

 **SANWA SHOKO CO.,LTD.**

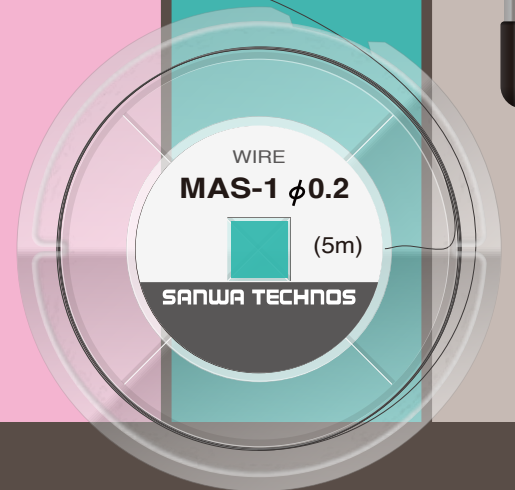
SANWA TECHNOS

Ultra-Precision Mold Padding Welder

WELD PRO

Welding Materials

NAK-80
NAK-55
HPM-50
IMPAX
HPM-2
PXA30
HPM-38
STAVAX
RIGOR
SKD-61
ORVAR
COL-1
SKD-62
MAS-1
SKD-11
SVERKER
SKH-51
S50C
For nitriding
Nickel alloys
Supper alloys
Copper alloys
Brass
Titanium
Aluminum 1000
Aluminum 5000
SUS304
SUS630
SUS316L



Manufacturer And Seller  **SANWA SHOKO CO.,LTD.**

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Agent

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 **SANWA SHOKO CO.,LTD.**

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9	RIGOR
10	SKD-61
11	ORVAR
12	COL-1
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22	Supper alloys
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28	SUS630
29	SUS316L

P3

P4

P5

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Form of welding materials

※ Available sizes and types are different depending on the welding consumables. Refer to P3 to P6 or the price list for available sizes.

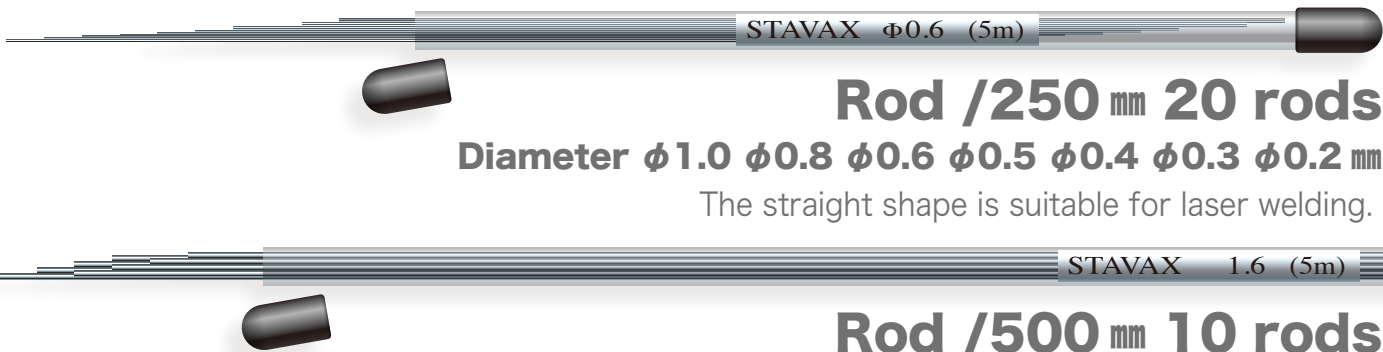
Materials for TIG & laser welding

Wire

Spool /5m
Diameter $\phi 0.8 \phi 0.6 \phi 0.4 \phi 0.3 \phi 0.2 \phi 0.1$ mm
You can select from a variety of materials and sizesto use
for precision TIG welding and laser welding.



Rod /250 mm 20 rods
Diameter $\phi 1.0 \phi 0.8 \phi 0.6 \phi 0.5 \phi 0.4 \phi 0.3 \phi 0.2$ mm
The straight shape is suitable for laser welding.

