

V-BAND CLAMPS/COUPLINGS



Standard/Stock Items

In Stock and Ready to Deliver!

Clampco stocks several standard V-Band Clamps/Couplings. These parts are the most popular sizes and are frequently installed on diesel engines, turbochargers, and heavy-duty exhaust systems.

All of our standard V-Band Clamps/Couplings have 300 series stainless steel bands and retainers and come with a standard T-Bolt Latch. See the following catalog pages on V-Band Clamps/Couplings for more detailed product specifications and dimensions.



V-BAND CLAMPS/COUPLINGS

ENGLISH (inches)			
DESCRIPTION CODE	PART NUMBER	FLANGE APEX	FLANGE O.D.
Ⓢ V0135100M-0320-S2	995CS-0320	0.296	3.106
Ⓢ V0138108N-0382-S2	99800-0382	0.255	3.695
Ⓢ V0135200M-0388-S2	99502-0388	0.443	3.755
Ⓢ V0135100M-0410-S2	99506-0410	0.296	4.006
Ⓢ V0135200M-0425-S2	99502-0425	0.443	4.125
Ⓢ V0138108N-0450-S2	99800-0450	0.255	4.375
Ⓢ V0135200M-0462-S2	99502-0462	0.443	4.495
Ⓢ V0135200M-0475-S2	99502-0475	0.443	4.625
Ⓢ V0138108N-0481-S2	99800-0481	0.255	4.685
Ⓢ V0135100M-0525-S2	99506-0525	0.296	5.156
Ⓢ V0135200M-0588-S2	99502-0588	0.443	5.755
Ⓢ V0139115M-0592-S2	99915-0592	0.340	5.795

Ⓢ = Stock Items



Now stocking V-Band Clamps/Couplings sizes for quick shipment!



V-BAND CLAMPS/COUPLINGS

Made-to-Order

Clampco V-Band Couplings, also known as V-Band Clamps or V-Clamps, join flanges with V-shaped Retainer profiles. A V-Band Coupling operates by exerting a wedging load, which squeezes the flanges together. The V-Band Couplings can be designed to work with or without gaskets and O-rings. The material gauge, latch style and number of retainer segments all vary depending on the requirements for each application.



V-Band Couplings eliminate the need for cumbersome bolted flange designs and costly welded flange designs. Because V-Band Couplings can be easily assembled and disassembled, they are often used on equipment that requires frequent service or maintenance. Typical V-Band applications include Turbochargers, Diesel After-treatment and Exhaust Systems, Pumps, Filters and Fluid/Bulk Solids Processing Equipment.

How to Determine your V-Band Clamp/Coupling Description Code

Clampco's description code contains 7 segments, each representing a different part of the clamp. Below is a sample description code:

V01-3-52-00-N-0588-S2

It's easy to create your made-to-order V-Band Clamp/Coupling description code, just follow these 7 easy steps:

1. Determine Latch & Band or Strap Style Code

V01-3-52-00-N-0588-S2

2. Determine Number of Retainer Segments

V01-3-52-00-N-0588-S2

3. Determine Retainer Series Code

V01-3-52-00-N-0588-S2

4. Determine Product Design Code

V01-3-52-00-N-0588-S2

5. Determine Bolt Code

V01-3-52-00-N-0588-S2

6. Determine Retainer Inside Diameter Code

V01-3-52-00-N-0588-S2

7. Determine Nut, Knob, or T-Handle Code

V01-3-52-00-N-0588-S2

CLAMPKO LATCH STYLES



T-BOLT LATCH

The Clampco T-Bolt Latch is used for permanent or semi-permanent applications and/or safety on pressurized systems. The T-Bolt Latch is our most economical latch.



QUICK RELEASE LATCH

The Clampco Quick Release Latch is used for ease of disassembly and is required where the ability to replace bolts is desired.



SADDLE QUICK RELEASE LATCH

The Saddle Quick Release Latch is also used for ease of disassembly and where the ability to replace bolts is desired. It is not recommended for diameters larger than 10 in. due to trunnion/band interference.



LIGHT-DUTY OVER CENTER LATCH

The Light-Duty Over Center Latch is used on applications that require frequent assembly or disassembly. No tools are required for opening and closing the clamp after initial installation. This latch style is ideal for light-duty applications on small diameters and requires a 3/16 in. diameter T-Bolt. Uncaptured T-Bolt head standard. Captured T-Bolt head offered as an option.

