

## INSTRUCTIONS POUR LES POMPES VIDE FUTS TECHNI-FLOW

**!** BEFORE OPERATING THIS EQUIPMENT, THE OPERATOR SHOULD THOROUGHLY READ AND UNDERSTAND ALL INSTRUCTIONS AND SAFETY WARNING LABELS INCLUDING THE MANUFACTURER'S INSTRUCTIONS ON THE MATERIAL BEING PUMPED.

### SECTION 1: GENERAL

1. The operator should wear suitable protective clothing including: face mask, safety shield or goggles, gloves, apron, and safety shoes.
2. Check a chemical resistance chart to be sure the chemical being pumped is compatible with pump construction.
3. Flammable or combustible liquids can only be handled with air driven motors and explosion-proof electric motors in conjunction with stainless steel pump tubes.
4. The use of TF-PP tubes (polypropylene), TF-PVDF (polyvinylidene fluoride), TF-ALU, TF-150, TF-190, TF-280, and TF-300 motors on flammable or combustible liquids is prohibited and could cause fire, injury or death.
5. Bonding and grounding safety procedures according to legal authority regulations must be used when handling flammables, operating in a hazardous duty environment or when the danger of static discharge is present. Avoid liquid splashing. Refer to Section 6.
6. All federal, state and local safety codes should be followed.
7. Make sure nameplate information corresponds to voltage supplied.

### PRE-START-UP

1. All connections must be properly in place and tightened securely. Stainless steel hose clamps are required on hose and must be properly tightened. Pump hand wheel must be snug, otherwise pump impeller damage can occur.
2. Since all pump motors and pump tubes are interchangeable, it is necessary for the operator to read and understand operating instructions for both the motor and the pump tube.
3. First use pump on water to be familiar with the assembly and check motor operation, flow rate, security of all hose connections, operation of speed control knob, liquid velocity, pump drainage and flow nozzle.
4. Before starting motor, check to be sure hose is securely fastened in receiving vessel so hose cannot splash chemicals, causing injury. Use of optional spring clamp is recommended.
5. Before connecting motor to power supply, be sure motor switch is OFF ("O" position) and speed control is turned down.
6. Never submerge pump below the hose connection.
7. Never leave unit unattended during operation.
8. Do not use speed control knob as ON/OFF switch.\*
9. If liquid appears below discharge assembly, check security of hose clamps and wing nut. If leakage fails to stop, cease operation. Neutralize pump and refer to specific parts list and operating instructions to repair. If unable to repair, contact factory.
10. When finished using pump, drain pump and hose thoroughly and operate on 4-8 litres of clear water or neutral solution

for 15-30 seconds to completely flush and rinse pump and hose assembly.

11. Never store the pump and hose assembly in the container. Always rinse thoroughly and hang on a wall bracket.

**!** \* The speed control switch should not be used as the main ON/OFF switch. Using the speed control switch in this manner causes excessive wear to the potentiometer and triac and may result in premature failure. The use of the speed control switch does not cut power to the motor and inadvertent activation could result in injury or death if the motor is activated when not properly attended and secured.

### SECTION 2: INSTRUCTIONS FOR MOTORS - TF-150, TF-190, TF 200, TF-280, TF-300, TF-400 and pneumatic motors JP-Air1, JP-Air2 and JP-Air3

**!** THIS EQUIPMENT (TF-150, TF-190, TF 200, TF-280, TF-300, TF-400) MUST BE CONNECTED TO A GROUND FAULT CURRENT INTERRUPTION DEVICE BEFORE OPERATING.

TF-150, TF-190 and TF-280 CE listed

Open Drip Proof enclosure (IP 24), 230V/1/50Hz-250 resp., 500 resp., 825 watts) - 10.000 RPM, thermal overload protection switch, CE listed, 5 mtr. H 07 RN-F cable cord with plug.

1. Do not use the TF-150, TF-190 and TF-280 motor on flammables or in hazardous duty environments.
2. Check nameplate data to verify proper voltage.
3. Before connecting plug to power supply, be sure motor switch is in the OFF position, "O".
4. Never carry motor by or pull on power cord.
5. If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer or its service agent.
6. If motor stops during operation, place the switch in the OFF position "O" and allow the motor to cool. **Motor will not restart if the switch is not placed in the OFF position.** 230V Models - LVR will release motor switch when voltage is interrupted or stopped. Motor will not turn on once power is restored.
7. Check viscosity and specific gravity limitations before resuming operation.
8. Connect power cord to suitable 3 prong receptacle and never remove ground prong from plug.
9. To engage motor to pump tube, place motor on top of pump tube and turn hand wheel part no. 1842 clockwise until the motor coupling and pump coupling are completely engaged and secured.
10. To replace cartridge brushes, refer to Section 5.
11. Never submerge motor in liquid or splash motor with liquid. Operation of motor in wet conditions can cause injury or death.
12. Bond and ground where the possibility of static discharge is present.

