

YOUR PARTNER IN AIR &  
FLUE GAS APPLICATIONS

STEJASA

USA

A photograph of an industrial facility, likely a refinery or chemical plant, featuring several tall distillation columns and complex piping systems under a clear blue sky. The image is partially obscured by the 'STEJASA' and 'USA' text and a yellow arrow graphic.

# STEJASA USA STEJASA USA USA EXPANSION JOINTS

For over 25 years, **STEJASA USA** and our affiliates have provided the utility, pulp and paper, and industrial markets with a wide range of dampers, expansion joints, and other products specifically designed for severe corrosive, erosive, and thermal applications.

**STEJASA USA** was founded with the idea of providing the in-house capabilities to engineer, manufacture, install, and / or repair a broad range of products in power and process systems.

**"Total Service"** is **STEJASA USA's** commitment to our customers. From design to manufacturing, installation, and start-up, your complete satisfaction is our goal.

**"Total Quality"** is **STEJASA USA's** philosophy. The quality of our products and our services is not an option - it is our obligation to our customers.

## WIDE RANGE OF EXPANSION JOINTS

### NON-METALLIC

- Flanged U-type, belted, round, rectangular, and odd shapes
- Temperatures up to 2000° F
- Elastomeric, fluoropolymer & multi-layer composite materials
- Wet and dry applications

### METALLIC

- Rectangular and round
- Mitre, omega, round and camera corners
- Carbon, stainless and exotic metals
- Custom designed & fabricated for application & installation
- Internal & external installation

### METAL SUBASSEMBLIES

- Retaining rings, mounting flanges, baffles, etc.
- Ducting sections, toggles, angles
- Shipped knocked down or factory assembled

### OTHER ACCESSORIES

- Insulation pillows
- Shrouds, guards
- Wear resistant plate
- Elastomeric and metal piping expansion joints

### ERECTION, SPLICING, REPAIR, & FIELD SUPERVISION

- Technicians available on a per diem basis
- Turnkey capability
- 24 / 7 availability

## FIELDS OF APPLICATIONS

### COGENERATION

- Gas Turbine • Complete Bypass Systems
- Gas Distribution

### ENERGY

- Industrial Boilers • Thermal Power Plants
- Waste Heat Recovery

### ENVIRONMENTAL

- DENOX • FGD • SCR • Waste Incineration
- Air Pollution Control Systems

### INDUSTRIAL PROCESS

- Pulp & Paper • Cement • Steel, Iron, Aluminum
- Chemical • Petrochemical • Glass • Off-Shore Drilling

### SERVICES

- Engineering • Manufacturing • Erection
- Start-Up and Commissioning • Site Supervision

## OTHER PRODUCTS

- BYPASS SYSTEMS • DIVERTERS • GAS DISTRIBUTORS
- DAMPERS • PRESSURE VESSELS • TANKS • DUCTWORK
- PIPING • CUSTOM FABRICATION
- CUSTOM REPAIR / REBUILD



# MOVEMENT DESIGN STANDARDS

Breach Opening	6" (150mm)	8" (200mm)	10" (250mm)	12" (300mm)	14" (350mm)	16" (400mm)	18" (450mm)	20" (500mm)	22" (550mm)	24" (600mm)
Manufactured F/F	6.5" (163mm)	8.5" (215mm)	11" (275mm)	13" (325mm)	15" (375mm)	17" (425mm)	19" (475mm)	21" (525mm)	23" (575mm)	25" (625mm)
Set Back (Minimum)	2.25" (60mm)	2.5" (65mm)	3.25" (80mm)	4" (100mm)	5" (130mm)	6" (150mm)	7" (175mm)	8" (200mm)	9" (225mm)	10" (250mm)
Axial Compression (Operating)	1.5" (40mm)	2.25" (60mm)	3.25" (80mm)	4" (100mm)	4.75" (120mm)	5.5" (140mm)	6.75" (165mm)	7" (175mm)	7.5" (190mm)	8.5" (210mm)
(Excursion)	3.25" (75mm)	4.5" (110mm)	5.5" (135mm)	6.5" (165mm)	7.5" (185mm)	8.5" (215mm)	9.5" (240mm)	10.5" (265mm)	11.5" (290mm)	12.5" (315mm)
Axial Extension (Operating)	0.5" (15mm)	0.5" (15mm)	1" (25mm)	1" (25mm)	1" (25mm)	1" (25mm)	1" (25mm)	1" (25mm)	1" (25mm)	1" (25mm)
Resultant Lateral (Operating)	1.5" (40mm)	2.25" (60mm)	3.25" (80mm)	4" (100mm)	4.75" (120mm)	5.5" (140mm)	6.75" (165mm)	7" (175mm)	7.5" (190mm)	8.5" (210mm)
(Excursion)	2.375" (60mm)	3.375" (85mm)	4.375" (110mm)	5.375" (135mm)	6.25" (155mm)	7" (175mm)	7.5" (190mm)	8.5" (215mm)	9.5" (240mm)	10.5" (265mm)

