

Operator Instruction Manual

Festec Flange Spreaders



The FESTEC flange-spreader is a long lasting high quality tool, which is to be used according the following instructions by qualified operators.

Do not use the FESTEC Flange Spreaders for applications in cast-iron.

1. FOR SPREADING FLANGE-CONNECTIONS

- 1) Check your working permit and assure yourself, that you intend to work on the correct line and flange-connection.
- 2) Check if the line is gas-free and does not contain any hazardous, toxic, aggressive, hot or extremely cold product. If you are not sure don't start any operating activity yet.
- 3) If it is not 100% sure, that the line is completely empty and without pressure or vacuum, take the necessary protective precautions related to clothing and / or breathing equipment, before to start any operating activities.
- 4) Check any further procedures and the escape routes.
- 5) Check the eventual scaffolding permit.
- 6) Check you instructions for the job to be carried out.
- 7) Check your personal protections and the required equipment for executing the job.

Start the required operation.

Loosen the nuts of 2 (two) diagonally studbolts of the flange-connection to be opened, using appropriate equipment (sold separately, not included in this kit) and remove the studbolts.

Measure the bolthole diameter of the flange-connection.

Chose the corresponding type of the FESTEC Flange Spreader out of the selection-table below:

| TYPE # | SUITABLE BOLTHOLE Ø | TYPE # | SUITABLE BOLTHOLE Ø |
|---------------|----------------------------|---------------|----------------------------|
| 22 | 14,0 – 15,9 mm / 0-5/8" | 46 | 31,8 – 33,0 mm / 1-1/4" |
| 27 | 18,0 – 21,0 mm / 0-3/4" | 50 | 34,9 – 36,0 mm / 1-3/8" |
| 32 | 22,2 – 23,0 mm / 0-7/8" | 55 | 38,1 – 39,0 mm / 1-1/2" |
| 36 | 25,4 – 27,0 mm / 1" | 60 | 41,3 – 42,0 mm / 1-5/8" |
| 41 | 28,6 – 30,0 mm / 1-1/8" | 65 | 44,5 – 48,0 mm / 1-3/4" |

Always use a minimum of 2 (two) units of the FESTEC Flange Spreaders in order to spread a flange-connection safely.

Screw the plugs of the chosen FESTEC Flange Spreaders straight and firm into the opposite boltholes diagonally of the flange-connection using a standard ring-spanner or a heavy spanner. For the FESTEC Flange Spreader type # 41 and up, it is advisable to use a heavy spanner, due to the needed higher torque. The use of suitable air driven or hydraulic torquing equipment (sold separately, not included in this kit) is allowed as well. Use such equipment according its instructions.

Generally a torque of 700 Nm for tightening the plugs into the boltholes will enable a safe and easy spreading of the flange-connection.

Warning:

NEVER hammer the plugs directly into the bolthole of the flange. Such actions are dangerous, will result in spalling of the thread of the plug and won't make the spreader work.

Once you have tightened all 4 plugs of the FESTE C Flange Spreaders sufficiently steadily, loosen and remove the remaining nuts of the studbolts in the flange-connection. Do not let drop any nut the moment it is completely loosened.

If you are working on a vertical line

If possible loosen and remove the nuts on the bottom side of the flange-connection, preventing the studbolt to drop out once the nut is loosened / removed. If you have to remove the nuts on the topside of the flange-connection, make sure, that the studbolt does not drop out the moment the nut is loosened.

Remove all studbolts from the flange-connection after you removed the nuts.

If you are working on a horizontal line

Remove the studbolts on the topside of the flange-connection only, preventing the gasket or the blind flange to drop out once the flange-connection will be separated. It also helps to prevent miss-alignment of the flanges.

Now the press-bolts of the FESTE C Flange Spreaders fitted in the boltholes may be tightened simultaneously until the required gap between the flanges will be achieved. When tightening the press-bolts, you must always check the installed plugs on any movement. If it seems to happen, that one or some of the plugs will start to slide out the bolthole, you will have to stop the operation immediately. Release the press-bolts and tighten the plugs again, applying a higher torque as before. Now you can re-start the same operation, but always keep checking the plugs on any movement. If necessary repeat the fore-going procedure.

Continue to tighten the press-bolts against the contra-plug until the required gap for removing or (re-)placing the gasket, respectively for fitting the blind flange, has been achieved and spread the flanges approx. 10 mm additionally.

Stop tightening the press-bolts any further. Now take two safety wedges (sold separately, not included in this kit) and place them one by one the deepest possible between the spread flanges, releasing the press-bolts of the FESTE C Flange Spreaders until they do not touch the contra-plug anymore. Both safety wedges now secure the gap between the flanges.

When separating or closing a flange-connection, take care that no fingers or other human parts are positioned between the flanges. Injuries are to be prevented. Work safely only!

(Re-)place the gasket, respectively remove or fit the blind flange. Do not forget to clean the packing faces before replacing the gasket or fitting the blind.

Re-tighten the press-bolts simultaneously until the safety wedges can be removed easily.

Release the press-bolts simultaneously, thus closing the flange-connection again. Take care, that the packing or blind flange are undamaged and exactly in the right position when the flange-connection is closed. The connection will not close any further, once the press-bolts do not touch the contra-plug anymore.

If you are working on a horizontal line

Firstly install new studbolts into the topside of the flange-connection. Secondly remove one by one the old studbolts on the bottom side of the flange-connection and replace them by new ones. Prevent the gasket or the blind flange to drop out although the flange-connection may be visually closed.

