Elga®

WE BUILD with you

MEGAFIL®

SEAMLESS CORED WIRES

FOR FLUX- AND METAL-CORED ARC WELDING

MEGAFIL®
Your Route to Full Performance in Welding

At Elga®, we have a passion for welding and that is reflected in our unique product offering. Use Elga's unmatched filler metals or Miller® welding equipment and work much more productively.

Elga® is a recognized leader in the development of welding consumables and has the expertise to meet the most difficult welding challenges. Under this brand, we have combined outstanding welding expertise and filler metals since 1938. Under the name MEGAFIL®, we have developed low hydrogen cored wires for the special requirements of demanding industries such as the offshore and oil & gas industry, or of pipe mills. These seamless cored wires are manufactured using the latest production technology.

The application of MEGAFIL® rutile and metal cored wires is supported by a dedicated team of specialists capable of offering integrated welding solutions. With ITW Welding as a partner at your side, you have access to the in-depth knowledge and years of experience of our engineers, as well as fully equipped laboratories for in-depth application development.

ITW Welding is a total solution provider for welding processes. In addition to MEGAFIL® seamless cored wires, we offer a wide range of stick electrodes and other welding consumables, a complete range of Miller® welding machines, Miller® preheating equipment and other accessories.

Contact us and discover the possibilities of optimizing your processes and realize their full potential.

MEGAFIL®
WELCOMES YOUR CHALLENGES

MEGAFIL® Characteristics and advantages

Guaranteed no moisture pick-up

MEGAFIL® seamless flux- and metal-cored wires are hermetically sealed and totally insensitive to moisture absorption, even under extreme climatic conditions with tropical temperatures and very high relative humidity. The filling remains dry throughout the entire process of storage and use in welded fabrication, preventing hydrogen induced cracking caused by moisture in the consumable. MEGAFIL® cored wires require no special storage conditions. Re-drying prior to use is never recommended.

The special MEGAFIL® manufacturing technology enables production of cored wires with these and other unique advantages for end users:

- Prevention of hydrogen-induced cracking. Weld metal hydrogen content tested according to EN and AWS is below 4 ml/100 g weld metal. Typical values below 3 ml/100 g weld metal.
- No special storage conditions required. Can be stored like solid wires for an extended period, with a minimized risk of moisture absorption.
- Resistance to moisture pick-up when mounted on wire feeder, out of packaging.
- No discontinuities in the filling. Dependable weld metal properties.
- Copper coating for optimal current transfer from contact tip to wire and for reduced contact tip wear.
- Carefully controlled cast, helix and diameter gives good wire feeding and straight delivery at contact tip. Ideal for robotic welding.

MEGAFIL® flux- and metal-cored wires are available for all construction steel qualities with a wide range of approvals from authorities such as ABS, DNV, LR and TÜV. Wires can be supplied with 3.1 certificates for chemical composition and mechanical properties.

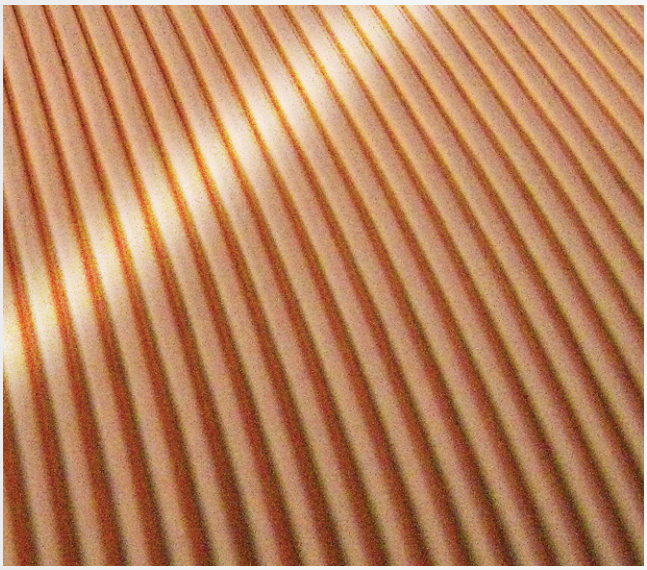
Disclaimer

The specified values are typical values. Detailed information about our welding consumables, diameters, packaging and approval certificates are provided on request or on our website www.ElgaWelding.com.

