

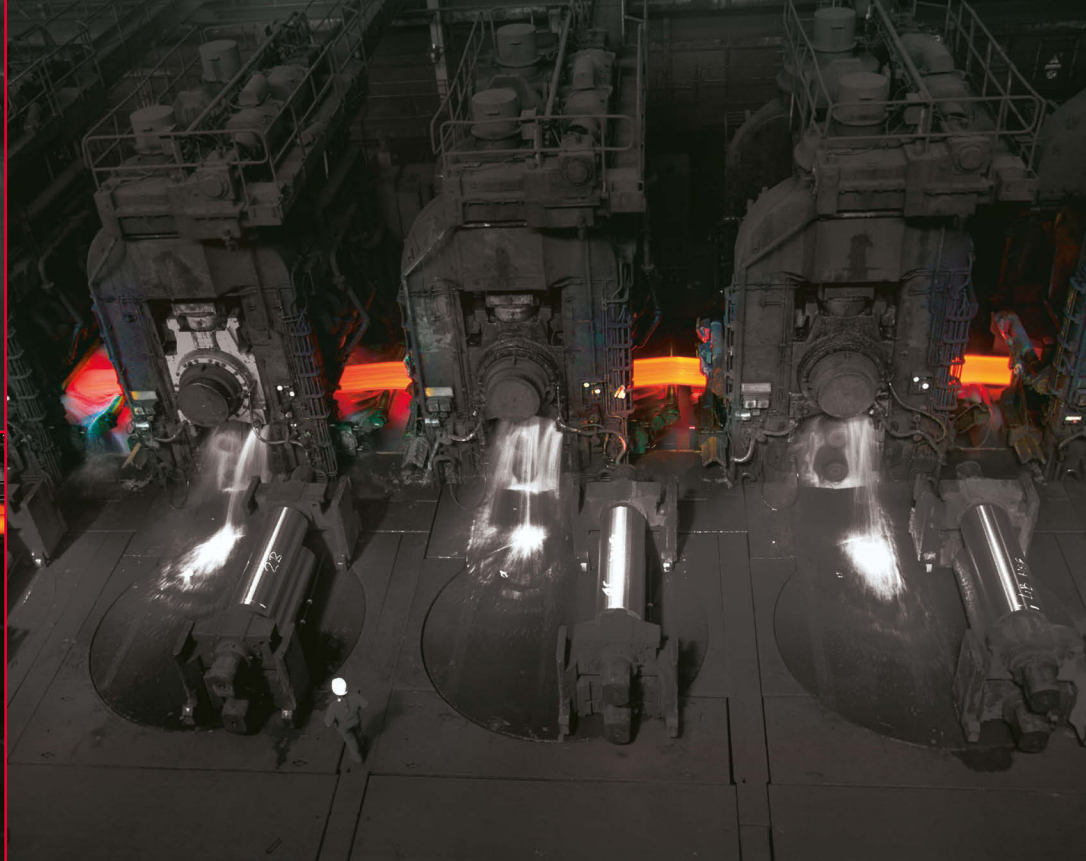


SUPER-TF FOUR-ROW CYLINDRICAL ROLLER BEARINGS

FOR BACK-UP ROLLS IN ROLLING MILL STANDS



STAY IN MOTION. STAY IN CONTROL.



MADE WITH METTLE

BEARINGS FOR STEEL AND METALS MACHINERY

Massive loads. Intense heat. Ultra low speeds. Staggering shock loads, misalignment, and contamination from mill scale and water vapor.

From iron and steel making through rolling and forming mills, the operating conditions of the entire process are severe. The reliable, uninterrupted performance of rolling components is critical for accelerated production.

For NSK, our product development and design is focused squarely on withstanding the manifold operating stresses of these applications with:

- › increasing capacities for high loads and high speeds
- › advanced materials for durability, wear resistance and longer life
- › lubrication and seal technology for smooth and clean running

Our product solutions are designed to optimize the performance of machinery and equipment, to assure predictable reliability and to deliver total cost-efficiency.

OUTSTANDING PERFORMANCE. ENGINEERED IN.

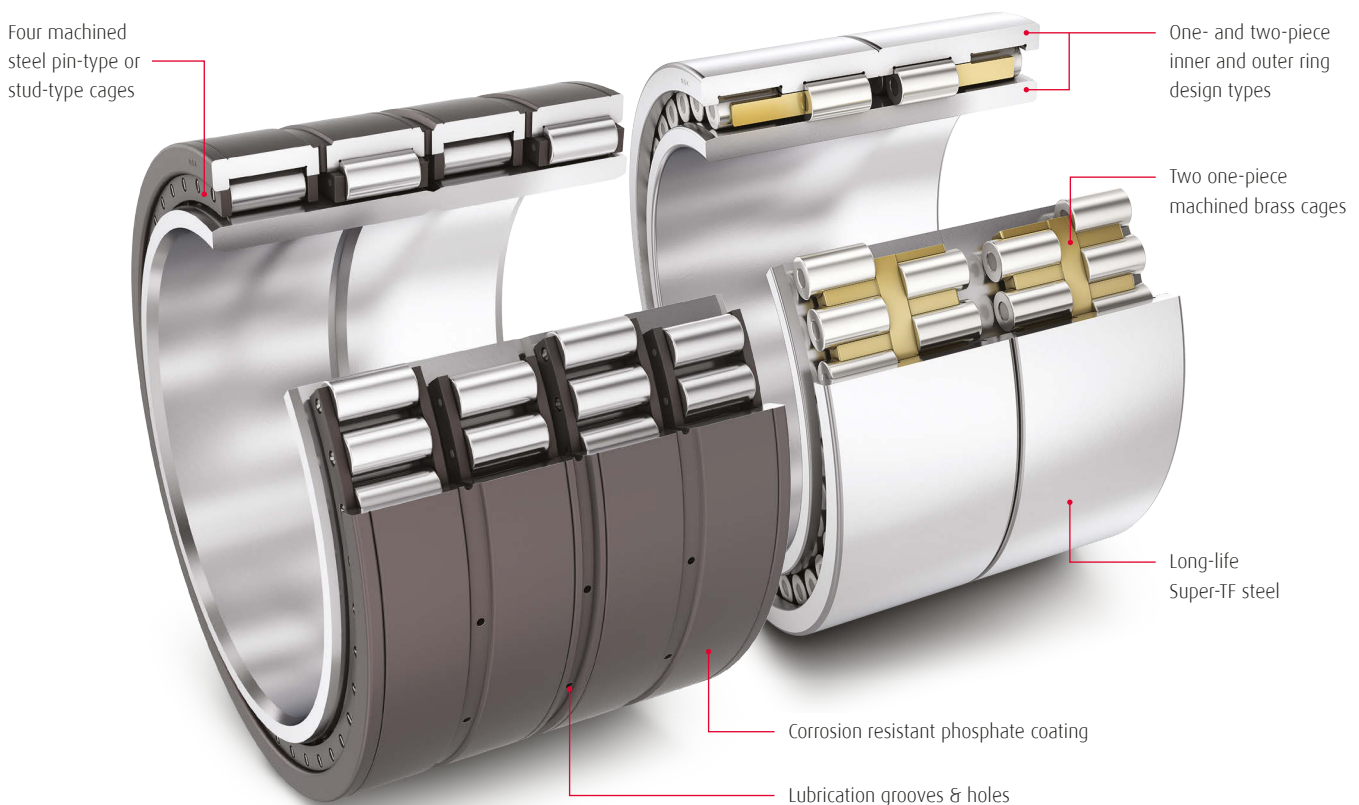
NSK four-row cylindrical bearings are engineered specifically to accommodate the extremely heavy and impact loads - while running smoothly and accurately - in the back-up rolls of rolling mill stands. Amid particularly harsh operating conditions, NSK's long-life Super-TF steel provides significantly higher durability to counteract the heavy rolling load and the high probability of compromised bearing lubrication.

Available in a large range of design types with high-performance cage options, and manufactured to precision tolerances, NSK four-row cylindrical bearings are optimized to deliver high capacity and high accuracy for uninterrupted and precise rolling.



DESIGN AND OPERATING ADVANTAGES

NSK four-row cylindrical bearings are engineered specifically to accommodate the extremely heavy and impact loads in the back-up rolls of rolling mill stands, deliver high capacity and high accuracy for improved precision in rolled steel.



