

Open Type

Sealed Type

Ball Screw Support Bearings



NACHI High Precision and High Rigidity

Ball Screw Support Bearings have the ability to achieve high precision and high performance on your applications



NACHI Ball Screw Support Bearings have been improved to exceed new industrial demands for high precision and high speed requirements.

NACHI TAB type ball screw support bearings support precision actuators in a wide range of applications such as machine tools, precision measuring equipment, and robot technologies.

Features

High Axial Rigidity

Greater number of balls with polyamide cage achieves significantly increased rigidity compared with conventional angular contact ball bearing.

Simple and Compact

The 60° contact angles allows the bearing to simultaneously carry the thrust load and certain amount of radial load. This characteristic allows you to have a simple and compact design.

High Capacity and Low Noise

The use of large balls results in higher bearing capacity beyond what NACHI adopted with the poly-amide cage combined with the high performance, quiet operating, grease to achieve low noise.

Energy Saving

Superior seal designs offer low starting and running torque; minimizing power loss.

Easy Assembly

Initial bearing preloading provides for ease of assembly by eliminating complex assembly adjustment.

Line up contact and non-contact design seals.

Proper Seal Type is Available Corresponding to Various Applications.

Seal types include contact type, excelling in sealability, and non-contact type for decreasing torque loss and temperature rise. Can select the best seal type corresponding to application needs.

Compatible Dimensions with Current Bearings

Boundary dimensions are compatible with current open bearing enabling interchangeability with existing applications.

Universal Ground Set Combinations (Flush Ground)

Universal ground set combination bearings are also available with a suffix U. This permits the use of random combinations where two or more bearings are mounted.

Pre Pack Grease

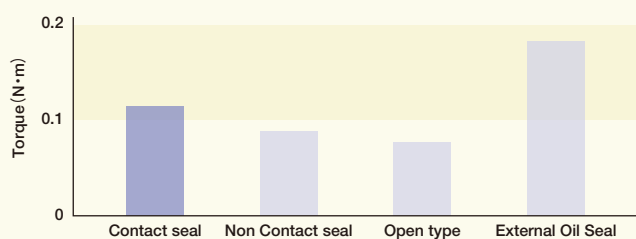
Bearings are prepacked with high performance grease eliminating the need for additional grease packing during assembly.





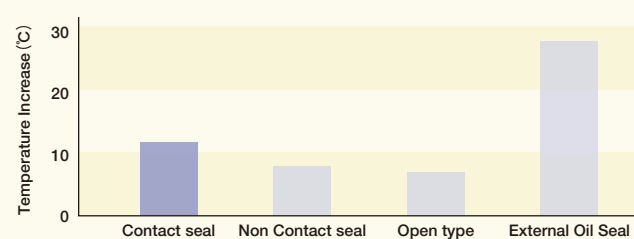
Performance

Running Torque



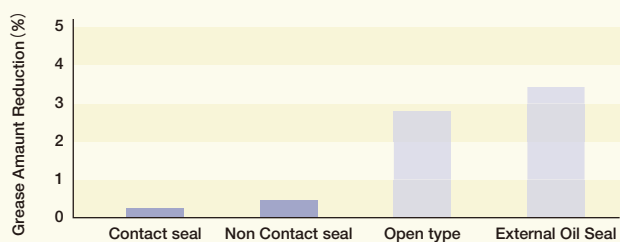
Running torque of contact type seal is 30% reduced, compare with external oil seal.

Temperature Increase



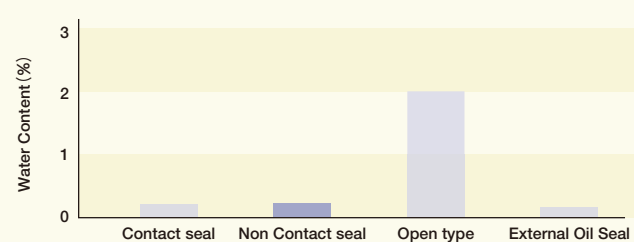
Temperature increase of contact type seal is half, compare with external oil seal.

