

Thermotech has been involved in the design, manufacturing, and installation of high quality, non-metallic expansion joints

工德公司自 1989 年起即專業從事於高品質非金屬膨脹接頭，撓性接頭之設計，製作，及安裝工作。

We offers a complete range of single and multiple layers, fabric and fluoro-elastomer (Viton® or Fluorel®) type constructed from best and world-wide recognized materials to overcome varied combination of duct movement, corrosion and particles. Up to year 2021, over 10000 joints have been installed in power plant, petroleum, petro-chemical, paper, steel, incineration, semi-conductor, and Chemical industries and gained reputation For high quality, durability and economy.

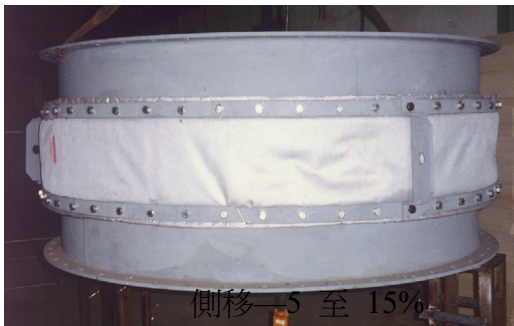
所提供之接頭不論是單層或多層結構，布類或氟化橡膠類(Viton®, Fluorel®)均採用最高品質之材料，以克服高溫或廢氣管路所遭遇之，變位，高溫，腐蝕性，粉塵顆粒，及震動等問題。

自 1989 年起迄今(2021)，本公司已提供超過 10000 個接頭供發電廠，煉油廠，石化廠，鋼鐵廠，焚化爐，造紙廠，半導體廠，水泥廠等並為客戶認同在品質上絕不亞於任何國際知大廠，且為最符合經濟效益之膨脹接頭。

Product Applications Range

Temperature:	ambient to 1000°C
Flow medium:	air to corrosive gas
Pressure:	-30000 to 30000 Pa
Axial movement:	(% of active length) Compression --50% Extension -10 to 20% Lateral -5 to 15%

Above movement capabilities are standards with us. The joints can be designed to meet specific demands.



側移—5 至 15%
Hot Air Duct Expansion Joint



▲ Base fabrics used 採用之基材

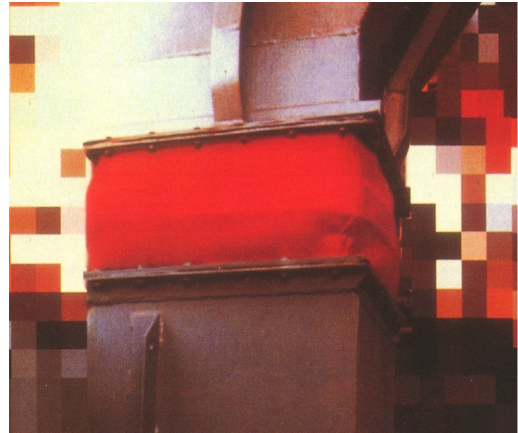
產品適用範圍

溫度:	常溫至 1000°C
流體:	一般空氣或強腐蝕性氣體
壓力:	-0.3kg/cm ² 至 0.3kg/cm ²
變位吸收量:	(面間距離之%)
壓縮—50%	
伸長—10 至 20%	

