IPCO PLUG

INSTRUCTION MANUAL //
IPCO PLUG

// Introduction

The IPCO Plug is designed to seal heat exchanger tubes safe, quick and durable. This instruction manual has been prepared for the IPCO Plug and the tooling required to obtain the correct installation.

The IPCO Plug system is fully compliant with the Pressure Equipment Directive (PED), the ASME PCC-2, 2022 and meets all set safety requirements and many local regulations, proven and documented by the accredited notified body D.N.V. We recommend that, who is going to work with this IPCO Plug system, to be trained beforehand by the local IPCO Plug partner, to ensure the quality of the entire system. For more information, please contact your IPCO Plug partner or IPCO B.V.

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// Warning in advance

For a safe and proper installation of the IPCO Plug, it is important to consider the following key points. Follow these guidelines to ensure optimal performance and durability.

- The IPCO Plug is in full accordance with the Pressure Equipment Directive (P.E.D.), the ASME PCC-2, 2022, and it is highly recommended to have the installation performed by certified personnel.
- Always install the IPCO Plug within the rolled part of the tube sheet.
- The material of the IPCO Plug has to be equivalent to the material of the tube and tube sheet.
- The design pressure and temperature shall not exceed the value of the selected IPCO Plug (X1 or X4) kit.
- In case of any doubt or uncertainty make direct contact with your local IPCO Plug partner or IPCO B.V., for the material, pressure rating and temperature possibilities and the installation procedure.
- All IPCO Plugs are individually packed to prevent any damage, however extra care is needed to make sure the IPCO Plugs are installed without any damage.
- The air- and battery-driven hydraulic IPCO Plug installation sets should be regularly checked and annually inspected by your IPCO Plug partner or IPCO B.V. to ensure continued safe and proper operation.

// How the system works

The IPCO Plug consists of three main components: a tapered pin, a ring with serrations and a break-away. For installation, the pull rod is inserted into the hydraulic ram, after which the IPCO Plug is screwed into the pull rod. The IPCO Plug is now ready for installation.

During installation, the tapered pin is pulled through the ring. This causes the ring to expand radially until it contacts the inside of the tube. The inner diameter of the tube limits further expansion of the ring. This increases the tensile force on the break-away. Once the required installation force is reached, the break-away breaks. This disconnects the tooling and the inserted IPCO Plug.

The size (in mm), material code and batch number are all indicated on the far-end of each IPCO Plug. The IPCO Plug X1 shows one specific size. On the IPCO Plug X4, the entire size range is indicated in millimeters.

Important: Always choose a plug made of a material similar to that of the tube and/or tube sheet of the heat exchanger. This prevents undesirable chemical or thermal reactions between different materials.

// Material selection

The IPCO Plug is available in different materials, to enable the correct IPCO Plug selection, that is close to the material of the pipe. In case of any unclear situations, such as (but not only) the presence of any other materials in tube and or tube sheet, you must communicate this with the owner/responsible inspector/controller on the installation on site to determine the correct selection.

The material code is marked on the far end of the pin of the IPCO Plug, in code, such as:

- ‘A’ for 16Mo3
- ‘B’ for Brass
- ‘C’ for Carbon Steel
- ‘CM’ for Chromium Molybdenum
- ‘D’ for Duplex
- ‘E’ for Stainless Steel 304L
- ‘M’ for Monel
- ‘S’ for Stainless Steel 316L
- ‘4S’ for Stainless Steel 410
- ‘ST’ for Stainless Steel 321
- ‘SV’ for Stainless Steel 904L
- ‘NCF’ for NiCroFer
- ‘T’ for Titanium

Other material upon request.

// IPCO Plug sizing

Prior to any tube plugging, all pipes must be measured at the area where the IPCO Plug will be installed, to determine the correct plug size. The actual inner diameter will usually not be the theoretical diameter due to erosion, corrosion, rolling and extra rolling of the tubes, etc. It is recommended to measure the exact inner diameter.

STEP 01 //
Measuring the inner diameter
If not possible, proceed to step 2.

Determine and register the vertical and horizontal measured diameter of the pipe at a depth of approximately 45 mm inside the tube (or at the place the IPCO Plug has to be installed). Use the largest of the two sizes as the actual diameter.

If the heat exchanger can be opened prior to plugging, use the calibre to aid in determining the correct size. Every IPCO Plug ”kit” X1 and X4 is supplied with a calibre.

⚠ With larger difference (out of round or taper) we advise this tube to be reamed first with a machine reamer.

⚠ Before starting, all weld protrusions, weld droop, and all other entry restrictors of the tube, must be removed. Make sure the tube has been rolled evenly into the tube sheet and the diameter is even, across the depth of the tube sheet.

