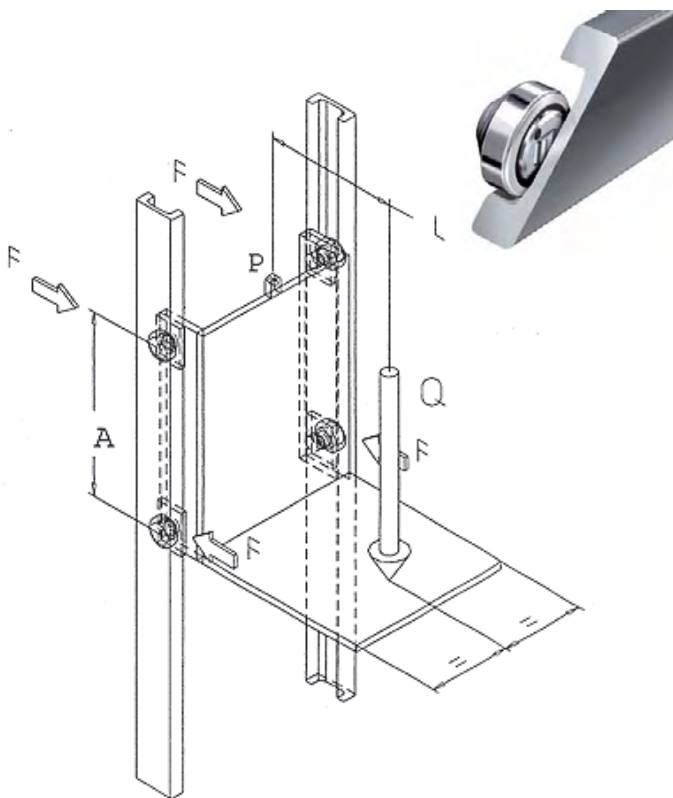
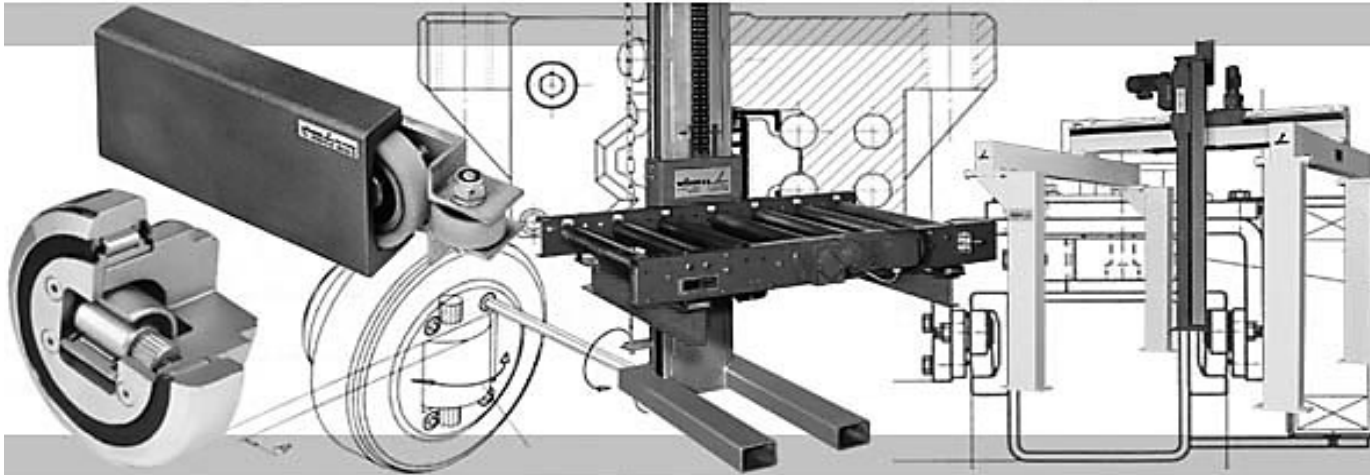


