

# Turbine Maintenance Tooling

GAS BOLT HEATERS

TAPER GAUGES

RADIUS TAPER GAUGES

RADIUS PACKING GAUGES

PACKING TOOTH SCRAPER

BRIDGE & STEP MICROMETER

ELECTRONIC MICROMETER

WIRE ALIGNMENT BRACKETS



CASTELLATED SOCKETS

CASTELLATED WRENCHES

HEX WRENCHES

TAPS & HEX DIES

EYEBOLTS

JACK BOLTS

LOCK WASHERS

METRIC TOOLS

## Heavy Duty Electric Bolt Heaters



Heavy duty electric bolt heaters



Flexible bolt heaters

2008 Edition

**HESSE EQUIPMENT COMPANY**  
2123 FM 1960 West, Suite 151 Houston, TX 77090  
Tel: (281) 580-3703 Fax: (281) 288-6878 Email: [mail@hesseco.com](mailto:mail@hesseco.com)  
[www.hesseco.com](http://www.hesseco.com)

## TAPER GAUGES

Taper gauges are designed for taking clearance readings on turbine wheels, diaphragms and packing. The heavy slider is calibrated to the vernier scale and the angle of the gauge. Metric gauges are also available.

PART #	RANGE	DIVISION	LENGTH
T1549	.010-.250"	.005	12"
T1550	.020-.500"	.005	18"
T1551	.375-1.000"	.005	18"
T1552	.020-1.000"	.010	18"



---

## RADIUS TAPER GAUGE



Radius taper gauges eliminate cutting wedges out of shim stock for micrometer reading and estimating of axially clearance reading between the rotor and packing gland. These readings are known as "X and Y" or "A and B" in the turbine industry.

PART #	RANGE	SCALE
RTG2500	.010-.250"	.005

## RADIUS PACKING GAUGE

This gauge was designed to be able to clear the shaft and rotor below the joint to take the radial readings between the packing and the shaft.

Reading can be taken with Part # RPG250 below the joint where the packing teeth are broken or damaged. (Gauge is 1/4 " wide)

Part # RPG250W will take only those readings at the horizontal point (Gauge is 3/8" wide)



PART #	RANGE
RPG250	.010-.250"
RPG250W	.010-.250"

---

## ELECTRONIC MICROMETER PART # EM1800

Provides accurate readings on tight wire. Head set features volume control for distinct contact tone. Set adjustable from 3 1/2" to 12" with adaptor for 1/2" stainless steel tubing extensions from 12" and longer

Set includes:

- Head set
- One 9 volt battery
- One 1/2" micrometer head
- One 1" micrometer head
- Adaptor for 1/2" tubing
- 1" to 6" rods
- Carrying case
- Insulator



## INDICATOR CHAIN CLAMP SET PART # CC1850

Provides fast and simple shafts or couplings for checking alignment.

The set includes:

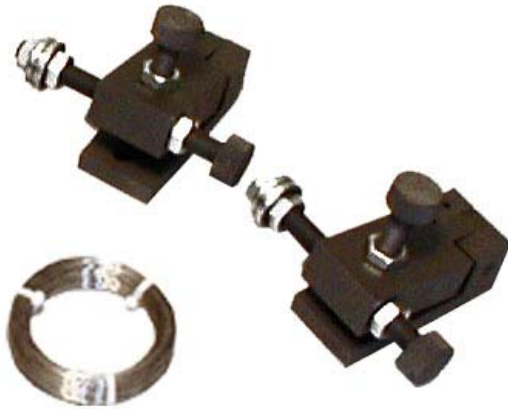
- 24" chain
- 3 extension rods



---

## WIRE ALIGNMENT BRACKETS

These are used for fast and accurate setup on wire alignment readings on casings, shells, packing and diaphragms in turbine assembly. Brackets have adjustments for elevation and left/right movement. Available in two different sets.



### PART # H1750

Set includes 2 brackets

### TIGHT WIRE

#### PART # H1675W

Stainless Steel Diameter .016  
1400 ft. coil

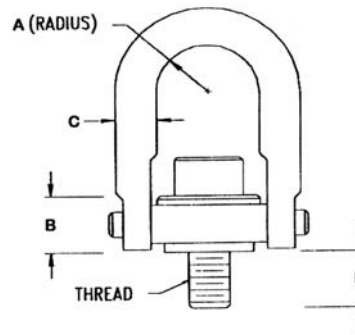
This wire has high tensile strength and a high resistance to fatigue.

