

BEND SPECIMEN CUTTING SYSTEM

MODEL BSC

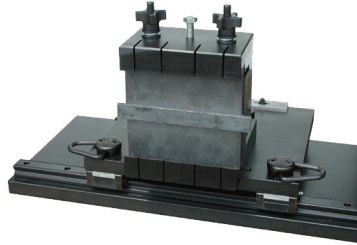
For High Production Cutting of Bend Specimens

The Model BSC Bend Specimen Cutting System consists of an indexing base (BSC-IB) and heavy-duty fixtures for high production cutting of bend specimens from welded plates and pipes. It can be mounted on several models of HEM, Hyd-Mech, Marvel and other vertical tilt band saws with 20" or greater maximum upper guide height. The preferred blade is 1-1/4 wide x 0.042 thick with a 2-3 variable pitch, minimum. The system is mounted on the front end of the saw worktable, within easy reach of the operator. The system does not necessarily have to be removed to use the saw for other purposes, although the normal stock capacity may be reduced by as much as 50-67% if the system is left in place.

A Backing Bar Cutting Fixture (BBC), for cutting the excess backing bar material from plate face, root, or side bend specimens is also available. This fixture is not mounted on the BSC-IB, but held in the saw vise, instead.

The BSC-IB indexing base can be lifted into place or removed by two workers or by means of a hoist. The operator can interchange fixtures in a matter of minutes.

The operator also interchanges templates that control the cutting width of the bend specimens and the dis-



The BSC-IB Indexer Base with a BSC-1PLT Plate Fixture in place.

tance between specimens. Before using a new template he aligns the saw blade in a fixture slot and slides the template until the appropriate notch is engaged with the latching mechanism.

The home position and depth of cut is automatically controlled by the system if Fischer Engineering Company provides the saw. If the system is mounted on a customer-supplied saw, the customer will have to set up a method for controlling the depth of cut. Except on high-end, fully automatic saws, the operator normally controls both the advance and retract of the blade.

The main labor-saving advantage of this system is that the operator does not have to measure cutting distances or widths. During the short time between cuts he can identify specimens with a pen marker, usually before cutting (since a coolant is used during cutting).

The Model BSC does not require any special exhaust or ventilation system. It also does not have the high noise level associated with systems using abrasive saws.

PLATE FIXTURES

The BSC-1PLT is for samples up to 1 inch thick. It can be used to cut bend specimens from welder performance test samples in accordance with ASME, AWS, and Military codes and standards. The clamp design can accommodate the warpage common in plate samples as well as taper from end to end. However, the sample edges that are clamped must be straight. Saw-cut coupon edges are best. Flame-cut coupons that have irregularities or warpage will not work.

The upper jaw of the plate fixture is spring balanced for self-release when the clamps are loosened. Typical cutting time is 2-5 minutes per bend specimen for plain carbon steel. Indexing time is a matter of seconds.

Templates are designed to meet specific codes and standards. The stocked part numbers are listed on the price list. Other special templates can be manufactured to order. The template dimensions include a factor to add approximately 0.020 inch to the specimen width for clean-up by grinding or sanding.

PIPE FIXTURES

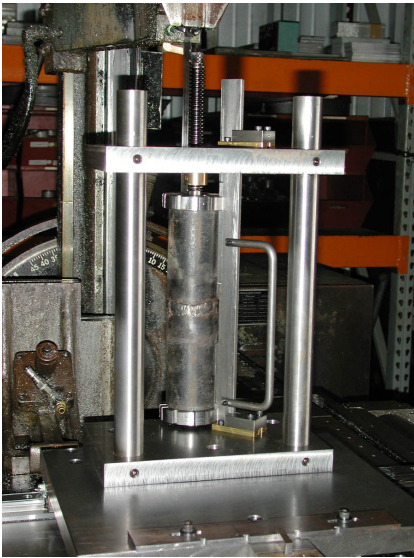
Two pipe fixtures are presently available. The BSC-2 is for 2 inch nominal (shown in the photo) and Super (2-3/4" x 5/8" wall) pipe size. The BSC-6 is for 6 inch nominal pipe size.

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www.fischerengr.com

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8220 Expansion Way • Dayton, Ohio 45424 • (937) 754-1750



The BSC-2 Pipe Fixture and BSC-IB Indexer Base in use.