(Note: Not for use on pressurized V-Band applications.)



MEDIUM-DUTY OVER CENTER LATCH

The Medium-Duty Over Center Latch is well suited for heavier applications and on larger diameters. No tools are required for opening and closing the clamp after initial installation. It is available with either a 1/4 in. or 5/16 in. diameter T-Bolt. Uncaptured T-Bolt head standard. Captured T-Bolt head offered as an option.

(Note: Minimum Band Width – 7/8 in.)

(Note: Not for use on pressurized V-Band applications.)



HEAVY-DUTY OVER CENTER LATCH

The Heavy-Duty Over Center Latch is well suited for heavy-duty applications and large diameters. It is available with a 3/8 in. diameter T-Bolt.

(Note: Minimum Band Width – 1-1/4 in.)

(Note: Not for use on pressurized V-Band applications.)



SPECIFICATIONS

1. DETERMINE LATCH & BAND OR STRAP STYLE

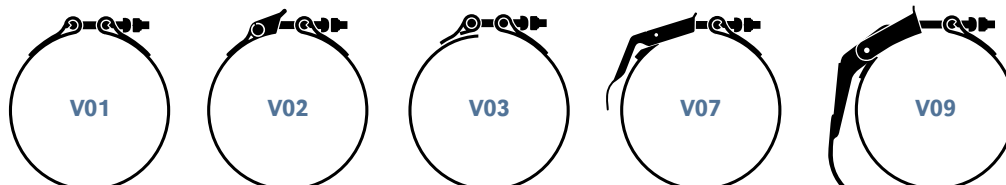
V01-3-52-00-N-0588-S2 (Sample Description Code)

Clampco offers several latch styles and latch combinations for your Custom V-Band application. Choose the code that corresponds with the best design for your application.

FULL BANDS: SINGLE LATCH

Full Band Styles are recommended where greater strength is required.

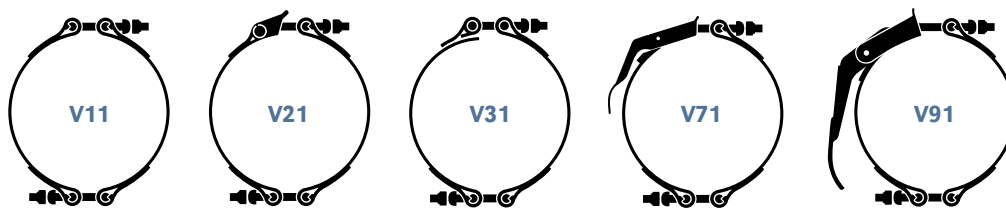
CODE	LATCH STYLE
V01	T-Bolt
V02	Quick Release
V03	Saddle Quick Release
V07	Light-Duty Over Center
V09	Medium-Duty Over Center



FULL BANDS: MULTIPLE LATCHES

Full Band Styles are recommended where greater strength is required.

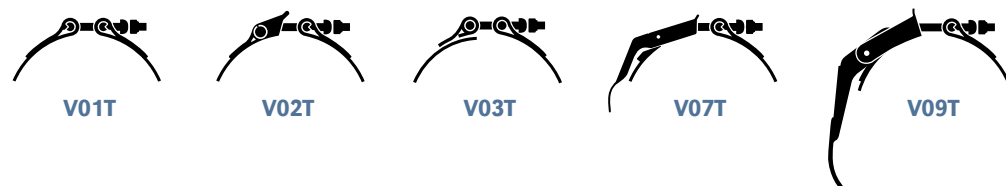
CODE	LATCH STYLE
V11	Two T-Bolts
V21	Quick Release and T-Bolt
V31	Saddle Quick Release and T-Bolt
V71	Light-Duty Over Center and T-Bolt
V91	Medium-Duty Over Center and T-Bolt



STRAP BANDS: SINGLE LATCH

Strap Band Styles are more economical for diameters 8-10 in. [203-254 mm] and larger.

CODE	LATCH STYLE
V01T	T-Bolt
V02T	Quick Release
V03T	Saddle Quick Release
V07T	Light-Duty Over Center
V09T	Medium-Duty Over Center



STRAP BANDS: MULTIPLE LATCHES

Strap Band Styles are more economical for diameters 8-10 in. [203-254 mm] and larger.

