

SPXFLOW

>Bolting Systems®

SPX Hydraulic Technologies
5885 11th Street
Rockford, IL 61109-3699 USA
spxboltingsystems.com

Tech Services: +1 800 477 8326
Fax: +1 800 765 8326
Order Entry: +1 800 541 1418
Fax: +1 800 288 7031

Operating instruction - Parts List for:

FLS15
FLS15-ST

HYDRAULIC SPREADERS





TABLE OF CONTENTS


SUBJECT	PAGE
SAFETY DEFINITIONS	3
SAFETY PRECAUTIONS	3
• Spreader	4
GENERAL INFORMATION	4
BENEFITS	5
APPLICATIONS	5
OPERATING INSTRUCTIONS	5
• Flange opening	5
• Flange closing	5
RECOMMENDATION	6
IMPORTANT	6
WARNING	6
CAUTION	7
WEDGE USE	7
DIMENSIONS / SPECIFICATIONS	8
DISASSEMBLY / MAINTENANCE / SERVICE	9
PARTS LIST	10
SERVICE KITS	11
DECLARATION OF CONFORMITY	12

SAFETY DEFINITIONS

The safety signal word designates the degree or level of hazard seriousness.

 **DANGER:** Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.


 **WARNING:** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

 **CAUTION:** Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

CAUTION: Used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

IMPORTANT: Important is used when action or lack of action can cause equipment failure, either immediate or over a long period of time

SAFETY PRECAUTIONS

 **WARNING:** To prevent personal injury:



Read Instruction Manual before operation. For the latest revision of the instruction sheet please visit the “Resources” page on our Website.

IMPORTANT: For instructions specific to the various system components refer to the related individual instruction sheet.

IMPORTANT: The following procedures must be performed by qualified, trained personnel who are familiar with this equipment. Operators must read and understand all safety precautions and operating instructions included with equipment. If the operator cannot read these instructions, operating instructions and safety precautions must be read and discussed in the operator’s native language.

- These products are designed for general use in normal environments. These products are not designed for lifting and moving people, agri-food machinery, certain types of mobile machinery, or in special work environments such as: explosive, flammable, or corrosive. Only the user can decide the suitability of this product in these conditions or extreme environments. Power Team will supply information necessary to help make these decisions. Consult your nearest Power Team facility.



Safety glasses must be worn at all times by the operator and anyone within sight of the unit. Additional personal protection equipment may include: face shield, goggles, gloves, apron, hard hat, safety shoes, and hearing protection. Check for local safety requirements and obey all safety rules and regulations in force at the job site.

- The owner of this tool must ensure that safety-related decals are installed, maintained, and replaced if they become hard to read.

SPREADER



DANGER: To prevent serious personal injury or death:

Do not exceed rated capacities of the spreader. Excess pressure may result in personal injury. **Maximum operating pressure is 700 bar (10,000 psi).**

- Avoid off-center loads that could damage the spreader and/or cause loss of the load.
- Read and understand all safety and warning decals and instructions for devices attached.
- Inspect each Spreader and coupler before each shift or usage to prevent unsafe conditions from developing.
- Do not use the Spreader if damaged, altered or in poor condition.
- Do not use the Spreader with bent or damaged couplers or damaged port threads.
- Avoid pinch points or crush points that can be created by the load or parts of the Spreader.



To help prevent personal injury, do not allow personnel to go under or work on a load before it is properly cribbed or blocked. All personnel must be clear of the load before lowering.

- Never use extreme heat to disassemble a hydraulic Spreader or cylinder. Metal fatigue and/or seal damage will result and can lead to unsafe operating conditions.

IMPORTANT:

- Keep the Spreader clean at all times.
- When the Spreader is not in use, keep the shoes fully retracted.
- Use an approved, high-grade pipe thread sealant to seal all hydraulic connections. Teflon tape can be used if only one layer of tape is used and it is applied carefully (two threads back) to prevent the tape from being pinched by the coupler and broken off inside the pipe end. Any loose pieces of tape could travel through the system and obstruct the flow of fluid or cause jamming of precision-fit parts.
- Always use protective covers on disconnected quick couplers.

GENERAL INFORMATION

- The SPX Hydraulic Spreader is a hydraulically operated tool.
- The spreader uses the integrated wedge concept.
- It is used to spread flanges in order to create space for cleaning and repairing flange surfaces and gasket replacement.
- The spreader is actuated by a single acting cylinder.
- The spreader must be powered by an SPX hand pump.

