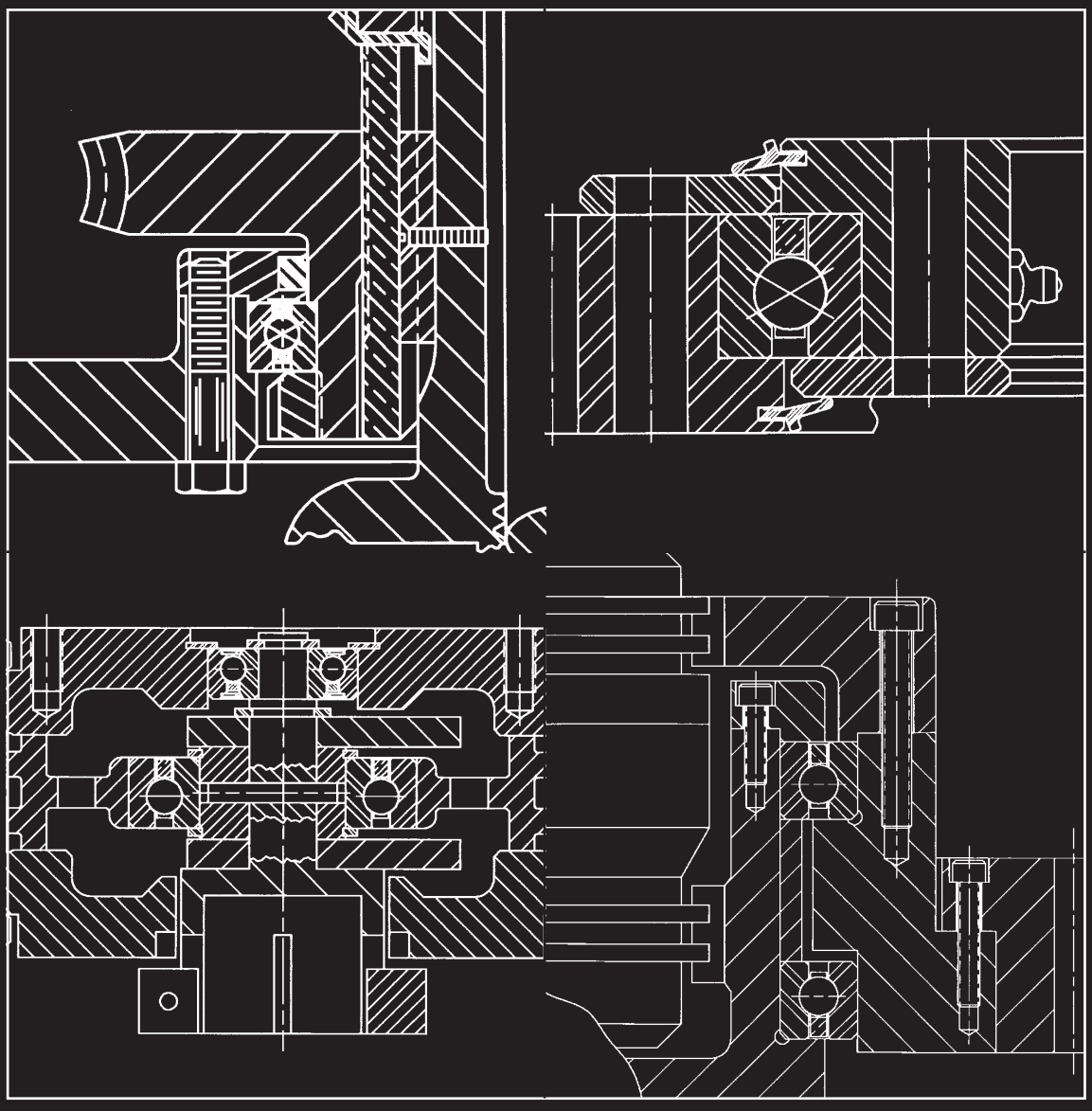
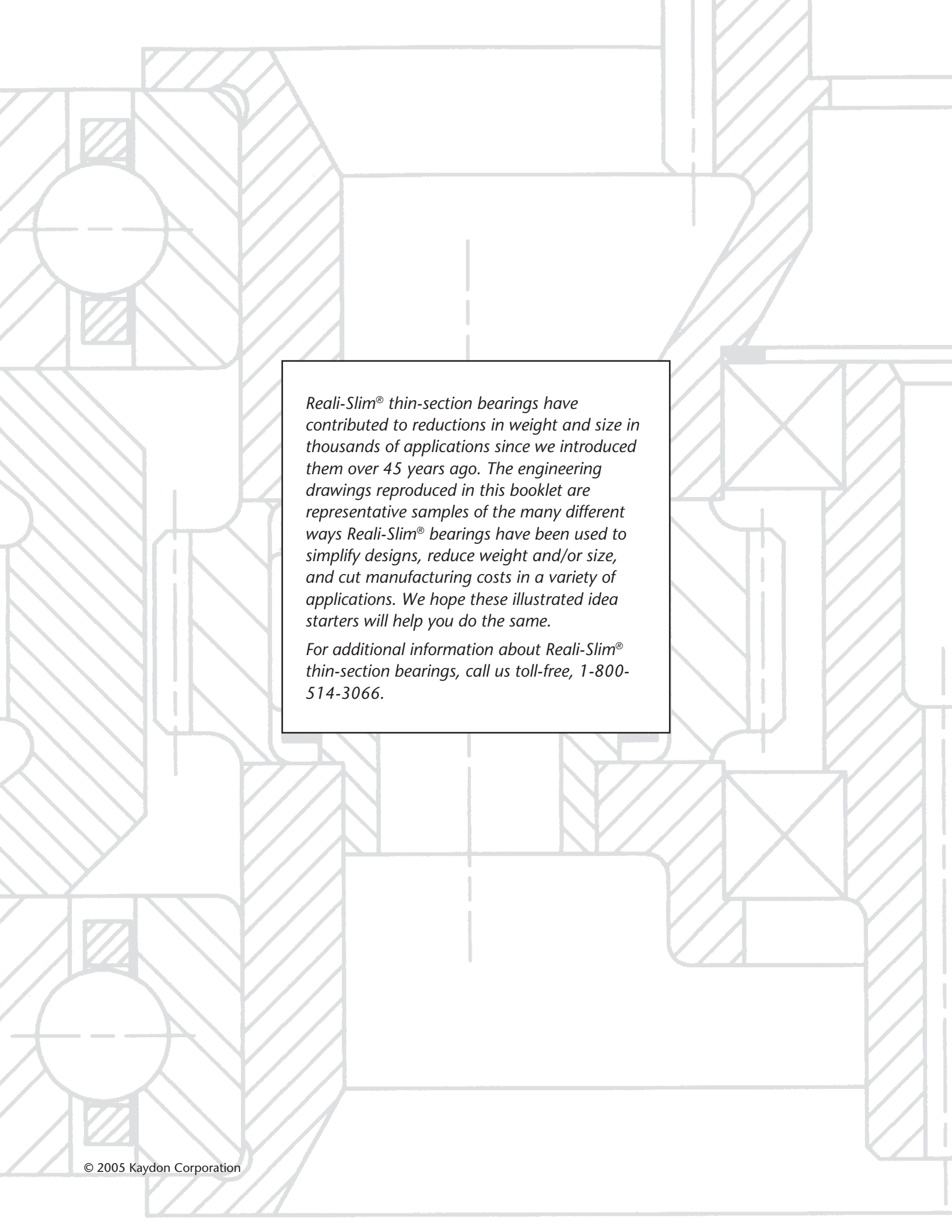
ENGINEERED SOLUTIONS

Based on Reali-Slim® Bearings

AN ILLUSTRATED MOUNTING GUIDE



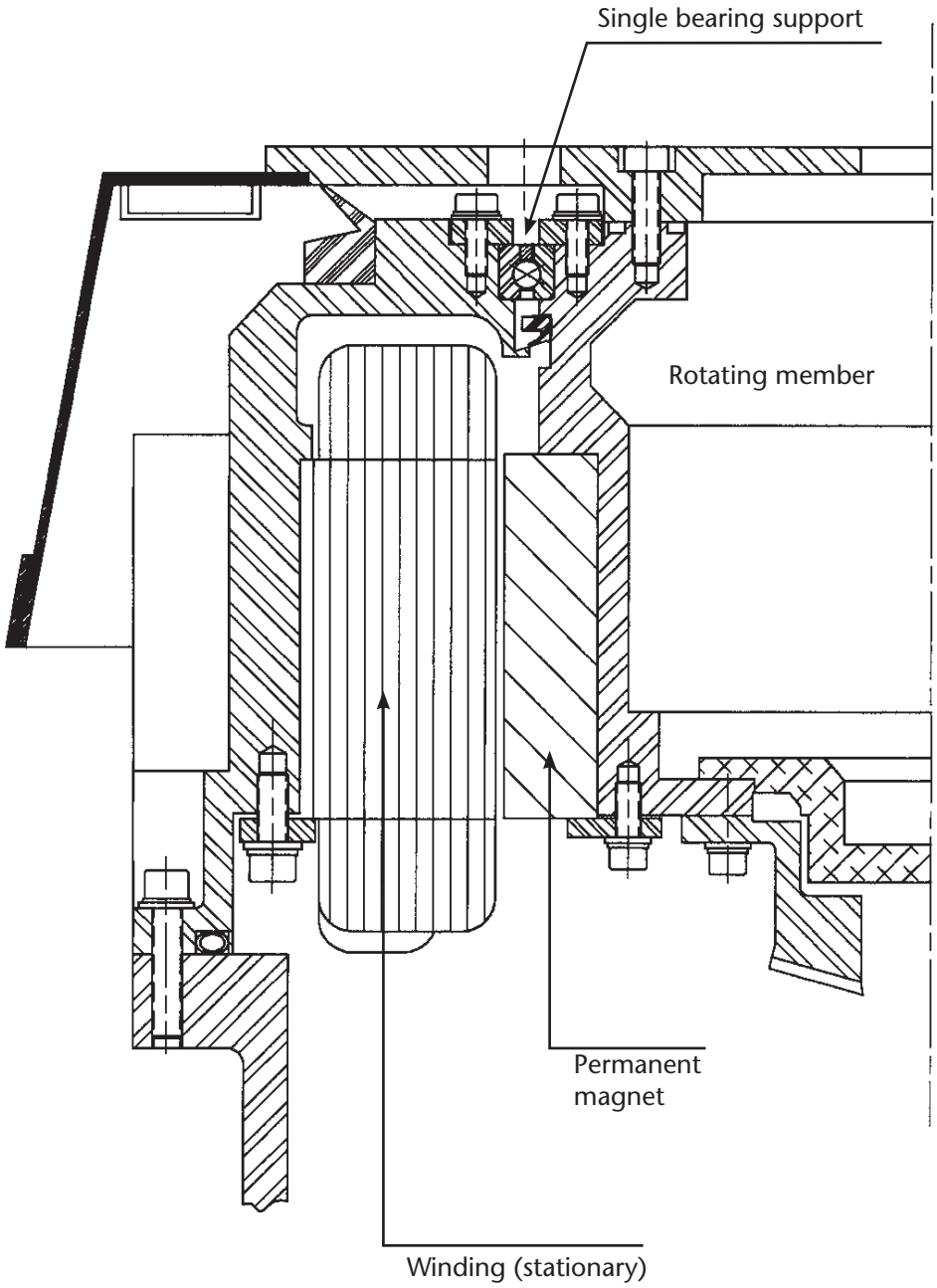
KAYDON®



Reali-Slim® thin-section bearings have contributed to reductions in weight and size in thousands of applications since we introduced them over 45 years ago. The engineering drawings reproduced in this booklet are representative samples of the many different ways Reali-Slim® bearings have been used to simplify designs, reduce weight and/or size, and cut manufacturing costs in a variety of applications. We hope these illustrated idea starters will help you do the same.

