

NORMA Americas Distribution & Industry



Customer Value through Innovation



NORMA Group

Company Overview

- Industrial
- Automotive
- O.E.M.
- Marine
- Aerospace
- Hardware
- Plumbing
- Appliances
- Military
- Irrigation
- Construction Vehicles
- Engines
- Buses
- Recreation Vehicles
- Heavy Truck

As a member of the NORMA Group, NORMA Americas is an integral part of the largest, most diversified clamp company in the world, with manufacturing plants and distribution centers located throughout the world, shipping our more than 35,000 line items to customers in over 60 countries.

With our highly successful Breeze, ABA, NORMA, Clamp-All and Torca brands, NORMA Americas has evolved into a worldwide supplier providing a broad range of clamping applications. Our quality performance, product development and manufacturing experience are the key factors making NORMA Americas the leader in clamping technology.

BREEZE Industrial Products

Breeze introduced, pioneered and has been supplying perforated worm-gear clamps to the automotive, heavy-duty vehicle, aircraft and industrial markets for over sixty years. With the most comprehensive product line of worm-gear, T-Bolt, V-Band and specialty clamps manufactured in the U.S., Breeze clamp products enable each industry and user to meet their exact requirements with items of proven quality. Breeze is certified to ISO/TS 16949: 2002 and ISO 9001: 2000.

ABA / NORMA

ABA / NORMA are the long-term European leaders in hose clamps, connectors, and fluid system technologies. Our extensive and diversified lines of complementary clamping products have an established reputation for innovation, engineering and total product reliability. ABA is certified to ISO 9001: 2000. NORMA is certified to ISO/TS 16949:2002 and ISO 9001: 2000.

Torca Products

Torca has thirty years experience in connect exhaust system components for the vehicle industry. By focusing on evolving innovation and improvement into the product, Torca provides the best product performance, with the least material, for maximum efficiency to the overall system. Torca is certified to ISO/TS 16949: 2002 and ISO 9001: 1994.

Clamp-All Products

Clamp-All is the leading U.S. manufacturer of Factory Mutual Approved, high quality, maximum strength, heavy duty couplings used to join hubless pipe and fittings for all drain, waste and vent storm and sanitary plumbing systems above and below grade.

Table of Contents

Company overview	2
General Purpose Perforated Worm-Gear Hose Clamps	
Breeze Mini	4
Breeze Power-Seal	5
Breeze Aero-Seal	6
Breeze Liner	7
General Purpose Embossed Worm-Gear Hose Clamps	
ABA Original	8
ABA Ultra	9
ABA Nova	10
NORMACLAMP TORRO	11
Constant Tension Clamps	
Breeze Constant Torque	12
Breeze T-Bolt Spring Loaded	13
NORMACLAMP TORRO WF, ABA Safe	14
Heavy-Duty Clamps	
Breeze Hi-Torque	15
Breeze T-Bolt	16
Pipe Clamps	
Breeze V-Band	17
ABA Pipe Clamps	18
Exhaust Components	
Torca AccuSeal, DuraSeal, Coupler, TorcTite	19
Torca AccuLock, EasySeal, UniStrap	20
Banding Systems	
Breeze Make-A-Clamp	21
Nut & Bolt Clamps	
ABA Mini Clamps, ABA/Breeze Mini G Fuel Injection	22
Rubber Lined Clamps	
Retaining Clamps	23
Hubless Couplings	
Clamp-All HI-TORQ 80	24
Clamp-All HI-TORQ 125	25
Special / Custom Products	
NORMACONNECT FGR Pipe Couplings	26
NORMACONNECT SEC	26
Breeze Aerospace & "MIL" Spec Clamps	27
Quick Connect Aero-Seal Jet, Socket Drivers, Materials	28
Quality in products and services	29

General Purpose Perforated Worm-Gear Hose Clamps

Breeze Mini

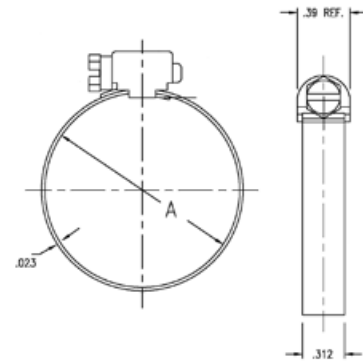
A lightweight, streamlined clamp generally used in small diameter applications such as air & fuel lines. The streamlined configuration allows for installation in tight fitting or difficult to reach areas. This clamp creates high sealing pressure with only 10 to 15 in./lbs. of installation torque.

5/16" (7.9 mm) band
 1/4" (6.4 mm) slotted hex head screw

Per SAE standard J1508 Type "M"



SAE Size	EFFECTIVE DIAMETER RANGE				PART NUMBERS			
	Min.		Max.		Plated Hex Screw	410 SS Hex Screw	300 SS Hex Screw	All 316 SS
	in.	mm	in.	mm				
4	7/32	5.6	5/8	16	3504	3604	3704	3804
6	7/16	11	25/32	20	3506	3606	3706	3806
8	1/2	13	29/32	23	3508	3608	3708	3808
10	9/16	14	1-1/16	27	3510	3610	3710	3810
12	11/16	17	1-1/4	32	3512	3612	3712	
16	15/16	24	1-1/2	38	3516	3616	3716	
20	1-3/16	30	1-3/4	44	3520	3620	3720	
24	1-7/16	37	2	51	3524	3624	3724	
28	1-11/16	43	2-1/4	57	3528	3628	3728	
32	1-15/16	49	2-1/2	64	3532	3632	3732	



General Purpose Perforated Worm-Gear Hose Clamps

Breeze Power-Seal®

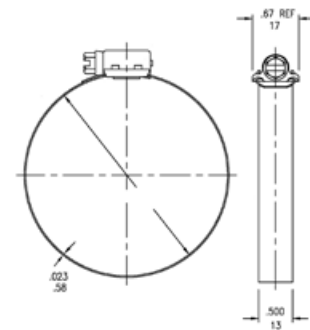
General purpose automotive and industrial clamps. High strength 4-piece Quadra-Lock construction. Exceeds all SAE requirements. Use for all standard clamp applications.

1/2" (12.7 mm) band
5/16" (7.9 mm) slotted hex head screw

Per SAE standard J1508 Type "F"



SAE Size	EFFECTIVE DIAMETER RANGE				PART NUMBERS			
	Min.		Max.		Plated Hex Screw	410 SS Hex Screw	300 SS Hex Screw	All 316 SS
	in.	mm	in.	mm				
6	7/16	11	25/32	20	62006	64006	63006	66006
8	1/2	13	29/32	23	62008	64008	63008	66008
10	9/16	14	1-1/16	27	62010	64010	63010	66010
12	11/16	17	1-1/4	32	62012	64012	63012	66012
16	13/16	21	1-1/2	38	62016	64016	63016	66016
20	13/16	21	1-3/4	44	62020	64020	63020	66020
24	1-1/16	27	2	51	62024	64024	63024	66024
28	1-5/16	33	2-1/4	57	62028	64028	63028	66028
32	1-9/16	40	2-1/2	64	62032	64032	63032	66032
36	1-13/16	46	2-3/4	70	62036	64036	63036	66036
40	2-1/16	52	3	76	62040	64040	63040	66040
44	2-5/16	59	3-1/4	83	62044	64044	63044	66044
48	2-9/16	65	3-1/2	89	62048	64048	63048	66048
52	2-13/16	71	3-3/4	95	62052	64052	63052	66052
56	3-1/16	78	4	102	62056	64056	63056	66056
60	3-5/16	84	4-1/4	108	62060	64060	63060	66060
64	3-9/16	91	4-1/2	114	62064	64064	63064	66064
72	1-7/8	48	5	127	62072	64072	63072	66072
80	2-1/2	64	5-1/2	140	62080	64080	63080	66080
88	3-1/8	79	6	152	62088	64088	63088	66088
96	3-5/8	92	6-1/2	165	62096	64096	63096	66096
104	4-1/8	105	7	178	62104	64104	63104	66104



General Purpose Perforated Worm-Gear Hose Clamps

Breeze Aero-Seal®

The original perforated stainless steel worm-gear clamp. Heavy duty four-piece Quadra-Lock construction enables far more tightening torque to be delivered to the band perforations. Use for aircraft and heavy-duty industrial applications.

