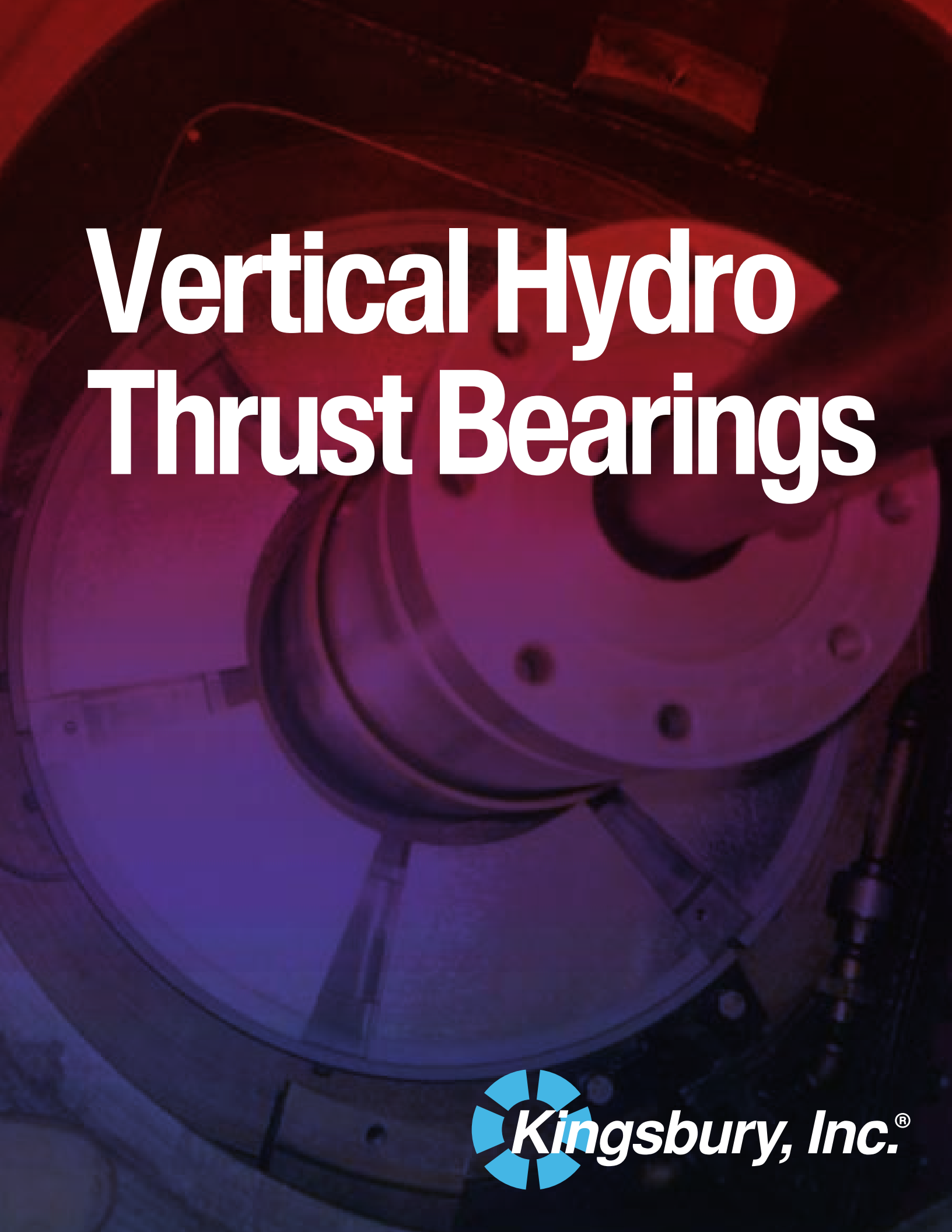
