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Welding & Cutting Technology

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WELDING CERAMICS

Connecting Welding, Creating Value...

Welding & Cutting Technology

WELDING CERAMICS

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WELDING CERAMICS

01 TIG CERAMIC NOZZLES

Length(mm)	Part Number	Size	Orifice(in)	Orifice(mm)	Torchdesign
	10N50	NO 4	1/4	6.5	17/18/26
	10N49	NO 5	5/16	8.0	17/18/26
	10N48	NO 6	3/8	9.5	17/18/26
	10N47	NO 7	7/16	11.0	17/18/26
	10N46	NO 8	1/2	12.5	17/18/26
	10N45	NO 10	5/8	16.0	17/18/26
	10N44	NO 512	11/16	19.5	17/18/26

Length(mm)	Part Number	Size	Orifice(in)	Orifice(mm)	Torchdesign
	10N50L	NO 4L	1/4	6.5	17/18/26
	10N49L	NO 5L	5/16	8.0	17/18/26
	10N48L	NO 6L	3/8	9.5	17/18/26
	10N47L	NO 7L	7/16	11.0	17/18/26
	10N46L	NO 8L	1/2	12.5	17/18/26

Length(mm)	Part Number	Size	Orifice(in)	Orifice(mm)	Torchdesign
	13N08	NO 4	1/4	6.5	9/20
	13N09	NO 5	5/16	8.0	9/20
	13N10	NO 6	3/8	9.5	9/20
	13N11	NO 7	7/16	11.0	9/20
	13N12	NO 8	1/2	12.5	9/20
	13N13	NO 10	5/8	16.0	9/20

Length(mm)	Part Number	Size	Orifice(in)	Orifice(mm)	Torchdesign
	796F70	NO 3L	3/16	4.0	9/20
	796F71	NO 4L	1/4	6.5	9/20
	796F72	NO 5L	5/16	8.0	9/20
	796F73	NO 6L	3/8	9.5	9/20
	796F74	NO 3XL	3/16	4.0	9/20
	796F75	NO 4XL	1/4	6.5	9/20
	796F76	NO 5XL	5/16	8.0	9/20
	796F77	NO 6XL	3/8	9.5	9/20
	796F78	NO 7XL	1/4	6.5	9/20

Length(mm)	Part Number	Size	Orifice(in)	Orifice(mm)	Torchdesign
	53N58	NO 4	1/4	6.5	20/24/25
	53N59	NO 5	5/16	8.0	20/24/25
	53N60	NO 6	3/8	9.5	20/24/25
	53N61	NO 7	7/16	11.0	20/24/25
	53N61S	NO 8	1/2	12.5	20/24/25
	53N58L	NO 4L	1/4	6.5	20/24/25
	53N58XL	NO 4XL	1/4	6.5	20/24/25
	53N58XXL	NO 4XXL	1/4	6.5	20/24/25

Length(mm)	Part Number	Size	Orifice(in)	Orifice(mm)	Torchdesign
	53N23	NO 3	3/16	4.0	24
	53N24	NO 4	1/4	6.5	24
	53N25	NO 5	5/16	8.0	24
	53N27	NO 6	3/8	9.5	24
	53N24L	NO 4L	1/4	6.5	24
	53N27L	NO 6L	3/8	9.5	24
	53N24XL	NO 4XL	1/4	6.5	24
	53N24XXL	NO 4XXL	3/8	9.5	24

Length(mm)	Part Number	Size	Orifice(in)	Orifice(mm)	Torchdesign
	54N18	NO 4	1/4	6.5	17/18/26
	54N17	NO 5	5/16	8.0	17/18/26
	54N16	NO 6	3/8	9.5	17/18/26
	54N15	NO 7	7/16	11.0	17/18/26
	54N14	NO 8	1/2	12 .5	17/18/26
	54N19	NO 11	11/16	19.0	17/18/26
	54N18L	NO 4L	1/4	6.5	17/18/26
	54N17L	NO 5L	5/16	8.0	17/18/26
	54N16L	NO 6L	3/8	9.5	17/18/26
	54N15L	NO 7L	7/16	11.0	17/18/26
	54N14L	NO 8L	1/2	12.5	17/18/26

