



Thermowells

B-290 thru B-296, Installation, Operation, and Maintenance Instructions

CAUTION: IMPORTANT SAFEGUARDS

Midland products are used in connection with a variety of products, many of which are hazardous materials and could cause serious injury or damage. Always use extreme caution and proper equipment when involved with hazardous materials. The equipment should only be handled by qualified personnel. Read the instructions carefully before proceeding.

SAVE THESE INSTRUCTIONS!

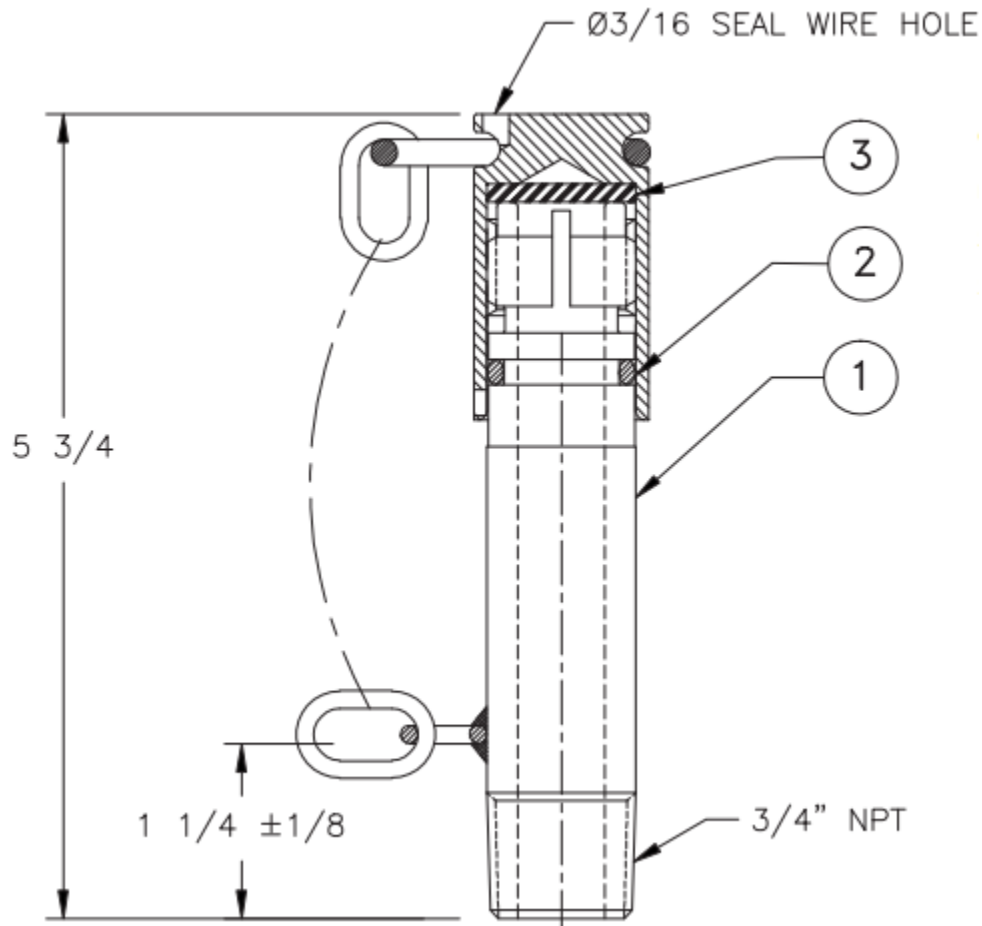
Function

Midland thermowells provide non-contact access to the lading for temperature measurement.

Installation

NOTE: Conform to all regulations and your company's installation instructions. It is not the intention of this pamphlet to conflict with or supersede these requirements.