CODE	LATCH STYLE
V11T	Two T-Bolts
V21T	Quick Release and T-Bolt
V31T	Saddle Quick Release and T-Bolt
V71T	Light-Duty Over Center and T-Bolt
V91T	Medium-Duty Over Center and T-Bolt



2. DETERMINE NUMBER OF RETAINER SEGMENTS

V01-3-52-00-N-0588-S2 (Sample Description Code)

Clampco offers one, two, three and four-segment V-Band Couplings.

(Note: Over Center Latch options not for use on pressurized V-Band applications.)

NUMBER OF SEGMENTS	LATCH DESCRIPTION
1	One-segment retainers are available for large couplings (approximately 12 in. [304.8 mm] and larger). One-segment retainers are difficult to install due to their inherent stiffness. Therefore, they should be used on permanent applications. One-segment retainers can only be used with latch & band styles V01, V02, V03, V07, V09, V01T, V02T, V03T, V07T, and V09T.
2	Two-segment retainers are also generally used for V-Band Couplings 8-10 in. [203-254 mm] and larger. However, they provide increased installation and removal flexibility. Two-segment retainers are primarily recommended for double latch clamps but can be used with single latch clamps. Please note: Two segment retainers CANNOT be used with latch & band styles V01T, V02T, V03T, V07T, and V09T.

NUMBER OF SEGMENTS	LATCH DESCRIPTION
3	Three-segment retainers are used for all coupling diameters, especially those 8-10 in. [203-254 mm] and smaller. Three-segment retainers provide even greater ease of assembly and disassembly and offer the best balance between functionality and economy. Three-segment retainers can only be used with latch & band styles V01, V02, V03, V07 and V09.
4	Four-segment retainers are only recommended for exceptionally large couplings where two or three segments are not adequate. Four-segment retainers can only be used with latch & band styles V01, V02, V03, V07, V09, V11, V21, V31, V71 and V91.

V-BAND CLAMPS/COUPLINGS

Made-to-Order

3. DETERMINE RETAINER SERIES CODE

V01-3-**52**-00-N-0588-S2 (Sample Description Code)

Clampco is currently tooled for over 20 standard profiles. These retainer profiles provide an optimized fit with the most common industrial flange geometries. To arrive at the proper retainer series for your application, please consider the following factors: the design and dimensions of the mating flanges; operating pressure and temperature; whether or not gaskets or O-rings will be used; and what the system will carry (fluid, dry bulk solids, air, etc.).

Have an application requiring a custom retainer profile? Simply provide your joint geometry and Clampco will design a custom retainer profile to meet your needs.

RETAINER THICKNESS OF 0.031 in. [.787 mm]

ENGLISH (inches)			METRIC (millimeters)		
COUPLING	PRESSURE IN PSI		COUPLING	PRESSURE IN MPa	
DIAMETER	FULL BAND	STRAP BAND	DIAMETER	FULL BAND	STRAP BAND
2	500	380	51	3.45	2.62
4	250	180	102	1.72	1.24
6	140	95	152	0.96	0.65
8	80	65	203	0.55	0.45
10	60	50	254	0.41	0.34
12	45	38	305	0.31	0.26
14	38	32	355	0.26	0.22
16	32	28	406	0.22	0.19
18	28	25	457	0.19	0.17
20	25	23	508	0.17	0.16

RETAINER THICKNESS OF 0.040 in. [1.02 mm]

ENGLISH (inches)			METRIC (millimeters)		
COUPLING	PRESSURE IN PSI		COUPLING	PRESSURE IN MPa	
DIAMETER	FULL BAND	STRAP BAND	DIAMETER	FULL BAND	STRAP BAND
2	1500	620	51	10.34	4.27
4	450	300	102	3.10	2.07
6	240	180	152	1.65	1.24
8	150	120	203	1.03	0.83
10	110	80	254	0.76	0.55
12	80	60	305	0.55	0.41
14	65	50	355	0.45	0.34
16	55	40	406	0.38	0.28
18	50	35	457	0.34	0.24
20	45	30	508	0.31	0.21

RETAINER THICKNESS OF 0.050 in. [1.27 mm]

