

Bridge & Highway Fabricated Expansion Joint Systems

ARMORED JOINT SYSTEMS



 **BASF**
The Chemical Company

It's the things you don't see that make us better.

-Watson Bowman Acme Expansion Control Systems



quality.expertise.innovation.custom solutions.

At Watson Bowman Acme, the development of armored expansion joint systems has evolved to meet the design challenges of the twenty-first century. Our proven systems facilitate engineered structural movement capabilities and protect bridges against the deteriorative effects of climatic conditions.

Precision machine manufacturing of steel shapes combined with extruded Neoprene® seals satisfy both movement flexibility and waterproofing for protection of bridge structures.

Our combination of skills in engineering and flexible manufacturing will enable us to meet your specific expansion joint application and project needs.



Backed by a World Leader.

The BASF Group comprises more than 160 subsidiaries and joint ventures and operates more than 150 production sites in Europe, Asia, North America, South America and Africa. BASF has customers in over 200 countries and supplies products to a wide variety of industries.

More than just a leader in its industry, BASF is also a global leader in sustainability and corporate social responsibility. The company is included in the Innovest Global 100 list – among the world’s most successful companies in the areas of environmental protection, social affairs and corporate governance. BASF is also listed on the FTSE4Good Index and Storebrand SRI Funds.

BASF has won awards from the Sustainable Buildings Industry Council and the American Plastics Council for its Eco-Efficiency Analysis. This industry-leading sustainability measurement tool provides certified and robust quantitative analysis of both the ecological and economic impact of products over their lifecycle. Most importantly, the tool provides measurement from a customer perspective, allowing the user to observe the effects of various actions on different future scenarios.

ARMORED TECHNOLOGY



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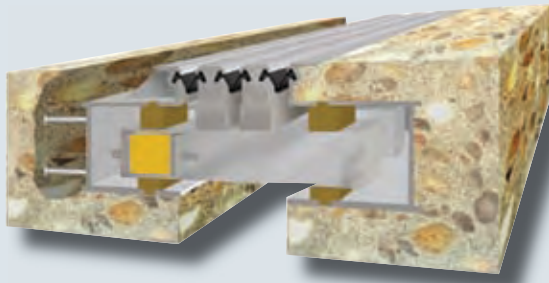


Wabo®Finger Jointpg 11

For additional information about Watson Bowman Acme products, please visit our website at www.wbacorp.com

WBA can develop a custom product to meet your specific application.

Contact us at [800.677.4922](tel:800.677.4922) for more information.



Wabo® Modular

Ultimate in Sealed Modular Joint Design and Reliability

Watson Bowman Acme designed, built, and installed the first sealed modular joint system nearly three decades ago. This longevity was built, in part, from the basic design concept comprised of a multiple steel support bar system, which combines strength to support traffic loads with the flexibility to accommodate continual structural movement. Today, Watson Bowman Acme is the worldwide leader in the manufacture of large movement modular expansion joints for challenging long-span bridge structure applications.

FEATURES:

- Mechanically locked seals ensure watertight performance
- Dampens repetitive traffic, supports and distributes loads to the bridge structure
- Counter-force control system maintains spacing throughout movement cycle
- Rigid interconnection of beams and bars eliminates a potential failure
- Fatigue Designed per NCHRP 402 and AASHTO

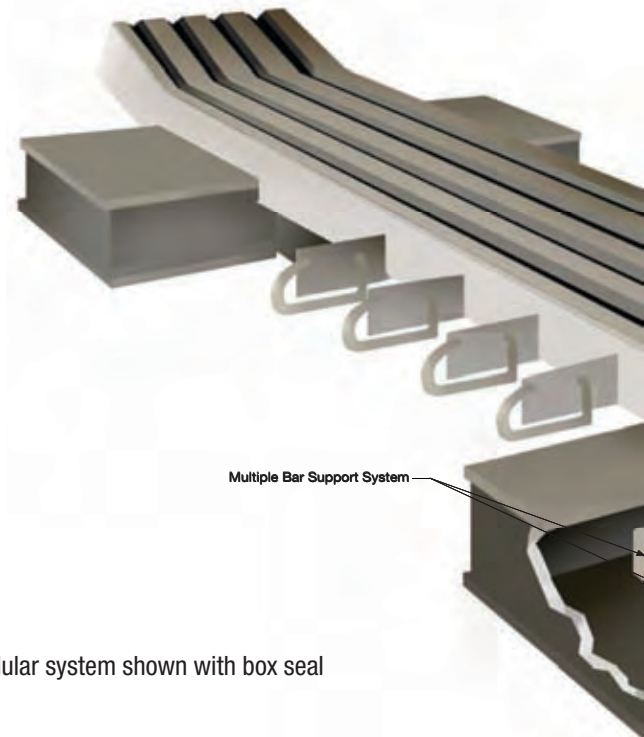
RECOMMENDED FOR:

- Sealing joints on bridges with movements greater than 4 inches
- New construction or repair and maintenance of existing expansion joint systems
- High impact conditions



| Model # | Joint Opening "A" | | | | | | System Depth | |
|----------------------|-------------------|-----|-------|------|-------|-----|--------------|-----|
| | Min. | | Max. | | Total | | in | mm |
| | in | mm | in | mm | in | mm | | |
| STM or D-600 | 2.50 | 64 | 8.50 | 216 | 6.00 | 152 | 10.250 | 260 |
| STM or D-900 | 5.00 | 127 | 14.00 | 356 | 9.00 | 229 | 10.250 | 260 |
| STM or D-1200 | 7.50 | 191 | 19.50 | 495 | 12.00 | 305 | 10.250 | 260 |
| STM or D-1500 | 10.00 | 254 | 25.00 | 635 | 15.00 | 381 | 10.250 | 260 |
| STM or D-1800 | 12.50 | 318 | 30.50 | 775 | 18.00 | 455 | 10.250 | 260 |
| STM or D-2100 | 15.00 | 381 | 36.00 | 914 | 21.00 | 533 | 10.250 | 260 |
| STM or D-2400 | 17.50 | 445 | 41.50 | 1054 | 24.00 | 610 | 10.250 | 260 |
| STM or D-2700 | 20.00 | 508 | 47.00 | 1194 | 27.00 | 686 | 10.250 | 260 |
| STM or D-3000 | 22.50 | 572 | 52.50 | 1334 | 30.00 | 762 | 10.250 | 260 |

"A" was calculated using a 2.5 inch (64mm) beam. System depth may vary from the standard shown. Consult your WBA Representative with your special design requirements.

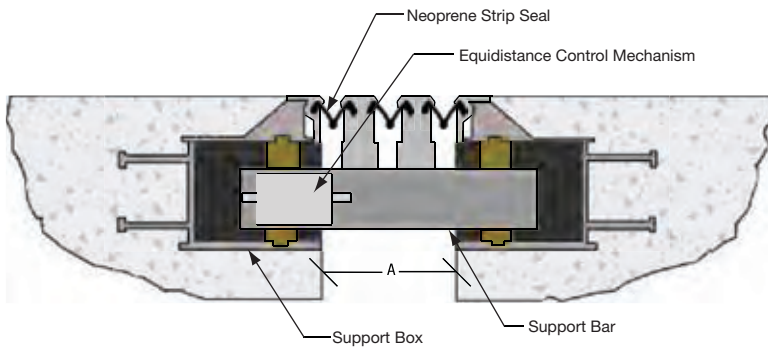


Multiple Bar Support System

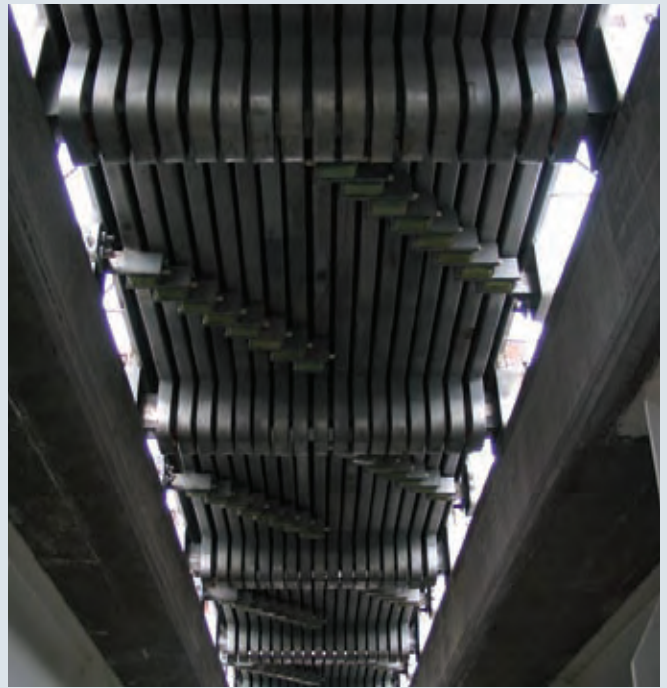
Modular system shown with box seal

Resilient Support S

Modular detail shown with strip seal



for additional information see product sales drawings

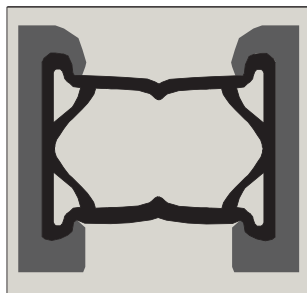


Available in both box and strip seal versions, Wabo®Modular joint systems effectively seal joint openings while preventing runoff water from passing through to the substructure. The box seal system provides the ultimate in sealed modular joint design and reliability. The strip seal system uses an inner-locking single layer strip gland that is easy to install in the field.

