zehnder PUMPEN

Multi-Purpose Mud Pump

Operating Manual

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EU-Konformitätserklärung

Hersteller:	ZEHNDER Pumpen GmbH Zwönitzer Straße 19 08344 Grünhain - Beierfeld
Produktbezeichnung:	Universalschlammsauger
Typenkennzeichnung:	Modellreihe USS 3000 USS 4000
Technische Daten:	
	Nennspannung: 230 ~ 50Hz
	Nennleistung: 150 W Schutzklasse : I

Das/die oben bezeichnete Produkt(en) entspricht den Anforderungen folgender Richtlinien:

2014/35/EU Niederspannungs Richtlinie
2006/42/EG Maschinen Richtlinie
2014/30 EU EMV-Richtlinie

Die Übereinstimmung des bezeichneten Produktes mit den Bestimmungen der Richtlinien wird insbesondere durch die vollständige Einhaltung folgender harmonisierter Normen nachgewiesen:

EN 60335-1:2012/A11:2014
EN 60335-2-41:2003/A2:2010
EN 809:1998/AC:2010
EN 55014-1:2006/A2:2011, EN 55014-2:1997/A2:2008
EN 61000-3-2:2014, EN 61000-3-3:2013
EN 61000-6-1:2007, EN 61000-6-2:2005, EN 61000-6-3/A1:2011, EN 61000-6-4/A1:2011

Dokumentationsbevollmächtigter Matthias Kotte

Grünhain-Beierfeld	14.11.2017	Matthias Kotte
(Ort)	(Datum)	(Unterschrift)

1. General Information

1.1 Applicability

This operating manual applies to the USS 3000 Multi-Purpose Mud Pump.

Disregard of the operating manual - particularly of the safety information - as well as unauthorised attempts to change the device, or the installation of spare parts other than the original ones will automatically lead to the loss of your warranty. The manufacturer assumes no liability for any damage caused by such actions.

Manufacturer:

Zehnder Pumpen GmbH
Zwönitzer Straße 19
08344 Grünhain-Beierfeld
GERMANY

Date of manual: June 2017

1.2 Orders and Enquiries

For orders and enquiries please contact your specialist supplier.

1.3 Technical Data:

TYPE:	USS 3000 USS 4000	USS 3000 USS 4000
Power consumption	400 W	400 W
Power supply	230 V / 50 Hz	115 V / 60 Hz
Nominal current	2.5 A	6,3 A
Power cable length	10 m	10 m
Max. pumping capacity	3000 l/h	3000 l/h
Max. pumping head	12 m w.g.	12 m w.g.
Automatic priming to max. height	6.5 m	6.5 m
Delivery line connection	G 1 ¼-AG	G 1 ¼-AG
Connected suction line	G 1 ¼-AG	G 1 ¼-AG
Max. temperature	40 °C	40 °C
Max. size of solids	15 mm	15 mm

(Other voltages on request – see type plate of the unit)

Materials:

Pump casing:	Stainless steel
External casing/handle:	ABS/Polypropylene
Membrane:	EPDM (Ethylene propylene terpolymers)
Screws:	Stainless steel
Gaskets:	NBR

1.4 Range of Application

This device is a mobile diaphragm pump which has been specially designed for cleaning garden ponds.
When the pump is used with its accessories contained in the delivery, it will easily suck up mud, leaves and other solids, which are thus removed.

In addition, the device can also generally be used for many cleaning and drainage tasks (flooded and muddy basements, swimming pools, etc.).

Unlike the usual rotary pumps, due to its special diaphragm technology, a dry run will not damage this pump, i.e., filling the pump casing or hoses with water for priming is no longer required. However, in order to protect the diaphragm, pointed or sharp-edged objects should not be pumped.

On request, special pumps for oil-containing media are available.

1.5 Accessories

The delivery comprises:

2 pcs	Bottom plate nozzles
1 pcs	Suction hose ready for connection, 3.5 m long, including flat gasket
1 pcs	Suction pipe consisting of 3 pipe sections, 0.5 m each
1 pcs	Handle (already mounted on the suction hose)
1 pcs	Pressure hose ready for connection, 3.5 m long, including flat gasket
1 pcs	Replacement diaphragm
2 pcs	Replacement non-return valve
1 pcs	Hose clamp for pressure hose connection
1 pcs	Non-return valve unit (attached to lower end of the suction line)

2. Safety:

(from: "VDMA-Einheitsblatt 24 292")

This operating instruction contains general advises to be followed at installation, operation and maintenance. Therefore it is absolutely necessary that this operating instruction must be read by related operators / users before fitting and installation and must always be available at the working place of the machine / unit.

