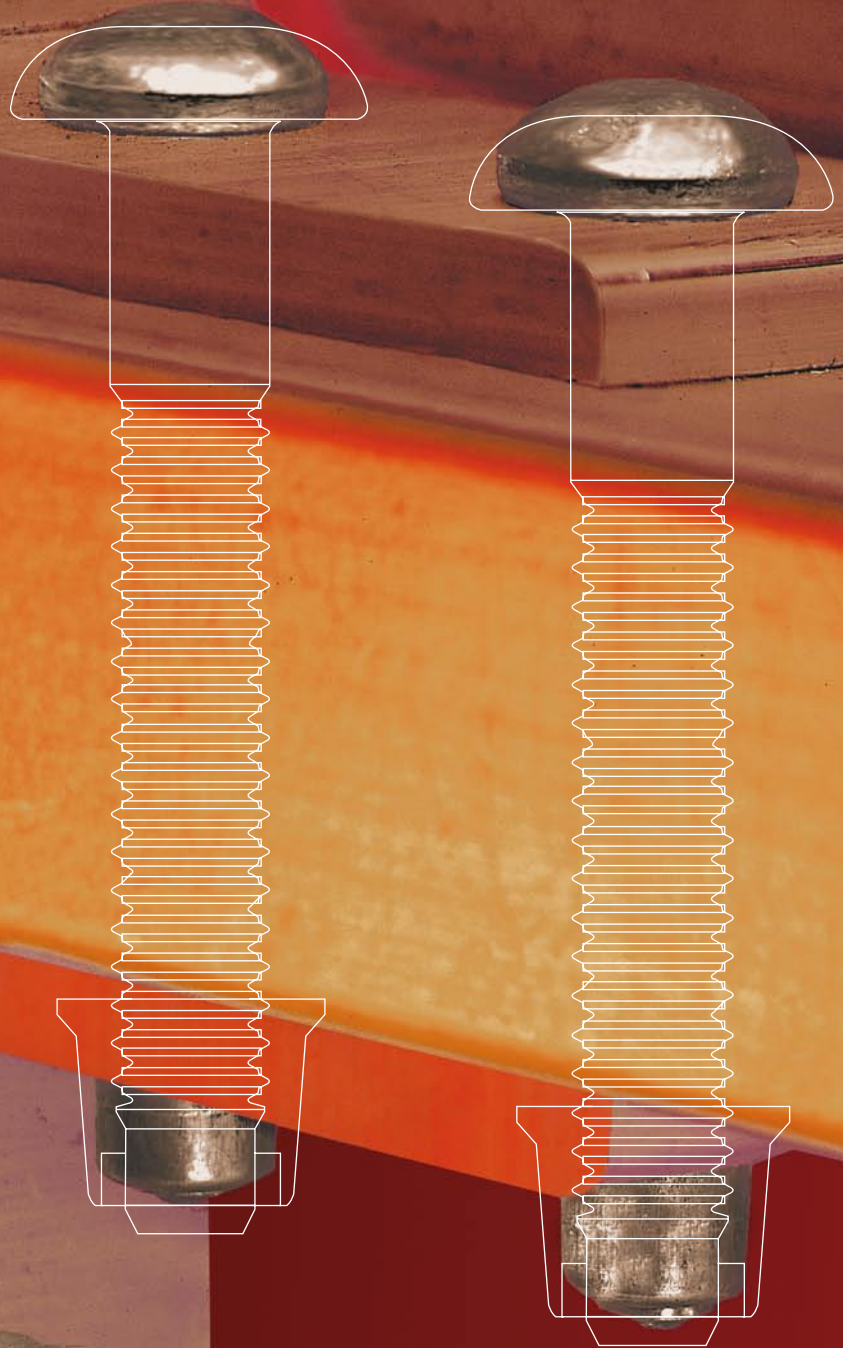
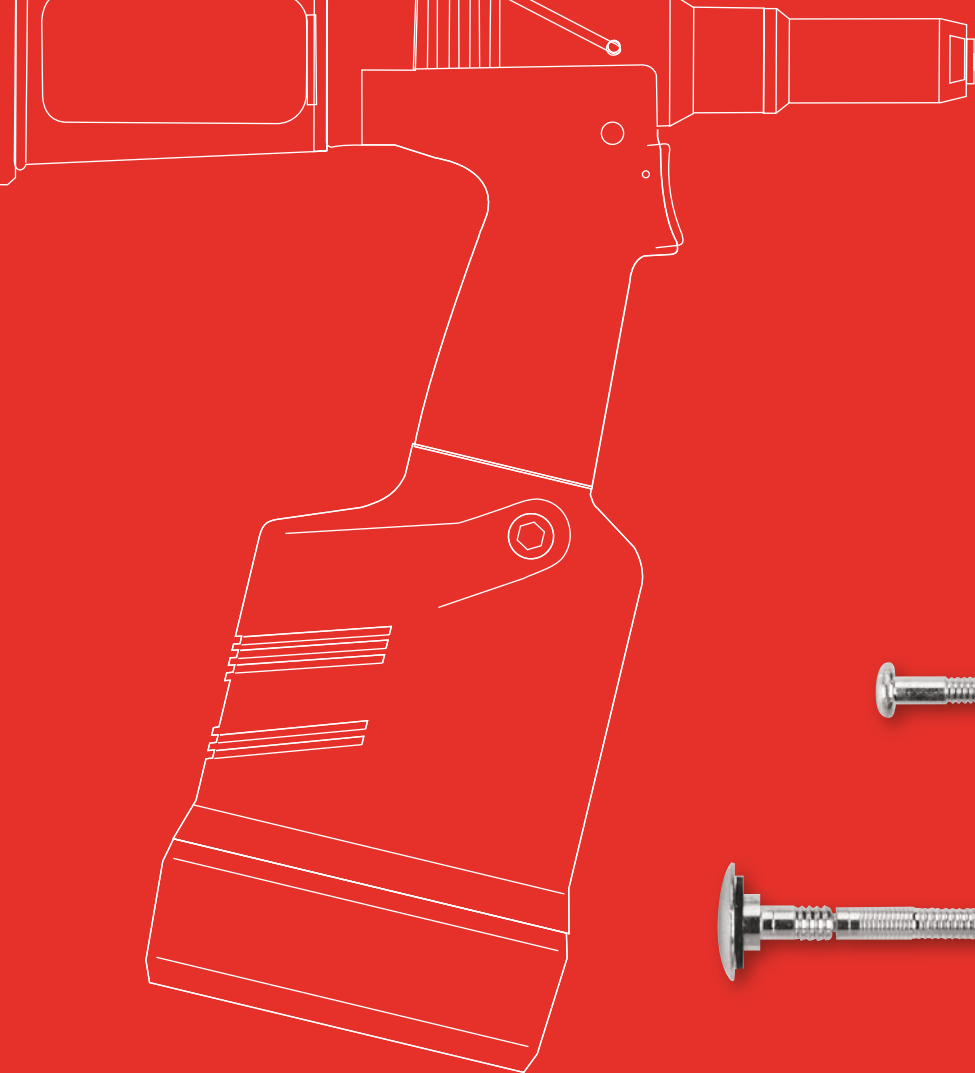




Lockbolt Systems





Structural vibration resistant fasteners with high clamp load performance and multi-grip capabilities

Avdel® lockbolts are specified whenever robust and reliable fastening is desired. Our intelligent fastening systems and durable, ergonomic installation tools create an ideal assembly solution in any manufacturing environment.

Avdel® structural lockbolts consist of a separate pin and collar which are mechanically locked during installation. Our fasteners form joints capable of withstanding the toughest applications and environments that traditional rivet and screw joints often cannot provide. They offer exceptional resistance to vibration and material fatigue due to the swaged lock which forms collar material permanently into the circular grooves of the bolt.

Avdel® structural lockbolts can be installed quickly and easily without the need for special training or the skilled labour that's often required for other fastening methods. This simple installation process eliminates negative manufacturing influences including examples of RSI (Repetitive Strain Injury) – thus ensuring safety & quality from the first to the last installation.

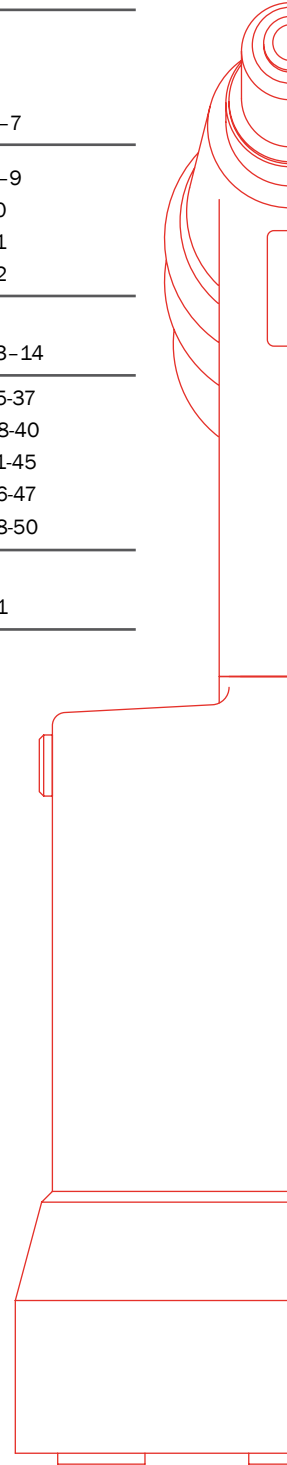
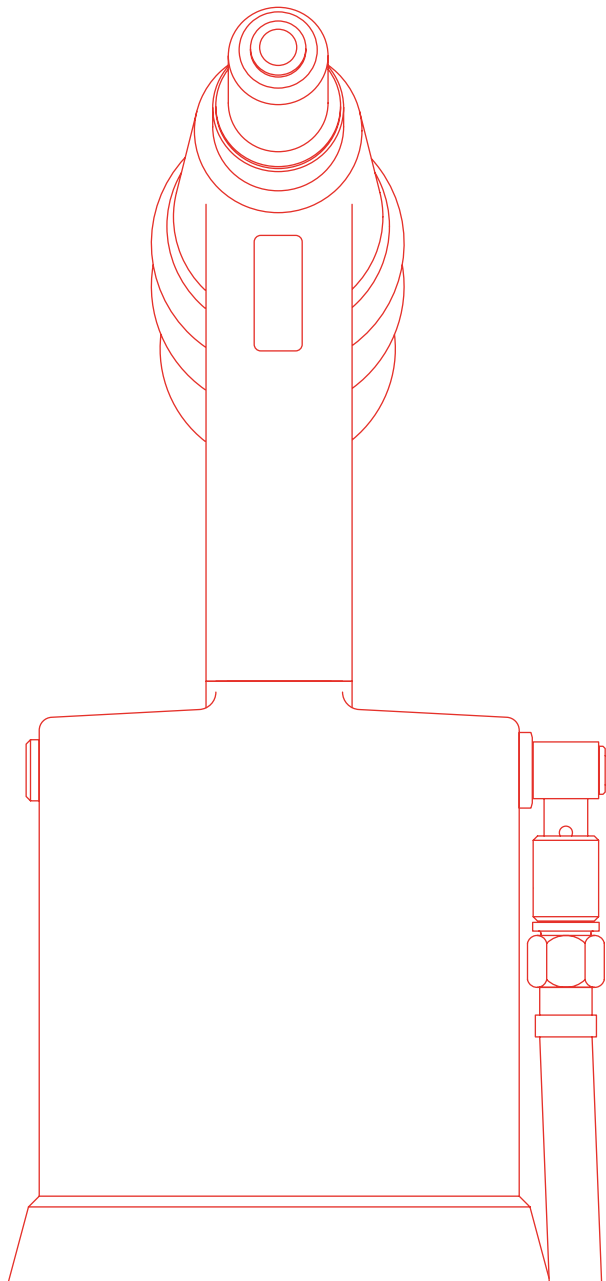
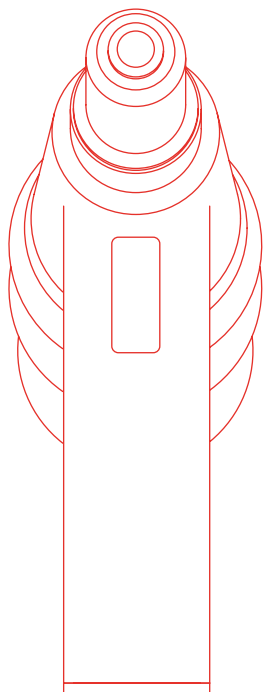
Avdel® structural lockbolts are mostly used in the automotive, HGV & transportation markets as well as machinery and equipment manufacturing, heating and ventilation, and metal fabrication and construction.

The Avdel® structural lockbolt range can provide a cost effective solution for any application, often reducing total assembly cost and time as well as inventory.

Together with our customers we develop fastening systems that simplify your production process and improve the quality and functionality of your products. We are not just a provider of fasteners and equipment but a design and development partner helping you to improve assembly and product performance.

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Avdel® Structural Lockbolt Systems

Avdel® lockbolt systems are designed for high strength, secure assembly. Quick and simple to place, durable and long lasting, they are the ideal solution where spot welding is not practical and other methods are costly, time consuming or not possible. Avdel® lockbolt systems have been widely used for many years in demanding engineering industries throughout the world, including vehicle body building, railways, construction and containers.

Benefits of assembly

High speed assembly

Avdel® lockbolts are placed in seconds, to provide a secure, long-lasting joint.

High shear and tensile strength

Avdel® lockbolts have been designed to deliver the high strength performance required in load-bearing, structural applications.

Consistent, high performance

Designed and manufactured to close tolerances, Avdel® lockbolt systems ensure consistently accurate and secure, high strength assembly. Combined with a special purpose tool, Avdel® lockbolts eliminate installation errors or variability of clamp associated with conventional assembly methods.

Robust and rugged tools

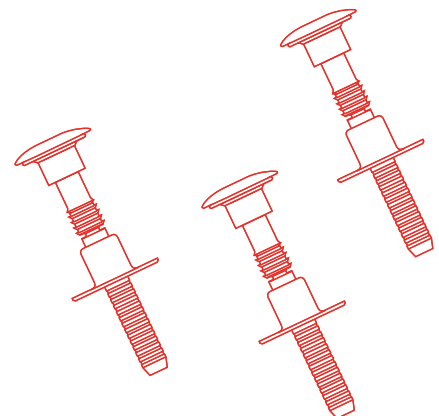
Designed for use in demanding engineering environments, these tools have a long and reliable track record. They provide consistently accurate and secure installation within a few seconds.

Excellent vibration resistance

As permanent as a weld, Avdel® lockbolts resist loosening when all other methods fail.

Ease of inspection

A quick and simple visual inspection is sufficient to check that an Avdel® lockbolt has been correctly installed and tampering is immediately obvious. Avdelok®, Maxlok® and Avtainer® lockbolts are TIR approved.



Range overview

Brand

Material

Key features

Avdelok®



Aluminium Alloy
Steel
Stainless Steel

High shear strength
High controlled clamp

Large diameter Avdelok® LD



Steel

Exceptional shear and tensile strength
Sizes from 1/2" (12.7 mm) to 1" (25.4 mm)

Maxlok®



Aluminium Alloy
Steel

Wide grip range
High shear strength

Avtainer®



Steel

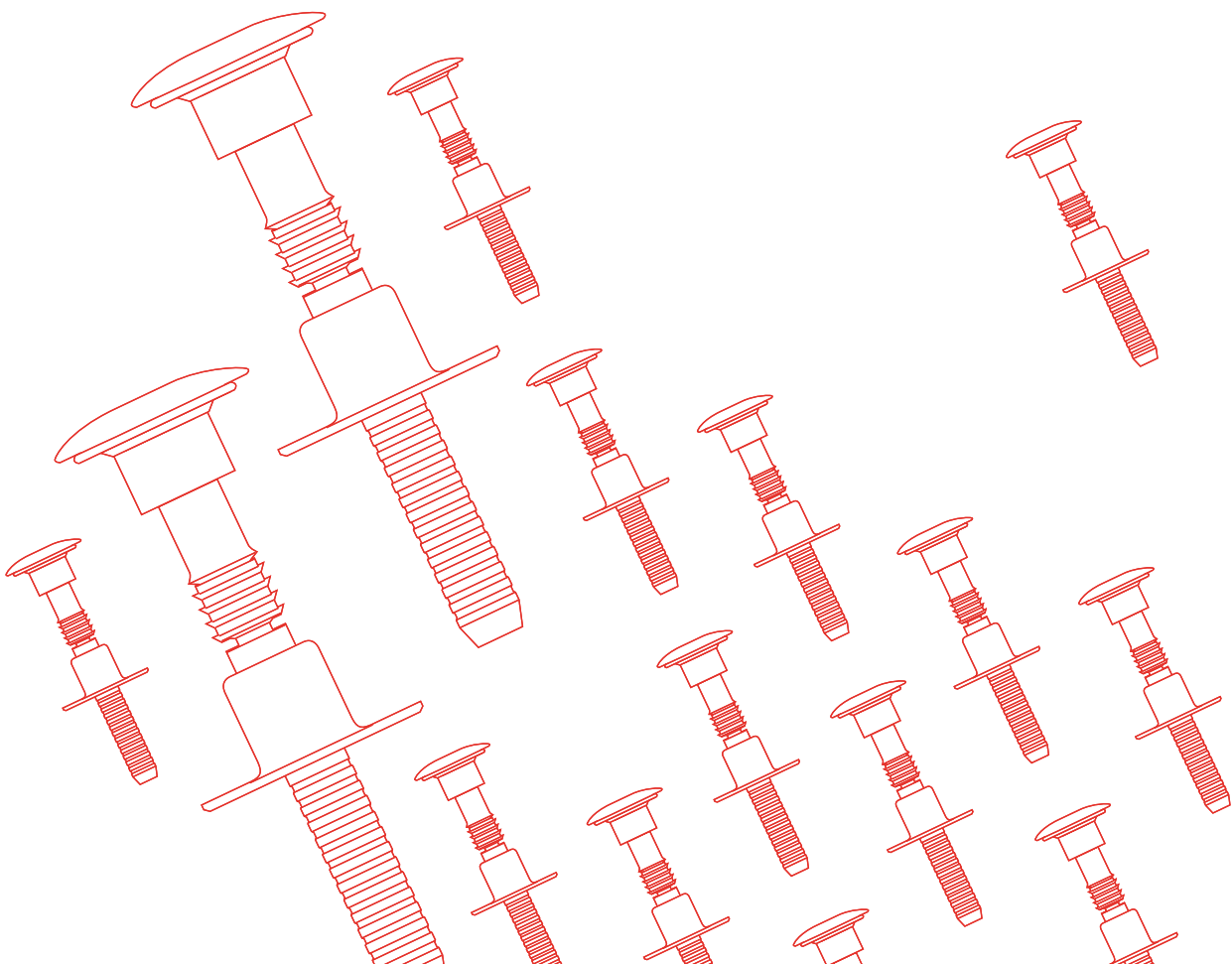
High shear strength
Joins composite panels to metal
Leak resistant
High speed installation

Avbolt®



Steel

Use on blind sided applications
High tensile and shear strength
High grip capability



Selecting a Lockbolt Fastener

Selecting an Avdel® structural lockbolt fastener is a simple process. The factors detailed below are designed to help you identify a fastener suitable for your application:

Fastener selection

Accessibility

If there is only access from one side the Avbolt® structural blind fastener is the only choice. Avdelok®, Maxlok® and Avtainer® lockbolts require access from both sides of the component.

Grip range

The fastener should be selected to ensure that the thicknesses of the parent materials fall within the grip range.

Hole size

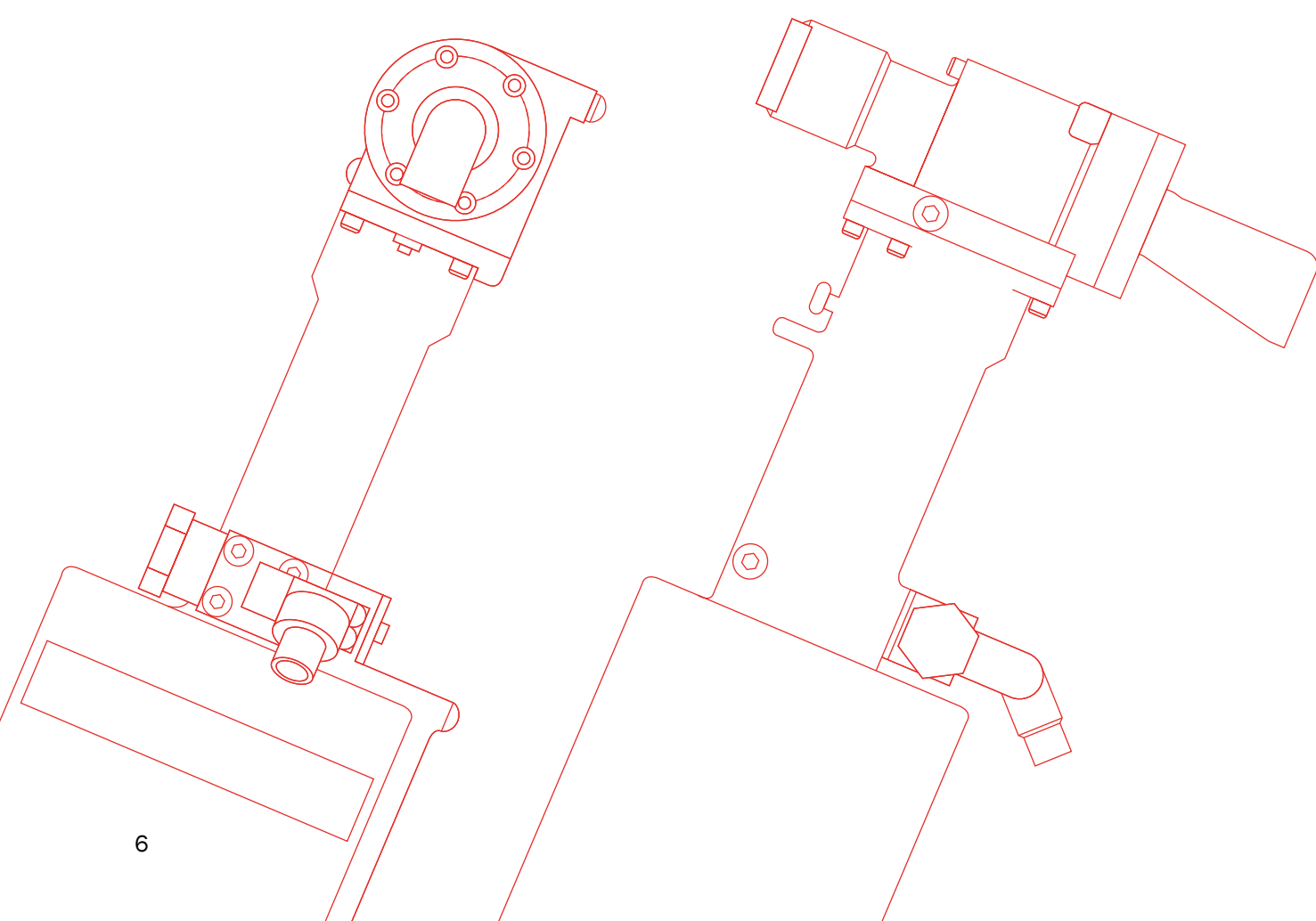
This is specified on the relevant technical data sheet for the structural fastener. It is important to control the hole size accurately in order to ensure the performance of the fastener.

