

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

JOB NAME CUSTOMER CUSTOMER P.O. MERCER NO.	
DATE:	DWG. NO.

Temperature Rating 180°F 250°F 225°F 210°F 250°F 350°F

## **INVINCIBLE 501 - HEAVY DUTY EXPANSION JOINT**

COATING OF HYPALON PAINT YES NO	SPLIT RETAINING RING  CARBON STEEL (PAINT OR PRIME)  HOT DIPPED GALVANIZED  STAINLESS STEEL (TYPE)  DUCTILE IRON (BAKED ENAMEL)  BY OTHERS  EMBEDDED SOLID STEEL HOOP RINGS	Tube Cover	Natural Rubber Chlorobutyl Neoprene Nitrile (Buna N) EPDM EPDM w/Kevlar
	CARCASS MADE OF MULTIPLE PLIES OF TOUGH, ELASTOMER-IMPREGNATED POLYESTER TIRE CORD	Expansion joi	ints installed in piping s
		piping moven a safety meas equal to the s thrust force o	oint. In this case no con nents are within allowal sure, the locking nuts m pecified axial movemen in the anchors. To calcu ving equation:
	CONTROL RODS (#  YES - MERCER SUPPLIED  PSI RATED  ZINC ELECTROPLATED  GALVANIZED  STAINLESS STEEL  NO - BY OTHERS, OR PIPE	Expansion joi equipment mo joint will no lo extend the joi take up axial i	rust = (Pressure Thrus ints installed in unanch ust have control rods. ( onger act as an expansi int into the nuts of the o motion. It will make up
FULL INTEGRAL RUBBER FLANGE, WITH DUCK FABRIC REINFORCING, PROVIDES OUTSTANDING SEALING	MUST BE ANCHORED	be threaded ti	ular motion. In this case ight to control rod guss nment should be kept to
RIGID STEEL MATING FLANGE  (WELD NECK OR SLIP ON TYPE)  VANSTONE OR FLOATING STUB FLANGES NOT RECOMMENDED, AND FLANGE HARDWARE  SUPPLIED BY OTHERS	GUSSET  GUSSET  GUSSET  GUSSET  GALVANIZED  STAINLESS  STEEL	Expansion join maximum of 1/ of vitaulic or sin first. Rubber fla on contact with	Iffilment should be nept to the standard raised face milar type flanges must b anges will not retain loose a a steel flange. In these and between the rubber ex
	S-MATERIAL NO DUCTILE GALVANIZED STAINLESS STEEL		R EXPANSION LED IN OCCUP

systems must be anchored on both ntrol rods are necessary providing bles. If control rods are installed as nust be backed off with a clearance nt. The expansion joint will exert a ulate pressure thrust on anchors

st Area) x (Rated Working Pressure) nored piping or connected to isolated Once control rods are installed the ion joint, since the pressure will control rods. The joint will no longer for misalignment, transverse and e the nuts of the control rods should sets, thereby locking out control rods.

a maximum of 1/8".

tact with a continuous surface, or a e. Depressions or protrusions typical be covered with a steel spacer flange e elements in valve bodies that rely applications, a steel spacer flange xpansion joint and the valve body.

**JOINTS ARE NOT TO BE** PIED 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.)	PRESSURI THRUST AREA (in <sup>2</sup> )
	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:						•	'	370	370			

DWN	CHKD	DATE	



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

JOB NAME CUSTOMER CUSTOMER P.C MERCER NO.	)
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Natural Rubber

Nitrile (Buna N)