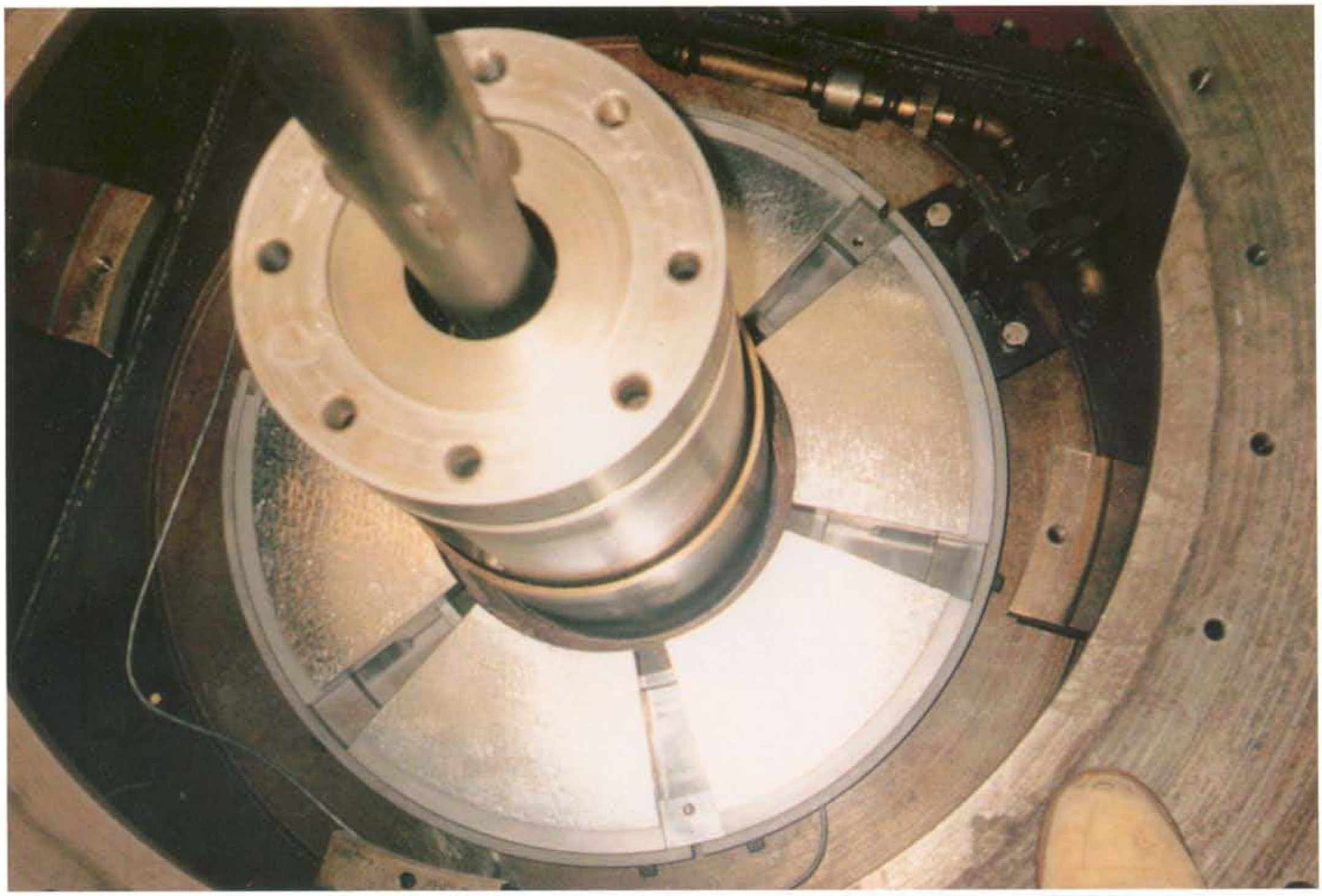