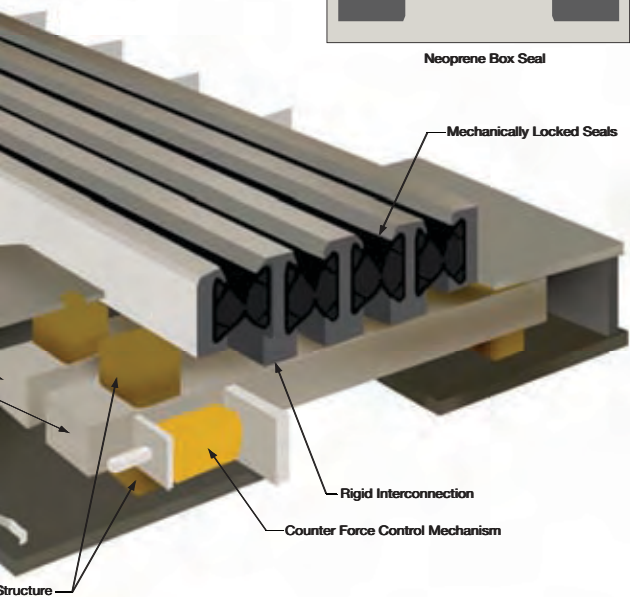
As a worldwide leader in expansion joint design innovation, Watson Bowman Acme Corp. now offers high rotation modular system capabilities through innovative rotational bearing design.

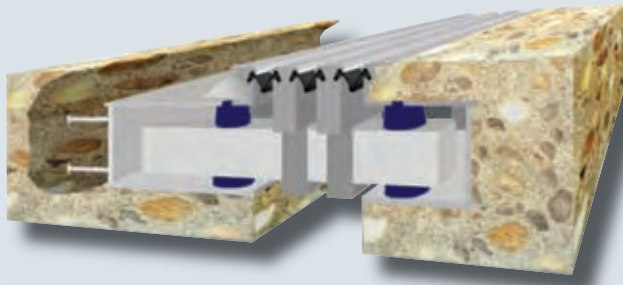
Wabo®Modular joint systems are comprised of five important design features. These features make the modular system tough, long-lasting, watertight and virtually maintenance free. Field proven under the toughest bridge conditions everywhere in the world, the Wabo®Modular joint system is designed and built in accordance with the highest fabrication standards and can be engineered to meet a variety of conditions and movement requirements.

Contact Watson Bowman Acme for additional design options to meet the dynamic movement needs and constructability requirements of your project.



Neoprene Box Seal





Wabo®X-Cel Modular

Advanced Technology in Large Movement Expansion Control

The Wabo®X-Cel Modular is designed to accommodate longitudinal, transverse and rotational movements while also satisfying the day-to-day thermal requirements with life-cycle fatigue capabilities. The Wabo®X-Cel system accommodates multi-directional accelerated movements to specifically designed support boxes and their internally mounted sliding components. High rotational support bearings allow the support bar to move. This arrangement results in low stress being imparted into the expansion joint as compared to high-resistant, mechanically rotated, or swiveling system designs. This system is ideal for both seismic and true multi-directional movement conditions. Similar to the Modular system, the X-Cel system is also available in both box and strip seal versions.

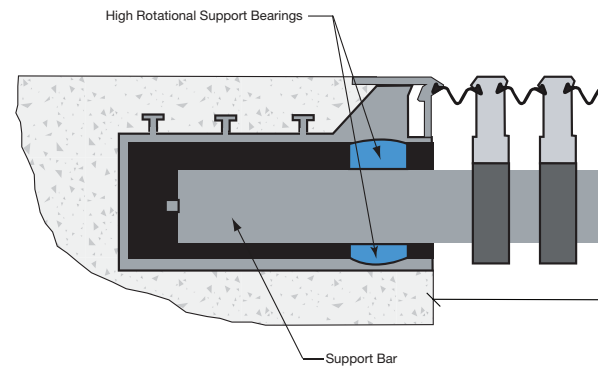
The Wabo®X-Cel Modular is the only commercially available system which has provided performance during an actual seismic occurrence.

