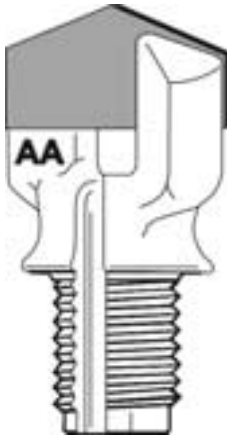


ROTARY DRILL BITS, RODS AND SPANNERS

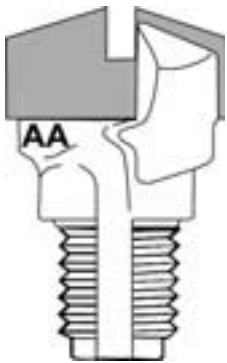
PRODUCT GROUP	PRODUCT	PRODUCT CODE PREFIX	DATA SHEET
ROTARY DRILL BITS	Spade Type - Centre Flush, Extra Flush & Side Flush	SB	D1.1
	Spade Type - Small Drop Centre, Centre Flush & Extra Flush	NN	D1.2
	Spade Type - Large Drop Centre, Centre Flush & Extra Flush	KS	D1.3
	Two Wing Type - Negative Rake, Centre Flush & Extra Flush	EN	D1.4
	Two Wing Type - Positive Rake & Extra Flush	EP	D1.5
	Two Wing Type - Positive Rake for "Coal Ribs"	RB	D1.6
	Two Wing Type - Concentric & Negative Rake	CN	D1.7
	Two Wing Type - "Coal Auger"	RE	D1.8
ROTARY DRILL RODS	Wet Drilling Type with Internal Drive End Seal	PD	D2.1
	Wet Drilling Type with External "O" Ring Drive End Seal	PW	D2.2
	Wet Drilling Type with Plain Spigot Drive End	WD	D2.3
	Wet Drilling Type with Long Plain Spigot Drive End	TD	D2.4
	Wet Drilling Type with Square Drive End	SD	D2.5
	Dry Drilling Type - Fabricated Scroll	SD	D2.6
EXTENSION DRILL RODS ROD ACCESSORIES	The Square Thread System	-	D3.1.1
	The Square Thread System	-	D3.1.2
SPANNERS	With Hexagon Drive Ends & Hexagon Sockets	SPD	D4.1
	With Square Drive End & Hexagon Sockets for Rotary Applications	SSD	D4.2
	For Pneumatic Rotary Impact Drilling Machines	SPD	D4.3
	For Hydraulic Rotary Impact Drilling Machines	SPD	D4.4
	For HI-TEN Strand Bolts	SSD	D4.5
	For Flexibolts	-	D4.6
	Oz Combination Spanner	OZ	D4.7
FRICITION BOLT DOLLIES	For Hand Held Machines	SPR	D5.1
SPANNER ADAPTORS	Spin Adaptors	SPN	D6.1
	Drill Rod / Drill Bit Adaptors	ADAP	D6.2

SPADE TYPE - CENTRE FLUSH, EXTRA FLUSH AND SIDE FLUSH



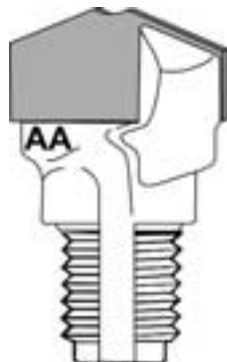
PHYSICAL DIMENSIONS

Spade Type	Thread Shank Size	Drill Bit Diameter	Flushing Hole Diameter
Centre Flush	1/2" Whitworth	27mm	4mm
	1/2" Whitworth	29mm	4mm
	M16	27mm	8mm
	M16	29mm	8mm
Extra Flush	M16	27mm	5mm
	M16	29mm	5mm
Side Flush	M14	26.5mm	-
	M14	27mm	-
	M14	28mm	-
	M14	29mm	-



GENERAL FEATURES

- A general purpose and robust rotary drill bit for wet drilling. Water flushing is through the centre hole in the drill bit body for centre flush bits, through the centre hole and two side flushing grooves for flush bits, and through two side flushing grooves for side flush bits.
- Used for high thrust and impact applications.
- The spade bit uses a time proven carbide insert, has a neutral front rake and provides good wear resistance for most types of conditions.
- The drill bit body is specifically designed for clearance of rock cuttings. The body is made of high tensile abrasion resistant steel.
- The spade bit is often used as a "starter" bit (hole collaring) when multiple drill rods are required. Refer to DSI Arnall's "Practical Guide to Rock Bolting" highlighting installation problems associated with collaring the hole.
- Standard diameters available are 27 and 29mm. Other diameters from 26mm through to 30mm are available by negotiation.

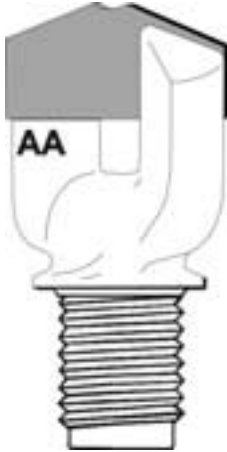


PACKAGING

- Supplied in plastic pails containing 50 drill bits.

NOTES

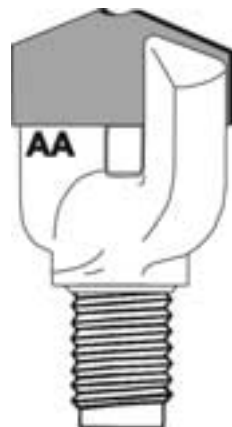
- Only DSI Arnall rock bolt components should be used to enable the optimum performance of the bolt system to be obtained.
- DSI Arnall Mining Products Division is Quality Assured to AS 9002, License No.406.

SPADE TYPE - SMALL DROP CENTRE, CENTRE FLUSH & EXTRA FLUSH**PHYSICAL DIMENSIONS**

Spade Type	Thread Shank Size	Drill Bit Diameter	Flushing Hole Diameter
Centre Flush	1/2" Whitworth	27mm	4mm
	M16	27mm	8mm
Extra Flush	M16	27mm	5mm

GENERAL FEATURES

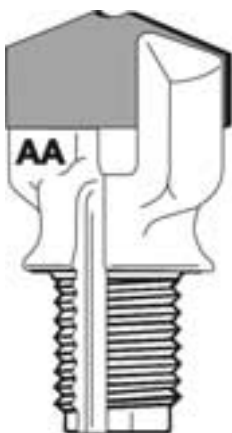
- A general purpose rotary drill bit for wet drilling which is suitable for medium thrust applications. Water flushing is through the centre hole in the drill bit body for centre flush bits, and through centre hole and two side flush grooves for extra flush bits.
- Good penetration in medium to hard rock, it still stands up well in both thrust and impact applications.
- The small drop centre bit uses a time proven carbide insert, has a neutral front rake and provides good wear resistance for most types of conditions.
- The drill bit body is specifically designed for clearance of rock cuttings. The body is made of high tensile abrasion resistant steel.
- Reference should be made to DSI Arnall's "Practical Guide to Rock Bolting" highlighting installation problems associated with collaring the hole, angle bolting, hole diameter and depth.

