

50 YEARS

**NACHI**

NACHI EUROPE GmbH

OUR SYNERGY  
YOUR PERFORMANCE

INNOVATIVE TAPS

# HYPER-Z SERIES



CELEBRATE THE POLE POSITION



**TOP  
QUALITY  
LEADER**

Optimized cutting  
geometry

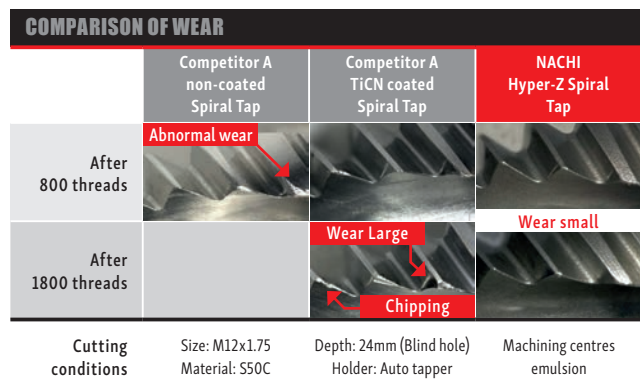
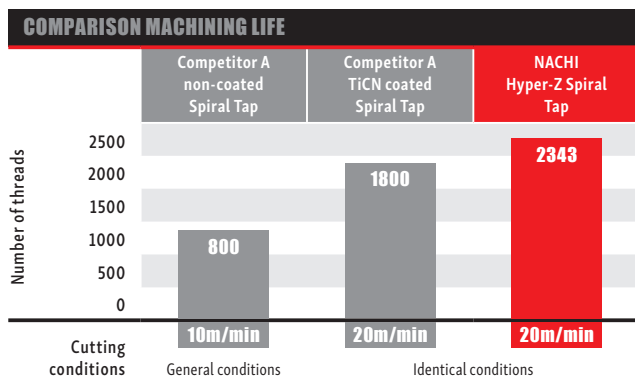


## Innovative taps developed with NACHI's comprehensive experience

- ▶ Quality based on NACHI's high vertical integration: in-house steel melting, heat treatment and grinding
- ▶ Longer tool life and higher process reliability as a result of NACHI's long-term experience in broaches and gear cutting tools
- ▶ Efficient and productive processing at low speeds, double and triple tool life compared to non-coated taps, even longer performance than coated taps

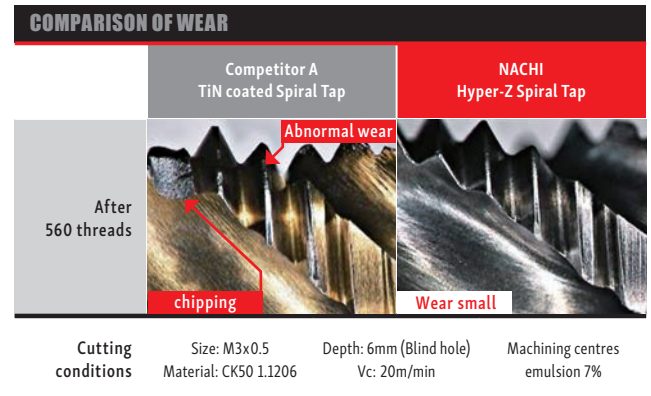
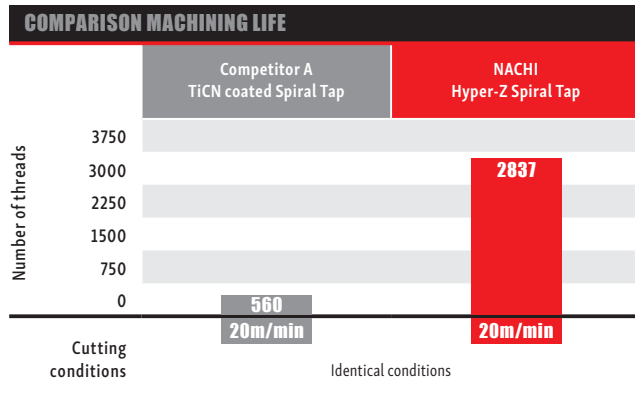
## Outstanding stability and reliability at low and medium speeds

Working at twice the cutting speeds compared to conventional non-coated taps NACHI's Hyper-Z taps achieve 2.5x longer tool life. They outperform even competitor's coated taps.