Not only the general safety advises noted at this section must be followed, also all further safety advises, for example those for private usage.

2.1 Marking of information in the operating instruction

In case of non-compliance to this operating instruction danger may occur. Therefore the general danger symbols indicated / marked in this operating instruction as

safety advise as per DIN 4844 - W 9

and for warning from electrical current

safety advise as per DIN 4844 - W 8

must be followed.

As a further safety advise to avoid danger to the machine or their function in case of non-compliance the word ACHTUNG (= caution) is indicated.

Any advises fitted to the machine directly, for example
- symbol for direction of turns
- symbols for fluid-connection

must be followed and shall always be kept in a good and always readable condition.

2.2 Personal qualification

All operators and people (personnel) doing maintenance, inspection and fitting must have a qualification for this work. Their responsibility, competence and surveillance must be under control of the user. In case that related personal is not having the necessary knowledge they must be trained in accordance. If necessary this training can be made by the manufacturer if ordered by the user. Furthermore the user must guarantee, that the contents of this operating instruction is fully understood by the personal.

2.3 Dangerous arising due to non-compliance with safety advises

Non-compliance of the safety advises can cause damages to the personnel as to the environment and to the machine. Non-compliance of the safety advises can lead to a loss of any claims for damages.
In particular non-compliance can **for example** cause:

- Breakdown of important functions of the machine / unit

- Breakdown of prescript methods for maintenance and repair

- Danger of injury from electrical, mechanical or chemical sources

- Danger to the environment resulting from leaks of dangerous substances

2.4 Safety conscious working

These safety instructions, as well as the national safety requirements and additional company-internal precautions or such laid down by the owner of the equipment must be followed.

2.5 Safety information for the operator

- If hot or cold machine parts may cause danger they must be equipped to protect from contact

- Any protection of contact for moving parts (for example coupling) shall not be taken off when the machine / unit is running.

- Any leakage (for example from mechanical seals) of dangerous substances (for example explosive, poisonous, hot) must be taken away that no danger / damages occur to the personnel or to the environment. Any legal regulations must be followed.

- Danger caused by electrical current must be avoided (details concerning referred can be taken from special VDE regulations or from your local electricity supplier).

2.6 Safety information for maintenance, inspection and fitting

The owner / person running the machine must take care that maintenance, inspection and other work is done by qualified and specialized personnel that has studied the operating instruction well.

In principle it is just allowed to work on the machine when it is not running. This operating instruction describes in detail how to turn the machine off.

Pumps including their units that are in contact with substances that are dangerous to health must be decontaminated. Directly after completion of work all safety components must be reset.

Before restarting all details mentioned in chapter "installation" must be followed.

2.7 Non-manufacturer modification and spare part production

Changes at the machine are just permitted after approval from manufacturer. Original spare parts and only officially approved accessories protect your safety. Any use of other parts will cause a lost of claims for damages.

2.8 Unauthorized usage

The safety of the delivery machine is only guaranteed by usage according to the section one (1) "General" of the operating instruction.
The listed maximum ratings as per specification should under no circumstances be exceeded.

3. Description

The multi-purpose pump is equipped with a robust alternating current motor and gear unit.
The medium is pumped by means of a diaphragm attached to the pump casing. Because of the oscillating movement of this diaphragm, the pumping delivery pulsates, i.e., owing to its specific design, it causes an intermittent movement in the drain hose during operation.

Thanks to its sturdy wheels and adjustable handle, the device can easily be moved, but it should only be operated in a horizontal installation position.
After all supplied accessories have been attached and the power cable has been plugged in, the device is ready for operation.

- Plug the device into a socket with earth connection.

- The use of the device in the area of swimming pools or garden ponds and their access zones is only permitted if these facilities have been built according to DIN VDE 0100, part 702. Ask an electrician for advice.