**PACKAGING**

- Supplied in plastic pails containing 50 drill bits.

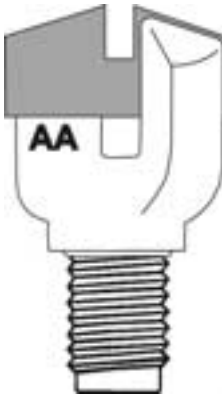
NOTES

- Only DSI Arnall rock bolt components should be used to enable the optimum performance of the bolt system to be obtained.
- DSI Arnall Mining Products Division is Quality Assured to AS 9002, License No.406.



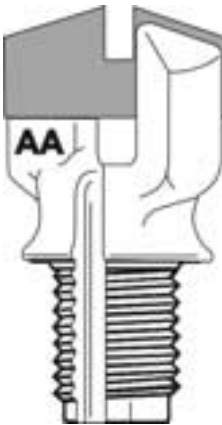
SPADE TYPE - LARGE DROP CENTRE, CENTRE FLUSH AND EXTRA FLUSH

PHYSICAL DIMENSIONS



Spade Type	Thread Shank Size	Drill Bit	Flushing Hole
Centre Flush	1/2" Whitworth	26.5mm	4mm
	1/2" Whitworth	27mm	4mm
	1/2" Whitworth	28mm	4mm
	M16	27mm	8mm
	M16	28mm	8mm
Extra Flush	M16	26.5mm	5mm
	M16	27mm	5mm
	M16	28mm	5mm

GENERAL FEATURES



- A general purpose rotary drill bit for wet drilling which is suitable for medium thrust applications. Water flushing is through the centre hole in the drill bit body for centre flush bits and through centre hole and two side flush grooves for extra flush bits.
- High penetration bit for medium and soft rock.
- The large drop centre bit uses a time proven carbide insert, has a neutral front rake and provides good wear resistance.
- The drill bit body is specifically designed for clearance of rock cuttings. The bit body is made of high tensile abrasion resistant steel.
- Reference should be made to DSI Arnall's "Practical Guide to Rock Bolting" highlighting installation problems associated with collaring the hole, angle bolting, hole diameter and depth.

PACKAGING

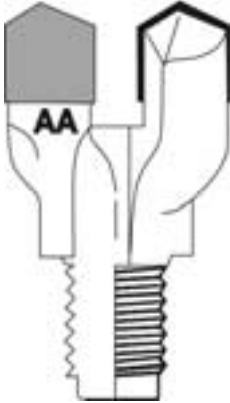
- Supplied in plastic pails containing 50 drill bits.

NOTES

- Only DSI Arnall rock bolt components should be used to enable the optimum performance of the bolt system to be obtained.
- DSI Arnall Mining Products Division is Quality Assured to AS 9002, License No.406.

TWO WING TYPE - NEGATIVE RAKE, CENTRE FLUSH AND EXTRA FLUSH

PHYSICAL DIMENSIONS



Two Wing Type	Thread Shank Size	Drill Bit Diameter	Tungsten Carbide Grade	Flushing Hole Diameter
Centre Flush	16mm	27mm	Standard	8mm
	16mm	28mm	Heat Resistant	8mm
Extra Flush	1/2" Whitworth	27mm	Standard	5mm
	1/2" Whitworth	28mm	Heat Resistant	5mm

GENERAL FEATURES

- Fast penetrating two wing drill bit for wet drilling suitable for most types of rock.
- The negative front rake, and eccentric tips, makes it suitable for hard rock.
- The standard grade of tungsten carbide insert provides extremely good wear resistance and is time proven for all types of conditions. Unless otherwise specified the standard grade of carbide is assumed.
- For abrasive conditions, such as found with some sand stones, the tungsten carbide inserts can be supplied in a heat resistant grade. However these inserts may chip under high impact loading.
- Centre Flush drill bits have an 8mm diameter centre hole and Extra Flush Bits have a central water hole plus two side water grooves for extra flushing.
- The drill bit body is specifically designed for clearance of rock cuttings. The body is made of high tensile material for strength and abrasion resistance.
- Reference should be made to DSI Arnall's "Practical Guide to Rock Bolting" highlighting installation problems associated with collaring the hole, angle bolting, hole diameter and depth.

PACKAGING

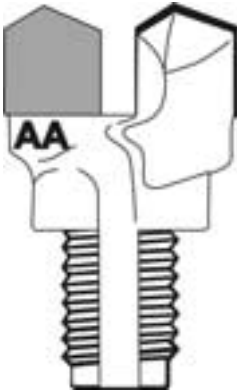
- Supplied in plastic pails containing 50 drill bits.

NOTES

- Only DSI Arnall rock bolt components should be used to enable the optimum performance of the bolt system to be obtained.
- DSI Arnall Mining Products Division is Quality Assured to AS 9002, License No.406.

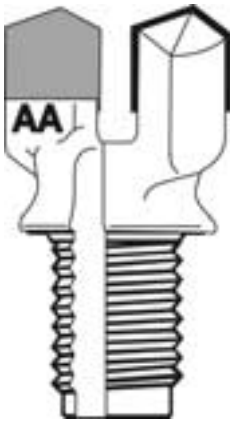
TWO WING TYPE - POSITIVE RAKE, EXTRA FLUSH

PHYSICAL DIMENSIONS



Thread Shank Size	Drill Bit Diameter	Tungsten Carbide Grade
1/2" Whitworth	27mm	Standard
1/2" Whitworth	28mm	Standard
16mm	27mm	Standard
16mm	28mm	Standard

GENERAL FEATURES



- Fast penetrating two wing drill bit for wet drilling which is suitable for softer type conditions.
- The positive front rake and eccentric tips, assists in penetration with low thrust machines.
- The standard grade of tungsten carbide insert provides extremely good wear resistance and is time proven for all types of conditions. Unless otherwise specified the standard grade of carbide is assumed.
- For abrasive conditions, such as found with some sand stones, the tungsten carbide inserts can be supplied in a heat resistant grade. However these inserts may chip under high impact loading. This heat resistant grade is nominated with "H" added to the end of the product code.
- These drill bits have a central water hole plus two side water grooves for extra flushing. The drill bit body is specifically designed for clearance of rock cuttings. The body is made of high tensile material for strength and abrasion resistance.
- Reference should be made to DSI Arnall's "Practical Guide to Rock Bolting" highlighting installation problems associated with collaring the hole, angle bolting, hole diameter and depth.