Corrosion Resistance

Material and plating selection should be based on the level of corrosion resistance required. Corrosion is best reduced by selecting a fastener material which is the same as the parent material(s). Stainless steel fasteners offer the best corrosion resistance.

Important Information

The information on this page should be used in conjunction with the technical data available on our website www.avdel-global.com where you can also find additional information about corrosion, safety and RoHS.



Selection Guide

This table is designed as a guide to help you select the most suitable Avdel® lockbolt for your particular application. Full technical and performance data for each fastener can be found on our website www.avdel-global.com or contact your local Avdel representative.

Product Range	Material Pin & Collar		Headform Pin							Collar			Fastener Size (nom)							Page No.						
	Aluminium	Steel	Stainless Steel	Brazier head	90° Countersunk	Truss head	Large head	Round head	Mushroom head	Low profile	Full	Half	Flanged	3/16" (4.8 mm)	1/4" (6.4 mm)	5/16" (8.0 mm)	9.6 mm (3/8")	3/8" (10.0 mm)	1/2" (12.7 mm)	5/8" (15.9/16 mm)	3/4" (19.1 mm)	7/8" (22.2 mm)	1" (25.4 mm)	Series No.	Description	Data Sheet
Avdelok®		•		•							•	•	•	•	•	•	•							2621	8-9	15
		•			•						•	•	•	•	•	•	•							2622	8-9	18
		•				•					•	•	•	•	•	•	•							2624	8-9	21
			•	•							•		•	•	•	•	•							2691	8-9	24
		•		•							•	•	•	•	•	•	•							2801	8-9	27
		•			•						•	•	•	•	•	•	•							2802	8-9	30
		•					•				•	•	•	•	•	•	•							2803	8-9	33
		•						•			•	•	•				•							2804	8-9	36
Avdelok® LD		•						•		•		•						•	•	•	•	•		2861	8-9	38
Maxlok®		•		•						•			•	•										1901	10	41
		•			•					•			•											1902	10	42
		•						•		•			•	•										1903	10	43
		•					•			•			•	•										1905	10	44
		•		•							•			•	•									1921	10	45
Avtainer®		•							•								•						2311	11	46	
Avbolt®		•																•	•	•				21001	12	48
		•											•	•	•									21021	12	49

Our policy is one of continuous product development and improvement and we reserve the right to change the specification of any product without prior notice.

Avdelok®

High strength, vibration resistant lockbolts with high, controlled clamp.



Key features and benefits

- High shear strength for high strength assembly
- High, controlled clamp provides excellent vibration resistance
- Quick to install across a wide range of applications
- Comprehensive range of special purpose installation tools
- Wide choice of materials, sizes, head forms and collar options to suit a wide variety of applications
- Easy to inspect for tampering
- TIR approved
- Large diameter option from 1/2" (12.7 mm) to 1" (25.4 mm) for heavy engineering applications
- Steel Avdelok® pins typically offer comparable values to property class 5.8 threaded products
- Installed Avdelok® LD fasteners provide a minimum shear, tensile and pre-load strength which is equivalent to or exceeds property class 8.8 or ASTM A-325 standards

Specifications

Avdelok®

Sizes:

3/16" to 3/8"
(4.8 mm to 9.6 mm)

Materials:

Aluminium alloy, steel,
stainless steel

Headforms:

Brazier, countersunk, truss,
large

Collar options:

Full, half, flanged

Avdelok® LD

Sizes:

1/2" to 1"
(12.7 mm to 25.4 mm)
(1 1/8" / 28.6 mm optional)

Materials:

Steel

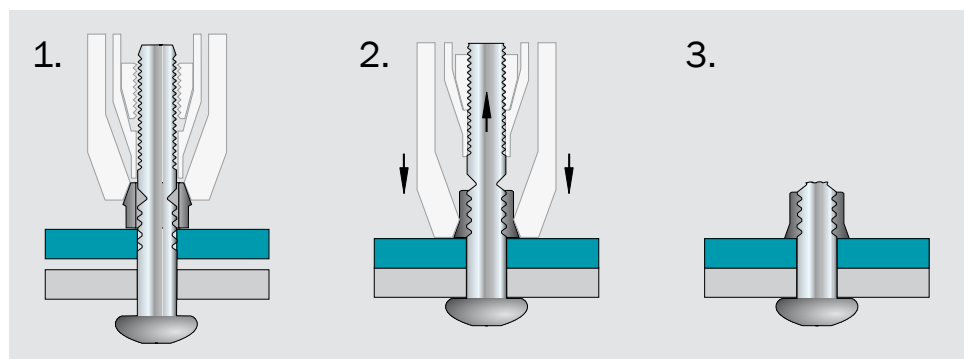
Headforms:

Round, large truss head,
countersunk

Collar options:

Full, flanged

Typical placing sequence

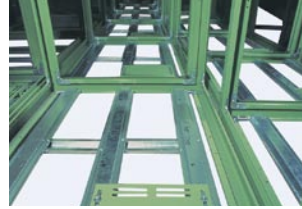


Please visit our website www.avdel-global.com for fastener placing animations and technical data.

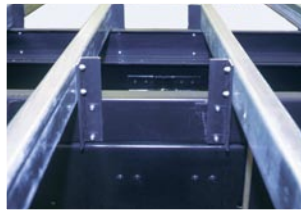
Assembly applications

- Commercial vehicles
- Heating systems
- Steel construction
- Bridge building
- Solar panels
- Railway
- Mining

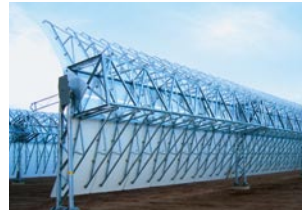
Heating systems



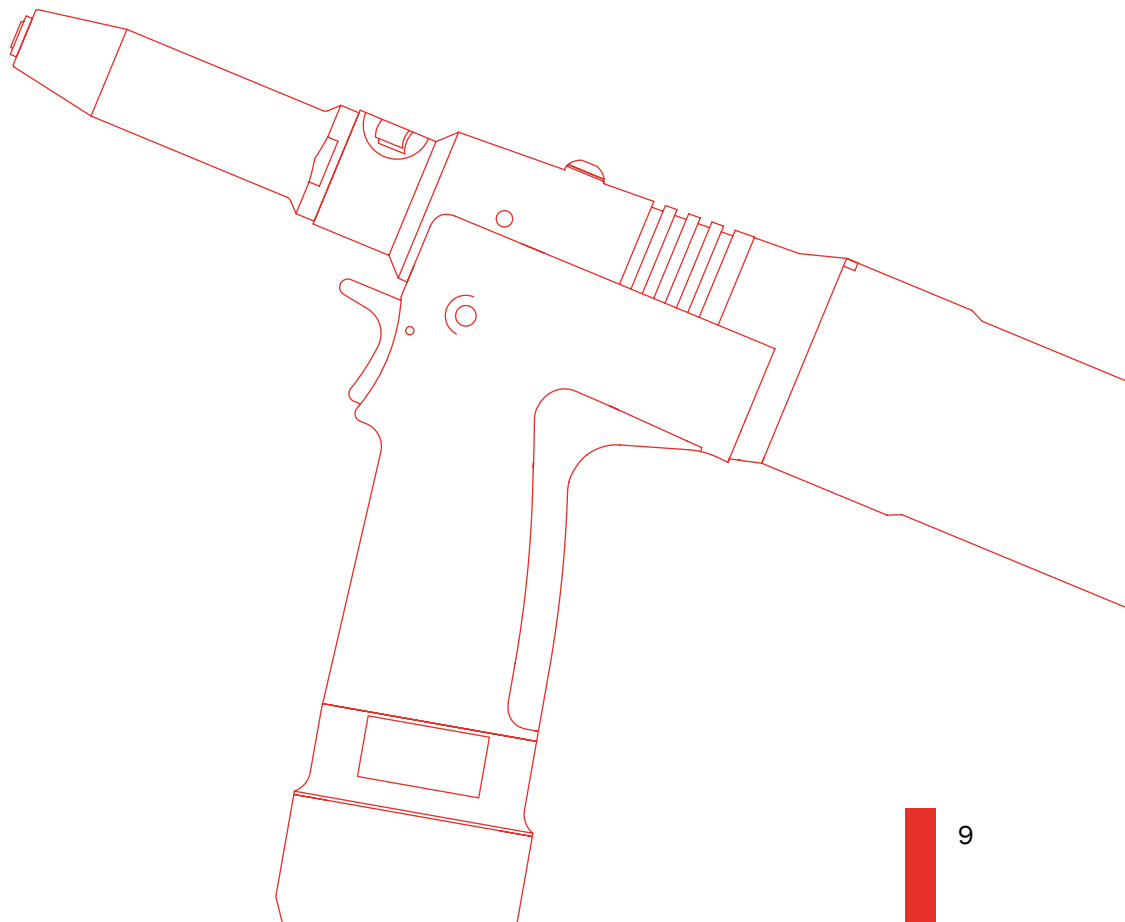
Commercial vehicles



Solar power plants



Solar power plants (detail)



Maxlok[®]

High strength, vibration resistant lockbolts with multi-grip capability.



Key features and benefits

- Wide grip range reduces inventory, simplifies stock control, and accommodates wide variations in material thickness
- High shear strength for high strength assembly
- High, controlled clamp provides excellent vibration resistance
- Wide range of special purpose installation tools
- Quick to install across a wide range of applications
- Brazier, countersunk, mushroom and truss head forms suit a wide variety of applications
- Easy to inspect tampering
- TIR approved

Specifications

Sizes:

43/16" to 1/4"
(4.8 mm to 6.4 mm)

Material:

Aluminium alloy, steel

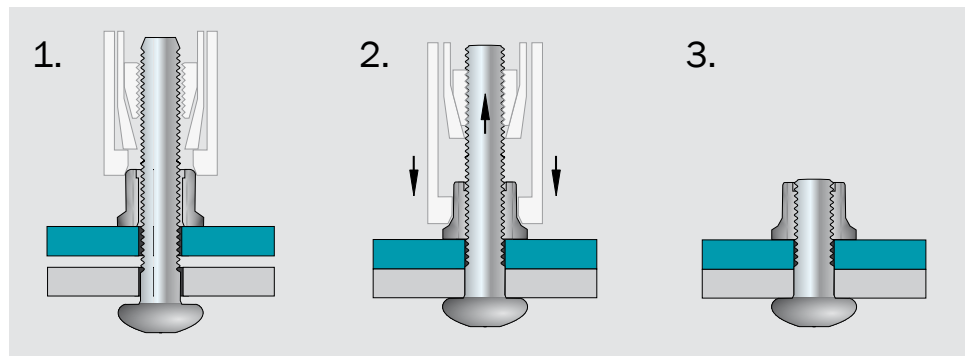
Headforms:

Brazier, countersunk,
mushroom and truss

Collar option:

Flanged

Typical placing sequence



Please visit our website www.avdel-global.com for fastener placing animations and technical data.

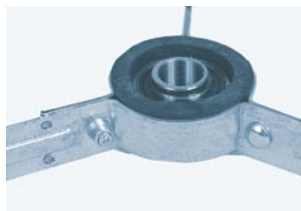
Assembly applications

- Commercial vehicles
- Heating and ventilation
- Frame building

Commercial vehicles



Fan bearing arm



Avtainer®

High strength, steel fastener and shell designed for joining composite panels to metal.



Key features and benefits

- Prevents cracking and pull through of composite materials
- Ideal for the assembly of GRP vehicle panels
- High shear strength for high strength assembly
- Underhead Santoprene® seal for a water/air tight joint
- Internally locked stem provides a secure, vibration resistant joint
- Smaller shell size available for use against metal surfaces
- Low profile head and shell give a neat appearance
- Optional encapsulated heads to match the surrounding colour
- Quick to install with Genesis® power tools
- Easy to inspect for tampering
- TIR approved

Specifications

Sizes:

3/8" (10.0 mm)

Material:

Steel

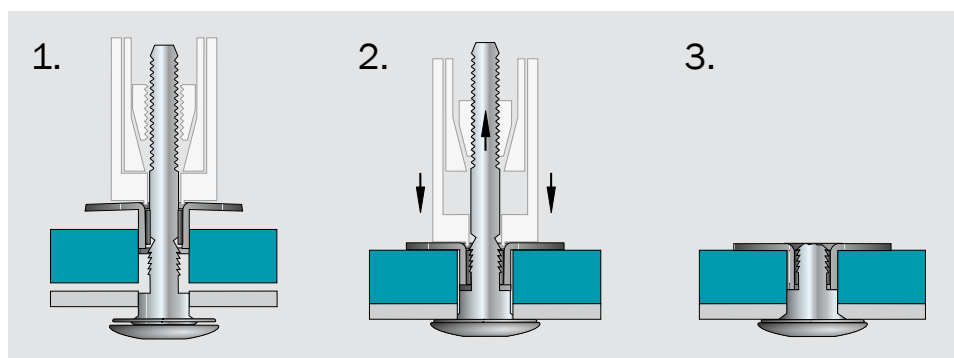
Headforms:

Low profile

Option:

Encapsulated heads

Typical placing sequence



Please visit our website www.avdel-global.com for fastener placing animations and technical data.

Assembly applications

- Commercial vehicles
- Container



Avbolt® Structural Blind Fastener

The Avbolt® structural fastener is a high strength, tamper resistant, blind steel fastener designed for use in heavy-duty structural applications. It offers a high tensile and shear strength normally only possible with non blind lockbolts and combines it with the installation speed of blind products.



Avbolt® 3/8", 1/2" and 5/8"
(10, 12.7 and 16 mm):
3 piece design (sleeve, collar, stem)



Avbolt® 3/16", 1/4" and 5/16"
(4.8, 6.4 and 8.0 mm):
2 piece design (sleeve with collar, stem)

Key features and benefits

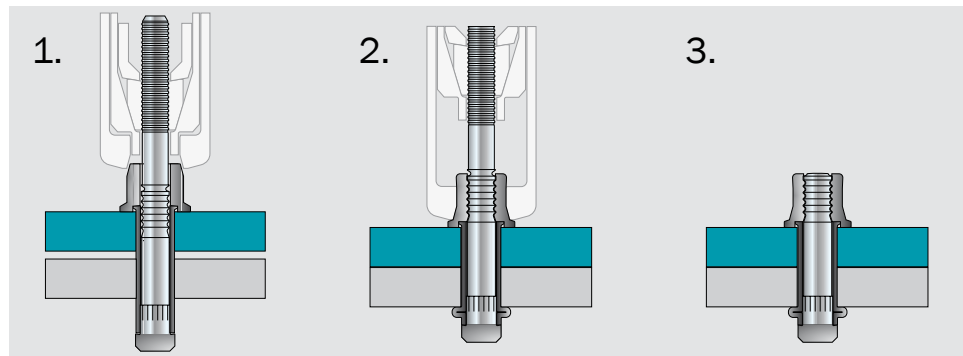
- Use on blind sided application
- High tensile and shear strength for heavy-duty applications
- Wide grip capability suits a variety of material thicknesses
- Locking feature creates a vibration resistant joint and prevents loose stems
- Ideal for areas with restricted access
- Fast installation
- High security tamper resistance
- Simple tooling requires only minimum operator skill

Specifications

Sizes:
3/16" to 5/8"
(4.8 mm to 16.0 mm)
Material:
Steel

Avdel Patent Protected.

Typical placing sequence (3 piece design)



Please visit our website www.avdel-global.com for fastener placing animations and technical data.

Assembly applications

- Automotive
- Construction
- Container
- Renewable energies
- Railway
- Mining
- Security fencing



Installation Tools

Genesis® G2 LB (71255 Model)

Lightweight tool for placing Avdelok® lockbolts \varnothing 3/16" and 1/4" (4.8 mm and 6.4 mm) and Maxlok® lockbolts \varnothing 3/16" (4.8 mm) at high speed making it ideal for batch or flow-line assembly.

- Ergonomic and lightweight design reduces operator fatigue
- Reduced setting time and high speed placement increases productivity
- Integral cycle counter helps establish accurate service intervals
- Toughened plastic body and heavy duty rubber base resists cracking when accidentally dropped
- Can be suspended

Genesis® nG3

Lightweight tool for placing Avtainer® lockbolts at high speed.

- Ergonomic and lightweight design reduces operator fatigue
- High placement speed increases productivity
- Integral cycle counter helps establish accurate service intervals
- Toughened plastic body and heavy duty rubber base make it a robust tool and enhance tool life
- Soft touch rubber grip on handle
- Vacuum air supply cut-off on trigger minimizes air consumption
- Fixed stem collector bottle
- Can be suspended

Genesis® nG4

Lightweight tool for placing Avdelok® and Maxlok® lockbolts \varnothing 3/16" and 1/4" (4.8 mm and 6.4 mm) as well as Avtainer® lockbolts.

- Ergonomic and lightweight design reduces operator fatigue
- Quick cycle time increases productivity
- Integral cycle counter helps establish accurate service intervals
- Toughened plastic body and heavy duty rubber base make it a robust tool for a long working life
- Soft touch rubber grip on handle
- Vacuum air supply cut-off on trigger minimizes air consumption
- Fixed stem collector bottle
- Can be suspended
- Collar cropper attachment available to remove collars from installed Avdelok® and Maxlok® lockbolts

G2 LB (71255 Model)



nG3



nG4



Installation Tools

722 Model

The hydro-pneumatic 722 tool is designed to place all sizes of Avdelok® lockbolts \varnothing 3/16" to 3/8" (4.8 mm to 9.6 mm) as well as Avbolt® fasteners \varnothing 3/16" to 5/16" (4.8 mm to 8.0 mm).

- Cast aluminium body designed for heavy duty use over long periods of time, even in the most demanding environments
- Quick and simple operation minimizes operator fatigue and reduces assembly time to a minimum
- Wide choice of nose assemblies to suit access restrictions of the application
- Collar cropper attachment available to remove collars from installed Avdelok® lockbolts

7287 Model

Hydro-pneumatic split tool with a lightweight placing head able to place Avdelok® and Avtainer® lockbolts up to \varnothing 10 mm ($\frac{3}{8}$ "), Avbolt® fasteners up to \varnothing 5/16" (8 mm) and all other lockbolts up to \varnothing 5/16" (8 mm).

- Extended stroke and pull force
- Installation of large fasteners with single pull action for high placement speed
- Short cycle time can increase assembly capacity
- Lightweight placing head reduces operator fatigue
- Remote intensifier mounted on castors for flexible use in the assembly line
- Wide choice of directly interchangeable 722 model nose assemblies to suit the access restrictions of the application
- Can be fitted with a collar cropper to remove installed Avdelok® lockbolts

734 Model

All Avdelok® LD lockbolts from \varnothing 1/2" to 1 $\frac{1}{8}$ " (12.7 mm to 28.6 mm) can be placed securely in seconds with this range of installation tools. Avdelok® lockbolts \varnothing 3/8" (9.6 mm) and Avbolt® \varnothing 5/16" to 5/8" (8 mm to 16 mm) can also be installed.

