

FAQ (Frequently Asked Questions)
SERV-CLIP[®] Pipe measuring points & FLUID-CHECK[®] Sensors
Installation in few minutes – no cutting pipelines
BOLENDER- Oil hydraulic control systems (Made in Germany)

Installation videos under www.servclip.com

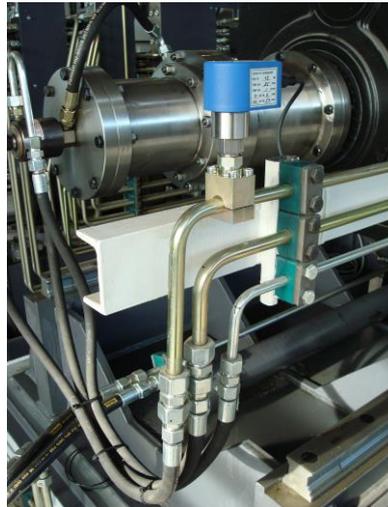
1. Pipe measuring point serv-Clip
2. flow rate and leakage sensors fluid-Check
3. custom tariff and transport costs

 <p>(left serv-Clip Type 1- for mounting on pressurized pipes) (right serv-Clip Type 2- for mounting on non-pressurized pipes) (Installation: 3 Minutes only)</p>  <p>Conventional measuring point (Installation: 1 hour)</p>	<p>PROGRAM OF PRODUCTS</p> <p>SERV-CLIP (Pipe measuring point) Type 1 : for mounting on pressurized pipes with valve M16X2 (screw 1/4") from 9,52 mm to 42 mm Type 2 : for mounting on non-pressurized pipes with valve M16X2 (screw 3/8") from 9,52 mm to 88,9 mm Please for the option PIPES-inches mention us the schedule (wall thickness)</p> <p>FLUID-CHECK (Diagnostic system) -Flow rate sensor (QS-B-008) for SC Type 2 -Leakage sensor (LS-B-000) for SC Type 2 -Pressure sensor (DS) 1/4" for SC Type 1 -Pressure sensor (DS) 3/8" für SC Type 2 -Temperature (TS) sensor for SC Type 2</p> <p>-FM-1-B (Mobile Measuring suitcase for reading results of Sensors like f.example fluid-Check QS, LS, TS, PS). (for 1 Output) with lineal program.</p>
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<p>1. Why SERV-CLIP®? (Pipe measuring point for oil hydraulic installations)</p> <p>1.1 Which applications does SERV-CLIP® support? SC - Type 1 (screw 1/4") (for installation on pressurized pipes)</p> <p>SC- Type 2 (screw 3/8") (for installation on non-pressurized pipes) The cheaper option</p>	<ul style="list-style-type: none"> ✓ Quick installation (3 minutes) ✓ No need to cut pipes ✓ Immediately ready for use ✓ No downtime (SC Type 1) ✓ Short downtime of 3 Minutes Installation with SC Type 2) ✓ Instantaneous measurement results ✓ No contamination of the fluid through swarfs ✓ Installation of gauges and sensors possible ✓ You need for the installation only an Allen wrench 6 mm and a jaw wrench SW22 <p>Pressure measurements with help of gauges Sampling Venting Installation of pressure switches or sensors.</p> <p>All functions mentioned by SC Type 1.</p> <hr/> <p>Installation of sensors for Temperature and our Flow rate and Leakage Sensors fluid-Check®</p>
<p>1.2 How it works: SERV-CLIP® Type 1</p>	<p>Measurements in the pressurized condition. A needle is screwed down to penetrate the pipe wall and create a hole. Afterwards the needle is unscrewed again, and the measuring connector is immediately ready for use.</p>
<p>1.3 How it works: SERV-CLIP® Type 2</p>	<p>- The cheaper option – - Only for installation on non-pressurized pipes - The hole in the pipe wall is created in the same way as with SERV-CLIP® Type 1. However, the needle and stirrup are removed afterwards.</p>
<p>1.4 Is there any preparatory work I have to do prior to installing SERV-CLIP®?</p>	<p>The place in which you wish to install SERV-CLIP® must be clean (free of paint and free of any damages).</p>
<p>1.5 How I can order serv-Clip?</p> <div style="display: flex; align-items: flex-start;"> <div style="margin-right: 20px;"> <p>serv-Clip</p> <p>Type</p> <p>Construction Type</p> <p>Diameter of pipe</p> </div> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> <p>SC-1-A-30</p> <p style="margin-left: 20px;">2</p> <p style="margin-left: 40px;">T</p> <p style="margin-left: 40px;">P</p> </div> </div>	<p>SC = serv-Clip Type = 1 or 2 Construction Type and diameter of pipe A= Metric system - A norms DIN 2391 diameters (10-42 mm) T= Tube system (USA norms SAE) diameters 3/8"(9,52mm) to 2" (50,8mm) P= Tube system (USA-norms SAE) Pipe DIN 2440/2441 with schedule 80 and 160 diameters 1/4" (13,5 mm) to 3" (88,9 mm) For P= please indicate us schedule 80 or 160</p>

