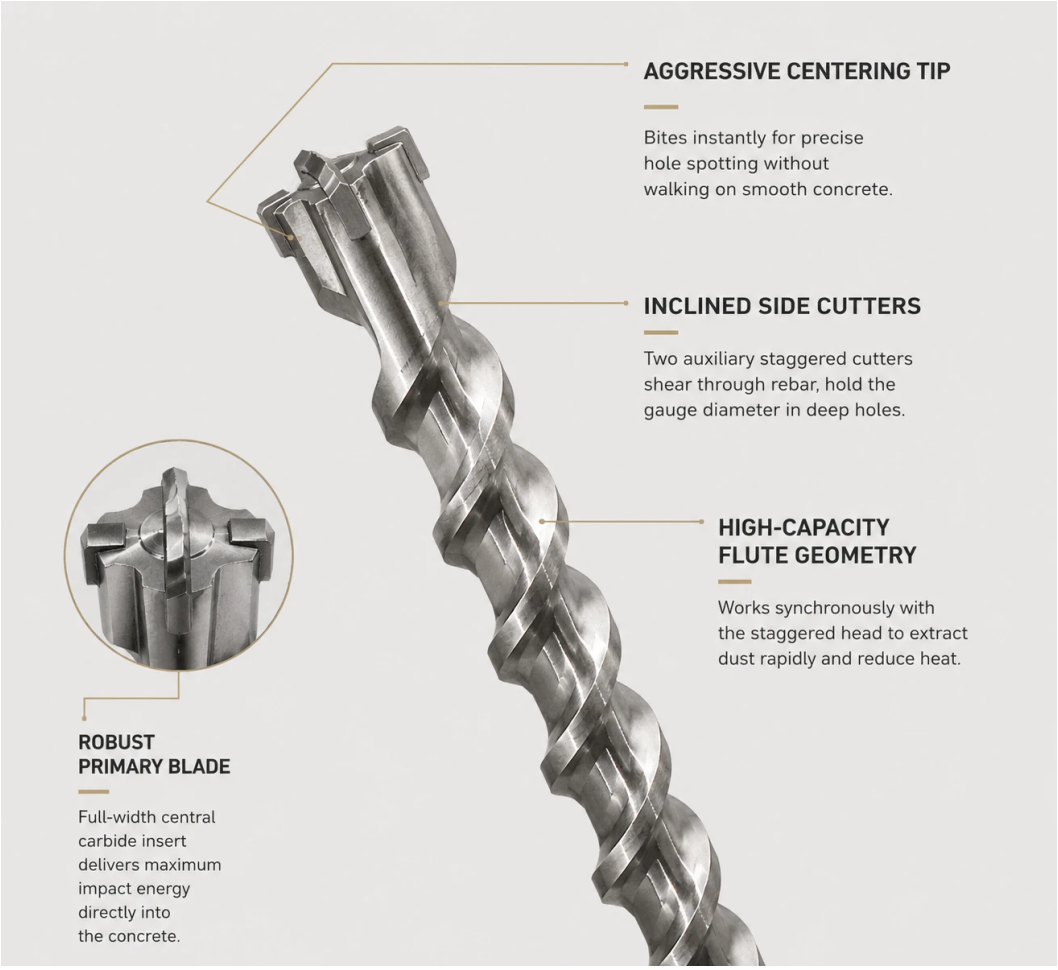
ZHMAX-7 · Multi-Insert 4-Cutter

MODEL-SPECIFIC GEOMETRY AND DESIGN NOTE
SDS-Max · Vacuum-brazed YG11C · Issue 2026-08



MODEL	INTERFACE	HEAD	JOINING
ZHMAX-7	**SDS-Max**	**3 inserts / 4 cutting edges**	**Vacuum brazed**