ENGLISH (inches)			METRIC (millimeters)		
COUPLING	PRESSURE IN PSI		COUPLING	PRESSURE IN MPa	
DIAMETER	FULL BAND	STRAP BAND	DIAMETER	FULL BAND	STRAP BAND
2	2000	700	51	13.79	4.83
4	650	320	102	4.48	2.21
6	350	200	152	2.41	1.38
8	210	140	203	1.45	0.96
10	150	100	254	1.03	0.69
12	120	80	305	0.83	0.55
14	90	65	355	0.62	0.45
16	80	60	406	0.55	0.55
18	70	52	457	0.48	0.36
20	65	46	508	0.45	0.32

RETAINER THICKNESS OF 0.062 in. [1.57 mm]

ENGLISH (inches)			METRIC (millimeters)		
COUPLING	PRESSURE IN PSI		COUPLING	PRESSURE IN MPa	
DIAMETER	FULL BAND	STRAP BAND	DIAMETER	FULL BAND	STRAP BAND
2	2500	1000	51	17.24	6.89
4	800	550	102	5.52	3.79
6	480	350	152	3.31	2.41
8	300	250	203	2.07	1.72
10	240	180	254	1.65	1.24
12	180	150	305	1.24	1.03
14	160	120	355	1.10	0.83
16	130	90	406	0.90	0.62
18	110	78	457	0.76	0.54
20	100	68	508	0.69	0.47



WARNING: The pressure ratings shown are the maximum pressures that will not cause yielding of any component. The ratings are for V-Band Clamps/Couplings with the following: 301 annealed retainers with 40 degree included angles; 301/302/304 1/4 hard or 1/2 hard bands; and operating at ambient temperatures of 70 degrees F. See the Materials and Temperatures Chart on page 36 to calculate pressure ratings for different materials and temperatures. **Do not use pressure ratings for over center latch styles or for any other latch styles that are tightened by hand.** Vessel pressure must be released before coupling is opened.

RETAINER THICKNESS OF 0.070 in. [1.78 mm]

ENGLISH (inches)			METRIC (millimeters)		
COUPLING	PRESSURE IN PSI		COUPLING	PRESSURE IN MPa	
DIAMETER	FULL BAND	STRAP BAND	DIAMETER	FULL BAND	STRAP BAND
2	3150	1250	51	21.72	8.62
4	1100	650	102	7.58	4.48
6	600	400	152	4.14	2.76
8	350	280	203	2.41	1.93
10	250	210	254	1.72	1.45
12	200	160	305	1.38	1.10
14	170	120	355	1.17	0.83
16	150	100	406	1.03	0.69
18	120	90	457	0.83	0.62
20	100	70	508	0.69	0.48

RETAINER THICKNESS OF 0.080 in. [2.03 mm]

ENGLISH (inches)			METRIC (millimeters)		
COUPLING	PRESSURE IN PSI		COUPLING	PRESSURE IN MPa	
DIAMETER	FULL BAND	STRAP BAND	DIAMETER	FULL BAND	STRAP BAND
2	4000	1600	51	27.58	11.03
4	1500	780	102	10.34	5.38
6	750	500	152	5.17	3.45
8	500	340	203	3.45	2.34
10	360	260	254	2.48	1.79
12	280	200	305	1.93	1.38
14	240	160	355	1.45	1.10
16	180	140	406	1.24	0.96
18	150	120	457	1.03	0.83
20	130	100	508	0.90	0.69

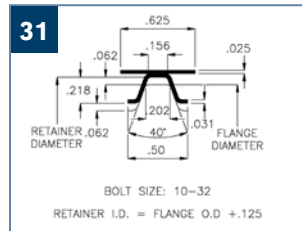
RETAINER THICKNESS OF 0.090 in. [2.29 mm]

ENGLISH (inches)			METRIC (millimeters)		
COUPLING	PRESSURE IN PSI		COUPLING	PRESSURE IN MPa	
DIAMETER	FULL BAND	STRAP BAND	DIAMETER	FULL BAND	STRAP BAND
2	5500	3800	51	37.92	26.20
4	2000	1500	102	13.79	10.34
6	1200	800	152	8.27	5.52
8	780	550	203	5.38	3.79
10	580	400	254	3.99	2.76
12	440	310	305	3.03	2.14
14	350	260	355	2.41	1.79
16	290	210	406	1.99	1.45
18	250	180	457	1.72	1.24
20	200	150	508	1.38	1.03