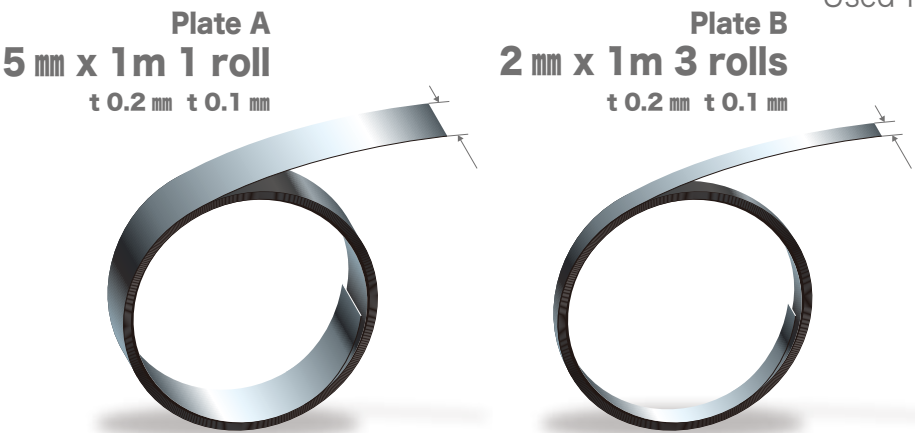


Rod /500 mm 10 rods
Diameter $\phi 2.0 \phi 1.6 \phi 1.2$ mm
Convenient for overlaying by precision TIG welding.

Materials for resistance welding

Plate

Used for resistance welding machines for
size correction and overlaying.



Special shape

Various welding materials are provided for different applications.



No.	Category	Product name	Applicable steel materials	Features	Corresponding standard
HRC hardness after welding			Form		
1	Pre-hardened steels	HPM-1/HPM50 CENA1/NAK80 NAK55	For color matching of NAK-80 and CENA1 mirrored surfaces! For repair welding of various pre-hardened steels!	JIS Precipitation hardened stainless steels AISI P21 modified	
HRC hardness 40 ~ 42		Spool $\Phi 0.6/0.4/0.3/0.2/0.1$ Rod $\Phi 1.6/1.2/0.8/0.6/0.5/0.4/0.3/0.2$	Plate A $t\ 0.2/0.1$ Powder		
2	Pre-hardened steels	HPM-1/HPM50 CENA1/NAK80 NAK55	Best for repair welding of NAK-55!	JIS Precipitation hardened stainless steels AISI P21 modified	
HRC hardness 40 ~ 42		Spool $\Phi 0.6/0.4/0.3/0.2/0.1$ Rod $\Phi 0.8$	Plate A $t\ 0.2/0.1$ Yarn Powder		
3	Pre-hardened steels	HPM-1/HPM50 CENA1/NAK80 NAK55	Repair-welding materials dedicated to HPM-50!	JIS Precipitation hardened stainless steels AISI P21 modified	
HRC hardness 40 ~ 42		Spool $\Phi 0.6/0.4/0.3/0.2/0.1$ Rod $\Phi 1.6/1.2/0.8/0.6/0.5/0.4/0.3/0.2$	Plate A $t\ 0.2/0.1$ Powder		
4	Pre-hardened steels	HPM-2/HPM-7 PX5/PX7 IMPAX/HOLDAX	Optimized welding materials for IMPAX!	JIS SCM(modified) SNCM(modified) AISI P20	
HRC hardness 30 ~ 33		Spool $\Phi 0.6/0.4/0.3/0.2$ Rod $\Phi 0.8$			
5	Pre-hardened steels	HPM-2/HPM-7 PX5/PX7 IMPAX/HOLDAX	For welding HPM-2, HPM-7 and chromium-molybdenum steels!	JIS SCM (modified) AISI SCM (modified)	
HRC hardness 28 ~ 31		Spool $\Phi 0.6/0.4/0.3/0.2$ Rod $\Phi 0.8$	Plate B $t\ 0.2/0.1$		
6	Pre-hardened steels	HPM-2/HPM-7 PX4/PX5/PX7 IMPAX/HOLDAX	For color matching of PX-5 and P20 mirrored surfaces! For repair welding of PX-4!	JIS SCM steels AISI P20 modified	
HRC hardness 28 ~ 31		Spool $\Phi 0.6/0.4/0.3/0.2$ Rod $\Phi 2.0/1.6/1.2/1.0/0.8$			
7	Stainless steels	HPM-38 S-STAR STAVAX	For repair welding of SUS420J2 pre-hardened steels! Countermeasure against weld cracking on SKD-11 and SKD-11 modified!	JIS SUS420 J2 steels AISI 420	
HRC hardness 52 ~ 55		Spool $\Phi 0.6/0.4/0.3/0.2/0.1$ Rod $\Phi 1.6/1.2/0.8/0.6/0.5/0.4/0.3/0.2$	Plate A $t\ 0.2/0.1$ Powder		
8	Stainless steels	HPM-38 S-STAR STAVAX	For repair welding of SUS420J2 pre-hardened steels! Countermeasure against weld cracking on SKD-11 and SKD-11 modified!	JIS SUS420 J2 steels AISI 420	
HRC hardness 52 ~ 55		Spool $\Phi 0.6/0.4/0.3/0.2/0.1$ Rod $\Phi 1.6/1.2/0.8/0.6/0.5/0.4/0.3/0.2$	Plate A $t\ 0.2/0.1$ Powder		

