

PRODUCT SUPPORT & LOGISTICS DIVISION



### **Cat Tricone Drill Bits**

Cat® tricone drill bits are designed for the toughest and most severe rotary blasthole applications, yet suitable for all your drilling needs. Our comprehensive tricone bit offering includes a wide range of bit diameters with various carbide shapes/cutting face arrangements to maximize rate of penetration. Caterpillar's extensive experience with heat treatment technology and advanced air-cooled bearing design yields longer life, resulting in lower overall drilling costs. Please contact your Cat dealer to discuss the details of your unique application and how Caterpillar can partner with you to achieve the lowest possible drilling cost.



	Rock Formation to Tricone Bit Conversions										
		Rock Formation									
		Limestone (soft)		Limestone (hard)	Quartzite (soft)	Gran	ite	Basal	t		
		Sandsto	one		Ironstone		Dolorite	Qua	rtzite (hard)		
					Rock Strength (MPa)						
Inch	mm	10		125	185	200	250		345	435	480
6 3/4	171	S-2		M-1			M-3				
7 7/8	200	S-2		M-1			M-3				
9	229	S-1	S-3		M-2			H-1			
9 7/8	251			M-1			VI-3		H-1		
10 5/8	271		S-3			M-3			H-1		
12 1/4	311			M-1			VI-3		H-1		
13 3/4	350			M-1							

	Cat Tricone Drill Bits									
Bit Dia	Bit Diameter		Soft		Medium		Hard	We	ight	
in	mm	1	2	3	1	2	3	1	kg	lbs
6 3/4	171		546-3432		550-1610		550-1612		21	46
7 7/8	200		589-1881		589-1882		589-1883		37	81
9	229	593-8498		550-1614		550-1616		550-1618	43	96
9 7/8	251				601-1404		601-1405	601-1406	66	145
10 5/8	271			596-7057			596-7059	596-7060	72	160
12 1/4	311				601-1496		601-1498	601-1499	99	220
13 3/4	350				604-8209				145	319

Note:

Caterpillar continues to develop drill bit models for availability off-the-shelf.

If your application does not have a Cat Part Number, it can be developed upon request. Please contact your local Cat dealer. All Parts listed above come with API threads, unless noted. BECO threads available upon request.

#### **Features & Benefits**

Cat Tricone Bits are built to provide what our customers expect:

- Cat Performance
- Cat Parts Distribution
- Cat Product Support
- Reduced Total Drilling Cost (TDC)\*

Air Cooled Bearings - Our anti-friction design provides for long life in tough applications by reducing the heat generation of tricone drill bits.

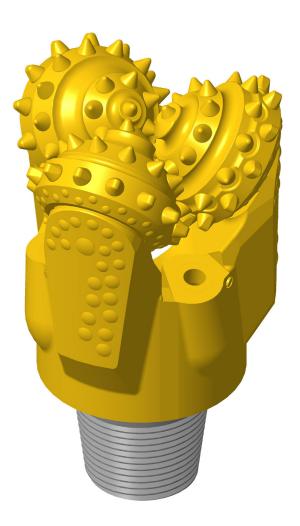
**Cone Protection** - Utilize special technology to prevent severe wear on the cone by drilling cuttings and unbroken rock ridges; therefore, greatly improving the working life of the bit. The gage row design has been proven to improve resistance to diameter shrinkage.

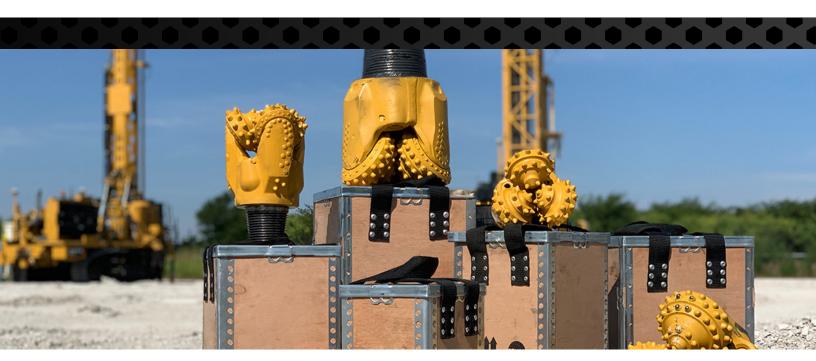
**Cutting Structure** – Optimized for high wear resistance and toughness of the inserts, enable aggressive cutting to increase rate of penetration.

