

  
**DAS LAGER**  
*GERMANY*  
[www.daslager.com](http://www.daslager.com)

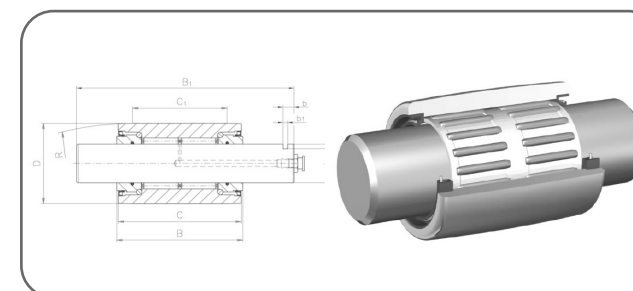
steel industry bearings



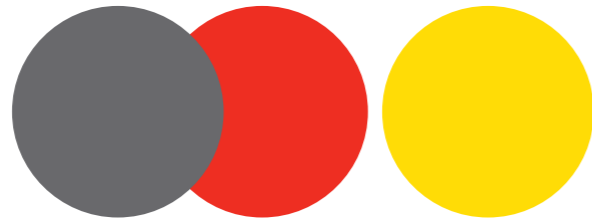
  
**DAS LAGER**  
*GERMANY*

still like steel...

SPECIAL COMBINED BACKUP BEARINGS



Designation	Dimensions (mm)										Load Rating(kN)				Speed (grease) rev/min
	d	D	C	B	B <sub>1</sub>	C <sub>1</sub>	b	b <sub>1</sub>	d <sub>1</sub>	R	dyn. C	stat. C <sub>0</sub>	dyn. C <sub>w</sub>	stat. C <sub>w0</sub>	
MRSC 0012	12	25,5	30	32	61,5	25	4,5	2	9	140	9	15	8	13	4,500
MRSC 0014	14	27	41	43	75	25	5	2,5	11	140	13,5	20	11,5	17	4,500
MRSC 0015	15	31	44	46	77	38	6	2,5	12	145	18	23	16	21	4,500
MRSC 0016	15	31	46	48	82	38	6	2,5	12	145	18	23	16	21	4,500
MRSC 0017	18	33	57	58	90	39	5	2,5	15	145	20	37	17	30	4,300
MRSC 0018	18	36	62	64	95	34	6	2,5	15	145	25	46	22	44	4,000
MRSC 0019	20	41	48	50	81	40	6	2,5	17	145	34	52	30	46	2,000
MRSC 0020	20	41	68	70	110	42	7	2,5	17	145	40	68	35	62	1,200
MRSC 0023	25	48	58	60	95	48	6	2,5	22	145	40	75	35	64	1,000
MRSC 0024	25	48	83	85	133	59	7	2,5	22	180	66	112	52	90	1,000
MRSC 0025	25	52	78	80	138	60	7	3	22	180	79	124	56	102	1,000
MRSC 0026	28	52	69	72	110	55	7	3	25	180	45	110	39	100	1,000
MRSC 0028	30	56	83	85	133	59	7	3	27	180	67	132	53	102	750
MRSC 0029	30	60	57	58,5	99,5	46	10	5	27	180	62	109	47	99	1,000
MRSC 0030	32	63	83	85	133	51	7	3	27	180	75	118	63	105	600
MRSC 0032	32	66	103	105	178	93	7	3	29	180	104	130	74	108	400
MRSC 0050	50	83	128	130	190	94	9	4	45,5	180	120	300	88	212	400



***FROM NOW ON THE EARTH  
SHALL TURN IN A DIFFERENT WAY***

Das Lager has been created as a new spark on the top of the bearing market by the harmonization of more than 30 years experiences with requirements of today and future. Das Lager Bearings was commenced to the journey in Dusseldorf – Germany and offering the highest quality of German engineering and design on each and every single product.

**STEEL INDUSTRY BEARINGS**

- *Special design-special products*
- *Non-stop, trustable and long turning life*
- *Maraton sprinter bearing*

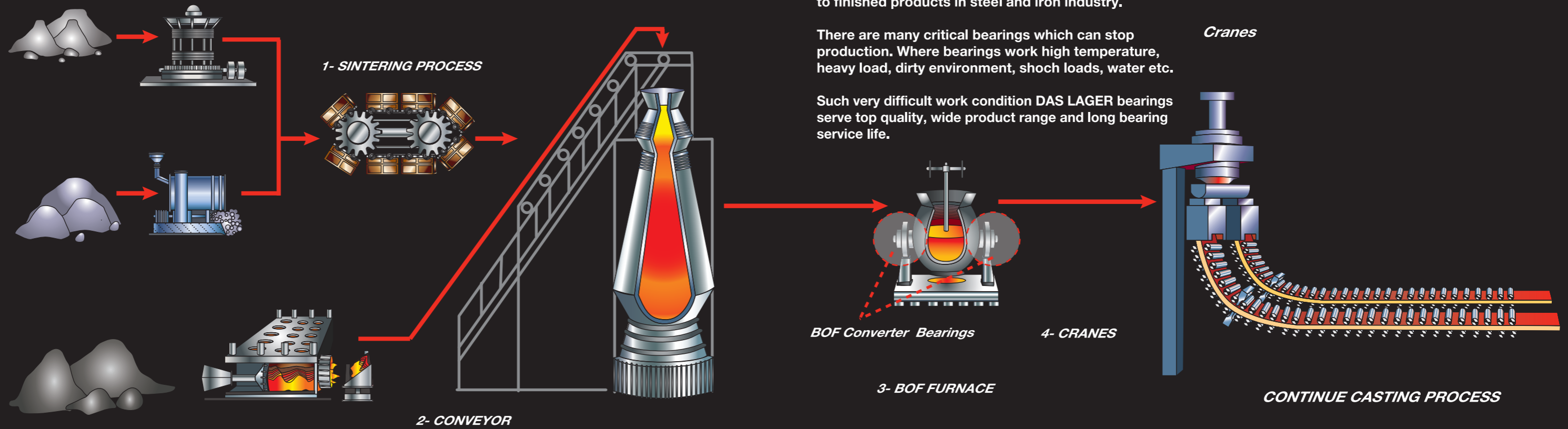


**DAS LAGER STEEL & IRON INDUSTRY APPLICATION BEARINGS**

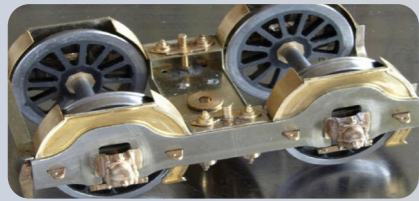
Many bearings are used from raw material progress to finished products in steel and iron industry.

There are many critical bearings which can stop production. Where bearings work high temperature, heavy load, dirty environment, shock loads, water etc.

Such very difficult work condition DAS LAGER bearings serve top quality, wide product range and long bearing service life.



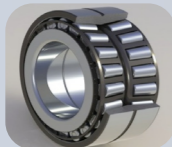
**1 SINTERING**



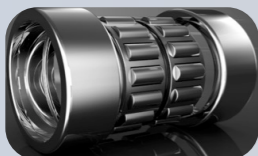
**SINTERING EQUIPMENT BEARINGS**

- Heavy Loads
- High Temperatures
- Sintered particles
- Low speed

**- DOUBLE ROW SEALED TAPER ROLLER BEARINGS**



**- DOUBLE ROW SEALED CYLINDRICAL ROLLER BEARING**



**2 CONVEYOR**

**- SPHERICAL ROLLER BEARINGS**



**- BEARING HOUSING**



**3 BOF FURNACE BEARING**

**SINTERING EQUIPMENT BEARINGS**

- Heavy Load
- Long operate time
- Short bearing replacement time
- Very low speed

**- TRUNNION RING BEARING  
SPLIT SPHERICAL ROLLER BEARINGS**



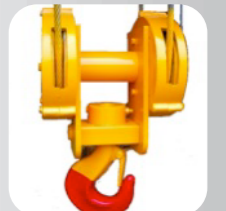
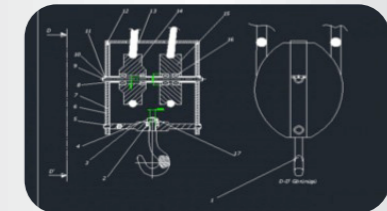
**-BULL GEAR BEARINGS**

**- PINION BOX BEARINGS  
CYLINDRICAL ROLLER BEARINGS**



**4 CRANCES**

- Heavy Load
- Long operate time
- High Safety

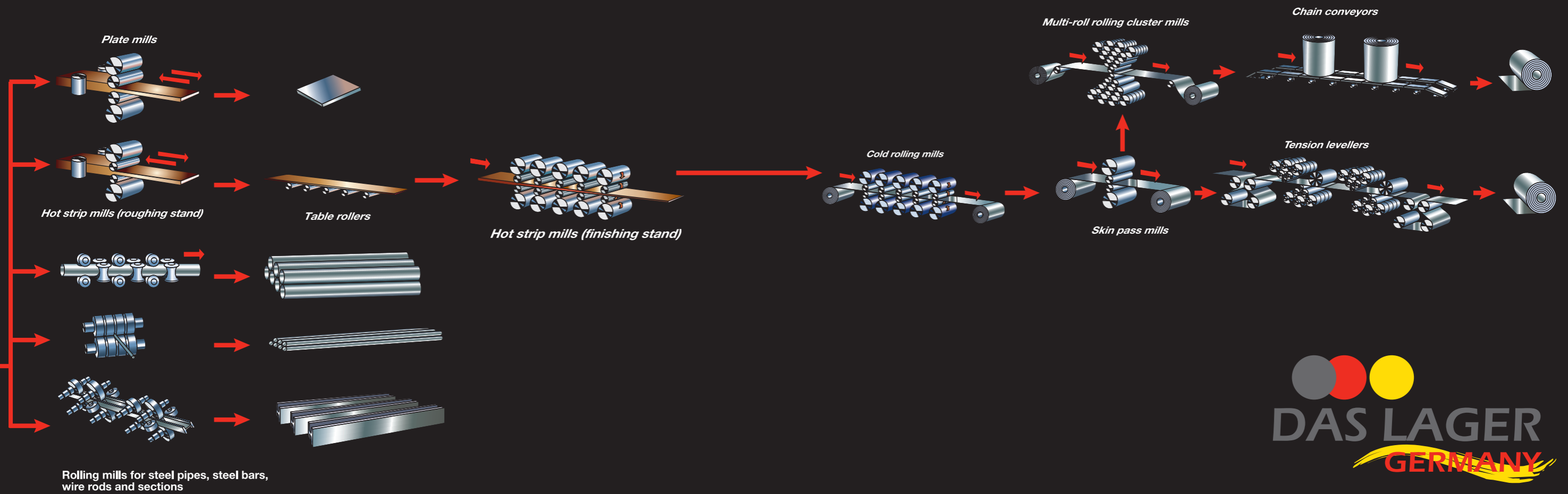


**- SEALED FULL COMPLEMENT BEARINGS**



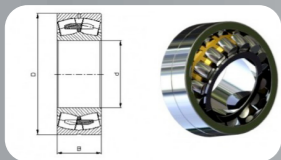
**- THRUST CYLINDRICAL ROLLER BEARINGS**



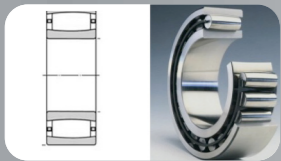


## 5 CONTINUE CASTING BEARINGS

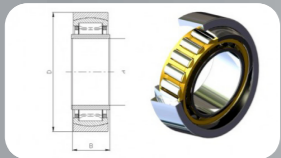
- SPHERICAL ROLLER BEARINGS



- TORODIAL BEARINGS



- ALIGNING CYLINDRICAL ROLLER BEARINGS



- LADLE TURRET BEARING SLEWING BEARINGS



## 6 ROLLING MILL ROLL BEARINGS

- SPHERICAL ROLLER BEARINGS



- FOUR ROW TAPER ROLLER BEARINGS



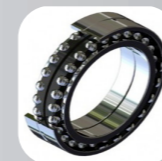
- FOUR ROW CYLINDRICAL ROLLER BEARING



- DOUBLE ROW TAPER ROLLER BEARINGS



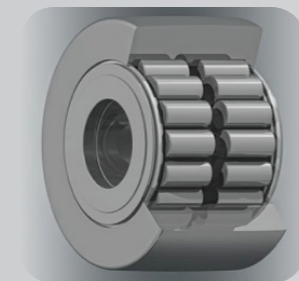
- DOUBLE ROW ANGULAR CONTACT BEARINGS



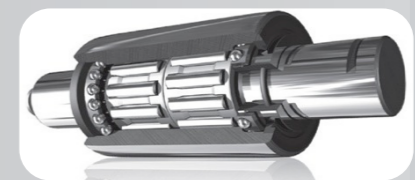
- DOUBLE ROW THRUST TAPER ROLLER BEARINGS



## 7 LEVELLER BEARINGS FULL COMPLEMENT CYLINDRICAL ROLLER BEARINGS



SPECIAL COMBINE BEARINGS





strength  
of steel...



# Bearings For Sintering Equipment



## SINTERING PALLET WHEEL BEARINGS

Sintering furnace, roller bearings used in the wheels of the carriers which are used during transportation.

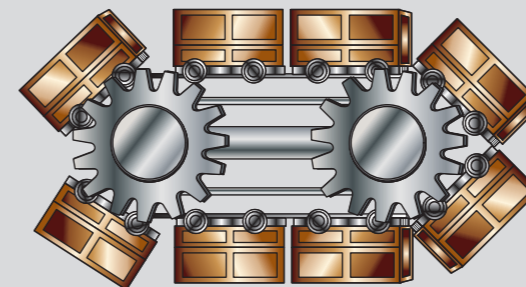
### Operate Condition

High Temperature

Heavy Loads

Low Speed

High Contamination



### Problems

Iron powders fusion and combination at high temperature (between 1000- 1300Co). Process time is changing depend on material type. Sintering time depend sintering temperature. When temperature increase, process time decrease.

Depend on Loads Short Inboard Bearing Life

Lubrication Problems: Degradation of Grease

Entry of Sintered Particles into the Bearing

### Solutions

#### Special Bearing Desing:

Special double row sealed taper roller bearings for combined heavy loads on wheels of pallets.

#### Special Bearing Desing:

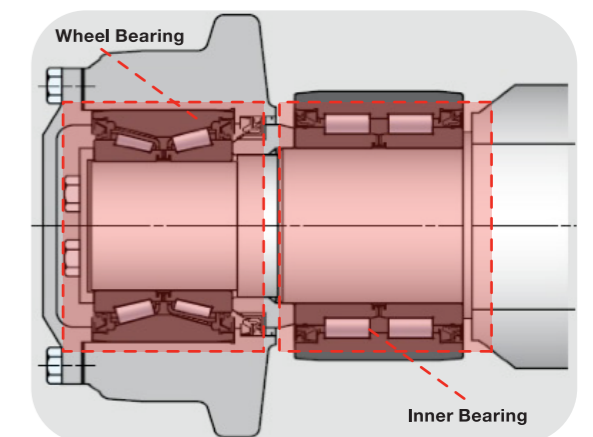
Special sealed full complement double row cylindrical roller bearings for heavy radial loads on pallet inner bearings.

#### Special Seal:

Special contact seal for prevent to entry contamination particles to the bearing. Prevent to leakage greases from bearing and decrease lubrication usage amount.

#### Speacial Greases:

Speacial grease is suitable for temperature changes and heavy loads.