BENEFITS

- Corrosion protected for offshore market by means of nickel plating.
- Easy to change wearing parts and easy to maintain.
- Quick adjustment to various tasks due to interchangeable shoes (serrated, stepped).

APPLICATIONS

Wedge spreaders can be used for: pipe and flange repair, removing of elbows, removing of couplers, gasket and metal seals replacement, maintenance/replacement of valve and control equipment, general spreading applications in the oil and gas industry, and general repair and maintenance.

OPERATING INSTRUCTIONS

FLANGE OPENING

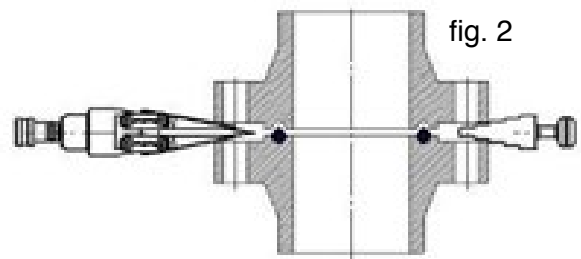
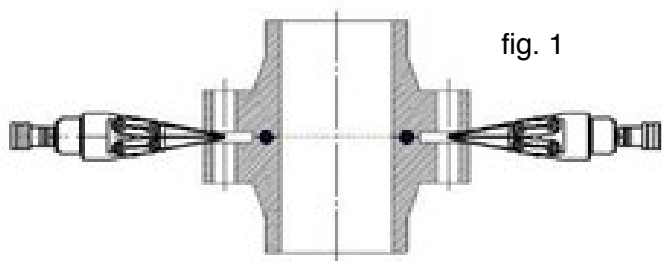
- After loosening/removing flange bolts insert wedge spreader(s) at least up to the gripping surfaces of the spreader shoes and gradually apply pressure via the pump. **Maximum operating pressure is 700 bar (10,000 psi)**. Visually check that flanges are separating accordingly. At end of tool stroke insert stepped block before gradually reducing pressure on the wedge spreader.
- Repeat previous steps until you reach maximum flange opening possible with inserted stepped block (see fig. 2).

FLANGE CLOSING

- In order to close a flange you have to insert the spreader at $\pm 80\%$ stroke of tool. Take over the load from the stepped block onto the spreader before removing said stepped block one step back. Gradually reduce pressure to let the load be taken by the next smaller step of the stepped block.
- Repeat previous steps until you reach full flange closing. Replace and tighten flange bolts.

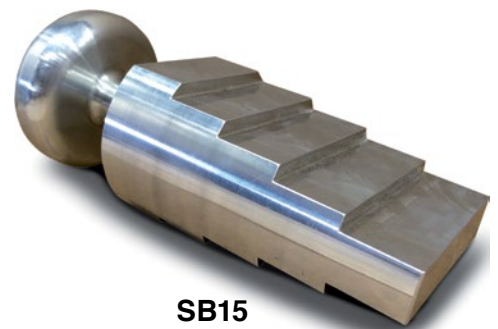
RECOMMENDATION

- It is recommended that two spreaders be used in tandem.
- Single spreader use is possible but depends on the job at hand.
- Tandem use will give an even spread to the joint.
- The spreaders should be set at 180° apart (see fig.1).
- The spreader needs to be inserted at least as far as the gripping surface to prevent wedge from slipping out.
- The spreader can be used throughout the whole of the shoes' gripping surfaces.




IMPORTANT

- Make sure the tool is in fully retracted closed position before inserting the flange spreader in between the flange faces in order to fully engage the flange spreader shoes.
- At the beginning of the spread operation check the correct full engagement of the flange spreader shoes and the grip between the tool and the flange faces.
- The stepped block shall be inserted into the joint after the tool has reached full advanced open position.
- After positioning the stepped block, working pressure should be lowered gradually in order to set the load onto the stepped block.
- Always ensure that the tool has even and thorough contact with the work piece.