For additional information about Reali-Slim® thin-section bearings, call us toll-free, 1-800-514-3066.

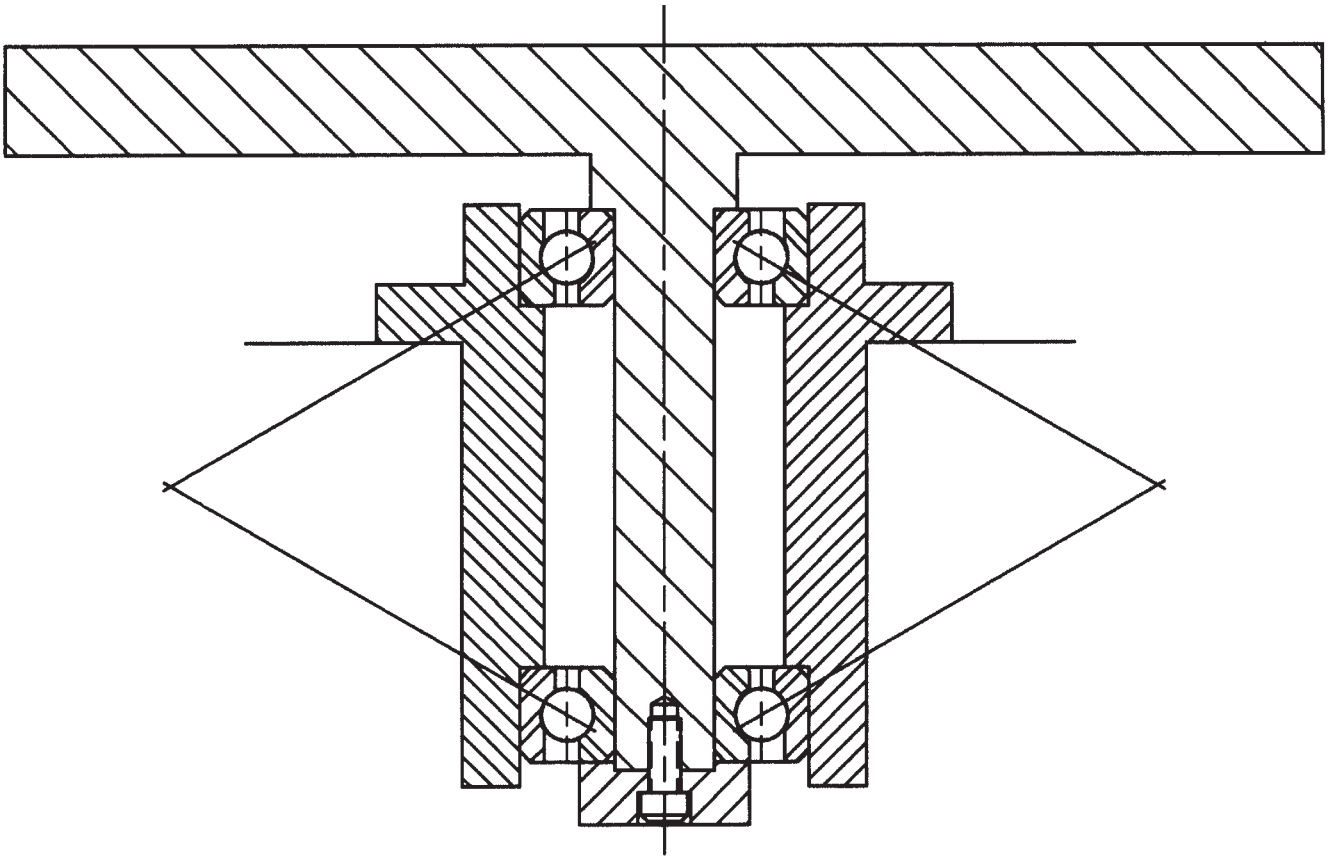
For direct shaftless motor drives a single 4-point contact bearing provides the required combination of radial, thrust, and moment loads.



KAYDON CORPORATION	
DIRECT SHAFTLESS MOTOR DRIVE FOR ANTENNA	
BEARINGS USED:	KD140XP0A
MACHINERY	

How to use Reali-Slim® bearings for more design flexibility.

Reali-Slim® bearings let you replace a small solid shaft (king post), as shown below, with a larger diameter hollow shaft. This gives you the freedom to run air and hydraulic lines, or electrical wiring and slip rings through the shaft, as shown on opposite page.



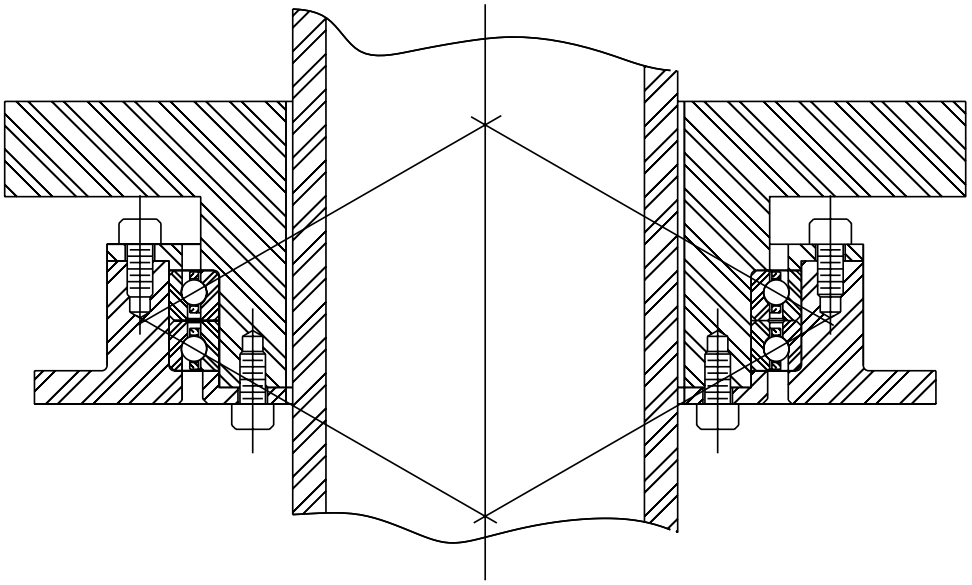
Traditional Design

Typical solid-shaft (king post) design using two conventional bearings. Overweight, expensive, and bulky. Limits design options.

How to use Reali-Slim® bearings for more design flexibility.

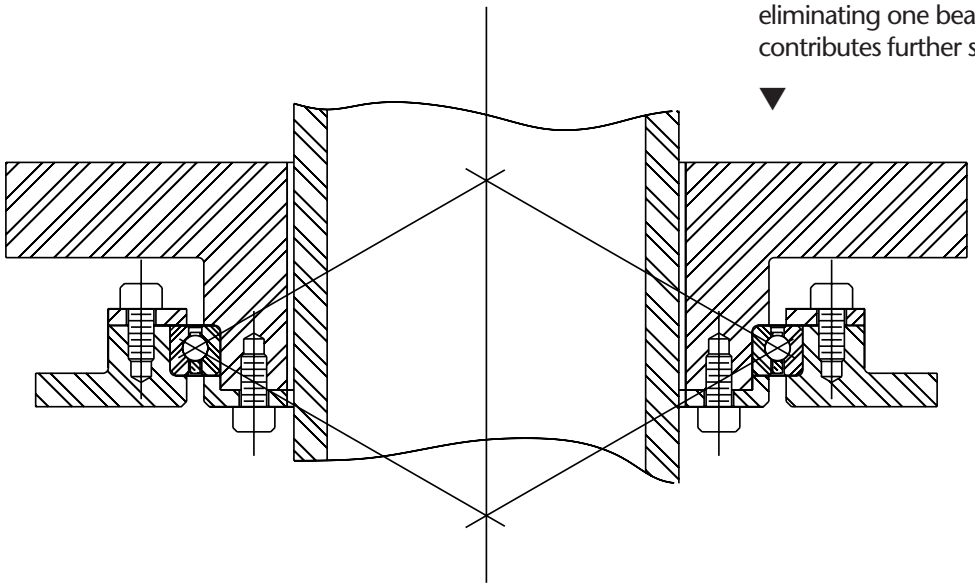
A large bore, small cross-section Reali-Slim® bearing permits the use of a large diameter hollow shaft in place of a smaller solid shaft. Components such as air and hydraulic lines or electrical wiring and slip rings can then be accommodated within the hollow shaft, resulting in a neater, more efficient design.

▼

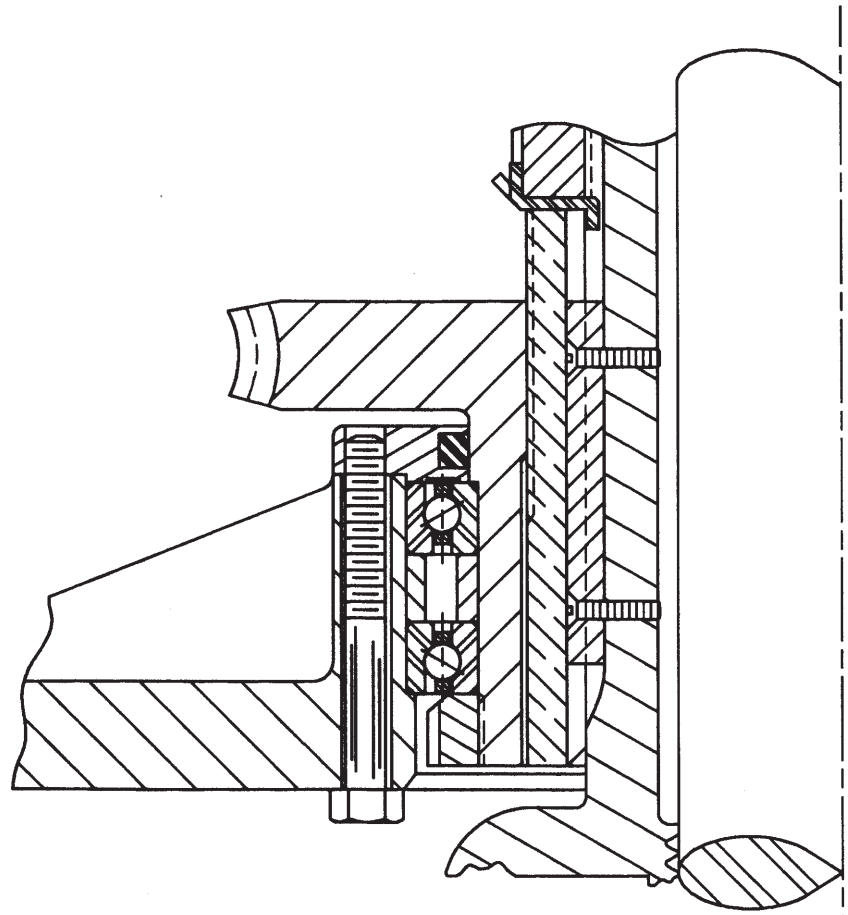


In many applications, a single 4-point contact Reali-Slim® bearing can replace two bearings, compacting the design and simplifying the bearing mounting. Besides the obvious cost savings of eliminating one bearing, this arrangement also contributes further savings in weight and space.