Grease Amount Reduction



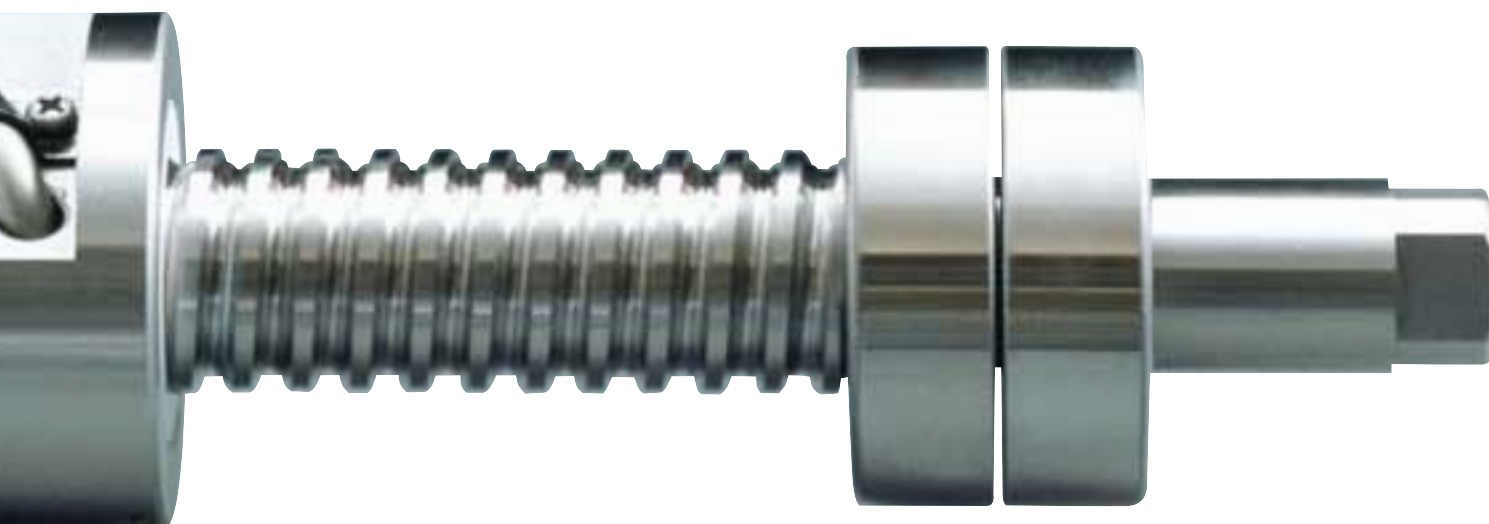
Contact/Non-contact type seal have good grease keeping capability.

Water Resistance



Water resistance performance of non-contact type seal is same as external oil seal.

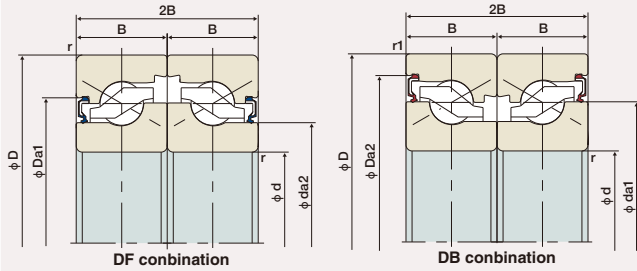
Test Conditions...●Tested Bearings:20TAB04DF (DB) -2LR -2NK ●Temperature:Room Temperature ●Speed:1800min⁻¹ ●Grease:Multemp PS2



Dimensional Table

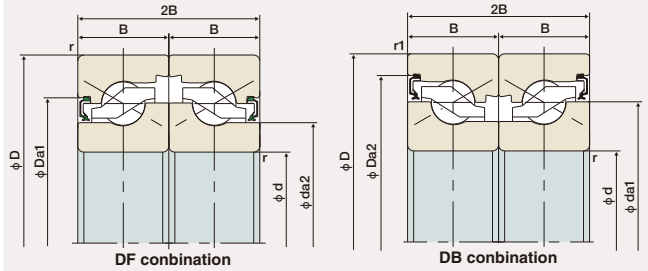


● With contact type seal (2LR)



(Seals are outside only for combination bearings)

● With non-contact type seal (2NK)



(Seals are outside only for combination bearings)