Vertical Hydro Thrust Bearings

Kingsbury, Inc.®



31" VK Thrust Bearing installed in place of an obsolete bearing at Clark Falls, Milton, Vermont Central Vermont Public Service Company

When you are upgrading hydraulic and electrical performance, don't forget thrust bearing upgrade. If you need additional thrust capacity, use the new Kingsbury VK bearing. Usually the VK will fit in the same space as older designs, and provide more thrust capacity. Reduce maintenance time and speed up erection with Kingsbury pivoted shoe thrust bearings.

The VK thrust bearing's stiffness reduces vibration amplification and ensures trouble free operation. Kingsbury's design expertise and quality manufacturing will provide decades of reliable bearing operation.

The capacity curves and dimension tables contain our standard bearing sizes. If necessary, these designs can be customized to suit your application, often without additional cost. We have found, in many applications, that the VK design will fit in the same space as older bearing designs and carry a greater thrust load.

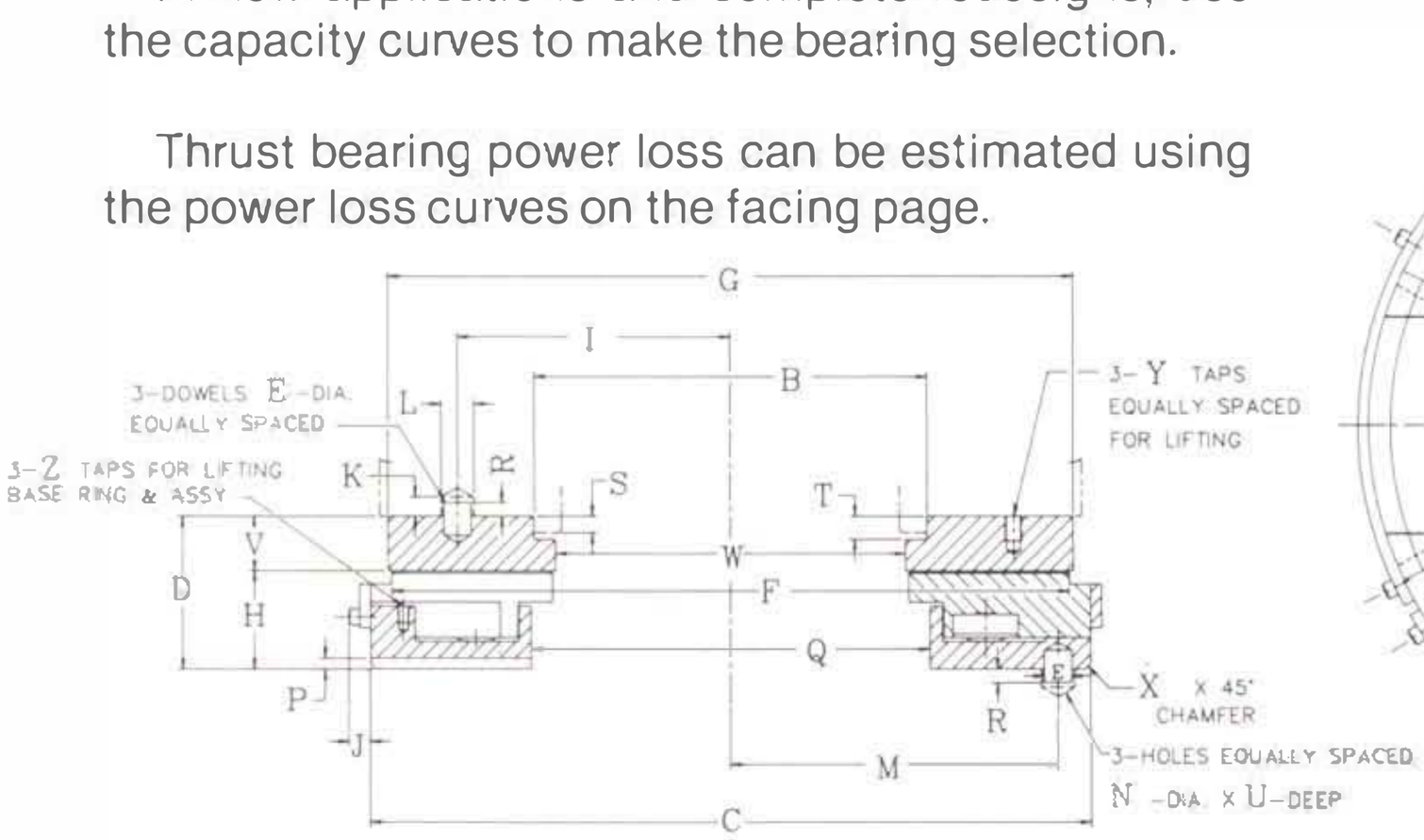
VK bearings can be furnished with insulation if required and drilled for temperature detection. Shoe bodies are made from ASTM A575-73 .15-.25C steel bar; shoe supports from ASTM A322-649 GR. E52100 steel. The base ring is made from ASTM A576-71 GR 1040 steel bar. The shoe is babbitted with ASTM B23 Grade 2 material.