No.	Category	Product name	Applicable steel materials	Features	Corresponding standard
HRC hardness after welding			Form		
9	Quenched & tempered steels	RIGOR	SCD/SKD12/DC12 RIGOR/HPM31/AUD11 PD613/SKD11Mod	For repair welding of alloy tool steels and die steels!	JIS SKD12 steels AISI A2
HRC hardness 52 ~ 55		Spool $\Phi 0.6/0.4/0.3/0.2$ Rod $\Phi 0.8$		Plate A $t\ 0.2/0.1$	
10	Hot-rolled alloy tool steels	SKD-61	DAC/FDAC/ORVAR SKD61/SKD61Mod DHA/DHA1/DH2F	For repair welding of a range of hot-rolled tool steels!	JIS SKD61 AISI H13
HRC hardness 40 ~ 42		Spool $\Phi 0.6/0.4/0.3/0.2$ Rod $\Phi 0.8$		Plate A $t\ 0.2/0.1$	
11	Hot-rolled alloy tool steels	ORVAR	DAC/FDAC/ORVAR SKD61/SKD61Mod DHA/DHA1/DH2F	For repair welding of a range of hot-rolled tool steels!	JIS SKD61 AISI H13
HRC hardness 40 ~ 42		Spool $\Phi 0.6/0.4/0.3/0.2$ Rod $\Phi 0.8$		Plate A $t\ 0.2/0.1$	
12	Special steels	COL-1	DAC/FDAC/ORVAR/ SKD61/SKD61Mod/ DHA/DHA1/DH2F	For repair welding that requires cobalt-free aluminum die-casting molds! Please use it as a replacement for MAS-1.	JIS --- AISI ---
HRC hardness 42 ~ 45		Spool $\Phi 0.6/0.4/0.3$ Rod $\Phi 0.8$			
13	Hot-rolled alloy tool steels	SKD-62	DAC/FDAC/ORVAR/ SKD61/SKD61Mod/ SKD62/DHA/DHA1/DH2F	For repair welding of a range of hot-rolled tool steels!	JIS SKD62 AISI H12
HRC hardness 46 ~ 48		Spool $\Phi 0.6/0.4/0.3/0.2$ Rod $\Phi 0.8$			
14	Maraging steels	MAS-1	YAG AMAR MASIC	All-around welding rod applicable to various situations such as repairing cracks and pinholes in any steels. For the underlay before cladding and repairing aluminum die castings! ※Pay attention to hardness in the case of use for different maraging steels.	JIS --- AISI ---
HRC hardness 28 ~ 30		Spool $\Phi 0.6/0.4/0.3/0.2/0.1$ Rod $\Phi 1.6/1.2/0.8/0.6/0.5/0.4/0.3/0.2$			
15	Alloy tool steels	SKD-11	SLD/HPM31/AUD11 SKD11/PD613/DC11 SVERKER/RIGOR	For repair welding of a range of hot-rolled tool steels!	JIS SKD11 AISI (D2)
HRC hardness 55 ~ 57		Spool $\Phi 0.6/0.4/0.3/0.2$ Rod $\Phi 0.8$		Plate A $t\ 0.2/0.1$	
16	Alloy tool steels	SVERKER	SLD/SKD-11 QC11/DC11 KD11/CDS11/RD11	For repair welding of a range of hot-rolled tool steels!	JIS SKD11 AISI (D2)
HRC hardness 60 ~ 62		Spool $\Phi 0.6/0.4/0.3/0.2$ Rod $\Phi 0.8$		Plate B $t\ 0.2/0.1$	