1N = 1/9.8kgf

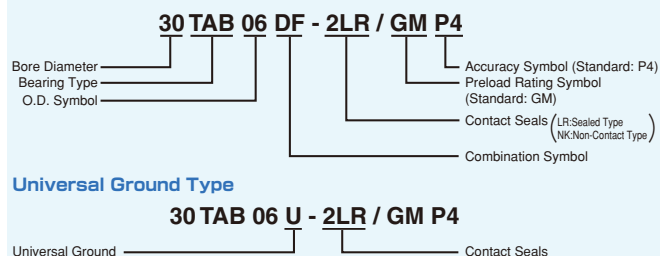
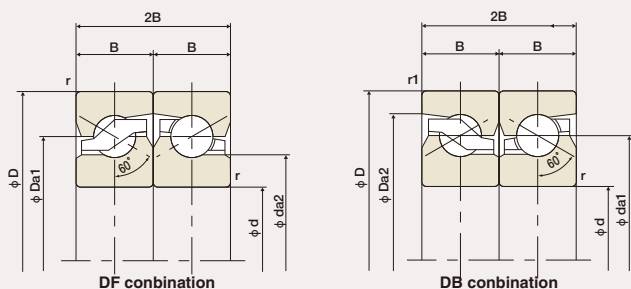
Bearing No.			Boundary Dimensions (mm)						Basic Dynamic Load Rating ⁽²⁾	
Contact Type	Non-Contact Type	Open Type	d	D	B	2B	r (min)	r ₁ (min)	Ca (N)	
15TAB04DF (DB) -2LR	15TAB04DF (DB) -2NK	15TAB04DF (DB)	15	47	15	30	1 ⁽¹⁾	0.6	25,900	
17TAB04DF (DB) -2LR	17TAB04DF (DB) -2NK	17TAB04DF (DB)	17	47	15	30	1	0.6	25,900	
20TAB04DF (DB) -2LR	20TAB04DF (DB) -2NK	20TAB04DF (DB)	20	47	15	30	1	0.6	25,900	
25TAB06DF (DB) -2LR	25TAB06DF (DB) -2NK	25TAB06DF (DB)	25	62	15	30	1	0.6	29,900	
30TAB06DF (DB) -2LR	30TAB06DF (DB) -2NK	30TAB06DF (DB)	30	62	15	30	1	0.6	29,900	
35TAB07DF (DB) -2LR	35TAB07DF (DB) -2NK	35TAB07DF (DB)	35	72	15	30	1	0.6	32,500	
40TAB07DF (DB) -2LR	40TAB07DF (DB) -2NK	40TAB07DF (DB)	40	72	15	30	1	0.6	32,500	
40TAB09DF (DB) -2LR	40TAB09DF (DB) -2NK	40TAB09DF (DB)	40	90	20	40	1	0.6	65,000	
		45TAB07DF (DB)	45	75	15	30	1	0.6	33,500	
		45TAB10DF (DB)	45	100	20	40	1	0.6	68,000	
		50TAB10DF (DB)	50	100	20	40	1	0.6	69,500	
		55TAB10DF (DB)	55	100	20	40	1	0.6	69,500	
		55TAB12DF (DB)	55	120	20	40	1	0.6	73,000	
		60TAB12DF (DB)	60	120	20	40	1	0.6	73,000	

Note (1) r (min) = 0.6 for inner ring.

(2) When bearing sets carry axial load with two or three rows, the numbers should be multiplied by 1.64 or 2.16.

(3) When bearing sets carry axial load with two or three rows, the numbers should be multiplied by 2 or 3.

● Open Type



Dynamic Equivalent Axial Load

$$P_a = X F_r + Y F_a$$

No. of Bearing in set	2		3			4			
Brgs Loaded Axial Load	1	2	1	2	3	1	2	3	4
$F_a/F_r \leq e$	X	1.9	—	1.43	2.33	—	1.17	2.33	2.53
	Y	0.54	—	0.77	0.35	—	0.89	0.35	0.26
$F_a/F_r > e$	X	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
	Y	1	1	1	1	1	1	1	1