- Robust and rugged installation tools designed for a long working life in extreme conditions
- Range of hydraulic power units deliver the extreme high pull pressure required for secure, long lasting assembly at high speed
- Choice of placing heads and nose equipment to suit the entire range of large diameter Avdelok® LD lockbolts as well as other lockbolt brands
- Easy-to-change nose equipment and range of hydraulic hoses in different lengths enable the tool to be adapted to suit local assembly requirements
- Mounted on castors for easy mobility
- Available in voltages from 110V to 525V, diesel option customised to specification
- Switches to 'sleep' mode to conserve energy

722



7287



734

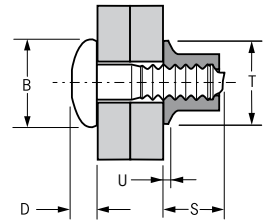
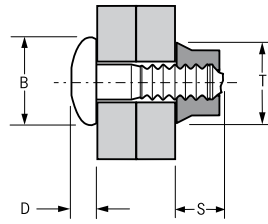
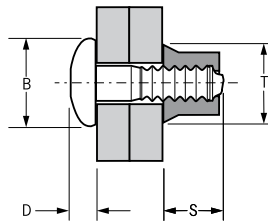
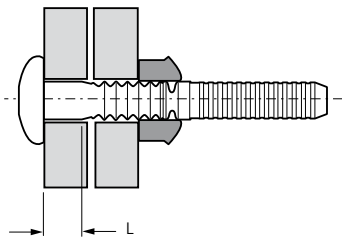


Avdelok® 2621



English	Français	Deutsch	Italiano	Español
Brazier head	Tête plate	Flachrundkopf	Testa tonda	Cabeza alomada
Pin: Carbon boron steel* Zinc plated Clear trivalent passivated	Tige: Acier* Revêtement zingué Passivation claire trivalente	Bolzen: Stahl* Verzinkt Klar chromatiert, Cr6-frei	Bullone: Acciaio a carbonio* Zincato Passivazione chiara trivalente	Vástago: Acero al carbono* Zincado Pasivado claro trivalente
Collar: Low carbon steel** Zinc plated Clear trivalent passivated	Bague: Acier bas carbone** Revêtement zingué Passivation claire trivalente	Schließring: Stahl** Verzinkt Klar chromatiert, Cr6-frei	Collare: Acciaio a basso tenore di carbonio** Zincato Passivazione chiara trivalente	Collar: Acero bajo en carbono** Zincado Pasivado claro trivalente

*: SAE 10B21 EN 10263-4 23MnB4 **: SAE 1008 EN 10263-2 C8C



Full Collar
Schließring Standard
Bague Standard
Collare Standard
Collar Estándar

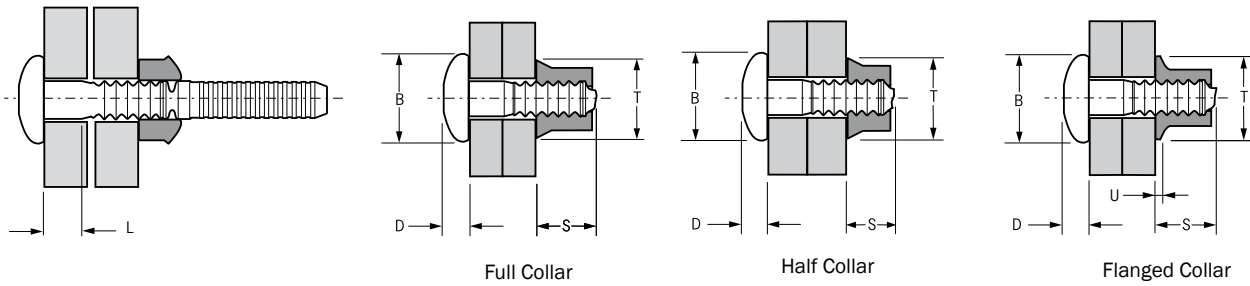
Half Collar
Schließring flach
Bague courte
Collare ribassato
Medio Collar

Flanged Collar
Schließring mit Bund
Bague à embase
Collare flangiato
Collar con Ala

Ø	w. Full Collar ²⁾		L	B	D	Part No/ref	Part No/ref		Part No/ref		Part No/ref		
	min.	max.					Full Collar		Half Collar ²⁾		Flanged Collar ³⁾		
nom.			nom.	max.	max.	Pin ¹⁾	S max.	T max.	S max.	T max.	S max.	T max.	U ³⁾ nom.
3/16" (4.8 mm)	.062	.187	.062	.196	.395	.132	02621-70602	02662-70600	02682-70600	02615-70600	.402	.390	.030
	.125	.250	.125				02621-70603						
	.187	.312	.187				02621-70604						
	.250	.375	.250				02621-70605						
	.312	.437	.312				02621-70606						
	.375	.500	.375				02621-70607						
	.437	.562	.437				02621-70608						
	.500	.625	.500				02621-70609						
	.562	.687	.562				02621-70610						
	.625	.750	.625				02621-70611						
	.687	.812	.687				02621-70612						
	.750	.875	.750				02621-70613						
	.812	.937	.812				02621-70614						
	.875	1.000	.875				02621-70615						
	.937	1.062	.937				02621-70616						
	1.000	1.125	1.000				02621-70617						
1.062	1.187	1.062	02621-70618										
1.125	1.250	1.125	02621-70619										
1.187	1.312	1.187	02621-70620										

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas
1), 2), 3) see page 17 / voir page 17 / siehe Seite 17 / vedi pagina 17 / ver Pág. 17

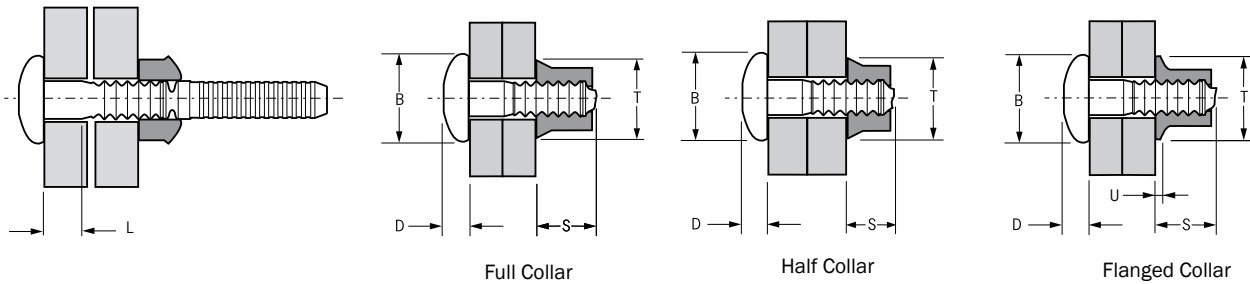
Avdelok® 2621



Ø	w. Full Collar ²⁾		L	B	D	Part No/ref Pin ¹⁾	Part No/ref Full Collar		Part No/ref Half Collar ²⁾		Part No/ref Flanged Collar ³⁾			
	min.	max.					S max.	T max.	S max.	T max.	S max.	T max.	U ³⁾ nom.	
1/4" (6.4 mm)	.062	.187	.062	.261	.526	.161	02621-70802	02662-70800	02682-70800	02615-70800	.520	.515	.037	
	.125	.250	.125											02621-70803
	.187	.312	.187											02621-70804
	.250	.375	.250											02621-70805
	.312	.437	.312											02621-70806
	.375	.500	.375											02621-70807
	.437	.562	.437											02621-70808
	.500	.625	.500											02621-70809
	.562	.687	.562											02621-70810
	.625	.750	.625											02621-70811
	.687	.812	.687											02621-70812
	.750	.875	.750											02621-70813
	.812	.937	.812											02621-70814
	.875	1.000	.875											02621-70815
	.937	1.062	.937											02621-70816
	1.062	1.187	1.062											02621-70818
	1.187	1.312	1.187											02621-70820
5/16" (8.0 mm)	.125	.375	.125	.323	.657	.214	02621-71004	02662-71000	02682-71000	02615-71000	.662	.640	.048	
	.250	.500	.250											02621-71006
	.375	.625	.375											02621-71008
	.500	.750	.500											02621-71010
	.625	.875	.625											02621-71012
	.750	1.000	.750											02621-71014
	.875	1.125	.875											02621-71016
	1.000	1.250	1.000											02621-71018
	1.125	1.375	1.125											02621-71020
	1.250	1.500	1.250											02621-71022
	1.375	1.625	1.375											02621-71024
	1.500	1.750	1.500											02621-71026
	1.625	1.875	1.625											02621-71028
	1.750	2.000	1.750											02621-71030
1.875	2.125	1.875	02621-71032											
3/8" (9.6 mm)	.125	.375	.125	.386	.788	.262	02621-71204	02662-71200	02682-71200	02615-71200	.788	.786	.056	
	.250	.500	.250											02621-71206
	.375	.625	.375											02621-71208
	.500	.750	.500											02621-71210

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas
 1), 2), 3) see page 17 / voir page 17 / siehe Seite 17 / vedi pagina 17 / ver Pág. 17

Avdelok® 2621



Ø	w. Full Collar ²⁾		L	B	D	Part No/ref	Part No/ref		Part No/ref		Part No/ref		
	min.	max.					Full Collar		Half Collar ²⁾		Flanged Collar ³⁾		
nom.			nom.	max.	max.	Pin ¹⁾	S max.	T max.	S max.	T max.	S max.	T max.	U ³⁾ nom.
3/8" (9.6 mm)	.625	.875	.625	.788	.262	02621-71212	.730 .610	.610 .610	.788 .786 .056				
	.750	1.000	.750			02621-71214							
	.875	1.125	.875			02621-71216							
	1.000	1.250	1.000			02621-71218							
	1.125	1.375	1.125			02621-71220							
	1.250	1.500	1.250			02621-71222							
	1.375	1.625	1.375			02621-71224							
	1.500	1.750	1.500			02621-71226							
	1.625	1.875	1.625			02621-71228							
	1.750	2.000	1.750			02621-71230							
	1.875	2.125	1.875			02621-71232							

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas

1) Different grip range pins with different numbers of grooves available. / Tiges avec autres plages de serrage et différent nombre de cannelures sont disponible. / Bolzen mit anderem Klemmbereich und anderer Anzahl von Rillen sind verfügbar. / Sono disponibili bulloni con spessori serrabili differenti con diverso numero di scanalature. / Disponibles pernos con diferente número de anillos según el espesor a remachar.

2) Half collars increase the grip range to that of the next longest pin. Maximum grip increases by .062" for 3/16" and 1/4" fasteners and .125" for 5/16" and 3/8" fasteners.

Avec une bague courte, la plage de serrage maximale est équivalente à celle de l'Avdelok de longueur immédiatement supérieure. La plage de serrage augmente de .062" pour tiges de 3/16" et 1/4", et de .125" pour tiges de 5/16" et 3/8".

Die Verwendung von flachen Schließringen erhöht den Klemmbereich auf den des nächstlängeren Bolzens. Der maximale Klemmbereich erhöht sich um .062" für 3/16" und 1/4" Bolzen und .125" für 5/16" und 3/8" Bolzen.

Utilizzando i collari ribassati lo spessore serrabile aumenta, ed è uguale a quello massimo del bullone di misura superiore. Il massimo spessore serrabile aumenta di .062" per i bulloni da 3/16" e 1/4" e di .125" per i bulloni da 5/16" e 3/8".

El empleo de medio collar incrementa el máx. espesor a remachar al de la siguiente toma. El máximo espesor a remachar por uso de medio collar es de .062" para diámetros de 3/16" y 1/4" y de .125" para diámetros de 5/16" y 3/8".

3) Flanged collars are used in applications where the hole on the collar side of the application is oversize or is slotted for alignment purposes. To determine what length of pin is required, add dimension U to the thickness of material being fastened.

Avec une bague à embase, la plage de serrage est diminuée de la valeur de la cote U.

Schließringe mit Bund werden in Anwendungen benötigt, wo das Bohrloch auf der Schließringseite übergroß oder länglich ist. Um den richtigen Bolzen zu bestimmen, addieren Sie das Maß U zu der zu verbindenden Materialstärke hinzu.

Utilizzando i collari flangiati la dimensione „U“ deve essere aggiunta allo spessore da serrare per determinare il tipo di bullone adatto.

Utilizar collar con ala cuando en la aplicación el taladro está sobredimensionado o es ranurado. Para calcular la referencia de perno necesaria añadir la cota U al espesor de la aplicación.

Ø		
nom.	lbf ⁴⁾	lbf ⁴⁾
3/16" (4.8 mm)	1940	1650
1/4" (6.4 mm)	3310	3000
5/16" (8.0 mm)	5030	4900
3/8" (9.6 mm)	7210	6500

4) These figures represent minimum fastener shear and tensile strength values with the use of a full collar. When using half collars tension is reduced to approximately 45 %.

Cette valeurs représentent minimum résistances au cisaillement et à la traction avec l'usage d'une bague standard. Avec l'usage des bagues courtes la résistance à la traction se diminue à env. 45 %.

Diese Werte repräsentieren Minimum Scher- und Zugfestigkeiten der Verbindung unter Verwendung von Standard-Schließringen. Bei Verwendung von flachen Schließringen reduziert sich die Zugfestigkeit auf ca. 45 %.

I dati si riferiscono a bulloni installati con collari Standard, utilizzando collari ribassati i valori di trazione diminuiscono del 45 % circa, i valori di taglio rimangono invariati. I dati indicati in tabella sono minimi.

La figura representa los valores mínimos de resistencia a la cortadura y tracción cuando se utiliza collar estándar. Cuando se utiliza medio collar se reducen aproximadamente en un 45 %.

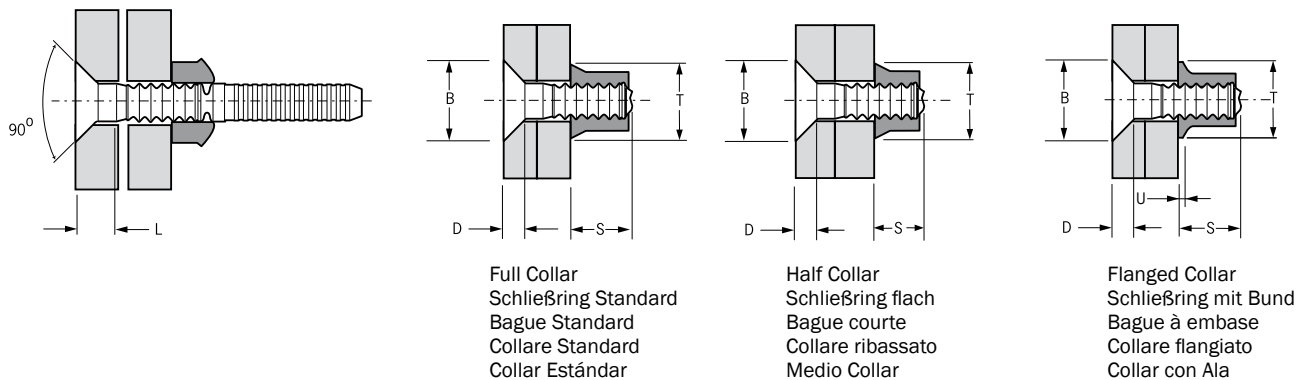
Steel Avdelok® pins typically offer comparable values to property class 5.8 threaded products. / Les tiges Avdelok® acier offrent des valeurs comparables à celles d'un boulon de classe 5.8. / Avdelok® Bolzen aus Stahl bieten Werte, die normalerweise mit denen eines Gewindeproduktes der Festigkeitsklasse 5.8 gleichzusetzen sind. / I bulloni Avdelok® in acciaio normalmente offrono valori comparabili alla classe di resistenza 5.8 dei prodotti filettati. / Los pernos Avdelok® de acero suelen ofrecer resistencias que equivalen a la calidad 5.8 de los tornillos.

Avdelok® 2622



English	Français	Deutsch	Italiano	Español
90° Countersunk	90° Tête fraisée	90° Senkkopf	90° Testa svasata	90° Cabeza avellanada
Pin: Carbon boron steel* Zinc plated Clear trivalent passivated	Tige: Acier* Revêtement zingué Passivation claire trivalente	Bolzen: Stahl* Verzinkt Klar chromatiert, Cr6-frei	Bullone: Acciaio a carbonio* Zincato Passivazione chiara trivalente	Vástago: Acero al carbono* Zincado Pasivado claro trivalente
Collar: Low carbon steel** Zinc plated Clear trivalent passivated	Bague: Acier bas carbone** Revêtement zingué Passivation claire trivalente	Schließring: Stahl** Verzinkt Klar chromatiert, Cr6-frei	Collare: Acciaio a basso tenore di carbonio** Zincato Passivazione chiara trivalente	Collar: Acero bajo en carbono** Zincado Pasivado claro trivalente

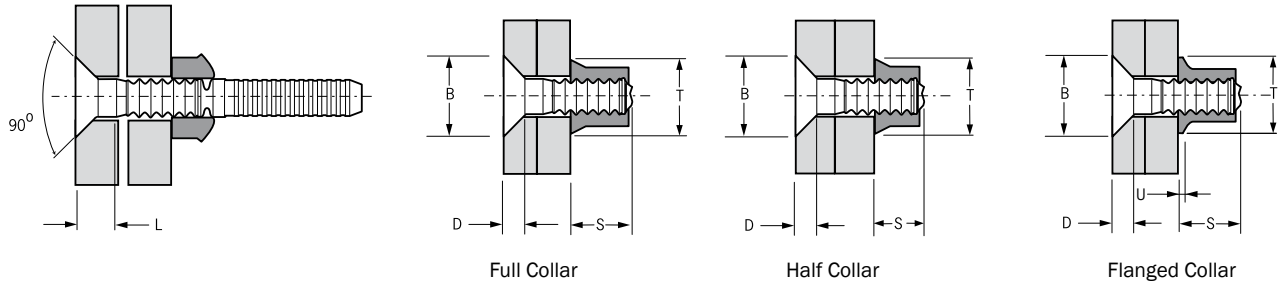
*: SAE 10B21 EN 10263-4 23MnB4 **: SAE 1008 EN 10263-2 C8C



Ø	w. Full Collar ²⁾		L	B	D	Part No/ref	Part No/ref		Part No/ref		Part No/ref		
	min.	max.					Full Collar		Half Collar ²⁾		Flanged Collar ³⁾		
nom.			nom.	max.	max.	Pin ¹⁾	S max.	T max.	S max.	T max.	S max.	T max.	U ³⁾ nom.
3/16" (4.8 mm)	.125	.250	.125	.349	.085	02622-70603	02662-70600	.370 .315	02682-70600	.310 .315	02615-70600 .402 .390 .030		
	.187	.312	.187			02622-70604							
	.250	.375	.250			02622-70605							
	.312	.437	.312			02622-70606							
	.375	.500	.375			02622-70607							
	.437	.562	.437			02622-70608							
	.500	.625	.500			02622-70609							
	.562	.687	.562			02622-70610							
	.625	.750	.625			02622-70611							
	.687	.812	.687			02622-70612							
	.750	.875	.750			02622-70613							
	.812	.937	.812			02622-70614							
	.875	1.000	.875			02622-70615							
	.937	1.062	.937			02622-70616							
	1.000	1.125	1.000			02622-70617							
	1.062	1.187	1.062			02622-70618							
1.125	1.250	1.125	02622-70619										
1.187	1.312	1.187	02622-70620										

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas
 1), 2), 3) see page 20 / voir page 20 / siehe Seite 20 / vedi pagina 20 / ver Pág. 20

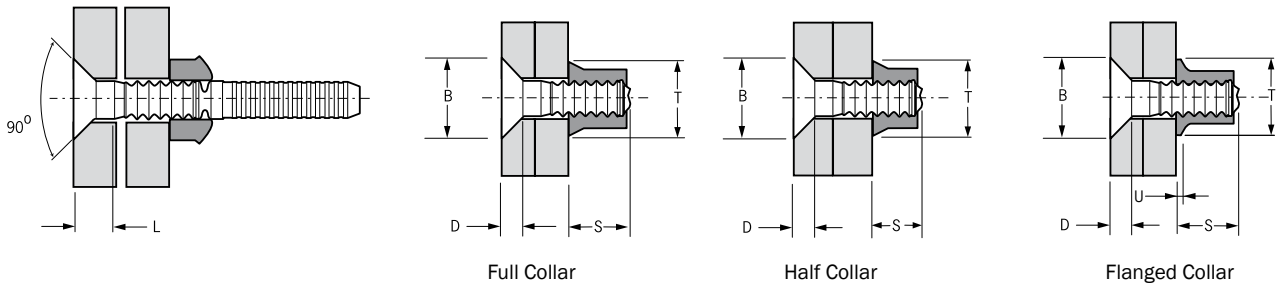
Avdelok® 2622



Ø	w. Full Collar ²⁾		L	B	D	Part No/ref Pin ¹⁾	Part No/ref Full Collar		Part No/ref Half Collar ²⁾		Part No/ref Flanged Collar ³⁾		
	min.	max.					S max.	T max.	S max.	T max.	S max.	T max.	U ³⁾ nom.
1/4" (6.4 mm)	.125	.250	.125	.465	.114	02622-70803	02662-70800	.480 .417	02682-70800	.420 .417	02615-70800 .520 .515 .037		
	.187	.312	.187			02622-70804							
	.250	.375	.250			02622-70805							
	.312	.437	.312			02622-70806							
	.375	.500	.375			02622-70807							
	.437	.562	.437			02622-70808							
	.500	.625	.500			02622-70809							
	.562	.687	.562			02622-70810							
	.625	.750	.625			02622-70811							
	.687	.812	.687			02622-70812							
	.750	.875	.750			02622-70813							
	.812	.937	.812			02622-70814							
	.875	1.000	.875			02622-70815							
	.937	1.062	.937			02622-70816							
5/16" (8.0 mm)	.125	.375	.125	.581	.143	02622-71004	02662-71000	.610 .524	02682-71000	.490 .524	02615-71000 .662 .640 .048		
	.250	.500	.250			02622-71006							
	.375	.625	.375			02622-71008							
	.500	.750	.500			02622-71010							
	.625	.875	.625			02622-71012							
	.750	1.000	.750			02622-71014							
	.875	1.125	.875			02622-71016							
	1.000	1.250	1.000			02622-71018							
	1.125	1.375	1.125			02622-71020							
	1.250	1.500	1.250			02622-71022							
	1.375	1.625	1.375			02622-71024							
	1.500	1.750	1.500			02622-71026							
	1.625	1.875	1.625			02622-71028							
	1.750	2.000	1.750			02622-71030							
1.875	2.125	1.875	02622-71032										
3/8" (9.6 mm)	.250	.500	.250	.697	.172	02622-71206	02662-71200	.730 .610	02682-71200	.610 .610	02615-71200 .788 .786 .056		
	.375	.625	.375			02622-71208							
	.500	.750	.500			02622-71210							
	.625	.875	.625			02622-71212							
	.750	1.000	.750			02622-71214							
	.875	1.125	.875			02622-71216							

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas
1), 2), 3) see page 20 / voir page 20 / siehe Seite 20 / vedi pagina 20 / ver Pág. 20

Avdelok® 2622



Ø	w. Full Collar ²⁾		L	B	D	Part No/ref	Part No/ref		Part No/ref				
	nom.	min.					max.	nom.	max.	Pin ¹⁾	Full Collar		Half Collar ²⁾
							S	T	S	T	S	T	U ³⁾
							max.	max.	max.	max.	max.	max.	nom.
3/8" (9.6 mm)	1.000	1.250	.386	1.000	.697	.172	02622-71218	02662-71200	02682-71200	02615-71200	.788	.786	.056
	1.125	1.375		02622-71220									
	1.250	1.500		02622-71222									
	1.375	1.625		02622-71224									
	1.500	1.750		02622-71226									
	1.625	1.875		02622-71228									
	1.750	2.000		02622-71230									
	1.875	2.125		02622-71232									

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas

1) Different grip range pins with different numbers of grooves available. / Tiges avec autres plages de serrage et différent nombre de cannelures sont disponible./ Bolzen mit anderem Klemmbereich und anderer Anzahl von Rillen sind verfügbar. / Sono disponibili bulloni con spessori serrabili differenti con diverso numero di scanalature. / Disponibles pernos con diferente número de anillos según el espesor a remachar.

2) Half collars increase the grip range to that of the next longest pin. Maximum grip increases by .062" for 3/16" and 1/4" fasteners and .125" for 5/16" and 3/8" fasteners.