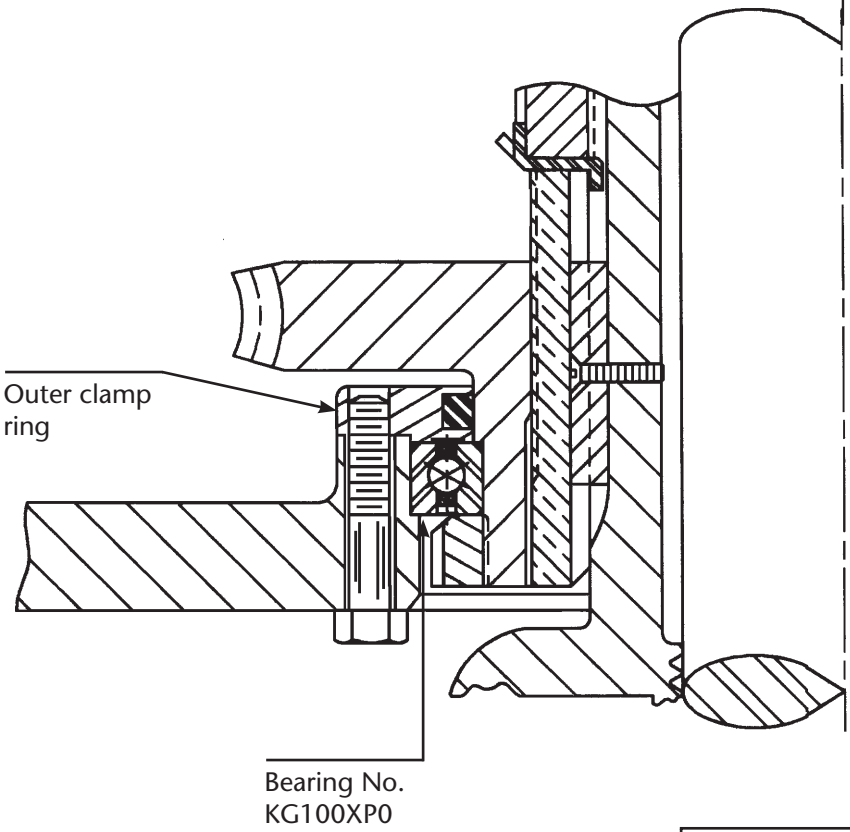
▼



KAYDON CORPORATION	
LIGHT WEIGHT, COMPACT DESIGNS	
BEARINGS USED	REALI-SLIM® THIN-SECTION
IMPROVED DESIGN #1	



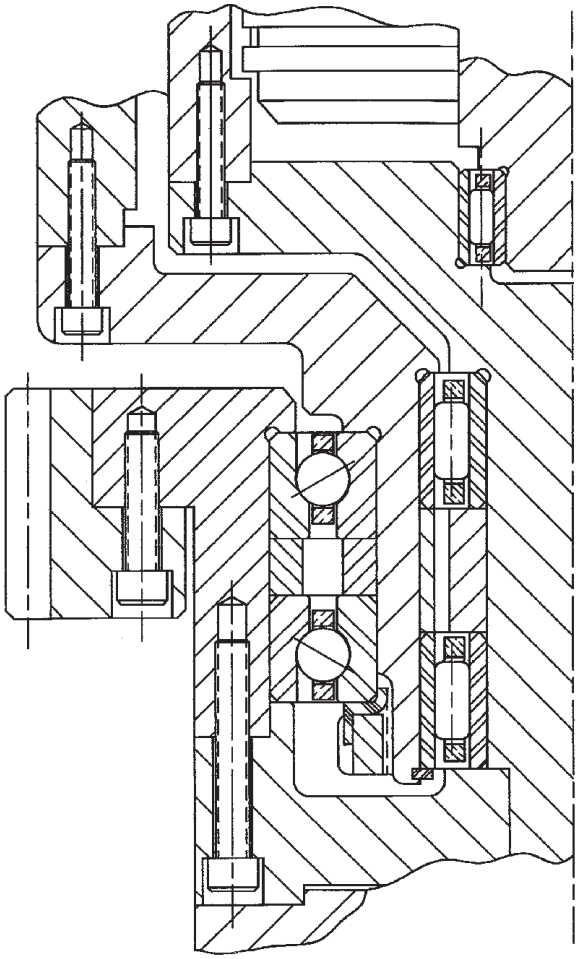
◀ **Before:** Two angular contact bearings of 10.000" bore x 12.000" O.D. x 1.000" cross-section were used.

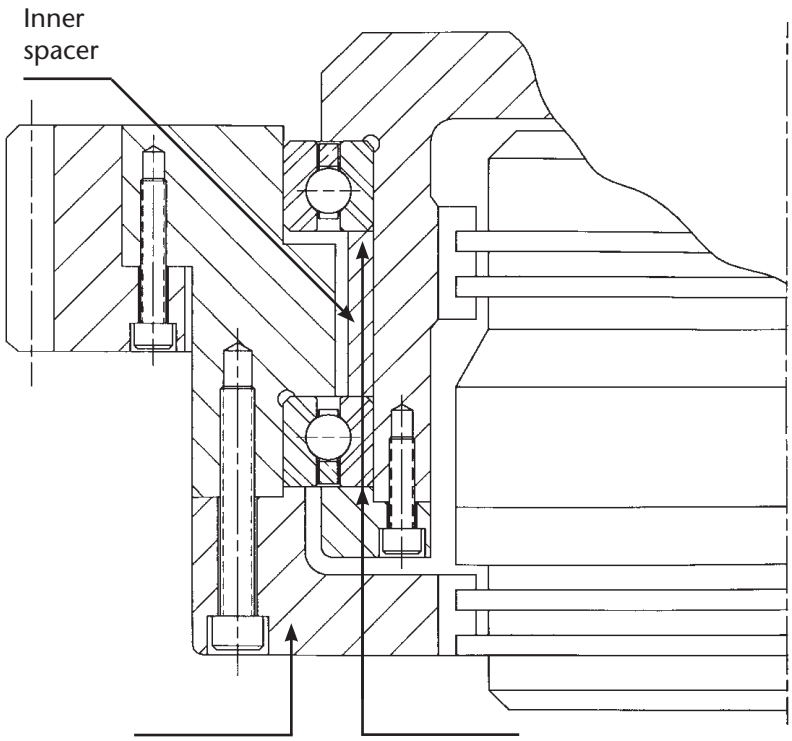


◀ **After:** One 4-point contact bearing of 10.000" bore x 12.000" O.D. x 1.000" cross-section takes all radial and thrust loads. This reduces the size of the housing, eliminates parts, and lowers the cost of the entire unit.

KAYDON CORPORATION	
Manually Adjustable Hydraulic Cylinder Stop Mechanism	
BEARING SHOWN:	KG100XP0 10.000" bore x 12.000" O.D. x 1.000" radial section
IMPROVED DESIGN #2	

Before: Small bearings and spread-out design required more space and cost than revised design (below). ▶





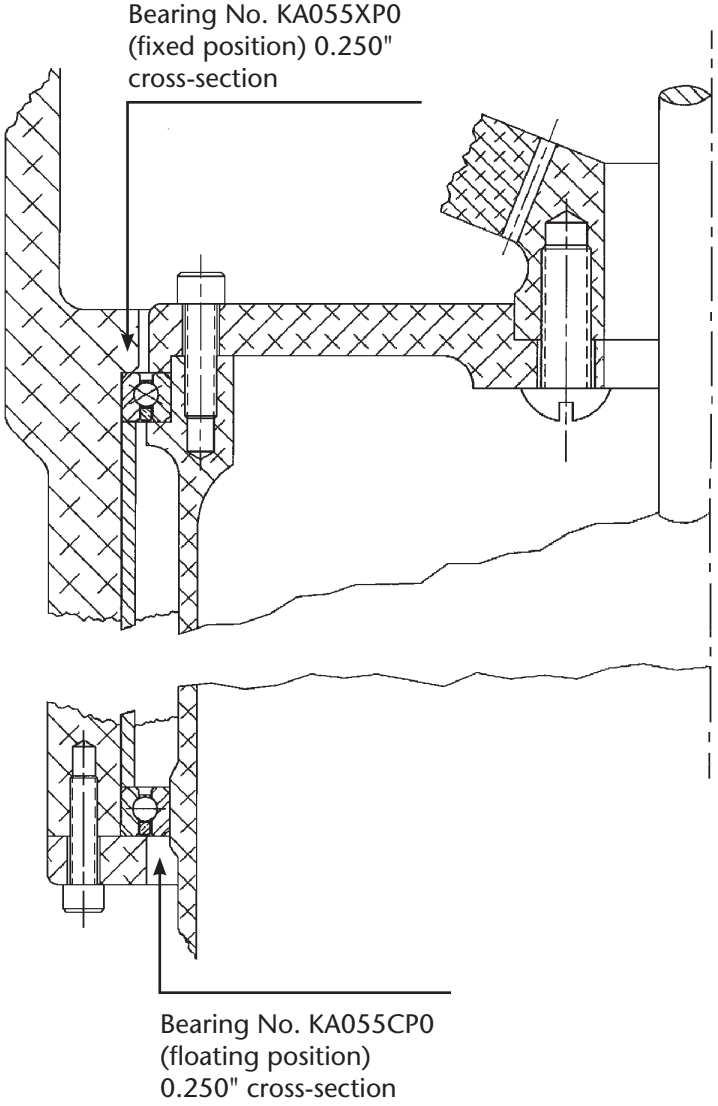
◀ **After:** Reali-Slim® bearings with a larger bore permit a more compact design and fewer parts, simplifying manufacturing and reducing costs.

KAYDON CORPORATION	
CHAIN DRIVE TRANSMISSION	
BEARING SHOWN:	KG090CP0 9.000" bore x 11.000" O.D. x 1.000" radial section
IMPROVED DESIGN #3	

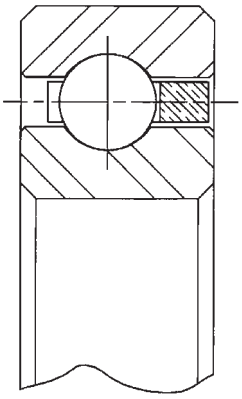
Weight savings by a factor of 17:1.

The 5-1/2" bore Reali-Slim® bearing used in this design weighs only 0.25 pounds compared to a weight of 4.5 pounds for the standard 5-1/2" bore bearings which had been considered for the job. Housing weight of the design was also reduced.

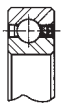
Note: A Fixed-floating bearing mount is designed primarily for a centered radial load.



Drawing shows actual comparative bearing sizes. XLS 5-1/2" bearing (at left below) 5.000" x 7.500" x 1.000" shown for comparison.