DESIGN FEATURES

- › Special design high capacity four-row cylindrical roller bearing
- › With long-life Super-TF steel for dramatically longer service life under contaminated operating conditions
- › Wide range of design configurations with one- and two-piece inner or outer rings, integral outer ring ribs, outer ring spacers and outer flange rings
- › With cylindrical and tapered bores
- › Available with machined brass or machined steel cages
- › Corrosion resistant phosphate coating option for designated bearing surfaces
- › With outer ring lubrication groove and hole features
- › Precision tolerances for high rotational accuracy
- › Available with special, custom, C3 and C4 radial internal clearance

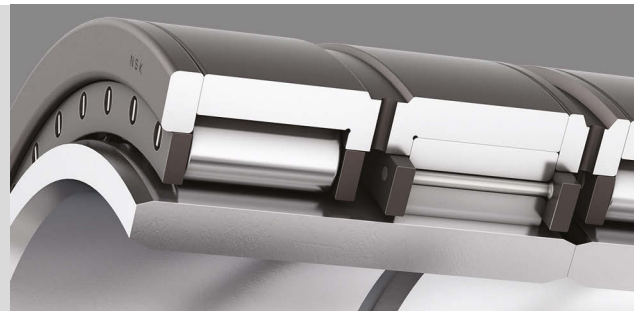
PRESSED STEEL CAGE

- › Heavy duty, wear-resistant design for superior performance in applications subject to heavy and/or impact loading
- › Two roller-guided, one piece cages in each bearing



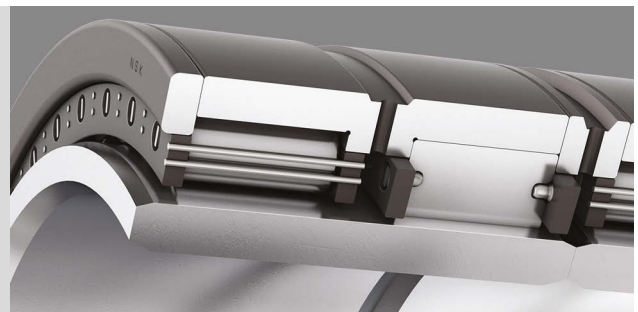
PIN-TYPE CAGE

- › Four high strength machined steel cages in each bearing
- › Cage design allows for optimal number of rollers / capacity
- › Rollers are through-drilled and retained in the roller-cage assembly with pins



STUD-TYPE CAGE

- › Four high strength machined steel cages in each bearing
- › Rollers are retained in the roller-cage assembly with studs
- › Solid rollers mitigate the risk of roller cracking damage under continuous heavy loads



PROVEN ADVANTAGES

- › Exceptionally high load carrying capacity from four-row design, optimized in machined steel cage designs with larger rollers
- › Suitable for high and low speeds, accommodating rapid acceleration and deceleration
- › Higher reliability and longer operating life with Super-TF steel, reducing bearing replacement and maintenance intervals
- › High accuracy for improved precision in rolled steel

HIGH PERFORMANCE FACTOR: SUPER-TF STEEL

FAILURE MECHANISMS IN BACK-UP ROLLS

Vibration and impact

Heavy loads

High temperature

High / low speed

Lubrication conditions and rolling loads
become increasingly harsh

Insufficient EHL oil
film formation

Super-heavy loads

Flaking damage



Roller cracking



Seizure

Unexpected production line stoppage
and high bearing usage costs

SUPER-TF (STF) MATERIAL TECHNOLOGY

Durability is crucial in back-up roll bearings in rolling mill stands. Four-row cylindrical roller bearings must endure heavy and impact loads, high temperatures, high / low speeds and accelerations with reliable, uninterrupted performance to achieve and augment production capacities.

NSK's Super-TF (STF) series four-row cylindrical roller bearings are designed to deliver outstanding durability in these environments. Through advanced material engineering and heat treatment technology, they perform with superior resistance to wear, seizure and heat.

Material composition

Containing appropriate levels of chromium and molybdenum for increased hardness

Special heat-treatment

Optimized dispersion of finer carbide and carbonitride particles

Retained austenite

Alleviation of the stress concentration on the contact surface

In severe, contaminated, and boundary-lubrication conditions, Super-TF bearings optimize throughput, reduce maintenance intervals and deliver total cost-efficiency

Field Test: Comparison of bearing life

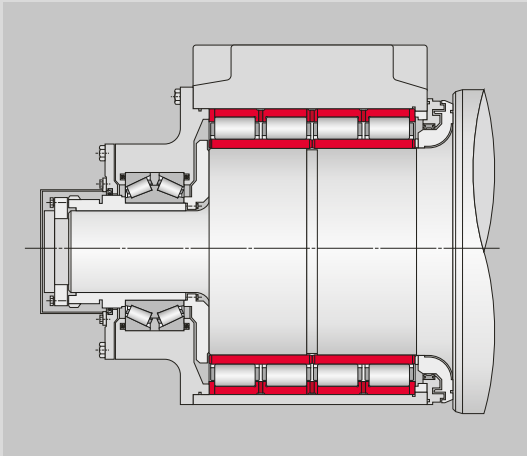
Conventional steel

1

Super-TF steel

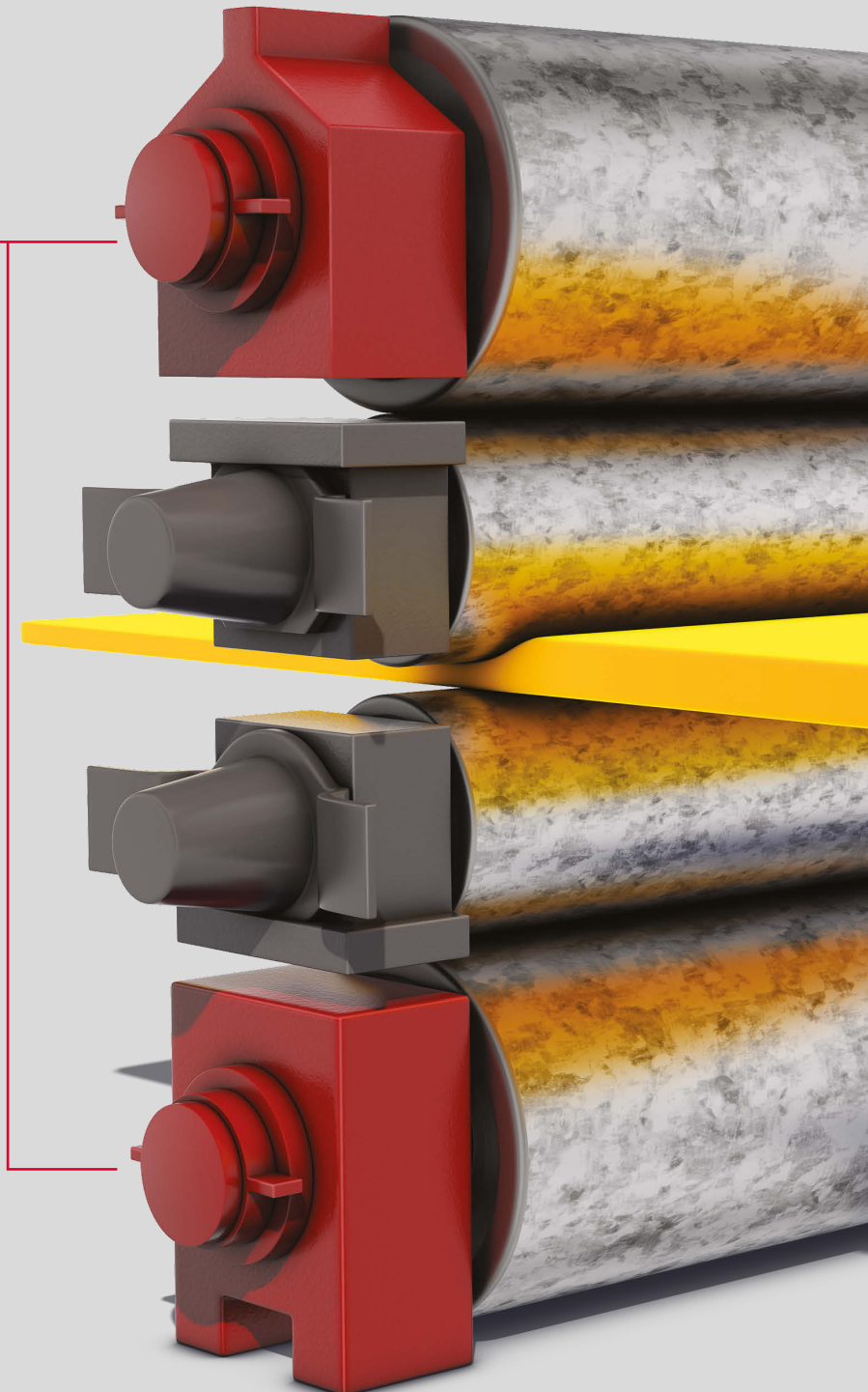
2 times longer life

ARRANGEMENT FOR BACK-UP ROLLS



Above: Because four-row cylindrical roller bearings can accommodate only radial loads, they are used in combination with a bearing to accommodate axial loads, such as a double-row tapered roller bearing

Right: Tandem hot rolling stand, with back-up rolls in top and bottom positions (with red chocks)



BASIC DESIGN TYPES AND COMPONENTS

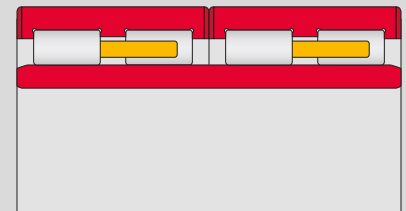
FUNDAMENTAL VARIANTS OF DESIGNS

NSK four-row cylindrical roller bearings are available in a large range of design types, represented here in their basic structure. Essential differences between design types include:

- › Inner and outer rings may be in one or two pieces
- › Outer rings will have various configurations of ribs
- › Outer flange rings and/or spacer rings may be integral to the design
- › Cage material may be machined brass or steel

Although not shown, specific design types of NSK four-row cylindrical roller bearings are available with tapered bores as well as requirements to accommodate oil mist lubrication (with outer ring fittings and o-rings). Contact NSK for specifications and design options.

