

## Quality

The technical quality of the product is the prime consideration: short lead times or low prices cannot replace the certain knowledge that you have a product that can be relied on.

AFF's manufacturing operation is set up to ensure that the product meets all the technical requirements:

- All raw materials have a goods inwards inspection
- All production machines are of a measured capability
- All measuring equipment is calibrated
- All first offs and last offs from each in-house operation are checked by a specialist works inspector
- All subcontract operations are checked by a goods inwards inspection
- Controlled in-house heat treatment of the parts to give them the required strength and ductility
- Prevention of any deterioration during manufacture e.g. handling damage, rust, grinding abuse



Each batch is subject to a Final Inspection to ensure that it meets specification and order requirements. Tests and inspections can include:

- Complete dimensional inspection
- Metallographic examination (microscopy) for metallurgical integrity
- Flaw detection using Magnetic Particle Inspection
- Physical testing; tensile, shear, recess torque, hardness

A Certificate of Conformity accompanies each delivery. It certifies conformity with the customer's order in respect of:

- The specifications and standards quoted
- The quality assurance conditions demanded



**AF Fasteners** 

Quality | Experience | Innovation | Service | Support | Competitiveness | Reliability



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## Capability

AFF is able to provide a comprehensive service for all your fastener needs.

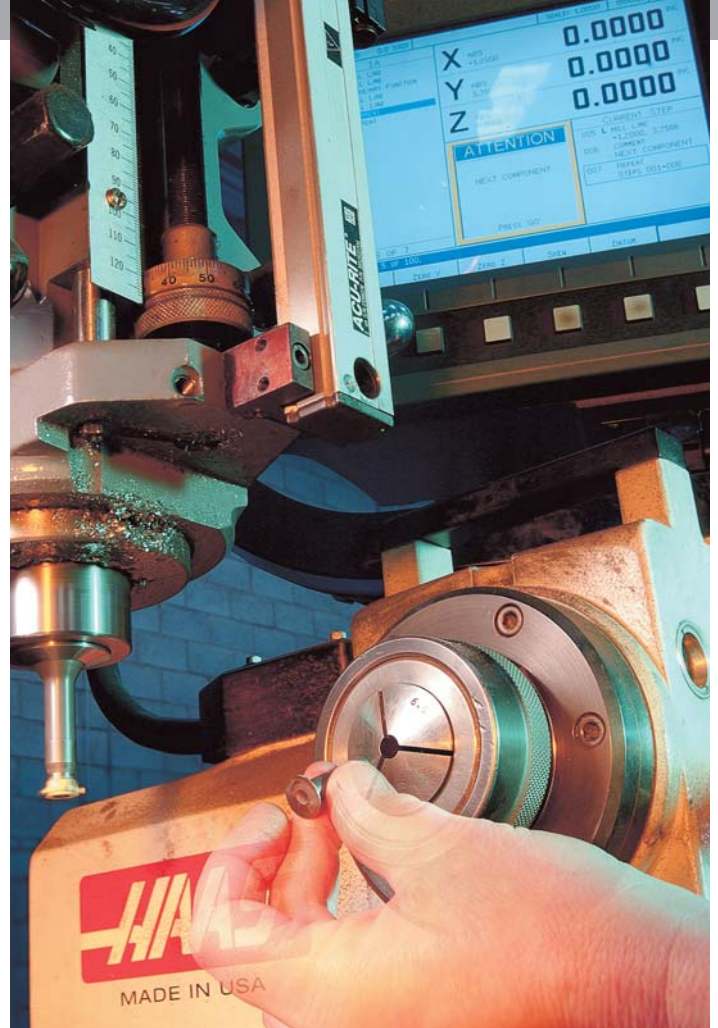
With stocks of over 2,500 different items we are often able to meet the requirements of our customers immediately. Items not available from stock can be produced on a fast-track basis when required from our large stocks of part-finished fasteners.

Our extensive range of products include:

- Externally threaded fasteners in high tensile and stainless steels
- Bonding leads
- Cable assemblies
- Cord assemblies
- Shackle pins
- Shear pins

Our standard range of fasteners include:

A25 - A99 series	bolts & screws
A100 series	bolts
A200 series	bolts & screws
AGS2097	bonding leads
AS1242 - AS3297	bolts
AS41092	cable assemblies
AS44407	shear pins
AS44445	cord assemblies
DHS1150	cable assembly
DHS1155 - 1156	cord assemblies
DHS1421 - 1475	bolts
MS20392	shear pins
NAS1102	screws
S105 series	bolts
S122 series	bolts
SL series	bolts
SP series	shackle pins & misc. hardware
SS4910 series	bolts
VGS6000 series	bolts & screws
VGS7000 series	bolts



