High Pressure Heat Exchanger Tube Plug

with Patented Hex Drive Capture System

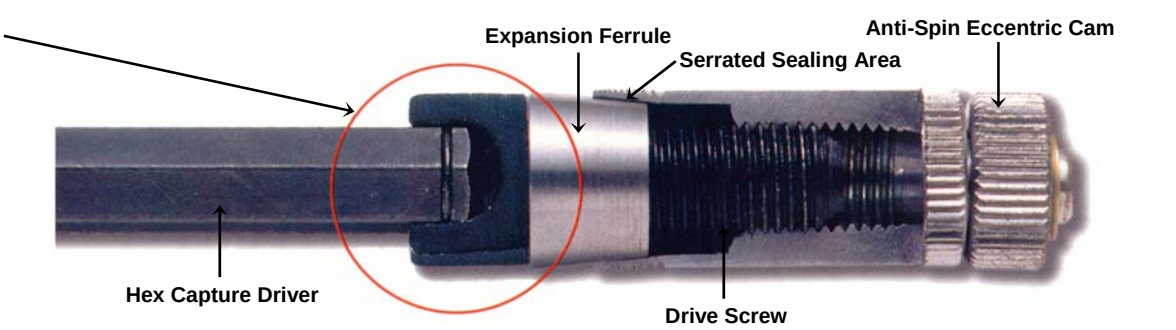
Now There is a New, Easy Way to Seal Leaking Tubes!

The **Elliott Series 883 High Pressure Plug** is a solid one piece plug that can be inserted into the tube sheet of a leaking tube and expanded with a standard 3/8" drive torque wrench. The plug will expand approximately 30 mils (.030") to provide a positive mechanical contact seal. This plug can be used in high or low pressure applications such as feedwater heaters, moisture separator reheaters, preheaters, condensers, coolers, fin-fan coolers or any other tubed heat exchanger.

- Positive sealing in excess of 6500 PSI is achieved without special tooling or personnel training.
- Plug can be inserted to any depth of the tube sheet in order to avoid severely corroded areas on the tube sheet face.
- Design enables rapid implantation and fit into tight areas adjacent to the tube sheet/shell joint interface, baffle plates and internal dividers.
- One piece design enhances sealing characteristics by eliminating second potential leak path common to design found in two piece plugs.
- Wide sealing area contact zone ensures a positive seal while the gradual and symmetrical torque expansion eliminates thermal and mechanical shock to the tube sheet, commonly found with welding, impact due to hammering of tapered pins, and explosive insertion methods.

- Exclusive design allows installation of plugs at the face and back side of the tube sheet in order to prevent intrusion of shellside corrosives. With single plugging techniques accomplished on the face of the tube sheet, corrosives can enter the void created in the tube sheet, thereby exacerbating erosion and corrosion of the tube sheet ligaments.
- Elliott Series 883 Plugs are available to meet Nuclear ASME Sec. III or ISO 9002 QA specifications.

Patented Hex Drive Capture System
New hex drivers have a spring loaded tang that captures the plug onto the end of the drive preventing it from falling off into the heat exchanger tube.



The **Elliott Series 883 High Pressure Plug** is snapped onto the hex capture driver and inserted into the tube ID, ensuring that the serrated sealing area is within the tube sheet. Applying the initial torque to the driver engages the anti-spin eccentric cam, locking the plug into the tube ID, thereby providing a torsional resistive force. As additional torque (in. lb.) is exerted, the drive screw threads into the plug body, pressing the tapered expansion ferrule into the reverse taper of the plug. These tapered surfaces combine to generate an enormous radial expansion force, swaging the serrated sealing area into the tube wall. A positive mechanical contact seal in excess of 6,500 psi is created.

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Elliott Series 883 High Pressure Tube Plug

Installation Instructions

Fast
Reliable
Dependable

1. A careful measurement of the tube I.D. should be taken with an inside diameter gauging tool similar to the Elliott 876200 Series Tube Gauge to determine the actual bore diameter. Select an **Elliott 883 Series High Pressure Plug** that is sized within the range of the measured tube ID: i.e., for a .518" ID tube: use a .510" to .530" range plug.

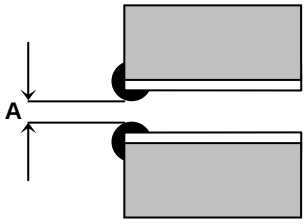
2. Clean tube of any loose scale or corrosive oxide formation. If the tube is out of round, extremely eccentric or cracked, a straight spiral drill reamer should be used to resize the bore of the tube or remove the tube completely.