# TEMPERATURE DESIGN STANDARDS

STYLE/SERIES	RECOMMENDED STANDARD CONSTRUCTION OFFERINGS TYPE	FLUE GAS TEMPERATURE				MAXIMUM TEMPERATURE DURATION LIMITS		TYPICAL SERVICE CONDITIONS
		CONTINUOUS		EXCURSION <sup>2</sup>		SINGLE OCCURENCE	MAXIMUM CUMMULATIVE	
		F°	C°	F°	C°	(HOURS)	(HOURS)	
NCS 300	ELASTOMERIC	300	150	350	175	4	100	WET/DRY
NCS 400	ELASTOMERIC	400	205	450	230	4	3,000	WET/DRY
				500	260	2	1,000	
				550	290	2	240	
				600	315	2	48	
				650	345	1	8	
				700	370	1	4	
		750	400	1/2	2			
NCS 550	FLUOROPOLYMER	550	305	650	345	1	100	WET/DRY
NHS 550 <sup>1</sup>	COMPOSITE	550	305	CONSULT STEJASA USA				WET/DRY
NHS 600	COMPOSITE	600	315	CONSULT STEJASA USA				DRY/CYCLE DEW POINT
NHS 800	COMPOSITE	800	425	CONSULT STEJASA USA				DRY/CYCLE DEW POINT
NHS 1000	COMPOSITE	1,000	540	CONSULT STEJASA USA				DRY/CYCLE DEW POINT
NHS 1200	COMPOSITE	1,200	650	CONSULT STEJASA USA				DRY/CYCLE DEW POINT

### DESIGN FOOTNOTES:

1. Service condition is for moisture / condensate exposure on an intermittent basis.
2. Excursion durations listed are design standards and should not be regarded as operating limits. Contact Stejasa USA for further information.

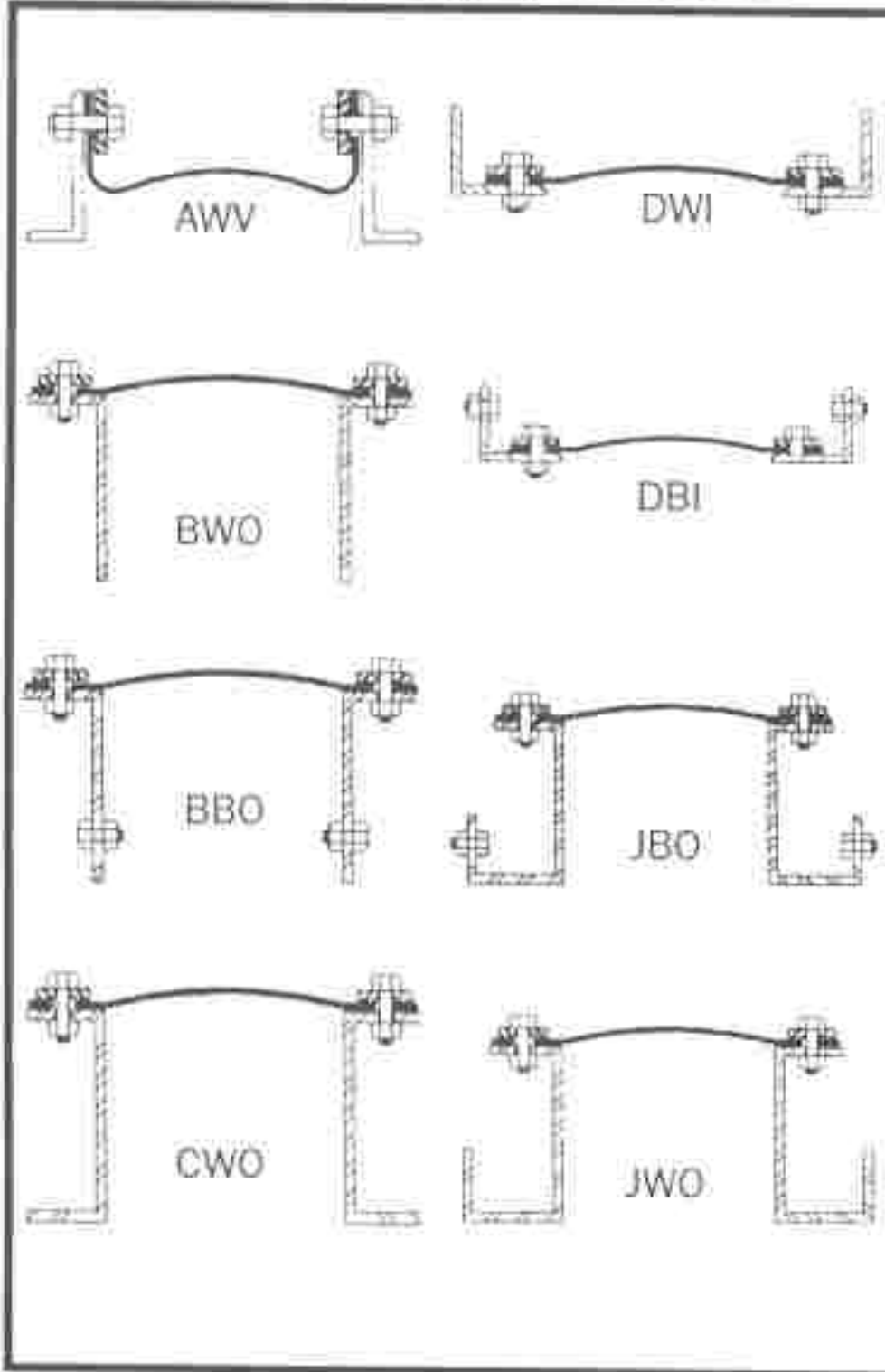
### GENERAL NOTES:

- External insulation is allowed over ELASTOMERIC and FLUOROPOLYMER EXPANSION JOINTS to reduce heat loss & condensation that may attack adjacent duct flanges. Contact Stejasa USA for effect on excursion capabilities & for proper design techniques.
- External insulation is not normally allowed over COMPOSITE EXPANSION JOINTS or retaining bars. Contact Stejasa USA for alternative designs if insulating over composite expansion joints is mandatory.
- Additional designs available to 2,000°F (1,093°C), depending on service conditions & overall complete design. Contact Stejasa USA for further information.

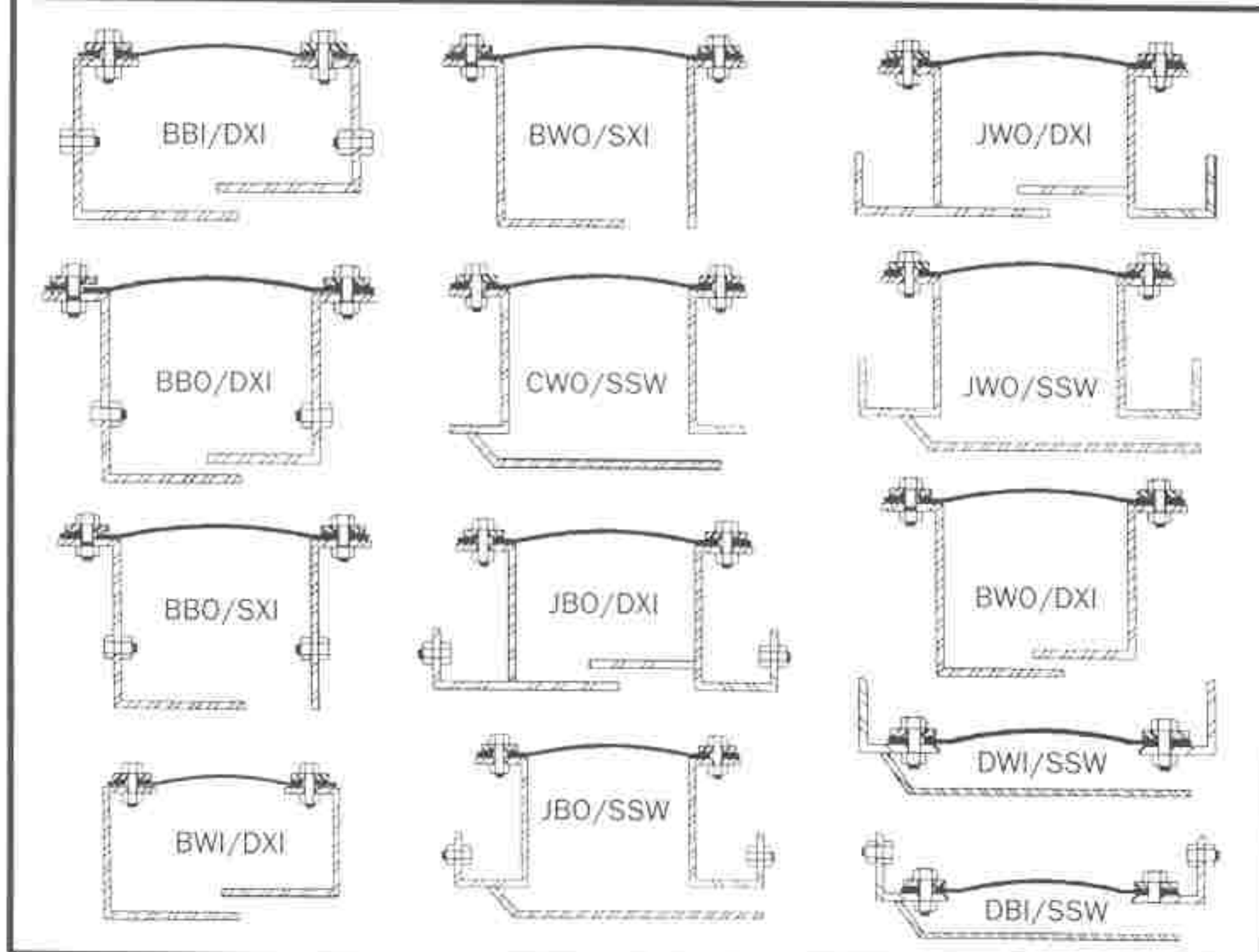
# TYPICAL METAL SUBASSEMBLIES

## For Flue Duct Expansion Joints

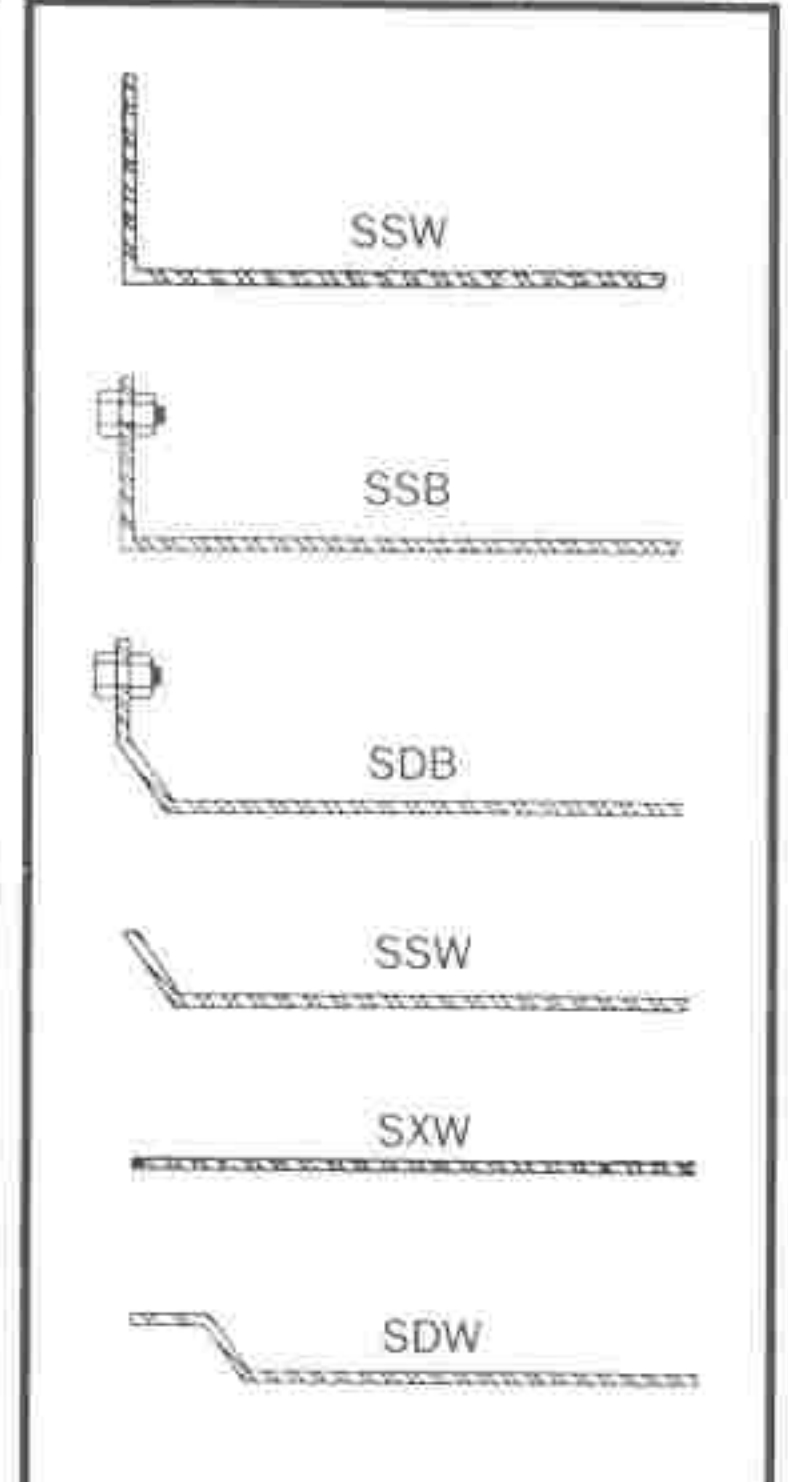
### METAL ATTACHMENT FRAMES



### METAL ATTACHMENT FRAMES IN CONJUNCTION WITH BAFFLES (LINERS)



### METAL BAFFLES (LINERS)



#### METAL ATTACHMENT FRAMES CODES

Letter #1 (Frame Style)	Letter #2 (Attachment)	Letter #3 (Frame Direction)
A "U"	B BOLT-IN	I INWARD
B ANGLE	C CLAMP-IN	O OUTWARD
C CHANNEL	W WELD-IN	V VERTICAL
D DOWNWARD ANGLE		
J "J" FRAME		

