

Cat[®] Tricone Drill Bits Catalog



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									
Inch	mm	Rock Formation							
		Limestone (soft)	Limestone (hard)	Quartzite (soft)	Granite		Basalt		
		Sandstone		Ironstone		Dolorite	Quartzite (hard)		
		Rock Strength (MPa)							
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			M-3			H-1	
10 5/8	271	S-3		M-3				H-1	
12 1/4	311	M-1			M-3			H-1	
13 3/4	350	M-1							

Cat Tricone Drill Bits										
Bit Diameter		Soft			Medium			Hard	Weight	
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	593-8496		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.

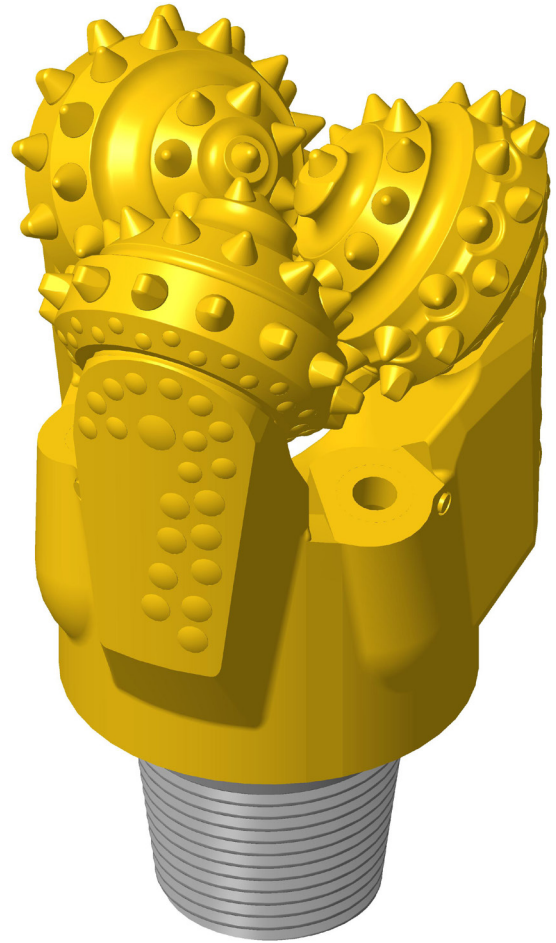
Cone Protection - Utilize special technology to prevent severe wear on the cone by drilling cuttings and unbroken rock ridges; therefore, greatly improving the working life of the bit. The gage row design has been proven to improve resistance to diameter shrinkage.

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 pattern to provide the highest rate of penetration for your particular application.

Shirrtail 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

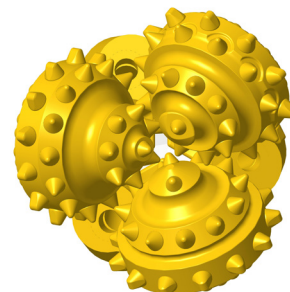
Ball Locked and Roller Bearing, Air-cooled | 3 Air jet nozzles

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)

*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 (WOB)	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

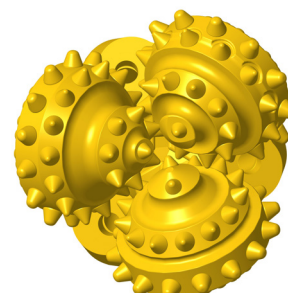
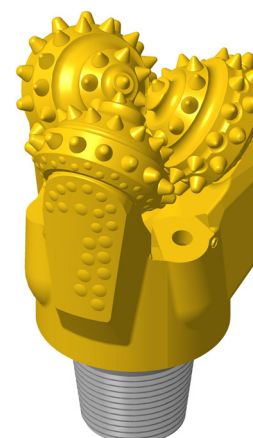
Ball Locked and Roller Bearing, Air-cooled | 3 Air jet nozzles

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)

*Also available in BECO pin thread

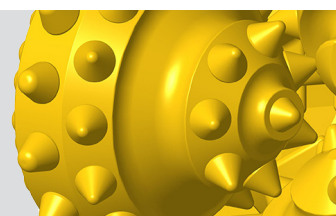
Replacement Nozzle Options			
in.	mm.	Part Number	Notes
1/2	12	587-8482	Included
9/16	14	587-8484	Installed
5/8	16	587-8485	Included