EPDM w/Kevlar

Chlorobutyl

Neoprene

**EPDM** 

# INVINCIBLE 501 - HEAVY DUTY EXPANSION JOINT

INVINCIBLE 30 I	- IILAVI DUTI LAFAI	VOICIN
COATING OF HYPALON PAINT  YES NO	SPLIT RETAINING RING  CARBON STEEL (PAINT OR PRIME)  HOT DIPPED GALVANIZED  STAINLESS STEEL (TYPE  DUCTILE IRON (BAKED ENAMEL)  BY OTHERS	Tube Cove
	EMBEDDED SOLID STEEL HOOP RINGS  CARCASS MADE OF MULTIPLE PLIES OF TOUGH, ELASTOMER-IMPREGNATED POLYESTER TIRE CORD, OR HELICAL STEEL WIRE REINFORCEMENT	
FULL INTEGRAL RUBBER FLAI		Expansion sides of the piping mov a safety me equal to the thrust force use the foll Pressure 1 Expansion equipment joint will no
WITH DUCK FABRIC REINFOR PROVIDES OUTSTANDING SEA		extend the take up axi possibly ar be threaded Initial misal
RIGID STEEL MATING FLANGE — (WELD NECK OR SLIP ON TYPE) VANSTONE OR FLOATING STUB FLANGES NOT RECOMMENDED, AND FLANGE HARDWARE SUPPLIED BY OTHERS	GUSSET  DUCTILE  GALVANIZED  STAINLESS  SUPPLIED BY MERCER RUBBER	Expansion journament of vitaulic or first. Rubber on contact with must be inse
DRILLING	□YES - MATERIAL □NO □DUCTILE	* DUDD

GALVANIZED
STAINLESS STEEL

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:

Temperature Rating

180°F

250°F

225°F 210°F

250°F 350°F

Pressure Thrust = (Pressure Thrust Area) x (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

		FACE		DIA.	NO. OF	DIA. OF				RATED		PRESSURE
QUANTITY	SIZE	TO FACE	FLANGE	BOLT	BOLT	BOLT	AXIAL	AXIAL	LATERAL	WORKING	VACUUM	THRUST
	(in)	F.F.	OD	CIRCLE	HOLES	HOLES	COMPRESSION		DEFLECTION	PRESSURE		AREA
		(in)	(in)	(in)		(in)	(in)	(in)	(in)	(psi)	(IN Hg.)	(in <sup>2</sup> )
	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:								•				

WN	CHKD	DATE	
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STANDARD ASA 150 Lb.



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### INVINCIBLE 501-FA - HEAVY DUTY EXPANSION JOINT

IIIVIIIODEE 30 1-1	A-HEAVI DO		
COATING OF HYPALON PAINT YES NO	SPLIT RETAINING RING  CARBON STEEL (PAINT (  HOT DIPPED GALVANIZE  STAINLESS STEEL (TYP  DUCTILE IRON (BAKED I  BY OTHERS	ED)	Cover  Neoprene
	EMBEDDED SOLID STEEL HOOP RINGS  CARCASS MADE OF MULTIPLE P	LIES	
	OF TOUGH, ELASTOMER-IMPREC	SNATED	
	POLYESTER TIRE CORD	sides piping a safe equal thrust use th	nsion joints installed in piping of the joint. In this case no con movements are within allowaty measure, the locking nuts reto the specified axial movement force on the anchors. To calculate following equation:  ure Thrust = (Pressure Thrust)
FULL INTEGRAL RUBBER FLANGE,	YES - MEF	DOS (#)	nsion joints installed in unanch ment must have control rods. will no longer act as an expans d the joint into the nuts of the up axial motion. It will make up
WITH DUCK FABRIC REINFORCING,		T DE ANCHODED POSSII	bly angular motion. In this cas eaded tight to control rod gus
PROVIDES OUTSTANDING SEALING			-
	60 50 M		misalignment should be kept to
RIGID STEEL MATING FLANGE— (WELD NECK OR SLIP ON TYPE) VANSTONE OR FLOATING STUB FLANGES NOT RECOMMENDED, AND FLANGE HARDWARE SUPPLIED BY OTHERS	□ GA □ ST	maxim of vital first. R ICTILE on con LVANIZED must be AINLESS	sion joint flanges must be in con um of 1/16" standard raised facu- ulic or similar type flanges must ubber flanges will not retain loos tact with a steel flange. In these be inserted between the rubber e
SU	IPPLIED BY MERCER RUBBER	EEL	
DRILLING	YES - MATERIAL □NO □DUCTILE		
STANDARD ASA 150 Lb.	GALVANIZED	* DII	BRED EYDANSION

STAINLESS STEEL

systems must be anchored on both ntrol rods are necessary providing ables. If control rods are installed as nust be backed off with a clearance ent. The expansion joint will exert a ulate pressure thrust on anchors

Temperature Rating 225°F

Area) x (Rated Working Pressure)

hored piping or connected to isolated Once control rods are installed the sion joint, since the pressure will control rods. The joint will no longer for misalignment, transverse and e the nuts of the control rods should sets, thereby locking out control rods.

to a maximum of 1/8".

tact with a continuous surface, or a e. Depressions or protrusions typical be covered with a steel spacer flange se elements in valve bodies that rely applications, a steel spacer flange expansion joint and the valve body.

