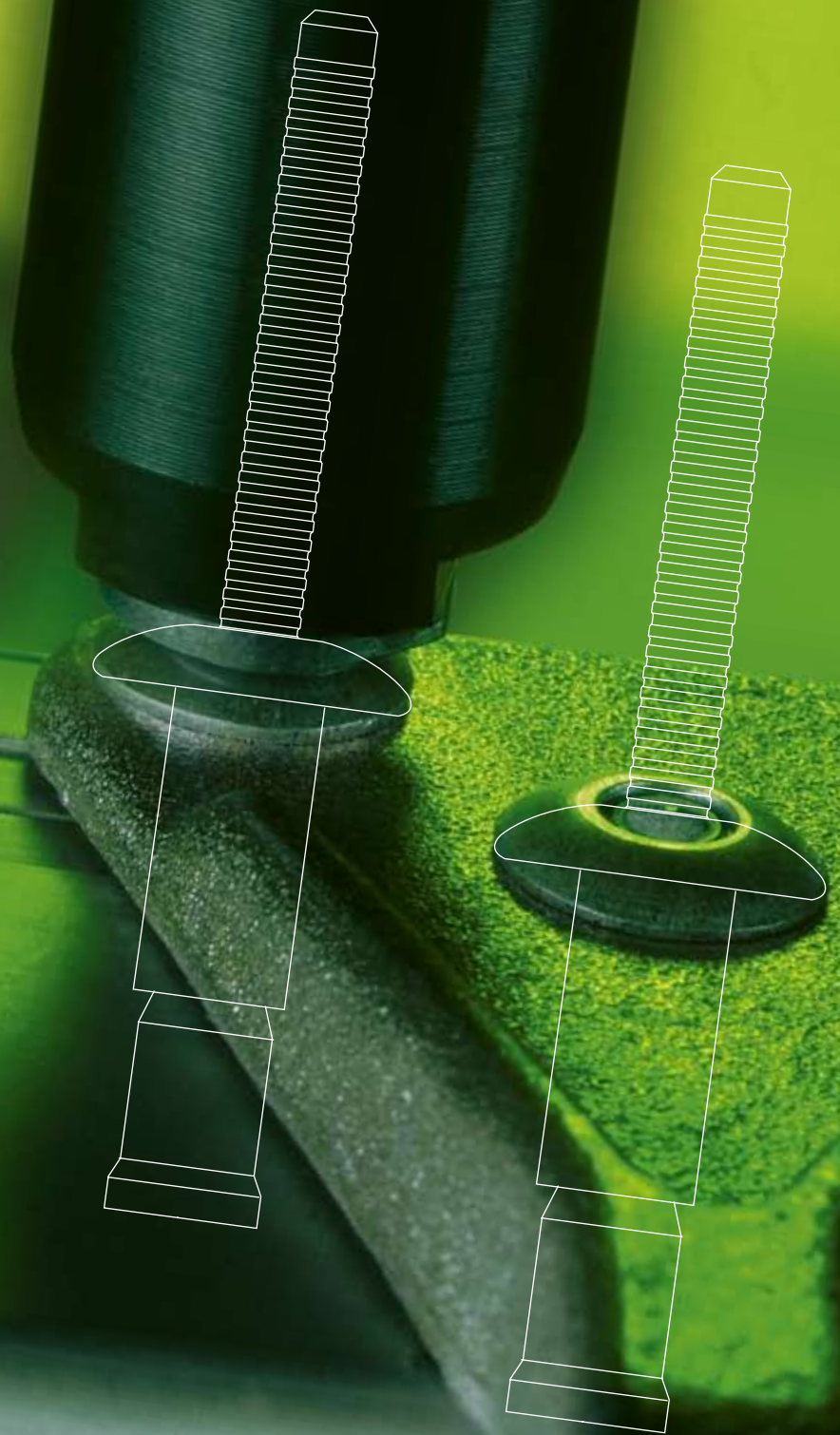
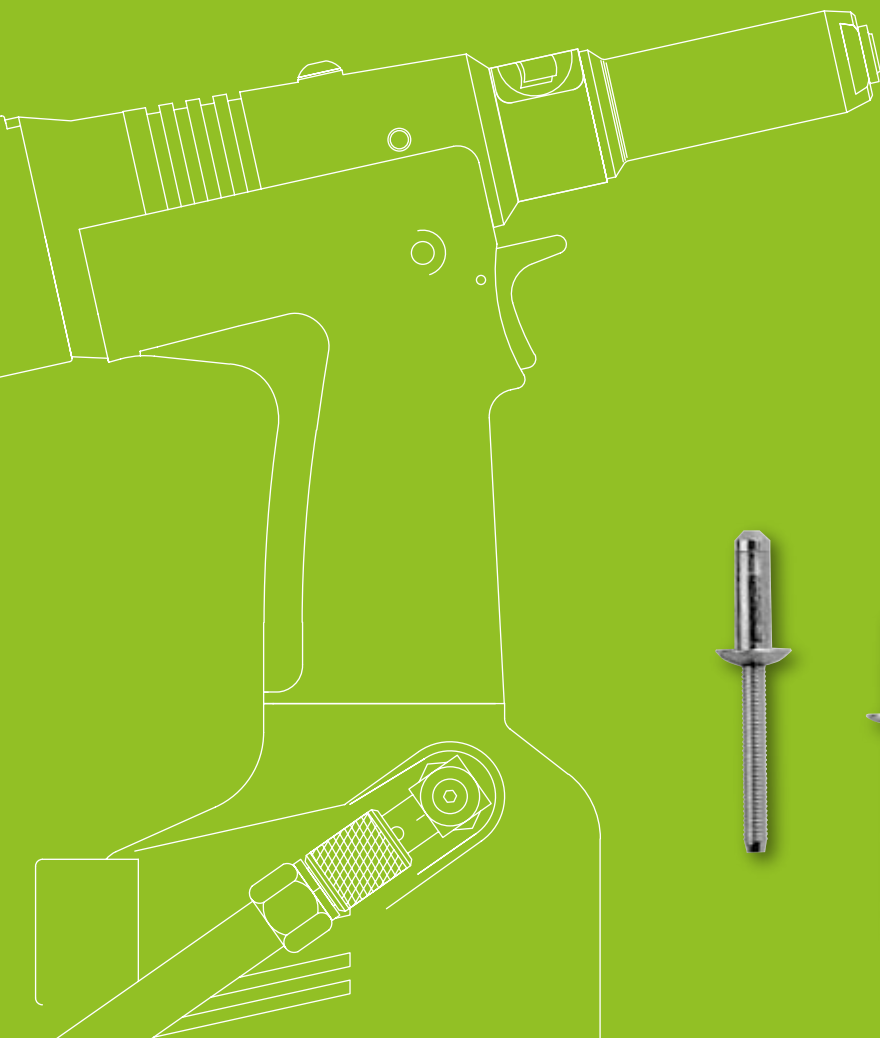


# Breakstem Systems





## Intelligent Systems for versatile Fastening

Joining components and diverse materials that vary in thickness and composition is a fundamental aspect of Avdel® breakstem fastening systems. The flexibility to meet a wide range of customer requirements ensures that an optimal fastening solution can be tailored to the needs of the application.

Avdels wide range of breakstem fasteners can be used to fasten a variety of materials including soft, brittle and thin metals and plastics. They are designed to meet the highest quality standards and built to resist the toughest environmental extremities.

Avdel® products have often been designed and developed in collaboration with our customers, thus you can be sure they've been designed with function and practicality at the forefront of the development.

With fastening technology nothing should be left to chance, from conceptual design to the finished article every decision is significant and must be made with the end result in mind. This is inherent to the Avdel® culture, we have highly skilled applications engineers on hand to support your fastening requirements and recommend the best solution for your joining needs.

Avdel® breakstem fasteners are produced from high quality, durable materials manufactured using Avdels cold forming process. Elements of the fastener design, cold forming process and additional operations produce each fasteners specific performance features and characteristics.

Avdel® breakstem fasteners conform to the requirements of modern installation systems. They can be installed manually or automatically and can easily be integrated into existing installation processes. Avdel® breakstem fastening solutions can be used to simplify production flows and reduce assembly time whilst simultaneously improving quality and performance in the application. Whether you specialise in high volume production or small volume batches we can recommend a fastening solution to match. Our customised Multi-head Assembly Stations can fasten any number of joints in a single operation whilst our hand tools provide flexible assembly solutions in many environments.

In every case see ourselves as not only a provider of fasteners, tools and machines but as a fastening solution partner with the ability to support our customers and help to improve their assembly performance.

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# Avdel® Breakstem Systems

Avdel® breakstem fasteners and installation tools are a high performance blind fastening system. For over 70 years the Avdel® brand has been synonymous with world-leading, blind fastening systems. Used in all manufacturing industries throughout the world, there is an Avdel® breakstem fastener and installation tool to suit virtually every assembly requirement. Key user benefits include:

## Benefits of assembly

### Extensive Product Choice

The Avdel® breakstem range is now more extensive than ever. A wide choice of headforms, finishes and sizes are available as standard and new products have been introduced to expand the steel and stainless steel product ranges.

### Installation Tools

A comprehensive range of high performance tools ensure reliable and accurate installation of Avdel® breakstem fasteners. Combining the latest design and engineering technology with robust and durable construction, the range includes hydro-pneumatic handtools, a battery powered tool as well as fully automated, customised equipment for high volume production.