**Cone Carbide Layout** - Designed to create an optimal rock fragmentation to provide the highest rate of penetration for your particular application.

Shirttail Protection - Several advanced techniques and materials are considered, the best combination is selected by our engineers to provide excellent protection in this region to further extend the bit's service life.

**Cuttings Removal** - Special design increases space for cutting removal with enlarged "junk slot", which facilitates removal of drilling cuttings.





#### 6-3/4" (171 mm) Soft Formations Cat Tricone Drill Bits 546-3432

Ball Locked and Roller Bearing, Air-cooled | 3 Air jet nozzles

Specifications				
IADC	4-3-2			
Cutter shapes	Conical, Chisel and Round			
Pin connection thread size	3 1/2 API REG* with back flow valve			
Approximate Weight	46 lbs (21kg)			

<sup>\*</sup>Also available in BECO pin thread

Replacement Nozzle Options					
in.	mm.	Part Number	Notes		
1/2	12	587-8482	Included		
9/16	14	587-8484	Installed		
5/8	16	587-8485	Included		

Operating Parameters	
Weight on bit (W0B)	6,750 to 27,000 lbs (30-120 kN)
Rotary speed	90 to 120 RPM
Air back pressure on bit	29-58 psi (0.2 - 0.4 MPa)





Number of ROWS: 4-4-3
Number of CUTTERS: 93



### 6-3/4" (171 mm) Medium Formations Cat Tricone Drill Bits 550-1610

Ball Locked and Roller Bearing, Air-cooled | 3 Air jet nozzles

Specifications				
IADC	5-4-2			
Cutter shapes	Conical and Round			
Pin connection thread size	3 1/2 API REG* with back flow valve			
Approximate Weight	46 lbs (21kg)			

<sup>\*</sup>Also available in BECO pin thread

Replacement Nozzle Options						
in.	mm.	Part Number	Notes			
1/2	12	587-8482	Included			
9/16	14	587-8484	Installed			
5/8	16	587-8485	Included			

Operating Parameters	
Weight on bit (W0B)	13,500 to 33,750 lbs (60-150 kN)
Rotary speed	80 to 110 RPM
Air back pressure on bit	29-58 psi (0.2-0.4 MPa)





Number of ROWS: 4-4-3
Number of CUTTERS: 93



#### 6-3/4" (171 mm) Medium Formations Cat Tricone Drill Bits 550-1612

Ball Locked and Roller Bearing, Air-cooled | 3 Air jet nozzles

Specifications				
IADC	6-4-2			
Cutter shapes	Conical, Ovoid and Round			
Pin connection thread size	3 1/2 API REG* with back flow valve			
Approximate Weight	46 lbs (21kg)			

<sup>\*</sup>Also available in BECO pin thread

Replacement Nozzle Options						
in.	mm.	Part Number	Notes			
1/2	12	587-8482	Included			
9/16	14	587-8484	Installed			
5/8	16	587-8485	Included			

Operating Parameters	
Weight on bit (W0B)	20,250 to 40,500 lbs (90-180 kN)
Rotary speed	60 to 100 RPM
Air back pressure on bit	29-58 psi (0.2-0.4 MPa)





Number of ROWS: 4-4-4
Number of CUTTERS: 105



#### 7-7/8" (200 mm) Soft Formations Cat Tricone Drill Bits 589-1881

Ball Locked and Roller Bearing, Air-cooled | 3 Air jet nozzles

Specifications				
IADC	4-3-2			
Cutter shapes	Conical and Wedge Chisel			
Pin connection thread size	4 1/2 API REG* with back flow valve			
Approximate Weight	75 lbs (34kg)			