STEP 02 //
Determining the size without measuring

Consult the data sheet supplied by the heat exchanger manufacturer to determine the tube OD and wall thickness. From the data sheet it is also necessary to determine if the tubes have been rolled into the tube sheet or otherwise expanded.

If the tubes cannot be measured prior to ordering plugs, it is recommended that in addition to the recommended IPCO Plug X1 size, also order the next one or two larger sizes. Or in case of the X4 Plug, if it is at the end of its reach also order the next available size up.

Units manufactured with a soft roll close to the face of the tube sheet will give a false calibre reading and plugs will be undersized and subject to failure. The soft roll must be cleared with a reamer or brushed out to achieve uniform tube ID and true calibre reading.

⚠ The mentioned method for determining size is only a starting point. The actual inside diameter is regularly larger than expected due to excessive rolling, erosion, corrosion and/or other influences.

💡 By subtracting 10% of the wall thickness, you can approximate the internal diameter of the tube.

Example, application IPCO Plug X1 - *For a rolled inner diameter of 15.07 mm, an IPCO Plug IP-150-X is required. Due to erosion, oversized rolling, and preparation, the actual inner diameter will be approximately 15.5 mm. Since material is being removed—especially in softer materials such as brass—it is highly recommended to also have plug number IP-155-X available.*

Example, application IPCO Plug X4 - *For a rolled inner diameter of 15.7 mm and an operating pressure up to 175 bar, the IPCO Plug X4 155 (IPX4 155) is required. Due to erosion, oversized rolling, and preparation, the inner diameter will be approximately 16.0 mm, which falls within the 15.5–17.0 mm range. For the IPCO Plug X4 kit, the tube preparation brush must be ordered separately.*

STEP 03 //
Equipment

In addition to selecting the correct size and material of the IPCO Plug, using the proper installation tools is also essential. Existing obstacles, such as header box, channel head and divider plates, may obstruct access to the outer tubes. Using installation tools specifically designed for these situations is necessary to correctly insert the IPCO Plug. Minimum required materials before the plugs can be installed:

- The IPCO Plug X1 kit, in the correct size and material, includes 10 IPCO Plugs X1, a tube preparation brush, and a sizing gauge.
- The IPCO Plug X4 kit, in the correct size and material, includes 10 IPCO Plugs X4 and a sizing gauge. The required tube preparation brushes must be ordered separately.
- The IPCO Plug hydraulic installation set (battery-powered or pneumatic), suitable for both IPX1 and IPX4.
- Complete pull rod suitable for the selected IPCO Plug and the chosen installation tool, optionally with pull rod extensions for use in water boxes, etc.
- IPCO Plug positioner for the selected IPCO Plug X1 or IPCO Plug X4.
- Air powered drill, for tube brushing.
- For tubes that are also welded to the tube sheet: a tapered reamer for removing weld droop.
- The appropriate battery or an air supply of 6 to 12 bar, depending on the selected IPCO Plug tool.

// Tube preparation and size verification

STEP 04 //
Remove weld droop

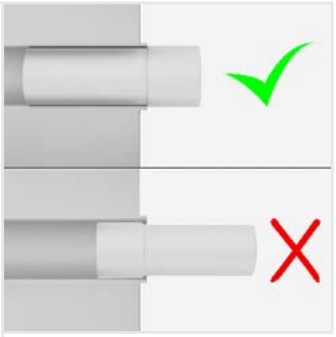
If the tube-to-tube sheet joints are welded, any weld protruding into the inside diameter, like weld drops, etc. should be removed with a tapered reamer prior to proceeding.

STEP 05 //
Tube sizing

If the narrow end of the gauge fits into the tube up to a depth of 45 mm, and the wider end does not, then the correct IPCO Plug X1 or X4 kit has been selected. The gauge's size number corresponds to the size of the IPCO Plug kit.

Each IPCO Plug X1 kit is supplied with a matching brush. Ensure that the size number of the brush and the IPCO X1 Plugs also matches the size indicated on the gauge.

The size range of the IPCO Plug X4 is so wide that multiple brushes can be used across the entire range. For each IPCO Plug X4 kit, a brush set can be supplied—or individual brushes if the internal diameter is measured and/or known.



When brushing, the brush must fit properly into the tube or tube sheet hole. A brush that is too large or too small will offer insufficient results, which affects the performance of the IPCO Plug. Ensure highly accurate measurement and selection of the correct brush. Example: If a diameter of 16.0 to 16.5 mm is measured, use brush 160.

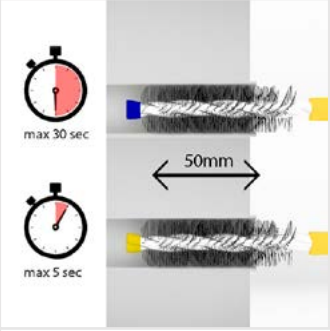
Use the IPCO Plug X1 gauge set when working with the IPCO Plug X4 to immediately determine the correct size of the tube preparation brush.