Operating Parameters	
Weight on bit (WOB)	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

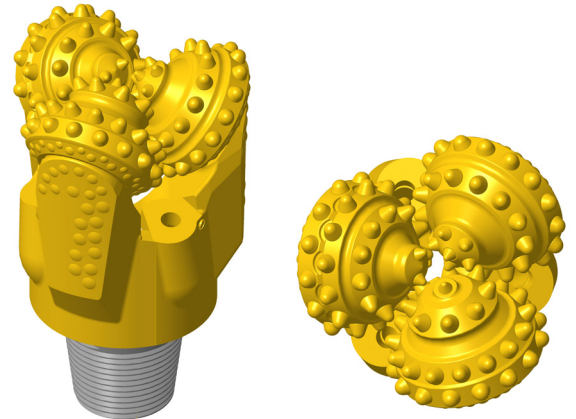
Ball Locked and Roller Bearing, Air-cooled | 3 Air jet nozzles

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)

*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 (WOB)	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



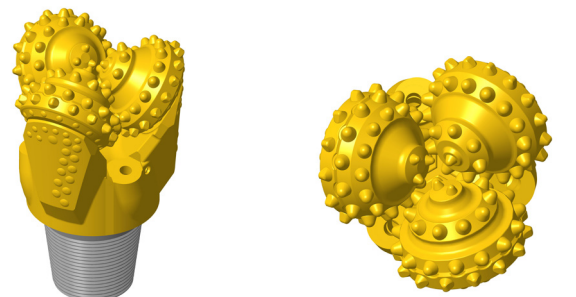
7-7/8" (200 mm) Soft Formations Cat Tricone Drill Bits 589-1881

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)

*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: 88



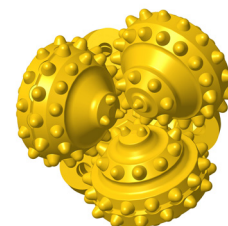
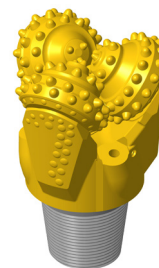
Operating Parameters	
Weight on bit (WOB)	14,000 to 32,000 lbs (62-142 kN)
Rotary speed	60 to 125 RPM
Air back pressure on bit	29-58 PSI (0.2-0.4 MPa)

7-7/8" (200 mm) Medium Formations CatTricone 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)

*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



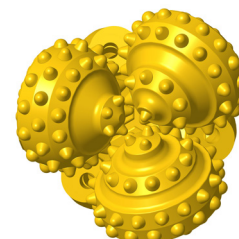
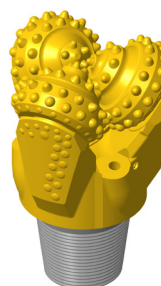
Operating Parameters	
Weight on bit (WOB)	20,000 to 50,000 lbs (88-222 kN)
Rotary speed	80 to 110 RPM
Air back pressure on bit	29-58 PSI (0.2-0.4 MPa)

7-7/8" (200 mm) Medium Formations CatTricone 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)

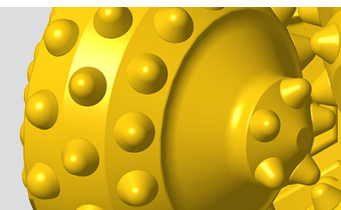
*Also available in BECO pin thread



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



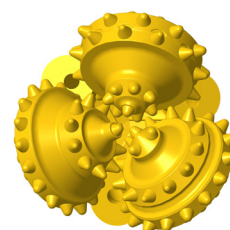
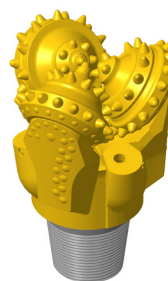
Operating Parameters	
Weight on bit (WOB)	25,000 to 53,000 lbs (111-235 kN)
Rotary speed	60 to 100 RPM
Air back pressure on bit	29-58 PSI (0.2-0.4 MPa)

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

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

Specifications	
IADC	5-1-2
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)

*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



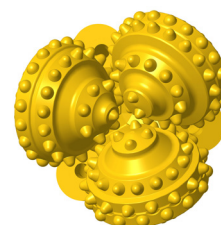
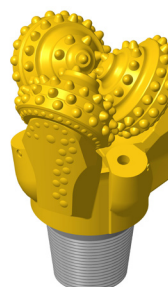
Operating Parameters	
Weight on bit (WOB)	9,000 to 36,000 lbs (40-160 kN)
Rotary speed	90 to 120 RPM
Air back pressure on bit	29-58 PSI (0.2-0.4 MPa)