B-290 3/4" NPT Mounting



ITEM NO.	QTY	PART NAME	B-290-CS		B-290-SS		B-290-MO	
			MATERIAL	PART NO.	MATERIAL	PART NO.	MATERIAL	PART NO.
1	1	CAP	STEEL	290-1-CS	STAINLESS	290-1-SS	STAINLESS TYPE 316 SS	290-1-MO
2	1	BODY ASSEMBLY	STEEL	290-2-CS	STAINLESS	290-2-SS	STAINLESS TYPE 316 SS	290-2-MO
3	1	"O" RING	BUNA-N*	290-3-BN*	BUNA-N*	290-3-BN*	BUNA-N*	290-3-BN*
4	1	CHAIN	STEEL	290-4-CS	STAINLESS	290-4-SS	STAINLESS	290-4-SS
5	1	GASKET	BUNA-N*	290-5-BN*	BUNA-N*	290-5-BN*	BUNA-N*	290-5-BN*

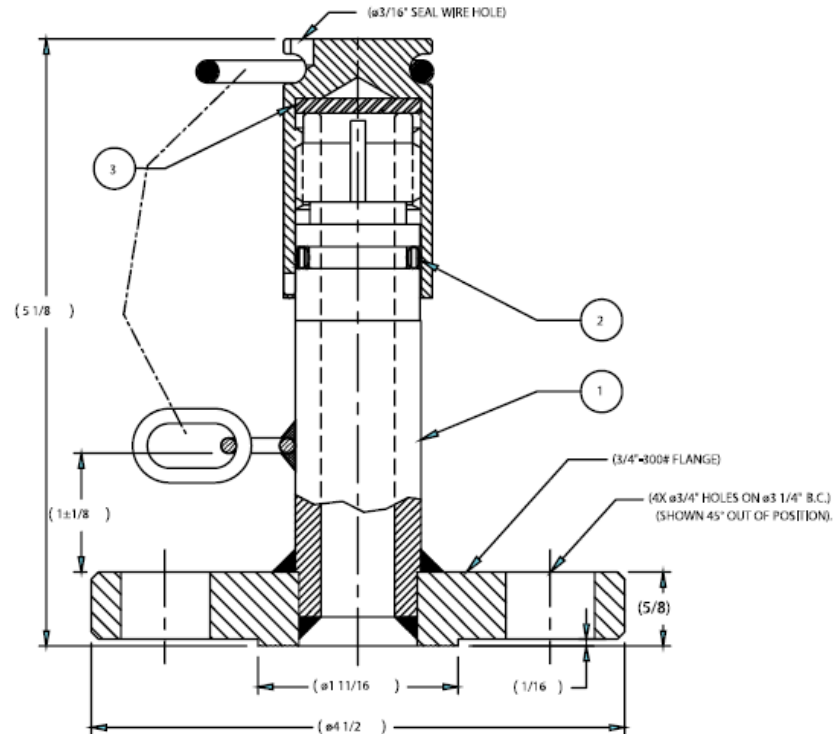
NOTES *Alternate materials available

1. Ensure the threads of both the thermowell and fittings plate are clean.
2. Apply a sealant to the NPT mounting threads.
2. Begin by hand threading the thermowell into the fittings plate.

