Damage claims and guarantee cover

Atlas Copco drill bits are among the highestquality products available on the market.

Our customers are often faced with the problem of assessing damage cases on the spot, how-

ever. This brochure shows how to conduct a systematic analysis of complaints and gives you a comprehensive overview of the causes and symptoms of damage together with the corresponding quality status.

Damage analysis



Step 1: Checking of wear limits

Each product group has its own pre-defined wear limits. If one of these limits is reached or exceeded, the bit has outlived its useful life and is no longer covered by the guarantee.

Wear limit reached Wear limit not yet reached

1 Determine the eres

no guarantee cover analyse damage symptoms

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Step 2: Analysis of damage symptoms

Different damage characteristics are observable depending on the type of drill bit concerned:

affected by th	ne damage:		head flute shank
2. Determine the teristics e.g. remnants left with solder re	e exact damage charac- part of carbide tip missing: , sharp, splintered edge esidue at sides of slot		improper use (drilling through reinforcements)
smooth break	k, no solder remnants		poor brazing

Step 3: Cause of damage and quality claim

The cause of the damage will tell you whether or not a quality claim is justified:

improper use, e.g. drilling through reinforcements	not guaranteed
manufacturing errors, e.g. poor brazing	guaranteed

NOTE: The procedure described here is intended to assist our customers in dealing with complaints on the spot. Before a quality claim can be acknowledged by Atlas Copco, the damage must be analysed first in our laboratory.

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Single Carbide Tipped Rotary Hammer Drill Bits (SDS-plus and other shank types)

Edge life of carbide tips

Side view



Top view



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Flute diameter wear limits



S = d1 - d2

Ø Drill Bit (mm)	5	6	7	8	9	10	12	13	14	15	16	17	18	19
S (mm)	0,2	0,2	0,3	0,3	0,4	0,4	0,5	0,5	0,6	0,6	0,6	0,6	0,6	0,6
Ø Drill Bit (mm)	20	22	23	24	25	26	28	29	32	35	38	42	45	50
S (mm)	0,7	0,7	0,7	0,8	0,8	0,9	0,9	0,9	1,0	1,1	1,2	1,2	1,2	1.2

Single Carbide Tipped Rotary Hammer Drill Bits (SDS-plus and other shank types)

Types of damage

		Symptom:	Head area, carbide tip broken off or fragmented (splintering), solder remnants visible, mount often rounded
		Cause:	Overloading, excessive strain (reinforcement), use of force
()	-	Quality claim:	Not accepted
		Symptom:	Head area, carbide tip broken off at edges, most of carbide material is still securely soldered
		Cause:	Excessive strain, drilling through reinforcements
		Quality claim:	Not accepted
		Symptom:	Head area, carbide bit broken off and fragmented
		Cause:	Overloading, excessive strain (reinforcements)
(Quality claim:	Not accepted
		Symptom:	Head area, carbide tip and mount broken off, no remnants of carbide tip visible on mount
		Cause:	Poor brazing
		Quality claim:	Accepted
		Symptom:	Head area, carbide tip intact but partially detached, no solder remnants visible
		Cause:	Poor brazing
. 13		Quality claim:	Accepted

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Single Carbide Tipped Rotary Hammer Drill Bits (SDS-plus and other shank types)

Symptom:	Head area, carbide tip broken off or fragmented cleanly, no solder remnants visible				
Cause:	Poor brazing				
Quality claim:	Accepted				
 Symptom:	Flute and carbide tip completely worn down	9			
Cause:	Bit has reached the end of its useful life. It can still be used for drilling but is no longer efficient (strain on power tool)	,			
Quality claim:	Not accepted				
Symptom:	Flute breakage, uneven break, not at 90° angle to longitudinal axis of bit				
Cause:	Use of force				
Quality claim:	Not accepted				
Symptom:	Flute breakage, transition from flute to shank worn and glazed	0			
Cause:	Flute gummed up, drilling over flute length, drilling dust channel clogged, breakage due to overloading				
Quality claim:	Not accepted				