FEATURES:

- Simultaneously accommodates multi-directional and seismic movement
- Selected transverse and horizontal movement locations limit wear of components
- Resilient rotational support system
- Positive equidistant control mechanism ensures a smooth, noise-free ride
- High rotational movement capability

RECOMMENDED FOR:

- Important bridges required to provide secondary life safety
- Structures designated by a local emergency plan as critical
- Offshore structures
- Segmental, suspension, and long-span bridges
- Flexible structures requiring a high level of reliability
- Seismic movements



for additional information see



X-Cel Modular system shown with strip seal; system can also accommodate box seal

for additional information see product sales drawings

Kaaterskill Bridge

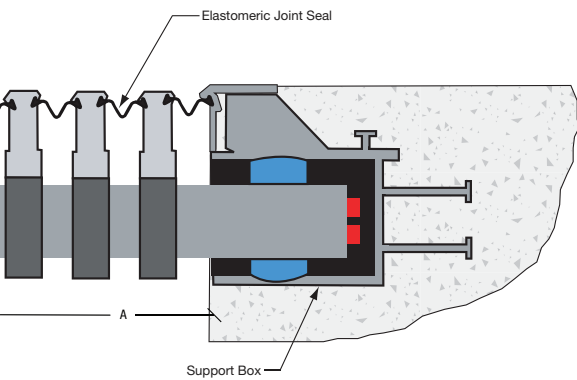
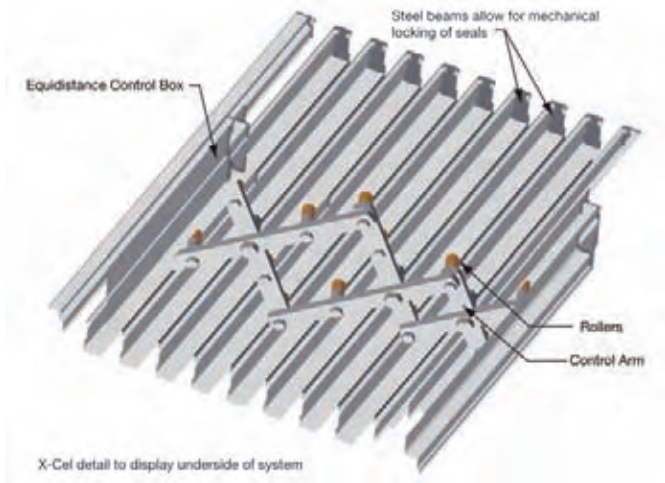
I-87 Mainline, south of Albany, NY

Wabo®X-Cel System
 (12" longitudinal and 4" transverse movement)

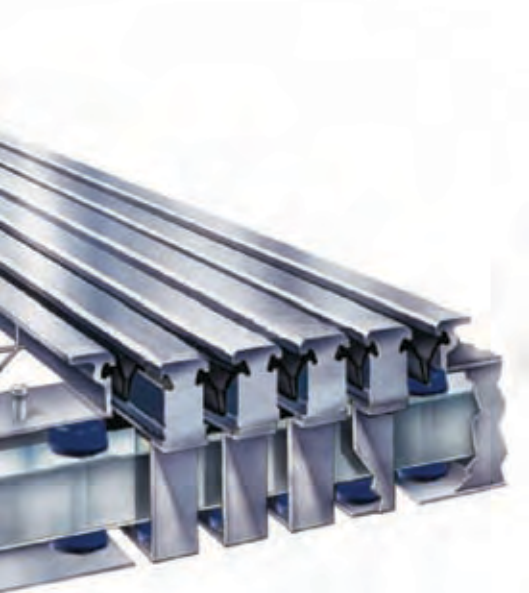


Multi-directional modular system experience.

www.wbacorp.com



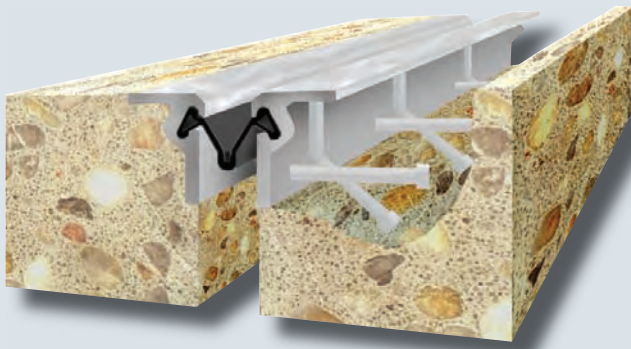
See product sales drawings



The Wabo® X-Cel Modular is the result of a four-year research-and-development program. During this time, there were full-scale performance tests run at the University of California at Berkeley PEER Center. This program isolated critical components and functions essential to successful long-term multi-movement performance. This system is designed to smoothly handle tens of millions of movements imposed on flexible structures.

The Wabo®X-Cel Modular system has undergone very successful multi-movement testing at various speeds, ranging from 1 to 60 inches per second, as well as numerous seismic simulators - with no observed damage.