3. Use a pipe wrench to continue tightening until tool-tight.

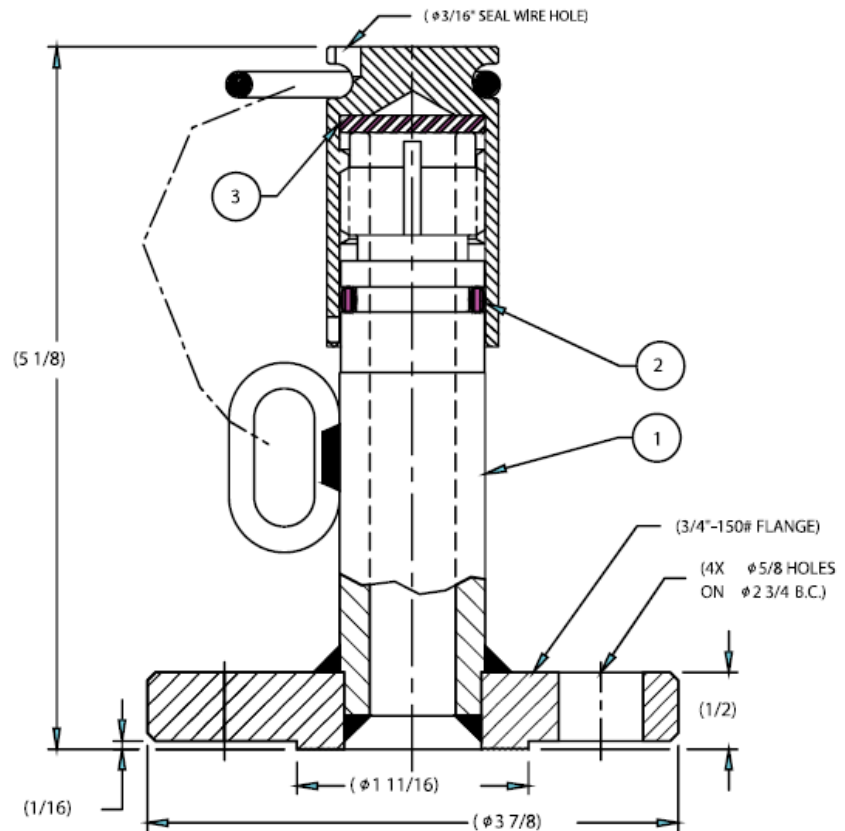
B-291, B-292

B-291 Series • Thermowell Assembly, 3/4", 300# Flange



ITEM NO.	QTY	PART NAME	B-291-CS		B-291-SS		B-291-MO	
			MATERIAL	PART NO.	MATERIAL	PART NO.	MATERIAL	PART NO.
1	1	CAP	STEEL	290-1-CS	STAINLESS	290-1-SS	STAINLESS TYPE 316 SS	290-1-MO
2	1	BODY ASSEMBLY	STEEL	291-2-CS	STAINLESS	291-2-SS	STAINLESS TYPE 316 SS	291-2-MO
3	1	"O" RING	BUNA-N*	290-3-BN*	BUNA-N*	290-3-BN*	BUNA-N*	290-3-BN*
4	1	CHAIN	STEEL	290-4-CS	STAINLESS	290-4-SS	STAINLESS	290-4-SS
5	1	GASKET	BUNA-N*	290-5-BN*	BUNA-N*	290-5-BN*	BUNA-N*	290-5-BN*
NOTES: *Alternate materials available								

B-292 Series • Thermowell Assembly, 3/4", 150# Flange



ITEM NO.	QTY	PART NAME	B-292-CS		B-292-SS		B-292-MO	
			MATERIAL	PART NO.	MATERIAL	PART NO.	MATERIAL	PART NO.
1	1	CAP	STEEL	290-1-CS	STAINLESS	290-1-SS	STAINLESS TYPE 316 SS	290-1-MO
2	1	BODY ASSEMBLY	STEEL	292-2-CS	STAINLESS	292-2-SS	STAINLESS TYPE 316 SS	292-2-MO
3	1	"O" RING	BUNA-N*	290-3-BN*	BUNA-N*	290-3-BN*	BUNA-N*	290-3-BN*
4	1	CHAIN	STEEL	290-4-CS	STAINLESS	290-4-SS	STAINLESS	290-4-SS
5	1	GASKET	BUNA-N*	290-5-BN*	BUNA-N*	290-5-BN*	BUNA-N*	290-5-BN*