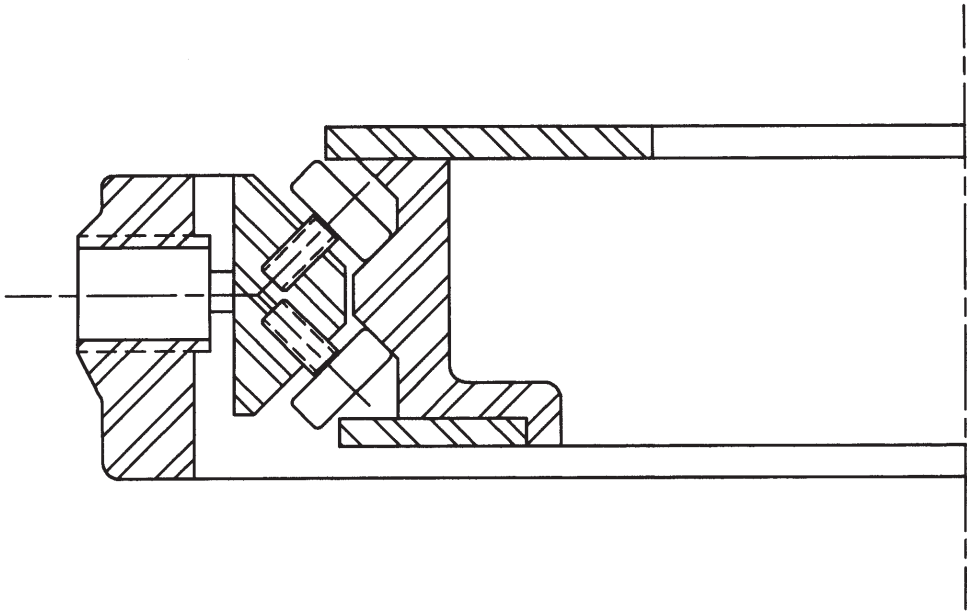


1" cross-section

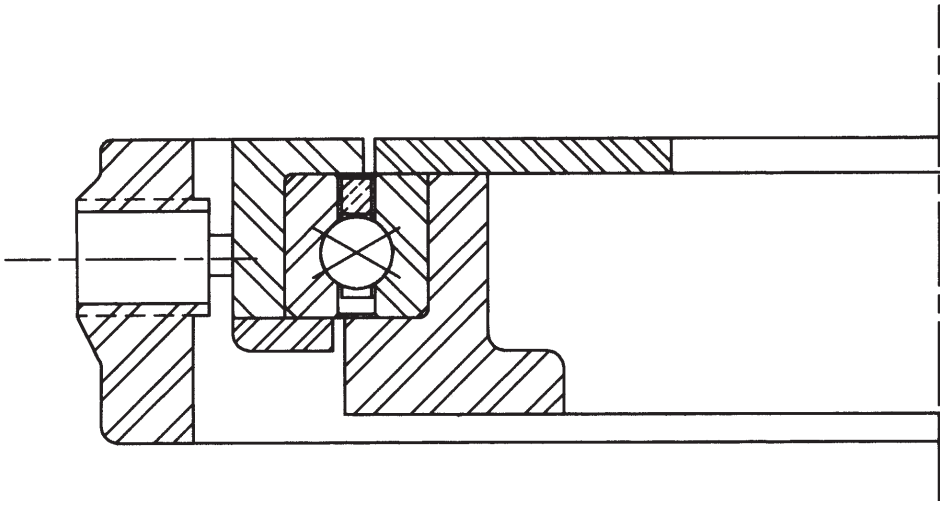


1/4" cross-section

KAYDON CORPORATION	
RADAR ROTARY JOINT	
BEARING SHOWN:	KA055XP0 5.500" bore x 6.00" O.D. x .250" radial section
SCALE: FULL	IMPROVED DESIGN #4

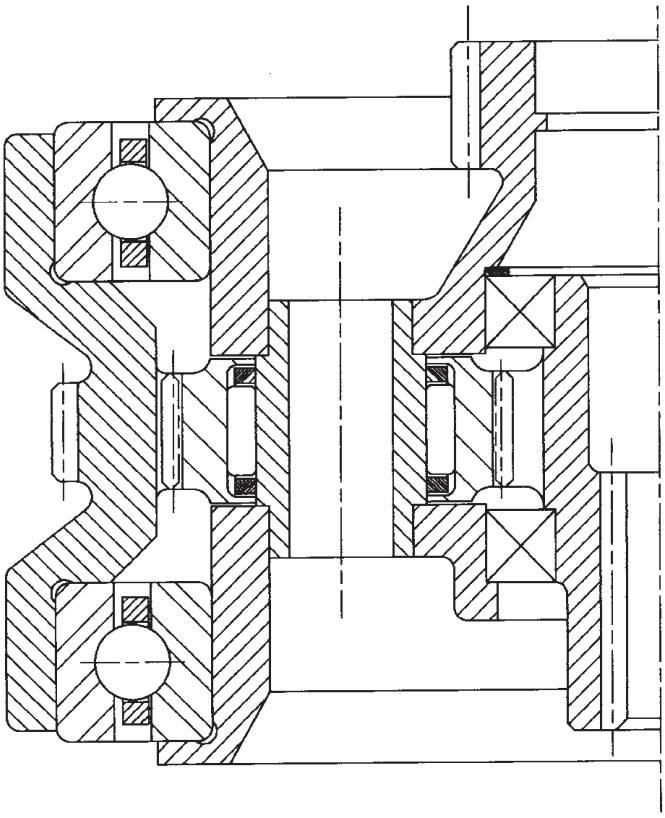


◀ **Before:** This bench lathe for glass working used a 3-point support consisting of cam rollers which did not provide the required accuracy and operating characteristics.

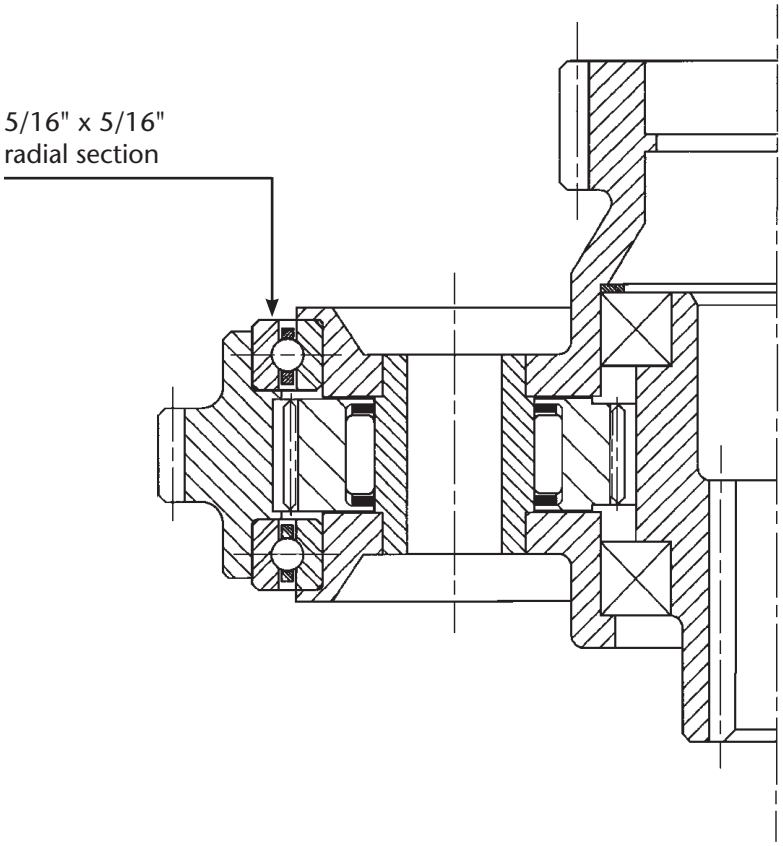


◀ **After:** Reali-Slim® bearings provided greater rigidity and precision within the same available space and resulted in a simplified mounting.

KAYDON CORPORATION	
GLASS-WORKING BENCH LATHE	
BEARING SHOWN:	KG070XP0 7.000" bore x 9.000" O.D. x 1.000" radial section
IMPROVED DESIGN #5	

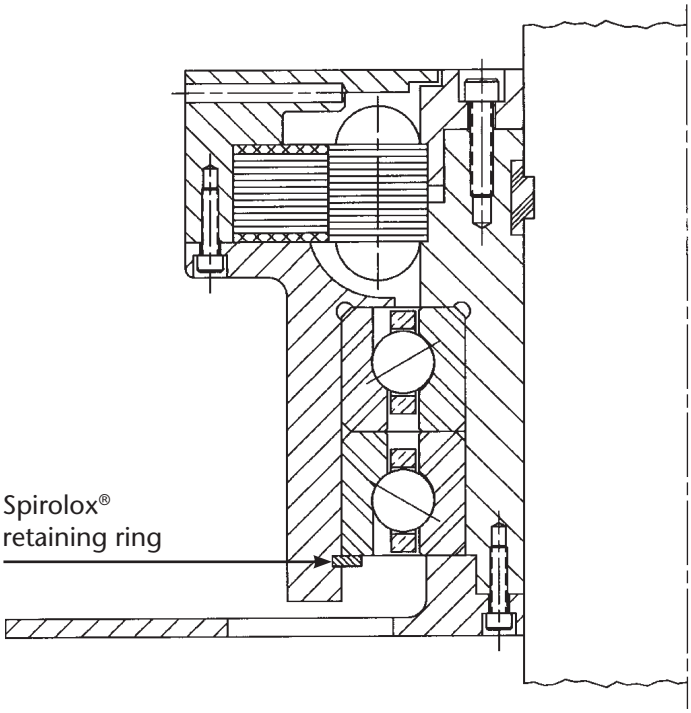


◀ **Before:** This design was planned using two bearings, each 4.3307" x 5.9055" x 0.7874".

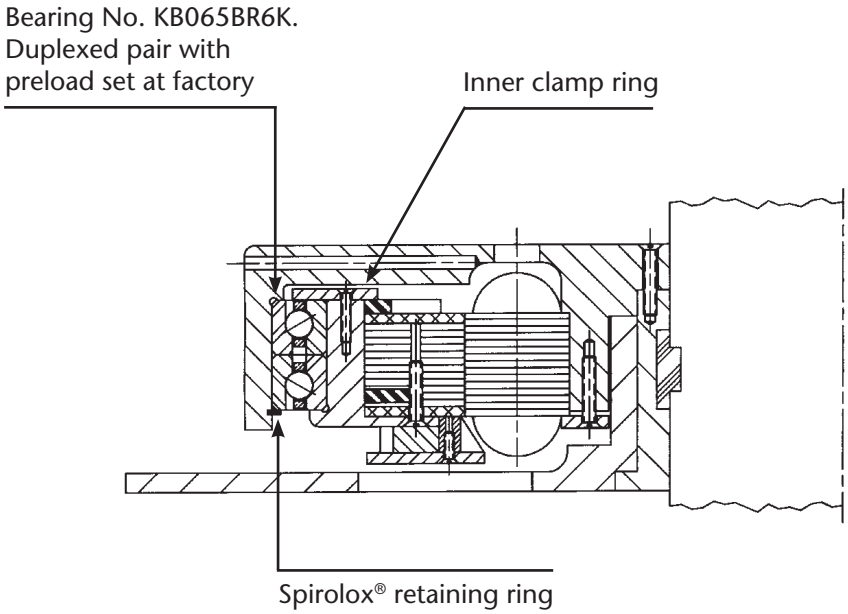


◀ **After:** Reali-Slim® bearings permitted a reduction in housing O.D. from 6.250" to 5.187", resulting in weight savings and cost reduction using standard bearings.

KAYDON CORPORATION	
AIRBORNE GEAR BOX	
BEARING SHOWN:	KB042CP0 4.250" bore x 4.875" O.D. x .312" radial section
SCALE: FULL	IMPROVED DRAWING #6



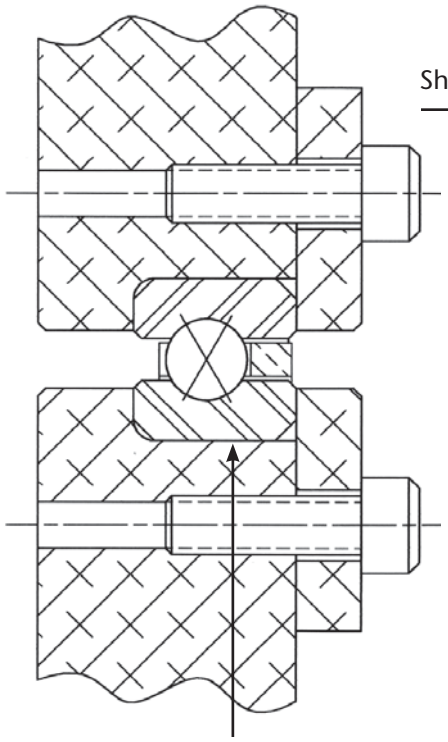
◀ **Before:** Plans called for use of two of the smallest available "standard light-weight" bearings, with each bearing weighing 1.45 pounds.