9/16" (14.2 mm) band
5/16" (7.9 mm) slotted hex screw

Per SAE standard J1508 Type "F"



Standard Hex Head Screw

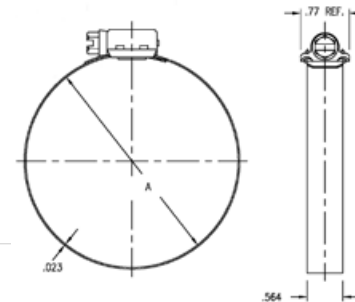


Safety Collared Screw



Thumb / Wing Screw

SAE Size	EFFECTIVE DIAMETER RANGE				PART NUMBERS		
	Min.		Max.		Plated Hex Screw	410 SS Hex* Screw	300 SS Hex Screw
	in.	mm	in.	mm			
6	7/16	11	25/32	20	100 06 H	200 06 H	300 06 H
8	1/2	13	29/32	23	100 08 H	200 08 H	300 08 H
10	9/16	14	1-1/16	27	100 10 H	200 10 H	300 10 H
12	11/16	17	1-1/4	32	100 12 H	200 12 H	300 12 H
16	13/16	21	1-1/2	38	100 16 H	200 16 H	300 16 H
20	13/16	21	1-3/4	44	100 20 H	200 20 H	300 20 H
24	1-1/16	27	2	51	100 24 H	200 24 H	300 24 H
28	1-5/16	33	2-1/4	57	100 28 H	200 28 H	300 28 H
32	1-9/16	40	2-1/2	64	100 32 H	200 32 H	300 32 H
36	1-13/16	46	2-3/4	70	100 36 H	200 36 H	300 36 H
40	2-1/16	52	3	76	100 40 H	200 40 H	300 40 H
44	2-5/16	59	3-1/4	83	100 44 H	200 44 H	300 44 H
48	2-9/16	65	3-1/2	89	100 48 H	200 48 H	300 48 H
52	2-13/16	71	3-3/4	95	100 52 H	200 52 H	300 52 H
56	3-1/16	78	4	102	100 56 H	200 56 H	300 56 H
60	3-5/16	84	4-1/4	108	100 60 H	200 60 H	300 60 H
64	3-9/16	91	4-1/2	114	100 64 H	200 64 H	300 64 H
72	1-7/8	48	5	127	100 72 H	200 72 H	300 72 H
80	2-1/2	64	5-1/2	140	100 80 H	200 80 H	300 80 H
88	3-1/8	79	6	152	100 88 H	200 88 H	300 88 H
96	3-5/8	92	6-1/2	165	100 96 H	200 96 H	300 96 H
104	4-1/8	105	7	178	100 104 H	200 104 H	300 104 H
128	5-5/8	143	8-1/2	216	100 128 H	200 128 H	300 128 H
152	7-1/8	181	10	254	100 152 H	200 152 H	300 152 H
188	9-3/8	238	12-1/4	311	100 188 H	200 188 H	300 188 H



* 200 series also available with thumb/wing screw (replace "H" with "W") and safety collared screw (replace "H" with "S"). Also available in 316 stainless steel as special order

General Purpose Perforated Worm-Gear Hose Clamps

Breeze Liner

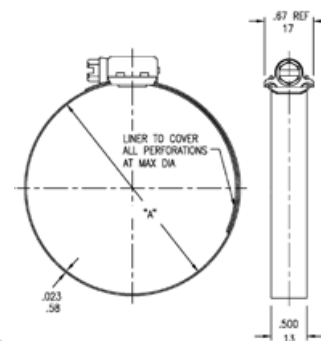
An integral extension of the band as an inner liner protects soft-surface hose (silicone and others) from damage caused by extrusion or shearing through the band slots. Liner clamps afford maximum protection to soft hoses while providing a true concentric seal.

Standard 1/2" (12.7mm) band
5/16" (7.9mm) slotted hex head screw

Per SAE standard J1508 Type "F"



SAE Size	EFFECTIVE DIAMETER RANGE				PART NUMBERS	
	Min.		Max.		Plated Hex Screw	410 SS Hex Screw
	in.	mm	in.	mm		
06	7/16	11	25/32	20	9206	9406
08	1/2	13	29/32	23	9208	9408
10	9/16	14	1-1/16	27	9210	9410
12	11/16	17	1-1/4	32	9212	9412
16	13/16	21	1-1/2	38	9216	9416
20	13/16	21	1-3/4	44	9220	9420
24	1-1/16	27	2	51	9224	9424
28	1-5/16	33	2-1/4	57	9228	9428
32	1-9/16	40	2-1/2	64	9232	9432
36	1-13/16	46	2-3/4	70	9236	9436
40	2-1/16	52	3	76	9240	9440
44	2-5/16	59	3-1/4	83	9244	9444
48	2-9/16	65	3-1/2	89	9248	9448
52	2-13/16	71	3-3/4	95	9252	9452
56	3-1/16	78	4	102	9256	9456
60	3-5/16	84	4-1/4	108	9260	9460
64	3-9/16	91	4-1/2	114	9264	9464
72	4-1/8	105	5	127	9272	9472
80	4-5/8	117	5-1/2	140	9280	9480
88	5-1/8	130	6	152	9288	9488
96	5-5/8	143	6-1/2	165	9296	9496
104	6-1/8	156	7	178	92104	94104



Note: Size 88, 96 & 104 will be supplied with a 9/16" (14.2 mm) band

General Purpose Embossed Worm-Gear Hose Clamps

ABA Original

ABA Original clamps feature unique, one-piece housing, rolled-up band edges and a non-perforated (embossed) band that protect the hose. For added corrosion resistance the band in the 12 mm Standard is made of Aluzinc which gives three times the protection offered by conventional galvanized steel.

ABA Original – Features high clamping force and high durability torque.

ABA Original Stainless: All parts in AISI 304 Stainless Steel.



Aluzinc

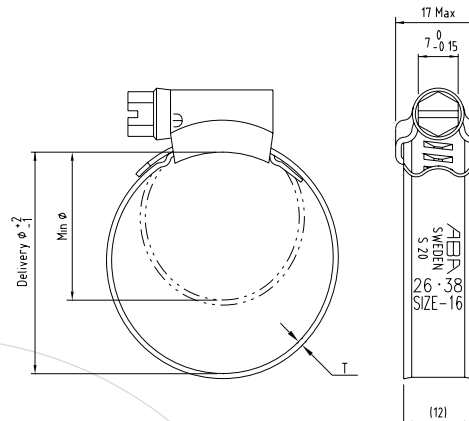
Stainless Steel

W1	W2	W3	W4	W5
X			X	

* See International Materials Standard, pg 29

A non-perforated band with rolled up edges eliminates hose damage while increasing clamping force.

Per SAE Standard J1508 Type "FEO"



ABA Original - Sizes and Part Numbers					
SAE Size	Clamping Range		Aluzinc Part Number	304 SS Part Number	Recommended Torque Inch Lbs.
	Inches	mm			
3	please see ABA Nova Aluzinc on Page 10				
4	please see ABA Nova Aluzinc on Page 10				
6	please see ABA Nova Aluzinc on Page 10				
8	5/8 - 1	15-24	11024	12024	35-45
10	3/4 - 1 1/8	19-28	11028	12028	"
12	7/8 - 1 1/4	22-32	11032	12032	"
16	1 1/16 - 1 1/2	26-38	11038	12038	"
20	1 1/4 - 1 3/4	32-44	11044	12044	50-60
24	1 1/2 - 2	38-50	11050	12050	"
28	1 3/4 - 2 1/4	44-56	11056	12056	"
32	2 - 2 9/16	50-65	11065	12065	"
40	2 5/16 - 3	58-75	11075	12075	"
44	2 11/16 - 3 3/8	68-85	11085	12085	"
52	3 - 3 3/4	77-95	11095	12095	"
64	3 7/16 - 4 7/16	87-112	11112	12112	"
80	4 1/8 - 5 7/16	104-138	11138	12138	"
96	5 1/8 - 6 1/2	130-165	11165	12165	"
104	5 7/8 - 7 1/8	150-180	11180	12180	"
122	6 7/8 - 8 1/8	175-205	11205	12205	"
138	7 7/8 - 9 1/8	200-231	11231	12231	"
154	8 7/8 - 10 1/16	226-256	11256	12256	"
170	9 7/8 - 11 1/8	251-282	11282	12282	"
186	10 7/8 - 12 1/8	277-307	11307	12307	"

General Purpose Embossed Worm-Gear Hose Clamps

ABA ULTRA

The overwhelmingly preferred 316 SS embossed design clamp for the marine market.

Made of all AISI 316 high tensile strength stainless steel, the ABA Ultra has one of the highest clamping force ratings of all worm-gear style clamps due to the fine thread pitch and riveted housing.

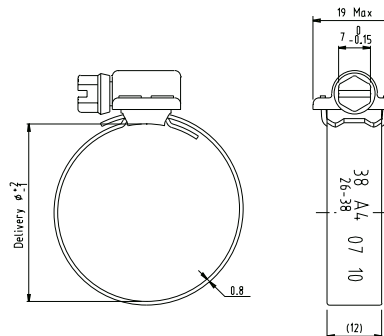
ABA ULTRA Stainless Steel: All parts are made of AISI 316 stainless steel. 12 mm bandwidth unless otherwise indicated.

W1	W2	W3	W4	W5
X				X

* See International Materials Standard, pg 29

A non-perforated band with rolled up edges eliminates hose damage while increasing clamping force.