## Advantages

### Easy Maintenance:

Compact desing: One pieces (Whole bearing)  
Sealed grease filled bearing no need relubrication

### Reduce Maintenance Costs:

Lesser breakdown, decrease maintenance time  
Increase machine uptime

### Reduce Maintenance Costs:

Longer Bearing Life, No external seal, no additional grease  
Reduce replacement time and costs

## SEALED DOUBLE ROW TAPER ROLLER BEARINGS



- Developed internal desing and increased load rating
- Special Seal: Developed contact seal, increased sealing
- Speail grease for operation condition. No need relubricate
- Compact desing: Easy mounting

Bearing No	Dimintions (mm)			Basic Load Rating(kN)	
	d	D	C	C <sub>r</sub>	C <sub>or</sub>
DR 80-150	80	150	67	280	350
DR 85-150	85	150	70	300	370
DR 90-160	90	160	74	260	470
DR 100-180	100	180	100	375	700
DR 110-180	110	180	86	350	690
DR 110-200	110	200	100	600	1000

## SEALED DOUBLE ROW FULL COMPLEMENT CYLINDRICAL ROLLER BEARINGS

- Increased load rating capacity
- Developed internal desing
- Full complement (without cage) Increased load capacity
- Increased axial load capacity

Bearing No	Dimintions (mm)					Basic Load Rating(kN)	
	d	D	B	C	C <sub>s</sub>	C <sub>r</sub>	C <sub>or</sub>
NNF 5016 2LS V	80	125	60	59	54.2	300	500
NNF 5018 2LS V	90	140	67	66	59.2	350	625
NNF 5020 2LS V	100	150	67	66	59.2	400	650
NNF 5022 2LS V	110	170	80	79	70.2	450	725
NNF 5024 2LS V	120	180	80	79	71.2	525	810
NNF 5026 2LS V	130	200	95	94	83.2	625	1200
NNF 5028 2LS V	140	210	95	94	83.2	650	1250
NNF 5030 2LS V	150	225	100	99	87.2	750	1390
NNF 5032 2LS V	160	240	109	108	95.2	770	1480
NNF 5034 2LS V	170	260	122	121	107.2	1000	1900
NNF 5036 2LS V	180	280	136	135	118.2	1150	2300
NNF 5038 2LS V	190	290	136	135	118.2	1200	2400
NNF 5040 2LS V	200	310	150	149	128.2	1350	3050

# Bearings for BOF (Basic Oxygen Furnace)



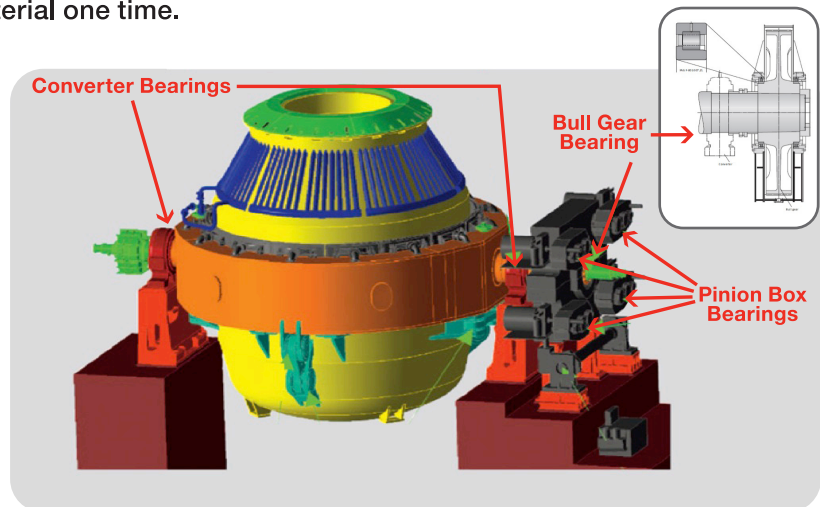
Bearings for BOF (Basic Oxygen Furnace) %70 steel production of world made by BOF. Approximately BOF make 150-200 tons material one time.

## BOF ROLLER BEARINGS

When filled, large converter vessels weigh several hundred tons. The resulting loads must be accommodated by the trunnion bearings. Since only slow swinging motions occur the bearings must primarily feature a high static load carrying capacity. In addition, shock-type loads must be accommodated daily in converters.

The bearings must also be able to compensate for housing misalignments and deflections of the construction. Moreover, considerable length variations caused by the temperature changes during converter heat-up and cool-down as well as changes of the trunnion ring form must be compensated for.

Today, converters are usually fitted with spherical roller bearings. Apart from their great radial and axial load carrying capacity and their insusceptibility to impacts they can also compensate for significant misalignments.



Spherical roller bearings featuring the main dimensions of series 249 meet the requirements on converter bearings. These bearings have proved to be particularly suitable in regard to axial displaceability. At the floating bearing end unsplit bearings are used whereas at the locating bearing end the preferred choice for replacement bearings are split spherical roller bearings whose dimensions are adapted to those of series 249. The split bearings facilitate bearing replacement without dismantling the drive unit.



**High Temperature**

**Heavy Loads**

**Low Speed**



The Steel which is manufactured in BOFs is precessed in the later stages of manufacturing. Therefore it is at a critical point in terms of manufacturing. It is necessary to remove first the bull gear in the conventional drive unit of the BOFs and then the roller bearing. This process takes a long time and even causes manufacturing process to stop. A considerable time loss in this process is caused by the removal and replacement of the bull gear. In order to avoid this time loss, system maintenance should be possible without removing the bull gear.



## Two-part spherical roller bearings

Two-piece spherical roller bearings can be divided into their parts axially. In this way, it provides assembly convenience for the roller bearing (roller bearing can be replaced axially without moving it radially at the place where the roller bearing is attached, not from the end point of the shaft). It is not needed to remove the bull gear.

Two-part spherical roller bearings are manufactured as standard and with C3 hollow.

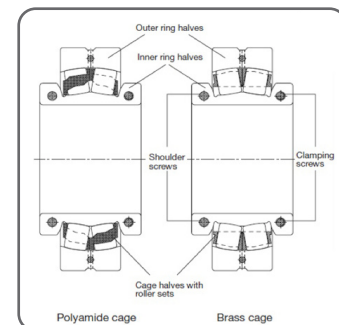
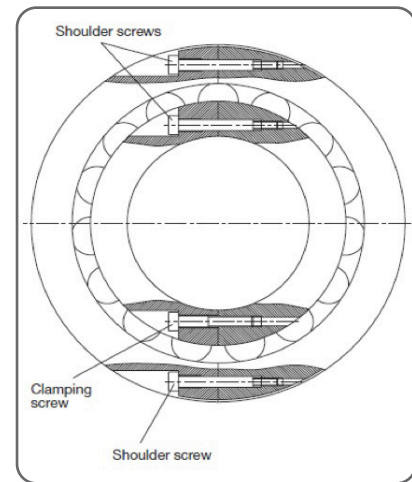


For heavy loads, h6 for ( $P > 0,12 * C$ ),

For lighter loads, h7 for ( $P < 0,12 * C$ ) shaft,

H7 tolerances are appropriate for the housing.

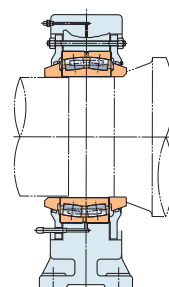
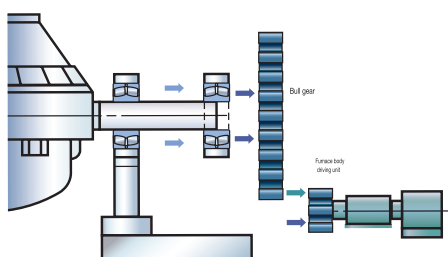
Depending on the vibrations on the roller bearing, maximum speed of the two-part spherical roller bearings is lower by 50% compared to the standard spherical roller bearings.



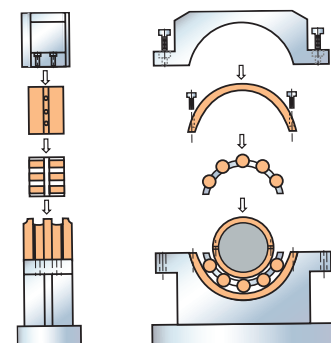
Assembly will be easier since it can be performed without removing the bull gear.

1/3 reduction will be gained in the replacement process of the roller bearings. Maintenance costs shall be lower.

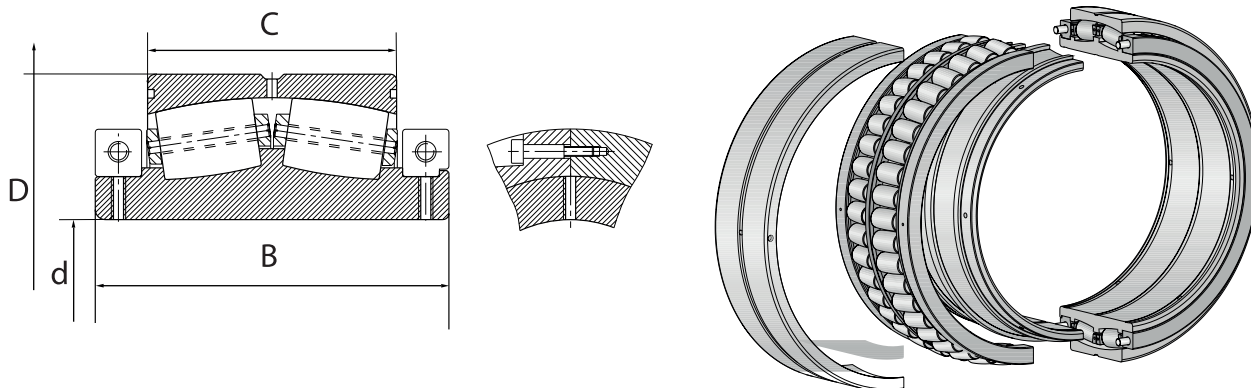
Losses due to the halts of manufacturing as a result of damage of the roller bearing in the BOF shall be minimized.



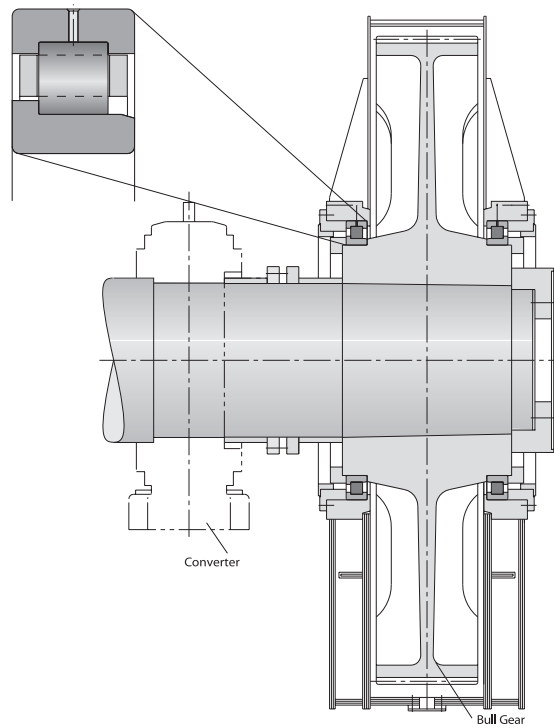
Conventional structure



## BULL GEAR BEARINGS



Bearing No	Weight (kg)	Basic Load Rating(kN)		Dimensions (mm)			
		C (Dinamik)	C <sub>0</sub> (Statik)	d	D	B	C
DL2G 247590	320	3100	7600	560	800	230	150
DL2G 247087	580	4700	10300	560	870	330	200
DL2G 243123	690	5250	11200	600	920	310	212
DL2G 243266	1350	9700	20110	600	980	515	375
DL2G 242989	630	5250	11200	630	920	310	212
DL2G 242994	800	6000	13100	670	980	350	230
DL2G 243122	700	5350	14300	710	950	375	243
DL2G 247181	880	6550	14500	710	1030	360	236
DL2G 243125	710	5900	15800	750	1000	360	250
DL2G 243127	1300	9300	22400	750	1090	475	335
DL2G 243262	810	6500	17350	800	1060	370	258
DL2G 321586	1980	11600	29000	800	1150	490	325
DL2G 243124	830	6900	19400	850	1120	390	272
DLR-8001	880	6000	15900	850	1180	331	206
DLR-8000	1550	9500	21600	850	1280	430	280
DL2G 243268	2350	11700	29000	850	1280	540	375
DL2G 243126	1100	7600	21300	900	1180	400	280
DL2G 321528	1800	11700	28000	900	1340	490	325
DL2G 243114	1300	8400	24000	950	1250	420	300
321394 A	3000	13600	34000	1000	1470	530	345
DL2-8001	950	5600	18300	1020	1280	352	218
DL2G 321489	2470	10750	31300	1060	1460	500	335
DL2G 243486 A	1800	10600	30000	1060.355	1400	490	335
DL2G 246572	2070	10700	31225	1120	1460	500	335
DL2G 243487 A	2950	12400	36500	1120	1540	525	355
DL2G 321426	4700	18800	45600	1150	1750	610	400
DL2G 321542	5350	21450	43600	1180	1750	670	500
DL2G 321422 A	3800	18300	46500	1250	1750	560	375



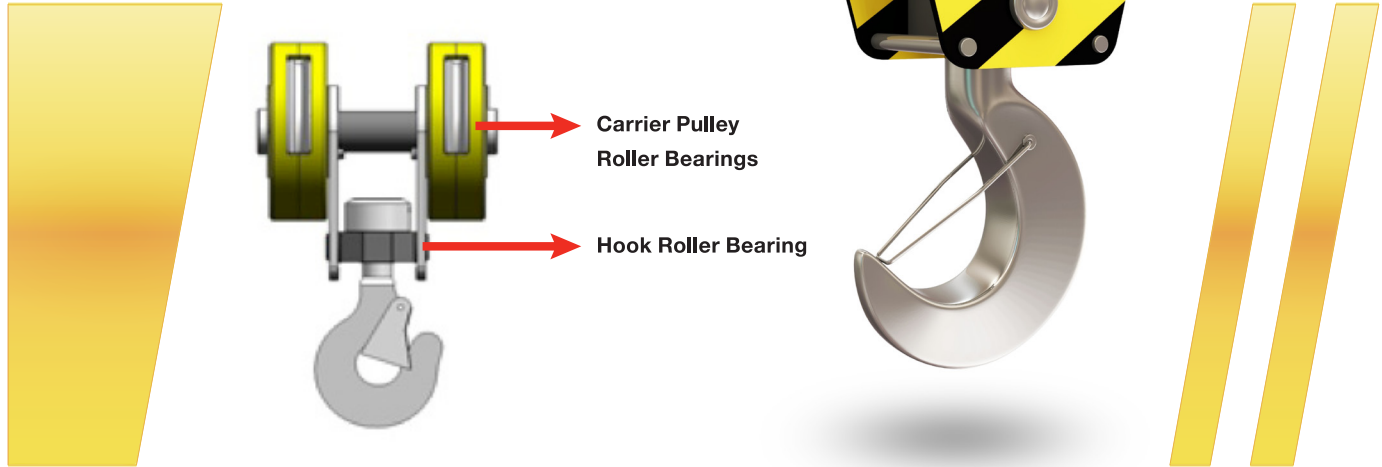
## CYLINDRICAL ROLLER BEARINGS

Bearing No	Weight (kg)	Basic Load Rating(kN)		Dimensions (mm)		
		C (Dinamik)	C <sub>0</sub> (Statik)	d	D	B
NJ 18/670 MA6	84.5	1230	2800	670	820	69
NJ 29/710 ECMA	300	3740	8300	710	950	140
NJ 18/750 MA	115	1470	3450	750	920	78
NJ 18/800 ECMA	145	1720	4150	800	980	82
NJ 28/1000 ECMP/HA1	345	3690	10000	1000	1220	128
NJ 18/1120 ECMA	335	3410	8650	1120	1360	106

## PINION GEAR BOX BEARING

Bearing No	Weight (kg)	Basic Load Rating(kN)		Dimensions (mm)		
		C (Dinamik)	C <sub>0</sub> (Statik)	d	D	B
NU 2236 E M	31.5	1100	1430	180	320	86
NU 2236 E MA	31.5	1100	1430	180	320	86
NU 2238 E M	39	1220	1600	190	340	92
NU 2238 E MA	39	1220	1600	190	340	92
NU 2240 E MA	46	1370	1800	200	360	98
NU 3240 E M	59	1540	2450	200	360	128
NU 2340 E MA	96.5	1980	2800	200	420	138
NU 2344 E M	120	2380	3450	220	460	145
NU 2344 E MA	120	2380	3450	220	460	145
NU 2248 MA	84	1450	2360	240	440	120
NU 2348 E MA	155	2600	3650	240	500	155
NU 2252 MA	110	1790	3000	260	480	130
NU 2352 E MA	190	3190	4500	260	540	165
NU 2056 E MA	40	1230	2160	280	420	82

# Crane Roller Bearings



There are critical roller bearings used in the bearings of the carrier pulleys of the cranes and the hook bearing.