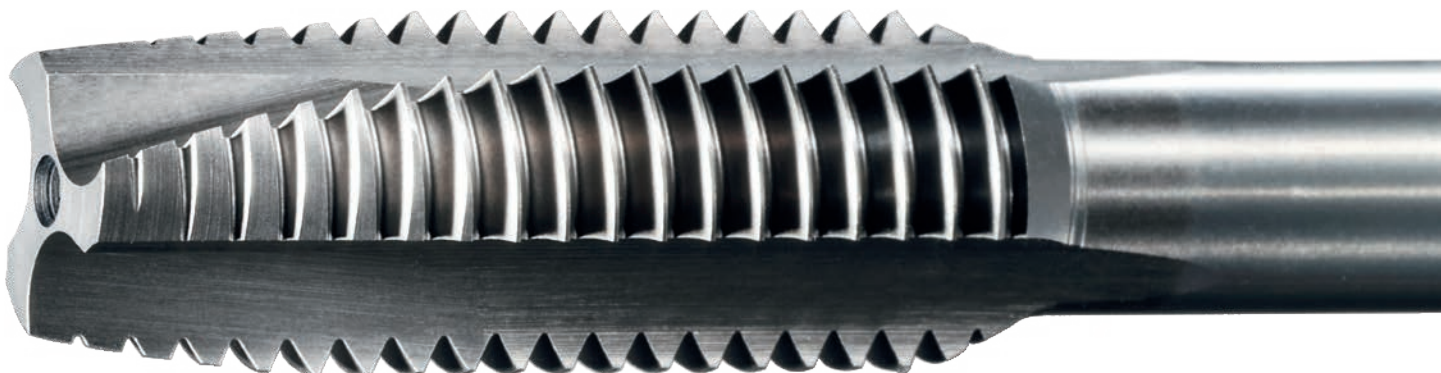
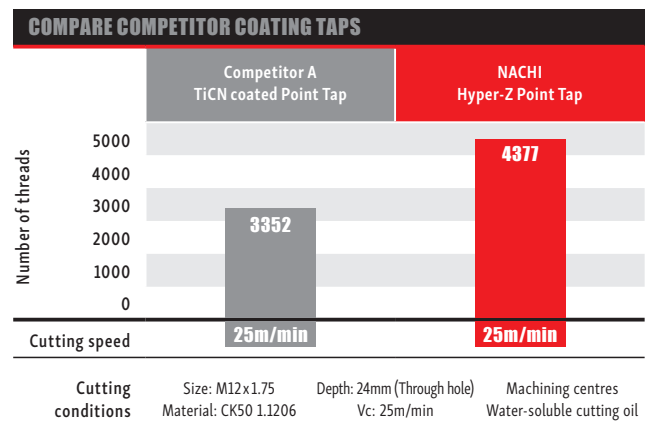
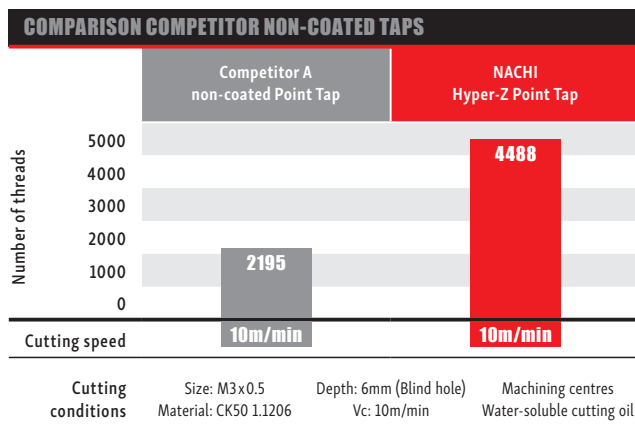
# Compared to competitor's taps NACHI's Hyper-Z taps convince with longer tool life and higher reliability