## The Economical Solution for Vertical and Horizontal Linear Motion



### Advantages of Combined Bearing Systems

- Combined Bearings simplify the system design
- Accomodates radial and axial loads within a single bearing
- Strong profiles for heavy static and dynamic loads
- Economical assembly
- Cylindrical Roller Bearings for heavy load, long life
- Bearings can be easily replaced

### Technical Characteristics

- Outer rings are case-hardened steel  
UNI 16 CrNi 4 hardened to 62 + 2HRC
- Inner rings are SAE 52100 bearing steel  
hardened to 62-2 HRC
- Cylindrical rollers with flat ground heads, from  
SAE 52100 steel, hardened at 59-64 HRC
- Bearing Stud Extension is made from C22E
- Bearing sizes W-4.054 thru W-4.063 can be relubed
- Bearings are lubricated with #3 NLGI grease  
(e.g. Shell Alvania 3, Esso Beacon 3)

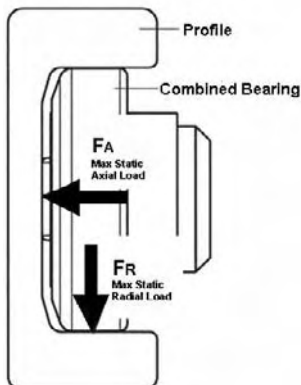
### Calculation of the Bearing Forces (F)

$$F_{\text{max}} [\text{N}] = \frac{Q \cdot L}{2 \cdot A}$$

Q = Load Capacity (N)  
 L = Load Distance to Suspension Point (mm)  
 P = Suspension Point  
 A = Bearing Distance (mm)  
 Recommended 500-1000mm

### Selection Procedure

Profiles (Channels) and Combined Bearings are typically used together. The Profile size must be selected first, based on the max Static Radial or Axial load limits of the profile as indicated in the sketch at the left. The bearing ratings are also listed for each type on the following pages. The bearing ratings are higher than the matching profile. The bearing ratings can be used to determine bearing life via the normal bearing formulas. Consult PTI for bearing choice if using fabricated steel or hardened surfaces.

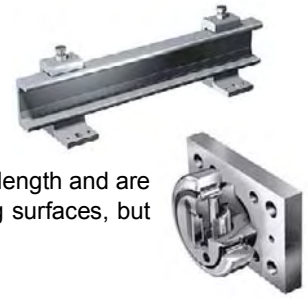


Please take any application shock loads into consideration as additional load factors when selecting profiles. As an example, without shock loads, use a Service Factor of 1.0 x the load. For moderate shock, multiply the calculated load by 2.0, and for heavy shock loads, multiply the calculated load by 3.0. These Service Factors are intended as a guide. Once the profile size is determined based on the Profile load capacity in the shaded area of the chart to the right, the bearing can be chosen to fit the profile.

## Selection Procedure (continued)

Bearings shown below are for a general guide. All are available with and without flange plates for easy mounting. Bearings with rectangular and square welded flange plates are both standard stock assemblies. Details are listed on each bearing page.

Mounting accessories are also available including shims or washers for axial adjustment of the bearing system. Clamp flanges can provide simple mounting of the profiles. Profiles can be cut to length and are clean (sand blasted) and ready to install and/or paint. It is not recommended to paint load bearing surfaces, but rather lightly coat with grease or oil.