4. Installation and Start-up of Pump

(e.g. cleaning of a pond)

Check whether the device has been delivered with all its parts and that it has not been damaged during transport.
To set up the pump, choose a flat, dry place.
The device must always be operated in a horizontal position.
First assemble the accessories contained in the delivery as follows: **(also see Appendix IV, page 14)**

- Assemble the **3 suction pipes** (in any order).
- Insert the **non-return valve unit** into the **lower end** of the suction line. Insert the **handle into the upper end** and the suction nozzle into the lower end of the suction line.
- Connect the handle to the suction hose to the intake side of the pump **casing (observe the marking).**Connect the pressure hose to the discharge side of the pump **(observe the marking).**
- Lead the unconnected hose end to open ground so the mud and solid components can be deposited there.

Coarse components can be collected in an appropriate container (e.g. basket).
Use the **hose clamp supplied** to **attach the pressure hose** to the pump.
Make sure to insert the flat gaskets **supplied** in the screw connections on the pump casing!

Plug in the power cord. The device is now ready for operation and can be switched on using the On/Off - switch.

DANGER

- **Never move or transport the device by pulling it by the power cord.**
- **Ensure that there is a safety distance to the pond of at least 2 m.**
- **Do not use or leave the device outside when it rains.**
- **The device must be protected by a fault-current protective switch (FI switch).**
- **Operate the device in the horizontal installation position only.**
- **Secure the device so that it stays in position and does not slide on hilly ground.**
- **Never place the device in water nor immerse it in water, partly or completely.**

Immerse the suction nozzle at the end of the suction pipe in the pond and pull it slowly across the pond ground. It will not take long before the pump sucks up the muddy pond water. The suction nozzle has been designed to prevent large objects from entering the pump casing.
Please ensure no **sharp-edged objects** enter the pump, as these may **damage the pump diaphragm or shorten its service life.**

If the motor becomes overloaded, the overload protection will switch off the motor.
As soon as the motor has cooled down, it switches itself on again automatically.
Ensure therefore that the air holes in the back of the motor housing remain free from grass, leaves or other obstructions to maintain the full cooling performance of the motor. The pump can be switched off with the On/Off switch.

If the water pumped has been very muddy, we recommend that you rinse out and clean the hoses and the pump casing by pumping through clean pond water after having completed all work.
Before longer downtimes (e.g., before winter storage), the pump and pump casing (when frost is expected) should be emptied completely and cleaned by pumping through clean water.
This can be easily achieved by running the pump (with its hoses disconnected) for 3 to 4 pump strokes.
The device and its accessories should always be stored in a dry and dust-free place, protected from frost.

5. Maintenance

- Before doing any maintenance work, always remove the mains plug.

- If the multi-purpose pump is used properly according to the instructions given in the manual, it will require very little maintenance.
However, the interior of the pump and the diaphragm should be checked and cleaned at regular intervals, especially after it has been used extensively or if you have noted a distinct loss of performance during operation.
Loosen the screws in the pump casing and remove them. The membrane is now easily accessible and can be cleaned, if necessary, by undoing the central screw
Assemble in reverse order. Make sure that the diaphragm has been inserted properly.
- In the same way, the two non-return valves in the threaded ports of the pump casing can be checked and replaced by removing the threaded fittings, if necessary.
Before assembling the pump, make sure the flaps open in the direction of the water flow.
On the suction side, the flap must open toward the pump interior (inwards) and on the discharge side the flap must open outwards. (See appendix IV, page 14).
- The supplied accessories, hoses, suction pipes, the two bottom-plate nozzles and the handle should also be cleaned of dirt and solids after they have been used.
- The non-return valve unit at the lower suction pipe end should be checked, cleaned and replaced if necessary.
Before assembling the pump, make sure that the flaps open in the direction of the water flow.
The flap(s) must open towards the handle (see appendix IV, page 14).

6. Warranty

We provide a manufacturer's warranty of 12 months from the date of purchase.
Your receipt is sufficient proof. Within the warranty period we shall repair all faults which have been caused by faulty materials or manufacturing deficiencies, or shall replace the device at our own discretion, free of charge.Our warranty does not cover any faults caused by improper use of the device or as a result of wear and tear. We shall not assume liability for consequential damage caused by the failure of the pump.
Warranty is not accepted if pump unit is used on loan base.
For warranty claims please contact your specialist supplier or customer service.
If you need to return the device, please send it back in the original packing in order to avoid damage during transport.