DESIGN 1



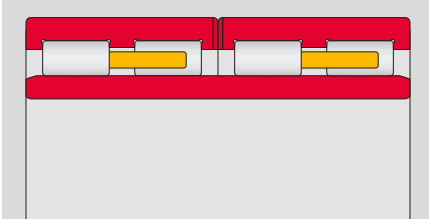
INNER AND OUTER RINGS

- › 2 outer rings - each with 3 integral ribs and inner / outer face scallops
- › 1 inner ring - with no ribs

CAGE

- › 2 machined brass cages - roller guided

DESIGN 2



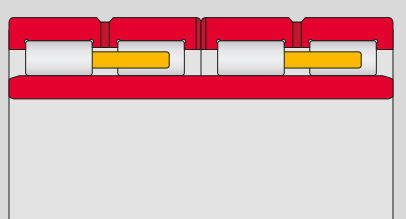
INNER AND OUTER RINGS

- › 2 outer rings - each with 3 integral ribs and inner face scallops
- › 1 inner ring - with no ribs

CAGE

- › 2 machined brass cages - roller guided

DESIGN 3



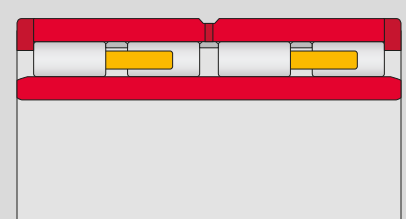
INNER AND OUTER RINGS

- › 2 outer rings - each with 3 integral ribs, lubrication groove and holes, and inner face scallop
- › 1 inner ring - with no ribs

CAGE

- › 2 machined brass cages - roller guided

DESIGN 4



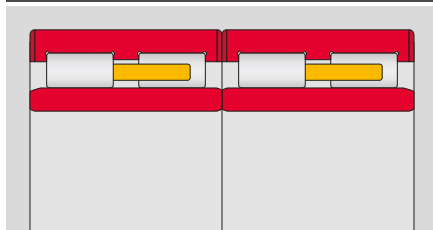
INNER AND OUTER RINGS

- › 1 outer ring - with lubrication groove and holes; no ribs
- › 2 outer flange rings
- › 3 guide rings
- › 1 inner ring - with no rib

CAGE

- › 2 machined brass cages - roller guided

DESIGN 5



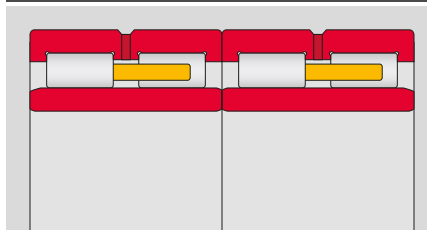
INNER AND OUTER RINGS

- › 2 outer rings - each with 3 integral ribs and inner / outer face scallops
- › 2 inner rings - with no ribs

CAGE

- › 2 machined brass cages - roller guided

DESIGN 6



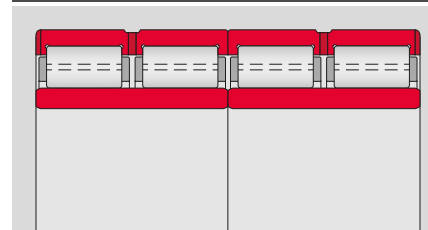
INNER AND OUTER RINGS

- › 2 outer rings - each with 3 integral ribs and lubrication groove and holes
- › 2 inner rings - with no ribs

CAGE

- › 2 machined brass cages - roller guided

DESIGN 7



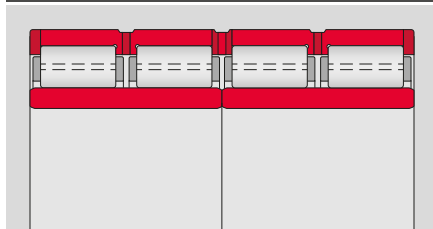
INNER AND OUTER RINGS

- › 2 outer rings - each with 3 integral ribs, lubrication groove and holes, and outer face scallops
- › 2 inner rings - with no ribs

CAGE

- › 4 machined steel cages - pin type
- › Through-drilled rollers

DESIGN 8.1



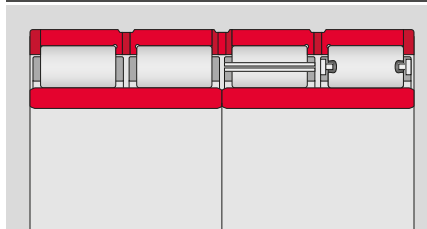
INNER AND OUTER RINGS

- › 2 outer rings - each with 1 integral rib and lubrication groove and holes
- › 2 outer flange rings
- › 1 spacer ring with lubrication features
- › 2 inner rings - with no ribs

CAGE

- › 4 machined steel cages - pin type
- › Through-drilled rollers

DESIGN 8.2



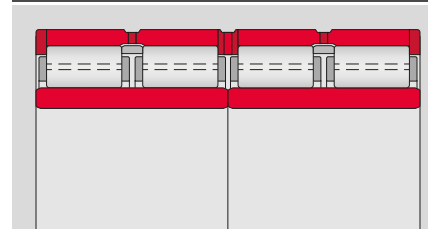
INNER AND OUTER RINGS

- › 2 outer rings - each with 1 integral rib and lubrication groove and holes
- › 2 outer flange rings
- › 1 spacer ring with lubrication features
- › 2 inner rings - with no ribs

CAGE

- › 4 machined steel cages - stud type
- › Solid rollers

DESIGN 9



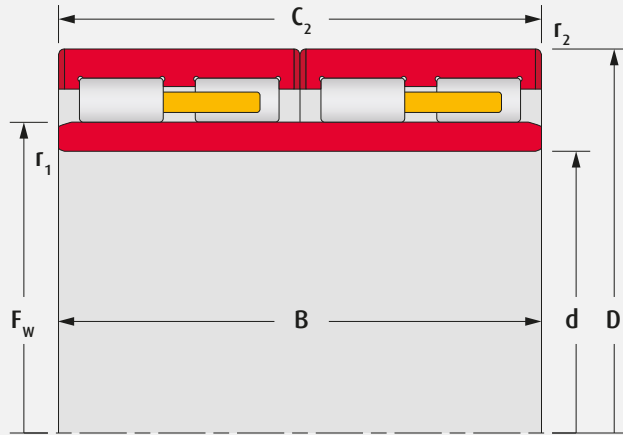
INNER AND OUTER RINGS

- › 2 outer rings - each with 1 integral rib and lubrication groove and holes
- › 2 outer flange rings
- › 1 spacer ring with lubrication features
- › 2 guide rings
- › 2 inner rings - with no ribs

CAGE

- › 4 machined steel cages - pin type
- › Through-drilled rollers

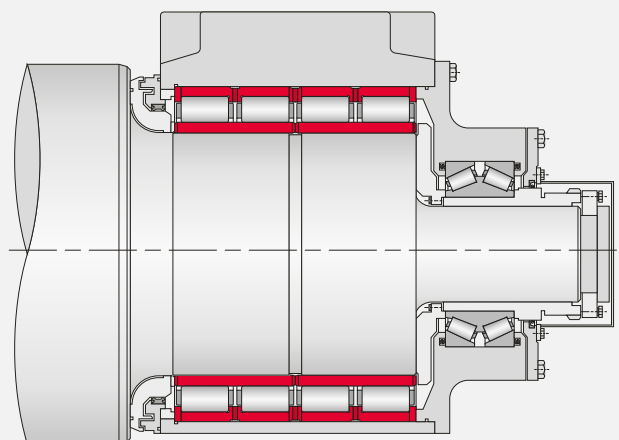
BEARING DIMENSIONS AND OPERATING VALUES



BASIC BEARING NO.	BEARING DIMENSIONS							BASIC LOAD RATINGS		DESIGN
	mm							kN		
	d	D	B	C ₂	F _w	r ₁ min	r ₂ min	Dynamic	Static	
STF100RV1401g	100	140	104	104	111	1.5	1.1	400	820	3
STF110RV1601g	110	160	120	120	124	1.1	1.1	560	1 080	3
STF110RV1701g		170	120	120	127	2.0	2.0	615	1 100	1
STF120RV1601g	120	165	87	87	134.5	1.1	1.1	365	725	1
STF120RV1801g		180	105	105	136	2.0	2.0	530	880	1
STF120RV2101g		215	174	174	147	2.1	2.1	1 060	1 600	1
STF127RV1722g	127	174.625	150.812	150.812	139.5	1.5	1.5	735	1 580	1
STF127RV2001g		203.2	127	127	147.5	2.0	2.0	705	1 110	1
STF130RV2001g	130	200	125	125	149	2.0	2.0	700	1 190	1
STF130RV2003g		200	104	104	149	2.0	2.0	570	950	1
STF140RV2101g	140	210	116	116	160	2.0	2.0	640	1 130	1
STF145RV2101g	145	210	155	155	166	1.5	1.5	925	1 920	1
STF145RV2201g		225	156	156	169	2.0	2.0	975	1 820	1
STF150RV2201g	150	220	150	150	168	2.0	2.0	900	1 700	1
STF150RV2203g		225	150	150	168.5	1.5	2.1	970	1 810	1
STF150RV2204g		225	136	136	168.776	2.1	2.1	820	1 460	1
STF150RV2301g		230	130	130	174	2.1	2.1	845	1 520	1
STF150RV2302g		230	156	156	174	2.0	2.0	965	1 810	1

Back-up Roll Bearing Arrangement

Four-row cylindrical roller bearings can accommodate only radial loads. For back-up rolls in rolling mill stands, they are used in combination with a bearing to accommodate axial loads, such as a double-row tapered roller bearing shown.