SB15
STEPPED BLOCK

WARNING

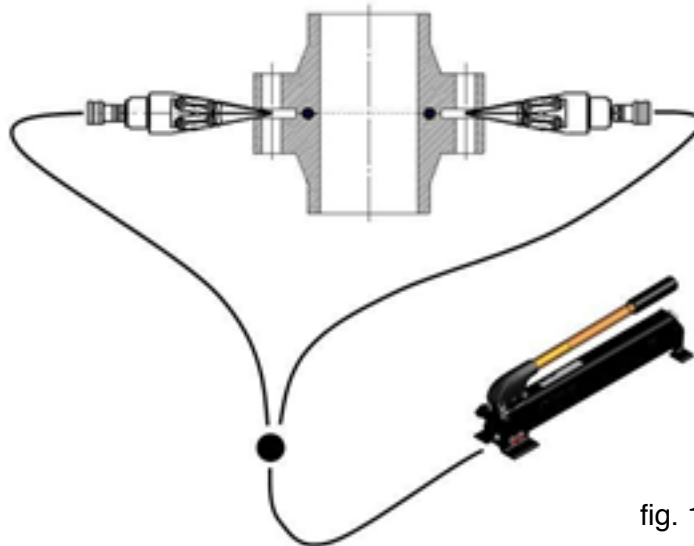
 Never place fingers in a joint held by activated wedge unless a stepped block is also located within the joint.

CAUTION

- An optional spreader handle is available. SPX recommends the use of this handle to minimize the possibility of operators' fingers being caught within a joint during the extend or retract process.
- Never hammer or force spreader to create or access a gap.
- Don't operate the equipment without lubricating the internal interface between the wedge and the shoes.

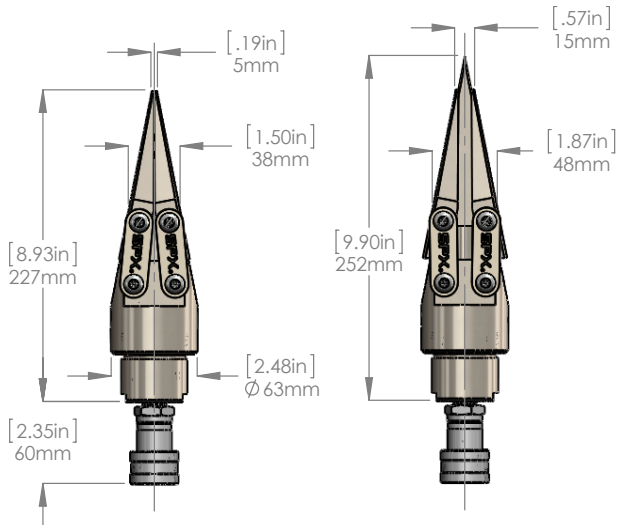
WEDGE USE

- It is recommended that two spreaders be used in tandem position. (See fig.1)
- This will give an even spread to the joint.
- Two hydraulic spreaders can easily be used simultaneously when used in combination with an SPX hand pump, split-flow manifold and hydraulic hoses.