3. After the correct size of plug is selected, affix the plug onto the capture hex driver and insert it into the tube in the tube sheet area of the heat exchanger.

4. Using a ratcheting (in. lb.) torque wrench, begin slowly tightening to the right until you feel the anti-spin eccentric cam lock in place. If the cam does not lock, then the plug is too small for the ID of tube and cannot expand enough for this particular application. After the cam locks it will feel as if there is an even resistance of about 100 in. lbs. Continue applying torque to expand the plug body until you reach the desired torque listed in the chart below.

BE CAREFUL TO AVOID THE FOLLOWING:

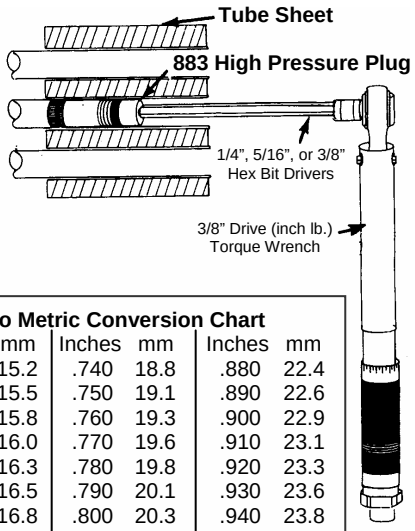
A) DO NOT MEASURE TUBE AT ROLL JOINT SEAL WELD (Not true tube I.D.)
B) DO NOT USE IN A TUBE THAT IS MORE THAN .020" LARGER IN DIAMETER THAN THE PLUG.
C) DO NOT PUSH DRIVE ADAPTER AGAINST TUBE SHEET FACE. The expanding screw threads into the plug body and may slip off the drive prior to sealing.
D) DO NOT place plug in an internal tube area near a step roll transition or a tube with severe pitting, corrosion or crack.



PLUG SELECTION CHART
(Special sizes available upon request)

To determine plug part number, select prefix number for desired material & use plug O.D. for the dash number (ie: Brass plug for .620" I.D. = 8830-610).

I.D. Range (Inches)	Plug O.D. (Inches)	Torque (in.lbs.)			Hex. Drive (Inches)
		Brass (8830) Cu-Ni (8835)	Carbon Steel (8831)	Stainless Steel (8832) Titanium (8833) Monel (8834)	
.410 - .430	.430	200	250	300	1/4
.430 - .450	.450				
.450 - .470	.470				
.490 - .510	.490				
.510 - .530	.510				
.530 - .550	.530				
.550 - .570	.550				
.570 - .590	.570	250	350	500	5/16
.590 - .610	.590				
.610 - .630	.610				
.630 - .650	.630				
.650 - .670	.650				
.670 - .690	.670				
.690 - .710	.690				
.710 - .730	.710				
.730 - .750	.730	350	450	600	3/8
.750 - .770	.750				
.770 - .790	.770				
.780 - .800	.780				
.800 - .820	.800				
.820 - .840	.820				
.840 - .860	.840				
.860 - .880	.860				
.880 - .900	.880				
.900 - .920	.900				
.920 - .940	.920				
.940 - .960	.940				
.960 - .980	.960				
.980 - 1.000	.980				



Inch Standard to Metric Conversion Chart

Inches	mm	Inches	mm	Inches	mm	Inches	mm
.460	11.7	.600	15.2	.740	18.8	.880	22.4
.470	11.9	.610	15.5	.750	19.1	.890	22.6
.480	12.2	.620	15.8	.760	19.3	.900	22.9
.490	12.5	.630	16.0	.770	19.6	.910	23.1
.500	12.7	.640	16.3	.780	19.8	.920	23.3
.510	13.0	.650	16.5	.790	20.1	.930	23.6
.520	13.2	.660	16.8	.800	20.3	.940	23.8
.530	13.5	.670	17.0	.810	20.6	.950	24.1
.540	13.7	.680	17.3	.820	20.8	.960	24.3
.550	14.0	.690	17.5	.830	21.1	.970	24.6
.560	14.2	.700	17.8	.840	21.3	.980	24.8
.570	14.5	.710	18.0	.850	21.6	.990	25.1
.580	14.7	.720	18.3	.860	21.8	1.000	25.4
.590	15.0	.730	18.5	.870	22.1	1.010	25.6

Each plug order includes an appropriate driver.
Other materials available. Consult the factory for availability.