<sup>\*</sup>Also available in BECO pin thread

Replacement Nozzle Options			
in.	mm.	Part Number	Notes
1/2	12	601-6763	Included
_	13	601-6764	_
9/16	14	601-6775	Installed
5/8	16	601-6769	Included
11/16	18	601-6770	_
3/4	20	601-6771	_







Operating Parameters	
Weight on bit (W0B)	14,000 to 32,000 lbs (62-142 kN)
Rotary speed	60 to 125 RPM
Air back pressure on bit	29-58 psi (0.2-0.4 MPa)

#### 7-7/8" (200 mm) Medium Formations Cat Tricone Drill Bits 589-1882

Ball Locked and Roller Bearing, Air-cooled | 3 Air jet nozzles

Specifications	
IADC	5-4-2
Cutter shapes	Conical
Pin connection thread size	4 1/2 API REG* with back flow valve
Approximate Weight	75 lbs (34kg)

<sup>\*</sup>Also available in BECO pin thread

Replacement Nozzle Options			
in.	mm.	Part Number	Notes
1/2	12	601-6763	Included
_	13	601-6764	_
9/16	14	601-6775	Installed
5/8	16	601-6769	Included
11/16	18	601-6770	_
3/4	20	601-6771	_





Number of ROWS: 4-4-3
Number of CUTTERS: 96

Operating Parameters	
Weight on bit (W0B)	20,000 to 50,000 lbs (88-222 kN)
Rotary speed	80 to 110 RPM
Air back pressure on bit	29-58 psi (0.2-0.4 MPa)

#### 7-7/8" (200 mm) Medium Formations Cat Tricone Drill Bits 589-1883

Ball Locked and Roller Bearing, Air-cooled | 3 Air jet nozzles

Specifications	
IADC	6-4-2
Cutter shapes	Conical
Pin connection thread size	4 1/2 API REG* with back flow valve
Approximate Weight	75 lbs (34kg)

<sup>\*</sup>Also available in BECO pin thread

Replacement Nozzle Options			
in.	mm.	Part Number	Notes
1/2	12	601-6763	Included
_	13	601-6764	_
9/16	14	601-6775	Installed
5/8	16	601-6769	Included
11/16	18	601-6770	_
3/4	20	601-6771	_





Number of ROWS: 4-4-4
Number of CUTTERS: 116



Operating Parameters	
Weight on bit (W0B)	25,000 to 53,000 lbs (111-235 kN)
Rotary speed	60 to 100 RPM
Air back pressure on bit	29-58 psi (0.2-0.4 MPa)

#### 9" (229 mm) Soft Formations Cat Tricone Drill Bits 593-8498

Ball Locked and Roller Bearing, Air-cooled | 3 Air jet nozzles

Specifications	
IADC	4-1-2
Cutter shapes	Conical, Wedge and Round
Pin connection thread size	4 1/2 API REG* with back flow valve
Approximate Weight	110 lbs (50 kg)

<sup>\*</sup>Also available in BECO pin thread

Replacement Nozzle Options			
in.	mm.	Part Number	Notes
1/2	12	587-8488	_
_	13	587-8489	_
9/16	14	587-8486	Included
5/8	16	587-8487	Installed
11/16	18	587-8490	Included
3/4	20	587-8491	_
7/8	22	587-8492	_





Number of **ROWS: 4-1-2** Number of **CUTTERS: 88** 



<b>Operating Parameters</b>	
Weight on bit (W0B)	9,000 to 40,000 lbs (40-180 kN)
Rotary speed	90 to 120 RPM
Air back pressure on bit	29-58 psi (0.2-0.4 MPa)

#### 9" (229 mm) Soft Formations Cat Tricone Drill Bits 550-1614

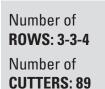
Ball Locked and Roller Bearing, Air-cooled | 3 Air jet nozzles

Specifications	
IADC	4-1-2
Cutter shapes	Conical, Wedge and Round
Pin connection thread size	4 1/2 API REG* with back flow valve
Approximate Weight	110 lbs (50 kg)