PACKAGING

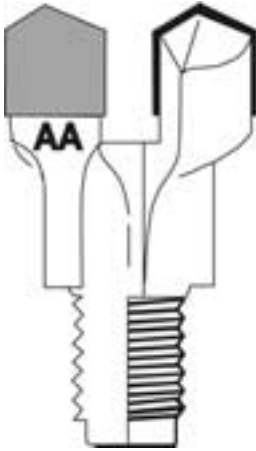
- Supplied in plastic pails containing 50 drill bits.

NOTES

- Only DSI Arnall rock bolt components should be used to enable the optimum performance of the bolt system to be obtained.
- DSI Arnall Mining Products Division is Quality Assured to AS 9002, License No.406.

TWO WING TYPE - POSITIVE RAKE FOR "COAL RIBS"

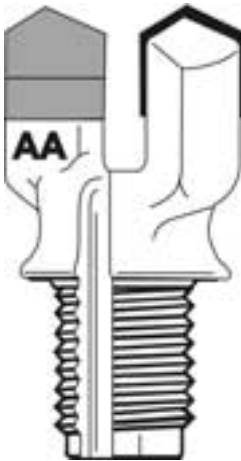
PHYSICAL DIMENSIONS



Thread Shank Size	Drill Bit Diameter	Tungsten Carbide Grade
1/2" Whitworth	26mm	Standard
1/2" Whitworth	27mm	Standard
1/2" Whitworth	28mm	Standard
16mm	27mm	Standard

GENERAL FEATURES

- Fast penetrating two wing drill bit for wet drilling specifically designed for softer conditions as found in most coal mine "ribs".
- The positive front rake and eccentric tips, assists in penetration with hand held and low thrust drilling machines.
- The standard grade of tungsten carbide insert provides extremely good wear resistance and is time proven for all types of conditions. Unless otherwise specified the standard grade of carbide is assumed.
- These drill bits have a central water hole plus two side water grooves for extra flushing. The drill bit body is specifically designed for clearance of rock cuttings.
- The drill bit body is made of high tensile material for strength and abrasion resistance.



PACKAGING

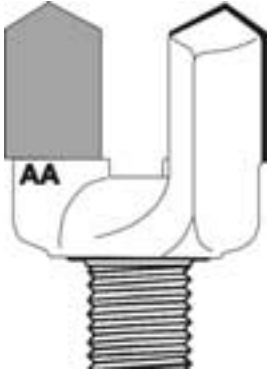
- Supplied in plastic pails containing 50 drill bits.

NOTES

- Only DSI Arnall rock bolt components should be used to enable the optimum performance of the bolt system to be obtained.
- DSI Arnall Mining Products Division is Quality Assured to AS 9002, License No.406.

TWO WING TYPE - CONCENTRIC AND NEGATIVE RAKE

PHYSICAL DIMENSIONS



Thread Shank Size	Drill Bit Diameter
16mm	36mm
16mm	38mm
16mm	40mm
5/8" Whitworth	36mm
5/8" Whitworth	38mm
5/8" Whitworth	40mm

GENERAL FEATURES

- A robust two wing drill bit for wet drilling designed for drilling larger diameter holes in medium to hard conditions.
- The grade of tungsten carbide insert provides extremely good wear resistance and is time proven for all types of conditions.
- These drill bits have a central water flushing hole. The drill bit body is specifically designed for clearance of rock cuttings.
- The drill bit body is made of high tensile material for strength and abrasion resistance.

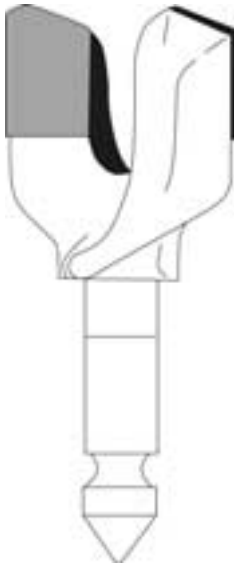
PACKAGING

- Supplied in plastic pails containing 25 drill bits.

NOTES

- Only DSI Arnall rock bolt components should be used to enable the optimum performance of the bolt system to be obtained.
- DSI Arnall Mining Products Division is Quality Assured to AS 9002, License No.406.

TWO WING TYPE - "COAL AUGER"



GENERAL FEATURES

- 38mm drill bit diameter.
- Robust two wing drill bit for dry drilling larger diameter holes in soft to medium conditions.
- The positive front rake assists in penetration with low thrust machines while the concentric tips minimizes drill rod wander.
- These drill bits have been designed for dry drilling in conjunction with scroll type drill rods. The bits have a round shank and a shoulder drive.
- The grade of tungsten carbide insert provides extremely good wear resistance and is time proven for all types of conditions.
- The drill bit body is made of high tensile material for strength and abrasion resistance.

PACKAGING

- Supplied in cardboard boxes of 50 or plastic pails containing 20 drill bits.

NOTES

- Only DSI Arnall rock bolt components should be used to enable the optimum performance of the bolt system to be obtained.
- DSI Arnall Mining Products Division is Quality Assured to AS 9002, License No.406.

WET DRILLING TYPE WITH INTERNAL DRIVE END SEAL

PHYSICAL DIMENSIONS



Drill Machine Drive	Hex. AF	Bit Thread	Length in MM							
			600	900	1200	1600	1800	2100	2400	3000
PD	19	8w								
	22	10w								
	1922	M14 M16								

Example: PD 19 8W 1200 = Pixie Drive 19mm AF drill rod 1/2" whitworth bit shank x 1200mm long.

GENERAL FEATURES

- Drill Rods are manufactured from High Strength Chrome Molybdenum Alloy Steel for high strength and wear resistance.
- Available in 19mm AF and 22mm AF hexagonal section.
- Drive end sealed internally for use with drilling machines with water needle or spigot.
- Bit end available to suit all drill bit threads.
- For selection of appropriate drill bits refer to Data Sheets in section D1.

PACKAGING

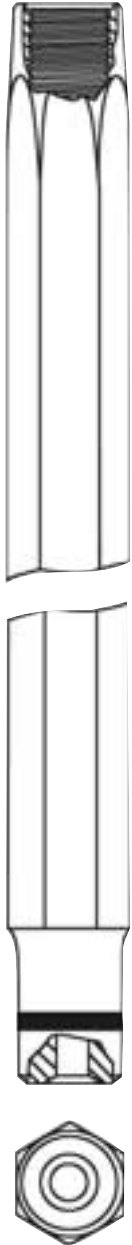
- Bundles of 5 with ends protected by polyethylene wrap.
- Export rods packed in wooden crates.

NOTES

- Only DSI Arnall rock bolt components should be used to enable the optimum performance of the bolt system to be obtained.
- DSI Arnall Mining Products Division is Quality Assured to AS 9002, License No.406.

WET DRILLING TYPE WITH EXTERNAL 'O' RING DRIVE END SEAL

PHYSICAL DIMENSIONS



Drill Machine Drive	Hex. AF	Bit Thread	Length in MM							
			600	900	1200	1600	1800	2100	2400	3000
PW	19	8w								
	22	10w								
	1922	M14 M16								

Example: PW 19 8W 1200 = Pixie Ext 'O' Ring 19mm AF drill rod 1/2" whitworth bit shank x 1200mm long.

