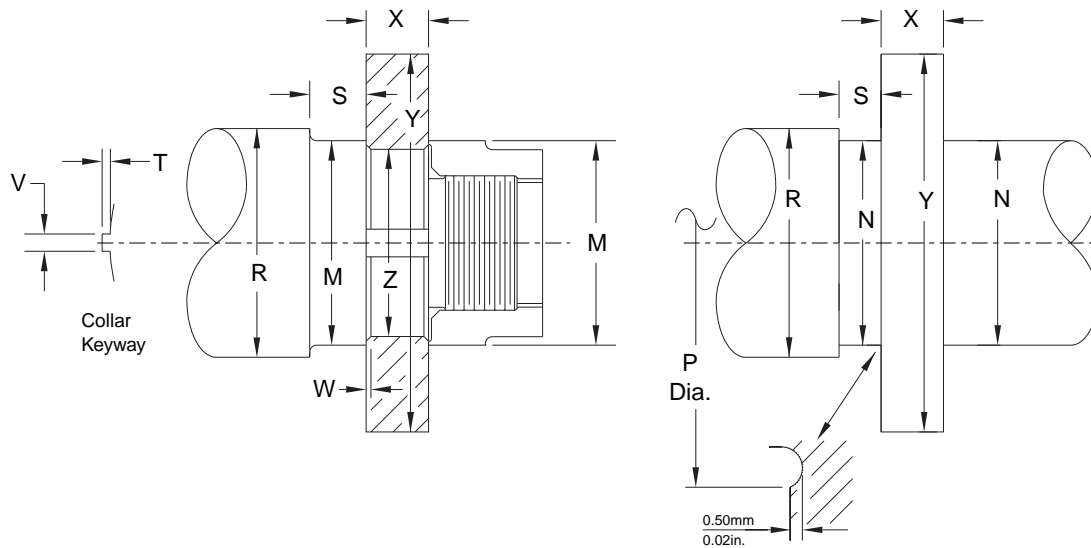
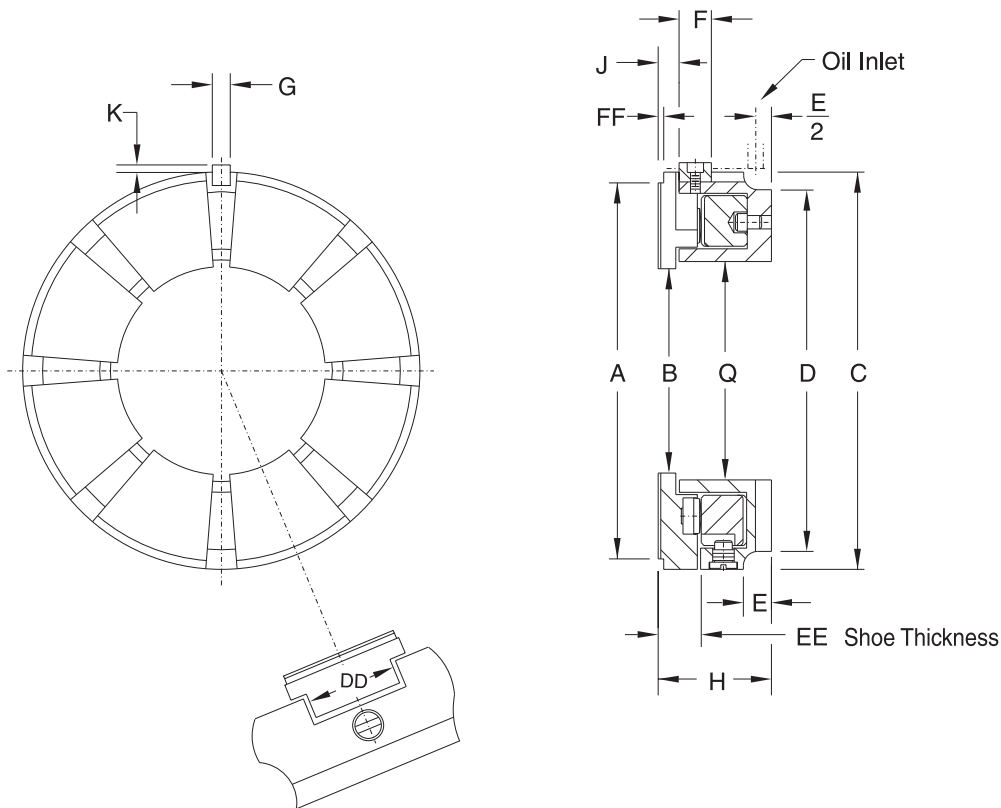


Style S Bearings—Metric Conversion (mm), Sizes 3” through 26.5”