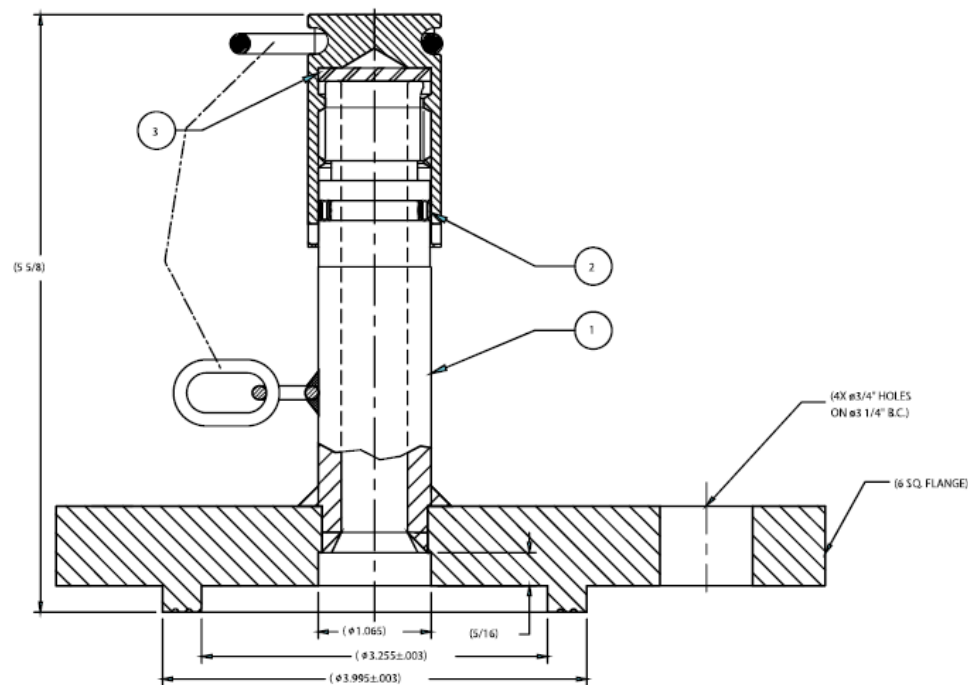
NOTES: *Alternate materials available

Installation B-291 & B-292

1. Ensure the mounting surface of the thermowell flange and mounting plate are clean.
2. Place the thermowell over the four studs on the cover plate.
3. Hand thread the hex nuts on the studs.
4. Tighten down the hex nuts to torque recommended by the seal manufacturer

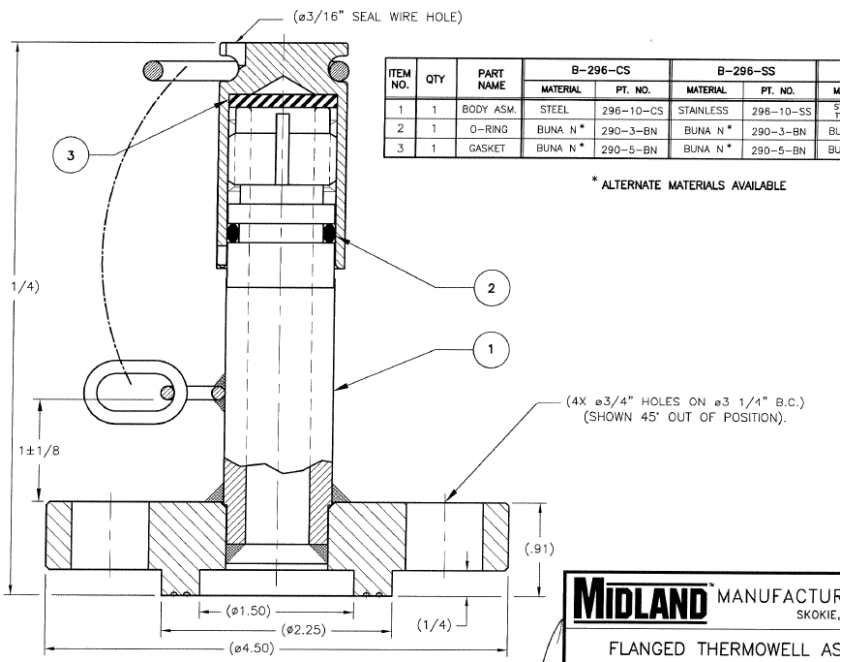
Installation B-293, B-296

B-293 Series • Thermowell Assembly, Flanged



ITEM NO.	QTY	PART NAME	B-293-CS		B-293-S		B-293-MO	
			MATERIAL	PART NO.	MATERIAL	PART NO.	MATERIAL	PART NO.
1	1	CAP	STEEL	290-1-CS	STAINLESS	290-1-SS	STAINLESS TYPE 316 SS	290-1-MO
2	1	BODY ASSEMBLY	STEEL	293-2-CS	STAINLESS	293-2-SS	STAINLESS TYPE 316 SS	293-2-MO
3	1	"O" RING	BUNA-N*	290-3-BN*	BUNA-N*	290-3-BN*	BUNA-N*	290-3-BN*
4	1	CHAIN	STEEL	290-4-CS	STAINLESS	290-4-SS	STAINLESS	290-4-SS
5	1	GASKET	BUNA-N*	290-5-BN*	BUNA-N*	290-5-BN*	BUNA-N*	290-5-BN*
NOTES: *Alternate materials available								