Subject to printing errors and mistakes.
Stand 04.2018 EN

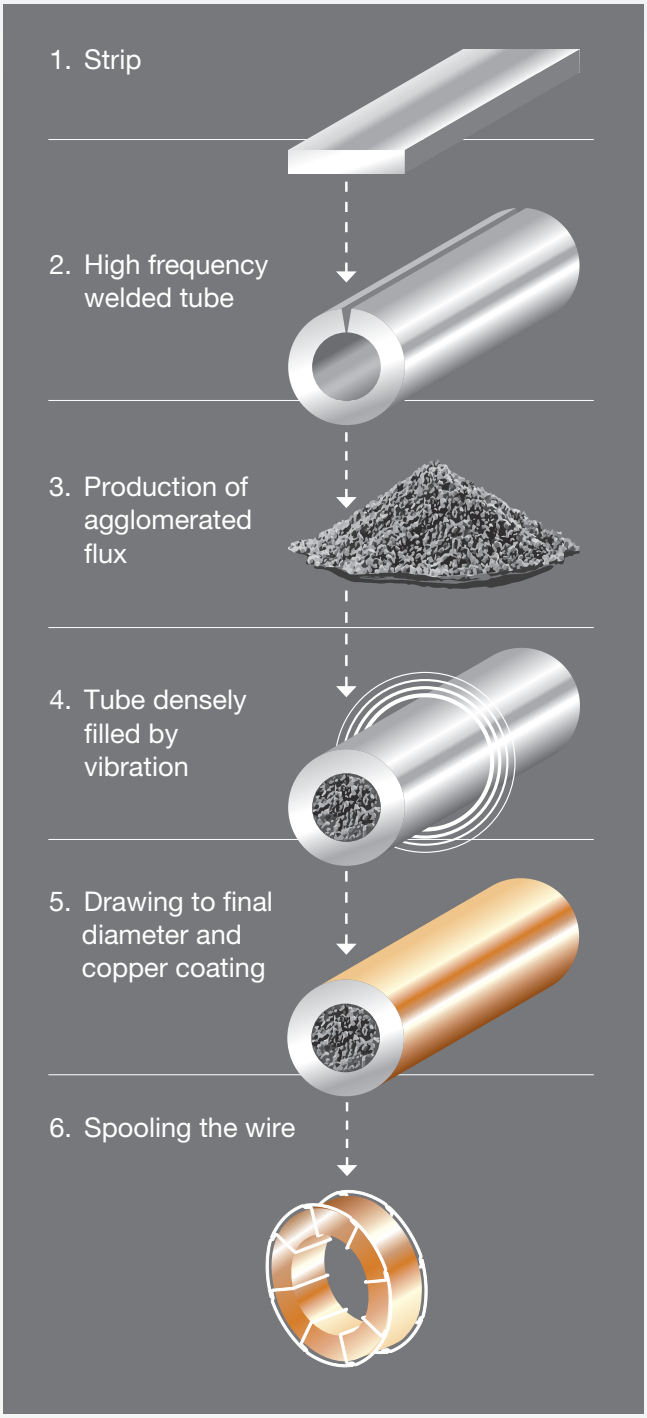
MEGAFIL® Production Technology

The unique production technology ITW Welding utilizes to manufacture MEGAFIL® seamless flux- and metal-cored wires results in valuable product benefits for end users. Strips are folded round, closed by high frequency welding and drawn to filling diameter.



In the next step, the tube is filled with agglomerated flux by means of a vibration system. In several steps the wire is annealed, drawn to final diameter and finally copper-coated.

Subsequently, the wire is precision layer-wound onto various spool sizes. The result is a completely sealed cored wire with extreme resistance to moisture absorption during storage and use.