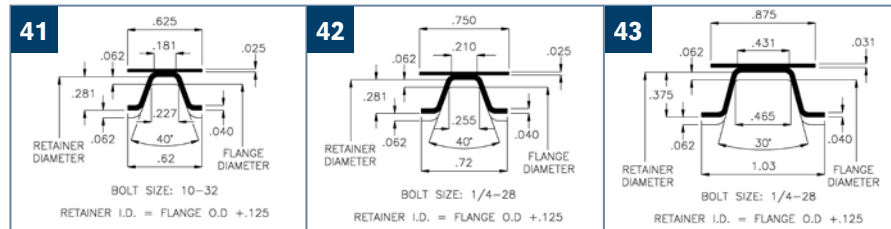


SPECIFICATIONS

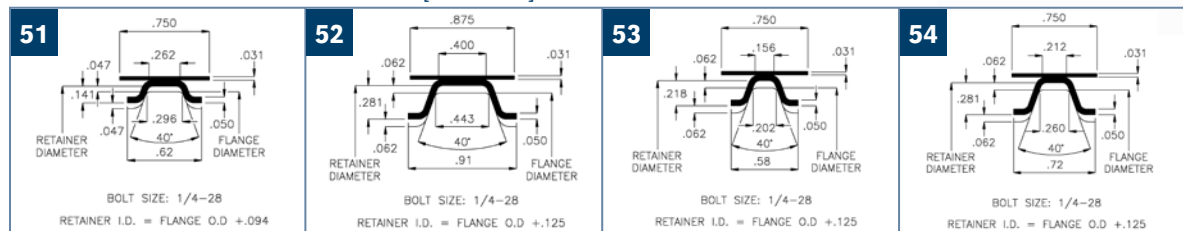
RETAINER THICKNESS OF 0.031 in. [.787 mm]



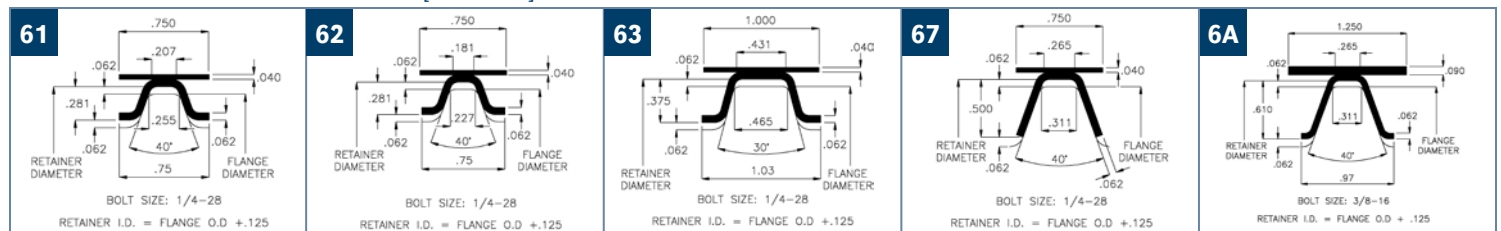
RETAINER THICKNESS OF 0.040 in. [1.02 mm]



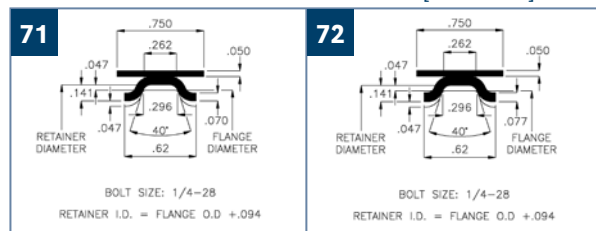
RETAINER THICKNESS OF 0.050 in. [1.27 mm]