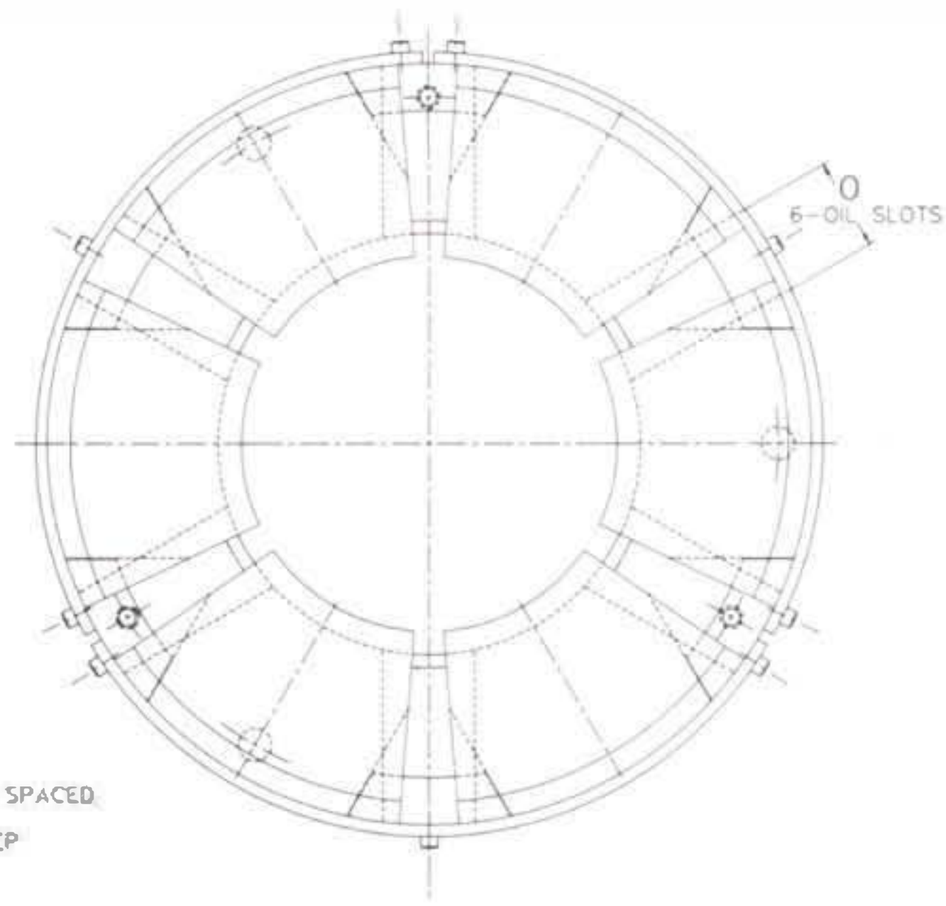
BEARING SELECTION

Use both the dimension table and capacity curves to make your bearing selection. When you are replacing an obsolete bearing, use the space occupied by your present bearing to find the VK bearing size in the dimension table that can be installed in the same space. Check the capacity curves and find if the selected bearing meets your capacity requirements. If you are unable to find a VK bearing that will fit into your available space, please consult with our Engineering Department for additional bearing designs.

In new applications and complete redesigns, use the capacity curves to make the bearing selection.

Thrust bearing power loss can be estimated using the power loss curves on the facing page.