GENERAL FEATURES

- Drill Rods are manufactured from High Strength Chrome Molybdenum Alloy Steel for high strength and wear resistance.
- Available in 19mm AF and 22mm AF hexagon for water flushing.
- The drill rod drive end has an external seal which provides a seal against water loss through the machines chuck.
- Bit end available to suit all drill bit threads.
- For selection of appropriate drill bits refer to Data Sheets in section D1.

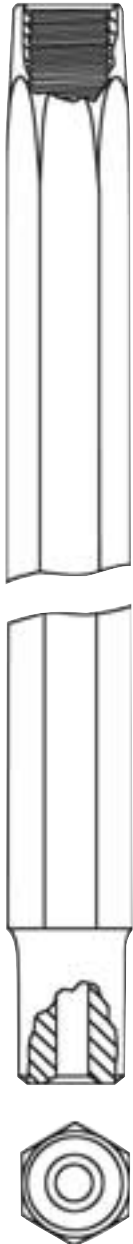
PACKAGING

- Bundles of 5 with ends protected by polyethylene wrap.
- Export rods packed in wooden crates.

NOTES

- Only DSI Arnall rock bolt components should be used to enable the optimum performance of the bolt system to be obtained.
- DSI Arnall Mining Products Division is Quality Assured to AS 9002, License No.406.

WET DRILLING TYPE WITH PLAIN SPIGOT DRIVE END



PHYSICAL DIMENSIONS

Drill Machine Drive	Hex. AF	Bit Thread	Length in MM							
			600	900	1200	1600	1800	2100	2400	3000
WD	19	8w								
	22	10w								
	1922	M14 M16								

Example: WD 19 8W 1200 = Wombat Drive 19mm AF drill rod 1/2" whitworth bit shank x 1200mm long.

GENERAL FEATURES

- Drill Rods are manufactured from High Strength Chrome Molybdenum Alloy Steel for high strength and wear resistance.
- Available in 19mm AF and 22mm AF hexagonal section.
- The drill rod end has a plain machined spigot which seals against the drilling machines chuck.
- Bit end available to suit all drill bit threads except 19mm Drill Rods limited to 1/2" whitworth and M14 threads.
- For selection of appropriate drill bits refer to Data Sheets in section D1.

PACKAGING

- Bundles of 5 with ends protected by polyethylene wrap.
- Export rods packed in wooden crates.

NOTES

- Only DSI Arnall rock bolt components should be used to enable the optimum performance of the bolt system to be obtained.
- DSI Arnall Mining Products Division is Quality Assured to AS 9002, License No.406.

WET DRILLING TYPE WITH LONG PLAIN SPIGOT DRIVE END



PHYSICAL DIMENSIONS

Drill Machine Drive	Hex. AF	Bit Thread	Length in MM							
			600	900	1200	1600	1800	2100	2400	3000
TD	19	8w								
	22	10w M14 M16								

Example: TD 19 8W 1200 = Titan Drive 19mm AF drill rod 1/2" whitworth bit shank x 1200mm long.

GENERAL FEATURES

- Drill Rods are manufactured from High Strength Chrome Molybdenum Alloy Steel for high strength and wear resistance.
- Available in 19mm AF and 22mm AF hexagon.
- The drill rod end has a plain machined spigot which seals against the drilling machines chuck.
- Bit end available to suit all drill bit threads except 19mm Drill Rods limited to 1/2" whitworth and M14 threads.
- For selection of appropriate drill bits refer to Data Sheets in section D1.

PACKAGING

- Bundles of 5 with ends protected by polyethylene wrap.
- Export rods packed in wooden crates.

NOTES

- Only DSI Arnall rock bolt components should be used to enable the optimum performance of the bolt system to be obtained.
- DSI Arnall Mining Products Division is Quality Assured to AS 9002, License No.406.

WET DRILLING TYPE WITH SQUARE DRIVE END



PHYSICAL DIMENSIONS

Drill Machine Drive	Hex. AF	Bit Thread	Length in MM							
			600	900	1200	1600	1800	2100	2400	3000
SD	19	8w								
	22	10w M14 M16								

Example: SD 19 8W 1200 = Square Drive 19mm AF drill rod 1/2" whitworth bit shank x 1200mm long.

GENERAL FEATURES

- Drill Rods are manufactured from High Strength Chrome Molybdenum Alloy Steel for high strength and wear resistance.
- Available in 19mm AF and 22mm AF hexagon.
- The drill rod end has a hot forged square and a machined spigot as a water seal.
- Bit end available to suit all drill bit threads except 19mm Drill rods limited to 1/2" whitworth and M14 threads.
- For selection of appropriate drill bits refer to Data Sheets in section D1.

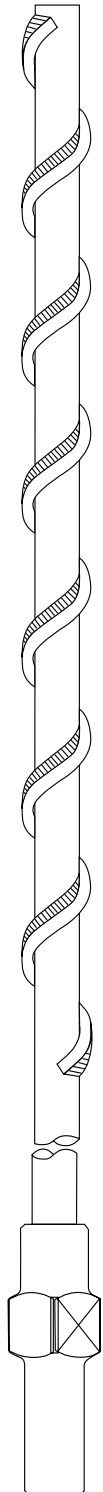
PACKAGING

- Bundles of 5 with ends protected by polyethylene wrap.
- Export rods packed in wooden crates.

NOTE

- Only DSI Arnall rock bolt components should be used to enable the optimum performance of the bolt system to be obtained.
- DSI Arnall Mining Products Division is Quality Assured to AS 9002, License No.406.

FABRICATED SCROLL, DRY DRILLING TYPE



PHYSICAL DIMENSIONS

Drill Machine Drive	Spigot Dia.	Bit Thread	Length in MM							
			600	900	1200	1600	1800	2100	2400	3000
SD (Square)	22RWS 19RWS	8w								

GENERAL FEATURES

- The fabricated rotary scroll drill rod is suitable for "dry" drilling in medium to soft rocks.
- These rotary drill rods are fabricated from a high strength steel core with a spiral rib to promote the extraction of the cuttings.
- A low carbon wire is continuously welded over the length of the core and provides the scroll for extraction of rock cuttings from the hole during drilling.
- A range of drive ends can be provided to suit most drilling machines.
- Suits 1/2" whitworth drill bits only.