## TIGHT WIRE WEIGHT PART # H1675

The weight is manufactured to a length where it will not hit any of the turbine component parts. Weight accuracy is within .010 of a pound. This weight is to be used with a tight wire recommended by the alignment chart supplied by the turbine manufacturer.

## SWIVEL HOIST/SAFETY EYE BOLTS

Made of alloy steel with certified heat treatment and a corrosion resistant finish, with 360 degree swivel and 180 degree pivot for proper range of movement.



PART #	Rated Loads (Lbs)	Thread Size	A	B	C	D
6001	600	1/4 - 20	0.43	0.71	3/8	0.54
8001	800	5/16 - 18	0.43	0.71	3/8	0.29
8002	800	5/16 - 18	0.43	0.71	3/8	0.54
10001	1,000	3/8 - 16	0.43	0.71	3/8	0.54
20001	2,000	7/16 - 14	0.70	0.93	1/2	1.07
25001	2,500	1/2 - 13	0.70	0.93	1/2	1.07
20002	2,000	7/16 - 14	0.88	1.22	3/4	0.78
25002	2,500	1/2 - 13	0.88	1.22	3/4	0.78
25003	2,500	1/2 - 13	0.88	1.22	3/4	1.03
25004	2,500	1/2 - 13	0.88	1.22	3/4	1.28
40001	4,000	5/8 - 11	0.88	1.22	3/4	0.78
40002	4,000	5/8 - 11	0.88	1.22	3/4	1.03
40003	4,000	5/8 - 11	0.88	1.22	3/4	1.28
50001	5,000	3/4 - 10	0.88	1.22	3/4	1.03
50002	5,000	3/4 - 10	0.88	1.22	3/4	1.53
70001	7,000	3/4 - 10	1.40	1.71	1	1.04
70002	7,000	3/4 - 10	1.40	1.71	1	1.54
80001	8,000	7/8 - 9	1.40	1.71	1	1.04
80002	8,000	7/8 - 9	1.40	1.71	1	1.29
100001	10,000	1 - 8	1.40	1.71	1	1.29
100002	10,000	1 - 8	1.40	1.71	1	1.54
100003	10,000	1 - 8	1.40	1.71	1	2.29
150001	15,000	1 1/4 - 7	1.75	2.11	1-1/4	1.89
200001	20,000	1 - 3/8 - 6	2.00	2.36	1-1/2	2.64
240001	24,000	1 1/2 - 6	2.25	2.81	1-3/4	2.70
240002	24,000	1 - 3/4 - 5	2.25	2.81	1-3/4	2.70
300001	30,000	2 - 4 1/2	2.25	2.81	1-3/4	2.96
500001	50,000	2 1/2 - 8	3.00	4.09	2-1/4	4.00
500002	50,000	2 1/2 - 4	3.00	4.09	2-1/4	4.00
750001	75,000	3 - 4	3.75	5.27	2-3/4	5.00
1000001	100,000	3 1/2 - 4	4.00	6.06	3-1/4	7.00
2500001	250,000	6 - 4	6.00	14.00	5	9.00

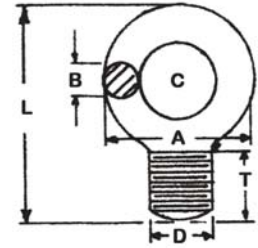
HESSE EQUIPMENT COMPANY

2123 FM 1960 West, Suite 151 Houston, TX 77090 (281) 580-3703 Fax: (281) 288-6878

## REDUCED EYE BOLTS

PART #	D	A	C	B	L	T
EB1901	1 1/4	2 3/4	1 1/2	5/8	4 5/32	7/8 min.
EB1903	1 1/2	3 1/2	1 7/8	13/16	5 3/16	1 1/16 min.
EB1907	2	4 1/8	2 1/8	31/32	6 9/16	1 7/16 min.
EB1911	2 1/2	4 3/4	2 1/2	1 1/8	7 3/4	1 7/8 min.

Specify threads needed.