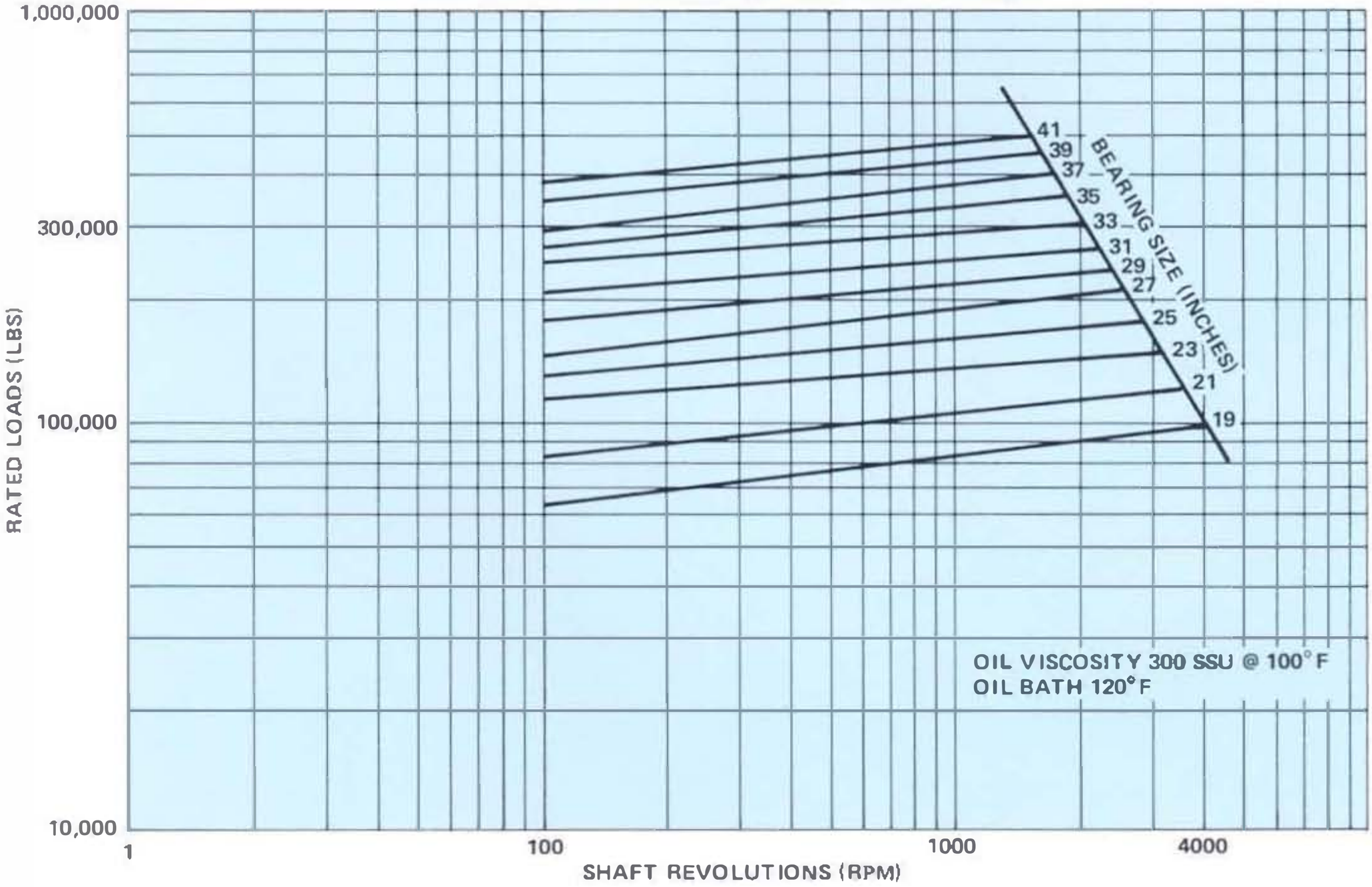


BEARING SIZE		19	21	23	25	27	29	31	33	35	37	39	41
AREA (NET SQ. IN.)		180	220	264	312	364	420	480	545	613	684	761	840
WEIGHT (LBS) NET	BEARING COMPLETE	294	374	480	612	753	901	1081	1301	1480	1703	2007	2405
	RUNNER	136	166	200	262	305	358	409	504	570	642	712	859
	SHOES (6)	91	122	165	227	242	305	388	476	550	666	818	924
B		12.625	13.750	14.625	16.000	17.125	18.000	18.875	20.500	21.375	22.375	23.500	24.500
C		20.250	22.250	24.500	26.500	28.750	30.750	33.000	35.000	36.500	38.500	41.250	43.750
* D		5.06	5.34	5.63	6.16	6.44	6.72	7.00	7.53	7.81	8.09	8.38	8.91
E		.88	1.00	1.00	1.00	1.25	1.25	1.25	1.25	1.50	1.50	1.50	1.50
F		19	21	23	25	27	29	31	33	35	37	39	41
G		19.25	21.25	23.25	25.25	27.25	29.38	31.38	33.38	35.38	37.50	39.50	41.50
H		2.81	3.09	3.38	3.66	3.94	4.22	4.50	4.78	5.06	5.34	5.63	5.91
I		8.63	9.50	10.50	11.50	12.25	13.25	14.25	15.25	16.00	17.00	18.00	19.00
J		.88	.88	.88	.88	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