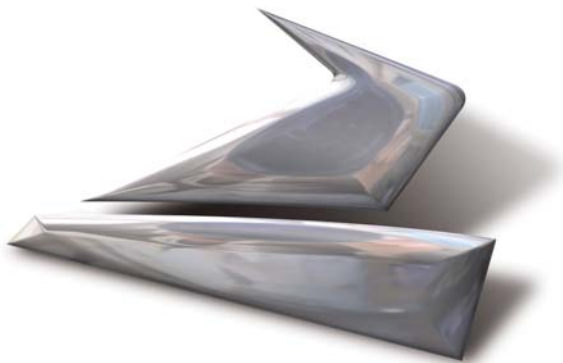
This is not the limit of AFF production, it is a list of parts for which all the necessary system controls (approvals, methods, specifications, drawings etc.) are confirmed and kept up to date.

Our manufacturing facilities include:

- Cold heading
- Thread rolling
- Hitorque slotting
- Fillet rolling
- Centreless grinding
- Heat treatment
- Secondary operations (including drilling, slotting and turning)

Sub-contract services

- Heat treatment
- Physical testing
- Machining



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# Patented Phillips Drive Systems

AFF is licensed by the Phillips Screw Company to manufacture fasteners using the following patented drive systems.

## MORTORQ®

### The Ultimate Aerospace Drive System

For decades aerospace designers have had to compromise on fastener performance. Previously, shallow head styles had poor torque transfer and damaged easily while robust drives required thicker material and added weight. Now, the MORTORQ® high performance spiral drive system provides a true solution. The unique shape provides full contact of the driver over the entire recess wing resulting in extremely high torque capability without the risk of damage. Depth of the recess in the fastener head is minimized resulting in true high performance in 100° flush head and shear head applications.

The open recess concept allows driver to recess misalignment and compensates for paint build-up without degrading torque performance. Workers can easily install and remove panel and structure fasteners at odd angles without high muscle stress or fear of damage to surrounding surfaces. Larger driver cross-sections and curved surfaces provide extended tool life and resistance to tensile fatigue fracture when used with high load pulse tools. Acoustic and radar return is minimized by the unique recess profile.

## ACR® PHILLIPS®

### World Class Performance in a Truly Global System

Combine the global acceptance of the common Phillips cruciform drive system with the proven cam-out fighting ability of the improved ACR anti-camout-rib system and you have a world class team. The ACR PHILLIPS system assures trouble free removal of seized, corroded, and painted screws during repair and overhaul. The patented rib system provides a robust connection between the screw and the driver, delivering higher removal torque capability and resistance to recess and tool damage. Proven in rigorous overhaul and maintenance applications where time and cost are crucial. Now assembly operators can also reap the benefits of this proven system with the new bi-directional ribbed ACR PHILLIPS II® recess and driver combination. This system has been proven in the most demanding industrial applications and is now available for use in difficult aerospace installations that require the proven cam-out fighting ability, combined with the ability to insert tools and drive off angle at extremely low end load requirements. This system is the answer to worker fatigue, component damage, short tool life, and a myriad of other common assembly problems.

Step up to the new standard for aerospace assembly efficiency - the improved ACR PHILLIPS II system for aerospace fasteners

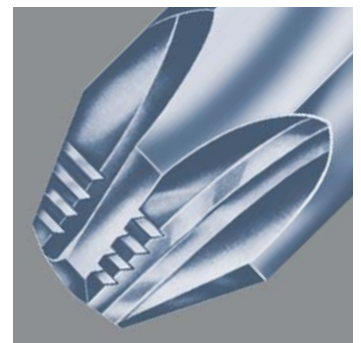
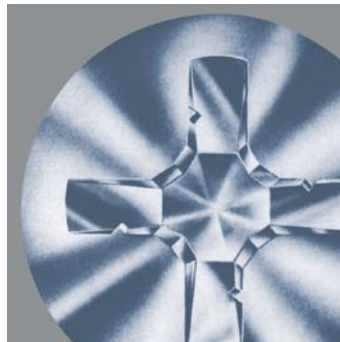
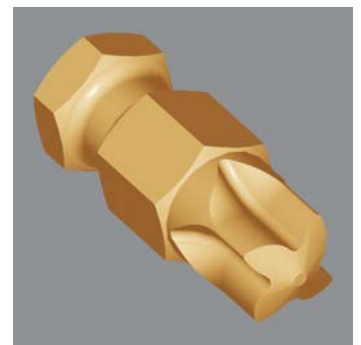
MORTORQ®

