



## JOKE® Fill Welding Fillers

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- Laser welding

# Welding fillers for tool and mould steels

## 50-gramme reels (other reel weights on request)



### JOKE® Fill 100

(corresponds to JOKE® TTP 210 ST, see JOKE® Catalogue page 364)

Martensitic Cr-Mn filler with corrosion-resistant properties. Polishable, erodible, nitrable, etchable and temperable. Up to 2 layers can be hardened. For plastic, blow and die-casting moulds and pressing tools.

**Hardness 1st layer: approx. 48-56 HRC, different according to admixture.**

**Guide analysis %:** C 0.35 • Al 0.05 • Cr 5.90 • Mn 0.60 • Mo 1.30 • Si 0.80 • V 0.70 • Su 0.40 • residual Fe

#### Suitable for material no.

1.2343  
1.2344  
1.2082  
1.2083  
1.2367  
1.2606  
and similar

Ø mm	Order no.	Unit price Euro
0,1	<b>0 084 011</b>	
0,2	<b>0 084 012</b>	
0,3	<b>0 084 013</b>	
0,4	<b>0 084 014</b>	
0,5	<b>0 084 015</b>	
0,6	<b>0 084 016</b>	

### JOKE® Fill 105

(corresponds to JOKE® TTP 170 ST, see JOKE® Catalogue page 364)

Cr-Ni-Mo-Mn filler with reduced carbon content. Added stabilising elements to reduce hard carbide burs. Polishable, erodible, nitrable, etchable and temperable. Up to 2 layers can be hardened. For plastic and die-casting moulds, identical in colour to 2-5 % nickeliferous tool steels. The filler metal is resistant to changing temperatures.

**Hardness 1st layer: approx. 360-420 HB**

**Guide analysis %:** C 0.25 • Cr 1.45 • Mn 0.50 • Mo 0.40 • Ni 3.60 • Si 0.30 • V 0.20 • Su 2.20 o residual Fe

#### Suitable for material no.

1.2713  
1.2714  
1.2740  
1.2743  
1.2744  
1.2747  
1.2764  
1.2766  
1.2767  
and similar

Ø mm	Order no.	Unit price Euro
0,1	<b>0 084 031</b>	
0,2	<b>0 084 032</b>	
0,3	<b>0 084 033</b>	
0,4	<b>0 084 034</b>	
0,5	<b>0 084 035</b>	
0,6	<b>0 084 036</b>	

### JOKE® Fill 110

(corresponds to JOKE® TTP 130 ST, see JOKE® Catalogue page 364)

Cr-Mo-Mn filler with reduced carbon and silicon content. Added stabilising elements to reduce hard carbide burs. Polishable, erodible, nitrable, etchable and temperable. The filler metal is identical in structure and handling to the material.

**Hardness 1st layer: approx. 360-400 HB**

**Guide analysis %:** C 0.25 • Al 0.03 • Cr 1.55 • Mn 1.40 • Mo 0.25 • V 0.40 • Su 0.45 • residual Fe

#### Suitable for material no.

1.2311  
1.2312  
1.2162  
1.2738  
and similar

Ø mm	Order no.	Unit price Euro
0,3	<b>0 084 053</b>	
0,4	<b>0 084 054</b>	
0,5	<b>0 084 055</b>	
0,6	<b>0 084 056</b>	

### JOKE® Fill 115

(corresponds to JOKE® TTP 220, see JOKE® Catalogue page 364)

Cr-Mo-Ni-Mn filler, heat-resistant and corrosion-resistant. The filler metal is not hardenable, but can be strain hardened by pressure/impact. Polishable, erodible, but not hardenable, nitrable and chrome platable. Suitable for base and intermediate layers in addition to joints in most of the tool steels. **Hardness 1st layer: approx. 360-400 HB**

Extension up to max. 33 % -

Tensile strength approx. 820–880 N/qmm

#### Suitable for material no.

various

Ø mm	Order no.	Unit price Euro
0,3	<b>0 084 073</b>	
0,4	<b>0 084 074</b>	
0,6	<b>0 084 076</b>	