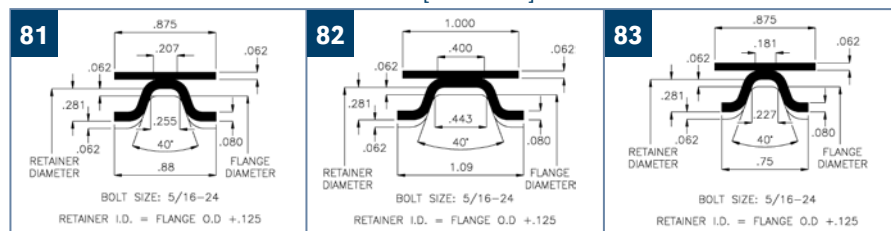
RETAINER THICKNESS OF 0.062 in. [1.57 mm]



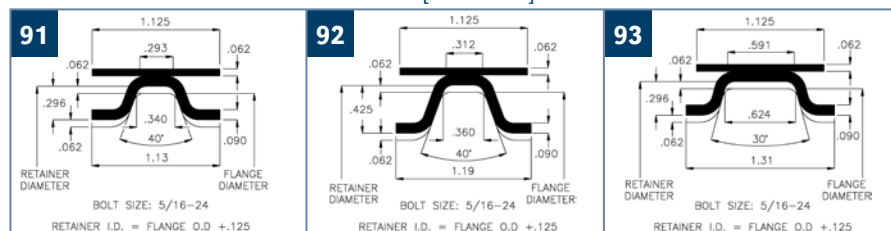
RETAINER THICKNESS OF 0.070 in. [1.78 mm]



RETAINER THICKNESS OF 0.080 in. [2.03 mm]



RETAINER THICKNESS OF 0.090 in. [2.29 mm]



DESIGN CONSIDERATIONS

Application Loads

See the V-Band Clamp/Coupling load formulas on page 36 for applications involving bending moments and/or axial loads in addition to pressure loads.

Safety Factor

Choose the thinnest material for the application that still meets the performance requirements, including **your appropriate safety factor** and material and temperature corrections.

Retainer Series

Retainer series are available in 301/302/304 annealed stainless steel. Other materials are available upon request.

To use a standard retainer series the flange apex width (including compressed flat gasket or O-ring) must be as shown. Other flange apex widths require special retainer series not shown.

Select a retainer series with enough opening (at the bottom of the retainer) so that the retainers can grab (or catch) the free state flanges sufficiently to prepare the joint for tightening.

