	●	●	●	●	○	○	○				
S	6	.24	●	●									
	8	.31	●	●									
	10	.39	●	●									
	12	.47	●	●	○								
	14	.55	●	●	●								
	16	.63	●	●	●	○							
	20	.79	●	●	●	●	○						
	25	.98	●	●	●	●	○						
	30	1.18	●	●	●	●	●	○	○				
	38	1.50	●	●	●	●	●	●	○	○			

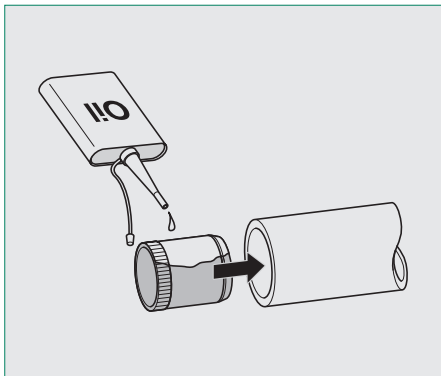
Selection Chart for Tubes made of Non-Ferrules

Series	Tube OD		Tube Wall Thickness										
	(mm)	(in)	(mm)	0,5	0,75	1,0	1,5	2,0	2,5	3,0	3,5	4,0	
LL	4	.16											
	6	.24	●	●									
	8	.31	●	●									
L	6	.24	●	●	●								
	8	.31	●	●	●								
	10	.39	●	●	●	○							
	12	.47	●	●	●	●							
	15	.59	●	●	●	●							
	18	.71	●	●	●	●	●						
	22	.87	●	●	●	●	●	●					
	28	1.10	●	●	●	●	●	●	●				
	35	1.38	●	●	●	●	●	●	●	●			
	42	1.65	●	●	●	●	●	●	●	●	●		
S	6	.24	●	●	●								
	8	.31	●	●	●								
	10	.39	●	●	●								
	12	.47	●	●	●								
	14	.55	●	●	●	●							
	16	.63	●	●	●	●	●						
	20	.79	●	●	●	●	●	●					
	25	.98	●	●	●	●	●	●	●				
	30	1.18	●	●	●	●	●	●	●	●			
	38	1.50	●	●	●	●	●	●	●	●	●		

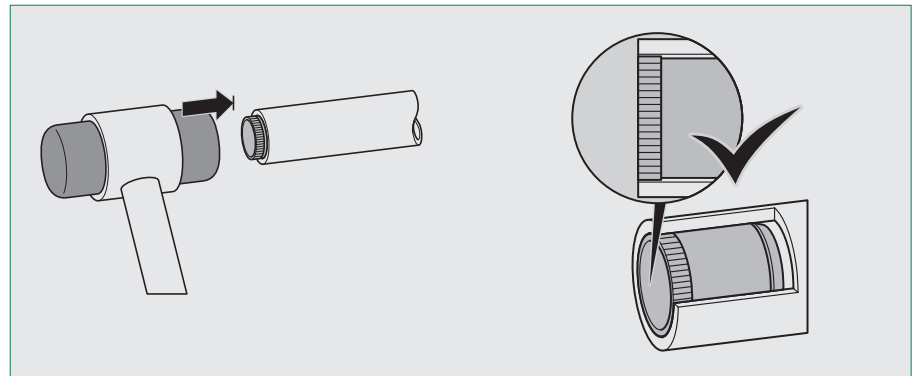
- Generally required
- Highly recommended, especially for adverse operating conditions (vibrations, risks of self-loosening of fittings etc.)

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

Assembly



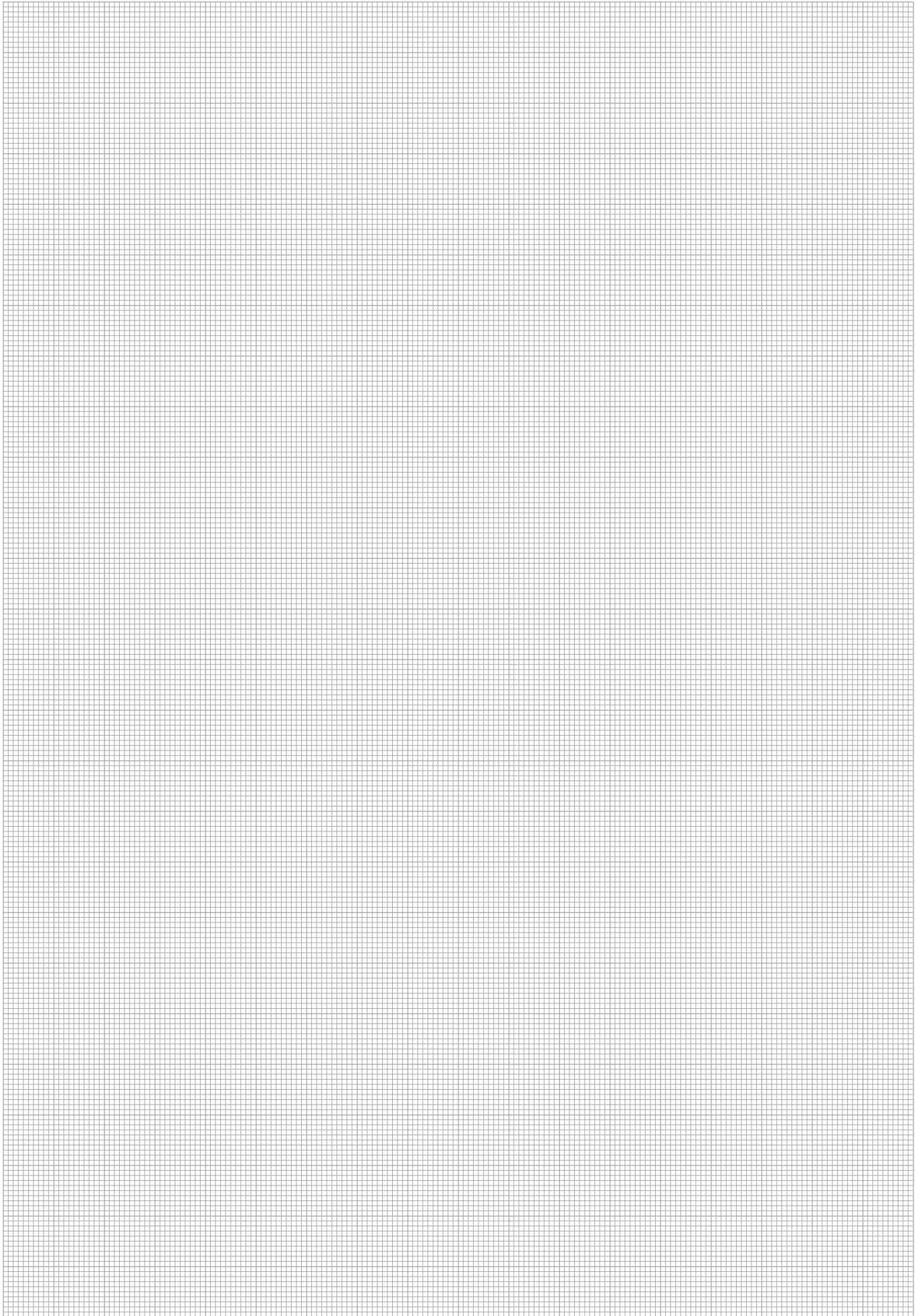
Lubricate the outside of the support sleeve (e.g. using mineral-oil based hydraulic fluid HLP32) and insert it into the tube end up to the knurled section.