Product Description

MEGAFIL® 710 M

EN ISO 17632-A: T 46 6 M M21 1 H5
AWS A5.18: E70C-6M H4

Metal-cored wire for carbon steel application. Excellent impact toughness properties down to -60°C. Suitable for robot applications. Ideal for use in short and spray arc. For mixed gas 75-85% Argon (Ar)/Balance Carbon Dioxide (CO_2).

Applications
- Heavy equipment
- Process piping
- General fabrication
- Root pass welding on pipe

MEGAFIL® 240 M

EN ISO 17632-A: T 50 6 1Ni M M21 1 H5
AWS A5.28: E80C-Ni1 H4

Low alloyed metal-cored wire with 1.0 %Ni. Excellent impact toughness properties down to -60°C. Suitable for robot applications. Ideal for use in short arc and spray arc. For mixed gas 75-85% Argon (Ar)/Balance Carbon Dioxide (CO_2).

Applications
- Root pass welding on pipe
- Steel structures
- Offshore

MEGAFIL® 742 M

EN ISO 18276-A: T 69 6 Mn2NiCrMo M M21 1 H5
AWS A5.28: E110C-K4 H4

Metal-cored wire with Ni, Mo and Cr for high strength steel < 690 MPa yield strength.
High deposition rate. Ideal for use in short arc and spray arc. Suitable for robot applications.
Excellent impact toughness properties down to -60°C with mixed gas, as welded and stress relief annealed.

Applications
- High strength steel
- Steel structures
- Offshore structures
- Pipelines
- Vessels
- General fabrication
- Heavy equipment

MEGAFIL® 1100 M

EN ISO 18276-A: T 89 4 Mn2NiCrMo M M21 1 H5
AWS A5.28: ~E120C-K4 H4

Low alloy metal-cored wire for high strength steel with tensile requirements greater than 800 MPa. A higher deposition rate wire suitable for robot applications, and ideal for use in short and spray arc. Excellent impact toughness properties down to -40°C. For mixed gas 75-85% Argon (Ar)/Balance Carbon Dioxide (CO_2).

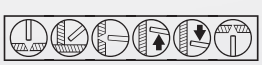
Applications
- High strength steel
- Heavy equipment
- Vessels

MEGAFIL® 713 R

EN ISO 17632-A: T 46 2 (4) P C1 (M21) 1 H5
AWS A5.20: E71T-1C-J H4 / E71T-1M-J H4

A rutile flux-cored wire for carbon steel applications. Fast freezing slag for higher deposition rate in all position welding. Excellent impact toughness properties down to -40°C. For mixed gas 75-85% Argon (Ar)/Balance Carbon Dioxide (CO_2) and 100% Carbon Dioxide (CO_2).

Applications
- Steel structures
- Offshore
- General fabrication
- Shipbuilding



Product Description

MEGAFIL® 716 R

EN ISO 17632-A: T 46 6 P M21 1 H5
AWS A5.20: E71T-9M-J H4

Micro-alloyed rutile flux-cored wire for non-alloyed steels < 460 MPa yield strength. Rapidly solidifying slag for higher deposition rate in all position welding. For mixed gas 75-85% Argon (Ar)/Balance Carbon Dioxide (CO_2) and 100% Carbon Dioxide (CO_2). Excellent impact toughness properties down to -60°C with mixed gas.

Applications
- Steel structures
- Offshore
- General fabrication

MEGAFIL® 819 R

EN ISO 17632-A: T 50(46) 6(4) 1Ni P M21(C1) 1 H5
AWS A5.29: E81T1-Ni1C(M)-J H4

Low alloyed flux-cored wire with 1.0% Ni for high strength low alloy steel compliant with NACE requirements. All position welding wire, can be used with both mixed gas 75-85% Argon (Ar)/Balance Carbon Dioxide (CO_2) or 100% Carbon Dioxide (CO_2). Excellent impact toughness properties down to -60°C with mixed gas and -40°C for CO_2.