Length(mm)	Part Number	Size	Orifice(in)	Orifice(mm)	Torchdesign
	57N75	NO 6	3/8	9.5	17/18/26
	57N74	NO 8	1/2	12.5	17/18/26
	53N88	NO 10	5/8	16	17/18/26
	53N87	NO 12		19.0	17/18/26
	53N87L	NO 12L		19.0	17/18/26
	53N89	Short		24	17/18/26
	53N87XL	NO 12XL		19.0	17/18/26
	53N87XXL	NO 12XXL		19.0	17/18/26

Length(mm)	Part Number	Size	Orifice(in)	Orifice(mm)	Torchdesign
	130-00	NO 4	1/4	6.5	TEC
	131-00	NO 5	5/16	8.0	TEC
	132-00	NO 6	3/8	9.5	TEC
	133-00	NO 7	7/16	11.0	TEC
	134-00	NO 8	1/2	12.5	TEC
	135-00	NO 9	9/16	14.5	TEC
	136-00	NO 10	5/8	16.0	TEC
	137-00	NO 12		19.0	TEC
	130-01	NO 4	1/4	6.5	TEC
	131-01	NO 5	5/16	8.0	TEC
	132-01	NO 6	3/8	9.5	TEC
	133-01	NO 7	7/16	11.0	TEC
	130-11	NO 4	1/4	6.5	TEC
	131-11	NO 5	5/16	8.0	TEC
	132-11	NO 6	3/8	9.5	TEC
	133-11	NO 7	7/ 16	11.0	TEC
	130-07	NO 4	1/4	6.5	TEC
	131-07	NO 5	5/16	8.0	TEC
	132-07	NO 6	3/8	9.5	TEC
	133-07	NO 7	7/16	11.0	TEC
	141-00	NO 5	1/4	8.0	TEC
	142-00	NO 6	5/16	9.5	TEC
	143-00	NO 7	3/8	11.0	TEC
	144-00	NO 8	7/16	12.5	TEC
	145-00	NO 10	1/2	16.0	TEC

Length(mm)	Part Number	Size	Orifice(in)	Orifice(mm)	Torchdesign
	2304-0069	NO 4		6.5	
	2304-0070	NO 5		8.0	
	2304-0073	NO 6		9.5	
	2304-0074	NO 7		11.0	
	2304-0075	NO 4		6.5	
	2304-0076	NO 6		9.5	
	2304-0077	NO 8		12.5	
	2304-0078	NO 10		16.0	
	2304-0079	NO 4		6.5	
	2304-0080	NO 5		8.0	
	2304-0081	NO 6		9.5	
	2304-0082	NO 8		12.5	
	2304-0083	NO 10		16.0	
	2304-0084	NO 4		6.5	
	2304-0085	NO 8		12.5	
	889708	NO 6		9.5x24.5	
	771.2171			6.5x10.0	
	771.2173			10.6x10.0	
	773.0082			10.0x16.0	
	773.0083			13.0x16.0	
	773.0084			15.0x16.0	

Length(mm)	Part Number	Size	Orifice(in)	Orifice(mm)	Torchdesign
	14N57	NO 4		6.5	
	14N58	NO 5		8.0	
	14N59	NO 6		9.5	
	14N60	NO 7		11.0	
	14N61	NO 8		12.5	
	14N61-10	NO 10		16.0	
	14N61-12	NO 12		24.0	
	14N68L	NO 4L	1/4	6.5	10/12
	14N69L	NO 5L	1/4	8.0	10/12
	14N70L	NO 6L	1/4	9.5	10/12
	14N71L	NO 7L	1/4	11.0	10/12
	14N72L	NO 8L	1/4	12.5	10/12