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## TF-200 and TF-300 CE listed

TEFC (IP 54) enclosure, 230V/1/50Hz - 500 or 825 watts  
10.000 RPM, thermal overload protection switch, CE listed,  
5 mtr. H 07 RN-F cable cord with plug.

The JP-200 and JP-300 motor are a totally enclosed fan cooled motors (TEFC). The construction of a TEFC motor minimizes corrosive fumes from entering and damaging the vital internal components of the motor. These motors are ideal where corrosive fumes present a detriment to the operation of open motors. The JP-200 and JP-300 are ideally suited where the motor is exposed for long periods to mildly corrosive fumes.

1. Do not use the JP-200 and JP-300 motor on flammables or in hazardous duty environments.
2. Check nameplate data to verify proper voltage.
3. Before connecting plug to power supply, be sure motor switch is in the OFF position, "O".
4. Never carry motor by or pull on power cord.
5. If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer or its service agent.
6. If motor stops during operation, place the switch in the OFF position "O" and allow the motor to cool.

### Motor will not restart if the switch is not placed in the OFF position.

Models with LVR will release motor switch when voltage is interrupted or stopped. Motor will not turn on once power is restored.

7. Check viscosity and specific gravity limitations before resuming operation.
8. Connect power cord to suitable 3 prong receptacle and never remove ground prong from plug.
9. To engage motor to pump tube, place motor on top of pump tube and turn hand wheel part no. 1842 clockwise until the motor coupling and pump coupling are completely engaged and secured.
10. To replace cartridge brushes, refer to Section 5.
11. Never submerge motor in liquid or splash motor with liquid.
12. Bond and ground where the possibility of static discharge is present.

## -400 - EEx de IIA T6 - DEMKO 03 ATEX 135563X

Flameproof Motor DEMKO Listed, 230 V/1/50 Hz 550 watts -  
10,000 RPM, overload protection switch - manual reset on  
switch, wire cord - plug not included, ground is green striped wire.

### ! BEFORE STARTING THIS MOTOR, HAVE A SAFETY ENGINEER CHECK UNIT AND ALL SAFETY PROCEDURES. DO NOT USE THIS MOTOR WITHOUT PROPER KNOWLEDGE AND INSTRUCTIONS. FOLLOW ALL LOCAL, STATE AND FEDERAL SAFETY AND ELECTRIC CODES.

1. Verify nameplate data with available electrical connections.
2. Use only a Ex-proof listed plug and a Ex-proof socket, Group EEx de IIC T6.
3. Check to be sure that the motors is in the OFF position "O" before connection to power supply.

### ! IF FLAMMABLES ARE TO BE PUMPED OR MOTOR IS TO BE USED IN A HAZARDOUS DUTY ENVIRONMENT OR WHERE THE POSSIBILITY OF STATIC DISCHARGE IS PRESENT:

4. Use the TF-400 motor only in conjunction with the TF-SS Stainless Steel pump.

5. Never use the TF-400 motor in conjunction with plastic pump tubes, TF-PP or JP-PVDF or JP-ALU-Pump tube, when pumping flammables or in a hazardous duty environment.
6. Bond and ground BEFORE STARTING. See Section 6.
7. To engage motor to JP-SS pump tube, place motor on top of pump tube and turn hand wheel, part no.1842, clockwise until the motor coupling and pump coupling are engaged and secure.
8. Never submerge motor in liquid or splash motor with liquid.
9. Repair should only be undertaken by a U.L. approved motor facility or return the motor to Techni-flow Pumpen. Unauthorized repair voids the warranty and U.L. listing and could cause injury or death.

### ! If there is any question regarding proper safety procedures - STOP - do not start the motor. Check with your safety engineer or Techni-flow Pumpen before starting.