Applications
- Offshore
- Pipelines
- Structural steel

MEGAFIL® 821 R

EN ISO 17632-A: T 50 6 1Ni P M21 1 H5
AWS A5.29: E81T1-Ni1M-J H4

Low alloyed flux-cored wire with 1.0% Ni for high strength low alloy steel. Rapidly solidifying slag for higher deposition rate in all position welding. Wire designed to provide improved mechanical properties after PWHT. CTOD tested at -20°C. For mixed gas 75-85% Argon (Ar)/Balance Carbon Dioxide (CO_2). Excellent impact toughness properties down to -60°C.

Applications
- Offshore
- Pipelines
- Structural steel

MEGAFIL® 550 R

EN ISO 18276-A: T 55 6 Mn1,5Ni P M21 1 H5
AWS A5.29: E91T1-K2M-J H4

Low alloyed flux-cored wire with an Mn-Ni-Mo weld deposit for high strength steel requiring greater than 620 MPa tensile strength. Fast freezing slag for higher deposition rate in all position welding. For mixed gas 75-85% Argon (Ar)/Balance Carbon Dioxide (CO_2). Excellent impact toughness properties down to -60°C.

Applications
- High strength low alloy steels
- Offshore
- Shipbuilding

MEGAFIL® 690 R

EN ISO 18276-A: T 69 6 Z P M21 1 H5
AWS A5.29: ~ E111T1-K3M-J H4

Low alloyed flux-cored wire with 2.0% Ni for high strength low alloy steel. Rapidly solidifying slag for higher deposition rate in all position welding. For mixed gas 75-85% Argon (Ar)/Balance Carbon Dioxide (CO_2). Excellent impact toughness properties down to -60°C.