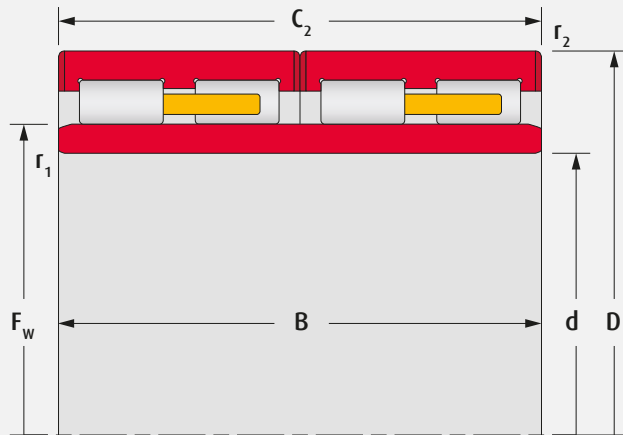


BASIC BEARING NO.	BEARING DIMENSIONS							BASIC LOAD RATINGS		DESIGN
	mm							kN		
	d	D	B	C ₂	F _w	r ₁ min	r ₂ min	Dynamic	Static	
STF159RV2201g	159.99	220	180	180	176	2.0	2.0	1 050	2 410	2
STF160RV2301g	160	230	130	130	178	2.0	2.0	780	1 340	1
STF160RV2307g		230	168	168	179	2.0	2.0	900	2 050	1
STF160RV2302g		230	168	168	180	2.0	2.0	1 040	2 200	1
STF160RV2303g		230	180	180	178	2.0	2.0	1 080	2 280	2
STF160RV2401g		240	120	120	183	2.1	2.1	745	1 320	1
STF160RV2402g		240	170	170	183	2.0	2.0	1 080	2 050	1
STF160RV2403g		240	145	145	180	2.1	2.1	920	1 600	1
STF165RV2221g	165.1	225	168	168	181	1.5	2.5	1 010	2 220	5
STF170RV2301g	170	230	120	120	187	2.0	2.0	755	1 610	1
STF170RV2402g		240	160	160	190	2.0	2.0	1 000	2 130	1
STF170RV2501g		250	168	168	192	2.1	2.1	1 210	2 320	1
STF170RV2502g		250	170	170	192	2.1	2.1	1 210	2 320	1
STF170RV2503g		255	180	180	193	2.1	2.1	1 310	2 500	1
STF170RV2602g		260	150	150	195	2.1	2.1	1 030	1 840	1

Parts shown are bearing types with cylindrical bore. For tapered bore options, contact NSK.
Refer to pages 8 & 9 for "Design" types.

Design type with suffix "M" indicates bearings for oil mist lubrication.
Design type "SP" indicates bearings of special design - contact NSK for specifications.

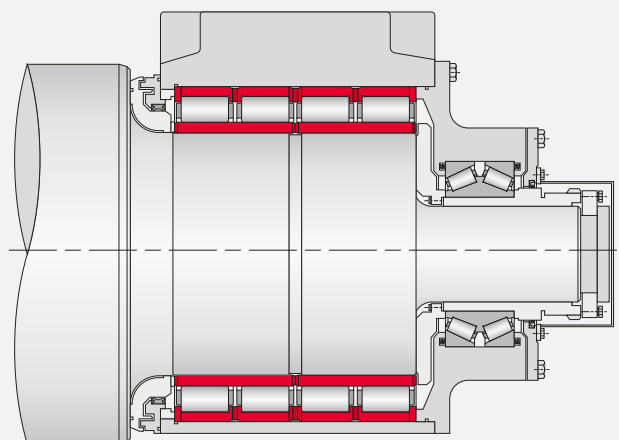
BEARING DIMENSIONS AND OPERATING VALUES



BASIC BEARING NO.	BEARING DIMENSIONS							BASIC LOAD RATINGS		DESIGN
	mm							kN		
	d	D	B	C ₂	F _w	r ₁ min	r ₂ min	Dynamic	Static	
STF180RV2501g	180	250	156	156	200	2.0	2.0	1 020	2 230	1
STF180RV2601g		260	168	168	202	2.1	2.1	1 150	2 300	1
STF180RV2602g		265	180	180	204	2.1	2.1	1 340	2 690	1
STF180RV2603g		265	180	180	203	2.1	2.1	1 230	2 420	1
STF180RV2802g		280	180	180	205	2.1	2.1	1 410	2 490	3
STF190RV2601g	190	260	168	168	212	2.0	2.0	1 140	2 600	1
STF190RV2701g		270	200	200	212	2.1	2.1	1 470	3 100	1
STF190RV2702g		270	170	170	213	2.1	2.1	1 290	2 610	1
STF190RV2703g		270	170	170	212	2.0	2.0	1 290	2 610	1
STF190RV2801g		280	200	200	214	2.1	2.1	1 480	2 920	1
STF200RV2521g	200	250	200	200	215	1.0	1.0	900	2 500	SP
STF200RV2702g		270	170	170	222	2.1	2.1	1 120	2 590	1
STF200RV2703g		270	200	200	222	2.1	2.1	1 330	3 250	SP
STF200RV2801g		280	200	200	224	2.1	2.1	1 410	3 200	1
STF200RV2802g		280	200	200	222	2.1	2.1	1 410	3 200	1
STF200RV2803g		280	190	190	223	2.1	2.1	1 350	3 050	1
STF200RV2804g		280	170	170	223	2.1	2.1	1 150	2 460	1
STF200RV2808g		280	200	200	222	2.1	2.1	1 500	3 200	1
STF200RV2901g		290	192	192	226	2.1	2.1	1 420	3 000	1
STF200RV3102g		310	230	230	229	2.1	2.1	1 840	3 500	1
STF200RV3231g		320	216	216	231	3.0	3.0	2 120	3 900	4

Back-up Roll Bearing Arrangement

Four-row cylindrical roller bearings can accommodate only radial loads. For back-up rolls in rolling mill stands, they are used in combination with a bearing to accommodate axial loads, such as a double-row tapered roller bearing shown.

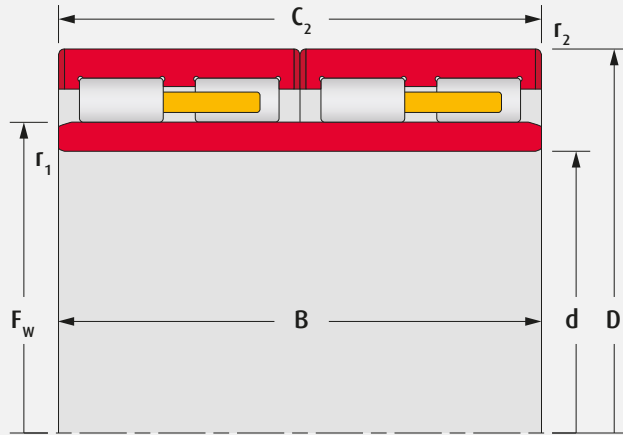


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	mm							kN		
	d	D	B	C ₂	F _W	r ₁ min	r ₂ min	Dynamic	Static	
STF210RV2901g	210	290	192	192	236	2.1	2.1	1 400	3 350	1
STF210RV3001g		300	210	210	234	2.0	2.0	1 650	3 600	1
STF219RV3131g	219.954	310	183	183	245	1.5	1.0	1 480	3 150	4
STF220RV3101g	220	310	192	192	247	2.1	2.1	1 540	3 450	1
STF220RV3102g		310	225	225	245	2.1	2.1	1 740	3 900	1
STF220RV3103g		310	192	192	246	2.1	2.1	1 540	3 450	1
STF220RV3106g		310	192	192	246	2.1	2.1	1 660	3 550	1
STF220RV3107g		310	225	225	244	2.1	2.1	1 900	4 100	1
STF220RV3201g		320	210	210	248	2.1	2.1	1 790	3 650	1
STF220RV3202g		320	210	210	249	2.1	2.1	1 850	3 600	1
STF220RV3203g		320	210	210	246	2.1	2.1	1 900	3 750	SP
STF222RV3201g	222.25	321	241	241	251	2.1	2.1	1 990	4 350	2
STF230RV3301g	230	330	206	206	260	2.1	2.1	1 760	3 900	1
STF230RV3302g		330	206	206	258	2.1	2.1	1 870	3 950	1
STF230RV3401g		340	260	260	261	3.0	3.0	2 390	5 100	1
STF230RV3601g		365	250	250	266	3.0	3.0	2 310	4 300	5

Parts shown are bearing types with cylindrical bore. For tapered bore options, contact NSK.
Refer to pages 8 & 9 for "Design" types.