#### METAL ATTACHMENT FRAMES IN CONJUNCTION WITH BAFFLES CODES

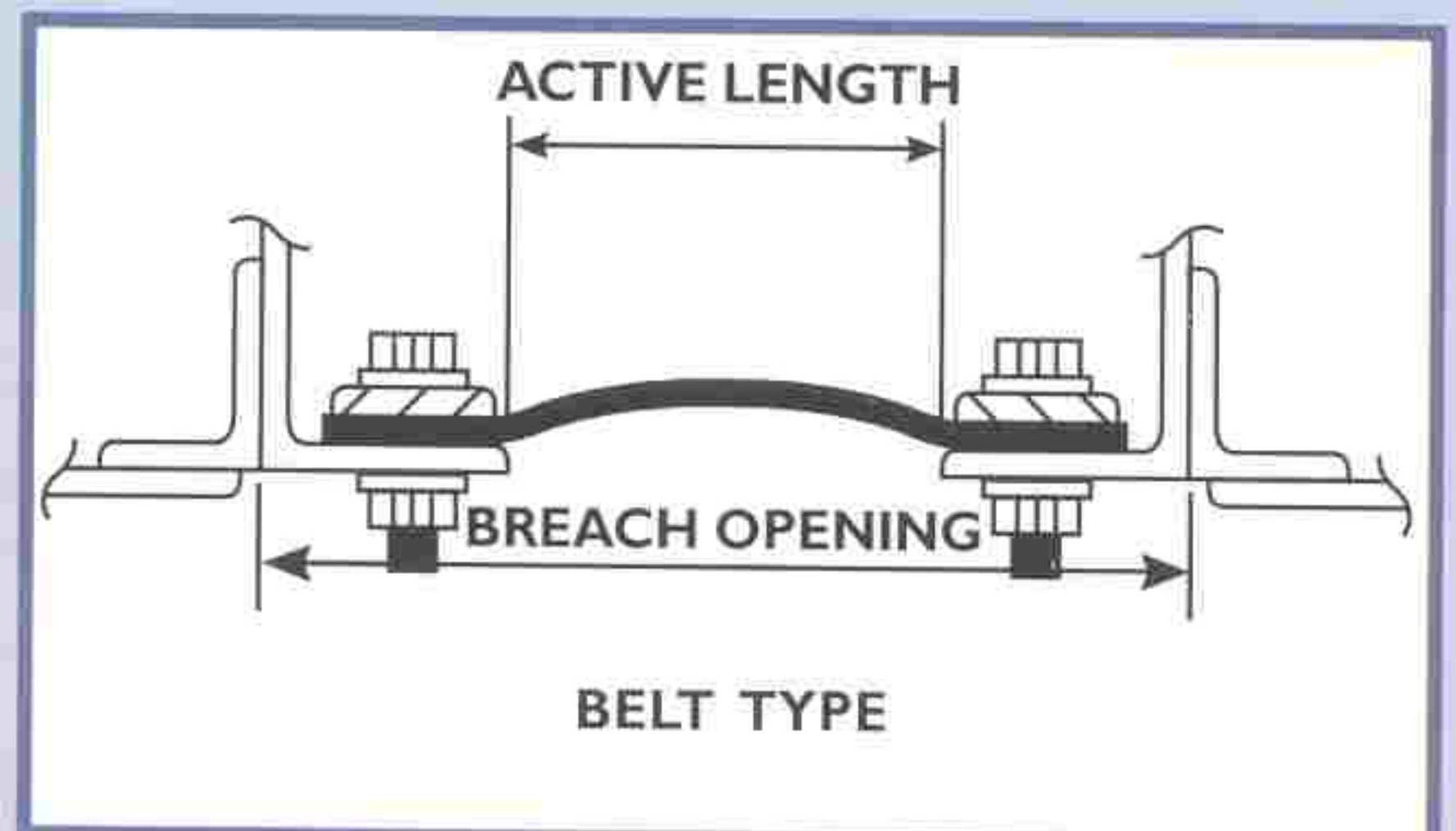