Applications
- High strength low alloy steels
- Offshore
- Shipbuilding

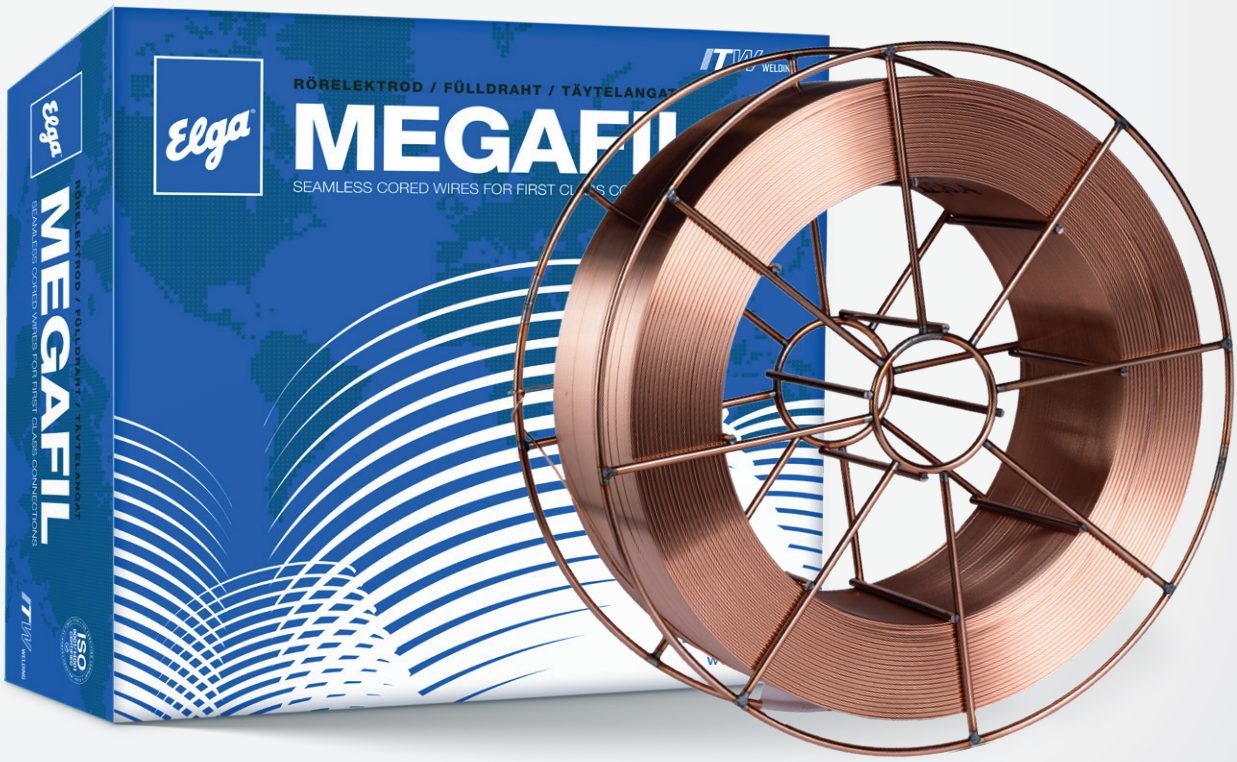
Storage and Handling

MEGAFIL® seamless flux- and metal-cored wires are hermetically sealed and resistant to moisture absorption. They can be stored for an extended period of time, like solid wire. However, they are copper-coated and direct contact with any liquid – particularly water – must be avoided to prevent the formation of rust on the wire surface. Rust is a potential source of weld metal hydrogen, but it can also cause poor wire feeding.

It is therefore recommended to store MEGAFIL® wires in a dry area – away from weather influences – and in their original packaging. Any sudden drop in temperature should be avoided to prevent the formation of condensation. Partly used wire spools must be re-packed in their original plastic bag, carefully sealed, and stored in their original cardboard boxes.

Summarized MEGAFIL® storage and handling recommendations are:

- Store wires under dry conditions in the original sealed packaging.
- Do not re-dry. Re-drying is not needed and is detrimental to copper coating.
- Avoid contact between wire and substances such as water or any other kind of liquid, vapor, oil, grease or corrosion.
- Do not touch the wire surface with bare hands.
- Avoid exposure of the wire below dew point. Do not leave unprotected wire spools in workshops overnight.



MEGAFIL® Seamless cored wires for MAG joint welding

MEGAFIL®	EN ISO	AWS	$R_{p0.2}$	R_m	A_5	ISO-Charpy V J		
			MPa	MPa	%	-20°C	-40°C	-60°C
EN ISO 17632 for welding of non-alloy and fine grain steels								
710 M	T 46 6 M M21 1 H5	E70C-6M H4	530	600	28	-	140	100
240 M	T 50 6 1Ni M M21 1 H5	E80C-Ni1 H4	550	620	27	-	120	90
713 R	T 46 4 P M21 1 H5 T 46 2 P C1 1 H5	E71T-1M-J H4 E71T1C-J H4	530	600	26	100 70	70	-
716 R	T 46 6 P M21 1 H5	E71T-9M-J H4	530	600	27	-	100	70
819 R	T 50 6 1Ni P M21 1 H5 T 46 4 1Ni P C1 1 H5	E81T1-Ni1M-J H4 E81T1-Ni1C-J H4	550 500	620 600	26	-	90 60	60
821 R	T 50 6 1Ni P M21 1 H5	E81T1-Ni1M-J H4	550	620	26	-	110	80
731 B	T 46 6 B M21 3 H5 T 42 4 B C1 3 H5	E70T5M-J H4 E70T5C-J H4	530	600	27	-	140 100	100
EN ISO 17632 for welding of weather resisting steels								
281 M	T 46 4 Z M M21 1 H5	E80C-W2 H4	550	630	25	100	70	-
781 R	T 46 4 Z P M21 1 H5	E81T1-G H4	570	620	24	110	80	-
EN ISO 18276 for welding of high-strength fine grain steels								
742 M	T 69 6 Mn2NiCrMo M M21 1 H5	E110C-K4 H4	750	820	20	-	120	90
1100 M	T 89 4 Mn2NiCrMo M M21 1 H5	~ E120C-K4 H4	1000	1050	17	80	60	-
550 R	T 55 6 Mn1.5Ni P M21 1 H5 T 50 6 Mn1.5Ni P C1 1 H5	E91T1-K2M-J H4 E91T1-K2M-J H4	620	700	24	-	120	90 (80)
610 R	T 62 4 Mn1Ni P M21 1 H5	-	670	750	21	110	80	55
690 R	T 69 6 Z P M21 1 H5	-	750	820	18	-	80	60