PACKAGING

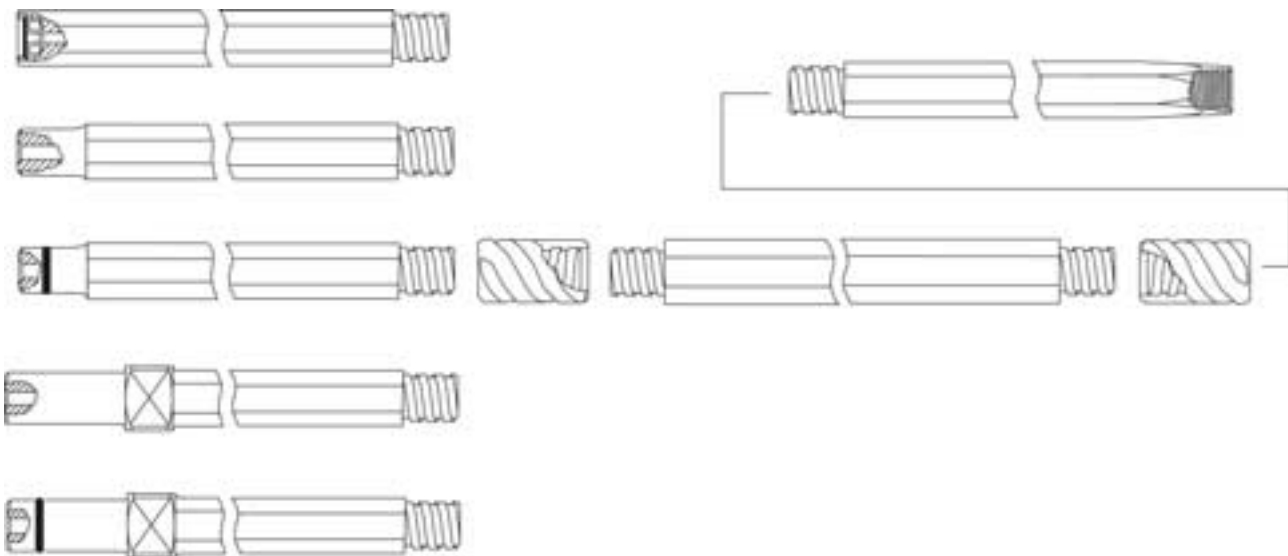
- Steel strapped in bundles of 5 drill rods and ends covered with polyethylene wrap.
- Export orders are packed in wooden crates.

NOTES

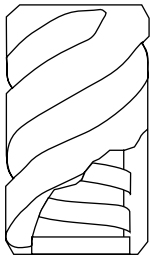
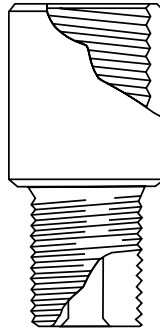
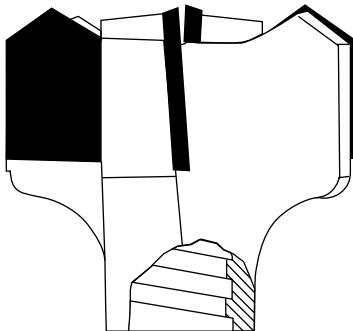
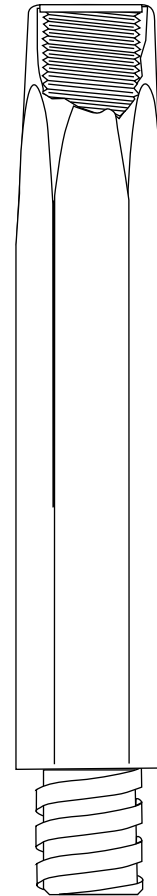
- Only DSI Arnall rock bolt components should be used to enable the optimum performance of the bolt system to be obtained.
- DSI Arnall Mining Products Division is Quality Assured to AS 9002, License No.406.

THE SQUARE THREAD SYSTEM**GENERAL FEATURES**

- The square thread coupling system provides an easy means of extending drill rods for lengths associated with the installation of Flexibolt and Hi-Ten strand bolts, etc.
- The system features a purpose designed square thread and slimline couplings.
- The couplings external form incorporates a coarse thread type form to assist in hand uncoupling and flushing of cuttings.
- The system is available to suit both 19mm and 22mm hexagonal drill rods.
- A range of components are available to complement the square thread extension system.
- Primary drill rod drive ends are available as per data sheets D2.1, D2.2, D2.3, D2.4 and D2.5
- Please refer to your DSI Arnall Technical Service Engineer for details of product codes should special drive ends or lengths are required.

**NOTES**

- 19mm hexagonal drive rod 'bit' ends can only be tapered 1/2" whitworth or M14 threads.
- DSI Arnall Mining Products Division is Quality Assured to AS 9002, License No.406.

SQUARE THREAD SYSTEM**SQUARE THREAD COUPLINGS****DRILL BIT ADAPTORS**
See Data Sheet D6.2 for variations available**REAMERS WITH INTERNAL SQUARE THREAD**
Available in
40mm diameter
and
53mm diameter**Pilot Type Drill Rods**

Note: Used as a pilot and guide when reaming hole collar. For associated bits refer to Data sheets D1.1 to D1.8.

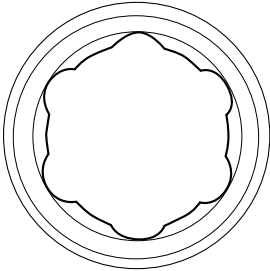
NOTES

- Only DSI Arnall rock bolt components should be used to enable optimum performance of the bolt system to be obtained.
- DSI Arnall Mining Products Division is Quality Assured to AS 9002, Licence No. 406.

ROOF BOLT INSTALLATION SPANNERS **D4.1**

WITH HEXAGON DRIVE ENDS AND HEXAGON SOCKETS

GENERAL FEATURES



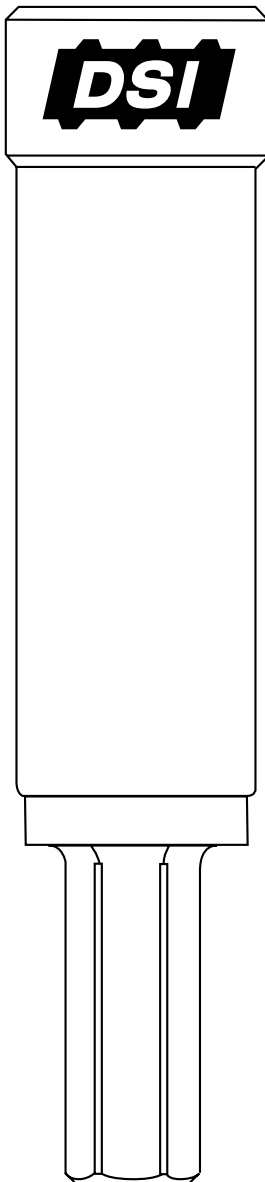
- The hexagon drive ends on DSI Arnall installation spanners are precision investment cast in high tensile material for strength and wear resistance.
- The hexagon drive end is available in either 19mm or 22mm and are often called "pixie" drive.
- The drive end has either a 6mm or 10mm diameter hole to provide clearance for a water needle in the drilling machine's chuck. However as an alternate the length of the hexagon can be shortened from 55mm to 30mm if preferred.
- Another feature of these installation spanners is the precision investment cast spanner socket to suit 24mm, 36 A/F, rock bolt nuts. The internal shape has been purpose designed for ease of fitting to rock bolt nuts and maximized wear capability.
- Other installation socket types are available to suit larger and smaller hexagon nut sizes as well as various square and oval configurations.
- Each spanner is also manufactured from a heavy duty tube to provide robustness and internal clearance for rock bolt drive nut inserts.
- These installation spanners are available in nominal overall lengths from 150mm to 1000mm.
- All DSI Arnall installation spanners are assembled on a mandrill to ensure concentricity with the machine rotation.