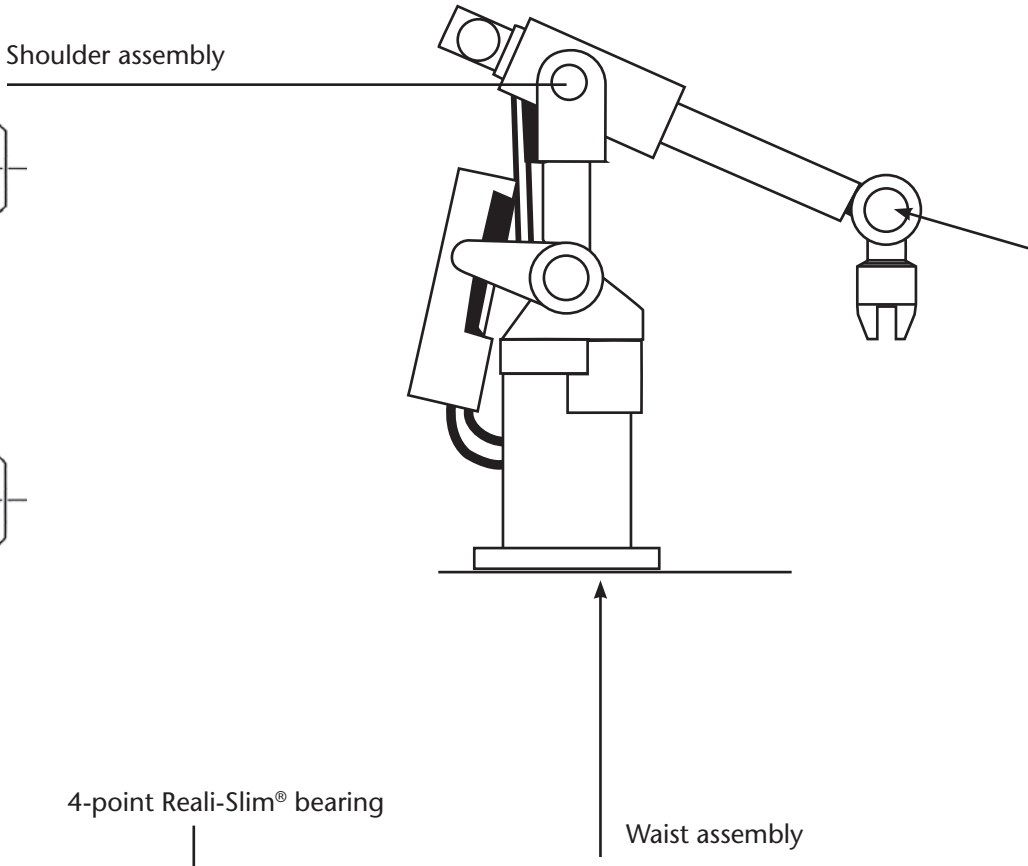
◀ **After:** Kaydon supplies two, larger-bore Reali-Slim® bearings weighing only 0.47 pounds each. This results in a much narrower, more compact, and lighter unit.

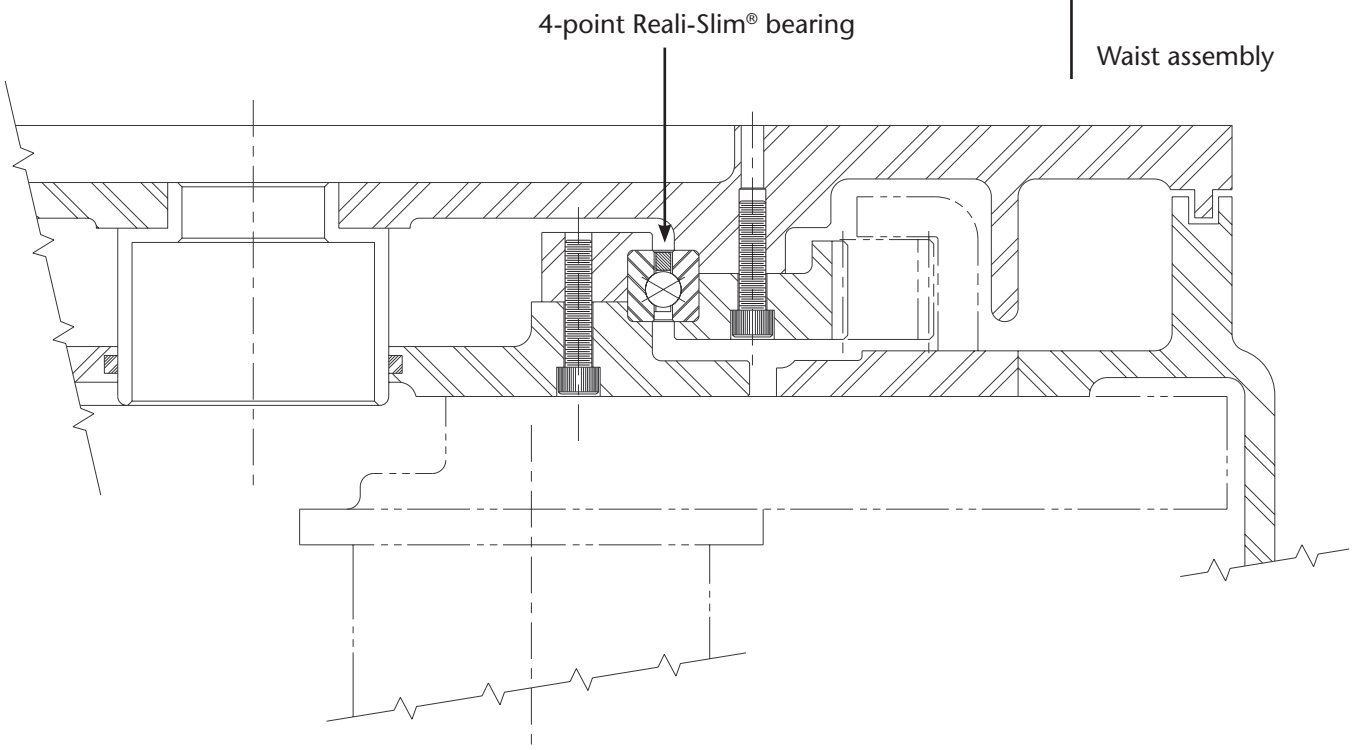
KAYDON CORPORATION	
FILM WIND-UP MOTOR	
BEARING SHOWN:	KB065AR0 6.500" bore x 7.125 O.D. x .312" radial section
SCALE: FULL	IMPROVED DESIGN #7

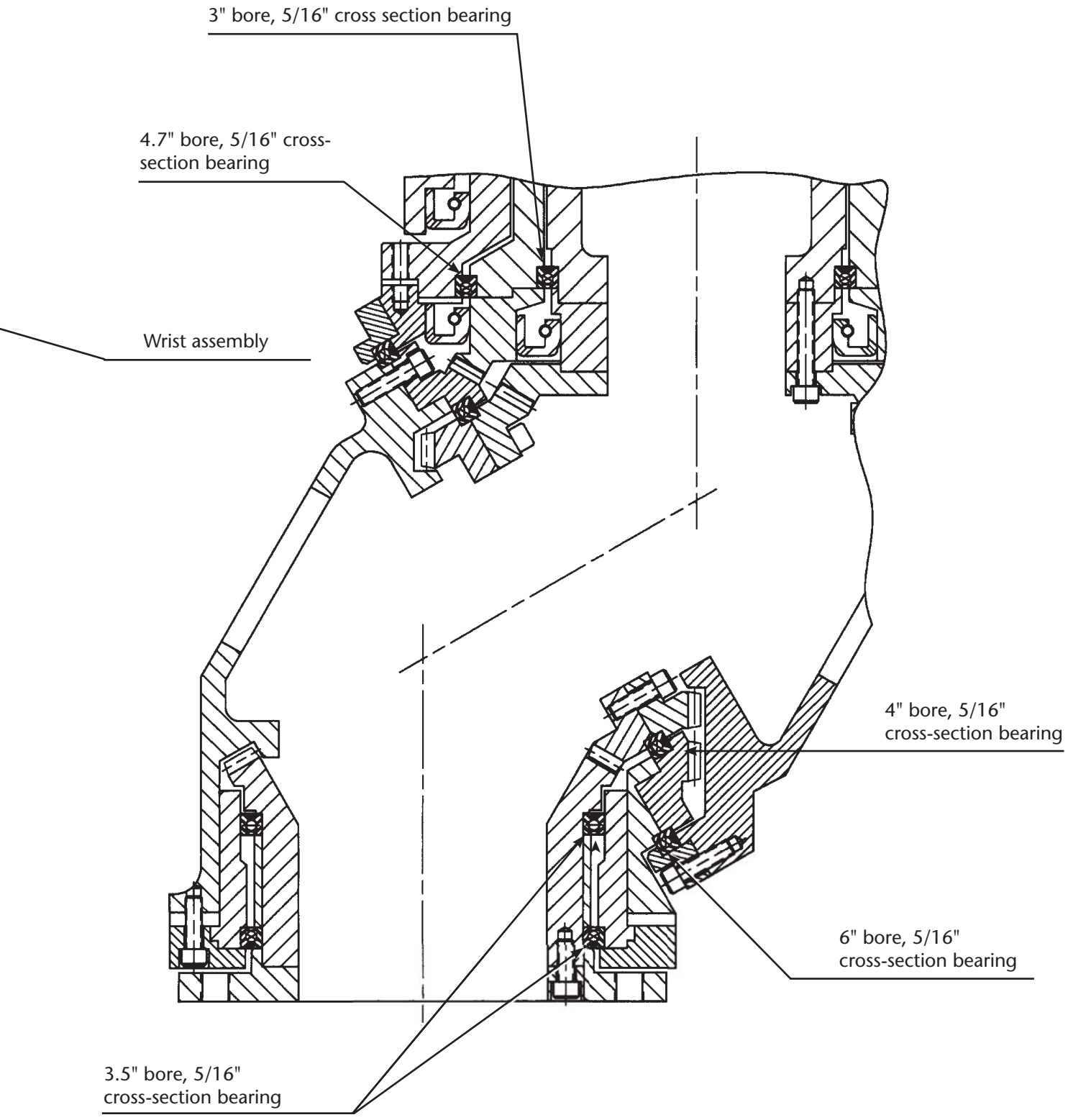
For precise motion control in robots and other automation equipment, 4-point Reali-Slim® bearings are ideal for multi-axis articulating designs.