Our continuous research and development has resulted in innovative inspectable and replaceable components for the X-Cel modular system. These patent-pending design features are available exclusively through Watson Bowman Acme.



Wabo®StripSeal

Rugged Design Effectively Accommodates Heavy Loads and Seals Joints

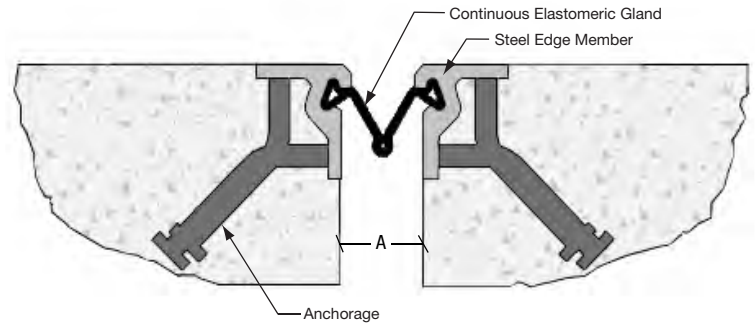
Wabo®StripSeal consists of an elastomeric gland mechanically locked between two steel members which provides a superior watertight sealing system. The rugged design of this system can easily accommodate heavy loads while providing a watertight seal. Our StripSeal systems are versatile units that will accommodate a variety of field configurations as well as multi-directional movements.

FEATURES:

- Six standard configurations machined from ASTM A-588 or A-36 grade steel, precision machined to exacting tolerance
- Heavy-duty system
- Multi-directional movement capability
- Designed and manufactured to meet project requirements
- Flexible applications

RECOMMENDED FOR:

- Sealing joints on bridge and parking decks
- Skewed joints
- High impact and repetitive loading conditions
- Expansion joint applications with a maximum movement of 5 inches
- New construction or repair and maintenance of existing expansion joint systems

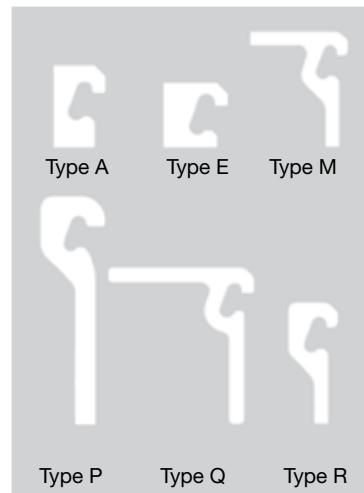


for additional information see product sales drawings



| Model # | Joint Width "A" | | | | | | Min. Install Width | |
|----------------|-----------------|----|------|-----|-------|-----|--------------------|----|
| | Min. | | Max. | | Total | | | |
| | in | mm | in | mm | in | mm | in | mm |
| SE-300 | 0.00 | 0 | 3.00 | 76 | 3.00 | 76 | 1.50 | 38 |
| SE-400 | 0.00 | 0 | 4.00 | 102 | 4.00 | 102 | 1.50 | 38 |
| SE-500 | 0.00 | 0 | 5.00 | 127 | 5.00 | 127 | 2.00 | 51 |
| EFE-400 | 0.50 | 13 | 4.50 | 114 | 4.00 | 102 | 2.50 | 64 |

Consult your WBA Representative for factory molded horizontal changes, severe skews or joint intersections.



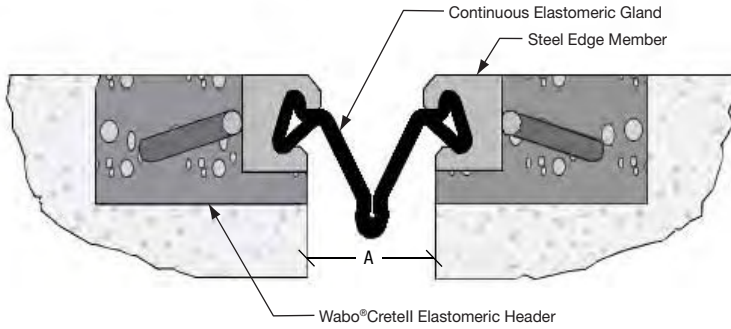
The Wabo®StripSeal is available in six standard, precision-machined configurations to better suit your individual project.