Per SAE Standard J1508 Type "FEO"



ABA ULTRA 316 Stainless Steel - Sizes and Part Numbers				
SAE Size	Clamping Range		316 SS Part Number	Recommended Torque Inch Lbs.
	Inches	mm		
3	5/16 - 9/16	8-14	13014*	20-35
4	7/16 - 11/16	11-17	SS12017ABA	"
6	1/2 - 13/16	13-20	SS12020ABA	"
8	5/8 - 1	15-24	SS12024ABA	35-45
10	3/4 - 1 1/8	19-28	SS12028ABA	"
12	7/8 - 1 1/4	22-32	SS12032ABA	"
16	1 1/16 - 1 1/2	26-38	SS12038ABA	"
20	1 1/4 - 1 3/4	32-44	SS12044ABA	45-60
24	1 1/2 - 2	38-50	SS12050ABA	"
28	1 1/4 - 2 1/4	32-57	SS12057ABA	"
32	1 1/2 - 2 1/2	38-64	SS12064ABA	"
36	1 3/4 - 2 3/4	44-70	SS12070ABA	"
40	2 - 3	51-76	SS12076ABA	"
44	2 1/4 - 3 1/4	57-83	SS12083ABA	"
48	2 1/2 - 3 1/2	64-89	SS12089ABA	"
52	2 3/4 - 3 3/4	70-95	SS12095ABA	"
56	3 - 4	76-102	SS12102ABA	"
60	3 1/4 - 4 1/4	83-108	SS12108ABA	"
64	3 1/2 - 4 1/2	89-114	SS12114ABA	"
72	3 1/2 - 5	89-127	SS12127ABA	"
80	4 - 5 1/2	102-140	SS12140ABA	"
88	4 1/2 - 6	114-152	SS12152ABA	"
96	5 - 6 1/2	127-165	SS12165ABA	"
104	5 1/2 - 7	140-178	SS12178ABA	"
112	6 - 7 1/2	152-191	SS12191ABA	"
120	6 1/2 - 8	165-203	SS12203ABA	"
128	7 - 8 1/2	178-216	SS12216ABA	"
138	7 5/8 - 9 1/8	194-232	SS12232ABA	"
154	8 5/8 - 10 1/8	219-257	SS12257ABA	"
170	9 5/8 - 11 1/8	244-283	SS12283ABA	"
186	10 5/8 - 12 1/8	270-308	SS12308ABA	"

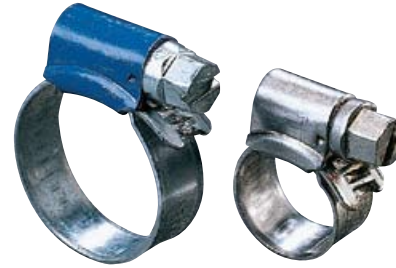
* 9 mm bandwidth.

General Purpose Embossed Worm-Gear Hose Clamps

ABA Nova

ABA Nova provides the same capabilities as ABA Original but with a narrower 9 mm (3/8") band for applications where bandwidth is a concern. The narrow band provides higher clamping force per square inch since it is concentrated on a smaller surface area.

All sizes made of aluzinc with select sizes available in AISI 316 stainless steel, as shown below.

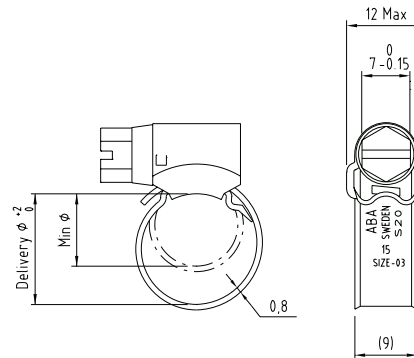


W1	W2	W3	W4	W5
X				X

* See International Materials Standard, pg 29

A non-perforated band with rolled up edges eliminates hose damage while increasing clamping force.

Per SAE Standard J1508 Type "FE"



ABA Nova - Aluzinc Sizes and Part Numbers				
SAE Size	Clamping Range		ABA Part Number	Recommended Torque Inch Lbs.
	Inches	mm		
3	5/16 - 9/16	8-14	19015	20-35
4	7/16 - 11/16	11-17	19017	"
6	1/2 - 13/16	13-20	19022	"
8	5/8 - 1	15-24	19025	"
10	3/4 - 1 1/8	19-28	19028	26-35
12	7/8 - 1 1/4	22-32	19032	"
16	1 1/16 - 1 1/2	26-38	19040	35-40
20	1 1/4 - 1 3/4	32-44	19045	"
24	1 1/2 - 2	38-50	19050	"
28	1 3/4 - 2 1/4	44-56	19056	"
32	2 - 2 9/16	50-65	19065	"
40	2 5/16 - 3	58-75	19075	"
44	2 11/16 - 3 3/8	68-85	19085	"

ABA Nova - 316 Stainless Steel Sizes and Part Numbers				
SAE Size	Clamping Range		ABA Part Number	Recommended Torque Inch Lbs.
	Inches	mm		
3	5/16 - 9/16	8-14	13014	20-35
4	7/16 - 11/16	11-17	13017	"
6	1/2 - 13/16	13-20	13020	"

General Purpose Embossed Worm-Gear Hose Clamps

NORMACLAMP® TORRO®

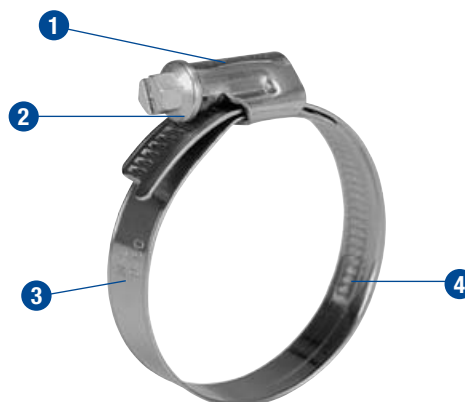
Worm-Gear Hose Clamps to DIN 3017

NORMACLAMP® TORRO® is the most widely produced and accepted embossed band worm-gear clamp available in the world. The TORRO has set the standard for modern hose clamp design and is specially suited for applications under high mechanical load.

Features 9mm (3/8") band

Available with 12mm (1/2") band on special order

Per SAE standard J1508 Type "FEO"



Applications

- Coolant lines
- Fuel lines and vent lines
- Oil lines
- Water treatment and sewage
- Connections in engine design
- Connections in the appliance industry
- Hose connections in automotive and commercial vehicles

- 1 Dynamic asymmetric housing provides optimal sealing forces during tightening.
- 2 Screw collar guides band tail and allows for ease of assembly.
- 3 Material and clamping range stamped on the band for easy identification.
- 4 Non-perforated band for optimal hose protection.

W1	W2	W3	W4	W5
	X		X	

Only providing W2 and W4 in 9 mm
12 mm on special order

* See International Materials Standard, pg 29

NORMACLAMP TORRO - 430 SS Sizes and Part Numbers				
SAE	Clamping Range		Part Number	Recommended Tightening Torque
Size	Inches	mm		
1	5/16 - 1/2	8-12	1266702010	20
2	5/16 - 5/8	8-16	1266702013	"
4	1/2 - 3/4	12-20	1266702016	20 - 25
8	5/8 - 1 1/16	16-27	1266702021	"
12	3/4 - 1 1/4	20-32	1266702026	"
18	1 - 1 5/8	25-40	1266702032	"
24	1 1/4 - 2	32-50	1266702041	"
30	1 5/8 - 2 3/8	40-60	1266702050	20 - 30
36	2 - 2 3/4	50-70	1266702060	"
42	2 3/8 - 3 1/8	60-80	1266702070	"
48	2 3/4 - 3 1/2	70-90	1266702080	"
56	3 1/8 - 4	80-100	1266702090	"
62	3 1/2 - 4 3/8	90-110	1266702100	"
68	4 - 4 3/4	100-120	1266702110	"
74	4 3/8 - 5 1/8	110-130	1266702120	"
80	4 3/4 - 5 1/2	120-140	1266702130	"
86	5 1/8 - 5 7/8	130-150	1266702140	"
92	5 1/2 - 6 1/4	140-160	1266702150	"

12 mm (1/2") bandwidth available as special order

NORMACLAMP TORRO - 304 SS Sizes and Part Numbers				
SAE	Clamping Range		Part Number	Recommended Tightening Torque
Size	Inches	mm		
1	-	-	Use SAE 2	-
2	5/16 - 5/8	8-16	1266704013	20
4	1/2 - 3/4	12-20	1266704016	20 - 25
8	5/8 - 1 1/16	16-27	1266704021	"
12	3/4 - 1 1/4	20-32	1266704026	"
18	1 - 1 5/8	25-40	1266704032	"
24	4 - 2	32-50	1266704041	"
30	1 5/8 - 2 3/8	40-60	1266704050	20 - 30
36	2 - 2 3/4	50-70	1266704060	"
42	2 3/8 - 3 1/8	60-80	1266704070	"
48	2 3/4 - 3 1/2	70-90	1266704080	"
56	3 1/8 - 4	80-100	1266704090	"
62	3 1/2 - 4 3/8	90-110	1266704100	"
68	4 - 4 3/4	100-120	1266704110	"
74	4 3/8 - 5 1/8	110-130	1266704120	"
80	4 3/4 - 5 1/2	120-140	1266704130	"
86	5 1/8 - 5 7/8	130-150	1266704140	"
92	5 1/2 - 6 1/4	140-160	1266704150	"

12 mm (1/2") bandwidth available as special order

Constant Tension Clamps

Breeze Constant-Torque®

The Breeze CONSTANT-TORQUE® is a breakthrough in clamping technology. A belleville spring mechanism permits the CONSTANT-TORQUE® clamp to automatically increase or decrease its own diameter due to changes in operational or environmental temperatures.

This unique design eliminates “cold flow” leaks. Both the Aero-Seal and Heavy Duty construction CT clamps have an extended inner liner which protects all types of hoses from damage and helps to maintain consistent sealing pressure.