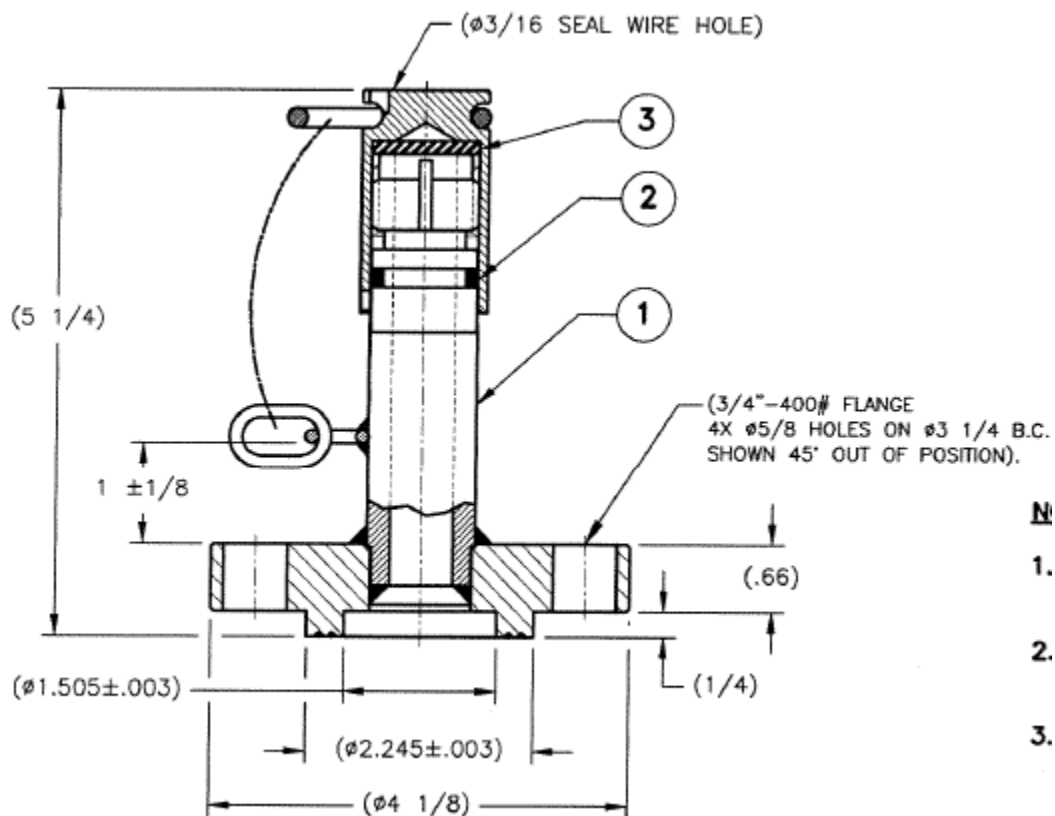
B-296 Series Thermowell, Assembly Flanged, Tongue & Groove



ITEM NO.	QTY	PART NAME	B-296-CS		B-296-SS		B-296-SS	
			MATERIAL	PART NO.	MATERIAL	PART NO.	MATERIAL	PART NO.
2	1	BODY ASSEMBLY	STEEL	296-10-CS	STAINLESS	296-10-SS	STAINLESS TYPE 316 SS	B-296-10-MO
3	1	"O" RING	BUNA-N*	290-3-BN*	BUNA-N*	290-3-BN*	BUNA-N*	290-3-BN*
5	1	GASKET	BUNA-N*	290-5-BN*	BUNA-N*	290-5-BN*	BUNA-N*	290-5-BN*

NOTES: *Alternate materials available

B-296-FR Thermowell, Assembly Flanged, Tongue & Groove



ITEM NO.	QTY	PART NAME	B-296-FR-CS		B-296-FR-SS		B-296-FR-MO-PRA-PA	
			MATERIAL	PART NO.	MATERIAL	PART NO.	MATERIAL	PART NO.
2	1	BODY ASSEMBLY	STEEL	296-11-CS	STAINLESS	296-11-SS	STAINLESS TYPE 316 SS	296-11-MO-PRA-PA
3	1	"O" RING	BUNA-N*	290-3-BN*	BUNA-N*	290-3-BN*	BUNA-N*	290-3-BN*
5	1	GASKET	BUNA-N*	290-5-BN*	BUNA-N*	290-5-BN*	BUNA-N*	290-5-BN*

NOTES: *Alternate materials available

Installation B-293, B-296, B-296-FR

1. Ensure tongue is free of nicks and positive material preventing the smooth fit into the fittings plate groove.
2. Ensure the groove of the fittings plate is clean and free of positive material preventing the smooth fit of the thermowell tongue into the groove.
3. Place the gasket in the groove.
4. Place the thermowell over the four studs and into the groove.