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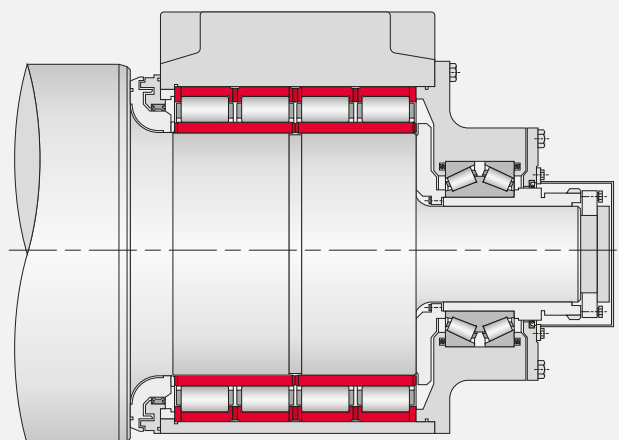
BEARING DIMENSIONS AND OPERATING VALUES



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	mm							kN		
	d	D	B	C ₂	F _W	r ₁ min	r ₂ min	Dynamic	Static	
STF240RV3301g	240	330	220	220	270	3.0	3.0	1 770	4 400	1
STF240RV3304g		330	220	220	264	3.0	3.0	1 840	4 100	3
STF240RV3403g		340	220	220	268	3.0	3.0	1 890	3 900	1
STF240RV3601g		360	220	220	272	3.0	3.0	2 250	4 350	2
STF250RV3401g	250	340	230	230	276	4.0	4.0	2 030	4 750	1
STF250RV3501g		350	220	220	278	3.0	3.0	1 930	4 200	1
STF259RV3631g	259.948	368	218	218	290	2.1	1.1	2 010	4 350	4
STF260RV3521g	260	355	260	260	286	2.1	2.1	2 090	5 000	5
STF260RV3701g		370	220	220	292	3.0	3.0	2 050	4 450	1
STF260RV3704g		370	220	220	290	3.0	3.0	2 220	4 450	1
STF260RV3721g		370	260	260	290	3.0	3.0	2 720	5 950	1
STF260RV3801g		380	280	280	294	3.0	3.0	2 820	6 250	1
STF260RV4001g		400	290	290	296	4.0	4.0	3 250	6 350	1
STF270RV3801g	270	380	230	230	298	2.1	2.1	2 330	5 050	1
STF280RV3901g	280	390	220	220	312	3.0	3.0	2 120	4 800	1
STF280RV3902g		390	240	240	312	3.0	3.0	2 360	5 500	1
STF280RV3903g		390	275	275	308	3.0	1.1	2 860	6 450	1
STF280RV3907g		390	220	220	312	3.0	3.0	2 280	5 100	1
STF280RV3911g		390	275	275	308	spec.	1.1	2 860	6 450	SP
STF280RV3921g		390	275	275	308	spec.	3.0	2 860	6 450	6
STF280RV4021g		400	285	285	316	3.0	3.0	3 000	6 950	5

Back-up Roll Bearing Arrangement

Four-row cylindrical roller bearings can accommodate only radial loads. For back-up rolls in rolling mill stands, they are used in combination with a bearing to accommodate axial loads, such as a double-row tapered roller bearing shown.

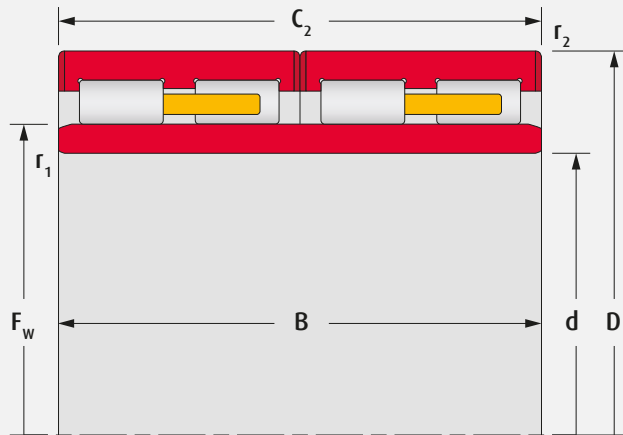


BASIC BEARING NO.	BEARING DIMENSIONS							BASIC LOAD RATINGS		DESIGN
	mm							kN		
	d	D	B	C ₂	F _W	r ₁ min	r ₂ min	Dynamic	Static	
STF290RV3901g	290	390	234	234	320	3.0	3.0	2 270	5 600	1
STF290RV4101g		410	240	240	320	3.0	3.0	2 570	5 450	1
STF290RV4102g		410	240	240	321	3.0	3.0	2 600	5 250	1
STF290RV4201g		420	300	300	327	3.0	3.0	3 300	7 500	1
STF300RV4021g	300	400	300	300	328	2.0	2.0	2 720	8 900	5
STF300RV4201g		420	240	240	332	3.0	3.0	2 670	5 750	1
STF300RV4204g		420	300	300	332	3.0	3.0	3 200	7 200	3
STF300RV4216g		420	300	300	332	spec.	1.5	3 550	8 350	SP
STF300RV4221g		420	300	300	332	2.0	2.0	3 200	7 200	5
STF310RV4201g	310	420	300	300	338	3.0	3.0	3 300	8 050	1
STF310RV4301g		430	240	240	345	3.0	3.0	2 610	5 950	1
STF320RV4401g	320	440	240	240	351	4.0	4.0	2 490	5 350	1
STF320RV4501g		450	240	240	358	3.0	3.0	2 760	6 150	1
STF320RV4502g		450	240	240	355	3.0	3.0	2 710	5 750	1
STF320RV4601g		460	340	340	360	3.0	3.0	3 850	8 700	3
STF320RV4621g		460	240	240	364	3.0	3.0	2 820	6 100	5
STF320RV4811g		480	350	350	364	4.0	1.5	4 850	10 500	8

Parts shown are bearing types with cylindrical bore. For tapered bore options, contact NSK. Refer to pages 8 & 9 for "Design" types.

Design type with suffix "M" indicates bearings for oil mist lubrication.
Design type "SP" indicates bearings of special design - contact NSK for specifications.

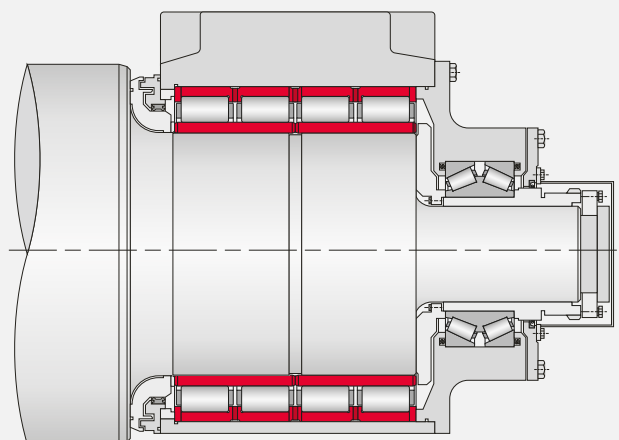
BEARING DIMENSIONS AND OPERATING VALUES



BASIC BEARING NO.	BEARING DIMENSIONS							BASIC LOAD RATINGS		DESIGN
	mm							kN		
	d	D	B	C ₂	F _w	r ₁ min	r ₂ min	Dynamic	Static	
STF330RV4301g	330	430	230	230	358	3.0	3.0	2 340	5 850	1
STF330RV4401g		440	200	200	360	3.0	3.0	2 160	4 750	3
STF330RV4601g		460	340	340	365	4.0	4.0	3 550	8 650	1
STF330RV4611g		460	340	340	365	4.0	2.5	4 150	9 750	SP
STF340RV4501g	340	450	250	250	371	3.0	3.0	2 720	6 750	1
STF340RV4502g		450	250	250	368	3.0	3.0	2 720	6 750	3
STF340RV4801g		480	350	350	378	4.0	4.0	4 050	9 400	1
STF340RV4812g		480	350	350	378	spec.	1.5	4 600	11 100	1
STF340RV4901g		490	300	300	379	5.0	5.0	3 750	8 200	1
STF345RV4821g	345	480	350	350	376	3.0	3.0	4 400	10 300	6
STF350RV5021g	350	500	380	380	389	5.0	5.0	4 850	11 100	6
STF360RV4801g	360	480	290	290	394	3.0	3.0	3 250	8 300	1
STF360RV5022g		500	250	250	394	3.0	3.0	3 450	7 250	5
STF360RV5101g		510	370	370	400	4.0	4.0	4 500	10 100	1
STF370RV4801g	370	480	250	250	401	3.0	3.0	2 830	7 350	1
STF370RV5211g		520	380	380	409	4.0	2.0	6 000	14 400	SP
STF370RV5212g		520	380	380	409	spec.	1.5	5 600	13 300	SP
STF370RV5401g		540	400	400	415	4.0	4.0	5 250	12 000	1

Back-up Roll Bearing Arrangement

Four-row cylindrical roller bearings can accommodate only radial loads. For back-up rolls in rolling mill stands, they are used in combination with a bearing to accommodate axial loads, such as a double-row tapered roller bearing shown.