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.





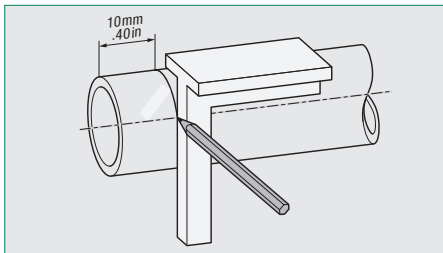
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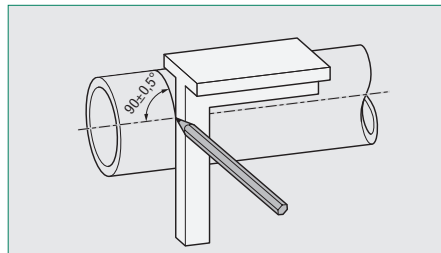
Assembly Instructions for STAUFF Form Tube Fittings

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

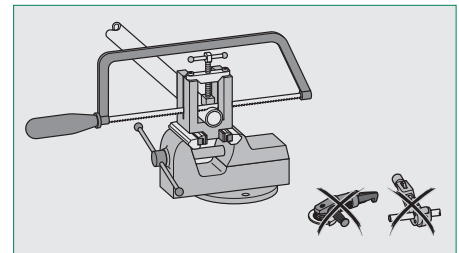
1. Tube Preparation



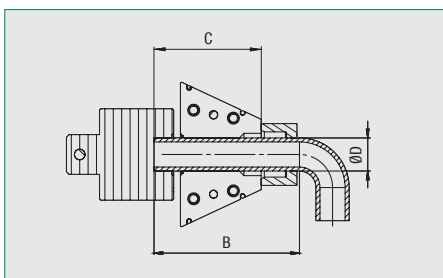
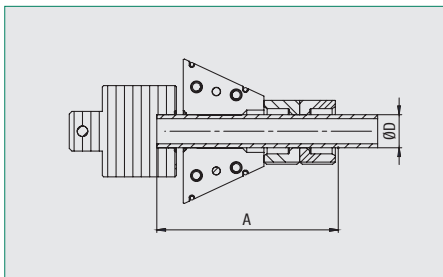
Saw off tube in right angle and at least 10 mm / .40 in from the cut made by the tube manufacturer / supplier in order to avoid failures caused during shipment.



A maximum angular deviation / tolerance of $\pm 0,5^\circ$ relative to the tube axis is permissible.

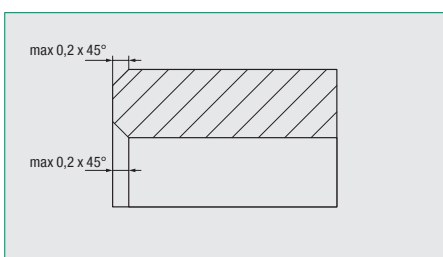


Only use proper tube sawing machinery or equipment. Do not use tube cutters or grinders as this may result in unwanted angled cuts and cause severe burring.



Series	Tube OD		Minimum Length A		Minimum Length B		Insertion Depth C	
	(mm)	(in)	Straight Tube Ends		Straight Sections next to Tube Bends		(mm)	(in)
L	6	.24	109	4.29	94	3.70	79,5	3.13
	8	.31	107	4.21	92	3.62	77,5	3.05
	10	.39	111	4.37	95	3.74	79,5	3.13
	12	.47	110	4.33	94	3.70	78,5	3.09
	15	.59	113	4.45	96	3.78	79	3.11
	18	.71	114	4.48	96	3.78	78	3.07
	22	.87	120	4.72	100	3.94	80	3.15
	28	1.10	123	4.84	101	3.98	79	3.11
S	35	1.38	143	5.63	118	4.65	93	3.66
	42	1.65	144	5.67	119	4.69	94	3.70
	6	.24	113	4.45	96	3.78	79,5	3.13
	8	.31	111	4.37	94	3.70	77,5	3.05
	10	.39	115	4.53	97	3.82	79,5	3.13
	12	.47	114	4.49	96	3.78	78,5	3.09
	16	.63	120	4.72	99	3.90	78,5	3.09
	20	.79	130	5.12	106	4.17	82	3.23
	25	.98	147	5.79	120	4.72	93	3.66
	30	1.18	155	6.10	126	4.96	97	3.82
38	1.50	168	6.61	135	5.31	102,5	4.04	

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.



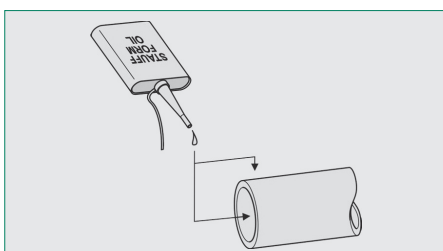
Slightly deburr inside and outside of the tube end (max 0,2 x 45°). The assembly area of the tube has to be free of contamination, chips and paint.



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!

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.

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

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

Important: For tube ends made of stainless steel, always and only use original STAUFF Form Oil (type SFO-FO-1L). The use of any other fluid is not allowed and may result in damage of the assembly tools.

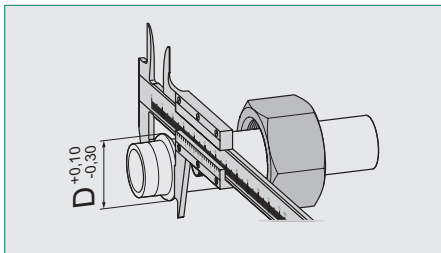
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Assembly Instructions for STAUFF Form Tube Fittings

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

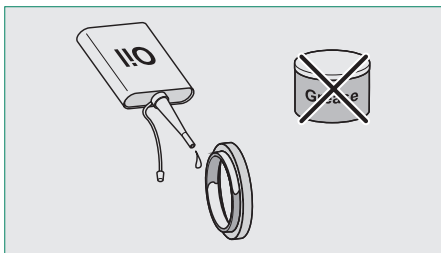
3. Inspection



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.