Avec une bague courte, la plage de serrage maximale est équivalente à celle de l'Avdelok de longueur immédiatement supérieure. La plage de serrage augmente de .062" pour tiges de 3/16" et 1/4", et de .125" pour tiges de 5/16" et 3/8".

Die Verwendung von flachen Schließringen erhöht den Klemmbereich auf den des nächstlängeren Bolzens. Der maximale Klemmbereich erhöht sich um .062" für 3/16" und 1/4" Bolzen und .125" für 5/16" und 3/8" Bolzen.

Utilizzando i collari ribassati lo spessore serrabile aumenta, ed è uguale a quello massimo del bullone di misura superiore. Il massimo spessore serrabile aumenta di .062" per i bulloni da 3/16" e 1/4" e di .125" per i bulloni da 5/16" e 3/8".

El empleo de medio collar incrementa el máx. espesor a remachar al de la siguiente toma. El máximo espesor a remachar por uso de medio collar es de .062" para diámetros de 3/16" y 1/4" y de .125" para diámetros de 5/16" y 3/8".

3) Flanged collars are used in applications where the hole in the collar side of the application is oversize or is slotted for alignment purposes. To determine what length of pin is required, add dimension U to the thickness of material being fastened.

Avec une bague à embase, la plage de serrage est diminuée de la valeur de la cote U.

Schließringe mit Bund werden in Anwendungen benötigt, wo das Bohrloch auf der Schließringseite übergroß oder länglich ist. Um den richtigen Bolzen zu bestimmen, addieren Sie das Maß U zu der zu verbindenden Materialstärke hinzu.

Utilizzando i collari flangiati la dimensione „U“ deve essere aggiunta allo spessore da serrare per determinare il tipo di bullone adatto.

Utilizar collar con ala cuando en la aplicación el taladro está sobredimensionado o es ranurado. Para calcular la referencia de perno necesaria añadir la cota U al espesor de la aplicación.

Ø		
nom.	lbf ⁴⁾	lbf ⁴⁾
3/16" (4.8 mm)	1940	1650
1/4" (6.4 mm)	3310	3000
5/16" (8.0 mm)	5030	4900
3/8" (9.6 mm)	7210	6500

4) These figures represent minimum fastener shear and tensile strength values with the use of a full collar. When using half collars tension is reduced to approximately 45 %.

Cette valeurs représentent minimum résistances au cisaillement et à la traction avec l'usage d'une bague standard. Avec l'usage des bagues courtes la résistance à la traction se diminue à env. 45 %. Diese Werte repräsentieren Minimum Scher- und Zugfestigkeiten der Verbindung unter Verwendung von Standard-Schließringen. Bei Verwendung von flachen Schließringen reduziert sich die Zugfestigkeit auf ca. 45 %.

I dati si riferiscono a bulloni installati con collari Standard, utilizzando collari ribassati i valori di trazione diminuiscono del 45 % circa, i valori di taglio rimangono invariati. I dati indicati in tabella sono minimi.

La figura representa los valores mínimos de resistencia a la cortadura y tracción cuando se utiliza collar estándar. Cuando se utiliza medio collar se reducen aproximadamente en un 45 %.

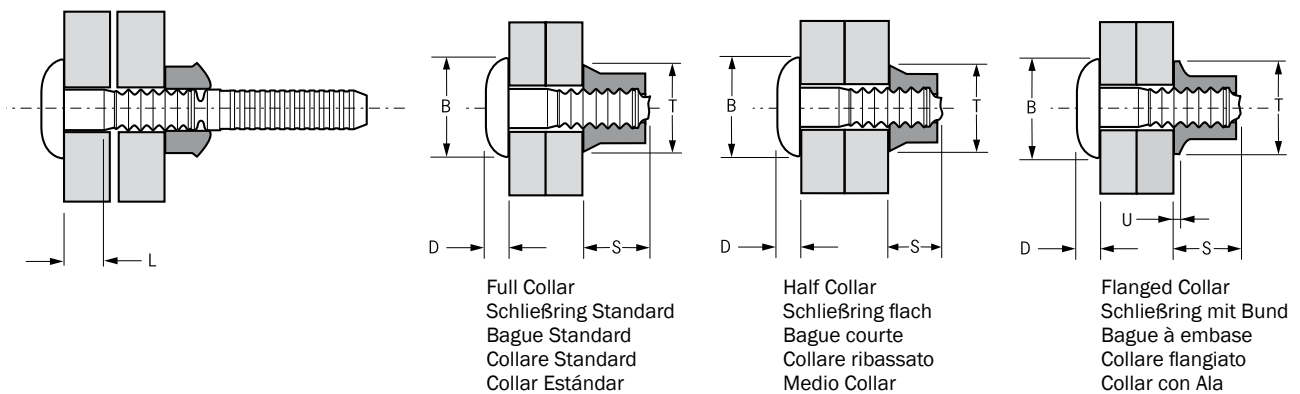
Steel Avdelok® pins typically offer comparable values to property class 5.8 threaded products. / Les tiges Avdelok® acier offrent des valeurs comparables à celles d'un boulon de classe 5.8. / Avdelok® Bolzen aus Stahl bieten Werte, die normalerweise mit denen eines Gewindeproduktes der Festigkeitsklasse 5.8 gleichzusetzen sind. / I bulloni Avdelok® in acciaio normalmente offrono valori comparabili alla classe di resistenza 5.8 dei prodotti filettati. / Los pernos Avdelok® de acero suelen ofrecer resistencias que equivalen a la calidad 5.8 de los tornillos.

Avdelok® 2624



English	Français	Deutsch	Italiano	Español
Truss head	Tête large	Flachrundkopf groß	Testa larga	Cabeza alomada de perfil bajo
Pin: Carbon boron steel* Zinc plated Clear trivalent passivated	Tige: Acier* Revêtement zingué Passivation claire trivalente	Bolzen: Stahl* Verzinkt Klar chromatiert, Cr6-frei	Bullone: Acciaio a carbonio* Zincato Passivazione chiara trivalente	Vástago: Acero al carbono* Zincado Pasivado claro trivalente
Collar: Low carbon steel** Zinc plated Clear trivalent passivated	Bague: Acier bas carbone** Revêtement zingué Passivation claire trivalente	Schließring: Stahl** Verzinkt Klar chromatiert, Cr6-frei	Collare: Acciaio a basso tenore di carbonio** Zincato Passivazione chiara trivalente	Collar: Acero bajo en carbono** Zincado Pasivado claro trivalente

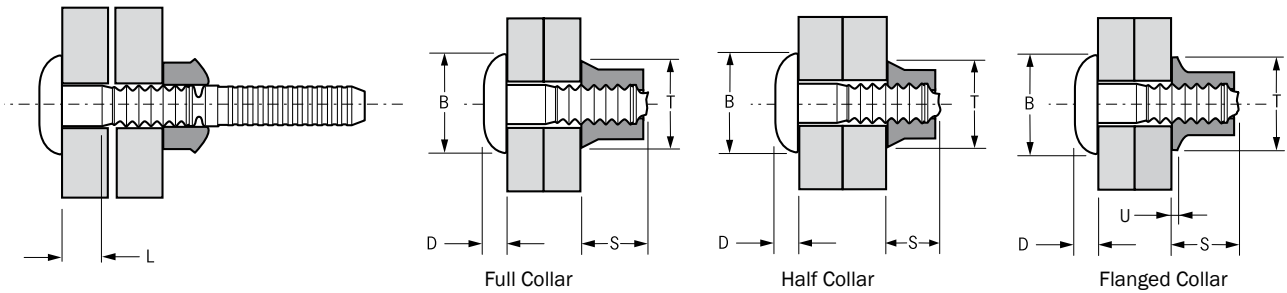
*: SAE 10B21 EN 10263-4 23MnB4 **: SAE 1008 EN 10263-2 C8C



ø	w. Full Collar ²⁾		L	B	D	Part No/ref	Part No/ref		Part No/ref		Part No/ref				
	min.	max.					Full Collar		Half Collar ²⁾		Flanged Collar ³⁾				
nom.			nom.	max.	max.	Pin ¹⁾	S max.	T max.	S max.	T max.	S max.	T max.	U ³⁾ nom.		
3/16" (4.8 mm)	.062	.187	.062	.196	.470	.085	02624-70602	02662-70600	02682-70600	02615-70600	.402	.390	.030		
	.125	.250	.125				02624-70603								
	.187	.312	.187				02624-70604								
	.250	.375	.250				02624-70605								
	.312	.437	.312				02624-70606								
	.375	.500	.375				02624-70607								
	.437	.562	.437				02624-70608								
	.500	.625	.500				02624-70609								
	.562	.687	.562				02624-70610								
	.625	.750	.625				02624-70611							.370 .315	.310 .315
	.687	.812	.687				02624-70612								
	.750	.875	.750				02624-70613								
	.812	.937	.812				02624-70614								
	.875	1.000	.875				02624-70615								
	.937	1.062	.937				02624-70616								
	1.000	1.125	1.000				02624-70617								
1.062	1.187	1.062	02624-70618												
1.125	1.250	1.125	02624-70619												
1.187	1.312	1.187	02624-70620												

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas
1), 2), 3) see page 23 / voir page 23 / siehe Seite 23 / vedi pagina 23 / ver Pág. 23

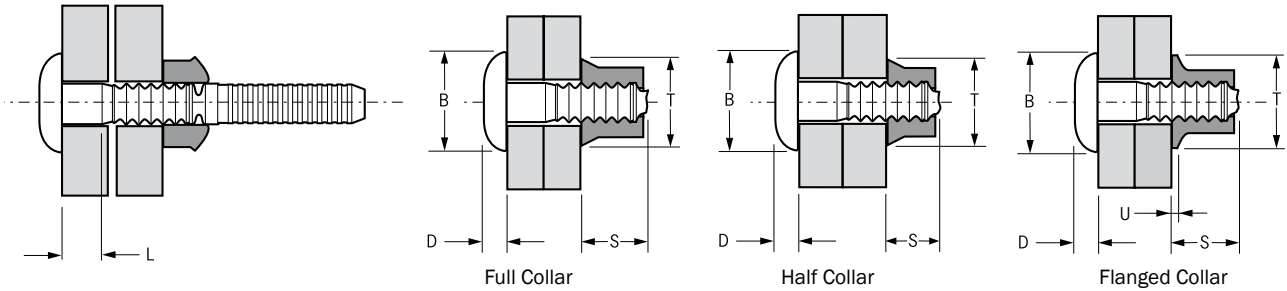
Avdelok® 2624



Ø	w. Full Collar ²⁾		L	B	D	Part No/ref Pin ¹⁾	Part No/ref Full Collar		Part No/ref Half Collar ²⁾		Part No/ref Flanged Collar ³⁾		
	min.	max.					S max.	T max.	S max.	T max.	S max.	T max.	U ³⁾ nom.
1/4" (6.4 mm)	.062	.187	.062	.595	.110	02624-70802	02662-70800	.480 .417	02682-70800	.520 .515 .037			
	.125	.250	.125			02624-70803							
	.187	.312	.187			02624-70804							
	.250	.375	.250			02624-70805							
	.312	.437	.312			02624-70806							
	.375	.500	.375			02624-70807							
	.437	.562	.437			02624-70808							
	.500	.625	.500			02624-70809							
	.562	.687	.562			02624-70810							
	.625	.750	.625			02624-70811							
	.687	.812	.687			02624-70812							
	.750	.875	.750			02624-70813							
	.812	.937	.812			02624-70814							
	.875	1.000	.875			02624-70815							
	.937	1.062	.937			02624-70816							
	1.062	1.187	1.062			02624-70818							
1.187	1.312	1.187	02624-70820										
5/16" (8.0 mm)	.125	.375	.125	.782	.140	02624-71004	02662-71000	.610 .524	02682-71000	.662 .640 .048			
	.250	.500	.250			02624-71006							
	.375	.625	.375			02624-71008							
	.500	.750	.500			02624-71010							
	.625	.875	.625			02624-71012							
	.750	1.000	.750			02624-71014							
	.875	1.125	.875			02624-71016							
	1.000	1.250	1.000			02624-71018							
	1.125	1.375	1.125			02624-71020							
	1.250	1.500	1.250			02624-71022							
	1.375	1.625	1.375			02624-71024							
	1.500	1.750	1.500			02624-71026							
	1.625	1.875	1.625			02624-71028							
1.750	2.000	1.750	02624-71030										
1.875	2.125	1.875	02624-71032										
3/8" (9.6 mm)	.125	.375	.125	.923	.160	02624-71204	02662-71200	.730 .610	02682-71200	.788 .786 .056			
	.250	.500	.250			02624-71206							
	.375	.625	.375			02624-71208							
	.500	.750	.500			02624-71210							
	.625	.875	.625			02624-71212							

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas
 1), 2), 3) see page 23 / voir page 23 / siehe Seite 23 / vedi pagina 23 / ver Pág. 23

Avdelok® 2624



ø	w. Full Collar ²⁾		L	B	D	Part No/ref	Part No/ref		Part No/ref			
	min.	max.					Full Collar	Half Collar ²⁾	Flanged Collar ³⁾			
nom.			nom.	max.	max.	Pin ¹⁾	S max.	T max.	S max.	T max.	U ³⁾ nom.	
3/8" (9.6 mm)	.750	1.000	.750	.923	.160	02624-71214	02662-71200	.730 .610	02682-71200	02615-71200		
	.875	1.125	.875			02624-71216						
	1.000	1.250	1.000			02624-71218						
	1.125	1.375	1.125			02624-71220						
	1.250	1.500	1.250			02624-71222						
	1.375	1.625	1.375			02624-71224						
	1.500	1.750	1.500			02624-71226						
	1.625	1.875	1.625			02624-71228						
	1.750	2.000	1.750			02624-71230						
	1.875	2.125	1.875			02624-71232						

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas

1) Different grip range pins with different numbers of grooves available. / Tiges avec autres plages de serrage et différent nombre de cannelures sont disponible. / Bolzen mit anderem Klemmbereich und anderer Anzahl von Rillen sind verfügbar. / Sono disponibili bulloni con spessori serrabili differenti con diverso numero di scanalature. / Disponibles pernos con diferente número de anillos según el espesor a remachar.

2) Half collars increase the grip range to that of the next longest pin. Maximum grip increases by .062" for 3/16" and 1/4" fasteners and .125" for 5/16" and 3/8" fasteners.

Avec une bague courte, la plage de serrage maximale est équivalente à celle de l'Avdelok de longueur immédiatement supérieure. La plage de serrage augmente de .062" pour tiges de 3/16" et 1/4", et de .125" pour tiges de 5/16" et 3/8".

Die Verwendung von flachen Schließringen erhöht den Klemmbereich auf den des nächstlängeren Bolzens. Der maximale Klemmbereich erhöht sich um .062" für 3/16" und 1/4" Bolzen und .125" für 5/16" und 3/8" Bolzen.

Utilizzando i collari ribassati lo spessore serrabile aumenta, ed è uguale a quello massimo del bullone di misura superiore. Il massimo spessore serrabile aumenta di .062" per i bulloni da 3/16" e 1/4" e di .125" per i bulloni da 5/16" e 3/8".

El empleo de medio collar incrementa el máx. espesor a remachar al de la siguiente toma. El máximo espesor a remachar por uso de medio collar es de .062" para diámetros de 3/16" y 1/4" y de .125" para diámetros de 5/16" y 3/8".

3) Flanged collars are used in applications where the hole on the collar side of the application is oversize or is slotted for alignment purposes. To determine what length of pin is required, add dimension U to the thickness of material being fastened.

Avec une bague à embase, la plage de serrage est diminuée de la valeur de la cote U.

Schließringe mit Bund werden in Anwendungen benötigt, wo das Bohrloch auf der Schließringseite übergroß oder länglich ist. Um den richtigen Bolzen zu bestimmen, addieren Sie das Maß U zu der zu verbindenden Materialstärke hinzu.

Utilizzando i collari flangiati la dimensione „U“ deve essere aggiunta allo spessore da serrare per determinare il tipo di bullone adatto.

Utilizar collar con ala cuando en la aplicación el taladro está sobredimensionado o es ranurado. Para calcular la referencia de perno necesaria añadir la cota U al espesor de la aplicación.

ø		
nom.	lbf ⁴⁾	lbf ⁴⁾
3/16" (4.8 mm)	1940	1650
1/4" (6.4 mm)	3310	3000
5/16" (8.0 mm)	5030	4900
3/8" (9.6 mm)	7210	6500

4) These figures represent minimum fastener shear and tensile strength values with the use of a full collar. When using half collars tension is reduced to approximately 45 %.

Cette valeurs représentent minimum résistances au cisaillement et à la traction avec l'usage d'une bague standard. Avec l'usage des bagues courtes la résistance à la traction se diminue à env. 45 %. Diese Werte repräsentieren Minimum Scher- und Zugfestigkeiten der Verbindung unter Verwendung von Standard-Schließringen. Bei Verwendung von flachen Schließringen reduziert sich die Zugfestigkeit auf ca. 45 %.

I dati si riferiscono a bulloni installati con collari Standard, utilizzando collari ribassati i valori di trazione diminuiscono del 45 % circa, i valori di taglio rimangono invariati. I dati indicati in tabella sono minimi.

La figura representa los valores mínimos de resistencia a la cortadura y tracción cuando se utiliza collar estándar. Cuando se utiliza medio collar se reducen aproximadamente en un 45 %.

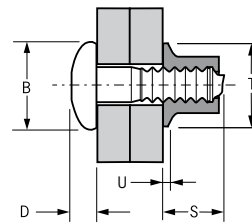
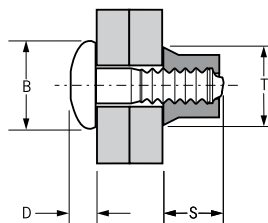
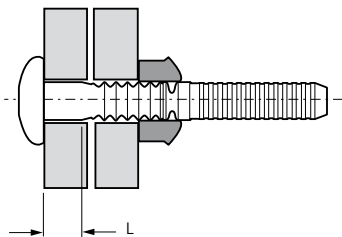
Steel Avdelok® pins typically offer comparable values to property class 5.8 threaded products. / Les tiges Avdelok® acier offrent des valeurs comparables à celles d'un boulon de classe 5.8. / Avdelok® Bolzen aus Stahl bieten Werte, die normalerweise mit denen eines Gewindeproduktes der Festigkeitsklasse 5.8 gleichzusetzen sind. / I bulloni Avdelok® in acciaio normalmente offrono valori comparabili alla classe di resistenza 5.8 dei prodotti filettati. / Los pernos Avdelok® de acero suelen ofrecer resistencias que equivalen a la calidad 5.8 de los tornillos.

Avdelok® 2691



English	Français	Deutsch	Italiano	Español
Brazier head	Tête plate	Flachrundkopf	Testa tonda	Cabeza alomada
Pin: Stainless steel* natural	Tige: Inox* Brut	Bolzen: Edelstahl* Blank	Bullone: Acciaio inox * Nessuna finitura	Vástago: Acero inoxidable* Natural
Collar: Stainless steel** Zinc plated Clear trivalent passivated	Bague: Inox** Revêtement zingué Passivation claire trivalente	Schließring: Edelstahl** Verzinkt Klar chromatiert, Cr6-frei	Collare: Acciaio inox** Zincato Passivazione chiara trivalente	Collar: Acero inoxidable** Zincado Pasivado claro trivalente

*: AISI 304Cu, EN 10263-5, X3CrNiCu18-9-4 **: AISI 430, EN 10263-5 X6Cr17



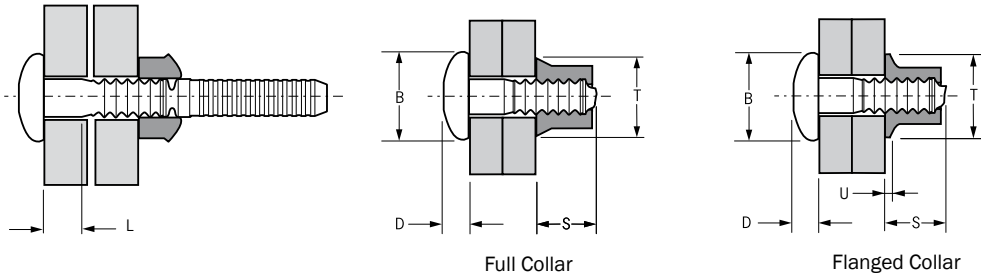
Full Collar
Schließring Standard
Bague Standard
Collare Standard
Collar Estándar

Flanged Collar
Schließring mit Bund
Bague à embase
Collare flangiato
Collar con Ala

ø nom.	w. Full Collar		L nom.	B max.	D max.	Part No/ref Pin ¹⁾	Part No/ref Full Collar		Part No/ref Flanged Collar ²⁾			
	min.	max.					S max.	T max.	S max.	T max.	U ²⁾ nom.	
3/16" (4.8 mm)	.062	.187	.062	.394	.132	02691-00602	02605-70600	.370	.315	.402	.390	.030
	.125	.250	.125			02691-00603						
	.187	.312	.187			02691-00604						
	.250	.375	.250			02691-00605						
	.312	.437	.312			02691-00606						
	.375	.500	.375			02691-00607						
	.437	.562	.437			02691-00608						
	.500	.625	.500			02691-00609						
	.562	.687	.562			02691-00610						
	.625	.750	.625			02691-00611						
	.687	.812	.687			02691-00612						
	.750	.875	.750			02691-00613						
	.812	.937	.812			02691-00614						
	.875	1.000	.875			02691-00615						
	.937	1.062	.937			02691-00616						
	1.000	1.125	1.000			02691-00617						
1.062	1.187	1.062	02691-00618									
1.125	1.250	1.125	02691-00619									
1.187	1.312	1.187	02691-00620									

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas
1) & 2) see page 26 / voir page 26 / siehe Seite 26 / vedi pagina 26 / ver Pág. 26