$$e = 2.17$$

	Permissible Thrust Load ⁽³⁾	Limiting Speed (rpm) Grease Lubrication		Starting Torque (N·cm) Grease Lubrication	Abutment and Fillet Dimensions (mm)								Mass (kg) (1pc.) (Ref.)
	Coa (N)	Sealed Type	Open Type	Open Type Non-Contact Type	da1	da2	Da1	Da2	da1	da2	Da1	Da2	
	32,000	4,400	6,300	15	33.7	26.8	35	41.9	33.7	26.8	33.5	41	0.14
	32,000	4,400	6,300	15	33.7	26.8	35	41.9	33.7	26.8	33.5	41	0.13
	32,000	4,400	6,300	15	33.7	26.8	35	41.9	33.7	26.8	33.5	41	0.12
	46,400	3,250	4,650	20	46.2	39.7	47.5	54.9	46.2	39.7	46	53.4	0.24
	46,400	3,250	4,650	20	46.2	39.7	47.5	54.9	46.2	39.7	46	53.4	0.21
	54,300	2,600	3,750	25	56.2	49.7	57.5	64.9	56.2	49.7	56	63.4	0.29
	54,300	2,600	3,750	25	56.2	49.7	57.5	64.9	56.2	49.7	56	63.4	0.26
	101,000	2,200	3,150	30	67.2	57.2	68.5	79.9	67.2	57.2	67	78.4	0.62
	595,000		3,400	50					61.7	55.2	61.5	68.9	0.25
	113,000		2,850	60					74.2	64.2	74	85.4	0.79
	119,000		2,700	65					78.2	68.2	78	89.4	0.72
	119,000		2,700	65					78.2	68.2	78	89.4	0.65
	137,000		2,300	70					92.2	82.2	92	103.4	1.15
	137,000		2,300	70					92.2	82.2	92	103.4	1.08



Tolerances for Inner Ring

Nominal Bearing Bore Diameter (mm)		Single Plane Mean Bore Diameter Variation $\Delta_{dmp}, \Delta_{ds}$				Bore Diameter Variation in a Single Radial Plane V_{dp}		Mean Bore Diameter Variation V_{dmp}		Deviation of a Single Inner Ring Width (or a Single Outer Ring Width) $\Delta_{BS} (\Delta_{CS})$				
		P5		P4		P5	P4	P5	P4	P5		P4		
Over	Incl.	High	Low	High	Low	(Max)	(Max)	(Max)	(Max)	High	Low	High	Low	
10	18	0	−5	0	−4	4	3	3	2	0	−80	0	−80	
18	30	0	−6	0	−5	5	4	3	2.5	0	−120	0	−120	
30	50	0	−8	0	−6	6	5	4	3	0	−120	0	−120	
50	80	0	−9	0	−7	7	5	5	3.5	0	−150	0	−150	

Note (1) These deviations are for single bearing. For combination bearings, multiply these values by row number.

Tolerances for Outer Ring

Nominal Bearing Outside Diameter (mm)		Single Plane Mean Outside Diameter Variation of Outer Ring $\Delta_{Dmp}, \Delta_{DS}$				Outside Diameter Variation in a Single Radial Plane V_{Dp}		Mean Outside Diameter Variation V_{Dmp}		Width Deviation Vcs of Outer Ring V_{CS}				
		P5		P4		P5	P4	P5	P4	P5	P4	P5	P4	
Over	Incl.	High	Low	High	Low	(Max)	(Max)	(Max)	(Max)	(Max)	(Max)	(Max)	(Max)	
30	50	0	−7	0	−6	5	5	4	3	5	2.5			
50	80	0	−9	0	−7	7	5	5	3.5	6	3			
80	120	0	−10	0	−8	8	6	5	4	8	4			

