

**Product Instruction Data** (FORM NO. 3-21RD NDH  
PIS)

Installation & Operating  
Instructions for Industrial  
High Purity, 3 to 21 round  
T-Style Filter Housing  
(Models NDH1C, NDH1D,  
NDH1E, NDH1F, NDH1G,  
NDH1H)

**1. RECEIPT OF EQUIPMENT**

The housing and any optional equipment are packed individually for assembly by the customer. Carefully unpack and check each item received against the packing invoice. DO NOT DISCARD ANY PACKING MATERIAL UNTIL THE HOUSING AND FILTERS ARE INSTALLED AND OPERATING PROPERLY.

**2. INSTALLATION**

**CAUTION:** PROPER SAFETY EQUIPMENT SHOULD BE WORN AT ALL TIMES INCLUDING GOGGLES, PROTECTIVE CLOTHING, STEEL TOED FOOTWEAR, PROTECTIVE GLOVES AND APPLICABLE BREATHING RESPIRATOR OR DEVICE.

Housings are supplied without cartridges installed. Refer to cartridge manufacturer installation instructions for cartridge installation or replacement.

**INSTRUCTIONS FOR MOUNTING:**

Refer to filter housing assembly drawing listed on specification page in Product Manual for parts labeling and orientation instructions.

2.1 Bolt housing legs to a permanent base to provide stability during pipework installation and filter cartridge replacement. Install housing to pipework allowing clearance for installation and removal of cartridges. (See specification page for minimum clearance dimensions).

By-pass lines (if installed) should be closed unless fluid is needed during the filter replacement.

2.2 **IMPORTANT:** Install the housing to the pipework making certain that the fluid flow agrees with the flow direction indicated on the housing Inlet and Outlet.

**3. INSTALLING or REPLACING CARTRIDGES**

**CAUTION:** Do not at any time loosen or remove swing bolt closure mechanism before venting. Failure to open vent can result in pressurized fluid trapped in the vessel. Fluid under pressure may escape when closure mechanism is loosened or removed causing personal injury or damage to equipment.

When cartridge replacement becomes necessary and before the limiting differential pressure is reached, (refer to cartridge manufacturer's literature for maximum allowable cartridge differential pressure), proceed as follows:

- 3.1. Close valve located immediately downstream of filter assembly.
- 3.2. Close valve located immediately upstream of filter assembly.
- 3.3. Do not stand over the assembly while opening Vent Valve to depressurize filter assembly. Open the Drain Valve to release any remaining liquid. Be prepared to catch, contain and/or drain off this liquid.
- 3.4. Unloosen Eye Nuts on Swing Bolts and lay Swing Bolt assemblies back off of lugs. Remove Shell assembly with Lift Handles or Lifting Eyes and place in a secure place taking care not to damage O-Ring sealing surface on Shell Assembly. (**NOTE:** Lifting Eyes are standard on 7 round and larger housings. Use proper lifting precautions or proper lifting device).
- 3.5. Remove polypropylene Fly Nuts from Hold Down Tie Rods by turning counterclockwise and place in a secure place. Lift Hold Down Plate off of Hold Down Tie Rods and place in a secure place. If housing possesses DOE cartridge connections, remove DOE Spring Seal Assemblies (if provided) taking care not to drop the parts into the vessel and place in a secure place. Remove V-Posts or C-Posts by pulling with a gentle upwards and side to side motion and place in a secure place. If cartridges possess 222 end adapters, remove filter cartridges by grasping lower end of cartridge and pulling away from the cartridge sockets on the Base Plate with a twisting motion. 226 (Code 7) cartridges will require rotating counterclockwise until the locking tabs are fully visible prior to applying final twisting/lifting motion. Discard filter cartridges in a suitable place.
- 3.6. Clean and wipe all parts of the filter housing clean with a clean cloth. Inspect all parts of the filter housing, particularly the housing gasket or O-Ring, for possible damage and/or excessive wear and corrosion. Replace any damaged or worn parts.
- 3.7. Replace V-Post or C-Post into the center opening on each cartridge cup by pushing gently in a downward motion. If the V-Post possesses a set of two tabs near the bottom end, push the post into the cup center until the tabs contact the DOE cup. If the C-Post does not possess the tabs, push the post into the center of the cup approximately two inches. If cartridges are DOE, position new cartridges over each V-Post or C-Post and ensure plain end or gasket on filter cartridge contacts the knife edge seal on the cup connection on the Base Plate. Replace DOE Spring Seal Assemblies into the center core on top of the cartridge ensuring the knife edge on Spring Seal contacts plain end or gasket end of the DOE cartridge. If cartridge connections are 222 or 226, wet cartridge O-rings with fluid to be filtered or a compatible lubricant. Position 222 cartridges into cartridge socket by applying a simultaneous downward force and twisting motion until cartridge is fully seated per cartridge manufacturer installation instructions. Ensure the 226 O-rings are fully seated prior to applying a twisting motion to allow the locking tabs to lock into place.

- 3.8. Place Hold Down Plate through Hold Down Tie Rods by aligning Rods with small holes in Hold Down Plate. If DOE cartridges are utilized, ensure the spring ends on the Spring Seal Assemblies lie flat against the Hold Down Plate. If fin ends on the cartridges are utilized ensure the fins pass through the larger diameter holes in the Hold Down Plate. Secure Hold Down Plate by tightening polypropylene Fly Nuts to Hold Down Tie Rods in a clockwise direction. Tighten Fly Nuts equally to ensure the Hold Down Plate is level after all Fly Nuts are fully tightened. Tighten Fly Nuts approximately one inch downward or until approximately half of the spring free length on the DOE Spring Seal Assembly is removed or hand tight if DOE cartridges are not utilized.
- 3.9. Replace O-Ring into Base ring groove. Replace Shell Assembly over cartridges using proper lifting precautions or proper lifting device if necessary. Lower Shell Assembly slowly until bottom of Shell contacts Base while aligning lugs on Shell Assembly with Swing Bolt assemblies. Do not attempt to turn Shell Assembly while resting atop of Base. This may result in damaging the O-Ring. If Swing Bolts are not aligned with lugs on Shell Assembly, repeat lifting procedure for Shell Assembly until proper alignment is ensured. Position Swing Bolts into lugs on Shell Assembly and ensure Flat Washer is between Eye Nut and top of lug on Shell Assembly. Tighten Eye Nuts hand tight then another full turn.
- 3.10. Replace Drain Plug and tighten securely. Leave Vent Plug removed.
- 3.11. Open valve located immediately upstream of filter assembly.
- 3.12. When liquid is expelled from the Vent Plug, ensuring all air has been removed from the housing, securely tighten Vent Plug.
- 3.13. Open valve(s) located immediately downstream of filter assembly.
- 3.14. Operate the system for five minutes. Check for leaks at all threaded and flanged connections and at O-Ring between Base and Shell. Tighten connections as required.
- 3.15. Do not exceed maximum pressure rating without contacting the factory for special instructions and approval. [150 psi (10.3 bar) @ 225°F (107°C)]

**Call the factory or contact your local distributor for spare parts and for genuine replacement elements.**