STEP 06 //
Preparation of tube using wire brush

Brush the tube to a minimum depth of 50 mm. Remove scale, grooves, ovality, pitting, and corrosion to improve the plug's sealing performance.

Mount the brush on an air powered drill. Then use the rotating brush to treat the tube end to a depth of 50 mm. Brushing for up to 30 seconds with the HT brush with the blue tip, used for harder materials such as carbon steel, duplex and stainless steel, removes approximately 0.1 mm to 0.5 mm from the tube's inner diameter. For softer materials such as brass, use the yellow-tipped brush and limit brushing to no more than 5 seconds.

If brushing is done excessively, too much material may be removed, requiring a larger IPCO Plug X1 size. This occurs less frequently with the IPCO Plug X4, but it can still happen. Under normal conditions, one brush is sufficient for preparing 10 tube ends. After installing 10 plugs, use a new brush. Order additional brushes if needed. The brush must only rotate clockwise. For hard-to-reach tubes, the brush can be extended using a rod. Contact your local IPCO Plug partner or IPCO B.V. for more information.



In areas where a "hot work permit" is required, spark formation can be an issue. This can be prevented or minimized by using a lubricant. Contact your local IPCO Plug partner or IPCO B.V. for more information.

Often, just a few seconds of brushing is sufficient. Never brush for too long!

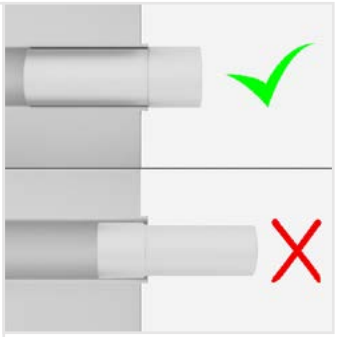
STEP 07 //
Inspect the tube end for irregularities

Inspect the tube after brushing to ensure that all dirt, scale, pitting, and similar contaminants have been removed. If not, the tube must be further processed. This may require a larger brush size and therefore a larger IPCO Plug kit.

If the condition of the tube is very poor or out-of-round and cannot be improved by brushing, the tube must be drilled or reamed. After reaming or drilling, continue from step 5.

STEP 08 //
Check the size again

The diameter of the tube may have increased after processing, so the sizing must be checked again. As in Step 5, the narrow end of the gauge must fit into the tube to a depth of 45 mm, and the wide end must not fit.



STEP 09 //
Repeat steps 5–8 for each subsequent plug

Once all tubes have been accurately prepared and the correct plug size has been determined for each tube, the tubes are ready to be plugged.

In theory, all tube sizes in a heat exchanger should be the same. However, in practice, variation is common. **So make sure to measure each tube!**

If the IPCO Plug is installed using the IPCO Plug Easy Electric, pages 20 and 21 must also be reviewed.


IPCO
HEAT EXCHANGER PLUGS

// Preparation and Installation of the IPCO Plug

STEP 10 //
Visual inspection of the air driven pump, hose, and hydraulic ram

If the oil level in the pump is too low, top it up with a fully mineral oil VG15 or an equivalent.

Remove the **red** transport cap and replace it with the **black** breather cap. If the foot pump is equipped with a breather swivel, make sure it is opened before use.

⚠ The system can handle a maximum pressure of 700 bar. For any question or issues contact your local IPCO Plug partner or IPCO B.V. immediately.

STEP 11 //
Connect the air hose

Connect an air pressure supply of 6 to 12 bar to the hydraulic pump. Use couplings that are approved according to company's regulations. The air supply must be clean, dry, and lightly lubricated.

STEP 12 //
Test the hydraulic ram & set-up

Press the pump pedal to check that everything is functioning properly. When pressing the foot pump pedal, the piston should extend from the hydraulic ram within a few seconds. If this does not happen, check the hose connections and oil level, then test again.

