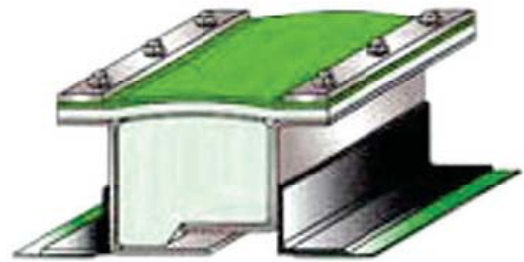
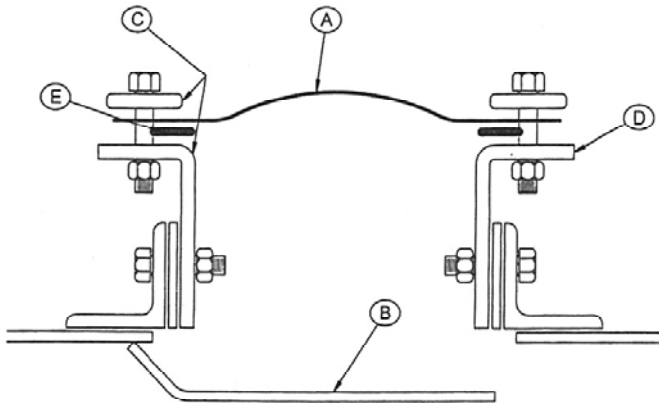


Non-Metallic Expansion Joint

5. Application of Non-Metallic Expansion Joint

Industrial applications can be separated into general categories based on the media composition (air or gas) and temperature. The following section is designed to aid in the selection of the appropriate expansion joint for the specific application range. All plants are different, therefore, the service locations and temperatures may vary. This section is only a guide and should be confirmed with a Yongkwang engineer.

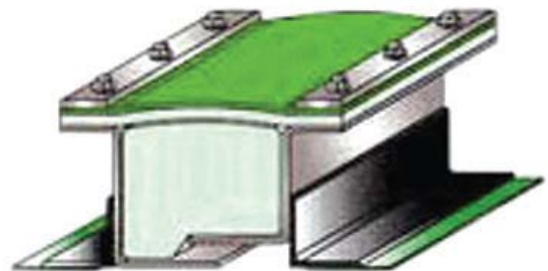
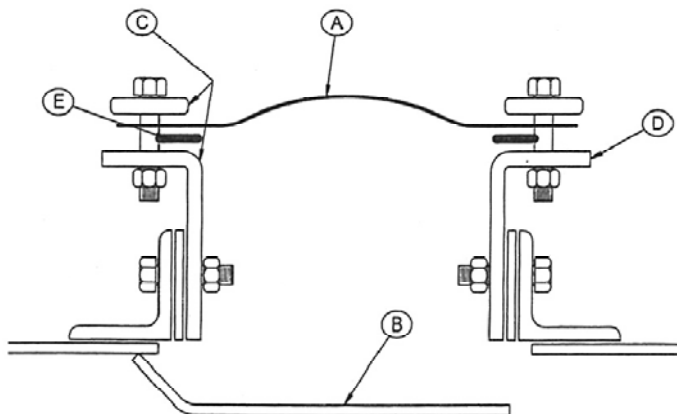
Ambient Air Services(-40°F to 150°F)



Ambient temperature clean air without particulate or chemicals to damage the flexible element. Expansion Joint is used frequently for vibration and sound attenuation from fan equipment.

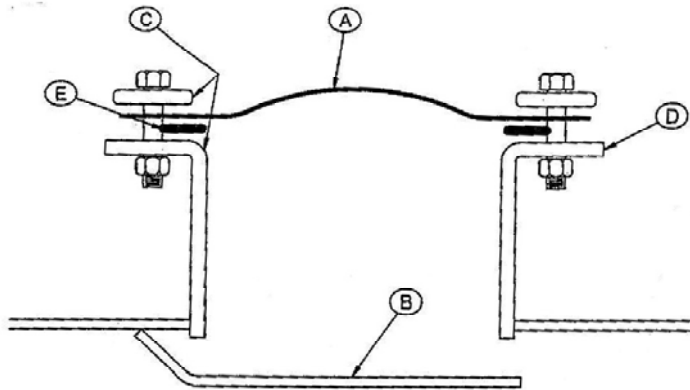
A Yongkwang integrally flanged elastomeric joint is suggested. Neoprene or EPDM single layer belts are frequently used.

Hot Air Services(500°F to 800°F)



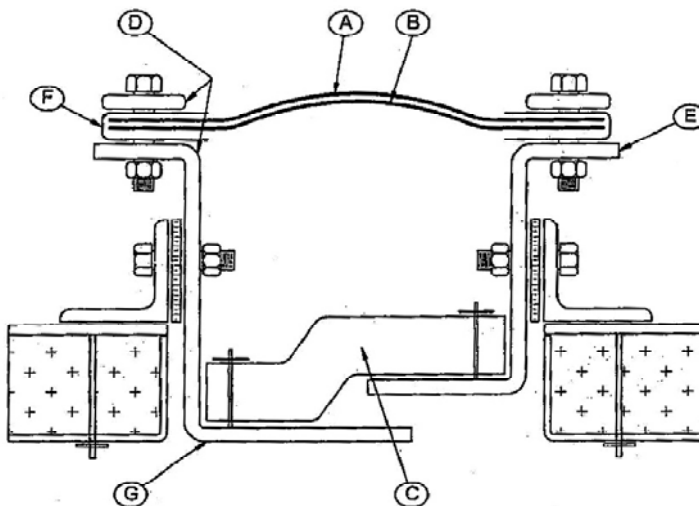
Clean air, after coming into contact with hot flue gases at the air pre-heater where temperatures are elevated with minimal particulate and or gas carryover. Expansion joint will see thermal movements and vibration. Elevated temperatures require a composite flexible element and a flow liner.

A flat composite belt with a bolt or weld in frame design and a flow liner is suggested. The weld-in outboard angle frame design with field welded flow liner is shown.

Low to Moderate Temperature Flue Gas Services(150°F to 600°F)

This type expansion joint is for flue gas which has passed through an air pre-heater and dust collector to reduce the temperature and particulate level. Flue gas may cycle near the dew point where condensation can occur and chemicals are present. Expansion joint may see thermal movement vibration and chemical attack.

A single-layer belt with chemical barrier is suggested in either integrally flanged or flat belt type weld in outboard angle frame design and PTFE-coated single-layer belt with gas film layer shown.

Hot Flue Gas Services(600°F to 1,200°F)

This type expansion joint is for flue gas directly after combustion stage at elevated temperatures with possible particulate present. Expansion joint is used for possible large thermal movements at elevated temperatures.

The high temperature composite flat belt style with setback frames, cavity pillow and flow liners are suggested. The standard frame design with telescoping flow liners is shown.

Special Application

Yongkwang expertise extends to applications where service conditions require special designs / considerations such as:

- Gas turbine exhaust and HRSG EJs - large axial movements, thermal shock and radial growth
- Cyclone inlet, outlet and loop seals at CFBs - high flow velocity or turbulence and elevated temperatures
- Stack and penetration Seals (HRSG) - lateral movement, field Installation and splicing
- Cement plant applications - high particulate loading and cementous media
- Pulp and paper plants - severe chemical attack and vibration
- Petrochemical plants - elevated temperatures and chemical attack
- Fabric wrap of existing metal expansion joint - quick inexpensive replacement and possible on-line repair