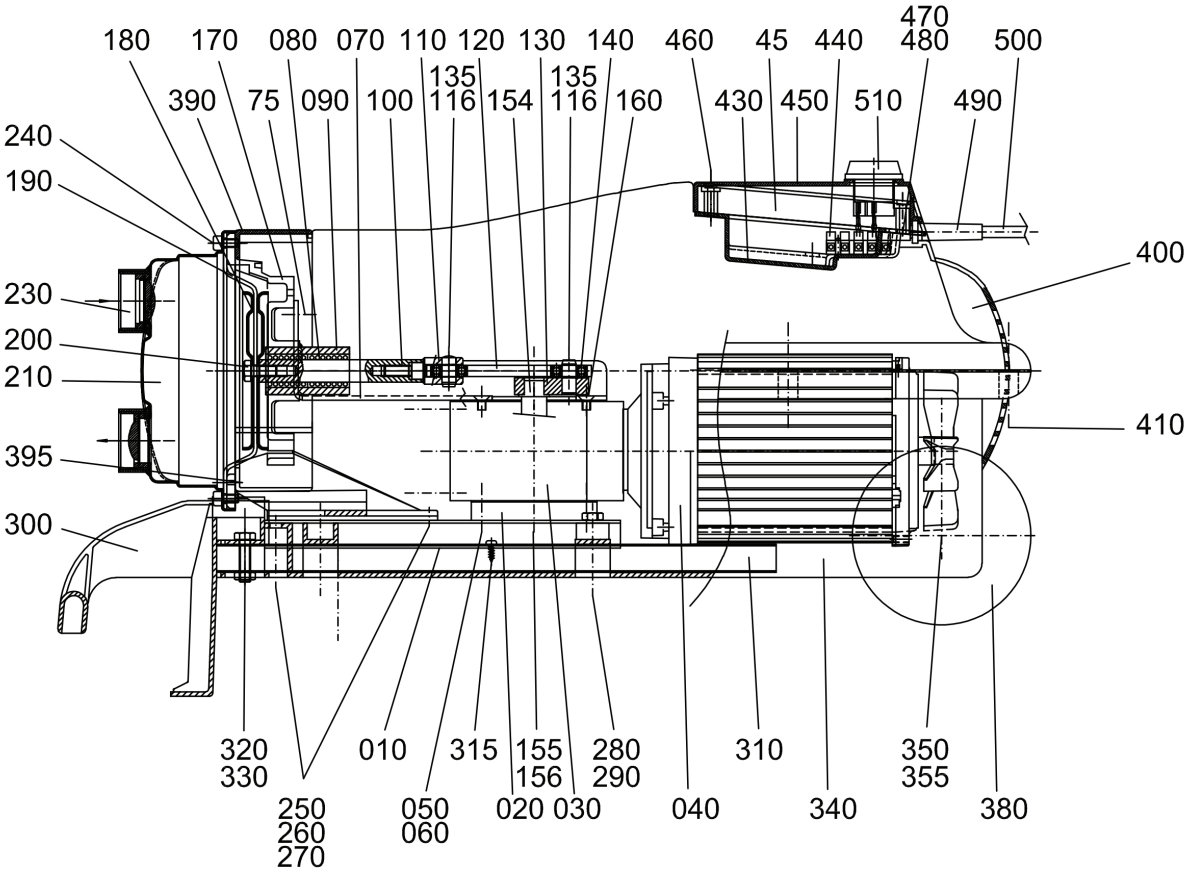
7. Technical Modifications

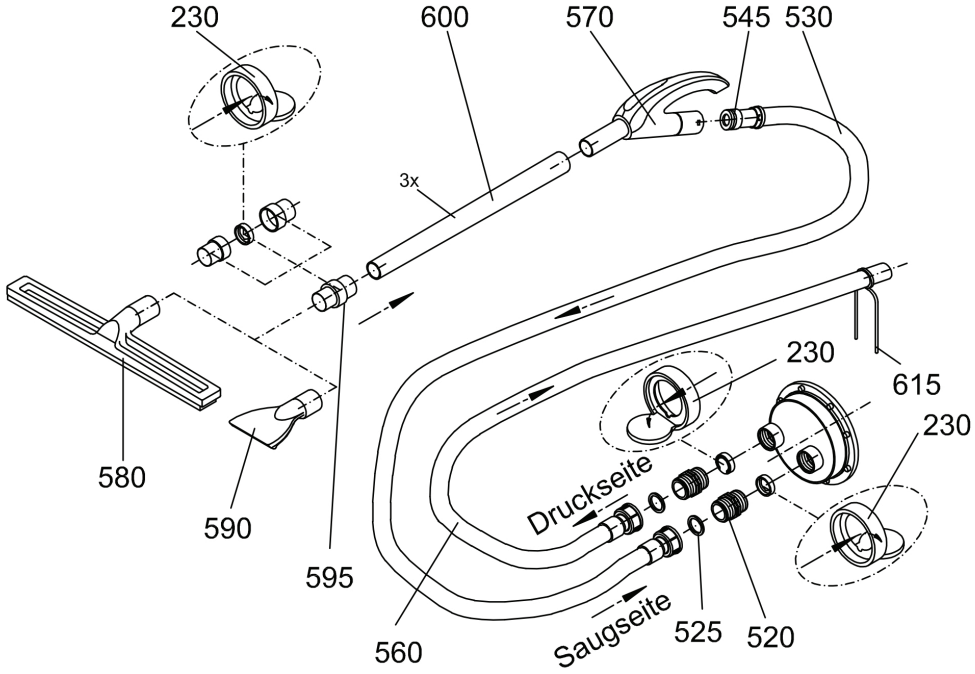
We reserve the right to make technical modifications.

Appendix I: Possible faults and remedies

Faults	Possible causes	Remedy
The device does not start.	It is not connected to the mains.	Check current supply.
	The mains switch is in 0 position.	Switch mains switch to I.
	FI switch (residual current circuit breaker) has tripped.	Reset FI switch by pressing the RESET button. If this happens more often, inform your customer service.
	Domestic fuse has blown.	Replace fuse or press RESET on the automatic circuit breaker. If this happens more often, inform your customer service.
	Motor or drive is faulty.	Inform your customer service.
Device runs, but does not pump.	Suction hose, suction pipes with handle and bottom-plate nozzle **have not** been properly assembled or screwed together.	Leaks in the suction line decrease the rate of flow. Join the bottom-plate nozzle, the suction pipes and the handle tightly. Screw the suction hose and pump casing tightly together. (Remember to insert the flat gasket)
	Non-return valve at the lower end of the suction pipe is clogged or has been inserted in the wrong installation position.	Clean non-return valve and check if it has been inserted the right way. (see point 5, Maintenance)
	Bottom-plate nozzle is clogged.	Clean bottom-plate nozzle.
	Suction pipes are clogged.	Clean suction pipes.
	Handle is clogged.	Clean handle.
	Suction hose is clogged.	Clean suction hose.
	Flat gasket at the end of the suction hose is either missing or faulty.	Insert the flat gasket in the cap nut of the suction hose and connect the suction hose to the pump. Replace the flat gasket if it is faulty.
	Non-return valves in the suction or discharge connection are either jammed, soiled or faulty, or have been installed in the wrong installation position.	Remove non-return valves and clean them. Make sure you insert them the right way. (see point 5, Maintenance)
	Diaphragm is faulty.	Replace diaphragm.
	Pump casing is badly soiled.	Dismount pump casing to clean it.

