



**MERCER
RUBBER Co.**

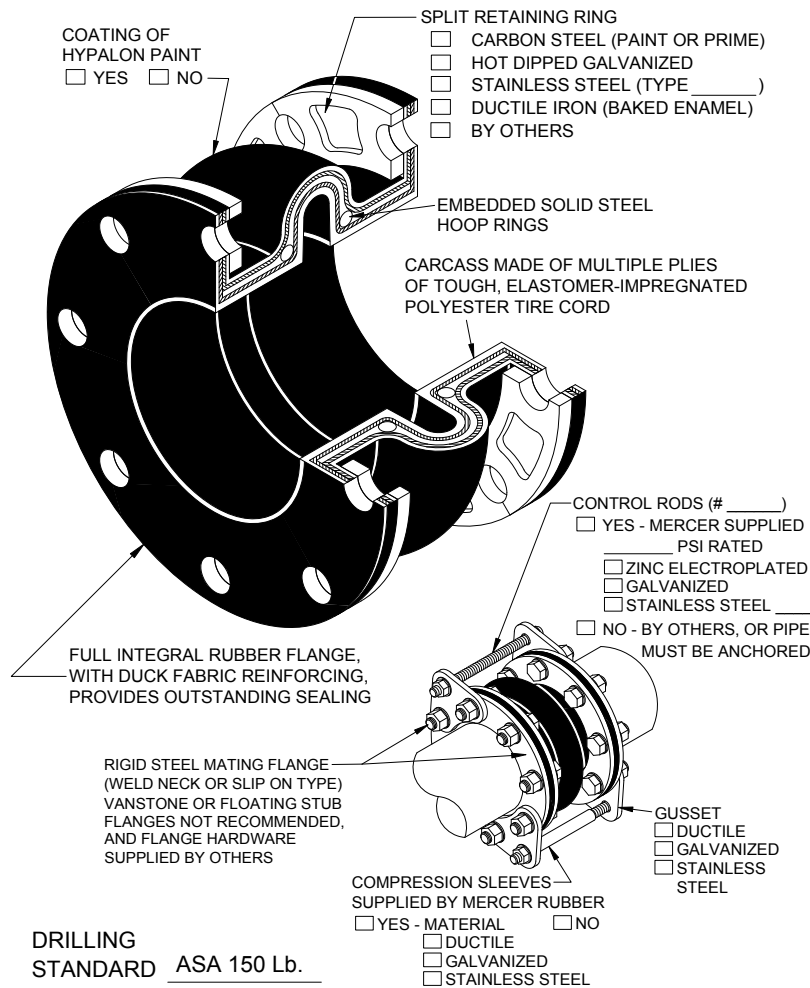
Info @ Mercer-Rubber.com

350 Rabro Drive
Hauppauge, NY 11788
Tel 631-582-1524
FAX 631-348-0279

JOB NAME _____
CUSTOMER _____
CUSTOMER P.O. _____
MERCER NO. _____

DATE: _____ DWG. NO. _____

INVINCIBLE 501 - HEAVY DUTY EXPANSION JOINT



Tube	Cover		Temperature Rating
<input type="checkbox"/>	<input type="checkbox"/>	Natural Rubber	180°F
<input type="checkbox"/>	<input type="checkbox"/>	Chlorobutyl	250°F
<input type="checkbox"/>	<input type="checkbox"/>	Neoprene	225°F
<input type="checkbox"/>	<input type="checkbox"/>	Nitrile (Buna N)	210°F
<input type="checkbox"/>	<input type="checkbox"/>	EPDM	250°F
<input type="checkbox"/>	<input type="checkbox"/>	EPDM w/Kevlar	350°F

Expansion joints installed in piping systems must be anchored on both sides of the joint. In this case no control rods are necessary providing piping movements are within allowables. If control rods are installed as a safety measure, the locking nuts must be backed off with a clearance equal to the specified axial movement. The expansion joint will exert a thrust force on the anchors. To calculate pressure thrust on anchors use the following equation:

$$\text{Pressure Thrust} = (\text{Pressure Thrust Area}) \times (\text{Rated Working Pressure})$$

Expansion joints installed in unanchored piping or connected to isolated equipment must have control rods. Once control rods are installed the joint will no longer act as an expansion joint, since the pressure will extend the joint into the nuts of the control rods. The joint will no longer take up axial motion. It will make up for misalignment, transverse and possibly angular motion. In this case the nuts of the control rods should be threaded tight to control rod gussets, thereby locking out control rods.