PACKAGING

- Shorter spanners supplied as required in hessian bags or cardboard boxes.
- Longer spanners steel strapped together with up to 5 spanners per bundle.

NOTES

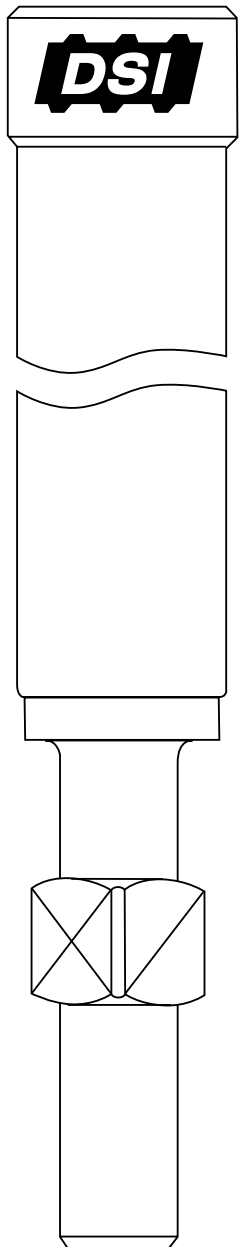
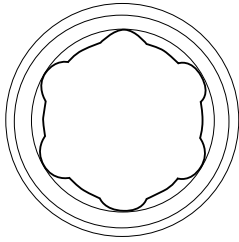
- Only DSI Arnall rock bolt components should be used to enable the optimum performance of the bolt system to be obtained.
- DSI Arnall Mining Products Division is Quality Assured to AS 9002, License No.406.



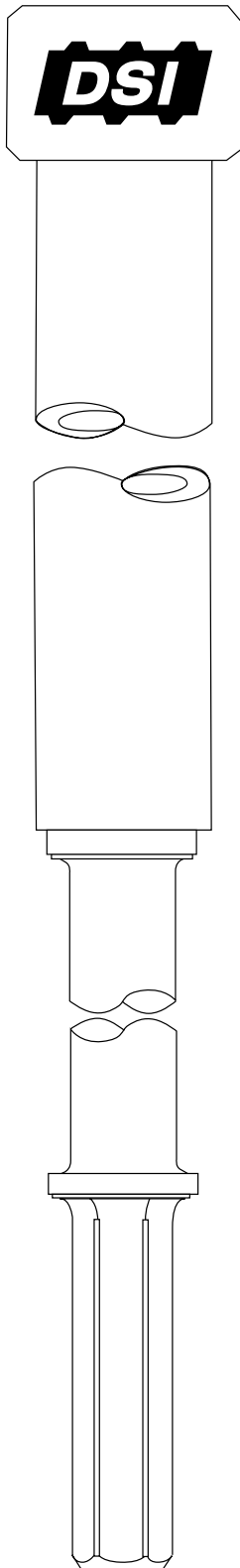
ROOF BOLT INSTALLATION SPANNERS **D4.2**

WITH SQUARE DRIVE END AND HEXAGON SOCKETS FOR ROTARY APPLICATIONS

GENERAL FEATURES



- The square drive ends on DSI Arnall installation spanners are precision investment cast in high tensile material for strength and wear resistance.
 - The square drive is 25mm square with either a 22mm or 19mm diameter spigot, nominally 50mm long. A 25mm long undercut is provided above the square for drilling machines having a self locking feature.
 - Square drive ends can also be supplied without the undercut feature or without the spigot if required. However these are non-standard product. Please discuss your requirements with your DSI Arnall Technical Service Engineer.
 - Another feature of these installation spanners is the precision investment cast spanner socket to suit 24mm, 36 A/F, rock bolt nuts. The internal shape has been purpose designed for ease of fitting to rock bolt nuts and maximized wear capability.
Note: Most 16 and 20mm rock and roof bolts are now supplied fitted with 36mm A/F hexagon nuts.
 - Other installation socket types are available to suit larger and smaller hexagon nut sizes as well as various oval and pin drive configurations. Please refer to your DSI Arnall Technical Service Engineer for details and product codes of alternate socket end configurations.
 - Each spanner is also manufactured from a heavy duty tube to provide robustness and internal clearance for rock bolt drive nut inserts.
 - These installation spanners are available in nominal overall lengths from 150mm to 1000mm.
 - All DSI Arnall installation spanners are assembled on a mandrill to ensure concentricity with the machine rotation.
- ## PACKAGING
- Shorter spanners supplied as required in hessian bags or cardboard boxes.
 - Longer spanners steel strapped together with up to 5 spanners per bundle.
- ## NOTES
- Only DSI Arnall rock bolt components should be used to enable the optimum performance of the bolt system to be obtained.
 - DSI Arnall Mining Products Division is Quality Assured to AS 9002, License No.406.

FOR PNEUMATIC ROTARY IMPACT DRILLING MACHINES**GENERAL FEATURES**

- For use with pneumatic rotary impact drilling machine (stoppers).
- These spanners are made from high strength wear resistant steel.
- The 90mm long x 22mm hexagonal drive end has an 80mm long x 10mm diameter water hole to cater for most water needles. It also has an extension and shoulder so that machine's retention (saddle) can be utilized.
- The drive end and nut socket have been threaded and welded to the body for impact resistance. It is important that the hand rotation of the drilling machine is considered when ordering spanners.
- Spanners are available to suit all nut sizes.
- Refer to your local DSI Technical Service Engineer for advice and assistance.
- All DSI Arnall installation spanners are assembled on a mandrill to ensure concentricity with the machine rotation.

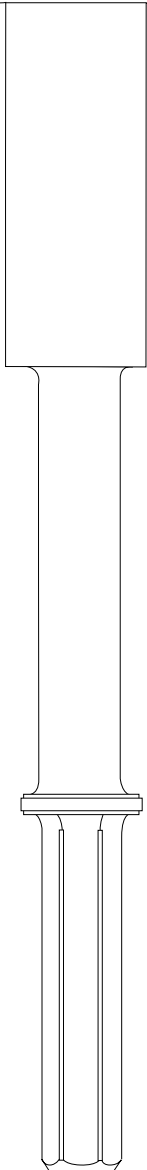
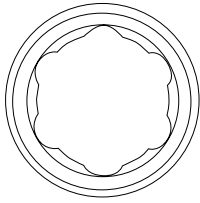
PACKAGING

- Shorter spanners supplied as required in hessian bags or cardboard boxes.
- Longer spanners steel strapped together with up to 5 spanners per bundle.