DIMENSIONS / SPECIFICATIONS

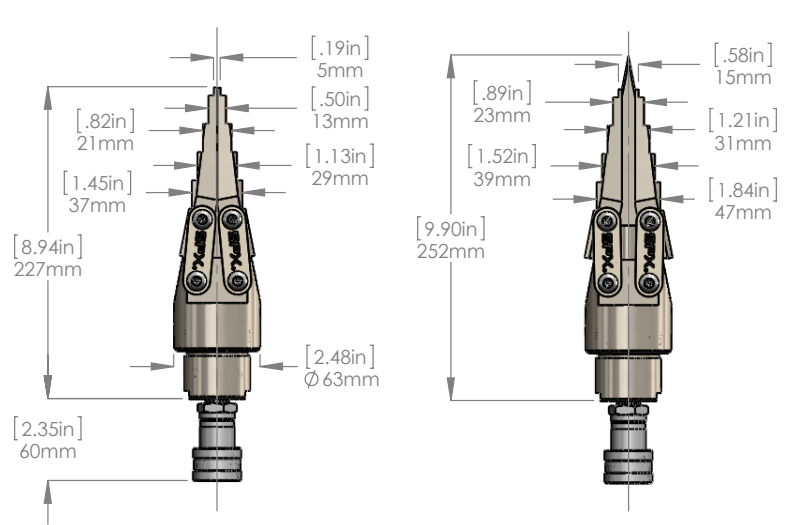
FLS15 SPREADER



FULLY CLOSED

FULLY OPEN

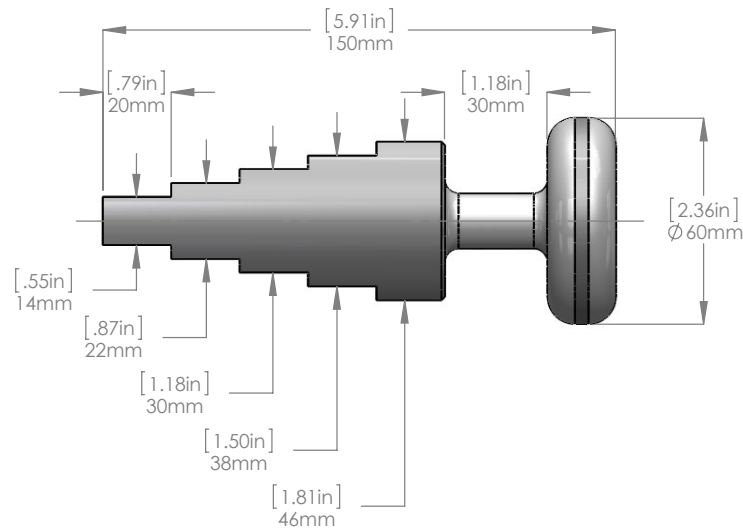
FLS15-ST SPREADER



FULLY CLOSED

FULLY OPEN

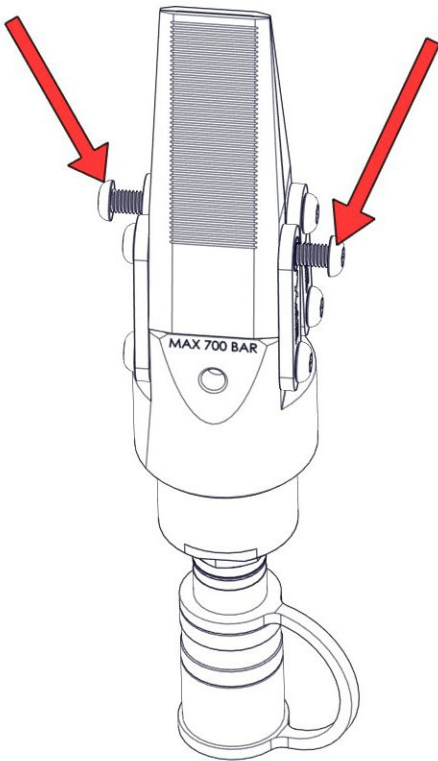
SB15 STEPPED BLOCK



MODEL NUMBERS	MAX. SPREADING FORCE	MIN. REQUIRED ACCESS GAP	TYPE	WEIGHT	MAXIMUM OPERATING PRESSURE
FLS15 & FLS15ST	[33,000 Pounds] 15 Metric Tons	[.197 Inches] 5mm	Wedge	[7 pounds] 3.2 kg	700 bar (10,000 psi)