Bearing Size (inches)	3	4	5	6.5	7.5	8	9.88	11.12	12.25
Number of Shoes	4	4	8	8	8	8	12	8	8
Area (mm ²)	2516	3870	5485	10000	13550	12900	22580	34840	34840
A – Babbitt O.D.	76.2	101.6	127.0	165.1	190.5	203.2	251.0	282.5	311.2
B – Babbitt I.D.	31.8	44.5	82.6	103.1	117.3	139.7	177.8	165.1	190.5
H – Bearing Height	31.8	41.1	39.6	39.6	50.8	49.3	47.8	69.9	58.7
C – Bearing O.D.	82.55	123.83	136.53	171.45	196.85	212.73	257.18	292.10	320.68
Q – Base ring I.D.	38.1	44.5	82.6	103.1	120.7	139.7	177.8	171.5	193.5
D – Oil annulus dia.	76.2	101.6	127.0	162.1	185.7	198.4	246.1	276.4	295.1
E – Oil annulus depth, min.	6.4	11.2	10.4	10.4	12.7	13.5	12.7	15.8	11.2
F – Bearing key, length	4.1	14.2	6.4	14.2	16.8	19.1	16.8	23.9	12.7
G – Bearing key, width	4.1	7.9	7.9	7.9	9.7	12.7	9.7	11.2	12.7
J – Collar to key	12.7	15.0	12.7	7.9	11.2	11.2	7.9	15.0	26.9
K – Key projection	4.1	4.1	3.1	4.1	4.8	4.8	4.8	4.8	4.8
M – Separate shaft dia.	28.5	36.6	76.2	98.6	111.3	133.4	168.2	155.5	180.8
N – Integral shaft dia.	25.4	31.8	69.9	92.0	104.7	127.0	158.8	149.4	177.8
P – Max dia. over fillet	28.5	39.6	76.2	98.6	112.8	134.9	173.0	160.3	187.5
R – Dia. through base ring	31.8	36.6	76.2	98.6	111.3	133.4	168.1	155.5	184.2
S – Shaft lgth @ shoe I.D.	11.2	–	–	–	–	–	–	15.8	28.4
X – Collar thickness	15.8	22.4	22.4	25.4	28.5	35.1	38.1	44.5	50.8
Y – Collar dia.	79.3	117.3	130.1	168.1	193.5	206.3	254.0	285.8	314.5
Z – Collar bore	22.23	28.58	71.12	88.90	104.78	114.30	152.40	139.70	165.10
T – Collar key depth	1.5	4.1	4.1	4.8	4.8	7.9	4.8	7.9	9.7
V – Collar key width	3.1	7.9	7.9	9.7	9.7	15.8	9.7	15.8	19.1
W – Collar chamfer	0.5	0.5	0.5	0.5	0.5	1.5	1.5	2.3	2.3
DD – Straddle mill	31.8	–	31.0	40.5	50.0	54.0	43.7	72.2	77.0
EE – Shoe thickness	11.12	14.30	12.65	14.27	19.84	17.45	19.84	28.58	28.58
FF – Shoe relief	3.1	7.1	3.1	4.8	3.1	–	3.3	4.8	7.9
Weight (kg) Bearing	0.7	2.5	2.3	3.63	5.90	7.26	11.34	20.4	21.8
Weight (kg) Collar	0.6	1.8	2.1	3.18	4.76	6.35	9.53	16.8	22.7
Weight (kg) Spare shoes	0.2	0.54	0.55	1.09	2.04	1.36	3.18	7.26	7.26

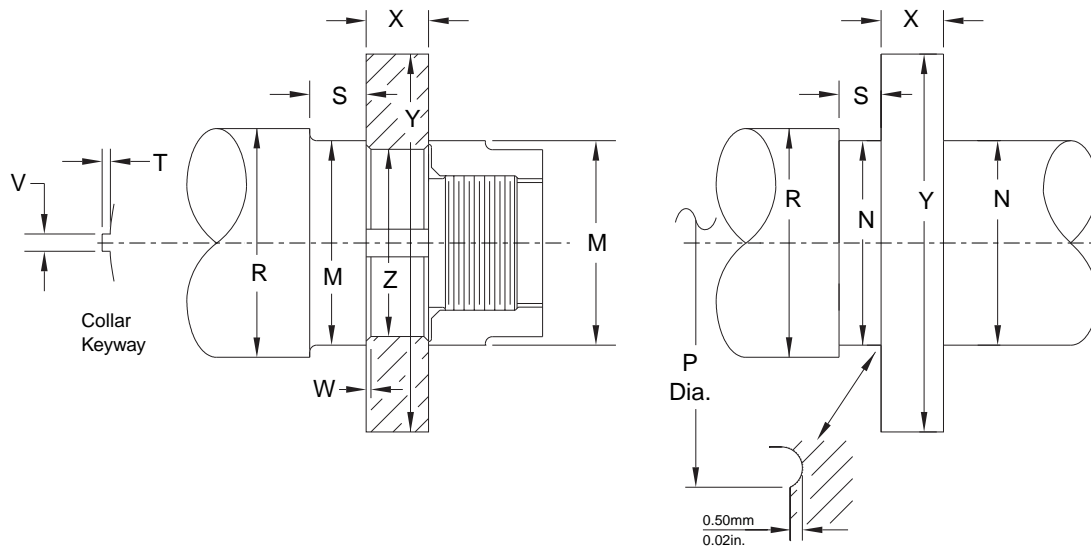


Bearing Size (inches)	13	15	18	22	22.5-A	22.5-B	25-A	25-B	26	26.5
Number of Shoes	8	10	8	10	8	8	8	8	8	8
Area (mm ²)	46645	45160	58710	59355	98065	148385	170965	110965	103225	176130
A – Babbitt O.D.	330.2	381.0	457.2	558.8	571.5	571.5	635.0	635.0	660.4	673.1
B – Babbitt I.D.	196.9	266.7	311.2	412.8	355.6	330.2	381.0	431.8	457.2	431.8
H – Bearing Height	71.4	69.9	88.9	76.2	127.0	127.0	155.4	120.7	120.7	146.1
C – Bearing O.D.	342.90	393.70	476.25	571.50	587.38	587.38	673.10	660.40	679.45	685.80
Q – Base ring I.D.	206.2	269.7	323.9	425.5	355.6	355.6	396.7	412.8	457.2	431.8
D – Oil annulus dia.	327.2	378.0	454.2	549.1	561.8	561.8	628.7	639.8	642.9	639.8
E – Oil annulus depth, min.	19.1	17.5	22.4	19.1	31.8	31.8	30.2	44.5	42.9	60.5
F – Bearing key, length	23.9	23.9	30.2	30.2	41.1	41.1	63.5	35.1	35.1	53.8
G – Bearing key, width	11.2	11.2	14.2	14.2	19.1	19.1	28.4	25.4	25.4	28.4
J – Collar to key	16.8	28.4	19.1	16.8	28.4	28.4	63.5	25.4	25.4	28.4
K – Key projection	4.8	4.8	5.6	6.4	9.7	9.7	12.7	11.2	11.2	12.7
M – Separate shaft dia.	190.5	260.4	301.8	406.4	342.9	317.5	368.3	406.4	441.5	416.1
N – Integral shaft dia.	180.8	247.7	292.1	393.7	330.2	304.8	355.6	406.4	431.8	406.4
P – Max dia. over fillet	192.0	260.4	304.8	406.4	345.9	320.5	371.3	422.1	447.5	422.1
R – Dia. through base ring	196.9	260.4	314.5	406.4	342.9	345.9	384.0	457.2	454.2	450.9
S – Shaft lgth @ shoe I.D.	31.8	28.4	36.6	31.8	49.3	49.3	53.8	88.9	69.9	50.8
X – Collar thickness	57.2	63.5	76.2	50.8	82.6	82.6	108.0	108.0	114.3	101.6
Y – Collar dia.	335.0	385.8	463.6	565.2	577.9	577.9	641.4	641.4	666.8	679.5
Z – Collar bore	171.45	228.60	266.70	374.65	311.15	285.75	330.20	387.35	403.23	374.65
T – Collar key depth	9.7	12.7	12.7	9.7	15.7	15.7	19.1	19.1	19.1	19.1
V – Collar key width	19.1	25.4	25.4	19.1	31.8	31.8	38.1	38.1	38.1	38.1
W – Collar chamfer	2.3	2.3	3.0	7.9	4.1	4.1	4.1	4.1	4.1	4.1
DD – Straddle mill	81.0	81.0	104.0	81.0	126.2	126.2	177.0	127.0	133.4	165.1
EE – Shoe thickness	31.75	28.58	36.53	31.75	49.23	49.23	53.98	44.45	45.24	50.80
FF – Shoe relief	4.1	7.1	7.9	7.1	14.2	14.2	9.7	9.7	9.7	6.4
Weight (kg) Bearing	25.9	29.5	52.2	50.8	129.7	145.6	223.2	140.6	135.2	179.2
Weight (kg) Collar	29	38.1	61.2	55.3	120.2	127.9	199.6	172.4	197.3	199.6
Weight (kg) Spare shoes	11.3	9.5	15.9	13.6	35.4	50.8	71.2	39.9	34.9	68.9



