

Kaydon Thin Section Bearings

For Robotic Applications



As robot installations continue to grow, more designers are specifying Reali-Slim® thin section bearings to save space and weight.

Less weight lets robots maximize payload and reduce inertia, improving response and optimizing power requirements. Compact components

let them meet stringent space requirements. Reali-Slim bearings deliver both advantages: a Reali-Slim KA020CP0, for example, reduces weight by 83% and space by 85% compared to a standard 6010 bearing.

Reali-Slim bearings have a cross-section that does not increase with the

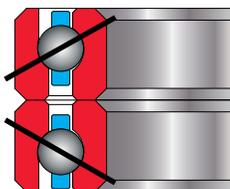
bore diameter, yet they provide precision with plenty of dynamic capacity. They are available in radial, angular and four-point configurations. The latter — which accepts combined radial, thrust and overturning moment loads — can replace two angular contact bearings to simplify overall robot design.

Duplex Mountings

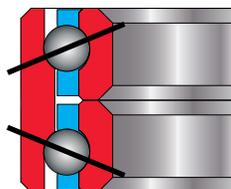
For the best combination of low torque and high stiffness, Kaydon offers duplex pairs, preloaded to eliminate the need for shimming.

We also have super duplex bearings with a single common race (either outer or inner) and two ball paths for applications requiring greater

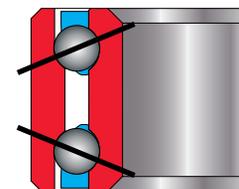
stiffness. Kaydon cartridge bearings go a step further, with a single inner race and single outer race for optimal torque performance.



Duplex Pair



Super Duplex



Cartridge

Meeting the challenges of robotics



For robotic laser cutting, Real-Slim thin section bearings provide precision and capacity in very limited installation space. (Photo: Rodriguez GmbH)

Kaydon has been developing successful engineering solutions for over 75 years. A leading global producer of high-precision bearings and high-level bearing assemblies, we also offer comprehensive engineering and technical support that includes expertise in a wide range of robotic applications:

Industrial – painting, welding, handling

Medical – robotic surgery, artificial limbs, personal robots, exoskeletons

Semiconductor – wafer transfer, pick-and-place

Oil and Gas – iron roughnecks

Aerospace/Defense – UAVs (Unmanned Aerial Vehicles), UGVs (Unmanned Ground Vehicles, aka drones), Mars rovers

Our thin section bearings (a concept introduced by Kaydon in the 1950s) are available from stock in over 425 sizes and configurations, standard and custom. Popular options for robotic applications include stainless steel and special lubrication for vacuum conditions. Visit www.kaydonbearings.com for full details, an interactive bearing selector, and downloadable Real-Design® software.

Kaydon is also a top manufacturer of slewing ring bearings, which are commonly used in waist positions. These deliver excellent rotational accuracy, load capacity and long life, with integral configurations (mounting bolt holes, seals, gearing, etc.) that can lead to big savings in materials and assembly.

Case History

The Robocut laser cutter from Robot-Technology GmbH of Germany is used mainly to cut plastic cladding parts in automotive manufacturing. However, it can also cut PP, PE, ABS-PC, Plexiglas, TPO films, a variety of textiles, and even steel panels up to 3 mm thick.

With very limited installation space for the bearing assembly, the Robocut needed bearings with a very thin cross-section but a relatively large diameter. The bearings also had to be very rugged, since laser cutting creates dust and gases that can interfere with smooth bearing rotation. Real-Slim bearings met the challenge.