Initial misalignment should be kept to a maximum of 1/8".

Expansion joint flanges must be in contact with a continuous surface, or a maximum of 1/16" standard raised face. Depressions or protrusions typical of vitaulic or similar type flanges must be covered with a steel spacer flange first. Rubber flanges will not retain loose elements in valve bodies that rely on contact with a steel flange. In these applications, a steel spacer flange must be inserted between the rubber expansion joint and the valve body.

*** RUBBER EXPANSION JOINTS ARE NOT TO BE
INSTALLED IN OCCUPIED SPACE ***

STYLE 501 DIMENSIONS, ALLOWABLE MOVEMENTS and OPERATING PRESSURES

QUANTITY	SIZE (in)	FACE TO FACE F.F. (in)	FLANGE OD (in)	DIA. BOLT CIRCLE (in)	NO. OF BOLT HOLES	DIA. OF BOLT HOLES (in)	AXIAL COMPRESSION (in)	AXIAL EXTENSION (in)	LATERAL DEFLECTION (in)	RATED WORKING PRESSURE (psi)	VACUUM RATING (IN Hg.)	PRESSURE THRUST AREA (in ²)
	1 1/2		5	3 7/8	4	5/8	3/4	1/2	1/2	250	30	11
	2		6	4 3/4	4	3/4	3/4	1/2	1/2	250	30	14
	2 1/2		7	5 1/2	4	3/4	3/4	1/2	1/2	250	30	18
	3		7 1/2	6	4	3/4	3/4	1/2	1/2	250	30	21
	4		9	7 1/2	8	3/4	3/4	1/2	1/2	250	30	30
	5		10	8 1/2	8	7/8	3/4	1/2	1/2	250	30	41
	6		11	9 1/2	8	7/8	3/4	1/2	1/2	250	30	53
	8		13 1/2	11 3/4	8	7/8	3/4	1/2	1/2	250	30	83
	10		16	14 1/4	12	1	1	5/8	5/8	250	30	133
	12		19	17	12	1	1	5/8	5/8	250	30	177

NOTES:

DWN _____ CHKD _____ DATE _____

DWG No. _____



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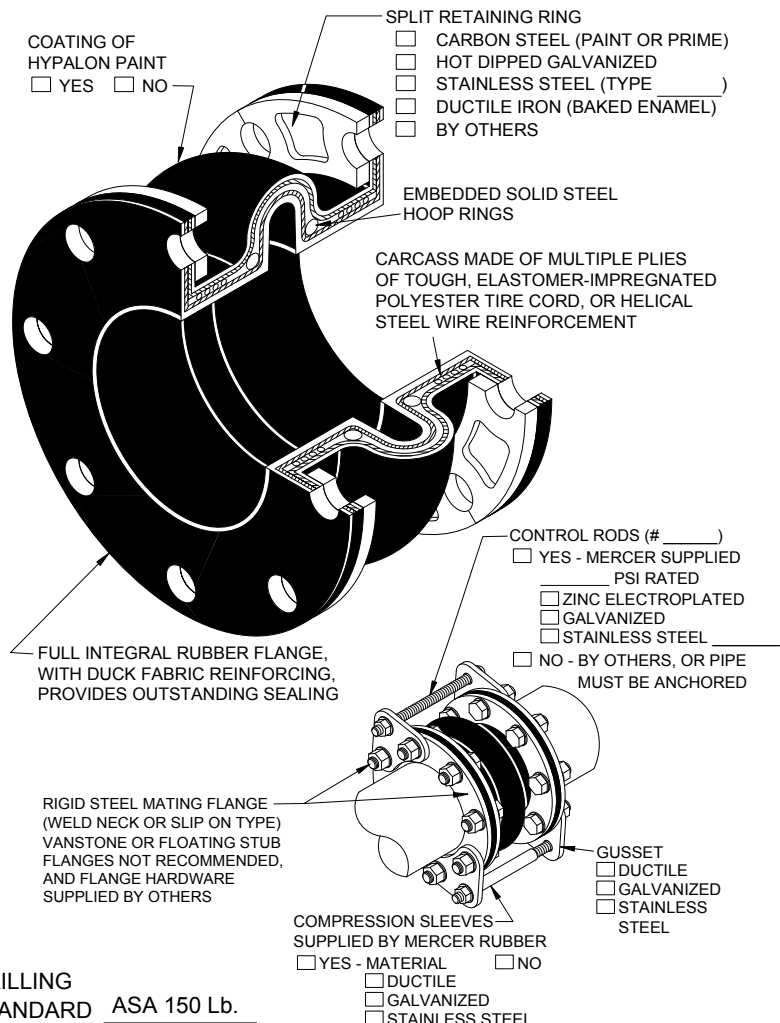
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INVINCIBLE 501 - HEAVY DUTY EXPANSION JOINT