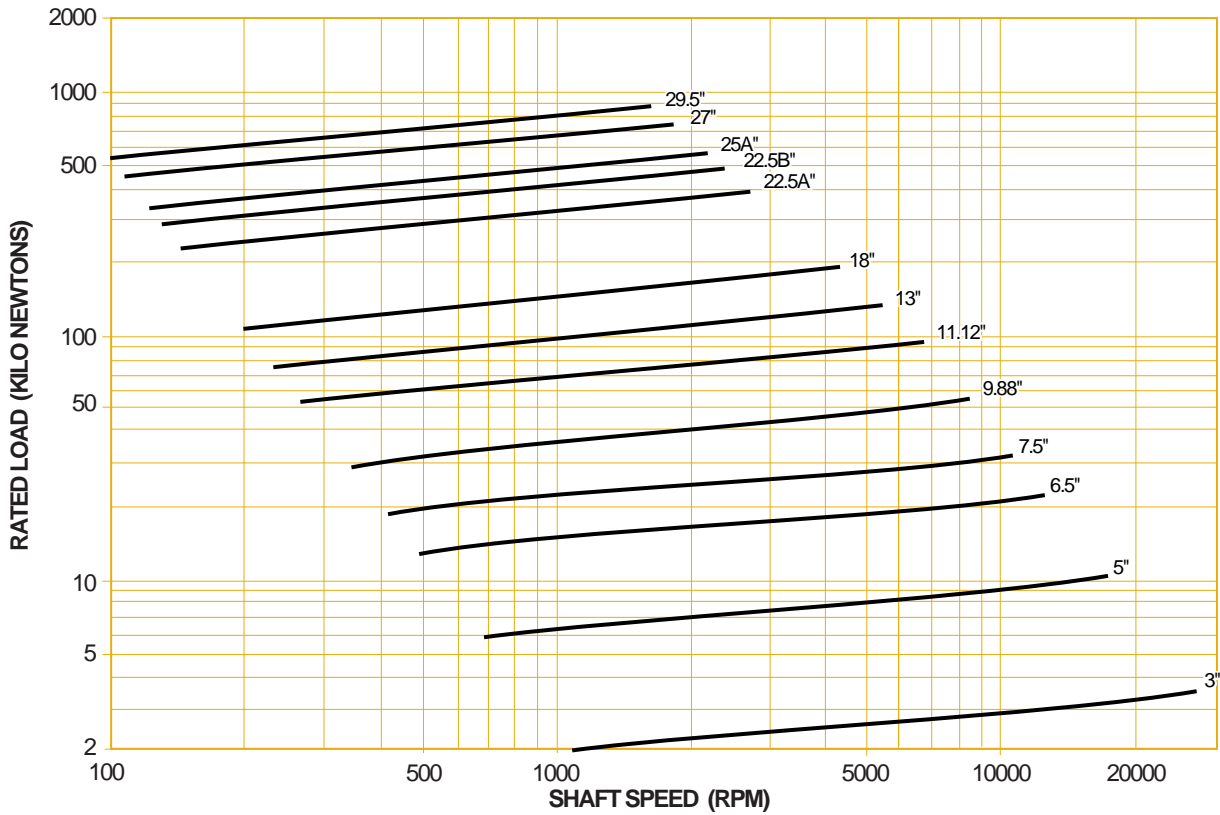
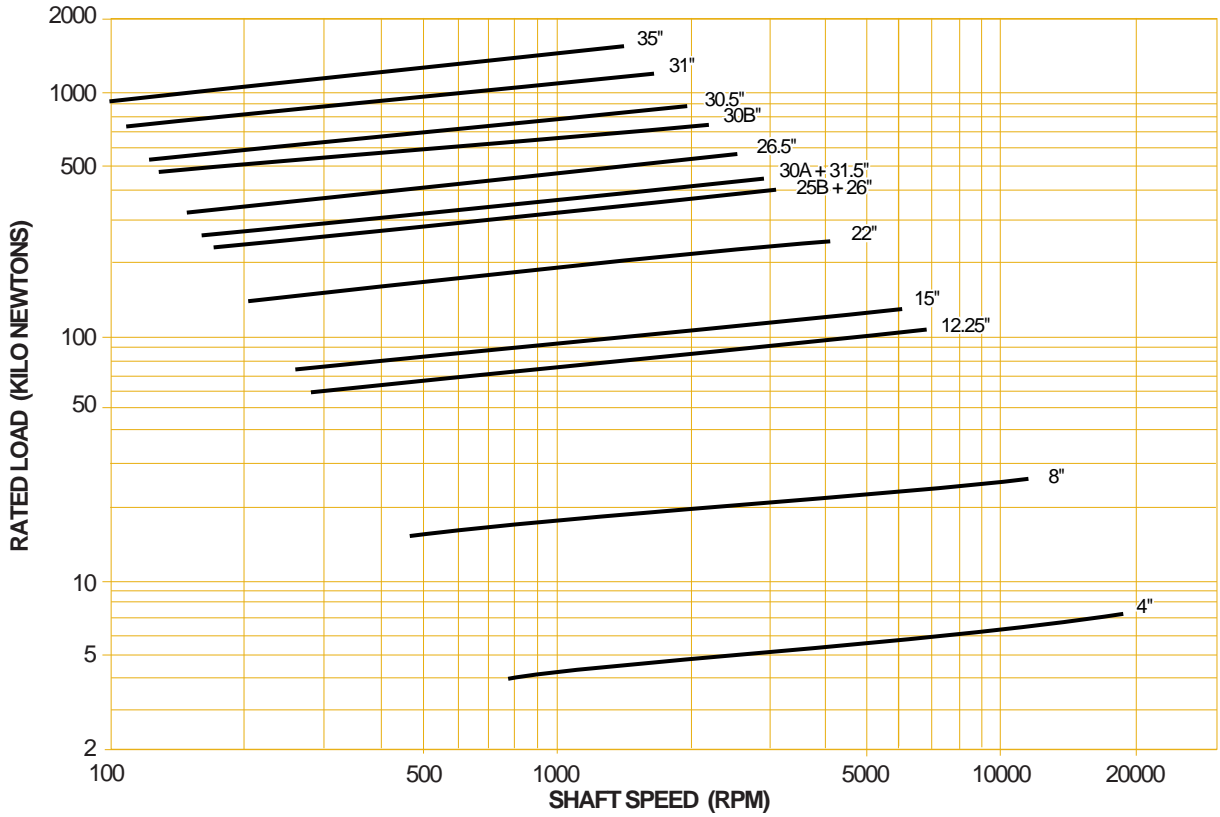
Style S Bearings—Metric Conversion (mm), Sizes 27” through 72”