In the conventional systems, radial ball bearings and axial ball bearings are used in general.

## CARRIER PULLEY ROLLER BEARINGS



Heavy Loads

Static Loads

Low Speed



Radial ball bearings used in the carrier pulleys are subjected to the heavy loads at low speeds and for this reason, they can be damaged in a short period of time depending on their low capacity of load carrying. Damaged roller bearings pose a risk in terms of security.



In the carrier pulleys, frequent-lined grateless cylindrical roller bearings are used and the life span of the roller bearings is extended with their load carrying capacity increased.

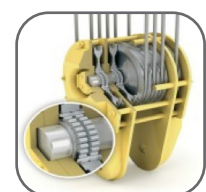
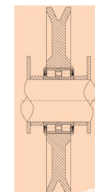
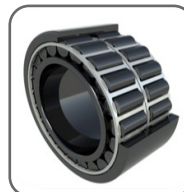
### SL Series Roller Bearings

Double-lined frequent-lined grateless roller bearings (roller bearing is full of bearings).

They can carry very heavy radial loads.

They have a high static load carrying capacity.

Good tightness: There are plastic-covered types



They can carry much heavier loads when compared to the radial ball bearings used in the conventional systems.

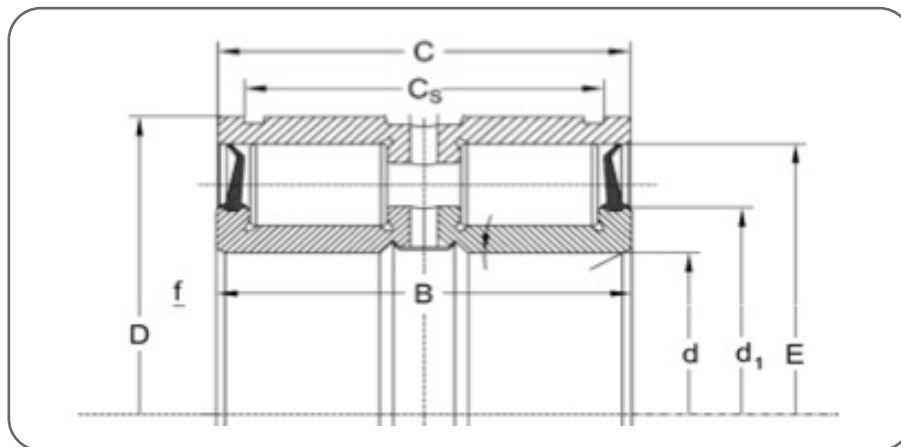
Less roller bearing consumption.  
Reduction in maintenance costs

Grateless design:  
Increased load carrying capacity

By reinforcing the durability in the crane bearings,  
More secure operations.

A 3 to 5 times longer life span of roller bearings compared to the conventional system

### CARRIER PULLEY ROLLER BEARINGS



Bearing No	Dimensions (mm)					Basic Load Rating(kN)	
	d	D	B	C	C <sub>s</sub>	C <sub>r</sub>	C <sub>or</sub>
NNF 5008 2LS V	40	68	38	37	32.2	79	121
NNF 5009 2LS V	45	75	40	39	34.2	95	150
NNF 5010 2LS V	50	80	40	39	34.2	101	162
NNF 5011 2LS V	55	90	46	45	40.2	119	195
NNF 5012 2LS V	60	95	46	45	40.2	125	210
NNF 5013 2LS V	65	100	46	45	40.2	130	230
NNF 5014 2LS V	70	110	54	53	48.2	190	340
NNF 5016 2LS V	80	125	60	59	54.2	300	500
NNF 5018 2LS V	90	140	67	66	59.2	350	625
NNF 5020 2LS V	100	150	67	66	59.2	400	650
NNF 5022 2LS V	110	170	80	79	70.2	450	725
NNF 5024 2LS V	120	180	80	79	71.2	525	810
NNF 5026 2LS V	130	200	95	94	83.2	625	1200
NNF 5028 2LS V	140	210	95	94	83.2	650	1250
NNF 5030 2LS V	150	225	100	99	87.2	750	1390
NNF 5032 2LS V	160	240	109	108	95.2	770	1480
NNF 5034 2LS V	170	260	122	121	107.2	1000	1900
NNF 5036 2LS V	180	280	136	135	118.2	1150	2300
NNF 5038 2LS V	190	290	136	135	118.2	1200	2400
NNF 5040 2LS V	200	310	150	149	128.2	1350	3050

## HOOK ROLLER BEARING



- Heavy Loads
- Static Loads
- Low Speed



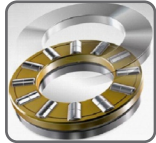
Axial ball bearings which are used in the bearing system of the crane hooks becomes damaged under the static high static loads. Damaged roller bearings pose a risk in terms of security.



Axial roller bearings which are used in the bearing system of the crane hooks operates for much longer.

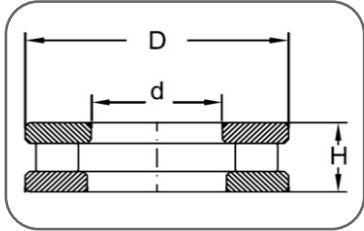
### Single Line Axial Cylindrical Roller Bearing

- Heavy axial loads
- A high static load-carrying capacity

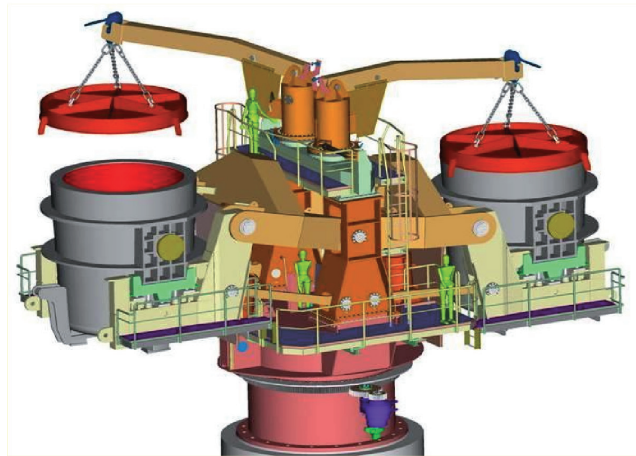


- They can carry much heavier loads when compared to the axial ball bearings used in the conventional systems.
- A 3 to 5 times longer life span of roller bearings compared to the conventional system
- Less roller bearing consumption. Reduction in maintenance costs
- By reinforcing the durability in the crane bearings, More secure operations.

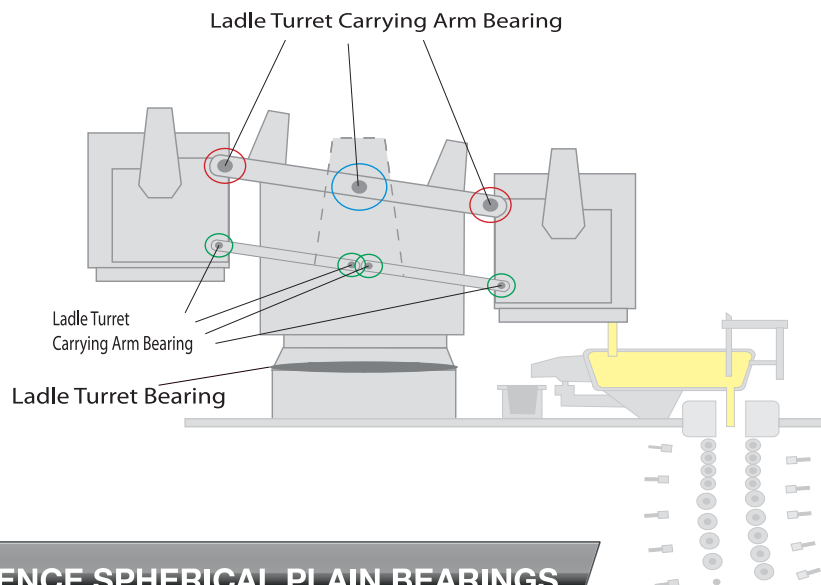
Bearing No	Dimensions (mm)			Basic Load Rating(kN)	
	d	D	B	C <sub>r</sub>	C <sub>or</sub>
81108 TN	40	60	13	43	137
81208 TN	40	68	19	83	255
81109 TN	45	65	14	45	153
81209 TN	45	73	20	83	255
81110 TN	50	70	14	47.5	166
81210 TN	50	78	22	91.5	300
81111 TN	55	78	16	69.5	285
81211 TN	55	90	25	122	390
81112 TN	60	85	17	80	300
81212 TN	60	95	26	137	465
81113 TN	65	90	18	83	320
81213 TN	65	100	27	140	490
81114 TN	70	95	18	86.5	345
81214 TN	70	105	27	146	530
81115 TN	75	100	19	83	335
81215 TN	75	110	27	137	490
81116 TN	80	105	19	81.5	335
81216 TN	80	115	28	160	610
81117 TN	85	110	19	88	365
81217 TN	85	125	31	170	640
81118 TN	90	120	22	110	450
81218 TN	90	135	35	232	865
81120 TN	100	135	25	156	630
81220 TN	100	150	38	270	1060
81122 TN	110	145	25	163	680
81222 TN	110	160	38	260	1000
81124 TN	120	155	25	170	735
81224 TN	120	170	39	270	1100



# Ladle Turret Carrying Arm Bearing

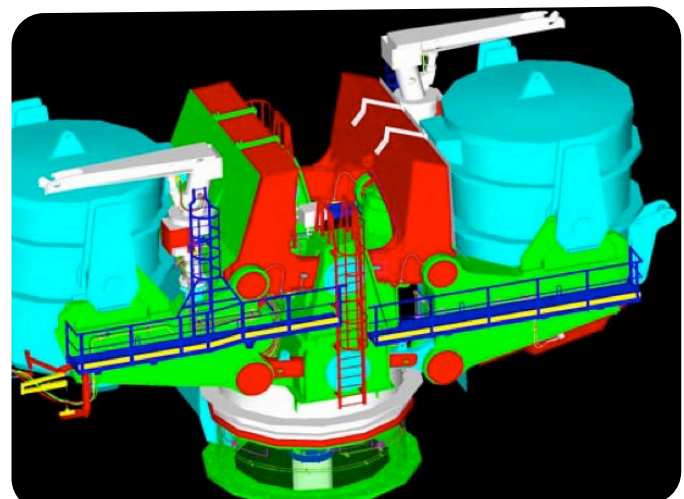


Ladle turret which ensures that the material which is brought in the cast-ready ladles is emptied into the casting line and its ladle are carried by means of cranes and hydraulic methods.

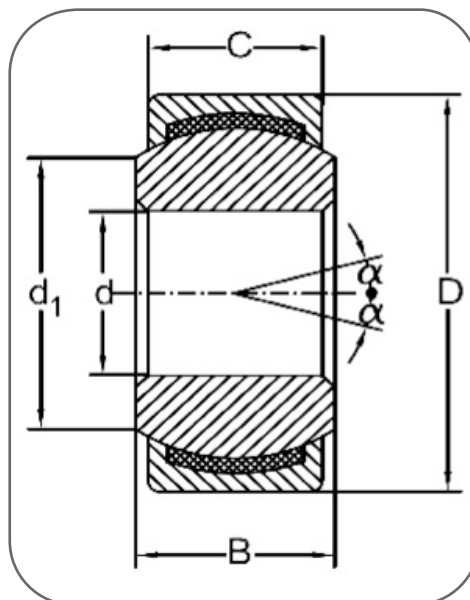


## FREE MAINTANENCE SPHERICAL PLAIN BEARINGS

- No need lubrication
- Heavy load carry capacity
- Resistance shock loads
- Resistance to oscillation
- No need maintenance
- Long service life
- Resistance to misalignment
- Good sealing with both side seal



## FREE MAINTANENCE SPHERICAL PLAIN BEARINGS



Bearing No	Main Dimentions (mm)				Basic Load Rating(kN)	
	d	D	T	B	C <sub>r</sub>	C <sub>or</sub>
GE 180 ET 2RS	180	260	105	80	4090	6840
GE 200 ET 2RS	200	290	130	100	5700	9500
GE 220 ET 2RS	220	320	135	100	6230	10450
GE 240 ET 2RS	240	340	140	100	6840	11400
GE 260 ET 2RS	260	370	150	110	8220	13590
GE 280 ET 2RS	280	400	155	120	9500	15770
GE 300 ET 2RS	300	430	165	120	10260	17100
GEC 320 ET 2RS	320	440	160	135	13300	22040
GEC 340 ET 2RS	340	460	160	135	13870	23280
GEC 360 ET 2RS	360	480	160	135	14540	24230
GEC 380 ET 2RS	380	520	190	160	18340	30880
GEC 400 ET 2RS	400	540	190	160	19380	32300
GEC 420 ET 2RS	420	560	190	160	20140	33730
GEC 440 ET 2RS	440	600	218	185	24700	40850
GEC 460 ET 2RS	460	620	218	185	25650	42750
GEC 480 ET 2RS	480	650	230	195	28500	47500
GEC 500 ET 2RS	500	670	230	195	29450	48450
GEC 530 ET 2RS	530	710	243	205	32780	54150
GEC 560 ET 2RS	560	750	258	215	36100	59850
GEC 600 ET 2RS	600	800	272	230	40850	68400
GEC 630 ET 2RS	630	850	300	260	49400	82180



# LADLE TURRET BEARINGS

## Slewing Bearings

- Low Speed
- Very Heavy Loads
- Static Load
- Very Long Service Life

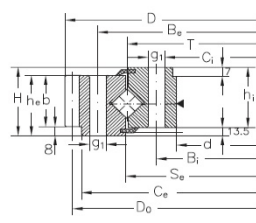
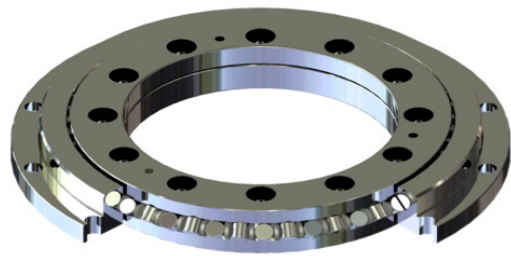


Fig. 1

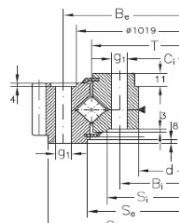


Fig. 2

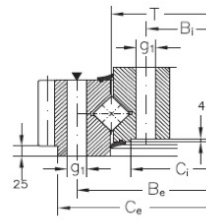


Fig. 3

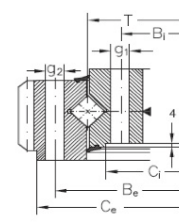


Fig. 4

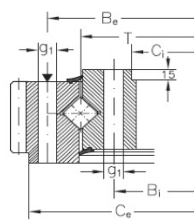


Fig. 5

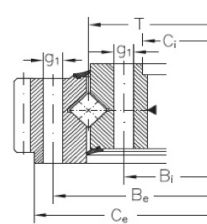


Fig. 6

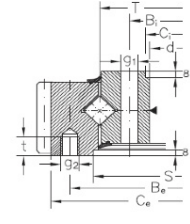


Fig. 7

Dimensions																						Grease Nipples		Designation	Fig.	Diagram position	Weight
T	d	D	H	B <sub>1</sub>	S <sub>e</sub>	C <sub>e</sub>	S <sub>i</sub>	C <sub>i</sub>	h <sub>1</sub>	B <sub>e</sub>	h <sub>e</sub>	g <sub>1</sub>	g <sub>2</sub>	t	n <sub>1</sub>	n <sub>e</sub>	D <sub>0</sub>	m	Z	b	xm	no.	type				
mm																						pcs.	-		-	kg.	
675	570	822	93	605	678	782		575	79,5	754	79,5	22			18	18	810	6	135	71,5		4	A2	XE.10.0675F	1	1	147
980	868	1144	100	910	993	1090	943	870	80	1050	79	22			24 <sup>1)</sup>	18	1136	8	142	66	-4	3	*)	XE.10.0980V	2	2	226
1418	1270	1620	134	1330	1570			1375	118	1510	117	33	26		23	36	1600	10	160	85		3	*)	XE.10.1418V	4	4	537
1782	1580	2040	142	1650	1782	1470		1585	126	1910	120	39			24	24	2016	12	168	110		6	A1+U3	XE.10.1782FF81	5	5	1060
2236	2042	2492	164	2112	2260	2420		2049	142	2360	148	34	M30	59	45	45	2464	14	176	147		4	A3	XE.10.2236V	7	6	1668