MEGAFIL® Seamless cored wires for MAG joint welding

MEGAFIL®	Typical weld metal analysis %								EN ISO 14175
	C	Mn	Si	P	S	Cr	Ni	Mo	
EN ISO 17632 for welding of non-alloy and fine grain steels									
710 M	0.05	1.5	0.7	0.015	0.015	-	-	-	M21
240 M	0.05	1.3	0.7	0.015	0.015	-	0.9	-	M21
713 R	0.05	1.3	0.5	0.015	0.015	-	-	-	M21 / C1
716 R	0.05	1.3	0.5	0.015	0.015	-	0.4	-	M21
819 R	0.05	1.2	0.5	0.015	0.015	-	0.8	-	M21 / C1
821 R	0.05	1.3	0.5	0.015	0.015	-	0.9	-	M21
731 B	0.05	1.4	0.6	0.015	0.015	-	-	-	M21 / C1
EN ISO 17632 for welding of weather resisting steels									
281 M	0.05	1.2	0.7	0.015	0.015	0.5	0.7	Cu 0.5	M21
781 R	0.05	1.3	0.5	0.015	0.015	-	1	Cu 0.5	M21
EN ISO 18276 for welding of high-strength fine grain steels									
742 M	0.05	1.6	0.4	0.015	0.015	0.5	2.2	0.5	M21
1100 M	0.07	1.5	0.5	0.015	0.015	0.6	2.6	0.6	M21
550 R	0.08	1.5	0.5	0.015	0.015	-	1.5	-	M21 / C1
610 R	0.08	1.6	0.6	0.015	0.015	-	≤1.0	-	M21
690 R	0.08	1.7	0.5	0.015	0.015	-	2	0.15	M21

MEGAFIL® Seamless cored wires for MAG joint welding

MEGAFIL®	EN ISO	AWS	$R_{p0.2}$	R_m	A_5	ISO-Charpy V J		
			MPa	MPa	%	0°C	-20°C	-40°C
EN ISO 18276 for welding of quenched and tempered steels								
807 M (as welded)	T 89 0 Z M M 1 H5	-	930	980	17	80	60	-
807 M (680°C/2h)	T 69 0 Z M M 1 H5	-	740	900	20	80	60	-

MEGAFIL®	EN ISO	AWS A5.36	$R_{p0.2}$	R_m	A_5	ISO-Charpy V J		
			MPa	MPa	%	RT	-20°C	-40°C
EN ISO 17634 for welding of creep resisting steels								
235 M	T Mo M M21 1 H5	E80C-G H4	520	600	26	-	120	100
236 M	T CrMo1 M M21 1 H5	E80C-B2 H4	540	620	24	150	100	55
237 M	T CrMo2 M M21 1 H5	E90C-B3 H4	560	650	22	130	90	-
825 R	T MoL P M21 1 H5	E81T1-A1M H4	520	600	23	80	-	-
735 B	T Mo B M21 3 H5	E80T5-G H4	520	600	26	-	140	120
736 B	T CrMo1 B M21 3 H5	E80T5-B2M H4	540	620	25	160	110	70
all mechanical properties are indicated after heat treatment								

MEGAFIL® Seamless cored wires for MAG hardfacing

MEGAFIL®	EN ISO 14700	Hardness	Suitability	EN ISO 14175
EN ISO 18276 for welding of quenched and tempered steels				
A 730 M	T Fe1	30 HRC	p	M21
A 740 M	T Fe2	40 HRC	g p	M21
A 750 M	T Z Fe2	50 HRC	g p s	M21
A 760 M	T Z Fe2	60 HRC	g p s	M21
A 864 M	T Fe13	64 HRC	g	M21 / C1 / -*
A 867 M	T Z Fe13	67 HCR	g	M21 / C1 / -*