### Multi-grip Capability

Stavex®, Avex®, Monobolt® and Klamp-Tite® breakstem fasteners offer multi-grip capability. By accommodating many variations in material thickness, just one fastener can be used in several assembly applications, reducing stock holding, time and costs.

### Complete Hole Fill

Monobolt®, Stavex® and Avex® fasteners offer exceptional hole fill. Expanding to fill oversize, irregular, slotted or misaligned holes they create a high strength, vibration resistant joint.

### Consistent, High Performance

Designed and manufactured to high tolerances, Avdel® breakstem fastening systems ensure consistently accurate and secure, high strength assembly.

### Retained and Locked Stems

Most Avdel® breakstem fasteners have a retained stem which provides strong, vibration resistant joints without electrical problems or rattling often caused by loose stems. For additional strength, Monobolt®, Interlock® and Klamp-Tite® stems are mechanically locked into the shell head whilst the splined stems of Hemlok® and Q Rivet fasteners form interference locks.

### Structural Assembly

Where load-bearing, structural joints are required, Hemlok®, Q Rivet, Interlock® and Monobolt® fasteners have been designed to offer high shear and tensile strength.

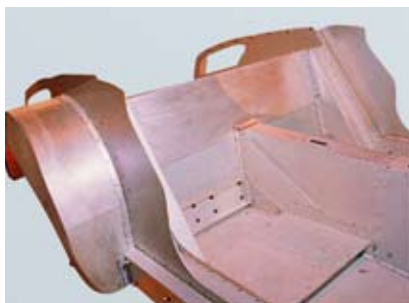
### Customised Designs

As you would expect from a leader in fastening solutions, we have extensive experience in engineering and developing breakstem fasteners and tooling to unique customer requirements and a few examples are detailed in this brochure. Please contact us to discuss your special requirements.

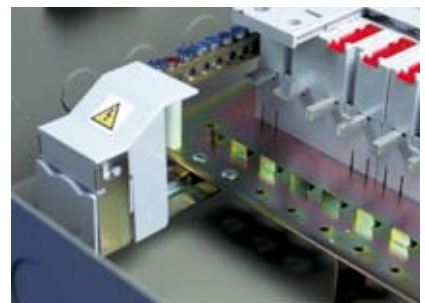
Domestic appliances



Car chassis



Electronic components





# Selecting a Breakstem Fastener

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

## Fastener Selection

### Grip Range

The fastener should be selected to ensure that the thickness of the parent material(s) falls within the grip range. Most Avdel® breakstem fasteners offer multi-grip capability, with Monobolt®, Stavex® and Avex® fasteners offering exceptional multi-grip performance.

### Hole Size

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

### Corrosion Resistance

The selection of the material type and finish of the breakstem fastener should be made on the basis of the 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.

### Special Surface Coatings

For improved corrosion resistance we can apply many protective coatings, including: Delta-Seal®, extra zinc plating, zinc-nickel plating and anodised finishes for aluminium alloy fasteners, with or without dyeing. Where it is important to improve corrosion resistance and match the surrounding colour, clear, black, yellow, JS500, hex chrome free and other passivations are available.

### Strength Characteristics

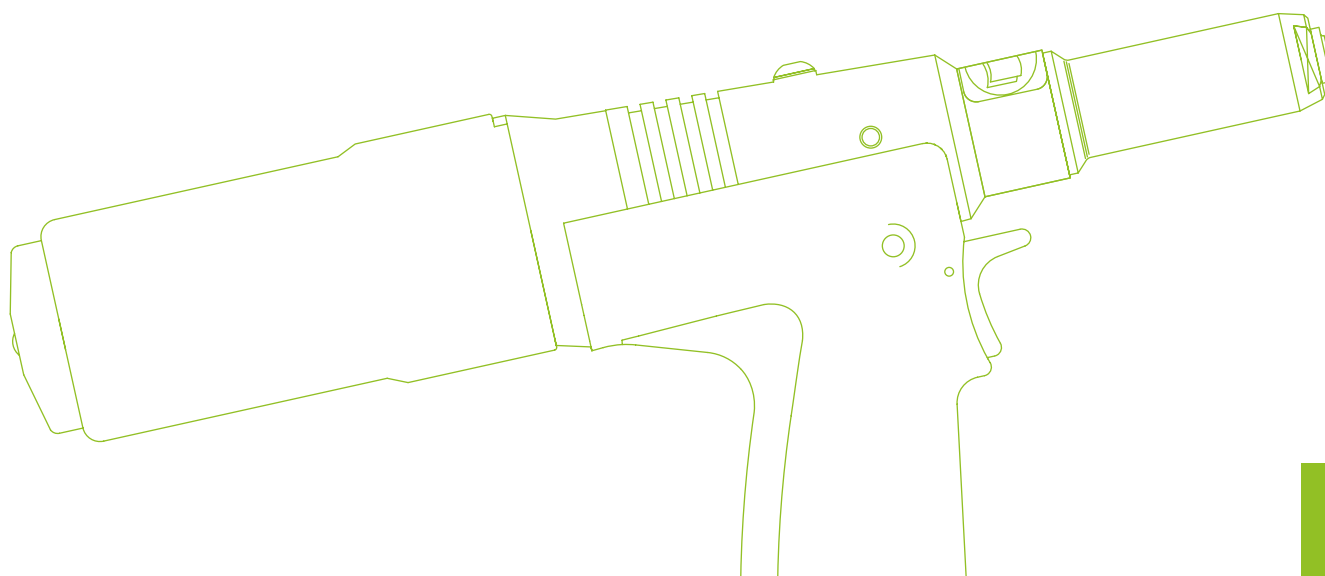
Hemlok®, Monobolt®, Klamp-Tite® (structural), Stavex®, Avinox® and Avibulb® fasteners all offer high shear and tensile strength. Please refer to the technical data sheets for typical strength values. Hole Fill – Monobolt® and Interlock® fasteners provide excellent hole fill via a radially expanded body. Avex®, Stavex®, Avibulb® and Avdel® SR fasteners also provide good hole fill.

### Load Spreading










Most Avdel® breakstem fasteners have a large blind side bearing area. Bulbex® and Klamp-Tite® fasteners provide exceptional load spreading capability and are ideal for use in thin sheet or low strength materials.










### Important Information

The information on this page should be used in conjunction with the technical data sheets for the individual fasteners. All test and performance data detailed on the datasheet are average strength values, determined on representative samples and over multiple tests. Avdel recommends that you use this data as a guide only, since other factors may affect the performance of the fastener. We strongly recommend you test the fastener in your application to determine exact performance levels.



# Range Overview

Brand	Material		Key features
	Body	Stem	
<b>Avex®</b> 	Aluminium Alloy Aluminium Alloy	Steel Stainless Steel	Multi-grip capability Good hole fill Retained stem Large blind side bearing area
<b>Stavex®</b> 	Steel Stainless Steel	Steel Stainless Steel	Multi-grip capability Good hole fill Retained stem Large blind side bearing area
<b>Avibulb®</b> 	Steel	Steel	High shear and tensile strength Retained stem Large blind side bearing area
<b>Avinox®</b> 	Stainless Steel	Stainless Steel	High shear and tensile strength High corrosion resistance Retained stem Large blind side bearing area
<b>Bulbex®</b> 	Aluminium Alloy	Aluminium Alloy	Split tail formation for thin sheet and low strength materials Multi-grip capability Retained stem
<b>T-Lok®</b> 	Steel	Steel	'Peel-type' tail formation for joining wood to metal Wide grip range Retained stem
<b>Avdelmate™</b> 	Aluminium Alloy Aluminium Alloy Steel	Aluminium Alloy Steel Steel	Two piece fastener Extra wide grip range Large bearing area against both sides of the application Excellent hole fill
<b>Hemlok®</b> 	Aluminium Alloy Steel	Aluminium Alloy Steel	Very high shear and tensile strength Large blind side bearing area Interference lock via splined stem
<b>Monobolt®</b> 	Aluminium Alloy Steel Stainless Steel	Aluminium Alloy Steel Stainless Steel	Multi-grip capability Fully sealed fastener Visible lock Excellent hole fill Mechanically locked stem Good sheet take-up performance

Brand	Material		Key features
	Body	Stem	
Interlock® 	Aluminium Alloy Steel	Aluminium Alloy Steel	Multi-grip capability Fully sealed fastener Excellent hole fill Mechanically locked stem Good sheet take-up performance
Q Rivet 	Aluminium Alloy Aluminium Alloy Steel Stainless Steel	Aluminium Alloy Steel Steel Stainless Steel	Interference lock via a splined stem Stem plugs entire shell length Weatherproof
Klamp-Tite® (structural) 	Aluminium Alloy	Aluminium Alloy	Split tail formation for thin sheet and low strength materials Multi-grip capability Good clamp up Mechanically locked stem Visible lock
Klamp-Tite® (non-structural) 	Aluminium Alloy	Aluminium Alloy	Split tail formation for thin sheet and low strength materials Multi-grip capability Good clamp up
Standard Breakstem Range N Rivet/BD Series 	Aluminium Alloy Aluminium Alloy Aluminium Alloy Copper Stainless Steel Stainless Steel Monel	Aluminium Alloy Steel Stainless Steel Steel Steel Stainless Steel Steel	Low cost standard rivet Wide range of materials and sizes Quick installation Increased stem retention
Avdel® SR 	Aluminium Alloy Aluminium Alloy Aluminium Alloy Copper Steel Stainless Steel	Aluminium Alloy Steel Stainless Steel Steel Steel Stainless Steel	Fully sealed fasteners Good hole fill Retained stem Wide range of materials and sizes
T Rivet 	Aluminium Alloy Aluminium Alloy	Aluminium Alloy Steel	'Peel-type' tail formation High shear and tensile strength High clamp up Visible lock
Earth Tab Rivet 	Steel	Steel	Cost effective earthing point Paint piercing capability Twin tabs allow one or two connections
Avex® Splined 	Steel	Steel	Steel splines for electrical continuity in earthing applications Multi-grip capability