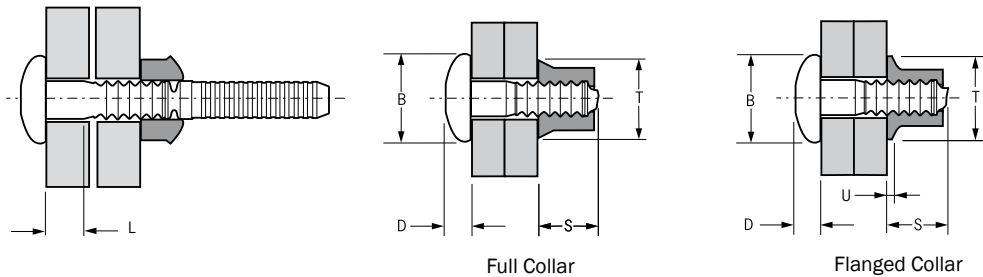
Avdelok® 2691



ø nom.	w. Full Collar		L nom.	B max.	D max.	Part No/ref Pin ¹⁾	Part No/ref Full Collar		Part No/ref Flanged Collar ²⁾			
	min.	max.					S max.	T max.	S max.	T max.	U ²⁾ nom.	
1/4" (6.4 mm)	.062	.187	.062	.525	.161	02691-00802	02605-70800	.480	.417	.520	.515	.037
	.125	.250	.125			02691-00803						
	.187	.312	.187			02691-00804						
	.250	.375	.250			02691-00805						
	.312	.437	.312			02691-00806						
	.375	.500	.375			02691-00807						
	.437	.562	.437			02691-00808						
	.500	.625	.500			02691-00809						
	.562	.687	.562			02691-00810						
	.625	.750	.625			02691-00811						
	.687	.812	.687			02691-00812						
	.750	.875	.750			02691-00813						
	.812	.937	.812			02691-00814						
	.875	1.000	.875			02691-00815						
	.937	1.062	.937			02691-00816						
	1.062	1.187	1.062			02691-00818						
	1.187	1.312	1.187			02691-00820						
5/16" (8.0 mm)	.125	.375	.125	.656	.214	02691-01004	02605-71000	.610	.524	N/A		
	.250	.500	.250			02691-01006						
	.375	.625	.375			02691-01008						
	.500	.750	.500			02691-01010						
	.625	.875	.625			02691-01012						
	.750	1.000	.750			02691-01014						
	.875	1.125	.875			02691-01016						
	1.000	1.250	1.000			02691-01018						
	1.125	1.375	1.125			02691-01020						
	1.250	1.500	1.250			02691-01022						
	1.375	1.625	1.375			02691-01024						
	1.500	1.750	1.500			02691-01026						
	1.625	1.875	1.625			02691-01028						
	1.750	2.000	1.750			02691-01030						
	1.875	2.125	1.875			02691-01032						

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas
 1) & 2) see page 26 / voir page 26 / siehe Seite 26 / vedi pagina 26 / ver Pág. 26

Avdelok® 2691



Ø nom.	w. Full Collar		L nom.	B max.	D max.	Part No/ref Pin ¹⁾	Part No/ref Full Collar		Part No/ref Flanged Collar ²⁾		
	min.	max.					S max.	T max.	S max.	T max.	U ²⁾ nom.
3/8" (9.6 mm)	.125	.375	.125	.386	.787	.262	02691-01204	02605-71200	.730	.610	N/A
	.250	.500	.250								
	.375	.625	.375								
	.500	.750	.500								
	.625	.875	.625								
	.750	1.000	.750								
	.875	1.125	.875								
	1.000	1.250	1.000								
	1.125	1.375	1.125								
	1.250	1.500	1.250								
	1.375	1.625	1.375								
	1.500	1.750	1.500								
	1.625	1.875	1.625								
	1.750	2.000	1.750								
	1.875	2.125	1.875								

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas

1) Different grip range pins with different numbers of grooves are available

Tiges avec autres plages de serrage et différent nombre de cannelures sont disponible

Bolzen mit anderem Klemmbereich und anderer Anzahl von Rillen sind verfügbar

Sono disponibili bulloni con spessori serrabili differenti con diverso numero di scanalature

Disponibles pernos con diferente número de anillos según el espesor a remachar

2) Flanged collars are used in applications where the hole on the collar side of the application is oversize or is slotted for alignment purposes. To determine what length of pin is required, add dimension U to the thickness of material being fastened.

Avec une bague à embase, la plage de serrage est diminuée de la valeur de la cote U.

Schließringe mit Bund werden in Anwendungen benötigt, wo das Bohrloch auf der Schließringseite übergroß oder länglich ist. Um den richtigen Bolzen zu bestimmen, addieren Sie das Maß U zu der zu verbindenden Materialstärke hinzu.

Utilizzando i collari flangiati la dimensione „U“ deve essere aggiunta allo spessore da serrare per determinare il tipo di bullone adatto.

Utilizar collar con ala cuando en la aplicación el taladro está sobredimensionado o es ranurado. Para calcular la referencia de perno necesaria añadir la cota U al espesor de la aplicación.

Ø nom.	lb ^{f3)}	lb ^{f3)}
3/16" (4.8 mm)	1750	2080
1/4" (6.4 mm)	3270	3980
5/16" (8.0 mm)	5000	6700
3/8" (9.6 mm)	7100	8500

3) These figures represent minimum fastener shear and tensile strength values with the use of a full collar.

Cette valeurs représentent minimum résistances au cisaillement et à la traction avec l'usage d'une bague standard.

Diese Werte repräsentieren Minimum Scher- und Zugfestigkeiten der Verbindung unter Verwendung von Standard-Schließringen.

I dati indicati in tabella sono minimi e si riferiscono a bulloni installati con collari Standard.

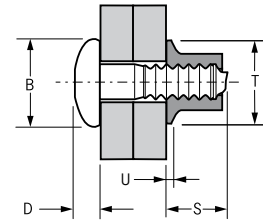
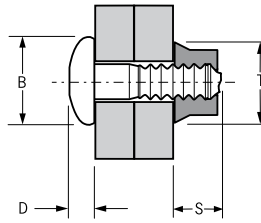
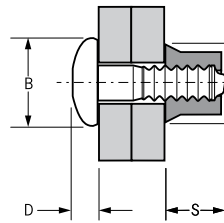
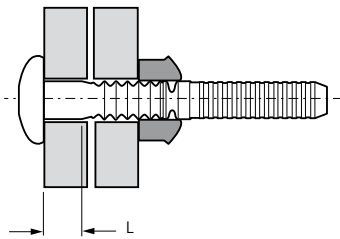
La figura representa los valores mínimos de resistencia a la cortadura y tracción cuando se utiliza collar estándar.

Avdelok® 2801



English	Français	Deutsch	Italiano	Español
Brazier head	Tête plate	Flachrundkopf	Testa tonda	Cabeza alomada
Pin: Aluminium alloy* Polished	Tige: Alliage d'aluminium* Poli	Bolzen: Aluminium* Poliert	Bullone: Lega di alluminio* Lucido	Vástago: Aluminio* Pulido
Collar: Aluminium alloy**	Bague: Alliage d'aluminium**	Schließring: Aluminium**	Collare: Lega di alluminio**	Collar: Aluminio**
Natural	Brut	Blank	Nessuna finitura	Natural

*: AA 2024, DIN 1725, AlCuMg2, Werkstoff 3.1355 **: BS 1473 6061, AA 6061, DIN 1725 AlMg1SiCu, Werkstoff 3.3211



Full Collar
Schließring Standard
Bague Standard
Collare Standard
Collar Estándar

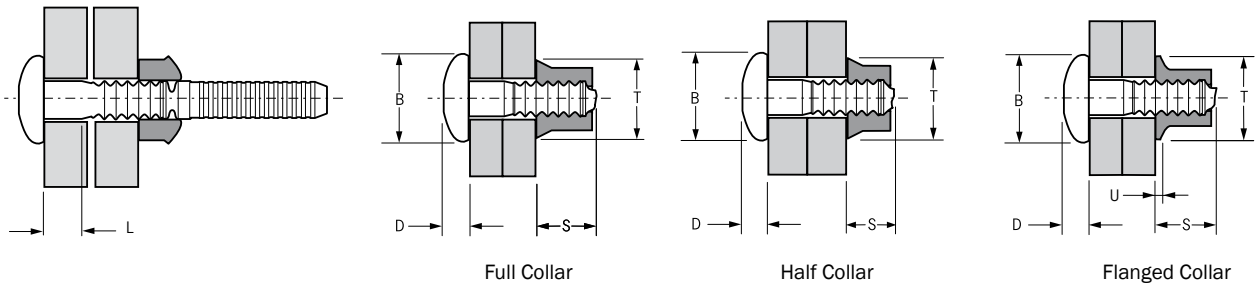
Half Collar
Schließring flach
Bague courte
Collare ribassato
Medio Collar

Flanged Collar
Schließring mit Bund
Bague à embase
Collare flangiato
Collar con Ala

ø	w. Full Collar ²⁾		L	B	D	Part No/ref	Part No/ref		Part No/ref		Part No/ref			
	min.	max.					Full Collar	Half Collar ²⁾	Flanged Collar ³⁾					
nom.			nom.	max.	max.	Pin ¹⁾	S max.	T max.	S max.	T max.	S max.	T max.	U ³⁾ nom.	
3/16" (4.8 mm)	.062	.187	.062	.196	.394	.132	02801-00602	02837-00600	02838-00600	02839-00600 .402 .390 .030				
	.125	.250	.125				02801-00603							
	.187	.312	.187				02801-00604							
	.250	.375	.250				02801-00605							
	.312	.437	.312				02801-00606							
	.375	.500	.375				02801-00607							
	.437	.562	.437				02801-00608							
	.500	.625	.500				02801-00609							
	.562	.687	.562				02801-00610						.370 .315	.310 .315
	.625	.750	.625				02801-00611							
	.687	.812	.687				02801-00612							
	.750	.875	.750				02801-00613							
	.812	.937	.812				02801-00614							
	.875	1.000	.875				02801-00615							
	.937	1.062	.937				02801-00616							
	1.000	1.125	1.000				02801-00617							
	1.062	1.187	1.062				02801-00618							
	1.125	1.250	1.125				02801-00619							
	1.187	1.312	1.187				02801-00620							

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas
1), 2), 3) see page 29 / voir page 29 / siehe Seite 29 / vedi pagina 29 / ver Pág. 29

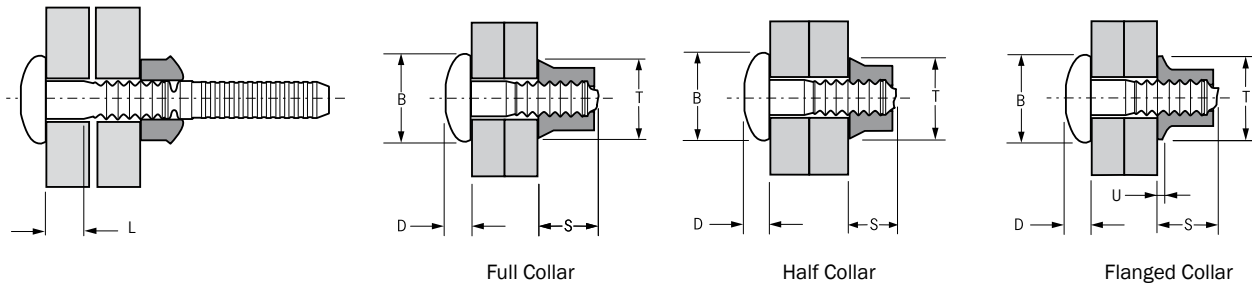
Avdelok® 2801



Ø nom.	w. Full Collar ²⁾		L nom.	B max.	D max.	Part No/ref Pin ¹⁾	Part No/ref Full Collar		Part No/ref Half Collar ²⁾		Part No/ref Flanged Collar ³⁾		
	min.	max.					S max.	T max.	S max.	T max.	S max.	T max.	U ³⁾ nom.
1/4" (6.4 mm)	.062	.187	.261	.062	.525	.161	02801-00802	02837-00800 .480 .417	02838-00800 .420 .417	02839-00800 .520 .515 .037			
	.125	.250		.125			02801-00803						
	.187	.312		.187			02801-00804						
	.250	.375		.250			02801-00805						
	.312	.437		.312			02801-00806						
	.375	.500		.375			02801-00807						
	.437	.562		.437			02801-00808						
	.500	.625		.500			02801-00809						
	.562	.687		.562			02801-00810						
	.625	.750		.625			02801-00811						
	.687	.812		.687			02801-00812						
	.750	.875		.750			02801-00813						
	.812	.937		.812			02801-00814						
	.875	1.000		.875			02801-00815						
	.937	1.062		.937			02801-00816						
	1.062	1.187		1.062			02801-00818						
1.187	1.312	1.187	02801-00820										
1.250	1.375	1.250	02801-00821										
5/16" (8.0 mm)	.125	.375	.323	.125	.656	.214	02801-01004	02837-01000 .610 .524	02838-01000 .490 .524	02839-01000 .662 .640 .048			
	.250	.500		.250			02801-01006						
	.375	.625		.375			02801-01008						
	.500	.750		.500			02801-01010						
	.625	.875		.625			02801-01012						
	.750	1.000		.750			02801-01014						
	.875	1.125		.875			02801-01016						
	1.000	1.250		1.000			02801-01018						
	1.125	1.375		1.125			02801-01020						
	1.250	1.500		1.250			02801-01022						
	1.375	1.625		1.375			02801-01024						
	1.500	1.750		1.500			02801-01026						
	1.625	1.875		1.625			02801-01028						
	1.750	2.000		1.750			02801-01030						
1.875	2.125	1.875	02801-01032										
3/8" (9.6 mm)	.125	.375	.386	.125	.787	.256	02801-01204	02837-01200 .730 .610	02838-01200 .610 .610	02839-01200 .788 .786 .056			
	.250	.500		.250			02801-01206						
	.375	.625		.375			02801-01208						
	.500	.750		.500			02801-01210						

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas
 1), 2), 3) see page 29 / voir page 29 / siehe Seite 29 / vedi pagina 29 / ver Pág. 29

Avdelok® 2801



ø nom.	w. Full Collar ²⁾		L nom.	B max.	D max.	Part No/ref Pin ¹⁾	Part No/ref Full Collar		Part No/ref Half Collar ²⁾		Part No/ref Flanged Collar ³⁾		
	min.	max.					S max.	T max.	S max.	T max.	S max.	T max.	U ³⁾ nom.
3/8" (9.6 mm)	.625	.875	.625	.787	.256	02801-01212	02837-01200	.730 .610	02838-01200	.788 .786 .056			
	.750	1.000	.750			02801-01214							
	.875	1.125	.875			02801-01216							
	1.000	1.250	1.000			02801-01218							
	1.125	1.375	1.125			02801-01220							
	1.250	1.500	1.250			02801-01222							
	1.375	1.625	1.375			02801-01224							
	1.500	1.750	1.500			02801-01226							
	1.625	1.875	1.625			02801-01228							
	1.750	2.000	1.750			02801-01230							
1.875	2.125	1.875	02801-01232										

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas

1) Different grip range pins with different numbers of grooves are available

Tiges avec autres plages de serrage et différent nombre de cannelures sont disponible.

Bolzen mit anderem Klemmbereich und anderer Anzahl von Rillen sind verfügbar

Sono disponibili bulloni con spessori serrabili differenti con diverso numero di scanalature

Disponibles pernos con diferente número de anillos según el espesor a remachar

2) Half collars increase the grip range to that of the next longest pin. Maximum grip increases by .062" for 3/16" and 1/4" fasteners and .125" for 5/16" and 3/8" fasteners.

Avec une bague courte, la plage de serrage maximale est équivalente à celle de l'Avdelok de longueur immédiatement supérieure. La plage de serrage augmente de .062" pour tiges de 3/16" et 1/4", et de .125" pour tiges de 5/16" et 3/8".

Die Verwendung von flachen Schließringen erhöht den Klemmbereich auf den des nächstlängeren Bolzens. Der maximale Klemmbereich erhöht sich um .062" für 3/16" und 1/4" Bolzen und .125" für 5/16" und 3/8" Bolzen.

Utilizzando i collari ribassati lo spessore serrabile aumenta, ed è uguale a quello massimo del bullone di misura superiore. Il massimo spessore serrabile aumenta di .062" per i bulloni da 3/16" e 1/4" e di .125" per i bulloni da 5/16" e 3/8".

El empleo de medio collar incrementa el máx. espesor a remachar al de la siguiente toma. El máximo espesor a remachar por uso de medio collar es de .062" para diámetros de 3/16" y 1/4" y de .125" para diámetros de 5/16" y 3/8".

3) Flanged collars are used in applications where the hole on the collar side of the application is oversize or is slotted for alignment purposes. To determine what length of pin is required, add dimension U to the thickness of material being fastened.

Avec une bague à embase, la plage de serrage est diminuée de la valeur de la cote U.

Schließringe mit Bund werden in Anwendungen benötigt, wo das Bohrloch auf der Schließringseite übergroß oder länglich ist. Um den richtigen Bolzen zu bestimmen, addieren Sie das Maß U zu der zu verbindenden Materialstärke hinzu.

Utilizzando i collari flangiati la dimensione „U“ deve essere aggiunta allo spessore da serrare per determinare il tipo di bullone adatto.

Utilizar collar con ala cuando en la aplicación el taladro está sobredimensionado o es ranurado. Para calcular la referencia de perno necesaria añadir la cota U al espesor de la aplicación.

ø nom.	lb ^{f4)}	lb ^{f4)}
3/16" (4.8 mm)	1050	1060
1/4" (6.4 mm)	1875	1780
5/16" (8.0 mm)	2925	2850
3/8" (9.6 mm)	4200	4200

4) These figures represent minimum fastener shear and tensile strength values with the use of a full collar. When using half collars tension is reduced to approximately 45 %.

Cette valeurs représentent minimum résistances au cisaillement et à la traction avec l'usage d'une bague standard. Avec l'usage des bagues courtes la résistance à la traction se diminue à env. 45 %.

Diese Werte repräsentieren Minimum Scher- und Zugfestigkeiten der Verbindung unter Verwendung von Standard-Schließringen. Bei Verwendung von flachen Schließringen reduziert sich die Zugfestigkeit auf ca. 45 %.

I dati si riferiscono a bulloni installati con collari Standard, utilizzando collari ribassati i valori di trazione diminuiscono del 45 % circa, i valori di taglio rimangono invariati. I dati indicati in tabella sono minimi.

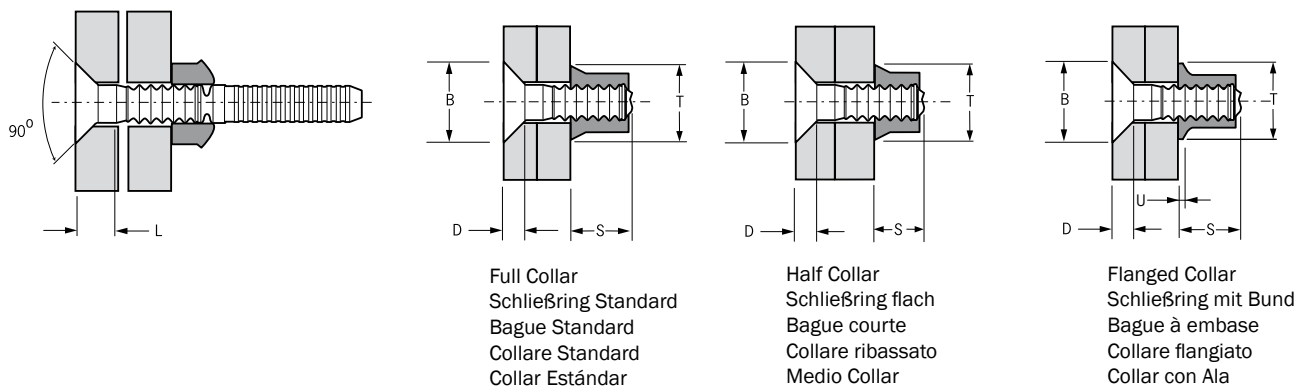
La figura representa los valores mínimos de resistencia a la cortadura y tracción cuando se utiliza collar estándar. Cuando se utiliza medio collar se reducen aproximadamente en un 45 %.