## HEX WRENCH LONG HANDLE

PART #	SIZE	PART #	SIZE
HWL843	1/2	HWL859	1 9/16
HWL845	5/8	HWL860	1 5/8
HWL847	3/4	HWL861	1 11/16
HWL849	7/8	HWL862	1 3/4
HWL850	1	HWL863	1 13/16
HWL851	1 1/16	HWL864	1 7/8
HWL852	1 1/8	HWL865	1 15/16
HWL853	1 3/16	HWL866	2
HWL854	1 1/4	HWL867	2 1/16
HWL855	1 5/16	HWL868	2 1/8
HWL856	1 3/8	HWL869	2 3/16
HWL857	1 7/16	HWL870	2 1/4
HWL858	1 1/2		

Smaller and larger sizes available. Metric sizes available as well.



## HEX BIT INSERTS (12" LONG)

PART #	SIZE
HB500	1/2
HB562	9/16
HB625	5/8
HB750	3/4
HB875	7/8
HB1000	1
HB1125	1 1/8
HB1250	1 1/4
HB1375	1 3/8
HB1500	1 1/2
HB1625	1 5/8
HB1750	1 3/4
HB1875	1 7/8
HB2000	2



Smaller and larger sizes available.  
Metric sizes available as well.

HESSE EQUIPMENT COMPANY

2123 FM 1960 West, Suite 151 Houston, TX 77090 (281) 580-3703 Fax: (281) 288-6878

## TAPS-EIGHT THREADS

RIGHT-HAND

HIGH SPEED STEEL

Bottom/Plug/Taper Available

PART #	SIZE	PART #	SIZE
TET1050	1	TET1067	3 1/8
TET1051	1 1/8	TET1068	3 1/4
TET1052	1 1/4	TET1069	3 3/8
TET1053	1 3/8	TET1070	3 1/2
TET1054	1 1/2	TET1071	3 5/8
TET1055	1 5/8	TET1072	3 3/4
TET1056	1 3/4	TET1073	3 7/8
TET1057	1 7/8	TET1074	4
TET1058	2	TET1075	4 1/4
TET1059	2 1/8	TET1076	4 1/2
TET1060	2 1/4	TET1077	4 3/4
TET1061	2 3/8	TET1078	5
TET1062	2 1/2	TET1079	5 1/4
TET1063	2 5/8	TET1080	5 1/2
TET1064	2 3/4	TET1081	5 3/4
TET1065	2 7/8	TET1082	6
TET1066	3		



Smaller, larger and metric sizes available.

## HEX DIES-EIGHT THREADS

RIGHT-HAND CARBON STEEL

PART #	SIZE
HD700C	1
HD701C	1 1/8
HD702C	1 1/4
HD703C	1 3/8
HD704C	1 1/2
HD705C	1 5/8
HD706C	1 3/4
HD707C	1 7/8
HD708C	2
HD709C	2 1/8
HD710C	2 1/4
HD711C	2 3/8
HD712C	2 1/2
HD713C	2 5/8
HD714C	2 3/4
HD715C	2 7/8
HD716C	3
HD717C	3 1/8
HD718C	3 1/4
HD719C	3 3/8
HD720C	3 1/2
HD721C	3 5/8
HD722C	3 3/4

RIGHT HAND HIGH SPEED STEEL

PART #	SIZE
HD800S	1
HD801S	1 1/8
HD802S	1 1/4
HD803S	1 3/8
HD804S	1 1/2
HD805S	1 5/8
HD806S	1 3/4
HD807S	1 7/8
HD808S	2
HD809S	2 1/8
HD810S	2 1/4
HD811S	2 3/8
HD812S	2 1/2
HD813S	2 5/8
HD814S	2 3/4
HD815S	2 7/8
HD816S	3
HD817S	3 1/8
HD818S	3 1/4
HD819S	3 3/8
HD820S	3 1/2
HD821S	3 5/8
HD822S	3 3/4

Smaller, larger and metric sizes available.

HESSE EQUIPMENT COMPANY

2123 FM 1960 West, Suite 151 Houston, TX 77090 (281) 580-3703 Fax: (281) 288-6878

## GAS BOLT HEATERS

The Gas Bolt Heater is used with an oxy – acetylene torch for heating bottoming studs. It is designed for use with 1/8" to 3/4" pipe extensions for heating stud holes from 1/2" to 1 1/8".

Both a regular length heater and a shorter version (for tight clearances) are available. Any size tubing sizes and lengths are available upon request.

Individual heaters can be ordered by themselves or with any of the various size tubes.