<sup>\*</sup>Also available in BECO pin thread

Replacement Nozzle Options			
in.	mm.	Part Number	Notes
1/2	12	587-8488	_
_	13	587-8489	_
9/16	14	587-8486	Included
5/8	16	587-8487	Installed
11/16	18	587-8490	Included
3/4	20	587-8491	_
7/8	22	587-8492	_







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Operating Parameters	
Weight on bit (W0B)	9,000 to 40,000 lbs (40-180 kN)
Rotary speed	90 to 120 RPM
Air back pressure on bit	29-58 psi (0.2-0.4 MPa)

#### 9" (229 mm) Medium Formations Cat Tricone Drill Bits 550-1616

Ball Locked and Roller Bearing, Air-cooled | 3 Air jet nozzles

Specifications	
IADC	6-3-2
Cutter shapes	Conical, Ovoid, and Round
Pin connection thread size	4 1/2 API REG* with back flow valve
Approximate Weight	110 lbs (50 kg)

<sup>\*</sup>Also available in BECO pin thread

Replacement Nozzle Options			
in.	mm.	Part Number	Notes
1/2	12	587-8488	_
_	13	587-8489	_
9/16	14	587-8486	Included
5/8	16	587-8487	Installed
11/16	18	587-8490	Included
3/4	20	587-8491	_
7/8	22	587-8492	_





Number of ROWS: 4-4-4
Number of CUTTERS: 146



<b>Operating Parameters</b>	
Weight on bit (W0B)	27,000 to 54,000 lbs (120-240 kN)
Rotary speed	60 to 100 RPM
Air back pressure on bit	29-58 psi (0.2-0.4 MPa)

### 9" (229 mm) Hard Formations Cat Tricone Drill Bits 550-1618

Ball Locked and Roller Bearing, Air-cooled | 3 Air jet nozzles

Specifications	
IADC	7-2-2
Cutter shapes	Conical, Ovoid, and Round
Pin connection thread size	4 1/2 API REG* with back flow valve
Approximate Weight	110 lbs (50 kg)

<sup>\*</sup>Also available in BECO pin thread

Replacement N	lozzle Options		
in.	mm.	Part Number	Notes
1/2	12	587-8488	_
_	13	587-8489	_
9/16	14	587-8486	Included
5/8	16	587-8487	Installed
11/16	18	587-8490	Included
3/4	20	587-8491	_
7/8	22	587-8492	_





Number of ROWS: 5-5-4
Number of CUTTERS: 166



Operating Parameters	
Weight on bit (W0B)	36,000 to 63,000 lbs (160-280 kN)
Rotary speed	60 to 90 RPM
Air back pressure on bit	29-58 psi (0.2-0.4 MPa)

#### 9-7/8" (251 mm) Medium Formations Cat Tricone Drill Bits 601-1404

Ball Locked and Roller Bearing, Air-cooled | 3 Air jet nozzles

Specifications	
IADC	5-4-2
Cutter shapes	Conical
Pin connection thread size	6 5/8 API REG* with back flow valve
Approximate Weight	145 lbs (66 kg)

<sup>\*</sup>Also available in BECO pin thread

Replacement Nozzle Options			
in.	mm.	Part Number	Notes
9/16	14	587-8493	Included
5/8	16	587-8494	Installed
11/16	18	587-8495	_
11/16	20.5	587-8496	Included
15/16	23	587-8497	_
1	25	587-8498	-





Number of ROWS: 4-4-4
Number of CUTTERS: 121



Operating Parameters	
Weight on bit (W0B)	20,000 to 50,000 lbs (88.9-222.4 kN)
Rotary speed	60 to 120 RPM
Air back pressure on bit	29-58 psi (0.2-0.4 MPa)

#### 9-7/8" (251 mm) Medium Formations Cat Tricone Drill Bits 601-1405

Ball Locked and Roller Bearing, Air-cooled | 3 Air jet nozzles

6-4-2
Conical
6 5/8 API REG* with back flow valve
145 lbs (66 kg)