STEP 13 //
Complete pull rod assembly

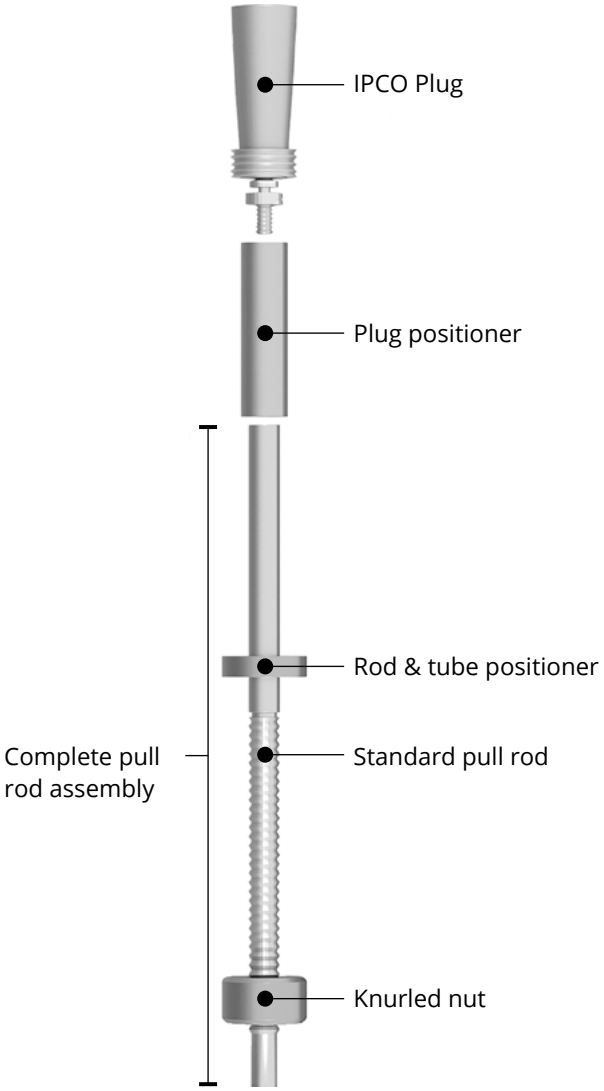
Select the correct complete pull rod assembly and the appropriate plug positioner suitable for the size and type of IPCO Plug being installed. Refer to the tables in the back of this user manual.

The standard complete pull rod consists of:

- Standard pull rod: Internal thread on one end and external thread on the other.
- Positioning ring: Placed between the hydraulic Ram and the plug positioner.
- Knurled nut: Screwed onto the external thread of the pull rod after the rod is inserted into the hydraulic ram.
- Plug positioner: With a larger inner diameter on one side than the other, suitable for the IPCO X1 or X4 plug to be installed.

The pull rod extension (for use with water boxes, etc.) consists of:

- Pull rod extension.
- Pull rod extension sleeve.
- Stand-off (pacer) ring (to be ordered separately).



STEP 14 //
Check the pull rod

Check that the pull rod and extension are assembled correctly. Arrows are marked on the pull rod, plug positioner and ring, next to the size markings. These arrows indicate the plug insertion direction.

When using a pull rod extension, the correct installation depth of the plug an be set using a stand-of (spacer) ring (optional).

STEP 15 //
Select IPCO Plug

IPCO Plugs are shipped 10 in a box and sealed in individual packing tubes to prevent damage. The packaging of plugs sensitive to corrosion, such as those made of carbon steel, and similar materials, contain a drying agent to prevent corrosion formation during storage.

Select the IPCO Plug size corresponding to the correct size calibre used previously. Visually inspect the plug to be certain that no damage was caused during handling. The ring portion should be free of scars or dents across the serrations. The finish of the pin should be clean and smooth. If the IPCO Plug appears damaged, discard it! Never attempt to install a damaged or corroded plug.

The undercut side of the breakaway is always installed into the pin. The breakaway is tightened into the pin to prevent loosening or removal. Never attempt to remove the breakaway from the pin prior to installation.

STEP 16 //
Insert pull rod into ram

Insert the male threaded end of the complete pull rod assembly through the front of the ram (note: the arrow on the pullrod should point towards the IPCO Plug).

STEP 17 //
Install knurled nut onto pull rod

Thread the knurled nut onto the pull rod against the large black nut on the back of the ram. Do not tighten the knurled nut at this step.

STEP 18 //
Thread plug onto pull rod

Remove the remaining part of the breakaway from the pull rod. Screw the IPCO Plug onto the end of the pull rod (complete pull rod with plug positioner). Ensure that the breakaway tread is fully screwed into the pull rod (hand-tight is sufficient); otherwise, it may break off prematurely. Now tighten the knurled nut until it fits snugly against the back of the hydraulic ram.

The M5 and M6 knurled nuts have a collar. The smaller diameter must be positioned toward the hydraulic ram. After tightening the knurled nut, there should be no play between the plug and the components of the complete pull rod. The plug positioner must fit tightly against the ring of the IPCO Plug.

⚠ If the plug positioner is larger than the plug ring or does not make contact with it, the choice is incorrect. See the tables at the back of this user manual.