DRILLING
STANDARD ASA 150 Lb.

Tube	Cover		Temperature Rating
<input type="checkbox"/>	<input type="checkbox"/>	Natural Rubber	180°F
<input type="checkbox"/>	<input type="checkbox"/>	Chlorobutyl	250°F
<input type="checkbox"/>	<input type="checkbox"/>	Neoprene	225°F
<input type="checkbox"/>	<input type="checkbox"/>	Nitrile (Buna N)	210°F
<input type="checkbox"/>	<input type="checkbox"/>	EPDM	250°F
<input type="checkbox"/>	<input type="checkbox"/>	EPDM w/Kevlar	350°F

Expansion joints installed in piping systems must be anchored on both sides of the joint. In this case no control rods are necessary providing piping movements are within allowables. If control rods are installed as a safety measure, the locking nuts must be backed off with a clearance equal to the specified axial movement. The expansion joint will exert a thrust force on the anchors. To calculate pressure thrust on anchors use the following equation:

$$\text{Pressure Thrust} = (\text{Pressure Thrust Area}) \times (\text{Rated Working Pressure})$$

Expansion joints installed in unanchored piping or connected to isolated equipment must have control rods. Once control rods are installed the joint will no longer act as an expansion joint, since the pressure will extend the joint into the nuts of the control rods. The joint will no longer take up axial motion. It will make up for misalignment, transverse and possibly angular motion. In this case the nuts of the control rods should be threaded tight to control rod gussets, thereby locking out control rods.

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Expansion joint flanges must be in contact with a continuous surface, or a maximum of 1/16" standard raised face. Depressions or protrusions typical of vitaulic or similar type flanges must be covered with a steel spacer flange first. Rubber flanges will not retain loose elements in valve bodies that rely on contact with a steel flange. In these applications, a steel spacer flange must be inserted between the rubber expansion joint and the valve body.

*** RUBBER EXPANSION JOINTS ARE NOT TO BE
INSTALLED IN OCCUPIED SPACE ***

STYLE 501 DIMENSIONS, ALLOWABLE MOVEMENTS and OPERATING PRESSURES

QUANTITY	SIZE (in)	FACE TO FACE F.F. (in)	FLANGE OD (in)	DIA. BOLT CIRCLE (in)	NO. OF BOLT HOLES	DIA. OF BOLT HOLES (in)	AXIAL COMPRESSION (in)	AXIAL EXTENSION (in)	LATERAL DEFLECTION (in)	RATED WORKING PRESSURE (psi)	VACUUM RATING (IN Hg.)	PRESSURE THRUST AREA (in ²)
	14		21	18 3/4	12	1 1/8	1	5/8	5/8	250	30	227
	16		23 1/2	21 1/4	16	1 1/8	1	5/8	5/8	250	30	284
	18		25	22 3/4	16	1 1/4	1	5/8	5/8	250	30	346
	20		27 1/2	25	20	1 1/4	1	5/8	5/8	250	30	415
	22		29 1/2	27 1/4	20	1 3/8	1 1/4	3/4	5/8	250	30	521
	24		32	29 1/2	20	1 3/8	1 1/4	3/4	5/8	250	30	605
	28		36 1/2	34	28	1 3/8	1 1/4	3/4	5/8	250	30	792
	30		38 3/4	36	28	1 3/8	1 1/4	3/4	5/8	250	30	895
	34		43 3/4	40 1/2	32	1 5/8	1 1/4	3/4	5/8	250	30	1119
	36		46	42 3/4	32	1 5/8	1 1/4	3/4	5/8	250	30	1241

NOTES:

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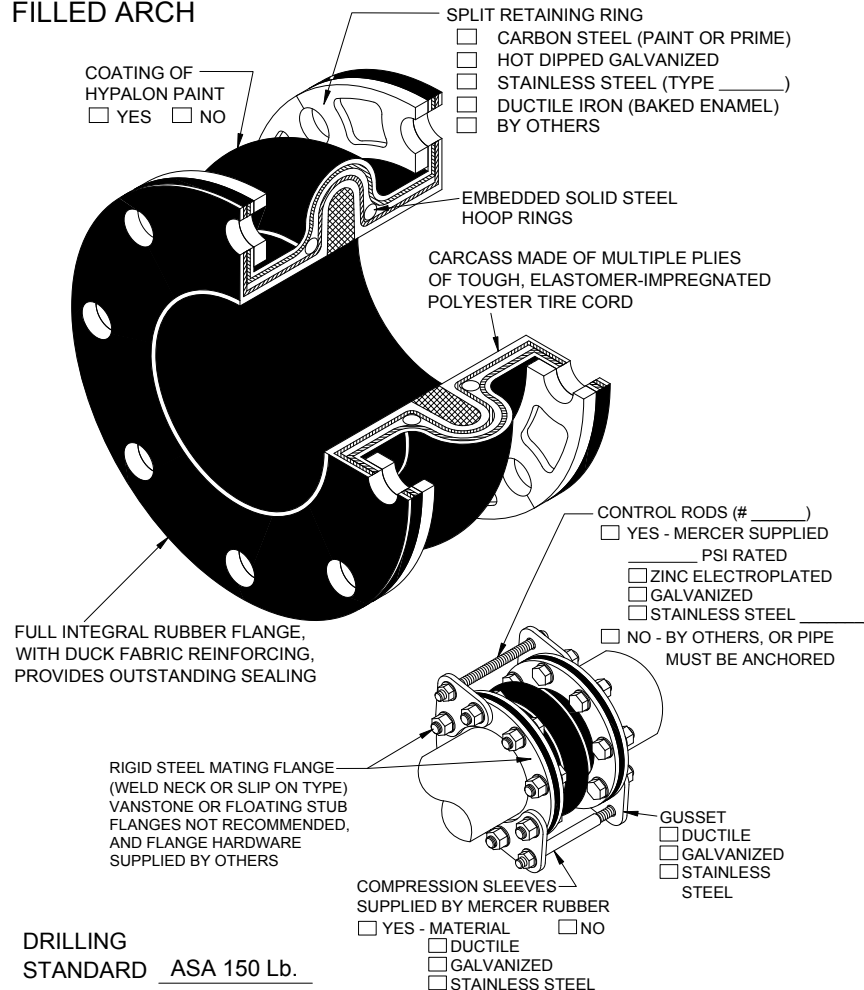
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MERCER NO. _____

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DWG. NO.

INVINCIBLE 501-FA - HEAVY DUTY EXPANSION JOINT FILLED ARCH



Tube Cover

☐ ☐ Neoprene

Temperature
Rating

225°F

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INSTALLED IN OCCUPIED SPACE ***

STYLE 501-FA DIMENSIONS, ALLOWABLE MOVEMENTS and OPERATING PRESSURES

QUANTITY	SIZE (in)	FACE TO FACE F.F. (in)	FLANGE OD (in)	DIA. BOLT CIRCLE (in)	NO. OF BOLT HOLES	DIA. OF BOLT HOLES (in)	AXIAL COMPRESSION (in)	AXIAL EXTENSION (in)	LATERAL DEFLECTION (in)	RATED WORKING PRESSURE (psi)	VACUUM RATING (IN Hg.)	PRESSURE THRUST AREA (in ²)
	1 1/2		5	3 7/8	4	5/8	3/8	1/4	1/4	250	30	1.7
	2		6	4 3/4	4	3/4	3/8	1/4	1/4	250	30	3
	2 1/2		7	5 1/2	4	3/4	3/8	1/4	1/4	250	30	5
	3		7 1/2	6	4	3/4	3/8	1/4	1/4	250	30	7
	4		9	7 1/2	8	3/4	3/8	1/4	1/4	250	30	12
	5		10	8 1/2	8	7/8	3/8	1/4	1/4	250	30	19
	6		11	9 1/2	8	7/8	3/8	1/4	1/4	250	30	28
	8		13 1/2	11 3/4	8	7/8	3/8	1/4	1/4	250	30	50
	10		16	14 1/4	12	1	1/2	5/16	5/16	250	30	78
	12		19	17	12	1	1/2	5/16	5/16	250	30	113