NOTES

- Only DSI Arnall rock bolt components should be used to enable the optimum performance of the bolt system to be obtained.
- DSI Arnall Head Office & Plant is Quality Assured to AS 9002, License No.406.

FOR HYDRAULIC ROTARY IMPACT DRILLING MACHINES



GENERAL FEATURES

- These spanners have been purpose designed to suit hydraulic rotary percussive drilling machines such as "Cram Ram Track" rotary bolters.
- The socket and the one piece body of these spanners are machined from high tensile solid bar to provide an improved impact and torsion resistance.
- The spanner socket is assembled to the spanner body with a fine right hand thread and then welded to provide additional retention to the spanner body. The assembled spanner is then hardened and tempered for strength and impact resistance.
- These installation spanners are available in a nominal overall length of 400mm as standard.
- The standard installation socket suits 24mm rock bolt hexagonal nuts (36 A/F). Other sizes are available to suit larger and smaller hexagon nut sizes as well as various square configurations.
- All DSI Arnall installation spanners are assembled on a mandrill to ensure concentricity with the machine rotation.

PACKAGING

- Spanners are supplied as required in hessian bags or cardboard boxes.

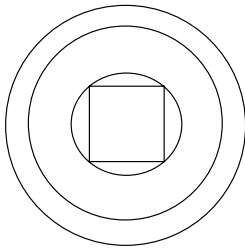
NOTES

- Only DSI Arnall rock bolt components should be used to enable the optimum performance of the bolt system to be obtained.
- DSI Arnall Mining Products Division is Quality Assured to AS 9002, License No.406.

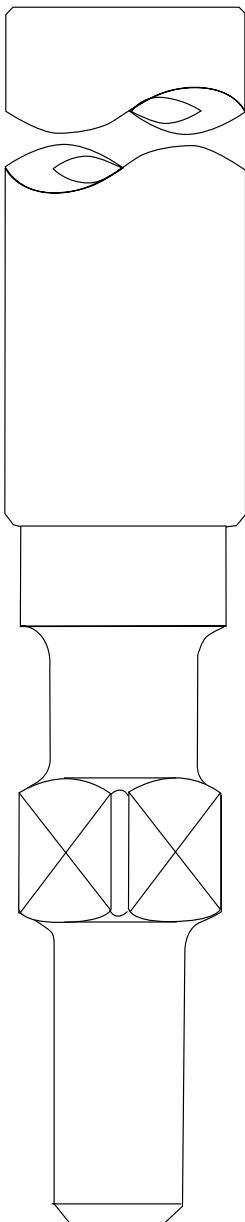
ROOF BOLT INSTALLATION SPANNERS **D4.5**

FOR HI-TEN STRAND BOLTS

GENERAL FEATURES



- These roof bolt installation spanners are purpose designed for installation of Hi-Ten strand bolts.
- This spanner incorporates a 14.0mm square female socket internally to match the mixing square on the Hi-Ten bolts. The set distance from the top of the spanner to the internal drive square provides the optimum bolt tail length required for placement of the hydraulic tensioning unit onto the bolt after installation.
- The spanner drive end and the mixing square socket are manufactured from high tensile material for strength and wear resistance.
- Four (4) small holes are provided through the body at the bottom of the internal socket to allow flushing with water if internal cleaning is required.
- Each spanner is also manufactured from a heavy duty tube to provide durability.
- These installation spanners are available as standard in a nominal overall lengths of 300mm. Please refer to your DSI Arnall Technical Service Engineer for details of product codes should alternate spanner lengths or special drive ends are required.
- All DSI Arnall installation spanners are assembled on a mandrill to ensure concentricity with the machine rotation.

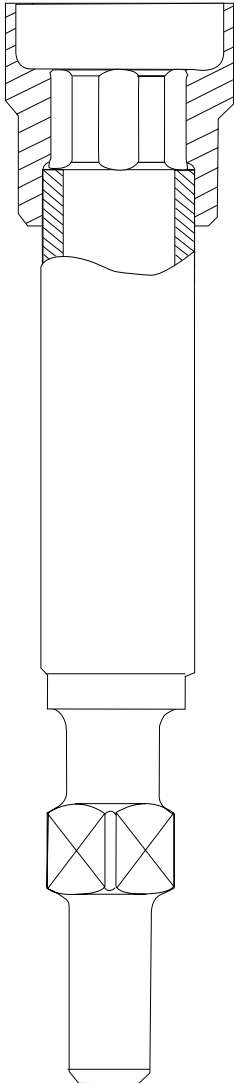
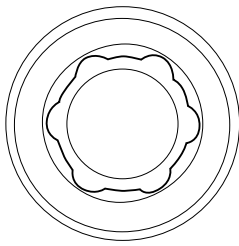


PACKAGING

- Shorter spanners supplied as required in hessian bags or cardboard boxes.
- Longer spanners steel strapped together with up to 5 spanners per bundle.

NOTES

- Australian patent application number 11270/99 is applicable to DSI Arnall "Hi-Ten" bolts.
- Only DSI Arnall rock bolt components should be used to enable the optimum performance of the bolt system to be obtained.
- DSI Arnall Mining Products Division is Quality Assured to AS 9002, License No.406.

FOR FLEXIBOLTS**GENERAL FEATURES**

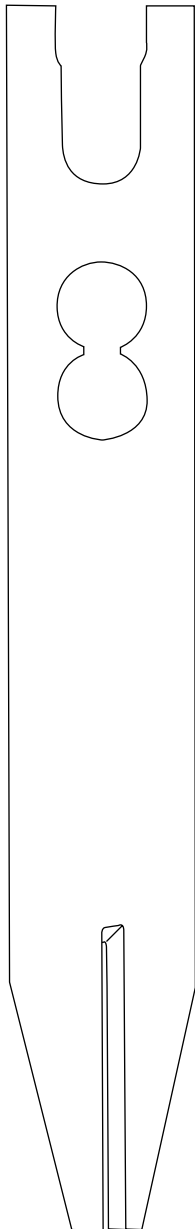
- These roof bolt installation spanners are purpose designed for use with Flexibolts in their installation and subsequent tensioning.
- The spanner socket is compatible with DSI Arnall's patented "rim cone" system. This system allows the Flexibolt to be tensioned up to 5 tonnes on installation.
- The spanner drive end and socket are manufactured from high tensile material for strength and wear resistance.
- Each spanner is also manufactured from a heavy duty tube to provide robustness and internal clearance for rock bolt drive nut inserts.
- These installation spanners are available in nominal overall lengths from 400 mm to 1800 mm.
- All DSI Arnall installation spanners are assembled on a mandrill to ensure concentricity with the machine rotation.