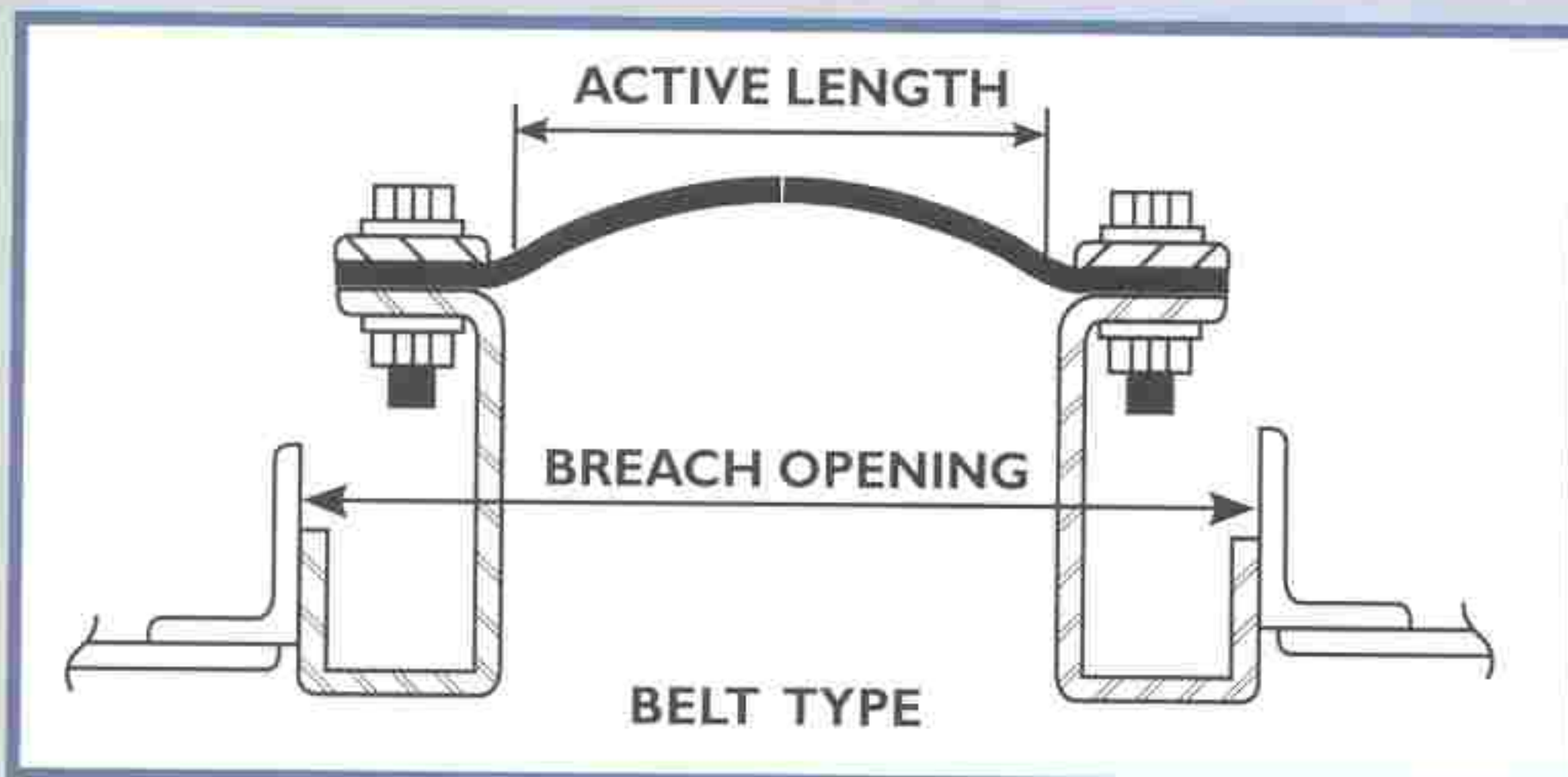
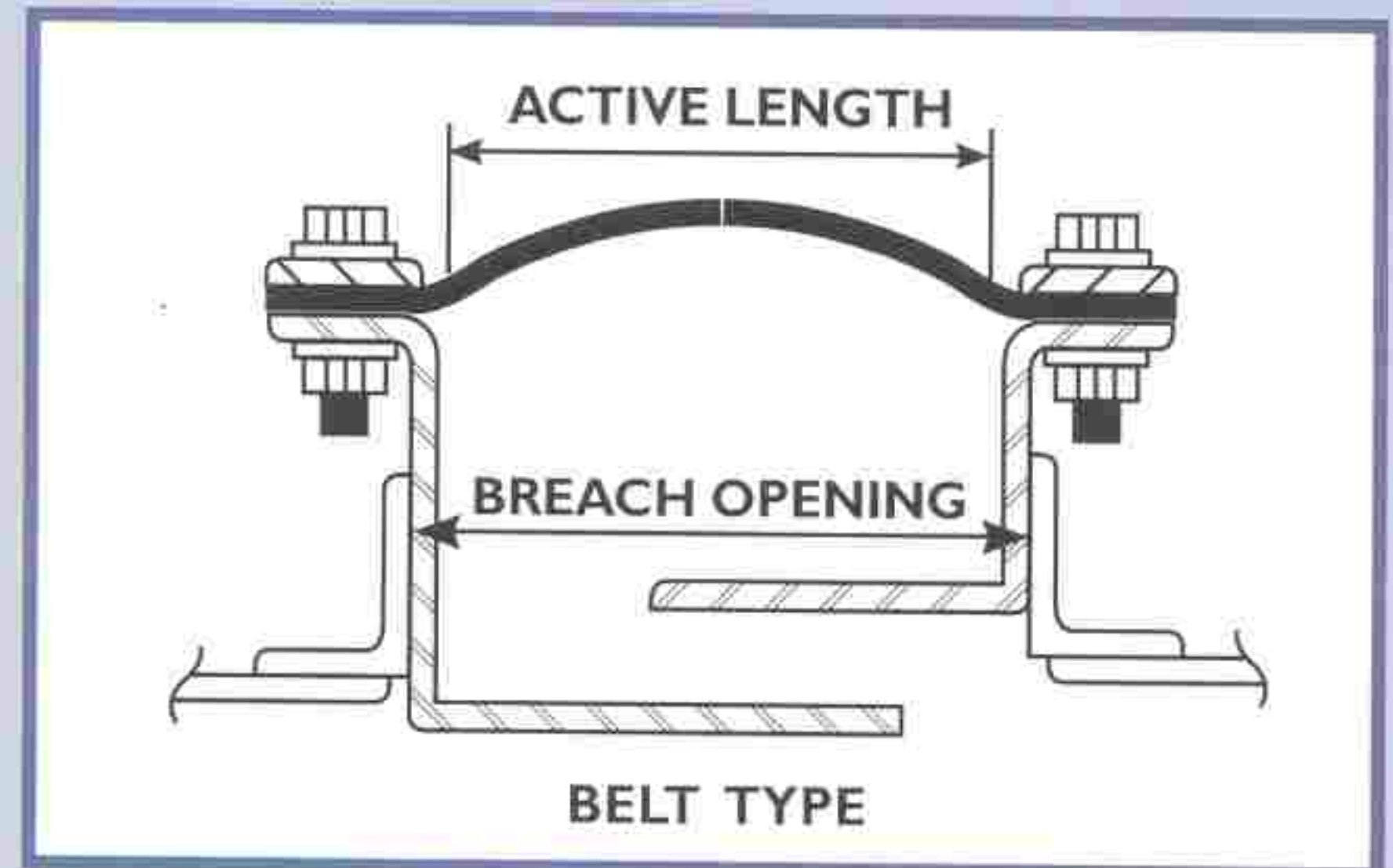