Retainer series profile dimensions are in inches; 1 in. = 25.4 mm

V-BAND CLAMPS/COUPLINGS

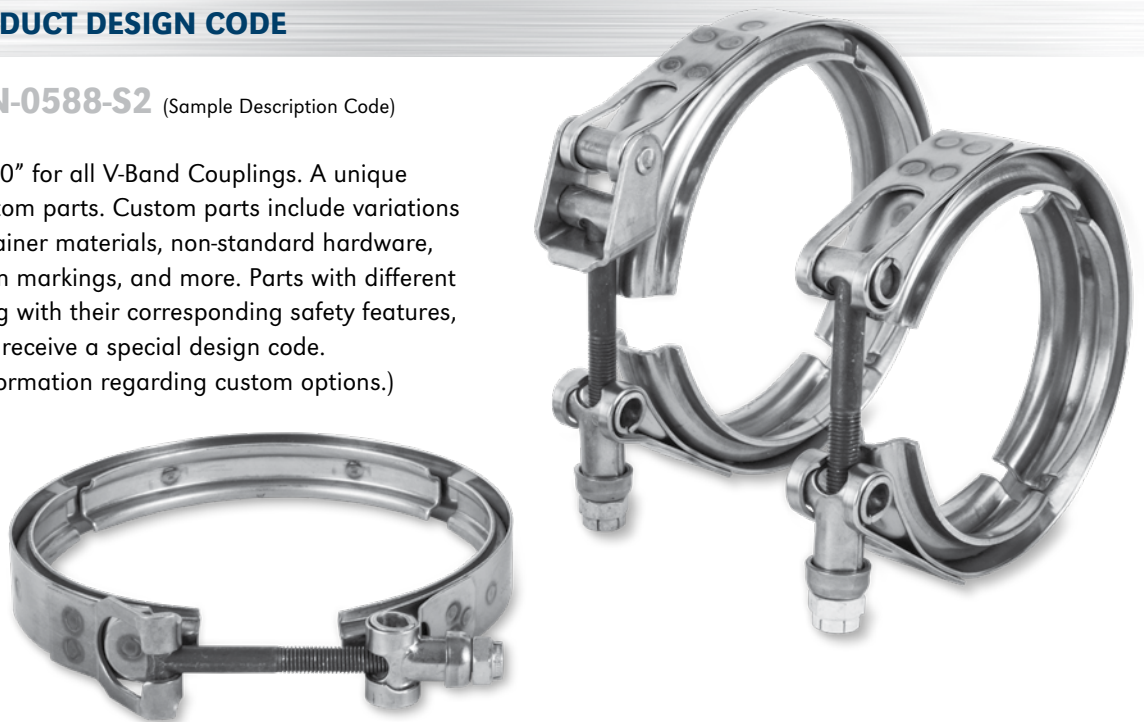
Made-to-Order

4. DETERMINE PRODUCT DESIGN CODE

V01-3-52-00-N-0588-S2 (Sample Description Code)

The standard design code is "00" for all V-Band Couplings. A unique design code is assigned to custom parts. Custom parts include variations such as different band and retainer materials, non-standard hardware, special retainer profiles, custom markings, and more. Parts with different over center latch designs, along with their corresponding safety features, are also custom items and will receive a special design code. (See pages 28–29 for more information regarding custom options.)






Clampco will assign the design code that represents your custom part upon receipt of an order.



5. DETERMINE BOLT CODE

V01-3-52-00-N-0588-S2 (Sample Description Code)

Clampco offers the following bolts as standard options. Other bolt materials and thread sizes are available upon request. Some bolts may be bent for small diameter applications.

CODE		BOLT DESCRIPTION	THREAD SIZE
C		4037 Alloy Heat Treated to 125,000 to 145,000 psi, Zinc Plated	10-32 1/4-28 M6 X 1 5/16-24 3/8-16 1/2-13
N		18-8 Stainless Steel (302 or 305)	10-32 1/4-20 1/4-28 5/16-18 5/16-24 3/8-16
M		431, 420 or 410 Stainless Steel Heat Treated to 140,000 to 160,000 psi	10-32 1/4-28 M6 X 1 5/16-24 M8 X 1.25
A		A286 Stainless Steel, 130,000 psi minimum	10-32 1/4-28
W		316 Stainless Steel	1/4-28 M6 X 1 M8 X 1.25

*Inquire about additional materials and coatings

Bolt Performance and Torque Chart

THREAD SIZE	BOLT MATERIAL	MAXIMUM	
		RECOMMENDED TORQUE IN. - LBS.	ULTIMATE TENSILE STRENGTH LBS.
10-32	300 Series Stainless Steel	50	1815
10-32	Type 410, 420 or 431 Stainless Steel	66	2390
10-32	Type A286 Stainless Steel	65	2390
10-32	Plated Alloy Steel	65	2390
1/4-20	300 Series Stainless Steel	75	3322
1/4-28	300 Series Stainless Steel	75	3322
M6 X 1	300 Series Stainless Steel	75	3322
1/4-28	Type 410, 420 or 431 Stainless Steel	90	4370
M6 X 1	Type 410, 420 or 431 Stainless Steel	90	4370
1/4-28	Type A286 Stainless Steel	90	4370
1/4-28	Plated Alloy Steel	90	4370
M6 X 1	Plated Alloy Steel	90	4370
5/16-18	300 Series Stainless Steel	180	5320
5/16-24	300 Series Stainless Steel	180	5320
M8 X 1.25	300 Series Stainless Steel	180	5320
5/16-24	Type 410, 420 or 431 Stainless Steel	240	7000
M8 X 1.25	Type 410, 420 or 431 Stainless Steel	240	7000
5/16-24	Type A286 Stainless Steel	240	7000
5/16-24	Plated Alloy Steel	240	7000
3/8-16	300 Series Stainless Steel	390	7100
3/8-16	Plated Alloy Steel	480	9350
1/2-13	Plated Alloy Steel	550	17200

300 series stainless steel bolt strength based on 95,000 psi minimum tensile strength. Type 410–431 stainless steel bolt strength based on 125,000 psi minimum tensile strength. Type A286 stainless steel bolt strength based on 125,000 psi minimum tensile strength. Plated alloy steel bolt strength based on 125,000 psi minimum tensile strength. Torque coupling or band to a level where joints are properly closed. Maximum torque levels are not required for proper joint function.