Avdelok® 2802



English	Français	Deutsch	Italiano	Español
90° Countersunk	90° Tête fraisée	90° Senkkopf	90° Testa svasata	90° Cabeza avellanada
Pin: Aluminium alloy* Polished	Tige: Alliage d'aluminium* Poli	Bolzen: Aluminium* Poliert	Bullone: Lega di alluminio* Lucido	Vástago: Aluminio* Pulido
Collar: Aluminium alloy**	Bague: Alliage d'aluminium**	Schließring: Aluminium**	Collare: Lega di alluminio**	Collar: Aluminio**
Natural	Brut	Blank	Nessuna finitura	Natural

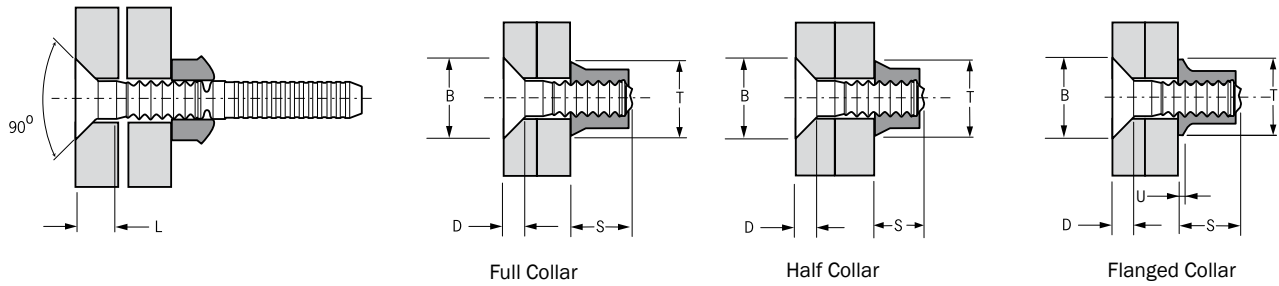
*: AA 2024, DIN 1725, AlCuMg2, Werkstoff 3.1355 **: BS 1473 6061, AA 6061, DIN 1725 AlMg1SiCu, Werkstoff 3.3211



Ø	w. Full Collar ²⁾		L	B	D	Part No/ref	Part No/ref		Part No/ref				
	min.	max.					Full Collar	Half Collar ²⁾	Flanged Collar ³⁾				
nom.			nom.	max.	nom.	Pin ¹⁾	S max.	T max.	S max.	T max.	S max.	T max.	U ³⁾ nom.
3/16" (4.8 mm)	.125	.250	.125	.348	.085	02802-00603	02837-00600	.370	.315	02838-00600	.310	.315	02839-00600
	.187	.312	.187										
	.250	.375	.250										
	.312	.437	.312										
	.375	.500	.375										
	.437	.562	.437										
	.500	.625	.500										
	.562	.687	.562										
	.625	.750	.625										
	.687	.812	.687										
	.750	.875	.750										
	.812	.937	.812										
	.875	1.000	.875										
	.937	1.062	.937										
	1.000	1.125	1.000										
	1.062	1.187	1.062										
	1.125	1.250	1.125										
1.187	1.312	1.187											

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas
 1), 2), 3) see page 32 / voir page 32 / siehe Seite 32 / vedi pagina 32 / ver Pág. 32

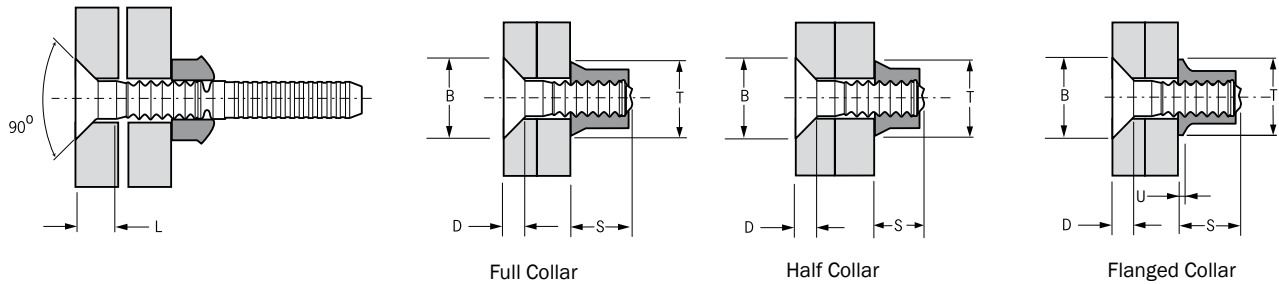
Avdelok® 2802



Ø nom.	w. Full Collar ²⁾		L nom.	B max.	D nom.	Part No/ref Pin ¹⁾	Part No/ref Full Collar		Part No/ref Half Collar ²⁾		Part No/ref Flanged Collar ³⁾		
	min.	max.					S max.	T max.	S max.	T max.	S max.	T max.	U ³⁾ nom.
1/4" (6.4 mm)	.125	.250	.125	.464	.114	02802-00803	02837-00800	.480 .417	02838-00800	.520 .515 .037			
	.187	.312	.187			02802-00804							
	.250	.375	.250			02802-00805							
	.312	.437	.312			02802-00806							
	.375	.500	.375			02802-00807							
	.437	.562	.437			02802-00808							
	.500	.625	.500			02802-00809							
	.562	.687	.562			02802-00810							
	.625	.750	.625			02802-00811							
	.687	.812	.687			02802-00812							
	.750	.875	.750			02802-00813							
	.812	.937	.812			02802-00814							
	.875	1.000	.875			02802-00815							
	.937	1.062	.937			02802-00816							
	1.062	1.187	1.062			02802-00818							
1.187	1.312	1.187	02802-00820										
5/16" (8.0 mm)	.125	.375	.125	.580	.143	02802-01004	02837-01000	.610 .524	02838-01000	.662 .640 .048			
	.250	.500	.250			02802-01006							
	.375	.625	.375			02802-01008							
	.500	.750	.500			02802-01010							
	.625	.875	.625			02802-01012							
	.750	1.000	.750			02802-01014							
	.875	1.125	.875			02802-01016							
	1.000	1.250	1.000			02802-01018							
	1.125	1.375	1.125			02802-01020							
	1.250	1.500	1.250			02802-01022							
	1.375	1.625	1.375			02802-01024							
	1.500	1.750	1.500			02802-01026							
	1.625	1.875	1.625			02802-01028							
	1.750	2.000	1.750			02802-01030							
	1.875	2.125	1.875			02802-01032							
3/8" (9.6 mm)	.250	.500	.250	.696	.172	02802-01206	02837-01200	.730 .610	02838-01200	.788 .786 .056			
	.375	.625	.375			02802-01208							
	.500	.750	.500			02802-01210							
	.625	.875	.625			02802-01212							
	.750	1.000	.750			02802-01214							

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas
 1), 2), 3) see page 32 / voir page 32 / siehe Seite 32 / vedi pagina 32 / ver Pág. 32

Avdelok® 2802



ø nom.	w. Full Collar ²⁾		L nom.	B max.	D nom.	Part No/ref Pin ¹⁾	Part No/ref Full Collar		Part No/ref Half Collar ²⁾		Part No/ref Flanged Collar ³⁾		
	min.	max.					S max.	T max.	S max.	T max.	S max.	T max.	U ³⁾ nom.
3/8" (9.6 mm)	.875	1.125	.875	.696	.172	02802-01216	.730 .610	.610 .610	.788 .786 .056	.788	.786	.056	
	1.000	1.250	1.000			02802-01218							
	1.125	1.375	1.125			02802-01220							
	1.250	1.500	1.250			02802-01222							
	1.375	1.625	1.375			02802-01224							
	1.500	1.750	1.500			02802-01226							
	1.625	1.875	1.625			02802-01228							
	1.750	2.000	1.750			02802-01230							
	1.875	2.125	1.875			02802-01232							

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas

1) Different grip range pins with different numbers of grooves are available

Tiges avec autres plages de serrage et différent nombre de cannelures sont disponible.
Bolzen mit anderem Klemmbereich und anderer Anzahl von Rillen sind verfügbar
Sono disponibili bulloni con spessori serrabili differenti con diverso numero di scanalature
Disponibles pernos con diferente número de anillos según el espesor a remachar

2) Half collars increase the grip range to that of the next longest pin. Maximum grip increases by .062" for 3/16" and 1/4" fasteners and .125" for 5/16" and 3/8" fasteners.

Avec une bague courte, la plage de serrage maximale est équivalente à celle de l'Avdelok de longueur immédiatement supérieure. La plage de serrage augmente de .062" pour tiges de 3/16" et 1/4", et de .125" pour tiges de 5/16" et 3/8".

Die Verwendung von flachen Schließringen erhöht den Klemmbereich auf den des nächstlängeren Bolzens. Der maximale Klemmbereich erhöht sich um .062" für 3/16" und 1/4" Bolzen und .125" für 5/16" und 3/8" Bolzen.

Utilizzando i collari ribassati lo spessore serrabile aumenta, ed è uguale a quello massimo del bullone di misura superiore. Il massimo spessore serrabile aumenta di .062" per i bulloni da 3/16" e 1/4" e di .125" per i bulloni da 5/16" e 3/8".

El empleo de medio collar incrementa el máx. espesor a remachar al de la siguiente toma. El máximo espesor a remachar por uso de medio collar es de .062" para diámetros de 3/16" y 1/4" y de .125" para diámetros de 5/16" y 3/8".

3) Flanged collars are used in applications where the hole on the collar side of the application is oversize or is slotted for alignment purposes. To determine what length of pin is required, add dimension U to the thickness of material being fastened.

Avec une bague à embase, la plage de serrage est diminuée de la valeur de la cote U.

Schließringe mit Bund werden in Anwendungen benötigt, wo das Bohrloch auf der Schließringseite übergroß oder länglich ist. Um den richtigen Bolzen zu bestimmen, addieren Sie das Maß U zu der zu verbindenden Materialstärke hinzu.

Utilizzando i collari flangiati la dimensione „U“ deve essere aggiunta allo spessore da serrare per determinare il tipo di bullone adatto.

Utilizar collar con ala cuando en la aplicación el taladro está sobredimensionado o es ranurado. Para calcular la referencia de perno necesaria añadir la cota U al espesor de la aplicación.

ø nom.	lb ^{f4)}	lb ^{f4)}
3/16" (4.8 mm)	1050	1060
1/4" (6.4 mm)	1875	1780
5/16" (8.0 mm)	2925	2850
3/8" (9.6 mm)	4200	4200

4) These figures represent minimum fastener shear and tensile strength values with the use of a full collar. When using half collars tension is reduced to approximately 45 %.

Cette valeurs représentent minimum résistances au cisaillement et à la traction avec l'usage d'une bague standard. Avec l'usage des bagues courtes la résistance à la traction se diminue à env. 45 %.

Diese Werte repräsentieren Minimum Scher- und Zugfestigkeiten der Verbindung unter Verwendung von Standard-Schließringen. Bei Verwendung von flachen Schließringen reduziert sich die Zugfestigkeit auf ca. 45 %.

I dati si riferiscono a bulloni installati con collari Standard, utilizzando collari ribassati i valori di trazione diminuiscono del 45 % circa, i valori di taglio rimangono invariati. I dati indicati in tabella sono minimi.

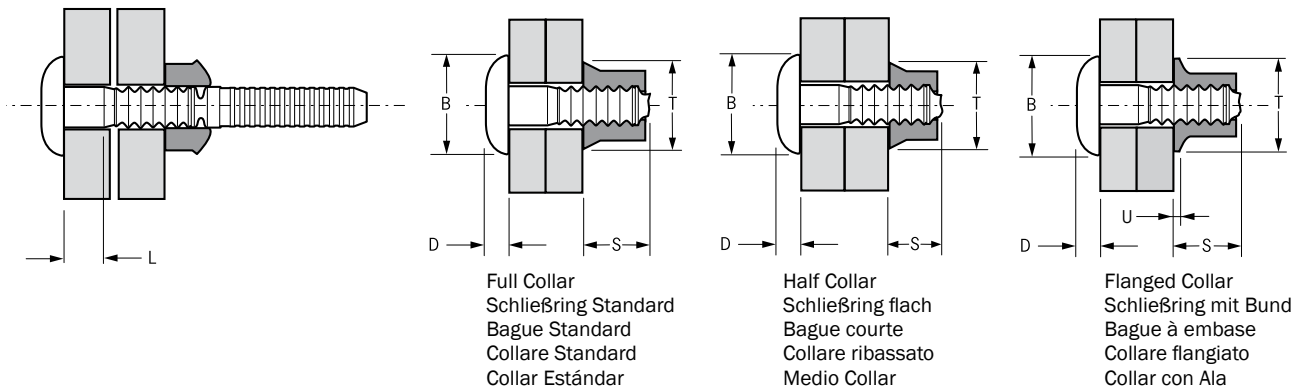
La figura representa los valores mínimos de resistencia a la cortadura y tracción cuando se utiliza collar estándar. Cuando se utiliza medio collar se reducen aproximadamente en un 45 %.

Avdelok® 2803



English	Français	Deutsch	Italiano	Español
Truss head	Tête large	Flachrundkopf groß	Testa larga	Cabeza alomada de perfil bajo
Pin: Aluminium alloy* Polished	Tige: Alliage d'aluminium* Poli	Bolzen: Aluminium* Poliert	Bullone: Lega di alluminio* Lucido	Vástago: Aluminio* Pulido
Collar: Aluminium alloy** Natural	Bague: Alliage d'aluminium** Brut	Schließring: Aluminium** Blank	Collare: Lega di alluminio** Nessuna finitura	Collar: Aluminio** Natural

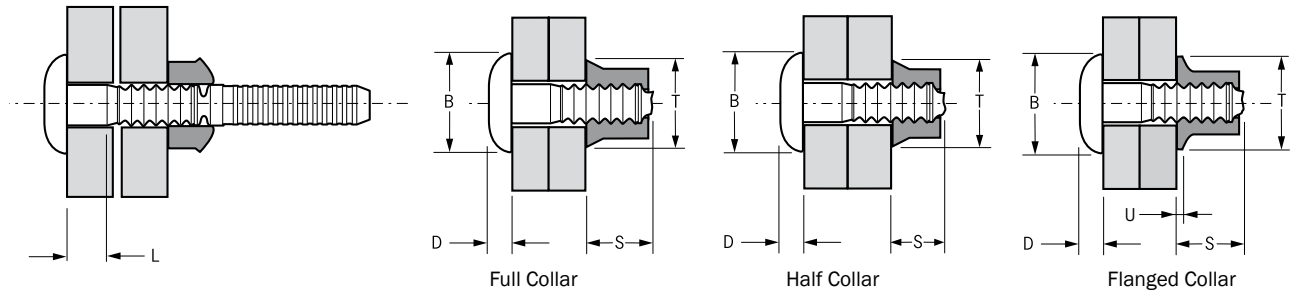
*: AA 2024, DIN 1725, AlCuMg2, Werkstoff 3.1355 **: BS 1473 6061, AA 6061, DIN 1725 AlMg1SiCu, Werkstoff 3.3211



ø	w. Full Collar ²⁾		L	B	D	Part No/ref	Part No/ref		Part No/ref				
	min.	max.					Full Collar	Half Collar ²⁾	Flanged Collar ³⁾				
nom.			nom.	max.	nom.	Pin ¹⁾	S max.	T max.	S max.	T max.	S max.	T max.	U ³⁾ nom.
3/16" (4.8 mm)	.062	.187	.062	.469	.085	02803-00602	02837-00600	.370 .315	02838-00600	.402 .390 .030			
	.125	.250	.125			02803-00603							
	.187	.312	.187			02803-00604							
	.250	.375	.250			02803-00605							
	.312	.437	.312			02803-00606							
	.375	.500	.375			02803-00607							
	.437	.562	.437			02803-00608							
	.500	.625	.500			02803-00609							
	.562	.687	.562			02803-00610							
	.625	.750	.625			02803-00611							
	.687	.812	.687			02803-00612							
	.750	.875	.750			02803-00613							
	.812	.937	.812			02803-00614							
	.875	1.000	.875			02803-00615							
	.937	1.062	.937			02803-00616							
	1.000	1.125	1.000			02803-00617							
	1.062	1.187	1.062			02803-00618							
	1.125	1.250	1.125			02803-00619							
	1.187	1.312	1.187			02803-00620							

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas
1), 2), 3) see page 35 / voir page 35 / siehe Seite 35 / vedi pagina 35 / ver Pág. 35

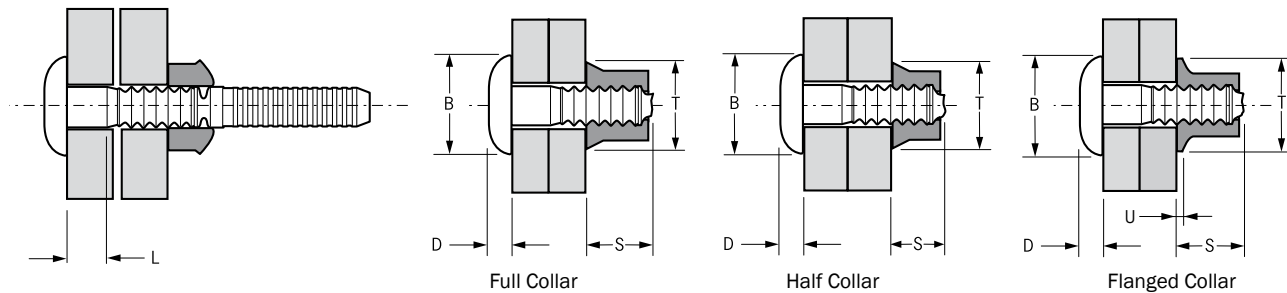
Avdelok® 2803



ø nom.	w. Full Collar ²⁾		L nom.	B max.	D nom.	Part No/ref Pin ¹⁾	Part No/ref Full Collar		Part No/ref Half Collar ²⁾		Part No/ref Flanged Collar ³⁾		
	min.	max.					S max.	T max.	S max.	T max.	S max.	T max.	U ³⁾ nom.
1/4" (6.4 mm)	.062	.187	.062	.594	.110	02803-00802	02837-00800	.480 .417	02838-00800	.520 .515 .037			
	.125	.250	.125			02803-00803							
	.187	.312	.187			02803-00804							
	.250	.375	.250			02803-00805							
	.312	.437	.312			02803-00806							
	.375	.500	.375			02803-00807							
	.437	.562	.437			02803-00808							
	.500	.625	.500			02803-00809							
	.562	.687	.562			02803-00810							
	.625	.750	.625			02803-00811							
	.687	.812	.687			02803-00812							
	.750	.875	.750			02803-00813							
	.812	.937	.812			02803-00814							
	.875	1.000	.875			02803-00815							
	.937	1.062	.937			02803-00816							
	1.062	1.187	1.062			02803-00818							
1.187	1.312	1.187	02803-00820										
1.250	1.375	1.250	02803-00821										
5/16" (8.0 mm)	.125	.375	.125	.781	.140	02803-01004	02837-01000	.610 .524	02838-01000	.662 .640 .048			
	.250	.500	.250			02803-01006							
	.375	.625	.375			02803-01008							
	.500	.750	.500			02803-01010							
	.625	.875	.625			02803-01012							
	.750	1.000	.750			02803-01014							
	.875	1.125	.875			02803-01016							
	1.000	1.250	1.000			02803-01018							
	1.125	1.375	1.125			02803-01020							
	1.250	1.500	1.250			02803-01022							
	1.375	1.625	1.375			02803-01024							
	1.500	1.750	1.500			02803-01026							
	1.625	1.875	1.625			02803-01028							
	1.750	2.000	1.750			02803-01030							
1.875	2.125	1.875	02803-01032										
3/8" (9.6 mm)	.125	.375	.125	.922	.160	02803-01204	02837-01200	.730 .610	02838-01200	.788 .786 .056			
	.250	.500	.250			02803-01206							
	.375	.625	.375			02803-01208							
	.500	.750	.500			02803-01210							

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas
 1), 2), 3) see page 35 / voir page 35 / siehe Seite 35 / vedi pagina 35 / ver Pág. 35

Avdelok® 2803



Ø nom.	w. Full Collar ²⁾		L nom.	B max.	D nom.	Part No/ref Pin ¹⁾	Part No/ref Full Collar		Part No/ref Half Collar ²⁾		Part No/ref Flanged Collar ³⁾		
	min.	max.					S max.	T max.	S max.	T max.	S max.	T max.	U ³⁾ nom.
3/8" (9.6 mm)	.625	.875	.625	.922	.160	02803-01212	02837-01200	.730	.610	02838-01200	.788	.786	.056
	.750	1.000	.750			02803-01214							
	.875	1.125	.875			02803-01216							
	1.000	1.250	1.000			02803-01218							
	1.125	1.375	1.125			02803-01220							
	1.250	1.500	1.250			02803-01222							
	1.375	1.625	1.375			02803-01224							
	1.500	1.750	1.500			02803-01226							
	1.625	1.875	1.625			02803-01228							
	1.750	2.000	1.750			02803-01230							
1.875	2.125	1.875	02803-01232										

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas

1) Different grip range pins with different numbers of grooves are available

Tiges avec autres plages de serrage et différent nombre de cannelures sont disponible.

Bolzen mit anderem Klemmbereich und anderer Anzahl von Rillen sind verfügbar

Sono disponibili bulloni con spessori serrabili differenti con diverso numero di scanalature

Disponibles pernos con diferente número de anillos según el espesor a remachar

2) Half collars increase the grip range to that of the next longest pin. Maximum grip increases by .062" for 3/16" and 1/4" fasteners and .125" for 5/16" and 3/8" fasteners.

Avec une bague courte, la plage de serrage maximale est équivalente à celle de l'Avdelok de longueur immédiatement supérieure. La plage de serrage augmente de .062" pour tiges de 3/16" et 1/4", et de .125" pour tiges de 5/16" et 3/8".

Die Verwendung von flachen Schließringen erhöht den Klemmbereich auf den des nächstlängeren Bolzens. Der maximale Klemmbereich erhöht sich um .062" für 3/16" und 1/4" Bolzen und .125" für 5/16" und 3/8" Bolzen.

Utilizzando i collari ribassati lo spessore serrabile aumenta, ed è uguale a quello massimo del bullone di misura superiore. Il massimo spessore serrabile aumenta di .062" per i bulloni da 3/16" e 1/4" e di .125" per i bulloni da 5/16" e 3/8".

El empleo de medio collar incrementa el máx. espesor a remachar al de la siguiente toma. El máximo espesor a remachar por uso de medio collar es de .062" para diámetros de 3/16" y 1/4" y de .125" para diámetros de 5/16" y 3/8".

3) Flanged collars are used in applications where the hole on the collar side of the application is oversize or is slotted for alignment purposes. To determine what length of pin is required, add dimension U to the thickness of material being fastened.

Avec une bague à embase, la plage de serrage est diminuée de la valeur de la cote U.

Schließringe mit Bund werden in Anwendungen benötigt, wo das Bohrloch auf der Schließringseite übergroß oder länglich ist. Um den richtigen Bolzen zu bestimmen, addieren Sie das Maß U zu der zu verbindenden Materialstärke hinzu.

Utilizzando i collari flangiati la dimensione „U“ deve essere aggiunta allo spessore da serrare per determinare il tipo di bullone adatto.

Utilizar collar con ala cuando en la aplicación el taladro está sobredimensionado o es ranurado. Para calcular la referencia de perno necesaria añadir la cota U al espesor de la aplicación.

Ø nom.	lb ⁴⁾	lb ⁴⁾
3/16" (4.8 mm)	1050	1060
1/4" (6.4 mm)	1875	1780
5/16" (8.0 mm)	2925	2850
3/8" (9.6 mm)	4200	4200

4) These figures represent minimum fastener shear and tensile strength values with the use of a full collar. When using half collars tension is reduced to approximately 45 %.

Cette valeurs représentent minimum résistances au cisaillement et à la traction avec l'usage d'une bague standard. Avec l'usage des bagues courtes la résistance à la traction se diminue à env. 45 %.

Diese Werte repräsentieren Minimum Scher- und Zugfestigkeiten der Verbindung unter Verwendung von Standard-Schließringen. Bei Verwendung von flachen Schließringen reduziert sich die Zugfestigkeit auf ca. 45 %.

I dati si riferiscono a bulloni installati con collari Standard, utilizzando collari ribassati i valori di trazione diminuiscono del 45 % circa, i valori di taglio rimangono invariati. I dati indicati in tabella sono minimi.