Per SAE standard J1508 Type "SLHD"



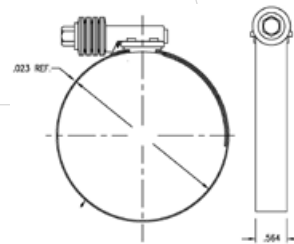
Constant-Torque - Aero-Seal Construction

Aero-Seal Construction / All Stainless Steel					
Breeze CONSTANT-TORQUE® Size table					
SAE Size	EFFECTIVE DIAMETER RANGE				Part Numbers
	Min.		Max.		
	in.	mm	in.	mm	
<i>AERO-SEAL construction for use on small diameter applications 9/16" (14.2 mm) bandwidth</i>					
10	9/16	14	1-1/16	27	CT-9410
12	11/16	17	1-1/4	32	CT-9412
16	13/16	21	1-1/2	38	CT-9416
20	13/16	21	1-3/4	44	CT-9420
24	1-1/16	27	2	51	CT-9424
28	1-5/16	33	2-1/4	57	CT-9428
32	1-9/16	40	2-1/2	64	CT-9432
36	1-13/16	46	2-3/4	70	CT-9436
40	2-1/16	52	3	76	CT-9440
44	2-5/16	59	3-1/4	83	CT-9444
48	2-9/16	65	3-1/2	89	CT-9448
52	2-13/16	71	3-3/4	95	CT-9452

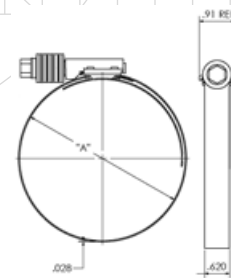


Constant-Torque - Heavy Duty Construction

Heavy Duty Construction						
Breeze CONSTANT-TORQUE® Size table						
SAE Size	EFFECTIVE DIAMETER RANGE				Carbon Screw	All SS Screw
	Min.		Max.			
	in.	mm	in.	mm		
<i>Heavy-duty construction for use on large diameter applications 5/8" (15.8 mm) bandwidth</i>						
212	1-1/4	32	2-1/8	54	CT 200 L	CT 200 L SS
262	1-3/4	45	2-5/8	67	CT 250 L	CT 250 L SS
312	2-1/4	57	3-1/8	79	CT 300 L	CT 300 L SS
362	2-3/4	70	3-5/8	92	CT 350 L	CT 350 L SS
412	3-1/4	83	4-1/8	105	CT 400 L	CT 400 L SS
462	3-3/4	95	4-5/8	118	CT 450 L	CT 450 L SS
512	4-1/4	108	5-1/8	130	CT 500 L	CT 500 L SS
562	4-3/4	121	5-5/8	143	CT 550 L	CT 550 L SS
612	5-1/4	133	6-1/8	156	CT 600 L	CT 600 L SS
662	5-3/4	146	6-5/8	168	CT 650 L	CT 650 L SS
712	6-1/4	159	7-1/8	181	CT 700 L	CT 700 L SS
762	6-3/4	172	7-5/8	194	CT 750 L	CT 750 L SS
812	7-1/4	184	8-1/8	206	CT 800 L	CT 800 L SS
862	7-3/4	197	8-5/8	219	CT 850 L	CT 850 L SS
912	8-1/4	210	9-1/8	232	CT 900 L	CT 900 L SS



CT - Aero-Seal



CT - Heavy Duty

Constant Tension Clamps

Breeze T-Bolt Spring-Loaded

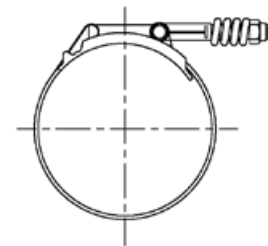
Breeze Spring-Loaded T-Bolt clamps provide comprehensive application coverage and are performance engineered. They meet the same durability, torque and quality standards as the standard Breeze T-Bolt clamps. The spring design adds constant tension performance. Available in standard and heavy duty springs.

3/4" (19mm) band

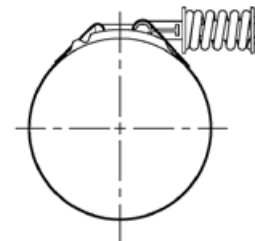
Per SAE standard J1508 Type "SLTB"



Spring-Loaded T-Bolt Sizes and Part Numbers						
SAE Size	Min.		Max.		Standard Duty Part Number B9226	Heavy Duty Part Number B9224
	in.	mm	in.	mm		
40	2.13	54	2.44	61.9	-0213	-0213
44	2.25	57.2	2.56	65.1	-0225	-0225
48	2.38	60.3	2.69	68.3	-0238	-0238
52	2.5	63.5	2.81	71.4	-0250	-0250
56	2.63	66.7	2.94	74.6	-0263	-0263
60	2.75	69.9	3.06	77.8	-0275	-0275
64	2.88	73	3.19	81	-0288	-0288
68	3	76.2	3.31	84.1	-0300	-0300
70	3.06	77.8	3.38	85.7	-0306	-0306
72	3.13	79.4	3.44	87.3	-0313	-0313
76	3.25	82.6	3.56	90.5	-0325	-0325
80	3.38	85.7	3.69	93.7	-0338	-0338
84	3.5	88.9	3.81	96.8	-0350	-0350
86	3.56	90.5	3.88	98.4	-0356	-0356
88	3.63	92.1	3.94	100	-0363	-0363
92	3.75	95.3	4.06	103.2	-0375	-0375
102	4.06	103.2	4.38	111.1	-0406	-0406
104	4.13	104.8	4.44	112.7	-0413	-0413
108	4.25	108	4.56	115.9	-0425	-0425
116	4.5	114.3	4.81	122.2	-0450	-0450
118	4.56	115.9	4.88	123.8	-0456	-0456
132	5	127	5.31	134.9	-0500	-0500
140	5.25	133.4	5.56	141.3	-0525	-0525
148	5.5	139.7	5.81	147.6	-0550	-0550
156	5.75	146.1	6.06	154	-0575	-0575
164	6	152.4	6.31	160.3	-0600	-0600
172	6.25	158.8	6.56	166.7	-0625	-0625
180	6.5	165.1	6.81	173	-0650	-0650
196	7	177.8	7.31	185.7	-0700	-0700
204	7.25	184.2	7.56	192.1	-0725	-0725
212	7.5	190.5	7.81	198.4	-0750	-0750



Standard Duty
Small Spring - B9226



Heavy Duty
Large Spring - B9224

Constant Tension Clamps

NORMACLAMP® TORRO® WF

Torro with Spring

The NORMACLAMP TORRO WF is equipped with a spring insert on the inside of the clamp band. When tightening the screw the spring is loaded and stores sufficient clamping force to ensure a long-lasting automatic re-tensioning effect. The radial clamping force achieved is sufficient even under extremely low temperatures, making the TORRO an optimal solution for applications under extreme temperature changes.

Advantages:

- Automatic re-tensioning effect in the event of hose relaxation
- Increased sealing reliability across a wide temperature range



The Spring insert



Constant Tension Clamps

ABA Safe™

ABA Safe™ utilizes a 360° concave liner to provide constant tension for the hose during thermo cycles. The concave liner has two profile beads that concentrate the clamping force on both outer band edges.

W1	W2	W3	W4	W5
	X		X	

* See International Materials Standard, pg 29

ABA Safe - Sizes and Part Numbers				
SAE Size	Clamping Range		ABA Part Number	
	Inches	mm	Aluzinc*	304 Stainless*
20	1 1/4 - 1 3/4	32-44	41044	42044
24	1 1/2 - 2	38-50	41050	42050
28	1 3/4 - 2 1/4	44-56	41056	42056
32	2 - 2 9/16	50-65	41065	42065
40	2 5/16 - 3	58-75	41075	42075
44	2 11/16 - 3 3/8	68-85	41085	42085
52	3 - 3 3/4	77-95	41095	42095
64	3 7/16 - 4 7/16	87-112	41112	42112

* Liner is made of 301 stainless steel

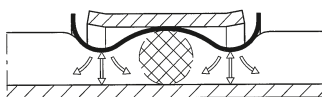
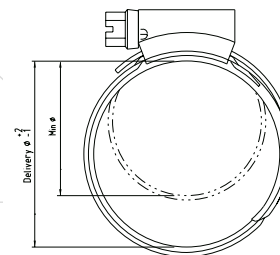


Illustration 1. When tightening the clamp, the concave liner ridges act as pressure points, allowing the hose material between the ridges to act as an “O-Ring”

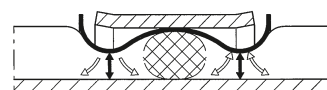


Illustration 2. While allowing the center section to expand and contract, the two ridges maintain constant pressure for leak proof sealing.

Heavy-Duty Clamps

Breeze Hi-Torque™

The strongest worm-gear clamp made in the world today. Withstands more than 3 times the SAE torque requirements for Type F worm-gear clamps. Eight screw-threads are engaged in the band simultaneously for incredible torquing drive (over 150 in.lbs.), sealing pressure, and vibration resistance.

5/8" (15.8 mm) band
5/16" (7.9mm) hex head screw

Per SAE standard J1508 Type "HD"

Also available in 316 Stainless Steel - use HTS prefix for standard ranges and HPS prefix for extended ranges.