1.6 Can the needle also break when it is used with pipes made of plain carbon steel?	No, the needle can penetrate pipe walls with thicknesses up to 5,5 mm without any problem. Special needles will be delivered for PIPE inches models with schedule 80 or 160 up 7,62 mm
1.7 Can I install a SC on a stainless steel pipe?	We can deliver you upon request an special needle for wall thicknesses up to 5 mm. For greater wall thicknesses please ask us. The standard needle for this art of pipe might break.
1.8 Are the housings also available in stainless steel?	Due to the high cost of manufacturing we don't produce this option.
1.9 Is the SERV-CLIP[®] tight after it has been installed?	The use of a lock ensures that the O-ring is optimally fixed between the pipe and the upper part of the housing.
1.10 How is the O-ring fixed in the lock?	The O-ring is supported outwards, always perpendicular to the axis of the pipe
1.11 Which pressure levels does the seal support?	In tests, the seals withstood pressures of up to 2,400 bar.
1.12 Which pressures does SERV-CLIP[®] support?	You can use the serv-Clip up to 630 bar (9100 psi)
1.13 How warm may the atmosphere or the hydraulic oil be?	All O-rings are made of Viton [®] . This material can be used for temperatures of up to 180°C and from -40°C.
1.14 Can SERV-CLIP[®] slip (i.e. be displaced) on the hydraulic tube?	The screwed joint between the upper and lower part of SERV-CLIP [®] creates a high pre-stress on the pipe, ensuring that it remains in its position even in case of strong vibrations.
1.15 What happens if still there is pressure (rest of oil) while SC Type 2 (which is being installed in the non-pressurized condition)?	No problem. The oil will not go away because the needle has a tapered shape and tightly seals the hole in the pipe wall.
1.16 Can the needle create swarf when it penetrates the pipe wall?	No, the needle creates a plastic deformation, which involves only minor distortions of the pipe wall. Particle measurements confirmed that oil quality is not degraded.
1.17 Can the installation of SERV-CLIP[®] affect the flow characteristics inside the pipe?	No changes have been found in normal hydraulic installations.
1.18 Does it make sense to remove SERV-CLIP[®] after the measurements have been completed?	Dismantling SERV-CLIP [®] is not economical because of its little cost and the high amount of efforts required.

2. Flow rate and leakage sensors fluid-Check



**Installation video
5 minutes**

<http://servclip.de/volumenstromsensor-qs/>

<p>2.1 What can I recognize with the flow rate sensor (Q) FLUID-CHECK?</p> <p>up to 600 L/min depending on diameter</p>	<ul style="list-style-type: none"> • <i>Monitoring flow rate and wear of pumps</i> • <i>Operability of accumulators</i> • <i>Filter transmittance</i> • <i>Heat exchangers</i> • <i>Nozzle flow rate</i> • <i>Speed of hydraulic motors</i> • <i>Lack of lubrication of gears</i> <p>The sensor recognizes minimal flow from 2 L/min. Measuring needed time: 9 seconds.</p>
<p>2.2 What can I recognize with the leakage sensor (LS) FLUID-CHECK?</p> <p>from 0,02 L/min depending on diameter</p>	<ul style="list-style-type: none"> • <i>General leakages because of sealing or hose damages</i> <p>You can install this product behind the valve manifold This sensor recognize very low leakages from 0,02 Liter/minute when the machine has the normal break of 3 seconds.</p> <p>The sensor recognizes minimal leakages from 0,02 L/min. Measuring needed time: 9 seconds.</p>
<p>2.3 How can recognize the flow rate and leakage sensors the running oil ?</p>	<p>The sensor head has an intern thermo element and a heating (calorimetric principal).</p> <p>The running oil temperature will be measured. The sensor head temperature raises at 2°C. The time for this will be measured and the flow rate will be calculated. The needed time for measuring is 15 seconds. The measuring cycle takes 3 seconds.</p>

