

# Impact Resistant Cermets SURPREX W2000X

## ■SURPREX W2000X

SURPREX W2000X series is an agglomerated and sintered composite powder with impact resistant for thermal spray.

<Product feature>

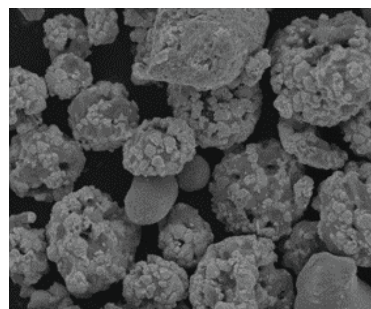
1. Free of spitting by powder classification technology and particle strength control
2. Designed for various types of High-Velocity Flame Spray Guns to achieve higher deposition efficiency

## ■Typical Chemical Composition

	W	C	Cr	Ni	Fe
W2010X	Bal.	6.8	17.6	17.0	0.07
W2011X	Bal.	6.7	19.0	19.0	0.06
W2021X	Bal.	5.4	28.0	28.0	0.06

The SURPREX W2000X series consists of WC, Cr and Ni and achieved excellent toughness and greatly improved impact resistance in sprayed coatings. There are three grades in the W2000X series of different Ni contents. FUJIMI has sophisticated classification technology and 2 types of powder size are available for in the SURPREX W2000X series to suit different spray guns. Powder size can also be customized to suit a wide range of application needs.

## ■SEM Image of Spray Powder Particles

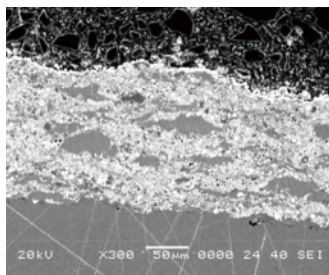


## ■Typical Particle Size Distribution

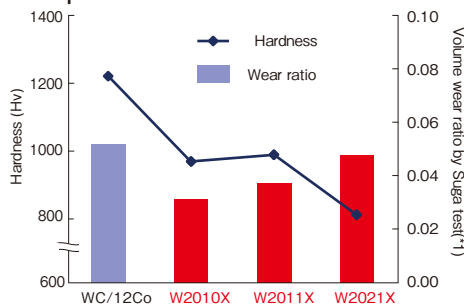
Type	Size (μm)	Spray gun
J	-53+10	JP-5000/J-Gun
S	-38+10	SB-250/SB-500/DJ

## Coating Characteristics

### ■Structure of SURPREX W2010X



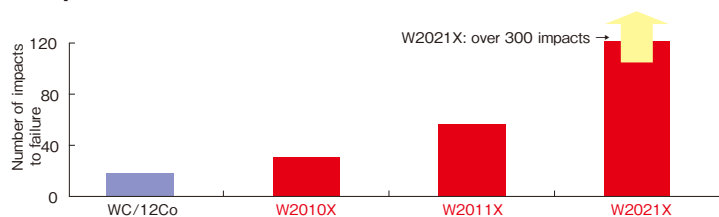
### ■Comparative Wear Ratio of Various Materials



A Comparison is made of dry wear resistance by Suga method among W2000X series and WC/12%Co. The highest hardness is obtained for WC/12%Co. But within dry wear resistance, W2021XJ is on a par with WC/12%Co, and in particular, W2010XJ and W2011XJ are better than WC/12%Co.

(\*1) A specimen reciprocates under load on abrasive paper fixed to a rotating friction ring. The wear of specimen is rated, then, against the base value of substrate(SS400).

### ■Impact Test of W2000X series



FUJIMI has investigated the impact resistance of W2000X series, compared to WC/12Co. In this test, 500 steel balls (φ9.5mm, 3.3g/ball) fall 1m repeatedly onto the coating on substrate (S45C, 80x80x20mm) until separation starts. As a result, the W2000X series show more than doubled impact resistance compared with WC/12Co, with W2021XJ in particular withstanding over 300 impacts.

## Applications

### ■Applications of W2000X

#### <Coating Characteristics>

- Impact resistance
- High toughness
- Dry abrasive wear resistance
- Cavitation erosion resistance



#### <Applications>

- Excavator tools
- Screws
- Construction machinery parts
- Roller
- Crushing machinery parts
- Hydro-turbine parts for power generation

W2000X is applied in the civil engineering and construction industry, and the machine industry with W2000X impact resistance.