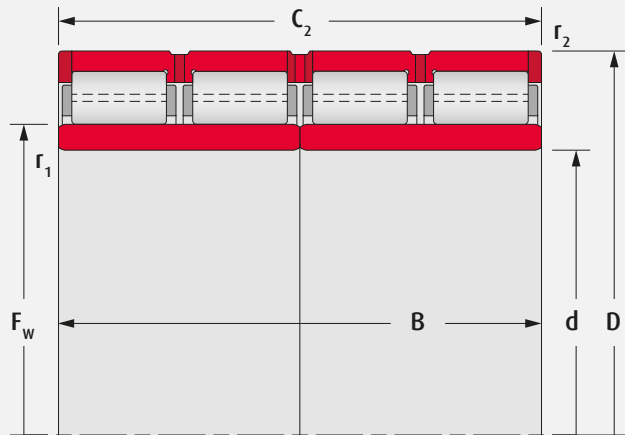


BASIC BEARING NO.	BEARING DIMENSIONS							BASIC LOAD RATINGS		DESIGN
	mm							kN		
	d	D	B	C ₂	F _W	r ₁ min	r ₂ min	Dynamic	Static	
STF380RV5001g	380	500	290	290	414	3.0	3.0	3 350	8 800	1
STF380RV5201g		520	290	290	418	4.0	4.0	3 750	8 850	1
STF380RV5202g		520	280	280	417	4.0	4.0	3 650	8 450	1
STF380RV5431g		540	340	340	424	5.0	5.0	4 700	10 900	4
STF380RV5401g		540	400	400	424	5.0	5.0	5 050	12 000	3
STF380RV5411g		540	400	400	422	5.0	2.0	6 000	14 400	8
STF380RV5412g		540	400	380	424	5.0	2.0	5 750	13 800	SP
STF390RV5101g	390	510	290	290	424	3.0	3.0	3 400	9 000	1
STF390RV5521g		550	400	400	434	5.0	5.0	5 150	12 400	6
STF400RV5202g	400	520	250	250	432	4.0	4.0	3 000	7 700	3
STF400RV5501g		550	300	300	441	4.0	4.0	4 150	9 750	1
STF400RV5612g		560	400	400	446	5.0	5.0	5 650	13 600	8
STF400RV5613g		560	410	410	445	5.0	2.0	6 550	16 500	8M
STF400RV5621g		560	400	400	446	5.0	5.0	4 750	11 300	6
STF400RV5611g		560	410	410	445	5.0	2.0	6 550	16 500	8
STF406RV6001g	406.4	610	305	305	460	5.0	5.0	4 650	9 150	1

Parts shown are bearing types with cylindrical bore. For tapered bore options, contact NSK.
Refer to pages 8 & 9 for "Design" types.

Design type with suffix "M" indicates bearings for oil mist lubrication.
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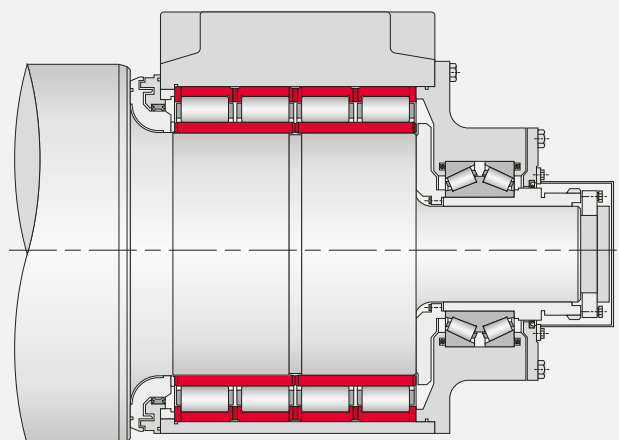
BEARING DIMENSIONS AND OPERATING VALUES



BASIC BEARING NO.	BEARING DIMENSIONS							BASIC LOAD RATINGS		DESIGN
	mm							kN		
	d	D	B	C ₂	F _w	r ₁ min	r ₂ min	Dynamic	Static	
STF410RV6011g	410	600	440	440	460	5.0	5.0	7 350	16 600	8
STF420RV5601g	420	560	280	280	457	4.0	4.0	3 800	9 250	1
STF420RV5602g		560	400	400	458	4.0	4.0	4 950	13 000	6
STF420RV6011g		600	440	440	470	5.0	2.0	7 100	17 200	8
STF420RV6012g		600	440	440	465	5.0	5.0	7 300	17 200	8
STF430RV5911g	430	591	420	420	476	4.0	4.0	6 350	16 100	8
STF430RV5921g		591	420	420	476	4.0	4.0	5 200	13 400	5
STF440RV6213g	440	620	450	450	487	5.0	5.0	7 350	17 800	8
STF440RV6215g		620	450	450	487	spec.	3.0	8 100	19 700	8
STF440RV6221g		620	450	450	490	4.0	4.0	7 450	19 000	5
STF450RV6321g	450	630	450	450	500	4.0	4.0	6 950	17 500	5
STF460RV6201g	460	620	400	400	506	4.0	4.0	5 500	14 700	1
STF460RV6211g		620	400	400	502	4.0	4.0	6 400	16 600	8
STF460RV6212g		620	460	460	502	4.0	4.0	7 100	19 100	8M
STF460RV6511g		650	470	470	509	6.0	3.0	8 400	20 900	8
STF460RV6513g		650	470	470	509	4.0	3.0	8 600	21 200	8
STF460RV6721g		670	500	500	522	6.0	6.0	8 900	22 700	7
STF470RV6611g	470	660	470	470	519	4.0	4.0	8 450	20 800	8

Back-up Roll Bearing Arrangement

Four-row cylindrical roller bearings can accommodate only radial loads. For back-up rolls in rolling mill stands, they are used in combination with a bearing to accommodate axial loads, such as a double-row tapered roller bearing shown.

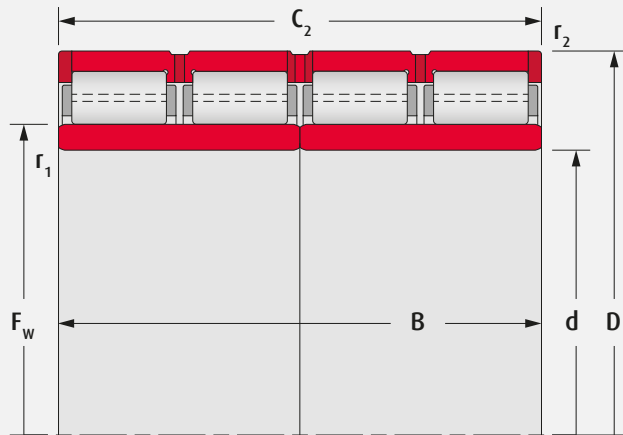


BASIC BEARING NO.	BEARING DIMENSIONS							BASIC LOAD RATINGS		DESIGN
	mm							kN		
	d	D	B	C ₂	F _W	r ₁ min	r ₂ min	Dynamic	Static	
STF480RV6814g	480	680	420	420	528	spec.	3.0	8 350	19 000	8
STF480RV6815g		680	500	500	532	4.0	3.0	9 400	23 500	8
STF480RV6801g		680	500	500	534	5.0	5.0	9 000	23 100	7
STF480RV6811g		680	500	500	534	5.0	5.0	9 000	23 100	8
STF480RV7031g		700	400	400	538	6.0	6.0	7 650	17 400	9
STF500RV6713g	500	670	450	450	540	spec.	4.0	7 750	20 000	8
STF500RV6712g		670	450	450	540	5.0	5.0	8 300	22 300	SP
STF500RV6812g		680	420	405	550	5.0	5.0	6 700	17 600	8
STF500RV6913g		690	510	510	550	5.0	5.0	8 850	23 900	8M
STF500RV6921g		690	510	510	552	5.0	5.0	9 000	24 600	7
STF500RV7021g		700	515	515	554	5.0	5.0	9 100	23 800	7
STF500RV7111g		710	480	480	558	5.0	5.0	8 500	21 200	8
STF500RV7211g		720	530	530	560	6.0	6.0	9 950	25 300	8
STF500RV7214g		720	530	530	568	6.0	6.0	10 100	25 900	8M
STF510RV6701g	510	670	320	320	554	5.0	5.0	4 950	12 700	1
STF510RV6811g		680	500	500	560	5.0	5.0	8 950	25 700	8
STF520RV7331g	520	735	535	535	575	5.0	5.0	10 400	26 300	9
STF520RV7311g		735	535	535	575	5.0	5.0	10 800	27 500	8M

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Refer to pages 8 & 9 for "Design" types.

