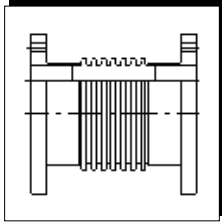


QUALITY SERVICE DELIVERY

METAL EXPANSION JOINTS

## METAL EXPANSION JOINTS



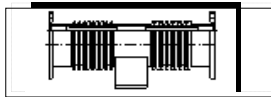
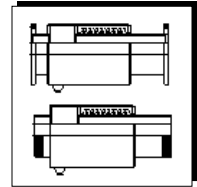
### SINGLE INTERNAL PRESSURIZED

FIRST CHOICE for STANDARD INDUSTRIAL THERMAL EXPANSION APPLICATIONS.

SMALL to MEDIUM MOVEMENTS in MULTIPLE PLANES.

### EXTERNALLY PRESSURIZED - SINGLE or DUAL

EXTERNAL PSI PREVENTS SQUIRM so LONGER BELLOWS and GREATER AXIAL MOVEMENTS can be ATTAINED.



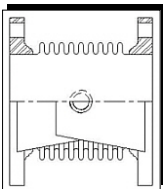
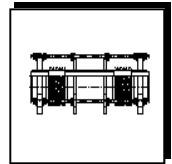
### UNIVERSAL

TWO EJ'S with CENTER SPOOL PIECE to ALLOW for GREATER LATERAL MOVEMENTS.

### TIED UNIVERSAL

TIE RODS ADDED to RESTRAIN PRESSURE THRUST LOAD.

TWO 180° RODS: EJ CAN STILL MOVE ANGULARLY and laterally.

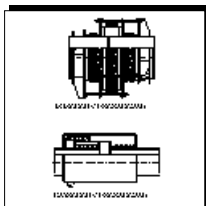


### HINGED

PERMITS ANGULAR ROTATION in ONE PLANE ONLY. DUE to FIXED HINGE PIN, EJ DOES NOT ACCEPT AXIAL MOTION.

### GIMBAL

MOTION can OCCUR in TWO PLANES with the USE of TWO HINGES WHERE the PIVOT POINTS ACT INDEPENDENTLY

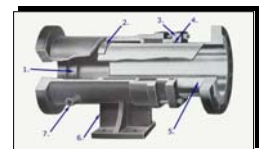


### PRESSURE BALANCED

USED to RESTRAIN and BALANCE the THRUST FORCE. USUALLY POSITIONED at the CHANGE in DIRECTION of PIPING.

### SLIP PACKED

A NON-BELLOWS TYPE EXPANSION JOINT OFFERING CONTINUOUS GUIDE CONTROL in REFINED SPACES.



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## SERVICES / CAPABILITIES

### DESIGN REVIEW

THERMAL EXPANSION and REQUIRED MOTIONS CALCULATION  
SPECIFICATION REVIEW  
MEDIA versus EXPANSION JOINT MATERIAL ANALYSIS  
FAILURE ANALYSIS on EXISTING EXPANSION JOINT  
EXPANSION JOINT SIZE and TYPE DETERMINATION  
REFURBISHMENT versus REPLACEMENT ANALYSIS  
PIPE GUIDE LAYOUT - TYPE, QUANTITY, and POSITION

### PRODUCTION

COMPLIANCE with CURRENT EJMA STANDARDS  
ASME SECTION 111 (NUCLEAR and NDT CERTIFICATION)  
ASME SECTION VIII PROCEDURAL CONFORMANCE  
ANSI B31.1 and B31.3 PIPING / CONSTRUCTION CONFORMANCE  
N STAMP and U DATA REPORTS  
SECTION IX WELDING

### SIZE / CONFIGURATION / OPTIONS

1 1/2" MIN. ID to ALMOST UNLIMITED MAX. ID - DEPENDENT on EJ TYPE  
SINGLE or MULTI-PLY BELLOWS ELEMENTS - DEPENDENT on APPLICATION  
LINERS / SHROUDS / TIE RODS / PURGE FITTINGS / SAFETY INDICATORS

### MATERIAL OPTIONS

STAINLESS STEEL, MONEL, INCONEL, INCOLOY, HAYNES, HASTELLOY, TITANIUM

### END TYPE / FLANGES SELECTION

FIXED OR FLOATING (VAN - STONED) BELLOWS ENDS  
WELD / BEVELED / GROOVED ENDS or PLATE / FORGED / SLIP - ON FLANGES  
ALL AVAILABLE in DESIRED PSI RATINGS and DRILLINGS

### RELATED EXPANSION JOINT PRODUCTS



#### EXPANSION PIPE LOOPS

ALTERNATIVE to TRADITIONAL EXPANSION JOINTS  
USED in SEISMIC and MULTI-PARALLEL PIPING APPLICATIONS

### PIPE GUIDES AND SUPPORT HARDWARE

REQUIRED in PIPING SYSTEMS to DIRECT MOTION in  
AXIAL DIRECTION ALLOWING EJ to FUNCTION AS DESIGNED