GBH-1700R	Heater (Regular Length)
GBH-1700S	Heater (Short Length)
GBH-1711	1/8" X 18" Tube with Reducer
GBH-1712	1/4" X 18" Tube with Reducer
GBH-1713	3/8" X 18" Tube with Reducer
GBH-1714	1/2" Tube (no reducer necessary)
GBH-1715	3/4" Tube with Reducer





## FLEXIBLE ELECTRIC BOLT HEATERS

The Flexible Bolt Heater is designed for easier accessibility to tight, limited overhead clearances on bolts and studs.

This heater can be bent up to 180 degrees or to any angle and back to a straight horizontal position without affecting performance.

It is offered in a high watt density on the heated length of the flex rod, which is manufactured of stainless alloy which resists corrosion, rust and thermal fatigue. Each unit is tested at a rated voltage and electrically tested before shipment.

The flexible bolt heater can be ordered to any length and diameter (3/8" diameter or larger). It comes complete with a 24" lead wire and optionally with a twist lock plug. Units heat up to operating temperatures in approximately 5 minutes.



Typical diameters for the flexible bolt heater are:  
.375", .438", .500", .560", .688", .750", .813", .938"

## ELECTRIC BOLT HEATERS

This heater is used to preheat large, hollow holding bolts or studs where a high concentration of heat is critical for bolt expansion in a short time.

Manufactured with a high watt density, they heat up in just a few minutes. This results in cost savings on reduced man hours removing nuts from bolts and studs. Large bolts can be heated to full expansion in just a few minutes.



The hole diameter should be as close to heater diameter as possible, but within approximately 1/16" (.062) clearance for insertion applications. Close tolerance permits maximum heat transfer and prolonged heater life.

Any lengths are available in these standard diameters:

.250", .375", .438", .500", .550", .688", .781", .813", .938", 1", and 1.250"

(Ask for our complete list of standard sizes)  
Specials or odd sizes are available on request.

## CASTELLATED SOCKETS

Castellated sockets are for removal of castellated nuts on turbines and associated equipment. These special sockets include sizes up to 7-inch nut. Manufactured of alloy steel and heat treated to U.S. government specifications and turbine manufacturers material specifications as a guideline.

<b>PART #</b>	<b>1 1/2" DRIVE SIZE</b>	<b>PART #</b>	<b>2 1/2" DRIVE SIZE</b>
CS450	1 3/4	CS500	1 3/4
CS451	2	CS501	2
CS452	2 1/4	CS502	2 1/4
CS453	2 1/2	CS503	2 1/2
CS454	2 3/4	CS504	2 3/4
CS455	3	CS505	3
CS456	3 1/2	CS506	3 1/2
CS457	3 3/4	CS507	3 3/4
CS458	4	CS508	4
CS459	4 1/2	CS509	4 1/2
CS460	5	CS510	5
CS461	5 1/2	CS511	5 1/2
CS462	6	CS512	6
CS463	7	CS513	7

Larger sizes available upon request.



HESSE EQUIPMENT COMPANY

2123 FM 1960 West, Suite 151 Houston, TX 77090 (281) 580-3703 Fax: (281) 288-6878

## CASTELLATED SLUGGING WRENCH

This one piece wrench is rigidly designed for tough bolting service. The castellated face is precision machined and heat treated to get equal torque on the six points. (Also available in the four point version)

PART #	SIZE	PART #	SIZE
CSW1300	1 3/4	CSW1307	3 3/4
CSW1301	2	CSW1308	4
CSW1302	2 1/4	CSW1309	4 1/2
CSW1303	2 1/2	CSW1310	5
CSW1304	2 3/4	CSW1311	5 1/2
CSW1305	3	CSW1312	6
CSW1306	3 1/2	CSW1313	7



---

## PACKING TOOTH SCRAPER

PART # PTS100

This tool is used to reestablish taper edges on steam packing. The angle on the cutting tips is the same as the angle on the packing. If a different angle is desired, the tips can be removed for grinding. The scraper has an adjusting screw in the adaptor that holds the cutting bits for setting the tip height.



HESSE EQUIPMENT COMPANY

2123 FM 1960 West, Suite 151 Houston, TX 77090 (281) 580-3703 Fax: (281) 288-6878

## BOLT EXTENSOMETER

### Model 1996

This instrument is used to measure bolt stretch on stop valves, control valves, rotor couplings and turbine joints. It can be used on both Through and blind bolt holes.

Easy to use, just cut the rod to the desired length for the bolt being measured, thread the rod and assemble the button for countersink or counterbore. Use the tram rods to zero the indicator and take the bolt reading before and after stretch. The difference between the readings is the amount of extension on the bolt.