Bearing Size	27	29.5	30-A	30-B	30.5	31	31.5	35
Number of Shoes	8	8	18	8	8	8	20	8
Area (mm ²)	214515	255485	143225	176775	258710	303225	133550	389030
A – Babbitt O.D.	685.8	749.3	762.0	762.0	774.7	787.4	800.1	889.0
B – Babbitt I.D.	393.7	431.8	609.6	482.6	469.9	419.1	660.4	469.9
H – Bearing Height	146.1	162.1	88.9	127.0	127.0	162.1	101.6	171.5
C – Bearing O.D.	704.85	768.35	762.00	781.05	781.05	806.45	812.80	908.05
Q – Base ring I.D.	393.7	431.8	616.0	495.3	495.3	431.8	660.4	490.5
D – Oil annulus dia.	663.4	730.3	732.8	730.3	730.3	730.3	787.4	835.2
E – Oil annulus depth, min.	49.3	62.0	26.9	57.2	41.1	62.0	38.1	50.8
F – Bearing key, length	57.2	47.8	30.2	41.1	41.1	47.8	30.2	57.2
G – Bearing key, width	31.8	31.8	14.2	25.4	25.4	31.8	14.2	31.8
J – Collar to key	31.8	35.1	19.1	28.4	28.4	35.1	22.4	41.1
K – Key projection	12.7	12.7	7.9	11.2	11.2	12.7	7.9	12.7
M – Separate shaft dia.	374.7	419.1	584.2	457.2	457.2	406.4	635.0	457.2
N – Integral shaft dia.	358.6	406.4	568.5	441.5	428.8	378.0	365.0	431.8
P – Max dia. over fillet	381.0	422.1	593.9	466.9	454.2	403.4	650.7	457.2
R – Dia. through base ring	419.1	482.6	600.0	514.4	514.4	476.3	641.4	539.8
S – Shaft lgth @ shoe I.D.	82.6	98.6	35.1	76.2	76.2	98.6	38.1	104.6
X – Collar thickness	114.3	127.0	63.5	130.0	133.4	133.4	133.4	152.4
Y – Collar dia.	692.2	755.7	765.0	768.4	777.7	793.8	806.5	895.4
Z – Collar bore	342.90	374.65	533.40	419.10	412.75	361.95	584.20	400.05
T – Collar key depth	19.1	22.4	15.7	22.4	22.4	22.4	22.4	25.4
V – Collar key width	38.1	44.5	31.8	44.5	44.5	44.5	44.5	50.8
W – Collar chamfer	4.1	4.8	3.0	4.8	4.8	4.8	4.8	6.4
DD – Straddle mill	167.49	184.15	99.21	146.05	196.85	196.85	95.25	209.55
EE – Shoe thickness	53.98	66.68	34.93	50.80	50.80	67.46	38.10	76.20
FF – Shoe relief	9.7	12.7	–	12.7	11.2	12.7	4.8	12.7
Weight (kg) Bearing	250.4	310.7	112.5	195.0	216.8	326.6	108.9	453.6
Weight (kg) Collar	254.0	335.7	117.9	331.1	353.8	408.2	258.5	589.7
Weight (kg) Spare shoes	88.5	117.9	34.9	61.7	83.5	152.4	36.3	201.8