PACKAGING

- Shorter spanners supplied as required in hessian bags or cardboard boxes.
- Longer spanners steel strapped together with up to 5 spanners per bundle.

NOTES

- Australian patent number 45588/96 is applicable to DSI Arnall "rim cone".
- The DSI Arnall Flexibolt is manufactured and distributed under license from JJP Geotechnical Engineering Pty. Ltd. Australian patent number 668515 is applicable.
- Only DSI Arnall rock bolt components should be used to enable the optimum performance of the bolt system to be obtained.
- DSI Arnall Mining Products Division is Quality Assured to AS 9002, License No.406.



GENERAL FEATURES

- The OZ Combination Spanner is a general purpose tool primarily used for cutting steel, and plastic, strapping on roof and rock bolt bundles.
- Other uses are to assist the removal of rotary drill bits, via the figure 8 slot in the main body from hexagonal drill rods. The end slots fit both 19 and 22mm hexagonal drill rods.
- The OZ Combination Spanner is manufactured from high quality spring steel to provide robustness in service.

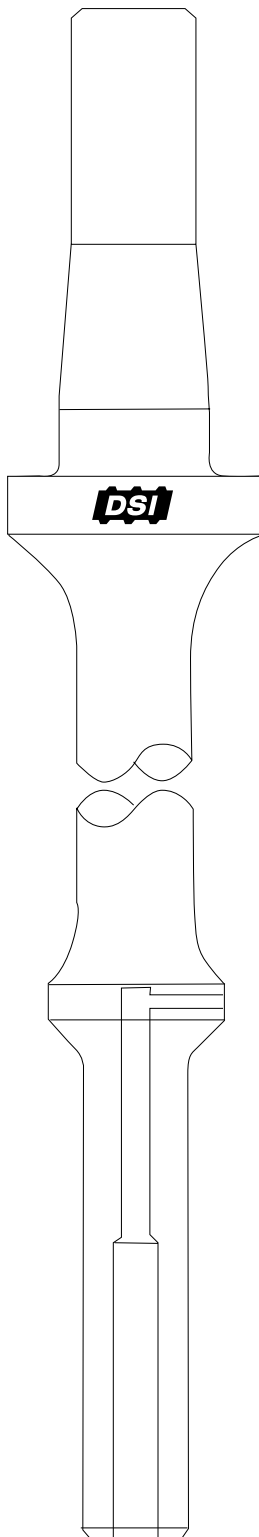
PACKAGING

- Supplied as required.

NOTES

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- DSI Arnall Mining Products Division is Quality Assured to As 9002, License No. 406.

FOR HAND HELD MACHINES



GENERAL FEATURES

- These friction bolt installation “dollies” were designed to suit most hand held rotary impact rock drills (stoppers).
- DSI Arnall friction bolt dollies are manufactured from high tensile material which are then hardened & tempered to minimise breakages from impact and provide resistance to wear.
- A special features of these dollies is the patented design of the water relief hole through the side of the dolly. This imparts additional strength where it is needed to provide extra resistance to failure from impact and bending loads. Australian Provisional Patent Application No. PP1882 is applicable to this design feature.
- The friction bolt dolly entry into the friction bolt is a generous 50mm long and is considered standard. Alternate entry lengths are available by negotiation.
- The nominal overall length of the dolly is length is 300mm as standard. Other lengths and configurations are available by negotiation.

PACKAGING

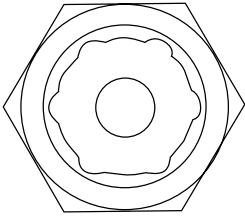
- Supplied as required.

NOTES

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- DSI Arnall Mining Products Division is Quality Assured to As 9002, License No. 406.

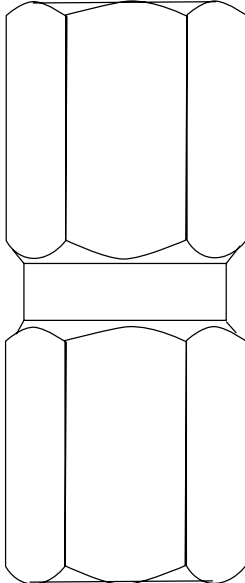
OR 'SPIN ADAPTORS'

PHYSICAL DIMENSIONS



Body Size	Overall Length	Internal Drive End	Internal Driven End
36mm A/F	100mm	22mm hexagonal	20mm thread bar
38mm A/F	100mm	22mm hexagonal	20mm thread bar
36mm A/F	130mm	22mm rope thread	20mm thread bar

GENERAL FEATURES



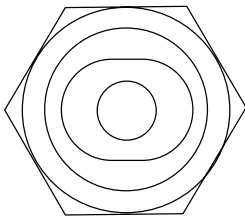
- These spanner adaptors, commonly called "spin adaptors", are designed to be multi purpose tools to suit the installation of thread bar using a number of drive types.
- The body of the adaptor is manufactured from hexagon bar and is case hardened to provide wear resistance.
- Each spin adaptor is electroplated yellow in colour for corrosion resistance and to assist in visibility underground.
- The hexagon body is 36mm across flats and will fit spanners used to tighten nuts on chemical type rock bolts. Larger hexagon sizes are available by negotiation.

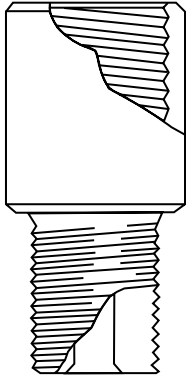
PACKAGING

- Supplied as required.

NOTES

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DRILL ROD / DRILL BIT ADAPTORS D6.2**PHYSICAL DIMENSIONS**

Male Thread Size	Female Thread Size
1/2" BSW	5/8" BSW
1/2" BSW	M14
1/2" BSW	M16
5/8" BSW	1/2" BSW
M14	1/2" BSW
M14	5/8" BSW
M16	1/2" BSW
M16	5/8" BSW

Note: Above adapter range is "typical" only. Other configurations such as rope threads, square threads, taper threads and chuck drive end variations are available by negotiation. Please discuss any special requirements with your DSI Arnall Sales and Service Engineer.

GENERAL FEATURES

- Various types of drill rod / drill bit adapters are available to enable the use of a specific type of drill bit to be used with any drill rod.
- The adapter system allows the use of a drill bit not normally used with a drill rod to be used for a non-standard purpose.
- The system is particularly useful when using coupled bolts, large diameter bolts for anchoring machinery etc. or when installing monitoring equipment.
- Each adapter is precision machined from high tensile steel and is supplied Dichromate and Passivated coated yellow for corrosion protection instores and visibility underground.
- Care should be taken when using all adapters as failures can occasionally occur.

PACKAGING

- Supplied as required.

NOTES

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