Spare parts list USS 3000/4000





Dwg.no.	Quantity	QTY	Art.no.	Description	
010	1,000	pcs	12251	base plate USS 3000 galvanized	
020	1,000	pcs	12268	centering ring USS 3000	
030	1,000	pcs	12262	worm gear USS	
040	1,000	pcs	15700	motor USS 3000/4000	
045	1,000	pcs	10836	capacitor 12 µF	
050	4,000	pcs	15308	countersunk screw M6x10 vz	
060	4,000	pcs	11136	lock washer A6,4 spring steel	
070	1,000	pcs	17628	cover plate USS incl. Sockets	
075	4,000	pcs	15332	hexagon socket screw M5x14 gvz	
080	2,000	pcs	12309	compact ball bushing	
090	1,000	pcs	12265	drive unit USS 3000	
100	1,000	pcs	12263	pump tappet	
110	1,000	pcs	12267	fork head	
116	2,000	pcs	15315	shim ring DIN988-St.10x16x0,5	
135	2,000	pcs	12248	jointed arm, galvanised	
154	1,000	pcs	15333	feather key A6x6x20 st	
155	1,000	pcs	15291	hexagon socket screw M10x25 gv	
156	1,000	pcs	15341	mudguard washer 10,5x30x2,5 gv	
160	4,000	pcs	15308	countersunk screw M6x10 vz	
170	1,000	pcs	12310	motor reception flange USS	
180	2,000	pcs	12239	plate for USS 3000	
190	1,000	pcs	11875	membrane USS 3000 black	USS 3000
190	1,000	pcs	11876	diaphragm hub 50 f. USS 4000	USS 4000
200	1,000	pcs	15289	hexagon screw M8x20 A2	
210	1,000	pcs	12241	pump housing USS 3000	
230	2,000	pcs	10736	non-return valve 1¼" EPDM	
240	8,000	pcs	10008	hexagon socket screw M6x10 A2	
250	4,000	pcs	11671	hexagon socket screw M8x25 gvz	
260	4,000	pcs	12624	U-washer 8,4x16x1,6 vz	
270	4,000	pcs	12623	hexagon nut M8 gvz	
280	2,000	pcs	16390	hexagon socket screw M8x18 gvz	
290	2,000	pcs	12624	U-washer 8,4x16x1,6 vz	
300	1,000	pcs	12438	handle USS 3000/4000	
340	1,000	pcs	10413	cover lower part USS 4000	USS 4000
340	1,000	pcs	10412	cover lower part USS 3000	USS 3000
350	4,000	pcs	15303	mudguard washer 8,4x30x1,5 gvz	
351	2,000	pcs	15300	hexagon nut M8 vz ss	
355	2,000	pcs	12349	axle tube AR 12-8/35-galvanize	
360	2,000	pcs	16461	hexagon screw M8x55 gvz	
380	2,000	pcs	10297	wheel ø140mm, black, PP	
385	4,000	pcs	10700	hexagon socket screw M6x8 A2	
390	1,000	pcs	10400	spacer WX	
400	1,000	pcs	10414	cover upper part USS 3000	USS 3000
405	1,000	pcs	10415	cover upper part USS 4000	USS 4000
410	6,000	pcs	15297	self-tapping screw 3,9x16 A2	
430	1,000	pcs	10409	terminal box insert black	
440	1,000	pcs	13165	terminal strip 5-pole	
450	1,000	pcs	10406	terminal box lid USS/WX	
460	4,000	pcs	15298	self-tapping screw 3,9x32 A2	
470	1,000	pcs	10721	strain relief clamp KK4	
480	4,000	pcs	15295	self-tapping screw 3,9x25 gvz	
490	1,000	pcs	13128	kink protection grommet ZP	
500	1,000	pcs	13139	cable H07 RN-F 10,15m 3G1.0	
510	1,000	pcs	12617	rocker switch ON/OFF	
520	2,000	pcs	17614	double threaded nipple 1¼" pro	
525	2,000	pcs	16656	flat gasket, rubber 39x29x3	
530	1,000	pcs	11379	suction hose USS compl. 4000	USS 4000
530	1,000	pcs	15683	suction hose USS3000 w/ pistol contains pos. 530, 570	USS 3000
540	2,000	pcs	12333	hose screwing 1"x1 1/4" bras	USS 4000
545	1,000	pcs	10709	O-ring 34x3,5 NBR70	USS 3000
560	1,000	pcs	11377	pressure hose USS compl. 3000	USS 3000
565	1,000	pcs	11380	pressure hose USS compl. 4000	USS 4000
570	1,000	pcs	10215	handle piece compl. for USS	
580	1,000	pcs	10221	bottom nozzle large USS	
590	1,000	pcs	10223	bottom nozzle small USS	
595	1,000	pcs	10233	round nozzle USS	
600	3,000	pcs	12317	Stainless steel suction pipe	
615	1,000	pcs	12311	hose holder USS	
	1,000	pcs	18106	fan cap for USS 3000	
	2,000	pcs	15327	ball bearing 6204 ZZ C3	
	3,000	pcs	12578	O-ring 26x3 NBR70	
	1,000	pcs	17304	fan propeller USS	
	1,000	pcs	11858	O-ring 30x2,5	
	1,000	pcs	10236	plastic plug sleeve for USS	
	1,000	pcs	15694	conversion kit USS 3000 to 400	