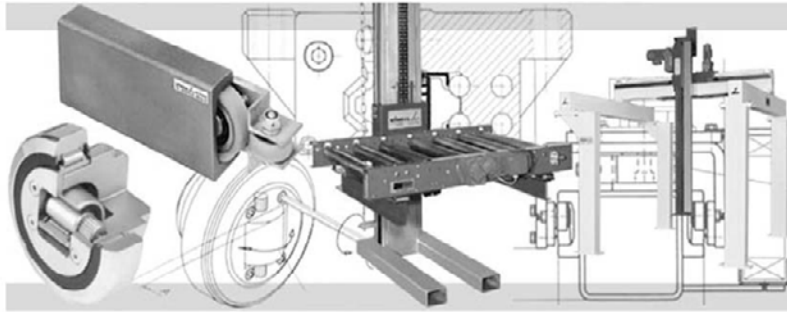


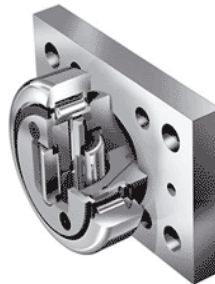
**Winkel Profile Rail & Combined Bearings for Heavy Duty Linear Control of Systems**



C-Channel and I-Beam Profiles including stainless steel available in custom lengths.



Combined Bearings - Fixed, Adjustable & High Temperature versions standard.



Flange plates standard for all Combined Bearings for easy mounting.



Heavy Duty Combined Bearings for harsh environments, sealed.



Square Flange Plates and axial adjustment shims are standard.



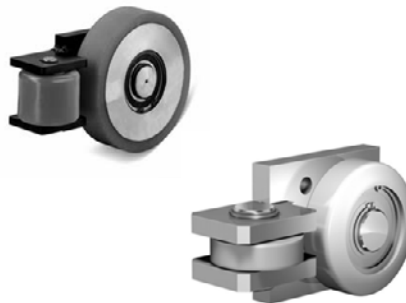
Linear motion-multi axis options.



Gears and Racks for system drive control of linear motion.



Oilamide Combined Bearings for high axial thrust loads & Shim adjustable.



Vulkollan, Polyamide and Stainless Steel units for high speed, quiet and corrosion resistance.



Jumbo Combined Bearings (large diameter) and radial adjusting units.

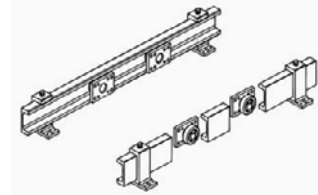
# WINKEL Combined Bearings & Profiles



Winkel Combined Bearings and Profiles control linear motion. They are heavy duty units and can be used for precision control as well. Combined Bearings fit precisely into channels, minimize components, guide linear movement and handle both radial and thrust loads at the same time. Only four bearings



are normally required for a typical single stage linear system. Multiple bearings and profiles can be used for more sophisticated movement in multiple axis or for telescoping designs. A diverse range of bearings will cover a wide load range capability. Different bearing types and features accommodate design or system requirements including varying radial or axial loads, temperature ranges, preciseness or control aspects, speed changes, quietness, and corrosion resistance. Special Profiles (channels) can also be fabricated or machined for specialized control or even thru curves.



The Profile size is an important design consideration in the selection process. Once the system loads are known, the appropriate Profile size can be determined and then the proper bearing can be selected. The selection process is described in the following pages. PTI stocks 14 standard Profile sizes typically in 6 meter lengths. Longer lengths can be provided on request.

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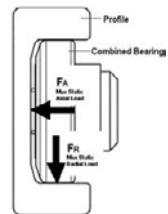


Bearings with Vulkollan or Polyamide coated steel or stainless bearings can allow quiet high speed solutions. All are offered as bearing only or with mounting flanges for easy installation and removal.

Jumbo Combined bearings and fabricated Profiles take load capabilities to new levels. The large units with OD's to 280mm have static ratings of 625kN (140,000 Lbs) and are very capable in tough environments. Fabricated Profiles can be provided to suit the desired length.



Precision control is accomplished by machining the Profiles and installing a slightly larger bearing outer race (PR Combined Bearings) to fit the profile more precisely (reduced clearance between the bearing and profile) than standard units. PR Profiles and custom length profiles can be offered machined up to 50 feet long in one set up. This precision machining of the profile (machined bearing surfaces and mounting surfaces) without multiple set ups provides the precise control.

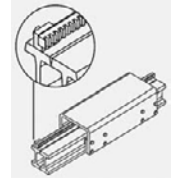


The Combined Bearings generally have more load capacity than the standard profiles. A single Combined Bearing can handle both radial and axial thrust loads as indicated in the schematic.

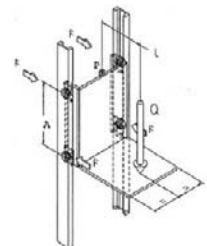
Bearings are stocked with and without flanges. Flanges provide a simple mounting means, a consideration for assembly and maintenance. Bearings can also be welded directly into the equipment for a consolidated fit. Several flange options are standard and include clearance and threaded mounting holes. High Temp Combined Bearings are also available.



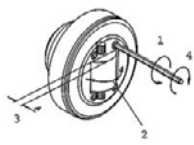
Combined Bearings and Profiles can be integrated with existing systems and control can be assisted with our gear and rack products. PTI stocks a wide variety of inch and metric PT products to support and control the system.



PTI can assist with recommendations or suggestions, and review product choices to optimize your system. The Winkel Combined Bearing and Profile system utilizes fewer components and is easier to install than the typical cam follower arrangements. This simple to install system yields a low cost solution to heavy duty linear motion.



Bearing versions that offer adjustment means can provide both radial and axial adjustment to accommodate variations within the channel alignment. Therefore fixed bearings and adjustable bearings may be utilized on the same system. Shims behind flange plates provide even more adjustment capability. The following pages will describe the different choices.



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CAD drawings are readily available and can be down loaded at [www.winkel.de](http://www.winkel.de).