No breakage of cutting edges / no abnormal wear / no adhesion of chips



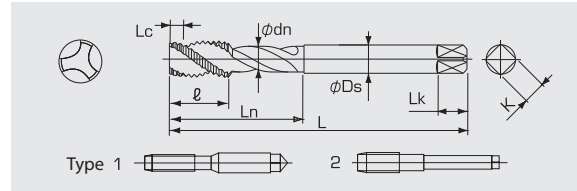
# Point taps for through holes also have excellent tool life at low and medium cutting speeds

Compared to non-coated taps NACHI's taps achieve twice the tool life and even longer tool life than coated taps



## ZSP – Hyper-Z Spiral Tap

High-performance taps which have long tool life and stable tapping in various cutting conditions. For blind holes.



M HSS-E 43° FORM C TOLERANCE 6H DIN 371 DIN 376  
TOOL MATERIAL HELIX ANGLE ISO CLASS 2

LIST: 6862

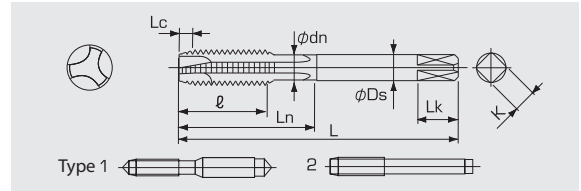
Ø	Pitch	Pitch Chamfer	OAL	Thread Length	Ln	dn	Shank Ø	Square Width	Square Length	Z	Type	DIN	Stock
		Lc	L	ℓ				Ds	K				
3	0.5	2.5P	56	5.6	18	2.35	3.5	2.7	6	3	1	371	●
4	0.7	2.5P	63	8.1	21	3.15	4.5	3.4	6	3	1	371	●
5	0.8	2.5P	70	9.4	25	4.05	6.0	4.9	8	3	1	371	●
6	1	2.5P	80	12	30	4.75	6.0	4.9	8	3	1	371	●
8	1.25	2.5P	90	15.4	35	6.55	8.0	6.2	9	3	1	371	●
10	1.5	2.5P	100	18.9	39	8.25	10.0	8.0	11	3	1	371	●
12	1.75	2.5P	110	22.4	42	9.95	9.0	7.0	10	3	2	376	●
14	2	2.5P	110	25.9	49	11.65	11.0	9.0	12	3	2	376	●
16	2	2.5P	110	25.9	49	13.65	12.0	9.0	12	3	2	376	●
18	2.5	2.5P	125	32.6	55	15.15	14.0	11.0	14	4	2	376	●
20	2.5	2.5P	140	32.6	55	17.15	16.0	12.0	15	4	2	376	●
22	2.5	2.5P	140	32.6	55	19.15	18.0	14.5	17	4	2	376	●
24	3	2.5P	160	38.8	63	20.65	18.0	14.5	17	4	2	376	●

MF HSS-E 43° FORM C TOLERANCE 6H DIN 374  
TOOL MATERIAL HELIX ANGLE ISO CLASS 2

Ø	Pitch	Pitch Chamfer	OAL	Thread Length	Ln	dn	Shank Ø	Square Width	Square Length	Z	Type	DIN	Stock
		Lc	L	ℓ				Ds	K				
6	0.75	2.5P	80	9.2	24.5	5.05	4.5	3.4	6	3	2	374	●
8	0.75	2.5P	80	9.2	24.5	7.05	6.0	4.9	8	3	2	374	●
8	1	2.5P	90	12.4	27	6.75	6.0	4.9	8	3	2	374	●
10	1	2.5P	90	12.4	27	8.75	7.0	5.5	8	3	2	374	●
10	1.25	2.5P	100	15.7	33	8.55	7.0	5.5	8	3	2	374	●
12	1.25	2.5P	100	17.2	35	10.55	9.0	7.0	10	3	2	374	●
12	1.5	2.5P	100	20.9	40	10.25	9.0	7.0	10	3	2	374	●
14	1.5	2.5P	100	20.9	40	12.25	11.0	9.0	12	3	2	374	●
16	1.5	2.5P	100	20.9	40	14.25	12.0	9.0	12	3	2	374	●
18	1.5	2.5P	110	20.9	40	16.25	14.0	11.0	14	4	2	374	●
20	1.5	2.5P	125	20.9	40	18.25	16.0	12.0	15	4	2	374	●

# ZPO – Hyper-Z Point Tap

High-performance taps which have long tool life and stable tapping in various cutting conditions. For through holes.