Wabo®Crete StripSeal

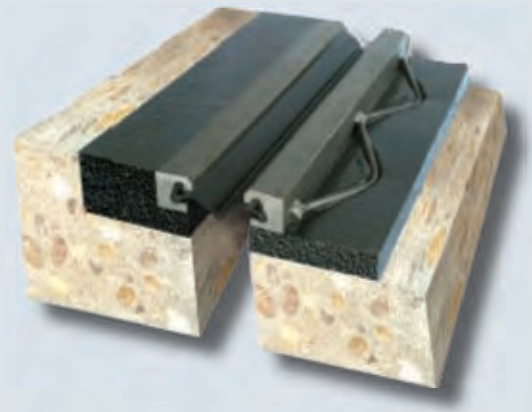
Advanced, Unique System for Construction and Rehabilitation

The Wabo®Crete StripSeal is an advanced and unique system fused in the construction or rehabilitation of expansion joints for bridges and parking decks. It consists of an elastomeric seal mechanically locked between two steel members and installed with elastomeric concrete combining to form a monolithic unit.

Due to its durability and resistance to chemical attack, it is well suited to withstand high impact conditions.



for additional information see product sales drawings



FEATURES:

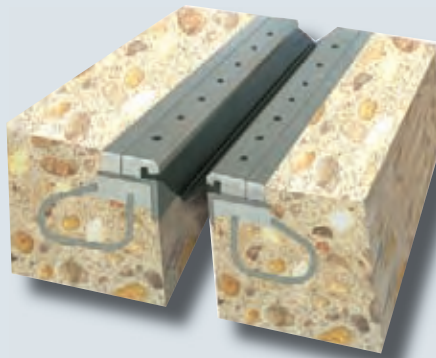
- Extremely versatile for flexible applications
- Sinusoidal anchorage is utilized to transmit and distribute impact forces into the elastomeric concrete
- Wabo®Crete pours easily to fill all voids and irregularities within the blockout
- System has excellent elasticity and bonding capabilities
- Rapid installation and minimal downtime of structure when utilized in repair of failed expansion joints
- Accommodates heavy-duty loads and bridge deflections
- Continuous sealing element prevents water from leaking through the expansion joint opening

RECOMMENDED FOR:

- Skewed joints
- High impact and repetitive loading conditions
- Expansion joint applications with a maximum movement of 5 inches
- New bridge construction or repair and maintenance of existing expansion joint systems
- Overlay projects/low profile applicability

| Model # | Joint Width "A" | | | | | | Min. Install Width | |
|----------------|-----------------|----|------|-----|-------|-----|--------------------|----|
| | Min. | | Max. | | Total | | | |
| | in | mm | in | mm | in | mm | in | mm |
| SE-300 | 0.00 | 0 | 3.00 | 76 | 3.00 | 76 | 1.50 | 38 |
| SE-400 | 0.00 | 0 | 4.00 | 102 | 4.00 | 102 | 1.50 | 38 |
| SE-500 | 0.00 | 0 | 5.00 | 127 | 5.00 | 127 | 2.00 | 51 |
| EFE-400 | 0.50 | 13 | 4.50 | 114 | 4.00 | 102 | 2.50 | 64 |

Consult your WBA Representative for factory molded horizontal changes, severe skews or joint intersections.



FEATURES:

- Specifically developed for Ministry of Transportation in Ontario, MTP Class A system
- Top removable clamping bar allows for easy access from roadway surface
- Mult-directional movement capacity
- Manufactured to meet project specifics

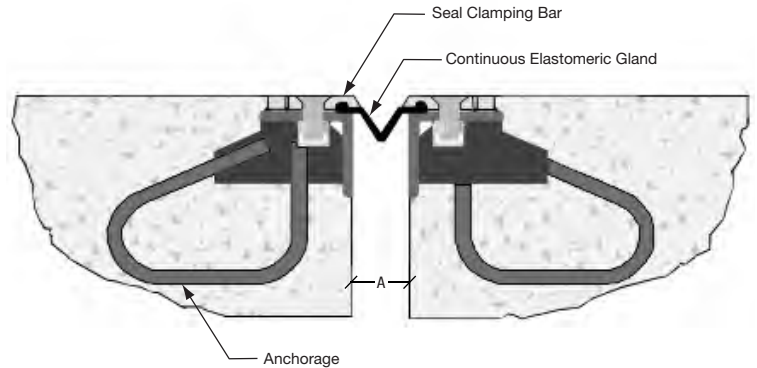
RECOMMENDED FOR:

- Sealing of joints on bridges
- Reconstruction of joints in existing structures
- High impact conditions

Wabo®FabroSpan

Superior System for Construction and Rehabilitation of Bridge Joints

Wabo®FabroSpan consists of an elastomeric seal mechanically locked between two bolted steel members. The heavy-duty machined clamping bars securely fasten the continuous seal to the steel edge members. The top removable design of this system allows for easy seal installation and replacement.



for additional information see product sales drawings

**table pertains to both Wabo®FabroSpan and Wabo®Crete FabroSpan systems.*

| Model # | Joint Width "A" | | | | | | Min. Install Width | Ontario MTO Rating | | | | | | |
|----------------|-----------------|----|------|-----|-------|-----|--------------------|--------------------|------|------|------|-------|------|----|
| | Min. | | Max. | | Total | | | Min. | | Max. | | Total | | |
| | in | mm | in | mm | in | mm | | in | mm | in | mm | in | mm | |
| FR-100D | 0.00 | 0 | 4.00 | 102 | 4.00 | 102 | 1.00 | 25 | 1.00 | 25 | 4.00 | 102 | 3.00 | 76 |

Consult your WBA Representative for factory molded horizontal changes, severe skews or joint intersections.