4-point Reali-Slim® bearing

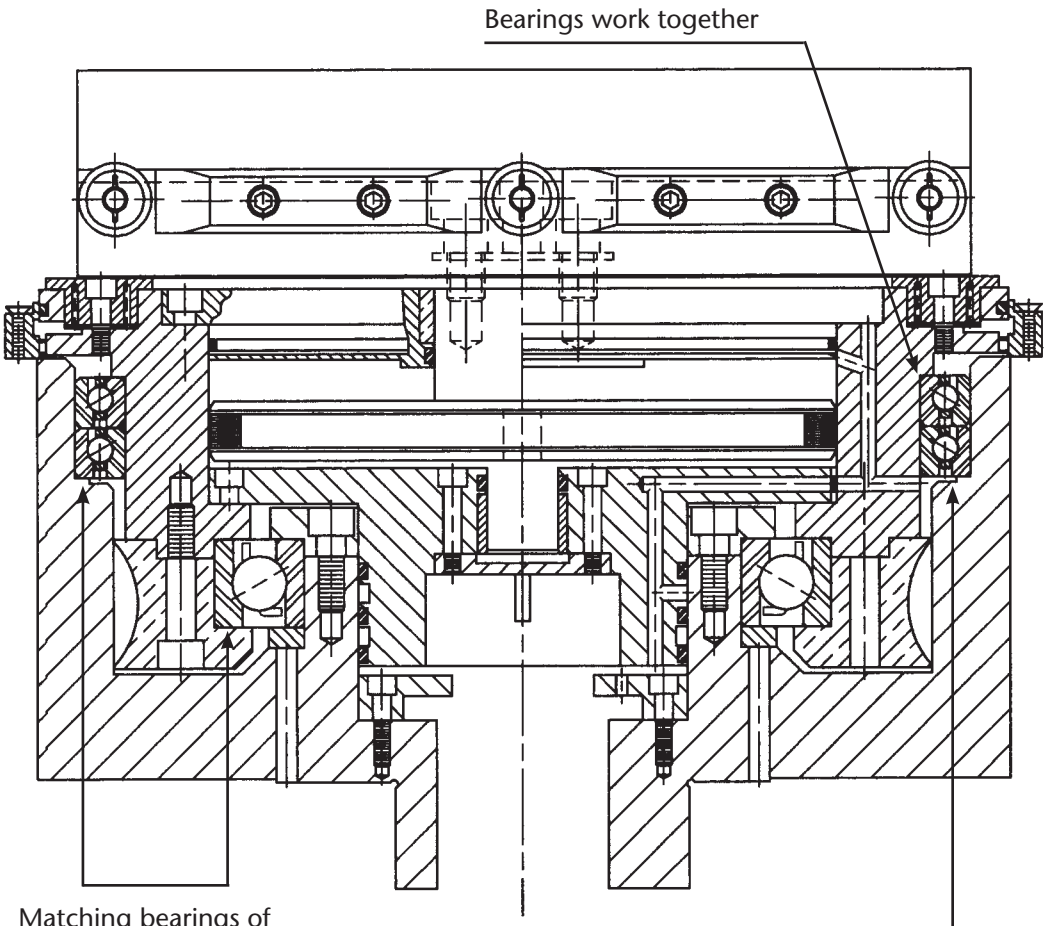






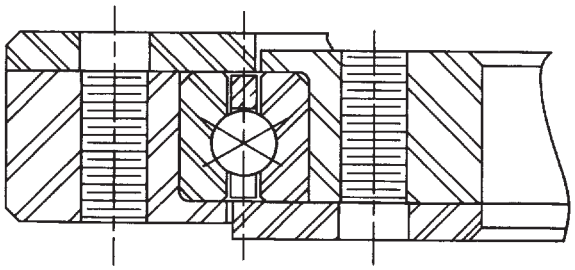
KAYDON CORPORATION	
ROBOT WRIST ASSEMBLY	
BEARINGS SHOWN:	KB030XP0, KB047XP0, KB040XP0, KB060XP0, KB035XP0
AUTOMATION PRODUCTS	

This design improvement saves weight, space, and cost.



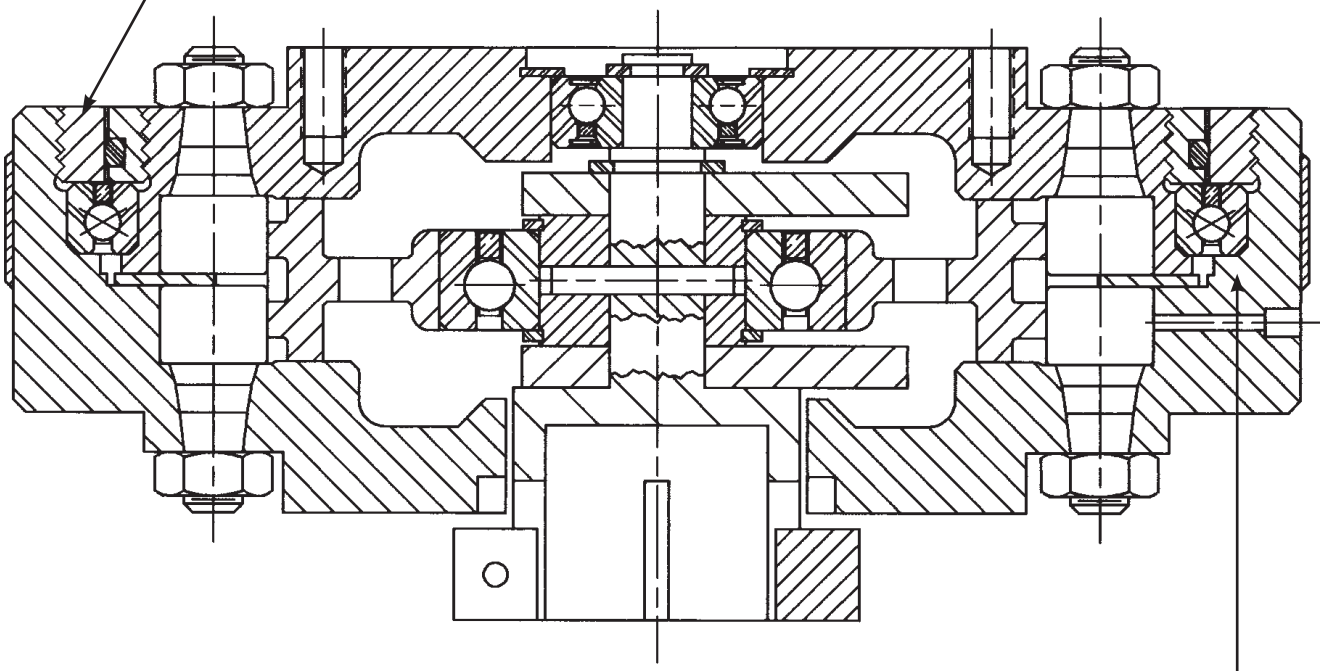
One bearing does the work of three ▶

Save weight, space, and cost by replacing the three-bearing set of angular contact "Type A" bearings (shown above) with a single four-point contact "Type X" bearing. The "Type X" bearing handles thrust load, radial load, and overturning moment load simultaneously.



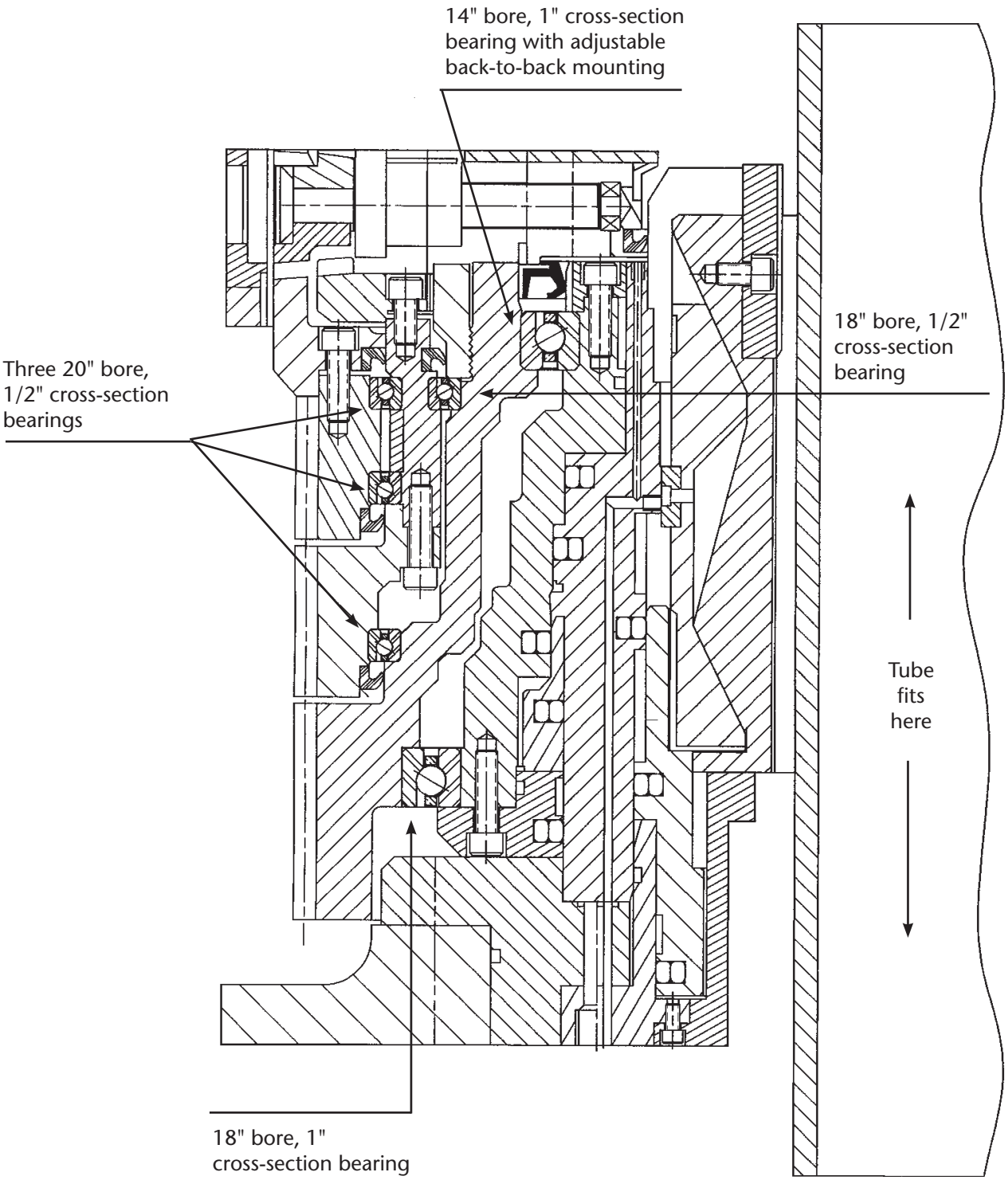
KAYDON CORPORATION	
MACHINE TOOL WORK HOLDING TABLE	
BEARINGS USED	KD070TR0, DUPLEXED TANDEM PAIR
MACHINE TOOLS	

Pre-loaded 4-point contact Reali-Slim® bearings provide required stiffness for variable speeds and loads.