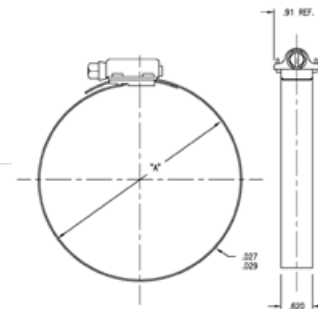


Standard Hi-Torque



Hi-Torque with Liner

SAE Size	EFFECTIVE DIAMETER RANGE				PART NUMBERS	
	Min.		Max.		410 SS*	All 300 SS
	in.	mm	in.	mm		
*	1	25	1-3/4	45	HTM-175	HTM-175 SP
212	1-1/4	32	2-1/8	54	HTM-200	HTM-200 SP
262	1-3/4	45	2-5/8	67	HTM-250	HTM-250 SP
312	2-1/4	57	3-1/8	79	HTM-300	HTM-300 SP
362	2-3/4	70	3-5/8	92	HTM-350	HTM-350 SP
412	3-1/4	83	4-1/8	105	HTM-400	HTM-400 SP
462	3-3/4	95	4-5/8	118	HTM-450	HTM-450 SP
512	4-1/4	108	5-1/8	130	HTM-500	HTM-500 SP
562	4-3/4	121	5-5/8	143	HTM-550	HTM-550 SP
612	5-1/4	133	6-1/8	156	HTM-600	HTM-600 SP
662	5-3/4	146	6-5/8	168	HTM-650	HTM-650 SP
712	6-1/4	159	7-1/8	181	HTM-700	HTM-700 SP
762	6-3/4	172	7-5/8	194	HTM-750	HTM-750 SP
812	7-1/4	184	8-1/8	206	HTM-800	HTM-800 SP
862	7-3/4	197	8-5/8	219	HTM-850	HTM-850 SP
912	8-1/4	210	9-1/8	232	HTM-900	HTM-900 SP
EXTENDED RANGE SIZES						
*	1-1/4	32	2-5/8	67	HP-2	HP-2 SP
*	2-1/8	54	4-1/8	105	HP-3	HP-3 SP
*	4	102	6-1/8	156	HP-4	HP-4 SP
*	6-1/8	156	9-1/8	232	HP-5	HP-5 SP



* Standard Hi-Torque also available with liner - use part number HTM xxx L

Heavy-Duty Clamps

Breeze T-Bolt

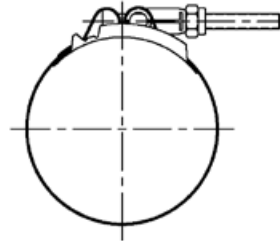
Breeze provides comprehensive application coverage with stainless steel T-Bolt clamps which are performance engineered for long term durability and manufactured to the highest quality standards. This high strength clamp is designed for industrial, marine and vehicle applications.

Stainless steel 3/4" (19mm) band width with "floating" bridge liner. Plated bolt and nylon insert locknut.

Available in a full range of sizes and materials. Custom O.E.M. designs are available.

Per SAE standard J1508 Type "TB"

Standard T-Bolt clamps are also available in 100% stainless steel. To order add suffix "SS" (ie... TB-125 SS).



Standard T-Bolt - Sizes and Part Numbers					
SAE Size	Min.		Max.		Part Number (Plated Carbon Steel Bolt)
	in.	mm	in.	mm	
*	1.25	31.8	1.39	35.3	TB-125
*	1.38	34.9	1.52	39.7	TB-138
*	1.50	38.1	1.64	42.9	TB-150
*	1.63	41.3	1.88	47.6	TB-163
28	1.75	44.5	2.00	50.8	TB-175
32	1.88	47.6	2.19	55.6	TB-188
36	2.00	50.8	2.31	58.7	TB-200
40	2.13	54.0	2.44	61.9	TB-213
44	2.25	57.2	2.56	65.1	TB-225
48	2.38	60.3	2.69	68.3	TB-238
52	2.50	63.5	2.81	71.4	TB-250
56	2.63	66.7	2.94	74.6	TB-263
60	2.75	69.9	3.06	77.8	TB-275
64	2.88	73.0	3.19	81.0	TB-288
68	3.00	76.2	3.31	84.1	TB-300
70	3.06	77.8	3.38	85.7	TB-306
72	3.13	79.4	3.44	87.3	TB-313
76	3.25	82.6	3.56	90.5	TB-325
80	3.38	85.7	3.69	93.7	TB-338
84	3.50	88.9	3.81	96.8	TB-350
86	3.56	90.5	3.88	98.4	TB-356
88	3.63	92.1	3.94	100.0	TB-363
92	3.75	95.3	4.06	103.2	TB-375
100	4.00	101.6	4.31	109.5	TB-400
102	4.06	103.2	4.38	111.1	TB-406
104	4.13	104.8	4.44	112.7	TB-413
108	4.25	108.0	4.56	115.9	TB-425
116	4.50	114.3	4.81	122.2	TB-450
118	4.56	115.9	4.88	123.8	TB-456
124	4.75	120.7	5.06	128.6	TB-475
132	5.00	127.0	5.31	134.9	TB-500
140	5.25	133.4	5.56	141.3	TB-525
148	5.50	139.7	5.81	147.6	TB-550
156	5.75	146.1	6.06	154.0	TB-575
164	6.00	152.4	6.31	160.3	TB-600
172	6.25	158.8	6.56	166.7	TB-625
180	6.50	165.1	6.81	173.0	TB-650
188	6.75	171.5	7.06	179.4	TB-675
196	7.00	177.8	7.31	185.7	TB-700
204	7.25	184.2	7.56	192.1	TB-725
212	7.50	190.5	7.81	198.4	TB-750
220	7.75	196.9	8.06	204.8	TB-775
228	8.00	203.2	8.31	211.1	TB-800
236	8.25	209.6	8.56	217.5	TB-825
244	8.50	215.9	8.81	223.8	TB-850

Applications Include:

- Turbo
- Marine Exhaust
- Sump pump
- Diesel Exhaust
- Air Brakes
- Diaphragm Bodies
- Flanged Tanks
- Pumps
- Dairy Industry
- Cannisters
- Lab Equipment
- Bleed Air Systems
- Filter Bags
- Sanitary Systems

Custom Designs & Sizes Available

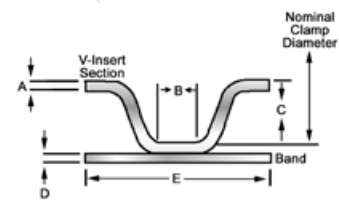
Pipe Clamps

Breeze V-Band

Breeze V-Band clamps provide fast, secure coupling for connecting flanged joints. The V-Band clamp features high strength and positive sealing integrity.

Custom designs and sizes available.

Typical applications include heavy duty diesel engine exhaust and turbochargers.



V-Band - Dimensions						
Nominal Diameter	V-Insert Sections			Bands		Part Number
	A	B	C	D	E	
2.88"	.060	.207	.281	.035	.750	VT10288
3.21"	.050	.262	.141	.035	.750	VT10321
3.50"	.080	.207	.281	.040	.875	VT10350
3.82"	.077	.207	.281	.040	.875	VT10382
3.88"	.050	.400	.281	.040	.875	VT10388
4.06"	.077	.239	.281	.050	.875	VT10406
4.13"	.050	.262	.141	.035	.750	VT10413
4.19"	.050	.400	.281	.040	.875	VT10419
4.25"	.050	.400	.281	.040	.875	VT10425
4.50"	.077	.207	.281	.040	.875	VT10450-A
4.50"	.050	.262	.141	.035	.750	VT10450
4.61"	.050	.156	.218	.035	.750	VT10461
4.69"	.050	.400	.281	.040	.875	VT10469
4.75"	.050	.400	.281	.040	.875	VT10475
4.75"	.077	.158	.310	.040	.875	VT10475-A
4.81"	.077	.207	.281	.040	.875	VT10481
4.91"	.040	.293	.296	.050	.875	VT10491
4.94"	.060	.181	.281	.035	.750	VT10494
5.10"	.050	.262	.141	.035	.750	VT10510
5.25"	.050	.262	.141	.035	.750	VT10525
5.30"	.050	.262	.141	.035	.750	VT10530
5.65"	.050	.262	.141	.035	.750	VT10565
5.81"	.077	.207	.281	.062	.875	VT10581
5.88"	.050	.400	.281	.040	.875	VT10588
5.88"	.050	.400	.281			VT10588-1
5.92"	.090	.293	.296	.050	.875	VT10592
6.88"	.060	.400	.281	.040	.875	VT10688
8.08"	.050	.262	.141	.035	.750	VT10808

Pipe Clamps

ABA Pipe Clamps

The Exhaust Pipe Clamp was originally designed by ABA in collaboration with the automotive industry to provide a high and even tightening force around the entire pipe, minimize leakage and be vibration-proof. The wide range of standard clamps covers most vehicles.

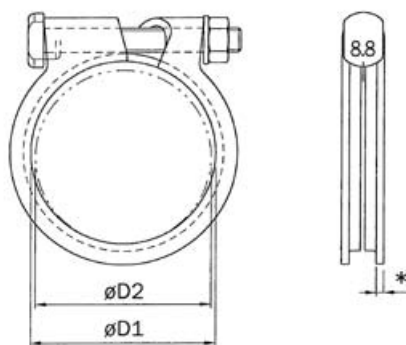
Self-locking screw is standard on ABA part numbers R36 and larger. Smaller sizes have hexagonal M8 bolt.