Each fixture can be used to cut bend specimens from welder performance test samples in accordance with ASME, AWS, and Military codes and standards. The swivel clamp design can accommodate the warpage common in pipe samples. However, the sample ends that are clamped must be flat. Saw-cut or turned coupon ends, with or without a bevel, are best. Flame-cut coupons ends that have irregularities or warpage will not work.

The upper fixture platen is adjustable so that samples from 6 to 8 inches long can be accommodated. A spring-loaded indexing mechanism allows for rotary indexing of the sample at 90° spacing. This, combined with the linear indexing of the BSC-IB indexing base, results in precisely-cut specimens in accordance with the listed codes and standards. All specimens are held in place until the last cut is made. Then, loosening of the clamp allows the bend specimens and discards to be removed. Other than brushing or flushing chips away, the fixture is ready for loading of the next sample. Typical cutting time is 2-5 minutes per bend specimen for plain carbon steel. Indexing time is a matter of seconds.

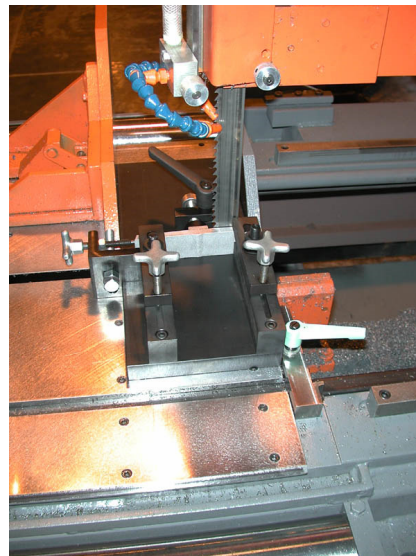
Each fixture requires optional mandrels related to the pipe schedules to be accommodated. Mandrels are designed to meet the listed codes and

standards. The stocked part numbers are listed on the price list.

Pipe Templates are designed to meet the listed codes and standards. The stocked part numbers are listed on the price list. The template dimensions include a factor to add approximately 0.020 inch to the specimen width for clean-up by grinding or sanding.

BACKING BAR CUTTING FIXTURE

The BBC Backing Bar Cutting Fixture is used to remove excess backing bar material from face, root, or side bend specimens taken from 3/8 to 1 inch thick plate samples. This fixture is not mounted on the BSC-IB, but held in the saw vise as shown in the photo.



A BBC Backing Bar Cutting Fixture mounted in the saw vise.

The BBC can be inserted in or removed from the saw by the operator without the aid of a hoist. The BSC-IB indexer base and attached plate fixture can remain in place without affecting the operation of the BBC. However, to use the BSC-IB and plate fixtures, the BBC must first be removed from the vise. The vise pressure is released and the fixture is withdrawn. This allows the saw blade to pass through the vise area on its way to the plate fixture at the front of the table.

There is a reference stop that controls the location of the BBC relative to the

blade. This is set initially for first use and for different thicknesses or variations of thickness from one batch to the next. The stop allows the fixture to be quickly reinserted into the vise with no further adjustments when running specimens of the same thickness. The fixture is intended primarily for 3/8 inch thick root and face bend specimens and 1 inch thick side bend specimens. However, other side bend specimens less than 1 inch thick can also be processed by using shims in the clamps. The clamp supports have two positions; one for 3/8 inch thick specimens and one for thicker specimens.

Another adjustable reference stop is provided to compensate for variations in backing bar thickness. This stop can also be used to adjust how close the blade cuts relative to the base material.

Operation of the fixture requires two steps; loading the specimen and clamping the specimen. The clamps slide out of the way for loading. They are also spring-loaded so that clamping can be accomplished by one hand while positioning the specimen with the other.

Cutting time is typically 1 minute or less per bend specimen. Clamping time is 20-30 seconds. There are no optional accessories required for the operations described here.

VERTICAL TILT SAWS

Fischer Engineering Company can provide a vertical tilt band saw to meet your needs and budget. We recommend the following as minimum specifications:

- Capacity: 18" D x 20" H @ 90°
- Blade: 1-1/4" x 0.042"
- Blade Speed: 65-385 SFM
- Blade Guides: Carbide
- Coolant: Flood
- Chip Conveyor: manual dragout

There are several makers of saws that can meet these specifications. For the make and model we supply, as well as detailed specifications, please refer to the price list.