Preload and Axial Spring Constant

1N = 1/9.8kgf

Bearing No.	Preload M (N)				Axial Spring Constant (N/μm)			
	DF	BFF	BBFF	BFFF	DF	BFF	BBFF	BFFF
	DB	FFB	FFBB	FFFB	DB	FFB	FFBB	FFFB
15TAB04	2,160	2,940	4,310	3,430	735	1,080	1,470	1,320
17TAB04	2,160	2,940	4,310	3,430	735	1,080	1,470	1,320
20TAB04	2,160	2,940	4,310	3,430	735	1,080	1,470	1,320
25TAB06	3,330	4,510	6,670	5,200	981	1,470	1,960	1,910
30TAB06	3,330	4,510	6,670	5,200	981	1,470	1,960	1,910
35TAB07	3,920	5,300	7,840	6,180	1,230	1,770	2,350	2,300
40TAB07	3,920	5,300	7,840	6,180	1,230	1,770	2,350	2,300
40TAB09	5,200	7,060	10,400	8,140	1,320	1,910	2,550	2,500
45TAB07	4,120	5,590	8,240	6,470	1,270	1,910	2,550	2,500
45TAB10	5,980	8,140	12,000	9,410	1,470	2,160	2,890	2,790
50TAB10	6,280	8,530	12,600	9,810	1,520	2,260	3,040	2,940
55TAB10	6,280	8,530	12,600	9,810	1,520	2,260	3,040	2,940
55TAB12	7,060	9,610	14,100	11,100	1,770	2,550	3,480	3,380
60TAB12	7,060	9,610	14,100	11,100	1,770	2,550	3,480	3,380

Basic Dynamic Load Rating

Bearing No.	In Case of Single Row	In Case of Double Rows	In Case of Triple Rows
	Single Brg., DF, DB	DT, BFF, FFB, BBFF, FFBB	FFF, BFFF, FFFB
15TAB04	25,900	42,000	56,000
17TAB04	25,900	42,000	56,000
20TAB04	25,900	42,000	56,000
25TAB06	29,900	48,500	64,500
30TAB06	29,900	48,500	64,500
35TAB07	32,500	53,000	70,000
40TAB07	32,500	53,000	70,000
40TAB09	65,000	105,000	140,000
45TAB07	33,500	54,500	72,500
45TAB10	68,000	111,000	147,000
50TAB10	69,500	113,000	150,000
55TAB10	69,500	113,000	150,000
55TAB12	73,000	119,000	158,000
60TAB12	73,000	119,000	158,000

Unit: $\mu\text{m}=0.001\text{mm}$

Width Deviation V_{BS} of Inner Ring V_{BS}		Radial Runout of Assembled Bearing Inner Ring K_{ia}		Side Face Runout S_d with Reference to Bore S_d		Side Face Runout with Reference to Raceway of Assembled Bearing Inner Ring S_{ia} and of Assembled Bearing Outer Ring S_{ea}		Nominal Bearing Bore Diameter (mm)	
P5	P4	P5	P4	P5	P4	P5	P4		
(Max)	(Max)	(Max)	(Max)	(Max)	(Max)	(Max)	(Max)	Over	Incl.
5	2.5	4	2.5	7	3	4	2	10	18
5	2.5	4	3	8	4	5	2.5	18	30
5	3	5	4	8	4	6	2.5	30	50
6	4	5	4	8	5	7	2.5	50	80

Shaft and Housing Tolerance

Unit: $\mu\text{m}=0.001\text{mm}$

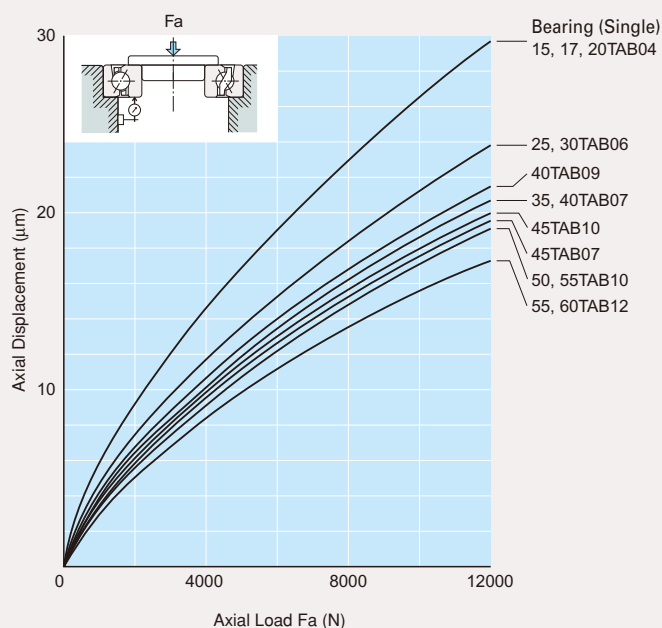
Radial Runout of Assembled Bearing Outer Ring K_{ea}		Outside Inclination of Outer Ring S_D		Nominal Bearing Outside Diameter (mm)	
P5	P4	P5	P4		
(Max)	(Max)	(Max)	(Max)	Over	Incl.
7	5	8	4	30	50
8	5	8	4	50	80
10	6	9	5	80	120

① For the fit, refer to the following table.