<p>2.6 Can I install the sensors on stainless steel pipelines?</p>	<p>Please in this case you have to mention it in your order so we can send special needles that can penetrate up to 5,5 mm</p>
<p>2.7 Please take in consideration following points before you order:</p>	<p>Diameter : This system can be used from 12 mm diameter. If you have a diameter under 12 mm you can install a piece of steel pipe f. example 12x1,5 mm in order to use this sensor.</p> <p>In the case of pipelines grater than 3" (88,9 mm) please ask about the adaptor SC-XE-607 (here you have to calibrate by yourself the sensor because the special installation steps).</p> <p>Wall thickness : The sensors top can only be used up to 5,5 mm wall thickness. In specific case of pipelines with diameter 12 mm with a maximum of 1,5 mm wall thickness. In case of a wall thickness grater than 6 mm please ask about the adaptor SC-XE-607 (here you have to calibrate by yourself the sensor because the special installation steps).</p>
<p>2.8 The pipe has to be full of fluid in order to measure correctly?</p>	<p>It is not necessary that it is full of fluid but all hydraulic pumps have special quantities. Important : The fluid has to be free of air bubbles .</p>
<p>2.9 Are there restrictions for the use of sensor when there are fluid-turbulences?</p>	<p>No there are no restrictions; the sensor can be used when there are turbulences.</p>
<p>2.10 How I can read the results of these sensors?</p>	<p>The sensors can be installed at a PLC (computer) or they can be connected to our mobile measuring kit fluid- FM-1-B (with 1 input) with linearizations programm.</p>

RECOMMENDED MEASURING RANGES FOR FLOW RATE SENSOR

Range	Pipe-OD in mm	Tube Ins	Pipe R-Ins	Pipe-ID in mm	Recommended Measuring range l/min
1	12	-	-	8 - 10	0,5 - 38
2	14 - 15	1/2	1/4	11 - 12	0,7 - 52
3	16 - 18	5/8	3/8	12 - 14	0,9 - 75
4	20 - 22	3/4	1/2	15 - 17	1,4 - 110
5	25 - 28	1	3/4	19 - 22	2,2 - 190
6	30 - 35	1 1/4	1	23 - 29	4,0 - 320
7	38 - 42	1 1/2	1 1/4	30 - 36	6,0 - 500
8	-	-	-	No calibrated	

Calibration is adjusted only for a measuring range.

Leakage sensor types

Type LS	A mm	Tube Ins	Pipe R-Ins	Flow rate Liter/Min
001	12	-	-	0,02-5
002	14-15	1/2	1/4	0,03-5
003	16-18	5/8	3/8	0,05-5
004	20-22	3/4	1/2	0,08-5
005	25-28	1	3/4	0,12-10
006	30-35	1 1/4	1	0,40-10
007	38-42	1 1/2	1 1/4	0,70-10

Beispiel: Choose the correct LS for 16 mm Rohr-Ø

Typ LS-2-B-**003** Flow rate > 0,05 l/min up > 4 mA measurable
5,0 l/min by 20mA measurable

3. custom tariffs and transport costs.

3.1 custom tariffs :

- 848180 - Rohrmessanschluss - Pipe measuring point : 0,800 kg/unit approx.
according to the diameter
- 902680 - Volumenstromsensor- flow rate sensor : 0,563 kg/unit
- 902610 - Leckagesensor- leakage sensor : 0,563 kg/unit
- 902620 - Drucksensor-pressure sensor 0,114 kg/unit
- 902580 - Temperatursensor - temperature sensor 0,300 kg/unit
- 902930 - Mobiles Messgerät in Koffer - mobile measuring suitcase 3 kg/unit
- 392310 - Koffer aus Kunststoff - suitcase of plastic 0,220 kg/unit
- 491110 - Werbeprospekten - Marketing prospects 0,080 kg/unit
- 491110 - serv-Clip Infoblatt – serv-Clip infosheet 0,008 kg/unit
- 852340 - Installationsvideo- Installation video 0,010 kg/unit
- 848190 - Anschweißstutzen – welding adaptor : 0,075 kg/unit

3.2

Our prices are exworks but we can offer you the option of transport COST AND FREIGHT (C&F) via **German Mail (www.deutschepost.de)**.

It takes about 4 weeks for countries outside of Europe.

Otherwise you can mention us your account of the courier of your preference.

(Europe : 10 workdays approx. – Rest of world : 15-20 workdays)

- Zone 1: European union
- Zone 2: Rest-Europe
- Zone 3: North america, Nord africa, near Ost
- Zone 4: Lateinamerica, Asia, Middle- and South africa

We are ready to help you in all your questions in order to take the best solution for your firm.

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www.servclip.com