LIST: 6864

Ø	Pitch	Pitch Chamfer	OAL	Thread Length			Shank Ø	Square Width	Square Length	Z	Type	DIN	Stock
		Lc	L	ℓ				Ln	dn				
3	0.5	5P	56	10	18	2.35	3.5	2.7	6	3	1	371	●
4	0.7	5P	63	12.5	21	3.15	4.5	3.4	6	3	1	371	●
5	0.8	5P	70	14.5	25	4.05	6.0	4.9	8	3	1	371	●
6	1	5P	80	17	30	4.75	6.0	4.9	8	3	1	371	●
8	1.25	5P	90	22	35	6.55	8.0	6.2	9	3	1	371	●
10	1.5	5P	100	27	39	8.25	10.0	8.0	11	3	1	371	●
12	1.75	5P	110	32	-	-	9.0	7.0	10	3	2	376	●
14	2	5P	110	32	-	-	11.0	9.0	12	3	2	376	●
16	2	5P	110	32	-	-	12.0	9.0	12	3	2	376	●
18	2.5	5P	125	37.5	-	-	14.0	11.0	14	3	2	376	●
20	2.5	5P	140	37.5	-	-	16.0	12.0	15	3	2	376	●
22	2.5	5P	140	37.5	-	-	18.0	14.5	17	3	2	376	●
24	3	5P	160	45	-	-	18.0	14.5	17	3	2	376	●



Ø	Pitch	Pitch Chamfer	OAL	Thread Length			Shank Ø	Square Width	Square Length	Z	Type	DIN	Stock
		Lc	L	ℓ				Ln	dn				
6	0.75	5P	80	14	-	-	4.5	3.4	6	3	2	374	●
8	0.75	5P	80	14	-	-	6.0	4.9	8	3	2	374	●
8	1	5P	90	17	-	-	6.0	4.9	8	3	2	374	●
10	1	5P	90	17	-	-	7.0	5.5	8	3	2	374	●
10	1.25	5P	100	22	-	-	7.0	5.5	8	3	2	374	●
12	1	5P	100	19	-	-	9.0	7.0	10	3	2	374	●
12	1.25	5P	100	22	-	-	9.0	7.0	10	3	2	374	●
12	1.5	5P	100	22	-	-	9.0	7.0	10	3	2	374	●
14	1.5	5P	100	22	-	-	11.0	9.0	12	3	2	374	●
16	1.5	5P	100	22	-	-	12.0	9.0	12	3	2	374	●
18	1.5	5P	110	25	-	-	14.0	11.0	14	3	2	374	●
20	1.5	5P	125	25	-	-	16.0	12.0	15	3	2	374	●

# Hyper-Z is the basis for **SUS** Hyper-Z for stainless steel processing

- ▶ Innovative taps developed with NACHI's comprehensive experience
- ▶ Quality based on NACHI's high vertical integration: in-house steel melting, heat treatment and grinding
- ▶ Longer tool life and higher process reliability as a result of NACHI's long-term experience in broaches and gear cutting tools
- ▶ Efficient and productive processing at low speeds, double and triple tool life compared to non-coated taps, even longer performance than coated taps
- ▶ Outstanding stability and reliability at low and medium speeds
- ▶ No tooth breakage and even wear, ensure high process reliability