KAYDON CORPORATION	
ZERO BACKLASH ROTARY ACTUATOR	
BEARINGS USED:	Class 6 preloaded 4-pt. bearing and 2 radial bearings
MACHINERY	

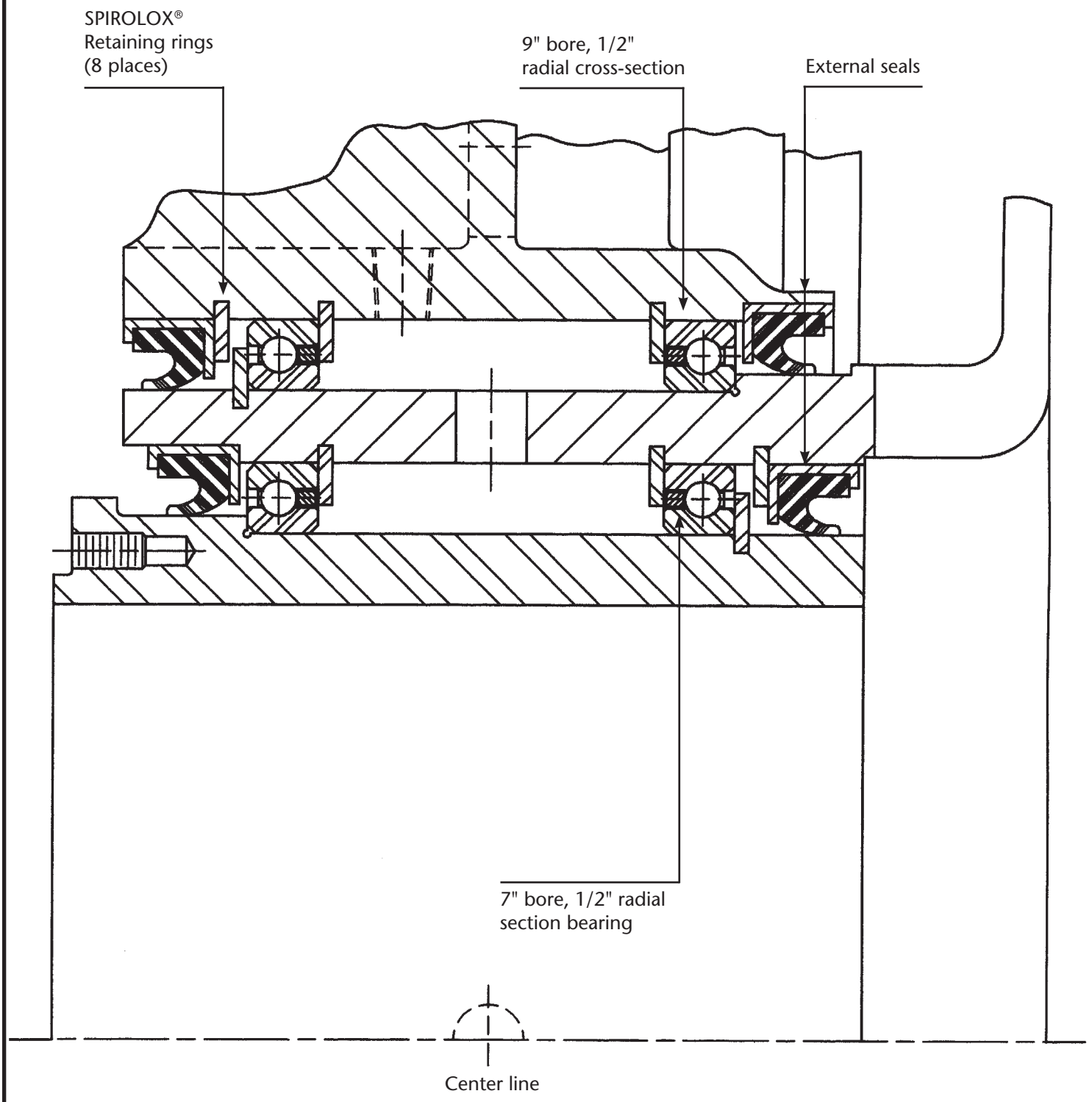
Bearings of different cross-sections complement one another. This design shows an adjustable back-to-back mounting of 14" and 18" bore bearings.



NOTE: Thin section, large bore bearings add stiffness to design.

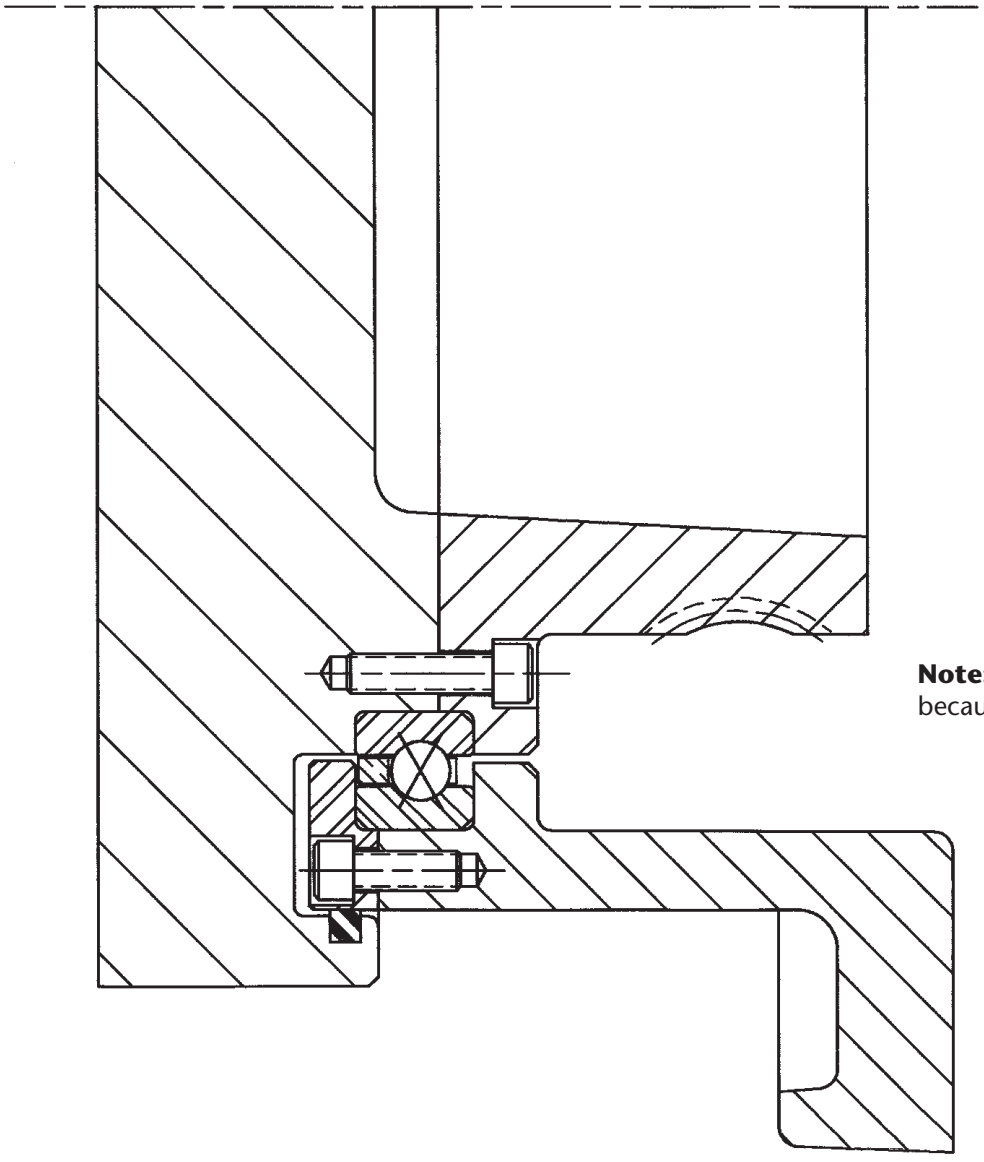
KAYDON CORPORATION	
TUBE CUTTING MACHINE	
BEARINGS USED:	KG140AR0, KD180AR0, KG180AR0, KD200AR0 (3)
MACHINE TOOLS	

Design shows integral bearing assembly which includes SPIROLOX® retaining rings and external seals.



KAYDON CORPORATION	
CUTTING HEAD FOR PLASTIC PIPE CUTTER	
CONCENTRIC BEARINGS:	KD070CP0, KD090CP0
SCALE: FULL	MACHINE TOOLS

For designing a product that will be manufactured in various sizes based on shaft diameter, Reali-Slim® bearings are ideal. Each bearing series has a cross- section which remains constant throughout all designs. So your bearing envelope stays the same for all product sizes.

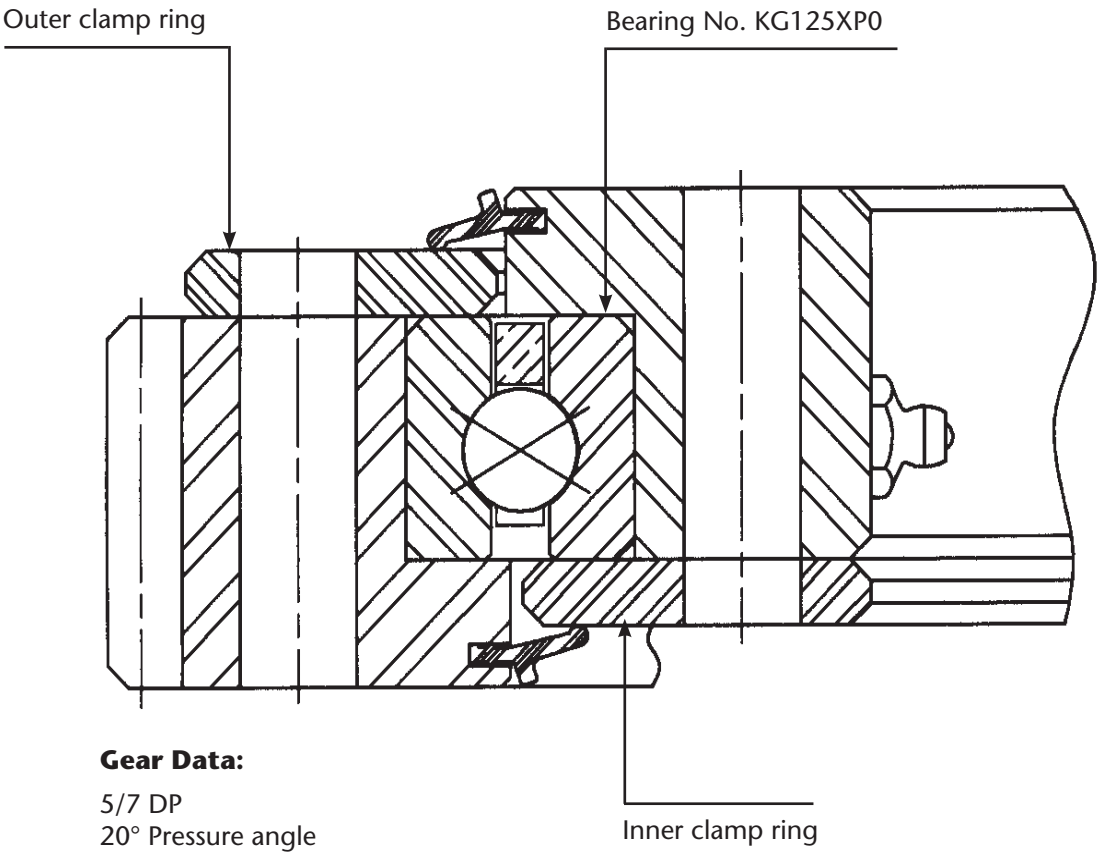


Note: X-type bearing is ideal here because of its compact profile.

KAYDON CORPORATION	
PRECISION ROTARY TABLE	
BEARINGS SHOWN:	KF090XP0 9" bore x 10.5" O.D. x .750" radial section
MACHINE TOOLS	

Complete bearing assemblies can simplify your manufacturing

Kaydon also provides complete bearing assemblies like the one shown. Options include internal or external gears, no gear, and contact seals.



