

SUBJECT: TECHNICAL DATASHEET & PRODUCT COMPLIANCE RESPONSE

Product: Piston — Epiroc HB5800 Hydraulic Breaker

Further to your technical inquiry, MERIT Construction Machinery Industry LLC is pleased to provide the following comprehensive technical documentation and compliance statements pertaining to the Percussion Piston designed for the Epiroc HB5800 hydraulic breaker system.

1. PRODUCT SPECIFICATIONS & DIMENSIONAL DATA

Compatible Breaker Model	Atlas Copco EPiroc HB5800 Hydraulic Breaker
Component	Strike Piston
Function	Transmits kinetic energy from the upper piston / striker to the tool shank; primary impact-transfer component within the percussion mechanism
Overall Length (L)	1,180 mm
Outer Diameter (Ø)	217 mm
Dimensional Tolerances	Machined to OEM-equivalent geometric tolerances; h6/h7 fit on bearing journals; circularity ≤ 0.02 mm
Surface Finish	Ground & polished on all mating surfaces; $Ra \leq 0.4$ μ m on sealing zones
Compatibility	Direct drop-in replacement for Atlas Copco OEM percussion piston — no modification to parent equipment required

Note: A fully dimensioned engineering drawing (DXF / PDF format) depicting all critical tolerances, journal diameters, chamfer geometry, and surface finish callouts is available upon formal purchase order confirmation.



2. MATERIAL SPECIFICATION

Base Material	AISI 4340 Low-Alloy Nickel-Chromium-Molybdenum Steel
Standard Equivalence	DIN 36CrNiMo4 / EN 1.6511 / BS 817M40

Alloying Elements	Nickel (Ni): 1.65–2.00 % Chromium (Cr): 0.70–0.90 % Molybdenum (Mo): 0.20–0.30 % Carbon (C): 0.38–0.43 %
Heat Treatment Process	Through-hardening: Austenitising → Oil quench → Double tempering
Achieved Surface Hardness	57–58 HRC
Core Mechanical Properties	High tensile strength ($\geq 1,380$ MPa UTS) combined with excellent impact toughness (Charpy V-notch ≥ 47 J at -20°C) — engineered to resist fatigue crack initiation under high-frequency cyclic impact loading
Microstructure	Tempered martensite throughout section — ensures uniform mechanical performance across the full cross-section of the piston
Traceability	Mill certificates (MTC) to EN 10204 3.1 available upon request

3. COMPONENT IMAGERY

High-resolution photographic documentation covering all sides of the component — including the upper impact face, lower tool-contact face, lateral bearing surfaces, oil groove profiles, and sealing lands — is available in digital format (JPEG / compiled PDF). Images will be provided upon request or included within the shipment documentation package.

4. WARRANTY TERMS

Warranty Period	12 (twelve) calendar months from date of delivery
Coverage	Defects attributable to raw material non-conformance, sub-standard heat treatment, dimensional out-of-tolerance conditions, or manufacturing process failures
Claim Procedure	Written notification with photographic evidence and operational log to be submitted to MERIT within the warranty period
Exclusions	Damage resulting from improper installation, operation outside OEM-specified hydraulic parameters, contaminated hydraulic fluid, lack of lubrication, or installation by unqualified personnel

5. EXPECTED SERVICE LIFE

Rated Service Life	3,000 operating hours under standard operating conditions
Basis of Estimate	Derived from fatigue endurance data for AISI 4340 at 57–58 HRC under reciprocating impact loads consistent with the HB5800 operating cycle

Operational Conditions	Hydraulic flow and pressure within Atlas Copco HB5800 rated parameters; approved hydraulic fluid grade; no blank-firing cycles exceeding OEM limits
Inspection Intervals	Dimensional inspection of journal diameters and impact faces recommended every 400 operating hours; replace if wear exceeds OEM rejection limits

6. GUARANTEE OF NON-DAMAGE TO PARENT EQUIPMENT

MERIT Construction Machinery Industry LLC hereby formally guarantees that the Piston referenced herein will not cause damage to the parent equipment — specifically the Atlas Copco Epiroc HB5800 hydraulic breaker and its associated sub-components — **provided that all of the following installation and operational conditions are strictly adhered to:**

1. The component is installed exclusively by qualified technical personnel holding documented competence in hydraulic breaker maintenance and heavy percussive equipment.
2. Installation is performed in full compliance with Epiroc Atlas Copco HB5800 OEM service and maintenance instructions, including specified assembly torques, alignment procedures, and hydraulic line connection protocols.
3. Hydraulic fluid cleanliness is maintained at ISO 4406 cleanliness class $\leq 17/15/12$ or as specified by the OEM, preventing abrasive contamination of precision-machined bearing surfaces.
4. Operating hydraulic pressure and impact frequency are maintained within the rated parameters stipulated in the Atlas Copco HB5800 technical specification sheet.
5. The breaker is not subjected to blank firing (percussion without tool-to-material contact) beyond OEM-permissible limits, which may cause undue shock loading on the piston and housing.

This guarantee is underpinned by the fact that all MERIT pistons are manufactured to dimensional and metallurgical tolerances derived directly from OEM specifications for the HB5800 platform, ensuring full geometric and mechanical compatibility with the breaker housing bore, guide bushings, hydraulic seals, and striker interface.

7. CONTACT & FURTHER INFORMATION

For additional technical enquiries, dimensional drawing requests, material test certificate provision, or to submit a purchase order, please contact our sales engineering team:

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Yours faithfully,

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