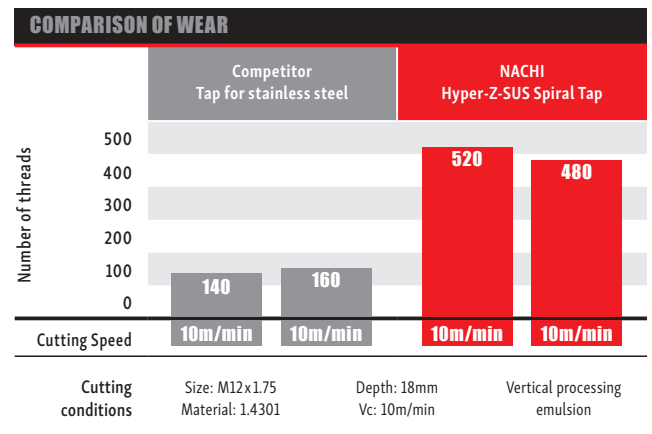
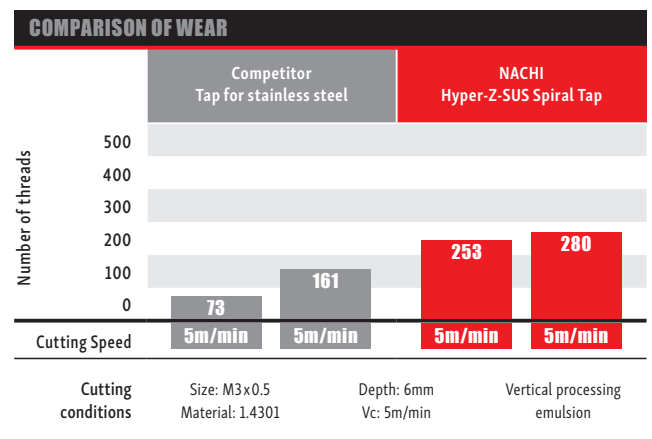
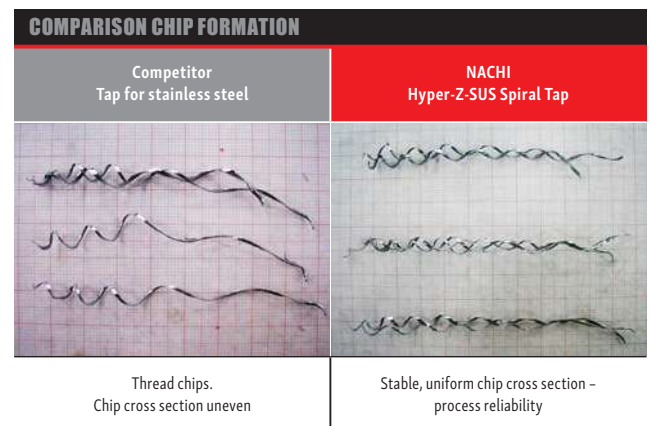
## The further development

- ▶ Improved chip removal through the optimisation of the cutting edge and groove shape especially for the stainless steel processing
- ▶ High-performance taps, long life and a stable thread cutting at different cutting conditions



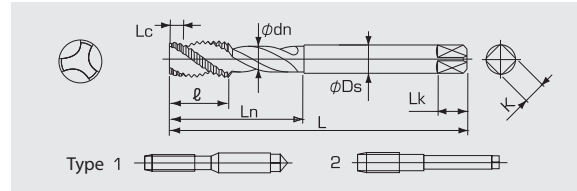


## Especially suitable for stainless steel



## ZSP – SUS Hyper-Z Spiral Tap

Due to the sharper geometry, the **stainless steel** variant of the Z-series is a tap with high process reliability and a long tool life, also in critical materials. For blind holes.