\* RUBBER EXPANSION JOINTS ARE NOT TO BE **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)		PRESSURE THRUST AREA (in <sup>2</sup> )
	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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Info@Mercer-Rubber.com

JOB NAME	
CUSTOMER	
CUSTOMER P.O.	
MERCER NO.	
DATE:	DWG. NO.

### INVINCIBLE 501-FA - HEAVY DUTY EXPANSION JOINT

FILLED ARCH  COATING OF HYPALON PAINT  YES NO	SPLIT RETAINING RING  CARBON STEEL (PAINT OR PRIME) HOT DIPPED GALVANIZED STAINLESS STEEL (TYPE DUCTILE IRON (BAKED ENAMEL) BY OTHERS  EMBEDDED SOLID STEEL HOOP RINGS  CARCASS MADE OF MULTIPLE PLIES OF TOUGH, ELASTOMER-IMPREGNATED POLYESTER TIRE CORD	Tube Cover
FULL INTEGRAL RUBBER FLANGE, WITH DUCK FABRIC REINFORCING, PROVIDES OUTSTANDING SEALING		Expansion joints installed in piping sides of the joint. In this case no copiping movements are within allow a safety measure, the locking nuts equal to the specified axial movem thrust force on the anchors. To calcuse the following equation:  Pressure Thrust = (Pressure Thrust Expansion joints installed in unance equipment must have control rods. joint will no longer act as an expanextend the joint into the nuts of the take up axial motion. It will make up possibly angular motion. In this case threaded tight to control rod guestical said and the lock of the said to the control rod guestical said and the said to the said the lock of the said to t
RIGID STEEL MATING FLANGE- (WELD NECK OR SLIP ON TYPE VANSTONE OR FLOATING STUE FLANGES NOT RECOMMENDED AND FLANGE HARDWARE SUPPLIED BY OTHERS  DRILLING STANDARD ASA 150 Lb.	CUSSET	Initial misalignment should be kept Expansion joint flanges must be in co maximum of 1/16" standard raised fact of vitaulic or similar type flanges must first. Rubber flanges will not retain lock on contact with a steel flange. In these must be inserted between the rubber
	STAINLESS STEEL	* DURRED EVDANCION

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Temperature Rating 225°F

st Area) x (Rated Working Pressure)

chored piping or connected to isolated Once control rods are installed the sion joint, since the pressure will control rods. The joint will no longer p for misalignment, transverse and se the nuts of the control rods should ssets, thereby locking out control rods.

to a maximum of 1/8".

ntact with a continuous surface, or a ce. Depressions or protrusions typical be covered with a steel spacer flange ose elements in valve bodies that rely e applications, a steel spacer flange expansion joint and the valve body.

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

#### STYLE 501-FA DIMENSIONS, ALLOWABLE MOVEMENTS and OPERATING PRESSURES

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		FACE		DIA.	NO. OF	DIA. OF				RATED		PRESSURE
QUANTITY	SIZE	TO FACE	FLANGE	BOLT	BOLT	BOLT	AXIAL	AXIAL	LATERAL	WORKING	VACUUM	THRUST
	(in)	F.F.	OD	CIRCLE	HOLES	HOLES	COMPRESSION	EXTENSION	DEFLECTION	PRESSURE	RATING	AREA
		(in)	(in)	(in)		(in)	(in)	(in)	(in)	(psi)	(IN Hg.)	(in <sup>2</sup> )
	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:		•							•			

DWN	CHKD	DATE

FORM NO. MS-1183.DWG

DWG No.