**Guide analysis %:** C 0.10 • Cr 30.50 • Mn 1.90 • Mo 0.50 • Ni 10.00 • Si 0.60 • Su 0.40 o residual Fe

# Welding fillers for tool and mould steels

## 50-gramme reels (other reel weights on request)

### JOKE® Fill 120

(corresponds to JOKE® TTP 252 CT, see JOKE® Catalogue page 364)

Nickel-based filler with Cr-Mo-Mn-Fe-Nb and elements to avoid hard carbide transitions. Rustproof, acid-resistant, heat-resistant and extremely cold-resistant. Erodible and polishable. Cannot be nitrated, hardened and chrome plated. Crack-resistant, elastic, high-strength base and intermediate layers in addition to almost all possible joints, also in different steels such as GS, GG – GGG 70.

**Hardness 1st layer: approx. 220-250 HB** - Extension up to max. 46 %; Tensile strength approx. 700–760 N/qmm

**Guide analysis %:** C 0.02 • Cr 19.50 • Fe 1.90 • Mn 2.80 • Si 0.20 • Nb 2.50 • residual Ni

Suitable for material no. various

Ø mm	Order no.	Unit price Euro
0,2	<b>0 084 092</b>	
0,3	<b>0 084 093</b>	
0,4	<b>0 084 094</b>	
0,5	<b>0 084 095</b>	
0,6	<b>0 084 096</b>	

### JOKE® Fill 125

**NEW** in the range

Cr-Mo-Mn-vanadium filler for hot-work steels. Polishable, erodible, nitrable, etchable and temperable. Can be hardened up to approx. 58 HRC. For plastic, blow and die-casting moulds. **Hardness 1st layer: approx. 46-52 HRC.** Simple mechanical processing. Resistant to thermal shocks.

**Guide analysis %:** C 0.35 • Al 0.03 • Cr 5.30 • Mn 0.60 • Mo 1.50 • Si 0.70 • V 0.80 • W 0.40 o residual Fe

Suitable for material no. 1.2343  
1.2344  
1.2360  
1.2362  
and similar

Ø mm	Order no.	Unit price Euro
0,25	<b>0 084 112</b>	
0,3	<b>0 084 113</b>	
0,4	<b>0 084 114</b>	
0,5	<b>0 084 115</b>	
0,6	<b>0 084 116</b>	

### JOKE® Fill 140

(corresponds to JOKE® TTP Cronilloy, see JOKE® Catalogue page 366)

Co-Cr-Mo-Mn-W-Fe filler for many annealed, hardened and hot-work steels with universal properties. Suitable for nitride steels, good edge strength and acid resistant. Cannot be chrome plated. Polishable, only delayed erosion possible. Structure scarcely thermally modifiable.

**Hardness 1st layer: approx. 24-36 HRC.**

By artificial aging in addition to the effects of pressure and impact, the hardness increases by up to 35 %! Extension approx. 18-25 %.

**Guide analysis %:** C 0.03 • Cr 19.00 • Fe 2.10 • Mn 3.00 • Si 0.30 • Nb 3.00 • residual Ni

Suitable for material no. various

Ø mm	Order no.	Unit price Euro
0,2	<b>0 084 132</b>	
0,3	<b>0 084 133</b>	
0,4	<b>0 084 134</b>	
0,5	<b>0 084 135</b>	
0,6	<b>0 084 136</b>	



# Welding fillers for tool and mould steels

## 50-gramme reels (other reel weights on request)



### JOKE® Fill 145

(corresponds to JOKE® TTP RC 44,  
see JOKE® Catalogue page 365)

Cr-Mo-V-W filler with stabilising elements. Compact structure. Hardens in air and shock-hardenable. Good edge strength and heat-resistant. Partially chrome-platable, but polishable, erodible, nitrable, etchable and temperable. Good heat conductivity. For aluminium and zinc pressure die-casting moulds, forging dies and slides.

**Hardness 1st layer: approx. 56-59 HRC.**

For multiple layer welding, hardenable up to approx. 58 HRC.