<sup>\*</sup>Also available in BECO pin thread

Replacement Nozzle Options			
in.	mm.	Part Number	Notes
9/16	14	587-8493	Included
5/8	16	587-8494	Installed
11/16	18	587-8495	_
11/16	20.5	587-8496	Included
15/16	23	587-8497	_
1	25	587-8498	_





Number of ROWS: 5-4-4
Number of CUTTERS: 149

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Operating Parameters	
Weight on bit (W0B)	30,000 to 60,000 lbs (133.4-266.8 kN)
Rotary speed	60 to 100 RPM
Air back pressure on bit	29-58 psi (0.2-0.4 MPa)

#### 9-7/8" (251 mm) Hard Formations Cat Tricone Drill Bits 601-1406

Ball Locked and Roller Bearing, Air-cooled | 3 Air jet nozzles

Specifications	
IADC	7-2-2
Cutter shapes	Conical
Pin connection thread size	6 5/8 API REG* with back flow valve
Approximate Weight	145 lbs (66 kg)

<sup>\*</sup>Also available in BECO pin thread

Replacement Nozzle Options			
in.	mm.	Part Number	Notes
9/16	14	587-8493	Included
5/8	16	587-8494	Installed
11/16	18	587-8495	_
11/16	20.5	587-8496	Included
15/16	23	587-8497	_
1	25	587-8498	_





Number of ROWS: 5-5-4
Number of CUTTERS: 170

<b>Operating Parameters</b>	
Weight on bit (W0B)	40,000 to 90,000 lbs (177.0-400.3 kN)
Rotary speed	60 to 100 RPM
Air back pressure on bit	29-58 psi (0.2-0.4 MPa)

#### 10-5/8" (271 mm) Soft Formations Cat Tricone Drill Bits 596-7057

Ball Locked and Roller Bearing, Air-cooled | 3 Air jet nozzles

Specifications	
IADC	5-3-2
Cutter shapes	Conical
Pin connection thread size	6 5/8 API REG* with back flow valve
Approximate Weight	158 lbs (72 kg)

<sup>\*</sup>Also available in BECO pin thread

Replacement Nozzle Options			
in.	mm.	Part Number	Notes
9/16	14	587-8493	_
5/8	16	587-8494	Included
11/16	18	587-8495	Installed
3/4	20.5	587-8496	Included
15/16	23	587-8497	_
1	25	587-8498	_





Number of ROWS: 4-4-4
Number of CUTTERS: 115



Operating Parameters	
Weight on bit (W0B)	21,000 to 53,000 lbs (93-235 kN)
Rotary speed	80 to 120 RPM
Air back pressure on bit	29-58 psi (0.2-0.4 MPa)

#### 10-5/8" (271 mm) Medium Formations Cat Tricone Drill Bits 596-7059

Ball Locked and Roller Bearing, Air-cooled | 3 Air jet nozzles

Specifications	
IADC	6-4-2
Cutter shapes	Conical
Pin connection thread size	6 5/8 API REG* with back flow valve
Approximate Weight	158 lbs (72 kg)

<sup>\*</sup>Also available in BECO pin thread

Replacement Nozzle Options			
in.	mm.	Part Number	Notes
9/16	14	587-8493	_
5/8	16	587-8494	Included
11/16	18	587-8495	Installed
3/4	20.5	587-8496	Included
15/16	23	587-8497	_
1	25	587-8498	_





Number of ROWS: 5-4-4
Number of CUTTERS: 150



Operating Parameters	
Weight on bit (W0B)	30,000 to 70,000 lbs (133-311 kN)
Rotary speed	60 to 100 RPM
Air back pressure on bit	29-58 psi (0.2-0.4 MPa)

#### 10-5/8" (271 mm) Hard Formations Cat Tricone Drill Bits 596-7060

Ball Locked and Roller Bearing, Air-cooled | 3 Air jet nozzles

7-2-2
Conical
6 5/8 API REG* with back flow valve
158 lbs (72 kg)

<sup>\*</sup>Also available in BECO pin thread

Replacement Nozzle Options			
in.	mm.	Part Number	Notes
9/16	14	587-8493	_
5/8	16	587-8494	Included
11/16	18	587-8495	Installed
3/4	20.5	587-8496	Included
15/16	23	587-8497	_
1	25	587-8498	_