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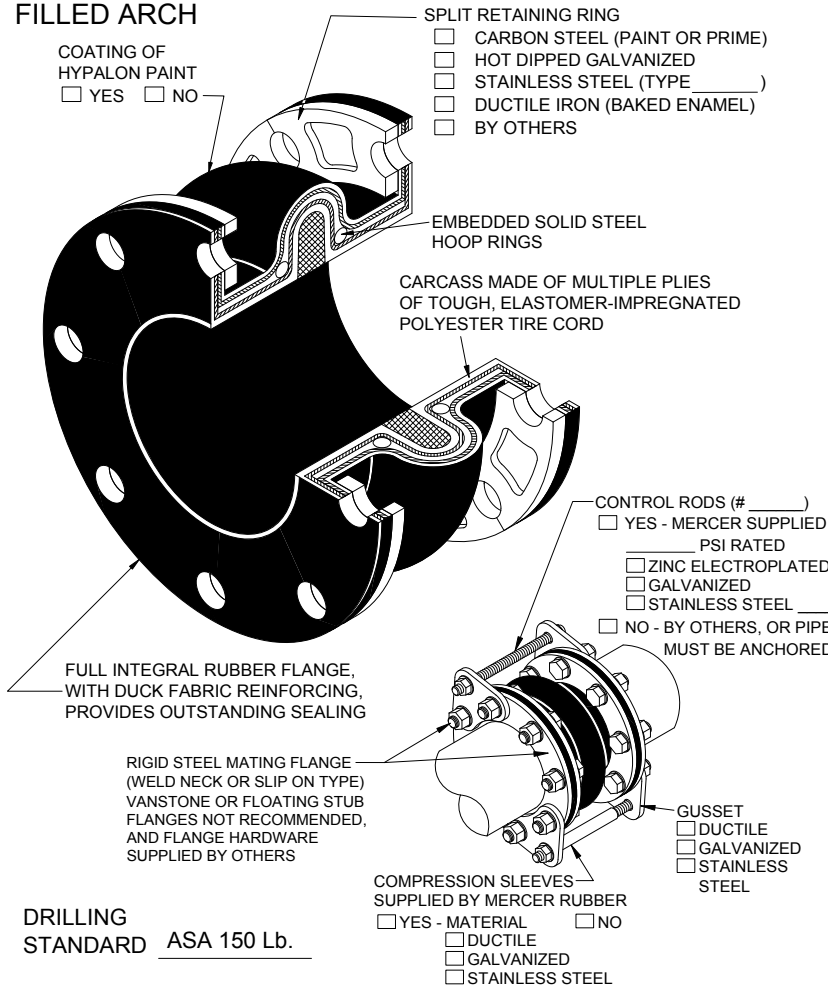
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INVINCIBLE 501-FA - HEAVY DUTY EXPANSION JOINT

FILLED ARCH



DRILLING
STANDARD ASA 150 Lb.

Tube Cover
☐ ☐ Neoprene

Temperature
Rating
225°F

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QUANTITY	SIZE (in)	FACE TO FACE F.F. (in)	FLANGE OD (in)	DIA. BOLT CIRCLE (in)	NO. OF BOLT HOLES	DIA. OF BOLT HOLES (in)	AXIAL COMPRESSION (in)	AXIAL EXTENSION (in)	LATERAL DEFLECTION (in)	RATED WORKING PRESSURE (psi)	VACUUM RATING (IN Hg.)	PRESSURE THRUST AREA (in ²)
	14		21	18 3/4	12	1 1/8	1/2	5/16	5/16	250	30	153
	16		23 1/2	21 1/4	16	1 1/8	1/2	5/16	5/16	250	30	201
	18		25	22 3/4	16	1 1/4	1/2	5/16	5/16	250	30	254
	20		27 1/2	25	20	1 1/4	1/2	5/16	5/16	250	30	314
	22		29 1/2	27 1/4	20	1 3/8	5/8	3/8	5/16	250	30	380
	24		32	29 1/2	20	1 3/8	5/8	3/8	5/16	250	30	452

NOTES:

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