The kit includes a hardened block to file the rod end that contacts with the indicator stem, thus obtaining a square end, and a handle for buttons to take readings in any area where the rod cannot be inserted into the stud.



---

## BRIDGE AND STEP MICROMETER SET

These tools are used to check the elevation difference between two joints. They are also used to check the height of crush pins, diaphragm springs, welds and diaphragm pins.

(One Micrometer Head supplied with set.)

### PART # BSM 1500

1" Standard



## PORTABLE ELECTRIC DISTRIBUTION CENTER

Designed for onsite operation on your turbine deck or any remote location where you need multiple outlets.

Each Portable Electric Distribution Center is built with heavy duty structural steel, has a high quality industrial epoxy finish and includes heavy duty steel casters and lifting eyes for portability. Typically with 208 or 480 Volt power source, up to 75 KVA input transformer to 120 and 240 Volt outlets in a NEMA enclosure (GFI breakers with twist lock industrial receptacles). A full complement of accessories including feeder cables, extension cords, bolt heater racks, etc. \*UL rating and OSHA approved components.

NOTE: Pictured is a 75 KVA unit. This is a typical unit only. Any variation can be manufactured. Determine your exact requirements and advise us. Ask us for a specification worksheet to fill out.



HESSE EQUIPMENT COMPANY

2123 FM 1960 West, Suite 151 Houston, TX 77090 (281) 580-3703 Fax: (281) 288-6878

## SHIPMAN BOLT CLEANERS

It's finally here, a portable way to clean your studs, before you remove the nut. Shipman Industries has developed this new concept to allow you to save 90% of your labor time on cleaning and removing dirty bolts and pipes. Just attach the Shipman Bolt Cleaners to a low RPM ½ inch cordless or electric drill. You will never need a wire brush again!



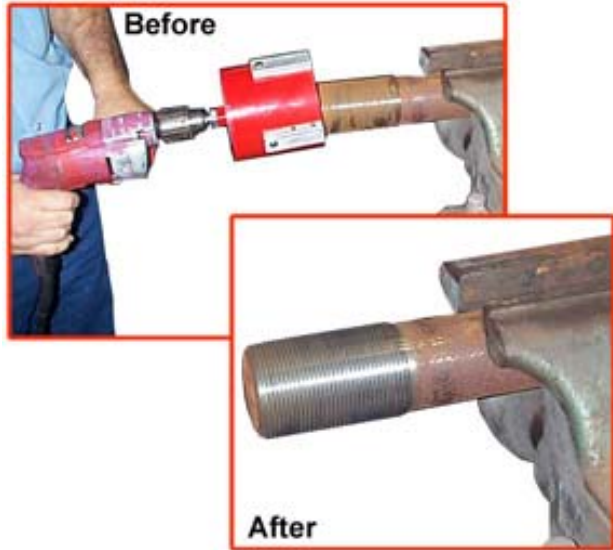
Each set comes with six (6) sockets, 4 inches deep in a strong water tight and airtight container allowing you to clean from ¾" up to and including 3 ¼" in diameter. There is a lifetime warranty on sockets (warranty excludes brushes).



At the same time, the Shipman's patented brush system increases surface area contact providing a cleaner end product. Sandblasting leaves scars. Chemicals are messy. And bench grinding takes too long. For safety reasons these sockets are designed to work at a slow RPM (Max RPM is 500).

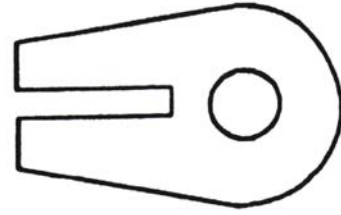
We also have a way to clean the inside diameter with our ID Tool. The ID Tool can clean 4 ½ inch turbine nuts in 15 to 20 seconds each. Custom diameters available. Please call for special orders.

Custom sizes for diameter and depth can be ordered separately. Call for custom sizes.



## LOCK WASHERS

This washer is designed to bend part of it over the nut and part of it over the turbine or generator joint. Steel or brass material has to be specified.