Length(mm)	Part Number	Size	Orifice(in)	Orifice(mm)	Torchdesign
	54N14HPN	NO 8	1/2	12.5	
	53N61HPN	NO 7	7/16	11.0	
	53N60HPN	NO 6	3/8	9.5	
	53N59HPN	NO 5	5/16	8.0	
	53N58HPN	NO 4	1/4	6.5	
	53N87HPN	NO 12		19.0	
	53N61SHPN	NO 8		12.5	
	53N74HPN	NO 8		12.5	
	0408-2267			SAF	CP100P
	0408-2405			SAF	CP100P
	0408-2268			SAF	CP100P

02 CERAMIC GAS DIFFUSER FOR MIG/MAG

Length(mm)	Part No	Part Number
	TGR01001	PANASONIC
	TGR00902	PANASONIC
		PANASONIC
	MB24KD	BINZEL
	MB26KD	BINZEL

Length(mm)	Part No	Part Number
		BINZEL
		BINZEL
		BINZEL
		BINZEL

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03 PLASMA CUTTING CERAMIC NOZZLES

Product	Orininal No	Specifications	Torch
	D-250E	D17.0xM36x2x53.5mm	
	P-80	D20. 0xM26x1. 5x28mm	Panasonic80
	P-80 Silvering	D20. 0xM26x1. 5x28mm	Panasonic80
	CPAK-32	D15. 5xD26. 6x20. 2mm	8-1101pch/m110 80020
	CPAK-31	D11. 0xD26. 6x22. 8mm	8-1101pch/m110 80021
	MG-100	D16. 5xM20x1. 5x15. 5mm	PCH100,445.278 80025
	8-5526	D10. 8xD21x26. 4mm	PCH-M51
	DPT-60	D17. 0xM26x1. 5x31. 5mm	
	OTC12000	D14. 0xM20x1. 5x30mm	80057
	OTC12000 Silvering	D14. 0xM20x1. 5x30mm	80057
	OTC-70S	D14. 0xM22x1. 5x23. 8mm	APT3000-0TC70 80056
	OTC-70S Silvering	D14. 0xM22x1. 5x23. 8mm	APT3000-0TC70
	P-35S	D12. 0xM16x1. 5x25mm	
	P-35S Silvering	D12. 0xM16x1. 5x25mm	
	M-3000	D11. 6xM18x1. 5x22. 3mm	
	M-3000 Silvering	D11. 6xM18x1. 5x22. 3mm	
	M-12000	D14. 2xM20x1. 5x32. 2mm	80054
	M-12000 Silvering	D14. 2xM20x1. 5x32. 2mm	80054

04 CERAMIC BACKING

WT-101

Ceramic backing material or welding backing on aluminum tape. Flat type with 27mm,round groove 12mm, groove depth 1.2mm.

WT-102

Ceramic backing material or welding backing on aluminum tape. Flat type with 27mm,round groove 9mm, groove depth 1.2mm.

WT-103

Ceramic backing material or welding backing on aluminum tape. Flat type with 28mm,round groove 12mm, groove depth 1.15mm.

WT-104

Ceramic backing material or welding backing on aluminum tape. Flat type with 30mm,round groove 14mm, groove depth 1mm.

WT-105

Ceramic backing material or welding backing on aluminum tape. Flat type with 28mm,round groove 12mm, groove depth 2.3mm.

WT-401

Ceramic backing material or welding backing on aluminum tape. Flat type with 27mm,round groove 6mm, groove depth 1.3mm.

WT-402

Ceramic backing material or welding backing on aluminum tape. Flat type with 27mm,round groove 9mm, groove depth 1.3mm.

WT-403

Ceramic backing material or welding backing on aluminum tape. Flat type with 27mm,round groove 13mm, groove depth 1.3mm.

WT-404

Ceramic backing material or welding backing on aluminum tape. Flat type with 27mm,round groove 6mm, groove depth 1.3mm.

WT-405

Ceramic backing material or welding backing on aluminum tape. Flat type with 27mm,round groove 9mm, groove depth 1.3mm.