# Selection Guide

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

Product Range	Material				Headform		Fastener Size (nom)										Series No.	Page No.
	Body		Stem				2.4 mm (3/32")	3.0 mm	3.2 mm (1/8")	4.0 mm (5/32")	4.3 mm	4.8 mm (3/16")	5.0 mm	6.0 mm	6.4 mm (1/4")	10.0 mm (3/8")		
Avex®	Aluminium	Steel	Stainless Steel	Copper	Monel	Aluminium	Steel	Stainless Steel	Dome/Protruding	Countersunk	Large Flange						1604	10
																	1641	
																	1643	
																	1661	
																	1663	
Stavex®																	BE34	11
																	BS01	
																	BS04	
																	BS11	
Avibulb®																	BN01	12
Avinox®																	BE61	12
Bulbex®																	BF01	13
T-Lok®																	BM01	14
Avdelmate™																	BALMS	15
																	BSLMS	
																	SSLMS	
Hemlok®																	2221	16
																	2241	
Monobolt®																	2711/CCPV	17
																	2761/SSCV	
																	2764	
																	2771/SSPV	
																	2774/BAPV	
Interlock®																	BAPI	18
																	SSCI	
																	SSPI	

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.



Product Range	Material					Headform				Fastener Size (nom)										Series No.	Page No.
	Body		Stem			Dome/ Protruding	Countersunk	Large Flange	2.4 mm (3/32")	3.0 mm	3.2 mm (1/8")	4.0 mm (5/32")	4.3 mm	4.8 mm (3/16")	5.0 mm	6.0 mm	6.4 mm (1/4")	10.0 mm (3/8")			
	Aluminium Steel	Stainless Steel	Copper	Monel	Aluminium Steel														Stainless Steel		
Q Rivet	•				•						•	•		•			•		AACQ	19	
	•				•						•	•		•			•		AALQ		
	•				•			•			•	•		•			•		AAPQ		
	•					•					•	•		•			•		BSCQ		
	•					•					•	•		•			•		BSLQ		
	•					•		•			•	•		•			•		BSPQ		
			•				•				•	•		•			•		CCCQ		
			•				•				•	•		•			•		CCLQ		
			•				•	•			•	•		•			•		CCPQ		
		•					•		•		•	•		•			•		SSCQ		
		•					•				•	•		•			•		SSLQ		
		•					•				•	•		•			•		SSPQ		
Klump-Tite® (structural)	•				•			•						•			•		BAPKTR	20	
Klump-Tite® (non-structural)	•				•			•						•			•		BAPK		
Standard Breakstem Range N Rivet/BD Series	•					•		•			•	•	•		•	•			BD05	21	
				•		•		•			•	•	•		•				BD31		
	•				•			•			•	•		•					BD41		
	•					•		•	•	•	•	•		•	•	•	•	BSxx/BD01/2/3			
			•			•		•	•	•	•	•		•	•		•	CCxx/BD21/22/23			
			•			•		•	•	•	•	•		•				CSxx			
				•		•		•	•	•	•	•		•				MSxx/BD51/53			
		•				•		•	•	•	•	•		•	•	•	•	SSxx/BD11/13			
Avdel® SR	•					•		•			•	•		•			•		SR01	21	
	•					•		•			•	•		•					SR02		
				•		•		•			•	•		•					SR03		
	•				•			•			•	•		•					SR04		
		•				•		•			•	•		•					SR31		
			•			•		•			•	•		•					SR41		
T Rivet	•				•			•						•			•		BAXxx	21	
	•					•		•	•	•				•			•		BSxx		
Earth Tab Rivet		•				•													BN11	22	
Avex® Splined		•				•			•			•		•					1610	22	

Multi-grip, aluminium alloy breakstem fasteners with a long and reliable track record in a wide range of applications and industries.



## Key features and benefits

- Multi-grip capability accommodates wide variations in material thickness
- One fastener can be used to replace several standard grip fasteners thus reduced fastener inventory and simpler stock control
- Good hole fill provides strong, vibration resistant joints
- Compensates for irregular, oversized, slotted or misaligned holes
- Can stop sheet movement in non-standard holes
- Retained stem avoids damage, electrical problems or rattling caused by loose stems
- Provides a large blind side bearing area against the rear sheet
- Spreads the tail bearing load/clamp load on the rear sheet making it ideal for use in thin sheet materials

## Specifications

Sizes:

3.0 mm to 6.4 mm (1/4")

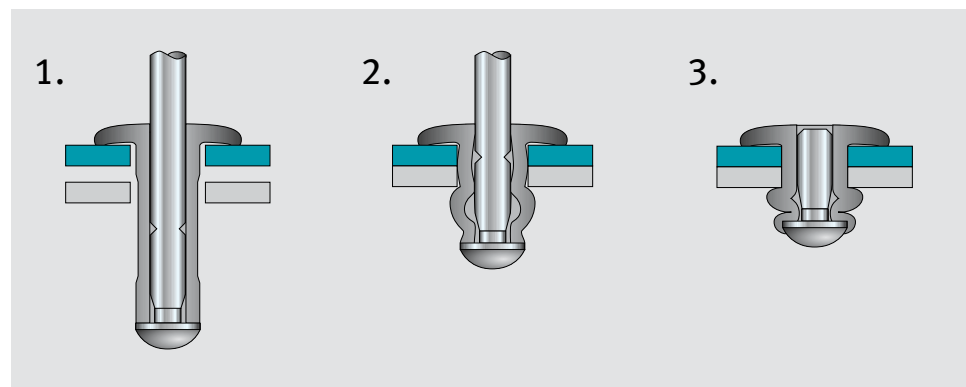
Materials:

Aluminium alloy with steel or stainless steel stems

Headforms:

Dome, countersunk and large flange

## Typical placing sequence



Please visit our website [www.avdel-global.com](http://www.avdel-global.com) for fastener placing animations and technical data.

## Assembly applications

- Automotive
- Commercial vehicles
- Domestic appliances
- Electronics
- Electrical equipment
- General light industrial
- Heating and ventilation

Garage doors



Domestic heating systems



Car chassis



Multi-grip, high strength steel and stainless steel breakstem fasteners.



## Key features and benefits

- High shear and tensile strength provides strong, vibration resistant joints
- Stainless steel option provides high corrosion resistance and is ideal for applications requiring elevated temperatures
- Multi-grip capability accommodates wide variations in material thickness
- One fastener can be used to replace several standard grip fasteners thus reduced fastener inventory and simpler stock control
- Good hole fill compensates for irregular, oversized, slotted or misaligned holes and can stop movement in non-standard holes
- Retained stem avoids damage, electrical problems or rattling caused by loose stems
- Provides a large blind side bearing area against the rear sheet
- Spreads the tail bearing load/clamp load on the rear sheet making it ideal for use in thin sheet materials

## Specifications

Sizes:

3.2 mm to 6.4 mm  
(1/8" to 1/4")

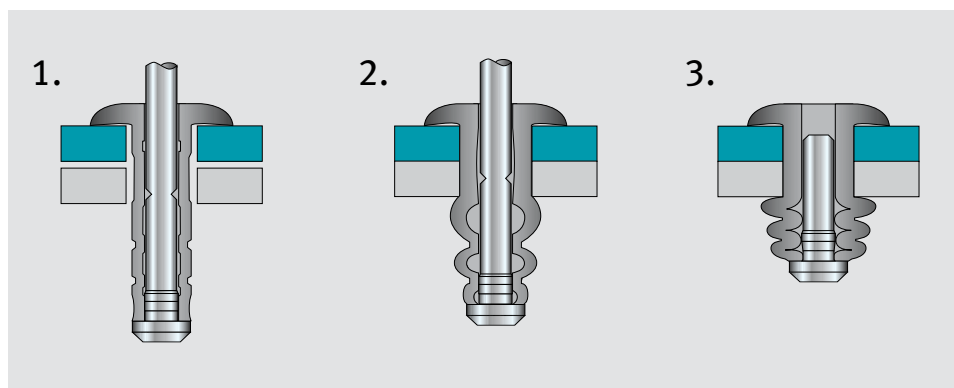
Materials:

Steel or stainless steel

Headforms:

Dome, countersunk  
and large flange

## Typical placing sequence



Please visit our website [www.avdel-global.com](http://www.avdel-global.com) for fastener placing animations and technical data.

## Assembly applications

- Automotive
- Commercial vehicles
- Domestic appliances
- Electronics
- Electrical equipment
- General light industrial
- Heating and ventilation

Snowmobile



Passenger air bag

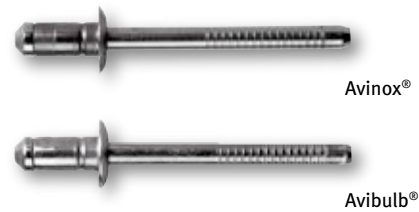


Roll-up security door



# Avinox<sup>®</sup> & Avibulb<sup>®</sup>

High strength stainless steel (Avinox<sup>®</sup>) and steel (Avibulb<sup>®</sup>) breakstem fasteners with excellent bulbing tail formation. Ideal for thin sheet materials.