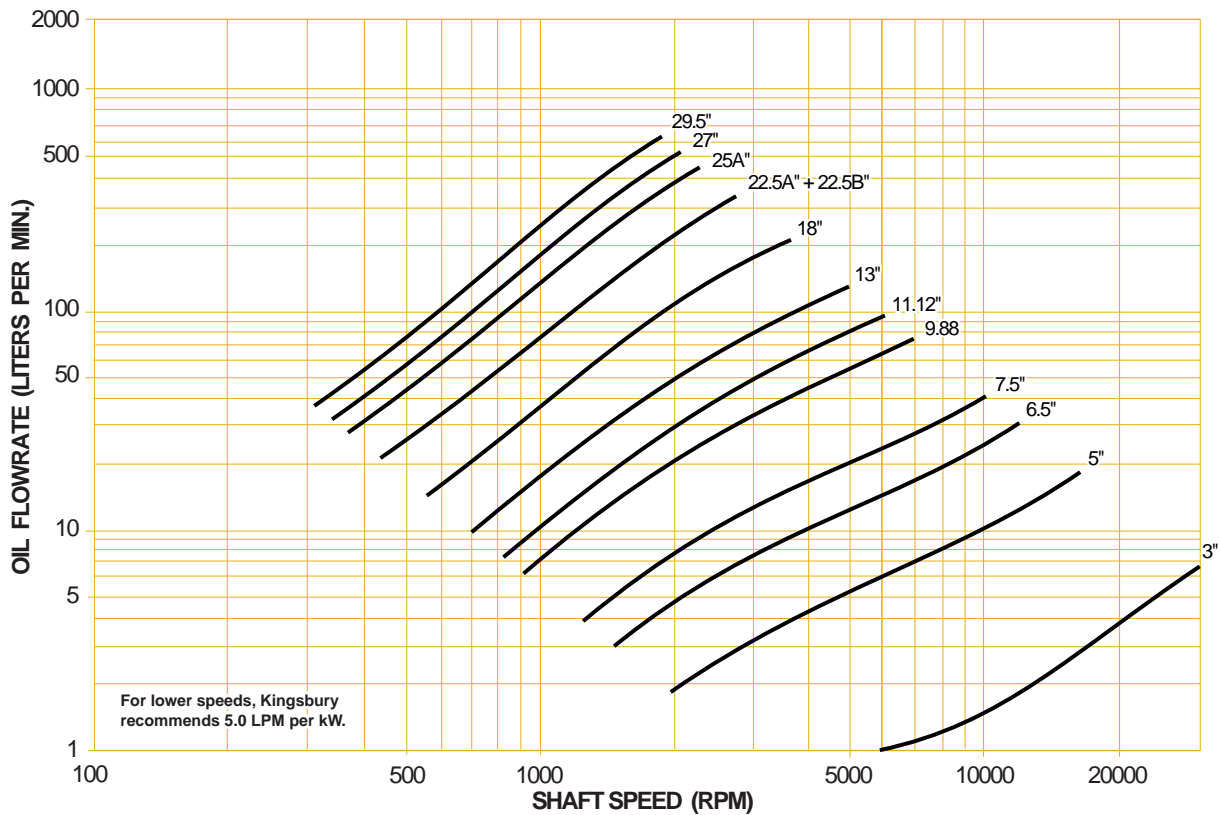
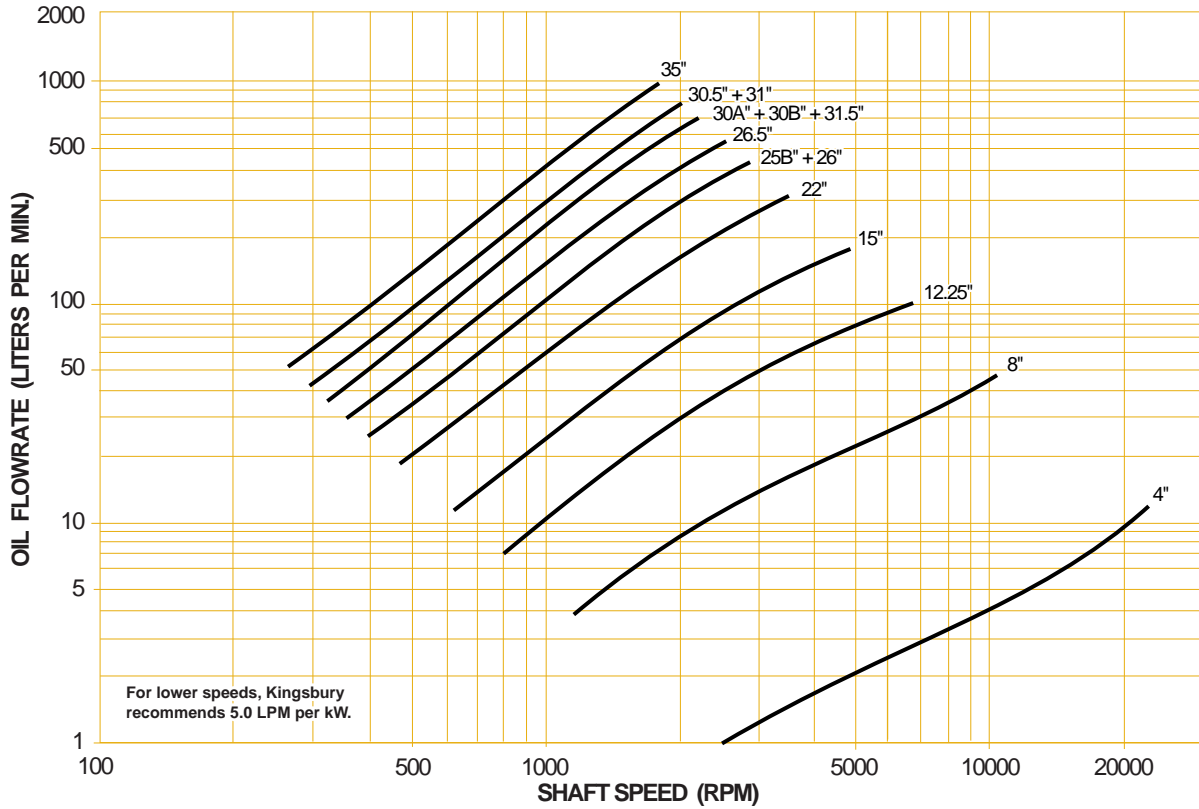
Bearing Size	39	41	43	45	46	50	54	61	65	72
Number of Shoes	8	8	8	8	8	8	8	8	8	8
Area (mm ²)	512,257	603,547	523,547	654,837	604,383	757,740	862,579	1,222,900	1,510,965	1,600,000
A – Babbitt O.D.	990.6	1041.4	1092.2	1143.0	1168.4	1270.0	1371.6	1549.4	1651.0	1828.8
B – Babbitt I.D.	457.2	457.2	635.0	596.9	673.1	685.8	762.0	762.0	711.2	965.2
H – Bearing Height	184.1	184.1	215.9	228.6	228.6	254.0	270.0	282.7	319.0	210.2
C – Bearing O.D.	1047.75	1079.50	1117.60	1168.40	1193.80	1289.05	1390.65	1568.45	1670.05	1854.20
Q – Base ring I.D.	514.3	514.3	660.4	701.8	679.4	900.0	800.1	857.2	787.4	1016.0
D – Oil annulus dia.	933.4	933.4	1060.4	1117.6	1117.6	1225.5	1314.4	1441.4	1568.4	1753.0
E – Oil annulus depth, min.	42.9	42.9	50.8	98.4	95.2	82.5	107.9	101.6	112.7	127.0
F – Bearing key, length	82.5	82.5	69.8	44.4	44.4	76.2	50.8	50.8	127.0	127.0
G – Bearing key, width	44.4	44.4	44.4	44.4	44.4	50.8	50.8	50.8	69.8	69.8
J – Collar to key	47.7	47.7	52.3	76.4	76.4	82.5	82.5	95.2	79.5	98.4
K – Key projection	16.0	16.0	16.0	31.7	31.7	19.0	25.4	25.4	38.1	35.0
M – Separate shaft dia.	400.0	400.0	603.2	565.1	641.3	647.7	723.9	723.9	666.7	920.7