Number of ROWS: 5-5-4
Number of CUTTERS: 185



Operating Parameters	
Weight on bit (WOB)	45,000 to 100,000 lbs (200-444 kN)
Rotary speed	60 to 100 RPM
Air back pressure on bit	29-58 psi (0.2-0.4 MPa)

## 12-1/4" (311 mm) Medium Formations Cat Tricone Drill Bits 601-1496 API Ball Locked and Roller Bearing, Air-cooled | 3 Air jet nozzles 558-9403 BECO

Specifications		
IADC	5-4-2	
Cutter shapes	Conical	
Pin connection thread size	6 5/8 API REG* with back flow valve	
Approximate Weight	225 lbs (102 kg)	

<sup>\*</sup>Also available in BECO pin thread

Replacement Nozzle Options			
in.	mm.	Part Number	Notes
9/16	14	587-8493	_
5/8	16	587-8494	_
11/16	18	587-8495	Included
3/4	20.5	587-8496	_
15/16	23	587-8497	Included
1	25	587-8498	Installed
Replacer	ment Pin	541-4671	Included





Number of ROWS: 4-4-4
Number of CUTTERS: 135



Operating Parameters	
Weight on bit (W0B)	30,000 to 70,000 lbs (200-444 kN)
Rotary speed	60 to 120 RPM
Air back pressure on bit	29-58 psi (0.2-0.4 MPa)

## 12-1/4" (311 mm) Medium Formations Cat Tricone Drill Bits 601-1498 API Ball Locked and Roller Bearing, Air-cooled | 3 Air jet nozzles 558-9404 BECO

<b>Specifications</b>	
IADC	6-4-2
Cutter shapes	Conical
Pin connection thread size	6 5/8 API REG* with back flow valve
Approximate Weight	225 lbs (102 kg)

<sup>\*</sup>Also available in BECO pin thread

Replacement Nozzle Options			
in.	mm.	Part Number	Notes
9/16	14	587-8493	_
5/8	16	587-8494	_
11/16	18	587-8495	Included
3/4	20.5	587-8496	_
15/16	23	587-8497	Included
1	25	587-8498	Installed





Number of ROWS: 5-4-4
Number of CUTTERS: 160



<b>Operating Parameters</b>	
Weight on bit (W0B)	37,000 to 90,000 lbs (164.5-400.3 kN)
Rotary speed	60 to 100 RPM
Air back pressure on bit	29-58 psi (0.2-0.4 MPa)

# 12-1/4" (311 mm) Hard Formations Cat Tricone Drill Bits 601-1499 API Ball Locked and Roller Bearing, Air-cooled | 3 Air jet nozzles 558-9406 BECO

Specifications	
IADC	7-2-2
Cutter shapes	Conical
Pin connection thread size	6 5/8 API REG* with back flow valve
Approximate Weight	225 lbs (102 kg)

<sup>\*</sup>Also available in BECO pin thread

Replacement Nozzle Options					
in.	mm.	Part Number	Notes		
9/16	14	587-8493	_		
5/8	16	587-8494	_		
11/16	18	587-8495	Included		
3/4	20.5	587-8496	_		
15/16	23	587-8497	Included		
1	25	587-8498 Installed			





Number of
<b>ROWS</b> : 5-5-4
Number of
<b>CUTTERS</b> : 182



<b>Operating Parameters</b>	
Weight on bit (W0B)	50,000 to 100,000 lbs (222-444 kN)
Rotary speed	60-90 RPM
Air back pressure on bit	29-58 psi (0.2-0.4 MPa)

13-3/4" (349 mm) Medium Formations Cat Tricone Drill Bits 604-8209 API Ball Locked and Roller Bearing, Air-cooled | 3 Air jet nozzles 593-5746 BECO

Specifications			
IADC	5-3-2		
Cutter shapes	Conical		
Pin connection thread size	6 5/8 API REG* with back flow valve		
Approximate Weight			