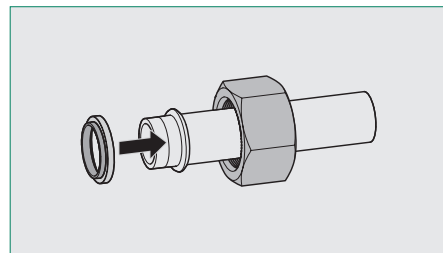
Series	Tube OD		Dimensions D		
	(mm)	(in)	(mm)	(in)	
L	6	.24	10,1	.40	
	8	.31	12,1	.48	
	10	.39	14,0	.55	
	12	.47	16,1	.63	
	15	.59	20,1	.79	
	18	.71	23,7	.93	
	22	.87	27,1	1.07	
	28	1.10	33,1	1.30	
	35	1.38	42,1	1.66	
	42	1.65	49,4	1.94	
	S	6	.24	10,1	.40
		8	.31	12,1	.48
10		.39	14,0	.55	
12		.47	16,1	.63	
16		.63	21,7	.85	
20		.79	26,1	1.03	
25		.98	31,1	1.22	
30		1.18	37,1	1.46	
38		1.50	46,9	1.85	

4. Assembly with the Fitting Body

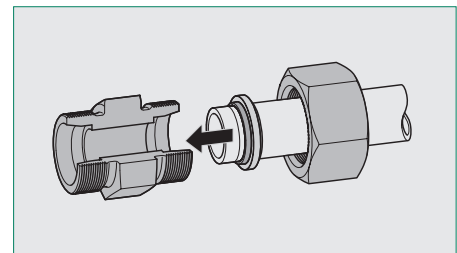


Lightly lubricate the inside and outside of the sealing element of the form ring (e.g. using mineral-oil based hydraulic fluid HLP32). Do not use lubricating grease!

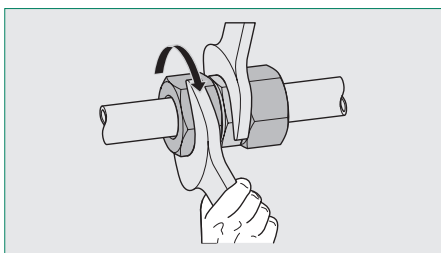
Immediately proceed with the assembly in order to avoid exposure to contamination.



Slide the form ring onto the formed tube end (with the sealing element of the form ring facing to the tube end).

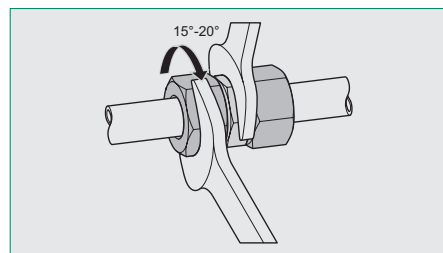


Carefully insert the formed tube end with the assembled form ring into the 24° taper of the fitting body.



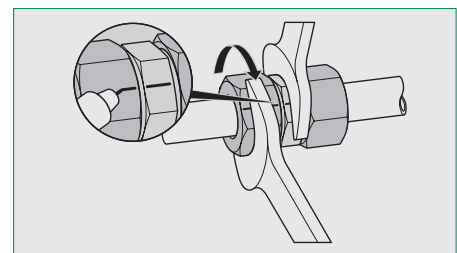
Use a suitable spanner to tighten the nut until there is a noticeable increase in force required (fixed point).

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 approximately 15-20° beyond the fixed point.

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



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

5. Repeated Assembly

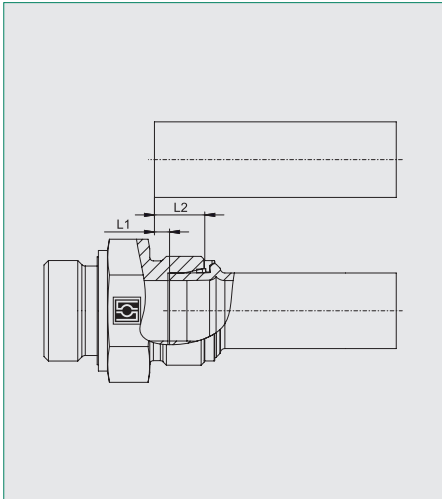
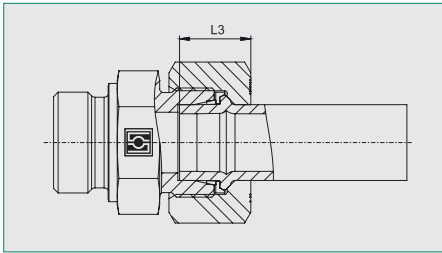
For repeated assemblies, please follow the instructions from point 4 on.



Assembly Instructions for STAUFF Form Tube Fittings

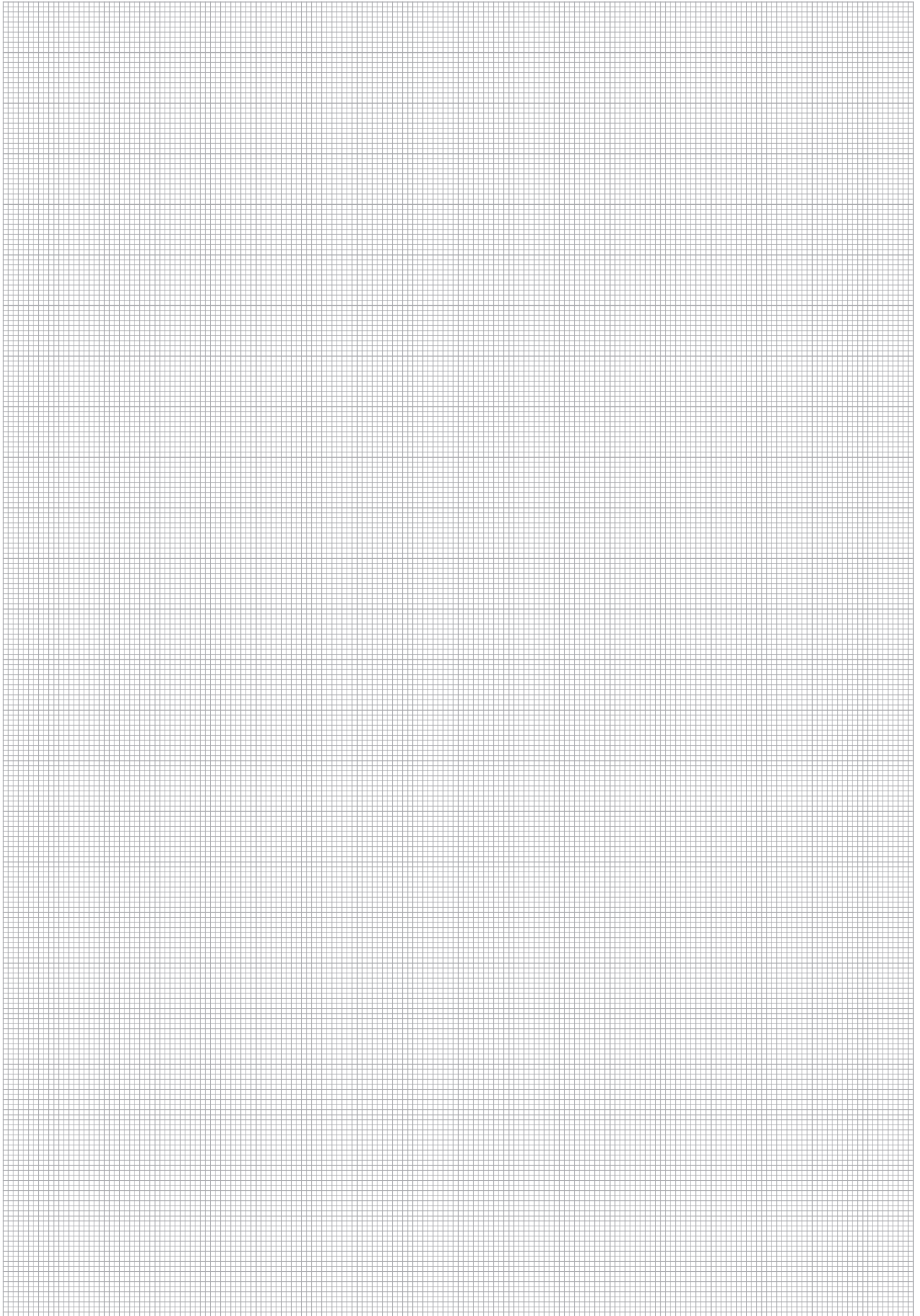
Tube End Forming with a STAUFF Form Machine and Assembly with the Fitting Body