**Guide analysis %:** C 0.35 • Al 0.03 • Cr 5.30 • Mn 0.60 • Mo 1.50 • Si 0.70 • V 0.80 • W 0.40 • residual Fe

#### Suitable for material no.

1.2343  
1.2344  
1.2362  
1.2363  
1.2367  
and similar

Ø mm	Order no.	Unit price Euro
0,25	<b>0 084 152</b>	
0,3	<b>0 084 153</b>	
0,4	<b>0 084 154</b>	
0,5	<b>0 084 155</b>	
0,6	<b>0 084 156</b>	

### JOKE® Fill 150

**NEW** in the range

Martensitic Cr filler with stabilising elements. Polishable, erodible, nitrable, etchable and temperable. Cannot be chrome plated! Rustproof and resistant to wear. For glass fibre reinforced plastic and blow moulds.

**Hardness 1st layer: approx. 48-54 HRC**, different according to admixture! Hardenable up to approx. 60 HRC.

**Guide analysis %:** C 0.20 • Cr 12.00 • Mn 0.50 • Mo 1.00 • Ni <1.0 • Si 0.50 • V 0.35 • W 0.50 • residual Fe

#### Suitable for material no.

STAVAX  
1.2083  
1.2316  
1.4115  
1.4120  
and similar

Ø mm	Order no.	Unit price Euro
0,4	<b>0 084 174</b>	
0,5	<b>0 084 175</b>	
0,6	<b>0 084 176</b>	

### JOKE® Fill 155

**NEW** in the range

Cr-Mn-Al-Ti filler for universal cold cutting, hardened and tempering steel applications. Nitrable, crack-resistant and abrasion-resistant. Inductive and flame hardenable. Good suitability also for sealing and pinch edges of plastic and blow moulds. **Hardness 1st layer: approx. 56-60 HRC, different according to admixture!** Hardenable up to approx. 62 HRC.

**Guide analysis %:** C 1.20 • Cr 2.00 • Mn 1.80 • Si 0.60 • residual Fe

#### Suitable for material no.

1.2842  
1.2762  
1.2743  
1.2721  
1.2710  
and similar

Ø mm	Order no.	Unit price Euro
0,5	<b>0 084 195</b>	
0,6	<b>0 084 196</b>	

### JOKE® Fill 160

(corresponds to JOKE® TTP RC 60,  
see JOKE® Catalogue page 365)

Cr-Mo-Mn-W-V filler with extremely wear-resistant, tough-hard properties. For cold-work steels with approx. 5 % Cr. Crack-free and rapidly hardening. Good edge strength. The filler metal is nitrable, erodible, chrome platable and temperable. **Hardness 1st layer: approx. 58-60 HRC, different according to admixture!** Hardenable up to approx. 62 HRC.

**Guide analysis %:** C 0.35 • S <0.002 • Cr 6.40 • P 0.02 • Mo 2.00 • Ti 0.25 • residual Fe

#### Suitable for material no.

CARMO  
CALMAX  
1.2358  
1.2363  
and similar

Ø mm	Order no.	Unit price Euro
0,4	<b>0 084 214</b>	
0,6	<b>0 084 216</b>	

# Welding fillers for tool and mould steels

## 50-gramme reels (other reel weights on request)



### JOKE® Fill 165

(corresponds to JOKE® TTP RC 60,  
see JOKE® Catalogue page 365)

Cr-Mn-Si-V filler with structure stabilising elements. The filler metal is very similar to 12% Cr steels. Not chrome platable, but nitrable and erodible.

**Hardness 1st layer: approx. 58-60 HRC, different according to admixture.!** Hardenable up to approx. 62 HRC.

**Guide analysis %:** C 0.135 • Cr 4.00 • Mn 0.70 • Mo 1.60 • Si 0.70 • V 0.30 • residual Fe

#### Suitable for material no.

1.2379  
1.2080  
1.2436  
1.2601  
and similar

Ø mm	Order no.	Unit price Euro
0,2	<b>0 084 232</b>	
0,3	<b>0 084 233</b>	
0,4	<b>0 084 234</b>	
0,6	<b>0 084 236</b>	

### JOKE® Fill 180

(corresponds to JOKE® TTP RC 63,  
see JOKE® Catalogue page 366)

Cr-Mo-Mn-V filler with rapid hardening properties. Very tough and good edge holding. Particularly suitable for rapid repair. Nitrable, erodible and chrome platable.