W1	W2	W3	W4	W5
x				

* See International Materials Standard, pg 29

Sizes and Part Numbers		
ABA Part Number	Clamping Range	
	in.	mm
R30	1.06-1.18	27-30
R33	1.18-1.30	30-33
R36	1.30-1.42	33-36
R39.5	1.44-1.56	36-39.5
R42	1.54-1.65	39-42
R43.5	1.59-1.71	40.5-43.5
R45	1.65-1.77	42-45
R46	1.69-1.81	43-46
R47	1.73-1.85	44-47
R48	1.77-1.89	45-48
R51	1.89-2.01	48-51
R52	1.93-2.05	49-52
R54	2.00-2.13	51-54
R55	2.05-2.17	52-55
R56	2.09-2.20	53-56
R58	2.17-2.28	55-58
R61	2.28-2.40	58-61
R64	2.40-2.52	61-64



Exhaust Components

Torca AccuSeal

- Provides joint serviceability
- Unique sealing performance
- Superior clamp load capability
- Pre-assembled - easy installation
- Designed for part-in-assembly attachment
- Durable installation without damage to pipe ends
- Available in standard industry sizes from 44.5 mm (1-3/4") through 177.8 mm (7")
- Available in Aluminized Steel, 409 Stainless Steel, 430 Stainless Steel and 304 Stainless Steel



Torca DuraSeal

- Provides joint serviceability
- Improved clamp performance for thicker pipes or larger pipe gaps
- Pre-assembled for easy installation
- Only one assembly torque point
- Designed for part-in-assembly pre-attachment
- Available in standard industry sizes from 50 mm (2") through 127 mm (5")
- Available in 409 Stainless Steel and 304 Stainless Steel



Torca Coupler

- Provides joint serviceability
- Does not require pipe overlap
- Pre-assembled - easy installation
- Unique sealing performance
- Superior clamp load capability
- Available in standard industry sizes from 38 mm (1-1/2") through 89 mm (3-1/2")
- Available in 409 Stainless Steel and 304 Stainless Steel



Torca TorcTite

- Specific OEM & Service designs
- Unique sealing performance
- Superior clamp load capability
- Pre-assembled, easy installation
- Compatible with pipes, flex, mufflers
- Durable installation without damage to pipe ends
- Available in standard industry sizes from 2" through 6"
- Available in Aluminized Steel and bright finish 304 Stainless Steel



Exhaust Components

Torca AccuLock

- Provides OE with a robust design alternative to flat flanges
- Enhanced assembly flexibility, lower weight, improved overall value
- Designed for use in low leak, pre-after treatment (catalyst) applications
- Positive axial retention
- Uses less space than a flat flange joint
- Provides rotational and axial alignment flexibility
- Available in standard industry sizes from 45 mm (1-3/4") through 127 mm (5")
- Available in 409 Stainless Steel, 439 Stainless Steel and 301 Stainless Steel



Torca EasySeal

- Ideal, service specific design
- Flat, packaged, easy to store
- Easy, fast, accurate installation
- Unique sealing performance
- Premium materials and finish
- Durable installation without damage to pipe ends
- Available in standard industry sizes from 2" through 6"
- Available in bright finish 304 Stainless Steel



Torca UniStrap

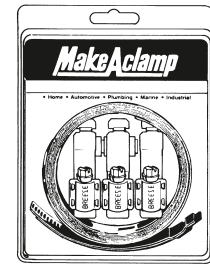
- Unitary clamp/bracket system
- Application specific designs, sizes
- Reduce part number complexity
- Increases assembly ease and reliability
- Eliminates welds, corrosion, failures
- More strength, less materials
- Customer specific sizes and configurations are available.
- Available in Aluminized Steel, 409 Stainless Steel and 430 Stainless Steel



Banding Systems

Breeze Make-A-Clamp

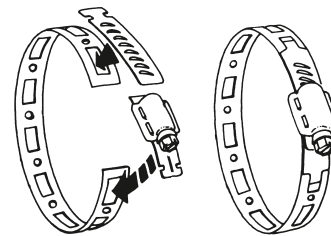
This is a maintenance "clamp system" in a box. By simply cutting off a piece of banding from a continuous roll, you can make any size 100% stainless steel worm-gear clamp from 3" diameter on up (10 inch or 10 foot diameter, you pick it and you do it in fifteen seconds). It's a must for anyone who's likely to encounter requirements for varying sized large clamps. Reusable. Superior to and more versatile than "crimp/buckle" banding and strapping products.



1/2" (12.7mm) band

5/16" (7mm) slotted hex head screw

9/16" (14.2mm) wide stainless steel fastener & screw/housing assemblies



Sizes and Part Numbers			
Stock no.	Contents	Packed	WT PER CTN.
4000	Mini kit: 8-1/2 Ft. band, 3 adj. fasteners, 1 band splice	5 boxes of 10 kits to standard carton (50 kits)	28
4001	Kit with 100 Ft. band, 25 adj. fasteners, 10 band splices	6 kits to standard carton	32
4002	Kit with 50 Ft. band, 10 adj. fasteners, 5 band splices	6 kits to standard carton	18
4003	Box of 25 adj. fasteners	10 boxes to standard carton (250 fasteners)	16
4004	Box of 10 adj. fasteners	20 boxes to standard carton (200 fasteners)	13
4005	Box with 100 Ft. band, 10 band splices	6 boxes to standard carton	22
4006	Box with 50 Ft. band, 5 band splices	6 boxes to standard carton	12
4007	6" demonstrator kit with clamp	Packed by the unit	4 oz.
4008	Box of 10 band splices	50 boxes to standard carton (500 splices)	13 oz.

Nut & Bolt Clamps

ABA Mini Clamps

Sure seal for small, thin walled hoses. The nut is secured to the clamp, making installation easier and the hexagonal head can be tightened with a socket wrench or screw driver. Bandwidth is 9 mm.

W1	W2	W3	W4	W5
X			X	

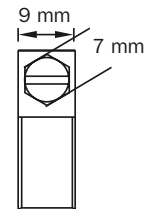
* See International Materials Standard, pg 29

Standard Mini Clamps, W1 Sizes and Part Numbers		
ABA Part Number	Clamping Range	
	in.	mm
21007	.26 - .30	6.5 - 7.5
21008	.28 - .34	7 - 8.5
21009	.32 - .37	8 - 9.5
21010	.36 - .41	9 - 10.5
21011	.37 - .45	9.5 - 11.5
21012	.41 - .49	10.5 - 12.5
21013	.45 - .53	11.5 - 13.5
21014	.49 - .57	12.5 - 14.5
21015	.53 - .61	13.5 - 15.5
21016	.55 - .65	14 - 16.5
21017	.59 - .69	15 - 17.5

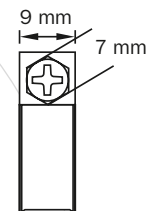
304 SS Mini Clamps, W4 Sizes and Part Numbers		
ABA Part Number	Clamping Range	
	in.	mm
22008	.30 - .34	7.5 - 8.5
22009	.34 - .37	8.5 - 9.5
22010	.37 - .43	9.5 - 11
22011	.41 - .47	10.5 - 12
22012	.45 - .51	11.5 - 13
22013	.49 - .55	12.5 - 14
22014	.53 - .59	13.5 - 15
22015	.57 - .63	14.5 - 16
22016	.59 - .67	15 - 17
22017	.63 - .71	16 - 18



S10



S40



ABA / Breeze Mini G Fuel Injection Clamps

These clamps fit all standard automotive fuel injection hoses. Approved for all OEM applications.

Plated steel

ABA/AWAB - Sizes and Part Numbers				
Hose Diameter Inches	Clamping Range		ABA Part Number	Breeze Part Number
	Inches	mm		
1/4	13/32 - 31/64	10-13.0	G12	FI 4
5/16	7/16 - 39/64	12.5-15.5	G14	FI 5
3/8	15/32 - 41/64	13.5-16.5	G15	FI 6



Rubber Lined Clamps

ABA Retaining Clamps

Multiple uses for holding cable, wire, pipe and hose. The rubber cushion absorbs vibration, provides protection against scratching and is made of black EPDM type rubber.

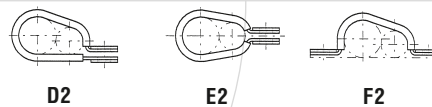
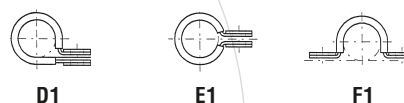
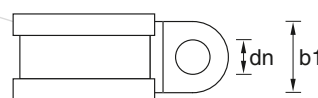
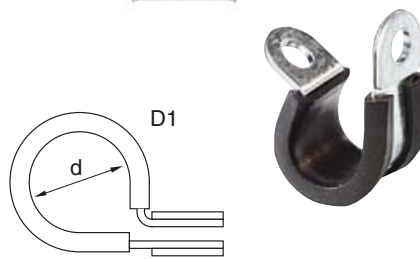
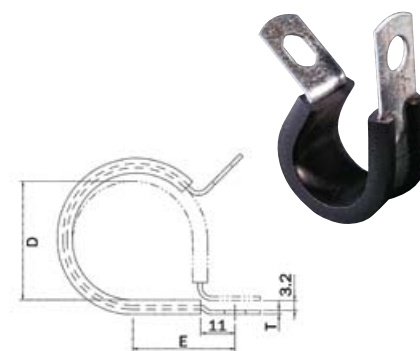
Rubber cushion clamps are used in a variety of industries and applications including automotive, truck, hydraulics and pneumatics, ship building, refrigeration, large equipment packaging etc.