Calculation Dimensions



Tube OD		Tube Wall Thickness		L1		L2		L3	
(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)
6	.24	1,5	.06	6,9	.27	13,5	.53	14,6 (L+S)	.57 (L+S)
8	.31	1,5	.06	6,0	.24	12,6	.50	14,6 (L+S)	.57 (L+S)
		2,0	.08	5,2	.20	11,8	.46		
10	.39	1,5	.06	5,5	.22	12,1	.48	15,1 (L)	.59 (L)
		2,0	.08	4,1	.16	10,7	.42		
		2,5	.10	4,8	.19	11,4	.45	16,1 (S)	.63 (S)
		3,0	.12	4,2	.17	10,8	.43		
12	.47	1,5	.06	4,9	.19	11,5	.45	15,3 (L)	.60 (L)
		2,0	.08	4,6	.18	11,2	.44		
		2,5	.10	4,4	.17	11,0	.43	16,3 (S)	.64 (S)
		3,0	.12	4,3	.17	10,9	.43		
15	.59	1,5	.06	6,3	.25	12,9	.51	15,6	.61
		2,0	.08	5,8	.23	12,4	.49		
		2,5	.10	5,4	.21	12,0	.47		
16	.63	2,0	.08	6,6	.26	14,6	.57	18,4	.72
		2,5	.10	6,0	.24	14,0	.55		
		3,0	.12	6,0	.24	14,0	.55		
		4,0	.16	6,0	.24	14,0	.55		
		2,0	.08	6,1	.24	13,0	.51		
18	.71	2,5	.10	6,2	.24	13,1	.52	16,3	.64
		3,0	.12	6,2	.24	13,1	.52		
		2,0	.08	4,5	.18	14,5	.57		
20	.79	2,5	.10	7,2	.28	17,2	.68	21,1	.83
		3,0	.12	6,8	.27	16,8	.66		
		4,0	.16	7,0	.28	17,0	.67		
		2,0	.08	6,4	.25	13,4	.53		
22	.87	2,5	.10	6,0	.24	13,0	.51	17,5	.69
		3,0	.12	5,5	.22	12,5	.49		
		3,5	.14	6,1	.24	13,1	.52		
		2,0	.08	6,1	.24	17,6	.69		
		2,5	.10	7,0	.28	18,5	.73		
25	.98	3,0	.12	7,1	.28	18,6	.73	23,5	.93
		3,5	.14	6,3	.25	17,8	.70		
		4,0	.16	7,5	.30	19,0	.75		
		5,0	.20	7,1	.28	18,6	.73		
		2,0	.08	5,0	.20	12,0	.47		
28	1.10	2,5	.10	5,6	.22	12,6	.50	17,9	.70
		3,0	.12	6,0	.24	13,0	.51		
		3,5	.14	5,0	.20	12,0	.47		
		4,0	.16	5,0	.20	12,0	.47		
		2,5	.10	7,5	.30	20,5	.81		
30	1.18	3,0	.12	8,5	.33	21,5	.85	27,8	1.09
		4,0	.16	8,6	.34	21,6	.85		
		5,0	.20	8,5	.33	21,5	.85		
		6,0	.24	8,8	.35	21,8	.86		
		2,5	.10	8,0	.31	20,8	.82		
35	1.38	3,0	.12	8,0	.31	20,8	.82	22,6	.89
		4,0	.16	9,0	.35	21,8	.86		
		5,0	.20	9,5	.37	22,3	.88		
		3,0	.12	10,0	.39	25,5	1.00		
38	1.50	4,0	.16	10,5	.41	26,0	1.02	31,6	1,24
		5,0	.20	11,5	.45	27,0	1.06		
		6,0	.24	11	.43	26,5	1.04		
		3,0	.12	8,4	.33	18,9	.74		
42	1.65	3,5	.14	8,8	.35	19,3	.76	23,2	.91
		4,0	.16	7,0	.28	17,5	.69		





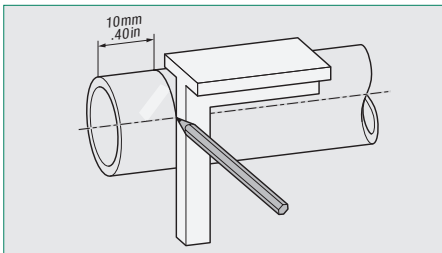
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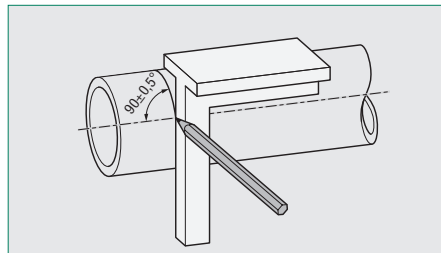
Assembly Instructions for STAUFF Connect 37° Flared Tube Fittings

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

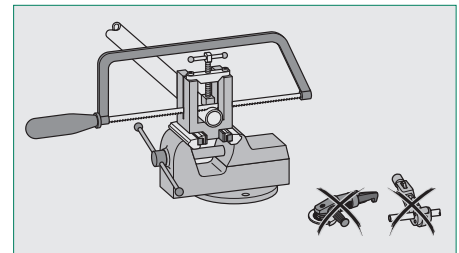
1. Tube Preparation



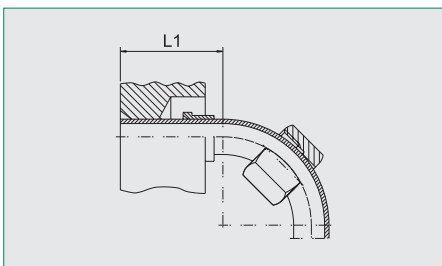
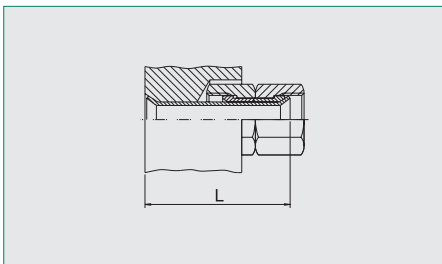
Saw off tube in right angle and at least 10 mm / .40 in from the cut made by the tube manufacturer / supplier in order to avoid failures caused during shipment.