## Key features and benefits

- High shear and tensile strength providing strong, vibration resistant joints
- Stainless steel Avinox<sup>®</sup> for high corrosion resistance and applications requiring elevated temperatures
- Provides a large blind side bearing area against the rear sheet
- Spreads the tail bearing load/clamp load on the rear sheet making it ideal for use in thin sheet materials
- Good hole fill compensates for irregular, oversized, slotted or misaligned holes
- Retained stem avoids damage, electrical problems or rattling caused by loose stems

## Specifications

Sizes:

3.2 mm to 4.8 mm

(1/8" to 3/16"),

Avibulb<sup>®</sup> up to 6.0 mm

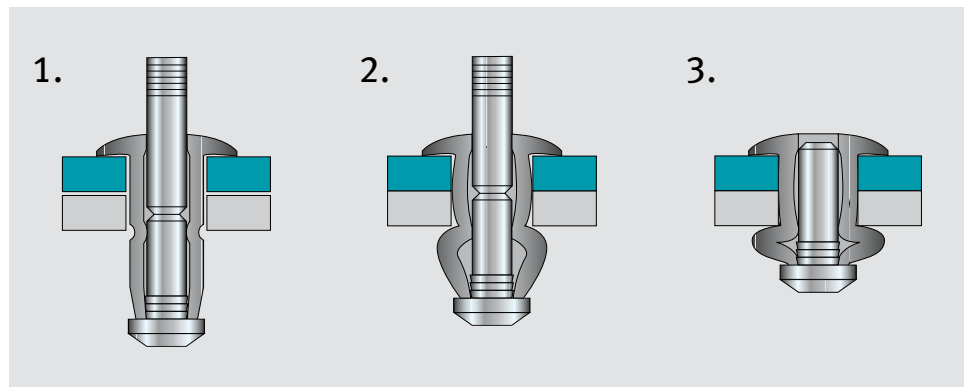
Material:

Stainless steel and steel

Headform:

Dome

## Typical placing sequence



Please visit our website [www.avdel-global.com](http://www.avdel-global.com) for fastener placing animations and technical data.

## Assembly applications

- Automotive
- Cabinets and enclosures
- Heating and ventilation
- Telecommunications
- General light industrial

Telecommunications cabinets



Electronic components



Ladders



# Bulbex<sup>®</sup>

Aluminium alloy breakstem fasteners with a split tail formation providing a very large blind side bearing area against the rear sheet. Ideal for use in thin sheet or low strength material.



## Key features and benefits

- Split tail formation provides a very large blind side bearing area against the rear sheet
- Spreads the tail bearing load/clamp load on the rear sheet providing high resistance to pull-out loads
- Multi-grip capability accommodates wide variations in material thickness
- Retained stem avoids damage, electrical problems or rattling caused by loose stems

## Specifications

Sizes:

4.0 mm and 4.8 mm  
(5/32" and 3/16")

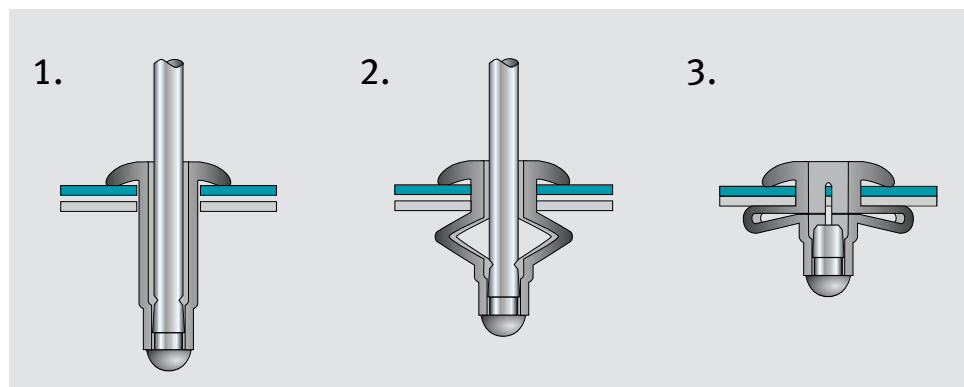
Material:

Aluminium alloy

Headform:

Dome

## Typical placing sequence



Please visit our website [www.avdel-global.com](http://www.avdel-global.com) for fastener placing animations and technical data.

## Assembly applications

- Automotive
- Caravans/RV
- Mobile homes
- Domestic appliances
- Plastic components

Caravans/RV



Mobile homes



Speaker systems



# T-Lok<sup>®</sup>

Cost-effective and efficient method of attaching metal to wood or other soft material without through holes.



## Key features and benefits

- 'Peel-type' tail formation makes it ideal for joining metal to wood, board or low density plastic
- Large bearing surface expands into blind hole providing superior pull-out force
- Ideal replacement for wood screws or self-tapping screws
- Multi-grip capability accommodates wide variations in material thickness

## Specifications

Sizes:

4.3 mm and 4.8 mm (3/16")

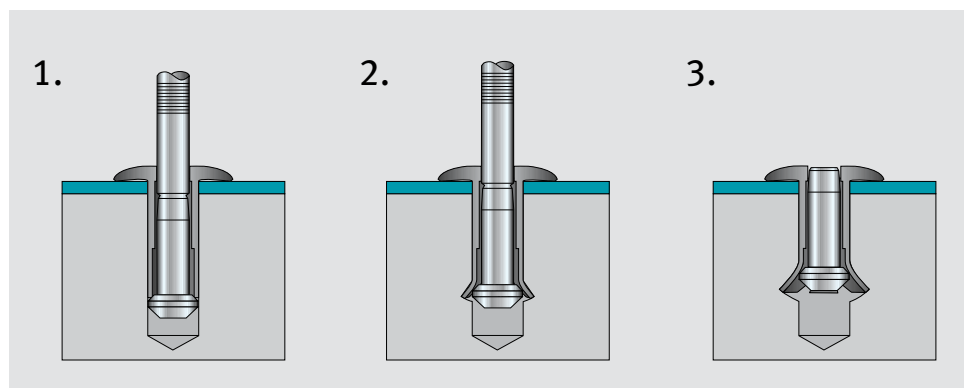
Materials:

Steel

Headforms:

Dome

## Typical placing sequence



Please visit our website [www.avdel-global.com](http://www.avdel-global.com) for fastener placing animations and technical data.

## Assembly applications

- Garage doors
- Furniture

Garage Doors



Furnitures





# Avdelmate™

A two-piece breakstem fastener consisting of a rivet and tubular section which provide a wide grip range, controlled clamp and a large bearing area on both sides of the application. Ideal for use in thin sheet, soft, brittle or low strength materials.



## Key features and benefits

- Extra-wide grip range from 15.8 mm to 98.4 mm (5/8" to 3-7/8")
- Large bearing area against both sides of the application spreads the tail bearing load/clamp load on the rear sheet to prevent damage
- Clamps tightly and securely without crushing parent material
- Excellent hole fill via radially expanded rivet body for a strong and vibration resistant joint
- Rivet stem retained in tubular component avoids loose stems
- Low profile headform on both sides of the application for a neat appearance

## Specifications

Sizes:

4.8 mm and 6.4 mm  
(3/16" and 1/4")

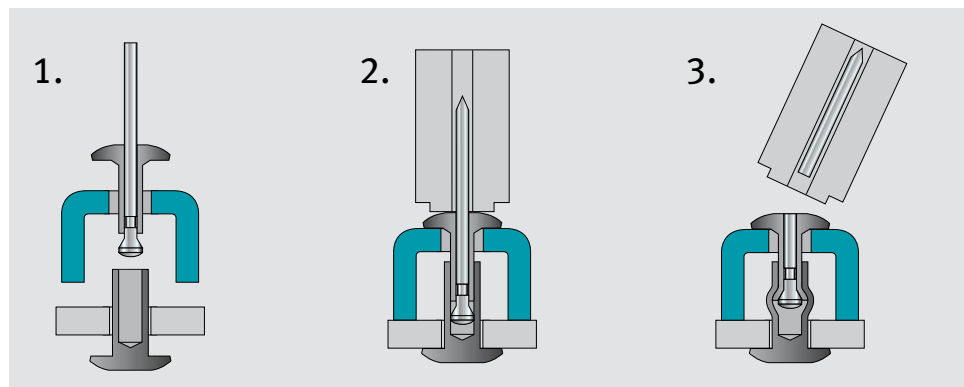
Materials:

Aluminium alloy and steel

Headforms:

Dome

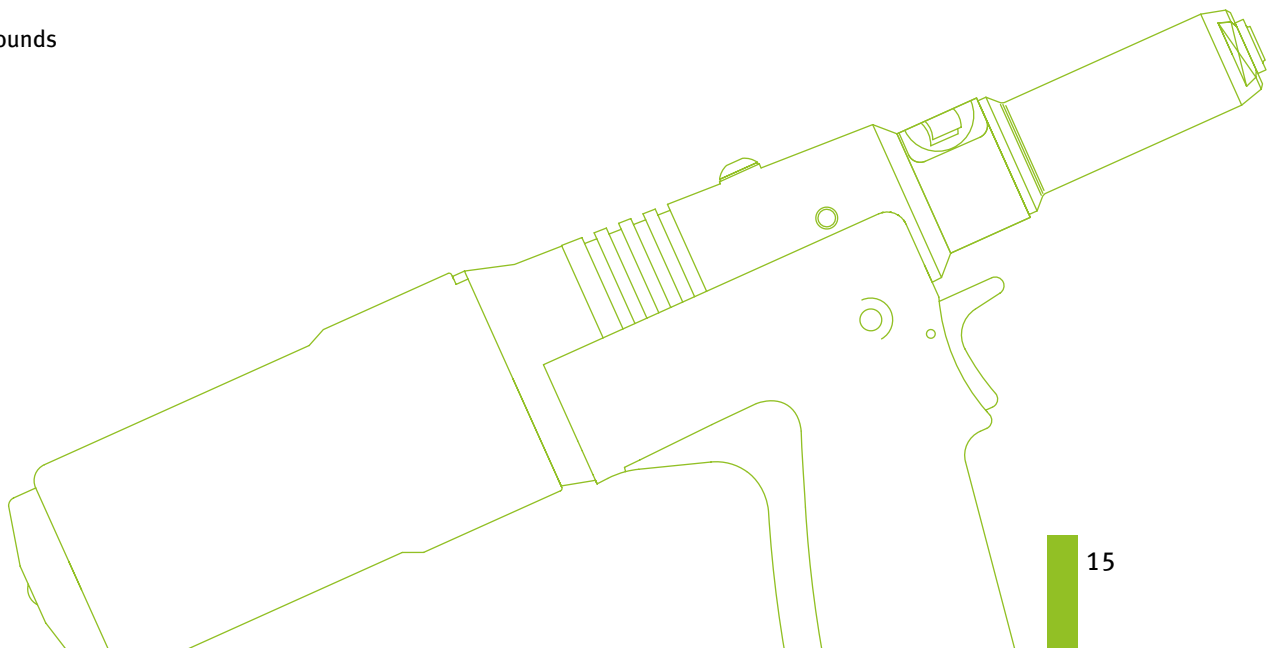
## Typical placing sequence



Please visit our website [www.avdel-global.com](http://www.avdel-global.com) for fastener placing animations and technical data.

## Assembly applications

- Toys for playgrounds
- Furniture
- Racks



# Hemlok®

Structural breakstem fasteners with exceptional shear and tensile strength and a large blind side bearing area against the rear sheet.



## Key features and benefits

- All steel version provides exceptional shear and tensile strength
- Large blind side bearing area spreads the tail bearing load/ clamp load on the rear sheet reducing creep e.g. in plastic material
- Interference lock formed by a splined stem provides strong, vibration resistant joints
- No damage, electrical problems or rattling caused by loose stems

## Specifications

Sizes:

6.4 mm (1/4")

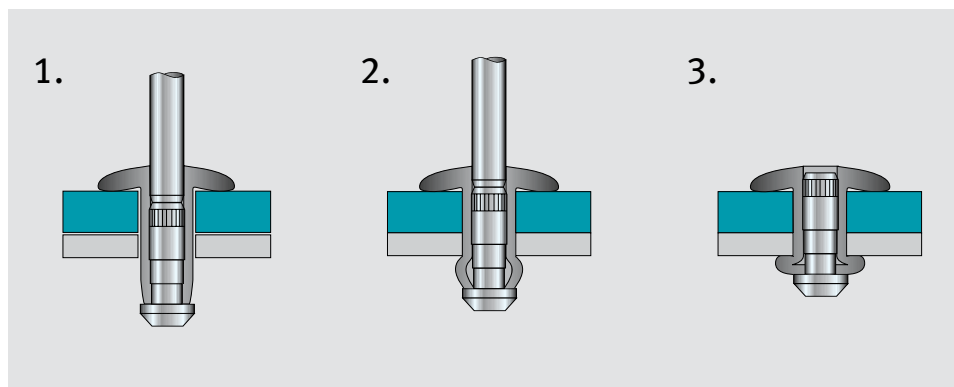
Materials:

Aluminium alloy and steel

Headform:

Protruding

## Typical placing sequence



Please visit our website [www.avdel-global.com](http://www.avdel-global.com) for fastener placing animations and technical data.

## Assembly applications

- Automotive
- Warehouse racking
- Ladders

Scaffold tower



Step ladder



Car seat base



Vehicle mud flaps



# Monobolt®

Multi-grip structural breakstem fasteners providing a fully sealed joint and visible lock.



## Key features and benefits

- Excellent hole fill via radially expanded body provides very strong, vibration resistant joints and compensates for irregular, oversized, slotted or misaligned holes
- Good sheet take-up performance for large gap closing capability
- Stem mechanically locked into body avoids damage, electrical problems or rattling caused by loose stems
- Multi-grip capability
- High shear and tensile strength
- Visible lock for quick and easy inspection

## Specifications

Sizes:

4.8 mm, 6.4 mm and 10 mm  
(3/16", 1/4" and 3/8")

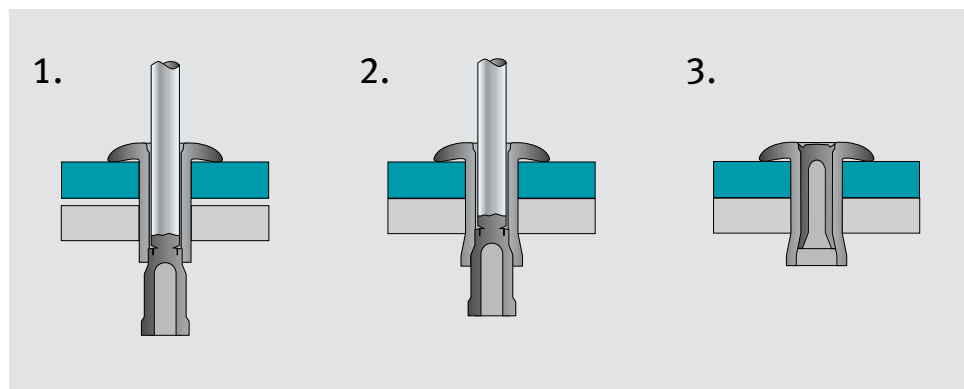
Materials:

Aluminium alloy, steel  
and stainless steel

Headforms:

Protruding and countersunk

## Typical placing sequence

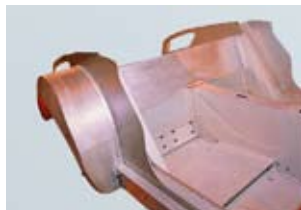


Please visit our website [www.avdel-global.com](http://www.avdel-global.com) for fastener placing animations and technical data.

## Assembly applications

- Automotive
- Cabinets and enclosures
- Commercial vehicles
- Domestic appliances
- Heating and ventilation

Car chassis



Column tail lifts



Product cooler



# Interlock<sup>®</sup>

Multi-grip structural breakstem fasteners providing a fully sealed joint.



## Key features and benefits

- Excellent hole fill via radially expanded body provides greater joint integrity, added water resistance and compensates for irregular, oversized, slotted or misaligned holes
- Can stop sheet movement in non-standard holes
- Good sheet take-up performance for large gap closing capability
- Stem mechanically locked into body avoids damage, electrical problems or rattling caused by loose stems
- Multi-grip capability accommodates wide variations in material thickness
- High shear and tensile strength requires fewer rivets per assembly

## Specifications

Sizes:

4.8 mm and 6.4 mm  
(3/16" and 1/4")

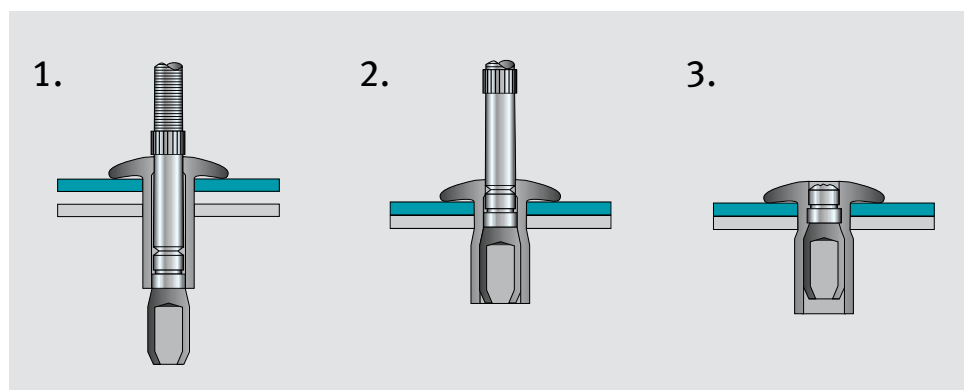
Materials:

Aluminium alloy and steel

Headforms:

Protruding and countersunk

## Typical placing sequence



Please visit our website [www.avdel-global.com](http://www.avdel-global.com) for fastener placing animations and technical data.

## Assembly applications

- Automotive
- Cabinets and enclosures
- Commercial vehicles
- Domestic appliances
- Heating and ventilation

Truck trailer



Heat exchanger



# Q Rivet

Structural breakstem fasteners with an internal interference lock and a weatherproof feature.