Air and flame hardenable.

**Hardness 1st layer: approx. 56-59 HRC, different according to admixture!** Hardenable up to approx. 60 HRC

**Guide analysis %:** C 1.10 • Cr 5.20 • Mn 0.40 • Mo 6.90 • V 1.60 • W 2.20 • Su 1.10 • residual Fe

#### Suitable for material no..

1.2379  
1.2080  
1.2436  
1.2601  
and similar

Ø mm	Order no.	Unit price Euro
0,25	<b>0 084 252</b>	
0,3	<b>0 084 253</b>	
0,4	<b>0 084 254</b>	
0,5	<b>0 084 255</b>	
0,6	<b>0 084 256</b>	

### JOKE® Fill 185

(corresponds to JOKE® TTP RC 52,  
see JOKE® Catalogue page 365)

Ni-Co-Mo filler specially for the aluminium and zinc pressure die-casting field. The martensitic filler metal is crack-resistant and tough. Hardnesses of approx. 50-54 HRC are achieved by artificial aging. Not chrome platable.

**Hardness 1st layer: approx. 40-46 HRC, different according to admixture.**

**Guide analysis %:** C 0.02 • Al 0.25 • Co 14.50 • Cr 2.00 • Mn 0.20 • Mo 4.70 • Ni 19.30 • Si 0.20 • V 0.40 • residual Fe

#### Suitable for material no.

1.2343  
1.2344  
and similar

Ø mm	Order no.	Unit price Euro
0,4	<b>0 084 274</b>	

### JOKE® Fill 190

(corresponds to JOKE® TTP RC 48,  
see JOKE® Catalogue page 365)

Suitable for repairs to hot-work steels.

Good thermal conductivity. Nitrable.

**Hardness 1st layer: 42-48 HRC.**

**Guide analysis %:** C 0.50 • Cr 6.30 • Mn 0.50 • Mo 1.60 • Si 1.00 • V 1.60 • W 0.60 • Su 0.40 • residual Fe

#### Suitable for material no.

1.2343  
1.2344  
1.2362  
1.2367  
1.2606

Ø mm	Order no.	Unit price Euro
0,6	<b>0 084 296</b>	

# Welding fillers for tool and mould steels

## 50-gramme reels (other reel weights on request)



### JOKE® Fill 230

(corresponds to JOKE® TTP Cu Tec, see JOKE® Catalogue page 366)

Cu-Ag-Cr-Fe filler with very good electrical and thermal conductivity properties. Intense cooling at -20 degrees and below results in an increase in hardness of up to 30 %! Suitable for joining copper/bronze with steel.

**Hardness 1st layer: approx. 70-90 HB.** Extension approx. 25-35 %. Tensile strength approx. 290-340 N/qmm.

**Guide analysis %:** Ag 1.00 • Cr 1.40 • Fe 1.50 • Mn 0.20 • P 0.30 • residual Cu

#### Suitable for material no.

Erosion electrodes, Tip electrodes, as well as most of the copper materials

Ø mm	Order no.	Unit price Euro
0,3	<b>0 084 413</b>	
0,4	<b>0 084 414</b>	
0,5	<b>0 084 415</b>	

### JOKE® Fill 240

(corresponds to JOKE® TTP 12 A Multi, see JOKE® Catalogue page 366)

Al-Mn-Cu-Cr-Fe filler. Bronze compound with very good dry running properties on steel; at the same time good thermal conductivity. Crack and pore-free. No hardened transitions when directly applied to steel. Very limited shrinkage. Also suitable for crack weldings on cooling channels of plastic moulds.