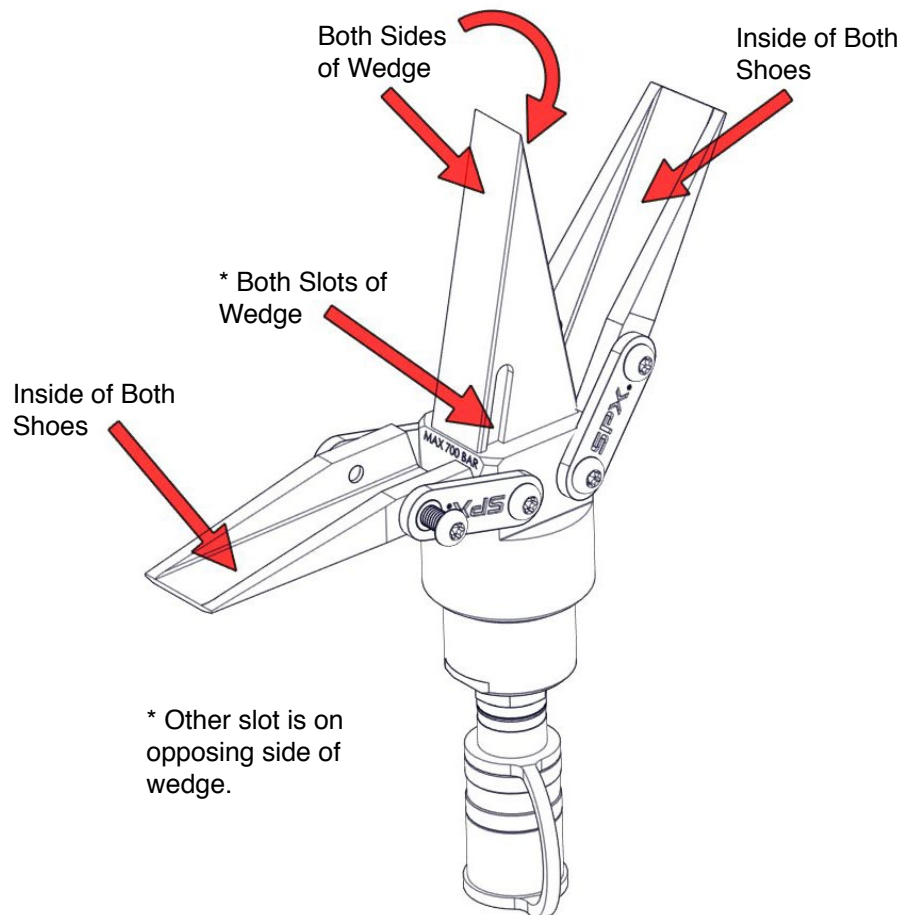
DISASSEMBLY / MAINTENANCE / SERVICE

- Regularly inspect all components to detect any problem requiring service or maintenance.
- To prolong the life of your SPX equipment, follow points below:
 1. Clean and grease contact surfaces shown below with high pressure quality grease.
 2. Ensure smooth rotation of link plate joints and keep them lightly greased.
 3. Keep general tool condition clean.