<sup>\*</sup>Also available in BECO pin thread

Replacement Nozzle Options					
in.	mm.	Part Number	Notes		
3/4	20	602-0587	-		
7/8	22	602-0588	Included		
1	25	602-0589	Installed		
1 1/8	28	602-0590	Included		
1 1/4	32	602-0591			





Number of
<b>ROWS: 4-4-4</b>
Number of <b>CUTTERS: 130</b>



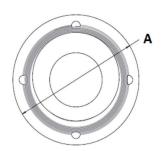
Operating Parameters			
Weight on bit (W0B)	41,000 to 91,000 lbs (182-405 kN)		
Rotary speed	50-120 RPM		
Air back pressure on bit	29-58 psi (0.2-0.4 MPa)		

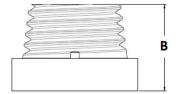
The **575-2275 Air Flow Tester** is intended for measuring air flow rates up to 3,000 CFM (85 m³/min) and for pressure up to 500 psi (3450 kPa). It is designed for measuring compressor air flow on drills, but could be used in other applications, as well.

This kit includes all components of the tester except for the BECO and API thread adapters, which are available for individual purchase. The carrying case provided with the kit has storage space for all tester components plus space for up to 3 thread adapters (with the exception of the 8" BECO).







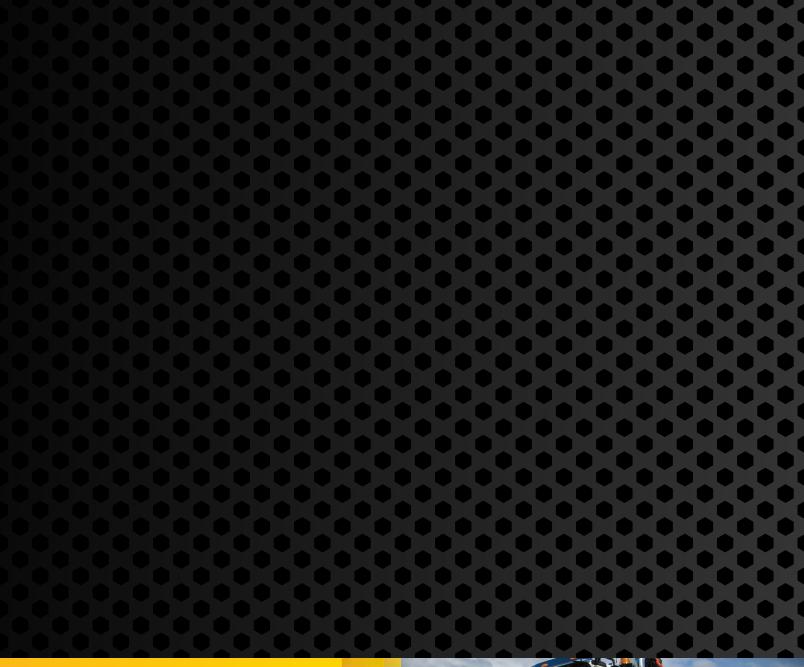


	Drill String Thread Adapters							
Item	Description	575-2276*	575-2278	575-2279	575-2280	575-2281	575-2282	575-2283
	Thread	8" BECO	6" BECO	4-1/2" BECO	3-1/2" BECO	6-5/8" API	4-1/2" API	3-1/2" API
А	Diameter mm (in)	216 (8.5)	165 (6.5)	152 (6.0)				
В	Thickness mm (in)	76 (3.0)	102 (4.0)					
_	Weight kg (lbs)	5.1 (11.2)	4.2 (9.3)	2.7 (6.0)	2.0 (4.4)	3.8 (8.4)	2.7 (6.0)	2.1 (4.6)

<sup>\*</sup>The 8" BECO Thread Adapter will not fit in the case that comes with the 575-2275 Air Flow Tester.

The **FT3567 Bit Air Pressure Tool** enables a quick check of the air pressure at the drill bit nozzles. This tool is primarily used for:

- setting the compressor regulators for pneumatic control systems, and/or
- double checking natural pressure drop from receiver tank port, through blow-air-hose/tube, rotary head assembly and drill string.



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