* also without shielding gas

MEGAFIL® Seamless cored wires for MAG joint welding

MEGAFIL®	Typical weld metal analysis %								EN ISO 14175
	C	Mn	Si	P	S	Cr	Ni	Mo	
EN ISO 18276 for welding of quenched and tempered steels									
807 M	0.05	1.7	0.6	0.015	0.015	0.6	2.3	0.6	M21

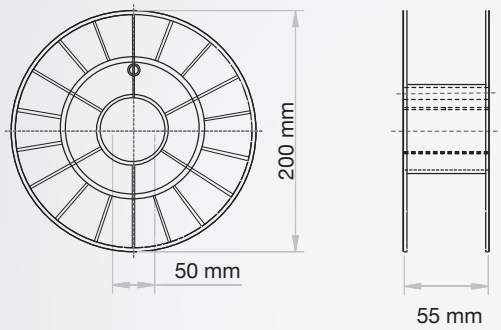
MEGAFIL®	Typical weld metal analysis %								EN ISO 14175
	C	Mn	Si	P	S	Cr	Ni	Mo	
EN ISO 17634 for welding of creep resisting steels									
235 M	0.07	1.1	0.7	0.015	0.015	-	-	0.5	M21
236 M	0.05	1.0	0.3	0.015	0.015	1.1	-	0.5	M21
237 M	0.07	1.0	0.3	0.015	0.015	2.3	-	1.1	M21
825 R	0.07	1.1	0.5	0.015	0.015	-	-	0.5	M21
735 B	0.07	1.1	0.3	0.015	0.015	-	-	0.5	M21
736 B	0.05	1.0	0.3	0.015	0.015	1.1	-	0.5	M21

MEGAFIL® Seamless cored wires for MAG hardfacing

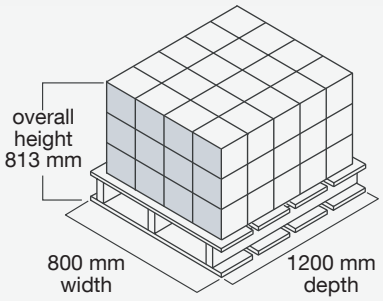
MEGAFIL®	Typical weld metal analysis %							
	C	Mn	Si	Cr	Ni	Mo	Nb	B
EN ISO 18276 for welding of quenched and tempered steels								
A 730 M	0.22	1.5	0.6	1.3	-	-	-	-
A 740 M	0.15	1.3	0.4	5.0	-	0.5	-	-
A 750 M	0.3	1.5	0.4	5.5	-	0.5	-	-
A 760 M	0.5	1.5	0.6	6.0	-	0.5	-	-
A 864 M	0.5	1.1	0.3	0.3	1.5	-	-	4.8
A 867 M	1.8	0.8	0.6	8.1	-	-	-	4.2