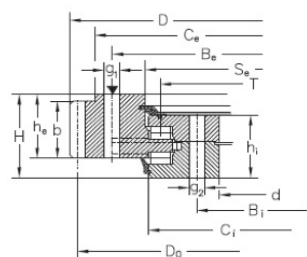


Fig. 1

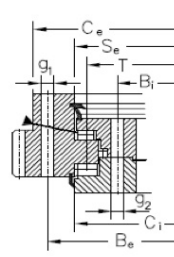


Fig. 2

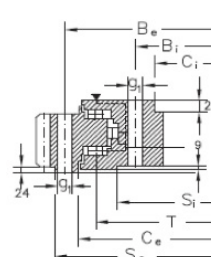


Fig. 3

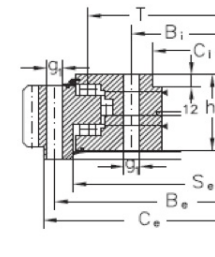


Fig. 4

-With external gear, type YE.30

Dimensions																						Grease Nipples		Designation	Fig.	Diagram position	Weight
T	d	D	H	B <sub>1</sub>	S <sub>i</sub>	S <sub>e</sub>	C <sub>e</sub>	C <sub>i</sub>	h <sub>1</sub>	B <sub>e</sub>	h <sub>e</sub>	g <sub>1</sub>	g <sub>2</sub>	n <sub>1</sub>	n <sub>e</sub>	D <sub>0</sub>	m	Z	b		no.	type					
mm																						pcs.	-		-	kg.	
1228	1070	1440	137	1125		1258	1385	1256	112	1320	107	26	33	36	36	1420	10	142	100	3+3+3	A3	YE.30.1228TN	1	1	532		
1320	1115	1584	223	1195		1371	1520	1378	179	1455	179	33	45	36	56	1560	12	130	100	3+3	A3	YE.30.1320TN	2	2	1042		
1763,5	1616	1988	138	1670	1706	1913	1812	1618	129	1860	104	26		44	44	1960	14	140	80	10+5	*)	YE.30.1765F	3	3	760		
2106	1882	2394	172	1962		2320	2142	1890	150	2242	142	33		40	40	2366	14	169	130	6+6	A3	YE.30.2100F	4	4	1657		

# Bearings For Continue Casting

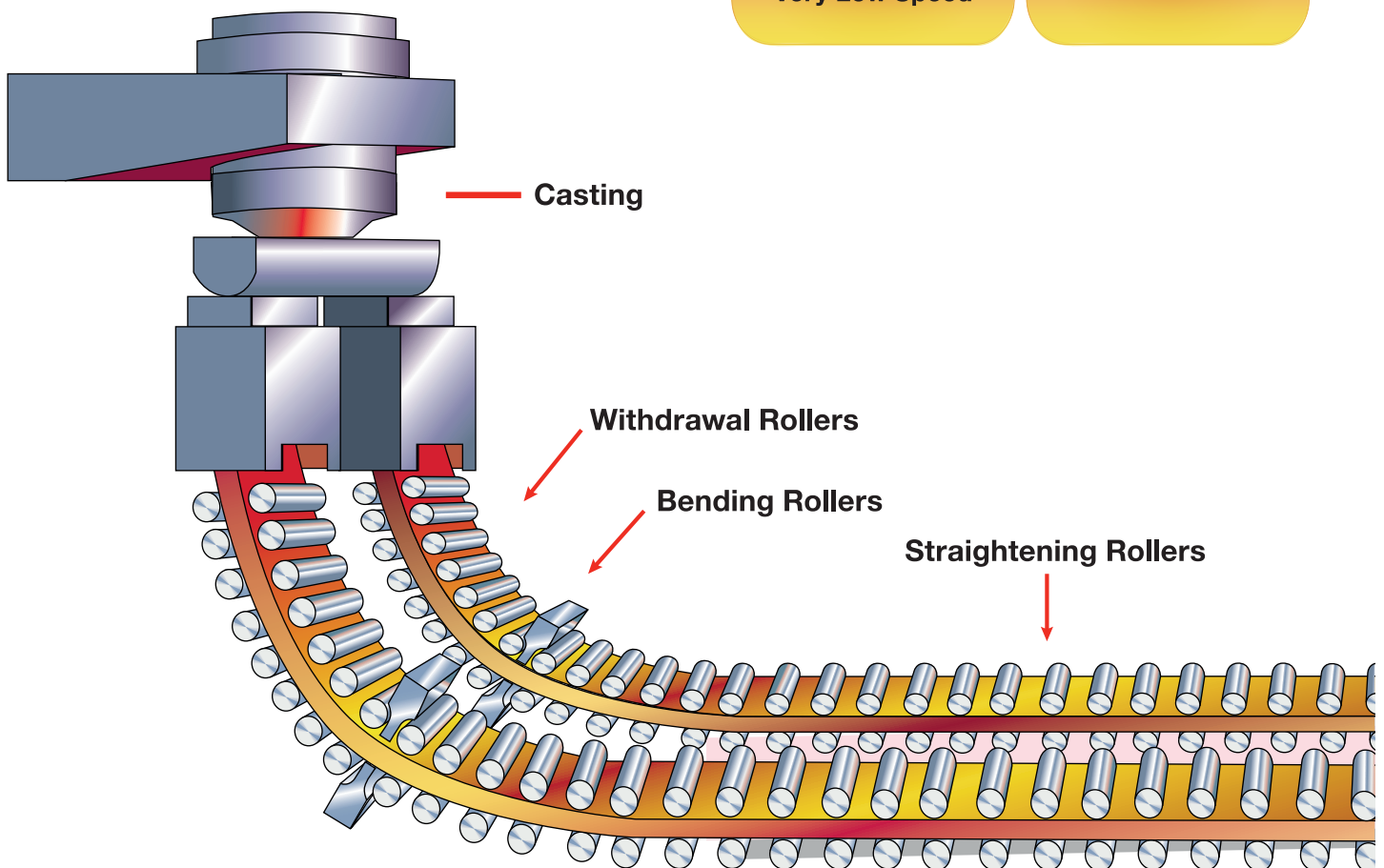


High Temperature

High Load

Very Low Speed

Water



## APPLICATION EXAMPLES

### Single-Roll Bearings



#### Spherical Roller Bearing

Spherical roller bearings which are able to carry very well mixed loads yield perfect performance for the shafts having angular runout.

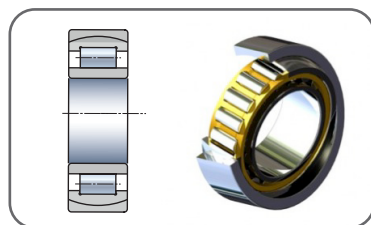
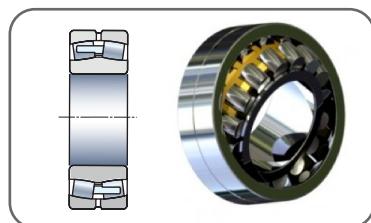
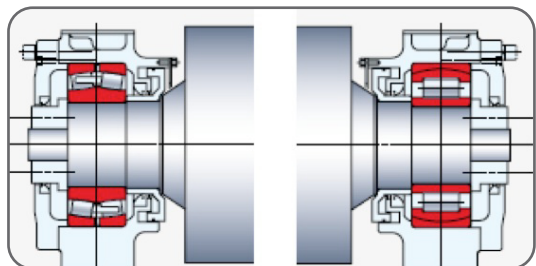
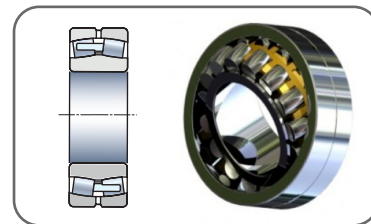
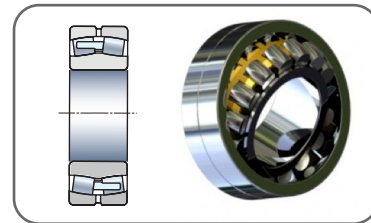
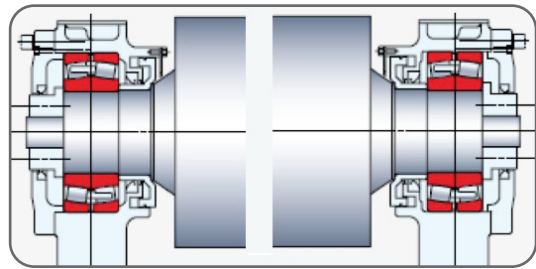
Depending on changes in the temperature, they move by sliding in axial direction, from inside the housing, to the extensions which may occur in the roll lengths. Changes in the lengths of the rolls, which is the huge advantage of the bearing system, may shorten the life of the bearing by creating extra loads on the spherical roller bearings, which are used as mobile bearings.



#### Alignment Cylindric Roller Bearing

One of the most important properties of the cylindrical roller bearings is that they are optimal as a free bearing due to their rabbet feature in their bushings. Depending on the temperature from the continuously cast rolls, it ensures the extensions which may occur in the roll lengths by employing a sliding movement in itself. In this way, no extra load is put on the bearings depending on the extensions of the rolls. However the cylindrical roller bearings are not appropriate for the angular runouts. By means of the advanced design, external bushing of the bearing can move axially as in the spherical roller bearing and prevents the negatives effects which the angular runouts in the shaft may cause to the bearing.

Properties of the cylindrical roller bearings yield excellent performance especially to the radial loads. By means of the single-line grateless and advanced interior design, load carrying capacity of the spherical cylindrical roller bearings is increased to considerable extent.





### Torodial Bearings

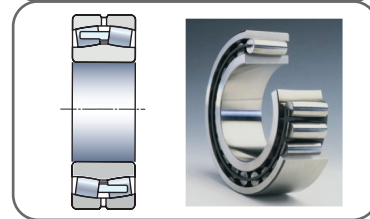
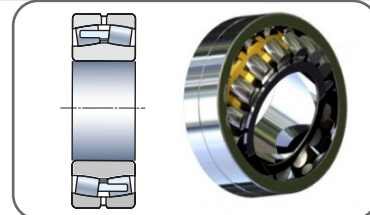
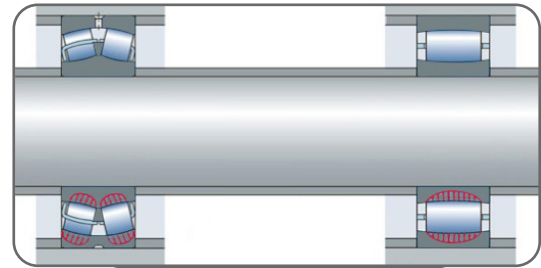
It can be said that it is a combination of the cylindrical roller bearings and the spherical roller bearings.

Although not as much as the spherical roller bearings, they are appropriate to a maximum 0.5° angular runouts.

They can carry very heavy loads by means of the grate-less frequent-lined roller.

Although not as much as the cylindrical roller bearings, internal bushing and external bushing may move according to each other within the bearing itself.

They can be used as free bearing.



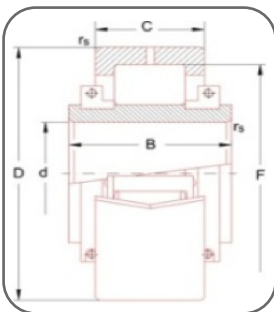
## INTERMEDIATE BEARING APPLICATION

### Split Cylindrical Roller Bearings

It provides assembly convenience since it can be disassembled to its components

It is optimal for free bearing

They can carry heavy radial loads

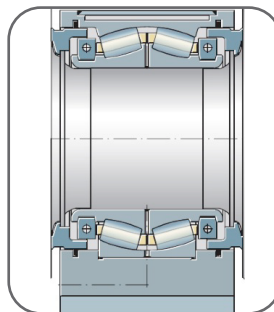


### Split Spherical Roller Bearings

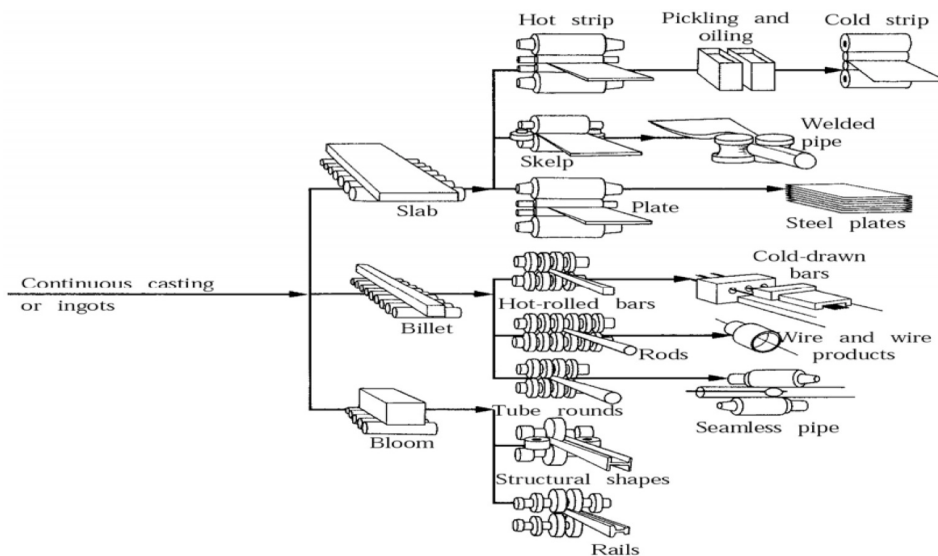
It provides assembly convenience and is time saving since it can be disassembled to its components

It is appropriate for axial runouts

They can carry heavy loads



# Rolling Mill Roll Bearings



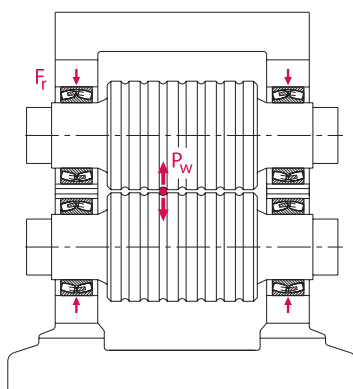
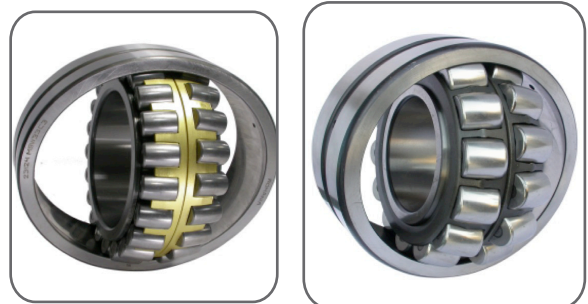
## SPHERICAL ROLLER BEARINGS