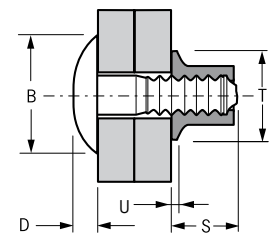
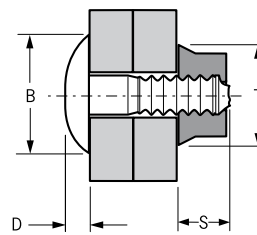
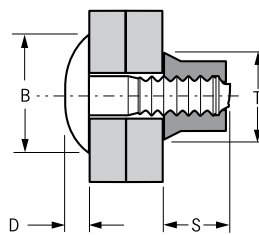
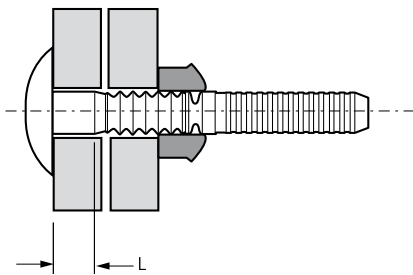
La figura representa los valores mínimos de resistencia a la cortadura y tracción cuando se utiliza collar estándar. Cuando se utiliza medio collar se reducen aproximadamente en un 45 %.

Avdelok® 2804



English	Français	Deutsch	Italiano	Español
Large head	Tête large	Rundkopf extragroß	Testa larga	Cabeza ancha
Pin: Aluminium alloy* Polished	Tige: Alliage d'aluminium* Poli	Bolzen: Aluminium* Poliert	Bullone: Lega di alluminio* Lucido	Vástago: Aluminio** Pulido
Collar: Aluminium alloy**	Bague: Alliage d'aluminium**	Schließring: Aluminium**	Collare: Lega di alluminio**	Collar: Aluminio**
Natural	Brut	Blank	Nessuna finitura	Natural

*: AA 2024, DIN 1725, AlCuMg2, Werkstoff 3.1355 **: BS 1473 6061, AA 6061, DIN 1725 AlMg1SiCu, Werkstoff 3.3211



Full Collar
Schließring Standard
Bague Standard
Collare Standard
Collar Estándar

Half Collar
Schließring flach
Bague courte
Collare ribassato
Medio Collar

Flanged Collar
Schließring mit Bund
Bague à embase
Collare flangiato
Collar con Ala

ø	w. Full Collar ²⁾		L	B	D	Part No/ref	Part No/ref		Part No/ref				
	min.	max.					Full Collar		Half Collar ²⁾		Flanged Collar ³⁾		
nom.			nom.	max.	nom.	Pin ¹⁾	S max.	T max.	S max.	T max.	S max.	T max.	U ³⁾ nom.
3/8" (9.6 mm)	.375	.625	.375	1.265	.195	02804-01208	02837-01200	.730	.610	02838-01200	.788	.786	.056
	.500	.750	.500			02804-01210							
	.625	.875	.625			02804-01212							
	.750	1.000	.750			02804-01214							
	.875	1.125	.875			02804-01216							
	1.000	1.250	1.000			02804-01218							
	1.125	1.375	1.125			02804-01220							
	1.250	1.500	1.250			02804-01222							
	1.375	1.625	1.375			02804-01224							
	1.500	1.750	1.500			02804-01226							
	1.625	1.875	1.625			02804-01228							
	1.750	2.000	1.750			02804-01230							
	1.875	2.125	1.875			02804-01232							

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas
1), 2), 3) see page 37 / voir page 2 / siehe Seite 37 / vedi pagina 37 / ver Pág. 37

Avdelok® 2804

1) Different grip range pins with different numbers of grooves are available

Tiges avec autres plages de serrage et different nombre de cannelures sont disponible.
 Bolzen mit anderem Klemmbereich und anderer Anzahl von Rillen sind verfügar
 Sono disponibili bulloni con spessori serrabili differenti con diverso numero di scanalature
 Disponibles pernos con diferente número de anillos según el espesor a remachar

2) Half collars increase the grip range to that of the next longest pin. Maximum grip increases by .062" for 3/16" and 1/4" fasteners and .125" for 5/16" and 3/8" fasteners.

Avec une bague courte, la plage de serrage maximale est équivalente à celle de l'Avdelok de longueur immédiatement supérieure. La plage de serrage augmente de .062" pour tiges de 3/16" et 1/4", et de .125" pour tiges de 5/16" et 3/8".

Die Verwendung von flachen Schließringen erhöht den Klemmbereich auf den des nächstlängeren Bolzens. Der maximale Klemmbereich erhöht sich um .062" für 3/16" und 1/4" Bolzen und .125" für 5/16" und 3/8" Bolzen.

Utilizzando i collari ribassati lo spessore serrabile aumenta, ed è uguale a quello massimo del bullone di misura superiore. Il massimo spessore serrabile aumenta di .062" per i bulloni da 3/16" e 1/4" e di .125" per i bulloni da 5/16" e 3/8".

El empleo de medio collar incrementa el máx. espesor a remachar al de la siguiente toma. El máximo espesor a remachar por uso de medio collar es de .062" para diámetros de 3/16" y 1/4" y de .125" para diámetros de 5/16" y 3/8".



3) Flanged collars are used in applications where the hole on the collar side of the application is oversize or is slotted for alignment purposes. To determine what length of pin is required, add dimension U to the thickness of material being fastened.

Avec une bague à embase, la plage de serrage est diminuée de la valeur de la cote U.

Schließringe mit Bund werden in Anwendungen benötigt, wo das Bohrloch auf der Schließringseite übergroß oder länglich ist. Um den richtigen Bolzen zu bestimmen, addieren Sie das Maß U zu der zu verbindenden Materialstärke hinzu.

Utilizzando i collari flangiati la dimensione „U“ deve essere aggiunta allo spessore da serrare per determinare il tipo di bullone adatto.

Utilizar collar con ala cuando en la aplicación el taladro está sobredimensionado o es ranurado. Para calcular la referencia de perno necesaria añadir la cota U al espesor de la aplicación.

∅		
nom.	lbf ⁽⁴⁾	lbf ⁽⁴⁾
3/8" (9.6 mm)	4200	4200

4) These figures represent minimum fastener shear and tensile strength values with the use of a full collar. When using half collars tension is reduced to approximately 45 %.

Cette valeurs représentent minimum résistances au cisaillement et à la traction avec l'usage d'une bague standard. Avec l'usage des bagues courtes la résistance à la traction se diminue à env. 45 %.

Diese Werte repräsentieren Minimum Scher- und Zugfestigkeiten der Verbindung unter Verwendung von Standard-Schließringen. Bei Verwendung von flachen Schließringen reduziert sich die Zugfestigkeit auf ca. 45 %.

I dati si riferiscono a bulloni installati con collari Standard, utilizzando collari ribassati i valori di trazione diminuiscono del 45 % circa, i valori di taglio rimangono invariati. I dati indicati in tabella sono minimi.

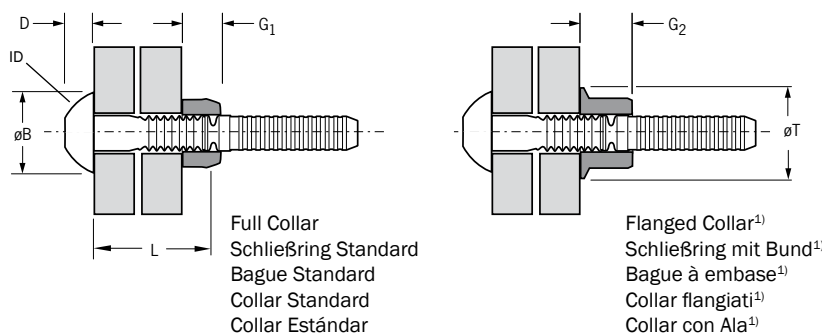
La figura representa los valores mínimos de resistencia a la cortadura y tracción cuando se utiliza collar estándar. Cuando se utiliza medio collar se reducen aproximadamente en un 45 %.

Avdelok® LD 2861



English	Français	Deutsch	Italiano	Español
Round head	Tête plate	Rundkopf	Testa tonda	Cabeza alomada
Pin: Carbon steel	Tige: Acier	Bolzen: Stahl	Bullone: Acciaio	Vástago: Acero
Black self-colour	Noir	Schwarz	Negro	Pavonado
Collar: Low carbon steel	Bague: Acier	Schließring: Stahl	Collare: Acciaio	Collar: Acero
Zinc plated	Zingué	Verzinkt	Zincato	Zincado

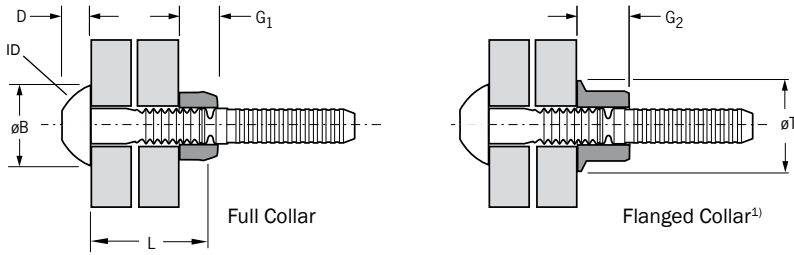
For Avdelok® LD with countersunk head replace part no 02861 with 02871.
 Pour un Avdelok® LD avec tête fraisée remplacer la référence 02861 par 02871.
 Für Avdelok® LD mit Senkkopf ersetzen Sie die Artikel-Nr. 02861 durch 02871.
 Per Avdelok® LD con testa svasata sostituire il codice 02861 con 02871.
 Para Avdelok® de Gran Diámetro con cabeza avellanada, sustituir en la referencia 02861 por 02871.



ø nom.					L nom.	ø B max.	D max.	G1 max.	G2 max.	ø T max.	Part No/ref		
	ID	min.	max.								Pin	Full Collar	Flanged Collar ¹⁾
1/2" (12.7 mm)	6	0.236	0.512	.520 - .563	1.3	.91	.36	.63	.76	1.03	02861-01604	02662-01600	02615-01600
	12	0.472	0.748		1.5						02861-01608		
	18	0.709	0.984		1.7						02861-01612		
	24	0.945	1.220		2.0						02861-01616		
	31	1.220	1.496		2.2						02861-01620		
	37	1.457	1.732		2.5						02861-01624		
	44	1.732	2.008		2.8						02861-01628		
	50	1.969	2.244		3.0						02861-01632		
	57	2.244	2.520		3.3						02861-01636		
	63	2.480	2.756		3.5						02861-01640		
	70	2.756	3.031		3.8						02861-01644		
	77	3.031	3.307		4.1						02861-01648		
	83	3.268	3.543		4.3						02861-01652		
	89	3.504	3.780		4.5						02861-01656		
95	3.740	4.016	4.8	02861-01660									
5/8" (15.9 mm)	6	0.236	0.512	.646 - .689	1.4	1.18	.45	.86	.957	1.27	02861-02004	02662-02000	02615-02000
	12	0.472	0.748		1.7						02861-02008		
	18	0.709	0.984		1.9						02861-02012		
	24	0.945	1.220		2.1						02861-02016		
	31	1.220	1.496		2.4						02861-02020		

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas
 1) see page 40 / voir page 40 / siehe Seite 40 / vedi pagina 40 / ver Pág.40

Avdelok® LD 2861

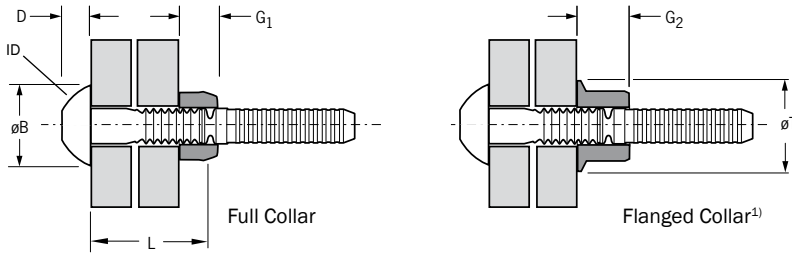


ø nom.					L nom.	ø B max.	D max.	G1 max.	G2 max.	ø T max.	Part No/ref		
	ID	min.	max.								Pin	Full Collar	Flanged Collar ¹⁾
5/8" (15.9 mm)	37	1.457	1.732	.646 - .689	2.6	1.18	.45	.86	.957	1.27	02861-02024	02662-02000	02615-02000
	44	1.732	2.008		2.9						02861-02028		
	50	1.969	2.244		3.1						02861-02032		
	57	2.244	2.520		3.4						02861-02036		
	63	2.480	2.756		3.7						02861-02040		
	70	2.756	3.031		3.9						02861-02044		
	77	3.031	3.307		4.2						02861-02048		
	83	3.268	3.543		4.4						02861-02052		
	89	3.504	3.780		4.7						02861-02056		
	95	3.740	4.016		4.9						02861-02060		
	3/4" (19.1 mm)	6	0.236		0.512						.772 - .813		
12		0.472	0.748	1.8	02861-02408								
18		0.709	0.984	2.0	02861-02412								
24		0.945	1.220	2.2	02861-02416								
31		1.220	1.496	2.5	02861-02420								
37		1.457	1.732	2.8	02861-02424								
44		1.732	2.008	3.0	02861-02428								
50		1.969	2.244	3.3	02861-02432								
57		2.244	2.520	3.5	02861-02436								
63		2.480	2.756	3.8	02861-02440								
70		2.756	3.031	4.1	02861-02444								
77		3.031	3.307	4.3	02861-02448								
83		3.268	3.543	4.6	02861-02452								
89		3.504	3.780	4.8	02861-02456								
95		3.740	4.016	5.0	02861-02460								
7/8" (22.2 mm)	6	0.236	0.512	.898 - .938	1.7	1.61	.60	1.11	1.33	1.62	02861-02804	02662-02800	02615-02800
	12	0.472	0.748		1.9						02861-02808		
	18	0.709	0.984		2.2						02861-02812		
	24	0.945	1.220		2.4						02861-02816		
	31	1.220	1.496		2.7						02861-02820		
	37	1.457	1.732		2.9						02861-02824		
	44	1.732	2.008		3.2						02861-02828		
	50	1.969	2.244		3.4						02861-02832		
	57	2.244	2.520		3.7						02861-02836		
	63	2.480	2.756		3.9						02861-02840		

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas

1) see page 40 / voir page 40 / siehe Seite 40 / vedi pagina 40 / ver Päg.40

Avdelok® LD 2861



ø nom.					L nom.	ø B max.	D max.	G1 max.	G2 max.	ø T max.	Part No/ref		
	ID	min.	max.								Pin	Full Collar	Flanged Collar ¹⁾
7/8" (22.2 mm)	70	2.756	3.031	.898 - .938	4.2	1.62	.60	1.11	1.33	1.62	02861-02844	02662-02800	02615-02800
	77	3.031	3.307		4.5						02861-02848		
	83	3.268	3.543		4.7						02861-02852		
	89	3.504	3.780		5.0						02861-02856		
	95	3.740	4.016		5.2						02861-02860		
1" (25.4 mm)	6	0.236	0.512	1.024 - 1.063	1.9	1.85	.70	1.26	1.50	1.91	02861-03204	02662-03200	02615-03200
	12	0.472	0.748		2.1						02861-03208		
	18	0.709	0.984		2.4						02861-03212		
	24	0.945	1.220		2.6						02861-03216		
	31	1.220	1.496		2.9						02861-03220		
	37	1.457	1.732		3.1						02861-03224		
	44	1.732	2.008		3.4						02861-03228		
	50	1.969	2.244		3.6						02861-03232		
	57	2.244	2.520		3.9						02861-03236		
	63	2.480	2.756		4.1						02861-03240		
	70	2.756	3.031		4.4						02861-03244		
	77	3.031	3.307		4.7						02861-03248		
	83	3.268	3.543		4.9						02861-03252		
	89	3.504	3.780		5.2						02861-03256		
95	3.740	4.016	5.4	02861-03260									

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas

1) Use of a flanged collar reduces the stated grip range as follows: / L'utilisation d'une bague à embase réduit la plage de serrage de : / Bei Verwendung eines Schließringes mit Bund reduziert sich der angegebene Klemmbereich um die genannten Werte: / L'uso del collare flangiato riduce il campo dello spessore serrabile come segue: / El empleo de collares con ala reduce los espesores a remachar indicados en: ø 1/2": .118; ø 5/8": .157; ø 3/4": .197; ø 7/8": .217; ø 1": .236

ø nom.			
	lbf	lbf	lbf
1/2" (12.7mm)	14400	17050	12050
5/8" (15.9mm)	22500	27100	19200
3/4" (19.1mm)	32400	40100	28400
7/8" (22.2mm)	43400	55450	39250
1" (25.4mm)	56500	72700	51500

Installed Avdelok® LD fasteners provide a minimum shear, tensile and pre-load strength, which is equivalent to or exceeds property class 8.8 or ASTM A-325 standards. Made to British Standard B7805: Part 2:1997, the Avdelok® LD fastener is the perfect alternative to grade 8.8 threaded fasteners, providing a permanent, high tensile friction grip joint but without the risk of loosening.

Une fois posées les fixations Avdelok® LD proposent des performances de résistance au cisaillement et à l'arrachement et une pré-tension qui sont équivalentes ou meilleures que les propriétés d'une classe 8.8 ou de la norme ASTM A-325. Fabriquée selon la norme Anglaise B7805: Part 2:1997, la fixation Avdelok® LD est une parfaite alternative aux boulons de classe 8.8 et offre un assemblage permanent, haute résistance sans risque de desserrage.

Verarbeitete Avdelok® LD Schließringbolzen bieten Mindestwerte für Scher- und Zugbruchlast sowie Vorspannkraft, die der Festigkeitsklasse 8.8 oder ASTM A-325 Standards entsprechen oder übertreffen. Avdelok® LD werden nach British Standard B7805: Part 2:1997 hergestellt. Sie sind die perfekte Alternative zu 8.8 Gewindeprodukten und bieten eine dauerhafte, hochfest vorgespannte Verbindung ohne Risiko des ungewollten Lösen.

I bulloni a strappo Avdelok® LD, una volta installati sono paragonabili o superiori alle classi di resistenza 8.8 o ASTM A-325. Costruiti secondo le norme Britanniche B7805: Parte 2:1997, i bulloni a strappo Avdelok® LD sono perfettamente alternativi al grado di resistenza 8.8 dei bulloni tradizionali, garantendo però un sicuro e permanente serraggio senza rischi di manomissione.

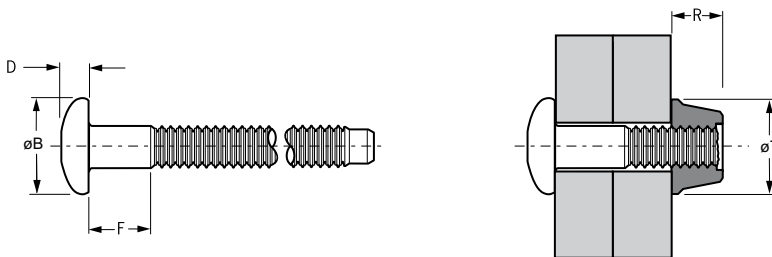
Los remaches Avdelok® LD proporcionan una resistencia a cortadura y a tracción y proporcionan una fuerza de apriete, equivalentes o superiores a la tornillería de clase 8.8 o ASTM A-325. Fabricados bajo la norma British Standard B7805, parte 2:1997, los remaches Avdelok® LD son la alternativa perfecta a la tornillería de clase 8.8, proporcionando una alta fricción permanente entre las piezas a unir sin el riesgo de aflojado que tienen las uniones atornilladas.