No.	Category	Product name	Applicable steel materials	Features	Corresponding standard
HRC hardness after welding		Form			
17	High speed tool steels	YXM1 MH51 KM2	For welding a range of high-speed steels!		JIS SKH51 AISI M2
HRC hardness 60 ~ 62		Spool $\Phi 0.6/0.4/0.3/0.2$ Rod $\Phi 0.8$	Plate B $t\ 0.2/0.1$ Powder		
18	Carbon steels for structural use	JIS G 4051 -equivalent steels	For welding carbon steel for machine structural use!		JIS S50C AISI 1049
HRC hardness 40 ~ 42		Spool $\Phi 0.6/0.4/0.3/0.2$ Rod $\Phi 1.0/0.8$	Plate B $t\ 0.2/0.1$		
19	Special steels	All steel materials Nitriding coating	Preventing the films on nitride/coated surfaces from being lifted during welding ※Use with attention to hardness.		JIS --- AISI ---
HRC hardness 18 ~ 20		Spool $\Phi 0.6/0.4/0.3/0.2$ Rod $\Phi 2.0/1.6/1.2/1.0/0.8$			
20	Nickel alloys	Nickel alloys Cast iron	For welding and joining nickel alloys and repair of pinholes in gray and ductile cast iron! For repair of nickel electroforming! Welding of non-magnetic metals!		JIS --- AISI ---
HRC hardness 15 ~ 20		Spool $\Phi 0.6/0.4/0.3/0.2$ Rod $\Phi 0.8$	Powder		
21	Nickel super alloys	HASTELLOY Inconel [®] Stellite [®]	For welding for various nickel superalloys!		JIS --- AISI ---
HRC hardness ---		Spool $\Phi 0.6/0.4/0.3/0.2$ Rod $\Phi 2.0/1.6/1.2/0.8$			
22	Copper alloys	Moldmax [™] MC alloys [™] Arms Bronze [®]	For welding various copper alloys and beryllium copper!		JIS Z 3341 steels AISI ---
HRC hardness ---		Spool $\Phi 0.6/0.4$ Rod $\Phi 1.2/0.8$			
23	Brass	All brass materials	For repairing/joining various brass materials! For repair welding of copper alloy materials!		JIS Z 3341 steels AISI ---
HRC hardness ---		Spool $\Phi 0.6/0.4/0.3$ Rod $\Phi 1.6/1.2/0.8$			
24	Titanium	All titanium materials Titanium alloys	For repairing/joining a range of titanium materials!		JIS Z 3331 steels AISI ---
HRC hardness 18 ~ 20		Spool $\Phi 0.8/0.6/0.4/0.3$			

No.	Category	Product name	Applicable steel materials	Features	Corresponding standard
HRC hardness after welding		Form			
25	Aluminum	All aluminum materials	For joining aluminum! For repair of pinholes in aluminum castings! Countermeasure for weld cracking on aluminum!		JIS A 1000 steels AISI ---
HRC hardness ---		Spool $\Phi 0.8/0.6/0.4/0.3$			
26	Aluminum	Aluminum 5000 Aluminum 7000	For hardness requirement during repairing aluminum materials such as duralumin!		JIS A 5000 steels AISI ---
HRC hardness ---		Spool $\Phi 0.8/0.6/0.4/0.3$			
27	Stainless steels	SUS303 SUS304	For welding a range of stainless steels! For repair of non-magnetic metals!		JIS SUS304 AISI 304
HRC hardness 18 ~ 20		Spool $\Phi 0.6/0.4/0.3/0.2$ Rod $\Phi 0.8$			
28	Precipitation hardened stainless	SUS630	For repairing/joining precipitation hardened stainless!		JIS SUS630 AISI S17400
HRC hardness 35 ~ 38		Spool $\Phi 0.6/0.4/0.3$ Rod $\Phi 0.8$			
29	Ultra-low carbon stainless	SUS316L	Compatible with heat resistance and corrosion resistance expected on SUS316L!		JIS SUS316L AISI 316L
HRC hardness 10 ~ 12		Spool $\Phi 0.6/0.4/0.3/0.2$ Rod $\Phi 0.8$	Porous Yarn Powder		

※Please note that these welding materials are subject to change or discontinuation without prior notice.
※Available stocks always vary. Contact Sanwa Shoko Co., Ltd., for details.

Remarks

- The data on the properties of welding materials are provided to explain the representative characteristics and the performance of the product.
- Be sure to conduct testing before actual use.
- Use welding materials appropriate for the parent materials.
- Remember that the performance of welding is affected by the design, constituents of steel, work technique, welding condition, the skill of the workers.
- Pay attention to safety and observe the precautions of the machine during working.
- After the use of the welding consumables, avoid high temperatures and humidity for storage.
- Pay close attention to the tip of the welding consumables.