Heavy Loads

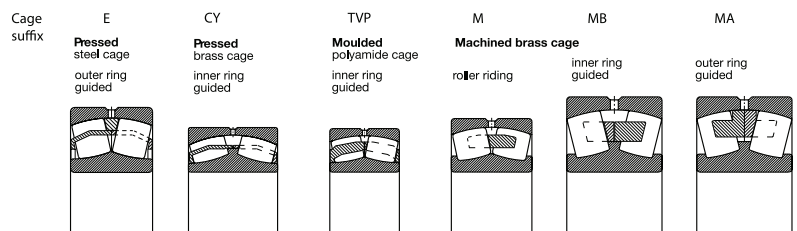
Shock Loads

Resistance Misalignment

Low and Medium Speed



Cages of spherical roller bearings



## FOUR ROW TAPER ROLLER BEARINGS

### Usage Area:



Low and Normal Speeds

With the Heavy Radial Loads

They Can Carry Axial Loads From Both Directions

No Extra Bearing is Required for Axial Loads

Simple Bearing with a Single Bearing

Types of Configuration



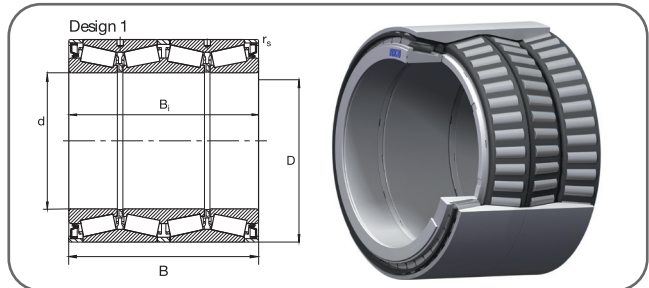
TQI Configuration: Back-to-back  
TQO Configuration: Face-to-face

Grate Alternatives

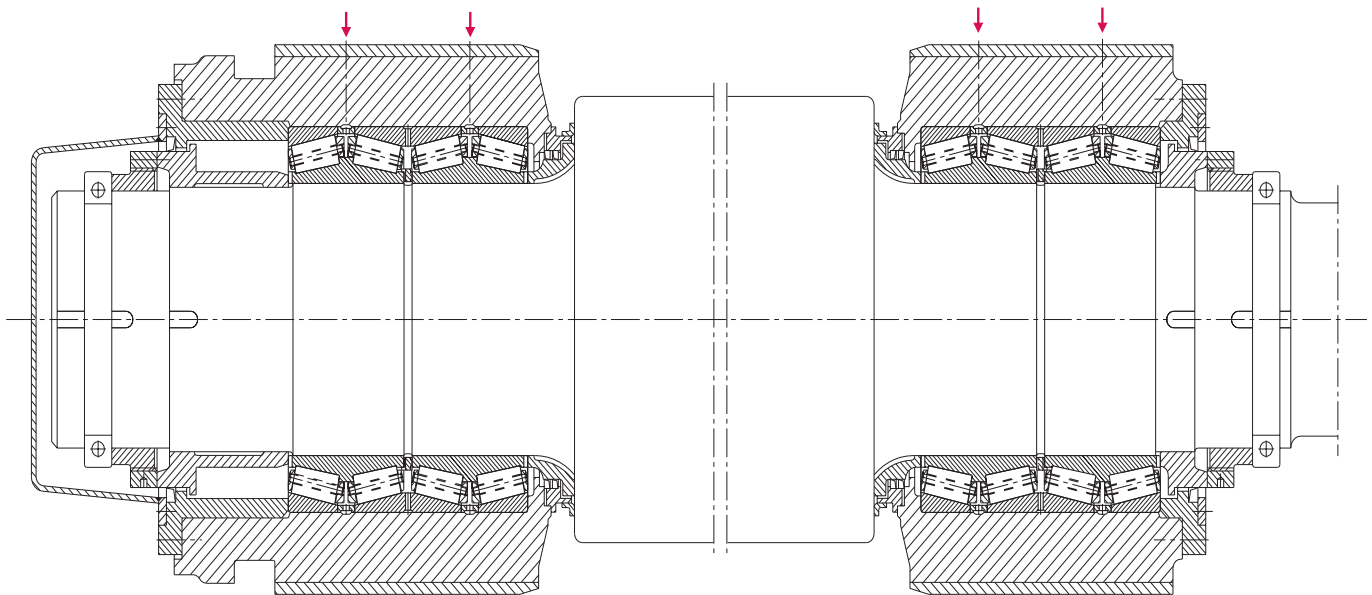
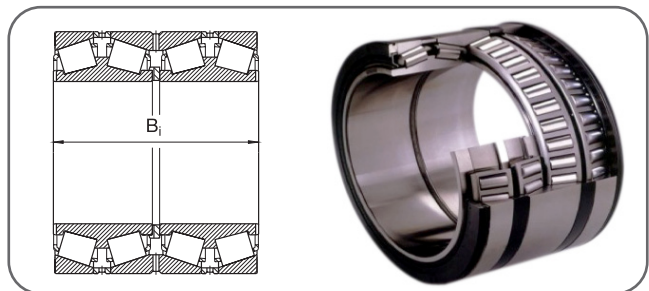


Massive Brass Grate

### TQI Configuration: Back-to-back

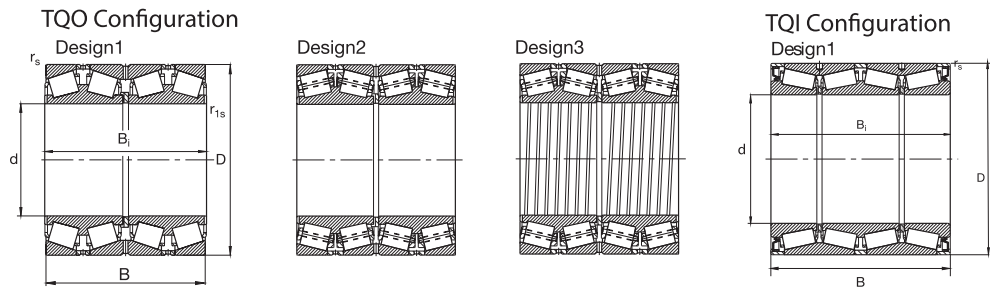


### TQO Configuration: Face-to-face



Roll neck bearing arrangement with four-row tapered roller bearings

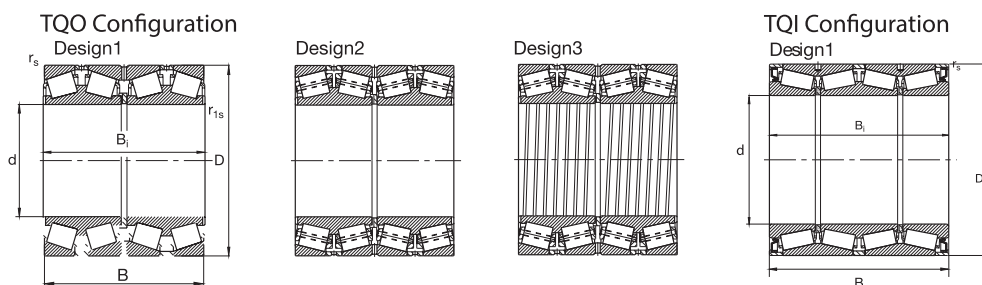
## FOUR ROW TAPER ROLLER BEARINGS



Bearing No	Dimensions (mm)				Basic Load Rating(kN)	
	d	D	B	C	C <sub>r</sub>	C <sub>or</sub>
TQO 428065-CH1	205	320	203.5	203.5	1810	3470
TQO 0020-CH1	240	338	248	248	2430	5230
TQO 428551-CH1	260	440	298.5	298.5	3720	6990
TQO 432441 G-CH1	280	460	324	324	4450	8840
TQO 428725 G-CH1	300	440	279.4	280.988	3040	7410
TQO 432472	300	460	388.5	388.5	5130	11880
TQO 432963 B CH1	340	520	323.5	323.5	5330	9880
TQO 432963 CH1	340	520	323.5	323.5	4970	9880
TQO 8117 E1/C475	350	480	420	420	4520	9690
TQO 431508	355	490	316	316	3930	10450
TQO 432059	360	510	380	380	5330	13590
TQO 428159-CH1	360	540	280	280	4180	8550
TQO 8015 G-CH1	360	540	325	325	5440	10260
TQO 432889-CH1	380	620	368	368	6690	13020
TQO 432824-CH1	395	545	288.9	268	3720	9030
TQO 428826 G-CH1	420	560	437	437	5540	15490
TQO 428374-CH1	420	620	355	355	6120	13870
TQO 8049 G-CH1	430	570	380	380	5020	13300
TQO 428829-CH1	440	580	420	420	5750	16720
TQO 432313	440	650	353.5	353.5	6270	14250
TQO 428161-CH1	450	580	450	450	5860	18620
TQO 428365-CH1	450	595	404	404	5230	15490
TQO 428285	460	610	400	400	5960	16440
TQO 432502-CH1	460	625	421	421	6850	19000
TQO 428913 BG-CH1	475	600	368	368	5440	15770
TQO 428913 G-CH1	475	600	368	368	5020	15770
TQO 8035 G-CH1	475	640	360	360	5230	14540
TQO 429007-CH1	475	660	450	450	8160	21280
TQO 428524-CH1	500	720	400	400	7840	19380
TQO 8043 G-CH1	530	680	440	440	7840	22420
TQO 431978	540	690	400	400	6690	20140
TQO 434038 G-CH3	540	690	400	434	6690	20140
TQO 428509-CH4	560	920	618	618	15680	32300
TQO 428350 G-CH1	600	870	488	488	11880	27550
TQO 428510-CH1	620	800	363.5	363.5	7110	20520
TQO 8122 G-CH1	630	860	615	615	12160	32780
TQO 432827 AG-CH1	650	1030	560	560	15960	36100
TQO 432827-CH1	650	1030	560	560	15680	34680
TQO 8036 G-CH1	650	1040	610	610	16720	34680
TQO 431065 AG-CH4	660	855	318.48	319.192	5860	16150
TQO 428511-CH1	660	855	318.5	318.5	6690	17670
TQO 428349-CH1	680	930	700	700	17390	51300
TQO 431351	710	900	410	410	8360	25180
TQO 431351 AG-CH1	710	900	410	410	8360	25180
TQO 431351 BG-CH1	710	900	410	410	9200	25650
TQO 431752	730	940	500	500	11500	34200
TQO 428376-CH4	750	1130	690	690	19100	44180
TQO 431069	850	1360	910	910	32970	78850
TQO 432981-CH4	877.888	1220	844.55	844.55	24700	72680
TQO 430903 A	901.7	1295.4	914.4	901.7	29260	82180
TQO 430726 A	938.213	1270	825.5	825.5	24700	77430
TQO 430944 AG-CH4v	939.8	1333.5	952.5	952.5	30310	90250



## FOUR ROW TAPER ROLLER BEARINGS



Bearing No	Dimensions (mm)				Basic Load Rating(kN)	
	d	D	B	C	C <sub>r</sub>	C <sub>or</sub>
TQI 432610-CH1	254	358.775	257.175	292.1	2720	6750
TQI 432961-CH1	258.762	358.775	257.175	292.1	2720	6750
TQI 428345-CH1	279.4	407	288	320	3410	8550
TQI 432997 B-CH1	287.5	440	284	330.3	3980	8080
TQI 432997-CH1	287.5	440	284	330.3	3980	8080
TQI 432642-CH1	317.5	422.275	261.938	290.514	2930	7750
TQI 428344-CH1	320	422.275	261.424	336	2930	7750
TQI 432716-CH1	320	422.275	261.424	290	2930	7750
TQI 432962-CH1	320	422.275	261.424	336	2930	7750
TQI 432668-CH1	323.452	447.675	323.85	414.338	4180	10260
TQI 428083-CH1	333.375	469.9	328.612	366.712	4350	10830
TQI 431807	347.662	469.9	246.063	280.194	3200	7870
TQI 432654-CH1	352.425	488.95	342.9	384.175	3610	9690
TQI 434011	368.3	523.875	366.712	411.162	5540	14250
TQI 431809-CH1	384.175	546.1	384.175	428.625	6120	15770
TQI 432664-CH1	390.525	546.1	384.175	428.625	6120	15770
TQI 428305-CH1	391.071	550	384.175	428.625	6120	15770
TQI 432297	400	540	295	330	4600	11880
TQI 428923-CH1	406.4	590.55	381	434.975	6590	15770
TQI 432814-CH1	415.925	590.55	419.1	469.9	6850	18340
TQI 428203-CH1	419.1	590.55	419.1	469.9	6850	18340
TQI 428564-CH4	419.1	590.64	419.1	469.9	6270	14250
TQI 431999	431.8	571.5	320.675	366.713	4710	13300
TQI 432590-CH1	431.8	647.7	338.138	387.35	6270	14250
TQI 428922-CH1	447.675	635	446.088	496.888	7840	20900
TQI 434147-CH1	450	595	352	390	5230	15490
TQI 432822-CH1	453.39	635	446.088	496.888	7840	20900
TQI 428268-CH1	482.6	615.95	317.5	355.6	4870	14540
TQI 432760-CH1	488.95	679.45	479.425	533.4	8890	24230
TQI 428732-CH1	510	655	362	405	5960	18050
TQI 434097-CH1	515	700	370	420	7010	18620
TQI 432933-CH1	530.225	736.6	519.112	579.438	10640	29450
TQI 432659-CH1	547.688	761.873	536.575	600.075	11120	30400
TQI 434125-CH1	555.233	761.873	536.575	692.15	11120	30400
TQI 432658-CH4	581.025	812.8	571.5	641.35	11500	30400
TQI 428045-CH1	604.838	787.4	369.888	420.688	8000	22040
TQI 432934-CH1	644.525	857.25	523.875	590.55	11500	34680
TQI 432928-CH1	669.925	933.45	649.288	725.488	16340	46550
TQI 432943-CH4	744.538	1035.05	727.075	812.8	19480	55580
TQI 432596-CH4	749.3	990.6	577	650	14350	43230
TQI 434099-CH4	770	1040	650	800	17390	50350
TQI 432959-CH4	777.672	1079.5	755.65	844.55	20900	59850
TQI 432956-CH4	777.875	1079.5	755.65	844.55	20900	59850
TQI 432663-CH4	828.675	1143	733.425	825.5	21280	62230
TQI 432571-CH4	863.6	1130.3	644.525	717.55	18810	58900
TQI 432960-CH4	872.769	1179.805	628.65	793.75	19860	54150
TQI 432786-CH4	872.769	1181.1	628.65	714.375	19860	54150
TQI 428956-CH4	872.847	1181.1	628.65	714.375	19860	54150
TQI 428074-CH4	879.475	1219.2	838.2	933.45	26700	77430
TQI 432602-CH4	889	1219.2	784.225	880	25650	74100
TQI 434081-CH4	896.903	1264	680	766	21760	60800
TQI 432720-CH4	1004.634	1308.1	730.25	812.8	23370	72680

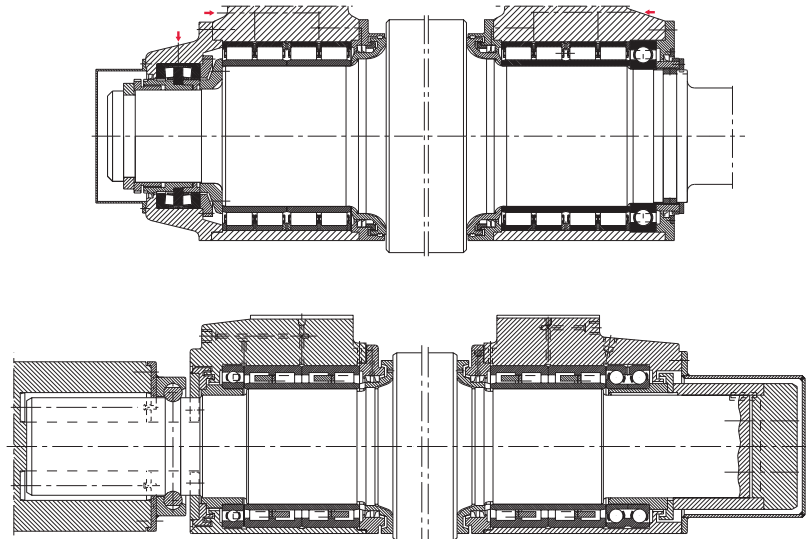


For Thrust Loads; (Four row cylindrical roller have to combine one of following bearing for thrust loads)