If you are working on a vertical line

Check the alignment of the flanges and install new studbolts into the boltholes.

In case the studbolts do not enter into the boltholes, presumably there is a miss-alignment of the flanges. This has to be corrected with special equipment (sold separately, not included in this kit).

Install the new studbolts in all of the empty boltholes and screw the nuts on them. DO NOT tighten the nuts yet.

Remove the FESTE C Flange Spreaders plugs from the flange-connection using a heavy spanner and install studbolts into those boltholes as well.

Now the nuts on the studbolts may be tightened according procedures and if required use the appropriate equipment (sold separately, not included in this kit).

Once the operation is completed remove all equipment and tools from the working area and store them according the instructions.

2. FOR LIFTING / LEVELLING EQUIPMENT

Make sure the machine or equipment to be levelled or lifted is not operating and disconnected from all kind of power sources, such as electricity, air and hydraulics.

Follow the instructions and procedures corresponding with the relevant machinery.

Remove a bolt from a hole in the machinery foundation and measure the diameter of this hole.

Check if all other holes to be used have the same diameter.

If there are no holes available, check if it is allowed to drill the required holes into the foundation of the machine or equipment.

If the structure allows you drill such holes, check if your working permit allows such as well. If not, have this arranged first.

Select the right type of plugs according the selection-table.

Screw as many open plugs as necessary, with the press-bolt inside into the selected boltholes of the foundation of the equipment to be levelled or lifted. Always use at least THREE plugs in order to be able to keep the equipment to be lifted / levelled in balance.

Once all installed plugs are tightened correctly and sufficiently, tighten the press-bolts simultaneously. When tightening the press-bolts, check the installed plugs on any movement. If it seems to happen, that one or some of the plugs will start to slide out the bolthole, the operation is to be stopped immediately. Release the press-bolts and tighten the plugs again, applying a higher torque as before. Afterwards the same operation can re-start, but always keep checking the plugs on any movement. If necessary repeat the fore-going procedure.

Keep on screwing the press-bolts simultaneously into the plugs, thus lifting the equipment from its foundation until the required space is created to install the lifting equipment. Before placing slings or other lifting material, you must secure the machine or equipment with wood in order to prevent accidents by falling down of the machine or equipment. Once it is secured, the press-bolts must be released and the plugs eventually removed from the foundation of the machine or equipment. Now you can lift it safely.

In case the machine or equipment has to be levelled, you must only tighten those press-bolts, which are in the lowest part of the equipment. Once the equipment is levelled with the FESTEC Flange Spreaders, the space between foundation and equipment has to be filled up with the required material according procedure. Once this filling up has been completed correctly, releasing the press-bolts can lower the machine or equipment again. Remove the plugs of the FESTEC Flange Spreaders only when there is absolutely no load anymore on any of the press-bolts and the machine or equipment is exactly and correctly positioned.

3. MAINTENANCE AND STORAGE

Clean and inspect for damage your tools after using them and put them in your toolbox again.

It is advisable to keep all threads of the FESTEC Flange Spreader greased sufficiently in order to prevent unnecessary wearing of the parts.

Dry, greasy storage will help preventing your FESTEC Flange Spreader to become rusty.

Do not drop any nuts, bolts or tools before, during or after the operation. People might be working underneath of you and tools or equipment might be damaged.

Do not use the FESTEC Flange Spreaders for any other application as described above, without consulting your supplier!

Spareparts list

Festec Flange Spreaders

FFS-22 FFS-27
 FFS-32 FFS-36
 FFS-41 FFS-46
 FFS-50 FFS-55
 FFS-60 FFS-65

| | Art. number | Description |
|----|-------------|--|
| 1. | SA-0022-D | Counter plug for FFS-22 |
| | SA-0027-D | Counter plug for FFS-27 |
| | SA-0032-D | Counter plug for FFS-32 |
| | SA-0036-D | Counter plug for FFS-36 |
| | SA-0041-D | Counter plug for FFS-41 |
| | SA-0046-D | Counter plug for FFS-46 |
| | SA-0050-D | Counter plug for FFS-50 |
| | SA-0055-D | Counter plug for FFS-55 |
| | SA-0060-D | Counter plug for FFS-60 |
| | SA-0065-D | Counter plug for FFS-65 |
| 2. | SA-0022-O | Bolt plug for FFS-22 |
| | SA-0027-O | Bolt plug for FFS-27 |
| | SA-0032-O | Bolt plug for FFS-32 |
| | SA-0036-O | Bolt plug for FFS-36 |
| | SA-0041-O | Bolt plug for FFS-41 |
| | SA-0046-O | Bolt plug for FFS-46 |
| | SA-0050-O | Bolt plug for FFS-50 |
| | SA-0055-O | Bolt plug for FFS-55 |
| | SA-0060-O | Bolt plug for FFS-60 |
| | SA-0065-O | Bolt plug for FFS-65 |
| 3. | 0-1090-08 | Pressure bolt M8X90 10.9 for FFS-22 |
| | 0-1100-10 | Pressure bolt M10X100 10.9 for FFS-27 |
| | 0-1110-14 | Pressure bolt M14X110 10.9 for FFS-32 |
| | 0-1130-16 | Pressure bolt M16X130 10.9 for FFS-36 |
| | 0-1140-18 | Pressure bolt M18X140 10.9 for FFS-41 |
| | 0-1200-20 | Pressure bolt M20X200 10.9 for FFS-46 and FFS-50 |
| | 0-1225-22 | Pressure bolt M22X225 10.9 for FFS-55, FFS-60 and FFS-65 |