4-Cutter Rotary Hammer Drill Bits (SDS-max and other shank types)

Edge life of carbide tips

Side view

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New condition Worn condition



Top view

New condition Worn condition





Flute diameter wear limits



20-24 30-34 35-39 40-52 Ø Drill Bit (mm) 16-19 25-29 0,7 0,3 0,5 0,6 0,8 S (mm) 0,4

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4-Cutter Rotary Hammer Drill Bits (SDS-max and other shank types)

	Symptom:	Head area, carbide tips broken off or fragmented (splintering), solder remnants visible, mount often rounded
	Cause:	Overloading, excessive strain (reinforcement), use of force
A Contraction of the second se	Quality claim:	Not accepted
	Symptom:	Head area, carbide tips and mount broken off, no remnants of carbide tip visible
	Cause:	Poor brazing
	Quality claim:	Accepted
	Symptom:	Flute breakage, even break surface, at 90° angle to longitudinal axis of bit
	Cause:	Thermal stress crack
	Quality claim:	Accepted

Concrete Core Cutter / RATIO-System (SDS-max and other shank types)

Edge life of carbide tips – Side view

New condition Worn condition

worn condition

Wear limits

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Ø Concrete Core Cutter (mm)	30	35	40	45	50	55	60	65	68	80	90	100	>100
Maximum wear of teeth (mm)	0,6	0,7	0,8	0,9	1,0	1,1	1,2	1,3	1,4	1,6	1,8	2,0	2,1
Maximum wear of flute (mm)	0,5	0,6	0,7	0,8	0,9	1,0	1,1	1,2	1,3	1,5	1,7	1,9	2,0

Types of damage

		Symptom:	Head area, carbide teeth broken off or frag- mented (splintering), solder remnants visible
	GRIT	Cause:	Overloading, excessive strain (reinforcement), use of force
		Quality claim:	Not accepted
		Symptom:	Head area, carbide teeth broken off partially or completely, no solder remnants visible
		Cause:	Poor brazing
		Quality claim:	Accepted
\bigcirc	The second	Symptom:	Breakage of threaded stud, rough, uneven break surface, carbide teeth intact
	A A Maria	Cause:	Alternating bending stresses, caused by non-parallel joining surfaces
-		Quality claim:	Accepted
		Symptom:	Breakage of threaded shank, rough, uneven break surface, splintering, partial damage to carbide teeth
		Cause:	Extreme bending stress, drilling through reinforcements
-		Quality claim:	Not accepted

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Hollow Hammer Core Bits

Edge life of carbide tips

Side view

New condition Worn condition



worn condition

Wear limits

Ø Hollow Hammer Core Bit (mm)	30	35	40	45	50	55	60	65	80	90	100	>100
Maximum wear of teeth (mm)	0,4	0,5	0,6	0,7	0,8	0,9	1,0	1,1	1,4	1,6	1,8	1,9

Symptom:	Carbide teeth broken off or fragmented (splintering), solder remnants visible
Cause:	Overload, excessive strain (reinforcement), use of force
Quality claim:	Not accepted
Symptom:	Carbide teeth broken off partially or completely, no solder remnants visible
Cause:	Poor brazing
Quality claim:	Accepted

Shanks (SDS-plus, SDS-max and other shank types)

		Symptom:	Shank breakage, uneven break, not at 90° angle to longitudinal axis of bit
		Cause:	Overloading, excessive strain
		Quality claim:	Not accepted
()		Symptom:	Rounding of shank
		Cause:	Bit reception worn
		Quality claim:	Not accepted
		Symptom:	Heavy wear and deformation of shank grooves
		Cause:	Bit reception worn
		Quality claim:	Not accepted
		Symptom:	Bit breakage at marking, clean break, at 90° angle to longitudinal axis of bit
	(The second seco	Cause:	Notching effect due to excessively deep marking
\bigcirc		Quality claim:	Accepted