EXAMPLE



Roll neck bearing arrangement with four-row cylindrical roller bearings and thrust bearings



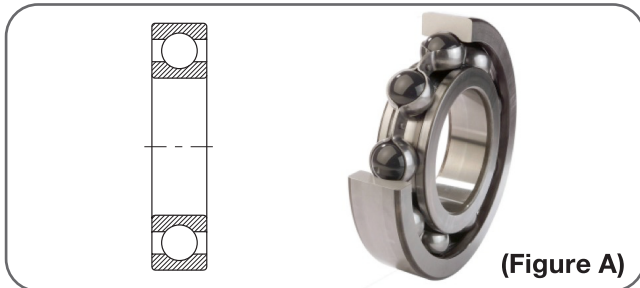
Deep groove ball bearings (Figure A)

Double row angular contact ball bearings (Figure B)

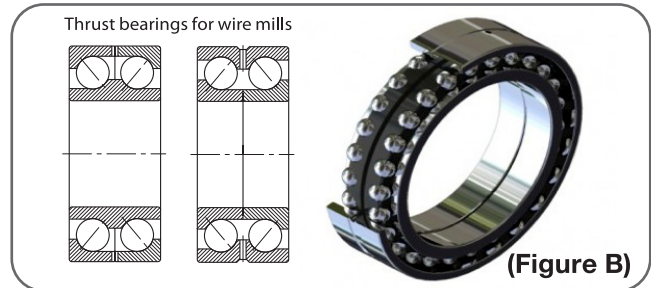
Double row taper roller bearings (Figure C)

Thrust spherical roller bearings (Figure D)

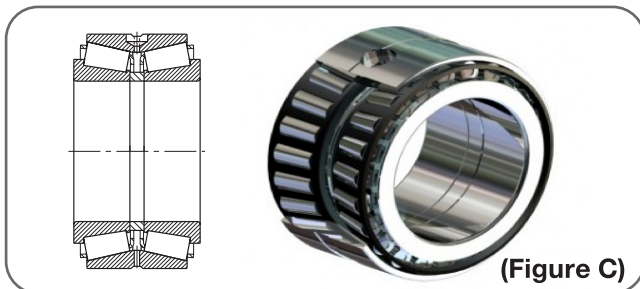
Double row thrust taper roller bearings (Figure E)



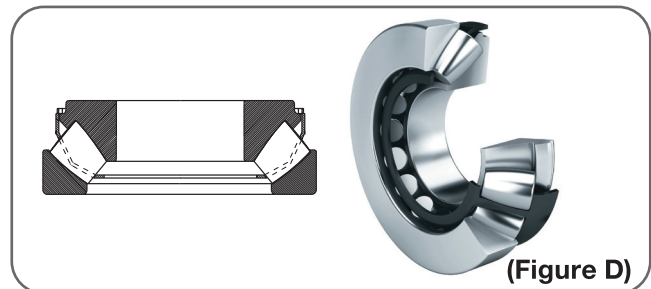
(Figure A)



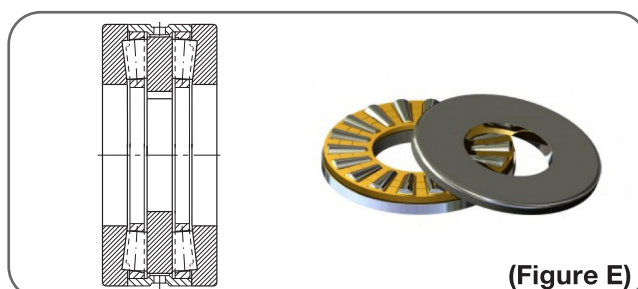
(Figure B)



(Figure C)



(Figure D)



(Figure E)

## FOUR ROW CYLINDRICAL ROLLER BEARINGS

### Usage Area:



Low Friction = High Speed

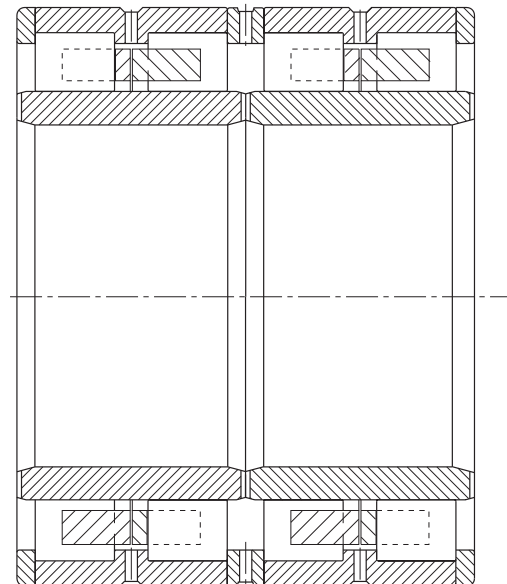
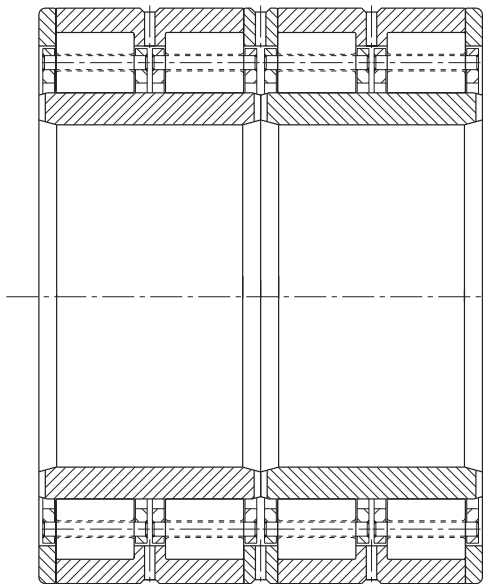
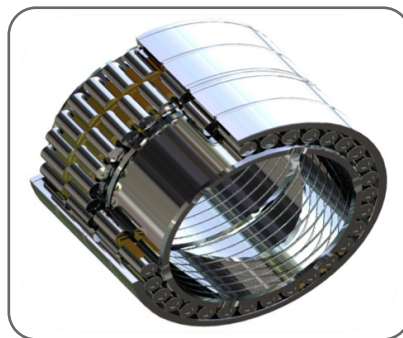
Very Heavy Radial Load Carrying Capacity

Demountable (Single Construct)

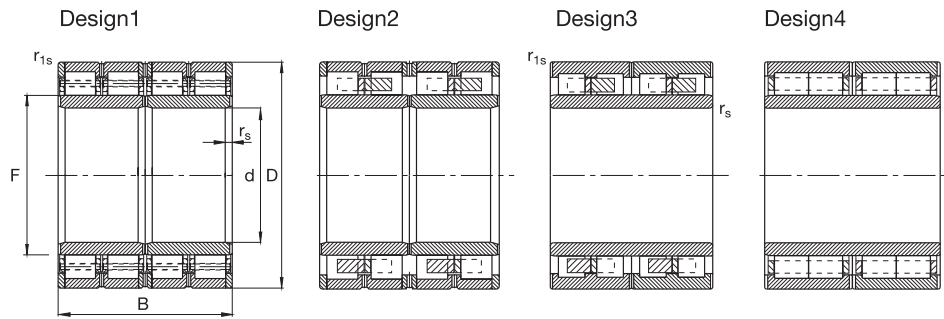
Assembly Convenience

Optimal Free Bearing

Grate Alternatives



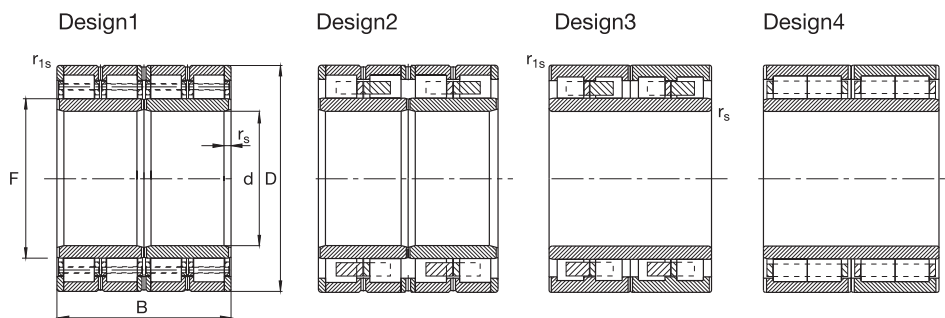
## FOUR ROW CYLINDRICAL ROLLER BEARINGS



Bearing No	Dimensions (mm)				Basic Load Rating(kN)	
	d	D	B	C	C <sub>r</sub>	C <sub>or</sub>
S4R 419148 B	105	150	71	71	242	451
S4R 419768	125	180	100	90	408	836
S4R 414625	145	210	155	155	752	1482
S4R 413924 A	145	225	156	156	852	1577
S4R 413891 A	150	230	156	156	852	1577
S4R 414190	160	230	130	130	742	1273
S4R 415189 A	160	230	168	168	852	2090
S4R 635122	170	240	130	130	867	1739
S4R 413812	180	260	168	168	1216	2375
S4R 413651	190	260	168	168	1083	2470
S4R 414199 B	190	270	200	200	1435	3183
S4R 413583	190	280	200	200	1435	3183
S4R 414049 A	190	280	200	200	1634	3183
S4R 414553	200	270	170	170	1112	2565
S4R 414385	200	280	170	170	1311	2850
S4R 413893	200	280	200	200	1435	3183
S4R 413811	200	290	192	192	1463	3040
S4R 413584 K	205	310	225	225	1843	4085
S4R 413839	220	310	192	192	1596	3468
S4R 413894 B	220	310	225	225	1843	4085
S4R 413824	230	330	206	206	1777	3800
S4R 413921	240	330	220	220	1634	4085
S4R 413823	260	370	220	220	2052	4418
S4R 413427 B	260	400	290	290	3344	6745
S4R 413822	280	390	220	220	2128	4750
S4R 414719 C	280	390	275	275	2926	6840
S4R 414484 D	300	420	300	300	3553	8360
S4R 419129	300	420	320	300	3553	8360
S4R 414274 B	320	480	350	350	4703	10260
S4R 416345 A	320	480	350	350	4342	10450
S4R 413445 C	330	460	340	340	3971	9690
S4R 8050	340	450	250	250	2423	5700
S4R 414485 C	340	480	350	350	4342	10450
S4R 419040 A	340	480	370	350	4342	10450
S4R 415767 K	340	520	300	300	4076	8550
S4R 413404 A	340	560	380	380	6479	12255
S4R 426909/CH3	350	520	300	300	4076	8550
S4R 416890 B	360	510	400	380	4969	11590
NNUD 6072 MA/P64	360	540	325	335	4446	8693
S4R 413041 C	365	540	300	300	4760	10450
S4R 414486 A	370	520	380	380	5225	12540
S4R 415606	380	540	400	380	5434	13015
S4R 422189	380	560	300	300	4703	9168
S4R 422498	390	540	320	320	5016	11590
S4R 413190 A	390	550	310	310	4864	10640
S4R 8059	400	560	300	300	4446	9690
S4R 413015 DC	400	560	410	410	5957	14820



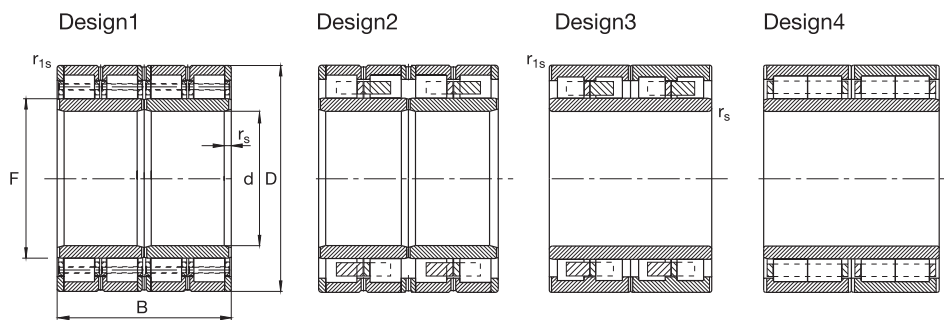
## FOUR ROW CYLINDRICAL ROLLER BEARINGS



Bearing No	Dimensions (mm)				Basic Load Rating(kN)	
	d	D	B	C	C <sub>r</sub>	C <sub>or</sub>
S4R 415802/DS2	400	590	440	440	7002	15770
S4R 413877 B	410	600	440	440	7268	16435
S4R 414554 B	440	620	450	450	7420	18620
S4R 413032	440	650	355	355	5957	13870
S4R 635043	440	660	340	340	6375	13015
S4R 415811 E	450	590	300	300	3715	11400
S4R 413031 A	460	650	355	355	5957	13870
S4R 415196 A	460	650	424	424	7420	17385
S4R 422993 A-CH7	460	650	460	424	7420	17385
S4R 414560	460	650	470	470	8360	21280
S4R 419155	460	650	470	470	8360	21280
S4R 422374	460	680	400	400	7686	16435
S4R 8004/CH1	475	600	368	368	4864	12730
S4R 426261/CH1	475	600	368	368	5225	13870
S4R 8003/CH1	475	600	392	392	5225	13870
S4R 416690 B	480	650	450	450	7838	20140
S4R 419320	480	680	420	420	7999	18335
S4R 413516 D	480	680	500	500	9044	22800
S4R 416624	480	680	500	500	8674	20900
S4R 415523	485	740	540	540	10450	27075
S4R 419254/DS2	500	650	260	260	3819	9690
S4R 416083 A	500	670	450	450	7838	20900
S4R 416515	500	680	450	450	7838	20900
S4R 416968 A	500	710	480	480	8360	20520
S4R 422066	500	720	400	400	7524	16720
S4R 414441 B	500	720	530	530	10260	27075
S4R 419411	510	680	500	500	8522	24700
S4R 414886 A	530	760	520	520	11115	27075
S4R 414517 A	530	780	570	570	12160	30875
S4R 416691	550	740	510	510	9595	25650
S4R 8013/CH4	580	780	558	486	9405	25650
S4R 8054/CH4	580	780	559.5	486	9405	26125
S4R 415175 A	600	820	575	575	12350	34200
S4R 415175 C	600	820	575	575	12350	34200
S4R 415068 A	600	870	540	540	12540	29925
S4R 415257 A	610	820	430	430	8883	22420
S4R 8041/CH4	620	820	475	475	9595	25175
S4R 415071 A	628	922	600	600	15675	37050
S4R 8002/HA6	650	900	650	650	16340	39425
S4R 413007 C	650	920	670	670	16340	44175
S4R 239509 FA	660	820	440	440	7106	21660
S4R 413477 BDS2	660	880	450	450	6850	22420
S4R 413154 C	680	980	640	640	16340	41800
S4R 413008 A	690	980	715	715	18810	51300
S4R 416967	700	930	620	620	14345	40850
S4R 415982	730	960	620	620	14630	42750
S4R 414518 B	730	1030	750	750	19855	55575



## FOUR ROW CYLINDRICAL ROLLER BEARINGS



Bearing No	Dimensions (mm)				Basic Load Rating(kN)	
	d	D	B	C	C <sub>r</sub>	C <sub>or</sub>
S4R 414420 DS2	750	1000	500	500	11685	31825
S4R 415973	750	1000	670	670	16720	47500
NNUD 60/750 M	750	1090	615	615	17385	39425
S4R 8066/CH3	750	1090	750	750	20520	48450
S4R 412979 D	760	1080	790	790	22610	62225
S4R 415599 A	800	1080	700	700	18810	55575
S4R 416341/CH4	820	1100	745	720	18810	54150
S4R 8014/CH4	820	1130	800	800	22990	64600
S4R 320455	820	1130	800	800	22990	64600
S4R 419313	820	1130	825	800	22990	64600
S4R 415826 A	850	1150	840	840	24225	71250
S4R 415826 B	850	1150	840	840	24225	71250
S4R 416043	900	1220	840	840	25080	76000
S4R 413528 C	900	1280	930	930	31350	88350
S4R 419862	950	1360	975	975	32395	95000
S4R 419303	980	1310	880	880	27170	82175
S4R 416234 A	1000	1360	800	800	26125	78850
S4R 8062/CH1	1040	1440	1000	1000	36100	88350
S4R 415494 B	1200	1590	1050	1050	39710	127300
S4R 8016/CH4	1300	1655	890	880	35530	115900
S4R 8029/CH4	1350	1765	1360	1360	38190	115900
S4R 8042/CH4	1400	1780	1200	1200	49685	154850