## Key features and benefits

- Interference lock formed by a splined stem provides powerful locking strength and hole filling
- Weatherproof fastener because the splined stem plugs the entire length of the shell
- High shear and tensile strength
- All stainless steel option for high corrosion resistance and applications requiring elevated temperatures

## Specifications

Sizes:

3.2 mm to 6.4 mm  
(1/8" to 1/4")

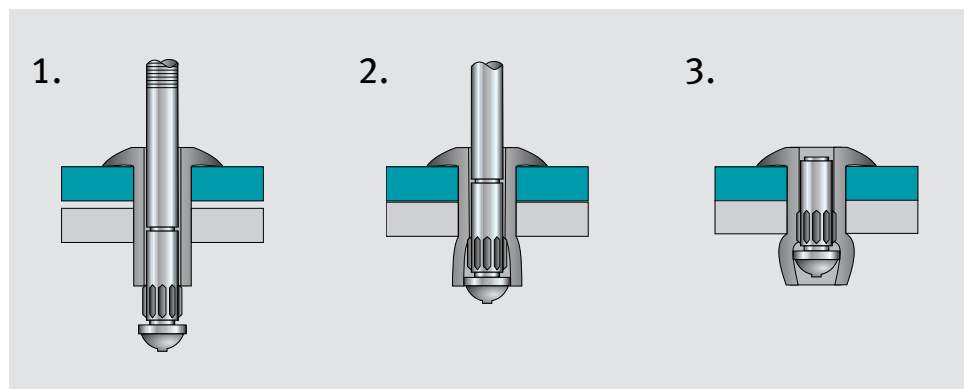
Materials:

Aluminium alloy, steel  
and stainless steel

Headforms:

Protruding, large flange and  
countersunk

## Typical placing sequence



Please visit our website [www.avdel-global.com](http://www.avdel-global.com) for fastener placing animations and technical data.

## Assembly applications

- Automotive
- Building industries
- Commercial vehicles
- Domestic appliances
- Heating and ventilation

Car seat base



Vehicle mud flaps



Step ladder



# Klamp-Tite®

Aluminium alloy fasteners with a very large blind side bearing area against the rear sheet. Ideal for use in thin sheet or low strength materials.



structural



non-structural

## Key features and benefits

- Split tail formation spreads the tail bearing load/clamp load on the rear sheet
- Ideal for use in thin sheet materials offering high resistance to pull-out loads
- Multi-grip capability accommodates wide variations in material thickness

### structural

- Stem is mechanically locked into body providing very strong, vibration resistant joints
- Visible lock for quick and easy inspection
- Optional underhead washer provides a weather-proof seal

### non-structural

- Retained stem provides very strong, vibration resistant joints avoiding problems caused by loose stems

## Specifications

### Sizes:

4.8 mm and 6.4 mm  
(3/16" and 1/4")

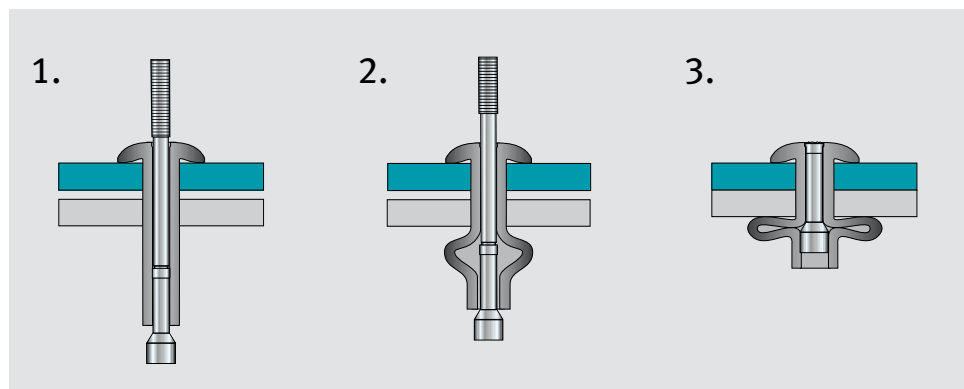
### Materials:

Aluminium alloy

### Headforms:

Protruding

## Typical placing sequence (structural)



Please visit our website [www.avdel-global.com](http://www.avdel-global.com) for fastener placing animations and technical data.

## Specifications

### Sizes:

4.8 mm and 6.4 mm  
(3/16" and 1/4")

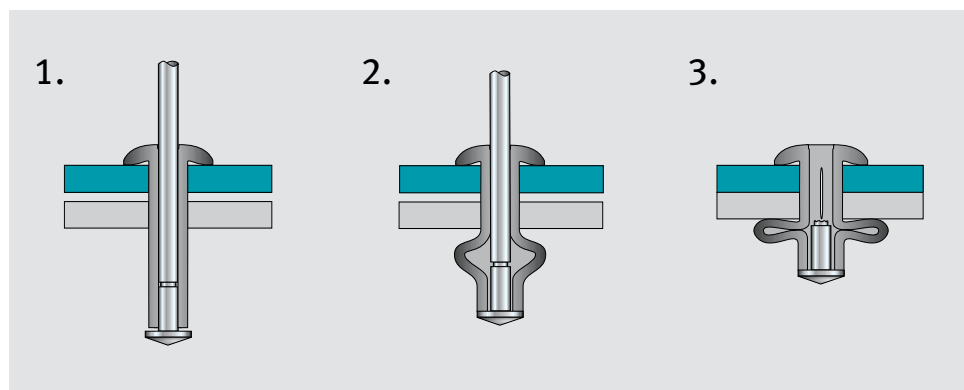
### Materials:

Aluminium alloy

### Headforms:

Protruding

## Typical placing sequence (non-structural)



Please visit our website [www.avdel-global.com](http://www.avdel-global.com) for fastener placing animations and technical data.

## Assembly applications

### structural

- Container
- Cladding
- Commercial vehicles

### non-structural

- Automotive
- Caravans/RV
- Domestic appliances
- Plastic components



# Other Breakstem

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## N Rivet and BD Series

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Non-structural blind breakstem rivet designed for a wide range of applications. Available in a variety of materials and combinations.



- Cost effective standard rivet
- Installed quickly and easily
- Design of the stem head ensures positive retention after installation
- Sizes from  $\varnothing$  2.4 mm (3/32") to 6.4 mm (1/4")
- Protruding, large flange or countersunk headforms
- Materials of body/stem: aluminium/aluminium, aluminium/steel, aluminium/stainless steel, steel/steel, stainless steel/steel, stainless steel/stainless steel, monel/steel, copper/steel

## Avdel® SR

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Fully sealed breakstem fasteners in a wide range of materials and sizes.



- Fully sealed fastener provides a weather-proof fastener
- Good hole fill and retained stem provide strong vibration resistant joints
- Sizes from  $\varnothing$  3.2 mm (1/8") to 6.4 mm (1/4")
- Dome head
- Materials of body/stem: aluminium/aluminium, aluminium/steel, aluminium/stainless steel, steel/steel, stainless steel/stainless steel, copper/steel

## T Rivet

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'Peel-type' structural breakstem rivet providing good vibration resistance and shear and tensile strength.



- High clamp-up where there is sheet separation
- Visible lock - T Rivet can withstand severe vibration without loss of the stem's plug section
- Multi-grip version available
- Sizes of  $\varnothing$  4.8 mm (3/16") and 6.4 mm (1/4")
- Dome, large flange and countersunk headforms
- Materials of body/stem: aluminium/aluminium and aluminium/steel

Please visit our website [www.avdel-global.com](http://www.avdel-global.com) for technical data.

# Other Breakstem Fasteners

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## Earth Tab Rivet

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Cost effective earthing point for thin sheet metal, with paint piercing capability to ensure good electrical conductivity.



- Twin tabs allow one or two connections
- Fast installation of a one piece assembly
- Works on a single phase power supply of 240 volts or below
- Provides a resistance to or below 0.1 ohms
- Tested and approved to EN 60335-1 and BS 3456 Parts 201, clauses 27, 28, 31
- For 5.2 mm holes and a material thickness of 1.0 – 1.5 mm
- Steel body and stem with brass tab

## Avex® Splined

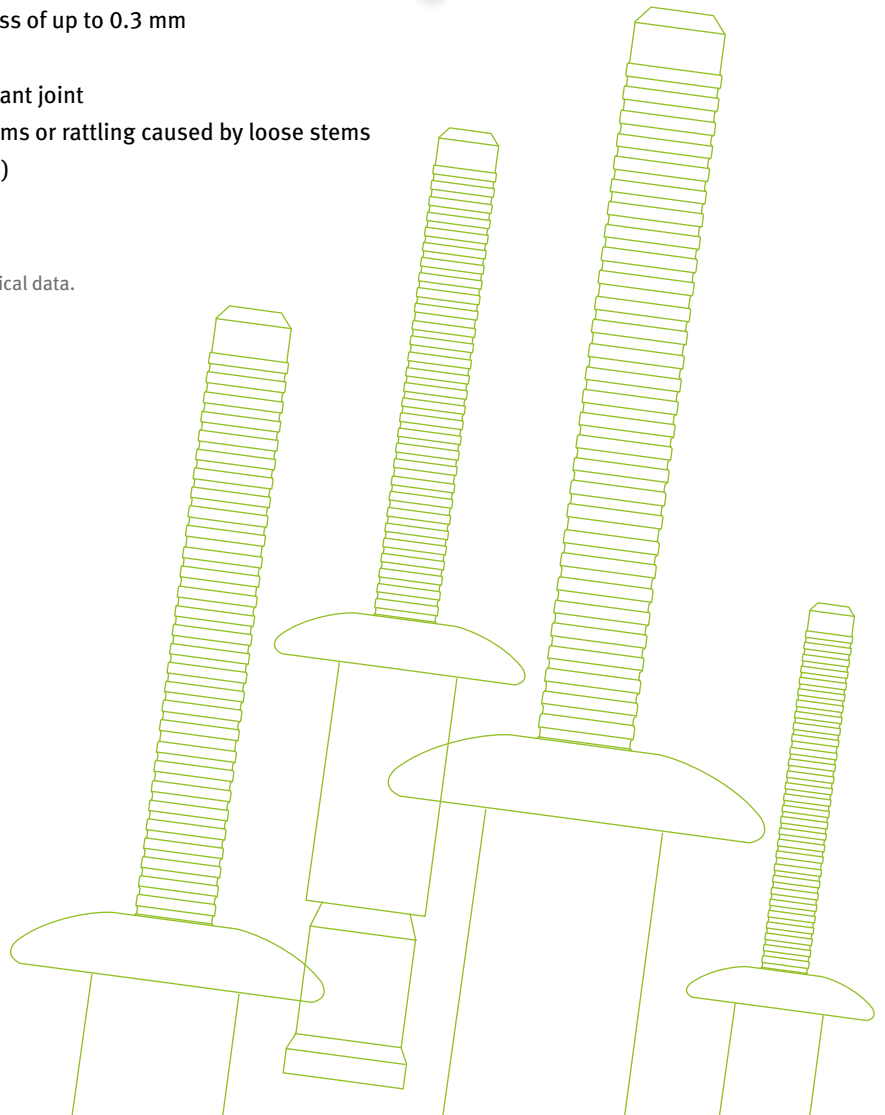
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Designed with steel splines for electrical continuity in earthing applications.