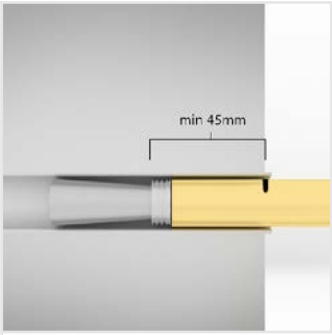
⚠ When operating the pump, the piston comes out of the back of the hydraulic ram. Beware of clamping hazard.

STEP 19 //
Determine the installation depth

If possible, install the plug at a depth of at least 45 mm. This ensures the plug is fully protected within the tube sheet. If the tube sheet thickness and rolling depth do not allow installing the plug 45 mm deep, it may be installed at a lesser depth. This does not affect the sealing quality. However, the plug must **always** be placed within the tube sheet thickness and in the rolled section of the tube. If the plug is installed at less than 45 mm depth, the plug pin may protrude from the tube sheet.

If the tube sheet is thinner than 45 mm, install the plug at a shallower depth. Make sure the plug ring always remains **within** the tube sheet thickness and **in the rolled section** of the tube.

Once the installation depth is determined and marked on the plug positioner, insert the plug into the tube. Support the hydraulic ram and carefully slide the plug into the tube to the desired installation depth.



⚠ Prevent the pin of an installed plug that protrudes from the tube sheet from coming into contact with heavy objects!

⚠ If the tube sheet is thinner than 15 mm, contact your local IPCO Plug partner or IPCO B.V. for further instructions before installation.

⚠ During the use of the hydraulic hydraulic ram, no persons should be positioned behind the hydraulic ram, and it is not allowed to place your hand inside the black safety guard.

STEP 20 //
Installation of IPCO Plug

Guide the hydraulic ram with the pull rod and ensure the plug is positioned straight. Press the pump pedal (see arrow in the illustration). The piston will extend from the cylinder after a few seconds. Continue pumping until the breakaway breaks.

The IPCO Plug hydraulic ram is specially designed to install the plug in a single operation, ensuring optimal plug performance.

STEP 21 //
Plug is installed

When the IPCO Plug has been installed, the breakaway will fracture and the pull rod and ram assembly will be separated from the installed plug.

⚠ When the breakaway of the IPCO Plug separates during installation, this might result in recoil, please be aware of this.

STEP 22 //
Release pump pressure

While holding the ram handle, step on the front end of the pump pedal 'RELEASE'. This will allow the ram to retract.

⚠ Always allow the piston to fully retract into the hydraulic ram to prevent damage.

STEP 23 //
Return knurled nut

Return the knurled nut to the back end of the pull rod.

STEP 24 //
Remove the breakaway section from plug pin

Remove the breakaway section remaining in the plug pin and discard it.

⚠ After installation the remaining part of the breakaway must be removed from the IPCO Plug pin, to prevent it coming loose.

// Repetition

For the correct installation of multiple plugs, Steps 18 through 24 must be carefully repeated.

When after installing an IPCO Plug, there is any sign of leakage, this has to do with insufficient preparation of the tube and/or out off round – taper shape of the tube. In this event use a machine reamer to make the tube round again. Repeat the brushing, when needed with a next size up brush, to remove pitting and scoring after reaming. When all imperfections are removed, install a new IPCO Plug.

// When plugging is completed

STEP 25 //
Pull rod

Remove the knurled nut from the threaded end of the pull rod, remove the pull rod from the ram and put the knurled nut back on the pull rod.

STEP 26 //
Toolbox

Place the complete pull rod back into the trolley-case. After installing the last plug, leave the broken breakaway inside the pull rod. This prevents the fully assembled pull rod from coming apart.

STEP 27 //
Cleaning the hydraulic ram and foot pump

Remove all dirt and moisture with a clean cloth and place everything back into the case.

STEP 28 //
Transport and storage

Always ensure that the pressure in the IPCO installation set is released before storing it in the designated and supplied trolley case. This applies both during transport and storage. Make sure the **red** transport cap is fitted on the pump and the **black** breather cap is placed in the trolley case during transport and storage.


If the foot pump is equipped with a breather swivel, ensure it is closed after use. The trolley-case must be transported and stored in a flat position.

STEP 29 //
Unused plugs

If any unused IPCO Plugs have been removed from their box, return them to their proper IPCO Plug box, with the correct type, serial-number and codes.

STEP 30 //
Maintenance

The hydraulic IPCO Plug installation kit should be checked regularly for defects and must also be inspected annually by your local IPCO Plug partner or IPCO B.V. for continued safe and proper operation.

STEP 31 //
Disassembly and recycling

At the end of its service life, disconnect, disassemble, separate materials and dispose of and recycle where possible.

// Shortened user manual

A shortened version of this user manual is available. For this, please contact your local IPCO Plug partner or IPCO B.V., visit the website www.IPCOPlug.com, or watch the instruction videos on YouTube. It is recommended to review the shortened user manual each time before plugging. This helps ensure safety and quality at all times.