## Standard Profile & Bearings

Profile – Load Ratings						Standard Bearings for Profiles							
Profile Size		F <sub>R</sub> kN Max Static Radial		F <sub>A</sub> kN Max Static Axial		Combined Brg with Fixed Axial	Combined Brg Eccentric Adjustable Axial	Combined Brg Adjustable with Shims	Radial Brg	Combined Brg with Oilamide Insert	Heavy Duty Combined Brg Unit	Adjustable Combined Brg Unit	Combined Brg with Threaded Stud
C-Profile	I-Profile	C-Profile	I-Profile	C-Profile	I-Profile								
A	—	0.80	—	0.40	—	—	—	—	—	W-4.052 P	—	—	—
S	—	5.23	—	1.68	—	W-4.053	—	—	—	—	—	—	—
0 Nb	—	9.40	—	3.10	—	W-4.054	W-4.454	W-4.072	W-2.054	W-4.072P	W-3.054	W-JC4.054	W-KB 4.072
1 Nb	3018	11.30	11.30	3.73	3.73	W-4.055	W-4.455	W-4.073	W-2.055	W-4.073P	W-3.055	W-JC4.055	W-KB 4.073
2 Nb	—	11.72	—	3.87	—	W-4.056	W-4.456	W-4.074	W-2.056	W-4.074P	W-3.056	W-JC4.056	W-KB 4.074
—	3019	—	11.72	—	3.87	W-4.057	W-4.457	W-4.075	—	—	—	—	—
3 Nb	3020	20.47	20.47	6.76	6.76	W-4.058	W-4.458	W-4.076	W-2.058	W-4.076P	W-3.058	W-JC4.058	W-KB 4.076
—	2912	—	20.11	—	6.70	W-4.059	W-4.459	W-4.077	—	—	—	—	—
—	3100	—	21.68	—	7.16	W-4.060	W-4.460	W-4.078	—	—	—	—	—
4 Nb	—	21.68	—	7.16	—	W-4.061	W-4.461	W-4.0784	W-2.061	W-4.0784P	W-3.061	W-JC4.061	W-KB 4.0784
5 Nb	3353	30.92	24.7	10.20	10.2	W-4.062	W-4.462	W-4.079	W-2.062	W-4.079P	W-3.062	W-JC4.062	W-KB 4.079
6 Nb	—	54.02	—	17.80	—	W-4.063	W-4.463	—	W-2.063	W-4.080P	W-3.063	W-JC4.063	—
6 Nb	—	37.81	—	17.80	—	—	—	W-4.080	—	—	—	—	W-KB4.080
8 Nb	—	64.70	—	19.40	—	—	W-4.085	—	—	W-4.085P	—	—	—
—	10	—	41.71	—	13.91	—	W-4.089	—	—	—	—	—	—
—	16	—	58.00	—	19.40	—	W-4.090	—	—	—	—	—	—
—	18	—	84.00	—	28.00	—	W-4.091	—	—	—	—	—	—
—	28	—	101.50	—	33.90	—	W-4.092	—	—	—	—	—	—
—	36	—	139.40	—	46.50	—	W-4.093	—	—	—	—	—	—

## Profile vs. Bearing Ratings – Example

Profile Size		Max Radial Load Capacity of Profile F <sub>R</sub> kN		Combined Fixed Axial Part No.	Radial Load Ratings of Fixed Bearing		Axial Load Ratings of Fixed Bearing		RPM max	Welded Flange Plates for Bearings
C-Profile	I-Profile	C-Profile	I-Profile		Dynamic Load Capacity of Radial Brg C kN	Static Load Capacity of Radial Brg C <sub>O</sub> kN	Dynamic Load Capacity of Axial Brg C <sub>A</sub> kN	Static Load Capacity of Axial Brg C <sub>AO</sub> kN		
A	—	0.80	—	W-4.052P	10	5.7	—	—	800	
S	—	5.23	—	W-4.053	24	32	7	7	800	
0 Nb	—	9.40	—	W-4.054	31	35.5	11	11	900	
1 Nb	3018	11.30	11.30	W-4.055	45.5	51	13	14	900	
2 Nb	—	11.72	—	W-4.056	48	56.8	18	18	800	
—	3019	—	11.72	W-4.057	48	56.8	18	18	800	
3 Nb	3020	20.47	20.47	W-4.058	68	72	23	23	750	
—	2912	—	20.11	W-4.059	73	82	25	27	700	
—	3100	—	21.68	W-4.060	81	95	31	36	650	
4 Nb	—	21.68	—	W-4.061	81	95	31	36	650	
5 Nb	3353	30.92	24.7	W-4.062	110	132	43	50	550	
6 Nb	—	54.02	—	W-4.063	151	192	68	71	450	
8 Nb	—	76.0	—	W-4.085	207	243	73	83	100	