## SECTION 3: TF-Air1, TF-Air2 and TF-Air3

### MOTEUR PNEUMATIQUE DE POMPE VIDE FUTS

TF-Air1 300 watt 7500 rpm air consumption 10,00 l/sec. ATEX.

TF-Air2 300 watt 6500 rpm air consumption 6,5 or l/sec.

TF-Air2 700 watt 10000 rpm air consumption 14,0 l/sec.

TF-Air3 400 watt 7500 rpm air consumption 8,0 l/sec. ATEX.

1. Always use a filter, lubricator, regulator (FLR) on the intake side of the unit. Failure to provide an FLR will result in premature failure of the air motor. A filter is necessary to provide moisture free air and avoid rust build up. A lubricator using SAE 10 wt. oil is necessary to provide internal lubrication. The regulator assures proper air pressure.
2. Daily normal maintenance is recommended.
3. When pumping flammables or in a hazardous duty environment, proper bonding and grounding is required to avoid static electric discharge. See Section 6 for proper method.
4. Never use the TF-Air1 or TF-Air3 motors in conjunction with plastic pump tubes, TF-PP or TF-PVDF or ALU pump, when pumping flammables or in a hazardous duty environment.
5. If motor slows down or stops, remove motor from pump and air supply. Turn the motor shaft with your finger; it should turn easily. If it does not, check your lubricator to be sure air motor is receiving proper lubrication.
6. Check the muffler to make sure it is not clogged. A safety solvent can be used to clean the clogged muffler. A clogged muffler will cause back pressure and prevent the unit from working freely.
7. Never stand directly in path of muffler exhaust.
8. Never operate the air motor without the muffler in place and tightened properly.
9. Before operation make sure the motor is securely fastened to the pump with the handwheel, part no. 1842. Improper connection will result in damage to the pump coupling and possibly the pump shaft.

## SECTION 4: INSTRUCTIONS FOR PUMP TUBES

### TF-PP, TF-PVDF TF-ALU AND TF-SS PUMP TUBES

Lengths available - 700 mm for carboys, 1000 mm for drums, 1200 mm for containers, 1500 mm for IBCs and 1800 mm for storage vessels.

Special lengths are possible from 200 to 3000 mm.

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## TF-PP

Polypropylene construction - C-276 drive shaft - Viton V-seal - Viton sealed ball bearings - TFE guide sleeve - pure carbon grade 6038C carbon bushing - hose connection 1", 3/4" or 5/4" available

Temperature limitation 50° C maximum.

1. Do not use TF-PP pump tubes on flammables or in hazardous duty environments. The insulating nature of plastic prevents proper bonding and grounding. A static electric discharge can take place and ignite fumes resulting in fire, injury or death.
2. TF-PP pumps can be run dry without damaging the structural integrity of the unit. Prolonged periods of dry running should be avoided.
3. Always check the chemical compatibility of the liquid being pumped with pump construction and hose you have selected.
4. Securely tighten all connections before beginning operation. Use only stainless steel hose clamps to secure hose and tighten securely.
5. Before starting motor, check to be sure hose is securely fastened in receiving vessel so hose cannot splash chemicals, causing injury. Use of optional clamp is recommended. See Catalog.
6. Check temperature limitation, pressure rating and chemical compatibility of the hose you have selected.
7. Never submerge pump below the hose connection.
8. If liquid appears below discharge housing, part no. 1028, check security of hose clamps and wing nut, part no. 1106. If leakage fails to stop, cease operation. Neutralize pump and return unit to an authorized JESSBERGER Pump distributor for inspection and possible repair.

## TF-PVDF and TF-ALU

PVDF (polyvinylidene fluoride) construction - natural PVDF contains no pigment or color and is ideal for the transfer of ultra pure chemicals - C-276 drive shaft - TFE V-seal-Viton sealed ball bearings - TFE guide sleeve - pure carbon grade 6038C carbon bushing - hose connection 1", 3/4" or 5/4". Temp. max. 100° C. PVDF-lengths 700, 1000, 1200, 1500 and 1800 mm.

TF-ALU, SS-drive shaft, Viton V-seal, Temp. max. 100 ° C tube-lengths 200-3000 mm.