5. Hand thread the hex nuts on the studs.
6. Tighten the hex nuts down to a torque recommended by the seal manufacturer.

Operation

Warning: The fitting should not have any pressure within it. As a precaution, slowly unscrew the cap. It is designed to vent if there is pressure before the threads fully disengage. If pressure is observed, there is a leak in the tube or weld below the thermowell. Tighten the cap back down and take appropriate action.

Maintenance

After the assembly is removed from the fittings plate.

1. Disassemble the cap from the body.
2. Carefully remove the gasket from the cap, preventing damage to the gasket sealing surface of the cap.
3. Carefully remove the O-Ring from the body, preventing damage of the O-Ring sealing surface of the O-Ring groove on the body.
4. Visually inspect the interior of the body. Clear and clean and obstructions or debris.
5. Inspect the mounting of the thermowell.

a. NPT mounted thermowells

1. Visually inspect the threads for damage.
2. Inspect the threads with a $\frac{3}{4}$ " NPT ring gage.
3. If the threads are corroded or do not pass the ring gage inspection, replace with new.

b. Raised, serrated, flat face, mounting thermowells

1. Clean the serrated face and inspect for damage.
2. Visually inspect for corrosion. If corrosion is found preventing a good sealing surface, replace with new.

c. Tongue and Groove mounting

1. Inspect the tongue three raised surfaces. If there is damage presenting the possibility of a leak path, replace with new.
2. Inspect the side surfaces of the tongue. If there is positive material, a file may be used to smooth the surface. If the damage cannot be repaired, replace with new.

Assembly

1. Using needle nosed pliers, fold the cap gasket in half and place inside the cap.
2. Push cap down inside the cap and ensure the gasket lies flat against the cap surface.
3. Install the O-Ring in the O-Ring groove of the body.
4. Lubricate the exterior of the O-Ring.

Use PFPE (perfluoropolyether) grease (examples include but are not limited to: Krytox GLP204, Fluorolube GR-290). Wipe away any excess lubricant from the parts.

5. Screw the cap onto the body by hand until they have a snug fit.
6. Assembly is complete.

NOTICES AND WARRANTY

Obtaining Product Drawings

Assembly drawings of Thermowells are available at no charge and will be mailed upon request. Address any questions concerning valve maintenance or usage to the Engineering Dept., Midland Manufacturing Corp.

The information contained herein is thought to be reliable. It was gathered from knowledgeable sources, but Midland Manufacturing Corp. makes no representations or guarantees about its accuracy or completeness and assumes no liability for this information.

Warranty

Midland warrants the products of its own manufacture to be free of defects in material and workmanship, for a period of 1 year from the date of the invoice.

Furnished materials and accessories purchased from other manufacturers are warranted only by and to the extent of those manufacturers' warranties, if any.

MIDLAND MAKES NO WARRANTY OF ANY KIND WHATSOEVER, EXPRESS OR IMPLIED, OTHER THAN AS SPECIFICALLY STATED HERE MIDLAND MAKES NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR USE. Midland's obligation under this warranty is strictly limited, at its option, to 1) repair or replacement at its factory of a like quantity of product: 2) refunding to purchaser money paid to Midland for its product: or 3) issuance of written authorization for the Purchaser to repair or replace, at costs comparable to Midland's normal manufacturing costs those parts proven defective, provided that Purchaser has given to Midland immediate notice upon discovery of such defect Merchandise claimed to be defective shall not be returned without first obtaining Midland's written consent. The undertaking of repair or replacement by the Purchaser, or its agents, without Midland's written consent, shall void Midland's warranty and relieve Midland of all responsibility. Under no circumstances shall Midland be liable for any direct, incidental, consequential or other damage of any kind in connection with the installation, operation, maintenance, repair, inspection or other use of any product purchased from it.



Mail to: P.O Box 226, Skokie, IL 60076-0226

7733 Gross Point Road, Skokie, IL 60077

Phone: 847-677-0333

<https://opwglobal.com/midland>