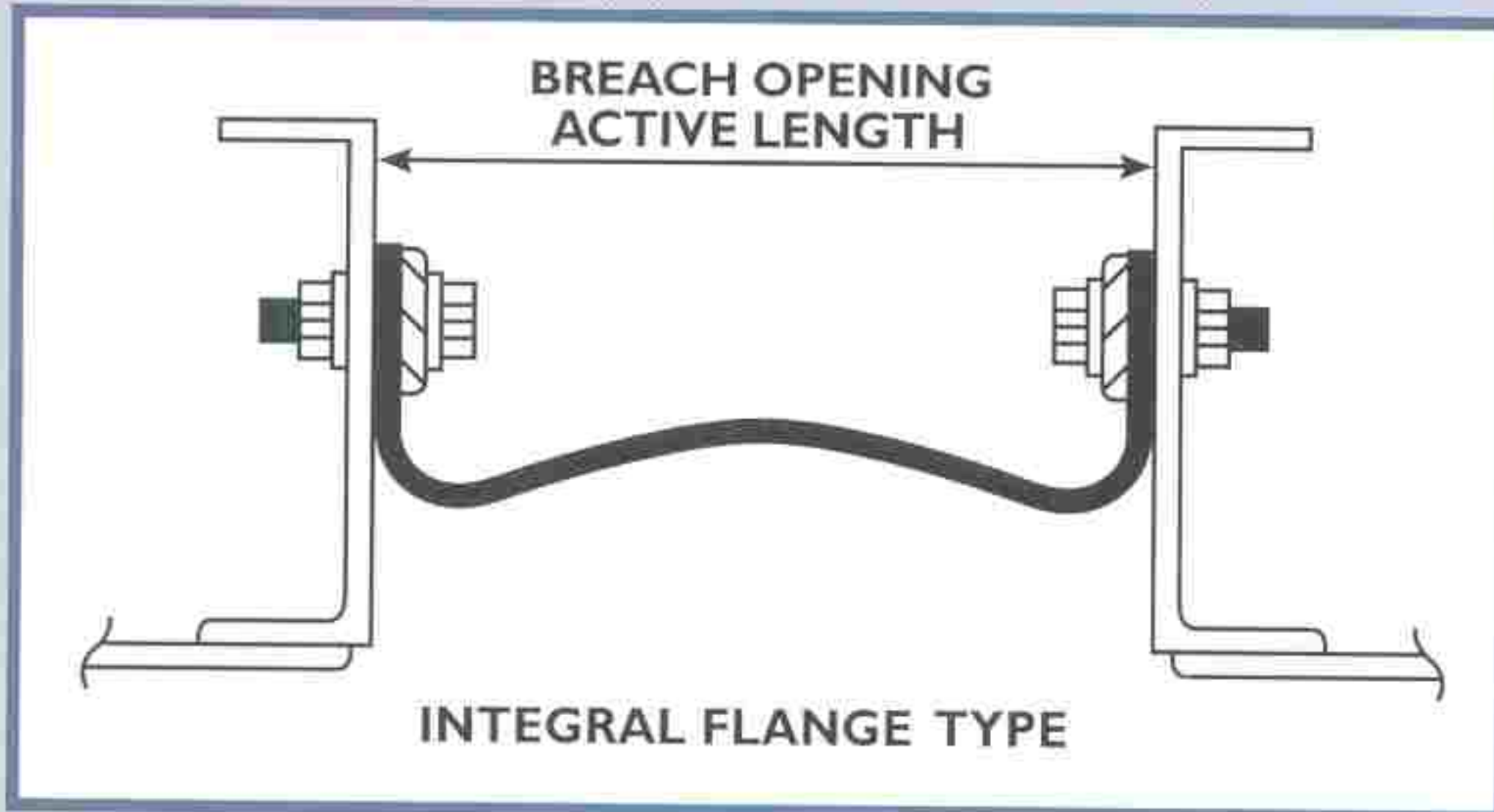
FRAME CODE / BAFFLE CODE