1. Do not use PVDF or ALU pump tubes on flammables or in hazardous duty environments. The insulating nature of plastic or ALU prevents proper bonding and grounding. A static electric discharge can take place and ignite fumes resulting in fire, injury or death.
2. TF-PVDF / ALU pump can be run dry without damaging the structural integrity of the unit. Prolonged periods of dry running should be avoided.
3. Always check the chemical compatibility of the liquid being pumped with pump construction and hose you have selected.
4. Securely tighten all connections before beginning operation. Use only stainless steel hose clamps to secure hose and tighten securely.
5. Before beginning operation, check to be sure hose is securely fastened in receiving vessel. Failure to secure hose properly will allow hose to splash chemicals, causing injury. Use of optional hand clamp is recommended. See Catalog.
6. Check temperature limitation, pressure rating and chemical compatibility of the hose you have selected.

8. If liquid appears below discharge housing, part no. 4028, check security of hose clamps and wing nut, part no. 4106. If leakage fails to stop, cease operation. Neutralize pump and return unit to an authorized JESSBERGER Pump distributor for inspection and possible repair.

## TF-SS - PTB 03 ATEX 4004 X - EX II 1/2 IIB T4

Stainless steel 316Ti construction - TFE rotor - TFE V-seal - TFE guide sleeve - pure carbon grade 6038C carbon bushing - Viton sealed ball bearings - 1" , 3/4" or 5/4" hose connection. Maximum temperature 100° C.

1. TF-SS pumps can be run dry without damaging the structural integrity of the unit. Prolonged periods of dry running should be avoided.
2. Always check the chemical compatibility of the liquid being pumped with pump construction and hose you have selected.
3. Check temperature limitation, pressure rating and chemical compatibility of the hose you have selected.
4. Securely tighten all connections before beginning operation. Use only stainless steel hose clamps to secure hose and tighten securely. Use of optional hand clamp is recommended. See Catalog.
5. The TF-SS requires a TFE seal no.2195 between the wing nut and pump body. Be sure this O-ring is in place or leakage of chemicals will occur.
6. When using the TF-SS on flammables or in hazardous duty environments, it is always necessary to bond and ground. See Section 6 for illustration.
7. An electrically conductive hose may be employed with the TF-SS tube when pumping flammables. Installation must be exactly to manufacturer's installation instructions. Bonding and grounding must also be used in conjunction with hose to prevent static electric discharge.
8. If liquid appears below the bearing housing, re-check security of all fittings. Re-check to be sure the TFE seal no 2195 is in place. If leakage continues, cease operation, neutralize the pump and return it to an authorized JESSBERGER Pump distributor for inspection and possible repair.

## REPAIR SECTION

**All TF-PP, TF-PVDF, TF-ALU and TF-SS pumps are repaired in the same steps.**

### Impeller, Pump Coupling (1004) and Pump Foot replacement

1. Unplug motor, remove motor from pump and store safely. Remove pump from solution and neutralize or flush with water.
2. Unscrew pump foot 1609 (PP pumps) or 2708 (SS pumps) or 4608 (PVDF + ALU-pumps) in a clockwise direction. (NOTE: left handed threads). This will expose the impeller.
3. Secure 1004 pump coupling on opposite end. Use a flat head screwdriver to unscrew the 1608 (PP pumps) or 2706 (SS pumps) or 4608 (PVDF + ALU-pumps) in counter-clockwise direction.
4. Replace impeller and pump foot in opposite order. NOTE: If 1004 pump coupling loosens instead of the impeller, simply hold shaft with pliers and unscrew impeller. Take care not damage threads on shaft.

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7. Never submerge pump below the hose connection.

## Pump Housing Replacement

1. Unplug motor, remove motor from pump and store safely. Remove pump from solution and neutralize or flush with water.
2. Unscrew pump foot 1609 (PP pumps) or 2708 (SS pumps) or 4608 (PVDF + ALU-pumps) in a clockwise direction. (NOTE: left handed threads). This will expose the impeller.
3. Secure 1004 pump coupling on opposite end. Use a flat head screwdriver to unscrew the 1608 (PP pumps) or 2706 (SS pumps) or 4608 (PVDF pumps) in counter-clockwise direction. NOTE: If 1004 coupling loosens instead of the impeller, simply hold the shaft with pliers, taking care not to damage the shaft threads.
4. Unscrew the pump housing in a clockwise direction. 1524 (PP pumps) or 2704 (SS pumps) or 4607 (PVDF + ALU-pumps). NOTE the left handed threads.
5. Replace new components in opposite order.