**Hardness 1st layer on steel: approx. 220-280 HB.**

**Hardness 1st layer on bronze: approx. 200-240 HB.**

By intense cooling, increase in hardness of approx. 30 %!

**Guide analysis %:** Al 10.00 • Fe 3.00 • Mn 3.50 • Ni 3.00 • residual Cu

#### Suitable for material no.

application on steels, also on grey cast iron and cast iron. Joining of bronzes

Ø mm	Order no.	Unit price Euro
0,3	<b>0 084 433</b>	
0,4	<b>0 084 434</b>	
0,5	<b>0 084 435</b>	

### JOKE® Fill 250

(corresponds to JOKE® TTP AluSpeed, see JOKE® Catalogue page 366)

Al filler highly suitable for rapid repairs on aluminium mould steels. Fine flowing. Optimum, pore-free casting even with difficult applications.

**Hardness 1st layer: approx. 90-130 HB.**

**Guide analysis %:** Ag 0.35 • Cr 0.10 • Cu 0.55 • Fe 0.20 • Mg 2.50 • Mn 0.70 • Si 10.50 • Zn 0.25 • residual Al

#### Suitable for material no.

aluminium materials up to F30

Ø mm	Order no.	Unit price Euro
0,3	<b>0 084 453</b>	
0,4	<b>0 084 454</b>	
0,6	<b>0 084 456</b>	

### JOKE® Fill 255

**NEW in the range**

Al filler for the most important aluminium wrought alloys in mould building. Anodisable and polishable. Naturally and artificially ageable. Allow zinciferous aluminium alloys to evolve gas by multiple surfusion.

**Hardness 1st layer: approx. 80-110 HB.**

**Guide analysis %:** Cr <0.25 • Mn 0.80 • Mg 5.00 • Zr 0.10 • residual Al

#### Suitable for material no.

aluminium materials from F28 up

Ø mm	Order no.	Unit price Euro
0,3	<b>0 084 473</b>	
0,4	<b>0 084 474</b>	
0,6	<b>0 084 476</b>	

# Hardness comparison table according to DIN 50150



Rockwell hardness HRC	Brinell hardness HB	Vickers hardness HV	Tensile strength N/mm <sup>2</sup> or Mpa
25	253	266	854
26	254	273	873
27	265	279	897
28	272	286	914
29	274	294	944
30	287	302	970
31	295	310	995
32	302	318	1024
33	311	327	1052
34	320	336	1082
35	329	345	1111
36	337	355	1139
37	346	364	1168
38	354	373	1198
39	363	382	1227
40	373	392	1262
41	382	402	1296
42	392	412	1327
43	402	423	1362
44	413	434	1401
45	424	446	1442
46	436	459	1481
47	448	471	1524
48	460	484	1572
49	474	499	1625
50	488	513	1668
51	502	528	1733
52	518	545	1793
53	532	560	1845
54	548	578	1912
55	566	596	1979
56	585	615	2050
57	603	634	2121
58		654	
59		675	
60		698	

Conversion table for hardness values, extract from DIN 50150



# How many metres are on a reel?

The JOKE® Fill laser welding fillers are supplied on 50-gramme reels. The different specific weights of the materials result in the listed lengths with the same reel weight:

Diameter	Steel	Copper	Aluminium	Aluminium-bronze (JOKE® Fill 240)
0,1 mm	806 m	-	-	-
0,2 mm	200 m	-	-	-
0,25 mm	128 m	-	-	-
0,3 mm	89 m	81 m	278 m	89 m
0,4 mm	50 m	45 m	151 m	51 m
0,5 mm	36 m	29 m	-	-
0,6 mm	22 m	-	69 m	33 m

data approx.

## A brilliant tip ... The JOKE® welding hotline

If you are looking for the appropriate filler for your steel or need general advice on the topic of repair welding in tool and mould building, consult our product manager Bernd Dörnen. He can be contacted at:

**Tel.:** +49 (0)2204/839-0

**Fax:** +49 (0)2204/839-540

**E-Mail:** [b.doernen@joke.de](mailto:b.doernen@joke.de)



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