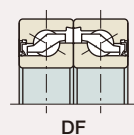
Shaft Fit	h5
Housing Fit	H6

② For the squareness of a shoulder, refer to the following table.

Dimensions of Shaft Diameter and Housing Bore Diameter (mm)		Squareness (μm)
Over	Incl.	
—	80	4
80	120	5

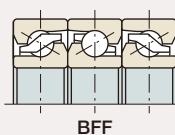


Duplex Sets



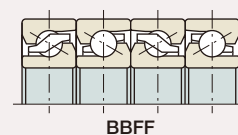
DF

Triplex Sets

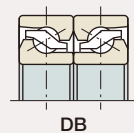


BFF

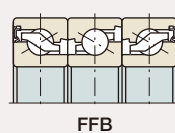
Quad Sets



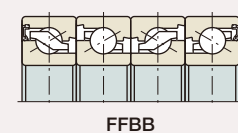
BBFF



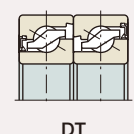
DB



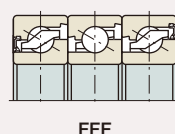
FFB



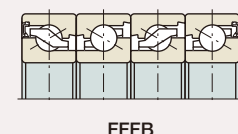
FFBB



DT



FFF



FFFB

(Seals are outside only for combination bearings)

NACHI-FUJIKOSHI CORP.

Main Office: Shiodome Sumitomo Bldg. 17F, 1-9-2 Higashi-Shinbashi, Minato-ku, Tokyo 105-0021, JAPAN

Tel: 03-5568-5111 Fax: 03-5568-5206 URL: <http://www.nachi-fujikoshi.co.jp/>

Overseas Sales Companies

NACHI AMERICA INC. HEAD QUARTERS

715 Pushville Road, Greenwood, Indiana, 46143, U.S.A.
Tel: +1-317-530-1001 Fax: +1-317-530-1011
URL: <http://www.nachiamerica.com/>

WEST COAST BRANCH

12652 E. Alondra Blvd. Cerritos, California, 90703, U.S.A.
Tel: +1-562-802-0055 Fax: +1-562-802-2455

MIAMI BRANCH-LATIN AMERICA DIV.

2315 N.W. 107th Ave., Doral, Florida, 33172, U.S.A.
Tel: +1-305-591-0054/0059/2604 Fax: +1-305-591-3110

NACHI CANADA INC.

89 Courtland Ave., Unit No.2, Concord, Ontario, L4K 3T4, CANADA
Tel: +1-905-660-0088 Fax: +1-905-660-1146

URL: <http://www.nachicanada.com/>

NACHI MEXICANA, S.A. DE C.V.

Urbina No.54, Parque Industrial Naucalpan, Naucalpan de Juarez, Estado de Mexico C.P. 53370, MEXICO
Tel: +52-55-3604-0832 Fax: +52-55-3604-0882

NACHI EUROPE GmbH

Bischofstrasse 99, 47809, Krefeld, GERMANY
Tel: +49-(0)2151-65046-0 Fax: +49-(0)2151-65046-90
URL: <http://www.nachi.de/>

SOUTH GERMANY OFFICE

Pleidelsheimer Strasse 47, 74321, Bietigheim-Bissingen
Tel: +49-(0)7142-77418-0 Fax: +49-(0)7142-77418-20

SPAIN BRANCH

P.I. EL MONTALVO III C/Segunda, 6. Portal 1-2a, Oficina 5 37188-Carbajosa de La Sagrada Salamanca- Espana, SPAIN
Tel: +34-(0)923-197-837 Fax: +34-(0)923-197-758