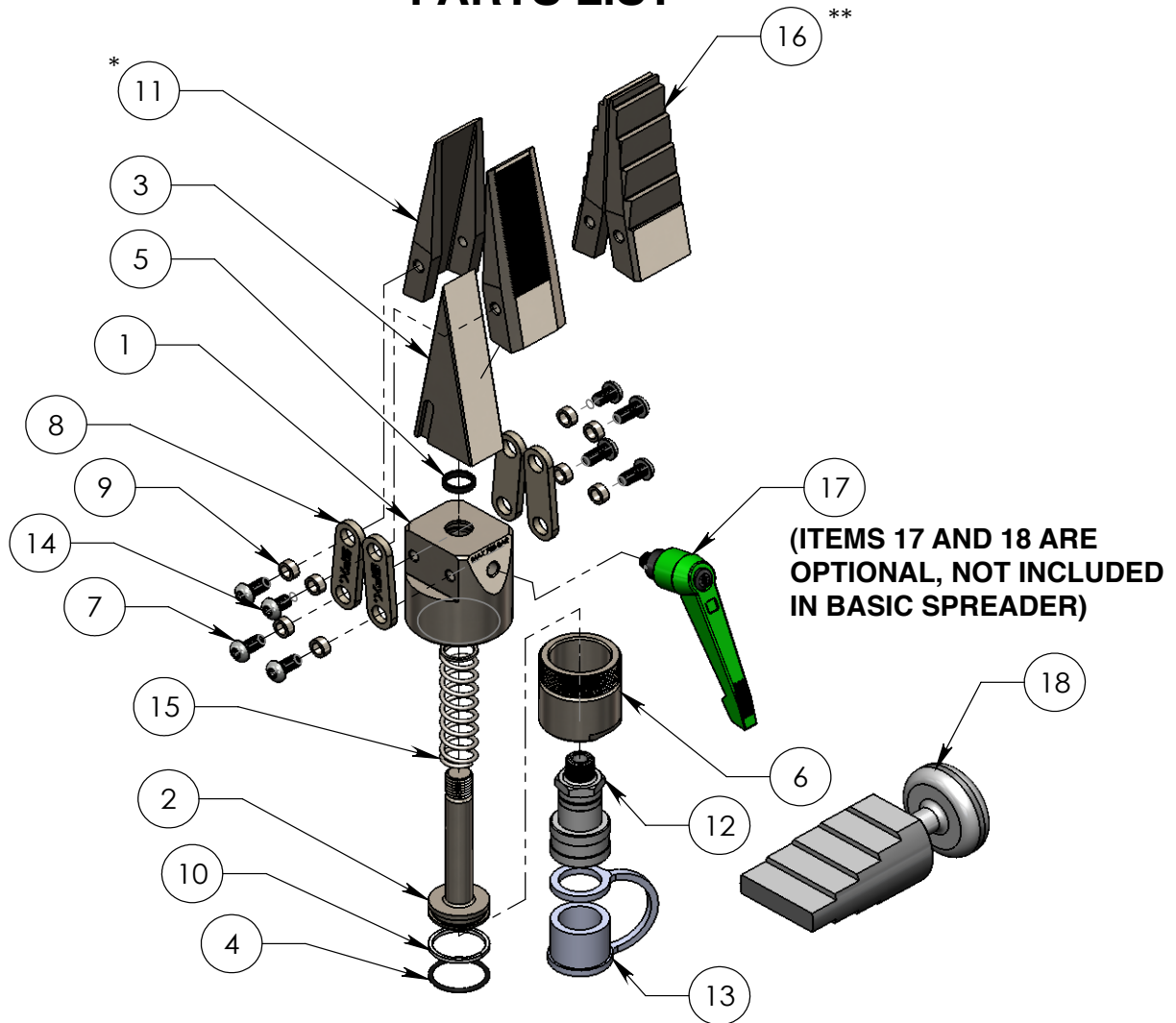


- **(Upper Left Picture)** – Unscrew the indicated screws about 4 mm (.2 inches) to “unlock” the shoes. Work the shoes loose from the residual grease to open them.

- **(Lower Right Picture)** – Clean the indicated surfaces with a degreasing agent. Then, re-grease the same with quality, high-pressure grease. Close the shoes and torque (tighten) the screws to 34 Nm (25 ft. lbs.).



PARTS LIST



* - STANDARD SHOE IN THE FLS15 SPREADER

** - STANDARD SHOE IN THE FLS15-ST SPREADER

ITEM NO.	PART NUMBER	DESCRIPTION	QTY
1	2008071	MAIN BODY	1
2	2008072	PISTON ROD	1
3	2008077	WEDGE	1
4	2008074	O-RING, NBR, 31X2,5 90-SHORE	1
5	2008076	GUIDE RING, 16,0X19, 1X4,0 POM	1
6	2008075	CYLINDER, 36MM BORE	1
7	2008081	SCREW, M8 X 16, CLASS 10.9, ROUND HEAD, T40, ZINC PLATED.	6
8	2008078	LINK PLATE	4
9	2008079	JOINT SPACER	8
10	2008073	BACKUP RING, 31,20X36,00X2,00mm	1
11	2008082	SHOE SERRATED, FLS15	2
12	25600-1	COUPLER, HYD 3/8" NPTF F	1
13	9800	CPLR, HYD, DUST CAP, RUBBER	1
14	2008080	SCREW, M8 X 12, CLASS 10.9 , ROUND HEAD, T40, ZINC PLATED.	2
5	2008084	SPRING, COMPRESSION, 242, 43N 2,5X81,5	1
16	2008083	SHOE, STEPPED, FLS15	2
17	2008410	HANDLE ASSEMBLY	1
18	SB15	STEPPING BLOCK, ALUMINIUM	1

SERVICE KITS

<u>KIT NUMBER</u>	<u>KIT NAME</u>	<u>CONTAINS PARTS</u>	<u>QTY.</u>	<u>DESCRIPTION</u>
3000708	SEAL KIT	<ul style="list-style-type: none"> • 2008073 • 2008074 • 2008076 	1 1 1	BACKUP RING O-RING GUIDE RING
3000709	JAW KIT, STEPPED	<ul style="list-style-type: none"> • 2008083 	2	STEPPED SHOE
3000710	WEAR PARTS KIT, SERRATED	<ul style="list-style-type: none"> • 2008078 • 2008079 • 2008082 	4 8 2	LINK PLATE JOINT SPACER SERRATED SHOE
3000711	WEAR PARTS KIT, STEPPED	<ul style="list-style-type: none"> • 2008078 • 2008079 • 2008083 	4 8 2	LINK PLATE JOINT SPACER STEPPED SHOE

EC DECLARATION OF CONFORMITY



We declare under our sole responsibility that our Flange Spreader Model:

FLS15, FLS15-ST

to which this declaration relates are in conformity with the following:

EN, EN-ISO, ISO standards

Title

Per the provisions of the Machinery Safety Directive

2006/42 EC

EN_ISO 12100:2011

Safety of machinery, basic concepts, general principles for design, risk assessment & risk reduction

EN 4413:2010

Hydraulic Fluid Power – general rules and safety requirements for systems & their components

We, the undersigned, hereby declare that the equipment specified conforms to the above European Communities Directive(s) and Standard(s).

Eygelshoven April 12, 2013

SPX Hydraulic Technologies

5885 11th Street
Rockford, IL 61109-3699
United States of America

SPX Hydraulic Technologies

Christophe Bouvet
Andreas J. Klemm
Albert Thijsstraat 12
Eygelshoven
The Netherlands

Christophe Bouvet, Managing Director

Andreas J. Klemm, Appl. Engineering Manager

Form No 10_____
Rev 1 Jan 2, 2013