A maximum angular deviation / tolerance of $\pm 0,5^\circ$ relative to the tube axis is permissible.

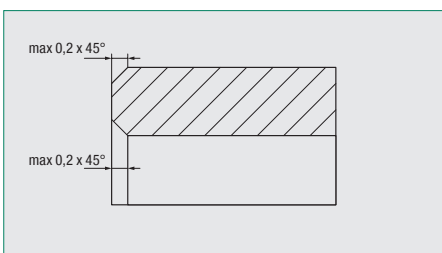


Only use proper tube sawing machinery or equipment. Do not use tube cutters or grinders as this may result in unwanted angled cuts and cause severe burring.



Series	Tube OD		Minimum Length L Straight Tube Sections		Minimum Length L1 Straight Tube Sections next to Tube Bends	
	(mm)	(in)	(mm)	(in)	(mm)	(in)
L	6	.24	59	2.32	43	1.69
	8	.31	62	2.44	44	1.73
	10	.39	64	2.52	46	1.81
	12	.47	67	2.64	47	1.85
	15	.59	75	2.95	50	1.97
	18	.71	76	2.99	58	2.28
	22	.87	81	3.19	60	2.36
	28	1.10	88	3.46	60	2.36
	35	1.38	92	3.62	62	2.44
	42	1.65	130	5.12	70	2.76
S	6	.24	61	2.40	43	1.69
	8	.31	64	2.52	44	1.73
	10	.39	66	2.60	46	1.81
	12	.47	68	2.68	47	1.85
	16	.63	79	3.11	52	2.05
	20	.79	82	3.23	58	2.28
	25	.98	94	3.70	60	2.36
	30	1.18	96	3.78	62	2.44
38	1.50	136	5.35	70	2.76	

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 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.

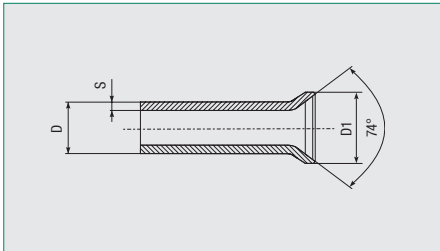
Q



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 approximately 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)	(in)	Dimensions S		D1 _{min}		D1 _{max}	
		(mm)	(in)	(mm)	(in)	(mm)	(in)
6	.24	1	.04	9,1	.36	10	.39
		1,5	.06				
8	.31	1	.04	11,3	.44	12	.47
		1,5	.06				
		2	.08				
10	.39	1	.04	13,1	.52	14	.55
		1,5	.06				
		2	.08				
12	.47	1	.04	15,3	.60	16	.63
		1,5	.06				
		2	.08				
14	.55	1,5	.06	18,6	.73	19,6	.77
		2	.08				
		2,5	.10				
		3	.12				
15	.59	1,5	.06	19,1	.75	20	.79
		2	.08				
		2,5	.10				
16	.63	1,5	.06	20,6	.81	22	.87
		2	.08				
		2,5	.10				
		3	.12				
18	.71	1,5	.06	23,2	.91	24	.94
		2	.08				
		2,5	.10				
20	.79	2	.08	25,6	1.01	26,8	1.06
		2,5	.10				
		3	.12				
		3,5	.14				
22	.87	1,5	.06	26,5	1.04	27,5	1.08
		2	.08				
		2,5	.10				
		3	.12				
25	.98	2	.08	31,1	1.22	33	1.30
		2,5	.10				
		3	.12				
		4	.16				
28	1.10	2	.08	32,7	1.29	33,3	1.31
		2,5	.10				
		3	.12				
30	1.18	2	.08	37	1.46	38,7	1.52
		2,5	.10				
		3	.12				
		4	.16				
		5	.20				
35	1.38	2	.08	41,8	1.65	42,7	1.68
		2,5	.10				
		3	.12				
		4	.16				
38	1.50	2,5	.10	46	1.81	47,2	1.86
		3	.12				
		4	.16				
42	1.65	5	.20	48,8	1.92	49,8	1.96
		2	.08				
		3	.12				
		4	.16				

5. Repeated Assembly

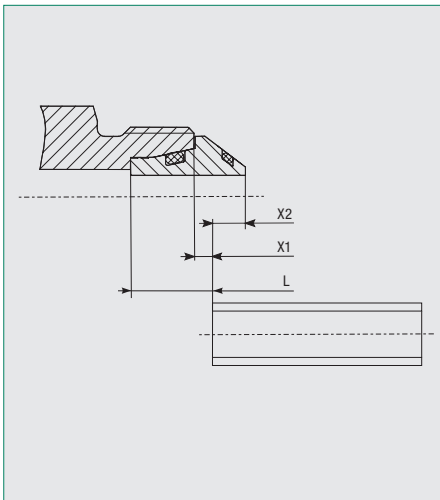
For repeated assembly, the union nut has to be tightened using exactly the same force as for the original assembly.



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.