Training - IPCO Plug

// IPCO Plug Easy Electric

This operating manual supplements the standard operating manual and replaces only the hydraulic installation section of the IPCO Plug with this IPCO Plug Easy Electric.

STEP 01 //

Take the IPCO Plug Easy Electric out of its case and insert the battery. Make sure that this is done in an environment where there is no risk of fire or explosion.

⚠ This equipment is non ATEX.

STEP 02 //

Tighten the large brass nut fully clockwise without force.

STEP 03 //

Select the appropriate IPCO Plug Easy Electric pull rod with spacer ring (see table in the instructions) and hand tighten it into the head of the IPCO Plug Easy Electric.

STEP 04 //

Place the correct size and type of IPCO Plug positioner in the correct direction over the pull rod. Note: arrow points to the plug, not the hydraulic ram.

STEP 05 //

Fully screw the IPCO Plug (X4 or X1) into the pull rod, hand tight.

STEP 06 //

Now turn the large brass nut fully anti-clockwise, without much force, until there is no more free space between this nut and the positioner and washer or the ring of the IPCO Plug.

STEP 07 //

Insert the IPCO Plug as described in the standard IPCO Plug user manual; in this case by operating the IPCO Plug Easy Electric with the black start button.

STEP 08 //

If the break-away does not break, because the IPCO Plug Easy Electric is at the end of its stroke, the hydraulic ram of the IPCO Plug Easy Electric will make a rattling sound.

- Release the **black** start button and press release, on the back of the IPCO Plug Easy Electric.
- Tighten the large brass nut anti-clockwise for 5 full rotations (no more)
- Click the release button back and then press the black start button to complete the installation. With this the full / maximum stroke has been completed.

STEP 09 //

Once all work has been successfully completed, clean and dry the entire IPCO Plug Easy Electric. Dismantle the pull rod, spacer ring, plug positioner, and battery and store everything back in the Easy Electric transport case.

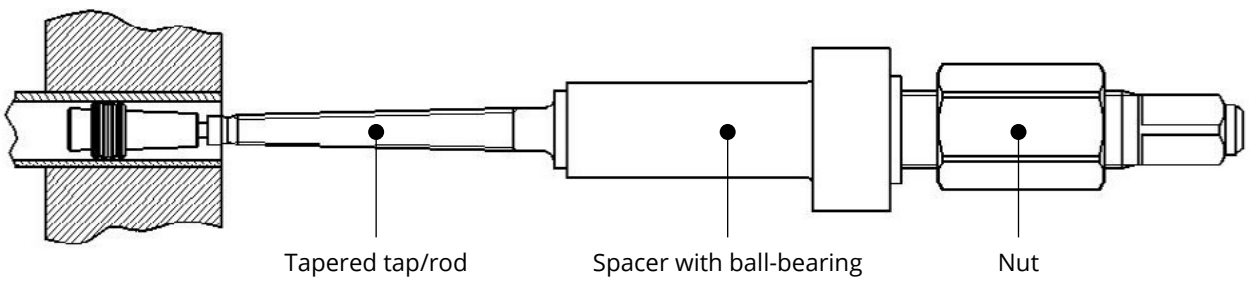
// IPCO Plug removal tool

For removing an IPCO Plugs X1 or X4, always use dedicated IPCO Plug removal tools, designed to remove the plugs safe, fast and easy.

⚠ Heat exchanger tubes can still be pressurised. Never stand in front of the pipe end and always work safe and careful and in full accordance to local H&S regulations!

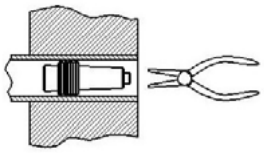
PLUG REMOVAL TOOL; IPCO PLUG X1	RANGE IN MM
10IPVGX1-100-110	10,0 - 11,0
10IPVGX1-115-125	11,5 - 12,5
10IPVGX1-130-165	13,0 - 16,5
10IPVGX1-170-215	17,0 - 21,5
10IPVGX1-220-265	22,0 - 26,5
10IPVGX1-270-320	27,0 - 32,0

PLUG REMOVAL TOOL; IPCO PLUG X4	RANGE IN MM
10IPVGX4-135-175	13,5 - 17,5
10IPVGX4-170-195	17,0 - 19,5
10IPVGX4-195-220	19,5 - 22,0
10IPVGX4-215-240	21,5 - 24,0
10IPVGX4-240-265	24,0 - 26,5
10IPVGX4-265-290	26,5 - 29,0
10IPVGX4-290-315	29,0 - 31,5
10IPVGX4-315-340	31,5 - 34,0
10IPVGX4-340-365	34,0 - 36,5
10IPVGX4-390-415	39,0 - 41,5



STEP 01 //

Remove the remaining part of the breakaway with a small nose plier or a rubber or wood strip. If the remaining part of the breakaway cannot be removed, use a hammer to remove the pin from the ring and proceed with step 5.