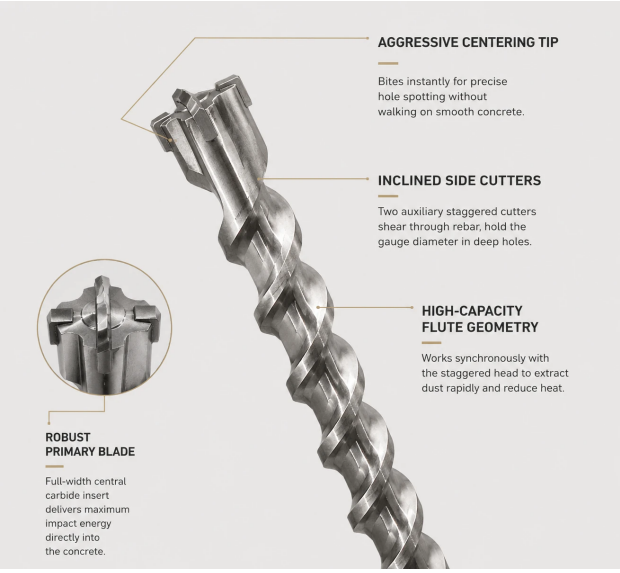
Two-cutter penetration character. Four-cutter gauge control.

ZHMAX-7 uses a dominant-primary-blade architecture: one full-width brazed carbide plate carries the main impact load, while two axially set-back side inserts sweep the gauge circle, stabilize the hole, and support peripheral cutting. Open head pockets between the three inserts feed drilling debris directly into the flutes, preserving the aggressive penetration character of a two-cutter while adding the roundness and gauge control of a four-cutter.

ZHMAX-7 · Multi-Insert 4-Cutter

PRODUCT ANATOMY

1. Head Architecture



1 · Dominant primary blade
One full-width carbide plate forms the main two cutting edges and receives the first impact.

2 · Axially set-back side inserts
Two separate side cutters enter after the primary blade and sweep the outer gauge circle.

3 · Centering geometry
The raised center geometry starts the hole and helps reduce walking during collaring.

4 · Open head pockets
The spaces between the three inserts connect the cutting zone to the main flutes.

2. Functional Load Path

IMPACT	GAUGE	EVACUATE
Primary blade leads the cut and concentrates the hammer energy into the material.	Set-back side inserts maintain the swept diameter and support hole roundness.	Open head pockets release fragments into the helix before they compact at the tip.

3. Why the Side Cutters Are Set Back

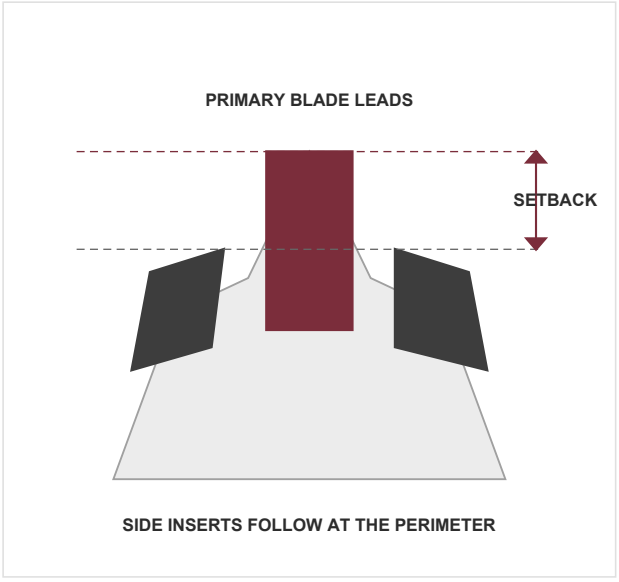
The three carbide pieces are not intended to take the same impact at the same instant. The primary blade leads. The side cutters follow at the perimeter, where they help stabilize the bore and maintain gauge. This staged sequence keeps the head from behaving like a bulky equal-height cross while still giving four-cutter control.

Construction choice	Engineering purpose
One full-width primary plate	Dominant penetration and direct impact transfer
Two separated side inserts	Peripheral cutting, gauge retention and bore stability
Axial setback	Keeps the primary blade in the lead during each impact cycle
Open pockets between inserts	Increases the entry area available for debris evacuation