CZECH BRANCH

Sezemicka 2757/2, Praha 9 193 00, Horni Pocernice VGP Park - Building A1, CZECH
Tel: +420-255-734-005 Fax: +420-255-734-001

U.K. BRANCH

Unit 3, 92, Kettles Wood Drive Woodgate Business Park, BIRMINGHAM B32 3DB, U.K.
Tel: +44-(0)121-423-5000 Fax: +44-(0)121-421-7520

TURKEY OFFICE

Karaman Ciftligi Mevkii, Agaoglu My Prestige, K;13, D;110, 34746, Atasehir, Istanbul, TURKEY

Tel: +90-(0)216-688-4457 Fax: +90-(0)216-688-4458

NACHI SINGAPORE PTE. LTD.

No.2 Joo Koon Way, Jurong Town, Singapore 628943, SINGAPORE
Tel: +65-65587393 Fax: +65-65587371

VIETNAM REPRESENTATIVE OFFICE (HANOI)

5B Fl., Noza Bld., 243 Cau Giay St., Cau Giay Dist., Hanoi, VIETNAM
Tel: +84-4-3767-8605 Fax: +84-4-3767-8604

VIETNAM REPRESENTATIVE OFFICE (HO CHI MINH)

4Fl., Yoco Bld., 41 Nguyen Thi Minh Khai St., Dist.1, Ho Chi Minh, VIETNAM
Tel: +84-8-3822-3919 Fax: +84-8-3822-3918

FUJIKOSHI-NACHI (MALAYSIA) SDN. BHD.

No.17, Jalan USJ 21/3, 47630 UEP Subang Jaya, Selangor Darul Ehsan, MALAYSIA
Tel: +60-(0)3-80247900 Fax: +60-(0)3-80235884

PT.NACHI INDONESIA

Jl.H.R.Rasuna Said Kav.X-O Kuningan, Jakarta 12950, INDONESIA
Tel: +62-021-527-2841 Fax: +62-021-527-3029

NACHI-FUJIKOSHI CORP. THAILAND REPRESENTATIVE OFFICE

Unit 23/109(A), Fl.24 Sorachai Bldg., 23 Sukhumvit 63 Road(Ekamail), Klongtonnua, Wattana, Bangkok 10110, THAILAND
Tel: +66-2-714-0008 Fax: +66-2-714-0740

那智不二越(上海)貿易有限公司

NACHI (SHANGHAI) CO., LTD.

11F Royal Wealth Center, No.7 Lane 98 Danba Road, Putuo District, Shanghai, 200062, CHINA

Tel: +86-(0)21-6915-2200 Fax: +86-(0)21-6915-5427

重慶分公司

CHONGQING BRANCH

Room 17-18/17-19, Tower C, Hongding Guoji Mingyuan, Jiangbei District, Chongqing 400020, CHINA

Tel: +86-(0)23-8816-1967 Fax: +86-(0)23-8816-1968

瀋陽分公司

SHENYANG BRANCH

Room 610, Tower A, Wensu Road, Hunnan New District, Shenyang (Singapore Industry Park) 110179, CHINA

Tel: +86-(0)24-3120-2252

北京分公司

BEIJING BRANCH

Room 1110, Kuntai International Mansion, Building O, Yi No.12 Chao Wai Street, Chao yang District, Beijing 100020, CHINA

Tel: +86-(0)10-5879-0181 Fax: +86-(0)10-5879-0182

NACHI-FUJIKOSHI CORP. TAIPEI REPRESENTATIVE OFFICE

No.109, Kao Young North Rd, Lung-Tan Hsin, Tao-Yuan Hsien, TAIWAN
Tel: +886-(0)3-411-7776 Fax: +886-(0)3-471-8402

NACHI-FUJIKOSHI CORP. KOREA REPRESENTATIVE OFFICE

2F Dongsan Bldg. 276-4, Sungsu 2GA-3DONG Sungdong-Ku. Seoul 133-831, KOREA
Tel: +82-(0)2-469-2254 Fax: +82-(0)2-469-2264

NACHI-FUJIKOSHI CORP. INDIA REPRESENTATIVE OFFICE

Global Foyer, Unit No.3, 1st Floor, DLF Golf Course Road, Sector-43, Gurgaon, Haryana 122002, INDIA

Tel: +91-124-493-2600 Fax: +91-124-493-2608

NACHI (AUSTRALIA) PTY. LTD.