Design type with suffix "M" indicates bearings for oil mist lubrication.
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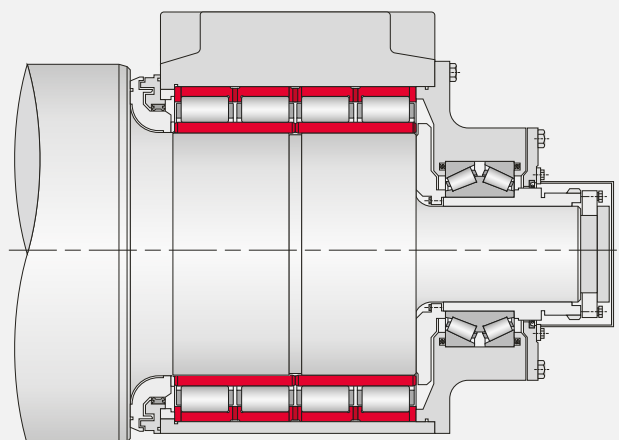
BEARING DIMENSIONS AND OPERATING VALUES



BASIC BEARING NO.	BEARING DIMENSIONS							BASIC LOAD RATINGS		DESIGN
	mm							kN		
	d	D	B	C ₂	F _w	r ₁ min	r ₂ min	Dynamic	Static	
STF530RV7811g	530	780	570	570	601	6.0	6.0	11 800	29 200	8M
STF530RV7813g		780	570	570	595	6.0	6.0	11 800	29 200	8
STF536RV7631g	536.176	762	559	559	600	5.0	5.0	10 800	28 800	9
STF536RV7612g		762	559	559	598	spec.	4.0	11 600	30 000	SP
STF550RV7411g	550	740	510	510	602	5.0	5.0	9 150	25 700	8M
STF550RV7413g		740	510	510	600	spec.	2.0	10 100	27 600	8
STF560RV8011g	560	800	600	600	620	6.0	6.0	12 400	31 500	8
STF560RV8211g		820	600	600	625	6.0	6.0	14 100	34 000	8
STF570RV8113g	570	815	594	594	628	6.0	6.0	13 200	32 000	8
STF570RV8111g		815	594	594	628	6.0	6.0	13 700	33 500	8
STF571RV8111g	571.1	813	594	594	636	6.0	5.0	13 200	34 500	8
STF600RV8212g	600	820	575	575	660	spec.	3.0	12 900	35 500	SP
STF600RV8511g		850	600	600	664	5.0	5.0	14 600	37 500	8M
STF600RV8711g		870	640	640	682	7.5	4.0	15 700	40 000	8M
STF600RV8713g		870	640	640	672	7.5	4.0	15 700	40 000	8
STF600RV8714g		870	640	640	669	5.0	5.0	15 700	40 000	8M
STF610RV8511g	610	850	570	570	670	6.0	5.0	12 600	33 000	8
STF610RV8711g		870	660	660	680	6.0	6.0	15 400	41 500	8
STF628RV9211g	628	922	600	600	702	6.0	5.0	15 600	37 000	8

Back-up Roll Bearing Arrangement

Four-row cylindrical roller bearings can accommodate only radial loads. For back-up rolls in rolling mill stands, they are used in combination with a bearing to accommodate axial loads, such as a double-row tapered roller bearing shown.

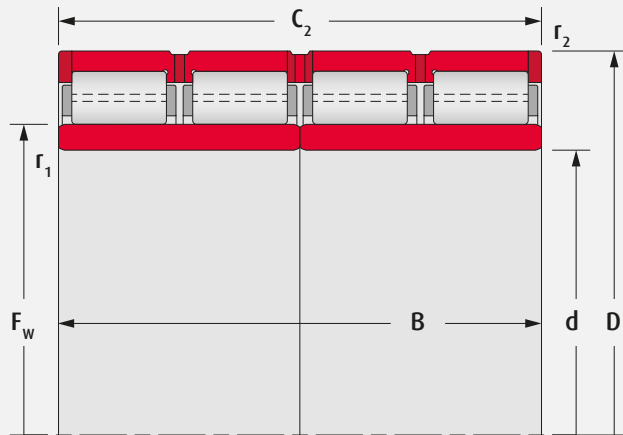


BASIC BEARING NO.	BEARING DIMENSIONS							BASIC LOAD RATINGS		DESIGN
	mm							kN		
	d	D	B	C ₂	F _W	r ₁ min	r ₂ min	Dynamic	Static	
STF634RV9031g	634.5	902	674	674	705	7.5	4.0	16 200	43 500	9
STF634RV9011g		902	674	674	705	5.0	4.0	17 000	44 500	8M
STF640RV8711g	640	870	610	610	697	6.0	3.0	14 200	40 000	8M
STF640RV8812g		880	600	600	700	6.0	6.0	14 200	38 000	8
STF650RV9011g	650	900	650	650	710	spec.	5.0	16 000	42 000	8
STF650RV9212g		920	670	670	723	7.5	7.5	16 200	44 000	8
STF650RV9211g		920	690	690	723	7.5	7.5	16 600	45 000	8
STF660RV9311g	660	930	660	660	728	6.0	6.0	17 000	44 000	8
STF680RV9811g	680	980	640	640	760	spec.	4.0	17 500	43 500	8
STF690RV9611g	690	960	670	670	760	7.5	7.5	17 400	47 000	8
STF690RV9831g		980	715	715	768	7.5	7.5	17 900	48 000	9
STF690RV9832g		980	750	750	766	7.5	7.5	19 200	53 000	9M
STF690RV9812g		980	750	750	766	7.5	7.5	19 200	53 000	8
STF690RV9813g		980	750	750	766	7.5	7.5	19 200	53 000	8M
STF700RV9311g	700	930	620	620	763	6.0	6.0	12 900	38 000	8
STF700RV9313g		930	620	620	763	6.0	6.0	14 800	43 000	8
STF700RV9813g		980	700	700	774	6.0	6.0	18 000	48 500	8
STF700RV9821g		980	700	700	774	6.0	6.0	17 800	49 000	7

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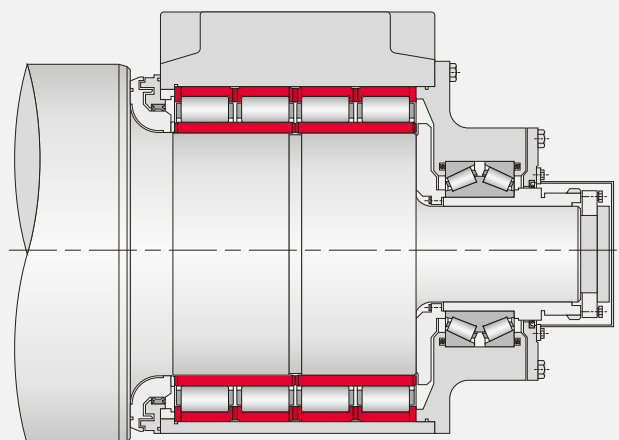
BEARING DIMENSIONS AND OPERATING VALUES



BASIC BEARING NO.	BEARING DIMENSIONS							BASIC LOAD RATINGS		DESIGN
	mm							kN		
	d	D	B	C ₂	F _w	r ₁ min	r ₂ min	Dynamic	Static	
STF710RV1011g	710	1 000	715	715	788	7.5	7.5	18 700	50 500	8
STF725RV1011g	725	1 000	700	700	796	6.0	6.0	18 200	51 000	8
STF725RV1012g		1 000	700	700	790	spec.	4.0	19 000	51 500	8
STF725RV1021g		1 000	700	700	796	6.0	6.0	17 700	49 500	7
STF730RV9611g	730	960	620	620	790	6.0	3.0	15 000	44 500	8
STF730RV1011g		1 030	750	750	809	6.0	6.0	20 700	56 500	8
STF750RV1011g	750	1 000	670	670	813	6.0	6.0	16 800	49 500	8
STF750RV1013g		1 000	670	670	813	spec.	3.0	17 500	50 000	8
STF755RV1011g	755	1 070	750	750	837	7.5	7.5	21 700	58 500	8
STF760RV1031g	760	1 030	750	750	834	7.5	7.5	18 200	53 500	9
STF760RV1012g		1 030	750	750	828	7.5	7.5	20 800	60 000	8M
STF760RV1032g		1 080	805	790	845	6.0	6.0	22 200	61 000	9M
STF761RV1012g	761.425	1 080	787	787	846	spec.	7.5	23 900	65 500	8
STF761RV1032g		1 080	787	787	845	7.5	7.5	22 200	61 000	9

Back-up Roll Bearing Arrangement

Four-row cylindrical roller bearings can accommodate only radial loads. For back-up rolls in rolling mill stands, they are used in combination with a bearing to accommodate axial loads, such as a double-row tapered roller bearing shown.