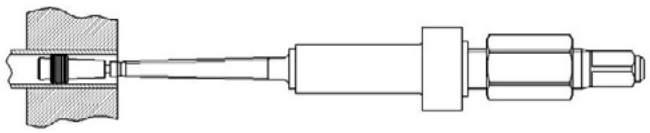


STEP 02 //

Select the correct type and size removal tool to remove the IPCO Plug, see the charts for IPCO Plug X1 and IPCO Plug X4 on next page.

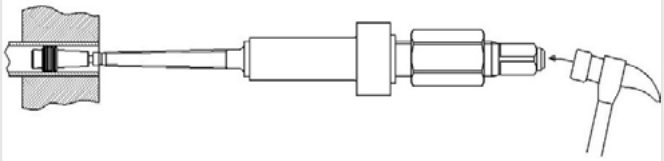
STEP 03 //

Turn the threaded (and replaceable) tip of the removal tool fully into the pin of the ring.



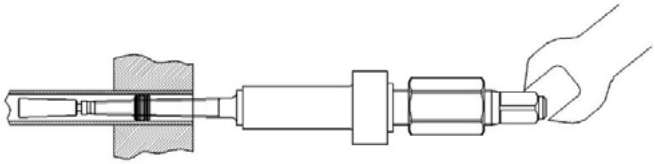
STEP 04 //

Use a hammer to punch the pin from the ring.



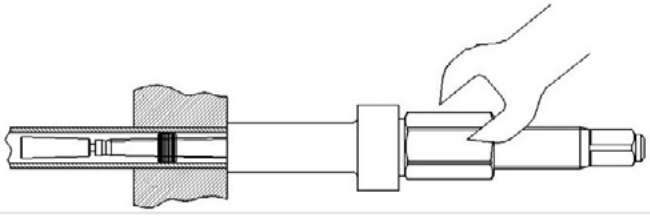
STEP 05 //

Rotate the inner part of the removal tool in the ring with five to six full rotations (clockwise) with the square end of the removal tool.



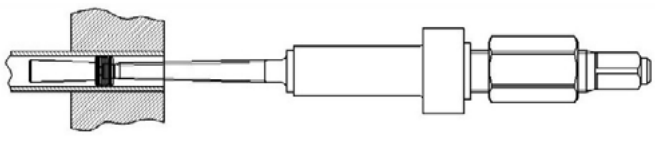
STEP 06 //

Remove the pin and the ring by turning the big hexagonal nut evenly.



STEP 07 //

Repeat step 5, if tool is being pulled through the ring without removal.



// Assistance

During office hours, we will assist you directly and personally. Outside these hours, you will be redirected via an answering machine to a mobile phone. For possible issues with the air-powered foot pump or the Easy Electric, please first consult the separate user manual for this equipment.

When contacting your local IPCO Plug partner or IPCO B.V. kindly have the following information at hand:

- Size and wall thickness of the tube.
- Thickness of the tube sheet, diameter and pitch of the holes.
- Material of the tube and the tube sheet.
- Maximum operating pressure and temperature.
- Are the tubes rolled (expanded) and/or welded?
- Dimensions of any water (header) box / air-fin (fin-fan) cooler / channel head or baffles present.

IPCO B.V. guarantees excellent service!
You can reach us 24/7 at:

T. +31 78 65 21 888
E. info@ipco.nl
W. www.IPCOPlug.com

Despite our efforts to ensure that the information provided is correct, IPCO accepts no responsibility for the recommended uses, results, injuries and damages that may result from the use of its products. IPCO advises users to make sure that the products are suitable for the purpose for which they are used.

CE // CERTIFICATE

IPCO B.V.
PO Box 1163
3300 BD Dordrecht
The Netherlands

Visiting address
Spinel 400
3316 LG Dordrecht
The Netherlands

T. +31 78 652 1888
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Declaration of Conformity

According II.1.A Machine Directive 2006/42/EG

Manufacturer:	**IPCO B.V.**
Address:	Spinel 400
	3316 LG Dordrecht
	The Netherlands
	T +31 (0) 78 6521888
Model:	IPCO plug installation set IP-100-500

IPCO Plug installation set, diameter range 10,0-50,0 mm
Consisting of: air driven hydraulic pump, gauge, hydraulic hose, IPCO Installation head and trolley toolbox c.w. insert.