## DOUBLE ROW ANGULAR CONTACT BALL BEARINGS

### Usage Area:

Radial fixation of the shaft beside the 4-line cylindrical roller bearings and against the axial loads from both directions



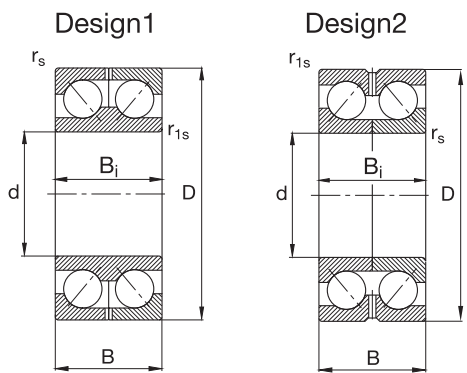
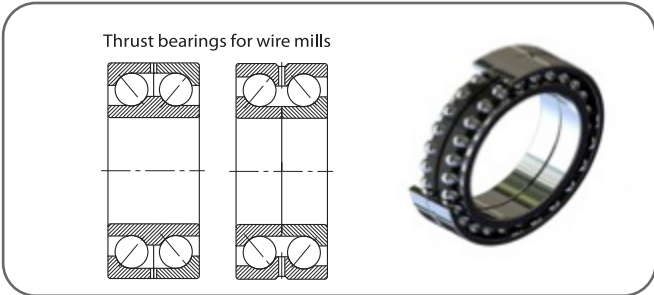
**On the Finish Benches**  
**On the Wire Rod Benches**

High Speed

Axial Load From Both Directions

Two-Part Internal or External Bushing  
Cannot be Demounted

Contact Angle: 32° or 40°



Bearing No	Dimensions (mm)			Basic Load Rating(kN)	
	d	D	B	C <sub>r</sub>	C <sub>or</sub>
405283 DA	150	230	70	200	280
405248	150	240	84	240	330
405608 A	160	215	56	130	210
405183	160	240	76	230	320
405180	170	260	84	270	390
405351	175	280	92	300	440
405288 DA	180	250	70	190	280
405455 B	180	250	70	190	280
405172 B	180	280	92	310	460
405609 A	190	255	66	170	280
405338 DA	190	269.5	66	260	400
405178	190	290	92	310	490
405237 A	200	280	76	230	350
405393	200	280	80	230	370
405263 DA	200	289.5	76	290	460
405352	200	310	96	350	540
405610 A	220	300	76	250	430
405272 DA	220	309.5	76	300	500
405611 A	250	340	76	310	550
405270 D	260	369.5	92	380	680
405174 B	260	400	130	420	700
405269 D	280	389.5	92	390	720
BA2B 309984	650	780	84	520	1680
BA2B 311631	900	1030	135	650	2430
BA2B 311495	1000	1170	140	800	3040

## DOUBLE ROW TAPER ROLLER BEARINGS

### Usage Area:

Radial fixation of the 4-line cylindrical roller bearings from the rolling mill bearings and against the axial loads from both directions.

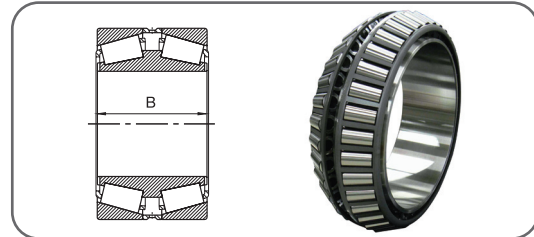
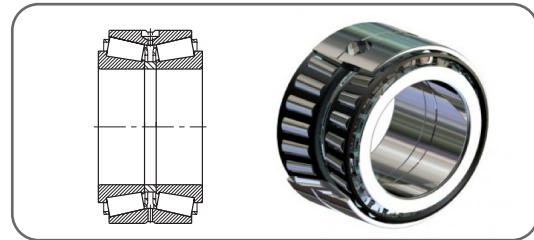


Heavy Mixed Loads

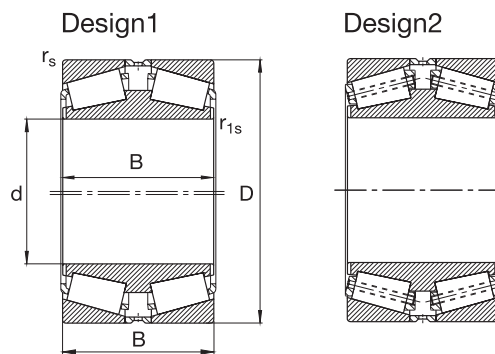
They Can Carry Axial Loads From Both Directions

Demountable

Assembly Convenience:  
It is Adjusted Ready for Assembly



TDI Configuration



Bearing No	Dimensions (mm)				Basic Load Rating(kN)	
	d	D	T	B	C <sub>r</sub>	C <sub>or</sub>
TDI 432931	240	480	220	200	3200	5230
TDI 432168	300	440	105	105	960	1940
TDI 432168 A	300	440	105	105	960	1940
TDI 431951	300.038	422.275	150.812	150.812	1950	4520
TDI 432685-CH1	303.212	495.3	263.525	263.525	4350	9310
TDI 432068	305.033	560	200	200	2780	5040
TDI 432169 A	305.07	500	200	200	2430	4940
TDI 428699 G-CH1	317.5	422.275	128.588	128.588	1600	3950
TDI 428695 A-CH1	333.375	469.9	166.688	166.688	2340	5420
TDI 432871-CH4	333.375	469.9	166.688	231.775	2340	5420
TDI 431713 A	342.9	533.4	139.7	146.05	2270	4180
TDI 431713 B	342.9	533.4	139.7	146.05	2270	4180
TDI 432240 A	343.052	457.098	122.238	122.238	1440	3230
TDI 432913-BH1	346.075	488.95	104.775	95.25	1120	2620
TDI 431527 C	346.075	488.95	174.625	174.625	2430	5700
TDI 428410 C-CH1	346.075	488.95	174.625	174.625	2510	5990
TDI 431729	360	680	330	300	6850	12730
TDI 431836	368.3	523.875	185.738	185.738	2990	7130
TDI 432468 A-CH1	368.3	523.875	185.738	185.738	2990	7130
TDI 431905	368.3	596.9	165.1	158.75	2930	5560
TDI 431158 A	384.175	546.1	193.675	193.675	3300	7890
TDI 428580-CH1	384.175	546.1	193.675	193.675	3300	7890
TDI 431837	384.175	546.1	193.675	193.675	3300	7890
TDI 428705-CH1	390	546.1	141.288	141.288	2090	4850
TDI 434045-CH3	390	568	180	180	2270	5560
TDI 428896-CH3	390	570	200	200	2620	6230
TDI 428934-CH3	390	590	200	200	2620	6230

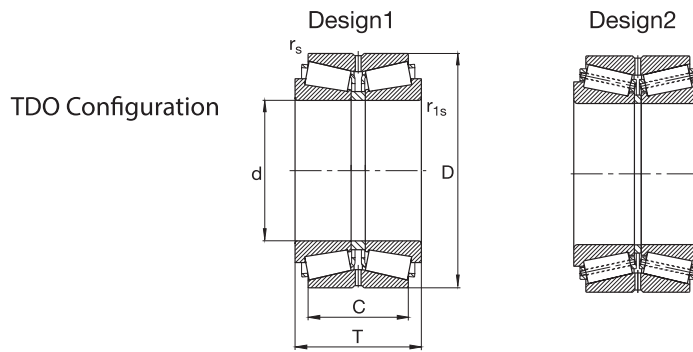


## DOUBLE ROW TAPER ROLLER BEARINGS

Bearing No	Dimensions (mm)				Basic Load Rating(kN)	
	d	D	T	B	C <sub>r</sub>	C <sub>or</sub>
TDI 432167	400	650	240	240	3720	7750
TDI 432167 C-CH3	400	650	240	240	3720	7750
TDI 431840 C-CH1	406.4	546.1	138.113	138.113	2090	4850
TDI 434024-CH3	406.4	566.1	150	150	1740	4520
TDI 428874-CH1	408.4	546.1	120	98	1440	3280
TDI 428466-CH1	408.4	546.1	150	125	1740	4520
TDI 431714 B	409.575	546.1	161.925	161.925	2390	6230
TDI 431445	415.925	590.55	209.55	209.55	3720	9170
TDI 434013-CH1	430	535	84	84	1030	2850
TDI 434069-CH3	445	620	160	160	2020	4850
TDI 431562	447.675	635	223.838	223.838	4180	10450
TDI 428523-CH1	450	595	178	178	2830	7750
TDI 428876-CH1	460	680	180	180	2990	6610
TDI 434030-CH1	460	702	180	180	2990	6610
TDI 428361-CH1	464	615.95	150	136	2060	5560
TDI 434100-CH3	480	660	150	150	1680	4940
TDI 434112-CH3	482	640	160	160	1680	4940
TDI 428381-CH1	491	635	148	128	1810	5040
TDI 431676 A	500	730	280	280	6270	14820
TDI 432547-CH1	501.65	673.1	184.15	184.15	3720	9170
TDI 431182	501.65	711.2	250.825	250.825	5230	13020
TDI 617670	510	733.5	200.025	200.025	3410	8080
TDI 432171	510.13	800	285	285	5330	12070
TDI 432171 A	510.13	800	285	285	5330	12070
TDI 432662-BH1	519.112	736.6	258.762	258.762	5750	14820
TDI 434041-CH3	520	715	180	180	2720	7890
TDI 428359-CH1	522	690	180	160	2720	7890
TDI 431682	536.575	761.873	269.875	269.875	5960	15200
TDI 431607 A	558.8	736.6	196.85	196.85	4080	11020
TDI 432626-CH7	560	820	242	242	4760	10830
TDI 431476	571.5	812.8	285.75	285.75	6850	17100
TDI 431677	580	830	280	280	6480	15770
TDI 431858-CH1	609.6	787.4	171.45	171.45	3820	10070
TDI 432424-CH3	609.6	820	171.45	171.45	3820	10070
TDI 431555 B	635	939.8	304.8	304.8	6380	15770
TDI 428306-CH4	650	1030	270	270	8360	17390
TDI 431198	660.4	812.8	176.212	176.212	3410	10640
TDI 432129 A-CH4	682.625	965.2	338.138	338.138	9050	23750
TDI 431581 A	710	900	197	197	4500	12540
TDI 432394	800	1100	300	300	7270	20520
TDI 434032-CH4	800	1260	375	375	13970	31830
TDI 431590	863.6	1130.3	323.85	323.85	10070	29450
TDI 431306	901.7	1295.4	450.85	438.15	15960	40850
TDI 431350	939.8	1333.5	463.55	463.55	16720	46550



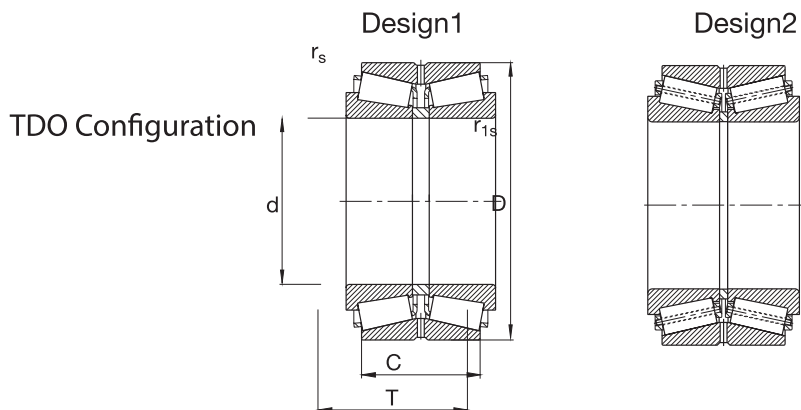
## DOUBLE ROW TAPER ROLLER BEARINGS



Bearing No	Dimensions (mm)				Basic Load Rating(kN)		Weight (kg)
	d	D	T	B	C <sub>r</sub>	C <sub>or</sub>	
TDO 617335	100	180	80	64	440	610	7.65
TDO 432767 A	101.6	146.05	49.212	38.94	210	360	2.45
TDO 431181	120	180	86	68	400	790	7.1
TDO 613428 A	152.4	222.25	100.01	76.2	580	1190	12
TDO 428957	155	200	66	54	250	590	4.85
TDO 432584 A-CH2	228.6	327.025	114.3	82.55	800	2020	30
TDO 431945	228.6	488.95	254	152.4	2780	4280	205
TDO 428615	254	422.275	173.038	128.66	2130	3850	87.5
TDO 431782	254	422.275	178.592	139.7	2130	3850	97.5
TDO 431781	254	533.4	276.225	165.1	3300	5230	260
TDO 617479 B	260	440	144	128	1780	3280	86.5
TDO 428130	260	480	284	220	3820	6990	210
TDO 428187-CH2	260.35	422.275	178.592	139.7	2130	3850	86.5
TDO 431717 A	280	470	250	180	3300	6080	155
TDO 428383-CH1	300	500	203	152	2670	4850	140
TDO 432504-CH2	300.038	422.275	174.625	136.525	1950	4520	71.5
TDO 615058 A	317.5	447.675	180.975	146.05	2220	5130	84
TDO 432516 A-CH1	317.5	447.675	180.975	146.05	2220	5130	84
TDO 432845-CH2	330.2	482.6	177.8	127	2130	4750	100
431775 B	333.375	469.9	190.5	152.4	2340	5420	98
TDO 432830	340	460	160	128	1950	4660	71
TDO 432802 A	342.9	533.4	174.625	123.825	2270	4180	130
TDO 431981	346.075	488.95	200.025	158.75	2510	5990	110
TDO 432505-CH2	355.6	444.5	136.525	111.125	1190	3470	46
TDO 432506-CH2	355.6	501.65	155.575	107.95	1740	4040	87
TDO 432831	360	480	160	128	1950	4750	73
TDO 432603-CH1	368.249	523.875	214.312	169.862	2990	7130	140
TDO 432754	368.3	596.9	203.2	133.35	2930	5560	188
TDO 431606 A	371.475	501.65	155.575	107.95	1740	4040	76.5
TDO 428020	380	520	148	112	2060	4280	80.2
TDO 432823-CH1	380	660	380	310	7270	15200	520
TDO 432507-CH2	381	508	139.7	88.9	1320	3090	67
TDO 431197 A	384.175	546.1	222.25	177.8	3300	7890	161
TDO 428389	406.4	539.75	142.875	101.6	1600	4180	82.4
TDO 431656	415.925	590.55	244.475	193.675	3720	9170	205
TDO 432604-CH1	431.8	571.5	155.575	111.125	1890	4850	100
TDO 432237 A-CH1	431.8	571.5	192.088	146.05	2510	6610	125
TDO 428796	440	650	196	157	3510	7270	203
TDO 432176 A	447.675	635	257.175	206.375	4180	10450	245
TDO 428980 A-CH2	457.2	596.9	165.1	120.65	2060	5230	110
TDO 431657	479.425	679.45	276.225	222.25	4760	12070	302
TDO 431776 A	489.026	634.873	177.8	142.875	2620	6990	130
TDO 431605 A	498.475	634.873	177.8	142.875	2620	6990	125
TDO 431605 B	498.475	634.873	177.8	142.875	2620	6990	125
TDO 432605 A-CH1	501.65	711.2	292.1	231.775	5230	13020	343
TDO 614995	508	838.2	304.8	222.25	6120	13300	630
TDO 432761	520.7	736.6	186.502	114.3	2880	6370	210
TDO 432446	536.575	761.873	311.15	247.65	5960	15200	430