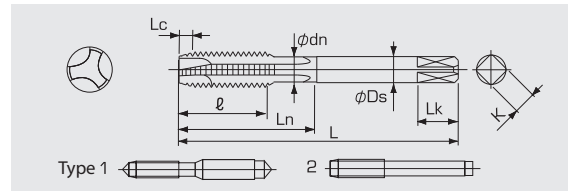
LIST: 6870

Ø	Pitch	Pitch Chamfer	OAL	Thread Length			Shank Ø	Square Width	Square Length	Z	Type	DIN	Stock
		Lc	L	ℓ			Ln	dn	Ds				
3	0.5	2.5P	56	5.6	18	2.35	3.5	2.7	6	3	1	371	●
4	0.7	2.5P	63	8.1	21	3.15	4.5	3.4	6	3	1	371	●
5	0.8	2.5P	70	9.4	25	4.05	6.0	4.9	8	3	1	371	●
6	1	2.5P	80	12	30	4.75	6.0	4.9	8	3	1	371	●
8	1.25	2.5P	90	15.4	35	6.55	8.0	6.2	9	3	1	371	●
10	1.5	2.5P	100	18.9	39	8.25	10.0	8.0	11	3	1	371	●
12	1.75	2.5P	110	22.4	42	9.95	9.0	7.0	10	3	2	376	●
14	2	2.5P	110	25.9	49	11.65	11.0	9.0	12	3	2	376	●
16	2	2.5P	110	25.9	49	13.65	12.0	9.0	12	3	2	376	●
18	2.5	2.5P	125	32.6	55	15.15	14.0	11.0	14	4	2	376	●
20	2.5	2.5P	140	32.6	55	17.15	16.0	12.0	15	4	2	376	●
22	2.5	2.5P	140	32.6	55	19.15	18.0	14.5	17	4	2	376	●
24	3	2.5P	160	38.8	63	20.65	18.0	14.5	17	4	2	376	●



# ZPO-SUS Hyper-Z Point Tap

Due to the sharper geometry, the **stainless steel** variant of the Z-series is a tap with high process reliability and a long tool life, also in critical materials. For through holes.



## LIST: 6872

Ø	Pitch	Pitch Chamfer	OAL	Thread Length			Shank Ø	Square Width	Square Length	Z	Type	DIN	Stock
		Lc	L	ℓ	Ln	dn	Ds	K	LK				
3	0.5	5P	56	10	18	2.35	3.5	2.7	6	3	1	371	●
4	0.7	5P	63	12.5	21	3.15	4.5	3.4	6	3	1	371	●
5	0.8	5P	70	14.5	25	4.05	6.0	4.9	8	3	1	371	●
6	1	5P	80	17	30	4.75	6.0	4.9	8	3	1	371	●
8	1.25	5P	90	22	35	6.55	8.0	6.2	9	3	1	371	●
10	1.5	5P	100	27	39	8.25	10.0	8.0	11	3	1	371	●
12	1.75	5P	110	32	-	-	9.0	7.0	10	3	2	376	●
14	2	5P	110	32	-	-	11.0	9.0	12	3	2	376	●
16	2	5P	110	32	-	-	12.0	9.0	12	3	2	376	●
18	2.5	5P	125	37.5	-	-	14.0	11.0	14	3	2	376	●
20	2.5	5P	140	37.5	-	-	16.0	12.0	15	3	2	376	●
22	2.5	5P	140	37.5	-	-	18.0	14.5	17	3	2	376	●
24	3	5P	160	45	-	-	18.0	14.5	17	3	2	376	●

## Technical Specifications

CUTTING CONDITION / RECOMMENDED CUTTING SPEED & CUTTING FLUIDS												
		Recommended Cutting Speed m/min										
Work materials	ST52(SS) Structural Steel	C15(S15C) Low Carbon Steel	C40(S40C) C < 0.45%	C50(S50C) C > 0.45%	20Cr.42CrMo (SCM.SCr) Alloy Steel		Hardened Steel	SUS Stainless Steel	GG(FC) Grey Cast Iron	GGG(FCD) Ductile Cast Iron	AC.ADC Aluminum Alloy	
	Code	~200HB	~200HB	~200HB	~200HB	~200HB	20~30HRC	30~40HRC				
Hyper-Z	ZSP	5~20	5~20	5~20	5~20	5~20	5~10	-	-	-	5~20	10~25
	ZPO	8~20	10~25	6~25	6~25	6~25	5~10	-	-	8~20	6~25	10~30
	ZSP-SUS	5~10	5~10	5~10	5~10	-	-	-	5~10	-	-	10~25
	ZPO-SUS	5~15	5~15	5~15	5~15	-	-	-	5~10	-	-	10~30
Cutting Fluids		Water-based emulsion from 7%										

1. These are general cutting recommendations and may be altered by your conditions.
2. These conditions are for thread depth of  $2 \times D_c$ .
3. Recommended are non-water-soluble cutting oils for Stainless Steel.

