

Precision Hydraulic Press Platens And Heavy Duty Compression Plates

Item Number: KT-YBA



Introduction

Engineered for exceptional surface flatness and rigidity, these hydraulic press platens deliver uniform force distribution for powder compaction, ceramic preparation, and metallurgical testing. Maximize tooling life, operational accuracy, and repeatable compression performance across demanding industrial and laboratory pressing environments.

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Application	Description	Key Benefit
Advanced Technical Ceramics	Compacting ultra-fine alumina, zirconia, silicon nitride, and electro-ceramic precursor powders into green-body pellets prior to high-temperature sintering.	Delivers uniform density gradients throughout the green body, eliminating internal micro-voids, sintering warpage, and crack propagation during furnace firing.
Powder Metallurgy & Sintered Alloys	Uniaxial consolidation of spherical and irregular metallic powders including titanium, stainless steel, tungsten carbide, and specialty tool steels.	Provides high dimensional accuracy and green strength, preventing edge crumbling and ensuring repeatable bulk density across high-volume sample batches.
Solid-State Battery Development	High-tonnage pressing of solid electrolyte pellets, composite cathode layers, and lithium-metal anode interfaces for electrochemical test cells.	Guarantees parallel, void-free interfacial contact between solid electrolyte disks and electrodes, drastically lowering cell impedance and improving cyclability.
Geological & Mineral Sample Pelleting	Crushing and binder-assisted compression of mineral ores, geological core samples, and cement powders into stable briquettes for XRF, XRD, and spectroscopy analysis.	Produces glass-flat, highly cohesive analytical discs without spalling or surface crumbling, ensuring accurate beam calibration and consistent spectroscopic readings.
Composite & Polymer Laminating	Heat-assisted compression molding and consolidation of carbon fiber prepreps, thermoplastic laminates, and vulcanized rubber test specimens.	Ensures uniform platen pressure across the full working area, preventing resin starvation, dry fiber patches, and inconsistent thickness profiles.
Friction & Abrasive Tool Compacting	Pressing diamond-impregnated matrix segments, bonded abrasive grinding wheels, and metallic brake pad friction compounds under high force.	Endures extreme abrasive contact pressures without gouging or surface denting, maintaining tool platen parallelism across thousands of cycles.
Isostatic Press Pre-forming	Forming coherent green compact preforms before sealing into flexible polyurethane bags for cold isostatic pressing (CIP) processes.	Establishes stable initial preform density and geometry, optimizing subsequent isostatic fluid compaction and minimizing final shrinkage distortions.

Specification Parameter	Standard Configuration	Heavy-Duty High-Load Variant	Heated Thermal Variant
Product Item Number	KT-YBA-STD	KT-YBA-HD	KT-YBA-HT
Base Alloy Grade	Vacuum Degassed Cr12MoV	Premium Forged H13 Die Steel	High-Alloy 42CrMo Heat-Resistant Steel
Surface Hardness	58 - 60 HRC	60 - 62 HRC	52 - 56 HRC (Retained at Heat)
Surface Flatness	≤ 0.005 mm / 100 mm	≤ 0.003 mm / 100 mm	≤ 0.006 mm / 100 mm
Parallelism Tolerance	≤ 0.008 mm overall	≤ 0.005 mm overall	≤ 0.010 mm overall
Surface Roughness (Ra)	Ra ≤ 0.2 μm (Precision Ground)	Ra ≤ 0.1 μm (Micro-Lapped)	Ra ≤ 0.4 μm (Fine Ground)
Max Rated Compressive Force	Up to 100 Metric Tons (1000 kN)	Up to 200 Metric Tons (2000 kN)	Up to 50 Metric Tons (500 kN)

Specification Parameter	Standard Configuration	Heavy-Duty High-Load Variant	Heated Thermal Variant
Maximum Working Pressure	350 MPa contact pressure	500 MPa contact pressure	250 MPa contact pressure
Elastic Deflection at Max Load	< 0.018 mm across platen span	< 0.012 mm across platen span	< 0.020 mm across platen span
Operating Temperature Range	-20°C to +150°C	-20°C to +250°C	Ambient to +400°C continuous
Platen Diameter / Dimensions	Ø 100 mm to Ø 300 mm optional	Ø 150 mm to Ø 400 mm optional	150 mm × 150 mm to 300 mm × 300 mm
Standard Platen Thickness	35 mm to 65 mm	50 mm to 90 mm	60 mm to 85 mm (with insulation)
Alignment Feature	Concentric alignment rings	Concentric rings + Dowel pins	T-Slot tracks + Center register
Corrosion Protection	Hard Chrome / Black Oxide	Multi-layer CrN PVD Coating	High-Temp Chemical Passivation
Press Compatibility	Hydraulic, manual, pellet presses	Ultra-high tonnage hydraulic frames	Heated platen compression presses