**OTHER DESIGNS AVAILABLE UPON REQUEST**

#### METAL BAFFLES (LINERS) CODES

Letter #1 (Baffle Style)	Letter #2 (Baffle Breaks)	Letter #3 (Attachment)
S SINGLE	S SINGLE	B BOLT-IN
D DOUBLE	D DOUBLE	W WELD-IN
	T TRIPLE	I INTEGRAL
	X NO BREAK	

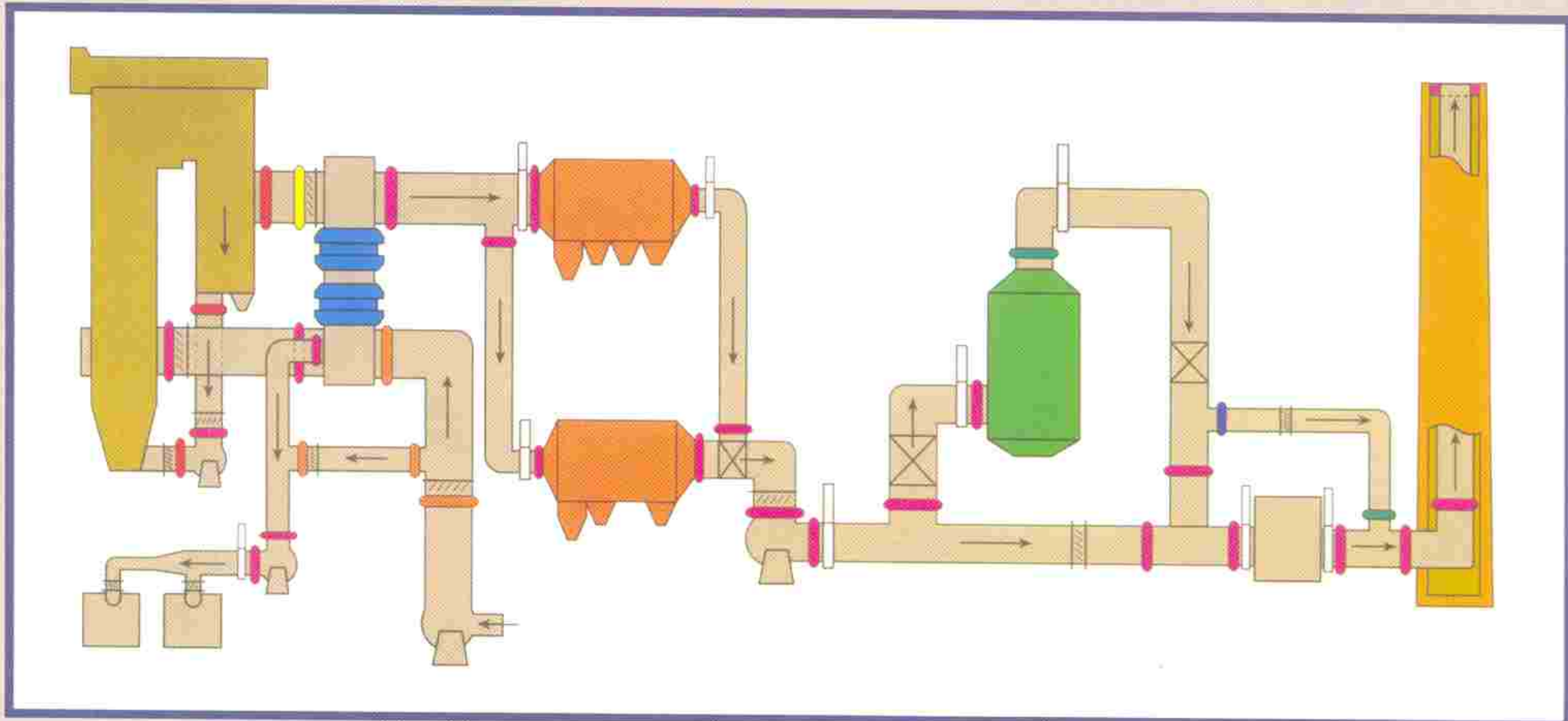
## TYPICAL CONFIGURATIONS



# STEJASA

## USA

# EXPANSION JOINTS TYPICAL APPLICATIONS



**NCS 300 Expansion Joints** are for use in wet or dry applications up to 300°F (150°C) and 5psig. The NCS 300 is manufactured from an EPDM compound and is reinforced with single or multiple plies of fabric or knitted wire. NCS 300 Expansion Joints are found on forced draft fans, baghouses, wet and dry scrubbers, and precipitators.

**NCS 400 Expansion Joints** are for use in wet and dry applications up to a continuous operating temperature of 400°F (205°C) and 5PSIG. The NCS 400 is manufactured from an FKM compound and is reinforced with single or multiple plies of fabric or knitted wire. NCS 400 Expansion Joints are found on air preheater gas outlets, wet and dry scrubbers, baghouses, precipitators, induced draft fans and stacks.

**NCS 550 Expansion Joints** are for use in wet and dry applications up to 550°F (305°C) and 5PSIG. The NCS 550 is manufactured from fluoroplastic materials more commonly known as Teflon®. NCS 550 Expansion Joints are found on baghouses, wet and dry scrubbers, precipitators and stacks.

**NHS 550 Expansion Joints** are for use in flue gas and hot air applications with intermittent temperatures of 350°F (175°C) to 500°F (260°C) and 2PSIG. The NHS 550 is a multi-layered composite expansion joint manufactured from layers of an outer cover, fabric, insulation materials and inner gas seal.

**NHS 600, 800, 1000 and 1200 Expansion Joints** are for use in dry flue gas and hot air applications up to 1200°F (650°C). The NHS series Expansion Joints are multi-layered composites manufactured from layers of an outer cover, fabric, insulation materials, and internal primary gas seal.

Contact **STEJASA USA** for special design considerations for temperatures up to 2000°F (1093°C).

Every **STEJASA USA Expansion Joint** is specifically engineered for each particular application and designed for use in power generation, pulp and paper mills, foundries, cement, chemical, and refinery plants.

## STEJASA

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