WT-601

Ceramic backing material or welding backing on aluminum tape. Flat type with 27mm,round groove 9mm, groove depth 1.3mm.

WT-602

Ceramic backing material or welding backing on aluminum tape. Flat type with 27mm,round groove 14mm, groove depth 1.2mm.

WT-603

Ceramic backing material or welding backing on aluminum tape. Flat type with 31mm,round groove 14mm, groove depth 1.2mm.

WT-604

Ceramic backing material or welding backing on aluminum tape. Flat type with 34mm,round groove 18mm, groove depth 1.5mm.

WT-605

Ceramic backing material or welding backing on aluminum tape. Flat type with 32mm,round groove 15mm, groove depth 1.5mm.

WT-606

Ceramic backing material or welding backing on aluminum tape. Flat type with 26mm,round groove 12mm, groove depth 1.5mm.

WT-901

Φ6 Φ8 Φ10 Φ12 Φ15 Φ20

Ceramic backing material or welding backing on aluminum tape.Round type available in 6, 8, 10, 12, 15, 20mm.

WT-201H

Ceramic backing material or welding backing on aluminum tape. This welding backing is suitable for one side welding of unmatched plates

WT-202G

Ceramic backing material or welding backing on aluminum tape. Flat type with 27mm,round groove 9mm, groove depth 0.9mm.

WT-203T

Ceramic backing material or welding backing on aluminum tape.This backingis used for one-side welding of various angled joints through arc or CO2 welding(90°).

WT-204

Ceramic backina material or weldina backing on aluminum tape.This backing is used for one-side welding of various angled joints through arc or CO2 welding(45°)

WT-207

Ceramic backina material or welding backing on aluminum tave.This backing is used for one-side welding of various analed ioints through arc or COz welding(45°)

WT-5009

Ceramic backing material or welding backing on aluminum tape. Flat type with 48mm,round groove 9mm, groove depth 1.2mm.

WT-5025

Ceramic backing material or welding backing on aluminum tape. Flat type with 50mm,round groove 25mm, groove depth 1.2mm.

WT-606

Ceramic backing material or welding backing onaluminum tape.This backing is used for one-sidewelding of various angled joints through arc or CO2 welding(45° 60°,75°)

Application Guide for Welding Pads

Welding Process	Welding Position	Welding Conditon			Remarks
		Current (A)	Voltage (V)	Root gap (mm)	
MAW with covered electrode	Flat	140-160	26-27	5-8	U8e only low-hyd-rogencovered electrode Φ4.0
	Vup	125-150	25-26	4-8	
	Hor	140-160	25-26	4-8	
FMAW with CO_2gas	Flat	160-200	22-24	5-8	
	Vup	140-160	20-23	4-8	
	Hor	150-180	20-24	3-7	
FMAW with CO_2gas	Flat	150-200	22-24	4-8	Autonatio or semi-automatic welding is applicable
	Vup	130-160	20-24	4-8	
	Hor	150-180	20-24	3-7	
SEGARC	Vup	320-380	33-37	5-8	Thickness of steel 14-22mm

Note: If the customer needs special specifications, the customer's samples can be specially processed.

05 CERAMIC WIRE GVIDE PULLEY

0.9-0 9	1.2-1.4
1.0-1.0	1.4-1.4
0.9-1.0	1.4-1.6
1 0-1 2	1.6-1 6
1.2-1.2	1 2-1 6

06 STUD WELDING CERAMIC RING

Form	D7+0.5	D8+-1	D9+-1	h2≈
UF 10	10.2	15	17.8	10
UF 12	12.2	16.5	20	10.7
UF 12-2	13.1	19.9	22.2	11.1
UF 13	13.1	20	22.2/26	11
UF 16	16.3	26	30	13
UF 19	19.4	26	30.8	16.7
UF 22	22.8	30.7	38.5	18.5
UF 25	26	35.5	41	21

SPECIAL CERAMICS

01 ALUMINA CERAMICS

Performance and Features

Material: Aluminum oxide ceramic

Specification: Mold production according to the drawing and sample

Features: High mechanical strength, high resistance, good electrical insulation, high hardness and melting pointgood corrosion resistance,excellent chemical stability

