Table S1. Detailed technical specifications of materials and manufacturing equipment.

Material / Equipment	Composition	Manufacturer	Role in the Study
Precision Model Resin	Acrylate-based photopolymer resin for high-precision dental models	Formlabs Inc., Somerville, MA, USA	Used to 3D print all resin models (reference and post-bonding)
IBT Flex Resin	Biocompatible methacrylate-based resin, Class I, optimized for flexible bonding trays	SprintRay Inc., Los Angeles, CA, USA	Used to fabricate the flexible three-part indirect bonding trays
VarseoSmile Temp A3	Methacrylate-based light-curing resin for temporary crowns and positioning jigs	BEGO GmbH & Co. KG, Bremen, Germany	Used to fabricate rigid, individualized transfer jigs (Leone Jig System)
Transbond XT Adhesive	Light-cured orthodontic adhesive, Bis-GMA-based	3M Unitek, Monrovia, CA, USA	Used to bond brackets to resin model surfaces
Transbond XT Primer	Light-cured orthodontic primer	3M Unitek, Monrovia, CA, USA	Applied to model surfaces before bracket placement
VALO LED Curing Light	Multi-wavelength high-intensity LED curing unit (1400 mW/cm²)	Ultradent Products Inc., South Jordan, UT, USA	Used for polymerization of adhesive during bracket bonding
Dr. Mat CAD/CAM Spray	Titanium dioxide-based anti-reflective scanning spray	Mat Chemical Industrial Productions, Istanbul, TR	Applied to model surfaces to reduce scan reflection artifacts before 3D scanning