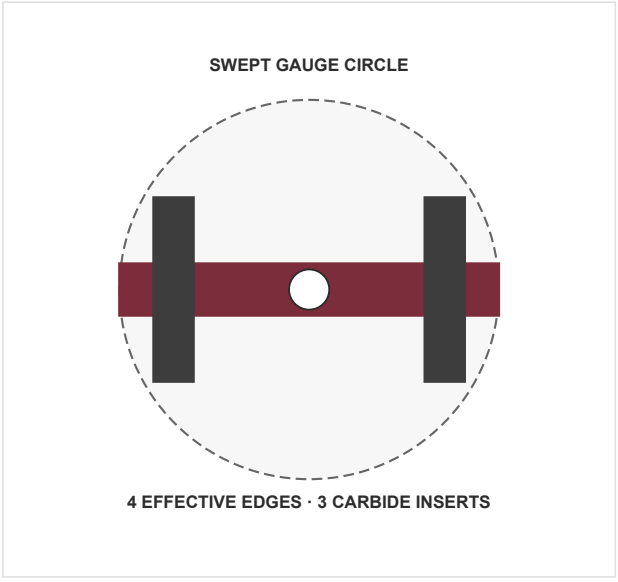
Application boundary: the geometry is designed to maintain cutting action during incidental reinforcement contact. Intentional cutting of structural reinforcement requires project approval, reinforcement location checks and a validated cutting plan.

4. Dominant-Primary-Blade Architecture

The axial height difference is intentional. The full-width primary blade reaches the material first and carries the dominant impact load. The two side inserts follow at the perimeter, where their swept path supports hole diameter, roundness and stability without turning the head into an equal-height solid cross.



Side view - primary blade lead and axial setback



Top view - shared swept gauge circle

Element	Position in the cut	Engineering function
Full-width primary blade	First contact across the main diameter	Dominant penetration and direct impact transfer
Two set-back side inserts	Follow at the hole perimeter	Peripheral cutting, gauge retention and bore stability
Shared swept circle	All four effective edges reach the design diameter	Roundness and consistent hole size
Open pockets	Between all three carbide inserts	Direct debris entry into the main flutes

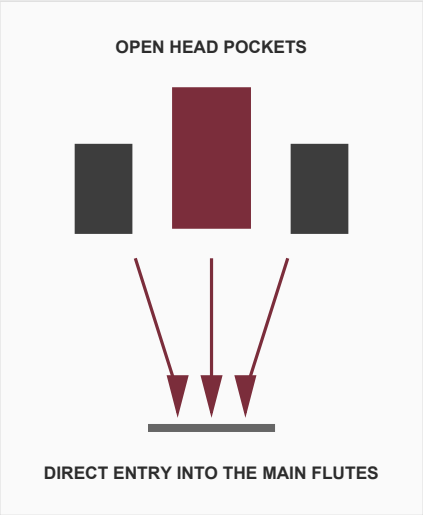
Two-cutter penetration character. Four-cutter roundness and gauge control.

The schematics are simplified Zhonghuan engineering illustrations. Final insert angles, axial setback, pocket geometry and dimensions are controlled by the approved model drawing and production sample.

5. Current ZHMAX-7 Program

Item	Specification	Buyer note
Head construction	1 full-width primary plate + 2 set-back side inserts	Three carbide pieces, four effective cutting edges
Carbide	YG11C virgin tungsten carbide	Grade stated on the order specification
Joining	Vacuum brazed	Three insert pockets in the steel head
Shank	SDS-Max	Compatible with SDS-Max rotary hammers
Diameter program	Ø16-45 mm	Confirm available size and head drawing at RFQ
Length program	320-920 mm	Working and total length stated per SKU
OEM options	Laser marking and private-label packaging	Final configuration by approved sample

6. Application Fit



Strong candidates

Hard and dense concrete

Deep structural holes where gauge retention matters

Bridge, tunnel and infrastructure drilling

Hard abrasive rock, subject to sample validation

Selection boundary

Not a dedicated structural-rebar cutting system. Confirm reinforcement location before drilling and stop work if the approved drilling path is uncertain.

7. Confirm Before Ordering

Confirm	Why it matters
Diameter, working length and total length	Prevents market naming from hiding a length mismatch
Target material and expected hole depth	Determines head, carbide and helix selection
Machine model and impact energy	Checks the body and joint against the duty cycle
Approved head drawing or sample	Locks the exact primary blade, side insert and flute geometry
Marking, packaging and order quantity	Defines the OEM configuration and production plan

Send the target diameter, hole depth and material. Zhonghuan will return the head drawing, size confirmation and sampling plan.

www.zhonghuantools.com/en/spec-sheets/zhmax-7-multi-insert-4-cutter