Unit 1, 23-29 South Street, Rydalmere, N.S.W, 2116, AUSTRALIA
Tel: +61-(0)2-9898-1511 Fax: +61-(0)2-9898-1678

URL: <http://www.nachi.com.au/>

Overseas Manufacturing Companies

NACHI TECHNOLOGY INC.

713 Pushville Road, Greenwood, Indiana, 46143, U.S.A.
Tel: +1-317-535-5000 Fax: +1-317-535-8484

URL: <http://www.nachitech.com/>

NACHI TOOL AMERICA INC.

717 Pushville Road, Greenwood, Indiana, 46143, U.S.A.
Tel: +1-317-535-0320 Fax: +1-317-535-0983

NACHI BRASIL LTDA.

Avenida João XXIII, No.2330, Jardim São Pedro, Mogi das Cruzes, S.P., BRASIL, CEP 08830-000

Tel: +55-11-4793-8800 Fax: +55-11-4793-8870

URL: <http://www.nachi.com.br/>

NACHI CZECH s.r.o.

Prumyslova 2732, 440 01 Louny, CZECH
Tel: +420-415-930-930 Fax: +420-415-930-940

NACHI TECHNOLOGY (THAILAND) CO., LTD.

5/5 M, 2, Rojana Industrial Estate Nongbua, Ban Khai, Rayong, 21120, THAILAND
Tel: +66-38-961-682 Fax: +66-38-961-683

NACHI INDUSTRIES PTE. LTD.

No.2 Joo Koon Way, Jurong Town, Singapore 628943, SINGAPORE

Tel: +65-68613944 Fax: +65-68611153

URL: <http://www.nachinip.com.sg/>

NACHI PILIPINAS INDUSTRIES, INC.

1st Avenue, Manalac Compound, Sta. Maria Industrial Estate, Bagumbayan, Taguig, Metro Manila, PHILIPPINES

Tel: +63-(0)2-838-3620 Fax: +63-(0)2-838-3623

NACHI MOTHERSON PRECISION LTD.

179, Sector4, IMT Manesar, District Gurgaon-122 050, Haryana, INDIA

Tel: +91-124-4936-000 Fax: +91-124-4936-022

NACHI MOTHERSON TOOL TECHNOLOGY LTD.

D-59-60, Sector-6, Noida 201301, Distt. Gautam Budh Nagar, U.P.INDIA

Tel: +91-120-425-8372 Fax: +91-120-425-8374

建越工業股份有限公司

NACHI C.Y. CORP.

No.109, Kao Young North Rd, Lung-Tan Hsin, Tao-Yuan Hsien, TAIWAN
Tel: +886-(0)3-471-7651 Fax: +886-(0)3-471-8402

東莞建越精密軸承有限公司

DONGGUAN NACHI C.Y. CORPORATION

Dangyong Village, Hongmei Town Dongguan City, Guangdong, CHINA
Tel: +86-(0)769-8843-1300 Fax: +86-(0)769-8843-1330

上海不二越精密軸承有限公司

SHANGHAI NACHI BEARINGS CO., LTD.

Yitong Industry Zone 258, Fengmao Rd. Malu Town, Jiading, Shanghai 201801, CHINA

Tel: +86-(0)21-6915-6200 Fax: +86-(0)21-6915-6202

那智不二越(上海)精密工具有限公司

NACHI (SHANGHAI) PRECISION TOOLS CO., LTD.

Yitong Industry Zone 258, Fengmao Rd. Malu Town, Jiading, Shanghai 201801, CHINA

Tel: +86-(0)21-6915-7200 Fax: +86-(0)21-6915-7669

大成NACHI油圧工業(株)

DAESUNG-NACHI HYDRAULICS CO., LTD.

289-22, Yusan-Dong, Yangsan-Si, GyeongNam 626-230, KOREA
Tel: +82-(0)55-371-9700 Fax: +82-(0)55-384-3270

The appearance and specifications may be changed without prior notice if required to improve performance.

Every care has been taken to ensure the accuracy of the information contained in this catalog but no liability can be accepted for any errors or omissions.