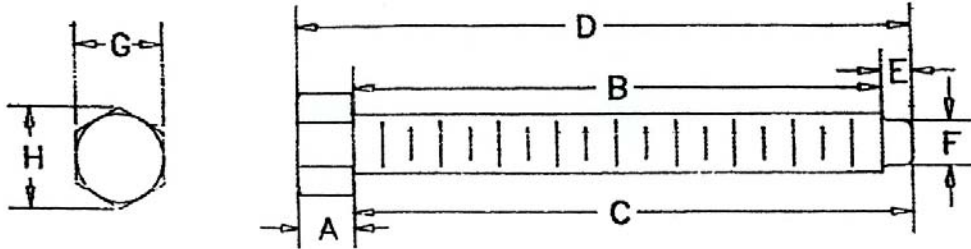


BOLT SIZE	OD	LENGTH	THICK	BOLT SIZE	OD	LENGTH	THICK
5/16	3/4	1	1/32	3/4	1 1/2	2	1/16
5/16	7/8	1 3/16	1/32	3/4	1 1/2	2 3/8	1/16
1/4	1/2	3/4	1/32	3/4	1 1/2	2 5/8	1/16
1/4	1/2	1 1/8	1/32	3/4	1 1/2	2 1/2	1/16
1/4	1/2	1 1/8	1/16	3/4	1 1/2	3 3/4	1/16
1/4	1/2	1 1/2	1/32	3/4	1 1/2	2	1/16
3/8	7/8	1	1/32	7/8	1 3/4	2 3/16	1/16
3/8	7/8	1 9/16	1/16	7/8	1 3/4	2 5/8	1/16
3/8	7/8	1 5/8	1/16	7/8	1 1/8	2 13/16	1/16
3/8	7/8	1 3/16	1/32	1	2	2 1/2	3/32
3/8	7/8	2	1/16	1	2	3	3/32
3/8	1 1/16	1 9/16	1/16	1	2	3 1/4	1/16
1/2	7/8	2 3/4	1/16	1 1/8	2 1/4	3 7/8	1/8
1/2	7/8	2 3/8	1/16	1 1/8	2 1/2	3 1/2	1/8
1/2	1 1/8	1 7/16	1/16	1 1/4	2 1/2	2 7/8	3/32
1/2	1 1/8	1 13/16	1/16	1 1/4	2 1/2	3 1/4	1/8
1/2	1 1/8	2 1/16	1/16	1 1/4	2 1/4	3 7/8	1/8
5/8	1 1/4	1 5/8	1/16	1 1/4	3	4	1/8
5/8	1 1/4	2	1/16	1 1/2	2 3/4	4 5/8	1/8
5/8	1 1/4	2 1/4	1/16	1 1/2	2 3/4	3 7/8	1/8
5/8	1 3/8	2	1/8	1 1/2	3	4	1/8
5/8	1 3/8	2 15/16	1/8	1 3/4	3 1/2	4	1/8
5/8	1 3/8	3 3/16	1/16	1 3/4	3 1/2	4 1/2	1/8
3/4	1 3/8	2 7/8	1/16				

\* This is a list of typical sizes only, any size available.



# JACK BOLTS



SIZE	A	B	C	D	E	F	G	H

HESSE EQUIPMENT COMPANY  
 2123 FM 1960 West, Suite 151 Houston, TX 77090 (281) 580-3703 Fax: (281) 288-6878

**We also offer custom duct and condenser expansion joints...**

## **FABRIC EXPANSION JOINTS**

Fabric expansion joints are used in place of metal expansion joints to resolve problems with thermal and mechanical stress inherent in some metal expansion joints. They are for use on Boiler Ducts, Air Preheater Ducts, Precipitator Ducts, Scrubber Ducts, Kilns and Fan Ducts.



Fabric expansion joints offer a greater ability to handle axial, lateral, torsional and angular movements. They also offer superior corrosion resistance and drastically extend the life of the expansion joint.

The Belt Type (Dog Bone) Condenser Expansion Joint is used as flexible connection between low pressure turbines and condensers. It is the most widely used turbine to condenser expansion joint in use. It is designed for full vacuum service and can accommodate movement up to 1" of compression and 1/2" lateral deflection.



---

## **METAL EXPANSION JOINTS**

For use on Boiler Ducts, Air Preheater Ducts, Precipitator Ducts, Scrubber Ducts and Fan Ducts and where Fabric Expansion Joints can't be used such as Bowl Mills and Steam Turbine Extraction Lines.



---

## **GAS TURBINE EXHAUST EXPANSION JOINTS**



Our durable high temperature fabric expansion joints are designed to withstand temperatures of up to 1400° F in gas turbine and combined cycle systems - in exhaust plenums, damper inlets and outlets, by-pass stacks and boilers.