## Pictogram overview



Metric thread



Thread tolerance



Tap with reinforced shaft



Metric fine thread



Cut part. 3,5-5,5 gears



Metric fine tap with overflow shaft



High-speed steel with cobalt alloy



Cut part. 2-3 gears



Metric tap with overflow shaft



**NACHI EUROPE GmbH | CENTRAL OFFICE GERMANY**

Bischofstr. 99 | 47809 Krefeld | Germany | Phone: +49 2151 65046-0 | Fax: +49 2151 65046-90 | E-Mail: [info@nachi.de](mailto:info@nachi.de) | [www.nachi.de](http://www.nachi.de)

**NACHI EUROPE GmbH  
SOUTH OFFICE GERMANY**

Pleidesheimer Str. 47  
74321 Bietigheim-Bissingen  
Germany

Phone: +49 7142 77418-0  
Fax: +49 7142 77418-20  
E-Mail: [info@nachi.de](mailto:info@nachi.de)  
Web: [www.nachi.de](http://www.nachi.de)

**NACHI EUROPE GmbH  
U.K. BRANCH**

Unit 3. 92 Kettles Wood Drive  
Woodgate Business Park  
Birmingham B32 3DB  
United Kingdom

Phone: +44 121 423-5000  
Fax: +44 121 421-7520  
E-Mail: [sales@nachi.co.uk](mailto:sales@nachi.co.uk)  
Web: [www.nachi.co.uk](http://www.nachi.co.uk)

**NACHI EUROPE GmbH  
CZECH BRANCH**

Obchodní 132  
251 01 Čestlice  
Czech Republic

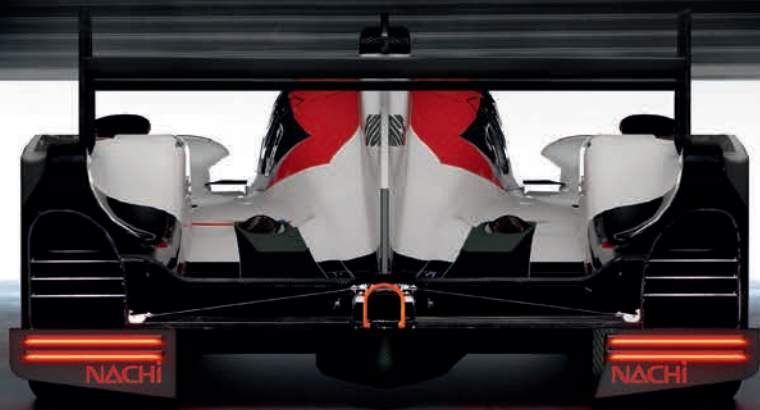
Phone: +420 255 734-000  
Fax: +420 255 734-001  
E-Mail: [info.cz@nachi.de](mailto:info.cz@nachi.de)  
Web: [www.nachi.de](http://www.nachi.de)

**NACHI EUROPE GmbH  
TURKEY BRANCH**

Atatürk Mah. Mustafa  
Kemal Cad. No: 10/1A  
34758 Ataşehir/Istanbul  
Turkey

Phone: +90 216 688-4457  
Fax.: +90 216 688-4458  
E-Mail: [turkey@nachi.de](mailto:turkey@nachi.de)  
Web: [www.nachi.com.tr](http://www.nachi.com.tr)

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**NACHI**  
NACHI EUROPE GmbH  
**OUR SYNERGY**  
**YOUR PERFORMANCE**



**NACHI-FUJIKOSHI CORP.**

**TOKYO**

Shiodome Sumitomo Bldg., 1-9-2 Nigashi-shinbashi, Minato-ku Tokyo, JAPAN  
Phone: +81 3 5568-5240 | Fax: +81 3 5568-5236

**TOYAMA**

1-1-1 Fujikoshi-Honmachi, Toyama, JAPAN  
Phone: +81 76 423-5111 | Fax: +81 76 493-5211

Web: [www.nachi-fujikoshi.co.jp/](http://www.nachi-fujikoshi.co.jp/)

**NACHI EUROPE GmbH**

Bischofstr. 99 | DE-47809 Krefeld, Germany | Phone: +49 2151 650 46-0 | Fax: +49 2151 650 46-90 | Web: [www.NACHI.de](http://www.NACHI.de) | Email: [info@NACHI.de](mailto:info@NACHI.de)