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)

*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



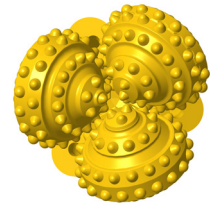
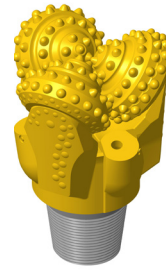
Operating Parameters	
Weight on bit (WOB)	27,000 to 54,000 lbs (120-240 kN)
Rotary speed	60 to 100 RPM
Air back pressure on bit	29-58 PSI (0.2-0.4 MPa)

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)

*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: 5-5-4

Number of
CUTTERS: 166



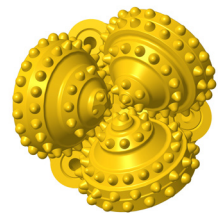
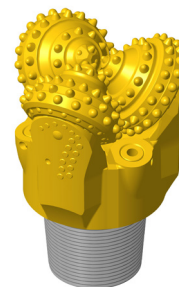
Operating Parameters	
Weight on bit (WOB)	36,000 to 63,000 lbs (160-280 kN)
Rotary speed	60 to 90 RPM
Air back pressure on bit	29-58 PSI (0.2-0.4 MPa)

9-7/8" (251 mm) Medium Formations Cat Tricone Drill Bits 533-7827

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

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

*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



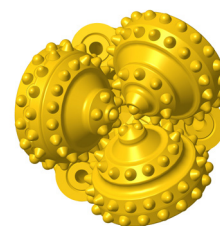
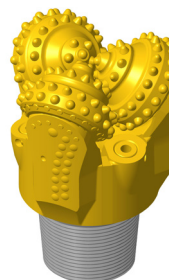
Operating Parameters	
Weight on bit (WOB)	20,000 to 50,000 lbs (88.9-222.4 kN)
Rotary speed	60 to 120 RPM
Air back pressure on bit	29-58 PSI (0.2-0.4 MPa)

9-7/8" (251 mm) Medium Formations Cat Tricone Drill Bits 580-5475

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

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

*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: 154



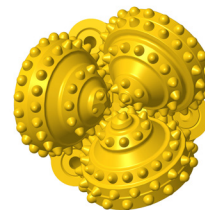
Operating Parameters	
Weight on bit (WOB)	30,000 to 60,000 lbs (133.4-266.8 kN)
Rotary speed	60 to 100 RPM
Air back pressure on bit	29-58 PSI (0.2-0.4 MPa)

9-7/8" (251 mm) Hard Formations Cat Tricone Drill Bits 543-1430

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

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

*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: 178



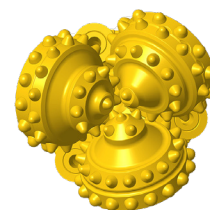
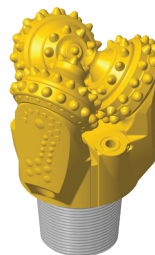
Operating Parameters	
Weight on bit (WOB)	40,000 to 90,000 lbs (177.0-400.3 kN)
Rotary speed	60 to 100 RPM
Air back pressure on bit	29-58 PSI (0.2-0.4 MPa)

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 Compacts
Pin connection thread size	6 5/8 API REG* with back flow valve
Approximate Weight	158 lbs (72 kg)

*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



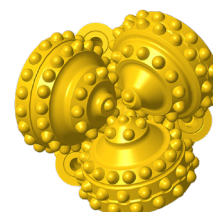
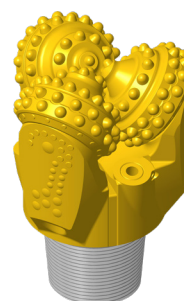
Operating Parameters	
Weight on bit (WOB)	21,000 to 53,000 lbs (93-235 kN)
Rotary speed	80 to 120 RPM
Air back pressure on bit	29-58 PSI (0.2-0.4 MPa)

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 Compacts
Pin connection thread size	6 5/8 API REG* with back flow valve
Approximate Weight	158 lbs (72 kg)