## DOUBLE ROW TAPER ROLLER BEARINGS



Bearing No	Dimensions (mm)				Basic Load Rating(kN)		Weight (kg)
	d	D	T	B	C <sub>r</sub>	C <sub>or</sub>	
TDO 431790 A	558.8	736.6	187.328	138.112	3240	7890	190
TDO 431640 A	558.8	736.6	225.425	177.8	4080	20	150
TDO 432447	571.5	812.8	333.375	263.525	6120	15200	520
TDO 431576 B	602.945	787.4	206.375	158.75	3820	10070	180
TDO 432448	609.6	787.4	206.375	158.75	3820	10070	232
TDO 614609	609.6	812.8	190.5	146.05	3410	8360	250
TDO 431500	609.6	820	206.375	158.75	3820	10070	292
TDO 432493-CH4	635	990.6	339.725	212.725	7690	15200	840
TDO 431290	685.8	876.3	200.025	152.4	3720	10450	270
TDO 428028-CH1	711.2	914.4	190.5	139.7	3610	9170	265
TDO 431554 A	723.9	914.4	187.325	139.7	3610	9170	250
TDO 431780 A	762	965.2	187.325	133.35	3410	9310	290
TDO 432764	774.7	965.2	187.325	133.35	3410	9310	265
TDO 432625	774.962	1016	266.7	209.55	6120	16150	525
TDO 431291 B	812.8	1016	190.5	146.05	3410	9690	350
TDO 428371-CH6	812.8	1066.8	190.5	146.05	3410	9690	445
TDO 432494-CH5	863.6	1371.6	469.9	285.75	13970	30400	2250
TDO 432501 A-CH4	914.4	1066.8	139.7	101.6	2470	7600	190
TDO 432501-CH5	914.4	1066.8	139.7	101.6	2470	7600	190
TDO 428304-CH4	939.8	1270	457.2	317.5	9200	27550	1540
TDO 432756-CH5	1120	1480	400	296	12730	36100	1760
TDO 432780-CH5	1160	1540	400	290	13490	36100	1900
TDO 428339-CH4	1250	1500	250	190	7010	21280	795

## DOUBLE ROW THRUST TAPER ROLLER BEARINGS

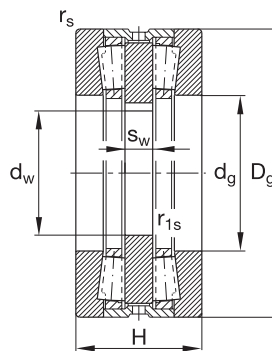
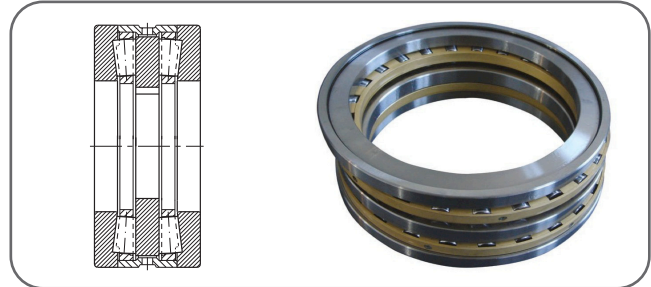
### Usage Area:

On the rolling mill rolls where 4-line cylindrical roller bearings are used (support, work rolls).

Radial Fixation of the shaft

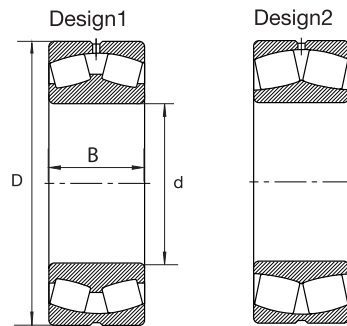
Used Against the Axial Loads from both Directions

**Note:** If a longer life is required depending on the loads in the axial taper roller bearing is used, double-line taper roller bearing, contact angle of which is 40°, can be used.



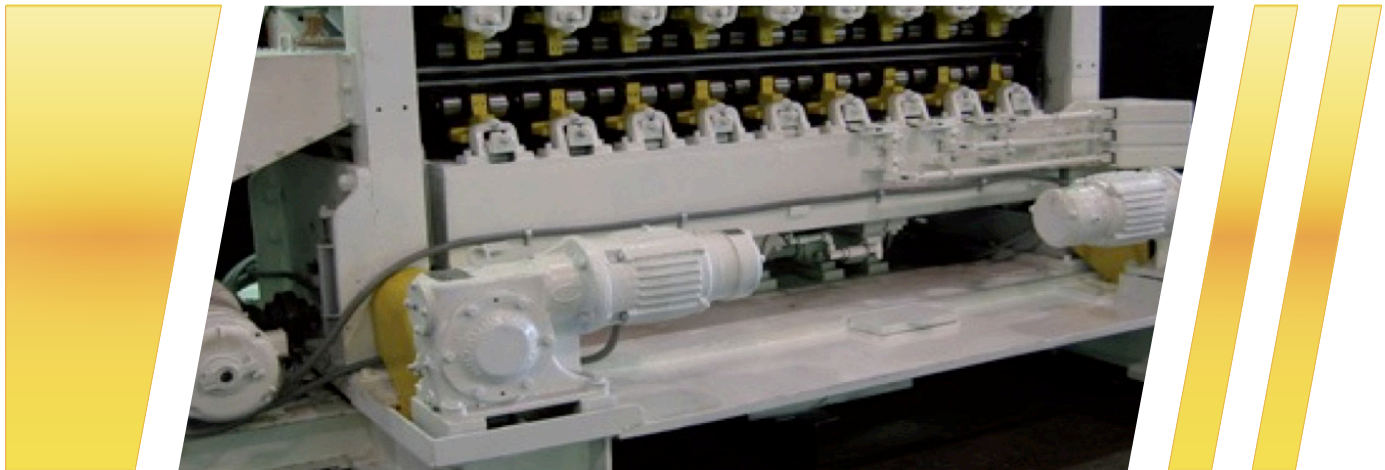
Designation	Dimensions (mm)			Basic Load Rating(kN)		Weight (kg)
	d	D	H	C <sub>r</sub> (kN)	C <sub>or</sub> (kN)	
DLG 450980 C	170	240	84	320	1230	12.5
DLG 453162	180	280	90	540	2290	22
DLG 451019 C	220	300	96	420	1580	20
DLG 451182 C	240	320	96	400	1810	21.5
DLG 453005	250	380	100	860	4330	43.5
DLG 450981 C	260	360	92	580	2480	28
DLG 451164 C	270	450	180	1570	5710	120
BFDB 453194 BH3	305.07	530	200	2270	10080	185
DLG 453102 A	320	440	108	950	4760	48.5
DLG 450982 C	320	470	130	1240	5420	80
DLG 451100 C	350	490	130	1120	4850	73.5
DLG 453006	350	540	135	1640	8700	115
DLG 451175 C	380	560	130	1710	9510	110
BFDB 453204	380	650	215	3200	15780	275
DLG 453106	400	650	200	2570	13020	235
DLG 453106 C	400	650	200	2570	13020	235
DLG 453106 D	400	650	200	2570	13020	230
DLG 451121 C	420	620	170	2300	11600	185
BFDB 453200 CH3	420	620	185	2300	11600	200
DLG 453152	440	645	167	1890	10270	190
DLG 450916 D	450	645	155	1890	10270	170
DLG 451301 C	470	720	200	3250	16730	285
DLG 453151	470	720	200	3250	16730	285
BFDB 4531238 CH3	470	710	210	3250	16730	305
DLG 451475 C	530	710	218	2100	10460	245
DLG 450976 C	550	760	230	2780	12250	310
BFDB 450824 BCH1	600	880	290	4500	20150	550
DLG 450901	600	910	290	4500	20150	655
DLG 351761 A	670	900	230	3410	18060	425

## SPHERICAL ROLLER BEARINGS

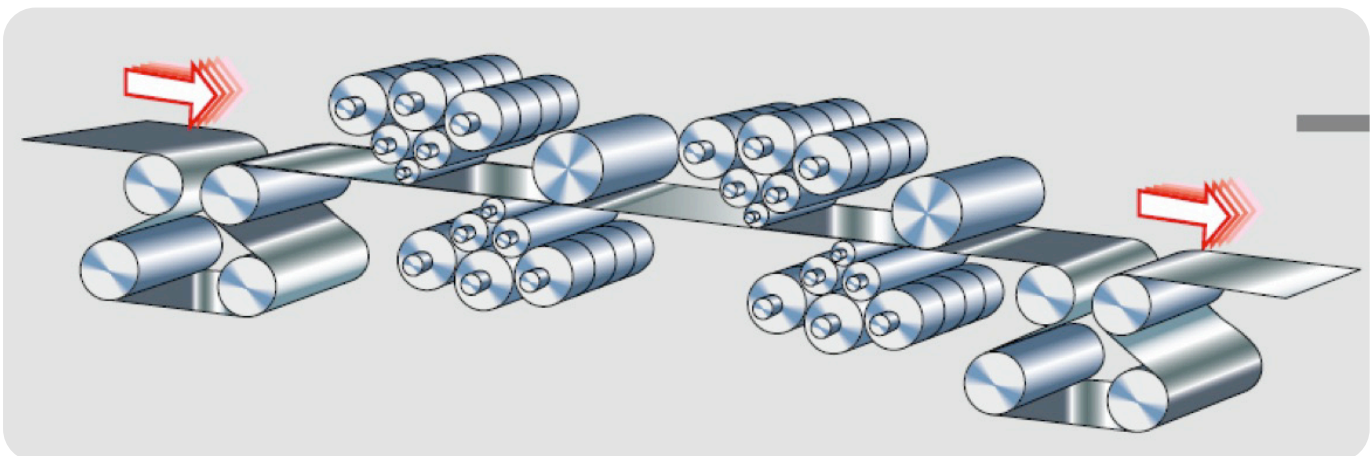


Bearing No	Dimensions (mm)			Basic Load Rating(kN)	
	d	D	B	C <sub>r</sub>	C <sub>or</sub>
24030 MB	150	225	75	561	889
23230 MB	150	270	96	1235	1520
24130 C	150	250	100	969	1454
24130 CA	150	250	100	874	1330
24130 MB	150	250	100	760	1140
24036 MB	180	280	100	931	1549
23036 C	180	280	74	789	1188
23036 MB	180	280	74	694	1093
24136 C	180	300	118	1226	1900
24136 CA	180	300	118	1264	1986
23136 C	180	300	96	1140	1672
23136 MB	180	300	96	1026	1520
23040 C	200	310	82	950	1454
24040 MB	200	310	109	855	1311
23140 MB	200	340	112	855	1311
24140 C	200	340	140	1710	2660
23240 C	200	360	128	1776	2565
23044 MB	220	340	90	1064	1577
23044 C	220	340	90	1200	1800
23144 MB	220	370	120	1539	2351
23144 C	220	370	120	1700	2600
23048 MB	240	360	92	1140	1881
24048 MB	240	360	118	1473	2518
24148 MB	240	400	160	1473	2518
23148 MB	240	440	128	1800	2900
23052 MB	260	400	104	1473	2518
23052 MB	260	400	104	1600	2500
24052 MB	260	400	140	1900	3230
24152 MB	260	440	180	2800	4500
23152 MB	260	440	144	2400	3700
23056 MB	280	420	106	1600	2700
23056 C	280	420	106	1700	2800
24056 MB	280	420	140	2000	3600
24056 C	280	420	140	2100	3700
23156 MB	280	460	146	2500	4000
24156 MB	280	460	180	3000	4800

# Leveller Special Backup Bearings



Leveller machined need to make straighten long and wide materials. During these operations, load is born by the external bushings of the bearings. For this season, external bushings are designed as thicker. Frequent-lined roller bearings or special type combined bearings are being used.



## BACKUP BEARINGS

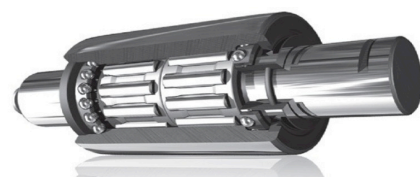
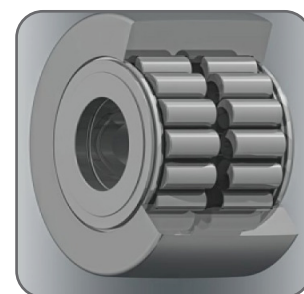
Low Speed

Heavy Radial Loads

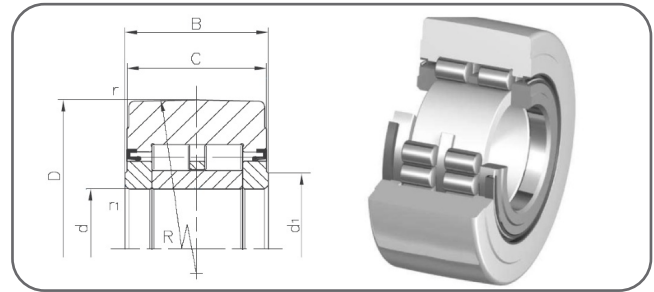
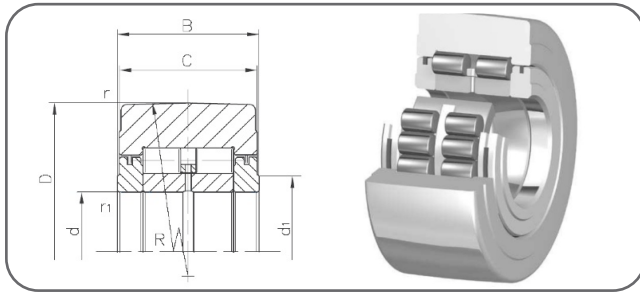
Hot Ambient

Good Tightness: Plates Suitable for High Temperature

External Bushing, Thickness of Which is Increased



## BACKUP BEARINGS



Designation	Dimensions (mm)								Load Rating(kN)				Grease Speed (rev/min)	Mass (kg)
	d	D	B	C	r	r <sub>1</sub>	d <sub>1</sub>	R	C	C <sub>0</sub>	C <sub>w</sub>	C <sub>ow</sub>		
TTR 50x130x65 ZZ	50	130	63	65	3	2	63	10.000	211	324	162	220	1.100	5
TTR 50x130x65 2RS														
TTR 55x140x70 ZZ	55	140	68	70	3	2	73	10.000	285	524	197	279	850	6
TTR 55x140x70 2RS														
TTR 60x150x75 ZZ	60	150	73	75	3	2	78	10.000	298	471	229	325	800	7,2
TTR 60x150x75 2RS														
TTR 65x160x75 ZZ	65	160	73	75	3	2	82	10.000	313	460	240	342	700	8
TTR 65x160x75 2RS														
TTR 70x180x85 ZZ	70	180	83	85	3	2	92	10.000	409	668	308	453	600	12
TTR 70x180x85 2RS														
TTR 80x200x90 ZZ	80	200	88	90	4	2	102	10.000	473	739	363	538	500	15,6
TTR 80x200x90 2RS														
TTR 90x220x100 ZZ	90	220	98	100	4	2,5	119	10.000	607	909	466	710	400	21
TTR 90x220x100 2RS														
TTR 100x240x105 ZZ	100	240	103	105	4	2,5	132	10.000	689	1.009	530	820	340	26,4
TTR 100x240x105 2RS														
TTR 110x260x115 ZZ	110	260	113	115	4	2,5	143	10.000	813	1.303	625	1.005	300	33,8
TTR 110x260x115 2RS														
TTR 120x290x135 ZZ	120	290	133	135	4	3	155	15.000	1.060	1.745	815	1.323	260	50,8
TTR 120x290x135 2RS														
TTR 130x310x146 ZZ	130	310	144	146	5	3	165	15.000	1.214	2.193	933	1.545	240	63
TTR 130x310x146 2RS														
TTR 140x340x162 ZZ	140	340	160	162	5	3,5	186	15.000	1.494	2.295	1.149	1.912	200	84,8
TTR 140x340x162 2RS														
TTR 150x360x173 ZZ	150	360	171	173	5	3,5	196	15.000	1.668	2.604	1.280	2.170	180	101,4
TTR 150x360x173 2RS														