With this we declare our responsibility that the IPCO Plug installation set IP-100-500 is designed, produced and composed with the above mentioned parts, according to the applicability of the following guidelines:

2006/42/EG: Machine directive
And the related standards:

- EN ISO 12100:2010

Dordrecht, 18-03-2022

IPCO B.V.
Nico de Leeuw
Authorized person

// Size chart IPCO Plug X1

Alternative materials and sizes available on request.

IPCO PLUG KIT X1	RANGE IN MM	POSITIONER	PULL ROD	PULL ROD EXTENSION	REMOVAL TOOL
IPK-100-X	10,0 - 10,5	IPPP100	IPST-M05 / IPEE-TD-M05	IPSTV-M05-300	IPVG100-110
IPK-105-X	10,5 - 11,0	IPPP105-110			
IPK-110-X	11,0 - 11,5				
IPK-115-X	11,5 - 12,0	IPPP115-125			IPVG115-125
IPK-120-X	12,0 - 12,5				
IPK-125-X	12,5 - 13,0				
IPK-130-X	13,0 - 13,5	IPPP130-145	IPST-M06 / IPEE-TD-M06	IPSTV-M06-300	IPVG130-165
IPK-135-X	13,5 - 14,0				
IPK-140-X	14,0 - 14,5				
IPK-145-X	14,5 - 15,0				
IPK-150-X	15,0 - 15,5	IPPP150-165			
IPK-155-X	15,5 - 16,0				
IPK-160-X	16,0 - 16,5				
IPK-165-X	16,5 - 17,0				
IPK-170-X	17,0 - 17,5	IPPP170-190	IPST-M08 / IPEE-TD-M08	IPSTV-M08-300	IPVG170-215
IPK-175-X	17,5 - 18,0				
IPK-180-X	18,0 - 18,5				
IPK-185-X	18,5 - 19,0				
IPK-190-X	19,0 - 19,5				
IPK-195-X	19,5 - 20,0	IPPP195-215			
IPK-200-X	20,0 - 20,5				
IPK-205-X	20,5 - 21,0				
IPK-210-X	21,0 - 21,5				
IPK-215-X	21,5 - 22,0				
IPK-220-X	22,0 - 22,5	IPPP220-240			IPVG220-265
IPK-225-X	22,5 - 23,0				
IPK-230-X	23,0 - 23,5				
IPK-235-X	23,5 - 24,0				
IPK-240-X	24,0 - 24,5				
IPK-245-X	24,5 - 25,0	IPPP245-265			
IPK-250-X	25,0 - 25,5				
IPK-255-X	25,5 - 26,0				
IPK-260-X	26,0 - 26,5				
IPK-265-X	26,5 - 27,0				

// Size chart IPCO Plug X4

Alternative materials and sizes available on request.

IPCO PLUG KIT X4	RANGE IN MM	POSITIONER	PULL ROD	PULL ROD EXTENSION	REMOVAL TOOL
IPX4-135-X	13,5 - 14,5	IPX4-PPB135-145	IPST-M06 / IPEE-TD-M06	IPSTV-M06-300	IPVGX4135-175
IPX4-145-X	14,5 - 16,0	IPX4-PPB145-160			
IPX4-155-X	15,5 - 17,0	IPX4-PPB155-170			
IPX4-170-X	17,0 - 19,5	IPX4-PPB170-195			IPVGX4170-195
IPX4-170-X	17,0 - 19,5	IPX4-PPB170-195	IPST-M08 / IPEE-TD-M08	IPSTV-M08-300	IPVGX4170-195
IPX4-195-X	19,5 - 22,0	IPX4-PPB195-220			IPVGX4195-220
IPX4-215-X	21,5 - 24,0	IPX4-PPB215-240			IPVGX4215-240
IPX4-240-X	24,0 - 26,5	IPX4-PPB240-265			IPVGX4240-265
IPX4-265-X	26,5 - 29,0	IPX4-PPB265-290	IPST-M10 / IPEE-TD-M10	IPSTV-M10-300	IPVGX4265-290
IPX4-290-X	29,0 - 31,5	IPX4-PPB290-315			IPVGX4290-315
IPX4-315-X	31,5 - 34,0	IPX4-PPB315-340			IPVGX4315-340
IPX4-340-X	34,0 - 36,5	IPX4-PPB340-365			IPVGX4340-365
IPX4-365-X	36,5 - 39,0	IPX4-PPB365-390			IPVGX4365-390
IPX4-390-X	39,0 - 41,5	IPX4-PPB390-415			IPVGX4390-415
IPX4-415-X	41,5 - 44,0	IPX4-PPB415-440			IPVGX4415-440
IPX4-440-X	44,0 - 46,5	IPX4-PPB440-465			IPVGX4440-465
IPX4-465-X	46,5 - 49,0	IPX4-PPB465-490			IPVGX4465-490

REV.5 2025-06

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