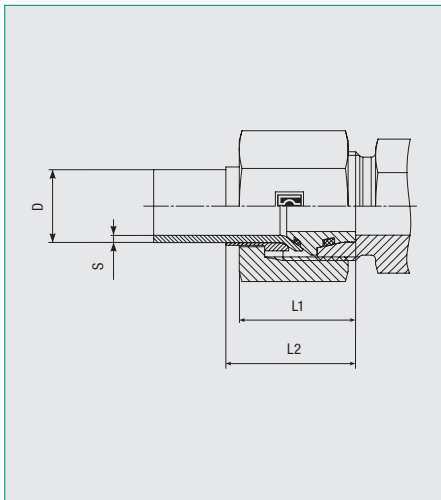
Tube OD D (mm)	(in)	Dimensions		X2 (mm)	(in)	L (mm)	(in)
		X1 (mm)	(in)				
6	.24	1	.04	3,5	.14	8	.31
		2	.08	2,5	.10	9	.35
8	.31	1	.04	4	.16	8	.31
		2	.08	3	.12	9	.35
		2,5	.10	2,5	.10	9,5	.37
10	.39	1	.04	4,5	.18	8	.31
		2	.08	3,5	.14	9	.35
		3	.12	2,5	.10	10	.39
12	.47	1	.04	4,5	.18	8	.31
		2	.08	3,5	.14	9	.35
		3	.12	2,5	.10	10	.39
14	.55	0,5	.02	5,5	.22	8,5	.33
		1	.04	5	.20	9	.35
		2	.08	4	.16	10	.39
		3	.12	3	.12	11	.43
15	.59	1	.04	4,5	.18	8	.31
		2	.08	3,5	.14	9	.35
		3	.12	2,5	.10	10	.39
16	.63	0	.00	6,5	.26	8,5	.33
		1	.04	5,5	.22	9,5	.37
		1,5	.06	5	.20	10	.39
		2,5	.10	4	.16	11	.43
18	.71	0	.00	5,5	.22	7,5	.30
		1	.04	4,5	.18	8,5	.33
		1,5	.06	4	.16	9	.35
20	.79	1	.04	7	.28	11,5	.45
		2	.08	6	.24	12,5	.49
		3	.12	5	.20	13,5	.53
		4	.16	4	.16	14,5	.57
22	.87	1	.04	5,7	.22	8,5	.33
		2	.08	4,7	.19	9,5	.37
		3	.12	3,7	.15	10,5	.41
		3,5	.14	3,2	.13	11	.43
25	.98	1	.04	7	.28	13	.51
		1,5	.06	6,5	.26	13,5	.53
		2,5	.10	5,5	.22	14,5	.57
		4	.16	4	.16	16	.63
28	1.10	1,5	.06	5,7	.22	9	.35
		2,5	.10	4,7	.19	10	.39
		3	.12	4,2	.17	10,5	.41
30	1.18	-0,5	-.02	9	.35	13	.51
		0,5	.02	8	.31	14	.55
		1	.04	7,5	.30	14,5	.57
		3	.12	5,5	.22	16,5	.65
		4,5	.18	4	.16	18	.71
35	1.38	1,5	.06	6,5	.26	12	.47
		2	.08	6	.24	12,5	.49
		3	.12	5	.20	13,5	.53
		4,5	.18	3,5	.14	15	.59
38	1.50	0	.00	10	.39	16	.63
		0,5	.02	9,5	.37	16,5	.65
		2	.08	8	.31	18	.71
		4	.16	6	.24	20	.79
42	1.65	1,5	.06	7	.28	12,5	.49
		3	.12	6,5	.26	14	.55
		4,5	.18	5	.20	15,5	.61



Assembly Instructions for STAUFF Connect 37° Flared Tube Fittings

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

Calculation Dimensions

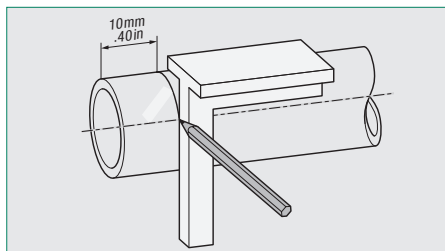


Series	Tube OD x Wall Thickness (mm/in) D x S	Dimensions (mm/in)		Corrected Tube Lengths for Different Wall Thicknesses (mm/in)										
		L1	L2	1	1,5	2	2,5	3	3,5	4	5			
L	6 x 1	17,5	20,5	•	1	1								
	.24 x .04	.69	.81		.04	.04								
	8 x 1	18,5	21,5	•	1	1,5								
	.31 x .04	.73	.85		.04	.06								
	10 x 1,5	19,5	24	-1	•	1								
	.39 x .06	.77	.94	-.04		.04								
	12 x 1,5	20	24,5	-1	•	1								
	.47 x .06	.79	.96	-.04		.04								
	15 x 1,5	21,5	25,5		•	1	2							
	.59 x .06	.85	1.00			.04	.08							
	18 x 2	23	27		-1	•	1							
	.71 x .08	.91	1.06		-.04		.04							
	22 x 2	24	30,5		-1	•	1	1,5						
	.87 x .08	.94	1.20		-.04		.04	.06						
	28 x 3	26	31,5				-1,5	-0,5	•					
	1.10 x .12	1.02	1.24				-.06	-.02						
	35 x 3	30	36				-1,5	-1	•				1,5	
	1.38 x .12	1.18	1.42				-.06	-.04					.06	
42 x 3	34	40				-1,5		•				1,5		
1.65 x .12	1.34	1.57				-.06						.06		
S	6 x 1	17,5	20,5	•	1	1								
	.24 x .04	.69	.81		.04	.04								
	8 x 1	18,5	21,5	•	1	1,5								
	.31 x .04	.73	.85		.04	.06								
	10 x 1,5	20	24,5	-1	•	1								
	.39 x .06	.79	.96	-.04		.04								
	12 x 1,5	20,5	25	-1	•	1								
	.47 x .06	.81	.98	-.04		.04								
	14 x 2	23	27,5		-0,5	•	1	2						
	.55 x .08	.91	1.08		-.02		.04	.08						
	16 x 2	25	31		-1	•	0,5	1,5						
	.63 x .08	.98	1.22		-.04		.02	.06						
	20 x 2	27,5	33			•	1	2			3			
	.79 x .08	1.08	1.30				.04	.08		.12				
	25 x 3	32	38,5				-1,5	-1	•				1,5	
	.98 x .12	1.26	1.52				-.06	-.04					.06	
	30 x 3	33	41,5				-2	-1	•				2	3,5
	1.18 x .12	1.30	1.63				-.08	-.04					.08	.14
38 x 3	37,5	48					-0,5	•				1,5	3,5	
1.50 x .12	1.48	1.89					-.02					.06	.14	

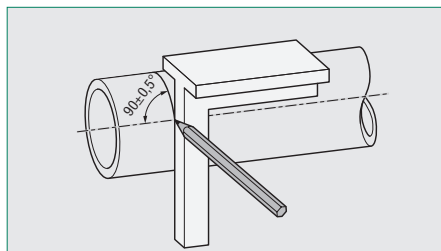


Assembly Instructions for 24° Weld Cones with O-Ring

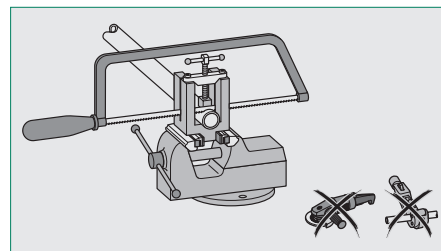
1. Tube Preparation



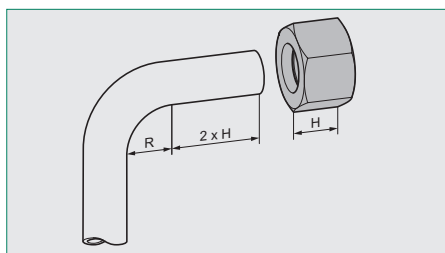
Saw off tube in right angle and at least 10 mm / .40 in from the cut made by the tube manufacturer / supplier in order to avoid failures caused during shipment.



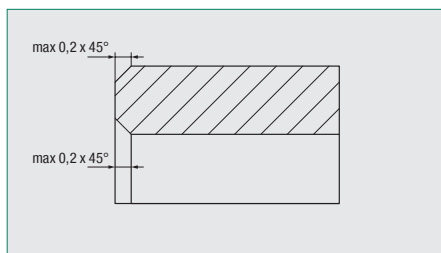
A maximum angular deviation / tolerance of $\pm 0,5^\circ$ relative to the tube axis is permissible.