FEATURES:

- Specifically developed for Ministry of Transportation in Ontario, MTP Class A system
- Sinusoidal anchorage replaces traditional mechanical anchorage
- Elastomeric concrete header absorbs traffic impacts and has the flexibility to fill any irregularities within the blockout
- Developed for bridge expansion joint applications
- Low profile design is ideal in conjunction with wearing surface overlay applications

RECOMMENDED FOR:

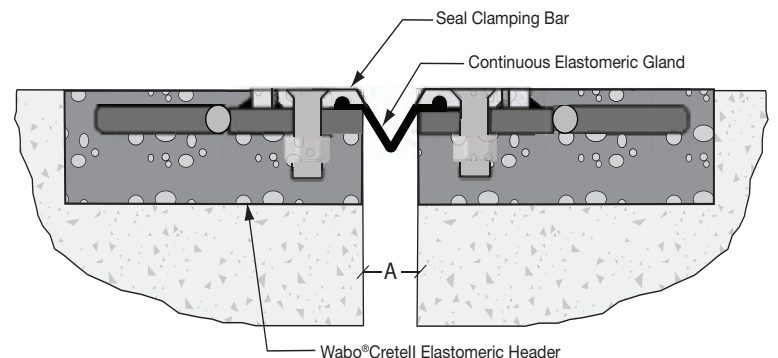
- Sealing of joints on bridges
- Reconstruction of joints in existing structures
- High impact conditions
- Overlay projects

Wabo®Crete FabroSpan

Superior System for Construction and Rehabilitation of Bridge Joints

The Wabo®Crete FabroSpan is a unique and superior expansion control system used in the construction and rehabilitation of expansion joints for bridges. This system consists of an elastomeric seal which is mechanically locked in place between two bolted steel members and installed with elastomeric concrete to form a monolithic unit.

The Wabo®Crete FabroSpan system is well suited to handle high-impact applications due to its durability and resistance to chemical attack in harsh environments.

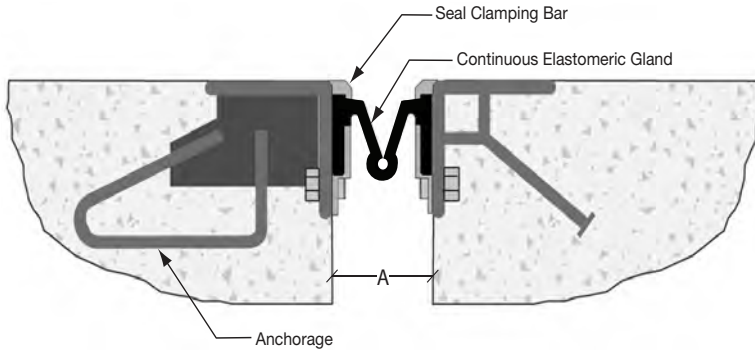


for additional information see product sales drawings

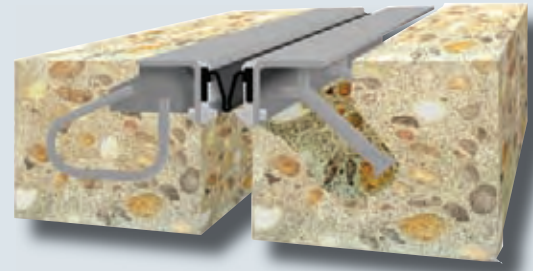
Wabo® PressureSeal

Heavy-Duty System Capable of Impermeability and Load Support

The Wabo® PressureSeal consists of an elastomeric seal mechanically locked between two bolted steel members providing a superior watertight sealing system. This system follows a basic principle which ensures that a positive mechanical pressure is maintained at all times between the edge member and sealing element. While effectively sealing expansion joints, the system can also easily accommodate high loads of vehicular traffic.



for additional information see product sales drawings



FEATURES:

- Specifically developed for Ministry of Transportation in Ontario, MTP Class A system
- Positive mechanical pressure applied between edge member and sealing element
- Multi-directional movement capacity
- Manufactured to meet project specifics
- Watertight

RECOMMENDED FOR:

- Sealing of joints on bridges and parking decks
- Reconstruction of joints in existing structures
- High impact conditions
- Skewed joints

| Model # | Joint Width "A" | | | | | | Min. Install Width | | Ontario MTO Rating | | | | | |
|---------------|-----------------|----|------|-----|-------|-----|--------------------|----|--------------------|----|------|-----|-------|----|
| | Min. | | Max. | | Total | | | | Min. | | Max. | | Total | |
| | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm |
| PS-100 | 1.00 | 25 | 5.00 | 127 | 4.00 | 102 | 1.625 | 41 | 1.625 | 41 | 4.00 | 102 | 2.38 | 60 |
| PS-175 | 1.00 | 25 | 7.88 | 200 | 6.88 | 175 | 1.625 | 41 | | | | | | |

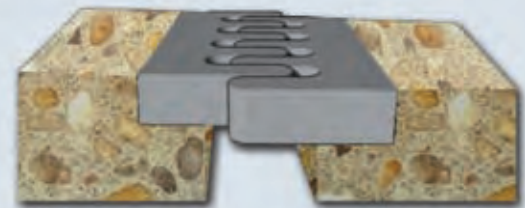
Note: PS-100 seal only available in neoprene rubber. PS-175 seal only available in natural rubber.

Consult your WBA Representative for factory molded horizontal changes, severe skews or joint intersections.

Wabo® FingerJoint

Heavy Duty Interlocking System for High Impact and Heavy Load Applications

The Wabo® FingerJoint system is a heavy duty expansion control application that covers openings on new or existing structures. The interlocking fingers are precision-cut with a CNC burning machine to allow for truly accurate dimensions. Made completely of steel, these systems are well prepared for high impact and heavy load conditions. To extend life and protect these joints, protective coverings are provided in accordance with project specifications.



FEATURES:

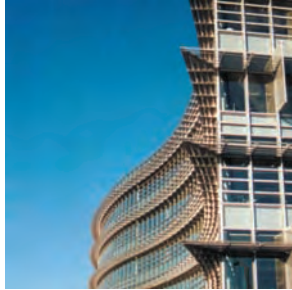
- Finger Joint fabrication at WBA utilizes state-of-the-art manufacturing
- Fingers cut with precision CNC burning machine
- Protective coatings provided in accordance with specifications

RECOMMENDED FOR:

- Sealing of joints on bridges and parking decks
- Reconstruction of joints in existing structures
- High impact conditions
- Skewed joints

The Expansion Control Company.

Founded in 1950, Watson Bowman Acme (WBA) is the world wide leader and recognized innovator in the development and manufacture of expansion control systems for the construction industry. WBA has taken great strides in achieving production efficiencies and environmental stewardship through its formal American Institute of Steel Construction, ISO 9001:2000 and RC 14001 certifications. These certifications enhance the company's commitment and passion for excellence. WBA uses its expertise in the design and manufacture of quality expansion control systems to produce products that perform and last. Watson Bowman Acme is "The Expansion Control Company".



ARCHITECTURAL



BRIDGE & HIGHWAY



OPEN AIR STRUCTURES



PARKING STRUCTURES

Technical Expertise

Engineers and owners who are charged with the responsibility of searching out every possible avenue to extend the life of their structures turn to Watson Bowman Acme with their specific needs. More than 50 years of practical experience and knowledge in the Expansion Control industry allows WBA to develop solutions and make recommendations for the right product choice for your application.

Innovation

Recognized as the industry leader in the development of expansion control systems, WBA has developed and manufactured products and solutions for some of the worlds' most unique and complex projects. Offering the broadest range of products and services in the construction industry, we are the only company servicing the Bridge and Highway, Architectural, Parking and Open Air Structures markets. We have a fully qualified team of professional engineers and designers backed by strong relationships with national testing labs and universities. Watson Bowman Acme has long been recognized for its innovation. We will continue to build on that reputation for years to come.

Custom Solutions

WBA provides more than just technical expertise, we supply solutions that make good sense. We offer a growing range of high performance Wabo® products and systems to provide long lasting solutions to difficult repair problems. We are fully resourced to deliver results and exceed expectations of our customers, a standard of service they should expect.

Quality

WBA is dedicated in providing the highest quality products and services to our customers with a commitment for continuous improvement. Increased quality in service and manufacturing will ensure positive results for your project. Our professional operations team employs the principles of lean manufacturing, and enterprise resource planning tools, all supported by our formal ISO 9001:2000, RC 14001 and AISC quality management systems.



WWW.WBACORP.COM
REPRESENTATIVE LOCATOR

www.WBACORP.com

We are continually improving the Watson Bowman Acme website, enhancing your ability to easily navigate through our products and services. WBA has evolved over the years, but one priority has remained the same: to provide you with the accurate information you need, when you need it.



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BHFB-BR-071201