- Steel splines break through a coating thickness of up to 0.3 mm
- Multi-grip capability
- Good hole fill for a strong and vibration resistant joint
- Retained stem – no damage, electrical problems or rattling caused by loose stems
- Sizes of  $\varnothing$  4.0 mm (5/32") and 4.8 mm (3/16")
- Steel body and stem

Please visit our website [www.avdel-global.com](http://www.avdel-global.com) for technical data.



# Installation Tools

## Genesis® nG Series Power Tool Range

New high performance, lightweight hydro-pneumatic handtools for breakstem rivets.

- Vacuum air supply cut-off on trigger minimizes air consumption
- Quick release stem collector saves time for emptying it
- Integrated cycle counter (except nG1 and nG2S)
- Lightweight construction reduces operator fatigue
- Toughened plastic body and heavy duty rubber base make it a robust tool
- nG1, nG2 and nG2S feature a quick release nose equipment reducing setting times
- Soft touch rubber grip on handle for comfortable operation
- nG2S split version with lightweight placing head and remote intensifier

## Placing capability

nG1:

Up to 4.8 mm (3/16") aluminium breakstem rivets  
and up to 4.0 mm (5/32") steel breakstem rivets

nG2:

Up to 4.8mm (3/16") breakstem rivets

nG2S:

Up to 4.8mm (3/16") breakstem rivets

nG3:

Up to 6.4mm (1/4") breakstem rivets produced  
by Avdel, except Hemlok® structural fasteners

nG4:

Up to 6.4mm (1/4") breakstem rivets produced  
by Avdel, except Monobolt® structural rivets

Please visit our website [www.avdel-global.com](http://www.avdel-global.com) for technical information.

nG1



nG2



nG2S



nG3



nG4

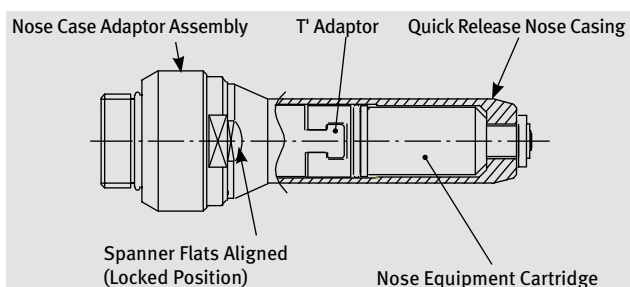


# Installation Tools

## Quick Release Nose Equipment

### Save time and money with this patented system

Change a nose equipment cartridge on your Genesis® tool on line in less than ten seconds. By simply turning the quick release nose casing and removing it from the nose case adaptor assembly, it is possible to slide the nose equipment cartridge off the 'T' adaptor and replace it with another. All this can be done without taking your Genesis® tool off line. The used equipment cartridge can then be cleaned and serviced off line and returned ready for the next change over. Ideal for continuous flow production lines or environments where nose equipment requires frequent cleaning. Available on all standard Genesis® models, they will place the same range of breakstem fasteners as standard nose equipment.

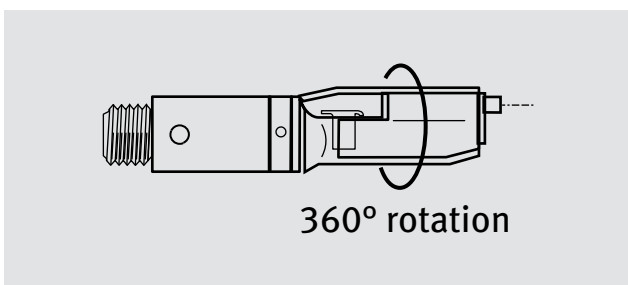


## Swivel Heads

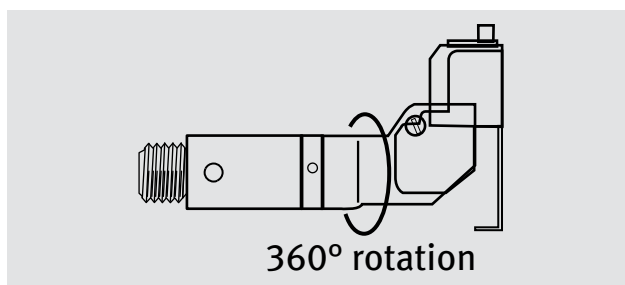
### Access a wider range of applications

Instead of a standard nose assembly, a swivel head can be fitted to a Genesis® base tool. This allows 360° rotation of the tool about the nose tip and allows access into many applications otherwise too restrictive. There are two types of swivel heads; straight swivel head with the nose tip slightly offset from the centre line of the tool head and the right angle swivel head with the nose tip on a perpendicular axis to the head of the tool. Available on the nG1, nG2, nG2-s and nG3 models. Will place Avex®, Avinox® and Bulbex® fasteners.

Straight Swivel Head



Right Angle Swivel Head



# Installation Tools

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## Sensitive Trigger

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### **Increase safety and improve product quality**

This system replaces the standard pneumatic trigger with a preloaded mechanical trigger. It uses the force exerted by pushing the fastener into the application to trigger the installation. Available on all Genesis® nG models.

Key benefits are:

- Increased safety – the system relies on the fastener being perpendicular to the application. It is impossible to place a fastener, unless it is safely in the application.
- Improved product quality through increased consistency of fastener placement
- Uses standard Genesis® nose equipment parts
- Easily adjustable placement force for ease of use



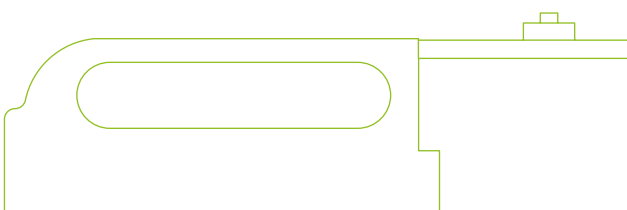
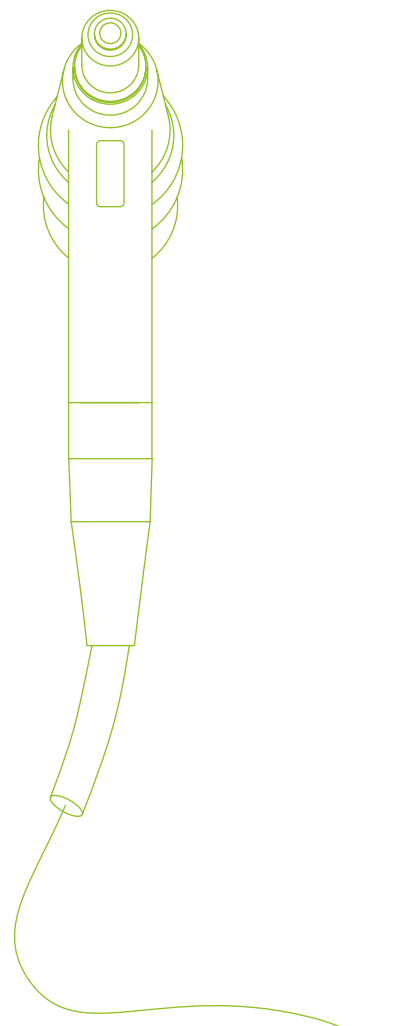
## Options

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The Genesis® range can be customised to meet your unique assembly requirements. Below are just a few examples of options we have developed for our customers. If you have a special requirement you would like to discuss, please contact your local Avdel representative.

### **In addition to these there are more options to customise the Genesis® tools:**

- Extended Nose Assemblies for applications where fasteners are placed in deep recessed areas.
- A Stem Extraction System can be fitted to eliminate the need to take the Genesis® tool off line to empty the stem collector.
- Bench/Stand Mounted Workstations with either handle or foot pedal triggers to free up both hands



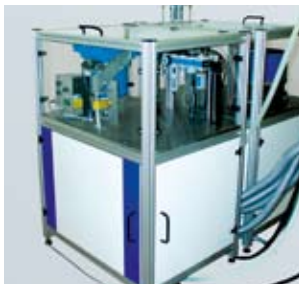
# Assembly Workstations

## Avimat® Automated Assembly System

The Avimat® provides a modular, automated assembly system for breakstem fasteners, reducing assembly times and costs. The integral processing diagnostics ensure the assembly process is highly controlled for improved product quality. It places the entire range of breakstem and structural breakstem fasteners from 3.0 mm to 6.4 mm (except Avdelmate™ & Klamp-Tite® fasteners).