Applicable fields: mechanical, electronic power, chemical, medical, construction, high-tech felds

Main Technical Indicators of Alumina Ceramics

Name material	Unit	$AL_2O_2$95-97%	AL_2O_2> 99%	ALzOz>99.7%
Colour		White,ivory,pink,red,flesh red	Ivory,pink	Ivory,pink
Density	g/cm²	3.7	3.85	3.9
Bending strength	Mpa	300	340	390
Compressive strength	Mpa	3400	3600	3900
Modulus of elasticity	Gpa	350	380	390
Impact strength	Mpam1/2	4	5	5.2
Verpol coefficient	m	10	10	12
Vickers hardness	HV0.5	1800	1900	2000
Coefficient of thermal expansion	10-6K-1	5.0-8.3	5.4-8.3	5.2-8.4
Thermal conduct vity	W/MK	24	27	28
Thermal shock st ablity	△T℃	250	270	280
Maximum operating temperature		1600	1650	1700
Volumetric Resistance at 20°C	Ωcm	>1014	>1014	>1014
Insulation strength	KV/mm	20	25	30
Apparent porosity	Mpa.m1/2	0	0	0
Dielectric constant	∑	10	10	10
Dielectric loss angle	tan∑	0.001	0.001	0.001

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02 ZIRCONIA CERAMICS

Performance and Features

Material: Zirconia ceramics

Specification: Mold production according to the drawing and sample

Features: High toughness, high bending strength, high wear resistance, good thermal insulation performance,thermal expansion coefficient close to copper

Applicable fields: Y-TZP magic ball, dispersed grinding medium, nozzle, ball valve seat, zirconia mold, micro fanshaft, fiber optic pin, fiber optic sleeve, wire drawing die and cutting tool, wear-resistant cutting tool, watch case andstrap, golf ball's clear hitting rod and other greenhouse wear-resistant components.

Main Technical indicators of Zirconia Ceramics

Project		Unit	Zirconium oxide
Physical properties	Density	g/cm²	≥6
	Modulus of elasticity	Gpa	210
	Hardness	Gpa	10-12
	Bending strength	Mpa	600-1200
	Compressive strength	Mpa	1700-2500
	Fracture toughness	$Mpa.m^{1/2}$	6-12
	Coefficient of thermal expansion (Room temperature-1000°C)	$X10^{-6}/k$	10.3
	Specific heat	J/Kg.k	400
	Thermal conductivity	W/m.k	2-3
	Poisson ratio		0.31
Service performance	Breakdown strength	KV/cm	≥150
	Use upper limit temperature	℃	500
	Thermal shock resistance	△T℃	300-400
	Insulation		Insulation
	Acid-alkali corrosion resistance		Strong

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02 SILICON NITRIDE CERAMICS

Performance and Features

Silicon nitride (Si3N4) is a high-performance ceramic material with excellent mechanical, thermal, and electricalproperties, widely used in aerospace, electronics, machinery, and chemical industries. The following are its maintechnical indicators.

Main Technical Indicators of Silicon Nitride Ceramics

Project		Unit	Silicon nitride
Physical properties	Density	g/cm²	≥3.2
	Modulus of elasticity	Gpa	300-320
	Hardness	Gpa	14-16
	Bending strength	Mpa	600-900
	Compressive strength	Mpa	3000-3500
	Fracture toughness	Mpa.m$^{1/2}$	5-7
	Coefficient of thermal expansion (Room temperature-1000°C)	X10^{-6}/k	3.2
	Specific heat	J/Kg.k	800
	Thermal conductivity	W/m.k	20-85
	Poisson ratio		0.26-0.29
Service performance	Breakdown strength	KV/cm	150
	Use upper limit temperature	℃	1200
	Thermal shock resistance	△T℃	600-700
	Insulation		Insulation
	Acid-alkali corrosion resistance		Strong

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