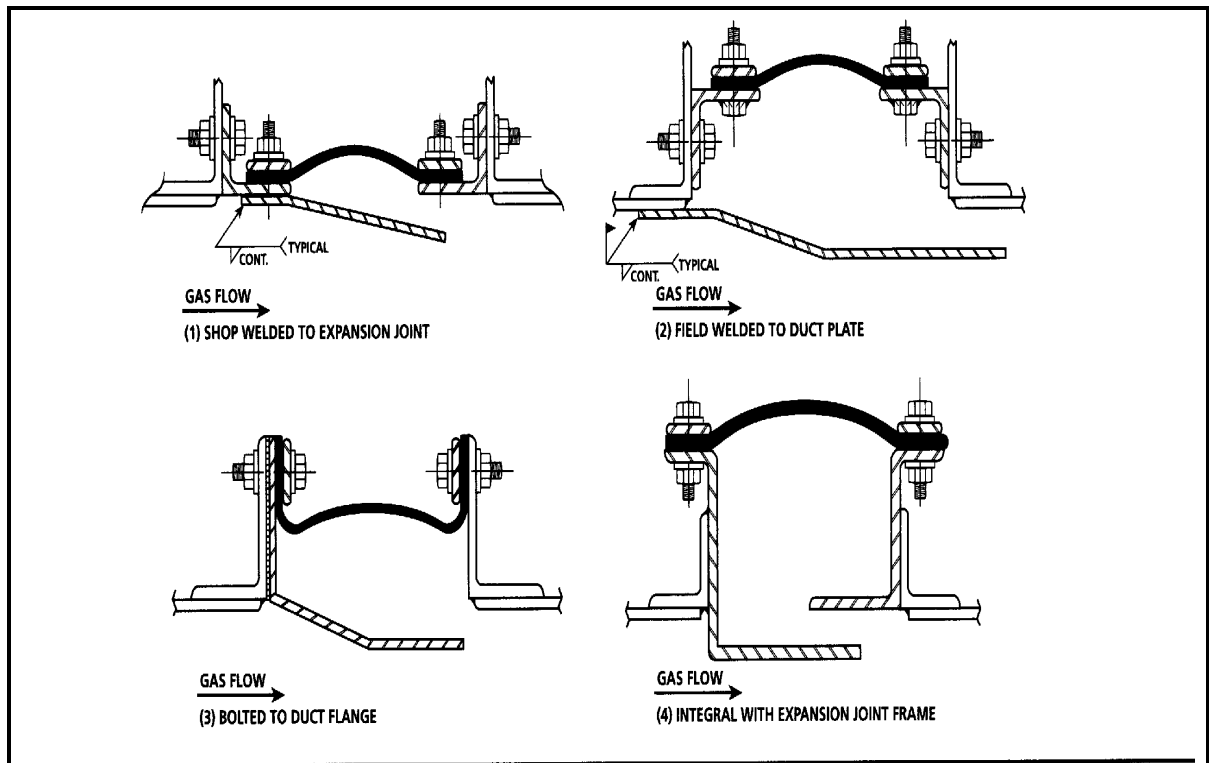
以上變位吸收量為本公司之一般標準設計可應需求作特殊設計。

Basic Configuration of Connection

There are basically 4 types of connection between our expansion joints and the duct/pipe line. The choice of the connection are usually depends on the pipe/duct designs and on the operation conditions. We can accommodate all connection requirements and recommend the most suitable method for best cost justified selection. **Our supply scope covers not only the joints but also the gasketing materials and metal parts including, back-up bars, sleeve liners, bolts nuts, duct flanges as well as the fabrication and installation.**



▲ Flue Gas Duct Joint 煙道接頭



與管線/煙道連接方式

分為以上圖示之 4 種基本方式. 各方式之選用, 取決於管路之設計及操作環境, 本公司可依需求提出最適當最經濟之建議. (圖示中之內套管為選項). 除接頭本身外, 本公司亦提供密封墊片, 壓板, 內套管, 螺栓, 管路法蘭及相關之組立安裝服務.

Expansion Joint Styles

Based on application conditions, we offer 2 categories of Fabrics-type joints. **The F series are for corrosive flow medium and the A series for clean air.** Each series consists of 5 different styles for different service temperature up to 1000°C. We also fabricates highest quality fluoro-elastomer joints made of Viton® B or Fluorel®, C-cure system and 100% to FSA Standards.



膨脹接頭型式

布類接頭分成 2 大類, F 系列供具腐蝕性管路流體, A 系列供一般管路. 另依每大類操作溫度, F 及 A 系列均各有 5 種設計. 最高至 1000°C.

除布類接頭外, Thermotech 亦生產氟化橡膠 接頭 (Viton® B 或 Fluorel®, C-cure system). 品質 100%符合 FSA 規範.

F Series/F 系列	A Series/A 系列	Service Temperature/使用溫度 °C
F200 (Fluoro-elastomer)		200
F250	A250	250
F350	A350	350
F500	A500	500
F800	A800	800
F1000	A1000	1000

In addition to above standard types, we can also design, fabricate to specific demands for various different application conditions.

We has the access to as well as long term relationship with most of world-wide recognized industrial fabrics and insulation materials manufacturers. All joints supplied have all been proven by track records to be high-quality and most cost effective.

除上述標準設計外, 本公司亦可依不同使用條件設計製造特殊型式之接頭, 以滿足各不同之需求

本公司與世界各知名之原料供應商均建立長期良好之合作關係, 所採用之各布類及保溫類產品, 均係經嚴格之品管並經多數客戶長時間使用實績證實為高品質且最符經濟效益產品.