## SECTION 5: REPLACEMENT OF CARTRIDGE BRUSHES - TF-190, TF-200 TF-280 and TF-300

! THE REPLACEMENT OF BRUSHES OR ANY ELECTRICAL WORK SHOULD ONLY BE PERFORMED BY A LICENSED ELECTRICIAN OR BY PLANT PERSONNEL FULLY TRAINED IN ELECTRICAL REPAIR.

1. Disconnect motor from power supply and pump tube.
2. Place motor on a flat table in the upright position.

## SECTION 6: TRANSFERRING OF FLAMMABLES OR USE IN HAZARDOUS DUTY ENVIRONMENTS

Bonding is an electrical connection between a primary metal vessel and a metal receiving vessel. See schematic.

Grounding is an electrical connection between a metal vessel, pump, motor and a constant ground, i.e. a metal rod driven into the earth.

Bonding and grounding are required when pumping flammable materials or in hazardous duty environments. Failure to bond and ground properly can cause a discharge of static electricity

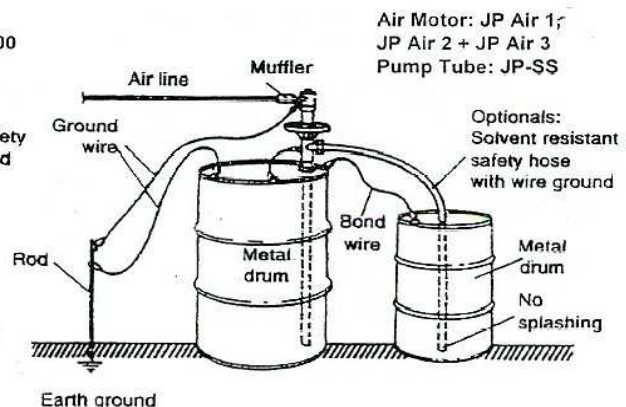
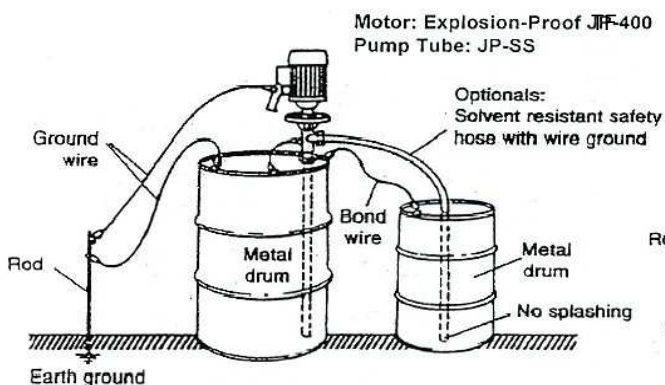
3. Remove fan cover screws. Be careful not to lose the wave washer or drop it into motor windings.
4. On TF-200 and TF-300, it is necessary to next remove the fan and the bearing cover. Again, be careful of the wave washer.
5. Back out screw holding the clamp over the brush cartridge. Do not fully remove the screw or clamp.
6. Gently push brush cartridge toward the armature and lift up from the motor housing side.  
TO INSTALL NEW BRUSH CARTRIDGE:
7. Check to be sure the brush plate is properly located in the brush channel. The brush plate has a tab that sits on the armature side of the brush holder. Do not allow the brush plate to come in contact with the armature or a short circuit will occur. Do not position the brush plate where it will contact the motor housing or an electrical short circuit will occur, causing injury or death.
8. Push cartridge gently forward and down in the brush channel. The brass locator pins will fit into the locking channel. The cartridge can only go in one way. Re-check the connor plate below the brush cartridge.
9. Tighten the screw on the cartridge clamp. Be sure the clamp is not in contract with the armature.
10. On the TF-200 and TF-300 , re-install the bearing cover. Check the wave washer on top of the bearing.
11. Re-install fan on the TF-200 or TF-300.
12. Re-install fan cover.

resulting in fire, injury or death.

If in doubt, do not start pump! Be sure bonding and grounding wires are secure before starting operation.

(Ground and bond wires must have less than one ohm resistance for safe usage. Check continuity before starting).

Always check with a safety engineer when any question arises and periodically check safety procedures with a safety engineer.



## WARRANTY

These products have a limited warranty against manufacturer's defects in materials or construction for 12 month from the date of sale. Do not modify this product or change physical construction without the written per-

mitted modifications of physical abuse beyond the manufacturer's control has occurred. Manufacturer's responsibility is strictly limited to repair or replacement of defective components. The manufacturer assumes no

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