K		.56	.63	.63	.63	.75	.75	.75	.75	.88	.88	.88	.88
L		1.00	1.13	1.13	1.13	1.38	1.38	1.38	1.38	1.63	1.63	1.63	1.63
M		9.25	10.18	11.31	12.31	13.31	14.13	15.13	16.13	17.25	18.25	19.25	20.13
N		1.00	1.13	1.13	1.13	1.38	1.38	1.38	1.38	1.63	1.63	1.63	1.63
O		3.00	3.00	3.25	3.25	3.50	3.50	3.75	3.75	4.00	4.00	4.25	4.25
P		.31	.31	.38	.38	.44	.44	.50	.50	.56	.56	.63	.63
Q		10.63	11.75	12.75	14.00	15.00	16.25	17.25	18.50	19.50	20.75	22.00	23.00
R		.59	.68	.68	.68	.81	.81	.81	.81	1.00	1.00	1.00	1.00
S		.25	.25	.25	.25	.25	.25	.25	.38	.38	.38	.38	.38
T		.38	.38	.38	.38	.38	.38	.38	.50	.50	.50	.50	.50
U		1.00	1.13	1.13	1.13	1.38	1.38	1.38	1.38	1.63	1.63	1.63	1.63
V		2.25	2.25	2.25	2.50	2.50	2.50	2.50	2.75	2.75	2.75	2.75	3.00
W		9.25	10.25	11.25	12.25	13.25	14.13	15.13	16.13	17.00	18.00	19.00	20.00
X		.13	.19	.19	.19	.19	.25	.25	.25	.31	.31	.31	.31
Y		3(¾)	3(¾)	3(¾)	3(¾)	3(¾)	3(¾)	3(1 IN)	3(1 IN)	3(1 IN)	3(1 IN)	3(1 IN)	3(1 IN)
Z		2(¾)	2(¾)	2(¾)	2(¾)	2(¾)	2(¾)	2(1 IN)	2(1 IN)	2(1 IN)	2(1 IN)	2(1 IN)	2(1 IN)