- Modular design of placing head, blow feed unit and PLC control cabinet for quick and simple integration into assembly lines
- Will work as a stand alone unit
- Flexible electric, pneumatic and hydraulic connections between all main components for quick and simple interface with a wide range of assembly systems
- The compact, lightweight placing head is quick to reconfigure, can be mounted separately and used at any angle – providing maximum production flexibility and minimum tool downtime
- Integral processing diagnostics at all stages with clear and simple PLC displays for high precision, highly reliable assembly
- Continuous fastener feed with an average cycle time of approximately 5 seconds makes it ideal for high volume production lines

Blow Feed Unit



Fasteners are transferred from the bowl feeder to the placing head via the blow feeder





# Assembly Workstations

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## Customised Assembly Systems

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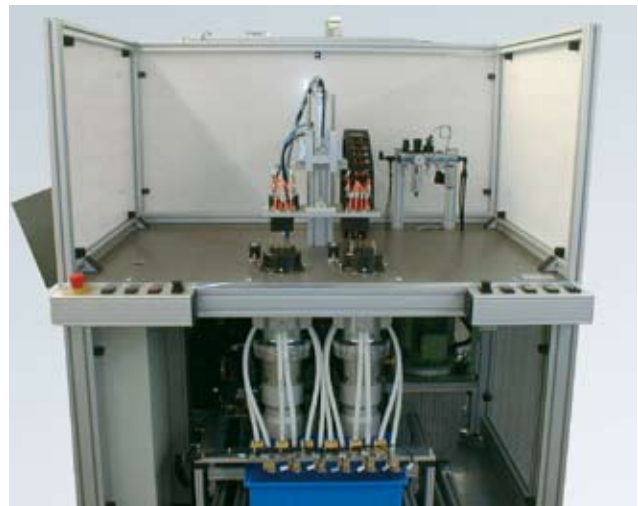
From simple twin-headed modules to multi-headed, customised equipment, these systems can dramatically reduce assembly time and costs while improving consistency of placing.

These systems can be designed for virtually any application or assembly environment and process monitoring equipment or clamping modules can be easily integrated. The direction, type and number of assembly heads can all be customised. We have designed equipment with two heads to over eighty heads but the configurations are virtually limitless.

- High speed assembly
- Assembly of any configuration
- Fastening at any angle
- Synchronous fastener placement
- Highly controlled assembly
- Process flexibility
- Integration into assembly lines
- Improved product quality

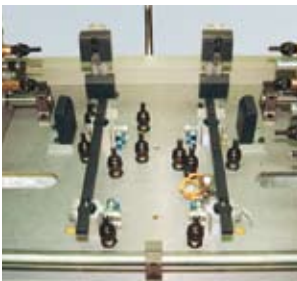
## Assembly of any Configuration

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## Fastening at any Angle

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# Customised Assembly Systems

## Assembly Systems

### Synchronous Fastener Placement

A range of equipment has been designed for multiple and synchronous placement of fasteners. From simple twin-headed modules to multi-headed, customised equipment, these modular systems can dramatically reduce assembly time and cost.

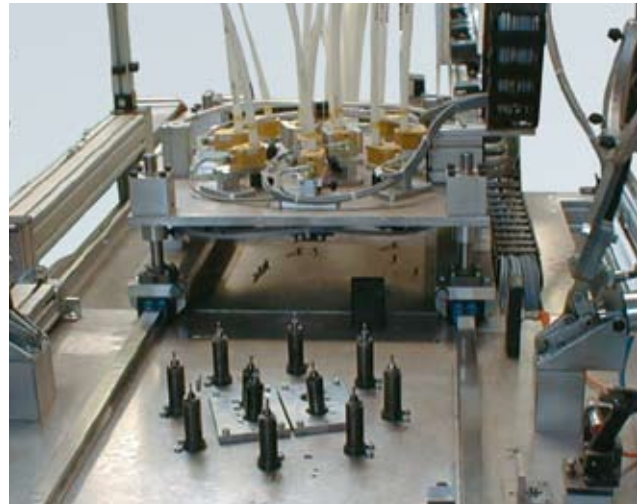
### Precision Fastening

Together with the fasteners, these high precision tools create a high quality, reliable assembly system. The fasteners are placed accurately and consistently without the risk of over-torquing. An additional benefit of these systems are the practical jig joints provided by the assembly heads.

29 head machine



The assembly heads provide practice jig points



Integration into an assembly line



6-head Avimat®



# Customised Assembly Systems

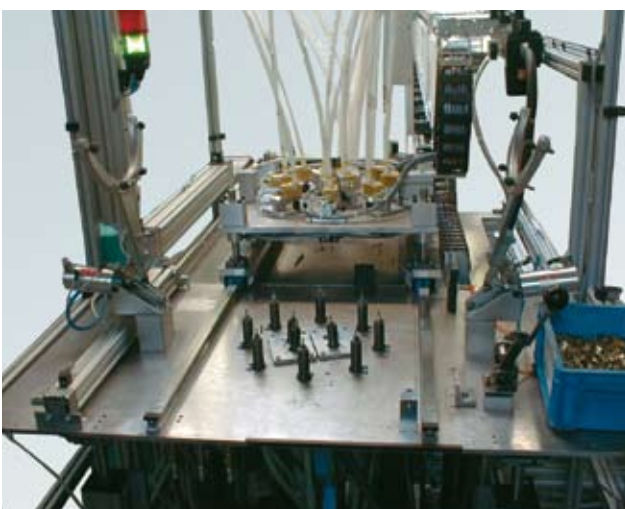
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## Assembly Applications

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### Laundry Dryer

This unit places 12 x 4.0mm Avex® fasteners in one assembly cycle of 20 seconds. It replaced the use of individual screws with an assembly cycle of 60 seconds and has improved product quality by consistent placement of 12 fasteners at a time. It incorporates a blow feed unit to transfer the fasteners to the placing head, the work area is height adjustable and the unit is modular for ease of extending or upgrading.



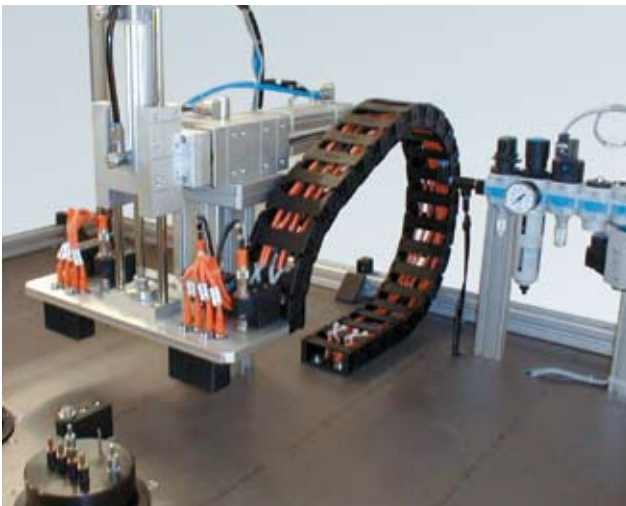
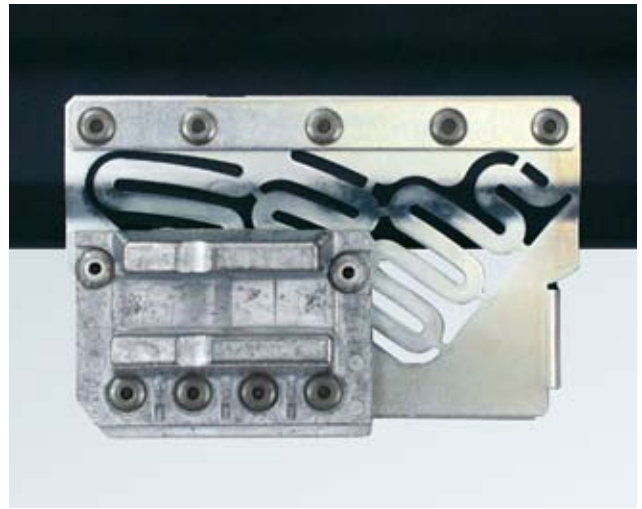


# Customised Assembly Systems

## Assembly Applications

### Station Wagon (restraining nets and sliding luggage cover)

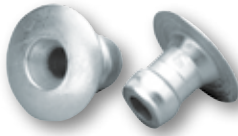
This unit places 8 x 4.8mm Avibulb® and 4 x 4.8mm Avex® (6 fasteners per module) in one assembly cycle of 20 seconds. It replaced the use of handtools with an assembly cycle of 60 seconds and has improved product quality by consistent placement of 12 fasteners at a time. Processing diagnostics are provided by sensors at all stages of the assembly cycle to ensure all the relevant components are present, the correct fasteners are in the placing heads and that the fasteners are correctly installed.



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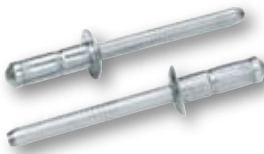
## The Range of Avdel® Blind Fastening Systems

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### Speed Fastening® Systems

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



### Breakstem Systems

Blind fastening systems with various features. From multi-grip rivet up to high strength stainless steel rivet.



### Lockbolt Systems

For joints with highest impact. High clamp force and vibration resistance.



### Blind Threaded Inserts

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



### Installation Equipment

From manually operated handtools to customised assembly workstations.

# Breakstem Systems

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**[www.avdel-global.com](http://www.avdel-global.com)**

Your local distributor for Avdel® Breakstem Systems is:



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