ACR® PHILLIPS®

ACR® TORQ-SET®

TORQ-SET®

TRI-WING®



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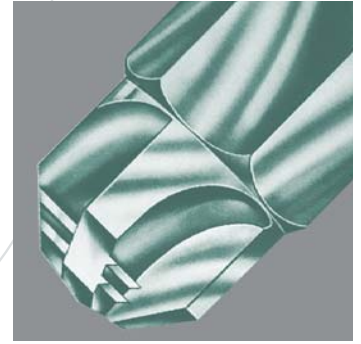
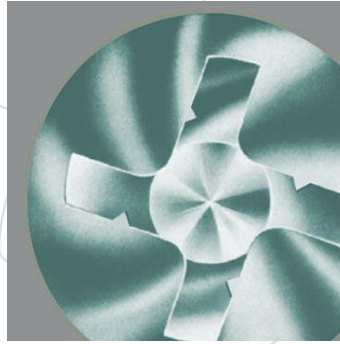


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## ACR® TORQ-SET®

### The Choice for High Torquing Applications

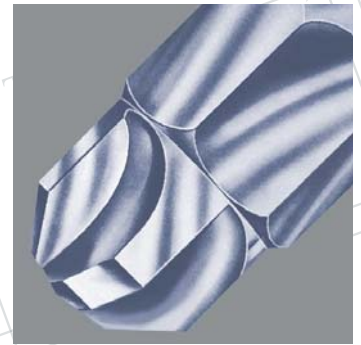
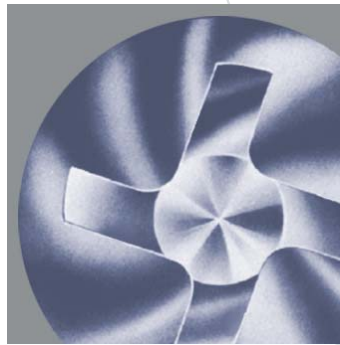
ACR TORQ-SET ribbed offset cruciform drive has become the revolutionary fastener system preferred by aeronautical engineers for use on military and commercial aircraft, missiles, satellites, and weapons systems worldwide. A single driver inserts and removes the fasteners. The interlocking ribs - applied to the removal side of the driver bit and screw surfaces - eases fastener removal, even after a threaded fastener has become corroded, seized, or frozen. Cam-out is never a problem when driving in either direction with the ACR system. When meeting demands of high torque applications, the ACR TORQ-SET drive system delivers ultimate performance while protecting against cam-out. The offset cruciform shape with interlocking ribs of the ACR TORQ-SET design is unmatched for sure steady driving. Additionally, all ACR TORQ-SET driver bits and recesses are interchangeable with standard TORQ-SET components, thereby eliminating potential difficulties during emergency field maintenance and AOG situations.



## TORQ-SET®

### Proven Performance

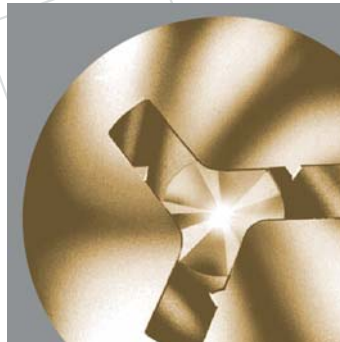
The TORQ-SET offset cruciform fastener system without the ACR feature is a proven product in the aerospace market. For applications where screws or bolts must be torque-tight TORQ-SET meets the requirements and beats the competition. One look at the innovative recess design of Torq-Set tells the story. Its offset cruciform configuration takes the sure-fitting dependability of the original Phillips design one step further toward an ultimate torque driving system. Torq-Set ensures a torque tightness that satisfies the rigorous demands of today's aerospace applications.



## TRI-WING®

### Exceptional Torque

The TRI-WING tamper resistant fastener system offers a torque-tight, tamper resistant product to the aerospace industry. Its slanted three wing design insures reliable and easy insertion at above average torque; yet removal of the fastener can only be achieved with the mating TRI-WING driver. Thus, in higher torquing applications where security is a concern, the TRI-WING system is a proven choice. If even greater torquing capability is required in a specific application, TRI-WING is also available without the ACR feature.



## Trademark Notice

PHILLIPS®, PHILLIPS II®, ACR®, PHILLIPS SQUARE-DRIV®, TORQ-SET®, TRI-WING®, POZIDRIV® AND MORTORQ® are trademarks of the Phillips Screw Company for screws, drivers and related fastener products. These products are licensed to manufacturers who have agreed to maintain the drive system specifications and standards of quality established by the Phillips Screw Company.

Phillips controls and maintains detailed and active monitoring programs to test consistency in the quality of products manufactured by its licensees. Routinely throughout the year licensees are required to submit representative production samples to Phillips in order to be tested for conformance to technical specifications and quality standards.

AF Fasteners, having agreed to maintain the standards of quality established by the **Phillips Screw Company**, is licensed to manufacture fasteners using the Phillips Screw Company patented drive systems.

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