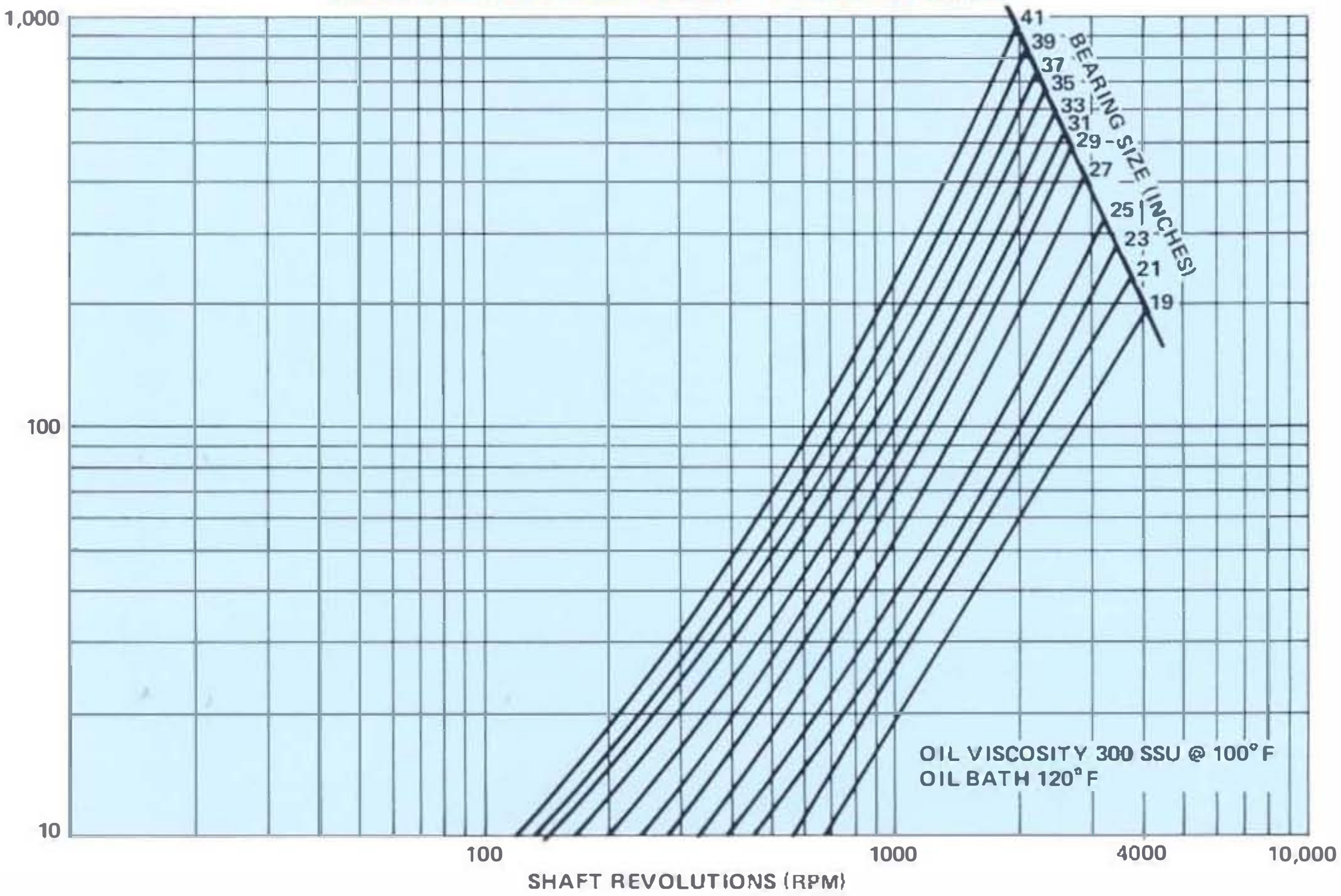
* INSULATION NOT INCLUDED

DIMENSIONS IN INCHES

6-SHOE VERTICAL THRUST BEARING – RATED LOADS



6-SHOE VERTICAL THRUST BEARING – FRICTIONAL LOSSES



BEARING INSTALLATION

Erectors have found the VK style easy to install. The bearing is manufactured to strict tolerances to insure uniform shoe loading.

The bearing bracket or bridge should be carefully leveled and positioned vertically to obtain desired rotor position. The bearing is then installed and loaded.

The final plumb of the rotor is checked and trimmed if required by adjusting the bearing bracket. Once loaded, the shoes should be match-marked to the base ring.

FIELD SERVICE AND BEARING REPAIR

Experienced Kingsbury Field Service Engineers are available to provide diagnostic service on hydroelectric bearings and components, to undertake repairs or replacements of parts, and to oversee the proper reassembly of the bearings.

The field Service Engineers are supported by Kingsbury Design Engineering, The R & D Laboratory, and extensive computer facilities at the Philadelphia plant.

Complete bearing repair service is available for all makes and types of thrust and journal bearings.