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.

Descal 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 approximately 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.

4. Repeated Assembly

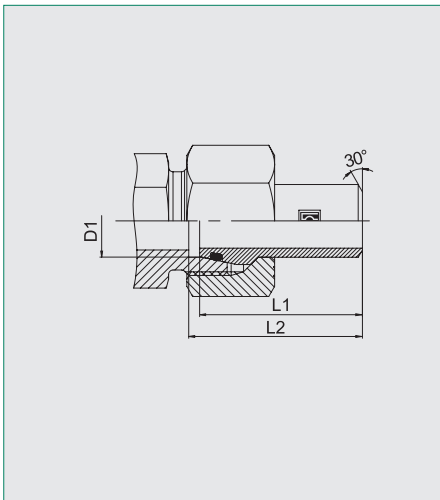
For repeated assembly, the union nut has to be tightened using exactly the same force as for the original assembly.

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		Dimensions				
	D1 (mm)	(in)	L1 (mm)	(in)	L2 (mm)	(in)	
L	6	.24	31	1.22	32	1.26	
	8	.31	31	1.22	32	1.26	
	10	.39	32,5	1.28	33,5	1.32	
	12	.47	32,5	1.28	33,5	1.32	
	15	.59	35	1.38	36	1.42	
	18	.71	36	1.42	37	1.46	
	22	.87	38,5	1.52	39,5	1.56	
	28	1.10	41,5	1.63	42,5	1.67	
	35	1.38	47	1.85	49,5	1.95	
	42	1.65	47	1.85	50	1.97	
	S	6	.24	31	1.22	32	1.26
		8	.31	31	1.22	32	1.26
10		.39	32,5	1.28	33,5	1.32	
12		.47	32,5	1.28	33,5	1.32	
14		.55	38,5	1.52	39,5	1.56	
16		.63	39	1.54	41	1.61	
20		.79	44,5	1.75	47	1.85	
25		.98	49,5	1.95	53,5	2.11	
30		1.18	52,5	2.07	57,5	2.26	
38		1.50	56,5	2.22	64,5	2.54	



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 approximately 1/3 a turn (120°) beyond this point.

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

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

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 wire-pin nut until the noticeable increase in force, and then finish the assembly with another approximately 1/12 a turn (30°) beyond this point.

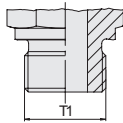
Important: Always use a spanner to hold the fitting body during the assembly procedure.

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

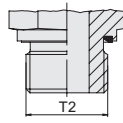


Assembly Instructions for Tube Fittings with Male Threaded Stud

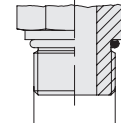
Tightening Torques


Metallic Sealing Edge

Metric Parallel Thread
DIN 3852-1 (Form B) / ISO 9974-3 (Type B)
Whitworth Parallel Pipe Thread
DIN 3852-2 (Form B) / ISO 1179-4 (Type B)


Profile Sealing Ring

Metric Parallel Thread
ISO 9974-2 (Type E)
Whitworth Parallel Pipe Thread
ISO 1179-2 (Type E)


**O-Ring without Retaining Ring
(Non-Adjustable)**

Metric Parallel Thread
ISO 6149-2 /-3

Series	Tube OD (mm/in) D1	Thread T1		Thread T2		Thread T3			
		Metallic Sealing Edge	Torque (N·m) ca.	Profile Sealing Ring	Torque (N·m/ft·lb) ca.	O-Ring	Torque (N·m/ft·lb) ca.		
L	6	M 10 x 1	18	G 1/8	M 10 x 1	18	G 1/8	M 10 x 1	15
	.24		13.32			13.32			11.1
	8	M 12 x 1,5	30	G 1/4	M 12 x 1,5	25	G 1/4	M 12 x 1,5	25
	.31		22.2			25.9			18.5
	10	M 14 x 1,5	45	G 1/4	M 14 x 1,5	45	G 1/4	M 14 x 1,5	35
	.39		33.3			25.9			33.3
	12	M 16 x 1,5	65	G 3/8	M 16 x 1,5	55	G 3/8	M 16 x 1,5	40
	.47		48.1			51.8			40.7
	15	M 18 x 1,5	80	G 1/2	M 18 x 1,5	70	G 1/2	M 18 x 1,5	45
	.59		59.2			81.4			51.8
	18	M 22 x 1,5	140	G 1/2	M 22 x 1,5	125	G 1/2	M 22 x 1,5	60
	.71		103.6			81.4			92.5
	22	M 26 x 1,5 ²	190	G 3/4	M 26 x 1,5 ²	180	G 3/4	M 27 x 2	100
	.87		140.6			133.2			133.2
	28	M 33 x 2	330	G 1	M 33 x 2	310	G 1	M 33 x 2	160
	1.10		244.2			244.2			229.4
35	M 42 x 2	500	G 1 1/4	M 42 x 2	450	G 1 1/4	M 42 x 2	210	
1.38		370			399.6			333	155.4
42	M 48 x 2	630	G 1 1/2	M 48 x 2	540	G 1 1/2	M 48 x 2	260	
1.65		466.2			466.2			399.6	192.4
S	6	M 10 x 1	18	G 1/8	M 10 x 1	18	G 1/8	M 10 x 1	35
	.24		13.32			13.32			13.32
	8	M 12 x 1,5	30	G 1/4	M 12 x 1,5	25	G 1/4	M 12 x 1,5	40
	.31		22.2			25.9			18.5
	10	M 14 x 1,5	45	G 1/4	M 14 x 1,5	45	G 1/4	M 14 x 1,5	55
	.39		33.3			25.9			33.3
	12	M 16 x 1,5	65	G 3/8	M 16 x 1,5	55	G 3/8	M 16 x 1,5	70
	.47		48.1			51.8			40.7
	14 ¹	M 18 x 1,5	80	G 1/2	M 18 x 1,5	70	G 1/2	M 18 x 1,5	
	.55		59.2			81.4			51.8
	16	M 22 x 1,5	140	G 1/2	M 22 x 1,5	125	G 1/2	M 22 x 1,5	100
	.63		103.6			81.4			92.5
	20	M 26 x 1,5 ²	190	G 3/4	M 26 x 1,5 ²	180	G 3/4	M 27 x 2	170
	.79		140.6			133.2			133.2
	25	M 33 x 2	330	G 1	M 33 x 2	310	G 1	M 33 x 2	310
	.98		244.2			244.2			229.4
30	M 42 x 2	500	G 1 1/4	M 42 x 2	450	G 1 1/4	M 42 x 2	330	
1.18		370			399.6			333	244.2
38	M 48 x 2	630	G 1 1/2	M 48 x 2	540	G 1 1/2	M 48 x 2	420	
1.50		466.2			466.2			399.6	310.8

¹ Tube size is no longer covered by the applicable standard.

² M 27 x 2 according to ISO 6149.