N – Integral shaft dia.	377.8	377.8	577.8	539.7	609.6	622.3	698.5	698.5	637.5	895.3
P – Max dia. over fillet	435.1	435.1	612.9	596.9	647.7	660.4	736.6	736.6	685.8	939.8
R – Dia. through base ring	584.2	600.7	685.8	647.7	730.2	800.1	857.2	939.8	882.6	1117.6
S – Shaft lgth @ shoe I.D.	114.3	114.3	127.0	139.7	127.0	152.4	168.4	177.8	190.5	222.2
X – Collar thickness	177.8	177.8	184.1	193.8	193.8	228.6	241.3	266.7	279.4	292.1
Y – Collar dia.	1003.3	1066.8	1104.9	1155.7	1181.1	1282.7	1384.4	1562.1	1663.7	1847.8
Z – Collar bore	355.60	355.60	558.80	527.05	590.55	596.90	673.10	673.10	615.95	869.95
T – Collar key depth	28.7	28.7	28.7	28.7	28.7	31.7	31.7	35.0	35.0	38.1
V – Collar key width	57.1	57.1	57.1	57.1	57.1	63.5	63.5	69.8	69.8	69.8
W – Collar chamfer	9.3	9.6	9.6	9.6	9.6	12.7	12.7	16.0	16.0	19.0
DD – Straddle mill	233.4	233.4	281.8	281.8	304.4	328.6	379.4	423.9	449.3	428.6
EE – Shoe thickness	83.62	84.12	92.07	92.07	95.25	107.95	114.30	127.00	139.70	155.57
FF – Shoe relief	28.2	2.8	6.1	12.4	6.1	6.1	9.4	9.1	12.4	15.5
Weight (kg) Bearing	748	816	941	953	1043	1315	1678	2359	3402	4309
Weight (kg) Collar	928	982	1252	1261	1247	1814	2177	3266	4128	4763
Weight (kg) Spare shoes	302	327	318	376	372	513	626	953	1361	1542