Maxlok® 1901



English	Français	Deutsch	Italiano	Español
Brazier head	Tête plate	Flachrundkopf	Testa tonda	Cabeza alomada
Pin: Medium carbon steel* Zinc plated Clear trivalent passivated	Tige: Acier* Revêtement zingué Passivation claire trivalente	Bolzen: Stahl* Verzinkt Klar chromatiert, Cr6-frei	Bullone: Acciaio a carbonio* Zincato Passivazione chiara trivalente	Vástago: Acero medio al carbono* Zincado Pasivado claro trivalente
Collar: Low carbon steel** Zinc plated Clear trivalent passivated	Bague: Acier bas carbone** Revêtement zingué Passivation claire trivalente	Schließring: Stahl** Verzinkt Klar chromatiert, Cr6-frei	Collare: Acciaio a basso tenore di carbonio** Zincato Passivazione chiara trivalente	Collar: Acero bajo en carbono** Zincado Pasivado claro trivalente

*: BS 3111 Type 10, SAE 10B35 DIN 1654, 35B2 **: SAE 1008 EN 10263-2 C8C



ø				øB	D	F	R	øT			Part No/ref	Part No/ref
	min.	max.										
3/16" (4.8 mm)	.062	.625	.203	.395	.126	.090	.344	.396	1855	2250	01901-70610	01981-70600
	.312	1.250				.330					01901-70620	
1/4" (6.4 mm)	.062	.625	.265	.525	.153	.085	.531	.516	2650	3600	01901-70810	01981-70800
	.312	1.250				.360					01901-70820	

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas

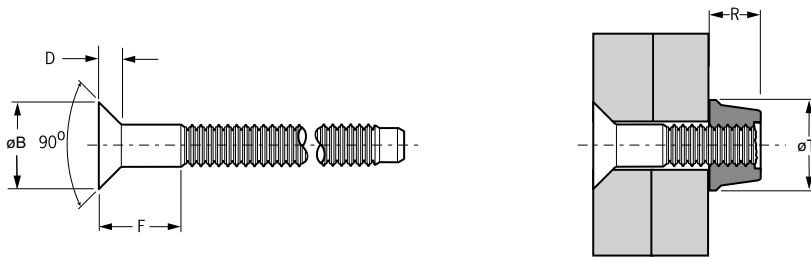
1) typical values / valeurs moyennes / typische Werte / Valori tipici / resistencias máximas recomendadas

Maxlok® 1902



English	Français	Deutsch	Italiano	Español
90° Countersunk	90° Tête fraisée	90° Senkkopf	90° Testa svasata	90° Cabeza avellanada
Pin: Medium carbon steel* Zinc plated Clear trivalent passivated	Tige: Acier* Revêtement zingué Passivation claire trivalente	Bolzen: Stahl* Verzinkt Klar chromatiert, Cr6-frei	Bullone: Acciaio a carbonio* Zincato Passivazione chiara trivalente	Vástago: Acero medio al carbono* Zincado Pasivado claro trivalente
Collar: Low carbon steel** Zinc plated Clear trivalent passivated	Bague: Acier bas carbone** Revêtement zingué Passivation claire trivalente	Schließring: Stahl** Verzinkt Klar chromatiert, Cr6-frei	Collare: Acciaio a basso tenore di carbonio** Zincato Passivazione chiara trivalente	Collar: Acero bajo en carbono** Zincado Pasivado claro trivalente

*: BS 3111 Type 10, SAE 10B35, DIN 1654, 35B2 **: SAE 1008 EN 10263-2 C8C



ø	[Cross-section diagram]		[Thread diagram]	øB	D	F	R	øT	[Pin/-collar diagram]	[Pin/-collar diagram]	Part No/ref	Part No/ref
	min.	max.										
3/16" (4.8 mm)	.096	.625	.203	.349	.085	.170	.344	.396	1855	2250	01902-70610	01981-70600
	.312	1.250				.370					01902-70620	

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas

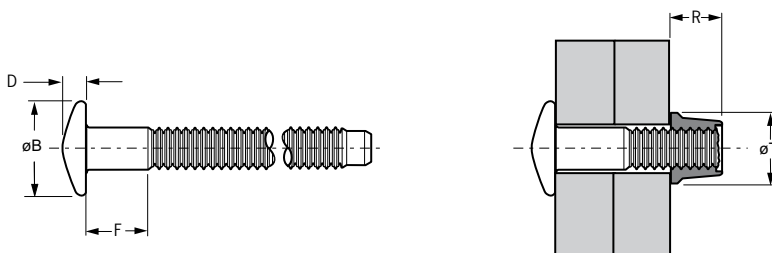
1) typical values / valeurs moyennes / typische Werte / Valori tipici / resistencias máximas recomendadas

Maxlok® 1903



English	Français	Deutsch	Italiano	Español
Mushroom head	Tête large	Rundkopf groß	Testa larga	Cabeza alomada de perfil alto
Pin: Medium carbon steel* Zinc plated Clear trivalent passivated	Tige: Acier* Revêtement zingué Passivation claire trivalente	Bolzen: Stahl* Verzinkt Klar chromatiert, Cr6-frei	Bullone: Acciaio a carbonio* Zincato Passivazione chiara trivalente	Vástago: Acero medio al carbono* Zincado Pasivado claro trivalente
Collar: Low carbon steel** Zinc plated Clear trivalent passivated	Bague: Acier bas carbone** Revêtement zingué Passivation claire trivalente	Schließring: Stahl** Verzinkt Klar chromatiert, Cr6-frei	Collare: Acciaio a basso tenore di carbonio** Zincato Passivazione chiara trivalente	Collar: Acero bajo en carbono** Zincado Pasivado claro trivalente

*: BS 3111 Type 10, SAE 10B35, DIN 1654, 35B2 **: SAE 1008 EN 10263-2 C8C



ø	[Cross-section diagram]		[Thread diagram]	øB	D	F	R	øT	[Collar diagram]	[Collar diagram]	Part No/ref	Part No/ref
	min.	max.										
3/16" 4.8 mm	.062	.625	.203	.491	.111	.090	.344	.396	1855	2250	01903-70610	01981-70600
	.312	1.250				.330					01903-70620	
1/4" 6.4 mm	.062	.625	.265	.657	.126	.085	.531	.516	2650	3600	01903-70810	01981-70800
	.312	1.250				.360					01903-70820	
	1.099	2.037				1.147					01903-70832	

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas

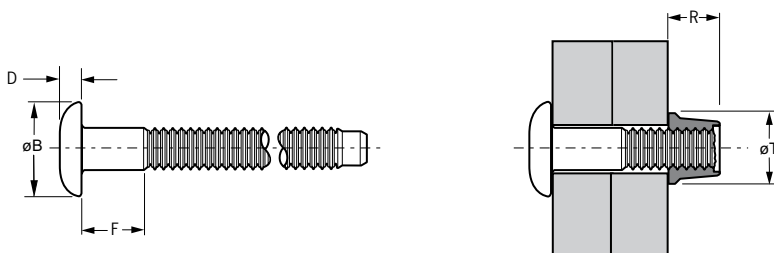
1) typical values / valeurs moyennes / typische Werte / Valori tipici / resistencias máximas recomendadas

Maxlok® 1905



English	Français	Deutsch	Italiano	Español
Truss head	Tête large	Flachrundkopf groß	Testa larga	Cabeza alomada de perfil bajo
Pin: Medium carbon steel* Zinc plated Clear trivalent passivated	Tige: Acier* Revêtement zingué Passivation claire trivalente	Bolzen: Stahl* Verzinkt Klar chromatiert, Cr6-frei	Bullone: Acciaio a carbonio* Zincato Passivazione chiara trivalente	Vástago: Acero medio al carbono* Zincado Pasivado claro trivalente
Collar: Low carbon steel** Zinc plated Clear trivalent passivated	Bague: Acier bas carbone** Revêtement zingué Passivation claire trivalente	Schließring: Stahl** Verzinkt Klar chromatiert, Cr6-frei	Collare: Acciaio a basso tenore di carbonio** Zincato Passivazione chiara trivalente	Collar: Acero bajo en carbono** Zincado Pasivado claro trivalente

*: BS 3111 Type 10, SAE 10B35, DIN 1654, 35B2 **: SAE 1008 EN 10263-2 C8C



ø	Ø		ØB	D	F	R	øT	lb ^{f1}	lb ^{f1}	Part No/ref	Part No/ref	
	min.	max.										max.
3/16" 4.8 mm	.062	.625	.203	.470	.111	.090	.344	.396	1855	2250	01905-70610	01981-70600
	.312	1.250									.330	
1/4" 6.4 mm	.062	.625	.265	.595	.121	.085	.531	.516	2650	3600	01905-70810	01981-70800
	.312	1.250									.360	

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas

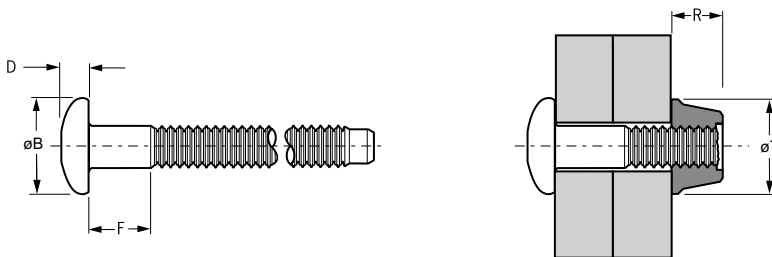
1) typical values / valeurs moyennes / typische Werte / Valori tipici / resistencias máximas recomendadas

Maxlok® 1921



English	Français	Deutsch	Italiano	Español
Brazier head	Tête plate	Flachrundkopf	Testa tonda	Cabeza alomada
Pin: Aluminium alloy* Polished	Tige: Alliage d'aluminium* Poli	Bolzen: Aluminium* Poliert	Bullone: Lega di alluminio* Lucido	Vástago: Aluminio* Pulido
Collar: Aluminium alloy* Natural	Bague: Alliage d'aluminium* Brut	Schließring: Aluminium* Blank	Collare: Lega di alluminio* Nessuna finitura	Collar: Aluminio* Natural

*: EN AW-7075, AlZn5.5MgCu **: EN AW-6061, AlMg1SiCu



ø				øB	D	F	R	øT			Part No/ref	Part No/ref
	nom.	min.										
3/16" 4.8 mm	.062	.625	.203	.394	.133	.090	.313	.390			01921-00610	01985-00600
	.312	1.250				.330						
1/4" 6.4 mm	.062	.625	.265	.525	.162	.085	.438	.510			01921-00810	01985-00800
	.312	1.250				.360						

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas

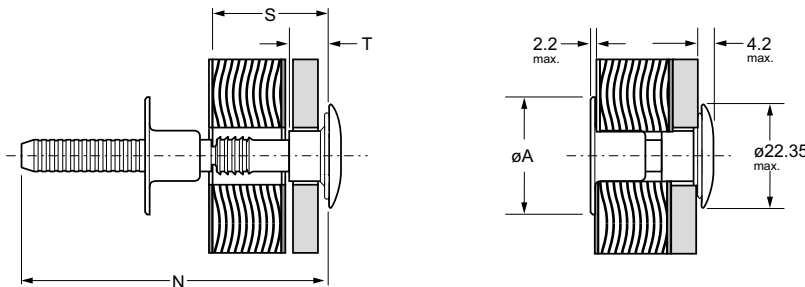
1) typical values / valeurs moyennes / typische Werte / Valori tipici / resistencias máximas recomendadas

Avtainer® 2311



English	Français	Deutsch	Italiano	Español
Brazier head	Tête plate	Flachrundkopf	Testa tonda	Cabeza alomada
Pin: Low carbon steel* Zinc plated JS500 coated	Tige: Acier* Revêtement zingué Finition JS 500	Bolzen: Stahl* Verzinkt JS500 Beschichtung	Bullone: Acciaio a carbonio* Zincato Protezione JS500	Vástago: Acero al carbono* Zincado Pasivado JS500
Shell: Low carbon steel** Zinc plated Clear passivated	Bague: Acier bas carbone** Revêtement zingué Passivation claire	Hülse: Stahl** Verzinkt Klar chromatiert, Cr6-frei	Collare: Acciaio a basso tenore di carbonio** Zincato Passivazione chiara	Collar: Acero bajo en carbono** Zincado Pasivado claro
Locking slug: Nylon	Manchon: Nylon	Sicherungsbuchse: Nylon	Tubolare: Nylon	Junta de bloqueo: Nailon
Seal: Santoprene®	Joint: Santoprene®	Dichtscheibe: Santoprene®	Guarnizione: Santoprene®	Junta de estanqueidad: Santoprene®

*: BS 3111 Type 0 DIN 1654 Qst 34-3 **: BS 1449 CS 1 SAE 1008 DIN 1614 StW 24 / DIN 1624 St4



ø	e		S	N	T	Part No/ref	Collar / Bague / Hülse / Collare / Collar		lbf ¹⁾	lbf ¹⁾ e min.	lbf ¹⁾ e max.	
	nom.	min.					max.	nom.				max.
3/8" (10 mm)	.500	.625	.405 - .421 ⁵⁾	.563	2.24	-	02311-01209 ²⁾	1.25 .90	02321-01200 ³⁾ 02325-01200 ⁴⁾	500	1500	1000
	.562	.687		.625	2.24	-	02311-01210 ²⁾					
	.625	.750		.688	2.30	.18	02311-01211					
	.687	.812		.750	2.37	.24	02311-01212					
	.750	.875		.813	2.43	.31	02311-01213					
	.812	.937		.875	2.49	.37	02311-01214					
	.875	1.000		.938	2.55	.43	02311-01215					
	.937	1.062		1.000	2.62	.49	02311-01216					
	1.000	1.125		1.063	2.99	.56	02311-01217					
	1.062	1.187		1.125	2.99	.56	02311-01218					
	1.125	1.250		1.188	2.99	.56	02311-01219					
	1.187	1.312		1.250	2.99	.56	02311-01220					
	1.250	1.375		1.313	2.99	.56	02311-01221					
	1.312	1.437		1.375	2.99	.56	02311-01222					
	1.375	1.500		1.438	2.99	.56	02311-01223					
	1.437	1.562		1.500	2.99	.56	02311-01224					

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas
1) - 5) see page 47 / voir page 47 / siehe Seite 47 / vedi pagina 47 / ver Pág. 47

Avtainer® 2311

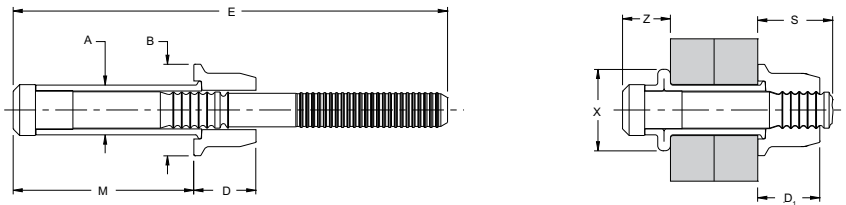
- 1) typical values / valeurs moyennes / typische Werte / Valori tipici / resistencias máximas recomendadas
- 2) Part numbers 01209 & 01210 do not have shouldered pins / Les références -1209 & -01210 ne possèdent pas d'épaulement / Artikel-Nr. 01209 & 01210 haben keine Stufe im Bolzenschaft / Codici prodotto 01209 & 01210 non hanno lo spallamento. / Las referencias 01209 y 01210 no tienen el cuerpo escalonado.
- 3) 02321-01200: The larger shell assembly is for use against softer material, spreading the bearing load. / La bague standard 02321-01200 est à utiliser sur des matériaux tendre, pour une meilleure répartition des efforts / Die größere Hülse ist für den Einsatz gegen weichere Materialien ausgelegt, die auftretende Kraft wird verteilt. / Collare di grande diametro per materiali teneri. / Collar de gran diámetro para materiales blandos.
- 4) 02325-01200: The smaller shell assembly should only be used against metal surfaces. / La bague à diamètre réduit ne peut être utilisée qu'en appui sur un support métallique. / Die kleinere Hülse darf nur auf Metalloberflächen eingesetzt werden. / Collare di piccolo diametro per superfici metalliche. / Collar de pequeño diámetro para superficies metálicas.
- 5) Where shells are used against metal surfaces, the hole through the metal should be .59 diameter or chamfered .10 x 45°. / Lorsque la bague prend appui sur un support métallique, percer à .59 de \varnothing ou chanfreiner l'entrée du trou à 45° x .10 / Bei Auflage der Hülse auf Metall ist im Metall eine 2,5 x 45°-Senkung oder ein Bohrungsdurchmesser von 15 mm erforderlich. / Quando i guschi sono usati su parti metalliche, il foro nella lamiera dovrebbe avere un diametro di .59 o deve presentare una svasatura di .10 a 45°. / Cuando el collar vaya sobre superficies metálicas, el taladro de la pieza metálica debe de ser de .59 o tener un avellanado de entrada de .10x45°.

Avbolt® 21001



English	Français	Deutsch	Italiano	Español	****
Stem: Chromium Molybdenum steel* Black oxide	Tige: Acier* Noir	Dorn: Stahl* Schwarz	Gambo: Acciaio* Passivato nero	Vástago: Acero* Pavonado	 8 h
Sleeve: Carbon steel** Zinc plated Clear trivalent passivated	Douille: Acier** Revêtement zingué Passivation claire trivalente	Hülse: Stahl** Verzinkt Klar chromatiert, Cr6-frei	Bussola: Acciaio** Zincata Passivazione chiara trivalente	Cuerpo: Acero al carbono** Zincado Pasivado claro trivalente	 240 h
Collar: Carbon steel*** Zinc plated Clear trivalent passivated	Bague: Acier*** Revêtement zingué Passivation claire trivalente	Schließring: Stahl*** Verzinkt Klar chromatiert, Cr6-frei	Collare: Acciaio*** Zincato Passivazione chiara trivalente	Collar: Acero al carbono*** Zincado Pasivado claro trivalente	 240 h

*: EN 10263-4 34CrMo4 SAE 4135 SCM435 **: EN 10263-2 C8C SAE 1008 ***: EN 10263-4 23MnB4
****: to red rust / à la rouille rouge / bis Rotrost / alla ruggine rossa / al óxido rojo (ASTM B117)



Ø nom.					Ø A max.	Ø B max.	D max.	D ₁ max.	E min.	M max.	S max.	X nom.	Z max.		lbf min.	lbf min.	Part No/ref
	min.	max.	min.	max.													
3/8" (10 mm)	.188	.313	.413	.435	.412	.739	.498	.571	2.905	.988	.722	.610	.377	10115	7250	21001-01204	
	.313	.438							3.031	1.113						21001-01206	
	.438	.563							3.157	1.238						21001-01208	
	.563	.688							3.283	1.363						21001-01210	
	.688	.813							3.409	1.488						21001-01212	
	.813	.938							3.531	1.613						21001-01214	
	.938	1.063							3.657	1.738						21001-01216	
	1.063	1.188							3.783	1.863						21001-01218	
	1.188	1.313							3.909	1.988						21001-01220	
1/2" (12.7 mm)	.251	.376	.546	.581	.543	.957	.591	.634	3.172	1.253	.807	.812	.516	20150	13000	21001-01604	
	.376	.501							3.297	1.378						21001-01606	
	.501	.626							3.422	1.503						21001-01608	
	.626	.751							3.548	1.628						21001-01610	
	.751	.876							3.672	1.753						21001-01612	
	.876	1.001							3.797	1.878						21001-01614	
	1.001	1.126							3.922	2.003						21001-01616	
	1.126	1.251							4.046	2.127						21001-01618	
	1.251	1.376							4.170	2.250						21001-01620	
5/8" (16 mm)	.250	.500	.687	.728	.681	1.160	.687	.790	4.044	1.549	1.200	1.000	.630	29000	20500	21001-02004	
	.500	.750							4.294	1.799						21001-02008	
	.750	1.000							4.544	2.049						21001-02012	
	1.000	1.250							4.794	2.299						21001-02016	
	1.250	1.500							5.044	2.549						21001-02020	

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas Notes / Notes / Hinweise / Note / Notas

Avbolt® fasteners are supplied with lubricated collars and must not be degreased. / Avbolt® sont lubrifiées et ne doivent pas être dégraissées. / Avbolt® sind mit einem Gleitmittel beschichtet, welches nicht entfernt werden darf. / I Avbolt® sono forniti lubrificati e non devono essere sgrassati. / Los Avbolt® se suministran lubricados y no deben ser desengrasados.

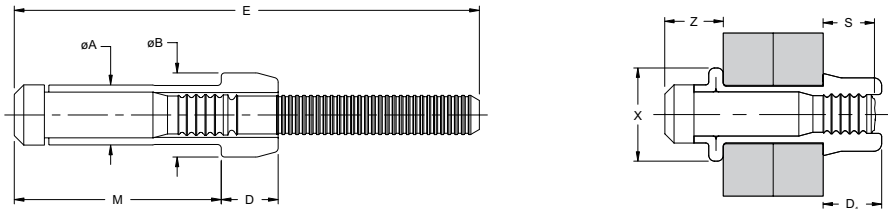
Avbolt® 21021



English	Français	Deutsch	Italiano	Español	***
Body: Carbon steel* Zinc plated Clear trivalent passivated	Corps: Acier* Revêtement zingué Passivation claire trivalente	Hülse: Stahl* Verzinkt Klar chromatiert, Cr6-frei	Corpo: Acciaio* Zincata Passivazione chiara trivalente	Cuerpo: Acero al carbono* Zincado Pasivado claro trivalente	 240 h
Stem: Carbon steel** Black oxide	Tige: Acier** Noir	Dorn: Stahl** Schwarz brüniert	Gambo: Acciaio** Passivato nero	Vástago: Acero al car- bono** Pavonado	 8 h

*: SAE 1008 EN 10263-2 C8C **: SCM 435 SAE 4135 EN 10263-4 34CrMo4

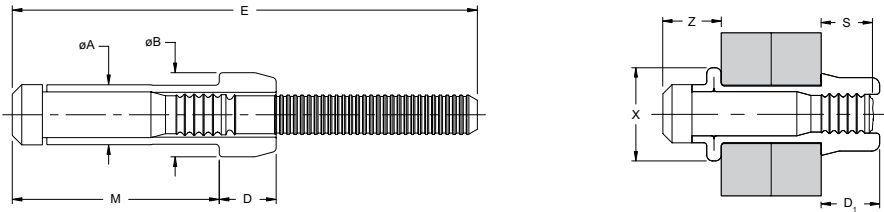
***: to red rust / à la rouille rouge / bis Rotrost / alla ruggine rossa / al óxido rojo (ASTM B117)



ø nom.					øA max.	øB max.	D max.	D ₁ max.	E min.	M max.	S max.	X nom.	Z max.			Part No/ref
	min.	max.	min.	max.												
3/16" (4.8 mm)	.093	.157	.208	.222	.205	.288	.195	.207	1.461	.488	.252	.297	.210	2800	1800	21021-00602
	.157	.220							1.523	.551						21021-00603
	.220	.282							1.585	.614						21021-00604
	.282	.345							1.647	.677						21021-00605
	.345	.407							1.709	.738						21021-00606
	.407	.470							1.771	.801						21021-00607
	.470	.532							1.833	.864						21021-00608
	.532	.595							1.895	.927						21021-00609
	.595	.657							1.957	.988						21021-00610
	.657	.720							2.019	1.051						21021-00611
	.720	.783							2.081	1.114						21021-00612
	1/4" (6.4 mm)	.093							.157	.277						.292
.157		.220	1.863	.713	21021-00803											
.220		.282	1.925	.775	21021-00804											
.282		.345	1.987	.838	21021-00805											
.345		.407	2.049	.900	21021-00806											
.407		.470	2.111	.963	21021-00807											
.470		.532	2.173	1.025	21021-00808											
.532		.595	2.235	1.088	21021-00809											
.595		.657	2.297	1.150	21021-00810											
.657		.720	2.359	1.213	21021-00811											
.720		.783	2.421	1.275	21021-00812											

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas

Avbolt® 21021



ø	Ø		Ø		øA	øB	D	D ₁	E	M	S	X	Z	lbf min.	lbf min.	Part No/ref
	nom.	min.	max.	min.												
5/16" (8.0 mm)	.188	.313	.348	.368	.345	.488	.340	.362	2.457	.917	.404	.483	.358	8200	5300	21021-01004
	.313	.438							2.581	1.042						21021-01006
	.438	.563							2.705	1.167						21021-01008
	.563	.688							2.829	1.292						21021-01010
	.688	.813							2.953	1.417						21021-01012
	.813	.938							3.077	1.542						21021-01014
	.938	1.062							3.201	1.667						21021-01016

all dimensions in inches / en pouces / alle Maße in Zoll / in pollici / en pulgadas

Note / Note / Hinweis / Nota / Nota

Bodies are supplied lubricated and must not be degreased.

Les corps sont lubrifiés et ne doivent pas être dégraissés.

Hülsen sind mit einem Gleitmittel beschichtet, welches nicht entfernt werden darf.

I corpi sono forniti lubrificati e non devono essere sgrassati.

Los cuerpos se suministran lubricados y no deben ser desengrasados.

The Range of Avdel® Blind Fastening Systems



Speed Fastening® Systems

Extra fast and reliable fastening from one side.
Rivets are fed automatically.



Breakstem Systems

Blind fastening systems with various features from multi-grip capability to high strength stainless steel rivets.



Lockbolt Systems

High clamp force and vibration resistance for the highest strength joints.



Blind Threaded Inserts

Fast system for sustainable threads with high torque-to-turn.



Installation Equipment

From manually operated handtools to customised assembly workstations.