*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 (WOB)	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)

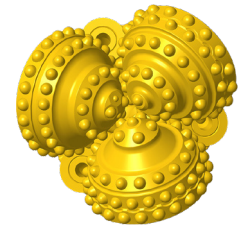
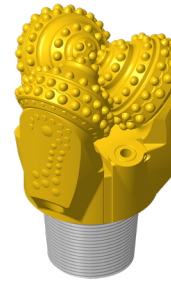
10-5/8" (271 mm) Hard Formations Cat Tricone Drill Bits 596-7060

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

Specifications	
IADC	7-2-2
Cutter shapes	Conical Compacts
Pin connection thread size	6 5/8 API REG* with back flow valve
Approximate Weight	158 lbs (72 kg)

*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)

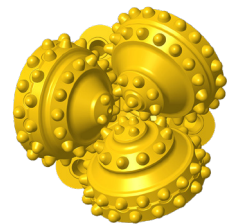
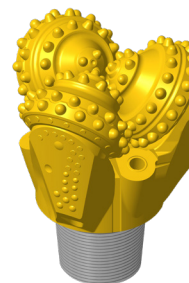
12-1/4" (311 mm) Medium Formations Cat Tricone Drill Bits 550-1620 API 558-9403 BECO

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

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

*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
Replacement Pin		541-4671	Included



Number of
ROWS: 4-4-4

Number of
CUTTERS: 135



Operating Parameters	
Weight on bit (WOB)	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)

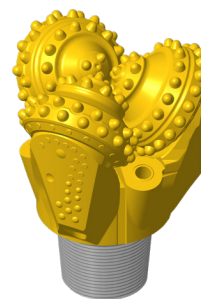
12-1/4" (311 mm) Medium Formations Cat Tricone Drill Bits 533-7830 API 558-9404 BECO

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

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

*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: 164



Operating Parameters	
Weight on bit (WOB)	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)

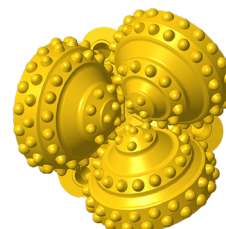
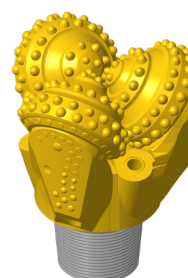
12-1/4" (311 mm) Hard Formations Cat Tricone Drill Bits 550-2360 API 558-9406 BECO

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

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

*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: 5-5-4
Number of
CUTTERS: 192



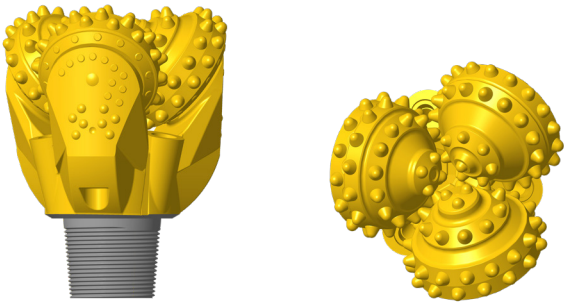
Operating Parameters	
Weight on bit (WOB)	50,000 to 100,000 lbs (222-444 kN)
Rotary speed	60 to 100 RPM
Air back pressure on bit	29-58 PSI (0.2-0.4 MPa)

13-3/4" (349 mm) Medium Formations Cat Tricone Drill Bits 604-8209

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	

*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
ROWS: 4-4-4
Number of
CUTTERS: 130

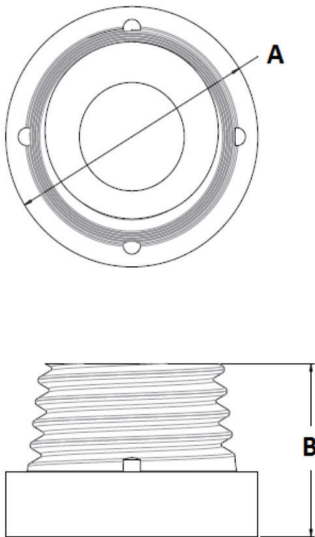


Operating Parameters	
Weight on bit (WOB)	
Rotary speed	
Air back pressure on bit	29-58 PSI (0.2-0.4 MPa)



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
A	Diameter mm (in)	216 (8.5)	165 (6.5)	152 (6.0)				
B	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)

*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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