Höganäs

Iron Powder for Welding

Improved welding productivity and performance

By adding iron powder to the **welding electrode coating**, it can be made thicker without any increase in the content of slag builders. This reduces raw material costs and improves energy utilization.
Iron powder in the coating has a cooling effect on core wire, as the preheating of iron particles dissipates the generated heat. This means a higher amperage can be used without risk of overheating and, as a result, a higher melting rate can be achieved.

The welding operation itself is also enhanced.
Iron powder in electrode coatings lend to:

- Improved arc stability,
- Easier reignition,
- Reduced spatter,
- Smother bead shapes, and
- Easier slag removal.

In addition to giving higher productivity and improved welding characteristics, iron powder added to electrode coating also favourably affects the weld metal quality. The cooling effect of the additional iron allows quicker solidification of the weld metal.

This creates a fine-grained microstructure, with resulting improvements in weld metal strength and ductility. Since it also reduces base metal dilution, overall weld quality is also improved.

Use of **flux-cored and metal-cored wire** has grown significantly in recent years, particularly in heavy industries and where automated welding is possible. Increased productivity and improved weld metal quality are two major reasons.
Iron powder is used to increase the weld deposit, and also to modify the weld composition – and thereby its mechanical properties.

Benefits

- Increased productivity
- Improved welding characteristics
- Better weld metal quality

Improved productivity with iron powder

Improved welding performance with iron powder

Powder specifications

Grade	W100.25	W100B	W60.28LNC*	W40.24	W40.29	W40.35	W40.37	W40.37OX	W40.37COX
Screen analysis, % Micron									
+500				0	0	0	0	0	0
300-500		0	≤0,5	≤10	≤10	≤15	≤20	≤20	≤20
212-500							25-50	25-50	25-50
212-300	0		≤15						
150-212	≤10								
-150		≤90		20-50	25-50	40-65			
-75			≤15	≤10	≤10	≤25	≤10	≤10	≤10
-45	5-25	5-25							
Apparent density, g/cm^3	2.30-2.50		2.80-3.00	2.40-2.60	2.75-3.00	3.40-3.60	3.60-3.80	3.65-3.90	3.65-3.90
Chemical analysis, %									
H^2-loss	≤0.40		≤0.20	≤0.40	≤0.40	≤0.40	≤0.40	0.80-1.15	0.70-1.10
C	≤0.05	≤0.07	≤0.01	0.03-0.6	0.03-0.6	≤0.04	0.03-0.06	≤0.03	0.07-0.11
S	≤0.010	≤0.015	≤0.010	≤0.010	≤0.010	≤0.010	≤0.010	≤0.010	≤0.010
P	≤0.005	≤0.015	≤0.005	≤0.005	≤0.005	≤0.005	≤0.005	≤0.005	≤0.005
Si	≤0.11	≤0.25	≤0.12	≤0.12	≤0.12	≤0.12	≤0.12	≤0.12	≤0.12
Mn	≤0.10	≤0.20	≤0.15	≤0.15	≤0.15	≤0.15	≤0.15	≤0.15	≤0.15
B		0.90-1.10							

*)N: max 15ppm