SPECIFICATIONS

6. DETERMINE RETAINER INSIDE DIAMETER CODE

V01-3-52-00-N-**0588**-S2 (Sample Description Code)

The retainer inside diameter (I.D.) must be specified in .01 in. increments. It is determined by adding the flange outside diameter (O.D.) plus the recommended air gap for the retainer series. The last 2 digits of the code are represented as a two place decimal number without the decimal point.

For Example:

You have a flange with an O.D. of 5.750 in. designed for use with a 52 series retainer. See 52 series chart to determine what should be added to flange O.D. to get retainer I.D.

1. ADD FLANGE O.D. AND RECOMMENDED AIR GAP FROM CHART TO GET RETAINER SERIES I.D.

5.750 in. + 0.125 in. = 5.875 in.

2. ROUND TO NEAREST TWO PLACE DECIMAL: 5.88

3. DROP THE DECIMAL POINT TO ARRIVE AT YOUR CODE: 588

When starting with a metric unit, convert millimeters to inches rounded to two decimal places, and then drop the decimal point.

For Example:

60 mm = (60 mm/25.4) = 2.36 in. = 236








Remember...The V-Band I.D. is always larger than the flange O.D.



7. DETERMINE NUT, KNOB, OR T-HANDLE CODE

V01-3-52-00-N-0588-**S2** (Sample Description Code)












Clampco provides the following Nuts, Knobs and T-Handles as standard options. Choose the Nut, Knob or T-Handle that is best suited to your application, or contact our sales department with your special request.

CODE	KNOB AND T-HANDLE DESCRIPTION		THREAD SIZE
K		Knob for hand tightening, plastic with Brass insert, 1 in. long	10-32 1/4-28
K1		Knob for hand tightening, plastic with Brass insert, 1.75 in. long	1/4-20 1/4-28
T		T-Handle for hand tightening, Steel/Zinc Plated, 3 in. long	10-32 1/4-28 5/16-24
T2		T-Handle for hand tightening, Steel/Zinc Plated, 2.125 in. long	1/4-28
T7		T-Handle for hand tightening, 400 series Stainless Steel, 3 in. long	1/4-28 5/16-24
T9		T-Handle for hand tightening, 300 series Stainless Steel, 3 in. long	5/16-24
T14		T-Handle for hand tightening, 300 series Stainless Steel, 3 in. long	1/4-28



NOTE:

See pages 30 and 31 for additional Knob and T-Handle information.

CODE	NUT DESCRIPTION		THREAD SIZE	TEMP RATING	SELF-LOCKING
S		Steel, self-locking, nylon insert, Zinc Plated	10-32 1/4-28 5/16-24 M6 X 1	250° F	Yes
S1		All metal, Steel, self-locking, collar or short beam design, Silver Plated	10-32 1/4-28 5/16-24 3/8-16	550° F	Yes
S2		All metal, 18-8 Stainless Steel*, self-locking, collar or short beam design, Silver Plated	10-32 1/4-28 5/16-24 3/8-16	800° F	Yes
S3		All metal, 347 Stainless Steel*, self-locking, collar or short beam design, Silver Plated	10-32 1/4-28 5/16-24	1200° F	Yes
S4		18-8 Stainless Steel, self-locking, nylon insert, Silver Plated	10-32 1/4-28 5/16-24 3/8-16	250° F	Yes
S6		All metal, 347 Stainless Steel, self-locking, long beam design, Silver Plated	10-32 1/4-28	1200° F	Yes
S14		316 Stainless Steel, self-locking, nylon insert, Silver Plated	1/4-28 5/16-24 M6 X 1 M8 X 1.25	250° F	Yes
S22		All metal, 300 series Stainless Steel, self-locking, Silver Plated, Emuge Style Thread design	M8 X 1.25	800° F	Yes
H		Stainless Steel Hex Nut, Silver Plated	10-32 1/4-28 5/16-24 3/8-16 M6 X 1 M8 X 1.25	800° F	No
H6		Steel Hex Nut, Zinc Plated	10-32 1/4-28 5/16-24 3/8-16	-	No
H8		Brass Hex Nut	10-32 1/4-28 5/16-24 3/8-16	-	No

*We reserve the right to substitute with A286 stainless steel and/or other equivalent locknuts unless otherwise specified.