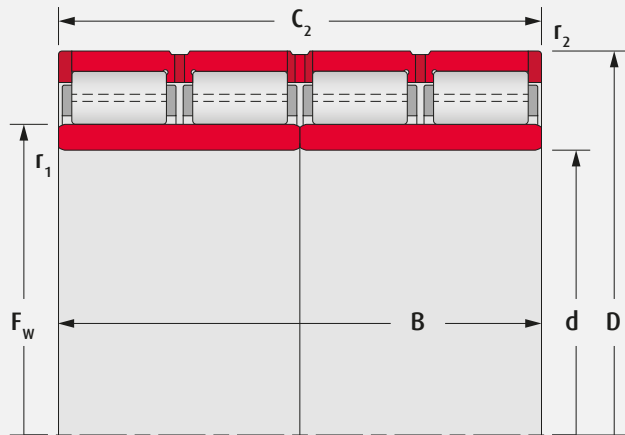


BASIC BEARING NO.	BEARING DIMENSIONS							BASIC LOAD RATINGS		DESIGN
	mm							kN		
	d	D	B	C ₂	F _W	r ₁ min	r ₂ min	Dynamic	Static	
STF770RV1011g	770	1 075	770	770	847	7.5	7.5	23 100	63 500	8M
STF780RV1013g	780	1 070	780	780	853	6.0	6.0	22 800	64 500	8
STF800RV1013g	800	1 080	700	700	878	6.0	3.0	19 100	56 000	8
STF800RV1011g		1 080	700	700	878	6.0	3.0	19 600	58 000	8
STF800RV1012g		1 080	750	750	880	6.0	6.0	19 200	56 500	8
STF800RV1032g		1 080	750	750	880	6.0	6.0	18 700	56 500	9
STF820RV1132g		1 100	745	720	892	6.0	3.0	19 700	58 500	SP
STF820RV1119g	820	1 100	745	720	892	6.0	6.0	20 100	59 000	8M
STF820RV1112g		1 130	650	650	891	spec.	6.0	20 300	53 000	8
STF820RV1117g		1 130	800	800	903	7.5	7.5	22 900	66 500	8M
STF820RV1134g		1 130	825	800	903	7.5	7.5	22 900	66 500	SP
STF820RV1111g		1 160	840	840	911	7.5	7.5	25 600	72 000	8
STF840RV1111g	840	1 160	840	840	920	2.0	7.5	24 900	71 000	8M

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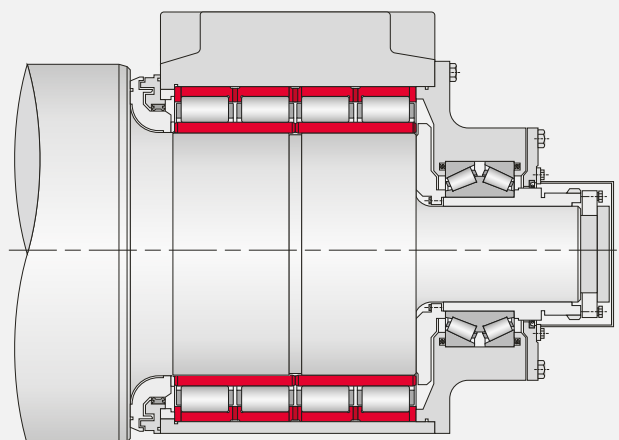
BEARING DIMENSIONS AND OPERATING VALUES



BASIC BEARING NO.	BEARING DIMENSIONS							BASIC LOAD RATINGS		DESIGN
	mm							kN		
	d	D	B	C ₂	F _w	r ₁ min	r ₂ min	Dynamic	Static	
STF850RV1114g	850	1 150	840	840	928	7.5	4.0	23 300	68 500	8
STF850RV1115g		1 150	840	840	928	7.5	8.0	25 600	77 500	8
STF850RV1133g		1 180	650	650	945	7.5	7.5	19 600	53 000	9
STF850RV1111g		1 180	850	850	940	7.5	7.5	24 600	72 000	8M
STF850RV1112g		1 180	875	850	940	7.5	7.5	24 600	72 000	8M
STF860RV1132g	860	1 130	670	670	934	6.0	6.0	18 400	56 500	9
STF860RV1133g		1 160	735	710	940	7.5	4.0	20 400	60 000	9
STF865RV1111g	865	1 180	750	750	945	spec.	7.5	23 800	67 000	8
STF870RV1111g	870	1 145	705	685	940	9.5	6.0	20 500	61 000	8
STF880RV1211g	880	1 230	850	850	970	7.5	7.5	29 100	81 000	8
STF900RV1216g	900	1 220	810	800	981	7.5	6.0	25 900	74 500	8
STF900RV1212g		1 220	840	840	989	7.5	4.0	26 800	80 000	8
STF900RV1211g		1 230	895	870	985	7.7	7.5	25 800	76 000	8M
STF900RV1213g		1 280	930	930	1 000	7.5	7.5	32 000	89 500	8
STF900RV1217g		1 280	930	930	1 000	7.5	7.5	33 000	93 000	8

Back-up Roll Bearing Arrangement

Four-row cylindrical roller bearings can accommodate only radial loads. For back-up rolls in rolling mill stands, they are used in combination with a bearing to accommodate axial loads, such as a double-row tapered roller bearing shown.



BASIC BEARING NO.	BEARING DIMENSIONS							BASIC LOAD RATINGS		DESIGN
	mm							kN		
	d	D	B	C ₂	F _W	r ₁ min	r ₂ min	Dynamic	Static	
STF920RV1211g	920	1 280	865	865	1 015	7.5	7.5	28 000	80 000	8M
STF950RV1314g	950	1 330	950	950	1 053	spec.	9.0	33 500	97 000	8
STF950RV1311g		1 360	1 000	1 000	1 075	9.5	5.0	37 500	108 000	8
STF1120RV1511g	1 120	1 580	1 150	1 150	1 255	9.5	9.5	43 500	134 500	8
STF1270RV1612g	1 270	1 602	850	850	1 350	7.5	7.5	32 000	103 000	SP
STF1300RV1612g	1 300	1 655	890	880	1 391	7.5	7.5	34 000	110 500	SP
STF1348RV1711g	1 348	1 745	1 010	1 000	1 466	11.4	7.5	42 500	134 000	SP

Parts shown are bearing types with cylindrical bore. For tapered bore options, contact NSK. Refer to pages 8 & 9 for "Design" types.

Design type with suffix "M" indicates bearings for oil mist lubrication.

Design type "SP" indicates bearings of special design - contact NSK for specifications.

DESIGNATION SYSTEM

FOUR-ROW CYLINDRICAL ROLLER BEARINGS

Special Material		Bearing Type		Tolerance Type		Carburization		Radial Internal Clearance	
STF	600	RV	87	1	1	g	S8	CR370	P5A
Bore Reference Number		Bearing O.D. Reference		NSK Sequence Number		Surface Treatment		Tolerance Class	

DESIGNATION	ATTRIBUTE	
Special Material Designation	blank	standard bearing steel
	STF	long-life Super-TF™ steel
Bore Reference Number		bearing bore diameter expressed in mm
Bearing Type	RV	four-row cylindrical roller bearing
Bearing O.D. Reference		multiply by 10 for bearing outer diameter within a 10 mm range eg. "87" = 870 - 879.99 mm
Tolerance Type	0 - 4	metric
	5 - 9	inch
Sequence Number	1 - 9	internal - assigned by NSK
Carburization	g	entire bearing
Surface Treatment	S8	corrosion resistant phosphate coating

DESIGNATION	ATTRIBUTE	
Radial Internal Clearance	CRXXX	special internal clearance when parts are co-ground; expressed in microns
	CGXXX	custom internal clearance; expressed in microns
	C3	greater than normal clearance
	C4	greater than C3 clearance
Tolerance Class	P5A	special precision tolerances
	P4A	



IMPROVEMENT PAYS

END-TO-END SERVICE DELIVERS CUSTOMER SUCCESS

Improvement never ends. And we never stop looking for better ways to support our customers in a complete, collaborative and continuous way. The focus of NSK isn't simply on a quick fix for immediate gain – it's about incremental and sustainable improvement to deliver long-term benefits.

When NSK is on-site, we're there to understand our customers' challenges and identify problems contributing to frequent bearing replacement, breakdowns caused by poor specification, high energy costs from inefficient product selection and lost production because of downtime. We collaborate with our customers to institute an **Asset Improvement Program (AIP)** that encompasses process and maintenance management, diagnostic and educational support to deliver measurable gains in output and cost-efficiency.

With NSK, our customers embark on a critical path to realizing improvements in equipment, productivity, people and financial performance.





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