RATED LOAD FOR STYLE S THRUST BEARINGS (METRIC)



Based on ISO VG 32 supplied at 50°C.

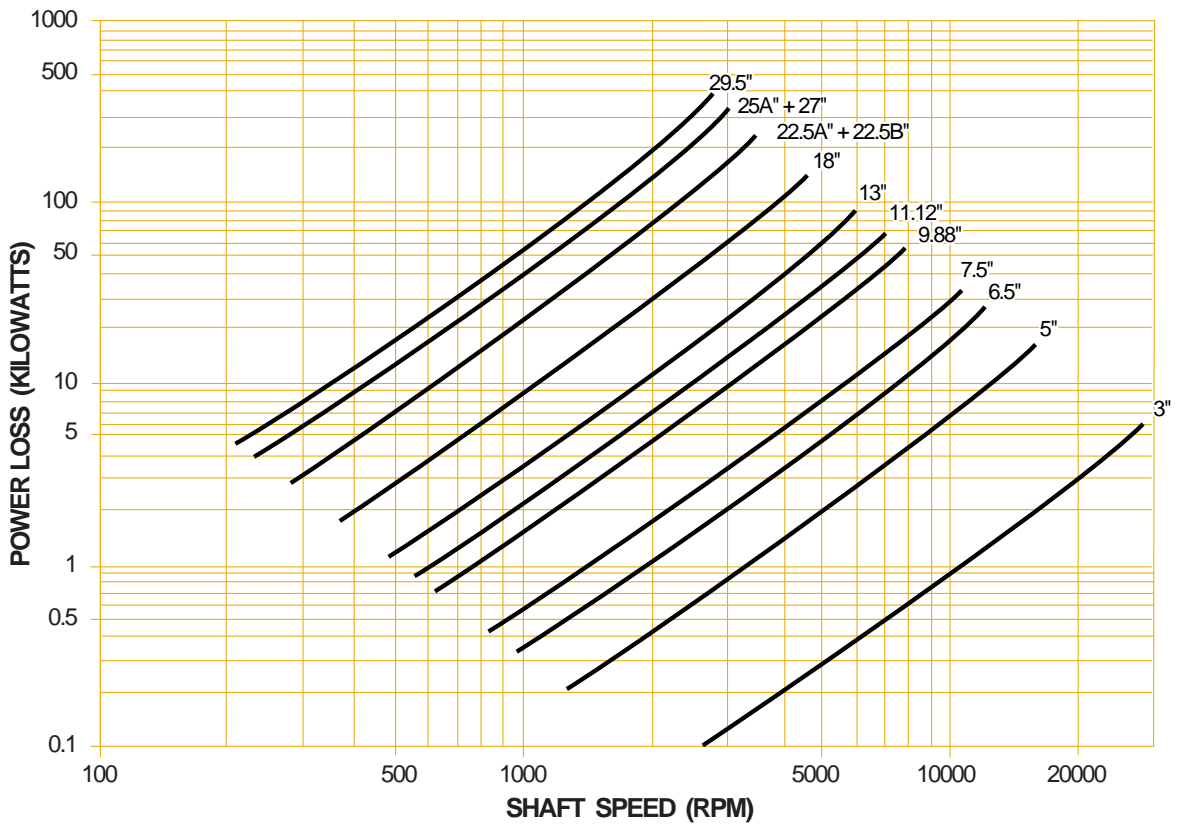
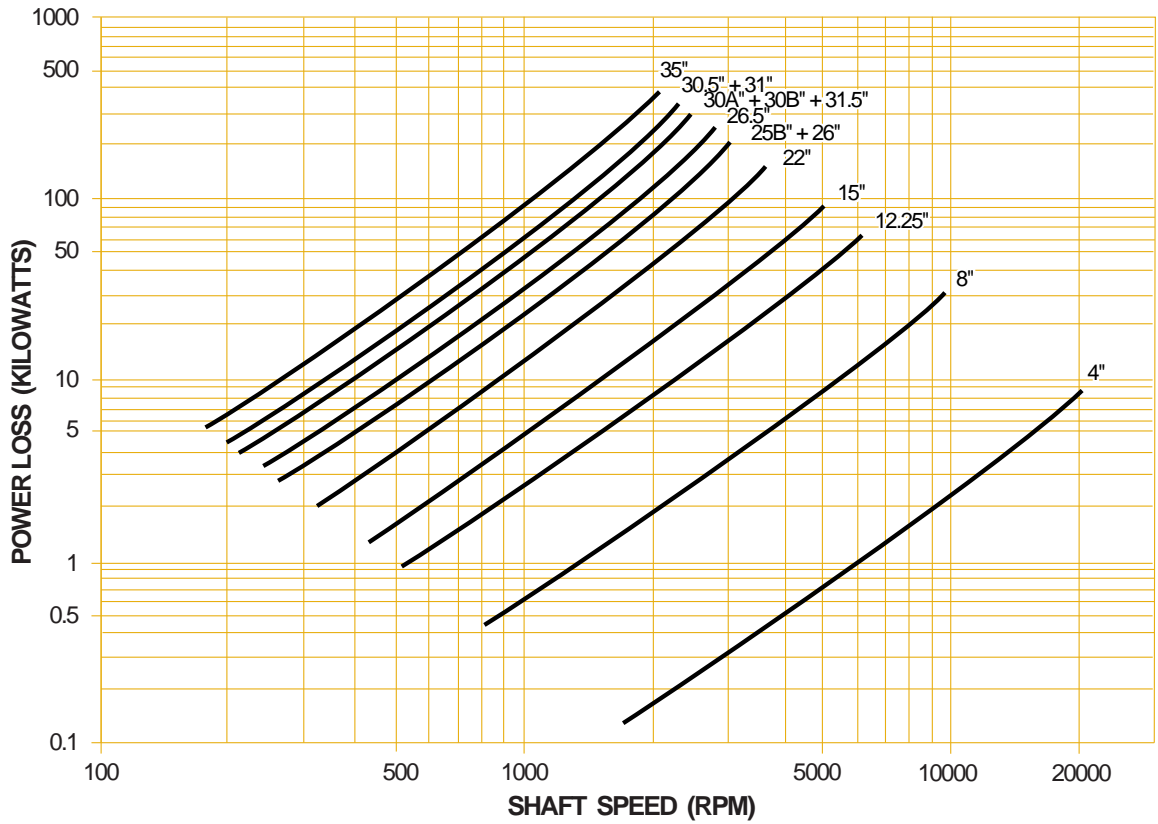
RECOMMENDED OIL SUPPLY FOR STYLE S THRUST BEARINGS (METRIC)



Based on 20% Slack Flow & ISO VG 32 supplied at 50°C.