Gear Data:

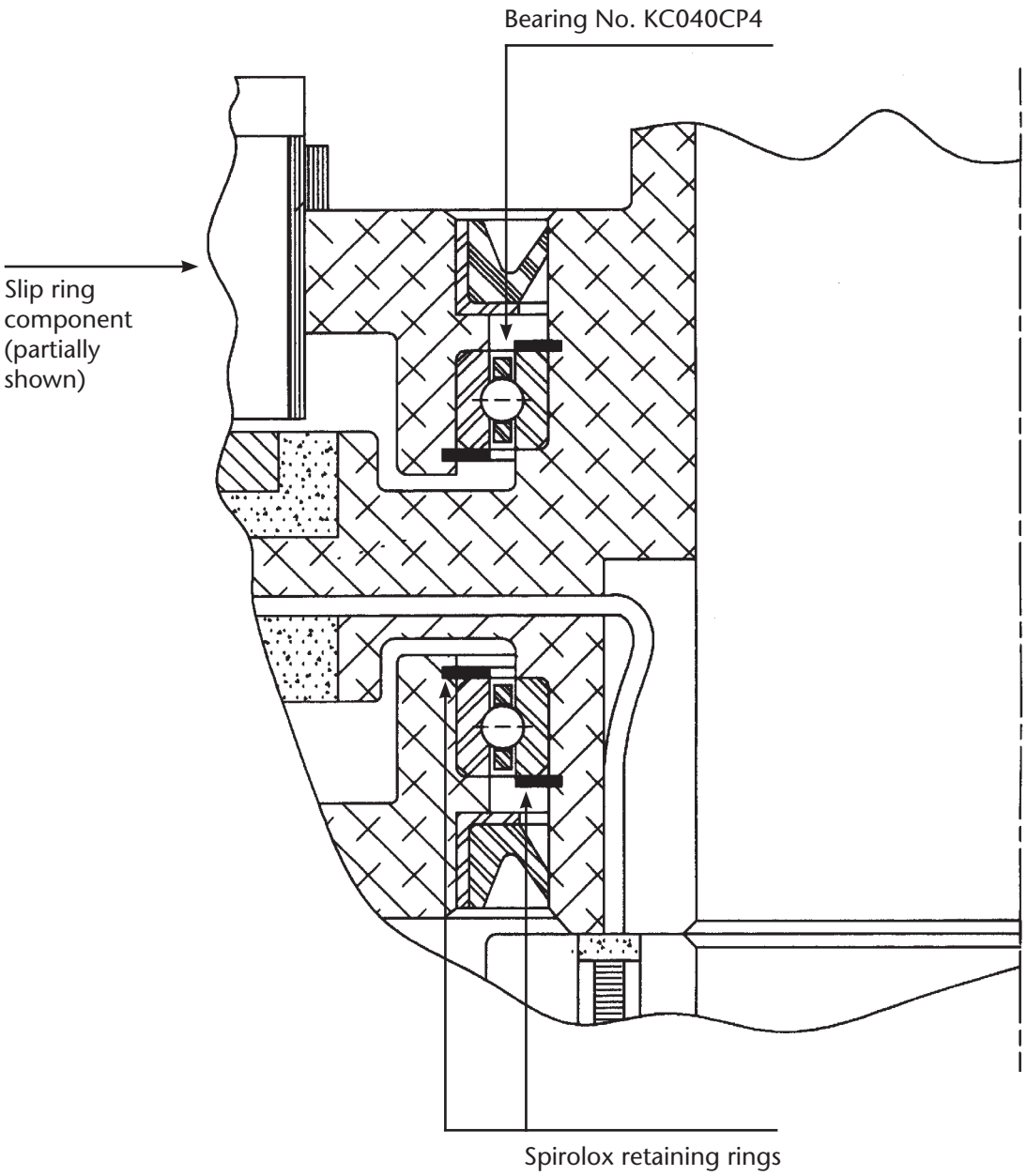
5/7 DP
20° Pressure angle
84 Teeth
Type = Fellows stub

Note: Through holes are used in bearing assembly which allow bolts to fasten to mounting structure.

KAYDON CORPORATION	
GEARED HOUSING ASSEMBLY	
BEARING SHOWN:	KG125XP0, 4-point contact Reali-Slim®
BEARING ASSEMBLIES	

Slip rings are engineered into a bearing assembly where electrical or RF signals must be transmitted through a rotating member.

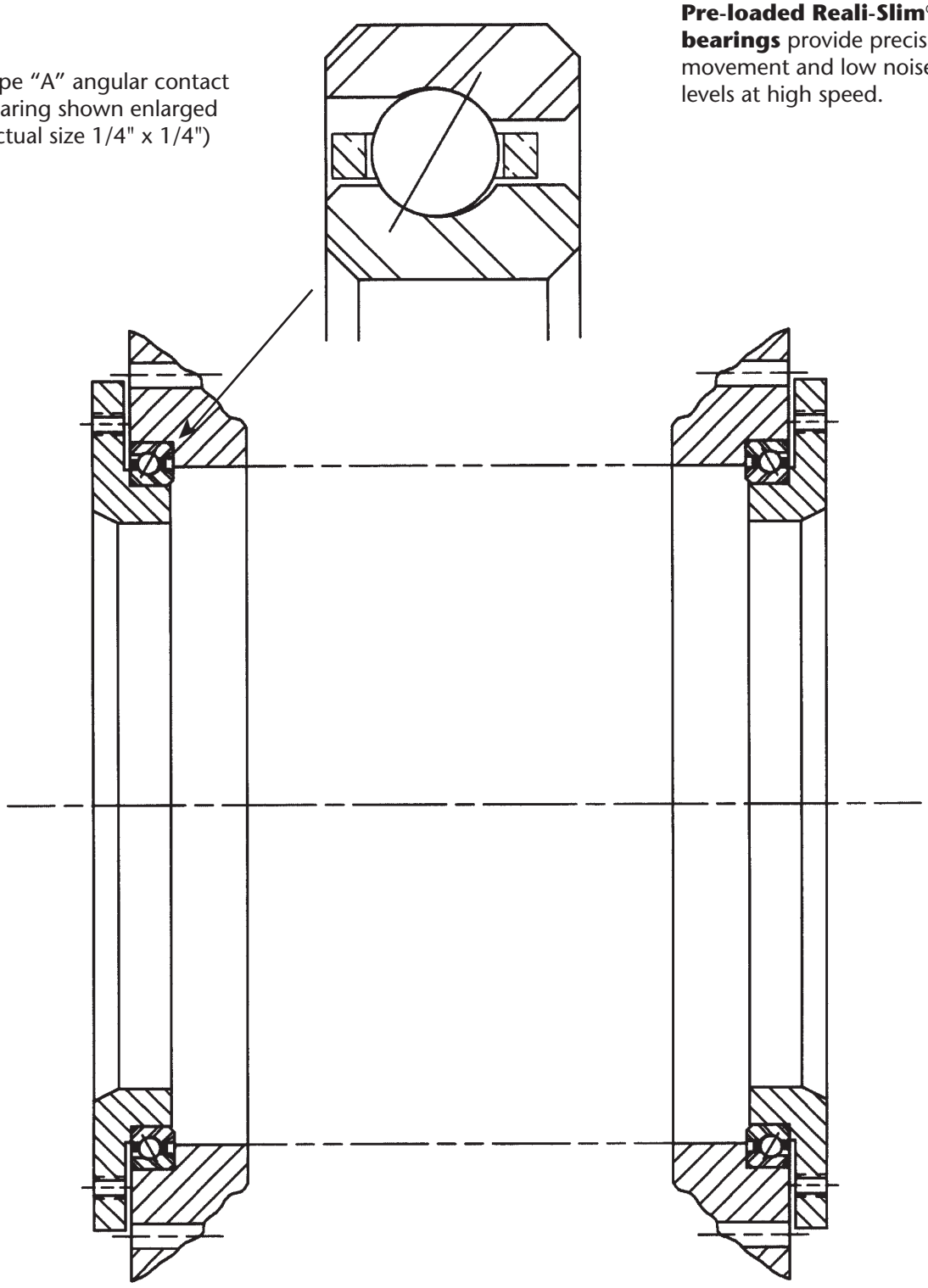
Many bearing-slip ring assemblies also provide internal clearance for air and hydraulic lines to pass through a hollow shaft.



KAYDON CORPORATION	
SLIP RING ASSEMBLY	
BEARING SHOWN:	KC040CP4 4.00" bore x 4.75" O.D. x .375" radial section
BEARING ASSEMBLIES	

Type “A” angular contact bearing shown enlarged (actual size 1/4" x 1/4")

Pre-loaded Reali-Slim® bearings provide precision movement and low noise levels at high speed.



Type “A” angular bearing
Left side

Type “A” angular bearing
Right side

Note: Left side is pre-loaded against right side of bearing during assembly.

KAYDON CORPORATION	
Gimbal (Tailstock) Assembly For Drum Scanner	
BEARINGS USED:	KA040AR0
BEARING ASSEMBLIES	

Bearing Application Data

Copy, fill out and fax to 213-759-4102

Please answer the questions on this form as completely as possible. Include a drawing (or sketch) of the application if available. Be sure to show all parts and information relevant to the application. The data you supply is the basis for our recommendations.

TO _____ Kaydon Corporation
Muskegon, Michigan 49443
Fax: 231/759-4102

Date _____

FROM _____ Name _____ Title _____
Company _____ Telephone _____
Address _____ Email _____
Application _____ Project _____
Experimental ❑ Prototype ❑ Production ❑ Special Machine ❑ Other ❑
Quantity _____ Original Equipment Manufacturer ❑ Resale ❑ Own Use ❑ Replacement ❑

LOADS _____ Static Radial (Max.) _____ Dynamic Radial (Mean) _____
Static Thrust (Max.) _____ Dynamic Thrust (Mean) _____
Static Moment (Max.) _____ Dynamic Moment (Mean) _____
If mean dynamic loads are unknown, attach all conditions with percent of time each occurs.
Vibration or shock _____ Describe _____
Factor of Safety of _____ (is) (is not) included in loads above.

SPEED _____ RPM (Max.) _____ RPM (Mean) _____ or attach conditions with percent of time.

OSCILLATION _____ Angle _____° Frequency _____

ACCURACY _____ Kaydon Precision Class _____ or:
Permissible Eccentricity: Inner _____ Outer _____
Permissible Face Run-Out: Inner _____ Outer _____
Permissible Looseness: Radial _____ Axial _____

LIFE _____ Hours (Min. _____ Hours (Avg.) _____ Other _____

TEMPERATURE _____ Normal Operating _____°F Minimum _____°F Maximum _____°F.
Differential between shaft and housing _____°F.

LUBRICATION _____ Proposed Lubricant _____ and method _____

BEARING _____ Preferred Size: Bore _____ Outside Dia. _____ Width _____
Min. Bore _____ Max. Outside Dia. _____ Max. Width _____
Preferred Type: _____
Bearing Axis in (Vertical) (Horizontal) position with (outer) (inner) race rotation relative to load.

MATERIAL _____ Shaft _____ Housing _____

SPECIAL _____ Allowable Bearing Torque _____

REQUIREMENTS ____ Sealing _____
Protective Coating _____
Other _____

REMARKS _____ _____
_____

WARRANTY: Kaydon Corporation guarantees its products to be free from defects in materials and workmanship for a period of one year from date of shipment from our plant. Any product proving defective within this one-year period will be replaced free of charge provided the defective product is returned, charges prepaid, to the appropriate Kaydon facility, under Kaydon's authorization (Return Goods Authorization number issued) and found to have been properly mounted, lubricated, loaded and used. No responsibility will be assumed by Kaydon for contingent charges.

KAYDON CORPORATION

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Printed in U.S.A.

Bulletin No. 306