Please note: The tightening torques for male threaded studs listed in this catalogue are approximate 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.

Always apply sufficient lubricant to the contact surfaces of the threads prior to the assembly.

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.

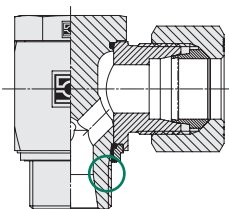
2. Assembly with the Fitting Body

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.

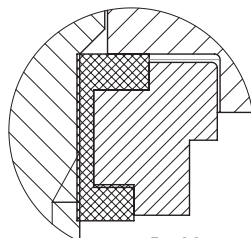
Align the body of the banjo fitting and tighten the banjo bolt with a spanner until the noticeable increase in force (pressure point).

Use a suitable spanner to finish the assembly with either another approximately 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.

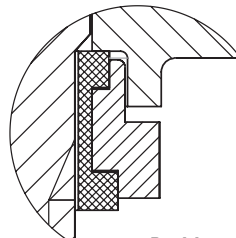
Positioning and Orientation of Retaining Rings with Captive Seal



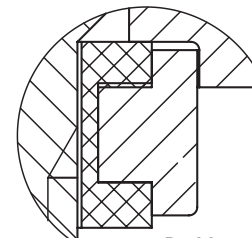
Applicable for RSWND / RSW / RST



Position 1



Position 2



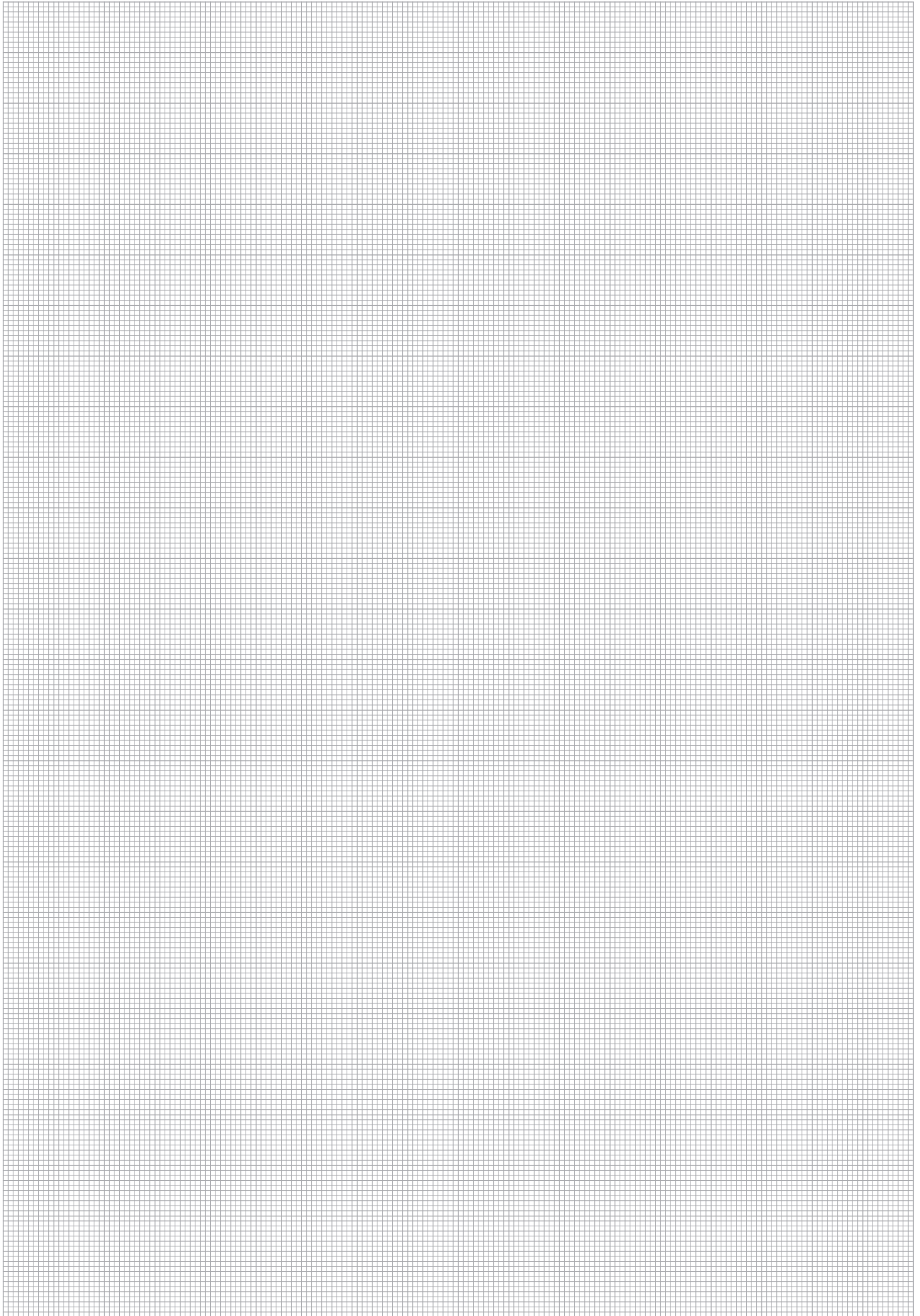
Position 3

Series	Tube OD (mm/in)	Thread	Position
L	6	G 1/8	2
	.24		
	8	G 1/4	2
	.31		
	10	G 1/4	2
	.39		
	12	G 3/8	1
	.47		
	15	G 1/2	1
	.59		
	18	G 1/2	1
	.71		
	22	G 3/4	1
.87			
28	G 1	1	
1.10			
35	G 1 1/4	1	
1.38			
42	G 1 1/2	1	
1.65			
S	6	G 1/4	2
	.24		
	8	G 1/4	2
	.31		
	10	G 3/8	1
	.39		
	12	G 3/8	1
	.47		
	14	G 1/2	1
	.55		
	16	G 1/2	1
	.63		
	20	G 3/4	1
	.79		
	25	G 1	1
.98			
30	G 1 1/4	1	
1.18			
38	G 1 1/2	1	
1.50			

Series	Tube OD (mm/in)	Thread	Position
L	6	M10x1	2
	.24		
	8	M12x1,5	3
	.31		
	10	M14x1,5	2
	.39		
	12	M16x1,5	1
	.47		
	15	M18x1,5	1
	.59		
	18	M22x1,5	1
	.71		
	22	M26x1,5	1
.87			
28	M33x2	1	
1.10			
35	M42x2	1	
1.38			
42	M48x2	1	
1.65			
S	6	M12x1,5	3
	.24		
	8	M14x1,5	2
	.31		
	10	M16x1,5	1
	.39		
	12	M18x1,5	1
	.47		
	14	M20x1,5	1
	.55		
	16	M22x1,5	1
	.63		
	20	M27x2	1
	.79		
	25	M33x2	1
.98			
30	M42x2	1	
1.18			
38	M48x2	1	
1.50			

Q





Q