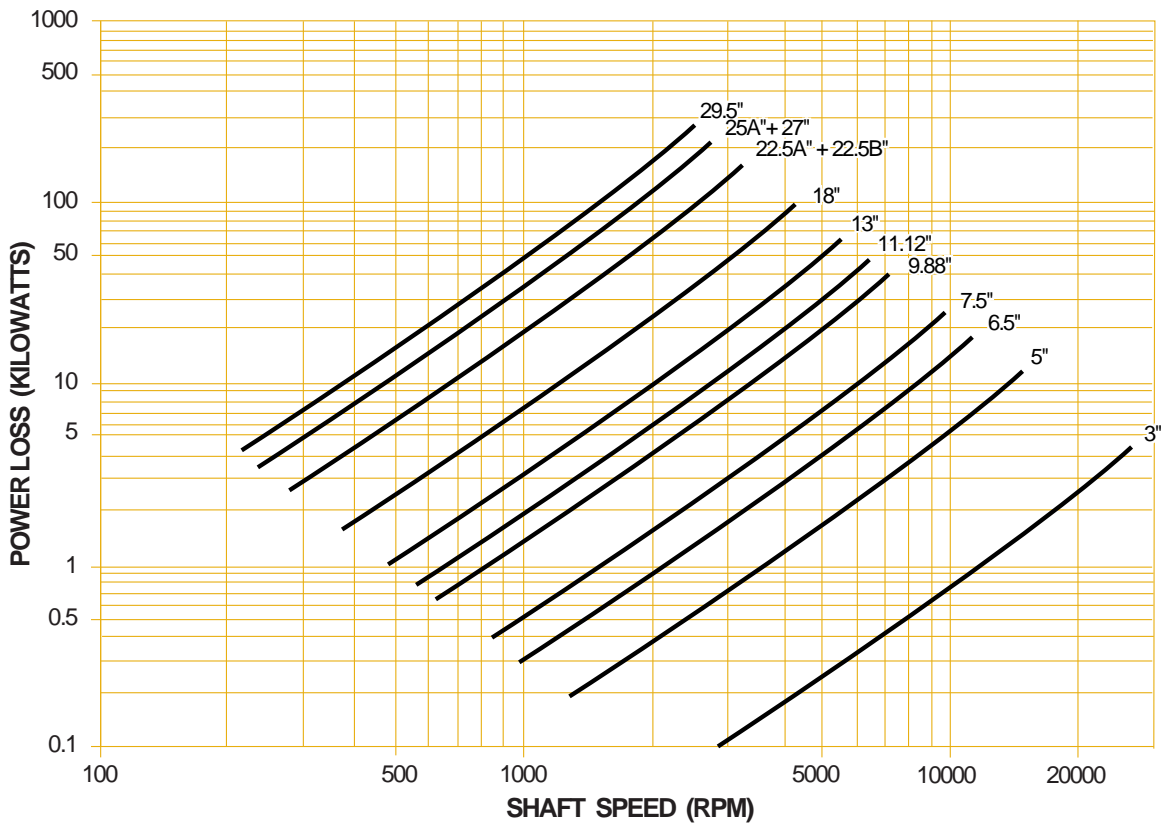
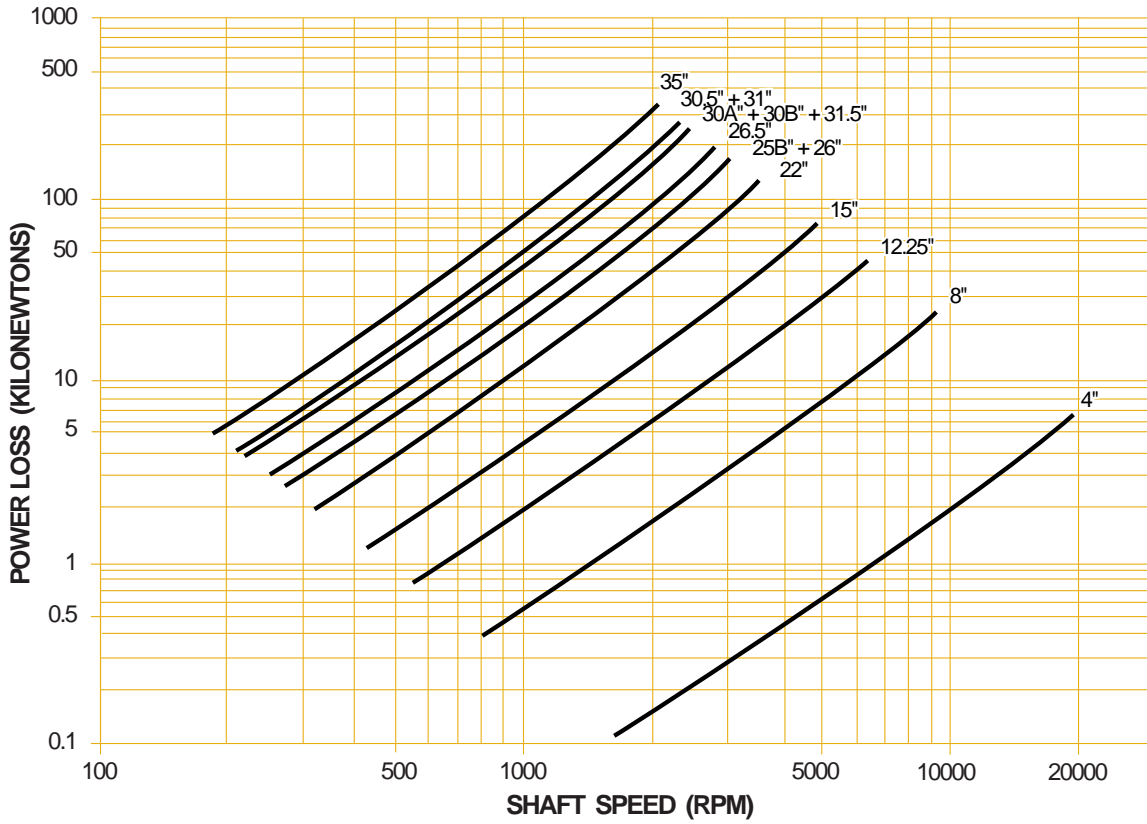
This chart gives loaded side, single element flowrates for rated load. For double element bearings, supply an additional 20% to the inactive side. In machines where load may reverse and apply rated values to either side, provide equal flow to each side (a total of two times the chart value).

POWER LOSS FOR DOUBLE ELEMENT STYLE S THRUST BEARINGS (METRIC)



Based on 20% Slack Flow & ISO VG 32 supplied at 50°C.
 Power loss is based on rated load, recommended oil flow, and Kingsbury's recommended discharge configuration.
 If any of these is changed the power loss will also change.

POWER LOSS FOR SINGLE ELEMENT STYLE S THRUST BEARINGS (METRIC)



Based on 20% Slack Flow & ISO VG 32 supplied at 50°C.
 Power loss is based on rated load, recommended oil flow, and Kingsbury's recommended discharge configuration.
 If any of these is changed the power loss will also change.

HOW TO ESTIMATE BABBITT TEMPERATURE

Once you have selected the correct thrust bearing style and size, you may want to estimate the babbitt temperature of the operating bearing. This is a good design practice when:

- Bearing loading exceeds 400PSI (2.8 Mpa),
- Collar surface speed exceeds 15,000 feet per minute (76.2 m/s),
- Inlet oil temperature exceeds 120°F (50°C) or,
- Specifications limit maximum allowable temperature.

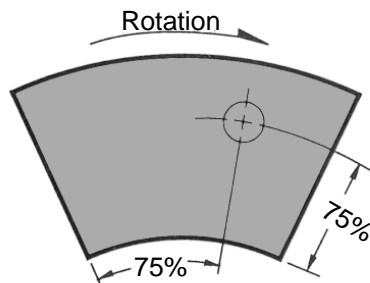
To estimate the babbitt temperature at the recommended 75/75 position, use the graph on this page for steel shoes. If the temperature exceeds 265°F (130°C), you may be able to reduce it to a more acceptable level by substituting chrome-copper-backed shoe or offset-pivot steel shoes. Consult the graphs on page 39 to determine if this is the case. For those applications where the babbitt temperature still exceeds 265°F (130°C), contact our Engineering Department for additional suggestions.

Using the Babbitt Temperature Curves

Our experimental work with a variety of shoe designs and materials indicates that the graphs on these pages can be applied with reasonable accuracy to the J, B, E, and S styles of bearings.

The curves are based upon tests performed in our Research and Development Center using 10.5" diameter, six and eight shoe bearings, operated with light turbine oil [150 SSU @ 100°F; 32cSt @ 40°C] supplied at 115°F (46°C).

All measurements were taken at the 75/75 position, as indicated on the drawing below.



Babbitt Temperatures for Steel Center-Pivot Shoes

Babbitt Temperatures @ 75/75 Positions