Bandwidths and mounting hole sizes vary by diameter and material.

W1	W2	W3	W4	W5
X			X	

* See International Materials Standard, pg 29

Clamping Range		ABA Part Number	
Inches	mm	W1	W4
1/8	3	31300	N/A
3/16	5	31301	32301
1/4	6	31302	32302
5/16	8	31303	32303
3/8	10	31304	32304
7/16	11	31305	32305
1/2	13	31306	32306
9/16	14	31307	32307
5/8	16	31308	32308
11/16	18	31309	N/A
3/4	19	31310	32310
13/16	21	31311	N/A
7/8	22	31312	32312
15/16	24	31313	N/A
1	25	31314	32314
1 1/16	27	31315	N/A
1 1/8	29	31316	32316
1 3/16	30	31317	N/A
1 1/4	32	31318	32318
1 5/16	33	31319	N/A
1 3/8	35	31320	32320
1 7/16	36	31321	N/A
1 1/2	38	31322	32322
1 5/8	41	31326	N/A
1 3/4	45	31323	32323
1 7/8	47	31328	N/A
2	51	31324	N/A
2 1/8	54	31325	N/A
2 3/8	60	31329	N/A
2 1/2	65	31327	N/A
2 15/16	74	31330	N/A
4 5/16	110	31331	N/A



Special Order Styles

Hubless Couplings

Clamp-All® HI-TORQ™ 80

The HI-TORQ 80 coupling from Clamp-All® is engineered to be the most cost effective way to join any hubless DWV system in high risk environments and be assured of an easy installation and a trouble-free job.

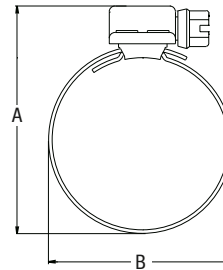
Performance Coupling Specification

Hubless cast iron soil pipe and fittings are joined using HI-TORQ 80 couplings, manufactured by Clamp-All, for all storm and sanitary drain, waste & vent systems above and below grade.

Couplings are constructed of type 304 stainless steel with 305 stainless steel worm gear screws. The gasket material is neoprene and conforms to ASTM C-564.



- HI-TORQ 80 couplings are cost effective for joining all high risk DWV storm and sanitary piping systems, above or below grade. Installation is quick, secure and trouble free.
- HI-TORQ 80's unique flexible rigidity provides the strength required to maintain hydrostatic integrity even under severe stress.
- HI-TORQ 80's slotted shield design compensates for mismatched pipe/fitting diameter and maintains alignment.
- HI-TORQ 80 couplings have just two clamps for sizes through 4" (100 mm) and only four clamps on sizes 5" (125 mm) to 10" (250 mm). That means quicker installation.



HI-TORQ™ 80 - Sizes and Part Numbers									
Pipe Size	Part Number	Installed Dimension		Depth to Center Stop	Width of Coupling				
		A	B			In.	(mm)	In.	(mm)
1 1/2	80015	2.75	(70)	2.25	(57)	1.44	(37)	3	(75)
2	80020	3.25	(83)	2.75	(70)				
3	80030	4.25	(108)	3.75	(95)				
4	80040	5.25	(133)	4.75	(121)				
5	80050	6.25	(159)	5.75	(146)	1.94	(49)	4	(100)
6	80060	7.25	(184)	6.75	(171)				
8	80080	9.25	(235)	8.75	(222)				
10	80100	11.50	(292)	11.00	(279)				
12	(300)	N/A	13.50	(338)	13.00	2.76	(69)	5.62	(141)
15	(375)	N/A	17.25	(431)	16.75	(419)			
Wrench	99080	Specific wrench required for HI-TORQ 80 and HI-TORQ 125							

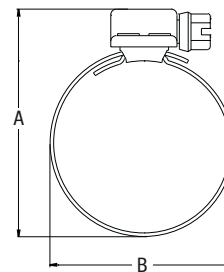
Hubless Couplings

Clamp-All® HI-TORQ™ 125

Clamp-All HI-TORQ 125 couplings have the thickest, strongest shield and the highest torque clamps in the industry. Clamp-All HI-TORQ 125 couplings have no equal. In addition to above ground high risk DWV piping systems, they provide maximum strength, resistance to corrosion and shear for below ground applications in expansive soils or where a tamper proof installation is required. Installation is quick, secure and trouble free.



- HI-TORQ 125 couplings are effective for joining all high-risk DWV piping systems, above or below grade, up to 15 psi (105 kPa) working pressure.
- HI-TORQ 125's thicker shield and flexible rigidity provides maximum strength to maintain alignment and resist shear forces in more demanding below grade applications.
- HI-TORQ 125's worm gear clamps take a full 125 in/lbs (14N/m) of torque, the highest in the industry without equal, and can be made tamper proof for areas where maximum security is required.
- HI-TORQ 125 couplings have just two clamps for sizes through 4" (100 mm), four clamps on sizes 5" (125 mm) to 10" (250 mm), and six clamps on sizes 12" (300 mm) and 15" (350 mm) - after 10" (250 mm) and between -- for quick installation.
- HI-TORQ 125 provides maximum performance and reliability:
 1. Shields are 24 gauge type 304, 18-8 chromium nickel stainless steel for exceptional corrosion and shear resistance.
 2. Durable one-piece molded Neoprene gasket features two sets of sealing beads, and a unique interlocking design which centers the sleeve within the housing for easy installation and added stability.
 3. Slotted shield design compensates for mismatched pipe/fitting diameters and maintains alignment.
 4. Worm gear screws are 305 stainless steel for high corrosion resistance.
 5. Approved to FM 1680 Class I, 15 PSI; Listed by IAPMO - #2189; Refer to the SBCCI Evaluation Report #9488 for Code compliance; See BOCA Evaluation Services, Inc. Research Report No #9420.



HI-TORQ™ 125 - Sizes and Part Numbers						
Pipe Size	Part Number	Installed Dimension		Depth to Center Stop	Width of Coupling	
		A	B			
In. (mm)		In. (mm)	In. (mm)	In. (mm)	In. (mm)	
1 1/2 (38)	10015	2.75 (70)	2.25 (57)	1.44 (37)	3 (75)	
2 (50)	10020	3.25 (83)	2.75 (70)			
3 (75)	10030	4.25 (108)	3.75 (95)			
4 (100)	10040	5.25 (133)	4.75 (121)			
5 (125)	10050	6.25 (159)	5.75 (146)	1.94 (49)	4 (100)	
6 (150)	10060	7.25 (184)	6.75 (171)			
8 (200)	10080	9.25 (235)	8.75 (222)			
10 (250)	10100	11.50 (292)	11.00 (279)			
12 (300)	10120	13.50 (338)	13.00 (325)			
15 (375)	10150	17.25 (431)	16.75 (419)	2.76 (69)	5.62 (141)	
Wrench	99125	Specific wrench required for HI-TORQ 80 and HI-TORQ 125				

Special / Custom Products

NORMACONNECT® FGR Pipe Couplings

The CONNECT range offers weld-free connections for plain-end pipes in pipeline construction, shipbuilding, offshore installation, large engine construction, chemical plants, irrigation and waste water plants etc.

The FGR range of pipe couplings consists of six complete product lines, each with individualized design characteristics to cover virtually any pipeline application.

Features:

- Easy assembly and disassembly
- Axial tensile-strength (type GRIP)
- Sealing only (type FLEX)
- Re-usable
- Patented double lip seal
- Standard steel band insert
- Suitable for vacuum and pressure applications
- Connect different pipe materials (type COMBI GRIP)
- Integrated fire protection (type G-FP)



NORMACONNECT® FLEX
For connecting restrained metal and plastic pipes.



NORMACONNECT® G-FP
(Flame protection)
Pipe coupling type GRIP with integrated fire protection.



NORMACONNECT® GRIP
For connecting unrestrained metal pipes.



NORMACONNECT® PLAST GRIP
For connecting unrestrained plastic pipes.



NORMACONNECT® COMBI GRIP
For connecting unrestrained metal with unrestrained plastic pipes.



NORMACONNECT® REP
Repair coupling.

NORMACONNECT® SEC Ball zone exhaust gas clamp

The NORMACONNECT SEC is the ideal problem solver for connection points in the central and rear exhaust gas area of automobiles. During assembly, in combination with flange connections, there is the option to swivel the exhaust silencer.