Expansion Joint Specialist—Non-metallic Expansion Joints

The Corrosion Barrier Layer

For duct/pipe with aggressive corrosion flow medium and most severe applications, we adopts the CBF as the corrosion barrier layer. The CBF film laminated on CBF-Flex had been awarded both “DuPont Plunkett” and “Chemical Process’s Vaaler Award” for its outstanding structural strength and stress cracking resistance among PTFE materials. CBF has been considered by the industries as the best corrosion resistance liner for expansion Joints. With CBF film built in our expansion Joints, you can expect:

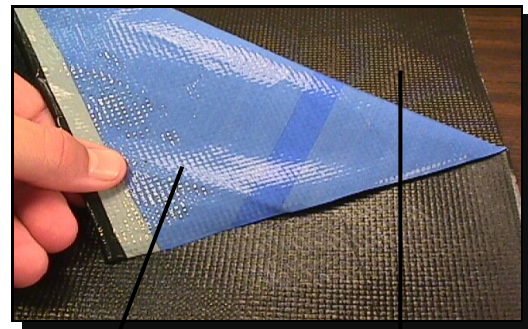
- 100% impermeability to corrosive gas
- much longer service life
- resist virtually all corrosive chemicals (PH 0-14)

耐酸鹼腐蝕層

針對使用條件嚴苛且具腐蝕性流體管道之接頭，本公司採用 CBF-Flex 當作耐腐蝕層。CBF-Flex 係將 CBF 薄膜以熱熔接方式貼合於 PTFE 塗覆之玻纖布上。CBF 為業界公認為結構強度及耐摺曲強度最好之 PTFE 系列產品，並得到杜邦公司之“DuPont Plunkett”及美國“Chemical Processing’s Vaaler Award”獎項。

採用 CBF-Flex 之接頭將帶給您：

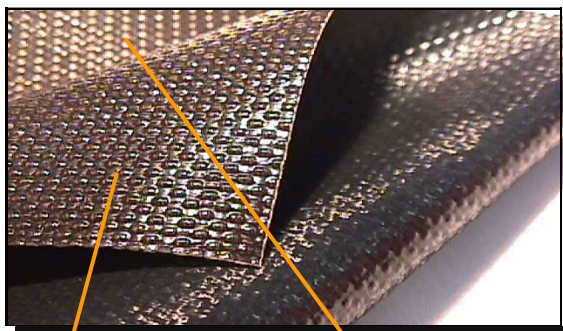
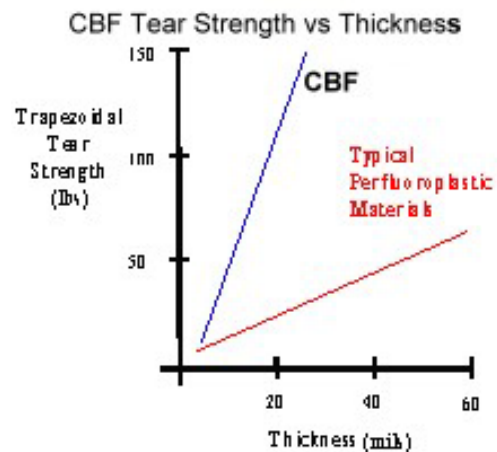
- 100%氣密無滲漏
- 耐幾乎所有之化學品(PH 0-14)
- 更長之接頭使用壽命



▲ CBF-Flex

CBF film
CBF 薄膜

PTFE coated fiberglass cloth
PTFE 塗覆玻纖布



▲ Fluo-Flex

PTFE film
PTFE 薄膜

PTFE coated fiberglass cloth
PTFE 塗覆玻纖布

For normal corrosive applications, Fluo-Flex fabrics are recommended as the corrosion barrier for economic reasons. The Fluo-Flex series are the standard fabrics applied by many expansion joints makers and will also Offer you the desired impermeability and chemical resistance as CBF-Flex.

針對一般腐蝕性流體管道之接頭，本公司建議採用 Fluo-Flex 當作耐腐蝕層。Fluo-Flex 系列為目前業界所採用之標準材料，且亦與 CBF-Flex 相同之 100%氣密。



Insulation Layer and Fly Ash Pillow

The purpose of the Insulation and Fly Ash Pillow are :

- Protect the joint from being damaged by fly Ash
- Protect joint layer vulnerable to high temp.
- Reduce heat loss through joint
- Noise reduction

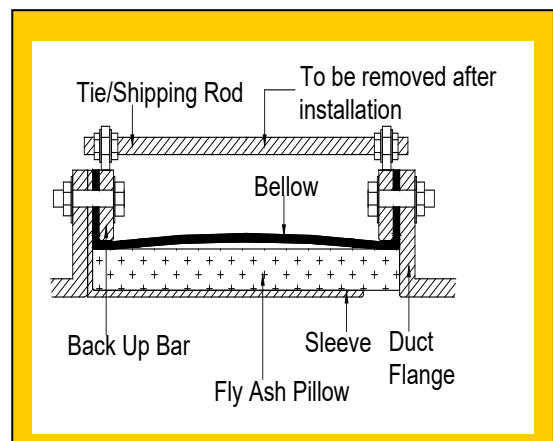
In Thermotech, the insulation and fly ash pillow are designed and manufactured to meet above requirements. All materials used including the outer jacketing (ie. Glass cloth or steel mesh) are all proven to be with good resistance to the flow medium and to the high temperature through computer thermal analysis and simulation tests to ensure their fulfillment of above objectives.