Pallet and Packaging Information

5 kg SPOOLS



Plastic spool D 200
Diameter: 200 mm
Width: 55 mm
Suitable for a 50 mm hub

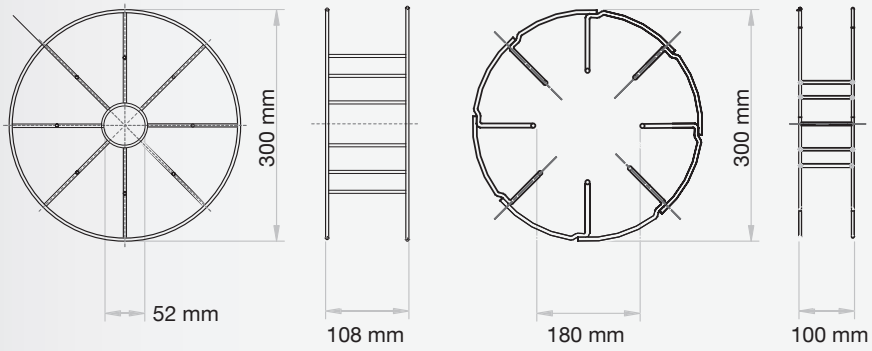


Weight: 5 kg spools, 4 to a box = 1200 kg

Stacking sequence: 4 wide, 5 deep, 3 high

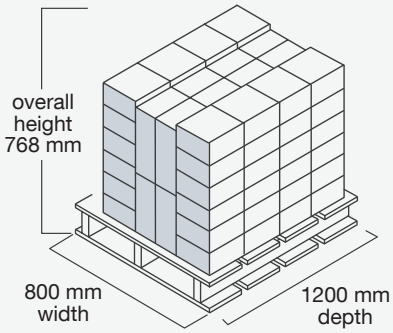
Boxes per pallet: 60

16 kg SPOOLS



Wire basket BS 300
Diameter: 300 mm
Width: 108 mm
Suitable for a 50 mm hub

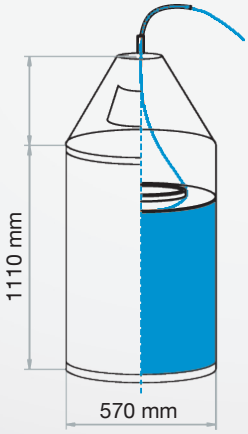
Basket rim K 300
Diameter: 300 mm
Width: 100 mm
Suitable for a 50 mm hub,
but an adaptor is needed.



Weight: 1024 kg
Spools per pallet: 64

250/300 kg DRUM

Diameter: 570 mm
Overall height: 1110 mm



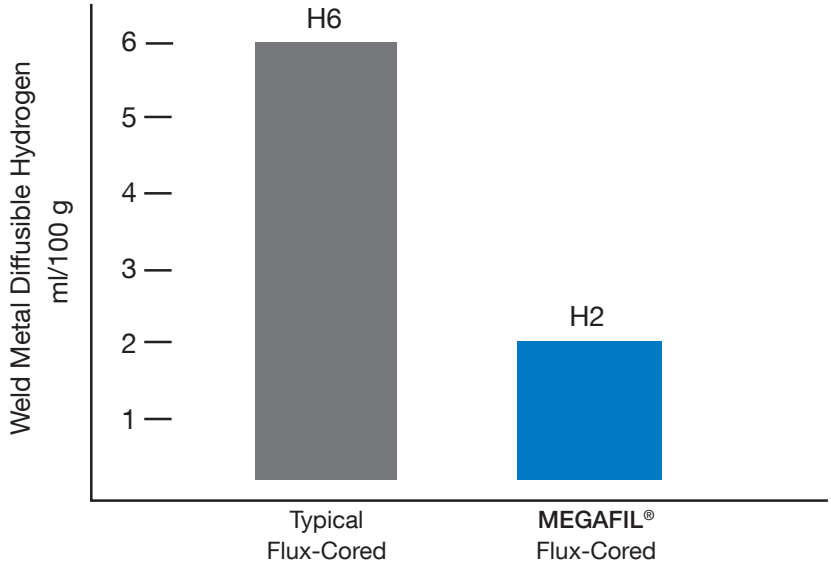
*Other types on request

The Low Hydrogen Answer

FLUX-CORED WIRES	AWS CLASS	HYDROGEN (ml/100 g)
MEGAFIL® 713 R	E71T-1C-J H4	1.55
MEGAFIL® 716 R	E71T-9M-J H4	1.45
MEGAFIL® 821 R	E81T1-Ni1M-J H4	1.59
MEGAFIL® 550 R	E91T1-K2M(C)-J H4	2.89
MEGAFIL® 690 R	-	2.15

METAL-CORED WIRES	AWS CLASS	HYDROGEN (ml/100 g)
MEGAFIL® 710 M	E70C-6M H4	2.50
MEGAFIL® 240 M	E80C-Ni1 H4	1.48
MEGAFIL® 742 M	E110C-K4 H4	2.38
MEGAFIL® 1100 M	~ E120C-K4 H4	2.52

Standard flux-cored hydrogen values vs. MEGAFIL®



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