The advantages at a glance:

- Angle compensation in the exhaust gas system
- The silencer can be swiveled during assembly
- Simplified assembly and disassembly owing to the increased system flexibility
- Higher torsion moment as compared to standard ball-type flange connections
- Low leakage rate
- Low weight



Special / Custom Products

AEROSPACE & “MIL” SPEC CLAMPS

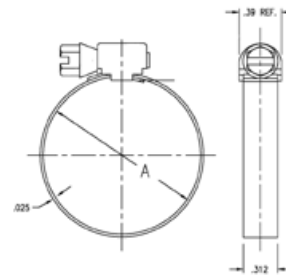
MS35842 Clamps - Primarily a military vehicle and ordnance clamp. Low pressure, type “F.” Federal Supply Class 4730. Slotted hex head screw. 100% stainless steel.

AN737TW Clamps - Primarily an aircraft application clamp. Federal Supply Class 4730. Stainless steel band, housing and saddle with stainless steel thumb (wing) screw.

NAS1924 Clamps - Available in sizes 48 & above.

NAS1922 Clamps - Primarily a light-weight, aircraft application clamp. Federal Supply Class 4730. 100% stainless steel. Available with either slot (-1) or hex head (-3) screw. Both screw styles can be supplied with optional Lock Wire hole (-1H or -3H).

* Screw code must be designated when ordering.



STOCK NUMBERS Aerospace Clamps Stock Numbers	EFFECTIVE DIAMETER RANGE			
	Min.		Max.	
	in.	mm	in.	mm
MS35842 CLAMPS				
MS35842-10	7/16	11	25/32	20
MS35842-11	11/16	17	1-1/4	32
MS35842-12	1-1/16	27	2	51
MS35842-13	1-13/16	46	2-3/4	70
MS35842-14	2-9/16	65	3-1/2	89
MS35842-15	3-5/16	84	4-1/4	108
MS35842-16	4-1/8	105	7	178
AN737TW CLAMPS				
AN737TW-22	7/16	11	11/16	17
AN737TW-24	1/2	13	3/4	19
AN737TW-26	9/16	14	13/16	21
AN737TW-30	11/16	17	15/16	23.8
AN737TW-34	13/16	21	1-1/16	27
AN737TW-38	15/16	23.8	1-3/16	30
AN737TW-44	61/64	24.2	1-3/8	35
AN737TW-46	1	25	1-7/16	37
AN737TW-48	1-3/64	27	1-1/2	38
AN737TW44-48	61/64	24.2	1-1/2	38
AN737TW-56	1-21/64	34	1-3/4	44
AN737TW-58	1-3/8	35	1-13/16	46
AN737TW-66	1-5/8	41	2-1/16	52
AN737TW56-66	1-21/64	34	2-1/16	52
AN737TW-74	1-7/8	48	2-5/16	59
AN737TW-82	2-1/8	54	2-9/16	65
AN737TW-91	2-13/32	61	2-27/32	72
AN737TW74-91	1-7/8	48	2-27/32	72
AN737TW-98	2-5/8	67	3-1/16	73
AN737TW-107	2-29/32	71	3-11/32	85
AN737TW-114	3-1/8	79	3-9/16	90
AN737TW98-114	2-5/8	67	3-9/16	90

STOCK NUMBERS NAS 1922 Clamps Stock Numbers*	EFFECTIVE DIAMETER RANGE			
	Min.		Max.	
	in.	mm	in.	mm
NAS 1922-0050	.43	11	.63	16
NAS 1922-0075	.55	14	.87	22
NAS 1922-0100	.71	18	1.10	28
NAS 1922-0125	.94	24	1.42	36
NAS 1922-0150	.98	25	1.77	45
NAS 1922-0175	1.26	32	2.05	52
NAS 1922-0200	1.57	40	2.36	60
NAS 1922-0225	1.85	47	2.64	67
NAS 1922-0275	2.44	62	3.23	82
NAS 1922-0350	3.03	77	3.82	97
NAS 1922-0400	3.62	92	4.41	112
NAS 1922-0450	4.21	107	5.00	127
NAS 1922-0525	4.80	122	5.59	142
NAS 1922-0575	5.39	137	6.18	157
NAS 1922-0625	5.98	152	6.77	172
NAS 1922-0700	6.57	167	7.36	187
NAS 1922-0750	7.17	182	7.95	202
NAS 1922-0825	7.76	197	8.54	217
NAS 1922-0875	8.35	212	9.13	232
NAS 1922-0925	8.94	227	9.72	247
NAS 1922-1000	9.53	242	10.31	262

Special / Custom Products

Breeze Jet Quick-Connect Aero-Seal

Clamps permit fast and easy installation, but can never snap open once installed. To attach, push housing to desired position on slotted band, snug around object and threads of the screw will drop in the band slots. Tighten securely.

All 300 series stainless steel
 9/16" (14.2 mm) band
 5/16" (7.9mm) hex head screw



Aero-Seal Jet - Sizes and Part Numbers					
SAE Size	Effective Diameter Range				Part Number
	Min.		Max.		
	in.	mm	in.	mm	
10	9/16	14	1-1/16	27	600 10 H
12	11/16	17	1-1/4	32	600 12 H
16	13/16	21	1-1/2	38	600 16 H
20	13/16	21	1-3/4	44	600 20 H
24	1-1/16	27	2	51	600 24 H
28	1-5/16	33	2-1/4	57	600 28 H
32	1-9/16	40	2-1/2	64	600 32 H
36	1-13/16	46	2-3/4	70	600 36 H
40	2-1/16	52	3	76	600 40 H
44	2-5/16	59	3-1/4	83	600 44 H
48	2-9/16	65	3-1/2	89	600 48 H
52	2-13/16	71	3-3/4	95	600 52 H

Continued					
SAE Size	Effective Diameter Range				Part Number
	Min.		Max.		
	in.	mm	in.	mm	
56	3-1/16	78	4	102	600 56 H
60	3-5/16	84	4-1/4	108	600 60 H
64	3-9/16	91	4-1/2	114	600 64 H
72	1-7/8	48	5	127	600 72 H
80	2-1/2	64	5-1/2	140	600 80 H
88	3-1/8	79	6	152	600 88 H
96	3-5/8	92	6-1/2	165	600 96 H
104	4-1/8	105	7	178	600 104 H
128	5-5/8	143	8-1/2	216	600 128 H
152	7-1/8	181	10	254	600 152 H
188	9-3/8	238	12-1/4	311	600 188 H

Additional larger sizes available upon special order

Flexible 7 mm Socket Drivers

The Flexible screwdriver makes installation easy and secure. The sturdy, flexible shaft allows a 90 angle. 7 mm hexagonal screw head fits all ABA, AWAB & most Gemi hose clamps.



Materials

S10

Material and surface treatment chosen by the manufacturer.
 Min 72 hours to red rust.*
 Comparable to W1.

S20

Material and surface treatment chosen by the manufacturer.
 Min. 200 hours to red rust.*

S30

All parts in chrome steel 1.4016/AISI 430/SS2320.
 Min. time to red rust is 500 hours.*
 Comparable to W3.

S40

All parts in stainless steel 1.4301/AISI 304/SS2333
 Min. time to red rust is 500 hours.*
 Comparable to W4.

S50

All parts in acid resistant steel 1.4436/AISI 316/SS2343
 Min. time to red rust is 2,000 hours.*
 Comparable to W5.

S60

All parts in acid resistant steel.
 Min. time to red rust – well over 2,000 hours.*
 Screw & housing in 1.4436/AISI 316/SS2343 and band in higher grade 1.4547/SS-EN 10 088-1.

* Testing according to SS-ISO 9227 with neutral salt mist spray.



Quality in products and services

As a customer of NORMA Americas premium hose clamps and coupling products, you will always receive:

- High quality products produced in plants certified to ISO 9001 and ISO/TS 16949.
- The broadest hose clamp product line available featuring a wide variety of sizes, strength, designs and materials to meet all customer clamping requirements.
- An established reputation for product innovation and reliability. We offer “Quality In Every Detail.”
- Customized, highly engineered product development. Along with our standard product lines, we manufacture and are constantly developing specialty products to exact customer specifications.
- Technically superior engineering support and customer service.
- Worldwide manufacturing and distribution locations get our products to you when you need them.
- Our products are OEM specified and supplied to all major manufacturers in the automotive, truck, aircraft, bus, construction equipment and marine industries.

Our goal is to put our customer first – to continue to develop our product range with improved solutions and services so that we will always be your first choice for superior clamping products!

International Materials Standard

Standard	DIN	AISI/AS	BS	AFNOR NF	SS	SUS
S10, W1	<i>Completely zinc plated steel</i>					
S20	Manufacturer's choice min. 200 hours to red rust.					
W2	1. 4016 in housing and band. Screw: 72 hours to red rust.					
S30, W3	1.4016	430	430 S 17	Z8 C17	2320	430
S40, W4	1.4301	304	304 S 15	Z6 CN 18-09	2332	304
S50, W5	1.4401	316	316 S 31	Z3 CND 17-11-1	2343	316
S60	1.4436	316			2347	

SS = Swedish Standard.

DIN = Deutsches Institut für Normung.

AISI = American Iron and Steel Institute.







Breeze Industrial Products

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www.breezeclamps.com

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Auburn Hills, MI 48326
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Fax: 248-373-3068
www.torcausa.com

Clamp-All

2430 East Walton Blvd.
Auburn Hills, MI 48326
Tel: 800-762-7255
Fax: 248-373-3068
www.clampall.com



www.normagroup.com

NORMA Group