保溫層及飛灰顆粒擋包

保溫層及飛灰顆粒擋包之主要功能為:

1. 保護接頭中之氣密層或抗酸鹼層不致為管路中之高溫所損壞
2. 阻擋飛灰顆粒，確保其不會沉積於接頭上而損壞接頭
3. 減少經由接頭之熱量耗損
4. 降低經由接頭外傳之噪音

本公司之設計均係經電腦熱穩定狀態分析及實際模擬測試以確保達到上述之目地.



▲ ePTFE Joint Sealant

ePTFE Joint Sealant for Corrosive Duct

Made of Expanded PTFE, Texseal Joint Sealant are soft, pliable, and compressible offering you the best sealing effects for corrosive gas duct. The adhesive backing make the installation very easy.

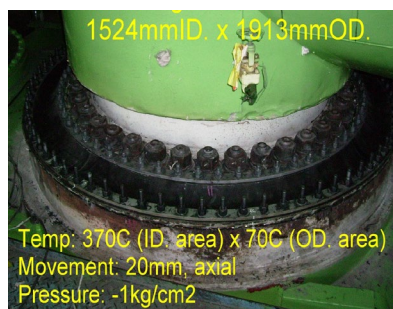
ePTFE 接頭密封墊片

採用膨脹 PTFE 原料，使 ePTFE 具柔軟，可彎曲，可壓縮等特性，為腐蝕性流體管道之最佳密封材. ePTFE 均附背膠，故安裝十分簡易.

Expansion Joint Specialist—Part 1/Non-metallic Expansion Joints



Composite 600°C



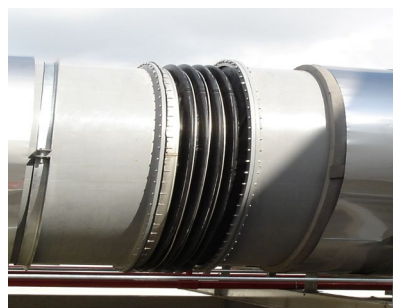
-1kg/cm2, 370°C



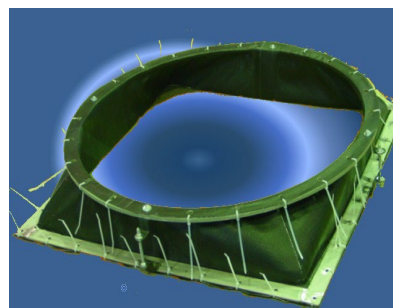
Furnace Outlet, 850°C



FGD Joint



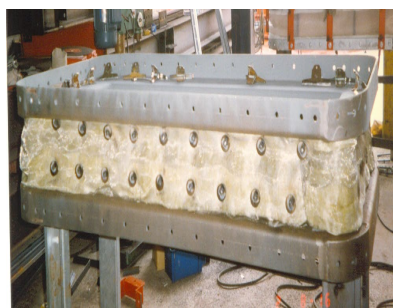
Flexible Joint



Round-to-Square Joint



Pressure Testing



Pillow Installation



Rectangular Duct



300°C 98% H₂SO₄



Waste Incineration 1000°C

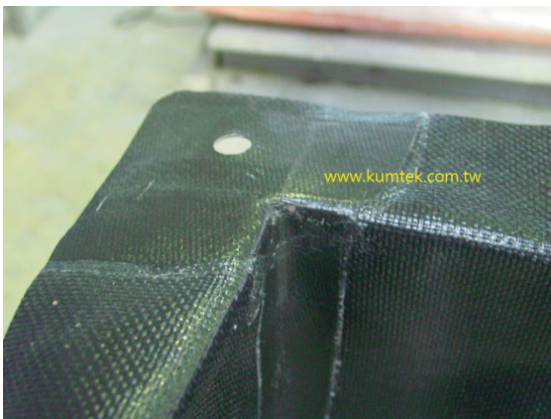


Solvent Incineration 1000°C

Your Solution for Expansion Since 1989

Thermotech

Expansion Joint Specialist—Part 1/Non-metallic Expansion Joints



Your Solution for Expansion Since 1989